

PRELIMINARY SITE ASSESSMENT

**PARCEL #43, SHORT STOP NO. 5
3601 LEGION ROAD, HOPE MILLS, NORTH CAROLINA**

**FAYETTEVILLE – SR 1132 (LEGION ROAD) FROM SR 1363 (ELK ROAD)
TO SR 1007 (OWEN ROAD)
CUMBERLAND COUNTY, NORTH CAROLINA**

**NCDOT WBS ELEMENT 34865.2.3
STATE PROJECT U-2809B**

December 20, 2010

Prepared for:

**Ethan J. Caldwell, 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:

**Kleinfelder Southeast, Inc.
313 Gallimore Dairy Road
Greensboro, North Carolina 27409**

Kleinfelder Project No. 113754

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December 20, 2010
File No. 113754 | GSO10R249

Ethan J. Caldwell, 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. 34865.2.3, State Project U-2809B
Parcel 43, Short Stop No. 5
3601 Legion Road, Hope Mills
Cumberland County, North Carolina

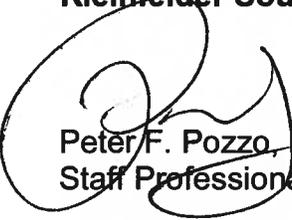
Dear Mr. Caldwell:

Please find enclosed a report summarizing the sampling activities for the preliminary site assessment conducted at the referenced site. Laboratory analysis of soil samples collected at the site did not detect petroleum hydrocarbon concentrations above the method detection limits of the laboratory methods. 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.



Peter F. Pozzo, L.G.
Staff Professional II



John M. Stewart, L.G.
Senior Professional

PFP/JMS:cas
Enclosure

PRELIMINARY SITE ASSESSMENT

Site Name and Location: Parcel #43, Short Stop No. 5
3601 Legion Road
Hope Mills, Cumberland County, North
Carolina

Latitude and Longitude: 35° 59' 35" N, 78° 55' 20" W

Facility ID Number: 0-003715

Property Owner: Vance B. Neal
109 Parkview
Fayetteville, North Carolina 28305

UST Owner LIL Thrift Food Marts Inc.
1007 Arsenal Avenue
Fayetteville, North Carolina 28406

NCDOT Project No.: NCDOT WBS Element 34865.2.3
State Project U-2809B

Date of Report: December 20, 2010

Consultant: Kleinfelder
313 Gallimore Dairy Road
Greensboro, North Carolina 27409
Attn: Mr. John M. Stewart
Phone: 336.668.0093 X115

Seal and Signature of Certifying Licensed Geologist

I, John M. Stewart, 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.

John M. Stewart, L.G.
NC License No. 1046

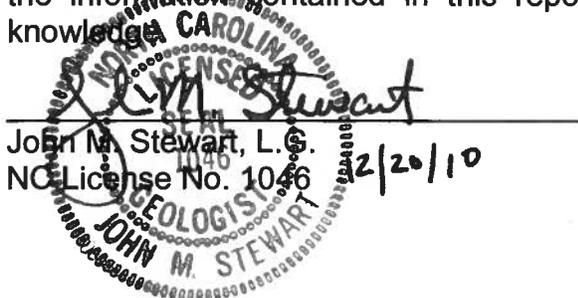


TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	SITE DESCRIPTION.....	1
1.2	SITE LOCATION.....	2
1.3	NCDENR FILE REVIEW.....	2
2.0	SITE ASSESSMENT	2
2.1	GEOPHYSICAL INVESTIGATION.....	2
2.2	SOIL SAMPLING	2
3.0	RESULTS	3
3.1	GEOPHYSICAL INVESTIGATION.....	3
3.2	SOIL SAMPLE	3
4.0	CONCLUSIONS.....	4
5.0	LIMITATIONS	4

TABLES

1	Soil Sample PID Results
2	Soil Sample Analytical Summary

FIGURES

1	Site Location Map
2	Site Map
3	Boring Location Map

APPENDICES

A	Site Photographs
B	Pyramid Environmental & Engineering, P.C. Geophysical Survey Report
C	Boring Logs
D	Laboratory Report

1.0 INTRODUCTION

Kleinfelder Southeast, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report documenting assessment activities performed at the Short Stop No. 5 property (Parcel 43) located at 3601 Legion Road in Hope Mills, Cumberland County, North Carolina (Figure 1). This assessment was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Kleinfelder's October 7, 2010 proposal.

NCDOT is proposing to widen SR 1132 (Legion Road) from SR 1363 (Elk Road) to SR 1007 (Owen Road). The proposed right-of-way/easement is located along the west side of the Short Stop property (Figure 2). 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 SR 1132 (Legion Road) from SR 1363 (Elk Road) to SR 1007 (Owen Road).

1.1 Site Description

The proposed right-of-way/easement is located along west side of the property owned by Vance B. Neal and at the time of our site reconnaissance, this parcel was occupied by a Short Stop gas station. The building on the property was reportedly used as a convenience store and gas station. A building was located at the rear (east side) of the property. A canopy with two gasoline dispensers was located at the front of the property. A tank field containing four USTs was located on the south side of the property approximately 45 feet from the proposed easement. Site photographs are shown in Appendix A.

1.2 Site Location

The facility is located in the southeast quadrant of the intersection of Legion Road and Philodendron Drive. Undeveloped wooded property is located north and east of the property. Legion Road and a propane distribution facility located west of the property and a small automobile repair business is located south of the property.

1.3 NCDENR File Review

Kleinfelder reviewed incident files at the North Carolina Department of Environment and Natural Resources (NDENR) Fayetteville Regional Office. The site is an active gasoline station which uses three USTs (two 10,000-gallon and one 8,000-gallon) to store gasoline and one UST (2,000-gallon) to store kerosene. No incidents were reported for the property.

2.0 SITE ASSESSMENT

2.1 Geophysical Investigation

Pyramid Environmental & Engineering, P.C (Pyramid) conducted a geophysical investigation of the proposed right-of-way/easement on the west side of the property on October 22, 2010. Pyramid utilized electromagnetic (EM) induction technology to identify potential geophysical anomalies and potential USTs at the site. A more detailed description of their scope of work is explained in their Geophysical Investigation Report included in Appendix C. Prior to drilling the soil borings, buried utilities were marked by NC One Call and Northstate Utility Locating, Inc. (Northstate).

2.2 Soil Sampling

To determine if contaminated soil may be encountered during the proposed construction activities, soil samples were collected along the west side of the property. A Kleinfelder geologist and direct push rig crew met at the property on November 17, 2010; Kleinfelder advanced five soil borings (SS-1 to SS-5) by direct push technology (DPT). The approximate location of the borings is shown on Figure 3.

Soil borings were advanced to a depth of eight feet below the ground surface (bgs). The borings were located along the proposed easement and drainage features. Soil samples were collected by driving a macrocore sampler in 4-foot intervals in each boring. Each 4-foot sample sleeve was divided in half and screened for volatile organic compounds in the field using a MiniRae 2000 photoionization detectors (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 SGS, a NCDOT contract laboratory for chemical analysis.

3.0 RESULTS

3.1 Geophysical Investigation

Pyramid's results indicate that the EM investigation did not detect unknown metallic USTs within the survey area. Pyramid's report is included in Appendix B.

3.2 Soil Sample

Diesel range organics (DRO) and gasoline range organics (GRO) were not detected at concentrations above the method detection limits in the soil samples. 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.

4.0 CONCLUSIONS

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

- ◆ Groundwater was not encountered in the soil borings; and
- ◆ TPH as DRO and GRO were not detected in the soil samples at concentrations above the method detection limits.

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
SS-1	0.0 - 2.0	4.7
	2.0 - 4.0	6.0
	4.0 - 6.0	6.3
	6.0 - 8.0	5.6
SS-2	0.0 - 2.0	5.9
	2.0 - 4.0	5.9
	4.0 - 6.0	9.0
	6.0 - 8.0	8.7
SS-3	0.0 - 2.0	2.2
	2.0 - 4.0	4.2
	4.0 - 6.0	1.2
	6.0 - 8.0	3.2
SS-4	0.0 - 2.0	2.1
	2.0 - 4.0	3.9
	4.0 - 6.0	4.3
	6.0 - 8.0	4.1
SS-5	0.0 - 2.0	2.7
	2.0 - 4.0	2.6
	4.0 - 6.0	2.9
	6.0 - 8.0	3.9

Notes:

Samples were collected on November 17, 2010.

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	COLLECTION DATE	DRO	GRO
SS-1 6.0 ft	11/17/2010	BQL	BQL
SS-2 6.0 ft	11/17/2010	BQL	BQL
SS-3 4.0 ft	11/17/2010	BQL	BQL
SS-4 6.0 ft	11/17/2010	BQL	BQL
SS-5 6.0 ft	11/17/2010	BQL	BQL
State Action Level		10	10

Notes:

Sample collection depth is indicated in Sample ID, following sequential soil sample number

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

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

BQL = Below quantitation limit

Bold denotes concentration exceeds the State Action Level

FIGURES

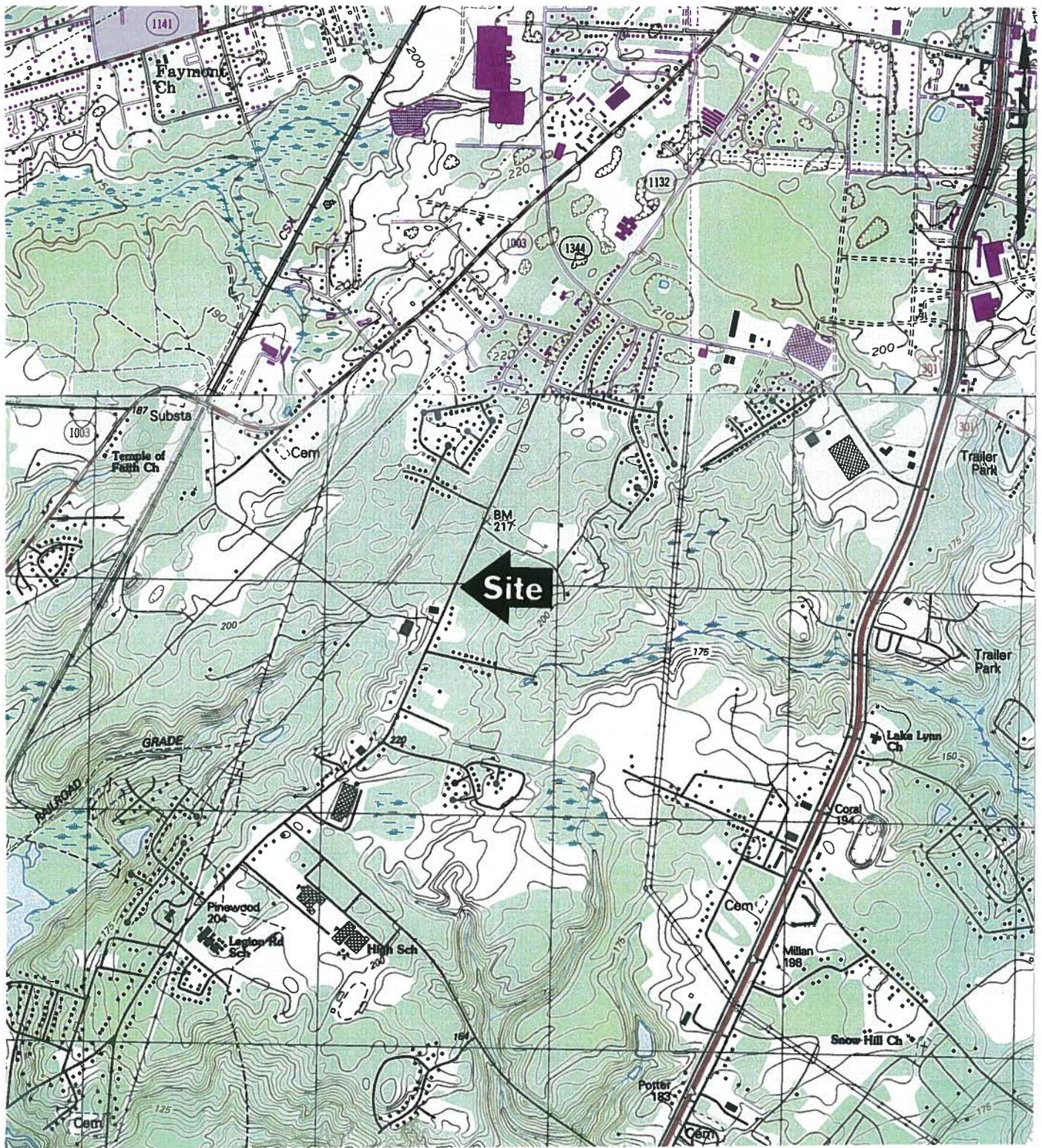


FIGURE 1
SITE LOCATION MAP
PARCEL # 43, SHORT STOP 5
3601 LEGION ROAD
CUMBERLAND COUNTY, NORTH CAROLINA

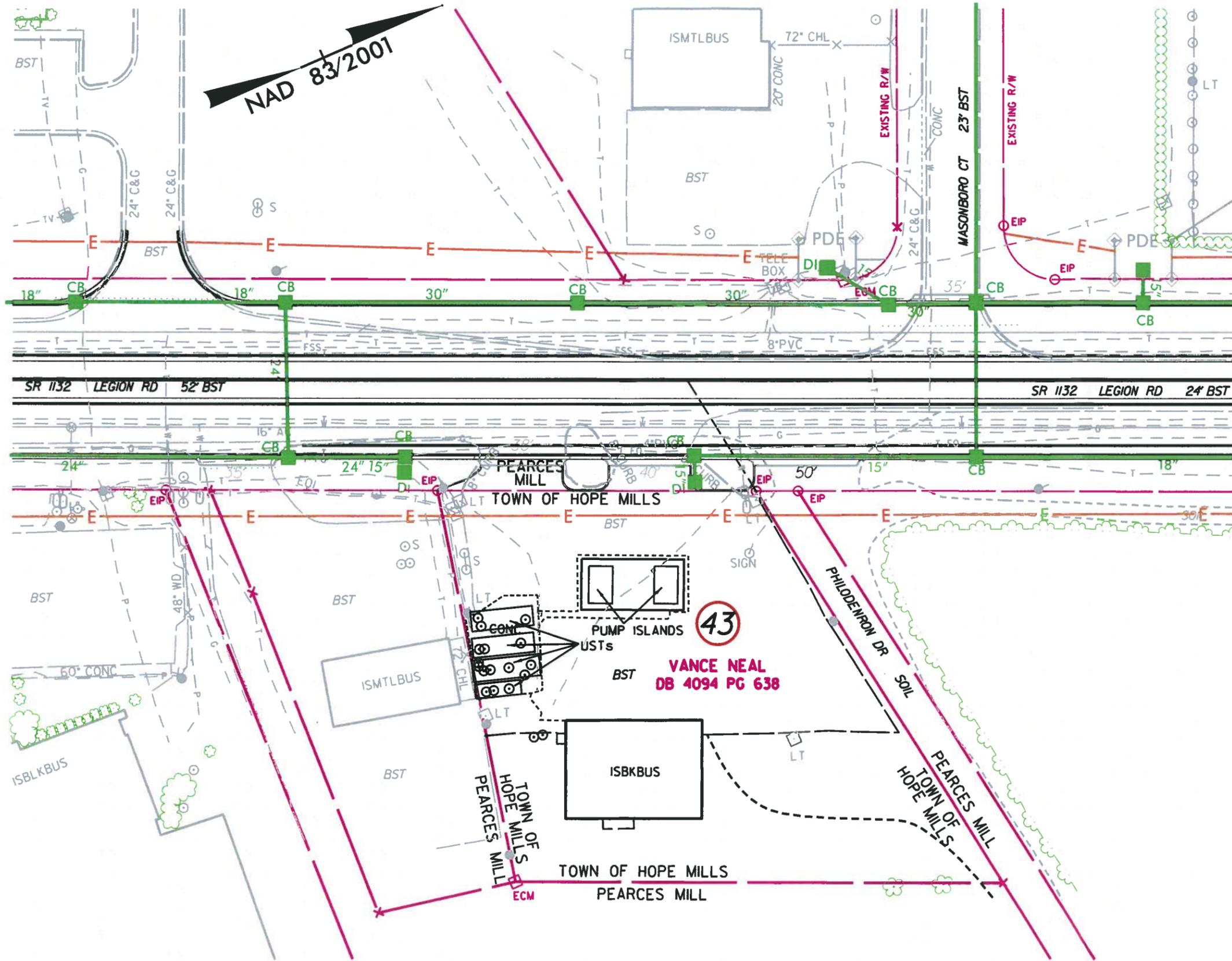


www.kleinfelder.com

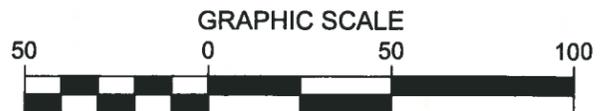
DATE: December 17, 2010
 SOURCE: USGS 7.5' Topographic Map,
 Fayetteville & Hope Mills Quadrangle

APPROVED
 BY *[Signature]*

SCALE: 1" to 24,000'
 PROJECT NO. 113754



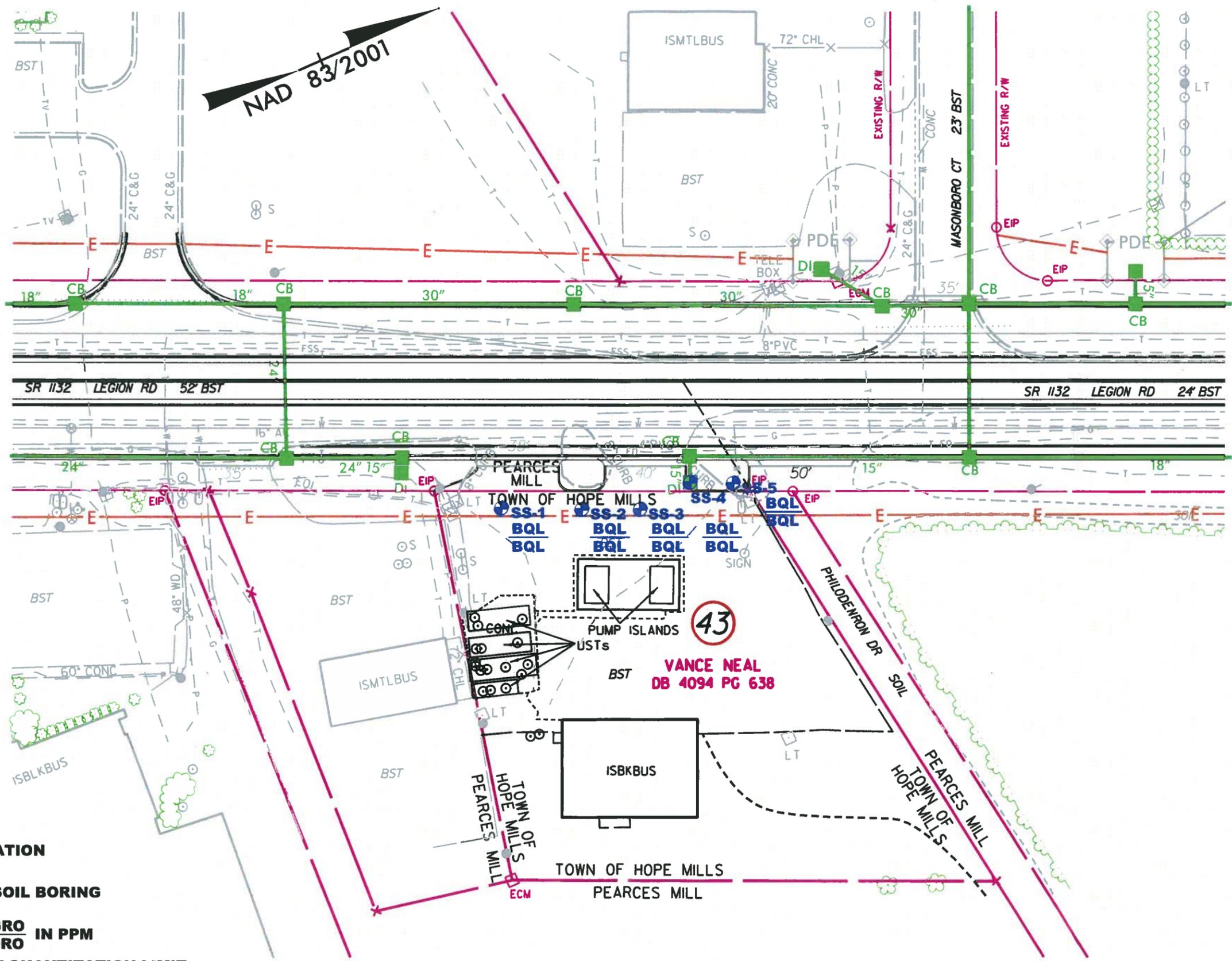
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PROJECT NO.	113754
DRAWN:	11/24/2010
DRAWN BY:	DJH
CHECKED BY:	JMS
SCALE:	1" = 50'

SITE MAP	
PARCEL #43	
VANCE NEAL	
3601 LEGION ROAD	
TIP NO.	U-2809B
WBS ELEMENT NO.	34865.2.3
CUMBERLAND COUNTY NORTH CAROLINA	

FIGURE:
2

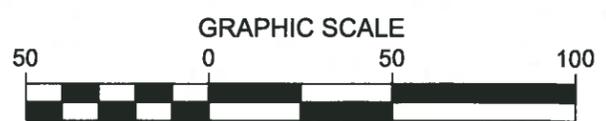


EXPLANATION

- SS-1 SOIL BORING
- BQL GRO IN PPM
- BQL DRO

**NOTE: BRL - BELOW QUANTITATION LIMIT
GRO - GASOLINE RANGE ORGANICS
DRO - DIESEL RANGE ORGANICS**

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 Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 113754	BORING LOCATION MAP		FIGURE: 3	
	DRAWN: 11/24/2010	PARCEL #43 VANCE NEAL 3601 LEGION ROAD			
	DRAWN BY: DJH	TIP NO. U-2809B	WBS ELEMENT NO. 34865.2.3		
	CHECKED BY: JMS	CUMBERLAND COUNTY NORTH CAROLINA			
SCALE: 1" = 50'					

APPENDIX A

**SITE PHOTOGRAPHS
KLEINFELDER PROJECT NO. 113754
PARCEL NO. 43 SHORT STOP 5 PROPERTY**



Photograph 1 – View looking east at the site of a future DOT drainage in the grass area.



Photograph 2 – View looking southeast at the area of where three soil samples.

**SITE PHOTOGRAPHS
KLEINFELDER PROJECT NO. 113754
PARCEL NO. 43 SHORT STOP 5 PROPERTY**



Photograph 3 – Pump island looking south.

APPENDIX B

GEOPHYSICAL INVESTIGATION REPORT

EM61 SURVEYS

VANCE NEAL PROPERTY

PARCEL 43

Fayetteville, North Carolina

November 5, 2010

**Report prepared for: John Stewart P.G.
Kleinfelder
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Greensboro, NC 27409**

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

Reviewed by: 
Douglas Canavello, P.G.

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P.O. Box 16265
GREENSBORO, NC 27416-0265
(336) 335-3174**

Kleinfelder
GEOPHYSICAL INVESTIGATION REPORT
VANCE NEAL PROPERTY
PARCEL 43
Fayetteville, North Carolina

<u>TABLE OF CONTENTS</u>	<u>PAGE</u>
1.0 INTRODUCTION	1
2.0 FIELD METHODOLOGY	1
3.0 DISCUSSION OF RESULTS	2
4.0 SUMMARY & CONCLUSIONS	3
5.0 LIMITATIONS	3

FIGURES

- | | |
|----------|--|
| Figure 1 | Geophysical Equipment & Site Photographs |
| Figure 2 | EM61 Metal Detection Results |

1.0 INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder across the western portion (proposed Right-of-Way area) of the Vance Neal property (Parcel 43) located along the southeasterly corner of Legion Road and Phildendron Drive in Fayetteville, North Carolina. Conducted on October 22, 2010 the geophysical investigation was performed as part of the North Carolina Department of Transportation (NCDOT) preliminary site assessment project to determine if unknown, metallic, underground storage tanks (USTs) were present beneath the area of interest at Parcel 43.

Kleinfelder representative Mr. John Stewart, P.G. provided site maps to Pyramid Environmental personnel during the week of September 30, 2010, that identified the geophysical survey area of the Vance Neal property. The geophysical survey area had a maximum length and width of 180 feet and 60 feet, respectively. Photographs of the geophysical equipment used in this investigation and a portion of the geophysical survey area at Parcel 43 are shown in **Figure 1**.

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 10-foot by 10-foot survey grid was established across the geophysical survey area (property) 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. The EM survey was performed on October 22, 2010 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 northerly-southerly (X-axis), 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.

Due to an absence of metal detection anomalies that may represent potential metallic USTs, ground penetrating radar (GPR) surveys were not conducted at this site. 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.

Preliminary geophysical results obtained from Parcel 43 were reported to Mr. Stewart on November 3, 2010.

3.0 DISCUSSION OF RESULTS

The linear EM61 anomalies intersecting grid coordinates X=22 Y=63, X=55 Y=174 and X=60 Y=20 are probably in response to buried utility lines or conduits. Similarly, the linear bottom coil anomalies intersecting grid coordinates X=10 Y=25, X=10 Y=45, X=10 Y=85, and X=30 Y=20 are probably in response to buried lines or conduits. The EM61 anomalies centered near grid coordinates X=55 Y=25 are probably in response to known surface objects such as the metal sign pole, telephone and utility line box

Due to the absence of EM61 differential anomalies that are not in response to known objects, ground penetrating radar surveys were not conducted at this site and the EM61 results suggest that the surveyed portion of Parcel 43 does not contain metallic USTs.

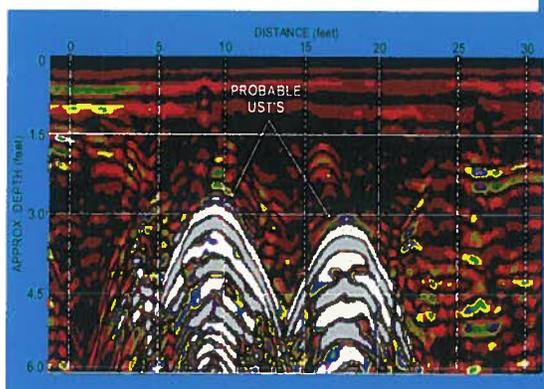
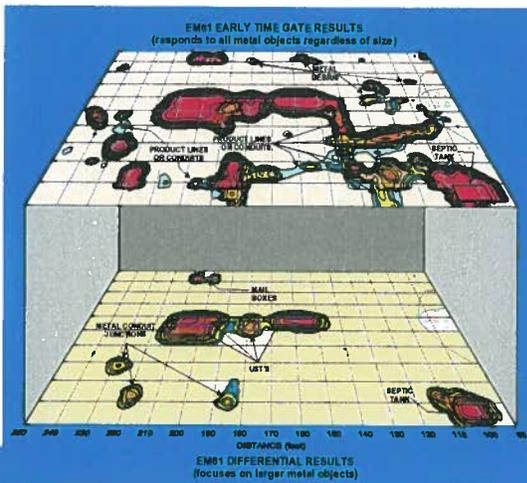
4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 data collected across the geophysical survey area at the Vance Neal property (Parcel 43) located in Fayetteville, North Carolina, provides the following summary and conclusions:

- The EM61 surveys provided reliable results for the detection of metallic USTs within the surveyed portion of the site.
- The linear EM61 anomalies intersecting grid coordinates X=22 Y=63, X=55 Y=174 and X=60 Y=20 are probably in response to buried utility lines or conduits.
- The EM61 anomalies centered near grid coordinates X=55 Y=25 are probably in response to known surface objects such as the metal sign pole, telephone and utility line box.
- The EM61 results suggest that the surveyed portion of Parcel 43 does not contain metallic USTs.

5.0 LIMITATIONS

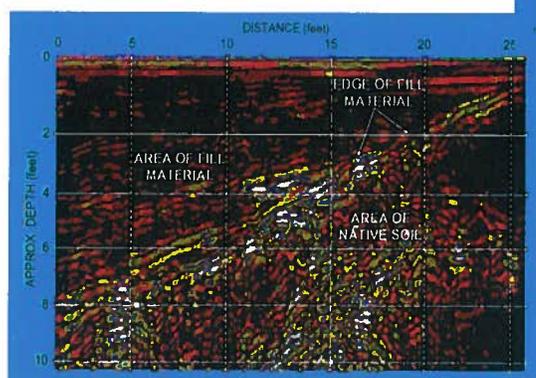
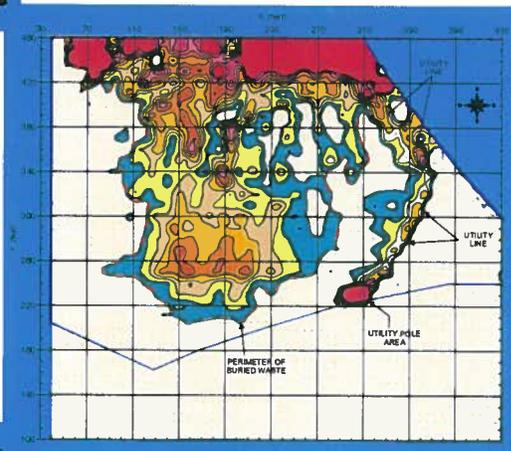
EM61 surveys have been performed and this report prepared for Kleinfelder in accordance with generally accepted guidelines for EM61 metal detection surveys. It is generally recognized that the results of the EM61 survey are non-unique and may not represent actual subsurface conditions. The EM61 results obtained for this project have not conclusively determined that the surveyed portion of the site does not contain unknown, 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.



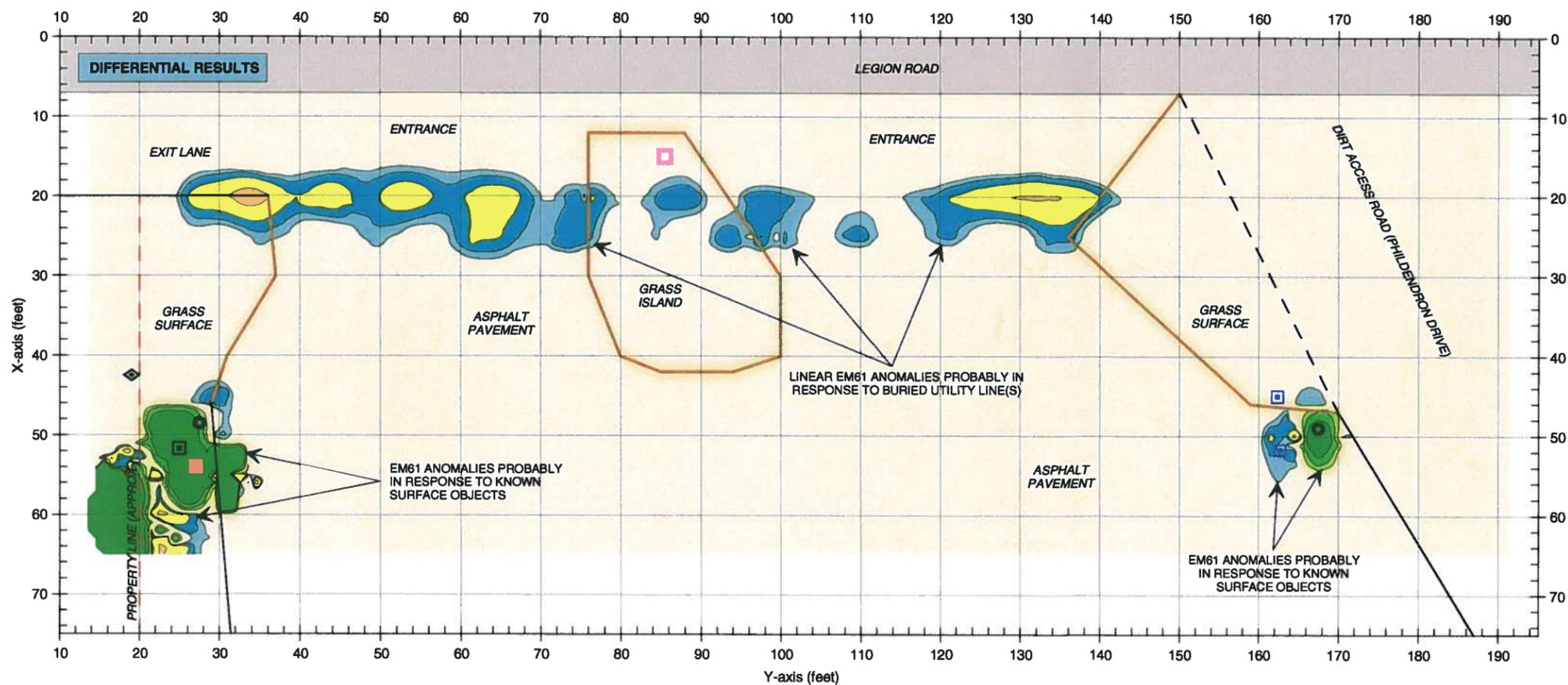
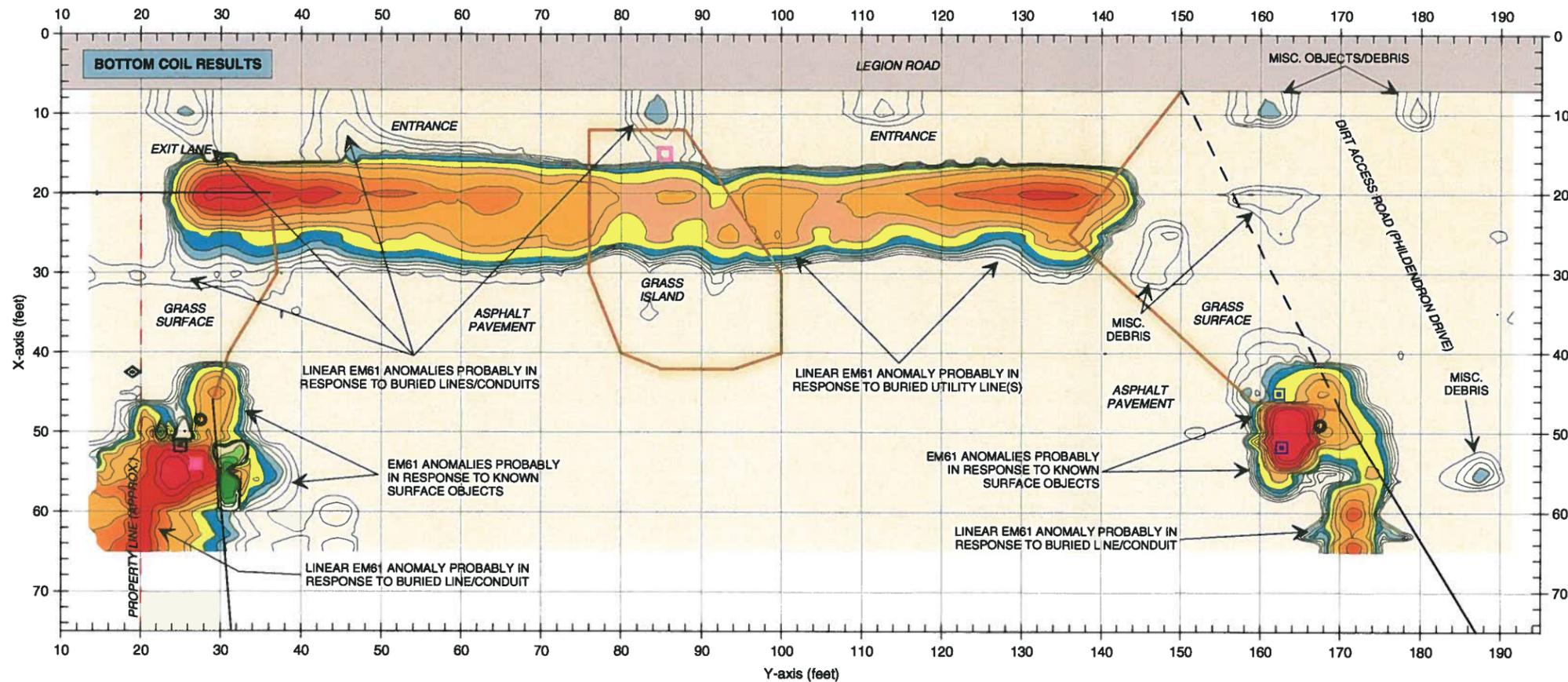


The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey at Parcel 43 on October 22, 2010.



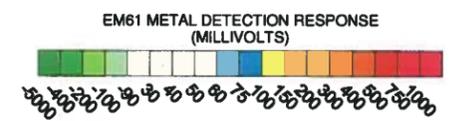
The photograph shows the front (western) portion of the Vance Neal property (Parcel 43) located at the intersection of Legion Road and Phildendron Drive in Fayetteville, North Carolina. The photograph is viewed in a northeasterly direction.

CLIENT	KLEINFELDER		DATE	11/03/10	BY	MJD
PROJECT	VANCE NEAL PROPERTY (PARCEL 43)		DATE		BY	
CITY	FAYETTEVILLE	STATE	NORTH CAROLINA			
TITLE	GEOPHYSICAL RESULTS		NO.	2010-258	DATE	



LEGEND

- SURVEY AREA: EM61 OR GPR DATA ACQUIRED ALONG X-AXIS TRENDING LINES SPACED 5 FEET APART
- WATER METER COVER
- ELECTRICAL BOX
- TELEPHONE
- ⊕ GUY WIRE
- METAL LIGHT POLE
- MAIL BOX
- ◇ UTILITY OR LAMP POLE
- CONCRETE CURBING



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 October 22, 2010 using a Geonics EM61 instrument. Due to an absence of differential EM61 anomalies, ground penetrating radar (GPR) surveys were not conducted at Parcel 43.

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

EM61 METAL DETECTION RESULTS

FIGURE 2

MJD	11/03/10	DATE	2010-258	PROJECT	VANCE NEAL PROPERTY (PARCEL 43)
DRWN		LAY		STATE	NORTH CAROLINA
DATE		DWG		CITY	FAYETTEVILLE
SCALE		TITLE		GEOPHYSICAL RESULTS	

KLEINFELDER

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

APPENDIX C

LOG OF BORING SS-1

SHEET 1 OF 1

Client NCDOT
 Project Name U-2809B
 Number 113754
 Location Short Stop #5 (#43)

Drill Contractor Kleinfelder
 Drill Method 2 inch Direct Push
 Drilling Started 11/17/10 Ended 11/17/10
 Logged By P. Pozzo

Elevation -
 Total Depth 8.0
 Depth To Water

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
5	SS 1-6'		4.7	SW	Tan SAND		5
			6	SW	Tan SAND		
			6.3	SW	Tan SAND		
			5.6	SW	Tan SAND		
10					Boring Terminated at 8 feet in RESIDUAL	10	
15						15	
20						20	
25						25	
30						30	

LOG A EWIN05 113754C.GPJ LOG A EWIN05.GDT 12/16/10



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 Fax: 336-668-3868

Remarks Sample SS-1 collected at 6 ft. submitted for laboratory analysis.

See key sheet for symbols and abbreviations used above.

LOG OF BORING SS-2

SHEET 1 OF 1

Client NCDOT
 Project Name U-2809B
 Number 113754
 Location Short Stop #5 (#43)

Drill Contractor Kleinfelder
 Drill Method 2 inch Direct Push
 Drilling Started 11/17/10 Ended 11/17/10
 Logged By P. Pozzo

Elevation -
 Total Depth 8.0
 Depth To Water

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
5	SS 2-6'		5.9	SW	Tan SAND		5
			5.9	SW	Tan SAND		
			9	SW	Tan SAND		
			8.7	SW	White Tan SAND		
10					Boring Terminated at 8 feet in RESIDUAL	10	
15						15	
20						20	
25						25	
30						30	

LOG A EWNIN05 113754C.GPJ LOG A EWNIN05.GDT 12/16/10



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

Remarks Sample SS-2 collected at 6 ft. submitted for laboratory analysis.

See key sheet for symbols and abbreviations used above.

LOG OF BORING SS-3

SHEET 1 OF 1

Client NCDOT
 Project Name U-2809B
 Number 113754
 Location Short Stop #5 (#43)

Drill Contractor Kleinfelder
 Drill Method 2 inch Direct Push
 Drilling Started 11/17/10 Ended 11/17/10
 Logged By P. Pozzo

Elevation —
 Total Depth 8.0
 Depth To Water

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
5	SS 3-4'		2.2	SW	Tan SAND		
			4.2	SW	Tan SAND		
			1.2	SW	White Tan SAND		5
			3.2	SW	White Tan SAND		
10					Boring Terminated at 8 feet in RESIDUAL	10	
15						15	
20						20	
25						25	
30						30	

LOG A EWIN05 113754C.GPJ LOG A EWIN05.GDT 12/16/10



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

Remarks Sample SS-3 collected at 4 ft. submitted for laboratory analysis.

See key sheet for symbols and abbreviations used above.

LOG OF BORING SS-4

SHEET 1 OF 1

Client NCDOT
 Project Name U-2809B
 Number 113754
 Location Short Stop #5 (#43)

Drill Contractor Kleinfelder
 Drill Method 2 inch Direct Push
 Drilling Started 11/17/10 Ended 11/17/10
 Logged By P. Pozzo

Elevation --
 Total Depth 8.0
 Depth To Water

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
5	SS 4-6'		2.1	SW	Tan SAND		5
			3.9	SW	Tan SAND		
			4.3	SW	White Tan SAND		
			4.1	SW	White Tan SAND		
10					Boring Terminated at 8 feet in RESIDUAL	10	
15						15	
20						20	
25						25	
30						30	

LOG A EWN05 113754C.GPJ LOG A EWN05.GDT 12/16/10



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

Remarks Sample SS-4 collected at 6 ft. submitted for laboratory analysis.

See key sheet for symbols and abbreviations used above.

LOG OF BORING SS-5

SHEET 1 OF 1

Client NCDOT

Drill Contractor Kleinfelder

Project Name U-2809B

Drill Method 2 inch Direct Push

Elevation —

Number 113754

Drilling Started 11/17/10 Ended 11/17/10

Total Depth 8.0

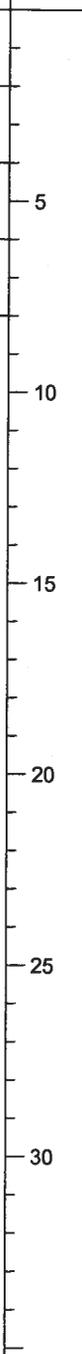
Location Short Stop #5 (#43)

Logged By P. Pozzo

Depth To Water

DEPTH FEET	SAMPLE NO.	BLOWS/FT	PID ppm	USCS	LITHOLOGY	DESCRIPTION	DEPTH FEET
2.7				SW		Tan SAND	
2.6				SW		Tan SAND	
2.9				SW		White Tan SAND	5
3.9				SW		White Tan SAND Possibly in Water Table	
Boring Terminated at 8 feet in RESIDUAL							

SS 5-6'




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

Remarks Sample SS-5 collected at 6 ft. submitted for laboratory analysis.

See key sheet for symbols and abbreviations used above.

LOG A EWNIN05_113754C.GPJ LOG A EWNIN05.GDT 12/16/10

APPENDIX D



Peter Pozzo
Trigon/Kleinfelder
313 Gallimore Dairy Road
Greensboro, NC 27409

Report Number: G118-597

Client Project: NCDOT Fayetteville PSA

Dear Peter Pozzo,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Lori Lockamy at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America, Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America, Inc.

for:
Project Manager
Lori Lockamy

Barbara Hager

12/10/10
Date

SGS North America, Inc.

List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantification Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL/CL = Reporting Limit / Control Limit

RPD = Relative Percent Difference

UJ = Target analytes with recoveries that are $10\% < \%R < LCL$; # of MEs are allowable and compounds are not detected in the sample.

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% solids = Percent Solids

Special Notes:

- 1) Metals and mercury samples are digested with a hot block; see the standard operating procedure document for details.
- 2) Uncertainty for all reported data is less than or equal to 30 percent.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 43 SS-1 6'
Client Project ID: NCDOT Fayetteville PSA
Lab Sample ID: G118-597-29A
Lab Project ID: G118-597
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 14:37
Date Received: 11/19/2010
Matrix: Soil
Solids 96.34

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.67	mg/Kg	1	11/30/10 05:36

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	93.3	93.3		70-130

Comments:

Batch Information

Analytical Batch: VP112910
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 5.49 g
Final Volume: 5 mL

Analyst: LMC

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 43 SS-1 6'
Client Project ID: NCDOT Fayetteville PSA
Lab Sample ID: G118-597-29D
Lab Project ID: G118-597

Date Collected: 11/17/2010 14:37
Date Received: 11/19/2010
Matrix: Soil
Solids 96.34
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.84	mg/Kg	1	11/29/10 00:22
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	32.6	81.5

Comments:

Batch Information

Analytical Batch: EP112810
Analytical Method: 8015
Instrument: GC6
Analyst: DTF

Prep batch: 17808
Prep Method: 3541
Prep Date: 11/23/10
Initial Prep Wt/Vol: 30.34 G
Prep Final Vol: 10 mL

Analyst: FL

NC Certification #481

N.C. Certification #481

Reviewed By: 
DRO.XLS
Page 101 of 118

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 43 SS-2 6'
Client Project ID: NCDOT Fayetteville PSA
Lab Sample ID: G118-597-30A
Lab Project ID: G118-597
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 14:47
Date Received: 11/19/2010
Matrix: Soil
Solids 97.35

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.79	mg/Kg	1	11/30/10 06:03

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	93.0	93.0		70-130

Comments:

Batch Information

Analytical Batch: VP112910
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 5.32 g
Final Volume: 5 mL

Analyst: LMC

**Results for Total Petroleum Hydrocarbons
by GC/FID 8015**

Client Sample ID: 43 SS-2 6'
 Client Project ID: NCDOT Fayetteville PSA
 Lab Sample ID: G118-597-30D
 Lab Project ID: G118-597

Date Collected: 11/17/2010 14:47
 Date Received: 11/19/2010
 Matrix: Soil
 Solids 97.35
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.37	mg/Kg	1	11/29/10 00:50
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	29.7	74.2

Comments:

Batch Information

Analytical Batch: EP112810
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 17808
 Prep Method: 3541
 Prep Date: 11/23/10
 Initial Prep Wt/Vol: 32.26 G
 Prep Final Vol: 10 mL

Analyst: FL

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N.C. Certification #481

Reviewed By: [Signature]
 DRO.XLS

**Results for Total Petroleum Hydrocarbons
by GC/FID 8015**

Client Sample ID: 43 SS-3 4'
Client Project ID: NCDOT Fayetteville PSA
Lab Sample ID: G118-597-1A
Lab Project ID: G118-597
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 15:00
Date Received: 11/19/2010
Matrix: Soil
Solids 95.56

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.72	mg/Kg	1	11/29/10 07:59

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	92.0	92.0		70-130

Comments:

Batch Information

Analytical Batch: VP112810
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 5.49 g
Final Volume: 5 mL

Analyst: LMC

**Results for Total Petroleum Hydrocarbons
by GC/FID 8015**

Client Sample ID: 43 SS-3 4'
 Client Project ID: NCDOT Fayetteville PSA
 Lab Sample ID: G118-597-1D
 Lab Project ID: G118-597

Date Collected: 11/17/2010 15:00
 Date Received: 11/19/2010
 Matrix: Soil
 Solids 95.56
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.48	mg/Kg	1	11/22/10 03:51
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	30.8	77

Comments:

Batch Information

Analytical Batch: EP112110
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 17790
 Prep Method: 3541
 Prep Date: 11/19/10
 Initial Prep Wt/Vol: 32.3 G
 Prep Final Vol: 10 mL

Analyst: FA

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N.C. Certification #481

Reviewed By: 
 DRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 43 SS-4 6'
Client Project ID: NCDOT Fayetteville PSA
Lab Sample ID: G118-597-2A
Lab Project ID: G118-597
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 15:09
Date Received: 11/19/2010
Matrix: Soil
Solids 96.83

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.79	mg/Kg	1	11/29/10 08:26

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95.0	95.0		70-130

Comments:

Batch Information

Analytical Batch: VP112810
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 5.35 g
Final Volume: 5 mL

Analyst: LMC

**Results for Total Petroleum Hydrocarbons
by GC/FID 8015**

Client Sample ID: 43 SS-4 6'
 Client Project ID: NCDOT Fayetteville PSA
 Lab Sample ID: G118-597-2D
 Lab Project ID: G118-597

Date Collected: 11/17/2010 15:09
 Date Received: 11/19/2010
 Matrix: Soil
 Solids 96.83
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.45	mg/Kg	1	11/22/10 04:19
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	31.8	79.5

Comments:

Batch Information

Analytical Batch: EP112110
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 17790
 Prep Method: 3541
 Prep Date: 11/19/10
 Initial Prep Wt/Vol: 32.02 G
 Prep Final Vol: 10 mL

Analyst: EA

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N.C. Certification #481

Reviewed By: 
 DRO.XLS
 Page 74 of 118

**Results for Total Petroleum Hydrocarbons
by GC/FID 8015**

Client Sample ID: 43 SS-5 6'
Client Project ID: NCDOT Fayetteville PSA
Lab Sample ID: G118-597-3A
Lab Project ID: G118-597
Report Basis: Dry Weight

Analyzed By: LMC
Date Collected: 11/17/2010 15:17
Date Received: 11/19/2010
Matrix: Soil
Solids 96.88

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.67	mg/Kg	1	11/28/10 20:51

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95.4	95.4		70-130

Comments:

Batch Information

Analytical Batch: VP112810
Analytical Method: 8015
Instrument ID: GC4
Analyst: LMC

Prep Method: 5035
Initial Wt/Vol: 5.46 g
Final Volume: 5 mL

Analyst: LMC

**Results for Total Petroleum Hydrocarbons
by GC/FID 8015**

Client Sample ID: 43 SS-5 6'
 Client Project ID: NCDOT Fayetteville PSA
 Lab Sample ID: G118-597-3D
 Lab Project ID: G118-597

Date Collected: 11/17/2010 15:17
 Date Received: 11/19/2010
 Matrix: Soil
 Solids 96.88
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.44	mg/Kg	1	11/22/10 04:47
Surrogate Spike Results					
		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	29.8	74.4

Comments:

Batch Information

Analytical Batch: EP112110
 Analytical Method: 8015
 Instrument: GC6
 Analyst: DTF

Prep batch: 17790
 Prep Method: 3541
 Prep Date: 11/19/10
 Initial Prep Wt/Vol: 32.08 G
 Prep Final Vol: 10 mL

Analyst: FX

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 Page 75 of 118



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099436

1 CLIENT: Klenfelder CONTACT: Peter Pozzo PHONE NO: (336) 6680093 PROJECT: NC DOT Fayetteville REPORTS TO: Peter Pozzo INVOICE TO: John Stewart QUOTE #: NC DOT P.O. NUMBER: WBS 34465.2.3

SGS Reference: WBS 34465.2.3 PAGE 1 OF 5

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	CONTAINERS			REMARKS
					No	C= COMP	G= GRAB	
43	SS-3 4'	11/17/10	1500	Soil	3	6		
43	SS-4 6'	11/17/10	1509	Soil	3	6		
43	SS-5 6'	11/17/10	1517	Soil	3	6		
19	SS-1 4'	11/14/10	759	Soil	3	6		
19	SS-2 4'		808		3	6		
19	SS-3 4'		829		3	6		
22	SS-4 2'		910		6	6		
22	SS-5 2'		851		6	6		
147	SS-1 8'		1017		6	6		

2 PRESERVATIVES USED: None ANALYSIS REQUIRED: 3 DRG GRD FRG

3 Shipping Carrier: FedEx Shipping Ticket No: 4651 Samples Received Cold? (Circle) YES NO Temperature C: 4.6 Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

4 Special Deliverable Requirements: None Special Instructions: None Requested Turnaround Time: RUSH STD Date Needed: _____

5 Collected/Relinquished By: (1) [Signature] Date: 11/19/10 Time: 1735 Received By: FedEx Relinquished By: (2) [Signature] Date: _____ Time: _____ Received By: _____ Relinquished By: (3) _____ Date: _____ Time: _____ Received By: [Signature] Date: 11/19/10 Time: 9:55 Relinquished By: (4) _____ Date: _____ Time: _____ Received By: _____

200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5307
 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

While - Retained by Lab
 Pink - Retained by Client



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1 CLIENT: Kleinfelder
 CONTACT: Peter Pozzo PHONE NO.: 336 668 0093
 PROJECT: NC DOT Fayetteville, PA SITE/PWSID#: u-28 29 B
 REPORTS TO: Peter Pozzo
John Stewart
 INVOICE TO: Carol Shore FAX NO.: ()
 QUOTE #: NC DOT
 P.O. NUMBER: WBS 34865.2.3

SGS Reference: WBS 34865.2.3 PAGE 2 OF 5

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	NO CONTAINERS	SAMPLE TYPE	Preservative Used	Analysis Required	REMARKS
	168 55-1	11/17/10	9:50	SO.1	3	G	✓	③	
	168 55-2		10:19				✓		
	168 55-3		10:06				✓		
	168 55-5		9:34				✓		
	168 55-6		10:35				✓		
	168 55-7		10:44				✓		
	168 55-8		10:58				✓		
	168 55-9		11:06				✓		
	168 55-10		11:21				✓		
	168 55-11		11:32				✓		

2

3

4

5

Collected/Relinquished By: (1) [Signature] Date: 11/18/10 Time: 1735 Received By: FedEx

Relinquished By: (2) _____ Date: _____ Time: _____ Received By: _____

Relinquished By: (3) _____ Date: _____ Time: _____ Received By: _____

Relinquished By: (4) [Signature] Date: 11/18/10 Time: 9:55 Received By: [Signature]

Shipping Carrier: _____ Samples Received Cold? (Circle) YES (P) NO

Shipping Ticket No: _____ Temperature °C: 4.6/5.1

Special Deliverable Requirements: _____ Chain of Custody Seal: (Circle) INTACT (P) BROKEN ABSENT

Special Instructions: _____

Requested Turnaround Time: _____ RUSH STD Date Needed _____

