ASSOCIATED ENVIRONMENTAL GROUP, LLC

Remedial Investigation

Conducted on:

Manor Market
3609-164th Street SW
Lynnwood, Washington 98087-7017
Facility/Site ID #77492944
VCP #NW2621

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1.0 INTRODUCTION

This report presents the findings of a Remedial Investigation (RI) conducted by Associated Environmental Group, LLC (AEG) at Manor Market, located at 3609 – 164th Street SW, Lynnwood, Washington (Site). The purpose of this report is to document the completion of the RI, and provide support for closure with institutional controls and long-term monitoring using a Model Remedy approach. This report was developed by AEG based on our professional judgment and experience in accordance with requirements of the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Cleanup Regulations (Chapter 173-340 WAC).

In response to an August 28, 2013 Ecology further action opinion letter, as well as a February 23, 2016 meeting with Ecology staff to discuss a path forward at the Site, AEG performed a supplemental subsurface investigation at the Site to address remaining data gaps for the RI. This investigation included advancing eight additional soil borings in two stages, and converting the soil borings to new monitoring wells. AEG collected soil and groundwater samples for analysis of constituents of concern (COCs). AEG also conducted additional groundwater sampling and analysis at eight Site monitoring wells. The investigation activities were carried out as follows:

- In May 2015, AEG advanced six borings (MW-4 through MW-9) and completed the soil borings as monitoring wells. MW-4 was advanced in between the Manor Market store and fuel island. MW-5 and MW-6 was advanced between the fueling canopy and 164th Street SW. MW-7, MW-8, and MW-9 were advanced around the current dry cleaner and the northern property line to verify any potential off-property sources.
- On March 24, 2016, AEG advanced two additional borings (MW-10 and MW-11), both were completed as monitoring wells. MW-10 was advanced east of the Manor Market building close to the property boundary. MW-11 was advanced east of MW-3 close to the eastern property boundary.
- On April 7 and December 13, 2016, AEG conducted groundwater monitoring at MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-10, and MW-11.

1.1 *General Site Information*

Site Name: Manor Market
Site Address: 3609 – 164th Street SW, Lynnwood, Washington.
Facility/Site ID No.: 77492944
Cleanup Site ID No.: 11939
VCP ID No.: #NW2621
Property Owner: Veniatony Corporation

1.2 *Site Description*

The Site is a rectangular-shaped, 0.75-acre property, and corresponds to Snohomish County Assessor Parcel number 00372900300502. Improvements on Site include a 7,000-square-foot convenience store/retail mall constructed in 1982, and a fueling station, which includes two underground storage tanks (USTs) and three pump islands under a single canopy. Other tenants on Site include a dry cleaner, teriyaki restaurant, and salon.

The Site is bounded to the north and west by residential apartments and townhomes, to the south across 164th Street SW by a commercial gas station, and to the east across 36th Avenue West by undeveloped land bordered further east by an apartment complex. Figure 1, *Vicinity Map*, presents the general vicinity of the Site. The Site's current layout and features are provided in Figure 2, *Site Map*.

1.3 *Site History*

The Site has historically been a retail gasoline station since 1982. Prior to 1982, the Site use is not known. The UST system formerly included tanks "1-P, 2-N, and 3-R", which were removed in 1998.

The existing UST system was installed in 1998, and includes one 10,000-gallon regular unleaded tank, and one dual-compartment tank containing mid-grade and premium grade gasoline. Each UST is constructed of double-wall steel, clad with corrosion resistant composite materials. The fuel lines are composed of double-lined flexible piping. UST and fuel line leak detection tests are performed by the Veeder-Root TLS-300 electric monitoring system.

The dry cleaner located at the west end of the Site building (listed with Ecology as Crystal Cleaners) was once determined to have released tetrachloroethylene (PCE) into the soil beneath the building. This separate site received a No Further Action (NFA) letter from Ecology with a Restrictive Covenant (now referred to as an Environmental Covenant) applied to the property deed to protect against direct contact exposure to the soil. No groundwater monitoring was required because it was thought that the groundwater table was greater than 100 feet below ground surface (bgs).

MTCA defines a Site as *"…any area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located."* (WAC 173-340-200) Contamination on the Manor Market property has potentially migrated into the 164th Street SW Right-of-Way (ROW) to the south beneath the sidewalk and adjacent to MW-6. Therefore, the boundary of the Site likely also includes portions of the ROW.

2.0 FIELD INVESTIGATIONS

2.1 *Previous Environmental Investigations*

Environmental assessment was first performed at the Site by the Quality Environmental Services Team, Inc. (QUEST), which included work performed by R.F. Environmental (RFE) and Lugo Petroleum, Inc. (LPI). RFE provided the environmental assessment and LPI the remedial support. Additionally, work was conducted at the Site by ENVITECH and consisted of a Phase I Environmental Site Assessment (ESA) performed in November 2010, and a Phase II ESA in April 2011. A summary of these investigations, as well as those performed by AEG, are discussed separately below.

2.1.1 Site Assessment and UST Decommissioning/Remedial Action, QUEST/RFE – January 1998

According to QUEST, RFE performed a subsurface investigation in March 1997 to assess the subsurface soil adjacent to the former tank pad and beneath the fuel dispenser area. Seven soil borings were advanced to a maximum depth of 12 feet bgs. Soil samples were collected for analyses of gasoline-range total petroleum hydrocarbons (TPH). The results were screened against MTCA Method A cleanup levels for soil. QUEST reported that there were no gasoline-range TPH constituents found in soil samples analyzed during the 1997 assessment at the Site (QUEST 1998).

The previous UST system was decommissioned on January 13, 1998 by contractor LPI. The previous UST system was installed in 1982 and consisted of three 12,000-gallon, steel, single-walled gasoline USTs. Little information about the nature and extent of the release(s) of gasoline or characterization of soil quality were published. According to QUEST, visual and olfactory indications of petroleum-contaminated soil (PCS) were documented by contractors during the decommissioning of the former UST system. Approximately 1,000 tons of PCS was excavated, and 2,800 gallons of water were removed from the excavation pit during the remedial action. Three soil samples were collected from stockpiled soils removed from the excavation pit of the USTs. Samples were analyzed for gasoline-range TPH and associated volatile organic compounds (VOCs). Laboratory analytical results indicated concentrations of benzene (5.5 to 12 milligrams per kilogram [mg/kg]), and gasoline-range TPH (340 to 1,500 mg/kg) above their respective MTCA Method A soil cleanup levels (in place at the time) of 5 mg/kg and 30 mg/kg.

According to QUEST, closure soil samples were collected in January 1998 from within the UST and dispenser areas per Washington State regulations (WAC 173-360) governing UST closure. Five samples were collected from within the UST excavation area, one from along the fuel lines,

and two from under the dispenser area. Two soil samples from within the UST excavation area exhibited concentrations of benzene above the MTCA Method A cleanup level (QUEST 1998).

2.1.2 Phase I Environmental Site Assessment, ENVITECH – November 2010

The Phase I ESA identified concerns that centered on past operations and included gasoline spills, UST noncompliance, and UST and dry cleaning solvent releases. ENVITECH concluded that *"Based upon the Phase I ESA, there is risk sufficient to warrant additional investigation to address the Recognized Environmental Conditions and potential environmental concerns."* (ENVITECH, 2010).

2.1.3 Phase II Environmental Site Assessment, ENVITECH – April 2011

The Phase II ESA was conducted at the Site by ENVITECH in April 2011 to assess the subsurface conditions in the areas of concern identified in the Phase I ESA and other previous investigations. This effort was concentrated around the UST system, specifically the UST pad and fuel dispenser islands. Five soil borings (S-1 through S-5) were advanced using a direct-push probe drill rig to depths ranging from 9 to 16 feet bgs. Drilling refusal was met at three out of the five borings at depths of 9 and 10 feet bgs. Soil samples were collected from each boring. Two of the borings, S-2 (south of the UST pad) and S-4 (north of the northeast pump island) detected benzene at 0.21 mg/kg and 0.23 mg/kg, respectively, which is above MTCA Method A cleanup level of 0.03 mg/kg (ENVITECH, 2011). ENVITECH's data is presented in Table 1, *Summary of Envitech Soil Analytical Results,* and the boring locations are illustrated on Figure 2, *Site Map*.

2.1.4 Supplemental Site Characterization, AEG – August 2011 & March 2012

Field work for the 2011 Supplemental Site Characterization investigation included the advancement of four soil borings (B-1 through B-4) at the Site on August 24, 2011 to assess subsurface soil and groundwater for the presence of gasoline-range TPH and VOCs due to the historical releases of gasoline at the Site. The boring locations were based on the following factors:

- The findings and laboratory analytical results from previous investigations by ENVITECH.
- QUEST's monitoring and UST decommissioning activities.
- The location of the decommissioned UST system formerly operated at the Site.

Soil samples were collected from all borings; however, only B-1 contained sufficient groundwater to collect a sample. Soil and groundwater samples were submitted for laboratory analysis for gasoline-range TPH and associated VOCs, specifically benzene, toluene, ethylbenzene, and xylene (BTEX) compounds, and halogenated VOCs associated with dry cleaning solvents (such as PCE).

Analytical results are presented in Table 2, *Summary of Soil Analytical Results*, and Table 3, *Summary of Groundwater Analytical Results*. Based on the results, AEG concluded the following:

> *"Petroleum impacted soil and groundwater remain at the Site, most likely as a result of release(s) from the former UST system. It appears that previous remedial action (via excavation) had removed the bulk source of contamination. Based on laboratory analytical results and field observations, it appears that the subsurface impact is localized. In our professional opinion, shallow groundwater within the native soil subsurface is present at the Site. Previous excavation activities to depths ranging from 12 to 14 feet bgs and the subsequent backfilling to these depths have enabled surface water to migrate through the backfill material which was observed by AEG at boring B-1. The wet well-sorted sand, logged at B-1, at depths of approximately 22 to 23 1/2 feet bgs appears to represent shallow groundwater at the Site"* (AEG, 2011).

Further, AEG recommended:

> *"Groundwater conditions at the Site need to be evaluated to assess whether it is localized and whether the impacted groundwater at boring B-1 is representative of the residual subsurface condition. AEG recommends installation of monitoring wells at the Site to further assess the impacted groundwater subsurface condition as well as assess whether the impact is localized only to the Site".*

2.1.5 Quarterly Groundwater Monitoring Events, AEG – March 2012 to May 2013

From March 2012 to May 2013, AEG conducted four groundwater monitoring events at the Site, which included sampling three monitoring wells (MW-1 through MW-3). Concentrations of benzene, methyl tert-butyl ether (MTBE), and total lead exceeding MTCA Method A groundwater cleanup levels were found in monitoring well MW-1. Groundwater samples from MW-2 and MW-3 did not detect any COCs above appropriate cleanup levels. The analytical results are presented in Table 3, *Summary of Groundwater Analytical Results.*

2.1.6 Oxygen Release Compound (ORC) Filter Sock Installation, AEG – May 2012

On May 2, 2012, AEG installed an ORC Filter Sock in MW-1 from a depth of 19 to 34 feet bgs in an effort to treat localized groundwater impacts. The ORC Filter Sock was removed from the well about a year later as it did not seem to have much of an effect on benzene concentrations in that well.

2.1.7 Supplemental Investigation Work Plan, AEG, and Ecology Opinion Letter – 2013

In June 2013, the Site was enrolled into Ecology's Voluntary Cleanup Program (VCP), and AEG submitted a work plan for review. AEG had proposed to install three additional monitoring wells:

three (MW-4 through MW-6) to further define the extent of contamination associated with the Site, and three (MW-7 through MW-9) to determine whether the release to soil from the on-Site dry cleaner had impacted groundwater.

Ecology issued a formal opinion letter, dated August 28, 2013, in response to the work plan. Ecology concurred that the proposed work would help further define the nature and extent of contamination at the Site. However, Ecology also offered the following comments:

- *"Previously, in a boring drilled to install MW-1, benzene contamination in soil above the MTCA Method A cleanup level was found to occur just above and into the water column to a depth of 36 feet below the ground surface, the maximum depth explored. Thus, the vertical extent of contamination in soil has not been delineated at this location. Since the deepest soil samples to be collected (35 to 36.5 feet depth interval) will be used to verify the previous results, it may be necessary to go deeper in this area to determine the vertical extent of contamination.*
- *Figure 2 of the workplan as well as figures in previous AEG reports incorrectly labels the 'S' series of borings conducted by Envitech in 2011 as having been conducted by AEG. Future maps of the Site should correctly label the Envitech borings.*
- *There are two undeveloped greenbelts approximately 100 to 200 feet wide that are near the Property that may provide suitable habitat for terrestrial species. These areas need to be described and a determination made as to the size of contiguous undeveloped land within 500 feet of any part of the Site. A terrestrial ecological evaluation may need to be conducted in accordance with WAC 173-340-7490.*
- *Total lead was detected in ground water (MW-1 in May 2013) at a concentration of 19.9 µg/L which exceeds the MTCA Method A cleanup level of 15 µg/L. Ecology recommends ground water samples to be analyzed for metals also be filtered and analyzed for the dissolved fraction."*

2.2 *Objectives and Scope of Work*

The objective of the RI at the Site was to identify define the nature and extent of contamination at the Site, and to determine whether any other potential sources from on or off the property were impacting the Site. Specific tasks performed included:

- Arranged for both public and private utilities locates for the Site and vicinity. The public ROW locates were performed by the Underground Utilities Locate Center; Applied Professional Services, Inc. (APS) provided private utility locates on the Site.

- Provided oversight for the advancement of eight borings to a depth of 36.5 feet bgs using a full size auger drilling rig; the borings were completed as monitoring wells MW-4 through MW-11.
- Continuously logged the subsurface media during advancement of soil borings, to observe and document soil lithology, color, moisture content, and sensory evidence of impairment.
- Collected soil samples for laboratory analyses at various depths based on the field observations.
- Collected groundwater samples for laboratory analyses.
- Transported selected soil and groundwater samples to a Washington State certified analytical laboratory for analyses.
- Completed data analysis of laboratory analytical results and comparing data to the Ecology's MTCA Method A cleanup levels for soil and groundwater.
- Contained investigation-derived wastes, including soil cuttings and decontamination wash fluids, in 55-gallon steel drums, and stored them on Site awaiting the results of laboratory analyses.
- Performed quarterly groundwater monitoring.

2.3 *Field Activities*

The first round of investigation performed to complete the RI occurred on May 26-28, 2015. AEG first contacted the Snohomish County Public Works Department regarding advancing borings in the 164th Street ROW. Snohomish County gave AEG permission to do so; however, overhead utility lines prevented advancement of borings in the sidewalk. AEG then moved boring MW-5 and MW-6 onto the property. This work included:

- Supervising the advancement and installation of MW-5 and MW-6 to assess the potential for contamination migrating off property into the ROW.
- Supervising the advancement and installation of MW-7, MW-8, and MW-9 in the northwestern portion of the property, adjacent to the dry cleaner. These monitoring wells were installed to determine whether current and/or historical operations of the dry cleaner may have impacted groundwater beneath the Site.
- Sampling all new and existing wells on June 4, 2015. Additional quarterly monitoring was performed for MW-1 through MW-6 in September and November 2015.

On March 24, 2016, AEG returned to the Site to perform additional investigation, which included:

- Supervising the advancement and installation of MW-10 and MW-11 to the east and downgradient of the former UST excavation boundary to determine whether impacts were present in this area. AEG attempted to drill as close to the eastern (downgradient) property boundary as possible to be able to establish a conditional point of compliance for future monitoring. However, underground utilities and overhead powerlines located directly above the sidewalk made drilling conditions unsafe at the property boundary. As such, the wells were installed in this area where it was safe to do so.
- Sampling all new and existing wells on April 7 and December 13, 2016.

All soil borings were advanced to total depths of 36.5 feet bgs using a full size auger drilling rig, which was operated by Cascade Drilling L.P., a licensed well driller in the State of Washington. All monitoring wells were constructed pursuant to Ecology's *Minimum Standards for Construction and Maintenance of Wells*, Chapter 173-160 WAC, and were constructed similarly to existing monitoring wells at the Site. All eight groundwater monitoring wells were constructed to a depth of 35 feet bgs, with 15 feet of 2-inch diameter 0.020-inch slotted PVC screen. The annular space around the well screen was filled with 10/20 Colorado sand to approximately 1.5 feet above the top of the well screen. To seal each well, bentonite chips were placed above the sand and a traffic-rated surface monument was placed over the well casing to protect it. The monitoring wells were properly developed after installation using high-flow pumping until turbidity decreased and stabilized.

The locations of the wells are illustrated in Figure 2, *Site Map*. Photographs from these investigations are presented in Appendix A, *Site Photographs*.

2.4 *Soil Sampling Procedures*

Soil sampling methods for this work followed the protocols established by Ecology and the U.S. Environmental Protection Agency (EPA). To minimize VOC losses, soil sampling and field preservation methods for VOCs followed methods set forth by EPA's Method 5035A, and Ecology's guidance, "*Collecting and Preparing Soil Samples for VOC Analysis*". Soil samples were collected from continuous soil cores recovered in acetate sleeves inside the drilling rod's core barrel. Soils were observed to document soil lithology, color, moisture content, and sensory evidence of contamination. A photoionization detector (PID) was used to evaluate locations of possible contamination in the cores. Select soil samples were transferred to new, laboratory-provided sample containers for laboratory analysis of COCs.

Based on field observations from these investigations, a total of 29 soil samples were transferred to Libby Environmental, Inc. (Libby), a Washington State accredited analytical laboratory in

Olympia, Washington, for analyses following industry standard chain-of-custody procedures. Samples were transported via laboratory-provided pre-weighed 40-milliliter (ml) volatile organic analysis (VOA) glass vials and pre-weighted 4-ounce glass jars for analysis of gasoline-range TPH and VOCs.

Boring logs and laboratory analytical results for both investigations are provided in Appendix B, *Supporting Documents*, *Boring Logs*, *Laboratory Datasheets*.

2.5 *Groundwater Sampling Procedures*

Monitoring wells were sampled about one week after installation and proper development, and selected wells were monitored quarterly thereafter. AEG utilized new, dedicated polyethylene tubing in each monitoring well. Sampling was conducted following EPA-approved low-flow purging and sampling techniques. Groundwater from each well was purged through the dedicated polyethylene tubing until the sample was relatively free of sediment, and the field parameters became relatively stable. Stability was determined by three consecutive parameter readings taken 5 minutes apart that varied less than 10%. Groundwater samples were collected in laboratory-provided 40-ml VOA vials and transferred to Libby for analysis of gasoline-range TPH and VOCs following industry standard chain-of-custody procedures.

2.6 *Quality Controls*

To ensure that quality information was obtained at the Site:

- All soil and groundwater samples were collected in general accordance with industry protocols for the collection, documentation, and handling of samples.
- Descriptions of soil sampling depths were carefully logged in the field; the driller and Site geologist confirmed sample depths as soil samples were collected.
- Nitrile gloves were used in handling all sampling containers and sampling devices.
- Soil samples were tightly packed into jars to eliminate sample headspace.
- Water samples were filled carefully in the sampling bottles to prevent volatilization.
- Upon sampling, all samples were placed immediately into chilled ice chests.
- The samples were transported under a chain-of-custody to the analytical laboratory for analysis.

Analytical laboratories used for this investigation provided quality assurance/quality control (QA/QC), which included:

- Method blank results.
- Laboratory Control Samples, and Laboratory Control Duplicate Samples.
- Duplicate analyses.

2.7 *Investigation-Derived Waste*

Investigation-derived waste for this project consisted of soil cuttings from the subsurface exploration activities, purge water, and decontamination water from decontamination of the drilling core barrel and associated equipment. These wastes were separated and placed in United States Department of Transportation (DOT)-approved 55-gallon drums. The drums were appropriately labelled, and stored on Site for subsequent characterization and disposal.

2.8 *Analytical Results*

Analytical results for soil and groundwater samples collected for this RI were compared to MTCA Method A cleanup levels. Laboratory analytical results are provided in Appendix B, *Supporting Documents, Laboratory Datasheets.* A summary of the analytical results for soil and groundwater is provided in Table 2, *Summary of Soil Analytical Results*, and Table 3, *Summary of Groundwater Analytical Results*, respectively.

2.8.1 Soil Results

Selected soil samples were analyzed for:

- Gasoline-range TPH by Method NWTPH-Gx.
- VOCs by EPA Method 8260C.

Samples were labelled as follows: e.g., MW6-21.5 denotes boring/well 6 and a sample depth of approximately 21.5 feet.

Exceedances of MTCA Method A cleanup levels were detected at the following locations:

- Gasoline-range TPH was detected in samples MW6-6.5 (3,230 mg/kg) and MW11-5.0 (1,160 mg/kg).
- Benzene was detected in samples MW4-31.5 (8.39 mg/kg) and MW6-6.5 (1.87 mg/kg).
- Ethylbenzene was detected in sample MW11-5.0 (8.2 mg/kg).

- Total Xylene was detected in sample MW11-5.0 (19 mg/kg).
- MTBE was detected in samples MW4-16.5 (0.85 mg/kg) and MW4-31.5 (0.71 mg/kg).

2.8.2 Groundwater Results

Selected groundwater samples were analyzed for:

- Gasoline-range TPH by Method NWTPH-Gx.
- VOCs by EPA Method 8260C.

Exceedances of MTCA Method A cleanup levels were sampled at the following locations:

- Gasoline-range TPH in MW-6 (1,020 to 1,630 µg/L).
- Benzene in MW-1 (5.1 to 19 µg/L), MW-4 (47 to 470 µg/L), and MW-6 (12 to 54 µg/L).
- MTBE in MW-1 (20 to 315 µg/L), MW-3 (21 to 24 µg/L), and MW-4 (344 to 1,720 µg/L).
- Total lead in MW-3 (17.4 µg/L).

3.0 CONCEPTUAL SITE MODEL (CSM)

This section provides a conceptual understanding of the Site, derived from the results of the subsurface investigations and previous remedial actions performed at the Site. The CSM is dynamic and may be refined as additional information becomes available.

3.1 *Constituents of Concern and Affected Media*

The primary conceptual release model for the Site is a release from the former UST system detected during a tank renovation in 1982. Primary source control was achieved at that time by the removal of 777 tons of soil and 2,800 gallons of water/separate phase hydrocarbons from the UST excavation, and 159 tons of soil from the dispenser area. Remaining residual areas of contamination are localized.

COCs at the Site for soil and groundwater consist of gasoline-range TPH, BTEX compounds, and MTBE. Lead is considered a contaminant of potential concern. Lead has exceeded MTCA cleanup levels in a couple groundwater samples collected to date. However, concentrations of lead in groundwater samples containing gasoline-range TPH and BTEX compounds have generally been either below the PQL or would meet the definition of natural background. This evidence would suggest that the couple of anomalous detections were likely due to suspended solids in the sample, and not indicative of a release.

Areas of residual contamination generally occur beyond the limits of the former excavation, either at depth presumably beyond the reach of the excavator, and just beyond the lateral limits to the south and east where further excavation was likely hindered by utilities. The current extents of contamination are presented in Figure 5, *Soil Plume Map*, Figure 6, *Groundwater Plume Map*, Figure 7, *Geologic Cross Section A-A'*, and Figure 8, *Geologic Cross Section B-B'.*

3.2 *Site Geology and Hydrogeology*

The Site is located within the central Puget Lowlands of Western Washington State. The Puget Lowland is a north-south trough that lies from the Canadian border south to near Chehalis, Washington, and between the Olympic Mountains to the west and the Cascade Mountains to the east. Landforms common to this region include Pacific inlets, islands, and intermountain and coastal lowlands. The topography is dominated by north-south trending valleys and low, nearly flat-topped terraces that are less than 1,000 feet in elevation. Terraces are deeply eroded by streams and rivers and are susceptible to landslides. The topographic surface of the Site and vicinity area is largely the result of deposition and erosion since the recent glacial events (Easterbrook, 1970).

According to the "*Preliminary Surficial Geologic Map of the Edmonds East and Edmonds West Quadrangles, Snohomish and King Counties, Washington*", the Site and vicinity are underlain by Recent Age glacial deposits (last 15,000 years before present), which are comprised of "…*poorly sorted, non-stratified lodgment till (Qvt) deposited as ground moraine…including mixtures of sand, silt, clay, pebbles, cobbles, and boulders….color blue to grey and extremely compact*" (Smith, 1975).

Subsurface soils encountered during AEG's investigation at the Site have consisted of dense, silty sand with fine- to medium-grained gravel to the maximum depth explored of about 36.5 feet.

Depth to groundwater at the Site has ranged from about 10 to 30 feet bgs, depending on the well location, and is likely influenced by the former excavation and fill material. Fluctuation within individual wells is typically about 1 to 3 feet.

Groundwater flow direction has been influenced by the former excavation and fill material near the current canopy island and USTs; however, the dominant flow direction is to the east. This is consistent with the local topography, which slopes steeply to the east beyond the property boundary (Figure 3, *April 2016 Groundwater Contour Map*, and Figure 4, *December 2016 Groundwater Contour Map*).

3.3 *Environmental Fate of TPH in the Subsurface*

At this Site, groundwater gradients support groundwater flow to the east. Soil and groundwater samples from the subsurface investigation have confirmed an easterly migration of contaminants in groundwater at the Site.

TPH constituents are degraded in the subsurface by naturally occurring aerobic and anaerobic bacteria. Aerobic biodegradation is the most efficient of the biological degradation mechanisms. At this Site, groundwater samples with gasoline-range TPH and little associated BTEX constituents are typical, illustrating how natural attenuation of the more volatile components of gasoline is a key process that is currently occurring in the subsurface at the Site.

3.4 *Potential Exposure Pathways*

As defined in WAC 173-340-200, an exposure pathway describes the mechanism by which a hazardous substance takes or could take a pathway from a source or contaminated medium to an exposed receptor.

3.4.1 Potential Soil Exposure Pathways

Direct ingestion of, or dermal contact with, soil containing Site COCs is considered a potential exposure pathway. Shallow soil impacts (less than 15 feet bgs, the standard point of compliance for direct contact exposure) are present in the vicinity of MW-1, MW-3, MW-6, and MW-11. These areas are currently covered by asphalt, concrete, and/or Site structures and, unless disturbed, are not available for potential direct contact or ingestion.

