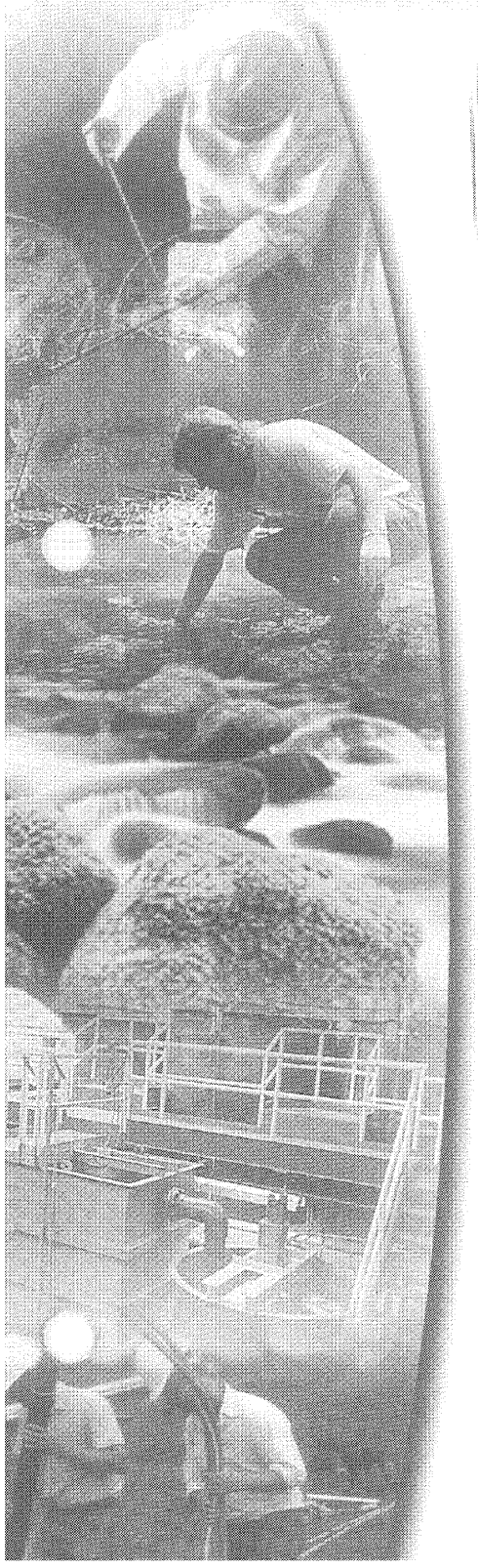



# LIMITED PRELIMINARY SITE ASSESSMENT

**Parcel #004**
**Ansel J. Rakestraw Property**
**(Liberty Street Sports Bar)**
**2847 North Liberty Street**
**Winston-Salem, NC 27105**

WBS Element # 34871.1.1
TIP # U-2826A
**EI Project No. ENMO050015.00**

Prepared For:

Gregory A. Smith
State of North Carolina
Department of Transportation
Geotechnical Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, NC 27699-1589

Prepared by:

Environmental Investigations, Inc.
2101 Gateway Centre Boulevard, Suite 200
Morrisville, NC 27560
PH (919) 544-7500 FAX (919) 544-2199

October 18, 2005

**LIMITED PRELIMINARY SITE ASSESSMENT**

**Conducted on**

**Parcel #004**
**Ansel J. Rakestraw Property**
**(Liberty Street Sports Bar)**
**2847 North Liberty Street**
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**NCDOT TIP #U-2826A**
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For

Mr. Gregory A. Smith
State of North Carolina
Department of Transportation
Geotechnical Engineering Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, NC 27699-1589

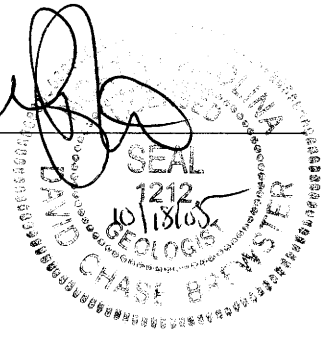
Issue Date: October 18, 2005


Robert M. Shaut
Project Geologist/Manager

Signature

David C. Brewster, P.G.
Principal Geologist

Signature


Prepared By: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# 1.0 INTRODUCTION

Environmental Investigations, Inc. (EI) conducted a *Limited Preliminary Site Assessment* (PSA) on a parcel identified by the North Carolina Department of Transportation (NCDOT) as *Parcel # 4* that includes the *proposed* and *existing right-of-way (*ROW*)*. The subject parcel is located at 2847 North Liberty Street, Winston-Salem, North Carolina.

A business known as "Liberty Street Sports Bar" is currently located on the subject parcel (adjacent to ROW). A report presented herein documents the findings of the PSA that was conducted within the prescribed area of study. For purposes of this report, the terms "subject property" and/or "site" include the *existing* NCDOT ROW and the *proposed* ROW, and/or the abutting property/parcel.

## 1.1 Report Organization

Mr. Darren Lockhart and Mr. Robert Michael Shaut, Environmental Geologists' with EI conducted field activities on August 11, 2005. The report presented herein summarizes the scope of work conducted, discusses sampling activities, and presents findings, conclusions and our recommendations. Two (2) tables entitled "Summary of Soil Analytical Results" and "Summary of Groundwater Analytical Results" are presented in **"Table 1"** and **"Table 2",** respectively. A "Site Location Map", an "Aerial Photograph", and a "Site Map" are presented in **Figures 1**, **2**, and **3**, respectively. A compilation of "Site Photographs" are presented in **Appendix A**, a "Geophysical Report" is presented in **Appendix B**, **"**Soil Boring Logs" are presented in **Appendix C**, and an "Analytical Laboratory Report" is presented in **Appendix D,** respectively.

## 1.2 Background

EI received a "*Request for Technical and Cost Proposal*" (RFP), dated July 7, 2005 signed by Cyrus F. Parker, LG, GeoEnvironmental Project Manager with the NCDOT GeoTechnical Engineering Unit. The RFP solicited a technical and cost proposal to perform PSAs on a total of 10 Parcels located within a NCDOT Highway Project, identified as WBS Element 34871.1.1, TIP # U-2826A, located in Winston-Salem, NC. The RFP outlined site information on each of the 10 parcels and NCDOT Figures (Plan Sheets) were attached to the RFP. Mr. Gregory A. Smith, LG, PE, GeoEnvironmental Supervisor with the NCDOT, GeoTechnical Engineering Unit, GeoEnvironmental Section authorized EI to perform the PSAs, as documented in a "Notice to Proceed" dated July 28, 2005.

## 1.3 Objectives

The objective of performing the PSAs was to investigate parcel histories, locate potential underground storage tanks (USTs), and determine if these systems or sources have impacted the subsurface within the area of study.



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The study (PSA) conducted on the referenced parcel (Parcel #004 – Ansel J. Rakestraw Property) was performed with a reasonable effort to investigate and quantify potentially petroleum-hydrocarbon residual impacted subsurface soils. However, findings documented in the report do not constitute a guarantee that all potential sources of environmental contamination have been assessed and subsequently analyzed.

This report is provided for the sole use of the NCDOT on the project for which it was prepared. All materials and information used for this project were obtained or provided to EI, Inc. Use of this report by any third parties other than the NCDOT will be at such party's sole risk. EI Inc. disclaims liability for any use of or reliance on this report by third parties.

## 1.4 Site History

The North Carolina Department of Environmental Health and Natural Resources (NCDENR), Division of Waste Management (DWM), Underground Storage Tank Section and the Aquifer Protection Division maintain environmental records of all known and reported subsurface environmental incidents throughout the state of North Carolina. Based on research conducted by EI personnel, no known environmental incidents were filed with the aforementioned environmental agencies regarding the subject parcel with the current listed address.



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# 2.0 SCOPE OF WORK & ENVIRONMENTAL SERVICES

## 2.1 Requested Scope of Work

Documented in the *RFP*, the NCDOT requested the following scope of work:

- Investigate site histories.
- Locate USTs and determine approximate size and contents, if any.
- Determine if contaminated soils are present.
- Investigate all proposed drainage areas on the project.
- If contamination is evident, estimate the quantity of impacted soils and indicate the approximate area of soil contamination on a site map.
- If groundwater is encountered and the project manager suspects the possibility of groundwater contamination, obtain a sample for analysis by converting one of the soil borings to a temporary monitoring well.
- Prepare a set of NCDOT plansheets (11" x 17") as a separate deliverable showing a summary of suspected impacted areas of contamination.
- Prepare a report including field activities, findings, and recommendations for each site and submit to this office in triplicate.

## 2.2 Scope of Services

To perform our scope-of-services, a geophysical survey was performed to identify potential UST systems, a field reconnaissance was performed to identify general site conditions, and Direct Push Technology (DPT) was utilized to collect soil samples and install a temporary groundwater well (piezometer) and collect subsequent groundwater samples on the subject property.

To complete the study on the subject parcel, EI performed the following scope of services:

- Limited oversight and supervision of a geophysical survey conducted within the area of study.



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- Supervision, direction and oversight of the advancement of six (6) soil test borings utilizing DPT methods to a total depth ranging between 20.0 and 35.0 feet below the land surface (bls) across the site in targeted locations.

- Collection and submittal of six (6) soil samples for laboratory analyses of total petroleum hydrocarbons (TPH) in the gasoline and diesel ranges.

- Supervised and directed the installation of one (1) temporary monitoring well (piezometer) on the subject site.

- Collected a groundwater sample from a piezometer for laboratory analysis of volatile organic compounds (VOCs).

- Photo documentation of pertinent site features.

- Preparation of this report in triplicate format, presenting our findings and conclusions along with our recommendations.



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# 3.0 SITE CHARACTERIZATION

## 3.1 Site Location

A business known as "Liberty Street Sports Bar" is currently located at 2847 North Liberty Street, Winston-Salem, (Forsyth County), North Carolina (**Figures 1** and **2).** The subject property is currently located immediately adjacent to the DOT ROW as identified in DOT's U-2826A Plan Sheet 5 (**Photograph 1**). Digital site photographs are presented in **Appendix A.**

## 3.2 Property Ownership

According to the Forsyth County, North Carolina Tax Office Geo-Data Explorer web site, and the NCDOT, the subject property is currently owned by John Ansel Rakestraw, who resides at 4039 Bethania Station Road, Winston Salem, North Carolina, 27106-0. The parcel ID was listed on the web site as #6836-56-8874. The size of the parcel was listed as 0.23 acres.

## 3.3 Physical Setting

The subject site parcel has been improved to operate a business. The parcel consists of parking areas partially bounded by steel mesh fencing. The surface of the parking areas is covered by gravel, while the remaining portions of the parcel consist of sparse grass. A grassy ditch is located along the western property boundary between the subject parcel and Liberty Street. See **Figure 3** for pertinent site features.

### 3.3.1 Number and Capacitates of USTs

Based on a geophysical investigation, which is discussed in further detail in Sections 4.1 and 4.2, indications of USTs were not observed within the area of study (See **Appendix B**).

## 3.4 Site Topography

Site observations and review of the Walkertown, NC United States Geological Survey (USGS) Topographic Quadrangle Map (1980) revealed that the subject site elevation ranges between approximately 955 feet and 956 feet above mean sea level (msl) (**Figure 1**). Topographically, the site slopes gently to the north/northeast as surface water runoff appears to flow directly north/northeast in the direction of Brushy Fork Creek located approximately 2,145 feet (715 yards) from the parcel.



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## 3.5 Land Use & Surrounding Properties

The subject property is located inside the city limits of Winston-Salem, NC. Land use in the immediate vicinity of the site is characterized by commercial and/or industrial properties. The site is bounded on the north by a business known as the "Liberty Street Sports Bar", to the south by Parcel #003 - Dick Kelly Truck Sales, to the east by US 52, and to the west by Liberty Street.



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# 4.0 SUBSURFACE INVESTIAGTION

## 4.1 Geophysical Survey

Schnabel Engineering South, based in Greensboro, North Carolina, was subcontracted to provide geophysical services on the subject site. The purpose of the geophysical survey was to locate potential UST systems within the area of study.

The contractor conducted an electromagnetic (EM) induction survey utilizing a Geonics EM61-MK2 instrument. Ground penetrating radar (GPR) investigations of selected EM61 anomalies were conducted using a Geophysical Surveys System SIR-2000 system equipped with a 400 MHz antenna. The geophysical contractor surveyed an area estimated at 0.23 acres.

## 4.2 Geophysical Survey Results

The geophysical results indicate a number of small, isolated anomalies probably caused by relatively small, insignificant buried metal objects, several linear anomalies probably caused by buried utilities, and a number of anomalies were caused by known site features. Most of the observed anomalies not attributed to known cultural features are removed in the differential data set and re-surveyed utilizing the GPR devices. The GPR data indicated the presence of buried metal and reinforced concrete. The GPR data **did not** indicate the presence of USTs in the chosen areas surveyed.

A detailed report documenting the geophysical survey activities and results of the study is included in **Appendix B**.

## 4.3 Subsurface Soils Investigation

Subsurface Environmental Investigations, Inc., based in Statesville, North Carolina, was selected and subcontracted to provide Direct Push Technology (DPT) services. An EI Geologist directed and supervised the advancement of six (6) soil test borings (GP-1 through GP-6) in the vicinity of either the NCDOT identified proposed drainage (two borings), and/or the balance (four borings) of the property (for potential former UST system leaks, etc.) located within either the *existing* and/or *proposed* DOT ROW for the referenced site.

The borings were advanced in order to evaluate the absence/presence of potential subsurface soil (vadose zone) impact and/or subsurface groundwater (petroleum smearing) impact associated with potential former petroleum releases. The soil borings were advanced to investigative total depths ranging from 20.0 feet to 35.0 feet bls.



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Based on the absence of known former USTs or present USTs, or UST systems, EI selected to investigate the subsurface for the possible presence of subsurface petroleum contaminants by conducting a series of randomly selected soil locations in a non-symmetrical pattern in the area of proposed piping, and the balance of the site parcel.

### 4.3.1 Soil Sample Collection Procedures

Based on the results of site conditions (i.e., presence of former UST system location, from an upgradient parcel), and to verify the presence/absence of contaminants, one (1) soil sample each was collected for laboratory retention from all six (6) soil test borings.

Soil samples retained for laboratory analyses were shipped, via overnight courier service (Federal Express) to Paradigm Analytical Laboratory, for laboratory analytical testing. Dates and times of sample shipment may be referenced in the analytical Chain-of Custodies (COC) presented in **Appendix D**.

### 4.3.2 Backfill Activities

At the completion of the exploratory subsurface advancement activities, the test borings were backfilled to surface grade and capped with asphalt patch and/or concrete.

### 4.3.3 Subsurface Soil Lithology

During boring advancement activities, soil samples were classified in the field by an EI geologist utilizing the Unified Soil Classification System (USCS). Subsurface soils encountered in the area of study were inconsistent. Two (2) types of lithology were observed. Both of these types are characterized with a surface layer of asphalt and gravel sub-base. Underlain layers consisted of either SAND (SM) or SILT (ML), with either SILT (ML) or SAND (SM) encountered to the to the investigated depth of 20.0 feet bls. Detailed descriptions are presented in Soil Boring Logs included in **Appendix C**. The boring logs include an interpretation of subsurface conditions based on field samples.

## 4.4 Groundwater Investigation

### 4.4.1 Temporary Monitoring Well Installation

On August 23, 2005, soil test boring GP-7 was converted into a Type I (temporary) 1.0-inch diameter groundwater monitoring well (piezometer). The approximate location of the groundwater monitoring well is depicted in **Figure 3**. This boring/well was installed along the vicinity of the property boundary between Parcel #004 and Parcel #005 to facilitate a data collection point from both properties. The well location was selected in



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the field by an EI Geologist based on site conditions and field indicators noted from adjacent soil borings and/or site conditions, and/or probable potentially suspect locations (ie., topographic location). The well was advanced to the approximate investigated depth of 35.0 feet bls.

### 4.4.2 Groundwater Sampling Activities

EI personnel collected a groundwater sample from the temporary well (GP-7) on September 2, 2005 for purposes of analytical testing. On September 6, 2005, the samples were submitted via overnight courier service to Paradigm Analytical Laboratories, for analytical laboratory testing.

### 4.4.3 Groundwater Laboratory Analyses

A groundwater sample identified as "TW-1" collected from boring "GP-7" was submitted for VOCs analysis by EPA Method 6230D + IPE & MTBE.

### 4.4.4 Monitoring Well Abandonment Activities

On September 8, 2005, a DPT subcontractor, (EnviroProbing, Inc.) abandoned the aforementioned temporary monitoring well.



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# 5.0 LABORATORY TESTING AND RESULTS

## 5.1 Subsurface Soil Analytical Methods

A total of six (6) soil samples ("P4GP1-18", "P4GP2-18", "P4GP3-18", "P4GP4-18", "P4GP5-19", and "P4GP6-19") were submitted for total petroleum hydrocarbons (TPH) analyses by GC/FID 8015 analyzing for the analytes: Gasoline Range Organics (GRO), and Diesel Range Organics (DRO). The analytes in the GRO range are utilized to extract volatile fuels such as gasoline, while the DRO range is utilized to extract less volatile petroleum products such as diesel fuel, #2 fuel oil, kerosene, and varsol.

## 5.2 Soil Laboratory Analyses Results

None of the six (6) soil samples detected concentrations of diesel or gasoline range organics at or above the method laboratory detection limits. The results of the analytical testing of the soil samples are tabulated and presented in **Table 1**. The complete laboratory results and COC Records are presented in **Appendix D**.

## 5.3 Groundwater Laboratory Analyses Results

Naphthalene (a petroleum hydrocarbon constituent) and chloroform were detected in the groundwater sample identified as "TW1" at concentrations of 0.619 ug/L, and 13.3 ug/L, respectively. None of the remaining analytes showed concentrations above the method laboratory detection limits. Specific results are tabulated in **Table 2** and the complete laboratory report along with COC records is presented in **Appendix D**.



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## 6.0 SUMMARY OF FINDINGS

EI has reviewed information gathered for the study including site reconnaissance, review of DOT plan sheets, review of former site investigations, review of site investigations including soil and groundwater collection activities, review of the geophysical investigation report, and review of the laboratory analyses report. Compiled below is a summarized list of the significant findings.

- The geophysical data **did not** indicate the presence of any potential suspected USTs located on the parcel or within the *proposed* or *existing* ROW.

- Petroleum product dispensers, parts or neither portions of UST systems, nor remnants of concrete pump islands were observed on the property.

- Subsurface soil samples, collected in the vicinity of the *proposed drainage piping* and the balance of the property did not show reportable TPH concentrations in the GRO or DRO at or above the method laboratory detection limits.

- Review of the groundwater analytical data revealed that concentrations of one (1) detected analyte **exceeded** the 15A NCAC 2L .0202 (g) Groundwater Quality Standards (Class GA).



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## 8.0 CONCLUSIONS AND RECOMMENDATIONS

EI personnel have reviewed information obtained during the Limited PSA at the site and present the following conclusions and recommendations.

### CONCLUSIONS

Petroleum Hydrocarbon Impact

Impact within the subsurface vadose zone (unsaturated zone) was not discovered during this study. However; dissolved residual petroleum hydrocarbons have been discovered within the saturated zone beneath the parcel (adjacent to Parcel #005) at *low* levels located outside of the *existing* and *proposed* DOT ROW. The extent of the dissolved contaminant plume (minor concentrations) was beyond the scope of study; however, since significant vadose zone impact was not established on the subject parcel, it is likely that the source of impact may be upgradient.

Based on the known history of the parcel, it is assumed that the most likely source of this impact is either from the upgradient source ("Dick Kelly Truck Sales" – release incident) or other sources of contamination that have not been identified.

Extent of Contamination within the Vadose Zone

No significant impact was discovered at the subject parcel.

Groundwater Impact

Since a groundwater sample obtained from the property revealed volatile dissolved concentrations above 2L Groundwater Standards, the groundwater impact could potentially be more significant in various parts of the property. A delineation of groundwater impact was beyond the scope of study for this project.

*Note: This report does not constitute a guarantee that all potential sources of environmental contamination have been assessed and subsequently analyzed.*



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## RECOMMENDATIONS

Based on the results of this study, EI does not issue any recommendations.



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# TABLES

**TABLE 1**
**Summary of Soil Analytical Results**
**Parcel #004 - Ansel J. Rakestraw Property**
**("Liberty Street Sports Bar")**
**NCDOT - Forsyth**
**TIP#: U-2826A**
**WBS #34871.1.1**
**EI Project No. ENMO050015.00**

| Sample Point Identification | | P4GP1-18 | P4GP2-18 | P4GP3-18 | P4GP4-18 | P4GP5-19 | P4GP6-19 |
|---|---|---|---|---|---|---|---|
| Sample Depth - Feet | | 16-18 | 16-18 | 16-18 | 16-18 | 17-19 | 17-19 |
| Sample Date | | 8/11/2005 | | | | | |
| Field Screening Results-PID (ppm) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Laboratory Analysis | NCDENR (Volume II) Reportable Concentration (mg/kg) | Laboratory Analytical Results (mg/kg) | | | | | |
| Prep Method 5035 - Gasoline Range Organics | 10.0 | BQL | BQL | BQL | BQL | BQL | BQL |
| Prep Method 3545 - Diesel Range Organics | 10.0 | BQL | BQL | BQL | BQL | BQL | BQL |
| VOCs (8260B - 5035) | | Laboratory Analytical Results (UG/KG) | | | | | |
| All Analytes | | NA | BQL | BQL | NA | NA | NA |
| SVOCs (8270) | | Laboratory Analytical Results (UG/KG) | | | | | |
| All Analytes | | NA | BQL | BQL | NA | NA | NA |

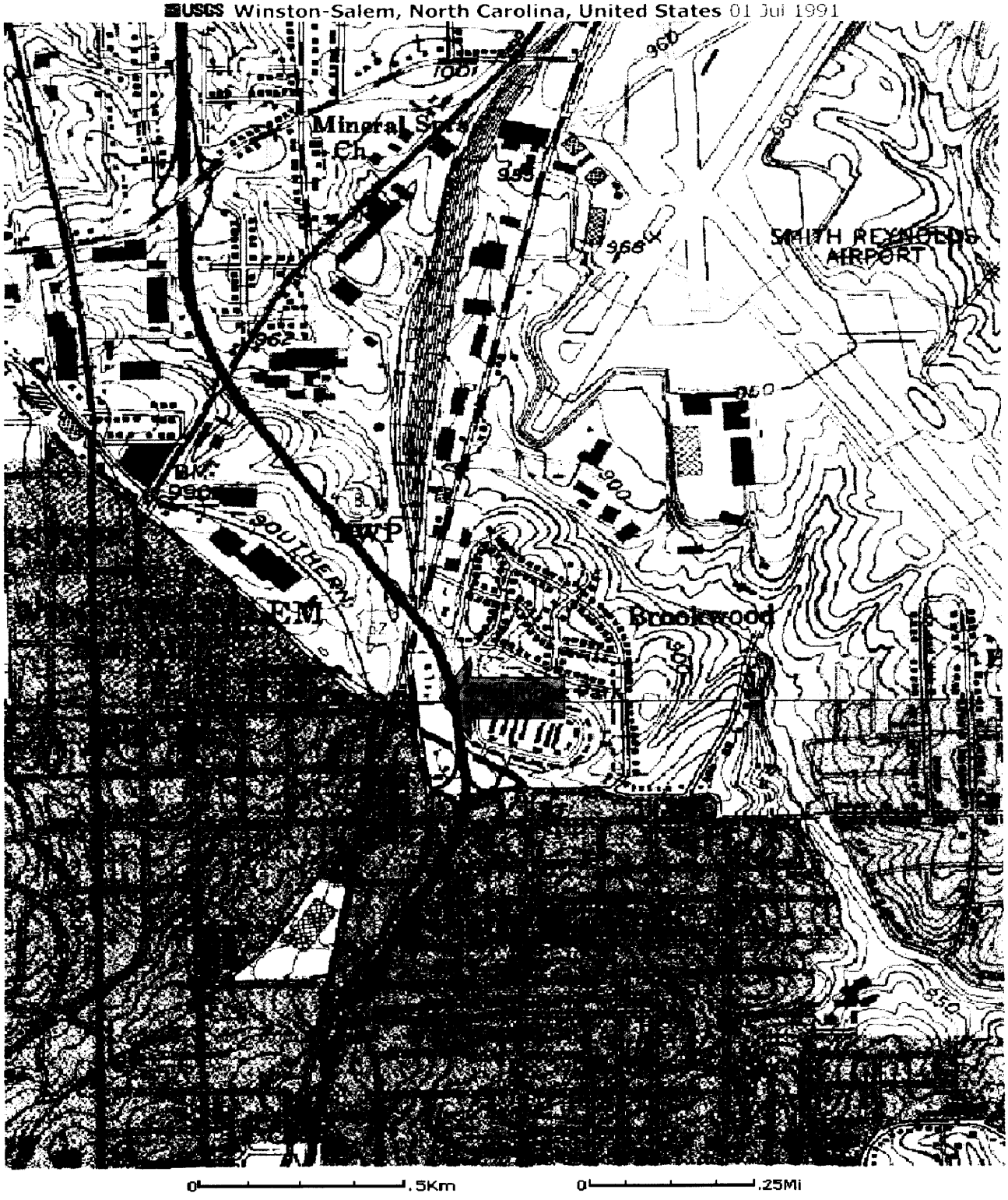
**LEGEND:**
***Bold & Italics Font*** = In Excess of NCDENR Reportable Concentrations

**TABLE 2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**Parcel # 004 And #005 - Property Line of Ansel J. Rakestraw and Curtis Ray Hanes Property**
**NCDOT - Forsyth County**
**TIP# U-2826A**
**WBS# 34871.1.1**
**EI Project # ENMO050015.00**

| Sample Identification | | TW1 |
|---|---|---|
| Sample Date | | 9/2/2005 |
| Groundwater Depth | | N/A |
| Volatile Organic Compounds by Method 6200B | 2L Groundwater Standards (ug/L) | LABORATORY RESULTS (ug/L) |
| Benzene | 1 | BQL |
| n-butylbenzene | 70 | BQL |
| sec-butylbenzene | 70 | BQL |
| Chlorobenzene | 50 | BQL |
| Chloroform | 0.19 | ***13.3*** |
| Chloromethane | 2.16 | BQL |
| 1,2-Dichlorobenzene | NS | BQL |
| 1,3-Dichlorobenzene | NS | BQL |
| 1,4-Dichlorobenzene | NS | BQL |
| Diisopropyl ether (DIPE) | NS | BQL |
| Ethylbenzene | 29 | BQL |
| Isopropylbenzene | 70 | BQL |
| p-Isopropyltoluene | NS | BQL |
| naphthalene | 21 | 0.62 |
| n-propylbenzene | 70 | BQL |
| MTBE | 200 | BQL |
| Toluene | 1000 | BQL |
| 1,2,4-trimethylbenzene | 350 | BQL |
| 1,3,5-trimethylbenzene | 350 | BQL |
| xylenes | 530 | BQL |
| All Remaining Analytes | NA | BQL |

**Legend:**
*Italics* /**Bold Font** = In Excess of NCAC 2L Class GA Standards
BQL = Below Quantitation Limit
NA = Not Applicable
NS = No Standard

# FIGURES




| | | |
|---|---|---|
| **FIGURE NUMBER:** 1 | **SITE LOCATION MAP**<br>Parcel #004 – Ansel J. Rakestraw Property<br>(Liberty Street Sports Bar)<br>2847 North Liberty Street<br>Winston-Salem, North Carolina | EI<br>ENVIRONMENTAL INVESTIGATIONS, INC |
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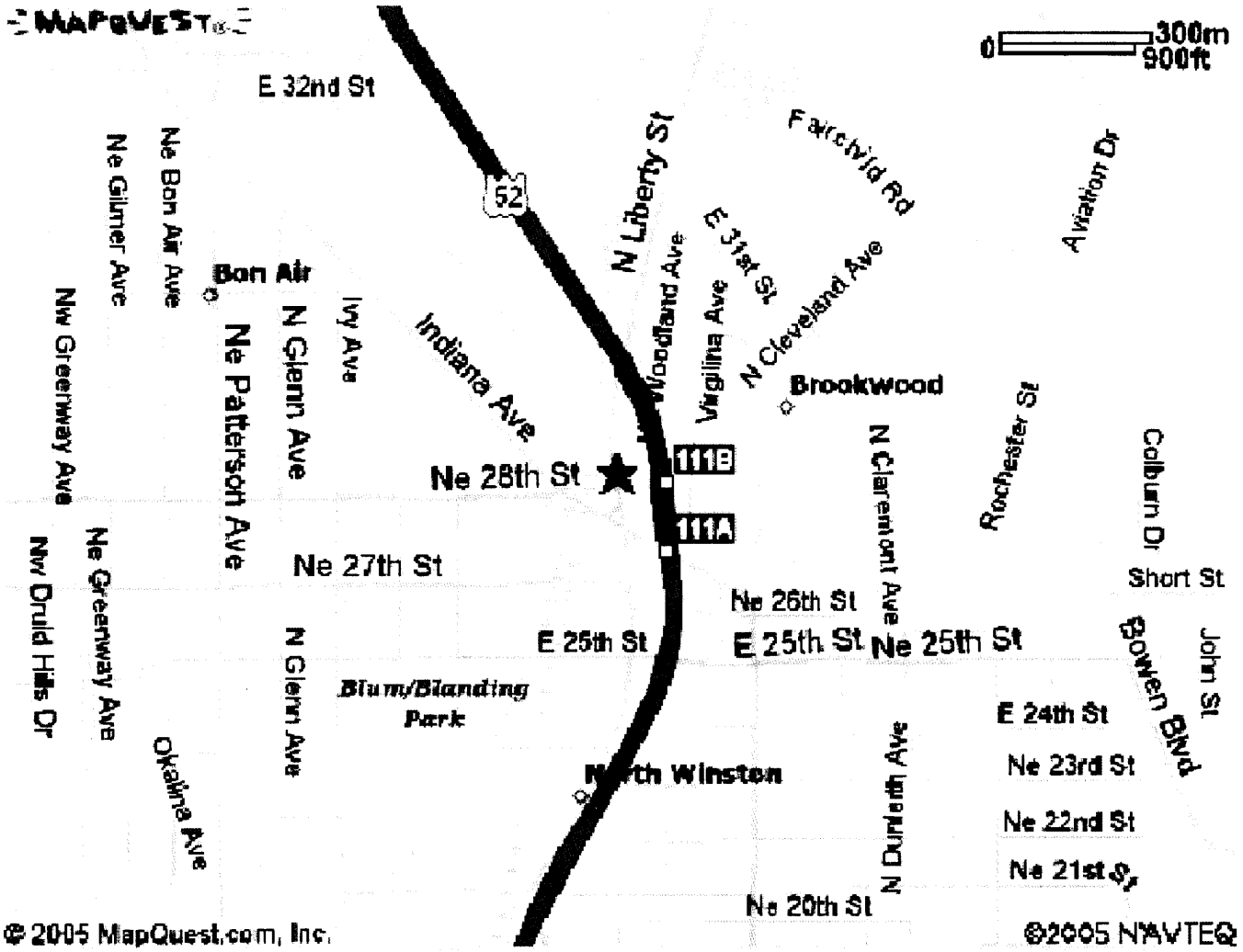
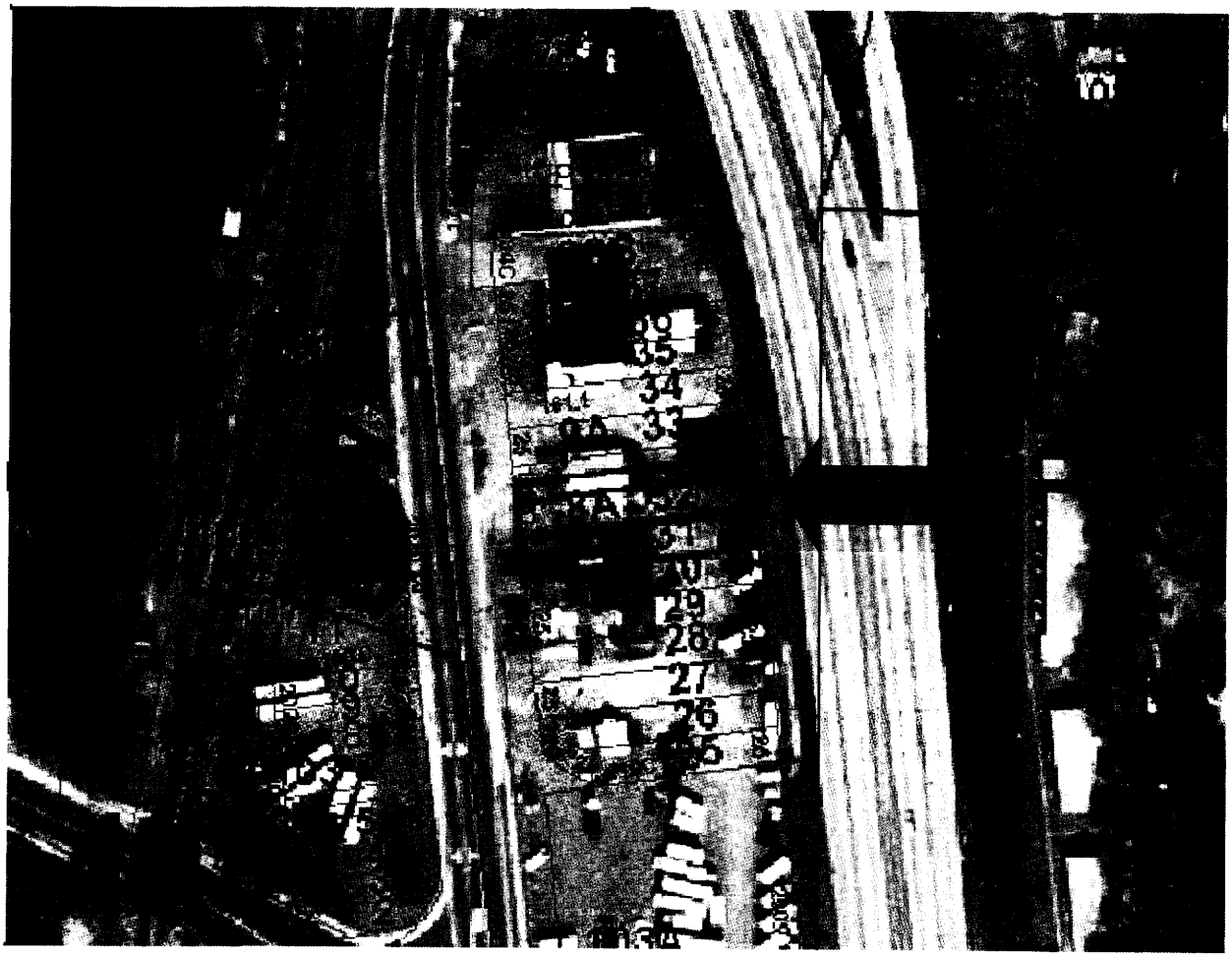
| **PROJECT NUMBER:** ENMO050015.00 | | |
| **SCALE:** As Shown | | |




| | |
|---|---|
| FIGURE NUMBER: | 1A |
| QUAD: | 1980 Winston-Salem |
| PROJECT NUMBER: | ENMO050015.00 |
| SCALE: | As Shown |

**SITE LOCATION MAP**
Parcel #004 – Ansel J. Rakestraw Property
(Liberty Street Sports Bar)
2847 North Liberty Street
Winston-Salem, North Carolina

EI
ENVIRONMENTAL INVESTIGATIONS, INC



0 Feet 153

**SCALE** 1 : 1845

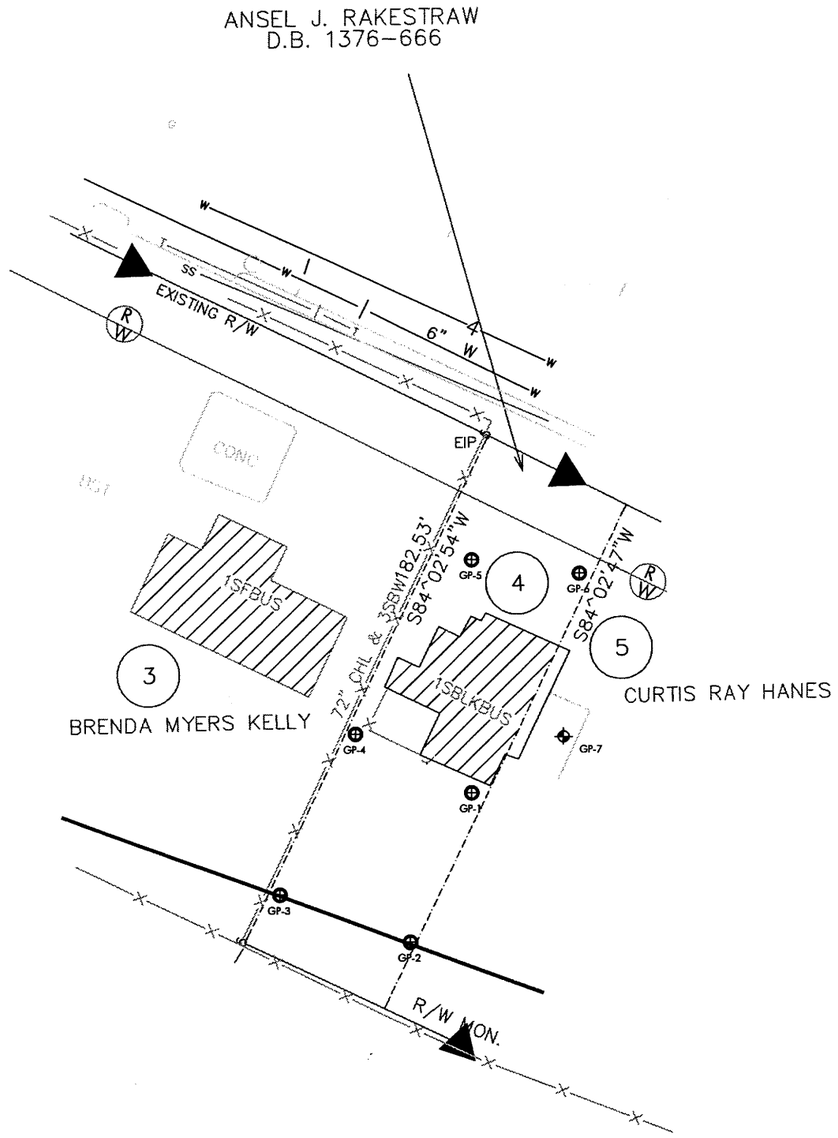
N

| | |
|---|---|
| **FIGURE NUMBER:** | 2 |
| **QUAD:** | 1991 Winston-Salem |
| **PROJECT NUMBER:** | ENMO050015.00 |
| **SCALE:** | AS SHOWN |

**AERIAL PHOTOGRAPH**
Parcel #004 – Ansel J. Rakestraw
Property (Liberty Street Sports Bar)
2847 North Liberty Street
Winston-Salem, North Carolina

EI
ENVIRONMENTAL INVESTIGATIONS, INC

NAD 83




LEGEND:

- Building
- Property Border
- Chain Link Fence
- Approx. Right-of-Way To Be Acquired
- Approx. Existing Right-of-Way
- Proposed Piping
- DPT Soil Test Boring (GP-1)
- Type I Monitoring Well

0 50 100

Scale In Feet (1" = 50')

| | |
|---|---|
| FIGURE: | 3 |
| DRN BY: | DOT/RMS |
| CHK BY: | DCB |
| DATE: | 8/2005 |
| REVISED: | N/A |
| SCALE: | 1" = 50' |

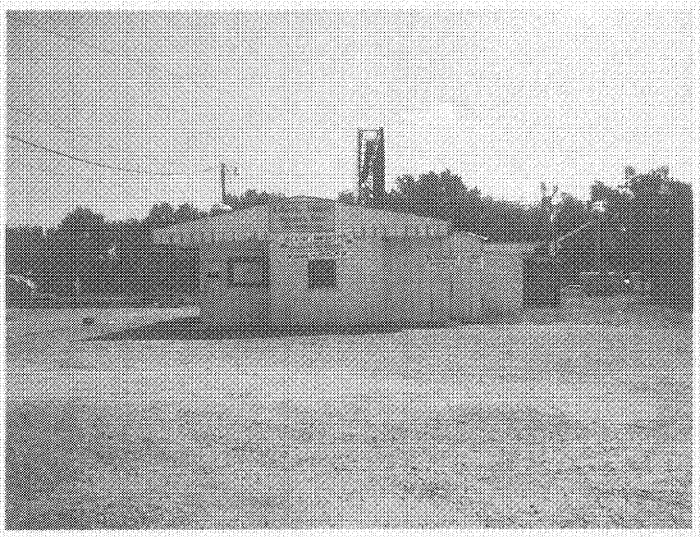
# SITE MAP

Parcel 4
Ansel J. Rakestraw Property
(Liberty Street Sports Bar)
2847 North Liberty Street
Winston-Salem, North Carolina

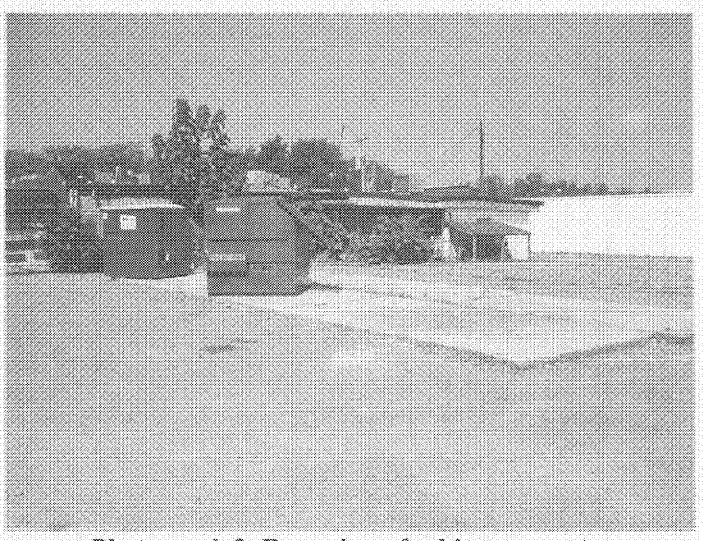
ENVIRONMENTAL INVESTIGATIONS, INC

# APPENDIX A

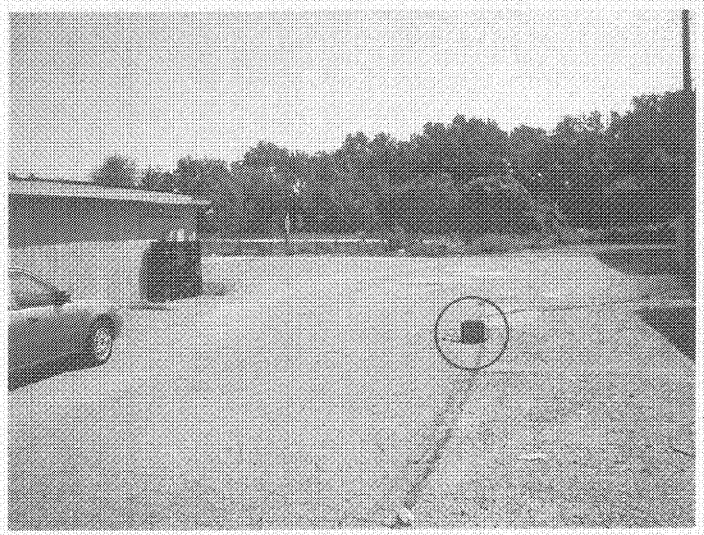
# SITE PHOTOGRAPHS



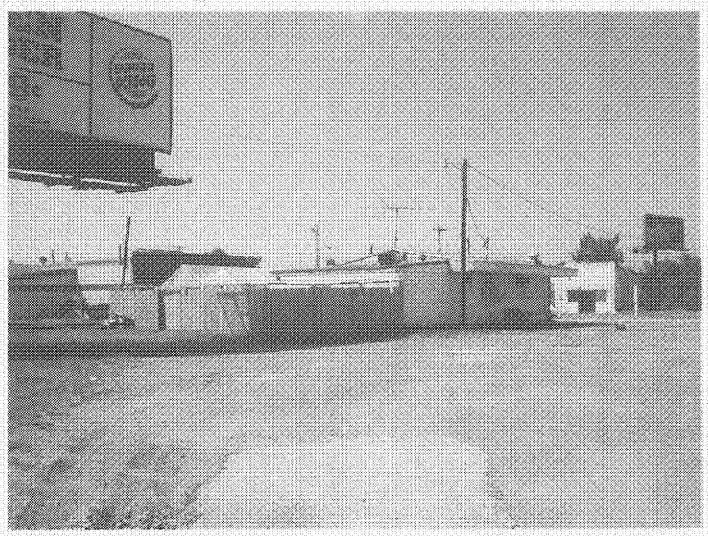
**Photograph 1: View of Subject property.**



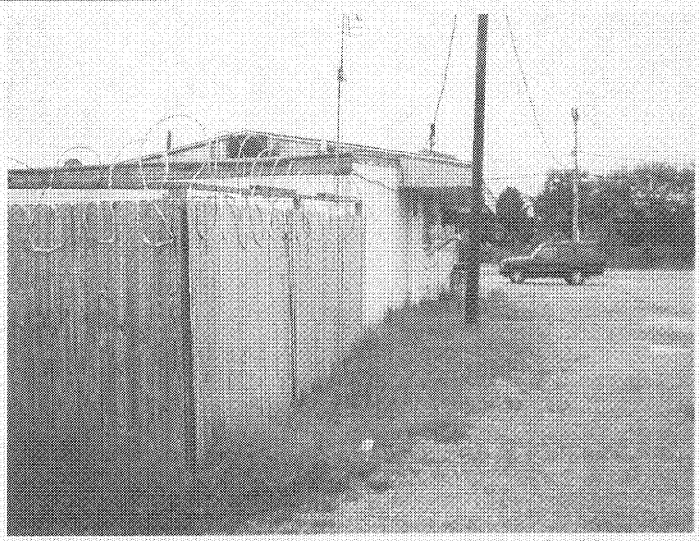
**Photograph 2: Rear view of subject property.**



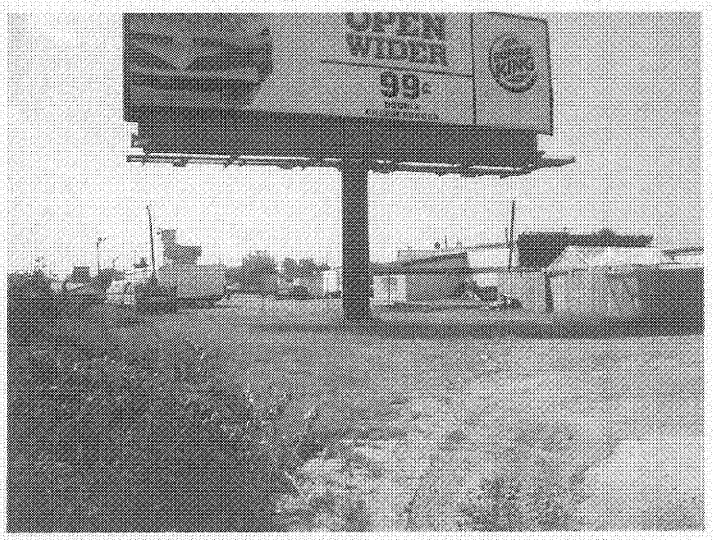
**Photograph 3: A temporary well (piezometer) was installed on the property border between Parcel 4 and Parcel 5.**



**Photograph 4: Looking at subject parcel from Parcel 5 (south from subject parcel).**



**Photograph 5: View of subject parcel building, looking west.**




**Photograph 6: Rear of parcel looking southwest.**

# APPENDIX B

# GEOPHYSICAL REPORT

Schnabel Engineering South

11-A Oak Branch Drive
Greensboro, NC 27407

Phone (336) 274-9456
Fax (336) 274-9486
www.schnabel-eng.com

September 19, 2005

Mr. Darren Lockhart
EI, Inc.
2101 Gateway Centre Boulevard, Suite 200
Morrisville, NC 27560

Via email (pdf)

RE: WBS Element 34871.1.1, TIP U-2826A, Forsyth County
Replacement of Bridges 256 and 257 on US 52
Parcels 2, 3, 4, 5, and 6

SUBJECT: Report on Geophysical Surveys for Locating Possible UST's on 5 Parcels
Schnabel Engineering Project No. 05211014.01-01

Dear Mr. Lockhart:

This letter contains our report on the geophysical surveys we conducted on the subject properties. We understand this letter report will be included as an appendix in your report to the NCDOT. The report includes 6 color figures.

## 1.0 INTRODUCTION

The work described in this report was conducted by Schnabel Engineering under our contract with the NCDOT. The work was conducted at the locations indicated by EI to support their environmental assessment of the subject parcels. The purpose of the geophysical surveys was to locate possible metal underground storage tanks (UST's) and associated product lines in the accessible areas of the sites.

Schnabel Engineering conducted geophysical surveys on August 10-13, 17, 19, 20, and 26, 2005, in the accessible areas of Parcels 2 and 3 (Dick Kelly), Parcel 4 (Sports Bar), Parcel 5 (Butcher Shop) and Parcel 6 (Vacant). Photographs of these parcels are included on Figure 1.

The geophysical investigation consisted of electromagnetic (EM) induction surveys using a Geonics EM61-MK2 instrument. The EM61 metal detector is used to locate metal objects buried up to about eight feet below ground surface. Ground-penetrating radar (GPR) investigations of selected EM61 anomalies were conducted using a Geophysical Survey Systems SIR-2000 system equipped with a 400 MHz antenna.

## 2.0 FIELD METHODOLOGY

### 2.1 Location Control

Locations of geophysical data points were obtained using a sub-meter Trimble Pro-XRS DGPS system on Parcels 4, 5, and 6. An X-Y survey grid was set up on Parcels 2 and 3. References to direction and location in this report for Parcels 2 and 3 are based on this local site grid. References to direction and location in this report for Parcels 4, 5, and 6 are based on the US State Plane System, North Carolina Zone 3200, using the NAD 83 datum, with units in feet. The locations of existing site features (building, curbs, signs, etc.) were recorded for later correlation with the geophysical data and for location references to the NCDOT drawings.

### 2.2 Data Collection

The EM61 data were collected along parallel survey lines spaced approximately 2.5 feet apart. The EM61 and DGPS data were recorded digitally using a field computer and later transferred to a desktop computer for data processing. The GPR data were collected along survey lines spaced one to two feet apart in orthogonal directions over areas of reinforced concrete and over anomalous EM readings not attributed to cultural features. The GPR data were reviewed in the field to evaluate the

possible presence of UST's. The GPR data also were recorded digitally and later transferred to a desktop computer for further review.

Preliminary results were mailed overnight to EI on August 30, 2005.

## 3.0 DISCUSSION OF RESULTS

The contoured EM61 data are shown on Figures 2 through 6. The EM61 early time gate results are plotted on Figures 2 and 4. The early time gate data provide the most sensitive detection of metal object targets, regardless of size. Figures 3 and 5 show the difference between the response of the top and bottom coils of the EM61 instrument (differential response). The difference is taken to remove the effect of surface and very shallowly buried metallic objects. Typically, the differential response emphasizes anomalies from deeper and larger objects such as UST's. The EM61 early time gate and differential results are also shown at a scale of 1 inch = 100 feet on Figure65.

### 3.1 Parcels 2 and 3

Parcels 2 and 3 are located at the northeast corner of the intersection of North Liberty Street and Indiana Avenue in Winston-Salem, NC. The combined site contains Dick Kelly's Trucks business. The EM61 results for Parcels 2 and 3 are shown on Figure 2 (early time gate) and Figure 3 (differential). The areas occupied by buildings, trailers, or other obstructions could not be surveyed. The early time gate results indicate several linear anomalies probably caused by buried utilities, anomalies caused by known above-ground metal features, and several smaller anomalies probably caused by relatively small, insignificant buried metal objects (Figure 2). Most of the observed anomalies not attributed to known cultural features are removed in the differential data set (Figure 3). GPR surveys were conducted in six areas to investigate significant EM61 differential anomalies not attributed to known cultural features. The GPR data indicated the presence of several buried utilities, reinforced concrete, and buried metal. The GPR data did not indicate the presence of UST's in the areas surveyed.

### 3.2 Parcels 4, 5, and 6

Parcels 4, 5, and 6 are located immediately north of Parcels 2 and 3, along North Liberty Street in Winston-Salem, NC. Parcel 4 is currently occupied by a sports bar, Parcel 5 is currently occupied by a butcher shop, and Parcel 6 contains a vacant building. The EM61 results for Parcels 4, 5, and 6 are shown on Figure 4 (early time gate) and Figure 5 (differential). The areas occupied by buildings could not be surveyed. The early time gate results show a number of small, isolated anomalies probably caused by relatively small, insignificant buried metal objects, several linear anomalies apparently caused by buried utilities, and a number of anomalies caused by known site features (Figure 4). Most of the observed anomalies not attributed to known cultural features are removed in the differential data set (Figure 5). GPR surveys were conducted in five areas to investigate significant EM61 differential anomalies not attributed to known cultural features. The GPR data indicated the presence of buried metal and reinforced concrete. The GPR data did not indicate the presence of UST's in the areas surveyed. Two possible vent pipes were observed behind the building on Parcel 6; however, the GPR data did not indicate the presence of UST's at these locations.

## 4.0 CONCLUSIONS

Our evaluation of the geophysical data collected on Parcels 2 through 6 on Project U-2826A in Winston-Salem, NC indicate the following:

- The geophysical data indicate the presence of several buried utilities, buried metal objects, and reinforced concrete in the areas surveyed.

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

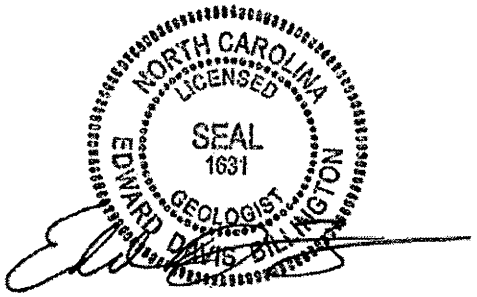
## 5.0 LIMITATIONS

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

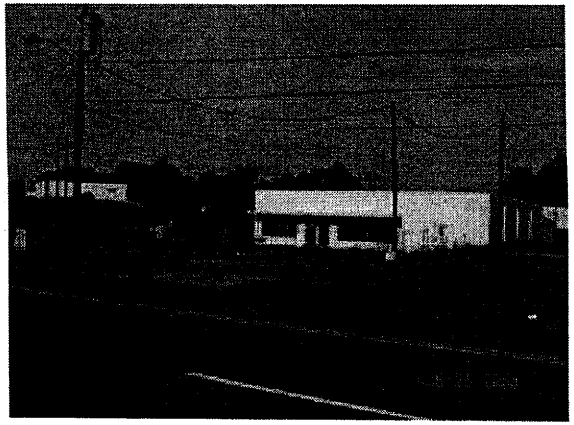
Thank you for the opportunity to serve you on this project. Please call if you need additional information or have any questions.

Sincerely,

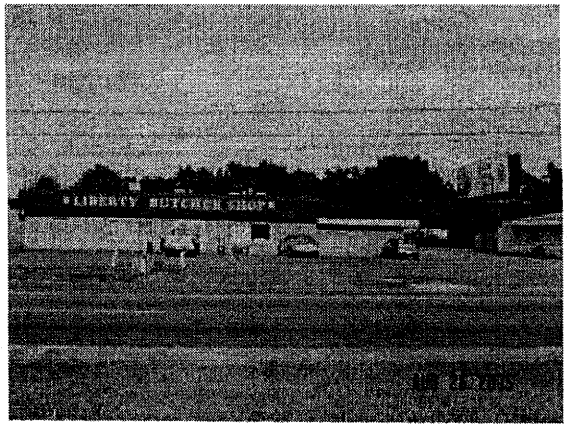
Edward (Ned) D. Billington, P.G.
Project Manager



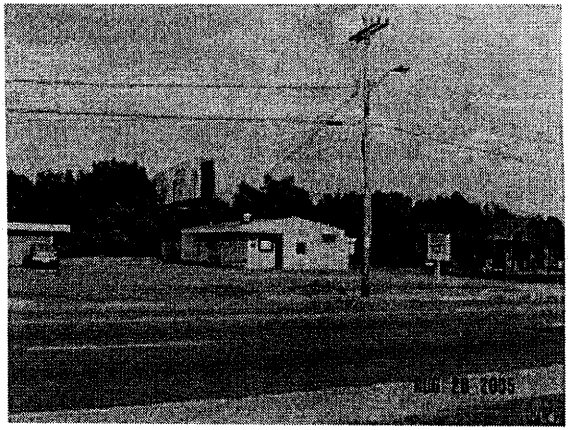

JS/NB
Attachment: Figures (6)
FILE: G:\PROJECTS\03211019 (NCDOT GEOPHYSICS 2003)\CORRESPONDENCE\CROUCH H&H LTR 2A - REPORT ON TASK 16 (I-2304AA, ROWAN) WITH FIGS.DOC



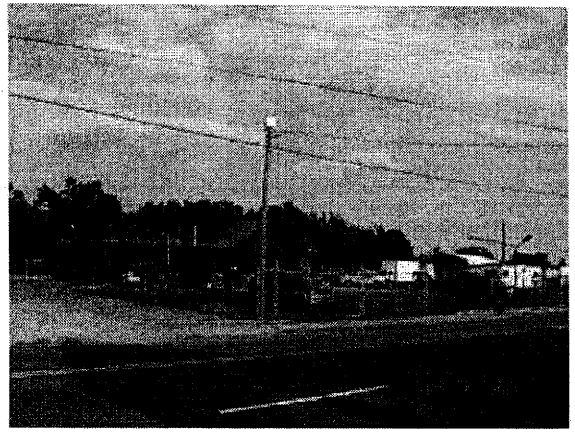
Parcel 6 - Vacant, looking northeast



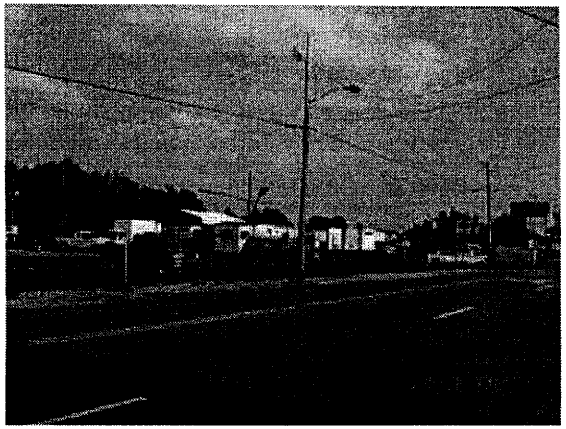

Parcel 5 - Liberty Butcher Shop, looking east



Parcel 4 - Liberty Street Sports Bar, looking southeast



Parcel 4 - Dick Kelly's Trucks, looking southeast

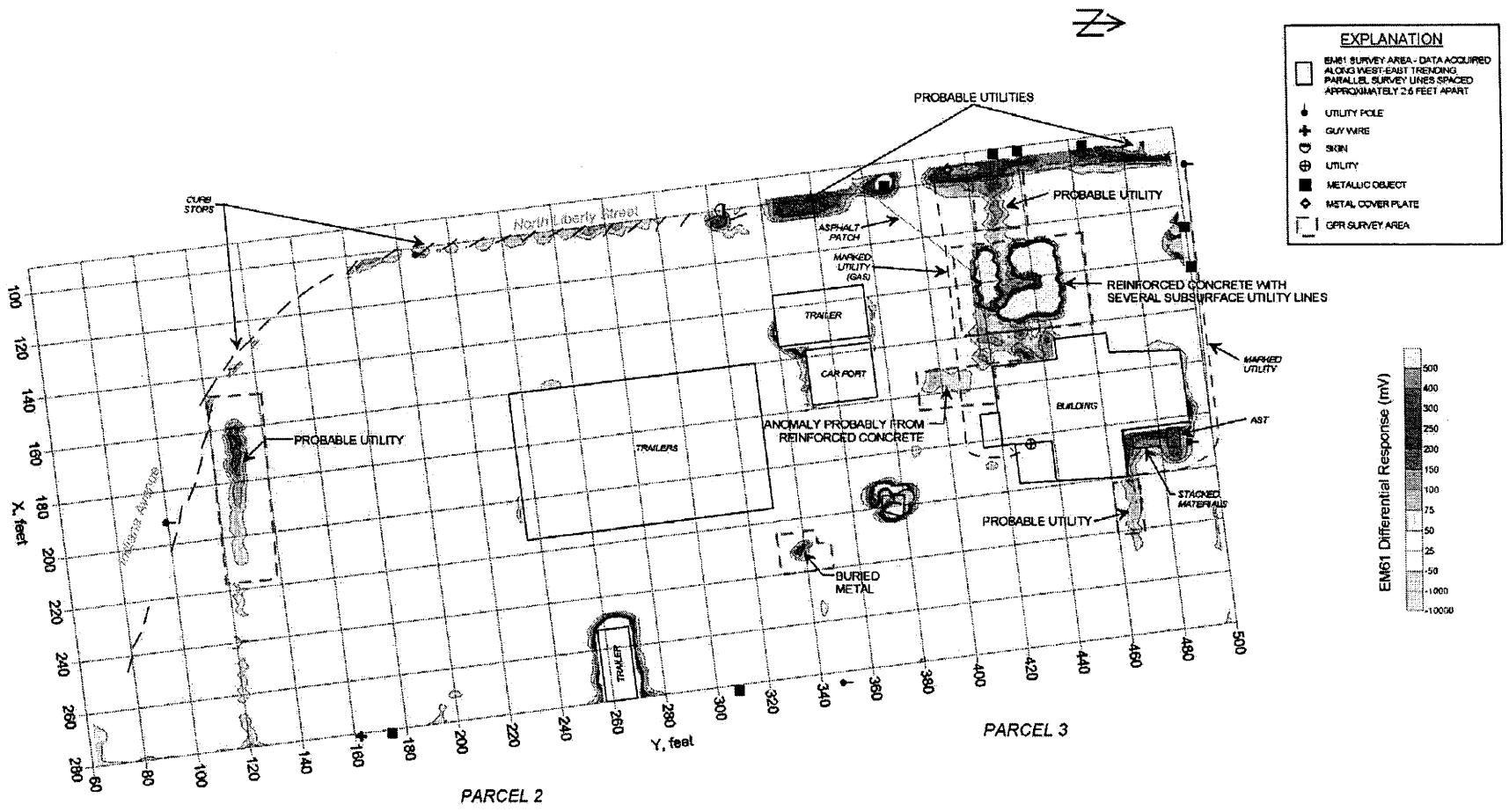


Parcel 4 - parking for Dick Kelly's Trucks, looking southeast

| | | |
|---|---|---|
| Schnabel Engineering | NC Department of Transportation<br>Geotechnical Engineering Unit<br>WBS Element 34671.1.1, TIP U-2826A<br>Forsyth County | **SITE PHOTOS**<br>FIGURE 1 |

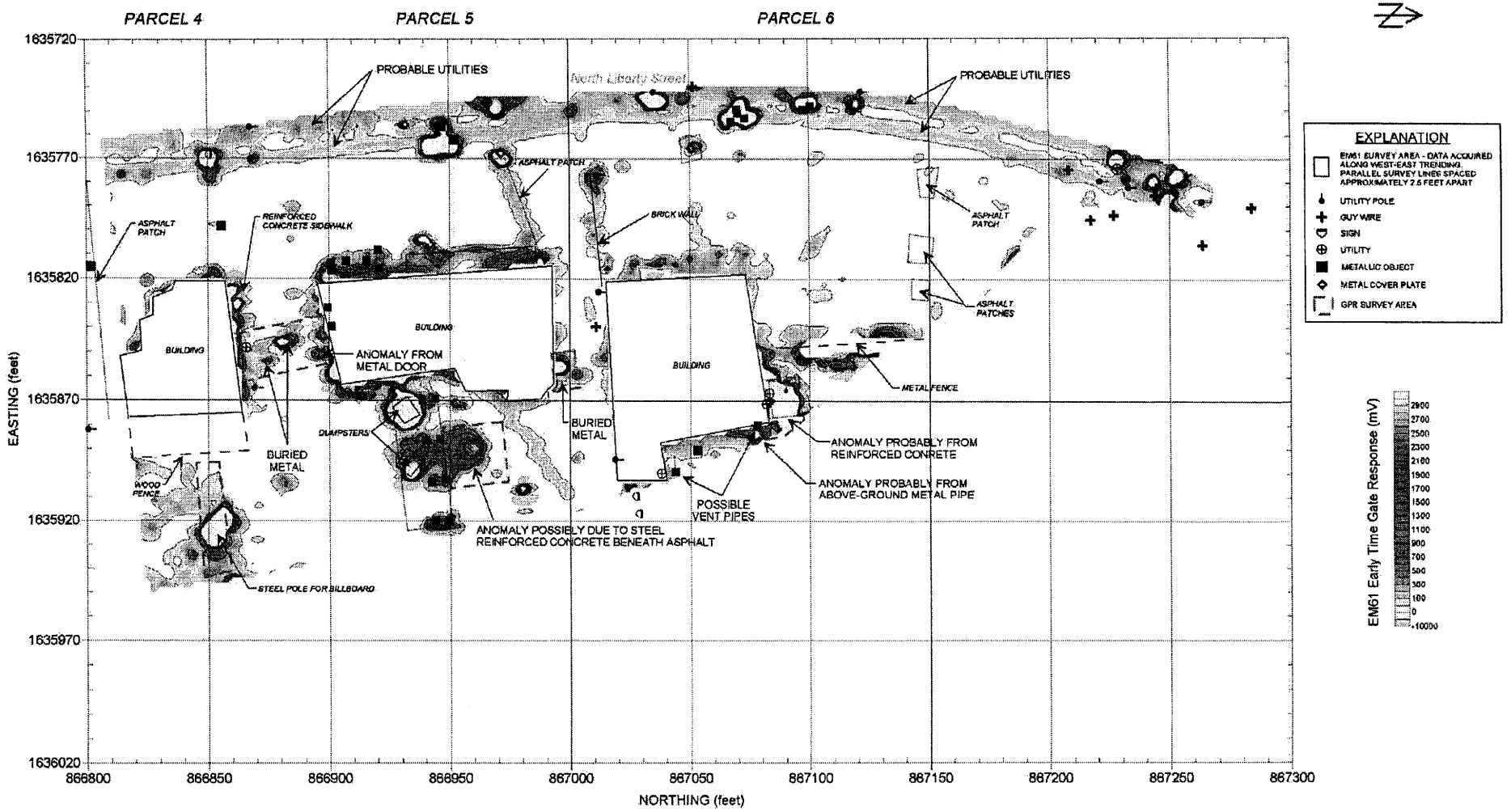

Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on August 10 through 13, 2005, using a Geonics EM61-MK2 instrument. GPR data were acquired on August 17, 19, 20, and 26, 2005, using a Geophysical Survey Systems SIR 2000 instrument equipped with a 400 MHz antenna. Positioning for EM61 survey was provided using local site grid, as shown. Site features located using a submeter Trimble ProXRS DGPS system.

| | | |
|---|---|---|
| Schnabel Engineering | NC Department of Transportation<br>Geotechnical Engineering Unit | PARCELS 2 AND 3<br>EM61 EARLY<br>TIME GATE RESPONSE |
| | WBS Element 34871 1.1, TIP U-2826A<br>Forsyth County | FIGURE 2 |




Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as pipes and tanks. The EM data were collected on August 10-13, 2005, using a Geonics EM61-MK2 instrument. GPR data were acquired on August 17, 19, 20, and 26, 2005, using a Geophysical Survey Systems SIR 2000 equipped with a 400 MHz antenna. Positioning for the EM61 survey was provided using local site grid, as shown. Site features located using a submeter Trimble ProXRS DGPS system.

| | | |
|---|---|---|
| Schnabel Engineering | NC Department of Transportation<br>Geotechnical Engineering Unit | PARCELS 2 AND 3<br>EM61 DIFFERENTIAL RESPONSE |
| | WBS Element 34871.1.1, TIP U-2826A<br>Forsyth County | FIGURE 3 |




Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on August 10 through 13, 2005, using a Geonics EM61-MK2 instrument. GPR data were acquired on August 17, 19, 20, and 26, 2005, using a Geophysical Survey Systems SIR 2000 instrument equipped with a 400 MHz antenna. Positioning for EM61 survey provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the UTM System, Zone 17 North, using the WGS 1984 datum.

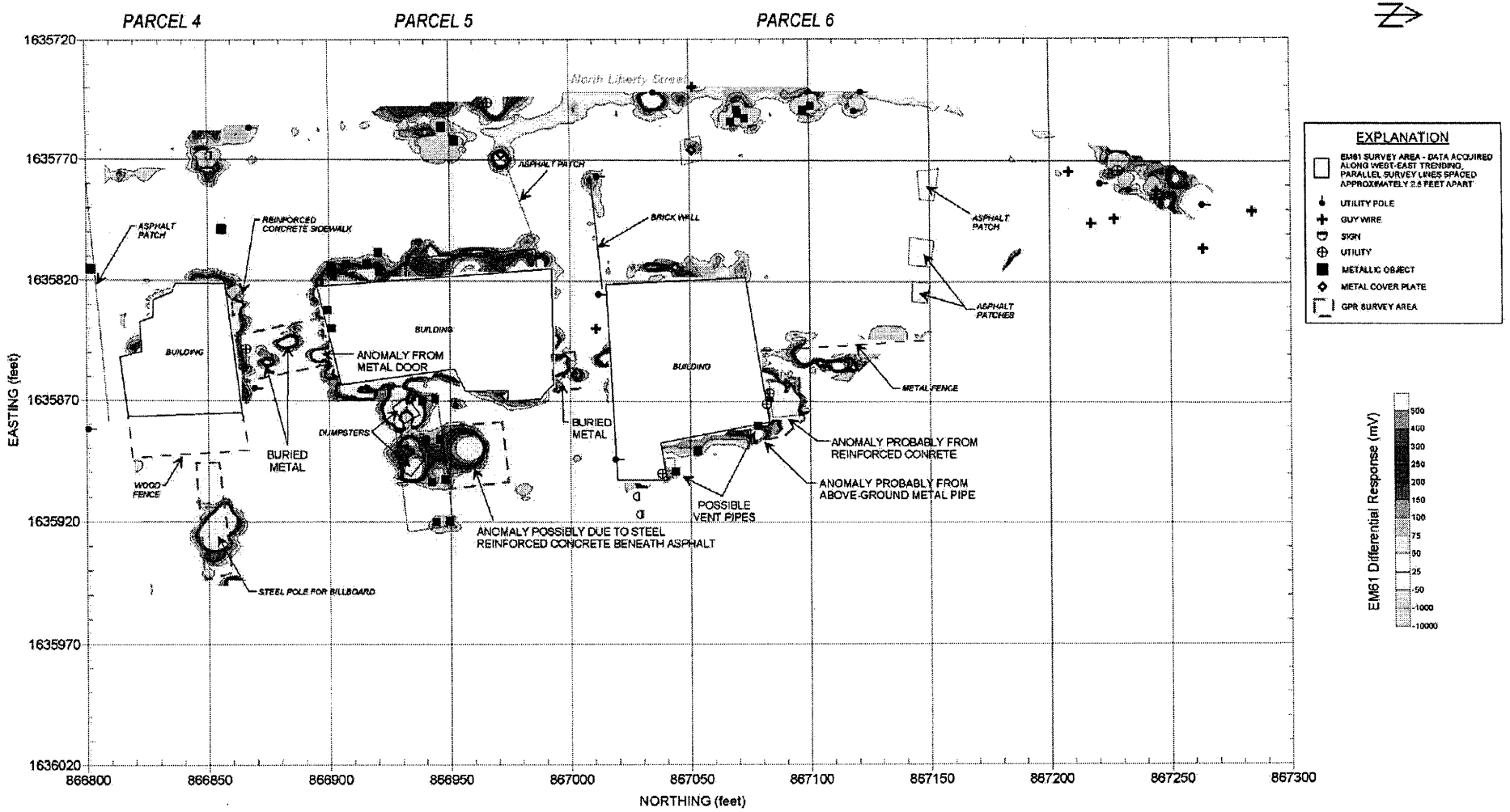
Schnabel Engineering

NC Department of Transportation
Geotechnical Engineering Unit

WBS Element 34871.1.1, TIP U-2826A
Forsyth County

PARCELS 4, 5 AND 6
EM61 EARLY
TIME GATE RESPONSE

FIGURE 4




Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as pipes and tanks. The EM data were collected on August 10-13, 2005, using a Geonics EM61-MK2 instrument. GPR data were acquired on August 17, 19, 20, and 26, 2005, using a Geophysical Survey Systems SIR 2000 equipped with a 400 MHz antenna. Positioning for the EM61 survey provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane System, North Carolina 3200 Zone, using the NAD 1983 datum.

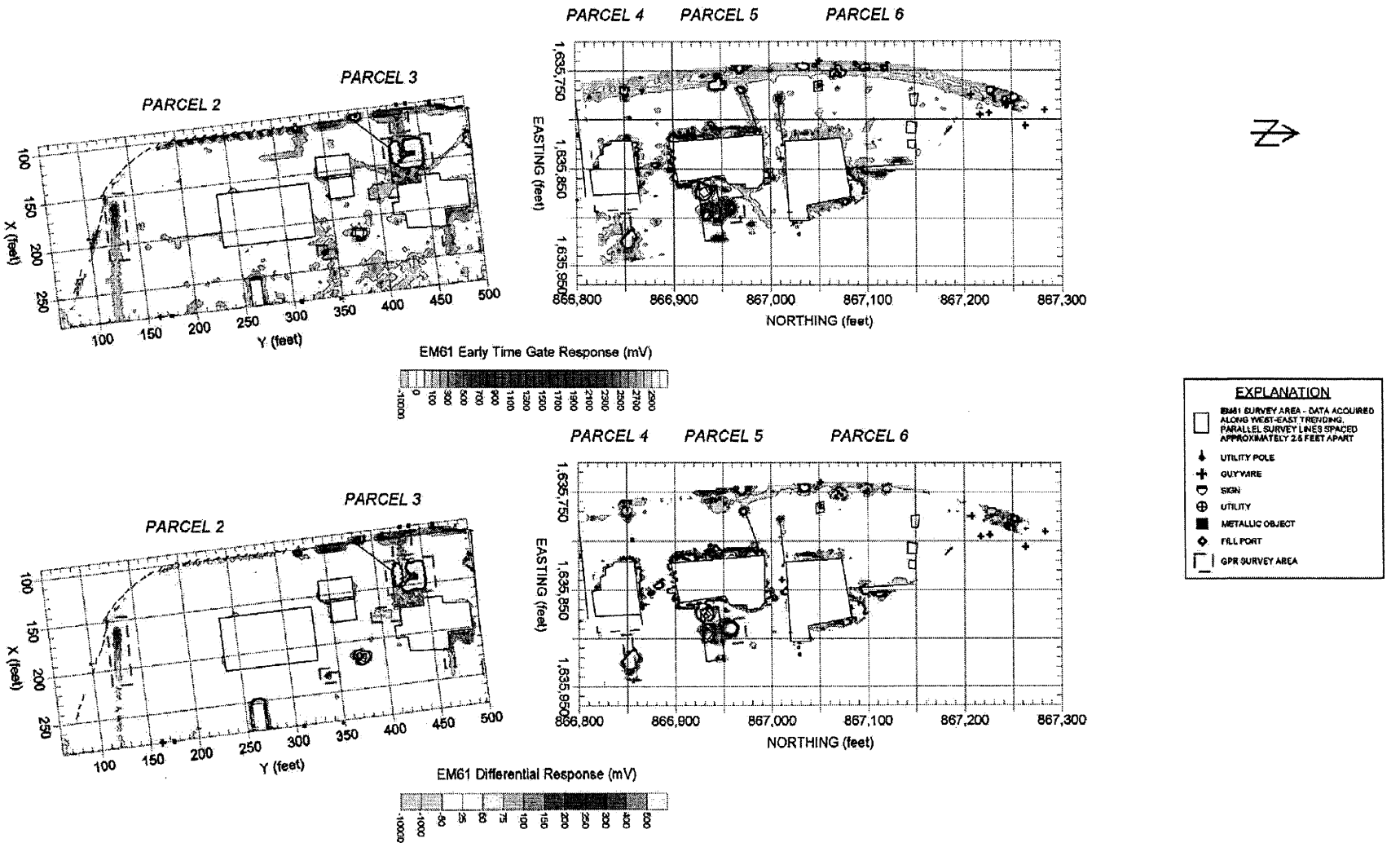
Schnabel Engineering

NC Department of Transportation
Geotechnical Engineering Unit

WBS Element 34871.1.1.1, TIP U-2826A
Forsyth County

PARCELS 4, 5 AND 6
EM61 DIFFERENTIAL RESPONSE

FIGURE 5




| | | |
|---|---|---|
| Schnabel Engineering | NC Department of Transportation<br>Geotechnical Engineering Unit | PARCELS 2, 3, 4, 5, AND 6<br>EM61 RESPONSE<br>1 INCH = 100 FEET |
| | WBS Element 34871.1.1, TIP U-2826A<br>Forsyth County | FIGURE 6 |

# APPENDIX C

# SOIL BORING LOGS

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-544-7500

# SOIL BORING LOG

Boring No. GP-1
Date Drilled: 08/11/05

| | | | |
|---|---|---|---|
| Client: | NCDOT | Logged By: | RMS |
| Project Name: | Parcel #004 - Ansel J. Rakestraw Property | Drilling Company: | SEI |
| Project/Site Location: | 2847 North Liberty Street, Winston-Salem, NC | Drill Device: | GeoProbe® 5400 |
| Project Number: | ENMO050015.00 | Drill Method: | DPT |

Total Boring Depth: 20.0' | Weather Conditions: Very Hot | Surface Elevation:
Boring Diameter: 4.0" | Boring Location: Adjacent to Northeast buidling corner

| Depth (Feet) | Depth (Meters) | Time | Sample Analyzed | Recovery | Soil Profile | Lithological Description | Sample PID (ppm) |
|---|---|---|---|---|---|---|---|
| 2.00 | 0.61 | | | 100% | (ML) | Reddish brown, sand SILT (ML), dry. | 0.0 |
| 4.00 | 1.22 | | | | | | |
| 6.00 | 1.83 | | | 100% | (SM) | Tan, orange Sand (SM), with trace silt and clay, micaeous, dry. | 0.0 |
| 8.00 | 2.44 | | | | | | |
| 10.00 | 3.05 | | | 100% | | | 0.0 |
| 12.00 | 3.66 | | | | | | |
| 14.00 | 4.27 | | | | | | |
| 16.00 | 4.88 | | | 100% | | | 0.0 |
| 18.00 | 5.49 | x | | | | | |
| 20.00 | 6.10 | | | | | | |
| | | | | | | Boring terminated at 20.0' bls. X denotes interval collected for laboratory testing. | |

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-544-7500

# SOIL BORING LOG

Boring No. GP-2
Date Drilled: 08/11/05

| | | | |
|---|---|---|---|
| Client: | NCDOT | Logged By: | RMS |
| Project Name: | Parcel #004 - Ansel J. Rakestraw Property | Drilling Company: | SEI |
| Project/Site Location: | 2847 North Liberty Street, Winston-Salem, NC | Drill Device: | GeoProbe® 5400 |
| Project Number: | ENMO050015.00 | Drill Method: | DPT |

Total Boring Depth: 20.0' Weather Conditions: Very Hot Surface Elevation:
Boring Diameter: 4.0" Boring Location: Drainage at east property line

| Depth (Feet) | Depth (Meters) | Time | Sample Analyzed | Recovery | Soil Profile | Lithological Description | Sample PID (ppm) |
|---|---|---|---|---|---|---|---|
| 2.00 | 0.61 | | | 100% | (ML) | Reddish brown, sand SILT (ML), dry. | 0.0 |
| 4.00 | 1.22 | | | | | | |
| 6.00 | 1.83 | | | 100% | (SM) | Tan, orange Sand (SM), with trace silt and clay, micaeous, dry. | 0.0 |
| 8.00 | 2.44 | | | | | | |
| 10.00 | 3.05 | | | | | | |
| 12.00 | 3.66 | | | 100% | | | 0.0 |
| 14.00 | 4.27 | | | | | | |
| 16.00 | 4.88 | | | | | | |
| 18.00 | 5.49 | x | | 100% | | | 0.0 |
| 20.00 | 6.10 | | | | | | |
| | | | | | | Boring terminated at 20.0' bls. X denotes interval collected for laboratory testing. | |

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-544-7500

# SOIL BORING LOG

Boring No. GP-3
Date Drilled: 08/11/05

| | | | |
|---|---|---|---|
| Client: | NCDOT | Logged By: | RMS |
| Project Name: | Parcel #004 - Ansel J. Rakestraw Property | Drilling Company: | SEI |
| Project/Site Location: | 2847 North Liberty Street, Winston-Salem, NC | Drill Device: | GeoProbe® 5400 |
| Project Number: | ENMO050015.00 | Drill Method: | DPT |

Total Boring Depth: 20.0' | Weather Conditions: Very Hot | Surface Elevation:
Boring Diameter: 4.0" | Boring Location: Drainage at west property line

| Depth (Feet) | Depth (Meters) | Time | Sample Analyzed | Recovery | Soil Profile | Lithological Description | Sample PID (ppm) |
|---|---|---|---|---|---|---|---|
| 2.00 | 0.61 | | | 100% | (ML) | Reddish brown, sand SILT (ML), dry. | 0.0 |
| 4.00 | 1.22 | | | | | | |
| 6.00 | 1.83 | | | 100% | (SM) | Tan, orange Sand (SM), with trace silt and clay, micaeous, dry. | 0.0 |
| 8.00 | 2.44 | | | | | | |
| 10.00 | 3.05 | | | 100% | | | 0.0 |
| 12.00 | 3.66 | | | | | | |
| 14.00 | 4.27 | | | | | | |
| 16.00 | 4.88 | | | 100% | | | 0.0 |
| 18.00 | 5.49 | x | | | | | |
| 20.00 | 6.10 | | | | | | |
| | | | | | | Boring terminated at 20.0' bls. X denotes interval collected for laboratory testing. | |

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-544-7500

# SOIL BORING LOG

Boring No. GP-4
Date Drilled: 08/11/05

| | | | |
|---|---|---|---|
| Client: | NCDOT | Logged By: | RMS |
| Project Name: | Parcel #004 - Ansel J. Rakestraw Property | Drilling Company: | SEI |
| Project/Site Location: | 2847 North Liberty Street, Winston-Salem, NC | Drill Device: | GeoProbe® 5400 |
| Project Number: | ENMO050015.00 | Drill Method: | DPT |

Total Boring Depth: 20.0' | Weather Conditions: Very Hot | Surface Elevation:
Boring Diameter: 4.0" | Boring Location: Adjacent to southwestern building corner

| Depth (Feet) | Depth (Meters) | Time | Sample Analyzed | Recovery | Soil Profile | Lithological Description | Sample PID (ppm) |
|---|---|---|---|---|---|---|---|
| 2.00 | 0.61 | | | 100% | (ML) | Reddish brown, sand SILT (ML), dry. | 0.0 |
| 4.00 | 1.22 | | | | | | |
| 6.00 | 1.83 | | | 100% | (SM) | Tan, orange Sand (SM), with trace silt and clay, micaeous, dry. | 0.0 |
| 8.00 | 2.44 | | | | | | |
| 10.00 | 3.05 | | | 100% | | | 0.0 |
| 12.00 | 3.66 | | | | | | |
| 14.00 | 4.27 | | | | | | |
| 16.00 | 4.88 | | | 100% | | | 0.0 |
| 18.00 | 5.49 | x | | | | | |
| 20.00 | 6.10 | | | | | | |
| | | | | | | Boring terminated at 20.0' bls. X denotes interval collected for laboratory testing. | |

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-544-7500

# SOIL BORING LOG

Boring No. GP-5
Date Drilled: 08/11/05

| | | | |
|---|---|---|---|
| Client: | NCDOT | Logged By: | RMS |
| Project Name: | Parcel #004 - Ansel J. Rakestraw Property | Drilling Company: | SEI |
| Project/Site Location: | 2847 North Liberty Street, Winston-Salem, NC | Drill Device: | GeoProbe® 5400 |
| Project Number: | ENMO050015.00 | Drill Method: | DPT |

Total Boring Depth: 20.0' | Weather Conditions: Very Hot | Surface Elevation:
Boring Diameter: 4.0" | Boring Location: Southwest of Building adjacent to ROW

| Depth (Feet) | Depth (Meters) | Time | Sample Analyzed | Recovery | Soil Profile | Lithological Description | Sample PID (ppm) |
|---|---|---|---|---|---|---|---|
| 2.00 | 0.61 | | | 100% | (SM) | Tan, orange Sand (SM), with trace silt and clay, micaeous, dry. | 0.0 |
| 4.00 | 1.22 | | | | | | |
| 6.00 | 1.83 | | | 100% | | Tan, orange to brown sandy SILT (ML), micaeous, dry. | 0.0 |
| 8.00 | 2.44 | | | | | | |
| 10.00 | 3.05 | | | | | | |
| 12.00 | 3.66 | | | 100% | (ML) | | 0.0 |
| 14.00 | 4.27 | | | | | | |
| 16.00 | 4.88 | | | | | | |
| 18.00 | 5.49 | x | | 100% | | | 0.0 |
| 20.00 | 6.10 | | | | | | |
| | | | | | | Boring terminated at 20.0' bls. X denotes interval collected for laboratory testing. | |

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-544-7500

# SOIL BORING LOG

Boring No. **GP-6**
Date Drilled: **08/11/05**

| | | | |
|---|---|---|---|
| Client: | NCDOT | Logged By: | RMS |
| Project Name: | Parcel #004 - Ansel J. Rakestraw Property | Drilling Company: | SEI |
| Project/Site Location: | 2847 North Liberty Street, Winston-Salem, NC | Drill Device: | GeoProbe® 5400 |
| Project Number: | ENMO050015.00 | Drill Method: | DPT |

Total Boring Depth: 20.0' | Weather Conditions: Very Hot | Surface Elevation:
Boring Diameter: 4.0" | Boring Location: Northwest of Building adjacent to ROW

| Depth (Feet) | Depth (Meters) | Time | Sample Analyzed | Recovery | Soil Profile | Lithological Description | Sample PID (ppm) |
|---|---|---|---|---|---|---|---|
| 2.00 | 0.61 | | | 100% | (SM) | Tan, orange Sand (SM), with trace silt and clay, micaeous, dry. | 0.0 |
| 4.00 | 1.22 | | | | | | |
| 6.00 | 1.83 | | | 100% | | Tan, orange to brown sandy SILT (ML), micaeous, dry. | 0.0 |
| 8.00 | 2.44 | | | | | | |
| 10.00 | 3.05 | | | | | | |
| 12.00 | 3.66 | | | 100% | (ML) | | 0.0 |
| 14.00 | 4.27 | | | | | | |
| 16.00 | 4.88 | | | | | | |
| 18.00 | 5.49 | x | | 100% | | | 0.0 |
| 20.00 | 6.10 | | | | | | |
| | | | | | | Boring terminated at 20.0' bls. X denotes interval collected for laboratory testing. | |

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-544-7500

# SOIL BORING LOG

Boring No. GP-7
Date Drilled: 08/11/05

| | | | |
|---|---|---|---|
| Client: | NCDOT | Logged By: | RMS |
| Project Name: | Parcel #004 & #005 | Drilling Company: | SEI |
| Project/Site Location: | 2847 & 2849 North Liberty Street, Winston-Salem, NC | Drill Device: | GeoProbe® 5400 |
| Project Number: | ENMO050015.00 | Drill Method: | DPT |

Total Boring Depth: 35.0' | Weather Conditions: Very Hot | Surface Elevation:
Boring Diameter: 4.0" | Boring Location: Southeast of former UST pit

| Depth (Feet) | Depth (Meters) | Time | Sample Analyzed | Recovery | Soil Profile | Lithological Description | Sample PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | 100% | | Reddish brown, silty CLAY (CL), dry. | 0.0 |
| | | | | 100% | (ML) | Gold, tan fine to medium SILT (ML), with trace or some find sand, dry, micaeous. | 0.0 |
| 10.00 | 3.05 | | | | | | |
| | | | | 100% | | | 0.0 |
| 20.00 | 6.10 | | x | | | | |
| | | | | 100% | | | 0.0 |
| | | | | 100% | | | |
| 30.00 | 9.15 | | | | (SAP) | (SAPROLITE) desribed as gold, tan, light brown sandy silty | 0.0 |
| | | | | 100% | | | |
| | | | | | | Boring terminated at 35.0' bls, Probe Refusal.<br>x denotes interval collected for laboratory testing.<br>Boring converted into a temporary well (1" piezometer). | |

# APPENDIX D

# LABORATORY ANALYTICAL REPORT

**PARADIGM ANALYTICAL LABORATORIES, INC.**
5500 Business Drive
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Darren Lockhart
Environmental Investigations
2101 Gateway Centre Boulevard
Suite 200
Morrisville NC 27560
Report Number: G106-537

Client Project: Parcel 4 Tip#U-2826A

Dear Mr. Lockhart:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

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

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
Paradigm Analytical Laboratories, Inc.

Laboratory Director — Date: 8/30/2005
J. Patrick Weaver

**Results for Volatiles**
**by GCMS 8260-5035**

Client Sample ID: P4GP2-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID G106-537-2A
Lab Project ID: G106-537
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 08-11-2005 10:15
Date Received: 8/13/05
Matrix: Soil
%Solids: 75.5

| Report Name<br>Compound | Result<br>UG/KG | Quantitation<br>Limit UG/KG | Dilution<br>Factor | Date<br>Analyzed |
|---|---|---|---|---|
| Acetone | BQL | 61.2 | 1 | 8/17/05 |
| Benzene | BQL | 6.12 | 1 | 8/17/05 |
| Bromobenzene | BQL | 6.12 | 1 | 8/17/05 |
| Bromochloromethane | BQL | 6.12 | 1 | 8/17/05 |
| Bromodichloromethane | BQL | 6.12 | 1 | 8/17/05 |
| Bromoform | BQL | 6.12 | 1 | 8/17/05 |
| Bromomethane | BQL | 6.12 | 1 | 8/17/05 |
| 2-Butanone | BQL | 30.6 | 1 | 8/17/05 |
| n-Butylbenzene | BQL | 6.12 | 1 | 8/17/05 |
| sec-Butylbenzene | BQL | 6.12 | 1 | 8/17/05 |
| tert-Butylbenzene | BQL | 6.12 | 1 | 8/17/05 |
| Carbon disulfide | BQL | 6.12 | 1 | 8/17/05 |
| Carbon tetrachloride | BQL | 6.12 | 1 | 8/17/05 |
| Chlorobenzene | BQL | 6.12 | 1 | 8/17/05 |
| Chloroethane | BQL | 6.12 | 1 | 8/17/05 |
| Chloroform | BQL | 6.12 | 1 | 8/17/05 |
| Chloromethane | BQL | 6.12 | 1 | 8/17/05 |
| 2-Chlorotoluene | BQL | 6.12 | 1 | 8/17/05 |
| 4-Chlorotoluene | BQL | 6.12 | 1 | 8/17/05 |
| Dibromochloromethane | BQL | 6.12 | 1 | 8/17/05 |
| 1,2-Dibromo-3-chloropropane | BQL | 6.12 | 1 | 8/17/05 |
| Dibromomethane | BQL | 6.12 | 1 | 8/17/05 |
| 1,2-Dibromoethane (EDB) | BQL | 6.12 | 1 | 8/17/05 |
| 1,2-Dichlorobenzene | BQL | 6.12 | 1 | 8/17/05 |
| 1,3-Dichlorobenzene | BQL | 6.12 | 1 | 8/17/05 |
| 1,4-Dichlorobenzene | BQL | 6.12 | 1 | 8/17/05 |
| trans-1,4-Dichloro-2-butene | BQL | 6.12 | 1 | 8/17/05 |
| 1,1-Dichloroethane | BQL | 6.12 | 1 | 8/17/05 |
| 1,1-Dichloroethene | BQL | 6.12 | 1 | 8/17/05 |
| 1,2-Dichloroethane | BQL | 6.12 | 1 | 8/17/05 |
| cis-1,2-Dichloroethene | BQL | 6.12 | 1 | 8/17/05 |
| trans-1,2-dichloroethene | BQL | 6.12 | 1 | 8/17/05 |
| 1,2-Dichloropropane | BQL | 6.12 | 1 | 8/17/05 |
| 1,3-Dichloropropane | BQL | 6.12 | 1 | 8/17/05 |
| 2,2-Dichloropropane | BQL | 6.12 | 1 | 8/17/05 |
| 1,1-Dichloropropene | BQL | 6.12 | 1 | 8/17/05 |
| cis-1,3-Dichloropropene | BQL | 6.12 | 1 | 8/17/05 |
| trans-1,3-Dichloropropene | BQL | 6.12 | 1 | 8/17/05 |
| Dichlorodifluoromethane | BQL | 6.12 | 1 | 8/17/05 |
| Diisopropyl ether (DIPE) | BQL | 6.12 | 1 | 8/17/05 |
| Ethylbenzene | BQL | 6.12 | 1 | 8/17/05 |
| Hexachlorobutadiene | BQL | 6.12 | 1 | 8/17/05 |

**Results for Volatiles**
**by GCMS 8260-5035**

Client Sample ID: P4GP2-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID G106-537-2A
Lab Project ID: G106-537
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 08-11-2005 10:15
Date Received: 8/13/05
Matrix: Soil
%Solids: 75.5

| Report Name<br>Compound | Result<br>UG/KG | Quantitation<br>Limit UG/KG | Dilution<br>Factor | Date<br>Analyzed |
|---|---|---|---|---|
| 2-Hexanone | BQL | 6.12 | 1 | 8/17/05 |
| Iodomethane | BQL | 6.12 | 1 | 8/17/05 |
| Isopropylbenzene | BQL | 6.12 | 1 | 8/17/05 |
| 4-Isopropyltoluene | BQL | 6.12 | 1 | 8/17/05 |
| Methylene chloride | BQL | 24.5 | 1 | 8/17/05 |
| 4-Methyl-2-pentanone | BQL | 6.12 | 1 | 8/17/05 |
| Methyl-tert-butyl ether (MTBE) | BQL | 6.12 | 1 | 8/17/05 |
| Naphthalene | BQL | 6.12 | 1 | 8/17/05 |
| n-Propyl benzene | BQL | 6.12 | 1 | 8/17/05 |
| Styrene | BQL | 6.12 | 1 | 8/17/05 |
| 1,1,1,2-Tetrachloroethane | BQL | 6.12 | 1 | 8/17/05 |
| 1,1,2,2-Tetrachloroethane | BQL | 6.12 | 1 | 8/17/05 |
| Tetrachloroethene | BQL | 6.12 | 1 | 8/17/05 |
| Toluene | BQL | 6.12 | 1 | 8/17/05 |
| 1,2,3-Trichlorobenzene | BQL | 6.12 | 1 | 8/17/05 |
| 1,2,4-Trichlorobenzene | BQL | 6.12 | 1 | 8/17/05 |
| Trichloroethene | BQL | 6.12 | 1 | 8/17/05 |
| 1,1,1-Trichloroethane | BQL | 6.12 | 1 | 8/17/05 |
| 1,1,2-Trichloroethane | BQL | 6.12 | 1 | 8/17/05 |
| Trichlorofluoromethane | BQL | 6.12 | 1 | 8/17/05 |
| 1,2,3-Trichloropropane | BQL | 6.12 | 1 | 8/17/05 |
| 1,2,4-Trimethylbenzene | BQL | 6.12 | 1 | 8/17/05 |
| 1,3,5-Trimethylbenzene | BQL | 6.12 | 1 | 8/17/05 |
| Vinyl chloride | BQL | 6.12 | 1 | 8/17/05 |
| m-,p-Xylene | BQL | 12.2 | 1 | 8/17/05 |
| o-Xylene | BQL | 6.12 | 1 | 8/17/05 |

| | Spike Added | Spike Result | Percent Recovered |
|---|---|---|---|
| 4-Bromofluorobenzene | 50 | 61.6 | 123 |
| 1,2-Dichloroethane-d4 | 50 | 60 | 120 |
| Toluene-d8 | 50 | 53.2 | 106 |

**Comments:**

**Flags:**
BQL = Below Quantitation Limits.

Reviewed By: WM

**Results for Volatiles**
**by GCMS 8260-5035**

Client Sample ID: P4GP3-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID G106-537-3A
Lab Project ID: G106-537
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 08-11-2005 10:30
Date Received: 8/13/05
Matrix: Soil
%Solids: 75.3

| Report Name<br>Compound | Result<br>UG/KG | Quantitation<br>Limit UG/KG | Dilution<br>Factor | Date<br>Analyzed |
|---|---|---|---|---|
| Acetone | BQL | 58.9 | 1 | 8/17/05 |
| Benzene | BQL | 5.89 | 1 | 8/17/05 |
| Bromobenzene | BQL | 5.89 | 1 | 8/17/05 |
| Bromochloromethane | BQL | 5.89 | 1 | 8/17/05 |
| Bromodichloromethane | BQL | 5.89 | 1 | 8/17/05 |
| Bromoform | BQL | 5.89 | 1 | 8/17/05 |
| Bromomethane | BQL | 5.89 | 1 | 8/17/05 |
| 2-Butanone | BQL | 29.4 | 1 | 8/17/05 |
| n-Butylbenzene | BQL | 5.89 | 1 | 8/17/05 |
| sec-Butylbenzene | BQL | 5.89 | 1 | 8/17/05 |
| tert-Butylbenzene | BQL | 5.89 | 1 | 8/17/05 |
| Carbon disulfide | BQL | 5.89 | 1 | 8/17/05 |
| Carbon tetrachloride | BQL | 5.89 | 1 | 8/17/05 |
| Chlorobenzene | BQL | 5.89 | 1 | 8/17/05 |
| Chloroethane | BQL | 5.89 | 1 | 8/17/05 |
| Chloroform | BQL | 5.89 | 1 | 8/17/05 |
| Chloromethane | BQL | 5.89 | 1 | 8/17/05 |
| 2-Chlorotoluene | BQL | 5.89 | 1 | 8/17/05 |
| 4-Chlorotoluene | BQL | 5.89 | 1 | 8/17/05 |
| Dibromochloromethane | BQL | 5.89 | 1 | 8/17/05 |
| 1,2-Dibromo-3-chloropropane | BQL | 5.89 | 1 | 8/17/05 |
| Dibromomethane | BQL | 5.89 | 1 | 8/17/05 |
| 1,2-Dibromoethane (EDB) | BQL | 5.89 | 1 | 8/17/05 |
| 1,2-Dichlorobenzene | BQL | 5.89 | 1 | 8/17/05 |
| 1,3-Dichlorobenzene | BQL | 5.89 | 1 | 8/17/05 |
| 1,4-Dichlorobenzene | BQL | 5.89 | 1 | 8/17/05 |
| trans-1,4-Dichloro-2-butene | BQL | 5.89 | 1 | 8/17/05 |
| 1,1-Dichloroethane | BQL | 5.89 | 1 | 8/17/05 |
| 1,1-Dichloroethene | BQL | 5.89 | 1 | 8/17/05 |
| 1,2-Dichloroethane | BQL | 5.89 | 1 | 8/17/05 |
| cis-1,2-Dichloroethene | BQL | 5.89 | 1 | 8/17/05 |
| trans-1,2-dichloroethene | BQL | 5.89 | 1 | 8/17/05 |
| 1,2-Dichloropropane | BQL | 5.89 | 1 | 8/17/05 |
| 1,3-Dichloropropane | BQL | 5.89 | 1 | 8/17/05 |
| 2,2-Dichloropropane | BQL | 5.89 | 1 | 8/17/05 |
| 1,1-Dichloropropene | BQL | 5.89 | 1 | 8/17/05 |
| cis-1,3-Dichloropropene | BQL | 5.89 | 1 | 8/17/05 |
| trans-1,3-Dichloropropene | BQL | 5.89 | 1 | 8/17/05 |
| Dichlorodifluoromethane | BQL | 5.89 | 1 | 8/17/05 |
| Diisopropyl ether (DIPE) | BQL | 5.89 | 1 | 8/17/05 |
| Ethylbenzene | BQL | 5.89 | 1 | 8/17/05 |
| Hexachlorobutadiene | BQL | 5.89 | 1 | 8/17/05 |

**Results for Volatiles**
**by GCMS 8260-5035**

Client Sample ID: P4GP3-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID G106-537-3A
Lab Project ID: G106-537
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 08-11-2005 10:30
Date Received: 8/13/05
Matrix: Soil
%Solids: 75.3

| Report Name<br>Compound | Result<br>UG/KG | Quantitation<br>Limit UG/KG | Dilution<br>Factor | Date<br>Analyzed |
|---|---|---|---|---|
| 2-Hexanone | BQL | 5.89 | 1 | 8/17/05 |
| Iodomethane | BQL | 5.89 | 1 | 8/17/05 |
| Isopropylbenzene | BQL | 5.89 | 1 | 8/17/05 |
| 4-Isopropyltoluene | BQL | 5.89 | 1 | 8/17/05 |
| Methylene chloride | BQL | 23.6 | 1 | 8/17/05 |
| 4-Methyl-2-pentanone | BQL | 5.89 | 1 | 8/17/05 |
| Methyl-tert-butyl ether (MTBE) | BQL | 5.89 | 1 | 8/17/05 |
| Naphthalene | BQL | 5.89 | 1 | 8/17/05 |
| n-Propyl benzene | BQL | 5.89 | 1 | 8/17/05 |
| Styrene | BQL | 5.89 | 1 | 8/17/05 |
| 1,1,1,2-Tetrachloroethane | BQL | 5.89 | 1 | 8/17/05 |
| 1,1,2,2-Tetrachloroethane | BQL | 5.89 | 1 | 8/17/05 |
| Tetrachloroethene | BQL | 5.89 | 1 | 8/17/05 |
| Toluene | BQL | 5.89 | 1 | 8/17/05 |
| 1,2,3-Trichlorobenzene | BQL | 5.89 | 1 | 8/17/05 |
| 1,2,4-Trichlorobenzene | BQL | 5.89 | 1 | 8/17/05 |
| Trichloroethene | BQL | 5.89 | 1 | 8/17/05 |
| 1,1,1-Trichloroethane | BQL | 5.89 | 1 | 8/17/05 |
| 1,1,2-Trichloroethane | BQL | 5.89 | 1 | 8/17/05 |
| Trichlorofluoromethane | BQL | 5.89 | 1 | 8/17/05 |
| 1,2,3-Trichloropropane | BQL | 5.89 | 1 | 8/17/05 |
| 1,2,4-Trimethylbenzene | BQL | 5.89 | 1 | 8/17/05 |
| 1,3,5-Trimethylbenzene | BQL | 5.89 | 1 | 8/17/05 |
| Vinyl chloride | BQL | 5.89 | 1 | 8/17/05 |
| m-,p-Xylene | BQL | 11.8 | 1 | 8/17/05 |
| o-Xylene | BQL | 5.89 | 1 | 8/17/05 |

| | Spike Added | Spike Result | Percent Recovered |
|---|---|---|---|
| 4-Bromofluorobenzene | 50 | 55.7 | 111 |
| 1,2-Dichloroethane-d4 | 50 | 59.9 | 120 |
| Toluene-d8 | 50 | 53.1 | 106 |

**Comments:**

**Flags:**
BQL = Below Quantitation Limits.

Reviewed By: MA

**Results for Semivolatiles**
**by GCMS 8270**

Client Sample ID: P4GP2-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID: G106-537-2F
Lab Project ID: G106-537
Report Basis: Dry weight

Analyzed By: MRC
Date Collected: 8/11/2005 10:15
Date Received: 8/13/2005
Date Extracted: 1/0/1900
Matrix: Soil
% Solids: 75.49

| Compound | Result ug/Kg | Quantitation Limit ug/Kg | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | BQL | 400 | 1 | 8/23/2005 |
| Acenaphthylene | BQL | 400 | 1 | 8/23/2005 |
| Anthracene | BQL | 400 | 1 | 8/23/2005 |
| Benzo[a]anthracene | BQL | 400 | 1 | 8/23/2005 |
| Benzo[a]pyrene | BQL | 400 | 1 | 8/23/2005 |
| Benzo[b]fluoranthene | BQL | 400 | 1 | 8/23/2005 |
| Benzo[g,h,i]perylene | BQL | 400 | 1 | 8/23/2005 |
| Benzo[k]fluoranthene | BQL | 400 | 1 | 8/23/2005 |
| Benzoic Acid | BQL | 799 | 1 | 8/23/2005 |
| Bis(2-chloroethoxy)methane | BQL | 400 | 1 | 8/23/2005 |
| Bis(2-chloroethyl)ether | BQL | 400 | 1 | 8/23/2005 |
| Bis(2-chloroisopropyl)ether | BQL | 400 | 1 | 8/23/2005 |
| Bis(2-ethylhexyl)phthalate | BQL | 400 | 1 | 8/23/2005 |
| 4-bromophenyl phenyl ether | BQL | 400 | 1 | 8/23/2005 |
| Butylbenzylphthalate | BQL | 400 | 1 | 8/23/2005 |
| 2-Chloronaphthalene | BQL | 400 | 1 | 8/23/2005 |
| 2-Chlorophenol | BQL | 400 | 1 | 8/23/2005 |
| 4-Chloro-3-methylphenol | BQL | 400 | 1 | 8/23/2005 |
| 4-Chloroaniline | BQL | 2000 | 1 | 8/23/2005 |
| 4-Chlorophenyl phenyl ether | BQL | 400 | 1 | 8/23/2005 |
| Chrysene | BQL | 400 | 1 | 8/23/2005 |
| Dibenzo[a,h]anthracene | BQL | 400 | 1 | 8/23/2005 |
| Dibenzofuran | BQL | 400 | 1 | 8/23/2005 |
| Di-n-Butylphthalate | BQL | 400 | 1 | 8/23/2005 |
| 1,2-Dichlorobenzene | BQL | 400 | 1 | 8/23/2005 |
| 1,3-Dichlorobenzene | BQL | 400 | 1 | 8/23/2005 |
| 1,4-Dichlorobenzene | BQL | 400 | 1 | 8/23/2005 |
| 3,3'-Dichlorobenzidine | BQL | 799 | 1 | 8/23/2005 |
| 2,4-Dichlorophenol | BQL | 400 | 1 | 8/23/2005 |
| Diethylphthalate | BQL | 400 | 1 | 8/23/2005 |
| Dimethylphthalate | BQL | 400 | 1 | 8/23/2005 |
| 2,4-Dimethylphenol | BQL | 400 | 1 | 8/23/2005 |
| Di-n-octylphthalate | BQL | 400 | 1 | 8/23/2005 |
| 4,6-Dinitro-2-methylphenol | BQL | 2000 | 1 | 8/23/2005 |
| 2,4-Dinitrophenol | BQL | 2000 | 1 | 8/23/2005 |
| 2,4-Dinitrotoluene | BQL | 400 | 1 | 8/23/2005 |
| 2,6-Dinitrotoluene | BQL | 400 | 1 | 8/23/2005 |
| Diphenylamine * | BQL | 400 | 1 | 8/23/2005 |
| Fluoranthene | BQL | 400 | 1 | 8/23/2005 |
| Fluorene | BQL | 400 | 1 | 8/23/2005 |
| Hexachlorobenzene | BQL | 400 | 1 | 8/23/2005 |
| Hexachlorobutadiene | BQL | 400 | 1 | 8/23/2005 |

**Results for Semivolatiles by GCMS 8270**

Client Sample ID: P4GP2-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID: G106-537-2F
Lab Project ID: G106-537
Report Basis: Dry weight

Analyzed By: MRC
Date Collected: 8/11/2005 10:15
Date Received: 8/13/2005
Date Extracted: 1/0/1900
Matrix: Soil
% Solids: 75.49

| Compound | Result ug/Kg | Quantitation Limit ug/Kg | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Hexachlorocyclopentadiene | BQL | 799 | 1 | 8/23/2005 |
| Hexachloroethane | BQL | 400 | 1 | 8/23/2005 |
| Indeno(1,2,3-c,d)pyrene | BQL | 400 | 1 | 8/23/2005 |
| Isophorone | BQL | 400 | 1 | 8/23/2005 |
| 2-Methylnaphthalene | BQL | 400 | 1 | 8/23/2005 |
| 2-Methylphenol | BQL | 400 | 1 | 8/23/2005 |
| 3- & 4-Methylphenol | BQL | 400 | 1 | 8/23/2005 |
| Naphthalene | BQL | 400 | 1 | 8/23/2005 |
| 2-Nitroaniline | BQL | 400 | 1 | 8/23/2005 |
| 3-Nitroaniline | BQL | 2000 | 1 | 8/23/2005 |
| 4-Nitroaniline | BQL | 2000 | 1 | 8/23/2005 |
| Nitrobenzene | BQL | 400 | 1 | 8/23/2005 |
| 2-Nitrophenol | BQL | 400 | 1 | 8/23/2005 |
| 4-Nitrophenol | BQL | 2000 | 1 | 8/23/2005 |
| N-Nitrosodi-n-propylamine | BQL | 400 | 1 | 8/23/2005 |
| Pentachlorophenol | BQL | 2000 | 1 | 8/23/2005 |
| Phenanthrene | BQL | 400 | 1 | 8/23/2005 |
| Phenol | BQL | 400 | 1 | 8/23/2005 |
| Pyrene | BQL | 400 | 1 | 8/23/2005 |
| 1,2,4-Trichlorobenzene | BQL | 400 | 1 | 8/23/2005 |
| 2,4,5-Trichlorophenol | BQL | 400 | 1 | 8/23/2005 |
| 2,4,6-Trichlorophenol | BQL | 400 | 1 | 8/23/2005 |

| | Spike Added | Spike Result | Percent Recovered |
|---|---|---|---|
| 2-Fluorobiphenyl | 10 | 9.8 | 98 |
| 2-Fluorophenol | 10 | 10 | 100 |
| Nitrobenzene-d5 | 10 | 8.6 | 86 |
| Phenol-d6 | 10 | 8.9 | 88 |
| 2,4,6-Tribromophenol | 10 | 7.9 | 79 |
| 4-Terphenyl-d14 | 10 | 11.2 | 112 |

**Comments:**

* N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

**Flags:**

BQL = Below Quantitation Limits.

Reviewed By: MC

**Results for Semivolatiles by GCMS 8270**

Client Sample ID: P4GP3-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID: G106-537-3F
Lab Project ID: G106-537
Report Basis: Dry weight

Analyzed By: MRC
Date Collected: 8/11/2005 10:30
Date Received: 8/13/2005
Date Extracted: 1/0/1900
Matrix: Soil
% Solids: 75.27

| Compound | Result ug/Kg | Quantitation Limit ug/Kg | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Acenaphthene | BQL | 405 | 1 | 8/23/2005 |
| Acenaphthylene | BQL | 405 | 1 | 8/23/2005 |
| Anthracene | BQL | 405 | 1 | 8/23/2005 |
| Benzo[a]anthracene | BQL | 405 | 1 | 8/23/2005 |
| Benzo[a]pyrene | BQL | 405 | 1 | 8/23/2005 |
| Benzo[b]fluoranthene | BQL | 405 | 1 | 8/23/2005 |
| Benzo[g,h,i]perylene | BQL | 405 | 1 | 8/23/2005 |
| Benzo[k]fluoranthene | BQL | 405 | 1 | 8/23/2005 |
| Benzoic Acid | BQL | 810 | 1 | 8/23/2005 |
| Bis(2-chloroethoxy)methane | BQL | 405 | 1 | 8/23/2005 |
| Bis(2-chloroethyl)ether | BQL | 405 | 1 | 8/23/2005 |
| Bis(2-chloroisopropyl)ether | BQL | 405 | 1 | 8/23/2005 |
| Bis(2-ethylhexyl)phthalate | BQL | 405 | 1 | 8/23/2005 |
| 4-bromophenyl phenyl ether | BQL | 405 | 1 | 8/23/2005 |
| Butylbenzylphthalate | BQL | 405 | 1 | 8/23/2005 |
| 2-Chloronaphthalene | BQL | 405 | 1 | 8/23/2005 |
| 2-Chlorophenol | BQL | 405 | 1 | 8/23/2005 |
| 4-Chloro-3-methylphenol | BQL | 405 | 1 | 8/23/2005 |
| 4-Chloroaniline | BQL | 2030 | 1 | 8/23/2005 |
| 4-Chlorophenyl phenyl ether | BQL | 405 | 1 | 8/23/2005 |
| Chrysene | BQL | 405 | 1 | 8/23/2005 |
| Dibenzo[a,h]anthracene | BQL | 405 | 1 | 8/23/2005 |
| Dibenzofuran | BQL | 405 | 1 | 8/23/2005 |
| Di-n-Butylphthalate | BQL | 405 | 1 | 8/23/2005 |
| 1,2-Dichlorobenzene | BQL | 405 | 1 | 8/23/2005 |
| 1,3-Dichlorobenzene | BQL | 405 | 1 | 8/23/2005 |
| 1,4-Dichlorobenzene | BQL | 405 | 1 | 8/23/2005 |
| 3,3'-Dichlorobenzidine | BQL | 810 | 1 | 8/23/2005 |
| 2,4-Dichlorophenol | BQL | 405 | 1 | 8/23/2005 |
| Diethylphthalate | BQL | 405 | 1 | 8/23/2005 |
| Dimethylphthalate | BQL | 405 | 1 | 8/23/2005 |
| 2,4-Dimethylphenol | BQL | 405 | 1 | 8/23/2005 |
| Di-n-octylphthalate | BQL | 405 | 1 | 8/23/2005 |
| 4,6-Dinitro-2-methylphenol | BQL | 2030 | 1 | 8/23/2005 |
| 2,4-Dinitrophenol | BQL | 2030 | 1 | 8/23/2005 |
| 2,4-Dinitrotoluene | BQL | 405 | 1 | 8/23/2005 |
| 2,6-Dinitrotoluene | BQL | 405 | 1 | 8/23/2005 |
| Diphenylamine * | BQL | 405 | 1 | 8/23/2005 |
| Fluoranthene | BQL | 405 | 1 | 8/23/2005 |
| Fluorene | BQL | 405 | 1 | 8/23/2005 |
| Hexachlorobenzene | BQL | 405 | 1 | 8/23/2005 |
| Hexachlorobutadiene | BQL | 405 | 1 | 8/23/2005 |

**Results for Semivolatiles**
**by GCMS 8270**

Client Sample ID: P4GP3-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID: G106-537-3F
Lab Project ID: G106-537
Report Basis: Dry weight

Analyzed By: MRC
Date Collected: 8/11/2005 10:30
Date Received: 8/13/2005
Date Extracted: 1/0/1900
Matrix: Soil
% Solids: 75.27

| Compound | Result ug/Kg | Quantitation Limit ug/Kg | Dilution Factor | Date Analyzed |
|---|---|---|---|---|
| Hexachlorocyclopentadiene | BQL | 810 | 1 | 8/23/2005 |
| Hexachloroethane | BQL | 405 | 1 | 8/23/2005 |
| Indeno(1,2,3-c,d)pyrene | BQL | 405 | 1 | 8/23/2005 |
| Isophorone | BQL | 405 | 1 | 8/23/2005 |
| 2-Methylnaphthalene | BQL | 405 | 1 | 8/23/2005 |
| 2-Methylphenol | BQL | 405 | 1 | 8/23/2005 |
| 3- & 4-Methylphenol | BQL | 405 | 1 | 8/23/2005 |
| Naphthalene | BQL | 405 | 1 | 8/23/2005 |
| 2-Nitroaniline | BQL | 405 | 1 | 8/23/2005 |
| 3-Nitroaniline | BQL | 2030 | 1 | 8/23/2005 |
| 4-Nitroaniline | BQL | 2030 | 1 | 8/23/2005 |
| Nitrobenzene | BQL | 405 | 1 | 8/23/2005 |
| 2-Nitrophenol | BQL | 405 | 1 | 8/23/2005 |
| 4-Nitrophenol | BQL | 2030 | 1 | 8/23/2005 |
| N-Nitrosodi-n-propylamine | BQL | 405 | 1 | 8/23/2005 |
| Pentachlorophenol | BQL | 2030 | 1 | 8/23/2005 |
| Phenanthrene | BQL | 405 | 1 | 8/23/2005 |
| Phenol | BQL | 405 | 1 | 8/23/2005 |
| Pyrene | BQL | 405 | 1 | 8/23/2005 |
| 1,2,4-Trichlorobenzene | BQL | 405 | 1 | 8/23/2005 |
| 2,4,5-Trichlorophenol | BQL | 405 | 1 | 8/23/2005 |
| 2,4,6-Trichlorophenol | BQL | 405 | 1 | 8/23/2005 |

| | Spike Added | Spike Result | Percent Recovered |
|---|---|---|---|
| 2-Fluorobiphenyl | 10 | 11.1 | 110 |
| 2-Fluorophenol | 10 | 10 | 100 |
| Nitrobenzene-d5 | 10 | 9.5 | 95 |
| Phenol-d6 | 10 | 9.1 | 91 |
| 2,4,6-Tribromophenol | 10 | 8.5 | 85 |
| 4-Terphenyl-d14 | 10 | 13 | 130 |

**Comments:**
* N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

**Flags:**
BQL = Below Quantitation Limits.

Reviewed By: MA

## Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID: P4GP1-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID: G106-537-1
Lab Project ID: G106-537
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 8/11/05 10:00
Date Received: 8/13/05
Matrix: Soil
Solids 76.47

| Analyte | Result MG/KG | Report Limit MG/KG | Prep Method | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|
| Gasoline Range Organics | BQL | 6.99 | 5035 | 1 | 08/19/05 |
| Diesel Range Organics | BQL | 8.29 | 3545 | 1 | 08/26/05 |

Comments:

Reviewed By:

## Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

| | | | |
|---|---|---|---|
| Client Sample ID: | P4GP2-18 | Analyzed By: | DCS |
| Client Project ID: | Parcel 4 Tip#U-2826A | Date Collected: | 8/11/05 10:15 |
| Lab Sample ID: | G106-537-2 | Date Received: | 8/13/05 |
| Lab Project ID: | G106-537 | Matrix: | Soil |
| Report Basis: | Dry Weight | Solids | 75.49 |

| Analyte | Result MG/KG | Report Limit MG/KG | Prep Method | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|
| Gasoline Range Organics | BQL | 7.35 | 5035 | 1 | 08/19/05 |
| Diesel Range Organics | BQL | 8.1 | 3545 | 1 | 08/26/05 |

Comments:

Reviewed By: [signature]

## Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID: P4GP3-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID: G106-537-3
Lab Project ID: G106-537
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 8/11/05 10:30
Date Received: 8/13/05
Matrix: Soil
Solids 75.27

| Analyte | Result MG/KG | Report Limit MG/KG | Prep Method | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|
| Gasoline Range Organics | BQL | 7.07 | 5035 | 1 | 08/19/05 |
| Diesel Range Organics | BQL | 8.5 | 3545 | 1 | 08/26/05 |

Comments:

Reviewed By: WA

## Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: P4GP4-18
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID: G106-537-4
Lab Project ID: G106-537
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 8/11/05 10:40
Date Received: 8/13/05
Matrix: Soil
Solids 76.97

| Analyte | Result MG/KG | Report Limit MG/KG | Prep Method | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|
| Gasoline Range Organics | BQL | 9.99 | 5035 | 1 | 08/19/05 |
| Diesel Range Organics | BQL | 7.72 | 3545 | 1 | 08/26/05 |

Comments:

Reviewed By:

## Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: P4GP5-19
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID: G106-537-5
Lab Project ID: G106-537
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 8/11/05 11:10
Date Received: 8/13/05
Matrix: Soil
Solids 74.57

| Analyte | Result MG/KG | Report Limit MG/KG | Prep Method | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|
| Gasoline Range Organics | BQL | 6.74 | 5035 | 1 | 08/19/05 |
| Diesel Range Organics | BQL | 8.34 | 3545 | 1 | 08/26/05 |

Comments:

Reviewed By:

## Results for Total Petroleum Hydrocarbons

by **GC/FID 8015**

Client Sample ID: P4GP6-19
Client Project ID: Parcel 4 Tip#U-2826A
Lab Sample ID: G106-537-6
Lab Project ID: G106-537
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 8/11/05 11:25
Date Received: 8/13/05
Matrix: Soil
Solids 74.30

| Analyte | Result MG/KG | Report Limit MG/KG | Prep Method | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|
| Gasoline Range Organics | BQL | 8.31 | 5035 | 1 | 08/19/05 |
| Diesel Range Organics | BQL | 8.45 | 3545 | 1 | 08/26/05 |

Comments:

Reviewed By: MW

TPH_LIMS_v1 82 XLS

## List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit

DF = Dilution Factor

Dup = Duplicate

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL = Reporting Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% soilds = Percent Solids

Special Notes:

1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.

2) Uncertainty for all reported data is less than or equal to 30 percent.

**PARADIGM ANALYTICAL LABORATORIES, INC.**

30 Business Drive, Wilmington, NC 28405

Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

TIP# U-2826A WBS: 34871.1.1

COC# 48830

Page 1 of 1

Client: EI, INC. Project ID: PARCEL 04

Address: 2101 GATEWAY/CENTRE BLVD. Contact: DARREN LOCKHART

Address: SUITE 200, MORRISVILLE, NC Phone: 919-544-7500

Quote #: _____ Fax: 919-544-2199

Date: 10-12-05

Turnaround: STANDARD

Job Number: ENMD050015.00

P.O. Number: _____

Report To: DARREN LOCKHART EI

Invoice To: NCDOT (TIP# U-2826A)

| Sample ID | Date | Time | Matrix | Preservatives | Analyses: TPH GRO | [redacted] | 8260 | 8270 | Comments: Please specify any special reporting requirements |
|---|---|---|---|---|---|---|---|---|---|
| P4GP1-18 | 8-1-05 | 1000 | SOIL | | X | X | | | |
| P4GP2-18 | | 1015 | | | X | X | X | X | |
| P4GP3-18 | | 1030 | | | X | X | X | X | |
| P4GP4-18 | | 1040 | | | X | X | | | G106-539 |
| P4GP5-19 | | 1110 | | | X | X | | | |
| P4GP6-19 | | 1125 | | | X | X | | | |

| Relinquished By | Date | Time | Received By | Date | Time | Temperature |
|---|---|---|---|---|---|---|
| [signature] | 8/5-1205 | | [signature] | 8/12/05 | 3:20 | on ice |
| [signature] | " | 1535 | L. Lockhart | 8/13/05 | 10:45 | 2.8 |

State Certification Requested

NC ✓ SC _____ Other _____

SEE REVERSE FOR TERMS AND CONDITIONS

ORIGINAL

N.C. Certification #481 S.C. Certification #99029