

Preliminary Site Assessment
Page Distributing Company, Inc.
Parcel #169
Fayetteville, Cumberland County, NC

H&H Job No. ROW-203
State Project U-2810C
WBS Element # 34866.1.1
January 6, 2009



2923 South Tryon Street
Suite 100
Charlotte, NC 28203
704-586-0007

3334 Hillsborough Street
Raleigh, NC 27607
919-847-4241

**Preliminary Site Assessment Report
Page Distributing Company, Inc. Parcel #169
Fayetteville, Cumberland County, North Carolina
H&H Project ROW-203**

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**Preliminary Site Assessment Report
Page Distributing Company, Inc. Parcel #169
Fayetteville, Cumberland County, North Carolina
H&H Project ROW-203**

1.0 Introduction

Hart & Hickman, PC (H&H) has prepared this Preliminary Site Assessment (PSA) report documenting assessment activities performed at the Page Distributing Company, Inc. property (Parcel #169) located at 2612 Camden Rd. in Fayetteville, Cumberland County, North Carolina. This assessment was conducted on behalf of the North Carolina Department of Transportation (NC DOT) in accordance with H&H's November 17, 2008 proposal.

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 Camden Road (State Project U-2810C). A site location map is included as Figure 1 and a site map is presented as Figure 2. The NC DOT preliminary plan of the Camden Road widening area near the Page Distributing Company, Inc. property is attached as Appendix A.

The subject site currently operates as an auto sales and repair shop. Based on information provided by NC DOT, the subject site may have operated as a gas station at some unspecified time in the past. H&H's visual inspection of the site identified a building foundation on the northeast portion of the property that appears to have been a gas station or repair shop. No facility ID or incidents have been identified with this site. H&H did not observe surface evidence of current USTs or evidence of UST removal on the property.

2.0 Site Assessment

Soil Assessment Field Activities

H&H mobilized to the Page Distributing Company, Inc. property on December 10, 2008 to advance ten soil borings (169-1 through 169-10) by direct push technology (DPT). Prior to advancing the soil borings, H&H reviewed a geophysical survey performed at the subject site by Schnabel Engineering (Schnabel) between November 18 and 25, 2008. Schnabel utilized ground penetrating

radar (GPR) and time domain electromagnetic (TDEM) technology to identify potential geophysical anomalies and potential USTs at the site. The survey results indicate the presence of utilities, buried metal debris, and a potential UST located to the north of the proposed fill line in the northeast portion of the property. The potential UST appears to be buried approximately 1 to 2 ft below ground surface and is approximately 10.5 ft long and 4 ft in diameter with an estimated capacity of 1,000 gallons. Schnabel's report, including site maps depicting the results of the GPR and TDEM results, is provided in Appendix B.

Prior to conducting soil borings, utilities were marked by NC One Call. Borings were also cleared to a depth of five ft by hand auger. H&H utilized Subsurface Environmental Investigations, LLC (SEI) of Statesville, North Carolina to advance soil borings 169-1 through 169-10 by DPT (see Figure 2). To facilitate the selection of soil samples for laboratory analysis, soil from each boring was screened continuously for the presence of volatile organic compounds (VOCs) with an organic vapor analyzer (OVA). Additionally, H&H observed the soil for visual and olfactory indications of petroleum impacts. No significant OVA readings were measured in soil samples collected from Parcel 169. In general, the soil sample from each boring that exhibited potential visual and/or olfactory indications of petroleum impacts was selected for laboratory analysis. The sample for laboratory analysis was collected from a depth of 0-2 ft in boring 169-2 and 4-6 ft in borings 169-6 and 169-10; otherwise, samples were collected from 2-4 ft. SEI attempted several boring locations on the southwest end of the potential UST; however, no soil samples were collected due to hand auger refusal at depths of 1 to 2 ft in four locations. Soil boring logs are included in Appendix C.

H&H submitted ten soil samples (169-1 through 169-10) for laboratory analysis. Soil samples are identified by the NC DOT Parcel number, soil boring, and the depth interval in ft. Samples were sent to SGS Environmental Services, Inc. of Wilmington, North Carolina using standard chain-of-custody protocol for analysis of total petroleum hydrocarbons (TPH) for gasoline-range organics (GRO) and diesel-range organics (DRO) by EPA Method 8015B. The GRO samples were prepared using EPA Method 5035. Sample depths and analytical results are summarized in Table 1. Laboratory analytical data sheets for Parcel 169 soil samples and chain-of-custody documentation for this site are provided in Appendix D. The analytical results are discussed below.

3.0 Analytical Results

Target analytes were detected in soil samples collected from Parcel 169. The low concentrations of TPH DRO were detected in soil samples 169-2 and 169-5 above the DENR Action Level of 10 mg/kg, if related to UST systems. Concentrations of TPH DRO and GRO were not detected above the laboratory reporting limits in the remaining soil samples analyzed.

Based on laboratory analytical results, low level TPH DRO impacts are present within the proposed right of way. H&H estimates that there are roughly 130 cubic yards (200 tons) of impacted soil between the surface and 4 ft north of the proposed fill line in the northeast portion of the property in the vicinity of the potential UST. Impacted soil may also be present at depths greater than 4 ft in the vicinity of the UST. In addition, there are roughly 200 cubic yards (300 tons) east of the proposed fill line between the surface and a depth of 6 ft.

4.0 Summary and Regulatory Considerations

H&H has reviewed geophysical survey results and collected soil samples at Parcel 169. One UST appears to be present within the proposed right of way in the northeast portion of the property. Analytical results indicate low-level concentrations of TPH DRO above DENR Action Levels. H&H estimates that there are roughly 330 cubic yards (500 tons) of impacted soil between the surface and 6 ft at Parcel 169. The impacted soil is located in the northeast portion of the property. Impacted soil may also be present at greater depths in the vicinity of the potential UST. DOT plans indicate proposed fill in this area. Because this is a fill area, most of the impacted soil will not likely be disturbed. However, impacted soil will be generated by UST removal work, any soil grading work below the existing grade, and during utility line installations in the aforementioned areas. Impacted soil that is removed should be properly managed and disposed at a permitted facility. The UST system and its contents should also be removed and disposed in accordance with NCDENR regulations.

5.0 Signature Page

This report was prepared by:



Dave Graham
Project Geologist for
Hart and Hickman, PC

This report was reviewed by:



Matt Bramblett, PE
Principal and Project Manager for
Hart and Hickman, PC

Table 1
Soil Analytical Results
Page Distributing Company, Inc., Parcel #169
Fayetteville, North Carolina
H&H Job No. ROW-203

Sample ID Sample Depth (ft) Sample Date Units	169-1	169-2	169-3	169-4	169-5	169-6	169-7	169-8	169-9	169-10	NCDENR Action Level (mg/kg)
	2-4 12/10/2008 (mg/kg)	0-2 12/10/2008 (mg/kg)	2-4 12/10/2008 (mg/kg)	2-4 12/10/2008 (mg/kg)	2-4 12/10/2008 (mg/kg)	4-6 12/10/2008 (mg/kg)	2-4 12/10/2008 (mg/kg)	2-4 12/10/2008 (mg/kg)	2-4 12/10/2008 (mg/kg)	4-6 12/10/2008 (mg/kg)	
<u>TPH-DRO/GRO (8015B)</u>											
Diesel-Range Organics (DRO)	<6.17	13.4	<6.59	<6.67	32.9	<6.09	<6.47	<6.18	<6.62	<6.54	10
Gasoline-Range Organics (GRO)	<5.82	<6.01	<6.62	<5.08	<5.39	<6.72	<5.70	<5.89	<5.83	<5.96	10

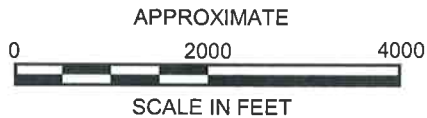
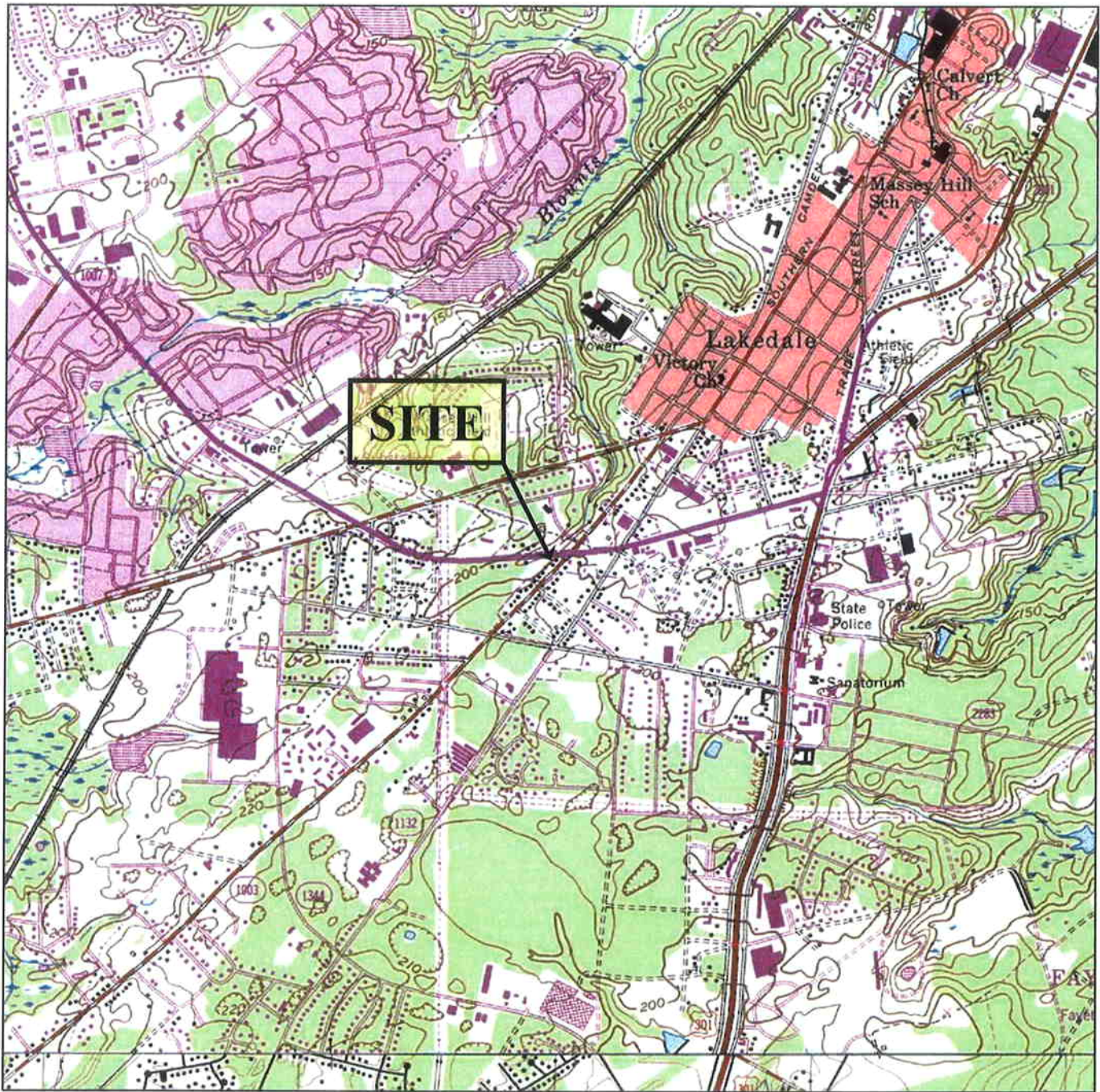
Notes:

EPA Method follows parameter in parenthesis;

Bold indicates concentration exceeds the NC DENR Action Level


TPH=total petroleum hydrocarbons

GRO samples were prepared using EPA Method 5035.

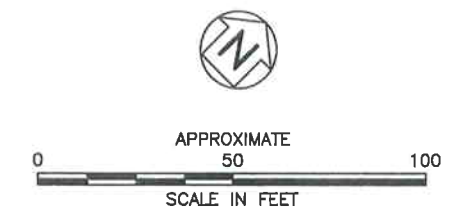
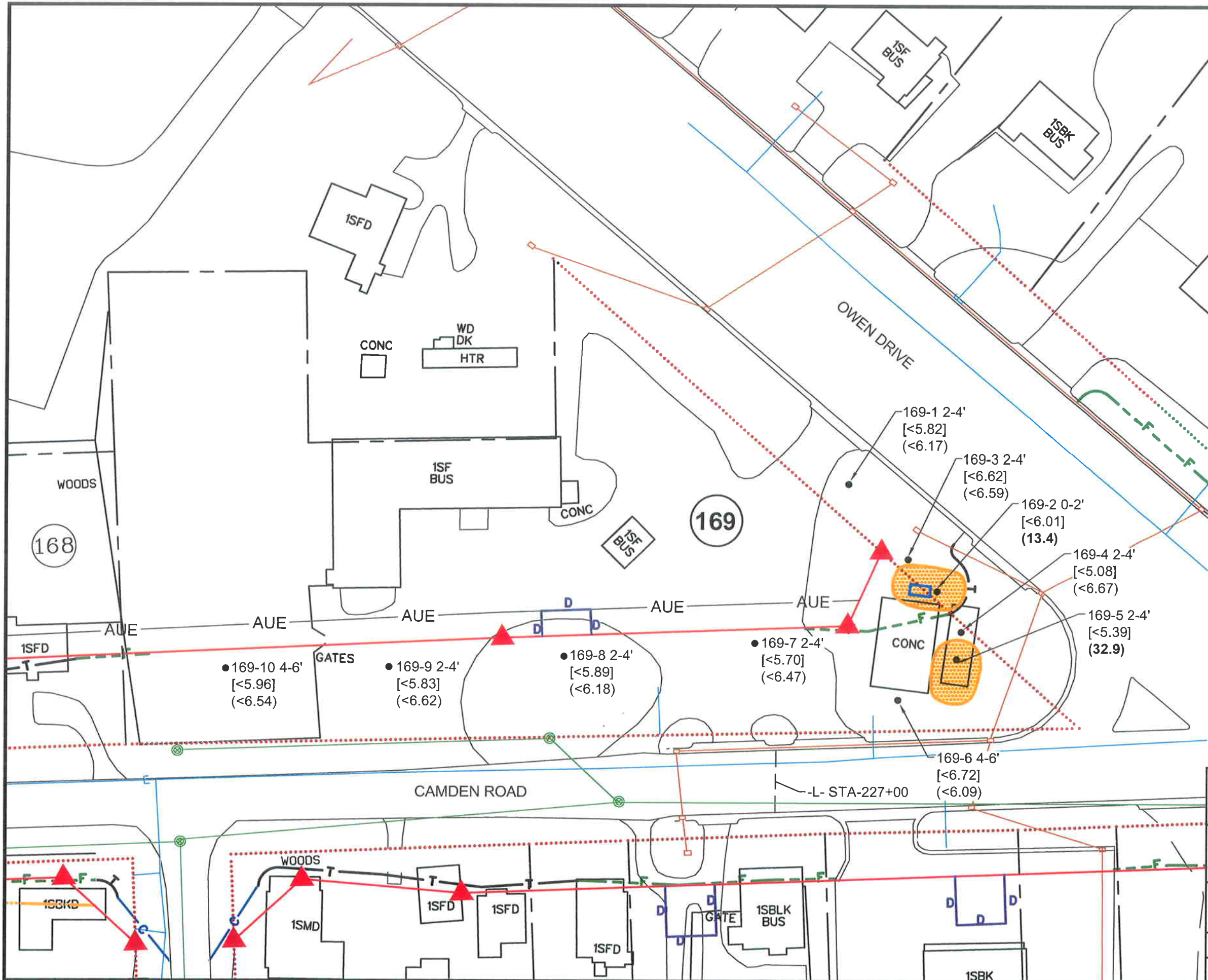



U.S.G.S. QUADRANGLE MAP
FAYETTEVILLE, NC 1957/1987

7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE		SITE LOCATION MAP	
PROJECT		PARCEL #169 FAYETTEVILLE, NORTH CAROLINA	
		2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007 (p) 704-586-0373 (f)	
DATE:	12-16-08	REVISION NO:	0
JOB NO:	ROW-203	FIGURE:	1

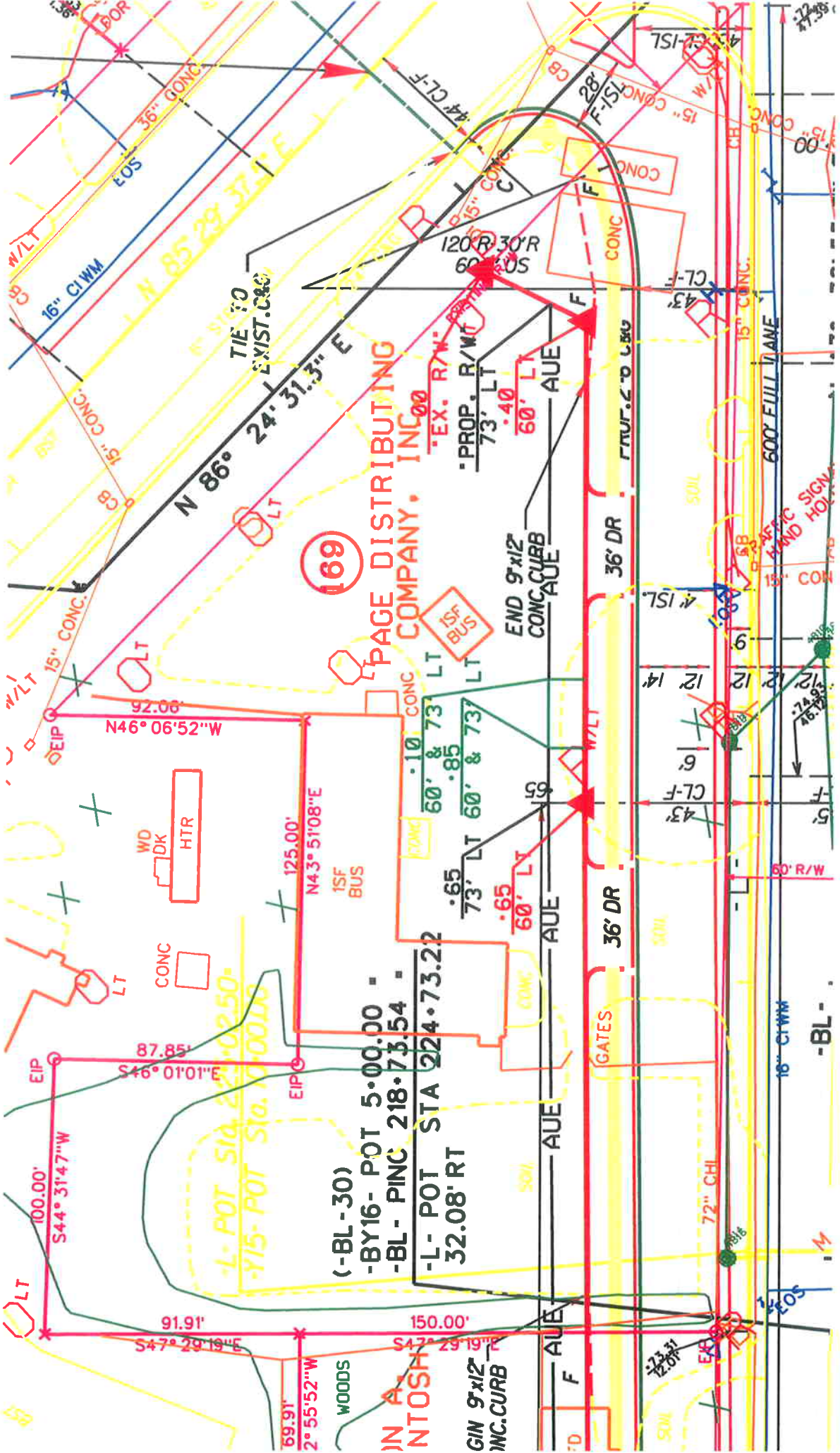
- LEGEND**
- PROPERTY LINE
 - EXISTING RIGHT-OF-WAY
 - ▲ PROPOSED RIGHT-OF-WAY
 - F- PROPOSED FILL LINE
 - T- PROPOSED TRANSITION LINE
 - C- PROPOSED CUT LINE
 - D- PROPOSED DRAINAGE EASEMENT
 - AUE- AERIAL UTILITY EASEMENT
 - ⊙ EXISTING SEWER LINES
 - ⊙ EXISTING WATER LINES
 - ⊙ EXISTING DRAINAGE LINES
 - IMPACTED SOIL AREA
 - SOIL BORING
 - POTENTIAL UST LOCATION
 - 169 PARCEL NUMBER
 - [] = TPH GRO (mg/kg)
 - () = TPH DRO (mg/kg)
 - BOLD DENOTES EXCEEDANCE OF DENR ACTION LEVEL**



TITLE SITE MAP AND SOIL ANALYTICAL RESULTS	
PROJECT PARCEL #169 FAYETTEVILLE, NORTH CAROLINA	
 Hart & Hickman <small>A PROFESSIONAL CORPORATION</small>	
DATE: 12-29-08	REVISION NO. 0
JOB NO: ROW-203	FIGURE NO. 2

S:\AAA-Master Projects\DOT Right-of-Way -ROW\ROW-203 Cumberland County PS\Asst\Figures\008-12-23_16 Parcels_ROW-203.dwg, 1/9/2009 4:23:02 PM

Appendix A
NC DOT Preliminary Plan



PAGE DISTRIBUTING COMPANY, INC.

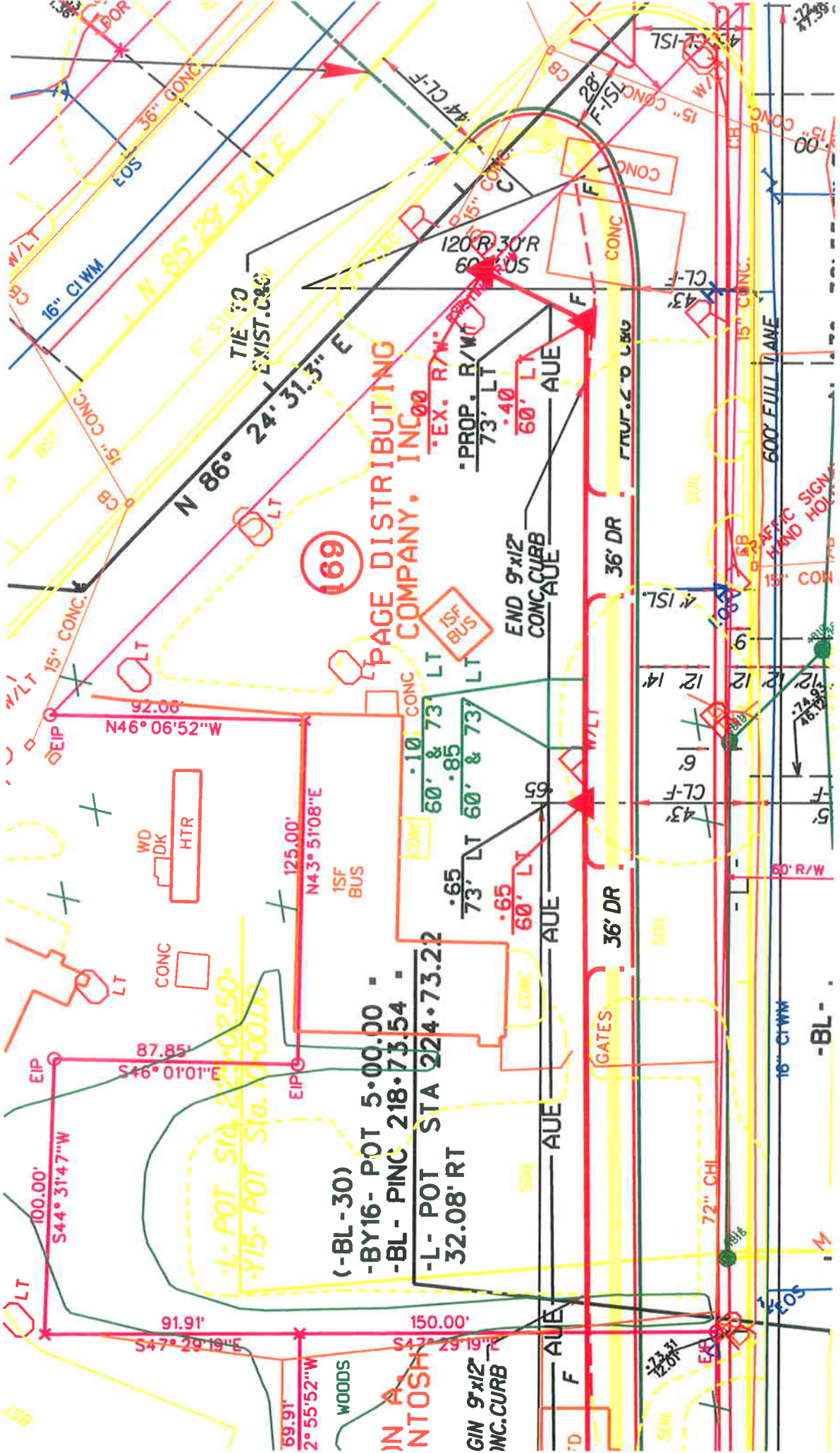
169

(-BL-30)
 -BY16- POT 5.00.00 -
 -BL- PINC 218.73.54 -
 -L- POT STA 224.73.22
 32.08' RT

IN A N TOSHA

GIN 9'x12' INC. CURB

TIE TO
 N 86° 24' 31.3" E
 24.1 EXIST. C&G



PAGE DISTRIBUTING COMPANY, INC.

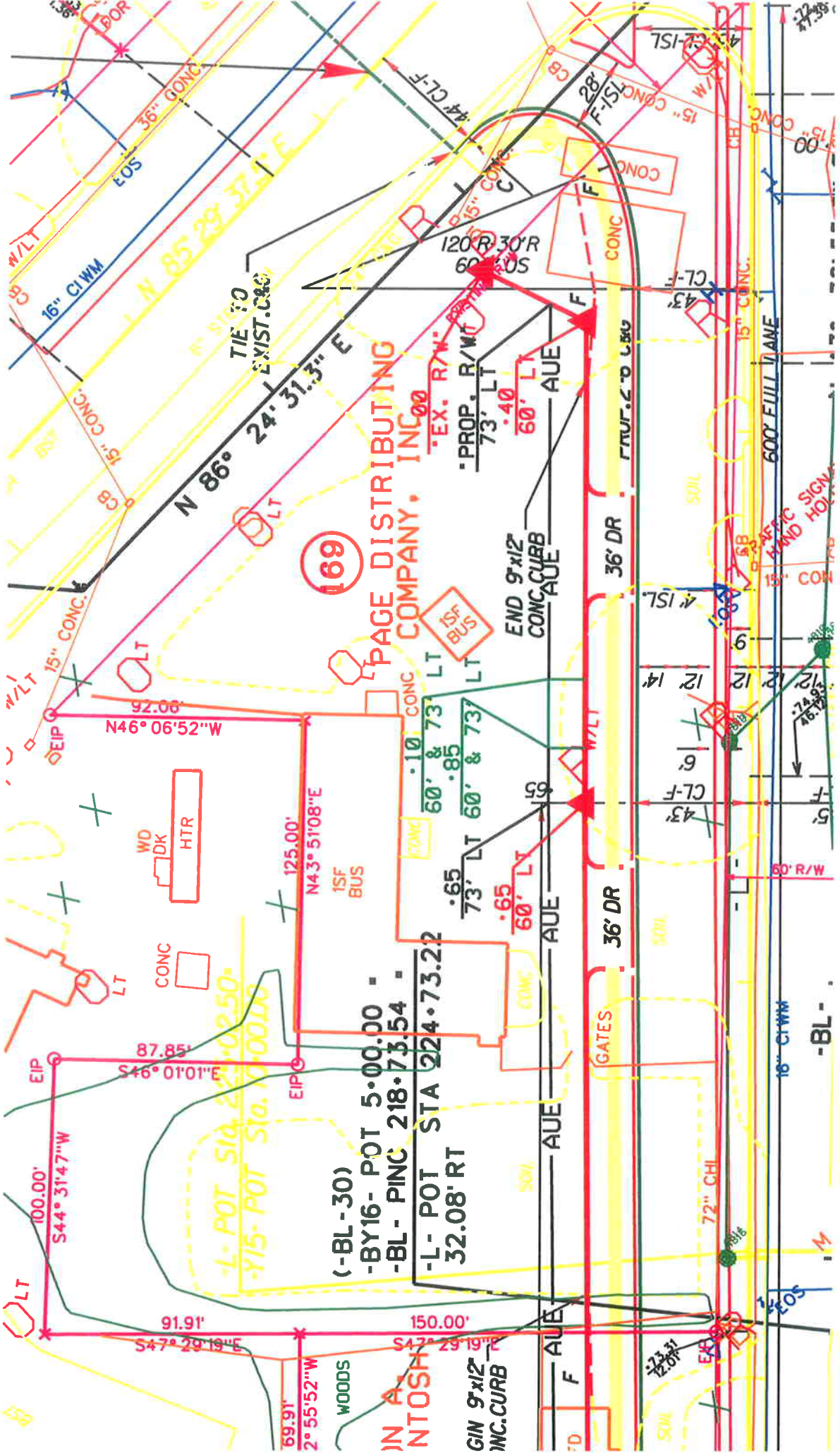
169

(-BL-30)
 -BY16- POT 5.00.00 -
 -BL- PINC 218.73.54 -
 -L- POT STA 224.73.22
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TIE TO
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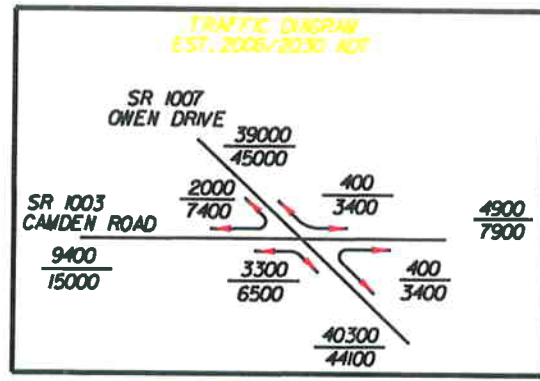
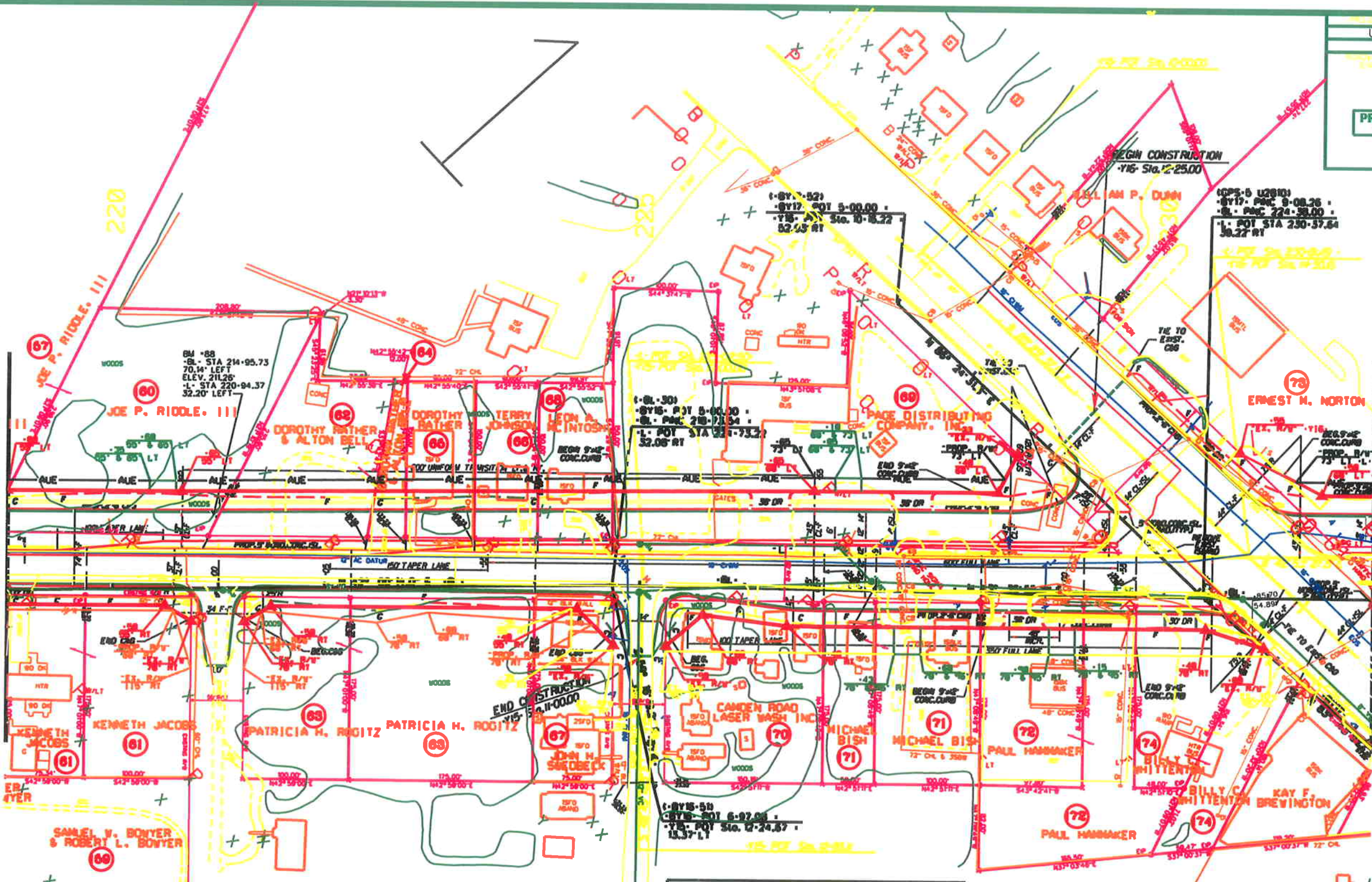


U-2810C	10
20 (U-2810)	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCH LINE 219.00 SEE SHEET 9

MATCH LINE 232.00 SEE SHEET 11



SEE SHEET 15 FOR .L. PROFILE
SEE SHEET 18 FOR .Y15- & .Y16- PROFILE

REVISIONS

SYSTEMTIME: 2006/08/24 10:00:00
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C:\PROGRAMS\AUTOCAD\ACAD\ACAD.PLT

Appendix B

Schnabel Engineering Geophysical Survey Report

December 16, 2008

Mr. Matt Bramblett, P.E.
Hart & Hickman, PC
2923 South Tryon Street, Suite 100
Charlotte, NC 28203

Via email (pdf)

RE: State Project: U-2810C
WBS Element: 34866.1.1
County: Cumberland
Description: SR 1003 (Camden Road) from SR 1290 (King Charles Road) to north
of SR 1007 (Owen Drive)

SUBJECT: Report on Geophysical Surveys of Parcel 169
Schnabel Engineering Project No. 08210020.06

Dear Mr. Bramblett:

This letter contains our report on the geophysical surveys we conducted on the subject property. We understand this letter report will be included as an appendix in your report to the NCDOT. The report includes one 8.5x11 color figure and two 11x17 color figures.

1.0 INTRODUCTION

Schnabel Engineering conducted geophysical surveys on November 18, 20, 24, and 25, 2008, in the accessible areas of the proposed right-of-way (ROW) sections of Parcel 169 (Page Distributing Company, Inc. Property, Jason's Auto Sales) under our 2008 contract with the NCDOT. Parcel 169 is located on the southwest quadrant of the intersection SR 1003 (Camden Road) and SR 1007 (Owen Drive). The work was conducted at the location indicated by Hart & Hickman and the NCDOT to support their environmental assessment of the subject parcel. The purpose of the geophysical surveys was to locate possible metal underground storage tanks (UST's) and associated metal product lines in the accessible areas of the site.

2.0 FIELD METHODOLOGY

Locations of geophysical data points were obtained using a sub-meter Trimble Pro-XRS DGPS system. References to direction and location in this report are based on the US State Plane 1983 system, North Carolina 3200 zone, using the NAD 83 datum, with units in US survey feet. The locations of existing site features (building, curbs, signs, etc.) were recorded for later correlation with the geophysical data and for location references to the NCDOT drawings. The geophysical investigation consisted of an electromagnetic (EM) induction survey using a Geonics EM61-MK2 instrument, and a ground-penetrating radar survey using a Geophysical Survey Systems SIR-3000 system equipped with a 400 MHz antenna.

The EM61 data were collected along parallel survey lines spaced about 2.5 feet apart. The EM61 and DGPS data were recorded digitally using a field computer and later transferred to a desktop computer for data processing. The GPR data were collected along survey lines spaced one to two feet apart in orthogonal directions over anomalous EM readings not attributed to known metallic features. One possible UST was located and marked on the ground at this site. Pictures of the location of this possible UST as marked in the field are shown in Figure 1.

Preliminary results were sent to David Graham and Wil Pineda of Hart & Hickman on December 5, 2008.

3.0 DISCUSSION OF RESULTS

The contoured EM61 data are shown on Figures 2 and 3. The EM61 early time gate results are plotted on Figure 2. The early time gate data provide the most sensitive detection of metal object targets, regardless of size. Figure 3 shows the difference between the response of the top and bottom coils of the EM61 instrument (differential response). The difference is taken to remove the effect of surface and very shallowly buried metallic objects. Typically, the differential response emphasizes anomalies from deeper and larger objects such as UST's.

The early time gate and differential results show several anomalies not attributed to known site features (Figures 2 and 3). Eight areas were surveyed with GPR, and the GPR data indicated the

presence of utilities and buried metal debris. The GPR data also indicated a possible UST located inside of the NCDOT ROW/easement on the northern side of the parcel at 2,027,804E, 461,408N. An example GPR image showing the reflection from the possible UST is shown on Figures 2 and 3. Figures 2 and 3 also include the location of the possible UST as marked in the field. The GPR data indicate that the possible UST is buried approximately 1 to 2 feet below the ground surface, and it is about 4 feet in diameter and about 10.5 feet long, equivalent to a capacity of about 1000 gallons.

4.0 CONCLUSIONS

Our evaluation of the geophysical data collected on Parcel 169 of Project U-2810C in Fayetteville, NC indicates the following:

- The geophysical data indicate the presence of a possible UST inside of the NCDOT ROW/easement on Parcel 169. The possible UST is about 1000-gallon capacity and is buried approximately 1 to 2 feet below ground surface.


5.0 LIMITATIONS

These services have been performed and this report prepared for Hart & Hickman and the North Carolina Department of Transportation in accordance with generally accepted guidelines for conducting geophysical surveys. It is generally recognized that the results of geophysical surveys are non-unique and may not represent actual subsurface conditions.

Thank you for the opportunity to serve you on this project. Please call if you need additional information or have any questions.

Sincerely,

SCHNABEL ENGINEERING SOUTH, P.C.



Jeremy S. Strohmeyer, P.G.
Project Manager



Edward D. Billington, P.G.
Senior Vice President

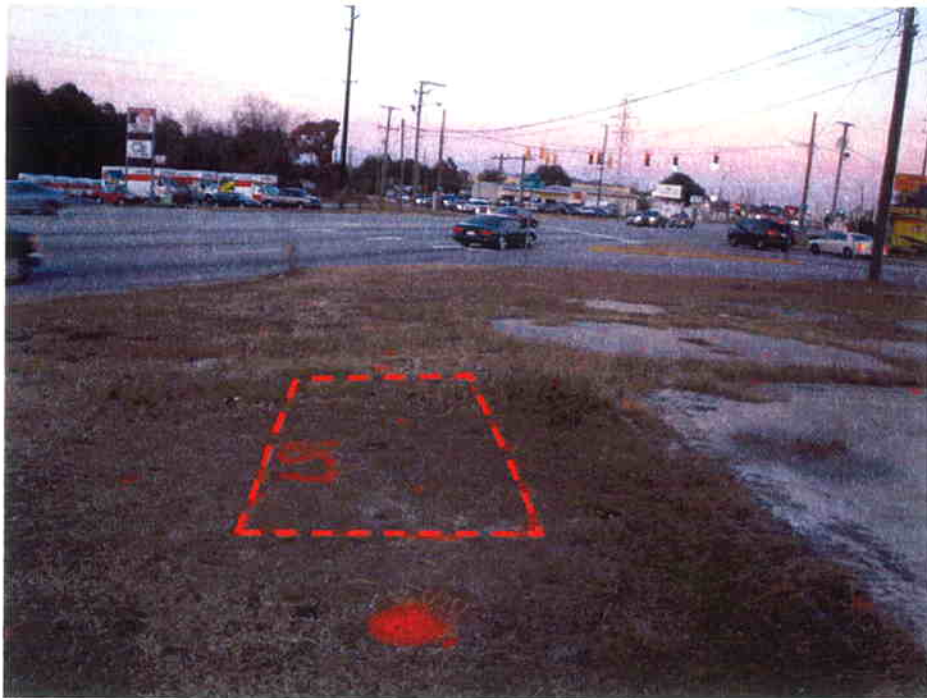
JW/JS/NB

Attachment: Figures (2)

FILE: G:\2008 PROJECTS\08210020 (NCDOT 2008 GEOTECH UNIT SERVICES)\08210020.06 (U-2810C, CUMBERLAND COUNTY)\REPORT\PARCEL 135\REPORT ON PARCEL 135.DOC



Parcel 169 – Jason’s Auto Sales, looking southeast
 UST: 4’ x 10.5’



Parcel 169 – Jason’s Auto Sales, looking northeast
 UST: 4’ x 10.5’

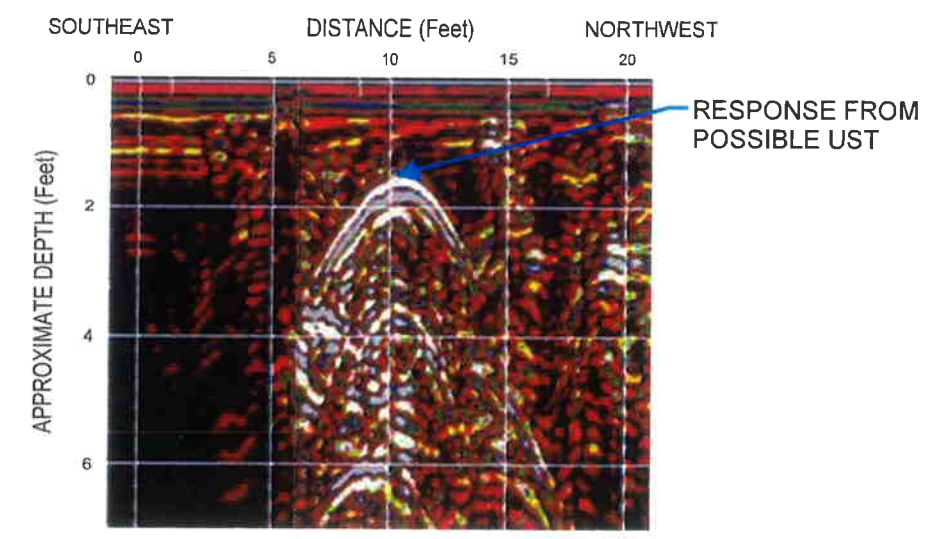
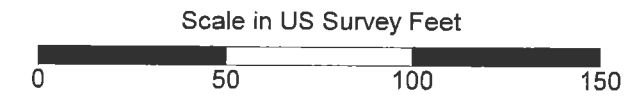
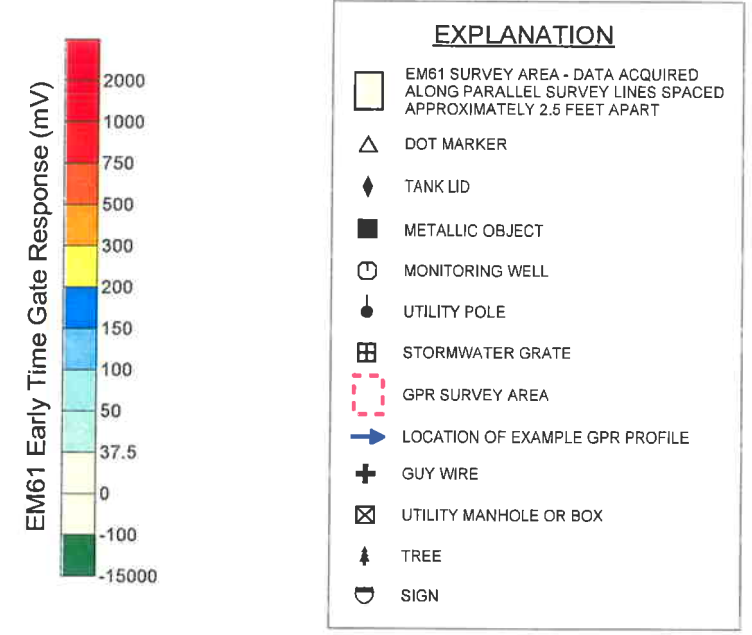
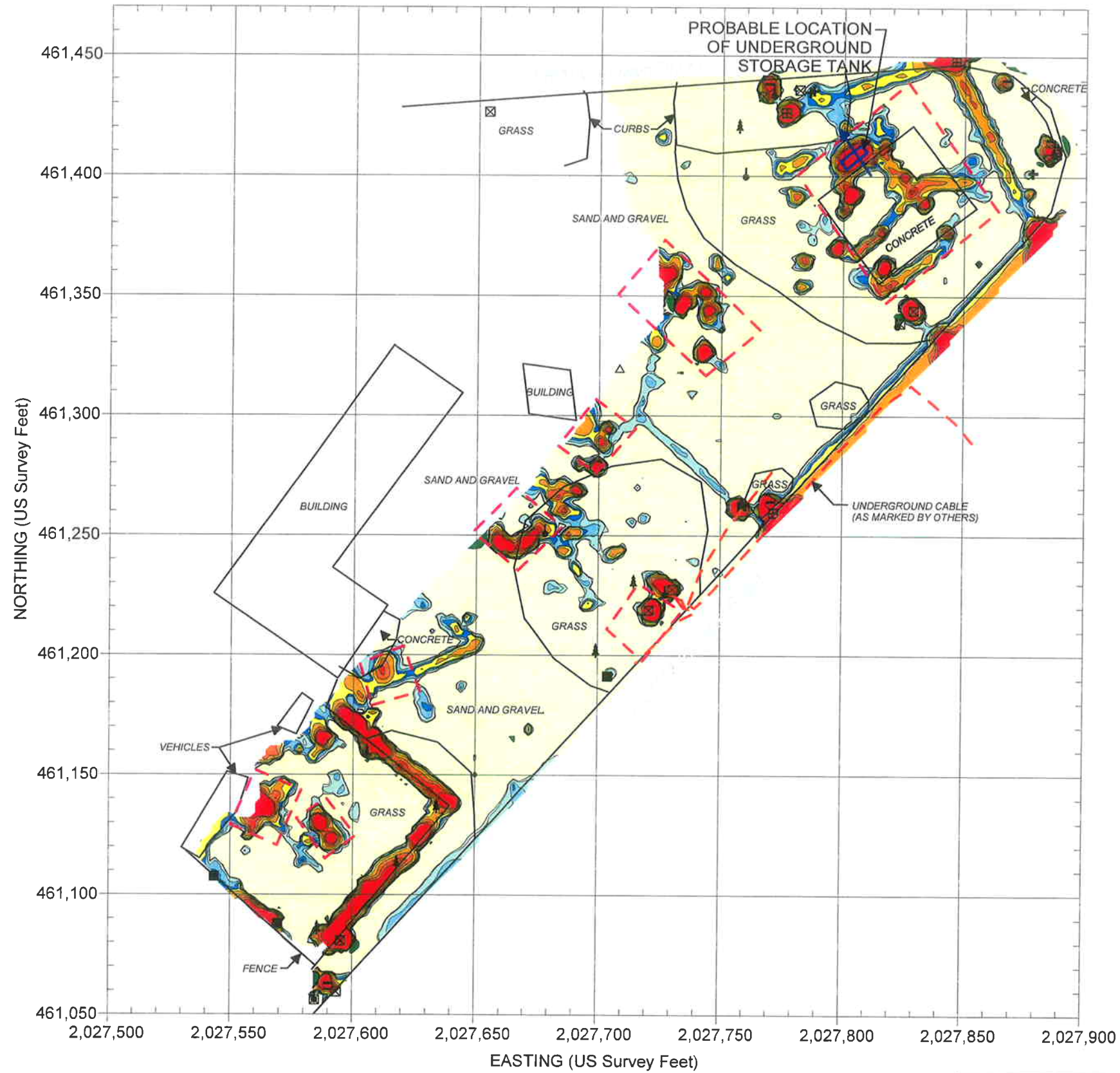


NC Department of Transportation
 Geotechnical Engineering Unit

State Project No. U-2810C
 Cumberland County, North Carolina

**PARCEL 169
 PHOTOS OF PROBABLE
 UST LOCATION**

FIGURE 1



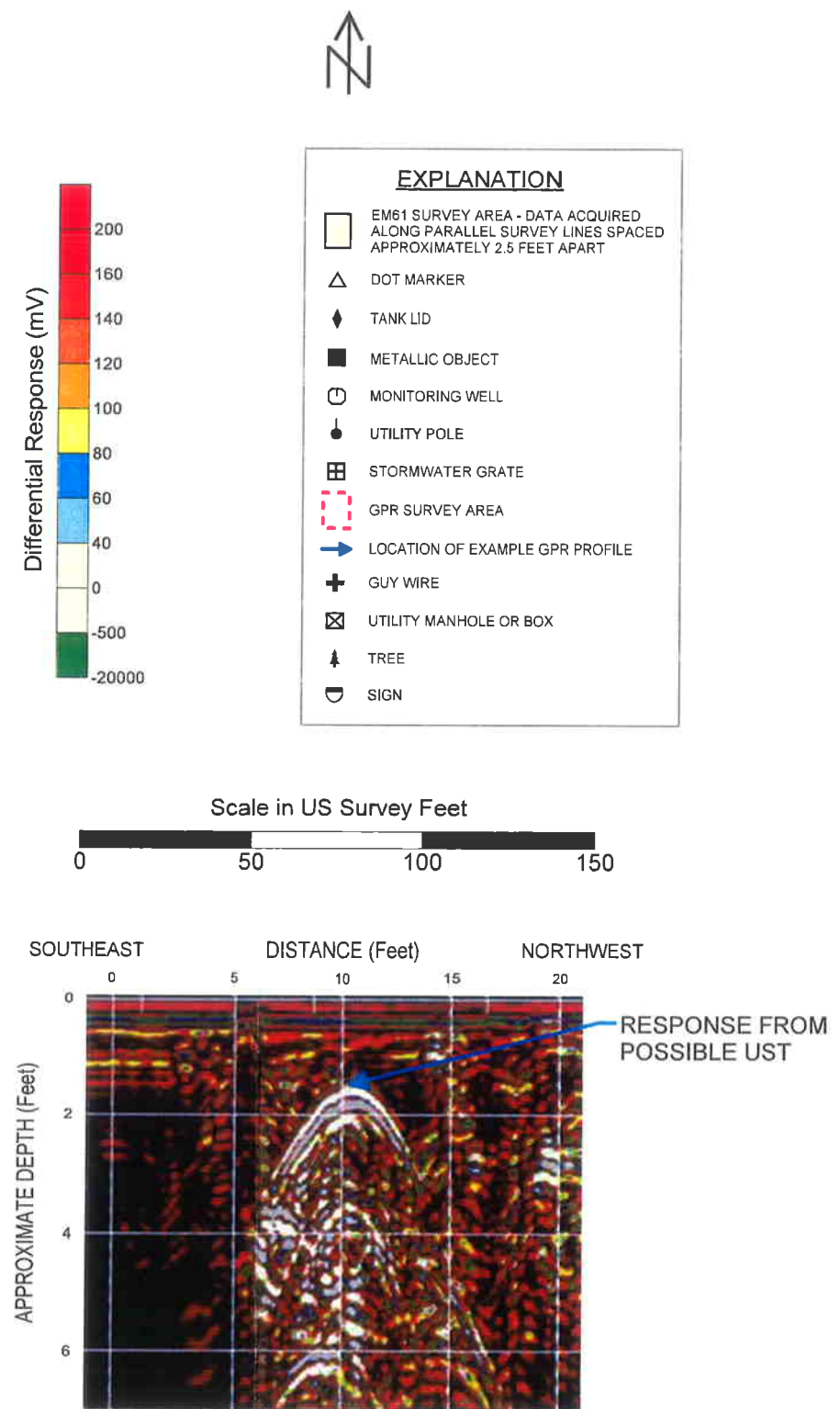
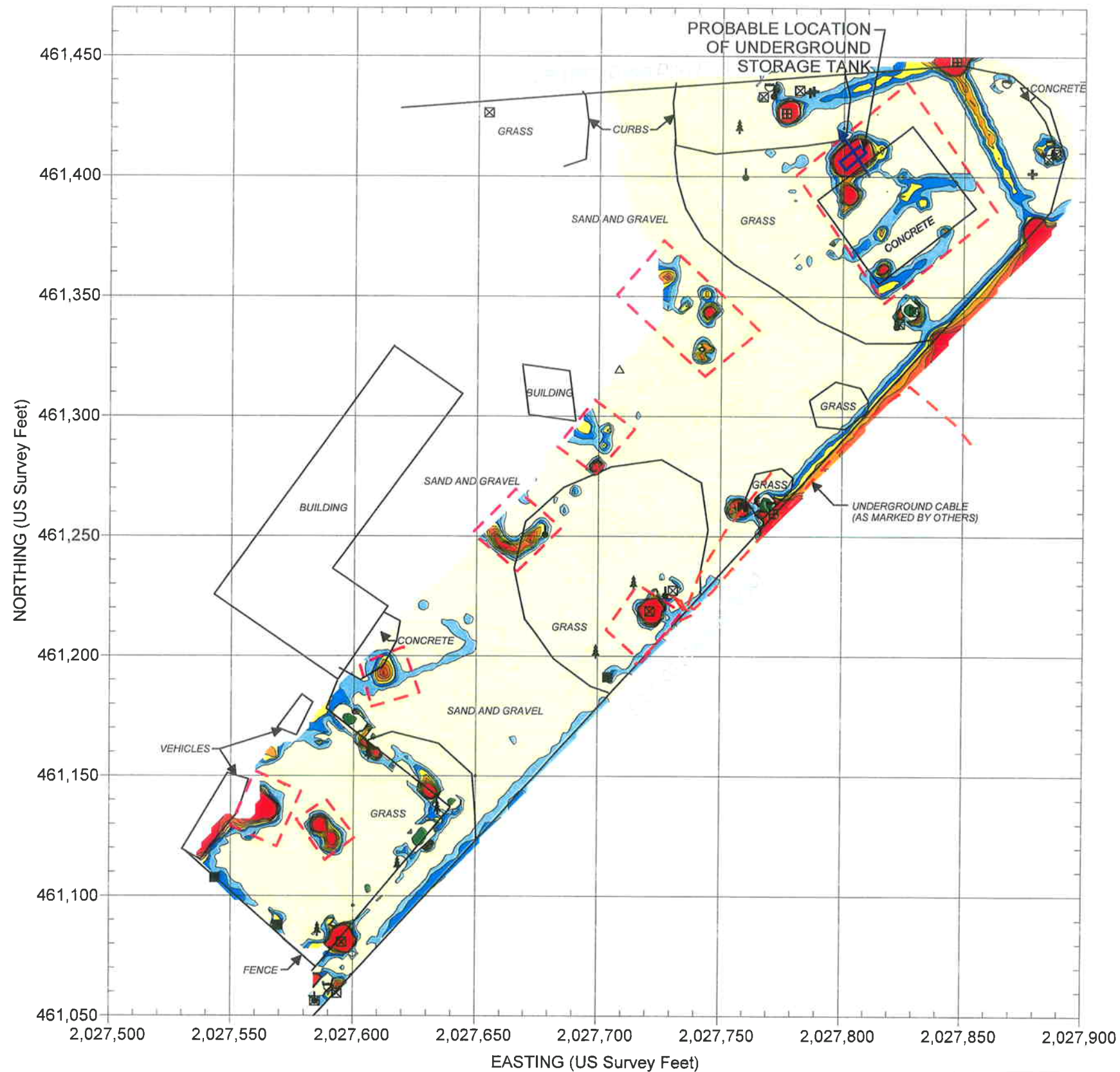
Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on November 18 and 20, 2008, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina Zone 3200, using the NAD 1983 datum. GPR data were acquired on November 24 and 25, 2008, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.



NC Department of Transportation
Geotechnical Engineering Unit
State Project No. U-2810C
Cumberland County, North Carolina

**PARCEL 169
EM61 EARLY TIME
GATE RESPONSE**

FIGURE 2



Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as drums and tanks. The EM data were collected on November 18 and 20, 2008, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 1983 datum. GPR data were acquired on November 24 and 25, 2008, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.



NC Department of Transportation
Geotechnical Engineering Unit
State Project No. U-2810C
Cumberland County, North Carolina

**PARCEL 169
EM61 DIFFERENTIAL
RESPONSE**

FIGURE 3

Appendix C
Soil Boring Logs



BORING NUMBER 169-1

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St.
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Cumberland County PSAs

JOB NUMBER: ROW-203

LOCATION: Fayetteville, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						(SW-SM) Tan-brown, fine SAND, trace silt, dry		0
100			0	0				
100			0	0				
5			0	0				
100			0	0				
100			0	0				
100			0	0				
10			0	0		(SW) Tan, fine SAND, dry		10
100			0	0				
100			0	0				
15						Bottom of borehole at 12.0 feet.		15
20								20

LOG OF BORING - HART HICKMAN.GDT - 12/23/08 10:12 - S:\AAA-MASTER GINT PROJECTS\ROW-203\PARCEL 169.GPJ

DRILLING CONTRACTOR: SEI
DRILL RIG/ METHOD: Geoprobe / Direct-Push Sleeve
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 12/10/08
BORING COMPLETED: 12/10/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
 Borehole hand-augered to 5 feet.
 Sample collected from 2-4 feet.



BORING NUMBER 169-2

2923 South Tryon Street-Suite 100
 Charlotte, North Carolina 28203
 704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St.
 Raleigh, North Carolina 27607
 919-847-4241(p) 919-847-4261(f)

PROJECT: Cumberland County PSAs
JOB NUMBER: ROW-203
LOCATION: Fayetteville, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						(SW-SM) Tan-brown, fine SAND, trace silt, dry		0
100			0	0.1				
100			0	0				
5			0	0				
100			0	0				
100			0	0				
10			0	0		(SW) Tan, fine SAND, dry		10
100			0	0				
100			0	0				
						Bottom of borehole at 12.0 feet.		
15								15
20								20

LOG OF BORING - HART HICKMAN.GDT - 12/23/08 10:12 - S:\AAA-MASTER GINT PROJECTS\ROW-203\PARCEL 169.GPJ

DRILLING CONTRACTOR: SEI
DRILL RIG / METHOD: Geoprobe / Direct-Push Sleeve
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 12/10/08
BORING COMPLETED: 12/10/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
 Borehole hand-augered to 5 feet.
 Sample collected from 0-2 feet.



BORING NUMBER 169-3

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St.
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Cumberland County PSAs

JOB NUMBER: ROW-203

LOCATION: Fayetteville, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						(SW-SM) Tan-brown, fine SAND, trace silt, dry		0
100			0	0				100
100			0	0				5
100			0	0				100
100			0	0				100
10			0	0		(SW) Tan, fine SAND, dry		10
100			0	0				15
20			0	0		Bottom of borehole at 12.0 feet.		20

DRILLING CONTRACTOR: SEI
DRILL RIG/ METHOD: Geoprobe / Direct-Push Sleeve
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 12/10/08
BORING COMPLETED: 12/10/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
 Borehole hand-augered to 5 feet.
 Sample collected from 2-4 feet.

LOG OF BORING - HART HICKMAN.GDT - 12/23/08 10:12 - S:\AAA-MASTER GINT PROJECTS\ROW-203\IPARCEL 169.GPJ



BORING NUMBER 169-4

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St.
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Cumberland County PSAs

JOB NUMBER: ROW-203

LOCATION: Fayetteville, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						CONCRETE		0
100			0	0	[Patterned Lithology]	(SW-SM) Tan-brown, fine SAND, trace silt, dry		
100			0	0				
5			0	0	[Patterned Lithology]	(SW) Tan-white, fine SAND, dry		5
100			0	0				
100			0	0				
10			0	0				10
100			0	0				
Bottom of borehole at 12.0 feet.								15
15								15
20								20

LOG OF BORING - HART HICKMAN.GDT - 12/23/08 10:12 - S:\AAA-MASTER GINT PROJECTS\ROW-203\PARCEL 169.GPJ

DRILLING CONTRACTOR: SEI DRILL RIG/ METHOD: Geoprobe / Direct-Push Sleeve SAMPLING METHOD: DPT Sleeves LOGGED BY: GAB DRAWN BY:	BORING STARTED: 12/10/08 BORING COMPLETED: 12/10/08 TOTAL DEPTH: 12 SURFACE ELEV: DEPTH TO WATER:	Remarks: Borehole hand-augered to 5 feet. Sample collected from 2-4 feet.
--	--	--



BORING NUMBER 169-5

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St.
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Cumberland County PSAs

JOB NUMBER: ROW-203

LOCATION: Fayetteville, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0					CONCRETE			0
100			0	0	(SW-SM) Tan-brown, fine SAND, trace silt, dry			
100			0	0				
5			0	0				5
100			0	0				
100			0	0				
10			0	0				10
100			0	0				
Bottom of borehole at 12.0 feet.								
15								15
20								20

LOG OF BORING - HART HICKMAN.GDT - 12/23/08 10:12 - S:\AAA-MASTER GINT PROJECTS\ROW-203\PARCEL 169.GPJ

DRILLING CONTRACTOR: SEI
DRILL RIG/ METHOD: Geoprobe / Direct-Push Sleeve
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 12/10/08
BORING COMPLETED: 12/10/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
 Borehole hand-augered to 5 feet.
 Sample collected from 2-4 feet.



BORING NUMBER 169-6

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-566-0007(p) 704-566-0373(f)

3334 Hillsborough St.
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Cumberland County PSAs

JOB NUMBER: ROW-203

LOCATION: Fayetteville, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0					(GP) GRAVEL			0
100			0	0				
100			0	0	(SW-SM) Tan-brown, fine SAND, trace silt, dry			
5	100		0	0.2				5
100			0	0.2				
100			0	0				
10	100		0	0				10
100			0	0				
Bottom of borehole at 12.0 feet.								
15								15
20								20

LOG OF BORING - HART HICKMAN.GDT - 12/23/08 10:12 - S:\AAA-MASTER GINT PROJECTS\ROW-203\PARCEL 169.GPJ

DRILLING CONTRACTOR: SEI
DRILL RIG/ METHOD: Geoprobe / Direct-Push Sleeve
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 12/10/08
BORING COMPLETED: 12/10/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
 Borehole hand-augered to 5 feet.
 Sample collected from 4-6 feet.



BORING NUMBER 169-7

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St.
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Cumberland County PSAs

JOB NUMBER: ROW-203

LOCATION: Fayetteville, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						(SW-SM) Tan-brown, fine SAND, trace silt, dry		0
100			0	0				
100			0	0				
5			0	0				5
100			0	0		(SW) Tan-white, fine SAND, dry		
100			0	0				
100			0	0				
10			0	0				10
100			0	0				
15						Bottom of borehole at 12.0 feet.		15
20								20

LOG OF BORING - HART HICKMAN.GDT - 12/23/08 10:12 - S:\AAA-MASTER GINT PROJECTS\ROW-203\PARCEL 169.GPJ

DRILLING CONTRACTOR: SEI
DRILL RIG/ METHOD: Geoprobe / Direct-Push Sleeve
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 12/10/08
BORING COMPLETED: 12/10/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
 Borehole hand-augered to 5 feet.
 Sample collected from 2-4 feet.



BORING NUMBER 169-8

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St.
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Cumberland County PSAs

JOB NUMBER: ROW-203

LOCATION: Fayetteville, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						(SW) Tan-brown, fine SAND, dry		0
100			0	0	[Dotted pattern]			
100			0	0				
5			0	0				5
100			0	0		(SW) Tan, fine SAND, dry		
100			0	0				
10			0	0				10
100			0	0				
Bottom of borehole at 12.0 feet.								
15								15
20								20

LOG OF BORING - HART HICKMAN.GDT - 12/23/08 10:12 - S:\AAA-MASTER GINT PROJECTS\ROW-203\PARCEL 169.GPJ

DRILLING CONTRACTOR: SEI
DRILL RIG/ METHOD: Geoprobe / Direct-Push Sleeve
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 12/10/08
BORING COMPLETED: 12/10/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
 Borehole hand-augered to 5 feet.
 Sample collected from 2-4 feet.



BORING NUMBER 169-9

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St.
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Cumberland County PSAs

JOB NUMBER: ROW-203

LOCATION: Fayetteville, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						(SW-SM) Tan-brown, fine SAND, trace silt, dry		0
100			0	0				
100			0	0.1				
5			0	0.1				5
100			0	0.1		(SW) Tan-white, fine SAND, dry		
100			0	0				
10			0	0				10
100			0	0				
15						Bottom of borehole at 12.0 feet.		15
20								20

LOG OF BORING - HART HICKMAN GDT - 12/23/08 10:12 - S:\AAA-MASTER GINT PROJECTS\ROW-203\PARCEL 169.GPJ

DRILLING CONTRACTOR: SEI
DRILL RIG/ METHOD: Geoprobe / Direct-Push Sleeve
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 12/10/08
BORING COMPLETED: 12/10/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
 Borehole hand-augered to 5 feet.
 Sample collected from 2-4 feet.



BORING NUMBER 169-10

2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St.
Raleigh, North Carolina 27607
919-847-4241(p) 919-847-4261(f)

PROJECT: Cumberland County PSAs

JOB NUMBER: ROW-203

LOCATION: Fayetteville, NC

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0						(SM) Brown-black, silty fine SAND, dry		0
100			0	0				
100			0	0				
5			0	0.1		(SW) Tan, fine SAND, dry		5
100			0	0.1				
100			0	0				
10			0	0		(SW) White, fine SAND, dry		10
100			0	0.1				
						Bottom of borehole at 12.0 feet.		
15								15
20								20

LOG OF BORING - HART HICKMAN.GDT - 12/23/08 10:12 - S:\AAA-MASTER GINT PROJECTS\ROW-203\PARCEL 169.GPJ

DRILLING CONTRACTOR: SEI
DRILL RIG/ METHOD: Geoprobe / Direct-Push Sleeve
SAMPLING METHOD: DPT Sleeves
LOGGED BY: GAB
DRAWN BY:

BORING STARTED: 12/10/08
BORING COMPLETED: 12/10/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
 Borehole hand-augered to 5 feet.
 Sample collected from 4-6 feet.

Appendix D
Laboratory Analytical Report



Mr. David Graham
Hart & Hickman
2923 S. Tryon St.
Suite 100
Charlotte NC 28203
Report Number: G609-46
Client Project: Row-203

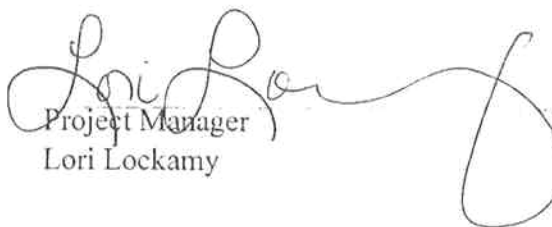
Dear Mr. Graham:

Enclosed are the results of the analytical services performed under the referenced project. 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 the services performed during this project, please call SGS at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS Environmental Services for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
SGS Environmental Services, Inc.


Project Manager
Lori Lockamy

12/19/08
Date

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

P/D = Detected, but RPD is > 25/40% 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

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.

SGS Environmental Services, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-1 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-1A
Lab Project ID: G609-46
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/10/2008 11:45
Date Received: 12/12/2008
Matrix: Soil
Solids 93.63

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.82	mg/Kg	1	12/18/08 15:04

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	100	99.9		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 5.51 g
Final Volume: 5 mL

Analyst: DVG

Reviewed By: DVG
GRO

SGS Environmental Services, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-2 (0-2)
Client Project ID: Row-203
Lab Sample ID: G609-46-2A
Lab Project ID: G609-46
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/10/2008 12:00
Date Received: 12/12/2008
Matrix: Soil
Solids 92.88

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.01	mg/Kg	1	12/18/08 17:17

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95	95.5		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 5.37 g
Final Volume: 5 mL

Analyst: DVG

Reviewed By: 
GRO

SGS Environmental Services, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-3 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-3A
Lab Project ID: G609-46
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/10/2008 12:20
Date Received: 12/12/2008
Matrix: Soil
Solids 91.71

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.62	mg/Kg	1	12/18/08 18:36

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	100	99.6		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 4.94 g
Final Volume: 5 mL

Analyst: DVG

SGS Environmental Services, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-4 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-4A
Lab Project ID: G609-46
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/10/2008 12:35
Date Received: 12/12/2008
Matrix: Soil
Solids 91.98

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.08	mg/Kg	1	12/18/08 19:30

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	100	99.5		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 6.42 g
Final Volume: 5 mL

Analyst: DVG

Reviewed By: 
GRO

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-5 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-5A
Lab Project ID: G609-46
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/10/2008 12:50
Date Received: 12/12/2008
Matrix: Soil
Solids 92.85

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.39	mg/Kg	1	12/18/08 19:56

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95	94.8		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 5.99 g
Final Volume: 5 mL

Analyst: DVG

SGS Environmental Services, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-6 (4-6)
Client Project ID: Row-203
Lab Sample ID: G609-46-6A
Lab Project ID: G609-46
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/10/2008 13:10
Date Received: 12/12/2008
Matrix: Soil
Solids 95.42

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.72	mg/Kg	1	12/18/08 20:23

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	98	98.3		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 4.68 g
Final Volume: 5 mL

Analyst: DVG

SGS Environmental Services, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-7 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-7A
Lab Project ID: G609-46
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/10/2008 13:45
Date Received: 12/12/2008
Matrix: Soil
Solids 93.92

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.70	mg/Kg	1	12/18/08 20:49

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	100	99.5		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 5.6 g
Final Volume: 5 mL

Analyst: DVG

SGS Environmental Services, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-8 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-8A
Lab Project ID: G609-46
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/10/2008 14:30
Date Received: 12/12/2008
Matrix: Soil
Solids 92.76

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.89	mg/Kg	1	12/18/08 21:16

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	105	105		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

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

Analyst: DVG

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-9 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-9A
Lab Project ID: G609-46
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/10/2008 15:00
Date Received: 12/12/2008
Matrix: Soil
Solids 93.49

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.83	mg/Kg	1	12/18/08 21:42

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	97	97.3		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 5.5 g
Final Volume: 5 mL

Analyst: DVG

SGS Environmental Services, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169- 10 (4-6)
Client Project ID: Row-203
Lab Sample ID: G609-46-10A
Lab Project ID: G609-46
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected: 12/10/2008 15:30
Date Received: 12/12/2008
Matrix: Soil
Solids 94.85

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	5.96	mg/Kg	1	12/18/08 22:09

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	93	93.4		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

Prep Method: 5035
Initial Wt/Vol: 5.31 g
Final Volume: 5 mL

Analyst: DVG

SGS Environmental Services, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: VBLK4121808A
Lab Project ID:
Report Basis: Dry Weight

Analyzed By: DVG
Date Collected:
Date Received:
Matrix: Soil
Solids 100.00

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.00	mg/kg	1	12/18/08 06:12

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	95	94.9		70-130

Comments:

Batch Information

Analytical Batch: VP121808
Analytical Method: 8015
Instrument ID: GC4
Analyst: DVG

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

Analyst: DVG

QC Results for Total Petroleum Hydrocarbons
by GC/FID

Client Sample ID: Batch QC
 Lab Sample ID: g609-44-1a
 LCS ID: LCS4121808A / VP121808

Analyzed By: DVG
 Matrix: Soil
 Solids 98.47

MS/MSD

Analyte	Sample MG/KG	Spiked MG/KG	MS MG/KG	REC		Spiked MG/KG	MSD MG/KG	REC		RPD	
				%	#			%	#	%	#
				(70-130%)						(30%)	
GRO	BQL	16	15.8	98.8	✓	16	14.9	93.1	✓	5.94	✓

LCS

Analyte	Spiked MG/KG	Result MG/KG	REC % #	LIMITS	
				Lower	Upper
GRO	16	18	109 ✓	70	130

Comments:

Reviewed By: 

SGS Environmental Services, Inc.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: Method Blank
 Client Project ID:
 Lab Sample ID: VBLK4121808B
 Lab Project ID:
 Report Basis: Dry Weight

Analyzed By: DVG
 Date Collected:
 Date Received:
 Matrix: Soil
 Solids 100.00

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.00	mg/kg	1	12/18/08 16:50

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	113	113		70-130

Comments:

Batch Information

Analytical Batch: VP121808
 Analytical Method: 8015
 Instrument ID: GC4
 Analyst: DVG

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

Analyst: DVG

SGS Environmental Services, Inc.

QC Results for Total Petroleum Hydrocarbons
by GC/FID

Client Sample ID: Batch QC
 Lab Sample ID: g609-46-2a
 LCS ID: LCS4121808B / VP121808

Analyzed By: DVG
 Matrix: Soil
 Solids 92.88

MS/MSD

Analyte	Sample MG/KG	Spiked MG/KG	MS MG/KG	REC		Spiked MG/KG	MSD MG/KG	REC		RPD	
				%	#			%	#	%	#
				(70-130%)						(70-130%) (30%)	
GRO	BQL	16	16.4	103	✓	16	16.3	102	✓	0.976	✓

LCS

Analyte	Spiked MG/KG	Result MG/KG	REC % #	LIMITS	
				Lower	Upper
GRO	16	18	113 ✓	70	130

Comments:

Reviewed By: 

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-1 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-1D
Lab Project ID: G609-46

Date Collected: 12/10/2008 11:45
Date Received: 12/12/2008
Matrix: Soil
Solids 93.63
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.17	mg/Kg	1	12/17/08 18:34

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	39.3	98.2

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13228
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 34.62 G
Prep Final Vol: 10 mL

Analyst: 

NC Certification #481

Reviewed By: 
DRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-2 (0-2)
Client Project ID: Row-203
Lab Sample ID: G609-46-2D
Lab Project ID: G609-46

Date Collected: 12/10/2008 12:00
Date Received: 12/12/2008
Matrix: Soil
Solids 92.88
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	13.4	6.59	mg/Kg	1	12/17/08 19:02


Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	36	90

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13228
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 32.69 G
Prep Final Vol: 10 mL

Analyst: 

NC Certification #481

Reviewed By: 
DRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-3 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-3D
Lab Project ID: G609-46

Date Collected: 12/10/2008 12:20
Date Received: 12/12/2008
Matrix: Soil
Solids 91.71
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.59	mg/Kg	1	12/17/08 19:30
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	34.5	86.3

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13228
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 33.08 G
Prep Final Vol: 10 mL

Analyst:

NC Certification #481

Reviewed By:
DRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-4 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-4D
Lab Project ID: G609-46

Date Collected: 12/10/2008 12:35
Date Received: 12/12/2008
Matrix: Soil
Solids 91.98
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.67	mg/Kg	1	12/17/08 19:58
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	35.2	88

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13228
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 32.62 G
Prep Final Vol: 10 mL

Analyst:

NC Certification #481

Reviewed By:



Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-5 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-5D
Lab Project ID: G609-46

Date Collected: 12/10/2008 12:50
Date Received: 12/12/2008
Matrix: Soil
Solids 92.85
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	32.9	6.51	mg/Kg	1	12/17/08 21:24
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	35.9	89.7

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13228
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 33.08 G
Prep Final Vol: 10 mL

Analyst: 

NC Certification #481

Reviewed By: 
DRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-6 (4-6)
Client Project ID: Row-203
Lab Sample ID: G609-46-6D
Lab Project ID: G609-46

Date Collected: 12/10/2008 13:10
Date Received: 12/12/2008
Matrix: Soil
Solids 95.42
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.09	mg/Kg	1	12/17/08 21:53
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	34.8	87.1

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13228
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 34.41 G
Prep Final Vol: 10 mL

Analyst: *W*

NC Certification #481

Reviewed By: *[Signature]*
DRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-7 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-7D
Lab Project ID: G609-46

Date Collected: 12/10/2008 13:45
Date Received: 12/12/2008
Matrix: Soil
Solids 93.92
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.47	mg/Kg	1	12/17/08 22:21

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	36	90

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13228
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 32.9 G
Prep Final Vol: 10 mL

Analyst: *W*

NC Certification #481

Reviewed By: *W*
DRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-8 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-8D
Lab Project ID: G609-46

Date Collected: 12/10/2008 14:30
Date Received: 12/12/2008
Matrix: Soil
Solids 92.76
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.18	mg/Kg	1	12/17/08 22:49

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	34.1	85.3

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13228
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 34.91 G
Prep Final Vol: 10 mL

Analyst: 

NC Certification #481

Reviewed By: 
DRO.XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169-9 (2-4)
Client Project ID: Row-203
Lab Sample ID: G609-46-9D
Lab Project ID: G609-46

Date Collected: 12/10/2008 15:00
Date Received: 12/12/2008
Matrix: Soil
Solids 93.49
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.62	mg/Kg	1	12/17/08 23:18

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	34.3	85.8

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13228
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 32.32 G
Prep Final Vol: 10 mL

Analyst: 

NC Certification #481

Reviewed By: 
DRO XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 169- 10 (4-6)
Client Project ID: Row-203
Lab Sample ID: G609-46-10D
Lab Project ID: G609-46

Date Collected: 12/10/2008 15:30
Date Received: 12/12/2008
Matrix: Soil
Solids 94.85
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.54	mg/Kg	1	12/18/08 01:40
Surrogate Spike Results		Spike Added	Control Limits	Spike Result	Percent Recovery
OTP		40	40-140	33.7	84.3

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13229
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 32.25 G
Prep Final Vol: 10 mL

Analyst: 

NC Certification #481

Reviewed By: 
DRO XLS

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: PB13228
Lab Project ID:

Date Collected:
Date Received:
Matrix: SOIL
Solids 100.00
Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.25	mg/Kg	1	12/17/08 12:28

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	38.4	96

Comments:

Batch Information

Analytical Batch: EP121708
Analytical Method: 8015
Instrument: GC6
Analyst: EAW

Prep batch: 13228
Prep Method: 3541
Prep Date: 12/15/08
Initial Prep Wt/Vol: 32 G
Prep Final Vol: 10 mL

Analyst: 

NC Certification #481

N.C. Certification #481

Reviewed By: 
DRO.XLS
Page 27 of 31

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: Method Blank
 Client Project ID:
 Lab Sample ID: PB13229
 Lab Project ID:

Date Collected:
 Date Received:
 Matrix: SOIL
 Solids 100.00
 Report Basis: Dry Weight

Parameter	Result	RL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	BQL	6.25	mg/Kg	1	12/18/08 00:43

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	34.2	85.5

Comments:

Batch Information

Analytical Batch: EP121708
 Analytical Method: 8015
 Instrument: GC6
 Analyst: EAW

Prep batch: 13229
 Prep Method: 3541
 Prep Date: 12/15/08
 Initial Prep Wt/Vol: 32 G
 Prep Final Vol: 10 mL

Analyst: 

NC Certification #481

Reviewed By: 
DRO XLS

QC Results for Total Petroleum Hydrocarbons
by GC/FID

Client Sample ID: Batch QC
Lab Sample ID: G609-46-9D
Batch ID: 13228

Analyzed By: EAW
Matrix: Soil
Solids 93.49

MS/MSD

Analyte	Sample MG/KG	Spiked MG/KG	MS MG/KG	REC % #	Spiked MG/KG	MSD MG/KG	REC % #	RPD %
DRO	BQL	64.7	52.1	80.5	61.8	60.3	97.6	19.2

LCS

Analyte	Spiked MG/KG	Result MG/KG	REC % #	LIMITS	
				Lower	Upper
DRO	62.5	61	97.6	55.3	137

Reviewed By: 

QC Results for Total Petroleum Hydrocarbons
by GC/FID

Client Sample ID: Batch QC
Lab Sample ID: G609-45-11D
Batch ID: 13229

Analyzed By: EAW
Matrix: Soil
Solids 82.48

MS/MSD

Analyte	Sample MG/KG	Spiked MG/KG	MS MG/KG	REC % #	Spiked MG/KG	MSD MG/KG	REC % #	RPD %
DRO	BQL	73	56.2	77	73.1	65.2	89.2	14.7

LCS

Analyte	Spiked MG/KG	Result MG/KG	REC % #	LIMITS	
				Lower	Upper
DRO	62.5	56.1	89.8	55.3	137

Reviewed By: 



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090815

1 CLIENT: Hart & Hickman PHONE NO. (704) 576-0007

CONTACT: David Graham SITE/PWSID#: _____

PROJECT: ROW-203 ✓ E-MAIL: dgraham@hart.hickman.com

REPORTS TO: David Graham FAX NO.:()

INVOICE TO: Hart & Hickman QUOTE # _____

P.O. NUMBER _____

2

LAB NO	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No	C	O	N	T	A	I	N	E	R	S	SAMPLE TYPE	C= COMP	G= GRAB	Preservation Used	Analysis Required	REMARKS
✓ 169-1	(2-4)	12/10/08	1145	SOIL	3										G						
✓ 169-2	(0-2)	12/10/08	1200	SOIL	3										G						
✓ 169-3	(2-4)	12/10/08	1220	SOIL	3										G						
✓ 169-4	(2-4)	12/10/08	1235	SOIL	3										G						
✓ 169-5	(2-4)	12/10/08	1250	SOIL	3										G						
✓ 169-6	(4-6)	12/10/08	1310	SOIL	3										G						
✓ 169-7	(2-4)	12/10/08	1345	SOIL	3										G						
✓ 169-8	(2-4)	12/10/08	1450	SOIL	3										G						
✓ 169-9	(2-4)	12/10/08	1500	SOIL	3										G						
✓ 169-10	(4-6)	12/10/08	1530	SOIL	3										G						

3

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SGS Reference: 6609-46 PAGE 1 OF 1

Shipping Carrier: _____

Shipping Ticket No. _____

Special Deliverable Requirements: _____

Special Instructions: _____

Requested Turnaround Time: _____

Date Needed _____

Samples Received Cold? (Circle) YES NO

Temperature: C: 5.2

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Requested Turnaround Time: _____

RUSH STD

1200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301

5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

1270 Greenbrier Street Charleston, WV 25311 Tel: (304) 346-0725 Fax: (304) 346-0761

White - Retained by Lab
 Yellow - Returned with Report
 Pink - Retained by Sampler