



ASSOCIATED  
ENVIRONMENTAL  
GROUP, LLC

**LIMITED SUBSURFACE INVESTIGATION  
and  
SEPTEMBER 2013 QUARTERLY  
GROUNDWATER MONITORING**

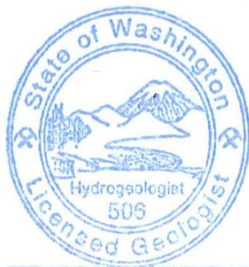
*Conducted on:*

**Gateway 76 Nob Hill Pk A Pop 15**  
1802 E. Nob Hill Blvd  
Yakima, WA

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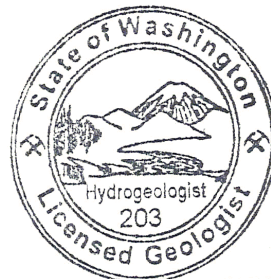


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## 1.0 INTRODUCTION

Associated Environmental Group, LLC (AEG) has completed a Limited Subsurface Investigation and the September 2013 Quarterly Groundwater Monitoring at the Gateway 76 Nob Hill Boulevard Pik-A-Pop #15 property, located at 1802 East Nob Hill Boulevard, in Yakima, Washington (Subject Site/Site). The investigation and sampling was performed in general accordance with the American Society for Testing and Materials (ASTM) Standard E 1903-97, *Standard Guide Environmental Site Assessments: Phase II Environmental Site Assessment Process* and a *Proposed Compliance Monitoring Plan* submitted to the Washington State Department of Ecology (Ecology) dated June 24, 2013.

### 1.1 Subject Site

The Subject Site is used as a retail gasoline station and as a convenience store. The fueling facilities and convenience store are currently active.

The Site is located at 1802 East Nob Hill Boulevard, within the City of Yakima, Washington, and is located at the southeast corner of the intersection of East Nob Hill Boulevard and South 18<sup>th</sup> Street. The Site is physically located within the Northwest ¼ of the Southeast ¼ of Section 29 Township 13 North and Range 19 East of the Willamette Meridian. The Yakima County Parcel Number for the Property is 19132942431. The Site is listed in the Ecology Facility/Site Information Database as Site No. 506. The Site is generally level and is located in mixed residential/industrial/commercial area. Figure 1, *Site & Vicinity Map*, presents the general boundaries and vicinity area of the Site. Appendix A, *Site Photographs*, presents representative photographs of the site and the activities conducted for this investigation.

### 1.2 Site Geology and Hydrogeology

The City of Yakima is situated within the Yakima River Basin along the western margin of the Columbia Plateau region and is adjacent to the eastern foothills of the Cascade Range volcanic terrain. The Yakima River Basin is bounded on the west by the Cascades, the north by the Wenatchee Mountains, east by the Rattlesnake Hills, and south by the Horse Haven Hills. While the headwaters of the Yakima River are based in the Cascade Range, much of the river basin area is semi-arid in climate due to the rain shadow effect created by the mountains to the west, creating a large demand on river water and groundwater resources during summer months for agricultural irrigation (US Department of Interior, 2002). Generally, there are three aquifer systems comprised within the Yakima River basin including the following: 1) the shallow aquifer composed of alluvium; 2) a deeper, confined gravel aquifer called the Ellensburg aquifer; and 3) a deep basalt bedrock comprised aquifer (USGS, 1987). Due to the shallow nature of the petroleum hydrocarbons contamination at the Site, only the uppermost alluvial aquifer will be significant to this investigation.

According to the *Geologic Map of Washington, Southeast Quadrant*, the Site and vicinity area is underlain by glacial Quaternary age alluvium deposits (Qa) (Schuster, J.E., Gulick, C.W., et al, 1997). The alluvium deposits typically consist of:

*“...clay, silt, sand, and gravel deposited in streambeds and fans; varied thickness and sorting; includes terrace and organic deposits in places; commonly includes reworked loess, outburst flood deposits (units Qfs, Qfg), Mazama tephra, Ellensburg Formation (units Mc, Mcg) and Ringold Formation (units (RMc, RMcg) sediments, and rounded to angular basalt clasts; older streambed deposits capped by pedogenic carbonates (stages I to IV of Machette, 1985) or silcrete; fan deposits in places overlain by and interstratified with loess and slope wash, little or no caliche development in fan deposits, fans generally cone-shaped with surface only moderately dissected; streambed deposits along rivers whose courses extend beyond the area covered by the Columbia River Basalt Group include pebbles and cobbles of quartzitic, granitic, metamorphic, and volcanoclastic rocks; normal to reversed magnetic polarity” (Baker and others, 1991, p. 233).*

Subsurface conditions at the Site, at locations of investigation, generally consisted of alluvium deposits. Alluvium deposits were encountered in all areas explored and consisted of very dense sandy gravel with local cobbles, brown, loose to medium dense silty sand, and silty sand with gravel, to the maximum depth explored, at 25 feet bgs.

The nature of the soils in the water-bearing zone appears to range from medium dense to dense silty sandy gravel to gravelly sand, and cobbles at depths of approximately 18 feet to 19 feet bgs (refer to soil boring logs in Appendix B, *Supporting Documents*).

During this investigation, groundwater was present at depths ranging from approximately 18 feet to 19 feet bgs under unconfined conditions. Irrigation in the area typically occurs from April through September and may influence the depths-to-water and the direction of groundwater flow. The direction of shallow groundwater flow in the area of investigation, based on the *Yakima Railroad Area Remedial Investigation Report*, was determined to be primarily southeasterly with potential local variations to the east in the vicinity to the Subject Site.

### **1.3 Site Background**

The Site was first developed in the early 1900s when it was used as a residence and possibly linked to larger orchard land or farmland. In the late 1980s, the Site became a Maid O’Clover gas station. Four underground storage tanks (USTs) are present at the Site, including two 10,000-gallon gasoline USTs, one 6,000-gallon gasoline UST, and one 6,000-gallon diesel tank. The USTs were installed in 1987.

### **1991 Release Discovery and Well Installation**

In 1991, petroleum contaminated groundwater in the general vicinity of the Gateway 76 Nob Hill Site was the subject of complaints by local residents and the subject of newspaper articles. Initial characterization was performed to determine if the release or releases had come from the Site. Apparently, a release that had occurred prior to 1991 was reported associated with the turbine pump for the westernmost 10,000-gallon gasoline UST. It was estimated that approximately 50 to 100 gallons of unleaded gasoline had been released. The original estimate had been 2,000 gallons.

In 1991, Environmental Science and Engineering, Inc. (ESE) installed three groundwater-monitoring wells. Benzene, toluene, ethylbenzene, and total xylenes (BTEX) and gasoline-range total petroleum hydrocarbon (TPH) were detected above Ecology Model Toxics Control Act (MTCA) Method A groundwater cleanup levels in samples collected from the wells. Approximately 0.2 feet of free product was detected in monitoring well MW-3, located adjacent to the USTs. Groundwater flow direction was determined to be to the east-southeast at the Site.

### **1992 Additional Well Installation and Free-Product Recovery**

In 1992, PLSA Engineering and Surveying (PLSA) installed six additional monitoring wells at the Site and installed a product-skimming pump in MW-3. About 650 gallons of free product was removed from MW-3. Pumps were also installed in various other wells to remove additional product. Up to 7,000 gallons of product and water was removed per day and treated during 1992.

PLSA attributed some of the contamination present in the Site vicinity to upgradient facilities such as an Exxon/Tiger Oil bulk fuel facility that was located approximately 400 feet west of the Site. The presence of groundwater contamination in a well along the southwestern boundary of the Site (MOC3, currently labeled MW-1) was attributed to unnamed offsite sources. PLSA indicated that three other service stations (Citgo/7-11, Time Oil, and ARCO AM/PM) were present at the intersection of East Nob Hill Boulevard and South 18<sup>th</sup> Street and represent potential sources of offsite groundwater contamination.

### **1992 Ecology Site Hazard Assessment**

Based on the information from the 1991 and 1992 investigations, Ecology included the Site on the Leaking Underground Storage Tank (LUST) List, the Confirmed and Suspected Contaminated Sites List (CSCSL), and the UST List. Ecology performed a Site Hazard Assessment at the site in 1992, and gave the Site a Washington Ranking Method (WARM) ranking of "2" and placed it on the Hazardous Sites List. The basis of the ranking was related to human health concerns from contaminated groundwater containing benzene, toluene, ethylbenzene, and total xylenes (BTEX). In the early 1990s, adjacent residences were using drinking water from domestic wells.

### **2004 Phase II Environmental Site Assessment**

In 2004, a Phase II Environmental Site Assessment (ESA) was performed by EBI Consulting at the Site. The Phase II ESA discovered tetrachloroethylene (PCE) in groundwater above Ecology MTCA cleanup levels at two borehole locations at concentrations of 16.7 micrograms per liter (ug/L) and 38.2 ug/L. BTEX, gasoline TPH, and diesel TPH were not detected in any of the water and soil samples that were collected near the USTs. In 2005, Ecology sent a response to the Phase II investigation and stated that additional actions were needed to address the PCE in the groundwater.

It appears that this Site is located within the Yakima Railroad Area PCE plume. This is a large co-mingled plume that is present over a large area of downtown Yakima. Based on the draft, *Revised Draft Remedial Investigation Report, Yakima Railroad Area, Yakima, Washington*, dated December 1998, shallow groundwater flow is to the southeast in the vicinity west and northwest of the Site. In 1998, PCE concentrations in wells located north (upgradient) of the Site ranged from about 10 to 100 ug/L. The closest wells sampled in the 1998 investigation were approximately 2,000 feet from the Site.

### **AEG Groundwater Sampling**

AEG sampled groundwater from five previously installed monitoring wells located on the Site on December 11, 2011, and March 9, 2012. Initial samples included analyses for BTEX, TPH-gasoline, TPH-diesel, the gasoline related volatile organic compounds (VOCs) 1,2-dichloroethane (EDC), ethylene dibromide (EDB), total naphthalenes, and methyl tertiary-butyl ether (MTBE), and total lead. Three wells (MW-1, MW-2, and MW-5) were sampled for TPH-heavy oil and mineral oil, as well. Three of the wells (MW-1, MW-2, and MW-4) were sampled for halogenated VOCs, including PCE, trichloroethylene (TCE), 1,2-dichloroethylene (1,2-DCE), vinyl chloride, and carcinogenic polynuclear aromatic hydrocarbons (cPAHs).

No constituents were detected above MTCA Method A groundwater cleanup levels except benzene in monitoring well MW-1 (9.9 ug/L) in March 2012. The MTCA Method A groundwater cleanup level for benzene is 5 ug/L. It was suspected that the benzene detected in this well was coming from offsite sources other than the Site itself.