3.4.2 Potential Groundwater Exposure Pathways

Although groundwater in the area of the Site is not used for drinking water (drinking water is provided by the City of Lynnwood), groundwater is considered an exposure pathway for direct contact and ingestion because of the potential for using groundwater, and the shallow depth of its occurrence. Depth to groundwater at the Site has ranged from about 10 to 30 feet bgs, depending on the well location.

3.4.3 Potential Air Exposure Pathways

No ambient air sampling has been conducted as part of this RI. Because volatile components of gasoline-range TPH are present in soil and groundwater samples at the Site above screening levels, air quality is a potential concern at the Site. Migration of vapors through the unsaturated soil to the surface, both indoors and outdoors, is considered a potential exposure pathway at the Site. However, all detections of volatile COCs located within 30 feet lateral separation distance of any structures are at least 6 feet or greater bgs, below the threshold of the recommended vertical separation distance. As such, no impacts to indoor air or potential for vapor intrusion are suspected for the Site, and this pathway is not considered complete.

3.4.4 Potential Human Receptors

Exposure to Site COCs in the soil and groundwater is considered a potential risk to human receptors including employees, and incidental receptors such as utility workers or Site visitors who may be exposed to soil and groundwater from the Site.

3.4.5 Terrestrial Ecological Evaluation

The Site qualifies for an exclusion from the terrestrial ecological evaluation based on current and anticipated future land use as follows:

- Barriers to Exposure [WAC 173-30-7491(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.

4.0 CLEANUP STANDARDS

The following sections identify applicable or relevant and appropriate requirements (ARARs), remedial action objectives (RAOs), and preliminary cleanup standards for the Site, which were developed to address Ecology's requirements for cleanup. These requirements address conditions relative to potential identified impacts. Together, ARARs, RAOs, and cleanup standards provide the framework for evaluating remedial alternatives.

4.1 *Potentially Applicable Laws*

All cleanup actions conducted under MTCA shall comply with applicable state and federal laws [WAC 173-340-710(1)]. MTCA defines applicable state and federal laws to include legally applicable requirements and those requirements that are relevant and appropriate. Collectively, these requirements are referred to as ARARs. The primary ARAR is the MTCA regulation (WAC 173-340), especially with regard to the development of cleanup levels and procedures for development and implementation of a cleanup under MTCA. ARARs for the Site cleanup also include the following:

- Federal Safe Drinking Water Act Maximum Contaminant Levels (MCLs; 40 CFR Part 141).
- Washington Clean Air Act (Chapter 70.94 RCW).
- Puget Sound Clean Air Agency (PSCAA), Regulation I.
- Washington Solid and Hazardous Waste Management (RCW 70.105); Chapter 173-303 WAC; 40 CFR 241, 257; Chapter 173-350 and 173-351 WAC) and Land Disposal Restrictions (40 CFR 268; WAC 173-303-340).
- Washington Industrial Safety and Health Act (RCW 49.17) and other Federal Occupational Safety and Health Act (29 CFR 1910, 1926).

Federal MCLs are minimum requirements for drinking water. MTCA Method A cleanup levels for groundwater are set at least as low as federal MCLs. State and federal groundwater and air quality criteria are considered in the development of cleanup levels. State dangerous waste regulations may be applicable to contaminated soil removed from the Site.

4.2 *Remedial Action Objectives*

RAOs have been established for the Site to establish remedial alternatives protective of human health and the environment under the MTCA cleanup process (WAC 173-340-350). The primary RAO for this cleanup action focuses on substantially eliminating, reducing, and controlling

unacceptable risks to human health and the environment posed by the COCs, to the greatest extent practicable.

RAOs are important for the evaluation of the general response actions, technologies, process options, and cleanup action alternatives. Based on the assessment of Site-specific conditions and the potentially applicable cleanup levels presented below, the RAOs for the Site have been established as follows:

- *In a reasonable restoration time frame, reduce concentrations of COCs in Site soils and groundwater to levels protective of human health and the environment and which are protective of groundwater quality.*

4.3 *Cleanup Standards*

Cleanup standards include cleanup levels and points of compliance (POCs) as described in WAC 173-340-700 through WAC 173-340-760. Cleanup standards must also incorporate other state and federal regulatory requirements applicable.

4.3.1 Cleanup Levels

MTCA Method A cleanup levels for the soil and groundwater exposure pathways are appropriate for this Site. These cleanup levels are based on the most stringent values for each exposure pathway and are considered appropriate for the Site COCs. MTCA cleanup levels for the Site COCs are as follows:

Constituent	Soil	Groundwater
• Gasoline-range TPH:	30 mg/kg	800 µg/L
• Benzene	0.03 mg/kg	5 µg/L
• Toluene	7 mg/kg	1,000 µg/L
• Ethylbenzene	6 mg/kg	700 µg/L
• Xylenes	9 mg/kg	1,000 µg/L
• MTBE	0.1 mg/kg	20 µg/L
• Lead	250 mg/kg	15 µg/L

mg/kg = milligrams per kilogram
µg/L = micrograms per liter

4.3.2 Points of Compliance

For this Site, it is assumed that standard POC will be used.

- Soil – Direct Contact: For soil cleanup levels based on human exposure via direct contact, the POC is throughout the Site from the 6.5 feet to 36.5 feet bgs.
- Soil – Leaching: For soil cleanup levels based on protection of groundwater, the POC is throughout the Site.
- Groundwater: For groundwater, the POC is throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth that could potentially be affected by the Site.
- Indoor Air/Soil Gas: The POC is ambient and indoor air throughout the Site.

5.0 SUMMARY AND CONCLUSIONS

5.1 *Summary and Conclusions*

The Manor Market Site is located at 3609 – 164th Street SW in Lynnwood, Snohomish County, Washington. The Site is a rectangular-shaped, 0.75-acre property, and corresponds to Snohomish County Assessor Parcel number 00372900300502. Improvements on Site include a 7,000-square-foot convenience store/retail mall constructed in 1982, and a fueling station, which includes two USTs and three pump islands under a single canopy. Other tenants on Site include a dry cleaner, teriyaki restaurant, and salon.

An interim action was performed in 1998. This action included removal of three 12,000-gallon, single-wall steel gasoline USTs, and excavation and off-Site disposal of about 1,000 tons of PCS. In addition, about 2,800 gallons of water was removed from the excavation during the interim action. The presence of Site structures, utilities, and/or the adjacent ROW prevented any further excavation.

Conclusions derived from the RI activities at the Site are as follows:

- The extent of PCS at the Site has been defined, and is generally present beneath the southeastern portion of the Property, beneath the existing pump islands and canopy. Figure 5, *Soil Plume Map Gasoline-Range TPH, Benzene, & MTBE,* illustrates the extent of soil contamination at the Site, in plan view. Cross sections are illustrated in Figure 7, *Geologic Cross Section A-A'*, and Figure 8, *Geologic Cross Section B-B'*.
- The extent of impacts to groundwater at the Site has been defined, and is generally confined to the backfilled areas of the former excavation area. The current distribution of COCs in groundwater, primarily based on the April and December 2016 sampling events, is illustrated on Figure 6, *Groundwater Plume Map Gasoline-Range TPH, Benzene, & MTBE.*
- Groundwater flow beneath the Site is to the east. Three monitoring wells (MW-2, MW-10, and MW-11) are present along the eastern and southeastern property boundaries, outside the former excavation boundary in denser soils. These wells are currently acting as downgradient conditional points of compliance (CPOCs), and have demonstrated the plume is not migrating off the property.
- Soil vapor has not been sampled at the Site to date. Residual impacts to soil (i.e., potential vapor sources) are either deeper than 6 feet (vertical separation distance) or are greater than 30 feet (lateral separation distance) from any Site structure and would not be expected to result in vapor intrusion.

- Lead has exceeded MTCA cleanup levels in a couple groundwater samples collected to date. However, concentrations of lead in groundwater samples containing gasoline-range TPH and BTEX compounds have generally been either below the PQL or would meet the definition of natural background. This evidence would suggest that the couple of anomalous detections were likely due to suspended solids in the sample, and not indicative of a release. Regardless, lead analysis would be included in any long-term monitoring proposal until enough data has been collected to remove it from the analyte list.
- It is AEG's professional opinion that this Site is eligible to use a Model Remedy based on the criteria outlined in Ecology's *Model Remedies for Sites with Petroleum Impacts to Groundwater*, Publication No. 16-09-057, dated August 2016. Ecology review and approval of the use of CPOCs and Model Remedy #4 is needed to pursue this path to closure. An environmental covenant will be filed with the county to ensure the Site remains protective of human health and the environment. In addition, long-term monitoring of the groundwater will be performed on a frequency agreeable to Ecology to ensure impacts to soil and groundwater remain contained on the property, and to monitor degradation of contaminants over time.

6.0 LIMITATIONS

This report summarizes the findings of the services authorized under our agreement with Mr. Nicholas Bahn. It has been prepared using generally accepted professional practices, related to the nature of the work accomplished. This report was prepared for the exclusive use of Mr. Bahn and his designated representatives for the specific application to the project purpose.

Recommendations, opinions, site history, and proposed actions contained in this report apply to conditions and information available at the time this report was completed. Since conditions and regulations beyond our control can change at any time after completion of this report, or our proposed work, we are not responsible for any impacts of any changes in conditions, standards, practices, and/or regulations subsequent to our performance of services. We cannot warrant or validate the accuracy of information supplied by others, in whole or part.

7.0 REFERENCES

American Society for Testing and Materials (ASTM) Standard E 1903-11. *Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process.*

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FIGURES

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Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

FILENAME	DRAWN BY		CHECKED BY		APPROVED BY		PROJECT NUMBER
11-124_16Q2.DWG	ICD	5/9/2016	DB	5/9/2016	DB	5/9/2016	11-124

N
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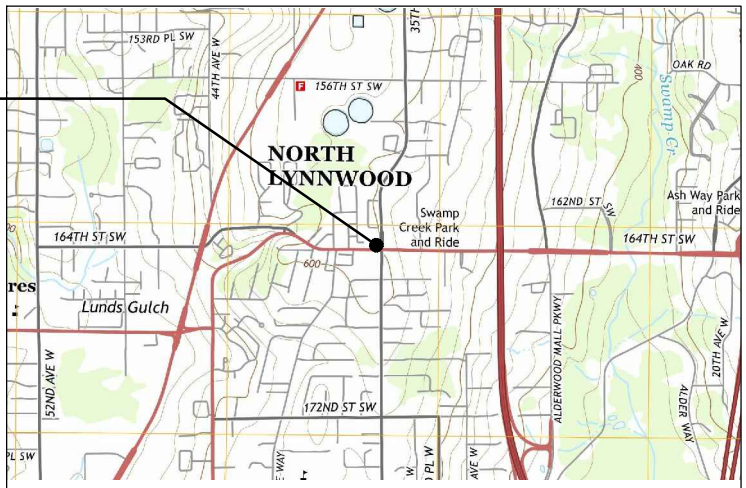
PROJECT LOCATION



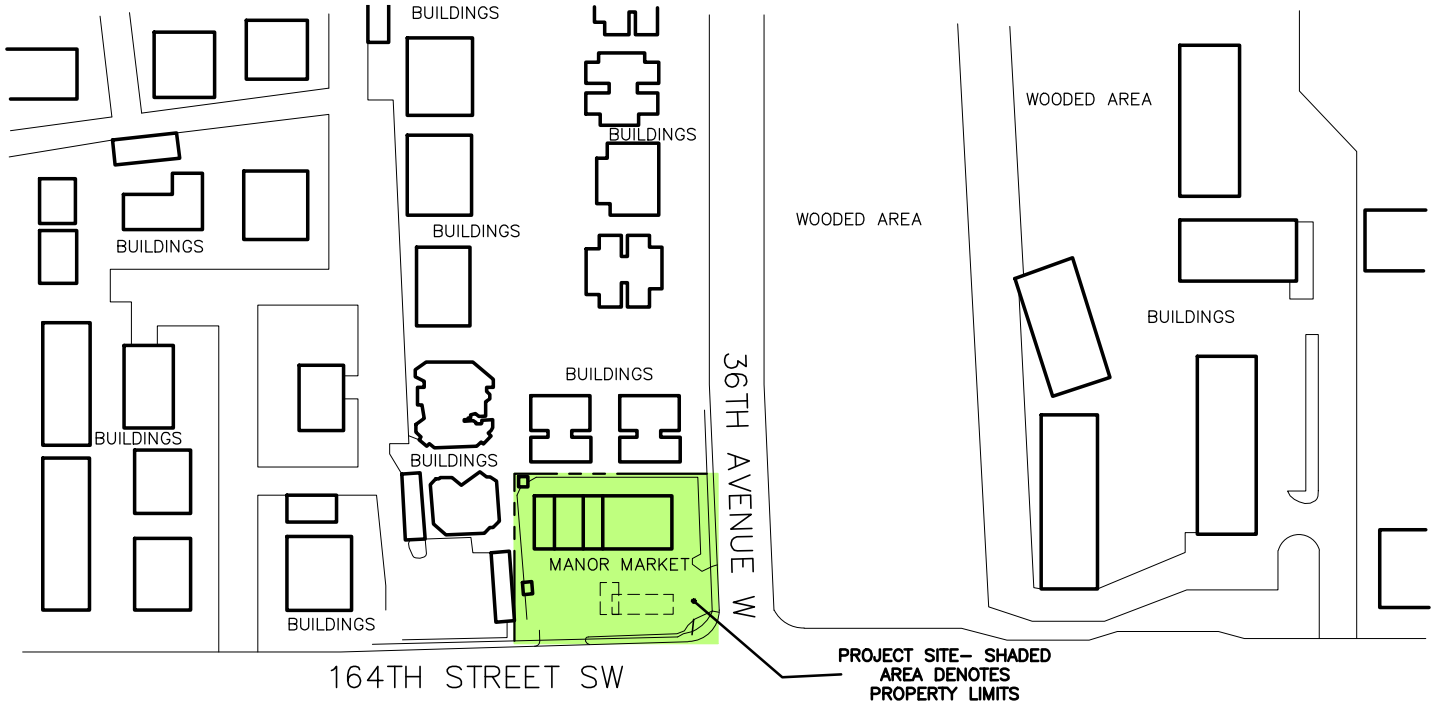
VICINITY MAP

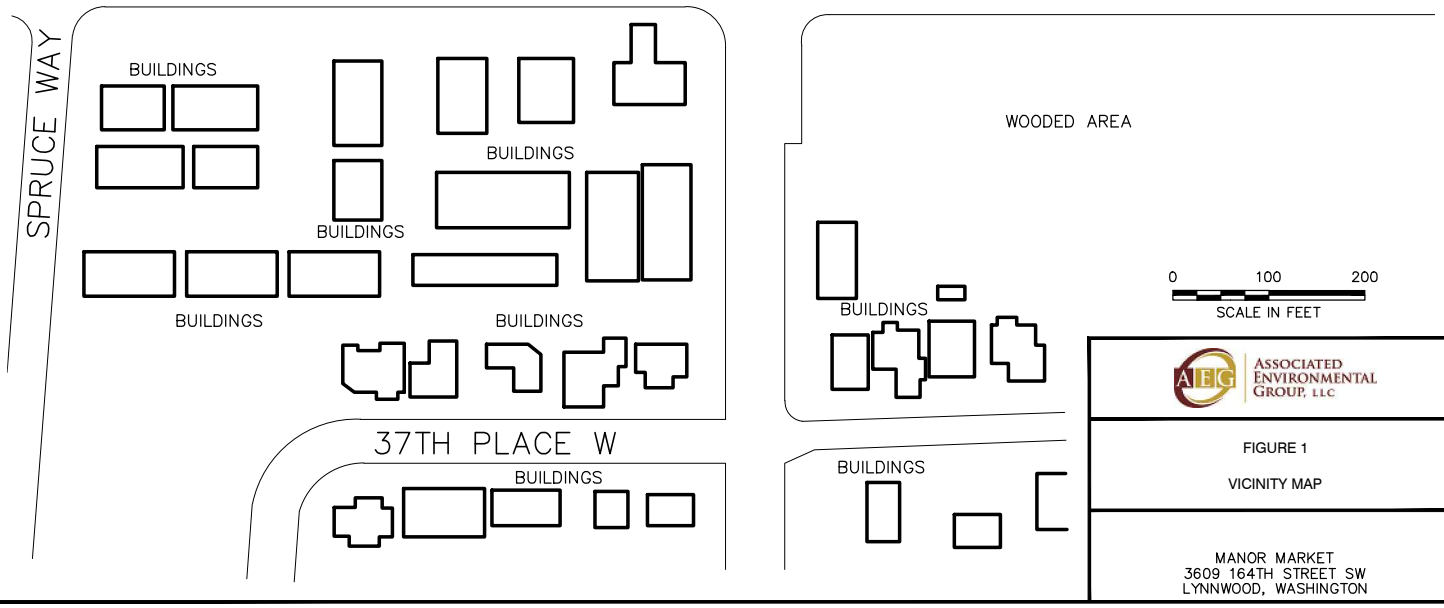
NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.
VICINITY IMAGE SOURCE: U.S. GEOLOGICAL SURVEY–2014, 7.5 MINUTE QUADRANGLE MAP
EDMONDS EAST, WASHINGTON





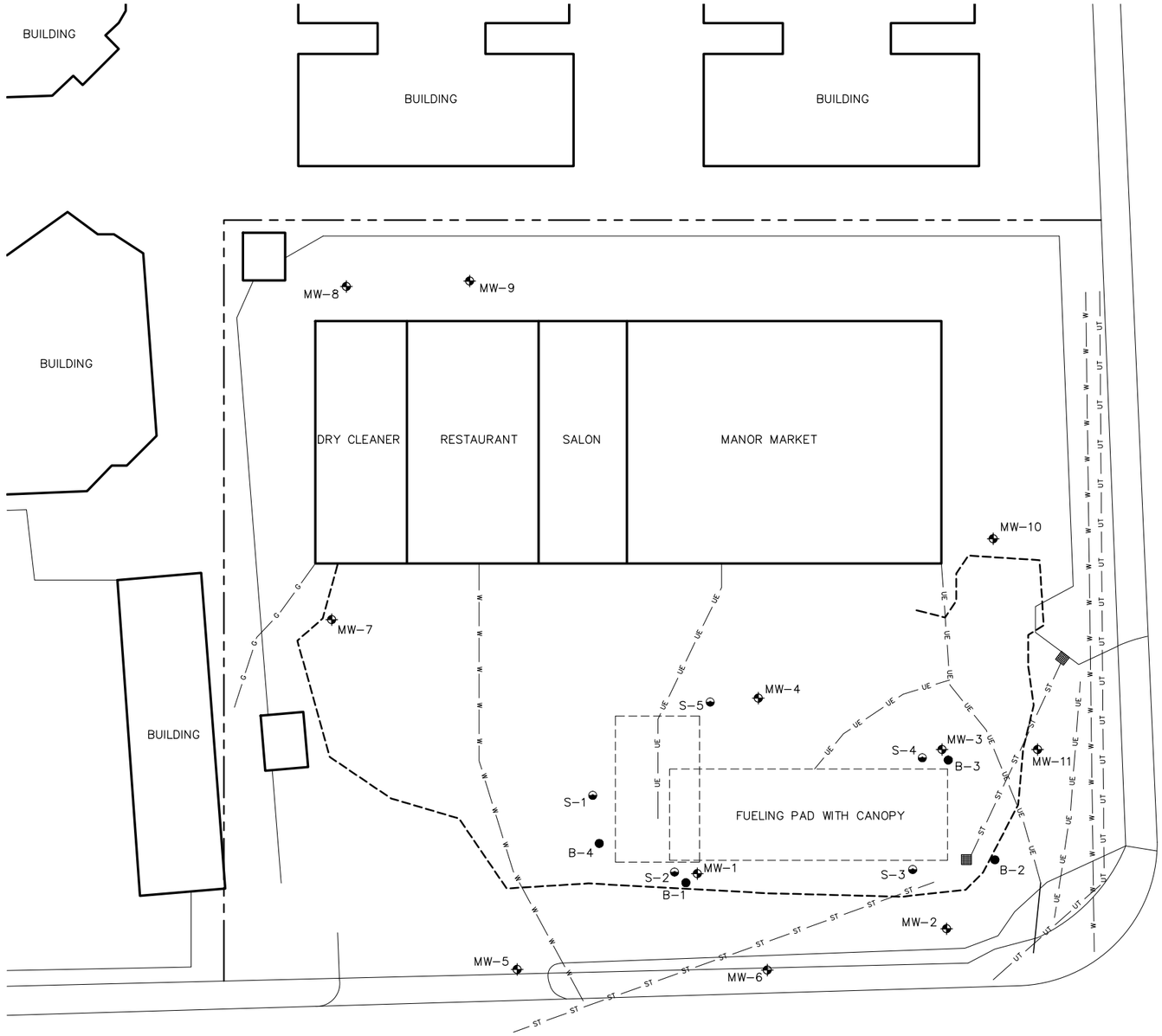
AEG ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 1

VICINITY MAP

MANOR MARKET
3609 164TH STREET SW
LYNNWOOD, WASHINGTON

PROJECT NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	FILENAME
11-124	5/09/2016	5/09/2016	5/09/2016	11-124_1602.DWG
	DB	DB	ICD	



WOODED AREA

N
W E
S

LEGEND

- APPROXIMATE PROPERTY LINE
- MW-1 — GROUNDWATER MONITORING WELL LOCATION
- B-1 — SOIL BORING LOCATION
- S-1 — SOIL SAMPLE LOCATION
- CATCH BASIN
- UE — BURED ELECTRICAL LINE
- UT — BURED TELEPHONE LINE
- W — WATER LINE
- ST — STORMWATER DRAIN LINE
- G — BURED NATURAL GAS LINE
- EXTENT OF EXCAVATION

NOTES

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REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.

0 15 30
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 2

SITE MAP

MANOR MARKET
3609 164TH STREET SW
LYNNWOOD, WASHINGTON

PROJECT NUMBER	11-124
APPROVED BY	DB 10/03/2016
CHECKED BY	DB 10/03/2016
DRAWN BY	ICD 10/03/2016
FILENAME	11-124_1602.DWG

BUILDING

BUILDING

BUILDING

BUILDING

BUILDING

BUILDING

DRY CLEANER

RESTAURANT

SALON

MANOR MARKET

FUELING PAD WITH CANORY

MW-1

MW-2

MW-3

MW-4

MW-5

MW-6

MW-7

MW-8

MW-9

MW-10

MW-11

B-1

B-2

B-3

B-4

S-1

S-2

S-3

S-4

S-5

589

587

585

583

581

579

577

36TH AVENUE W

164TH STREET SW

WOODED AREA

N

W E

S

LEGEND

- APPROXIMATE PROPERTY LINE
- MW-1 — GROUNDWATER MONITORING WELL LOCATION
- B-1 — SOIL BORING LOCATION
- S-1 — SOIL SAMPLE LOCATION
- CATCH BASIN
- UE — BURED ELECTRICAL LINE
- UT — BURED TELEPHONE LINE
- W — WATER LINE
- ST — STORMWATER DRAIN LINE
- G — BURED NATURAL GAS LINE
- EXTENT OF EXCAVATION

NOTES

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2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.
3. GROUNDWATER CONTOURS MADE WITH MONITORING WELLS MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, AND MW-9.

0 15 30

SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 3
APRIL 2016
GROUNDWATER CONTOUR MAP

MANOR MARKET
3609 164TH STREET SW
LYNNWOOD, WASHINGTON

PROJECT NUMBER	11-124
APPROVED BY	DB 10/03/2016
CHECKED BY	DB 10/03/2016
DRAWN BY	ICD 10/03/2016
FILENAME	11-124_1602.DWG

BUILDING

BUILDING

BUILDING

BUILDING

BUILDING

DRY CLEANER

RESTAURANT

SALON

MANOR MARKET

FUELING PAD WITH CANOPY

MW-1

MW-2

MW-3

MW-4

MW-5

MW-6

MW-7

MW-8

MW-9

MW-10

MW-11

B-1

B-2

B-3

B-4

S-1

S-2

S-3

S-4

S-5

592

594

596

598

580

582

578

36TH AVENUE W

164TH STREET SW

WOODED AREA

N

W

E

S

LEGEND

- APPROXIMATE PROPERTY LINE
- MW-1 — GROUNDWATER MONITORING WELL LOCATION
- B-1 — SOIL BORING LOCATION
- S-1 — SOIL SAMPLE LOCATION
- CATCH BASIN
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- UT — BURED TELEPHONE LINE
- W — WATER LINE
- ST — STORMWATER DRAIN LINE
- G — BURED NATURAL GAS LINE
- EXTENT OF EXCAVATION

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3. GROUNDWATER CONTOURS MADE WITH MONITORING WELLS MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, AND MW-9.

