ASSOCIATED ENVIRONMENTAL GROUP, LLC

Remedial Investigation / Feasibility Study Report

Conducted on:

Kountry Korner
27099 Miller Bay Road NE
Kingston, Washington 98346-9473

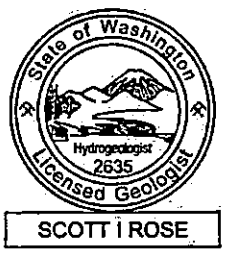
Prepared for:

Mr. Suh Jin
27099 Miller Bay Road NE
Kingston, Washington 98346-9473

Prepared & Reviewed by:

Nicolas Pushckor, R.S.A.
Staff Geologist

Scott Rose, L.H.G.
Senior Hydrogeologist



AEG Project #: 16-132
Date of Report: May 25, 2017

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1.0 INTRODUCTION

This report presents the findings of a Remedial Investigation and Feasibility Study (RI/FS) conducted by Associated Environmental Group, LLC (AEG) at the Kountry Korner, located at 27099 Miller Bay Road NE, in Kingston, Washington (Site). The purpose of this report is to document the completion of the RI, and provide support for remedial actions proposed in the FS. The scope of work for this investigation was developed based on our professional judgment and experience in accordance with requirements in the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Cleanup Regulations (Chapter 173-340 WAC). The investigation was performed in general accordance with the American Society for Testing and Materials (ASTM) Standard E 1903-11, Standard Guide Environmental Site Assessments: Phase II Environmental Site Assessment Process.

1.1 *General Site Information*

Site Name: Kountry Korner
Site Address: 27099 Miller Bay Road NE, Kingston, Washington 98346-9473
Facility/Site ID No.: 32193281
Cleanup Site ID No.: 8701
Property Owner: Mr. Suh Jin

The Site is located southwest of the intersection between Miller Bay Road NE and NE State Highway 104 in Kingston, Washington. A gasoline station, convenience store, teriyaki restaurant, and animal hospital occupies the property, which is assigned Kitsap County Tax Parcel No. 282702-1-005-2004, and is about 1.04 acres. The immediate vicinity of the Site is rural and residential. The Site is bounded to the east by Miller Bay Road NE and a Rite Aid pharmacy beyond; to the north by NE State Highway 104 and undeveloped, forested land beyond; to the west by undeveloped, forested land; and to the south by residential properties.

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 Kountry Korner property has migrated into the NE State Highway 104 Right-of-Way (ROW) to the north. Therefore, the boundary of the Site also includes portions of the ROW.

1.2 *Site History*

The Site was historically occupied by retail gasoline station and convenience store since at least 1951. Site use prior to 1951 is not known. The original underground storage (USTs) were removed and replaced in 1978. There are no records of the decommissioning or the location of the USTs on Site. In 1978, four regulated USTs were installed at the Site. In 1995, the four USTs

were decommissioned for replacement with three USTs: one 10,000-gallon gasoline UST, one 15,000-gallon gasoline UST, and one split tank with a 5,000-gallon diesel compartment and a 5,000-gallon gasoline compartment. During removal of four USTs in 1995 for replacement with the above referenced USTs, petroleum-contaminated soil (PCS) was encountered in the tank pit. **The Site was issued a "No Further Action" (NFA) determination from Ecology via an opinion letter dated April 26, 2012 for the leaking UST and cleanup activities associated with UST and PCS removal in 1995.**

The focus of this RI/FS is on activities performed at the Site after the April 26, 2012 NFA determination.

1.3 *Site Use*

A gasoline station, convenience store, teriyaki restaurant, and animal hospital occupies the property, which includes a 15,000-square-foot building and a 2,200-square-foot fuel canopy. Three USTs are currently operational at the Site: one 10,000-gallon gasoline UST, one 15,000-gallon gasoline UST, and one split tank with a 5,000-gallon diesel compartment and a 5,000-gallon gasoline compartment. The building is served by a septic system and associated leach lines located northwest of the building, and a groundwater well at the south end of the building. The groundwater well was installed in 1985 and is screened from 139 to 144 feet below ground surface (bgs). A series of catchbasins are also located on Site, which discharge to an oil/water separator located north of the building. 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*.

2.0 FIELD INVESTIGATIONS

2.1 *Site Characterization History*

2.1.1 Phase I Environmental Site Assessment – Terra Associates, Inc., June 2015

In June 2015, Terra Associates, Inc. (Terra) performed a Phase I Environmental Site Assessment (ESA) at the property. Recognized environmental conditions (RECs) noted in association with the Site were as follows:

- *The Site has reportedly operated as a fueling station with USTs since at least 1951. The original USTs were reportedly removed and replaced in 1978; however, there are no records of the decommissioning or the location of the USTs on the Subject Property. The use of the Subject Property as a fueling station and the lack of documentation of UST removal are considered a REC.*
- *During removal of four USTs in 1995, petroleum-contaminated soil was encountered in the tank pit excavation. Approximately 739.29 tons of petroleum-contaminated soil was removed from the Subject Property. Confirmation soil samples were collected from the excavation and analyzed for gasoline and diesel range TPH* [petroleum hydrocarbons], *BTEX* [benzene, toluene, ethylbenzene, and xylene], *and total lead. Confirmation soil samples contained gasoline-range hydrocarbons up to 40 milligrams per kilogram (mg/kg). Groundwater seepage observed in the excavation was also collected and gasoline range organics was detected at 410 µg/l* [micrograms per liter]*; below Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup level. However, the groundwater sample was not analyzed for the BTEX suite of volatile organics. The lack of the BTEX data for soil and groundwater was considered a data gap and a REC.*
- *Complaints have been filed with the Kitsap County Health District alleging oily discharge from the Subject Property to road side ditches during storm events. Three catch basins were observed on site during the Phase I ESA; however, the outfall for the stormwater drainage system was not observed. The potential discharge of petroleum-contaminated stormwater off-site was considered a REC.*

2.1.2 Focused Phase II Environmental Site Assessment – Golder Associates, Inc., December 2015

On November 18 and 19, 2015, Golder Associates, Inc. (Golder) performed a Focused Phase II ESA at the Site in which five boreholes were advanced to assess soil and groundwater. Golder also reviewed the Site stormwater and catch basin system to assess the potential for petroleum-contaminated stormwater or sediment discharge off Site. Conclusions from the Golder Focused Phase II ESA are as follows:

"Exceedances of MTCA A cleanup levels in soil, groundwater, and sediment samples were observed during this investigation.

One exceedance of MTCA A cleanup levels for GRO was observed in a soil sample collected from KK-2 near the existing fuel island and near the boundary of the 1995 tank pit excavation. Based on historical reports, this location appears to be outside the excavation area and in a location that noted contaminated soil stockpiling during excavation. Borehole KK-2 was the only location that had a noticeable hydrocarbon odor in the drill cuttings during the excavation.

Two exceedances of MTCA A cleanup levels for dissolved arsenic were observed at KK-1-GW and KK-5-GW. The dissolved arsenic concentration at KK-5 is similar to the concentration reported in the Site drinking water well and may be representative of naturally occurring arsenic concentrations in the region. The concentration reported at KK-1-GW may be attributed to a release of arsenic to groundwater through reaction of iron oxide with either natural or anthropogenic (i.e., petroleum products) organic carbon or from other historical Site operations. Petroleum hydrocarbons were not detected in groundwater collected at KK-1-GW.

Several exceedances of MTCA A cleanup levels were exceeded in catch basin sediment samples, including GRO, DRO, naphthalene, and calculated total carcinogenic PAHs (BaP [benzo(a)pyrene] *equivalent). According to MTCA guidelines, soil is defined as "a mixture of organic and inorganic solids, air, water, and biota that exists on the earth's surface above bedrock, including materials of anthropogenic sources such as slag, sludge, etc." As such, for the purpose of this evaluation the catch basin sediment is considered a soil, and due to the lack of an OWS, presents a potential for off-site stormwater release of hydrocarbon contamination. Based on conversations with Kitsap County and the Washington Department of Ecology, a stormwater discharge permit is not required for commercial fueling stations. However, according to the Ecology Stormwater Management Manual for Western Washington, stormwater collected from the fuel island containment area should be conveyed to a sanitary sewer system (if the mixture is non-flammable) or an approved treatment system such as an OWS or basic treatment best management practice (BMP) such as a media filter or bio filter prior to discharge from the Site. Additionally, routine maintenance and cleaning of catch basins is recommended. No such BMPs appeared to be implemented during the Site investigation and should be addressed to mitigate potential off-site stormwater impacts."*

2.1.3 Catchbasin & Oil/Water Separator Cleanout – December 2015

Following receipt of the Golder report, it was confirmed that the catchbasins do in fact discharge to an on-Site oil/water separator located north of the convenience store building. Per the Golder

recommendations, the property owner hired Sweetwater Septic & Grease Trap Pumping of Poulsbo, WA, and Marine Vacuum Service, Inc. of Seattle, WA, to pump out the catchbasins and oil/water separator, respectively. Impacted sediments were removed from the catchbasins, and about 800 gallons of wastewater and sludge were removed from the oil/water separator. The receipts for this activity are included in Appendix B.

2.1.4 Subsurface Investigation – AEG, April to July 2016

The objective of this Subsurface Investigation was to further define the lateral and vertical extents of contamination at the Site. On April 26, 2016, AEG supervised the advancement of six soil borings (B-1 through B-6) to a depth of 15 feet bgs on Site. Following an evaluation of the sampling results, AEG returned to the Site on July 6, 2016, and advanced three additional soil borings (B-7, B-8, and B-9) and installed three monitoring wells (MW-1, MW-2, and MW-3) to a depth of 15 feet bgs. Soil samples were collected during drilling for field screening and laboratory analyses during both events. On July 14, 2016, following proper well development, AEG sampled groundwater from each of the monitoring wells. Locations of borings, monitoring wells, and Site features are illustrated on Figure 2, *Site Map*. Analytical results of the samples collected are summarized in Table 1, *Summary of Soil Analytical Results,* and Table 2, *Summary of Groundwater Analytical Results.* After this event, it was determined that further exploration was needed to define additional data gaps beyond the property boundaries.

2.1.5 Off-Property Investigation – AEG, January 2017

The objective of this investigation was to further define the lateral and vertical extents of contamination at the Site, and determine to what extent it may extend into the adjacent ROWs. In January 2017, following coordination of access to the NE State Highway 104 ROW with the Washington State Department of Transportation (WSDOT) and adjacent Rite Aid property to the east, AEG supervised the advancement of three soil borings (B-10 through B-12) and one monitoring well (MW-4) to a depth of 15 feet bgs on Site using a combination Geoprobe® direct-push and auger drilling rig. Locations of borings, monitoring wells, and Site features are illustrated on Figure 2, *Site Map*. Analytical results of the samples collected are summarized in Table 1, *Summary of Soil Analytical Results,* and Table 2, *Summary of Groundwater Analytical Results.*

2.1.6 UST System Tightness Testing – Northwest Environmental Solutions, Inc., March 2017

On March 7, 2017, Northwest Environmental Solutions, Inc. performed UST system tightness tests at the Site including Air to Liquid Ratio Test – Tri Tester, Pressure Decay Test CARB TP-201.3, Determination of Vapor Piping Connections (Tie-Tank) TP-201.3C, Back Pressure Tests (Wet/Dry) CARB TP-201.4, Static Torque of Rotatable Phase I Adaptors, and Precision Leak Detector and Line Tests. All tightness tests on the system passed and thus the UST system was

considered sound. Documentation of the tightness tests can be found in Appendix C, *Northwest Environmental Solutions, Inc – Tightness Tests.*

2.1.7 Quarterly Groundwater Monitoring – AEG, March 2017

AEG returned to the Site in March 2017 to collect groundwater data from all four monitoring wells. Analytical results of the samples are summarized in Table 2, *Summary of Groundwater Analytical Results.*

2.2 *Field Methodology*

AEG supervised the advancement of soil borings and groundwater wells as described in Section 2.1, *Site Characterization History.* Soil samples were collected during drilling for field screening and laboratory analyses. Groundwater samples were collected following borehole completion or monitoring well development, or as part of quarterly groundwater monitoring events. These sampling locations are illustrated in Figure 2, *Site Map.*

2.2.1 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 volatile organic compound (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 the boreholes via continuous soil cores in an acetate sleeve inside the drilling rod's core barrel. Soils were observed to document soil lithology, color, moisture content, and sensory evidence of contamination.

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 under chain-of-custody protocols.

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

2.2.2 Well Construction

The four monitoring wells at the Site were constructed pursuant to Ecology's *Minimum Standards for Construction and Maintenance of Wells*, Chapter 173-160 WAC. All groundwater monitoring wells at the Site were constructed to a depth of 15 feet bgs, with 10 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.

2.2.3 Boring Groundwater, and Monitoring Well Groundwater Sampling Procedures

AEG sampled the groundwater from borings where groundwater was present. For one-time borings, a temporary well screen was installed to collect a groundwater sample. The temporary well screen was placed at the interval below the vadose zone where groundwater was encountered during drilling activities. Dedicated polyethylene tubing was inserted into the retractable screen and groundwater purged via the EPA-approved low-flow purge technique. A peristaltic pump was used to purge the well until the discharge was relatively free of sediment.

Groundwater monitoring wells were sampled via the low flow-purging technique, and purged until the field parameters, including pH, temperature, specific conductivity, dissolved oxygen, and/or total dissolved solids were stabilized, and the water was relatively free of sediment.

Groundwater samples were collected in laboratory-provided 40-ml VOA vials, 250-ml polyurethane bottles, and ½-liter amber bottles. Upon collection, the samples were placed in a chilled cooler for transport to the analytical laboratory.

2.2.4 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:

- Surrogate recoveries for each sample.
- Method blank results.
- Laboratory Control Samples, and Laboratory Control Duplicate Samples.
- Duplicate analyses.

2.2.5 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 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.

2.3 *Analytical Results*

Soil and groundwater samples collected to date have been analyzed for one or more of the following analyses:

- Gasoline-range TPH by Method NWTPH-Gx.
- BTEX, hexane, methyl tert-butyl ether (MTBE), ethylene dibromide (EDB), and 1,2-dichloroethane (EDC) by EPA Method 8260.
- EDB by EPA Method 8011.
- Total Naphthalenes by EPA Method 8270.
- Total Lead by EPA Method 6020.

All analytical results were compared to MTCA Method A cleanup levels. Copies of the laboratory analytical results are provided in Appendix B, *Supporting Documents, Laboratory Datasheets.*

2.3.1 Soil Results

Analytical results of the soil samples collected to date indicated the presence of gasoline-range TPH, benzene, ethylbenzene, and xylenes above their respective MTCA Method A cleanup levels. Lead was detected above MTCA cleanup levels in one soil sample in boring B-12 within the NE State Highway 104 ROW, but was not detected in other samples containing gasoline-range TPH and BTEX. Analytical results of all soil samples collected from the Site to date are summarized in Table 1, *Summary of Soil Analytical Results.* The distribution of soil concentrations in excess of MTCA Method A cleanup levels in is illustrated in plan view on Figure 3, *Gasoline TPH Soil*

Plume Map, and in cross section on Figure 5, *Geologic Cross Section A-A'* and Figure 6, *Geologic Cross Section B-B'*.

2.3.2 Groundwater Results

Analytical results of the groundwater samples collected to date indicated the presence of gasoline-range TPH, benzene, and xylenes above their respective MTCA Method A cleanup levels. Total lead was detected in one sample collected from MW-3, but was not detected in other samples containing gasoline-range TPH and BTEX. Analytical results of all groundwater samples collected from the Site to date are summarized in Table 2, *Summary of Groundwater Analytical Results.* The distribution of groundwater concentrations in excess of MTCA Method A cleanup levels in is illustrated on Figure 4, *Gasoline TPH Groundwater Plume Map.*

3.0 CONCEPTUAL SITE MODEL (CSM)

This section provides a conceptual understanding of the Site, derived from the results of the subsurface investigations 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 localized release from the dispensers along the northern portion of the property. While the tightness testing performed in March 2017 indicated the UST system passed, the standard tightness testing is not 100% accurate, and may not detect a low-volume, chronic release. It's possible the impacts may be residual contamination from the former UST system, replaced in 1995, as the impacts consist of similar COCs and are in the vicinity of the former USTs.

COCs at the Site consist of gasoline-range TPH and BTEX compounds in Site soil and groundwater. Lead is not considered a COC and is thought to be occurring at native background levels. Figure 3, *Gasoline TPH Soil Plume Map*, and Figure 4, *Gasoline TPH Groundwater Plume Map,* illustrate the extents of soil and groundwater contamination, respectively, at the Site, in plan view. Cross sections are illustrated in Figure 5, *Geologic Cross Section A-A'*, and Figure 6, *Geologic Cross Section B-B'*.

AEG believes the Site has been sufficiently characterized to be able to establish cleanup standards and select a cleanup action for the Site. Remedial alternatives presented in the accompanying FS contemplate contamination in both accessible and inaccessible areas of the Site.

Gasoline-range TPH and BTEX constituents have been identified above Ecology MTCA Method A cleanup levels in soil samples from borings B-2, B-6, B-7, B-8, and monitoring well MW-3, north of the fuel dispenser islands and UST nest in a landscape area at the northern extent of the property. Gasoline-range TPH and BTEX constituents are believed to impact soils beneath NE State Highway 104 but do not extent past NE State Highway 104 based on proximity of constituents above the cleanup levels to the south of NE State Highway 104 and no gasoline-range TPH or BTEX constituents being detected north of NE State Highway 104. Lead was detected at the northern extent of NE State Highway 104 at a depth of 5 feet bgs above the cleanup level but not detected above cleanup levels elsewhere at the Site.

Gasoline-range TPH and BTEX constituents have been identified above Ecology MTCA Method A cleanup levels in groundwater samples from borings B-2, B-6, B-8 and monitoring well MW-1. Gasoline-range TPH and BTEX constituents are believed to impact groundwater north of the fuel

canopy in the landscaped area and into NE State Highway 104 but not extending north of NE State Highway 104.

3.2 *Site Geology and Hydrogeology*

According to the United States Department of Agriculture Natural Resources Conservation Service soil survey, the Site consists of soil unit Poulsbo-Ragnar complex, 0 to 6 percent slopes. The Poulsbo-Ragnar complex consists of moderately deep and moderately well drained soils formed in glacial till and glacial outwash. Permeability of this soil is moderately rapid.

Soils encountered at the Site during subsurface investigations generally consisted of sand and gravelly sand from the ground surface to about 8 to 9 feet bgs. Soils transitioned to more of a dense sandy silt with some gravel below 9 feet and into groundwater to the total depth explored of 15 feet bgs. Groundwater was encountered at the time of drilling between 5 and 12 feet bgs in each of the borings. Groundwater flow direction is generally to the southwest. Miller Lake is located approximately 0.70 miles west-northwest of the Site and Carpenter Lake is located approximately 1 mile east-southeast of the Site.

Depth to water measurements on July 14, 2016 ranged from 6.09 to 6.22 feet bgs, and on March 21, 2017 ranged from 4.28 to 5.32 feet bgs (Table 3, *Summary of Groundwater Elevation Monitoring*). The groundwater flow direction for the July 2016 sampling event is primarily towards the southwest with an approximate gradient of 0.008 feet per foot (ft/ft) (Figure 7, *July 2016 Groundwater Contour Map*). The groundwater flow direction for the March 2017 sampling event is primarily towards the southwest with an approximate gradient of 0.005 ft/ft (Figure 8, *March 2017 Groundwater Contour Map*).

3.3 *Environmental Fate of TPH in the Subsurface*

Gasoline-range TPH and associated BTEX compounds are soluble, and migrate in groundwater. These compounds have a specific gravity that is less than water, and can be measured in monitoring wells as Light Non-Aqueous Phase Liquid (LNAPL). To date, no LNAPL has been measured in Site monitoring wells.

LNAPL can also exist as a residual non-mobile phase that is either sorbed to the soil or trapped in the pore spaces between the soil particles. Unless treated, residual LNAPL can act as a long-term source for groundwater contamination.

Gasoline-range TPH and BTEX compounds are readily biodegraded in the subsurface by naturally occurring aerobic and anaerobic bacteria. Aerobic biodegradation is the most efficient of the biological activities. At this Site, dilution and ongoing aerobic biodegradation are most likely

reducing contaminant concentrations. Groundwater contamination is generally bounded by the following borings and monitoring wells:

Direction from Source Zone	Groundwater Contamination bounded by
North	B-11, B-12
East	MW-3, MW-4
South	MW-2, B-3, B-4, B-5, B-10
West	B-1, B-2, MW-2

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

Potentially complete soil exposure pathways at the Site include:

- Contact (dermal contact, incidental ingestion) with hazardous substances in soil by visitors, residents, and workers (including excavation workers). Direct ingestion of, or dermal contact with, soil containing TPH and BTEX is considered a potential exposure pathway. Impacted areas are currently covered by asphalt and landscaped areas, and unless disturbed, are not available for potential direct contact or ingestion. Soil impacts have been documented at and below 9 feet bgs.
- Groundwater Leaching Pathway. The groundwater leaching pathway is considered complete at this Site.

3.4.2 Potential Groundwater Exposure Pathways

Potentially complete groundwater exposure pathways at the Site include:

- Contact (dermal, incidental ingestion) with hazardous substances dissolved in groundwater by visitors, residents, and workers (including excavation workers). Groundwater is considered a potentially complete pathway for direct contact and ingestion because of the potential for using groundwater, and the shallow depth of its occurrence. Groundwater levels are seasonally as shallow as 4.28 feet bgs. However, most impacted areas are currently covered by asphalt and landscape areas and, unless disturbed, are not available for potential direct contact or ingestion.
- Consumption of hazardous substances in groundwater. Currently, drinking water is provided by nearby drinking water supply wells located south of the building on Site. For

the purpose of this CSM, consumption of hazardous substances in groundwater is considered a completed pathway.