### **2013 AEG Compliance Monitoring Work Plan**

On June 24, 2013, AEG submitted a “*Proposed Compliance Monitoring Plan*” to Ecology for an official opinion and approval. Based on e-mails dated July 8, 2013 and May 8, 2013, and the plan submitted, Ecology indicated through an opinion letter dated July 23, 2013 that they would be willing to consider a “No Further Action” (NFA) determination with an environmental covenant for contaminated soils present at the Site if it could be demonstrated that remaining soil contamination is protective of groundwater as demonstrated by groundwater monitoring. Ecology has also indicated the following:

1. MW-1 Investigation: Ecology indicated that they would not require further investigation or remediation in the area near well MW-1 if it could be shown that the soil is not contaminated and that all groundwater monitoring events continue to show this well could potentially be impacted from offsite sources. They indicated that they would accept sampling from three boreholes adjacent to MW-1 as a means of demonstrating that the soil is not contributing to the contamination observed in March 2012.
2. Groundwater Monitoring: In order to achieve closure on the groundwater contamination at the site, a valid statistical method to evaluate the groundwater data (to include the historical data) could be used OR Ecology would accept the following options:
  - a. Four additional *consecutive* quarters of groundwater monitoring in wells MW 2, 4, 5, and 6, provided all contaminants are non-detect. In that groundwater monitoring:
    1. Monitoring of PCE and daughter products would be required to demonstrate that the Site is not exacerbating the existing PCE plume.
    2. Monitoring of MW-1 could be limited to measurements of depth to groundwater as necessary to calculate groundwater gradient. In the event that monitoring well MW-1 is shown not to be upgradient, monitoring of MW-1 would be required.
  - b. If contamination is detected, eight *consecutive* quarterly groundwater monitoring results below the MTCA Method A cleanup levels OR three consecutive years (six semi-annual events) of groundwater monitoring would be required during high/low groundwater table based on irrigation cycles.

Upon completion of the above activities, AEG would submit a request for an NFA determination (potentially with restrictive covenants) for the site.

#### ***1.4 Objectives and Scope of Work***

The objective of the Site work for this investigation was to demonstrate that the soil near MW-1 at the Site is not contributing to the groundwater contamination found in the well during the March 2012 sampling event and to begin quarterly groundwater compliance monitoring.

AEG's scope of work for this effort included:

- Subsurface exploration via the limited access sonic drilling method;
- Collecting soil samples from the borings advanced at the Site;
- Sampling Groundwater from monitoring wells MW-1 through MW-6;
- Submittal of samples to an analytical laboratory for testing; and
- Subsequent data analysis and report preparation.

Tasks performed included the following:

- Advancing three soil borings using the limited access sonic method at the Site. Borings, B-1 through B-3 were advanced to a maximum depth of 25 feet below ground surface (bgs);
- Analyzing select soil samples for gasoline-range TPH, BTEX, gasoline related VOCs, and select halogenated VOCs, and lead;
- Purging and sampling six groundwater-monitoring wells;
- Collecting Groundwater elevation data in all wells;
- Analyzing the water samples for gasoline-range TPH, BTEX, and select halogenated VOCs;
- Interpreting the soil and groundwater analytical data and the groundwater elevation data; and
- Preparing this report.



## 2.0 FIELD METHODOLOGY

### 2.1 Soil Borings

AEG and subcontractor Boart Longyear of Fife, Washington advanced borings B-1 through B-3 at the Site on June 6, 2013. The borings were advanced utilizing a limited access sonic drilling rig to a depth of approximately 25 feet bgs.

Boring B-1 was advanced approximately 15 feet northwest of monitoring well MW-1 and 10 feet north of the south fence boundary of the Site. Boring B-2 was advanced approximately 17 feet northeast of monitoring well MW-1 and 15 feet north of the south fence boundary of the Site. Boring B-3 was placed approximately 15 feet east of monitoring well MW-1 approximately four feet north of the south fence boundary of the Site. The boring locations are shown in Figure 2, *Site Plan*.

During borehole advancement, a six-inch diameter hollow drilling rod was drilled into the subsurface in ten-foot increments. The soil collected inside the hollow drilling rod was placed into plastic sample sleeves for logging and sampling. Groundwater was encountered at approximately 19 feet bgs in boring B-2 and 18 feet bgs in the other borings during the subsurface investigation. The soils encountered during drilling ranged from medium dense to dense silty sandy gravel to gravelly sand, and cobbles. Boring logs prepared during drilling are presented in Appendix B, *Supporting Documents*.

#### 2.1.1 Soil Sampling Procedures

Soil samples were collected and observed to document soil lithology, color, moisture content, and sensory evidence of VOCs. Soil samples were collected at depths ranging from 5 feet bgs, to 19 feet bgs near monitoring well MW-1 to assess the potential presence of petroleum-contaminated soil. Three soil samples from the vadose zone (unsaturated zone) were collected from each borehole and submitted to the laboratory for analysis. The samples were collected at depths of 5 feet bgs, 9 to 10 feet bgs, and 18 to 19 feet bgs. The samples taken from the drill core were field screened utilizing a Photoionization instrument (PID) to facilitate the selection of the appropriate soil samples to be submitted to the analytical laboratory.

All soil samples for analysis were classified in the field and immediately transferred to laboratory-provided pre-weighted 4-ounce glass jars or 40-milliliter (ml) glass vials. Soil sampling for VOCs and field preservation methods followed methods set forth by the United States Environmental Protection Agency (EPA) Method 5035A, and Ecology's guidance "*Collecting and Preparing Soil Samples for VOC Analysis*" which minimizes VOC losses. The soil samples were placed in a portable chilled ice chest and transported to Libby Environmental, Inc. (Libby) laboratory; a Washington State certified analytical

laboratory located in Olympia, Washington, for analysis following industry standard chain-of-custody procedures.

Soil samples from all borings were analyzed for:

- Gasoline-range TPH by Northwest Method NWTHP-Gx; and
- BTEX and gasoline related VOCs and select halogenated VOCs by EPA Method 8060C.

Table 1, *Summary of Soil Analytical Results*, presents analytical soil results from the borings as compared to Ecology MTCA Method A soil cleanup levels.

## 2.2 Groundwater Sampling

Groundwater samples were collected from six monitoring wells (MW-1 through MW-6) on September 30, 2013, using an adjustable-rate peristaltic pump and well specific, dedicated polyethylene tubing. Sampling was conducted following the United States Environmental Protection Agency (EPA) approved low-flow purge technique.

### 2.2.1 Groundwater Sampling Procedures

#### **Groundwater Level Measurement**

Prior to purging, each well was checked for the presence of free product and the depth to groundwater was measured using a Solinst water-oil interface meter. The depth to groundwater was determined from the top of each monitoring well casing, and subsequently converted to groundwater elevations to establish the direction of groundwater flow beneath the Site. Refer to Table 2, *Summary of Groundwater Elevations*, for groundwater elevation data. Figure 5, *Groundwater Potentiometric Map-September 2013*, presents the map of the groundwater elevations and flow direction in September 2013.

#### **Groundwater Purging and Sampling**

The wells were purged to remove stagnant water and to obtain a representative sample of the groundwater in the vicinity of the well. During purging, a YSI-water quality multi-parameter instrument equipped with a “flow-through” cell was used to continuously monitor “field parameters” of temperature, pH, conductivity, total dissolved solids (TDS), salinity, dissolved oxygen (DO), and oxidation/reduction potential (ORP) in the purged groundwater. The field parameters were recorded approximately every five minutes. The wells were purged until the “field parameters” became relatively stable and the water discharge was relatively free of any sediment. “Field parameters” were considered stabilized when three consecutive readings were within approximately 10 percent of each other. Table 3, *Summary of Water Quality Indicator Parameters*, presents the stabilized “field parameters”. After stabilization of the “field parameters”, samples were collected from the discharge of the pump.

Groundwater samples were collected for chemical analyses of gasoline-range TPH, Diesel-range TPH, BTEX, Gasoline related VOCs, and select halogenated VOCs. The

samples were collected in laboratory provided 40-milliliter (ml) glass vials with septum sealed Teflon-lined screw caps, and immediately placed into ice chests for transport to Libby Environmental, Inc., a Washington State accredited laboratory in Olympia Washington under industry standard chain-of-custody.

The samples were analyzed for:

- Gasoline-range TPH by Northwest Method NWTPH-Gx;
- Diesel-range TPH by Northwest method NWTPH-Dx; and
- BTEX and gasoline related VOCs and select halogenated VOCs by EPA Method 8060C.

Table 4, *Summary of Groundwater Analytical Results-TPH*, presents analytical groundwater results as compared to Ecology MTCA Method A groundwater cleanup levels. The laboratory datasheets are attached in Appendix B, *Supporting Documents*.

### 2.3 *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;
- The sampling equipment was scrubbed with Alconox detergent and rinsed with water prior to each sample extracted;
- The drilling equipment was steam cleaned before and after each boring;
- 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; and
- The samples were transported under a chain-of-custody to the Libby analytical laboratory in Olympia, Washington for analysis.

The laboratory provided standard quality assurance/quality control (QA/QC) which included:

- Surrogate recoveries for each sample;
- Method blank results;
- Duplicate analyses, matrix or blank spiked analyses; and
- Duplicate spiked analyses.

#### ***2.4 Investigation Derived Waste***

Investigation derived waste for this project consisted of soil cuttings from the subsurface exploration activities at the Site and purge water from the groundwater sampling activities. Soil cuttings and purge water were placed into separate United States Department of Transportation (DOT) approved 55-gallon steel drums. The drums were temporarily stored onsite until characterization and disposal was arranged.

## 3.0 RESULTS

### 3.1 *Subsurface Soil Investigation Results*

The results of the subsurface investigation revealed that:

- Subsurface at the location of the borings consists of brown sand gravel with some silt;
- Groundwater was encountered during subsurface investigation activities at 19 feet bgs in boring B-2 and at approximately 18 feet bgs in borings B-1 and B-3;
- Field screening did not reveal evidence of contamination;
- The soil analytical results indicated no detectable concentrations of petroleum hydrocarbons above the laboratory reporting limits in any of the samples collected in the vadose zone;
- Halogenated VOCs were not detected above the laboratory reporting limits in any of the samples submitted for laboratory analysis; and
- Lead was present at a concentration of 5.4 milligrams per kilogram (mg/kg) only in the soil sample collected at a depth of 5 feet bgs in borehole B-1. This is significantly below the MTCA Method A cleanup level of 250 mg/kg.

### 3.2 *Groundwater Monitoring Results*

#### 3.2.1 *Groundwater Level Results*

Groundwater elevations were reviewed from three monitoring events, December 2011, March 2012, and September 2013. Groundwater appears to have the lowest elevations observed during the March 2012 sampling event (1003.21 feet to 1003.38 feet) and the highest elevations during the September 2013 sampling event (1006.78 feet to 1007.01 feet) Table 2, *Summary of Groundwater Elevations*, presents a summary of the groundwater elevations.

Potentiometric maps prepared for each of the sampling events shows that the groundwater is flowing generally to the south and southwest at the Site with a relatively flat gradient of approximately 0.0017 to 0.002 feet per foot (ft/ft). Even though the water levels changed, the flow direction and gradients remained fairly consistent. The flow direction for December 2011 is presented in Figure 3, *Groundwater Potentiometric Map-December 2011*; the flow direction for March 2012 is presented in Figure 4, *Groundwater Potentiometric Map March 2012*; and the flow direction in September 2013 is presented in Figure 5, *Groundwater Potentiometric Map September 2013*.

The general regional flow direction in the Yakima area based on *Yakima Railroad Area Remedial Investigation Report* was determined to be primarily to the southeast toward the

Yakima River. The Subject Site is located near the eastern boundary of the *Yakima Railroad Area* study area, and the groundwater flow direction at the Site, and possibly in

the immediate vicinity of the Subject Site, may be influenced by Interstate 82 which runs north south approximately 700 feet to the east of the Subject Site. The flow direction change may be caused by compaction and disruption of the subsurface during construction of the highway, influence and/or by precipitation runoff infiltrating adjacent to the highway.

### **3.2.2 Groundwater Sampling Results**

Analysis of the groundwater samples collected from wells MW-1 through MW-6 in September 2013 did not reveal the presence of gasoline-range TPH, BTEX, or halogenated VOCs above the respective laboratory reporting limits. Table 4, *Summary of Groundwater Analytical Results – TPH*, presents a summary of the analytical results for the groundwater sampling. The laboratory datasheets are attached in Appendix B, *Supporting Documents*.

## 4.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

### 4.1 Summary

#### **Subsurface Investigation**

- Three borings were advanced to a depth of approximately 25 feet bgs adjacent to the existing monitoring well MW-1 location using a “sonic” drill rig.
- Soil samples were collected from the borings at depths ranging from 5 feet bgs, to 19 feet bgs, to assess the potential presence of petroleum-contaminated soil.
- The soils encountered during drilling ranged from medium dense to dense silty sandy gravel to gravelly sand, and cobbles.
- Three soil samples from the vadose zone (unsaturated zone) were collected from each borehole and submitted to the laboratory for analysis of:
  - Gasoline- and diesel range- petroleum hydrocarbons;
  - Gasoline related VOCs;
  - Select halogenated VOCs; and
  - Lead.
- Field screening did not reveal evidence of contamination.
- Groundwater was encountered between 18 feet and 19 feet bgs. Groundwater was not sampled in any of the boreholes.
- Soil analytical results indicated no detectable concentrations of petroleum hydrocarbons and in any of the samples collected and analyzed.
- Lead was present only in the soil sample collected from 5 feet bgs in borehole B-1 at a concentration of 5.4 milligrams per kilogram (mg/kg). This is below the MTCA Method A Cleanup level of 250 mg/kg for lead in the soil.

#### **Groundwater Monitoring**

- Depth to groundwater was measured in six monitoring wells at the Site (MW-1 through MW-6).
- Groundwater appears to be flowing to the south with a slight southwest component at the Subject Site with a gradient of 0.0017 to 0.0023 ft/ft.
- The six wells were purged and sampled using “low-flow” sampling procedures.
- Samples were submitted for analysis of:
  - Gasoline-range petroleum hydrocarbons;

- Gasoline related VOCs; and
  - Select halogenated VOCs.
- Analytical results of the analysis of the groundwater samples collected did not detect any of the constituents of concern above the laboratory reporting levels.

#### **4.2 Conclusions**

Based on the field observations and analytical results in both the subsurface investigation and the groundwater monitoring, AEG concludes that:

- It appears the soil in the area adjacent to the monitoring well MW-1 is not impacted by gasoline-range TPH, BTEX, gasoline-related VOCs, or halogenated VOCs;
- The objectives of this investigation have been achieved and that the soil near MW-1 at the Site is not contributing to the groundwater contamination found in the well during the March 2012 sampling event;
- The groundwater in the vicinity of the monitoring wells is not currently impacted by gasoline-range TPH, diesel-range TPH, BTEX, gasoline-related VOCs, or halogenated VOCs;
- The groundwater gradient at the site is relatively flat and appears to flow to the south and southwest across the site; and
- The September 2013 groundwater monitoring will begin the eight quarters of groundwater monitoring required at the site in order to be considered for an NFA determination by Ecology.

#### **4.2 Recommendations**

Based in the results and conclusions of the soil sampling at the site, AEG does not recommend further investigatory or remedial actions for the soil in the vicinity of MW-1.

AEG also recommends that quarterly groundwater monitoring of wells MW-1 through MW-6 continue as proposed in the June 24, 2013, “*Proposed Compliance Monitoring Plan*”, for three more quarters, and that if the monitoring events demonstrate that all of the constituents are non-detect at the acceptable practical quantitation levels; AEG will request a no further action (NFA) opinion letter for the Site.



## 5.0 LIMITATIONS

This report summarizes the findings of the services authorized under our agreement. 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 Ms. Sue Smith or her designated representatives for the specific application to the project purpose.

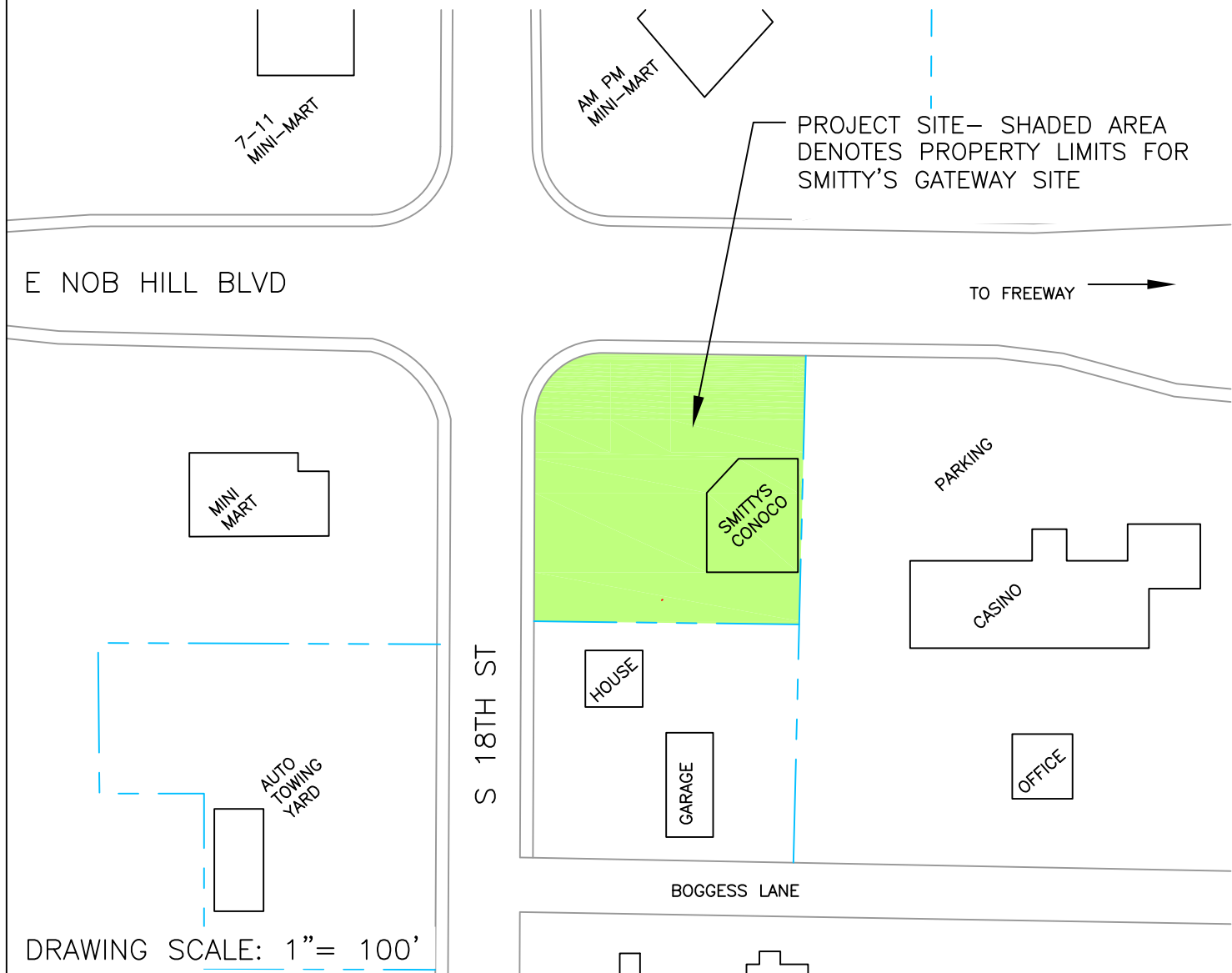
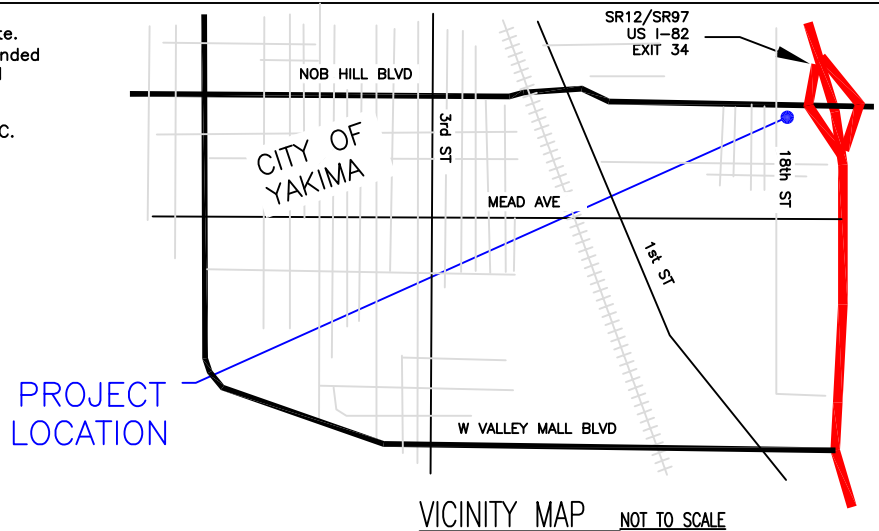
Recommendations, opinions, site history, and proposed actions contained in this report apply to conditions and information available at the time this report was completed. Since conditions and regulations beyond our control can change at any time after completion of this report, or our proposed work, 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.

