



**NC Department of Transportation
Preliminary Site Assessment
State Project: R-3405
WBS Element: 35579.1.1**

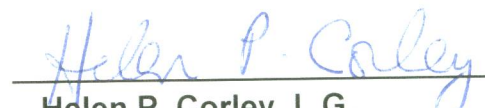
**R.D. Mitchell Property
Parcel #51
February 14, 2011**

**AMEC Earth and Environmental, Inc. of North Carolina
AMEC Project: 562113405**





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1.0 INTRODUCTION

In accordance with the North Carolina Department of Transportation (NCDOT) Request for Proposal, dated November 19, 2010, AMEC Earth and Environmental, Inc. of North Carolina (AMEC) has performed a Preliminary Site Assessment (PSA) for the R.D. Mitchell Property (the Site) to be effected by a road improvement project along NC 18, Sparta Rd. The Site, which is located on 1103 Sparta Rd, has no current operating business. Historically the site operated as a gas station and grocery store, Mulberry Grocery. The property is located on the western side of Sparta Rd. at the intersection of Carpath Rd. in North Wilkesboro of Wilkes County, North Carolina. The investigation was conducted in accordance with AMEC's Technical and Cost proposal dated December 3, 2010.

NCDOT contracted AMEC to perform a PSA on the R.D. Mitchell Property due to NCDENR's UST section registry reporting three current tanks and one former tank. The PSA was performed to determine if soils have been impacted by petroleum compounds as a result of past and present uses of the property within the proposed design project area. This parcel will be affected by construction activities associated with new drainage features for the NCDOT road improvement project along Sparta Rd.

The following report summarizes the site history, geophysical survey, location and capacities of any USTs, and describes our field investigation with results of chemical analyses. The report includes the evaluation of the analytical data with regards to the presence or absence of soil contamination within the NCDOT design area of parcel #51 and estimates the extent of soil contamination.

1.1 Site Location and Vicinity

The R.D. Mitchell Property parcel is located on the western side of Sparta Rd. at the intersection of Carpath Rd. North Wilkesboro, Wilkes County, North Carolina. The properties to the north, south, and east are residential with single family homes. The property to the west is wooded; beyond the wooded area is a residential property with a single family home.

1.2 Site Description and History

There is not currently an active business onsite. The Site historically was a gas station and grocery store, Mulberry Grocery. Most recently the store operated as a bridal store, Bridal Traditions. The site still displays the outline of a former dispenser island. The associated subsurface piping is still in place. According to Priority Locating the piping still runs north-south between the former dispenser island and the three USTs. The three USTs are still in place and have product in them. The building on the site is a brick single story structure with a basement. The proposed DOT project will parallel the eastern property edge of Parcel #51 along Sparta Rd. Appendix A includes a photo log for Parcel #51.

AMEC studied the NCDENR UST Registered Tanks Database which listed a total of four tanks associated with this parcel. One tank with a 550 gallon capacity was installed on September 5, 1969. This UST was used for kerosene. It was permanently closed on January 1, 1980. The remaining three USTs were installed on January 1, 1979 and their information is tabulated below.

UST capacity in gallons	UST contents
1,000	Gasoline
1,000	Gasoline
2,000	Gasoline

The three USTs are not in use however all three are registered as currently operational. AMEC also reviewed the NCDENR Incident Management Database and there is no known Groundwater incident associated with this parcel.

2.0 GEOLOGY

2.1 Regional Geology

The R.D. Mitchell Property is located within the Alligator Back Formation of the Ocoee Supergroup located in the Blue Ridge Physiographic Province of western North Carolina. The Alligator Back Formation comprises metamorphic sedimentary rocks that are 750 million years in age. The rocks include mica schist and phyllite that are interlayered with minor biotite. The

Alligator Back rocks were named for the large sections of gneiss that descend from the peak of Bluff Mountain that resemble an alligator.

2.2 Site Geology

Site geology was observed through the sampling of 11 shallow direct push probe soil borings (SB) onsite. Borings ranged in total depth from 10 feet to 15 feet below ground surface (bgs). Native soils generally consisted of orange, well sorted and 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. On January 17, 2011 a private utility locating company, Priority Underground Locating of Huntersville, North Carolina cleared the proposed drilling locations that were marked in the field by AMEC personnel. North Carolina-1-Call was contacted on January 19, 2011 to report the proposed drilling activities and subsequently notify all affected utilities for the parcel. Carolina Soil Investigations, LLC (CSI Drilling) of Olin, North 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 December. The geophysical results were reviewed and discussed at the completion of each survey. Prism Laboratories, Inc. was contacted for acquisition of sample bottles. Soil boring locations were focused just beyond the existing ROW. Boring locations were strategically placed as close to or around the probable USTs and along the front of the parcel to maximize the likelihood of intercepting any potential soil contamination.



3.2 Site Reconnaissance

AMEC personnel completed site reconnaissance on November 22, 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 January 17, 2011.

3.3 Geophysical Survey

Schnabel performed the geophysical surveys on the NC18 corridor from December 8 to 21, 2010. 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 indicates the presence of three USTs within the proposed design area. The three USTs are denoted in Figure 2 and their capacities and depths buried are tabulated below.

Known UST-1	1,000 gal.	1.5-3.5 ft bgs
Known UST-2	1,000 gal.	1.5-3.5 ft bgs
Known UST-3	2,000 gal.	1.5-3.5 ft bgs

The complete geophysical survey report can be found in Appendix C.

3.4 Well Survey

No well survey was performed as part of this PSA and no monitoring wells were noted onsite.

3.5 Soil Sampling

Soil boring occurred on January 27, 2011 at Parcel #51. Eleven direct push soil borings were conducted within the NCDOT design project on Parcel #51, which includes the eastern side of the site. Figure 2 presents the Site Map with boring locations and identifications. These samples were located to optimize the likelihood of intercepting any potential soil contamination by targeting the three USTs, former dispenser island, associated fuel line, and the eastern edge of the site which runs parallel to Sparta Rd. Soil borings P51-SB-1 through P51-SB-4 targeted the tank bed and associated fuel line trench. Borings P51-SB-5, P51-SB-6 and P51-SB-8 targeted the former dispenser island, while

P51-SB-7 was placed ten feet east of P51-SB-6 to delineate the extent of possible contamination. AMEC personnel could not go further east because of Sparta Rd. Borings P51-SB-9 and P51-SB-10 were placed north of P51-SB-7 to further delineate the extent of possible contamination. Due to the low Photo Ionized Detector (PID) readings at P51-SB-10 AMEC personnel concluded that adequately delineation of the extent of contamination had been accomplished. Boring location P51-SB-11 was placed on the northern end of the parcel.

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 in Charlotte, a North Carolina Certified Laboratory following proper chain-of-custody procedures.

4.0 SOIL SAMPLING RESULTS

AMEC conducted soil sampling at the Site on January 27, 2011. 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. Figure 3 shows the Site Map with Analytical Data.

One soil sample was collected from each of the eleven completed soil borings from Parcel #51. Soil Borings P51-SB-1 through P51-SB-4, from the tank bed area, and P51-SB-11 from near the northern property edge did not exhibit elevated PID readings in the field. Results from their five associated samples for GRO and DRO measured no reported TPH. The three soil borings placed closest to the former dispenser island did exhibit the following maximum PID readings: 965ppm for P51-SB-5; 334ppm for P51-SB-6; and, 1,019ppm in P51-SB-8. The DRO detections for those three samples ranged from 330 to 2,000 mg/kg, while their GRO concentrations ranged from 3,000 to 9,900 mg/kg. Soil borings P51-SB-7, P51-SB-9, and P51-SB-10 were placed to the north and east of the former dispenser island

to laterally define the area of contamination in those directions. Their PID readings were elevated; mostly in the eastern direction. TPH results for those three borings indicated that the soil contamination remained in the 100s of mg/kg to the east and had decreased to 10s of mg/kg to the north.

Based on the field investigation and laboratory data indicated contamination, AMEC drew an estimated area of contamination within the ROW and parcel, as shown on Figure 4. This area equals 931 square ft. the vertical extent of impacted soil in this area continued to at least 10 ft bgs, which was the boring termination depth. Using a thickness of 10 ft, the resultant volume of estimated contamination would be at least 9,310 cubic feet, which is at least roughly 345 cubic yards.

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 January 27, 2011.

- The property formerly operated as a Gas Station and Grocery store, and more recently as a Bridal Store.
- According to NCDENR's UST Registered Tanks Database, one UST was listed as permanently closed as of January 1, 1980 and three USTs as operational. Geophysical surveys and field measurements confirmed the presence of the three known USTs.
- AMEC personnel identified the presence of petroleum in all three known USTs.
- Eleven soil samples were collected and analyzed for TPH GRO and DRO.
- Laboratory analyses did indicate DRO and GRO detections above the analytical method reporting level in six of the samples with the highest concentrations adjacent to the former dispenser island.
- An estimated volume of at least 9,310 cubic feet, or 345 cubic yards, of impacted soil has been calculated to be present within the ROW.

6.0 RECOMMENDATIONS

Three out-of-service USTs are located within the proposed ROW as well as the former dispenser island and associated piping. The UST database states that the USTs are currently in operation and field observations noted the presence of petroleum product in each UST. Removal of USTs and any associated piping by the UST owner is recommended. Soil will have to be sampled during closure activities and handled following NCDENR's Tank Closure Guidelines.

AMEC understands that a party other than NCDOT may implement the UST closure and following such a situation NCDOT should be cautious regarding intercepting contaminated soil during road construction activities. If potentially impacted soils are intercepted, AMEC recommends the following action:

- Segregation, followed by proper assessment and handling of potentially petroleum-impacted soil during roadway improvement construction operations.

TABLES

Table 1
Soil Sampling Analytical Results, DRO-GRO
Parcel 51, R.D. Mitchell Property
NC DOT
North Wilkesboro, Wilkes County, 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
P51-SB-1	1/27/2011	3 - 5	0	<9.1	<4.9
P51-SB-2	1/27/2011	5 - 7	0	<8.0	<4.8
P51-SB-3	1/27/2011	3 - 5	0	<8.7	<4.5
P51-SB-4	1/27/2011	3 - 5	0	<8.8	<5.1
P51-SB-5	1/27/2011	8 - 10	965	2000	9900
P51-SB-6	1/27/2011	8 - 10	335	330	3000
P51-SB-7	1/27/2011	8 - 10	396	400	220
P51-SB-8	1/27/2011	6 - 8	1019	540	5900
P51-SB-9	1/27/2011	8 - 10	36	42	15
P51-SB-10	1/27/2011	8 - 10	13	15	<5.0
P51-SB-11	1/27/2011	3 - 5	0	<8.7	<4.5

NOTES:

ft bgs = feet below ground surface; ppm = parts per million

mg/kg = milligrams per kilogram

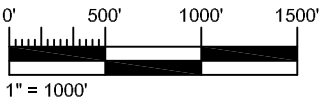
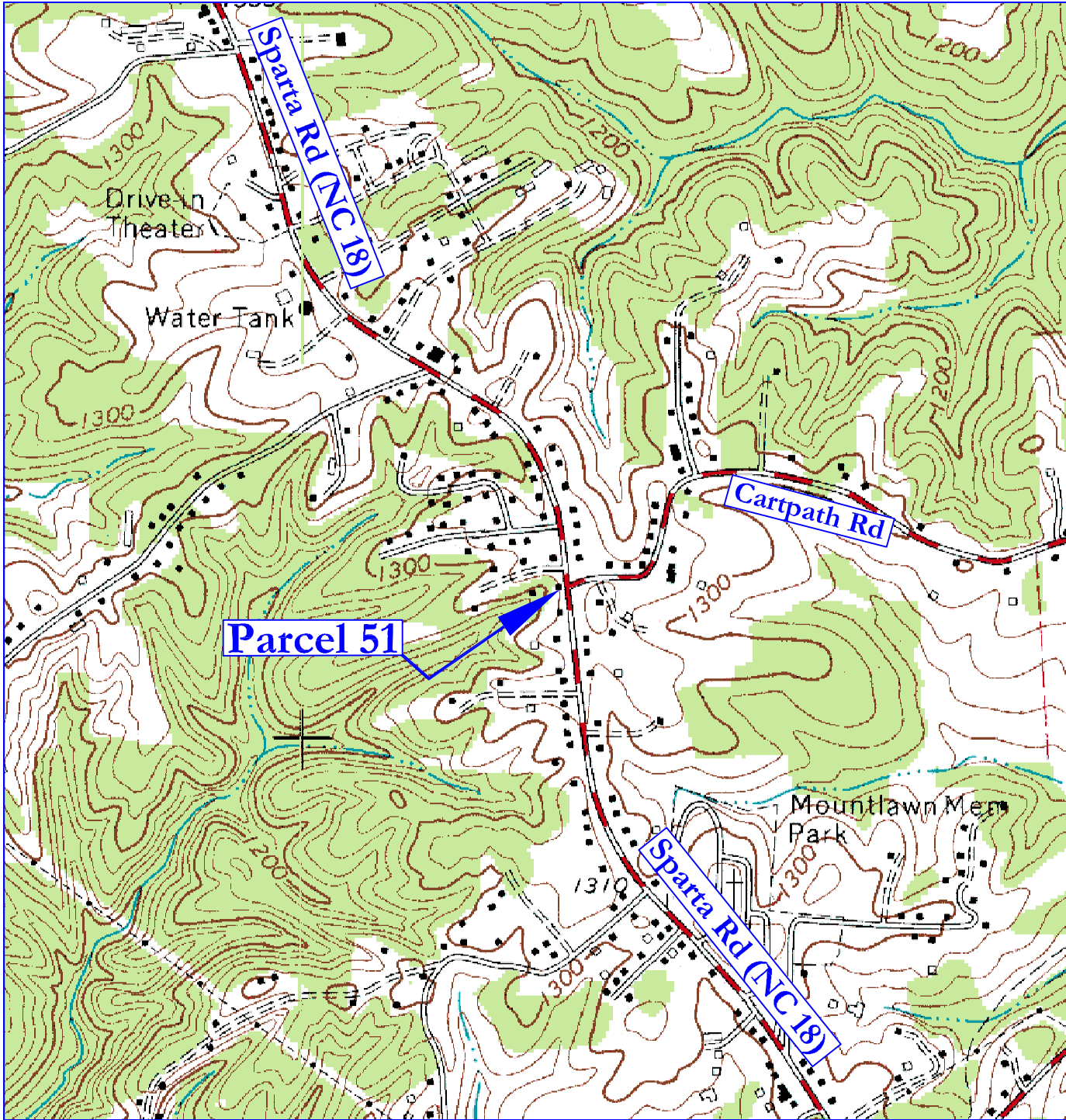
Bold Concentrations Exceed Action Levels

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 #51, R.D. Mitchell Property
 (Former Bridal Traditions)
 North Wilkesboro, Wilkes County, NC

DRAWING NAME: J:\NCDOT\Wilkes\FIC1 DATE: 2-24-11

SCALE: 1 INCH = 1,000 FEET DR TLH CHK HPC REV

PREPARED FOR:
 NC Department Of Transportation
 Geotechnical Unit
 WBS Element: 35579.1.1
 TIP# R-3405


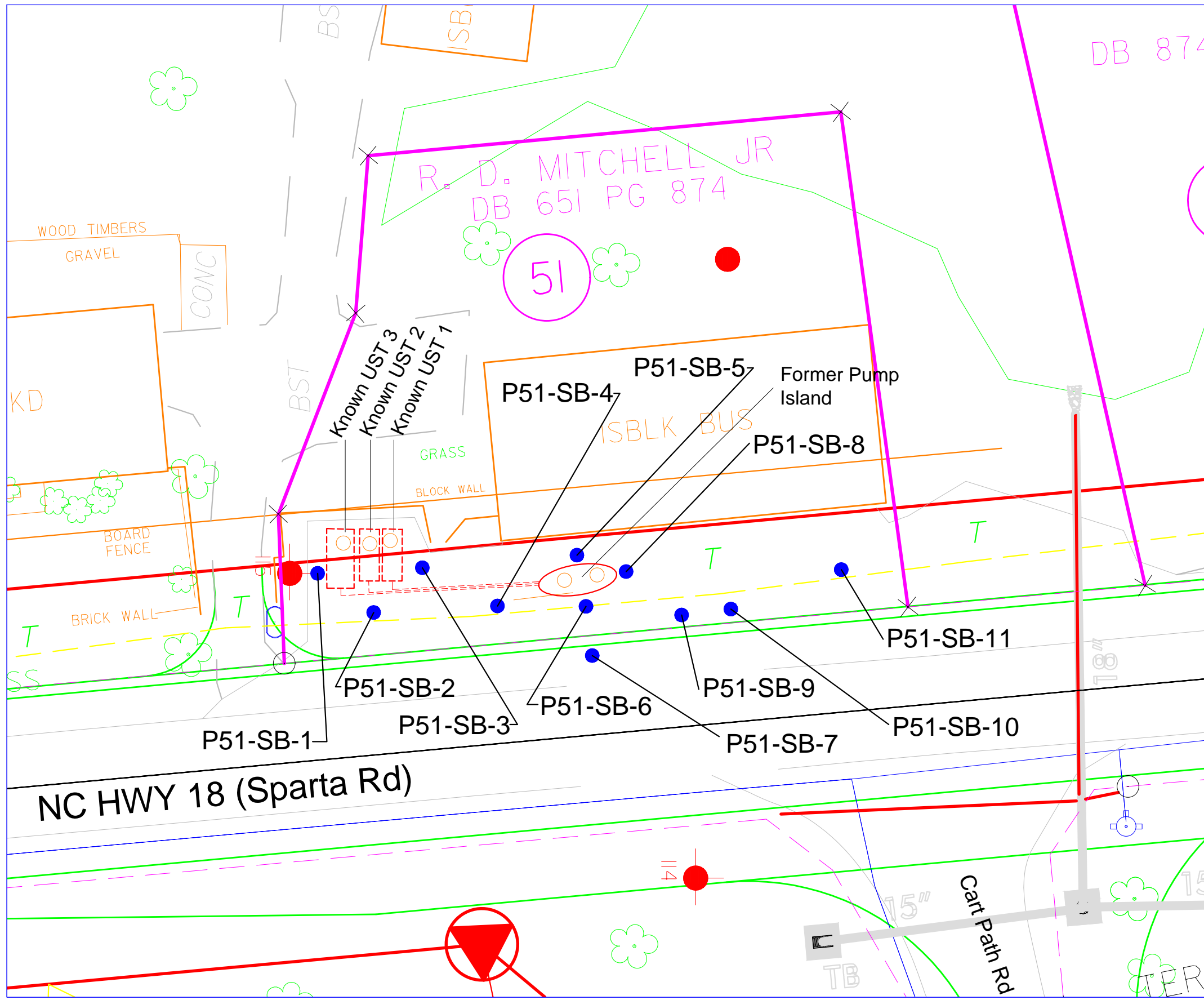











Prepared By:
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Figure:
 Figure 1



LEGEND

-  Proposed Right of Way
-  Existing Property Line
-  Existing Right of Way
-  Cut Line
-  Fill Line
-  Transition Line
-  Soil Boring Location January 2011
-  Known UST and Associated Fuel Line
-  Former Dispenser Island
-  Utility Easement
-  Utility Pole

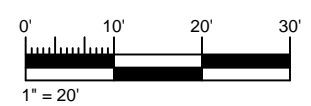
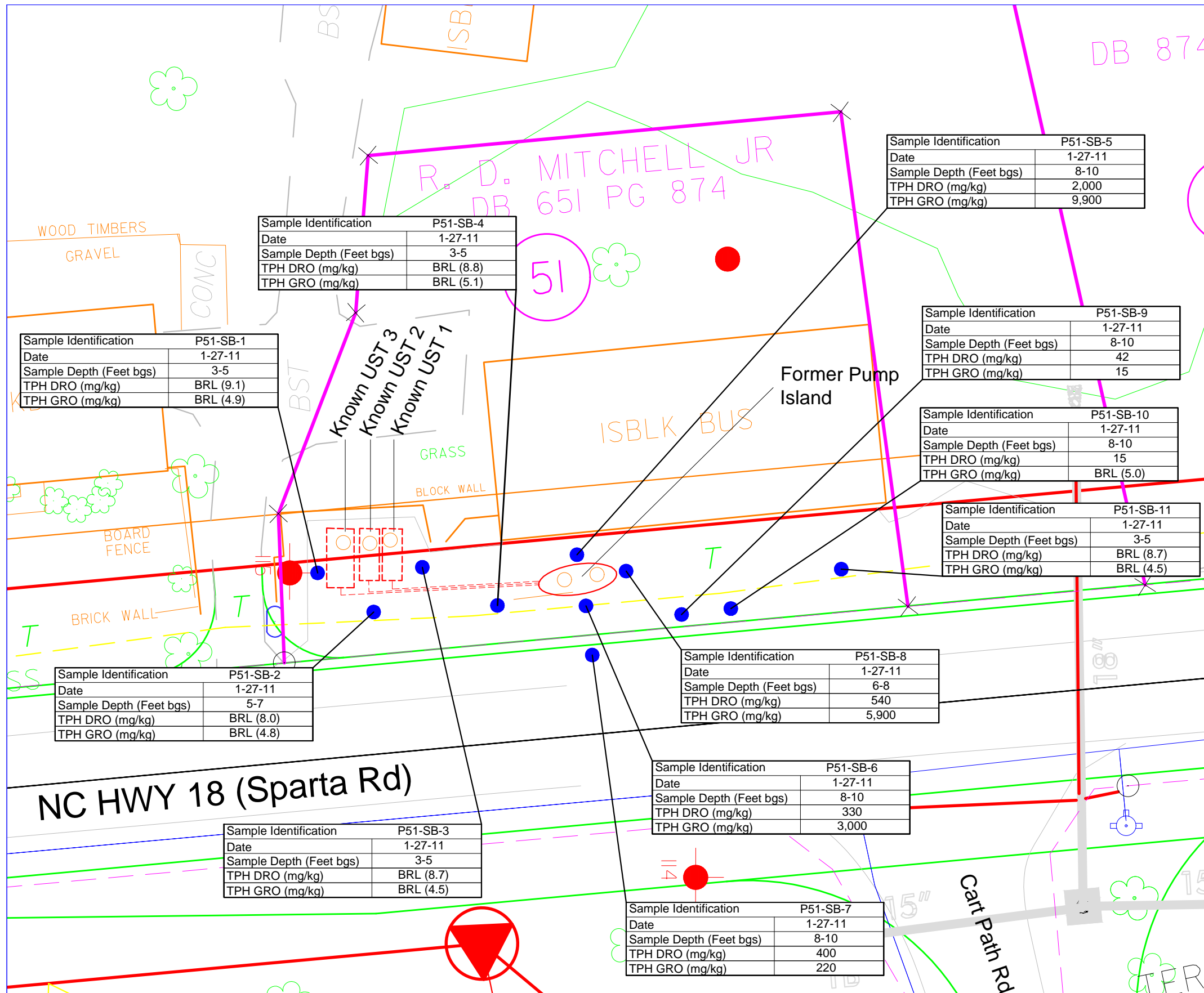


Figure 2
Parcel #51 R.D. Mitchell Property
Site Map

NC Department of Transportation
Geotechnical Unit
WBS Element: 35579.1.1
TIP# R-3405





LEGEND

- Proposed Right of Way
- Existing Property Line
- Existing Right of Way
- Cut Line
- Fill Line
- Transition Line
- Soil Boring Location January 2011
- Known UST and Associated Fuel Line
- Former Dispenser Island
- Utility Easement
- Utility Pole

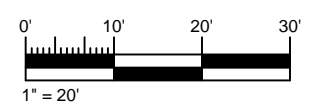
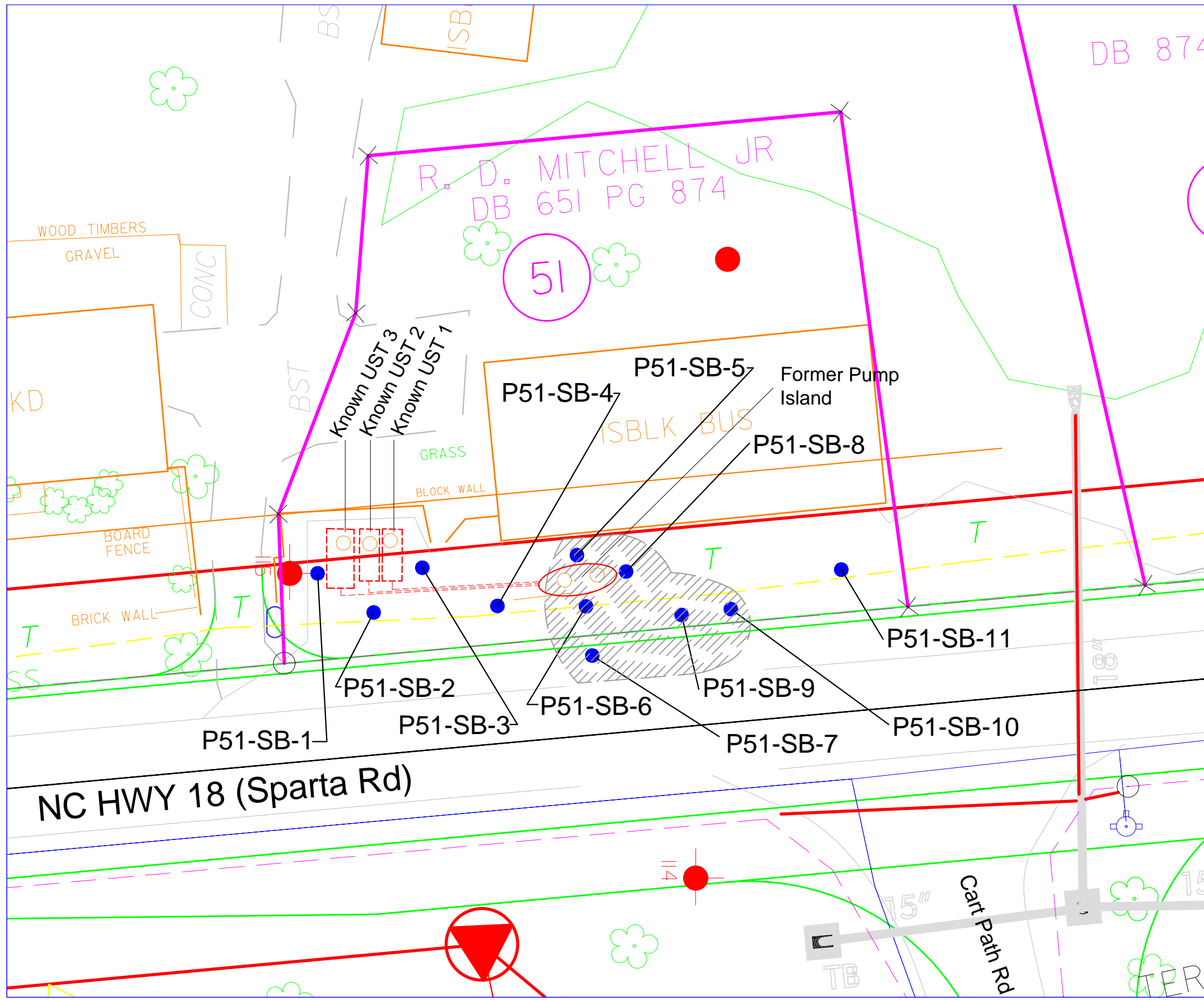


Figure 3
Parcel #51 R.D. Mitchell Property
Site Map With Analytical Data

NC Department of Transportation
Geotechnical Unit
WBS Element: 35579.1.1
TIP# R-3405





LEGEND

- Proposed Right of Way
- Existing Property Line
- Existing Right of Way
- Cut Line
- Fill Line
- Transition Line
- Soil Boring Location January 2011
- Known UST and Associated Fuel Line
- Former Dispenser Island
- Utility Easement
- Utility Pole
- Estimated Area of Contamination = 931 ft²

Figure 4
Parcel #51 R.D. Mitchell Property
Site Map With Estimated Area of Contamination

NC Department of Transportation
Geotechnical Unit
WBS Element: 35579.1.1
TIP# R-3405



APPENDIX A

PHOTO LOG



Photo 1

Viewing south from the north eastern corner of the parcel.



Photo 2

Viewing west from the southeastern corner of the site, and looking toward location of three USTs and associated fuel ports.



338 North Elm Street, Suite 112
Greensboro, NC 27401

W.O. 562113405
PROCESSED TLH
DATE January 2011
PAGE 1

PHOTOGRAPHIC LOG

Preliminary Site Assessment
Parcel 51, Gary B. Miller Property
North Wilkesboro, NC



Photo 3

Viewing northwest from across Sparta Road. The former pump island is located in the center of the photo between the two windows approximately nine feet from building.



Photo 4

Viewing west from across Sparta Road. The photo shows CSI cleaning after drilling activities.



338 North Elm Street, Suite 112
Greensboro, NC 27401

W.O. 562113405
PROCESSED TLH
DATE January 2011
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PHOTOGRAPHIC LOG

Preliminary Site Assessment
Parcel 51, Gary B. Miller Property
North Wilkesboro, NC

APPENDIX B
BORING LOGS



AMEC Earth & Environmental, Inc. BORING LOG

Boring/Well No.: P51-SB1	Site Name: Parcel 51
Date: 1-27-11	Location: North Wilkesboro, Wilkes Co., NC
Job No.: 562113405	Sample Method: Direct Push
AMEC Rep: Troy Holzschuh	Drilling Method: Direct Push
Drilling Company: CSI	Driller Name/Cert #: Keith Speece - 2856-A

Remarks:

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Asphalt/Aggregate
0.5-3	0		Orange, Well Sorted, Clayey Silt, Damp
3-6	0		Yellow/Orange, Well Sorted, Clayey Silt, Damp
6-8	0		Yellow/Brown, Well Sorted Silt, Damp
8-10	0		Brown, Well Sorted Silt, Damp
10-12	0		Brown, Well Sorted Silt, Damp
12-15	0		Brown, Well Sorted 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.: P51-SB3

Site Name: Parcel 51

Date: 1-27-11

Location: North Wilkesboro, Wilkes Co., NC

Job No.: 562113405

Sample Method: Direct Push

AMEC Rep: Troy Holzschuh

Drilling Method: Direct Push

Drilling Company: CSI

Driller Name/Cert #: Keith Speece - 2856-A

Remarks:

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Asphalt/Aggregate
0.5-3	0		Orange, Well Sorted, Clayey Silt, Damp
3-5.5	0		Orange, Well Sorted, Clayey Silt, Damp
5.5-7	0		Orange, Well Sorted Silt, Damp
7-10	0		Brown/Orange, Well Sorted Silt, Damp
10-12	0		Brown/Orange, Well Sorted Silt, Damp
12-15	0		Brown/Orange, Well Sorted 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.: P51-SB5	Site Name: Parcel 51
Date: 1-27-11	Location: North Wilkesboro, Wilkes Co., NC
Job No.: 562113405	Sample Method: Direct Push
AMEC Rep: Troy Holzschuh	Drilling Method: Direct Push
Drilling Company: CSI	Driller Name/Cert #: Keith Speece - 2856-A

Remarks:

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Asphalt/Aggregate
0.5-3	62.5		Gray/Tan, Well Sorted, Clayey Silt, Damp
3-6	93.2		Brown, Well Sorted, Clayey Silt, Damp
6-8	109.8		Orange, Well Sorted, Silt, Damp
8-10	965.3		Pink, Well Sorted, 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.: P51-SB6	Site Name: Parcel 51
Date: 1-27-11	Location: North Wilkesboro, Wilkes Co., NC
Job No.: 562113405	Sample Method: Direct Push
AMEC Rep: Troy Holzschuh	Drilling Method: Direct Push
Drilling Company: CSI	Driller Name/Cert #: Keith Speece - 2856-A

Remarks:

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Asphalt/Aggregate
0.5-4	183		Brown, Well Sorted, Clayey Silt, Damp
4-6	121.2		Orange, Well Sorted, Clayey Silt, Damp
6-7	183.6		Yellow, Well Sorted, Sand, Fine, Damp
7-10	334.7		Pink, Well Sorted, Sand, Fine, 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.: P51-SB7	Site Name: Parcel 51
Date: 1-27-11	Location: North Wilkesboro, Wilkes Co., NC
Job No.: 562113405	Sample Method: Direct Push
AMEC Rep: Troy Holzschuh	Drilling Method: Direct Push
Drilling Company: CSI	Driller Name/Cert #: Keith Speece - 2856-A

Remarks:

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Asphalt/Aggregate
0.5-2	10.2		Tan, Well Sorted, Clayey Silt, Damp
2-4	38.0		Orange, Well Sorted, Clayey Silt, Damp
4-6	47.2		Orange, Well Sorted, Silt, Damp
6-10	395.8		Pink, Well Sorted, 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.: P51-SB10

Site Name: Parcel 51

Date: 1-27-11

Location: North Wilkesboro, Wilkes Co., NC

Job No.: 562113405

Sample Method: Direct Push

AMEC Rep: Troy Holzschuh

Drilling Method: Direct Push

Drilling Company: CSI

Driller Name/Cert #: Keith Speece - 2856-A

Remarks:

Depth (ft BLS)	PID/OVA Reading (ppm)	Blow Counts	Soil/Lithologic Description
0-0.5			Asphalt/Aggregate
0.5-2	4.2		Tan, Well Sorted, Clayey Silt, Damp
2-4	8.6		Orange, Well Sorted, Clayey Silt, Damp
4-6	12.2		Orange, Well Sorted, Clayey Silt, Damp
6-8	8.8		Pink/Yellow, Marbled, Well Sorted, Silt, Damp
8-10	13.0		Pink/Yellow, Marbled, Well Sorted, 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



January 28, 2011

Ms. Helen Corley, LG
AMEC Earth and Environmental of North Carolina, Inc.
101 W. Friendly Avenue, Suite 603
Greensboro, NC 27401

RE: State Project: R-3405
 WBS Element: 35579.1.1
 County: Wilkes
 Description: NC 18 from SR 1002 (Mountain View Road) to SR 1717 (Yellow Banks Road)

**Subject: Project 09210013.34 Report on Geophysical Surveys
 Parcel 51, Wilkes 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 property. We understand this letter report will be included as an appendix in your report to the NCDOT. The report includes two 11x17 color figures and four 8.5x11 color figures.

INTRODUCTION

The work described in this report was conducted on December 8 and 21, 2010, by Schnabel under our 2009 contract with the NCDOT. The work was conducted over the accessible areas of the parcel as indicated by the NCDOT to support their environmental assessment of the subject property. Photographs of the parcel are included on Figure 1. The property is located on the west side of Sparta Road at the intersection of Cartpath Road in North Wilkesboro, NC. The purpose of the geophysical surveys was to locate known and suspect metal underground storage tanks (USTs) 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. Photographs of the equipment used are shown on Figure 2.

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 (monitoring wells, 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 areas of reinforced concrete and anomalous EM readings not attributed to cultural features. The GPR data were reviewed in the field to evaluate the possible presence of USTs. The GPR data also were recorded digitally and later transferred to a desktop computer for further review.

DISCUSSION OF RESULTS

The contoured EM61 data collected over Parcel 51 are shown on Figures 3 and 4. The EM61 early time gate results are plotted on Figure 3. The early time gate data provide the more sensitive detection of metal objects. Figure 4 shows the difference between the response of the top and bottom coils of the EM61 instrument (differential response). The difference is taken to remove the effect of surface and very shallowly buried metallic objects. Typically, the differential response emphasizes anomalies from deeper and larger objects such as USTs.

The early time gate and differential results show anomalies of unknown cause, in addition to those apparently caused by reinforced concrete, buried utilities, or known site features (Figures 3 and 4). The GPR data collected near the southern end of the building indicated the presence of three known USTs located approximately 20 to 30 feet south of the southeastern building corner. The USTs are inside the limits of the planned right-of way and/or easement. Figures 3 and 4 show the location of the known USTs as marked in the field and example GPR images showing the reflections from the known USTs. The GPR data indicate that the known USTs are buried approximately 1.5 to 3.5 feet below ground surface. The GPR data indicate that the southernmost UST (UST No. 3) is about 5.5 feet in diameter and about 12 feet long, equivalent to a capacity of about 2,000 gallons. The GPR data indicate that the other two known USTs (UST Nos. 1 and 2) are about 4 feet in diameter and about 10.5 feet long, equivalent to a capacity of about 1,000 gallons. Photographs of the known UST locations, as marked in the field, are included on Figure 5.

CONCLUSIONS

Our evaluation of the geophysical data collected on the subject property on Project R-3405 in North Wilkesboro, NC indicates the following:

The geophysical data indicate the presence of three known USTs on Parcel 51. The USTs are inside the planned right-of-way and/or easement. The southernmost known UST is about 2,000-gallon capacity and is buried about 2.0 to 3.0 feet below ground surface. The other two known USTs are about 1,000-gallon capacity and are buried about 1.5 to 3.5 feet below ground surface.

LIMITATIONS

These services have been performed and this report prepared for AMEC Earth and 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

JW:JS:NB

Attachments: Figures (6)

FILE: G:\2009 PROJECTS\09210013 (NCDOT 2009 GEOTECH UNIT SERVICES)\09210013.34 (R-3405, WILKES COUNTY)\REPORT\PARCEL 51\SCHNABEL GEOPHYSICAL REPORT ON PARCEL 51 (R-3405).DOCX



Parcel 51 – R.D. Mitchell Property, looking northwest



Parcel 51 – R.D. Mitchell Property, looking southwest



STATE PROJECT R-3405
NC DEPT. OF TRANSPORTATION
WILKES CO., NORTH CAROLINA
PROJECT NO. 09210013.34

PARCEL 51
SITE PHOTOS

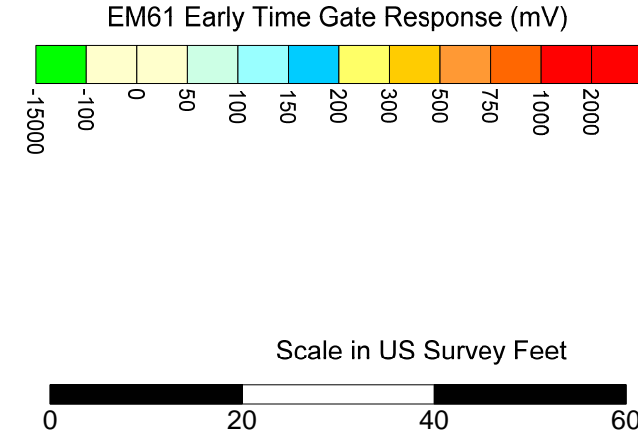
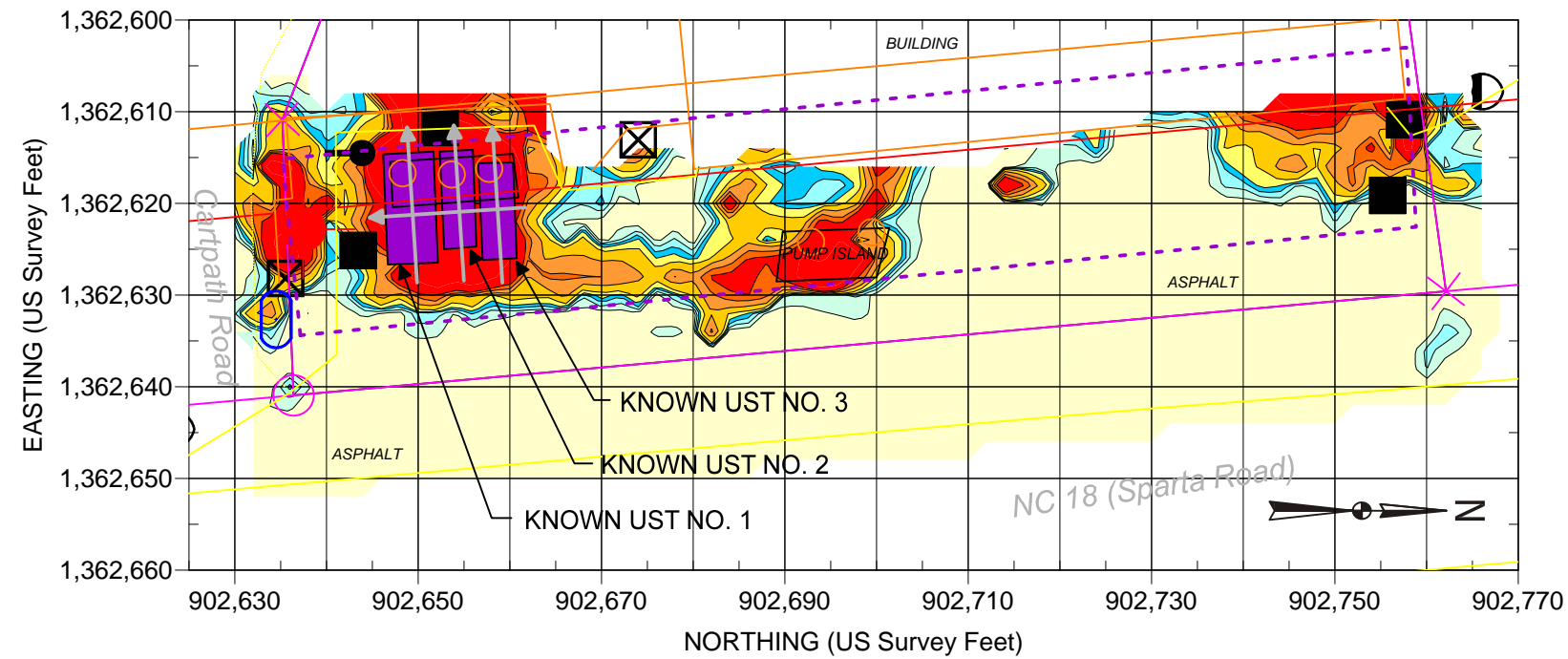
FIGURE 1



Geonics EM61-MK2



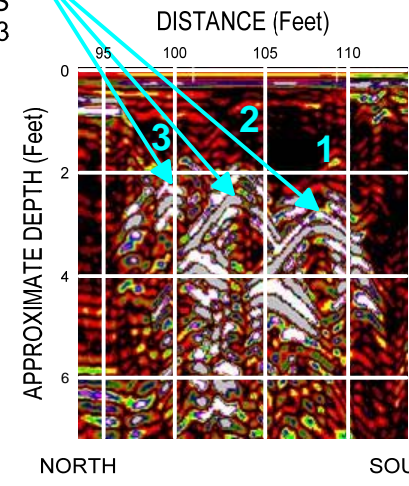
GSSI SIR-3000



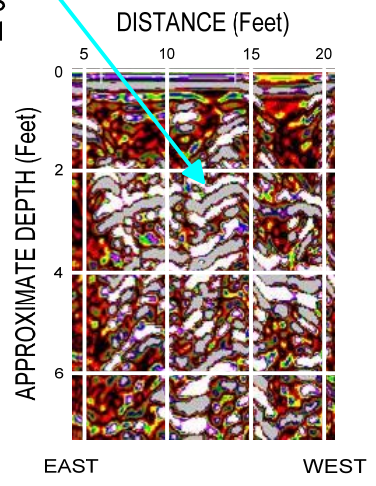
EXPLANATION	
	SIGN
	UTILITY POLE
	GUY WIRE
	MISCELLANEOUS METALLIC OBJECT
	UTILITY MANHOLE, METER, BOX, ETC.
	LIGHT POLE
	STORM SEWER INLET
	UST LID
	DOT PROPOSED R/W
	DOT PROPOSED UTILITY EASEMENT
	PROPERTY LINE
	UTILITY (AS MARKED BY OTHERS OR AS PROVIDED BY NCDOT [VARIOUS COLORS])
	EXAMPLE GPR LINE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

REF.: NCDOT FILE: r3405_ddc_psh05_060530.dgn
(FOR SOME SITE FEATURES)

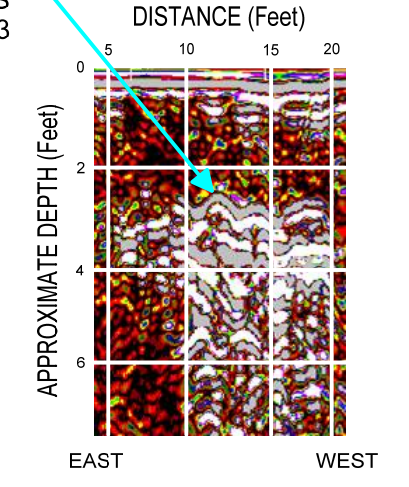
EXAMPLE GPR RESPONSE FROM THE SHORT AXES OF KNOWN UST NOS. 1-3



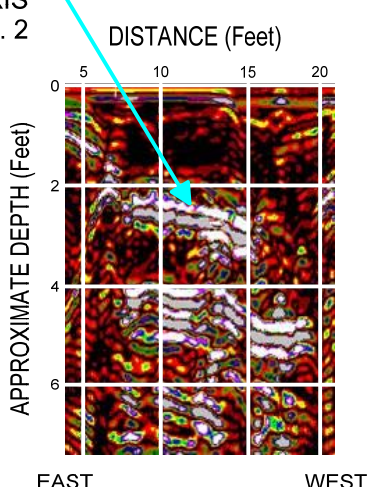
EXAMPLE GPR RESPONSE FROM THE LONG AXIS OF KNOWN UST NO. 1



EXAMPLE GPR RESPONSE FROM THE LONG AXIS OF KNOWN UST NO. 3

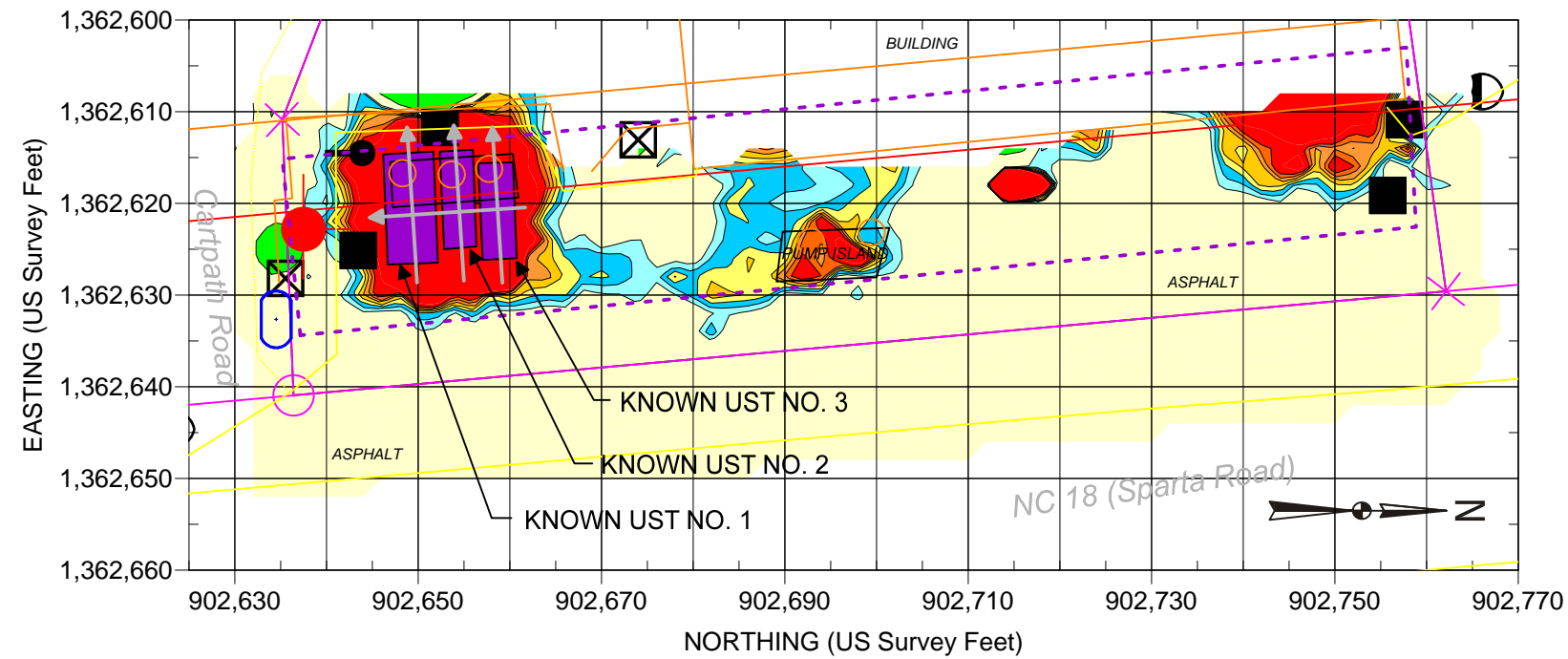


EXAMPLE GPR RESPONSE FROM THE LONG AXIS OF KNOWN UST NO. 2



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 December 8, 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 December 21, 2010, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

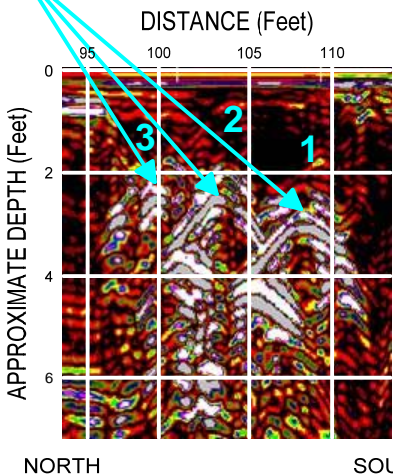
	STATE PROJECT R-3405	PARCEL 51
	WILKES COUNTY, NORTH CAROLINA	EARLY TIME GATE
	NC DEPARTMENT OF TRANSPORTATION	RESPONSE
	PROJECT NO. 09210013.34	FIGURE 3



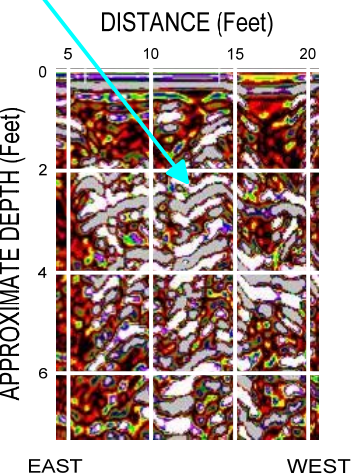
EXPLANATION	
	SIGN
	UTILITY POLE
	GUY WIRE
	MISCELLANEOUS METALLIC OBJECT
	UTILITY MANHOLE, METER, BOX, ETC.
	LIGHT POLE
	STORM SEWER INLET
	UST LID
	DOT PROPOSED R/W
	DOT PROPOSED UTILITY EASEMENT
	PROPERTY LINE
	UTILITY (AS MARKED BY OTHERS OR AS PROVIDED BY NCDOT [VARIOUS COLORS])
	EXAMPLE GPR LINE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

REF.: NCDOT FILE: r3405_ddc_psh05_060530.dgn
(FOR SOME SITE FEATURES)

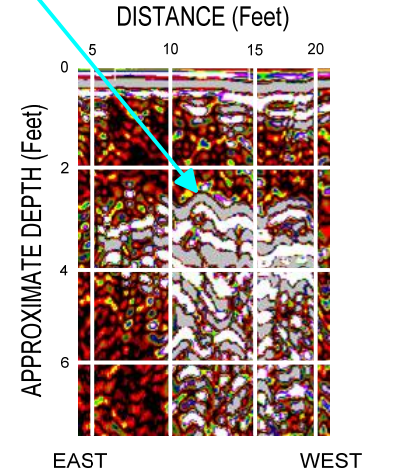
EXAMPLE GPR RESPONSE FROM THE SHORT AXES OF KNOWN UST NOS. 1-3



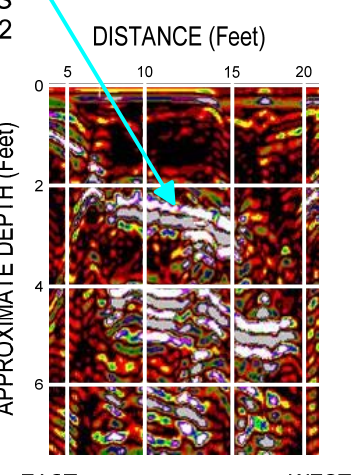
EXAMPLE GPR RESPONSE FROM THE LONG AXIS OF KNOWN UST NO. 1



EXAMPLE GPR RESPONSE FROM THE LONG AXIS OF KNOWN UST NO. 3



EXAMPLE GPR RESPONSE FROM THE LONG AXIS OF KNOWN UST NO. 2



Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as drums and tanks. The EM data were collected on December 8, 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 3200 Zone, using the NAD 1983 datum. GPR data were acquired on December 21, 2010, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

	STATE PROJECT R-3405	PARCEL 51
	WILKES COUNTY, NORTH CAROLINA	DIFFERENTIAL
	NC DEPARTMENT OF TRANSPORTATION	RESPONSE
PROJECT NO. 09210013.34	FIGURE 4	

APPENDIX D
LABORATORY ANALYTICAL RESULTS

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

Project: NCDOT: Wilkes County Parcel 51
Project No.: WBS #35579.1.1
Lab Submittal Date: 01/28/2011
Prism Work Order: 1020002

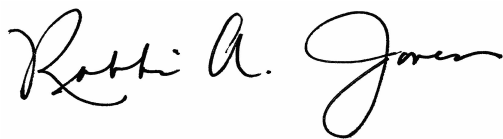
This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

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:

DO	Surrogates diluted out.
MC	Sample concentration too high for recovery evaluation.
SR	Surrogate recovery outside the QC 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.

Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
P51-SB-1(3-5)	1020002-01	Solid	01/27/11	01/28/11
P51-SB-2(5-7)	1020002-02	Solid	01/27/11	01/28/11
P51-SB-3(3-5)	1020002-03	Solid	01/27/11	01/28/11
P51-SB-4(3-5)	1020002-04	Solid	01/27/11	01/28/11
P51-SB-5(8-10)	1020002-05	Solid	01/27/11	01/28/11
P51-SB-6(8-10)	1020002-06	Solid	01/27/11	01/28/11
P51-SB-7(8-10)	1020002-07	Solid	01/27/11	01/28/11
P51-SB-8(6-8)	1020002-08	Solid	01/27/11	01/28/11
P51-SB-9(8-10)	1020002-09	Solid	01/27/11	01/28/11
P51-SB-10(8-10)	1020002-10	Solid	01/27/11	01/28/11
P51-SB-11(3-5)	1020002-11	Solid	01/27/11	01/28/11

Samples received in good condition at 0.2 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: Wilkes County
Parcel 51
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P51-SB-1(3-5)
Prism Sample ID: 1020002-01
Prism Work Order: 1020002
Time Collected: 01/27/11 14:15
Time Submitted: 01/28/11 14:40

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	9.1	1.5	1	*8015C	2/5/11 3:34	JMV	P1B0092
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			94 %		49-124	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.9	0.63	50	*8015C	2/3/11 7:35	HPE	P1B0047
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			87 %		55-129	
General Chemistry Parameters									
% Solids	76.2	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078

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

Project: NCDOT: Wilkes County
Parcel 51
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P51-SB-2(5-7)
Prism Sample ID: 1020002-02
Prism Work Order: 1020002
Time Collected: 01/27/11 14:20
Time Submitted: 01/28/11 14:40

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	8.0	1.3	1	*8015C	2/5/11 2:58	JMV	P1B0092
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			88 %		49-124	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.8	0.62	50	*8015C	2/3/11 6:00	HPE	P1B0047
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			105 %		55-129	
General Chemistry Parameters									
% Solids	86.8	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078

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

Project: NCDOT: Wilkes County
Parcel 51
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P51-SB-3(3-5)
Prism Sample ID: 1020002-03
Prism Work Order: 1020002
Time Collected: 01/27/11 14:30
Time Submitted: 01/28/11 14:40

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	2/5/11 4:09	JMV	P1B0092
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			107 %		49-124	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	4.5	0.58	50	*8015C	2/3/11 6:32	HPE	P1B0047
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			96 %		55-129	
General Chemistry Parameters									
% Solids	80.2	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078

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

Project: NCDOT: Wilkes County
Parcel 51
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P51-SB-4(3-5)
Prism Sample ID: 1020002-04
Prism Work Order: 1020002
Time Collected: 01/27/11 14:35
Time Submitted: 01/28/11 14:40

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	8.8	1.4	1	*8015C	2/5/11 4:44	JMV	P1B0092
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			104 %		49-124	

Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	5.1	0.67	50	*8015C	2/3/11 7:03	HPE	P1B0047
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			140 %		55-129	SR

General Chemistry Parameters

% Solids	78.8	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078
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AMEC Earth & Env. Inc.(DOT Gree)
Attn: Helen Corley
338 North Elm St. Suite 112
Greensboro, NC 27401

Project: NCDOT: Wilkes County
Parcel 51
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P51-SB-5(8-10)
Prism Sample ID: 1020002-05
Prism Work Order: 1020002
Time Collected: 01/27/11 14:45
Time Submitted: 01/28/11 14:40

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	2000	mg/kg dry	420	67	50	*8015C	2/7/11 21:53	JMV	P1B0125
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			0 %		49-124	DO
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	9900	mg/kg dry	480	63	5000	*8015C	2/3/11 11:47	HPE	P1B0047
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			0 %		55-129	DO
General Chemistry Parameters									
% Solids	83.5	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078

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

Project: NCDOT: Wilkes County
Parcel 51
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P51-SB-6(8-10)
Prism Sample ID: 1020002-06
Prism Work Order: 1020002
Time Collected: 01/27/11 15:00
Time Submitted: 01/28/11 14:40

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	330	mg/kg dry	43	6.9	5	*8015C	2/8/11 9:25	JMV	P1B0125
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			110 %		49-124	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	3000	mg/kg dry	100	13	1000	*8015C	2/3/11 8:38	HPE	P1B0047
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			0 %		55-129	DO
General Chemistry Parameters									
% Solids	81.8	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078

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

Project: NCDOT: Wilkes County
Parcel 51
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P51-SB-7(8-10)
Prism Sample ID: 1020002-07
Prism Work Order: 1020002
Time Collected: 01/27/11 15:10
Time Submitted: 01/28/11 14:40

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	400	mg/kg dry	82	13	10	*8015C	2/8/11 8:50	JMV	P1B0125
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			0 %		49-124	DO
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	220	mg/kg dry	5.1	0.66	50	*8015C	2/4/11 10:46	HPE	P1B0070
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			111 %		55-129	
General Chemistry Parameters									
% Solids	85.6	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078

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

Project: NCDOT: Wilkes County
 Parcel 51
 Project No.: WBS #35579.1.1
 Sample Matrix: Solid

Client Sample ID: P51-SB-8(6-8)
 Prism Sample ID: 1020002-08
 Prism Work Order: 1020002
 Time Collected: 01/27/11 15:20
 Time Submitted: 01/28/11 14:40

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	540	mg/kg dry	83	13	10	*8015C	2/8/11 8:18	JMV	P1B0125
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			111 %		49-124	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	5900	mg/kg dry	200	27	2000	*8015C	2/4/11 11:49	HPE	P1B0070
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			0 %		55-129	DO
General Chemistry Parameters									
% Solids	84.4	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078

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

Project: NCDOT: Wilkes County
Parcel 51
Project No.: WBS #35579.1.1
Sample Matrix: Solid

Client Sample ID: P51-SB-9(8-10)
Prism Sample ID: 1020002-09
Prism Work Order: 1020002
Time Collected: 01/27/11 15:30
Time Submitted: 01/28/11 14:40

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	42	mg/kg dry	8.0	1.3	1	*8015C	2/7/11 15:22	JMV	P1B0125
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			94 %		49-124	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	15	mg/kg dry	5.1	0.66	50	*8015C	2/3/11 17:24	HPE	P1B0070
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			110 %		55-129	
General Chemistry Parameters									
% Solids	87.0	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078

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

Project: NCDOT: Wilkes County
 Parcel 51
 Project No.: WBS #35579.1.1
 Sample Matrix: Solid

Client Sample ID: P51-SB-10(8-10)
 Prism Sample ID: 1020002-10
 Prism Work Order: 1020002
 Time Collected: 01/27/11 15:40
 Time Submitted: 01/28/11 14:40

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	15	mg/kg dry	7.9	1.3	1	*8015C	2/7/11 15:58	JMV	P1B0125
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			98 %		49-124	
Gasoline Range Organics by GC/FID									
Gasoline Range Organics	BRL	mg/kg dry	5.0	0.65	50	*8015C	2/3/11 17:56	HPE	P1B0070
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			116 %		55-129	
General Chemistry Parameters									
% Solids	87.6	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078

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

Project: NCDOT: Wilkes County
 Parcel 51
 Project No.: WBS #35579.1.1
 Sample Matrix: Solid

Client Sample ID: P51-SB-11(3-5)
 Prism Sample ID: 1020002-11
 Prism Work Order: 1020002
 Time Collected: 01/27/11 16:00
 Time Submitted: 01/28/11 14:40

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	2/7/11 16:34	JMV	P1B0125
			Surrogate			Recovery		Control Limits	
			o-Terphenyl			107 %		49-124	

Gasoline Range Organics by GC/FID

Gasoline Range Organics	BRL	mg/kg dry	4.5	0.59	50	*8015C	2/3/11 18:27	HPE	P1B0070
			Surrogate			Recovery		Control Limits	
			a,a,a-Trifluorotoluene			90 %		55-129	

General Chemistry Parameters

% Solids	80.3	% by Weight	0.100	0.100	1	*SM2540 G	2/3/11 15:30	JAB	P1B0078
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AMEC Earth & Env. Inc.(DOT Gree)
 Attn: Helen Corley
 338 North Elm St. Suite 112
 Greensboro, NC 27401

Project: NCDOT: Wilkes County Parcel
 51
 Project No: WBS #35579.1.1

Prism Work Order: 1020002
 Time Submitted: 1/28/11 2:40:00PM

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 P1B0047 - 5035										
Blank (P1B0047-BLK1) Prepared & Analyzed: 02/02/11										
Gasoline Range Organics	BRL	5.0	mg/kg wet							
Surrogate: a,a,a-Trifluorotoluene	5.10		mg/kg wet	5.00		102	55-129			
LCS (P1B0047-BS1) Prepared & Analyzed: 02/02/11										
Gasoline Range Organics	39.4	5.0	mg/kg wet	50.0		79	67-116			
Surrogate: a,a,a-Trifluorotoluene	5.15		mg/kg wet	5.00		103	55-129			
LCS Dup (P1B0047-BSD1) Prepared & Analyzed: 02/02/11										
Gasoline Range Organics	40.2	5.0	mg/kg wet	50.0		80	67-116	2	200	
Surrogate: a,a,a-Trifluorotoluene	5.10		mg/kg wet	5.00		102	55-129			
Batch P1B0070 - 5030B										
Blank (P1B0070-BLK1) Prepared & Analyzed: 02/03/11										
Gasoline Range Organics	BRL	5.0	mg/kg wet							
Surrogate: a,a,a-Trifluorotoluene	5.25		mg/kg wet	5.00		105	55-129			
LCS (P1B0070-BS1) Prepared & Analyzed: 02/03/11										
Gasoline Range Organics	47.2	5.0	mg/kg wet	50.0		94	67-116			
Surrogate: a,a,a-Trifluorotoluene	5.10		mg/kg wet	5.00		102	55-129			
LCS Dup (P1B0070-BSD1) Prepared & Analyzed: 02/03/11										
Gasoline Range Organics	48.9	5.0	mg/kg wet	50.0		98	67-116	3	200	
Surrogate: a,a,a-Trifluorotoluene	5.20		mg/kg wet	5.00		104	55-129			
Matrix Spike (P1B0070-MS1) Source: 1020002-07 Prepared & Analyzed: 02/03/11										
Gasoline Range Organics	236	5.8	mg/kg dry	58.4	223	22	57-113			MC
Surrogate: a,a,a-Trifluorotoluene	7.48		mg/kg dry	5.84		128	55-129			

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Greensboro, NC 27401

Project: NCDOT: Wilkes County Parcel
51
Project No: WBS #35579.1.1

Prism Work Order: 1020002
Time Submitted: 1/28/11 2:40:00PM

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 P1B0070 - 5030B										
Matrix Spike Dup (P1B0070-MSD1)		Source: 1020002-07			Prepared & Analyzed: 02/03/11					
Gasoline Range Organics	240	5.8	mg/kg dry	58.4	223	29	57-113	2	23	MC
Surrogate: a,a,a-Trifluorotoluene	7.65		mg/kg dry	5.84		131	55-129			SR

AMEC Earth & Env. Inc.(DOT Gree)
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Greensboro, NC 27401

Project: NCDOT: Wilkes County Parcel
51
Project No: WBS #35579.1.1

Prism Work Order: 1020002
Time Submitted: 1/28/11 2:40:00PM

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 P1B0092 - 3545A										
Blank (P1B0092-BLK1)										
				Prepared: 02/03/11 Analyzed: 02/04/11						
Diesel Range Organics	BRL	7.0	mg/kg wet							
Surrogate: <i>o</i> -Terphenyl	1.35		mg/kg wet	1.59		84	49-124			
LCS (P1B0092-BS1)										
				Prepared: 02/03/11 Analyzed: 02/04/11						
Diesel Range Organics	55.1	7.0	mg/kg wet	79.9		69	55-109			
Surrogate: <i>o</i> -Terphenyl	1.44		mg/kg wet	1.60		90	49-124			
LCS Dup (P1B0092-BSD1)										
				Prepared: 02/03/11 Analyzed: 02/04/11						
Diesel Range Organics	55.9	7.0	mg/kg wet	79.9		70	55-109	1	200	
Surrogate: <i>o</i> -Terphenyl	1.48		mg/kg wet	1.60		93	49-124			
Batch P1B0125 - 3545A										
Blank (P1B0125-BLK1)										
				Prepared & Analyzed: 02/07/11						
Diesel Range Organics	BRL	7.0	mg/kg wet							
Surrogate: <i>o</i> -Terphenyl	1.54		mg/kg wet	1.60		96	49-124			
LCS (P1B0125-BS1)										
				Prepared & Analyzed: 02/07/11						
Diesel Range Organics	66.2	7.0	mg/kg wet	79.9		83	55-109			
Surrogate: <i>o</i> -Terphenyl	1.75		mg/kg wet	1.60		109	49-124			
LCS Dup (P1B0125-BSD1)										
				Prepared & Analyzed: 02/07/11						
Diesel Range Organics	72.3	7.0	mg/kg wet	79.9		90	55-109	9	200	
Surrogate: <i>o</i> -Terphenyl	1.78		mg/kg wet	1.60		112	49-124			

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

Project: NCDOT: Wilkes County Parcel
51
Project No: WBS #35579.1.1

Prism Work Order: 1020002
Time Submitted: 1/28/11 2:40:00PM

General Chemistry Parameters - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P1B0078 - NO PREP

Blank (P1B0078-BLK1) Prepared & Analyzed: 02/03/11

% Solids	100	0.100	% by Weight							
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Duplicate (P1B0078-DUP2) Source: 1020002-04 Prepared & Analyzed: 02/03/11

% Solids	79.2	0.100	% by Weight		78.8			0.5	20	
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Sample Extraction Data

Prep Method: 3545A

Lab Number	Batch	Initial	Final	Date
1020002-01	P1B0092	25.12 g	1 mL	02/03/11
1020002-02	P1B0092	25.12 g	1 mL	02/03/11
1020002-03	P1B0092	25.14 g	1 mL	02/03/11
1020002-04	P1B0092	25.1 g	1 mL	02/03/11
1020002-05	P1B0125	25.17 g	1 mL	02/07/11
1020002-06	P1B0125	25.01 g	1 mL	02/07/11
1020002-07	P1B0125	25.04 g	1 mL	02/07/11
1020002-08	P1B0125	25.12 g	1 mL	02/07/11
1020002-09	P1B0125	25 g	1 mL	02/07/11
1020002-10	P1B0125	25.15 g	1 mL	02/07/11
1020002-11	P1B0125	25 g	1 mL	02/07/11

Prep Method: 5030B

Lab Number	Batch	Initial	Final	Date
1020002-07	P1B0070	5.73 g	5 mL	02/03/11
1020002-08	P1B0070	5.79 g	5 mL	02/03/11
1020002-09	P1B0070	5.62 g	5 mL	02/03/11
1020002-10	P1B0070	5.68 g	5 mL	02/03/11
1020002-11	P1B0070	6.85 g	5 mL	02/03/11

Prep Method: 5035

Lab Number	Batch	Initial	Final	Date
1020002-01	P1B0047	6.76 g	5 mL	02/02/11
1020002-02	P1B0047	6.04 g	5 mL	02/02/11
1020002-03	P1B0047	6.99 g	5 mL	02/02/11
1020002-04	P1B0047	6.2 g	5 mL	02/02/11
1020002-05	P1B0047	6.2 g	5 mL	02/02/11
1020002-06	P1B0047	5.9 g	5 mL	02/02/11

NO PREP

Lab Number	Batch	Initial	Final	Date
1020002-01	P1B0078	30 g	30 mL	02/03/11
1020002-02	P1B0078	30 g	30 mL	02/03/11
1020002-03	P1B0078	30 g	30 mL	02/03/11
1020002-04	P1B0078	30 g	30 mL	02/03/11
1020002-05	P1B0078	30 g	30 mL	02/03/11
1020002-06	P1B0078	30 g	30 mL	02/03/11
1020002-07	P1B0078	30 g	30 mL	02/03/11
1020002-08	P1B0078	30 g	30 mL	02/03/11
1020002-09	P1B0078	30 g	30 mL	02/03/11
1020002-10	P1B0078	30 g	30 mL	02/03/11
1020002-11	P1B0078	30 g	30 mL	02/03/11

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Full-Service Analytical & Environmental Solutions

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

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 51

Site Location Physical Address: N Wilkesboro

CHAIN OF CUSTODY RECORD

PAGE OF QUOTE # TO ENSURE PROPER BILLING: WBS: 35579.1.1

Project Name: Wilkes County

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

Purchase Order No./Billing Reference WBS: 35579.1.1

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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Received ON WET ICE? Temp <u>0.2</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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VOLATILES rec'd W/OUT HEADSPACE?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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

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			PRESERVATIVES	ANALYSES REQUESTED				REMARKS	PRISM LAB ID NO.		
				*TYPE SEE BELOW	NO.	SIZE		DRD	GRD						
P51-SB-1(3-5)	1-27-11	1415	Soil	G	VOA	4	2G 2VOA	None Methanol	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				2x40ml (MeOH), 1x4oz (chr) 1x2oz	01
P51-SB-2(5-7)		1420							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					02
P51-SB-3(3-5)		1430							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					03
P51-SB-4(35)		1435							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					04
P51-SB-5(8-10)		1445							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					05
P51-SB-6(8-10)		1500							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					06
P51-SB-7(8-10)		1510							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					07
P51-SB-8(6-8)		1520							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					08
P51-SB-9(8-10)		1530							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					09
P51-SB-10(8-10)		1540							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					10
P51-SB-11(3-5)		1600							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					

Sampler's Signature: Tray L Holzschuh Sampled By (Print Name): Tray 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.

Relinquished By: (Signature) <u>Tray L Holzschuh</u>	Received By: (Signature)	Date	Military/Hours
Relinquished By: (Signature)	Received By: (Signature)	1-28-11	1440
Relinquished By: (Signature)	Received For Prism Laboratories By:	1/28/11	1440
Method of Shipment: <input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Hand-delivered <input type="checkbox"/> Prism Field Service <input type="checkbox"/> Other		COC Group No. <u>1020002</u>	

Additional Comments:

PRISM USE ONLY

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

SEE REVERSE FOR TERMS & CONDITIONS

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

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