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August 31, 2015

Mr. Rob Will
Freeway Properties LLC
4724 Roosevelt Way Northeast
Seattle, Washington 98105

RE: Remedial Investigation Report
Freeway Properties LLC
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast
Seattle, Washington 98105
RGI Project No. 2014-068C
Ecology VCP No. NW2584

Dear Mr. Will:

The Riley Group, Inc. (RGI) is pleased to present this Remedial Investigation (RI) regarding the Freeway Properties LLC property located at 4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington (hereafter referred to as the Property). The Property is occupied by the University Volkswagen-Audi dealership (Photographs 1 to 4, Appendix D).

1.0 INTRODUCTION

The RI is meant to define nature and extent of soil, soil vapor, and groundwater contamination, as stipulated in WAC 173-340-350(7).

Based on our meeting with Ecology on August 14, 2015, this RI report had been finalized and includes the additional subsurface investigation scope of work completed and associated findings since the date of the draft RI report (dated June 11, 2015).

Based on our findings, RGI concludes that the site characterization has defined the nature and extent of contamination and that further characterization is not warranted.

RGI requests Ecology review this RI and requests a written opinion, on behalf of the Freeway Properties LLC, that no further site characterization is warranted for the site.

1.2 Report Organization

The RI portion of this report includes a discussion of the following:

- Property Location and Description.
- Property development and history.
- Natural conditions (for example, geology, hydrogeology, and surface water).
- Regulatory requirements and Screening Levels.
- Summary of previous environmental reports.
- RGI's supplemental remedial investigation.

This RI presents the previous and current subsurface soil, soil vapor, and groundwater investigations completed to-date by RGI and others. The attached Figures (1 through 11) and Tables (1 through 4) summarize and/or illustrate the following:

- Test probe/boring, sub-slab soil vapor, groundwater monitoring well and dual phase extraction (DPE) remediation well locations.
- Soil, soil vapor, and groundwater concentrations of the contaminants of concern (COCs) and their exceedances to the screening levels (as noted).
- Apparent groundwater flow directions.
- Cross-sections (lithology and the occurrence/distribution of contamination).

1.3 Warranty

This report is the property of RGI, the Client, and authorized representatives or affiliates. This report is intended for specific application to University Volkswagen-Audi property located at 4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington.

Work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature and conditions of work completed in same or similar locations at the present time.

The findings, conclusions and any recommendations presented in this report are based upon data obtained by RGI and others at the time of preparing this report. RGI's results and findings do not necessarily reflect subsurface conditions underlying other areas of the Property not investigated.

1.4 Property Identification and Location

The Property totals approximately 0.59 acres and consists of two tax parcels (King County tax parcels 6746701635 and 6746701440). Tax parcels 6746701635 (addressed 4724 Roosevelt Way Northeast) and 6746701440 (4701 11th Avenue Northeast) are herein referenced the west and east parcels, respectively. The west and east tax parcels are divided by a north-south oriented improved alley right-of-way (ROW), see Figure 2.

The Property is currently zoned commercial. The boundaries of the Property are the same as the boundaries of the tax parcels.

Typical property use in the Property vicinity consists of commercial properties. Current uses of adjoining properties are summarized as follows:

North: The University Volkswagen and Audi showrooms and service garages (Photograph 1).

East: 11th Avenue Northeast with a mixed-use building, a single-family residence, and an apartment building under construction beyond.

South: Northeast 47th Street with University Mazda and an apartment building under construction beyond (Photograph 2 and 3).

West: Roosevelt Way Northeast with Seattle Hookah Lounge, Tire Factory, and Half-Price Books beyond.

2.0 SUMMARY OF PROPERTY USE

The current, historical and future Property use is summarized below

2.1 Current Property Development

The west parcel is currently utilized as an asphalt-paved VW-Audi automobile sales lot (Photograph 1).

The east parcel is occupied by a new VW Audi automobile sales showroom (currently under construction, Photographs 5, 9, and 10).

2.2 Historical Property Development

A summary of the pertinent and historical use and improvements for the west and east parcel of the Property are provided below and are illustrated on the attached Figure 2.

2.2.1 West Parcel

Between 1927 and 1944, the west parcel was occupied by Leon's Tire and Gas Station, C&O Gas Station, and University Tire Center. The former gasoline station appears to have been independently-owned and/or operated. In other words, the former gasoline station does not appear to have been owned or operated by a major oil (for example, Shell, Standard Oil). Other historical uses of the west parcel included a tire shop and various auto repair. These former uses, including the gasoline station, may have continued on the west parcel up to 1960.

The west parcel was owned and/or occupied by Freeway Motors (including the University Volkswagen Audi dealership) beginning in at least 1960 to current date. From the early 1960s to-date, the west parcel was primarily used as a car sales and parking lot. In addition, in the early 1970s, one 4,000-gallon gasoline UST was reportedly installed on the southeast corner of the west parcel (see Figure 2). Mr. Will indicated that the former gas pump (for the 4,000-gallon gasoline UST) was located adjacent to, and west of, the showroom building on the east parcel (see Figure 2). This former UST removed in 1993 and subsequent cleanup and subsurface investigation performed (see Section 5.1 and 5.2 for details).

2.2.2 East Parcel

The east parcel was occupied by single-family residences up to approximately the early 1960s. In 1964/1965, Freeway Motors purchased and/or constructed a small car sales office and an "outdoor" auto inspection area. The inspection area reportedly included one or two underground hoists, located under a canopy. According to Mr. Rob Will, these hoists were used for the lifting and inspection of cars (e.g., not for the service or repair of cars). This improvement reportedly was demolished in 1967 and the hoist was removed.

Since the 1970s to present, the east parcel has been occupied by an auto showroom and offices (undergoing various renovations and/or expansions). According to Mr. Rob Will, no auto repair activities have been performed on the east parcel. In addition, Mr. Will indicated that during this time period, their repair and servicing of vehicles was performed south of Northeast 47th Street (where the existing Mazda dealership is located).

In the early 1990s, during redevelopment of the east parcel, one abandoned residential heating oil UST was encountered during site grading and was removed. Reportedly, no soil contamination was encountered during the UST decommissioning and removal.

In addition, according to Mr. Will, one 4,000-gallon diesel UST was removed from the east parcel in the early 1990s (and prior to the 1993 removal of the 4,000-gallon gasoline UST located on the west parcel). The former 4,000-gallon diesel UST was reportedly located in approximately the same location as the former 4,000-gallon gasoline UST (west parcel), but on the other side of the alley ROW (see Figure 2). Mr. Will indicated that the former gas pumps (for the 4,000-gallon gasoline and diesel UST) were located adjacent to, and west of, the existing showroom building on the east parcel (see Figure 2). Mr. Will indicated that no soil contamination was observed during the removal of the 4,000-gallon diesel UST and fuel pumps. The only contamination encountered was during removal of the 4,000-gallon gasoline UST formerly located on the west parcel.

2.3 Potential Future Development

RGI understands that the Property will continue to operate as a showroom and parking lot for an auto dealership. A new state-of-the-art showroom is under construction on the east parcel.

3.0 NATURAL CONDITIONS

3.1 Physiographic Setting and Topography

The Property is located in the southeast quarter of Section 8 of Township 25 North, Range 4 East of the Willamette Meridian. The Property slopes gently to the southeast, towards Northeast 47th Street and 11th Avenue Northeast.

3.2 Surface Water

There is no surface water at the Property.

3.3 Geologic Setting

The *Geologic Map of Northeastern Seattle (Part of the Seattle North 7.5'x15' Quadrangle)* mapped the Property as Till (Qvt), which is described as a compact diamict of silt, sand and sub-rounded to well-rounded gravel, glacially transported and deposited under ice. The unit is typically 1 to 10 meters thick and generally very dense.

3.4 Soils

Based on subsurface investigation findings by RGI and others, the Property is underlain by up to 11 feet of fill material (sand, silt, and gravel including wood, and brick/concrete debris).

Underlying the fills, subsurface soils to depths of up to 55 feet generally consisted of silty sand with varying amounts of gravel, underlain by very dense glacial till (a compact heterogeneous mixture of silt, sand, and gravel). Photographs 6 and 7 are considered representative of the soils encountered during the subsurface investigation.

RGI performed grain size and moisture analysis on soils collected at various locations and depths across the Property and are included in Appendix A for reference.

3.5 Groundwater

During drilling, a relatively thin perched water bearing zone was encountered at several locations across the Property at approximately 35 feet bgs. In addition, a perched water bearing zone was encountered at depths of approximately 45 to 60 feet bgs, above the underlying very dense glacial till.

Based on water level data collected from a total of 11 groundwater monitoring wells (MW1 to MW11) installed on the Property, depth to groundwater beneath the Property is approximately 45 feet bgs.

In April 2015, the groundwater flow direction beneath the west and east parcel was measured to be towards the east-southeast and northwest, respectively (Figure 4). The groundwater flow direction to the northwest for the east parcel is based on what appears to be an anomalously high elevation for monitoring well MW9. Monitoring well MW9 is located along the southern property boundary of the east parcel and may be artificially high due to a nearby leaking storm drains or other utility corridors located beneath Northeast 47th Street.

In July 2015, the groundwater flow direction beneath the east and west parcel was measured to be towards the south. This groundwater flow direction is based on 10 of the 11 monitoring wells (excluding the anomalous well MW9), Figure 5.

4.0 MTCA CLEANUP REGULATION

In Washington State, the Model Toxics Control Act (RCW 70.105D), mandates that site cleanups protect human health and the environment. The MTCA Cleanup Regulation (WAC173-340) defines the approach for establishing cleanup requirements for individual sites, including the establishment of cleanup standards and selection of cleanup actions.

The MTCA regulation provides three options for establishing generic and site-specific cleanup levels for soil and groundwater. Method A cleanup levels are intended to provide conservative cleanup levels for sites undergoing routine site characterization or cleanup actions or those sites with relatively few hazardous substances. Method B and C cleanup levels are set using a site risk assessment, which focus on the use of "reasonable maximum exposure" assumptions based on site-specific characteristics and toxicity of the contaminants of concern.

It should be noted that the soil and groundwater screening levels referenced in this report are not to be considered final cleanup levels. They are intended only for reference and for selection of potential Indicator Hazardous Substances (IHSs) at the Property. The selection of final cleanup levels for the Property will take place during preparation of the Cleanup Action Work Plan (CAP) in preparation for soil and/or groundwater remediation.

4.1 Indicator Hazardous Substances

Prior to cleanup actions, risk based soil and groundwater screening levels may be utilized to determine which (if any) substances would be considered potential IHSs at a site. MTCA defines IHSs as the subset of hazardous substances present at a site selected under WAC 173-340-708 for monitoring and analysis during any phase of the remedial action for the purpose of characterizing the site or establishing cleanup requirements for that site. The selection of IHSs helps to define site cleanup requirements and once IHSs have been determined for a site, final cleanup levels can be selected for soil and groundwater.

4.2 MTCA Method A Soil and Groundwater Screening Levels

Soil and groundwater analytical data obtained during this project were compared to stringent soil and groundwater screening levels established under MTCA in order to determine which (if any) substances on the Property would be considered potential IHSs. The default screening levels in this selection process were the MTCA Method A Soil and Ground Water Table Values (Tables 740-1 and 720-1, respectively). For soil, these values are protective of both the Direct Contact and Leaching to Groundwater exposure pathways. For groundwater, these cleanup levels are

considered conservative and most protective of human health and the environment (for example, are protective of drinking water quality).

During the course of the RI, numerous compounds were detected in soil and water that are included in the calculation of the MTCA Method A TPH screening levels. Therefore, these compounds (for example, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene and isopropylbenzene) were not assessed individually as the TPH cleanup levels are sufficient to assess risks associated with these compounds.

4.3 MTCA Method B Soil and Groundwater Screening Levels

The MTCA Method A Table Values are not available for some compounds encountered in soil and groundwater on the Property. For this reason, RGI selected the following:

- MTCA Method B Soil Screening Levels for these compounds that are considered protective of the human health and the environment.
- MTCA Method B Ground Water Table Value and/or the Applicable or Relevant and Appropriate Requirements (ARARs) that are considered protective of human health or the environment.

4.4 Soil Vapor Screening Levels

The Ecology Draft *Guidance For Assessing Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* (Ecology Draft VI Guidance) dated October, 2009 supports implementation of the MTCA regulation and contains conservative soil vapor screening levels that are considered protective of MTCA Method B and C Indoor Air Cleanup Levels.

For comparison, soil vapor data obtained during this project were compared to Ecology Routine Soil Vapor Screening Levels (ERSLs) established in the Ecology Draft VI Guidance, which are considered protective of the MTCA Method B Indoor Air Cleanup Levels. The MTCA Method B Indoor Air Cleanup Levels, from which the ERSLs are derived, has changed for some compounds since the Ecology Draft VI Guidance was released in 2009. Therefore, RGI modified ERSLs with current data contained in the Ecology Cleanup Level and Risk Calculation (CLARC) database when appropriate.

When soil vapor concentrations of COCs exceeded the applicable ERSLs, soil vapor data was further evaluated by calculating Property-specific soil vapor screening levels considered protective of MTCA Method B Indoor Air Cleanup Levels in accordance with the Ecology Draft VI Guidance. This is discussed further in Section 6.5 of the report.

5.0 PREVIOUS ENVIRONMENTAL REPORTS

Several environmental investigations and interim actions on the Property have been conducted by RGI and others. These investigations and actions are documented in the following previous reports:

- *UST Removal and Site Assessment,* prepared for University Volkswagen, dated November 1993 by Bison Environmental Northwest (Bison).
- *Partial Cleanup, Tank #2 4,000 Gallon Gasoline,* prepared for University Volkswagen, dated October 27, 1994 by Bison.
- *Risk Based Closure Report,* prepared for University Volkswagen, dated April 18, 2000 by Neil Shaw (Shaw).

- *Phase I Environmental Site Assessment* (Phase I ESA), prepared for US Bank, dated March 8, 2012 by Adapt Engineering, Inc. (Adapt).
- *Limited Phase 2 Site Assessment,* prepared for University Motors, dated February 18, 2013 by Geotech Consultants Inc. (GCI).
- *Ecology Opinion Letter,* prepared for University Volkswagen Audi, dated April 2, 2013 by Ecology.
- *Supplemental Groundwater Sampling and Analysis,* prepared for University Volkswagen Audi, dated March 24, 2014 by GCI.
- *Geophysical Survey*, prepared for Mr. Rob Will, dated August 13, 2014 by RGI.

A summary of the findings and conclusions presented in the above referenced reports are given below. For additional information, the reader is referred to the original reports in their entirety.

In addition, all known Property former UST, test probe/boring, groundwater monitoring well, soil vapor well, remedial excavation locations, and the analytical results associated with these former subsurface investigations, are summarized on the attached Figures and Tables.

5.1 UST Removal and Site Assessment Report, 1993

According to Bison's 1993 UST Removal and Site Assessment Report, one 4,000-gallon gasoline UST was removed from the southeast corner of the west parcel (Figure 2). The report did not mention where the gas pump associated with the one UST was located. The UST was reportedly constructed of single-walled steel and did not have any overfill or spill prevention or overfill protection equipment (was not required at the time the UST was likely installed, however the installation date was not mentioned in the Bison report).

During its removal, Bison noted a leak from the product piping. Bison concluded that this piping leak was the source of the contamination encountered during the UST removal. Following the UST removal, Bison performed the UST Site Assessment. The UST Site Assessment findings are summarized below and in the attached Figure 6 and Table 2.

Two soil samples, WP-10 and SS-11, were collected from the UST excavation following the UST removal. Sample WP-10 was collected beneath the UST location at a depth of 10 feet bgs. Sample WP-10 had gasoline-range total petroleum hydrocarbons (TPH) and benzene concentration of 57 milligrams per kilogram (mg/kg) and 0.20 mg/kg, respectively (above their respective screening levels). Sample SS-11 was collected from the north sidewall of the UST excavation at a depth of 3 feet, and had gasoline TPH and benzene concentrations of 5,100 mg/kg and 21 mg/kg, respectively.

Based on their findings, Bison concluded that a petroleum release had occurred from the 4,000-gallon gasoline UST (due to a long term leak from the product piping).

Bison recommended further investigation and/or cleanup.

5.2 Partial Cleanup, Tank #2 Report, 1994

According to the Bison 1994 Report, the 1993 UST removal excavation was still open (not backfilled) when they returned to the Property in 1994. The 1994 partial cleanup resulted in the removal and off-site disposal of 450 tons (320 cubic yards) of petroleum contaminated soil (PCS). The resultant excavation was reportedly 20 feet deep (lateral dimensions of the remedial excavation were not provided). The remedial excavation effort was terminated by the City of Seattle due to their safety concerns regarding the unshored and vertical excavation cuts.

The report stated that contamination was still present at the bottom of the excavation at a depth of 20 feet. No groundwater was encountered.

Bison drilled four soil borings (B1 to B4) were drilled outside the limits of the excavation to depths of 19 feet or 21 feet bgs. Their findings are summarized below and in the attached Figure 6 and Table 2.

The report stated that only one of the borings (B1) intercepted contaminated soil at a depth of 19 feet bgs with concentrations above screening levels (the maximum depth drilled).

Based on their findings, further investigation and/or cleanup was recommended.

5.3 Risk Based Closure Report, 2000

The Shaw report summarized that the Bison 1993/1994 remedial excavation limits had achieved what was termed "practical" and that mainly only weathered gasoline-range TPH was present in soil. Benzene, toluene, ethylbenzene, and xylenes (BTEX) were essentially non-detect.

Based on these observations, the Shaw report concluded that the remaining contamination was a "low risk" to human health and that no further investigation or cleanup was recommended or warranted. In addition, the report concluded that the remaining contamination would have likely degraded some between 1994 and 2000.

The report did recommend that the Property be enrolled into the Ecology Independent Remedial Action Program (IRAP) in an effort to obtain a No Further Action letter.

5.4 Phase I ESA, March 2012

According to the Adapt 2012 Phase I ESA, the Property was occupied by residences prior to 1938. The west parcel was developed with a former gasoline service station from at least 1927 through 1944. Two former gasoline USTs were reportedly removed from the Property in 1993, according to the Phase I. Freeway Motors has occupied the Property since at least 1960 (see Section 2.2 for additional summary of historical Property uses).

Adapt recommended additional Phase II subsurface investigation based on their findings.

5.5 Limited Phase 2 Site Assessment, 2013

GCI drilled three soil borings (B1E, B2E, and B3E) and installed one groundwater monitoring well (B3E) to depths of approximately 50 feet in the immediate vicinity and close proximity of the 1993/1994 remedial excavation and excavation limits on the west parcel.

Their soil and/or groundwater findings are summarized below and in the attached Figures 3, 4, and 6 and Tables 3 and 4.

In general, all three borings intercepted soils with gasoline-range TPH and benzene concentrations above screening levels at depths ranging between approximately 24 feet 45 feet bgs. The highest gasoline-range TPH concentration was detected at boring B2E at depths of 24 feet bgs (3,900 mg/kg). The highest benzene concentration (11 mg/kg) was detected at boring B1E at depths of 24 feet. Soil samples also had detected diesel-range TPH concentrations (up to 940 mg/kg) but below the screening levels.

In general, soils intercepted by these three borings, at depths less than 15 feet bgs, were not contaminated. The concentrations of TPH and benzene detected in the contaminated soil, between approximately 25 feet to 45 feet bgs, decreased with depth.

Borings B1E and B2E reportedly did not intercept groundwater during drilling. Boring B3E intercepted groundwater during drilling at a depth of 49 feet bgs and a groundwater monitoring well was installed (referred to herein as B3E).

Depth to water at monitoring well B3E was measured at 46.33 feet (below top of well casing). The groundwater sample had gasoline-range TPH and benzene concentrations of 100,000 micrograms per Liter (µg/L) and 3,800 µg/L, respectively (above the groundwater screening levels). Groundwater collected from monitoring well B3E had a diesel-range TPH concentration of 500 µg/L.

Based on their findings, GCI concluded that additional subsurface investigation is needed to define the nature and extent of contamination and in order to evaluate and select an appropriate remedial technology.

5.6 Ecology Opinion Letter, 2013

The April 2013 Ecology opinion letter basically re-iterates the scope of work (the installation of three groundwater monitoring wells) proposed by GCI.

5.7 Groundwater Monitoring Event, 2014

GCI sampled groundwater monitoring well B3E on March 12, 2014. The sample had a gasoline-range TPH and benzene concentrations of 130,000 µg/L and 3,300 µg/L, respectively. Diesel-range TPH was detected at a concentration below the screening level of 500 µg/L.

5.8 Geophysical, August 2014

In July 2014, RGI completed a Geophysical Investigation Report. The purpose was to identify possible abandoned USTs, product piping, and possible backfill excavations that would be associated with former UST locations on the west parcel. The investigation was performed using gridlines spaced 5 to 10 feet apart.

No obvious large abandoned USTs were clearly identified during the survey. However, several anomalies were identified, including possible relict product piping, one small UST, former gasoline pump location, buried concrete slabs, and former backfilled excavation approximately 7 feet by 20 feet.

Note: In 2014, during RGI's initial test probe investigation on the west parcel, probe P2 encountered and drilled through what appeared to be one small UST. The UST was determined to be empty of any residual fuel or water.

5.9 Summary of Previous Environmental Investigations

Three previous environmental subsurface investigations were completed by others for the Property (specifically, regarding the west parcel).

The previous investigation included the 1993/1994 removal of the 4,000-gallon gasoline UST and limited contaminated soil cleanup effort on the west parcel. The cleanup effort included the removal and off-site disposal of approximately 450 tons of PCS. Contaminated soil (above screening levels) remained and the nature and extent of contamination was unknown.

In 1994 and 2013, up to seven soil borings (depths from 20 to 50 feet bgs) were drilled by others in the immediate vicinity of the former gasoline UST/remedial excavation. One of the borings was completed with monitoring well B3E. All borings that were drilled to depths of at least 50 feet bgs encountered petroleum impacted soils a depths ranging from approximately 24 to 45 feet bgs, with gasoline-range TPH and benzene detections at concentrations above the screening levels.

In general, soils intercepted by the 1993 and 2013 borings, at depths less than 15 feet bgs, were not contaminated. The concentrations of TPH and benzene detected in the contaminated soil, between approximately 25 feet to 45 feet bgs, decreased with depth.

Groundwater collected from the monitoring well B3E contained concentrations of gasoline range-TPH and benzene at concentrations of 100,000 µg/L and 3,800 µg/L, respectively, which both exceed the groundwater screening.

Based on the relatively low gasoline-range TPH and benzene concentrations detected in soils (specifically the concentrations in soils at depths of 30 to 45 feet bgs) the relatively high gasoline-range TPH and benzene concentrations in groundwater, RGI recommended that additional subsurface soil and groundwater investigation to better define the nature and extent of contamination and as warranted to complete the RI.

6.0 RGI SUPPLEMENTAL REMEDIAL INVESTIGATION

Between August 2014 and July 2015, RGI performed the following additional subsurface investigation on the Property (west and east parcels):

- Advanced nine test probes (P1 to P9) to depths of up to 20 feet bgs (to refusal).
- Installed 11 groundwater monitoring wells (MW1 to MW11) screened at depths ranging from 66 feet to 18 feet bgs (MW1) to 45 feet to 15 feet bgs (MW2).
- Installed three temporary soil vapor probes (SV1 to SV3) at depths of approximately five feet bgs inside the new auto showroom building on the east parcel (currently under construction).
- Provided oversight during the hot spot contaminated soil removal on the east parcel. This limited cleanup effort was associated with contaminated soil encountered during excavations for the future elevator pit for new auto showroom building (see Figure 8 and Photograph 8).
- Installed seven 4-inch diameter DPE remediation wells (DPE1 to DPE7) on the east parcel screened at depth ranging between 65 feet to 38 feet bgs (DPE7) and 52 feet to 35 feet bgs (DPE5).
- In addition, remediation pilot test wells SVE1 (soil vapor well) and AS1 (air sparge well) were installed on the east parcel. SVE1 and AS1 pilot test wells were screened at depths of 40 feet to 25 feet bgs and 58 feet to 54 feet bgs, respectively

All test probe, groundwater monitoring well, soil vapor probe, pilot test wells, and DPE remediation well locations are illustrated on the attached Figures. Boring logs and well as-built details are included in Appendix A.

RGI's sample collection protocols were in accordance with our standard operating and decontamination procedures. Samples were placed in preconditioned, sterilized containers provided by an Ecology-accredited analytical laboratory. If soil samples were collected for analysis of VOCs, they were collected using the Environmental Protection Agency's Method 5035 sampling method. The samples were placed in a chilled cooler throughout the field program, with all subsequent transportation and transfer accomplished in strict accordance with RGI's chain-of-custody procedures.

Soil, soil vapor, and groundwater analytical test certificates, including quality control, data, and chain-of-custody documentation for all samples submitted to the analytical testing laboratory by RGI as part of this RI are included in Appendix B.

6.1 Soil Investigations

Discrete soil samples were collected at approximately 2.5 to 5-foot intervals (except in cases where there was too little recovery) from each test probe, inspected, and field screened for the presence of volatile organic compounds (VOCs) using a portable gas photoionization detector (PID) and/or water sheen test.

Elevated PID readings, odors, sheens, discolorations, and/or other evidence of contamination were observed in several locations. PID and field observations findings are summarized in the attached Table 1.

A total of 198 discrete soil samples were collected from the 9 test probes, three soil vapor probes, and 11 groundwater monitoring wells, and from two of the DPE remediation wells. Additionally, 11 discrete samples were collected from the remedial elevator excavation pit and associated stockpile.

Based on field screening observations, 80 discrete soil samples were selected for laboratory analysis. Selected soil samples were submitted for one or more of the following analyses:

- Gasoline-range TPH using Northwest Test Method NWTPH-Gx.
- Diesel- and oil-range TPH using Northwest Test Method NWTPH-Dx with silica gel cleanup (to remove natural occurring biogenic material).
- BTEX using EPA Test Method 8021B.
- Hydrocarbon Identification using Northwest Test Method NWTPH-HCID.
- VOCs using EPA Test Method 8260C.
- Carcinogenic polynuclear aromatic hydrocarbons (cPAHs) using EPA Test Method 8270D.
- Total RCRA 8 metals (arsenic [As], barium [Ba], cadmium [Cd], chromium [Cr] cadmium [Cd], lead [Pb], mercury [Hg], selenium [Se], silver [Ag]) using EPA Method 200.8.

RGI's soil sampling results regarding the west and east parcels are summarized below. In addition, RGI's findings and data reported by others are summarized in the attached Table 2 and Figure 3 (west and east parcels), Figure 7 (1993 UST removal/cleanup effort), and Figure 7 (hot spot contaminated soil removal at elevator pit).

6.1.1 Soil Analytical Results, West Parcel

A total of 40 soil samples were submitted for analyses from the nine test probes (P1 to P9) advanced and five groundwater monitoring wells (MW1 to MW4, MW8, and MW11) installed on the west parcel. Thirty one (31) of these samples either did not contain concentrations of COCs above applicable laboratory detection limits (non-detect) or contained concentrations of COCs below the applicable screening levels.

Gasoline- and diesel-range TPH and BTEX were detected at concentrations exceeding the soil screening levels at four probe/boring locations (P1, P4, P6, and MW8). Test probes P1, P4, and P6 were in the vicinity of the identified 2014 geophysical anomalies, corresponding to the possible location of a former UST nest and pump island associated with the former gasoline station. Boring MW8 was located in the vicinity of the former tire shop and former auto repair and battery shop.

Gasoline-range TPH was detected in soil at concentrations exceeding the soil screening level at test probes P1, P4, and P6 at depths ranging from approximately 15 to 20 feet bgs, and at boring MW8 at depths ranging from approximately 25 to 45 feet bgs. The detected concentrations ranged from 94 mg/kg to 6,200 mg/kg with the highest concentration detected in MW8 at 25 feet bgs.

Benzene was detected in soil at concentrations exceeding the soil screening level at boring MW8 at depths of 25, 30, and 45 feet bgs. The highest benzene concentration was 2.0 mg/kg at 25 feet bgs.

Toluene, ethylbenzene, and xylenes were detected in soil at concentrations exceeding the soil screening levels at boring MW8 at depths of 25 and 30 feet bgs. The highest concentrations were 110 mg/kg of toluene, 180 mg/kg of ethylbenzene, and 990 mg/kg of xylene at 25 feet bgs.

Diesel-range TPH was detected in soil at a concentration of 2,500 mg/kg in MW8 at 30 feet bgs. This concentration exceeds the soil screening level for diesel.

In general, TPH/BTEX concentrations are non-detect in soils from grade to depths of 15 feet bgs. The soil contamination is largely present within a zone located within a zone somewhere between 20 feet and 45 feet bgs. Within this zone of soil contamination, soil concentrations decrease with increased sample depth. These findings, as well the lateral and vertical distribution and occurrence of subsurface contamination, are illustrated in three cross-sections provided on Figures 9, 10, and 11 (see Figure 2 for cross-section locations in plan view).

6.1.2 Soil Analytical Results, East Parcel

A total of 40 soil samples were submitted for analyses from the four groundwater monitoring wells (MW5 to MW7, MW9, MW10, DPE6, and DPE7), three soil vapor probes (SV1 to SV3), and the hot spot elevator pit excavation and associated stockpile on the east parcel. Twenty-six (26) of these soil samples either did not contain concentrations of COCs above laboratory detection limits or contained concentrations of COCs below the applicable screening levels.

Gasoline-range TPH, diesel-range TPH, and BTEX were detected at concentrations exceeding the soil screening levels at five locations (MW5, MW7, DPE6, DPE7, SV2, and the elevator pit) and summarized below.

MW5 was located near the southwest corner of the existing showroom. Gasoline-range TPH and benzene was detected in soil at concentrations exceeding the screening levels at depths ranging from approximately 40 to 60 feet bgs. Gasoline-range TPH concentrations ranged from 45 mg/kg

(at 60 feet bgs) to 6,300 mg/kg (at 25 feet bgs). Benzene concentrations ranged from 0.31 mg/kg (at 60 feet bgs) to 4 mg/kg (at 25 feet bgs).

MW7 was located west of the existing showroom. Gasoline-range TPH was detected at 160 mg/kg in soil collected at the 50-foot bgs sampling depth interval. Soil samples collected at shallower and deeper depths were either non-detect, or had concentrations below the applicable soil screening levels.

MW10 was located west of the existing showroom and is located upgradient of the known contamination. Soil samples collected at shallow and deeper depths were non-detect.

DPE6 was located southwest of the existing showroom and is located within the known contaminated area. Soil samples collected from grade to depths of at least 40 feet bgs were non-detect. At 60 feet bgs, gasoline-range TPH and benzene was detected at 110 mg/kg and 0.15 mg/kg, respectively.

DPE7 was located near the southwest corner of the existing showroom. Gasoline-range TPH and benzene was detected in soil at concentrations exceeding the screening levels at depths ranging from approximately 30 to 65 feet bgs. Gasoline-range TPH concentrations ranged from 170 mg/kg (at 50 feet bgs) to 1,400 mg/kg (at 60 feet bgs). Benzene concentrations ranged from 0.039 mg/kg (at 65 feet bgs) to 4.7 mg/kg (at 50 feet bgs).

SV2 was located within the footprint of the existing showroom. Gasoline- and diesel-range TPH was detected at a depth of 5.5 feet bgs (the maximum sampling depth) at concentrations of 920 mg/kg and 21,000 mg/kg, respectively. The concentrations exceeded the soil screening levels.

One soil sample collected from the west sidewall (WSW) of the elevator pit excavation, at a depth of 4 feet bgs, had a gasoline- and diesel-range TPH concentration of 870 mg/kg and 3,800 mg/kg, respectively (above their respective screening levels). All other sidewall and excavation bottom samples had non-detectable concentrations of TPH.

In general, TPH/BTEX concentrations are non-detect in soils from grade to depths of 15 feet bgs (except for the shallower contamination detected beneath the existing showroom building. The soil contamination is largely present within a zone located within a zone somewhere between 25 feet and 65 feet bgs. Within this zone of soil contamination, soil concentrations decrease with increased sample depth. These findings, as well the lateral and vertical distribution and occurrence of subsurface contamination, are illustrated in three cross-sections provided on Figures 9, 10, and 11 (see Figure 2 for cross-section locations in plan view).

6.2 Groundwater Investigations

Between October 8, 2014 and July 2015, RGI installed 11 groundwater monitoring wells in the Property. The wells were installed at depths ranging from 45 to 60 feet bgs. All wells were drilled and installed using a truck- or track-mounted hollow-stem auger rig.

Groundwater monitoring well locations, and the rationale behind their locations, are as follows:

- Monitoring well MW1 and MW3 were located in the vicinity of the former gasoline station on the west parcel.
- Monitoring well MW2 was installed in the vicinity of the former tire shop on the west parcel.

- Monitoring well MW4 was located in the vicinity of the suspected former fuel UST nest on the west parcel.
- Monitoring wells MW5, MW6 and MW7 were installed on the west side of the University Audi showroom on the east parcel. MW5 was installed as an inferred down-gradient well. Based on the groundwater results, wells MW6 and MW7 were installed in an effort to better define the nature and extent of contamination.
- Monitoring well MW8 was installed north, and inferred upgradient, of monitoring well B3E and in the vicinity of a former "grease and batteries" building on the west parcel.
- Monitoring well MW9 was installed in the sidewalk located immediately south of the University Audi showroom (east parcel). This well was installed with the original intent of it being located down-gradient.
- Monitoring well MW10 was installed on the northwest portion of the east parcel and is considered an up-gradient well.
- Monitoring well MW11 was installed on the northeast portion of the east parcel and is considered an up-gradient well.

6.2.1 Depth to Groundwater and Flow Direction

In March 2015, all groundwater monitoring well top of casing (TOC) elevations were surveyed by Lank Tree Land Surveyors, Inc. TOC elevations obtained are based on the North American Vertical Datum of 1988 (NAVD88) vertical reference datum.

In October 2014, November 2014, January 2015, and April 2015, RGI measured the depth to water, from well TOC, using an electronic water level meter. Prior to measuring the depth to water, RGI checked for the presence and thickness of any free product using an oil water interface probe. No measurable free product was observed.

Well TOC elevations, depth to water measurements, and corresponding groundwater elevations are listed in Table 3 and are summarized below.

Based on water level data collected from a total of 11 groundwater monitoring wells (MW1 to MW11) installed on the Property, depth to groundwater beneath the Property is approximately 45 feet bgs.

In April 2015, the groundwater flow direction beneath the west and east parcel was measured to be towards the east-southeast and northwest, respectively (Figure 4). The groundwater flow direction to the northwest for the east parcel is based on what appears to be an anomalously high elevation for monitoring well MW9. Monitoring well MW9 is located along the southern property boundary of the east parcel and may be artificially high due to a nearby leaking storm drains or other utility corridors located beneath Northeast 47th Street.

In July 2015, the groundwater flow direction beneath the east and west parcel was measured to be towards the south. This groundwater flow direction is based on 10 of the 11 monitoring wells (excluding the anomalous well MW9 (Figure 5).

6.2.2 Groundwater Sampling and Laboratory Analysis

In October/November 2014 and/or January 2015, RGI collected groundwater samples from all existing monitoring wells on the Property (MW1 to MW9 and B3E). In addition, in July 2015, RGI collected groundwater samples from monitoring wells MW10 and MW11.

Prior to sampling, RGI developed the wells using a surge block and disposable plastic bailer to remove fines from the well and surrounding sand pack.

Following well development, RGI purged and sampled each well using a QED MicroPurge® low-flow air bladder sampling pump. Well purging continued until general water chemistry readings stabilized (for example, pH, conductivity, and dissolved oxygen). These general water chemistry parameters were measured and record in the field using a Horiba U-50 multi-parameter water meter with flow thru-cell.

Groundwater samples were submitted for laboratory analysis of one or more of the following analyses:

- Gasoline-range TPH using Northwest Test Method NWTPH-Gx.
- Diesel- and oil-range TPH using Northwest Test Method NWTPH-Dx.
- BTEX and other VOCs using EPA Test Method 8260C.
- Hydrocarbon Identification using Northwest Test Method NWTPH-HCID.
- cPAHs using EPA Test Method 8270D SIM.
- Total and dissolved RCRA 8 metals in groundwater using EPA Test Methods 200.8 and 1631E.

RGI's groundwater sampling results regarding the west and east parcels are summarized below. In addition, RGI's findings and data reported by others are summarized in the attached Table 3 and Figures 4 and 5 (for both west and east parcels).

6.2.3 Groundwater Analytical Results

Groundwater samples collected from six of the 11 monitoring wells (MW2, MW3, MW4, MW9, MW10, and MW11). Monitoring wells MW2, MW10 and MW11 are located upgradient of the identified soil and/or groundwater contamination, Monitoring wells MW3 and MW9 are located down gradient of the identified soil and/or groundwater contamination.

Concentrations of gasoline- and diesel-range TPH, BTEX, naphthalene and arsenic were detected at concentrations exceeding the groundwater screening levels in several locations across the Property.

Gasoline was detected in the groundwater at concentrations exceeding the groundwater screening levels in MW1, MW5, MW6, MW7, MW8, and B3E with concentrations ranging from 2,200 µg/L to 110,000 µg/L. The highest concentrations were found in MW5 and MW6 (both located on the east parcel).

Benzene was detected in the groundwater at concentrations exceeding the groundwater screening level (5 µg/L) in MW1, MW5, MW6, MW8, and B3E with concentrations ranging from 25 µg/L to 10,000 µg/L. The highest benzene concentration was found in B3E (located on the west parcel in the immediate vicinity of the former 4,000-gallon gasoline UST).

Toluene was detected in the groundwater at concentrations exceeding the groundwater screening level (1,000 µg/L) in MW5, MW6, and B3E with concentrations ranging from 9,600 µg/L to 11,000 µg/L. The highest toluene concentration was found in B3E.

Ethylbenzene was detected in the groundwater at concentrations exceeding the groundwater screening level (700 µg/L) in MW5, MW6, and B3E with concentrations ranging from 3,600 µg/L to 4,100 µg/L. The highest ethylbenzene concentration was found in MW5.

Xylenes were detected in the groundwater at concentrations exceeding the groundwater screening level (1,000 µg/L) in MW5, MW6, MW8, and B3E with concentrations ranging from 1,830 µg/L to 21,500 µg/L. The highest xylene concentrations were found in MW5.

Naphthalene was detected in the groundwater at concentrations exceeding the groundwater screening level (5 µg/L) in MW5, MW6, and B3E with concentrations ranging from 380 µg/L to 560 µg/L. The highest concentration was found in MW6.

Total and dissolved arsenic was detected in the groundwater at concentrations exceeding the groundwater screening level (5 µg/L) in MW5, with concentrations of 8.17 µg/L and 5.82 µg/L, respectively. However, these concentrations are considered representative of naturally occurring background conditions.

The vertical and lateral occurrence and distribution of groundwater contamination is illustrated on the attached Figures and Table and specifically the three cross-sections provided on Figures 8, 9, and 10.

6.3 DPE Remediation Well Installation

In July 2015, RGI installed seven 4-inch diameter DPE wells within the known contamination area location beneath the east parcel (specifically in the area west of the existing auto showroom building).

These DPE were designed and installed based on RGI's air sparge (AS) and soil vapor extraction (SVE) pilot study performed in May-June 2015.

These DPE remediation wells were installed in conjunction with the construction of the new showroom. The DPE wells were installed at depths ranging from 52 to 65 feet bgs. All wells were drilled and installed using a truck- or track-mounted hollow-stem auger rig.

6.4 LNAPL Gaging

RGI has not observed Light Non-Aqueous Phase Liquid (LNAPL) (or free product floating on the groundwater table) at the Property.

6.5 Soil Vapor Investigation

On February 27, 2015 RGI installed and sampled from three temporary soil vapor probes (SV1 to SV3) located within the footprint of the University Audi showroom (on the east parcel). Soil vapor probe locations are depicted on Figure 6 and associated data are summarized in Table 4. Test probe logs describing soil vapor probe construction details are included in Appendix A.

6.5.1 Soil Vapor Probe Installation

Soil vapor probes were installed using a jackhammer to advance a probe rod to refusal, which occurred between approximately 4.5 and 5.5 feet bgs. After soil samples were collected from each location, the hole was backfilled with bentonite to approximately 3 feet bgs. RGI then installed a

temporary 4-inch long soil vapor probe screen attached to approximately 7 feet of 1/8-inch Nylaflow® tubing. The screen was placed a few inches above the bottom of the test probe hole and surrounded in approximately 1 foot of sand. Approximately one foot of dry bentonite was placed above the sand and the soil vapor probe was completed with approximately one foot of hydrated granular bentonite to the surface.

6.5.2 Soil Vapor Sampling Protocols

After sealing each soil vapor probe in place, each soil vapor probe was allowed to equilibrate for approximately two hours before purging and sample collection. This also ensured that the bentonite seal became fully hydrated and formed a tight seal around the soil vapor probe.

A shut in test was performed on the above-ground sampling assembly to ensure that no leaks were present and no leaks were detected. After conducting the shut in test, RGI placed an 8-inch PVC shroud over the soil vapor probe and sampling assembly. The shroud was sealed to the concrete using a non-staining, oil-free, VOC-free polymer sealant. A 1/8-inch barb extended out of the shroud where the helium gas input tubing was inserted and an additional small port was present where the helium concentration in the shroud was measured. The shroud was filled with approximately 25% or 250,000 ppm helium. After which, approximately 480 mL of soil vapor were purged into a tedlar bag. The contents of the tedlar bag were then measured with a helium meter. No helium was detected in the tedlar bags from any of the soil vapor probe locations. Therefore, RGI determined that no leaks were present in the sampling assembly or the soil vapor probe surface seal.

The soil vapor probe tubing was attached to a 60 mL syringe via a three-way fitting and isolation valve, and at least three casing volumes of soil vapor were purged from the test probe prior to sampling.

After purging, the soil vapor probe tubing was connected to the sampling assembly consisting of a 0 to 30-inch vacuum gauge and a 150 milliliter/minute (mL/min) flow restrictor and associated fittings. The sampling assembly was connected to the Summa canister using a quick connect fitting. All soil vapor samples collected during this project were transferred into laboratory supplied (batch certified) evacuated 400 milliliter (mL) Summa canisters. Upon connection to the Summa canisters, the vacuum gauge reading was recorded in the field notebook.

Following soil vapor sample collection, the regulator valve was closed and the time it took to fill the 400 mL summa canister was recorded. The sampling assembly was disconnected and capped with a rubber protective cover supplied by the analytical testing laboratory.

After sampling each soil vapor probe was removed from the test probe. Test probe holes were filled with hydrated bentonite and patched with a concrete surface seal to match the existing grade.

6.5.3 Soil Vapor Analytical Results

A total of three soil vapor samples (SV1 to SV3) were submitted to H&P Mobile Geochemistry, an Ecology-accredited, third-party analytical laboratory for the following analyses:

- Select VOCs using EPA Method TO-15
- TPHv fractions C5 to C8 and C9 to C12 (aliphatics) and C9 to C10 (aromatics) using Massachusetts Air Phase Hydrocarbon (APH) Method
- Carbon dioxide and oxygen using ASTM 1945-96

Soil vapor probes SV1 and SV3 did not contain concentrations of COCs above applicable ERSLs.

Soil vapor probe SV2 contained a benzene concentration of 3.6 micrograms per cubic meter ($\mu g/m^3$), which exceeds the ERSL of 3.2 $\mu g/m^3$ for benzene. The ERSLs are derived from MTCA Method B Indoor Air Cleanup Levels, and utilize very conservative parameters including a slab attenuation factor of 0.1 (the EPA uses a slab attenuation factor of 0.03). When soil vapor concentrations exceed the ERSLs, the Ecology Draft VI Guidance allows for the calculation of Property-specific soil vapor screening levels, which is discussed in the following section.

7.0 SOIL VAPOR DATA EVALUATION

The detected soil vapor concentration of benzene in SV2 exceeded the ERSL. Therefore, further soil vapor evaluation was necessary and is described in this section. Soil vapor data evaluation is summarized in Table 4.

7.1 Ecology Draft VI Guidance

The Ecology Draft VI Guidance was referenced during this project. The Ecology Draft VI Guidance was intended to provide a conservative guide for assessing vapor intrusion (mainly residential) at sites in Washington State where volatile chemicals in the subsurface might pose a threat to indoor air quality via vapor intrusion. This document remains in draft form at the present time and Ecology has no timetable for when the document may be amended and/or finalized.

The Ecology Draft VI Guidance states that if subsurface soil vapor concentrations are sufficiently low, there is no further need to assess the vapor intrusion pathway and provides conservative screening levels (ERSLs) considered protective of MTCA Method B Indoor Air Cleanup Levels. The Draft VI Guidance further states that if soil vapor concentrations are above ERSLs, Property-specific soil vapor screening levels may be calculated using the Johnson & Ettinger Model (JEM) in accordance with the procedures described in Appendix C of the document to further evaluate soil vapor data and determine if vapor intrusion is a concern.

7.2 MTCA Method B Indoor Air Cleanup Levels

The Ecology ERSLs are derived from the MTCA Method B Indoor Air Cleanup Levels and these cleanup levels were also used to calculate Property-specific soil vapor screening levels. The MTCA Method B Indoor Air Cleanup Levels have changed for a number of compounds since the Ecology Draft VI Guidance was released in 2009. Therefore, when appropriate, RGI modified the ERSLs with current MTCA Method B Indoor Air Cleanup Levels obtained from Ecology's Cleanup Level and Risk Calculation (CLARC) database.

7.3 Johnson & Ettinger Model

In 1991, Johnson & Ettinger introduced a screening level model (JEM) which incorporates both convective and diffusive mechanisms for estimating the transport of contaminant vapors emanating from either subsurface soils or groundwater into indoor spaces located directly above or in close proximity to the source of contamination.

The Environmental Protection Agency (EPA) website contains an online calculator which implements the JEM simplified model to evaluate the vapor intrusion pathway into buildings. This version of the JEM is designed for predicting indoor air concentrations for buildings where slab on grade construction or basements exist and can also be used to calculate concentrations of soil vapor protective of MTCA Method B Indoor Air Cleanup Levels.

7.4 Property-Specific Soil Vapor Screening Levels

RGI utilized the EPA online JEM to calculate a Property-specific soil vapor screening level for benzene at 3 feet bgs in location SV2. Copies of the JEM Indoor Air Simulation Results used in the calculation are included in Appendix C.

The JEM forward calculation with Property-specific input data was used to derive a soil vapor to indoor air attenuation factor and best estimate for a predicted benzene indoor air concentration. The soil vapor concentration protective of the MTCA Method B Indoor Air Cleanup Level was then calculated using the equation and subsequent JEM forward calculation described in Appendix D of the Ecology Draft VI Guidance.

The calculated Property-specific soil vapor screening level for benzene was determined to be 92.46 $\mu g/m^3$. Since the detected benzene concentration (3.6 $\mu g/m^3$) was well below this concentration, RGI concludes that the vapor intrusion pathway is not a concern for this Property Building.

8.0 CONCLUSIONS

Based on the results of this RI, RGI concludes the following:

- The historical uses and/or improvements located on the Property have resulted in a release of petroleum hydrocarbons to the subsurface environment (for example, former UST fuel systems).
- The contaminated media identified during this RI include soil, soil vapor, and groundwater.
- In general, contaminated soils were encountered at depths greater than 15 feet bgs to 45 feet bgs, and up to a maximum depth of 60 feet bgs (except for locations beneath the existing new showroom building located on the east parcel where soil contamination was intercepted at shallower depths).
- The nature and extent of the contaminated groundwater is well defined based on the apparent groundwater flow direction to the south-southeast beneath the west and east parcels.
- Relatively high dissolved-phase TPH and BTEX concentrations were detected in the shallow perched water bearing zone located above the underlying very dense glacial till. The shallow perched water bearing zone appears to reside between 45 feet bgs to 60 feet bgs (a 15-foot thick water bearing interval).
- RGI is of the opinion and no significant groundwater contamination has migrated off the Property (other than perhaps the alley dividing the west and east parcels). This opinion is based on down gradient monitoring well data and the low hydraulic conductivity limited volume of perched water present. Therefore, RGI concludes that no additional subsurface investigation is warranted at this time.
- The calculated Property-specific soil vapor screening level for benzene was determined to be 92.46 $\mu g/m^3$. Since the detected benzene concentration (3.6 $\mu g/m^3$) was well below this concentration, RGI concludes that the vapor intrusion pathway is not a concern for this Property Building.

9.0 ANTICIPATED FUTURE WORK

Based on the results of this RI, the following additional work is anticipated:

- Perform biannual to annual groundwater monitoring events using the existing groundwater monitoring wells. Each groundwater monitoring event will include recording depth to groundwater measurements and calculating groundwater flow directions.
- Properly decommission and remove the abandoned (and empty) UST located on the west parcel in accordance with the City of Seattle Fire Department UST ordinance. RGI understands that the Client intends to repave the west parcel in the near future and will remove the UST and perform the UST Site Assessment at that time.
- Prepare a Feasibility Study.
- Complete the remediation system design, installation, and system startup with the cleanup objective of obtaining a No Further Action (NFA) determination.

RGI requests a copy of this RI be submitted to Ecology under the VCP and requests a written opinion, on behalf of the Freeway Properties LLC, that no further site characterization is warranted for the site.

If we may provide you with any additional information or clarification of this work, please contact the undersigned at (425) 415-0551.

Sincerely,

THE RILEY GROUP, INC.

for Anna J. Jordan, LG
Project Geologist

Paul D. Riley, LG, LHG
Principal

Paul D Riley

Attachments

Figure 1, Property Vicinity Map

Figure 2, Aerial Overlay with 1905-1950 Former Improvement and Test Probe Locations

Figure 3, Summary of Soil Laboratory Analytical Results Property Plan

Figure 4, Summary of Groundwater Flow Directions and Lab Results Property Plan: April 2015

Figure 5, Summary of Groundwater Flow Directions and Lab Results Property Plan: July 2015

Figure 6, Summary of Soil Vapor Results Property Plan

Figure 7, 1993/1994 UST Remediation Excavation Limits with Boring and Sample Locations

Figure 8, 2015 Elevator Pit Remediation Excavation Limits and Sample Locations

Figure 9, Cross-Section A-A'

Figure 10, Cross-Section B-B'

Figure 11, Cross-Section C-C'

Table 1, Summary of Soil Field Screening Results

Table 2, Summary of Soil Sample Analytical Laboratory Results

Table 3, Summary of Groundwater Sample Analytical Laboratory Results

Table 4. Summary of Soil Vapor Sample Analytical Laboratory Results

Appendix A, Grain Sieve Analyses and Boring Logs

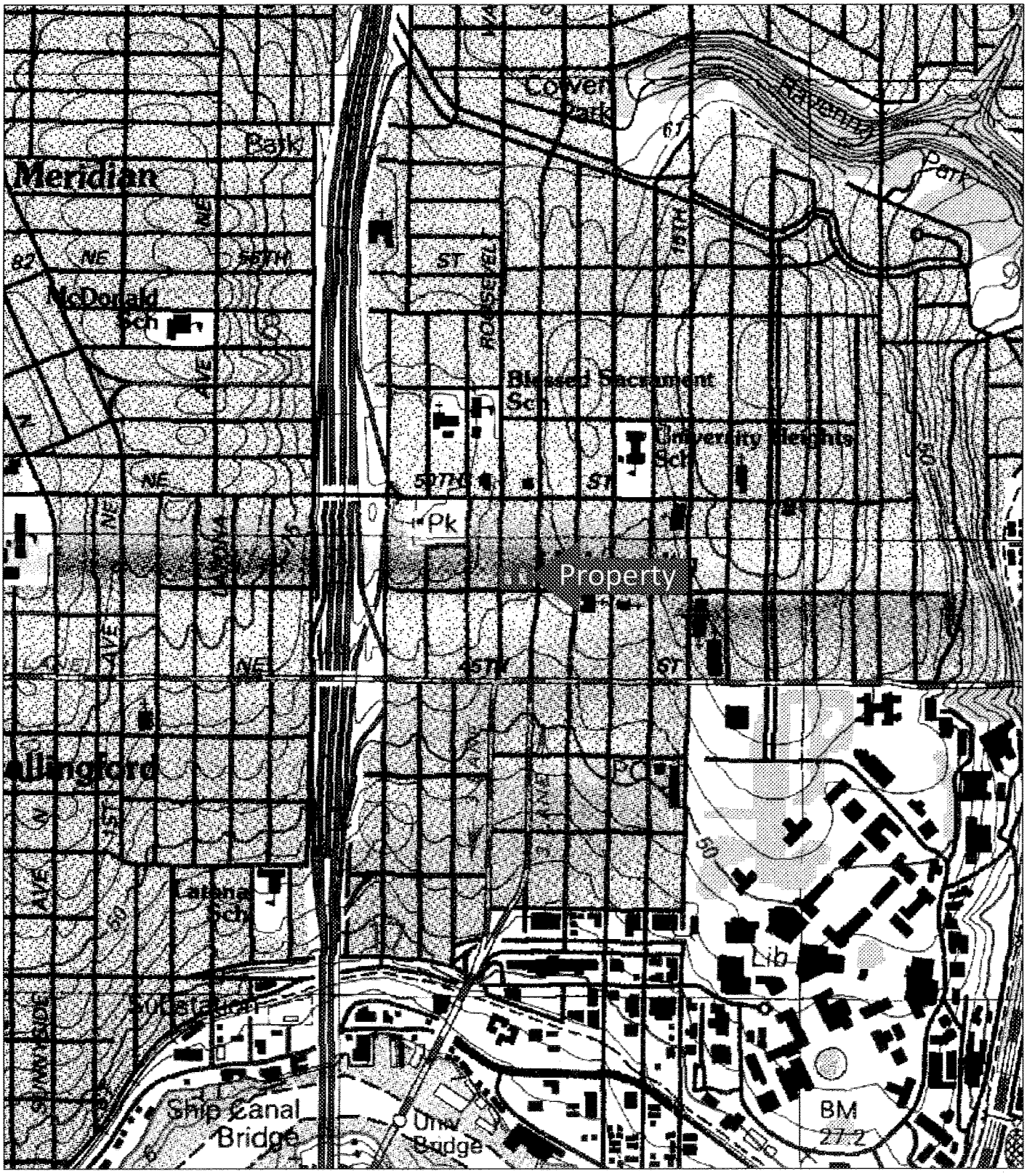
Appendix B, cPAH TEF Calculations and Laboratory Analytical Reports

Appendix C, EPA Indoor Air Simulation Results

Appendix D, Site Photographs

Distribution *Mr. Rob Will, Freeway Properties, LLC (one bound copy and PDF)*

Mr. Grant Yang, Washington State Department of Ecology (one bound report and PDF)



USGS, 1983, Seattle North, Washington
7.5-Minute Quadrangle

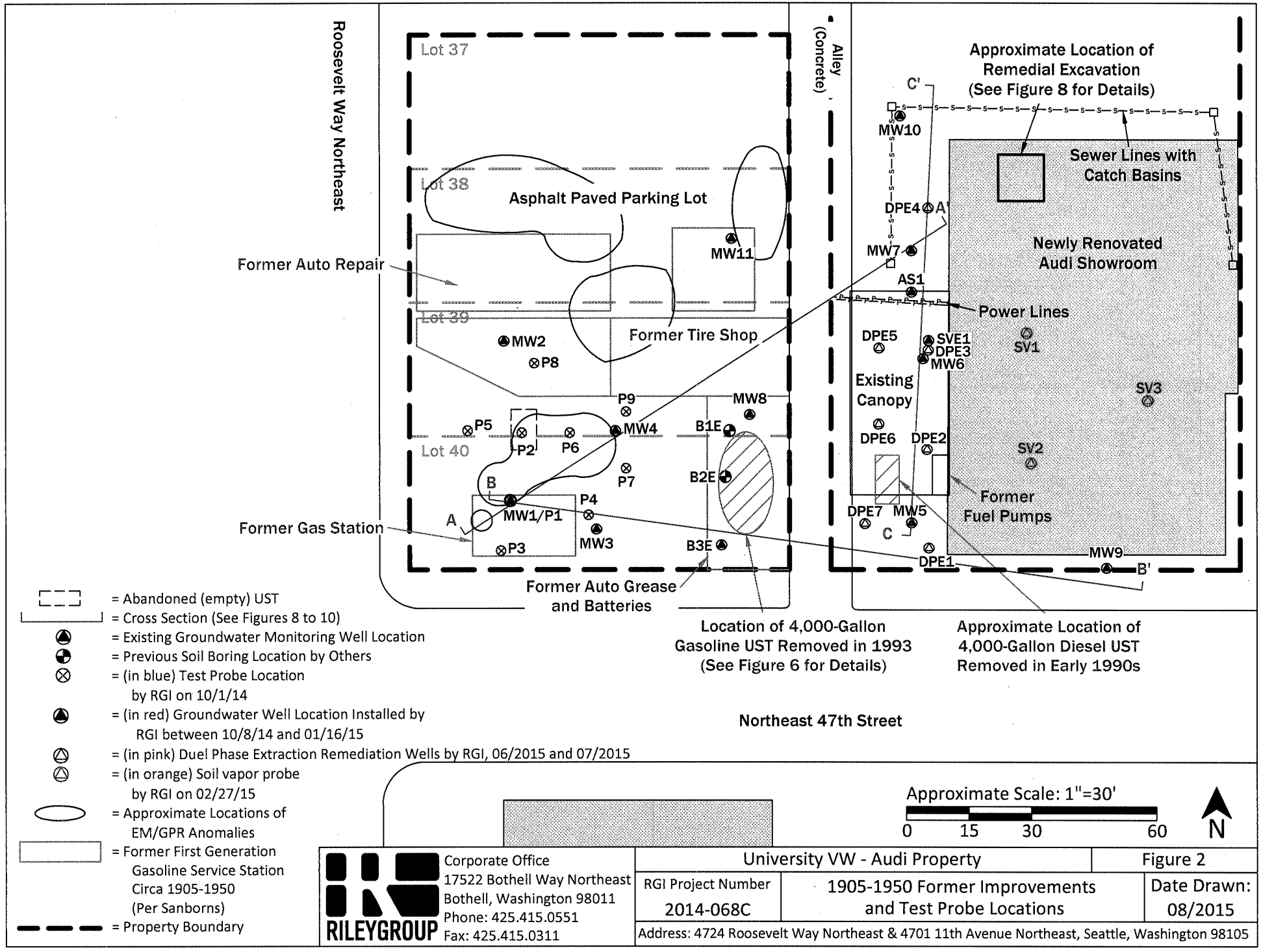
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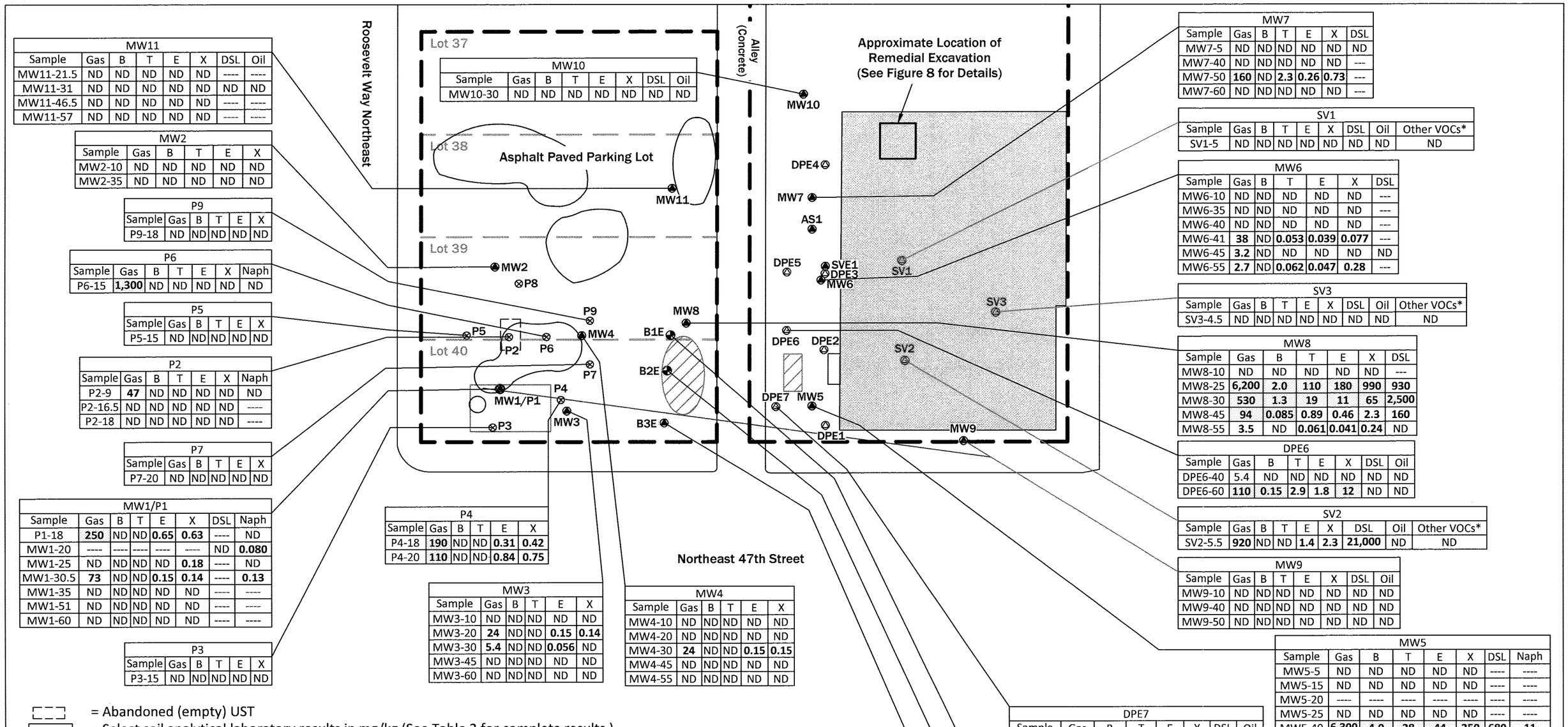
RILEYGROUP
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University VW - Audi Property		Figure 1
RGI Project Number 2014-068C	Property Vicinity Map	Date Drawn: 08/2015
Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105		



RILEYGROUP
Corporate Office
17522 Bothell Way Northeast
Bothell, Washington 98011
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Fax: 425.415.0311

University VW - Audi Property		Figure 2
RGI Project Number 2014-068C	1905-1950 Former Improvements and Test Probe Locations	Date Drawn: 08/2015
Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105		



MW11							
Sample	Gas	B	T	E	X	DSL	Oil
MW11-21.5	ND	ND	ND	ND	ND	----	----
MW11-31	ND	ND	ND	ND	ND	ND	ND
MW11-46.5	ND	ND	ND	ND	ND	----	----
MW11-57	ND	ND	ND	ND	ND	----	----

MW2					
Sample	Gas	B	T	E	X
MW2-10	ND	ND	ND	ND	ND
MW2-35	ND	ND	ND	ND	ND

P9					
Sample	Gas	B	T	E	X
P9-18	ND	ND	ND	ND	ND

P6						
Sample	Gas	B	T	E	X	Naph
P6-15	**1,300**	ND	ND	ND	ND	ND

P5					
Sample	Gas	B	T	E	X
P5-15	ND	ND	ND	ND	ND

P2						
Sample	Gas	B	T	E	X	Naph
P2-9	**47**	ND	ND	ND	ND	ND
P2-16.5	ND	ND	ND	ND	ND	----
P2-18	ND	ND	ND	ND	ND	----

P7					
Sample	Gas	B	T	E	X
P7-20	ND	ND	ND	ND	ND

MW1/P1							
Sample	Gas	B	T	E	X	DSL	Naph
P1-18	**250**	ND	ND	**0.65**	**0.63**	----	ND
MW1-20	----	----	----	----	----	ND	**0.080**
MW1-25	ND	ND	ND	ND	**0.18**	----	ND
MW1-30.5	**73**	ND	ND	**0.15**	**0.14**	----	**0.13**
MW1-35	ND	ND	ND	ND	ND	----	----
MW1-51	ND	ND	ND	ND	ND	----	----
MW1-60	ND	ND	ND	ND	ND	----	----

P3					
Sample	Gas	B	T	E	X
P3-15	ND	ND	ND	ND	ND

P4					
Sample	Gas	B	T	E	X
P4-18	**190**	ND	ND	**0.31**	**0.42**
P4-20	**110**	ND	ND	**0.84**	**0.75**

MW3					
Sample	Gas	B	T	E	X
MW3-10	ND	ND	ND	ND	ND
MW3-20	**24**	ND	ND	**0.15**	**0.14**
MW3-30	**5.4**	ND	ND	**0.056**	ND
MW3-45	ND	ND	ND	ND	ND
MW3-60	ND	ND	ND	ND	ND

MW4					
Sample	Gas	B	T	E	X
MW4-10	ND	ND	ND	ND	ND
MW4-20	ND	ND	ND	ND	ND
MW4-30	**24**	ND	ND	**0.15**	**0.15**
MW4-45	ND	ND	ND	ND	ND
MW4-55	ND	ND	ND	ND	ND

MW10							
Sample	Gas	B	T	E	X	DSL	Oil
MW10-30	ND	ND	ND	ND	ND	ND	ND

MW7						
Sample	Gas	B	T	E	X	DSL
MW7-5	ND	ND	ND	ND	ND	ND
MW7-40	ND	ND	ND	ND	ND	---
MW7-50	**160**	ND	**2.3**	**0.26**	**0.73**	---
MW7-60	ND	ND	ND	ND	ND	---

SV1								
Sample	Gas	B	T	E	X	DSL	Oil	Other VOCs*
SV1-5	ND	ND	ND	ND	ND	ND	ND	ND

MW6						
Sample	Gas	B	T	E	X	DSL
MW6-10	ND	ND	ND	ND	ND	---
MW6-35	ND	ND	ND	ND	ND	---
MW6-40	ND	ND	ND	ND	ND	---
MW6-41	**38**	ND	**0.053**	**0.039**	**0.077**	---
MW6-45	**3.2**	ND	ND	ND	ND	ND
MW6-55	**2.7**	ND	**0.062**	**0.047**	**0.28**	---

SV3								
Sample	Gas	B	T	E	X	DSL	Oil	Other VOCs*
SV3-4.5	ND	ND	ND	ND	ND	ND	ND	ND

MW8							
Sample	Gas	B	T	E	X	DSL	
MW8-10	ND	ND	ND	ND	ND	---	
MW8-25	**6,200**	**2.0**	**110**	**180**	**990**	**930**	
MW8-30	**530**	**1.3**	**19**	**11**	**65**	**2,500**	
MW8-45	**94**	**0.085**	**0.89**	**0.46**	**2.3**	**160**	
MW8-55	**3.5**	ND	**0.061**	**0.041**	**0.24**	ND	

DPE6							
Sample	Gas	B	T	E	X	DSL	Oil
DPE6-40	5.4	ND	ND	ND	ND	ND	ND
DPE6-60	**110**	**0.15**	**2.9**	**1.8**	**12**	ND	ND

SV2								
Sample	Gas	B	T	E	X	DSL	Oil	Other VOCs*
SV2-5.5	**920**	ND	ND	**1.4**	**2.3**	**21,000**	ND	ND

MW9							
Sample	Gas	B	T	E	X	DSL	Oil
MW9-10	ND	ND	ND	ND	ND	ND	ND
MW9-40	ND	ND	ND	ND	ND	ND	ND
MW9-50	ND	ND	ND	ND	ND	ND	ND

MW5							
Sample	Gas	B	T	E	X	DSL	Naph
MW5-5	ND	ND	ND	ND	ND	----	----
MW5-15	ND	ND	ND	ND	ND	----	----
MW5-20	----	----	----	----	----	----	----
MW5-25	ND	ND	ND	ND	ND	----	----
MW5-40	**6,300**	**4.0**	**28**	**44**	**250**	**680**	**11**
MW5-45	----	----	----	----	----	----	----
MW5-50	**48**	**0.70**	**1.1**	**0.09**	**4.8**	----	----
MW5-55	**4.1**	**0.18**	**0.14**	**0.10**	**0.37**	----	----
MW5-60	**45**	**0.31**	**0.67**	**0.74**	**4.7**	----	----
MW5-65	**20**	**0.061**	**0.23**	**0.27**	**1.7**	----	----

DPE7							
Sample	Gas	B	T	E	X	DSL	Oil
DPE7-15	ND	ND	ND	ND	ND	ND	ND
DPE7-30	**680**	**0.31**	**4.7**	**13**	**81**	**120**	ND
DPE7-50	**1,400**	**4.7**	**86**	**28**	**180**	**340**	ND
DPE7-60	**170**	**0.20**	**5.9**	**3.0**	**19**	ND	ND
DPE7-65	**16**	**0.039**	**0.47**	**0.18**	**1.4**	ND	ND

B3E									
Sample	Gas	B	T	E	X	DSL	Oil	Naph	Lead
B3E @ 19'-20.5'	**1,600**	**3.9**	**44**	**14**	**71**	**87**	ND	**3.4**	ND
B3E @ 29'-29.5'	**280**	**1.5**	**11**	**5.7**	**28**	**92**	ND	**1.8**	ND
B3E @ 34'-34.5'	**46**	**1.5**	**2.3**	**0.34**	**2.0**	ND	ND	**0.19**	ND

B2E									
Sample	Gas	B	T	E	X	DSL	Oil	Naph	Lead
B2E @ 24'-25.5'	**3,900**	**0.51**	**22**	**27**	**180**	**450**	ND	**5.3**	**1.4**
B2E @ 29'-29.5'	**460**	**0.26**	**9.1**	**8.2**	**50**	**150**	ND	**3.7**	ND
B2E @ 39'-39.5'	**170**	**1.4**	**11**	**3.1**	**17**	ND	ND	**0.23**	ND

B1E									
Sample	Gas	B	T	E	X	DSL	Oil	Naph	Lead
B1E @ 24'-25'	**2,100**	**11**	**81**	**57**	**160**	**640**	ND	**6.5**	**1.1**
B1E @ 44'-44.5'	**290**	**0.9**	**0.42**	**0.9**	**2.7**	**940**	ND	**2.3**	**1.9**
B1E @ 49'-49.5'	**48**	ND	**0.10**	**0.24**	**0.90**	**41**	ND	ND	**1.5**

= Abandoned (empty) UST

= Select soil analytical laboratory results in mg/kg (See Table 2 for complete results.)

Gas/DSL/Oil = Gasoline/diesel/oil total petroleum hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, xylenes
Naph = Naphthalene
VOCs = Volatile organic compounds
*Only those above cleanup levels shown. See table 2 for complete results.
ND = Not detected above laboratory detection limits
---- = Not analyzed
Yellow and bold highlighted results exceed soil screening levels.