## **FIGURES AND TABLES**

**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 notes provided by AEG, LLC.



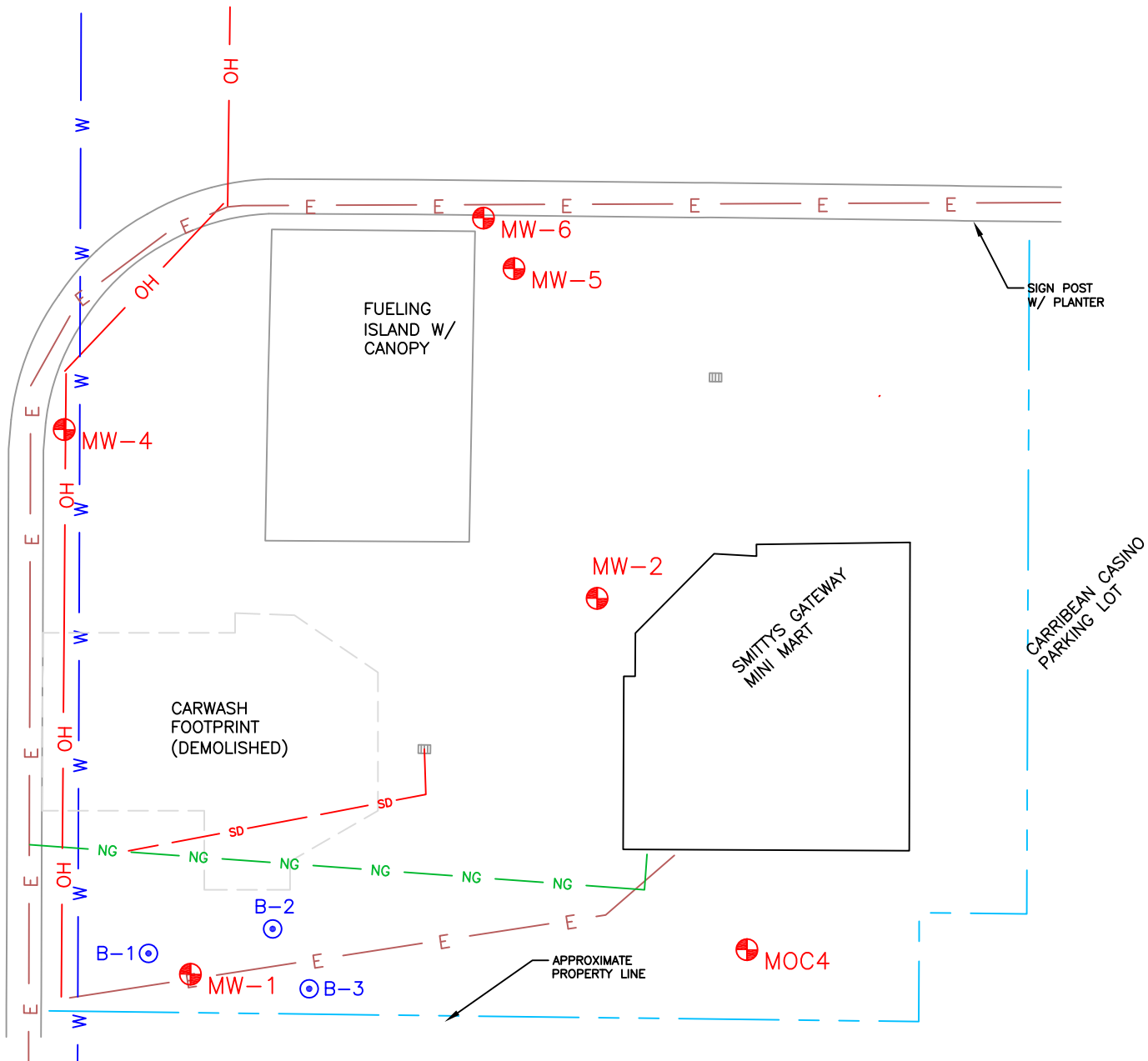
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FIGURE 1  
 SITE & VICINITY MAP

SMITTYS GATEWAY 76 1801 NOB HILL BLVD YAKIMA, WA	
Project# 12-164	Date: 11/12/2013
File:	Sheet

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 survey drawing and notes provided by AEG, LLC.



**LEGEND**

- ⊙ B-1 BORING LOCATIONS
- ⊕ MW-1 MONITORING WELLS
- CATCH BASIN
- SD — BORING LOCATIONS
- W — SLATTED CHAIN LINK FENCE
- NG — NATURAL GAS LINE
- E — UNDERGROUND ELECTRIC
- OH — SLATTED CHAIN LINK FENCE

DRAWING SCALE: 1" = 30'

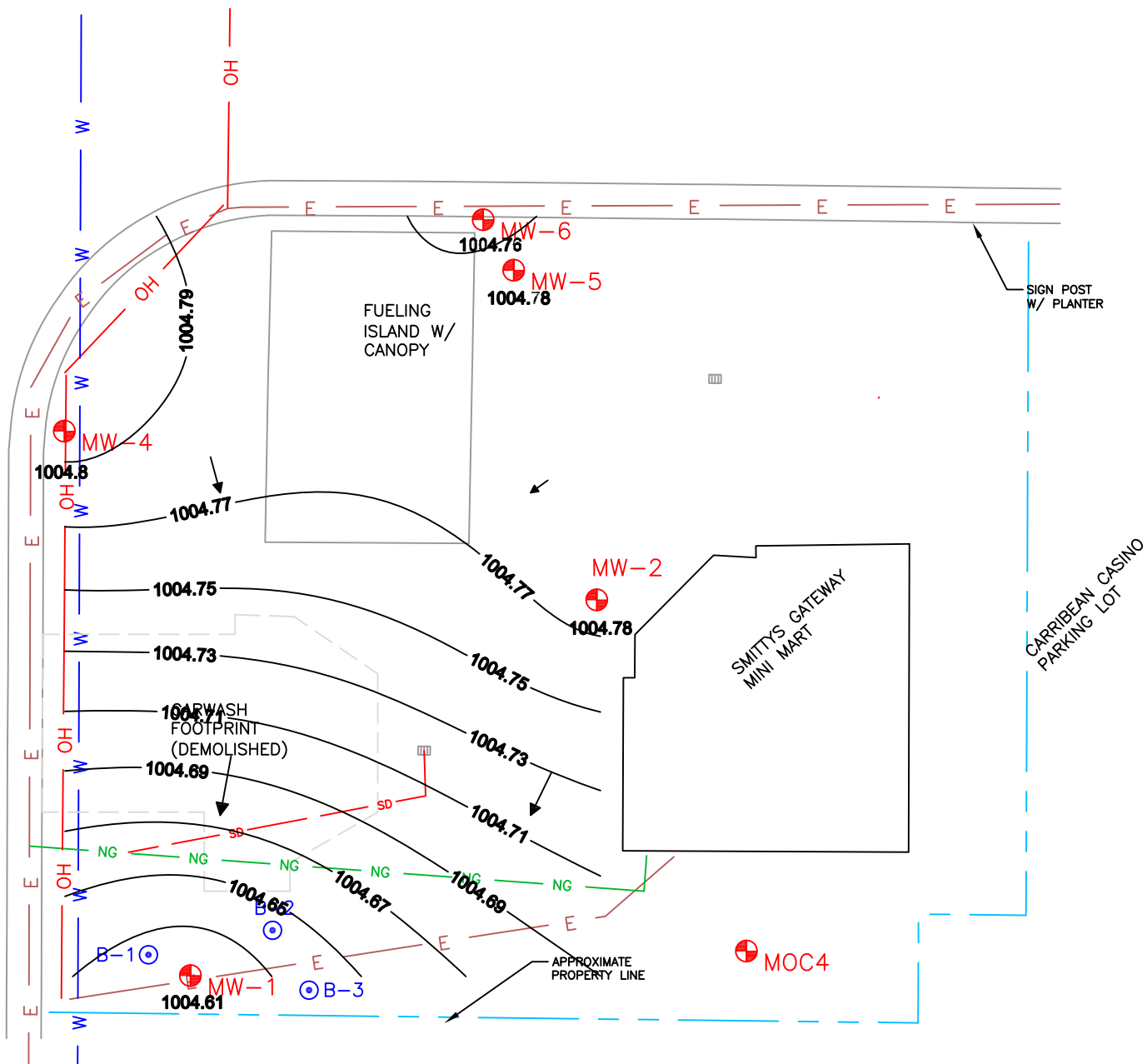
**AEG** ASSOCIATED ENVIRONMENTAL GROUP, LLC  
 605 11TH AVE SE, Suite 201  
 Olympia, WA 98501-2336  
 (360) 352-9835 Fax (360) 352-8164

FIGURE 2  
 SITE PLAN

SMITTYS GATEWAY 76 1801 NOB HILL BLVD YAKIMA, WA	
Project# 12-184	Date: 11/12/2013
File: FILE NAME	Sheet

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 survey drawing and notes provided by AEG, LLC.



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DRAWING SCALE: 1" = 30'

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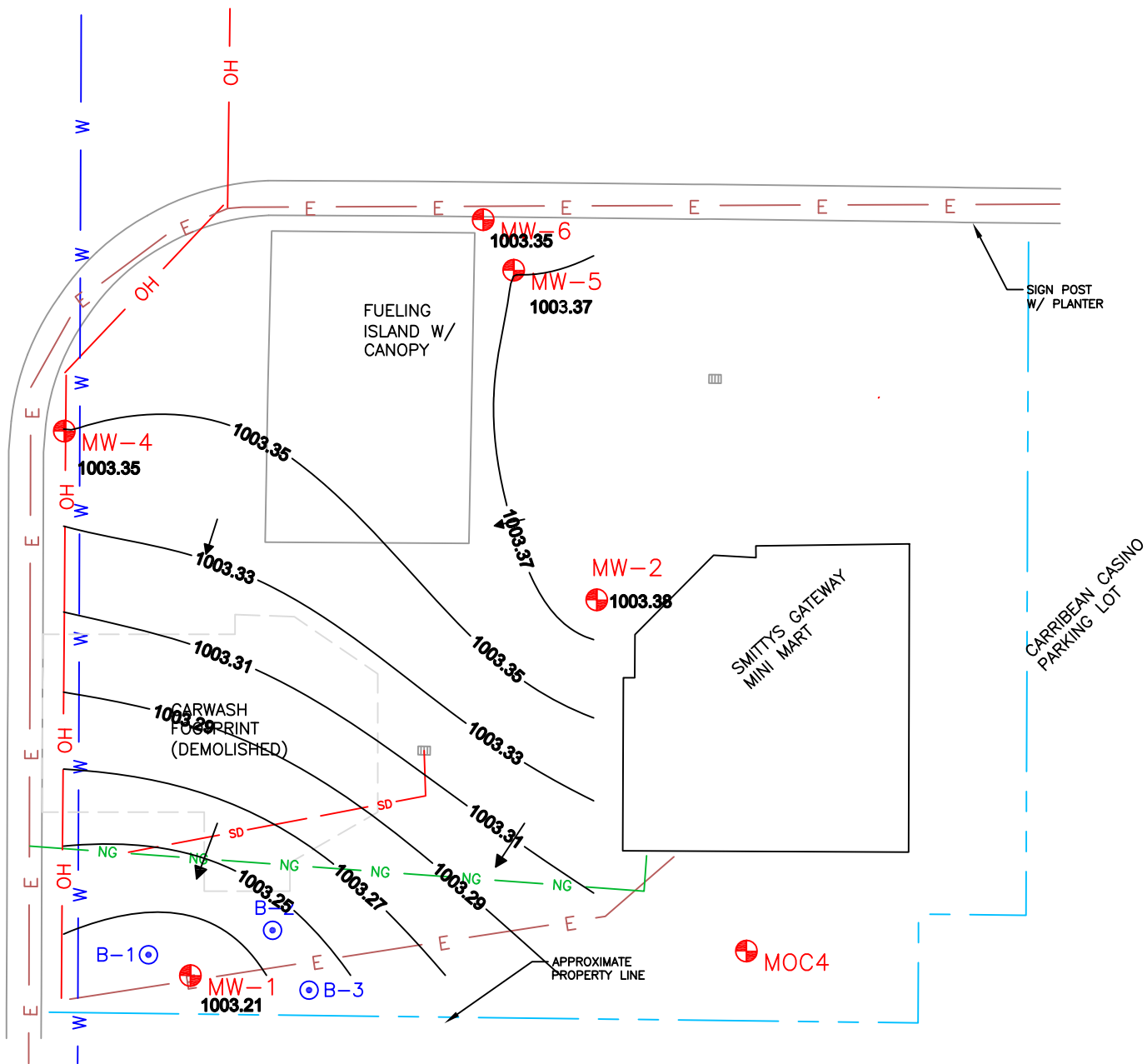
**FIGURE 3**  
 Groundwater Potentiometric Map  
 December 2011

<b>SMITTY'S GATEWAY 76</b>	
1801 NOB HILL BLVD YAKIMA, WA	
Project# 12-184	Date: 11/12/2013
File: FILE NAME	Sheet

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 survey drawing and notes provided by AEG, LLC.



LEGEND

- ⊙ B-1 BORING LOCATIONS
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DRAWING SCALE: 1" = 30'

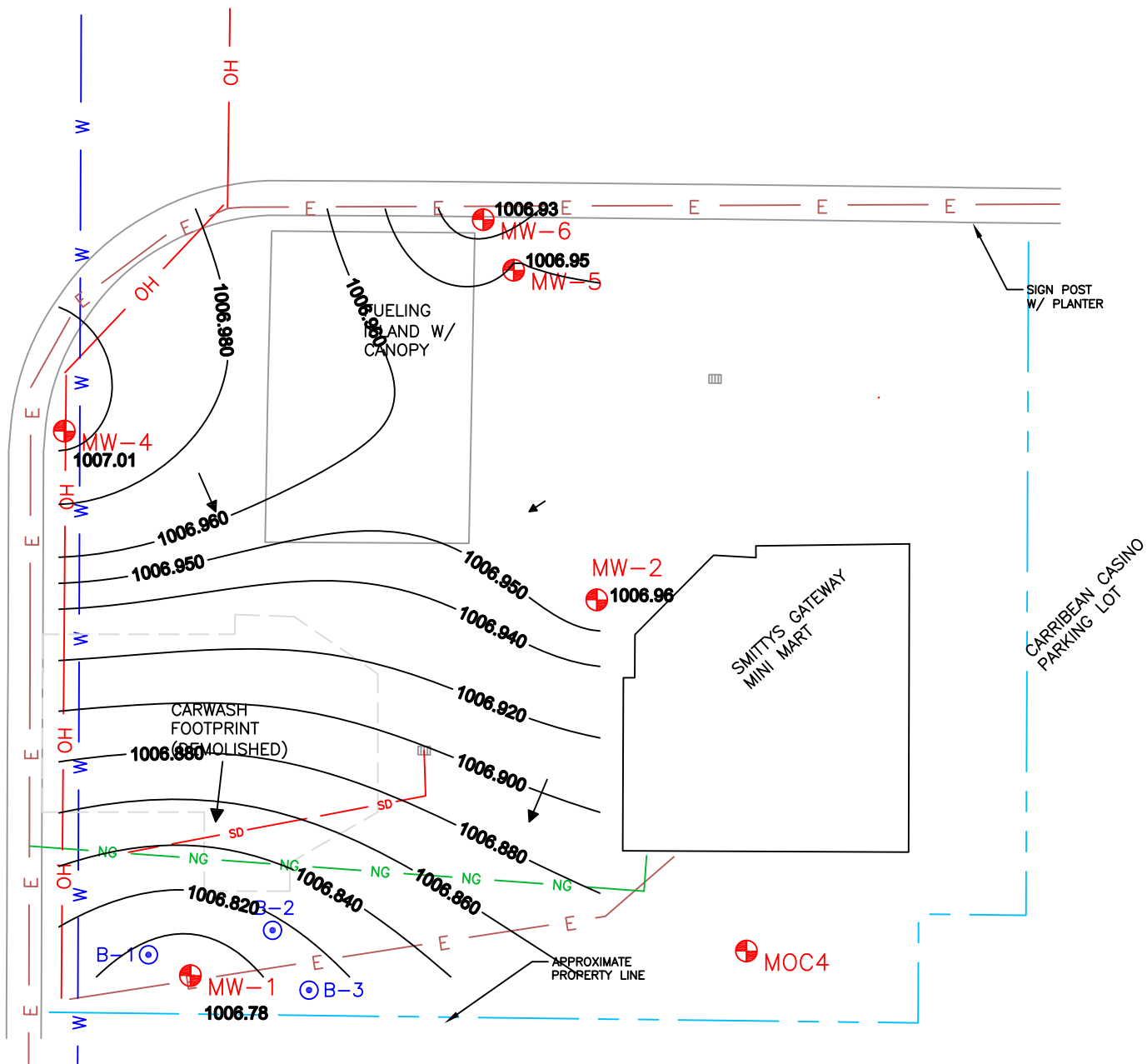
**AEG** ASSOCIATED ENVIRONMENTAL GROUP, LLC  
 605 11TH AVE SE, Suite 201  
 Olympia, WA 98501-2336  
 (360) 352-9835 Fax (360) 352-8164

FIGURE 4  
 Groundwater Potentiometric Map  
 March 2012

SMITTYS GATEWAY 76	
1801 NOB HILL BLVD YAKIMA, WA	
Project# 12-184	Date: 11/12/2013
File: FILE NAME	Sheet

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 survey drawing and notes provided by AEG, LLC.



**LEGEND**

- ⊙ B-1 BORING LOCATIONS
- ⊕ MW-1 MONITORING WELLS
- ▣ CATCH BASIN
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- NG — NATURAL GAS LINE
- E — UNDERGROUND ELECTRIC
- OH — SLATTED CHAIN LINK FENCE

DRAWING SCALE: 1" = 30'

**A** ASSOCIATED ENVIRONMENTAL GROUP, LLC  
 605 11TH AVE SE, Suite 201  
 Olympia, WA 98501-2336  
 (360) 352-9835 Fax (360) 352-8164

FIGURE 5  
 Groundwater Potentiometric Map  
 September 2013

SMITTY'S GATEWAY 76  
 1801 NOB HILL BLVD  
 YAKIMA, WA

Project# 12-184	Date: 11/12/2013
File: FILE NAME	Sheet

**Table 1 Summary of Soil Analytical Results  
Smitty's Gateway  
Yakima, WA**

Boring Number <sup>1</sup>	Sample Depth (ft)	Date Sampled	Gasoline TPH <sup>2</sup> (mg/kg)	Select Volatile Organic Constituents <sup>3</sup> (mg/kg)									Diesel TPH Extended <sup>4</sup> (ug/L)			
				Benzene	Toluene	Ethylbenzene	Total Xylenes	EDC	EDB	Total Naphthalenes	MTBE	PCE	Lead	Diesel	Heavy Oil	
S-B-1-5	5.0	6/6/2013	<10	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	<0.05	<0.05	<0.02	5.4	--	--
S-B-1-10	10.0	6/6/2013	<10	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	<0.05	<0.05	<0.02	<5.0	--	--
S-B-1-18	18.0	6/6/2013	<10	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	<0.05	<0.05	<0.02	<5.0	--	--
S-B-2-5	5.0	6/6/2013	<10	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	<0.05	<0.05	<0.02	<5.0	--	--
S-B-2-10	10.0	6/6/2013	<10	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	<0.05	<0.05	<0.02	<5.0	--	--
S-B-2-19	19.0	6/6/2013	<10	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	<0.05	<0.05	<0.02	5.0	--	--
S-B-3-5	5.0	6/6/2013	<10	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	<0.05	<0.05	<0.02	<5.0	--	--
S-B-3-9	9.0	6/6/2013	<10	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	<0.05	<0.05	<0.02	<5.0	--	--
S-B-3-18	18.0	6/6/2013	<10	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	<0.05	<0.05	<0.02	<5.0	--	--
PQL			10	0.02	0.03	0.03	0.03	0.03	0.005	0.05	0.05	0.02	5.0	200	400	
Ecology MTCA Method A Clean Up Levels			30	0.03	7	6	9	--	0.005	5.0	0.1	0.05	250	2,000	2,000	

Notes:

<sup>1</sup>Boring locations are shown on Figure 2

<sup>2</sup>Gasoline range total petroleum hydrocarbons (TPH). Analyzed by Northwest Method NWTPH-Gx.

<sup>3</sup>Select Volatile Organic Compounds. Analyzed by EPA Method 8260C.

<sup>4</sup>Analyzed by Northwest Method NWTPH-D/Dx Extended

<sup>5</sup>Analyzed by EPA Method 7421

<sup>4</sup>Cleanup level with presence of benzene

mg/kg= milligrams per kilogram

MTCA = Model Toxics Control Act

PQL=Practical Quantitation Limits

-- = not analyzed for this constituent

< = not detected above laboratory limits

\* Ecology has not designated a MTCA Method A cleanup level for this constituent

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



**Table 2 - Summary of Groundwater Elevations  
Gateway 76 Nob Hill  
Yakima, WA**

Well Number/ TOC Elevation (feet)	Date of Measurement	DTW (feet)	DT LPH (feet)	LPH (feet)	GW Elevation (feet)	Change in GW Elevation (feet)
MW-1W 1020.81	12/11/11	16.20			1004.61	--
	03/09/12	17.60			1003.21	-1.40
	09/30/13	14.03	--	--	1006.78	3.57
MW-2W 1021.68	12/11/11	16.90			1004.78	--
	03/09/12	18.30			1003.38	-1.40
	09/30/13	14.72	--	--	1006.96	3.58
MW-4W 1021.00	12/11/11	16.20			1004.80	--
	03/09/12	17.65			1003.35	-1.45
	09/30/13	13.99	--	--	1007.01	3.66
MW-5W 1021.43	12/11/11	16.65			1004.78	--
	03/09/12	18.06			1003.37	-1.41
	09/30/13	14.48	--	--	1006.95	3.58
MW-6W 1020.96	12/11/11	16.20			1004.76	--
	03/09/12	17.61			1003.35	-1.41
	09/30/13	14.03	--	--	1006.93	3.58

**Table 3 - Summary of Water Quality Indicator Parameters  
Gateway 76 Nob Hill  
Yakima, WA**

Well Number	Date Analyzed	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Salinity (%)	TDS	ORP
MW-1	10/1/2013	6.88	0.456	--	8.56	16.83	0.22	0.296	90.3
MW-2	10/1/2013	6.99	0.419	--	8.37	15.95	0.20	0.272	109.6
MW-4	10/1/2013	6.78	0.380	--	8.54	17.52	0.18	0.247	89.9
MW-5	10/1/2013	6.93	0.431	--	8.70	15.93	0.21	0.280	106.2
MW-6	10/1/2013	6.95	0.408	--	8.66	16.30	0.20	0.266	80.9

