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June 20, 2008

Mr. Terry Fox
North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Reference: Preliminary Site Assessment
Alton Robinson Property
4894 US 19E
Micaville, Yancey County, North Carolina
NCDOT Project R-2519B
WBS Element 35609.1.1
Earth Tech Project No. 104704

Dear Mr. Fox:

Earth Tech of North Carolina, Inc., (Earth Tech) has completed the Preliminary Site Assessment conducted at the above-referenced property. The work was performed in accordance with the Technical and Cost proposal dated April 28, 2008, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated April 29, 2008. Activities associated with the assessment consisted of conducting a geophysical investigation, collecting soil samples for laboratory analysis, and reviewing applicable North Carolina Department of Environment and Natural Resources (NCDENR) records. The purpose of this report is to document the field activities, present the laboratory analyses, and provide recommendations regarding the property.

**Location and Description**

The Alton Robinson Property is located at 4894 US 19E in Micaville, Yancey County, North Carolina. The property is situated about 350 feet east of the intersection of US 19E and SR 1149 (Rice Road) as shown on Figure 1. Based on information supplied by the NCDOT and the site visit, Earth Tech understands that the property is a former gas station (Robinson Automotive/Texaco). The property consists of one one-story block building and one house trailer (Figure 2). The building is used as an automotive repair facility and vehicles in various stages of repair are scattered on the property. There are piles of automobile parts, scrap metal, and stacked wood on the sides and rear of the building. The trailer is used for furniture storage and antique sales. On the northwest corner of the building is a siding and sheet metal garage/storage shed. No documentation is available regarding the size, use, or operational history of the USTs. According to Mr. Alton Robinson, the property owner, two underground storage tanks (USTs) were installed at the site in 1967 when the

gas station was built. These USTs, one 1,000-gallon unleaded gasoline and one 3,000-gallon leaded gasoline, were removed in 1984. Mr. Robinson also indicated that no signs of a release were noted during the closure. Because the USTs were removed prior to 1988, no requirements were in place for sampling or reporting. Earth Tech was advised that the proposed right-of-way would include a 175-foot diameter hazardous spill basin centered on the site building. As such, the right-of-way and basin would affect the buildings and former UST area, and the NCDOT requested a Preliminary Site Assessment.

Earth Tech reviewed the North Carolina Department of Environment and Natural Resources (NCDENR) Incident Management database and no incident number was assigned to the site. Earth Tech also reviewed the UST registration database, which revealed that no tanks have been registered for the property.

**Geophysical Survey**

Prior to Earth Tech's mobilization to the site, Pyramid Environmental conducted a geophysical survey as a part of this project to evaluate if USTs were present on the proposed right-of-way. The geophysical survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic induction meter to locate buried metallic objects, specifically USTs. A survey grid was laid out at the property with the X-axis oriented approximately parallel to US 19E and the Y-axis oriented approximately perpendicular to US 19E. The grid was located to cover the accessible portions of the proposed right-of-way. The survey lines were spaced 5 feet apart. Magnetic data was collected continuously along each survey line with a data logger. After collection, the data was reviewed in the field with graphical computer software. Following the electromagnetic survey, a ground penetrating radar (GPR) survey was conducted to further evaluate any significant metallic anomalies.

It should be noted that the presence of the scrap metal and vehicles limited the area in which the geophysical survey could be conducted.

Several anomalies were detected in the geophysical survey. However, these anomalies were generally attributed to buried utility lines, conduits, or surface metal. The survey concluded that no metallic USTs were present on the proposed right-of-way or easement. A detailed report of findings and interpretations is presented in Attachment A.

**Site Assessment Activities**

On May 29, 2008, Earth Tech mobilized to the site to conduct a Geoprobe® direct push investigation to evaluate soil conditions within the right-of-way. Continuous sampling using direct push technology (Regional Probing of Wake Forest, North Carolina) resulted in generally good recovery of soil samples from the direct-push holes. Soil samples were collected and contained in 4-foot long

acetate sleeves inside the direct push sampler. Each of these sleeves was divided in half for soil sample screening. Each 2-foot interval was placed in a resealable plastic bag and the bag was set aside for a sufficient amount of time to allow volatilization of organic compounds from the soil to the bag headspace. The probe of a flame ionization detector/photo ionization detector (FID/PID) was inserted into the bag and the reading was recorded. After terminating the sample hole, the soil sample from the depth interval with the highest FID/PID reading or other observable characteristics was submitted to Research and analytical Labs, Inc., in Kernersville, North Carolina, using standard chain-of-custody procedures. The laboratory analyzed the soil samples for total petroleum hydrocarbons (TPH) in the diesel range organics (DRO) using EPA Method 3550 and gasoline range organics (GRO) using EPA Method 5030.

Eight direct-push holes (RN-1 through RN-8) were advanced within the proposed right-of-way to a depth of 12 feet as shown in Figure 2 and Attachments B and C. Borings RN-1 through RN-4 were located to evaluate the soil conditions at the former UST area; borings RN-3 and RN-5 were placed to evaluate soil conditions at each end of the pump island; and borings RN-5 through RN-8 were located to assess the soil conditions near US 19E. The lithology encountered by the direct-push samples generally was consistent throughout the site. From the ground surface to a depth of about 2 to 4 feet, the soil consisted of a medium to chocolate brown, micaceous silt and sand, possibly fill material, around the former UST area. Below this material and in the remaining borings, the soil consisted medium brown, micaceous, silt and sand saprolite with parent fabric apparent in some of the borings. All the borings were terminated at 12 feet and no groundwater was encountered to that depth. Based on field screening and other observations, soil samples were submitted for laboratory analysis, which are summarized in Table 1.

**Analytical Results**

Based on the laboratory reports, summarized in Table 1 and presented in Attachment D, no petroleum hydrocarbon compounds identified as DRO and/or GRO were detected in any of the eight soil samples collected from the site . Consequently, no concentrations are present above applicable action levels.

**Conclusions and Recommendations**

A Preliminary Site Assessment was conducted to evaluate the Alton Robinson Property located at 4894 US 19E in Micaville, Yancey County, North Carolina. Eight soil borings were advanced to evaluate the soil conditions with respect to the area within the proposed right-of-way/easement. The laboratory reports of the soil samples from these borings suggest that no DRO or GRO concentrations are present.

Earth Tech appreciates the opportunity to work with the NCDOT on this project. Because no compounds were detected in the soil samples, no requirement exists to report the findings of this assessment to the NCDENR. If you have any questions, please contact me at (919)854-6238.

Sincerely,


Michael W. Branson, P.G.
Project Manager

Attachments

c: Project File

**TABLE 1**

**SOIL FIELD SCREENING AND ANALYTICAL RESULTS**
**ALTON ROBINSON PROPERTY**
**YANCEY COUNTY, NORTH CAROLINA**
**NCDOT PROJECT NO. R-2519B**
**WBS ELEMENT 35609.1.1**
**EARTH TECH PROJECT NO. 104704**

| LOCATION | DEPTH (ft) | FID READING (ppm) | SAMPLE ID | ANALYTICAL RESULTS (mg/kg) | ASSUMED ACTION LEVEL (mg/kg) |
|---|---|---|---|---|---|
| RN-1 | 0 - 2 | 0.49 | | | |
| | 2 - 4 | 0.45 | | | |
| | 4 - 6 | 0.48 | | | |
| | 6 - 8 | 0.44 | | | |
| | 8 - 10 | 0.56 | RN-1 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 10 - 12 | 0.51 | | | |
| RN-2 | 0 - 4 | 0.53 | | | |
| | 4 - 6 | 0.54 | | | |
| | 6 - 8 | 0.55 | | | |
| | 8 - 10 | 0.58 | RN-2 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 10 - 12 | 0.56 | | | |
| RN-3 | 0 - 4 | 0.67 | | | |
| | 4 - 6 | 0.85 | RN-3 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 6 - 8 | 0.69 | | | |
| | 8 - 10 | 0.41 | | | |
| | 10 - 12 | 0.47 | | | |
| RN-4 | 0 - 2 | 0.03 | | | |
| | 2 - 4 | 0.01 | | | |
| | 4 - 6 | 0.18 | | | |
| | 6 - 8 | 0.08 | | | |
| | 8 - 10 | 1.27 | RN-4 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 10 - 12 | 0.22 | | | |
| RN-5 | 0 - 2 | 0.43 | | | |
| | 2 - 4 | 0.42 | | | |
| | 4 - 6 | 0.36 | | | |
| | 6 - 8 | 0.38 | | | |
| | 8 - 10 | 0.44 | RN-5 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 10 - 12 | 0.31 | | | |
| RN-6 | 0 - 2 | 0.36 | RN-6 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 2 - 4 | 0.3 | | | |
| | 4 - 6 | 0.28 | | | |
| | 6 - 8 | 0.28 | | | |
| | 8 - 10 | 0.3 | | | |
| | 10 - 12 | 0.27 | | | |
| RN-7 | 0 - 2 | 0.17 | | | |
| | 2 - 4 | 0.21 | RN-7 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 4 - 6 | 0.08 | | | |
| | 6 - 8 | 0.13 | | | |
| | 8 - 10 | 0.02 | | | |
| | 10 - 12 | 0.16 | | | |
| RN-8 | 0 - 2 | 0.07 | | | |
| | 2 - 4 | 0.2 | RN-8 | DRO (BQL)<br>GRO (BQL) | 10<br>10 |
| | 4 - 6 | 0.06 | | | |
| | 6 - 8 | 0.03 | | | |
| | 8 - 10 | 0.05 | | | |
| | 10 - 12 | 0.01 | | | |

Soil samples were collected on May 29, 2008.

DRO - Diesel range organics.
GRO - Gasoline range organics.
BQL - Below quantitation limit.
ppm - parts per million.
mg/kg - milligrams per kilogram.

**FIGURES**


SCALE 1:24,000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

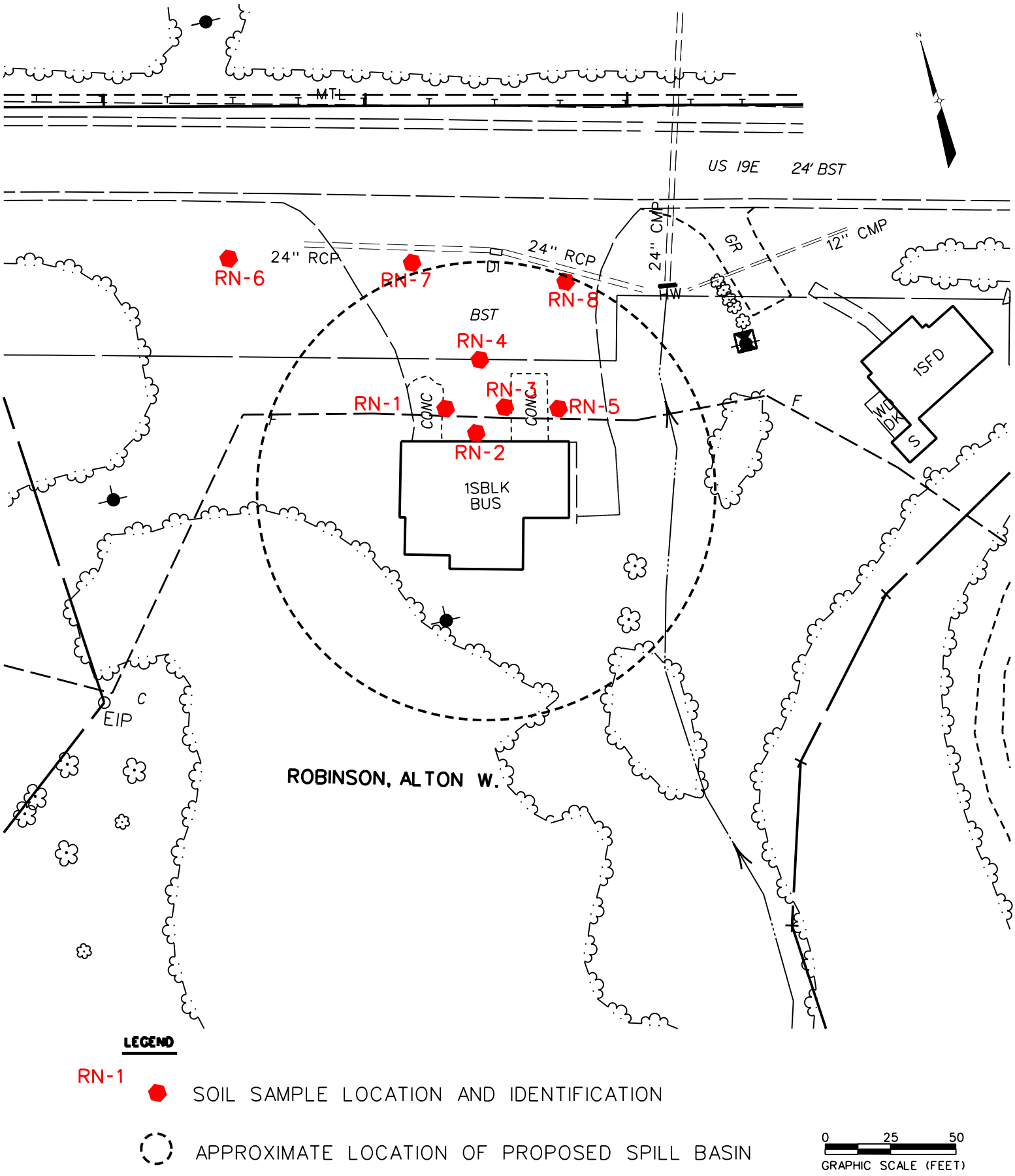
SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: MICAVILLE, NC (REV 1978)

EARTH TECH

# FIGURE 1
## LOCATION MAP
ALTON ROBINSON PROPERTY
YANCEY COUNTY, NORTH CAROLINA

MAY 2008

104704




EARTH TECH

# FIGURE 2
## SITE MAP
### ALTON ROBINSON PROPERTY
YANCEY COUNTY, NORTH CAROLINA

MAY 2008

104704

**ATTACHMENT A**

Pyramid Project # 2008118

# GEOPHYSICAL INVESTIGATION REPORT

***EM61 & GPR SURVEYS***

**AUTO REPAIR SITE - ALTON W. ROBINSON PROPERTY**
**Yancey County, North Carolina**

**May 26, 2008**

**Report prepared for:** **Mike Branson**
**Earth Tech, Inc.**
**701 Corporate Center Drive, Suite 475**
**Raleigh, North Carolina 27607**

**Prepared by:** _____
**Mark J. Denil, PG**

**Reviewed by:** _____
**Douglas Canavello, PG**

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

**Earth Tech of North Carolina, Inc.**
**GEOPHYSICAL INVESTIGATION REPORT**
**AUTO REPAIR SITE - ALTON W. ROBINSON PROPERTY**
**Yancey County, North Carolina**

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FIGURES

## 1.0 INTRODUCTION

Pyramid Environmental conducted geophysical investigations for Earth Tech of North Carolina, Inc. across the accessible portions of the auto repair site on the Alton W. Robinson property located along the south side of NC 19 East in Yancey County, North Carolina. The auto repair garage site is surrounded primarily by wooded terrain along the south and west sides and a residential lot along the eastern perimeter. The auto repair garage property consists primarily of grass or gravel surfaces with a former pump island area. The site also contains a significant amount of miscellaneous equipment piles and several non-moveable vehicles. Geophysical surveys were not conducted across the equipment piles and vehicles.

The geophysical investigation was conducted during the period of May 13-14, 2008 to determine if unknown, metallic, underground storage tanks (USTs) were present beneath the auto garage property. Earth Tech representative Mr. Michael Branson, PG, provided site maps that outlined the geophysical survey area and visited the site with Pyramid Environmental representatives prior to conducting the investigation. Photographs of the auto garage site on the Alton W. Robinson property and the geophysical equipment used at this site are shown in **Figure 1**.

## 2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 10-foot by 10-foot survey grid was established across the proposed the site 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 on May 13, 2008 using a Geonics EM61-MK1 metal detection instrument. According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. The EM61 data were digitally collected along easterly-westerly parallel 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.

GPR surveys were conducted on May 14, 2008, across selected EM61 differential anomalies, areas containing steel reinforced concrete, along the perimeter of the known surface structures or objects, and along narrow pathways between equipment piles located along the west and south sides of the auto repair garage building 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 9 nanoseconds per foot. All of the GPR data were downloaded to a field computer and later reviewed in the field and office using Radprint software.

Locations of the EM61 metal detection survey lines and the GPR survey lines are shown as red dots and purple lines, respectively in **Figure 2**. Each red dot represents an EM61 data point. Contour plots of the EM61 bottom coil results and the EM61 differential results for auto repair garage property are presented in **Figures 3 and 4**, respectively. 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.

Preliminary contour plots of the EM61 bottom coil and the differential results for the site were emailed to Mr. Branson during the week of May 19, 2008.

## 3.0 DISCUSSION OF RESULTS

The east-west trending linear EM61 bottom coil anomaly interesting grid coordinates X=100 Y=220 is probably in response to a buried utility line. GPR surveys suggest the linear EM61 anomaly intersecting coordinates X=210 Y=202 is probably in response to a buried metallic culvert. Based on a conversation with Mr. Robinson, the metallic culvert is constructed out of drums welded together and connected to the buried concrete culvert.

The approximate location of a buried septic tank is shown as a dashed rectangle in Figures 3 and 4. Based on information obtained from Mr. Robinson, the septic tank was constructed out of cinder blocks and does not contain metallic material. Therefore, the EM61 survey did not detect the tank. A vehicle was parked on top of the tank when the GPR investigation was conducted on May 14th and the footprint of the septic tank could not be delineated.

GPR data suggest that the high amplitude EM61 differential anomaly centered near grid coordinates X=208 Y=145 (former pump island area) is probably in response to steel reinforced concrete. GPR data also suggest that the EM61 differential anomaly centered near grid coordinates X=193 Y=131 is probably in response to the metal cabinet located along the north wall of the garage. The remaining EM61 differential anomalies recorded at this site are probably in response to the buildings, equipment, vehicles, or other known surface features. The geophysical investigation suggests that the surveyed portions of the auto repair site on the Alton W. Robinson property do not contain buried metallic USTs.

## 4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the accessible portions of the auto repair site on the Alton Robinson property located in Yancey County, North Carolina, provides the following summary and conclusions:

- The EM61 surveys provided reliable results for the detection of metallic USTs within the surveyed portions of the site.

- Areas containing equipment piles and non-movable vehicles were excluded from the geophysical investigation.

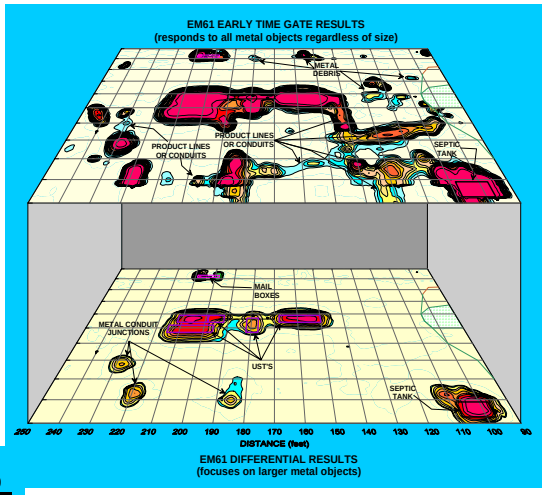
- The east-west trending linear EM61 bottom coil anomaly interesting grid coordinates X=100 Y=220 is probably in response to a buried utility line. GPR surveys suggest the linear EM61 anomaly intersecting coordinates X=210 Y=202 is probably in response to a buried metallic culvert.

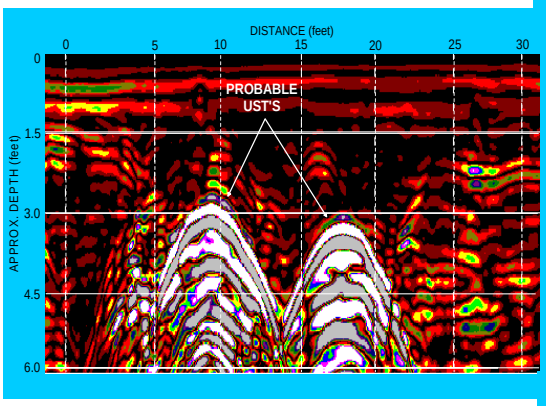
- GPR data suggest that the high amplitude EM61 differential anomaly centered near grid coordinates X=208 Y=145 (former pump island area) is probably in response to steel reinforced concrete.

- The geophysical investigation suggests that the surveyed portions of the auto repair site on the Alton W. Robinson property do not contain buried metallic USTs.

## 5.0 LIMITATIONS

EM61 and GPR surveys have been performed and this report prepared for Earth Tech of North Carolina, 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 the surveyed portion of the site does not contain metallic USTs but that none were detected.




# FIGURES

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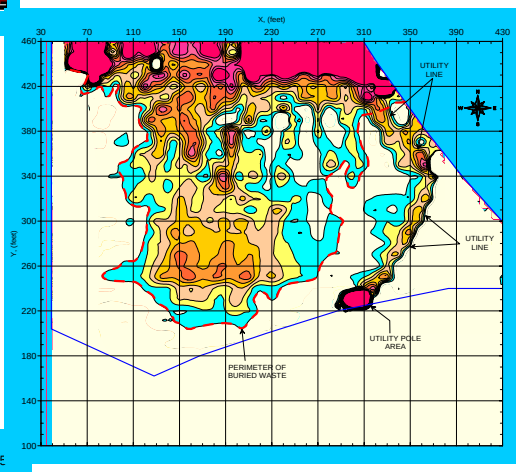
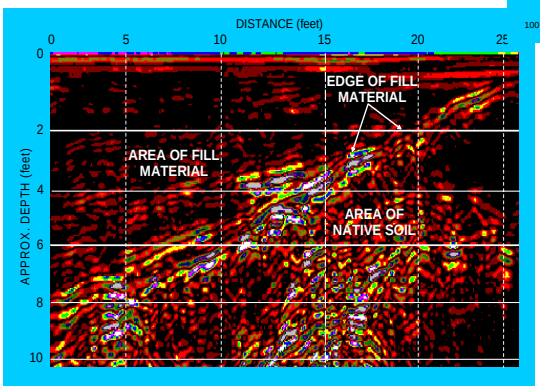


The photo shows the Geonics EM61 metal detector that was used to conduct the metal detection survey at the auto repair site on the Robinson property on May 14, 2008.

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 auto repair site on the Robinson property on May 14, 2008.

The photograph shows a portion of the geophysical survey area located at the auto repair site on the Robinson property. The photo is viewed in a southerly direction.

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

| | | | | | |
|---|---|---|---|---|---|
| CLIENT | EARTH TECH OF NORTH CAROLINA, INC. | DATE | 05/24/08 | DRWN | MJD |
| SITE | AUTO REPAIR SITE - ALTON W. ROBINSON PROPERTY | LAY | | CHKD | |
| CITY | YANCEY COUNTY | STATE | NORTH CAROLINA | DWG | |
| TITLE | GEOPHYSICAL RESULTS | JNO | 2008-118 | FIGURE | |

PHOTOGRAPHS OF GEOPHYSICAL EQUIPMENT & SURVEY AREA

FIGURE 1

LINEAR EM61 ANOMALY PROBABLY IN RESPONSE TO BURIED UTILITY LINE

US-19 EAST

GRAVEL SURFACE

GRASS SURFACE

BURIED CONCRETE CULVERT

BURIED METAL CULVERT

VEHICLE

VEHICLE & BOAT

MOBILE HOME

BASE OF WOODED HILL

SHED

VEHICLE

CONCRETE

ISLAND

CONCRETE

STEEP DITCH AREA

GRAVEL SURFACE

EQUIPMENT & DEBRIS

METAL CABINET

CONCRETE

GARAGE

EQUIPMENT & DEBRIS

EQUIPMENT & DEBRIS

EQUIPMENT & DEBRIS

WOODED TERRAIN

EQUIPMENT & DEBRIS

GRASSY HILLSIDE

BRUSH PILE

Y-axis (feet)

X-axis (feet)

N

W E

S

APPROXIMATE NORTH

## LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- VEHICLE
- BUILDING OR STRUCTURE
- EQUIPMENT OR DEBRIS
- BRUSH PILE
- DRAIN GRATE
- BURIED CULVERT
- GPR SURVEY LINE
- EM61 METAL DETECTION SURVEY LINE

Note: The map shows the geophysical survey area at the auto repair site on the Alton Robinson Property. The red dots represent the EM61 survey lines that were acquired on May 13, 2008 using a Geonics EM61metal detection instrument.The purple lines represent the ground penetrating radar (GPR) survey lines that were acquired on May 14, 2008 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

# GEOPHYSICAL SURVEY LINE LOCATIONS

FIGURE 2

GRAPHIC SCALE IN FEET

| DRWN | CHKD | LAY | DWG | FIGURE |
|---|---|---|---|---|
| MJD | | | | |
| DATE | | | DWG | J.NO. |
| 05/24/08 | | | | 2008-122 |

CLIENT: EARTH TECH OF NORTH CAROLINA, INC.

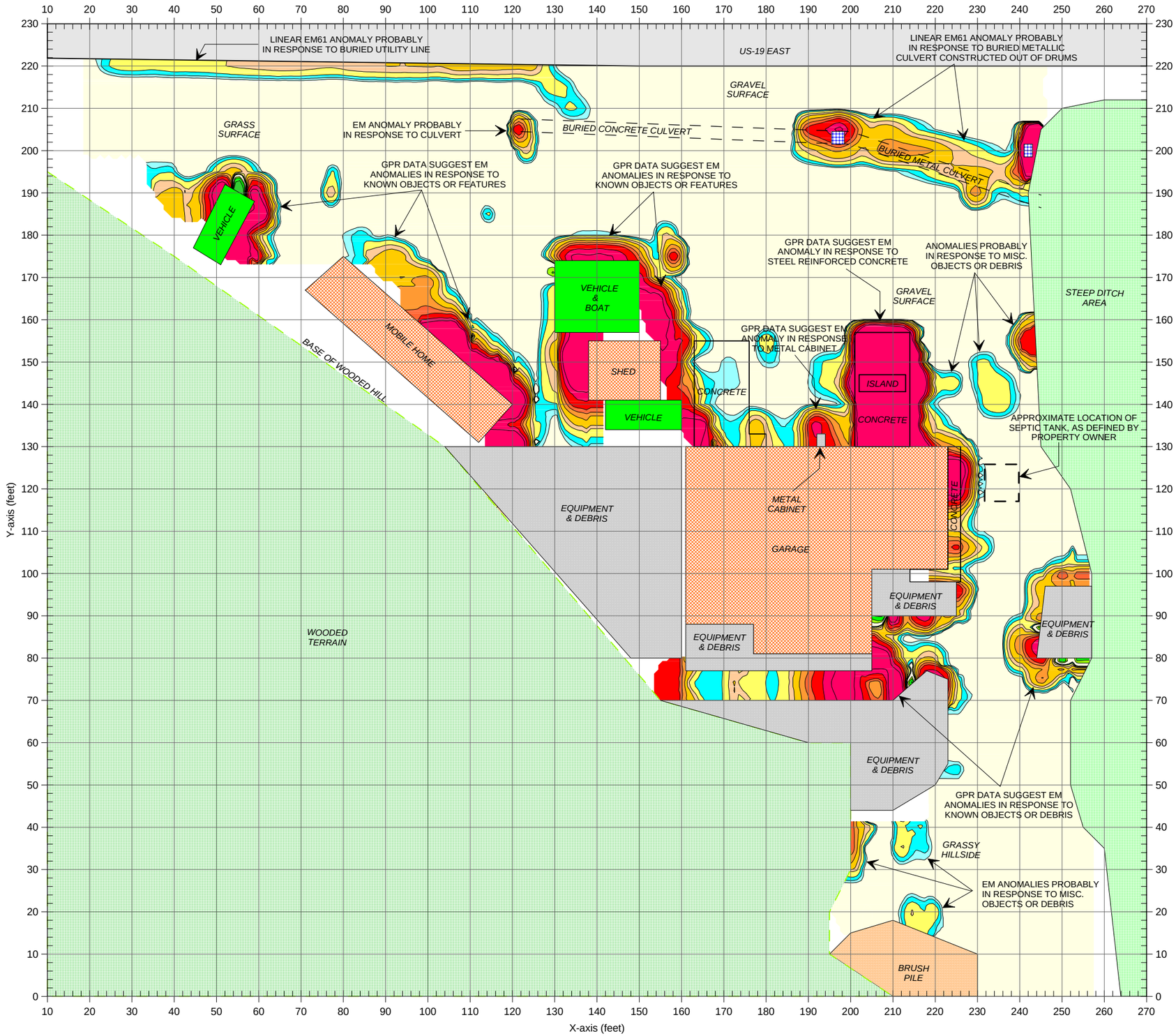
SITE: AUTO REPAIR SITE - ALTON W. ROBINSON PROPERTY

CITY: YANCEY COUNTY

STATE: NORTH CAROLINA

TITLE: GEOPHYSICAL RESULTS

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.




N
W E
S
APPROXIMATE NORTH

## LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- VEHICLE
- BUILDING OR STRUCTURE
- EQUIPMENT OR DEBRIS
- BRUSH PILE
- DRAIN GRATE
- BURIED CULVERT

EM61 BOTTOM COIL RESPONSE (MILLIVOLTS)

1000
750
500
400
300
200
150
100
75
60
45
-90
-100
-200
-400
-5000

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 May 13, 2008 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on May 14, 2008 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation suggest that the surveyed portion of the site does not contain metallic USTs.

FIGURE 3

# EM61 BOTTOM COIL RESULTS

GRAPHIC SCALE IN FEET

| DRWN | CHKD | FIGURE |
|---|---|---|
| MJD | | 2008-118 |
| DATE | LAY | DWG | J.NO. |
| 05/24/08 | | | |

CLIENT: EARTH TECH OF NORTH CAROLINA, INC.
SITE: AUTO REPAIR SITE - ALTON W. ROBINSON PROPERTY
CITY: YANCEY COUNTY
STATE: NORTH CAROLINA
TITLE: GEOPHYSICAL RESULTS

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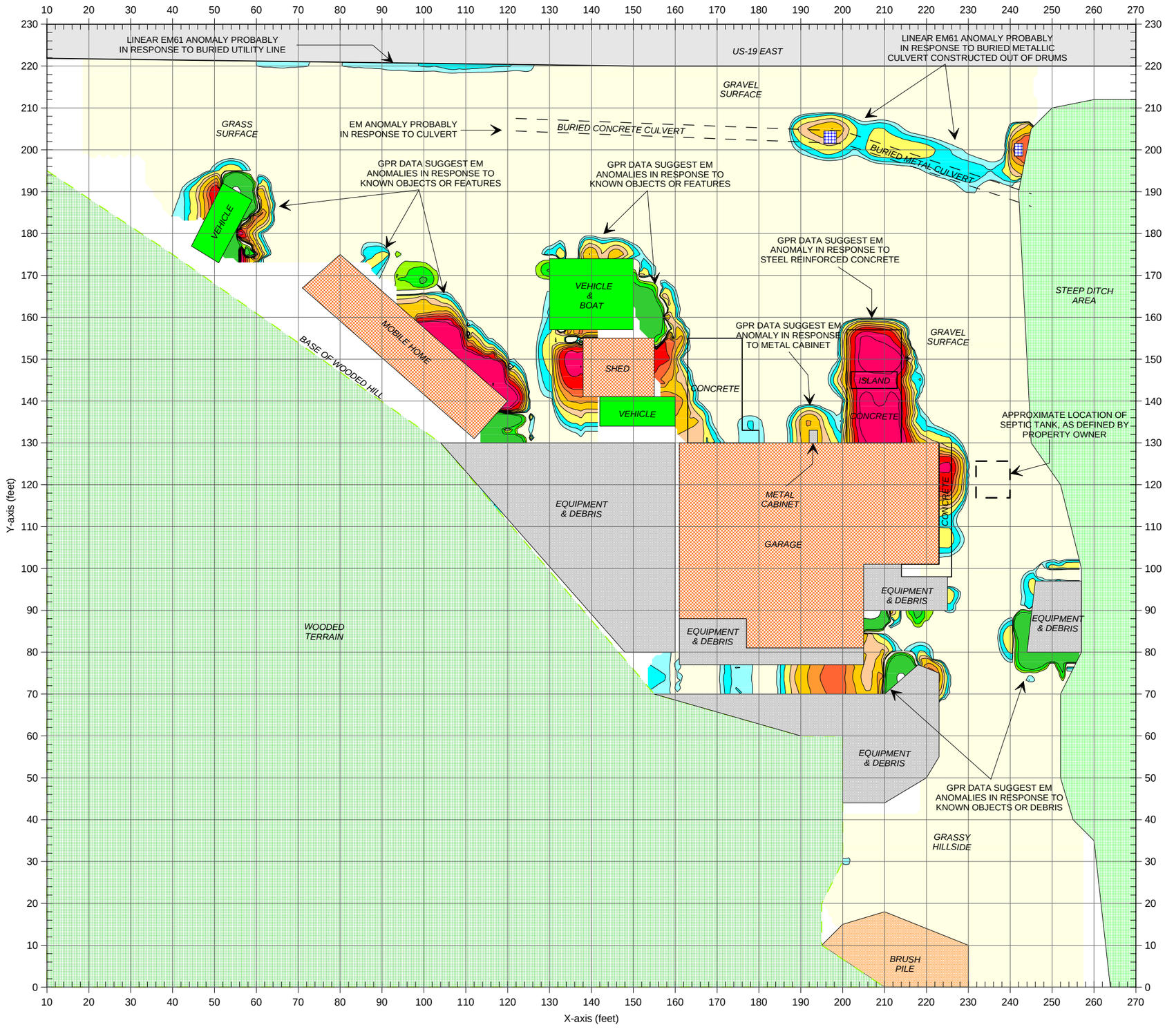


N
W E
S
APPROXIMATE NORTH

## LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- VEHICLE
- BUILDING OR STRUCTURE
- EQUIPMENT OR DEBRIS
- BRUSH PILE
- DRAIN GRATE
- BURIED CULVERT

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

1000
750
500
400
300
200
150
100
75
60
45
-90
-100
-200
-400
-5000

Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and UST's and ignores smaller miscellaneous, buried, metal debris. The EM61 data were collected on May 13, 2008 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on May 14, 2008 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

The geophysical investigation suggest that the surveyed portion of the site does not contain metallic USTs.

# EM61 DIFFERENTIAL RESULTS

FIGURE 4

GRAPHIC SCALE IN FEET

| DRWN | CHKD | LAY | DWG | FIGURE |
|---|---|---|---|---|
| MJD | | | | |
| DATE | | | J.NO. | |
| 05/24/08 | | | 2008-118 | |

CLIENT: EARTH TECH OF NORTH CAROLINA, INC.
SITE: AUTO REPAIR SITE - ALTON W. ROBINSON PROPERTY
CITY: YANCEY COUNTY
STATE: NORTH CAROLINA
TITLE: GEOPHYSICAL RESULTS

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

**ATTACHMENT B**

# TEST BORING REPORT

**PROJECT** ROBINSON PROPERTY
**CLIENT** NCDOT
**PROJECT NUMBER** 104704 (R-2519B)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** RN-1
**PAGE** 1
**ELEVATION**
**DATE** 5/29/08
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | CASING BLOWS FOOT | BLOWS PER 6 INCHES | OVA (ppm) | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | | | 0.49 | | MEDUIUM TO CHOCOLATE BROWN SILT/SAND (POSSIBLE FILL), DRY, NO ODOR. |
| | | | 0.45 | | AS ABOVE, DRY, NO ODOR. |
| | | | 0.48 | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | | | 0.44 | | MEDIUM BROWN MICACEOUS SILT/SAND SAPROLITE, DRY, NO ODOR. |
| | | | 0.56 | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| 10.0 | | | 0.51 | | AS ABOVE, DRY, NO ODOR. |
| | | | | | BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** ROBINSON PROPERTY
**CLIENT** NCDOT
**PROJECT NUMBER** 104704 (R-2519B)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** RN-2
**PAGE** 1
**ELEVATION**
**DATE** 5/29/08
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | CASING BLOWS FOOT | BLOWS PER 6 INCHES | OVA (ppm) | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | | | 0.53 | | POOR RECOVERY 0-4 FEET. MEDIUM TO CHOCOLATE BROWN SILT/SAND (POSSIBLE FILL), DRY, NO ODOR. |
| | | | 0.54 | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | | | 0.55 | | MEDIUM BROWN MICACEOUS SILT/SAND SAPROLITE, DRY, NO ODOR. |
| | | | 0.58 | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| 10.0 | | | 0.56 | | AS ABOVE, DRY, NO ODOR. |
| | | | | | BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** ROBINSON PROPERTY
**CLIENT** NCDOT
**PROJECT NUMBER** 104704 (R-2519B)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** RN-3
**PAGE** 1
**ELEVATION**
**DATE** 5/29/08
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | CASING BLOWS FOOT | BLOWS PER 6 INCHES | OVA (ppm) | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | | | 0.67 | | POOR RECOVERY 0-4 FEET. MEDIUM TO CHOCOLATE BROWN SILT/SAND (POSSIBLE FILL), DRY, NO ODOR. |
| | | | 0.85 | | MEDIUM BROWN MICACEOUS SILT/SAND SAPROLITE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| 5.0 | | | | | |
| | | | 0.69 | | AS ABOVE, DRY, NO ODOR. |
| | | | 0.41 | | AS ABOVE WITH INCREASING CLAY, DRY, NO ODOR. |
| 10.0 | | | 0.47 | | AS ABOVE WITH SOME PARENT FABRIC, DRY, NO ODOR. |
| | | | | | BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** ROBINSON PROPERTY
**CLIENT** NCDOT
**PROJECT NUMBER** 104704 (R-2519B)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** RN-4
**PAGE** 1
**ELEVATION**
**DATE** 5/29/08
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | CASING BLOWS FOOT | BLOWS PER 6 INCHES | OVA (ppm) | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | | | 0.03 | | MEDIUM BROWN MICACEOUS SILT/SAND SAPROLITE, DRY, NO ODOR. |
| | | | 0.01 | | AS ABOVE, DRY, NO ODOR. |
| | | | 0.18 | | AS ABOVE WITH INCREASING CLAY, DRY, NO ODOR. |
| 5.0 | | | | | |
| | | | 0.08 | | AS ABOVE, DRY, NO ODOR. |
| | | | 1.27 | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| 10.0 | | | 0.22 | | AS ABOVE WITH QUARTZ VEIN AT 11.5 FEET, DRY, NO ODOR. |
| | | | | | BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** ROBINSON PROPERTY
**CLIENT** NCDOT
**PROJECT NUMBER** 104704 (R-2519B)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** RN-5
**PAGE** 1
**ELEVATION**
**DATE** 5/29/08
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | CASING BLOWS FOOT | BLOWS PER 6 INCHES | OVA (ppm) | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | | | 0.43 | | 2" ASPHALT, MEDIUM BROWN MICACEOUS SILT/SAND SAPROLITE, DRY, NO ODOR. |
| | | | 0.42 | | AS ABOVE, DRY, NO ODOR. |
| | | | 0.36 | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | | | 0.38 | | AS ABOVE WITH INCREASING CLAY, DRY, NO ODOR. |
| | | | 0.44 | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| 10.0 | | | 0.31 | | AS ABOVE WITH QUARTZ VEIN AT 11 FEET, DRY, NO ODOR. |
| | | | | | BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** ROBINSON PROPERTY
**CLIENT** NCDOT
**PROJECT NUMBER** 104704 (R-2519B)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** RN-6
**PAGE** 1
**ELEVATION**
**DATE** 5/29/08
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | CASING BLOWS FOOT | BLOWS PER 6 INCHES | OVA (ppm) | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | | | 0.36 | | 2" TOPSOIL, MEDIUM BROWN MICACEOUS SILT/SAND SAPROLITE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| | | | 0.30 | | AS ABOVE, DRY, NO ODOR. |
| | | | 0.28 | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | | | 0.28 | | AS ABOVE, DRY, NO ODOR. |
| | | | 0.30 | | AS ABOVE DRY, NO ODOR. |
| 10.0 | | | | | |
| | | | 0.27 | | AS ABOVE, DRY, NO ODOR. |
| | | | | | BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** ROBINSON PROPERTY
**CLIENT** NCDOT
**PROJECT NUMBER** 104704 (R-2519B)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** RN-7
**PAGE** 1
**ELEVATION**
**DATE** 5/29/08
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | CASING BLOWS FOOT | BLOWS PER 6 INCHES | OVA (ppm) | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | | | 0.17 | | 2" ASPHALT, MEDIUM TO CHOCOLATE BROWN MICACEOUS SILT/SAND, DRY, NO ODOR. |
| | | | 0.21 | | MEDIUM BROWN MICACEOUS SILT/SAND SAPROLITE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| | | | 0.08 | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | | | 0.13 | | AS ABOVE, DRY, NO ODOR. |
| | | | 0.02 | | AS ABOVE DRY, NO ODOR. |
| 10.0 | | | 0.16 | | AS ABOVE, DRY, NO ODOR. |
| | | | | | BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

# TEST BORING REPORT

**PROJECT** ROBINSON PROPERTY
**CLIENT** NCDOT
**PROJECT NUMBER** 104704 (R-2519B)
**CONTRACTOR** REGIONAL PROBING
**EQUIPMENT** GEOPROBE

**BORING NUMBER** RN-8
**PAGE** 1
**ELEVATION**
**DATE** 5/29/08
**DRILLER** OPPER
**PREPARED BY** BRANSON

| DEPTH IN FEET | CASING BLOWS FOOT | BLOWS PER 6 INCHES | OVA (ppm) | SAMPLE DEPTH RANGE | FIELD CLASSIFICATION AND REMARKS |
|---|---|---|---|---|---|
| | | | 0.07 | | 2" ASPHALT, MEDIUM BROWN MICACEOUS SILT/SAND SAPROLITE WITH SOME CLAY, DRY, NO ODOR. |
| | | | 0.20 | | AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS. |
| | | | 0.06 | | AS ABOVE, DRY, NO ODOR. |
| 5.0 | | | | | |
| | | | 0.03 | | AS ABOVE, DRY, NO ODOR. |
| | | | 0.05 | | AS ABOVE DRY, NO ODOR. |
| 10.0 | | | 0.01 | | AS ABOVE, DRY, NO ODOR. |
| | | | | | BORING TERMINATED AT 12 FEET. NO GROUNDWATER ENCOUNTERED. |
| 15.0 | | | | | |
| 20.0 | | | | | |

**ATTACHMENT C**

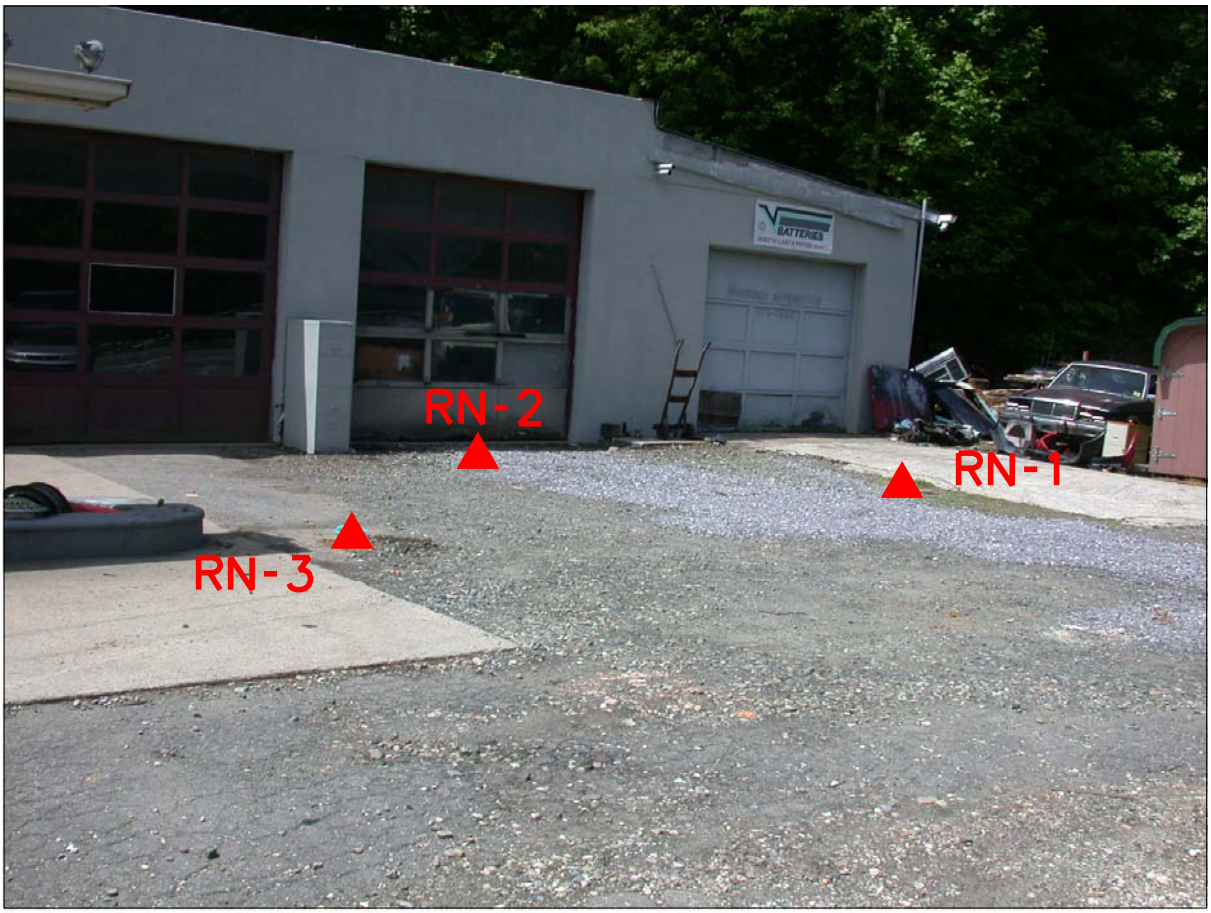


PHOTO 1 - BORINGS AT ROBINSON PROPERTY (SOUTHWEST VIEW)

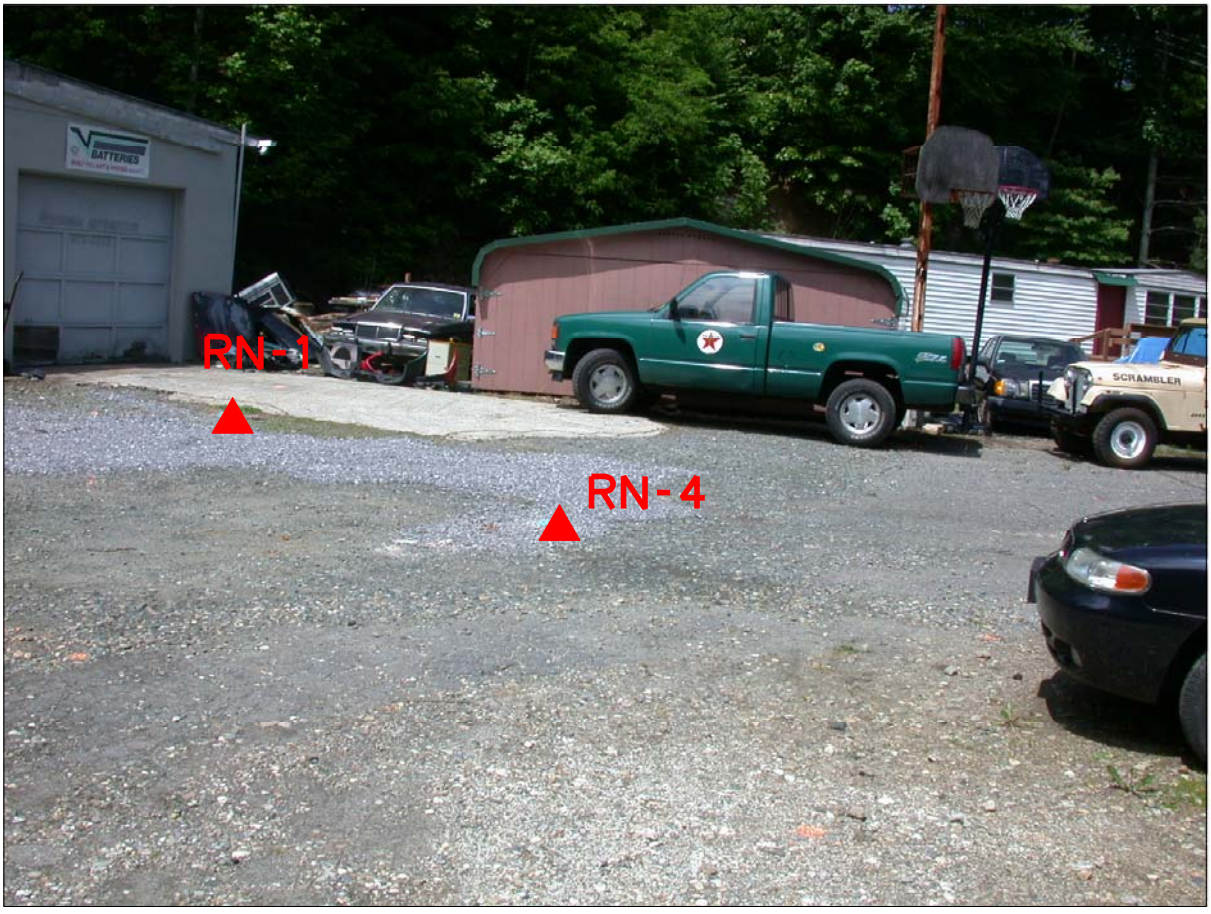


PHOTO 2 - BORINGS AT ROBINSON PROPERTY (SOUTHWEST VIEW)


PHOTO 3 - BORING AT ROBINSON PROPERTY (SOUTH VIEW)


PHOTO 4 - BORING AT ROBINSON PROPERTY (SOUTHWEST VIEW)


PHOTO 5 - BORING AT ROBINSON PROPERTY (SOUTH VIEW)


PHOTO 6 - BORING ON ROBINSON PROPERTY (SOUTH VIEW)

PHOTO 7 - SOUTH VIEW SHOWING LIMITED ACCESS TO EAST SIDE OF SITE

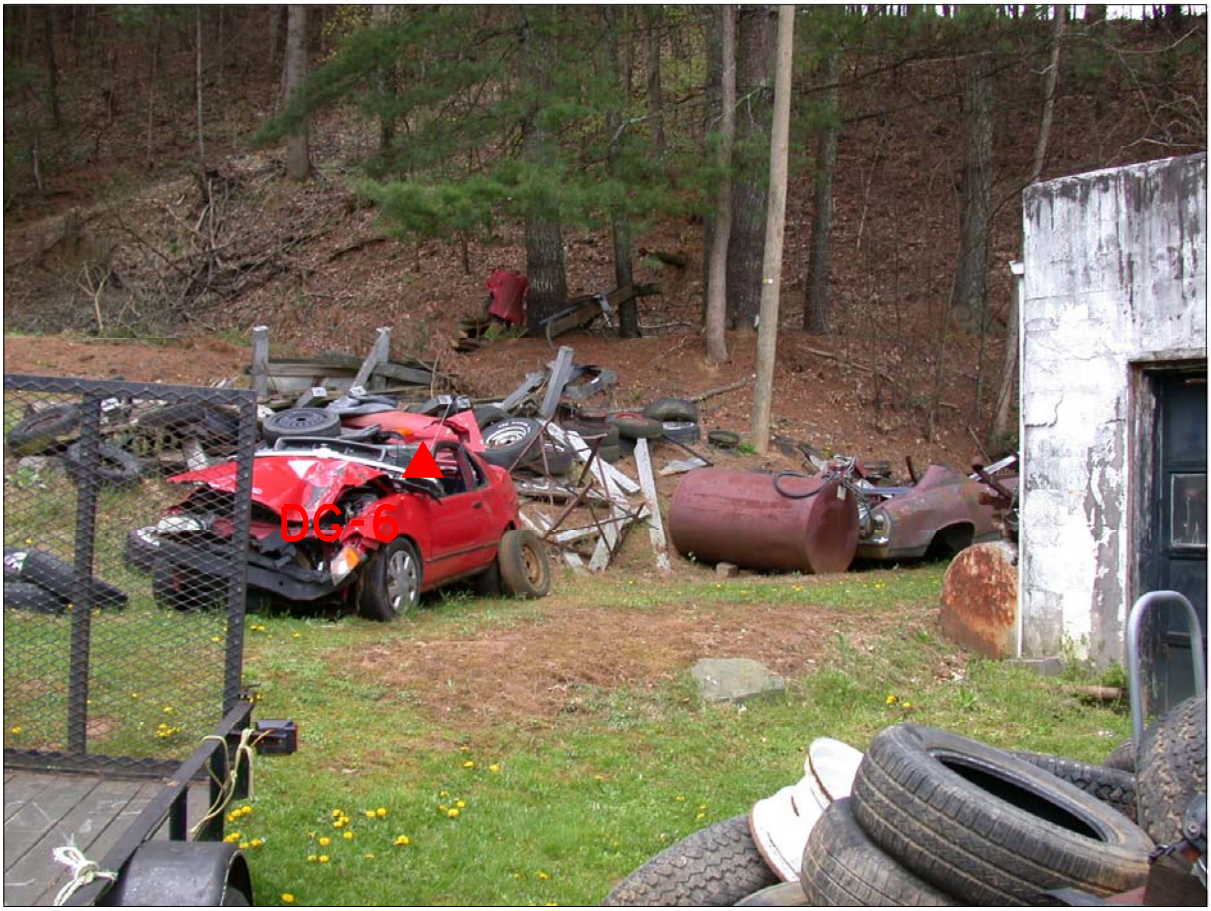


PHOTO 8 - VIEW TOWARD REAR OF SITE

PHOTO 9 - WESTWARD VIEW AT REAR OF SITE

PHOTO 10 - NORTH VIEW FROM WEST SIDE OF SITE

PHOTO 11 - NORTH VIEW FROM WEST SIDE OF SITE

**ATTACHMENT D**

**Research & Analytical Laboratories, Inc.**
Analytical/Process Consultations

RESEARCH & ANALYTICAL LABS. SIDNEY L. CHAMPION NC #34 DIRECTOR CERTIFIED ANALYSIS

**June 13, 2008**

**Earth Tech**
**701 Corporate Center Drive Suite 475**
**Raleigh, NC 27607**
**Attention: Mike Branson**

**Chemical Analysis for Total Petroleum Hydrocarbons (TPH) for Selected Soil Samples Identified as NCDOT-Robinson (An Earth Tech Project #R-2519B, collected 29 May 2008)**

| Sample Identification | RAL Sample# | Date Taken | Time (hrs) | Quantitation Limit (mg/kg) | EPA Method 5030 (mg/kg) | EPA Method 3550 (mg/kg) |
|---|---|---|---|---|---|---|
| RN-1 | 618260 | 05/29/08 | 0930 | 10 | BQL | BQL |
| RN-2 | 618261 | 05/29/08 | 0950 | 10 | BQL | BQL |
| RN-3 | 618262 | 05/29/08 | 1015 | 10 | BQL | BQL |
| RN-4 | 618263 | 05/29/08 | 1040 | 10 | BQL | BQL |
| RN-5 | 618264 | 05/29/08 | 1100 | 10 | BQL | BQL |
| RN-6 | 618265 | 05/29/08 | 1115 | 10 | BQL | BQL |
| RN-7 | 618266 | 05/29/08 | 1130 | 10 | BQL | BQL |
| RN-8 | 618267 | 05/29/08 | 1145 | 10 | BQL | BQL |

EPA Method 3550 = Total Petroleum Hydrocarbons as Diesel

EPA Method 5030 = Total Petroleum Hydrocarbons as Gasoline

mg/kg = milligrams per kilogram = parts per million (ppm)

BQL = Below Quantitation Limit

NR = Not Requested

# Research & Analytical Laboratories, Inc.

Analytical / Process Consultations
Phone (336) 996-2841

## CHAIN OF CUSTODY RECORD

03367

Client: Earth Tech
Address: 701 Corporate Center Dr, Ste 475
Address: Raleigh, NC 27607
Quote #:

Project ID: NCDOT - Robinson
Contact: Mike Branson
Phone: 9198546238
Fax: 9198546259

Date: 5/29/08
Turnaround: Standard
Job Number: R-2519B
P.O. Number: WBS 35609.1.1

Report To: Mike Branson, Earth Tech
Invoice To: NCDOT

| | | | | None | | | | DRO | GRO | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RN-1 | 5/29/08 | 0930 | Soil | ✓ | | | | ✓ | ✓ | | | | | | | | 418 260 |
| RN-2 | 5/29/08 | 0950 | Soil | ✓ | | | | ✓ | ✓ | | | | | | | | 261 |
| RN-3 | 5/29/08 | 1015 | Soil | ✓ | | | | ✓ | ✓ | | | | | | | | 262 |
| RN-4 | 5/29/08 | 1040 | Soil | ✓ | | | | ✓ | ✓ | | | | | | | | 263 |
| RN-5 | 5/29/08 | 1100 | Soil | ✓ | | | | ✓ | ✓ | | | | | | | | 264 |
| RN-6 | 5/29/08 | 1115 | Soil | ✓ | | | | ✓ | ✓ | | | | | | | | 265 |
| RN-7 | 5/29/08 | 1130 | Soil | ✓ | | | | ✓ | ✓ | | | | | | | | 266 |
| RN-8 | 5/29/08 | 1145 | Soil | ✓ | | | | ✓ | ✓ | | | | | | | | 267 |
| | | | | | | | | | | | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5/29/08 | 1500 | | 5/29/08 | 1500 | | NC X SC ____ Other ____ |
| | 5/29/08 | 1510 | | | | EPH 3.0 | |

ORIGINAL