3.4.3 Potential Air Exposure Pathways

Potentially complete air exposure pathways include:

- Inhalation of hazardous substances in soil vapor by visitors, residents, and workers (including excavation workers). 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 at the Site, 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. While the on-Site building is located greater than 30 feet lateral separation distance from areas of contaminated soil and groundwater, there are utilities in the area that have the potential to act as a preferential pathway. As such, the soil-to-vapor pathway for potential vapor intrusion is considered potentially complete.

3.4.4 Terrestrial Ecological Evaluation

A simplified TEE is appropriate for this Site for the following reasons.

1. Area of soil contamination at the Site is not more than 350 square feet.
2. The Site is not used by a threatened or endangered species, wildlife species classified by the state department of fish and wildlife as a "priority species" or "species of concern" under Title 77 RCW, or a plant species classified by the Washington State Department of Natural Resources natural heritage program as "endangered," "threatened," or "sensitive" under Title 79 RCW.
3. Current and planned land use makes wildlife exposure unlikely.
4. No contaminant is or will be present in the upper 6 feet at concentrations that exceed the values listed in Table 749-2, and institutional controls will be used to manage remaining contamination.

The Site is a commercial property. For pathway analysis on commercial properties, only potential exposure pathways for wildlife need to be considered. The pathway for wildlife exposure is currently incomplete at the Site. Where contamination is not covered by asphalt, remaining contamination will be covered by at least 6 feet of uncontaminated soil at the end of remedial activities. Institutional controls may be required at the end of active remediation at the Site to ensure that remaining contamination does not result in ecological exposure.

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, groundwater, and soil vapors 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 Proposed Cleanup Levels

MTCA Method A cleanup levels for the soil and groundwater exposure pathways are appropriate for this Site. MTCA Method B cleanup levels are appropriate for the air exposure pathway, and for constituents where MTCA Method A cleanup levels are not promulgated. These cleanup levels are based on the most stringent values for each exposure pathway and are considered appropriate for the Site COCs. Proposed MTCA cleanup levels for the Site COCs that have been measured in soil, groundwater, and air at the Site include:

Constituent	Soil	Groundwater
• Gasoline-range TPH	30 mg/kg	800 µg/L
• Benzene	0.03 mg/kg	5 µg/L
• Ethylbenzene	6 mg/kg	700 µg/L
• Toluene	7 mg/kg	1,000 µg/L
• Total Xylenes	9 mg/kg	1,000 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 points of compliance will be used.

- Soil – Direct Contact: For soil cleanup levels based on human exposure via direct contact, the point of compliance is throughout the Site from the ground surface to 15 feet bgs.
- Soil – Leaching: For soil cleanup levels based on protection of groundwater, the point of compliance is throughout the Site.
- Groundwater: For groundwater, the point of compliance 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 point of compliance is ambient and indoor air throughout the Site.

5.0 IDENTIFICATION AND SCREENING OF REMEDIATION TECHNOLOGIES

This section identifies general response actions and screens remediation technologies for use in assembling remediation alternatives.

5.1 *General Response Actions*

General response actions are broad categories of remedial actions that can be combined to meet the RAOs for a site. The following are typical general response actions that are applicable to most impacted sites:

- No action
- Institutional controls
- Monitored natural attenuation
- Containment
- Removal
- Ex-situ treatment
- In-situ treatment

Potentially applicable technologies associated with these general response actions have been identified and screened based on the Site COCs and affected media, and take into consideration the current and future use of the property. An overview of those technologies is provided in the following section.

5.2 *Identification and Screening of Applicable Technologies*

Applicable technologies associated with general response actions have been identified and screened for potential inclusion in the remediation alternatives for the Site. Each identified technology was screened based on applicability to Site conditions, overall effectiveness, implementability, and relative cost. Potentially applicable technologies considered for the Site are presented in Table 4, *Identification and Screening of Response Actions and Remediation Technologies*, which provides a summary of the screening results. Twelve remedial technologies were retained for further consideration. Details of each technology are summarized below. The technologies determined to be most appropriate for the Site were then incorporated into four potentially applicable remediation alternatives.

5.2.1 Institutional Controls

Institutional controls considered for this RI/FS include legal restrictions on land and on groundwater use to limit potential exposure to contamination, often through an environmental covenant filed at the time of Site closure. Environmental covenants are often appropriate as a component of a remedial alternative for Sites where residual contamination is constrained within

the property at the completion of active remediation, and where a POC can be determined and monitored over time. Such controls prohibit or limit activities on a property that may interfere with the integrity of engineered controls or result in exposure to hazardous substances. Except under certain specified circumstances, such controls must be executed through an environmental covenant on the affected property. Environmental covenants are typically not appropriate for sites where residual contamination above cleanup standards extends off property at the time of closure unless agreed upon by adjacent property owners. Institutional controls alone do not fully mitigate the potential vapor migration pathway, and additional technologies would be required to address that exposure pathway as part of the overall cleanup.

5.2.2 Monitored Natural Attenuation

The term "natural attenuation" as used in this RI/FS refers to a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of hazardous substances in the environment (Ecology, 2005). These in-situ processes include: natural biodegradation, dispersion, dilution by recharge, sorption, volatilization, chemical or biological stabilization, transformation or destruction of hazardous substances (WAC 173-340-200).

When applied as part of a cleanup action, natural attenuation is often referred to by EPA as "monitored natural attenuation" to distinguish the action from "no action". "Monitored natural attenuation", as the term is used in EPA OSWER Directive 9200.4-17P (1999a), means the reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup approach) to achieve site-specific remedial objectives within a timeframe that is reasonable compared to that offered by more active cleanup methods.

The natural attenuation processes can be classified as either physical (dispersion, dilution by recharge, and volatilization), chemical (sorption and chemical degradation), or biological (biodegradation).

Natural attenuation processes that result in the reduction of concentration or mobility of a contaminant, but not the total mass, are referred to as "non-destructive" mechanisms. Those processes include the physical dispersion and dilution processes and the chemical sorption process (ASTM, 1998). Natural attenuation processes that result in the reduction of the total contaminant mass in the system are referred to as "destructive" mechanisms. Those processes include the chemical and biological degradation processes. For petroleum hydrocarbons in the subsurface, biological degradation is often the most important destructive mechanism because hydrocarbons can be destroyed (ASTM, 1998).

Although some natural attenuation typically occurs at most contaminated sites, the effectiveness of these processes varies depending on the types and concentrations of contaminants present at the site and the physical, chemical, and biological characteristics of the site. Natural attenuation should be evaluated as one potential remedial approach along with other cleanup action alternatives involving more active remedial technologies. Natural attenuation processes alone do not fully mitigate the potential vapor migration pathway, and additional technologies would be required to address that exposure pathway as part of the overall cleanup.

Although some natural attenuation typically occurs at most contaminated sites, the effectiveness of these processes varies depending on the types and concentrations of contaminants present at the site and the physical, chemical, and biological characteristics of the site. Natural attenuation should be evaluated as one potential remedial approach along with other cleanup action alternatives involving more active remedial technologies.

5.2.3 Containment (Capping)

This retained containment technology option for this Site would include retaining capped portions of the Site with an impervious surface, such as use of the existing or new asphalt in areas of the Site after source control occurs. Capping would prevent exposure to contamination in soil or groundwater if contamination remains above cleanup levels at the end of active remediation. Capping would be memorialized with institutional controls at the Site. Capping alone could not achieve full compliance with cleanup standards; therefore, if implemented, additional remediation technologies would also be required to reduce contaminant concentrations in the subsurface to meet cleanup levels. Containment technologies do not fully mitigate the potential vapor migration pathway, and additional technologies would be required to address that exposure pathway as part of the overall cleanup.

5.2.4 Removal (Soil Excavation)

Excavation of contaminated soil at the Site may be an effective method of reducing remaining PCS on the property. Excavated PCS would be transported for disposal at an appropriate disposal facility, requiring access to the Site by transport trucks during the excavation. At this Site, excavation of PCS would likely be limited to the north by the NE State Highway 104 ROW. Excavation of PCS beneath the NE State Highway 104 ROW would not likely be practical due to the roads high usage and limited traffic diversion opportunities.

5.2.5 Removal (Groundwater Extraction)

Groundwater extraction would consist of submersible and/or aboveground pumping equipment used to remove and treat impacted groundwater from extraction wells. This technology would require installation of additional extraction wells within the contaminant plume. If implemented as a component of a remedial alternative, groundwater extraction would be combined with other technologies to treat the water. Treated water could either be discharged to the sanitary sewer or re-injected at the Site as part of an in-situ treatment component. Disposal of untreated groundwater to an off-Site facility may be cost-prohibitive.

5.2.6 Ex-Situ Treatment, Groundwater (Activated Carbon Adsorption)

Granulated activated carbon (GAC) treatment is a physical and chemical process that removes a wide variety of contaminants by adsorbing them from liquid streams onto an activated carbon filter. This treatment technology is most commonly used to separate organic contaminants from contaminated water. The contaminant adsorbs to the surface of GAC until the available surface area of the GAC is exhausted, after which the GAC can be either reactivated, regenerated, or discarded. If GAC is discarded, it may be considered a hazardous waste. Groundwater extracted from the subsurface of the Site could be treated through GAC after oil/water separation, to reduce contaminant concentrations to below remedial objectives, and be reinjected or discharged.

5.2.7 Ex-Situ Treatment, Groundwater (Air Stripping)

Air stripping is a full-scale technology in which volatile organics are partitioned from groundwater by greatly increasing the surface area of the contaminated water exposed to air. Types of aeration methods include packed towers, diffused aeration, tray aeration, and spray aeration.

Air stripping involves the mass transfer of volatile contaminants from water to air. For groundwater remediation, this process is typically conducted in a packed tower or an aeration tank. The typical packed tower air stripper includes a spray nozzle at the top of the tower to distribute contaminated water over the packing in the column, a fan to force air countercurrent to the water flow, and a sump at the bottom of the tower to collect decontaminated water. Auxiliary equipment that can be added to the basic air stripper includes an air heater to improve removal efficiencies; automated control systems with sump level switches and safety features, such as differential pressure monitors, high sump level switches, and explosion-proof components; and air emission control and treatment systems, such as activated carbon units, catalytic oxidizers, or thermal oxidizers. Packed tower air strippers are installed either as permanent installations on concrete pads or on a skid or a trailer.

Aeration tanks strip volatile compounds by bubbling air into a tank through which contaminated water flows. A forced air blower and a distribution manifold are designed to ensure air-water

contact without the need for any packing materials. The baffles and multiple units ensure adequate residence time for stripping to occur. The discharge air from aeration tanks can be treated using the same technology as for packed tower air discharge treatment.

Modifying packing configurations greatly increase removal efficiency. The low-profile air stripper packs a number of trays in a very small chamber to maximize air-water contact while minimizing space. This unit offers significant vertical and horizontal space savings. Air strippers can be operated continuously or in a batch mode where the air stripper is intermittently fed from a collection tank. The batch mode ensures consistent air stripper performance and greater energy efficiency than continuously operated units because mixing in the storage tanks eliminates any inconsistencies in feed water composition.

5.2.8 In-Situ Treatment (Air/Ozone Sparging)

Sparging consists of injecting air or generated ozone into groundwater below the water table. Volatile contaminants are transferred from the dissolved phase to the vapor phase for recovery. Air sparging has the additional benefit of increasing the dissolved oxygen content of groundwater and facilitating aerobic biological degradation of petroleum hydrocarbons and the co-metabolic biodegradation of co-located chlorinated VOCs.

Implementation of sparging technology at the Site would require installation of injection wells, and delivering air or generated ozone to the wells using a blower or compressor. Sparging wells can be either vertical wells or horizontal wells. Vapor recovery may also need to be implemented to capture volatilized compounds generated from the air sparging process. Air sparging systems are typically installed in conjunction with a SVE system. SVE wells can also be installed as either vertical or horizontal wells. The selection of vertical or horizontal wells and the spacing and construction of such wells would require system design and operation based upon the current ozone sparging system.

As with aeration and air stripping treatment technologies, fouling by iron and manganese can be problematic; therefore, testing for dissolved iron and manganese at the Site would be recommended prior to implementing this technology. If selected for the cleanup action, remedial pilot testing should be conducted at the Site to evaluate the effective radius of influence of injected air and determine the appropriate spacing for air sparging injection wells.

5.2.9 In-Situ Treatment (Soil Vapor Extraction)

Soil vapor extraction (SVE) technology may be implemented alone or coupled with other technologies such as groundwater extraction or air sparging. This technology would require installation of SVE wells screened within the vadose zone where impacts are present in soil. SVE technology may also utilize appropriately constructed monitoring wells for either vapor and vacuum monitoring or for active extraction. Using vacuum blower equipment, a vacuum is applied to the SVE wells to extract volatile contaminants from the subsurface. Volatile compounds are present in soil gas either through volatilization or as the result of extraction.

Extracted vapors require treatment prior to atmospheric discharge. Vapor effluent treatment technologies include GAC, thermal oxidation (therm-ox), or catalytic oxidation (cat-ox). GAC is typically applicable to lower air effluent discharges while therm-ox and cat-ox are more applicable to higher mass loadings. If vapor concentrations are expected to be significantly elevated during the initial phase of remediation, a therm-ox or cat-ox is often more suitable and more cost-effective than using GAC adsorption equipment for vapor treatment. However, GAC could be more practical for vapor treatment once concentrations are significantly reduced. Remedial pilot testing should be conducted for this technology to evaluate the effective radius of influence for extraction and determine the appropriate well spacing.

5.2.10 In-Situ Treatment (Enhanced Bioremediation)

Enhanced bioremediation is a process in which indigenous or inoculated micro-organisms (e.g., fungi, bacteria, and other microbes) degrade (metabolize) organic contaminants found in soil and/or groundwater, converting them to innocuous end products. Nutrients, oxygen, or other amendments may be used to enhance bioremediation and contaminant desorption from subsurface materials. For this Site, in-situ treatment may consist of using the "Trap and Treat" process in which granulated carbon is injected in a grid-like pattern in areas of concern, which traps the contaminants and provides plume control. The plume is then treated with a matrix, which incorporates both aerobic and anaerobic biological processes, providing longer term remedial degradation.

5.2.11 In-Situ Treatment (Chemical Oxidation)

Application of chemical oxidation technology mineralizes contaminants within subsurface soil and groundwater through chemical reactions. A mixture of oxidant and buffering compounds are typically injected into impacted soil and groundwater and, upon contact with contaminants, the oxidizer(s) break down the dissolved contaminants into carbon dioxide, water, and salts.

Delivery of oxidants to the subsurface can be conducted using direct-push probes or injection wells installed across the Site. Typical chemical oxidants used for chemical oxidation of petroleum

hydrocarbons include Fenton's reagent and ozone, both of which have been proven to effectively destroy petroleum hydrocarbons and chlorinated solvents. Fenton's reagent consists of hydrogen peroxide combined with an iron catalyst. The injection mixture also typically includes the addition of acid, as Fenton's reagent is more effective at acidic pH. Regardless of the oxidant that is used, the destruction efficiency of contaminants can be greatly affected by the organic content of the soil and other subsurface characteristics that can be readily oxidized. Therefore, testing should be conducted at the Site to analyze the overall soil and water oxygen demand and determine the appropriate oxidant dose to be applied.

When ozone is used for chemical oxidation, it is applied through sparging technology, discussed above. For ozone sparging, ozone is generated on site from air and then injected as a gas into the subsurface.

5.2.12 In-Situ Treatment (Thermal Desorption)

Electrical Resistance Heating (ERH) is an in-situ, thermal technology that uses commonly available electricity and applies it into the ground through electrodes. These electrodes can be installed either vertically to any depth or horizontally underneath buildings, operating facilities, and in the presence of buried utilities. The technology is equally effective in both soil and groundwater.

Electric current is passed through a targeted soil volume between subsurface electrode elements. The resistance to electrical flow that exists in the soil causes the formation of heat; resulting in an increase in temperature until the boiling point of water at depth is reached. After reaching this temperature, further energy input causes a phase change, forming steam and removing volatile contaminants. ERH is typically more cost effective when used for treating contaminant source areas.

ERH is typically most effective on VOCs. Less volatile contaminants like xylene or diesel can also be remediated with ERH, but energy requirements increase as the volatility decreases.

6.0 DESCRIPTION AND SELECTION OF REMEDIAL ALTERNATIVES

Based on the requirements of WAC 173-340-360, *Selection of Cleanup Actions*, four potential remedial alternatives were developed from the general response actions and technologies screened in Table 4, *Identification and Screening of Response Actions and Remediation Technologies,* and described above.

All four alternatives directly address soil and groundwater contamination at the Site, and are also intended to indirectly address ambient air quality at the Site. By reducing remaining contamination in the soil and groundwater to below cleanup levels, the source of contamination for ambient air is removed, and ambient air is expected to meet appropriate cleanup standards.

Based on preliminary screening of the general response actions identified in Section 5.2, *Identification and Screening of Remediation Technologies*, individual general response actions are not expected to individually meet MTCA threshold requirements, and therefore are not considered as stand-alone remedial alternatives.

6.1 *MTCA Threshold Requirements*

Potential remedial alternatives must meet the threshold requirements described in WAC 173-340-360(2)(a), which specifies that cleanup actions shall:

- Protect human health and the environment;
- Comply with cleanup standards;
- Comply with applicable state and federal laws; and
- Provide for compliance monitoring.

MTCA [WAC 173-340-360(2)(b)] also indicates other requirements that must be met by any cleanup alternative:

- Use permanent solutions to the maximum extent practicable;
- Provide for a reasonable restoration time frame; and
- Consider public concerns.

Local Requirements

All required local permits to implement the chosen Remedial Action will be obtained according to Kitsap County requirements. These could include, but are not limited to, construction, air quality, ROW, and building permits.

6.2 *Description of Remedial Alternatives*

Based upon the screening evaluation, MTCA threshold and other requirements, AEG proposes four remedial alternatives for the Site. The alternatives were developed and are evaluated with the goal of achieving remedial objectives within a reasonable timeframe, with the most permanent cleanup and minimal disruption to the Site.

6.2.1 Alternative 1 – Natural Attenuation, Containment, and Institutional Controls

Alternative 1 includes:

- Ten additional groundwater monitoring events at the four existing Site monitoring wells, once every 18 months, intended to monitor natural attenuation. Each monitoring event would confirm that groundwater concentrations of COCs decrease in concentration over time, and that no additional plume migration occurs.
- Institutional controls by legal restrictions on land and on groundwater use to limit potential exposure to contamination through an environmental covenant restricting removal of the asphalt cover and overburden soils (acting as a cap) in areas that exceed safe concentrations. Coordination with WSDOT regarding impacts in the ROW would be needed.

Alternative 1 would result in the longest timeframe to restore the Site, and limitations to the Site in the future, and would be initially the least expensive option. An environmental covenant is a deed restriction filed for the Property and ROW, which would limit access to contaminated areas of the Site without prior approval of Ecology. Restricting use of the Property may affect future Property values.

Estimated time to closure: 15-25 years.

6.2.2 Alternative 2 – Select PCS Excavation, In-Situ BOS 200®, Groundwater Treatment, and Monitoring

Alternative 2 includes:

- Excavation of an estimated 2,500 cubic yards of PCS from approximately from 8 to 18 feet bgs in the vicinity of B-2, B-8, B-7, and MW-3. Excavation would occur to the extent practicable to below MTCA Method A cleanup levels confirmed by the collection of confirmation samples at the limits of excavation with the help of an on-Site mobile laboratory.
- Proper decommissioning of monitoring wells MW-1 and MW-3.

- Pumping and treating on Site of excavation groundwater. This would include use of a water storage tank and GAC treatment system. Treated groundwater would be discharged locally with permit.
- Installing two groundwater monitoring wells to replace MW-1 (MW-1R) and MW-3 (MW-3R), if necessary, to obtain quarterly performance groundwater results after excavation, and at least four additional quarters of confirmation monitoring.
- Inject BOS-200® in areas that were not accessible, including adjacent to the ROW, dispenser footings, canopy areas, and utilities in close proximity to the known contamination plumes. According to the manufacturer, *"BOS 200® is a Trap & Treat® in situ remediation technology specifically designed to degrade petroleum hydrocarbons, related solvents, and oils. BOS 200® is a complete system effecting accelerated biodegradation of various organic compounds on an activated carbon platform that includes micro and macro nutrients, time release terminal electron acceptors, and a blend of facultative organisms designed to flourish within the aerobic to anaerobic conditions present in the pore structure of the carbon. It has been demonstrated to be effective with LNAPL, fuel oxygenates, alcohols, glycols, and cyclic ethers. No toxic byproducts such as sulfide are produced. The product is insensitive to groundwater geochemistry and is effective under aerobic and anaerobic conditions and over a broad range of pH. High salinity and TDS of 30,000 ppm are also not detrimental to performance."*
- Backfill of the excavations with clean fill.
- Pave with asphalt.

Alternative 2 would result in the most contaminant mass removal in the shortest time. This alternative may leave contamination in place around utilities and under the ROW, which would be treated with BOS 200®. AEG would backfill with a poorly sorted sand and gravel mixture or a combination of spalls and 3-inch minus to top coarse surficial gravels as a base to place the asphalt upon. Alternative 2 would cause the most impacts on vehicular and pedestrian traffic in the ROW, with traffic closures and trucks entering and exiting the roadway while the excavation occurs. If a permanent cleanup is unable to be performed due to accessibility, institutional controls via an environmental covenant on the property and/or the ROW (requiring coordination with WSDOT) would be needed to achieve cleanup standards.

Estimated time to closure: 2 to 2 ½ years.

6.2.3 Alternative 3 – In-Situ Electrical Resistance Heating and Monitoring

Alternative 3 includes the installation and operation of an in-situ electrical resistance heating system and soil vapor recovery system at the Site, and includes:

- Development of necessary work plans and permitting.
- Drilling, soil disposal, and electrical connection of the heating system.
- Installation of electrodes in a grid pattern adjacent to the building to the south, and in the backyard of the residence.
- Operation of the electrical heating system for approximately 6-12 months.
- Installation and operation of co-located soil vapor recovery wells and treatment of recovered vapors.
- Confirmatory sampling and well abandonment.

