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of Ecology (DPEW)

Supplemental Investigation & Remedial Excavation

**Progress Rail Spill Incident # 12-0773
4012 SR 509 South Frontage Road
Tacoma, Pierce County, Washington**

March 11, 2014

Terracon Project No. 81127060

Prepared for:
Progress Rail Services
Tacoma, Washington

Prepared by:
Terracon Consultants, Inc.
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March 11, 2014

Progress Rail Services
4012 SR 509 South Frontage Road
Tacoma, Washington 98421

Attn: Mr. Scott Jagger

Re: Supplemental Investigation and Remedial Excavation Report
Progress Rail Spill Incident # 12-0773
4012 SR 509 South Frontage Road
Tacoma, Pierce County, Washington
Terracon Project No. 81127060

Dear Mr. Jagger:

Terracon Consultants, Inc. (Terracon) has prepared this *Supplemental Investigation and Remedial Excavation Report* in association with additional site investigation and remedial action associated with a reported diesel fuel spill at the above-referenced site. These services were performed in accordance with Terracon Proposal No. P81120225R dated August 28, 2012 and Proposal No. P81130209 dated July 8, 2013.

We appreciate the opportunity to perform these services for Progress Rail Services. Please contact either of the undersigned at (425) 771-3304 if you have questions regarding the information provided in the report.

Sincerely,
Terracon Consultants, Inc.

Eric A. Dubcak
Project Manager

Matt Wheaton, L.G. E.I.T.
Department Manager

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1.0 INTRODUCTION

1.1 Site Description

Site Location/Address	Progress Rail Spill Incident # 12-0773 4012 SR 509 South Frontage Road Tacoma, Washington 98421
General Site Description	The site is an approximate 14.99-acre tract of land currently utilized for the repair, remanufacture, and repainting of rolling rail stock.

The site is located at 4012 SR 509 South Frontage Road in Tacoma, Washington (Pierce County Parcel No. 2001867000) which is located on the parent tract of land owned by the Port of Tacoma (Pierce County Parcel No. 0320021002). Figure 1 is a Topographic Map which presents the general site location and topography of the site on the Tacoma South and Puyallup, Washington USGS topographic quadrangle maps (Appendix A). Figure 2 is a Site Plan that details the general site features, previous sampling locations and remedial excavation limits and sampling locations. The general location of the remedial amendment trench is depicted in Figure 3.

1.2 Background

Terracon Consultants, Inc. (Terracon) was contacted by Progress Rail in an effort to assist with a release of diesel fuel on-site that reportedly occurred in March 2012. According to Progress Rail, the release originated from an auxiliary locomotive fuel tank leak that resulted in petroleum impacts to soil in the area between the locomotive shop and the locomotive wash pad. In addition to the diesel release, the site is currently listed on the Hazardous Sites List (HSL) as a result of historical spills identified at other locations at the site. As discussed below, this report pertains to the diesel spill Incident # 12-0773 in the area between the locomotive shop and the locomotive wash pad. Other potential releases or site impacts are being evaluated independent of the efforts summarized herein.

Based on discussions and information provided by Progress Rail, we understand that limited remedial excavation of impacted soils was conducted by Progress Rail following the discovery of the diesel spill. However, these efforts were limited to accessible areas between the railroad tracks to the south, the wash pad to the north, and subsurface utilities along the north side of the railroad tracks. In general, the aerial extent of the previous excavation consisted of an approximate 10 foot by 50 foot area, beginning to the east of a utility vault and extending to the east. At the time of the excavation, groundwater was observed within the excavation trench at a depth of approximately two feet below ground surface (bgs). Following excavation activities,

Panhandle Geotechnical & Environmental, Inc. (Panhandle) completed direct-push probe borings in the excavation area and in locations to the west, east, north of the wash pad, and south of the locomotive shop to evaluate residual groundwater quality following remedial excavation. Diesel and oil-range TPH was identified in the groundwater samples collected from borings DP-2 and DP-4, located to the east and west of the previous remedial excavation, respectively, at inferred down-gradient locations. Impacts to site soil above Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup level was identified in only one soil grab sample collected from the eastern extent of the Panhandle remedial excavation. The sample, identified as "East end sample" contained diesel-range total petroleum hydrocarbons (TPH) at a concentration of 5.500 mg/kg.

Following authorization from Progress Rail, Terracon completed a Limited Site Investigation (LSI), dated January 29, 2013, in the vicinity of the diesel spill in an effort to evaluate the lateral and vertical extents of impacts from the spill for the purposes of evaluating cleanup action alternatives. Nine borings were advanced in the vicinity of the reported diesel spill area. Ten soil samples and seven groundwater samples collected from temporary groundwater monitoring wells were submitted for laboratory analysis. Diesel- and oil-range TPH were not detected above laboratory reporting limits in any of the soil samples. Although additional soil sampling was conducted to the north, south and west of the remedial excavation, no additional soil samples contained diesel- or oil-range TPH above their respective MTCA cleanup levels. During sampling activities, no soils were recovered from borings B-4 & B-5; however, groundwater samples were collected. Borings B-6 and B-9 encountered refusal at shallow depths and no samples were collected.

Diesel and oil-range TPH was identified at various concentrations in groundwater samples collected from all the geoprobe borings advanced by Terracon. Of these groundwater samples, diesel and oil-range TPH was only identified at concentrations above the MTCA Method A cleanup level, established at 500 ug/L for both diesel and oil, in groundwater samples collected from borings B-5 and B-7. Based on the groundwater results collected previously and Terracon's groundwater sampling results, diesel-range TPH groundwater impacts above MTCA cleanup levels appears to be primarily confined to the area between the locomotive wash pad and the locomotive shop, with the approximate eastern extents of the plume located between Terracon's soil borings B-3 and B-7, and the approximate western extents of the plume located between Terracon's boring B-1 and the previous sample location, DP-4.

Based on the findings of the previous investigations performed by Terracon and others, it appears that the previous remedial excavation activities removed diesel-impacted soils in the accessible locations within the diesel spill area between the tracks and wash pad. However, analytical results indicate that diesel and oil-range impacts remain within limited areas underlying the railroad tracks between the locomotive wash pad and the locomotive shop.

Terracon prepared the proposal (P81130209) for the installation of two permanent groundwater monitoring wells to collect a representative groundwater sample at the east and west portions of the identified diesel spill area. Based on results from the groundwater sampling, the area with the higher diesel-range concentrations would be selected to complete a pilot scale study of remedial injections. The scope of services in Proposal P81120225R included the excavation of the petroleum contaminated soils (PCS) documented between the locomotive shop and the locomotive wash pad, directly beneath the railroad tracks. Based on the results of sampling activities completed in the vicinity of the diesel spill area, as requested by the client, Terracon completed additional remedial excavation in an effort to reduce residual groundwater concentrations elsewhere and application of a remedial amendment (ORC Advanced®) was added to the backfilled trench.

1.3 Scope of Work

Terracon's scope of services was conducted in accordance with Terracon Proposal No. P81120225R dated August 28, 2012 and Proposal No. P81130209 dated July 8, 2013. The LSI Task in Proposal P81120225R was previously completed and the findings and conclusions have been previously submitted to the client (also summarized above). Our scope of services included completion of the following tasks:

- Task 1 Prepared a Work Plan, a Health and Safety Plan, and completed pre-mobilization planning.
- Task 2 Advanced two soil borings near the eastern and western extents of the identified petroleum impacted soil and groundwater. Complete the two borings as permanent groundwater monitoring wells. Collected soil and groundwater samples for analysis.
- Task 3 Completed laboratory analyses of soil and groundwater samples.
- Task 4 Completed pre-mobilization planning and excavation of the PCS. Collected confirmation samples, and backfilled the excavation area with a remedial amendment (ORC Advanced®).
- Task 5 Completed laboratory analysis of the confirmation soil samples.
- Task 6 Prepared this Supplemental Investigation and Remedial Excavation report summarizing the results of our findings and excavation activities.

1.4 Project Objectives

The objectives of this project were to evaluate groundwater conditions as a result of the reported release of diesel fuel in the area between the locomotive shop and the locomotive wash pad and complete remedial excavation of the PCS.

1.5 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third parties supplying information used in the preparation of the report. These services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-11.

1.6 Additional Scope Limitations

This report was intended to reduce, but not eliminate, uncertainty regarding the existence of recognized environmental conditions in connection with the subject site. Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, non-detectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this Supplemental Investigation and Remedial Excavation. Subsurface conditions may vary from those encountered at the time of construction or at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services. The data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services. If, during future site development, different subsurface conditions from those encountered during our explorations are observed or appear to be present, we must be advised promptly so that we can review these conditions and reconsider or modify our conclusions and recommendations where necessary.

1.7 Reliance

This Supplemental Investigation and Remedial Excavation report is prepared for the exclusive use and reliance of Progress Rail Services. Use or reliance by any other party is prohibited without the written authorization of Progress Rail Services and Terracon Consultants, Inc.

(Terracon). Reliance on the Supplemental Investigation and Remedial Excavation report by the client and all authorized parties will be subject to the terms, conditions and limitations stated in the proposal.

2.0 FIELD INVESTIGATION

Terracon conducted the fieldwork under a site specific health and safety plan developed for this project. Terracon contacted the State of Washington Utility Notification Center and requested location and markings for all utilities that the service was responsible for before commencing intrusive activities at the site.

Prior to advancing the two direct-push borings, a private utility locate was performed by Applied Professional Service (APS), to evaluate the presence of any subsurface utilities and/or features which may exist in the vicinity of the proposed boring locations. Minor adjustments were made to proposed boring locations due to the presence of underground utilities identified in the vicinity of the proposed borings.

2.1 Subsurface Exploration

On August 8, 2013, Terracon's field geologist Adam Stauffer mobilized to the site to advance two borings identified as B-10 and B-11. The borings were completed using a direct-push truck-mounted drill rig operated by Holocene Drilling, a Washington State-licensed driller. This rig utilized a direct-push sampler equipped with disposable plastic acetate sample sleeves. Throughout the drilling operation, soil samples were obtained continuously (to the extent practical) from four-foot long pushes driven into the ground. The steel sampling tube was extracted from the borehole and the liners were removed and split open for soil sample recovery. Non-disposable sampling equipment was cleaned using an Alconox[®] wash and potable water prior to the beginning of the project and before collecting each soil sample.

Borings were advanced at the eastern and western portions of the reported diesel spill area. These were completed in an effort to evaluate for residual diesel impacts to site groundwater. The borings were advanced to depths of approximately 15 feet below ground surface (bgs). A saturated zone was identified in the soil cores at approximately four to five feet bgs.

A field log of each exploration was maintained, including the approximate thickness and depth of each soil unit encountered and the approximate depth to the uppermost water table. Soil samples were observed to document soil lithology, color, and moisture content. Soils were logged in general accordance with American Society for Testing and Materials (ASTM) Practice Designation D-2488, *Standard Practice for Description of Soils (Visual-Manual Procedure)*. Exploration logs are included in Appendix B of this report.

