

Preliminary Site Assessment
Walter Otto Property Parcel #41
Boone, Watauga County, NC

H&H Job No. ROW-148
State Project U-4020
WBS Element # 35015.1.1
May 29, 2008



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

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

**Preliminary Site Assessment
Walter Otto Property Parcel #41
Boone, Watauga County, North Carolina
H&H Project ROW-148**

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**Preliminary Site Assessment
Walter Otto Property Parcel #41
Boone, Watauga County, North Carolina
H&H Project ROW-148**

1.0 Introduction

Hart & Hickman, PC (H&H) has prepared this Preliminary Site Assessment (PSA) report documenting assessment activities performed at the Walter Otto property (NC DOT Parcel #41) located at 499 and 511 East King Street (US Highway 421) in Boone, Watauga County, North Carolina. This assessment was conducted on behalf of the North Carolina Department of Transportation (NC DOT) in accordance with the scope of work outlined in our February 29, 2008 proposal.

The purpose of this assessment was to determine the presence or absence of impacted soil at the subject property in the proposed construction areas related to the widening of US Highway 421 (State Project U-4020). 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 US Highway 421 widening area near the Walter Otto property (NC DOT Parcel #41) is included in Appendix A.

Based on information provided by NC DOT and property neighbors, the subject site was reported to be a gas station at some unspecified time in the past. A pawnshop and sporting goods store are located on the property. According to an Environmental Data Resources (EDR) report for the site vicinity, the property does not appear on the North Carolina Underground Storage Tank (UST) database, and H&H did not observe surface evidence of current USTs or of a previous UST removal on the property.

2.0 Site Assessment

Soil Assessment Field Activities

H&H mobilized to the Walter Otto property on April 8, 2008 to advance six soil borings (41-1 through 41-6) by direct push technology (DPT). Prior to advancing the soil borings, H&H reviewed a geophysical survey performed by Schnabel Engineering (Schnabel) on March 10 and 18, 2008.

Schnabel utilized ground penetrating radar (GPR) and time domain electromagnetic (TDEM) technology to identify geophysical anomalies and potential USTs at the site. The Schnabel results indicated several magnetic anomalies on the southern portion of the property. Follow-up with GPR did not show evidence of USTs at these locations. Schnabel's report including a site map depicting the results of the GPR and TDEM results is included in Appendix B.

Prior to conducting soil borings, utilities were marked by NC One Call and by DOT's contractor Vaughn and Melton. Borings were also cleared to a five foot depth by hand auger. H&H utilized Geologic Exploration of Statesville, North Carolina to advance soil borings 41-1 through 41-6 by DPT (Figure 2). To facilitate the selection of soil samples for laboratory analysis from these borings, soil 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. In general, a soil sample from each boring that exhibited the highest reading on the OVA was selected for laboratory analysis. Soil boring logs are included in Appendix C.

H&H submitted six samples (41-1 @ 5-7 ft; 41-2 @ 2-5 ft; 41-3 @ 5-7 ft; 41-4 @ 5-7 ft; 41-5 @ 2-5 ft; and 41-6 @ 2-5 ft) 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 Prism Laboratories Inc. of Charlotte, North Carolina under standard chain-of-custody procedure for analysis of total petroleum hydrocarbons (TPH) for gasoline-range organics (GRO) and diesel-range organics (DRO) by EPA Method 8015B. Sample depths and analytical results are summarized in Table 1. Laboratory analytical data sheets for the Parcel 41 samples and chain-of-custody documentation for this site are provided in Appendix D. The chain-of-custody form includes samples collected from other nearby properties. The analytical results are discussed below.

3.0 Analytical Results

Target analytes were detected in one soil sample collected from Parcel 41. A TPH DRO concentration of 35 mg/kg was detected in soil sample 41-3 (5-7 ft). This TPH DRO concentration

is above the NC DENR Action Level of 10 mg/kg. TPH GRO was not detected in the samples collected from Parcel 41.

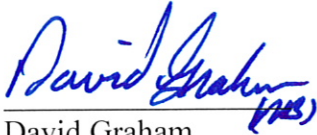
Based on laboratory analytical results, low level TPH concentrations are present on Parcel 41 between the existing northern curb of East King Street and the proposed utility easement line in the vicinity of soil boring 41-3. H&H estimates that there are a total of 50 cubic yards (70 tons) of impacted soil between depths of 5 and 10 ft near boring 41-3. DOT plans indicate a proposed fill of 1 to 2 ft in this area. Because this is a fill area and soil impacts begin 5 ft below grade, the impacted soil will not likely be disturbed. Impacted soil will be generated by any soil grading work below 5 ft from existing grade and potentially during any utility line installations. Impacted soil that is removed should be properly managed and disposed at a permitted facility.

4.0 Summary and Regulatory Considerations

H&H has reviewed Geophysical survey results and collected soil samples at Parcel 41. No USTs appear to be present between the existing northern curb of East King Street and the proposed utility easement area. Analytical results indicate a low TPH DRO concentration in sample 41-3 (5-7 ft) of TPH DRO above the NC DENR Action Level. H&H estimates that there are a total of 50 cubic yards (70 tons) of impacted soil between depths of 5 and 10 ft near boring 41-3. The impacted soil is situated between the existing northern curb of East King Street and the proposed utility easement line in the approximate center of the property. DOT plans indicate a proposed fill of 1 to 2 ft in this area. Because this is a fill area, the impacted soil will not likely be disturbed by the road work. Impacted soil will be generated by any grading work below 5 ft from existing grade and potentially during any utility line installations. Impacted soil that is removed should be properly managed and disposed at a permitted facility.

