PRELIMINARY SITE ASSESSMENT
SOUTHERN MOTORS
1605 SOUTH MAIN STREET (US HIGHWAY 29)
SALISBURY, ROWAN COUNTY, NORTH CAROLINA
NCDOT PROJECT: U-3459
WBS ELEMENT: 34951.1.1

Prepared for:
NC Department of Transportation
Geotechnical Engineering Unit
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Solutions-IES Project No. 3210.06A3.NDOT

August 15, 2006

Kevin B. Buchanan
Senior Environmental Specialist

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Project Manager

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1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is considering shifting the alignment of Klumac Road (NC SR-2541) located in Salisbury, Rowan County, North Carolina to the west of its present location. If the alignment of Klumac Road is shifted, it will be necessary for the NCDOT to acquire properties located within the new proposed right-of-way. On May 24, 2006, Solutions-IES submitted a proposal to conduct limited Preliminary Site Assessments (PSAs) for five parcels of land located within the proposed right-of-way that are of concern to the NCDOT. This report summarizes the results of field activities conducted during the PSA for a portion of the property identified by NCDOT as the Southern Motors (**Figure 1**). The right-of-way portion of this site (Study Area) is more clearly identified on **Figure 2.** The property itself is presently owned by Robert Boone. The scope of work executed at the site was performed in general accordance with Solutions-IES proposal NC06527P dated May 24, 2006 (proposal), and was initiated based on a Notice to Proceed issued by the NCDOT Geotechnical Engineering Unit on June 20, 2006 under contract 7000007053, dated June 5, 2006.

2.0 BACKGROUND AND SITE DESCRIPTION

The subject property is located at the intersection of South Main Street (US Highway 29) and East "A" Avenue within the City Limits of Salisbury, Rowan County, North Carolina (site). According to field observations, a block building with an attached two-bay garage is located on the site. The surface of the site is covered with a mixture of concrete, asphalt, gravel and grass. Numerous utilities including buried sanitary and storm sewer, natural gas and water, as well as overhead electric lines cross the site. Duke Energy maintains a high-tension power line which crosses the eastern edge of the site. A photograph of the Study Area at the site is presented in **Appendix A**.

According to information provided by the NCDOT, the property may have operated as a gas station in the past. Evidence of a former pump island was observed near the north side of the existing building indicating that a UST or AST system(s) may have been in place near the building. The concrete pad likely associated with the former pump island is located outside and west of the Study Area. As discussed in detail in Section 3.0, the geophysical survey performed did not indicate the presence of buried metallic tanks (USTs) within the Study Area.

Solutions-IES reviewed information documented in a variety of websites to assist in identifying potential contaminants of interest (COIs) that could impact the right-of-way or easement for each of the properties investigated. Section 6.0 provides a summary of the websites utilized in this information review. Petroleum fuels were likely used on the property, and therefore there is a possibility that these constituents may have been released from this site to the subsurface in the vicinity of the proposed right-of-way. Based on this information, Solutions-IES selected to analyze for parameters that would be representative of COIs from a gas station (See Section 6.0; References 1 through 7).

3.0 FIELD ACTIVITIES

Prior to mobilizing to the site to conduct subsurface sampling, Solutions-IES contacted North Carolina One Call and the City of Salisbury Public Utilities Department to locate underground utilities in the study area of the site. Pyramid Environmental & Engineering, P.C. (Pyramid) was contracted to perform an electromagnetic survey of the subsurface in the proposed right-of-way and easement area. Pyramid surveyed the site between June 26 and June 29, 2006. The electromagnetic survey equipment (EM61) identified various magnetic anomalies within the study area, and Pyramid returned to the study area to perform a ground penetrating radar (GPR) survey utilizing a "Geophysical Survey Systems SIR 2000" instrument. Results of the surveys suggested the presence of buried utility lines or conduits, but did not indicate the presence of buried metallic tanks (USTs). The EM61 images are included on **Figures 3, 4** and **5** in **Appendix B**. A GPR image was not included in the geophysical report for the site.

After reviewing the geophysical report, Solutions-IES mobilized to the site and obtained soil samples from locations previously identified by NCDOT within the proposed right-of-way. These activities were conducted on July 18 and 19, 2006. A total of eight soil borings (borings SMB1 through SMB8) were advanced at the site in the locations depicted on **Figure 3**. These borings were labeled "SM" for Southern Motors. Each of these borings was advanced to a total depth of 8 feet below ground surface (ft bgs) with a truck-mounted Geoprobe®. Borings SMB1 through SMB6 were generally spaced approximately 20 feet apart on the north-south axis of the site parallel to East 'A' Avenue. Borings SMB7 and SMB8 were spaced approximately 20 feet apart on the east-west axis of the site parallel to South Main Street (US Highway 29). Borings SMB6, SMB7 and SMB8 were each located in close proximity to buried sanitary and storm sewer lines, and were positioned to avoid these utilities.

Soil samples were obtained from each boring using a MacroCore® sampler fitted with single-use, disposable polyvinyl chloride (PVC) liners. Each liner was 4 feet in length. Upon retrieval, each soil

sample was split into two aliquots of 2 feet in length. The aliquots were placed in separate resealable plastic bags. One bag was placed on ice for possible laboratory analysis, and the remaining bag was sealed and placed at ambient temperature for field screening with a flame ionization detector (FID).

Volatile organic compounds (VOCs) were allowed to accumulate in the headspace of each bag for approximately 20 minutes, after which time the headspace of each sealed bag was scanned with the FID. The FID readings were entered on the boring logs along with the soil description and indications of staining or odors, if present. Logs for each boring are presented in **Appendix C.** Soils from the borings at the Southern Motors Study Area generally consisted of sandy or clayey silt (ML) and mottled silty clay (CL).

Headspace screening of the soil samples revealed the presence of volatile vapors in several of the samples screened with the FID. Concentrations ranged from 0.1 part per million (ppm) [SMB1, 4-6 ft bgs] to 307 ppm (SMB8, 6-8 ft bgs). These measurements are presented in **Table 1**. No distinguishable odors were noted in these samples except from the soil sample collected from boring SMB8 (4-6 and 6-8 ft bgs), in which petroleum odors were noted.

Soil samples for laboratory analysis were retained from each boring at the sample intervals identified in **Table 1**. These samples were selected for analysis as they presented the highest FID measurements within the borings, or, if no volatile vapors were present, were obtained from the 6 – 8 ft bgs depth interval. The samples were placed in laboratory-supplied containers and stored on ice pending shipment to Pace Analytical Services, Inc. (Pace) in Huntersville, NC. Sample information was recorded on the chain-of-custody and the samples were submitted for chemical analysis of total petroleum hydrocarbons (TPH) gasoline range organics (GRO) by Modified EPA Method 5030/8015 and TPH diesel range organics (DRO) by Modified EPA Method 3545/8015.

4.0 SAMPLING RESULTS

The analytical data indicate the presence of targeted compounds in a single sample, SMB8 (6-8 ft bgs). TPH DRO was detected in the sample at a concentration of 7.3 mg/kg which is not above the NCDENR Action Level of 10 mg/kg[1]. TPH GRO was not detected in the soil sample collected from SMBB8 (6-8 ft bgs). Analytical data for the remaining samples retained from the site revealed no DRO or GRO TPH at

[1] *"Guidelines for Tank Closure, North Carolina Underground Storage Tank Section", December 2000, Change 1 Incorporated September 1, 2003 (Guidelines for Tank Closure-Change 1).*

concentrations above the laboratory reporting limits. These data are summarized in **Table 2**. Laboratory reports associated with these samples are presented in **Appendix D**.

5.0 DISCUSSION AND CONCLUSIONS

The geophysical survey conducted at the site did not reveal buried metallic USTs within the study area. The survey did suggest metallic anomalies in locations consistent with the presence of buried utilities (e.g., storm and sanitary sewer, buried water lines).

According to information provided by the NCDOT, the property may have operated as a gas station in the past. Solutions-IES observed evidence of a former pump island located on the north side of the building outside of the Study Area during the performance of field activities associated with the PSA at the site.

Solutions-IES installed eight soil borings at the site to determine the presence or absence of petroleum contamination in the Study Area at the Southern Motors property, as well as document soil conditions. Soil samples obtained from the borings and screened with an FID revealed the presence of volatile vapors in some samples at detectable concentrations ranging from 0.1 to 307 ppm. However, the analytical data for soil samples submitted for chemical analysis showed that TPH GRO and TPH DRO were not detectable with the exception of one report of TPH DRO in SMB8 (6-8 ft bgs) which did not exceed the NCDENR-UST Section Action Level. The presence of TPH DRO in soil is typically associated with a release of petroleum hydrocarbons such as diesel fuel.

Because the soil sample collected from boring SMB8 (6-8 ft bgs) contained TPH DRO at concentrations greater than the laboratory method detection limit, but less than the Action Level, soil that may be excavated in vicinity of this boring should be properly transported and disposed of. Based on detectable concentrations of TPH DRO, Solutions-IES conservatively estimates the area of soil contamination to encompass a 10 feet radius centering on SMB8 (6-8 ft bgs). During roadway construction, the NCDOT transportation/disposal contractor may use different criteria for estimating the area of impacted soil. Based on current information, additional assessment is not recommended.

6.0 WEBSITE REFERENCES

1) http://arcims.webgis.net/nc/rowan/default.asp
2) http://ust.enr.state.nc.us/database.html
3) http://h2o.enr.state.nc.us/aps/gpu.htm
4) http://www.wastenotnc.org/sfhome/ihsbrnch.htm
5) http://h2o.enr.state.nc.us/su/State_SW_Mngt_Program.htm
6) http://www.epa.gov/epaoswer/osw/hazwaste.htm
7) http://www.epa.gov/superfund/sites/cursites/index.htm
8) http://oaspub.epa.gov/enviro/multisys2.get_list_tri?tri_fac_id=47201NTNDR8251S
9) http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/stclglsn.pdf
10) http://matse1.mse.uiuc.edu/concrete/prin.html
11) http://www.lib.ncsu.edu:2420/knovel2/Toc.jsp?BookID=356&VerticalID=0
12) http://cementamericas.com/mag/cement_cement_concrete_environment/index.html
13) https://www.esa.doc.gov/comments%20dept%20of%20commerce%20on%20gas%20prices%20impact%20-%20may%2016%20-%20ez.doc)
14) http://www.esa.org/science/Issues/FileEnglish/issue3.pdf
15) http://pirg.uwaterloo.ca/download/docs/rubber.html
16) www.sbcfire.org/hazmat/env_terms.asp
17) http://www.atsdr.cdc.gov/HAC/PHA/trent/tre_p1.html
18) http://www.cpuc.ca.gov/Environment/info/esa/corona/corona_hazards.htm

TABLES

TABLE 1
SUMMARY OF FIELD SCREENING RESULTS FOR SOIL
Southern Motors
Salisbury, Rowan County, North Carolina
WBS Element: 34951.1.1; State Project: U-3459
Sample Collection Dates: 07/18-19-2006

Sample Depth Below Ground Surface	Soil Borings							
	SMB1	SMB2	SMB3	SMB4	SMB5	SMB6	SMB7	SMB8
	FID Reading (ppm)							
0 - 2 feet	ND	ND	NS	ND	ND	ND	1.1	0.1
2 - 4 feet	ND	0.1	ND	ND	ND	1.1	0.7	4.2
4 - 6 feet	0.1	0.1	ND	NS	ND	2.4	2.1	NS
6 - 8 feet	ND	0.2	0.2	0	6	4	2.2	307

Notes:

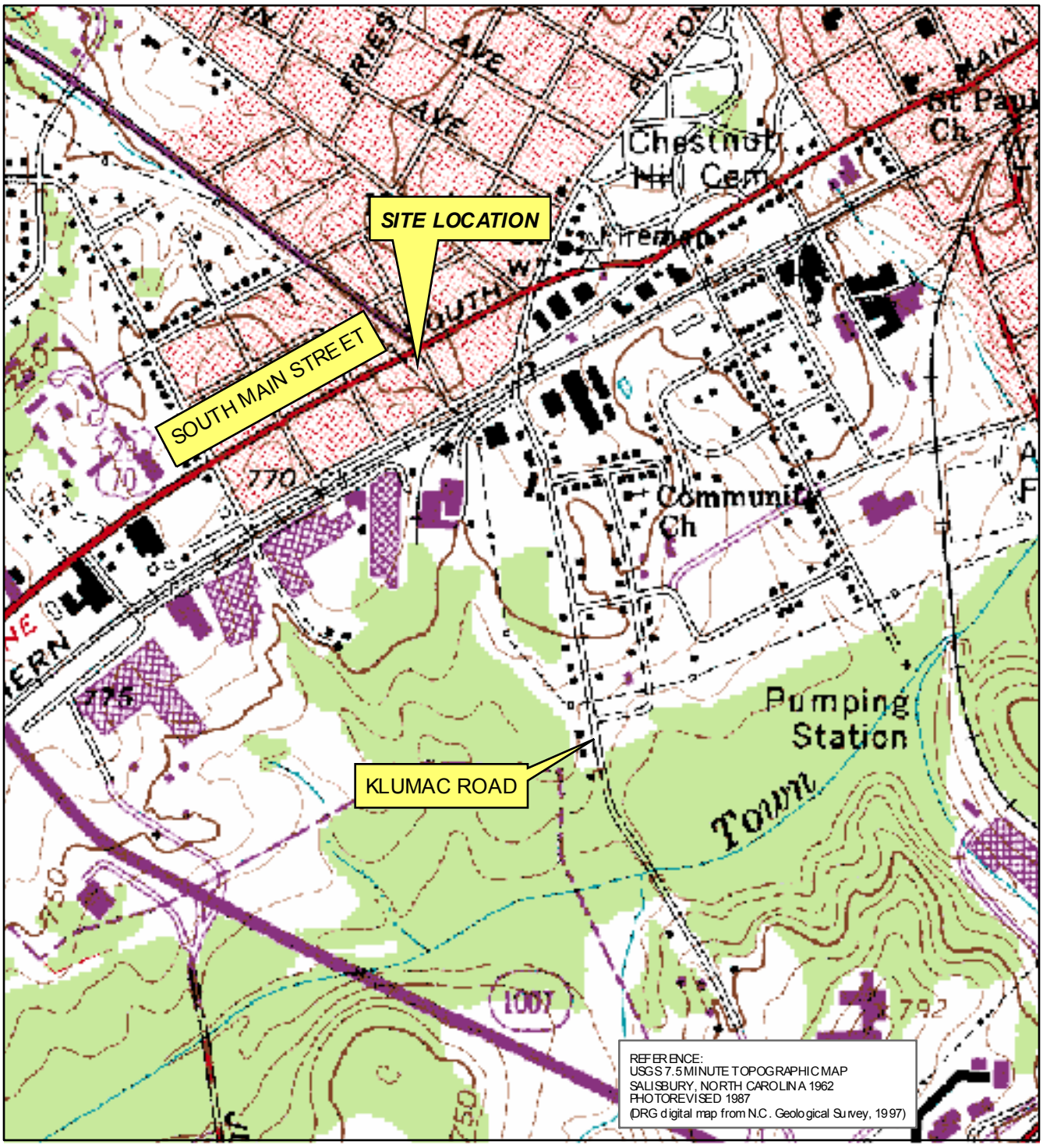
1. Samples denoted by shaded cells were submitted for laboratory analysis.
2. NS - Denotes not sampled.
3. FID readings were obtained with a Photovac MicroFID Flame Ionization Detector.
4. ND - Not Detected

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS
Southern Motors
Salisbury, Rowan County, North Carolina
WBS Element: 34951.1.1; State Project: U-3459

Sample Information		Total Petroleum Hydrocarbons	
Boring Number	**Depth (Feet)**	**Gasoline Range[1] (mg/kg)**	**Diesel Range[2] (mg/kg)**
SMB1	6-8	<6.4	<7.2
SMB2	6-8	<6.8	<6.8
SMB3	6-8	<5.3	<7.0
SMB4	6-8	<6.3	<7.3
SMB5	6-8	<4.8	<6.3
SMB6	6-8	<5.8	<7.0
SMB7	6-8	<5.5	<7.0
SMB8	6-8	<5.2	**7.3**[3]

Notes:
1. Total Petroleum Hydrocarbons (TPH) Method 5030/8015MOD - Gasoline Range Hydrocarbons
2. Total Petroleum Hydrocarbons (TPH) Method 3545/8015MOD - Diesel Range Hydrocarbons
3. Bold values indicate detected concentrations

FIGURES



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SITE LOCATION MAP

SOUTHERN MOTORS
GRADE SEPARATION AT KLUMAC ROAD
KLUMAC ROAD
SALISBURY, ROWAN COUNTY, NC
WBS ELEMENT 31951.1.1; STATE PROJECT U-3459

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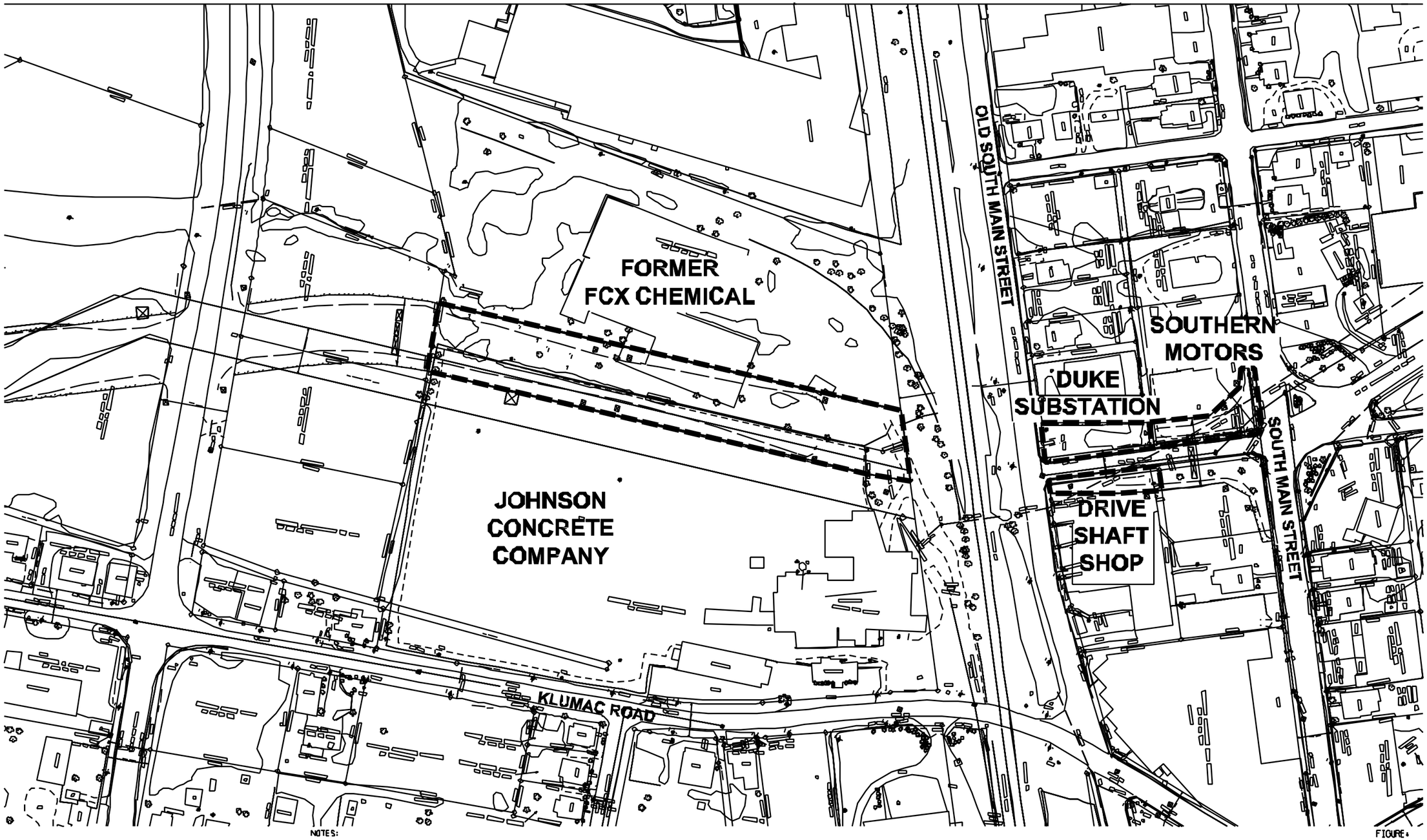
Created by:	RT	Project:	3210.06A3.NDOT
Checked by:	SK	Date:	AUGUST 2006
File:	Figure 1.mxd		
Software:	ESRI ArcMap 9.1	FIGURE	1



DATE: AUGUST 2006 | PROJECT MANAGER: SK | CHECKED BY: SK | DRAFTER: RT | PROJECT NUMBER: 3210.06R3.NDOT

FILE: FIG2.DGN

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NOTES:

0 150 300

SCALE IN FEET

SOUTHERN MOTORS
GRADE SEPARATION AT KLUMAC ROAD
SALISBURY, ROWAN COUNTY, NC
WBS ELEMENT 31951.1.1; STATE PROJECT U-3459

SITE MAP

FIGURE:
2

PROJECT NUMBER 3210.8GA3.NDOT | DRAFTER RT | CHECKED BY SK | PROJECT MANAGER SK | DATE AUGUST 2006 | FILE FIG3.DGN

STUDY AREA

SMB7 SMB6 SMB8 SMB5 SMB4 SMB3 SMB2 SMB1

CONC U/MTL CANOPY

BST

6" CURB

LP 68

15' BST

GUY

8" CLAY

36" CONC

15" CONC

12" CONC

24" CONC

CB

TOW SIGNAL BOX AND ELECTRIC METER

24" CONC

68

S. MAIN ST. 36' BST

CONC

6" CURB

US 29

67

EIP

CONC

GR

2SBKBUS

N27°27'38"W 149.24'

ROBERT FULTON BOONE DB 638 PG 945

10' ALLEY

JAMES EDWARD BOSTIAN DB 459 PG 510

ISFD

BST

PROP. 100' R/W

N62°47'23"E 248.27'

CB

12" CONC

LP 101

CUX

LT

102

E.A.AVE. 8" CLAY

EXISTING R/W

24" CONC

EXISTING R/W

ISBKBUS

OTHER

LEGEND

SMB1 — SOIL BORING LOCATION

0 30 60

SCALE IN FEET

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SOUTHERN MOTORS
GRADE SEPARATION AT KLUMAC ROAD
SALISBURY, ROWAN COUNTY, NC
WBS ELEMENT 31951.1.1; STATE PROJECT U-3459
LOCATION 3

SOIL BORING LOCATIONS

FIGURE: 3

APPENDIX A

PHOTOGRAPH

Photograph – View from south to north along East “A” Avenue. Study Area in foreground along eastern boundary of site.

APPENDIX B

GEOPHYSICAL INVESTIGATION

Pyramid Project # 2006-176

GEOPHYSICAL INVESTIGATION REPORT

GEOPHYSICAL SURVEYS FOR THE DETECTION OF METALLIC UST'S

Klumac Road Realignment Project
Salisbury, North Carolina
State Project Number 34951.1.1 (TIP # U3459)

July 14, 2006

Report prepared for: **Sheri Knox, PE**
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GEOPHYSICAL SURVEYS FOR THE DETECTION OF METALLIC UST'S
Klumac Road Realignment Project
State Project Number 34951.1.1 (TIP # U3459)

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FIGURES

1.0 INTRODUCTION

Pyramid Environmental & Engineering, P.C. conducted geophysical investigations for Solutions Industrial & Environmental Services, Inc. during the period of June 26 through July 7, 2006, within the proposed Right-of-Way (ROW) areas at five sites along the proposed Klumac Road realignment project area in Salisbury, North Carolina. The work was done as part of the North Carolina Department of Transportation (NCDOT) road-widening project under State Project WBS Element 34951.1.1 (TIP # U-3459). The five sites are located along or adjacent to the intersection of Old South Main Street and East "A" Avenue in Salisbury.

Geophysical investigations were conducted across the eastern edges of the Southern Motors and the Duke Power substation properties located along the west side of East "A" Avenue. Investigations were also conducted along the western edge of The Drive Shaftshop property located along the east side of East "A" Avenue. The western edge of the former FCX Chemical site and the eastern portion of the Johnson Concrete facility, located south of Old Main Street, were also included in the geophysical investigation. The geophysical surveys were conducted to determine if unknown metallic underground storage tanks (USTs) were present beneath the proposed ROW area of each site.

Solutions Industrial and Environmental Services representative, Ms. Sheri Knox, PE, provided maps to Pyramid Environmental during the week of May 22, 2006 that outlined the geophysical survey area of each site. A site map and photographs showing the geophysical survey areas of the five sites are presented in **Figure 1**.

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigations, a 10-foot by 20-foot survey grid was established across the proposed ROW areas of the five sites using water-based marking paint and pin flags. These marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigations consisted of electromagnetic (EM) induction-metal detection surveys and ground penetrating radar (GPR) surveys. The EM surveys were performed using a Geonics EM61-MK1 metal detection instrument. According to the manufacturer's specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. The EM61 data were digitally collected at each site along parallel northerly-southerly trending survey lines spaced five feet apart. The data were downloaded to a computer and reviewed in the office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

Contour plots of the EM61 bottom coil results and the EM61 differential results for each site are included in this report. The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines, small, isolated metal objects, and areas containing insignificant metal debris.

The differential results are obtained from the difference between the top and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drums and USTs and ignore the smaller insignificant metal objects.

GPR surveys were conducted across selected EM61 differential anomalies and steel-reinforced concrete using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. GPR data were digitally collected in a continuous mode along X and/or Y survey lines, spaced two to five feet apart using a vertical scan of 512 samples, at a rate of 48 scans per second. An 80 MHz high pass filter and an 800 MHz low pass filter were used during data acquisition with the 400 MHz antenna. GPR data were collected down to a maximum depth of approximately five feet, based on an estimated two-way travel time of 10 nanoseconds per foot.

The GPR data were downloaded to a field computer and later reviewed in the office using Radprint software. The locations of GPR survey areas or individual GPR survey lines are shown as dashed, purple rectangles or solid purple lines, respectively on the EM61 differential contour plots. Photos of

the EM61 and GPR instruments are shown in **Figure 2**. During the weeks of June 26 and July 10, 2006, preliminary contour plots of the EM61 bottom coil and the differential results were emailed to Ms. Knox and Ms. Heather Markell.

3.0 DISCUSSION OF RESULTS

3.1 East Avenue "A" Sites

The East Avenue "A" sites consist of the geophysical survey areas across portions of the Southern Motors, Duke Power substation, and The Driveshaft Shop properties. **Figure 3** shows the geophysical survey area and the geophysical survey lines across the above three properties. The red dots on the plot represent the approximate locations of the EM61 metal detection survey lines. Each dot represents a data point location. The purple lines represent the approximate locations of the GPR survey lines that were acquired across selected EM61 anomalies and areas containing steel reinforced concrete.

The bottom coil results and the differential results are presented in **Figures 4 and 5**, respectively. The linear EM61bottom coil anomalies intersecting grid coordinates X=40 Y=88, X=40 Y=380, X=60 Y=62, X=60 Y=120, X=64 Y=360, X=70 Y=250, X=70 Y=287, and X=120 Y=114, are probably in response to buried utility lines or conduits. The linear anomaly intersecting grid coordinates X=45 Y=180, is probably in response to the metal fence that surrounds the Duke Power substation property. The majority of the remaining bottom coil anomalies are probably in response to known cultural features such as manhole covers, storm sewer grates, and steel reinforced concrete.

GPR surveys conducted across the differential anomalies centered near grid coordinates X=5 Y=202, X=40 Y=237, and X=73 Y=390, suggest the anomalies are in response to miscellaneous metal debris or conduits. GPR surveys conducted across the concrete pavement centered near grid coordinates X=15 Y=410, and X=115 Y=160, suggest the metal detection anomalies recorded at these areas are probably in response to steel reinforcement in the concrete. The geophysical

investigation did not detect the presence of buried metallic USTs within the surveyed areas of the Southern Motors, The Driveshaft Shop and the Duke Power substation properties.

3.2 Johnson Concrete & Former FCX Chemical Sites

Figure 6 shows the geophysical survey area across the western portion of the Johnson Concrete facility and the eastern edge of the former FCX Chemical property. Similar to Figure 3, the red dots on the plot represent the approximate locations of the EM61 metal detection survey lines. Each dot represents a data point location. The purple lines represent the approximate locations of the GPR survey lines that were acquired across selected EM61 anomalies and areas containing steel reinforced concrete. The plot shows that nearly half of the proposed ROW area on the Johnson Concrete property contains concrete culverts, equipment and other supplies that obstructed the geophysical investigation.

The bottom coil results and the differential results for the Johnson Concrete and former FCX Chemical properties are presented in **Figure 7**. The linear EM61bottom coil anomaly intersecting grid coordinates X=80 Y=750, is probably in response to a buried utility line or conduit. The numerous bottom coil anomalies located around X=20 Y=270, and X=90 Y=680, are probably in response to buried, miscellaneous, metal debris or objects. The remaining anomalies are probably in response to adjacent supplies, surface equipment or steel reinforced concrete.

GPR surveys conducted across the large steel reinforced concrete slab and the adjacent concrete footing centered near grid coordinates X=25 Y=380, and X=17 Y=530, respectively, suggest that these two areas do not contain metallic USTs. GPR surveys conducted across the EM61 differential anomalies centered near grid coordinates X=67 Y=385, X=85 Y=690, and X=102 Y=270, suggest that the metal detection anomalies are probably in response to miscellaneous metal debris. The

geophysical investigation results suggest the surveyed portions of the Johnson Concrete facility and the former FCX Chemical property do not contain buried metallic USTs.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the proposed ROW areas at the Klumac Road Realignment site located along Old South Main Street and East "A" Avenue in Salisbury, North Carolina provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the surveyed portions of the Southern Motors, Duke Power substation, The Driveshaft Shop, Johnson Concrete, and the former FCX Chemical properties.

- GPR surveys were conducted across selected EM61 differential anomalies and across areas containing steel reinforced concrete.

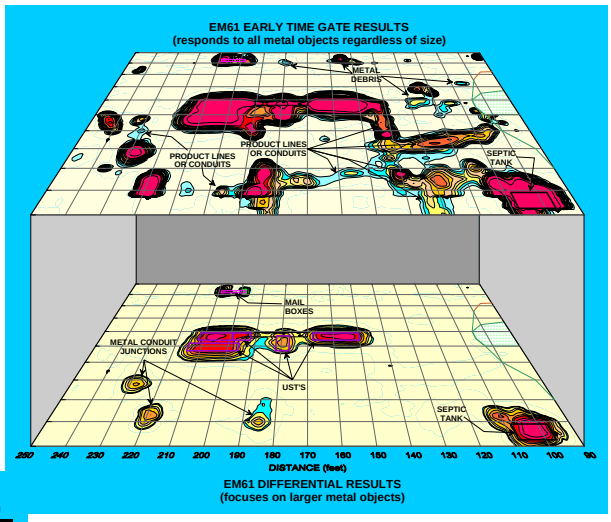
- At the East "A" Avenue sites, the linear EM61 anomalies intersecting grid coordinates X=40 Y=88, X=40 Y=380, X=60 Y=62, X=60 Y=120, X=64 Y=360, X=70 Y=250, X=70 Y=287, and X=120 Y=114, are probably in response to buried utility lines or conduits. The remaining metal detection anomalies are probably in response to known cultural features or to buried miscellaneous metal debris.

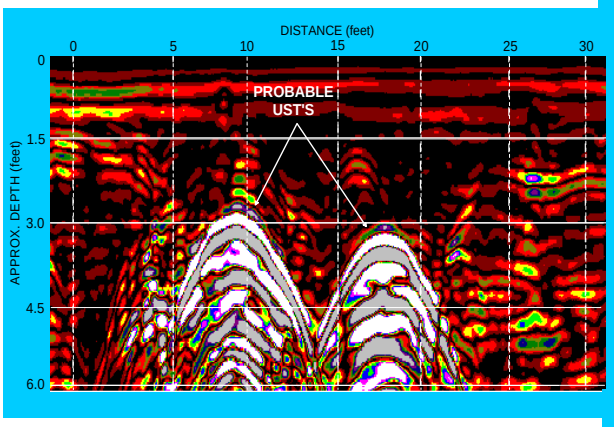
- The linear EM61 anomaly intersecting grid coordinates X=80 Y=750, at the Johnson Concrete property is probably in response to a buried utility line or conduit. The remaining metal detection anomalies recorded at the Johnson Concrete and the former FCX Chemical properties are probably in response to adjacent surface equipment, steel reinforced concrete, or buried miscellaneous metal debris.

- The geophysical investigations results did not detect the presence of metallic USTs within the surveyed portions of the five properties.

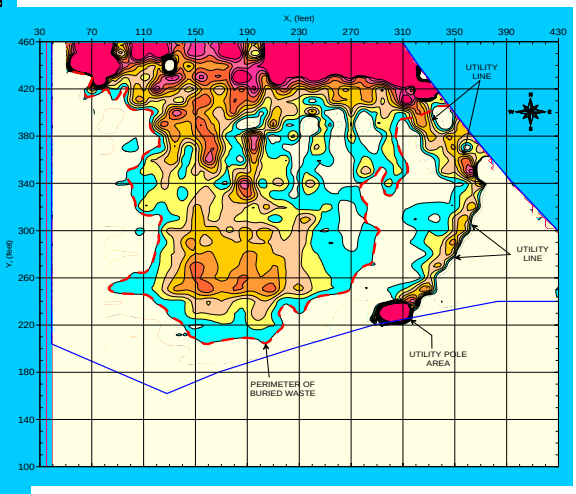
5.0 LIMITATIONS

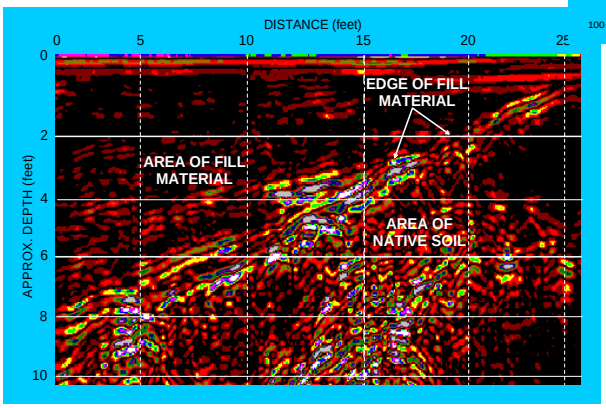
EM61 and GPR surveys have been performed and this report prepared for Solutions Industrial & Environmental Services, Inc. in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project do not conclusively determine that metallic USTs are not present across the surveyed portions of the five sites but only suggest that none were detected. Some anomalies may be attributed to other surface or subsurface conditions or cultural interference.


EM61 EARLY TIME GATE RESULTS
(responds to all metal objects regardless of size)
METAL DEBRIS
PRODUCT LINES OR CONDUITS
PRODUCT LINES OR CONDUITS
SEPTIC TANK
MAIL BOXES
METAL CONDUIT JUNCTIONS
UST'S
SEPTIC TANK
DISTANCE (feet)
EM61 DIFFERENTIAL RESULTS
(focuses on larger metal objects)


DISTANCE (feet)
APPROX. DEPTH (feet)
PROBABLE UST'S

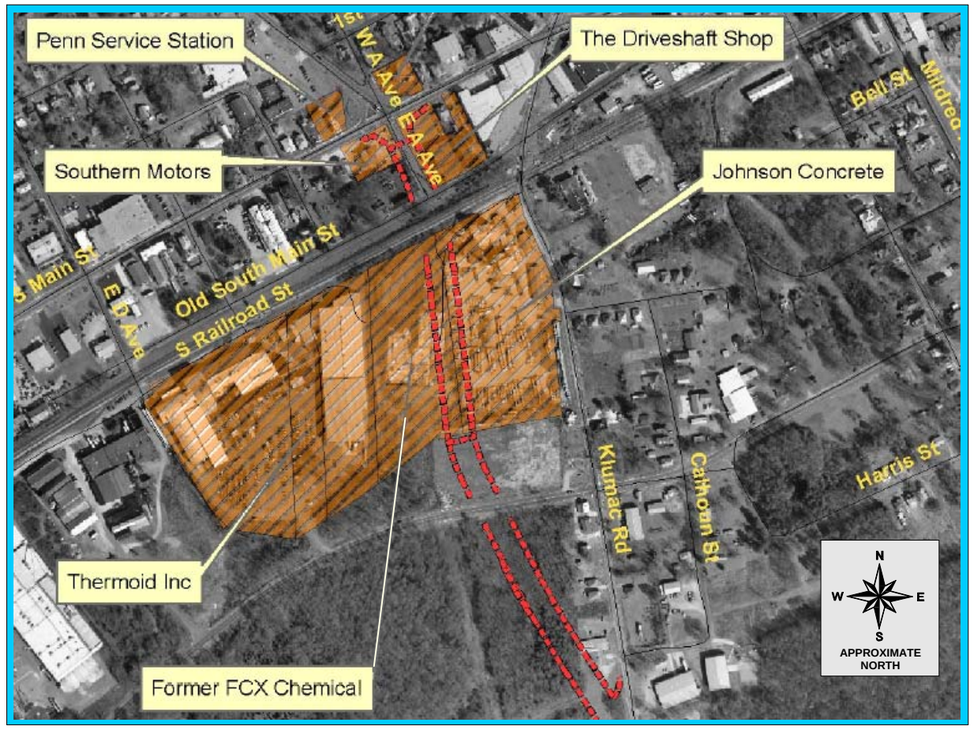
FIGURES


X, (feet)
Y, (feet)
UTILITY LINE
UTILITY LINE
UTILITY POLE AREA
PERIMETER OF BURIED WASTE


DISTANCE (feet)
APPROX. DEPTH (feet)
EDGE OF FILL MATERIAL
AREA OF FILL MATERIAL
AREA OF NATIVE SOIL

The photo shows the geophysical survey area across portions of the Southern Motors, The Driveshaft Shop and the Duke Power substation properties located along East "A" Avenue. The photo is veiwed in a northerly direction.

The photo shows the geophysical survey area across the western edge of the Johnson Concrete facility. The photo is veiwed in a northerly direction.



The photo shows the locations of the Southern Motors, Duke Power substation, The Driveshaft Shop, Johnson Concrete, and the former FCX Chemical properties where geophysical investigations were conducted. The map was obtained from Solutions-IES/NCDOT.

The photo shows the geophysical survey area across the eastern edge of the Former FCX Chemical site located contingent to the Johnson Concrete facility shown above. The photo is veiwed in a northerly direction.

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	SOLUTIONS INDUSTRIAL & ENVIRONMENTAL			DATE	07/14/06	DRWN MJD
SITE	KLUMAC ROAD REALIGNMENT PROJECT			LAY		CHKD
CITY	SALISBURY	STATE	NORTH CAROLINA	DWG		
TITLE	GEOPHYSICAL RESULTS			J.NO.	2006-176	FIGURE

GRAPHIC SCALE IN METERS

SITE MAP
AND PHOTOGRAPHS

FIGURE 1

The photo shows the Geonics EM61 metal detector that was used to conduct the metal detection survey at the Old South Main Street and East "A" Avenue sites in Salisbury, North Carolina on June 26, 27, and July 7, 2006. The instrument has a maximum investigating depth of approximately 8 feet.

The photos show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation at the Old South Main Street and East "A" Avenue sites in Salisbury, North Carolina on June 29 & July 7, 2006.

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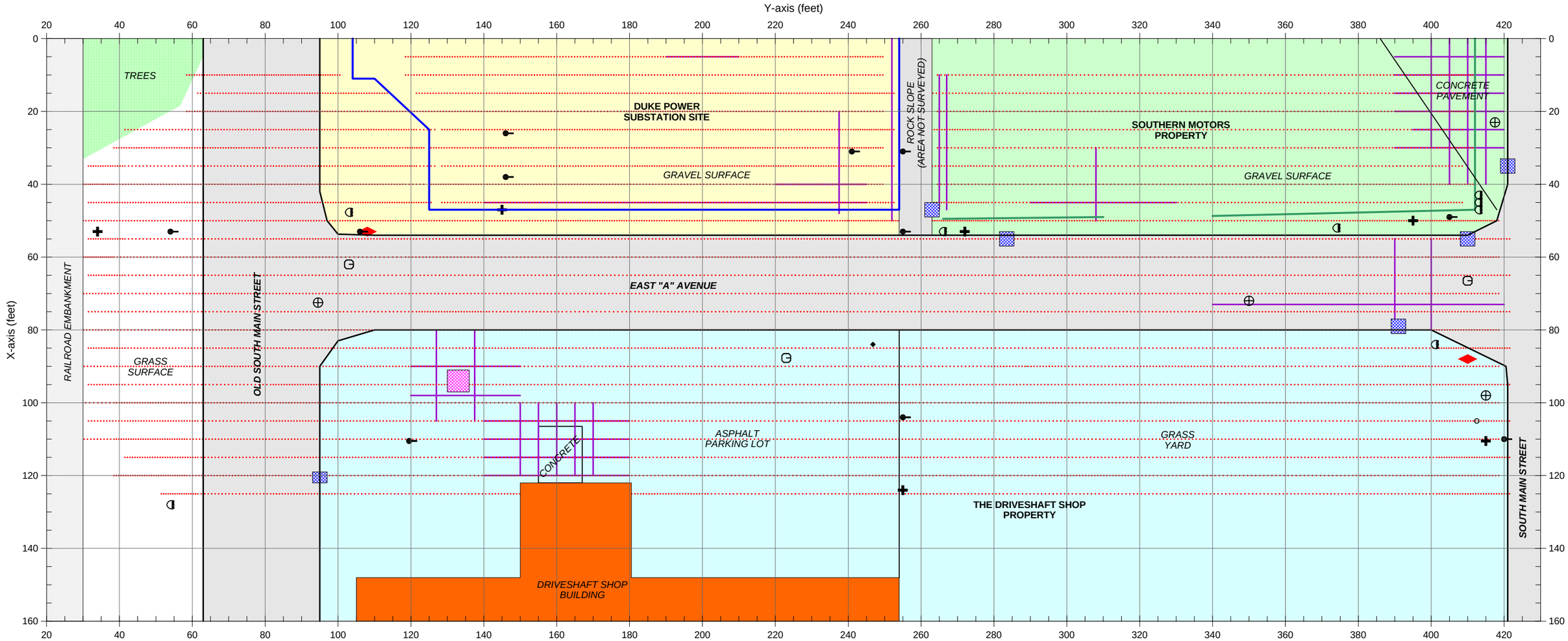
CLIENT	SOLUTIONS INDUSTRIAL & ENVIRONMENTAL			DATE	07/14/06	DRWN	
SITE	KLUMAC ROAD REALIGNMENT PROJECT			LAY		CHKD	
CITY	SALISBURY	STATE	NORTH CAROLINA	DWG			
TITLE	GEOPHYSICAL RESULTS			JAD	2006-176	FIGURE	

GRAPHIC SCALE IN METERS

GEOPHYSICAL EQUIPMENT

FIGURE 2



LEGEND

- MANHOLE COVERS
- WATER METER OR VALVE COVER
- GUY WIRE
- UTILITY POLE
- TRAFFIC SIGN
- STORM SEWER GRATE
- VENT/FILL PORT
- FIRE HYDRANT
- ELECTRICAL TOWER
- METAL FENCE LINE
- CHAIN FENCE
- EM61 METAL DETECTION SURVEY LINE
- GPR SURVEY LINE

APPROXIMATE NORTH

Note: The map shows the geophysical survey area along East "A" Avenue. The red dots represent the EM61 survey lines that were acquired on June 26, 2006 using a Geonics EM61metal detection instrument.The purple lines represent the ground penetrating radar (GPR) survey lines that were acquired on June 29, 2006 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

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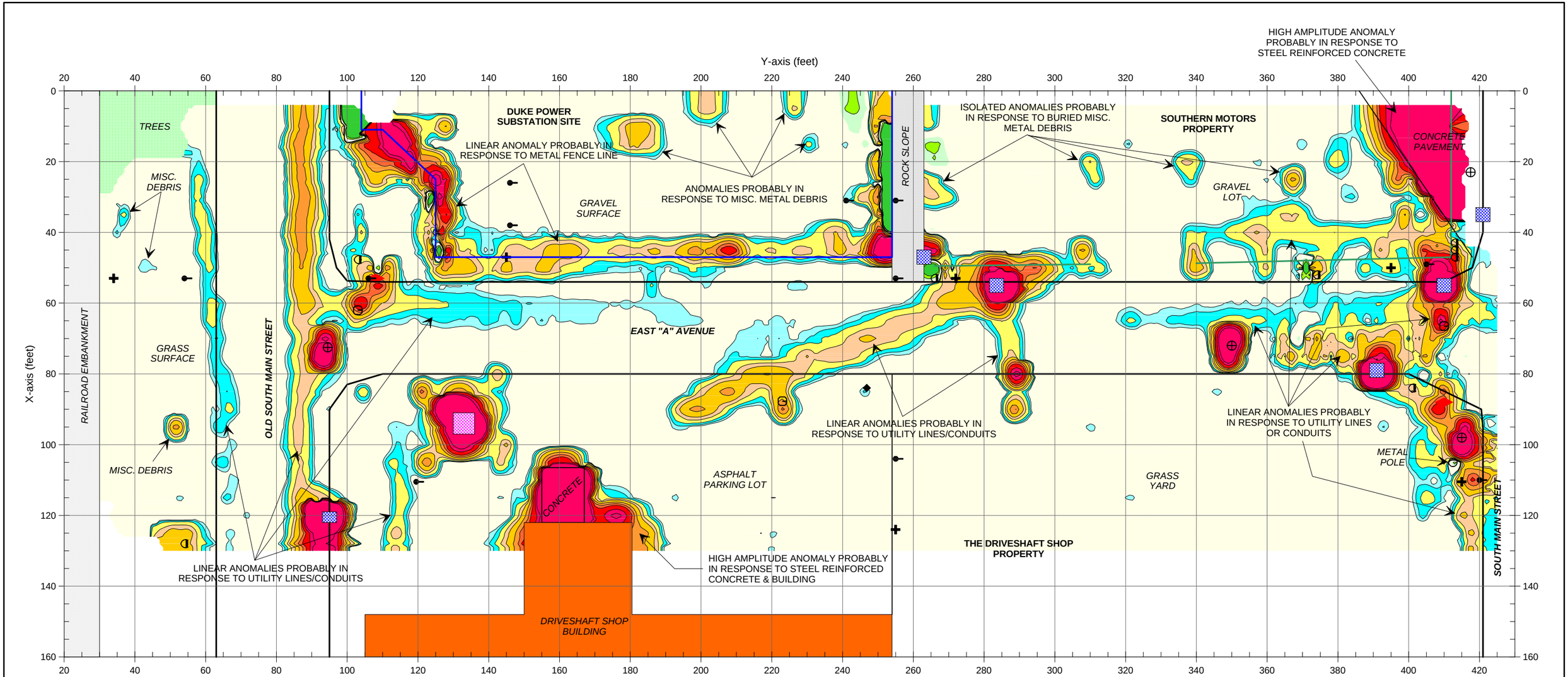
CLIENT	SOLUTIONS INDUSTRIAL & ENVIRONMENTAL	DATE	07/14/06	DRWN	MJD
SITE	EAST "A" AVENUE SITES	LAY		CHKD	
CITY	SALISBURY	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	J-NO.	2006-176	FIGURE	

GRAPHIC SCALE IN METERS

EM61 & GPR SURVEY LINE LOCATIONS

FIGURE 3



LEGEND

- EM61 SURVEY AREA: EM DATA ACQUIRED ALONG NORTHERLY-SOUTHERLY TRENDING LINES SPACED 5 FEET APART
- MANHOLE COVERS
- WATER METER OR VALVE COVER
- GUY WIRE
- UTILITY POLE
- TRAFFIC SIGN
- STORM SEWER GRATE
- VENT/FILL PORT
- FIRE HYDRANT
- ELECTRICAL TOWER
- METAL FENCE LINE
- CHAIN FENCE
- GPR SURVEY LINE

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS): 1000, 750, 500, 400, 300, 200, 150, 100, 75, 60, 20, -40, -100, -200, -5000

APPROXIMATE NORTH

Note: The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on June 26, 2006 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on June 29, 2006 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The majority of linear EM61 bottom coil anomalies shown above, are probably in response to buried utility lines or conduits. Negative EM anomalies (shaded in green) are probably in response to metallic surface objects. The geophysical investigation suggests that the survey area does not contain metallic USTs.

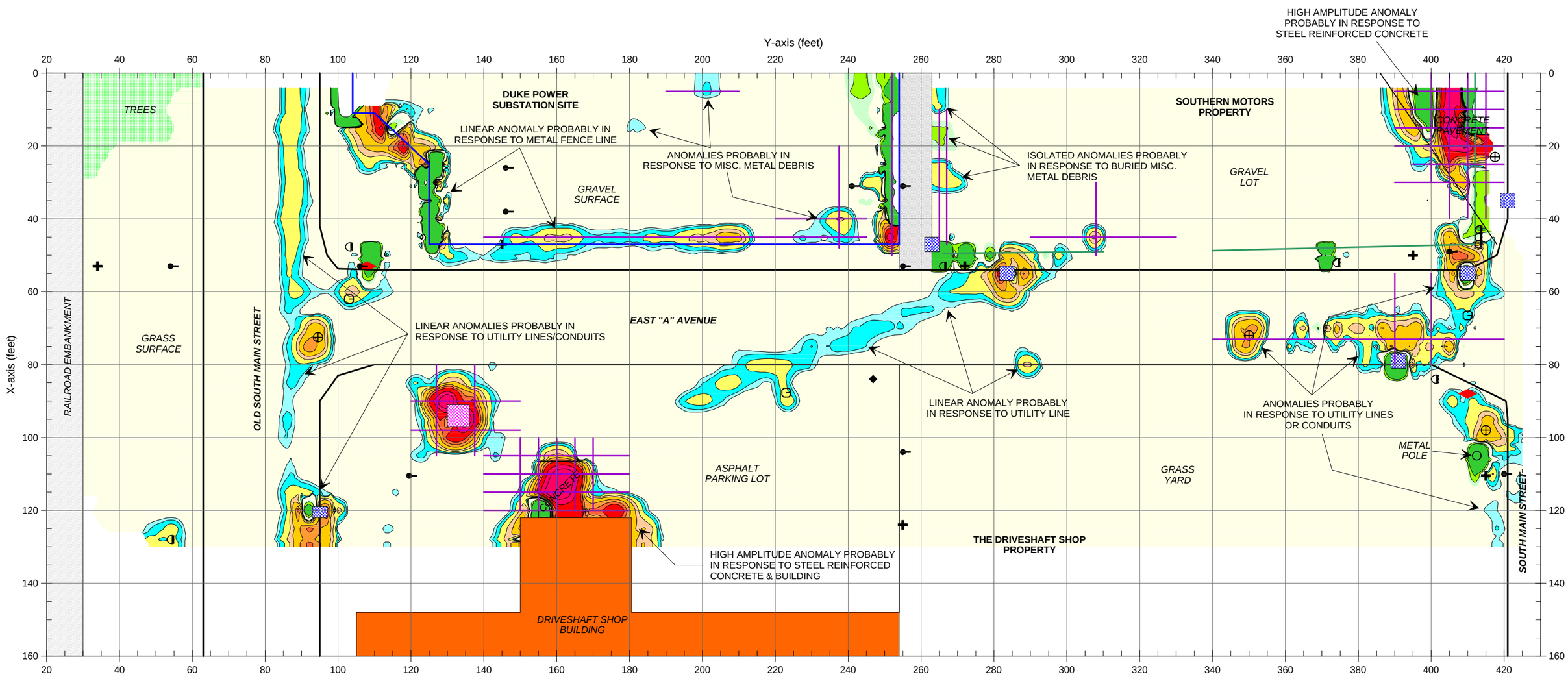
PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	SOLUTIONS INDUSTRIAL & ENVIRONMENTAL	DATE	07/14/06	DRWN	MJD
SITE	EAST "A" AVENUE SITES	LAY		CHKD	
CITY	SALISBURY	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	J.NO.	2006-176	FIGURE	

GRAPHIC SCALE IN METERS

EM61 BOTTOM COIL RESULTS

FIGURE 4



LEGEND

- EM61 SURVEY AREA: EM DATA ACQUIRED ALONG NORTHERLY-SOUTHERLY TRENDING LINES SPACED 5 FEET APART
- MANHOLE COVERS
- WATER METER OR VALVE COVER
- GUY WIRE
- UTILITY POLE
- TRAFFIC SIGN
- STORM SEWER GRATE
- VENT/FILL PORT
- FIRE HYDRANT
- ELECTRICAL TOWER
- METAL FENCE LINE
- CHAIN FENCE
- GPR SURVEY LINE

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

1000
750
500
400
300
200
150
100
75
60
20
-40
-100
-200
-5000

APPROXIMATE NORTH

Note: The contour plot shows the differential results of the EM61 metal detection survey in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous, buried, metal debris. The EM metal detection data were collected on June 26, 2006 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on June 29, 2006 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The majority of linear EM61 bottom coil anomalies shown above, are probably in response to buried utility lines or conduits. Negative EM anomalies (shaded in green) are probably in response to metallic surface objects. The geophysical investigation suggests that the survey area does not contain metallic USTs.

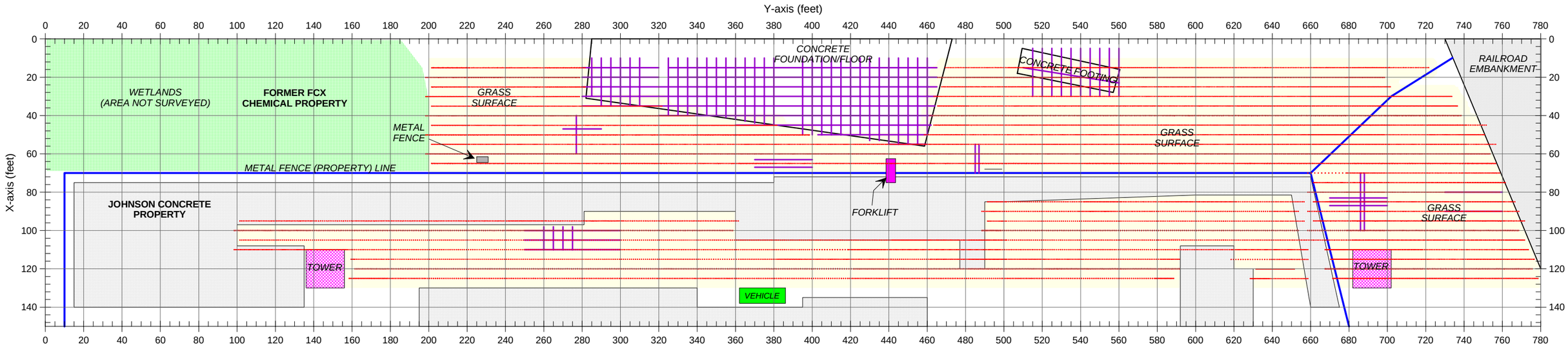
PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	SOLUTIONS INDUSTRIAL & ENVIRONMENTAL		DATE	07/14/06	DRWN MJD
SITE	EAST "A" AVENUE SITES		LAY		CHKD
CITY	SALISBURY	STATE NORTH CAROLINA	DWG		
TITLE	GEOPHYSICAL RESULTS		J.NO.	2006-176	FIGURE

GRAPHIC SCALE IN METERS

EM61 DIFFERENTIAL RESULTS

FIGURE 5



LEGEND

- EM61 SURVEY AREA: EM DATA ACQUIRED ALONG NORTH-SOUTH TRENDING LINES SPACED 5 FEET APART
- AREA CONTAINING CONCRETE BLOCKS, CULVERTS, SUPPLIES AND EQUIPMENT
- ELECTRICAL TOWER
- METAL FENCE LINE
- EM61 METAL DETECTION SURVEY LINE
- GPR SURVEY LINE

W S N E

APPROXIMATE
NORTH

Note: The map shows the geophysical survey area along the western portion of the Johnson Concrete facility and the eastern edge of the former FCX Chemical property. The red dots represent the EM61 survey lines that were acquired on July 7, 2006 using a Geonics EM61metal detection instrument.The purple lines represent the ground penetrating radar (GPR) survey lines that were also acquired on July 7, 2006 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

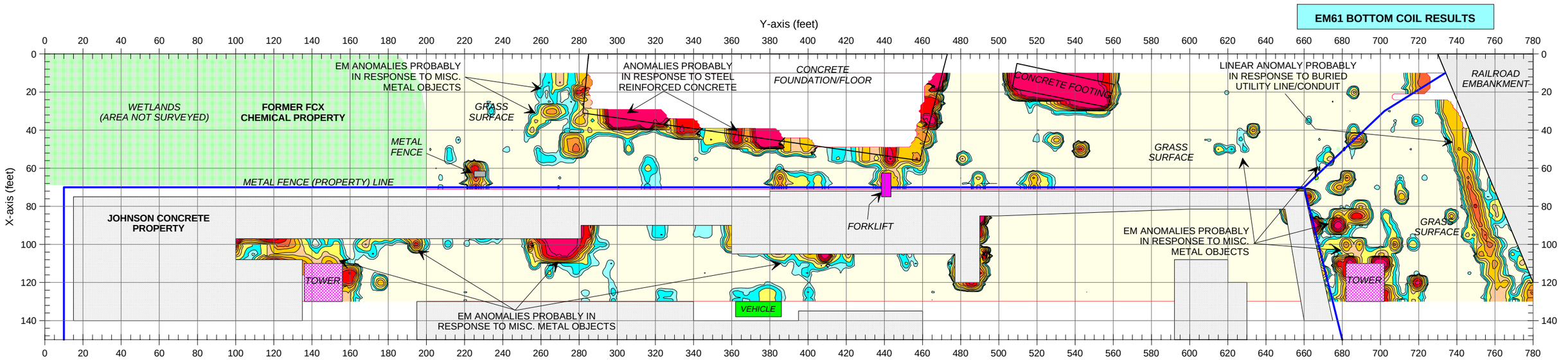
CLIENT	SOLUTIONS INDUSTRIAL & ENVIRONMENTAL	DATE	07/14/06	DRWN	MJD
SITE	JOHNSON CONCRETE & FORMER FCX CHEMICAL SITES	LAY		CHKD	
CITY	SALISBURY	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	J-NO.	2006-176	FIGURE	

GRAPHIC SCALE IN METERS

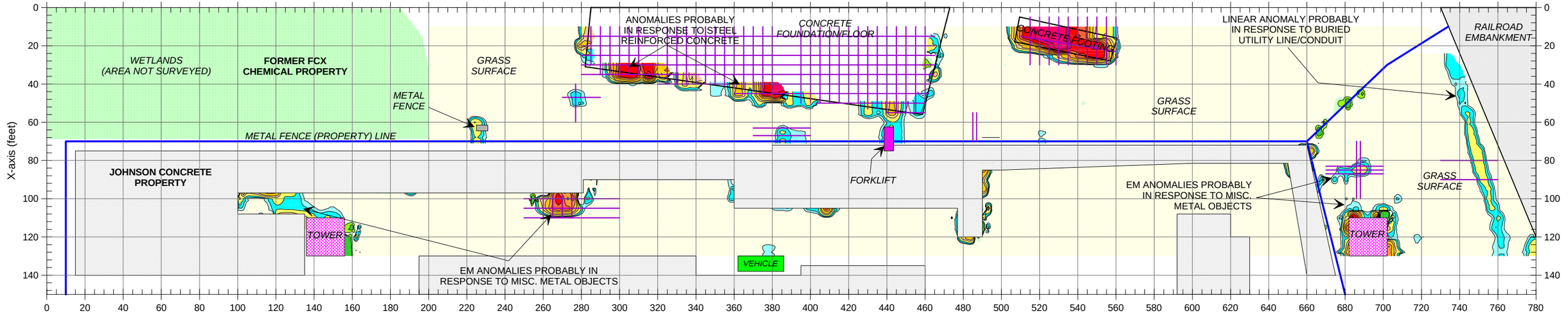
EM61 & GPR SURVEY LINE LOCATIONS

FIGURE 6

EM61 BOTTOM COIL RESULTS



EM61 DIFFERENTIAL RESULTS



LEGEND

- EM61 SURVEY AREA: EM DATA ACQUIRED ALONG NORTH-SOUTH TRENDING LINES SPACED 5 FEET APART
- AREA CONTAINING CONCRETE BLOCKS, CULVERTS, SUPPLIES AND EQUIPMENT
- ELECTRICAL TOWER
- METAL FENCE LINE
- GPR SURVEY LINE

APPROXIMATE NORTH

EM61 RESPONSE (MILLIVOLTS): 1000, 750, 500, 400, 300, 200, 150, 100, 75, 60, 20, -40, -100, -200, -5000

Note: The contour plots show the bottom coil (most sensitive) response and the differential response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The differential response focuses on larger, buried metallic objects such as drums and UST's and ignores smaller miscellaneous, buried, metal debris. The EM metal detection data were collected on June 26 & July 7, 2006 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on June 29 & July 7, 2006 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	SOLUTIONS INDUSTRIAL & ENVIRONMENTAL	DATE	07/14/06	DRWN	MJD
SITE	JOHNSON CONCRETE & FORMER FCX CHEMICAL SITES	LAY		CHKD	
CITY	SALISBURY	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	J.NO.	2006-176	FIGURE	

GRAPHIC SCALE IN METERS

EM61 RESULTS

FIGURE 7

APPENDIX C

BORING LOGS

Log of Soil Boring: SMB1

Project: Klumac Rd. Project | *Solutions-IES Project No.:* 3210.06A3.NDOT | *Boring Number:* SMB1

Client: NCDOT

WBS # 34951.1.1 | *City:* Salisbury | *Initial Water Level:* NA

State Project # U-3459 | *County:* Rowan | *Stabilized Water Level:* 7.6'

Drilling Method: Direct Push | *Boring Date:* 7/18/06 | *Cave In Depth:* NA

Sampler Type: Macro Core | *Site:* Southern Motors

Logged By: KB | *Checked By:* JM | *Total Depth of Boring:* 8'

Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm 250 500 750 / FID Field Screen ppm 250 500 750	Lab Sample Depth	Well Data
0		Ground Surface					
0		Gravel Fill					
1	SM	Moist, brown, fine silty sand		100	0		
2							
3	CL	Moist, red-brown, silty clay		100	0		
4							
5	CL	Moist, brown and gray, silty clay		100	0		
6	ML	Moist, tan and gray, clayey silt					
7		Damp at 6 ft bgs		100	0		▼
8							
9							
10							
11							
12							
13							
14							
15							
16							

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Raleigh, NC 27607
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Log of Soil Boring: SMB2

Project: Klumac Rd. Project | *Solutions-IES Project No.:* 3210.06A3.NDOT | *Boring Number:* SMB2

Client: NCDOT

WBS # 34951.1.1 | *City:* Salisbury | *Initial Water Level:* NA

State Project # U-3459 | *County:* Rowan | *Stabilized Water Level:* NA

Drilling Method: Direct Push | *Boring Date:* 7/18/06 | *Cave In Depth:* NA

Sampler Type: Macro Core | *Site:* Southern Motors

Logged By: KB | *Checked By:* JM | *Total Depth of Boring:* 8'

SUBSURFACE PROFILE			SAMPLE				
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm 250 500 750 / FID Field Screen ppm 250 500 750	Lab Sample Depth	Well Data
0		Ground Surface					
0		Gravel Fill					
1	CL	Moist, red-brown, silty clay		100	0		
2							
3				100	0		
4	ML	Damp, gray, clayey silt					
5		No Recovery		40	0		
6	ML	Damp, gray, clayey silt					
7	ML	Damp, tan and gray, clayey silt		100	0		
8							
9							
10							
11							
12							
13							
14							
15							
16							

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Log of Soil Boring: SMB3

Project: Klumac Rd. Project | *Solutions-IES Project No.:* 3210.06A3.NDOT | *Boring Number:* SMB3

Client: NCDOT

WBS # 34951.1.1 | *City:* Salisbury | *Initial Water Level:* NA

State Project # U-3459 | *County:* Rowan | *Stabilized Water Level:* NA

Drilling Method: Direct Push | *Boring Date:* 7/18/06 | *Cave In Depth:* NA

Sampler Type: Macro Core | *Site:* Southern Motors

Logged By: KB | *Checked By:* JM | *Total Depth of Boring:* 8'

SUBSURFACE PROFILE			SAMPLE				
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm 250 500 750 / FID Field Screen ppm 250 500 750	Lab Sample Depth	Well Data
0		Ground Surface					
0		Gravel Fill					
1		No Recovery		25	0		
2							
3				50	0		
3	CL	Moist, brown-orange, silty clay					
4		No Recovery					
5				25	0		
6	CL	Moist to damp, gray, silty clay					
7	ML	Moist to damp, gray and tan, clayey silt		100	0		
8							
9							
10							
11							
12							
13							
14							
15							
16							

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Log of Soil Boring: SMB4

Project: Klumac Rd. Project | *Solutions-IES Project No.:* 3210.06A3.NDOT | *Boring Number:* SMB4

Client: NCDOT

WBS # 34951.1.1 | *City:* Salisbury | *Initial Water Level:* NA

State Project # U-3459 | *County:* Rowan | *Stabilized Water Level:* NA

Drilling Method: Direct Push | *Boring Date:* 7/18/06 | *Cave In Depth:* NA

Sampler Type: Macro Core | *Site:* Southern Motors

Logged By: KB | *Checked By:* JM | *Total Depth of Boring:* 8'

SUBSURFACE PROFILE			SAMPLE				
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm 250 500 750 / FID Field Screen ppm 250 500 750	Lab Sample Depth	Well Data
0		Ground Surface					
0		Gravel Fill					
1				100	0		
1	ML	ML					
2		Moist, orange and tan, fine sandy silt					
3				100	0		
4		No Recovery					
5				25	0		
6	ML	ML					
7		Moist to damp, orange and tan, fine sandy silt		100	0		
8							
9							
10							
11							
12							
13							
14							
15							
16							

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Log of Soil Boring: SMB5

Project: Klumac Rd. Project | *Solutions-IES Project No.:* 3210.06A3.NDOT | *Boring Number:* SMB5

Client: NCDOT

WBS # 34951.1.1 | *City:* Salisbury | *Initial Water Level:* NA

State Project # U-3459 | *County:* Rowan | *Stabilized Water Level:* NA

Drilling Method: Direct Push | *Boring Date:* 7/19/06 | *Cave In Depth:* NA

Sampler Type: Macro Core | *Site:* Southern Motors

Logged By: KB | *Checked By:* JM | *Total Depth of Boring:* 8'

Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm (250 500 750) / FID Field Screen ppm (250 500 750)	Lab Sample Depth	Well Data
0		Ground Surface					
0		Asphalt and gravel					
1	ML	Moist, orange, clayey silt		100	0		
2							
3				100	0		
4		No Recovery					
5				25	0		
6	ML	Moist, brown, clayey silt					
7		Damp at 6.8 ft bgs		100	6		
8	CL	Damp, dark gray, fine sandy clay					
9							
10							
11							
12							
13							
14							
15							
16							

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Log of Soil Boring: SMB6

Project: Klumac Rd. Project | *Solutions-IES Project No.:* 3210.06A3.NDOT | *Boring Number:* SMB6

Client: NCDOT

WBS # 34951.1.1 | *City:* Salisbury | *Initial Water Level:* NA

State Project # U-3459 | *County:* Rowan | *Stabilized Water Level:* 6.8

Drilling Method: Direct Push | *Boring Date:* 7/19/06 | *Cave In Depth:* NA

Sampler Type: Macro Core | *Site:* Southern Motors

Logged By: KB | *Checked By:* JM | *Total Depth of Boring:* 8'

Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm 250 500 750 / FID Field Screen ppm 250 500 750	Lab Sample Depth	Well Data
0		Ground Surface					
0		Asphalt and gravel			0		
1		**ML** Moist, tan and brown, fine sandy silt		100			
2		**ML** Moist, orange and tan, clayey silt			1		
3				100			
4							
5				100	2		
6		**CL** Moist, gray and brown, fine sandy clay					
7		Damp at 6 ft bgs		100	4		▼
8							
9							
10							
11							
12							
13							
14							
15							
16							

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Log of Soil Boring: SMB7

Project: Klumac Rd. Project | *Solutions-IES Project No.:* 3210.06A3.NDOT | *Boring Number:* SMB7

Client: NCDOT

WBS # 34951.1.1 | *City:* Salisbury | *Initial Water Level:* NA

State Project # U-3459 | *County:* Rowan | *Stabilized Water Level:* NA

Drilling Method: Direct Push | *Boring Date:* 7/19/06 | *Cave In Depth:* NA

Sampler Type: Macro Core | *Site:* Southern Motors

Logged By: KB | *Checked By:* JM | *Total Depth of Boring:* 8'

SUBSURFACE PROFILE			SAMPLE				
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm 250 500 750 / FID Field Screen ppm 250 500 750	Lab Sample Depth	Well Data
0		Ground Surface					
0		Asphalt and gravel					
1		No Recovery		40	1		
2		***CL*** Moist, orange, fine sandy clay					
3				100	1		
4		No Recovery					
5				40	2		
6		***ML*** Moist, orange, clayey silt					
7		***ML*** Moist to damp, tan and brown, clayey silt		100	2		
8							
9							
10							
11							
12							
13							
14							
15							
16							

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Log of Soil Boring: SMB8

Project: Klumac Rd. Project | *Solutions-IES Project No.:* 3210.06A3.NDOT | *Boring Number:* SMB8

Client: NCDOT

WBS # 34951.1.1 | *City:* Salisbury | *Initial Water Level:* NA

State Project # U-3459 | *County:* Rowan | *Stabilized Water Level:* NA

Drilling Method: Direct Push | *Boring Date:* 7/19/06 | *Cave In Depth:* NA

Sampler Type: Macro Core | *Site:* Southern Motors

Logged By: KB | *Checked By:* JM | *Total Depth of Boring:* 8'

Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm 250 500 750 / FID Field Screen ppm 250 500 750	Lab Sample Depth	Well Data
0		Ground Surface					
0		Asphalt and gravel					
1		No Recovery		40	0		
2	SW	Moist, brown, coarse sand (fill?)					
3				100	4		
4	CL	Moist, red and gray, silty clay (hydrocarbon odor)					
5		No Recovery		0			
6							
7	CL	Moist, dark gray, silty clay		90	307		
8		Damp at 7.9 ft bgs					
9							
10							
11							
12							
13							
14							
15							
16							

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APPENDIX D

LABORATORY ANALYTICAL REPORTS

Pace Analytical Services, Inc.
9800 Kincey Avenue, Suite 100
Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

Pace Analytical Services, Inc.
2225 Riverside Drive
Asheville, NC 28804
Phone: 828.254.7176
Fax: 828.252.4618

August 01, 2006

Mr. Christopher A. Peoples
NC DOT
Materials & Test Unit
1801 Blue Ridge Road
Raleigh, NC 27607

RE: Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

Dear Mr. Peoples:

Enclosed are the analytical results for sample(s) received by the laboratory on July 21, 2006. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

Inorganic Wet Chemistry and Metals Analyses were performed at our Pace Asheville laboratory and Organic testing was performed at our Pace Charlotte laboratory unless otherwise footnoted.

If you have any questions concerning this report please feel free to contact me.

Sincerely,

for

Bonnie McKee
bonnie.mckee@pacelabs.com
(704) 875-9092 ext. 234
Project Manager

Enclosures

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Avenue, Suite 100
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Phone: 704.875.9092
Fax: 704.875.9091

Pace Analytical Services, Inc.
2225 Riverside Drive
Asheville, NC 28804
Phone: 828.254.7176
Fax: 828.252.4618

Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

Solid results are reported on a dry weight basis

Lab Sample No: 927224782 Project Sample Number: 92123770-001 Date Collected: 07/18/06 14:10
Client Sample ID: SMB1 6-8 Matrix: Soil Date Received: 07/21/06 15:05

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry								
Percent Moisture	Method: % Moisture							
Percent Moisture	30.6	%		07/21/06 18:52	KDF			
GC Semivolatiles								
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015							
Diesel Fuel	ND	mg/kg	7.2	07/27/06 01:27	KBS	68334-30-5		
n-Pentacosane (S)	64	%		07/27/06 01:27	KBS	629-99-2		
Date Extracted	07/25/06			07/25/06				
GC Volatiles								
GAS, Soil, North Carolina	Method: EPA 8015							
Gasoline	ND	mg/kg	6.4	07/31/06 20:10	PPM			
4-Bromofluorobenzene (S)	68	%		07/31/06 20:10	PPM	460-00-4		

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Fax: 828.252.4618

Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

Lab Sample No: 927224790 Project Sample Number: 92123770-002 Date Collected: 07/18/06 15:00
Client Sample ID: SMB2 6-8 Matrix: Soil Date Received: 07/21/06 15:05

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry								
Percent Moisture	Method: % Moisture							
Percent Moisture	26.7	%		07/21/06 18:53	KDF			
GC Semivolatiles								
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015							
Diesel Fuel	ND	mg/kg	6.8	07/27/06 13:58	KBS	68334-30-5		
n-Pentacosane (S)	89	%		07/27/06 13:58	KBS	629-99-2		
Date Extracted	07/24/06			07/24/06				
GC Volatiles								
GAS, Soil, North Carolina	Method: EPA 8015							
Gasoline	ND	mg/kg	6.8	07/31/06 20:40	PPM			
4-Bromofluorobenzene (S)	65	%		07/31/06 20:40	PPM	460-00-4		

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Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

Lab Sample No: 927224808 Project Sample Number: 92123770-003 Date Collected: 07/18/06 16:00
Client Sample ID: SMB3 6-8 Matrix: Soil Date Received: 07/21/06 15:05

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry								
Percent Moisture	Method: % Moisture							
Percent Moisture	28.2	%		07/21/06 18:53	KDF			
GC Semivolatiles								
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015							
Diesel Fuel	ND	mg/kg	7.0	07/27/06 00:01	KBS	68334-30-5		
n-Pentacosane (S)	95	%		07/27/06 00:01	KBS	629-99-2		
Date Extracted	07/24/06			07/24/06				
GC Volatiles								
GAS, Soil, North Carolina	Method: EPA 8015							
Gasoline	ND	mg/kg	5.3	07/31/06 22:07	PPM			
4-Bromofluorobenzene (S)	73	%		07/31/06 22:07	PPM	460-00-4		

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Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

Lab Sample No: 927224824 Project Sample Number: 92123770-004 Date Collected: 07/18/06 16:45
Client Sample ID: SMB4 6-8 Matrix: Soil Date Received: 07/21/06 15:05

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry								
Percent Moisture	Method: % Moisture							
Percent Moisture	31.8	%		07/21/06 18:53	KDF			
GC Semivolatiles								
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015							
Diesel Fuel	ND	mg/kg	7.3	07/27/06 03:59	KBS	68334-30-5		
n-Pentacosane (S)	80	%		07/27/06 03:59	KBS	629-99-2		
Date Extracted	07/24/06			07/24/06				
GC Volatiles								
GAS, Soil, North Carolina	Method: EPA 8015							
Gasoline	ND	mg/kg	6.3	07/31/06 22:37	PPM			
4-Bromofluorobenzene (S)	70	%		07/31/06 22:37	PPM	460-00-4		

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Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

Lab Sample No: 927224832 Project Sample Number: 92123770-005 Date Collected: 07/19/06 12:30
Client Sample ID: SMB5 Matrix: Soil Date Received: 07/21/06 15:05

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry								
Percent Moisture	Method: % Moisture							
Percent Moisture	20.0	%		07/21/06 18:54	KDF			
GC Semivolatiles								
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015							
Diesel Fuel	ND	mg/kg	6.3	07/26/06 23:39	KBS	68334-30-5		
n-Pentacosane (S)	92	%		07/26/06 23:39	KBS	629-99-2		
Date Extracted	07/24/06			07/24/06				
GC Volatiles								
GAS, Soil, North Carolina	Method: EPA 8015							
Gasoline	ND	mg/kg	4.8	08/01/06 02:01	PPM			
4-Bromofluorobenzene (S)	70	%		08/01/06 02:01	PPM	460-00-4		

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Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

Lab Sample No: 927224840 Project Sample Number: 92123770-006 Date Collected: 07/19/06 15:00
Client Sample ID: SMB6 Matrix: Soil Date Received: 07/21/06 15:05

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry								
Percent Moisture	Method: % Moisture							
Percent Moisture	29.0	%		07/21/06 18:54	KDF			
GC Semivolatiles								
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015							
Diesel Fuel	ND	mg/kg	7.0	07/26/06 22:56	KBS	68334-30-5		
n-Pentacosane (S)	87	%		07/26/06 22:56	KBS	629-99-2		
Date Extracted	07/24/06			07/24/06				
GC Volatiles								
GAS, Soil, North Carolina	Method: EPA 8015							
Gasoline	ND	mg/kg	5.8	08/01/06 02:30	PPM			
4-Bromofluorobenzene (S)	70	%		08/01/06 02:30	PPM	460-00-4		

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Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

Lab Sample No: 927224857 Project Sample Number: 92123770-007 Date Collected: 07/19/06 15:30
Client Sample ID: SMB7 Matrix: Soil Date Received: 07/21/06 15:05

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry								
Percent Moisture	Method: % Moisture							
Percent Moisture	28.3	%		07/21/06 18:54	KDF			
GC Semivolatiles								
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015							
Diesel Fuel	ND	mg/kg	7.0	07/26/06 23:17	KBS	68334-30-5		
n-Pentacosane (S)	84	%		07/26/06 23:17	KBS	629-99-2		
Date Extracted	07/24/06			07/24/06				
GC Volatiles								
GAS, Soil, North Carolina	Method: EPA 8015							
Gasoline	ND	mg/kg	5.5	08/01/06 02:59	PPM			
4-Bromofluorobenzene (S)	68	%		08/01/06 02:59	PPM	460-00-4		

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Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

Lab Sample No: 927224865 Project Sample Number: 92123770-008 Date Collected: 07/19/06 16:15
Client Sample ID: SMB8 Matrix: Soil Date Received: 07/21/06 15:05

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry								
Percent Moisture	Method: % Moisture							
Percent Moisture	20.9	%		07/21/06 18:55	KDF			
GC Semivolatiles								
TPH in Soil by 3545/8015	Prep/Method: EPA 3545 / EPA 8015							
Diesel Fuel	7.3	mg/kg	6.3	07/27/06 05:25	KBS	68334-30-5		
n-Pentacosane (S)	86	%		07/27/06 05:25	KBS	629-99-2		
Date Extracted	07/24/06			07/24/06				
GC Volatiles								
GAS, Soil, North Carolina	Method: EPA 8015							
Gasoline	ND	mg/kg	5.2	08/01/06 03:28	PPM			
4-Bromofluorobenzene (S)	67	%		08/01/06 03:28	PPM	460-00-4		

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Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

PARAMETER FOOTNOTES

Method 9071B modified to use ASE.

All pH, Free Chlorine, Total Chlorine and Ferrous Iron analyses conducted outside of EPA recommended immediate hold time.

Depending on the moisture content the PRLs can be elevated for all soil samples reported on a dry weight basis.

2-Chloroethyl vinyl ether has been shown to degrade in the presence of acid.

ND	Not detected at or above adjusted reporting limit
NC	Not Calculable
J	Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
MDL	Adjusted Method Detection Limit
(S)	Surrogate

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QUALITY CONTROL DATA

Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

QC Batch: 162938 Analysis Method: EPA 8015
QC Batch Method: EPA 3545 Analysis Description: TPH in Soil by 3545/8015
Associated Lab Samples: 927224790 927224808 927224824 927224832 927224840 927224857 927224865

METHOD BLANK: 927229328
Associated Lab Samples: 927224790 927224808 927224824 927224832 927224840 927224857 927224865

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Diesel Fuel	mg/kg	ND	5.0	
n-Pentacosane (S)	%	87		

LABORATORY CONTROL SAMPLE: 927229336

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Diesel Fuel	mg/kg	166.70	139.1	84	
n-Pentacosane (S)				104	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 927229344 927229351

Parameter	Units	927223289 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Diesel Fuel	mg/kg	2.385	171.90	131.2	136.5	75	78	4	
n-Pentacosane (S)						101	106		

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QUALITY CONTROL DATA

Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

QC Batch: 163059 Analysis Method: EPA 8015
QC Batch Method: EPA 3545 Analysis Description: TPH in Soil by 3545/8015
Associated Lab Samples: 927224782

METHOD BLANK: 927232454
Associated Lab Samples: 927224782

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Diesel Fuel	mg/kg	ND	5.0	
n-Pentacosane (S)	%	85		

LABORATORY CONTROL SAMPLE: 927232462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Diesel Fuel	mg/kg	166.70	137.0	82	
n-Pentacosane (S)				101	

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QUALITY CONTROL DATA

Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

QC Batch: 163605 Analysis Method: EPA 8015
QC Batch Method: EPA 8015 Analysis Description: GAS, Soil, North Carolina
Associated Lab Samples: 927224782 927224790 927224808 927224824 927224832 927224840 927224857 927224865

METHOD BLANK: 927253260
Associated Lab Samples: 927224782 927224790 927224808 927224824 927224832 927224840 927224857 927224865

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Gasoline	mg/kg	ND	5.0	
4-Bromofluorobenzene (S)	%	74		

LABORATORY CONTROL SAMPLE: 927253278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Gasoline	mg/kg	25.00	32.40	130	
4-Bromofluorobenzene (S)				75	

MATRIX SPIKE: 927254250

Parameter	Units	927234153 Result	Spike Conc.	MS Result	MS % Rec	Footnotes
Gasoline	mg/kg	0.4237	22.44	28.54	125	
4-Bromofluorobenzene (S)					74	

SAMPLE DUPLICATE: 927254268

Parameter	Units	927234161 Result	DUP Result	RPD	Footnotes
Gasoline	mg/kg	ND	ND	NC	
4-Bromofluorobenzene (S)	%	72	70		

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QUALITY CONTROL DATA

Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

QC Batch: 162833 Analysis Method: % Moisture
QC Batch Method: Analysis Description: Percent Moisture
Associated Lab Samples: 927224782 927224790 927224808 927224824 927224832
927224840 927224857 927224865

SAMPLE DUPLICATE: 927226019

Parameter	Units	927225565 Result	DUP Result	RPD	Footnotes
Percent Moisture	%	22.60	21.90	3	

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Lab Project Number: 92123770
Client Project ID: NCDOT 34951.1.1 So. Motors

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines, unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

LCS(D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
DUP	Sample Duplicate
ND	Not detected at or above adjusted reporting limit
NC	Not Calculable
J	Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
MDL	Adjusted Method Detection Limit
RPD	Relative Percent Difference
(S)	Surrogate

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical

Page: 1 of 1

1004582

Section A
Required Client Information:

Company: SOLUTIONS-IES
Address: 1101 NOWELL RD
RALEIGH, NC 27607
Email To: SKNOX@SOLUTIONS-IES.COM
Phone: 919 872 1060 Fax: 919 872 1024
Requested Due Date/TAT:

Section B
Required Project Information:

Report To: SHELI KNOX
Copy To:
WBS# 34951.1.1
Purchase Order No.: 9800006252 NCDOT
Project Name: NCDOT - KILMAC RD.
Project Number: 3210.06A3.NDOT

Section C
Invoice Information:

Attention: Chris Peoples
Company Name: NC DOT AR#616023
Address:
Pace Quote Reference:
Pace Project Manager: BKM
Pace Profile #: 3869-8

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ Other_____

SITE LOCATION

☐GA ☐IL ☐IN ☐MI ☐MN ☒NC
☐OH ☐SC ☐WI ☐OTHER _____

Section D
Required Client Information

SAMPLE ID

One Character per box.
(A-Z, 0-9 / ,-)
Samples IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Filtered (Y/N)	Requested Analysis: GRO	DRO	Residual Chlorine (Y/N)	Pace Project Number / Lab I.D
1	SMB1 6-8	SL	G			7/18/06	1410		1	X						X			X	X		92722482
2	SMB2 6-8	SL	G			7/18/06	1500		1	X						X			X	X		790
3	SMB3 6-8	SL	G			7/18/06	1600		1	X						X			X	X		808
4	SMB4 6-8	SL	G			7/18/06	1645		1	X						X			X	X		824
5	SMB5 "	SL	G			7/19/06	1220		1	X						X			X	X		832
6	SMB6	SL	G			7/19/06	1500		1	X						X			X	X		840
7	SMB7	SL	G			7/19/06	1530		1	X						X			X	X		857
8	SMB8	SL	G			7/19/06	1615		1	X						X			X	X		865
9																						
10																						
11																						
12																						

92123TP
Pace Project Number

Additional Comments:

SOUTHERN MOTORS

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	7/24/06	1115			
	7/25/06	1555			

SAMPLE CONDITION

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
4	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: KEVIN BUCHANAN
SIGNATURE of SAMPLER:
DATE Signed (MM / DD / YY): 07/18/06

SEE REVERSE SIDE FOR INSTRUCTIONS

ALLQ020rev.3,31Mar05

APPENDIX E

GPS COORDINATES

APPENDIX E
GPS Coordinates of Borings
Southern Motors
Salisbury, Rowan County, North Carolina
WBS Element: 34951.1.1, TIP #: U-3459
Solutions-IES Project No. 3210.06A3.NDOT

Boring Number	Northing[(1)]	Easting[(1)]
SMB1	35.65569668	-80.48994429
SMB2	35.65577639	-80.48997958
SMB3	35.65576893	-80.48997019
SMB4	35.65581034	-80.49000079
SMB5	35.65587128	-80.49003725
SMB6	35.65590472	-80.49011646
SMB7	35.65599860	-80.49013138
SMB8	35.65599206	-80.49015200

NOTES:
(1) NAD84 GPS Coordinates
Borings located using field measurements.