Notes:

-- = Not measured, or not available

**Table 4 - Summary of Groundwater Analytical Results - TPH**  
**Gateway Knob Hill 76 Gas Station**  
**Yakima, WA**

Well Number <sup>1</sup>	Date Sampled	Gasoline TPH <sup>2</sup> (ug/L)	Table 830-1 GRO Volatile Organic Constituents <sup>3</sup> (ug/L)								Diesel TPH Extended <sup>4</sup> (ug/L)			HVOCs (ug/L)					cPAH <sup>5</sup> (ug/L)	
			Benzene	Toluene	Ethylbenzene	Total Xylenes	EDC	EDB	Total Naphthalenes	MTBE	Diesel	Heavy Oil	Mineral Oil	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	1,1-Dichloroethene		Vinyl Chloride
MW-1	12/11/2011	<100	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/9/2012	<100	<b>9.9</b>	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	<200	<400	<400	<1.0	<1.0	<1.0	<1.0	<2.0	<0.2	<0.100
	9/30/2013	<100	<1.0	<1.0	<1.0	<2.0	<1.0	<0.01	<5.0	<5.0	<200	<400	--	<1.0	<1.0	<1.0	<1.0	<2.0	<0.2	--
MW-2	12/11/2011	<100	<1.0	<2.0	<1.0	<3.0	--	--	--	--	<200	--	--	--	--	--	--	--	--	--
	3/9/2012	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	<200	<400	<400	<1.0	<1.0	<1.0	<1.0	<2.0	<0.2	<0.100
	9/30/2013	<100	<1.0	<1.0	<1.0	<2.0	<1.0	<0.01	<5.0	<5.0	<200	<400	--	<1.0	<1.0	<1.0	<1.0	<2.0	<0.2	--
MW-4	12/11/2011	<100	<1.0	<2.0	<1.0	<3.0	--	--	--	--	<200	--	--	--	--	--	--	--	--	--
	3/9/2012	<100	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--	--	--	<1.0	<1.0	<1.0	<1.0	<2.0	<0.2	--
	9/30/2013	<100	<1.0	<1.0	<1.0	<2.0	<1.0	<0.01	<5.0	<5.0	<200	<400	--	<1.0	<1.0	<1.0	<1.0	<2.0	<0.2	--
MW-5	12/11/2011	<100	<1.0	<2.0	<1.0	<3.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/9/2012	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	<200	<400	<400	--	--	--	--	--	--	<0.100
	9/30/2013	<100	<1.0	<1.0	<1.0	<2.0	<1.0	<0.01	<5.0	<5.0	<200	<400	--	<1.0	<1.0	<1.0	<1.0	<2.0	<0.2	--
MW-6	12/11/2011	<100	<1.0	<2.0	<1.0	<3.0	--	--	--	--	<200	--	--	--	--	--	--	--	--	--
	3/9/2012	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<0.01	<5.0	<5.0	--	--	--	--	--	--	--	--	--	--
	9/30/2013	<100	<1.0	<1.0	<1.0	<2.0	<1.0	<0.01	<5.0	<5.0	<200	<400	--	<1.0	<1.0	<1.0	<1.0	<2.0	<0.2	--
PQL		100	1.0	1.0 or 2.0	1.0	1.0 or 2.0 or 3.0	1.0	0.01	5.0	5.0	200	400	400	1.0	1.0	1.0	1.0	2.0	0.2	0.1
Ecology MTCA Method A Clean Up Levels		800 <sup>6</sup>	5	1,000	700	1,000	5	0.010	160	20	500	500	500	5	5	*	*	*	0.2	0.1

**Notes:**

- <sup>1</sup>Monitoring well locations are shown in Figure 2
- <sup>2</sup>Gasoline range total petroleum hydrocarbons (TPH). Analyzed by Northwest Method NWTPH-Gx.
- <sup>3</sup>Select Volatile Organic Compounds in gasoline range organics (GRO) per Table 830-1. Analyzed by EPA Method 8260B.
- <sup>4</sup>Analyzed by Northwest Method NWTPH-Dx/Dx Extended
- <sup>5</sup>Analyzed by EPA Method 8270
- <sup>6</sup>Cleanup level with presence of benzene
- EDC = 1,2-Dichloroethane
- EDB = 1,2-Dibromoethane
- MTBE = methyl tertiary-butyl ether
- PCE = tetrachloroethene
- TCE = trichloroethene
- cis-1,2-DCE = cis-1,2 dichloroethene
- trans-1,2-DCE = trans-1,2 dichloroethene
- cPAHs = carcinogenic polycyclic aromatic hydrocarbons
- PQL = Practical Quantification Limit
- ug/L= micrograms per liter
- = not analyzed for constituent
- < = not detected above laboratory limits
- Bold Red** indicates the detected concentration exceeds Ecology MTCA Method A cleanup level

**APPENDIX A**

**SITE PHOTOGRAPHS**



ASSOCIATED  
ENVIRONMENTAL  
GROUP, LLC

## SITE PHOTOGRAPHIC RECORD

Project No.: 11 - 194

Project Name: Smitty's Gateway 76



Photo #1: *General Vicinity of Soil Borings (Looking South)*



Photo #2: *Location of Boring B-1 (Looking South-southeast)*

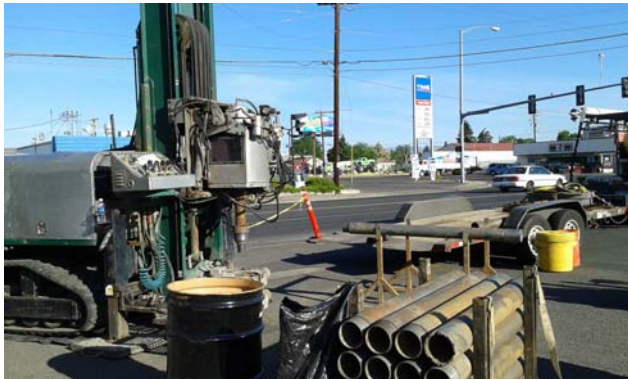


Photo #3: *Location of Boring B-1 (Looking Northwest)*



Photo #4: *Typical Soil from Boring B-1*



Photo #5: *Location of Boring B-2 (Looking West)*



Photo #6: *Typical Soil from Boring B-2*



ASSOCIATED  
ENVIRONMENTAL  
GROUP, LLC

## SITE PHOTOGRAPHIC RECORD

Project No.: 11 - 194

Project Name: Smitty's Gateway 76



Photo #7: *Location of Boring B-3 (Looking East)*



Photo #8: *Typical Soil Boring B-3*

## **APPENDIX B**

### **Supporting Documents:**

**Boring Logs  
Laboratory Datasheets**



PROJECT: <i>Smitty's Gateway (Gateway 76 Nob Hill)</i>	JOB # <i>11-194</i>	BORING # <i>B-1</i>	PAGE 1 of 1
Location: <i>1802 Nob Hill Blvd Yakima, WA</i>	Approximate Elevation: <i>1025 ft</i>		
Subcontractor / Driller: <i>Boart Longyear/ Josh</i>	Equipment / Drilling Method: <i>Sonic</i>		
Date: <i>6/6/2013</i>	Logged By: <i>Dave Polivka</i>		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
5	Asphalt 2 inches! Brown sandy GRAVEL (fine to medium sand) (gravel to 2" dia.) (Some wood fragments) (moist) (fill)	GM			S-B-1-5	8:00	NA	0.6	none	No odor
10	Light brown gray silty sandy GRAVEL (gravel to 3" dia.) (coarse silt to fine sand) (dry)				S--B-1-10	8:19		9.1		
15	Brown sandy GRAVEL (fine to coarse sand) (some coarse silt) (gravel to 3" dia.) (dry)  Slightly more silt							0.9		
20	Brown silty sandy GRAVEL (gravel to 3" dia.) (fine to coarse sand) (wet)  Slightly more silt	ATD			S-B-1-18	8:33		12.2		
25	Boring terminated at 25' and backfilled with bentonite					8:42		15.2		

Explanation	Monitoring Well Construction	Comments
Sonic Core barrel placed in plastic sleeves	Clean Sand	
No Recovery	Bentonite	
Contact located approximately	Grout/Concrete	
Groundwater level at time of drilling or date of measurement	Screened Casing	
	Blank Casing	





<b>PROJECT:</b> <i>Smitty's Gateway (Gateway 76 Nob Hill)</i>	<b>JOB #</b> 11-194	<b>BORING #</b> B-2	PAGE 1 of 1
<b>Location:</b> 1802 Nob Hill Blvd Yakima, WA	<b>Approximate Elevation:</b> 1025 ft		
<b>Subcontractor / Driller:</b> Boart Longyear/ Josh	<b>Equipment / Drilling Method:</b> Sonic		
<b>Date:</b> 6/6/2013	<b>Logged By:</b> Dave Polivka		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Asphalt 2 1/2 inches underlain by 3/8 minus gravel						NA		none	No odor
	Brown silty fine SAND (some gravel to 2" dia.) (moist) (fill)	SM						8.2		
5	Light brown silty sandy GRAVEL (medium to coarse gravel) (gravel to 4" dia.) (some silt and medium sand) (moist)	GM			S-B-2-5	9:24		12.4		
	(dry)									
10					S--B-2-10	9:33		21.2		
15	Brown sandy GRAVEL (fine to coarse sand) (some coarse silt) (dry)							10.7		
	Slightly more sand									
20	Brown silty sandy GRAVEL (some cobbles to 6" dia.) (fine to medium sand) (fine to medium silt) (wet)	ATD			S-B-2-19	9:54		5.6		
25	Boring terminated at 25' and backfilled with bentonite					10:10		8		

Explanation	Monitoring Well Construction	Comments
Sonic Core barrel placed in plastic sleeves	Clean Sand	
No Recovery	Bentonite	
--- Contact located approximately	Grout/Concrete	
Groundwater level at time of drilling or date of measurement	Screened Casing	
	Blank Casing	



<b>PROJECT:</b> Smitty's Gateway (Gateway 76 Nob Hill)	<b>JOB #</b> 11-194	<b>BORING #</b> B-3	PAGE 1 of 1
<b>Location:</b> 1802 Nob Hill Blvd Yakima, WA	<b>Approximate Elevation:</b>	1025 ft	
<b>Subcontractor / Driller:</b> Boart Longyear/ Josh	<b>Equipment / Drilling Method:</b> Sonic		
<b>Date:</b> 6/6/2013	<b>Logged By:</b> Dave Polivka		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Type	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Observations
	Asphalt 2 1/2 inches						NA		none	No odor
	Brown silty fine SAND (no gravel) (much silt)(moist) (fill)	SM						18.6		
5	Brown silty sandy GRAVEL (gravel to 4" dia.) (fine to medium sand) (moist)	GM			S-B-3-5	10:56		17.8		
	more sand @ 7 to 8'									
10	Brown sandy GRAVEL and COBBLES (coarse sand)(little silt) (loose) (dry)				S-B-3-9	11:07		22.7		
	Brown sandy Gravel (fine to medium sand) (some iron staining) (dry)									
15	less gravel @ 14' (dry)							13.1		
	Slightly more sand									
		ATD			S-B-3-18	11:26		22.9		
20	Brown coarse sandy GRAVEL (fine to medium sand) (wet)							28.3		Very very slight?
	more sand and silt at 22'									No odor
25	Boring terminated at 25' and backfilled with bentonite							10.7		

Explanation	Monitoring Well Construction	Comments
Sonic Core barrel placed in plastic sleeves	Clean Sand	
No Recovery	Bentonite	
--- Contact located approximately	Grout/Concrete	
Groundwater level at time of drilling or date of measurement	Screened Casing	
	Blank Casing	



# Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

June 17, 2013

David Polivka  
Associated Environmental Group, LLC  
605 11<sup>th</sup> Avenue SE, Suite 201  
Olympia, WA 98501



Dear Mr. Polivka:

Please find enclosed the analytical data report for the Smitty's Gateway Project located in Yakima, Washington. Soil samples were analyzed for Specific Halogenated and Aromatic Hydrocarbons by EPA Method 8260C, Gasoline by NWTPH-Gx and Lead by EPA Method 7421 on June 10 & 13, 2013.

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

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

Sincerely,

Jamie L. Deyman  
*President*  
*Libby Environmental, Inc.*

Phone (360) 352-2110 • Fax (360) 352-4154 • [libbyenv@aol.com](mailto:libbyenv@aol.com)

[www.LibbyEnvironmental.com](http://www.LibbyEnvironmental.com)

# Libby Environmental, Inc.

SMITTY'S GATEWAY PROJECT  
AEG, LLC  
Yakima, Washington  
Libby Project # L130610-3  
Client Project # 11-194

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

## Analyses of Gasoline (NWTPH-Gx) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (mg/kg)
Method Blank	6/13/13	111	nd
S-B-1-5	6/13/13	105	nd
S-B-1-10	6/13/13	107	nd
S-B-1-18	6/13/13	105	nd
S-B-2-5	6/13/13	113	nd
S-B-2-10	6/13/13	111	nd
S-B-2-19	6/13/13	113	nd
S-B-3-5	6/13/13	103	nd
S-B-3-9	6/13/13	105	nd
S-B-3-18	6/13/13	102	nd
S-B-3-18 Dup	6/13/13	111	nd
Practical Quantitation Limit			10

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

"int" Indicates that interference prevents determination.

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

ANALYSES PERFORMED BY: Sherry Chilcutt

# Libby Environmental, Inc.

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 Olympia, WA 98506  
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 FAX: (360) 352-4154  
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SMITTY'S GATEWAY PROJECT  
 AEG, LLC  
 Yakima, Washington  
 Libby Project # L130610-3  
 Client Project # 11-194

## Specific Halogenated and Aromatic Hydrocarbons by EPA 8260C in Soil

Sample Description	Method	S-B-1-5	S-B-1-10	S-B-1-18	S-B-2-5	S-B-2-10
	Blank					
Date Sampled	N/A	6/6/13	6/6/13	6/6/13	6/6/13	6/6/13
Date Analyzed	PQL	6/10/13	6/10/13	6/10/13	6/10/13	6/10/13
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Benzene	0.02	nd	nd	nd	nd	nd
Toluene	0.03	nd	nd	nd	nd	nd
Ethylbenzene	0.03	nd	nd	nd	nd	nd
Total Xylenes	0.03	nd	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	0.03	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.005	nd	nd	nd	nd	nd
Total Naphthalenes	0.05	nd	nd	nd	nd	nd
Methyl <i>tert</i> - Butyl Ether (MTBE)	0.05	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	0.02	nd	nd	nd	nd	nd
Surrogate Recovery						
Dibromofluoromethane		113	90	92	93	105
1,2-Dichloroethane-d4		106	87	79	75	114
Toluene-d8		111	105	107	105	113
4-Bromofluorobenzene		114	119	109	108	113

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

\* INSTRUMENT DETECTION LIMIT

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Jamie Deyman

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SMITTY'S GATEWAY PROJECT

AEG, LLC

Yakima, Washington

Libby Project # L130610-3

Client Project # 11-194

## Specific Halogenated and Aromatic Hydrocarbons by EPA 8260C in Soil

Sample Description		S-B-2-19	S-B-3-5	S-B-3-9	S-B-3-18	S-B-3-18 Dup
Date Sampled		6/6/13	6/6/13	6/6/13	6/6/13	6/6/13
Date Analyzed	PQL	6/10/13	6/10/13	6/10/13	6/10/13	6/10/13
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Benzene	0.02	nd	nd	nd	nd	nd
Toluene	0.02	nd	nd	nd	nd	nd
Ethylbenzene	0.03	nd	nd	nd	nd	nd
Total Xylenes	0.03	nd	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	0.03	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.005	nd	nd	nd	nd	nd
Total Naphthalenes	0.03	nd	nd	nd	nd	nd
Methyl <i>tert</i> -Butyl Ether (MTBE)	0.02	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	0.02	nd	nd	nd	nd	nd
Surrogate Recovery						
Dibromofluoromethane		92	97	95	89	92
1,2-Dichloroethane-d4		83	76	89	70	84
Toluene-d8		113	103	105	102	111
4-Bromofluorobenzene		111	106	110	106	110

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

\* INSTRUMENT DETECTION LIMIT

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

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SMITTY'S GATEWAY PROJECT  
 AEG, LLC  
 Yakima, Washington  
 Libby Project # L130610-3  
 Client Project # 11-194

## QA/QC Data - EPA 8260C Analyses

Sample Identification: L130612-20							
	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Benzene	0.5	0.57	114	0.5	0.48	96	17.1
Toluene	0.5	0.62	124	0.5	0.52	104	17.5

Surrogate Recovery			
Dibromofluoromethane			98
1,2-Dichloroethane-d4			98
Toluene-d8			113
4-Bromofluorobenzene			113

Laboratory Control Sample			
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Benzene	0.5	0.62	124
Toluene	0.5	0.58	116

Surrogate Recovery		
Dibromofluoromethane		108
1,2-Dichloroethane-d4		78
Toluene-d8		109
4-Bromofluorobenzene		108

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

ANALYSES PERFORMED BY: Sherry Chilcutt

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SMITTY'S GATEWAY PROJECT  
AEG, LLC  
Yakima, Washington  
Libby Project # L130610-3  
Client Project # 11-194

## Analyses of Lead in Soil by EPA Method 7421

Sample Number	Date Analyzed	Lead (mg/kg)
Method Blank	6/13/13	nd
S-B-1-5	6/13/13	5.4
S-B-1-10	6/13/13	nd
S-B-1-18	6/13/13	nd
S-B-2-5	6/13/13	nd
S-B-2-10	6/13/13	nd
S-B-2-19	6/13/13	nd
S-B-3-5	6/13/13	nd
S-B-3-9	6/13/13	nd
S-B-3-18	6/13/13	nd
Practical Quantitation Limit		5.0

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

ANALYSES PERFORMED BY: Jamie Deyman



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SMITTY'S GATEWAY PROJECT  
AEG, LLC  
Yakima, Washington  
Libby Project # L130610-3  
Client Project # 11-194

## QA/QC for Lead in Soil by EPA Method 7421

Sample Number	Date Analyzed	Lead (% Recovery)
LCS	6/13/13	92%
L130610-2 MS	6/13/13	100%
L130610-2 MSD	6/13/13	97%
RPD	6/13/13	3%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%  
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Jamie Deyman

# Libby Environmental, Inc.

# Chain of Custody Record

www.LibbyEnvironmental.com

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Olympia, WA 98506

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

Date: 6/6/13

Page: 1 of

Client: AEG

Project Manager: Dave Polivka

Address: 11<sup>th</sup> Ave SE Sult-201

Project Name: Smitty's Gateway

City: Olympia State: WA Zip: 98501

Location: 1802 Nob Hill Blvd City, State: Yakima, WA

Phone: 360-362-9835 Fax:

Collector: D Polivka Date of Collection: 6/6/13

Client Project # 11-194

Email: dpolivka@AEGWA.com



Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCB's 8082	MTCAs + Metals	GRO + MF	Pb	Field Notes
1 S-B-1-5	5'	800	soil	3VOA									X	X	X	X	
2 S-B-1-10	10'	819	/	14oz									X	X	X	X	
3 S-B-1-18	18'	833											X	X	X	X	
4																	
5 S-B-2-5	5'	924											X	X	X	X	
6 S-B-2-10	10'	933											X	X	X	X	
7 S-B-2-19	19'	954											X	X	X	X	
8																	
9 S-B-3-5	5'	1086											X	X	X	X	
10 S-B-3-9	9'	1107											X	X	X	X	
11 S-B-3-18	18'	1126											X	X	X	X	Very slight odor
12																	
13																	
14																	
15																	
16																	
17																	

Relinquished by: David W. Polivka	Date / Time 6/8/13 12:13	Received by: Janice Dayna	Date / Time 6/8/13 12:13	Sample Receipt:	Remarks:  8307
Relinquished by:	Date / Time	Received by:	Date / Time	Good Condition?	
Relinquished by:	Date / Time	Received by:	Date / Time	Cold?	
Relinquished by:	Date / Time	Received by:	Date / Time	Seals Intact?	
				Total Number of Containers	TAT: 24HR 48HR 5-DAY

LEGAL ACTION CLAUSE: In the event of default of payment and/or failure to pay, Client agrees to pay the costs of collection including court costs and reasonable attorney fees to be determined by a court of law.

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



# Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

October 3, 2013

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



Dear Mr. Chun:

Please find enclosed the analytical data report for the Gateway 76 Nob Hill Project located in Yakima, Washington. Water samples were analyzed for Volatile Organic Compounds by EPA Method 8260C, Gasoline by NWTPH-Gx, and Diesel & Oil by NWTPH-Dx/Dx Extended on October 2, 2013.

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

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

Sincerely,

Jamie L. Deyman  
*President*  
*Libby Environmental, Inc.*

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# Libby Environmental, Inc.

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GATEWAY 76 NOB HILL PROJECT  
 AEG, LLC  
 Yakima, Washington  
 Libby Project # L131002-2  
 Client Project # 11-194

## Volatile Organic Compounds by EPA Method 8260C in Water

Sample Description		Method Blank	MW-1W	MW-2W	MW-4W	MW-5W	MW-6W
Date Sampled	Reporting	N/A	9/30/13	9/30/13	9/30/13	9/30/13	9/30/13
Date Analyzed	Limits	10/2/13	10/2/13	10/2/13	10/2/13	10/2/13	10/2/13
	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)
Dichlorodifluoromethane	2.0	nd	nd	nd	nd	nd	nd
Chloromethane	2.0	nd	nd	nd	nd	nd	nd
Vinyl chloride	0.2	nd	nd	nd	nd	nd	nd
Bromomethane	2.0	nd	nd	nd	nd	nd	nd
Chloroethane	2.0	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	2.0	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	2.0	nd	nd	nd	nd	nd	nd
Methylene chloride	1.0	nd	nd	nd	nd	nd	nd
Methyl <i>tert</i> - Butyl Ether (MTBE)	5.0	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	2.0	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	1.0	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	1.0	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	1.0	nd	nd	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	1.0	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	1.0	nd	nd	nd	nd	nd	nd
Dibromomethane	1.0	nd	nd	nd	nd	nd	nd
Bromodichloromethane	1.0	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,3-Dichloropropene	1.0	nd	nd	nd	nd	nd	nd
Toluene	1.0	nd	nd	nd	nd	nd	nd
Trans-1,3-Dichloropropene	1.0	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	1.0	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	1.0	nd	nd	nd	nd	nd	nd
Dibromochloromethane	1.0	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.01	nd	nd	nd	nd	nd	nd
Chlorobenzene	1.0	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd	nd
Total Xylenes	2.0	nd	nd	nd	nd	nd	nd
Styrene	1.0	nd	nd	nd	nd	nd	nd

# Libby Environmental, Inc.

GATEWAY 76 NOB HILL PROJECT  
 AEG, LLC  
 Yakima, Washington  
 Libby Project # L131002-2  
 Client Project # 11-194

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## Volatile Organic Compounds by EPA Method 8260C in Water

Sample Description	Method	MW-1W	MW-2W	MW-4W	MW-5W	MW-6W
	Blank					
Date Sampled	Reporting	N/A	9/30/13	9/30/13	9/30/13	9/30/13
Date Analyzed	Limits	10/2/13	10/2/13	10/2/13	10/2/13	10/2/13
	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)
Bromoform	1.0	nd	nd	nd	nd	nd
Isopropylbenzene	4.0	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	1.0	nd	nd	nd	nd	nd
Bromobenzene	1.0	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd
n-Propylbenzene	1.0	nd	nd	nd	nd	nd
2-Chlorotoluene	1.0	nd	nd	nd	nd	nd
4-Chlorotoluene	1.0	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	1.0	nd	nd	nd	nd	nd
tert-Butylbenzene	1.0	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	1.0	nd	nd	nd	nd	nd
sec-Butylbenzene	1.0	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	1.0	nd	nd	nd	nd	nd
Isopropyltoluene	1.0	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	1.0	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	1.0	nd	nd	nd	nd	nd
n-Butylbenzene	1.0	nd	nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	2.0	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	5.0	nd	nd	nd	nd	nd
Naphthalenes	5.0	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	5.0	nd	nd	nd	nd	nd
<b>Surrogate Recovery</b>						
Dibromofluoromethane		87	75	84	84	81
1,2-Dichloroethane-d4		108	72	93	93	88
Toluene-d8		106	102	103	104	104
4-Bromofluorobenzene		96	86	93	95	91

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

\* INSTRUMENT DETECTION LIMIT

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

# Libby Environmental, Inc.

GATEWAY 76 NOB HILL PROJECT  
AEG, LLC  
Yakima, Washington  
Libby Project # L131002-2  
Client Project # 11-194

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## Volatile Organic Compounds by EPA Method 8260C in Water

Sample Description	MW-6W	
	Dup	
Date Sampled	Reporting	9/30/13
Date Analyzed	Limits	10/2/13
	(µg/l)	(µg/l)
Dichlorodifluoromethane	2.0	nd
Chloromethane	2.0	nd
Vinyl chloride	0.2	nd
Bromomethane	2.0	nd
Chloroethane	2.0	nd
Trichlorofluoromethane	2.0	nd
1,1-Dichloroethene	2.0	nd
Methylene chloride	1.0	nd
Methyl <i>tert</i> - Butyl Ether (MTBE)	5.0	nd
<i>trans</i> -1,2-Dichloroethene	1.0	nd
1,1-Dichloroethane	1.0	nd
2,2-Dichloropropane	2.0	nd
<i>cis</i> -1,2-Dichloroethene	1.0	nd
Chloroform	1.0	nd
1,1,1-Trichloroethane (TCA)	1.0	nd
Carbon tetrachloride	1.0	nd
1,1-Dichloropropene	1.0	nd
Benzene	1.0	nd
1,2-Dichloroethane (EDC)	1.0	nd
Trichloroethene (TCE)	1.0	nd
1,2-Dichloropropane	1.0	nd
Dibromomethane	1.0	nd
Bromodichloromethane	1.0	nd
<i>cis</i> -1,3-Dichloropropene	1.0	nd
Toluene	1.0	nd
Trans-1,3-Dichloropropene	1.0	nd
1,1,2-Trichloroethane	1.0	nd
Tetrachloroethene (PCE)	1.0	nd
1,3-Dichloropropane	1.0	nd
Dibromochloromethane	1.0	nd
1,2-Dibromoethane (EDB) *	0.01	nd
Chlorobenzene	1.0	nd
1,1,1,2-Tetrachloroethane	1.0	nd
Ethylbenzene	1.0	nd
Total Xylenes	2.0	nd
Styrene	1.0	nd

# Libby Environmental, Inc.

GATEWAY 76 NOB HILL PROJECT  
AEG, LLC  
Yakima, Washington  
Libby Project # L131002-2  
Client Project # 11-194

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## Volatile Organic Compounds by EPA Method 8260C in Water

Sample Description	MW-6W	
	Reporting	Dup
Date Sampled	9/30/13	
Date Analyzed	10/2/13	
	Limits	(µg/l)
	(µg/l)	
Bromoform	1.0	nd
Isopropylbenzene	4.0	nd
1,2,3-Trichloropropane	1.0	nd
Bromobenzene	1.0	nd
1,1,2,2-Tetrachloroethane	1.0	nd
n-Propylbenzene	1.0	nd
2-Chlorotoluene	1.0	nd
4-Chlorotoluene	1.0	nd
1,3,5-Trimethylbenzene	1.0	nd
tert-Butylbenzene	1.0	nd
1,2,4-Trimethylbenzene	1.0	nd
sec-Butylbenzene	1.0	nd
1,3-Dichlorobenzene	1.0	nd
Isopropyltoluene	1.0	nd
1,4-Dichlorobenzene	1.0	nd
1,2-Dichlorobenzene	1.0	nd
n-Butylbenzene	1.0	nd
1,2-Dibromo-3-Chloropropane	1.0	nd
1,2,4-Trichlorobenzene	2.0	nd
Hexachloro-1,3-butadiene	5.0	nd
Naphthalenes	5.0	nd
1,2,3-Trichlorobenzene	5.0	nd
Surrogate Recovery		
Dibromofluoromethane		79
1,2-Dichloroethane-d4		90
Toluene-d8		101
4-Bromofluorobenzene		92

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

\* INSTRUMENT DETECTION LIMIT

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

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GATEWAY 76 NOB HILL PROJECT  
 AEG, LLC  
 Yakima, Washington  
 Libby Project # L131002-2  
 Client Project # 11-194

## QA/QC Data - EPA 8260C Analyses

Sample Identification: MW-5W							
	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	(%)
1,1-Dichloroethene	10	9.1	91	10	8.5	85	6.8
Benzene	10	11.3	113	10	10.8	108	4.5
Toluene	10	11.5	115	10	10.9	109	5.4
Chlorobenzene	10	10.3	103	10	10.3	103	0.0
Trichloroethene (TCE)	10	9.6	96	10	9.4	94	2.1
<b>Surrogate Recovery</b>							
Dibromofluoromethane			85			83	
1,2-Dichloroethane-d4			98			90	
Toluene-d8			105			105	
4-Bromofluorobenzene			96			93	

Laboratory Control Sample			
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)
Benzene	10		0
Toluene	10		0
Chlorobenzene	10		0
Trichloroethene (TCE)	10		0

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

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

ANALYSES PERFORMED BY: Paul Burke



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GATEWAY 76 NOB HILL PROJECT  
AEG, LLC  
Yakima, Washington  
Libby Project # L131002-2  
Client Project # 11-194

## Analyses of Gasoline (NWTPH-Gx) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline ( $\mu\text{g/l}$ )
Method Blank	10/2/13	106	nd
MW-1W	10/2/13	102	nd
MW-2W	10/2/13	103	nd
MW-4W	10/2/13	104	nd
MW-5W	10/2/13	104	nd
MW-6W	10/2/13	103	nd
MW-6W Dup	10/2/13	101	nd
Practical Quantitation Limit			100

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

"int" Indicates that interference prevents determination.

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

ANALYSES PERFORMED BY: Paul Burke

# Libby Environmental, Inc.

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

GATEWAY 76 NOB HILL PROJECT  
AEG, LLC  
Yakima, Washington  
Libby Project # L131002-2  
Client Project # 11-194

## Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel ( $\mu\text{g/l}$ )	Oil ( $\mu\text{g/l}$ )
Method Blank	10/2/13	102	nd	nd
MW-1W	10/2/13	100	nd	nd
MW-2W	10/2/13	94	nd	nd
MW-4W	10/2/13	103	nd	nd
MW-5W	10/2/13	97	nd	nd
MW-6W	10/2/13	100	nd	nd
MW-6W Dup	10/2/13	93	nd	nd
Practical Quantitation Limit			200	400

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

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

# Libby Environmental, Inc.

# Chain of Custody Record

www.LibbyEnvironmental.com

4139 Libby Road NE  
Olympia, WA 98506

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

Date: 9/30/13 Page: 1 of 1

Client: AEG

Project Manager: Mike Chun

Address: 605 11th Ave SE, Suite 201

Project Name: Gateway 76 Nob Hill

City: Olympia State: WA Zip: 98501

Location: 1802 East Nob Hill Blvd City, State: Yakima, WA

Phone: (360) 352-9835 Fax:

Collector: Joel Wilson Date of Collection: 9/30/13

Client Project # 11-194

Email: jwilson@aequu.com



Sample Number	Depth	Time	Sample Type	Container Type	Analytes											Field Notes			
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	PAH 8270	PCB's 8082	MTCA 5 Metals					
1 MW-1W	—	12:51	water	VOAs/Amber	✓	✓		✓	✓										
2 MW-2W	—	12:19																	
3 <del>MW-3W</del>																			
4 MW-4W	—	11:46																	not sampled
5 MW-5W	—	11:12																	
6 MW-6W	—	10:39																	
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			

Relinquished by: <u>[Signature]</u>	Date / Time: <u>10/2/13 10:15</u>	Received by: <u>[Signature]</u>	Date / Time: <u>10/2/13 10:15</u>	Sample Receipt:	Remarks:
Relinquished by:	Date / Time:	Received by:	Date / Time:	Good Condition?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Cold?	
Relinquished by:	Date / Time:	Received by:	Date / Time:	Seals Intact?	
				Total Number of Containers	TAT: 24HR 48HR <u>5-DAY</u>