5.0 Signature Page

This report was prepared by:



David 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
Walter Otto Property, Parcel #41
Boone, North Carolina
H&H Job No. ROW-148

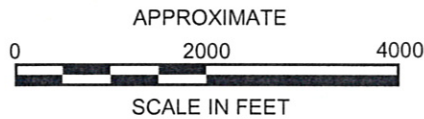
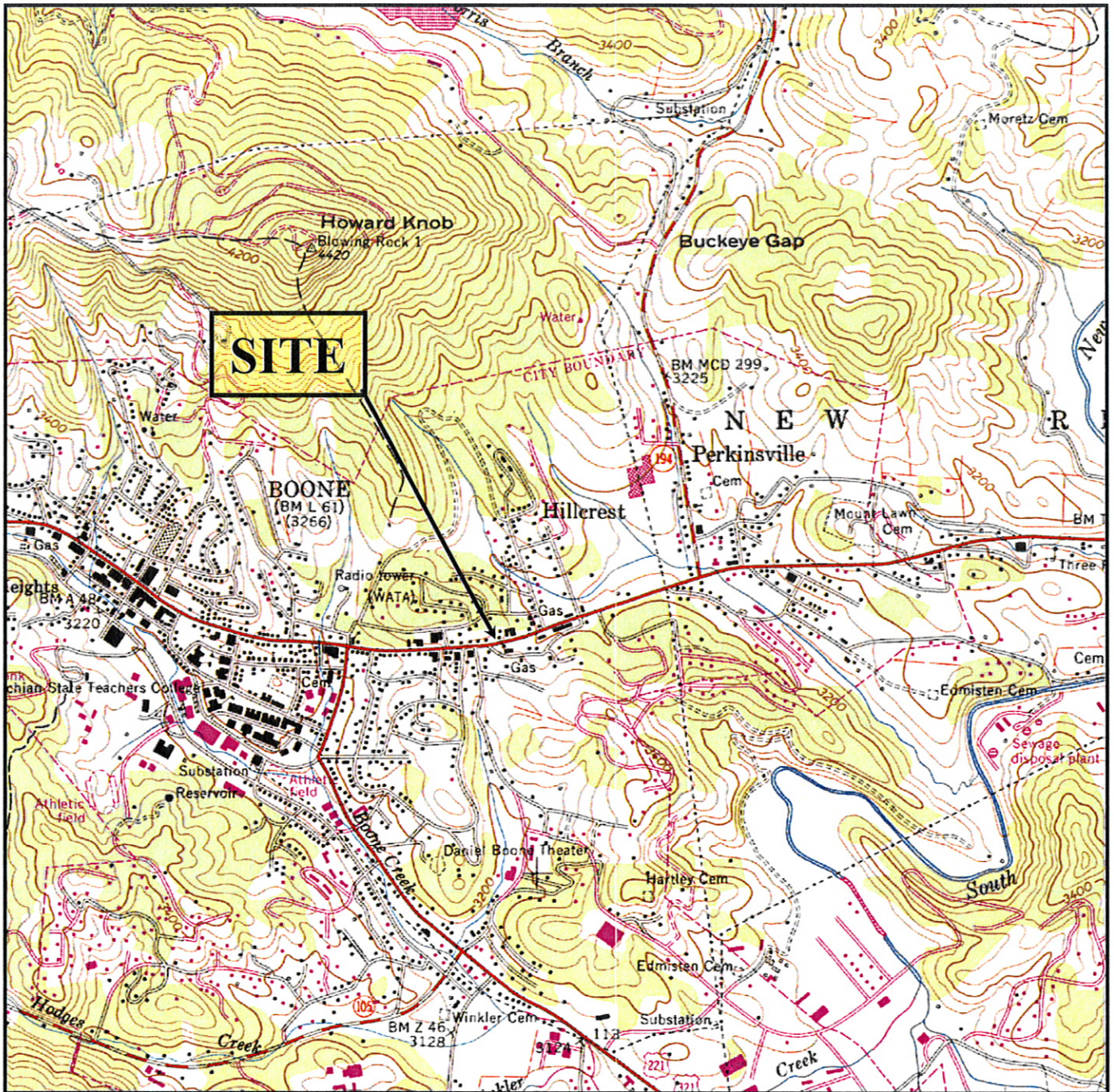
Sample ID Sample Depth (ft) Sample Date Units	41-1	41-2	41-3	41-4	41-5	41-6	NC DENR Action Level (mg/kg)
	5-7 4/8/2008 (mg/kg)	2-5 4/8/2008 (mg/kg)	5-7 4/8/2008 (mg/kg)	5-7 4/8/2008 (mg/kg)	2-5 4/8/2008 (mg/kg)	2-5 4/8/2008 (mg/kg)	
<u>TPH-DRO/GRO (8015B)</u> Diesel-Range Organics (DRO) Gasoline-Range Organics (GRO)	<7.8 <5.6	<9.8 <7.0	35 <5.4	<7.4 <5.3	<8.5 <6.0	<8.3 <5.9	10 10

Notes:

EPA Method follows parameter in parenthesis

Bold denotes value exceeds NCDENR Action Level


TPH=total petroleum hydrocarbons



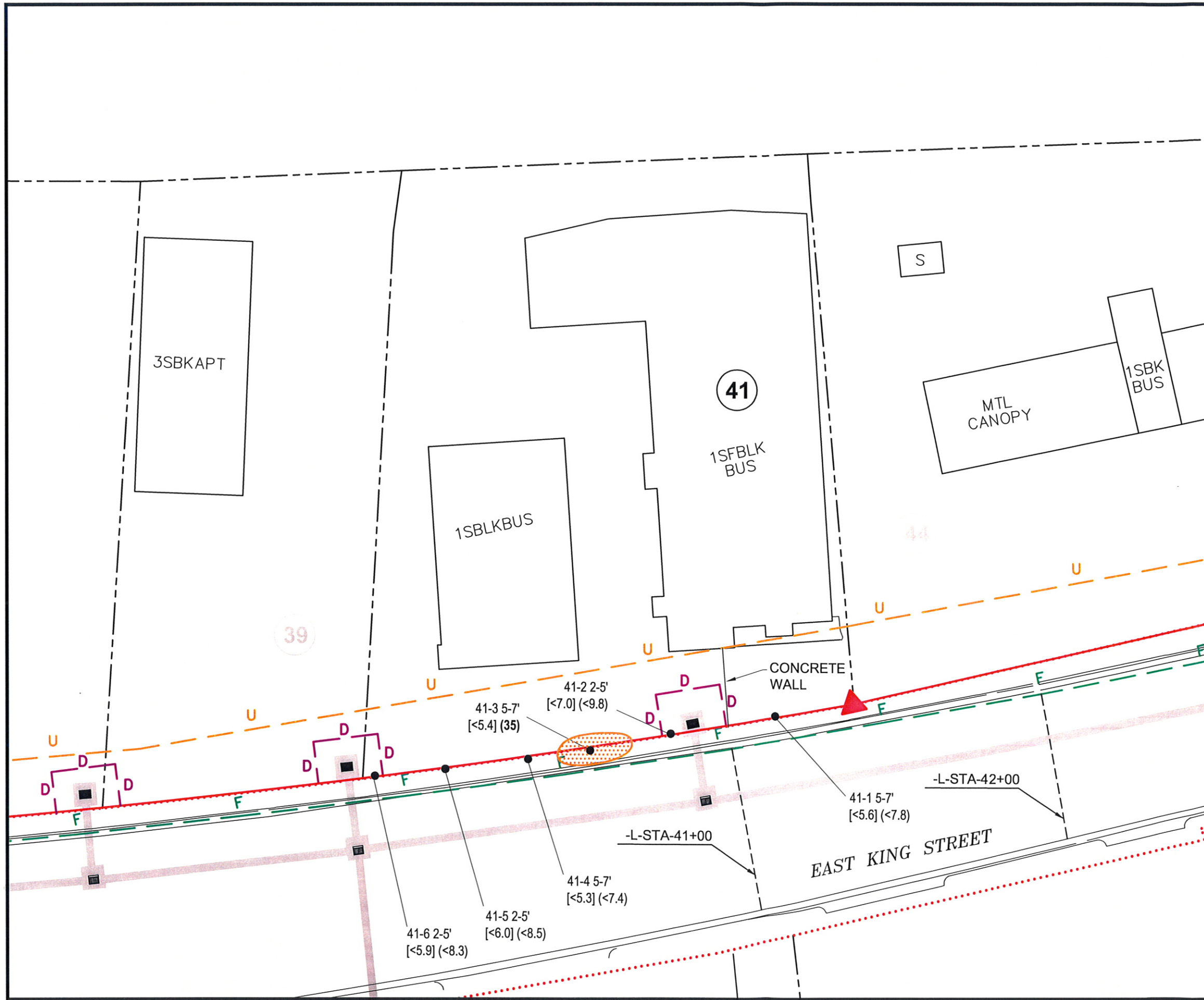
U.S.G.S. QUADRANGLE MAP

**BOONE, NC 1959
PHOTOREVISED 1978**

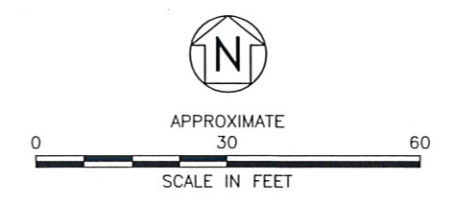
QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE	SITE LOCATION MAP	
PROJECT	WALTER OTTO PROPERTY PARCEL #41 BOONE, NORTH CAROLINA	
 2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007 (p) 704-586-0370 (f)		
DATE:	4-28-08	REVISION NO: 0
JOB NO:	ROW-148	FIGURE NO: 1

S:\AAA-Master Projects\NC DOT Right-of-Way -ROW\ROW-148 Boone PSAs\Files from DOT\Proj\FIGURES\37_38_41-43_45_47_48 A.dwg, 41_5/28/2008 12:11:24 PM, 1:1



- LEGEND**
- PROPERTY LINE
 - EXISTING RIGHT-OF-WAY
 - ▲ PROPOSED RIGHT-OF-WAY
 - F- PROPOSED FILL LINE
 - D- PROPOSED DRAINAGE EASEMENT
 - U- PROPOSED UTILITY EASEMENT
 - [Hatched Box] IMPACTED SOIL AREA
 - PROPOSED DRAINAGE PIPE
 - CB PROPOSED CATCH BASIN
 - SOIL BORING
 - 41 PARCEL NUMBER
 - [] = TPH GRO mg/kg
 - () = TPH DRO mg/kg
 - BOLD DENOTES EXCEEDANCE OF NCDENR ACTION LEVEL**
 - TPH GRO/DRO ACTION LEVEL = 10 PPM
 - NOTE: IMPACTED SOIL IS LOCATED APPROXIMATELY 5 FEET BELOW GRADE LEVEL.

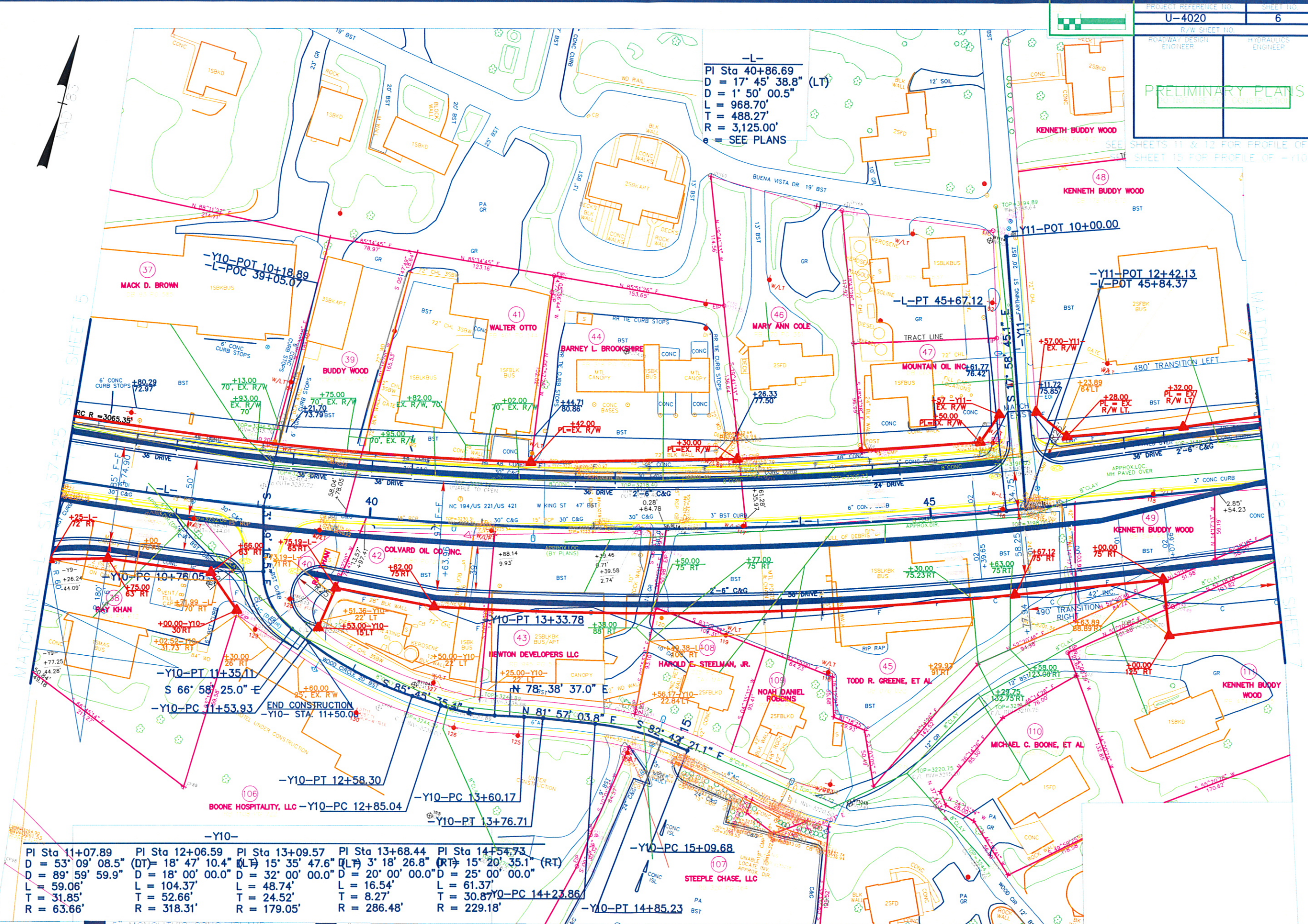


TITLE	
SITE MAP AND SOIL ANALYTICAL RESULTS	
PROJECT	
WALTER OTTO PROPERTY PARCEL #41 BOONE, NORTH CAROLINA	
2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007(p) 704-586-0373(f)	
DATE: 4-24-08	REVISION NO. 0
JOB NO: ROW-148	FIGURE: 2

Appendix A
NC DOT Preliminary Plan

-L-
 PI Sta 40+86.69
 D = 17' 45" 38.8" (LT)
 D = 1' 50' 00.5"
 L = 968.70'
 T = 488.27'
 R = 3,125.00'
 e = SEE PLANS

SEE SHEETS 11 & 12 FOR PROFILE OF SET
 SEE SHEET 13 FOR PROFILE OF -Y10-



PI Sta 11+07.89	PI Sta 12+06.59	PI Sta 13+09.57	PI Sta 13+68.44	PI Sta 14+54.73
D = 53' 09" 08.5"	(DT) = 18' 47" 10.4"	(LT) = 15' 35" 47.6"	(LT) = 3' 18" 26.8"	(RT) = 15' 20" 35.1"
D = 89' 59" 59.9"	D = 18' 00" 00.0"	D = 32' 00" 00.0"	D = 20' 00" 00.0"	D = 25' 00" 00.0"
L = 59.06'	L = 104.37'	L = 48.74'	L = 16.54'	L = 61.37'
T = 31.85'	T = 24.66'	T = 24.52'	T = 8.27'	T = 30.87'
R = 63.66'	R = 318.31'	R = 179.05'	R = 286.48'	R = 229.18'

Appendix B
Schnabel Geophysical Report

April 28, 2008

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

RE: State Project: U-4020
WBS Element: 35015.1.1
County: Watauga
Description: US 421 (King Street) from US 321 (Hardin Street) to east
of NC 194 (Jefferson Road) in Boone

SUBJECT: Report on Geophysical Surveys of Parcel 41
Schnabel Engineering Project No. 07210023.07

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 two 11x17 color figures.

1.0 INTRODUCTION

Schnabel Engineering conducted geophysical surveys on March 10 and 18, 2008, in the accessible areas of the proposed right-of-way (ROW) section of Parcel 41 (Walter Otto Property, Jewelry and Pawn & Pro-Am Sports) under our 2007 contract with the NCDOT. Parcel 41 is located on the north side of US 421 (King Street), near the intersection with Wood Circle, in Boone, NC. The work was conducted at the location indicated by 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 (GPR) 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 two feet apart in orthogonal directions over anomalous EM readings not attributed to cultural features.

Preliminary results were sent to David Graham and Matt Bramblett of Hart & Hickman on March 24, 2008.

3.0 DISCUSSION OF RESULTS

The contoured EM61 data are shown on Figures 1 and 2. The EM61 early time gate results are plotted on Figure 1. The early time gate data provide the most sensitive detection of metal object targets, regardless of size. Figure 2 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 indicate several anomalies probably caused by known cultural features. One area containing an anomaly not attributed to known cultural features in the EM61 data was investigated using GPR. Based on the results of the GPR survey this anomaly is

probably caused by buried metal debris. The GPR data did not indicate the presence of UST's in the areas surveyed on Parcel 41.

4.0 CONCLUSIONS

Our evaluation of the geophysical data collected on Parcel 41 of Project U-4020 in Boone, NC indicates the following:

- The geophysical data do not indicate the presence of UST's in the areas surveyed.

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.

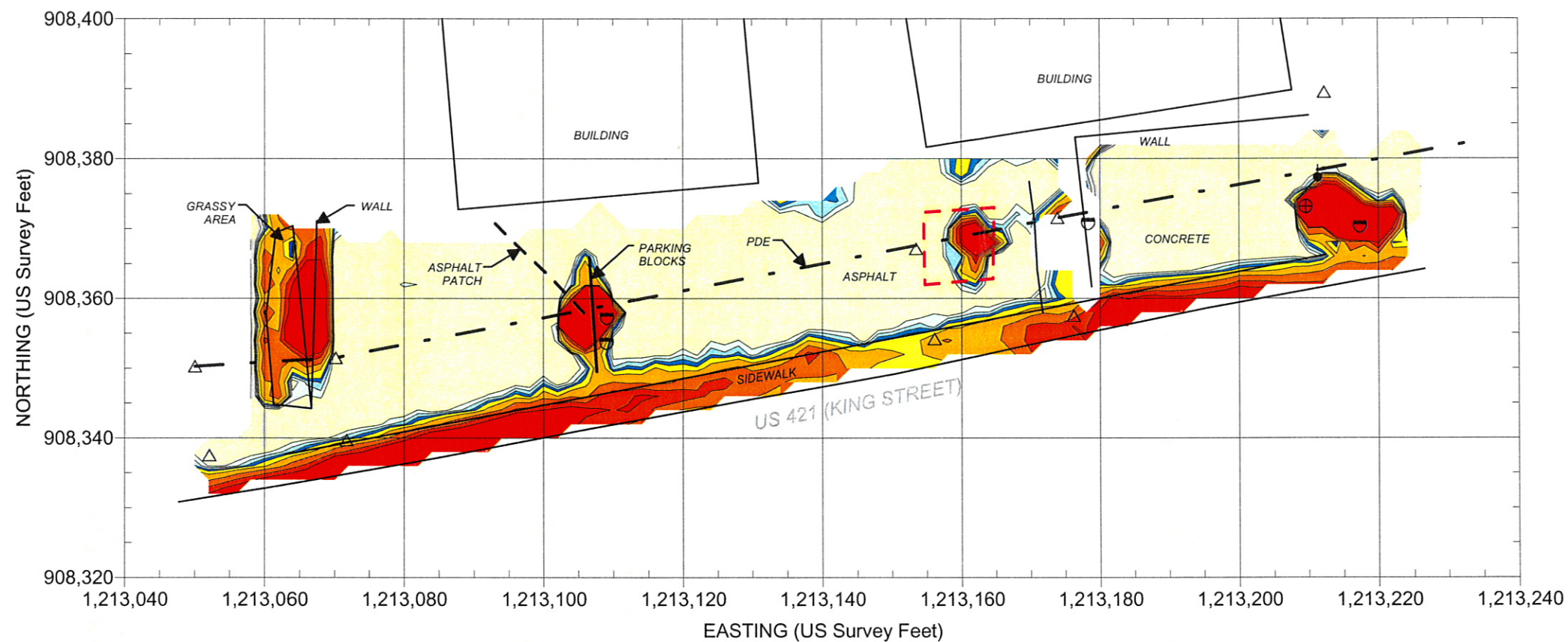
Sincerely,



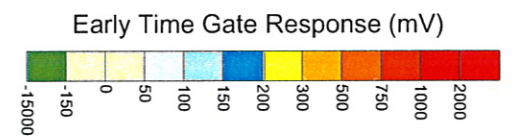
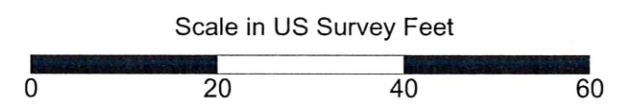
Jeremy S. Strohmeyer, P.G.
Project Manager

JW/JS/NB

Attachment: Figures (2)



EXPLANATION	
	EM61 SURVEY AREA - DATA ACQUIRED ALONG PARALLEL SURVEY LINES SPACED APPROXIMATELY 2.5 FEET APART
	GUY WIRE
	SIGN
	METALLIC OBJECT
	NCDOT MARKER
	UTILITY POLE
	STORMWATER GRATE
	UTILITY MANHOLE
	MONITORING WELL
	LIGHTPOLE
	GPR SURVEY AREA
	LOCATION OF GPR SURVEY LINE SHOWN
	APPROXIMATE LOCATION OF POSSIBLE UTILITY (SOME MARKED IN FIELD)
	APPROXIMATE LOCATION OF POSSIBLE BURIED UST AS MARKED IN FIELD
	APPROXIMATE LIMITS OF NCDOT PROJECT



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 March 10, 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 March 18, 2008, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

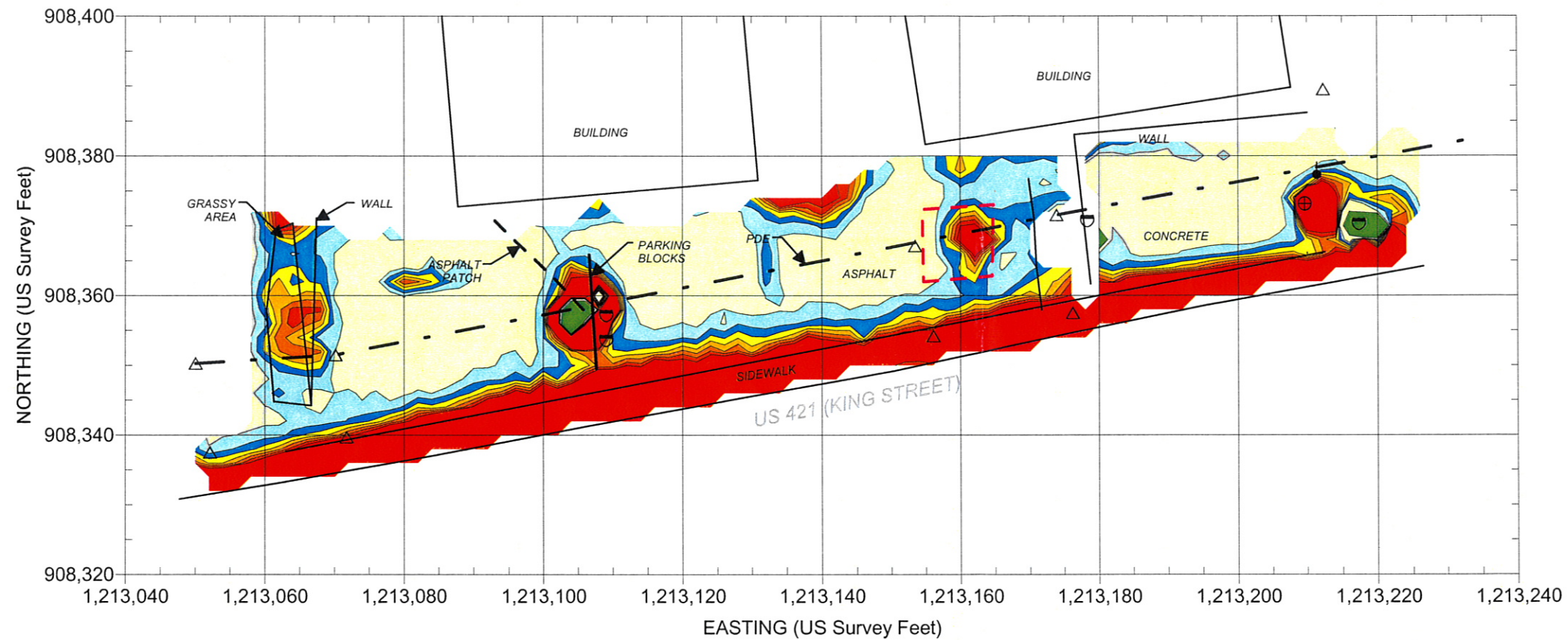


NC Department of Transportation
Geotechnical Engineering Unit

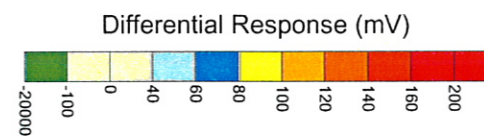
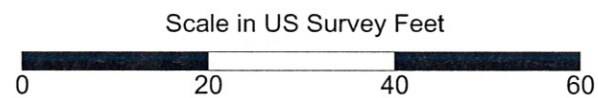
State Project No. U-4020
Watauga County, North Carolina

**PARCEL 41
EM61 EARLY TIME
GATE RESPONSE**

FIGURE 1



EXPLANATION	
	EM61 SURVEY AREA - DATA ACQUIRED ALONG PARALLEL SURVEY LINES SPACED APPROXIMATELY 2.5 FEET APART
	GUY WIRE
	SIGN
	METALLIC OBJECT
	NCDOT MARKER
	UTILITY POLE
	STORMWATER GRATE
	UTILITY MANHOLE
	MONITORING WELL
	LIGHTPOLE
	GPR SURVEY AREA
	LOCATION OF GPR SURVEY LINE SHOWN
	APPROXIMATE LOCATION OF POSSIBLE UTILITY (SOME MARKED IN FIELD)
	APPROXIMATE LOCATION OF POSSIBLE BURIED UST AS MARKED IN FIELD
	APPROXIMATE LIMITS OF NCDOT PROJECT



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 pipes and tanks. The EM data were collected on March 10, 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 March 18, 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-4020
Watauga County, North Carolina

**PARCEL 41
EM61 DIFFERENTIAL
RESPONSE**

FIGURE 2

Appendix C
Soil Boring Logs



BORING NUMBER 41-1

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

3334 Hillsborough Street
Raleigh, North Carolina 27615
919-847-4241(p) 919-847-4261(f)

PROJECT: Boone PSA's
JOB NUMBER: ROW-148 (41)
LOCATION: Boone, North Carolina

LOG OF BORING - HART HICKMAN GDT - 5/13/08 14:00 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY - ROW\ROW-148 BOONE PSA\BORING LOGS\ROW-148 (41).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Red/brown, sandy SILT, dry		0.0
2.5	100		0.5	2.1		Red/brown, silty SAND, dry		2.5
5.0				2		Light brown/tan, SILT with some medium grained sand and partially weathered rock, dry		5.0
7.5	75			3.1		Light brown/tan, SILT with fine grained sand and partially weathered rock, dry		7.5
10.0				2.2		Dark brown, SAND with partially weathered rock and clay, dry		10.0
12.5	50			2.1		Bottom of borehole at 12.0 feet.		12.5
15.0								15.0

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 6620DT / Geoprobe
SAMPLING METHOD: DPT Sleeves
LOGGED BY: M. Falknor
DRAWN BY:

BORING STARTED: 4/8/08
BORING COMPLETED: 4/8/08
TOTAL DEPTH: 12
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
Borehole hand-augered to 5 feet. Sample collected from 5-7 feet for laboratory analysis.



BORING NUMBER 41-2

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

3334 Hillsborough Street
Raleigh, North Carolina 27615
919-847-4241(p) 919-847-4261(f)

PROJECT: Boone PSA's
JOB NUMBER: ROW-148 (41)
LOCATION: Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/13/08 14:00 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSA\BORING LOGS\ROW-148 (41).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Light brown/tan, SILT, dry		0.0
2.5	50		0.6	1.7		Light brown/tan, SILT, dry		2.5
5.0				2.9		Light brown/tan, silty SAND, dry		5.0
7.5	75			1.1		Light brown/tan, silty SAND, dry		7.5
10.0	75			1.2		Light brown/tan, sandy SILT, dry		10.0
12.5				1.4		Refusal at 11.0 feet. Bottom of borehole at 11.0 feet.		12.5
15.0								15.0

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 6620DT / Geoprobe
SAMPLING METHOD: DPT Sleeves
LOGGED BY: M. Falknor
DRAWN BY:

BORING STARTED: 4/8/08
BORING COMPLETED: 4/8/08
TOTAL DEPTH: 11
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
Borehole hand-augered to 5 feet.
Sample collected from 2-5 feet for laboratory analysis.



BORING NUMBER 41-3

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

3334 Hillsborough Street
Raleigh, North Carolina 27615
919-847-4241(p) 919-847-4261(f)

PROJECT: Boone PSA's

JOB NUMBER: ROW-148 (41)

LOCATION: Boone, North Carolina

LOG OF BORING - HART HICKMAN GDT - 5/13/08 14:00 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY - ROW\ROW-148 BOONE PSA\BORING LOGS\ROW-148 (41).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Red/brown, fine sandy SILT, dry		0.0
2.5	75		0.5	1.2		Red, medium silty SAND, dry		2.5
5.0				1.6		Dark brown/red, PARTIALLY WEATHERED ROCK, sandy, dry		5.0
7.5	90			2.7		Light brown/pink, PARTIALLY WEATHERED ROCK, dry		7.5
10.0				1.6		Refusal at 10.0 feet. Bottom of borehole at 10.0 feet.		10.0
12.5								12.5
15.0								15.0

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 6620DT / Geoprobe
SAMPLING METHOD: DPT Sleeves
LOGGED BY: M. Falknor
DRAWN BY:

BORING STARTED: 4/8/08
BORING COMPLETED: 4/8/08
TOTAL DEPTH: 10
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
Borehole hand-augered to 5 feet.
Sample collected from 5-7 feet for laboratory analysis.



BORING NUMBER 41-4

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

3334 Hillsborough Street
Raleigh, North Carolina 27615
919-847-4241(p) 919-847-4261(f)

PROJECT: Boone PSA's
JOB NUMBER: ROW-148 (41)
LOCATION: Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/13/08 14:00 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSA\BORING LOGS\ROW-148 (41).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0			0.4	0.9		Red/brown, silty SAND, dry		0.0
2.5	90			0.9		Red/brown, SAND with partially weathered rock, dry		2.5
5.0				1.1		Red/orange, sandy SILT, dry		5.0
7.5	75			0.5		Red/orange, sandy SILT, dry		7.5
10.0						Refusal at 10.0 feet. Bottom of borehole at 10.0 feet.		10.0
12.5								12.5
15.0								15.0

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 6620DT / Geoprobe
SAMPLING METHOD: DPT Sleeves
LOGGED BY: M. Falknor
DRAWN BY:

BORING STARTED: 4/8/08
BORING COMPLETED: 4/8/08
TOTAL DEPTH: 10
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
Borehole hand-augered to 5 feet.
Sample collected from 5-7 feet for laboratory analysis.



BORING NUMBER 41-5

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

3334 Hillsborough Street
Raleigh, North Carolina 27615
919-847-4241(p) 919-847-4261(f)

PROJECT: Boone PSA's
JOB NUMBER: ROW-148 (41)
LOCATION: Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/13/08 14:00 - S:\AAA-MASTER PROJECTS\INC DOT RIGHT-OF-WAY -ROW\ROW-148 BOONE PSA\BORING LOGS\ROW-148 (41).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0						Brown/red, sandy SILT, dry		0.0
2.5	90		0.4	0.7		Brown/red, sandy SILT with clay and partially weathered rock, dry		2.5
5.0				1.7		Red/brown, partially weathered rock with medium silty SAND, dry		5.0
7.5	90		0.6			Orange, partially weathered rock with medium silty SAND, dry		7.5
10.0			0.6			Refusal at 10.0 feet. Bottom of borehole at 10.0 feet.		10.0
12.5								12.5
15.0								15.0

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 6620DT / Geoprobe
SAMPLING METHOD: DPT Sleeves
LOGGED BY: M. Falknor
DRAWN BY:

BORING STARTED: 4/8/08
BORING COMPLETED: 4/8/08
TOTAL DEPTH: 10
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
Borehole hand-augered to 5 feet.
Sample collected from 2-5 feet for laboratory analysis.



BORING NUMBER 41-6

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

3334 Hillsborough Street
 Raleigh, North Carolina 27615
 919-847-4241(p) 919-847-4261(f)

PROJECT: Boone PSA's
JOB NUMBER: ROW-148 (41)
LOCATION: Boone, North Carolina

LOG OF BORING - HART HICKMAN.GDT - 5/13/08 14:00 - S:\AAA-MASTER PROJECTS\NC DOT RIGHT-OF-WAY - ROW\ROW-148 BOONE PSA\BORING LOGS\ROW-148 (41).GPJ

DEPTH (ft)	RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
			BKG.	SAMP.				
0.0			0.4	0.8		Dark red/brown, clayey SILT, some sand, dry		0.0
2.5	100					Dark red/brown, clayey SILT, some sand, dry		2.5
5.0				1.1		Dark red/brown, clayey SILT, some sand, dry		5.0
7.5	75			1.3		Gray, PARTIALLY WEATHERED ROCK		7.5
10.0						Refusal at 10.0 feet. Bottom of borehole at 10.0 feet.		10.0
12.5								12.5
15.0								15.0

DRILLING CONTRACTOR: Geologic Exploration
DRILL RIG/ METHOD: 6620DT / Geoprobe
SAMPLING METHOD: DPT Sleeves
LOGGED BY: M. Falknor
DRAWN BY:

BORING STARTED: 4/8/08
BORING COMPLETED: 4/8/08
TOTAL DEPTH: 10
SURFACE ELEV:
DEPTH TO WATER:

Remarks:
 Borehole hand-augered to 5 feet.
 Sample collected from 2-5 feet for laboratory analysis.

Appendix D
Laboratory Analytical Report



NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

04/28/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 41-1 (5-7)
 Prism Sample ID: 211252
 COC Group: G0408351
 Time Collected: 04/08/08 16:00
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	89.1	%			1	SM2540 G	04/14/08 14:15	mbarber	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	BRL	mg/kg	7.8	1.9	1	8015B	04/18/08 3:19	jvogel	Q31874
Sample Preparation:			50.1 g	/	2 mL	3550B	04/17/08 10:30	jvogel	P21377
			Surrogate				% Recovery	Control Limits	
			o-Terphenyl				95	48 - 130	
Sample Weight Determination									
Weight 1	6.71	g			1	GRO	04/17/08 0:00	athao	
Weight 2	5.83	g			1	GRO	04/17/08 0:00	athao	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	BRL	mg/kg	5.6	3.5	50	8015B	04/17/08 17:25	wbradley	Q31818
			Surrogate				% Recovery	Control Limits	
			aaa-TFT				80	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit
 Values are reported down to the reporting limit only. No J-Flags applied.
 The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.
 All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

04/28/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 41-2 (2-5)
 Prism Sample ID: 211253
 COC Group: G0408351
 Time Collected: 04/08/08 16:15
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	71.5	%			1	SM2540 G	04/14/08 14:15	mbarber	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	BRL	mg/kg	9.8	2.4	1	8015B	04/18/08 0:19	javogel	Q31874
Sample Preparation:			50.19 g	/	2 mL	3550B	04/17/08 10:30	javogel	P21377
					Surrogate		% Recovery	Control Limits	
					o-Terphenyl		86	48 - 130	
Sample Weight Determination									
Weight 1	6.94	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.58	g			1	GRO	04/17/08 0:00	athao	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	BRL	mg/kg	7.0	4.4	50	8015B	04/17/08 18:29	wbradley	Q31818
					Surrogate		% Recovery	Control Limits	
					aaa-TFT		68	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit
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 All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

04/28/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 41-3 (5-7)
 Prism Sample ID: 211254
 COC Group: G0408351
 Time Collected: 04/08/08 16:25
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Percent Solids Determination</u>									
Percent Solids	92.2	%			1	SM2540 G	04/14/08 14:15	mbarber	
<u>Diesel Range Organics (DRO) by GC-FID</u>									
Diesel Range Organics (DRO)	35	mg/kg	7.6	1.8	1	8015B	04/18/08 3:55	jvogel	Q31874
Sample Preparation:			50.16 g	/	2 mL	3550B	04/17/08 10:30	jvogel	P21377
						Surrogate	% Recovery	Control Limits	
						o-Terphenyl	73	48 - 130	
<u>Sample Weight Determination</u>									
Weight 1	6.10	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.25	g			1	GRO	04/17/08 0:00	athao	
<u>Gasoline Range Organics (GRO) by GC-FID</u>									
Gasoline Range Organics (GRO)	BRL	mg/kg	5.4	3.4	50	8015B	04/17/08 19:00	wbradley	Q31818
						Surrogate	% Recovery	Control Limits	
						aaa-TFT	66	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit

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All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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Page 47 of 112



NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

04/28/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 41-4 (5-7)
 Prism Sample ID: 211255
 COC Group: G0408351
 Time Collected: 04/08/08 16:40
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	94.0	%			1	SM2540 G	04/14/08 14:15	mbarber	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	BRL	mg/kg	7.4	1.8	1	8015B	04/18/08 0:55	jvogel	Q31874
Sample Preparation:			49.98 g	/	2 mL	3550B	04/17/08 10:30	jvogel	P21377
						Surrogate	% Recovery	Control Limits	
						o-Terphenyl	104	48 - 130	
Sample Weight Determination									
Weight 1	5.93	g			1	GRO	04/17/08 0:00	athao	
Weight 2	5.65	g			1	GRO	04/17/08 0:00	athao	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	BRL	mg/kg	5.3	3.3	50	8015B	04/17/08 19:31	wbradley	Q31818
						Surrogate	% Recovery	Control Limits	
						aaa-TFT	91	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit

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Angela D. Overcash, V.P. Laboratory Services

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NC Certification No. 402
 SC Certification No. 99012
 NC Drinking Water Cert. No. 37735

Laboratory Report

04/28/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 41-5 (2-5)
 Prism Sample ID: 211256
 COC Group: G0408351
 Time Collected: 04/08/08 16:55
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<u>Percent Solids Determination</u>									
Percent Solids	83.1	%			1	SM2540 G	04/14/08 14:15	mbarber	
<u>Diesel Range Organics (DRO) by GC-FID</u>									
Diesel Range Organics (DRO)	BRL	mg/kg	8.5	2.1	1	8015B	04/18/08 4:30	jvogel	Q31874
Sample Preparation:			49.84 g	/	2 mL	3550B	04/17/08 10:30	jvogel	P21377
						Surrogate	% Recovery	Control Limits	
						o-Terphenyl	100	48 - 130	
<u>Sample Weight Determination</u>									
Weight 1	6.71	g			1	GRO	04/17/08 0:00	athao	
Weight 2	6.82	g			1	GRO	04/17/08 0:00	athao	
<u>Gasoline Range Organics (GRO) by GC-FID</u>									
Gasoline Range Organics (GRO)	BRL	mg/kg	6.0	3.8	50	8015B	04/17/08 20:03	wbradley	Q31818
						Surrogate	% Recovery	Control Limits	
						aaa-TFT	69	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limit only. No J-Flags applied.

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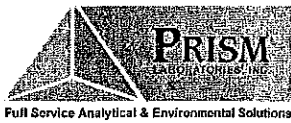
All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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NC Certification No. 402
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 NC Drinking Water Cert. No. 37735

Laboratory Report

04/28/08

North Carolina Department of
 Transportation
 Attn: David Graham
 c/o Hart and Hickman
 2923 South Tryon St. Ste 100
 Charlotte, NC 28203

Project Name: Boone PSAs
 Project ID: ROW-148
 Project No.: WBS# 35015.1.1
 Sample Matrix: Soil

Client Sample ID: 41-6 (2-5)
 Prism Sample ID: 211257
 COC Group: G0408351
 Time Collected: 04/08/08 17:15
 Time Submitted: 04/11/08 9:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination									
Percent Solids	84.2	%			1	SM2540 G	04/14/08 14:15	mbarber	
Diesel Range Organics (DRO) by GC-FID									
Diesel Range Organics (DRO)	BRL	mg/kg	8.3	2.0	1	8015B	04/18/08 1:31	jvoget	Q31874
Sample Preparation:			50.04 g	/	2 mL	3550B	04/17/08 10:30	jvoget	P21377
					Surrogate		% Recovery	Control Limits	
					o-Terphenyl		92	48 - 130	
Sample Weight Determination									
Weight 1	6.85	g			1	GRO	04/17/08 0:00	athao	
Weight 2	5.55	g			1	GRO	04/17/08 0:00	athao	
Gasoline Range Organics (GRO) by GC-FID									
Gasoline Range Organics (GRO)	BRL	mg/kg	5.9	3.7	50	8015B	04/17/08 20:35	wbradley	Q31818
					Surrogate		% Recovery	Control Limits	
					aaa-TFT		64	55 - 129	

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limit only. No J-Flags applied.

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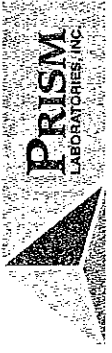
All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409



Full Service Analytical & Environmental Solutions

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

Client Company Name: Habitat for Humanity
Report To/Contact Name: D. Boone
Reporting Address: 2903 S. Tryon St

Phone: 704-548-0007 Fax (Yes) (No):
Email (Yes) (No) Email Address: dyboone@habitat.org
EDD Type: PDF Excel Other
Site Location Name: Boone DOT
Site Location Physical Address: Boone, NC

CHAIN OF CUSTODY RECORD

PAGE 5 OF 10 QUOTE # TO ENSURE PROPER BILLING:

Project Name: Row-148
Short Hold Analysis: (Yes) (Not) UST Project: (Yes) (No)
*Please ATTACH any project specific reporting (QC LEVEL I III IV)
provisions and/or QC Requirements
Invoice To:
Address:

Purchase Order No./Billing Reference

Requested Due Date 1 Day 2 Days 3 Days 4 Days 5 Days
"Working Days" 6-9 Days Standard 10 days Rush Work Must Be
Samples received after 15:00 will be processed next business day.
Turnaround time is based on business days, excluding weekends and holidays.
(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES
RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

CLIENT DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER		PRESERVATIVES	ANALYSES REQUESTED	REMARKS	PRISM LAB ID NO.
				*TYPE SEE BELOW	NO. SIZE				
47-5(2-5)	4/18/08	1525	soil	VOA, Pb	3 40ml 6oz	none fresh			211251
41-1(5-7)		1600							211252
41-2(2-5)		1615							211253
41-3(5-7)		1625							211254
41-4(5-7)		1640							211255
41-5(2-5)		1655							211256
41-6(2-5)		1715							211257
37-2(2-5)	4/19/08	0800							211258
37-4(0-2)		0820							211259
37-3(10-12)		0835							211260

Sampler's Signature: [Signature] Sampled By (Print Name): M.F. Fallick Affiliation: HA&H

Upon relinquishing, this Chain of Custody is your authorization for Prism to proceed with the analyses as requested above. Any changes must be submitted in writing to the Prism Project Manager. There will be charges for any changes after analyses have been initialized.

Relinquished By (Signature): [Signature] Received By (Signature): [Signature]

Relinquished By (Signature): [Signature] Received By (Signature): [Signature]

Relinquished By (Signature): [Signature] Received By (Signature): [Signature]

Method of Shipment: Fed Ex UPS Hand-delivered Prism Field Service Other

NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

NPDES: C S C N C S C

GROUNDWATER: C S C N C S C

DRINKING WATER: C S C N C S C

SOLID WASTE: C S C N C S C

RCRA: C S C N C S C

CERCLA: C S C N C S C

LANDFILL: C S C N C S C

OTHER: C S C N C S C

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

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC USACE FL NC

Water Chlorinated: YES NO

Sample Iced Upon Collection: YES NO

PRESS DOWN FIRMLY - 3 COPIES

PRISM USE ONLY

Site Arrival Time: _____

Site Departure Time: _____

Field Tech Fee: _____

Mileage: _____

Additional Comments: _____

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL