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

Cole CK Portfolio II LLC Property
Parcel #85
August 23, 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 Cole CK Portfolio II LLC Property (the Site) to be affected by a road improvement project along US Highway (Hwy) 74, Independence Blvd. The Site currently operates as a gas station and convenience store and is identified as Parcel #85 within the NCDOT U-0209B design project. The property, located on the east side of US Hwy 74 near the intersection with Farmingdale 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 Cole CK Portfolio II LLC Property due to the presence of four underground storage tanks (UST) on the property. The property is currently a gas station. 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 Cole CK Portfolio II, LLC Property is located on the eastern side of US Hwy 74, at the intersection of Farmingdale 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 four (4) 10,000 gallon gasoline tanks were installed at Circle K 2705105 at 4921 East Independence Blvd in 1986. AMEC also reviewed the NCDENR Incident Management Database and identified Incident #20990 for BP Station #24169 at 4921 E. Independence Boulevard in Charlotte, NC. The incident was reported and cleanup conducted on March

20, 1996. Groundwater contamination from a petroleum source was reported as the result of a leak from a regulated tank (though the source could not be determined). On March 6, 2000, a Notice of Regulatory Requirement was issued and on June 13, 2008, the incident was closed out. On July 11, 2008, a Deed Land Use Restriction was filed for groundwater. Cleanups were not made to 2L standards but rather to an alternate standard.

1.2 Site Description

The Site is a one-story building with a secondary building operating as a car wash and a large canopy. The proposed road widening will traverse the entire property along US Hwy 74 of Parcel #85. Four USTs are presently located at this facility. No monitoring wells were observed at the property. Appendix A includes a photo log for Parcel #85.

The properties north, east and south of the Site are commercial businesses. Adjacent to the north of the Site is David's Bridal. The parcel adjacent to the east of the Site serves as a parking lot. Across Farmingdale Drive to the south of the Site is City Chevrolet car dealership. Across US Hwy 74 to the west is an abandoned building (Parcel #87).

2.0 GEOLOGY

2.1 Regional Geology

The Cole CK Portfolio II, LLC 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 5 shallow direct push probe soil borings (SB) onsite. Borings generally extended to a total depth of 10 feet below ground surface (bgs), however SB-3 met refusal at 4.5 feet bgs. Soils generally consisted of brown, 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 and AMEC furthered recon on June 29, 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. Boring locations were marked 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 geophysical surveys occurred just in the area of the proposed expanded ROW near the property's western edge along US Hwy

74. The data collected by Schnabel did not indicate the presence of 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 8, 2010 at Parcel #85. Five direct push soil borings were conducted within the proposed expanded ROW on Parcel #85. 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 northwest corner of the parcel within the proposed ROW. Soil borings SB-2 through SB-5 extended southeast along the proposed ROW.

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 8, 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 5 completed soil borings from Parcel #85. 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 5 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 8, 2010.

- The property currently operates as a gas station.
- NCDENR UST Registered Tanks Database identified the presence of four (4) USTs at the Site that were installed in 1986.
- UST Database for Incident Management identifies the parcel as Incident #20990, which has not been closed out.
- Five soil samples were collected and analyzed for TPH GRO and DRO and no detections of TPH were reported from the laboratory or indicated from field observations.

6.0 RECOMMENDATIONS

If NCDOT happens to intercept contaminated soil, AMEC recommends the following action:

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

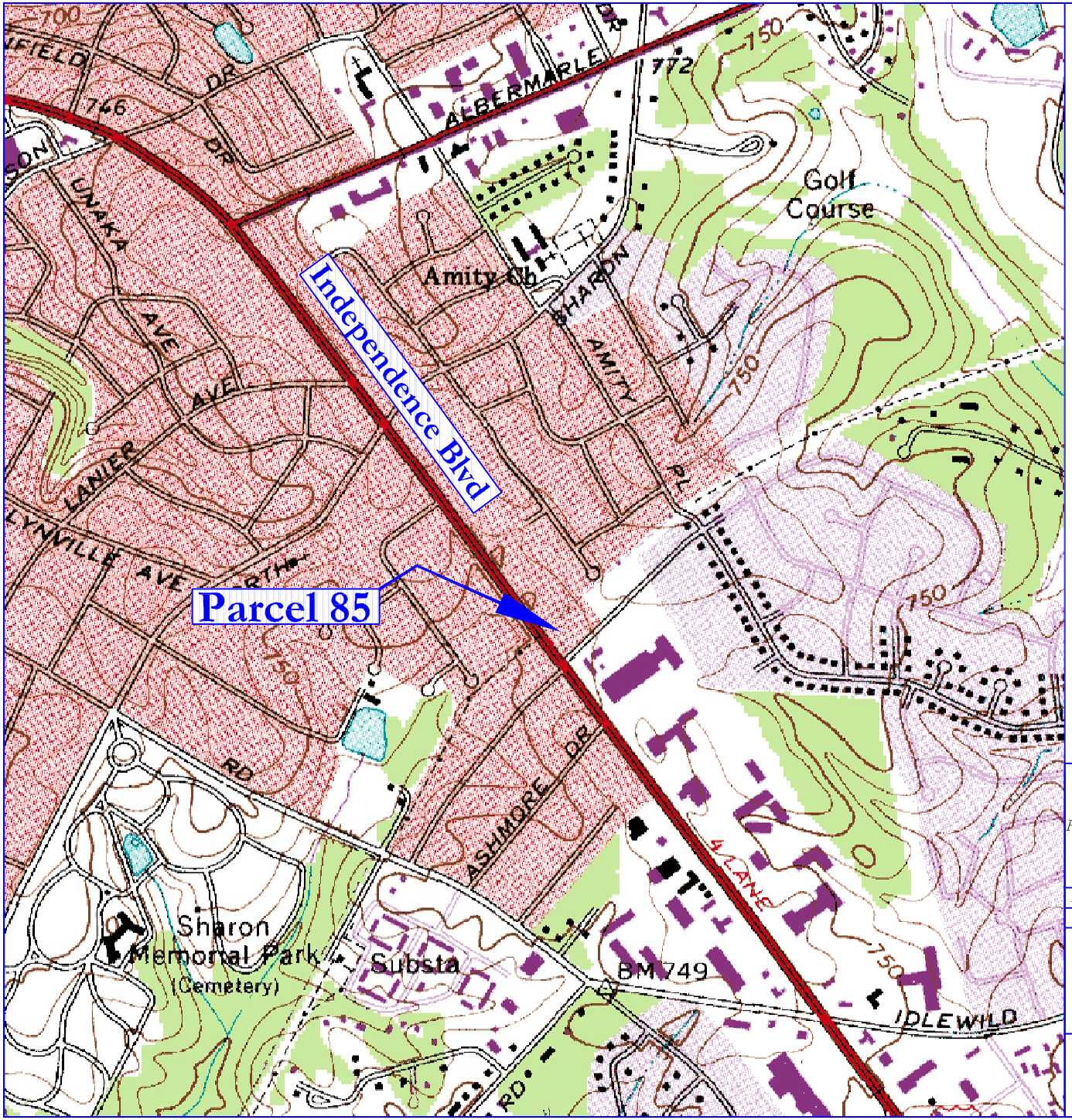
TABLES

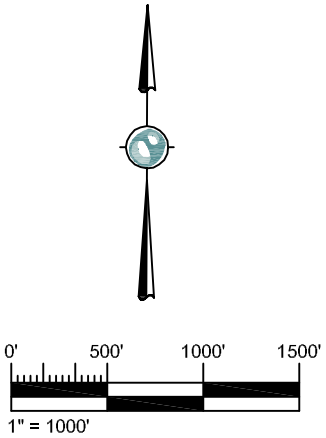
Table 1
Soil Sampling Analytical Results, DRO-GRO
Parcel 85, Cole CK Porfolio Property (Circle K)
NC DOT
Charlotte, North Carolina

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (ft bgs)	PID READINGS (ppm)	EPA Method 8015B	
				DRO (mg/kg)	GRO (mg/kg)
NC Action Levels				**10**	**10**
P85-SB-1	7/8/2010	5 - 6		<8.5	<4.2
P85-SB-2	7/8/2010	4 - 5		<8.7	<4.8
P85-SB-3	7/8/2010	3 - 4		<9.6	<4.7
P85-SB-4	7/8/2010	5 - 6		<9.0	<4.7
P85-SB-5	7/8/2010	4 - 5		<9.5	<4.7

NOTES:
bgs = below ground surface; ppm = parts per million
Bold 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 #85, Cole CK Portfolio II, LLC Property
(Circle K)
Mecklenburg County, NC