= (in orange) Soil vapor probe installed by RGI on 02/27/15
= (in pink) Duel Phase Extraction Remediation Wells by RGI between 06/2015 and 07/2015
= (in red) Groundwater well location installed by RGI between 10/08/14 and 01/16/15
= (in blue) Test probe location by RGI on 10/01/14
= Previous soil boring location
= Existing groundwater monitoring well location
= Approximate locations of EM/GPR anomalies
= Property boundary

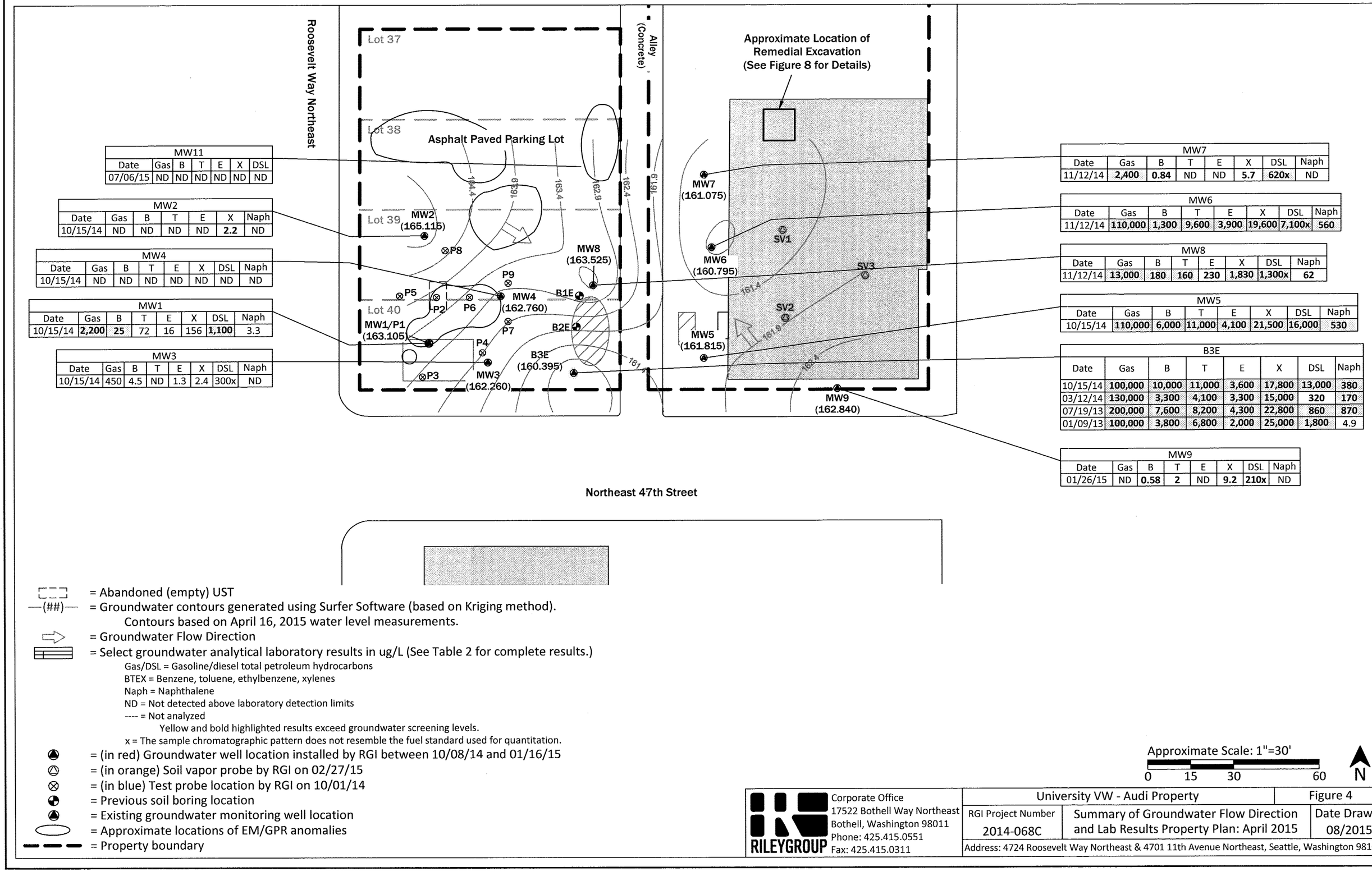
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0 15 30 60
N

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University VW - Audi Property | Figure 3

RGI Project Number 2014-068C | Summary of Soil Laboratory Results Property Plan | Date Drawn: 08/2015

Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105



MW11						
Date	Gas	B	T	E	X	DSL
07/06/15	ND	ND	ND	ND	ND	ND

MW2						
Date	Gas	B	T	E	X	Naph
10/15/14	ND	ND	ND	ND	**2.2**	ND

MW4							
Date	Gas	B	T	E	X	DSL	Naph
10/15/14	ND	ND	ND	ND	ND	ND	ND

MW1							
Date	Gas	B	T	E	X	DSL	Naph
10/15/14	**2,200**	**25**	72	16	156	**1,100**	3.3

MW3							
Date	Gas	B	T	E	X	DSL	Naph
10/15/14	450	4.5	ND	1.3	2.4	300x	ND

MW7							
Date	Gas	B	T	E	X	DSL	Naph
11/12/14	**2,400**	**0.84**	ND	ND	**5.7**	**620x**	ND

MW6							
Date	Gas	B	T	E	X	DSL	Naph
11/12/14	**110,000**	**1,300**	**9,600**	**3,900**	**19,600**	**7,100x**	**560**

MW8							
Date	Gas	B	T	E	X	DSL	Naph
11/12/14	**13,000**	**180**	**160**	**230**	**1,830**	**1,300x**	**62**

MW5							
Date	Gas	B	T	E	X	DSL	Naph
10/15/14	**110,000**	**6,000**	**11,000**	**4,100**	**21,500**	**16,000**	**530**

B3E							
Date	Gas	B	T	E	X	DSL	Naph
10/15/14	**100,000**	**10,000**	**11,000**	**3,600**	**17,800**	**13,000**	**380**
03/12/14	**130,000**	**3,300**	**4,100**	**3,300**	**15,000**	**320**	**170**
07/19/13	**200,000**	**7,600**	**8,200**	**4,300**	**22,800**	**860**	**870**
01/09/13	**100,000**	**3,800**	**6,800**	**2,000**	**25,000**	**1,800**	4.9

MW9							
Date	Gas	B	T	E	X	DSL	Naph
01/26/15	ND	**0.58**	**2**	ND	**9.2**	**210x**	ND

= Abandoned (empty) UST

—(##)— = Groundwater contours generated using Surfer Software (based on Kriging method).
Contours based on April 16, 2015 water level measurements.

= Groundwater Flow Direction

= Select groundwater analytical laboratory results in ug/L (See Table 2 for complete results.)

Gas/DSL = Gasoline/diesel total petroleum hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, xylenes
Naph = Naphthalene
ND = Not detected above laboratory detection limits
---- = Not analyzed
Yellow and bold highlighted results exceed groundwater screening levels.
x = The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

= (in red) Groundwater well location installed by RGI between 10/08/14 and 01/16/15
= (in orange) Soil vapor probe by RGI on 02/27/15
= (in blue) Test probe location by RGI on 10/01/14
= Previous soil boring location
= Existing groundwater monitoring well location
= Approximate locations of EM/GPR anomalies
= Property boundary

Approximate Scale: 1"=30'
0 15 30 60
N

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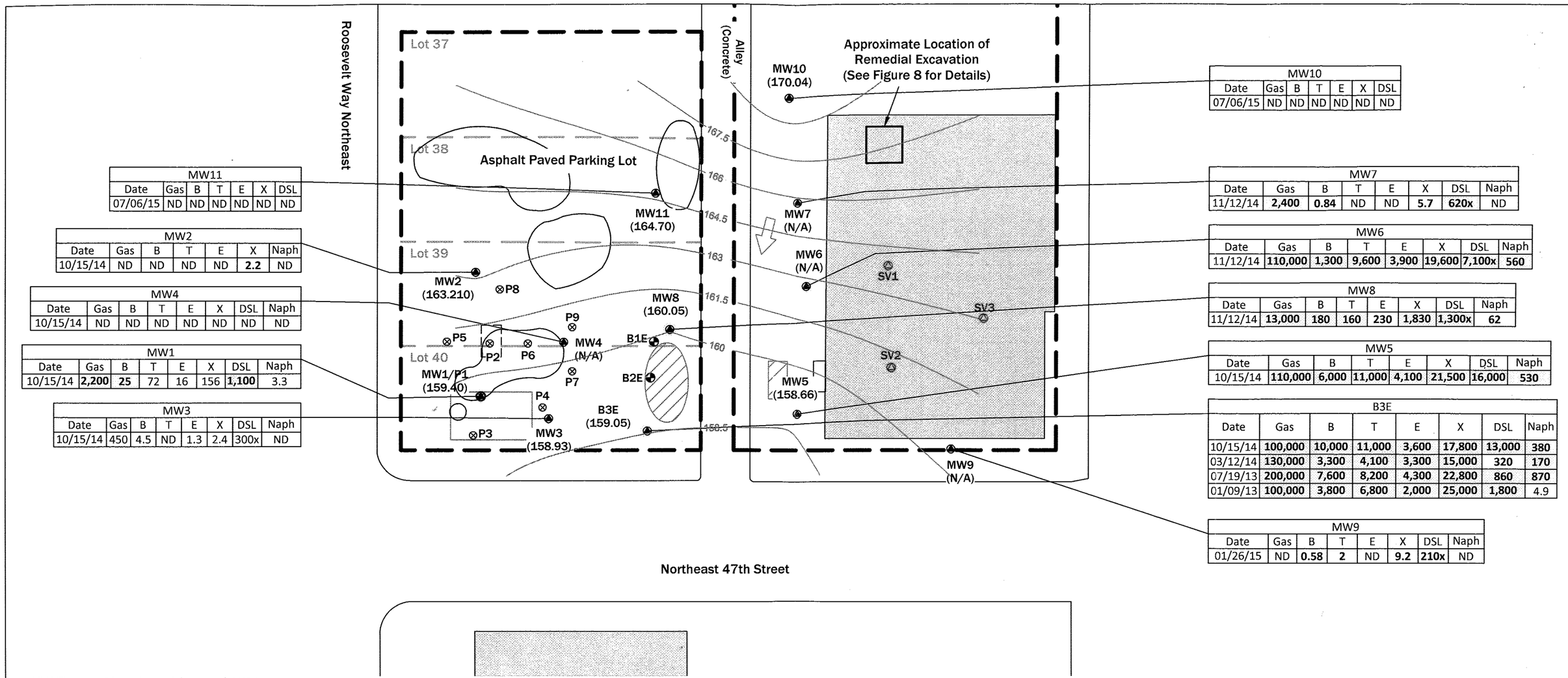
University VW - Audi Property | Figure 4

RGI Project Number 2014-068C

Summary of Groundwater Flow Direction and Lab Results Property Plan: April 2015

Date Drawn: 08/2015

Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105



MW11						
Date	Gas	B	T	E	X	DSL
07/06/15	ND	ND	ND	ND	ND	ND

MW2						
Date	Gas	B	T	E	X	Naph
10/15/14	ND	ND	ND	ND	**2.2**	ND

MW4							
Date	Gas	B	T	E	X	DSL	Naph
10/15/14	ND	ND	ND	ND	ND	ND	ND

MW1							
Date	Gas	B	T	E	X	DSL	Naph
10/15/14	**2,200**	**25**	72	16	156	**1,100**	3.3

MW3							
Date	Gas	B	T	E	X	DSL	Naph
10/15/14	450	4.5	ND	1.3	2.4	300x	ND

MW10						
Date	Gas	B	T	E	X	DSL
07/06/15	ND	ND	ND	ND	ND	ND

MW7							
Date	Gas	B	T	E	X	DSL	Naph
11/12/14	**2,400**	**0.84**	ND	ND	**5.7**	**620x**	ND

MW6							
Date	Gas	B	T	E	X	DSL	Naph
11/12/14	**110,000**	**1,300**	**9,600**	**3,900**	**19,600**	**7,100x**	**560**

MW8							
Date	Gas	B	T	E	X	DSL	Naph
11/12/14	**13,000**	**180**	**160**	**230**	**1,830**	**1,300x**	**62**

MW5							
Date	Gas	B	T	E	X	DSL	Naph
10/15/14	**110,000**	**6,000**	**11,000**	**4,100**	**21,500**	**16,000**	**530**

B3E							
Date	Gas	B	T	E	X	DSL	Naph
10/15/14	**100,000**	**10,000**	**11,000**	**3,600**	**17,800**	**13,000**	**380**
03/12/14	**130,000**	**3,300**	**4,100**	**3,300**	**15,000**	**320**	**170**
07/19/13	**200,000**	**7,600**	**8,200**	**4,300**	**22,800**	**860**	**870**
01/09/13	**100,000**	**3,800**	**6,800**	**2,000**	**25,000**	**1,800**	4.9

MW9							
Date	Gas	B	T	E	X	DSL	Naph
01/26/15	ND	**0.58**	**2**	ND	**9.2**	**210x**	ND

= Abandoned (empty) UST

—(##)— = Groundwater contours generated using Surfer Software (based on Kriging method). Contours based on July 6, 2015 water level measurements.

= Groundwater Flow Direction

= Select groundwater analytical laboratory results in ug/L (See Table 2 for complete results.)

Gas/DSL = Gasoline/diesel total petroleum hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, xylenes
Naph = Naphthalene
ND = Not detected above laboratory detection limits
---- = Not analyzed
Yellow and bold highlighted results exceed groundwater screening levels.
x = The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

= (in red) Groundwater well location installed by RGI between 10/08/14 and 01/16/15

= (in orange) Soil vapor probe by RGI on 02/27/15

= (in blue) Test probe location by RGI on 10/01/14

= Previous soil boring location

= Existing groundwater monitoring well location

= Approximate locations of EM/GPR anomalies

= Property boundary

Approximate Scale: 1"=30'

0 15 30 60

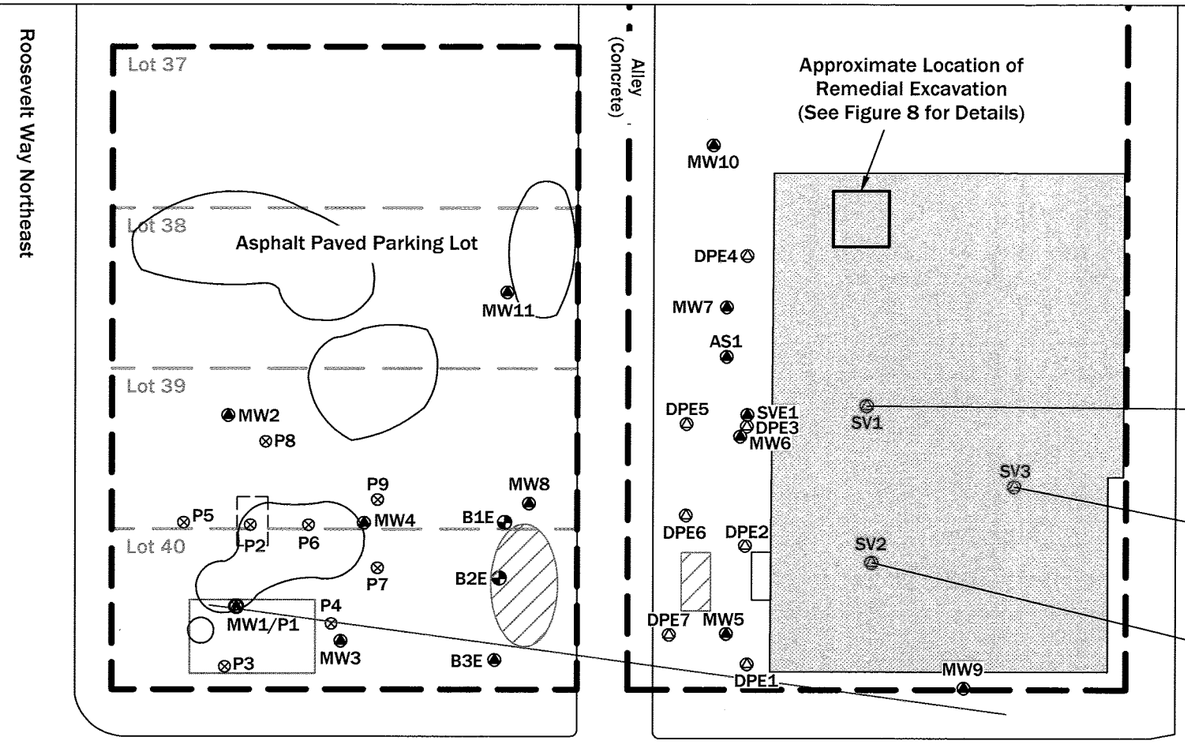
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University VW - Audi Property | Figure 5

RGI Project Number 2014-068C | Summary of Groundwater Flow Direction and Lab Results Property Plan: July 2015 | Date Drawn: 08/2015

Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105



SV1										
Sample	TPHv Fractions			B	T	E	X	n-Hexane	1,3,5-Trimethyl benzene	Other VOCs
	C5-C8	C9-C12	C9-C10							
SV1	**2,200**	ND	ND	ND	**6.6**	ND	ND	ND	ND	ND

SV3										
Sample	TPHv Fractions			B	T	E	X	n-Hexane	1,3,5-Trimethyl benzene	Other VOCs
	C5-C8	C9-C12	C9-C10							
SV3	**1,900**	**530**	ND	ND	**8.4**	ND	ND	ND	ND	ND

SV2										
Sample	TPHv Fractions			B	T	E	X	n-Hexane	1,3,5-Trimethyl benzene	Other VOCs
	C5-C8	C9-C12	C9-C10							
SV2	**1,900**	**1,300**	ND	**3.6**	**16**	**18**	**28.7**	**3.9**	**10**	ND

= Abandoned (empty) UST

= Select soil vapor analytical laboratory results in ug/m³

Gas = Gasoline total petroleum hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, xylenes
VOCs = Volatile organic compounds
ND = Not detected above laboratory detection limits
Yellow and bold highlighted results, if any, exceed ERSLs and/or property-specific soil vapor screening levels.

= (in orange) Soil vapor probe installed by RGI on 02/27/15

= (in pink) Duel Phase Extraction Remediation Wells by RGI between 06/2015 and 07/2015

= (in red) Groundwater well location installed by RGI between 10/08/14 and 01/16/15

= (in blue) Test probe location by RGI on 10/01/14

= Previous soil boring location

= Existing groundwater monitoring well location

= Approximate locations of EM/GPR anomalies

= Property boundary

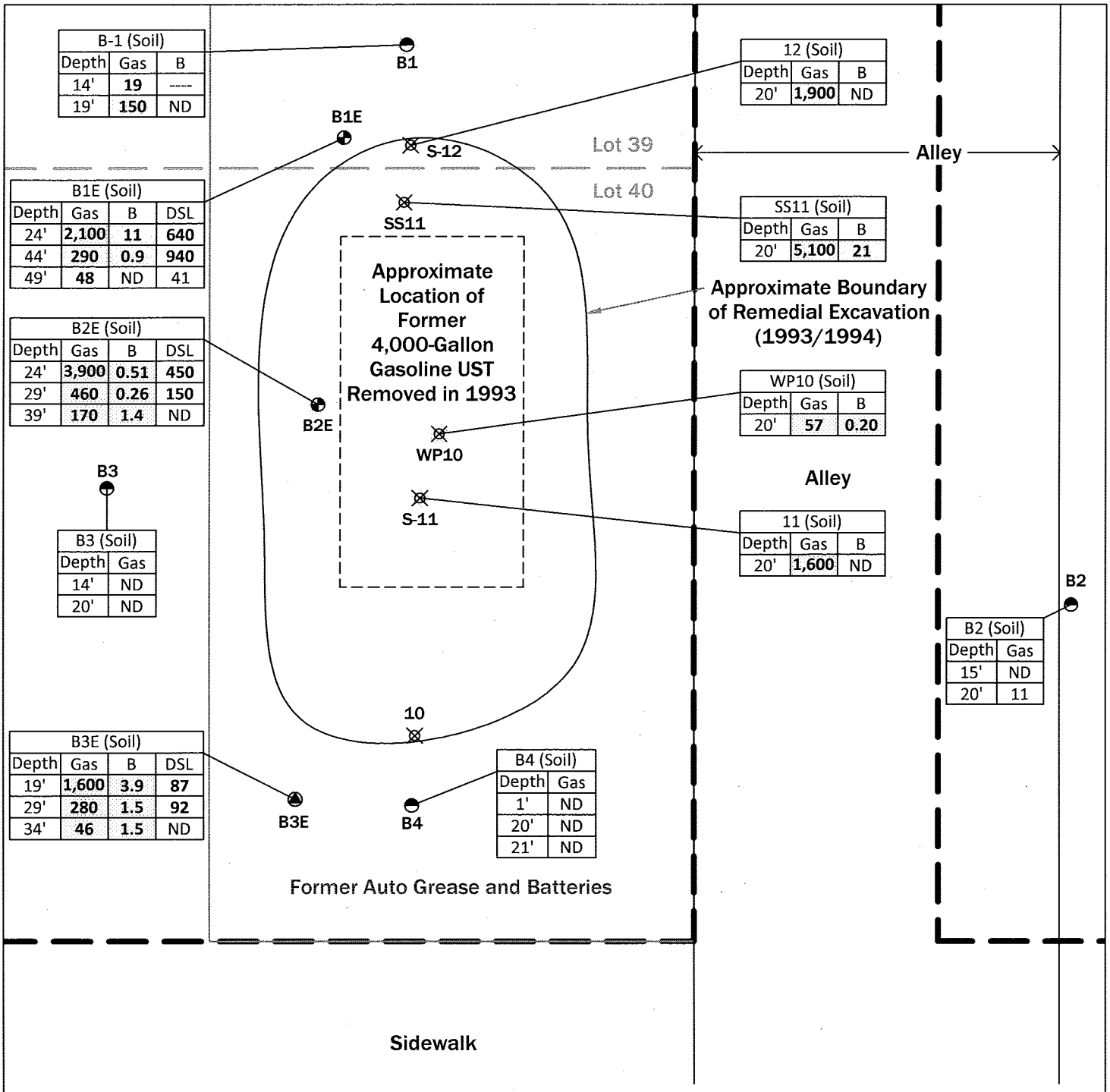
Approximate Scale: 1"=30'

0 15 30 60

N

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University VW - Audi Property		Figure 6
RGI Project Number 2014-068C	Property Plan with Analytical Soil Vapor Results	Date Drawn: 08/2015
Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105		



= Select soil analytical laboratory results in mg/kg (See Table 2 for complete results.)

Gas/DSL= Gasoline/diesel total petroleum hydrocarbons

B = Benzene

ND = Not detected above laboratory detection limits

Yellow and bold highlighted results exceed soil screening levels.

= Existing Groundwater Monitoring Well Location

= Excavation Limit Sample Location by Others

= Previous Soil Boring Location by Geotech Consultants, Inc.

= Approximate Previous Soil Boring Location by Bison Environmental

= Property Boundary

Approximate Scale: 1"=6'

0 3 6 12

N

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University VW - Audi Property | Figure 7

RGI Project Number 2014-068C | 1993/1994 UST Remediation Excavation Limits with Boring and Sample Locations | Date Drawn: 08/2015

Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105

Alley

MW10

DPE4

MW7

ESW4														
Depth	Gas	B	T	E	X	DSL	Oil	Other VOCs	Naph	As	Cd	Cr	Pb	Hg
4' bgs	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.40**	ND	**8.28**	**1.44**	ND

BOT7														
Depth	Gas	B	T	E	X	DSL	Oil	Other VOCs	Naph	As	Cd	Cr	Pb	Hg
7' bgs	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.52**	ND	**8.81**	**1.58**	ND

WSW4														
Depth	Gas	B	T	E	X	DSL	Oil	Other VOCs	Naph	As	Cd	Cr	Pb	Hg
4' bgs	**870**	ND	ND	**0.088**	**0.10**	**3,800**	ND	**Isopropylbenzene = 0.23 n-Propylbenzene = 0.40 1,3,5-Trimethylbenzene = 0.91 sec-Butylbenzene = 0.47 p-Isopropyltoluene = 0.55**	**4.9**	**5.79**	ND	**18.3**	**3.61**	ND

NSW4

5' bgs

NSW6

WSW4 WSW6 7' bgs ESW6 ESW4

BOT7

SSW6

Approximate Boundary of Remedial Excavation

SS2

SS3

SS1

Approximate Stockpile Location

Stockpile Samples														
Sample	Gas	B	T	E	X	DSL	Oil	Other VOCs	Naph	As	Cd	Cr	Pb	Hg
SS1	**170**	ND	ND	ND	ND	**210**	ND	**1,3,5-Trimethylbenzene = 0.10 sec-Butylbenzene = 0.62 p-Isopropyltoluene = 0.79**	**0.53**	**4.87**	ND	**16.5**	**4.48**	ND
SS2	**25**	ND	ND	ND	ND			ND						
SS3	**67**	ND	ND	ND	ND			ND						

= Soil analytical laboratory results in mg/kg
Gas/DSL/Oil = Gasoline/diesel/oil total petroleum hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, xylenes
Naph = Naphthalene
VOCs = Volatile organic compounds
As = Arsenic, Cd = cadmium, Cr = chromium, Pb = lead, Hg = mercury
ND = Not detected above laboratory detection limits
---- = Not analyzed
Yellow and bold highlighted results exceed soil screening levels.

= Sample Location by RGI on 01/12/15
= (in red) Groundwater well location installed by RGI between 10/08/14 and 01/16/15
= (in pink) Duel Phase Extraction Remediation Wells by RGI between 06/2015 and 07/2015
= Property boundary

Approximate Scale: 1"=6'

0 3 6 12

N

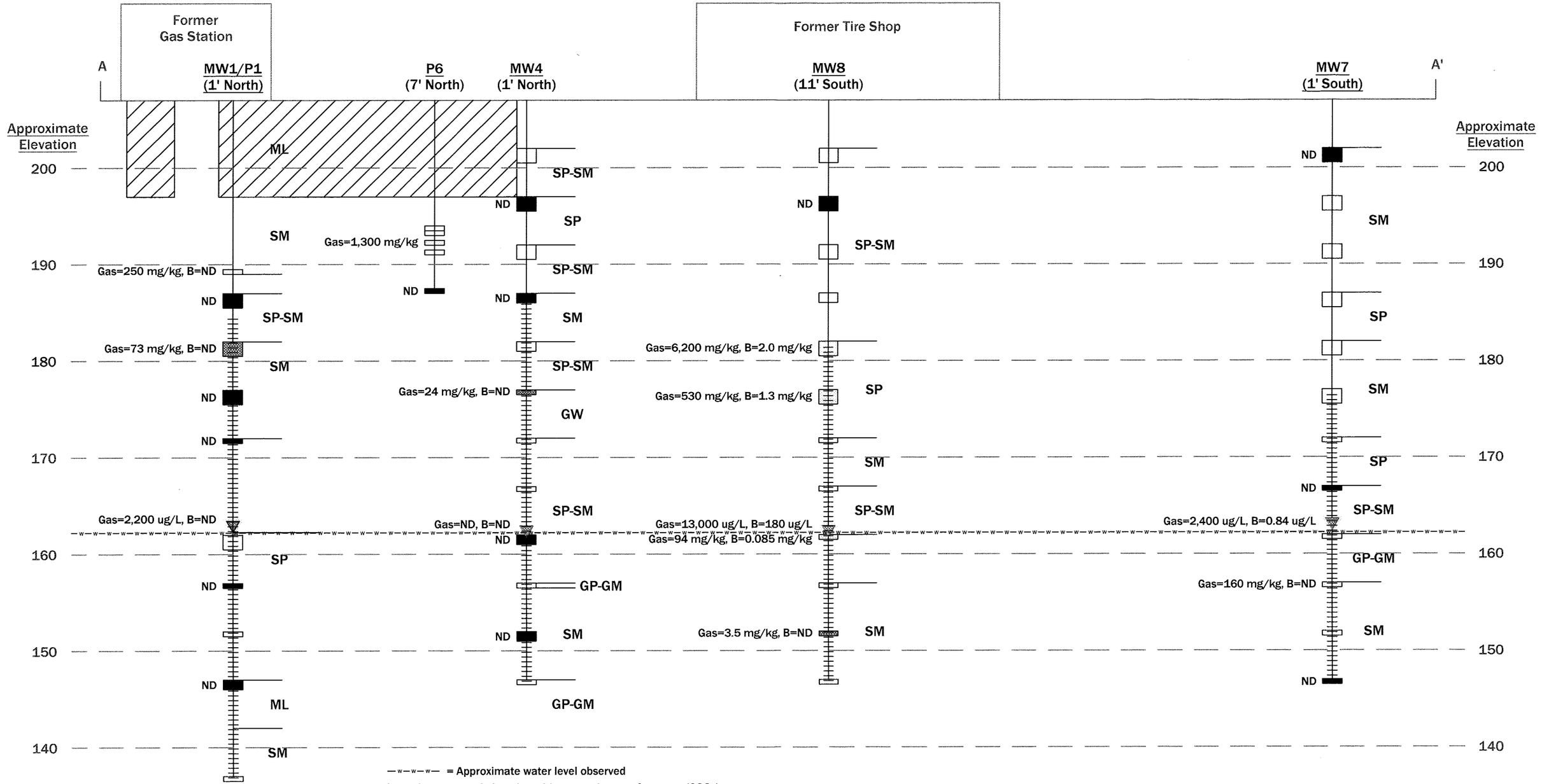
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University VW - Audi Property | Figure 8

RGI Project Number 2014-068C | 2015 Elevator Pit Remediation Excavation Limits and Sample Locations | Date Drawn: 08/2015

Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105

Looking Northwest



—w—w—w— = Approximate water level observed

Groundwater sample location with contaminants of concern (COCs):

- Not analyzed or detected below screening levels
- Detected above groundwater screening levels

Soil sample location with COCs:

- Not analyzed
- Not detected
- Detected below soil screening levels
- Detected above soil screening levels

COCs: gasoline TPH, benzene, toluene, ethylbenzene, xylenes, and/or naphthalene

= Approximate Locations of EMAG/GPR Anomalies

= Former First Generation Gasoline Service Station Circa 1905-1950 (Per Sanborns)

Approximate Scale
Horizontal: 1"=10'
Vertical: 1"=10'
Vertical Exaggeration: None

10
5
0
0 5 10 20

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University VW - Audi Property		Figure 9
RGI Project Number 2014-068C	Cross Section A-A'	Date Drawn: 08/2015
Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105		

Looking North

Former Gas Station

Former Auto Grease and Batteries

Alley

Newly Renovated Audi Showroom (2' to 8' North)

B

B'

MW1/P1

MW3 (3' South)

P7 (12' South)

B3E (3' South)

DPE7 (6' North)

MW5 (8' North)

DPE1 (3' North)

SV2 (26' North)

MW9 (4' North)

Approximate Elevation

200

190

180

170

160

150

140

ML

SM

SP-SM

SP

GM

ND

Fill

Appproximate Location of USTs Removed in 1993

Former UST Location (12' North)

Former Pump Island (16' North)

Gas=250 mg/kg, B=ND

Gas=24 mg/kg, B=ND

Gas=73 mg/kg, B=ND

Gas=5.4 mg/kg, B=ND

Gas=2,200 ug/L, B=ND

Gas=450 ug/L, B=4.5 ug/L

Gas=1,600 mg/kg, B=3.9 mg/kg

Gas=280 mg/kg, B=1.5 mg/kg

Gas=46 mg/kg, B=1.5 mg/kg

Gas=100,000 ug/L, B=10,000 ug/L

Gas=680 mg/kg, B=0.31 mg/kg

Gas=6,300 mg/kg, B=4.0 mg/kg

Gas=100,000 ug/L, B=1,300 ug/L

Gas=1,400 mg/kg, B=4.7 mg/kg

Gas=48 mg/kg, B=0.70 mg/kg

Gas=4.1 mg/kg, B=0.18 mg/kg

Gas=170 mg/kg, B=0.20 mg/kg

Gas=45 mg/kg, B=0.31 mg/kg

Gas=16 mg/kg, B=0.039 mg/kg

Gas=20 mg/kg, B=0.061 mg/kg

Gas=920 mg/kg, B=ND mg/kg
Diesel=21,000 mg/kg, Naph.=20

Gas=ND, B=2 ug/L

—w—w—w— = Approximate water level observed

Groundwater sample location with contaminants of concern (COCs):

- Not analyzed or detected below screening levels
- Detected above groundwater screening levels

Soil sample location with COCs:

- Not analyzed
- Not detected
- Detected below soil screening levels
- Detected above soil screening levels

COCs: gasoline TPH, benzene, toluene, ethylbenzene, xylenes, and/or naphthalene

Approximate Scale
Horizontal: 1"=10'
Vertical: 1"=10'
Vertical Exaggeration: None

0 5 10 20

= Former First Generation Gasoline Service Station Circa 1905-1950 (Per Sanborns)

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University VW - Audi Property

Figure 10

RGI Project Number 2014-068C

Cross Section B-B'

Date Drawn: 08/2015

Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105

Looking West

C

C'

MW5

DPE2 (3' East)

DPE6 (9' West)

MW6 (1' East)

MW7 (3' West)

DPE4

MW10 (7' West)

Approximate Elevation

200

190

180

170

160

150

140

ND

SM

SP

SP-SM

ML

GP-GM

Gas=6,300 mg/kg, B=4.0 mg/kg

Gas=100,000 ug/L, B=1,300 ug/L

Gas=48 mg/kg, B=0.70 mg/kg

Gas=4.1 mg/kg, B=0.18 mg/kg

Gas=45 mg/kg, B=0.31 mg/kg

Gas=20 mg/kg, B=0.061 mg/kg

Gas=2.7 mg/kg, B=ND

Gas=48 mg/kg, B=0.70 mg/kg

Gas=38 mg/kg, B=ND

Gas=110,000 ug/L, B=10,000 ug/L

Gas=3.2 mg/kg, B=ND

Gas=2.7 mg/kg, B=ND

Gas=2,400 ug/L, B=0.84 ug/L

Gas=160 mg/kg, B=ND

—w—w—w— = Approximate water level observed

Groundwater sample location with contaminants of concern (COCs):

- Not analyzed or detected below screening levels
- Detected above groundwater screening levels

Soil sample location with COCs:

- Not analyzed
- Not detected
- Detected below soil screening levels
- Detected above soil screening levels

COCs: gasoline TPH, benzene, toluene, ethylbenzene, xylenes, and/or naphthalene

Approximate Scale
Horizontal: 1"=10'
Vertical: 1"=10'
Vertical Exaggeration: None

0 5 10 20

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University VW - Audi Property

Figure 11

RGI Project Number 2014-068C

Cross Section C-C'

Date Drawn: 08/2015

Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105

TABLE

Table 1, Page 1 of 4. Summary of Soil Field Screening Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Test Probe Number	Sample Depth	Sample Date	PID	Odor	Sheen
P1	5	10/01/14	7.9	No	Very Slight
P1	10	10/01/14	23.8	No	Very Slight
P1	13.5	10/01/14	48.8	Very Slight	Very Slight
P1	18	10/01/14	1429	Very Slight	Very Slight
P2	5	10/01/14	21.9	No	No
P2	3.5	10/01/14	---	Slight to Medium Strong	Slight
P2	9	10/01/14	127	Medium Strong to Strong	Yes
P2	12.5	10/01/14	66.6	---	---
P2	15	10/01/14	97.1	Medium Strong to Strong	Yes
P2	15	10/01/14	32.3	---	---
P2	16.5	10/01/14	49.9	Medium Strong to Strong	Yes
P2	18.5	10/01/14	22.5	---	---
P3	5	10/01/14	7.2	No	No
P3	7	10/01/14	1.1	No	No
P3	10	10/01/14	11.4	No	Very Slight
P3	15	10/01/14	7.9	No	No
P4	5	10/01/14	1.7	No	No
P4	10	10/01/14	1.8	No	Very Slight
P4	15	10/01/14	5.7	No	No
P4	16	10/01/14	3.0	Yes	Yes
P4	18	10/01/14	27.8	Strong	Strong
P4	20	10/01/14	98	Strong	Strong
P5	1	10/01/14	233	Very Slight	Very Slight
P5	6	10/01/14	166	Slight	No
P5	10	10/01/14	125	Slight	No
P5	15	10/01/14	50.2	No	No
P6	2.5	10/01/14	3.4	No	No
P6	5	10/01/14	49.5	No	No
P6	8.5	10/01/14	26	No	No
P6	10	10/01/14	86.9	No	No
P6	13.5	10/01/14	28.7	No	No
P6	14	10/01/14	175	Strong	Strong
P6	16	10/01/14	264	Strong	Strong
P7	5	10/01/14	1.6	No	No
P7	10	10/01/14	3.2	Suspected Very Slight	No
P7	11	10/01/14	2.1	No	No
P7	15	10/01/14	1.7	No	No
P7	20	10/01/14	2.2	No	No
P8	5	10/01/14	1.2	No	No
P8	10	10/01/14	1.0	No	No
P8	14	10/01/14	---	No	No
P8	19	10/01/14	2.9	No	No
P9	5	10/01/14	2.2	No	No
P9	7	10/01/14	2.2	No	No
P9	10	10/01/14	5.3	No	No
P9	14	10/01/14	3.2	No	No
P9	18	10/01/14	3.1	No	No

Table 1, Page 2 of 4. Summary of Soil Field Screening Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Test Probe Number	Sample Depth	Sample Date	PID	Odor	Sheen
MW1-20	20	10/08/14	3141	Strong	Moderate
MW1-25	25	10/08/14	1856	Strong	Slight
MW1-30.5	30.5	10/08/14	1540	Strong	Slight
MW1-35	35	10/08/14	31.6	Slight	No
MW1-40	40	10/08/14	11.8	No	No
MW1-46	46	10/08/14	1.3	No	No
MW1-51	51	10/08/14	2.5	Slight	No
MW1-56	56	10/08/14	2.9	No	No
MW1-60	60	10/08/14	3.0	No	No
MW1-70	70	10/08/14	1.8	No	No
MW2-10	10	10/09/14	0.1	No	No
MW2-15	15	10/09/14	0.2	No	No
MW2-25	25	10/09/14	0.2	No	No
MW2-30	30	10/09/14	0.7	No	No
MW2-35	35	10/09/14	0.5	No	No
MW2-40	40	10/09/14	0.9	No	No
MW2-45	45	10/09/14	0.5	No	No
MW2-50	50	10/09/14	1.2	No	No
MW2-55	55	10/09/14	0.8	No	Slight
MW2-60	60	10/09/14	0.7	No	No
MW2-65	65	10/09/14	0.1	No	No
MW3-5	5	10/09/14	0.8	No	No
MW3-10	10	10/09/14	1.2	No	No
MW3-15	15	10/09/14	1.0	No	No
MW3-20	20	10/09/14	315.6	No	Moderate
MW3-25	25	10/09/14	94.1	No	No
MW3-30	30	10/09/14	473.2	No	No
MW3-35	35	10/09/14	22.4	No	No
MW3-40	40	10/09/14	11.8	No	No
MW3-45	45	10/09/14	3.0	Very Slight	No
MW3-50	50	10/09/14	22.4	No	No
MW3-55	55	10/09/14	2.0	No	Very Slight
MW3-60	60	10/09/14	3.0	No	No
MW4-5	5	10/10/14	0.2	No	No
MW4-10	10	10/10/14	0.7	No	No
MW4-15	15	10/10/14	0.9	No	No
MW4-20	20	10/10/14	34.4	Slight	Slight
MW4-25	25	10/10/14	29.1	Slight	Very Slight
MW4-30	30	10/10/14	87.7	No	No
MW4-35	35	10/10/14	2.2	No	No
MW4-40	40	10/10/14	1.2	No	No
MW4-45	45	10/10/14	1.0	No	No
MW4-50	50	10/10/14	0.2	No	No
MW4-55	55	10/10/14	1.6	No	No
MW4-60	60	10/10/14	1.5	No	No
MW5-5	5	10/10/14	1.4	No	No
MW5-15	15	10/10/14	0.8	No	No

Table 1 Page 3 of 4. Summary of Soil Field Screening Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Test Probe Number	Sample Depth	Sample Date	PID	Odor	Sheen
MW5-20	20	10/10/14	1.2	No	No
MW5-25	25	10/10/14	1.4	No	No
MW5-35	35	10/10/14	1017	Strong	Strong
MW5-40	40	10/10/14	2428	Strong	Strong
MW5-45	45	10/10/14	1069	Strong	Strong
MW5-50	50	10/10/14	228.1	Strong	Strong
MW5-55	55	10/10/14	195.1	Moderate	Slight
MW5-60	60	10/10/14	19.6	Slight	No
MW5-62.5	62.5	10/10/14	87.3	No	No
MW5-65	65	10/10/14	101.3	No	No
MW6-5	5	11/04/14	0.1	No	No
MW6-10	10	11/04/14	0.1	No	No
MW6-15	15	11/04/14	0.2	No	No
MW6-25	25	11/04/14	0.3	No	No
MW6-26	26	11/04/14	0.3	No	No
MW6-30	30	11/04/14	0.3	No	No
MW6-35	35	11/04/14	42.4	Moderate	No
MW6-40	40	11/04/14	27.9	Slight	No
MW6-41	41	11/04/14	969.2	Moderate	No
MW6-45	45	11/04/14	15,000+	Strong	No
MW6-50	50	11/04/14	15,000+	Strong	Strong
MW6-55	55	11/04/14	71.1	Strong	Slight
MW6-60	60	11/04/14	1,504	Strong	Moderate
MW7-5	5	11/07/14	24.4	No	No
MW7-10	10	11/07/14	2.0	No	No
MW7-15	15	11/07/14	2.2	No	No
MW7-20	20	11/07/14	12.3	No	No
MW7-25	25	11/07/14	0.0	No	No
MW7-30	30	11/07/14	0.1	No	No
MW7-35	35	11/07/14	0.0	No	No
MW7-40	40	11/07/14	8.8	No	No
MW7-45	45	11/07/14	258.7	Moderate	Moderate
MW7-50	50	11/07/14	454.2	Slight	Very Slight
MW7-55	55	11/07/14	53.3	Slight	Very Slight
MW7-60	60	11/07/14	15.3	Slight	Very Slight
MW8-5	5	11/07/14	0.6	No	No
MW8-10	10	11/07/14	1.2	No	No
MW8-15	15	11/07/14	1.4	No	No
MW8-20	20	11/07/14	1.0	No	No
MW8-25	25	11/07/14	15,000+	Strong	Moderate
MW8-30	30	11/07/14	15,000+	Strong	Moderate
MW8-35	35	11/07/14	1,356	Strong	Moderate
MW8-40	40	11/07/14	15,000+	Strong	Moderate
MW8-45	45	11/07/14	15,000+	Strong	Moderate
MW8-50	50	11/07/14	7,040	Strong	Slight
MW8-55	55	11/07/14	58.8	Moderate	Very Slight

Table 1, Page 4 of 4. Summary of Soil Field Screening Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Test Probe Number	Sample Depth	Sample Date	PID	Odor	Sheen
MW8-60	60	11/07/14	505.7	Moderate	Very Slight
MW9-5	5	01/16/15	0.1	No	No
MW9-10	10	01/16/15	0.7	No	No
MW9-15	15	01/16/15	0.7	No	No
MW9-20	20	01/16/15	0.7	No	No
MW9-25	25	01/16/15	0.6	No	No
MW9-30	30	01/16/15	0.6	No	No
MW9-35	35	01/16/15	0.6	No	No
MW9-40	40	01/16/15	1.0	No	No
MW9-45	45	01/16/15	0.0	No	No
MW9-50	50	01/16/15	1.9	No	No
MW9-55	55	01/16/15	1.0	No	No
MW9-56	56	01/16/15	0.9	No	No
DPE6-5	5	06/29/15	0.0	No	No
DPE6-10	10	06/29/15	0.0	No	No
DPE6-15	15	06/29/15	0.0	No	No
DPE6-20	20	06/29/15	0.0	No	No
DPE6-25	25	06/29/15	0.1	No	No
DPE6-30	30	06/29/15	0.1	No	No
DPE6-40	40	06/29/15	10.2	Slight to Moderate	No
DPE6-60	60	06/29/15	21.5	No	No
DPE7-5	5	06/28/15	0.0	No	No
DPE7-10	10	06/28/15	0.0	No	No
DPE7-15	15	06/28/15	0.0	No	No
DPE7-20	20	06/28/15	0.1	No	No
DPE7-25	25	06/28/15	0.0	No	No
DPE7-30	30	06/28/15	570.9	Slight	Slight
DPE7-35	35	06/28/15	1,302	Strong	Slight
DPE7-40	40	06/28/15	307.3	Moderate	No
DPE7-45	45	06/28/15	405.3	Moderate	Slight
DPE7-50	50	06/28/15	1,484	Strong	Slight
DPE7-55	55	06/28/15	481.3	Moderate	Slight
DPE7-60	60	06/28/15	396.3	Moderate	Slight
DPE7-65	65	06/28/15	29.0	Slight	No

Notes:

Sample Depth = Soil sample depth interval in feet below ground surface (bgs).

--- = Not Analyzed or not applicable

PID = Photoionization Detector.

Table 2, Page 1 of 6. Summary of Soil Sample Analytical Laboratory Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Sample Number	Sample Depth	Sample Date	PID	Gasoline TPH	BTEX				Diesel TPH	Oil TPH	HCID			VOCs Not Included in TPH Screening Level Calculations	SVOCs	Naph.	cPAHs	TCLP Metals (ug/L)	Total RCRA 8 Metals							
					B	T	E	X			Gasoline	Diesel	Heavy Oil						As	Ba	Cd	Total Cr	Pb	Hg	Se	Ag
Sub-Slab Soil Vapor Temp Wells																										
SV1-5	5	02/27/15	0.1	ND<2	ND<0.02	ND<0.05	ND<0.05	ND<0.1	ND<50	ND<250	----	----	----	ND	----	ND<0.05	----	----	----	----	----	----	----	----	----	----
SV2-5.5	5.5	02/27/15	135	**920**	ND<0.02	ND<0.05	**1.4**	**2.3**	**21,000**	ND<250	----	----	----	ND	----	**20**	----	----	----	----	----	----	----	----	----	----
SV3-4.5	4.5	02/27/15	0	ND<2	ND<0.02	ND<0.05	ND<0.05	ND<0.1	ND<50	ND<250	----	----	----	ND	----	ND<0.05		----	**1.4**	----	ND<1	**8.28**	**1.44**	ND<1	----	----
Hot Spot Remedial Excavation Samples																										
NSW4	4	01/12/15	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
NSW6	6	01/12/15	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ESW4	4	01/12/15	----	ND<2	ND<0.03	ND<0.05	ND<0.05	ND<0.1	ND<50	ND<250	----	----	----	ND	----	ND<0.05		----	**1.4**	----	ND<1	**8.28**	**1.44**	ND<1	----	----
ESW6	6	01/12/15	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
SSW6	6	01/12/15	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
WSW4	4	01/12/15	----	**870**	ND<0.03	ND<0.05	**0.088**	**0.10**	**3,800**	ND<250	----	----	----	ND	----	**4.9**	----	----	**5.79**	----	ND<1	**18.3**	**3.61**	ND<1	----	----
WSW6	6	01/12/15	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
BOT7	7	01/12/15	----	ND<2	ND<0.03	ND<0.05	ND<0.05	ND<0.1	ND<50	ND<250	----	----	----	ND	----	ND<0.05	----	----	**1.52**	----	ND<1	**8.81**	**1.58**	ND<1	----	----
SS1	----	01/12/15	----	**170**	ND<0.03	ND<0.05	ND<0.05	ND<0.1			----	----	----	ND	----	**0.53**	----	----								
SS2	----	01/12/15	----	**25**	ND<0.03	ND<0.05	ND<0.05	ND<0.1	**210**	ND<250	----	----	----	ND	----	**0.12**	----	----	**4.87**	----	ND<1	**16.5**	**4.48**	ND<1	----	----
SS3	----	01/12/15	----	**67**	ND<0.03	ND<0.05	ND<0.05	ND<0.1			----	----	----	ND	----	**0.28**	----	----								
Test Probe Investigation																										
P1-18	18	10/01/14	1429	**250**	ND<0.03	ND<0.05	**0.65**	**0.63**	----	----	----	----	----	ND	----	ND<0.05	----	----	----	----	----	----	----	----	----	----
P2-5	5	10/01/14	21.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P2-9	9	10/01/14	127	**47**	ND<0.03	ND<0.05	ND<0.05	ND<0.1	----	----	----	----	----	ND	----	ND<0.05	----	----	----	----	----	----	----	----	----	----
P2-15	15	10/01/14	97.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P2-16.5	16.5	10/01/14	49.9	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P2-18	18	10/01/14	22.5	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P3-15	15	10/01/14	7.9	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P4-16	16	10/01/14	3.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P4-18	18	10/01/14	27.8	**190**	ND<0.02	ND<0.02	**0.31**	**0.42**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P4-20	20	10/01/14	98	**110**	ND<0.02	ND<0.02	**0.84**	**0.75**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P5-15	15	10/01/14	50.2	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P6-13.5	13.5	10/01/14	28.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P6-14	14	10/01/14	175	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P6-15	15	10/01/14	264	**1,300**	ND<0.03	ND<0.05	ND<0.05	ND<0.1	----	----	----	----	----	ND	----	ND<0.05	----	----	----	----	----	----	----	----	----	----
P7-15	15	10/01/14	1.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P7-20	20	10/01/14	2.2	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P8-19	19	10/01/14	2.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
P9-18	18	10/01/14	3.1	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Monitoring Wells																										
MW-1 Screened Interval 66-18 ft bgs, Total boring depth 70 ft bgs																										
MW1-20	20	10/08/14	3141	----	----	----	----	----	ND<50	ND<250	----	----	----	----	----	**0.080**	ND<0.01	----	**1.17**	**30.7**	ND<1	**10.2**	**3.17**	ND<1	ND<1	ND<1
MTCA Method A Soil Screening Levels for Unrestricted Land Uses				**100/30[1]**	**0.03**	**7**	**6**	**9**	**2,000**		**100/30[1]**	**2,000**		**Analyte Specific**	**Analyte Specific**	**5**	**0.1**	**Analyte Specific**	**20**	**----**	**2**	**2,000[2]**	**250**	**2**	**----**	**----**
MTCA Method B Soil Screening Levels for Unrestricted Land Uses[3]				----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**16,000**	----	----	----	----	**400**	**400**

Table 2, Page 2 of 6. Summary of Soil Sample Analytical Laboratory Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Sample Number	Sample Depth	Sample Date	PID	Gasoline TPH	BTEX				Diesel TPH	Oil TPH	HCID			VOCs Not Included in TPH Screening Level Calculations	SVOCs	Naph.	cPAHs	TCLP Metals (ug/L)	Total RCRA 8 Metals							
					B	T	E	X			Gasoline	Diesel	Heavy Oil						As	Ba	Cd	Total Cr	Pb	Hg	Se	Ag
MW1-25	25	10/08/14	1856	ND<2	ND<0.03	ND<0.05	ND<0.05	**0.181**	----	----	----	----	----	ND	----	ND<0.05	----	----	----	----	----	----	----	----	----	----
MW1-30.5	30.5	10/08/14	1540	**73**	ND<0.03	ND<0.05	**0.15**	**0.14**	----	----	----	----	----	ND	----	**0.13**	----	----	----	----	----	----	----	----	----	----
MW1-35	35	10/08/14	31.6	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW1-46	46	10/08/14	1.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW1-51	51	10/08/14	2.5	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW1-56	56	10/08/14	2.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW1-60	60	10/08/14	3.0	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW1-70	70	10/08/14	1.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW-2 Screened Interval 45-14 ft bgs, Total boring depth 65 ft bgs																										
MW2-10	10	10/09/14	0.1	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW2-15	15	10/09/14	0.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW2-25	25	10/09/14	0.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**1.98**	----	----	----
MW2-30	30	10/09/14	0.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**2.38**	----	----	----
MW2-35	35	10/09/14	0.5	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW2-40	40	10/09/14	0.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW2-45	45	10/09/14	0.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW2-50	50	10/09/14	1.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW2-55	55	10/09/14	0.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW2-60	60	10/09/14	0.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW2-65	65	10/09/14	0.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW-3 Screened Interval 60-20 ft bgs, Total boring depth 60 ft bgs																										
MW3-5	5	10/09/14	0.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-10	10	10/09/14	1.2	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-15	15	10/09/14	1.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-20	20	10/09/14	315.6	**24**	ND<0.02	ND<0.02	**0.15**	**0.14**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-25	25	10/09/14	94.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-30	30	10/09/14	473.2	**5.4**	ND<0.02	ND<0.02	**0.056**	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-35	35	10/09/14	22.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-40	40	10/09/14	11.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-45	45	10/09/14	3.0	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-50	50	10/09/14	22.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-55	55	10/09/14	2.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW3-60	60	10/09/14	3.0	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW-4 Screened Interval 60-20 ft bgs, Total boring depth 60 ft bgs																										
MW4-5	5	10/10/14	0.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW4-10	10	10/10/14	0.7	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW4-15	15	10/10/14	0.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW4-20	20	10/10/14	34.4	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MTCA Method A Soil Screening Levels for Unrestricted Land Uses				**100/30[1]**	**0.03**	**7**	**6**	**9**	**2,000**		**100/30[1]**	**2,000**		**Analyte Specific**	**Analyte Specific**	**5**	**0.1**	**Analyte Specific**	**20**	**----**	**2**	**2,000[2]**	**250**	**2**	**----**	**----**
MTCA Method B Soil Screening Levels for Unrestricted Land Uses[3]				----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**16,000**	----	----	----	----	**400**	**400**

Table 2, Page 3 of 6. Summary of Soil Sample Analytical Laboratory Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Sample Number	Sample Depth	Sample Date	PID	Gasoline TPH	BTEX				Diesel TPH	Oil TPH	HCID			VOCs Not Included in TPH Screening Level Calculations	SVOCs	Naph.	cPAHs	TCLP Metals (ug/L)	Total RCRA 8 Metals							
					B	T	E	X			Gasoline	Diesel	Heavy Oil						As	Ba	Cd	Total Cr	Pb	Hg	Se	Ag
MW4-25	25	10/10/14	29.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW4-30	30	10/10/14	87.7	**24**	ND<0.02	ND<0.02	**0.15**	**0.15**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW4-35	35	10/10/14	2.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW4-40	40	10/10/14	1.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW4-45	45	10/10/14	1.0	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW4-50	50	10/10/14	0.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW4-55	55	10/10/14	1.6	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW4-60	60	10/10/14	1.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW-5 Screened Interval 65-30 ft bgs, Total boring depth 65 ft bgs																										
MW5-5	5	10/08/14	1.4	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW5-15	15	10/08/14	0.8	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW5-20	20	10/08/14	1.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**2.11**	----	----	----
MW5-25	25	10/08/14	1.4	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**2.13**	----	----	----
MW5-35	35	10/08/14	1017	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW5-40	40	10/08/14	2428	**6,300**	**5.4**	**28**	**44**	**250**	**680**	ND<250	----	----	----	ND	----	**11**	ND<0.01	----	ND<1	**20.7**	ND<1	**9.15**	**1.76**	ND<1	ND<1	ND<1
MW5-45	45	10/08/14	1069	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**1.73**	----	----	----
MW5-50	50	10/08/14	228.1	**48**	**0.70**	**1.1**	**0.09**	**4.8**	----	----	ND<20	ND<50	ND<250	----	----	----	----	----	----	----	----	----	**2.17**	----	----	----
MW5-55	55	10/08/14	195.1	**4.1**	**0.18**	**0.14**	**0.10**	**0.37**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**1.83**	----	----	----
MW5-60	60	10/08/14	19.6	**45**	**0.31**	**0.67**	**0.74**	**4.7**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW5-62.5	62.5	10/08/14	87.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW5-65	65	10/08/14	101.3	**20**	**0.061**	**0.23**	**0.27**	**1.7**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW-6 Screened Interval 60-30 ft bgs, Total boring depth 60 ft bgs																										
MW6-5	5	11/04/14	0.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-10	10	11/04/14	0.1	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-15	15	11/04/14	0.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-25	25	11/04/14	0.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-26	26	11/04/14	0.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-30	30	11/04/14	0.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-35	35	11/04/14	42.4	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-40	40	11/04/14	27.9	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-41	41	11/04/14	969.2	**38**	ND<0.02	**0.053**	**0.039**	**0.077**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-45	45	11/04/14	15,000+	**3.2**	ND<0.02	ND<0.02	ND<0.02	ND<0.06	ND<50	ND<250	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-50	50	11/04/14	15,000+	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-55	55	11/04/14	71.1	**2.7**	ND<0.02	**0.062**	**0.047**	**0.28**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW6-60	60	11/04/14	1504	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW-7 Screened Interval 60-30 ft bgs, Total boring depth 60 ft bgs																										
MW7-5	5	11/07/14	24.4	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	ND<50	ND<250	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW7-10	10	11/07/14	2.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MTCA Method A Soil Screening Levels for Unrestricted Land Uses				**100/30[1]**	**0.03**	**7**	**6**	**9**	**2,000**		**100/30[1]**	**2,000**		**Analyte Specific**	**Analyte Specific**	**5**	**0.1**	**Analyte Specific**	**20**	**----**	**2**	**2,000[2]**	**250**	**2**	**----**	**----**
MTCA Method B Soil Screening Levels for Unrestricted Land Uses[3]				----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**16,000**	----	----	----	----	**400**	**400**

Table 2, Page 4 of 6. Summary of Soil Sample Analytical Laboratory Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Sample Number	Sample Depth	Sample Date	PID	Gasoline TPH	BTEX				Diesel TPH	Oil TPH	HCID			VOCs Not Included in TPH Screening Level Calculations	SVOCs	Naph.	cPAHs	TCLP Metals (ug/L)	Total RCRA 8 Metals							
					B	T	E	X			Gasoline	Diesel	Heavy Oil						As	Ba	Cd	Total Cr	Pb	Hg	Se	Ag
MW7-15	15	11/07/14	2.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW7-20	20	11/07/14	12.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW7-25	25	11/07/14	0.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW7-30	30	11/07/14	0.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW7-35	35	11/07/14	0.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW7-40	40	11/07/14	8.8	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW7-45	45	11/07/14	258.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW7-50	50	11/07/14	454.2	**160**	ND<0.02	**2.3**	**0.26**	**0.73**	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW7-55	55	11/07/14	53.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW7-60	60	11/07/14	15.3	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW-8 Screened Interval 60-25 ft bgs, Total boring depth 60 ft bgs																										
MW8-5	5	11/07/14	0.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-10	10	11/07/14	1.2	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-15	15	11/07/14	1.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-20	20	11/07/14	1.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-25	25	11/07/14	15,000+	**6,200**	**2.0**	**110**	**180**	**990**	**930**	ND<250	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-30	30	11/07/14	15,000+	**530**	**1.3**	**19**	**11**	**65**	**2,500**	ND<250	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-35	35	11/07/14	1356	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-40	40	11/07/14	15,000+	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-45	45	11/07/14	15,000+	**94**	**0.085**	**0.89**	**0.46**	**2.3**	**160**	ND<250	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-50	50	11/07/14	7040	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-55	55	11/07/14	58.8	**3.5**	ND<0.02	**0.061**	**0.041**	**0.24**	ND<50	ND<250	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW8-60	60	11/07/14	505.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW-9 Screened Interval 56-36 ft bgs, Total boring depth 56 ft bgs																										
MW9-5	5	01/16/15	0.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-10	10	01/16/15	0.7	----	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	ND<20	ND<50	ND<250	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-15	15	01/16/15	0.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-20	20	01/16/15	0.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-25	25	01/16/15	0.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-30	30	01/16/15	0.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-35	35	01/16/15	0.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-40	40	01/16/15	1.0	----	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	ND<20	ND<50	ND<250	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-45	45	01/16/15	0.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-50	50	01/16/15	1.9	----	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	ND<20	ND<50	ND<250	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-55	55	01/16/15	1.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MW9-56	56	01/16/15	0.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MTCA Method A Soil Screening Levels for Unrestricted Land Uses				**100/30[1]**	**0.03**	**7**	**6**	**9**	**2,000**		**100/30[1]**	**2,000**		**Analyte Specific**	**Analyte Specific**	**5**	**0.1**	**Analyte Specific**	**20**	**----**	**2**	**2,000[2]**	**250**	**2**	**----**	**----**
MTCA Method B Soil Screening Levels for Unrestricted Land Uses[3]				----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	**16,000**	----	----	----	----	**400**	**400**

Table 2, Page 5 of 6. Summary of Soil Sample Analytical Laboratory Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Sample Number	Sample Depth	Sample Date	PID	Gasoline TPH	BTEX				Diesel TPH	Oil TPH	HCID	
					B	T	E	X			Gasoline	Diesel
MW-10 Screened Interval 45-25 ft bgs, Total boring depth 45 ft bgs												
MW10-30	30	06/20/15	0.0	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	ND<50	ND<250	----	----
MW-11 Screened Interval 56-41 ft bgs, Total boring depth 56 ft bgs												
MW11-21.5	21.5	06/20/15	0.1	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----
MW11-31	31	06/20/15	0.0	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	ND<50	ND<250	----	----
MW11-46.5	46.35	06/20/15	0.0	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----
MW11-57	56	06/20/15	0.0	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	----	----	----	----
DPE6 Screened Interval 65-40 ft bgs, Total boring depth 65 ft bgs												
DPE6-5	5	06/29/15	0.0	----	----	----	----	----	----	----	----	----
DPE6-10	10	06/29/15	0.0	----	----	----	----	----	----	----	----	----
DPE6-15	15	06/29/15	0.0	----	----	----	----	----	----	----	----	----
DPE6-20	20	06/29/15	0.0	----	----	----	----	----	----	----	----	----
DPE6-25	25	06/29/15	0.1	----	----	----	----	----	----	----	----	----
DPE6-30	30	06/29/15	0.1	----	----	----	----	----	----	----	----	----
DPE6-40	40	06/29/15	10.2	**5.4**	ND<0.02	0.024	ND<0.02	ND<0.06	ND<50	ND<250	----	----
DPE6-60	60	06/29/15	21.5	**110**	**0.15**	**2.9**	**1.8**	**12**	ND<50	ND<250	----	----
DPE7 Screened Interval 65-40 ft bgs, Total boring depth 65 ft bgs												
DPE7-5	5	06/28/15	0.0	----	----	----	----	----	----	----	----	----
DPE7-10	10	06/28/15	0.0	----	----	----	----	----	----	----	----	----
DPE7-15	15	06/28/15	0.0	ND<2	ND<0.02	ND<0.02	ND<0.02	ND<0.06	ND<50	ND<250	----	----
DPE7-20	20	06/28/15	0.1	----	----	----	----	----	----	----	----	----
DPE7-25	25	06/28/15	0.0	----	----	----	----	----	----	----	----	----
DPE7-30	30	06/28/15	570.9	**680**	**0.31**	**4.7**	**13**	**81**	120	ND<250	----	----
DPE7-35	35	06/28/15	1,302	----	----	----	----	----	----	----	----	----
DPE7-40	40	06/28/15	307.3	----	----	----	----	----	----	----	----	----
DPE7-45	45	06/28/15	405.3	----	----	----	----	----	----	----	----	----
DPE7-50	50	06/28/15	1,484	**1,400**	**4.7**	**86**	**28**	**180**	340	ND<250	----	----
DPE7-55	55	06/28/15	481.3	----	----	----	----	----	----	----	----	----
DPE7-60	60	06/28/15	396.3	**170**	**0.20**	**5.9**	**3.0**	**19**	ND<50	ND<250	----	----
DPE7-65	65	06/28/15	29.0	**16**	**0.039**	**0.47**	**0.18**	**1.4**	ND<50	ND<250	----	----
												Geotech Co
B1E @ 24'-25'	24-25	01/2013	----	**2,100**	**11**	**81**	**57**	**160**	**640**	ND<100	----	----
B1E @ 44'-44.5'	44-44.5	01/2013	----	**290**	**0.9**	**0.52**	**0.9**	**2.7**	**940**	ND<100	----	----
B1E @ 49'-49.5'	49-49.5	01/2013	----	**48**	ND<0.02	**0.10**	**0.24**	**0.90**	**41**	ND<100	----	----
B2E @ 24'-25.5'	24-25.5	01/2013	----	**3,900**	**0.51**	**22**	**27**	**180**	**450**	ND<100	----	----
B2E @ 29'-29.5'	29-29.5	01/2013	----	**460**	**0.26**	**9.1**	**8.2**	**50**	**150**	ND<100	----	----
B2E @ 39'-39.5'	39-39.5	01/2013	----	**170**	**1.4**	**11**	**3.1**	**17**	ND<50	ND<100	----	----
B3E @ 19'-20.5'	19-20.5	01/2013	----	**1,600**	**3.9**	**44**	**14**	**71**	**87**	ND<100	----	----
MTCA Method A Soil Screening Levels for Unrestricted Land Uses				**100/30[1]**	**0.03**	**7**	**6**	**9**	**2,000**		**100/30[1]**	**2**
MTCA Method B Soil Screening Levels for Unrestricted Land Uses[3]				----	----	----	----	----	----	----	----	----

Table 2, Page 6 of 6. Summary of Soil Sample Analytical Laboratory Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Sample Number	Sample Depth	Sample Date	PID	Gasoline TPH	BTEX				Diesel TPH	Oil TPH	HCID	
					B	T	E	X			Gasoline	Diesel
B3E @ 29'-29.5'	29-29.5	01/2013	----	280	1.5	11	5.7	28	92	ND<100	----	----
B3E @ 34'-34.5'	34-34.5	01/2013	----	46	1.5	2.3	0.34	2.0	ND<50	ND<100	----	----
												Bison Envi
WP10	----	09/1993	----	57	0.20	0.96	1.5	8.0	----	----	----	----
SS11	----	10/1993	----	5,100	21	280	110	620	----	----	----	----
MTCA Method A Soil Screening Levels for Unrestricted Land Uses				100/30[1]	0.03	7	6	9	2,000		100/30[1]	
MTCA Method B Soil Screening Levels for Unrestricted Land Uses[3]				----	----	----	----	----	----	----	----	----

Notes:

All results and detection limits are given in milligrams per kilogram (mg/kg), equivalent to parts per million (ppm), unless otherwise specified.

Sample Depth = Soil sample depth interval in feet below ground surface (bgs).

PID = Photoionization Detector.

Gasoline TPH (total petroleum hydrocarbons) determined using Northwest Test Method NWTPH Gx.

BTEX (benzene, toluene, ethylbenzene, and xylenes) determined using EPA Test Method 8021B or 8260C or 8020. Most conservative result reported

Diesel and Oil TPH (total petroleum hydrocarbons) determined using Northwest Test Method NWTPH Dx with or without silica gel cleanup.

Gasoline, Diesel, and Oil HCID (hydrocarbon identification) determined using Northwest Test Method NWTPH-HCID.

VOCs (volatile organic compounds) determined using EPA Test Method 8260C or 8240.

Naph. (naphthalene) determined using EPA Test Method 8260C or 8270D SIM. Most conservative value shown where applicable.

cPAHs (carcinogenic polynuclear aromatic hydrocarbons) determined using EPA Test Method 8270D SIM.

TCLP Metals (Ba = Barium, Cr = Chromium) determined using EPA Method 6010/1311 or 7470.

RCRA 8 Metals (As = Arsenic, Ba = Barium, Cd = Cadmium, Cr = Chromium, Pb = Lead, Hg = Mercury, Se = Selenium, Ag = Silver) determined using EPA M

ND = Not detected at noted analytical detection limit.

NVE = No value established by MTCA Methods A or B.

---- = Not analyzed or not applicable.

TEF = Toxicity Equivalency per WAC 173-340-708(8)

Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Soil Screening Levels for Unrestricted Land Uses (WAC

[1] The higher screening level is allowed if no benzene is detected in the sample and the total of toluene, ethylbenzene and xylenes is less than 1% of the

[2] Total chromium results are compared to the screening levels for trivalent chromium (CrIII).

[3] MTCA Method A Screening Level was not available. Therefore, the MTCA Method B Non-Carcinogenic Screening Level is referenced.

x = The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Bold results indicated concentrations above laboratory detection limits.

Bold and yellow highlighted results indicate concentrations (if any) that exceed MTCA Method A or B soil screening levels.

Table 3, Page 1 of 2. Summary of Groundwater Monitoring Well Sampling and Analytical Laboratory Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Sample Number	Sample Date	Top of Casing Elevation (feet)	Depth to Water (bgs)	Groundwater Elevation (feet)	Gasoline TPH	BTEX				Diesel TPH	Oil TPH	VOCs Not Inc Screeni Calcul
						B	T	E	X			
MW-1	Screened Interval 66-18 ft bgs, Total boring depth 70 ft bgs											
MW1	07/06/15	205.89	46.49	159.40	----	----	----	----	----	----	----	--
	04/16/15	205.89	42.785	163.105	----	----	----	----	----	----	----	--
	01/26/15	205.89	44.56	161.33	----	----	----	----	----	----	----	--
	10/15/14	205.89	44.72	161.17	**2,200**	**25**	**72**	**16**	**156**	**1,100**	ND<250	N
MW-2	Screened Interval 45-14 ft bgs, Total boring depth 65 ft bgs											
MW2	07/06/15	206.90	43.69	163.210	----	----	----	----	----	----	----	--
	04/16/15	206.90	41.785	165.115	----	----	----	----	----	----	----	--
	01/26/15	206.90	42.61	164.29	----	----	----	----	----	----	----	--
	10/15/14	206.90	43.26	163.64	ND<100	ND<0.35	ND<1	ND<1	**2.2**	----	----	N
MW-3	Screened Interval 60-20 ft bgs, Total boring depth 60 ft bgs											
MW3	07/06/15	205.66	46.73	158.93	----	----	----	----	----	----	----	--
	04/16/15	205.66	43.400	162.260	----	----	----	----	----	----	----	--
	10/15/14	205.66	44.82	160.84	**450**	**4.5**	ND<1	**1.3**	**2.4**	**300x**	ND<250	N
MW-4	Screened Interval 60-20 ft bgs, Total boring depth 60 ft bgs											
MW4	04/16/15	206.26	43.500	162.760	----	----	----	----	----	----	----	--
	10/15/14	206.26	45.25	161.01	ND<100	ND<0.35	ND<1	ND<1	ND<2	ND<50	ND<250	N
MW-5	Screened Interval 65-30 ft bgs, Total boring depth 65 ft bgs											
MW5	07/06/15	204.07	45.41	158.66	----	----	----	----	----	----	----	--
	04/16/15	204.07	42.255	161.815	----	----	----	----	----	----	----	--
	10/15/14	204.07	43.635	160.435	**110,000**	**6,000**	**11,000**	**4,100**	**21,500**	**16,000**	ND<250	ND
MW-6	Screened Interval 60-30 ft bgs, Total boring depth 60 ft bgs											
MW6	04/16/15	204.73	43.935	160.795	----	----	----	----	----	----	----	-
	01/26/15	204.73	44.28	160.45	----	----	----	----	----	----	----	-
	11/12/14	204.73	44.28	160.45	**110,000**	**1,300**	**9,600**	**3,900**	**19,600**	**7,100x**	ND<250	ND
MW-7	Screened Interval 60-30 ft bgs, Total boring depth 60 ft bgs											
MW7	04/16/15	205.24	44.165	161.075	----	----	----	----	----	----	----	-
	11/12/14	205.24	44.55	160.69	**2,400**	0.84	ND<1	ND<1	**5.7**	**620x**	ND<250	N
MW-8	Screened Interval 60-25 ft bgs, Total boring depth 60 ft bgs											
MW8	07/06/15	206.25	46.20	160.05	----	----	----	----	----	----	----	-
	04/16/15	206.25	42.725	163.525	----	----	----	----	----	----	----	-
	01/26/15	206.25	45.15	161.10	----	----	----	----	----	----	----	-
	11/12/14	206.25	45.25	161.00	**13,000**	**180**	**160**	**230**	**1,830**	**1,300x**	ND<250	N
MW-9	Screened Interval 56-36 ft bgs, Total boring depth 56 ft bgs											
MW9	04/16/15	203.25	40.410	162.840	----	----	----	----	----	----	----	-
	01/26/15	203.25	39.31	163.94	ND<100	**0.58**	**2**	ND<1	**9.2**	**210x**	ND<250	N
MTCA Method A Screening Levels for Ground Water					**800/1,000[1]**	**5**	**1,000**	**700**	**1,000**	**500**	**500**	**Analyt**
MTCA Method B Screening Levels for Ground Water[2]					----	----	----	----	----	----	----	-

Table 3, Page 2 of 2. Summary of Groundwater Monitoring Well Sampling and Analytical Laboratory Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Sample Number	Sample Date	Top of Casing Elevation (feet)	Depth to Water (bgs)	Groundwater Elevation (feet)	Gasoline TPH	BTEX				Diesel TPH	Oil TPH	Otl VC
						B	T	E	X			
MW-10	Screened Interval 45-25 ft bgs, Total boring depth 45 ft bgs											
MW10	07/06/15	206.94	36.90	170.04	ND<100	ND<0.35	ND<1	ND<1	ND<2	ND<50	ND<250	--
MW-11	Screened Interval 56-41 ft bgs, Total boring depth 56 ft bgs											
MW11	07/06/15	208.02	43.32	164.70	ND<100	ND<0.35	ND<1	ND<1	ND<2	ND<50	ND<250	--
B3E	Screened Interval 49.5-39.5 ft bgs, Total boring depth 49.5 ft bgs											
B3E	07/06/15	205.20	46.15	159.05	----	----	----	----	----	----	----	--
	04/16/15	205.20	43.805	161.395	----	----	----	----	----	----	----	--
	01/26/15	205.20	44.59	160.61	----	----	----	----	----	----	----	--
	10/15/14	205.20	44.605	160.595	**100,000**	**10,000**	**11,000**	**3,600**	**17,800**	**13,000**	ND<250	ND<
	03/2014	205.20	----	----	**130,000**	**3,300**	**4,100**	**3,300**	**15,000**	**320**	ND<500	**Chlorofc Styren 4-Chloroto Methylene 1,2-Dichlorc 2-Chloroto**
	07/19/13	205.20	----	----	**200,000**	**7,600**	**8,200**	**4,300**	**22,800**	**860**	----	--
	01/2013	205.20	----	----	**100,000**	**3,800**	**6,800**	**2,000**	**25,026**	**13,000**	ND<250	N
MTCA Method A Screening Levels for Ground Water					**800/1,000[1]**	**5**	**1,000**	**700**	**1,000**	**500**	**500**	**Methylene 1,2-Dichlor 4-Chloroto**
MTCA Method B Screening Levels for Ground Water[2]					----	----	----	----	----	----	----	**Chlorof Styrene 2-Chloroto**

Notes:
Samples collected by RGI field staff using a peristaltic pump under low-flow conditions.
Top of casing elevations surveyed by Lanktree Surveying.
Unless otherwise noted, all analytical results are given in micrograms per liter (ug/L), equivalent to parts per billion (ppb).
Gasoline TPH (total petroleum hydrocarbons) determined using Northwest Test Method NWTPH-Gx
BTEX (benzene, toluene, ethylbenzene, and xylenes) determined using EPA Test Method 8260C.
Diesel and Oil TPH (total petroleum hydrocarbons) determined using Northwest Test Method NWTPH-Dx.
VOCs (volatile organic compounds) determined using EPA Test Method 8260C or 8260B.
Naph (naphthalene) determined using EPA Test Method 8270D SIM or 8260C. Most conservative value shown where applicable.
cPAHs (carcinogenic polynuclear aromatic hydrocarbons) determined using EPA Test Method 8270D SIM.
RCRA 8 Metals (As = Arsenic, Ba = Barium, Cd = Cadmium, Cr = Chromium, Pb = Lead, Hg = Mercury, Se = Selenium, Ag = Silver) determined using
ND = Not detected above the noted analytical detection limit.
NVE = No value established by MTCA Methods A or B.
---- = Not analyzed or not applicable.
Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Screening Levels for Ground Water (WAC 173-34
database.
[1] The higher screening level is applicable if no benzene is detected in groundwater.
[2] MTCA Method A Screening Level was not available. Therefore, the MTCA Method B Non-Carcinogenic Screening Level is referenced.
x = The sample chromatographic pattern does not resemble the fuel standard used for quantitation.
Bold results indicated concentrations above laboratory detection limits.
Bold and yellow highlighted results indicate concentrations (if any) that exceed MTCA Method A or B Screening Levels for Ground Water.

Table 4, Page 1 of 1. Summary of Soil Vapor Sample Analytical Laboratory Results
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2014-068C

Sample Number	Sample Date	Sample Depth (feet below concrete slab)	TPHv Fractions			BTEX				n-Hexane	1,3,5-Trimethylbenzene	Other VOCs
			C_5 - C_8 aliphatics	C_9 - C_{12} aliphatics	C_9 - C_{10} aromatics	B	T	E	X			
Temporary Soil Vapor Probes												
SV1	02/27/15	3	**2,200**	ND<100	ND<2,000	ND<3.2	**6.6**	ND<4.4	ND<8.8	ND<3.6	ND<5.0	ND
SV2	02/27/15	3	**1,900**	**1,300**	ND<2,000	**3.6**	**16**	**18**	**28.7**	**3.9**	**10**	ND
SV3	02/27/15	3	**1,900**	**530**	ND<2,000	ND<3.2	**8.4**	ND<4.4	ND<8.8	ND<3.6	ND<5.0	ND
MTCA Method B Indoor Air Cleanup Levels			**2,700**	**140**	**180**	**0.32**	**2,290**	**457**	**457**	**320**	**2.7**	**Analyte Specific**
Soil Vapor Screening Levels	**Ecology Routine Screening Level**		**27,000**	**1,400**	**1,800**	**3.2**	**22,900**	**4,570**	**4,570**	**3,200**	**27**	**Analyte Specific**
	Site-Specific Soil Vapor Screening Level[1]		----	----	----	**92.46**	----	----	----	----	----	----

Notes:

Unless otherwise noted, all analytical results are given in micrograms per cubic meter (ug/m^3).

TPHv = (total petroleum hydrocarbons) C_5 to C_{11} using EPA Method TO-15.

TPHv Fractions = Equivalent Carbon Ranges for aliphatics C_5 - C_8 and C_9 - C_{15} and aromatics C_9 - C_{10} determined using Massachucetts Air Phase Hydrocarbon (APH) Method.

BTEX = Benzene, toluene, ethylbenzene, and total xylenes determined using EPA Test Method TO-15.

N-hexane, 1,3,5-trimethylbenzene and other VOCs (volatile organic compounds) determined using EPA Test Method TO-15.

ND = Not detected above the laboratory detection limit.

---- = Not applicable.

[1] The online EPA Johnson and Ettinger Model (JEM) was used to calculate the Property-specific soil vapor screening level in accordance with Appendix D of the Ecology Draft Vapor Intrusion Guidance.

Ecology Routine Screening Level (ERSL) = Ecology's soil gas screening level per the Ecology Draft Vapor Intrusion Guidance.

Bold results indicate concentrations above laboratory detection limits.

Bold and highlighted results indicate any detected soil vapor concentrations that exceed an ERSL and/or Property-specific soil vapor screening level.

Appendix A

THE RILEY GROUP, INC.
17522 Bothell Way NE
Bothell, WA 98011

PHONE: (425) 415-0551
FAX: (425) 415-0311

GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property		SAMPLE ID/TYPE	MW1-30	
PROJECT NO.	2014-068C		SAMPLE DEPTH	30'	
TECH/TEST DATE	CM	12/30/2014	DATE RECEIVED	12/27/2014	

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	370.1
Wt Dry Soil & Tare (gm)	(w2)	323.5
Weight of Tare (gm)	(w3)	8.5
Weight of Water (gm)	(w4=w1-w2)	46.6
Weight of Dry Soil (gm)	(w5=w2-w3)	315.0
Moisture Content (%)	(w4/w5)*100	15

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

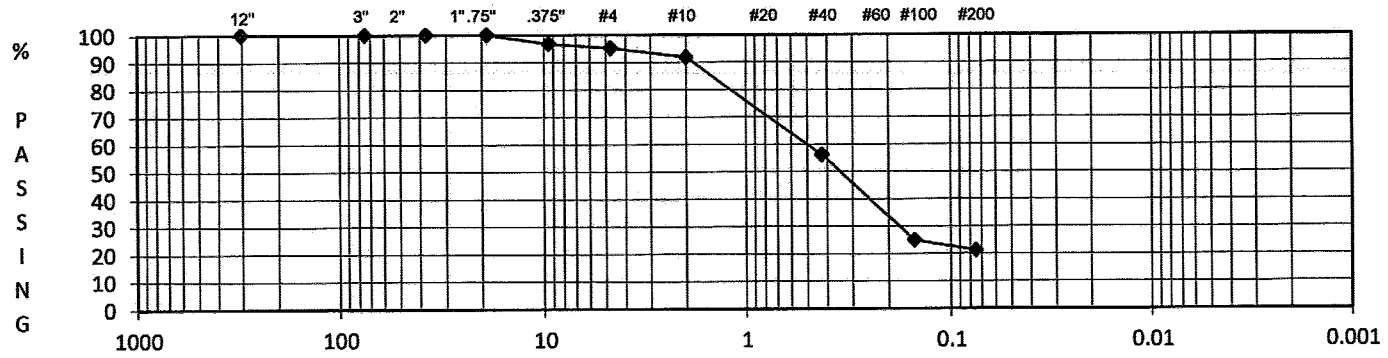
Weight Of Sample (gm)		323.5
Tare Weight (gm)		8.5
(W6) Total Dry Weight (gm)		315.0

% COBBLES	0.0
% C GRAVEL	0.0
% F GRAVEL	4.8
% C SAND	3.4
% M SAND	35.7
% F SAND	35.0
% FINES	21.2
% TOTAL	100.0

D10 (mm)	
D30 (mm)	
D60 (mm)	
Cu	
Cc	

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) ((wt ret/w6)*100)	% PASS (100-%ret)	
12.0"	8.5	0.00	0.00	100.00	cobbles
3.0"	8.5	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	8.5	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	8.5	0.00	0.00	100.00	fine gravel
0.50"					fine gravel
0.375"	18.8	10.30	3.27	96.73	fine gravel
#4	23.5	15.00	4.76	95.24	coarse sand
#10	34.1	25.60	8.13	91.87	medium sand
#20					medium sand
#40	146.6	138.10	43.84	56.16	fine sand
#60					fine sand
#100	244.9	236.40	75.05	24.95	fine sand
#200	256.7	248.20	78.79	21.21	fines
PAN	323.5	315.00	100.00	0.00	silt/clay



DESCRIPTION	Silty SAND
USCS	SM

Prepared For: Freeway Motors

Reviewed By:

RILEYGROUP

THE RILEY GROUP, INC.
17522 Bothell Way NE
Bothell, WA 98011

PHONE: (425) 415-0551
FAX: (425) 415-0311

GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property		SAMPLE ID/TYPE	MW4-30	
PROJECT NO.	2014-068C		SAMPLE DEPTH	30'	
TECH/TEST DATE	CM	12/30/2014	DATE RECEIVED	12/27/2014	

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	196.6
Wt Dry Soil & Tare (gm)	(w2)	187.7
Weight of Tare (gm)	(w3)	8.6
Weight of Water (gm)	(w4=w1-w2)	8.9
Weight of Dry Soil (gm)	(w5=w2-w3)	179.1
Moisture Content (%)	(w4/w5)*100	5

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

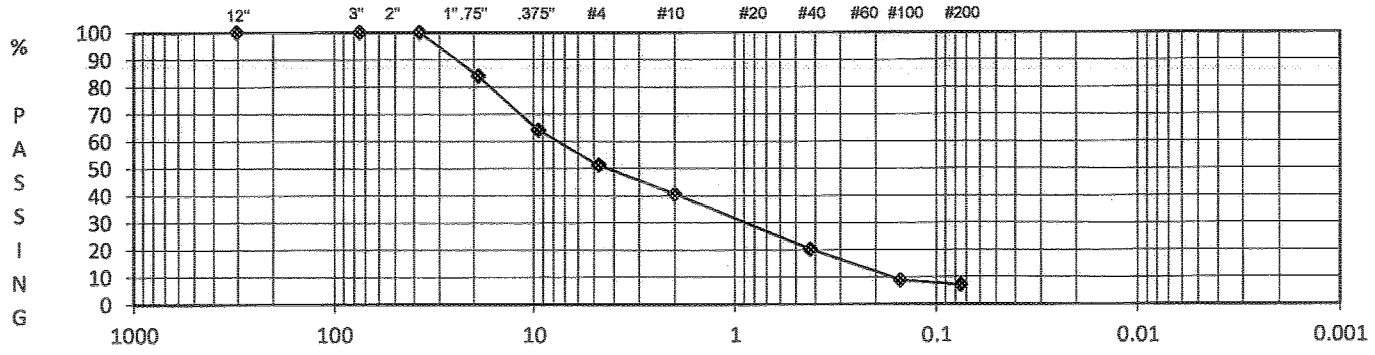
Weight Of Sample (gm)		187.7
Tare Weight (gm)		8.6
(W6) Total Dry Weight (gm)		179.1

% COBBLES	0.0
% C GRAVEL	16.0
% F GRAVEL	32.8
% C SAND	10.6
% M SAND	20.4
% F SAND	13.2
% FINES	7.0
% TOTAL	100.0

D10 (mm)	0.17
D30 (mm)	0.9
D60 (mm)	8
Cu	47.1
Cc	0.6

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) {(wt ret/w6)*100}	% PASS (100-%ret)	
12.0"	8.6	0.00	0.00	100.00	cobbles
3.0"	8.6	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	8.6	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	37.2	28.60	15.97	84.03	fine gravel
0.50"					fine gravel
0.375"	72.8	64.20	35.85	64.15	fine gravel
#4	95.9	87.30	48.74	51.26	coarse sand
#10	114.9	106.30	59.35	40.65	medium sand
#20					medium sand
#40	151.5	142.90	79.79	20.21	fine sand
#60					fine sand
#100	171.8	163.20	91.12	8.88	fine sand
#200	175.1	166.50	92.96	7.04	fines
PAN	187.7	179.10	100.00	0.00	silt/clay



DESCRIPTION	Sandy GRAVEL with some silt
USCS	GW-GM

Prepared For: Freeway Motors

Reviewed By:

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GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property	SAMPLE ID/TYPE	MW4-55
PROJECT NO.	2014-068C	SAMPLE DEPTH	55'
TECH/TEST DATE	CM 12/30/2014	DATE RECEIVED	12/27/2014

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	216.8
Wt Dry Soil & Tare (gm)	(w2)	189.6
Weight of Tare (gm)	(w3)	9.3
Weight of Water (gm)	(w4=w1-w2)	27.2
Weight of Dry Soil (gm)	(w5=w2-w3)	180.3
Moisture Content (%)	(w4/w5)*100	15

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

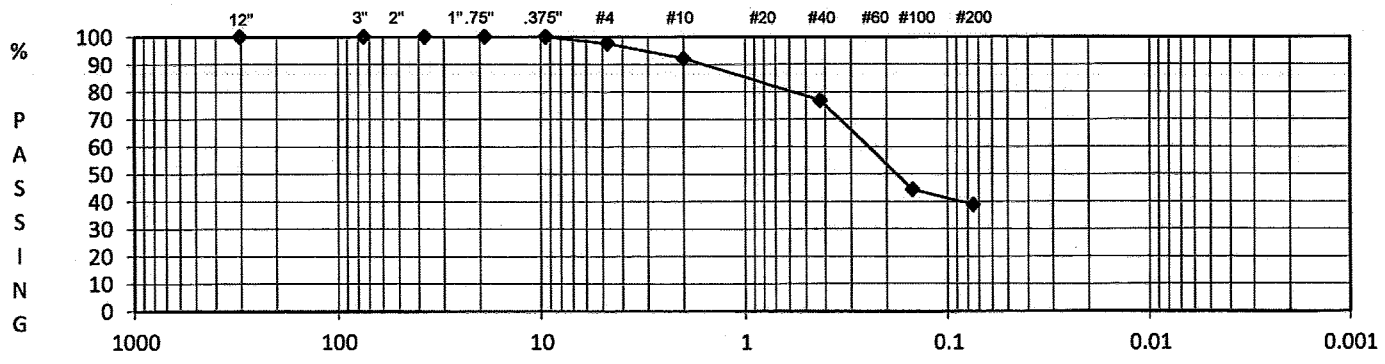
Weight Of Sample (gm)		189.6
Tare Weight (gm)		9.3
(W6) Total Dry Weight (gm)		180.3

% COBBLES	0.0
% C GRAVEL	0.0
% F GRAVEL	2.4
% C SAND	5.4
% M SAND	15.2
% F SAND	38.2
% FINES	38.8
% TOTAL	100.0

D10 (mm)	
D30 (mm)	
D60 (mm)	
Cu	
Cc	

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) {(wt ret/w6)*100}	% PASS (100-%ret)	
12.0"	9.3	0.00	0.00	100.00	cobbles
3.0"	9.3	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	9.3	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	9.3	0.00	0.00	100.00	fine gravel
0.50"					fine gravel
0.375"	9.3	0.00	0.00	100.00	fine gravel
#4	13.7	4.40	2.44	97.56	coarse sand
#10	23.5	14.20	7.88	92.12	medium sand
#20					medium sand
#40	50.9	41.60	23.07	76.93	fine sand
#60					fine sand
#100	109.5	100.20	55.57	44.43	fine sand
#200	119.7	110.40	61.23	38.77	fines
PAN	189.6	180.30	100.00	0.00	silt/clay



DESCRIPTION	Silty SAND
USCS	SM

Prepared For: Freeway Motors

Reviewed By:

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GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property	SAMPLE ID/TYPE	MW4-60
PROJECT NO.	2014-068C	SAMPLE DEPTH	60'
TECH/TEST DATE	CM 12/30/2014	DATE RECEIVED	12/27/2014

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	58.8
Wt Dry Soil & Tare (gm)	(w2)	56.0
Weight of Tare (gm)	(w3)	8.5
Weight of Water (gm)	(w4=w1-w2)	2.8
Weight of Dry Soil (gm)	(w5=w2-w3)	47.5
Moisture Content (%)	(w4/w5)*100	6

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

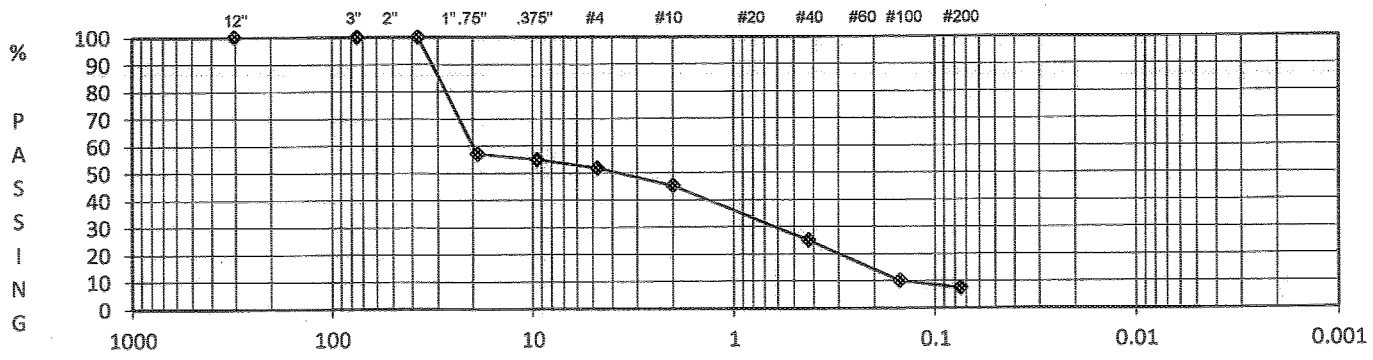
Weight Of Sample (gm)		56.0
Tare Weight (gm)		8.5
(W6) Total Dry Weight (gm)		47.5

% COBBLES	0.0
% C GRAVEL	42.9
% F GRAVEL	5.3
% C SAND	6.5
% M SAND	20.2
% F SAND	17.7
% FINES	7.4
% TOTAL	100.0

D10 (mm)	0.17
D30 (mm)	0.6
D60 (mm)	11
Cu	64.7
Cc	0.2

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) ((wt ret/w6)*100)	% PASS (100-%ret)	
12.0"	8.5	0.00	0.00	100.00	cobbles
3.0"	8.5	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	8.5	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	28.9	20.40	42.95	57.05	fine gravel
0.50"					fine gravel
0.375"	29.9	21.40	45.05	54.95	fine gravel
#4	31.4	22.90	48.21	51.79	coarse sand
#10	34.5	26.00	54.74	45.26	medium sand
#20					medium sand
#40	44.1	35.60	74.95	25.05	fine sand
#60					fine sand
#100	51.2	42.70	89.89	10.11	fine sand
#200	52.5	44.00	92.63	7.37	fines
PAN	56.0	47.50	100.00	0.00	silt/clay



DESCRIPTION	Sandy GRAVEL with some silt
USCS	GP-GM

Prepared For: Freeway Motors

Reviewed By:

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GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property	SAMPLE ID/TYPE	MW5-20
PROJECT NO.	2014-068C	SAMPLE DEPTH	20'
TECH/TEST DATE	CM 12/30/2014	DATE RECEIVED	12/27/2014

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	278.4
Wt Dry Soil & Tare (gm)	(w2)	241.5
Weight of Tare (gm)	(w3)	8.8
Weight of Water (gm)	(w4=w1-w2)	36.9
Weight of Dry Soil (gm)	(w5=w2-w3)	232.7
Moisture Content (%)	(w4/w5)*100	16

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

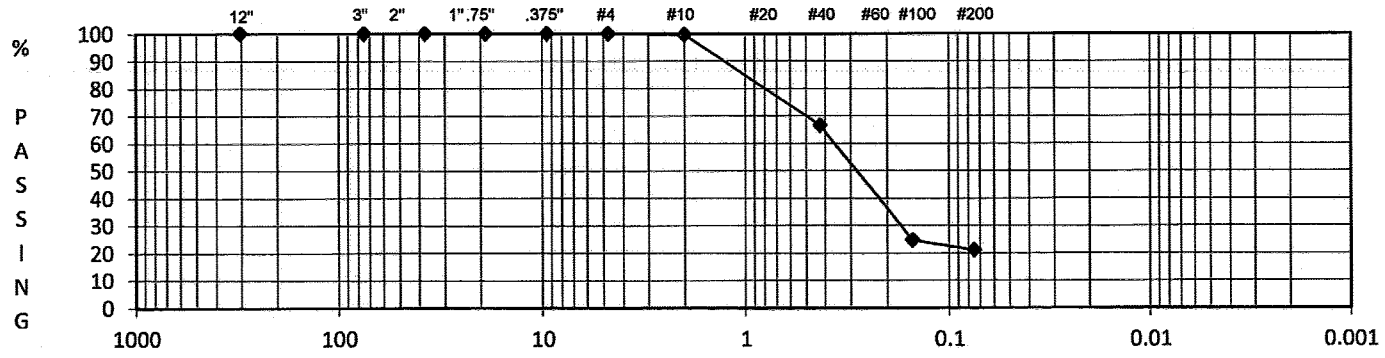
Weight Of Sample (gm)		241.5
Tare Weight (gm)		8.8
(W6) Total Dry Weight (gm)		232.7

% COBBLES	0.0
% C GRAVEL	0.0
% F GRAVEL	0.0
% C SAND	0.3
% M SAND	33.1
% F SAND	45.5
% FINES	21.1
% TOTAL	100.0

D10 (mm)	
D30 (mm)	
D60 (mm)	
Cu	
Cc	

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) {(wt ret/w6)*100}	% PASS (100-%ret)	
12.0"	8.8	0.00	0.00	100.00	cobbles
3.0"	8.8	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	8.8	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	8.8	0.00	0.00	100.00	fine gravel
0.50"					fine gravel
0.375"	8.8	0.00	0.00	100.00	fine gravel
#4	8.8	0.00	0.00	100.00	coarse sand
#10	9.6	0.80	0.34	99.66	medium sand
#20					medium sand
#40	86.6	77.80	33.43	66.57	fine sand
#60					fine sand
#100	184.0	175.20	75.29	24.71	fine sand
#200	192.5	183.70	78.94	21.06	fines
PAN	241.5	232.70	100.00	0.00	silt/clay



DESCRIPTION	Silty SAND
USCS	SM

Prepared For: Freeway Motors

Reviewed By:

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GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property		SAMPLE ID/TYPE	MW5-50	
PROJECT NO.	2014-068C		SAMPLE DEPTH	50'	
TECH/TEST DATE	CM	12/30/2014	DATE RECEIVED	12/27/2014	

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	270.1
Wt Dry Soil & Tare (gm)	(w2)	242.0
Weight of Tare (gm)	(w3)	8.6
Weight of Water (gm)	(w4=w1-w2)	28.1
Weight of Dry Soil (gm)	(w5=w2-w3)	233.4
Moisture Content (%)	(w4/w5)*100	12

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

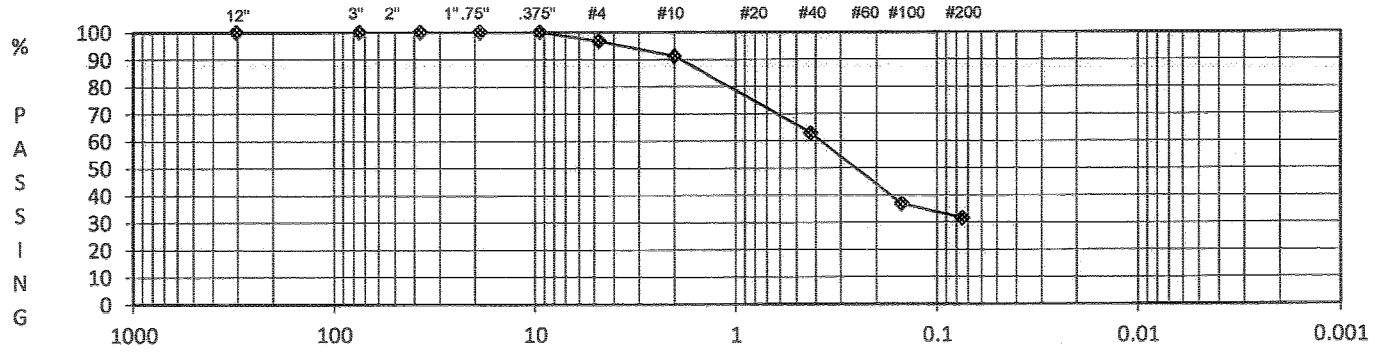
Weight Of Sample (gm)		242.0
Tare Weight (gm)		8.6
(W6) Total Dry Weight (gm)		233.4

% COBBLES	0.0
% C GRAVEL	0.0
% F GRAVEL	3.3
% C SAND	5.6
% M SAND	28.3
% F SAND	31.4
% FINES	31.5
% TOTAL	100.0

D10 (mm)	
D30 (mm)	
D60 (mm)	
Cu	
Cc	

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) ((wt ret/w6)*100)	% PASS (100-%ret)	
12.0"	8.6	0.00	0.00	100.00	cobbles
3.0"	8.6	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	8.6	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	8.6	0.00	0.00	100.00	fine gravel
0.50"					fine gravel
0.375"	8.6	0.00	0.00	100.00	fine gravel
#4	16.2	7.60	3.26	96.74	coarse sand
#10	29.2	20.60	8.83	91.17	medium sand
#20					medium sand
#40	95.2	86.60	37.10	62.90	fine sand
#60					fine sand
#100	155.9	147.30	63.11	36.89	fine sand
#200	168.4	159.80	68.47	31.53	fines
PAN	242.0	233.40	100.00	0.00	silt/clay



DESCRIPTION	Silty SAND
USCS	SM

Prepared For: Freeway Motors

Reviewed By:

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GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property		SAMPLE ID/TYPE	MW6-10	
PROJECT NO.	2014-068C		SAMPLE DEPTH	10'	
TECH/TEST DATE	CM	12/30/2014	DATE RECEIVED	12/27/2014	

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	80.8
Wt Dry Soil & Tare (gm)	(w2)	75.4
Weight of Tare (gm)	(w3)	9.0
Weight of Water (gm)	(w4=w1-w2)	5.4
Weight of Dry Soil (gm)	(w5=w2-w3)	66.4
Moisture Content (%)	(w4/w5)*100	8

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

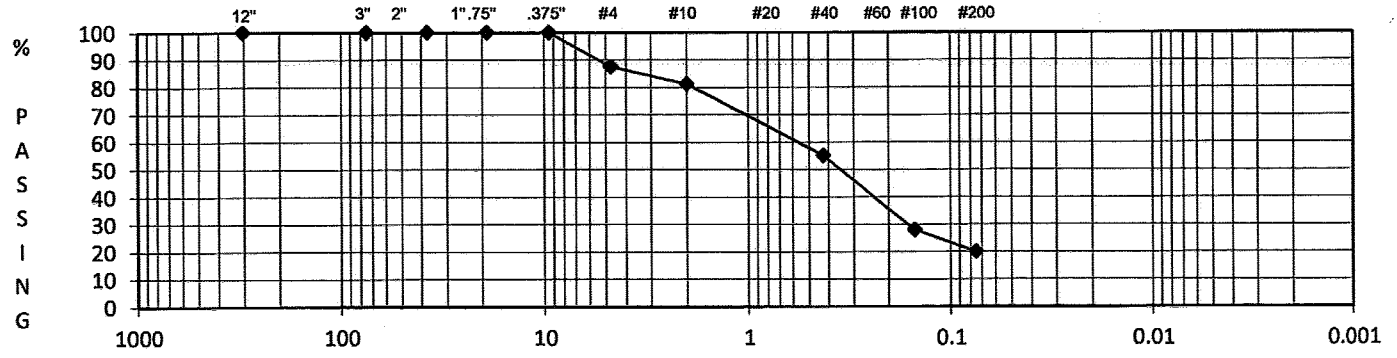
Weight Of Sample (gm)		75.4
Tare Weight (gm)		9.0
(W6) Total Dry Weight (gm)		66.4

% COBBLES	0.0
% C GRAVEL	0.0
% F GRAVEL	12.3
% C SAND	6.5
% M SAND	26.1
% F SAND	35.1
% FINES	20.0
% TOTAL	100.0

D10 (mm)	
D30 (mm)	
D60 (mm)	
Cu	
Cc	

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) ((wt ret/w6)*100)	% PASS (100-%ret)	
12.0"	9.0	0.00	0.00	100.00	cobbles
3.0"	9.0	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	9.0	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	9.0	0.00	0.00	100.00	fine gravel
0.50"					fine gravel
0.375"	9.0	0.00	0.00	100.00	fine gravel
#4	17.2	8.20	12.35	87.65	coarse sand
#10	21.5	12.50	18.83	81.17	medium sand
#20					medium sand
#40	38.8	29.80	44.88	55.12	fine sand
#60					fine sand
#100	56.8	47.80	71.99	28.01	fine sand
#200	62.1	53.10	79.97	20.03	fines
PAN	75.4	66.40	100.00	0.00	silt/clay



DESCRIPTION	Silty SAND with trace gravel
USCS	SM

Prepared For: Freeway Motors

Reviewed By:

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GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property		SAMPLE ID/TYPE	MW6-30	
PROJECT NO.	2014-068C		SAMPLE DEPTH	30'	
TECH/TEST DATE	CM	12/30/2014	DATE RECEIVED	12/27/2014	

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	132.3
Wt Dry Soil & Tare (gm)	(w2)	121.6
Weight of Tare (gm)	(w3)	8.7
Weight of Water (gm)	(w4=w1-w2)	10.7
Weight of Dry Soil (gm)	(w5=w2-w3)	112.9
Moisture Content (%)	(w4/w5)*100	9

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

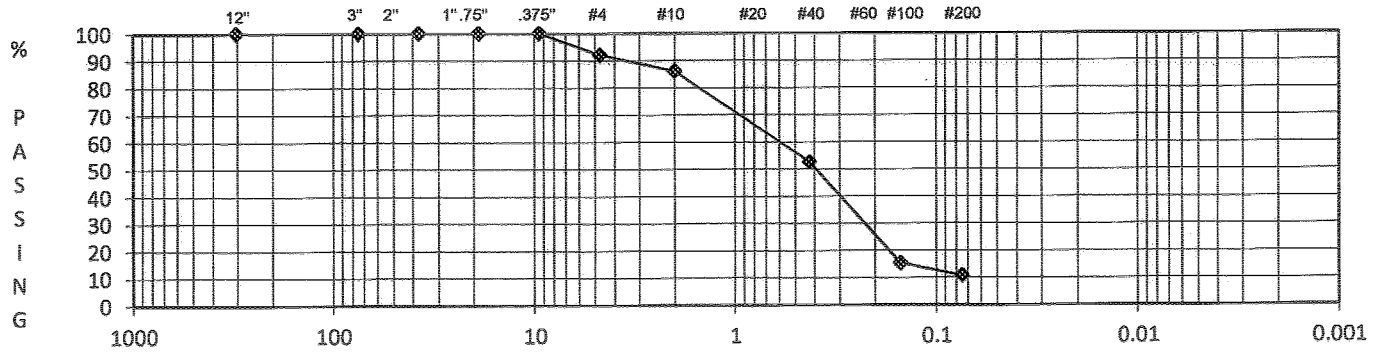
Weight Of Sample (gm)		121.6
Tare Weight (gm)		8.7
(W6) Total Dry Weight (gm)		112.9

% COBBLES	0.0
% C GRAVEL	0.0
% F GRAVEL	7.9
% C SAND	6.0
% M SAND	33.5
% F SAND	41.8
% FINES	10.8
% TOTAL	100.0

D10 (mm)	
D30 (mm)	
D60 (mm)	
Cu	
Cc	

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) ((wt ret/w6)*100)	% PASS (100-%ret)	
12.0"	8.7	0.00	0.00	100.00	cobbles
3.0"	8.7	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	8.7	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	8.7	0.00	0.00	100.00	fine gravel
0.50"					fine gravel
0.375"	8.7	0.00	0.00	100.00	fine gravel
#4	17.6	8.90	7.88	92.12	coarse sand
#10	24.4	15.70	13.91	86.09	medium sand
#20					medium sand
#40	62.2	53.50	47.39	52.61	fine sand
#60					fine sand
#100	104.2	95.50	84.59	15.41	fine sand
#200	109.4	100.70	89.19	10.81	fines
PAN	121.6	112.90	100.00	0.00	silt/clay



DESCRIPTION	SAND with some silt and trace gravel
USCS	SP-SM

Prepared For: Freeway Motors

Reviewed By:

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GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property	SAMPLE ID/TYPE	MW7-15
PROJECT NO.	2014-068C	SAMPLE DEPTH	15'
TECH/TEST DATE	CM 12/30/2014	DATE RECEIVED	12/27/2014

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	135.0
Wt Dry Soil & Tare (gm)	(w2)	124.2
Weight of Tare (gm)	(w3)	8.8
Weight of Water (gm)	(w4=w1-w2)	10.8
Weight of Dry Soil (gm)	(w5=w2-w3)	115.4
Moisture Content (%)	(w4/w5)*100	9

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

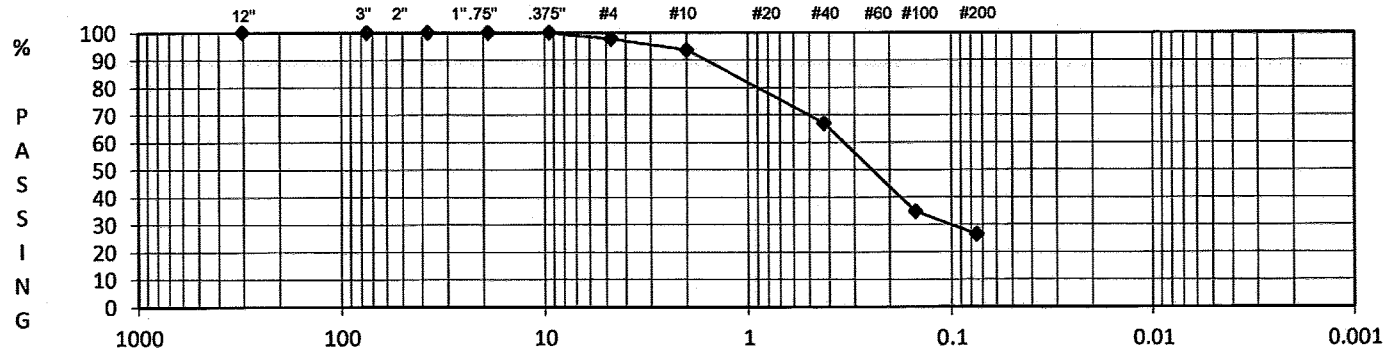
Weight Of Sample (gm)		124.2
Tare Weight (gm)		8.8
(W6) Total Dry Weight (gm)		115.4

% COBBLES	0.0
% C GRAVEL	0.0
% F GRAVEL	2.2
% C SAND	4.2
% M SAND	26.8
% F SAND	40.5
% FINES	26.4
% TOTAL	100.0

D10 (mm)	
D30 (mm)	
D60 (mm)	
Cu	
Cc	

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) {(wt ret/w6)*100}	% PASS (100-%ret)	
12.0"	8.8	0.00	0.00	100.00	cobbles
3.0"	8.8	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	8.8	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	8.8	0.00	0.00	100.00	fine gravel
0.50"					fine gravel
0.375"	8.8	0.00	0.00	100.00	fine gravel
#4	11.3	2.50	2.17	97.83	coarse sand
#10	16.1	7.30	6.33	93.67	medium sand
#20					medium sand
#40	47.0	38.20	33.10	66.90	fine sand
#60					fine sand
#100	84.0	75.20	65.16	34.84	fine sand
#200	93.7	84.90	73.57	26.43	fines
PAN	124.2	115.40	100.00	0.00	silt/clay



DESCRIPTION	Silty SAND
USCS	SM

Prepared For: Freeway Motors

Reviewed By:

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GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property	SAMPLE ID/TYPE	MW7-30
PROJECT NO.	2014-068C	SAMPLE DEPTH	30'
TECH/TEST DATE	CM 12/30/2014	DATE RECEIVED	12/27/2014

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	189.6
Wt Dry Soil & Tare (gm)	(w2)	166.9
Weight of Tare (gm)	(w3)	8.7
Weight of Water (gm)	(w4=w1-w2)	22.7
Weight of Dry Soil (gm)	(w5=w2-w3)	158.2
Moisture Content (%)	(w4/w5)*100	14

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

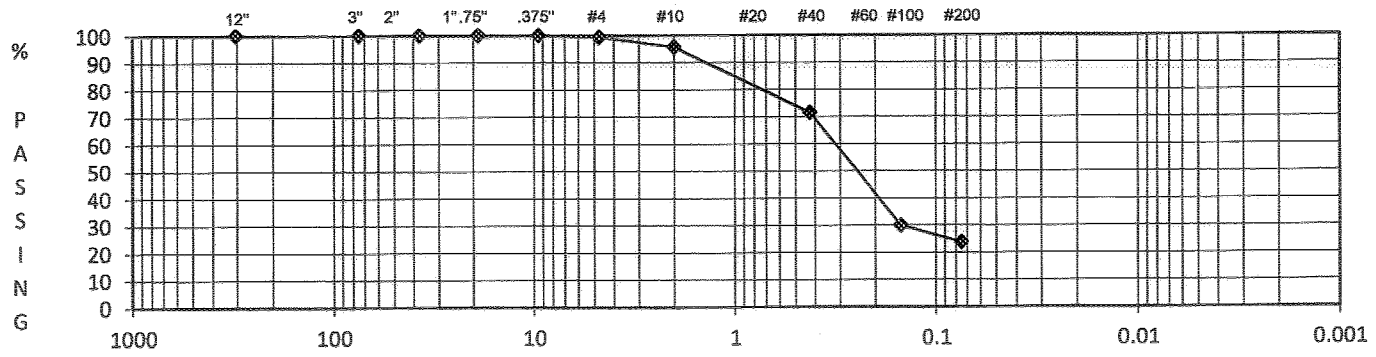
Weight Of Sample (gm)		166.9
Tare Weight (gm)		8.7
(W6) Total Dry Weight (gm)		158.2

% COBBLES	0.0
% C GRAVEL	0.0
% F GRAVEL	0.6
% C SAND	3.7
% M SAND	24.2
% F SAND	47.7
% FINES	23.8
% TOTAL	100.0

D10 (mm)	
D30 (mm)	
D60 (mm)	
Cu	
Cc	

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) {(wt ret/w6)*100}	% PASS (100-%ret)	
12.0"	8.7	0.00	0.00	100.00	cobbles
3.0"	8.7	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	8.7	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	8.7	0.00	0.00	100.00	fine gravel
0.50"					fine gravel
0.375"	8.7	0.00	0.00	100.00	fine gravel
#4	9.7	1.00	0.63	99.37	coarse sand
#10	15.5	6.80	4.30	95.70	medium sand
#20					medium sand
#40	53.8	45.10	28.51	71.49	fine sand
#60					fine sand
#100	119.4	110.70	69.97	30.03	fine sand
#200	129.3	120.60	76.23	23.77	fines
PAN	166.9	158.20	100.00	0.00	silt/clay



DESCRIPTION	Silty SAND
USCS	SM

Prepared For: Freeway Motors

Reviewed By:

RILEYGROUP

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GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property		SAMPLE ID/TYPE	MW8-30	
PROJECT NO.	2014-068C		SAMPLE DEPTH	30'	
TECH/TEST DATE	CM	12/30/2014	DATE RECEIVED	12/27/2014	

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	150.8
Wt Dry Soil & Tare (gm)	(w2)	132.4
Weight of Tare (gm)	(w3)	8.6
Weight of Water (gm)	(w4=w1-w2)	18.4
Weight of Dry Soil (gm)	(w5=w2-w3)	123.8
Moisture Content (%)	(w4/w5)*100	15

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

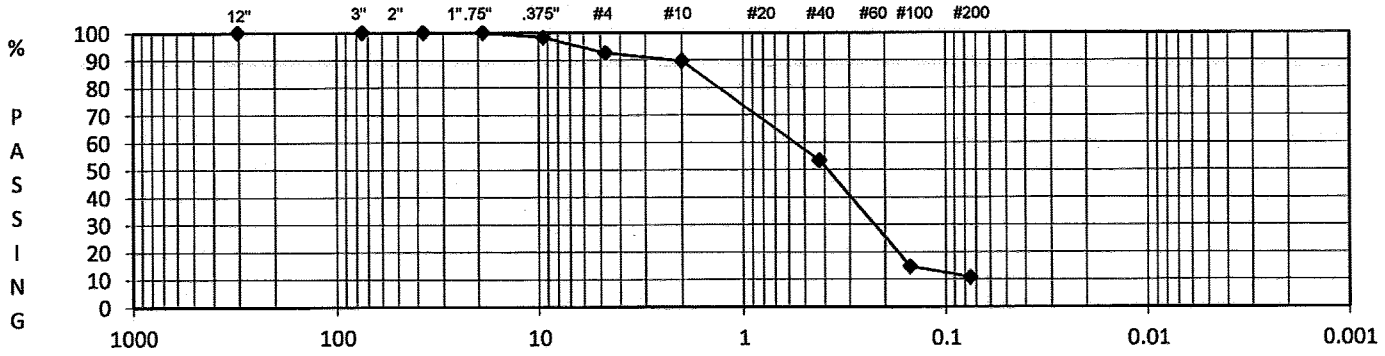
Weight Of Sample (gm)		132.4
Tare Weight (gm)		8.6
(W6) Total Dry Weight (gm)		123.8

% COBBLES	0.0
% C GRAVEL	0.0
% F GRAVEL	7.3
% C SAND	3.0
% M SAND	36.3
% F SAND	42.6
% FINES	10.7
% TOTAL	100.0

D10 (mm)	
D30 (mm)	
D60 (mm)	
Cu	
Cc	

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) {(wt ret/w6)*100}	% PASS (100-%ret)	
12.0"	8.6	0.00	0.00	100.00	cobbles
3.0"	8.6	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	8.6	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	8.6	0.00	0.00	100.00	fine gravel
0.50"					fine gravel
0.375"	10.7	2.10	1.70	98.30	fine gravel
#4	17.6	9.00	7.27	92.73	coarse sand
#10	21.3	12.70	10.26	89.74	medium sand
#20					medium sand
#40	66.3	57.70	46.61	53.39	fine sand
#60					fine sand
#100	114.2	105.60	85.30	14.70	fine sand
#200	119.1	110.50	89.26	10.74	fines
PAN	132.4	123.80	100.00	0.00	silt/clay



DESCRIPTION	SAND with some silt and trace gravel
USCS	SP-SM

Prepared For: Freeway Motors

Reviewed By:

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GRAIN SIZE ANALYSIS
ASTM D421, D422, D1140, D2487, D6913

PROJECT TITLE	University VW - Audi Property		SAMPLE ID/TYPE	MW8-35	
PROJECT NO.	2014-068C		SAMPLE DEPTH	35'	
TECH/TEST DATE	CM	12/30/2014	DATE RECEIVED	12/27/2014	

WATER CONTENT (Delivered Moisture)

Wt Wet Soil & Tare (gm)	(w1)	133.5
Wt Dry Soil & Tare (gm)	(w2)	123.9
Weight of Tare (gm)	(w3)	8.8
Weight of Water (gm)	(w4=w1-w2)	9.6
Weight of Dry Soil (gm)	(w5=w2-w3)	115.1
Moisture Content (%)	(w4/w5)*100	8

Total Weight Of Sample Used For Sieve Corrected For Hygroscopic Moisture

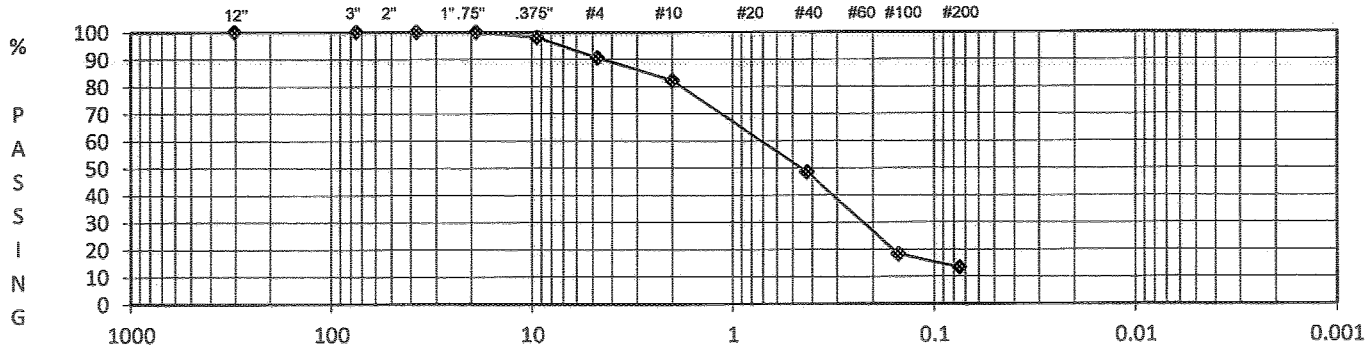
Weight Of Sample (gm)		123.9
Tare Weight (gm)		8.8
(W6) Total Dry Weight (gm)		115.1

% COBBLES	0.0
% C GRAVEL	0.0
% F GRAVEL	9.4
% C SAND	8.4
% M SAND	33.7
% F SAND	35.1
% FINES	13.4
% TOTAL	100.0

D10 (mm)	
D30 (mm)	
D60 (mm)	
Cu	
Cc	

SIEVE ANALYSIS

	Wt Ret +Tare	(Wt-Tare)	Cumulative (%Retained) {(wt ret/w6)*100}	% PASS (100-%ret)	
12.0"	8.8	0.00	0.00	100.00	cobbles
3.0"	8.8	0.00	0.00	100.00	coarse gravel
2.5"					coarse gravel
2.0"					coarse gravel
1.5"	8.8	0.00	0.00	100.00	coarse gravel
1.0"					coarse gravel
0.75"	8.8	0.00	0.00	100.00	fine gravel
0.50"					fine gravel
0.375"	11.0	2.20	1.91	98.09	fine gravel
#4	19.6	10.80	9.38	90.62	coarse sand
#10	29.3	20.50	17.81	82.19	medium sand
#20					medium sand
#40	68.1	59.30	51.52	48.48	fine sand
#60					fine sand
#100	102.8	94.00	81.67	18.33	fine sand
#200	108.5	99.70	86.62	13.38	fines
PAN	123.9	115.10	100.00	0.00	silt/clay



DESCRIPTION	Silty SAND with trace gravel
USCS	SM

Prepared For: Freeway Motors

Reviewed By:

RILEYGROUP

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP **Test Probe No.: P1** **Sheet 1 of 1**

Date(s) Drilled: **10/1/14**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **1.5" Diameter**	Total Depth of Borehole: **18**
Drill Rig Type: **Geoprobe 7730 DT**	Drilling Contractor: **RGI**	Approximate Surface Elevation: **N/A**
Groundwater Level: **Not encountered**	Sampling Method(s): **Continuous**	Hammer Data : **N/A**
Borehole Backfill: **Bentonite**	Location: **17'N of 47th Street sidewalk 27'E of Roosevelt sidewalk**	

PID Reading, ppm	Sample ID	Sample Type	% Recovery	GW Depth	Depth (feet)	MATERIAL DESCRIPTION	Graphic Log
					0	Brown to red, fine sandy SILT with trace gravel, very soft, moist, very slight odor, sheen, trace oxidation, mottling	
7.9					5	Becomes brown, no odor, very slight sheen	
23.8					10	Medium to coarse SAND lens with trace gravels Gray, silty, fine SAND, dense, moist, no odor, very slight sheen	
48.8						Becomes brown to gray with some coarse gravels/cobbles, very dense, very slight odor	
					15	Becomes gray, slight odor, slight sheen	
1429	P1-18	⊠				Test probe refusal at 18' bgs.	
					20		

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Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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Test Probe No.: P2

Sheet 1 of 1

Date(s) Drilled: **10/1/14**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **1.5" Diameter**	Total Depth of Borehole: **18.5**
Drill Rig Type: **Geoprobe 7730 DT**	Drilling Contractor: **RGI**	Approximate Surface Elevation: **N/A**
Groundwater Level: **Not encountered**	Sampling Method(s): **Continuous**	Hammer Data : **N/A**
Borehole Backfill: **Bentonite**	Location: **32.5'N of 47th Street sidewalk 27'E of Roosevelt sidewalk**	

PID Reading, ppm	Sample ID	Depth (feet)	MATERIAL DESCRIPTION
		0	Black to gray asphalt, gravel and sand, loose, dry, no odor, no sheen (Fill)
21.9	P2-5	5	Brown to gray, silty, fine SAND with gravel, very loose, moist, slight to moderate odor, slight sheen Becomes loose to medium dense, moderate to strong odor
127	P2-9	10	Becomes grayish brown, dense to very dense
66.6			
32.3 97.1	P2-15	15	Becomes stratified with medium coarse SAND lenses, very dense, dry to moist
49.9	P2-16.5		
22.5	P2-18.5		Test probe refusal at 18.5 feet bgs.
		20	

Sample Type: ☒ = Grab Sample

Graphic Log: ▨ = Asphalt; ▩ = Sand

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP **Test Probe No.: P3** **Sheet 1 of 1**

Date(s) Drilled: **10/1/14**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **1.5" Diameter**	Total Depth of Borehole: **15**
Drill Rig Type: **Geoprobe 7730 DT**	Drilling Contractor: **RGI**	Approximate Surface Elevation: **N/A**
Groundwater Level: **Not encountered**	Sampling Method(s): **Continuous**	Hammer Data : **N/A**
Borehole Backfill: **Bentonite**	Location: **4.5'N of 47th Street sidewalk 22'E of Roosevelt sidewalk**	

PID Reading, ppm	Sample ID	Sample Type	% Recovery	GW Depth	Depth (feet)	MATERIAL DESCRIPTION	Graphic Log
					0	Brown SILT with sand and trace fine gravels, soft to stiff, moist, no odor, no sheen (Fill)	
7.2					5	Gravelly SILT with brick pieces, moist with wet zones, very slight odor (Fill)	
1.1							
11.4					10	Beige, fine sandy GRAVEL, very dense, dry, no odor, no sheen	
7.9	P3-15	⊠			15	Brown, sandy SILT with gravel, very stiff, moist, no odor, no sheen Test probe refusal at 15 feet bgs.	
					20		

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17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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Test Probe No.: P4

Sheet 1 of 1

Date(s) Drilled: **10/1/14**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **1.5" Diameter**	Total Depth of Borehole: **20**
Drill Rig Type: **Geoprobe 7730 DT**	Drilling Contractor: **RGI**	Approximate Surface Elevation: **N/A**
Groundwater Level: **Not encountered**	Sampling Method(s): **Continuous**	Hammer Data : **N/A**
Borehole Backfill: **Bentonite**	Location: **13'N of 47th Street sidewalk 43'E of Roosevelt sidewalk**	

PID Reading, ppm	Sample ID	Sample Type	% Recovery	GW Depth	Depth (feet)	MATERIAL DESCRIPTION
					0	Black, gray and red, sandy, fine GRAVEL with ash and brick pieces, very loose, dry, no odor, no sheen (Fill)
1.7					5	Brown, sandy SILT with gravel and masonry, stiff, moist, no odor, very slight sheen (Fill)
1.8					10	Brown, silty, SAND with gravel, dense, moist, no odor, no sheen
5.7					15	Brown, sandy SILT with gravel, very stiff, moist, strong odor, sheen
3.0	P4-16	X				
27.8	P4-18	X				Becomes gray, strong sheen
98	P4-20	X			20	Test probe refusal at 20 feet bgs.

Graphic Log

The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP **Test Probe No.: P5** **Sheet 1 of 1**

Date(s) Drilled: **10/1/14**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **1.5" Diameter**	Total Depth of Borehole: **15**
Drill Rig Type: **Geoprobe 7730 DT**	Drilling Contractor: **RGI**	Approximate Surface Elevation: **N/A**
Groundwater Level: **Not encountered**	Sampling Method(s): **Continuous**	Hammer Data : **N/A**
Borehole Backfill: **Bentonite**	Location: **33'N of 47th Street sidewalk 14'E of Roosevelt sidewalk**	

PID Reading, ppm	Sample ID	Sample Type	% Recovery	GW Depth	Depth (feet)	MATERIAL DESCRIPTION	Graphic Log
233					0	Brown, fine sandy SILT with occasional gravel and masonry, very stiff, moist, very slight odor, very slight sheen (Fill)	
166					5	Gray, fine SAND with silt and gravel, dense, moist, slight odor, no sheen	
125					10	Gray, silty, SAND with gravel, very dense, moist, no odor, no sheen	
50.2	P5-15	⊠			15	Test probe terminated at 15 feet bgs.	
					20		

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Test Probe No.: P6

Sheet 1 of 1

Date(s) Drilled: **10/1/14**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **1.5" Diameter**	Total Depth of Borehole: **16**
Drill Rig Type: **Geoprobe 7730 DT**	Drilling Contractor: **RGI**	Approximate Surface Elevation: **N/A**
Groundwater Level: **Not encountered**	Sampling Method(s): **Continuous**	Hammer Data : **N/A**
Borehole Backfill: **Bentonite**	Location: **32.5'N of 47th Street sidewalk 38.25'E of Roosevelt sidewalk**	

PID Reading, ppm	Sample ID	Sample Type	% Recovery	GW Depth	Depth (feet)	MATERIAL DESCRIPTION	Graphic Log
					0	Brown to reddish gray, sandy SILT with trace gravel and masonry, very soft, moist, no odor, no sheen, some mottled oxidation (Fill)	
3.4							
49.5					5		
26						Beige, silty, fine SAND with trace fine gravel, medium dense, moist, no odor, no sheen	
86.9					10		
28.7	P6-13.5						
175	P4-14					Gray, fine SAND with silt and coarse gravels, very dense, dry to moist, strong odor, strong sheen	
264	P6-16				15		
						Test probe refusal at 16 feet bgs.	
					20		

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Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP **Test Probe No.: P7** **Sheet 1 of 1**

Date(s) Drilled: **10/1/14**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **1.5" Diameter**	Total Depth of Borehole: **20**
Drill Rig Type: **Geoprobe 7730 DT**	Drilling Contractor: **RGI**	Approximate Surface Elevation: **N/A**
Groundwater Level: **Not encountered**	Sampling Method(s): **Continuous**	Hammer Data : **N/A**
Borehole Backfill: **Bentonite**	Location: **24'N of 47th Street sidewalk 52'E of Roosevelt sidewalk**	

PID Reading, ppm	Sample ID	Sample Type	% Recovery	GW Depth	Depth (feet)	MATERIAL DESCRIPTION
					0	Dark brown to purple, SAND and GRAVEL, wood fragments, loose, dry, no odor, no sheen (Fill)
						Beige, fine sandy SILT with gravel, soft, moist, no odor, no sheen, trace oxidation
						Becomes medium stiff, more gravel
1.6					5	Becomes soft to stiff
						Light brown, silty, fine SAND with trace fine gravel, medium dense, dry to moist, no odor, no sheen
3.2					10	
2.1						Light gray to beige, silty SAND with coarse gravel, medium dense to dense, moist, very slight odor, no sheen
1.7	P7-15	☒			15	Beige, fine SAND with silt and trace gravel, dense to very dense, moist, no odor, no sheen
2.2	P7-20	☒			20	Test probe refusal at 20 feet bgs.

Graphic Log

The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP **Test Probe No.: P8** **Sheet 1 of 1**

Date(s) Drilled: **10/1/14**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **1.5" Diameter**	Total Depth of Borehole: **20**
Drill Rig Type: **Geoprobe 7730 DT**	Drilling Contractor: **RGI**	Approximate Surface Elevation: **N/A**
Groundwater Level: **Not encountered**	Sampling Method(s): **Continuous**	Hammer Data : **N/A**
Borehole Backfill: **Bentonite**	Location: **49'N of 47th Street sidewalk 30'E of Roosevelt sidewalk**	

PID Reading, ppm	Sample ID	Sample Type	% Recovery	GW Depth	Depth (feet)	MATERIAL DESCRIPTION	Graphic Log
					0	Brown, silty SAND with gravel, loose, moist, no odor, no sheen (Fill)	
1.2					5	Beige, silty SAND with coarse gravel, dense to very dense, moist, no odor, no sheen (Fill)	
1.0					10	Gray SAND with silt and gravel, dense, moist, no odor, no sheen	
						Light gray, silty SAND with gravel, very dense, moist, no odor, no sheen	
					15		
2.9	P8-19	☒			20	Test probe refusal at 20 feet bgs.	

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP **Test Probe No.: P9** **Sheet 1 of 1**

Date(s) Drilled: **10/1/14**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **1.5" Diameter**	Total Depth of Borehole: **18**
Drill Rig Type: **Geoprobe 7730 DT**	Drilling Contractor: **RGI**	Approximate Surface Elevation: **N/A**
Groundwater Level: **Not encountered**	Sampling Method(s): **Continuous**	Hammer Data : **N/A**
Borehole Backfill: **Bentonite**	Location: **37.5'N of 47th Street sidewalk 52'E of Roosevelt sidewalk**	

PID Reading, ppm	Sample ID	Sample Type	% Recovery	GW Depth	Depth (feet)	MATERIAL DESCRIPTION	Graphic Log
					0	Beige to reddish brown, fine SAND with silt and trace gravel, loose to very soft, moist, no odor, no sheen	
2.2					5	Brown sandy SILT with trace gravel gravel, soft, moist, no odor, no sheen	
2.2						Light brown to blueish gray, sandy, coarse GRAVEL with trace silt, very dense, dry, no odor, no sheen	
						Light brown, poorly-graded, fine SAND wiith trace gravel, loose to medium dense, dry to moist, no odor, no sheen	
5.3					10	Beige, silty SAND with gravel, medium dense to dense, moist, no odor, no sheen	
3.2						Brown to gray, silty SAND with silt and gravel, very dense, moist, no odor, no sheen	
					15		
3.1	P9-18	⊠				Test probe refusal at 18 feet bgs.	
					20		

The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property**

Project Number: **2014-068C**

Client: **Freeway Motors**

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Boring Log Key

Sheet 1 of 1

PID Reading, ppm	Sample ID	Sample Type	% Recovery	GW Depth	Depth (feet)	MATERIAL DESCRIPTION	Graphic Log
1	2	3	4	5	6	7	8

COLUMN DESCRIPTIONS

1. PID Reading, ppm: The reading from a photo-ionization detector, in parts per million.
2. Sample ID: Sample identification number.
3. Sample Type: Type of soil sample collected at the depth interval shown.
4. % Recovery: % Recoverysquare foot.
5. GW Depth: Groundwater depth in feet below the ground surface.
6. Depth (feet): Depth in feet below the ground surface.
7. MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
8. Graphic Log: Graphic depiction of the subsurface material encountered.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

- AF
- Poorly graded GRAVEL (GP)
- SILT, SILT w/SAND, SANDY SILT (ML)
- Silty SAND (SM)
- Silty SAND to Sandy SILT (SM-ML)
- Poorly graded SAND (SP)
- Poorly graded SAND with Silt (SP-SM)

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Auger sampler
- Bulk Sample
- 3-inch-OD California w/ brass rings
- CME Sampler
- Continuous
- Grab Sample
- 2.5-inch-OD Modified California w/ brass liners
- Pitcher Sample
- 2-inch-OD unlined split spoon (SPT)
- Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

- Water level (at time of drilling, ATD)
- Water level (after waiting)
- Minor change in material properties within a stratum
- Inferred/gradational contact between strata
- ~?~ Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW1** **Sheet 1 of 3**

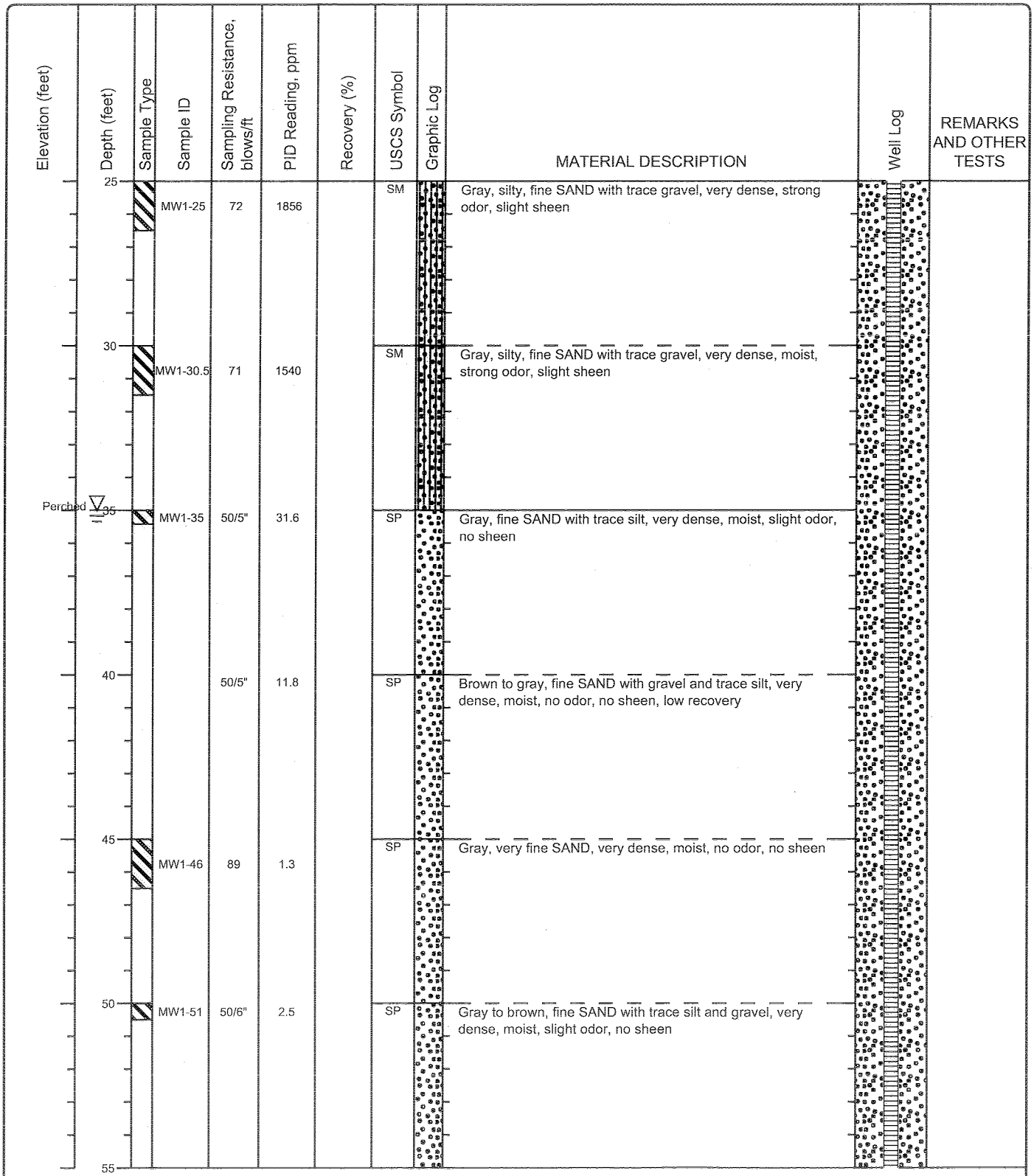
Date(s) Drilled: **10/8/14**	Logged By: **AJ**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **8.25" Outer Diameter**	Total Depth of Borehole: **70**
Drill Rig Type: **Truck-Mounted**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **60**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4700 Roosevelt Way Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0								No sampling from 0-20 feet bgs.		Concrete 0 - 1 Bentonite 1 - 18 Blank 2" PVC 0 - 18
	5										
	10										
	15										
	20		MW1-20	50/4"	3141		SP-SM		Gray, fine SAND with silt, very dense, moist, strong odor, moderate sheen		2" Well Screen 18 - 66 Silica Sand 18 - 66
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

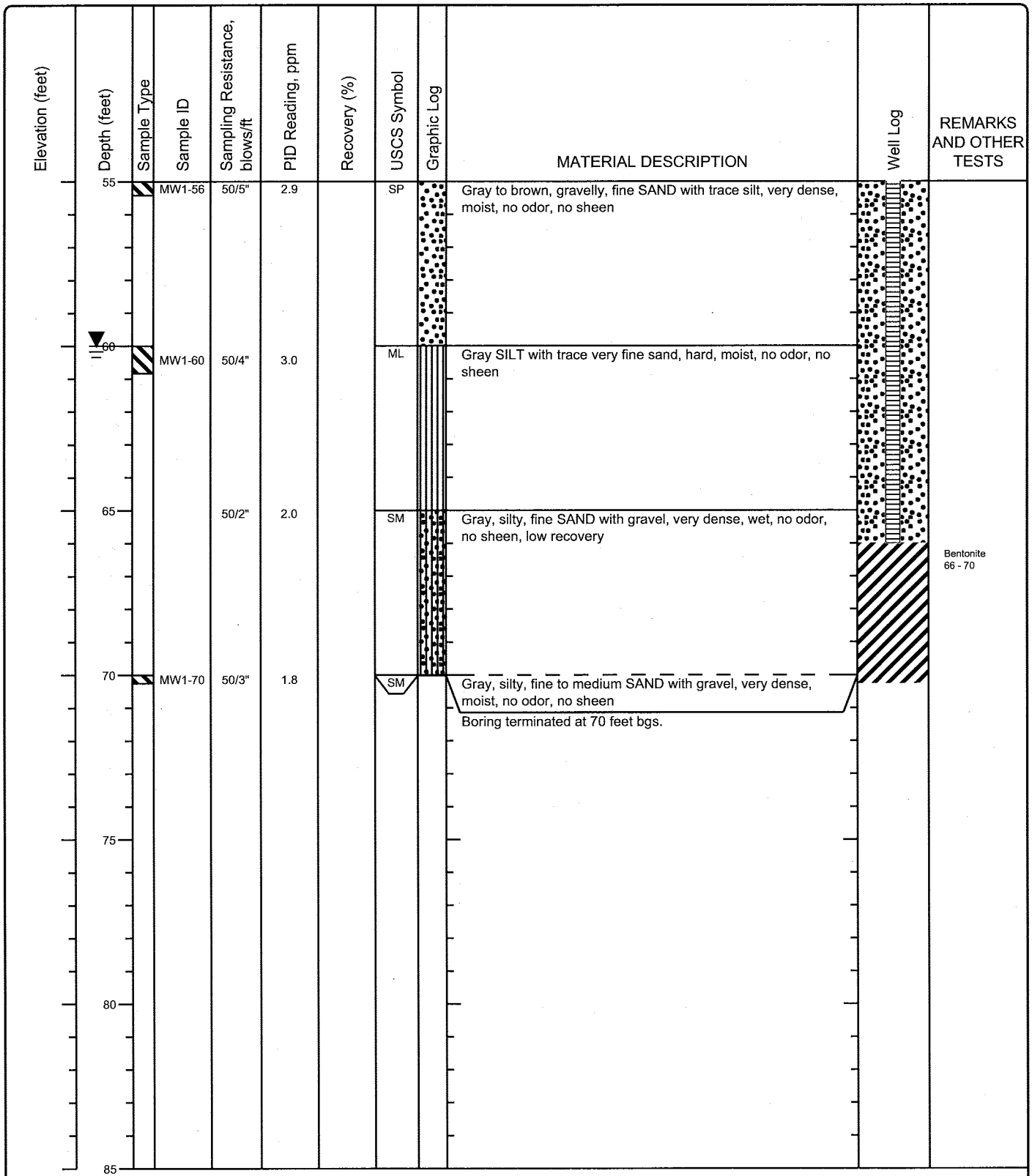
Boring/Well No.: **MW1**
Sheet 2 of 3



Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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Boring/Well No.: **MW1**
Sheet 3 of 3



The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW2** **Sheet 1 of 3**

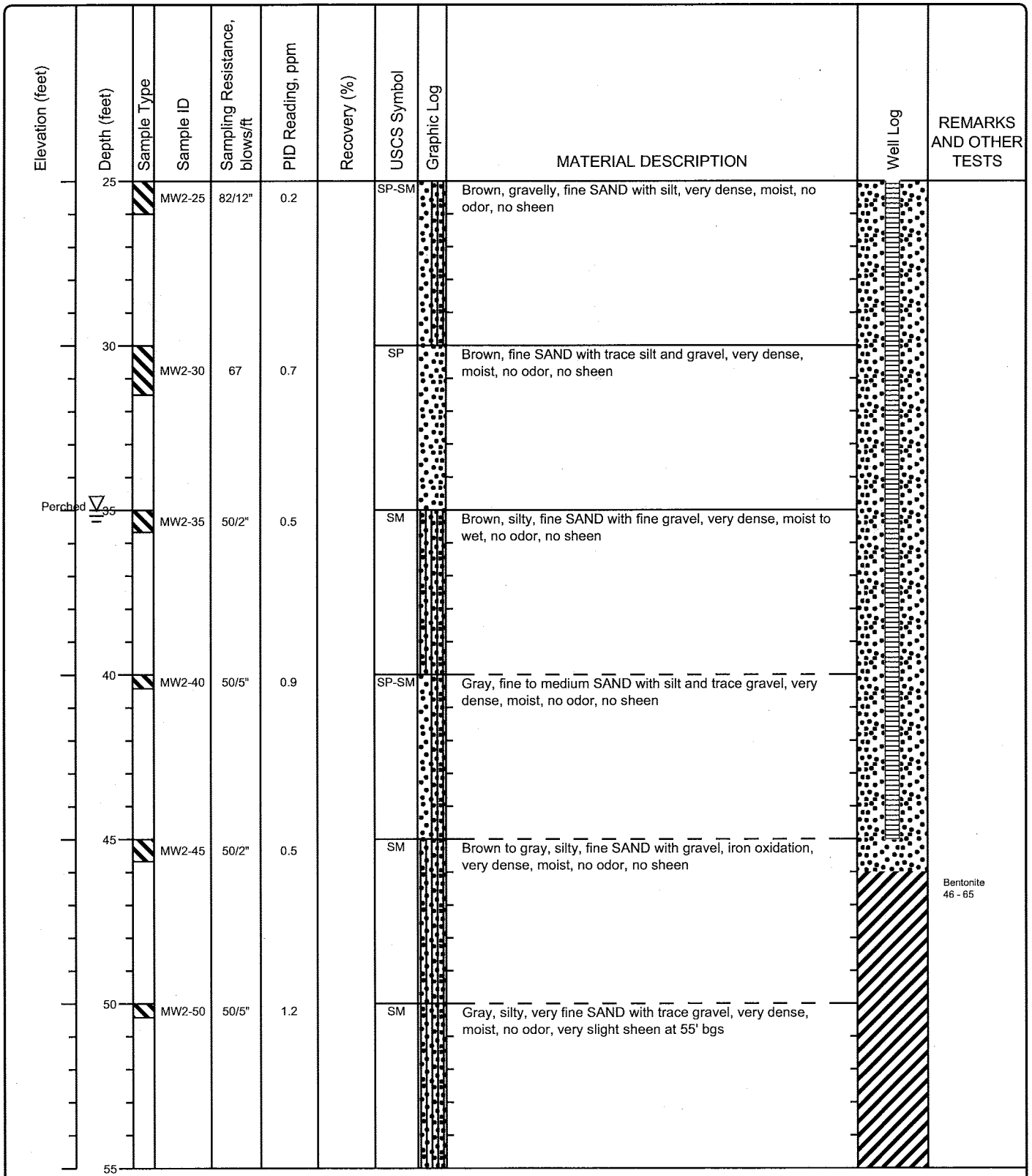
Date(s) Drilled: **10/9/14**	Logged By: **AJ**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **8.25" Outer Diameter**	Total Depth of Borehole: **65**
Drill Rig Type: **Truck-Mounted**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **Not encountered**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4700 Roosevelt Way Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 1
											Bentonite 1 - 14
											Blank 2" PVC 0 - 14
	5			7	0.7		SP-SM		Brown, gravelly, fine SAND with silt, loose, moist, no odor, no sheen, low recovery		
	10		MW2-10	47	0.1		SP-SM		Brownish-gray, fine SAND with silt, dense, moist, no odor, no sheen		
	15		MW2-15	50/5"	0.2		SM		Gray, silty, fine SAND with coarse sand and trace gravel, very dense, moist, no odor, no sheen		Silica Sand 14 - 46 2" Well Screen 14 - 45
	20			50/3"	0.6				Low recovery		
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **MW2**
Sheet 2 of 3

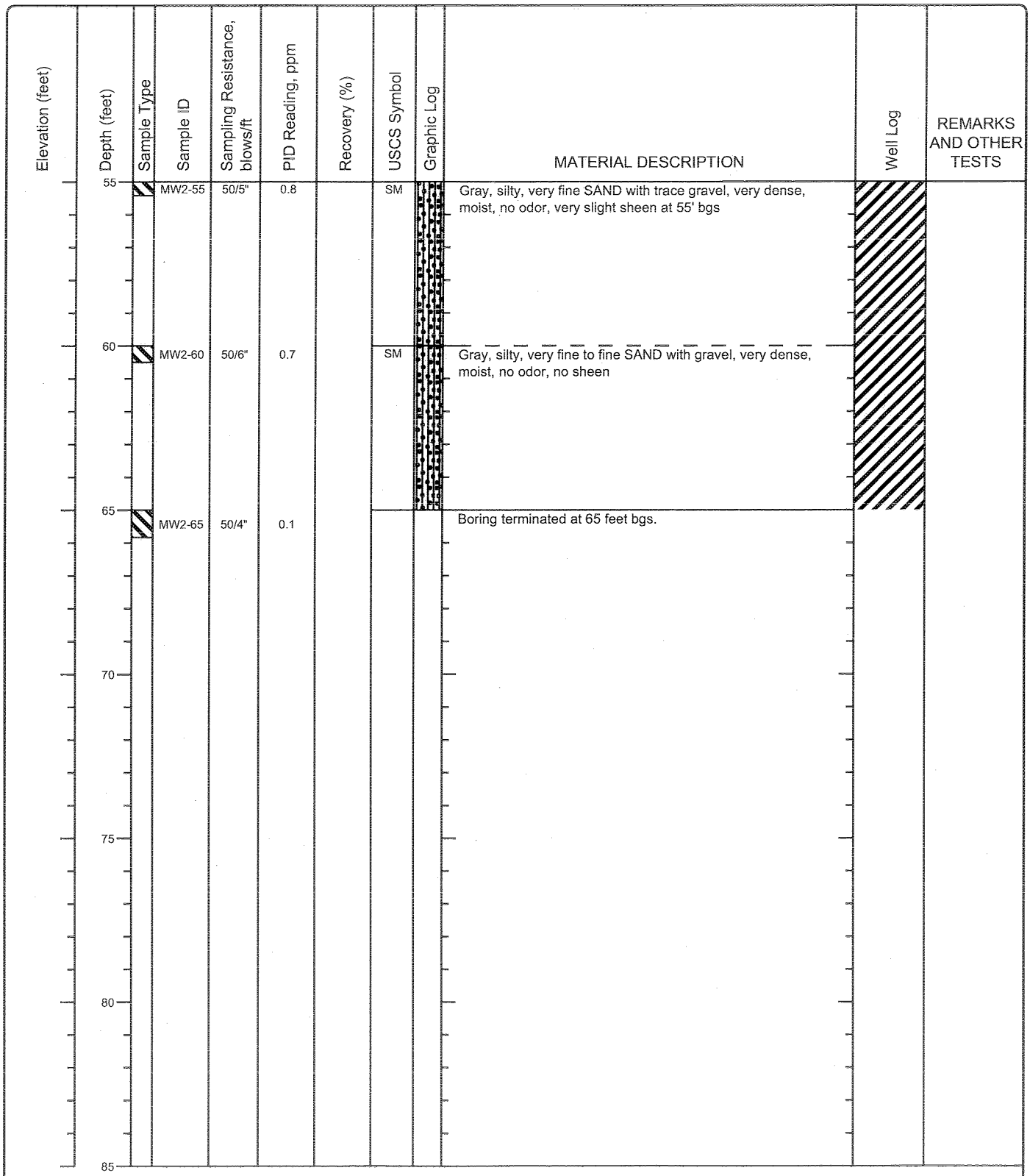


The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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Boring/Well No.: **MW2**
Sheet 3 of 3



