PRELIMINARY SITE ASSESSMENT

GLADE VALLEY – US HIGHWAY 21 SOUTH FROM ROARING GAP TO SPARTA
PARCEL #193 GRANVILLE PAUL WAGONER AND SUE D WAGONER PROPERTY
2694 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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6200 Harris Technology Blvd.
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Kleinfelder Project No. 123173

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January 13, 2012
123173 | CLT12R012

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

Subject: **Preliminary Site Assessment**
WBS Element No. 37044.1.1, State Project R-3101
Parcel #193, Granville Paul Wagoner and Sue D Wagoner Property
2694 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 one 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.

Travis O'Quinn
Staff Professional I

Craig D Neil, P.G.
Senior Professional

TLO/CDN:jc
Enclosure

PRELIMINARY SITE ASSESSMENT

Site Name and Location:	Parcel #193 Granville Paul Wagoner and Sue D Wagoner Property 2694 US Hwy 21 South Glade Valley, Alleghany County, North Carolina
Latitude and Longitude:	36° 28' 52.90" N, 81° 05' 11.64" W
Facility ID Number:	0-034665
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, 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.

SEAL 1882 GEOLOGIST CRAIG NEIL

Craig D Neil, P.G.
NC License N[illegible]

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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 Granville Paul Wagoner and Sue D Wagoner Property (Parcel 193) which is currently the Liberty gasoline station and convenience store located at 2694 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 193 (Figure 2). Based on information provided by NCDOT, the site currently operates as a gasoline station (Facility ID 0-034665) and convenience store. According to NCDOT the site contains five active USTs located on the property. 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 is approximately 15 to 20 feet on each side of the current US 21. At the time of our site reconnaissance, this parcel was occupied by an active gas station and convenience store (Liberty, Facility ID No. 0-034665). Five underground storage tanks (USTs) are registered for the facility. The current USTs are located on the eastern side of the convenience store. The dispenser island is located north of the convenience store. The majority of the site is covered with asphalt and concrete. Site photographs are shown in Appendix A.

1.2 Site Location

The facility is located at 2694 US Highway 21 South in Glade Valley, North Carolina. The property is bound to the north and east by US 21 with farm land located beyond. The site is bound to the south by commercial/retail properties. The site is bound to the west by Macedonia Church Road with residential properties located beyond.

2.0 SITE ASSESSMENT

2.1 Geophysical Investigation

Pyramid Environmental & Engineering, P.C (Pyramid) conducted a geophysical investigation of the entire property on November 10, 2011. Pyramid utilized ground penetration radar (GPR) and electromagnetic (EM) induction technology to identify potential geophysical anomalies and potential USTs at the site. Pyramid did not identify suspect USTs within the survey area. 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 21, 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 borings SB-1 through SB-5 were located northeast of the gasoline station 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 did not detect metallic USTs within the survey area. Pyramid's report is included in Appendix B.

3.2 Soil Sampling

Diesel range organics (DRO) were detected at concentrations above the State action level for petroleum USTs (10 milligrams per kilogram (mg/kg)) in soil samples SB-2 (12.9 mg/kg) and SB-3 (12.0 mg/kg) at approximately 7.5 to 10.0 feet below ground surface (bgs). Gasoline range organics (GRO) were not detected in soil samples above the laboratory detection limits or the North Carolina action levels. 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 in the vicinity of SB-2 and SB-3. The contaminated soil covers an area approximately 628 square feet (Figure 3). The contaminated soil extends vertically to approximately ten feet bgs. Based on these dimensions Kleinfelder estimates that there are approximately 232 cubic yards of impacted soil at the site.

4.0 CONCLUSIONS AND RECOMMENDATIONS

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

- Pyramid concluded that the GPR and EM investigation did not detect metallic USTs within the survey area.
- Groundwater was not encountered in the soil borings.
- GRO were not detected in borings above the laboratory detection limits and DRO were detected in boring SB-2 and SB-3. The DRO detected in SB-2 and SB-3 were below the State action level for petroleum non-USTs.
- Based upon the laboratory results, petroleum impacted soils are located between the surface and a depth of ten feet bgs in the vicinity of SB-2 and SB-3.
- Approximately 232 cubic yards of contaminated soil was identified at the site.

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

- If impacted soils are encountered, 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.

The information included on graphic representations in the report has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. These documents are not intended for use as a land survey product, nor are they designed or intended as a construction design document. The use or misuse of the information contained on these graphic representations is at the sole risk of the party using or misusing the information.

TABLES

TABLE 1: SOIL SAMPLE PID RESULTS

SAMPLE LOCATION	DEPTH (feet bgs)	PID READINGS
SB-1	0.0 - 2.5	**7.1**
	2.5-5.0	0.1
	5.0-7.5	0.7
	7.5-10.0	0.0
SB-2	0.0 - 2.5	0.0
	2.5-5.0	0.0
	5.0-7.5	0.0
	7.5-10.0	**0.0**
SB-3	0.0 - 2.5	0.0
	2.5-5.0	0.0
	5.0-7.5	0.0
	7.5-10.0	**0.0**
SB-4	0.0 - 2.5	0.0
	2.5-5.0	0.0
	5.0-7.5	0.0
	7.5-10.0	**0.0**
SB-5	0.0 - 2.5	0.0
	2.5-5.0	**1.9**
	5.0-7.5	0.0
	7.5-10.0	0.0

Notes:
Samples were collected on December 21, 2011.
Readings reported in parts per million
feet bgs = feet below ground surface
Bold = Selected for laboratory analysis

TABLE 2: SOIL SAMPLE ANALYTICAL SUMMARY

SAMPLE ID	DEPTH	COLLECTION DATE	DRO	GRO
SB-1	0.0-2.5	12/21/2011	<6.2	<6.8
SB-2	7.5-10.0	12/21/2011	**12.9**	<6.6
SB-3	7.5-10.0	12/21/2011	**12.0**	<7.1
SB-4	7.5-10.0	12/21/2011	<5.8	<6.6
SB-5	2.5-5.0	12/21/2011	<5.7	<6.6
State Action Level (Petroleum UST)			10	10
State Action Level (Petroleum non- UST)			40	10

Notes:

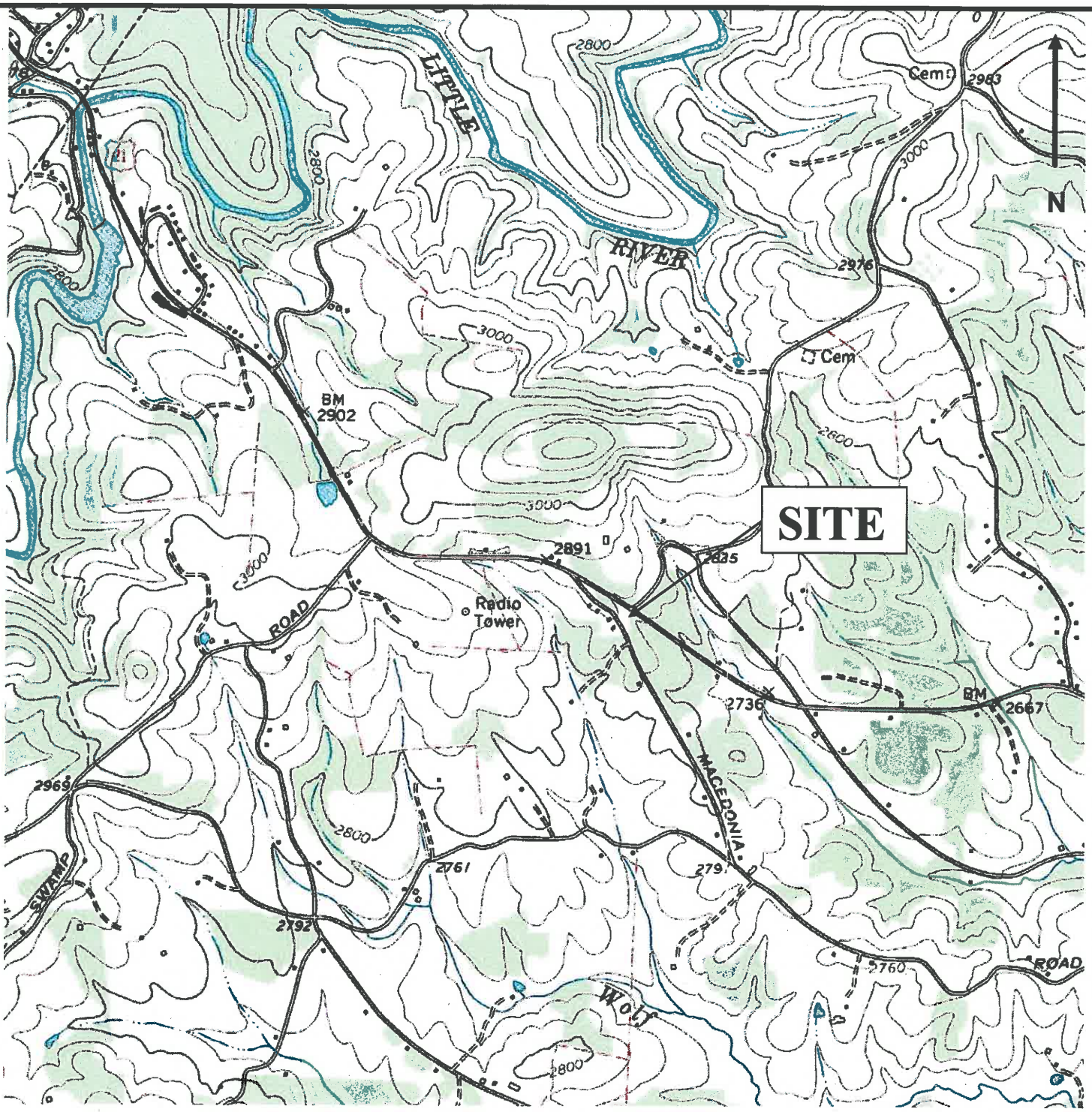
Results presented in milligrams per kilogram, analogous to parts per million

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

Bold denotes concentration exceeds the State Action Level for Petroleum USTs

FIGURES



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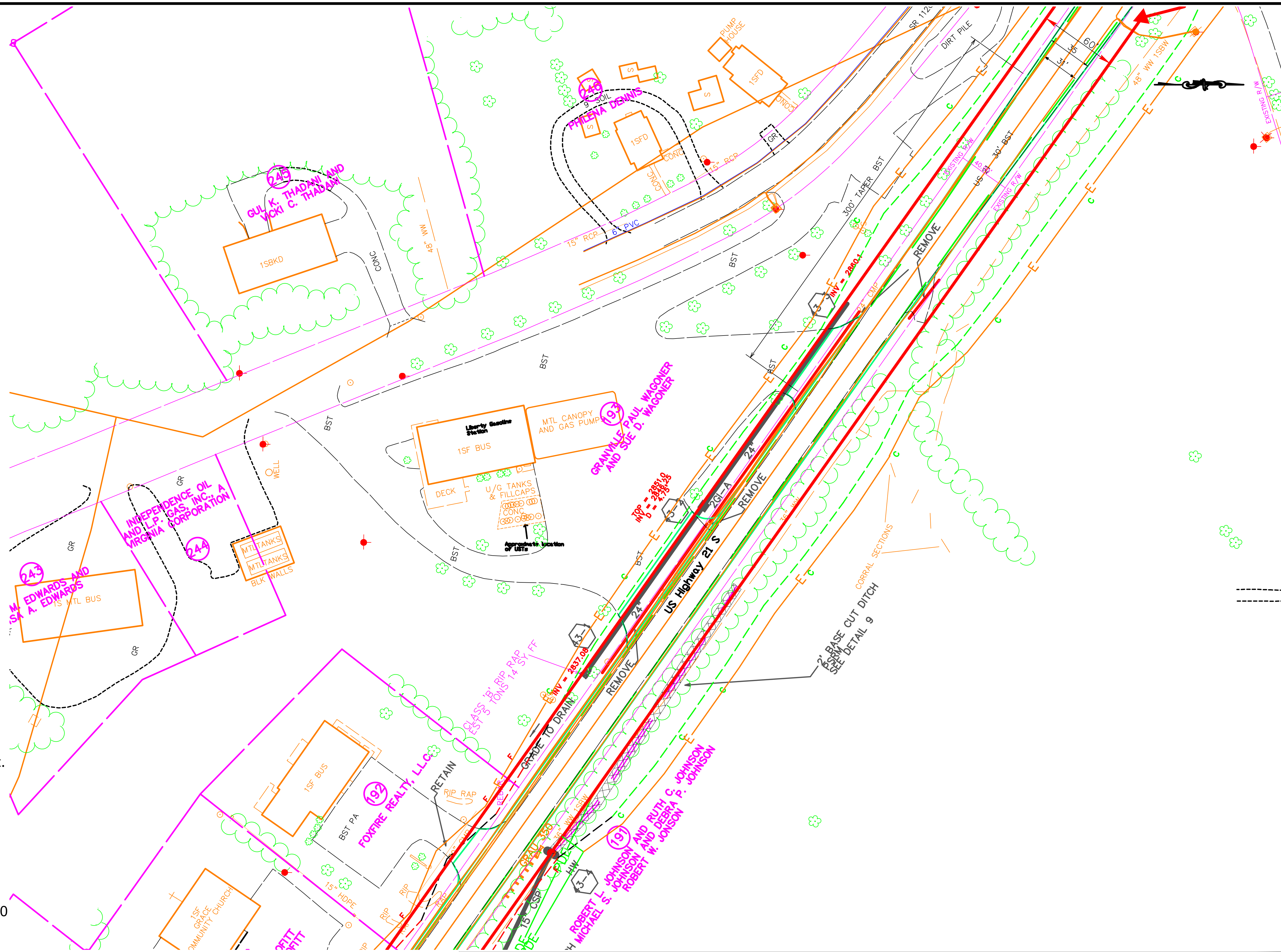
6200 HARRIS TECHNOLOGY BOULEVARD
CHARLOTTE, NORTH CAROLINA
PHONE: 704.598.1049

FIGURE 1
SITE LOCATION MAP

PARCEL #193 – GRANVILLE PAUL WAGONER AND SUE D WAGONER PROPERTY
2694 US HWY 21 SOUTH
GLADE VALLEY, NORTH CAROLINA

DATE: 1/5/2012	APPROVED BY: CDN	SCALE: as shown
SOURCE: USGS Topographic Orthophoto Map, NC Glade Valley 1968		PROJECT NO: 123173



Legend

- Property line.
- Existing Right of Way Line.
- Proposed Right of Way Line.
- DUE — Proposed Permanent Drainage /Utility Easement.
- PUE — Proposed Permanent Utility Easement.
- E — Proposed Temporary Construction Easement.
- C — Proposed Slope Stakes Cut.
- F — Proposed Slope Stakes Fill.

GRAPHIC SCALE

80 0 80 160

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PROJECT NO.	123173
DRAWN:	APR 2012
DRAWN BY:	AB
CHECKED BY:	TO
FILE NAME:	Parcel 182-197_042012.dwg

SITE LOCATION MAP

Parcel # 193
Granville Paul & Sue D. Wagoner Property

NCDOT WBS ELEMENT 37044.1.1
STATE PROJECT R-3101
2694 US Hwy 21 South
GLADE VALLEY, NORTH CAROLINA

FIGURE
2

ATTACHED IMAGES:
ATTACHED XREFS: XRef: R3101_ddc_DRN_110701: XRef: r3101_ddc_ss_shifted_l-090624: XRef: r3101_ddc_dsn_090611: XRef: r3101_ls_pml_081022: XRef: r3101_ls_prl_060321: XRef: r3101_ls_sue_06032
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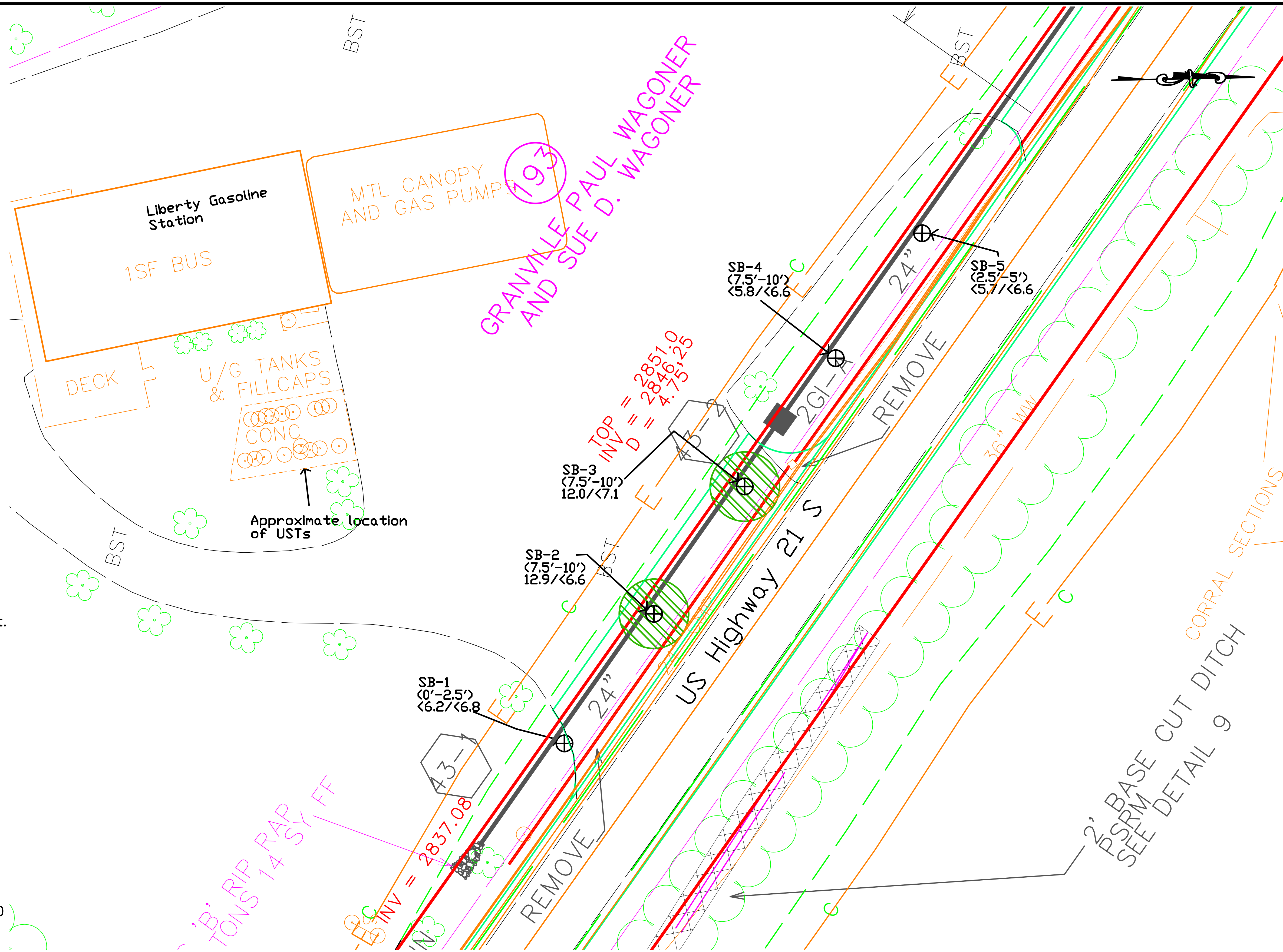

Legend

(magenta line)	Property line.
(dashed magenta line)	Existing Right of Way Line.
(red line with triangle)	Proposed Right of Way Line.
—DUE—	Proposed Permanent Drainage /Utility Easement.
—PUE—	Proposed Permanent Utility Easement.
—E—	Proposed Temporary Construction Easement.
— — C — —	Proposed Slope Stakes Cut.
— — F — —	Proposed Slope Stakes Fill.
⊕	Approximate location of soil borings.
(hatched box)	Approximate location of soil contamination.
(2.5'-5')	Sample depth location.
<5.7/<6.6	Concentration of TPH-DRO/TPH-GRO mg/kg.

GRAPHIC SCALE

30 0 30 60

ATTACHED IMAGES:
ATTACHED XREFS: XRef: R3101_ddc_DRN_110701: XRef: r3101_ddc_ss_shifted_l-090624: XRef: r3101_ddc_dsn_090611: XRef: r3101_ls_pml_081022: XRef: r3101_ls_prl_060321: XRef: r3101_ls_sue_06032
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PROJECT NO.	123173
DRAWN:	APR 2012
DRAWN BY:	AB
CHECKED BY:	TO
FILE NAME:	Parcel 182-197_042012.dwg

BORING LOCATION and CONTAMINATION MAP
Parcel # 193
Granville Paul & Sue D. Wagoner Property

NCDOT WBS ELEMENT 37044.1.1
STATE PROJECT R-3101
2694 US Hwy 21 South
GLADE VALLEY, NORTH CAROLINA

FIGURE
3

APPENDIX A

SITE PHOTOGRAPHS
KLEINFELDER PROJECT NO. 123173
PARCEL NO. 193

Photograph 1 View of the Liberty gasoline station looking southeast.

Photograph 2 View of the proposed right-of-way from northwest looking southeast.

APPENDIX B

Pyramid Project # 2011267

GEOPHYSICAL INVESTIGATION REPORT

EM61 SURVEY
GRANVILLE & SUE WAGONER PROPERTY (PARCEL 193)
2694 US Highway 21 South
Glade Valley, North Carolina
State Project R-3101 WBS Element 37044.1.1
December 13, 2011

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

Prepared by: Mark J. Denil
Mark J. Denil, P.G.

Reviewed by: Douglas A Canavello
Douglas Canavello, P.G.

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
P.O. Box 16265
GREENSBORO, NC 27416-0265
(336) 335-3174

NC Department of Transportation
GEOPHYSICAL INVESTIGATION REPORT
GRANVILLE & SUE WAGONER PROPERTY (PARCEL 193)
2694 US Highway 21 South
Glade Valley, North Carolina
State Project R-2612B WBS Element 34483.1.1

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3.0 DISCUSSION OF RESULTS 2

4.0 SUMMARY & CONCLUSIONS 3

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Figure 2 Division of Geophysical Survey Area
Figure 3 EM61 Metal Detection Results – Bottom Coil Results
Figure 4 EM61 Metal Detection Results – Differential Results

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 Granville and Sue Wagoner property (Parcel 193) located at 2694 US Highway 21 South near Glade Valley, North Carolina. Conducted on November 10, 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 area of the property

The Granville and Sue Wagoner property consists of an active gas station and convenience store facility. The proposed ROW area includes the portion of property that lies immediately along the westerly side of US Highway 21 and consists primarily of open grass or asphalt-covered terrain. The geophysical survey area has a maximum length and width of 800 feet and 35 feet, respectively. Areas containing equipment or vehicles were omitted from the survey area.

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 Wagoner property are shown in **Figure 1.** An aerial photograph in **Figure 2** shows how the geophysical survey area is divided into a northwestern section and a southeastern section due to the total length of the survey area.

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.

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 **Figures 3 and 4**, respectively. 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 linear EM61 anomaly intersecting grid coordinates X=600 Y=55 is probably in response to a culvert or conduit that run across the easterly entrance portion of the property. The EM61 anomalies centered near grid coordinates X=42 Y=35 and X=86 Y=56 are probably in response to known surface objects such as utility line boxes, road sign, metal pole and storm sewer cover. The EM61 anomalies centered near grid coordinates X=152 Y=42, X=165 Y=40, X=207 Y=42, and X=253 Y=28 are probably in response to the miscellaneous equipment that was present during data

acquisition. Similarly, the EM61 anomaly centered near grid coordinates X=317 Y=30 is probably in response to the rear portion of a bus.

The remaining EM61 metal detection anomalies shown in Figures 3 and 4 are probably in response to known surface objects, structures or miscellaneous debris. Due to the absence of unexplained EM61 differential anomalies, ground penetrating radar scans were not conducted at the Granville and Sue Wagoner property. The EM61 metal detection results suggest that the proposed ROW area (geophysical survey area) at this site does not contain buried, metallic USTs.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 data collected across the proposed ROW area at the Granville and Sue Wagoner property (Parcel 193) located at 2694 US Highway 21 South near Glade Valley, North Carolina, provides the following summary and conclusions:

- The EM61 survey provided reliable results for the detection of metallic USTs within the accessible portions of the proposed ROW area of the site.

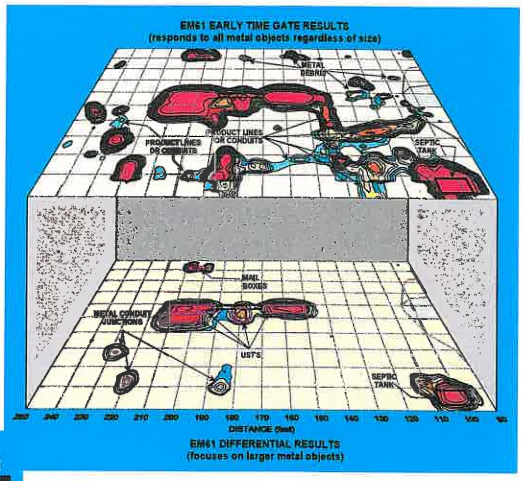
- The linear EM61 anomaly intersecting grid coordinates X=600 Y=55 is probably in response to a culvert or conduit.

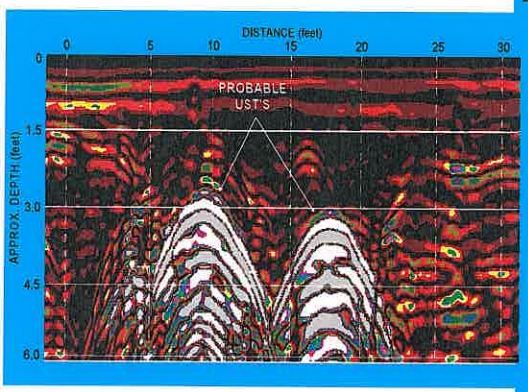
- The EM61 anomalies centered near grid coordinates X=152 Y=42, X=165 Y=40, X=207 Y=42, X=253 Y=28, and X=317 Y=30 are probably in response to the miscellaneous equipment that was present during data acquisition.

- The EM61 metal detection results suggest that the proposed ROW area (geophysical survey area) at this site does not contain buried, metallic USTs.

5.0 LIMITATIONS

EM61 surveys have been performed and this report prepared for the NCDOT in accordance with generally accepted guidelines for EM61 surveys. It is generally recognized that the results of the EM61 survey are non-unique and may not represent actual subsurface conditions. The EM61 results obtained for this project have not conclusively determined that the surveyed portion of the site does not contain buried metallic USTs but that none were detected.

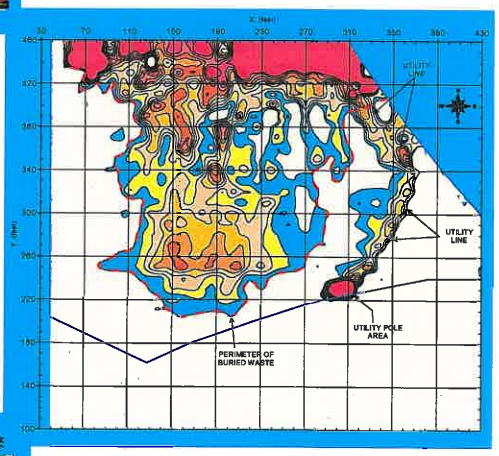


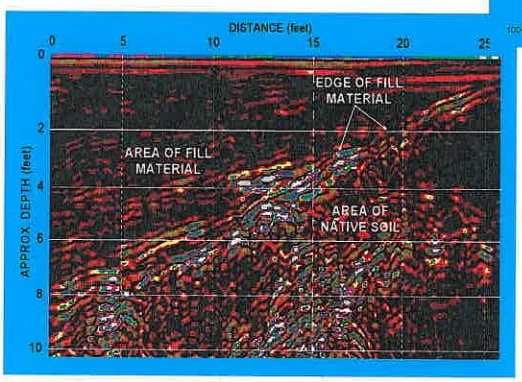


FIGURES

(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 193 on November 10, 2011. Due to an absence of unexplained EM61 differential anomalies, ground penetrating radar scans were not performed at this site.

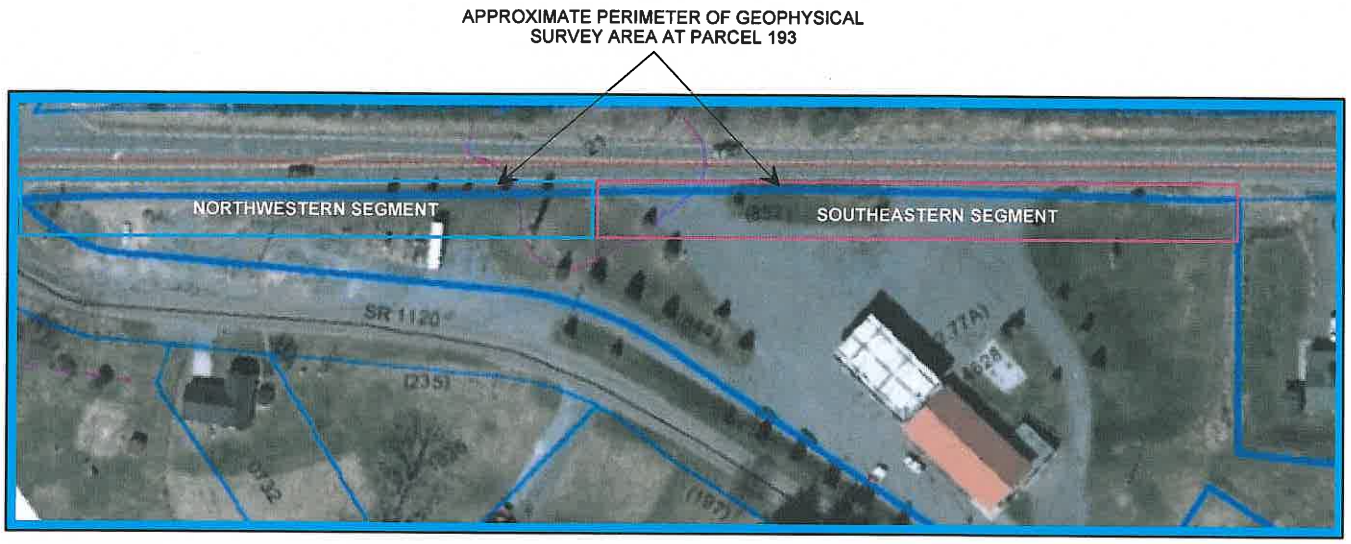
The photographs show the northwest section (top) and southeast section of the Granville and Sue Wagoner property (Parcel 193) located at 2694 US Highway 21 South, near Glade Valley, North Carolina. The geophysical investigation was performed across the front portion of the property. The photographs are viewed in a southeasterly direction.

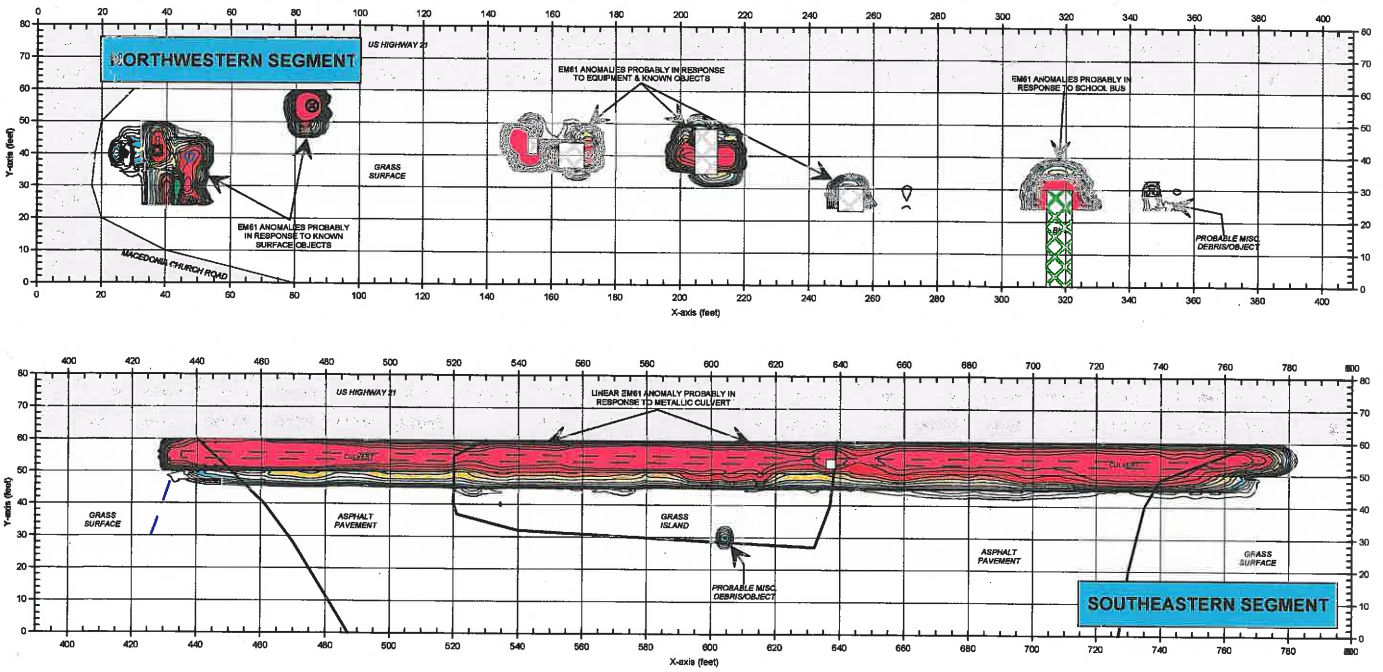
PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	NORTH CAROLINA DEPARMENT OF TRANSPORTATION	DATE	12/13/11	DRWN	MJD
SITE	GRANVILLE & SUE WAGONER PROPERTY (PARCEL 193)	LAY		CHKD	
CITY	GLADE VALLEY	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JOB	2011-267	REVNO	

GEOPHYSICAL EQUIPMENT & SITE PHOTOGRAPHS

FIGURE 1





Due to the length of the geophysical survey area at Parcel 193, the survey area has been divided into a northwestern section and a southeastern section in Figures 3 and 4. The rectangles in the aerial photograph represent the division of the survey area. The contour plots (lower) show how the geophysical results are presented in Figures 3 and 4.

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

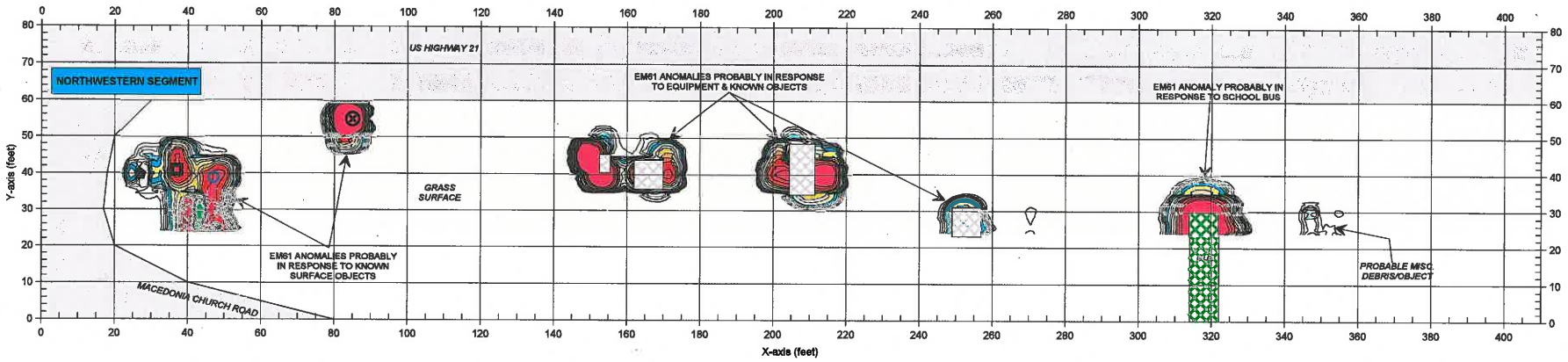
CLIENT	NORTH CAROLINA DEPARMENT OF TRANSPORTATION	DATE	12/13/11	DRWN	MJD
SITE	GRANVILLE & SUE WAGONER PROPERTY (PARCEL 193)	LAY		CHKD	
CITY	GLADE VALLEY	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JOB#	2011-267	FIGURE	

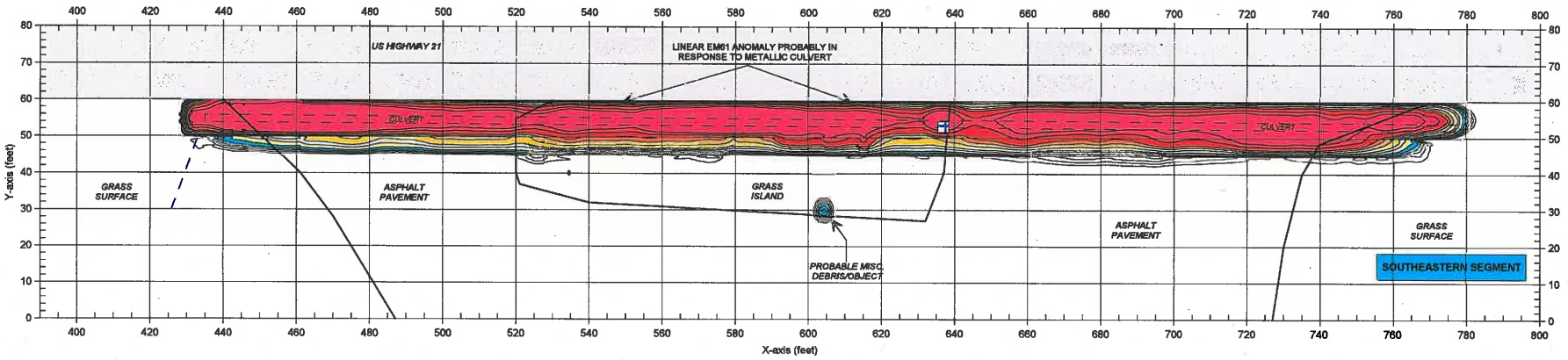
DIVISION OF GEOPHYSICAL SURVEY AREA

FIGURE 2

EM61 METAL DETECTION (BOTTOM COIL RESULTS)

FIGURE 3





LEGEND

- SURVEY AREA: EM61 OR GPR DATA ACQUIRED ALONG Y-AXIS TRENDING LINES SPACED 5 FEET APART
- EQUIPMENT
- VEHICLE
- METAL SIGN POLE
- ROAD SIGN
- UTILITY LINE CABLE BOX
- UTILITY POLE
- BURIED UTILITY LINE MARKER
- METAL STORM SEWER GRATE
- STORM SEWER COVER
- EXPOSED NONMETALLIC CONDUIT
- CULVERT

APPROXIMATE NORTH

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on November 10, 2011 using a Geonics EM61 instrument. Due to an absence of unexplained EM61 differential anomalies, ground penetrating radar (GPR) surveys were not conducted at Parcel 193.

The geophysical investigation suggests that the surveyed portion of the property does not contain metallic USTs.

CLIENT	NORTH CAROLINA DEPARMENT OF TRANSPORTATION
SITE	GRANVILLE & SUE WAGONER PROPERTY (PARCEL 193)
CITY	GLADE VALLEY
STATE	NORTH CAROLINA
TITLE	GEOPHYSICAL RESULTS
DRAWN	MJD
DATE	12/13/11
PROJECT	2011-267

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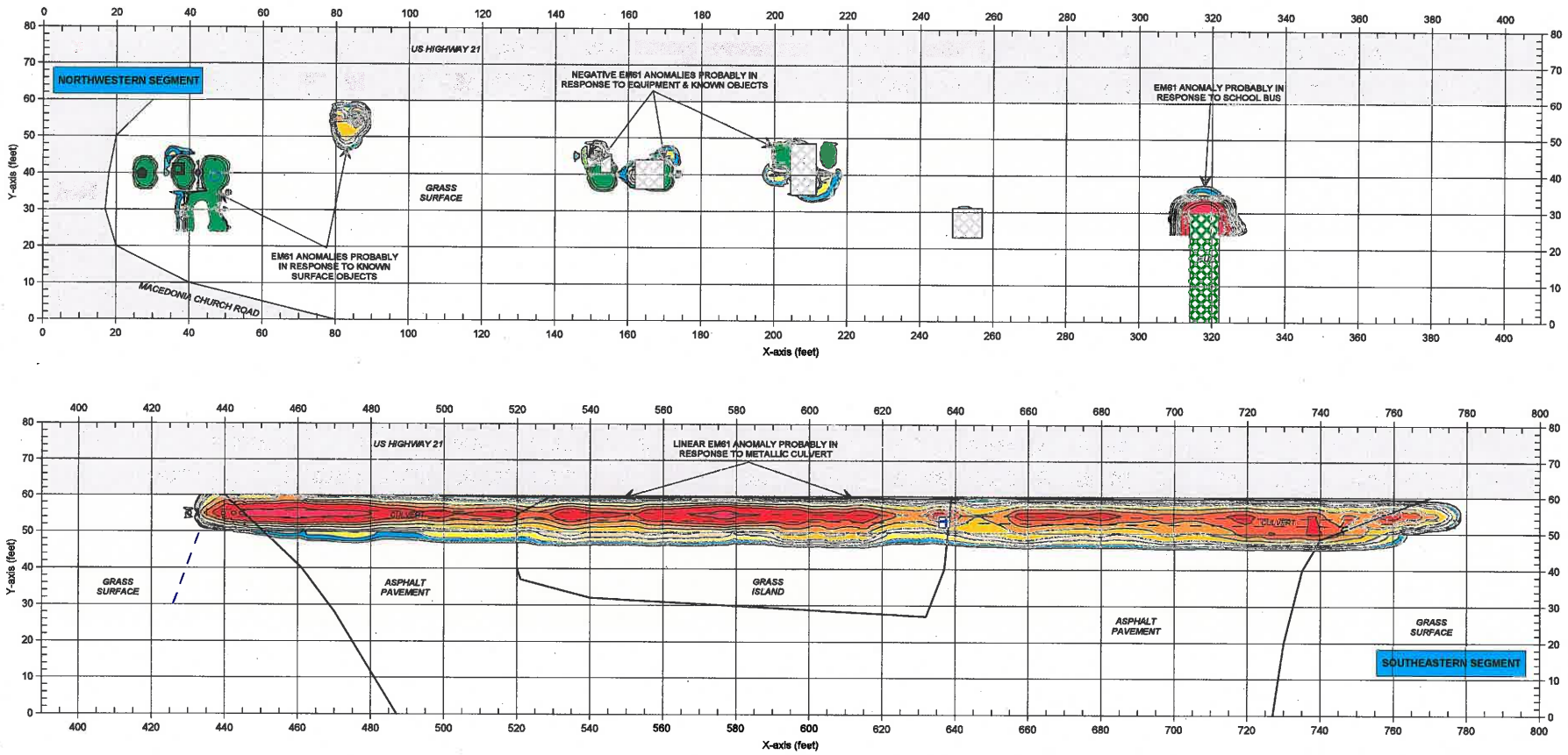
ENVIRONMENTAL & ENGINEERING, P.C.



LEGEND

- SURVEY AREA: EM61 OR GPR DATA ACQUIRED ALONG Y-AXIS TRENDING LINES SPACED 5 FEET APART
- EQUIPMENT
- VEHICLE
- METAL SIGN POLE
- ROAD SIGN
- UTILITY LINE CABLE BOX
- UTILITY POLE
- BURIED UTILITY LINE MARKER
- METAL STORM SEWER GRATE
- STORM SEWER COVER
- EXPOSED NONMETALLIC CONDUIT
- CULVERT

APPROXIMATE NORTH

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller misc. buried, metal debris. The EM metal detection data were collected on November 10, 2011 using a Geonics EM61 instrument. Due to an absence of unexplained EM61 differential anomalies, ground penetrating radar (GPR) surveys were not conducted at Parcel 193.

The geophysical investigation suggests that the surveyed portion of the property does not contain metallic USTs.

EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

FIGURE 4

CLIENT	NORTH CAROLINA DEPARMENT OF TRANSPORTATION
SITE	GRANVILLE & SUE WAGONER PROPERTY (PARCEL 193)
CITY	GLADE VALLEY
STATE	NORTH CAROLINA
TITLE	GEOPHYSICAL RESULTS
DRAWN	MJD
CHKD	
DATE	12/13/11
LAY	
DWG	
PROJECT	2011-267

DRAWING SCALE IN FEET

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

APPENDIX C

LOG OF BORING SB-1/193

SHEET 1 OF 1

Client NCDOT
Project Name Sparta PSAs
Number 123173 Task 1
Location Parcel 193

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

Elevation --
Total Depth 10.0

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
0	SS		7.1			TOPSOIL - 2 inches	
						Extremely Weathered Rock, Friable, Completely Decomposed Sand Silt, Mica and Coarse Sand, Yellow-Tan, Black Splotches	
5			0.1				5
			0.7				
			0.0				
10						Boring Terminated at 10 feet in RESIDUAL	10
15							15
20							20
25							25
30							30

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.

LOG A EWNN05 SPARTA.GPJ LOG A EWNN05.GDT 1/12/12

LOG OF BORING SB-2/193

SHEET 1 OF 1

Client NCDOT
Project Name Sparta PSAs
Number 123173 Task 1
Location Parcel 193

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

Elevation --
Total Depth 10.0

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
0			0.0			ASPHALT - 2 inches	
						GRAVEL, Gray with Sand, Fine Angular Gravel, Fine to Coarse Sandy, Dry	
			0.0			Completely Weathered Rock, Decomposed, Friable, Fine to Coarse Sand Silt, Mica, Yellow-Tan, Black Splotches	
5			0.0				5
	SS		0.0				
10						Boring Terminated at 10 feet in RESIDUAL	10
15							15
20							20
25							25
30							30

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.

LOG A EWNN05 SPARTA.GPJ LOG A EWNN05.GDT 1/12/12

LOG OF BORING SB-3/193

SHEET 1 OF 1

Client NCDOT
Project Name Sparta PSAs
Number 123173 Task 1
Location Parcel 193

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

Elevation --
Total Depth 10.0

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
0			0.0	GP		ASPHALT - 2 inches	0
						Poorly Graded GRAVEL, Orange, Fine Gravel with Sand, Angular	
			0.0			Completely Weathered Rock, Orange-Tan to Yellow-Black-Brown-Tan, Friable, Striations	
5			0.0				5
	SS		0.0				
10						Boring Terminated at 10 feet in RESIDUAL	10
15							15
20							20
25							25
30							30

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.

LOG A EWNN05 SPARTA.GPJ LOG A EWNN05.GDT 1/12/12

LOG OF BORING SB-4/193

SHEET 1 OF 1

Client NCDOT
Project Name Sparta PSAs
Number 123173 Task 1
Location Parcel 193

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

Elevation --
Total Depth 10.0

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
0			0.0	SP		TOPSOIL - 2 inches	0
				SM		SAND with Silt, Orange, Fine to Coarse Sand, Slightly Moist, Non Plastic	
			0.0			Partially Weathered Rock, Orange-Red to Yellow-Brown-Black, Sand Silt, Mica, Striations, Friable, Completely Weathered,	
5			0.0				5
	SS		0.0				
10						Boring Terminated at 10 feet in RESIDUAL	10
15							15
20							20
25							25
30							30

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.

LOG A EWNN05 SPARTA.GPJ LOG A EWNN05.GDT 1/12/12

LOG OF BORING SB-5/193

SHEET 1 OF 1

Client NCDOT
Project Name Sparta PSAs
Number 123173 Task 1
Location Parcel 193

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

Elevation –
Total Depth 10.0

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
0			0.0	SM		TOPSOIL - 2 inches	0
				GP		Silty SAND, Red-Orange, Fine to Medium Sand, Non Plastic, Moist, Trace Gravel	
						Layer of Poorly Graded GRAVEL, Orange, Subangular, Fine with Sand, Slightly Moist, Non Plastic	
	SS		1.9			Partially Weathered Rock, Friable, Completely Weathered Sand, Fine to Coarse, Silt and Mica, Striations	
5			0.0				5
			0.0				
10						Boring Terminated at 10 feet in RESIDUAL	10
15							15
20							20
25							25
30							30

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

Remarks Sample collected from 2.5-5.0 ft. submitted for laboratory analysis

See key sheet for symbols and abbreviations used above.

LOG A EWNN05 SPARTA.GPJ LOG A EWNN05.GDT 1/12/12

APPENDIX D

Pace Analytical®
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(336)623-8921

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Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

December 29, 2011

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

RE: Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

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.

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CERTIFICATIONS

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

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

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Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92109101001	**SB-1 (193)**	Solid	12/21/11 11:20	12/22/11 16:35
92109101002	**SB-2 (193)**	Solid	12/21/11 11:25	12/22/11 16:35
92109101003	**SB-3 (193)**	Solid	12/21/11 11:30	12/22/11 16:35
92109101004	**SB-4 (193)**	Solid	12/21/11 11:35	12/22/11 16:35
92109101005	**SB-5 (193)**	Solid	12/21/11 11:40	12/22/11 16:35

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SAMPLE ANALYTE COUNT

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92109101001	SB-1 (193)	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92109101002	SB-2 (193)	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92109101003	SB-3 (193)	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92109101004	SB-4 (193)	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92109101005	SB-5 (193)	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	AW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C

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ANALYTICAL RESULTS

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

Sample: SB-1 (193) **Lab ID: 92109101001** Collected: 12/21/11 11:20 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
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	ND	mg/kg	6.2	5.6	1	12/27/11 10:09	12/28/11 17:58	68334-30-5	
Surrogates									
n-Pentacosane (S)	76	%	41-119		1	12/27/11 10:09	12/28/11 17:58	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	6.8	6.8	1	12/28/11 10:29	12/28/11 15:37	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-167		1	12/28/11 10:29	12/28/11 15:37	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**18.9**	%	0.10	0.10	1		12/23/11 14:43		

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ANALYTICAL RESULTS

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

Sample: SB-2 (193) **Lab ID: 92109101002** Collected: 12/21/11 11:25 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
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	**12.9**	mg/kg	5.8	5.2	1	12/27/11 10:09	12/28/11 18:28	68334-30-5	
Surrogates									
n-Pentacosane (S)	70	%	41-119		1	12/27/11 10:09	12/28/11 18:28	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	6.6	6.6	1	12/28/11 10:29	12/28/11 16:01	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	86	%	70-167		1	12/28/11 10:29	12/28/11 16:01	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**14.1**	%	0.10	0.10	1		12/23/11 14:36		

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ANALYTICAL RESULTS

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

Sample: SB-3 (193) **Lab ID: 92109101003** Collected: 12/21/11 11:30 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
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	**12.0**	mg/kg	6.4	5.8	1	12/27/11 10:09	12/28/11 18:28	68334-30-5	
Surrogates									
n-Pentacosane (S)	82	%	41-119		1	12/27/11 10:09	12/28/11 18:28	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	7.1	7.1	1	12/28/11 10:29	12/28/11 16:25	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-167		1	12/28/11 10:29	12/28/11 16:25	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**22.4**	%	0.10	0.10	1		12/23/11 14:32		

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ANALYTICAL RESULTS

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

Sample: SB-4 (193) **Lab ID: 92109101004** Collected: 12/21/11 11:35 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
8015 GCS THC-Diesel	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 19:29	68334-30-5	
Surrogates									
n-Pentacosane (S)	73	%	41-119		1	12/27/11 10:09	12/28/11 19:29	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	6.6	6.6	1	12/28/11 10:29	12/28/11 16:50	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	89	%	70-167		1	12/28/11 10:29	12/28/11 16:50	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**15.0**	%	0.10	0.10	1		12/23/11 14:32		

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ANALYTICAL RESULTS

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

Sample: SB-5 (193) **Lab ID: 92109101005** Collected: 12/21/11 11:40 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
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	ND	mg/kg	5.7	5.1	1	12/27/11 10:09	12/28/11 19:29	68334-30-5	
Surrogates									
n-Pentacosane (S)	73	%	41-119		1	12/27/11 10:09	12/28/11 19:29	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	6.6	6.6	1	12/28/11 10:29	12/28/11 17:14	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-167		1	12/28/11 10:29	12/28/11 17:14	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**13.7**	%	0.10	0.10	1		12/23/11 14:33		

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QUALITY CONTROL DATA

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

QC Batch: GCV/5643 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 5035A/5030B Analysis Description: Gasoline Range Organics
Associated Lab Samples: 92109101001, 92109101002, 92109101003, 92109101004, 92109101005

METHOD BLANK: 704788 Matrix: Solid
Associated Lab Samples: 92109101001, 92109101002, 92109101003, 92109101004, 92109101005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.9	12/28/11 12:43	
4-Bromofluorobenzene (S)	%	104	70-167	12/28/11 12:43	

LABORATORY CONTROL SAMPLE: 704789

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	24.4	25.8	106	70-165	
4-Bromofluorobenzene (S)	%			94	70-167	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 704790 704791

Parameter	Units	92109103001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	mg/kg	ND	26.2	26.2	29.6	34.1	111	128	47-187	14	30	
4-Bromofluorobenzene (S)	%						97	109	70-167			

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Asheville, NC 28804
(828)254-7176

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

QUALITY CONTROL DATA

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

QC Batch: OEXT/16011 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 3546 Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92109101001, 92109101002, 92109101003, 92109101004, 92109101005

METHOD BLANK: 704485 Matrix: Solid
Associated Lab Samples: 92109101001, 92109101002, 92109101003, 92109101004, 92109101005

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	RPD	Max 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			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

QC Batch: PMST/4410
QC Batch Method: ASTM D2974-87
Associated Lab Samples: 92109101001

Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture

SAMPLE DUPLICATE: 703865

Parameter	Units	92109089001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	7.2	8.5	16	25	

SAMPLE DUPLICATE: 703866

Parameter	Units	92109101001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	18.9	18.7	1	25	

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QUALITY CONTROL DATA

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

QC Batch: PMST/4411
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92109101002, 92109101003, 92109101004, 92109101005

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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QUALIFIERS

Project: Parcel 193 WSB 37044.1.1
Pace Project No.: 92109101

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 193 WSB 37044.1.1
Pace Project No.: 92109101

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92109101001	**SB-1 (193)**	EPA 3546	OEXT/16011	EPA 8015 Modified	GCSV/11124
92109101002	**SB-2 (193)**	EPA 3546	OEXT/16011	EPA 8015 Modified	GCSV/11124
92109101003	**SB-3 (193)**	EPA 3546	OEXT/16011	EPA 8015 Modified	GCSV/11124
92109101004	**SB-4 (193)**	EPA 3546	OEXT/16011	EPA 8015 Modified	GCSV/11124
92109101005	**SB-5 (193)**	EPA 3546	OEXT/16011	EPA 8015 Modified	GCSV/11124
92109101001	**SB-1 (193)**	EPA 5035A/5030B	GCV/5643	EPA 8015 Modified	GCV/5644
92109101002	**SB-2 (193)**	EPA 5035A/5030B	GCV/5643	EPA 8015 Modified	GCV/5644
92109101003	**SB-3 (193)**	EPA 5035A/5030B	GCV/5643	EPA 8015 Modified	GCV/5644
92109101004	**SB-4 (193)**	EPA 5035A/5030B	GCV/5643	EPA 8015 Modified	GCV/5644
92109101005	**SB-5 (193)**	EPA 5035A/5030B	GCV/5643	EPA 8015 Modified	GCV/5644
92109101001	**SB-1 (193)**	ASTM D2974-87	PMST/4410		
92109101002	**SB-2 (193)**	ASTM D2974-87	PMST/4411		
92109101003	**SB-3 (193)**	ASTM D2974-87	PMST/4411		
92109101004	**SB-4 (193)**	ASTM D2974-87	PMST/4411		
92109101005	**SB-5 (193)**	ASTM D2974-87	PMST/4411		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1433595

Section A Required Client Information:

Company: Kleinfelder
Address: Charlotte, NC
Email To: tquinn@Kleinfelder.com
Phone: Fax:
Requested Due Date/TAT: STD

Section B Required Project Information:

Report To: Travis O'Quinn
Copy To: Craig Neil
Purchase Order No.:
Project Name: NCDOT Parcel 193
Project Number: 123178

Section C Invoice Information:

Attention:
Company Name: NCDOT
Address:
Pace Quote Reference: WSB 37044.1.1
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: GRO	DRO	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	SB-1 (193)					12/21/11	1120												X	X		001
2	SB-2 (193)						1125												X	X		002
3	SB-3 (193)						1130												X	X		003
4	SB-4 (193)						1135												X	X		004
5	SB-5 (193)						1140												X	X		005
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Kleinfelder	12/22/11	15:40	Pace	12-22-11	15:40				
		12-22-11	16:35		12/22/11	1635	1.9	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Travis O'Quinn

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 12/21/11

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: July 29, 2011 Page 1 of 2
	Document Number: F-CHR-CS-03-rev.05	Issuing Authority: Pace Huntersville Quality Office

Client Name: Kleinfelder Project # 92109101

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

Optional
Proj. Due Date:
Proj. Name:

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.: 1.9 C **Biological Tissue is Frozen:** Yes No (N/A)

Temp should be above freezing to 6°C

Comments:

Date and initials of person examining contents: 10-11-22/11

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: 1.9		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	Initial when completed
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑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: 12/22/11 **SRF Review:** KBH 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)