DRAWING NAME: J:\NCDOT\Independence\FIG1		DATE: 9/29/09	
SCALE: 1 INCH = 1,000 FEET	DR TLH	CHK HPC	REV

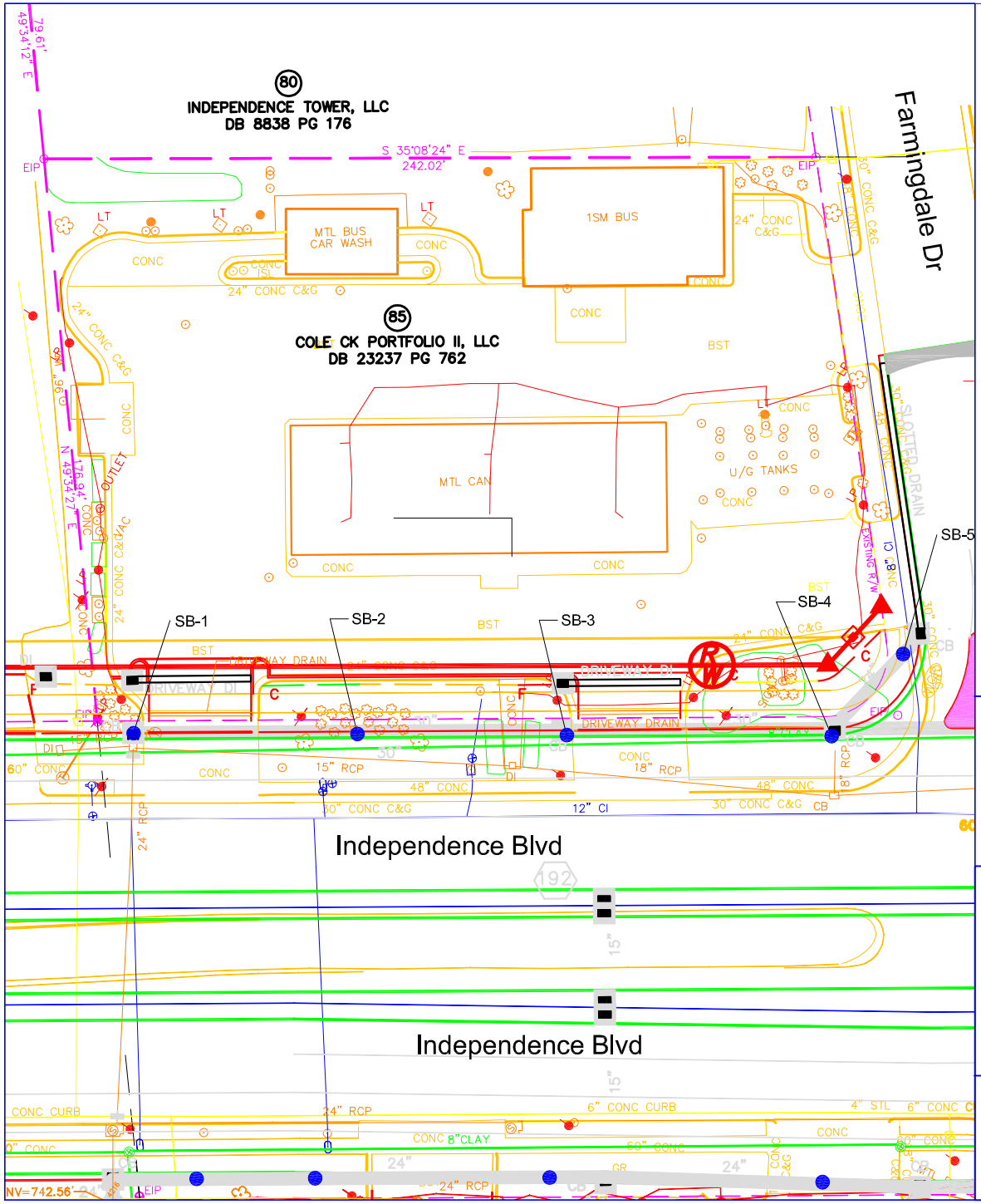
PREPARED FOR:
NC Department Of Transportation
Geotechnical Unit
WBS Element: 34749.1.1
TIP# U-0209B

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
- C — Cut/Fill Line
- F — Cut/Fill Line
- Boring Locations

0' 25' 50' 75'

1" = 50'

Figure 2
Site Map With Sample Locations
Parcel 85 Cole CK Portfolio II, LLC Property
(Circle K)

