



**NC Department of Transportation  
Preliminary Site Assessment  
State Project: U-0209B  
WBS Element: 34749.1.1**

**Richard W. Jr. and Constance O. Keffer Property  
Parcel #87  
August 20, 2010**

**AMEC Earth and Environmental, Inc. of North Carolina  
AMEC Project: 562110209**

  
\_\_\_\_\_  
Troy L. Holzschuh  
Engineering Technician

  
\_\_\_\_\_  
Helen P. Corley, L.G.  
Senior Project Manager





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## 1.0 INTRODUCTION

In accordance with the North Carolina Department of Transportation (NCDOT) Request for Proposal, dated May 26, 2010, AMEC Earth and Environmental, Inc. of North Carolina (AMEC) has performed a Preliminary Site Assessment (PSA) for the Richard W. Jr. and Constance O. Keffer Property (the Site) to be affected by a road improvement project along US Highway (Hwy) 74, Independence Blvd. The Site is currently vacant and is identified as Parcel #87 within the NCDOT U-0209B design project. The property, located on the west side of US Hwy 74 near the intersection with Glendora Drive, is in Charlotte of Mecklenburg County, North Carolina. The investigation was conducted in accordance with AMEC's Technical and Cost proposal dated June 16, 2010.

NCDOT contracted AMEC to perform a PSA on the Richard W. Jr. and Constance O. Keffer Property due to the historical presence of three underground storage tanks (UST) on the property. The property is currently vacant but previously housed a car dealership with car wash. The PSA was performed to determine if soils have been impacted by petroleum compounds as a result of past or present uses of the property within the proposed expanded right-of-way (ROW). The investigation was specifically completed to determine the presence or absence of petroleum hydrocarbons within the proposed ROW.

The following report describes our field investigations and results of chemical analyses. It includes the evaluation of the analytical data with regards to the presence or absence of soil contamination within the proposed ROW and estimates the extent of soil contamination.

### 1.1 Site Location and History

The Richard W. Jr. and Constance O. Keffer Property is located on the eastern side of US Hwy 74, at the intersection of Glendora Drive in Charlotte, Mecklenburg County, North Carolina. It is located within the Metamorphic sediments of the Charlotte and Milton Belt Physiographic Province of western North Carolina. Figure 1 shows the site location and vicinity.

AMEC studied the NCDENR UST Registered Tanks Database and identified that three (3) 10,000 gallon gasoline tanks were installed at Constan Car Wash at 4930 East Independence Blvd in 1968 and were closed in 1991. AMEC also reviewed the NCDENR Incident Management Database and identified Incident #10774 for Constan, Inc at 4930 E.

Independence Blvd in Charlotte, NC. The incident was reported and cleanup occurred August 16, 1993. Petroleum soil contamination was reported as the result of a leak from a regulated tank. The incident was closed September 16, 1993.

## **1.2 Site Description**

The Site is a one-story building with multiple garage bays and a canopy over the driveway. The proposed road widening will traverse the entire property of Parcel #87. No USTs are presently located at this facility. No monitoring wells were observed at the property. Appendix A includes a photo log for Parcel #87.

The properties north, east and south of the Site are commercial businesses. Adjacent to the northwest of the Site is a vacant building. Across US Hwy 74 to the east is a Circle K gas station and City Chevrolet car dealership. Adjacent to the southeast is a used car dealership. Properties west of the Site are residential homes.

## **2.0 GEOLOGY**

### **2.1 Regional Geology**

The Richard W. Jr. and Constance O. Keffer Property is located within the Metamorphic type rocks of the Charlotte and Milton Belt Physiographic Province of western North Carolina. The Metavolcanic rock is interbedded felsic to mafic tuffs and flowrock.

### **2.2 Site Geology**

Site geology was observed through the sampling of 6 shallow direct push probe soil borings (SB) onsite. Borings extended to a total depth of 10 feet below ground surface (bgs). Soils generally consisted of orange, well sorted, clayey silt. Boring logs are presented in Appendix B.

Damp soil conditions were typically first encountered at a depth of 0.5 feet (ft) bgs.

## **3.0 FIELD ACTIVITIES**

### **3.1 Preliminary Activities**

Prior to commencing field sampling activities at the site, several tasks were accomplished in preparation for the subsurface investigation. The Health and Safety Plan (HSP) was modified to include the site-specific health and safety information necessary for the field activities. North Carolina-1-Call was contacted on June 29 to report the proposed drilling activities and subsequently notify all affected utilities for the parcel. A.E. Drilling Services, LLC (AE Drilling) of Greenville, South Carolina was retained by AMEC to perform the direct push sampling for soil borings. AMEC coordinated with Schnabel Engineering South (Schnabel) who performed two geophysical surveys (electromagnetic and ground penetrating radar) onsite during June. The geophysical results were reviewed and discussed at the completion of each survey. A private utility locating company, Priority Underground Locating of Huntersville, North Carolina was subcontracted on July 2, 2010 to clear the proposed drill locations that were marked in the field by AMEC personnel. Prism Laboratories, Inc. was contacted for acquisition of sample bottles. Soil boring locations were focused within the proposed expanded ROW, using a staggered soil boring placement pattern to optimize the likelihood of intercepting any potential soil contamination.

### **3.2 Site Reconnaissance**

AMEC and NCDOT Geotechnical Unit personnel completed site reconnaissance on June 3, 2010. During reconnaissance, the area was visually examined for the presence of any UST or areas/obstructions that could potentially affect the subsurface investigation and the number of boring locations was discussed. AMEC continued recon on June 29, 2010 and marked boring locations on July 2, 2010.

### **3.3 Geophysical Survey**

Schnabel performed the geophysical surveys from June 14 through June 24. Schnabel utilized a Geonics EM61-MK2 to perform the electromagnetic induction surveys and a Geophysical Survey Systems SIR-3000 to conduct the ground-penetrating radar (GPR) investigations. These instruments are specifically calibrated to detect metal anomalies that are buried deeply and are characteristically large. The data collected by Schnabel do not indicate the presence of underground storage tanks (USTs) within the proposed expanded ROW. The complete report can be found in Appendix C.

### **3.4 Well Survey**

No well survey was performed as part of this PSA and no water supply or monitoring wells were observed by AMEC on the site.

### **3.5 Soil Sampling**

Soil boring occurred on July 7, 2010 at Parcel #87. Six direct push soil borings were conducted within the proposed expanded ROW on Parcel #87. Figure 2 presents the Site Map with sample locations and identifications. These samples were located to optimize the likelihood of intercepting any potential soil contamination. The first boring (SB-1) was placed near the southeast corner of the building. Soil borings SB-2 through SB-6 extended northwest along the proposed ROW. Borings SB-1 and -3 targeted designed drain inlet locations. Located utilities prevented targeting designed catch basin locations.

No signs of staining, odor or significant Photo Ionization Detector (PID) reading were detected in any of the soil borings. Soil samples were collected in accordance with EPA protocols in laboratory-supplied containers. The soil samples for Total Petroleum Hydrocarbons (TPH) –Gasoline Range Organics (GRO) analysis were collected using the 5030 prep method with methanol preservation. Samples for TPH-Diesel Range Organics (DRO) analysis were collected in 4oz. glass containers. Once placed in the containers, the samples were labeled with the sample number, time of collection, date of collection, name of the collector, and the requested analysis. The samples were packed on ice, and then hand delivered to Prism Laboratories, a North Carolina Certified Laboratory following proper chain-of-custody procedures.

## **4.0 SOIL SAMPLING RESULTS**

AMEC conducted soil sampling at the Site on July 7, 2010. The purpose of the sampling was to determine if releases of petroleum hydrocarbons had occurred, and if so, to estimate the volume of soil that might require special handling during construction activities. The sampling was accomplished using direct push methods accompanied by field screening for organic vapors with a PID. The laboratory results with PID readings are tabulated in Table 1 and shown on Figure 3.

A minimum of one soil sample was collected from each of the 6 completed soil borings from Parcel #87. Typically, when impacted soil is identified, additional soil samples are obtained. PID readings did not warrant any additional samples. Analyses of soil samples for DRO and GRO did not indicate detectable concentrations in any of the 6 samples. Copies of the original laboratory report and chain-of-custody documentation are included as Appendix D. Copies of the original laboratory report and chain-of-custody documentation are included as Appendix D.

## **5.0 CONCLUSIONS**

The following conclusions are based upon AMEC's evaluation of field observations and laboratory analyses of samples collected from the Site on July 7, 2010.

- The property is currently vacant but previously housed a car dealership with a car wash.
- NCDENR UST Registered Tanks Database identified the presence of three (3) USTs at the Site that were removed in 1991.
- UST Database for Incident Management identifies the parcel as Incident #10774, which was closed out in 1993.
- Six soil samples were collected and analyzed for TPH GRO and DRO and no detections of either were reported.

## **6.0 RECOMMENDATIONS**

If NCDOT intercepts contaminated soil, AMEC recommends the following action:

- Segregation during soil excavation with proper disposal of potentially petroleum-impacted soil during roadway improvement construction operations.

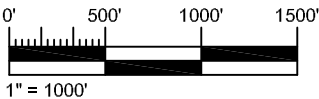
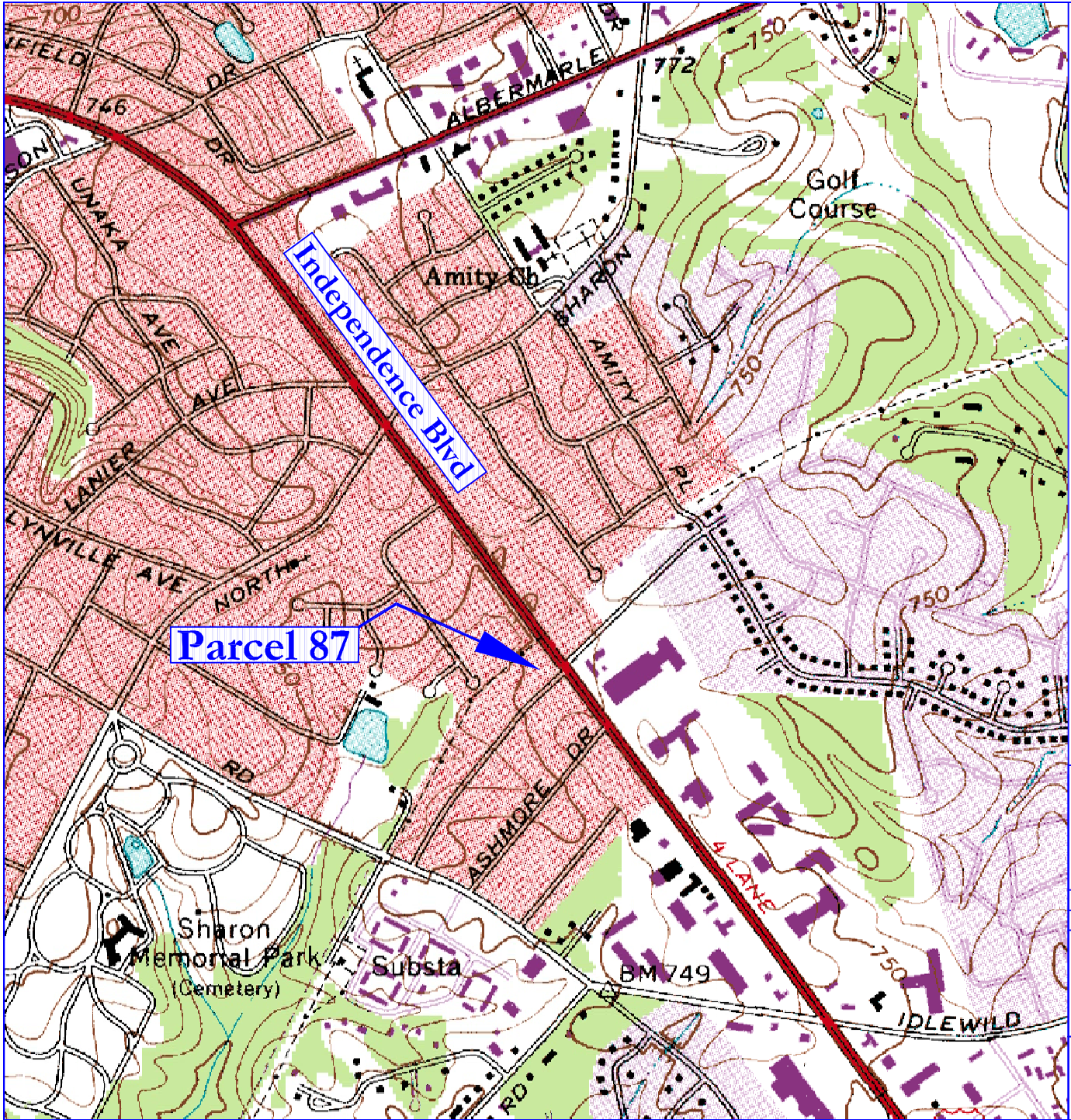