0 15 30

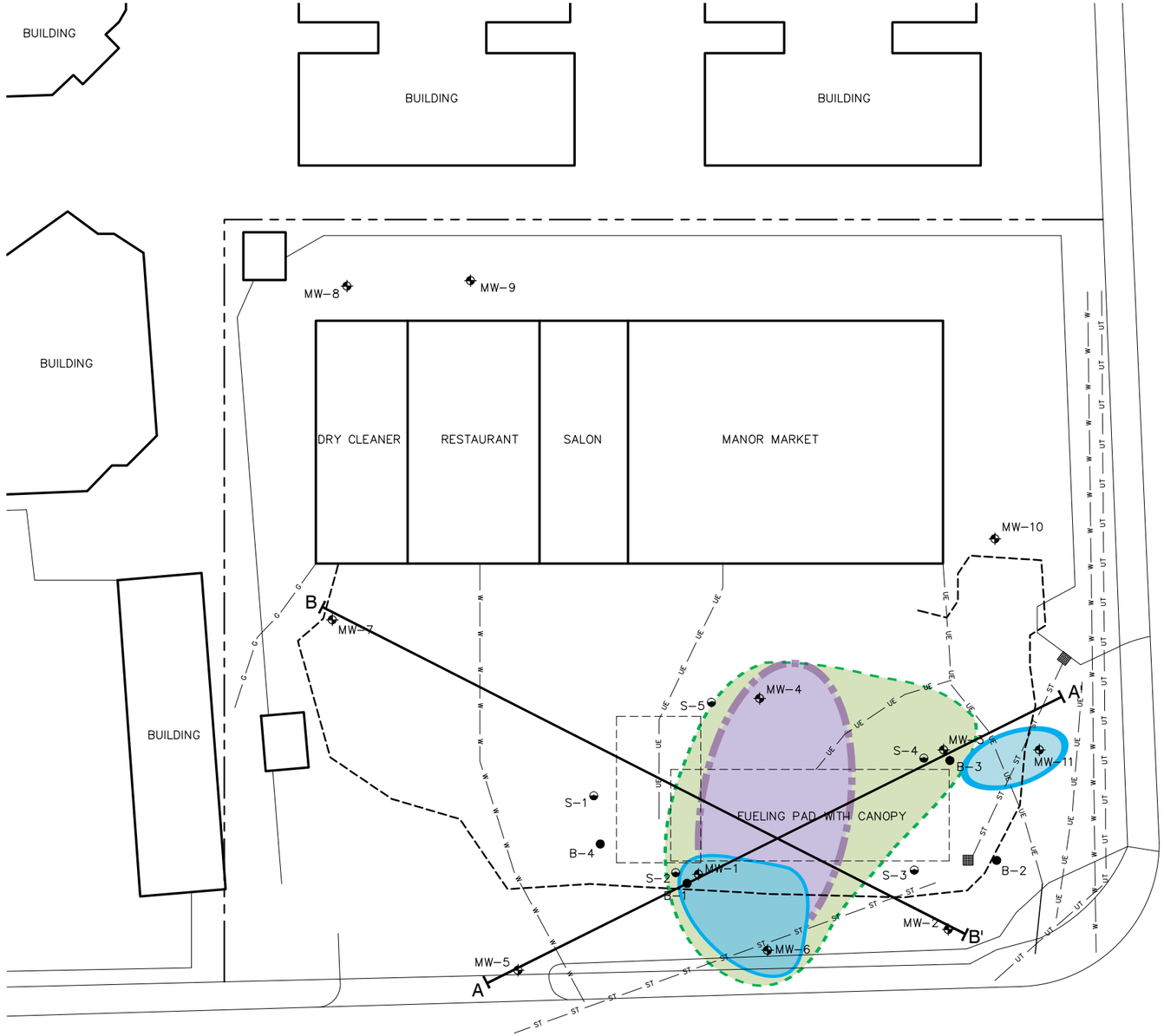
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 4
DECEMBER 2016
GROUNDWATER CONTOUR MAP

MANOR MARKET
3609 164TH STREET SW
LYNNWOOD, WASHINGTON

PROJECT NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	FILENAME
11-124	DB 5/09/2016	DB 5/09/2016	ICD 5/09/2016	11-124_1602.DWG



WOODED AREA

N
W E
S

LEGEND

- APPROXIMATE PROPERTY LINE
- MW-1 GROUNDWATER MONITORING WELL LOCATION
- B-1 SOIL BORING LOCATION
- S-1 SOIL SAMPLE LOCATION
- CATCH BASIN
- UE BURED ELECTRICAL LINE
- UT BURED TELEPHONE LINE
- W WATER LINE
- ST STORMWATER DRAIN LINE
- G BURED NATURAL GAS LINE
- EXTENT OF EXCAVATION

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REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.

- APPROXIMATE EXTENT OF GASOLINE-RANGE TPH IN SOIL
- APPROXIMATE EXTENT OF BENZENE IN SOIL
- APPROXIMATE EXTENT OF MTBE IN SOIL

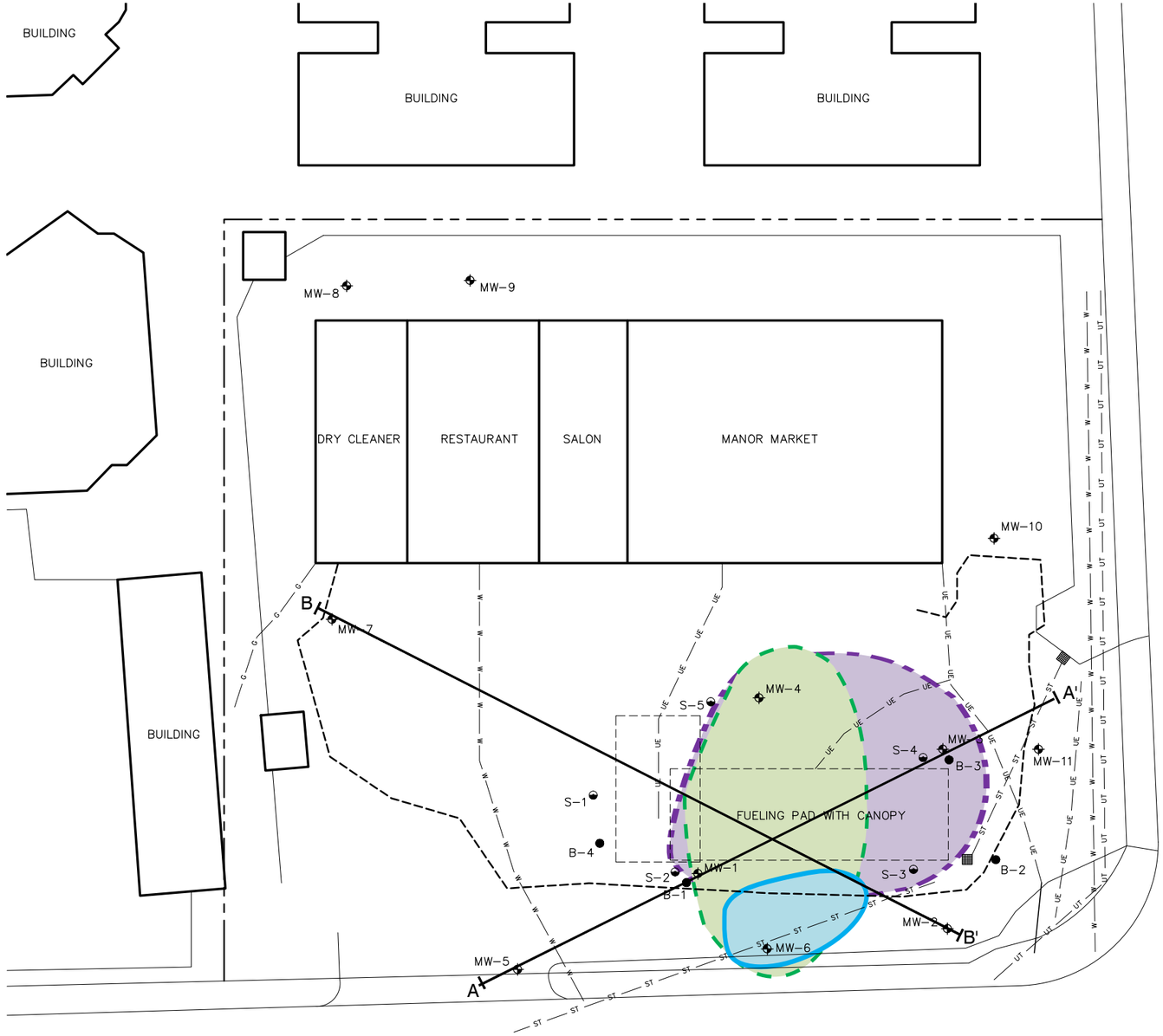
0 15 30
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 5
SOIL PLUME MAP
GASOLINE-RANGE TPH, BENZENE, & MTBE

MANOR MARKET
3609 164TH STREET SW
LYNNWOOD, WASHINGTON

PROJECT NUMBER	11-124
APPROVED BY	DB 5/09/2016
CHECKED BY	DB 5/09/2016
DRAWN BY	ICD 5/09/2016
FILENAME	11-124_1602.DWG



LEGEND

- APPROXIMATE PROPERTY LINE
- MW-1 — GROUNDWATER MONITORING WELL LOCATION
- B-1 — SOIL BORING LOCATION
- S-1 — SOIL SAMPLE LOCATION
- CATCH BASIN
- UE — BURED ELECTRICAL LINE
- UT — BURED TELEPHONE LINE
- W — WATER LINE
- ST — STORMWATER DRAIN LINE
- G — BURED NATURAL GAS LINE
- EXTENT OF EXCAVATION

NOTES

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REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.

- APPROXIMATE EXTENT OF GASOLINE-RANGE TPH IN GROUNDWATER
- APPROXIMATE EXTENT OF BENZENE IN GROUNDWATER
- APPROXIMATE EXTENT OF MTBE IN GROUNDWATER

0 15 30
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 6

GROUNDWATER PLUME MAP GASOLINE-RANGE TPH, BENZENE, & MTBE

MANOR MARKET
3609 164TH STREET SW
LYNNWOOD, WASHINGTON

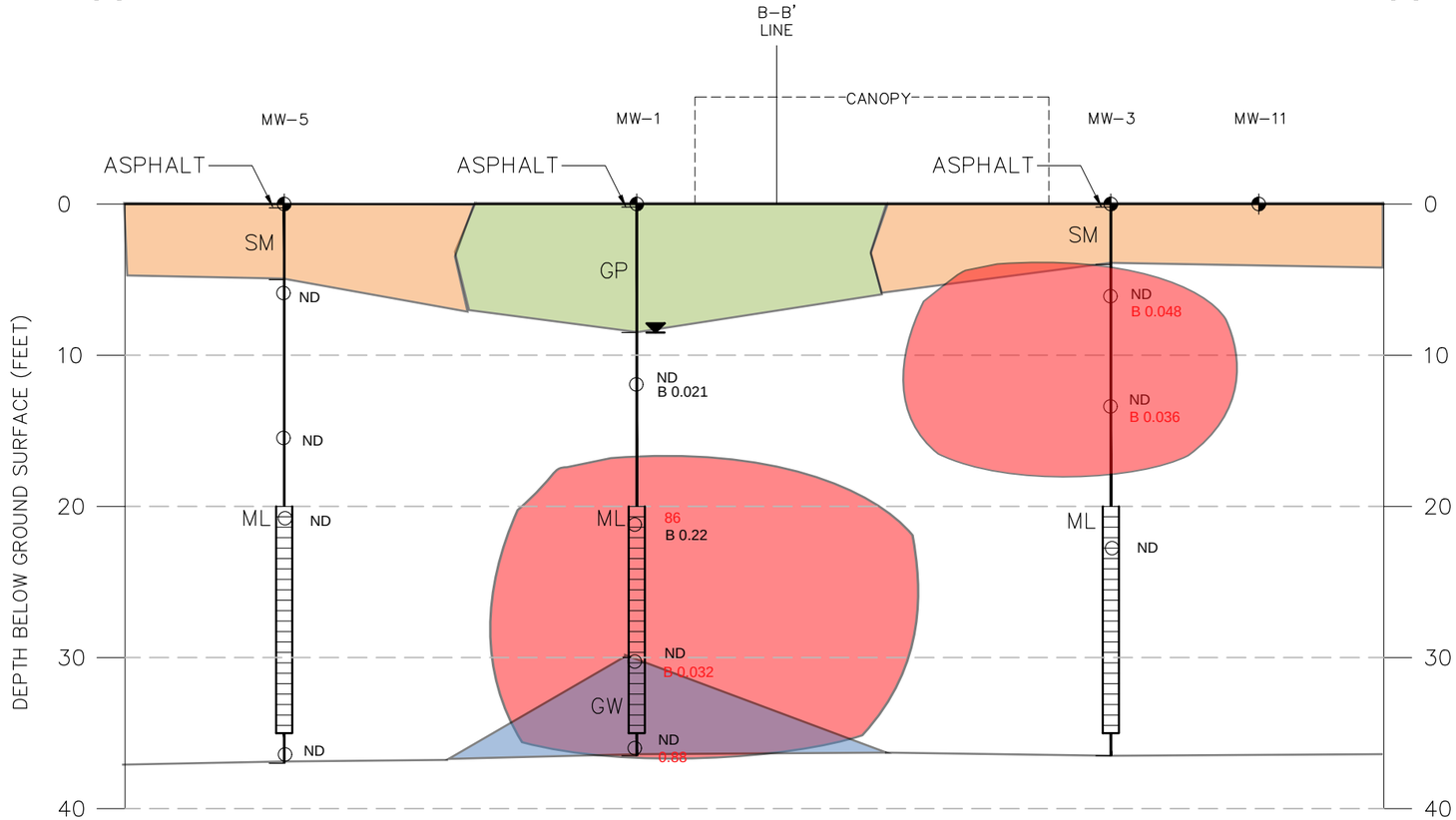
FILENAME	CHECKED BY	DRAWN BY	APPROVED BY	PROJECT NUMBER
11-124_XSECTIONS.DWG	SL 5/10/2016	ICD 5/10/2016	SL 5/10/2016	11-124

SOUTHWEST

A

NORTHEAST

A'



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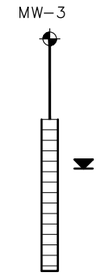


- WELL, SOIL BORING
- GROUNDWATER LEVEL AT TIME OF DRILLING
- SCREENED INTERVAL
- MAXIMUM DEPTH EXPLORED
- SOIL CONTACT

ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS, WITH SLIGHT PLASTICITY
GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
SM	SILTY-SANDS, SAND-SILT MIXTURES
GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
30.0	GASOLINE-RANGE TPH CONCENTRATION IN SOIL (mg/kg)
B 0.03	BENZENE CONCENTRATION IN SOIL (mg/kg)
M 0.10	MTBE CONCENTRATION IN SOIL(mg/kg)
ND	NON DETECT
RED	CONCENTRATION ABOVE ECOLOGY MTCA METHOD A CLEANUP LEVEL

SOIL PLUME EXTENT ABOVE CUL GAS OR BENZENE

0 10 20
HORIZONTAL SCALE

0 5 10
VERTICAL SCALE

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 7

GEOLOGIC CROSS SECTION A-A'

MANOR MARKET
3609 164TH STREET SW
LYNNWOOD, WASHINGTON

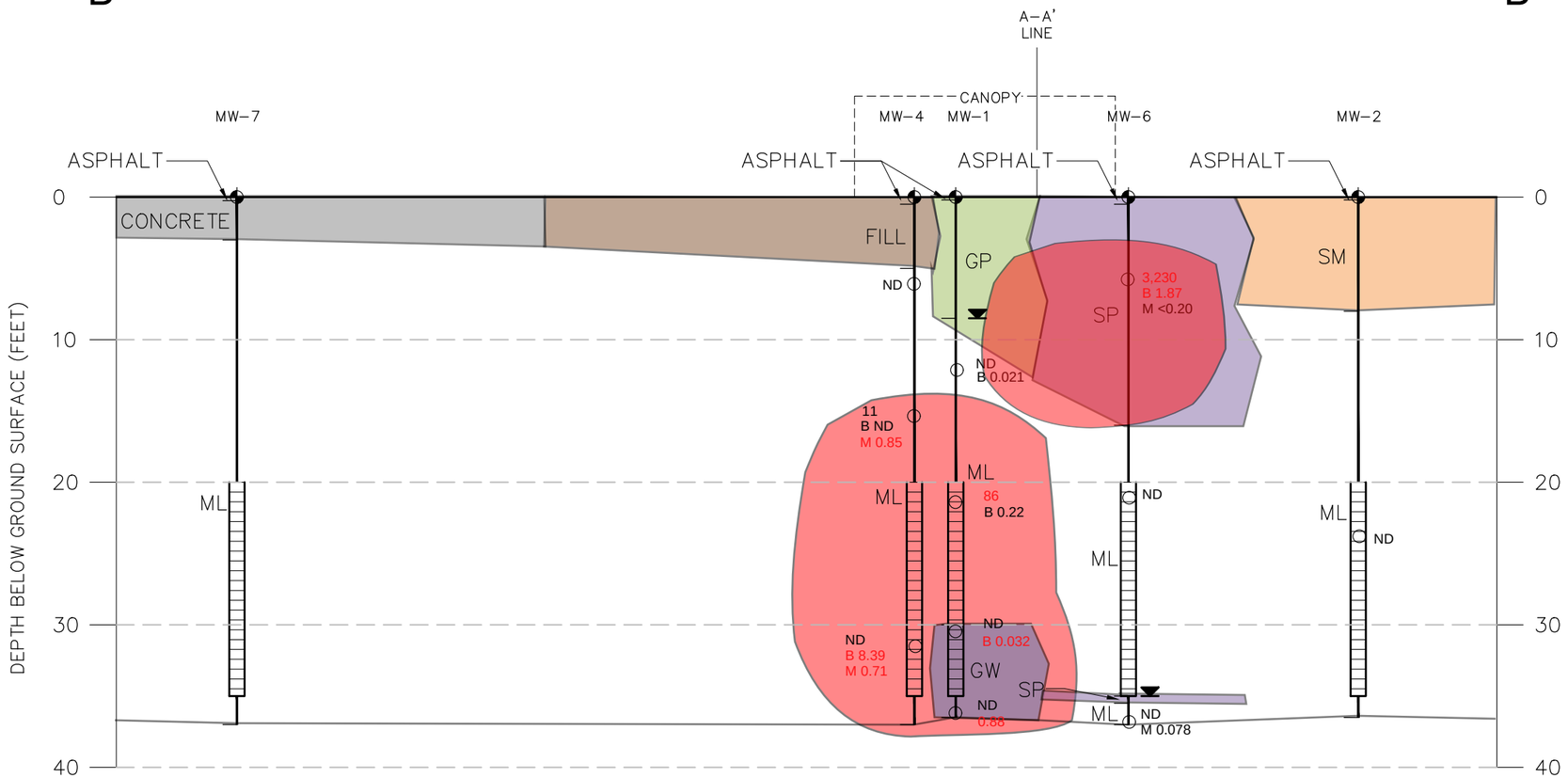
FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
11-124_XSECTIONS.DWG	ICD 5/10/2016	SL 5/10/2016	SL 5/10/2016	11-124

NORTHWEST

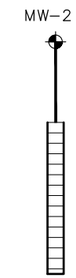
B

SOUTHEAST

B'



LEGEND



SP	POORLY–GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS, WITH SLIGHT PLASTICITY
GP	POORLY–GRADED GRAVELS, GRAVEL–SAND MIXTURES, LITTLE OR NO FINES
SM	SILTY–SANDS, SAND–SILT MIXTURES
GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
30.0	GASOLINE-RANGE TPH CONCENTRATION IN SOIL (mg/kg)
B 0.03	BENZENE CONCENTRATION IN SOIL (mg/kg)
M 0.10	MTBE CONCENTRATION IN SOIL(mg/kg)
ND	NON DETECT
RED	CONCENTRATION ABOVE ECOLOGY MTCA METHOD A CUL SOIL PLUME EXTENT ABOVE CUL GAS AND BENZENE

0 10 20
HORIZONTAL SCALE

0 5 10
VERTICAL SCALE

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 8

GEOLOGIC CROSS SECTION B-B'

MANOR MARKET
3609 164TH STREET SW
LYNNWOOD, WASHINGTON

TABLES

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Table 1 - Summary of Envitech Soil Analytical Results
Manor Market
Lynnwood, WA

Sample Number	Depth Collected (feet)	Date Collected	Volatile Organic Compounds				Total Petroleum Hydrocarbons (TPH)		
			Benzene	Toluene	Ethyl-benzene	Xylenes	Gasoline	Diesel	Heavy Oil
S1-9	9.0	4/15/2011	<0.02	<0.05	<0.05	<0.15	<10	<50	<100
S2-14	14.0	4/15/2011	**0.21**	<0.05	<0.05	<0.15	<10	<50	<100
S3-10	10.0	4/15/2011	**0.02**	<0.05	<0.05	<0.15	<10	<50	<100
S4-10	10.0	4/15/2011	**0.23**	**0.14**	**0.11**	**0.27**	<10	<50	<100
S5-16	16.0	4/15/2011	<0.02	<0.05	<0.05	<0.15	<10	<50	<100
PQL			0.02	0.05	0.05	0.15	10	50	100
MTCA Method A Cleanup Levels			0.03	7	6	9	30*	2,000	2,000

Notes:
All values reported in milligrams per kilogram (mg/kg)
-- = Not analyzed for constituent
< = Not detected at the listed laboratory detection limits
PQL = Practical Quantification Limit (laboratory detection limit)
Red Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level
Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels
* TPH-Gasoline Cleanup Level with the presence of Benzene anywhere at the Site

Table 2 - Summary of Soil Analytical Results
Manor Market
Lynnwood, WA

Sample Number	Date Sampled	Depth Sampled (feet)	Gasoline TPH	Select Volatile Organic Compounds							
				Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	PCE	TCE	Vinyl Chloride
B1-S3-5.5/6.0	8/24/2011	5.5-6.0	**190**	**1.3**	**2.0**	**5.0**	**12**	--	--	--	--
B1-S7-25.5/26.0	8/24/2011	25.5-26.0	**12**	**0.11**	<0.02	<0.05	**0.11**	--	--	--	--
B2-S5-11.5/12.0	8/24/2011	11.5-12.0	<10	<0.02	<0.02	<0.05	<0.15	--	--	--	--
B2-S8-16.5/17.0	8/24/2011	16.5-17.0	<10	<0.02	<0.02	<0.05	<0.15	--	--	--	--
B3-S2-5.5/6.0	8/24/2011	5.5-6.0	**22**	**0.24**	**0.67**	**0.48**	**0.73**	--	<0.02	<0.03	<0.02
B3-S6-11.5/12.0	8/24/2011	11.5-12.0	<10	<0.02	<0.02	<0.05	<0.15	--	--	--	--
B4-S3-7.5/8.0	8/24/2011	7.5-8.0	<10	<0.02	<0.02	<0.05	<0.15	--	--	--	--
MW1-S1/12-13.5	2/8/2012	12.0-13.5	<10	**0.021**	<0.10	<0.05	<0.15	--	--	--	--
MW1-S2/23-24.5	2/8/2012	23.0-24.5	**86**	**0.22**	<0.10	<0.05	<0.15	--	--	--	--
MW1-S3/30-31.5	2/8/2012	30.0-31.5	<10	**0.032**	**0.11**	<0.05	<0.15	--	--	--	--
MW1-S4/35-36.5	2/8/2012	35.0-36.5	<10	**0.88**	<0.10	<0.05	<0.15	--	--	--	--
MW2-S1/23-24.5	2/8/2012	23.0-24.5	<10	<0.02	<0.10	<0.05	<0.15	--	--	--	--
MW3-S1/7	2/9/2012	7.0	<10	**0.048**	**0.20**	**0.27**	**1.1**	--	--	--	--
MW3-S2/23-24.5	2/9/2012	23.0-24.5	<10	**0.036**	**0.10**	<0.05	<0.15	--	--	--	--
MW3-S3/13-14.5	2/9/2012	13.0-14.5	<10	<0.02	<0.10	<0.05	<0.15	--	--	--	--
MW4-6.5	5/28/2015	6.5	<10	<0.02	<0.03	<0.03	<0.03	<0.05	--	--	--
MW4-16.5	5/28/2015	16.5	**11**	<0.02	<0.03	<0.03	<0.03	**0.85**	--	--	--
MW4-31.5	5/28/2015	31.5	<10	**8.39**	<0.03	<0.03	<0.03	**0.71**	--	--	--
MW5-6.5	5/26/2015	6.5	<10	<0.02	<0.03	<0.03	<0.03	<0.05	--	--	--
MW5-16.5	5/26/2015	16.5	<10	<0.02	<0.03	<0.03	<0.03	<0.05	--	--	--
MW5-21.5	5/26/2015	21.5	<10	<0.02	<0.03	<0.03	<0.03	<0.05	--	--	--
MW5-36.5	5/26/2015	36.5	<10	<0.02	<0.03	<0.03	<0.03	<0.05	--	--	--
MW6-6.5	5/26/2015	6.5	**3,230**	**1.87**	**1.15**	**1.62**	**4.38**	**<0.20**	--	--	--
MW6-21.5	5/26/2015	21.5	<10	<0.02	<0.03	<0.03	<0.03	<0.05	--	--	--
MW6-36.5	5/26/2015	36.5	<10	<0.02	<0.03	<0.03	<0.03	**0.078**	--	--	--
MW7-3.0	5/27/2015	3.0	--	--	--	--	--	--	<0.02	<0.02	<0.02
MW7-21.5	5/27/2015	21.5	--	--	--	--	--	--	<0.02	<0.02	<0.02
MW7-31.5	5/27/2015	31.5	--	--	--	--	--	--	<0.02	<0.02	<0.02
MW8-16.5	5/27/2015	16.5	--	--	--	--	--	--	<0.02	<0.02	<0.02
MW8-26.5	5/27/2015	26.5	--	--	--	--	--	--	<0.02	<0.02	<0.02
MW8-31.5	5/27/2015	31.5	--	--	--	--	--	--	<0.02	<0.02	<0.02
MW9-6.5	5/27/2015	6.5	--	--	--	--	--	--	<0.02	<0.02	<0.02
MW9-11.5	5/27/2015	11.5	--	--	--	--	--	--	<0.02	<0.02	<0.02
MW9-31.5	5/27/2015	31.5	--	--	--	--	--	--	<0.02	<0.02	<0.02
MW10-6.5	3/24/2016	6.5	<10	<0.02	<0.10	<0.05	<0.15	<0.05	--	--	--
MW10-16.5	3/24/2016	16.5	<10	<0.02	<0.10	<0.05	<0.15	<0.05	--	--	--
MW10-21.5	3/24/2016	21.5	<10	<0.02	<0.10	<0.05	<0.15	<0.05	--	--	--
MW10-31.5	3/24/2016	31.5	<10	<0.02	<0.10	<0.05	<0.15	<0.05	--	--	--
MW10-36.5	3/24/2016	36.5	<10	<0.02	<0.10	<0.05	<0.15	<0.05	--	--	--

Table 2 - Summary of Soil Analytical Results
Manor Market
Lynnwood, WA

Sample Number	Date Sampled	Depth Sampled (feet)	Gasoline TPH	Select Volatile Organic Compounds							
				Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	PCE	TCE	Vinyl Chloride
MW11-5.0	3/24/2016	5.0	**1,160**	**0.27**	**0.95**	**8.2**	**19**	<0.05	--	--	--
MW11-10.5	3/24/2016	10.5	<10	<0.02	<0.10	<0.05	<0.15	<0.05	--	--	--
MW11-20.5	3/24/2016	20.5	<10	<0.02	<0.10	<0.05	<0.15	<0.05	--	--	--
MW11-25.5	3/24/2016	25.5	<10	<0.02	<0.10	<0.05	<0.15	<0.05	--	--	--
MW11-35.5	3/24/2016	35.5	<10	<0.02	<0.10	<0.05	<0.15	<0.05	--	--	--
PQL			10	0.02	0.02 / 0.10	0.03 / 0.05	0.03 / 0.15	0.05	0.02	0.02 / 0.03	0.02
MTCA Method A Cleanup Levels			30*	0.03	7	6	9	0.10	0.05	0.03	**

Notes:

All values are presented in milligrams per kilogram (mg/kg)

* TPH-Gasoline Cleanup Level with the presence of Benzene anywhere at the Site

** Method A cleanup level not established

TPH = Total Petroleum Hydrocarbons

MTBE = Methyl tertiary-butyl ether

PCE = Tetrachloroethylene

TCE = Trichloroethylene

-- = Not analyzed for this constituent

< = Not detected above laboratory limits

PQL = Practical Quantification Limit (laboratory detection limit)

Red Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level

Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels

Table 3 - Summary of Groundwater Analytical Results
Manor Market
Lynnwood, WA

Well Number	Date Sampled	Gasoline TPH	Select Volatile Organic Compounds													Total Lead
			Benzene	Toluene	Ethyl-benzene	Total Xylenes	EDC	EDB	Total Naphthalenes	MTBE	PCE	TCE	*cis* -1,2-DCE	*trans*- 1,2-DCE	VC	
MW-1	3/1/2012	<100	**9.9**	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	--	--	--	--	--	<5.0
	11/20/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/28/2013	<100	**13**	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	**76.0**	--	--	--	--	--	<5.0
	5/30/2013	<100	**13.2**	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	**111**	--	--	--	--	--	**19.9**
	6/4/2015	<100	**3.9**	<2.0	<1.0	<3.0	--	--	--	**315**	--	--	--	--	--	--
	9/2/2015	<100	**5.1**	<1.0	<1.0	<1.0	--	--	--	**122**	--	--	--	--	--	**7.1**
	11/24/2015	<100	**19**	<1.0	<1.0	<1.0	--	--	--	**74**	--	--	--	--	--	--
	4/7/2016	**101**	**9.9**	<2.0	<1.0	<2.0	--	--	--	**20**	--	--	--	--	--	--
	12/13/2016	<100	**18**	<2.0	<1.0	<2.0	--	--	--	**77**	--	--	--	--	--	--
MW-2	3/1/2012	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	--	--	--	--	--	<5.0
	11/20/2012	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	--	--	--	--	--	<5.0
	3/28/2013	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	--	--	--	--	--	<5.0
	5/30/2013	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	--	--	--	--	--	<5.0
	6/4/2015	<100	<1.0	<2.0	<1.0	<3.0	--	--	--	**12.3**	--	--	--	--	--	--
	9/2/2015	<100	<1.0	<1.0	<1.0	<1.0	--	--	--	<5.0	--	--	--	--	--	<5.0
	11/24/2015	<100	<1.0	<1.0	<1.0	<1.0	--	--	--	<5.0	--	--	--	--	--	--
	4/7/2016	<100	<1.0	<2.0	<1.0	<2.0	--	--	--	<2.0	--	--	--	--	--	--
	12/13/2016	<100	<1.0	<2.0	<1.0	<2.0	--	--	--	**6.1**	--	--	--	--	--	--
MW-3	3/1/2012	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	--	--	--	--	--	<5.0
	11/20/2012	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	--	--	--	--	--	<5.0
	3/28/2013	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	**8.3**	--	--	--	--	--	**6.8**
	5/30/2013	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	**8**	--	--	--	--	--	<5.0
	6/4/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/2/2015	<100	<1.0	<1.0	<1.0	<1.0	--	--	--	**21**	--	--	--	--	--	**17.4**
	11/24/2015	<100	<1.0	<1.0	<1.0	<1.0	--	--	--	**24**	--	--	--	--	--	--
	4/7/2016	<100	<1.0	<2.0	<1.0	<2.0	--	--	--	**10**	<1.0	<1.0	<1.0	<1.0	<1.0	--
	12/13/2016	<100	<1.0	<2.0	<1.0	<2.0	--	--	--	**27**	--	--	--	--	--	--

Table 3 - Summary of Groundwater Analytical Results
Manor Market
Lynnwood, WA

Well Number	Date Sampled	Gasoline TPH	Select Volatile Organic Compounds													Total Lead
			Benzene	Toluene	Ethyl-benzene	Total Xylenes	EDC	EDB	Total Naphthalenes	MTBE	PCE	TCE	*cis* -1,2-DCE	*trans*- 1,2-DCE	VC	
MW-4	6/4/2015	<100	**470**	<1.0	<1.0	<3.0	--	--	--	**1,740**	--	--	--	--	--	--
	9/2/2015	<100	**63**	<1.0	<1.0	<1.0	--	--	--	**344**	--	--	--	--	--	<5.0
	11/24/2015	<100	**47**	<1.0	<1.0	<1.0	--	--	--	**975**	--	--	--	--	--	--
	4/7/2016	**127**	**70**	<2.0	<1.0	<2.0	--	--	--	**592**	<1.0	<1.0	<1.0	<1.0	<1.0	--
	12/13/2016	<100	**56**	<2.0	<1.0	<2.0	--	--	--	**1400**	--	--	--	--	--	--
MW-5	6/4/2015	<100	<1.0	<1.0	<1.0	<1.0	--	--	--	<5.0	--	--	--	--	--	--
	9/2/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/24/2015	<100	<1.0	<1.0	<1.0	<1.0	--	--	--	<5.0	--	--	--	--	--	--
	4/7/2016	<100	<1.0	<2.0	<1.0	<2.0	--	--	--	<2.0	--	--	--	--	--	--
	12/13/2016	<100	<1.0	<2.0	<1.0	<2.0	--	--	--	<1.0	--	--	--	--	--	--
MW-6	6/4/2015	**1,380**	**54**	**2.5**	<1.0	**7.0**	--	--	--	<5.0	--	--	--	--	--	--
	9/2/2015	**1,020**	**22**	<1.0	<1.0	**6.6**	--	--	--	<5.0	--	--	--	--	--	<5.0
	11/24/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4/7/2016	**1,630**	**12**	<2.0	<1.0	**3.0**	--	--	--	<2.0	--	--	--	--	--	--
	12/13/2016	**660**	**21**	<2.0	<1.0	<2.0	--	--	--	2.4	--	--	--	--	--	--
MW-7	6/4/2015	--	--	--	--	--	<1.0	--	--	--	<1.0	<1.0	<1.0	<1.0	<0.2	--
MW-8	6/4/2015	--	--	--	--	--	<1.0	--	--	--	<1.0	<1.0	<1.0	<1.0	<0.2	--
MW-9	6/4/2015	--	--	--	--	--	<1.0	--	--	--	<1.0	<1.0	<1.0	<1.0	<0.2	--
MW-10	4/7/2016	<100	<1.0	<2.0	<1.0	<2.0	--	--	--	<2.0	--	--	--	--	--	--
	12/13/2016	<100	<1.0	<2.0	<1.0	<2.0	--	--	--	<1.0	--	--	--	--	--	--

Table 3 - Summary of Groundwater Analytical Results
Manor Market
Lynnwood, WA

Well Number	Date Sampled	Gasoline TPH	Select Volatile Organic Compounds												Total Lead
			Benzene	Toluene	Ethyl-benzene	Total Xylenes	EDC	EDB	Total Naphthalenes	MTBE	PCE	TCE	*cis* -1,2-DCE	*trans*- 1,2-DCE	VC	
MW-11	4/7/2016	**254**	<1.0	<2.0	<1.0	<2.0	<1.0	--	--	**8.5**	<1.0	<1.0	<1.0	<1.0	<0.2	--
	12/13/2016	<100	<1.0	<2.0	<1.0	<2.0	<1.0	--	--	**16**	--	--	--	--	--	--
PQL		100	1.0	1.0 or 2.0	1.0	1.0 or 2.0	1.0	0.01	5.0	2.0 or 5.0	1.0	1.0	1.0	1.0	0.2	5.0
MTCA Method A Cleanup Levels		800*	5	1,000	700	1,000	5	0.01	160	20	1.0	1.0	1.0	1.0	0.2	15

Notes:

All values presented in micrograms per liter (µg/L)

* Cleanup level with presence of benzene

PQL = Practical Quantification Limit

TPH = Total Petroleum Hydrocarbons

-- = Not analyzed for constituent

< = Not detected above laboratory limits

EDC = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

MTBE = Methyl tertiary-butyl ether

PCE = Tetrachloroethylene

TCE = Trichloroethylene

DCE = Dichloroethylene

VC = Vinyl Chloride

Red Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level

Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels

Table 4 - Summary of Groundwater Elevations
Manor Market
Lynnwood, WA

Well Number/ TOC Elevation (feet)	Date of Measurement	Depth to Water (feet)	Depth to Free Product (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Change in Elevation (feet)
MW-1	03/01/12	24.63	--	--	578.12	--
602.75	11/20/12	--	--	--	--	--
	03/28/13	21.39	--	--	581.36	3.24
	05/30/13	19.97	--	--	582.78	1.42
	06/01/15	18.52	--	--	584.23	1.45
	09/02/15	16.99	--	--	585.76	1.53
	11/24/15	17.62	--	--	585.13	-0.63
	04/07/16	14.74	--	--	588.01	2.88
	12/13/16	16.02	--	--	586.73	-1.28
MW-2	03/01/12	24.70	--	--	578.28	--
602.98	11/20/12	24.21	--	--	578.77	0.49
	03/28/13	24.40	--	--	578.58	-0.19
	05/30/13	25.05	--	--	577.93	-0.65
	06/04/15	26.85	--	--	576.13	-1.80
	09/02/15	23.15	--	--	579.83	3.70
	11/24/15	16.38	--	--	586.60	6.77
	04/07/16	24.05	--	--	578.93	-7.67
	12/13/16	22.62	--	--	580.36	1.43
MW-3	03/01/12	28.30	--	--	574.96	--
603.26	11/20/12	28.23	--	--	575.03	0.07
	03/28/13	28.14	--	--	575.12	0.09
	05/30/13	28.31	--	--	574.95	-0.17
	06/04/15	--	--	--	--	--
	09/02/15	28.19	--	--	575.07	0.12
	11/24/15	27.32	--	--	575.94	0.87
	04/07/16	27.43	--	--	575.83	-0.11
	12/13/16	26.70	--	--	576.56	0.73
MW-4	6/4/2015	26.45	--	--	577.84	--
604.29	9/2/2015	26.49	--	--	577.80	-0.04
	11/24/2015	26.62	--	--	577.67	-0.13
	4/7/2016	25.79	--	--	578.50	0.83
	12/13/16	25.33	--	--	578.96	0.46
MW-5	6/4/2015	17.30	--	--	586.98	--
604.28	9/2/2015	16.21	--	--	588.07	1.09
	11/24/2015	14.82	--	--	589.46	1.39
	4/7/2016	16.82	--	--	587.46	-2.00
	12/13/16	14.39	--	--	589.89	2.43
MW-6	6/4/2015	9.60	--	--	593.36	--
602.96	9/2/2015	10.69	--	--	592.27	-1.09
	11/24/2015	--	--	--	--	--
	4/7/2016	10.25	--	--	592.71	--
	12/13/16	11.37	--	--	591.59	-1.12

Table 4 - Summary of Groundwater Elevations
Manor Market
Lynnwood, WA

Well Number/ TOC Elevation (feet)	Date of Measurement	Depth to Water (feet)	Depth to Free Product (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Change in Elevation (feet)
MW-7	6/4/2015	16.31	--	--	588.70	--
605.01	9/2/2015	17.79	--	--	587.22	-1.48
	11/24/2015	15.21	--	--	589.80	2.58
	4/7/2016	--	--	--	--	--
	12/13/16	--	--	--	--	--
MW-8	6/4/2015	16.18	--	--	589.16	--
605.34	9/2/2015	16.72	--	--	588.62	-0.54
	11/24/2015	14.15	--	--	591.19	2.57
	4/7/2016	14.87	--	--	590.47	-0.72
	12/13/16	14.89	--	--	590.45	-0.02
MW-9	6/4/2015	18.63	--	--	586.58	--
605.21	9/2/2015	18.14	--	--	587.07	0.49
	11/24/2015	14.28	--	--	590.93	3.86
	4/7/2016	16.95	--	--	588.26	-2.67
	12/13/16	16.64	--	--	588.57	0.31
MW-10	4/7/2016	31.30	--	--	--	--
	12/13/2016	27.61	--	--	--	3.69
MW-11	4/7/2016	32.90	--	--	--	--
	12/13/2016	31.26	--	--	--	1.64

Notes:
TOC = Top of casing elevation relative to assigned benchmark.
-- = Not measured, not available, or not applicable

APPENDIX A

Site Photographs

605 11th Ave. SE, Suite 201 • Olympia, WA • 98501
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

ASSOCIATED ENVIRONMENTAL GROUP, LLC

SITE PHOTOGRAPHIC RECORD

Project No.: 11-124 **Project Name: Manor Market**

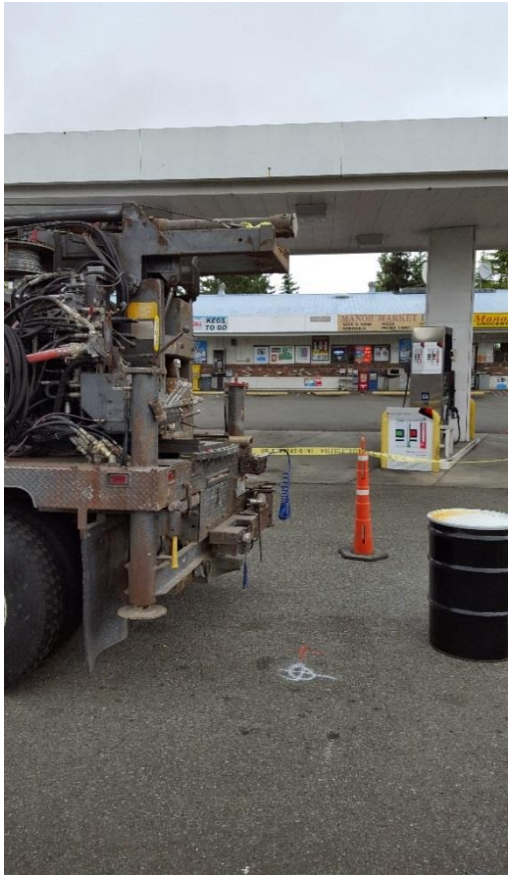								
Photo #1:	Drilling of MW-6. Photo is looking north.		Photo #1:	Soil cuttings from MW-6.		Photo #3:	Drilling of MW-5. Photo is looking west.	

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SITE PHOTOGRAPHIC RECORD

Project No.: 11-124 **Project Name: Manor Market**

Photo #4: Soil cuttings from MW-5.

Photo #5: Drilling of MW-9. Photo is looking east.

Photo #6: Soil cuttings from MW-9.

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SITE PHOTOGRAPHIC RECORD

Project No.: 11-124 **Project Name: Manor Market**

								
Photo #7:	Drilling of MW-8. Photo is looking east.		Photo #8:	Soil cuttings from MW-8.		Photo #9:	Drilling of MW-9. Photo is looking northeast.	

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SITE PHOTOGRAPHIC RECORD

Project No.: 11-124 **Project Name: Manor Market**

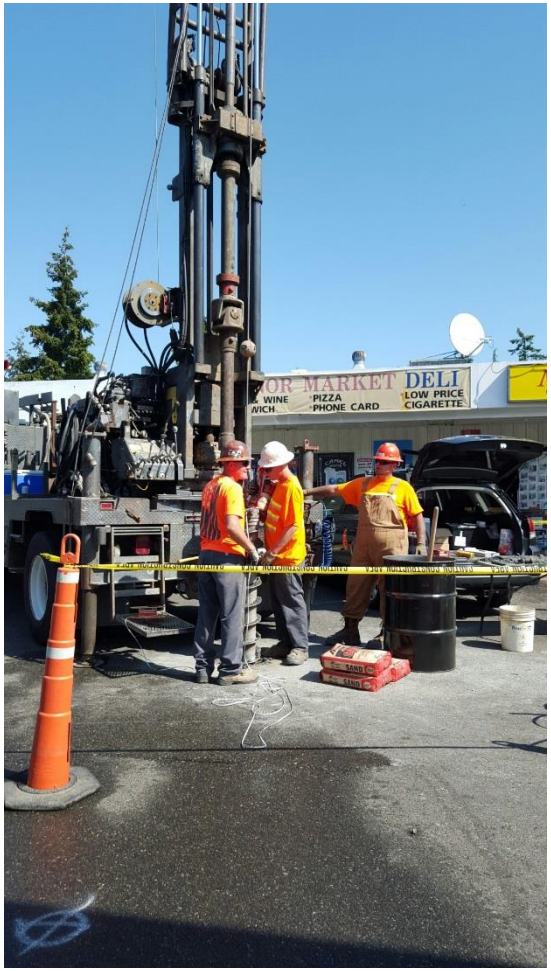				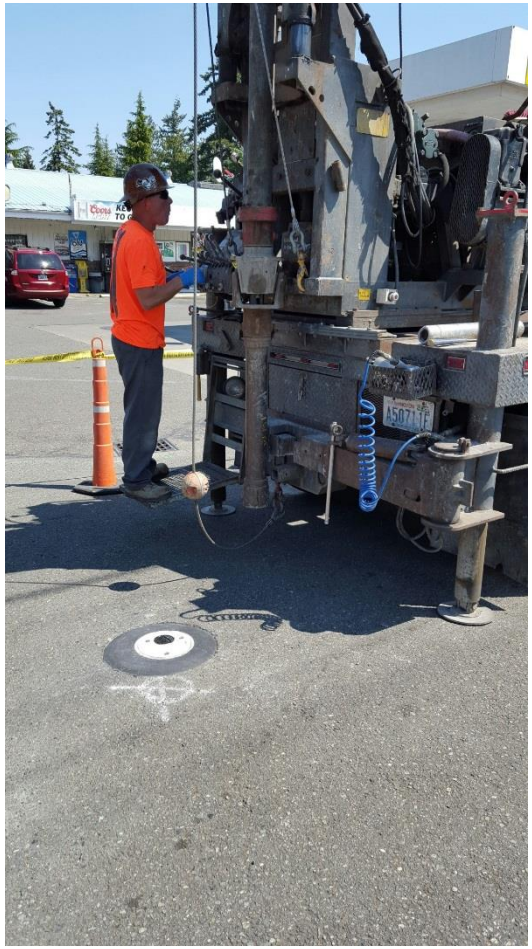			
Photo #10:	Drilling of MW-4. Photo is looking north.	Photo #11:	Soil borings from MW-4.	Photo # 12:	Setup of B-5. Photo is looking northeast.		

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SITE PHOTOGRAPHIC RECORD

Project No.: 11-124 **Project Name: Manor Market**

Photo #13: Location of MW-11

Photo #14 Soil cuttings from MW-11

Photo #15: Location of MW-10

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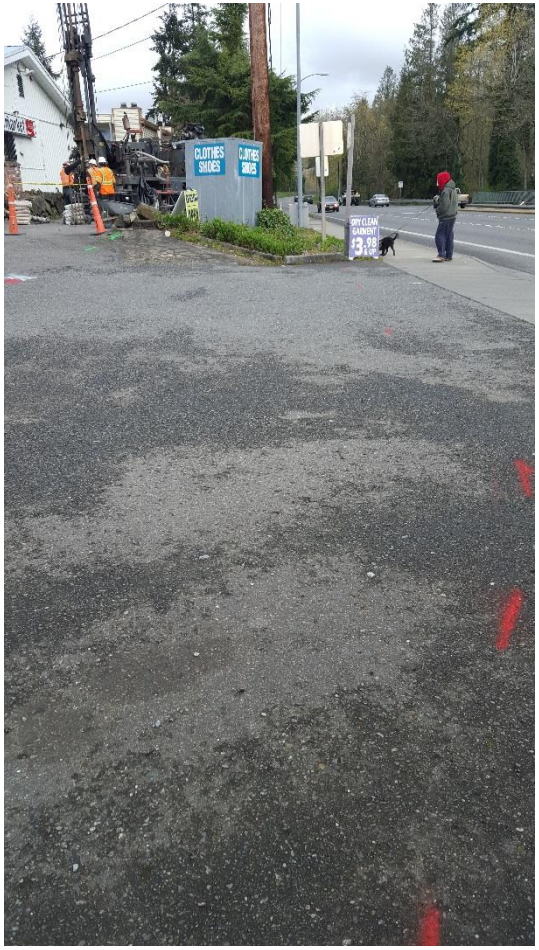
SITE PHOTOGRAPHIC RECORD

Project No.: 11-124 **Project Name: Manor Market**

						Intentionally left blank
Photo #16:	Soil cuttings from MW-10		Photo #17:	Underground utilities along the eastern property line.		

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APPENDIX B

Supporting Documents
Boring Logs
Laboratory Datasheets

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Major Divisions (1)	(2)	Letter (3)	Symbols Hatching (4)	Symbols Color (5)	Name (6)
Coarse-Grained Soils	Gravel and Gravelly Soils	GW		Red	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP			Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM		Yellow	Silty gravels, gravel-sand-silt mixtures
		GC			Clayey gravels, gravel-sand-clay mixtures
	Sand and Sandy Soils	SW		Red	Well-graded sands or gravelly sands, little or no fines
		SP			Poorly graded sands or gravelly sands, little or no fines
		SM		Yellow	Silty sands, sand-silt mixtures
		SC			Clayey sands, sand-silt mixtures
Fine-Grained Soils	Silts and Clays LL < 50	ML		Green	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL			Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL			Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL ≥ 50	MH		Blue	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH			Inorganic clays of high plasticity, fat clays
		OH			Organic clays of medium to high plasticity, organic silts
Highly Organic Soils		Pt		Orange	Peat and other highly organic soils

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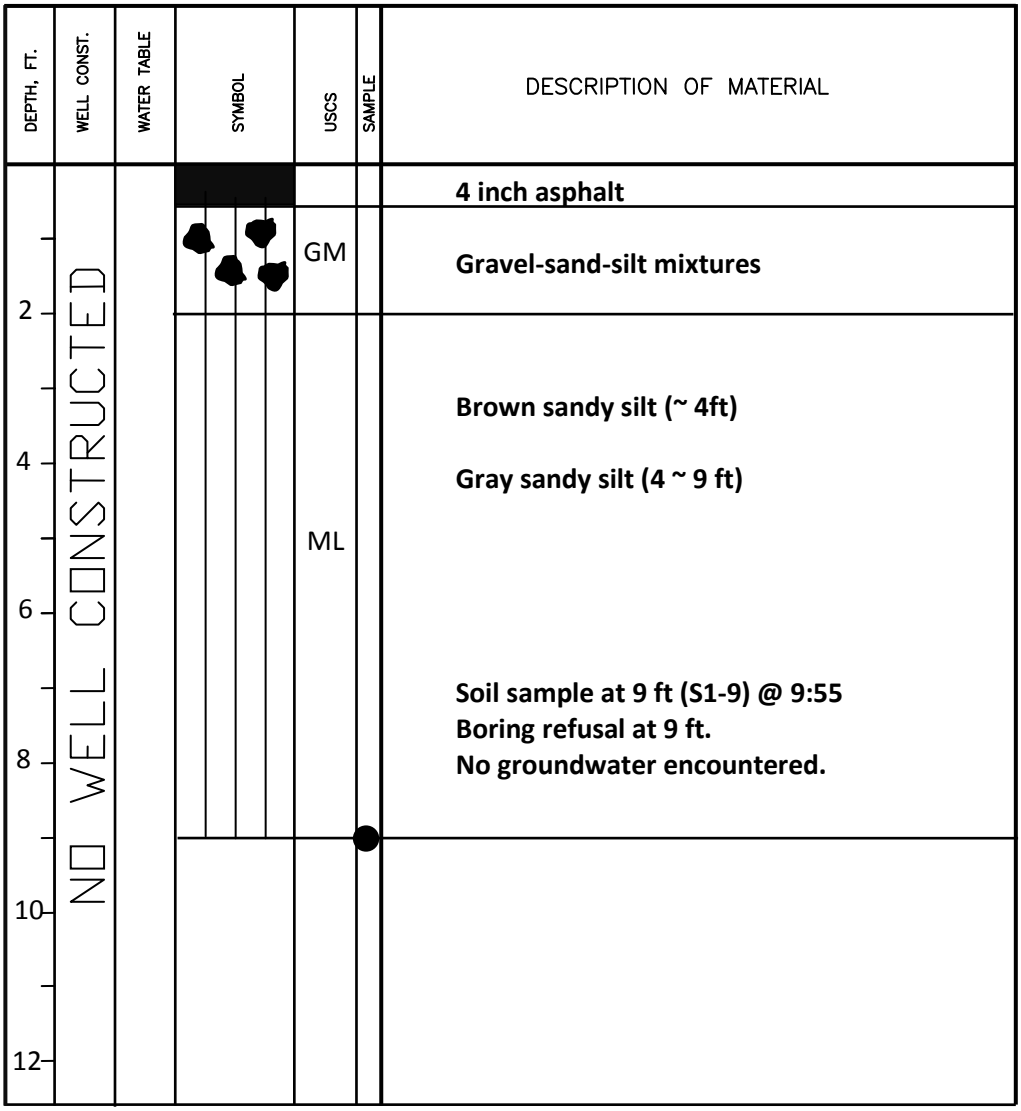
The Unified Soil Classification System (USCS)

