

**PRELIMINARY SITE ASSESSMENT
FOR
PARCEL #058, SCOTT MCGOWAN PROPERTY
STATE PROJECT: R-2303B
WBS ELEMENT: 34416.1.1
NC 24 FROM SR 1853 (JOHN NUNNERY RD.) IN CUMBERLAND
COUNTY TO SR 1404 (DOWDY RD.) IN SAMPSON COUNTY**

PREPARED FOR:



**NCDOT GEOTECHNICAL ENGINEERING UNIT
GEOENVIRONMENTAL SECTION
1589 MSC
RALEIGH, NORTH CAROLINA 27699-1589**

JULY 26, 2011

PREPARED BY:

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CATLIN PROJECT NO. 211043

**CORPORATE GEOLOGY LICENSE CERTIFICATION NO. C-118
CORPORATE LICENSURE NO. FOR ENGINEERING SERVICES C-0585**

TABLE OF CONTENTS

	<u>Page</u>
1.0 PURPOSE OF INVESTIGATION AND DESCRIPTION	1
2.0 METHODS	2
2.1 FIELD METHODS	2
2.2 LABORATORY TESTING	4
3.0 RESULTS	4
4.0 SUMMARY AND RECOMMENDATIONS	6
5.0 LIMITATIONS	7
6.0 SIGNATURES	7

TABLES

TABLE 1	SUMMARY OF SOIL LABORATORY RESULTS – EPA METHOD 8015 – PARCEL #058, SCOTT MCGOWAN PROPERTY
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FIGURES

FIGURE 1	GENERAL LOCATION
FIGURE 2	PARCEL #058, SCOTT MCGOWAN PROPERTY

APPENDICES

APPENDIX A	BORING LOGS
APPENDIX B	LABORATORY REPORT AND CHAIN OF CUSTODY RECORD
APPENDIX C	SCHNABEL GEOPHYSICAL REPORT

**Preliminary Site Assessment
for
Parcel #058, Scott McGowan Property**

**State Project: R-2303B
WBS Element: 34416.1.1
NC 24 from SR 1853 (John Nunnery Rd.) in Cumberland County
to SR 1404 (Dowdy Rd.) in Sampson County**

July 26, 2011

1.0 PURPOSE OF INVESTIGATION AND DESCRIPTION

CATLIN Engineers and Scientists (CATLIN) were retained by the North Carolina Department of Transportation (NCDOT) Geotechnical Engineering Unit to provide a field investigation concluding with a Preliminary Site Assessment (PSA) for the above referenced property. In response to a Request for Technical and Cost Proposal (RFP) dated May 10, 2011 and discussions with NCDOT GeoEnvironmental Project Manager Mr. Terry Fox, LG, CATLIN submitted a proposal for conducting an investigation at five (5) parcels near Stedman and Autryville, North Carolina. Notice to Proceed was received from NCDOT in correspondence dated May 27, 2011.

Acquisition of the right-of-way is necessary for NC 24 roadway construction (above referenced State Project R-2303B) and specifically at the above referenced parcel. A site investigation is necessary to determine the presence of underground storage tanks (USTs) and/or contaminated soil in the proposed right-of-way and/or easement. Figure 1 illustrates the State Project location.

This report documents our activities and findings at Parcel #058, Scott McGowan Property. The site is illustrated on Figure 2. The following specific parcel information was provided by NCDOT:

Parcel #058 Scott McGowan Property

Plan sheet 19
Yellow Store
5100 Autry Highway (approx.)
Autryville, NC 28318
Facility I.D. #: None Identified

Property Owner:
Steve McGowan
317 Stacey Weaver Dr.
Fayetteville, NC 28311

This site is currently an abandoned residence with a metal building. The site is located on the north side of NC 24 (Autry Highway). Observations from the field visit indicate this site could have historically operated as a gas station. According to NCDENR's UST Section

Registry, there are no known Facility IDs or groundwater Incidents associated with this property. The site is illustrated on Figure 2.

The work scope as requested includes:

- Locate all USTs and determine approximate size and contents (if any).
- Determine if contaminated soils are present.
- If contamination is evident, estimate the quantity of impacted soils and indicate the approximate area of soil contamination on a site map.
- Provide a Microstation file with the location of USTs, soil contamination and monitoring wells.
- Prepare a report including field activities, findings, and recommendations for each site in triplicate and electronically to the NCDOT GeoEnvironmental Section.

In addition to the RFP, NCDOT provided plan sheets associated with the roadway construction. CATLIN and NCDOT personnel agreed to approximate proposed boring and sample locations (6) within the right-of-way and/or easement for soil sample collection and total petroleum hydrocarbons (TPH) diesel and gasoline range organics (DRO and GRO) laboratory analysis.

2.0 METHODS

Approximate proposed borings were discussed with NCDOT personnel before final Workplan submittal. Per NCDOT request, borings (soil samples) were located near known or suspect UST systems and proposed drainage features (as indicated on NCDOT provided plan sheets).

CATLIN coordinated geophysical activities concurrently with soil boring and sampling. The geophysical investigation methods are detailed in the Schnable Engineering report provided in Appendix C. Final boring/sample locations were determined based on proposed drainage feature locations, geophysical results, and field observations. CATLIN's field activities concluded on June 24, 2011.

2.1 FIELD METHODS

All field work was conducted in general accordance with state and federal guidelines and industry standards.

Underground utility locating was coordinated by CATLIN personnel. The North Carolina One Call Center (NC-1-Call) was contacted for underground utility location. Proposed boring locations were marked before NC-1-Call personnel were on-site. The areas around the

proposed boring locations were checked and found to be clear of any underground utilities or alternate locations were indicated by NC-1-Call personnel.

CATLIN personnel gathered subsurface soil data at the site by Direct Push Technology (DPT) boring advancement using an AMS PowerProbe™ 9600D (PowerProbe). The borings were advanced to depth by static force and a 90-pound hydraulic percussion hammer. Two and one-quarter inch diameter by four-foot length steel is used as casing. Soil samples were continuously collected in four-foot long and one and one-half inch diameter clear liners. Liners are removed from the casing and then cut in half longitudinally to allow for visual/manual classification utilizing the Unified Soil Classification System (USCS).

Borings were identified by the parcel number (as indicated by NCDOT) followed by "DPT" and consecutive numbers starting with "01" at each parcel (example: 58-DPT-01). Soil samples were collected continuously from near the surface to boring termination. Soils were removed from the liners in two-foot intervals and placed in sealable polyethylene bags for organic vapor analysis (OVA) headspace screening utilizing a photo ionization detector (PID). The USCS, OVA/PID reading, and any indication of petroleum impact were recorded on field logs and have been transferred to the Boring Logs provided in Appendix A.

Soil samples were collected for laboratory analysis above the water table using roughly a one-foot interval of the two-foot sample revealing the highest OVA/PID reading. Sample identification was based on the boring identification followed by sample depth (in feet) below land surface (BLS) in parentheses (example: 58-DPT-01 (2-3')). In some cases of elevated OVA/PID readings, additional borings were advanced for soil sample collection in an attempt to delineate suspected soil contamination.

New disposable nitrile gloves were worn during sampling activities. All samples were placed into laboratory provided glassware and packed on ice in an insulated cooler for transportation to the laboratory. Sample integrity was maintained by following proper Chain of Custody procedures. A copy of the Chain of Custody is provided following the analytical report in Appendix B.

Boreholes were abandoned to just below the surface using three-eighth inch bentonite chips. Bentonite and water were poured into the borehole simultaneously to facilitate hydration. Borings located in asphalt or gravel were topped with asphalt cold patch. Final borehole and sample locations were surveyed utilizing a Trimble® GPS survey

instrument.

Ten (10) borings were advanced for soil sample collection and one sample was collected from each boring for laboratory analysis. Borings were advanced near the probable UST, reported dispenser locations, and near the proposed drainage features across the property. Boring/sample locations are illustrated on Figure 2. Utilities and the proximity of Autry Highway (NC 24) limited boring and sampling to the south.

2.2 LABORATORY TESTING

Following boring advancement, selected soils were placed in the appropriately labeled glassware. In an attempt to provide information regarding petroleum impact to soils and groundwater with reasonable analytical expense, soil samples were analyzed for TPH DRO and GRO by Environmental Protection Agency (EPA) Methods 5030 and 3550 with analysis by modified 8015.

A total of 10 soil samples were submitted to SGS North America Inc. (NC Certification # 481). Chain of Custody documentation is included in Appendix B.

3.0 RESULTS

In the event a cut is required for roadway construction or utility installation, any soil samples revealing detectable TPH concentrations will be considered petroleum impacted for handling and disposal purposes. The complete laboratory analytical reports are provided in Appendix B. Results of Schnabel's geophysical investigation including site photographs were submitted directly to NCDOT and a copy is provided in Appendix C. Schnabel's investigation results will be generally discussed in the following section.

The geophysical data indicate the presence of one probable UST on Parcel 58. The probable UST is within the planned right-of-way and/or easement and adjacent to a proposed drainage feature near the southeast corner of the abandoned building. The probable UST is about 560-gallon capacity and is buried about 1.5 to 2.5 feet BLS. The UST is illustrated on Figure 2. Photographs of the site including the probable UST location are included in the geophysical report provided in Appendix C.

During CATLIN's field investigation, a gentleman (Mr. Jimm Hall) reporting to be the former owner and operator of a gas station at the site stopped by. According to Mr. Hall, the western (wooden) portion of the existing block

building was an addition and built over the top of another UST. Also, Mr. Hall reported that there were two (2) former dispensers, one (1) located at each of the block building front corners. The former dispenser locations were identified (reported) near each end of the red and white canopy in the following picture.



Boring 58-DPT-01 was terminated at eight (8) feet BLS in saturated clayey sand. Wet soils were encountered at approximately five (5) feet BLS. Clayey sands were encountered throughout boring 58-DPT-01. Elevated PID readings [greater than 2,000 parts per million (ppm)] were measured at each interval and a strong petroleum odor from black and gray stained soils was noted at six (6) to eight (8) feet BLS.

Borings 58-DPT-02 through 58-DPT-10 were terminated at four (4) feet BLS. Predominately sands were encountered across the site with some clay and silt. Soil samples were collected for laboratory analysis from within the two (2) foot interval with the highest OVA/PID reading. No physical indications (petroleum odor or staining) of petroleum impacted soils were noted in the field except at boring 58-DPT-01. Boring logs including USCS classification and OVA/PID screening results are provided in Appendix A. Summarized analytical results are provided on Table 1 and Figure 2.

No TPH GRO concentrations were detected above the laboratory reporting limit in any of the soil samples. The soil samples collected along the proposed drainage feature from the borings 58-DPT-03 (also near the UST), 58-DPT-06, 58-DPT-07, 58-DPT-08, and 58-DPT-09 (also near the reported dispenser location) revealed TPH DRO concentrations ranging from 7.20 milligrams per kilogram (mg/kg) to 13.5 mg/kg.

The soils screened for organic vapors from borings 58-DPT-01, 58-DPT-05, and 58-DPT-10 also had somewhat elevated OVA/PID readings, however, TPH DRO and GRO results were non detect.

The estimated extent of TPH impacted soil is illustrated on Figure 2. This area is based on TPH concentrations above the laboratory reporting limit, not regulatory standards/limits.

The TPH impacted soil area around the probable UST and borings 58-DPT-03 and 58-DPT-06 encompasses approximately 430 ft². The estimated lateral extent is based on soils likely to be excavated during drainage feature construction activities around 58-DPT-03 and 58-DPT-06. Based on an assumed zone of contamination from the surface to the estimated water table depth of five (5) feet, approximately 80 yds³ of TPH impacted soils may be in the area.

The TPH impacted soil area around the reported dispenser location (58-DPT-09) and borings 58-DPT-07 and 58-DPT-08 along the proposed drainage feature on the western portion of the property encompasses approximately 2,400 ft². Based on an assumed zone of contamination from the surface to the assumed water table depth of five (5) feet, approximately 440 yds³ of TPH impacted soils may be in the area.

4.0 SUMMARY AND RECOMMENDATIONS

A preliminary site assessment was conducted at the subject site as requested by NCDOT. Right-of-Way acquisition for NC 24 roadway construction is proposed at the site. In the event a cut is required for roadway construction or utility installation, any soil samples revealing detectable TPH concentrations will be considered petroleum impacted for handling and disposal purposes.

A probable UST was identified near proposed drainage feature on the east side of the existing (abandoned) building. According to a gentleman that previously operated the site (Mr. Jimmy Hall), a UST is located under the western portion of the building also.

Ten (10) borings were advanced for soil sample collection. Petroleum impacts ranging from 7.20 mg/kg to 13.5 mg/kg were detected in soil samples along the proposed drainage feature. The total estimated volume of impacted soils is 520 yds³ or roughly 800 tons. However, if an excavation extends below the water table (estimated at five (5) feet BLS), additional contaminant soil volume could be expected.

CATLIN recommends removing the probable USTs at the site and any petroleum impacted soils from proposed drainage feature or roadway construction cut sections. If efforts are not conducted to remove any probable USTs or petroleum impacted soils, any utility or roadway construction

contractor should be notified of these findings and be advised to be prepared to handle petroleum impacted soils near areas identified on Figure 2.

5.0 LIMITATIONS

This report is based on the agreed work scope and a review of available data from limited sampling. It is possible that this investigation may have failed to reveal the presence of contamination in the project area where such contamination may exist. Although CATLIN has used accepted methods appropriate for soil and groundwater sampling, CATLIN cannot guarantee that additional soil and/or groundwater contamination does not exist.

6.0 SIGNATURES



Benjamin J. Ashba
Project Manager



G. Richard Garrett, P.G.
Senior Project Manager

TABLES

**TABLE 1
SUMMARY OF SOIL LABORATORY RESULTS
EPA METHOD 8015**

Parcel #058
Scott McGowan Property
Yellow Store (Abandoned Residence/Business)
5100 Autry Highway (NC 24) (approximate)
Autryville, North Carolina

Sample ID	Location		Contaminant of Concern	Diesel Range Organics	Gasoline Range Organics
	Northing	Easting	Date Collected		
58-DPT-01 (2-3ft)	449085.731	2120610.637	6/22/2011	<6.78	<3.20
58-DPT-02 (3-4ft)	449082.793	2120602.911	6/22/2011	<6.93	<3.36
58-DPT-03 (2-3ft)	449092.622	2120606.542	6/22/2011	7.22	<3.19
58-DPT-04 (2-3ft)	449088.555	2120598.842	6/22/2011	<6.97	<3.23
58-DPT-05 (1-2ft)	449097.793	2120592.619	6/22/2011	<7.01	<3.06
58-DPT-06 (1-2ft)	449086.200	2120625.333	6/22/2011	7.20	<3.29
58-DPT-07 (1-2ft)	449122.302	2120529.862	6/22/2011	13.2	<3.83
58-DPT-08 (1-2ft)	449139.218	2120491.226	6/22/2011	13.5	<3.55
58-DPT-09 (2-3ft)	449096.429	2120561.661	6/22/2011	7.36	<3.14
58-DPT-10 (2-3ft)	449089.552	2120580.193	6/22/2011	<7.15	<3.26

All results in milligrams per kilogram (mg/kg).

Location coordinates: US State Plane 1983, NC Zone 3200, NAD 1983, US Survey feet

Sample depth in feet provided in parenthesis () as part of the Sample ID.

< = Less than reporting limit

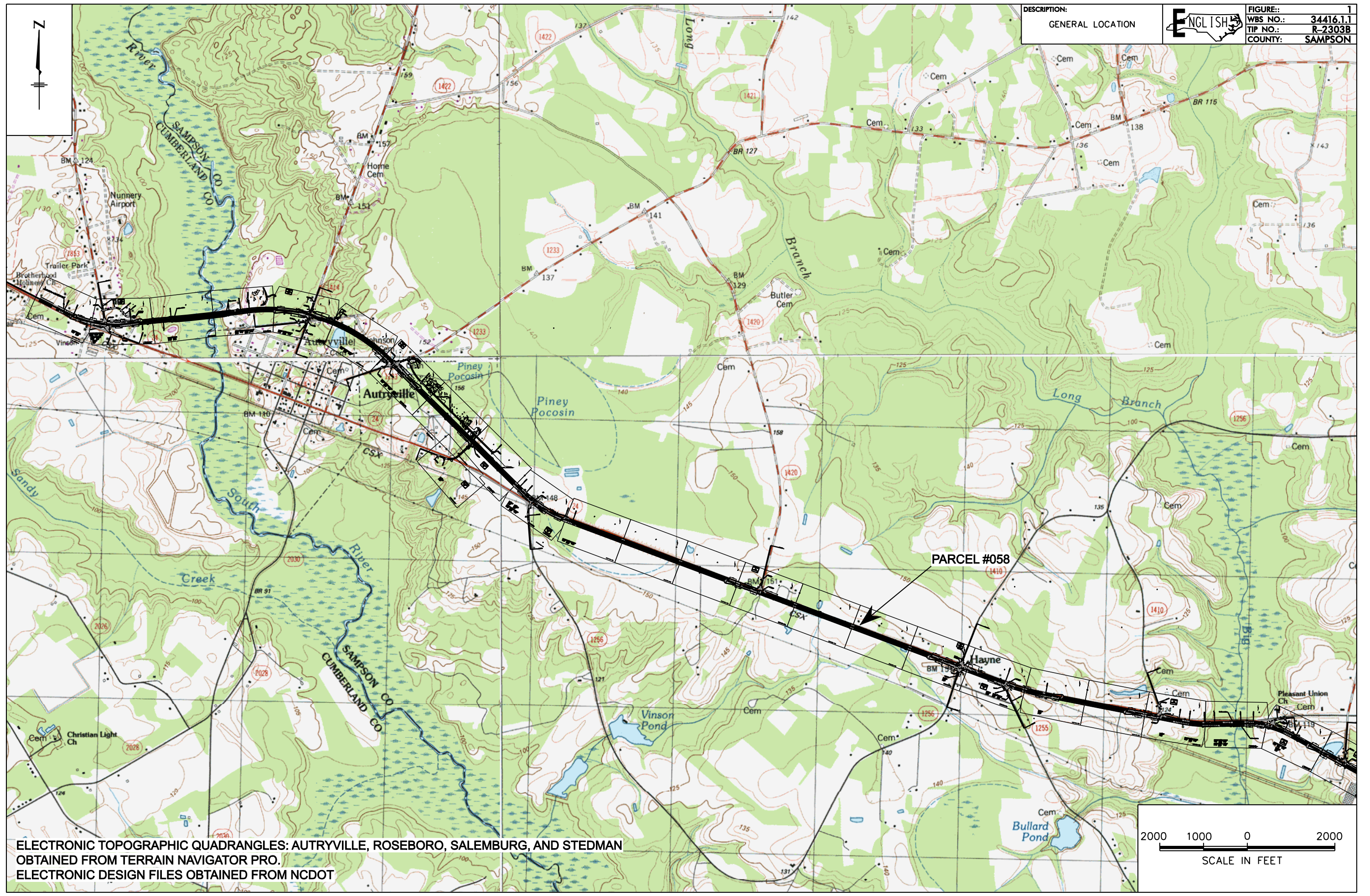
Results in bold exceed the reporting limit.

FIGURES

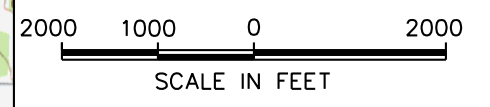
DESCRIPTION:
GENERAL LOCATION



FIGURE: 1
WBS NO.: 34416.1.1
TIP NO.: R-2303B
COUNTY: SAMPSON



ELECTRONIC TOPOGRAPHIC QUADRANGLES: AUTRYVILLE, ROSEBORO, SALEMBURG, AND STEDMAN
OBTAINED FROM TERRAIN NAVIGATOR PRO.
ELECTRONIC DESIGN FILES OBTAINED FROM NCDOT



Sample ID	Date Collected	Contaminant of Concern	
		Diesel Range Organics	Gasoline Range Organics
58-DPT-01 (2-3ft)	6/22/2011	<6.78	<3.20
58-DPT-02 (3-4ft)	6/22/2011	<6.93	<3.36
58-DPT-03 (2-3ft)	6/22/2011	7.22	<3.19
58-DPT-04 (2-3ft)	6/22/2011	<6.97	<3.23
58-DPT-05 (1-2ft)	6/22/2011	<7.01	<3.06
58-DPT-06 (1-2ft)	6/22/2011	7.20	<3.29
58-DPT-07 (1-2ft)	6/22/2011	13.2	<3.83
58-DPT-08 (1-2ft)	6/22/2011	13.5	<3.55
58-DPT-09 (2-3ft)	6/22/2011	7.36	<3.14
58-DPT-10 (2-3ft)	6/22/2011	<7.15	<3.26

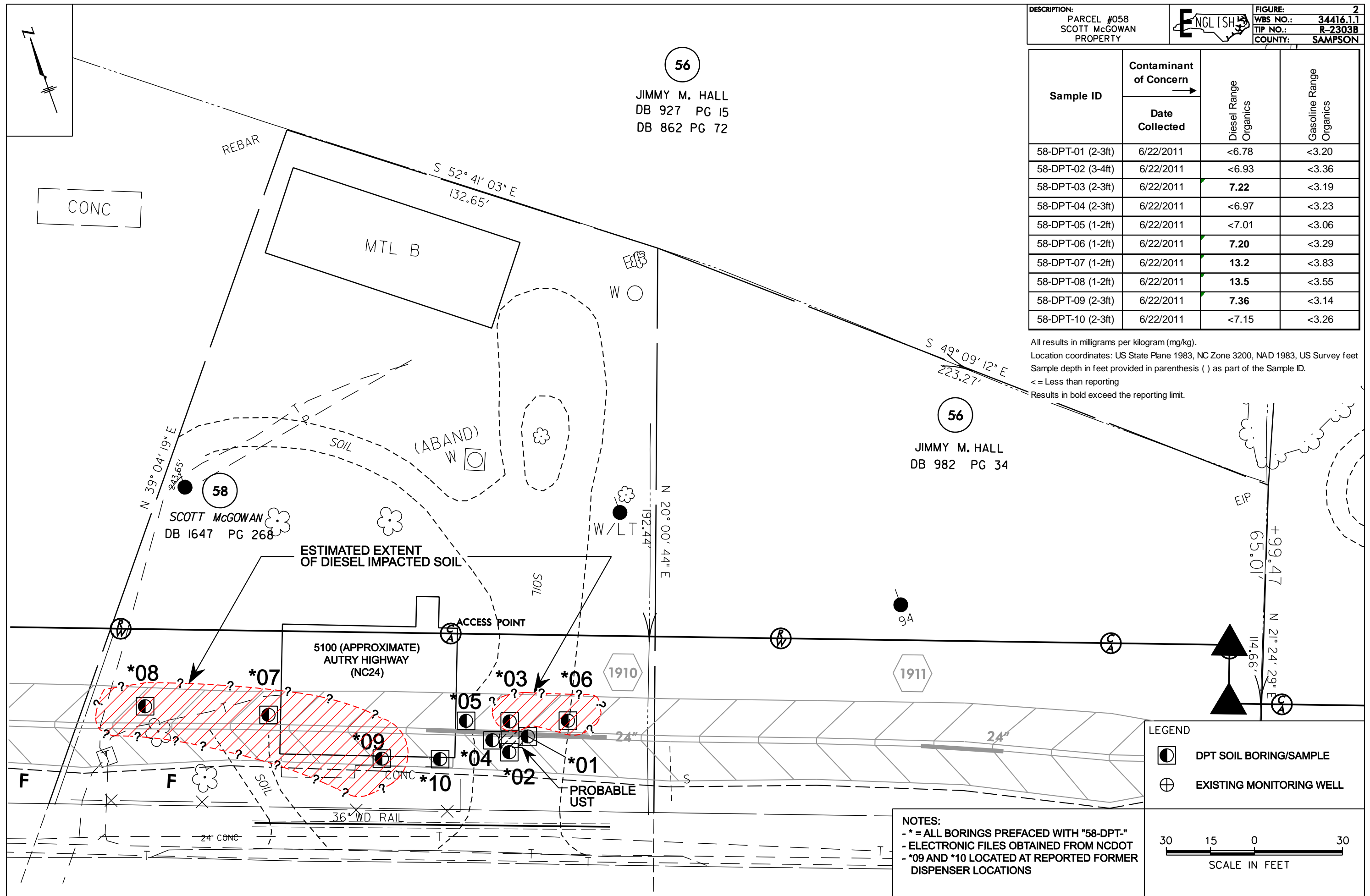
All results in milligrams per kilogram (mg/kg).
Location coordinates: US State Plane 1983, NC Zone 3200, NAD 1983, US Survey feet
Sample depth in feet provided in parenthesis () as part of the Sample ID.
<= Less than reporting
Results in bold exceed the reporting limit.

56

JIMMY M. HALL
DB 927 PG 15
DB 862 PG 72

56

JIMMY M. HALL
DB 982 PG 34



APPENDICES

APPENDIX A
BORING LOGS

BORING LOG



Wilmington, NC

PROJECT NO.: 211043	STATE: NC	COUNTY: Sampson	LOCATION: Autryville
PROJECT NAME: NC 24 from SR 1853 to SR 1404		LOGGED BY: Ben Ashba	BORING ID: 58-DPT-01
NORTHING: 449,085.73		EASTING: 2,120,610.64	DRILLER: Michael D. Mason
SYSTEM:		BORING LOCATION: E. side of orphan UST	LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: N/A	BORING DEPTH: 8.0
START DATE: 6/22/11	FINISH DATE: 6/22/11	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm)				LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	
			0	1000	2000	3000				4000	DEPTH
0.0									0.0	LAND SURFACE	
2.0		D			2,162		SM		2.0	Silty to Clayey f. SAND. Varying brown colors.	
4.0		D			5,620▲	58-DPT-01 (2-3') @ 0730	SC		4.0	S.A.A. with Clayey SAND.	
6.0		W			5,752▲		SC		6.0	S.A.A.	
8.0		W			7,418▲		SC		8.0	S.A.A. Strong petro odor. Black and gray staining.	

Boring Terminated at Depth 8.0 ft

CATLIN ENVIRO LOG 211043 NCDOT NC24-SR1404 GEL CATLIN.GDI 7/25/11

▽ = 0hr. DTW

▼ = 24hr. DTW

BORING LOG



Wilmington, NC

PROJECT NO.: 211043	STATE: NC	COUNTY: Sampson	LOCATION: Autryville
PROJECT NAME: NC 24 from SR 1853 to SR 1404		LOGGED BY: Ben Ashba	BORING ID: 58-DPT-02
		DRILLER: Michael D. Mason	
NORTHING: 449,082.79	EASTING: 2,120,602.91	CREW:	
SYSTEM:	BORING LOCATION: S. of orphan UST		LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: N/A	BORING DEPTH: 4.0
START DATE: 6/22/11	FINISH DATE: 6/22/11	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT	MOI.	PID RESULTS (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK	
							DEPTH	DESCRIPTION
	0.5 0.5 0.5 0.5		0 1000 2000 3000 4000				0.0	LAND SURFACE
0.0		D	▲0.0		GP		0.5	Sandy GRAVEL.
2.0					SM		2.0	Silty SAND
4.0		D	▲0.0	58-DPT-02 (3-4') @ 0745	SC/SM		4.0	Silty SAND grading to Clayey SAND. Dark brown grading to orangish-brown.
Boring Terminated at Depth 4.0 ft								

CATLIN ENVIRO. LOG - 211043_NCDOT_NC24-SR1404_GPI_CATLIN.GDI_7/25/11

▽ = 0hr. DTW

▼ = 24hr. DTW

BORING LOG



Wilmington, NC

PROJECT NO.: 211043	STATE: NC	COUNTY: Sampson	LOCATION: Autryville
PROJECT NAME: NC 24 from SR 1853 to SR 1404		LOGGED BY: Ben Ashba	BORING ID: 58-DPT-03
		DRILLER: Michael D. Mason	
NORTHING: 449,092.62	EASTING: 2,120,606.54	CREW:	
SYSTEM:	BORING LOCATION: N. of orphan UST		LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: N/A	BORING DEPTH: 4.0
START DATE: 6/22/11	FINISH DATE: 6/22/11	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT	MOI.	PID RESULTS (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	
							DEPTH	ELEVATION
0.0	0.5 0.5 0.5 0.5						0.0	LAND SURFACE
		D	▲43.5			GP	0.5	Sandy GRAVEL.
2.0						SM	2.0	Silty SAND.
4.0		D	▲61.8	58-DPT-03 (2-3') @ 0800		SC/ SM	4.0	Silty SAND gradin to Clayey SAND. Varying brown colors.
Boring Terminated at Depth 4.0 ft								

CATLIN ENVIRO LOG - 211043 NCDOT NC24-SR1404 GEL-CATLIN.GDI 7/25/11

▽ = 0hr. DTW ▼ = 24hr. DTW

BORING LOG



Wilmington, NC

PROJECT NO.: 211043	STATE: NC	COUNTY: Sampson	LOCATION: Autryville
PROJECT NAME: NC 24 from SR 1853 to SR 1404		LOGGED BY: Ben Ashba	BORING ID: 58-DPT-04
NORTHING: 449,088.56		EASTING: 2,120,598.84	CREW:
SYSTEM:		BORING LOCATION: W. side of orphan UST	LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: N/A	BORING DEPTH: 4.0
START DATE: 6/22/11	FINISH DATE: 6/22/11	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT	MOI.	PID RESULTS (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	
							DEPTH	ELEVATION
0.0	0.5 0.5 0.5 0.5		0 1000 2000 3000 4000				0.0	LAND SURFACE
1.0		D	▲1.8		GP		1.0	Sandy GRAVEL.
2.0					SM		2.0	Silty SAND.
4.0		M	▲2.6	58-DPT-04 (2-3') @ 0815	SC/SM		4.0	Silty SAND to Clayey SAND.
Boring Terminated at Depth 4.0 ft								

CATLIN ENVIRO LOG_211043_NCDOT_NC24-SR1404.GPJ.CATLIN.GDT_7/25/11

▽ = 0hr. DTW

▼ = 24hr. DTW

BORING LOG



Wilmington, NC

PROJECT NO.: 211043	STATE: NC	COUNTY: Sampson	LOCATION: Autryville
PROJECT NAME: NC 24 from SR 1853 to SR 1404		LOGGED BY: Ben Ashba	BORING ID: 58-DPT-05
NORTHING: 449,097.79		EASTING: 2,120,592.62	DRILLER: Michael D. Mason
SYSTEM:		BORING LOCATION: E. side of Bldg. @ proposed culvert	LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: N/A	BORING DEPTH: 4.0
START DATE: 6/22/11	FINISH DATE: 6/22/11	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT	MOI.	PID RESULTS (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	
							DEPTH	ELEVATION
0.0	0.5 0.5 0.5 0.5		0 1000 2000 3000 4000				0.0	LAND SURFACE
2.0		D	▲61.2	58-DPT-05 (1-2) @ 0830	SM		2.0	Dark grayish-brown Silty SAND.
4.0		D	▲41.7		SC/SM		4.0	S.A.A. grading to orangish brown, slightly mottled w/ reds and light brown Clayey SAND.
								Boring Terminated at Depth 4.0 ft

CATLIN ENVIRO. LOG_211043_NCDOT_NC24-SR1404.GE1.CATLIN.GDI_7/25/11

▽ = 0hr. DTW

▼ = 24hr. DTW

BORING LOG



Wilmington, NC

PROJECT NO.: 211043	STATE: NC	COUNTY: Sampson	LOCATION: Autryville
PROJECT NAME: NC 24 from SR 1853 to SR 1404		LOGGED BY: Ben Ashba	BORING ID: 58-DPT-06
		DRILLER: Michael D. Mason	
NORTHING: 449,086.20	EASTING: 2,120,625.33	CREW:	
SYSTEM:	BORING LOCATION: E. of Bldg/ E. side of proposed culvert		LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: N/A	BORING DEPTH: 4.0
START DATE: 6/22/11	FINISH DATE: 6/22/11	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	U S C S	L O G	SOIL AND ROCK	
							DEPTH	DESCRIPTION ELEVATION
0.0							0.0	LAND SURFACE
2.0		D	▲105		SM		2.0	Dark grayish-brown Silty SAND.
4.0		D	▲53.2		SC/ SM		4.0	S.A.A. grading to orangish-brown, slightly mottled w/ reds and light brown Clayey SAND.
								Boring Terminated at Depth 4.0 ft

CATLIN ENVIRO. LOG. 211043.NC.DOT_NC24-SR1404.GPJ.CATLIN.GDT. 7/25/11

▽ = 0hr. DTW ▼ = 24hr. DTW

BORING LOG



Wilmington, NC

PROJECT NO.: 211043	STATE: NC	COUNTY: Sampson	LOCATION: Autryville
PROJECT NAME: NC 24 from SR 1853 to SR 1404		LOGGED BY: Ben Ashba	BORING ID: 58-DPT-07
NORTHING: 449,122.30		EASTING: 2,120,529.86	DRILLER: Michael D. Mason
SYSTEM:		BORING LOCATION: W. side of Bldg. at proposed ditch	LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: N/A	BORING DEPTH: 4.0
START DATE: 6/22/11	FINISH DATE: 6/22/11	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	
							DEPTH	ELEVATION
0.0							0.0	LAND SURFACE
2.0		D	▲92.4		SP		2.0	Brown Silty vf. to f. SAND.
4.0		D	▲46.7		SP		4.0	S.A.A. Color changes to light brown to orangish-brown.
								Boring Terminated at Depth 4.0 ft

CATLIN/ENVIRO.LOG_211043.NC.DOT_NC24-SR1404.GPJ.CATLIN.GDI_7/25/11

▽ = 0hr. DTW ▼ = 24hr. DTW

BORING LOG



Wilmington, NC

PROJECT NO.: 211043	STATE: NC	COUNTY: Sampson	LOCATION: Autryville
PROJECT NAME: NC 24 from SR 1853 to SR 1404		LOGGED BY: Ben Ashba	BORING ID: 58-DPT-08
		DRILLER: Michael D. Mason	
NORTHING: 449,139.22	EASTING: 2,120,491.23	CREW:	
SYSTEM:	BORING LOCATION: W. of Bldg. along proposed ditch		LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: N/A	BORING DEPTH: 4.0
START DATE: 6/22/11	FINISH DATE: 6/22/11	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	
							DEPTH	ELEVATION
0.0							0.0	LAND SURFACE
2.0		D	▲52.6		SM		2.0	Dark brown Silty vf. to f. SAND.
4.0		D	▲40.8		SM		4.0	S.A.A. Color changing from light brown to orangish-brown.
Boring Terminated at Depth 4.0 ft								

CATLIN/ENVIRO.LOG_211043_NCDOT_NC24-SR1404.GPJ.CATLIN.GDI_7/25/11

▽ = 0hr. DTW ▼ = 24hr. DTW

BORING LOG



Wilmington, NC

PROJECT NO.: 211043	STATE: NC	COUNTY: Sampson	LOCATION: Autryville
PROJECT NAME: NC 24 from SR 1853 to SR 1404		LOGGED BY: Ben Ashba	BORING ID: 58-DPT-09
NORTHING: 449,096.43		EASTING: 2,120,561.66	DRILLER: Michael D. Mason
SYSTEM:		BORING LOCATION: SW end of block portion of Bldg (former disp. is	LAND ELEV.: NM
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW: N/A	BORING DEPTH: 4.0
START DATE: 6/22/11	FINISH DATE: 6/22/11	24 HOUR DTW: N/A	ROCK DEPTH: --

DEPTH	BLOW COUNT	MOI.	PID RESULTS (ppm)	LAB.	U S C S	L O G	SOIL AND ROCK	
							DEPTH	DESCRIPTION
0.0	0.5 0.5 0.5 0.5		0 1000 2000 3000 4000				0.0	LAND SURFACE
0.0		M	▲58.6		GP		0.5	Sandy GRAVEL.
2.0					SM		2.0	Gray, Silty SAND.
4.0		M	▲98.9	58-DPT-09 (2-3') @ 0945	SC/ SM		4.0	S.A.A. grading to orangish-brown Clayey SAND.
							Boring Terminated at Depth 4.0 ft	

CATLIN ENVIRO. LOG. 211043.NC.DOT_NC24-SR1404.GPJ.CATLIN.GDT. 7/25/11

▽ = 0hr. DTW

▼ = 24hr. DTW

BORING LOG



Wilmington, NC

PROJECT NO.:	211043	STATE:	NC	COUNTY:	Sampson	LOCATION:	Autryville
PROJECT NAME:	NC 24 from SR 1853 to SR 1404			LOGGED BY:	Ben Ashba		BORING ID:
				DRILLER:	Michael D. Mason		58-DPT-10
NORTHING:	449,089.55	EASTING:	2,120,580.19		CREW:		
SYSTEM:	BORING LOCATION: SE corner of Bldg (former Dispenser Island)					LAND ELEV.:	NM
DRILL MACHINE:	Power Probe	METHOD:	Direct Push		0 HOUR DTW:	N/A	BORING DEPTH:
					24 HOUR DTW:	N/A	4.0
START DATE:	6/22/11	FINISH DATE:	6/22/11		ROCK DEPTH:	--	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	U S C S	L O G	SOIL AND ROCK		
							DEPTH	DESCRIPTION	ELEVATION
0.0							0.0	LAND SURFACE	
		M	74:3		GP		0.5	Sandy GRAVEL.	
2.0					SM		2.0	Gray, Silty SAND.	
		M	86:5	58-DPT-10 (2-3') @ 1000	SC/ SM		4.0	S.A.A. grading to orangish-brown Clayey SAND.	
4.0								Boring Terminated at Depth 4.0 ft	

CATLIN ENVIRO LOG - 211043.NC.DOT_NC24-SR1404.GPJ - CATLIN.GDT - 7/25/11

▽ = 0hr. DTW ▼ = 24hr. DTW

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD



Laboratory Report of Analysis

To: Ben Ashba
RICHARD CATLIN & ASSOCIATES
P.O. Box 10279
Wilmington, NC 28404

Report Number: 31101646

Client Project: McGowan Prop-Parcel 58

Dear Ben Ashba,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

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

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

Sincerely,
SGS North America Inc.

Barbara A. Hager
Project Manager
barbara.hager@sgs.com

Date

Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < LOD)
V	Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit
A	Amount detected is less than the Lower Method Calibration Limit
J	Amount detected is between the Method Detection Limit and the Lower Calibration Limit
O	The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high
E	Amount detected is greater than the Upper Calibration Limit
S	The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s)
Q	Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s)
I	Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s)
DPE	Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s)
TIC	Tentatively Identified Compound
EMC	Estimated Maximum possible Concentration due to ion ratio failure
ND	Not Detected
K	Result is estimated due to ion ratio failure in High Resolution PCB Analysis
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range
M1	Mis-identified peak
M2	Software did not integrate peak
M3	Incorrect baseline construction (i.e. not all of peak included; two peaks integrated as one)
M4	Pattern integration required (i.e. DRO, GRO, PCB, Toxaphene and Technical Chlordane)
M5	Other - Explained in case narrative

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
58-DPT-01 (2-3ft)	31101646001	06/22/2011 07:30	06/24/2011 11:30	Soil-Solid as dr
58-DPT-02 (3-4ft)	31101646002	06/22/2011 07:45	06/24/2011 11:30	Soil-Solid as dr
58-DPT-03 (2-3ft)	31101646003	06/22/2011 08:00	06/24/2011 11:30	Soil-Solid as dr
58-DPT-04 (2-3ft)	31101646004	06/22/2011 08:15	06/24/2011 11:30	Soil-Solid as dr
58-DPT-05 (1-2ft)	31101646005	06/22/2011 08:30	06/24/2011 11:30	Soil-Solid as dr
58-DPT-06 (1-2ft)	31101646006	06/22/2011 08:45	06/24/2011 11:30	Soil-Solid as dr
58-DPT-07 (1-2ft)	31101646007	06/22/2011 09:00	06/24/2011 11:30	Soil-Solid as dr
58-DPT-08 (1-2ft)	31101646008	06/22/2011 09:30	06/24/2011 11:30	Soil-Solid as dr
58-DPT-09 (2-3ft)	31101646009	06/22/2011 09:45	06/24/2011 11:30	Soil-Solid as dr
58-DPT-10 (2-3ft)	31101646010	06/22/2011 10:00	06/24/2011 11:30	Soil-Solid as dr



Results of **58-DPT-01 (2-3ft)**

Client Sample ID: **58-DPT-01 (2-3ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646001-A
Lab Project ID: 31101646

Collection Date: 06/22/2011 07:30
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 88

Results by **SW-846 8015C GRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.20	mg/kg	1	06/28/2011 17:35

Surrogates

4-Bromofluorobenzene	101		70.0-130	%	1	06/28/2011 17:35
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Batch Information

Analytical Batch: **VGC1284**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC4**
Analyst: **LMC**
Analytical Date/Time: **06/28/2011 17:35**

Prep Batch: **VXX1706**
Prep Method: **SW-846 5035**
Prep Date/Time: **06/28/2011 09:01**
Prep Initial Wt./Vol.: **7.07 g**
Prep Extract Vol: **5 mL**



Results of 58-DPT-01 (2-3ft)

Client Sample ID: **58-DPT-01 (2-3ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646001-C
Lab Project ID: 31101646

Collection Date: 06/22/2011 07:30
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 88

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	ND		6.78	mg/kg	1	06/30/2011 1:15
Surrogates						
o-Terphenyl	62.2		40.0-140	%	1	06/30/2011 1:15

Batch Information

Analytical Batch: **XGC1331**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **06/30/2011 01:15**

Prep Batch: **XXX1482**
Prep Method: **SW-846 3541**
Prep Date/Time: **06/28/2011 13:20**
Prep Initial Wt./Vol.: **33.36 g**
Prep Extract Vol: **10 mL**



Results of **58-DPT-02 (3-4ft)**

Client Sample ID: **58-DPT-02 (3-4ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646002-A
Lab Project ID: 31101646

Collection Date: 06/22/2011 07:45
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 89

Results by **SW-846 8015C GRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.36	mg/kg	1	06/28/2011 18:02

Surrogates

4-Bromofluorobenzene	104		70.0-130	%	1	06/28/2011 18:02
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Batch Information

Analytical Batch: **VGC1284**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC4**
Analyst: **LMC**
Analytical Date/Time: **06/28/2011 18:02**

Prep Batch: **VXX1706**
Prep Method: **SW-846 5035**
Prep Date/Time: **06/28/2011 09:01**
Prep Initial Wt./Vol.: **6.71 g**
Prep Extract Vol: **5 mL**



Results of **58-DPT-02 (3-4ft)**

Client Sample ID: **58-DPT-02 (3-4ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646002-C
Lab Project ID: 31101646

Collection Date: 06/22/2011 07:45
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 89

Results by **SW-846 8015C DRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	ND		6.93	mg/kg	1	06/30/2011 1:43
Surrogates						
o-Terphenyl	65.6		40.0-140	%	1	06/30/2011 1:43

Batch Information

Analytical Batch: **XGC1331**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **06/30/2011 01:43**

Prep Batch: **XXX1482**
Prep Method: **SW-846 3541**
Prep Date/Time: **06/28/2011 13:20**
Prep Initial Wt./Vol.: **32.58 g**
Prep Extract Vol: **10 mL**



Results of **58-DPT-03 (2-3ft)**

Client Sample ID: **58-DPT-03 (2-3ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646003-A
Lab Project ID: 31101646

Collection Date: 06/22/2011 08:00
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 92

Results by **SW-846 8015C GRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.19	mg/kg	1	06/28/2011 18:29

Surrogates

4-Bromofluorobenzene	103		70.0-130	%	1	06/28/2011 18:29
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Batch Information

Analytical Batch: **VGC1284**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC4**
Analyst: **LMC**
Analytical Date/Time: **06/28/2011 18:29**

Prep Batch: **VXX1706**
Prep Method: **SW-846 5035**
Prep Date/Time: **06/28/2011 09:01**
Prep Initial Wt./Vol.: **6.84 g**
Prep Extract Vol: **5 mL**



Results of **58-DPT-03 (2-3ft)**

Client Sample ID: **58-DPT-03 (2-3ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646003-C
Lab Project ID: 31101646

Collection Date: 06/22/2011 08:00
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 92

Results by **SW-846 8015C DRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	7.22		6.77	mg/kg	1	06/30/2011 2:12
Surrogates						
o-Terphenyl	62.5		40.0-140	%	1	06/30/2011 2:12

Batch Information

Analytical Batch: **XGC1331**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **06/30/2011 02:12**

Prep Batch: **XXX1482**
Prep Method: **SW-846 3541**
Prep Date/Time: **06/28/2011 13:20**
Prep Initial Wt./Vol.: **32.19 g**
Prep Extract Vol: **10 mL**



Results of 58-DPT-04 (2-3ft)

Client Sample ID: **58-DPT-04 (2-3ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646004-A
Lab Project ID: 31101646

Collection Date: 06/22/2011 08:15
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 89

Results by SW-846 8015C GRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.23	mg/kg	1	06/28/2011 18:56

Surrogates

4-Bromofluorobenzene	103		70.0-130	%	1	06/28/2011 18:56
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Batch Information

Analytical Batch: **VGC1284**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC4**
Analyst: **LMC**
Analytical Date/Time: **06/28/2011 18:56**

Prep Batch: **VXX1706**
Prep Method: **SW-846 5035**
Prep Date/Time: **06/28/2011 09:01**
Prep Initial Wt./Vol.: **6.95 g**
Prep Extract Vol: **5 mL**



Results of **58-DPT-04 (2-3ft)**

Client Sample ID: **58-DPT-04 (2-3ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646004-C
Lab Project ID: 31101646

Collection Date: 06/22/2011 08:15
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 89

Results by **SW-846 8015C DRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	ND		6.97	mg/kg	1	06/30/2011 3:36

Surrogates

o-Terphenyl	48.7		40.0-140	%	1	06/30/2011 3:36
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Batch Information

Analytical Batch: **XGC1331**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **06/30/2011 03:36**

Prep Batch: **XXX1482**
Prep Method: **SW-846 3541**
Prep Date/Time: **06/28/2011 13:20**
Prep Initial Wt./Vol.: **32.22 g**
Prep Extract Vol: **10 mL**



Results of **58-DPT-05 (1-2ft)**

Client Sample ID: **58-DPT-05 (1-2ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646005-A
Lab Project ID: 31101646

Collection Date: 06/22/2011 08:30
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 90

Results by **SW-846 8015C GRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.06	mg/kg	1	06/28/2011 19:23

Surrogates

4-Bromofluorobenzene	99.2		70.0-130	%	1	06/28/2011 19:23
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Batch Information

Analytical Batch: **VGC1284**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC4**
Analyst: **LMC**
Analytical Date/Time: **06/28/2011 19:23**

Prep Batch: **VXX1706**
Prep Method: **SW-846 5035**
Prep Date/Time: **06/28/2011 09:01**
Prep Initial Wt./Vol.: **7.29 g**
Prep Extract Vol: **5 mL**



Results of **58-DPT-05 (1-2ft)**

Client Sample ID: **58-DPT-05 (1-2ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646005-C
Lab Project ID: 31101646

Collection Date: 06/22/2011 08:30
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 90

Results by **SW-846 8015C DRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	ND		7.01	mg/kg	1	06/30/2011 4:04
Surrogates						
o-Terphenyl	52.8		40.0-140	%	1	06/30/2011 4:04

Batch Information

Analytical Batch: **XGC1331**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **06/30/2011 04:04**

Prep Batch: **XXX1482**
Prep Method: **SW-846 3541**
Prep Date/Time: **06/28/2011 13:20**
Prep Initial Wt./Vol.: **31.81 g**
Prep Extract Vol: **10 mL**



Results of **58-DPT-06 (1-2ft)**

Client Sample ID: **58-DPT-06 (1-2ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646006-A
Lab Project ID: 31101646

Collection Date: 06/22/2011 08:45
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 90

Results by **SW-846 8015C GRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.29	mg/kg	1	06/28/2011 19:50

Surrogates

4-Bromofluorobenzene	103		70.0-130	%	1	06/28/2011 19:50
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Batch Information

Analytical Batch: **VGC1284**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC4**
Analyst: **LMC**
Analytical Date/Time: **06/28/2011 19:50**

Prep Batch: **VXX1706**
Prep Method: **SW-846 5035**
Prep Date/Time: **06/28/2011 09:01**
Prep Initial Wt./Vol.: **6.78 g**
Prep Extract Vol: **5 mL**



Results of **58-DPT-06 (1-2ft)**

Client Sample ID: **58-DPT-06 (1-2ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646006-C
Lab Project ID: 31101646

Collection Date: 06/22/2011 08:45
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 90

Results by **SW-846 8015C DRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	7.20		6.90	mg/kg	1	06/30/2011 4:32
Surrogates						
o-Terphenyl	49.4		40.0-140	%	1	06/30/2011 4:32

Batch Information

Analytical Batch: **XGC1331**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **06/30/2011 04:32**

Prep Batch: **XXX1482**
Prep Method: **SW-846 3541**
Prep Date/Time: **06/28/2011 13:20**
Prep Initial Wt./Vol.: **32.33 g**
Prep Extract Vol: **10 mL**



Results of **58-DPT-07 (1-2ft)**

Client Sample ID: **58-DPT-07 (1-2ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646007-A
Lab Project ID: 31101646

Collection Date: 06/22/2011 09:00
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 92

Results by **SW-846 8015C GRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.83	mg/kg	1	06/28/2011 20:17

Surrogates

4-Bromofluorobenzene	100		70.0-130	%	1	06/28/2011 20:17
----------------------	-----	--	----------	---	---	------------------

Batch Information

Analytical Batch: **VGC1284**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC4**
Analyst: **LMC**
Analytical Date/Time: **06/28/2011 20:17**

Prep Batch: **VXX1706**
Prep Method: **SW-846 5035**
Prep Date/Time: **06/28/2011 09:01**
Prep Initial Wt./Vol.: **5.71 g**
Prep Extract Vol: **5 mL**



Results of 58-DPT-07 (1-2ft)

Client Sample ID: **58-DPT-07 (1-2ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646007-C
Lab Project ID: 31101646

Collection Date: 06/22/2011 09:00
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 92

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	13.2		6.79	mg/kg	1	06/30/2011 5:00
Surrogates						
o-Terphenyl	51.7		40.0-140	%	1	06/30/2011 5:00

Batch Information

Analytical Batch: **XGC1331**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **06/30/2011 05:00**

Prep Batch: **XXX1482**
Prep Method: **SW-846 3541**
Prep Date/Time: **06/28/2011 13:20**
Prep Initial Wt./Vol.: **32.16 g**
Prep Extract Vol: **10 mL**



Results of **58-DPT-08 (1-2ft)**

Client Sample ID: **58-DPT-08 (1-2ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646008-A
Lab Project ID: 31101646

Collection Date: 06/22/2011 09:30
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 93

Results by **SW-846 8015C GRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.55	mg/kg	1	06/29/2011 11:47

Surrogates

4-Bromofluorobenzene	98.3		70.0-130	%	1	06/29/2011 11:47
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Batch Information

Analytical Batch: **VGC1285**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC4**
Analyst: **LMC**
Analytical Date/Time: **06/29/2011 11:47**

Prep Batch: **VXX1709**
Prep Method: **SW-846 5035**
Prep Date/Time: **06/29/2011 09:04**
Prep Initial Wt./Vol.: **6.04 g**
Prep Extract Vol: **5 mL**



Results of **58-DPT-08 (1-2ft)**

Client Sample ID: **58-DPT-08 (1-2ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646008-C
Lab Project ID: 31101646

Collection Date: 06/22/2011 09:30
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 93

Results by **SW-846 8015C DRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	13.5		6.73	mg/kg	1	06/30/2011 5:28
Surrogates						
o-Terphenyl	56.7		40.0-140	%	1	06/30/2011 5:28

Batch Information

Analytical Batch: **XGC1331**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **06/30/2011 05:28**

Prep Batch: **XXX1482**
Prep Method: **SW-846 3541**
Prep Date/Time: **06/28/2011 13:20**
Prep Initial Wt./Vol.: **31.9 g**
Prep Extract Vol: **10 mL**



Results of **58-DPT-09 (2-3ft)**

Client Sample ID: **58-DPT-09 (2-3ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646009-A
Lab Project ID: 31101646

Collection Date: 06/22/2011 09:45
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 90

Results by **SW-846 8015C GRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.14	mg/kg	1	06/29/2011 12:14

Surrogates

4-Bromofluorobenzene	99.7		70.0-130	%	1	06/29/2011 12:14
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Batch Information

Analytical Batch: **VGC1285**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC4**
Analyst: **LMC**
Analytical Date/Time: **06/29/2011 12:14**

Prep Batch: **VXX1709**
Prep Method: **SW-846 5035**
Prep Date/Time: **06/29/2011 09:04**
Prep Initial Wt./Vol.: **7.079 g**
Prep Extract Vol: **5 mL**



Results of **58-DPT-09 (2-3ft)**

Client Sample ID: **58-DPT-09 (2-3ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646009-C
Lab Project ID: 31101646

Collection Date: 06/22/2011 09:45
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 90

Results by **SW-846 8015C DRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	7.36		6.80	mg/kg	1	06/30/2011 5:56
Surrogates						
o-Terphenyl	52.0		40.0-140	%	1	06/30/2011 5:56

Batch Information

Analytical Batch: **XGC1331**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **06/30/2011 05:56**

Prep Batch: **XXX1482**
Prep Method: **SW-846 3541**
Prep Date/Time: **06/28/2011 13:20**
Prep Initial Wt./Vol.: **32.7 g**
Prep Extract Vol: **10 mL**



Results of **58-DPT-10 (2-3ft)**

Client Sample ID: **58-DPT-10 (2-3ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646010-A
Lab Project ID: 31101646

Collection Date: 06/22/2011 10:00
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 87

Results by **SW-846 8015C GRO**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.26	mg/kg	1	06/29/2011 12:42

Surrogates

4-Bromofluorobenzene	100		70.0-130	%	1	06/29/2011 12:42
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Batch Information

Analytical Batch: **VGC1285**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC4**
Analyst: **LMC**
Analytical Date/Time: **06/29/2011 12:42**

Prep Batch: **VXX1709**
Prep Method: **SW-846 5035**
Prep Date/Time: **06/29/2011 09:04**
Prep Initial Wt./Vol.: **7.08 g**
Prep Extract Vol: **5 mL**



Results of 58-DPT-10 (2-3ft)

Client Sample ID: **58-DPT-10 (2-3ft)**
Client Project ID: **McGowan Prop-Parcel 58**
Lab Sample ID: 31101646010-C
Lab Project ID: 31101646

Collection Date: 06/22/2011 10:00
Received Date: 06/24/2011 11:30
Matrix: Soil-Solid as dry weight
Solids (%): 87

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	ND		7.15	mg/kg	1	06/30/2011 6:25
Surrogates						
o-Terphenyl	42.5		40.0-140	%	1	06/30/2011 6:25

Batch Information

Analytical Batch: **XGC1331**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **06/30/2011 06:25**

Prep Batch: **XXX1482**
Prep Method: **SW-846 3541**
Prep Date/Time: **06/28/2011 13:20**
Prep Initial Wt./Vol.: **32.31 g**
Prep Extract Vol: **10 mL**

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: Catlin

Work Order No.: 31101646

- | | | |
|-----|--|-----------------------------|
| 1. | <input type="checkbox"/> Shipped
<input checked="" type="checkbox"/> Hand Delivered | Notes: _____
_____ |
| 2. | <input checked="" type="checkbox"/> COC Present on Receipt
<input type="checkbox"/> No COC
<input type="checkbox"/> Additional Transmittal Forms | _____
_____ |
| 3. | <input type="checkbox"/> Custody Tape on Container
<input checked="" type="checkbox"/> No Custody Tape | _____
_____ |
| 4. | <input checked="" type="checkbox"/> Samples Intact
<input type="checkbox"/> Samples Broken / Leaking | _____
_____ |
| 5. | <input checked="" type="checkbox"/> Chilled on Receipt Actual Temp.(s) in °C: <u>5.2</u>
<input type="checkbox"/> Ambient on Receipt
<input type="checkbox"/> Walk-in on Ice; Coming down to temp.
<input type="checkbox"/> Received Outside of Temperature Specifications | _____

_____ |
| 6. | <input checked="" type="checkbox"/> Sufficient Sample Submitted
<input type="checkbox"/> Insufficient Sample Submitted | _____
_____ |
| 7. | <input type="checkbox"/> Chlorine absent
<input type="checkbox"/> HNO3 < 2
<input type="checkbox"/> HCL < 2
<input type="checkbox"/> Additional Preservatives verified (see notes) | <u>NA</u>

_____ |
| 8. | <input checked="" type="checkbox"/> Received Within Holding Time
<input type="checkbox"/> Not Received Within Holding Time | _____
_____ |
| 9. | <input checked="" type="checkbox"/> No Discrepancies Noted
<input type="checkbox"/> Discrepancies Noted | _____
_____ |
| 10. | <input type="checkbox"/> No Headspace present in VOC vials
<input type="checkbox"/> Headspace present in VOC vials >6mm | _____
_____ |

Comments: _____

Inspected and Logged in by: TP
Date: Fri-6/24/11 00:00

APPENDIX C
SCHNABEL GEOPHYSICAL REPORT



July 20, 2011

Mr. Richard Garrett, LG
Catlin Engineers and Scientists, Inc.
P.O. Box 10279
Wilmington, NC 28404-0279

RE: State Project: R-2303B
 WBS Element: 34416.1.1
 County: Cumberland - Sampson
 Description: NC 24 from SR 1853 (John Nunnery Rd) in Cumberland County to SR
 1404 (Dowdy Rd) in Sampson County

Subject: Project 09210013.41, Report on Geophysical Surveys
Parcel 58, Scott McGowan Property, Sampson County, North Carolina

Dear Mr. Garrett:

SCHNABEL ENGINEERING SOUTH, PC (Schnabel) is pleased to present this report on the geophysical surveys we conducted on the subject property. The report includes two 11x17 color figures and three 8.5x11 color figures.

INTRODUCTION

The work described in this report was conducted on May 27, and June 7, 2011, by Schnabel under our 2009 contract with the NCDOT. The work was conducted over the accessible areas of the property as indicated by the NCDOT to support their environmental assessment of the subject property. Photographs of the property are included on Figure 1. The property is located on the north side of NC 24 (Autry Highway) at the intersection of Nirvana Lane in Autryville, NC. The purpose of the geophysical surveys was to locate suspect metal underground storage tanks (USTs) in the accessible areas of the right-of-way and/or easement.

The geophysical investigation consisted of electromagnetic (EM) induction surveys using a Geonics EM61-MK2 instrument. The EM61 metal detector is used to locate metal objects buried up to about eight feet below ground surface. Ground-penetrating radar (GPR) investigations of selected EM61 anomalies, including areas of reinforced concrete, were conducted using a Geophysical Survey Systems SIR-3000 system equipped with a 400 MHz antenna. Photographs of the equipment used are shown on Figure 2.

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 (monitoring wells, signs, etc.) were recorded for later correlation with the geophysical data and for location references to the NCDOT drawings.

The EM61 data were collected along parallel survey lines spaced approximately 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 areas of reinforced concrete and anomalous EM readings not attributed to cultural features. The GPR data were reviewed in the field to evaluate the possible presence of USTs. The GPR data also were recorded digitally and later transferred to a desktop computer for further review.

DISCUSSION OF RESULTS

The contoured EM61 data collected over Parcel 58 are shown on Figures 3 and 4. The EM61 early time gate results are plotted on Figure 3. The early time gate data provide the more sensitive detection of metal objects. Figure 4 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 USTs.

The early time gate and differential EM61 results show anomalies of unknown cause, in addition to those apparently caused by reinforced concrete, buried utilities, or known site features (Figures 3 and 4). The GPR data collected over the EM61 anomaly near the southeast corner of the building indicate the presence of one probable UST located approximately 40 feet from the northern edge of NC 24 (Autry Highway). The probable UST is inside the limits of the planned right-of-way and/or easement. Example GPR images showing the reflection from the probable UST are shown on Figures 3 and 4. Figures 3 and 4 also include the location of the probable UST as marked in the field. The GPR data indicate that the probable UST is buried approximately 1.5 to 2.5 feet below ground surface and is about 3.5 feet in diameter and about 7.5 feet long, equivalent to a capacity of about 560 gallons. Photographs of the probable UST location, as marked in the field, are included on Figure 5.

CONCLUSIONS

Our evaluation of the geophysical data collected on the subject property on Project R-2303B in Autryville, NC indicates the following:

The geophysical data indicate the presence of one probable UST on Parcel 58. The probable UST is within the planned right-of-way and/or easement. The probable UST is about 560-gallon capacity and is buried about 1.5 to 2.5 feet below ground surface.

LIMITATIONS

These services have been performed and this report prepared for Catlin Engineers and Scientists, Inc. 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.

We appreciate the opportunity to have provided these services. Please call if you need additional information or have any questions.

Sincerely,

SCHNABEL ENGINEERING SOUTH, PC



Jeremy S. Strohmeyer, LG
Project Manager



Edward D. Billington, LG
Senior Vice President

JS:NB

Attachments: Figures (5)

FILE: G:\2009 PROJECTS\09210013 (NCDOT 2009 GEOTECH UNIT SERVICES)\09210013.41 (R-2303B, CUMBERLAND-SAMPSON CO.)\REPORT\PARCEL 58\SCHNABEL GEOPHYSICAL REPORT ON PARCEL 58 (R-2303B).DOCX



Parcel 58 – Scott McGowan Property, looking northwest



Parcel 58 – Scott McGowan Property, looking northeast



Geonics EM61-MK2



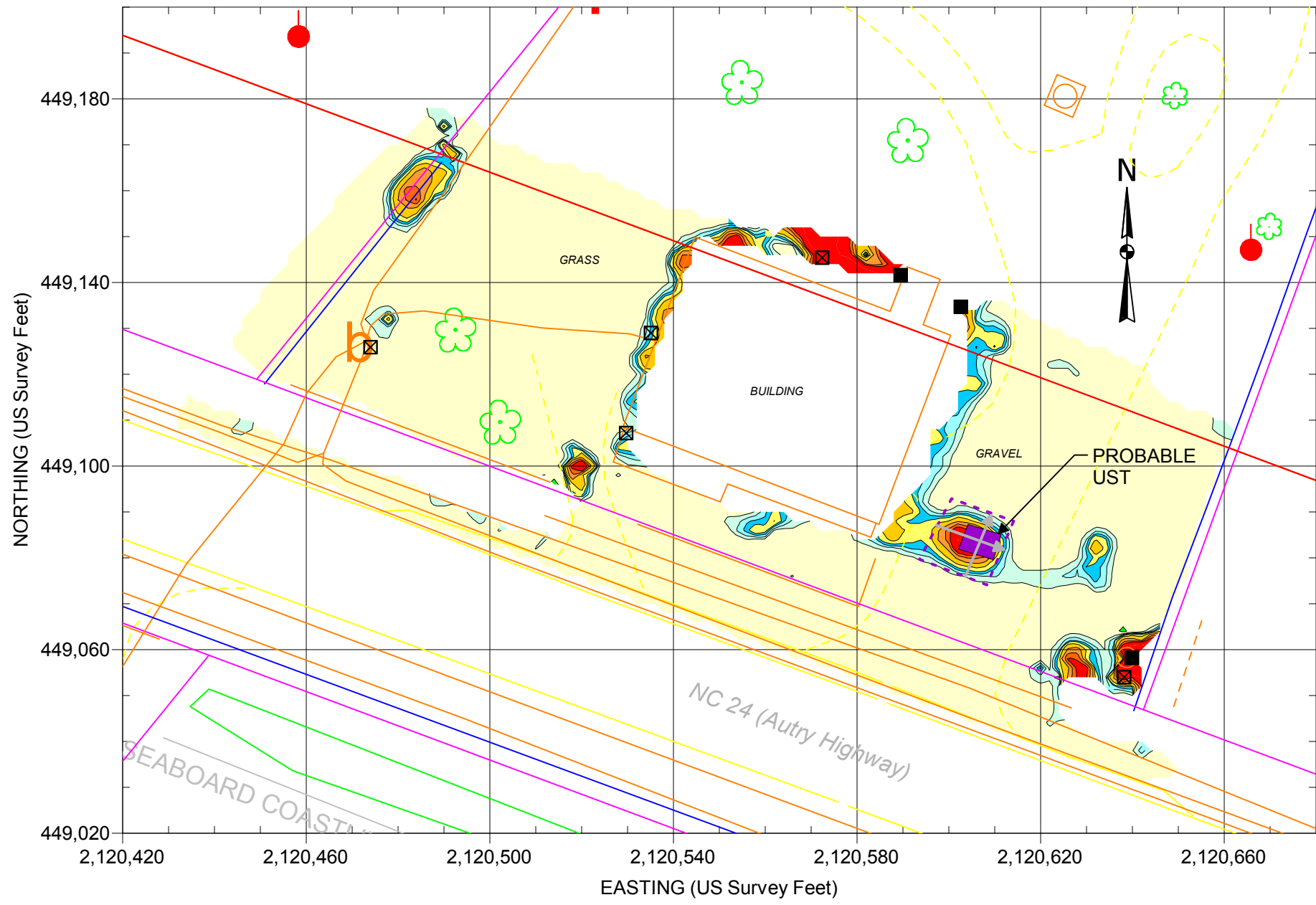
GSSI SIR-3000



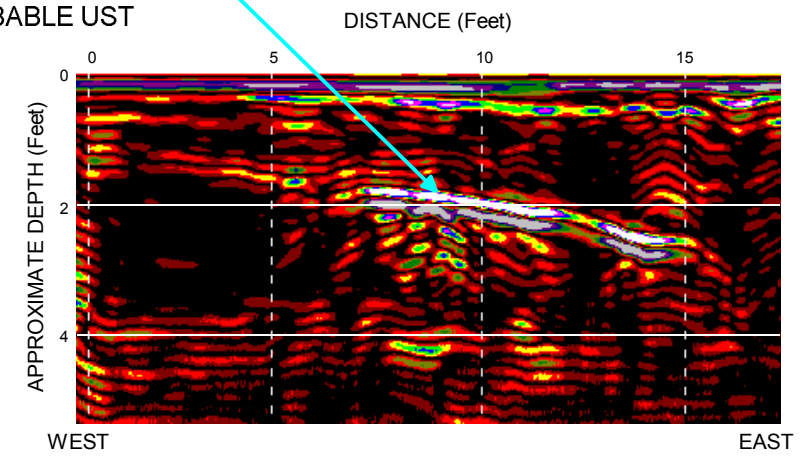
STATE PROJECT R-2303B
NC DEPT. OF TRANSPORTATION
CUMBERLAND-SAMPSON COS., NC
PROJECT NO. 09210013.41

PHOTOS OF
GEOPHYSICAL
EQUIPMENT USED

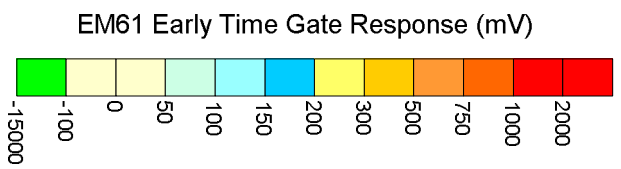
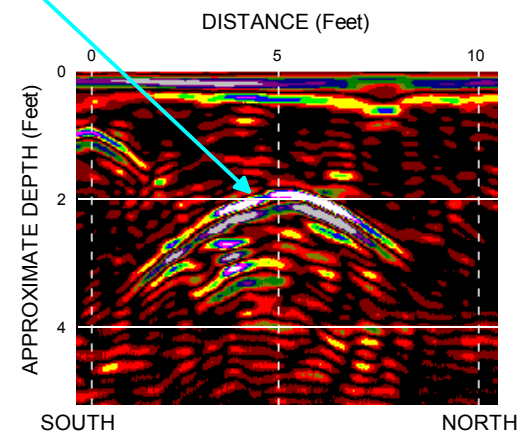
FIGURE 2



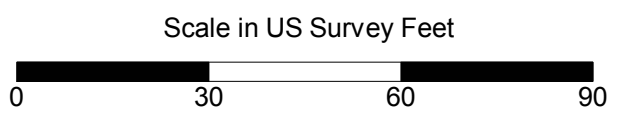
EXAMPLE GPR RESPONSE FROM THE LONG AXIS OF THE PROBABLE UST



EXAMPLE GPR RESPONSE FROM THE SHORT AXIS OF THE PROBABLE UST



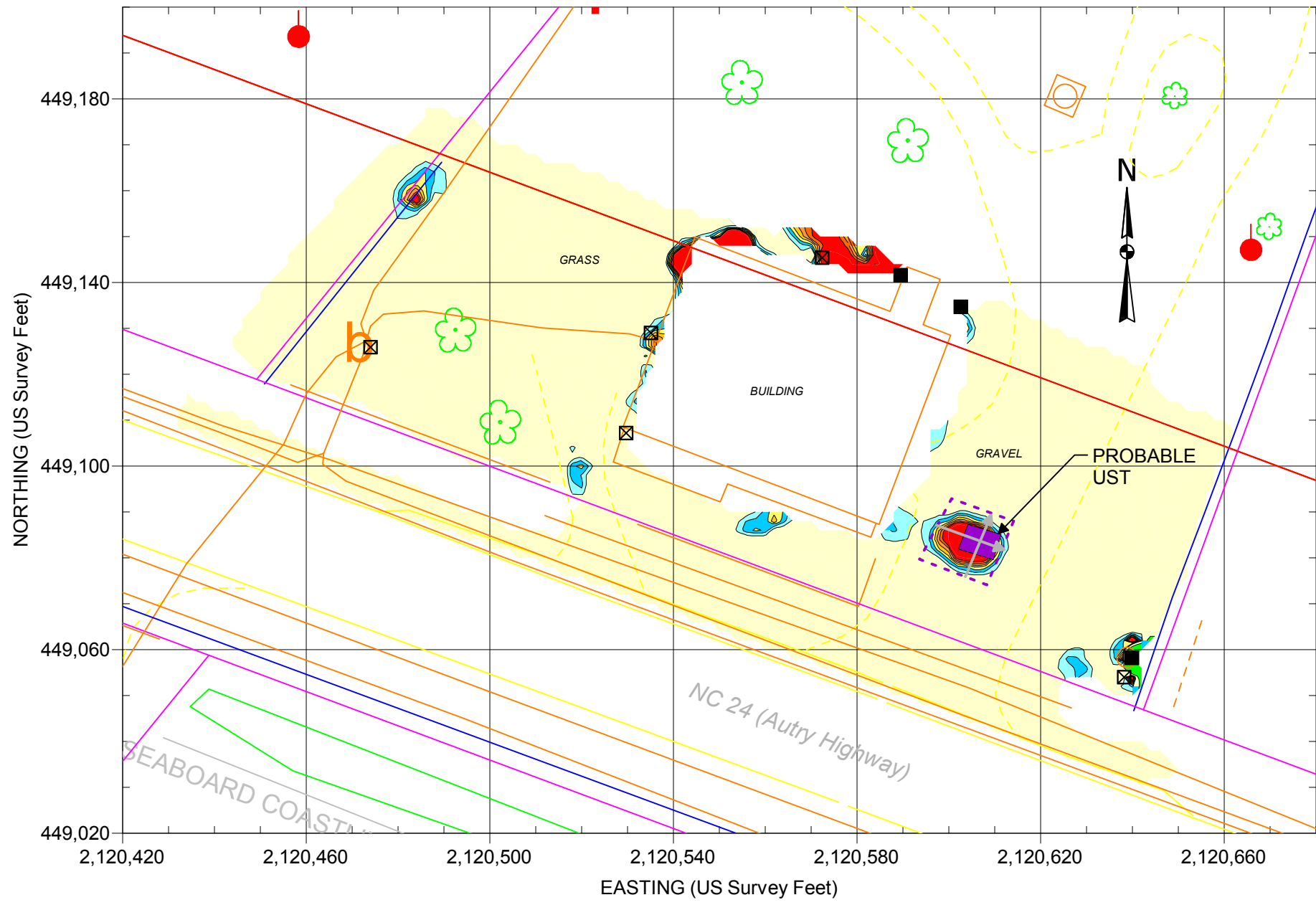
Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on May 27, 2011, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina Zone 3200, using the NAD 1983 datum. GPR data were acquired on June 7, 2011, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.



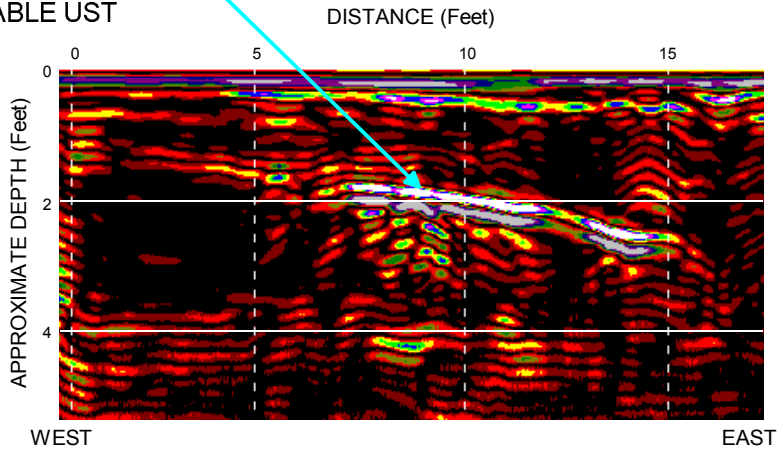
EXPLANATION	
	SIGN
	UTILITY POLE
	GUY WIRE
	MISCELLANEOUS METALLIC OBJECT
	UTILITY MANHOLE, METER, BOX, ETC.
	LIGHT POLE
	MONITORING WELL
	UST LID
	DOT PROPOSED RW
	DOT PROPOSED UTILITY EASEMENT
	PROPERTY LINE
	UTILITY (AS MARKED BY OTHERS OR AS PROVIDED BY NCDOT [VARIOUS COLORS])
	EXAMPLE GPR LINE LOCATION
	GPR SURVEY AREA
	LOCATION OF KNOWN OR SUSPECT USTS MARKED ON SITE

REF.: NCDOT FILE: r2303b_rdy_psh19.dgn (FOR SOME SITE FEATURES)

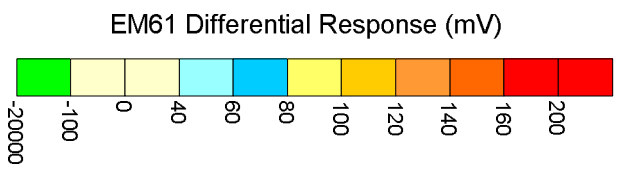
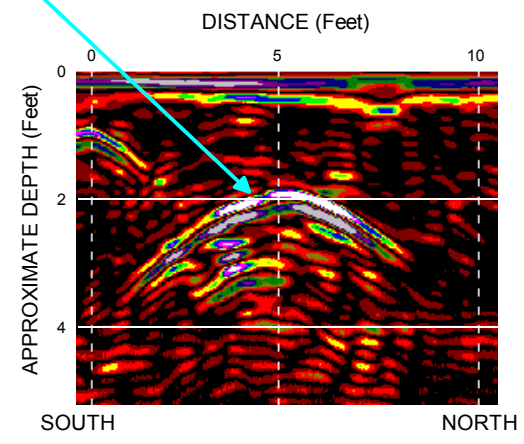
	STATE PROJECT R-2303B CUMBERLAND-SAMPSON COUNTIES, NC NC DEPARTMENT OF TRANSPORTATION PROJECT NO. 09210013.41	PARCEL 58 EM61 EARLY TIME GATE RESPONSE
	FIGURE 3	



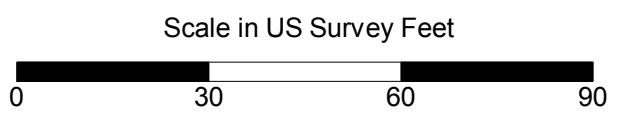
EXAMPLE GPR RESPONSE FROM THE LONG AXIS OF THE PROBABLE UST



EXAMPLE GPR RESPONSE FROM THE SHORT AXIS OF THE PROBABLE UST



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 May 27, 2011, 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 June 7, 2011, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.



EXPLANATION	
	SIGN
	UTILITY POLE
	GUY WIRE
	MISCELLANEOUS METALLIC OBJECT
	UTILITY MANHOLE, METER, BOX, ETC.
	LIGHT POLE
	MONITORING WELL
	UST LID
	DOT PROPOSED RW
	DOT PROPOSED UTILITY EASEMENT
	PROPERTY LINE
	UTILITY (AS MARKED BY OTHERS OR AS PROVIDED BY NCDOT [VARIOUS COLORS])
	EXAMPLE GPR LINE LOCATION
	GPR SURVEY AREA
	LOCATION OF KNOWN OR SUSPECT USTS MARKED ON SITE

REF.: NCDOT FILE: r2303b_rdy_psh19.dgn (FOR SOME SITE FEATURES)

	STATE PROJECT R-2303B CUMBERLAND-SAMPSON COUNTIES, NC NC DEPARTMENT OF TRANSPORTATION PROJECT NO. 09210013.41	PARCEL 58 EM61 DIFFERENTIAL RESPONSE
	FIGURE 4	



Parcel 37 – Scott McGowan Property, looking northwest. Photo shows approximate marked location of the probable UST on the east side of the property.



Parcel 37 – Scott McGowan Property, looking northwest. Photo shows approximate marked location of the probable UST on the east side of the property.