## **TABLES**

**Table 1**  
**Soil Sampling Analytical Results, DRO-GRO**  
**Parcel 87, Richard W. Jr and Constance O. Keffer Property**  
**NC DOT**  
**Charlotte, North Carolina**

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (ft bgs)	PID READINGS (ppm)	EPA Method 8015B	
				DRO (mg/kg)	GRO (mg/kg)
<b>NC Action Levels</b>				<b>10</b>	<b>10</b>
P87-SB-1	7/7/2010	4 - 5	0	<9.1	<4.9
P87-SB-2	7/7/2010	4 - 5	0	<9.2	<5.0
P87-SB-3	7/7/2010	4 - 5	0	<8.7	<4.2
P87-SB-4	7/8/2010	4 - 5	0	<9.4	<5.5
P87-SB-5	7/8/2010	3 - 4	0	<9.2	<4.8
P87-SB-6	7/8/2010	4 - 5	0	<9.7	<4.8
<b>NOTES:</b> bgs = below ground surface; ppm = parts per million <b>Bold</b> Concentrations Exceed Action Levels DRO = Diesel Range Organics GRO = Gasoline Range Organics Standards derived from the North Carolina UST Section Guidelines for Assessment and Corrective Action					

## FIGURES



7.5 Minute Quadrangle  
North Carolina, 1983  
Photorevised 1993

### VICINITY MAP

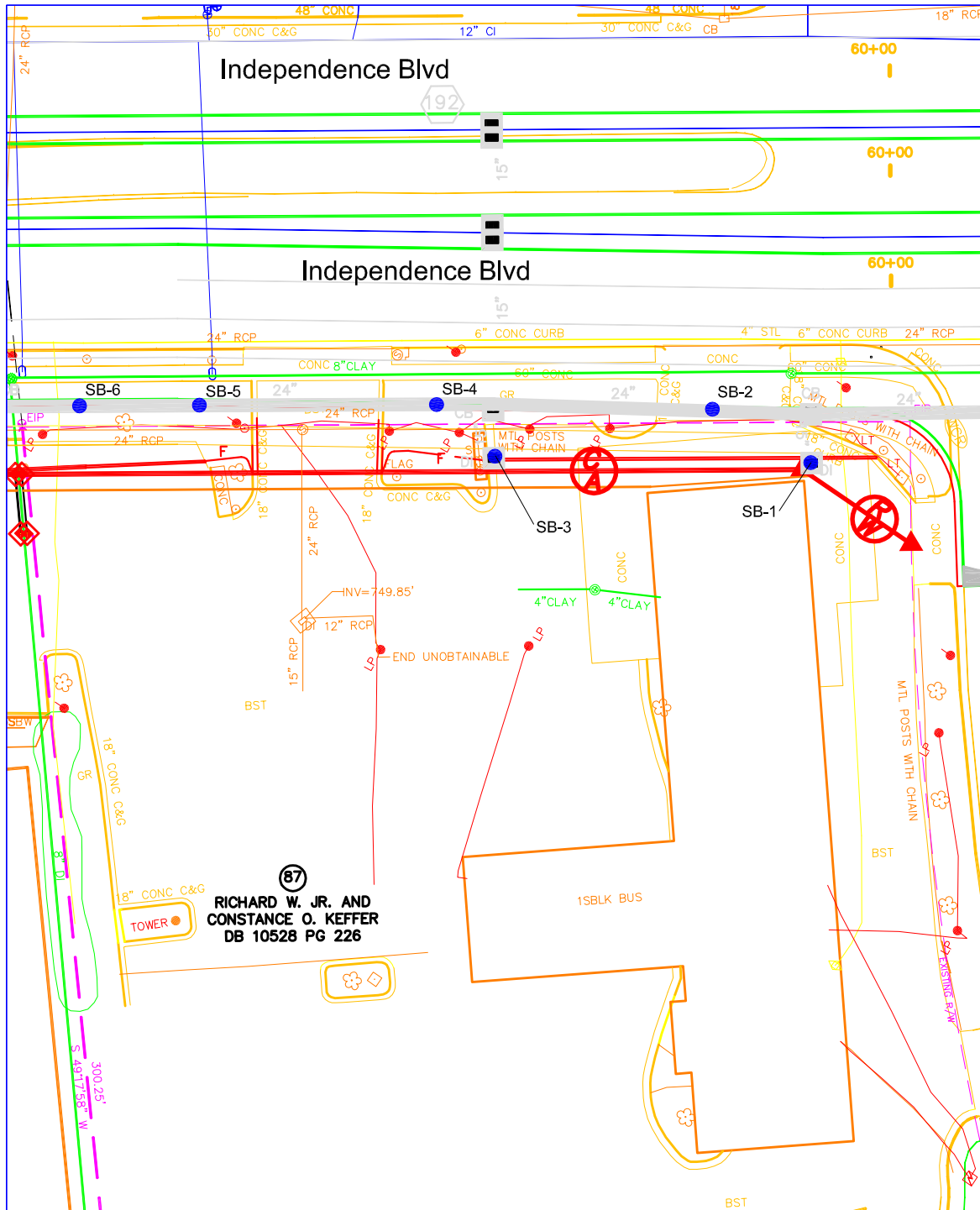
Parcel #87, Richard W. Jr and Constance  
O. Keffer Property  
(Constance Car Wash)  
Mecklenburg County, NC

DRAWING NAME: J:\NCDOT\Independence\FIC1	DATE: 9/29/09
SCALE: 1 INCH = 1,000 FEET	DR TLH CHK HPC REV

PREPARED FOR:  
NC Department Of Transportation  
Geotechnical Unit  
WBS Element: 34749.1.1  
TIP# U-0209B

Prepared By:  
**amec**  
338 N Elm Ave  
Suite 112  
Greensboro, NC 27401  
(336) 691-5398

Figure:  
Figure 1



## LEGEND



*Proposed Right of Way*



*Existing Right of Way*



*Property Boundaries*



*Cut/Fill Line*



*Cut/Fill Line*



*Boring Locations*

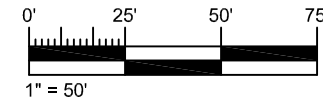
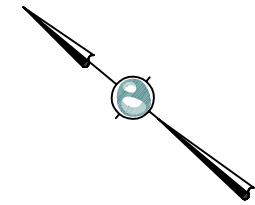