April 15, 2011 | **Figure A1**

LOG OF BORING S1



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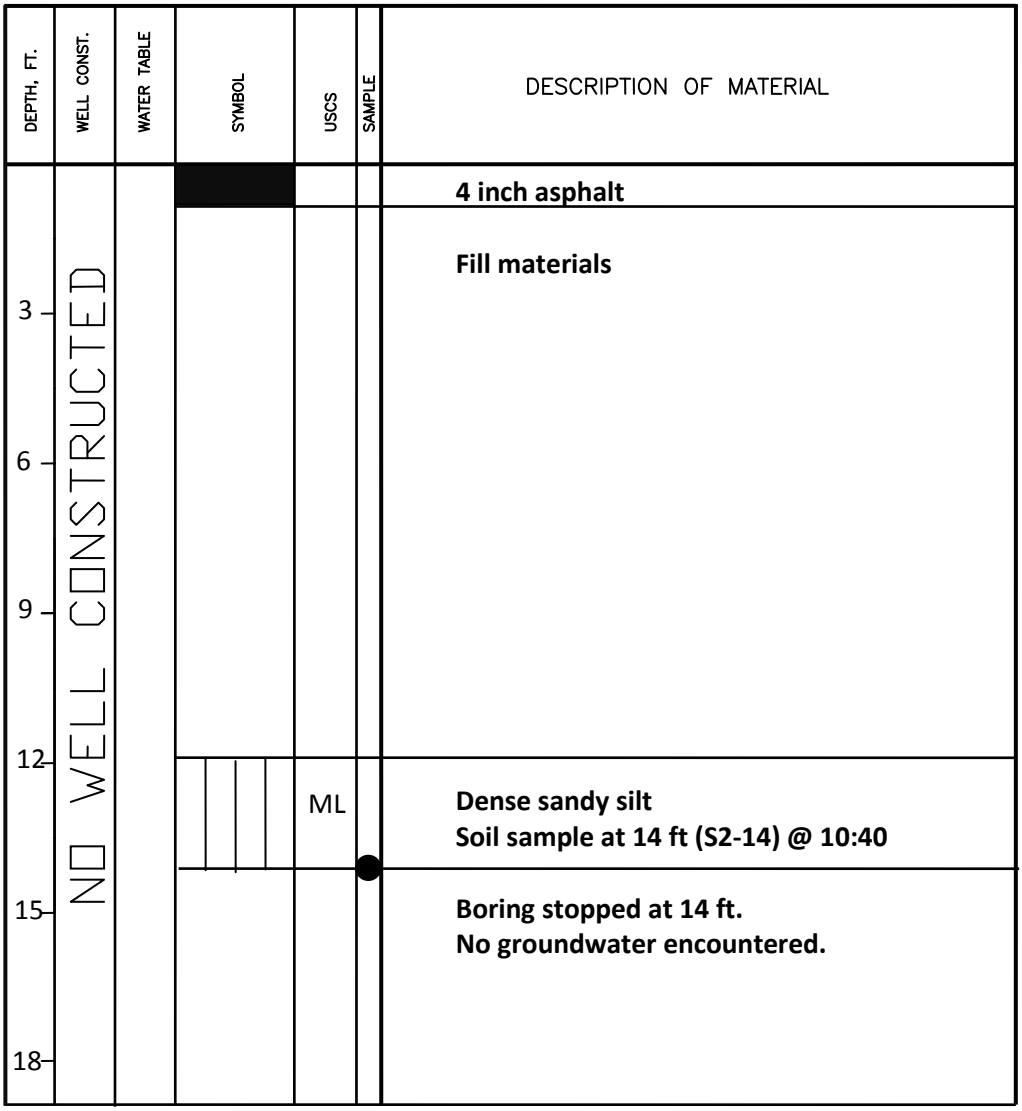
Manor Market

April 15, 2011 | **Figure A2**

LOG OF BORING S2



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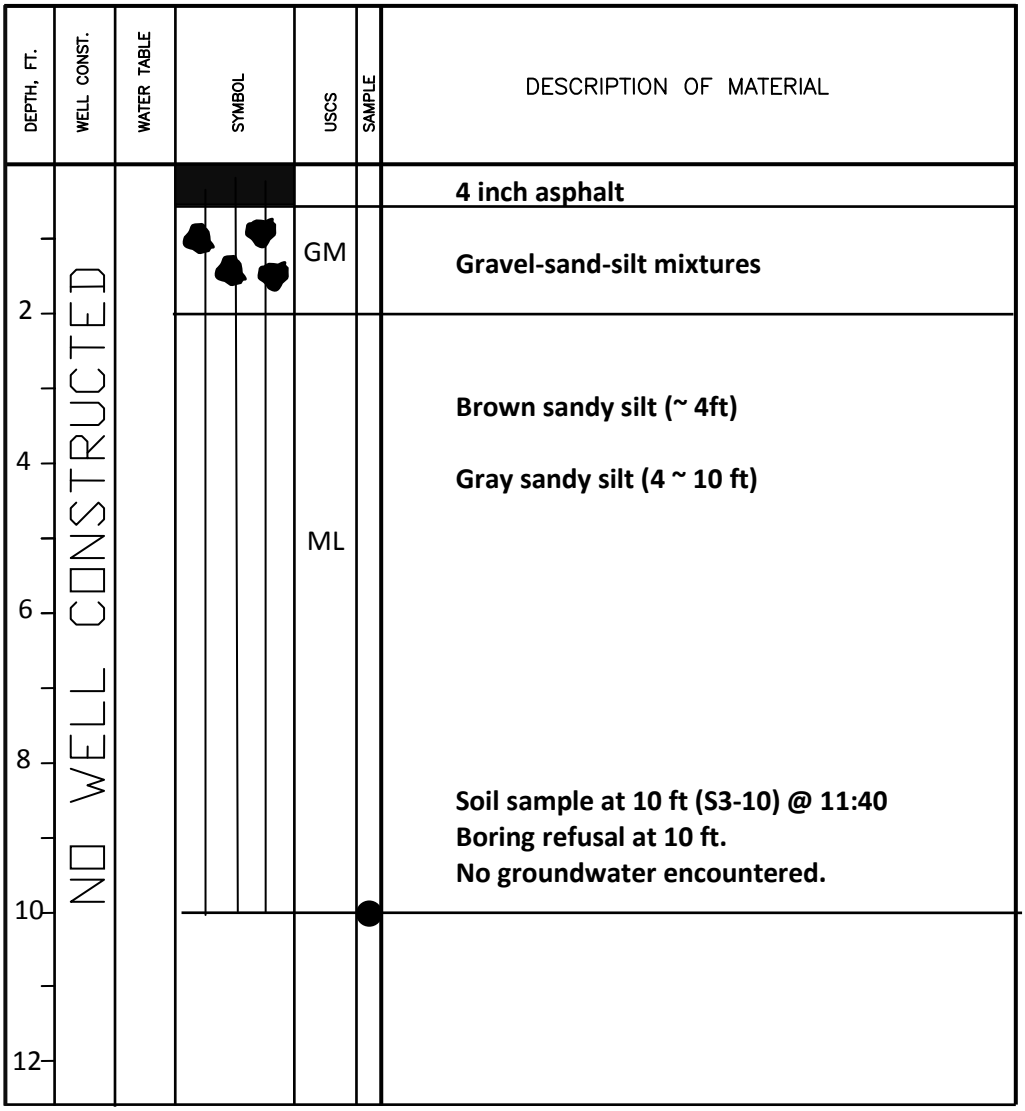
April 15, 2011 | **Figure A3**

LOG OF BORING S3



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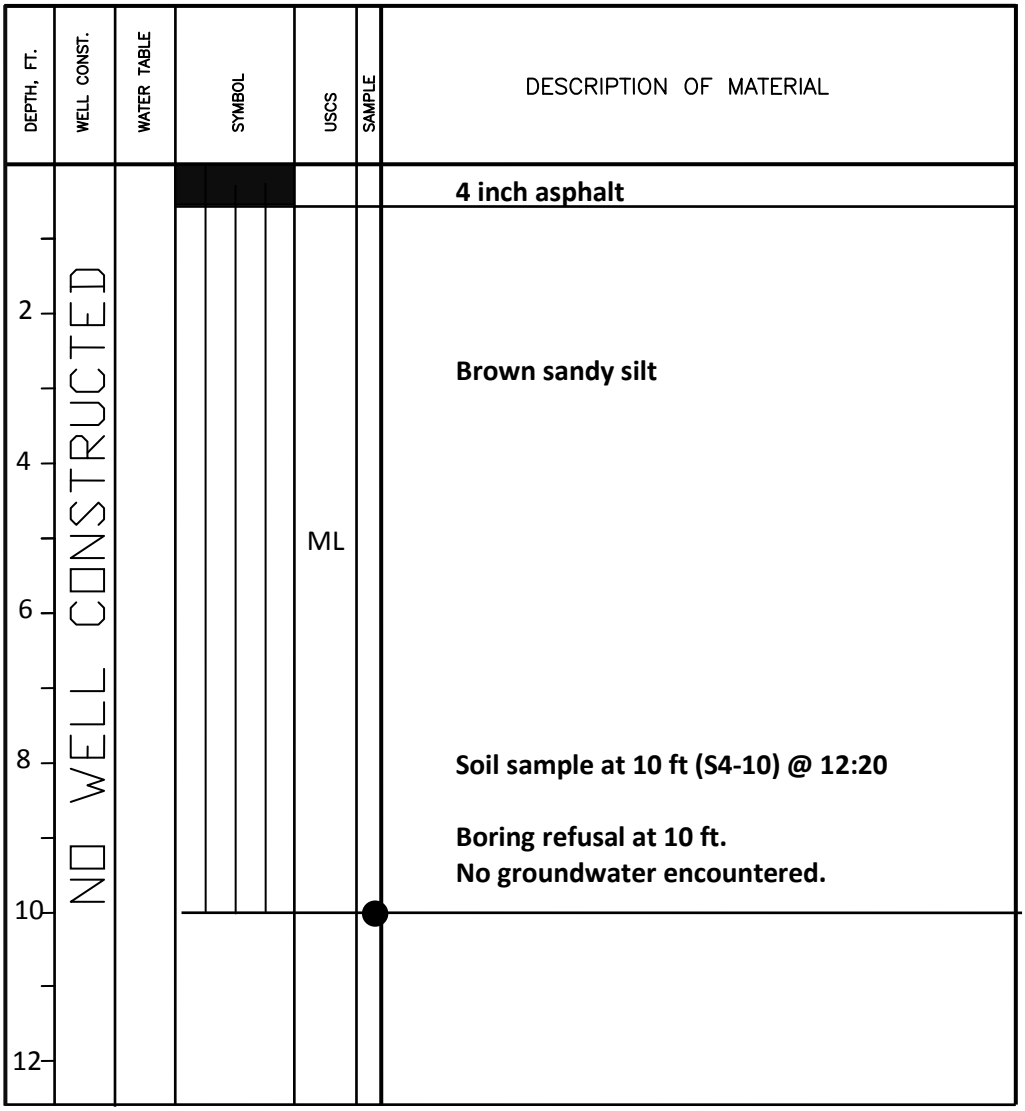
Manor Market

April 15, 2011 | **Figure A4**

LOG OF BORING S4



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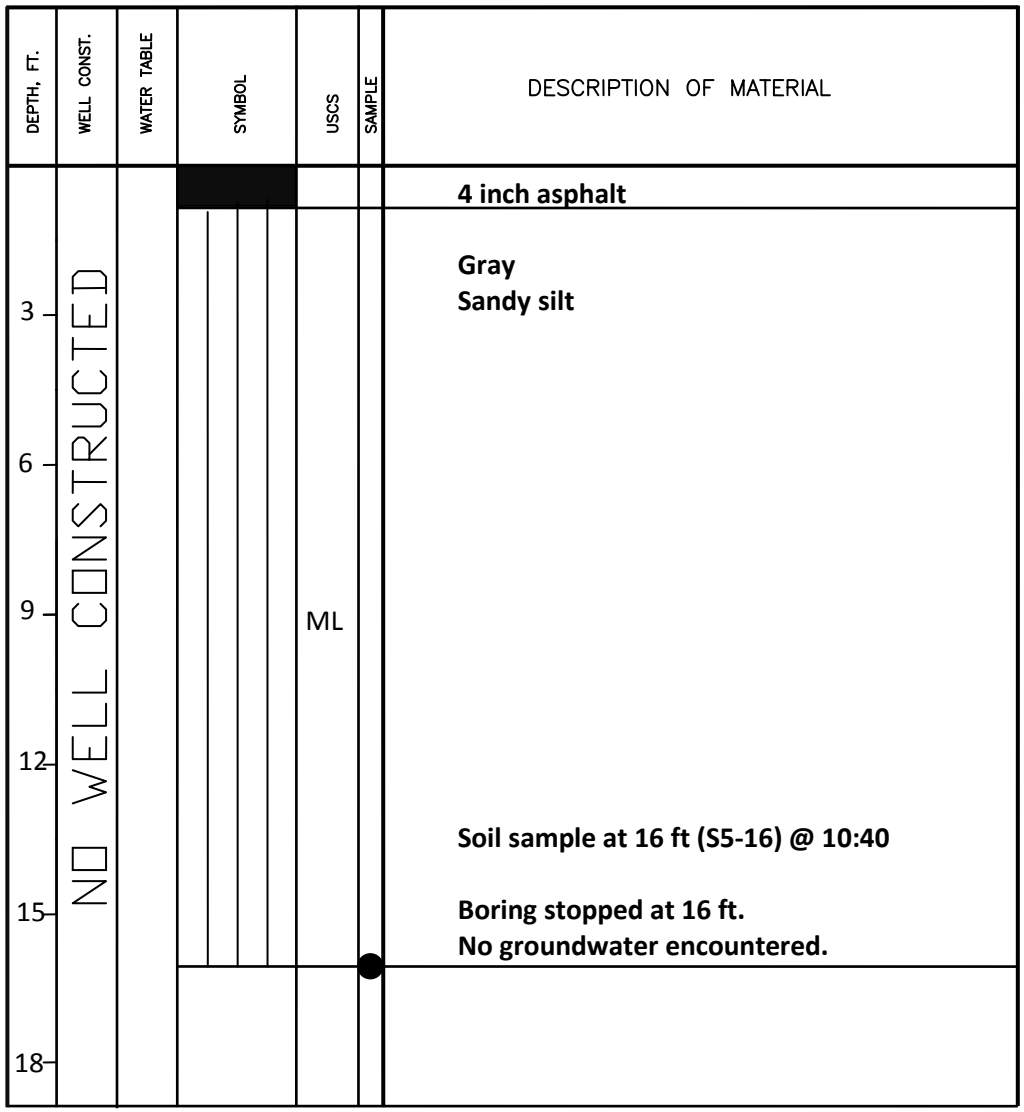
Manor Market

April 15, 2011 | **Figure A5**

LOG OF BORING S5



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Manor Market

April 15, 2011 | **Figure A6**

ASSOCIATED ENVIRONMENTAL GROUP, LLC **LOG OF BOREHOLE**

PROJECT:	Manor Market - Supplemental Site Characterization	**JOB # 11-124**	**BORING # B-1** **PAGE 1 OF 1**
Location:	3609 - 164th Street SW, Lynnwood, WA	**Approximate Elevation:**	
Subcontractor/Equipment:	ESN - Don Harnden / Brian Bower	**Drilling Method:**	Combo Rig - Hollow Stem Auger
Date:	8/24/2011	**Logged By:**	Y. Van

Depth (ft)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well
	Asphalt surface, 2 inches, underlain by Gray, dry, medium dense, silty gravelly SAND; medium size gravel, coarse grained sand. (FILL)	SW				0920	NA			NA
	At 2-1/2 to 3 ft bgs: Slight petroleum fuel odor .				B1-S1-2.5/3.0	0927		14.6		
5	Gray, dry, medium stiff, sandy SILT with local gravel. Moderate petroleum fuel odor.	ML								
	At 6 ft: 2 inch seam well sorted gravel.				B1-S2-5.5/6.0	0952		9.0		
10	Gray, wet, dense, sandy GRAVEL. Backfill for previous excavation. Surface water in backfill. (FILL)	GP			B1-S3-9.5/10.0	1005		29.3	Not Observed	
	Gray, dry, stiff, sandy SILT, minor fine size gravel, fine grained sand. Indurated silt. (Native Soil)	ML								
15					B1-S4-13.5/14.0	1026		1.8	Not Observed	
	At 17-1/2 ft to 18 ft: becomes stiff to very stiff SILT. No petroleum fuel odor.				B1-S5-17.5/18.0	1041		3.4	Not Observed	
20	Slow drilling - indurated silt.			⊗	B1-S6-19.5/20.0	1058		0.0		
	Gray, wet, dense, Poorly Graded SAND; well sorted medium grained sand.	SP								
	Gray, dry to moist, very stiff, sandy SILT; indurated.									
25	TD at 26 ft bgs. Groundwater encountered at approx. 23 ft to 24 ft bgs ATD. Temporary PVC tremmie placed at 5 ft to 25 ft. Collected Groundwater at 1155.	ML								
26	Boring backfilled with bentonite chips.				B1-S7-25.5/26.0	1132		2.5	Not Observed	

Explanation

- 2-inch O.D. split spoon sample
- ⊗ No Recovery
- Contact located approximately
- ATD — Groundwater level at time of drilling or date of measurement

Monitoring Well
- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC **LOG OF BOREHOLE**

PROJECT:	Manor Market - Supplemental Site Characterization	**JOB #** 11-124	**BORING #** B-2	**PAGE 1 OF 1**
Location:	3609 - 164th Street SW, Lynnwood, WA	**Approximate Elevation:**		
Subcontractor/Equipment:	ESN - Don Harnden / Brian Bower	**Drilling Method:**	Combo Rig - Push Probe	
Date:	8/24/2011	**Logged By:**	Y. Van	

Depth (ft)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well
	Asphalt surface, 2 inches, underlain by Gray, dry, medium dense, silty gravelly SAND; local gravel pieces, local brick pieces (FILL)	SW				1305	NA		Not Observed	NA
					B2-S1-2.5/3.0	1311		0.1		
	Gray, dry, medium stiff to stiff, sandy SILT, fine to medium grained sand. (Native Soil)	ML								
5					B2-S2-5.5/6.0	1316		0.1		
	No petroleum fuel odor.				B2-S3-7.5/8.0	1320		0.1		
10					B2-S4-9.5/10.0	1326		0.1		
					B2-S5-11.5/12.0	1332		0.2		
	At 13 ft: becomes stiff to very stiff. Color grades to dark gray.				B2-S6-13.0	1335		0.1		
15					B2-S7-14.5/15.0	1340		2.8		
					B2-S8-16.5/17.0	1346		9.8		
					B2-S9-18.5/19.0	1352		0.2		
20					B2-S10-20.5/21.0	1406		0.1		
	At 23 ft: dry to moist				B2-S11-22.5/23.0	1413		0.1		
	TD at 25 ft bgs. No groundwater encountered ATD. Boring backfilled with bentonite chips.									
25					B2-S12-24.5/25.0	1426		0.0		

Explanation

- 2-inch O.D. split spoon sample
- No Recovery
- Contact located approximately
- ATD — Groundwater level at time of drilling or date of measurement

Monitoring Well
- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC **LOG OF BOREHOLE**

PROJECT:	Manor Market - Supplemental Site Characterization	**JOB #** 11-124	**BORING #** B-3	**PAGE 1 OF 1**
Location:	3609 - 164th Street SW, Lynnwood, WA	**Approximate Elevation:**		
Subcontractor/Equipment:	ESN - Don Harnden / Brian Bower	**Drilling Method:**	Combo Rig - Push Probe	
Date:	8/24/2011	**Logged By:**	Y. Van	

Depth (ft)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well
	Asphalt surface, 2 inches, underlain by Gray, dry, medium dense, silty gravelly SAND. (FILL)	SW				1442	NA		Not Observed	NA
					B3-S1-2.5/3.0	1445		28.6		
	Gray, dry, medium stiff, sandy SILT, fine to medium grained sand. (Native Soil)	ML								
5	At 4 ft to 6 ft: Strong petroleum fuel odor .				B3-S2-5.5/6.0	1451		1047		
	No petroleum fuel odor.				B3-S3-7.5/8.0	1457		73.6		
10	At 9 ft to 10 ft: moderate petroleum fuel odor.				B3-S4-9.5/10.0	1502		4.5		
					B3-S5-11.5/12.0	1507		5.4		
					B3-S6-13.5/14.0	1510		7.3		
15					B3-S7-15.0/15.5	1514		8.6		
	At 17 ft: no petroleum fuel odor.				B3-S8-17.5/18.0	1519		1.6		
20					B3-S9-19.5/20.0	1525		2.7		
					B3-S10-21.5/22.0	1532		2.2		
	TD at 24 ft bgs. No groundwater encountered ATD. Boring backfilled with bentonite chips.				B3-S11-23.5/24.0	1540		1.1		
25										

Explanation

- 2-inch O.D. split spoon sample
- No Recovery
- Contact located approximately
- ATD — Groundwater level at time of drilling or date of measurement

Monitoring Well
- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC **LOG OF BOREHOLE**

PROJECT:	Manor Market - Supplemental Site Characterization	**JOB #** 11-124	**BORING #** B-4	**PAGE 1 OF 1**
Location:	3609 - 164th Street SW, Lynnwood, WA	**Approximate Elevation:**		
Subcontractor/Equipment:	ESN - Don Harnden / Brian Bower	**Drilling Method:**	Combo Rig - Push Probe	
Date:	8/24/2011	**Logged By:**	Y. Van	

Depth (ft)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well
	Asphalt surface, 2 inches, underlain by Gray, dry, medium dense, silty gravelly SAND. (FILL)	SW				1545	NA		Not Observed	NA
					B4-S1-2.5/3.0	1551		0.0		
	Gray, dry, stiff to very stiff, sandy SILT, fine to medium grained sand. (Native Soil)	ML								
5					B4-S2-5.5/6.0	1600		0.0		
	Refusal at 8 ft.				B4-S3-7.5/8.0	1606		0.0		
	TD at 8 ft bgs. No groundwater encountered ATD. Boring backfilled with bentonite chips.									
10										
15										
20										
25										

Explanation

- 2-inch O.D. split spoon sample
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (ATD)

Monitoring Well

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC — LOG OF BOREHOLE

PROJECT:	Manor Market - Suppl RI - 2nd Phase	**JOB #**	11-124	**BORING #**	MW-1 **PAGE 1 OF 2**
Location:	3609 - 164th Street SW, Lynnwood, WA	**Approximate Elevation:**			
Subcontractor/Equipment:	Western States Soil Conservation - CME 75	**Drilling Method:**	Hollow Stem Auger (H.S.A.) / CME 75		
Date:	2/8/2012	**Logged By:**	L. Chaidez		

Depth (ft)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well
	Asphalt surface, 2 inches underlain by Gray, dry, dense, sandy GRAVEL with silt. (FILL)	GP				1030				
5										
	Greenish-gray, wet, stiff, sandy SILT with clay.	ML							Not Observed	
10										
	Greenish-gray, moist, hard, SILT with fine sand.	ML			MW1-S1-12.0/13.5	1055	17/25/30	1.5	Not Observed	
15										
20										
	At 23 feet: some fine sand.				MW1-S2-23.0/24.5	1128	11/15/19	0.0		
25										

Explanation

- 2-inch O.D. split spoon sample
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement

Monitoring Well

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC — LOG OF BOREHOLE

PROJECT:	Manor Market - Suppl RI - 2nd Phase	**JOB #**	11-124	**BORING #**	MW-1 (cont) **PAGE 2 OF 2**
Location:	3609 - 164th Street SW, Lynnwood, WA	**Approximate Elevation:**			
Subcontractor/Equipment:	Western States Soil Conservation - CME 75	**Drilling Method:**	Hollow Stem Auger (H.S.A.) / CME 75		
Date:	2/8/2012	**Logged By:**	L. Chaidez		

Depth (ft)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well
		ML								
30	At 30 feet: some fine to medium gravel.	GW			MW1-S3-30.0/31.5	1152	14/21/31	0.0	Not Observed	
35					MW1-S4-35.0/36.5	1213	16/34/50 5"	0.0	Not Observed	
	TD at 36-1/2 feet bgs. Groundwater encountered at approximately 8-1/2 feet bgs ATD. Completed as monitoring well MW-1. Well Schematics: 0.020 slot screen: 20 feet to 35 feet. Colorado Silica Sand 10x20: 18 feet to 35 feet. Bentonite Chips: 1 feet to 18 feet. Cement grout: 1/2 feet to 1 feet. Ecology Well Tag No. BCM 225.									
40										
45										
50										

Explanation

- 2-inch O.D. split spoon sample
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement

Monitoring Well

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC — LOG OF BOREHOLE

PROJECT:	Manor Market - Suppl RI - 2nd Phase	**JOB #**	11-124	**BORING #**	MW-2 **PAGE 1 OF 2**
Location:	3609 - 164th Street SW, Lynnwood, WA	**Approximate Elevation:**			
Subcontractor/Equipment:	Western States Soil Conservation - CME 75	**Drilling Method:**	Hollow Stem Auger (H.S.A.) / CME 75		
Date:	2/8/2012	**Logged By:**	L. Chaidez		

Depth (ft)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well
	Asphalt surface, 2 inches underlain by Brown, dry to moist, medium dense, silty SAND, fine grained sand with fine to coarse gravel. (FILL)	SM				1544				
5										
10	Brown, moist, stiff, sandy SILT, fine grained sand, trace of fine gravel, trace of clay.	ML								
15	At 13 feet; light gray, trace of coarse gravel									
20	At 19 feet; some fine to medium gravel									
25	At 23 feet: trace of fine grained sand, no gravel.				MW2-S1-23.0/24.5	1631	33/38/38	0.0	Not Observed	

Explanation

- 2-inch O.D. split spoon sample
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement

Monitoring Well

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC — LOG OF BOREHOLE

PROJECT:	Manor Market - Suppl RI - 2nd Phase	**JOB #**	11-124	**BORING #**	MW-2 (cont) **PAGE 2 OF 2**
Location:	3609 - 164th Street SW, Lynnwood, WA	**Approximate Elevation:**			
Subcontractor/Equipment:	Western States Soil Conservation - CME 75	**Drilling Method:**	Hollow Stem Auger (H.S.A.) / CME 75		
Date:	2/8/2012	**Logged By:**	L. Chaidez		

Depth (ft)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well
	Light gray, moist, stiff, sandy SILT, fine grained sand, trace medium to coarse gravel.	ML								
30										
35										
40	TD at 36-1/2 feet bgs. Groundwater not encountered ATD. Completed as monitoring well MW-2. Well Schematics: 0.020 slot screen: 20 feet to 35 feet. Colorado Silica Sand 10x20: 17 feet to 35 feet. Bentonite Chips: 1 feet to 17 feet. Cement grout: 1/2 feet to 1 feet. Ecology Well Tag No. BCM 230.									
45										
50										

Explanation

- 2-inch O.D. split spoon sample
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement

Monitoring Well
- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC — LOG OF BOREHOLE

PROJECT:	Manor Market - Suppl RI - 2nd Phase	**JOB #**	11-124	**BORING #**	MW-3 **PAGE 1 OF 2**
Location:	3609 - 164th Street SW, Lynnwood, WA	**Approximate Elevation:**			
Subcontractor/Equipment:	Western States Soil Conservation - CME 75	**Drilling Method:**	Hollow Stem Auger (H.S.A.) / CME 75		
Date:	2/9/2012	**Logged By:**	L. Chaidez		

Depth (ft)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well
	Asphalt surface, 2 inches underlain by Brown, moist, medium dense, silty SAND, fine to coarse grained sand with fine to coarse gravel. (FILL)	SM				0957				
5	Greenish-gray, moist, stiff, sandy SILT, fine sand, trace fine to medium gravel..	ML								
	At 7 feet: brown, trace of clay, hydrocarbon fuel odor in soil.				MW3-S1-7.0	1028		26.8	Not Observed	
10										
	At 13 feet: light brown, hard, fine gravel.		I	I	MW3-S2-13.0/14.5	1045	13/24/33	0.0	Not Observed	
15										
20										
	Greenish-gray, dry to moist, hard, SILT, trace of fine sand.	ML	I	I	MW3-S3-23.0/24.5	1113	18/35/33	0.0	Not Observed	
25										

Explanation

- 2-inch O.D. split spoon sample
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement

Monitoring Well

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC — LOG OF BOREHOLE

PROJECT:	Manor Market - Suppl RI - 2nd Phase	**JOB #**	11-124	**BORING #**	MW-3 (cont) **PAGE 2 OF 2**
Location:	3609 - 164th Street SW, Lynnwood, WA	**Approximate Elevation:**			
Subcontractor/Equipment:	Western States Soil Conservation - CME 75	**Drilling Method:**	Hollow Stem Auger (H.S.A.) / CME 75		
Date:	2/9/2012	**Logged By:**	L. Chaidez		

Depth (ft)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well
		ML								
	At 27 feet: trace of clay, trace fine to coarse gravel.									
30	At 29-1/2 feet: gray, moist, silt									
35			I	I	MW3-S4-35.0/36.5	1153	18/28/24	0.0	Not Observed	
	TD at 36-1/2 feet bgs. Groundwater not ATD. Completed as monitoring well MW-1. Well Schematics: 0.020 slot screen: 20 feet to 35 feet. Colorado Silica Sand 10x20: 17 feet to 35 feet. Bentonite Chips: 1 feet to 18 feet. Cement grout: 1/2 feet to 1 feet. Ecology Well Tag No. BCM 231.									
40										
45										
50										

Explanation

- 2-inch O.D. split spoon sample
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement

Monitoring Well

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-4*	**PAGE 1 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 28, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Half Foot	PID Reading	Sheen	Monitoring Well Construction
	6" of asphalt underlain by 6" of concrete underlain by;					9:00				
	at 3.0 feet; fill				MW4-4.0	9:06		212		
5										
	Light gray, moist, very stiff, SANDY SILT; fine grain sand with trace fine to medium grain gravel.	ML						4		
					MW4-6.5	9:08	12-16-13	1562		
10								381		
					MW4-11.5	9:13	12-14-15	308		
15	at 14.0 feet; transition to gray									
	at 15.0 feet; hard							11.55		
					MW4-16.5	9:23	13-19-22	607		
20										
								469		
					MW4-21.5	9:30	16-19-30	237		
25								166		

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4-inch bentonite chips
- Silica sand
- 2-inch diameter blank PVC casing from
- 2-inch diameter PVC 0.01 slotted screen

Ecology Tag # BJA-863

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-4*	**PAGE 2 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 28, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
			26							
			27		MW4-26.5	9:36	20-20-20	148		
			28							
			29							
30			30							
			31					213		
			32		MW4-31.5	9:49	21-16-21	395		
			33							
			34							
35			35							
			36							
			37		MW4-36.5	10:00	50	317		

Boring terminated at 36.5 feet; converted to MW-4 set with 15' of screen and 20' of blank; backfilled with sand to 2' above the well screen and bentonite chips to 3 feet below ground surface.

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4 inch bentonite chips
- Silica sand
- 2-inch diameter PVC blank casing
- 2-inch diameter PVC 0.010" slotted casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-5*	**PAGE 1 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 26, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/ 1/2 Foot	PID Reading	Sheen	Monitoring Well Construction
	3" of asphalt underlain by 6" of concrete;					12:05				
	Brown, moist, medium dense, SILTY SAND; fine grain sand	SM						108		
5	at 5.0 feet; transition to light brown, moist, hard, SANDY SILT; fine sand with trace fine to medium grain gravel	ML			MW5-6.5	12:11	13-16-20	264		
10	at 10.0 feet; gray				MW5-11.5	12:21	20-21-20			
15					MW5-16.5	12:25	18-23-27	68.8		
20					MW5-21.5	12:29	12-15-19	42.9		
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4-inch bentonite chips
- Silica sand
- 2-inch diameter blank PVC casing from
- 2-inch diameter PVC 0.01 slotted screen

Ecology Tag # BJA

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-5*	**PAGE 2 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 26, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
30			26		MW5-26.5	12:38	33-41-50	10.1		
			27							
			28							
			29							
			30		MW5-31.5	12:46	33-31-40	89.6		
			31							
			32							
			33							
			34							
35			35							
			36							
			37		MW5-36.5	12:50	30-30-30	4.8		

Boring terminated at 36.5 feet; converted to MW-5 set with 15' of screen and 20' of blank; backfilled with sand to 2' above the well screen and bentonite chips to 3 feet below ground surface.

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4 inch bentonite chips
- Silica sand
- 2-inch diameter PVC blank casing
- 2-inch diameter PVC 0.010" slotted casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-6*	**PAGE 1 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 26, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	6" of asphalt underlain by;					8:37				
								659		
5	Gray, moist, medium dense, SILTY SAND; fine grain sand	SP								
	Gray, moist, medium dense, SAND; fine to medium grain sand	SP			MW6-6.5	8:58	2-3-5	667		
10	Gray, wet, medium dense, SAND; fine to medium grain sand	SP								
	at 11.5 feet; moist				MW6-11.5	9:02	1-2-3	6.2		
15										
	Gray, moist, stiff, SANDY SILT; fine grain sand	ML			MW6-16.5	9:11	n/a	4.8		
20										
	at 21.0 feet; trace fine grain gravel				MW6-21.5	9:25	n/a	10.3		
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4-inch bentonite chips
- Silica sand
- 2-inch diameter blank PVC casing from
- 2-inch diameter PVC 0.01 slotted screen

Ecology Tag # BJA-858

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-6*	**PAGE 2 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 26, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
			26							
			27		MW6-26.5	9:33		3.5		
			28							
			29							
30			30							
			31							
			32		MW6-31.5	9:39	30-31-30	5.4		
			33							
			34							
35			35						No	
	Gray, wet, very dense, SAND; fine grain sand	SP								
	Gray, moist, hard, SANDY SILT with trace gravel; fine grain sand, fine grain gravel	ML	36							
			37		MW6-36.5	9:48	26-31-36	6.1		

Boring terminated at 36.5 feet; converted to MW-6 set with 15' of screen and 20' of blank; backfilled with sand to 2' above the well screen and bentonite chips to 3 feet below ground surface.

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4 inch bentonite chips
- Silica sand
- 2-inch diameter PVC blank casing
- 2-inch diameter PVC 0.010" slotted casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-7*	**PAGE 1 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 27, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	3" of asphalt underlain by; 3" of concrete underlain by;					14:07				
					MW7-3.0	14:18		266		
	Light brown, moist, medium stiff, SANDY SILT with trace gravel; fine grain sand, fine to medium grain gravel	ML								
5	at 5.0 feet; hard							133		
					MW7-6.5	18:32	30-20-20	25.7		
10								32.0		
					MW7-11.5	14:39	21-20-20	3.0		
15								34.0		
	at 15.5 feet; transition to gray				MW7-16.5	14:48	19-20-28	7.2		
20								56.4		
					MW7-21.5	14:55	24-28-31	29.6		
25								4.7		

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- AT — Groundwater level at time of drilling or date of measurement

Monitoring Well Construction

- Grout/Concrete
- 3/4-inch bentonite chips
- Silica sand
- 2-inch diameter blank PVC casing from
- 2-inch diameter PVC 0.01 slotted screen

Ecology Tag # BJA-862

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-7*	**PAGE 2 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 27, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
			26							
			27		MW7-26.5	15:30	17-21-19	5.3		
			28							
			29							
30			30							
			31					0.4		
			32		MW7-31.5	15:09	17-15-14	54		
			33							
			34							
35			35							
			36					3.6		
			37		MW7-36.5	15:20	32-21-31	3.7		

Boring terminated at 36.5 feet; converted to MW-7 set with 15' of screen and 20' of blank; backfilled with sand to 2' above the well screen and bentonite chips to 3 feet below ground surface.

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4 inch bentonite chips
- Silica sand
- 2-inch diameter PVC blank casing
- 2-inch diameter PVC 0.010" slotted casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-8*	**PAGE 1 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 27, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	6" of asphalt underlain by;					10:56				
								499		
	Light brown, moist, medium stiff, SANDY SILT with trace gravel; fine grain sand, fine to medium grain gravel	ML								
5	at 5.0 feet; hard				MW8-6.5	11:14	15-16-15	2.9		
10					MW8-11.5	11:20	15-11-11	1.9		
15	at 15.0 feet; transition to gray				MW8-16.5	11:28	12-14-20	33.5		
20	at 20.0 feet; stiff				MW8-21.5	11:37	24-28-30	1.6		
	at 22.5 feet; wet	▼								
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4-inch bentonite chips
- Silica sand
- 2-inch diameter blank PVC casing from
- 2-inch diameter PVC 0.01 slotted screen

Ecology Tag # BJA-861

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-8*	**PAGE 2 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 27, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	at 25.0 feet; moist		26							
			27		MW8-26.5	11:43	24-26-36	4.7		
			28							
			29							
30			30							
			31							
			32		MW8-31.5	11:50	16-20-20	11.5		
			33							
			34							
35			35							
			36							
			37		MW8-36.5	11:58	33-35-41	1.5		

Boring terminated at 36.5 feet; converted to MW-8 set with 15' of screen and 20' of blank; backfilled with sand to 2' above the well screen and bentonite chips to 3 feet below ground surface.

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4 inch bentonite chips
- Silica sand
- 2-inch diameter PVC blank casing
- 2-inch diameter PVC 0.010" slotted casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-9*	**PAGE 1 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 27, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	6" of asphalt underlain by;					8:38				
	Light brown, moist, very stiff, SANDY SILT with trace gravel; fine grain sand, fine to medium grain gravel	ML						95		
5	at 5.0 feet; hard									
	at 6.5 feet; trace fine to medium grain gravel				MW9-6.5	8:56	15-22-29	637		
10	at 11.0 feet; gray				MW9-11.5	9:05	19-22-25	14.6	Slight HC odor	
15					MW9-16.5	9:11	20-20-20	6.2		
	at 17.0 feet; light brown									
20										
	at 21.5 feet; gray	▼			MW9-21.5	9:23	16-17-22	32.7		
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4-inch bentonite chips
- Silica sand
- 2-inch diameter blank PVC casing from
- 2-inch diameter PVC 0.01 slotted screen

Ecology Tag # BJA-860

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-9*	**PAGE 2 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *May 27, 2015*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
			26							
			27		MW9-26.5	9:29	25-25-26	17.8		
			28							
			29							
30			30							
			31							
			32		MW9-31.5	9:34	21-27-21	22.8		
			33							
			34							
35			35							
			36							
			37		MW9-36.5	9:43	33-50-6	7.0		

Boring terminated at 36.5 feet; converted to MW-9 set with 15' of screen and 20' of blank; backfilled with sand to 2' above the well screen and bentonite chips to 3 feet below ground surface.

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4 inch bentonite chips
- Silica sand
- 2-inch diameter PVC blank casing
- 2-inch diameter PVC 0.010" slotted casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-10*	**PAGE 1 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *March 24, 2016*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Half Foot	PID Reading	Sheen	Monitoring Well Construction
	12" of asphalt underlain by;					0:00				
5										
	Brown, dry, stiff, SANDY SILT; fine grain sand.	ML			MW10-6.5	9:43	10-16-19	0		
10										
	Brown, dry, stiff, SILT				MW10-11.5	9:41	10-13-21	0		
15										
	at 15.5 feet; transition to moist, gray				MW10-16.5	10:03	15-6-15	0 607		
20										
	@ 20.0'; Interbedded super fine sand layers @20.5'; gray SILT				MW10-21.5	10:17	26-54-6	36.5		
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- AT — Groundwater level at time of drilling or date of measurement

Monitoring Well Construction

- Grout/Concrete
- 3/4-inch bentonite chips
- Silica sand
- 2-inch diameter blank PVC casing from
- 2-inch diameter PVC 0.01 slotted screen

Ecology Tag # BJA-863

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-10*	**PAGE 2 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *March 24, 2016*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
			26							
			27		MW10-26.5	10:29	39-56	26.6		
			28							
			29							
30			30							
			31							
			32		MW10-31.5	10:37	30-31-30	20.4		
			33							
			34							
35			35							
	trace gravel		36							
			37		MW10-36.5	10:49	26-29-30	14.8		

Boring terminated at 36.5 feet; converted to MW-10 set with 20' of screen and 15' of blank; backfilled with sand to 2' above the well screen and bentonite chips to 3 feet below ground surface.

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4 inch bentonite chips
- Silica sand
- 2-inch diameter PVC blank casing
- 2-inch diameter PVC 0.010" slotted casing

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-11*	**PAGE 1 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *March 24, 2016*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/ 1/2 Foot	PID Reading	Sheen	Monitoring Well Construction
	12" of asphalt underlain by					12:47				
								108		
		SM								
5										
	Gray, dry, siff, SANDY SILT; fine interbedded sands	ML								
					MW11-5	13:08	13-16-20	264		
10										
	Brown, moist, stiff, SILT									
					MW11-10.5	13:14	20-21-20			
15										
	transition to darker gray									
					MW11-15.5	13:23	18-23-27	68.8		
20										
					MW11-20.5	13:42	12-15-19	42.9		
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- AT — Groundwater level at time of drilling or date of measurement

Monitoring Well Construction

- Grout/Concrete
- 3/4-inch bentonite chips
- Silica sand
- 2-inch diameter blank PVC casing from
- 2-inch diameter PVC 0.01 slotted screen

Ecology Tag # BJA

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Manor Market*	**JOB # *11-124***	**Monitoring Well #** *MW-11*	**PAGE 2 OF 2**
Location: *3609-164th Street, Lynnwood, Washington*	**Approximate Elevation:** 607 feet AMSL		
Subcontractor / Driller: Cascade/James	**Equipment / Drilling Method: Full Size Auger/Split Spoon**		
Date: *March 24, 2016*	**Logged By:** *B. Dilba*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
			26							
			27		MW11-25.5	13:52	33-41-50	10.1		
			28							
			29							
30			30							
			31		MW11-30.5	13:59	33-31-40	89.6		
			32							
			33							
			34							
35			35							
			36							
			37		MW11-35.5	14:24	30-30-30	4.8		

Boring terminated at 36.5 feet; converted to MW-11 set with 20' of screen and 15' of blank; backfilled with sand to 2' above the well screen and bentonite chips to 3 feet below ground surface.

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- Groundwater level at time of drilling or date of measurement (AT)

Monitoring Well Construction

- Grout/Concrete
- 3/4 inch bentonite chips
- Silica sand
- 2-inch diameter PVC blank casing
- 2-inch diameter PVC 0.010" slotted casing

ESN NORTHWEST, INC. | Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: AEG

ADDRESS: 1018 CAPITOL WAY S # 201, OLYMPIA, WA 98501

PHONE: 360-352-9835 FAX: -8164

CLIENT PROJECT #: 4-127 PROJECT MANAGER: M CHUN

DATE: 8/24/11 PAGE 1 OF 1

PROJECT NAME: MANOR MARKET PH II ESA

LOCATION: 3609 164th St SW, Lynnwood, WA

COLLECTOR: Y. VAN DATE OF COLLECTION 8/24/11

Sample Number	Depth	Time	Sample Type	Container Type	TPH-HCID	TPH - DIESEL & OIL	TPH - GASOLINE	BTEX	VOC 8260CL (PCE breakdown)	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos-PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. B1-S3-5.5/6.0	5.5-6	0958	SOIL	VOA, 4oz			X	X														Fuel odor	3	
2. B1-S7-25.5/26	25.5-26	1132	SOIL	VOA, 4oz			X	X															3	
3. B1-W	—	1155	H2O	VOAs			X	X	X														2	
4. B2-S5-11.5/12.0	11.5-12	1332	SOIL	VOA, 4oz			X	X	X	Y													3	
5. B2-S8-16.5/17.0	16.5-17.0	1346	SOIL	VOA, 4oz			X	X															3	
6. B3-S2-5.5/6.0	5.5-6.0	1451	SOIL	VOA, 4oz			X	X	X														3	
7. B3-S6-11.5/12.0	11.5-12.0	1507	SOIL	VOA, 4oz			X	X															3	
8. B4-S3-7.5/8.0	7.5-8	1606	SOIL	VOA, 4oz			X	X															3	
9.																								
10.																								
11.																								
12.																								
13.																								
14.																								
15.																								
16.																								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
	8/24/11 1700		8-27-11 1700
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☑ ESN DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

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:
PCE breakdown lab analysis for B1-W

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

ESN NORTHWEST CHEMISTRY LABORATORY

AEG
MANOR MARKET PH II ESA
Client Project #11-127
Lynnwood, Washington

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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	8/31/2011	8/31/2011	nd	nd	nd	nd	nd	91%
LCS	8/31/2011	8/31/2011	113%	91%	88%	97%	120%	89%
B1-S3-5.5/6.0	8/24/2011	8/31/2011	**1.3**	**2.0**	**5.0**	**12**	**190**	85%
B1-S7-25.5/26	8/24/2011	8/31/2011	**0.11**	nd	nd	**0.11**	**12**	93%
B2-S5-11.5/12.0	8/24/2011	8/31/2011	nd	nd	nd	nd	nd	91%
B2-S8-16.5/17.0	8/24/2011	9/1/2011	nd	nd	nd	nd	nd	92%
B3-S2-5.5/6.0	8/24/2011	8/31/2011	**0.24**	**0.67**	**0.48**	**0.73**	**22**	92%
B3-S6-11.5/12.0	8/24/2011	8/31/2011	nd	nd	nd	nd	nd	101%
B4-S3-7.5/8.0	8/24/2011	8/31/2011	nd	nd	nd	nd	nd	90%
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

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

Sample Number	Date Analyzed	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Gasoline Range Organics (ug/L)	Surrogate Recovery (%)
Method Blank	8/26/2011	nd	nd	nd	nd	nd	87%
LCS	8/26/2011	129%	114%	111%	109%	85%	93%
B1-W	8/26/2011	**170**	**72**	**100**	**280**	**2100**	95%
Reporting Limits		1.0	1.0	1.0	3.0	100	

"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

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Analysis of Chlorinated Volatile Organic Compounds in Soil by Method 8260

Analytical Results

8260B Chlorinated, µg/kg		**MTH BLK**	**LCS**	**B3-S2-5.5/6.0**
Matrix		Soil	Soil	Soil
Date extracted	Reporting	08/31/11	08/31/11	08/24/11
Date analyzed	Limits	08/31/11	08/31/11	08/31/11
Dichlorodifluoromethane	50	nd		nd
Chloromethane	50	nd		nd
Vinyl chloride	50	nd	70%	nd
Chloroethane	50	nd		nd
Trichlorofluoromethane	50	nd		nd
1,1-Dichloroethene	50	nd	74%	nd
Methylene chloride	20	nd		nd
trans-1,2-Dichloroethene	50	nd		nd
1,1-Dichloroethane	50	nd		nd
cis-1,2-Dichloroethene	50	nd		nd
2,2-Dichloropropane	50	nd		nd
Chloroform	50	nd	104%	nd
Bromochloromethane	50	nd		nd
1,1,1-Trichloroethane	50	nd		nd
1,2-Dichloroethane (EDC)	50	nd		nd
1,1-Dichloropropene	50	nd		nd
Carbon tetrachloride	50	nd		nd
Trichloroethene (TCE)	20	nd	106%	nd
1,2-Dichloropropane	50	nd		nd
Bromodichloromethane	50	nd		nd
cis-1,3-Dichloropropene	50	nd		nd
trans-1,3-Dichloropropene	50	nd		nd
1,1,2-Trichloroethane	50	nd		nd
1,3-Dichloropropane	50	nd		nd
Dibromochloromethane	50	nd		nd
Tetrachloroethene (PCE)	20	nd	75%	nd
Chlorobenzene	50	nd	93%	nd
1,1,1,2-Tetrachloroethane	50	nd		nd
1,1,2,2-Tetrachloroethane	50	nd		nd
1,2,3-Trichloropropane	50	nd		nd
2-Chlorotoluene	50	nd		nd
4-Chlorotoluene	50	nd		nd
1,3-Dichlorobenzene	50	nd		nd
1,4-Dichlorobenzene	50	nd		nd
1,2-Dichlorobenzene	50	nd		nd
1,2-Dibromo-3-Chloropropane	50	nd		nd
1,2,4-Trichlorobenzene	50	nd		nd
Hexachloro-1,3-butadiene	50	nd		nd
1,2,3-Trichlorobenzene	50	nd		nd

Surrogate recoveries			
Dibromofluoromethane	83%	79%	79%
Toluene-d8	81%	67%	78%
4-Bromofluorobenzene	91%	89%	92%

Data Qualifiers and Analytical Comments

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

ESN NORTHWEST CHEMISTRY LABORATORY

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lab@esnnw.com

Analysis of Chlorinated Volatile Organic Compounds in Water by Method 8260

Analytical Results

8260B Chlorinated, µg/L		**MTH BLK**	**LCS**	**B1-W**
Matrix	Reporting	Water	Water	Water
Date analyzed	Limits	08/26/11	08/26/11	08/26/11
Dichlorodifluoromethane	1.0	nd		nd
Chloromethane	1.0	nd		nd
Vinyl chloride	0.2	nd	127%	nd
Chloroethane	1.0	nd		nd
Trichlorofluoromethane	1.0	nd		nd
1,1-Dichloroethene	1.0	nd	135%	nd
Methylene chloride	1.0	nd		nd
trans-1,2-Dichloroethene	1.0	nd		nd
1,1-Dichloroethane	1.0	nd		nd
cis-1,2-Dichloroethene	1.0	nd		nd
2,2-Dichloropropane	1.0	nd		nd
Chloroform	1.0	nd	135%	**2.3**
Bromochloromethane	1.0	nd		nd
1,1,1-Trichloroethane	1.0	nd		nd
1,2-Dichloroethane (EDC)	1.0	nd		nd
1,1-Dichloropropene	1.0	nd		nd
Carbon tetrachloride	1.0	nd		nd
Trichloroethene (TCE)	1.0	nd	124%	nd
1,2-Dichloropropane	1.0	nd		nd
Bromodichloromethane	1.0	nd		nd
cis-1,3-Dichloropropene	1.0	nd		nd
trans-1,3-Dichloropropene	1.0	nd		nd
1,1,2-Trichloroethane	1.0	nd		nd
1,3-Dichloropropane	1.0	nd		nd
Dibromochloromethane	1.0	nd		nd
Tetrachloroethene (PCE)	1.0	nd	95%	nd
Chlorobenzene	1.0	nd	107%	nd
1,1,1,2-Tetrachloroethane	1.0	nd		nd
1,1,2,2-Tetrachloroethane	1.0	nd		nd
1,2,3-Trichloropropane	1.0	nd		nd
2-Chlorotoluene	1.0	nd		nd
4-Chlorotoluene	1.0	nd		nd
1,3-Dichlorobenzene	1.0	nd		nd
1,4-Dichlorobenzene	1.0	nd		nd
1,2-Dichlorobenzene	1.0	nd		nd
1,2-Dibromo-3-Chloropropane	1.0	nd		nd
1,2,4-Trichlorobenzene	1.0	nd		nd
Hexachloro-1,3-butadiene	1.0	nd		nd
1,2,3-Trichlorobenzene	1.0	nd		nd
Surrogate recoveries				
Dibromofluoromethane		118%	103%	91%
Toluene-d8		81%	93%	75%
4-Bromofluorobenzene		87%	93%	95%

Data Qualifiers and Analytical Comments

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

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: FEB. 9, 2012 Page: 1 of 1

Client: AEG
Project Manager: YEN-VY
Address: 1018 CAPITOL WAY S.
Project Name: MANOR MARKET
Phone: (360) 352-9835 Fax:
Location: 3609 164th St. City: LYNNWOOD, WA.
Client Project # 11-124
Collector: LEO CHAIDEZ Date of Collection: FEB. 8-9, 2012

Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx Ext.	PAH 8270	PCB's 8082	MTCA 5 Metals			Field Notes
1 MW1-S1/12-13.5	12-13.5	10:55	SOIL	40ml/VOA	✓				✓									3 Containers
2 MW1-S2/23-24.5	23-24.5	11:28			✓				✓									
3 MW1-S3/30-31.5	30-31.5	11:52			✓				✓									
4 MW1-S4/35-36.5	35-36.5	12:13			✓				✓									
5 MW2-S1/23-24.5	23-24.5	4:31			✓				✓									
6 MW3-S1/7.0'	7.0'	10:28			✓				✓									HC ODOR
7 MW3-S2/13-14.5	13-14.5	10:45			✓				✓									3 containers
8 MW3-S3/23-24.5	23-24.5	11:13			✓				✓									
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		

Relinquished by:	Date / Time	Received by:	Date / Time
[signature]		[signature] 2/10/12 3:11pm	
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt:

Good Condition?	
Cold?	
Seals Intact?	
Total Number of Containers	

Remarks: NORMAL TAT

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.

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Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L120210-2
Client Project # 11-124

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8260C) in Soil

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery (%)
Method Blank	2/13/12	nd	nd	nd	nd	nd	93
LCS	2/13/12	128%	104%				71
MW1-S1/12-13.5	2/13/12	0.021	nd	nd	nd	nd	85
MW1-S2/23-24.5	2/13/12	0.22	nd	nd	nd	86	86
MW1-S3/30-31.5	2/13/12	0.032	0.11	nd	nd	nd	86
MW1-S4/335-36.5	2/13/12	0.88	nd	nd	nd	nd	89
MW2-S1/23-24.5	2/13/12	nd	nd	nd	nd	nd	89
MW2-S1/23-24.5 Dup	2/13/12	nd	nd	nd	nd	nd	87
MW3-S1/7	2/13/12	0.048	0.20	0.27	1.1	nd	78
MW3-S2/23-24.5	2/13/12	0.036	0.10	nd	nd	nd	88
MW3-S3/13-14.5	2/13/12	nd	nd	nd	nd	nd	86
L120213-10 MS	2/13/12	113%	84%				88
Practical Quantitation Limit		0.02	0.10	0.05	0.15	10	

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 03/01/12 Page: 1 of 1

Client: ~~AEG~~

Project Manager: YEN-UY

Address: 1018 CAPITOL WAY S.

Project Name: MANOR MARKET

Phone: (360) 352 9835 Fax:

Location: LYNNWOOD, WA City:

Client Project #

Collector: LEO CHAIBEZ Date of Collection: 03/01/12

Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	~~VOA 8021B BTEX Only~~ EA	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx Ext.	PAH 8270	PCB's 8082	MTCA 5 Metals	GRO + Pb		Field Notes
1 MW-1	—	11:27	H2O	40 ml		✓				✓						✓		
2 MW-2	—	12:04	↓	↓		✓				✓						✓		
3 MW-3	—	12:37	↓	↓		✓				✓						✓		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		

Relinquished by:	Date / Time	Received by:	Date / Time
LChaidez	03/01/12	[signature]	3/1/12 3:10 pm
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt:

Good Condition?	
Cold?	
Seals Intact?	
Total Number of Containers	

Remarks:

T.A.T

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L120301-2

Specific Halogenated and Aromatic Hydrocarbons (EPA 8260C) in Water

Sample Description		Method Blank	MW-1	MW-2	MW-3
Date Sampled		N/A	03/01/12	03/01/12	03/01/12
Date Analyzed		03/04/12	03/04/12	03/04/12	03/04/12
	PQL (ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Benzene	1.0	nd	9.9	nd	nd
Toluene	1.0	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd
Total Xylenes	1.0	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.01	nd	nd	nd	nd
Total Naphthalenes	5.0	nd	nd	nd	nd
Methyl tert-Butyl Ether (MTBE)	5.0	nd	nd	nd	nd
Surrogate Recovery					
Dibromofluoromethane		67	79	77	77
1,2-Dichloroethane-d4		71	80	68	71
Toluene-d8		135	110	126	108
4-Bromofluorobenzene		114	115	111	115

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

* INSTRUMENT DETECTION LIMIT
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%
ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L120301-2

QA/QC Data - EPA 8260C Analyses

Sample Identification: L120228-1							
	Matrix Spike			Matrix Spike Dup			RPD
	Spiked Conc. (ug/l)	Measured Conc. (ug/l)	Spike Recovery (%)	Spiked Conc. (ug/l)	Measured Conc. (ug/l)	Spike Recovery (%)	
Benzene	10	10.7	107	10	12.1	121	12.3
Toluene	10	13.4	134	10	13.1	131	2.3
Surrogate Recovery							
Dibromofluoromethane			71			74	
1,2-Dichloroethane-d4			69			67	
Toluene-d8			105			121	
4-Bromofluorobenzene			115			116	

Laboratory Control Sample			
	Spiked Conc. (ug/l)	Measured Conc. (ug/l)	Spike Recovery (%)
Benzene	10	10.2	102
Toluene	10	12.6	126
Surrogate Recovery			
Dibromofluoromethane			73
1,2-Dichloroethane-d4			83
Toluene-d8			128
4-Bromofluorobenzene			116

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%
ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

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FAX: (360) 352-4154
Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L120301-2

Analyses of Gasoline (NWTPH-Gx) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (ug/l)
Method Blank	3/4/12	135	nd
MW-1	3/4/12	110	nd
MW-2	3/4/12	126	nd
MW-3	3/4/12	108	nd
Practical Quantitation Limit			100

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Trifluorotoluene): 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L120301-2

Analyses of Total Lead in Water by EPA Method 7421

Sample Number	Date Analyzed	Lead (ug/l)
Method Blank	3/10/12	nd
MW-1	3/10/12	nd
MW-1 Dup	3/10/12	nd
MW-2	3/10/12	nd
MW-3	3/10/12	nd
Practical Quantitation Limit		5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
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FAX: (360) 352-4154
Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L120301-2

QA/QC for Lead in Water by EPA Method 7421

Sample Number	Date Analyzed	Lead (ug/l)
LCS	3/10/12	111%
MW-1 MS	3/10/12	87%
MW-1 MSD	3/10/12	90%
RPD	3/10/12	3.1
Practical Quantitation Limit		5.0

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 11/20/12 Page: 1 of 1

Client: AEG
Project Manager: Yen-Vy Van
Address: 605 11th AVE SE, Suite 201
Project Name: Manor Market
City: Olympia State: WA Zip: 98501
Location: Lynwood WA City, State:
Phone: (360) 352-9835 Fax:
Collector: Jeff Wilson Date of Collection: 11/20/12
Client Project # 11-124
Email:

	Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx Ext.	PAH 8270	PCB's 8082	MTCA 5 Metals	GRO + Pb		Field Notes
1	~~MW-1W~~	—		Water	VOA/Poly					✓						✓			Dry well
2	MW-2W	—	13:07	↓						✓						✓			
3	MW-3W	—	13:45	↓						✓						✓			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			

Relinquished by:	Date / Time	Received by:	Date / Time
		[illegible]	11/20/12 9:00
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt:

Good Condition?	
Cold?	
Seals Intact?	
Total Number of Containers	

Remarks:

STD

TAT: 24HR 48HR 5-DAY

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynwood, Washington
Libby Project # L121121-1
Client Project # 11-124

Analyses of Gasoline (NWTPH-Gx) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (µg/l)
Method Blank	11/26/12	95	nd
MW-2W	11/26/12	101	nd
MW-3W	11/26/12	100	nd
MW-3W Dup	11/26/12	95	nd
Practical Quantitation Limit			100

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynwood, Washington
Libby Project # L121121-1
Client Project # 11-124

Specific Halogenated and Aromatic Hydrocarbons by EPA 8260C in Water

Sample Description		Method Blank	MW-2	MW-3	MW-3 Dup
Date Sampled		N/A	11/20/12	11/20/12	11/20/12
Date Analyzed	PQL (µg/l)	11/26/12 (µg/l)	11/26/12 (µg/l)	11/26/12 (µg/l)	11/26/12 (µg/l)
Benzene	1.0	nd	nd	nd	nd
Toluene	1.0	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd
Total Xylenes	1.0	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.01	nd	nd	nd	nd
Total Naphthalenes	5.0	nd	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE	5.0	nd	nd	nd	nd
Surrogate Recovery					
Dibromofluoromethane		101	102	94	94
1,2-Dichloroethane-d4		95	81	82	83
Toluene-d8		95	101	100	95
4-Bromofluorobenzene		95	93	104	96

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

* INSTRUMENT DETECTION LIMIT
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynwood, Washington
Libby Project # L121121-1
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification:	Matrix Spike			Matrix Spike Dup			RPD
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	
Benzene	10	10.5	105	10	10.1	101	3.9
Toluene	10	13.0	130	10	12.9	129	0.8
Surrogate Recovery							
Dibromofluoromethane			113			111	
1,2-Dichloroethane-d4			95			100	
Toluene-d8			118			119	
4-Bromofluorobenzene			98			95	

Laboratory Control Sample			
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)
Benzene	10	9.9	99
Toluene	10	12.5	125
Surrogate Recovery			
Dibromofluoromethane			112
1,2-Dichloroethane-d4			100
Toluene-d8			118
4-Bromofluorobenzene			100

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynwood, Washington
Libby Project # L121121-1
Client Project # 11-124

Analyses of Total Lead in Water by EPA Method 7421

Sample Number	Date Analyzed	Lead µg/L
Method Blank	11/21/12	nd
MW-2W	11/21/12	nd
MW-3W	11/21/12	nd
Practical Quantitation Limit		5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynwood, Washington
Libby Project # L121121-1
Client Project # 11-124

QA/QC for Lead in Water by EPA Method 7421

Sample Number	Date Analyzed	Lead (% Recovery)
LCS	11/21/12	118%
L121120-1 MS	11/21/12	103%
L121120-1 MSD	11/21/12	104%
RPD	11/21/12	0%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

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Ph: 360-352-2110
Fax: 360-352-4154

Date: 3/28/2013 Page: 1 of 1

Client: AEG

Project Manager: Mike Chun

Address: 605 11th AVE SE, Suite 201

Project Name: Manor Market

City: Olympia State: WA Zip: 98501

Location: Lynwood WA City, State:

Phone: (360) 352-9835 Fax:

Collector: Jeff Wilson Date of Collection: 3/28/2013

Client Project # 11-124

Email: jwilson@aegwa.com

	Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx Ext.	PAH 8270	PCB's 8082	MTCA 5 Metals	GRO + Pb			Field Notes
1	MW-1W	—	13:34	Water	VOA/Poly						✓						✓			
2	MW-2W	—	12:17	↓							↓						↓			
3	MW-3W	—	12:47	↓							↓						↓			
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				

Relinquished by:	Date / Time	Received by:	Date / Time
Jeff Wilson	3/28/13 16:10	[signature]	3-28-13 16:10

Sample Receipt:

Good Condition?	
Cold?	
Seals Intact?	
Total Number of Containers	

Remarks:

TAT: 24HR 48HR (5-DAY)

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L130328-4
Client Project # 11-124

Analyses of Gasoline (NWTPH-Gx) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (µg/l)
Method Blank	4/3/13	104	nd
MW-1W	4/3/13	95	nd
MW-2W	4/3/13	95	nd
MW-3W	4/3/13	91	nd
Practical Quantitation Limit			100

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L130328-4
Client Project # 11-124

Specific Halogenated and Aromatic Hydrocarbons by EPA 8260C in Water

Sample Description		Method Blank	MW-1W	MW-2W	MW-3W
Date Sampled		N/A	3/28/13	3/28/13	3/28/13
Date Analyzed	PQL (µg/l)	4/3/13 (µg/l)	4/3/13 (µg/l)	4/3/13 (µg/l)	4/3/13 (µg/l)
Benzene	1.0	nd	13.0	nd	nd
Toluene	1.0	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd
Total Xylenes	1.0	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.01	nd	nd	nd	nd
Total Naphthalenes	5.0	nd	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE	5.0	nd	76.0	nd	8.3
Surrogate Recovery					
Dibromofluoromethane		85	97	96	74
1,2-Dichloroethane-d4		115	122	125	963
Toluene-d8		104	95	95	91
4-Bromofluorobenzene		99	98	103	100

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

* INSTRUMENT DETECTION LIMIT
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L130328-4
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification: L130331-3						
	Matrix Spike			Matrix Spike Dup		
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)
Benzene	10	10.6	106	10	11.4	114
Toluene	10	8.8	88	10	9.3	93
Surrogate Recovery						
Dibromofluoromethane			122			110
1,2-Dichloroethane-d4			128			110
Toluene-d8			120			118
4-Bromofluorobenzene			109			103

Laboratory Control Sample			
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)
Benzene	10	11.3	113
Toluene	10	10.5	105
Surrogate Recovery			
Dibromofluoromethane			84
1,2-Dichloroethane-d4			110
Toluene-d8			105
4-Bromofluorobenzene			101

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L130328-4
Client Project # 11-124

Analyses of Total Lead in Water by EPA Method 7421

Sample Number	Date Analyzed	Lead µg/L
Method Blank	4/3/13	nd
MW-1W	4/3/13	nd
MW-2W	4/3/13	nd
MW-3W	4/3/13	6.8
Practical Quantitation Limit		5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L130328-4
Client Project # 11-124

QA/QC for Lead in Water by EPA Method 7421

Sample Number	Date Analyzed	Lead (% Recovery)
LCS	4/3/13	110%
L130327-3 MS	4/3/13	109%
L130327-3 MSD	4/3/13	115%
RPD	4/3/13	5%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

June 11, 2013

Michael Chun
Associated Environmental Group, LLC
605 11th Avenue SE, Suite 201
Olympia, WA 98501

Dear Mr. Chun:

Please find enclosed the analytical data report for the Manor Market Project located in Lynnwood, Washington. Water samples were analyzed for Gasoline by NWTPH-Gx, Total Lead by EPA Method 7421 and Specific Halogenated and Aromatic Hydrocarbons by EPA Method 8260C on June 3 & 5, 2013.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services 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,

Jamie L. Deyman
President
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

www.LibbyEnvironmental.com

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L130530-7
Client Project # 11-124

Analyses of Gasoline (NWTPH-Gx) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (µg/l)
Method Blank	6/5/13	98	nd
MW-1W	6/5/13	108	nd
MW-1W Dup	6/5/13	103	nd
MW-2W	6/5/13	99	nd
MW-3W	6/5/13	101	nd
Practical Quantitation Limit			100

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Kyle Williams

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L130530-7
Client Project # 11-124

Specific Halogenated and Aromatic Hydrocarbons by EPA 8260C in Water

Sample Description		Method Blank	MW-1W	MW-1W Dup	MW-2W	MW-3W
Date Sampled		N/A	5/30/13	5/30/13	5/30/13	5/30/13
Date Analyzed	PQL (µg/l)	6/5/13 (µg/l)	6/5/13 (µg/l)	6/5/13 (µg/l)	6/5/13 (µg/l)	6/5/13 (µg/l)
Benzene	1.0	nd	13.2	12.9	nd	nd
Toluene	1.0	nd	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd
Total Xylenes	1.0	nd	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.01	nd	nd	nd	nd	nd
Total Naphthalenes	5.0	nd	nd	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	5.0	nd	94.8	111	nd	8.0
Surrogate Recovery						
Dibromofluoromethane		92	92	85	86	82
1,2-Dichloroethane-d4		87	87	93	98	96
Toluene-d8		110	108	103	99	101
4-Bromofluorobenzene		100	96	102	105	102

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

* INSTRUMENT DETECTION LIMIT
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Kyle Williams

Libby Environmental, Inc.

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Phone: (360) 352-2110
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Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L130530-7
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification: MW-2W							
	Matrix Spike			Matrix Spike Dup			RPD
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	
Benzene	10	10.4	104	10	10.6	106	1.9
Toluene	10	9.7	97	10	9.6	96	1.0
Surrogate Recovery							
Dibromofluoromethane			86			83	
1,2-Dichloroethane-d4			94			91	
Toluene-d8			102			100	
4-Bromofluorobenzene			102			101	

Laboratory Control Sample			
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)
Benzene	10	10.1	101.0
Toluene	10	10.4	104.0
Surrogate Recovery			
Dibromofluoromethane			92
1,2-Dichloroethane-d4			87
Toluene-d8			110
4-Bromofluorobenzene			100

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Kyle Williams

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L130530-7
Client Project # 11-124

Analyses of Total Lead in Water by EPA Method 7421

Sample Number	Date Analyzed	Lead µg/L
Method Blank	6/3/13	nd
MW-1W	6/3/13	19.9
MW-2W	6/3/13	nd
MW-3W	6/3/13	nd
Practical Quantitation Limit		5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Jamie Deyman

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L130530-7
Client Project # 11-124

QA/QC for Lead in Water by EPA Method 7421

Sample Number	Date Analyzed	Lead (% Recovery)
LCS	6/3/13	97%
L130530-2 MS	6/3/13	106%
L130530-2 MSD	6/3/13	106%
RPD	6/3/13	0%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Jamie Deyman

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Client: AEG

Address: 605 11th AVE SE Suite 201

Phone: (360) 352-9835 Fax:

Client Project # 11-124

Date: 5/30/13 Page: 1 of 1

Project Manager: Mike Chun

Project Name: Manor Market

Location: 3609 164 st. SW City: Lynnwood

Collector: Jeff Wilson Date of Collection: 5/30/13

	Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx Ext.	PAH 8270	PCB's 8082	MTCA 5 Metals	GRO+136 MTBE	GRO 830-1	Field Notes
1	MW-1W	—	13:18	Water	VOA/Poly						↓					↓	↓	X	
2	MW-2W	—	11:55	↓	↓													X	
3	MW-3W	—	12:42	↓	↓						↓					↓	↓	X	
4																			
5																			
6																			
7																			
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17																			
18																			

Relinquished by:	Date / Time	Received by:	Date / Time
Jeff Wilson	5/30/13 16:25	[signature]	5/30/13 16:25
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt:

Good Condition?	
Cold?	
Seals Intact?	
Total Number of Containers	

Remarks:

Standard T.A.T

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.
4139 Libby Road NE • Olympia, WA 98506-2518

June 12, 2015

Nicolas Pushckor
Associated Environmental Group, LLC
605 11th Avenue SE, Suite 201
Olympia, WA 98501

Dear Mr. Pushckor:

Please find enclosed the analytical data report for the Manor Market Project located in Lynnwood, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services 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,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

Libby Environmental, Inc.

4139 Libby Road NE
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Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150527-1
Client Project # 11-124

Gasoline by NWTPH-Gx and Aromatic Hydrocarbons by EPA 8260C in Soil

Sample Description		Method Blank	MW5-6.5	MW5-16.5	MW5-21.5	MW5-36.5	MW6-6.5
Date Sampled		N/A	5/26/15	5/26/15	5/26/15	5/26/15	5/26/15
Date Analyzed	PQL (mg/kg)	6/1/15 (mg/kg)	6/1/15 (mg/kg)	6/1/15 (mg/kg)	6/1/15 (mg/kg)	6/2/15 (mg/kg)	6/1/15 (mg/kg)
Benzene	0.02	nd	nd	nd	nd	nd	1.87
Toluene	0.03	nd	nd	nd	nd	nd	1.15
Ethylbenzene	0.03	nd	nd	nd	nd	nd	1.62
Total Xylenes	0.03	nd	nd	nd	nd	nd	4.38
Methyl *tert*- Butyl Ether (MTBE)	0.05	nd	nd	nd	nd	nd	<0.20
Gasoline	10	nd	nd	nd	nd	nd	3230
Surrogate Recovery							
Dibromofluoromethane		98	91	95	94	103	91
1,2-Dichloroethane-d4		94	94	97	87	104	96
Toluene-d8		93	92	104	106	94	104
4-Bromofluorobenzene		102	103	105	101	103	97

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150527-1
Client Project # 11-124

Gasoline by NWTPH-Gx and Aromatic Hydrocarbons by EPA 8260C in Soil

Sample Description		MW6-21.5	MW6-36.5	MW6-36.5 Dup
Date Sampled		5/26/15	5/26/15	5/26/15
Date Analyzed	PQL (mg/kg)	6/1/15 (mg/kg)	6/1/15 (mg/kg)	6/1/15 (mg/kg)
Benzene	0.02	nd	nd	nd
Toluene	0.03	nd	nd	nd
Ethylbenzene	0.03	nd	nd	nd
Total Xylenes	0.03	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	0.05	nd	0.078	0.052
Gasoline	10	nd	nd	nd
Surrogate Recovery				
Dibromofluoromethane		94	93	96
1,2-Dichloroethane-d4		104	96	91
Toluene-d8		101	93	92
4-Bromofluorobenzene		104	102	100

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150527-1
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification: MW6-36.5							
	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 (%)	
Benzene	0.5	0.46	92	0.5	0.48	96	4.3
Toluene	0.5	0.45	90	0.5	0.47	94	4.3

Surrogate Recovery		
Dibromofluoromethane	93	96
1,2-Dichloroethane-d4	81	95
Toluene-d8	93	106
4-Bromofluorobenzene	101	105

Laboratory Control Sample			
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Benzene	0.5	0.37	74
Toluene	0.5	0.38	76

Surrogate Recovery	
Dibromofluoromethane	99
1,2-Dichloroethane-d4	92
Toluene-d8	92
4-Bromofluorobenzene	101

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

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Date: ~~5/26/15~~ 5/26/15 Page: 1 of 1

Client: AEG

Project Manager: N. Rostocker

Address: 605 11th Ave SE Suite 201

Project Name: Manor Market

City: Olympia State: WA Zip: 98501

Location: 3609 - Hwy 64th St City, State: Lynnwood, WA

Phone: (360) 352-9835 Fax:

Collector: B. Dalby Date of Collection: 5/26/15

Client Project # 11-124

Email: nrostocker@aegwa.com

	Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx Ext.	PAH 8270	PCB's 8082	MTCA 5 Metals	420-830-1 Suite ATBE, BTEX, EDC	Field Notes
FED 264 607	1 mw5-6.5	6.5	12:11	SOIL	4oz/VOA											X	X	as per Kurt Telecon
68.8	2 mw5-11.5	11.5	12:21													X	X	
42.9	3 mw5-16.5	16.5	12:25													X	X	
6.1	4 mw5-21.5	21.5	12:29													X	X	
57.6	5 mw5-26.5	26.5	12:38													X	X	
4.8	6 mw5-31.5	31.5	12:46													X	X	
607	7 mw5-36.5	36.5	12:50													X	X	
6.2	8 mw6-6.5	6.5	08:58													X	X	odor
4.8	9 mw6-21.5	21.5	09:25													X	X	
10.3	10 mw6-26.5	26.5	0933													X	X	
	11 mw6-36.5	36.5	0948													X	X	
	12 ~~Water~~	—		H2O	VOA x3/poly											X		not included
	13																	
	14																	
	15																	
	16																	
	17																	

Relinquished by:	Date / Time	Received by:	Date / Time
	5/26/15 1743	Rodney Ellery	5-27-15 9:00 AM
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt:

Good Condition?	
Cold?	
Seals Intact?	
Total Number of Containers	

Remarks: Hold until Kurt looks @ these. Per M. Chun

TAT: 24HR 48HR 5-DAY

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.
4139 Libby Road NE • Olympia, WA 98506-2518

June 12, 2015

Nicolas Pushckor
Associated Environmental Group, LLC
605 11th Avenue SE, Suite 201
Olympia, WA 98501

Dear Mr. Pushckor:

Please find enclosed the analytical data report for the Manor Market Project located in Lynnwood, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services 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,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150605-1
Client Project # 11-124

Volatile Organic Compounds by EPA Method 8260C in Water

Sample Description		Method Blank	MW9	MW8	MW7
Date Sampled	Reporting	N/A	6/4/15	6/4/15	6/4/15
Date Analyzed	Limits (ug/L)	6/5/15 (ug/L)	6/5/15 (ug/L)	6/5/15 (ug/L)	6/5/15 (ug/L)
Chloromethane	1.0	nd	nd	nd	nd
Vinyl chloride	0.2	nd	nd	nd	nd
Chloroethane	1.0	nd	nd	nd	nd
1,1-Dichloroethene	1.0	nd	nd	nd	nd
trans -1,2-Dichloroethene	1.0	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd
2,2-Dichloropropane	1.0	nd	nd	nd	nd
cis -1,2-Dichloroethene	1.0	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	1.0	nd	nd	nd	nd
Carbon tetrachloride	1.0	nd	nd	nd	nd
1,1-Dichloropropene	1.0	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	nd	nd	nd
Trichloroethene (TCE)	1.0	nd	nd	nd	nd
1,2-Dichloropropane	1.0	nd	nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd	nd	nd	nd
Trans-1,3-Dichloropropene	1.0	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd
Tetrachloroethene (PCE)	1.0	nd	nd	nd	nd
2-Chlorotoluene	1.0	nd	nd	nd	nd
4-Chlorotoluene	1.0	nd	nd	nd	nd
1,3-Dichlorobenzene	1.0	nd	nd	nd	nd
1,4-Dichlorobenzene	1.0	nd	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd	nd	nd	nd
Surrogate Recovery					
Dibromofluoromethane		109	103	102	119
1,2-Dichloroethane-d4		108	107	99	122
Toluene-d8		109	104	97	96
4-Bromofluorobenzene		114	110	113	123

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

*ANALYZED BY SIM
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150605-1
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification: MW9							
	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	
1,1-Dichloroethene	10	7.2	72	10	7.2	72	0.0
Chlorobenzene	10	10.8	108	10	10.5	105	2.8
Trichloroethene (TCE)	10	8.4	84	10	8.1	81	3.6
Surrogate Recovery							
Dibromofluoromethane			90			88	
1,2-Dichloroethane-d4			98			96	
Toluene-d8			96			98	
4-Bromofluorobenzene			101			102	

Laboratory Control Sample			
	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)
1,1-Dichloroethene	10	10.5	105
Chlorobenzene	10	12.9	129
Trichloroethene (TCE)	10	11.9	119
Surrogate Recovery			
Dibromofluoromethane			103
1,2-Dichloroethane-d4			101
Toluene-d8			99
4-Bromofluorobenzene			118

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Sherry Chilcutt

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150605-1
Client Project # 11-124

Gasoline by NWTPH-Gx and Aromatic Hydrocarbons by EPA 8260C in Water

Sample Description		Method Blank	MW4	MW2	MW6	MW5	MW1
Date Sampled		N/A	6/4/15	6/4/15	6/4/15	6/4/15	6/4/15
Date Analyzed	PQL (ug/L)	6/5/15 (ug/L)	6/5/15 (ug/L)	6/5/15 (ug/L)	6/5/15 (ug/L)	6/5/15 (ug/L)	6/5/15 (ug/L)
Benzene	1.0	nd	470	nd	54	nd	3.9
Toluene	2.0	nd	nd	nd	2.5	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd	nd
Total Xylenes	3.0	nd	nd	nd	7.0	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	5.0	nd	1740	12.3	nd	nd	315
Gasoline	100	nd	nd	nd	1380	nd	nd
Surrogate Recovery							
Dibromofluoromethane		109	90	106	97	109	107
1,2-Dichloroethane-d4		108	96	104	107	109	105
Toluene-d8		109	96	105	99	104	106
4-Bromofluorobenzene		114	107	113	110	113	113

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150605-1
Client Project # 11-124

Gasoline by NWTPH-Gx and Aromatic Hydrocarbons by EPA 8260C in Water

Sample Description		MW1 Dup
Date Sampled		6/4/15
Date Analyzed	PQL (ug/L)	6/5/15 (ug/L)
Benzene	1.0	3.7
Toluene	2.0	nd
Ethylbenzene	1.0	nd
Total Xylenes	3.0	nd
Methyl *tert*- Butyl Ether (MTBE)	5.0	351
Gasoline	100	nd
Surrogate Recovery		
Dibromofluoromethane		101
1,2-Dichloroethane-d4		97
Toluene-d8		103
4-Bromofluorobenzene		113

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150605-1
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification: MW9							
	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	
Benzene	10	9.2	92	10	8.0	80	14.0
Toluene	10	8.4	84	10	8.1	81	3.6
Surrogate Recovery							
Dibromofluoromethane			90			88	
1,2-Dichloroethane-d4			98			96	
Toluene-d8			96			98	
4-Bromofluorobenzene			101			102	

Laboratory Control Sample			
	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)
Benzene	10	12.10	121
Toluene	10	12.90	129
Surrogate Recovery			
Dibromofluoromethane			103
1,2-Dichloroethane-d4			101
Toluene-d8			99
4-Bromofluorobenzene			118

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

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Date: 6/4/15 6/5/15 Page: 1 of 1

Client: AEG

Project Manager:

Address: 605 11th Ave SE, Suite 201

Project Name: Manor MARKET

City: Olympia State: WA Zip: 98501

Location: 3609-164th st SW City, State: Lynnwood, WA

Phone: (360) 352-9825 Fax:

Collector: B. Dilley Date of Collection: 6/4/15

Client Project # 11-124

Email: bdilley@aegwa.com

	Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260 Chlorinated only	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx Ext.	PAH 8270	PCB's 8082	MTCA 5 Metals	MTBE 8260		Field Notes
1	MW9	—	0949	H2O	VOAx3			X											
2	MW8	—	1041	H2O	VOAx3			X											
3	MW7	—	1139					X											
4	MW4	—	1229				X				X					X			
5	MW2	—	1314				X				X					X			
6	MW6	—	1354				X				X					X			
7	MW5	—	1442				X				X					X			
8	MW1	—	1524				X				X					X			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			

Relinquished by:	Date / Time	Received by:	Date / Time
R	10:50 6/5/15		6-5-15 1051
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt:

Good Condition?	
Cold?	
Seals Intact?	
Total Number of Containers	

Remarks:

TAT: 24HR 48HR (5-DAY)

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.
4139 Libby Road NE • Olympia, WA 98506-2518

September 15, 2015

Becky Dilba
Associated Environmental Group, LLC
605 11th Avenue SE, Suite 201
Olympia, WA 98501

Dear Ms. Dilba:

Please find enclosed the analytical data report for the Manor Market Project located in Lynnwood, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services 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,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

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Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150903-7
Client Project # 11-124

Gasoline by NWTPH-Gx and Aromatic Hydrocarbons by EPA 8260C in Water

Sample Description		Method Blank	MW-2	MW-3	MW-1	MW-4	MW-6
Date Sampled		N/A	9/2/15	9/2/15	9/2/15	9/2/15	9/2/15
Date Analyzed	PQL (µg/l)	9/4/15 (µg/l)	9/4/15 (µg/l)	9/4/15 (µg/l)	9/4/15 (µg/l)	9/4/15 (µg/l)	9/4/15 (µg/l)
Benzene	1.0	nd	nd	nd	5.1	63	22
Toluene	1.0	nd	nd	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd	nd
Total Xylenes	1.0	nd	nd	nd	nd	nd	6.6
Methyl *tert*- Butyl Ether (MTBE)	5.0	nd	nd	21	122	344	nd
Gasoline	100	nd	nd	nd	nd	nd	1020
Surrogate Recovery							
Dibromofluoromethane		91	85	98	101	91	103
1,2-Dichloroethane-d4		67	70	74	78	65	72
Toluene-d8		101	97	114	116	135	98
4-Bromofluorobenzene		108	105	106	108	101	106

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150903-7
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification: MW-3							
	Matrix Spike			Matrix Spike Dup			RPD
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	
Benzene	10	9.8	98	10	10.6	106	7.8
Toluene	10	13.3	133	10	11.2	112	17.1
Surrogate Recovery							
Dibromofluoromethane			99			79	
1,2-Dichloroethane-d4			73			73	
Toluene-d8			110			97	
4-Bromofluorobenzene			105			92	

Laboratory Control Sample			
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)
Benzene	10	10.6	106.0
Toluene	10	11.8	118.0
Surrogate Recovery			
Dibromofluoromethane			105
1,2-Dichloroethane-d4			75
Toluene-d8			103
4-Bromofluorobenzene			99

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150903-7
Client Project # 11-124

Analyses of Total Lead in Water by EPA 7010 Series

Sample Number	Date Analyzed	Lead µg/L
Method Blank	9/7/15	nd
MW-2	9/7/15	nd
MW-3	9/7/15	17.4
MW-1	9/7/15	7.1
MW-4	9/7/15	nd
MW-6	9/7/15	nd
Practical Quantitation Limit		5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150903-7
Client Project # 11-124

QA/QC for Total Lead in Water by EPA 7010 Series

Sample Number	Date Analyzed	Lead (% Recovery)
LCS	9/7/15	112%
MW-6 MS	9/7/15	103%
MW-6 MSD	9/7/15	106%
RPD	9/7/15	3%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150903-7
Client Project # 11-124

Analyses of Dissolved Lead in Water by EPA 7010 Series

Sample Number	Date Analyzed	Lead µg/L
Method Blank	9/7/15	nd
MW-2	9/7/15	nd
MW-3	9/7/15	nd
MW-1	9/7/15	nd
MW-4	9/7/15	nd
MW-6	9/7/15	nd
MW-6 Dup	9/7/15	nd
Practical Quantitation Limit		5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

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Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L150903-7
Client Project # 11-124

QA/QC for Dissolved Lead in Water by EPA 7010 Series

Sample Number	Date Analyzed	Lead (% Recovery)
LCS	9/7/15	112%
MW-6 MS	9/7/15	103%
MW-6 MSD	9/7/15	106%
RPD	9/7/15	3%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 9/3/15 Page: 1 of 1

Client: AEG
Project Manager: B. Dilba
Address: 605 11th Ave SE, Suite 201
Project Name: Manor Market
City: Olympia State: WA Zip: 98501
Location: 3609-164th St SW City, State: Lynnwood, WA
Phone: 360-352-9835 Fax:
Collector: B. Dilba Date of Collection: 9/2/15
Client Project # 11-124
Email: bdilba@aegwa.com

Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	NWTPH-Gx	BTEX 8021	NWTPH-HCID	NWTPH-Dx	NWTPH-Dx/Dx	c PAH 8270	PAH 8270	Semi Vol 8270	PCB 8082	MTCA 5 Metals	~~RCRA 8 Metals~~ Lead Total	MTBE	Lead dissolved	Field Notes
1 MW-2	—	1036	H_2O	Voa / Poly 250		X	X								X	X	X		
2 MW-3	—	1150																	
3 MW-1	—	1253																	
4 MW-4	—	1351																	
5 MW-6	—	1457																	
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			

Relinquished by:	Date / Time	Received by:	Date / Time
[signature]	9/3/15 1440	[signature]	9/3/15 1440
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition?	Y	N	
Temp.		°C	
Seals Intact?	Y	N	N/A
Total Number of Containers	25		

Remarks:

TAT: 24HR 48HR 5-DAY

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.
4139 Libby Road NE • Olympia, WA 98506-2518

December 4, 2015

Becky Dilba
Associated Environmental Group, LLC
605 11th Avenue SE, Suite 201
Olympia, WA 98501

Dear Ms. Dilba:

Please find enclosed the analytical data report for the Manor Market Project located in Lynnwood, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services 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,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L151125-1
Client Project # 11-124

Gasoline by NWTPH-Gx and Aromatic Hydrocarbons by EPA 8260C in Water

Sample Description		Method Blank	MW-5	MW-2	MW-3	MW-4	MW-1
Date Sampled		N/A	11/24/15	11/24/15	11/24/15	11/24/15	11/24/15
Date Analyzed	PQL (µg/l)	12/1/15 (µg/l)	12/1/15 (µg/l)	12/1/15 (µg/l)	12/1/15 (µg/l)	12/1/15 (µg/l)	12/1/15 (µg/l)
Benzene	1.0	nd	nd	nd	nd	47	19
Toluene	1.0	nd	nd	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd	nd
Total Xylenes	1.0	nd	nd	nd	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	5.0	nd	nd	nd	24	975	63
Gasoline	100	nd	nd	nd	nd	nd	nd
Surrogate Recovery							
Dibromofluoromethane		98	97	100	95	98	98
1,2-Dichloroethane-d4		86	81	87	84	87	81
Toluene-d8		87	87	87	87	86	81
4-Bromofluorobenzene		80	82	83	80	74	83

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L151125-1
Client Project # 11-124

Gasoline by NWTPH-Gx and Aromatic Hydrocarbons by EPA 8260C in Water

Sample Description		MW-1 Dup
Date Sampled		11/24/15
Date Analyzed	PQL (µg/l)	12/1/15 (µg/l)
Benzene	1.0	19
Toluene	1.0	nd
Ethylbenzene	1.0	nd
Total Xylenes	1.0	nd
Methyl *tert*- Butyl Ether (MTBE)	5.0	74
Gasoline	100	nd
Surrogate Recovery		
Dibromofluoromethane		98
1,2-Dichloroethane-d4		82
Toluene-d8		74
4-Bromofluorobenzene		79

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L151125-1
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification: MW-2							
	Matrix Spike			Matrix Spike Dup			RPD
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	
Benzene	10	8.9	89	10	8.6	86	3.4
Toluene	10	6.7	67	10	6.6	66	1.5
Surrogate Recovery							
Dibromofluoromethane			96			98	
1,2-Dichloroethane-d4			82			81	
Toluene-d8			78			73	
4-Bromofluorobenzene			85			96	

Laboratory Control Sample			
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)
Benzene	10	9.7	97
Toluene	10	8.7	87
Surrogate Recovery			
Dibromofluoromethane			98
1,2-Dichloroethane-d4			84
Toluene-d8			87
4-Bromofluorobenzene			82

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

4139 Libby Road NE
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Ph: 360-352-2110
Fax: 360-352-4154

Date: 11/25/15 Page: 1 of 1

Client: AEG

Project Manager: Becky Dilba

Address: 605 11th Ave SE Suite 201

Project Name: Manor Market

City: Olympia State: WA Zip: 98501

Location: 3609 - 164th St SW City, State: Lynnwood, WA

Phone: (360) 352-9835 Fax:

Collector: B. Dilba Date of Collection: 11/24/15

Client Project # 11-124

Email: bdilba@gmail.com

	Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx Ext.	PAH 8270	PCB's 8082	MTCA 5 Metals	MTBE		Field Notes
1	MW-5	—	1035	H2O	VOA x 3	X				X						X			
2	MW-2	—	1132	"	"	"				"						"			
3	MW-3	—	1225	"	"	"				"						"			
4	MW-4	—	1321	"	"	"				"						"			
5	MW-1	—	1423	"	"	"				"						"			Odor
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			

Relinquished by:	Date / Time	Received by:	Date / Time
[signature]	11/25/2015 1055	[signature]	11/25/15 1055
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt:

Good Condition?	Y
Cold?	Y
Seals Intact?	Y
Total Number of Containers	15

Remarks:

TAT: 24HR 48HR 5-DAY

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.
4139 Libby Road NE • Olympia, WA 98506-2518

April 6, 2016

Becky Dilba
Associated Environmental Group, LLC
605 11th Avenue SE, Suite 201
Olympia, WA 98501

Dear Ms. Dilba:

Please find enclosed the analytical data report for the Manor Market Project located in Lynnwood, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services 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,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L160328-2
Client Project # 11-124

Gasoline by NWTPH-Gx and Aromatic Hydrocarbons by EPA 8260C in Soil

Sample Description		Method Blank	MW10-6.5	MW10-16.5	MW10-21.5	MW10-31.5	MW10-36.5
Date Sampled		N/A	3/24/16	3/24/16	3/24/16	3/24/16	3/24/16
Date Analyzed	PQL (mg/kg)	3/28/16 (mg/kg)	3/28/16 (mg/kg)	3/28/16 (mg/kg)	3/28/16 (mg/kg)	3/28/16 (mg/kg)	3/28/16 (mg/kg)
Benzene	0.02	nd	nd	nd	nd	nd	nd
Toluene	0.10	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd	nd	nd
Total Xylenes	0.15	nd	nd	nd	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	0.05	nd	nd	nd	nd	nd	nd
Gasoline	10.00	nd	nd	nd	nd	nd	nd
Surrogate Recovery							
Dibromofluoromethane		97	95	101	93	90	93
1,2-Dichloroethane-d4		91	104	115	100	93	93
Toluene-d8		104	108	109	106	103	104
4-Bromofluorobenzene		94	100	75	71	85	86

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

* ANALYZED BY SIM
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L160328-2
Client Project # 11-124

Gasoline by NWTPH-Gx and Aromatic Hydrocarbons by EPA 8260C in Soil

Sample Description		MW11-5	MW11-5 Dup	MW11-10.5	MW11-20.5	MW11-25.5	MW11-35.5
Date Sampled		3/24/16	3/24/16	3/24/16	3/24/16	3/24/16	3/24/16
Date Analyzed	PQL	3/28/16	3/28/16	3/28/16	3/28/16	3/28/16	3/28/16
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Benzene	0.02	0.19	0.27	nd	nd	nd	nd
Toluene	0.10	0.55	0.95	nd	nd	nd	nd
Ethylbenzene	0.05	5.1	8.2	nd	nd	nd	nd
Total Xylenes	0.15	11.8	19	nd	nd	nd	nd
Methyl *tert*- Butyl Ether (MTBE)	0.05	nd	nd	nd	nd	nd	nd
Gasoline	10.00	1070	1160 E	nd	nd	nd	nd
Surrogate Recovery							
Dibromofluoromethane		78	76	88	91	84	92
1,2-Dichloroethane-d4		106	120	89	84	92	91
Toluene-d8		95	93	105	101	71	107
4-Bromofluorobenzene		86	95	93	82	93	65

"E" Indicates reported result is an estimate because it exceeds the calibration range.
"nd" Indicates not detected at listed detection limit.
"int" Indicates that interference prevents determination.

* ANALYZED BY SIM
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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Olympia, WA 98506
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Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L160328-2
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification: MW11-10.5

	Matrix Spike						RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Benzene	0.5	0.51	102	0.5	0.51	102	0.0
Toluene	0.5	0.48	96	0.5	0.56	112	15.4

Surrogate Recovery		
Dibromofluoromethane	94	86
1,2-Dichloroethane-d4	94	90
Toluene-d8	92	102
4-Bromofluorobenzene	107	94

	Laboratory Control Sample		
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Benzene	0.5	0.49	98
Toluene	0.5	0.54	108

Surrogate Recovery	
Dibromofluoromethane	93
1,2-Dichloroethane-d4	81
Toluene-d8	103
4-Bromofluorobenzene	90

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 3/28/16 Page: 1 of 1

Client: AEG

Project Manager: B. Dilba

Address: 6051 11th Ave Suite 201, Olympia, WA

Project Name: Manor Market

City: Olympia State: WA Zip: 98501

Location: 3609 -164th St SW City, State: Lynnwood, WA

Phone (360) 352-9835 Fax:

Collector: B. Dilba Date of Collection: 3/24/16

Client Project # 11-124

Email: bdilba@aegwa.com

	Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	NWTPH-Gx	BTEX 8021	NWTPH-HCID	NWTPH-Dx	NWTPH-Dx/Dx	c PAH 8270	PAH 8270	Semi Vol 8270	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	MTBE			Field Notes
1	MW10-6.5	6.5	0943	Soil	VOA Jar		X	X										X			
2	MW10-16.5	16.5	1003																		
3	MW10-21.5	21.5	1017																		
4	MW10-31.5	31.5	1037																		
5	MW10-36.5	36.5	1049																		
6	MW11-5	1308 ↔ 5																			
7	MW11-10.5	1314 ↔ 10.5																			
8	MW11-20.5	1342 ↔ 20.5																			
9	MW11-25.5	1352 ↔ 25.5																			
10	MW11-35.5	1424 ↔ 35.5																			
11	MW10-11.5	11.5	0951																		Hold
12	MW10-~~35~~ 26.5	26.5	1024																		Hold
13	MW11-15.5	15.5	1323																		Hold
14	MW11-30.5	30.5	1354																		Hold
15																					
16																					
17																					

Relinquished by:	Date / Time	Received by:	Date / Time
[signature]	3/28/16 0958	[signature] Libby Env	3/28/16 0958
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition? (Y) N

Temp. °C

Seals Intact? (Y) N N/A

Total Number of Containers 42

Remarks: ~~Hold~~

TAT: 24HR 48HR (5-DAY)

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.
4139 Libby Road NE • Olympia, WA 98506-2518

April 25, 2016

Becky Dilba
Associated Environmental Group, LLC
605 11th Avenue SE, Suite 201
Olympia, WA 98501

Dear Ms. Dilba:

Please find enclosed the analytical data report for the Manor Market Project located in Lynnwood, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services 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,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

Libby Environmental, Inc.

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L160408-1
Client Project # 11-124

Volatile Aromatic Compounds by EPA Method 8260C in Water

Sample Description		Method Blank	MW-4	MW-11	MW-11 Dup	MW--3
Date Sampled	Reporting	N/A	4/7/16	4/7/16	4/7/16	4/7/16
Date Analyzed	Limits (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)
Chloromethane	2.0	nd	nd	nd	nd	nd
Vinyl chloride	0.2	nd	nd	nd	nd	nd
Chloroethane	2.0	nd	nd	nd	nd	nd
1,1-Dichloroethene	2.0	nd	nd	nd	nd	nd
trans -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd	nd
2,2-Dichloropropane	2.0	nd	nd	nd	nd	nd
cis -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	1.0	nd	nd	nd	nd	nd
Carbon tetrachloride	1.0	nd	nd	nd	nd	nd
1,1-Dichloropropene	1.0	nd	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	nd	nd	nd	nd
Trichloroethene (TCE)	1.0	nd	nd	nd	nd	nd
1,2-Dichloropropane	1.0	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd	nd	nd	nd	nd
Trans-1,3-Dichloropropene	1.0	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	1.0	nd	nd	nd	nd	nd
2-Chlorotoluene	1.0	nd	nd	nd	nd	nd
4-Chlorotoluene	1.0	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	1.0	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	1.0	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd	nd	nd	nd	nd
Surrogate Recovery						
Dibromofluoromethane		100	92	100	96	93
1,2-Dichloroethane-d4		105	101	104	101	97
Toluene-d8		100	95	95	99	98
4-Bromofluorobenzene		79	82	90	86	77

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%
ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L160408-1
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification: MW-1							
	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	
1,1-Dichloroethene	10	6.1	61	10	6.7	67	8.8
Chlorobenzene	10	10.6	106	10	10.4	104	1.8
Trichloroethene (TCE)	10	7.7	77	10	8.7	87	12.6
Surrogate Recovery							
Dibromofluoromethane			87			93	
1,2-Dichloroethane-d4			94			104	
Toluene-d8			72			101	
4-Bromofluorobenzene			76			78	

Laboratory Control Sample			
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)
1,1-Dichloroethene	10	9.0	90
Chlorobenzene	10	11.6	116
Trichloroethene (TCE)	10	10.4	104
Surrogate Recovery			
Dibromofluoromethane			95
1,2-Dichloroethane-d4			98
Toluene-d8			100
4-Bromofluorobenzene			77

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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Olympia, WA 98506
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FAX: (360) 352-4154
Email: libbyenv@aol.com

MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L160408-1
Client Project # 11-124

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8260C) in Water

Sample Number	Date Analyzed	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	Gasoline (µg/l)	Surrogate Recovery (%)
Method Blank	4/12/16	nd	nd	nd	nd	nd	100
LCS	4/12/16	nd	nd	nd	nd	nd	100
MW-2	4/12/16	nd	nd	nd	nd	nd	100
MW-6	4/12/16	12	nd	nd	3.0	1630	90
MW-5	4/12/16	nd	nd	nd	nd	nd	99
MW-4	4/12/16	70	nd	nd	nd	127	95
MW-11	4/12/16	nd	nd	nd	nd	219	95
MW-11 Dup	4/12/16	nd	nd	nd	nd	254	99
MW-10	4/12/16	nd	nd	nd	nd	nd	99
MW-3	4/12/16	nd	nd	nd	nd	nd	98
MW-1	4/12/16	9.9	2.0	nd	nd	101	79
MW-1 MS	4/12/16	107%	94%				72
MW-1 MSD	4/12/16	113%	121%				101
Practical Quantitation Limit		1	2	1	2	100	

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

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Olympia, WA 98506
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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L160408-1
Client Project # 11-124

Methyl tert-Butyl Ether (MTBE) by EPA Method 8260C in Water

Sample Description		Method Blank	MW-2	MW-6	MW-5	MW-4	MW-11
Date Sampled	Reporting	N/A	4/7/16	4/7/16	4/7/16	4/7/16	4/7/16
Date Analyzed	Limits (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)
Methyl *tert* -butyl ether (MTBE)	2.0	nd	nd	nd	nd	592	8.5
Surrogate Recovery							
Dibromofluoromethane		100	94	83	91	92	100
1,2-Dichloroethane-d4		105	100	103	103	102	104
Toluene-d8		100	100	90	99	80	95
4-Bromofluorobenzene		79	78	87	66	82	90

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L160408-1
Client Project # 11-124

Methyl tert-Butyl Ether (MTBE) by EPA Method 8260C in Water

Sample Description		MW-11 Dup	MW-10	MW-3	MW-1
Date Sampled	Reporting	4/7/16	4/7/16	4/7/16	4/7/16
Date Analyzed	Limits (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)	4/12/16 (µg/l)
Methyl *tert* -butyl ether (MTBE)	2.0	7.8	nd	10	20
Surrogate Recovery					
Dibromofluoromethane		96	92	93	84
1,2-Dichloroethane-d4		101	93	97	81
Toluene-d8		99	99	98	79
4-Bromofluorobenzene		86	74	77	79

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

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MANOR MARKET PROJECT
AEG, LLC
Lynnwood, Washington
Libby Project # L160408-1
Client Project # 11-124

QA/QC Data - EPA 8260C Analyses

Sample Identification: MW-1							
	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	
1,1-Dichloroethene	10	6.1	61	10	6.7	67	8.8
Chlorobenzene	10	10.6	106	10	10.4	104	1.8
Trichloroethene (TCE)	10	7.7	77	10	8.7	87	12.6
Surrogate Recovery							
Dibromofluoromethane			87			93	
1,2-Dichloroethane-d4			94			104	
Toluene-d8			72			101	
4-Bromofluorobenzene			76			78	

Laboratory Control Sample			
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)
1,1-Dichloroethene	10	9.0	90
Chlorobenzene	10	11.6	116
Trichloroethene (TCE)	10	10.4	104
Surrogate Recovery			
Dibromofluoromethane			95
1,2-Dichloroethane-d4			98
Toluene-d8			100
4-Bromofluorobenzene			77

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

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Date: 4/8/16 Page: 1 of 1

Client: AEG
Project Manager: B. Dilba
Address: 605 11th Ave SE, Suite 201
Project Name: Manor Market
City: Olympia State: WA Zip: 98501
Location: 3609 -164th St City, State: Lynnwood, WA
Phone: (360) 352-9835 Fax: —
Collector: B. Dilba Date of Collection: 4/7/16
Client Project # 11-124
Email: bdilba@aegwa.com

	Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260 CL	NWTPH-Gx	BTEX 8021	NWTPH-HCID	NWTPH-Dx	NWTPH-Dx/Dx	c PAH 8270	PAH 8270	Semi Vol 8270	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	MTBE			Field Notes
1	MW-2	—	0944	H2O	VOAX 3		X	X													
2	MW-6	-	1031																		
3	MW-5	-	1058																		odor
4	MW-4	—	1204			X															odor
5	MW11	—	1251			X															
6	MW10	—	~~1305~~ 1305																		
7	MW3	—	1304			X															odor
8	MW1	—	1354																		
9																					4-19-16
10																					Name change per
11																					Becky via email.
12																					
13																					
14																					
15																					
16																					
17																					

Relinquished by:	Date / Time	Received by:	Date / Time
[signature]	4/8/16	[signature]	4/8/16
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition?	Y	N	
Temp.		°C	
Seals Intact?	Y	N	N/A
Total Number of Containers	24		

Remarks:

TAT: 24HR 48HR 5-DAY

Distribution: White - Lab, Yellow - File, Pink - Originator