2.2 Field Screening

Soil samples from select depths were field-screened using a MiniRAE 3000 photoionization detector (PID). Samples were screened by first segregating, at a minimum, 1 ounce of soil into a sealed plastic bag. The samples were placed into the sealed bag and set aside to allow potential volatilization from the sample to accumulate. Headspace analysis was performed by subsequently puncturing each plastic bag with the probe of the PID to estimate the concentration of volatile components partitioned into the atmosphere ("headspace") within the plastic bag.

The PID was calibrated with isobutylene gas (100 ppm). The highest digital readout value displayed by the instrument was recorded for each sample (the results are integrated into the boring logs in Appendix B). The value recorded for the PID indicates the total vapor concentration of volatilized organic compounds (VOCs) with ionization potentials less than the energy produced by the ionizing radiation source (ultraviolet lamp) of the PID. These compounds include numerous volatile constituents of petroleum hydrocarbons. However, the PID is not capable of determining the species of these compounds or their concentrations in the soil samples. Consequently, the PID is considered merely a screening tool that aids in detecting the presence of volatile soil contaminants.

2.3 Soil Sampling

A total of two soil samples, one from each completed boring (B-10 and B-11), were collected for laboratory analysis. Soil samples submitted for analysis were collected from the capillary fringe zone since intervals exhibiting visual or olfactory indications of petroleum impacts were not observed. Specific soil sample depths are provided in the attached boring logs (Appendix B).

All soil samples were extracted by hand from the disposable acetate sleeves using disposable gloves and placed directly into laboratory-supplied glassware. Each sample container was labeled with the site name, date, time, exploration number, and sample number. Sample containers were placed on ice in a cooler immediately after sampling, and transported to the analytical laboratory under strict chain-of-custody procedures.

2.4 Groundwater Monitoring Well Installation and Sampling

Subsequent to reaching a depth of 15 feet, Holocene installed dedicated groundwater monitoring wells in borings B-10 and B-11, identified as monitoring wells MW-1 and MW-2, respectively. Each monitoring well consists of 2-inch inside diameter, schedule 40, flush-threaded PVC. Groundwater monitoring wells MW-1 and MW-2 were constructed with a ten foot section of 0.010-inch slotted screen sand mated to an appropriate length section of blank riser, which extended to approximately 0.25 feet below the ground surface. The annular space between the well casing and the borehole wall was filled with #10-20 silica sand extending

approximately two feet above the screened interval. A hydrated bentonite seal was placed above this, and the wells were completed at the ground surface with lockable, flush-mount monuments that were cemented in place. The monitoring wells were constructed in accordance with the Washington State *Minimum Standards for Construction and Maintenance of Wells* (WAC 173-160). Monitoring well construction details are provided along with the exploration logs in Appendix B.

The groundwater monitoring wells were subsequently developed by purging with an electric submersible pump. Approximately 15-gallons of development water was collected from each well and the total of 30 gallons of development water stored in a drum staged onsite.

Terracon returned to the site on August 16, 2013 for the collection of groundwater samples from monitoring wells MW-1 and MW-2. Prior to sample collection, monitoring wells were purged until consistent values (i.e., less than 10% variance between consecutive readings) were obtained for pH, turbidity, temperature and conductivity using a Horiba U-22 multi-parameter water quality meter equipped with a flow through cell.

Groundwater samples from the wells were collected with a peristaltic pump utilizing low flow techniques. The polyethylene tubing was placed within the submerged screened interval of the well. Dedicated polyethylene tubing was used for each monitoring well. Discharge from the peristaltic pump was directed into laboratory provided glassware.

Each sample container was labeled with the site name, date, time, exploration number, and sample number. Sample containers were placed in a chilled cooler immediately after sampling, and subsequently transported to the analytical laboratory by Terracon under strict chain-of-custody procedures.

Investigation-derived waste (IDW) consisting of soil cuttings, development groundwater, and equipment cleaning water generated during the field activities were placed in Department of Transportation (DOT) approved, 30 -gallon steel drums, sealed and appropriately labeled with project-specific information and initial accumulation date. The IDW generated as part of the January 2013 LSI and this investigation were properly disposed with the PCS during the excavation activities, further discussed below.

2.5 Analytical Laboratory Testing

A total of two soil samples and a total of two groundwater samples were submitted for laboratory analysis. All samples were analyzed by Friedman and Bruya, Inc., a Washington State-accredited laboratory. The samples were analyzed for diesel- and oil-range TPH using Northwest Method NWTPH-Dx.

The executed chain-of-custody forms and laboratory analytical certificates are provided in Appendix C. All analyses were completed using standard turnaround times.

Data packages were checked for completeness immediately upon receipt from the laboratory to ensure that data and QA/QC information requested were present. Data quality was assessed by considering holding times, surrogate recovery, method blanks, matrix spike and matrix spike duplicate recovery, and detection limits.

3.0 SUPPLEMENTAL INVESTIGATION RESULTS

3.1 Subsurface Conditions

Detailed lithologic descriptions are presented on the soil boring logs included in Appendix B. In general, subsurface soil conditions varied slightly between borings and consisted of gravelly sand fill material over silty sand and sandy silt. Groundwater was encountered at depths of approximately six to seven feet bgs within the groundwater monitoring wells.

3.2 Analytical Laboratory Results

Soil quality summary results are presented in Table 1. Groundwater results are presented in Table 2. The complete laboratory reports and chains-of-custody are included in Appendix C.

Soil Quality

A total of two soil borings were advanced on-site and two soil samples were analyzed for diesel- and oil-range TPH. Diesel- and oil-range TPH were not detected above laboratory reporting limits the two soil samples collected. Analytical soil data collected from others, prior Terracon investigations and results of current sampling activities are summarized in Table 1 below.

Table 1: Summarized Soil Analytical Results

Sample Number	Sample Collected By:	Sample Depth (feet)	Sample Date	Total Petroleum Hydrocarbons (mg/Kg)		
				Diesel-range	Oil-range	
West end sample	Panhandle	NA	3-7-12	44	210	
South side sample		NA	3-7-12	ND<26	ND<51	
East end sample		NA	3-7-12	5,500	900	
North side sample		NA	3-7-12	ND<24	ND<54	
B-1 S-1	Terracon	4.5	11-15-2012	ND<50	ND<250	
B-1 S-2		7.5	11-15-2012	ND<50	ND<250	
B-2 S-1		3.5	11-15-2012	ND<50	ND<250	
B-2 S-2		7.5	11-15-2012	ND<50	ND<250	
B-3 S-1		4	11-15-2012	ND<50	ND<250	
B-3 S-2		8	11-15-2012	ND<50	ND<250	
B-7 S-1		5.5	11-15-2012	ND<50	ND<250	
B-7 S-2		7.5	11-15-2012	ND<50	ND<250	
B-9 S-1		5.5	11-15-2012	ND<50	ND<250	
B-9 S-2		7.5	11-15-2012	ND<50	ND<250	
B-10 S-1		4.5-5.5	8-3-13	ND<50	ND<250	
B-11 S-1		3.5-4.5	8-3-13	ND<50	ND<250	
MTCA Method A Cleanup Level				2,000	2,000	

mg/Kg: milligrams per kilogram (parts-per-million); ND: analyte not detected above laboratory reporting limits; Please refer to Appendix C for the complete set of analytes and analytical results.

Groundwater Quality

Groundwater samples were collected from monitoring wells MW-1 and MW-2. Analytical groundwater data collected from others, prior Terracon investigations and results of current sampling activities are summarized in Table 2 below.

Table 2: Summarized Groundwater Analytical Results

Sample Number	Sample Collected By:	Sample date	Total Petroleum Hydrocarbons (ug/L)	
			Diesel-range	Oil-range
DP-1	Panhandle	5-22-12	2,300	1,000
DP-2		5-22-12	450	700
DP-4		5-22-12	560	1,500
B-1	Terracon	11-15-12	220 ^x	ND<250
B-2		11-15-12	140 ^x	ND<250
B-3		11-15-12	380 ^x	ND<250
B-4		11-15-12	330 ^x	390 ^x
B-5		11-15-12	5,800	9,800 ^x
B-7		11-15-12	900 ^x	760 ^x
B-9		11-15-12	140 ^x	ND<250
MW-1		8-16-13	62 ^x	ND<250
MW-2		8-16-13	94 ^x	ND<250
MTCA Method A Cleanup Level			500	500

µg/L: micrograms per liter (parts-per-billion); ND: analyte not detected above laboratory reporting limits.

Please refer to Appendix C for the complete set of analytes and analytical results.

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

Based on the reported concentrations collected from the two newly installed groundwater monitoring wells, the proposed pilot scale injection did not appear warranted. The diesel and/or oil TPH impacts do not appear to have migrated at detectable concentrations to the locations where the groundwater monitoring wells installed to the northeast and/or northwest of the reported spill area. Due to the absence of significant groundwater impacts in these two areas, the implementation of injecting an enhanced bioremediation product into the subsurface aquifer would not be beneficial during a long term monitoring to identify the effectiveness prior to implementation of a full scale injection plan. Therefore, Terracon completed the remedial excavation activities discussed below.

4.0 REMEDIAL EXCAVATION

Terracon was authorized by Progress Rail Services to conduct a remedial excavation for the identified PCS located between the locomotive shop and locomotive wash pad located at the site. The wash pad is approximately 175 feet, east to west, in length and the area of impacts were reported to exist, randomly, along the length of the this area. The width of the area of concern is approximately 21 feet, north to south in length. The area sloped in a northern direction from the locomotive building pad, north to the surface of the locomotive wash pad. This elevation grade change was approximately 1 to 1 ½ feet over the approximate 21 foot distance.

Terracon contracted with NRC Environmental Services, Inc. (NRC) to complete the remedial excavation activities at the site. Prior to mobilization and excavation activities, Progress Rail directly contracted with a railroad track installation/removal company to remove the tracks and railroad ties from the proposed excavation area. Approximately 200 feet of railroad track and ties were removed for the excavation activities. Due to the number of known utilities located within the proposed excavation area and to verify their locations, a private utility locator was subcontracted to identify the location of the utilities prior to beginning any excavations.

4.1 Utility Location Services

On September 23, 2013 Terracon, NRC, Progress Rail personnel Greg Siefert and CNI Locates were onsite to mark the location of the utilities within the proposed excavation area. The railroad tracks had been removed on September 20, 2013 and indications of staining were observed in the gravel bedding located along area of the former track. Multiple private utilities including a natural gas line, electric power, PVC storm drainage and fiber optic communications were identified during the private locate survey. Greg Siefert was able to help identify the locations and type of utilities that were located in the vicinity of the proposed excavation area. A utility vault was located on the western end of the locomotive wash pad area and multiple utility locations where they entered and exited the vault were observed. Due to the location of the utilities, NRC requested that pot holing utilizing a vactor-truck be completed in the marked areas prior to beginning any excavation earthwork.

On September 24, 2013, Terracon and NRC mobilized to site to begin remedial excavation activities. Terracon and NRC also completed a project specific safety plan prior to beginning any excavation activities. The potholing activities began in the eastern portion of the proposed excavation area where a natural gas line was located. Multiple potholes were completed to verify the depth of the gas line and where the lined teed and continued in an east/west orientation. During the potholing activities in the vicinity of the natural gas line, apparent black oily free product was observed draining from the track gravel bedding which was adjacent to the "east end sample" collected by others. The gravel bedding was approximately 18-inches thick and was on top of a track filter fabric, which was laid directly over the top of the "native" subsurface soils.

After the utility line depth was verified, three additional potholes were completed along the marked utilities to verify the utility depth and locations. The fourth pothole located at the western end of the proposed excavation was also observed with an apparent black oily product draining from the gravel bedding. The centrally located pot-hole did not encounter apparent free product draining from the gravel bedding.

4.2 Remedial Excavation Activities

After verification of the utilities, NRC initiated excavation in the vicinity of the natural gas line. The excavation east of the gas line extended to a depth of four feet below ground surface (bgs) and approximately ten feet to the east as depicted on Figure 2. Soils were field screen using, visual, olfactory and a PID instrument until it was apparent that the PCS had been removed. A confirmation soil sample, EX-1, was collected from the base of this excavation area east of the natural gas line. As a safety precaution, the excavation activities in the immediate vicinity of the natural gas line were completed with hand tools.

The excavation continued to the west; however, based on field screening methods the PCS did not extend to depths of four feet bgs. The excavation depth decreased with distance from the natural gas utility line. From this location, the diesel-impacted gravel was removed down to the top of the filter fabric. As the fabric was removed the soils beneath were observed with petroleum sheens and staining. Approximately one foot of soils were removed from beneath the diesel-impacted gravel bedding until soils free of petroleum-impairment had been reached. Again, soils were field screen using, visual, olfactory and a PID instrument and confirmation sidewall and bottom samples were collected. The excavation of the diesel soaked gravel and PCS continued through September 25, 2013.

On the morning of September 25, 2013, due to overnight rain, the four foot excavation east of the natural gas line had collected stormwater. NRC removed 350-gallons of stormwater from the excavation with the vac truck prior to beginning any excavation activities.

Due to the utilities located within the vicinity of the excavation area, the contractor was not able to get in and around the utility or the area of the east end sample collected in the previous investigation. However, the soil samples collected in B-7, further east, did not indicate the presence of petroleum hydrocarbons.

Terracon collected a total of seven confirmation soil samples during excavation activities, which included four samples from the base of the excavation area and three samples from the excavation southern sidewalls. The confirmation bottom samples were collected in areas where contamination had been observed and the sidewall samples were collected to confirm the PCS did not continue south, into the sidewalls at depths where the PCS was removed. The northern portion of the excavation was at grade with the wash pad and extended to approximately where the initial spill excavation had been completed (Figure 3).

Soil samples were submitted for analytical laboratory analysis by Friedman & Bruya, Inc., a Washington State-accredited laboratory. The analysis included Washington State method NWTPH-Dx for diesel and oil-range TPH.

Table 3: Excavation Confirmation Soil Analytical Results

Sample Number	Sample Depth (feet)	Sample Date	Total Petroleum Hydrocarbons (mg/Kg)	
			Diesel-range	Oil-range
EX-1	4	9-24-13	ND<50	ND<250
EX-2	2	9-25-13	ND<50	ND<250
EX-3	2	9-25-13	ND<50	ND<250
EX-4	2	9-25-13	ND<50	ND<250
SW-1	1.5	9-25-13	ND<50	ND<250
SW-2	1	9-26-13	ND<50	ND<250
SW-3	1	9-26-13	ND<50	ND<250
MTCA Method A Cleanup Level			2,000	2,000

µg/L: micrograms per liter (parts-per-billion);

ND: analyte not detected above laboratory reporting limits.

A total of 146.42 tons of PCS and gravel was removed from the site and disposed at LRI located in Puyallup, Washington. This total volume was comprised of roughly half track gravel and half soils. The permit for waste disposal authorization, water disposal, bill of lading and tonnage truck scale tickets are included in Appendix E.

4.3 Remedial Amendment Installation

Following the completion of the PCS excavation activities, Terracon applied enhanced bioremediation as a component of the backfill process. To be able to apply the enhanced bioremediation amendment to the saturated zone a trench was excavated, in approximate 20 foot sections, down the entire length of excavation area. The trench was approximately four feet wide and extended to depths of seven feet bgs down the middle of the soil excavation area. Since approximately two to two and a half feet of gravel and PCS had already been removed from the surface, the trench depth relative to surrounding grade was approximately nine feet. Seepage was observed in the sidewalls of the excavation at about seven feet bgs. The trench was completed in approximate 15 to 20 foot sections and the Oxygen Release Compound – Advanced (ORC-A®) was added to the base of the excavation, hydrated with supplemental water from a nearby spigot and mixed with the excavator bucket. The trench was then backfilled with original soils removed from the section of the trench and compacted with the bucket of the excavator in multiple lifts. A total of 1,125 lbs of ORC-A® was applied to the entire length of the trench which extended approximately 100 feet east to west (Figure 4).

The purpose of the follow-up Oxygen Release Compound – Advanced (ORC-A®) is enhance the native microbial population through the introduction of oxygen in to the subsurface, which will in turn promote the metabolism of residual petroleum hydrocarbons. The purpose of amending backfill materials with this compound is to address residual soil and/or groundwater impacts.

After application of the ORC-A and backfilling of the trench, the excavation area was backfilled and compacted with 66.65 tons of type 17 structural fill material that originated from Lloyd Enterprises, Inc. dba Federal Way Sand and Gravel located in Federal Way, Washington. Terracon was requested by the track installation contractor to only backfill up to approximately 18 inches below the top of existing railroad track. The backfill origination and tonnage documentation and tonnage truck scale tickets are included in Appendix E.

4.4 Quality Assurance/Quality Control Results

The analytical results for the current investigation were checked for completeness immediately upon receipt from the laboratory to ensure that data and QA/QC information requested were present. Data quality was assessed by considering hold times, surrogate recovery, method blanks, matrix spike and matrix spike duplicate (MS/MSD) recovery, and detection limits. QA/QC review was completed using guidance described in *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (Draft Final, USEPA, 2005). Our evaluation assumes that the QA/QC is correct as reported by the laboratory, and merely provides an interpretation of the QA/QC results.

Hold Times. All analyses were completed within specified hold times.

Surrogate Recoveries. All surrogate recoveries were within laboratory limits.

Method Blanks. Analytes were not detected in any of the laboratory method blanks.

MS/MSD Results. MS and MSD recoveries were all within laboratory limits, and Relative Percent Differences (RPDs) between MS and MSD recoveries were all within laboratory limits.

Laboratory Reporting Limits. Reporting limits were below relevant MTCA cleanup levels.

Based upon our interpretation of quality control information provided by the laboratories, it is our opinion that the overall dataset is useable as qualified for the purposes of this Supplemental Investigation and Remedial Excavation.

5.0 FINDINGS AND DISCUSSION

Terracon completed a Supplemental Investigation and Remedial Excavation at the Progress Rail site in Tacoma, Washington. Two borings were advanced on the east and west end of the reported diesel spill area and completed as permanent groundwater monitoring wells. Soil and groundwater samples were collected and submitted for analysis. Based on the findings of previous investigations completed by others and Terracon, and the findings of the current investigation, the limits of petroleum-impacted soil was confined to the area between the locomotive shop and the locomotive wash pad. The remedial excavation was completed

between the locomotive shop and wash pad for removal of the petroleum-impaired soils and for the application of a remedial amendment.

The remedial excavation consisted of excavating the diesel-impacted gravel bedding and any soils that were determined petroleum-impaired by using visual, olfactory and/or PID instrumentation methods. Seven confirmation samples were collected from the bottom of the excavation and sidewalls and all were all reported below laboratory detection limits.

The ORC Advanced was mixed directly into the saturated zone along the length of the excavation area. As previously discussed, the application of the amendment was to address petroleum-impacted groundwater. As documented in the east sample collected by others, it appears that there are residual petroleum-impacted soils in this area that were not removed during the initial excavation complete by others. Due to the proximity of these soils to the numerous subsurface utilities in this area, this area could not be safely excavated during the Terracon remedial excavation activities.

Reportedly, the wash pad structure consisted of an approximate six-foot thick concrete pad. Groundwater fluctuations at the site could have allowed the groundwater to come into contact with the shallow petroleum-impacted soils located against the concrete pad and/or the spilled diesel could have seeped against the concrete pad down to the groundwater, resulting in the identified groundwater impacts.

6.0 CONCLUSIONS AND RECOMMENDATIONS

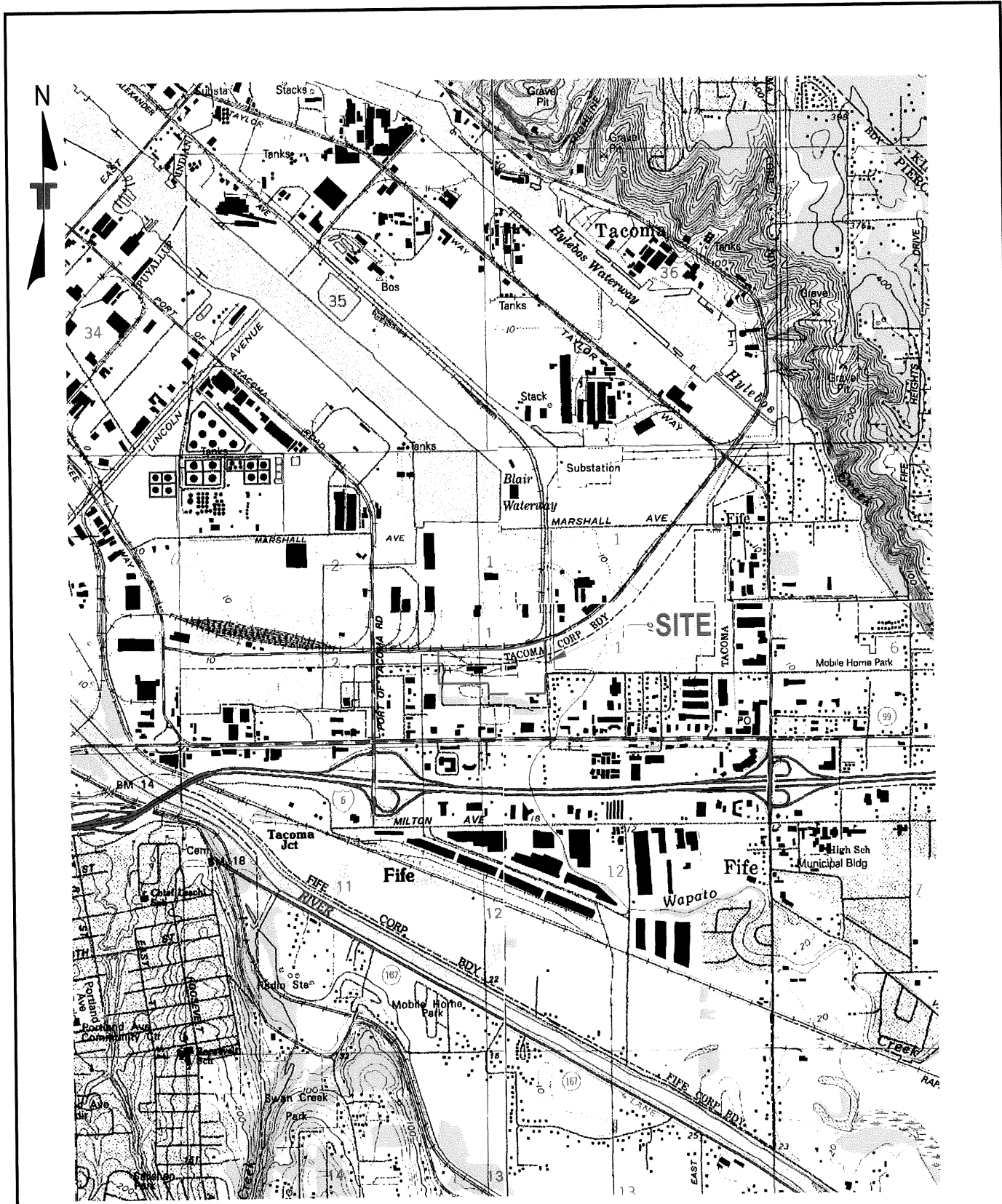
Based on the investigations and excavations completed by others and Terracon, it appears that the majority of the petroleum-impacted soils have been removed, to the extent practical.