Figure 2  
 Site Map With Sample Locations  
 Parcel 87 Richard W. Jr. and Constance O.  
 Keffer Property (Constan Car Wash)

NC Department of Transportation  
 Geotechnical Unit  
 WBS Element: 34749.1.1  
 TIP# U-0209B



Sample Identification	P87-SB-4
Date	7-7-10
Sample Depth (Feet bgs)	4-5
TPH DRO (mg/kg)	BQL (9.4)
TPH GRO (mg/kg)	BQL (5.5)

Sample Identification	P87-SB-5
Date	7-7-10
Sample Depth (Feet bgs)	3-4
TPH DRO (mg/kg)	BQL (9.2)
TPH GRO (mg/kg)	BQL (4.8)

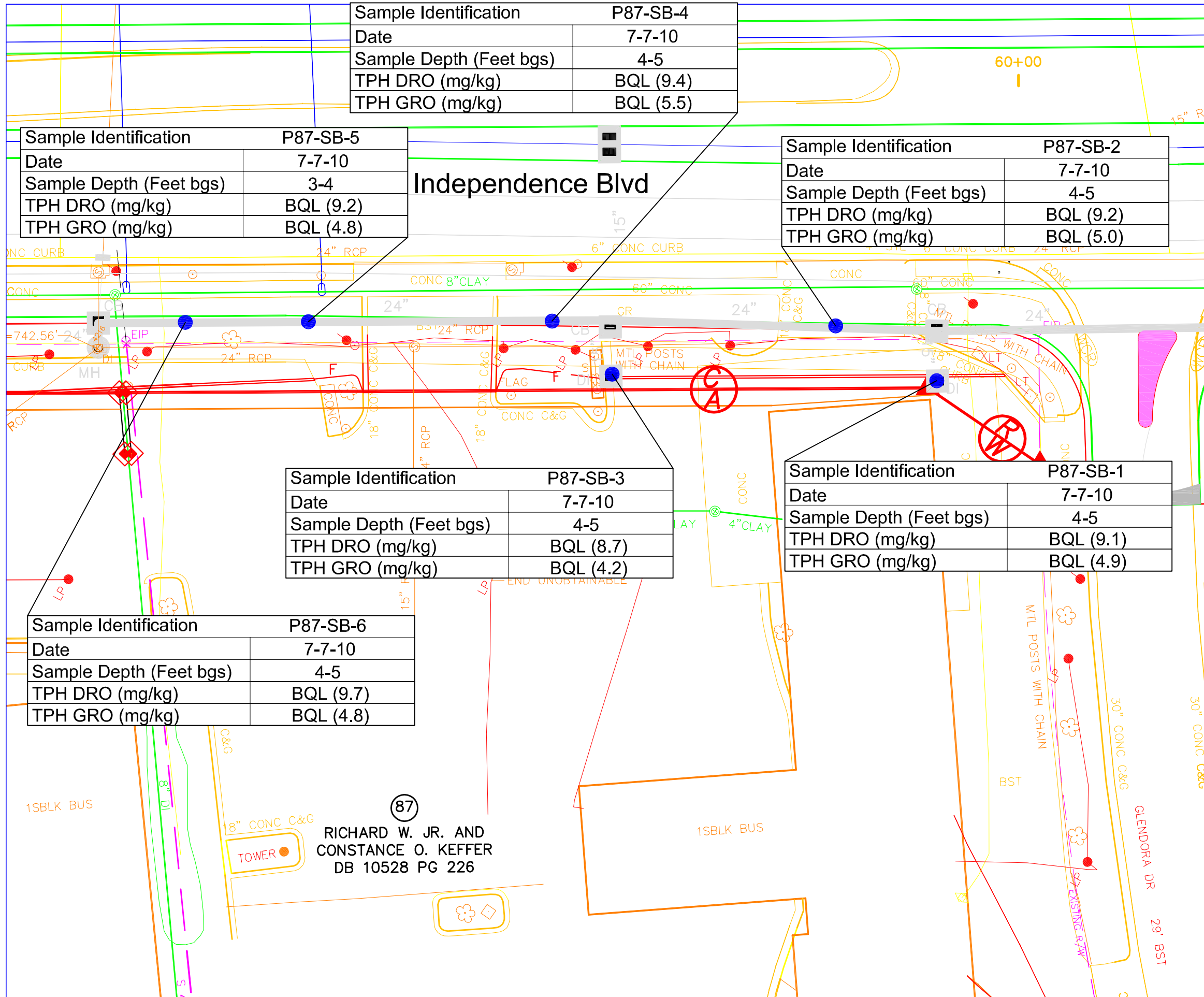
Sample Identification	P87-SB-2
Date	7-7-10
Sample Depth (Feet bgs)	4-5
TPH DRO (mg/kg)	BQL (9.2)
TPH GRO (mg/kg)	BQL (5.0)

Sample Identification	P87-SB-3
Date	7-7-10
Sample Depth (Feet bgs)	4-5
TPH DRO (mg/kg)	BQL (8.7)
TPH GRO (mg/kg)	BQL (4.2)

Sample Identification	P87-SB-1
Date	7-7-10
Sample Depth (Feet bgs)	4-5
TPH DRO (mg/kg)	BQL (9.1)
TPH GRO (mg/kg)	BQL (4.9)

Sample Identification	P87-SB-6
Date	7-7-10
Sample Depth (Feet bgs)	4-5
TPH DRO (mg/kg)	BQL (9.7)
TPH GRO (mg/kg)	BQL (4.8)

(87)  
RICHARD W. JR. AND  
CONSTANCE O. KEFFER  
DB 10528 PG 226



### LEGEND

- Proposed Right of Way
- Existing Right of Way
- Property Boundaries
- Cut/Fill Line
- Cut/Fill Line
- Boring Locations
- Analytical Data Box
- Below Quantitative Limits

Sample Identification	P87-SB-2
Date	7-7-10
Sample Depth (Feet bgs)	4-5
TPH DRO (mg/kg)	BQL (9.2)
TPH GRO (mg/kg)	BQL (5.0)

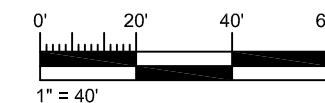
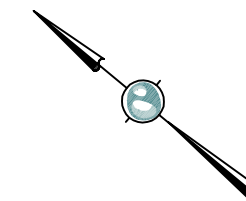


Figure 3  
Site Map With Analytical Data  
Parcel 87 Richard W. Jr. and Constance O.  
Keffer Property (Constan Car Wash)

NC Department of Transportation  
Geotechnical Unit  
WBS Element: 34749.1.1  
TIP# U-0209B

**APPENDIX A**

**PHOTO LOG**



**Photo 1**

Viewing West along US 74 from the North eastern portion of the site. SB-1 is located in the foreground.



**Photo 2**

Viewing east along US 74 from the northwestern portion of the site.



338 North Elm Street, Suite 112  
Greensboro, North Carolina, 27401

W.O. 562110209  
PROCESSED TLH  
DATE July 2010  
PAGE 1

PHOTOGRAPHIC LOG

Preliminary Site Assessment  
Parcel 87 Richard W. Jr and Constance O. Keffer  
Property, Independence Blvd., Charlotte, NC



**APPENDIX B**  
**BORING LOGS**













**APPENDIX C**  
**GEOPHYSICAL SURVEY REPORT**





July 12, 2010

Ms. Helen Corley, LG  
AMEC Earth & Environmental of North Carolina, Inc.  
338 North Elm Street, Suite 112  
Greensboro, North Carolina 27401

RE:           State Project:   U-0209B  
              WBS Element:  34749.1.1  
              County:       Mecklenburg  
              Description:  Charlotte – US 74 (Independence Boulevard) from NC 24-27 (Albemarle Road) to Idlewild Road

**Subject:       Project 09210013.25, Report on Geophysical Surveys  
                  Parcel 87, Mecklenburg County, North Carolina**

Dear Ms. Corley:

**SCHNABEL ENGINEERING SOUTH, PC** (Schnabel) is pleased to present this report on the geophysical surveys we conducted on the subject site. The report includes one 11x17 color figure.

## **INTRODUCTION**

The work described in this report was conducted on June 14, 15, 16, 22, 23, 24, and 29, 2010, by Schnabel under our 2009 contract with the NCDOT. The work was conducted within the accessible areas of the proposed right-of-way and/or easement as indicated on the NCDOT's preliminary plan sheets to support their environmental assessment of Parcel 87 (Richard W. Jr. and Constance O. Keffer Property). The purpose of the geophysical surveys was to locate possible metal underground storage tanks (UST's) and associated metal product lines in the accessible areas of the right-of-way and/or easement.

The geophysical investigation consisted of electromagnetic (EM) induction surveys using a Geonics EM61-MK2 instrument. The EM61 metal detector is used to locate metal objects buried up to about eight feet below ground surface. Ground-penetrating radar (GPR) investigations of selected EM61 anomalies, including areas of reinforced concrete, were conducted using a Geophysical Survey Systems SIR-3000 system equipped with a 400 MHz antenna.

## **FIELD METHODOLOGY**

Locations of geophysical data points were obtained using a sub-meter Trimble Pro-XRS DGPS system. References to direction and location in this report are based on the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 83 datum, with units in US survey feet. The locations of existing site features (manholes, signs, etc.) were recorded for later correlation with the geophysical data and for location references to the NCDOT drawings.

The EM61 data were collected along parallel survey lines spaced approximately 2.5 feet apart. The EM61 and DGPS data were recorded digitally using a field computer and later transferred to a desktop computer for data processing. The GPR data were collected along survey lines spaced one to two feet apart in orthogonal directions over anomalous EM readings not attributed to cultural features. The GPR data were reviewed in the field to evaluate the possible presence of UST's. The GPR data also were recorded digitally and later transferred to a desktop computer for further review.

Preliminary results for Parcel 87 were sent to Helen Corley and Troy Holzschuh of AMEC and Ethan Caldwell of the NCDOT on July 2, 2010.

## **DISCUSSION OF RESULTS**

We used a rental EM61 for the data collection on this project. We discovered that this rental unit had an intermittent short in the top coil, which made the differential data unreliable. The data collected from just the bottom coil was not affected by this problem. Only the early time gate data collected from the bottom coil were used to determine anomalous locations to survey with GPR.

The contoured early time gate EM61 data for Parcel 87 are shown on Figure 1. The early time gate data provide the more sensitive detection of metal objects. The early time gate results show anomalies apparently caused by reinforced concrete, buried utilities, or known site features (Figure 1). The GPR data collected at the site do not indicate the presence of metallic UST's within the right-of-way and/or easement.

## **CONCLUSIONS**

Our evaluation of the geophysical data collected on Parcel 87 on Project U-0209B in Charlotte, NC indicates the following:

The geophysical data do not indicate the presence of metallic UST's in the areas surveyed on Parcel 87.

## LIMITATIONS

These services have been performed and this report prepared for AMEC Earth & Environmental of North Carolina, Inc. and the North Carolina Department of Transportation in accordance with generally accepted guidelines for conducting geophysical surveys. It is generally recognized that the results of geophysical surveys are non-unique and may not represent actual subsurface conditions.

We appreciate the opportunity to have provided these services. Please call if you need additional information or have any questions.

Sincerely,

**SCHNABEL ENGINEERING SOUTH, PC**



Jeremy S Strohmeyer, LG  
Project Manager

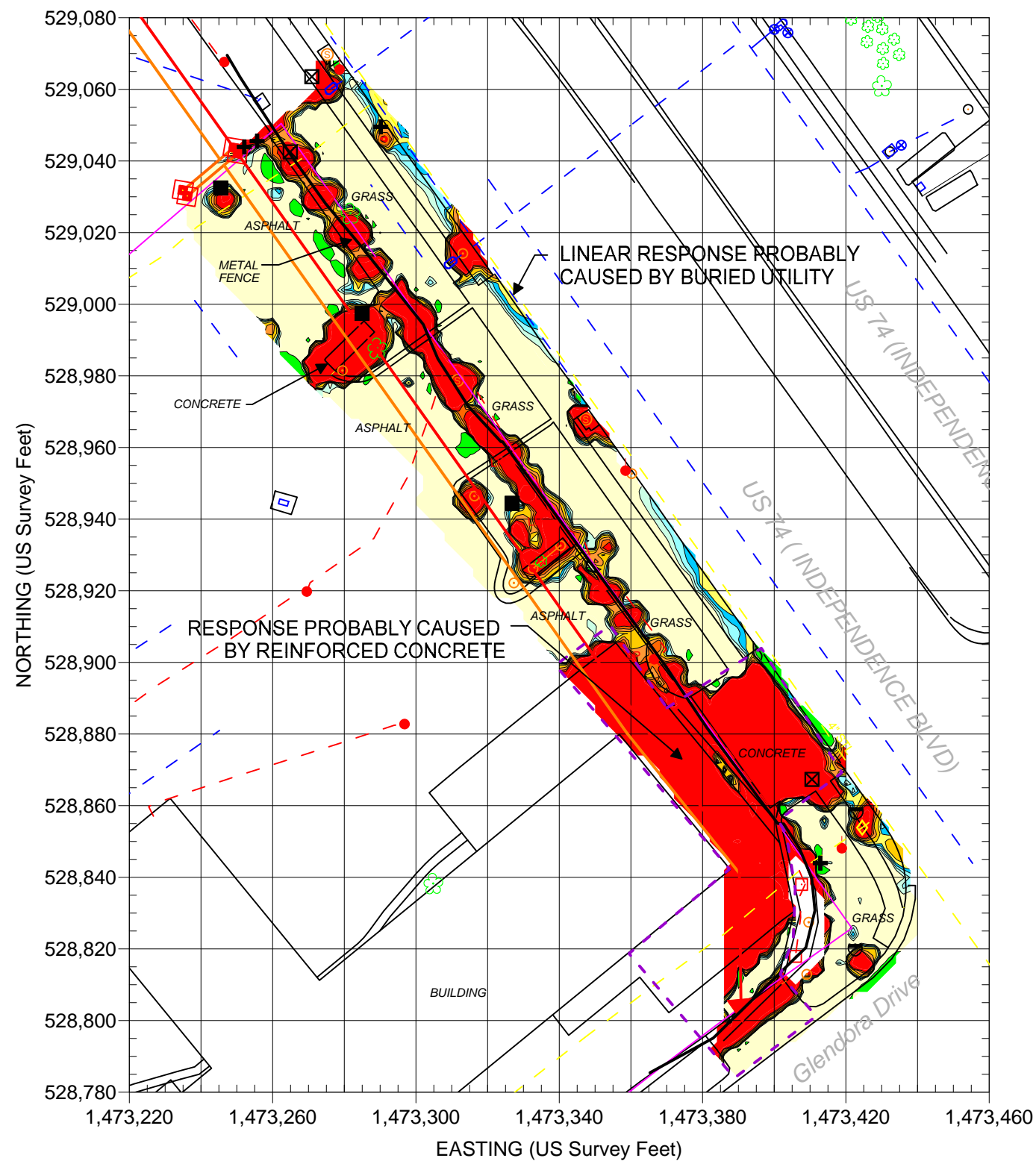


Edward D Billington, LG  
Senior Vice President

JS:JW:NB

Attachments: Figure 1

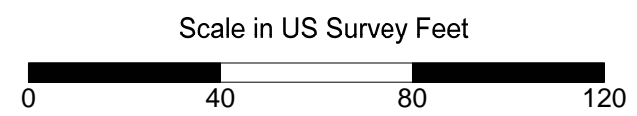
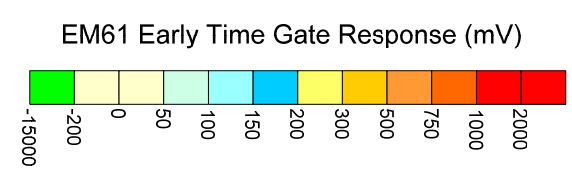
FILE: G:\2009 PROJECTS\09210013 (NCDOT 2009 GEOTECH UNIT SERVICES)\09210013.25 (U-0209B, MECKLENBURG CO.)\REPORT\PARCEL 87\SCHNABEL GEOPHYSICAL REPORT ON PARCEL 87.DOCX



### EXPLANATION

	SIGN
	UTILITY POLE
	GUY WIRE
	MISCELLANEOUS METALLIC OBJECT
	UTILITY MANHOLE, METER, BOX, ETC.
	LIGHT POLE
	STORM SEWER INLET
	UST LID
	MONITORING WELL
	DOT PROPOSED RW
	DOT PROPOSED UTILITY EASEMENT
	PROPERTY LINE
	UTILITY (AS MARKED BY OTHERS OR AS PROVIDED BY NCDOT [VARIOUS COLORS])
	EXAMPLE GPR LINE LOCATION
	GPR SURVEY AREA
	LOCATION OF KNOWN UST MARKED ON SITE

REF.: NCDOT FILE: u-0209b\_rdy\_psh\_08\_rwa.dgn  
(FOR SOME SITE FEATURES)



Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on June 14 through June 16, 2010, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina Zone 3200, using the NAD 1983 datum. GPR data were acquired on June 22 through June 24, 2010, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

	<p>STATE PROJECT U-0209B NC DEPARTMENT OF TRANSPORTATION MECKLENBURG COUNTY, NC PROJECT NO. 09210013.25</p>	<p>PARCEL 87 EM61 EARLY TIME GATE RESPONSE</p> <p style="text-align: right;">FIGURE 1</p>
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## **APPENDIX D**

### **LABORATORY ANALYTICAL RESULTS**

AMEC Earth & Env. Inc.(DOT Gree)  
Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Independence Blvd. Parcel 87  
Project No.: WBS #34749.1.1  
Lab Submittal Date: 07/09/2010  
Prism Work Order: 0070230

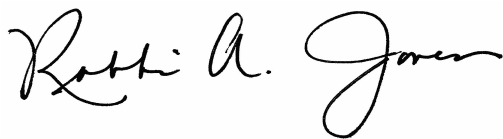
This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

Please call if you have any questions relating to this analytical report.

Respectfully,

**PRISM LABORATORIES, INC.**



President/Project Manager



Reviewed By

**Data Qualifiers Key Reference:**

- A Surrogate recovery above control limits.
- Aa Surrogate recovery above control limits. GRO was not detected in the sample. No further action taken.
- BRL Below Reporting Limit
- MDL Method Detection Limit
- RPD Relative Percent Difference
- \* Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
P87-SB-1 (4-5)	0070230-01	Solid	07/07/10	07/09/10
P87-SB-2 (4-5)	0070230-02	Solid	07/07/10	07/09/10
P87-SB-3 (4-5)	0070230-03	Solid	07/07/10	07/09/10
P87-SB-4 (4-5)	0070230-04	Solid	07/08/10	07/09/10
P87-SB-5 (3-4)	0070230-05	Solid	07/08/10	07/09/10
P87-SB-6 (4-5)	0070230-06	Solid	07/08/10	07/09/10

Samples received in good condition at 4.0 degrees C unless otherwise noted.