Alternative 3 is the most costly option, yet provides a reliable and accepted method for quickly reducing contamination in the subsurface. This alternative would require few traffic impacts, mainly during installation and decommissioning of the system. Treated vapors would be discharged at the Site.

Estimated time to closure: 2-3 years.

6.2.4 Alternative 4 – In-Situ Treatment via BOS 200® and Monitoring

Alternative 4 includes:

- Injection of BOS 200® in areas exceeding the MTCA Method A cleanup levels, to a total of 20 feet bgs to target the highest concentrations of PCS at the Site within the known contaminated area. According to the manufacturer, *"BOS 200® is a Trap & Treat® in situ remediation technology specifically designed to degrade petroleum hydrocarbons, related solvents, and oils. BOS 200® is a complete system effecting accelerated biodegradation of various organic compounds on an activated carbon platform that includes micro and macro nutrients, time release terminal electron acceptors, and a blend of facultative organisms designed to flourish within the aerobic to anaerobic conditions present in the pore structure of the carbon. It has been demonstrated to be effective with LNAPL, fuel oxygenates, alcohols, glycols, and cyclic ethers. No toxic byproducts such as sulfide are produced. The product is insensitive to groundwater geochemistry and is effective under aerobic and anaerobic conditions and over a broad range of pH. High salinity and TDS of 30,000 ppm are also not detrimental to performance."*

- Continued regular performance monitoring of COCs in Site monitoring wells to demonstrate reduction of COC concentrations and extents of the contaminant plume.
- Confirmatory sampling and well abandonment.

Injections would occur in two stages using top down methodology. The injections would be staggered at vertical depths. Each injection has the potential to impact up to a 5-foot diameter zone of influence, depending on subsurface conditions. Groundwater at the Site would be monitored for four quarters after the end of treatments, to verify the decrease of contaminant concentrations at the Site, and the attainment of remedial action objectives. If a permanent cleanup is unable to be performed due to accessibility, institutional controls via an environmental covenant on the property and/or the ROW (requiring coordination with WSDOT) would be needed to achieve cleanup standards.

Estimated time to closure: 1.5-2 years.

6.3 *Evaluation of Remedial Alternatives*

This section presents an evaluation and comparison of the four proposed remedial alternatives. In accordance with MTCA, the alternatives are evaluated relative to the criteria specified in WAC 173-340-360(3)(f) and WAC 173-340-360(4), which include the following:

1. Protectiveness;
2. Permanence;
3. Effectiveness over the long term;
4. Management of short-term risks;
5. Technical and administrative implementability;
6. Consideration of public concerns;
7. Restoration time frame; and
8. Cost.

Each of these criterion is evaluated below, except for cost, which is evaluated separately. A summary of the evaluation is provided in Table 5, *Remedial Alternatives Evaluation / Disproportionate Cost Analysis*. The overall evaluation is then used to determine the relative benefit of each alternative.

Each criterion was first assigned a score ranging from 5 (best) to 1 (worst), based upon AEG's experience, best professional judgement, and the application of scientific principles. Each score is based on the perceived benefit associated with the criterion and is included in Table 5, *Remedial Alternatives Evaluation / Disproportionate Cost Analysis*. Alternatives deemed equally beneficial

are given the same score. Several criteria are comprised of subcriteria. In such cases, each subcriterion is scored and the average of those scores is used as the criterion score.

6.3.1 Protectiveness

Protectiveness is defined in WAC 173-340-360(3)(f)(i) as:

> *"Overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, time required to reduce risk at the facility and attain cleanup standards, on-site and off-site risks resulting from implementing and alternative, and improvement of the overall environmental quality."*

Each of the four remedial alternatives reduce risk at the Site, and each is protective of human health and the environment. Alternative 1 requires the longest restoration timeframe to reduce risks and attain cleanup standards at the Site, and received the lowest score. Alternatives 2, 3, and 4 ranked similarly for protectiveness.

6.3.2 Permanence

Permanence is defined in WAC 173-340-360(3)(f)(ii) as:

> *"The degree to which the alternative permanently reduces the toxicity, mobility or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of waste treatment process, and the characteristics and improvement of the overall environmental quality."*

At the completion of remedial activities, each of the alternatives would result in a solution that is permanent. Permanence includes the subcriteria of reduction in toxicity, degree of irreversibility, and the type and character of the waste streams generated during treatment. While each of the technologies, if successfully implemented would be permanent, the degree of certainty in the success of the technology varies due to the nature of the technologies. Alternative 1 received the lowest score due to the timeframe associated with reducing toxicity, mobility, and volume, as well as its reversibility. Alternatives 2, 3, and 4 ranked similarly for permanence.

6.3.3 Effectiveness over the Long Term

Effectiveness over the long term is defined in WAC 173-340-360(3)(f)(iv):

> "*Long-term effectiveness includes the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels, the magnitude of residual risk with the alternative in place, and the effectiveness of controls required to manage treatment residues or remaining wastes. The following types of cleanup action components may be used as a guide, in descending order, when assessing the relative degree of long-term effectiveness: Reuse or recycling; destruction or detoxification; immobilization or solidification; on-site or off-site disposal in an engineered, lined and monitored facility; on-site isolation or containment with attendant engineering controls; and institutional controls and monitoring.*"

Long-term effectiveness includes the subcriteria of certainty, reliability, residual risk, and utilization of preferred remedies. Each of the alternatives have the intent of meeting cleanup standards and protecting human health and the environment after completion of the remedial action. However, there are varying levels of uncertainty and reliability associated with each technology throughout the process. Alternative 1's long-term trends are not yet fully understood, as reliable trends in soil and groundwater contamination concentrations and their ability to attenuate/degrade over a longer period of time is unknown. Alternative 1 received the lowest score. Alternative 3 received the highest score as it certain to destroy the contaminants in-situ, and not leave any residuals behind. Alternatives 2 and 4 ranked similarly.

6.3.4 Management of Short Term Risks

Management of short-term risks is defined in WAC 173-340-360(3)(f)(v):

> "*The risk to human health and the environment associated with the alternative during construction and implementation, and the effectiveness of measures that will be taken to manage such risks.*"

All of the alternatives have manageable short-term risks and effective measures for mitigating those risks. Alternative 1 received a higher score than Alternatives 2, 3, and 4 as it is the least intrusive of the alternatives. Alternative 2 received the lowest score as it is the most intrusive.

6.3.5 Technical and Administrative Implementability

Technical and administrative implementability is defined in WAC 173-340-360(3)(f)(vi):

> "*Ability to be implemented including consideration of whether the alternative is technically possible, availability of necessary off-site facilities, services and materials, administrative and regulatory requirements, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with existing facility operations and other current or potential remedial actions.*"

This criterion includes the concepts of technical possibility, access, necessary resources, monitoring requirements and integration into existing facility features. The primary determining subcriterion is technical possibility. Alternative 1 is technically possible, but includes long-term monitoring requirements. Alternative 1 received the highest score. Alternative 2 and Alternative 4 received a similar score based on their similar advantages and disadvantages. Alternative 3 may be difficult to implement with needing three-phase power.

6.3.6 Consideration of Public Concerns

Consideration of public concerns is defined in WAC 173-340-360(3)(f)(vii):

> "*Whether the community has concerns regarding the alternative and, if so, the extent to which the alternative addresses those concerns. This process includes concerns from individuals, community groups, local governments, tribes, federal and state agencies, or any other organization that may have an interest in or knowledge of the site.*"

Alternatives with significant construction components, or alternatives that leave contamination in place at the end of active remedial activities are assumed to have the most concern to the public. Alternative 1 received the lowest score. Alternative 2 has significant construction components with excavation, and received the second lowest score. Alternatives 3 and 4 ranked similarly.

6.3.7 Restoration Time Frame

Restoration Time Frame (RTF) is evaluated using the following factors described in WAC 173-340-360(4)(b)(i through ix):

1. *Potential risks posed by the site to human health and the environment.*
2. *Practicability of achieving a shorter restoration timeframe.*
3. *Current use of the site.*
4. *Potential future use of the site.*
5. *Availability of alternative water supplies.*

6. Likely effectiveness and reliability of institutional controls.
7. Ability to monitor and control migration of hazardous substances from the site.
8. Toxicity of hazardous substances at the site.
9. Natural processes that reduce concentrations of hazardous substances at the site.

Estimates of restoration time frame are necessarily subjective. Each of the alternatives is assumed to provide a reasonable restoration time frame. Actual estimates of effectiveness are premature without performance monitoring data regarding actual effectiveness. Reasonable restoration time frame was ranked based upon the general aggressiveness of each of the technologies and perceived certainty associated with the technology. Alternative 4 received a higher score than Alternative 1, Alternative 2, and Alternative 3. However, Alternatives 2, 3, and 4 would likely have similar restoration time frames overall.

6.4 *Benefit Value Determination*

Average criterion scores determined in Section 6.3 are multiplied by weighting. Weighting factors adapted from those established by Ecology are used to determine the total weighted scores:

Criteria	Weighting Factor
Protectiveness	30%
Permanence	25%
Long Term Effectiveness	20%
Short-Term Risk Management	5%
Implementability	5%
Public Concerns	10%
Restoration Time Frame	5%
Total	**100%**

Each criteria is multiplied by the weighting factor and the products summed to determine each Alternative's Benefit Value. The scoring of these values is summarized in Table 5, *Remedial Alternatives Evaluation / Disproportionate Cost Analysis*.

The results show that Alternative 3 is the preferred alternative for the non-cost criteria, as it results in the highest overall benefit value. Alternative Benefit Values are compared to Estimated Alternative Costs, discussed below.

6.4.1 Estimated Alternative Costs

Cost is defined in WAC 173-340-360(f)(iii) as:

> *"The cost to implement the alternative, including the cost of construction, the net present value of any long-term costs, and agency oversight costs that are cost recoverable. Long-term costs include operation and maintenance costs, monitoring costs, equipment replacement costs, and the cost of maintaining institutional controls. Cost estimates for treatment technologies shall describe pretreatment, analytical, labor, and waste management costs. The design life of the cleanup action shall be estimated and the cost of replacement or repair of major elements shall be included in the cost estimate."*

Estimated Alternative costs have been estimated for each of the remedial alternatives based on the descriptions and associated assumptions presented above. The expected accuracy range of the cost estimates is -30% to +50%. Costs are based on typical costs for Washington State, and the current knowledge of the Site. All costs are assumed to be for newly purchased equipment. Cost estimates are not based upon refurbished or used equipment. Estimated capital costs are based on current dollar values. Estimated recurring costs and periodic costs associated with system operation and maintenance, performance and compliance monitoring, and Site closure activities are adjusted to reflect the net present value. The following table summarizes estimated costs for each alternative. These costs are for comparison purposes only and actual implementation costs will vary from those provided. Estimated costs incorporate a variety of necessary assumptions and the validity of those assumptions cannot be fully known at this time.

Remedial Alternatives Cost Summary

Alternative Number	Remedial Alternative	Estimated Alternative Costs
1	Natural Attenuation, Containment, and Institutional Controls	$ 70,401
2	Select PCS Excavation, In-Situ BOS 200®, and Monitoring	$ 424,596
3	In-Situ Electrical Resistance Heating and Monitoring	$1,386,792
4	In-Situ BOS 200® & Hydrocarbon-Degrading Microbes and Monitoring	$ 289,330

6.5 *Disproportionate Cost Analysis*

The disproportionate cost analysis is made by comparing Alternative Benefit Values from Section 6.3, to each remedial alternative's estimated cost from Section 6.4. Based upon WAC 173-340-360(3)(e), a cleanup action shall not be considered practicable *"if the incremental cost of the alternative over that of a lower cost alternative exceeds the incremental degree of benefits achieved by the alternative over that of the other lower cost alternative."*

This comparison is provided below:

Disproportionate Cost Analysis			
Alternative Number	**Cost**	**Benefit Value**	**Cost per Benefit Value**
1	$ 70,401	1.73	$ 40,812.06
2	$ 424,596	3.50	$121,197.72
3	$1,386,792	3.84	$361,300.51
4	$ 289,330	3.54	$ 81,770.25

The results of the disproportionate cost analysis show that the cost per benefit value of Alternative 1 is least. The results also show that Alternatives 4, 2, and 3 are each incrementally more costly per Benefit Value than Alternative 1. Based solely upon analysis of disproportionate cost, Alternative 1 is the preferred alternative. However, other practicable alternatives provide a significantly shorter time frame than Alternative 1 [WAC 173-340-360 (4)(b)(i)]. Alternatives 2, 3, and 4 have similar, shorter projected timeframes for meeting cleanup levels and points of compliance. Of those alternatives, Alternative 4 has the least cost per benefit value, and very similar total benefit values as Alternatives 2 and 3. Therefore, the results of the disproportionate cost analysis for practicable alternatives with similar reasonable restoration timeframes show that Alternative 4 is the preferred alternative. The analysis of disproportionate cost is included in the attachments graphically as *Chart 1, Disproportionate Cost Analysis.*

6.6 *Selection of Preferred Alternative*

Selection of the preferred alternative for the Site takes into account the following considerations:

- RAOs for the Site.
- Restoration Timeframe.
- Regulatory requirements.
- Disproportionate Cost Analysis.
- The Site's continued retail operation.

Based solely on the Disproportionate Cost Analysis, Alternative 1 would be the preferred alternative, as Alternatives 4, 2, and 3 are incrementally more costly per benefit value. While all three alternatives are assumed to meet RAOs, Alternative 1 has a restoration timeframe of between 15 and 25 years, and other practicable alternatives have significantly shorter restoration timeframes of between 1 and 3 years. Meeting regulatory requirements is also not as certain for Alternative 1 as the other three, more active remedial alternatives. The net benefit value of Alternative 1 is approximately one half of Alternative 4, reflecting increased restoration timeframes, and uncertainties regarding outcome. For these reasons, AEG does not currently recommend Alternative 1 as the preferred alternative.

Alternative 3 is the most expensive, and provides the highest benefit value. However, the net benefit value and restoration timeframe of Alternative 3 is very similar to Alternatives 2 and 4, and its cost is substantially more. Of the three alternatives with similar net benefit values, Alternative 4 is the least expensive, and is therefore AEG's preferred alternative for this Site.

7.0 LIMITATIONS

This report summarizes the findings of the services authorized under our agreement with Mr. Suh Jin. 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. Jin 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.

8.0 REFERENCES

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FIGURES

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

FILENAME	DRAWN BY		CHECKED BY		APPROVED BY		PROJECT NUMBER
16-132_16Q1.DWG	ICD	5/2/2016	NP	5/2/2016	NP	5/2/2016	16-132

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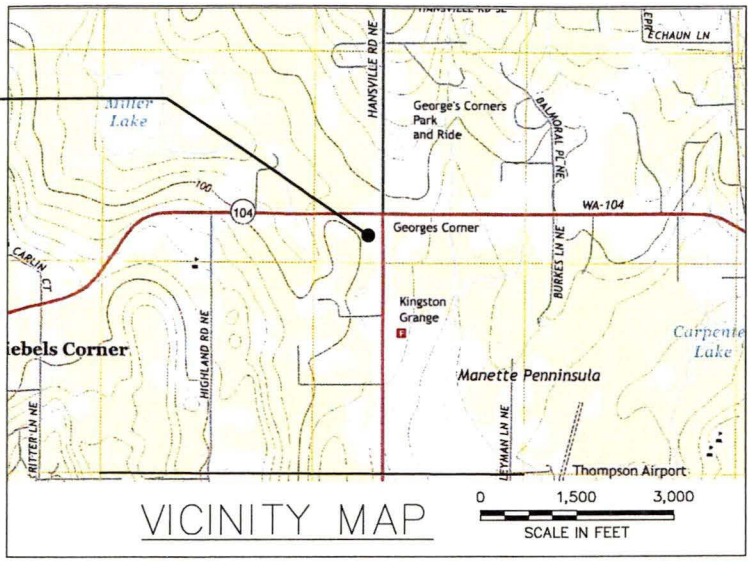
PROJECT LOCATION



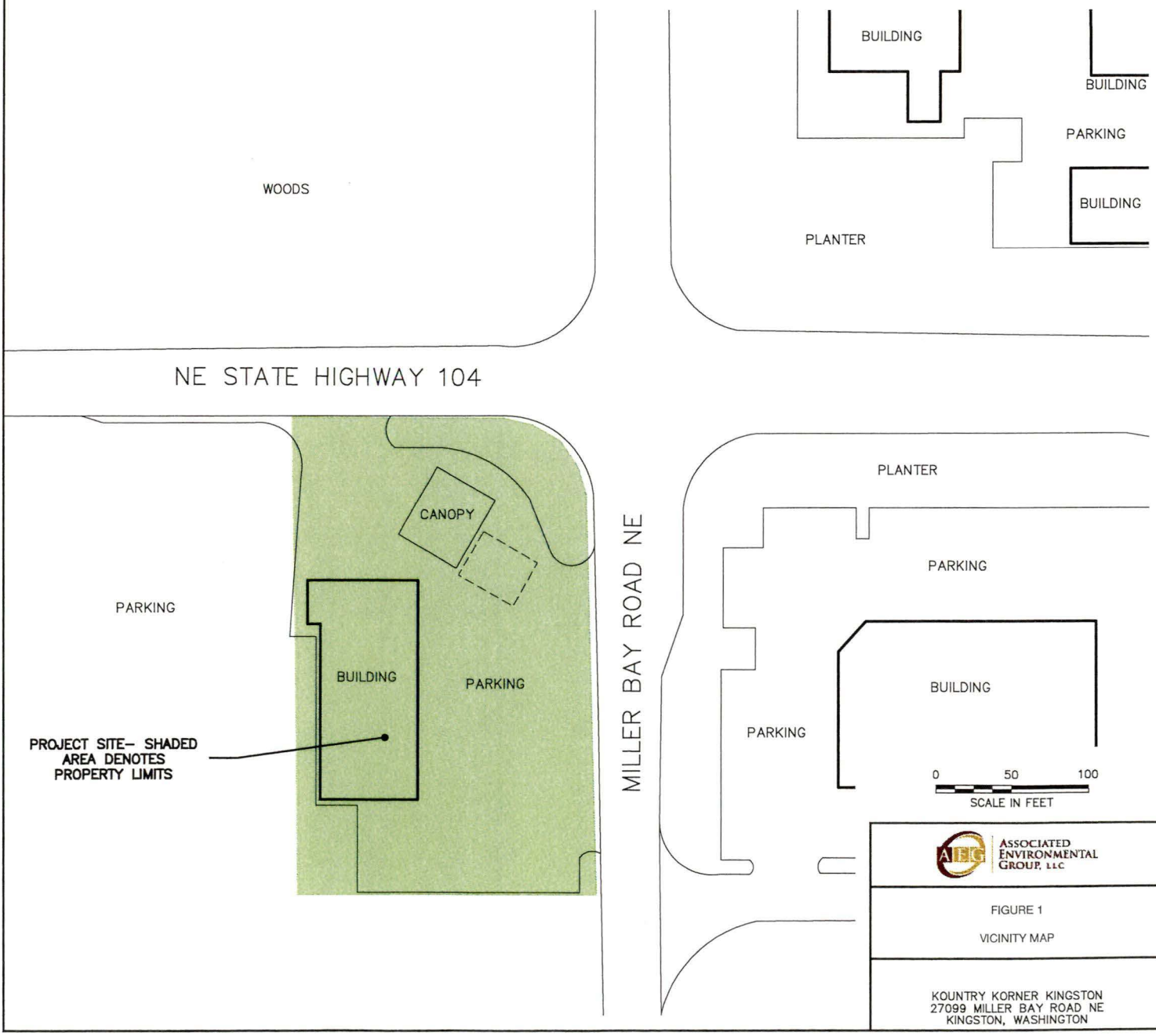
VICINITY MAP

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 RENTON, WASHINGTON



ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 1

VICINITY MAP

KOUNTRY KORNER KINGSTON
27099 MILLER BAY ROAD NE
KINGSTON, WASHINGTON

PROJECT NUMBER	16-132	
APPROVED BY	NP	5/25/2017
CHECKED BY	NP	5/25/2017
DRAWN BY	ICD	5/25/2017
FILENAME	16-132_1601_2.DWG	

NE STATE HIGHWAY 104

MILLER BAY ROAD NE

B-12 B-11 SIDEWALK B-8 B-7 B-9 MW-1 B-6 CB-2 B-2 B-5 PLANTER B-1 KK-2 B-4 MW-3 CB-1 B-3 KK-1 MW-2 OIL/WATER SEPARATOR CANOPY CURRENT UST NEST B-10 CB-3 KK-4 KK-3 WOODS BUILDING GW-WELL KK-5 KK-6 CB-4

MW-4 PLANTER SIDEWALK PLANTER PARKING

N W E S

LEGEND

MW-1	GROUNDWATER WELL
B-2	SOIL BORING LOCATION (AEG)
KK-5	BOREHOLE LOCATION (DRILLED)
KK-4	BOREHOLE LOCATION (NOT DRILLED)
	1995 EXCAVATION BOUNDARY
	SIGN
	WATER LINE
	TELEPHONE LINE
	ELECTRIC LINE
CB-1	STORM DRAIN/CATCH BASIN
	UTILITY POLE

NOTES

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0 20 40
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 2

SITE MAP

KOUNTRY KORNER KINGSTON
27099 MILLER BAY ROAD NE
KINGSTON, WASHINGTON

FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
16-132_1601_2.DWG	ICD 5/25/2017	NP 5/25/2017	NP 5/25/2017	16-132

NE STATE HIGHWAY 104

MILLER BAY ROAD NE

SIDEWALK

B-12 B-11 A' B-8 B-7 B B-9 MW-1 B-6 CB-2 B-2 B-5 PLANTER B-1 KK-2 B-4 MW-3 B-3 MW-2 A B' MW-4 CANOPY CURRENT UST NEST CB-3 KK-4 B-10

N W E S

LEGEND

- MW-1 GROUNDWATER WELL
- B-2 SOIL BORING LOCATION (AEG)
- KK-5 BOREHOLE LOCATION (DRILLED)
- KK-4 BOREHOLE LOCATION (NOT DRILLED)
- 1995 EXCAVATION BOUNDARY
- SIGN
- WATER LINE
- TELEPHONE LINE
- ELECTRIC LINE
- CB-1 STORM DRAIN/CATCH BASIN
- UTILITY POLE
- APPROXIMATE EXTENT OF GASOLINE IN SOIL ABOVE PROPOSED CLEANUP LEVEL
- A —— A' CROSS SECTION LINE

NOTES

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0 10 20
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 3

GASOLINE TPH SOIL PLUME MAP

KOUNTRY KORNER KINGSTON
27099 MILLER BAY ROAD NE
KINGSTON, WASHINGTON

FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
16-132_1601_2.DWG	ICD 5/25/2017	NP 5/25/2017	NP 5/25/2017	16-132

NE STATE HIGHWAY 104

B-12

B-11

SIDEWALK

B-8

B-7

B-9

MW-1

B-6

CB-2

B-2

B-5

PLANTER

B-1

KK-2

B-4

MW-3

B-3

MW-2

CANOPY

CURRENT
UST
NEST

B-10

CB-3

KK-4

MILLER BAY ROAD NE

SIDEWALK

MW-4

N

W E

S

LEGEND

- MW-1 — GROUNDWATER WELL
- B-2 — SOIL BORING LOCATION (AEG)
- KK-5 — BOREHOLE LOCATION (DRILLED)
- KK-4 — BOREHOLE LOCATION (NOT DRILLED)
- 1995 EXCAVATION BOUNDARY
- SIGN
- WATER LINE
- TELEPHONE LINE
- ELECTRIC LINE
- CB-1 — STORM DRAIN/CATCH BASIN
- UTILITY POLE
- APPROXIMATE EXTENT OF GASOLINE IN GROUNDWATER ABOVE PROPOSED CLEAN UP LEVEL

NOTES

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0 10 20
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 4
GASOLINE TPH GROUNDWATER PLUME MAP

KOUNTRY KORNER KINGSTON
27099 MILLER BAY ROAD NE
KINGSTON, WASHINGTON

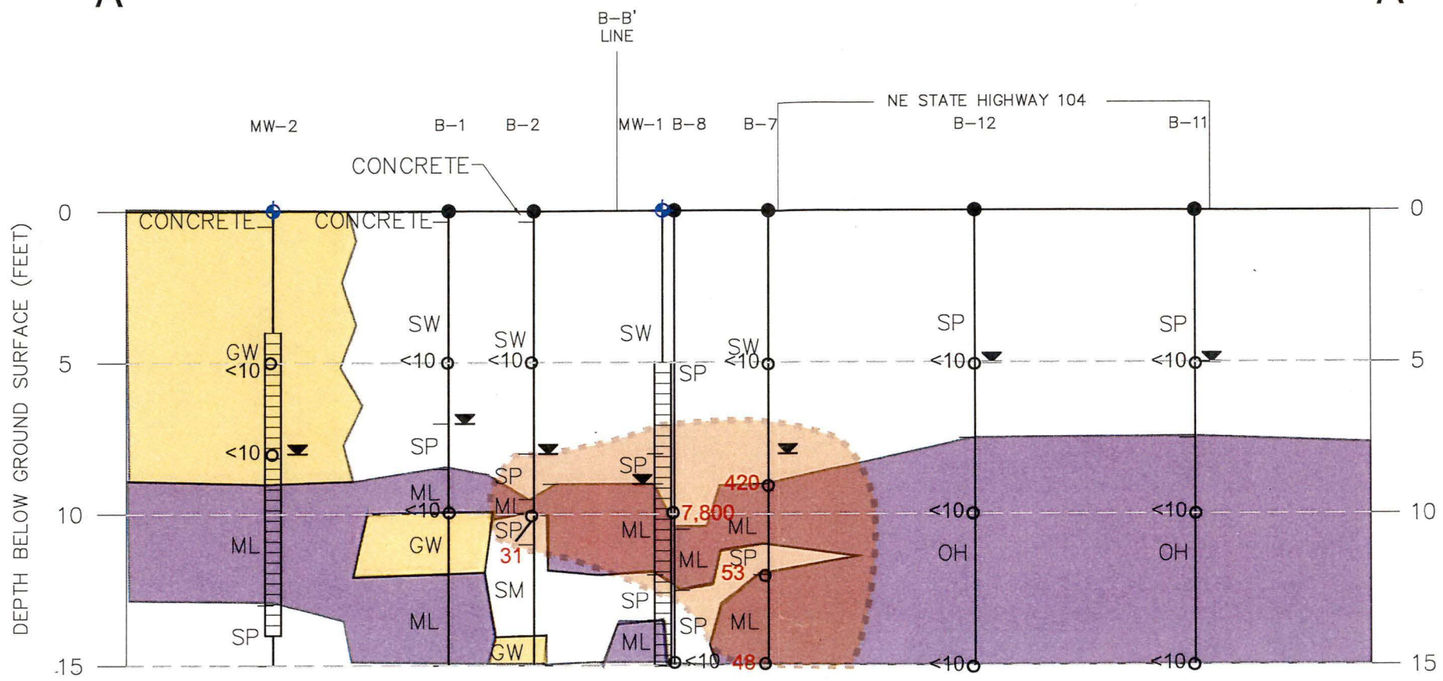
FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
16-132_XSECTIONS.DWG	ICD 3/30/2017	NP 3/30/2017	NP 3/30/2017	16-132

SOUTHWEST

A

NORTHEAST

A'



LEGEND

B–1 — WELL, SOIL BORING

MW–1 — WELL, SOIL BORING

— GROUNDWATER LEVEL AT TIME OF DRILLING

— SCREENED INTERVAL

— MAXIMUM DEPTH EXPLORED

— SOIL CONTACT

— SAMPLE LOCATION

GW	WELL–GRADED GRAVELS, GRAVEL–SAND MIXTURES, LITTLE OR NO FINES
ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS, WITH SLIGHT PLASTICITY
SM	SILTY–SANDS, SAND–SILT MIXTURES
SP	POORLY–GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SW	WELL–GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
30	TPH-G IN SOIL (mg/kg) (exceedances in red)
	APPROXIMATE EXTENTS OF GASOLINE IN SOIL ABOVE PROPOSED CLEANUP LEVEL

0 10 20
HORIZONTAL SCALE

0 2.5 5
VERTICAL SCALE

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 5

GEOLOGIC CROSS SECTION A-A'

KOUNTRY KORNER KINGSTON
27099 MILLER BAY ROAD NE
KINGSTON, WASHINGTON

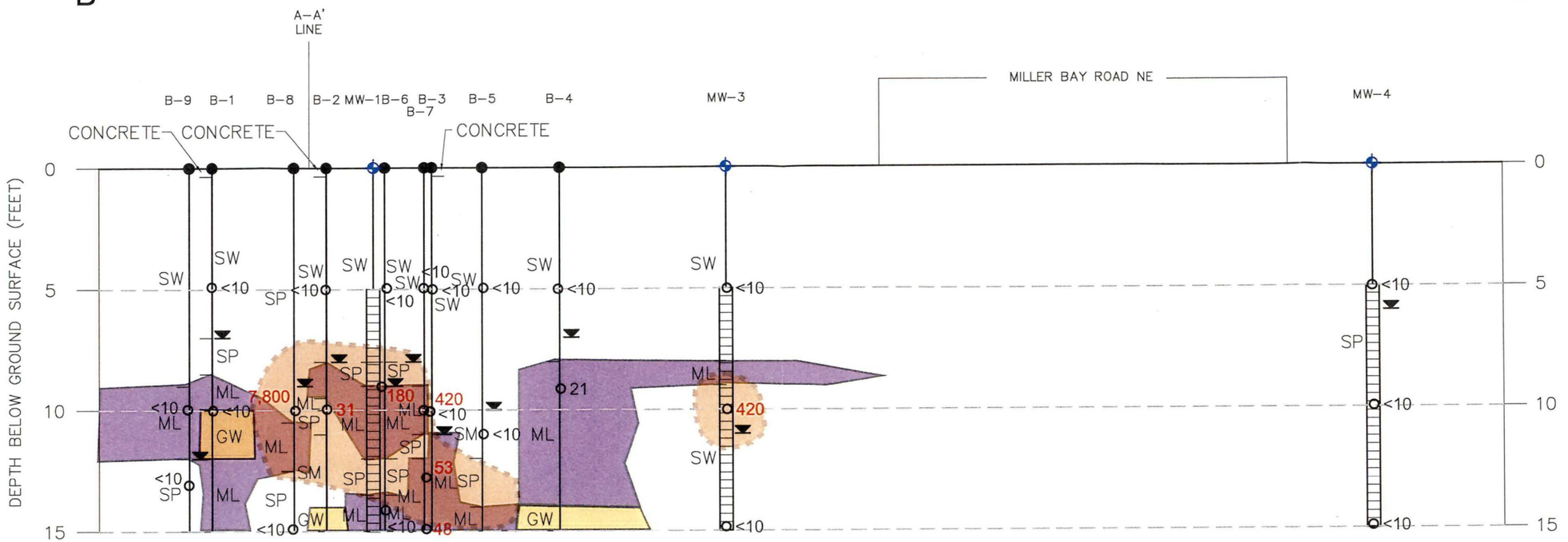
FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
16-132_XSECTIONS.DWG	ICD 3/30/2017	NP 3/30/2017	NP 3/30/2017	16-132

NORTHWEST

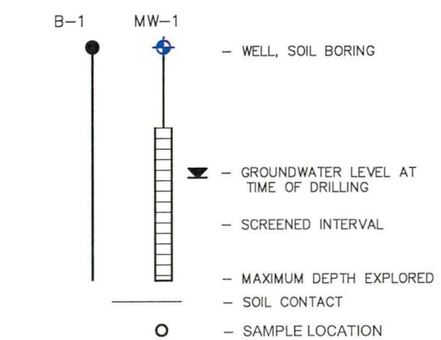
B

SOUTHEAST

B'



LEGEND



GW	WELL–GRADED GRAVELS, GRAVEL–SAND MIXTURES, LITTLE OR NO FINES
ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS, WITH SLIGHT PLASTICITY
SM	SILTY–SANDS, SAND–SILT MIXTURES
SP	POORLY–GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SW	WELL–GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
30	TPH-G IN SOIL (mg/kg) (exceedances in red)
	APPROXIMATE EXTENTS OF GASOLINE IN SOIL ABOVE PROPOSED CLEANUP LEVEL

0 10 20
HORIZONTAL SCALE

0 2.5 5
VERTICAL SCALE

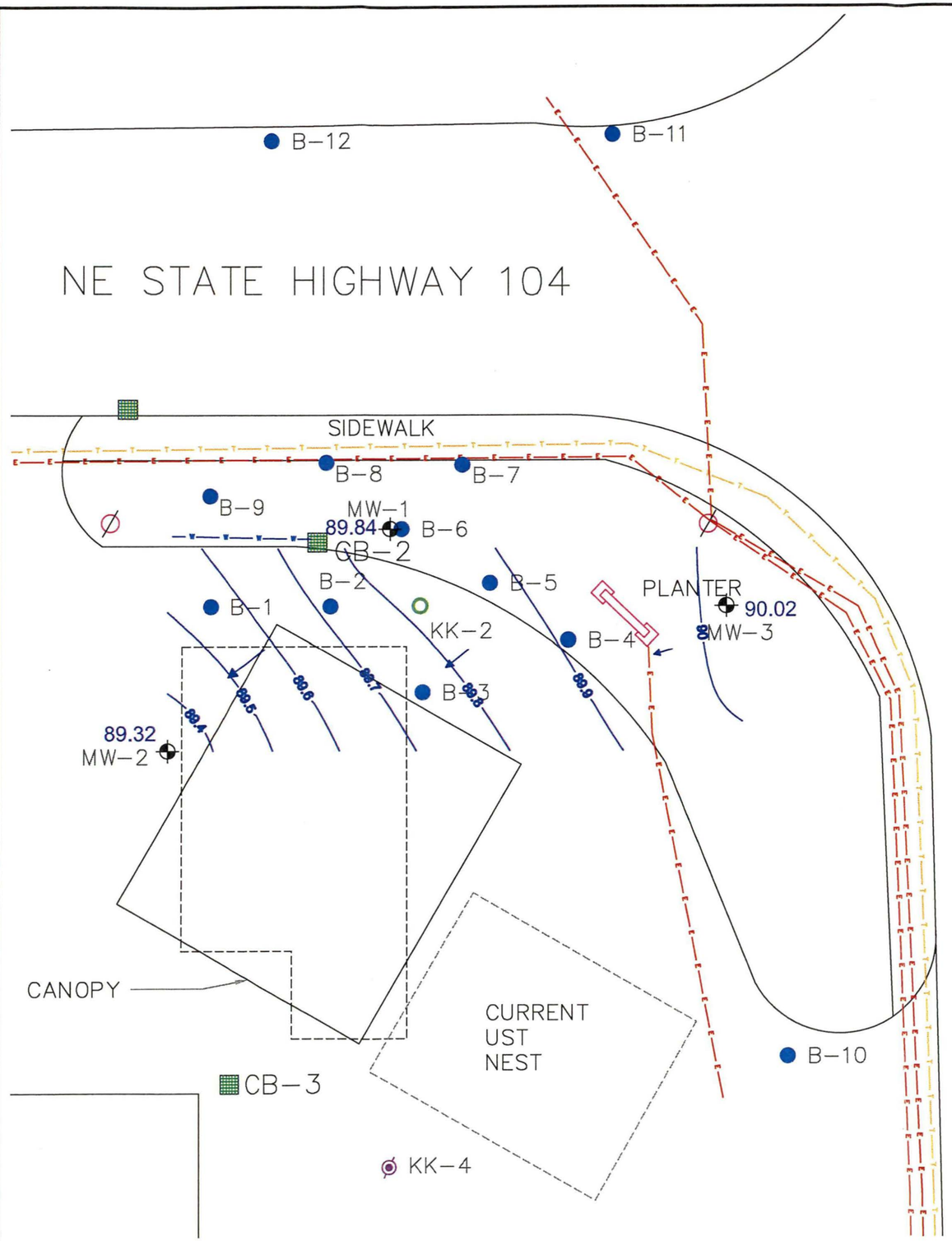
ASSOCIATED ENVIRONMENTAL GROUP, LLC

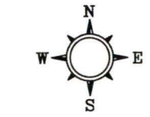
FIGURE 6

GEOLOGIC CROSS SECTION B-B'

KOUNTRY KORNER KINGSTON
27099 MILLER BAY ROAD NE
KINGSTON, WASHINGTON

FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
16-132_1601_2.DWG	ICD 5/25/2017	NP 5/25/2017	NP 5/25/2017	16-132





LEGEND

MW-1	GROUNDWATER WELL
B-2	SOIL BORING LOCATION (AEG)
KK-5	BOREHOLE LOCATION (DRILLED)
KK-4	BOREHOLE LOCATION (NOT DRILLED)
	1995 EXCAVATION BOUNDARY
	SIGN
	WATER LINE
	TELEPHONE LINE
	ELECTRIC LINE
CB-1	STORM DRAIN/CATCH BASIN
	UTILITY POLE
	GROUNDWATER FLOW DIRECTION
90.24	GROUNDWATER ELEVATION (FEET MSL)

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. ELEVATIONS ARE DEPTH TO WATER FROM TOP OF CASING ELEVATION POINT MEASURED FROM SURVEY CONDUCTED BY PLSA IN MARCH 2017.
4. GROUNDWATER CONTOURS MADE WITH MONITORING WELLS MW-1, MW-2, AND MW-3.

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
RENTON, WASHINGTON

0 10 20
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 7
JULY 2016
GROUNDWATER CONTOUR MAP

KOUNTRY KORNER KINGSTON
27099 MILLER BAY ROAD NE
KINGSTON, WASHINGTON

PROJECT NUMBER	16-132
APPROVED BY	NP 5/25/2017
CHECKED BY	NP 5/25/2017
DRAWN BY	ICD 5/25/2017
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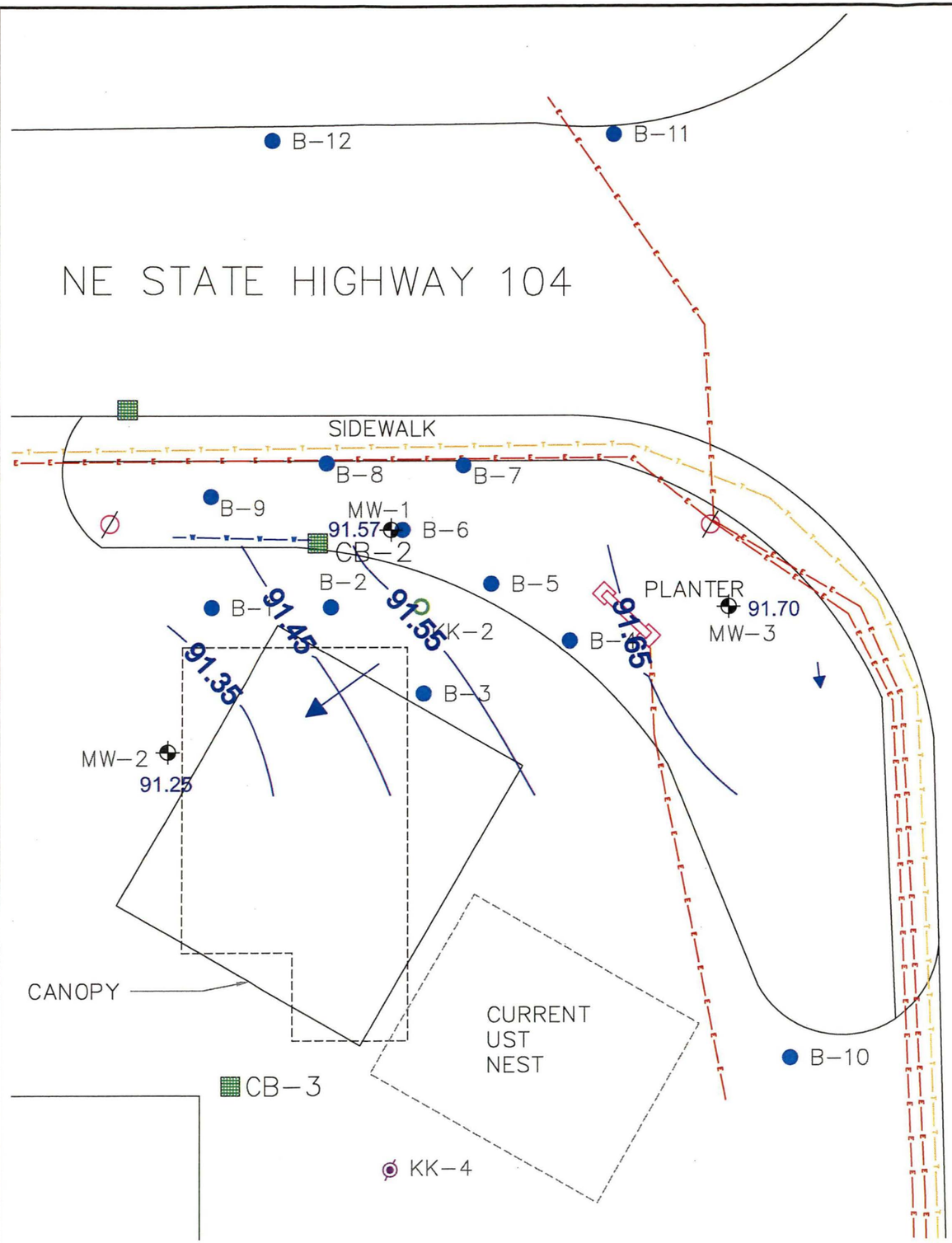

N
W E
S

LEGEND

MW-1	GROUNDWATER WELL
B-2	SOIL BORING LOCATION (AEG)
KK-5	BOREHOLE LOCATION (DRILLED)
KK-4	BOREHOLE LOCATION (NOT DRILLED)
	1995 EXCAVATION BOUNDARY
	SIGN
	WATER LINE
	TELEPHONE LINE
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Ø	UTILITY POLE
	GROUNDWATER FLOW DIRECTION
90.24	GROUNDWATER ELEVATION (FEET MSL)

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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 RENTON, WASHINGTON

0 10 20
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 8
MARCH 2017
GROUNDWATER CONTOUR MAP

KOUNTRY KORNER KINGSTON
27099 MILLER BAY ROAD NE
KINGSTON, WASHINGTON

TABLES and CHARTS

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

Table 1 - Summary of Soil Analytical Results
Kountry Korner Kingston
Kingston, Washington

Sample Number	Depth Collected (feet)	Date Collected	Gasoline	Diesel	Volatile Organic Compounds								Total Naphthalenes	Total Lead
					Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	Hexane	EDC	EDB		
Golder Associates Inc. - Soil Borings														
KK-1-6.5-7.0	7.0	11/18/2015	NA	NA	0.44 J	0.26 J	0.094 U	0.51 J	0.12 U	--	0.20 J	0.094 U	NA	**6.15**
KK-2-6.5-7.5	7.5	11/18/2015	**67**	**74**	2.1 U	2.6 J	3.9 J	15.3 J	0.13 U	--	0.75 J	0.097 U	**41**	**3.28**
KK-3-6.0-6.5	6.5	11/18/2015	NA	NA	0.11 J	0.15 U	0.094 U	0.231 J	0.12 U	--	0.27 J	0.094 U	NA	**1.46**
KK-5-5.5-6.0	6.0	11/18/2015	NA	31 U	0.14 J	0.19 J	0.11 U	0.213 U	0.14 U	--	0.08 U	0.11 U	**2.48**	**12.8**
KK-6-7.5-8.0	8.0	11/18/2015	NA	29 U	0.077 J	0.17 J	0.094 U	0.181 U	0.12 U	--	0.2 J	0.094 U	NA	**1.35**
Golder Associates Inc. - Catch Basins														
CB-1	--	11/18/2015	**110**	**3,300**	**13**	**15**	**380**	**2.24**	0.3 U	--	0.56 J	1.2 J	**1,620**	**43**
CB-2	--	11/18/2015	NA	**7,400**	0.40 J	3.2 J	0.91 J	5.3 J	2.2 J	--	0.57 J	0.27 U	**115**	**46.4**
CB-3	--	11/18/2015	**43**	**1,900**	1.4 J	**16**	**87**	4.33 J	1.1 U	--	0.63 U	0.84 U	**27**	**201**
CB-4	--	11/18/2015	7.7 U	**880**	0.41 J	3.8 J	1.1 J	4.9 J	0.27 J	--	0.28 J	0.13 U	**26**	**28.5**
Associated Environmental Group, LLC														
B1-5	5.0	4/26/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B1-10	10.0	4/26/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B2-5	5.0	4/26/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B2-10	10.0	4/26/2016	**31**	--	**0.14**	**0.23**	**0.08**	**13**	--	--	--	--	--	--
B3-5	5.0	4/26/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B3-10	10.0	4/26/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B4-5	5.0	4/26/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B4-9	9.0	4/26/2016	**21**	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B5-5	5.0	4/26/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B5-11	11.0	4/26/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B6-5	5.0	4/26/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B6-9	9.0	4/26/2016	**180**	--	**0.54**	**0.18**	**1.6**	**53**	--	--	--	--	--	--
B6-14	14.0	4/26/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B7-5	5.0	7/6/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B7-10	10.0	7/6/2016	**420**	--	<0.02	<0.05	<0.05	**0.59**	--	--	--	--	--	--
B7-12	12.0	7/6/2016	**53**	--	<0.02	<0.05	<0.05	**0.27**	--	--	--	--	--	--
B7-15	15.0	7/6/2016	**48**	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B8-10	10.0	7/6/2016	**7,800**	--	<0.02	**0.09**	**9.1**	**30**	<0.05	<0.05	<0.02	<0.005	2.37	**30**
B8-15	15.0	7/6/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B9-10	10.0	7/6/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--

Table 1 - Summary of Soil Analytical Results
Kountry Korner Kingston
Kingston, Washington

Sample Number	Depth Collected (feet)	Date Collected	Gasoline	Diesel	Volatile Organic Compounds								Total Naphthalenes	Total Lead
					Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	Hexane	EDC	EDB		
B9-13	13.0	7/6/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
MW2-5	5.0	7/6/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
MW2-8	8.0	7/6/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
MW3-5	5.0	7/6/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
MW3-10	10.0	7/6/2016	**420**	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
MW3-15	15.0	7/6/2016	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	--
B10-5	5.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	<5.0
B10-10	10.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	<5.0
B10-15	15.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	<5.0
B11-5	5.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	**6.8**
B11-10	10.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	<5.0
B11-15	15.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	<5.0
B12-5	5.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	**340**
B12-10	10.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	**9.7**
B12-15	15.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	<5.0
MW4-5	5.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	<5.0
MW4-10	10.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	<5.0
MW4-15	15.0	1/31/2017	<10	--	<0.02	<0.05	<0.05	<0.15	--	--	--	--	--	<5.0
PQL			10	--	0.02	0.05	0.05	0.15	0.05	0.05	0.02	0.005	0.02	5
MTCA Method A Cleanup Levels			30*	2000	0.03	7	6	9	0.1	4,800**	11**	0.005	5	250

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
** No MTCA Method A cleanup level established, Method B cleanup level used
U = Not detected at or above the listed method detection limit
J = Estimated value above the method detection limit and below the method reporting limit

MTBE = Methyl tert-butyl ether
EDC = 1,2-Dichloroethane
EDB = 1,2-Dibromoethane
NA = Not Analyzed

Table 2 - Summary of Groundwater Analytical Results

Kountry Korner Kingston
Kingston, Washington

Sample Number	Date Collected	Gasoline	Diesel	Volatile Organic Compounds							Total Lead	Naphthalene
				Benzene	Toluene	Ethyl-benzene	Xylenes	EDC	MTBE	EDB		
Golder Associates Inc.												
KK-1-GW	11/18/2015	NA	NA	0.070 J	0.080 U	0.050 U	0.3 J	0.0036 U	--	0.003 U	**1.690**	0.088 U
KK-2-GW	11/18/2015	250 U	NA	**0.88**	**1.3**	**1.4**	66.3 J	0.0036 U	--	0.003 U	**4.500**	0.66 J
KK-3-GW	11/18/2015	NA	NA	0.062 U	0.060 J	0.05 U	0.184 U	0.0036 U	--	0.003 U	**1.680**	0.21 J
KK-5-GW	11/18/2015	NA	NA	0.062 U	0.11 J	0.050 U	0.184 U	0.0036 U	--	0.003 U	**0.0103**	0.088 U
KK-6-GW	11/18/2015	NA	NA	0.14 J	0.16 J	0.050 U	0.184 U	0.0036 U	--	0.003 U	**0.377**	0.14 J
EB-1-GW	11/18/2015	NA	NA	0.062 U	0.054 U	0.050 U	0.184 U	0.0036 U	--	0.003 U	**0.515**	0.088 U
Well-GW	11/18/2015	NA	NA	0.062 U	0.054 U	0.050 U	0.184 U	0.0036 U	--	0.003 U	**13.1**	0.088 U
Assocaited Environmental Group, LLC												
B1-W	4/26/2016	<100	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--
B2-W	4/26/2016	**10,500**	--	**35**	**7**	**150**	**140**	--	--	--	--	--
B3-W	4/26/2016	<100	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--
B4-W	4/26/2016	<100	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--
B5-W	4/26/2016	<100	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--
B6-W	4/26/2016	**14,500**	--	**7**	**25**	**480**	**2,600**	--	--	--	--	--
B7-W	7/6/2016	<100	--	<1.0	<1.0	<1.0	**5**	--	--	--	--	--
B8-W	7/6/2016	**8,600**	--	**5**	**2**	**130**	**400**	--	--	--	--	--
B9-W	7/6/2016	<100	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--
B-10	1/31/2017	<100	--	<1.0	**1.8**	<1.0	<3.0	--	--	--	<2.0	--
B-11	1/31/2017	<100	--	<1.0	**1.0**	<1.0	<3.0	--	--	--	**7.7**	--
B-12	1/31/2017	<100	--	<1.0	**3.3**	<1.0	**3.0**	--	--	--	<2.0	--
MW-1	7/14/2016	**9,700**	--	**44**	**30**	**290**	**1,400**	<1.0	<1.0	<0.03	<2.0	**44.3**
	3/21/2017	**11,000**	--	**10**	**10**	**150**	**520**	--	--	--	<2.0	--
MW-2	7/14/2016	<100	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--
	3/21/2017	<100	--	<1.0	<1.0	<1.0	<3.0	--	--	--	<2.0	--
MW-3	7/14/2016	<100	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--
	3/21/2017	<100	--	<1.0	<1.0	<1.0	<3.0	--	--	--	**35**	--
MW-4	3/21/2017	<100	--	<1.0	<1.0	<1.0	<3.0	--	--	--	<2.0	--
PQL		100	--	1.0	1.0	1.0	3.0	1.0	1.0	0.03	2.0	0.1
MTCA Method A Cleanup Levels		800*	500	5.0	1,000	700	1,000	5	20	0.01	15	160

Notes:

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

-- = 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

U = Not detected at or above the listed method detection limit

J = Estimated value above the method detection limit and below the method reporting limit

EDC = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

MTBE = Methyl tert-butyl ether

NA = Not Analyzed

Table 3 - Summary of Groundwater Elevations
Kountry Korner Kingston
Kingston, Washington

Well No./ TOC Elevation	Date	Depth to Water	Depth to Free Product	Free Product Thickness	Apparent Groundwater Elevation	Actual Groundwater Elevation	Change in Elevation
MW-1	7/14/2016	6.09	--	--	--	89.84	--
95.93	3/21/2017	4.36	--	--	--	91.57	1.73
MW-2	7/14/2016	6.21	--	--	--	89.32	--
95.53	3/21/2017	4.28	--	--	--	91.25	1.93
MW-3	7/14/2016	6.22	--	--	--	90.02	--
96.24	3/21/2017	4.54	--	--	--	91.70	1.68
MW-4	3/21/2017	5.32	--	--	--	91.67	--
96.99							

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

Table 4 - Identification and Screening of Response Actions and Remediation Technologies
Kountry Korner Kingston

General Response Action	Technology/Options	Process Description	Applicability to Site Conditions	Effectiveness	Implementability	Relative Cost	Retain for Further Consideration	Reasons for Screening Decision
No Action	None	--	Not applicable. Soil and Groundwater contamination exceeds MTCA Method A cleanup levels.	Unable to achieve RAOs. Not effective.	Not implementable.	Low	Not retained.	RAOs not acheivable.
Institutional Controls	Site access and use restrictions	Legal Restrictions/environmental covenant limiting exposure to contamination. Deed restrictions to control soil excavation or access to groundwater.	Possibly applicable for closure with other response actions.	Effective at limiting exposure pathways to remaining contamination above CULs on-property, where disproportionate cost analysis demonstrates additional remediation not cost-effective.	Implementable	Low, with possible future monitoring requirements.	Retained	Most likely considered with other response actions. May be necessary for contamination in right of way.
Monitored Natural Attenuation	Monitored Natural Attenuation	Actively and regularly monitor ongoing natural processes acting to reduce contaminant concentrations in affected media.	May be applicable to Site.	Effective on Petroleum Hydrocarbons where natural conditions determined to be conducive to attenuation.	Implementable	Low, with possible future monitoring requirements.	Retained	Could be appropriate remedial solution for residual contamination.
Containment	Vertical Barriers	Impermeable subsurface slurry wall or dike constructed to prevent migration of contamination.	Not applicable.	Can be effective for preventing lateral migration of contaminants. Not effective in reducing LNAPL or disolved phase contamination.	Implementable	High	Not retained.	Migration of contaminants is not a concern at this time due to extents of contamination being defined.
	Hydraulic Containment	Groundwater pumping	Not applicable.	Effective at containing groundwater on Site.	Implementable	High cost due to likely large volumes of water removal required to maintain gradient.	Not retained.	High cost and difficulty in implementation due to Site-specific conditions including limited area for implementation.
	Capping	Impervious concrete or asphalt surfaces over contamination, limiting exposure pathways at Site.	Applicable to Site. Would provide a limit to future access to contamination.	Effective at limiting exposure pathways to remaining contamination above CULs.	Implementable	Low	Retained	Future site use as operating gas station.
Removal	Soil Excavation	Excavation and removal of contaminated soil.	May be applicable to Site. Access limitations to contamination due to right of way.	Effective at removing PCS where accesible.	Implementable	High	Retained	Contaminated Soil excavation may provide one method for quickly reducing contamination levels in areas of the Site where access is possible.
	LNAPL Recovery	Extraction of LNAPL from groundwater table by pumping or skimming.	Not applicable.	Effective at reducing LNAPL sources.	Implementable	Moderate	Not retained.	LNAPL not present at Site.
	Groundwater Extraction	Pumping groundwater from extraction wells to ex-situ treatment system.	May be applicable.	Effective at removing dissolved phase contamination from groundwater.	Implementable	Moderate unless off-site water disposal	Retained	Robust technology for dissolved phase contamination present at Site
Ex-Situ Treatment-Soil	Excavated soil treatment	Treatment and on-site reuse of contaminated soil.	May be applicable.	Effective at reducing soil contamination levels	Not implementable. Possible permitting issues. Would require areas on the property to properly contain and treat contaminated soil.	Variable low to high, depending on methods of access and treatment.	Not retained.	Not likely implementable at this Site. Also, in-situ treatment likely more cost effective.
Ex-Situ Treatment-Groundwater	Activated Carbon Adsorption	Contaminated groundwater is passed through granular activated carbon (GAC) filters to absorb contaminants. Treated water may be discharged or reinjected.	May be applicable.	Effective for reducing dissolved phase contamination in groundwater.	Implementable	Moderate	Retained	GAC filtering of groundwater could be an effective technology for reducing dissolved phase petroleum contamination in groundwater.
	Air Stripping	Extract groundwater to volatilize through air stripper. Reinject or discharge treated water.	May be applicable.	Effective for reducing dissolved phase contamination in groundwater.	Implementable	Moderate	Retained	Consider as part of a groundwater treatment system.
	Chemical Oxidation	Injection of chemical oxidants such as ozone or hydrogen peroxide into extracted groundwater.	May be applicable.	Effective for reducing dissolved phase contamination in groundwater	Implementable	High	Not retained.	Higher cost and ongoing operation and maintenance requirements do not outweigh expected benefits.
In-Situ Treatment	Air Sparging	Air injection into the subsurface to volatilize contamination and provide oxgen for enhanced aerobic biodegradation.	Applicable	Effective for reducing dissolved phase contamination in groundwater.	Implementable	Moderate	Retained	Consider as part of a groundwater treatment system or excavation.
	Soil Vapor Extraction	Extract volatile contaminants by applying a vacuum to subsurface. Collected gasses would require additional treatment in vapor phase-GAC filter or through thermal treatment prior to discharge.	Applicable	Effective for reducing dissolved phase contamination in groundwater.	Implementable	Moderate	Retained	Consider as part of a groundwater treatment system or excavation.
	Enhanced Bioremediation	Injection of hydrocarbon-degrading substances to provide additional biodegradation in the subsurface	Applicable.	Effective for reducing dissolved phase contamination in groundwater.	Implementable.	Moderate	Retained	Could be appropriate for treating soils and groundwater contamination at the Site.
	In-Situ Chemical Oxidation	Injection of chemical oxidants such as hydrogen peroxide into subsurface to oxidize contamination.	Applicable	Effective for reducing dissolved phase contamination in groundwater.	Implementable	Moderate to High	Retained	Could be a cost effective component of a remedial alternative, especially near the source zone.
	In-Situ Thermal Desorption	Heat subsurface by heated water, steam or electrical resistance to volatilize contamination.	Applicable	Effective for reducing dissolved phase contamination in groundwater.	Implementable, if sufficient electricity is available	High	Retained	Could be appropraite for treating soils and groundwater contamination at the Site. Not likely cost effective when compared to other options.

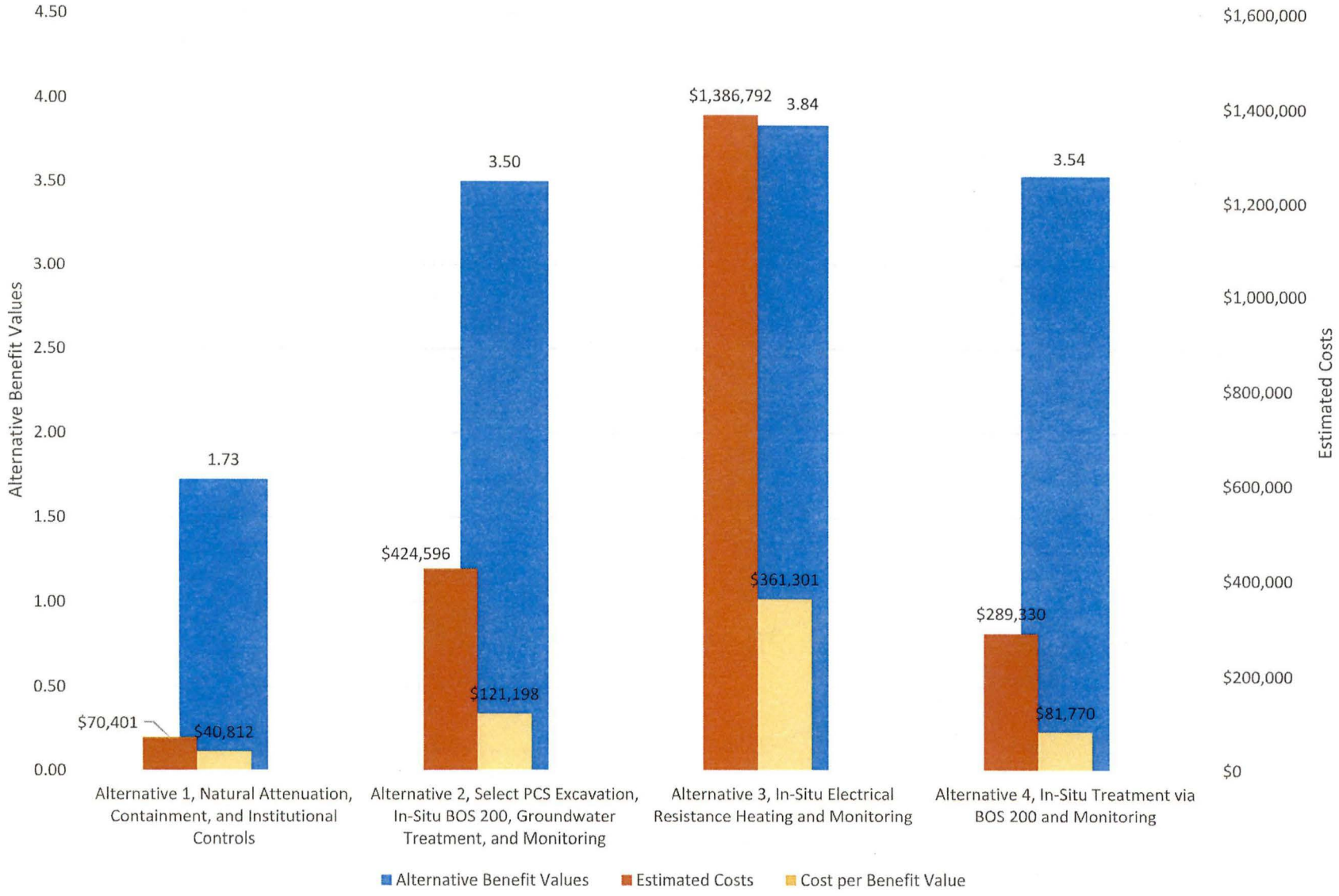
Table 5 - Remedial Alternatives Evaluation / Disproportionate Cost Analysis
Kountry Korner Kingston

	Alternative 1		Alternative 2		Alternative 3		Alternative 4	
Description of Alternative	Ten additional groundwater monitoring events at the 4 existing Site monitoring wells, once every 18 months, intended to monitor natural attentuation. Each monitoring event would confirm that groundwater concentrations of COCs decrease in concentration over time, and that no additional plume migration occurs. Institutional controls by legal restrctions on land and on groundwater use to limit potential exposure to contamination through an environmental covenant restricting removal of asphalt containment (capping) in areas that exceed safe concentrations.		Removal of an estimated 100 cubic yards of PCS from approximately 8 to 18 feet bgs in the vicinity of B-2, B-8, B-7, and MW-3. Clean overburden soil above 8 feet will be stored on site for use in backfilling. Excavation may be limited to the north by NE State Highway 104. Dewatering of excavation and disposal after on site treatment. Application of BOS 200® to backfilled excavation area to address areas near dispensers and ROW. Installaing two groundwater monitoring wells to replace MW-1 and MW-3. At least four additional quarters of confirmation monitoring. Backfill of the excavation with clean overburden fill. Pave with asphalt.		Alternative 3 includes the installation and operation of an in-situ electrical resistance heating system and soil vapor recovery system at the Site, and includes: Development of necessary work plans and permitting. Drilling, soil disposal, and electrical connection of the heating system. Installation of electrodes in a grid pattern throughout the Site. Operation of the electrical heating system for approximately 6-12 months. Installation and operation of co-located soil vapor recovery wells and treatment of recovered vapors. Confirmatory sampling and well abandonment.		Injection of BOS 200® in areas exceeding the MTCA Method A cleanup levels, to a total of 18 feet bgs in order to target the highest concentrations of PCS near borings B-6, B-7, and B-8 and within the known contaminated area. Continued regular performance monitoring of COCs in Site monitoring wells to demonstrate reduction of COC concentrations and extents of the contaminant plume.	
		SCORE		SCORE		SCORE		SCORE
Protectiveness								
Overall protectiveness	Not as protective when complete	1	More protective when complete	4	More protective when complete	4	More protective when complete	4
Reduces existing risks	Reduces risks when implemented	2	Reduces risks when implemented	4	Reduces risks when implemented	4	Reduces risks when implemented	4
Time required to reduce risk	Longer duration required with less certainty	1	Short duration to reduce risks	5	Medium duration to reduce risks	3	Medium duration to reduce risks	3
On-Site risks	Reduces risks with a lower level of certainty	1	Reduces risks with a moderate level of certainty	3	Reduces risks with the most level of certainty	4	Reduces risks with a moderate level of certainty	3
Off-Site risks	Reduces risks with a lower level of certainty	1	Reduces risks with the most level of certainty	3	Reduces risks with the most level of certainty	4	Reduces risks with a moderate level of certainty	3
Improvement in environmental quality	Low level of improvement	1	Moderate to high level of improvement	4	Moderate to high level of improvement	4	Moderate to high level of improvement	4
Criterion Score x weighting factor (average* 0.30)		**0.35**		**1.15**		**1.15**		**1.05**
Permanence								
Reduces toxicity, mobility, and volume	Longer term reduction	1	Reduces toxicity, mobility, and volume rapidly. Leaves some toxicity in place	4	Reduces toxicity, mobility, and volume rapidly. Potential for recontamination.	3	Reduces toxicity, mobility, and volume rapidly. Potential for recontamination.	3
Degree of irreversibility	Can be reversed	1	Irreversible. Waste removed from Site, and also treated in-situ.	5	Irreversible. Waste treated in-situ.	4	Irreversible. Waste treated in-situ.	4
Waste characteristics	No waste generated from action. Some waste from monitoring.	4	Removal of soil generates solid waste. Some waste from monitoring.	1	Generates minor solid waste.	3	Generates minor solid waste.	3
Criterion Score x weighting factor (average* 0.25)		**0.50**		**0.83**		**0.83**		**0.83**
Long-Term Effectiveness								
Degree of Certainty	Less certain	1	Moderately certain.	4	Most certainty.	5	Moderately certain.	4
Reliability	Less reliable	1	More reliable and proven	4	Reliable and proven	4	Less reliable and proven	2
Residual Risk	High	1	Low	4	Low	4	Moderate	3
Technology hierarchy	Lowest rank - institutional controls/monitoring	3	Moderate rank - Disposal to landfill	3	Highest rank - treats in-situ; destruction	5	High rank - treats in-situ; immobilization & destruction	4
Criterion Score x weighting factor (average* 0.20)		**0.3**		**0.75**		**0.90**		**0.65**
Short-Term Risk Management								
During construction	Low risk	5	Moderate risks associated with excavation, dewatering, and disposal	2	Moderate risks associated with ROW utilities, traffic	3	Moderate risks associated with ROW utilities, traffic	3
Effectiveness of risk management	Effective	4	Effective	4	Effective	4	Effective	4
Criterion Score x weighting factor (average* 0.05)		**0.23**		**0.15**		**0.18**		**0.18**
Implementability								
Technically possible	Possible, demonstrated at similar sites	5	Possible, demonstrated at similar sites.	4	Possible, demonstrated at similar sites. Possible issues with electrical requirements.	4	Possible, demonstrated at similar sites. Possible issues with zone of influence in Site soils.	3
Access	Easily accessible	5	Moderately accessible	4	Moderately accessible	4	Moderately accessible	4
Availability of necessary resources	Readily available	5	Readily available	4	Readily available; dependent on electricity	3	Readily available	4
Monitoring requirements	High	1	Moderate	3	Moderate	3	Moderate	3
Integration with existing features	Low	4	Short term impacts during excavation	2	Low	4	Low	4
Criterion Score x weighting factor (average* 0.05)		**0.2**		**0.17**		**0.18**		**0.18**
Public Concerns								
Public Concerns	Leaves contamination in place and potential for additional releases	1	Significant construction components; treats contamination in place.	3	Treats contamination in place	4	Treats contamination in place	4
Criterion Score x weighting factor (average* 0.10)		**0.10**		**0.30**		**0.40**		**0.40**
Restoration Time Frame								
Restoration Time Frame	Long time frame (15-25 years)	1	Short time frame (2-2.5 years)	3	Short time frame (2-3 years)	4	Shortest time frame (1.5-2 years)	5
Criterion Score x weighting factor (average* 0.05)		**0.05**		**0.15**		**0.20**		**0.25**
Benefit Value	1.73		3.50		3.84		3.54	
Estimated Cost	$70,401		$424,596		$1,386,792		$289,330	
Cost per Benefit Value	$40,812.06		$121,197.72		$361,300.51		$81,770.25	

* Benefit Values are determined by multiplying criterion scores by weighting factors described in Section 6.4.

Chart 1 - Disproportionate Cost Analysis

Kountry Korner Kingston



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

PROPERTY AND VICINITY PHOTOGRAPHIC RECORD

Project No.: 16-132

Project Name: Kountry Korner Kingston
April, 2016

Photo # 1	Photo looking at soil cores from boring B-1.

Photo # 2	Photo looking at soil cores from boring B-2.

Photo # 3	Photo looking at soil cores from boring B-2.

Photo # 4	Photo looking at soil cores from boring B-3.

Photo # 5	Photo looking at soil cores from boring B-3.

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ASSOCIATED ENVIRONMENTAL GROUP, LLC

PROPERTY AND VICINITY PHOTOGRAPHIC RECORD

Project No.: 16-132

Project Name: Kountry Korner Kingston
April, 2016

			
Photo # 6	Photo looking at soil cores from boring B-4.	Photo # 7	Photo looking at soil cores from boring B-4.
			
Photo # 8	Photo looking at soil cores from boring B-5.	Photo # 9	Photo looking at soil cores from boring B-5.
			
Photo # 10	Photo looking at soil cores from boring B-6.	Photo # 11	Photo looking at soil cores from boring B-6.

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PROPERTY AND VICINITY PHOTOGRAPHIC RECORD

Project No.: 16-132

Project Name: Kountry Korner Kingston
April, 2016

Photo # 12	Photo looking southeast at the location of boring B-1.

Photo # 13	Photo looking south at the location of boring B-2.

Photo # 14	Photo looking southwest at the location of boring B-3.

Photo # 15	Photo looking east at the location of boring B-4.

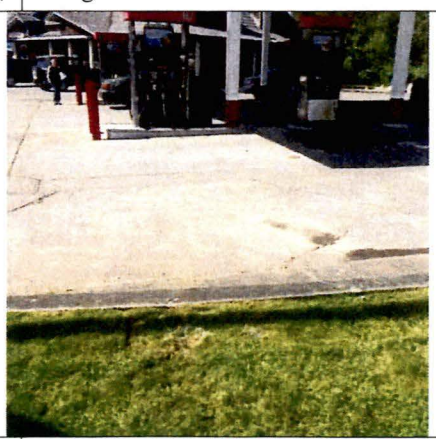

Photo # 16	Photo looking south at the location of boring B-5.

Photo # 17	Photo looking southwest at the location of boring B-6.

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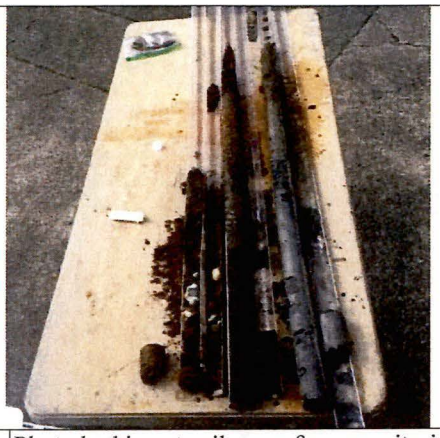
ASSOCIATED ENVIRONMENTAL GROUP, LLC

PROPERTY AND VICINITY PHOTOGRAPHIC RECORD

Project No.: 16-132

Project Name: Kountry Korner Kingston
July, 2016

			
Photo # 1	Photo looking west at the location of monitoring well MW-1.	Photo # 2	Photo looking at soil cores from monitoring well MW-1.
			
Photo # 3	Photo looking south at the location of monitoring well MW-2.	Photo # 4	Photo looking southeast at the location of monitoring well MW-3.
			
Photo # 5	Photo looking south at the location of monitoring well MW-3.	Photo # 6	Photo looking at soil cores from monitoring well MW-3.

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ASSOCIATED ENVIRONMENTAL GROUP, LLC

PROPERTY AND VICINITY PHOTOGRAPHIC RECORD

Project No.: 16-132

Project Name: Kountry Korner Kingston
July, 2016

					
Photo # 7	Photo looking northwest at the location of boring B-7.		Photo # 8	Photo looking at soil cores from boring B-7.	
					
Photo # 9	Photo looking west at the location of boring B-8.		Photo # 10	Photo looking at soil cores from boring B-8.	
					
Photo # 11	Photo looking west at the location of boring B-9.		Photo # 12	Photo looking at soil cores from boring B-9.	

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SITE PHOTOGRAPHIC RECORD

Project No.: 16-132

Project Name: Kountry Korner Kingston
January, 2017

Photo #1: Looking north at location of boring B-10.

Photo #2: Soil cores from boring B-10.

Photo #3: Looking north at location of monitoring well MW-4.

Photo #4: Soil cores from monitoring well MW-4.

Photo #5: Looking southwest at location of boring B-11.

Photo #6: Soil cores from boring B-11.

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ASSOCIATED ENVIRONMENTAL GROUP, LLC

SITE PHOTOGRAPHIC RECORD

Project No.: 16-132

Project Name: Kountry Korner Kingston
January, 2017

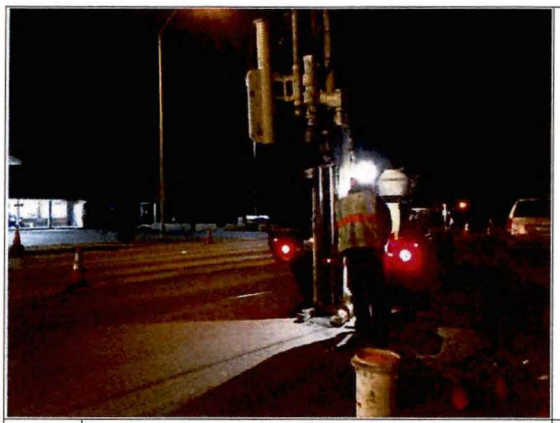				
Photo #7:	Looking west at location of boring B-12.		Photo #8:	Soil cores from boring B-12.

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APPENDIX B

Supporting Documents

Boring Logs

Laboratory Datasheets

Receipts for Catchbasin & Oil/Water Separator Cleanout

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ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-1*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Geoprobe / Direct Push*		
Date: *April 26, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	4 inch concrete surface underlain by;						N/A		None	
	Brown, moist, medium dense, **SAND**; fine grained sand, trace gravel, coarse grained gravel	SW								
5					B1-5	8:24		55.4		
	At 7 feet; Gray, wet, medium dense, **SAND**; fine grained sand	SP			B1-7.5	8:27		20.8		
	At 8.5 feet; Dark brown, moist, medium stiff, **SANDY SILT**; fine grained sand	ML								
10	At 9.5 feet; Woody debris				B1-10	8:27		40.3		
	At 10 feet; Gray, wet, medium dense, **GRAVEL**; with sand, fine grained sand, fine grained gravel	GW								
	At 12 feet; Woody debris									
	At 12.5 feet; Gray, moist, medium stiff, **SILT**; trace gravel, coarse grained gravel	ML								
15					B1-15	8:30		18.4		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-2*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Geoprobe / Direct Push*		
Date: *April 26, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	4 inch concrete surface underlain by;						N/A		None	
5	Brown, moist, medium dense, SAND; fine grained sand, trace gravel, coarse grained gravel	SW			B2-5	8:53		1.7		
	At 8 feet; Gray, wet, medium dense, SAND; fine grained sand	SP								
10	At 9.5 feet; Brown, moist, medium stiff, SILT; with woody debris	ML			B2-10	8:56		74.9		
	At 10 feet; Brown, wet, medium dense, SAND; fine grained sand	SP								
	At 11 feet; Brown, wet, medium dense, SILTY SAND; fine grained sand	SM								
15	At 14 feet; Gray, wet, medium dense, SANDY GRAVEL; fine grained sand, coarse grained gravel	GW			B2-14	9:00		3.7		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-3*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Geoprobe / Direct Push*		
Date: *April 26, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	4 inch concrete surface underlain by; Brown, moist, medium dense, **GRAVELLY SAND**; coarse grained gravel, fine grained sand	SW					N/A		None	
5					B3-5	9:17		0.3		
	At 8 feet; some silt									
10					B3-10	9:19		2.6		
	At 11 feet; Gray, wet, medium stiff, **SANDY SILT**; fine grained sand	ML								
15					B3-15	9:23		0.0		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-4*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Geoprobe / Direct Push*		
Date: *April 26, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Grass surface underlain by;						N/A		None	
	Brown, moist, medium dense, **GRAVELLY SAND**; fine grained gravel, fine grained sand	SW								
5			5		B4-5	9:43		0.5		
	At 7 feet; No gravel, wet		7 ▼							
	At 8 feet; Brown, wet, medium stiff, **SANDY SILT**; fine grained sand, woody debris, trace gravel, coarse grained gravel	ML								
10			10		B4-9	9:46		49.8		
15	At 14 feet; Gray/tan, wet, dense, **SANDY GRAVEL**; fine grained sand, fine grained gravel	GW	15		B4-14	9:49		0.9		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-5*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Geoprobe / Direct Push*		
Date: *April 26, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Grass surface underlain by; 9 inch dirt underlain by;						N/A		None	
	Brown, moist, medium dense, **GRAVELLY SAND**; fine grained gravel, fine grained sand	SW								
5					B5-5	10:10		0.3		
	At 8.5 feet; Woody debris									
10		▼								
	At 10 feet; Dark brown, wet, medium dense, **SILTY SAND**; fine grained sand, woody debris	SM			B5-11	10:17		0.8		
	At 12 feet; Gray, wet, medium dense, **SAND**; coarse grained sand	SP								
15	At 14 feet; Tan, wet, stiff, **SILT**	ML			B5-15	10:17		1.1		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-6*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Geoprobe / Direct Push*		
Date: *April 26, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Grass surface underlain by;		1				N/A		None	
			2							
	Brown, moist, medium dense, **GRAVELLY SAND**; fine grained gravel, fine grained sand	SW	3							
			4							
5			5		B6-5	10:31		35.1		
			6							
			7							
		▼	8							
	At 8 feet; Brown, wet, medium dense, **SAND**; fine grained sand, trace gravel, coarse grained gravel	SP	9							
10	At 9 feet; Dark brown, wet, medium stiff, **SANDY SILT**; fine grained sand, woody debris	ML	10		B6-9	10:33		618		
			11							
			12							
	At 12 feet; Gray, wet, medium dense, **SAND**; coarse grained sand	SP	13							
			14							
15	At 13.5 feet; Gray, wet, stiff, **SANDY SILT**; fine grained sand	ML	15		B6-14	10:36		0.8		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**Monitoring Well #** *MW-1*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Push Probe*		
Date: *July 6, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	Grass surface underlain by;		1			8:54	N/A	N/A	.N/A	
			2							
	Brown, moist, medium dense, **GRAVELLY SAND**; fine grained gravel, fine grained sand	SW	3							
			4							
5			5							
			6							
			7							
			8							
	At 8 feet; Brown, wet, medium dense, **SAND**; fine grained sand, trace gravel, coarse grained gravel	SP	9							
10	At 9 feet; Dark brown, wet, medium stiff, **SANDY SILT**; fine grained sand, woody debris	ML	10							
			11							
			12							
	At 12 feet; Dark brown, wet, medium dense, **SAND**; coarse grained sand	SP	13							
	At 13.5 feet; Gray, wet, stiff, **SANDY SILT**; fine grained sand	ML	14							
15			15			9:09				
	Total Depth = 15 feet									
20										
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 # BJR 563

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**Monitoring Well #** *MW-2*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Push Probe*		
Date: *July 6, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	6 inch concrete surface underlain by;		1				N/A		N/A	
			2							
			3							
	Brown, moist, medium dense, **GRAVELLY SAND**; fine grained gravel, fine grained sand		4							
5		GW	5		MW2-5	9:46		0.0		
			6							
			7							
		▼	8		MW2-8			0.0		
	At 8 feet; Wet		9							
10	At 9 feet; Brown, moist, medium stiff, **SILT**; with organics	ML	10		MW2-10	9:49		0.0		
			11							
			12							
	At 12 feet; Gray, wet, medium stiff, **SILT**	ML	13							
	At 13 feet; Gray, wet, medium dense, **SAND**; fine grained sand	SP	14							
15			15		MW2-15	9:53		0.0		
	Total Depth = 15 feet									
20										
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 # BJR 576

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**Monitoring Well #** *MW-3*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Auger*		
Date: *July 6, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	Grass surface underlain by;		1				N/A		N/A	
			2							
	Brown, moist, medium dense, **GRAVELLY SAND**; fine grained gravel, fine grained sand	SW	3							
			4							
5			5		MW3-5	10:48		2.0		
			6							
			7							
	At 7.5 feet; Wood		8							
	At 8 feet; Brown, moist, medium dense, **SANDY SILT**, fine grained sand	ML	9							
10	At 9 feet; Gray, moist, medium dense, **GRAVELLY SAND**; coarse grained gravel, fine grained sand	SW	10		MW3-10	10:49		39.2		
		▼	11							
	At 11 feet; Wet		12							
			13							
			14							
15			15		MW3-15	10:52		2.1		
	Total Depth = 15 feet									
20										
25										

Explanation

- Sample Advance / Recovery
- No Recovery
- Contact located approximately
- ▼ Groundwater level at time of drilling AT 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 # BJR 575

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-7*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Push Probe*		
Date: *July 6, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Grass surface underlain by;						N/A		None	
	Brown, moist, medium dense, **GRAVELLY SAND**; fine grained gravel, fine grained sand									
5			5		B7-5	11:58		0		
	At 8 feet; Wet	▼	8							
10	At 9 feet; Brown, moist, medium stiff, **SILT**		10		B7-10	12:01		48.3		
	At 11 feet; Gray, wet, medium dense, **SAND**; fine grained sand		12		B7-12	12:06		4.6		From 11 to 13 feet, woody debris
	At 12 feet; Brown, moist, medium stiff, **SILT**		13							
	At 13 feet; Gray, wet, medium dense, **SANDY SILT**; fine grained sand		14							
15			15		B7-15	12:06		1.5		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-8*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Push Probe*		
Date: *July 6, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Grass surface underlain by;						N/A		N/A	
5	Brown, dry, medium dense, SAND; fine grained sand	SP						0.0		
10	At 9 feet; Wet	▼			B8-10	12:40		81.8		
	At 10.5 feet; Brown, wet, medium stiff, SILT; with organics	ML								
15	At 12.5 feet; Gray, wet, medium dense, SAND; fine grained sand	SP			B8-15	12:43		1.3		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-9*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Push Probe*		
Date: *July 6, 2016*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Grass surface underlain by;						N/A		N/A	
5	Brown, dry, medium dense, **GRAVELLY SAND**; coarse grained gravel, fine grained sand	SW			B9-5	13:06		0		
10	At 9 feet; Brown/Black, dry, medium stiff, **SILT**; with organics	ML			B9-10	13:08		0.5		
	At 12 feet; Gray/Green, wet, medium dense, **SAND**; fine grained sand	SP			B9-13	13:11		0.6		
15	At 14 feet; Gray, wet, medium dense, **SAND**; fine grained sand	SP			B9-15	13:11		7.2		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-10*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Geoprobe / Direct Push*		
Date: *January 31, 2017*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Concrete surface underlain by;									
	At 3 feet; Brown, moist, medium dense, **SILTY SAND**; fine grained sand	SM								
5					B10-5	16:50		0		
	At 6 feet; Wet	▼								
10					B10-10	16:53		0		
	At 13 feet; Brown, wet, medium dense, **SAND**; with gravels, coarse grained sand, fine grained gravels	SP								
15					B10-15	16:58		0		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-11*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Geoprobe / Direct Push*		
Date: *January 31, 2017*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Asphalt surface underlain by;									
	At 2.5 feet; Brown, moist, medium dense, SAND; trace gravels, fine grained sand, fine grained gravel	SP								
5	At 5 feet; Wet ▼				B11-5	20:19		0		
	At 7.5 feet; Brown, wet, soft, ORGANICS	OH								
10					B11-10	20:22		0		
15					B11-15	20:27		0		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**BORING #** *B-12*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Geoprobe / Direct Push*		
Date: *January 31, 2017*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Asphalt surface underlain by;									
	At 2.5 feet; Brown, moist, medium dense, **SAND**; trace gravels, fine grained sand, fine grained gravel	SP								
5	At 5 feet; Wet ▼				B12-5	20:50		0		
	At 7.5 feet; Brown, wet, soft, **ORGANICS**	OH								
10					B12-10	20:52		0		
15					B12-15	20:57		0		
	Total Depth = 15 feet									
20										
25										

Explanation

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

ASSOCIATED ENVIRONMENTAL GROUP, LLC

LOG OF BOREHOLE

PROJECT: *Kountry Korner Kingston*	**JOB #** *16-132*	**Monitoring Well #** *MW-4*	**PAGE 1 OF 1**
Location: *27099 Miller Bay Rd NE, Kingston, WA*	**Approximate Elevation:** *97 feet msl*		
Subcontractor / Driller: *ESN / Brian*	**Equipment / Drilling Method:** *Auger*		
Date: *January 31, 2017*	**Logged By:** *Nicolas Pushckor*		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	Grass and dirt surface underlain by; Brown, moist, medium dense, **SAND**; fine grained sand	SP								
5		▼			MW4-5	17:35		0		
	At 6 feet; Wet, dense									
10					MW4-10	17:43		0		
15					MW4-15	17:48		0		
	Total Depth = 15 feet									
20										
25										

Explanation

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

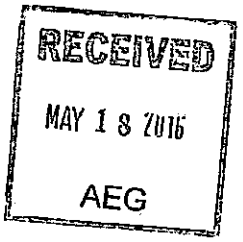
Monitoring Well Construction

- 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 # BJR 905

ESN NORTHWEST
Environmental
Services Network

May 6, 2016



Adam Harris
Associated Environmental Group, Inc.
605 11th Ave. SE, Suite 201
Olympia, WA 98501

Dear Mr. Harris:

Please find enclosed the analytical data report for the Kountry Korner in Kingston, Washington. Probe services were conducted on April 26, 2016. Soil and water samples were analyzed for Gasoline by NWTPH-Gx and BTEX by Method 8260 on May 2 & 3, 2016.

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

ESN Northwest appreciates the opportunity to have provided analytical services to Associated Environmental Group, Inc. 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,

Anisa Harnden

Anisa Harnden
Drilling Manager

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

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
KOUNTRY KORNER KINGSTON PROJECT
Client Project #16-132
Kingston, Washington

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

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

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	5/2/2016	5/2/2016	nd	nd	nd	nd	nd	102
LCS	5/2/2016	5/2/2016	103%	86%	84%	88%	105%	90
LCSD	5/2/2016	5/2/2016	76%	73%	68%	71%	—	95
B1-5	4/26/2016	5/2/2016	nd	nd	nd	nd	nd	107
B1-5 Duplicate	4/26/2016	5/2/2016	nd	nd	nd	nd	nd	101
B1-10	4/26/2016	5/2/2016	nd	nd	nd	nd	nd	101
B2-5	4/26/2016	5/2/2016	nd	nd	nd	nd	nd	104
B2-10	4/26/2016	5/2/2016	0.14	0.23	0.08	13	31	102
B3-5	4/26/2016	5/2/2016	nd	nd	nd	nd	nd	105
B3-10	4/26/2016	5/2/2016	nd	nd	nd	nd	nd	104
B4-5	4/26/2016	5/2/2016	nd	nd	nd	nd	nd	109
B4-9	4/26/2016	5/2/2016	nd	nd	nd	nd	21	100
B5-5	4/26/2016	5/2/2016	nd	nd	nd	nd	nd	106
B5-11	4/26/2016	5/2/2016	nd	nd	nd	nd	nd	100
B6-5	4/26/2016	5/2/2016	nd	nd	nd	nd	nd	107
B6-9	4/26/2016	5/2/2016	0.54	0.18	1.6	53	180	102
B6-14	4/26/2016	5/3/2016	nd	nd	nd	nd	nd	107
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

Associated Environmental Group
KOUNTRY KORNER KINGSTON PROJECT
Client Project #16-132
Kingston, Washington

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

Analysis of Gasoline Range Organics & BTEX in 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	5/3/2016	nd	nd	nd	nd	nd	103
LCS	5/3/2016	78%	82%	78%	80%	88%	95
B1-W	5/3/2016	nd	nd	nd	nd	nd	101
B2-W	5/3/2016	35	6.8	150	140	10500	84
B3-W	5/3/2016	nd	nd	nd	nd	nd	101
B4-W	5/3/2016	nd	nd	nd	nd	nd	100
B5-W	5/3/2016	nd	nd	nd	nd	nd	103
B6-W	5/3/2016	7.2	25	480	2600	14500	96
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, INC. | Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: AEC

ADDRESS: 605 11th Ave SE, Suite 201, Olympia, WA

PHONE: 360 357 9835 FAX: 360 352 2864

CLIENT PROJECT #: 16-132 PROJECT MANAGER: Adam Harris

DATE: 4/26 PAGE 1 OF 2

PROJECT NAME: Country Corner Kingston

LOCATION: 27099 Miller Bay Rd NE, Kingston, WA

COLLECTOR: Nicolas Rushton DATE OF COLLECTION: 4/26

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260	VOC 8260 cl.	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. B1-5	5	924	soil	4oz/Jar		X	X																			
2. B1-7.5	7.5	927																						Hold		
3. B1-10	10	927																								
4. B1-15	15	930																						Hold		
5. B2-5	5	853																								
6. B2-10	10	856																								
7. B2-14	14	900																						Hold		
8. B3-5	5	917																								
9. B3-10	10	914																								
10. B3-15	15	922																						Hold		
11. B4-5	5	943																								
12. B4-9	9	946																								
13. B4-14	14	949																						Hold		
14. B5-5	5	00																								
15. B5-11	11	017																								
16. B5-15	15	017																						Hold		
17. B6-5	5	031																								
18. B6-9	9	033																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
MM BM	4/26 1307	Central Mod	4-26-16
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

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

LABORATORY NOTES:

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

1210 Eastside Street SE, Suite 200
Olympia, Washington 98501

Phone: 360-459-4670
Fax: 360-459-3432

Website: www.esnnw.com
E-Mail: info@esnnw.com

ESN NORTHWEST, INC. Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: AEC

ADDRESS: 605 11th Ave SE Suite 201 Olympia WA

PHONE: 360 352 9835 FAX: 360 352 3164

CLIENT PROJECT #: 16-132 PROJECT MANAGER: Adam Harris

DATE: 4/26 PAGE 2 OF 2

PROJECT NAME: Country Corner Kingston

LOCATION: 2109 Miller Bay Rd NE Kingston WA

COLLECTOR: Nicolas Fischer DATE OF COLLECTION: 4/26

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260 CL	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 Numbers
1. B6-14	14	0926	Soil	02/342			X	X																
2. B-1	-	840	water	VOA			(	(																
3. B-2	-	910					)	)																
4. B-3	-	935					)	)																
5. B-4	-	606					)	)																
6. B-5	-	623					)	)																
7. B-6	-	645	/	/			/	/																
8.																								
9.																								
10.																								
11.																								
12.																								
13.																								
14.																								
15.																								
16.																								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[illegible]	4/26 1307	[illegible]	4-26-16
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

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

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR 5 DAY

1210 Eastside Street SE, Suite 200
Olympia, Washington 98501

Phone: 360-459-4670
Fax: 360-459-3432

Website: www.esnnw.com
E-Mail: info@esnnw.com

ESN NORTHWEST
Environmental
Services Network

July 25, 2016

Michael Chun
Associated Environmental Group, Inc.
605 11th Ave. SE, Suite 201
Olympia, WA 98501

Dear Mr. Chun:

Please find enclosed the analytical data report for the Kountry Korner in Kingston, Washington. Probe services were conducted on July 6, 2016. Soil and water samples were analyzed for Gasoline by NWTPH-Gx, VOC's by Method 8260, Naphthalene's by Method 8270, and Pb by Method 6020 on July 8 - 19, 2016.

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

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

Sincerely,

Michael A. Korosec
President

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

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

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	7/13/2016	7/13/2016	nd	nd	nd	nd	nd	115
LCS	7/13/2016	7/13/2016	123%	112%	94%	94%	112%	112
MW2-5	7/6/2016	7/13/2016	nd	nd	nd	nd	nd	117
MW2-8	7/6/2016	7/13/2016	nd	nd	nd	nd	nd	111
MW3-5	7/6/2016	7/13/2016	nd	nd	nd	nd	nd	110
MW3-10	7/6/2016	7/13/2016	nd	nd	nd	nd	**420**	112
B7-10	7/6/2016	7/14/2016	nd	nd	nd	**0.59**	**420**	116
B7-12	7/6/2016	7/14/2016	nd	nd	nd	**0.27**	**53**	116
B8-10	7/6/2016	7/14/2016	nd	**0.09**	**9.1**	**30**	**7800**	117
B8-15	7/6/2016	7/14/2016	nd	nd	nd	nd	nd	119
B9-10	7/6/2016	7/14/2016	nd	nd	nd	nd	nd	117
B9-13	7/6/2016	7/14/2016	nd	nd	nd	nd	nd	115
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

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

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

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	7/14/2016	7/14/2016	nd	nd	nd	nd	nd	115
LCS	7/14/2016	7/14/2016	118%	126%	92%	92%	105%	111
MW3-15	7/6/2016	7/19/2016	nd	nd	nd	nd	nd	115
B7-5	7/6/2016	7/14/2016	nd	nd	nd	nd	nd	116
B7-15	7/6/2016	7/14/2016	nd	nd	nd	nd	48	115
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

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

Analysis of Gasoline Range Organics & BTEX in 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	7/8/2016	nd	nd	nd	nd	nd	84
LCS	7/8/2016	102%	107%	114%	98%	102%	77
LCSD	7/8/2016	90%	95%	99%	87%	---	83
B-7	7/8/2016	nd	nd	nd	**5.1**	nd	87
B-8	7/8/2016	**4.6**	**1.7**	**130**	**400**	**8600**	90
B-9	7/8/2016	nd	nd	nd	nd	nd	77
B-9 Duplicate	7/8/2016	nd	nd	nd	nd	nd	84
Trip Blank	7/8/2016	nd	nd	nd	nd	nd	89
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

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

Analysis of Volatile Organic Compounds in Soil by Method 8260

Sample Number	Date Prepared	Date Analyzed	MTBE (mg/kg)	Hexane (mg/kg)	1,2-Dichloroethane (EDC) (mg/kg)	1,2-Dibromoethane (EDB) (mg/kg)	Surrogate Recovery (%)
Method Blank	7/14/2016	7/14/2016	nd	nd	nd	nd	115
LCS	7/14/2016	7/14/2016	--	--	71%	80%	111
B8-10	7/6/2016	7/14/2016	nd	nd	nd	nd	117
Reporting Limits			0.05	0.05	0.02	0.005	

"---" 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

Associated Environmental Group
KOUNTRY KORNER KINGSTON PROJECT
Client Project #16-132
Kingston, Washington

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

Analysis of Naphthalenes in Soil by Method 8270

Analytical Results

		MTH BLK	LCS	B8-10
Date extracted	Reporting	07/08/16	07/08/16	07/08/16
Date analyzed	Limits	07/08/16	07/08/16	07/08/16
Moisture, %	(mg/kg)			22%
Naphthalene	0.02	nd	84%	**1.3**
2-Methylnaphthalene	0.02	nd	82%	**0.49**
1-Methylnaphthalene	0.02	nd	ns	**0.58**
Total Carcinogens				nd
Surrogate recoveries:				
2-Fluorobiphenyl		92%	94%	70%
p-Terphenyl-d14		104%	108%	84%

Data Qualifiers and Analytical Comments

* - Carcinogenic Analyte
nd - not detected at listed reporting limits
ns - not spiked
Results reported on dry-weight basis
Acceptable Recovery limits: 50% TO 150%
Acceptable RPD limit: 35%

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

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

Sample Number	Date Prepared	Date Analyzed	Lead (Pb) (mg/kg)
Method Blank	7/7/2016	7/8/2016	nd
B8-10	7/7/2016	7/8/2016	30
Reporting Limit			5.0

"nd" Indicates not detected at listed detection limits.

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

Sample Number: QC Batch	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Lead (Pb)	95.7	88.2	92.2	89.7	83.1	92.6	0.5

	Laboratory Control Sample		
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Lead (Pb)	100	100	100

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%
ACCEPTABLE RPD IS 35%

ESN NORTHWEST, INC. | Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: AEG

ADDRESS: 605 11th Ave SE Suite 201, Olympia, WA

PHONE: 360 352 9835 FAX: 360 352 9164

CLIENT PROJECT #: 16-132 PROJECT MANAGER: Mike Chen

DATE: 7/6/16 PAGE 1 OF 1

PROJECT NAME: Kountry Korner Kingston

LOCATION: 27099 Miller Bay Rd NE, Kingston, WA

COLLECTOR: Nicolas Rushclor DATE OF COLLECTION: 7/6/16

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES: TPH-NCID	TPH-Diesel&Oil	TPH-Gasoline	BTEX	HOC 8260D	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. MW2-5	5	946	Soil	VOA JAR		X	X																		
2. MW2-8	8	949				X	X																		
3. MW2-10	10	949				X	X																Hold		
4. MW2-15	15	955				X	X																Hold		
5. MW3-5	5	1049				X	X																		
6. MW3-10	10	049				X	X																		
7. MW3-15	15	052				X	X																Hold		
8. B7-5	5	1152				X	X																Hold		
9. B7-10	10	1201				X	X																		
10. B7-12	12	1206				X	X																		
11. B7-15	15	1208				X	X																Hold		
12. B-7	—	1225	Water	VOA		X	X																		
13. B8-10	10	1240	Soil	VOA JAR														X							
14. B8-15	15	1243				X	X																		
15. B-8	—	1255	Water	VOA		X	X																		
16. B9-5	5	1303				X	X																Hold		
17. B9-10	10	1308				X	X																		
18. B9-13	13	1311				X	X																		

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
MW Pitt	7/6/16		
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
Em Fins	7/6/16		

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

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR 5 DAY

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

ESN Northwest, Inc. | Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: AEG

ADDRESS: 605 11th Ave SE Suite 201 Olympia WA

PHONE: 360 352 9835 FAX: 360 352 9884

CLIENT PROJECT #: 16-132 PROJECT MANAGER: Mike Church

DATE: 7/6/16 PAGE 2 OF 2

PROJECT NAME: Kountry Korner Kingston

LOCATION: 27099 Miller Bay Rd NE, Kingston, WA

COLLECTOR: Nicolas Puschkar DATE OF COLLECTION: 7/6/16

Sample Number	Depth	Time	Sample Type	Container Type	TPH: NWTPH-HCID	TPH: Diesel & Oil	TPH: Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	Cl. Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. B9-15	15	811	Soil	VOA/Jar		X		X														Hold		
2. B-9	-	335	Water	VOA		X		X																
3.																								
4.																								
5.																								
6.																								
7.																								
8.																								
9.																								
10.																								
11.																								
12.																								
13.																								
14.																								
15.																								
16.																								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
MM FSN	7/6/16		
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[illegible] KLS	7/6/16		

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

LABORATORY NOTES:

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

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

ESN NORTHWEST
Environmental
Services Network

July 27, 2016

Nicholas Pushckor
Associated Environmental Group, Inc.
605 11th Ave. SE, Suite 201
Olympia, WA 98501

Dear Mr. Pushckor:

Please find enclosed the analytical data report for the Kountry Korner in Kingston, Washington. Water samples were analyzed for Gasoline by NWTPH-Gx, BTEX by Method 8260, and the GRO Suite on July 18 - 21, 2016.

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

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

Sincerely,

Michael A Korosec

Michael A. Korosec
President

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

Analysis of Gasoline Range Organics & BTEX in 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	7/18/2016	nd	nd	nd	nd	nd	113
LCS	7/18/2016	133%	91%	90%	94%	112%	110
MW-2	7/18/2016	nd	nd	nd	nd	nd	112
MW-3	7/18/2016	nd	nd	nd	nd	nd	112
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

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

Analyses of Gasoline Range Organics in Water by Method NWTPH-Gx

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline Range Organics (ug/L)
Method Blank	7/18/2016	104	nd
LCS	7/18/2016	98	112%
MW-1	7/18/2016	112	**9700**
Reporting Limits			100

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

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE: 65% TO 135%

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

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

Analysis of Volatile Organic Compounds in Water by Method 8260

Analytical Results

	RL	MTH BLK	LCS	MW-1
Date analyzed	(ug/L)	07/18/16	07/18/16	07/18/16
1,2-Dichloroethane (EDC)	1.00	nd	109%	nd
Methyl-t-butyl ether (MTBE)	1.00	nd	ns	nd
Benzene	1.00	nd	133%	**44**
Toluene	1.00	nd	91%	**30**
Ethylbenzene	1.00	nd	90%	**290**
Xylenes	3.00	nd	94%	**1,400**
Surrogate recoveries:				
Dibromofluoromethane		99%	112%	86%
Toluene-d8		80%	81%	86%
4-Bromofluorobenzene		113%	110%	101%

Data Qualifiers and Analytical Comments

ns-not spiked
nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

EDB ANALYSIS BY EPA METHOD 8011

EDB ANALYSIS BY EPA METHOD 8011

SAMPLE NUMBER	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	EDB (ug/L)	SURROGATE RECOVERY(%)	REPORTING LIMIT	DETECTION LIMIT	FLAGS
Method Blank	-	7/21/2016	7/21/2016	nd	92%	0.03	0.004	
LCS	-	7/21/2016	7/21/2016	94.1%	111%	0.03	0.004	
LCSD	-	7/21/2016	7/21/2016	96.3%	109%	0.03	0.004	
MW-1	7/14/2016	7/21/2016	7/21/2016	nd	113%	0.03	0.005	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (TCMX): 65% - 135%

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

Analysis of Naphthalenes in Water by Method 8270

Analytical Results

	Reporting	MTH BLK	LCS	MW-1
Date extracted	Limits	07/19/16	07/19/16	07/19/16
Date analyzed	(ug/L)	07/19/16	07/19/16	07/19/16
Naphthalene	0.1	nd	76%	**38**
2-Methylnaphthalene	0.1	nd	77%	**3.9**
1-Methylnaphthalene	0.1	nd	ns	**2.4**
Surrogate recoveries:				
2-Fluorobiphenyl		85%	91%	90%
p-Terphenyl-d14		94%	78%	104%

Data Qualifiers and Analytical Comments

* - Carcinogenic Analyte
nd - not detected at listed reporting limits
ns - not spiked
Acceptable Recovery limits: 50% TO 150%
Acceptable RPD limit: 35%

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
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Total Lead in Water by EPA-6020 Method

Sample Number	Date Analyzed	Lead (Pb) (ug/L)
Method Blank	7/21/2016	nd
MW-1	7/21/2016	nd
Reporting Limits		2.0

"nd" Indicates not detected at listed detection limits.

QA/QC Data - Total Metals EPA-6020

	Laboratory Control Sample			Laboratory Control Sample Duplicate			RPD
	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	(%)
Lead	20.0	19.1	95.5	20.0	18.7	93.5	2.12

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%
ACCEPTABLE RPD IS 35%

ESN NORTHWEST, INC. | Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: AEG

ADDRESS: 605 11th Ave SE Suite 201 Olympia, WA

PHONE: 360 352 9835 FAX: 360 352 8164

CLIENT PROJECT #: 16-132 PROJECT MANAGER: Nicolas Puschkor

DATE: 7/14/16 PAGE 1 OF 1

PROJECT NAME: Kountry Korner Kingston

LOCATION: 27099 Miller Bay Rd NE, Kingston, WA

COLLECTOR: Nicolas Puschkor DATE OF COLLECTION: 7/14/16

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES: TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260/CL	VOC 8260	Semi Vol 8270	PAHs 8270	PCBs 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. MW-1	—	1147	water	VOA														X								
2. MW-2	—	1052	water	VOA		X	X																			
3. MW-3	—	1201	water	VOA		X	X																			
4.																										
5.																										
6.																										
7.																										
8.																										
9.																										
10.																										
11.																										
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14.																										
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17.																										
18.																										

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	7/14/16	[signature]	7-14-16 1600
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

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

LABORATORY NOTES:

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

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

ESN NORTHWEST
Environmental
Services Network

February 14, 2017

Nicolas Pushckor
Associated Environmental Group, Inc.
605 11th Ave. SE, Suite 201
Olympia, WA 98501

Dear Mr. Pushckor:

Please find enclosed the analytical data report for the Kountry Korner in Kingston, Washington. Probe services were conducted on January 31, 2017. Soil and water samples were analyzed for Gasoline by NWTPH-Gx, BTEX by Method 8260, and Pb by Method 6020 on January 31 - February 9, 2017.

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

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

Sincerely,

Michael A Korosec

Michael A. Korosec
President

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

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

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

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	2/9/2017	2/9/2017	nd	nd	nd	nd	nd	108
LCS	2/9/2017	2/9/2017	117%	131%	134%	136%	114%	95
LCSD	2/9/2017	2/9/2017	109%	102%	100%	105%	---	102
B10-5	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	109
B10-10	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	110
B10-15	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	109
MW4-5	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	110
MW4-5 Duplicate	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	105
MW4-10	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	110
MW4-15	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	109
B11-5	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	109
B11-10	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	111
B11-15	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	108
B12-5	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	112
B12-10	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	110
B12-15	1/31/2017	2/9/2017	nd	nd	nd	nd	nd	108
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

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

Analysis of Gasoline Range Organics & BTEX in 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	2/8/2017	nd	nd	nd	nd	nd	106
LCS	2/8/2017	127%	110%	112%	113%	133%	97
LCSD	2/8/2017	128%	113%	116%	114%	---	98
B-10	2/8/2017	nd	**1.8**	nd	nd	nd	110
B-10 Duplicate	2/8/2017	nd	**1.7**	nd	nd	nd	110
B-11	2/8/2017	nd	**1.0**	nd	nd	nd	108
B-12	2/8/2017	nd	**3.3**	nd	**3.0**	nd	104
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

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

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

Sample Number	Date Prepared	Date Analyzed	Lead (Pb) (mg/kg)
Method Blank	2/1/2017	2/3/2017	nd
B10-5	2/1/2017	2/3/2017	nd
B10-10	2/1/2017	2/3/2017	nd
B10-15	2/1/2017	2/3/2017	nd
MW4-5	2/1/2017	2/3/2017	nd
MW4-10	2/1/2017	2/3/2017	nd
MW4-15	2/1/2017	2/3/2017	nd
B11-5	2/1/2017	2/3/2017	**6.8**
B11-10	2/1/2017	2/3/2017	nd
B11-15	2/1/2017	2/3/2017	nd
B12-5	2/1/2017	2/3/2017	**340**
B12-10	2/1/2017	2/3/2017	**9.7**
B12-15	2/1/2017	2/3/2017	nd
B12-15 Duplicate	2/1/2017	2/3/2017	nd
Reporting Limit			5.0

"nd" Indicates not detected at listed detection limits.

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

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

Sample Number: B12-15

	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Lead (Pb)	75.8	63.3	83.5	79.7	80.4	101	18.8

	Laboratory Control Sample		
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Lead (Pb)	100	97.7	97.7

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%
ACCEPTABLE RPD IS 35%

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

Total Lead in Water by EPA-6020 Method

Sample Number	Date Analyzed	Lead (Pb) (ug/L)
Method Blank	2/1/2017	nd
B-10	2/1/2017	nd
B-11	2/1/2017	7.7
B-12	2/1/2017	nd
Reporting Limits		2.0

"nd" Indicates not detected at listed detection limits.

QA/QC Data - Total Metals EPA-6020

	Laboratory Control Sample			Laboratory Control Sample Duplicate			RPD
	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	(%)
Lead	20.0	19.4	97.0	20.0	20.9	105	7.44

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

ESN Northwest, Inc. — Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: AEI

DATE: 2/1/17 PAGE 1 OF 1

ADDRESS: 605 11th Ave SE, Suite 201, Olympia, WA

PROJECT NAME: Kountry Korner Kingston

PHONE: 360 352 9835 FAX: 360 352 8164

LOCATION: 27098 Miller Bay Rd NE Kingston, WA

CLIENT PROJECT #: 16-132 PROJECT MANAGER: Nicolas Pushcker

COLLECTOR: Nicolas Pushcker DATE OF COLLECTION: 1/31/17

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb (Arch)	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. B10-5	5	1651	Soil				X	X								X								
2. B10-10	10	1653	Soil	✓			X	X								X								
3. B10-15	15	1655	Soil				X	X								X								
4. B-10	—	1720	water				X	X								X								
5. MW4-5	5	1735	Soil				X	X								X								
6. MW4-10	10	1743	Soil				X	X								X								
7. MW4-15	15	1748	Soil				X	X								X								
8. MW-4	—	1900	water				X	X								X						Hold		
9. B11-5	5	2019	Soil				X	X								X								
10. B11-10	10	2022	Soil				X	X								X								
11. B11-15	15	2027	Soil				X	X								X								
12. B-11	—	2055	water				X	X								X								
13. B12-5	5	2052	Soil				X	X								X								
14. B12-10	10	2052	Soil				X	X								X								
15. B12-15	15	2057	Soil				X	X								X								
16. B-12	—	2106	water				X	X								X								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	2/1/17 835	[signature]	2-1-17 835
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

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

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR 5 DAY

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

ESN NORTHWEST
Environmental
Services Network

April 3, 2017

Nicolas Pushckor
Associated Environmental Group, Inc.
605 11th Ave. SE, Suite 201
Olympia, WA 98501

Dear Mr. Pushckor:

Please find enclosed the analytical data report for the Kountry Korner in Kingston, Washington. Water samples were analyzed for Gasoline by NWTPH-Gx, BTEX by Method 8260, and Pb by Method 6020 on March 24 - 29, 2017.