The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW3** **Sheet 1 of 3**

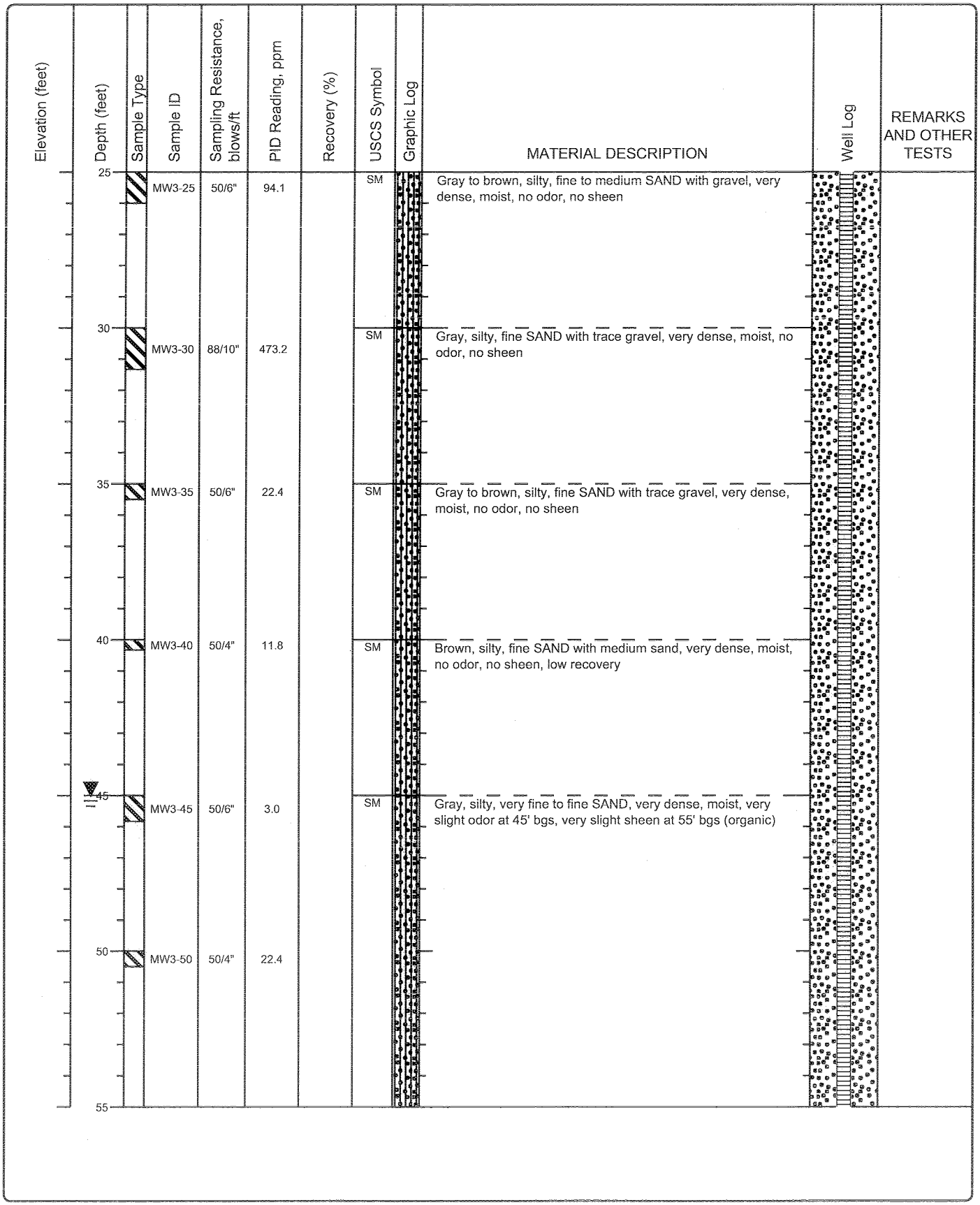
Date(s) Drilled: **10/9/14**	Logged By: **AJ**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **8.25" Outer Diameter**	Total Depth of Borehole: **60**
Drill Rig Type: **Truck-Mounted**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **45**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4700 Roosevelt Way Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 1
											Bentonite 1 - 19
											Blank 2" PVC 0 - 20
	5		MW3-5	11	0.8		ML		Brown SILT with very fine sand, stiff, moist, no odor, no sheen		
	10		MW3-10	15	1.2		SM		Brown, silty, very fine SAND with trace medium sand, medium dense, moist, no odor, no sheen		
	15		MW3-15	50	1.0		SM		Brown to gray, silty, fine SAND with gravel, dense, moist, no odor, no sheen		
	20		MW3-20	50/5"	315.6		SP-SM		Gray, gravelly, fine SAND with silt, very dense, moist, moderate odor, moderate sheen		Silica Sand 19 - 60
											2" Well Screen 20 - 60
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

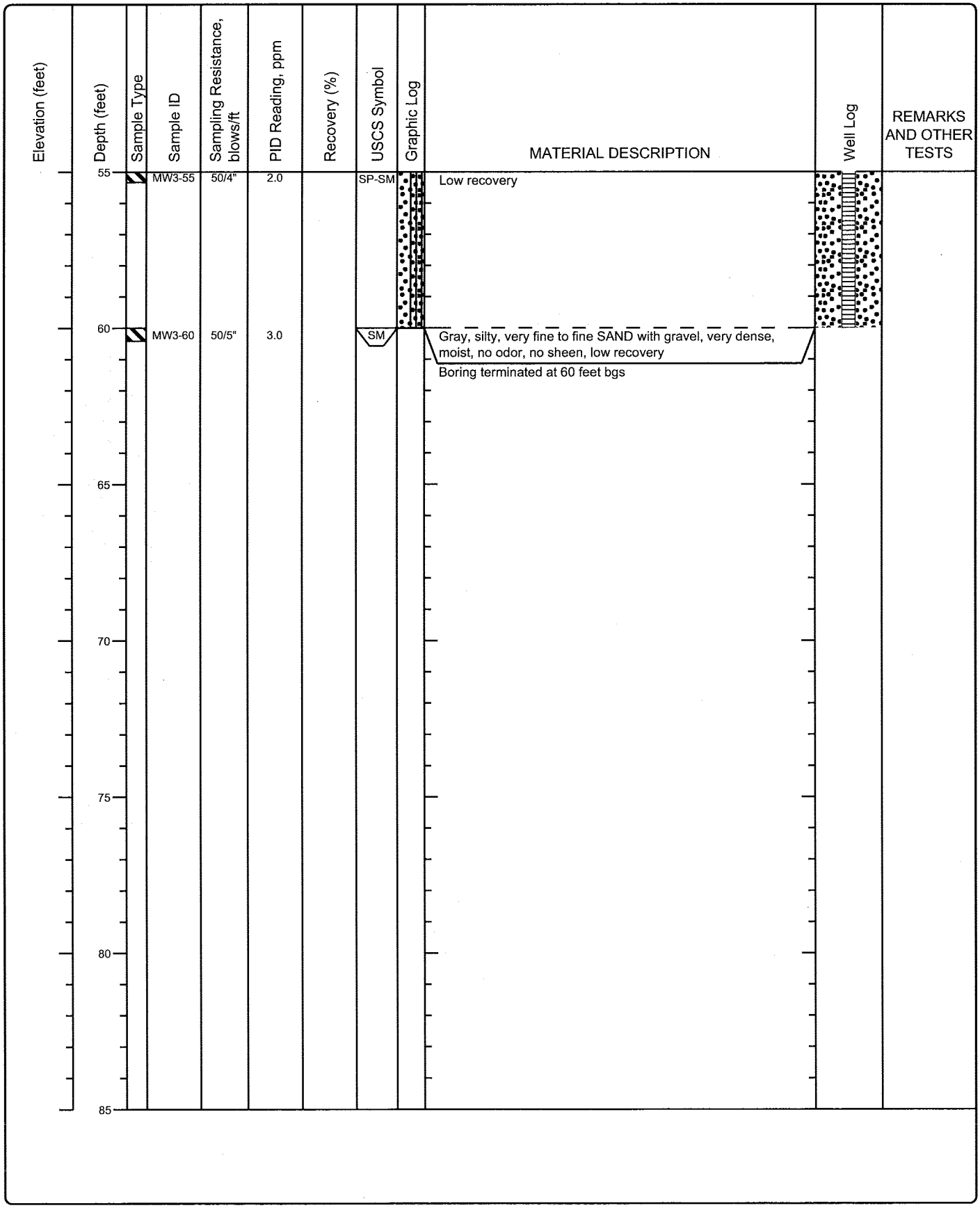
Boring/Well No.: **MW3**
Sheet 2 of 3



Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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Boring/Well No.: **MW3**
Sheet 3 of 3



The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW4** **Sheet 1 of 3**

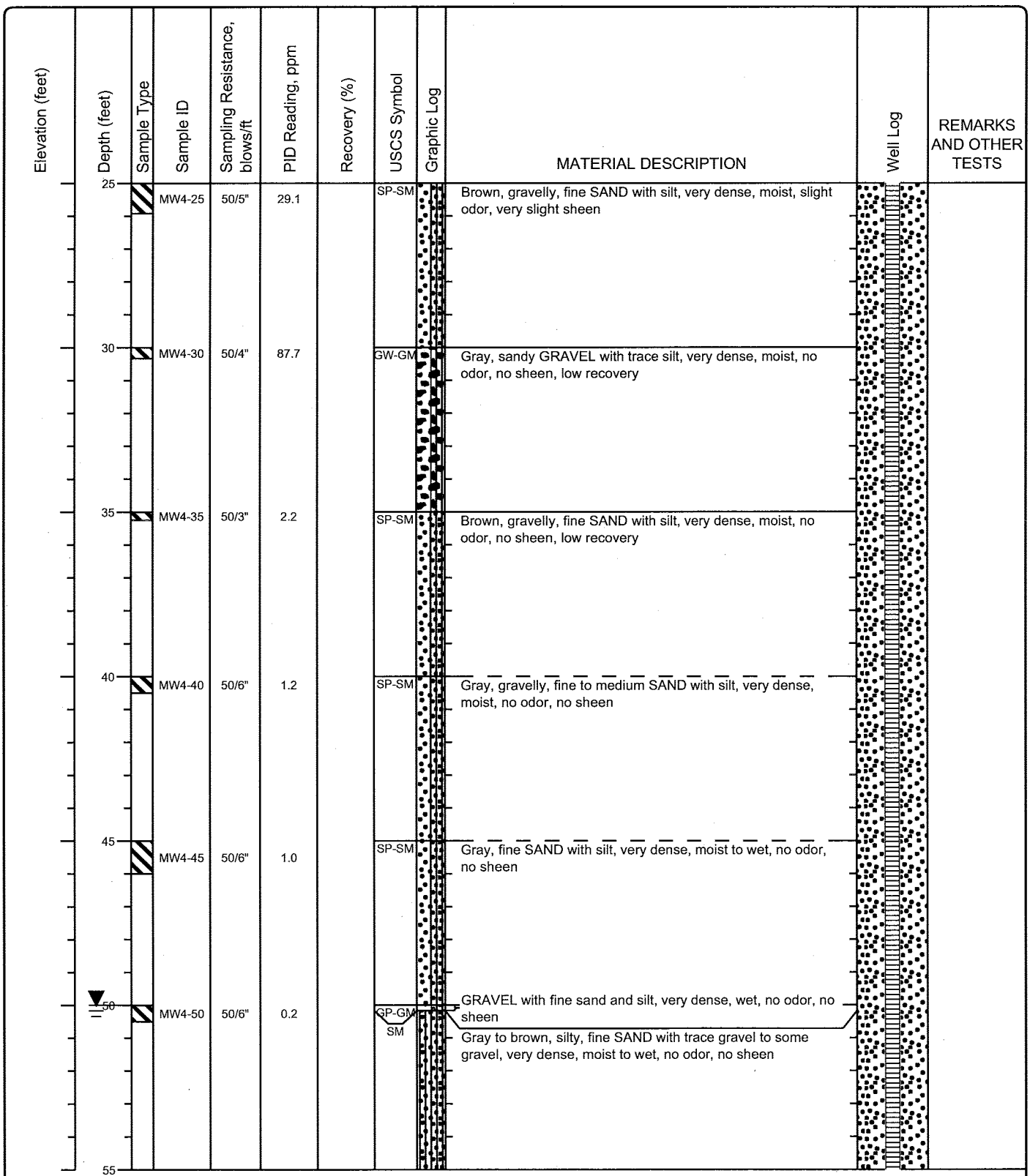
Date(s) Drilled: **10/9/14**	Logged By: **AJ**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **8.25" Outer Diameter**	Total Depth of Borehole: **60**
Drill Rig Type: **Truck-Mounted**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **50**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4700 Roosevelt Way Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 1
											Bentonite 1 - 19
											Blank 2" PVC 0 - 20
	5		MW4-5	19	0.2		SP-SM		Brown, fine SAND with silt and trace gravel, medium dense, moist, no odor, no sheen		
	10		MW4-10	48	0.7		SP		Gray, fine to medium SAND with gravel and trace silt, dense, moist, no odor, no sheen		
	15		MW4-15	63	0.9		SP-SM		Gray, fine SAND with silt and gravel, very dense, moist, no odor, no sheen		
	20		MW4-20	50/5"	34.4		SM		Gray, silty, fine SAND with trace coarse sand, very dense, moist, slight odor, slight sheen		Silica Sand 19 - 60 2" Well Screen 20 - 60
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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Boring/Well No.: **MW4**
Sheet 2 of 3



Project Name: **University VW - Audi Property**

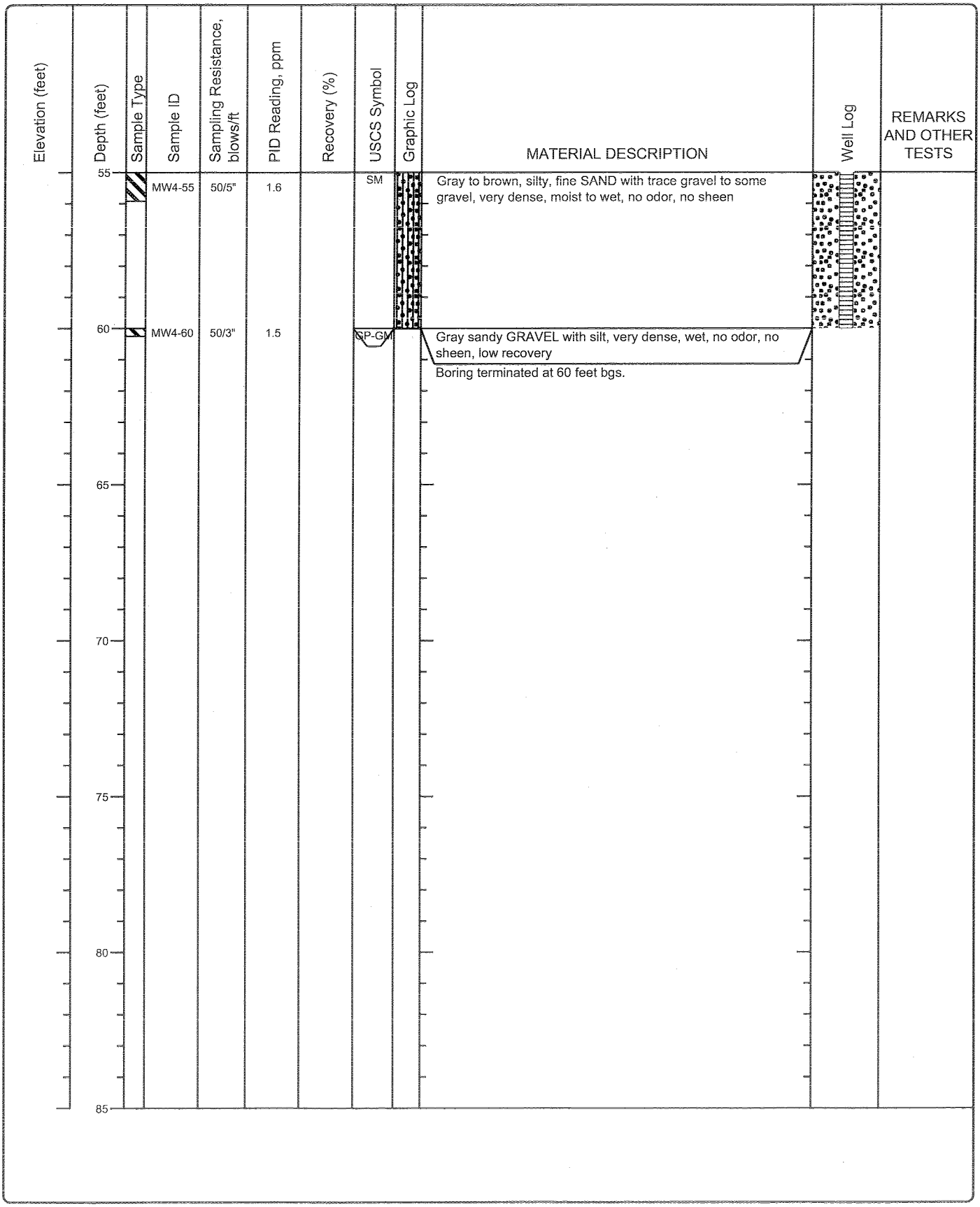
Project Number: **2014-068C**

Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **MW4**

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The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW5** **Sheet 1 of 3**

Date(s) Drilled: **10/10/14**	Logged By: **AJ**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **8.25" Outer Diameter**	Total Depth of Borehole: **65**
Drill Rig Type: **Truck-Mounted**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **50**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4700 Roosevelt Way Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 1
											Bentonite 1 - 29
											Blank 2" PVC 0 - 30
	5		MW5-5	19	1.4		SM		Brown to gray, silty, fine SAND with trace gravel, medium dense to dense, moist, no odor, no sheen		
	10			42	1.4				Low recovery		
	15		MW5-15	49	0.8						
	20		MW5-20	42	1.2		SM		Brown, silty, fine SAND with very fine sand, dense, moist, no odor, no sheen		
	25										

Project Name: **University VW - Audi Property**

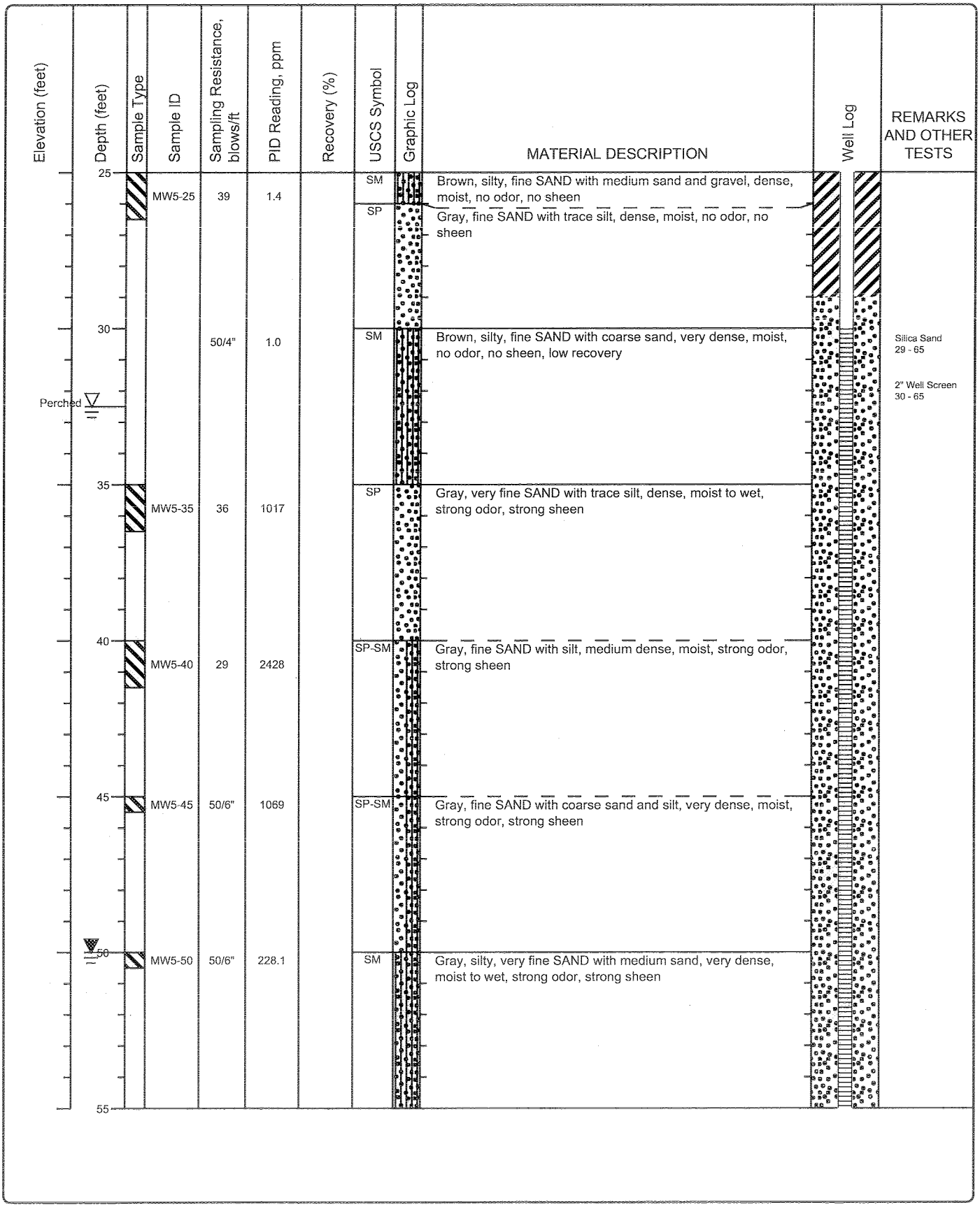
Project Number: **2014-068C**

Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **MW5**

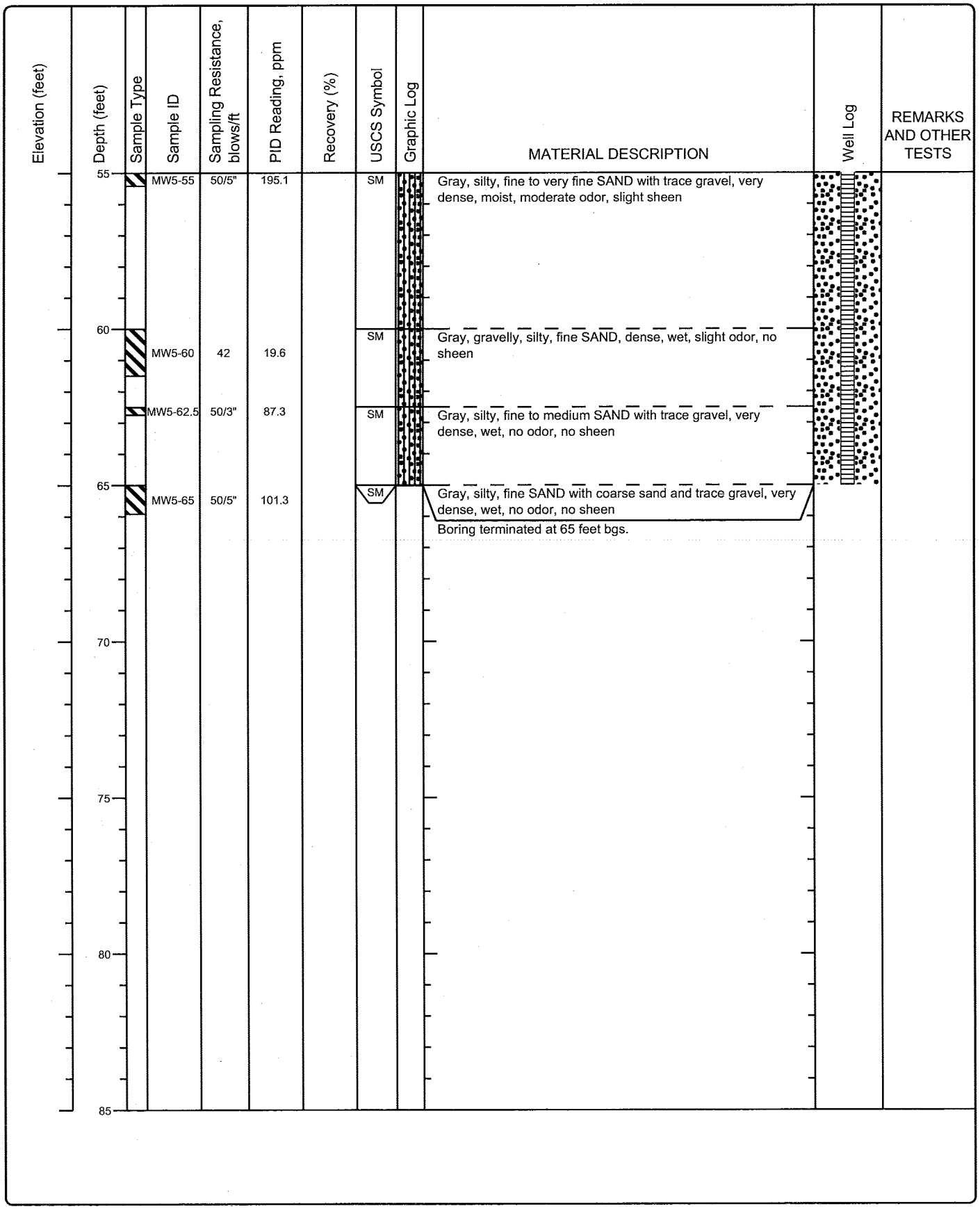
Sheet 2 of 3



Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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Boring/Well No.: **MW5**
Sheet 3 of 3



The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW6** **Sheet 1 of 3**

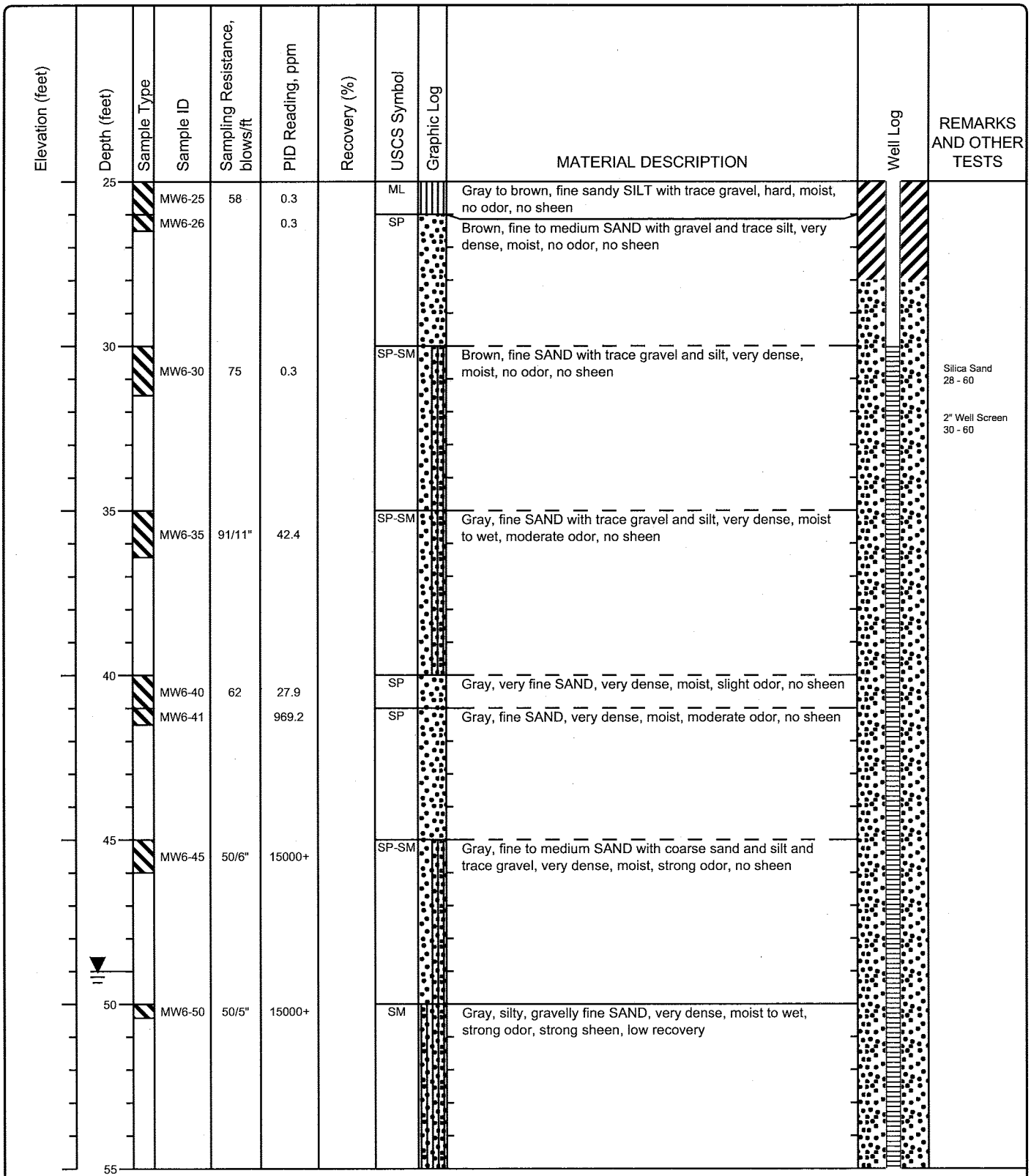
Date(s) Drilled: **11/04/14**	Logged By: **AJ**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **6.25" Outer Diameter**	Total Depth of Borehole: **60**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **49**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4700 Roosevelt Way Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 2
											Bentonite 2 - 28
											Blank 2" PVC 0 - 30
	5		MW6-5	71/9"	0.1		SM		Light brown, silty, fine SAND with trace gravel, very dense, moist, no odor, no sheen		
	10		MW6-10	39	0.1		SM		Gray to brown, silty, fine SAND with trace gravel, dense, moist, no odor, no sheen		
	15		MW6-15	74	0.2		SM		Gray to brown, silty, fine SAND with trace gravel, very dense, moist, no odor, no sheen limited recovery		
	20								No recovery		
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **MW6**
Sheet 2 of 3



The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property**

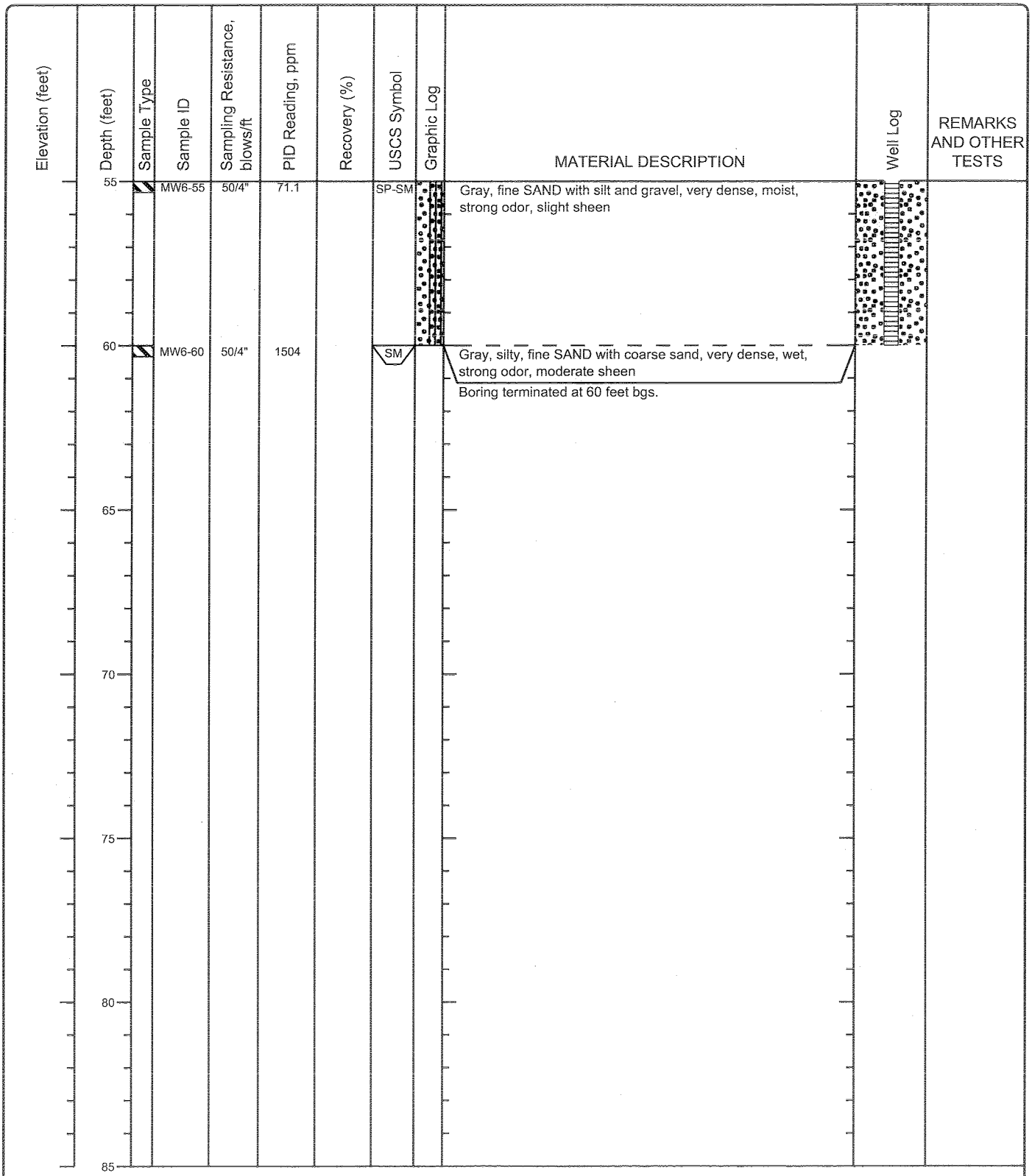
Project Number: **2014-068C**

Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **MW6**

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The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW7** **Sheet 1 of 3**

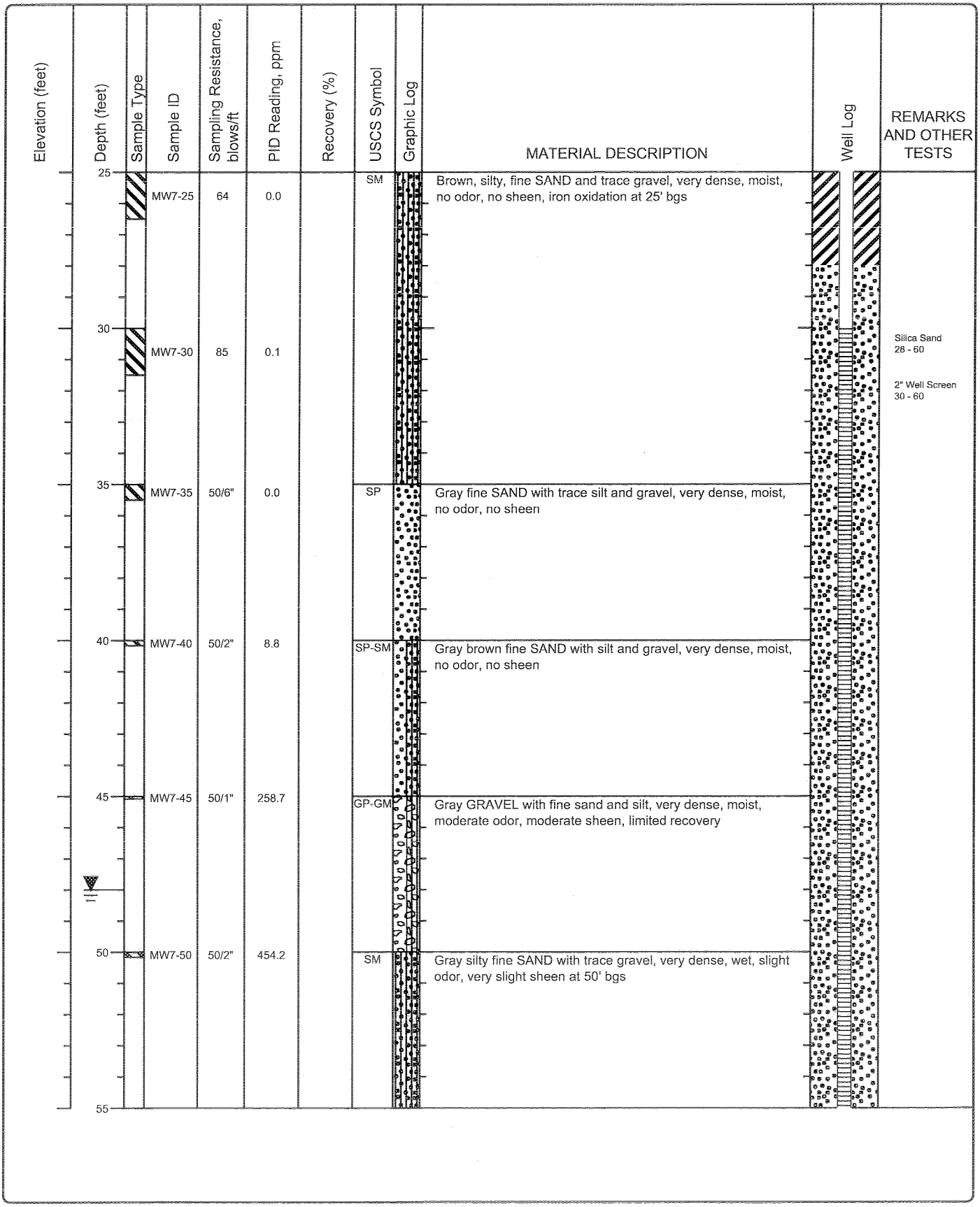
Date(s) Drilled: **11/07/14**	Logged By: **AJ**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **8.25" Outer Diameter**	Total Depth of Borehole: **60**
Drill Rig Type: **Truck-Mounted**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **48**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4700 Roosevelt Way Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 2
											Bentonite 2 - 28
											Blank 2" PVC
	5		MW7-5	34	24.4		SM		Grayish-brown to gray, silty, fine SAND with gravel, dense, moist, no odor, no sheen		
	10		MW7-10	39	2.0						
	15		MW7-15	41	2.2						
	20		MW7-20	69	12.3		SP		Gray, fine SAND with trace silt, very dense, moist, no odor, no sheen		
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

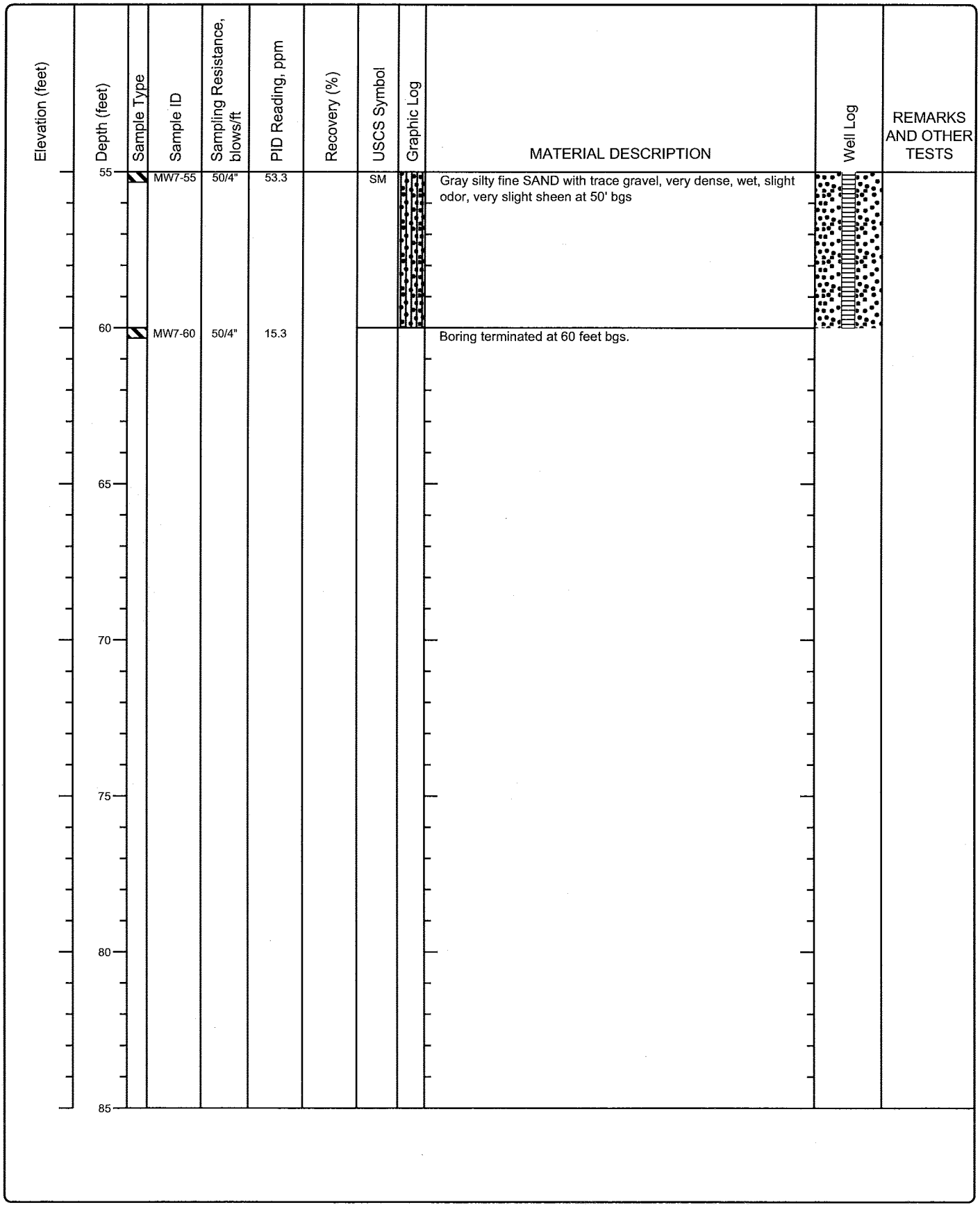
Boring/Well No.: **MW7**
Sheet 2 of 3



Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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Boring/Well No.: **MW7**
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The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW8** **Sheet 1 of 3**

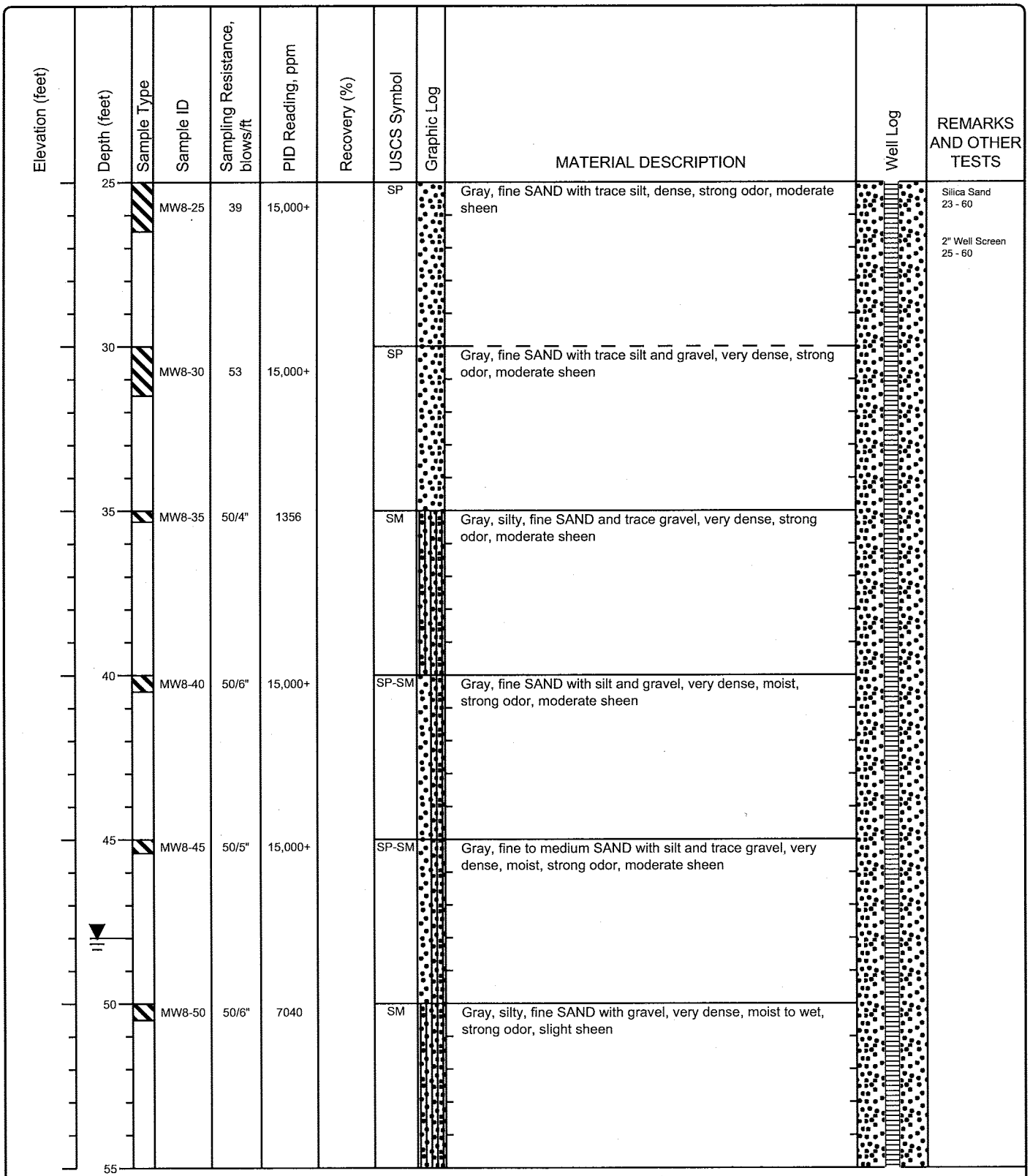
Date(s) Drilled: **11/07/14**	Logged By: **AJ**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **8.25" Outer Diameter**	Total Depth of Borehole: **60**
Drill Rig Type: **Truck-Mounted**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **48**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4700 Roosevelt Way Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 2
											Bentonite 2 - 23
											Blank 2" PVC 0 - 25
	5		MW8-5	27	0.6		SP-SM		Brown, fine SAND with silt and gravel and trace organics, medium dense, moist, no odor, no sheen		
	10		MW8-10	48	1.2		SP-SM		Gray, fine SAND with silt and gravel, dense, moist, no odor, no sheen		
	15		MW8-15	52	1.4		SP-SM		Gray-brown, gravelly fine SAND with silt, very dense, moist, no odor, no sheen		
	20		MW8-20	50/6"	1.0		SP-SM		Gray, fine SAND with silt and gravel, very dense, moist, no odor, no sheen		
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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Boring/Well No.: **MW8**
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The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property**

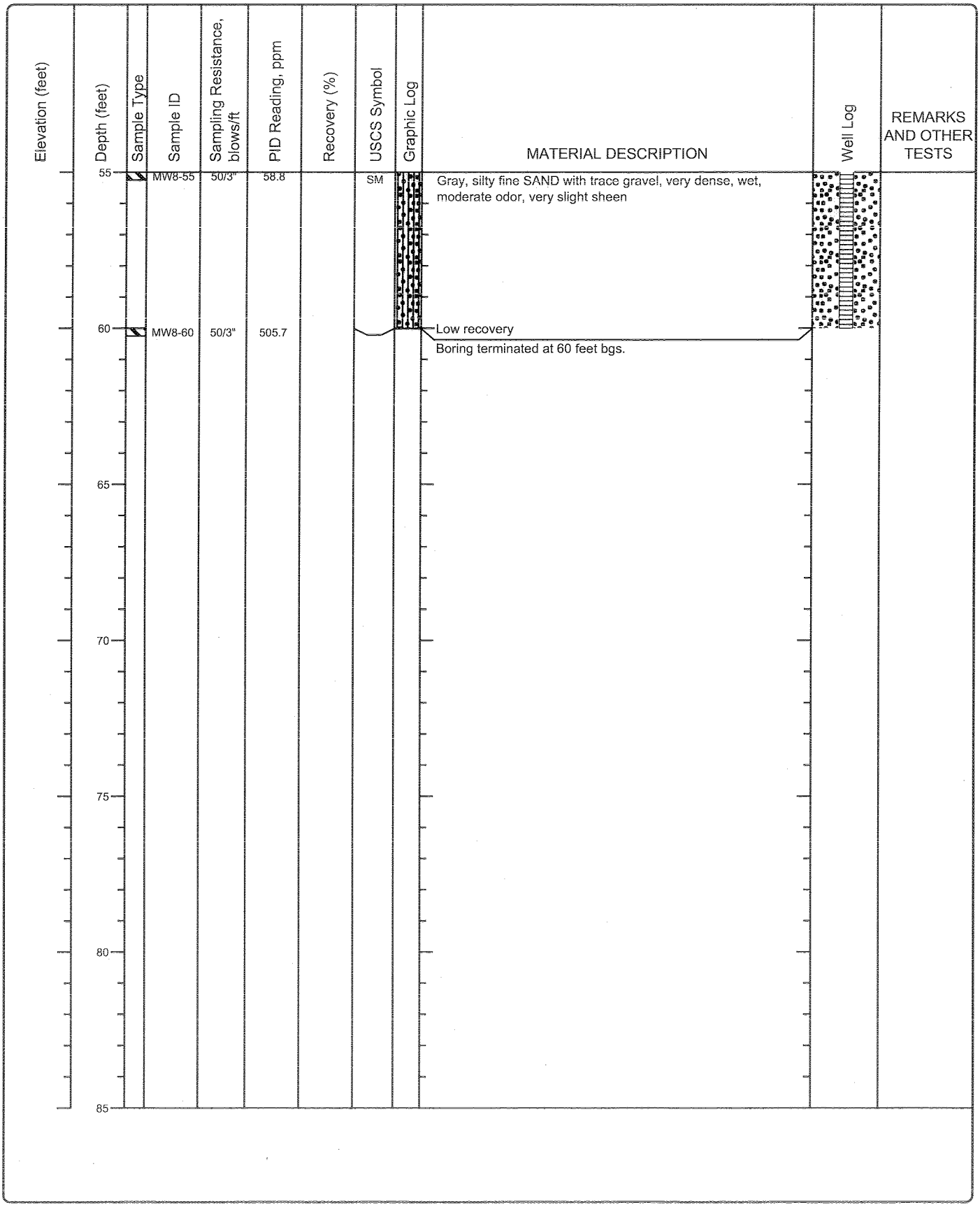
Project Number: **2014-068C**

Client: **Freeway Motors**

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Boring/Well No.: **MW8**

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The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW9** **Sheet 1 of 3**

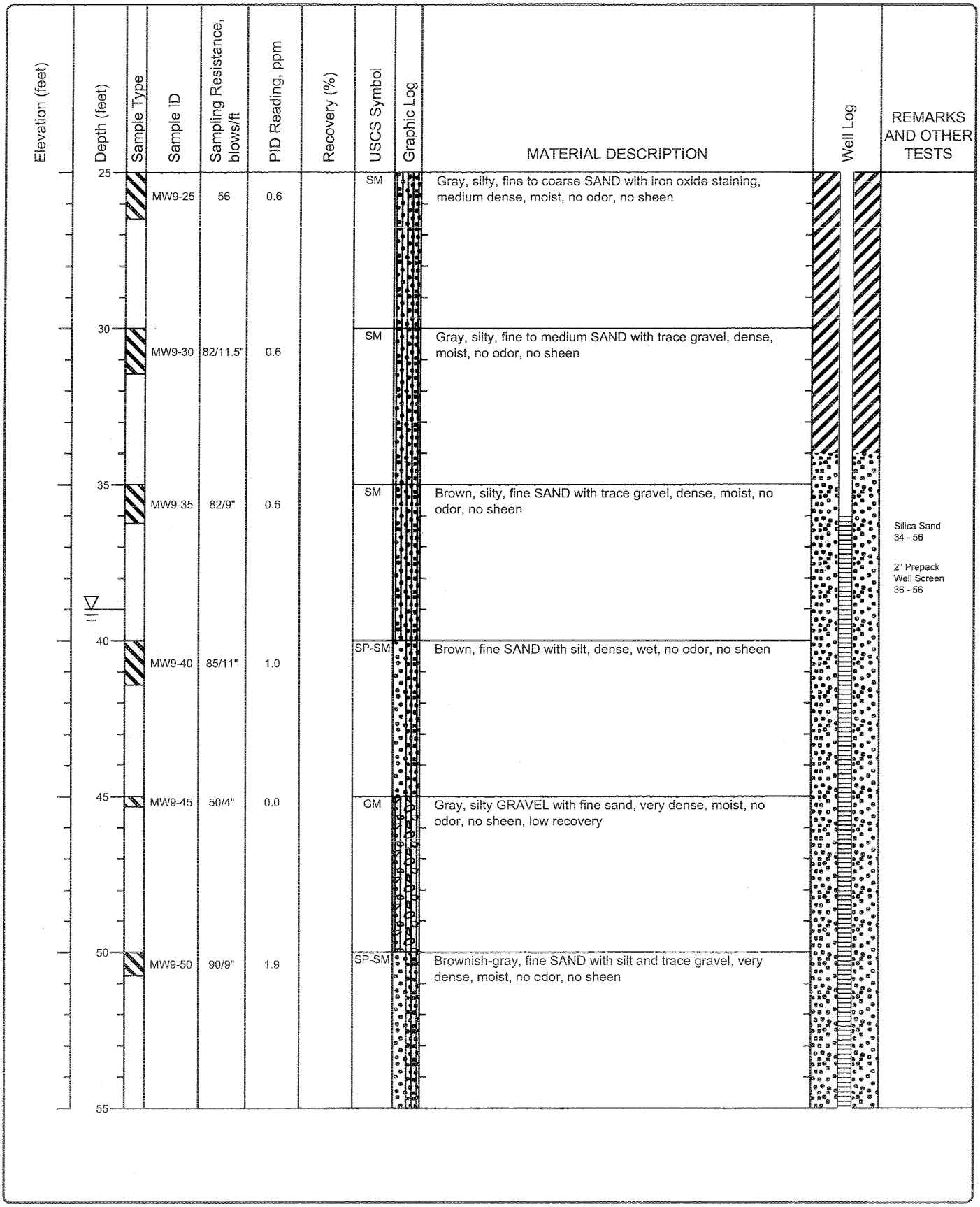
Date(s) Drilled: **01/16/15**	Logged By: **AJ**	Surface Conditions: **Concrete**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **6.25" Outer Diameter**	Total Depth of Borehole: **60 feet bgs**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **39' ATD**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4701 11th Avenue Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0						Concrete		Concrete		Concrete 0 - 1
	5		MW9-5	9	0.1		SM		Brown, silty, fine SAND, loose, moist, no odor, no sheen		Blank 2" PVC 0 - 36
	10		MW9-10	42	0.7		SM		Grayish-brown, silty, fine SAND with gravel, dense, moist, no odor, no sheen		Bentonite 1 - 34
	15		MW9-15	50	0.7						
	20		MW9-20	36	0.7		ML		Gray SILT with trace fine sand, medium dense, moist, no odor, no sheen		
							SM		Gray, silty, fine to coarse SAND with iron oxide staining, medium dense, moist, no odor, no sheen		
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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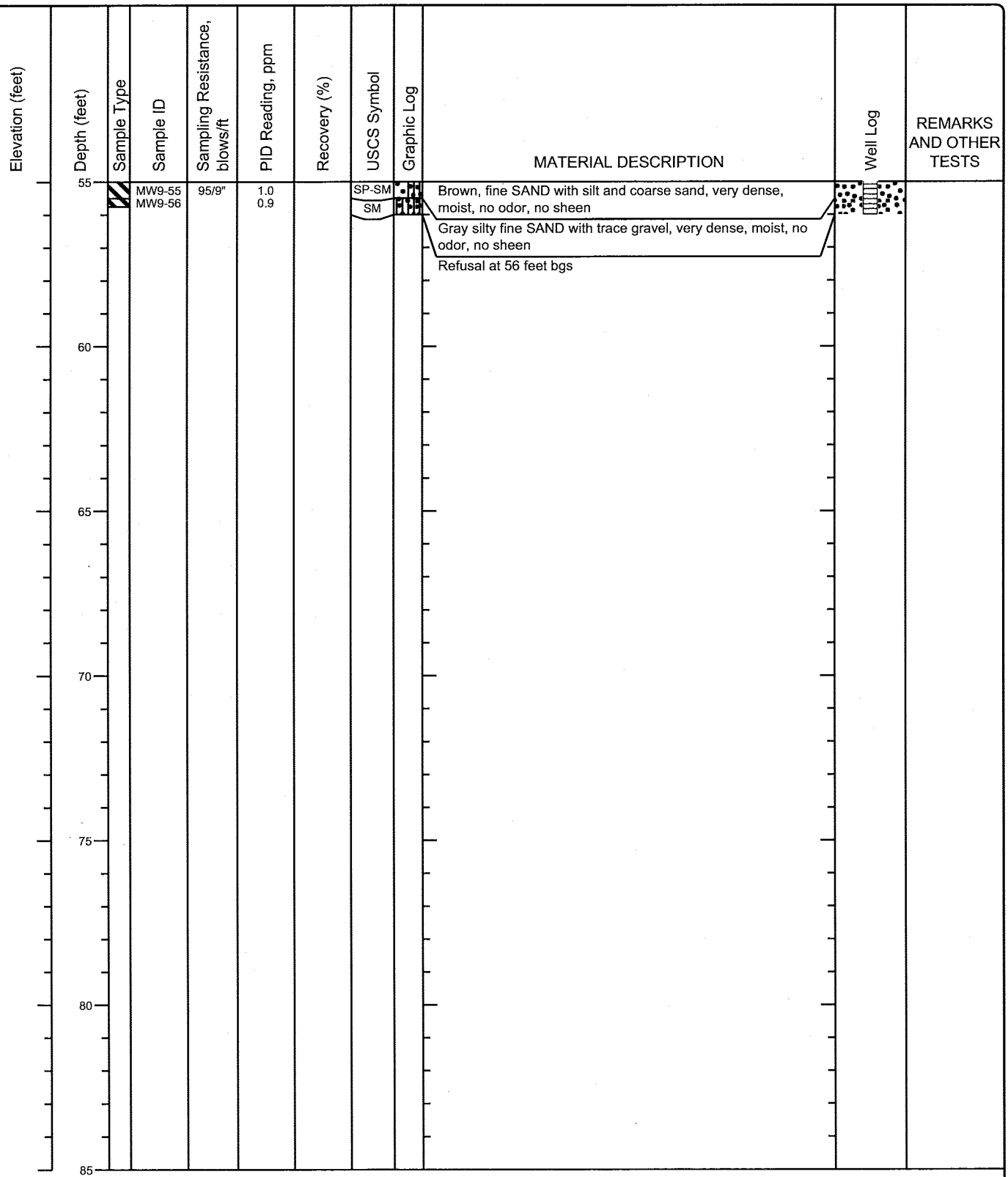
Boring/Well No.: **MW9**
Sheet 2 of 3



Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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Boring/Well No.: **MW9**
Sheet 3 of 3



The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW10** **Sheet 1 of 2**

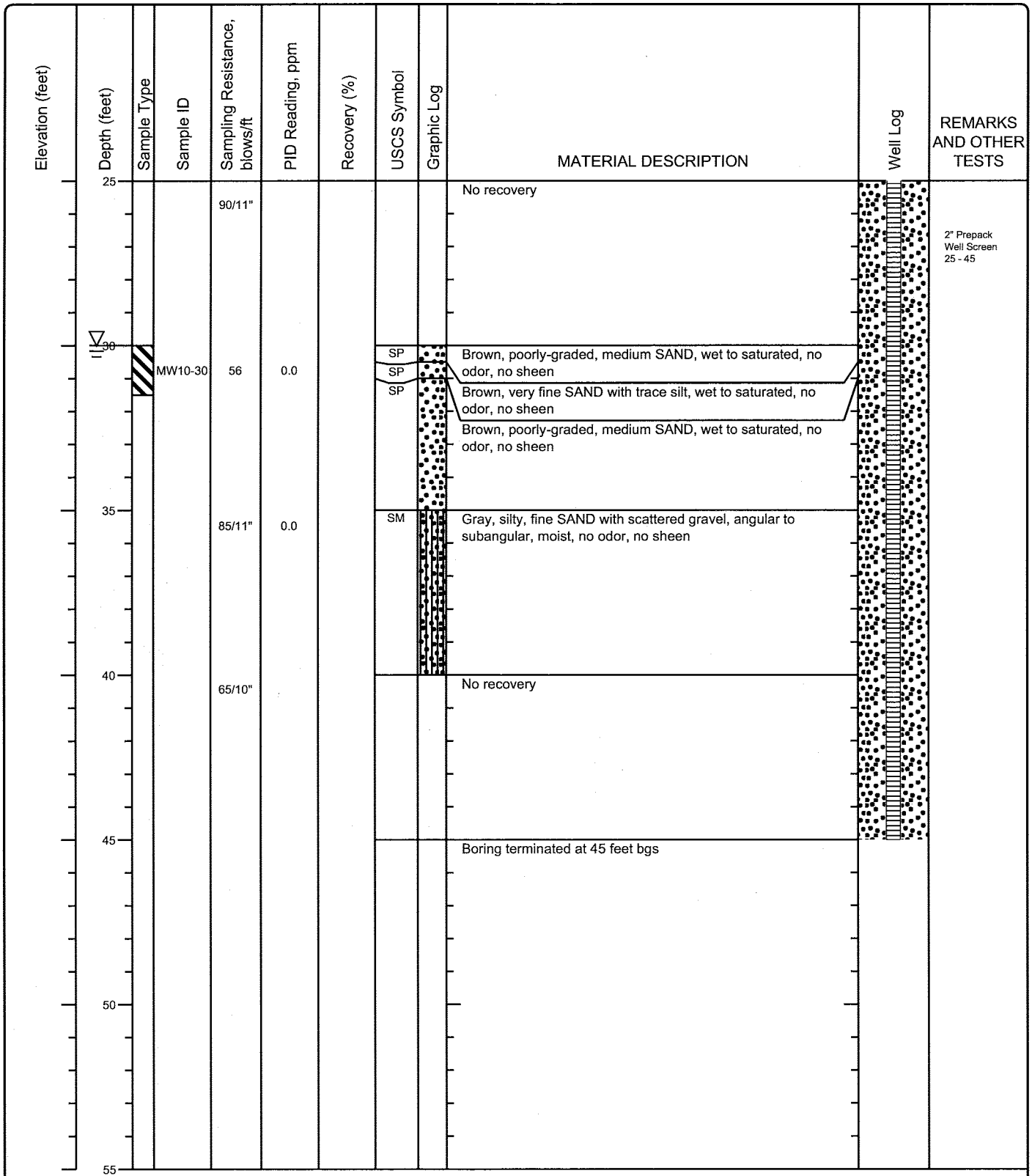
Date(s) Drilled: **06/20/15 to 06/21/15**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **6.25" Outer Diameter**	Total Depth of Borehole: **60 feet bgs**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **30' ATD**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4701 11th Avenue Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0						Asphalt		Asphalt		Concrete 0 - 1
	5			21	0.0		ML		Beige with some red oxidation, sandy, fine SILT with scattered fine to coarse gravel, no odor, no sheen		Blank 2" PVC 0 - 25 Bentonite 1 - 23
	10			50/6"					No recovery		
	15			67	0.0		ML		Gray, sandy, fine SILT with occasional gravel, no odor, no sheen		
	20			47	0.0						
	25										Silica Sand 23 - 45

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **MW10**
Sheet 2 of 2



The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **MW11** **Sheet 1 of 3**

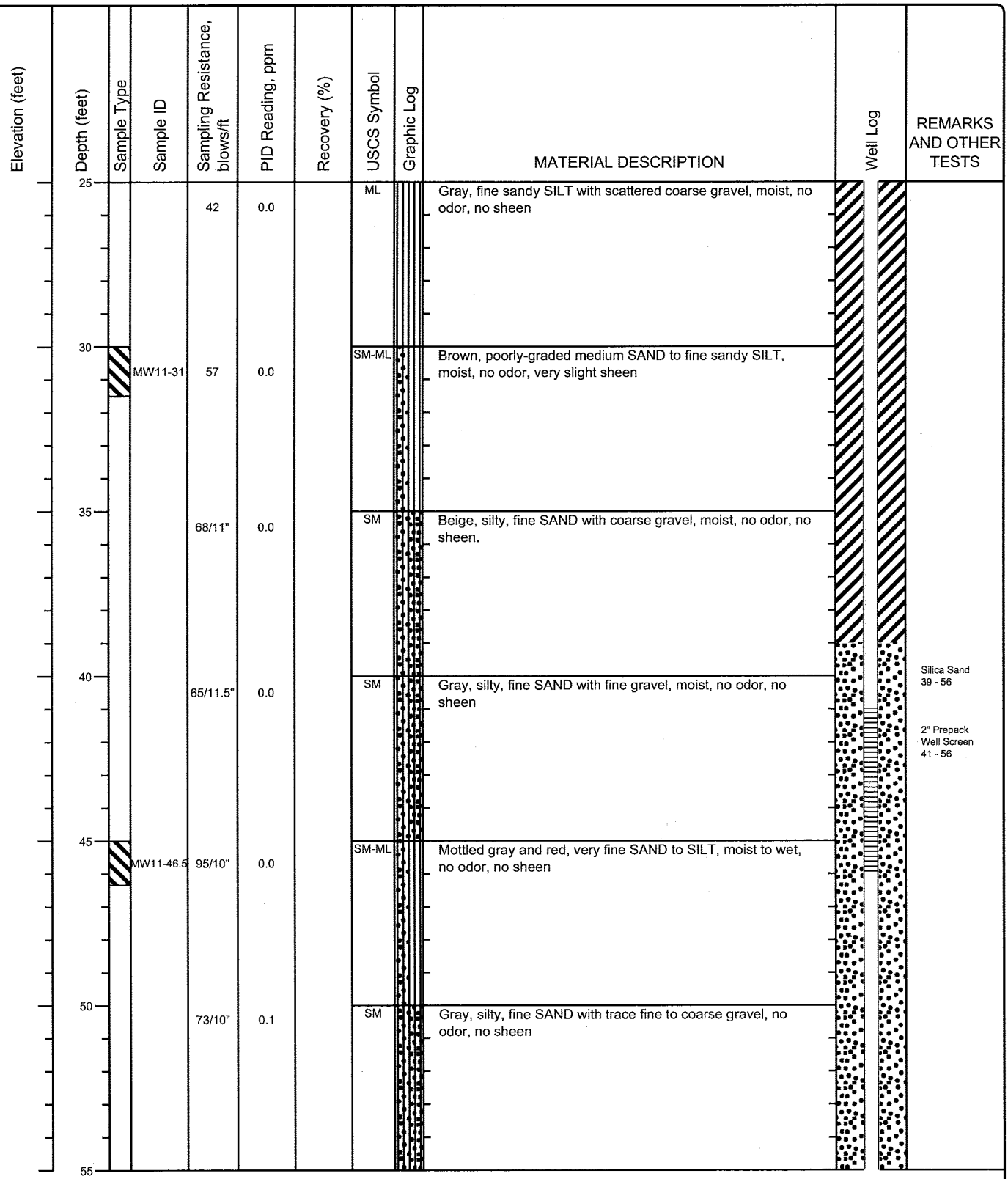
Date(s) Drilled: **06/20/15**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **6.25" Outer Diameter**	Total Depth of Borehole: **60 feet bgs**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured: **Not Encountered**	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4701 11th Avenue Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0						Asphalt		Asphalt		Concrete 0 - 1 Blank 2" PVC 0 - 41 Bentonite 1 - 39
	5			39	0.0		SM		Gray, gravelly, silty, fine SAND, moist, no odor, no sheen		
	10			38	0.0		SM		Gray, silty, fine SAND with scattered medium to coarse gravel, moist, no odor, no sheen		
	15			26	0.0		SM-ML		Gray, silty, fine SAND to fine sandy SILT with occasional coarse subrounded gravel, moist, no odor, no sheen		
	20		MW11-21.5	68/9"	0.1		SP		Dark brown, fine SAND with fine angular gravel, no odor, very slight sheen, poor recovery		
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **MW11**
Sheet 2 of 3



Project Name: **University VW - Audi Property**

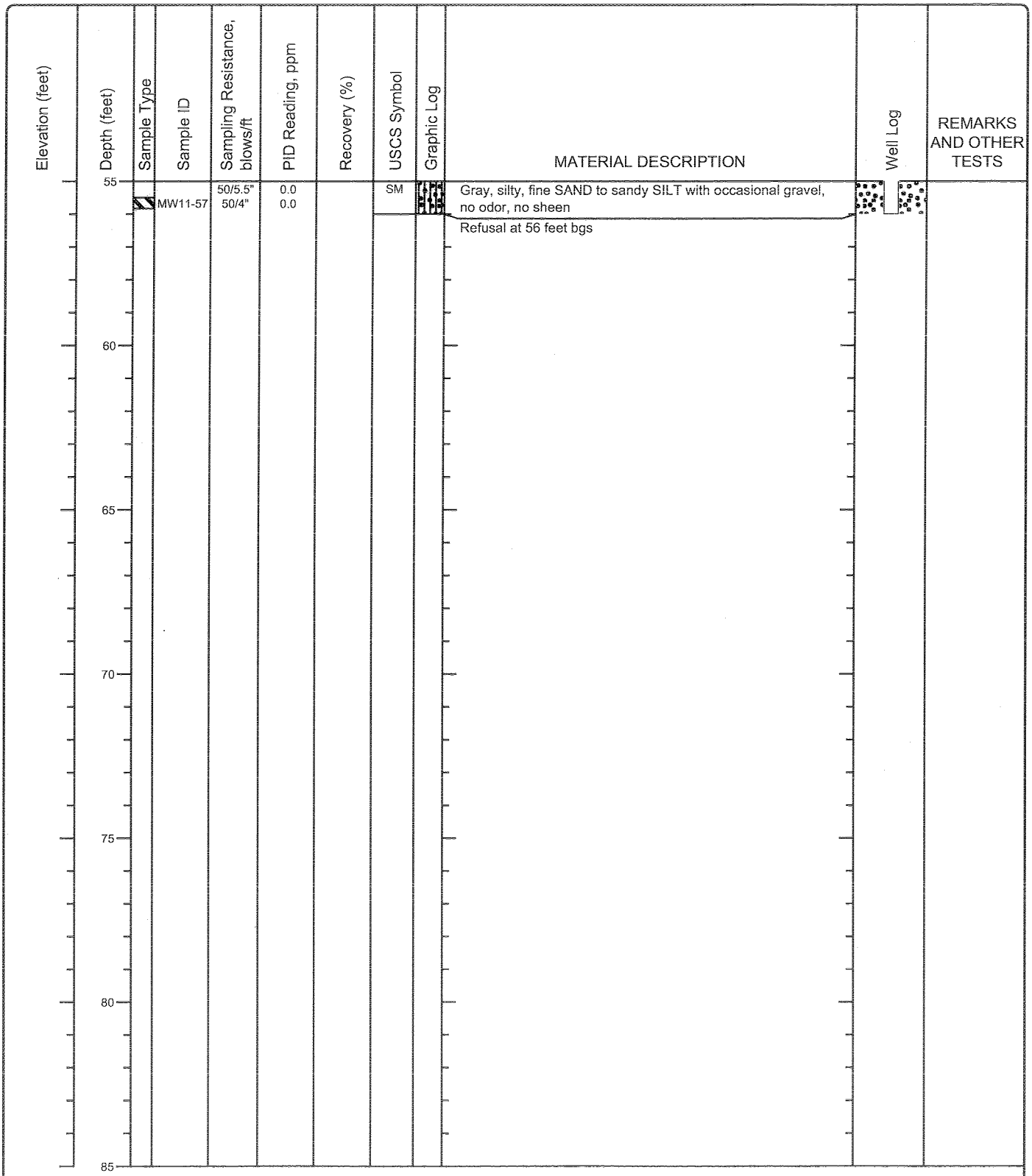
Project Number: **2014-068C**

Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **MW11**

Sheet 3 of 3



Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **DPE1** **Sheet 1 of 3**

Date(s) Drilled: **07/07/15**	Logged By: **SL**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **10.25" Outer Diameter**	Total Depth of Borehole: **65 feet bgs**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured:	Sampling Method(s):	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4701 11th Avenue Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 3 Blank 4" PVC 0 - 40 Bentonite 3 - 38
	5										
	10										
	15										
	20										
	25										

Project Name: **University VW - Audi Property**

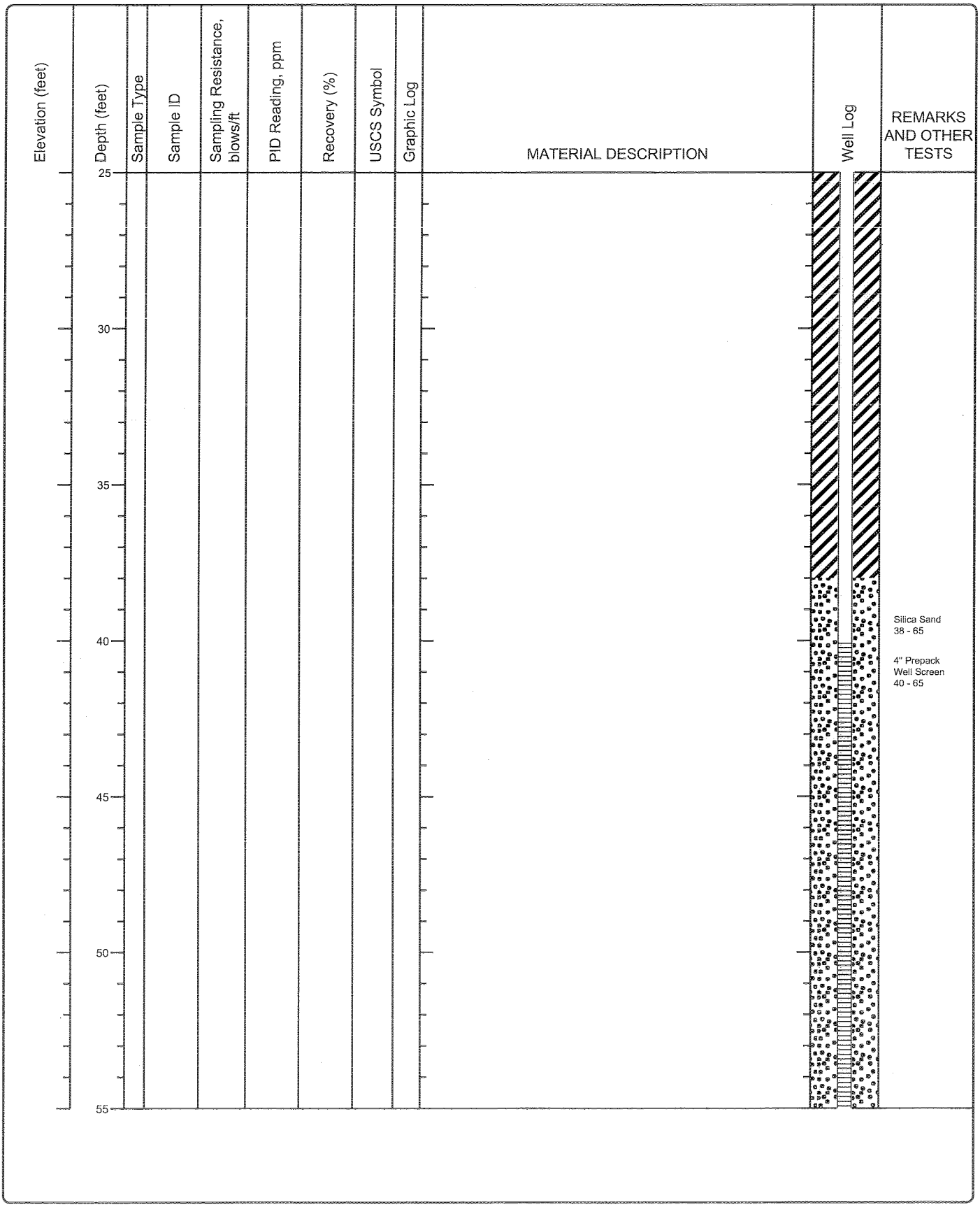
Project Number: **2014-068C**

Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **DPE1**

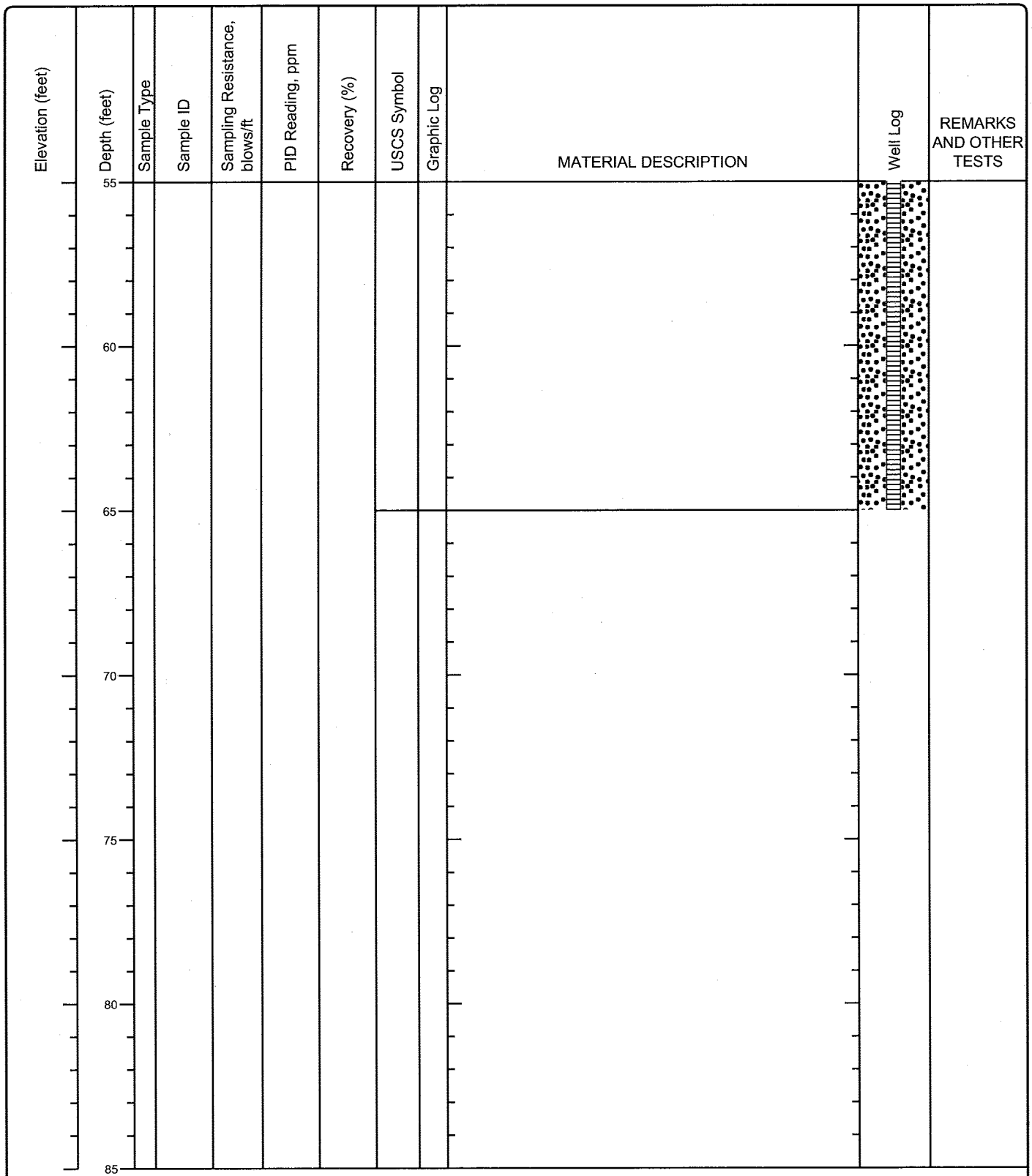
Sheet 2 of 3



Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **DPE1**
Sheet 3 of 3



Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **DPE2** **Sheet 1 of 3**

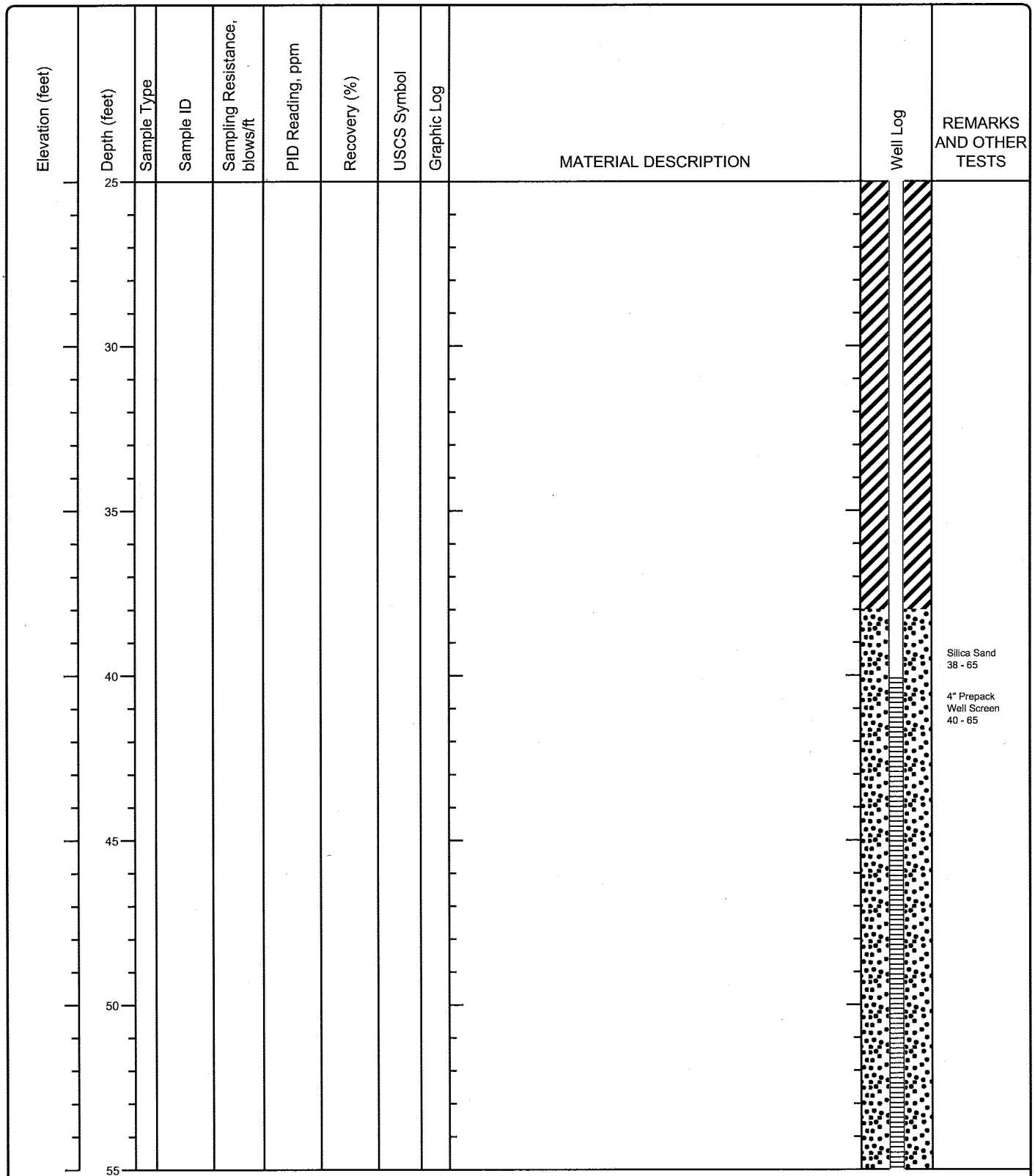
Date(s) Drilled: **07/02/15 - 07/06/15**	Logged By: **SL**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **10.25" Outer Diameter**	Total Depth of Borehole: **65 feet bgs**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured:	Sampling Method(s):	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4701 11th Avenue Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 3
											Blank 4" PVC 0 - 40
											Bentonite 3 - 38
	5										
	10										
	15										
	20										
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **DPE2**
Sheet 2 of 3



Project Name: **University VW - Audi Property**

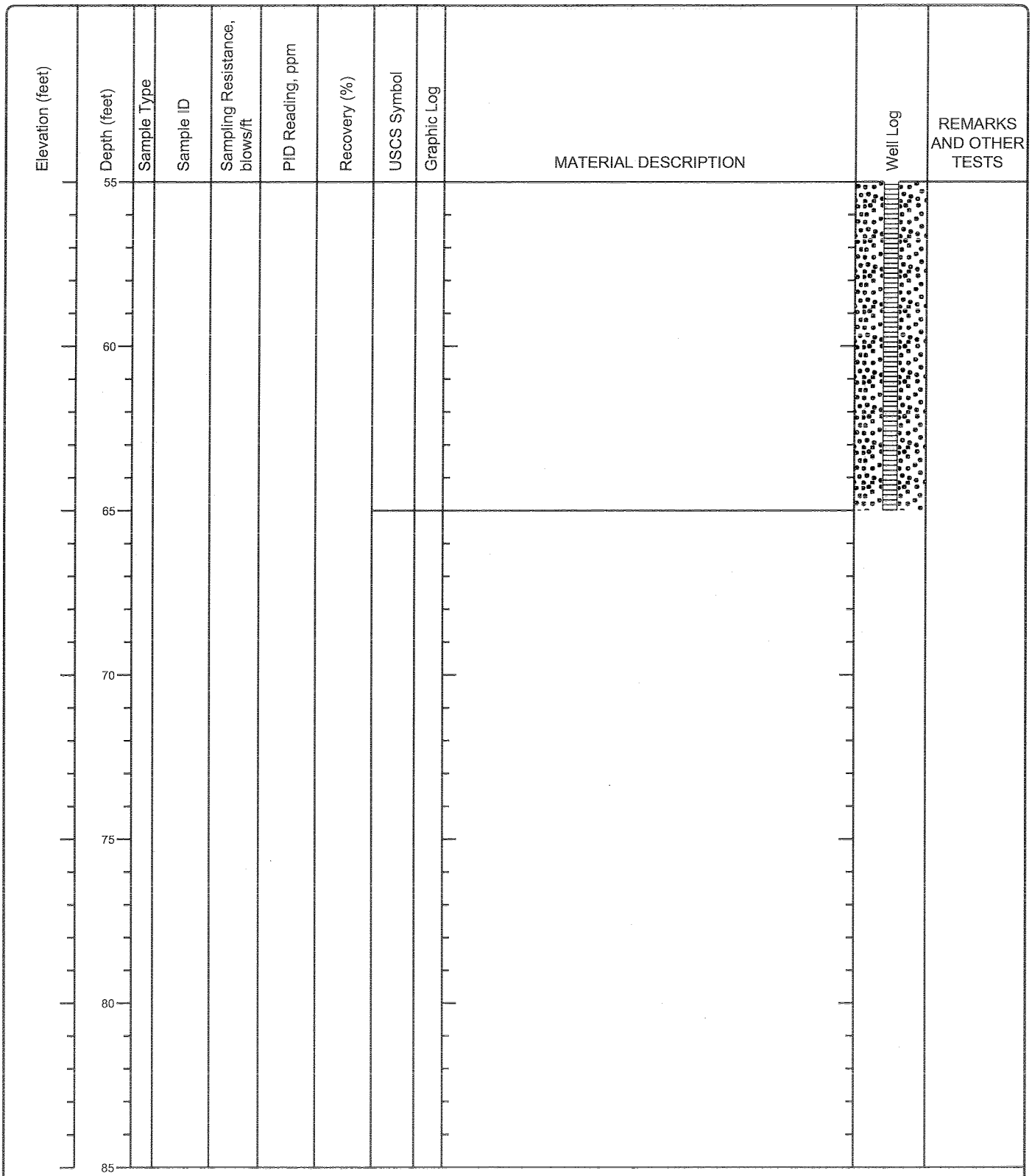
Project Number: **2014-068C**

Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **DPE2**

Sheet 3 of 3



Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **DPE3** **Sheet 1 of 3**

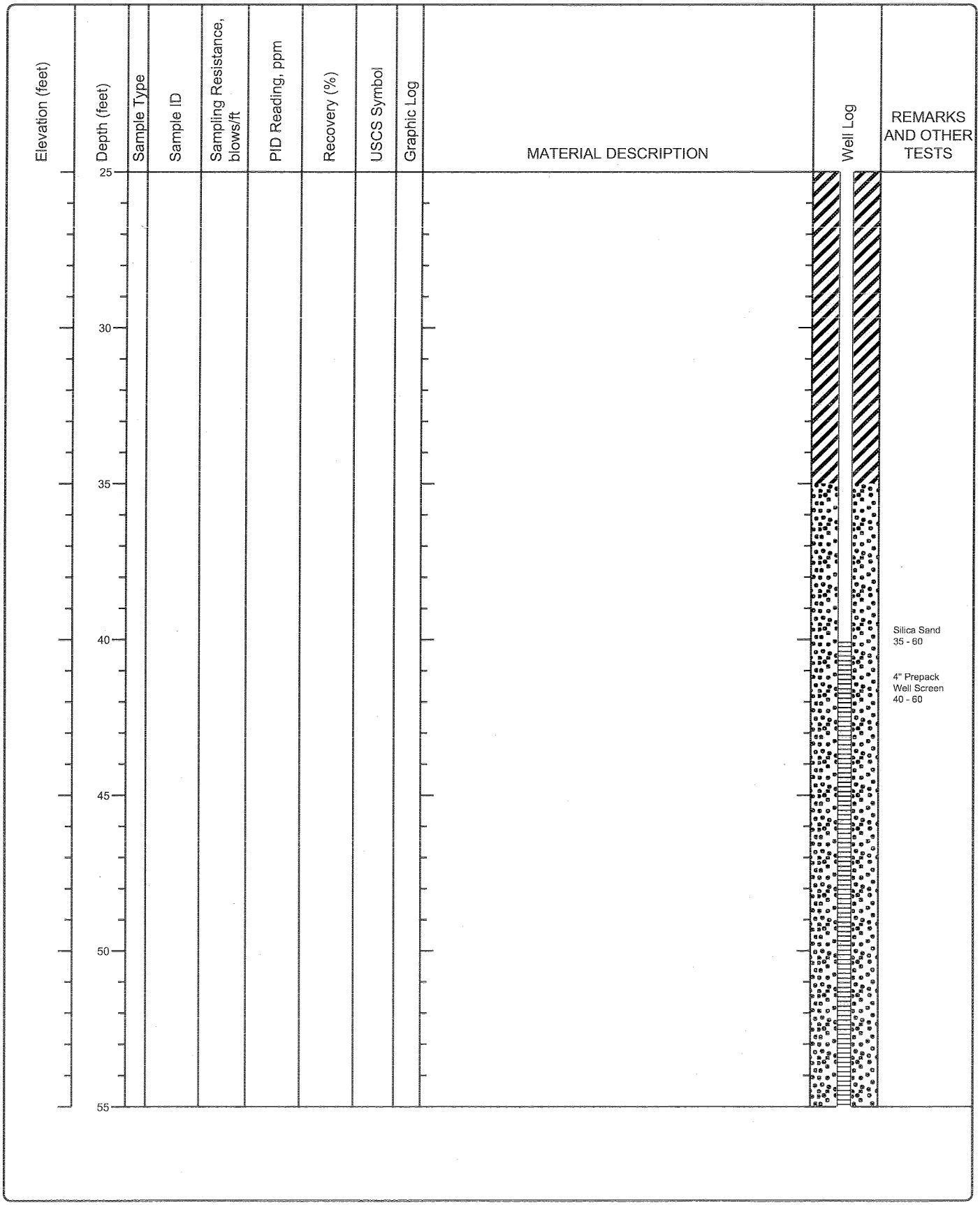
Date(s) Drilled: **07/02/15 - 07/06/15**	Logged By: **SL**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **10.25" Outer Diameter**	Total Depth of Borehole: **60 feet bgs**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured:	Sampling Method(s):	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4701 11th Avenue Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 2 Blank 4" PVC 0 - 40 Bentonite 2 - 35
	5										
	10										
	15										
	20										
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

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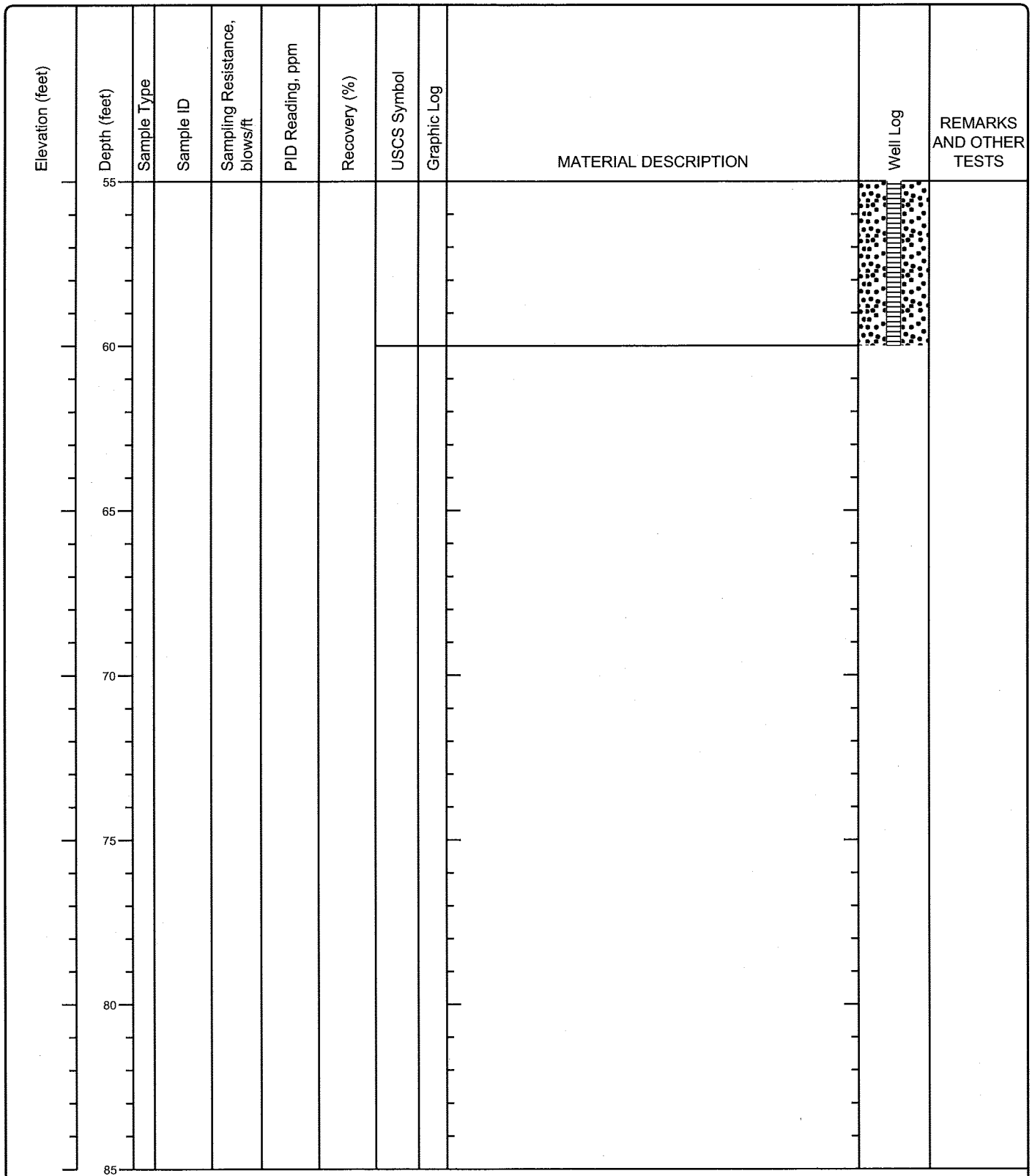
Boring/Well No.: **DPE3**
Sheet 2 of 3



Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **DPE3**
Sheet 3 of 3



Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **DPE4** **Sheet 1 of 3**

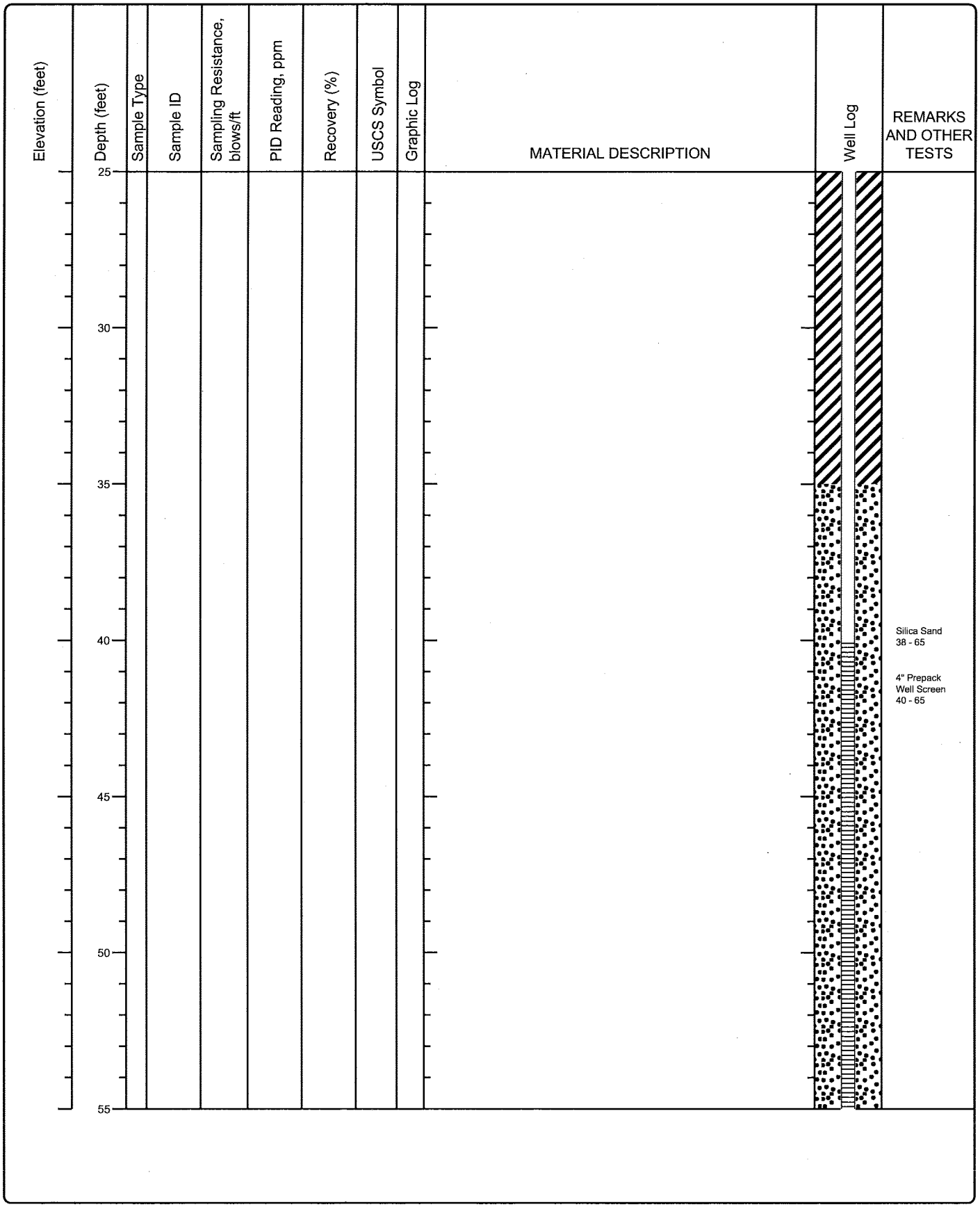
Date(s) Drilled: **07/27/15**	Logged By: **SL**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **10.25" Outer Diameter**	Total Depth of Borehole: **65 feet bgs**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured:	Sampling Method(s):	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4701 11th Avenue Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 3 Blank 4" PVC 0 - 40 Bentonite 3 - 38
	5										
	10										
	15										
	20										
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **DPE4**
Sheet 2 of 3



Project Name: **University VW - Audi Property**

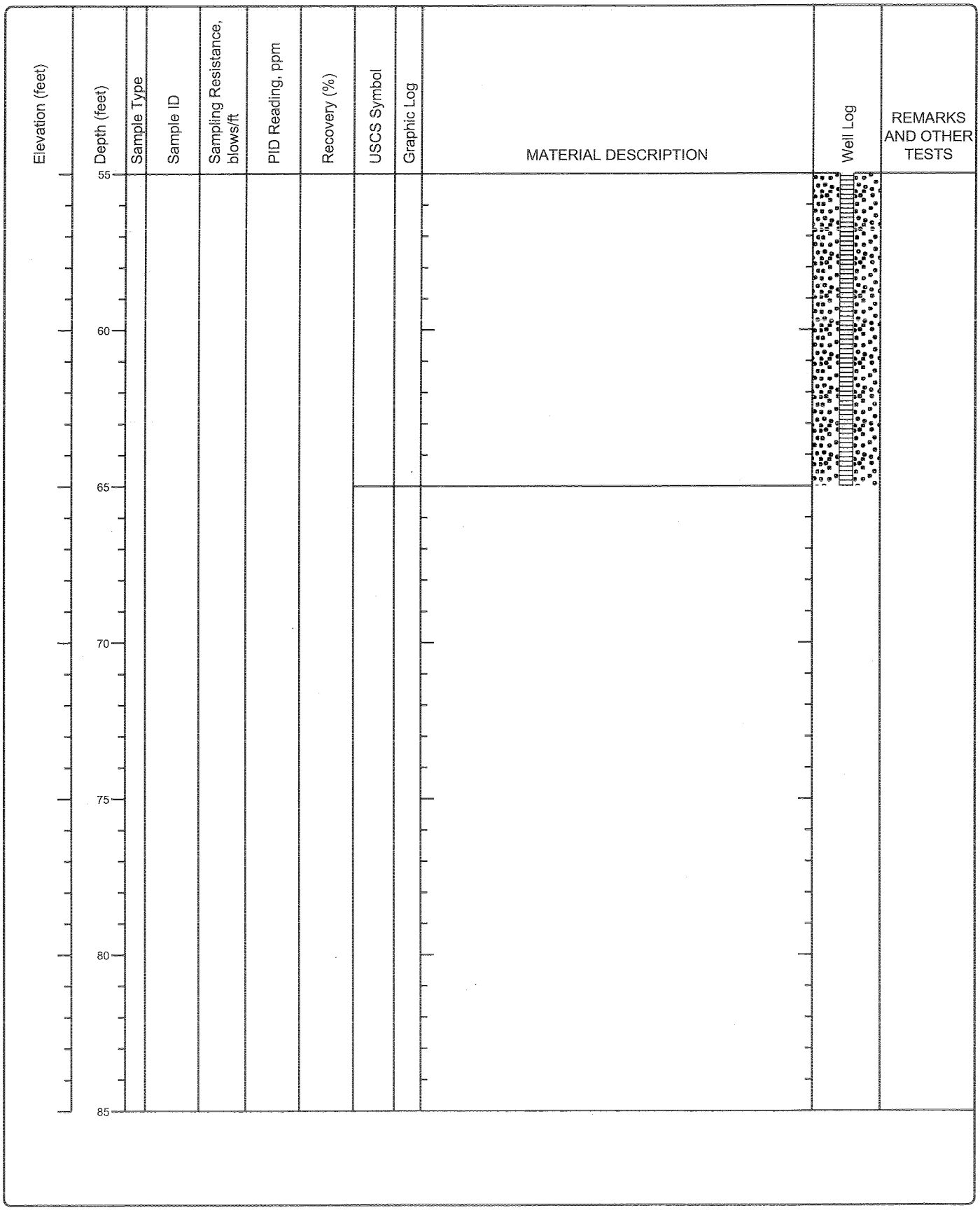
Project Number: **2014-068C**

Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **DPE4**

Sheet 3 of 3



Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **DPE5** **Sheet 1 of 2**

Date(s) Drilled: **07/30/15**	Logged By: **EW**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **10.25" Outer Diameter**	Total Depth of Borehole: **60 feet bgs**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured:	Sampling Method(s):	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4701 11th Avenue Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0										Concrete 0 - 3 Blank 4" PVC 0 - 37.5 Bentonite 3 - 35.5
	5										
	10										
	15										
	20										
	25										

Project Name: **University VW - Audi Property**

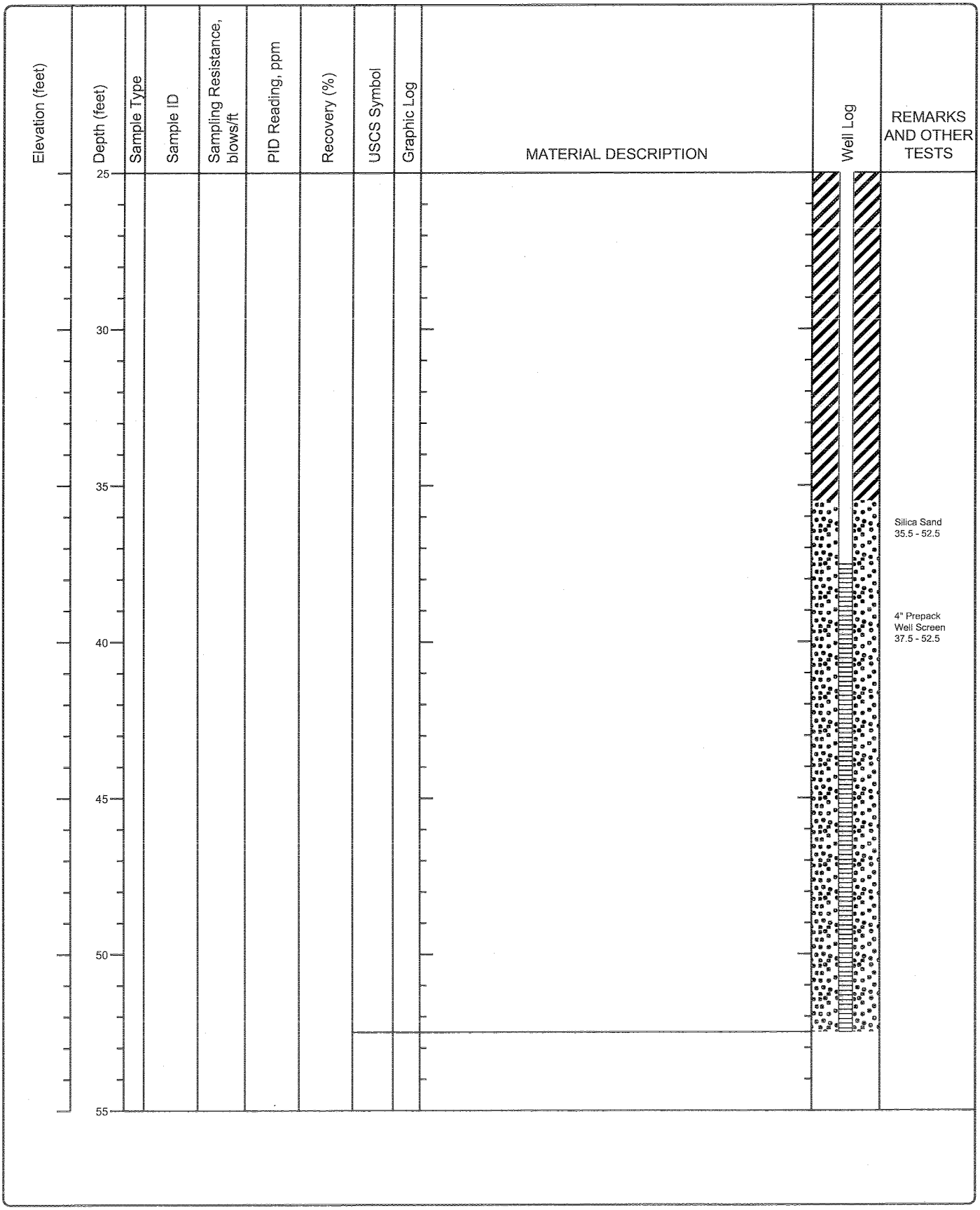
Project Number: **2014-068C**

Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **DPE5**

Sheet 2 of 2



Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **DPE6** **Sheet 1 of 3**

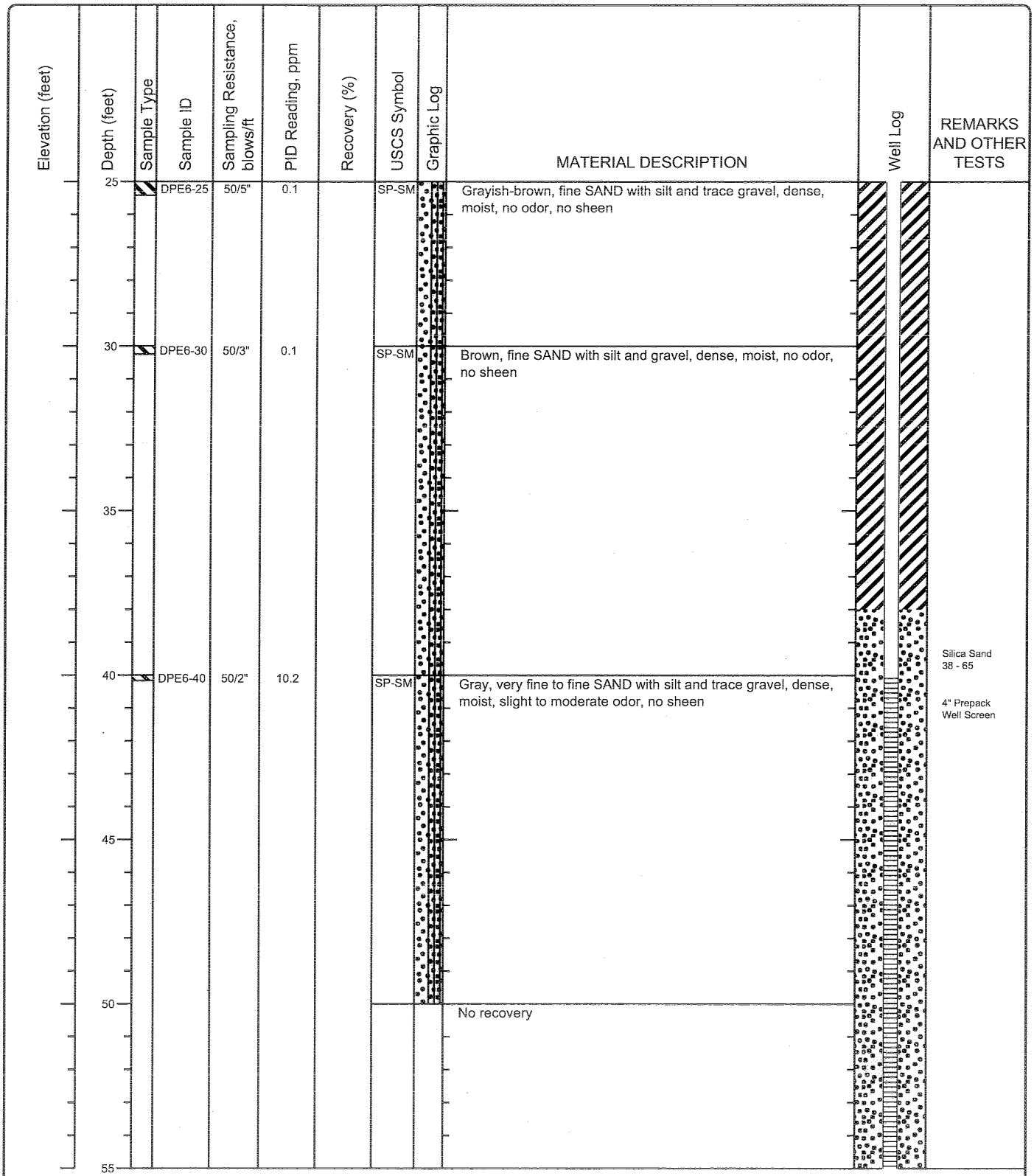
Date(s) Drilled: **06/28/15**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **10.25" Outer Diameter**	Total Depth of Borehole: **65.5 feet bgs**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured:	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4701 11th Avenue Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0						Asphalt		Asphalt		Concrete 0 - 3
	5		DPE6-5	75/10"	0.0		SP-SM		Brown, fine to medium SAND with silt and trace gravel, dense, moist, no odor, no sheen		Blank 4" PVC 0 - 40
	10		DPE6-10	50/5"	0.0		SM		Gray, silty, fine SAND with trace gravel, dense, moist, no odor, no sheen		Bentonite 3 - 38
	15		DPE6-15	50/5"	0.0						
	20		DPE6-20	50/5"	0.0		SM		Grayish-brown, silty, very fine to fine SAND with trace gravel, dense, moist, no odor, no sheen		
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

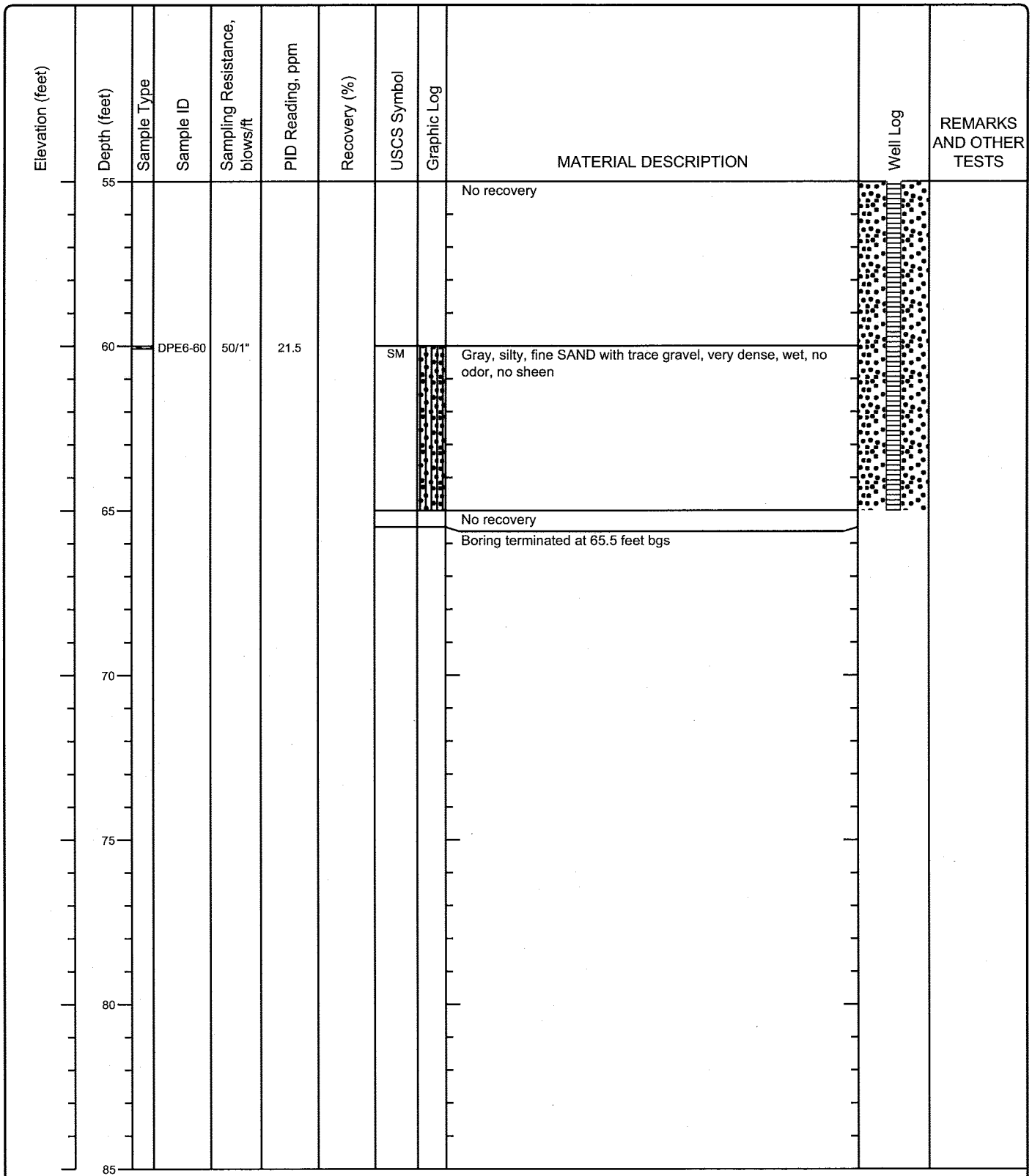
Boring/Well No.: **DPE6**
Sheet 2 of 3



Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **DPE6**
Sheet 3 of 3



The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW - Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **DPE7** **Sheet 1 of 3**

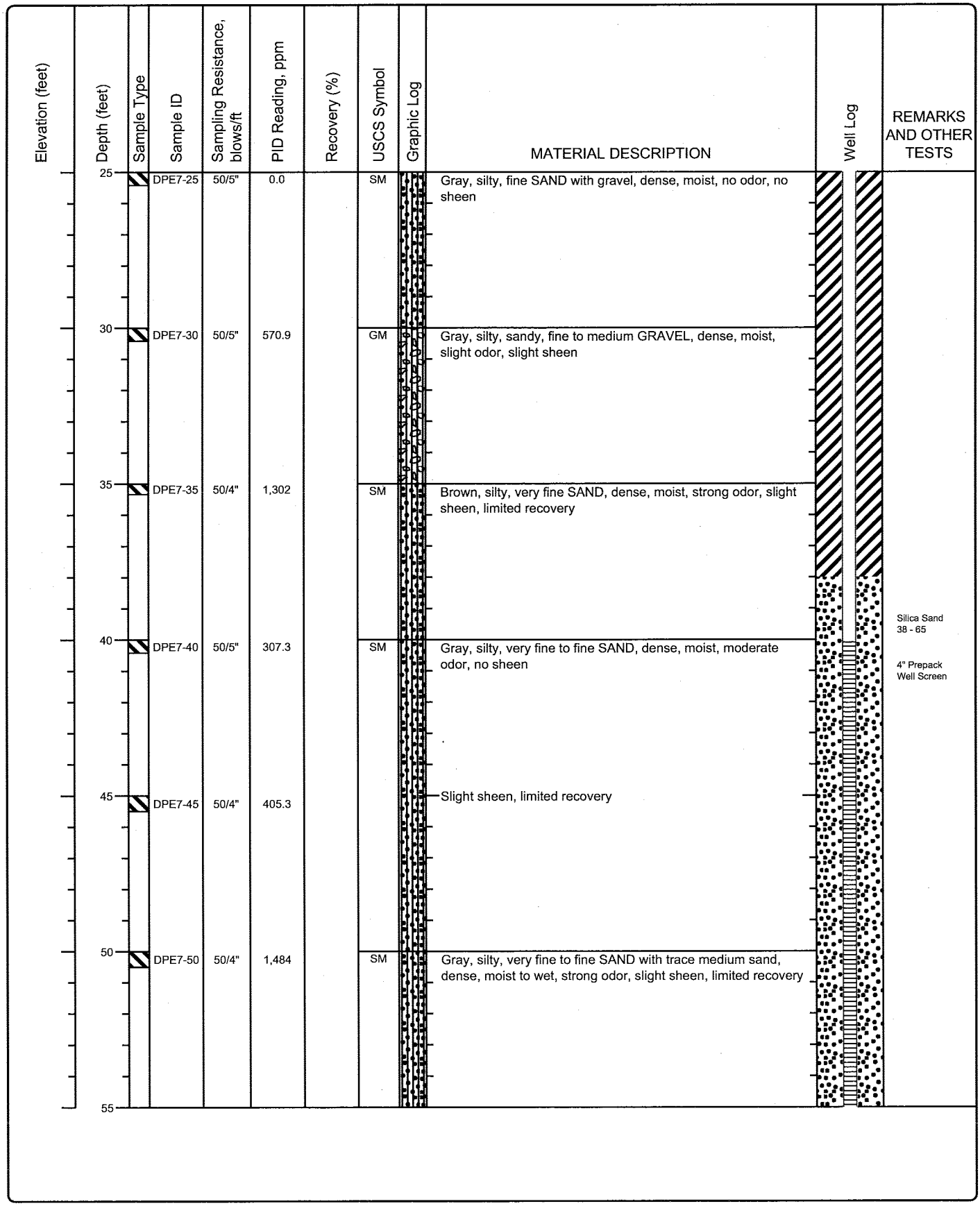
Date(s) Drilled: **06/28/15**	Logged By: **MG**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **10.25" Outer Diameter**	Total Depth of Borehole: **65.5 feet bgs**
Drill Rig Type: **Track-Mounted, Limited Access**	Drilling Contractor: **Holocene Drilling Inc.**	Approximate Surface Elevation (feet amsl): **N/A**
Groundwater Level and Date Measured:	Sampling Method(s): **SPT**	Hammer Data : **140 lb, 30 in drop, rope and cathead**
Borehole Backfill: **Monitoring Well**	Location: **4701 11th Avenue Northeast Seattle, Washington 98145**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0						Asphalt		Asphalt		Concrete 0 - 3
	5		DPE7-5	90/12"	0.0		SM		Brown, silty, fine SAND with trace coarse sand and gravel, dense, moist, no odor, no sheen		Blank 4" PVC 0 - 40
	10		DPE7-10	50/6"	0.0		SM		Light brown, silty, fine SAND, dense, moist, no odor, no sheen, limited recovery		Bentonite 3 - 38
	15		DPE7-15	50/6"	0.0		SM		Gray, silty, fine SAND, dense, moist, no odor, no sheen		
	20		DPE7-20	50/5"	0.1		SP		Gray, fine SAND with trace silt, dense, moist, no odor, no sheen		
	25										

Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

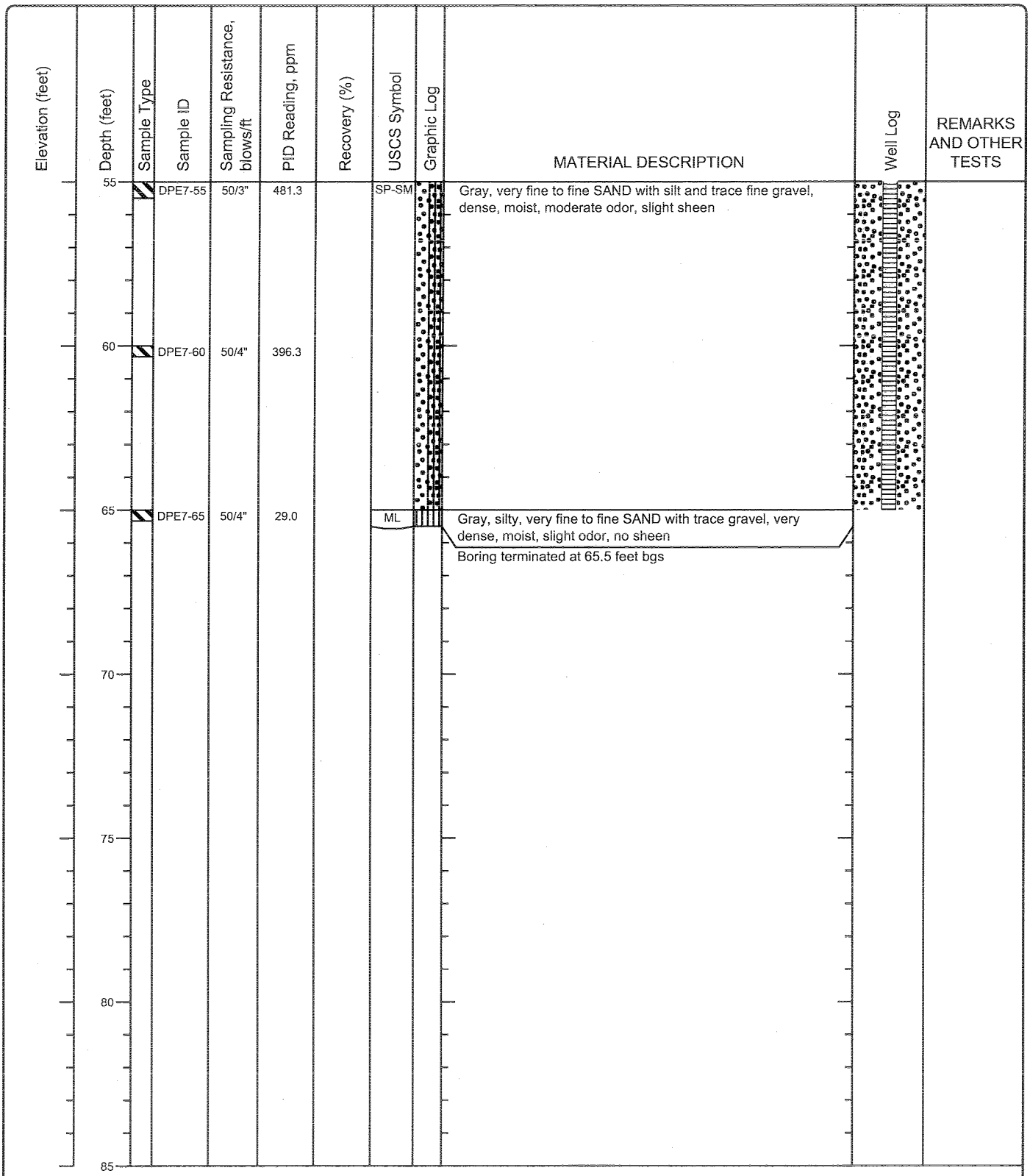
Boring/Well No.: **DPE7**
Sheet 2 of 3



Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **DPE7**
Sheet 3 of 3



Project Name: **University VW - Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring Log Key

Sheet 1 of 1

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

1. Elevation (feet): Elevation (MSL, feet).
2. Depth (feet): Depth in feet below the ground surface.
3. Sample Type: Type of soil sample collected at the depth interval shown.
4. Sample ID: Sample identification number.
5. Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
6. PID Reading, ppm: The reading from a photo-ionization detector, in parts per million.
7. Recovery (%): Core Recovery Percentage is determined based on a ratio of the length of core sample recovered compared to the cored interval length.
8. USCS Symbol: USCS symbol of the subsurface material.
9. Graphic Log: Graphic depiction of the subsurface material encountered.
10. MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
11. Well Log: Graphical representation of well installed upon completion of drilling and sampling.
12. REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

- Asphaltic Concrete (AC)
- Bentonite
- Portland Cement Concrete
- Silty GRAVEL (GM)
- Poorly graded GRAVEL with Silt (GP-GM)
- Well graded GRAVEL with Silt (GW-GM)
- SILT, SILT w/SAND, SANDY SILT (ML)
- Silty SAND (SM)
- Silty SAND to Sandy SILT (SM-ML)
- Poorly graded SAND (SP)
- Poorly graded SAND with Silt (SP-SM)

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Auger sampler
- Bulk Sample
- 3-inch-OD California w/ brass rings
- CME Sampler
- Continuous
- Grab Sample
- 2.5-inch-OD Modified California w/ brass liners
- Pitcher Sample
- 2-inch-OD unlined split spoon (SPT)
- Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

- Water level (at time of drilling, ATD)
- Water level (after waiting)
- Minor change in material properties within a stratum
- Inferred/gradational contact between strata
- Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

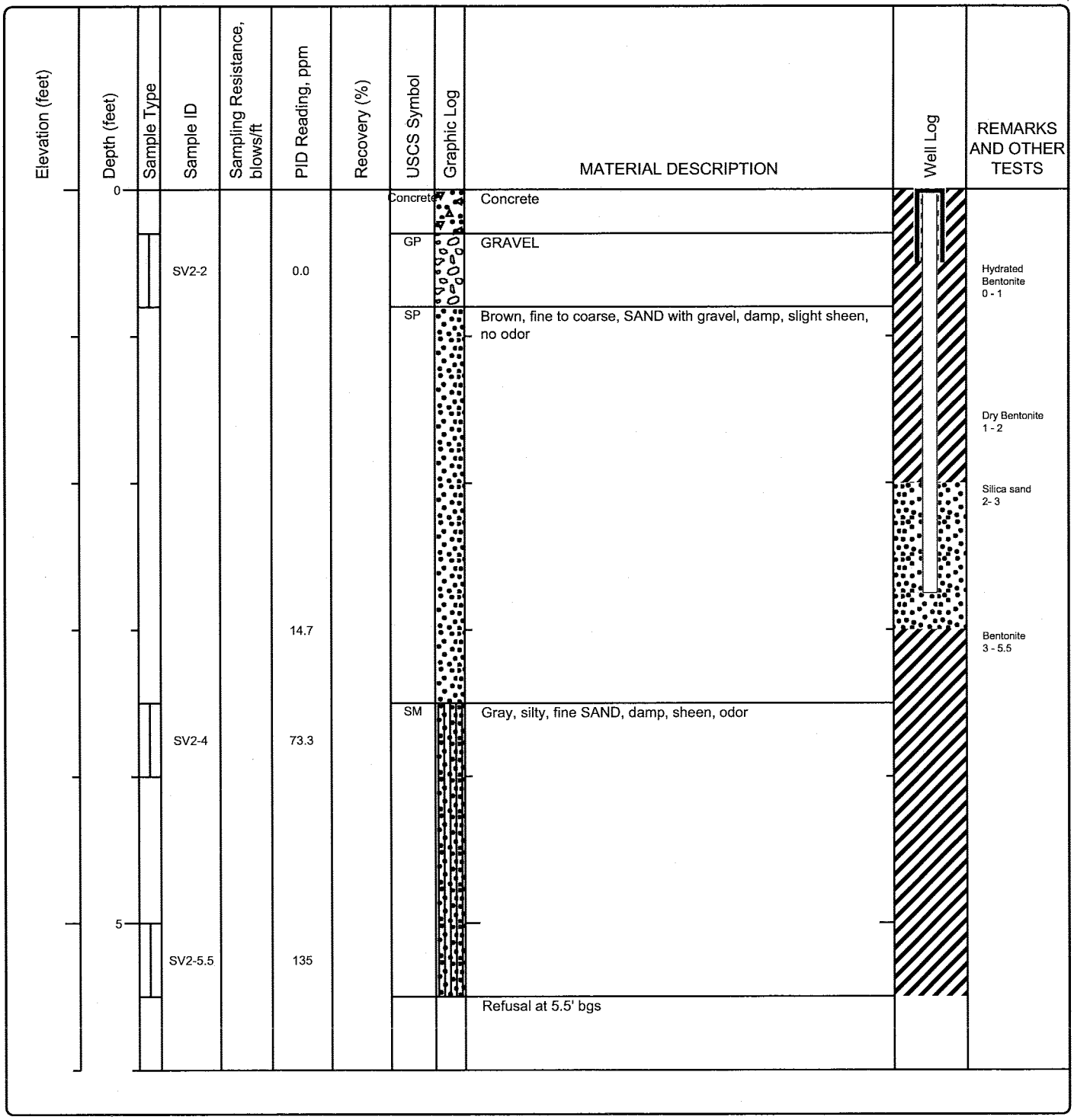
Project Name: **University VW-Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Test Probe/Well No.: **SV1** **Sheet 1 of 1**

Date(s) Drilled: **2/27/15**	Logged By: **KA**	Surface Conditions: **Concrete**
Drilling Method(s): **Hand Auger**	Drill Bit Size/Type:	Total Depth of Borehole: **5 feet bgs**
Drill Rig Type: **Jackhammer**	Drilling Contractor: **The Riley Group, Inc.**	Approximate Surface Elevation (feet amsl): **n/a**
Groundwater Level: **Not Encountered**	Sampling Method(s): **Continuous**	Hammer Data : **60 lbs.**
Borehole Backfill: **Bentonite chips**	Location: **4701 11th Avenue Northeast, Seattle, Washington**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0						Concrete		Concrete		
							GP		GRAVEL		Hydrated Bentonite 0 - 1
					0.0		SP		Brown, fine to coarse, SAND, damp, no odor, no sheen		
							SM		Brown to gray, silty, fine SAND, damp, no odor, no sheen		Dry Bentonite 1 - 2
			SV1-2		0.0						
							SM		Brown, silty, fine to course SAND, damp to moist, no odor, no sheen		Silica sand 2 - 3
					0.1						Bentonite 3 - 5.5
					0.1						
			SV1-5		0.1						
	5								Refusal at 5' bgs		

Project Name: **University VW-Audi Property** Project Number: **2014-068C** Client: **Freeway Motors**	RILEYGROUP Test Probe/Well No.: **SV2** **Sheet 1 of 1**

Date(s) Drilled: **2/27/15**	Logged By: **KA**	Surface Conditions: **Concrete**
Drilling Method(s): **Hand Auger**	Drill Bit Size/Type:	Total Depth of Borehole: **5.5 feet bgs**
Drill Rig Type: **Jackhammer**	Drilling Contractor: **The Riley Group, Inc.**	Approximate Surface Elevation (feet amsl): **n/a**
Groundwater Level: **Not Encountered**	Sampling Method(s): **Continuous**	Hammer Data : **60 lbs.**
Borehole Backfill: **Bentonite chips**	Location: **4701 11th Avenue Northeast, Seattle, Washington**	



Project Name: **University VW-Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Test Probe/Well No.: **SV3**
Sheet 1 of 1

Date(s) Drilled: **2/27/15**	Logged By: **KA**	Surface Conditions: **Concrete**
Drilling Method(s): **Hand Auger**	Drill Bit Size/Type:	Total Depth of Borehole: **4.5 feet bgs**
Drill Rig Type: **Jackhammer**	Drilling Contractor: **The Riley Group, Inc.**	Approximate Surface Elevation (feet amsl): **n/a**
Groundwater Level: **Not Encountered**	Sampling Method(s): **Continuous**	Hammer Data : **60 lbs.**
Borehole Backfill: **Bentonite chips**	Location: **4701 11th Avenue Northeast, Seattle, Washington**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0						Concrete		Concrete		
							GP		GRAVEL		Hydrated Bentonite 0 - 1
					0.0		SP		Brown, fine to medium, SAND, damp, no odor, no sheen		Dry Bentonite 1 - 2
			SV3-3		0.0						Silica Sand 2 - 3
							SP-SM		Brown, fine, SAND with silt, damp, no odor, no sheen		Bentonite 3 - 4.5
					0.0		SM		Brown, silty, fine SAND with gravel, moist, no odor, no sheen		
			SV3-4.5		0.0						
	5								Refusal at 4.5 feet bgs		

The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW-Audi Property**
Project Number: **2014-068C**
Client: **Freeway Motors**

RILEYGROUP

Boring Log Key

Sheet 1 of 1

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

1. Elevation (feet): Elevation (MSL, feet).
2. Depth (feet): Depth in feet below the ground surface.
3. Sample Type: Type of soil sample collected at the depth interval shown.
4. Sample ID: Sample identification number.
5. Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
6. PID Reading, ppm: The reading from a photo-ionization detector, in parts per million.
7. Recovery (%): Core Recovery Percentage is determined based on a ratio of the length of core sample recovered compared to the cored interval length.
8. USCS Symbol: USCS symbol of the subsurface material.
9. Graphic Log: Graphic depiction of the subsurface material encountered.
10. MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
11. Well Log: Graphical representation of well installed upon completion of drilling and sampling.
12. REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

- Bentonite
- Portland Cement Concrete
- Poorly graded GRAVEL (GP)
- Silty SAND (SM)
- Poorly graded SAND (SP)
- Poorly graded SAND with Silt (SP-SM)

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Auger sampler
- Bulk Sample
- 3-inch-OD California w/ brass rings
- CME Sampler
- Continuous
- Grab Sample
- 2.5-inch-OD Modified California w/ brass liners
- Pitcher Sample
- 2-inch-OD unlined split spoon (SPT)
- Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

- Water level (at time of drilling, ATD)
- Water level (after waiting)
- Minor change in material properties within a stratum
- Inferred/gradational contact between strata
- Queried contact between strata

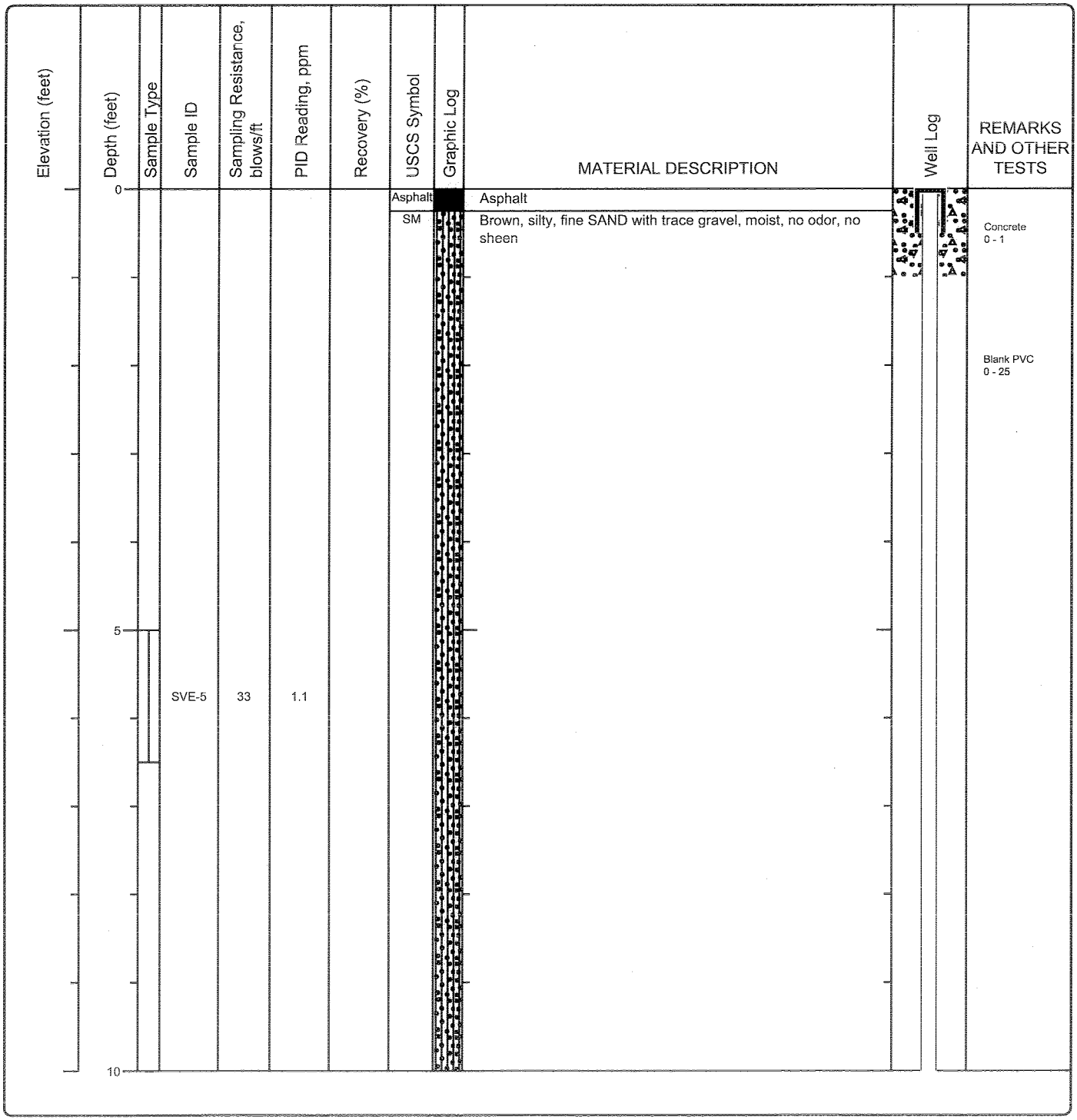
GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW-Audi Property** Project Number: **2014-068D** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **SVE** **Sheet 1 of 2**

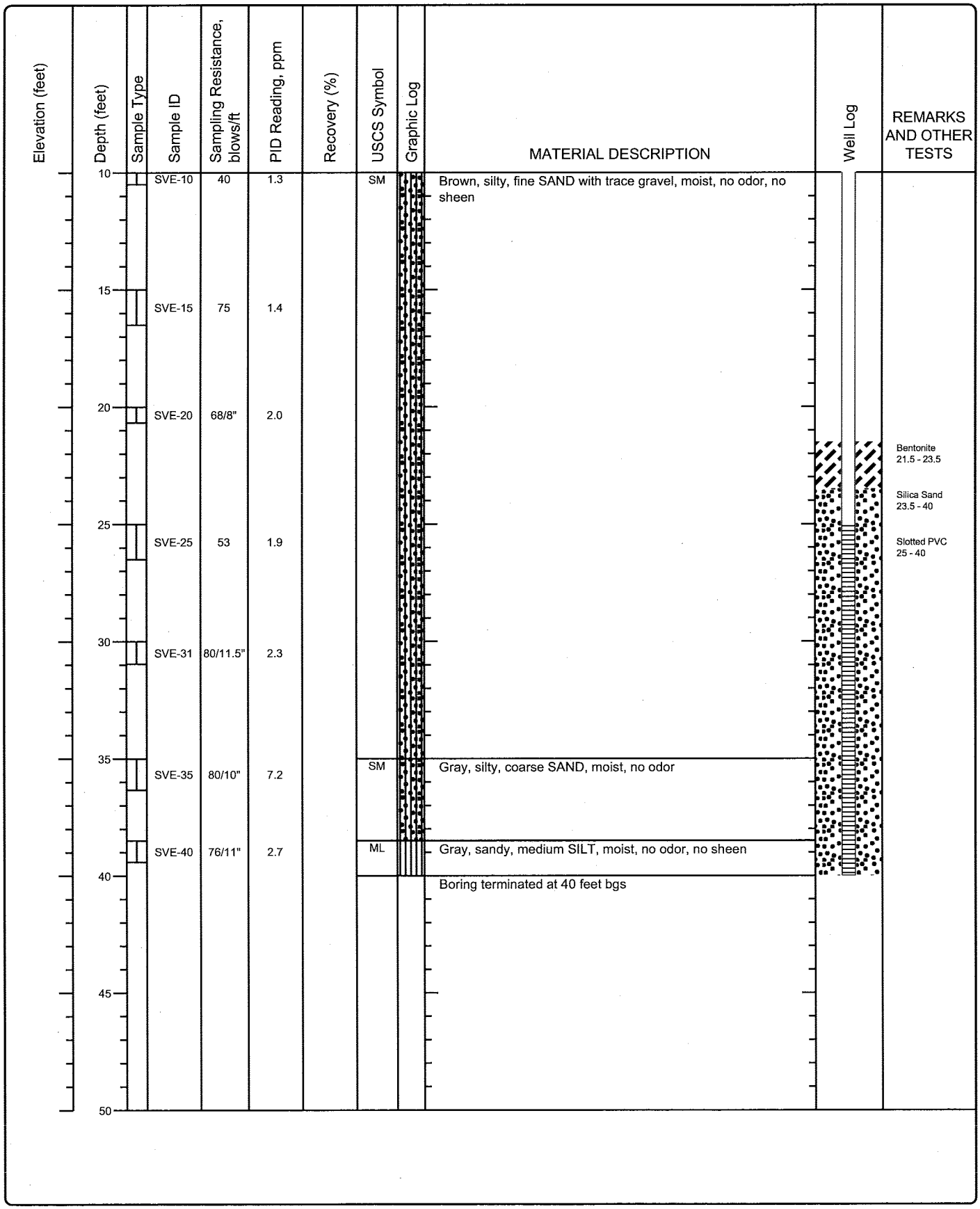
Date(s) Drilled: **05/16/15**	Logged By: **SL**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **2" Diameter**	Total Depth of Borehole: **40 feet bgs**
Drill Rig Type: **Track-Mounted**	Drilling Contractor: **Holocene**	Approximate Surface Elevation (feet amsl): **n/a**
Groundwater Level and Date Measured: **Not Encountered**	Sampling Method(s): **Grab**	Hammer Data : **n/a**
Borehole Backfill: **Soil Vapor Extraction Well**	Location: **4700 Roosevelt Way Northeast, Seattle, Washington 98105**	



Project Name: **University VW-Audi Property**
Project Number: **2014-068D**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **SVE**
Sheet 2 of 2



The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW-Audi Property** Project Number: **2014-068D** Client: **Freeway Motors**	RILEYGROUP Boring/Well No.: **AS1** **Sheet 1 of 3**

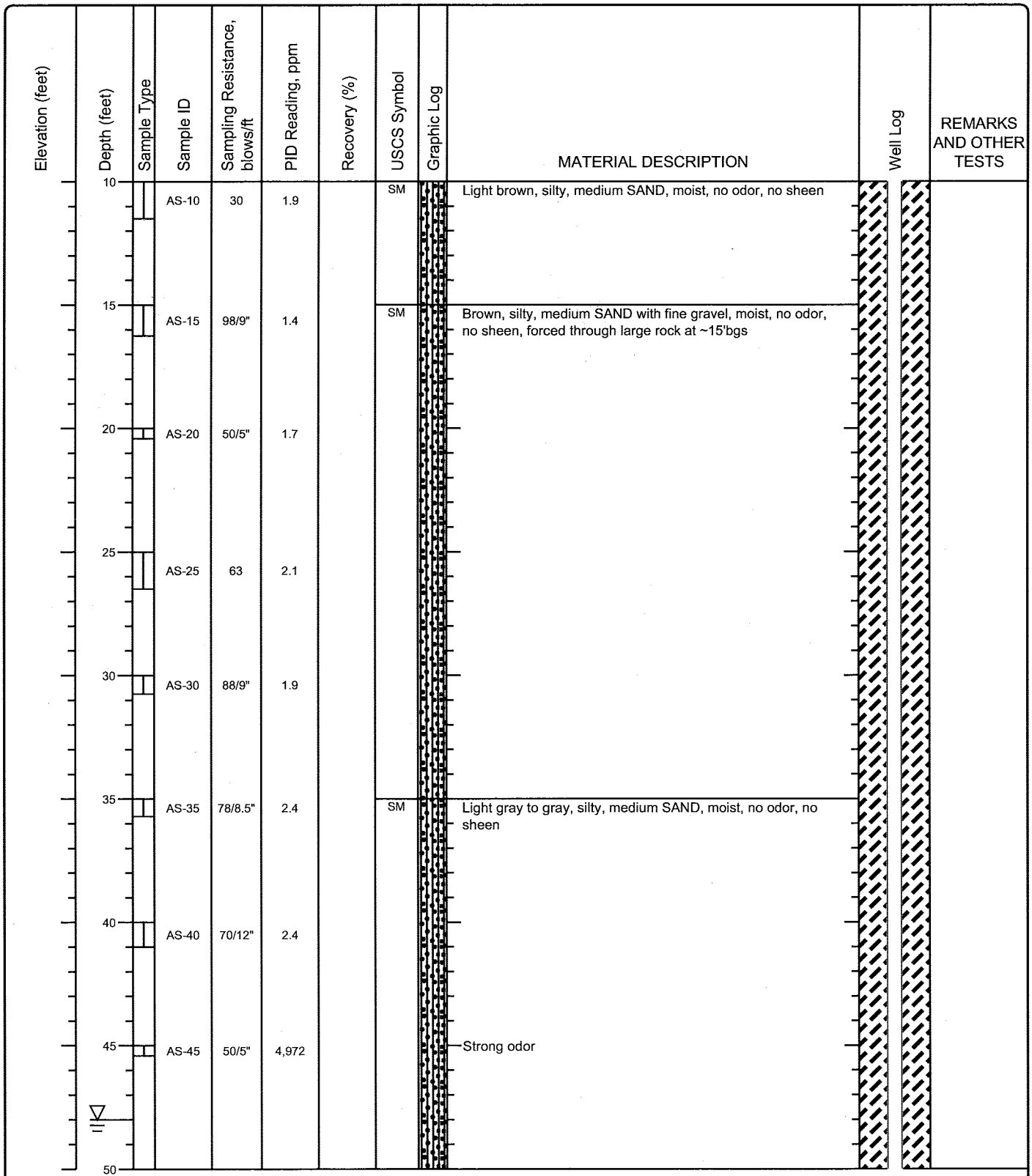
Date(s) Drilled: **05/16/15 and 05/17/15**	Logged By: **SL**	Surface Conditions: **Asphalt**
Drilling Method(s): **Hollow Stem Auger**	Drill Bit Size/Type: **2" Diameter**	Total Depth of Borehole: **58 feet bgs**
Drill Rig Type: **Track-Mounted**	Drilling Contractor: **Holocene**	Approximate Surface Elevation (feet amsl): **n/a**
Groundwater Level and Date Measured: **48' bgs**	Sampling Method(s): **Grab**	Hammer Data : **n/a**
Borehole Backfill: **Soil Vapor Extraction Well**	Location: **4700 Roosevelt Way Northeast, Seattle, Washington 98105**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0						Asphalt		Asphalt		Concrete 0 - 3
							SM		Light brown, silty, medium SAND, moist, no odor, no sheen		Blank PVC 0 - 54
	5		AS-5	34	1.6						Bentonite 3 - 52.5
	10										

Project Name: **University VW-Audi Property**
Project Number: **2014-068D**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **AS1**
Sheet 2 of 3

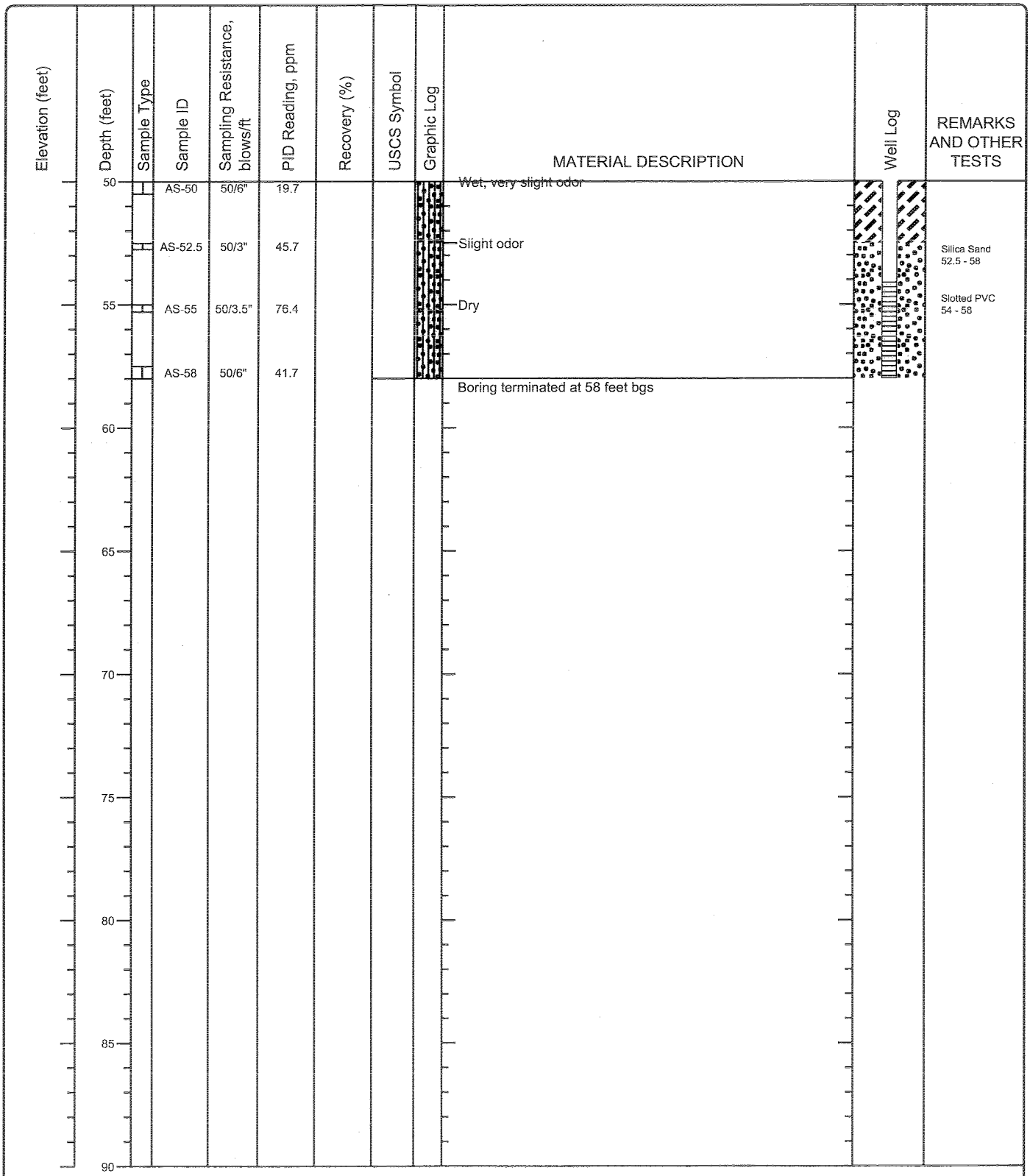


The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **University VW-Audi Property**
Project Number: **2014-068D**
Client: **Freeway Motors**

RILEYGROUP

Boring/Well No.: **AS1**
Sheet 3 of 3



Project Name: **University VW-Audi Property**
Project Number: **2014-068D**
Client: **Freeway Motors**

RILEYGROUP

Boring Log Key

Sheet 1 of 1

1 Elevation (feet)	2 Depth (feet)	3 Sample Type	4 Sample ID	5 Sampling Resistance, blows/ft	6 PID Reading, ppm	7 Recovery (%)	8 USCS Symbol	9 Graphic Log	10 MATERIAL DESCRIPTION	11 Well Log	12 REMARKS AND OTHER TESTS

COLUMN DESCRIPTIONS

1. Elevation (feet): Elevation (MSL, feet).
2. Depth (feet): Depth in feet below the ground surface.
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SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

- Asphaltic Concrete (AC)
- Bentonite chips
- Portland Cement Concrete
- SILT, SILT w/SAND, SANDY SILT (ML)
- Silty SAND (SM)
- Poorly graded SAND (SP)

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Auger sampler
- Bulk Sample
- 3-inch-OD California w/ brass rings
- CME Sampler
- Continuous
- Grab Sample
- 2.5-inch-OD Modified California w/ brass liners
- Pitcher Sample
- 2-inch-OD unlined split spoon (SPT)
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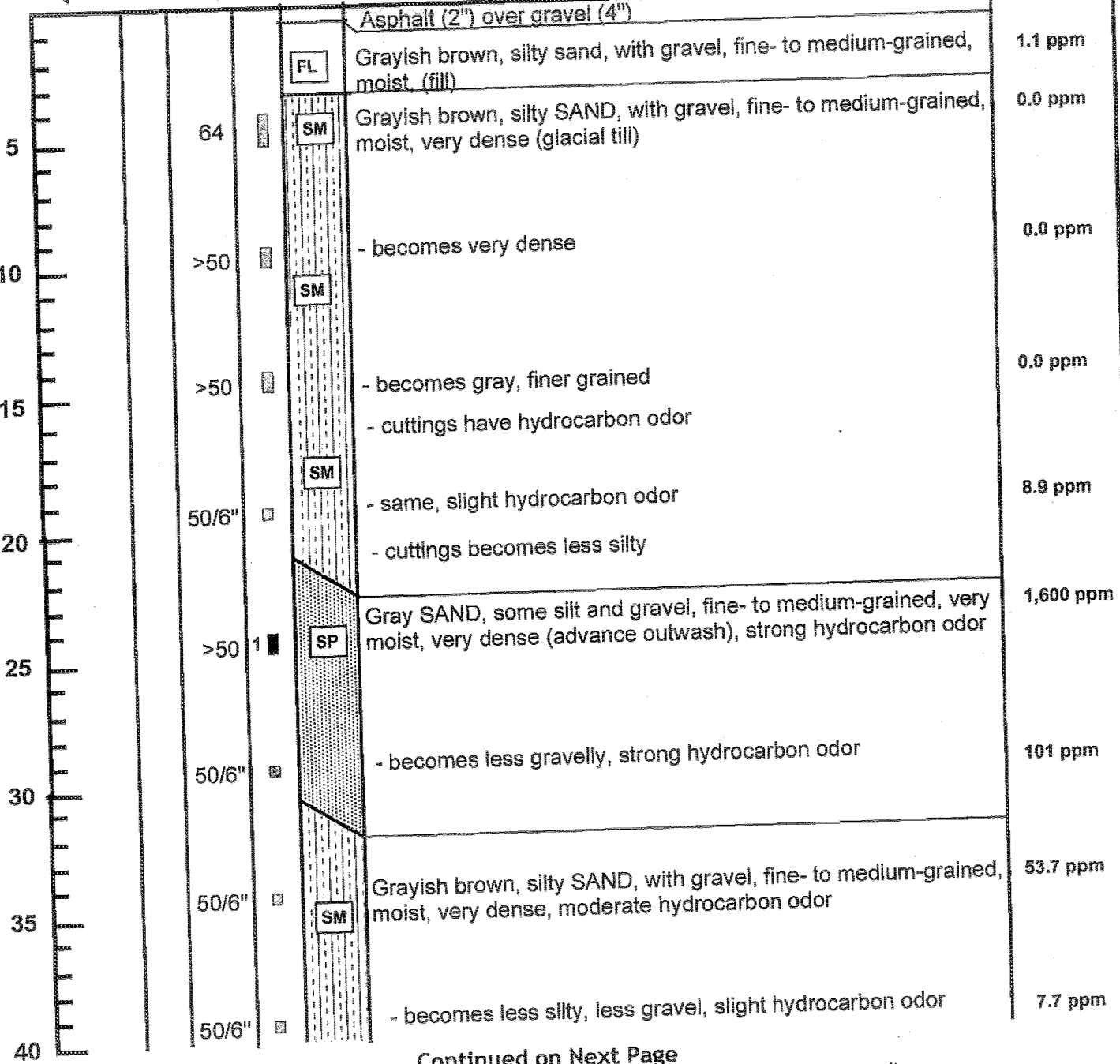
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- Water level (after waiting)
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BORING 1E



Continued on Next Page

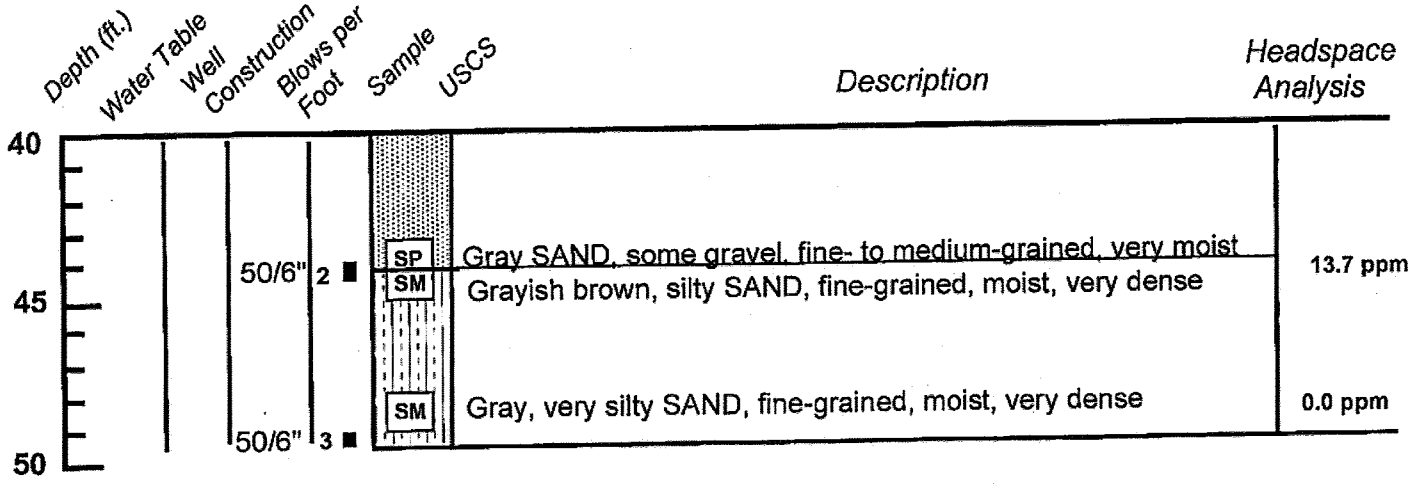
* Boring drilled to 49.5 feet on January 3, 2013 using a truck-mounted CME 75 sampling system. Soil sampled at five foot intervals from surface to 49.5 feet below ground surface (bgs).
* ▮ Indicates sample interval submitted for laboratory analysis.
* Visual and olfactory indications of contamination in soil.
* No groundwater observed at time of drilling.
* Headspace measured in a sealed plastic container using a Photovac 2020 Pro PID.

GEOTECH CONSULTANTS, INC.

BORING LOG
FREEWAY MOTORS
4724 ROOSEVELTWAY NORTHEAST
SEATTLE, WASHINGTON

Job No:	Date:		Plate:
12043E-1	February 2013		5

BORING 1E (CONTINUED)



* Boring drilled to 49.5 feet on January 3, 2013 using a truck-mounted CME 75 sampling system. Soil sampled at five foot intervals from surface to 49.5 feet below ground surface (bgs).
* ■ Indicates sample interval submitted for laboratory analysis.
* Visual and olfactory indications of contamination in soil.
* No groundwater observed at time of drilling.
* Headspace measured in a sealed plastic container using a Photovac 2020 Pro PID.

GEOTECH
CONSULTANTS, INC.

BORING LOG
FREEWAY MOTORS
4724 ROOSEVELTWAY NORTHEAST
SEATTLE, WASHINGTON

Job No:	Date:		Plate:
12043E-1	February 2013		6

BORING 2E

Depth (ft.)	Water Table	Well Construction	Blows per Foot	Sample	USCS	Description	Headspace Analysis
						Asphalt (2") over gravel (4")	1.1 ppm
5			7		FL	Brown, silty sand, with gravel, fine- to medium-grained, moist, loose (fill)	0.0 ppm
10			50/6"		FL	- same, more gravel, blows overstated	0.0 ppm
15			20		FL	- becomes more silty, moist, medium dense	0.0 ppm
						- cuttings becomes more silty	
20			50/6"		SM	Grayish brown, silty SAND, with gravel, fine- to medium-grained, moist, very dense, (glacial till) slight hydrocarbon odor	6.4 ppm
							585 ppm
25			50/6"	1	SP	Gray SAND, with some silt and gravel, fine- to medium-grained, very moist, very dense (advance outwash), strong hydrocarbon odor	
30			50/6"	2	SP	- becomes less gravelly, strong hydrocarbon odor	1,220 ppm
35			50/6"		SM	Gray, silty SAND, with gravel, fine-grained, moist, very dense, slight hydrocarbon odor	21.1 ppm
40			50/6"	3	SM	- becomes browin with gray mottling, slight hydrocarbon odor	22.6 ppm

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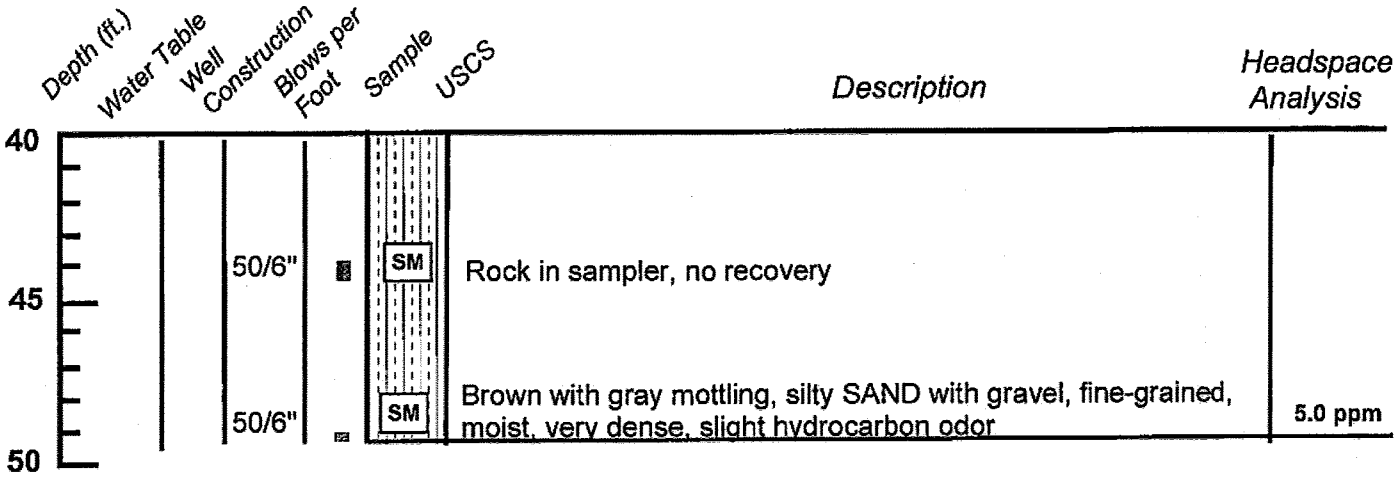
* Boring drilled to 49.33 feet on January 3, 2013 using a truck-mounted CME 75 sampling system. Soil sampled at five foot intervals from surface to 49.33 feet below ground surface (bgs).
* ▩ Indicates sample interval submitted for laboratory analysis.
* Visual and olfactory indications of contamination in soil.
* No groundwater observed at time of drilling.
* Headspace measured in a sealed plastic container using a Photovac 2020 Pro PID.

GEOTECH
CONSULTANTS, INC.

BORING LOG
FREEWAY MOTORS
4724 ROOSEVELTWAY NORTHEAST
SEATTLE, WASHINGTON

Job No:	Date:		Plate:
12043E	March 2012		7

BORING 2E (CONTINUED)



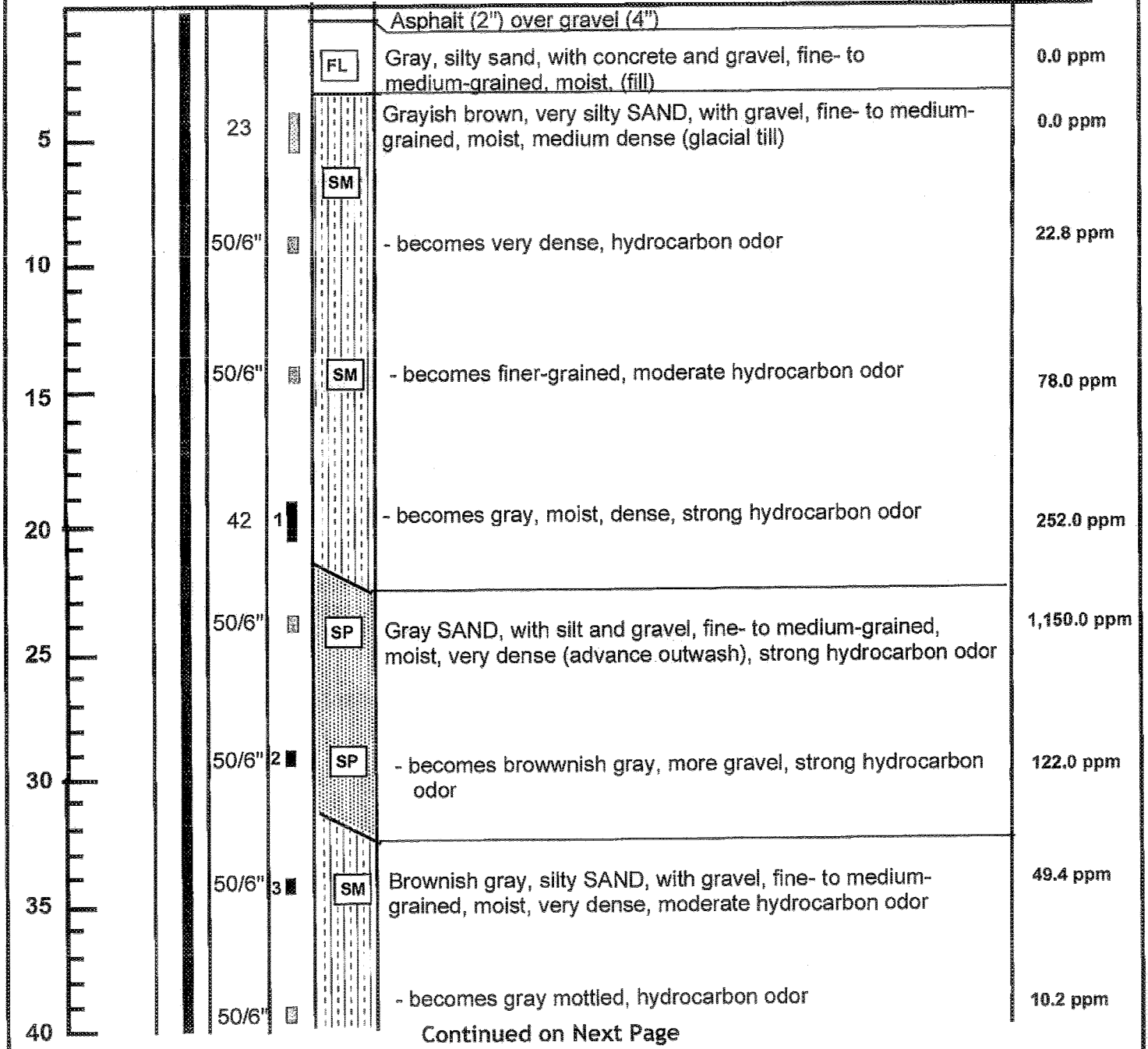
* Boring drilled to 49.33 feet on January 3, 2013 using a truck-mounted CME 75 sampling system. Soil sampled at five foot intervals from surface to 49.33 feet below ground surface (bgs).
* ▮ Indicates sample interval submitted for laboratory analysis.
* Visual and olfactory indications of contamination in soil.
* No groundwater observed at time of drilling.
* Headspace measured in a sealed plastic container using a Photovac 2020 Pro PID.

GEOTECH
CONSULTANTS, INC.

BORING LOG
FREEWAY MOTORS
4724 ROOSEVELTWAY NORTHEAST
SEATTLE, WASHINGTON

Job No:	Date:		Plate:
12043E	March 2012		8

BORING 3E/MW1



Continued on Next Page

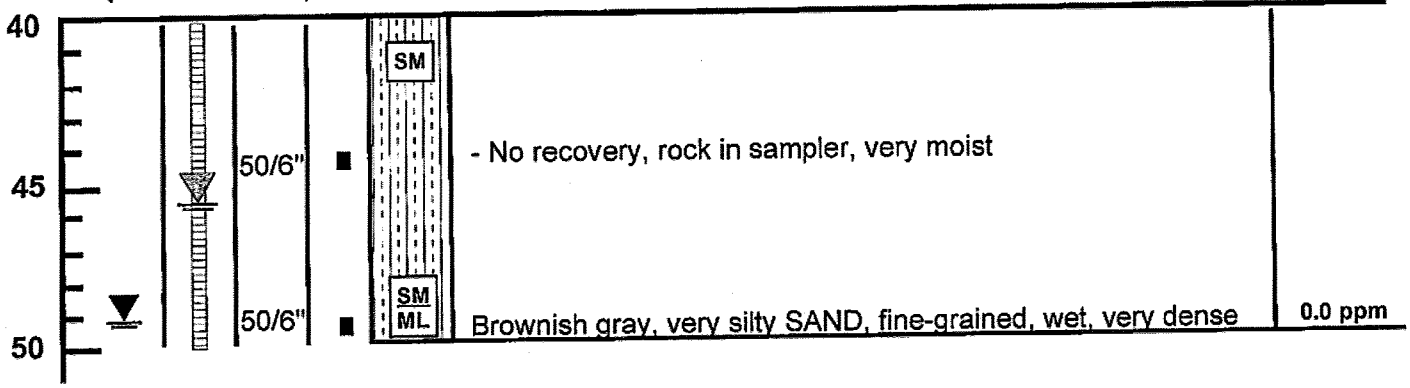
* Boring drilled to 49.5 feet on January 3, 2013 using a truck-mounted CME 75 sampling system. Soil sampled at five foot intervals from surface to 49.5 feet below ground surface (bgs).
* ■ Indicates sample interval submitted for laboratory analysis.
* Visual and olfactory indications of contamination in soil.
* Groundwater observed at time of drilling (▼). Groundwater measured at 46.33 feet bgs (▽) in well 01/07/2013
* Headspace measured in a sealed plastic container using a Photovac 2020 Pro PID.

GEOTECH
CONSULTANTS, INC.

BORING LOG
FREEWAY MOTORS
4724 ROOSEVELTWAY NORTHEAST
SEATTLE, WASHINGTON

Job No:	Date:		Plate:
12043E	March 2012		9

BORING 3E/MW1 (CONTINUED)



* Boring drilled to 49.5 feet on January 3, 2013 using a truck-mounted CME 75 sampling system. Soil sampled at five foot intervals from surface to 49.5 feet below ground surface (bgs).
* ▮ Indicates sample interval submitted for laboratory analysis.
* Visual and olfactory indications of contamination in soil.
* Groundwater observed at time of drilling (▼). Groundwater measured at 46.33 feet bgs (▽) in well 01/07/2013
* Headspace measured in a sealed plastic container using a Photovac 2020 Pro PID.

GEOTECH
CONSULTANTS, INC.

BORING LOG
FREEWAY MOTORS
4724 ROOSEVELTWAY NORTHEAST
SEATTLE, WASHINGTON

Job No:	Date:		Plate:
12043E	March 2012		10

Appendix B

Appendix B - Toxicity Equivalency for cPAH
University VW - Audi Property
4724 Roosevelt Way Northeast and 4701 11th Avenue Northeast, Seattle, Washington
The Riley Group, Inc. Project No. 2014-068C

MW1-20	TOX EQ factor	Analytical Result	Toxicity Equivalent
Benzo(a)anthracene	0.1	0.005	0.0005
Chrysene	0.01	0.005	0.00005
Benzo(a)pyrene	1	0.005	0.005
benzo(b)fluoranthene	0.1	0.005	0.0005
benzo(k)fluroanthene	0.1	0.005	0.0005
Indeno(1,2,3-cd) pyrene	0.1	0.005	0.0005
Dibenz(a,h) anthracene	0.1	0.005	0.0005
SUM			0.00755

MW5-40	TOX EQ factor	Analytical Result	Toxicity Equivalent
Benzo(a)anthracene	0.1	0.005	0.0005
Chrysene	0.01	0.005	0.00005
Benzo(a)pyrene	1	0.005	0.005
benzo(b)fluoranthene	0.1	0.005	0.0005
benzo(k)fluroanthene	0.1	0.005	0.0005
Indeno(1,2,3-cd) pyrene	0.1	0.005	0.0005
Dibenz(a,h) anthracene	0.1	0.005	0.0005
SUM			0.00755

B3E	TOX EQ factor	Analytical Result	Toxicity Equivalent
Benzo(a)anthracene	0.1	0.5	0.05
Chrysene	0.01	0.5	0.005
Benzo(a)pyrene	1	0.5	0.5
benzo(b)fluoranthene	0.1	0.5	0.05
benzo(k)fluroanthene	0.1	0.5	0.05
Indeno(1,2,3-cd) pyrene	0.1	0.5	0.05
Dibenz(a,h) anthracene	0.1	0.5	0.05
SUM			0.755

MW5	TOX EQ factor	Analytical Result	Toxicity Equivalent
Benzo(a)anthracene	0.1	0.5	0.05
Chrysene	0.01	0.5	0.005
Benzo(a)pyrene	1	0.5	0.5
benzo(b)fluoranthene	0.1	0.5	0.05
benzo(k)fluroanthene	0.1	0.5	0.05
Indeno(1,2,3-cd) pyrene	0.1	0.5	0.05
Dibenz(a,h) anthracene	0.1	0.5	0.05
SUM			0.755

MW1	TOX EQ factor	Analytical Result	Toxicity Equivalent
Benzo(a)anthracene	0.1	0.05	0.005
Chrysene	0.01	0.05	0.0005
Benzo(a)pyrene	1	0.05	0.05
benzo(b)fluoranthene	0.1	0.05	0.005
benzo(k)fluroanthene	0.1	0.05	0.005
Indeno(1,2,3-cd) pyrene	0.1	0.05	0.005
Dibenz(a,h) anthracene	0.1	0.05	0.005
SUM			0.0755

Method A Cleanup Level	**0.1**

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

July 9, 2015

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on June 30, 2015 from the 2014-068C, F&BI 506565 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG0709R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 30, 2015 by Friedman & Bruya, Inc. from the The Riley Group 2014-068C, F&BI 506565 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
506565 -01	DPE7-5
506565 -02	DPE7-10
506565 -03	DPE7-15
506565 -04	DPE7-20
506565 -05	DPE7-25
506565 -06	DPE7-30
506565 -07	DPE7-35
506565 -08	DPE7-40
506565 -09	DPE7-45
506565 -10	DPE7-50
506565 -11	DPE7-55
506565 -12	DPE7-60
506565 -13	DPE7-65
506565 -14	DPE6-5
506565 -15	DPE6-10
506565 -16	DPE6-15
506565 -17	DPE6-20
506565 -18	DPE6-25
506565 -19	DPE6-30
506565 -20	DPE6-40
506565 -21	DPE6-60

All quality control requirements were acceptable.

Date of Report: 07/09/15
Date Received: 06/30/15
Project: 2014-068C, F&BI 506565
Date Extracted: 07/01/15
Date Analyzed: 07/01/15 and 07/02/15

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
DPE7-15 506565-03	<0.02	<0.02	<0.02	<0.06	<2	98
DPE7-30 506565-06 1/5	0.31	4.7	13	81	680	119
DPE7-50 506565-10 1/100	4.7	86	28	180	1,400	105
DPE7-60 506565-12 1/5	0.20	5.9	3.0	19	170	109
DPE7-65 506565-13	0.039	0.47	0.18	1.4	16	100
DPE6-40 506565-20	<0.02	0.024	<0.02	<0.06	5.4	103
DPE6-60 506565-21 1/5	0.15	2.9	1.8	12	110	100
Method Blank 05-1196 MB	<0.02	<0.02	<0.02	<0.06	<2	102

Date of Report: 07/09/15
Date Received: 06/30/15
Project: 2014-068C, F&BI 506565

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 506565-03 (Matrix Spike) Silica Gel

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	106	108	73-135	2

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	126	74-139

506565

SAMPLE CHAIN OF CUSTODY

ME 06-30-15

VS4/C04

Page # 1 of 3

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425.415.0551 Fax # 425.415.0811

SAMPLERS (signature) Anna Jordan

PROJECT NAME/NO. 2014-068C

PO#

REMARKS *silica gel cleanup

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED * TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
DPE7-5	01A-E	6/28/15	905	SOIL	5													
DPE7-10	02 A-E		9:20															
DPE7-15	03		9:25			X	X	X										
DPE7-20	04		9:40															
DPE7-25	05		9:45															
DPE7-30	06		10:00			X	X	X										
DPE7-35	07		10:10															
DPE7-40	08		10:40															
DPE7-45	09		10:50															Samples received at 5 °C
DPE7-50	10		11:05			X	X	X										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Dan Riley	RGE	6/30/15	9:15
Received by:	W. Herring	W. Herring	FedEx	6/30/15	11:12
Relinquished by:					
Received by:		DO VO	FEBI	6-30-15	13:40

506565

SAMPLE CHAIN OF CUSTODY

ME 06-30-15

VS4/Co

Page # 2 of 3

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell WA 98011
Phone # 425.415.0551 Fax # 425.415.0311

SAMPLERS (signature) Annajordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS * silica gel cleanup

TURNAROUND TIME
☑ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☑ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel*	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
DPE7-55	11 A-E	6/28/15	11:20	SOIL	5													
DPE7-60	12	↓	11:35	↓	↓	X	X	X										
DPE7-65	13	↓	11:55	↓	↓	X	X	X										
DPE6-5	14	6/29/15	9:10	SOIL	5													
DPE6-10	15		9:40															
DPE6-15	16		9:50															
DPE6-20	17		10:15															
DPE 6-25	18		11:06															
DPE 6-30	19		11:40															Samples received at 5 °C
DPE 6-40	20	↓	12:15	↓	↓	X	X	X										

Friedman & Bruya, Inc.
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Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		PAUL RILEY	RGT	6/30/15	8:15
Received by:		W. Herring	FedEx	6/30/15	1212
Relinquished by:					
Received by:		DOW	FBE	6-30-15	1:30

506565

SAMPLE CHAIN OF CUSTODY

ME 06-30-15

VSY / Col

Page # 3 of 3

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425.415.0551 Fax # 425.415.0311

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS * silica gel cleanup

TURNAROUND TIME
☑ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☑ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel*	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
DPE6-60	21A-E	6/29/15	3:15	SOIL	5	X	XX											
																		Sample received at 5 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		PAUL RILEY	RGI	6/30/15	8:15
Received by:		W. Herring	Fedex	6/30/15	1212
Relinquished by:					
Received by:		DAVID	F+BI	6-30-15	13:31

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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fbi@isomedia.com
www.friedmanandbruya.com

July 6, 2015

Paul Riley, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Mr. Riley:

Included is the amended report from the testing of material submitted on June 23, 2015 from the University Audi, PO 2014-068C, F&BI 506441 project. The sample ID MW1-21.5 has been amended to MW11-21.5.

We apologize for the inconvenience and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
TRG0701R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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www.friedmanandbruya.com

July 1, 2015

Paul Riley, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Mr. Riley:

Included are the results from the testing of material submitted on June 23, 2015 from the University Audi, PO 2014-068C, F&BI 506441 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG0701R.DOC

Date of Report: 07/01/15
Date Received: 06/23/15
Project: University Audi, PO 2014-068C, F&BI 506441
Date Extracted: 06/29/15
Date Analyzed: 06/29/15

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
MW11-31 506441-02	<50	<250	112
MW10-30 506441-05	<50	<250	123
Method Blank 05-1300 MB	<50	<250	131

Date of Report: 07/01/15
Date Received: 06/23/15
Project: University Audi, PO 2014-068C, F&BI 506441

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 506461-06 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	90	69-120
Toluene	mg/kg (ppm)	0.5	104	70-117
Ethylbenzene	mg/kg (ppm)	0.5	105	65-123
Xylenes	mg/kg (ppm)	1.5	102	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 07/01/15
Date Received: 06/23/15
Project: University Audi, PO 2014-068C, F&BI 506441

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 506441-05 (Matrix Spike) Silica Gel

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	112	107	63-146	5

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	109	79-144

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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March 6, 2015

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

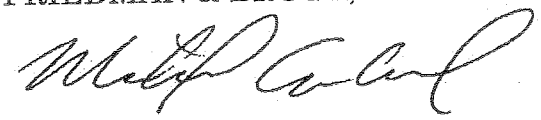
Dear Ms. Jordan:

Included are the results from the testing of material submitted on March 2, 2015 from the 2014-068C, F&BI 503013 project. There are 13 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG0306R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 2, 2015 by Friedman & Bruya, Inc. from the The Riley Group 2014-068C, F&BI 503013 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
503013 -01	SV2-2
503013 -02	SV2-4
503013 -03	SV2-5.5
503013 -04	SV3-3
503013 -05	SV3-4.5
503013 -06	SV1-2
503013 -07	SV1-5

All quality control requirements were acceptable.

Date of Report: 03/06/15
Date Received: 03/02/15
Project: 2014-068C, F&BI 503013
Date Extracted: 03/02/15
Date Analyzed: 03/02/15

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
SV2-5.5 503013-03 1/5	920	ip
SV3-4.5 503013-05	<2	105
SV1-5 503013-07	<2	107
Method Blank 05-0412 MB	<2	110

Date of Report: 03/06/15
Date Received: 03/02/15
Project: 2014-068C, F&BI 503013
Date Extracted: 03/03/15
Date Analyzed: 03/03/15

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
SV2-5.5 503013-03	21,000	<250	129
SV3-4.5 503013-05	<50	<250	104
SV1-5 503013-07	<50	<250	105
Method Blank 05-437 MB	<50	<250	107

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SV2-5.5	Client:	The Riley Group
Date Received:	03/02/15	Project:	2014-068C, F&BI 503013
Date Extracted:	03/03/15	Lab ID:	503013-03
Date Analyzed:	03/03/15	Data File:	030323.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	90	111
Toluene-d8	96	64	137
4-Bromofluorobenzene	88	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	1.4
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	2.3
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	0.99
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	1.5
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	8.6
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	0.18
Benzene	<0.03	1,2,4-Trimethylbenzene	3.4
Trichloroethene	<0.02	sec-Butylbenzene	1.4
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	1.7
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	20 ve
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SV2-5.5	Client:	The Riley Group
Date Received:	03/02/15	Project:	2014-068C, F&BI 503013
Date Extracted:	03/03/15	Lab ID:	503013-03 1/5
Date Analyzed:	03/04/15	Data File:	030410.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	90	111
Toluene-d8	95	64	137
4-Bromofluorobenzene	99	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<2.5	1,3-Dichloropropane	<0.25
Chloromethane	<2.5	Tetrachloroethene	<0.12
Vinyl chloride	<0.25	Dibromochloromethane	<0.25
Bromomethane	<2.5	1,2-Dibromoethane (EDB)	<0.25
Chloroethane	<2.5	Chlorobenzene	<0.25
Trichlorofluoromethane	<2.5	Ethylbenzene	1.3
Acetone	<2.5	1,1,1,2-Tetrachloroethane	<0.25
1,1-Dichloroethene	<0.25	m,p-Xylene	2.0
Methylene chloride	<2.5	o-Xylene	<0.25
Methyl t-butyl ether (MTBE)	<0.25	Styrene	<0.25
trans-1,2-Dichloroethene	<0.25	Isopropylbenzene	0.88
1,1-Dichloroethane	<0.25	Bromoform	<0.25
2,2-Dichloropropane	<0.25	n-Propylbenzene	1.4
cis-1,2-Dichloroethene	<0.25	Bromobenzene	<0.25
Chloroform	<0.25	1,3,5-Trimethylbenzene	7.7
2-Butanone (MEK)	<2.5	1,1,2,2-Tetrachloroethane	<0.25
1,2-Dichloroethane (EDC)	<0.25	1,2,3-Trichloropropane	<0.25
1,1,1-Trichloroethane	<0.25	2-Chlorotoluene	<0.25
1,1-Dichloropropene	<0.25	4-Chlorotoluene	<0.25
Carbon tetrachloride	<0.25	tert-Butylbenzene	<0.25
Benzene	<0.15	1,2,4-Trimethylbenzene	3.1
Trichloroethene	<0.1	sec-Butylbenzene	1.3
1,2-Dichloropropane	<0.25	p-Isopropyltoluene	1.5
Bromodichloromethane	<0.25	1,3-Dichlorobenzene	<0.25
Dibromomethane	<0.25	1,4-Dichlorobenzene	<0.25
4-Methyl-2-pentanone	<2.5	1,2-Dichlorobenzene	<0.25
cis-1,3-Dichloropropene	<0.25	1,2-Dibromo-3-chloropropane	<2.5
Toluene	<0.25	1,2,4-Trichlorobenzene	<1.2
trans-1,3-Dichloropropene	<0.25	Hexachlorobutadiene	<1.2
1,1,2-Trichloroethane	<0.25	Naphthalene	20
2-Hexanone	<2.5	1,2,3-Trichlorobenzene	<1.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SV3-4.5	Client:	The Riley Group
Date Received:	03/02/15	Project:	2014-068C, F&BI 503013
Date Extracted:	03/03/15	Lab ID:	503013-05
Date Analyzed:	03/03/15	Data File:	030321.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	90	111
Toluene-d8	95	64	137
4-Bromofluorobenzene	100	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SV1-5	Client:	The Riley Group
Date Received:	03/02/15	Project:	2014-068C, F&BI 503013
Date Extracted:	03/03/15	Lab ID:	503013-07
Date Analyzed:	03/03/15	Data File:	030322.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	90	111
Toluene-d8	97	64	137
4-Bromofluorobenzene	100	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	2014-068C, F&BI 503013
Date Extracted:	03/03/15	Lab ID:	05-0393 mb
Date Analyzed:	03/03/15	Data File:	030315.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	111
Toluene-d8	96	64	137
4-Bromofluorobenzene	100	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Date of Report: 03/06/15
Date Received: 03/02/15
Project: 2014-068C, F&BI 503013

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 503005-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	105	61-153

Date of Report: 03/06/15
Date Received: 03/02/15
Project: 2014-068C, F&BI 503013

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 503013-03 (Matrix Spike) Silica Gel

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	19,000	178 b	206 b	63-146	15 b

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	105	79-144

Date of Report: 03/06/15
Date Received: 03/02/15
Project: 2014-068C, F&BI 503013

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 503013-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	28	28	10-56	0
Chloromethane	mg/kg (ppm)	2.5	<0.5	50	52	10-90	4
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	53	55	10-91	4
Bromomethane	mg/kg (ppm)	2.5	<0.5	61	62	10-110	2
Chloroethane	mg/kg (ppm)	2.5	<0.5	63	63	10-101	0
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	62	62	10-95	0
Acetone	mg/kg (ppm)	12.5	<0.5	80	80	11-141	0
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	66	67	11-103	2
Methylene chloride	mg/kg (ppm)	2.5	<0.5	72	75	14-128	4
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	81	82	17-134	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	77	76	13-112	1
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	76	77	23-115	1
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	81	80	18-117	1
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	80	81	25-120	1
Chloroform	mg/kg (ppm)	2.5	<0.05	78	79	29-117	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	83	82	20-133	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	80	79	22-124	1
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	80	82	27-112	2
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	77	78	26-107	1
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	77	78	22-115	1
Benzene	mg/kg (ppm)	2.5	<0.03	75	74	26-114	1
Trichloroethene	mg/kg (ppm)	2.5	<0.02	78	77	30-112	1
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	81	79	31-119	2
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	78	78	31-131	0
Dibromomethane	mg/kg (ppm)	2.5	<0.05	78	76	27-124	3
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	89	88	16-147	1
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	83	80	28-137	4
Toluene	mg/kg (ppm)	2.5	<0.05	82	81	34-112	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	88	85	30-136	3
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	83	83	32-126	0
2-Hexanone	mg/kg (ppm)	12.5	<0.5	87	83	17-147	5
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	83	81	29-125	2
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	78	79	27-110	1
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	85	87	32-143	2
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	89	89	32-126	0
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	82	82	37-113	0
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	85	86	38-111	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	86	88	35-126	2
m,p-Xylene	mg/kg (ppm)	5	<0.1	85	86	38-112	1
o-Xylene	mg/kg (ppm)	2.5	<0.05	88	88	38-113	0
Styrene	mg/kg (ppm)	2.5	<0.05	89	90	38-118	1
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	90	91	37-114	1
Bromoform	mg/kg (ppm)	2.5	<0.05	80	80	18-155	0
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	87	86	36-114	1
Bromobenzene	mg/kg (ppm)	2.5	<0.05	87	85	40-115	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	89	89	35-116	0
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	89	87	33-128	2
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	84	84	33-123	0
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	86	85	39-110	1
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	86	87	39-111	1
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	92	93	36-116	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	88	88	35-116	0
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	92	93	33-118	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	90	90	32-119	0
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	85	84	38-111	1
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	83	82	39-109	1
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	85	87	40-111	2
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	90	93	34-134	3
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	92	92	31-117	0
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	90	91	25-122	1
Naphthalene	mg/kg (ppm)	2.5	<0.05	97	95	39-120	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	90	89	35-117	1

Date of Report: 03/06/15
Date Received: 03/02/15
Project: 2014-068C, F&BI 503013

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	52	10-76
Chloromethane	mg/kg (ppm)	2.5	67	34-98
Vinyl chloride	mg/kg (ppm)	2.5	73	42-107
Bromomethane	mg/kg (ppm)	2.5	74	46-113
Chloroethane	mg/kg (ppm)	2.5	78	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	84	53-112
Acetone	mg/kg (ppm)	12.5	93	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	83	65-110
Methylene chloride	mg/kg (ppm)	2.5	86	62-119
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	91	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	91	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	89	76-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	90	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	90	77-110
Chloroform	mg/kg (ppm)	2.5	89	78-108
2-Butanone (MEK)	mg/kg (ppm)	12.5	94	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	91	80-109
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	94	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	91	77-108
Carbon tetrachloride	mg/kg (ppm)	2.5	91	67-123
Benzene	mg/kg (ppm)	2.5	85	75-107
Trichloroethene	mg/kg (ppm)	2.5	87	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	92	78-111
Bromodichloromethane	mg/kg (ppm)	2.5	88	75-126
Dibromomethane	mg/kg (ppm)	2.5	87	80-111
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	100	60-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	92	71-138
Toluene	mg/kg (ppm)	2.5	94	79-112
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	97	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	93	84-115
2-Hexanone	mg/kg (ppm)	12.5	95	71-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	92	82-113
Tetrachloroethene	mg/kg (ppm)	2.5	91	77-110
Dibromochloromethane	mg/kg (ppm)	2.5	97	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	100	83-116
Chlorobenzene	mg/kg (ppm)	2.5	93	82-113
Ethylbenzene	mg/kg (ppm)	2.5	97	81-114
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	97	76-125
m,p-Xylene	mg/kg (ppm)	5	97	82-115
o-Xylene	mg/kg (ppm)	2.5	99	81-116
Styrene	mg/kg (ppm)	2.5	102	81-118
Isopropylbenzene	mg/kg (ppm)	2.5	102	81-117
Bromoform	mg/kg (ppm)	2.5	90	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	99	82-116
Bromobenzene	mg/kg (ppm)	2.5	98	82-118
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	102	83-120
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	99	83-125
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	95	79-116
2-Chlorotoluene	mg/kg (ppm)	2.5	96	80-114
4-Chlorotoluene	mg/kg (ppm)	2.5	99	82-114
tert-Butylbenzene	mg/kg (ppm)	2.5	108	82-116
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	101	82-116
sec-Butylbenzene	mg/kg (ppm)	2.5	104	81-123
p-Isopropyltoluene	mg/kg (ppm)	2.5	103	82-124
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	97	80-118
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	94	79-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	96	80-118
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	106	71-131
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	103	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	101	74-130
Naphthalene	mg/kg (ppm)	2.5	108	83-128
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	99	80-126

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

503013

SAMPLE CHAIN OF CUSTODY

ME ~~TEMS~~ 3/2/15

A02/VS2

Send Report To Anna Jordan
Company Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell WA 98011
Phone # 425-415-0551 Fax #

SAMPLERS (signature) Kristin L Addis

PROJECT NAME/NO. 2014-068C

PO# 2014-068C

REMARKS 5035 samples frozen

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
SV2-2	01 AE	2/27/15	0910	Soil	5													
SV2-4	02		0925		5													per EY 3/2/15 40z jar SV2-2
SV2-5.5	03		0936		5	X	X		X									
SV3-3	04		1025		5													
SV3-4.5	05		1053		5	X	X		X									
SV1-2	06		1145		5													
SV1-5	07		1156		5	X	X		X									

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kristin L Addis	Kristin L Addis	Riley Group	3/2/15	1015
Received by:	Thao Molsness	Thao Molsness	F&BI	3/2/15	1:20pm
Relinquished by:					
Received by:					

Samples received at [illegible]

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 5, 2015

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on January 27, 2015 from the University VW-Audi 2014-068C, F&BI 501366 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG0205R.DOC

Date of Report: 02/05/15
Date Received: 01/27/15
Project: University VW-Audi 2014-068C, F&BI 501366
Date Extracted: 01/28/15
Date Analyzed: 01/30/15

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW9 501366-01	210 x	<250	90
Method Blank 05-194 MB	<50	<250	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW9 cf	Client:	The Riley Group
Date Received:	01/27/15	Project:	University VW-Audi 2014-068C, F&BI 501366
Date Extracted:	01/27/15	Lab ID:	501366-01
Date Analyzed:	01/27/15	Data File:	012726.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	6.9
Methylene chloride	<5	o-Xylene	2.3
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	0.58	1,2,4-Trimethylbenzene	1.6
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	2.0	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	University VW-Audi 2014-068C, F&BI 501366
Date Extracted:	01/27/15	Lab ID:	05-0179 mb
Date Analyzed:	01/27/15	Data File:	012717.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Date of Report: 02/05/15
Date Received: 01/27/15
Project: University VW-Audi 2014-068C, F&BI 501366

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	102	102	69-134	0

Date of Report: 02/05/15
Date Received: 01/27/15
Project: University VW-Audi 2014-068C, F&BI 501366

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	93	97	61-133	4

Date of Report: 02/05/15
Date Received: 01/27/15
Project: University VW-Audi 2014-068C, F&BI 501366

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 501321-08 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	102	10-172
Chloromethane	ug/L (ppb)	50	<10	83	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	96	36-166
Bromomethane	ug/L (ppb)	50	<1	107	47-169
Chloroethane	ug/L (ppb)	50	<1	99	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	105	44-165
Acetone	ug/L (ppb)	250	<10	107	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	108	60-136
Methylene chloride	ug/L (ppb)	50	<5	104	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	101	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	101	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	102	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	92	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	104	71-127
Chloroform	ug/L (ppb)	50	<1	102	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	108	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	3.4	105	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	106	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	102	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	112	56-152
Benzene	ug/L (ppb)	50	<0.35	96	76-125
Trichloroethene	ug/L (ppb)	50	<1	102	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	98	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	108	61-150
Dibromomethane	ug/L (ppb)	50	<1	106	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	114	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	109	72-132
Toluene	ug/L (ppb)	50	<1	92	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	107	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	102	68-131
2-Hexanone	ug/L (ppb)	250	<10	105	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	99	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	99	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	120	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	106	69-134
Chlorobenzene	ug/L (ppb)	50	<1	99	77-122
Ethylbenzene	ug/L (ppb)	50	<1	97	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	112	73-137
m,p-Xylene	ug/L (ppb)	100	<2	97	69-135
o-Xylene	ug/L (ppb)	50	<1	102	60-140
Styrene	ug/L (ppb)	50	<1	95	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	97	65-142
Bromoform	ug/L (ppb)	50	<1	118	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	96	58-144
Bromobenzene	ug/L (ppb)	50	<1	98	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	96	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	99	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	99	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	95	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	95	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	101	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	96	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	97	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	96	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	98	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	94	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	97	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	106	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	103	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	102	60-143
Naphthalene	ug/L (ppb)	50	<1	101	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	101	69-148

Date of Report: 02/05/15
Date Received: 01/27/15
Project: University VW-Audi 2014-068C, F&BI 501366

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	109	108	25-158	1
Chloromethane	ug/L (ppb)	50	99	96	45-156	3
Vinyl chloride	ug/L (ppb)	50	100	102	50-154	2
Bromomethane	ug/L (ppb)	50	121	121	55-143	0
Chloroethane	ug/L (ppb)	50	108	107	58-146	1
Trichlorofluoromethane	ug/L (ppb)	250	115	117	50-150	2
Acetone	ug/L (ppb)	250	107	110	53-131	3
1,1-Dichloroethene	ug/L (ppb)	50	106	106	67-136	0
Methylene chloride	ug/L (ppb)	50	105	105	39-148	0
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	103	103	64-147	0
trans-1,2-Dichloroethene	ug/L (ppb)	50	103	103	68-128	0
1,1-Dichloroethane	ug/L (ppb)	50	102	102	79-121	0
2,2-Dichloropropane	ug/L (ppb)	50	98	102	55-143	4
cis-1,2-Dichloroethene	ug/L (ppb)	50	105	105	80-123	0
Chloroform	ug/L (ppb)	50	102	104	80-121	2
2-Butanone (MEK)	ug/L (ppb)	250	107	107	57-149	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	105	105	73-132	0
1,1,1-Trichloroethane	ug/L (ppb)	50	109	108	83-130	1
1,1-Dichloropropene	ug/L (ppb)	50	103	103	77-129	0
Carbon tetrachloride	ug/L (ppb)	50	114	115	75-158	1
Benzene	ug/L (ppb)	50	97	97	69-134	0
Trichloroethene	ug/L (ppb)	50	102	102	80-120	0
1,2-Dichloropropane	ug/L (ppb)	50	101	100	77-123	1
Bromodichloromethane	ug/L (ppb)	50	109	109	81-133	0
Dibromomethane	ug/L (ppb)	50	106	108	82-125	2
4-Methyl-2-pentanone	ug/L (ppb)	250	115	117	65-138	2
cis-1,3-Dichloropropene	ug/L (ppb)	50	113	115	82-132	2
Toluene	ug/L (ppb)	50	92	93	72-122	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	110	111	80-136	1
1,1,2-Trichloroethane	ug/L (ppb)	50	101	104	75-124	3
2-Hexanone	ug/L (ppb)	250	106	108	60-136	2
1,3-Dichloropropane	ug/L (ppb)	50	99	101	76-126	2
Tetrachloroethene	ug/L (ppb)	50	98	100	76-121	2
Dibromochloromethane	ug/L (ppb)	50	118	120	84-133	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	104	106	82-125	2
Chlorobenzene	ug/L (ppb)	50	98	99	83-114	1
Ethylbenzene	ug/L (ppb)	50	97	98	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	111	112	84-127	1
m,p-Xylene	ug/L (ppb)	100	98	99	83-125	1
o-Xylene	ug/L (ppb)	50	101	103	81-121	2
Styrene	ug/L (ppb)	50	96	97	84-119	1
Isopropylbenzene	ug/L (ppb)	50	98	99	85-117	1
Bromoform	ug/L (ppb)	50	119	121	74-136	2
n-Propylbenzene	ug/L (ppb)	50	97	97	74-126	0
Bromobenzene	ug/L (ppb)	50	99	99	80-121	0
1,3,5-Trimethylbenzene	ug/L (ppb)	50	97	97	78-123	0
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	102	103	66-126	1
1,2,3-Trichloropropane	ug/L (ppb)	50	99	101	67-124	2
2-Chlorotoluene	ug/L (ppb)	50	95	96	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	96	97	78-128	1
tert-Butylbenzene	ug/L (ppb)	50	100	101	80-123	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	96	97	79-122	1
sec-Butylbenzene	ug/L (ppb)	50	99	100	80-125	1
p-Isopropyltoluene	ug/L (ppb)	50	97	97	81-123	0
1,3-Dichlorobenzene	ug/L (ppb)	50	98	99	85-116	1
1,4-Dichlorobenzene	ug/L (ppb)	50	95	95	84-121	0
1,2-Dichlorobenzene	ug/L (ppb)	50	98	97	85-116	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	105	105	57-141	0
1,2,4-Trichlorobenzene	ug/L (ppb)	50	100	101	72-130	1
Hexachlorobutadiene	ug/L (ppb)	50	100	99	53-141	1
Naphthalene	ug/L (ppb)	50	98	99	64-133	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	99	98	65-136	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

501366

SAMPLE CHAIN OF CUSTODY ME 01-27-15

AJ 2 / V2 / C04

Page # ____ of ____

Send Report To Anna Jordan

Company The Riley Group

Address 17522 Bothell Way NE Ste A

City, State, ZIP Bothell, WA 98011

Phone # 425-415-0551 Fax # 425-415-0311

SAMPLERS (signature)

PROJECT NAME/NO. University VW-Audi

PO# 2014-068C

REMARKS

TURNAROUND TIME
- [x] Standard (2 Weeks)
- [ ] RUSH
- Rush charges authorized by

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS					Hold		Notes
MW9	01A-K	1/26/15	14:40	W	11	X	X		X							X		X-per AJ 1/27/15 me

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Mike Gipson	RGI	1/26/15	16:00
Received by:	Nhan Phan	FedEx	1/27/15	1130
Relinquished by:				
Received by:		Samples received at ____ °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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fbi@isomedia.com
www.friedmanandbruya.com

January 23, 2015

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on January 16, 2015 from the 2014-068C, F&BI 501218 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG0123R.DOC

Date of Report: 01/23/15
Date Received: 01/16/15
Project: 2014-068C, F&BI 501218
Date Extracted: 01/20/15
Date Analyzed: 01/20/15

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES USING METHOD 8021B

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Surrogate (% Recovery) (Limit 50-132)
MW9-10 501218-02	<0.02	<0.02	<0.02	<0.06	97
MW9-40 501218-08	<0.02	<0.02	<0.02	<0.06	102
MW9-50 501218-10	<0.02	<0.02	<0.02	<0.06	100
Method Blank 05-123 MB	<0.02	<0.02	<0.02	<0.06	97

Date of Report: 01/23/15
Date Received: 01/16/15
Project: 2014-068C, F&BI 501218

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES USING EPA METHOD 8021B

Laboratory Code: 501239-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	76	66-121
Toluene	mg/kg (ppm)	0.5	79	72-128
Ethylbenzene	mg/kg (ppm)	0.5	76	69-132
Xylenes	mg/kg (ppm)	1.5	79	69-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

501218

SAMPLE CHAIN OF CUSTODY

ME 01-16-15

C03/V52

Page # 1 of 2

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425 415 0551 Fax # 425 415 0311

SAMPLERS (signature) Annajordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☑ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	HCID						Notes
MW9-5	01 A-E	1/16/15	825	SOIL	5													
MW9-10	02		835					X				X						X - per AJ 1/20/15 mg
MW9-15	03		845															
MW9-20	04		850		4													
MW9-25	05 A-E		855															
MW9-30	06		900															
MW9-35	07		910															
MW9-40	08		920					X				X						
MW9-45	09		930		1													
MW9-50	10 A-E		945		5			X				X						

Friedman & Bruya, Inc.
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Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Annajordan	Anna Jordan	RGI	1/16/15	1230
Received by:	Hong	HONG NGUYEN	FBI	✓	✓
Relinquished by:					
Received by:					

501218

SAMPLE CHAIN OF CUSTODY

ME 01-16-15

C03/052

Page # 2 of 2

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425-415-0551 Fax # 425-415-0311

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
MW9-55	11 A-D	1/16/15	1000	SOIL	4													
MW9-56	12 A-E	↓	1000	↓	5													

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Anna Jordan	Anna Jordan	RGI	1/16/15	1230
Received by:		HONG NGUYEN	FBI	″	″
Relinquished by:					
Received by:					

Samples received at 4 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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fbi@isomedia.com
www.friedmanandbruya.com

January 15, 2015

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on January 12, 2015 from the 2014-068C, F&BI 501129 project. There are 21 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG0115R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 12, 2015 by Friedman & Bruya, Inc. from the The Riley Group 2014-068C, F&BI 501129 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
501129 -01	NSW4
501129 -02	NSW6
501129 -03	BOT7
501129 -04	WSW4
501129 -05	WSW6
501129 -06	ESW4
501129 -07	ESW6
501129 -08	SSW6
501129 -09	SS1
501129 -10	SS2
501129 -11	SS3

All quality control requirements were acceptable.

Date of Report: 01/15/15
Date Received: 01/12/15
Project: 2014-068C, F&BI 501129
Date Extracted: 01/12/15
Date Analyzed: 01/12/15 and 01/13/15

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
BOT7 501129-03	<2	108
WSW4 501129-04 1/20	870	118
ESW4 501129-06	<2	88
SS1 501129-09	170	128
SS2 501129-10	25	103
SS3 501129-11	67	118
Method Blank 05-0077 MB	<2	104

Date of Report: 01/15/15
Date Received: 01/12/15
Project: 2014-068C, F&BI 501129
Date Extracted: 01/12/15
Date Analyzed: 01/12/15 and 01/13/15

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
BOT7 501129-03	<50	<250	95
WSW4 501129-04	3,800	<250	92
ESW4 501129-06	<50	<250	103
SS1, SS2, SS3 501129-09,10,11	210	<250	107
Method Blank 05-088 MB	<50	<250	103

Analysis For Total Metals By EPA Method 200.8

Client ID:	BOT7	Client:	The Riley Group
Date Received:	01/12/15	Project:	2014-068C, F&BI 501129
Date Extracted:	01/12/15	Lab ID:	501129-03
Date Analyzed:	01/12/15	Data File:	501129-03.062
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	88	60	125
Indium	83	60	125
Holmium	94	60	125

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.52
Cadmium	<1
Chromium	8.81
Lead	1.58
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	BOT7	Client:	The Riley Group
Date Received:	01/12/15	Project:	2014-068C, F&BI 501129
Date Extracted:	01/12/15	Lab ID:	501129-03
Date Analyzed:	01/12/15	Data File:	011221.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	102	51	121
4-Bromofluorobenzene	98	32	146

Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5
Chloromethane	<0.5
Vinyl chloride	<0.05
Bromomethane	<0.5
Chloroethane	<0.5
Trichlorofluoromethane	<0.5
Acetone	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
Methyl t-butyl ether (MTBE)	<0.05
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
2,2-Dichloropropane	<0.05
cis-1,2-Dichloroethene	<0.05
Chloroform	<0.05
2-Butanone (MEK)	<0.5
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
1,1-Dichloropropene	<0.05
Carbon tetrachloride	<0.05
Benzene	<0.03
Trichloroethene	<0.02
1,2-Dichloropropane	<0.05
Bromodichloromethane	<0.05
Dibromomethane	<0.05
4-Methyl-2-pentanone	<0.5
cis-1,3-Dichloropropene	<0.05
Toluene	<0.05
trans-1,3-Dichloropropene	<0.05
1,1,2-Trichloroethane	<0.05
2-Hexanone	<0.5

Compounds:	Concentration mg/kg (ppm)
1,3-Dichloropropane	<0.05
Tetrachloroethene	<0.025
Dibromochloromethane	<0.05
1,2-Dibromoethane (EDB)	<0.05
Chlorobenzene	<0.05
Ethylbenzene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Styrene	<0.05
Isopropylbenzene	<0.05
Bromoform	<0.05
n-Propylbenzene	<0.05
Bromobenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,1,2,2-Tetrachloroethane	<0.05
1,2,3-Trichloropropane	<0.05
2-Chlorotoluene	<0.05
4-Chlorotoluene	<0.05
tert-Butylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
sec-Butylbenzene	<0.05
p-Isopropyltoluene	<0.05
1,3-Dichlorobenzene	<0.05
1,4-Dichlorobenzene	<0.05
1,2-Dichlorobenzene	<0.05
1,2-Dibromo-3-chloropropane	<0.5
1,2,4-Trichlorobenzene	<0.25
Hexachlorobutadiene	<0.25
Naphthalene	<0.05
1,2,3-Trichlorobenzene	<0.25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	WSW4	Client:	The Riley Group
Date Received:	01/12/15	Project:	2014-068C, F&BI 501129
Date Extracted:	01/12/15	Lab ID:	501129-04
Date Analyzed:	01/12/15	Data File:	011228.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	62	142
Toluene-d8	101	51	121
4-Bromofluorobenzene	98	32	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.088
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	0.10
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	0.23
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	0.40
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	0.91
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	0.47
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	0.55
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	4.9
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	ESW4	Client:	The Riley Group
Date Received:	01/12/15	Project:	2014-068C, F&BI 501129
Date Extracted:	01/12/15	Lab ID:	501129-06
Date Analyzed:	01/12/15	Data File:	011223.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	103	51	121
4-Bromofluorobenzene	99	32	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SS1	Client:	The Riley Group
Date Received:	01/12/15	Project:	2014-068C, F&BI 501129
Date Extracted:	01/12/15	Lab ID:	501129-09
Date Analyzed:	01/12/15	Data File:	011230.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	62	142
Toluene-d8	101	51	121
4-Bromofluorobenzene	99	32	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	0.10
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	0.062
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	0.079
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	0.53
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SS2	Client:	The Riley Group
Date Received:	01/12/15	Project:	2014-068C, F&BI 501129
Date Extracted:	01/12/15	Lab ID:	501129-10
Date Analyzed:	01/12/15	Data File:	011226.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	62	142
Toluene-d8	102	51	121
4-Bromofluorobenzene	97	32	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	0.12
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SS3	Client:	The Riley Group
Date Received:	01/12/15	Project:	2014-068C, F&BI 501129
Date Extracted:	01/12/15	Lab ID:	501129-11
Date Analyzed:	01/12/15	Data File:	011229.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	62	142
Toluene-d8	100	51	121
4-Bromofluorobenzene	97	32	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	0.28
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	2014-068C, F&BI 501129
Date Extracted:	01/12/15	Lab ID:	05-0050 mb
Date Analyzed:	01/12/15	Data File:	011216.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	62	142
Toluene-d8	103	51	121
4-Bromofluorobenzene	99	32	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Date of Report: 01/15/15
Date Received: 01/12/15
Project: 2014-068C, F&BI 501129

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 501129-07 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	105	61-153

Date of Report: 01/15/15
Date Received: 01/12/15
Project: 2014-068C, F&BI 501129

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 501129-03 (Matrix Spike) Silica Gel

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	99	112	63-146	12

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	113	79-144

Date of Report: 01/15/15
Date Received: 01/12/15
Project: 2014-068C, F&BI 501129

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 501129-08 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.35	95	89	70-118	7
Cadmium	mg/kg (ppm)	10	<1	111	105	83-116	6
Chromium	mg/kg (ppm)	50	7.40	99	90	57-128	10
Lead	mg/kg (ppm)	50	1.33	111	105	59-148	6
Mercury	mg/kg (ppm	10	<1	112	106	50-150	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	96	83-113
Cadmium	mg/kg (ppm)	10	108	54-114
Chromium	mg/kg (ppm)	50	102	78-121
Lead	mg/kg (ppm)	50	108	80-120
Mercury	mg/kg (ppm)	10	106	70-130

Date of Report: 01/15/15
Date Received: 01/12/15
Project: 2014-068C, F&BI 501129

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 501129-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 2
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	27	25	10-142	8
Chloromethane	mg/kg (ppm)	2.5	<0.5	55	55	10-126	0
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	58	57	10-138	2
Bromomethane	mg/kg (ppm)	2.5	<0.5	74	73	10-163	1
Chloroethane	mg/kg (ppm)	2.5	<0.5	69	66	10-176	4
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	67	69	10-176	3
Acetone	mg/kg (ppm)	12.5	<0.5	98	101	10-163	3
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	75	75	10-160	0
Methylene chloride	mg/kg (ppm)	2.5	<0.5	84	86	10-156	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	89	90	21-145	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	81	85	14-137	5
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	87	88	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	87	87	10-158	0
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	91	92	25-135	1
Chloroform	mg/kg (ppm)	2.5	<0.05	89	91	21-145	2
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	89	94	19-147	5
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	90	92	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	91	92	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	85	87	17-140	2
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	91	92	9-164	1
Benzene	mg/kg (ppm)	2.5	<0.03	84	86	29-129	2
Trichloroethene	mg/kg (ppm)	2.5	<0.02	89	88	21-139	1
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	89	90	30-135	1
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	94	95	23-155	1
Dibromomethane	mg/kg (ppm)	2.5	<0.05	92	93	23-146	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	97	103	24-155	6
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	93	97	28-144	4
Toluene	mg/kg (ppm)	2.5	<0.05	80	81	35-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	88	91	26-149	3
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	89	89	10-205	0
2-Hexanone	mg/kg (ppm)	12.5	<0.5	86	89	15-166	3
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	85	87	31-137	2
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	81	84	20-133	4
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	92	95	28-150	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	88	90	28-142	2
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	84	86	32-129	2
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	84	85	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	95	95	31-143	0
m,p-Xylene	mg/kg (ppm)	5	<0.1	85	86	34-136	1
o-Xylene	mg/kg (ppm)	2.5	<0.05	87	88	33-134	1
Styrene	mg/kg (ppm)	2.5	<0.05	83	84	35-137	1
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	86	86	31-142	0
Bromoform	mg/kg (ppm)	2.5	<0.05	90	92	21-156	2
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	82	83	23-146	1
Bromobenzene	mg/kg (ppm)	2.5	<0.05	83	84	34-130	1
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	82	83	18-149	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	85	87	28-140	2
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	84	86	25-144	2
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	82	83	31-134	1
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	81	83	31-136	2
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	86	86	30-137	0
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	83	83	10-182	0
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	85	86	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	82	83	21-149	1
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	84	86	30-131	2
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	80	81	29-129	1
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	85	84	31-132	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	87	85	11-161	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	86	87	22-142	1
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	89	88	10-142	1
Naphthalene	mg/kg (ppm)	2.5	<0.05	85	85	14-157	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	84	83	20-144	1

Date of Report: 01/15/15
Date Received: 01/12/15
Project: 2014-068C, F&BI 501129

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	39	10-146
Chloromethane	mg/kg (ppm)	2.5	59	27-133
Vinyl chloride	mg/kg (ppm)	2.5	67	22-139
Bromomethane	mg/kg (ppm)	2.5	77	38-114
Chloroethane	mg/kg (ppm)	2.5	76	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	82	10-196
Acetone	mg/kg (ppm)	12.5	94	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	80	47-128
Methylene chloride	mg/kg (ppm)	2.5	86	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	87	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	89	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	89	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	90	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	94	72-113
Chloroform	mg/kg (ppm)	2.5	95	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	91	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	95	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	97	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	90	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	96	60-139
Benzene	mg/kg (ppm)	2.5	87	68-114
Trichloroethene	mg/kg (ppm)	2.5	95	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	96	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	103	72-130
Dibromomethane	mg/kg (ppm)	2.5	100	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	107	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	104	75-136
Toluene	mg/kg (ppm)	2.5	87	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	100	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	99	75-113
2-Hexanone	mg/kg (ppm)	12.5	95	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	95	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	92	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	105	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	100	74-132
Chlorobenzene	mg/kg (ppm)	2.5	95	76-111
Ethylbenzene	mg/kg (ppm)	2.5	94	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	107	69-135
m,p-Xylene	mg/kg (ppm)	5	96	78-122
o-Xylene	mg/kg (ppm)	2.5	100	77-124
Styrene	mg/kg (ppm)	2.5	93	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	97	76-127
Bromoform	mg/kg (ppm)	2.5	104	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	92	74-124
Bromobenzene	mg/kg (ppm)	2.5	93	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	92	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	91	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	92	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	91	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	91	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	96	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	92	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	95	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	91	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	93	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	88	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	91	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	92	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	94	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	95	50-153
Naphthalene	mg/kg (ppm)	2.5	92	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	91	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

501129

SAMPLE CHAIN OF CUSTODY

ME 01-12-15

VS3

Send Report To: Anna Jordan
Company: The Riley Group
Address: 17522 Bothell Way NE
City, State, ZIP: Bothell, WA 98011
Phone #: 425.415.0551 Fax #: 425.415.0311

SAMPLERS (signature): Anna Jordan
PROJECT NAME/NO.: 2014-068C
PO #:
REMARKS:

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	RCRA 8 Metals	Notes
NSW4	01 A-E	1/12/15	1130	SOIL	5	X	X		X			X	Hold. per AS 1/12/15 MA.
NSW6	02 A-D		1135			X	X		X			X	Hold
BOT7	03 A-E		1140			X	X		X			X	Hold
INSW4	04		1145			X	X		X			X	
WSW6	05		1150			X	X		X			X	
ESW4	06		1155			X	X		X			X	Hold
ESW6	07		1200			X	X		X			X	
SSW6	08		1205			X	X		X			X	Hold
SS1	09		1210			X	X		X			X	Hold
SS2	10	↓	1215	↓	↓	X	X		X			X	composite SS1, SS2 & SS3 for TPH

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Anna Jordan	Anna Jordan	RGI	1/12/15	1315
Received by: Nhan Phan	Nhan Phan	FedEx	1/12/15	1315
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

501129

SAMPLE CHAIN OF CUSTODY

ME 01-12-15

VS3/B0

Send Report To Anna Jordan
Company The Riley Group
Address
City, State, ZIP
Phone # Fax #

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO #
REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	MTCA 5 Metals	Notes
SS3	11 A-E	1/12/15	1220	SOIL	5	X	X		X			X	composite w/ SS1 & SS2 for Dx

ANALYSES REQUESTED

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Anna Jordan	Anna Jordan	R61	1/12/15	1815
Received by:		Nhan Phan	FCBT	1/12/15	1315
Relinquished by:					
Received by:					

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 8, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included is the amended report from the testing of material submitted on November 14, 2014 from the University VW-Audi PhII 2014-068C, F&BI 411273 project. Per your request, the "x" qualifier assigned to the diesel range detections has been clarified in the case narrative.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG1125R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 25, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on November 14, 2014 from the University VW-Audi PhII 2014-068C, F&BI 411273 project. There are 14 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG1125R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 14, 2014 by Friedman & Bruya, Inc. from the The Riley Group University VW-Audi PhII 2014-068C, F&BI 411273 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
411273 -01	MW7
411273 -02	MW6
411273 -03	MW8

Bromomethane in the 8260C matrix spike, laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analyte was not detected in the sample, therefore the data were acceptable.

The diesel range detections in samples MW7, MW6, and MW8 are due to overlap from a gasoline range product. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW7	Client:	The Riley Group
Date Received:	11/14/14	Project:	University VW-Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	411273-01
Date Analyzed:	11/19/14	Data File:	111914B.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	SP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	101	93	107
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	5.7
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	11
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	7.4
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	52
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	0.84	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	9.1
1,2-Dichloropropane	<1	p-Isopropyltoluene	4.6
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW6	Client:	The Riley Group
Date Received:	11/14/14	Project:	University VW-Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	411273-02
Date Analyzed:	11/17/14	Data File:	111729.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	85	117
Toluene-d8	108 ip	93	107
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	690 ve
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	2,200 ve
Methylene chloride	<5	o-Xylene	1,500 ve
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	140
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	320 ve
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	460 ve
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	600 ve	1,2,4-Trimethylbenzene	640 ve
Trichloroethene	<1	sec-Butylbenzene	17
1,2-Dichloropropane	<1	p-Isopropyltoluene	7.7
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	1,500 ve	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	390 ve
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW6	Client:	The Riley Group
Date Received:	11/14/14	Project:	University VW-Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	411273-02 1/100
Date Analyzed:	11/18/14	Data File:	111827.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	104	93	107
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<100	1,3-Dichloropropane	<100
Chloromethane	<1,000	Tetrachloroethene	<100
Vinyl chloride	<20	Dibromochloromethane	<100
Bromomethane	<100	1,2-Dibromoethane (EDB)	<100
Chloroethane	<100	Chlorobenzene	<100
Trichlorofluoromethane	<100	Ethylbenzene	3,900
Acetone	<1,000	1,1,1,2-Tetrachloroethane	<100
1,1-Dichloroethene	<100	m,p-Xylene	14,000
Methylene chloride	<500	o-Xylene	5,600
Methyl t-butyl ether (MTBE)	<100	Styrene	<100
trans-1,2-Dichloroethene	<100	Isopropylbenzene	140
1,1-Dichloroethane	<100	Bromoform	<100
2,2-Dichloropropane	<100	n-Propylbenzene	410
cis-1,2-Dichloroethene	<100	Bromobenzene	<100
Chloroform	<100	1,3,5-Trimethylbenzene	700
2-Butanone (MEK)	<1,000	1,1,2,2-Tetrachloroethane	<100
1,2-Dichloroethane (EDC)	<100	1,2,3-Trichloropropane	<100
1,1,1-Trichloroethane	<100	2-Chlorotoluene	<100
1,1-Dichloropropene	<100	4-Chlorotoluene	<100
Carbon tetrachloride	<100	tert-Butylbenzene	<100
Benzene	1,300	1,2,4-Trimethylbenzene	2,600
Trichloroethene	<100	sec-Butylbenzene	<100
1,2-Dichloropropane	<100	p-Isopropyltoluene	<100
Bromodichloromethane	<100	1,3-Dichlorobenzene	<100
Dibromomethane	<100	1,4-Dichlorobenzene	<100
4-Methyl-2-pentanone	<1,000	1,2-Dichlorobenzene	<100
cis-1,3-Dichloropropene	<100	1,2-Dibromo-3-chloropropane	<1,000
Toluene	9,600	1,2,4-Trichlorobenzene	<100
trans-1,3-Dichloropropene	<100	Hexachlorobutadiene	<100
1,1,2-Trichloroethane	<100	Naphthalene	560
2-Hexanone	<1,000	1,2,3-Trichlorobenzene	<100

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW8	Client:	The Riley Group
Date Received:	11/14/14	Project:	University VW-Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	411273-03
Date Analyzed:	11/17/14	Data File:	111730.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	108 ip	93	107
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	300 ve
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	1,100 ve
Methylene chloride	<5	o-Xylene	660 ve
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	44
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	160 ve
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	230 ve
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	190 ve	1,2,4-Trimethylbenzene	490 ve
Trichloroethene	<1	sec-Butylbenzene	17
1,2-Dichloropropane	<1	p-Isopropyltoluene	8.4
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	180 ve	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	67
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW8	Client:	The Riley Group
Date Received:	11/14/14	Project:	University VW-Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	411273-03 1/10
Date Analyzed:	11/18/14	Data File:	111826.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	103	93	107
4-Bromofluorobenzene	95	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	<10
Vinyl chloride	<2	Dibromochloromethane	<10
Bromomethane	<10	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	<10
Trichlorofluoromethane	<10	Ethylbenzene	230
Acetone	<100	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	1,200
Methylene chloride	<50	o-Xylene	630
Methyl t-butyl ether (MTBE)	<10	Styrene	<10
trans-1,2-Dichloroethene	<10	Isopropylbenzene	36
1,1-Dichloroethane	<10	Bromoform	<10
2,2-Dichloropropane	<10	n-Propylbenzene	130
cis-1,2-Dichloroethene	<10	Bromobenzene	<10
Chloroform	<10	1,3,5-Trimethylbenzene	210
2-Butanone (MEK)	<100	1,1,2,2-Tetrachloroethane	<10
1,2-Dichloroethane (EDC)	<10	1,2,3-Trichloropropane	<10
1,1,1-Trichloroethane	<10	2-Chlorotoluene	<10
1,1-Dichloropropene	<10	4-Chlorotoluene	<10
Carbon tetrachloride	<10	tert-Butylbenzene	<10
Benzene	180	1,2,4-Trimethylbenzene	750
Trichloroethene	<10	sec-Butylbenzene	14
1,2-Dichloropropane	<10	p-Isopropyltoluene	<10
Bromodichloromethane	<10	1,3-Dichlorobenzene	<10
Dibromomethane	<10	1,4-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dichlorobenzene	<10
cis-1,3-Dichloropropene	<10	1,2-Dibromo-3-chloropropane	<100
Toluene	160	1,2,4-Trichlorobenzene	<10
trans-1,3-Dichloropropene	<10	Hexachlorobutadiene	<10
1,1,2-Trichloroethane	<10	Naphthalene	62
2-Hexanone	<100	1,2,3-Trichlorobenzene	<10

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	University VW-Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	04-2317 mb
Date Analyzed:	11/17/14	Data File:	111718.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	100	93	107
4-Bromofluorobenzene	99	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Date of Report: 11/25/14
Date Received: 11/14/14
Project: University VW-Audi PhII 2014-068C, F&BI 411273

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 411273-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	2,400	2,300	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	96	70-119

Date of Report: 11/25/14
Date Received: 11/14/14
Project: University VW-Audi PhII 2014-068C, F&BI 411273

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	94	87	58-134	8

Date of Report: 11/25/14
Date Received: 11/14/14
Project: University VW-Audi PhII 2014-068C, F&BI 411273

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 411270-25 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	131	55-144
Chloromethane	ug/L (ppb)	50	<10	98	67-131
Vinyl chloride	ug/L (ppb)	50	<0.2	99	61-139
Bromomethane	ug/L (ppb)	50	<1	136 vo	66-129
Chloroethane	ug/L (ppb)	50	<1	111	68-126
Trichlorofluoromethane	ug/L (ppb)	50	<1	108	71-128
Acetone	ug/L (ppb)	250	<10	101	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	101	71-123
Methylene chloride	ug/L (ppb)	50	<5	111	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	99	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	99	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	96	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	98	58-132
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	96	73-119
Chloroform	ug/L (ppb)	50	2.1	99	80-112
2-Butanone (MEK)	ug/L (ppb)	250	<10	105	69-123
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	97	78-113
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	96	79-116
1,1-Dichloropropene	ug/L (ppb)	50	<1	91	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	95	72-123
Benzene	ug/L (ppb)	50	<0.35	98	79-109
Trichloroethene	ug/L (ppb)	50	<1	100	75-109
1,2-Dichloropropane	ug/L (ppb)	50	<1	102	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	100	78-117
Dibromomethane	ug/L (ppb)	50	<1	100	80-112
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	115	79-123
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	100	76-120
Toluene	ug/L (ppb)	50	<1	96	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	91	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	101	81-111
2-Hexanone	ug/L (ppb)	250	<10	93	75-126
1,3-Dichloropropane	ug/L (ppb)	50	<1	98	81-111
Tetrachloroethene	ug/L (ppb)	50	<1	103	72-113
Dibromochloromethane	ug/L (ppb)	50	<1	97	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	93	83-114
Chlorobenzene	ug/L (ppb)	50	<1	97	75-115
Ethylbenzene	ug/L (ppb)	50	<1	99	71-120
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	95	78-122
m,p-Xylene	ug/L (ppb)	100	<2	101	63-128
o-Xylene	ug/L (ppb)	50	<1	96	64-129
Styrene	ug/L (ppb)	50	<1	96	70-122
Isopropylbenzene	ug/L (ppb)	50	<1	100	76-118
Bromoform	ug/L (ppb)	50	<1	95	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	97	74-117
Bromobenzene	ug/L (ppb)	50	<1	97	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	100	81-112
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	94	79-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	95	72-119
2-Chlorotoluene	ug/L (ppb)	50	<1	94	77-114
4-Chlorotoluene	ug/L (ppb)	50	<1	97	81-109
tert-Butylbenzene	ug/L (ppb)	50	<1	101	81-116
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	98	74-118
sec-Butylbenzene	ug/L (ppb)	50	<1	99	77-118
p-Isopropyltoluene	ug/L (ppb)	50	<1	95	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	96	81-111
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	78-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	96	81-111
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	85	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	94	74-115
Hexachlorobutadiene	ug/L (ppb)	50	<1	87	67-120
Naphthalene	ug/L (ppb)	50	47	84 b	63-136
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	94	79-115

Date of Report: 11/25/14
Date Received: 11/14/14
Project: University VW-Audi PhII 2014-068C, F&BI 411273

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	120	116	54-149	3
Chloromethane	ug/L (ppb)	50	95	96	67-133	1
Vinyl chloride	ug/L (ppb)	50	98	97	73-132	1
Bromomethane	ug/L (ppb)	50	126 vo	136 vo	69-123	8
Chloroethane	ug/L (ppb)	50	110	111	68-126	1
Trichlorofluoromethane	ug/L (ppb)	50	110	111	70-132	1
Acetone	ug/L (ppb)	250	94	94	44-145	0
1,1-Dichloroethene	ug/L (ppb)	50	101	101	75-119	0
Methylene chloride	ug/L (ppb)	50	119	120	63-132	1
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	100	98	70-122	2
trans-1,2-Dichloroethene	ug/L (ppb)	50	95	98	76-118	3
1,1-Dichloroethane	ug/L (ppb)	50	95	97	80-116	2
2,2-Dichloropropane	ug/L (ppb)	50	98	101	62-141	3
cis-1,2-Dichloroethene	ug/L (ppb)	50	93	92	81-111	1
Chloroform	ug/L (ppb)	50	97	99	81-109	2
2-Butanone (MEK)	ug/L (ppb)	250	101	101	53-140	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	99	99	79-109	0
1,1,1-Trichloroethane	ug/L (ppb)	50	95	96	80-116	1
1,1-Dichloropropene	ug/L (ppb)	50	89	90	78-112	1
Carbon tetrachloride	ug/L (ppb)	50	97	97	72-128	0
Benzene	ug/L (ppb)	50	95	96	81-108	1
Trichloroethene	ug/L (ppb)	50	98	99	77-108	1
1,2-Dichloropropane	ug/L (ppb)	50	99	101	82-109	2
Bromodichloromethane	ug/L (ppb)	50	100	100	76-120	0
Dibromomethane	ug/L (ppb)	50	97	98	80-110	1
4-Methyl-2-pentanone	ug/L (ppb)	250	105	104	59-142	1
cis-1,3-Dichloropropene	ug/L (ppb)	50	101	98	76-128	3
Toluene	ug/L (ppb)	50	91	91	83-108	0
trans-1,3-Dichloropropene	ug/L (ppb)	50	92	91	76-128	1
1,1,2-Trichloroethane	ug/L (ppb)	50	97	98	82-110	1
2-Hexanone	ug/L (ppb)	250	89	86	53-145	3
1,3-Dichloropropane	ug/L (ppb)	50	95	94	83-110	1
Tetrachloroethene	ug/L (ppb)	50	98	99	78-109	1
Dibromochloromethane	ug/L (ppb)	50	96	96	63-140	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	89	89	85-113	0
Chlorobenzene	ug/L (ppb)	50	94	93	84-108	1
Ethylbenzene	ug/L (ppb)	50	96	96	84-110	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	96	96	76-125	0
m,p-Xylene	ug/L (ppb)	100	96	96	84-112	0
o-Xylene	ug/L (ppb)	50	92	93	82-113	1
Styrene	ug/L (ppb)	50	95	94	84-116	1
Isopropylbenzene	ug/L (ppb)	50	97	99	81-122	2
Bromoform	ug/L (ppb)	50	96	95	40-161	1
n-Propylbenzene	ug/L (ppb)	50	97	95	81-115	2
Bromobenzene	ug/L (ppb)	50	95	92	80-113	3
1,3,5-Trimethylbenzene	ug/L (ppb)	50	99	98	83-117	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	91	91	79-118	0
1,2,3-Trichloropropane	ug/L (ppb)	50	93	91	74-116	2
2-Chlorotoluene	ug/L (ppb)	50	94	94	79-112	0
4-Chlorotoluene	ug/L (ppb)	50	96	94	81-113	2
tert-Butylbenzene	ug/L (ppb)	50	100	101	81-119	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	95	94	83-116	1
sec-Butylbenzene	ug/L (ppb)	50	99	99	83-116	0
p-Isopropyltoluene	ug/L (ppb)	50	94	93	82-119	1
1,3-Dichlorobenzene	ug/L (ppb)	50	95	94	83-111	1
1,4-Dichlorobenzene	ug/L (ppb)	50	94	93	82-109	1
1,2-Dichlorobenzene	ug/L (ppb)	50	93	94	83-111	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	86	86	62-133	0
1,2,4-Trichlorobenzene	ug/L (ppb)	50	94	94	77-117	0
Hexachlorobutadiene	ug/L (ppb)	50	88	90	74-118	2
Naphthalene	ug/L (ppb)	50	93	96	75-131	3
1,2,3-Trichlorobenzene	ug/L (ppb)	50	94	95	82-115	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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November 25, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on November 14, 2014 from the University VW-Audi PhII 2014-068C, F&BI 411273 project. There are 14 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG1125R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 14, 2014 by Friedman & Bruya, Inc. from the The Riley Group University VW-Audi PhII 2014-068C, F&BI 411273 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
411273 -01	MW7
411273 -02	MW6
411273 -03	MW8

Bromomethane in the 8260C matrix spike, laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analyte was not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 11/25/14
Date Received: 11/14/14
Project: University VW-Audi PhII 2014-068C, F&BI 411273
Date Extracted: 11/20/14
Date Analyzed: 11/20/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW7 411273-01	2,400	104
MW6 411273-02 1/100	110,000	104
MW8 411273-03 1/10	13,000	102
Method Blank 04-2338 MB	<100	96

Date of Report: 11/25/14
Date Received: 11/14/14
Project: University VW-Audi PhII 2014-068C, F&BI 411273
Date Extracted: 11/17/14
Date Analyzed: 11/18/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
MW7 411273-01	620 x	<250	99
MW6 411273-02	7,100 x	<250	90
MW8 411273-03	1,300 x	<250	95
Method Blank 04-2342 MB	<50	<250	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW7	Client:	The Riley Group
Date Received:	11/14/14	Project:	University VW-Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	411273-01
Date Analyzed:	11/19/14	Data File:	111914B.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	SP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	101	93	107
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	5.7
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	11
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	7.4
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	52
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	0.84	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	9.1
1,2-Dichloropropane	<1	p-Isopropyltoluene	4.6
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW6	Client:	The Riley Group
Date Received:	11/14/14	Project:	University VW-Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	411273-02
Date Analyzed:	11/17/14	Data File:	111729.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	85	117
Toluene-d8	108 ip	93	107
4-Bromofluorobenzene	102	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	690 ve
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	2,200 ve
Methylene chloride	<5	o-Xylene	1,500 ve
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	140
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	320 ve
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	460 ve
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	600 ve	1,2,4-Trimethylbenzene	640 ve
Trichloroethene	<1	sec-Butylbenzene	17
1,2-Dichloropropane	<1	p-Isopropyltoluene	7.7
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	1,500 ve	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	390 ve
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW6	Client:	The Riley Group
Date Received:	11/14/14	Project:	University VW -Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	411273-02 1/100
Date Analyzed:	11/18/14	Data File:	111827.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	104	93	107
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<100	1,3-Dichloropropane	<100
Chloromethane	<1,000	Tetrachloroethene	<100
Vinyl chloride	<20	Dibromochloromethane	<100
Bromomethane	<100	1,2-Dibromoethane (EDB)	<100
Chloroethane	<100	Chlorobenzene	<100
Trichlorofluoromethane	<100	Ethylbenzene	3,900
Acetone	<1,000	1,1,1,2-Tetrachloroethane	<100
1,1-Dichloroethene	<100	m,p-Xylene	14,000
Methylene chloride	<500	o-Xylene	5,600
Methyl t-butyl ether (MTBE)	<100	Styrene	<100
trans-1,2-Dichloroethene	<100	Isopropylbenzene	140
1,1-Dichloroethane	<100	Bromoform	<100
2,2-Dichloropropane	<100	n-Propylbenzene	410
cis-1,2-Dichloroethene	<100	Bromobenzene	<100
Chloroform	<100	1,3,5-Trimethylbenzene	700
2-Butanone (MEK)	<1,000	1,1,2,2-Tetrachloroethane	<100
1,2-Dichloroethane (EDC)	<100	1,2,3-Trichloropropane	<100
1,1,1-Trichloroethane	<100	2-Chlorotoluene	<100
1,1-Dichloropropene	<100	4-Chlorotoluene	<100
Carbon tetrachloride	<100	tert-Butylbenzene	<100
Benzene	1,300	1,2,4-Trimethylbenzene	2,600
Trichloroethene	<100	sec-Butylbenzene	<100
1,2-Dichloropropane	<100	p-Isopropyltoluene	<100
Bromodichloromethane	<100	1,3-Dichlorobenzene	<100
Dibromomethane	<100	1,4-Dichlorobenzene	<100
4-Methyl-2-pentanone	<1,000	1,2-Dichlorobenzene	<100
cis-1,3-Dichloropropene	<100	1,2-Dibromo-3-chloropropane	<1,000
Toluene	9,600	1,2,4-Trichlorobenzene	<100
trans-1,3-Dichloropropene	<100	Hexachlorobutadiene	<100
1,1,2-Trichloroethane	<100	Naphthalene	560
2-Hexanone	<1,000	1,2,3-Trichlorobenzene	<100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW8	Client:	The Riley Group
Date Received:	11/14/14	Project:	University VW -Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	411273-03
Date Analyzed:	11/17/14	Data File:	111730.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	108 ip	93	107
4-Bromofluorobenzene	97	76	126

Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1
Chloromethane	<10
Vinyl chloride	<0.2
Bromomethane	<1
Chloroethane	<1
Trichlorofluoromethane	<1
Acetone	<10
1,1-Dichloroethene	<1
Methylene chloride	<5
Methyl t-butyl ether (MTBE)	<1
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
2,2-Dichloropropane	<1
cis-1,2-Dichloroethene	<1
Chloroform	<1
2-Butanone (MEK)	<10
1,2-Dichloroethane (EDC)	<1
1,1,1-Trichloroethane	<1
1,1-Dichloropropene	<1
Carbon tetrachloride	<1
Benzene	190 ve
Trichloroethene	<1
1,2-Dichloropropane	<1
Bromodichloromethane	<1
Dibromomethane	<1
4-Methyl-2-pentanone	<10
cis-1,3-Dichloropropene	<1
Toluene	180 ve
trans-1,3-Dichloropropene	<1
1,1,2-Trichloroethane	<1
2-Hexanone	<10

Compounds:	Concentration ug/L (ppb)
1,3-Dichloropropane	<1
Tetrachloroethene	<1
Dibromochloromethane	<1
1,2-Dibromoethane (EDB)	<1
Chlorobenzene	<1
Ethylbenzene	300 ve
1,1,1,2-Tetrachloroethane	<1
m,p-Xylene	1,100 ve
o-Xylene	660 ve
Styrene	<1
Isopropylbenzene	44
Bromoform	<1
n-Propylbenzene	160 ve
Bromobenzene	<1
1,3,5-Trimethylbenzene	230 ve
1,1,2,2-Tetrachloroethane	<1
1,2,3-Trichloropropane	<1
2-Chlorotoluene	<1
4-Chlorotoluene	<1
tert-Butylbenzene	<1
1,2,4-Trimethylbenzene	490 ve
sec-Butylbenzene	17
p-Isopropyltoluene	8.4
1,3-Dichlorobenzene	<1
1,4-Dichlorobenzene	<1
1,2-Dichlorobenzene	<1
1,2-Dibromo-3-chloropropane	<10
1,2,4-Trichlorobenzene	<1
Hexachlorobutadiene	<1
Naphthalene	67
1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW8	Client:	The Riley Group
Date Received:	11/14/14	Project:	University VW-Audi PhII 2014-068C
Date Extracted:	11/17/14	Lab ID:	411273-03 1/10
Date Analyzed:	11/18/14	Data File:	111826.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	103	93	107
4-Bromofluorobenzene	95	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	<10
Vinyl chloride	<2	Dibromochloromethane	<10
Bromomethane	<10	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	<10
Trichlorofluoromethane	<10	Ethylbenzene	230
Acetone	<100	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	1,200
Methylene chloride	<50	o-Xylene	630
Methyl t-butyl ether (MTBE)	<10	Styrene	<10
trans-1,2-Dichloroethene	<10	Isopropylbenzene	36
1,1-Dichloroethane	<10	Bromoform	<10
2,2-Dichloropropane	<10	n-Propylbenzene	130
cis-1,2-Dichloroethene	<10	Bromobenzene	<10
Chloroform	<10	1,3,5-Trimethylbenzene	210
2-Butanone (MEK)	<100	1,1,2,2-Tetrachloroethane	<10
1,2-Dichloroethane (EDC)	<10	1,2,3-Trichloropropane	<10
1,1,1-Trichloroethane	<10	2-Chlorotoluene	<10
1,1-Dichloropropene	<10	4-Chlorotoluene	<10
Carbon tetrachloride	<10	tert-Butylbenzene	<10
Benzene	180	1,2,4-Trimethylbenzene	750
Trichloroethene	<10	sec-Butylbenzene	14
1,2-Dichloropropane	<10	p-Isopropyltoluene	<10
Bromodichloromethane	<10	1,3-Dichlorobenzene	<10
Dibromomethane	<10	1,4-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dichlorobenzene	<10
cis-1,3-Dichloropropene	<10	1,2-Dibromo-3-chloropropane	<100
Toluene	160	1,2,4-Trichlorobenzene	<10
trans-1,3-Dichloropropene	<10	Hexachlorobutadiene	<10
1,1,2-Trichloroethane	<10	Naphthalene	62
2-Hexanone	<100	1,2,3-Trichlorobenzene	<10

Date of Report: 11/25/14
Date Received: 11/14/14
Project: University VW-Audi PhII 2014-068C, F&BI 411273

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	94	87	58-134	8

Date of Report: 11/25/14
Date Received: 11/14/14
Project: University VW-Audi PhII 2014-068C, F&BI 411273

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 411270-25 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	131	55-144
Chloromethane	ug/L (ppb)	50	<10	98	67-131
Vinyl chloride	ug/L (ppb)	50	<0.2	99	61-139
Bromomethane	ug/L (ppb)	50	<1	136 vo	66-129
Chloroethane	ug/L (ppb)	50	<1	111	68-126
Trichlorofluoromethane	ug/L (ppb)	50	<1	108	71-128
Acetone	ug/L (ppb)	250	<10	101	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	101	71-123
Methylene chloride	ug/L (ppb)	50	<5	111	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	99	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	99	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	96	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	98	58-132
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	96	73-119
Chloroform	ug/L (ppb)	50	2.1	99	80-112
2-Butanone (MEK)	ug/L (ppb)	250	<10	105	69-123
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	97	78-113
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	96	79-116
1,1-Dichloropropene	ug/L (ppb)	50	<1	91	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	95	72-123
Benzene	ug/L (ppb)	50	<0.35	98	79-109
Trichloroethene	ug/L (ppb)	50	<1	100	75-109
1,2-Dichloropropane	ug/L (ppb)	50	<1	102	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	100	78-117
Dibromomethane	ug/L (ppb)	50	<1	100	80-112
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	115	79-123
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	100	76-120
Toluene	ug/L (ppb)	50	<1	96	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	91	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	101	81-111
2-Hexanone	ug/L (ppb)	250	<10	93	75-126
1,3-Dichloropropane	ug/L (ppb)	50	<1	98	81-111
Tetrachloroethene	ug/L (ppb)	50	<1	103	72-113
Dibromochloromethane	ug/L (ppb)	50	<1	97	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	93	83-114
Chlorobenzene	ug/L (ppb)	50	<1	97	75-115
Ethylbenzene	ug/L (ppb)	50	<1	99	71-120
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	95	78-122
m,p-Xylene	ug/L (ppb)	100	<2	101	63-128
o-Xylene	ug/L (ppb)	50	<1	96	64-129
Styrene	ug/L (ppb)	50	<1	96	70-122
Isopropylbenzene	ug/L (ppb)	50	<1	100	76-118
Bromoform	ug/L (ppb)	50	<1	95	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	97	74-117
Bromobenzene	ug/L (ppb)	50	<1	97	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	100	81-112
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	94	79-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	95	72-119
2-Chlorotoluene	ug/L (ppb)	50	<1	94	77-114
4-Chlorotoluene	ug/L (ppb)	50	<1	97	81-109
tert-Butylbenzene	ug/L (ppb)	50	<1	101	81-116
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	98	74-118
sec-Butylbenzene	ug/L (ppb)	50	<1	99	77-118
p-Isopropyltoluene	ug/L (ppb)	50	<1	95	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	96	81-111
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	78-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	96	81-111
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	85	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	94	74-115
Hexachlorobutadiene	ug/L (ppb)	50	<1	87	67-120
Naphthalene	ug/L (ppb)	50	47	84 b	63-136
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	94	79-115

Date of Report: 11/25/14
Date Received: 11/14/14
Project: University VW-Audi PhII 2014-068C, F&BI 411273

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	120	116	54-149	3
Chloromethane	ug/L (ppb)	50	95	96	67-133	1
Vinyl chloride	ug/L (ppb)	50	98	97	73-132	1
Bromomethane	ug/L (ppb)	50	126 vo	136 vo	69-123	8
Chloroethane	ug/L (ppb)	50	110	111	68-126	1
Trichlorofluoromethane	ug/L (ppb)	50	110	111	70-132	1
Acetone	ug/L (ppb)	250	94	94	44-145	0
1,1-Dichloroethene	ug/L (ppb)	50	101	101	75-119	0
Methylene chloride	ug/L (ppb)	50	119	120	63-132	1
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	100	98	70-122	2
trans-1,2-Dichloroethene	ug/L (ppb)	50	95	98	76-118	3
1,1-Dichloroethane	ug/L (ppb)	50	95	97	80-116	2
2,2-Dichloropropane	ug/L (ppb)	50	98	101	62-141	3
cis-1,2-Dichloroethene	ug/L (ppb)	50	93	92	81-111	1
Chloroform	ug/L (ppb)	50	97	99	81-109	2
2-Butanone (MEK)	ug/L (ppb)	250	101	101	53-140	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	99	99	79-109	0
1,1,1-Trichloroethane	ug/L (ppb)	50	95	96	80-116	1
1,1-Dichloropropene	ug/L (ppb)	50	89	90	78-112	1
Carbon tetrachloride	ug/L (ppb)	50	97	97	72-128	0
Benzene	ug/L (ppb)	50	95	96	81-108	1
Trichloroethene	ug/L (ppb)	50	98	99	77-108	1
1,2-Dichloropropane	ug/L (ppb)	50	99	101	82-109	2
Bromodichloromethane	ug/L (ppb)	50	100	100	76-120	0
Dibromomethane	ug/L (ppb)	50	97	98	80-110	1
4-Methyl-2-pentanone	ug/L (ppb)	250	105	104	59-142	1
cis-1,3-Dichloropropene	ug/L (ppb)	50	101	98	76-128	3
Toluene	ug/L (ppb)	50	91	91	83-108	0
trans-1,3-Dichloropropene	ug/L (ppb)	50	92	91	76-128	1
1,1,2-Trichloroethane	ug/L (ppb)	50	97	98	82-110	1
2-Hexanone	ug/L (ppb)	250	89	86	53-145	3
1,3-Dichloropropane	ug/L (ppb)	50	95	94	83-110	1
Tetrachloroethene	ug/L (ppb)	50	98	99	78-109	1
Dibromochloromethane	ug/L (ppb)	50	96	96	63-140	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	89	89	85-113	0
Chlorobenzene	ug/L (ppb)	50	94	93	84-108	1
Ethylbenzene	ug/L (ppb)	50	96	96	84-110	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	96	96	76-125	0
m,p-Xylene	ug/L (ppb)	100	96	96	84-112	0
o-Xylene	ug/L (ppb)	50	92	93	82-113	1
Styrene	ug/L (ppb)	50	95	94	84-116	1
Isopropylbenzene	ug/L (ppb)	50	97	99	81-122	2
Bromoform	ug/L (ppb)	50	96	95	40-161	1
n-Propylbenzene	ug/L (ppb)	50	97	95	81-115	2
Bromobenzene	ug/L (ppb)	50	95	92	80-113	3
1,3,5-Trimethylbenzene	ug/L (ppb)	50	99	98	83-117	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	91	91	79-118	0
1,2,3-Trichloropropane	ug/L (ppb)	50	93	91	74-116	2
2-Chlorotoluene	ug/L (ppb)	50	94	94	79-112	0
4-Chlorotoluene	ug/L (ppb)	50	96	94	81-113	2
tert-Butylbenzene	ug/L (ppb)	50	100	101	81-119	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	95	94	83-116	1
sec-Butylbenzene	ug/L (ppb)	50	99	99	83-116	0
p-Isopropyltoluene	ug/L (ppb)	50	94	93	82-119	1
1,3-Dichlorobenzene	ug/L (ppb)	50	95	94	83-111	1
1,4-Dichlorobenzene	ug/L (ppb)	50	94	93	82-109	1
1,2-Dichlorobenzene	ug/L (ppb)	50	93	94	83-111	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	86	86	62-133	0
1,2,4-Trichlorobenzene	ug/L (ppb)	50	94	94	77-117	0
Hexachlorobutadiene	ug/L (ppb)	50	88	90	74-118	2
Naphthalene	ug/L (ppb)	50	93	96	75-131	3
1,2,3-Trichlorobenzene	ug/L (ppb)	50	94	95	82-115	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

411273

SAMPLE CHAIN OF CUSTODY

ME 11-14-14

V3/AES/CA

Page # 1 of 1

Send Report To: Anna Jordan
Company: The Riley Group, Inc
Address: 17522 Bothell Way NE Ste A
City, State, ZIP: Bothell, WA 98011
Phone #: 425-415-0551 Fax #: 425-415-0311

SAMPLERS (signature):

PROJECT NAME/NO.: University VW-Audi Ph II

PO #: 2014-068C

REMARKS:

TURNAROUND TIME
- [x] Standard (2 Weeks)
- [ ] RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Naphthalene	Notes
MW7	01 A-L	11/12/14	10:45	W	12	X	X		X			X	
MW6	02	↓	12:45	↓	↓	X	X		X			X	
MW8	03	↓	13:45	↓	↓	X	X		X			X	

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Mike Gibson	RGI	11/12/14	4:00 PM
Received by:		Nhan Pham	FCBT	11/14/14	1700
Relinquished by:					
Received by:					

Samples received at 2 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 14, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on November 10, 2014 from the 2014-068C, F&BI 411156 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG1114R.DOC

Date of Report: 11/14/14
Date Received: 11/10/14
Project: 2014-068C, F&BI 411156

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 411154-01 (Matrix Spike) Silica Gel

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	300	124	116	73-135	7

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	120	74-139

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

411156

SAMPLE CHAIN OF CUSTODY

ME 11-10-14

VOA / COC

Page # 1 of 3

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425 415-0551 Fax #

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	Notes
MW8-5	01	11/7/14	740	SOIL	5							(X)-per AJ
MW8-10	02		750				X	X				11/7/14
MW8-15	03		755									MG
MW8-20	04		805									
MW8-25	05		810			X	X	X				
MW8-30	06		820			X	X	X				
MW8-35	07		830									
MW8-40	08		840									
MW8-45	09		845			X	X	X				
MW8-50	10 (DUP)		850									

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3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Anna Jordan	Anna Jordan	RGI	11/10/14	1300
Received by:		Eric Hz	F&B	11/10/14	1300
Relinquished by:					
Received by:			Samples received at	3	

411156

SAMPLE CHAIN OF CUSTODY

ME 11-10-14

USA/Co

Page # 2 of 3

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425.415.0551 Fax # 425.415.0311

SAMPLERS (signature) Annajordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☑ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	Notes
MW8-55	11	11/7/14	910	SOIL	5	X	X	X				
MW8-60	12		925									
MW7-5	13		1105			X	X	X				
MW7-10	14		1110									
MW7-15	15		1115									
MW7-20	16		1125									
MW7-25	17		1130									
MW7-30	18		1145									
MW7-35	19		1155									
MW7-40	20		1200			X	X	X				

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3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by	Annajordan	Anna Jordan	RGI	11/10/14	1300
Received by		Eric Hsu	F&B	11/10	1322
Relinquished by:					
Received by:					

Samples received at 3 °C

411150

SAMPLE CHAIN OF CUSTODY

ME 11-10-14

VJ 4/6

Page # 3 of 3

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425-415-0551 Fax # 425-415-0311

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☑ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☑ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS						Notes
MW7-45	21	11/7/14	1210	SOIL	1												
MW7-50	22 A-E		1220		5		X	X									
MW7-55	23		1225		5												
MW7-60	24		1235		5		X	X									

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Anna Jordan	Anna Jordan	RGI	11/10/14	800
Received by:		Eric C	FCB	11/10	800
Relinquished by:					
Received by:			Samples received at 3 °C		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 12, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on November 5, 2014 from the 2014-068C, F&BI 411070 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG1112R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 5, 2014 by Friedman & Bruya, Inc. from the The Riley Group 2014-068C, F&BI 411070 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
411070 -01	MW6-5
411070 -02	MW6-10
411070 -03	MW6-15
411070 -04	MW6-25
411070 -05	MW6-26
411070 -06	MW6-30
411070 -07	MW6-35
411070 -08	MW6-40
411070 -09	MW6-41
411070 -10	MW6-45
411070 -11	MW6-50
411070 -12	MW6-55
411070 -13	MW6-60

All quality control requirements were acceptable.

Date of Report: 11/12/14
Date Received: 11/05/14
Project: 2014-068C, F&BI 411070
Date Analyzed: 11/06/14 and 11/07/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW6-10 411070-02	<0.02	<0.02	<0.02	<0.06	<2	101
MW6-35 411070-07	<0.02	<0.02	<0.02	<0.06	<2	100
MW6-40 411070-08	<0.02	<0.02	<0.02	<0.06	<2	101
MW6-41 411070-09	<0.02	0.053	0.039	0.077	38	102
MW6-45 411070-10	<0.02	<0.02	<0.02	<0.06	3.2	102
MW6-55 411070-12	<0.02	0.062	0.047	0.28	2.7	101
Method Blank 04-2241 MB	<0.02	<0.02	<0.02	<0.06	<2	100

Date of Report: 11/12/14
Date Received: 11/05/14
Project: 2014-068C, F&BI 411070
Date Extracted: 11/06/14
Date Analyzed: 11/06/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
MW6-45 411070-10	<50	<250	96
Method Blank 04-2262 MB2	<50	<250	86

Date of Report: 11/12/14
Date Received: 11/05/14
Project: 2014-068C, F&BI 411070

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 411062-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	97	69-120
Toluene	mg/kg (ppm)	0.5	98	70-117
Ethylbenzene	mg/kg (ppm)	0.5	98	65-123
Xylenes	mg/kg (ppm)	1.5	97	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

Date of Report: 11/12/14
Date Received: 11/05/14
Project: 2014-068C, F&BI 411070

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 411056-01 (Matrix Spike) Silica Gel

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	370	94	110	63-146	16

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	95	79-144

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

411070

SAMPLE CHAIN OF CUSTODY

ME 11-06-14 C03 / VS3

Page # 1 of 2

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425.415.0551 Fax # 425.415.0311

SAMPLERS (signature) annajordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS						Notes
MW6-5	01A-E	11/4/14	9:15	SOIL	5												
MW6-10	02		9:25		5		X	X									
MW6-15	03		9:45		1												
MW6-25	04A-E		10:10		5												
MW6-26	05		10:10		5												
MW6-30	06		10:30		5												
MW6-35	07		10:55		5		X	X									
MW6-40	08		11:15		5		X	X									
MW6-41	09		11:20		5		X	X									
MW6-45	10		12:30		5	X	X	X									

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: annajordan	Anna Jordan	RGI	11/5/14	2:30
Received by:	VINH	EBI	11/5/14	2:30 PM
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

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411070

SAMPLE CHAIN OF CUSTODY

ME 11-06-14

C03/VS3

Page # 2 of 2

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425.415.0551 Fax # 425.415.0311

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS						Notes
MW6-50	11A-E	11/4/14	13:05	SOIL	S												
MW6-55	12	↓	13:40	↓	S		X	X									
MW6-60	13	↓	14:10	↓	S												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: A. Jordan	Anna Jordan	RGI	11/5/14	2:40
Received by: Vinh	VINH	FBI	11/5/14	2:30 PM
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 23, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on October 16, 2014 from the University, PO 2014-068C, F&BI 410293 project. There are 45 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG1023R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 16, 2014 by Friedman & Bruya, Inc. from the The Riley Group University, PO 2014-068C, F&BI 410293 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
410293-01	MW2
410293-02	MW4
410293-03	MW3
410293-04	B3E
410293-05	MW5
410293-06	MW1

Bromomethane in the 8260C water laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analyte was not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	B3E	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/17/14	Lab ID:	410293-04
Date Analyzed:	10/20/14	Data File:	410293-04.020
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	102	60	125
Indium	98	60	125
Holmium	102	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	18.6
Selenium	<1
Silver	<1
Cadmium	<1
Barium	13.7
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW5	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/17/14	Lab ID:	410293-05
Date Analyzed:	10/20/14	Data File:	410293-05.021
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	95	60	125
Holmium	100	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	5.82
Selenium	<1
Silver	<1
Cadmium	<1
Barium	47.5
Lead	<1

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW1	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/17/14	Lab ID:	410293-06
Date Analyzed:	10/20/14	Data File:	410293-06.022
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	94	60	125
Indium	94	60	125
Holmium	99	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	1.78
Selenium	<1
Silver	<1
Cadmium	<1
Barium	43.3
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	The Riley Group
Date Received:	NA	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/17/14	Lab ID:	I4-645 mb2
Date Analyzed:	10/20/14	Data File:	I4-645 mb2.023
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	92	60	125
Indium	93	60	125
Holmium	95	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	<1
Selenium	<1
Silver	<1
Cadmium	<1
Barium	<1
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW2	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/20/14	Lab ID:	410293-01
Date Analyzed:	10/21/14	Data File:	410293-01.073
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	83	60	125

Analyte:	Concentration ug/L (ppb)
Lead	2.60

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW4	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/20/14	Lab ID:	410293-02
Date Analyzed:	10/21/14	Data File:	410293-02.074
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	87	60	125

Analyte:	Concentration ug/L (ppb)
Lead	3.32

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW3	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/20/14	Lab ID:	410293-03
Date Analyzed:	10/21/14	Data File:	410293-03.075
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	88	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	B3E	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/20/14	Lab ID:	410293-04
Date Analyzed:	10/23/14	Data File:	410293-04.009
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	94	60	125
Holmium	97	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	10.5
Arsenic	18.9
Selenium	<1
Silver	<1
Cadmium	<1
Barium	44.9
Lead	1.76

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW5	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/20/14	Lab ID:	410293-05
Date Analyzed:	10/23/14	Data File:	410293-05.010
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	60	125
Indium	90	60	125
Holmium	93	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	17.6
Arsenic	8.17
Selenium	<1
Silver	<1
Cadmium	<1
Barium	85.2
Lead	1.83

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW1	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/20/14	Lab ID:	410293-06
Date Analyzed:	10/23/14	Data File:	410293-06.011
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	92	60	125
Indium	89	60	125
Holmium	92	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	8.57
Arsenic	2.62
Selenium	<1
Silver	<1
Cadmium	<1
Barium	63.2
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	The Riley Group
Date Received:	NA	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/20/14	Lab ID:	I4-653 mb
Date Analyzed:	10/21/14	Data File:	I4-653 mb.046
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	93	60	125

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	The Riley Group
Date Received:	NA	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/20/14	Lab ID:	I4-653 mb
Date Analyzed:	10/23/14	Data File:	I4-653 mb.008
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	96	60	125
Holmium	100	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Arsenic	<1
Selenium	<1
Silver	<1
Cadmium	<1
Barium	<1
Lead	<1

Date of Report: 10/23/14
Date Received: 10/16/14
Project: University, PO 2014-068C, F&BI 410293
Date Extracted: 10/16/14
Date Analyzed: 10/17/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Total Mercury
B3E 410293-04	<0.1
MW5 410293-05	<0.1
MW1 410293-06	<0.1
Method Blank	<0.1

Date of Report: 10/23/14
Date Received: 10/16/14
Project: University, PO 2014-068C, F&BI 410293
Date Extracted: 10/16/14
Date Analyzed: 10/17/14

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED MERCURY USING EPA METHOD 1631E

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Dissolved Mercury
B3E 410293-04	<0.1
MW5 410293-05	<0.1
MW1 410293-06	<0.1
Method Blank	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW2	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	410293-01
Date Analyzed:	10/16/14	Data File:	101636.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	2.2
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW4	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	410293-02
Date Analyzed:	10/16/14	Data File:	101637.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	95	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW3	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	410293-03
Date Analyzed:	10/16/14	Data File:	101638.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	1.3
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	2.4
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	5.3
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	4.5	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B3E	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	410293-04
Date Analyzed:	10/17/14	Data File:	101639.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	109	63	127
4-Bromofluorobenzene	109	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	730 ve
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	2,400 ve
Methylene chloride	<5	o-Xylene	1,700 ve
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	77
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	300 ve
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	410 ve
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	1,300 ve	1,2,4-Trimethylbenzene	660 ve
Trichloroethene	<1	sec-Butylbenzene	10
1,2-Dichloropropane	<1	p-Isopropyltoluene	5.0
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	1,800 ve	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	360 ve
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B3E	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/17/14	Lab ID:	410293-04 1/100
Date Analyzed:	10/17/14	Data File:	101714.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<100
Chloromethane	<1,000
Vinyl chloride	<20
Bromomethane	<100
Chloroethane	<100
Trichlorofluoromethane	<100
Acetone	<1,000
1,1-Dichloroethene	<100
Methylene chloride	<500
Methyl t-butyl ether (MTBE)	<100
trans-1,2-Dichloroethene	<100
1,1-Dichloroethane	<100
2,2-Dichloropropane	<100
cis-1,2-Dichloroethene	<100
Chloroform	<100
2-Butanone (MEK)	<1,000
1,2-Dichloroethane (EDC)	<100
1,1,1-Trichloroethane	<100
1,1-Dichloropropene	<100
Carbon tetrachloride	<100
Benzene	10,000
Trichloroethene	<100
1,2-Dichloropropane	<100
Bromodichloromethane	<100
Dibromomethane	<100
4-Methyl-2-pentanone	<1,000
cis-1,3-Dichloropropene	<100
Toluene	11,000
trans-1,3-Dichloropropene	<100
1,1,2-Trichloroethane	<100
2-Hexanone	<1,000

Compounds:	Concentration ug/L (ppb)
1,3-Dichloropropane	<100
Tetrachloroethene	<100
Dibromochloromethane	<100
1,2-Dibromoethane (EDB)	<100
Chlorobenzene	<100
Ethylbenzene	3,600
1,1,1,2-Tetrachloroethane	<100
m,p-Xylene	12,000
o-Xylene	5,800
Styrene	<100
Isopropylbenzene	<100
Bromoform	<100
n-Propylbenzene	280
Bromobenzene	<100
1,3,5-Trimethylbenzene	460
1,1,2,2-Tetrachloroethane	<100
1,2,3-Trichloropropane	<100
2-Chlorotoluene	<100
4-Chlorotoluene	<100
tert-Butylbenzene	<100
1,2,4-Trimethylbenzene	1,800
sec-Butylbenzene	<100
p-Isopropyltoluene	<100
1,3-Dichlorobenzene	<100
1,4-Dichlorobenzene	<100
1,2-Dichlorobenzene	<100
1,2-Dibromo-3-chloropropane	<1,000
1,2,4-Trichlorobenzene	<100
Hexachlorobutadiene	<100
Naphthalene	380
1,2,3-Trichlorobenzene	<100

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW5	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	410293-05
Date Analyzed:	10/17/14	Data File:	101640.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	108	63	127
4-Bromofluorobenzene	113	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	800 ve
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	2,700 ve
Methylene chloride	<5	o-Xylene	1,800 ve
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	120
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	390 ve
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	85
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	1,100 ve	1,2,4-Trimethylbenzene	800 ve
Trichloroethene	<1	sec-Butylbenzene	15
1,2-Dichloropropane	<1	p-Isopropyltoluene	7.1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	1,800 ve	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	410 ve
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW5	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/17/14	Lab ID:	410293-05 1/100
Date Analyzed:	10/17/14	Data File:	101715.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<100	1,3-Dichloropropane	<100
Chloromethane	<1,000	Tetrachloroethene	<100
Vinyl chloride	<20	Dibromochloromethane	<100
Bromomethane	<100	1,2-Dibromoethane (EDB)	<100
Chloroethane	<100	Chlorobenzene	<100
Trichlorofluoromethane	<100	Ethylbenzene	4,100
Acetone	<1,000	1,1,1,2-Tetrachloroethane	<100
1,1-Dichloroethene	<100	m,p-Xylene	15,000
Methylene chloride	<500	o-Xylene	6,500
Methyl t-butyl ether (MTBE)	<100	Styrene	<100
trans-1,2-Dichloroethene	<100	Isopropylbenzene	150
1,1-Dichloroethane	<100	Bromoform	<100
2,2-Dichloropropane	<100	n-Propylbenzene	430
cis-1,2-Dichloroethene	<100	Bromobenzene	<100
Chloroform	<100	1,3,5-Trimethylbenzene	770
2-Butanone (MEK)	<1,000	1,1,2,2-Tetrachloroethane	<100
1,2-Dichloroethane (EDC)	<100	1,2,3-Trichloropropane	<100
1,1,1-Trichloroethane	<100	2-Chlorotoluene	<100
1,1-Dichloropropene	<100	4-Chlorotoluene	<100
Carbon tetrachloride	<100	tert-Butylbenzene	<100
Benzene	6,000	1,2,4-Trimethylbenzene	2,600
Trichloroethene	<100	sec-Butylbenzene	<100
1,2-Dichloropropane	<100	p-Isopropyltoluene	<100
Bromodichloromethane	<100	1,3-Dichlorobenzene	<100
Dibromomethane	<100	1,4-Dichlorobenzene	<100
4-Methyl-2-pentanone	<1,000	1,2-Dichlorobenzene	<100
cis-1,3-Dichloropropene	<100	1,2-Dibromo-3-chloropropane	<1,000
Toluene	11,000	1,2,4-Trichlorobenzene	<100
trans-1,3-Dichloropropene	<100	Hexachlorobutadiene	<100
1,1,2-Trichloroethane	<100	Naphthalene	530
2-Hexanone	<1,000	1,2,3-Trichlorobenzene	<100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW1	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/17/14	Lab ID:	410293-06
Date Analyzed:	10/17/14	Data File:	101712.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	16
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	89
Methylene chloride	<5	o-Xylene	67
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	25
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	25	1,2,4-Trimethylbenzene	5.1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	2.4
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	72	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	3.3
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	04-2090 mb
Date Analyzed:	10/16/14	Data File:	101627.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	95	63	127
4-Bromofluorobenzene	95	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/17/14	Lab ID:	04-2092 mb
Date Analyzed:	10/17/14	Data File:	101708.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B3E	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	410293-04 1/20
Date Analyzed:	10/17/14	Data File:	101709.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	128 d	50	150
Benzo(a)anthracene-d12	94 d	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	370 ve
Acenaphthylene	<1
Acenaphthene	<1
Fluorene	2.4
Phenanthrene	2.6
Anthracene	<1
Fluoranthene	<1
Pyrene	<1
Benz(a)anthracene	<1
Chrysene	<1
Benzo(a)pyrene	<1
Benzo(b)fluoranthene	<1
Benzo(k)fluoranthene	<1
Indeno(1,2,3-cd)pyrene	<1
Dibenz(a,h)anthracene	<1
Benzo(g,h,i)perylene	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B3E	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	410293-04 1/200
Date Analyzed:	10/20/14	Data File:	102006.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	220 d	50	150
Benzo(a)anthracene-d12	84 d	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	380
Acenaphthylene	<10
Acenaphthene	<10
Fluorene	<10
Phenanthrene	<10
Anthracene	<10
Fluoranthene	<10
Pyrene	<10
Benz(a)anthracene	<10
Chrysene	<10
Benzo(a)pyrene	<10
Benzo(b)fluoranthene	<10
Benzo(k)fluoranthene	<10
Indeno(1,2,3-cd)pyrene	<10
Dibenz(a,h)anthracene	<10
Benzo(g,h,i)perylene	<10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW5	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	410293-05 1/20
Date Analyzed:	10/17/14	Data File:	101710.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	123 d	50	150
Benzo(a)anthracene-d12	94 d	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	400 ve
Acenaphthylene	<1
Acenaphthene	<1
Fluorene	2.0
Phenanthrene	2.0
Anthracene	<1
Fluoranthene	<1
Pyrene	<1
Benz(a)anthracene	<1
Chrysene	<1
Benzo(a)pyrene	<1
Benzo(b)fluoranthene	<1
Benzo(k)fluoranthene	<1
Indeno(1,2,3-cd)pyrene	<1
Dibenz(a,h)anthracene	<1
Benzo(g,h,i)perylene	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW5	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	410293-05 1/200
Date Analyzed:	10/20/14	Data File:	102007.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	349 d	50	150
Benzo(a)anthracene-d12	94 d	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	400
Acenaphthylene	<10
Acenaphthene	<10
Fluorene	<10
Phenanthrene	<10
Anthracene	<10
Fluoranthene	<10
Pyrene	<10
Benz(a)anthracene	<10
Chrysene	<10
Benzo(a)pyrene	<10
Benzo(b)fluoranthene	<10
Benzo(k)fluoranthene	<10
Indeno(1,2,3-cd)pyrene	<10
Dibenz(a,h)anthracene	<10
Benzo(g,h,i)perylene	<10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW1	Client:	The Riley Group
Date Received:	10/16/14	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	410293-06 1/2
Date Analyzed:	10/17/14	Data File:	101714A.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	50	150
Benzo(a)anthracene-d12	88	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	4.5
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	0.12
Phenanthrene	0.13
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	University, PO 2014-068C, F&BI 410293
Date Extracted:	10/16/14	Lab ID:	04-2106 mb 1/2
Date Analyzed:	10/17/14	Data File:	101705.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	50	150
Benzo(a)anthracene-d12	102	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Date of Report: 10/23/14
Date Received: 10/16/14
Project: University, PO 2014-068C, F&BI 410293

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 410304-05 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	95	69-134

Date of Report: 10/23/14
Date Received: 10/16/14
Project: University, PO 2014-068C, F&BI 410293

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	100	100	58-134	0

Date of Report: 10/23/14
Date Received: 10/16/14
Project: University, PO 2014-068C, F&BI 410293

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 410243-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	ug/L (ppb)	20	<1	102	104	64-132	2
Arsenic	ug/L (ppb)	10	<1	92	94	60-150	2
Selenium	ug/L (ppb)	5	<1	95	95	43-178	0
Silver	ug/L (ppb)	5	<1	92	94	71-115	2
Cadmium	ug/L (ppb)	5	<1	98	100	83-116	2
Barium	ug/L (ppb)	50	<1	99	101	79-126	2
Lead	ug/L (ppb)	10	<1	99	99	79-121	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	103	80-119
Arsenic	ug/L (ppb)	10	91	80-111
Selenium	ug/L (ppb)	5	101	81-119
Silver	ug/L (ppb)	5	95	80-116
Cadmium	ug/L (ppb)	5	101	83-113
Barium	ug/L (ppb)	50	99	83-117
Lead	ug/L (ppb)	10	101	83-115

Date of Report: 10/23/14
Date Received: 10/16/14
Project: University, PO 2014-068C, F&BI 410293

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 410332-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	ug/L (ppb)	20	<1	102	100	64-132	2
Arsenic	ug/L (ppb)	10	<1	104	99	60-150	5
Selenium	ug/L (ppb)	5	<1	110	105	43-178	5
Silver	ug/L (ppb)	5	<1	98	93	71-115	5
Cadmium	ug/L (ppb)	5	<1	110	105	83-116	5
Barium	ug/L (ppb)	50	2.66	110	102	79-126	8
Lead	ug/L (ppb)	10	<1	110	102	79-121	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	93	80-119
Arsenic	ug/L (ppb)	10	95	80-111
Selenium	ug/L (ppb)	5	101	81-119
Silver	ug/L (ppb)	5	88	80-116
Cadmium	ug/L (ppb)	5	99	83-113
Barium	ug/L (ppb)	50	99	83-117
Lead	ug/L (ppb)	10	99	83-115

Date of Report: 10/23/14
Date Received: 10/16/14
Project: University, PO 2014-068C, F&BI 410293

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 410287-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	113	10-172
Chloromethane	ug/L (ppb)	50	<10	99	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	106	36-166
Bromomethane	ug/L (ppb)	50	<1	148	47-169
Chloroethane	ug/L (ppb)	50	<1	112	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	111	44-165
Acetone	ug/L (ppb)	250	<10	96	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	96	60-136
Methylene chloride	ug/L (ppb)	50	<5	106	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	104	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	97	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	100	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	113	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	101	71-127
Chloroform	ug/L (ppb)	50	<1	98	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	101	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	97	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	106	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	98	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	106	56-152
Benzene	ug/L (ppb)	50	<0.35	97	76-125
Trichloroethene	ug/L (ppb)	50	<1	93	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	103	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	104	61-150
Dibromomethane	ug/L (ppb)	50	<1	102	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	105	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	108	72-132
Toluene	ug/L (ppb)	50	<1	97	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	113	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	96	68-131
2-Hexanone	ug/L (ppb)	250	<10	97	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	101	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	101	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	110	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	103	69-134
Chlorobenzene	ug/L (ppb)	50	<1	95	77-122
Ethylbenzene	ug/L (ppb)	50	<1	98	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	107	73-137
m,p-Xylene	ug/L (ppb)	100	<2	98	69-135
o-Xylene	ug/L (ppb)	50	<1	103	60-140
Styrene	ug/L (ppb)	50	<1	103	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	102	65-142
Bromoform	ug/L (ppb)	50	<1	103	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	101	58-144
Bromobenzene	ug/L (ppb)	50	<1	99	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	103	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	102	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	101	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	101	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	99	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	107	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	99	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	105	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	104	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	99	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	98	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	100	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	112	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	103	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	102	60-143
Naphthalene	ug/L (ppb)	50	<1	107	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	106	69-148

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	113	101	25-158	11
Chloromethane	ug/L (ppb)	50	100	95	45-156	5
Vinyl chloride	ug/L (ppb)	50	108	101	50-154	7
Bromomethane	ug/L (ppb)	50	151 vo	145 vo	55-143	4
Chloroethane	ug/L (ppb)	50	113	109	58-146	4
Trichlorofluoromethane	ug/L (ppb)	250	119	111	50-150	7
Acetone	ug/L (ppb)	250	103	96	53-131	7
1,1-Dichloroethene	ug/L (ppb)	50	102	96	67-136	6
Methylene chloride	ug/L (ppb)	50	111	104	39-148	7
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	107	103	64-147	4
trans-1,2-Dichloroethene	ug/L (ppb)	50	104	98	68-128	6
1,1-Dichloroethane	ug/L (ppb)	50	106	102	79-121	4
2,2-Dichloropropane	ug/L (ppb)	50	118	111	55-143	6
cis-1,2-Dichloroethene	ug/L (ppb)	50	107	101	80-123	6
Chloroform	ug/L (ppb)	50	105	100	80-121	5
2-Butanone (MEK)	ug/L (ppb)	250	106	103	57-149	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	106	99	73-132	7
1,1,1-Trichloroethane	ug/L (ppb)	50	112	107	83-130	5
1,1-Dichloropropene	ug/L (ppb)	50	106	100	77-129	6
Carbon tetrachloride	ug/L (ppb)	50	114	107	75-158	6
Benzene	ug/L (ppb)	50	104	99	69-134	5
Trichloroethene	ug/L (ppb)	50	100	99	80-120	1
1,2-Dichloropropane	ug/L (ppb)	50	109	107	77-123	2
Bromodichloromethane	ug/L (ppb)	50	111	109	81-133	2
Dibromomethane	ug/L (ppb)	50	109	105	82-125	4
4-Methyl-2-pentanone	ug/L (ppb)	250	111	110	65-138	1
cis-1,3-Dichloropropene	ug/L (ppb)	50	117	114	82-132	3
Toluene	ug/L (ppb)	50	105	99	72-122	6
trans-1,3-Dichloropropene	ug/L (ppb)	50	121	116	80-136	4
1,1,2-Trichloroethane	ug/L (ppb)	50	103	100	75-124	3
2-Hexanone	ug/L (ppb)	250	103	104	60-136	1
1,3-Dichloropropane	ug/L (ppb)	50	108	105	76-126	3
Tetrachloroethene	ug/L (ppb)	50	108	103	76-121	5
Dibromochloromethane	ug/L (ppb)	50	118	113	84-133	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	110	108	82-125	2
Chlorobenzene	ug/L (ppb)	50	103	99	83-114	4
Ethylbenzene	ug/L (ppb)	50	106	101	77-124	5
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	114	108	84-127	5
m,p-Xylene	ug/L (ppb)	100	106	101	83-125	5
o-Xylene	ug/L (ppb)	50	110	105	81-121	5
Styrene	ug/L (ppb)	50	111	107	84-119	4
Isopropylbenzene	ug/L (ppb)	50	110	104	85-117	6
Bromoform	ug/L (ppb)	50	109	107	74-136	2
n-Propylbenzene	ug/L (ppb)	50	108	104	74-126	4
Bromobenzene	ug/L (ppb)	50	107	104	80-121	3
1,3,5-Trimethylbenzene	ug/L (ppb)	50	111	105	78-123	6
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	108	101	66-126	7
1,2,3-Trichloropropane	ug/L (ppb)	50	106	104	67-124	2
2-Chlorotoluene	ug/L (ppb)	50	108	103	77-127	5
4-Chlorotoluene	ug/L (ppb)	50	107	104	78-128	3
tert-Butylbenzene	ug/L (ppb)	50	115	107	80-123	7
1,2,4-Trimethylbenzene	ug/L (ppb)	50	107	102	79-122	5
sec-Butylbenzene	ug/L (ppb)	50	113	106	80-125	6
p-Isopropyltoluene	ug/L (ppb)	50	112	106	81-123	6
1,3-Dichlorobenzene	ug/L (ppb)	50	106	102	85-116	4
1,4-Dichlorobenzene	ug/L (ppb)	50	105	102	84-121	3
1,2-Dichlorobenzene	ug/L (ppb)	50	108	102	85-116	6
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	115	110	57-141	4
1,2,4-Trichlorobenzene	ug/L (ppb)	50	109	102	72-130	7
Hexachlorobutadiene	ug/L (ppb)	50	110	101	53-141	9
Naphthalene	ug/L (ppb)	50	113	106	64-133	6
1,2,3-Trichlorobenzene	ug/L (ppb)	50	112	104	65-136	7

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 410325-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	109	10-172
Chloromethane	ug/L (ppb)	50	<10	96	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	103	36-166
Bromomethane	ug/L (ppb)	50	<1	145	47-169
Chloroethane	ug/L (ppb)	50	<1	110	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	108	44-165
Acetone	ug/L (ppb)	250	<10	90	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	93	60-136
Methylene chloride	ug/L (ppb)	50	<5	103	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	100	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	94	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	98	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	121	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	98	71-127
Chloroform	ug/L (ppb)	50	<1	95	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	93	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	94	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	103	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	95	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	104	56-152
Benzene	ug/L (ppb)	50	<0.35	94	76-125
Trichloroethene	ug/L (ppb)	50	<1	90	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	101	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	99	61-150
Dibromomethane	ug/L (ppb)	50	<1	98	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	99	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	105	72-132
Toluene	ug/L (ppb)	50	<1	95	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	107	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	93	68-131
2-Hexanone	ug/L (ppb)	250	<10	94	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	97	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	97	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	100	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	99	69-134
Chlorobenzene	ug/L (ppb)	50	<1	92	77-122
Ethylbenzene	ug/L (ppb)	50	<1	95	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	105	73-137
m,p-Xylene	ug/L (ppb)	100	<2	95	69-135
o-Xylene	ug/L (ppb)	50	<1	100	60-140
Styrene	ug/L (ppb)	50	<1	98	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	98	65-142
Bromoform	ug/L (ppb)	50	<1	87	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	97	58-144
Bromobenzene	ug/L (ppb)	50	<1	95	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	99	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	99	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	95	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	96	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	95	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	102	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	95	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	101	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	99	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	95	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	94	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	96	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	106	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	98	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	100	60-143
Naphthalene	ug/L (ppb)	50	<1	101	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	100	69-148

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	86	93	25-158	8
Chloromethane	ug/L (ppb)	50	82	89	45-156	8
Vinyl chloride	ug/L (ppb)	50	89	98	50-154	10
Bromomethane	ug/L (ppb)	50	127	127	55-143	0
Chloroethane	ug/L (ppb)	50	98	101	58-146	3
Trichlorofluoromethane	ug/L (ppb)	250	99	103	50-150	4
Acetone	ug/L (ppb)	250	93	98	53-131	5
1,1-Dichloroethene	ug/L (ppb)	50	86	94	67-136	9
Methylene chloride	ug/L (ppb)	50	93	101	39-148	8
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	93	100	64-147	7
trans-1,2-Dichloroethene	ug/L (ppb)	50	86	93	68-128	8
1,1-Dichloroethane	ug/L (ppb)	50	89	95	79-121	7
2,2-Dichloropropane	ug/L (ppb)	50	117	125	55-143	7
cis-1,2-Dichloroethene	ug/L (ppb)	50	90	98	80-123	9
Chloroform	ug/L (ppb)	50	88	95	80-121	8
2-Butanone (MEK)	ug/L (ppb)	250	92	101	57-149	9
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	88	94	73-132	7
1,1,1-Trichloroethane	ug/L (ppb)	50	98	103	83-130	5
1,1-Dichloropropene	ug/L (ppb)	50	88	94	77-129	7
Carbon tetrachloride	ug/L (ppb)	50	101	108	75-158	7
Benzene	ug/L (ppb)	50	87	95	69-134	9
Trichloroethene	ug/L (ppb)	50	84	91	80-120	8
1,2-Dichloropropane	ug/L (ppb)	50	93	100	77-123	7
Bromodichloromethane	ug/L (ppb)	50	95	102	81-133	7
Dibromomethane	ug/L (ppb)	50	91	100	82-125	9
4-Methyl-2-pentanone	ug/L (ppb)	250	97	105	65-138	8
cis-1,3-Dichloropropene	ug/L (ppb)	50	101	111	82-132	9
Toluene	ug/L (ppb)	50	87	94	72-122	8
trans-1,3-Dichloropropene	ug/L (ppb)	50	106	115	80-136	8
1,1,2-Trichloroethane	ug/L (ppb)	50	86	93	75-124	8
2-Hexanone	ug/L (ppb)	250	90	98	60-136	9
1,3-Dichloropropane	ug/L (ppb)	50	90	98	76-126	9
Tetrachloroethene	ug/L (ppb)	50	91	98	76-121	7
Dibromochloromethane	ug/L (ppb)	50	101	110	84-133	9
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	93	100	82-125	7
Chlorobenzene	ug/L (ppb)	50	85	92	83-114	8
Ethylbenzene	ug/L (ppb)	50	89	96	77-124	8
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	99	107	84-127	8
m,p-Xylene	ug/L (ppb)	100	90	96	83-125	6
o-Xylene	ug/L (ppb)	50	93	100	81-121	7
Styrene	ug/L (ppb)	50	93	100	84-119	7
Isopropylbenzene	ug/L (ppb)	50	92	99	85-117	7
Bromoform	ug/L (ppb)	50	100	108	74-136	8
n-Propylbenzene	ug/L (ppb)	50	91	98	74-126	7
Bromobenzene	ug/L (ppb)	50	88	97	80-121	10
1,3,5-Trimethylbenzene	ug/L (ppb)	50	92	99	78-123	7
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	92	100	66-126	8
1,2,3-Trichloropropane	ug/L (ppb)	50	89	98	67-124	10
2-Chlorotoluene	ug/L (ppb)	50	89	97	77-127	9
4-Chlorotoluene	ug/L (ppb)	50	89	96	78-128	8
tert-Butylbenzene	ug/L (ppb)	50	94	102	80-123	8
1,2,4-Trimethylbenzene	ug/L (ppb)	50	88	96	79-122	9
sec-Butylbenzene	ug/L (ppb)	50	95	102	80-125	7
p-Isopropyltoluene	ug/L (ppb)	50	94	100	81-123	6
1,3-Dichlorobenzene	ug/L (ppb)	50	89	97	85-116	9
1,4-Dichlorobenzene	ug/L (ppb)	50	89	96	84-121	8
1,2-Dichlorobenzene	ug/L (ppb)	50	89	96	85-116	8
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	103	112	67-141	8
1,2,4-Trichlorobenzene	ug/L (ppb)	50	90	96	72-130	6
Hexachlorobutadiene	ug/L (ppb)	50	93	99	53-141	6
Naphthalene	ug/L (ppb)	50	92	100	64-133	8
1,2,3-Trichlorobenzene	ug/L (ppb)	50	91	98	65-136	7

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	96	95	67-116	1
Acenaphthylene	ug/L (ppb)	1	102	101	65-119	1
Acenaphthene	ug/L (ppb)	1	97	96	66-118	1
Fluorene	ug/L (ppb)	1	100	100	64-125	0
Phenanthrene	ug/L (ppb)	1	96	96	67-120	0
Anthracene	ug/L (ppb)	1	98	98	65-122	0
Fluoranthene	ug/L (ppb)	1	100	99	65-127	1
Pyrene	ug/L (ppb)	1	99	98	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	101	100	60-118	1
Chrysene	ug/L (ppb)	1	99	98	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	99	101	55-135	2
Benzo(k)fluoranthene	ug/L (ppb)	1	104	98	62-125	6
Benzo(a)pyrene	ug/L (ppb)	1	102	101	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	98	98	36-142	0
Dibenz(a,h)anthracene	ug/L (ppb)	1	88	87	37-133	1
Benzo(g,h,i)perylene	ug/L (ppb)	1	93	89	34-135	4

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

410293

SAMPLE CHAIN OF CUSTODY

ME 10/16/14 A04/VB1

Page # 1 of 1

Send Report To Anna Jordan

Company The Riley Group, Inc.

Address 17522 Bothell Way NE

City, State, ZIP Bothell, WA 98011

Phone # 425-415-0551 Fax # 425-415-0311

SAMPLERS (signature) Mike Gipson

PROJECT NAME/NO. University

PO# 2014-068C

REMARKS

TURNAROUND TIME
- ☒ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel X	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Total Pb.	PAHs	RCRA 8 Metals	Notes
MW2	01 A-K	10/15/14	11:45	W	11		X		X			X			
MW4	02		13:30			X	X		X			X			
MW3	03		14:30			X	X		X			X			
B3E	04		15:20			X	X		X				X	X	
MW5	05		16:10			X	X		X				X	X	
MW1	06		16:50			X	X		X				X	X	

Samples received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Mike Gipson	Mike Gipson	RGI	10/15/14	1:00
Received by: EK	JAMES KOCHER	POSTAL EXPRESS	10/16/14	1:25
Relinquished by:				
Received by:	Nhan Phi...			

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 21, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on October 9, 2014 from the 2014-068C, F&BI 410152 project. There are 30 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG1021R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 9, 2014 by Friedman & Bruya, Inc. from the The Riley Group 2014-068C, F&BI 410152 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
410152-01	MW1-25
410152-02	MW1-30.5
410152-03	MW1-35
410152-04	MW1-46
410152-05	MW1-51
410152-06	MW1-56
410152-07	MW1-60
410152-08	MW1-70
410152-09	MW5-5
410152-10	MW5-15
410152-11	MW5-20
410152-12	MW5-25
410152-13	MW5-35
410152-14	MW5-40
410152-15	MW5-45
410152-16	MW5-50
410152-17	MW5-55
410152-18	MW5-60
410152-19	MW5-62.5
410152-20	MW5-65

All quality control requirements were acceptable.

Date of Report: 10/21/14
Date Received: 10/09/14
Project: 2014-068C, F&BI 410152
Date Extracted: 10/14/14
Date Analyzed: 10/14/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 53-144)
MW5-50 410152-16	ND	ND	ND	98
Method Blank 04-2082 MB	ND	ND	ND	107

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Date of Report: 10/21/14
Date Received: 10/09/14
Project: 2014-068C, F&BI 410152
Date Extracted: 10/14/14 and 10/16/14
Date Analyzed: 10/14/14 and 10/16/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
MW1-25 410152-01	<2	84
MW1-30.5 410152-02 1/10	73	88
MW5-40 410152-14 1/50	6,300	136
Method Blank 04-2064 MB	<2	86
Method Blank 04-2070 MB	<2	84

Date of Report: 10/21/14
Date Received: 10/09/14
Project: 2014-068C, F&BI 410152
Date Extracted: 10/14/14
Date Analyzed: 10/14/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
MW1-35 410152-03	<0.02	<0.02	<0.02	<0.06	<2	87
MW1-51 410152-05	<0.02	<0.02	<0.02	<0.06	<2	85
MW1-60 410152-07	<0.02	<0.02	<0.02	<0.06	<2	81
MW5-5 410152-09	<0.02	<0.02	<0.02	<0.06	<2	87
MW5-15 410152-10	<0.02	<0.02	<0.02	<0.06	<2	85
MW5-25 410152-12	<0.02	<0.02	<0.02	<0.06	<2	86
MW5-50 410152-16 1/2	0.70	1.1	0.90	4.8	48	91
MW5-55 410152-17	0.18	0.14	0.10	0.37	4.1	86
MW5-60 410152-18 1/2	0.31	0.67	0.74	4.7	45	92
MW5-65 410152-20 1/2	0.061	0.23	0.27	1.7	20	88
Method Blank 04-2064 MB	<0.02	<0.02	<0.02	<0.06	<2	95

Date of Report: 10/21/14
Date Received: 10/09/14
Project: 2014-068C, F&BI 410152
Date Extracted: 10/16/14
Date Analyzed: 10/16/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
MW5-40 410152-14	680	<250	81
Method Blank 04-2105 MB	<50	<250	80

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW5-20	Client:	The Riley Group
Date Received:	10/09/14	Project:	2014-068C, F&BI 410152
Date Extracted:	10/21/14	Lab ID:	410152-11
Date Analyzed:	10/21/14	Data File:	410152-11.055
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	92	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	2.11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW5-25	Client:	The Riley Group
Date Received:	10/09/14	Project:	2014-068C, F&BI 410152
Date Extracted:	10/21/14	Lab ID:	410152-12
Date Analyzed:	10/21/14	Data File:	410152-12.056
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	89	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	2.13

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW5-40	Client:	The Riley Group
Date Received:	10/09/14	Project:	2014-068C, F&BI 410152
Date Extracted:	10/21/14	Lab ID:	410152-14
Date Analyzed:	10/21/14	Data File:	410152-14.057
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	102	60	125
Indium	91	60	125
Holmium	92	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	9.15
Arsenic	<1
Selenium	<1
Silver	<1
Cadmium	<1
Barium	20.7
Lead	1.76
Mercury	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW1-25	Client:	The Riley Group
Date Received:	10/09/14	Project:	2014-068C, F&BI 410152
Date Extracted:	10/15/14	Lab ID:	410152-01
Date Analyzed:	10/15/14	Data File:	101506.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	90	111
Toluene-d8	99	64	137
4-Bromofluorobenzene	97	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	0.13
Methylene chloride	<0.5	o-Xylene	0.051
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	0.050
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW1-30.5	Client:	The Riley Group
Date Received:	10/09/14	Project:	2014-068C, F&BI 410152
Date Extracted:	10/15/14	Lab ID:	410152-02
Date Analyzed:	10/15/14	Data File:	101507.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	90	111
Toluene-d8	107	64	137
4-Bromofluorobenzene	103	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.15
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	0.14
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	0.067
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	0.11
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	0.25
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	0.12
Trichloroethene	<0.02	sec-Butylbenzene	0.052
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	0.075
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	0.13
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW5-40	Client:	The Riley Group
Date Received:	10/09/14	Project:	2014-068C, F&BI 410152
Date Extracted:	10/13/14	Lab ID:	410152-14
Date Analyzed:	10/13/14	Data File:	101350.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	90	111
Toluene-d8	108	64	137
4-Bromofluorobenzene	102	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	41 ve
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	170 ve
Methylene chloride	<0.5	o-Xylene	56 ve
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	3.9
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	19 ve
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	35 ve
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	4.0	1,2,4-Trimethylbenzene	85 ve
Trichloroethene	<0.02	sec-Butylbenzene	1.6
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	0.63
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	26 ve	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	11
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW5-40	Client:	The Riley Group
Date Received:	10/09/14	Project:	2014-068C, F&BI 410152
Date Extracted:	10/13/14	Lab ID:	410152-14 1/100
Date Analyzed:	10/14/14	Data File:	101405.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	111
Toluene-d8	105	64	137
4-Bromofluorobenzene	100	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<50	1,3-Dichloropropane	<5
Chloromethane	<50	Tetrachloroethene	<2.5
Vinyl chloride	<5	Dibromochloromethane	<5
Bromomethane	<50	1,2-Dibromoethane (EDB)	<5
Chloroethane	<50	Chlorobenzene	<5
Trichlorofluoromethane	<50	Ethylbenzene	44
Acetone	<50	1,1,1,2-Tetrachloroethane	<5
1,1-Dichloroethene	<5	m,p-Xylene	190
Methylene chloride	<50	o-Xylene	60
Methyl t-butyl ether (MTBE)	<5	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	20
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	38
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon tetrachloride	<5	tert-Butylbenzene	<5
Benzene	5.4	1,2,4-Trimethylbenzene	110
Trichloroethene	<2	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<50
Toluene	28	1,2,4-Trichlorobenzene	<25
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<25
1,1,2-Trichloroethane	<5	Naphthalene	11
2-Hexanone	<50	1,2,3-Trichlorobenzene	<25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	2014-068C, F&BI 410152
Date Extracted:	10/13/14	Lab ID:	04-2053 mb
Date Analyzed:	10/13/14	Data File:	101334.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	111
Toluene-d8	104	64	137
4-Bromofluorobenzene	101	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	2014-068C, F&BI 410152
Date Extracted:	10/15/14	Lab ID:	04-2056 mb2
Date Analyzed:	10/15/14	Data File:	101505.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	111
Toluene-d8	97	64	137
4-Bromofluorobenzene	97	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW5-40	Client:	The Riley Group
Date Received:	10/09/14	Project:	2014-068C, F&BI 410152
Date Extracted:	10/16/14	Lab ID:	410152-14 1/5
Date Analyzed:	10/16/14	Data File:	101617.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	115	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.26
Acenaphthylene	<0.01
Acenaphthene	0.092
Fluorene	0.29
Phenanthrene	0.57
Anthracene	<0.01
Fluoranthene	0.023
Pyrene	0.061
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	2014-068C, F&BI 410152
Date Extracted:	10/16/14	Lab ID:	04-2098 mb2 1/5
Date Analyzed:	10/16/14	Data File:	101614.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	50	150
Benzo(a)anthracene-d12	102	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 10/21/14
Date Received: 10/09/14
Project: 2014-068C, F&BI 410152

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 410212-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	18	10-56
Chloromethane	mg/kg (ppm)	2.5	<0.5	39	10-90
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	42	10-91
Bromomethane	mg/kg (ppm)	2.5	<0.5	61	10-110
Chloroethane	mg/kg (ppm)	2.5	<0.5	58	10-101
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	54	10-95
Acetone	mg/kg (ppm)	12.5	<0.5	87	11-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	62	11-103
Methylene chloride	mg/kg (ppm)	2.5	<0.5	80	14-128
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	90	17-134
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	75	13-112
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	79	23-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	88	18-117
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	83	25-120
Chloroform	mg/kg (ppm)	2.5	<0.05	83	29-117
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	91	26-133
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	85	22-124
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	84	27-112
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	80	26-107
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	87	22-115
Benzene	mg/kg (ppm)	2.5	<0.03	75	26-114
Trichloroethene	mg/kg (ppm)	2.5	<0.02	83	30-112
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	80	31-119
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	90	31-131
Dibromomethane	mg/kg (ppm)	2.5	<0.05	87	27-124
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	97	16-147
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	86	28-137
Toluene	mg/kg (ppm)	2.5	<0.05	79	34-112
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	85	30-136
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	85	32-126
2-Hexanone	mg/kg (ppm)	12.5	<0.5	80	17-147
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	79	29-125
Tetrachloroethene	mg/kg (ppm)	2.5	0.026	83	27-110
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	88	32-143
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	86	32-126
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	85	37-113
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	86	38-111
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	93	35-126
m,p-Xylene	mg/kg (ppm)	5	<0.1	89	38-112
o-Xylene	mg/kg (ppm)	2.5	<0.05	87	38-113
Styrene	mg/kg (ppm)	2.5	<0.05	92	38-118
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	96	37-114
Bromoform	mg/kg (ppm)	2.5	<0.05	87	18-155
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	86	36-114
Bromobenzene	mg/kg (ppm)	2.5	<0.05	83	40-115
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	91	35-116
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	80	33-128
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	82	33-123
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	85	39-110
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	86	39-111
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	96	36-116
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	92	35-116
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	92	33-118
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	93	32-119
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	87	38-111
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	83	39-109
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	85	40-111
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	80	34-134
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	84	31-117
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	85	25-122
Naphthalene	mg/kg (ppm)	2.5	<0.05	88	39-120
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	85	35-117

Date of Report: 10/21/14
Date Received: 10/09/14
Project: 2014-068C, F&BI 410152

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	58	58	10-76	0
Chloromethane	mg/kg (ppm)	2.5	58	60	34-98	3
Vinyl chloride	mg/kg (ppm)	2.5	72	70	42-107	3
Bromomethane	mg/kg (ppm)	2.5	82	81	46-113	1
Chloroethane	mg/kg (ppm)	2.5	77	78	47-115	1
Trichlorofluoromethane	mg/kg (ppm)	2.5	90	89	53-112	1
Acetone	mg/kg (ppm)	12.5	91	91	39-147	0
1,1-Dichloroethene	mg/kg (ppm)	2.5	80	80	65-110	0
Methylene chloride	mg/kg (ppm)	2.5	87	90	62-119	3
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	92	95	72-122	3
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	87	87	71-113	0
1,1-Dichloroethane	mg/kg (ppm)	2.5	87	85	76-109	2
2,2-Dichloropropane	mg/kg (ppm)	2.5	98	101	64-151	3
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	90	91	77-110	1
Chloroform	mg/kg (ppm)	2.5	89	90	78-108	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	97	96	60-121	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	91	90	80-109	1
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	95	95	72-116	0
1,1-Dichloropropene	mg/kg (ppm)	2.5	92	92	77-108	0
Carbon tetrachloride	mg/kg (ppm)	2.5	98	98	67-123	0
Benzene	mg/kg (ppm)	2.5	83	84	75-107	1
Trichloroethene	mg/kg (ppm)	2.5	89	90	72-107	1
1,2-Dichloropropane	mg/kg (ppm)	2.5	88	85	78-111	3
Bromodichloromethane	mg/kg (ppm)	2.5	94	94	75-126	0
Dibromomethane	mg/kg (ppm)	2.5	98	97	80-111	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	109	102	80-128	7
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	98	92	71-138	6
Toluene	mg/kg (ppm)	2.5	84	83	79-112	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	96	90	77-135	6
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	91	88	84-115	3
2-Hexanone	mg/kg (ppm)	12.5	93	85	71-129	9
1,3-Dichloropropane	mg/kg (ppm)	2.5	91	85	82-113	7
Tetrachloroethene	mg/kg (ppm)	2.5	88	88	77-110	0
Dibromochloromethane	mg/kg (ppm)	2.5	96	94	64-152	2
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	94	91	83-116	3
Chlorobenzene	mg/kg (ppm)	2.5	90	88	82-113	2
Ethylbenzene	mg/kg (ppm)	2.5	92	90	81-114	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	91	98	76-125	7
m,p-Xylene	mg/kg (ppm)	5	94	94	82-115	0
o-Xylene	mg/kg (ppm)	2.5	92	92	81-116	0
Styrene	mg/kg (ppm)	2.5	98	97	81-118	1
Isopropylbenzene	mg/kg (ppm)	2.5	96	99	81-117	3
Bromoform	mg/kg (ppm)	2.5	91	90	50-174	1
n-Propylbenzene	mg/kg (ppm)	2.5	91	90	82-116	1
Bromobenzene	mg/kg (ppm)	2.5	90	87	82-118	3
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	97	97	83-120	0
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	87	83	83-125	5
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	86	86	79-116	0
2-Chlorotoluene	mg/kg (ppm)	2.5	90	90	80-114	0
4-Chlorotoluene	mg/kg (ppm)	2.5	94	92	82-114	2
tert-Butylbenzene	mg/kg (ppm)	2.5	98	101	82-116	3
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	98	97	82-116	1
sec-Butylbenzene	mg/kg (ppm)	2.5	96	96	81-123	0
p-Isopropyltoluene	mg/kg (ppm)	2.5	96	97	82-124	1
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	91	92	80-118	1
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	86	86	79-117	0
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	89	89	80-118	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	83	86	71-131	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	86	89	75-122	3
Hexachlorobutadiene	mg/kg (ppm)	2.5	86	88	74-130	2
Naphthalene	mg/kg (ppm)	2.5	91	93	83-128	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	87	90	80-126	3

Date of Report: 10/21/14
Date Received: 10/09/14
Project: 2014-068C, F&BI 410152

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 410239-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	31	26	10-56	18
Chloromethane	mg/kg (ppm)	2.5	<0.5	45	41	10-90	9
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	55	51	10-91	8
Bromomethane	mg/kg (ppm)	2.5	<0.5	70	68	10-110	3
Chloroethane	mg/kg (ppm)	2.5	<0.5	67	62	10-101	8
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	68	63	10-95	8
Acetone	mg/kg (ppm)	12.5	<0.5	85	79	11-141	7
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	70	68	11-103	3
Methylene chloride	mg/kg (ppm)	2.5	<0.5	82	78	14-128	5
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	88	85	17-134	3
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	78	73	13-112	7
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	77	72	23-115	7
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	92	87	18-117	6
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	81	79	25-120	2
Chloroform	mg/kg (ppm)	2.5	<0.05	81	77	29-117	5
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	88	81	20-133	8
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	78	72	22-124	8
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	85	81	27-112	5
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	82	77	26-107	6
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	85	81	22-115	5
Benzene	mg/kg (ppm)	2.5	<0.03	75	71	26-114	5
Trichloroethene	mg/kg (ppm)	2.5	<0.02	82	76	30-112	8
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	77	72	31-119	7
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	82	78	31-131	5
Dibromomethane	mg/kg (ppm)	2.5	<0.05	85	80	27-124	6
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	96	88	16-147	9
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	84	75	28-137	11
Toluene	mg/kg (ppm)	2.5	<0.05	77	72	34-112	7
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	81	72	30-136	12
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	78	74	32-126	5
2-Hexanone	mg/kg (ppm)	12.5	<0.5	75	68	17-147	10
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	78	71	29-125	9
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	81	74	27-110	9
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	84	77	32-143	9
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	80	74	32-126	8
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	79	75	37-113	5
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	82	78	38-111	5
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	84	84	35-126	0
m,p-Xylene	mg/kg (ppm)	5	<0.1	85	80	38-112	6
o-Xylene	mg/kg (ppm)	2.5	<0.05	84	82	38-113	2
Styrene	mg/kg (ppm)	2.5	<0.05	89	82	38-118	8
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	90	88	37-114	2
Bromoform	mg/kg (ppm)	2.5	<0.05	80	76	18-155	5
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	81	78	36-114	4
Bromobenzene	mg/kg (ppm)	2.5	<0.05	78	74	40-115	5
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	87	84	35-116	4
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	77	74	33-128	4
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	76	73	33-123	4
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	80	79	39-110	1
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	82	79	39-111	4
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	91	89	36-116	2
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	89	85	35-116	5
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	88	84	33-118	5
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	87	85	32-119	2
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	82	79	38-111	4
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	78	76	39-109	3
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	79	79	40-111	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	75	72	34-134	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	80	82	31-117	2
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	77	78	25-122	1
Naphthalene	mg/kg (ppm)	2.5	<0.05	85	85	39-120	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	81	81	35-117	0

Date of Report: 10/21/14
Date Received: 10/09/14
Project: 2014-068C, F&BI 410152

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	55	10-76
Chloromethane	mg/kg (ppm)	2.5	57	34-98
Vinyl chloride	mg/kg (ppm)	2.5	72	42-107
Bromomethane	mg/kg (ppm)	2.5	85	46-113
Chloroethane	mg/kg (ppm)	2.5	81	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	86	53-112
Acetone	mg/kg (ppm)	12.5	92	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	84	65-110
Methylene chloride	mg/kg (ppm)	2.5	92	62-119
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	96	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	89	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	86	76-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	102	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	90	77-110
Chloroform	mg/kg (ppm)	2.5	88	78-108
2-Butanone (MEK)	mg/kg (ppm)	12.5	100	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	84	80-109
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	94	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	91	77-108
Carbon tetrachloride	mg/kg (ppm)	2.5	95	67-123
Benzene	mg/kg (ppm)	2.5	84	75-107
Trichloroethene	mg/kg (ppm)	2.5	89	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	87	78-111
Bromodichloromethane	mg/kg (ppm)	2.5	90	75-126
Dibromomethane	mg/kg (ppm)	2.5	95	80-111
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	107	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	98	71-138
Toluene	mg/kg (ppm)	2.5	82	79-112
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	93	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	87	84-115
2-Hexanone	mg/kg (ppm)	12.5	86	71-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	87	82-113
Tetrachloroethene	mg/kg (ppm)	2.5	86	77-110
Dibromochloromethane	mg/kg (ppm)	2.5	91	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	92	83-116
Chlorobenzene	mg/kg (ppm)	2.5	88	82-113
Ethylbenzene	mg/kg (ppm)	2.5	90	81-114
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	90	76-125
m,p-Xylene	mg/kg (ppm)	5	93	82-115
o-Xylene	mg/kg (ppm)	2.5	90	81-116
Styrene	mg/kg (ppm)	2.5	98	81-118
Isopropylbenzene	mg/kg (ppm)	2.5	96	81-117
Bromoform	mg/kg (ppm)	2.5	87	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	91	82-116
Bromobenzene	mg/kg (ppm)	2.5	88	82-118
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	99	83-120
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	86	83-125
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	87	79-116
2-Chlorotoluene	mg/kg (ppm)	2.5	90	80-114
4-Chlorotoluene	mg/kg (ppm)	2.5	94	82-114
tert-Butylbenzene	mg/kg (ppm)	2.5	101	82-116
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	98	82-116
sec-Butylbenzene	mg/kg (ppm)	2.5	97	81-123
p-Isopropyltoluene	mg/kg (ppm)	2.5	98	82-124
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	91	80-118
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	85	79-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	88	80-118
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	85	71-131
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	89	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	84	74-130
Naphthalene	mg/kg (ppm)	2.5	94	83-128
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	91	80-126

Date of Report: 10/21/14
Date Received: 10/09/14
Project: 2014-068C, F&BI 410152

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 410257-01 1/5 (Matrix Spike) 1/5

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	<0.01	95	95	44-129	0
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	100	101	52-121	1
Acenaphthene	mg/kg (ppm)	0.17	<0.01	95	96	51-123	1
Fluorene	mg/kg (ppm)	0.17	<0.01	100	100	37-137	0
Phenanthrene	mg/kg (ppm)	0.17	<0.01	97	98	45-124	1
Anthracene	mg/kg (ppm)	0.17	<0.01	96	96	32-124	0
Fluoranthene	mg/kg (ppm)	0.17	<0.01	99	100	50-125	1
Pyrene	mg/kg (ppm)	0.17	<0.01	105	103	41-135	2
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	101	103	23-144	2
Chrysene	mg/kg (ppm)	0.17	<0.01	98	98	45-122	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	103	101	31-144	2
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	100	103	45-130	3
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	106	107	39-128	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	103	103	28-146	0
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	100	103	46-129	3
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	98	99	37-133	1

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	98	58-121
Acenaphthylene	mg/kg (ppm)	0.17	99	54-121
Acenaphthene	mg/kg (ppm)	0.17	102	54-123
Fluorene	mg/kg (ppm)	0.17	100	56-127
Phenanthrene	mg/kg (ppm)	0.17	100	55-122
Anthracene	mg/kg (ppm)	0.17	98	50-120
Fluoranthene	mg/kg (ppm)	0.17	105	54-129
Pyrene	mg/kg (ppm)	0.17	104	53-127
Benz(a)anthracene	mg/kg (ppm)	0.17	102	51-115
Chrysene	mg/kg (ppm)	0.17	103	55-129
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	105	56-123
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	106	54-131
Benzo(a)pyrene	mg/kg (ppm)	0.17	98	51-118
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	104	49-148
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	104	50-141
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	103	52-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

410152

SAMPLE CHAIN OF CUSTODY

ME 10/9/14 VSG / BT

Page # 2 of 2

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425.415.0551 Fax #

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel X	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	HCID	RCRA 8 Metals	PAHs (SIMS) 8270		Pb (Total)		Notes
MW5-20	11 D	10/8/14	1245	SOIL	4											⊗		⊗ = added 10/14/14 per AJ
MW5-25	12		1250		4		X	X								⊗		⊗ = added 10/14/14 per AJ
MW5-35	13		1310		4													
MW5-40	14		1320		~~4~~ 5	⊗	X		X				⊗	⊗				added 10/14/14 per AJ = ⊗
MW5-45	15		1330		4											⊗		⊗ = added 10/14/14 per AJ
MW5-50	16 E		1340		5		X	X				X				⊗		⊗ = added 10/14/14 per AJ
MW5-55	17		1355		5		X	X								⊗		⊗ = added 10/14/14 per AJ
MW5-60	18		1400		5		X	X										
MW5-62.5	19		1430		5													
MW5-65	20	↓	1455	↓	5		X	X								:nples received at 2 °C		

ANALYSES REQUESTED

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Anna Jordan	Anna Jordan	RGI	10/9/14	9:15
Received by: Nicole Kapisz	Nicole Kapisz	"	"	9:15
Relinquished by: Nicole Kapisz	"	"	"	9:45
Received by: Nhan Pham	Nhan Pham	FEBT	10/9/14	

410152

SAMPLE CHAIN OF CUSTODY

ME 10/9/14

VSA/BEA

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425.415.0551 Fax #

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	RCRA8 Metals	PAHs (8270 SIM)	Notes
MW1-25	01 A-D	10/8/14	0740	SOIL	4		X		X					⊠=added 10/14/14 per AJ
MW1-30.5	02		0750		4		X		X					
MW1-35	03		0755		4		X	X						
MW1-46	04		0820		4									
MW1-51	05		0825		4		X	X						
MW1-56	06		0835		4									
MW1-60	07		0840		4		X	X						
MW1-70	08		0925		4									
MW5-5	09		1220		4		X	X						
MW5-15	10	↓	1240	↓	4		X	X						

Samples received at 2 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Anna Jordan	Anna Jordan	R61	10/9/14	9:15
Received by: Nicole Kapsi	Nicole Kapsi	"	"	9:19
Relinquished by: Nicole Kapsi	"	"	"	9:45
Received by: Nhan Phan	Nhan Phan	FEBT	10/9/14	

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 21, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on October 15, 2014 from the 2014-068C, F&BI 410272 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG1021R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 15, 2014 by Friedman & Bruya, Inc. from the The Riley Group 2014-068C, F&BI 410272 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
410272 -01	MW1-20

All quality control requirements were acceptable.

Date of Report: 10/21/14
Date Received: 10/15/14
Project: 2014-068C, F&BI 410272
Date Extracted: 10/16/14
Date Analyzed: 10/18/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
MW1-20 410272-01	<50	<250	93
Method Blank 04-2103 MB	<50	<250	116

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW1-20	Client:	The Riley Group
Date Received:	10/15/14	Project:	2014-068C, F&BI 410272
Date Extracted:	10/21/14	Lab ID:	410272-01
Date Analyzed:	10/21/14	Data File:	410272-01.052
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	90	60	125
Holmium	92	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	10.2
Arsenic	1.17
Selenium	<1
Silver	<1
Cadmium	<1
Barium	30.7
Lead	3.17
Mercury	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	The Riley Group
Date Received:	NA	Project:	2014-068C, F&BI 410272
Date Extracted:	10/21/14	Lab ID:	I4-656 mb
Date Analyzed:	10/21/14	Data File:	I4-656 mb.047
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	94	60	125
Indium	92	60	125
Holmium	92	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Selenium	<1
Silver	<1
Cadmium	<1
Barium	<1
Lead	<1
Mercury	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW1-20	Client:	The Riley Group
Date Received:	10/15/14	Project:	2014-068C, F&BI 410272
Date Extracted:	10/16/14	Lab ID:	410272-01 1/5
Date Analyzed:	10/16/14	Data File:	101618.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	50	150
Benzo(a)anthracene-d12	111	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.080
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	0.011
Phenanthrene	0.027
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 10/21/14
Date Received: 10/15/14
Project: 2014-068C, F&BI 410272

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 410272-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	9.21	81	83	57-128	2
Arsenic	mg/kg (ppm)	10	1.05	102	104	70-118	2
Selenium	mg/kg (ppm)	5	<1	99	97	64-117	2
Silver	mg/kg (ppm)	10	<1	94	96	73-122	2
Cadmium	mg/kg (ppm)	10	<1	109	111	83-116	2
Barium	mg/kg (ppm)	50	27.7	102 b	106 b	60-141	4 b
Lead	mg/kg (ppm)	50	2.86	99	102	59-148	3
Mercury	mg/kg (ppm	10	<1	88	90	50-150	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	89	78-121
Arsenic	mg/kg (ppm)	10	100	83-113
Selenium	mg/kg (ppm)	5	103	84-115
Silver	mg/kg (ppm)	10	94	81-116
Cadmium	mg/kg (ppm)	10	108	54-114
Barium	mg/kg (ppm)	50	106	85-116
Lead	mg/kg (ppm)	50	99	80-120
Mercury	mg/kg (ppm)	10	92	70-130

Date of Report: 10/21/14
Date Received: 10/15/14
Project: 2014-068C, F&BI 410272

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 410257-01 1/5 (Matrix Spike) 1/5

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	<0.01	95	95	44-129	0
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	100	101	52-121	1
Acenaphthene	mg/kg (ppm)	0.17	<0.01	95	96	51-123	1
Fluorene	mg/kg (ppm)	0.17	<0.01	100	100	37-137	0
Phenanthrene	mg/kg (ppm)	0.17	<0.01	97	98	45-124	1
Anthracene	mg/kg (ppm)	0.17	<0.01	96	96	32-124	0
Fluoranthene	mg/kg (ppm)	0.17	<0.01	99	100	50-125	1
Pyrene	mg/kg (ppm)	0.17	<0.01	105	103	41-135	2
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	101	103	23-144	2
Chrysene	mg/kg (ppm)	0.17	<0.01	98	98	45-122	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	103	101	31-144	2
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	100	103	45-130	3
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	106	107	39-128	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	103	103	28-146	0
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	100	103	46-129	3
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	98	99	37-133	1

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	98	58-121
Acenaphthylene	mg/kg (ppm)	0.17	99	54-121
Acenaphthene	mg/kg (ppm)	0.17	102	54-123
Fluorene	mg/kg (ppm)	0.17	100	56-127
Phenanthrene	mg/kg (ppm)	0.17	100	55-122
Anthracene	mg/kg (ppm)	0.17	98	50-120
Fluoranthene	mg/kg (ppm)	0.17	105	54-129
Pyrene	mg/kg (ppm)	0.17	104	53-127
Benz(a)anthracene	mg/kg (ppm)	0.17	102	51-115
Chrysene	mg/kg (ppm)	0.17	103	55-129
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	105	56-123
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	106	54-131
Benzo(a)pyrene	mg/kg (ppm)	0.17	98	51-118
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	104	49-148
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	104	50-141
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	103	52-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

410272

SAMPLE CHAIN OF CUSTODY ME 10/15/14

BLI

Page # 1 of 1

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98012
Phone # 425.415.0551 Fax #

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel x	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	RCRA 8	PAH's					Notes
MW1-20	01	10/8/14	735	SOIL	1	☒						☒	☒					* = added 10/14/14 per PJ
~~MW5-40~~	~~02~~	~~10/8/14~~	~~1320~~	~~Soil~~	1													* ~~Added at~~
(2) From AR 410252 10/15/14																		(MP) 10/15
													Samples received at					2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Anna Jordan	Anna Jordan	RGI	10/15/14	2:00
Received by:	Brent	Riley	10/15/14	2:00
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 17, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on October 9, 2014 from the 2014-068C, F&BI 410164 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
TRG1017R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 9, 2014 by Friedman & Bruya, Inc. from the The Riley Group 2014-068C, F&BI 410164 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
410164-01	MW2-10
410164-02	MW2-15
410164-03	MW2-25
410164-04	MW2-30
410164-05	MW2-35
410164-06	MW2-40
410164-07	MW2-45
410164-08	MW2-50
410164-09	MW2-55
410164-10	MW2-60
410164-11	MW2-65
410164-12	MW3-5
410164-13	MW3-10
410164-14	MW3-15
410164-15	MW3-20
410164-16	MW3-25
410164-17	MW3-30
410164-18	MW3-35
410164-19	MW3-40
410164-20	MW3-45
410164-21	MW3-50
410164-22	MW3-55
410164-23	MW3-60

All quality control requirements were acceptable.

410164

SAMPLE CHAIN OF CUSTODY

ME 10/9/14 A03/V8

Page # 1 of 2

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425.415.0551 Fax #

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
MW2-65	11A-D	10/9/14	9:30	SOIL	4													
MW3-5	12 T		12:10		4													
MW3-10	13		12:15		4		X	X										
MW3-15	14		12:20		4													
MW3-20	15A-E		12:30		5		X	X										
MW3-25	16 T		12:40		5													
MW3-30	17		12:50		5		X	X										
MW3-35	18		13:00		5													
MW3-40	19A-D		13:10		4													
MW3-45	20A-E		13:15		5		X	X										

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Anna Jordan	Anna Jordan	RGI	10/9/14	345
Received by:	Eric Lane	F-B	10/9/14	345
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
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Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
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410164

SAMPLE CHAIN OF CUSTODY

ME 10/9/14

A03/V8

Page # 3 of

Send Report To Anna Jordan

Company The Riley Group

Address 17522 Bothell Way NE

City, State, ZIP Bothell, WA 98011

Phone # 425-415-0551 Fax #

SAMPLERS (signature) Anna Jordan

PROJECT NAME/NO. 2014-008C

PO#

REMARKS

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

SAMPLE DISPOSAL
- ☑ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
MW3-50	22A-E	10/9/14	13:25	SOIL	5													
MW3-55	22F	↓	13:35	↓	5													
MW3-60	23A	↓	13:40	↓	4		X	X										

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Anna Jordan	Anna Jordan	RGI	10/9/14	3:45
Received by:	Eric Clark	FEB	10/9/14	3:45
Relinquished by:				
Received by:		Samples received at 4 °C		

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Fax (206) 283-5044

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 17, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on October 10, 2014 from the 2014-068C, F&BI 410183 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG1017R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 10, 2014 by Friedman & Bruya, Inc. from the The Riley Group 2014-068C, F&BI 410183 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
410183-01	MW4-5
410183-02	MW4-10
410183-03	MW4-15
410183-04	MW4-20
410183-05	MW4-25
410183-06	MW4-30
410183-07	MW4-35
410183-08	MW4-40
410183-09	MW4-45
410183-10	MW4-50
410183-11	MW4-55
410183-12	MW4-60

All quality control requirements were acceptable.

Date of Report: 10/17/14
Date Received: 10/10/14
Project: 2014-068C, F&BI 410183
Date Extracted: 10/13/14
Date Analyzed: 10/13/14 and 10/14/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW4-10 410183-02	<0.02	<0.02	<0.02	<0.06	<2	96
MW4-20 410183-04	<0.02	<0.02	<0.02	<0.06	<2	95
MW4-30 410183-06	<0.02	<0.02	0.15	0.15	24	98
MW4-45 410183-09	<0.02	<0.02	<0.02	<0.06	<2	96
MW4-55 410183-11	<0.02	<0.02	<0.02	<0.06	<2	96
Method Blank	<0.02	<0.02	<0.02	<0.06	<2	82

Date of Report: 10/17/14
Date Received: 10/10/14
Project: 2014-068C, F&BI 410183

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 410186-03 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	98	69-120
Toluene	mg/kg (ppm)	0.5	99	70-117
Ethylbenzene	mg/kg (ppm)	0.5	96	65-123
Xylenes	mg/kg (ppm)	1.5	94	66-120
Gasoline	mg/kg (ppm)	20	90	71-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

410183

SAMPLE CHAIN OF CUSTODY ME 10-10-14 A03 / U53

Page # 1 of 2

Send Report To Anna Jordan
Company The Riley Group
Address 7522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425-415-0551 Fax #

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS							Notes
MW4-5	01A-D	10/10/14	720	SOIL	4													
MW4-10	02 T		730		4		X	X										
MW4-15	03		740		4													
MW4-20	04A-E		745		5		X	X										
MW4-25	05 T		750		5													
MW4-30	06A-D		800		4		X	X										
MW4-35	07 T		810		4													
MW4-40	08A-E		825		5													
MW4-45	09 T		830		5		X	X										
MW4-50	10		840		5													

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Anna Jordan	Anna Jordan	RGI	10/10	1403
Received by: James Bruya	James Bruya	F&B	10/10	1903
Relinquished by:				
Received by:		Samples received at	5	°C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

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410193

SAMPLE CHAIN OF CUSTODY

HE 10-10-14

A03 2/053

Page # 2 of 3

Send Report To Anna Jordan
Company The Riley Group
Address 17522 Bothell Way NE
City, State, ZIP Bothell, WA 98011
Phone # 425-415-0551 Fax #

SAMPLERS (signature) Anna Jordan
PROJECT NAME/NO. 2014-068C
PO#
REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☑ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Notes
MW4-55	11 AE	10/10/14	855	SOIL	5		X	X				
MW4-60	12	↓	855	↓	1							

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3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Anna Jordan	Anna Jordan	RGI	10/10/14	1903
Received by:		James Bruya	F&B	10/10	1903
Relinquished by:					
Received by:			Samples received at 5 °C		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
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(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 13, 2014

Anna Jordan, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Ms. Jordan:

Included are the results from the testing of material submitted on October 2, 2014 from the University VW-Auto Property, PO 2014-068C, F&BI 410046 project. There are 12 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRG1013R.DOC

Date of Report: 10/13/14
Date Received: 10/02/14
Project: University VW-Auto Property, PO 2014-068C, F&BI 410046
Date Extracted: 10/06/14
Date Analyzed: 10/06/14 and 10/07/14

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
P2-16.5 410046-05	<0.02	<0.02	<0.02	<0.06	<2	97
P2-18 410046-06	<0.02	<0.02	<0.02	<0.06	<2	95
P3-15 410046-07	<0.02	<0.02	<0.02	<0.06	<2	99
P4-18 410046-09	<0.02	<0.02	0.31	0.42	190	111
P4-20 410046-10	<0.02	<0.02	0.84	0.75	110	115
P5-15 410046-11	<0.02	<0.02	<0.02	<0.06	<2	99
P7-20 410046-16	<0.02	<0.02	<0.02	<0.06	<2	98
P9-18 410046-18	<0.02	<0.02	<0.02	<0.06	<2	99
Method Blank	<0.02	<0.02	<0.02	<0.06	<2	86

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	P1-18	Client:	The Riley Group
Date Received:	10/02/14	Project:	University VW -Auto Property
Date Extracted:	10/03/14	Lab ID:	410046-01
Date Analyzed:	10/03/14	Data File:	100328.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	90	111
Toluene-d8	107	64	137
4-Bromofluorobenzene	85	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.65
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	0.41
Methylene chloride	<0.5	o-Xylene	0.22
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	0.76
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	2.4
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	9.2
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	0.093
Benzene	<0.03	1,2,4-Trimethylbenzene	17 ve
Trichloroethene	<0.02	sec-Butylbenzene	2.5
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	4.1
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	P1-18	Client:	The Riley Group
Date Received:	10/02/14	Project:	University VW-Auto Property
Date Extracted:	10/07/14	Lab ID:	410046-01 1/10
Date Analyzed:	10/07/14	Data File:	100721.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	111
Toluene-d8	101	64	137
4-Bromofluorobenzene	103	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<5	1,3-Dichloropropane	<0.5
Chloromethane	<5	Tetrachloroethene	<0.25
Vinyl chloride	<0.5	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.5
Chloroethane	<5	Chlorobenzene	<0.5
Trichlorofluoromethane	<5	Ethylbenzene	0.67
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.5
1,1-Dichloroethene	<0.5	m,p-Xylene	<1
Methylene chloride	<5	o-Xylene	<0.5
Methyl t-butyl ether (MTBE)	<0.5	Styrene	<0.5
trans-1,2-Dichloroethene	<0.5	Isopropylbenzene	0.68
1,1-Dichloroethane	<0.5	Bromoform	<0.5
2,2-Dichloropropane	<0.5	n-Propylbenzene	2.1
cis-1,2-Dichloroethene	<0.5	Bromobenzene	<0.5
Chloroform	<0.5	1,3,5-Trimethylbenzene	8.1
2-Butanone (MEK)	<5	1,1,2,2-Tetrachloroethane	<0.5
1,2-Dichloroethane (EDC)	<0.5	1,2,3-Trichloropropane	<0.5
1,1,1-Trichloroethane	<0.5	2-Chlorotoluene	<0.5
1,1-Dichloropropene	<0.5	4-Chlorotoluene	<0.5
Carbon tetrachloride	<0.5	tert-Butylbenzene	<0.5
Benzene	<0.3	1,2,4-Trimethylbenzene	15
Trichloroethene	<0.2	sec-Butylbenzene	2.2
1,2-Dichloropropane	<0.5	p-Isopropyltoluene	3.5
Bromodichloromethane	<0.5	1,3-Dichlorobenzene	<0.5
Dibromomethane	<0.5	1,4-Dichlorobenzene	<0.5
4-Methyl-2-pentanone	<5	1,2-Dichlorobenzene	<0.5
cis-1,3-Dichloropropene	<0.5	1,2-Dibromo-3-chloropropane	<5
Toluene	<0.5	1,2,4-Trichlorobenzene	<2.5
trans-1,3-Dichloropropene	<0.5	Hexachlorobutadiene	<2.5
1,1,2-Trichloroethane	<0.5	Naphthalene	<0.5
2-Hexanone	<5	1,2,3-Trichlorobenzene	<2.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	P2-9	Client:	The Riley Group
Date Received:	10/02/14	Project:	University VW -Auto Property
Date Extracted:	10/03/14	Lab ID:	410046-03
Date Analyzed:	10/03/14	Data File:	100326.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	111
Toluene-d8	97	64	137
4-Bromofluorobenzene	94	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	P6-15	Client:	The Riley Group
Date Received:	10/02/14	Project:	University VW-Auto Property
Date Extracted:	10/03/14	Lab ID:	410046-14
Date Analyzed:	10/03/14	Data File:	100327.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	90	111
Toluene-d8	96	64	137
4-Bromofluorobenzene	97	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	0.069
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	0.15
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	The Riley Group
Date Received:	Not Applicable	Project:	University VW -Auto Property
Date Extracted:	10/03/14	Lab ID:	04-2017 mb
Date Analyzed:	10/03/14	Data File:	100306.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	111
Toluene-d8	96	64	137
4-Bromofluorobenzene	98	81	119

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.02	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Date of Report: 10/13/14
Date Received: 10/02/14
Project: University VW-Auto Property, PO 2014-068C, F&BI 410046

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 410046-05 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	98	69-120
Toluene	mg/kg (ppm)	0.5	98	70-117
Ethylbenzene	mg/kg (ppm)	0.5	96	65-123
Xylenes	mg/kg (ppm)	1.5	94	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 10/13/14
Date Received: 10/02/14
Project: University VW-Auto Property, PO 2014-068C, F&BI 410046

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 410069-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	23	20	10-56	14
Chloromethane	mg/kg (ppm)	2.5	<0.5	51	48	10-90	6
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	53	50	10-91	6
Bromomethane	mg/kg (ppm)	2.5	<0.5	76	74	10-110	3
Chloroethane	mg/kg (ppm)	2.5	<0.5	68	65	10-101	5
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	61	57	10-95	7
Acetone	mg/kg (ppm)	12.5	<0.5	87	84	11-141	4
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	65	62	11-103	5
Methylene chloride	mg/kg (ppm)	2.5	<0.5	81	78	14-128	4
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	86	85	17-134	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	76	73	13-112	4
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	77	75	23-115	3
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	80	81	18-117	1
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	80	78	25-120	3
Chloroform	mg/kg (ppm)	2.5	<0.05	81	80	29-117	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	82	75	20-133	9
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	82	79	22-124	4
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	82	81	27-112	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	79	75	26-107	5
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	86	86	22-115	0
Benzene	mg/kg (ppm)	2.5	<0.03	77	74	26-114	4
Trichloroethene	mg/kg (ppm)	2.5	<0.02	77	75	30-112	3
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	80	76	31-119	5
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	80	77	31-131	4
Dibromomethane	mg/kg (ppm)	2.5	<0.05	85	80	27-124	6
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	94	95	16-147	1
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	82	79	28-137	4
Toluene	mg/kg (ppm)	2.5	<0.05	80	77	34-112	4
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	81	77	30-136	5
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	87	84	32-126	4
2-Hexanone	mg/kg (ppm)	12.5	<0.5	90	87	17-147	3
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	81	77	29-125	5
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	79	75	27-110	5
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	84	79	32-143	6
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	88	83	32-126	6
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	82	79	37-113	4
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	84	83	38-111	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	86	86	35-126	0
m,p-Xylene	mg/kg (ppm)	5	<0.1	87	85	38-112	2
o-Xylene	mg/kg (ppm)	2.5	<0.05	87	87	38-113	0
Styrene	mg/kg (ppm)	2.5	<0.05	91	90	38-118	1
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	96	95	37-114	1
Bromoform	mg/kg (ppm)	2.5	<0.05	82	80	18-155	2
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	84	82	36-114	2
Bromobenzene	mg/kg (ppm)	2.5	<0.05	81	77	40-115	5
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	92	89	35-116	3
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	91	90	33-128	1
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	83	79	33-123	5
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	83	80	39-110	4
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	83	81	39-111	2
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	96	93	36-116	3
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	92	90	35-116	2
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	97	93	33-118	4
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	95	93	32-119	2
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	83	80	38-111	4
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	81	78	39-109	4
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	86	83	40-111	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	92	86	34-134	7
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	99	94	31-117	5
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	110	100	25-122	10
Naphthalene	mg/kg (ppm)	2.5	<0.05	109	106	39-120	3
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	97	92	35-117	5

Date of Report: 10/13/14
Date Received: 10/02/14
Project: University VW-Auto Property, PO 2014-068C, F&BI 410046

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	52	10-76
Chloromethane	mg/kg (ppm)	2.5	72	34-98
Vinyl chloride	mg/kg (ppm)	2.5	80	42-107
Bromomethane	mg/kg (ppm)	2.5	96	46-113
Chloroethane	mg/kg (ppm)	2.5	90	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	90	53-112
Acetone	mg/kg (ppm)	12.5	103	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	84	65-110
Methylene chloride	mg/kg (ppm)	2.5	104	62-119
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	101	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	93	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	93	76-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	97	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	95	77-110
Chloroform	mg/kg (ppm)	2.5	98	78-108
2-Butanone (MEK)	mg/kg (ppm)	12.5	92	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	96	80-109
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	101	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	95	77-108
Carbon tetrachloride	mg/kg (ppm)	2.5	103	67-123
Benzene	mg/kg (ppm)	2.5	92	75-107
Trichloroethene	mg/kg (ppm)	2.5	92	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	96	78-111
Bromodichloromethane	mg/kg (ppm)	2.5	96	75-126
Dibromomethane	mg/kg (ppm)	2.5	100	80-111
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	110	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	97	71-138
Toluene	mg/kg (ppm)	2.5	99	79-112
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	95	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	98	84-115
2-Hexanone	mg/kg (ppm)	12.5	98	71-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	94	82-113
Tetrachloroethene	mg/kg (ppm)	2.5	96	77-110
Dibromochloromethane	mg/kg (ppm)	2.5	100	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	101	83-116
Chlorobenzene	mg/kg (ppm)	2.5	97	82-113
Ethylbenzene	mg/kg (ppm)	2.5	101	81-114
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	102	76-125
m,p-Xylene	mg/kg (ppm)	5	104	82-115
o-Xylene	mg/kg (ppm)	2.5	104	81-116
Styrene	mg/kg (ppm)	2.5	109	81-118
Isopropylbenzene	mg/kg (ppm)	2.5	110	81-117
Bromoform	mg/kg (ppm)	2.5	97	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	98	82-116
Bromobenzene	mg/kg (ppm)	2.5	94	82-118
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	105	83-120
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	100	83-125
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	94	79-116
2-Chlorotoluene	mg/kg (ppm)	2.5	98	80-114
4-Chlorotoluene	mg/kg (ppm)	2.5	98	82-114
tert-Butylbenzene	mg/kg (ppm)	2.5	106	82-116
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	106	82-116
sec-Butylbenzene	mg/kg (ppm)	2.5	107	81-123
p-Isopropyltoluene	mg/kg (ppm)	2.5	107	82-124
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	97	80-118
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	95	79-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	99	80-118
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	100	71-131
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	100	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	95	74-130
Naphthalene	mg/kg (ppm)	2.5	110	83-128
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	105	80-126

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

410046

SAMPLE CHAIN OF CUSTODY

MG 10/2/14

Page # 1 of 2

Send Report To: Anna Jurdan
Company: The Riley Group, Inc.
Address: 17522 Bothell Way NE Ste A
City, State, ZIP: Bothell, WA 98011
Phone #: 425-415-0551 Fax #: 425-415-0311

SAMPLERS (signature): [signature]
PROJECT NAME/NO.: University VW-Auto property
PO#: 2a14-068C
REMARKS:

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS						Notes
P1-18	01 A-B	10/1/14	12:20	S	4		X		X								X-per AS
P2-5	02		8:40				X		X								10/3/14 MG
P2-9	03		8:53				X		X								
P2-15	04		9:05														
P2-16.5	05		9:21				X	X									
P2-[redacted]18	06		9:23				X	X									
P3-15	07		13:15				X	X									
P4-16	08		14:00														
P4-18	09		14:05				X	X									
P4-20	10	↓	14:10	↓	↓		X	X									Samples received at 4 °C

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Mike Gipson	RGI	10/2/14	9:50
Received by: [signature]	Mitch Strauss	Postal Ex	10/2/14	10:22
Relinquished by:				
Received by: [signature]	Nhan Phan	FedEx	10/2/14	1130

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

410046

SAMPLE CHAIN OF CUSTODY

ME 10/2/14 V34

Page # 2 of 2

Send Report To Anna Jordan
Company The Riley Group, Inc.
Address 17522 Bothell Way NE Stea
City, State, ZIP Bothell, WA 98011
Phone # 425-415-0551 Fax # 425-415-0311

SAMPLERS (signature)
PROJECT NAME/NO. University VW-Auto prop
PO# 2014-068C
REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
P5-15	11 D	10/1/14	10:20	S	4		X	X										
P6-13.5	12		11:00															
P6-14	13		11:15															
P6-15	14		11:16				X		X									
P7-15	15		15:06															
P7-20	16		15:15				X	X										
P8-19	17		16:11															
P9-18	18		17:05				X	X										

ANALYSES REQUESTED

Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Mike Gipson	RGI	10/2/14	9:50
Received by:	Mistie Strama	Postal Ex	10/2/14	10:22
Relinquished by:				
Received by:	Nhan Pham	FEBT	10/2/14	1130

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Seattle, WA 98119-2029
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H&P Mobile Geochemistry Inc.

18 March 2015

Ms. Anna Jordan
The Riley Group, Inc. (RGI)
17522 Bothell Way NE, Suite A
Bothell, WA 98011

H&P Project: RG030615-12
Client Project: 2014-068C / Seattle, WA

Dear Ms. Anna Jordan:

Enclosed is the analytical report for the above referenced project. The data herein applies to samples as received by H&P Mobile Geochemistry, Inc. on 06-Mar-15 which were analyzed in accordance with the attached Chain of Custody record(s).

The results for all sample analyses and required QA/QC analyses are presented in the following sections and summarized in the documents:

- Sample Summary
- Case Narrative (if applicable)
- Sample Results
- Quality Control Summary
- Notes and Definitions / Appendix
- Chain of Custody

Unless otherwise noted, I certify that all analyses were performed and reviewed in compliance with our Quality Systems Manual and Standard Operating Procedures. This report shall not be reproduced, except in full, without the written approval of H&P Mobile Geochemistry, Inc.

We at H&P Mobile Geochemistry, Inc. sincerely appreciate the opportunity to provide analytical services to you on this project. If you have any questions or concerns regarding this analytical report, please contact me at your convenience at 760-804-9678.

Sincerely,

Janis Villarreal

Janis Villarreal
Laboratory Director

H&P Mobile Geochemistry, Inc. is certified under the California ELAP, the National Environmental Laboratory Accreditation Conference (NELAC) and the Department of Defense Accreditation Programs.

H&P Mobile
Geochemistry Inc.

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Carlsbad, CA 92010
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The Riley Group, Inc. (RGI)	Project: RG030615-12	
17522 Bothell Way NE, Suite A	Project Number: 2014-068C / Seattle, WA	Reported:
Bothell, WA 98011	Project Manager: Ms. Anna Jordan	18-Mar-15 10:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SV2	E503032-01	Vapor	27-Feb-15	06-Mar-15
SV3	E503032-02	Vapor	27-Feb-15	06-Mar-15
SV1	E503032-03	Vapor	27-Feb-15	06-Mar-15

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The Riley Group, Inc. (RGI) 17522 Bothell Way NE, Suite A Bothell, WA 98011	Project: RG030615-12 Project Number: 2014-068C / Seattle, WA Project Manager: Ms. Anna Jordan	Reported: 18-Mar-15 10:59

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV2 (E503032-01) Vapor Sampled: 27-Feb-15 Received: 06-Mar-15									
Methyl tertiary-butyl ether (MTBE)	ND	3.6	ug/m3	1	EC51108	11-Mar-15	12-Mar-15	EPA TO-15	
n-Hexane	**3.9**	3.6	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4.1	"	"	"	"	"	"	
Benzene	**3.6**	3.2	"	"	"	"	"	"	
Toluene	**16**	3.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"	"	"	
Ethylbenzene	**18**	4.4	"	"	"	"	"	"	
m,p-Xylene	**24**	8.8	"	"	"	"	"	"	
o-Xylene	**4.7**	4.4	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	**10**	5.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
Naphthalene	ND	5.3	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*98.1 %*	*76-134*		"	"	"	"	
Surrogate: Toluene-d8		*115 %*	*78-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*86.4 %*	*77-127*		"	"	"	"	
SV3 (E503032-02) Vapor Sampled: 27-Feb-15 Received: 06-Mar-15									
Methyl tertiary-butyl ether (MTBE)	ND	3.6	ug/m3	1	EC51108	11-Mar-15	12-Mar-15	EPA TO-15	
n-Hexane	ND	3.6	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4.1	"	"	"	"	"	"	
Benzene	ND	3.2	"	"	"	"	"	"	
Toluene	**8.4**	3.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"	"	"	
Ethylbenzene	ND	4.4	"	"	"	"	"	"	
m,p-Xylene	ND	8.8	"	"	"	"	"	"	
o-Xylene	ND	4.4	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
Naphthalene	ND	5.3	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*92.9 %*	*76-134*		"	"	"	"	
Surrogate: Toluene-d8		*108 %*	*78-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*88.7 %*	*77-127*		"	"	"	"	

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760-804-9159 Fax

The Riley Group, Inc. (RGI)	Project: RG030615-12	
17522 Bothell Way NE, Suite A	Project Number: 2014-068C / Seattle, WA	Reported:
Bothell, WA 98011	Project Manager: Ms. Anna Jordan	18-Mar-15 10:59

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV1 (E503032-03) Vapor Sampled: 27-Feb-15 Received: 06-Mar-15									
Methyl tertiary-butyl ether (MTBE)	ND	3.6	ug/m3	1	EC51108	11-Mar-15	12-Mar-15	EPA TO-15	
n-Hexane	ND	3.6	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4.1	"	"	"	"	"	"	
Benzene	ND	3.2	"	"	"	"	"	"	
Toluene	**6.6**	3.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"	"	"	
Ethylbenzene	ND	4.4	"	"	"	"	"	"	
m,p-Xylene	ND	8.8	"	"	"	"	"	"	
o-Xylene	ND	4.4	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
Naphthalene	ND	5.3	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*99.8 %*		*76-134*	"	"	"	"	
Surrogate: Toluene-d8		*110 %*		*78-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90.1 %*		*77-127*	"	"	"	"	

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The Riley Group, Inc. (RGI)	Project: RG030615-12	
17522 Bothell Way NE, Suite A	Project Number: 2014-068C / Seattle, WA	Reported:
Bothell, WA 98011	Project Manager: Ms. Anna Jordan	18-Mar-15 10:59

TPHv / APH on Vapors by EPA Method TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV2 (E503032-01) Vapor Sampled: 27-Feb-15 Received: 06-Mar-15									
TPHv (C5 - C8) aliphatic	**1900**	100	ug/m3	1	EC51108	11-Mar-15	12-Mar-15	MA APHm	GC-03
TPHv (C9 - C12) aliphatic	**1300**	100	"	"	"	"	"	"	
TPHv (C9 - C10) aromatic	ND	100	"	"	"	"	"	"	
SV3 (E503032-02) Vapor Sampled: 27-Feb-15 Received: 06-Mar-15									
TPHv (C5 - C8) aliphatic	**1900**	100	ug/m3	1	EC51108	11-Mar-15	12-Mar-15	MA APHm	GC-03
TPHv (C9 - C12) aliphatic	**530**	100	"	"	"	"	"	"	
TPHv (C9 - C10) aromatic	ND	100	"	"	"	"	"	"	
SV1 (E503032-03) Vapor Sampled: 27-Feb-15 Received: 06-Mar-15									
TPHv (C5 - C8) aliphatic	**2200**	100	ug/m3	1	EC51108	11-Mar-15	12-Mar-15	MA APHm	GC-03
TPHv (C9 - C12) aliphatic	ND	100	"	"	"	"	"	"	
TPHv (C9 - C10) aromatic	ND	100	"	"	"	"	"	"	

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The Riley Group, Inc. (RGI) 17522 Bothell Way NE, Suite A Bothell, WA 98011	Project: RG030615-12 Project Number: 2014-068C / Seattle, WA Project Manager: Ms. Anna Jordan	Reported: 18-Mar-15 10:59

Soil Gas and Vapor Analysis - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC50909 - GC										
Blank (EC50909-BLK1)				Prepared & Analyzed: 09-Mar-15						
Carbon dioxide	ND	0.20	%							

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The Riley Group, Inc. (RGI)	Project: RG030615-12	
17522 Bothell Way NE, Suite A	Project Number: 2014-068C / Seattle, WA	Reported:
Bothell, WA 98011	Project Manager: Ms. Anna Jordan	18-Mar-15 10:59

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC51108 - TO-15										
Blank (EC51108-BLK1)				Prepared: 11-Mar-15 Analyzed: 12-Mar-15						
Methyl tertiary-butyl ether (MTBE)	ND	3.6	ug/m3							
n-Hexane	ND	3.6	"							
1,2-Dichloroethane (EDC)	ND	4.1	"							
Benzene	ND	3.2	"							
Toluene	ND	3.8	"							
1,2-Dibromoethane (EDB)	ND	7.8	"							
Ethylbenzene	ND	4.4	"							
m,p-Xylene	ND	8.8	"							
o-Xylene	ND	4.4	"							
Isopropylbenzene (Cumene)	ND	5.0	"							
1,3,5-Trimethylbenzene	ND	5.0	"							
1,2,4-Trimethylbenzene	ND	5.0	"							
Naphthalene	ND	5.3	"							
Surrogate: 1,2-Dichloroethane-d4	*207*		"	*214*		*96.5*	*76-134*			
Surrogate: Toluene-d8	*220*		"	*207*		*106*	*78-125*			
Surrogate: 4-Bromofluorobenzene	*329*		"	*364*		*90.4*	*77-127*			
LCS (EC51108-BS1)				Prepared: 11-Mar-15 Analyzed: 12-Mar-15						
1,2-Dichloroethane (EDC)	73	4.1	ug/m3	82.4		88.9	70-130			
Benzene	65	3.2	"	64.8		101	70-130			
Toluene	84	3.8	"	76.8		110	70-130			
Ethylbenzene	99	4.4	"	88.4		112	70-130			
m,p-Xylene	210	8.8	"	177		121	70-130			
o-Xylene	100	4.4	"	88.4		118	70-130			
Surrogate: 1,2-Dichloroethane-d4	*190*		"	*214*		*88.7*	*76-134*			
Surrogate: Toluene-d8	*215*		"	*207*		*104*	*78-125*			
Surrogate: 4-Bromofluorobenzene	*376*		"	*364*		*103*	*77-127*			

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The Riley Group, Inc. (RGI)	Project: RG030615-12	
17522 Bothell Way NE, Suite A	Project Number: 2014-068C / Seattle, WA	Reported:
Bothell, WA 98011	Project Manager: Ms. Anna Jordan	18-Mar-15 10:59

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC51108 - TO-15										
LCS Dup (EC51108-BSD1)				Prepared: 11-Mar-15 Analyzed: 12-Mar-15						
1,2-Dichloroethane (EDC)	75	4.1	ug/m3	82.4		90.4	70-130	1.72	25	
Benzene	65	3.2	"	64.8		101	70-130	0.0990	25	
Toluene	83	3.8	"	76.8		108	70-130	1.74	25	
Ethylbenzene	99	4.4	"	88.4		112	70-130	0.0890	25	
m,p-Xylene	210	8.8	"	177		119	70-130	2.36	25	
o-Xylene	100	4.4	"	88.4		117	70-130	1.31	25	
Surrogate: 1,2-Dichloroethane-d4	*192*		"	*214*		*89.5*	*76-134*			
Surrogate: Toluene-d8	*214*		"	*207*		*103*	*78-125*			
Surrogate: 4-Bromofluorobenzene	*373*		"	*364*		*102*	*77-127*			

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The Riley Group, Inc. (RGI) 17522 Bothell Way NE, Suite A Bothell, WA 98011	Project: RG030615-12 Project Number: 2014-068C / Seattle, WA Project Manager: Ms. Anna Jordan	Reported: 18-Mar-15 10:59

TPHv / APH on Vapors by EPA Method TO-15 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC51108 - TO-15										
Blank (EC51108-BLK1)				Prepared: 11-Mar-15 Analyzed: 12-Mar-15						
TPHv (C5 - C8) aliphatic	ND	100	ug/m3							
TPHv (C9 - C12) aliphatic	ND	100	"							
TPHv (C9 - C10) aromatic	ND	100	"							

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760-804-9678 Phone
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The Riley Group, Inc. (RGI) 17522 Bothell Way NE, Suite A Bothell, WA 98011	Project: RG030615-12 Project Number: 2014-068C / Seattle, WA Project Manager: Ms. Anna Jordan	Reported: 18-Mar-15 10:59

Notes and Definitions

GC-03	The result for this hydrocarbon is elevated due to the presence of a single peak analyte(s) in the quantitation range.
LCC	Leak Check Compound
ND	Analyte NOT DETECTED at or above the reporting limit
MDL	Method Detection Limit
%REC	Percent Recovery
RPD	Relative Percent Difference

Appendix

H&P Mobile Geochemistry, Inc. is approved as an Environmental Testing Laboratory and Mobile Laboratory in accordance with the DoD-ELAP and the ISO 17025 programs, certification number L11-175.

H&P is approved by the State of Arizona as an Environmental Testing Laboratory and Mobile Laboratory, certification numbers AZM758 and AZ0779.

H&P is approved by the State of California as an Environmental Laboratory and Mobile Laboratory in conformance with the Environmental Laboratory Accreditation Program (ELAP) for the category of Volatile and Semi-Volatile Organic Chemistry of Hazardous Waste, certification numbers 2740, 2741, 2743, 2744, 2745, 2754 & 2930.

H&P is approved by the State of Florida Department of Health under the National Environmental Laboratory Accreditation Conference (NELAC) certification number E871100.

The complete list of stationary and mobile laboratory certifications along with the fields of testing (FOTs) and analyte lists are available at www.handpmg.com/about/certifications.

H&P Mobile Geochemistry, Inc.
2470 Impala Drive, Carlsbad, CA 92010
& Field Office - Signal Hill, CA
W handpmg.com E info@handpmg.com
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VAPOR / AIR Chain of Custody

DATE: 2/27/15
Page 1 of 1

Lab Client and Project Information

Lab Client/Consultant: The Riley Group
Lab Client Project Manager: Anna Jordan
Lab Client Address: 17522 Bothell Way NE
Lab Client City, State, Zip: Bothell WA 98011
Phone Number: 425-415-0551

Project Name / #: 2014-068C
Project Location: Seattle WA
Report E-Mail(s): ajordan@riley-group.com
jsawetz@riley-group.com

Reporting Requirements
☒ Standard Report ☐ Level III ☐ Level IV
☐ Excel EDD ☐ Other EDD:
☐ CA Geotracker Global ID:

Turnaround Time
☒ 5-7 day Stnd ☐ 24-Hr Rush
☐ 3-day Rush ☐ Mobile Lab
☐ 48-Hr Rush ☐ Other:

Sampler Information
Sampler(s): Kristin L. Addis
Signature: Kristin L Addis
Date: 3/2/15

Sample Receipt (Lab Use Only)
Date Rec'd: 3/6/15 Control #: 150154.01
H&P Project # RG030615-12
Lab Work Order # E503032
Sample Intact: ☒ Yes ☐ No ☐ See Notes Below
Receipt Gauge ID: 11167 Temp: 21°C
Outside Lab:
Receipt Notes/Tracking #: 7730 4017 5742
Lab PM Initials: SN

Additional Instructions to Laboratory:
☒ Check if Project Analyte List is Attached
* Preferred VOC units (please choose one): ☐ µg/L ☒ µg/m³ ☐ ppbv ☐ ppmv
⊗ Additional VOCs
N-Hexane
MTBE
Isopropylbenzene
m,p xylenes
⊗ See specific analyte list attached. See 2/27/15 email from Jerry Sawetz

SAMPLE NAME	FIELD POINT NAME (if applicable)	DATE mm/dd/yy	TIME 24hr clock	SAMPLE TYPE Indoor Air (IA), Ambient Air (AA), Subslab (SS), Soil Vapor (SV)	CONTAINER SIZE & TYPE 400mL/1L/6L Summa or Tedlar or Tube	CONTAINER ID (###)	Lab use only: Receipt Vac	VOCs Standard Full List ☐ 8260SV ☐ TO-15	VOCs Short List / Project List ☐ 8260SV ☒ TO-15	Oxygenates ☐ 8260SV ☐ TO-15	Naphthalene ☐ 8260SV ☐ TO-15 ☐ TO-17m	TPHv as Gas ☐ 8260SVm ☐ TO-15m	TPHv as Diesel (sorbent tube) ☐ TO-17m	Aromatic/Aliphatic Fractions ☐ 8260SVm ☒ TO-15m	Leak Check Compound ☐ DFA ☐ IPA ☐ He	Methane by EPA 8015m	Fixed Gases by ASTM D1945 ☐ CO2 ☐ O2 ☐ N2	Additional VOC's
SV2		2/27/15	1422	SV	400ml	132	.55		⊗					X				⊗
SV3		↓	1435	↓	↓	061	.18		⊗					X				⊗
SV1		↓	1503	↓	↓	134	.42		⊗					X				⊗

Approved/Relinquished by: Kristin L Addis — Company: Riley Group — Date: 3/2/15 — Time: 1100
Received by: UPS
Approved/Relinquished by: — Company: — Date: — Time:
Received by: Tori Unsworth — Company: H&P — Date: 3/6/15 — Time: 1140
Approved/Relinquished by: — Company: — Date: — Time:
Received by: — Company: — Date: — Time:

*Approval constitutes as authorization to proceed with analysis and acceptance of conditions on back

Rev 08/18/2014

H&P

H&P Mobile Geochemistry, Inc.
2470 Impala Drive, Carlsbad, CA 92010
Field Office in Signal Hill, CA (Los Angeles)
Ph: 800-834-9888 www.handpmg.com

EPA Method TO-15
Soil Vapor VOC List

2014-068C
only analyze highlighted compounds*

* - STAR ADDED FOR SAKE OF PHOTOCOPIES -SN 3/6/15

Compound	*CAS #*	*400mL RL Vapor (µg/m³)*	*400mL MDL Vapor (µg/m³)*	*400mL RL Vapor (ppbv)*	*400mL MDL Vapor (ppbv)*
Dichlorodifluoromethane (F12)	75-71-8	5.0	0.64	1.0	0.13
Chloromethane	74-87-3	2.1	0.43	1.0	0.21
Dichlorotetrafluoroethane (F114)	76-14-2	7.1	0.88	1.0	0.13
Vinyl chloride	75-01-4	2.6	0.95	1.0	0.37
Bromomethane	74-83-9	15.8	1.21	4.0	0.31
Chloroethane	75-00-3	8.0	0.80	3.0	0.30
Acetone	67-64-1	24.1	1.64	10.0	0.68
Trichlorofluoromethane (F11)	75-69-4	5.6	0.97	1.0	0.17
1,1-Dichloroethene	75-35-4	4.0	1.53	1.0	0.38
Methylene chloride (Dichloromethane)	75-09-2	3.5	0.95	1.0	0.27
1,1,2-Trichlorotrifluoroethane (F113)	76-13-1	7.7	1.82	1.0	0.24
Carbon disulfide	75-15-0	6.3	0.89	2.0	0.28
trans-1,2-Dichloroethene	156-60-5	8.0	0.91	2.0	0.23
1,1-Dichloroethane	75-34-3	4.1	1.35	1.0	0.33
2-Butanone (MEK)	78-93-3	29.9	1.96	10.0	0.66
cis-1,2-Dichloroethene	156-59-2	4.0	1.26	1.0	0.31
Chloroform	67-66-3	4.9	1.30	1.0	0.26
* 1,2-Dichloroethane (EDC)	107-06-2	4.1	1.29	1.0	0.32
1,1,1-Trichloroethane	71-55-6	5.5	1.10	1.0	0.20
* Benzene	71-43-2	3.2	0.72	1.0	0.22
Carbon tetrachloride	56-23-5	6.4	0.93	1.0	0.15
1,2-Dichloropropane	78-87-5	9.4	1.52	2.0	0.33
Bromodichloromethane	75-27-4	6.8	1.58	1.0	0.23
Trichloroethene	79-01-6	5.5	1.36	1.0	0.25
cis-1,3-Dichloropropene	10061-01-5	4.6	0.83	1.0	0.18
4-Methyl-2-pentanone (MIBK)	108-10-1	8.3	1.02	2.0	0.25
trans-1,3-Dichloropropene	10061-02-6	4.6	0.99	1.0	0.22
1,1,2-Trichloroethane	79-00-5	5.5	0.65	1.0	0.12
* Toluene	108-88-3	3.8	1.08	1.0	0.28
2-Hexanone (MBK)	591-78-6	8.3	1.27	2.0	0.31
Dibromochloromethane	124-48-1	8.6	1.63	1.0	0.19
* 1,2-Dibromoethane (EDB)	106-93-4	7.8	1.74	1.0	0.22
Tetrachloroethene	127-18-4	6.9	1.43	1.0	0.21
1,1,1,2-Tetrachloroethane	630-20-6	7.0	0.98	1.0	0.14
Chlorobenzene	108-90-7	4.7	1.05	1.0	0.22
* Ethylbenzene	100-41-4	4.4	0.90	1.0	0.21
* m,p-Xylene	179601-23-1	8.8	2.12	2.0	0.48
Bromoform	75-25-2	10.5	1.75	1.0	0.17
Styrene	100-42-5	4.3	1.08	1.0	0.25
1,1,2,2-Tetrachloroethane	79-34-5	7.0	1.56	1.0	0.22
* o-Xylene	95-47-6	4.4	1.13	1.0	0.26
4-Ethyltoluene	622-96-8	5.0	1.45	1.0	0.29

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EPA Method TO-15
Soil Vapor VOC List

Compound	*CAS #*	*400mL RL Vapor (µg/m³)*	*400mL MDL Vapor (µg/m³)*	*400mL RL Vapor (ppbv)*	*400mL MDL Vapor (ppbv)*
~~1,3,5-Trimethylbenzene~~	108-67-8	5.0	1.52	1.0	0.31
~~1,2,4-Trimethylbenzene~~	95-63-6	5.0	1.43	1.0	0.29
1,3-Dichlorobenzene	541-73-1	12.2	1.59	2.0	0.26
1,4-Dichlorobenzene	106-46-7	12.2	1.71	2.0	0.28
1,2-Dichlorobenzene	95-50-1	12.2	1.71	2.0	0.28
1,2,4-Trichlorobenzene	120-82-1	7.5	2.74	1.0	0.37
Hexachlorobutadiene	87-68-3	10.7	6.64	1.0	0.62
Additional Compounds					
~~Naphthalene~~	91-20-3	5.3	2.70	1.0	0.51
APH by Massachusetts method					
~~(C5-C8) Aliphatics~~		100			
~~(C9-C12) Aliphatics~~		100			
~~(C9-C10) Aromatics~~		100			
Leak Check Compound					
1,1-Difluoroethane (LCC)	75-37-6	5.4		2.0	

Add

~~n-Hexane~~ 67-72-1

~~MTBE~~ 1634-04-04

~~Isopropylbenzene~~ 98-82-8

~~CO2~~

CO2

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: University VW-Audi Property SV2 Benzene Step 2
Report Date: Mon Jun 8 10:04:03 PDT 2015
Report Generated From: http://www.epa.gov/athens/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 92.46[µg/m^3]
Depth of soil gas sample: 2.5ft +/- 0ft
Average soil/ground water temperature: 55F

CHEMICAL PROPERTIES
Chemical of Concern: Benzene CAS Number: 71432
Molecular Weight: 78.11 [g/mole] Henrys Constant: 0.1316031 [unitless]
Diffusivity in Air: 8.800e-2 [cm^2/sec] Diffusivity in Water: 9.800e-6 [cm^2/sec]
Unit Risk Factor: 0.0000078 [(µg/m^3)$^{-1}$] Reference Concentration: 0 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sand Total Porosity: 0.375
Unsaturated Zone Moisture Content:
low= 0.053 best estimate= 0.054 high= 0.055
Capillary Zone Moisture Content: 0.253 Height of Capillary Rise: 0.17 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.25[hr^{-1}]
Building Mixing Height: 2.44[m] Building Footprint Area: 100[m^2]
Subsurface Foundation Area: 106[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.01423[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.003461

[1]Low Indoor Air Prediction: 0.3190 [µg/m^3] or 0.09992 [ppbv]
Cancer Risk of this concentration: 1.023e-6 Hazard Risk of this concentration: 0.

Best Estimate Indoor Air Prediction: 0.3200[µg/m^3] or 0.1002 [ppbv]
Cancer Risk of this concentration: 1.026e-6 Hazard Risk of this concentration: 0.

[2]High Indoor Air Prediction: 0.3210[µg/m^3] or 0.1005 [ppbv]
Cancer Risk of this concentration: 1.029e-6 Hazard Risk of this concentration: 0.

Based on parameter analysis: Advection is the dominant mechanism across foundation.

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: University VW-Audi Property SV2 Benzene Step 1
Report Date: Mon Jun 8 09:57:38 PDT 2015
Report Generated From: http://www.epa.gov/athens/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 3.6[µg/m^3]
Depth of soil gas sample: 2.5ft +/- 0ft
Average soil/ground water temperature: 55F

CHEMICAL PROPERTIES
Chemical of Concern: Benzene CAS Number: 71432
Molecular Weight: 78.11 [g/mole] Henrys Constant: 0.1316031 [unitless]
Diffusivity in Air: 8.800e-2 [cm^2/sec] Diffusivity in Water: 9.800e-6 [cm^2/sec]
Unit Risk Factor: 0.0000078 [(µg/m^3)$^{-1}$] Reference Concentration: 0 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sand Total Porosity: 0.375
Unsaturated Zone Moisture Content:
low= 0.053 best estimate= 0.054 high= 0.055
Capillary Zone Moisture Content: 0.253 Height of Capillary Rise: 0.17 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.25[hr^{-1}]
Building Mixing Height: 2.44[m] Building Footprint Area: 100[m^2]
Subsurface Foundation Area: 106[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.01423[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.003461

[1]Low Indoor Air Prediction: 0.01242 [µg/m^3] or 0.003890 [ppbv]
Cancer Risk of this concentration: 3.981e-8 Hazard Risk of this concentration: 0.

Best Estimate Indoor Air Prediction: 0.01246[µg/m^3] or 0.003902 [ppbv]
Cancer Risk of this concentration: 3.994e-8 Hazard Risk of this concentration: 0.

[2]High Indoor Air Prediction: 0.01250[µg/m^3] or 0.003914 [ppbv]
Cancer Risk of this concentration: 4.006e-8 Hazard Risk of this concentration: 0.

Based on parameter analysis: Advection is the dominant mechanism across foundation.

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

Appendix D



Photograph 1: View looking north at the western parcel currently used as a parking lot for University Volkswagon Audi.



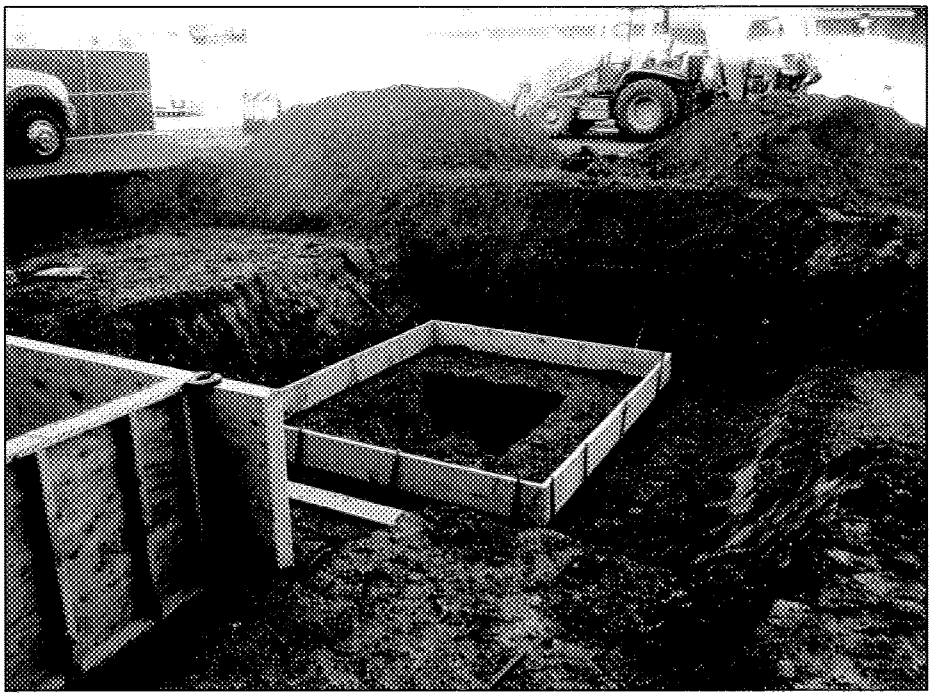
Photograph 2: View looking east with the Site's western and eastern parcels on the left side of the photo and Northeast 47th Street on the right. Western parcel is an asphalt parking lot (foreground). Eastern parcel is the University Volkswagon Audi new showroom (under reconstruction, background).

RILEYGROUP
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University VW - Audi Property		Figure D-1
RGI Project Number 2014-068C	Site Photographs	Date Drawn: 08/2015
Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105		



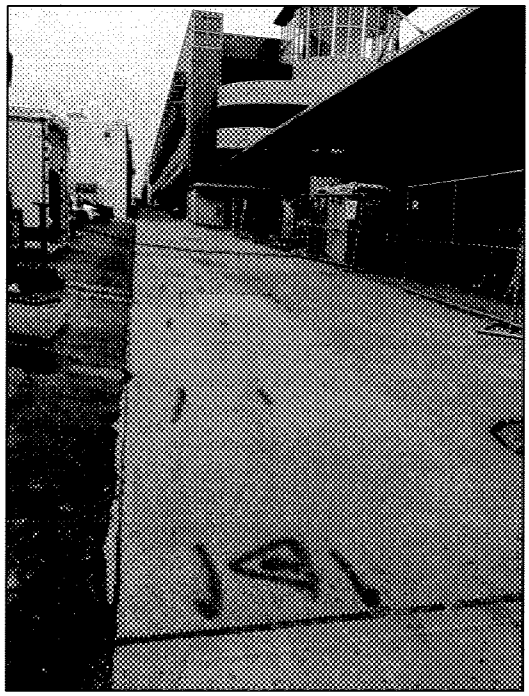
Photograph 7: View of soil sample collected from MW1 at depths of 60 feet bgs.



Photograph 8: View of limited soil cleanup and elevator pit area on the eastern parcel for new auto showroom.

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University VW - Audi Property		Figure D-4
RGI Project Number 2014-068C	Site Photographs	Date Drawn: 08/2015
Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105		



Photograph 5: Looking north at concrete alley separating the western and eastern parcels of the Site.



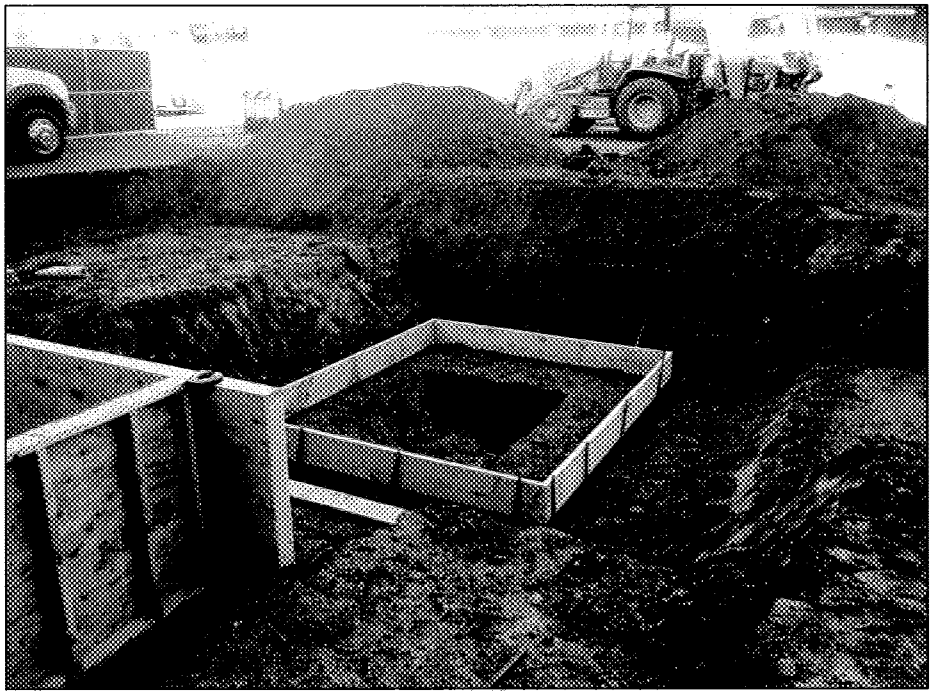
Photograph 6: Typical view representative of medium to very dense silty sand / sandy silt underlying the Site to depths of at least 65 feet below ground surface (bgs).

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University VW - Audi Property		Figure D-3
RGI Project Number 2014-068C	Site Photographs	Date Drawn: 08/2015
Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105		



Photograph 7: View of soil sample collected from MW1 at depths of 60 feet bgs.



Photograph 8: View of limited soil cleanup and elevator pit area on the eastern parcel for new auto showroom.

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University VW - Audi Property		Figure D-4
RGI Project Number 2014-068C	Site Photographs	Date Drawn: 08/2015
Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105		



Photograph 9: Looking south at new auto showroom (left), construction area for new utilities (center), and alley (right).



Photograph 10: Looking north (eastern parcel) showing installation of dual phase extraction wells (concrete vaults) and piping trenches.

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University VW - Audi Property		Figure D-5
RGI Project Number 2014-068C	Site Photographs	Date Drawn: 08/2015
Address: 4724 Roosevelt Way Northeast & 4701 11th Avenue Northeast, Seattle, Washington 98105		