Diesel and oil-range TPH concentrations have been documented in the groundwater. Therefore, the ORC-A®, which is a formulation of calcium oxyhydroxide which, upon hydration, releases oxygen and forms simple calcium hydroxide and water was added to the saturated zone. The installation of ORC-A® allows for an efficient, long-term (over a 12-month time period, depending on site conditions) release of oxygen providing the optimal conditions for sustained aerobic biodegradation.

Regardless of the removal of the petroleum-impacted soils associated with the diesel spill, the groundwater remains impacted above cleanup levels. Therefore, we recommend the installation of additional groundwater monitoring wells at the site. Their purpose, in addition to the existing two onsite monitoring wells, are to confirm groundwater concentrations and to monitor if the source removal and adding the ORC-A® is effective in decreasing the documented diesel- and/or oil-range TPH groundwater concentrations.

APPENDIX A

Figures

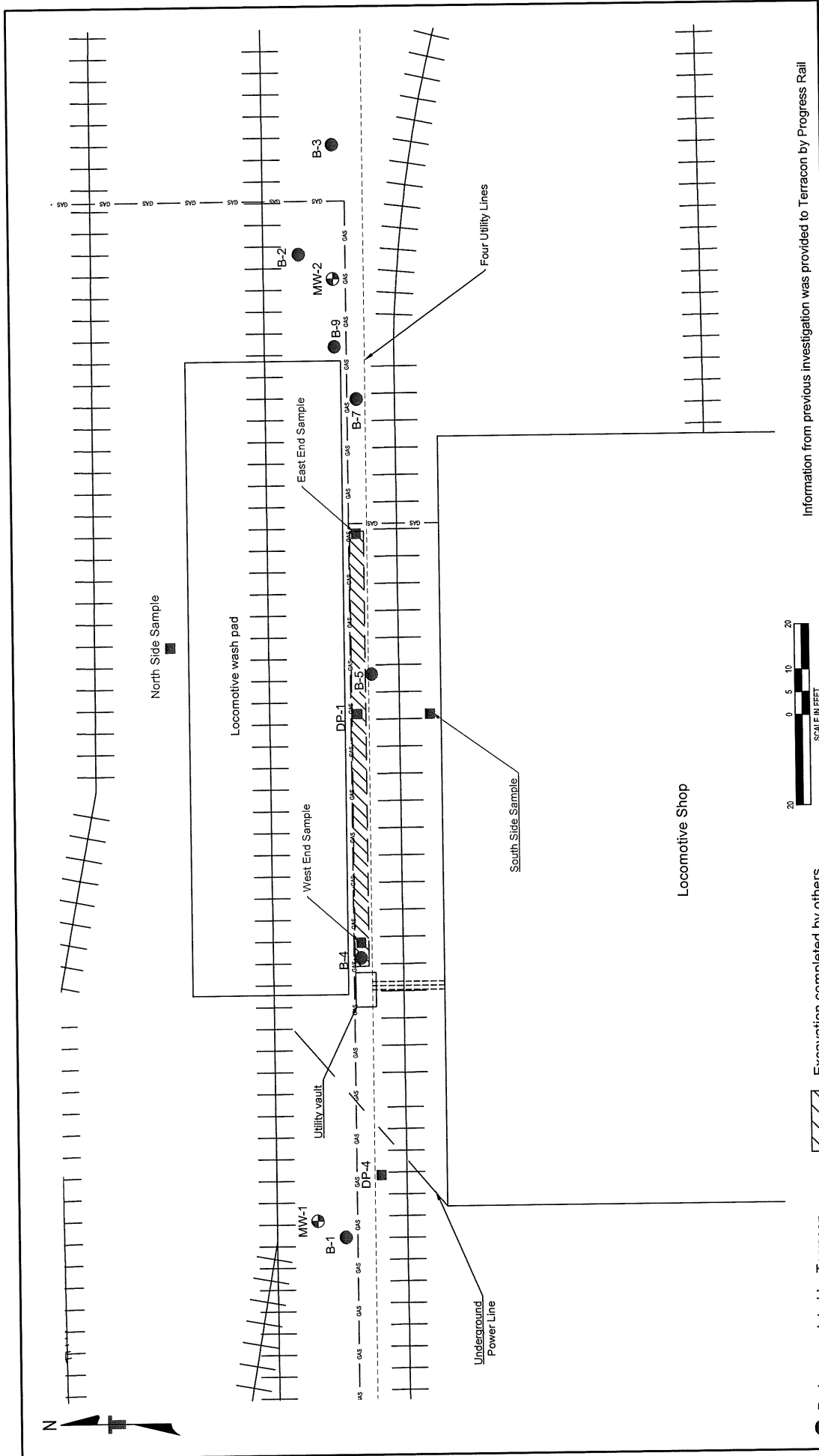


LEGEND:

Approximate site boundary

USGS Topographic Map, Tacoma North, Tacoma South, Poverty Bay, and Puyallup Quadrangles, 1994

Project Mngr: EAD Drawn By: EAD Checked By: EAD Approved By: MYW		Project No. 81127060 Scale: Not to scale File No. 81127060 Fig 1.dwg Date: January 2014				Site Vicinity Map Progress Rail 4012 SR 509 South Frontage Road Tacoma, Pierce County, Washington		FIG. No. 1	
21905 64th Avenue W., Ste 100 Mounlake Terrace, WA 98043 PH. (425) 771-3304 FAX. (425) 771-3549									



Information from previous investigation was provided to Terracon by Progress Rail

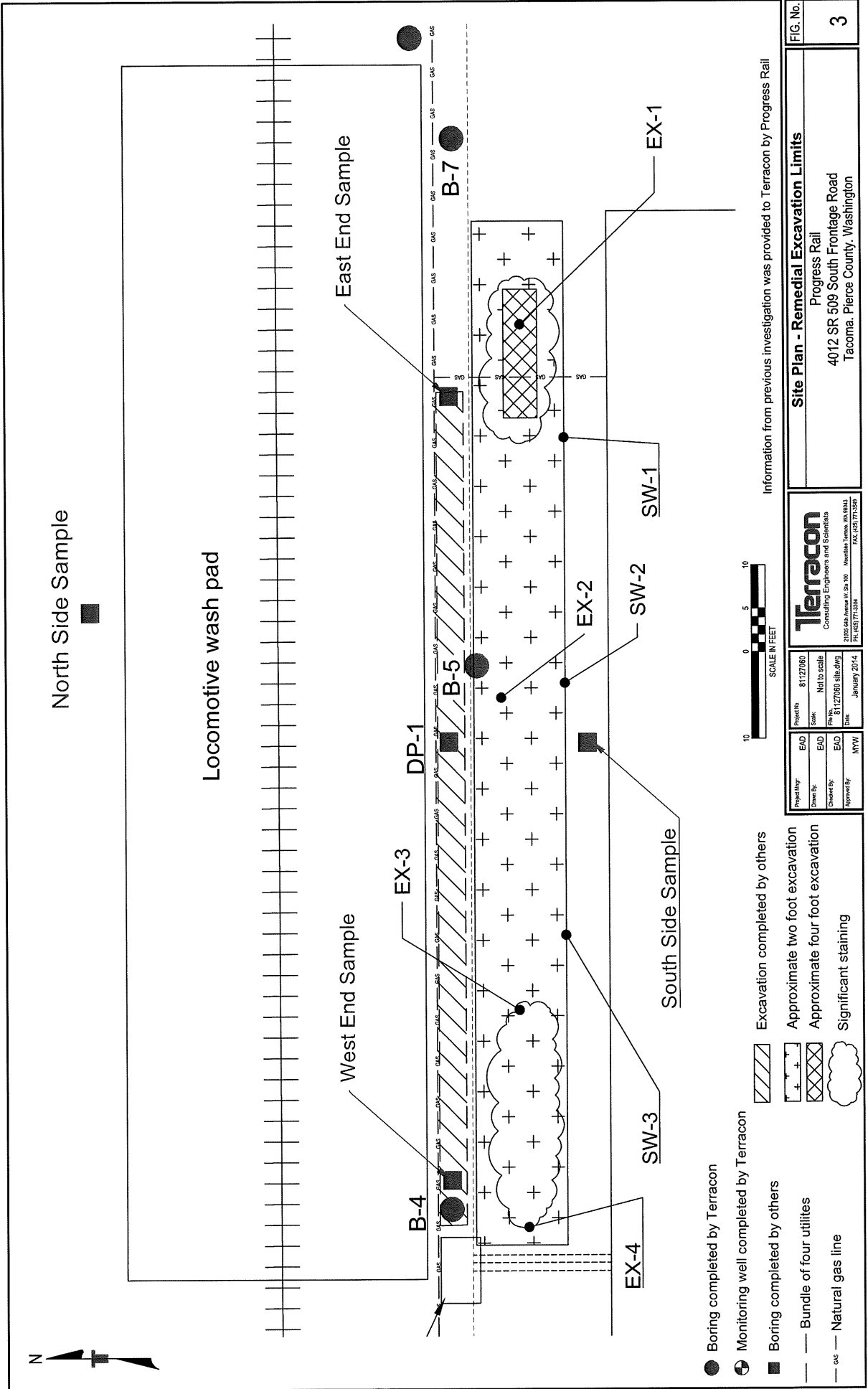
FIG. No. 2

Site Plan
 Progress Rail
 4012 SR 509 South Frontage Road
 Tacoma, Pierce County, Washington

Terracon
 Consulting Engineers and Scientists
 2195 64th Avenue N, Ste 100
 Minneapolis, MN 55412
 Tel: 612.771.3304 Fax: 612.771.3304

Project No:	81127050
Scale:	Not to scale
Project No:	81127050 (Sub-Plan)
Date:	January 2014

- Boring completed by Terracon
- Monitoring well completed by Terracon
- Boring completed by others
- Excavation completed by others



North Side Sample

Locomotive wash pad

East End Sample

West End Sample

EX-3

DP-1

B-5

B-7

EX-2

EX-4

SW-2

SW-1

South Side Sample

EX-1

● Boring completed by Terracon

⊕ Monitoring well completed by Terracon

■ Boring completed by others

— Bundle of four utilities

— GAS — Natural gas line



SCALE IN FEET

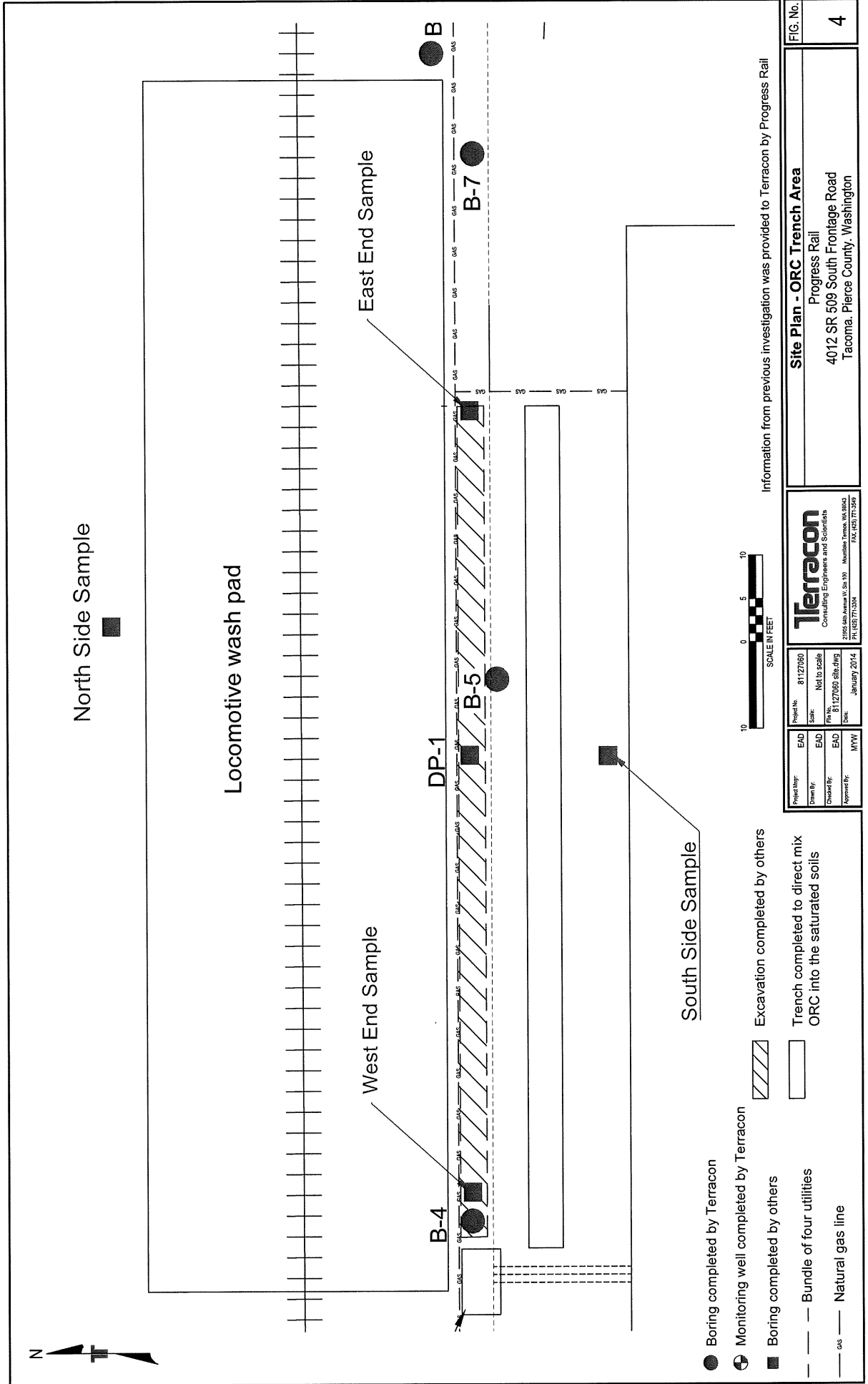
Information from previous investigation was provided to Terracon by Progress Rail

- Excavation completed by others
- Approximate two foot excavation
- Approximate four foot excavation
- Significant staining

Project No.	81127060
Scale	Not to scale
Drawn By	EAD
Checked By	EAD
Approved By	MYW
Date	January 2014

Terracon
 Consulting Engineers and Scientists
 2185 5th Avenue N. Ste 100 | Renton, WA 98057
 PH: (206) 771-3300 | FAX: (206) 771-9586

Site Plan - Remedial Excavation Limits
 Progress Rail
 4012 SR 509 South Frontage Road
 Tacoma, Pierce County, Washington



APPENDIX B

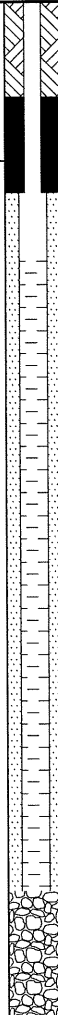
Boring Logs

WELL LOG NO. MW-1/B-10

PROJECT: Progress Rail Services

CLIENT: Progress Rail Services
Tacoma, WA

SITE:
Tacoma, Washington

GRAPHIC LOG	LOCATION: West end of locomotive wash pad	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	Sample ID
DEPTH							
0	WELL GRADED SAND WITH GRAVEL (SW) . brown to gray. moist. (fill)						
2.5	SILTY SAND (SM) . gray. moist. (fill) PID<1.0ppm		5	▽	X		B-10 S-1
6.5	SILT WITH SAND (ML) . dark gray to black. saturated. with organics. (fill). PID=0.3ppm						
8.0	POORLY GRADED SAND WITH SILT (SP-SM) . gray to brown. saturated PID<1.0ppm		10				
16.0	Boring Terminated at 16 Feet		15				

Stratification lines are approximate. In-situ, the transition may be gradual.

Well ID BHU-407

Advancement Method:
Direct Push

See Exhibit A-3 for description of field procedures.

Notes:

Abandonment Method:

See Appendix B for description of laboratory procedures and additional data. (if any).
See Appendix C for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

▽ Water level at 5 feet while drilling

Terracon
21905 64th Ave. W. Suite 100
Mountlake Terrace, Washington

Well Started: 8/13/2013

Well Completed: 8/13/2013

Drill Rig: GeoProbe

Driller: Holocene

Project No.: 81127060

Exhibit: A-1

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TERRACON SMART LOG-WELL BORING LOGS 081313.GPJ ODOT TEST.GPJ 1/15/14

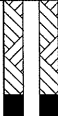

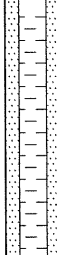
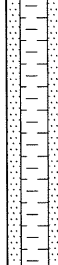
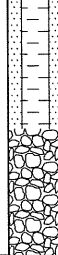
WELL LOG NO. MW-2/B-11

PROJECT: Progress Rail Services

**CLIENT: Progress Rail Services
Tacoma, WA**

SITE:

Tacoma, Washington

GRAPHIC LOG	LOCATION: East end of locomotive wash pad	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	Sample ID
DEPTH							
0.0	WELL GRADED SAND WITH GRAVEL (SW). light brown. moist. (fill)		0				
2.0	SILTY SAND (SM). brown to gray. moist. (fill)		2				
4.0	grades to dark gray. saturated. PID<1.0ppm		4	▽	X		B-11 S-1
7.5	POORLY GRADED SAND WITH SILT (SP-SM). dark gray. saturated. with organics. (fill) grades gray to brown No Recovery		7				
12.0	SILTY SAND (SM). dark brown to gray. saturated. (fill)		12				
16.0	Boring Terminated at 16 Feet						

Stratification lines are approximate. In-situ. the transition may be gradual.

Well ID BHU-408

Advancement Method:
Direct Push

See Exhibit A-3 for description of field procedures.

Notes:

Abandonment Method:

See Appendix B for description of laboratory procedures and additional data. (if any).
See Appendix C for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

▽ Water level at 4.5 feet while drilling



Well Started: 8/13/2013

Well Completed: 8/13/2013

Drill Rig: GeoProbe

Driller: Holocene

Project No.: 81127060

Exhibit: A-2

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TERRACON SMART LOG-WELL BORING LOGS 081313.GPJ ODOT TEST.GPJ 1/15/14

APPENDIX C

Laboratory Reports

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 23, 2013

Eric Dubcak, Project Manager
Terracon
Pacific Cascade Building
21905 64th Ave. W., Suite 100
Mountlake Terrace, WA 98043

Dear Mr. Dubcak:

Included are the results from the testing of material submitted on August 16, 2013 from the 81127060, F&BI 308273 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRC0823R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 16, 2013 by Friedman & Bruya, Inc. from the Terracon 81127060, F&BI 308273 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Terracon</u>
308273 -01	MW-1-081613
308273 -02	MW-2-081613

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/23/13
Date Received: 08/16/13
Project: 81127060, F&BI 308273
Date Extracted: 08/20/13
Date Analyzed: 08/20/13

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 41-152)
MW-1-081613 308273-01	62 x	<250	ip
MW-2-081613 308273-02	94 x	<250	78
Method Blank 03-1636 MB	<50	<250	73

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/23/13

Date Received: 08/16/13

Project: 81127060, F&BI 308273

**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	86	93	63-142	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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.
- A1 - More than one compound of similar molecule structure was identified with equal probability.
- 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 this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - Analyte present in the blank and the sample.
- 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. The variability is attributed to sample inhomogeneity.
- ht - Analysis performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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 in a container not approved by the method. The value reported should be considered an estimate.
- pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- 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.

308273

CHAIN OF CUSTODY

ME 08-16-13

004

Send Report To

Company: Emerson

Address: 21955 - Greenfield, Ste 100

City, State, ZIP: North Attle, Massachusetts 01904

Phone #: 508-771-7724 Fax #:

SAMPLERS (signature)

PROJECT NAME/NO

Project #111 A.I.T. Hddy

PO #

1

REMARKS

Emerson / visit to Env Duback
each back Emerson.com

TURNAROUND TIME

Standard (2 Weeks)

RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

Dispose after 30 days

Return samples

Will call with instructions

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED						Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS		
MWD-1-081613	01	8/16/13	09:30	Water	1	X							
MWD-2-081613	02	8/16/13	10:46	Water	1	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

Reinquished by: [Signature]

Received by: [Signature]

PRINT NAME

Adam Stuffer

DO NOT

COMPANY

Emerson

DO NOT

DATE

8/16/13

11

TIME

14:55

21

Samples received at 10 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 15, 2013

Eric Dubcak, Project Manager
Terracon
Pacific Cascade Building
21905 64th Ave. W., Suite 100
Mountlake Terrace, WA 98043

Dear Mr. Dubcak:

Included are the results from the testing of material submitted on August 13, 2013 from the Progress Rail Pilot Scale Walls 81127060, F&BI 308210 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRC0815R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 13, 2013 by Friedman & Bruya, Inc. from the Terracon Progress Rail Pilot Scale Walls 81127060, F&BI 308210 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Terracon</u>
308210 -01	B-10,S-1,4.5'-5.5'
308210 -02	B-11,S-1,3.5'-4'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/15/13

Date Received: 08/13/13

Project: Progress Rail Pilot Scale Walls 81127060, F&BI 308210

Date Extracted: 08/13/13

Date Analyzed: 08/13/13

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 48-168)
B-10,S-1,4.5'-5.5' 308210-01	<50	<250	78
B-11,S-1,3.5'-4' 308210-02	<50	<250	69
Method Blank 03-1592 MB	<50	<250	74

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/15/13

Date Received: 08/13/13

Project: Progress Rail Pilot Scale Walls 81127060, F&BI 308210

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

Laboratory Code: 308210-02 (Matrix Spike)

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	104	104	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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.
- A1 - More than one compound of similar molecule structure was identified with equal probability.
- 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 this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - Analyte present in the blank and the sample.
- 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. The variability is attributed to sample inhomogeneity.
- ht - Analysis performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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 in a container not approved by the method. The value reported should be considered an estimate.
- pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- 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.

308210

CHAIN OF CUSTODY

NE 08/13/13

001

Send Report To

Company Tenneco

Address 21905 64th Ave SW, Ste 100

City, State, ZIP Maple Lake, WA 98013

Phone # 252-721-3904 Fax #

SAMPLERS (signature)

PROJECT NAME/NO.

Progress Part Pilot scale wells

81127060

PO #

TURNAROUND TIME
Standard (2 Weeks)

Standard (2 Weeks)
 RUSH
Rush charges authorized by:

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

REMARKS Please email results to: cadabrat@teneco.com

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes					
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS							
B-10, S-1, 4.5'-5.5'	01	8/13/13	09:50	Soil	1	X												
B-11, S-1, 3.5'-4'	02	8/13/13	10:15	Soil	1	X												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	<u>Adam Stauffer</u>	<u>Tenneco</u>	<u>8/13/13</u>	<u>15:15</u>
<u>[Signature]</u>	<u>Dhan Phau</u>	<u>FBT</u>	<u>8/13/13</u>	<u>15:15</u>
Relinquished by:				
Received by:				

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

Samples received at 19 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 30, 2013

Eric Dubcak, Project Manager
Terracon
Pacific Cascade Building
21905 64th Ave. W., Suite 100
Mountlake Terrace, WA 98043

Dear Mr. Dubcak:

Included are the results from the testing of material submitted on September 25, 2013 from the Progress Rail, 81127060, F&BI 309449 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRC0930R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 25, 2013 by Friedman & Bruya, Inc. from the Terracon Progress Rail, 81127060, F&BI 309449 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Terracon</u>
309449-01	EX-1@4'
309449-02	EX-2@2'
309449-03	EX-3@2'
309449-04	EX-4@2'
309449-05	SW-1@1.5'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/30/13
Date Received: 09/25/13
Project: Progress Rail, 81127060, F&BI 309449
Date Extracted: 09/26/13
Date Analyzed: 09/26/13

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
EX-1@4' 309449-01	<50	<250	103
EX-2@2' 309449-02	<50	<250	117
EX-3@2' 309449-03	<50	<250	117
EX-4@2' 309449-04	<50	<250	118
SW-1@1.5' 309449-05	<50	<250	102
Method Blank 03-1923 MB2	<50	<250	113

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/30/13

Date Received: 09/25/13

Project: Progress Rail, 81127060, F&BI 309449

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

Laboratory Code: 309431-01 (Matrix Spike)

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	98	64-133	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	103	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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.

A1 - More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

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

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

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

j - The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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 in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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.

309449

SAMPLE CHAIN OF CUSTODY

ME 09/25/13 A02

Send Report To Eric A. Deibel

Company Terracon

Address 21905 6th Ave W

City, State, ZIP Mountlake Terrace WA

Phone # 425 7713324 Fax #

SAMPLERS (signature) [Signature]

PROJECT NAME/NO. Progress Rail 81197060

PO #

REMARKS

SAMPLERS (signature) <u>[Signature]</u>	
PROJECT NAME/NO. <u>Progress Rail 81197060</u>	PO #
REMARKS	

Page # 1 of 1

TURNAROUND TIME
 Standard
 RUSH
 Rush charges authorized by: EAD

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

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED						Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	
EX-1 e 4'	01	9/24	8:15	Grab	1	X	X	X	X	X		
EX-2 e 2'	02	9/25	10:30		1	X	X	X	X	X		
EX-3 e 2'	03		1:10		1	X	X	X	X	X		
EX-4 e 2'	04		2:40		1	X	X	X	X	X		
SW-1 e 1/5	05		8:45		1	X	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

Relinquished by: <u>[Signature]</u>	PRINT NAME <u>Eric A. Deibel</u>	COMPANY <u>Terracon</u>	DATE <u>9/25</u>	TIME <u>4:20</u>
Received by: <u>[Signature]</u>	PRINT NAME <u>Nhan Phan</u>	COMPANY <u>Fe BT</u>	DATE <u>9/25/13</u>	TIME <u>4:21</u>

Samples received at 4 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

October 2, 2013

Lucas Swart, Project Manager
Terracon
Pacific Cascade Building
21905 64th Ave. W., Suite 100
Mountlake Terrace, WA 98043

Dear Mr. Swart:

Included are the results from the testing of material submitted on September 26, 2013 from the Progress Rail, 81127060, F&BI 309480 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
TRC1002R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 26, 2013 by Friedman & Bruya, Inc. from the Terracon Progress Rail, 81127060, F&BI 309480 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Terracon</u>
309480-01	SW-2@1'
309480-02	SW-3@1'

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/02/13
Date Received: 09/26/13
Project: Progress Rail, 81127060, F&BI 309480
Date Extracted: 09/26/13
Date Analyzed: 09/26/13

**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)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
SW-2@1' 309480-01	<50	<250	92
SW-3@1' 309480-02	<50	<250	81
Method Blank 03-1929 MB	<50	<250	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/02/13

Date Received: 09/26/13

Project: Progress Rail, 81127060, F&BI 309480

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

Laboratory Code: 309459-01 (Matrix Spike)

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	100	94	73-135	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	103	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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.
- A1 - More than one compound of similar molecule structure was identified with equal probability.
- 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 this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - Analyte present in the blank and the sample.
- 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. The variability is attributed to sample inhomogeneity.
- ht - Analysis performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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 in a container not approved by the method. The value reported should be considered an estimate.
- pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- 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.

309480

SAMPLE CHAIN OF CUSTODY

ME 09/26/13

Page # 1721

Send Report To F. A. Debel

Company Terrace

Address 2105 64th Ave W

City, State, ZIP Mo. Lake Terrace WA

Phone # (425) 771-3359 Fax #

SAMPLERS (signature) [Signature]

PROJECT NAME/NO. Project's Re: 81127060

PO #

REMARKS

TURNAROUND TIME
 Standard ~~(5 Weeks)~~ 5 day
 RUSH
Rush charges authorized by:

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

ANALYSES REQUESTED

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED					Notes	
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270		HFS
SW-2 @ 1'	01	9/26	9:30	Grb	1	X						
SW-3 @ 1'	02	9/26	9:40	Grb	1	X						

Friedman & Bruya, Inc.
3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Fax (206) 283-5044

FORMS\COC\COC.DOC

Relinquished by: [Signature] SIGNATURE

Received by: [Signature]

Relinquished by:

Received by:

PRINT NAME F. A. Debel

COMPANY Terrace

DATE 9/26 TIME 3:10

DATE 9/26 TIME 15:00

Samples received at 5 °C

APPENDIX D

Photo Log

Project No. ■ 81127060

Date Photos Taken ■ September 24, 25 & 26, 2013



Photograph No. 1: View of the vector truck removing gravel and soil for exposing utilities.



Photograph No. 2: View of NRC completing additional potholes to verify utility locations, facing west.

Project No. ■ 81127060

Date Photos Taken ■ September 24, 25 & 26, 2013



Photograph No. 3: View of the track gravel area with the tracks removed, gradually sloping to the north (wash pad located on right side of photo).



Photograph No. 4: View of the gravel, filter fabric and soils being excavated on the east end of the excavation area.

Project No. ■ 81127060

Date Photos Taken ■ September 24, 25 & 26, 2013



Photograph No. 5: View of the storm water being pumped from the approximate 4 foot excavation on the eastern end of excavation area.



Photograph No. 6: View of the trenching activities for direct application of the remedial amendment.

Project No. ■ 81127060

Date Photos Taken ■ September 24, 25 & 26, 2013



Photograph No. 7: View of the application of the remedial amendment prior to hydrating and mixing. Water is observed seeping in from lower sidewall.



Photograph No. 8: View of the trench area backfilled, facing east.

Project No. ■ 81127060

Date Photos Taken ■ September 24, 25 & 26, 2013



Photograph No. 9: View of the excavation area facing west.



Photograph No. 10: View of the excavation area backfilled, compacted and ready for installation of new filter fabric and gravel railroad base.

APPENDIX E

**Import Backfill Documentation
Waste Disposal Documentation, Permit and
Truck Scale Tickets**



**LLOYD ENTERPRISES, INC. dba
FEDERAL WAY SAND & GRAVEL**
P.O. BOX 3889
FEDERAL WAY, WA 98063
(253) 874-6692 (253) 927-0416

TICKET #
0010478186

DATE	TIME	PLANT	HAULER	TRK	DRIVER
09/26/2013	10:41	0001		TT92	

CUSTOMER	JOB INFORMATION
F0005 NRC ENVIRONMENTAL SVC- SEATTLE AKA: NATIONAL RESPONSE CORP. 9520 10TH AVE S, STE 150 SEATTLE WA 98108 206-607-3017	CUST. ORDER # 426405

442.17

QTY	UNIT	PRODUCT	PRICE	AMOUNT
34.68	TN	TYPE 17 - WHLSL	.0000	.00

1769

	POUNDS	TONS
GROSS:	112200	
TARE:	42840	
NET:	69360	

459786

DRIVER SIGNATURE

Customer releases and agrees to hold harmless Lloyd Enterprises, Inc. for any damage to his/her real or personal property caused by delivery of materials listed above. All material having been dumped out of trucks is considered sold and is not warranted to meet any particular specifications. When material is no longer acceptable it is the sole responsibility of the buyer to notify seller to stop delivery. The owner of the within described premises is hereby advised that a lien may be claimed by Lloyd Enterprises, Inc. if the full amount of this invoice is not paid within 30 days. Interest at 1 1/2 % per month will be charged on all past due accounts. Charges due by the tenth of the month following date of this billing.



**LLOYD ENTERPRISES, INC. dba
FEDERAL WAY SAND & GRAVEL**

P.O. BOX 3885
FEDERAL WAY, WA 98063
(253) 874-6692 (253) 927-0416

TICKET #
0010478201

DATE 09/26/2013 TIME 12:45 PLANT 0001 HAULER _____ TRK _____ DRIVER _____

CUSTOMER F0005 NRC ENVIRONMENTAL SVC - SEATTLE JOB INFORMATION _____
AKA: NATIONAL RESPONSE CORP. CUST. ORDER # 3783
9520 10TH AVE S, STE 150
SEATTLE WA 98108
206-607-3017

QTY	UNIT	PRODUCT	TYPE	PRICE	AMOUNT
16.32	TN	SPEC	TYPE 1	6.5000	105.96

POUNDS 62040
GROSS: 27400
TARE: 32640
NET: _____

[Signature]
DRIVER SIGNATURE

Customer releases and agrees to hold harmless Lloyd Enterprises, Inc. for any damage to his/her real or personal property caused by delivery of materials listed above. All material having been dumped out of trucks is considered sold and is not warranted to meet any particular specifications. When material is no longer acceptable it is the sole responsibility of the buyer to notify seller to stop delivery. The owner of the within described premises is hereby advised that a lien may be claimed by Lloyd Enterprises, Inc. if the full amount of this invoice is not paid within 30 days. Interest at 1 1/2 % per month will be charged on all past due accounts. Charges due by the tenth of the month following date of this billing.



**LLOYD ENTERPRISES, INC. dba
FEDERAL WAY SAND & GRAVEL**

P.O. BOX 3889
FEDERAL WAY, WA 98063
(253) 874-6692 (253) 927-0416

TICKET #
0010478191

DATE: 09/26/2013 TIME: 11:50 PLANT: 0001 HAULER: TRK: DRIVER: WEE

CUSTOMER

F0205 NRC ENVIRONMENTAL SVC- SEATTLE CUST. ORDER # 5790
AKA: NATIONAL RESPONSE CORP.
9520 10TH AVE S, STE 150
SEATTLE WA 98108
206-607-3017

QTY	UNIT	PRODUCT	PRICE	AMOUNT
15.65	TN	SPEC TYPE 17 WSL	6.5000	101.73

POUNDS TONS

GROSS: 58700
TARE: 27400
NET: 31300

[Signature]
DRIVER SIGNATURE

Customer releases and agrees to hold harmless Lloyd Enterprises, Inc. for any damage to his/her real or personal property caused by delivery of materials listed above. All material having been dumped out of trucks is considered sold and is not warranted to meet any particular specifications. When material is no longer acceptable it is the sole responsibility of the buyer to notify seller to stop delivery. The owner of the within described premises is hereby advised that a lien may be claimed by Lloyd Enterprises, Inc. if the full amount of this invoice is not paid within 30 days. Interest at 1 1/2 % per month will be charged on all past due accounts. Charges due by the tenth of the month following date of this billing.



Tacoma - Pierce County

Health Department

Healthy People in Healthy Communities

www.tpcd.org

No. 1719

WASTE DISPOSAL AUTHORIZATION

Tacoma Pierce County Health Department

9/18/2013 11:21:33 AM

Clerk 6-T1

Waste Disposal Authorization \$145.00

Receipt #315337

ck# 6483 NRC Env Progress Rail

(XX) Non-Asbestos (XX) New
() Asbestos (PSCAA Case #) () Renewal

- A. Generator Name: Progress Rail
B. Site Address: 4012 South Frontage Rd, Tacoma WA
C. Transporter Name: Contract Hauler
D. Technical Contact: Keith Gehring, NRC Environmental Services Phone: (206) 607 3056
E. Waste Description: Contaminated Soils (Diesel Spill)
F. Authorized Quantity: 600 tons
G. Actual Quantity (Filled in upon disposal):
H. Multiple Loads: () Yes (XX) No
I. Dates of Disposal: September 18, 2013 through August 31, 2014
J. Testing: NWTPH-Dx
K. Reviewed by Department of Ecology: () Yes (XX) No
L. L. Disposal/Transportation Requirements: A copy of this WDA must be transported with EACH load of waste and presented to the LRI Landfill Scalehouse Operator.
M. Facility: (X X) LRI Landfill (304th Street LF), 30919 Meridian Street, Eatonville, WA

CERTIFICATION

I hereby certify that I have personally examined and am familiar with the information submitted in this document and any supporting material. Based on my inquiry of those individuals immediately responsible for obtaining the information, the information submitted is true, accurate and complete to the best of my knowledge and ability and that all known and suspected hazards have been disclosed. I agree that the generator and/or transporter will abide by all conditions specified in line (L) or any attachments thereto.

9/18/13 Date Tech-IT Title [Signature] Signature

AUTHORIZED BY:

[Signature] Andy Comstock, TPCHD 253-798-6538

APPROVED

SEP 18 2013

TACOMA-PIERCE COUNTY HEALTH DEPT. ENVIRONMENTAL HEALTH DIV.

Cc: LRI LF Scalehouse via Fax - 253 875 7205

STRAIGHT BILL OF LADING - ORIGINAL - NOT NEGOTIABLE



9520 10th Avenue S. Suite 150
Seattle, WA 98108

Tracking No. **64467**

Carrier **NRC** SCAC _____ Carrier's No. **2055**

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request; and all applicable state and federal regulations:

at _____, date **9/25** from _____

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to delivery at said destination, if on its route, or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any portion of said route to destination and as to each party at any time interested in all or any of said property that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

TO: **PRS**
Consignee **3003 Taylor Way**
Street
Destination **Tacoma WA** Zip _____
FROM: **Progress Rail**
Shipper **4012 South Frontage Rd**
Street
Origin **Tacoma WA** Zip _____

Route _____
Delivering Carrier _____ Vehicle Number **2055** U.S. DOT Hazmat Reg. Number _____

Number and Type of Packages	HM	I.D. Number	Description of Articles	Hazard Class	Pkg. Grp.	Total Quantity (mass, volume, or activity)	Weight (subject to correction)	Class or Rate
Western truck to BDL			diesel/oil contaminated stormwater			1000 gal		
			NOT regulated by DOT			350		
			Job 77902 PO 8740					
			PROFILE 2953					

Remit COD to: _____
Address: _____
City: _____ State: _____ Zip: _____
NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \$ _____ Per _____
NOTE: Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. 14706 (c)(1)(A) and (B).
This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. Per _____
Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor) _____
COD AMT: \$ _____
COD FEE: Prepaid Collect \$ _____
TOTAL CHARGES: \$ _____
FREIGHT CHARGES: Prepaid Collect

PLACARDS REQUIRED **PLACARDS SUPPLIED** BY SHIPPER BY CARRIER
DRIVER'S SIGNATURE: _____

SHIPPER: _____ CARRIER: **NRC**
PER: _____ DATE: _____ PER: **Tom Hall** DATE: **9/25/13**
EMERGENCY RESPONSE
TELEPHONE NUMBER: () _____
Monitored at all times the Hazardous Material is in transportation including storage incidental to transportation (172.604).

PRS *[Signature]*



PRS Group, Inc.
ENTRY LOG FOR NON-HAZARDOUS ITEMS

3003 Taylor Way
 Tacoma, WA 98421
 Phone: (253)383-4175 Fax: (253)383-4531
 prs@prsplant.net

Date: 9-25-2013	Carrier: NRC	Vehicle #: 2055
Drivers Signature *:	Plant Employee: Kenny	Time: 0930

Generator Name	Profile #	Work Order, BOL, Or Manifest #	% Water: 100%		Ph: 7.9		Flash>140 <input checked="" type="checkbox"/> Other Value (Fuel Only):					
			% Solids: 0%		Tank # Or Area: 4B		Chlor Test: NA <input checked="" type="checkbox"/> Sniffer Pass <input type="checkbox"/> Fail <input type="checkbox"/> Chlor Value:					
			<u>Used Oil</u>	<u>Spent Antifreeze</u>	<u>Used Oil Filters</u>	<u>Off Spec. Fuel</u>	<u>Waste Water</u>	<u>Solids</u>	<u>PCS</u>	<u>Absorbent</u>	<u>Empty Drums</u>	<u>Other</u>
Progress Rail	2753 -b	8740					350g					lc

* The information contained in this entry log describes your waste as specified in the specific waste profile approved in to the PRS facility. Please verify the information for accuracy prior to signing.

STRAIGHT BILL OF LADING - ORIGINAL - NOT NEGOTIABLE

NRC 9520 10th Avenue S. Suite 150
Seattle, WA 98108

Tracking No. 6466

Carrier NRC SCAC

Carrier's No. 3

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request; and all applicable state and federal regulations;

at _____ date _____ from _____

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to delivery at said destination, if on its route, or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any of said property that every service to be performed hereunder shall be subject to all the conditions, not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

TO: _____
 Consignee _____
 Street _____
 Destination _____ Zip _____

FROM: _____
 Shipper _____
 Street _____
 Origin _____ Zip _____

Delivering Carrier		Vehicle Number	U.S. DOT Hazmat Reg. Number		Hazard Class	Pkg. Grp.	Total Quantity (mass, volumes, or activity)	Weight (subject to correction)	Class or Rate
Number and Type of Packages	HM ID. Number	Description of Articles							
1		2000							

Remit COD to: _____ State: _____ Zip: _____

Address: _____

City: _____

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \$ _____ per _____

NOTE: Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. 14706 (c)(1)(A) and (B).

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. Per _____

SHIPPER: _____ PER: _____ DATE: 9/25/79

CARRIER: _____ PER: _____ DATE: _____

EMERGENCY RESPONSE TELEPHONE NUMBER: ()

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

Signature of Consignor: _____

Signature of Carrier: _____

COD AMT: \$ _____

TOTAL CHARGES: \$ _____

FREIGHT CHARGES: Prepaid Collect

COD FEE: Prepaid Collect

FREIGHT CHARGES: Prepaid Collect

PLACARDS REQUIRED SUPPLIED

BY SHIPPER BY CARRIER

DRIVER'S SIGNATURE: _____

Monitored at all times the Hazardous Materials in transportation including storage incidental to transportation (172.604).

PCRCD, LLC dba LRI-304th
 17925 Meridian St E
 Puyallup, WA 98375

001312 NRC ENVIRONMENTAL SERVICES
 9520 10th Ave S Suite 150
 Seattle WA 98108

SITE

TICKET

39

287027

WEIGHMASTER

Dana

ROLL OFF

VEHICLE

TIME IN

DATE OUT

09/24/13

13:50

14:01

REFERENCE

ORIGIN

OTHER

Inbound - Charge ticket

Scale 1 Gross Wt. 56360 LB
 Scale 2 Tare Wt. 28240 LB
 Net Weight 28120 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
14.06	TON	83 SOIL DISPOSAL-OC	33.96	477.48	17.19	494.67

Operating hours 8AM to 4PM M-F & 8AM to NOON on Sat.
 304th Landfill-30919 Meridian/SR 161, Graham, WA

PO # NRC 2188
 NOTES WDA 1719

NET AMOUNT
 494.67

TENDERED

CHANGE

CHECKNO.

202.TS TO REORDER CONTACT NORTH STAR FORMS, LLC (877) 499-0492

SIGNATURE

WEIGHMASTER

SCALE

TICKET

SITE

PCRCO, LLC dba LRI-304th
17925 Meridian St E
Puyallup, WA 98375

001312 NRC ENVIRONMENTAL SERVICES
9520 10th Ave S Suite 150
Seattle WA 98108

Dana

287115

ROLL OFF

VEHICLE

TIME IN

DATE OUT

09/25/13 08:35

08:45

REFERENCE

2118

OTHER

Inbound - Charge ticket

Scale 1 Gross Wt. 58060 LB
Scale 2 Tare Wt. 28100 LB
Net Weight 29960 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
14.98	TON	83 SOIL DISPOSAL-OC	33.96	508.72	18.31	527.03

Operating hours 8AM to 4PM M-F & 8AM to Noon on Sat.
304th Landfill-30919 Meridian/SR 161, Graham, WA

PO # WDA 1719
NOTES NRC TRK

202.JS TO REORDER CONTACT NORTH STAR FORMS, LLC (877) 499-0492

SIGNATURE

NET AMOUNT

527.03

TENDERED

CHANGE

CHECK NO.

PCRCO, LLC dba LRI-304th
 17925 Meridian St E
 Puyallup, WA 98375

001312 NRC ENVIRONMENTAL SERVICES
 9520 10th Ave S Suite 150
 Seattle WA 98108

SITE	TICKET	GRID	WEIGHMASTER
39	287127		Dana
DATE IN	DATE OUT	TIME IN	TIME OUT
09/25/13	09/25/13	09:05	09:15
REFERENCE		ORIGIN	
		OTHER	

Inbound - Charge ticket			
QTY.	UNIT	DESCRIPTION	SCALE
		Scale 1 Gross Wt.	55600 LB
		Scale 2 Tare Wt.	26160 LB
		Net Weight	29440 LB
14.72	TON	83 SOIL DISPOSAL-OC	

RATE	EXTENSION	FEE	TOTAL
33.96	499.89	18.00	517.89
NET AMOUNT			517.89
TENDERED			
CHANGE			
CHECK NO.			

Operating hours ~~8AM to 4PM M-F & 8AM to Noon on Sat.~~
 304th Landfill-30919 Meridian/SR 161, Graham, WA

PO # WDA 1719
 NOTES PGH 3

202.TS TO REORDER CONTACT NORTH STAR FORMS, LLC (877) 499-0462 SIGNATURE _____

PCRCO, LLC dba IRI-304th
 17925 Meridian St E
 Puyallup, WA 98375

001312 NRC ENVIRONMENTAL SERVICES
 9520 10th Ave S Suite 150
 Seattle WA 98108

WEIGHTMASTER

SITE	TRUCK #	SCALE	WEIGHTMASTER
39	287132		Dana
DATE IN	DATE OUT	TIME IN	TIME OUT
09/25/13	09/25/13	09:53	10:02
REFERENCE		ORIGIN	
		OTHER	

Inbound - Charge ticket

Scale 1 Gross Wt. 55400 LB
 Scale 2 Tare Wt. 29300 LB
 Net Weight 26100 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
13.05	TON	83 SOIL DISPOSAL-OC	33.96	443.18	15.95	459.13

Operating hours 8AM to 4PM M-F & 8AM to NOON on Sat.
 304th Landfill-30919 Meridian/SR 161, Graham, WA

PO # WDA 1719
 NOTES PGH 7

NET AMOUNT	459.13
TENDERED	
CHANGE	
CHECK NO.	

202.TS TO REORDER CONTACT NORTH STAR FORMS, LLC (877) 499-0492 SIGNATURE _____

FORCD, LLC dba LRI-304th
 17925 Meridian St E
 Puyallup, WA 98375

001312 NRC ENVIRONMENTAL SERVICES
 9520 10th Ave S Suite 150
 Seattle WA 98108

SITE TICKET GRID WEIGHMASTER

39	287164	Dana			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/25/13	10/9/25/13	10:46	10:55		
REFERENCE ORIGIN					
OTHER					

Scale 1 Gross Wt. 53640 LB
 Scale 2 Tare Wt. 28060 LB
 Net Weight 25580 LB

Inbound - Charge ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
12.79	TON	83 SOIL DISPOSAL-OC	33.96	434.35	15.64	449.99

Operating hours 8AM to 4PM M-F & 8AM to Noon on Sat.
 304th Landfill-30919 Meridian/SR 161, Graham, WA

PO # WDA 1719
 NOTES NRC 2188

NET AMOUNT	449.99
TENDERED	
CHANGE	
CHECK NO.	

202.TS TO REORDER CONTACT NORTH STAR FORMS, LLC (877) 499-0492 SIGNATURE

PCRCO, LLC dba LRI-304th
 17925 Meridian St E
 Puyallup, WA 98375

001312 NRC ENVIRONMENTAL SERVICES
 9520 10th Ave S Suite 150
 Seattle WA 98108

SITE	TRUCK#	SPID	WEIGHMASTER		
39	287174		Dana		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/25/13	09/25/13	11:18	11:27		
REFERENCE					
ORIGIN					
OTHER					

CITY.		UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
			Inbound - Charge ticket				
12.42	TON	83	SOIL DISPOSAL-OC	33.96	421.78	15.18	436.96

Operating hours 8AM to 4PM M-F & 8AM to NOON on Sat.
 304th Landfill-30919 Meridian/SR 161. Graham, WA

PO # WDA 1719
 NOTES PGH TRK 3

NET AMOUNT	436.96
TENDERED	
CHANGE	
CHECK NO.	

202.TS TO REORDER CONTACT NORTH STAR FORMS, LLC (877) 499-0492

SIGNATURE _____

PCPCD, LLC dba LRI-304th
 17925 Meridian St E
 Puyallup, WA 98375

001312 NRC ENVIRONMENTAL SERVICES
 9520 10th Ave S Suite 150
 Seattle WA 98108

SITE NUMBER 287194

ERD

WEIGHMASTER

Dana

ROLL OFF

VEHICLE

TIME IN TIME OUT

09/25/13 09:25/13 12:09 12:20

REFERENCE

ORIGIN

OTHER

Inbound - Charge ticket

Scale 1 Gross Wt. 59840 LB
 Scale 2 Tare Wt. 29320 LB
 Net Weight 30520 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
15.26	TON	83 SOIL DISPOSAL-OC	33.96	518.23	18.66	536.89

Operating hours 8AM to 4PM M-F & 8AM to NOON on Sat.
 304th Landfill-30919 Meridian/SR 161, Graham, WA

PO # WDA 1719
 NOTES PGH TRK 7

NET AMOUNT
 536.89

TENDERED

CHANGE

CHECK NO.

PCRCD, LLC dba LRI-304th
 17925 Meridian St E
 Puyallup, WA 98375

001312 NRC ENVIRONMENTAL SERVICES
 9520 10th Ave S Suite 150
 Seattle WA 98108

SITE	TICKET	GRID	WEIGHMASTER		
39	287222		Dana		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/25/13	09/25/13	13:07	13:25		
REFERENCE			ORIGIN		
			OTHER		

Scale 1 Gross Wt. 60880 LB					
Scale 2 Tare Wt. 27900 LB					
Net Weight 32980 LB					
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TOTAL
16.49	TON	83 SOIL DISPOSAL-OC	33.96	560.00	580.16
					20.16
					580.16

Operating hours 8AM to 4PM M-F & 8AM to Noon on Sat.
 304th Landfill-30919 Meridian/SR 161, Graham, WA

PO # WDA 1719
 NOTES NRC 2188

NET AMOUNT	580.16
TENDERED	
CHANGE	
CHECK NO.	

FORCD, LLC dba LRI-304th
 17925 Meridian St E
 Puyallup, WA 98375

001312 NRC ENVIRONMENTAL SERVICES
 9520 10th Ave S Suite 150
 Seattle WA 98108

SITE	TICKET	GRID	WEIGHMASTER
39	287297		Robin
DATE IN	DATE OUT	TIME IN	TIME OUT
09/26/13	09/26/13	08:12	08:26
REFERENCE	ORIGIN		
2188	OTHER		

Scale 1 Gross Wt.		60860	LB	Inbound - Charge ticket		
Scale 2 Tare Wt.		27800	LB			
Net Weight		33060	LB			
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.53	TON	83 SOIL DISPOSAL-OC	33.96	561.36	20.21	581.57

Operating hours 6AM to 4PM M-F & 6AM to Noon on Sat.
 304th Landfill-30919 Meridian/SR 161, Graham, WA

PO # WDA 1719
 NOTES NRC TRK 2188

NET AMOUNT	581.57
TENDERED	
CHECK NO.	

PCRCO, LLC dba LRI-304th
 17925 Meridian St E
 Puyallup, WA 98375

001312 NRC ENVIRONMENTAL SERVICES
 9520 10th Ave S Suite 150
 Seattle WA 98108

SITE	TICKET	GRID	WEIGHMASTER		
39	287363		Robin		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/26/13	09/26/13	10:37	10:46		
REFERENCE		ORIGIN			
2188		OTHER			

		UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
Scale 1	Gross Wt.	59980	LB				
Scale 2	Tare Wt.	27740	LB				
	Net Weight	32240	LB				
16.12		TON	83 SOIL DISPOSAL-OC	33.96	547.44	19.71	567.15

Operating hours ~~6AM to 4PM M-F & 8AM to Noon on Sat.~~
 304th Landfill-30919 Meridian/SR 161, Graham, WA

PO # WDA 1719
 NOTES NRC 2188

NET AMOUNT 567.15
 TENDERED
 CHECK NO.