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

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

Sincerely,

Michael A. Korosec

Michael A. Korosec
President

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

ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

Analysis of Gasoline Range Organics & BTEX in 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	3/29/2017	nd	nd	nd	nd	nd	104
LCS	3/29/2017	90%	104%	99%	101%	102%	101
LCSD	3/29/2017	82%	93%	95%	96%	---	99
MW-1	3/29/2017	**10**	**10**	**150**	**520**	**11,000**	103
MW-2	3/29/2017	nd	nd	nd	nd	nd	101
MW-3	3/29/2017	nd	nd	nd	nd	nd	104
MW-4	3/29/2017	nd	nd	nd	nd	nd	105
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

Associated Environmental Group
PROJECT KOUNTRY KORNER KINGSTON
PROJECT #16-132
Kingston, Washington

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

Total Lead in Water by EPA-6020 Method

Sample Number	Date Analyzed	Lead (Pb) (ug/L)
Method Blank	3/24/2017	nd
MW-1	3/24/2017	nd
MW-2	3/24/2017	nd
MW-3	3/24/2017	35
MW-4	3/24/2017	nd
Reporting Limits		2.0

"nd" Indicates not detected at listed detection limits.

QA/QC Data - Total Metals EPA-6020

	Laboratory Control Sample			Laboratory Control Sample Duplicate			RPD
	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	(%)
Lead	20.0	21.4	107	20.0	21.1	106	1.41

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%
ACCEPTABLE RPD IS 35%

ESN NORTHWEST, INC. Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: AEG

ADDRESS: 605 11th Ave SE, Suite 201, Olympia, WA

PHONE: 360 352 9835 FAX: 360 352 8164

CLIENT PROJECT #: 16-132 PROJECT MANAGER: Nicolas Pushelkor

DATE: 3/21/17 PAGE 1 OF 1

PROJECT NAME: Kountry Korner Kingston

LOCATION: 27099 Miller Bay Rd NE, Kingston, WA

COLLECTOR: Nicolas Pushelkor DATE OF COLLECTION: 3/21/17

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals (total) - Pb	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. MW-1	—	1108	water	vol/poly			X	X								X							
2. MW-2	—	1012	"	"			"	"								"							
3. MW-3	—	1158	"	"			"	"								"							
4. MW-4	—	1251	"	"			"	"								"							
5.																							
6.																							
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18.																							

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	3/21/17 308	[signature]	3-21-17
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

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

LABORATORY NOTES:

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

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

Sweetwater Septic
& Grease Trap Pumping

Office: 360-930-2172 Cell: 360-930-2127

Code: Date: 12/12

Name: [illegible] Kitsap County Kennels

Address: 27099 Miller Bay Rd. NE
Kingston, WA 98346

Phone: 206-930-3633 JN.

Sold By: Dave Acct No: 0311

☐ Cash ☑ Check ☐ Charge PAID # 1611

Description of Service	Amount
Pumped 6x2' Catch Basins	100 —
Subtotal	100 —
Tax	8 30
Total	108 30

☐ Tank appears to be in good working order

☐ System needs attention

P.O. Box 393 Poulsbo, WA 98370

This Shipping Order — Carbon, and retained by the agent

Shipper No. 020050

Carrier No.

MARINE VACUUM SERVICE, INC

Date 12/24/15

Page ____ of ____

(Name of carrier) (SCAC)

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec.1.

TO: Consignee MARINE VACUUM SERVICE INC

Street 1516 S. GRAHAM ST

City SEATTLE State WA Zip Code 98108

FROM: Shipper Kountra Kovacev

Street 7209 miller bay RD NE

City Kingston State WA Zip Code

24 hr. Emergency Contact Tel. No. 800-540-7491

Route

Vehicle Number 275

No. of Units & Container Type	HM	BASIC DESCRIPTION UN or NA Number, Proper Shipping Name, Hazard Class, Packing Group	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 ET		Non regulated waste water	600 gal			
		mud / sludge	200 gal			

Paid

PO# 1608

PLACARDS TENDERED: YES ☐ NO ☐

Note — (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

REMIT C.O.D. TO: ADDRESS

COD Amt: $ 1670.99

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES — FREIGHT PREPAID Check box if charges are to be collect — Check box if charges are to be collect when box at right is checked ☐

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ (Signature of Consignor)

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER _____

PER _____

CARRIER MARINE VACUUM SERVICE, INC.

PER _____

DATE 12/24/15

2

Permanent post-office address of shipper.

APPENDIX C

Tightness Tests

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

Northwest Environmental Solutions, Inc.

Annual Compliance Test – PSCAA & DOE

March 7, 2017

Test Performed:

Air Liquid, Pressure Decay,
Vapor Blockage, Static Torque,
ATG, Line & Leak Detector Certification

Prepared For:

Kountry Korner
27099 Miller Bay Road
Kingston, WA. 98346

Technician: Kevin Wilkerson

ICC Certification Numbers:	5012674-U1	UST Install/Retrofit	02/06/18	*Expiration*
	5012674-U2	UST Decommissioning	06/10/17	
	5012674-U3	UST Tank Testing	01/19/18	
	5012674-U4	UST Cathodic Protection	05/07/18	
	5012674-U5	AST Install/Testing	02/02/18	
	5012674-U7	WA. State Site Assessment	09/21/17	
	5012674	PSCAA Vapor Testing	03/13/17	
	5012674	PSCAA Installation	03/28/17	
	A32403	Veederroot TLS250-450	11/15/16	
	25272	Oregon – UST Service	11/26/17	

Comments: Emailed to PSCAA Annual Notification

System: Passed – Repaired leaking drain valve

Mailing Address: P.O. Box 1583 Sumner, WA. 98390
253-241-6213 (P) 360-872-0699 (F) nesinc@hotmail.com (E)

Northwest Environmental Solutions, Inc.

WASHINGTON OREGON GASOLINE VAPOR CONTROL COMMITTEE

This form will be accepted by any State or Local Air Pollution Agency requiring compliance testing on gas station vapor recovery equipment within the States of *Washington or Oregon*

Air To Liquid Ratio Test – Tri Tester

For Agency Use Only
Reviewed by_____
Date_____
___Passed ___Failed
(Attach reasons for test failure to this form)

Air Agency Registration No:

Station Name: Kountry Korner
Address: 27099 Miller Bay
City, State: Kingston, WA. 98346

Testing Company:
Northwest Environmental Solutions, Inc. PO Box 1583 – Sumner, WA. 98390 (253) 241-6213

Vapor Recovery System: Gilbarco Tri Tester S/N: 1038437 Last Calibrated: 2016
Date of test: March 7, 2017 Time: 13:33-14:20
Type of system being tested: Gilbarco

Dispenser	Grade	GPM	CARB A/L
1	U	8.03	1.07
1	P	7.95	1.11
1	S	7.65	1.05
2	U	8.85	1.07
2	P	8.12	1.10
2	S	8.49	1.07
3	U	7.96	1.06
3	P	7.95	1.03
3	S	8.65	1.07
4	U	845	1.10
4	P	8.21	1.03
4	S	8.95	1.00
5	U	8.74	1.06
5	P	8.32	1.07
5	S	8.49	1.03
6	U	8.95	1.02
6	P	8.32	1.06
6	S	7.95	1.07
9	U	8.48	1.03
9	P	8.52	1.10
9	S	7.48	1.08
10	U	7.85	1.05
10	P	8.65	1.10
10	S	8.25	1.06

All of the Tri Tester are for dispensing 2 gallons. 1.02
Person conducting the test:

Kevin Wilkerson Signature _____ Date: November 2, 2016

Tank owner or authorized representative:
Print Name Tim w Sick Signature _____ Date: 3/8/17

Mailing Address: P.O. Box 1583 Sumner, WA. 98390
253-241-6213 (P) 360-872-0699 (F) nesinc@hotmail.com (E)

Northwest Environmental Solutions, Inc.

WASHINGTON OREGON GASOLINE VAPOR CONTROL COMMITTEE

This form will be accepted by any State or Local Air Pollution Agency requiring compliance testing on gas station vapor recovery equipment within the States of Washington or Oregon

For Agency Use Only
Reviewed by_____
Date_____
___Passed ___Failed
(Attach reasons for test failure to this form)

Pressure Decay Test CARB Test Procedure TP-201.3 or
Procedure in CARB Executive Order for Stage 2 Equipment

Station Name: Kountry Korner
Address: 27099 Miller Bay
City, State: Kingston, WA. 98346

Air Agency Registration No.

Testing Company:

NW Environmental Solutions, Inc. PO Box 1583 Sumner, WA. 98390 (253) 241-6213

Type of Stage 1: Dual Point Type of Stage 2 System: Gilbarco Test Date: March 7, 2017 12:22-13:29
Tanks Manifolded? Yes Total Nozzles: 24 Tested with vapor cap: Off

Tank Information	Tank#1-89%	Tank #2-87%	Tank #3-92%		
# of Nozzles	8	8	8		Total if Manifolded
Capacity	10085	15078	5042		30205
Product	2176	6005	3357		11538
Ullage	7909	9073	1685		18667
Percentage Ullage	-	-	-		61%

Percentage Ullage = ullage 0 tank capacity x 100 (each tank ullage shall be greater than 500 but less than 25,000 gallons)

Test Results

	If Manifolded				
Initial Pressure	2.0" H20				
Pressure after 1 min	"H20 2.0				
Pressure after 2 min	"H20 1.99				
Pressure after 3 min	"H20 1.99				
Pressure after 4 min	"H20 1.98				
Pressure after 5 min	"H2O 1.98				

Comments:

Allowable pressure from table (TP-201.3 or applicable CARB Exec Exhibit #): 1.95 *PASSED*

Note: Person conducting the test: Kevin Wilkerson Signature Date: March 7, 2017

Tank owner or authorized representative:

Print Name Jim W Sub Signature Date: 3/8/17

WOGVACC Pressure Decay Test LCV: PSAPCA Updated 7/9/97

Northwest Environmental Solutions, Inc.

Washington Oregon Gasoline Vapor Control Committee

This form will be accepted by any State or Local Air Pollution Agency requiring compliance testing on gas station vapor recovery equipment within the States of Washington or Oregon

For Agency Use Only
Reviewed by:_____
Date_____
___Passed ___ Failed
(Attach reasons for test failure to this form)

Determination of Vapor Piping Connections (Tie-Tank) TP-201.3C

Air Agency Registration No:

Station Name: Kountry Korner
Address: 27099 Miller Bay
City, State. Zip: Kingston, WA. 98346
Testing Company Name: Northwest Environmental Solutions, Inc. Date/Time of Test: March 7, 2017 13:30
City, State. Zip: Sumner, WA. 98390

The Tie-tank is a pass-fail test used to determine if all gasoline storage tanks are manifolded together. Diesel tank must not be manifold with the gasoline tanks. All tanks that service a stage 2 system must be manifolded in order for the vapor recovery system to operate properly.

Option 1:

1) Remove dust cap from one stage 1 vapor adaptor. Introduce nitrogen at a stage 2 riser at the rate of 100 SCFH (bootless nozzles + 60 SCFH).
2) Briefly open the dry breaks on each task (one at a time)
3) Is pressure relieved on each tank about the same

Option 2:

1) Pressurize a tank to 2.10 WC and test the pressure in each tank using a pressure gauge on each vapor riser adaptor.
2) Is pressure readings from each tank about the same

Option 3:

1) After conduction pressure decay test, while the tanks are still pressured.
2) Briefly open the dry breaks on each tank (one at a time)
3) Is pressure relieved from each tank about the same Yes

If the answer is yes using the above options, then the tanks have passed the tie-tank test. Passed

Kevin Wilkerson		March 7, 2017
Print Name	Signature	Date

:Owner of authorized representative

Jim W Suh		3/8/17
Print Name	Signature	Date

Mailing Address: P.O. Box 1583 Sumner, WA. 98390
253-241-6213 (P) 360-872-0699 (F) nesinc@hotmail.com (E)

Northwest Environmental Solutions, Inc.

WASHINGTON OREGON GASOLINE VAPOR CONTROL COMMITTEE

This form will be accepted by any State or Local Air Pollution Agency requiring compliance testing on gas station vapor recovery equipment within the States of Washington or Oregon

For Agency Use Only
Reviewed by_____
Date_____
___Passed ___Failed
(Attach reasons for test failure to this form)

Back Pressure Tests (Wet/Dry) CARB Test Procedure TP-201.4

Station Name: Kountry Korner
Address: 27099 Miller Bay
City, State: Kingston, WA. 98346

Air Agency Registration No:

Testing Company:

Northwest Environmental Solutions, Inc. PO Box 1583 Sumner, WA. 98390 (253)241-6213

Allowed back pressure for: Vapor Balance: 0.16 40 CFH 0.35 60 CFH 0.62 80 CFH
Vacuum Assist: Riser 0.02 60 CFH Nozzle 0.50 60 CFH *Test* *Date: 03/07/17*
From: CARB Executive Order # or X CARB Test Procedure TP-201.4 *Time*: 14:25-14:39
Nitrogen introduced at: Nozzle X Riser Did Test Procedure include Fuel Dispensing? Yes
Vapor Valve located: X Nozzle External Date Test Equipment Calibrated: 2017
All Underground vapor lines must be tested Test must be conducted wet and dry – Gallons of fuel

Dry Test — Back pressure in WC at a flow rate of:

Dry Test Only	Riser Pump #	Time Min/Sec	Gas Nozzle #	40 CFH "H2O	60 CFH "H2O	80 CFH "H2O
1	5,6	:30	5,6		.00	

Wet Test

Wet Test Only						
1	5,6	:30	5,6		.01	

Comments

Person conducting the test: Kevin Wilkerson Signature Date: March 7, 2017
Tank owner or authorized representative:
Print Name Jim W Sub Signature Date: 3/8/17

WOGVACC Back Pressure Test (Wet/Dry) LCV:PSAPCA updated 2/23/98

Northwest Environmental Solutions, Inc.

WASHINGTON OREGON GASOLINE VAPOR CONTROL COMMITTEE

or Local Air Pollution Agency requiring compliance testing on gas station vapor recovery equipment within the States of Washington or Oregon

For Agency Use Only
Reviewed by_____
Date_____
___Passed ___Failed
(Attach reasons for test failure to this form)

Static Torque of Rotatable Phase I Adaptors

Northwest Environmental Solutions, Inc.	Conducted By: Kevin Wilkerson
Test Date: March 7 ,2017	Site: Kountry Korner
Facility Address: 27099 Miller Bay	City: Kingston, WA. 98346

Measurement Units: pounds-inches

Vapor Recovery Adaptors:

Vapor Adaptor 1	Vapor Adaptor 2	Vapor Adaptor 3	
360 Degree Test Pass	360 Degree Test Pass	360 Degree Test Pass	
Brand: OPW	Brand: OPW	Brand: OPW	
Model: 61 VSA	Model: 61 VSA	Model: 61 VSA	
	Grade: Unleaded	Grade: Super	
Torque 1:96	Torque 1:108	Torque 1:96	
Torque 2:84	Torque 2:96	Torque 2:96	
Torque 3:84	Torque 3:96	Torque 3:96	
Average:88	Average: 100	Average:96	

Fill Adaptors:

Product Adaptor 1	Product Adaptor 2	Product Adaptor 3	
360 Degree Test Pass	360 Degree Test Pass	360 Degree Test	
Brand: OPW	Brand: OPW	Brand: OPW	
Model: 61 SALP	Model: 61 SALP	Model: 61 SALP	
Grade: Plus	Grade: Unleaded	Grade: Super	
Torque 1:72	Torque 1:60	Torque 1: 72	
Torque 2:60	Torque 2:60	Torque 2:72	
Torque 3:60	Torque 3:60	Torque 3: 72	
Average:64	Average:60	Average: 72	

Comments: Pass

Mailing Address: P.O. Box 1583 Sumner, WA. 98390
253-241-6213 (P) 360-872-0699 (F) nesinc@hotmail.com (E)

Northwest Environmental Solutions, Inc.

Precision Leak Detector and Line Test Data

Site: Kountry Korner
27099 Miller Bay
Kingston, WA. 98346

March 7, 2017

WA: A4171

Product ID	Test Time	Turbine Leak Detector	Line Material SW-DW	Test Pressure	LD Holding Pressure	Leak Rate GPH	Pass/Fail
#1 Plus	:45	FE Petro	FRP DW	28	14	3	Pass
#2 Super	:45	VMI	FRP DW	32	8	3	Pass
#3 Unleaded	:45	"	FRP DW	30	11	3	Pass
#4 Diesel	:45	"	FRP DW	27	14	3	Pass
#1 Plus	1 Hour	Red Jacket	-	50	-	-.006 gph	Pass
#2 Unleaded	1 Hour	"	-	50	-	-.009 gph	Pass
#3 Super	1 Hour	"	-	50	-	-.009 gph	Pass
#4 Diesel	1 Hour	"	-	50	-	-.004 gph	Pass

Tolerances:		
	+ -.050 gph	Tanks
	+ -.010 gph	Product Lines
	+ -.025 gph	Suction Lines
	3 gph	Leak Detectors

Comments:

Technician: Kevin Wilkerson

ICC Certification # 5012674-U3 Exp. 01/18

Signature:

Mailing Address: P.O. Box 1583 Sumner, WA. 98390
253-241-6213 (P) 360-872-0699 (F) nesinc@hotmail.com (E)

Gilbarco EMC Tank Monitor Certification

Site: Kountry Korner
27099 Miller Bay
Kingston, WA. 98346

March 7, 2017

Product ID	Tank Grade	Capacity	Location	Sump	Annular	Dispenser	Pass/Fail
#1	Plus	10085	Tank	Yes	No	No	Pass
#2	Unleaded	15078	Tank	Yes	No	No	Pass
#3	Super	5042	Tank	Yes	No	No	Pass
#4	Diesel	5042	Tank	Yes	No	No	Pass

Site Notes:			
	Line Test Performed	Yes	Pass
	Leak Detector Test Performed	Yes	Pass
	PLLD Shut Down Test	Yes	Pass
	Tank Test Performed	Yes	Pass – CSLD
	Over Fill Protection	Yes	
	Over Spill Protection	Yes	Clean / Dry
	Tanks (3) SW		
	Lines (4) - DW FRP		
	Test Electrical connections	Yes	
	Test Input and Output Monitors	Yes	
	Test Tank Height from Tank to Stick	Yes	
	Test Liquid Status – Meter resistance	Yes	
	Test High and/or Low level on float alarms	Yes	
	Verify Programming	Yes	
	WA: DOE Tag Posted	Yes	A4171

Comments:

Reference Only

Please Mail State Forms or Fax To: DOE "Mandatory"

Maintain paperwork for (5) years

DOE Olympia Fax No. 360-407-7154

Department of Ecology – PO Box 47655 Olympia, WA. 98504-7655

Contact Information: NWRO	Annette Ademasu	(425) 649-7189 (425) 649-7161 (F)
	Brenda Yager	(425) 649-7234
	Chris Zouboulakis	(425) 649-7008
	Antony Leo	(425) 649-4318

(Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom)

Contact Information: SWRO	Brett Manning	(360) 407-7264 (360) 407-6305 (F)
	Robin Munroe	(360) 407-7080
	Dean Phillips	(360) 407-6969
	Lisa Shriver	(360) 407-6332
	Carol Johnston	(360) 407-6263

(Clallam, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Thurston, Wahkiakum)

Contact Information: CRO	Krystal Rodriguez	(509) 454-7840 (509) 575-2809 (F)

(Douglas, Kittitas, Klickitat, Okanogan, Yakima, Benton)

Contact Information: ERO	Roque Nalley	(509) 329-3405 (509) 329-3529 (F)
	Jason Cocke	(509) 329-3405
	Mike Boatsman	(509) 329-3440
	Doug Ladwig	(509) 329-3440

(Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend, Oreille, Spokane, Stevens, Walla Walla, Whitman)

Contact Information: HQ	Mike Blum	(360) 407-6913 (360) 407-6305 (F)

(Head Quarters – Olympia)

Contact Information: Federal	Cathy Frey	(360) 407-7270 (360) 407-6305 (F)

www.ecy.wa.gov

Mailing Address: P.O. Box 1583 Sumner, WA. 98390
253-241-6213 (P) 360-872-0699 (F) nesinc@hotmail.com (E)

CLEAN AIR AGENCIES

Notice To Customers – New rules in 2011 – Visit PSCAA

All copies of **Paperwork** (Test Inspections "2 Years" includes bi-annual test) needs to be on site for visual inspection at all times for Puget Sound Clean Air Authority "All Air Agencies".

** PSCAA does not want any copies sent to the office (206)343-8800 (P) (206)343-7522 (F)
www.pscleanair.org

**SWCAA requires copies faxed or mailed to the office–Attn: Gerry Strawn (360) 576-0925 (F)

SW Clean Air Authority
Attn: Gerry Strawn - 11815 NE 99th Street
Suite 1294
Vancouver, WA. 98682
www.swcleanair.org

**SCCAA requires copies faxed or mailed to the office - Attn: Chuck Studer (509) 477-6828 (F)
Spokane Clean Air Authority
Attn: Chuck Studer – 3104 E Augusta Ave
Spokane, WA. 99207
www.spokanecleanair.org

Current ICC Numbers for NES-5012674

ICC Certification Numbers:	5012674-U1	UST Install/Retrofit	02/06/18	*Expiration*
	5012674-U2	UST Decommissioning	06/10/17	
	5012674-U3	UST Tank Testing	01/19/18	
	5012674-U4	UST Cathodic Protection	05/07/18	
	5012674-U5	AST Install/Testing	02/02/18	
	5012674-U7	WA. State Site Assessment	09/21/17	
	5012674	PSCAA Vapor Testing	03/13/17	
	5012674	PSCAA Installation	03/28/17	
	A32403	Veederroot TLS250-450	11/15/16	
	25272	Oregon – UST Service	11/26/17	

If you have any questions regarding your test results or requirements or would like to schedule your site for its next test, please contact us. Thank you for your continued business. Kevin Wilkerson – NES, Inc.

Mailing Address: P.O. Box 1583 Sumner, WA. 98390
253-241-6213 (P) 360-872-0699 (F) nesinc@hotmail.com (E)