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

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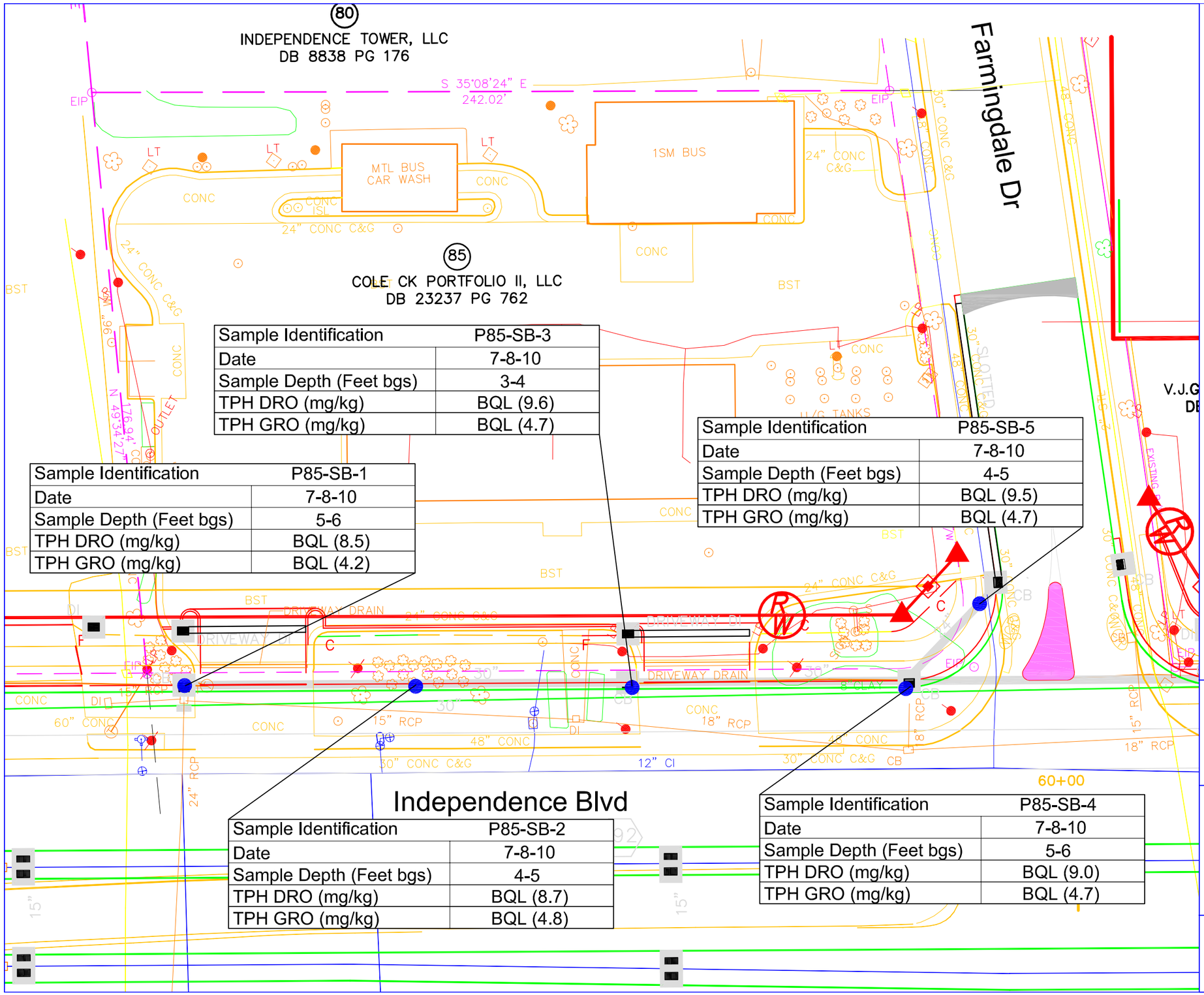

Sample Identification	P85-SB-3
Date	7-8-10
Sample Depth (Feet bgs)	3-4
TPH DRO (mg/kg)	BQL (9.6)
TPH GRO (mg/kg)	BQL (4.7)

Sample Identification	P85-SB-1
Date	7-8-10
Sample Depth (Feet bgs)	5-6
TPH DRO (mg/kg)	BQL (8.5)
TPH GRO (mg/kg)	BQL (4.2)

Sample Identification	P85-SB-5
Date	7-8-10
Sample Depth (Feet bgs)	4-5
TPH DRO (mg/kg)	BQL (9.5)
TPH GRO (mg/kg)	BQL (4.7)

Sample Identification	P85-SB-2
Date	7-8-10
Sample Depth (Feet bgs)	4-5
TPH DRO (mg/kg)	BQL (8.7)
TPH GRO (mg/kg)	BQL (4.8)

Sample Identification	P85-SB-4
Date	7-8-10
Sample Depth (Feet bgs)	5-6
TPH DRO (mg/kg)	BQL (9.0)
TPH GRO (mg/kg)	BQL (4.7)

LEGEND

- Proposed Right of Way
- Existing Right of Way
- Property Boundaries
- C — Cut/Fill Line
- F — Cut/Fill Line
- Boring Locations
- Analytical Data Box
- (BQL) Below Quantitative Limits

0' 15' 30' 45'

1" = 30'

Figure 3
Site Map With Analytical Data
Parcel 85 Cole CK Portfolio II, LLC Property
(Circle K)

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

amec
EARTH & ENVIRONMENTAL, INC.
338 North Elm Street, Suite 112
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(336) 691-5398

APPENDIX A

PHOTO LOG

Photo 1

Viewing Southeast from the east-central portion of the site. SB- 5 was in the grass just beyond the ROW mark (marked in white paint) in the Farmingdale drive entrance.

Photo 2

Viewing east from the south western portion of the site. Soil borings were spaced between utilities throughout the planting area in a linear pattern parallel to Independence Blvd.

APPENDIX B

BORING LOGS

AMEC Earth & Environmental, Inc.
BORING LOG

Boring/Well No.: P85-SB1	**Site Name: Parcel 85**
Date: 7-8-10	**Location: Charlotte, Mecklenburg Co., NC**
Job No.: 562110209	**Sample Method: Direct Push**
AMEC Rep: Troy Holzschuh	**Drilling Method: Direct Push**
Drilling Company: A.E. Drilling	**Driller Name/Cert #: John Gorman - 3485**
Remarks:	

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Grass/Organic Soil
0.5-6	0		Brown/Orange, Well Sorted, Clayey Silt, Damp
6-8	0		Brown, Well Sorted, Clayey Silt, Damp
8-10	0		Gray, Well Sorted, Clayey Silt, Damp

WELL CONSTRUCTION DETAILS (If Applicable)

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:

AMEC Earth & Environmental, Inc.
BORING LOG

Boring/Well No.: P85-SB2	**Site Name: Parcel 85**
Date: 7-8-10	**Location: Charlotte, Mecklenburg Co., NC**
Job No.: 562110209	**Sample Method: Direct Push**
AMEC Rep: Troy Holzschuh	**Drilling Method: Direct Push**
Drilling Company: A.E. Drilling	**Driller Name/Cert #: John Gorman - 3485**
Remarks:	

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Pinestraw/Organic Soil
0.5-1	0		Brown, Well Sorted, Silt, Damp
1-8	0		Orange, Well Sorted, Clayey Silt, Damp
8-10	0		Brown, Well Sorted, Clay, Damp

WELL CONSTRUCTION DETAILS (If Applicable)	
Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:

AMEC Earth & Environmental, Inc.
BORING LOG

Boring/Well No.: P85-SB3	**Site Name: Parcel 85**
Date: 7-8-10	**Location: Charlotte, Mecklenburg Co., NC**
Job No.: 562110209	**Sample Method: Direct Push**
AMEC Rep: Troy Holzschuh	**Drilling Method: Direct Push**
Drilling Company: A.E. Drilling	**Driller Name/Cert #: John Gorman - 3485**
Remarks:	

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Grass/Organic Soil
0.5-4.5	0		Orange/Yellow, Well Sorted, Marbled Clayey Silt, Damp
			Refusal @ 4.5'

WELL CONSTRUCTION DETAILS (If Applicable)

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:

AMEC Earth & Environmental, Inc.
BORING LOG

Boring/Well No.: P85-SB4	**Site Name: Parcel 85**
Date: 7-8-10	**Location: Charlotte, Mecklenburg Co., NC**
Job No.: 562110209	**Sample Method: Direct Push**
AMEC Rep: Troy Holzschuh	**Drilling Method: Direct Push**
Drilling Company: A.E. Drilling	**Driller Name/Cert #: John Gorman - 3485**
Remarks:	

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Grass/Organic Soil
0.5-6	0		Orange, Well Sorted, Clayey Silt, Damp
6-7	0		Brown, Well Sorted, Clayey Silt, Damp
7-10	0		Gray, Well Sorted, Clayey Silt, Damp

WELL CONSTRUCTION DETAILS (If Applicable)

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:

AMEC Earth & Environmental, Inc.
BORING LOG

Boring/Well No.: P85-SB5	**Site Name: Parcel 85**
Date: 7-8-10	**Location: Charlotte, Mecklenburg Co., NC**
Job No.: 562110209	**Sample Method: Direct Push**
AMEC Rep: Troy Holzschuh	**Drilling Method: Direct Push**
Drilling Company: A.E. Drilling	**Driller Name/Cert #: John Gorman - 3485**
Remarks:	

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Grass/Organic Soil
0.5-5	0		Orange, Well Sorted, Clayey Silt, Damp
5-7	0		Brown, Well Sorted, Clayey Silt, Damp
7-10	0		Gray, Well Sorted, Clayey Silt, Damp

WELL CONSTRUCTION DETAILS (If Applicable)

Well Type/Diameter:	Outer Casing Interval:
Total Depth:	Outer Casing Diameter:
Screen Interval:	Bentonite Interval:
Sand Interval:	Slot Size:
Grout Interval:	Static Water Level:

APPENDIX C

GEOPHYSICAL SURVEY REPORT

Schnabel
ENGINEERING

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 85, 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 85 (Cole CK Portfolio II LLC 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 85 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 85 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 85 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 85.

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.

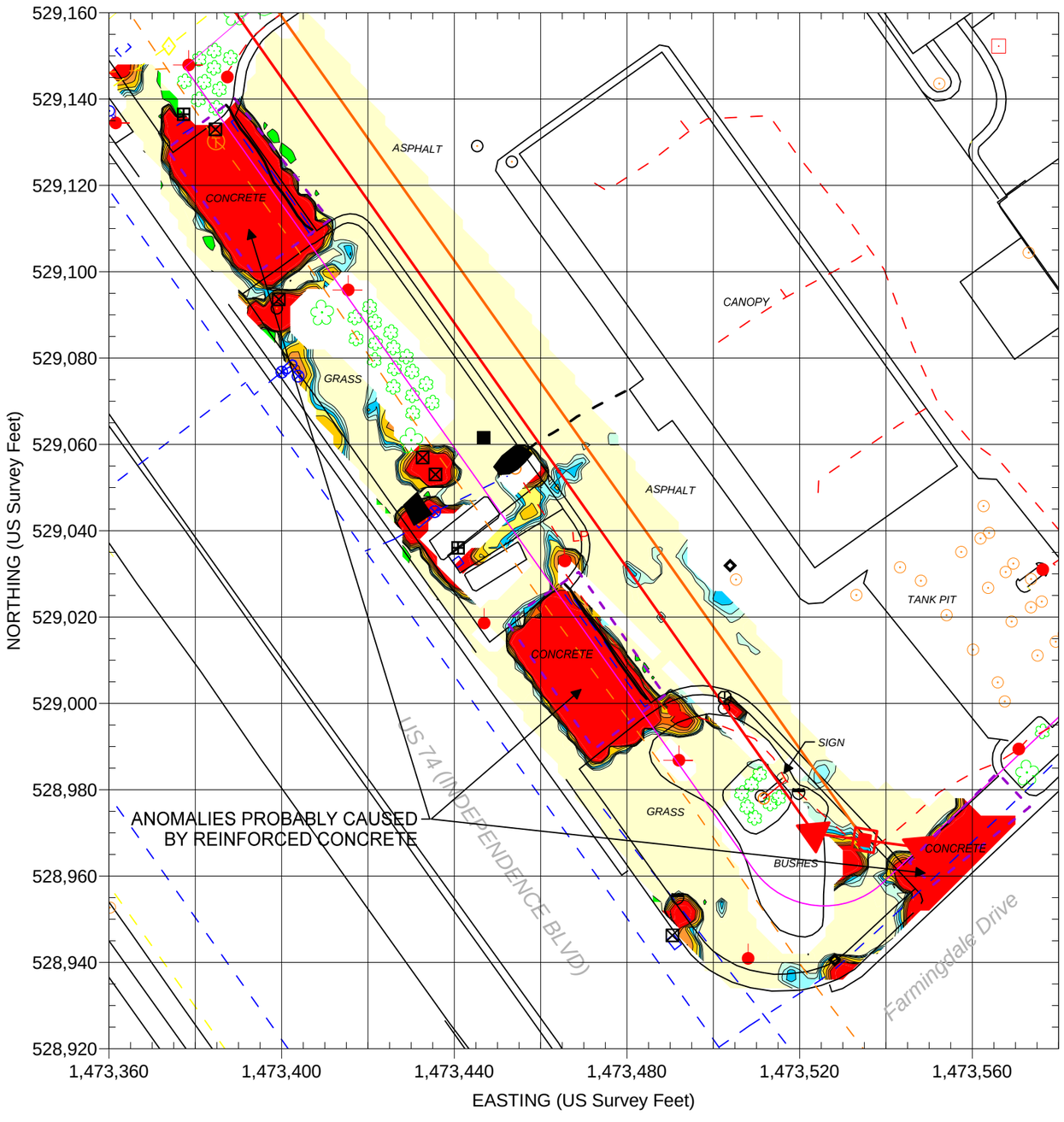
Sincerely,

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 85\SCHNABEL GEOPHYSICAL REPORT ON PARCEL 85.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 R/W
- 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)

EM61 Early Time Gate Response (mV)

-200 0 50 100 150 200 300 500 750 1000 2000

Scale in US Survey Feet

0 30 60 90

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.

Schnabel ENGINEERING

STATE PROJECT U-0209B
NC DEPARTMENT OF TRANSPORTATION
MECKLENBURG COUNTY, NC
PROJECT NO. 09210013.25

PARCEL 85
EM61 EARLY TIME GATE RESPONSE
FIGURE 1

APPENDIX D

LABORATORY ANALYTICAL RESULTS

PRISM LABORATORIES, INC.
Full-Service Analytical & Environmental Solutions

NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert No. 37735

Case Narrative

07/21/2010

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

Project: NCDOT: Independence Blvd. Parcel 85
Project No.: WBS #34749.1.1
Lab Submittal Date: 07/09/2010
Prism Work Order: 0070231

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.
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.

Sample Receipt Summary

07/21/2010

Prism Work Order: 0070231

Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
P85-SB-1 (5-6)	0070231-01	Solid	07/08/10	07/09/10
P85-SB-2 (4-5)	0070231-02	Solid	07/08/10	07/09/10
P85-SB-3 (3-4)	0070231-03	Solid	07/08/10	07/09/10
P85-SB-4 (5-6)	0070231-04	Solid	07/08/10	07/09/10
P85-SB-5 (4-5)	0070231-05	Solid	07/08/10	07/09/10

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

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543
Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

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

Project: NCDOT: Independence Blvd. Parcel 85
Project No.: WBS #34749.1.1
Sample Matrix: Solid

Client Sample ID: P85-SB-1 (5-6)
Prism Sample ID: 0070231-01
Prism Work Order: 0070231
Time Collected: 07/08/10 12:15
Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	8.5	1.4	1	*8015C	7/16/10 23:09	JMV	P0G0290
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*77 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.2	0.54	50	*8015C	7/19/10 22:34	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*119 %*		*55-129*	
General Chemistry Parameters									
% Solids	**82.1**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**7/14/10 13:45**	**JAB**	**P0G0257**

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543
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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 85
Project No.: WBS #34749.1.1
Sample Matrix: Solid

Client Sample ID: P85-SB-2 (4-5)
Prism Sample ID: 0070231-02
Prism Work Order: 0070231
Time Collected: 07/08/10 12:25
Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	8.7	1.4	1	*8015C	7/16/10 23:45	JMV	P0G0290
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*85 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.8	0.62	50	*8015C	7/19/10 23:04	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*101 %*		*55-129*	
General Chemistry Parameters									
% Solids	**80.2**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**7/14/10 13:45**	**JAB**	**P0G0257**

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

Project: NCDOT: Independence Blvd. Parcel 85
Project No.: WBS #34749.1.1
Sample Matrix: Solid

Client Sample ID: P85-SB-3 (3-4)
Prism Sample ID: 0070231-03
Prism Work Order: 0070231
Time Collected: 07/08/10 12:30
Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	9.6	1.6	1	*8015C	7/17/10 13:32	JMV	P0G0290
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*85 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.7	0.61	50	*8015C	7/19/10 23:35	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*106 %*		*55-129*	
General Chemistry Parameters									
% Solids	**72.7**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**7/14/10 13:45**	**JAB**	**P0G0257**

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

Project: NCDOT: Independence Blvd. Parcel 85
Project No.: WBS #34749.1.1
Sample Matrix: Solid

Client Sample ID: P85-SB-4 (5-6)
Prism Sample ID: 0070231-04
Prism Work Order: 0070231
Time Collected: 07/08/10 12:40
Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	9.0	1.4	1	*8015C	7/19/10 11:48	JMV	P0G0333
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*83 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.7	0.61	50	*8015C	7/20/10 0:06	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*111 %*		*55-129*	
General Chemistry Parameters									
% Solids	**77.6**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**7/14/10 13:45**	**JAB**	**P0G0257**

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

Project: NCDOT: Independence Blvd. Parcel 85
Project No.: WBS #34749.1.1
Sample Matrix: Solid

Client Sample ID: P85-SB-5 (4-5)
Prism Sample ID: 0070231-05
Prism Work Order: 0070231
Time Collected: 07/08/10 12:55
Time Submitted: 07/09/10 11:13

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	9.5	1.5	1	*8015C	7/19/10 12:23	JMV	P0G0333
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			*76 %*		*49-124*	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.7	0.61	50	*8015C	7/20/10 0:37	HPE	P0G0340
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			*96 %*		*55-129*	
General Chemistry Parameters									
% Solids	**73.1**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**7/14/10 13:45**	**JAB**	**P0G0257**

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

Project: NCDOT: Independence Blvd.
Parcel 85
Project No: WBS #34749.1.1

Prism Work Order: 0070231
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
Batch P0G0340 - 5035										
Blank (P0G0340-BLK1)				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*			
LCS (P0G0340-BS1)				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*			
LCS Dup (P0G0340-BSD1)				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*			

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

Project: NCDOT: Independence Blvd.
Parcel 85
Project No: WBS #34749.1.1

Prism Work Order: 0070231
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
Batch P0G0290 - 3545A										
Blank (P0G0290-BLK1)				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*			
LCS (P0G0290-BS1)				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*			
LCS Dup (P0G0290-BSD1)				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*
Batch P0G0333 - 3545A										
Blank (P0G0333-BLK1)				Prepared: 07/16/10 Analyzed: 07/19/10						
Diesel Range Organics	BRL	7.0	mg/kg wet							
Surrogate: o-Terphenyl	*1.46*		*mg/kg wet*	*1.60*		*91*	*49-124*			
LCS (P0G0333-BS1)				Prepared: 07/16/10 Analyzed: 07/19/10						
Diesel Range Organics	56.6	7.0	mg/kg wet	80.0		71	55-109			
Surrogate: o-Terphenyl	*1.80*		*mg/kg wet*	*1.60*		*113*	*49-124*			
LCS Dup (P0G0333-BSD1)				Prepared: 07/16/10 Analyzed: 07/19/10						
Diesel Range Organics	58.0	7.0	mg/kg wet	80.0		73	55-109	2	200	
Surrogate: o-Terphenyl	*1.85*		*mg/kg wet*	*1.60*		*116*	*49-124*			

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

Project: NCDOT: Independence Blvd.
Parcel 85
Project No: WBS #34749.1.1

Prism Work Order: 0070231
Time Submitted: 7/9/10 11:13:00AM

General Chemistry Parameters - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P0G0257 - NO PREP										
Duplicate (P0G0257-DUP1)		**Source: 0070231-02**		Prepared & Analyzed: 07/14/10						
% Solids	80.0	0.100	% by Weight		80.2			0.2	20	

Sample Extraction Data

Prep Method: 3545A

Lab Number	Batch	Initial	Final	Date
0070231-01	P0G0290	25.06 g	1 mL	07/15/10
0070231-02	P0G0290	25.2 g	1 mL	07/15/10
0070231-03	P0G0290	25.03 g	1 mL	07/15/10
0070231-04	P0G0333	25.16 g	1 mL	07/16/10
0070231-05	P0G0333	25.18 g	1 mL	07/16/10

Prep Method: 5035

Lab Number	Batch	Initial	Final	Date
0070231-01	P0G0340	7.29 g	5 mL	07/19/10
0070231-02	P0G0340	6.53 g	5 mL	07/19/10
0070231-03	P0G0340	7.3 g	5 mL	07/19/10
0070231-04	P0G0340	6.83 g	5 mL	07/19/10
0070231-05	P0G0340	7.31 g	5 mL	07/19/10

NO PREP

Lab Number	Batch	Initial	Final	Date
0070231-01	P0G0257	30 g	30 mL	07/14/10
0070231-02	P0G0257	30 g	30 mL	07/14/10
0070231-03	P0G0257	30 g	30 mL	07/14/10
0070231-04	P0G0257	30 g	30 mL	07/14/10
0070231-05	P0G0257	30 g	30 mL	07/14/10

CHAIN OF CUSTODY RECORD

PRISM LABORATORIES, INC. | Full-Service Analytical & Environmental Solutions

449 Springbrook Road • P.O. Box 240543 • Charlotte, NC 28224-0543
Phone: 704/529-6364 • Fax: 704/525-0409

PAGE 1 OF 1 QUOTE # TO ENSURE PROPER BILLING: _____

Project Name: Independence Blvd

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

*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements

Invoice To: Helen Corley

Address: Same

Client Company Name: AMEC E+E

Report To/Contact Name: Helen Corley

Reporting Address: 338 N Elm St Greensboro, NC 27401

Phone: 336-691-5398 Fax (Yes) (No): _____

Email (Yes) (No) Email Address helen.corley@amec.com

EDD Type: PDF ✓ Excel ✓ Other _____

Site Location Name: Parcel 85

Site Location Physical Address: _____

Purchase Order No./Billing Reference WBS 34749.1.1

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

	YES	NO	N/A
Samples INTACT upon arrival?	X		
Received ON WET ICE? Temp 4.0	X		
PROPER PRESERVATIVES indicated?	X		
Received WITHIN HOLDING TIMES?	X		
CUSTODY SEALS INTACT?			X
VOLATILES rec'd W/OUT HEADSPACE?			X
PROPER CONTAINERS used?	X		

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL ✓

Certification: NELAC ____ USACE ____ FL ____ NC ____

SC ____ OTHER ____ N/A ____

Water Chlorinated: YES ___ NO ___

Sample Iced Upon Collection: YES ✓ NO ___

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER *TYPE SEE BELOW	SAMPLE CONTAINER NO.	SAMPLE CONTAINER SIZE	PRESERVATIVES	ANALYSES REQUESTED DRO	ANALYSES REQUESTED GRO	REMARKS	PRISM LAB ID NO.
P85-SB-1(5-6)	7-8-10	1215	Soil	VOA GL	4	2 VOA 2GL		X	X		01
P85-SB-2(4-5)	↓	1225	↓	↓	↓	↓		↓	↓		02
P85-SB-3(3-4)		1230									03
P85-SB-4(5-6)		1240									04
P85-SB-5(4-5)		1235									05
~~P85-SB-6( )~~	TLH	~~1255~~	TLH								

Sampler's Signature Troy L Holzschuh Sampled By (Print Name) Troy L Holzschuh Affiliation AMEC

PRESS DOWN FIRMLY - 3 COPIES

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.

		Date	Military/Hours
Relinquished By: (Signature) Troy L Holzschuh	Received By: (Signature)		
Relinquished By: (Signature)	Received By: (Signature)		
Relinquished By: (Signature)	Received For Prism Laboratories By:	Date 7-9-10	11:13

Method of Shipment: 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.

☐ Fed Ex ☐ UPS ☒ Hand-delivered ☐ Prism Field Service ☐ Other _____

COC Group No. 0070231

Additional Comments:

PRISM USE ONLY

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

NPDES:	UST:	GROUNDWATER:	DRINKING WATER:	SOLID WASTE:	RCRA:	CERCLA	LANDFILL	OTHER:
☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____

*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL