

# **PRELIMINARY SITE ASSESSMENT**

**GLADE VALLEY – US HIGHWAY 21 SOUTH FROM ROARING GAP TO SPARTA  
PARCEL #167 IRENE C. WAGONER PROPERTY  
3725 US HIGHWAY 21 SOUTH  
GLADE VALLEY, ALLEGHANY COUNTY, NORTH CAROLINA**

**NCDOT WBS ELEMENT 37044.1.1  
STATE PROJECT R-3101**

**January 13, 2012**

**Prepared for:**

**Cyrus F. Parker, L.G., P.E.  
North Carolina Department of Transportation  
Geotechnical Engineering Unit  
GeoEnvironmental Section  
1589 Mail Service Center  
Raleigh, North Carolina 27699-1589**

**Prepared by:**

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Charlotte, North Carolina 28269**

**Kleinfelder Project No. 123173**

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PROJECT FOR WHICH THIS REPORT WAS PREPARED.**



January 13, 2012  
123173 | CLT12R007

Cyrus F. Parker, L.G., P.E.  
North Carolina Department of Transportation  
1589 Mail Service Center  
Raleigh, North Carolina 27699-1589

Reference: **Preliminary Site Assessment**  
**WBS Element No. 37044.1.1, State Project R-3101**  
**Parcel #167, Irene C. Wagoner Property**  
**3725 US Highway 21 South**  
**Glade Valley, Alleghany County, North Carolina**

Dear Mr. Parker:

Please find the enclosed report summarizing the sampling activities for the preliminary site assessment conducted at the referenced site. Laboratory analysis of soil samples collected at the site detected contaminant concentrations exceeding the State action levels in two of five samples. This report summarizes our field activities, results, laboratory report, and conclusions.

Should questions arise or additional information be required, please contact the undersigned.

Sincerely,

**KLEINFELDER SOUTHEAST, INC.**

A handwritten signature in black ink, appearing to read "Travis O'Quinn".

Travis O'Quinn  
Staff Professional I

A handwritten signature in blue ink, appearing to read "Craig D Neil".

Craig D Neil, P.G.  
Senior Professional

TLO/CDN:jc  
Enclosure

## PRELIMINARY SITE ASSESSMENT

**Site Name and Location:** Parcel #167 Irene C. Wagoner Property  
3725 US Hwy 21 South  
Glade Valley, Alleghany County, North  
Carolina

**Latitude and Longitude:** 36° 28' 45.20" N, 81° 04' 08.55" W

**Facility ID Number:** None Identified

**NCDOT Project No.:** NCDOT WBS Element 37044.1.1  
State Project R-3101

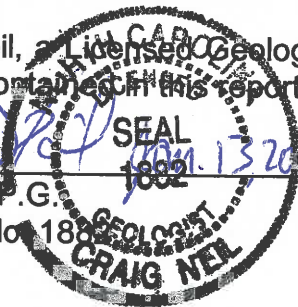
**Date of Report:** January 13, 2012

**Consultant:** Kleinfelder Southeast, Inc.  
6200 Harris Technology Blvd  
Charlotte, North Carolina 28269  
Attn: Mr. Craig D. Neil  
Phone: 704.598.1049 X457

### Seal and Signature of Certifying Licensed Geologist

I, Craig D Neil, a Licensed Geologist for Kleinfelder Southeast, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

  
\_\_\_\_\_  
Craig D Neil, P.G.  
NC License No. 188



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- B Pyramid Environmental & Engineering, P.C. Geophysical Survey Report
- C Boring Logs
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## 1.0 INTRODUCTION

Kleinfelder Southeast, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report documenting assessment activities performed at the Irene C. Wagoner Property (Parcel 167) located at 3725 US Highway 21 South in Glade Valley, Alleghany County, North Carolina (Figure 1). This assessment was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Kleinfelder's November 1, 2011 proposal.

NCDOT is proposing to widen US Highway 21 South (US 21) from Roaring Gap to Sparta. The proposed right-of-way includes a portion of Parcel 167 (Figure 2). According to NCDOT, the site may have historically operated as a gasoline station. Therefore, there is concern that contaminated soils could be encountered during the construction activities at this site.

The purpose of this assessment was to determine the presence or absence of impacted soil at the subject property in proposed right-of-way construction areas related to the widening of US 21 from Roaring Gap to Sparta.

### 1.1 Site Description

The proposed right-of-way includes approximately 15 to 20 feet on each side of the current US 21. At the time of our site reconnaissance, the site contained a vacant green block building. Although no underground storage tanks (USTs) were registered at the site, the geophysical investigation identified two probable USTs and one possible UST on the eastern side of the structure located on site. However, the location of the USTs is outside the proposed right-of-way and proposed utility easement. Site photographs are shown in Appendix A.

### 1.2 Site Location

The facility is located at 3725 US Highway 21 South in Glade Valley, North Carolina. The property is bound to the north, east, and west by wooded land with residential properties located beyond. The site is bound to the south by US 21 with wooded land located beyond.

## 2.0 SITE ASSESSMENT

### 2.1 Geophysical Investigation

Pyramid Environmental & Engineering, P.C (Pyramid) conducted a geophysical investigation of the property on November 17, 2011. Pyramid utilized ground penetration radar (GPR) and electromagnetic (EM) induction technology to identify potential geophysical anomalies and potential USTs at the site. Pyramid identified two probable USTs and one possible UST on the eastern side of the onsite structure. However, the location of the USTs is outside the proposed right-of-way and proposed utility easement. Furthermore, they identified a possible pump island south of the onsite structure. A copy of the Pyramid Geophysical Investigation Report is included in Appendix B. Prior to conducting soil borings, utilities were marked by NC One Call and Taylor Wiseman & Taylor (TWT).

### 2.2 Soil Sampling

To determine if contaminated soil may be encountered during the proposed construction activities, five soil samples were collected along the NCDOT proposed right-of-way. Kleinfelder met Probe Technology at the site on December 20, 2011. Probe Technology advanced five soil borings (SB-1 to SB-5) by direct push technology (DPT). The approximate location of the borings is shown on Figure 3. Copies of the boring logs are included in Appendix C.

Soil borings were advanced to a depth of ten feet below the ground surface (bgs) at each location. Soil boring SB-1 was located downgradient of the USTs, along the proposed right-of-way. Soil boring SB-2 was located perpendicular to the USTs within the proposed right-of-way. Soil boring SB-3 was located perpendicular to the suspected dispenser island within the proposed right-of-way. Soil borings SB-4 and SB-5 were located in front of the structure along the proposed right-of-way. Soil samples were collected by driving a macrocore sampler in five foot intervals in each boring. Each five foot sample sleeve was divided in half and screened for volatile organic compounds in the field using a MiniRae 2000 photo-ionization detector (PID). In each boring, the soil interval with the highest PID reading was collected for laboratory analysis. If no organic vapors were detected, the sample collected from the bottom of the boring was submitted for analysis. The PID readings are summarized in Table 1. Copies of the boring logs are included in Appendix C.

Prior to the initial boring and after each subsequent boring, the sampling equipment was decontaminated. The soil samples collected for laboratory analysis were analyzed for total petroleum hydrocarbons (TPH) similar to diesel and gasoline (DRO/GRO) using EPA Method 8015B following 3550 and 5035 preparation. All soil samples were placed into laboratory provided jars, labeled, and maintained on ice until delivered to Pace Analytical, a NCDOT contract laboratory, for chemical analysis.

## **3.0 RESULTS**

### **3.1 Geophysical Investigation**

Pyramid concluded that the GPR and EM investigation identified two probable USTs and one possible UST on the eastern side of the onsite structure. Furthermore, they identified a possible pump island south of the onsite structure. Pyramid's report is included in Appendix B.

### **3.2 Soil Sampling**

Diesel range organics (DRO) were detected at concentrations above the North Carolina action level for petroleum USTs (10 milligrams per kilogram (mg/kg)) in soil samples SB-1 (29.7 mg/kg) and SB-5 (22.7 mg/kg) at approximately 0.0-2.5 ft. Gasoline range organics (GRO) were not detected in soil samples above the States action level. The laboratory results are summarized in Table 2 and on Figure 3. The laboratory report and associated chain-of-custody document are included in Appendix D.

Based on laboratory analytical results and PID readings, petroleum impacted soils were identified adjacent to the possible USTs and within the proposed right-of-way. The contaminated soil covers an area approximately 630 square feet (Figure 3). The contaminated soil extends vertically to approximately five feet bgs. Based on these dimensions Kleinfelder estimates that there are approximately 117 cubic yards of impacted soil identified within the proposed right-of-way on the site.

## 4.0 CONCLUSIONS

Based on results of the laboratory analysis and field observations, Kleinfelder has the following conclusions:

- ◆ The GPR and EM investigation identified two probable USTs and one possible UST on the eastern side of the onsite structure. Furthermore, they identified a possible pump island south of the onsite structure. However, the location of the USTs is outside the proposed right-of-way and proposed utility easement.
- ◆ Groundwater was encountered at approximately eight feet bgs in the soil borings.
- ◆ GRO were not detected in borings above the laboratory detection limits and DRO were detected in borings SB-1 and SB-5.
- ◆ Based upon the laboratory results, petroleum impacted soils are located between the surface and a depth of five feet bgs in the vicinity of SB-1 and SB-5.
- ◆ Approximately 117 cubic yards of contaminated soil was identified on the site.

Based on results of the laboratory analysis and field observations, Kleinfelder has the following recommendations:

- ◆ If impacted soils are encountered during the road widening project, Kleinfelder recommends the soils be handled appropriately and disposed of at an approved disposal facility.



## 5.0 LIMITATIONS

Our work has been performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services were provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

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## **TABLES**

**TABLE 1: SOIL SAMPLE PID RESULTS**

SAMPLE LOCATION	DEPTH (feet bgs)	PID READINGS
SB-1	0.0 - 2.5	<b>4.2</b>
	2.5-5.0	2.7
	5.0-7.5	0.5
	7.5-10.0	0.0
SB-2	0.0 - 2.5	0.0
	2.5-5.0	0.0
	5.0-7.5	0.5
	7.5-10.0	<b>0.0</b>
SB-3	0.0 - 2.5	0.0
	2.5-5.0	0.0
	5.0-7.5	0.0
	7.5-10.0	<b>0.0</b>
SB-4	0.0 - 2.5	<b>12.5</b>
	2.5-5.0	3.7
	5.0-7.5	2.1
	7.5-10.0	0.0
SB-5	0.0 - 2.5	<b>22.7</b>
	2.5-5.0	0.1
	5.0-7.5	1.0
	7.5-10.0	0.3

**Notes:**

Samples were collected on December 20, 2011.

Readings reported in parts per million

feet bgs = feet below ground surface

**Bold** = Selected for laboratory analysis

**TABLE 2: SOIL SAMPLE ANALYTICAL SUMMARY**

<b>SAMPLE ID</b>	<b>DEPTH</b>	<b>COLLECTION DATE</b>	<b>DRO</b>	<b>GRO</b>
SB-1	0.0-2.5	12/20/2011	<b>29.7</b>	<5.8
SB-2	7.5-10.0	12/20/2011	<6.0	<5.5
SB-3	7.5-10.0	12/20/2011	<5.9	<6.0
SB-4	0.0-2.5	12/20/2011	<5.8	<6.2
SB-5	0.0-2.5	12/20/2011	<b>22.7</b>	<6.3
State Action Level (Petroleum UST)			10	10
State Action Level (Petroleum non- UST)			40	10

**Notes:**

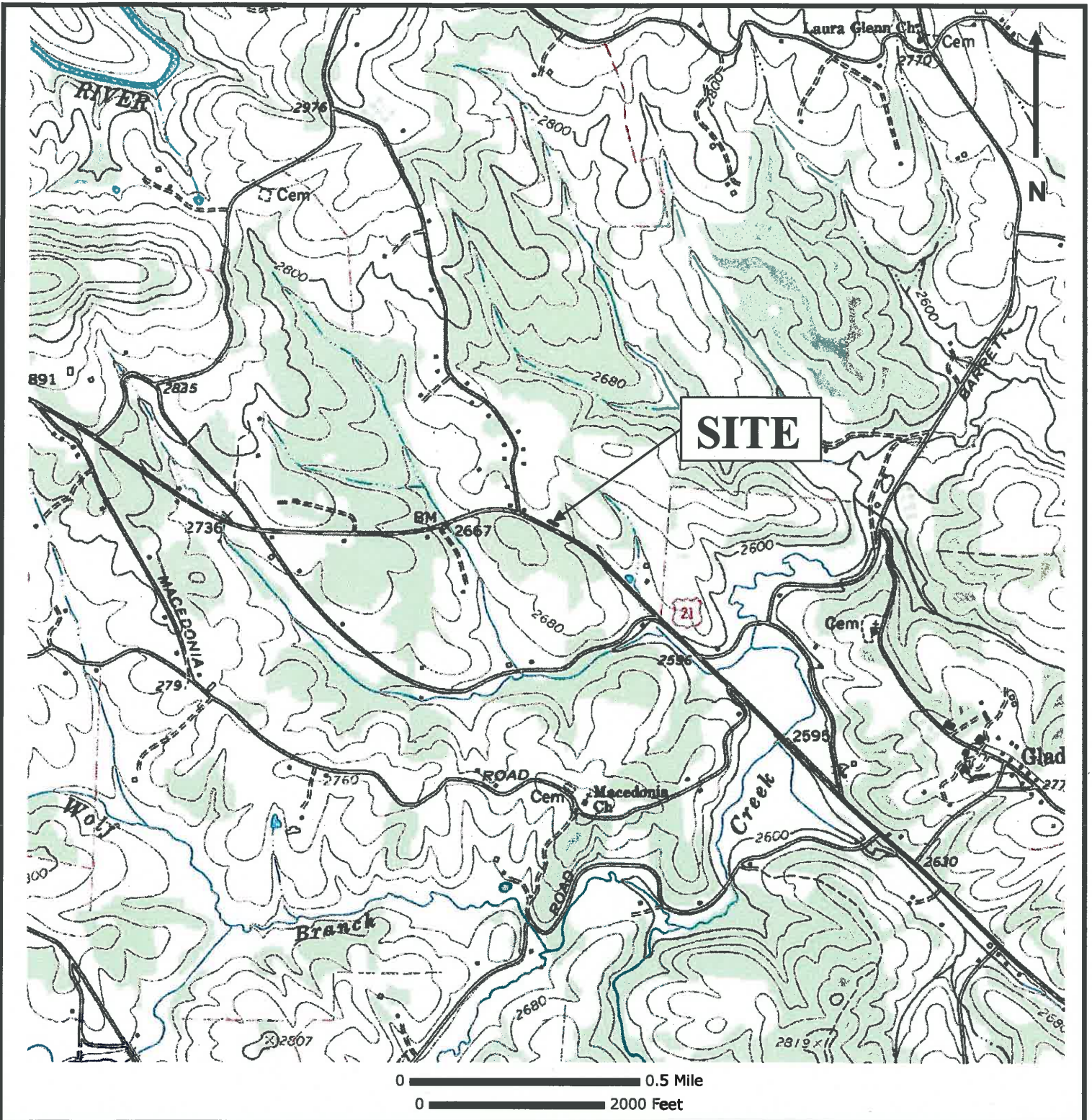
Results presented in milligrams per kilogram, analogous to parts per million

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

**Bold** denotes concentration exceeds the State Action Level for Petroleum USTs

## FIGURES



6200 HARRIS TECHNOLOGY BOULEVARD  
 CHARLOTTE, NORTH CAROLINA  
 PHONE: 704.598.1049

**FIGURE 1  
 SITE LOCATION MAP**

**PARCEL #167 – IRENE C. WAGONER PROPERTY  
 3725 US HWY 21 SOUTH  
 GLADE VALLEY, NORTH CAROLINA**

DATE: 1/4/2012

APPROVED BY:

SCALE: as shown

SOURCE: USGS Topographic  
 Orthophoto Map, NC Glade Valley 1968

PROJECT NO: 123173









## **APPENDIX A**

**SITE PHOTOGRAPHS  
KLEINFELDER PROJECT NO. 123173  
PARCEL NO. 167**



**Photograph 1 – View of the site.**



**Photograph 2 – View of the three suspected USTs**

## **APPENDIX B**

**GEOPHYSICAL INVESTIGATION REPORT**

***EM61 & GPR SURVEYS***

**IRENE C. WAGONER PROPERTY (PARCEL 167)**

**3725 US Highway 21 South**

**Glade Valley, North Carolina**

**State Project R-3101 WBS Element 37044.1.1**

**December 6, 2011**

**Report prepared for: NC Department of Transportation  
GeoTechnical Engineering Unit  
GeoEnvironmental Section  
1589 Mail Service Center  
Raleigh, North Carolina 27699-1589**

**Prepared by:**   
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**Reviewed by:**   
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**NC Department of Transportation  
GEOPHYSICAL INVESTIGATION REPORT  
IRENE C. WAGONER PROPERTY (PARCEL 167)  
3725 US Highway 21 South  
Glade Valley, North Carolina  
State Project R-2612B WBS Element 34483.1.1**

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| Figure 3 | GPR Image Across Probable & Possible USTs |



## **1.0 INTRODUCTION**

Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT) – Geotechnical Unit across the proposed right-of-way (ROW) area at the Irene C. Wagoner property (Parcel 167) located at 3725 US Highway 21 South near Glade Valley, North Carolina. Conducted on November 10 and 17, 2011, the geophysical investigation was performed as part of the NCDOT preliminary site assessment for the US Highway 21 from Roaring Gap to Sparta project (State Project R-3101, WBS Element – 37044.1.1), to determine if unknown, metallic, underground storage tanks (USTs) were present beneath the proposed ROW portion of the property

The Irene Wagoner property consists of a vacant or inactive store building surrounded by grass yards adjacent to the sides and back of the building and an open asphalt-covered parking lot between the front of the building and US Highway 21. The proposed ROW area includes the portion of property that lies between the building and the road. The geophysical survey area has a maximum length and width of 340 feet and 50 feet, respectively.

NCDOT representative Mr. Ethan J. Caldwell, LG, PE provided site information which identified the geophysical survey area to Pyramid Environmental personnel during the week of October 17, 2011. Photographs of the geophysical equipment used in this investigation and the geophysical survey area of the Irene C. Wagoner property are shown in **Figure 1**.

## **2.0 FIELD METHODOLOGY**

Prior to conducting the geophysical investigation, a 10-foot by 20-foot survey grid was established across the geophysical survey area using measuring tapes, pin flags and water-based marking paint. These grid marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection surveys and ground penetrating radar (GPR) surveys. The EM survey was performed on November 10, 2011 using a Geonics EM61-MK1 metal detection instrument. According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. All of the EM61 data were digitally collected at approximately 0.8 foot intervals along northwesterly-southeasterly parallel survey lines spaced five feet apart. All of the data were downloaded to a computer and reviewed in the field and office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

GPR surveys were conducted on November 17, 2011 across selected EM61 differential anomalies using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. Data were digitally collected in a continuous mode along X-axis and/or Y-axis survey lines, spaced 2.5 to 5.0 feet apart using a vertical scan of 512 samples, at a rate of 48 scans per second. A 70 MHz high pass filter and an 800 MHz low pass filter were used during data acquisition with the 400 MHz antenna. GPR data were collected down to a maximum depth of approximately 5 feet, based on an estimated two-way travel time of 8 nanoseconds per foot. All of the GPR data were downloaded to a field computer and reviewed in the field and office using Radprint software. Preliminary geophysical results obtained from the site were emailed to Kleinfelder representative Mr. Craig Neal, PG during the week of November 21, 2011.

### **3.0 DISCUSSION OF RESULTS**

Contour plots of the EM61 bottom coil and differential results are presented in **Figure 2**. The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines, small, isolated metal objects, and areas containing insignificant metal debris. The differential results are obtained from the difference between the top and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drum and UST-size objects and ignore the smaller insignificant metal objects.

The EM61 bottom coil anomalies centered near grid coordinates X=95 Y=60 and along the front wall of the building are probably in response to a satellite dish and the building, respectively. The bottom coil anomalies centered near grid coordinates X=74 Y=22 and X=355 Y=20 are probably in response to utility cable boxes and a culvert, respectively. GPR data suggest the linear EM61 bottom coil anomalies intersecting grid coordinates X=187 Y=54 and X=196 Y=50 are in response to buried utility lines or conduits. These possible lines or conduits appear to terminate at a rectangular asphalt patch area that may represent a former pump island area.

GPR data suggest the EM61 anomalies centered near grid coordinates X=210 Y=60 are in response to two probable, metallic USTs. Two visible fill ports located at grid coordinates X=211 Y=65 and X=217.5 Y=65 appear to be associated with the two probable USTs. Based on the GPR data, the probable UST centered near grid coordinates X=211 Y=67 is approximately 9 feet long, 5 feet wide and buried 3.8 feet below present grade. The probable UST centered near grid coordinates X=217 Y=67 is approximately 13 feet long, 4 feet wide and buried 3.3 feet below present grade.

GPR scans also detected a possible metallic UST centered near grid coordinates X=222 Y=67. The possible UST is approximately 8.5 feet long, 3 feet wide and buried 2.5 feet below present grade. The two probable USTs and the one possible UST appear to be located near the edge or immediately beyond the proposed ROW area. The GPR image obtained along a portion of survey line Y=67, which crosses the probable and possible USTs, and a photograph showing the location of the probable and possible USTs are presented in **Figure 3**. The foot prints of the three probable and possible USTs detected by the geophysical investigation were marked in the field using orange marking paint and pin flags.

The remaining EM61 anomalies shown in **Figure 2** are probably in response to known surface objects, structures or miscellaneous debris.



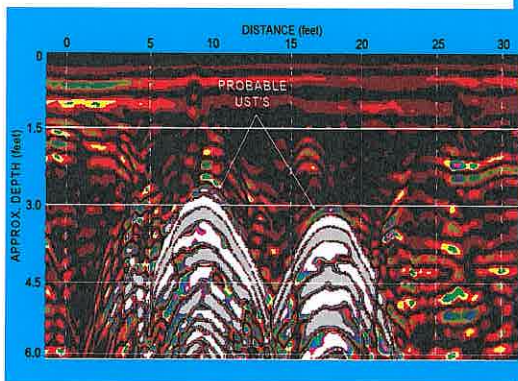
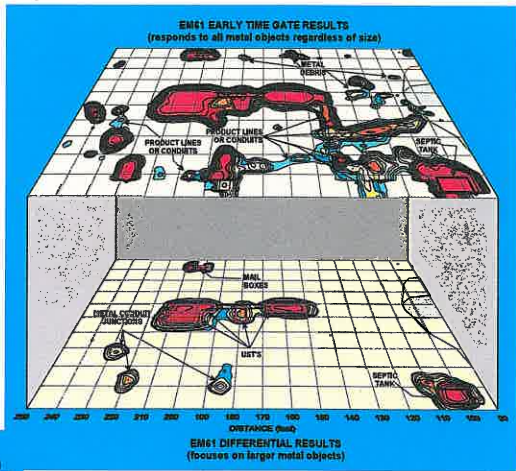
#### **4.0 SUMMARY & CONCLUSIONS**

Our evaluation of the EM61 and GPR data collected across the proposed ROW area at the Irene C. Wagoner property (Parcel 167) located at 3725 US Highway 21 South near Glade Valley, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the proposed ROW area of the site.
- GPR data suggest the linear EM61 bottom coil anomalies intersecting grid coordinates X=187 Y=54 and X=196 Y=50 are in response to buried utility lines or conduits. These possible lines or conduits appear to terminate at a rectangular asphalt patch area that may represent a former pump island area.
- GPR scans detected two probable metallic USTs and one possible UST centered near grid coordinates X=217 Y=67. The two probable USTs and the possible UST appear to be located near the edge or immediately beyond the proposed ROW area.
- The remaining EM61 anomalies shown in Figure 2 are probably in response to known surface objects, structures or miscellaneous debris.

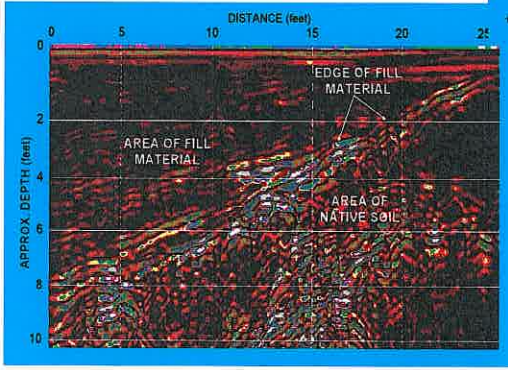
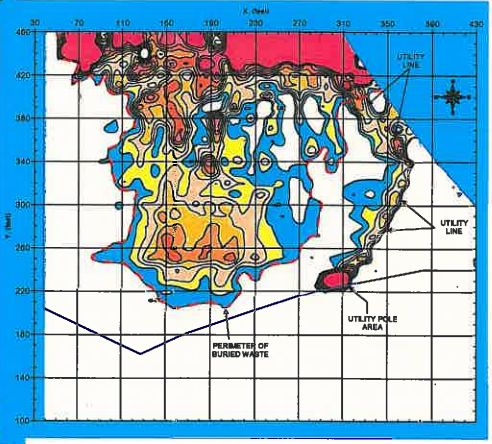
#### **5.0 LIMITATIONS**

EM61 and GPR surveys have been performed and this report prepared for the NCDOT in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined that two probable USTs and one possible UST are present within surveyed portion of the site but that only two probable USTs and one possible UST were detected.



**FIGURES**  
(on the following pages)

Figures shown on this page are for esthetic purposes only and are not related to the geophysical results discussed in this report.



The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey across the proposed Right-of-Way area at Parcel 167 on November 10, 2011.



The photographs show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation across selected EM61 differential anomalies at Parcel 167 on November 17, 2011.



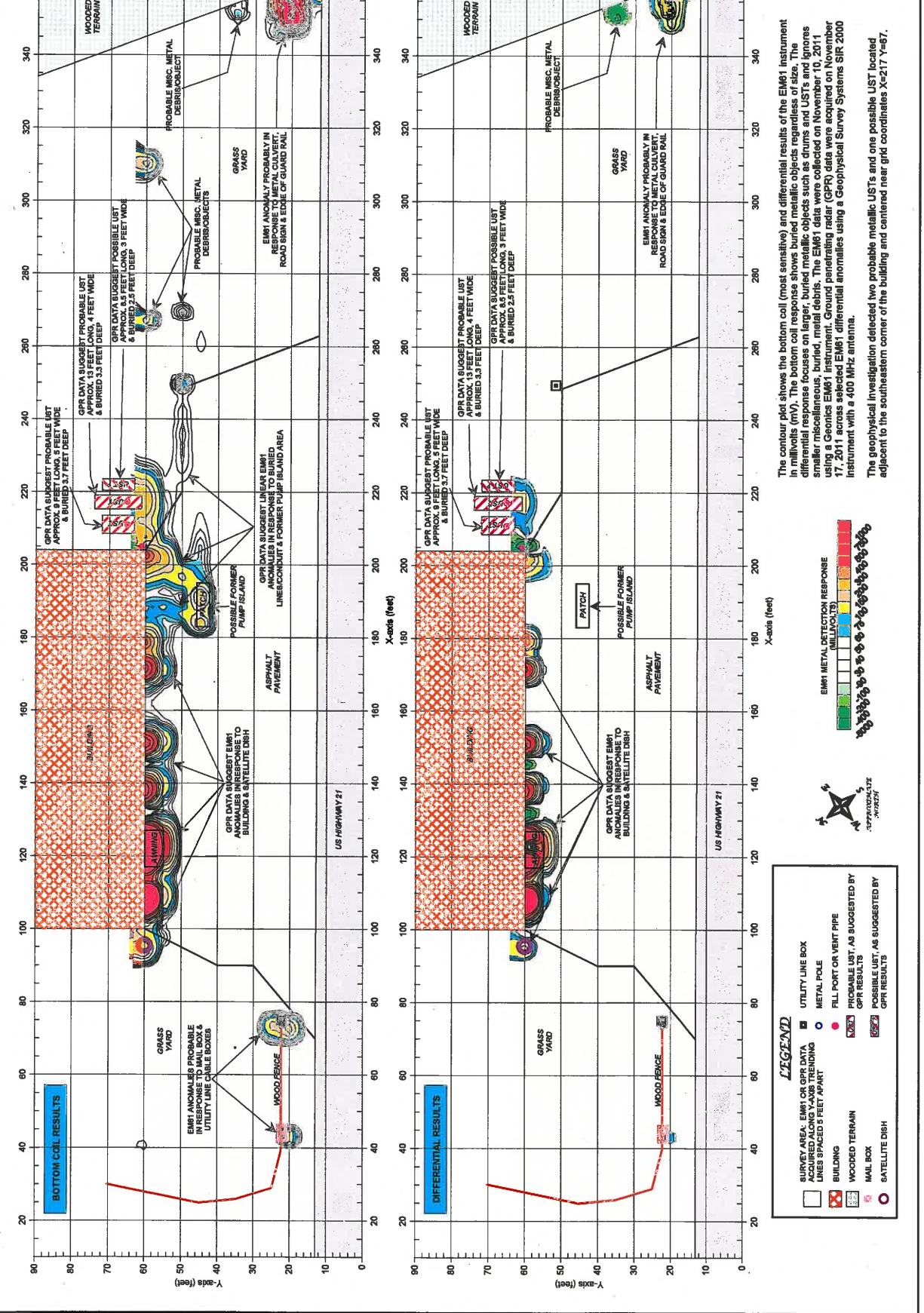
The photograph shows the front portion of the Irene C. Wagoner property (Parcel 167) located at 3725 US Highway 21 South near Glade Valley, North Carolina. The geophysical investigation was performed across the front portion of the property. The photograph is viewed in a southeasterly direction.



NO	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	12/08/11	MJD
NO	IRENE C. WAGONER PROPERTY (PARCEL 167)		
NO	GLADE VALLEY	NORTH CAROLINA	
NO	GEOPHYSICAL RESULTS		2011-267

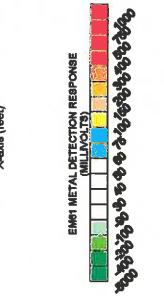
GEOPHYSICAL EQUIPMENT  
& SITE PHOTOGRAPHS





The contour plot shows the bottom coil (most sensitive) and differential results of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous, buried, metal debris. The EM61 data were collected on November 10, 2011 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on November 17, 2011 across selected EM61 differential anomalies using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

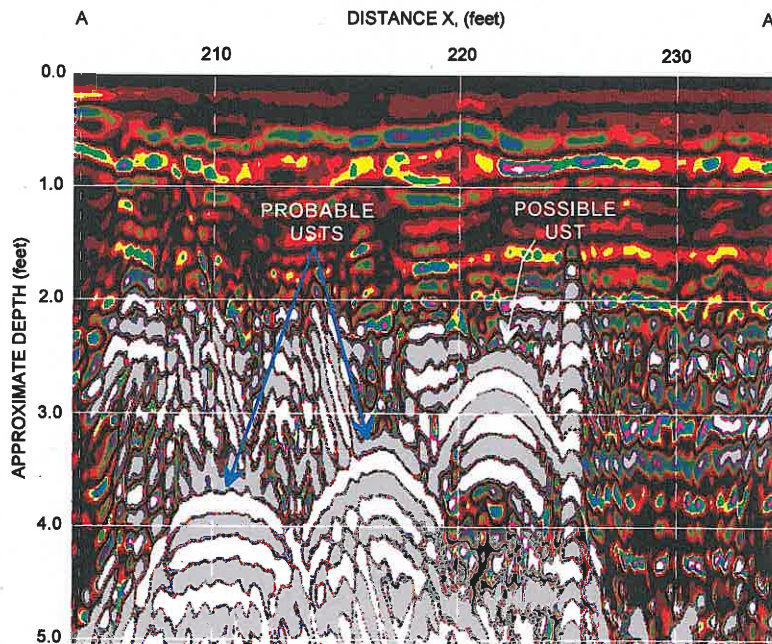
The geophysical investigation detected two probable metallic USTs and one possible UST located adjacent to the southeast corner of the building and centered near grid coordinates X=217 Y=87.



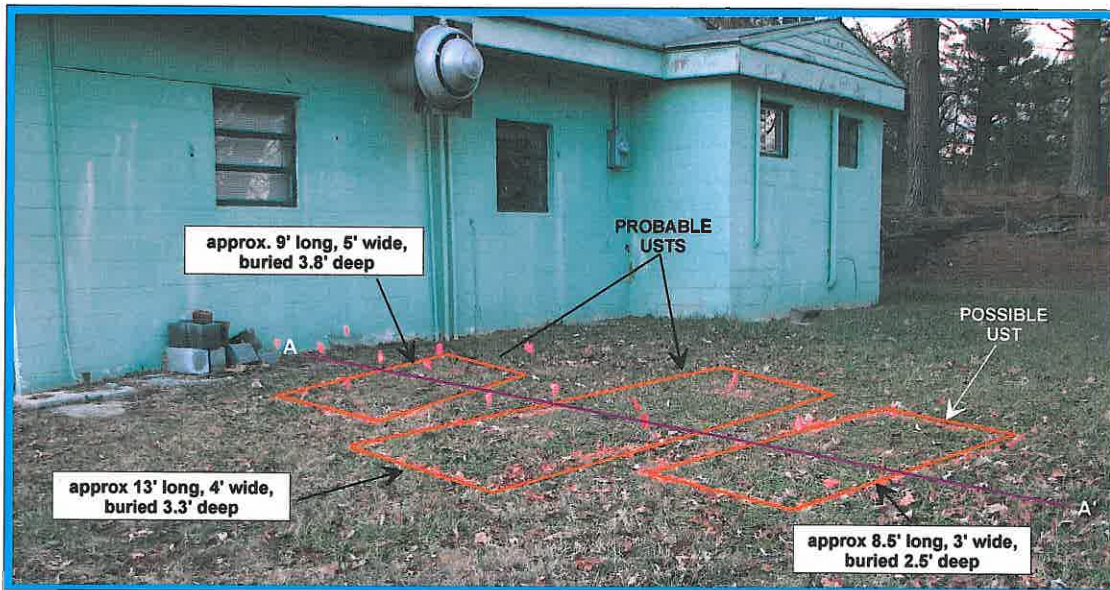
**LEGEND**

[Symbol]	SURVEY AREA, EM61 OR GPR DATA LINES SPACED 5 FEET APART
[Symbol]	BUILDING
[Symbol]	WOODED TERRAIN
[Symbol]	MAIL BOX
[Symbol]	SATELLITE DISH
[Symbol]	UTILITY LINE BOX
[Symbol]	METAL POLE
[Symbol]	FILL PORT OR VENT PIPE
[Symbol]	PROBABLE UST, AS SUGGESTED BY GPR RESULTS
[Symbol]	PROBABLE UST, AS SUGGESTED BY GPR RESULTS

**GPR IMAGE OF LINE Y=66**



The GPR image obtained along a portion of survey line Y=66 recorded three high-amplitude, hyperbolic anomalies (GPR reflections shaded in white) that may be in response to two probable metallic USTs and one possible metallic UST. The probable USTs appear to be approximately 3.3 to 3.7 feet deep and the possible UST is approximately 2.5 feet deep. The solid purple line labeled AA' and the orange rectangles in the photograph below represent the location of the GPR image and the foot prints of the probable and possible USTs, respectively.



The orange rectangles in the photograph represent the approximate perimeters of two probable, metallic USTs and one possible, metallic UST, as suggested by the GPR data. Centered near grid coordinates X=217 Y=67, the approximate lengths, widths and depths of the probable and possible USTs are shown in the photograph. The solid purple line in the photograph represents the approximate location of the GPR image shown above. The photograph is viewed in a northerly direction.



CLIENT	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	DATE	12/06/11	BY	MJD
SITE	IRENE C. WAGONER PROPERTY (PARCEL 167)	SY		SE	
CITY	GLADE VALLEY	STATE	NORTH CAROLINA	PROJ	
TITLE	GEOPHYSICAL RESULTS	NO.	2011-287	REV	

GPR IMAGE ACROSS  
PROBABLE & POSSIBLE USTS

FIGURE 3



## **APPENDIX C**

Client NCDOT  
 Project Name Sparta PSAs  
 Number 123173 Task 1  
 Location Parcel 167

Drill Contractor Geoprobe Technology  
 Drill Method Geoprobe  
 Drilling Started 12/20/11 Ended 12/20/11  
 Logged By A. Bauser

**LOG OF BORING SB-1/167**  
 SHEET 1 OF 1

Elevation -  
 Total Depth 10.0

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
0.0 - 0.5	SS	4.2		GP	GRAVEL, Black and Gray, Fine to Coarse Subangular		0.0 - 0.5
0.5 - 2.7		2.7		SP	SAND, Some Gravel, Fine Subangular, Tan-Orange, Moist, Non Plastic		0.5 - 2.7
2.7 - 0.0		0.5		SM	Silty SAND, Tan, Fine to Medium Sand, Non to Low Plasticity, Moist with Some Burnt Wood		2.7 - 0.0
0.0 - 10.0		0.0				Boring Terminated at 10 feet in RESIDUAL	0.0 - 10.0

LOG A EWINN05 SPARTA.GPJ LOG A EWINN05.GDT 1/12/12



**Kleinfelder**  
 313 Gallimore Dairy Road  
 Greensboro, NC 27409  
 Telephone: 336-668-0093  
 Fax: 336-668-3868

Remarks Sample collected from 0.0-2.5 ft. submitted for laboratory analysis

See key sheet for symbols and abbreviations used above.

Client NCDOT  
 Project Name Sparta PSAs  
 Number 123173 Task 1  
 Location Parcel 167

Drill Contractor Geoprobe Technology  
 Drill Method Geoprobe  
 Drilling Started 12/20/11 Ended 12/20/11  
 Logged By A. Bauser

**LOG OF BORING SB-2/167**  
 SHEET 1 OF 1

Elevation -  
 Total Depth 10.0

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
0.0						ASPHALT - 1 inch	
0.0				SP		SAND, Some Gravel and Silt, Fine to Coarse Sand, Fine Subrounded Gravel, Brown	
0.5						Silty SAND, Brown, Fine to Medium Sand, Moist, Non Plastic with White Pulverized Gravel at 9.0-9.1 feet	
0.0	SS			SM			
Boring Terminated at 10 feet in RESIDUAL							

LOG A EWINN05 SPARTA.GPJ LOG A EWINN05.GDT 1/12/12



**Kleinfelder**  
 313 Gallimore Dairy Road  
 Greensboro, NC 27409  
 Telephone: 336-668-0093  
 Fax: 336-668-3868

Remarks Sample collected from 7.5-10.0 ft. submitted for laboratory analysis

See key sheet for symbols and abbreviations used above.



Client NCDOT  
 Project Name Sparta PSAs  
 Number 123173 Task 1  
 Location Parcel 167


Drill Contractor Geoprobe Technology  
 Drill Method Geoprobe  
 Drilling Started 12/20/11 Ended 12/20/11  
 Logged By A. Bauser

**LOG OF BORING SB-3/167**  
 SHEET 1 OF 1

Elevation -  
 Total Depth 10.0

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
0.0			0.0	SP	ASPHALT - 1 inch	SAND, Brown-Dark Gray-Tan, Fine to Medium Angular Sand, Some Silty, Moist	
5.0			0.0		Extremely Weathered and Weak Rock, Orange-Red, Some Striations, Moist, Non Plastic, Sand Silt and Fine Gravel		5
10.0	SS		0.0				10
Boring Terminated at 10 feet in RESIDUAL							
15.0							15
20.0							20
25.0							25
30.0							30

LOG A EWINN05 SPARTA.GPJ LOG A EWINN05.GDT 1/12/12



**Kleinfelder**  
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 Greensboro, NC 27409  
 Telephone: 336-668-0093  
 Fax: 336-668-3868

Remarks Sample collected from 7.5-10.0 ft. submitted for laboratory analysis

See key sheet for symbols and abbreviations used above.

Client NCDOT  
 Project Name Sparta PSAs  
 Number 123173 Task 1  
 Location Parcel 167

Drill Contractor Geoprobe Technology  
 Drill Method Geoprobe  
 Drilling Started 12/20/11 Ended 12/20/11  
 Logged By A. Bauser

**LOG OF BORING SB-4/167**  
 SHEET 1 OF 1

Elevation --  
 Total Depth 10.0

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
0.0 - 2.5	SS	12.5				Extremely Weak and Weathered Rock, Pink to Yellow-Tan, Fine to Coarse Sand, Silty and Fine Gravel with Mica, Striations, Friable	0.0 - 2.5
2.5 - 3.7		3.7					2.5 - 3.7
3.7 - 5.8		2.1					3.7 - 5.8
5.8 - 10.0		0.0					5.8 - 10.0
Boring Terminated at 10 feet in RESIDUAL							

LOG A EWIN05 SPARTA.GPJ LOG A EWIN05.GDT 1/12/12



**Kleinfelder**  
 313 Gallimore Dairy Road  
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 Telephone: 336-668-0093  
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Remarks Sample collected from 0.0-2.5 ft. submitted for laboratory analysis



See key sheet for symbols and abbreviations used above.

Client NCDOT  
 Project Name Sparta PSAs  
 Number 123173 Task 1  
 Location Parcel 167

Drill Contractor Geoprobe Technology  
 Drill Method Geoprobe  
 Drilling Started 12/20/11 Ended 12/20/11  
 Logged By A. Bauser

**LOG OF BORING SB-5/167**  
 SHEET 1 OF 1

Elevation —  
 Total Depth 10.0

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
0.0 - 0.5	SS		22.7	SP		ASPHALT - 1/2 inch SAND, Orange-Tan, Fine to Medium Sand, Non Plastic, Slightly Moist	0.0 - 0.5
0.5 - 10.0			0.1 1.0 0.3			Extremely Weak and Weathered Rock, Pink-Orange-Black to Orange, Sand Silt, Mica, Fine Gravel, Striations	0.5 - 10.0
Boring Terminated at 10 feet in RESIDUAL							

LOG A EWINN05 SPARTA.GPJ LOG A EWINN05.GDT 1/12/12



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Remarks Sample collected from 0.0-2.5 ft. submitted for laboratory analysis

See key sheet for symbols and abbreviations used above.

## **APPENDIX D**



**Pace Analytical Services, Inc.**  
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(828)254-7176

**Pace Analytical Services, Inc.**  
9800 Kincey Ave. Suite 100  
Huntersville, NC 28078  
(704)875-9092

January 03, 2012

Chemical Testing Engineer  
NCDOT  
Materials & Tests Unit  
1801 Blue Ridge Road  
Raleigh, NC 27607

RE: Project: Parcel 167 WSB 37044.1.1  
Pace Project No.: 92109105

Dear Chemical Engineer:

Enclosed are the analytical results for sample(s) received by the laboratory on December 22, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Charles Hardin

charles.hardin@pacelabs.com  
Project Manager

Enclosures

cc: Mr. Peter Pozzo, Kleinfelder, Inc.



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Parcel 167 WSB 37044.1.1  
Pace Project No.: 92109105

### Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078  
North Carolina Drinking Water Certification #: 37706  
North Carolina Field Services Certification #: 5342  
North Carolina Wastewater Certification #: 12  
South Carolina Certification #: 99006001  
South Carolina Drinking Water Cert. #: 99006003  
Virginia Drinking Water Certification #: 00213

Connecticut Certification #: PH-0104  
Florida/NELAP Certification #: E87627  
Kentucky UST Certification #: 84  
Louisiana DHH Drinking Water # LA 100031  
West Virginia Certification #: 357  
Virginia/VELAP Certification #: 460144

## REPORT OF LABORATORY ANALYSIS

Page 2 of 14

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### SAMPLE SUMMARY

Project: Parcel 167 WSB 37044.1.1  
Pace Project No.: 92109105

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92109105001	SB-1 (167)	Solid	12/20/11 16:20	12/22/11 16:35
92109105002	SB-2 (167)	Solid	12/20/11 16:25	12/22/11 16:35
92109105003	SB-3 (167)	Solid	12/20/11 16:30	12/22/11 16:35
92109105004	SB-4 (167)	Solid	12/20/11 16:35	12/22/11 16:35
92109105005	SB-5 (167)	Solid	12/20/11 16:40	12/22/11 16:35

### REPORT OF LABORATORY ANALYSIS



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**SAMPLE ANALYTE COUNT**

Project: Parcel 167 WSB 37044.1.1  
 Pace Project No.: 92109105

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92109105001	SB-1 (167)	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92109105002	SB-2 (167)	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92109105003	SB-3 (167)	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92109105004	SB-4 (167)	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92109105005	SB-5 (167)	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C

**REPORT OF LABORATORY ANALYSIS**

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### ANALYTICAL RESULTS

Project: Parcel 167 WSB 37044.1.1  
 Pace Project No.: 92109105

Sample: SB-1 (167) Lab ID: 92109105001 Collected: 12/20/11 16:20 Received: 12/22/11 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 GCS THC-Diesel</b>									
Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546									
Diesel Components	29.7	mg/kg	5.8	5.2	1	12/27/11 10:09	12/28/11 21:28	68334-30-5	
<b>Surrogates</b>									
n-Pentacosane (S)	87	%	41-119		1	12/27/11 10:09	12/28/11 21:28	629-99-2	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B									
Gasoline Range Organics	ND	mg/kg	5.8	5.8	1	12/29/11 12:11	12/30/11 16:04	8006-61-9	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	95	%	70-167		1	12/29/11 12:11	12/30/11 16:04	460-00-4	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Percent Moisture	13.1	%	0.10	0.10	1		12/23/11 14:34		



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**ANALYTICAL RESULTS**

Project: Parcel 167 WSB 37044.1.1  
 Pace Project No.: 92109105

Sample: SB-2 (167) Lab ID: 92109105002 Collected: 12/20/11 16:25 Received: 12/22/11 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 GCS THC-Diesel</b>									
Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546									
Diesel Components	ND	mg/kg	6.0	5.4	1	12/27/11 10:09	12/28/11 21:28	68334-30-5	
<b>Surrogates</b>									
n-Pentacosane (S)	75 %		41-119		1	12/27/11 10:09	12/28/11 21:28	629-99-2	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B									
Gasoline Range Organics	ND	mg/kg	5.5	5.5	1	12/29/11 12:11	12/30/11 16:28	8006-61-9	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	90 %		70-167		1	12/29/11 12:11	12/30/11 16:28	460-00-4	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Percent Moisture	17.1 %		0.10	0.10	1		12/23/11 14:34		



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**ANALYTICAL RESULTS**

Project: Parcel 167 WSB 37044.1.1  
 Pace Project No.: 92109105

Sample: SB-3 (167) Lab ID: 92109105003 Collected: 12/20/11 16:30 Received: 12/22/11 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 GCS THC-Diesel</b>									
Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546									
Diesel Components	ND	mg/kg	5.9	5.3	1	12/27/11 10:09	12/28/11 21:58	68334-30-5	
<b>Surrogates</b>									
n-Pentacosane (S)	77	%	41-119		1	12/27/11 10:09	12/28/11 21:58	629-99-2	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B									
Gasoline Range Organics	ND	mg/kg	6.0	6.0	1	12/29/11 12:11	12/30/11 16:52	8006-61-9	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	91	%	70-167		1	12/29/11 12:11	12/30/11 16:52	460-00-4	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Percent Moisture	14.6	%	0.10	0.10	1		12/23/11 14:34		



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**ANALYTICAL RESULTS**

Project: Parcel 167 WSB 37044.1.1  
 Pace Project No.: 92109105

Sample: SB-4 (167) Lab ID: 92109105004 Collected: 12/20/11 16:35 Received: 12/22/11 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 GCS THC-Diesel</b>									
Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546									
Diesel Components	ND	mg/kg	5.8	5.2	1	12/27/11 10:09	12/28/11 21:58	68334-30-5	
<b>Surrogates</b>									
n-Pentacosane (S)	62	%	41-119		1	12/27/11 10:09	12/28/11 21:58	629-99-2	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B									
Gasoline Range Organics	ND	mg/kg	6.2	6.2	1	12/29/11 12:11	12/30/11 17:17	8006-61-9	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	101	%	70-167		1	12/29/11 12:11	12/30/11 17:17	460-00-4	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Percent Moisture	14.4	%	0.10	0.10	1		12/23/11 14:34		



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### ANALYTICAL RESULTS

Project: Parcel 167 WSB 37044.1.1  
 Pace Project No.: 92109105

Sample: SB-5 (167) Lab ID: 92109105005 Collected: 12/20/11 16:40 Received: 12/22/11 16:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 GCS THC-Diesel</b>	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components <i>Surrogates</i>	22.7 mg/kg		6.0	5.4	1	12/27/11 10:09	12/28/11 22:28	68334-30-5	
n-Pentacosane (S)	81 %		41-119		1	12/27/11 10:09	12/28/11 22:28	629-99-2	
<b>Gasoline Range Organics</b>	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics <i>Surrogates</i>	ND mg/kg		6.3	6.3	1	12/29/11 12:11	12/30/11 17:41	8006-61-9	
4-Bromofluorobenzene (S)	92 %		70-167		1	12/29/11 12:11	12/30/11 17:41	460-00-4	
<b>Percent Moisture</b>	Analytical Method: ASTM D2974-87								
Percent Moisture	18.0 %		0.10	0.10	1		12/23/11 14:34		



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**QUALITY CONTROL DATA**

Project: Parcel 167 WSB 37044.1.1  
 Pace Project No.: 92109105

QC Batch: GCV/5645 Analysis Method: EPA 8015 Modified  
 QC Batch Method: EPA 5035A/5030B Analysis Description: Gasoline Range Organics  
 Associated Lab Samples: 92109105001, 92109105002, 92109105003, 92109105004, 92109105005

METHOD BLANK: 704846 Matrix: Solid  
 Associated Lab Samples: 92109105001, 92109105002, 92109105003, 92109105004, 92109105005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.9	12/30/11 12:01	
4-Bromofluorobenzene (S)	%	91	70-167	12/30/11 12:01	

LABORATORY CONTROL SAMPLE: 704847

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	24.5	24.3	99	70-165	
4-Bromofluorobenzene (S)	%			89	70-167	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 704848 704849

Parameter	Units	92108995001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result					
Gasoline Range Organics	mg/kg	ND	27.4	29.2	27.4	29.3	103	103	47-187	0	30
4-Bromofluorobenzene (S)	%						93	88	70-167		



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**QUALITY CONTROL DATA**

Project: Parcel 167 WSB 37044.1.1  
 Pace Project No.: 92109105

QC Batch: OEXT/16011 Analysis Method: EPA 8015 Modified  
 QC Batch Method: EPA 3546 Analysis Description: 8015 Solid GCSV  
 Associated Lab Samples: 92109105001, 92109105002, 92109105003, 92109105004, 92109105005

METHOD BLANK: 704485 Matrix: Solid  
 Associated Lab Samples: 92109105001, 92109105002, 92109105003, 92109105004, 92109105005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Components	mg/kg	ND	5.0	12/28/11 17:28	
n-Pentacosane (S)	%	79	41-119	12/28/11 17:28	

LABORATORY CONTROL SAMPLE: 704486

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Components	mg/kg	66.7	54.2	81	49-113	
n-Pentacosane (S)	%			82	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 704487 704488

Parameter	Units	92109101003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
Diesel Components	mg/kg	12.0	86	85.6	68.3	74.3	66	73	10-146	8	30	
n-Pentacosane (S)	%						80	83	41-119			



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**QUALITY CONTROL DATA**

Project: Parcel 167 WSB 37044.1.1  
 Pace Project No.: 92109105

QC Batch: PMST/4411 Analysis Method: ASTM D2974-87  
 QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture  
 Associated Lab Samples: 92109105001, 92109105002, 92109105003, 92109105004, 92109105005

SAMPLE DUPLICATE: 703868

Parameter	Units	92109101002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	14.1	11.9	17	25	

SAMPLE DUPLICATE: 703869

Parameter	Units	92109110004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	12.4	12.0	3	25	





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(704)875-9092

## QUALIFIERS

Project: Parcel 167 WSB 37044.1.1  
Pace Project No.: 92109105

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

### LABORATORIES

PASI-C Pace Analytical Services - Charlotte



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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Parcel 167 WSB 37044.1.1  
 Pace Project No.: 92109105

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92109105001	SB-1 (167)	EPA 3546	OEXT/16011	EPA 8015 Modified	GCSV/11124
92109105002	SB-2 (167)	EPA 3546	OEXT/16011	EPA 8015 Modified	GCSV/11124
92109105003	SB-3 (167)	EPA 3546	OEXT/16011	EPA 8015 Modified	GCSV/11124
92109105004	SB-4 (167)	EPA 3546	OEXT/16011	EPA 8015 Modified	GCSV/11124
92109105005	SB-5 (167)	EPA 3546	OEXT/16011	EPA 8015 Modified	GCSV/11124
92109105001	SB-1 (167)	EPA 5035A/5030B	GCV/5645	EPA 8015 Modified	GCV/5650
92109105002	SB-2 (167)	EPA 5035A/5030B	GCV/5645	EPA 8015 Modified	GCV/5650
92109105003	SB-3 (167)	EPA 5035A/5030B	GCV/5645	EPA 8015 Modified	GCV/5650
92109105004	SB-4 (167)	EPA 5035A/5030B	GCV/5645	EPA 8015 Modified	GCV/5650
92109105005	SB-5 (167)	EPA 5035A/5030B	GCV/5645	EPA 8015 Modified	GCV/5650
92109105001	SB-1 (167)	ASTM D2974-87	PMST/4411		
92109105002	SB-2 (167)	ASTM D2974-87	PMST/4411		
92109105003	SB-3 (167)	ASTM D2974-87	PMST/4411		
92109105004	SB-4 (167)	ASTM D2974-87	PMST/4411		
92109105005	SB-5 (167)	ASTM D2974-87	PMST/4411		



Document Name:  
**Sample Condition Upon Receipt (SCUR)**  
 Document Number:  
**F-CHR-CS-03-rev.05**

Document Revised: July 29, 2011  
 Page 1 of 2  
 Issuing Authority:  
 Pace Huntersville Quality Office

Client Name: Kleinfelder Project # 92109105

Where Received:  Huntersville  Asheville  Eden

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used: IR Gun T1102 Type of Ice: Wet Blue None  Samples on ice, cooling process has begun

Temp Correction Factor Add / Subtract 0 °C

Corrected Cooler Temp.: 5.4 °C Biological Tissue is Frozen: Yes No N/A

Optional:  
 Proj. Due Date:  
 Proj. Name:

Date and initials of person examining contents: JMM 12-22-11

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N  
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Comments/ Resolution: \_\_\_\_\_

SCURF Review: CAH Date: 12/23/11 SRF Review: JMM Date: 12/23/11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