AMEC Earth & Env. Inc.(DOT Gree)  
 Attn: Helen Corley  
 338 North Elm St. Suite 112  
 Greensboro, NC 27401

Project: NCDOT: Independence Blvd.  
 Parcel 87  
 Project No.: WBS #34749.1.1  
 Sample Matrix: Solid

Client Sample ID: P87-SB-1 (4-5)  
 Prism Sample ID: 0070230-01  
 Prism Work Order: 0070230  
 Time Collected: 07/07/10 16:30  
 Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>Diesel Range Organics by GC/FID</b>									
Diesel Range Organics	BRL	mg/kg dry	9.1	1.5	1	*8015C	7/17/10 11:11	JMV	P0G0290
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			78 %		49-124	
<b>Gasoline Range Organics by GC/FID</b>									
Gasoline Range Organics	BRL	mg/kg dry	4.9	0.63	50	*8015C	7/19/10 18:26	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			90 %		55-129	
<b>General Chemistry Parameters</b>									
% Solids	76.8	% by Weight	0.100	0.100	1	*SM2540 G	7/13/10 14:30	JAB	P0G0226



AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Independence Blvd.  
Parcel 87  
Project No.: WBS #34749.1.1  
Sample Matrix: Solid

Client Sample ID: P87-SB-2 (4-5)  
Prism Sample ID: 0070230-02  
Prism Work Order: 0070230  
Time Collected: 07/07/10 17:00  
Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	9.2	1.5	1	*8015C	7/17/10 11:46	JMV	P0G0290
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			83 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	5.0	0.64	50	*8015C	7/19/10 18:57	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			91 %		55-129	

### General Chemistry Parameters

% Solids	75.6	% by Weight	0.100	0.100	1	*SM2540 G	7/13/10 14:30	JAB	P0G0226
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AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Independence Blvd.  
Parcel 87  
Project No.: WBS #34749.1.1  
Sample Matrix: Solid

Client Sample ID: P87-SB-3 (4-5)  
Prism Sample ID: 0070230-03  
Prism Work Order: 0070230  
Time Collected: 07/07/10 17:15  
Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	8.7	1.4	1	*8015C	7/16/10 21:58	JMV	P0G0290
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			75 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	4.2	0.55	50	*8015C	7/19/10 19:28	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			89 %		55-129	

### General Chemistry Parameters

% Solids	80.6	% by Weight	0.100	0.100	1	*SM2540 G	7/13/10 14:30	JAB	P0G0226
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AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Independence Blvd.  
Parcel 87  
Project No.: WBS #34749.1.1  
Sample Matrix: Solid

Client Sample ID: P87-SB-4 (4-5)  
Prism Sample ID: 0070230-04  
Prism Work Order: 0070230  
Time Collected: 07/08/10 10:00  
Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	9.4	1.5	1	*8015C	7/16/10 22:34	JMV	P0G0290
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			80 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	5.5	0.71	50	*8015C	7/19/10 19:59	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			125 %		55-129	

### General Chemistry Parameters

% Solids	74.4	% by Weight	0.100	0.100	1	*SM2540 G	7/14/10 13:45	JAB	P0G0257
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AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Independence Blvd.  
Parcel 87  
Project No.: WBS #34749.1.1  
Sample Matrix: Solid

Client Sample ID: P87-SB-5 (3-4)  
Prism Sample ID: 0070230-05  
Prism Work Order: 0070230  
Time Collected: 07/08/10 10:10  
Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	9.2	1.5	1	*8015C	7/17/10 12:21	JMV	P0G0290
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			95 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	4.8	0.62	50	*8015C	7/19/10 20:30	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			137 %		55-129	Aa

### General Chemistry Parameters

% Solids	75.2	% by Weight	0.100	0.100	1	*SM2540 G	7/14/10 13:45	JAB	P0G0257
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AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Independence Blvd.  
Parcel 87  
Project No.: WBS #34749.1.1  
Sample Matrix: Solid

Client Sample ID: P87-SB-6 (4-5)  
Prism Sample ID: 0070230-06  
Prism Work Order: 0070230  
Time Collected: 07/08/10 10:30  
Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
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### Diesel Range Organics by GC/FID

Diesel Range Organics	BRL	mg/kg dry	9.7	1.6	1	*8015C	7/17/10 12:57	JMV	P0G0290
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			77 %		49-124	

### Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	4.8	0.62	50	*8015C	7/19/10 21:00	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			110 %		55-129	

### General Chemistry Parameters

% Solids	72.3	% by Weight	0.100	0.100	1	*SM2540 G	7/14/10 13:45	JAB	P0G0257
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AMEC Earth & Env. Inc.(DOT Gree)  
Attn: Helen Corley  
338 North Elm St. Suite 112  
Greensboro, NC 27401

Project: NCDOT: Independence Blvd.  
Parcel 87  
Project No: WBS #34749.1.1

Prism Work Order: 0070230  
Time Submitted: 7/9/10 11:13:00AM

**Gasoline Range Organics by GC/FID - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P0G0340 - 5035</b>										
<b>Blank (P0G0340-BLK1)</b>										
Prepared & Analyzed: 07/19/10										
Gasoline Range Organics	BRL	5.0	mg/kg wet							
Surrogate: a,a,a-Trifluorotoluene	4.70		mg/kg wet	5.00		94	55-129			
<b>LCS (P0G0340-BS1)</b>										
Prepared & Analyzed: 07/19/10										
Gasoline Range Organics	47.9	5.0	mg/kg wet	50.0		96	67-116			
Surrogate: a,a,a-Trifluorotoluene	5.40		mg/kg wet	5.00		108	55-129			
<b>LCS Dup (P0G0340-BSD1)</b>										
Prepared & Analyzed: 07/19/10										
Gasoline Range Organics	49.4	5.0	mg/kg wet	50.0		99	67-116	3	200	
Surrogate: a,a,a-Trifluorotoluene	5.50		mg/kg wet	5.00		110	55-129			
<b>Matrix Spike (P0G0340-MS1)</b>										
Source: 0070230-01 Prepared & Analyzed: 07/19/10										
Gasoline Range Organics	66.9	6.5	mg/kg dry	65.1	BRL	103	57-113			
Surrogate: a,a,a-Trifluorotoluene	7.36		mg/kg dry	6.51		113	55-129			
<b>Matrix Spike Dup (P0G0340-MSD1)</b>										
Source: 0070230-01 Prepared & Analyzed: 07/19/10										
Gasoline Range Organics	67.3	6.5	mg/kg dry	65.1	BRL	103	57-113	0.6	23	
Surrogate: a,a,a-Trifluorotoluene	7.36		mg/kg dry	6.51		113	55-129			

AMEC Earth & Env. Inc.(DOT Gree)  
 Attn: Helen Corley  
 338 North Elm St. Suite 112  
 Greensboro, NC 27401

Project: NCDOT: Independence Blvd.  
 Parcel 87  
 Project No: WBS #34749.1.1

Prism Work Order: 0070230  
 Time Submitted: 7/9/10 11:13:00AM

**Diesel Range Organics by GC/FID - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P0G0290 - 3545A</b>										
<b>Blank (P0G0290-BLK1)</b>					Prepared: 07/15/10 Analyzed: 07/16/10					
Diesel Range Organics	BRL	7.0	mg/kg wet							
Surrogate: o-Terphenyl	1.34		mg/kg wet	1.60		84	49-124			
<b>LCS (P0G0290-BS1)</b>					Prepared: 07/15/10 Analyzed: 07/16/10					
Diesel Range Organics	63.9	7.0	mg/kg wet	80.0		80	55-109			
Surrogate: o-Terphenyl	1.93		mg/kg wet	1.60		121	49-124			
<b>LCS Dup (P0G0290-BSD1)</b>					Prepared: 07/15/10 Analyzed: 07/16/10					
Diesel Range Organics	69.9	7.0	mg/kg wet	80.0		87	55-109	9	200	
Surrogate: o-Terphenyl	2.06		mg/kg wet	1.60		129	49-124			A

**Sample Extraction Data**

**Prep Method: 3545A**

Lab Number	Batch	Initial	Final	Date
0070230-01	P0G0290	25.1 g	1 mL	07/15/10
0070230-02	P0G0290	25.07 g	1 mL	07/15/10
0070230-03	P0G0290	25.03 g	1 mL	07/15/10
0070230-04	P0G0290	25.06 g	1 mL	07/15/10
0070230-05	P0G0290	25.18 g	1 mL	07/15/10
0070230-06	P0G0290	25.06 g	1 mL	07/15/10

**Prep Method: 5035**

Lab Number	Batch	Initial	Final	Date
0070230-01	P0G0340	6.67 g	5 mL	07/19/10
0070230-02	P0G0340	6.67 g	5 mL	07/19/10
0070230-03	P0G0340	7.35 g	5 mL	07/19/10
0070230-04	P0G0340	6.16 g	5 mL	07/19/10
0070230-05	P0G0340	6.93 g	5 mL	07/19/10
0070230-06	P0G0340	7.26 g	5 mL	07/19/10

**NO PREP**

Lab Number	Batch	Initial	Final	Date
0070230-01	P0G0226	30 g	30 mL	07/13/10
0070230-02	P0G0226	30 g	30 mL	07/13/10
0070230-03	P0G0226	30 g	30 mL	07/13/10
0070230-04	P0G0257	30 g	30 mL	07/14/10
0070230-05	P0G0257	30 g	30 mL	07/14/10
0070230-06	P0G0257	30 g	30 mL	07/14/10

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Full-Service Analytical & Environmental Solutions

449 Springbrook Road • P.O. Box 240543 • Charlotte, NC 28224-0543  
Phone: 704/629-6364 • Fax: 704/525-0409

Client Company Name: AMEL

Report To/Contact Name: Heleen Corley

Reporting Address: 338 N Elm St  
Greensboro NC 27401

Phone: 336-691-5348 Fax (Yes) (No):

Email (Yes) (No) Email Address: heleen@prism-lab.com

EDD Type: PDF  Excel  Other

Site Location Name: Parcel 87

Site Location Physical Address:

# CHAIN OF CUSTODY RECORD

PAGE 1 OF 1 QUOTE # TO ENSURE PROPER BILLING: \_\_\_\_\_

Project Name: Independence

Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)

\*Please ATTACH any project specific reporting (QC LEVEL I III III IV)

Invoice To: Heleen Corley

Address: same

Purchase Order No./Billing Reference: WBS 34744.1.1

Requested Due Date  1 Day  2 Days  3 Days  4 Days  5 Days

"Working Days"  6-9 Days  Standard 10 days  Rush Work Must Be Pre-Approved

Samples received after 15:00 will be processed next business day.

Turnaround time is based on business days, excluding weekends and holidays.

(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

## LAB USE ONLY

Samples: INTACT upon arrival?	YES	NO	N/A
Received ON WET ICE? Temp <u>4.0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROPER PRESERVATIVES indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Received WITHIN HOLDING TIMES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUSTODY SEALS: INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VOLATILES rec'd W/OUT HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROPER CONTAINERS used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC  USACE  FL  NC

Water Chlorinated: YES  NO  N/A

Sample Iced Upon Collection: YES  NO

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER			PRESERVATIVES	ANALYSES REQUESTED	REMARKS	PRISM LAB ID NO.
				*TYPE SEE BELOW	NO.	SIZE				
P82-SB-1(4-5)	2-7-10	1630	Soil	VOA	4	2000 mL		DRD DRD		01
P82-SB2(4-5)	↓	1700	↓	↓	↓	↓		↓		02
P82-SB-3(4-5)	↓	1715	↓	↓	↓	↓		↓		03
P82-SB-4(4-5)	7-8-10	1800	↓	↓	↓	↓		↓		04
P82-SB-5(3-4)	↓	1810	↓	↓	↓	↓		↓		05
P82-SB-6(4-5)	↓	1830	↓	↓	↓	↓		↓		06

PRESS DOWN FIRMLY - 3 COPIES

Sampler's Signature: Tracy L. H. / 25244 Sampled By (Print Name): Tracy L. H. / 25244 Affiliation: AMEL

Upon relinquishing, this Chain of Custody is your authorization for Prism to proceed with the analyses as requested above. Any changes must be submitted in writing to the Prism Project Manager. There will be charges for any changes after analyses have been initialized.

Reiniquished By: (Signature) Tracy L. H. / 25244 Received By: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Military Hours: \_\_\_\_\_

Reiniquished By: (Signature) \_\_\_\_\_ Received By: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Military Hours: \_\_\_\_\_

Reiniquished By: (Signature) \_\_\_\_\_ Received By: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Military Hours: \_\_\_\_\_

Reiniquished By: (Signature) \_\_\_\_\_ Received By: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Military Hours: \_\_\_\_\_

Method of Shipment: Hand-delivered  Prism Field Service  Other \_\_\_\_\_

NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

COC Group No. 0070230

Additional Comments: \_\_\_\_\_

## PRISM USE ONLY

Site Arrival Time:	_____
Site Departure Time:	_____
Field Tech Fee:	_____
Mileage:	_____

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL