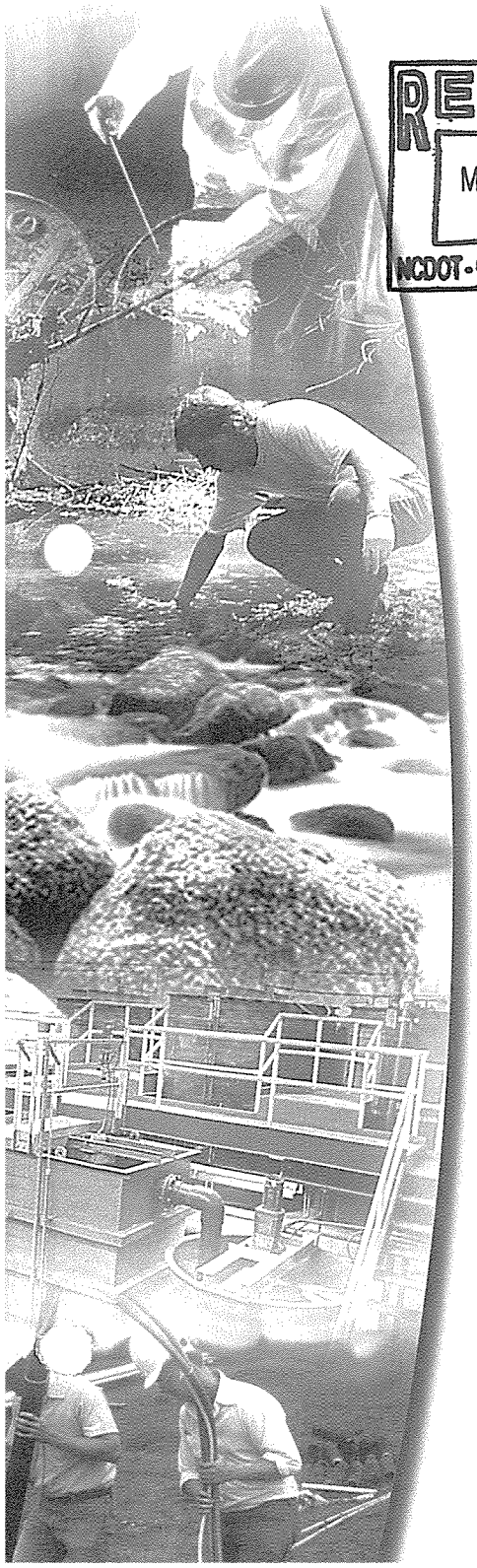

LIMITED PRELIMINARY SITE ASSESSMENT

Parcel 114
Arlene Ray, Inc. Property (Burnsville Gas)
560 US Highway 19E
Burnsville, NC 28714

State Project No. R-2519A
WBS Element No. 35609.1.1
EI Project No. ENMO060029.00

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:

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May 2006

LIMITED PRELIMINARY SITE ASSESSMENT (PSA)

Conducted on

Parcel 114
Arlene Ray, Inc. Property
560 US Highway 19E
Burnsville, NC 28714
State Project No. R-2519A
WBS Element No. 35609.1.1
EI Project No. ENMO060029.00

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: May 12, 2006

Kevin D. Horton
Project Geologist/Manager

Signature

Robert Shaut
Project Geologist/Manager

Signature

David C. Brewster, P.G.
Principal Geologist

Signature

NORTH CAROLINA LICENSED SEAL 1212 GEOLOGIST DAVID CHASE BREWSTER 5.12.06

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1.0 INTRODUCTION

Environmental Investigations, Inc. (EI) conducted a *Limited Preliminary Site Assessment* (PSA) within the existing and/or proposed North Carolina Department of Transportation (NCDOT) *right-of-way* (ROW) adjacent to a parcel (identified by the NCDOT as Parcel 114) located at 560 US Highway 19E, Burnsville, North Carolina 28714. A convenience store is currently located on the adjacent parcel. The report presented herein documents the findings of the PSA that was conducted within the described ROW. For purposes of this report, the terms subject site and/or site include the existing NCDOT ROW and the proposed ROW, and/or the abutting property/parcel.

1.1 Report Organization

Field activities were conducted by Mr. Kevin D. Horton, an Environmental Geologist with EI, on March 31, 2006. The report presented herein summarizes the scope of work conducted, discusses sampling procedures, and presents our findings, conclusions and recommendations. A table entitled "Summary of Soil Analytical Results" is presented in **Table 1,** and a table entitled "Summary of Groundwater Analytical Results", is presented in **Table 2**. A "Site Location Map", a "Site Map" and "Impacted Soils Map" are presented in **Figures 1**, **2**, and **3,** respectively. A compilation of "Site Photographs" are presented in **Appendix A**, the "Standard Field Operating Procedures (SOP)" are presented in **Appendix B**, "Soil Boring Logs" are included in **Appendix C**, and a Geophysical Report conducted by Schnabel Engineering South is presented in **Appendix E**.

1.2 Background

Mr. Eugene Tarascio, GeoEnvironmental Project Manager with the NCDOT GeoTechnical Engineering Unit submitted to EI a "*Request for Supplemental Technical and Cost Proposal*" (RFP), dated February 24, 2006. The RFP solicited a technical and cost proposal to perform Limited PSAs on a total of 18 Parcels located within a NCDOT Highway Project, identified as WBS Element #35609.1.1, State Project #R-2519A, located in Burnsville, NC. The RFP outlined site information on each of the 18 parcels, some site photographs 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" (NTP) dated March 13, 2006.

1.3 Objectives

The objective of performing the PSA was to determine if existing commercial USTs have impacted the subsurface of the existing and/or proposed ROW. The study (PSA) on the referenced parcel (Parcel 114 – Arlene Ray, Inc. Property) included herein was performed with a reasonable effort to investigate and quantify potentially petroleum-hydrocarbon impacted subsurface soils. However,

findings documented in the report do not constitute a guarantee that all potential sources of (petroleum) 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 by 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.

2.0 SCOPE OF WORK & ENVIRONMENTAL SERVICES

2.1 Requested Scope of Work

Documented in the RFP, dated February 24, 2006, the NCDOT requested the following scope of work:

- Determine if contaminated soils are present around any underground storage tanks (USTs) identified that are within the existing and/or proposed ROW;
- in addition, collect soil samples every 15.24 meters (50 feet) to a maximum depth of 2.44 meters (8 feet) along the proposed drainage, if there is no proposed drainage, collect samples at same interval along the edge of existing and/or proposed ROW within the "area of investigation";
- delineate and estimate the quantity of impacted soils and indicate the approximate area of soil contamination on a site map for each site;
- if groundwater is encountered and the project manager suspects the possibility of groundwater contamination, obtain a sample for analysis by converting one (1) of the borings to a temporary monitoring well;
- for each groundwater sample collected, also obtain a 24-hour groundwater depth;
- if a groundwater sampled is collected for proposed drainage, perform aquifer testing to determine the recharge rate and use this to provide an estimated quantity of contaminated water that will have to be disposed of when de-watering occurs to install the proposed drainage; prepare a report including field activities, findings, and recommendations for the site and submit in quadruplet to the NCDOT office.

2.2 Scope of Services

To accomplish the scope-of-services, a field reconnaissance was performed to identify general site conditions, and Direct Push Technology (DPT) was utilized to collect soil samples on the subject parcel.

To perform the requested Limited PSA, EI personnel supervised, oversaw and performed site reconnaissance activities and collected appropriate samples to complete the project objectives. To complete the study on the subject parcel, EI performed the following scope of services:

- Supervision, and oversight of the advancement of 12 soil test borings utilizing DPT methods to the respective depths of 3.05 – 4.57 meters (10 - 15 feet) below the land surface (bls) within the existing and/or the proposed NCDOT right-of-way.
- Collection and submittal of 12 soil samples for laboratory analytical testing.
- Installation of one (1) temporary monitoring well (piezometer).
- Collection and submittal of one (1) groundwater sample for laboratory analyses.
- Photo documentation of pertinent site features.

Preparation of the *Limited PSA Report*, presented herein that presents our findings and conclusions along with our recommendations.

3.0 SITE CHARACTERIZATION

3.1 Site Location

A convenience store known as the Arlene Ray, Inc. Property (Convenience King 22) is currently located at 560 US Highway 19E, in Burnsville, North Carolina 28714 (**Figure 1**). The subject property is currently located immediately adjacent to the NCDOT ROW (**Photograph 1**) as identified in NCDOT's R-2519A Plan Sheet 21. Copies of digital site photographs are presented in **Appendix A**.

3.2 Physical Setting

The subject site parcel currently consists of a convenience store with gasoline station. The parcel consists of a one-story building, fuel pump-island with six pumps, and asphalt parking. See **Figure 2** for the location of the business.

3.2.1 Number and Capacities of ASTs

Based on a geophysical investigation, and information provided by the NCDOT, five (5) ASTs of various sizes are currently located on the eastern portion of the parcel. There are two (2) 28,387-liter (7,500-gallon), one (1) gasoline and one (1) diesel, one (1) 37,850-liter (10,000-gallon) AST with gasoline and two (2) 7,570-liter (2,000-gallon) tanks (one (1) kerosene and one (1) heating oil). The ASTs appear to be situated in the center of the parcel approximately 21 meters (68 feet) to the south of the centerline of US 19E and south just beyond the NCDOT proposed ROW.

3.3 Site Topography

Site observations and review of the Burnsville, NC United States Geological Survey (USGS) Topographic Quadrangle Map (1998) revealed that the subject site is located at an elevation of approximately 880 meters (2,640 feet) above mean sea level (msl) (**Figure 1**). Topographically, the site slopes gently to the northeast. Surface water runoff appears to flow directly north in the direction of Little Crabtree Creek located adjacent the site to the north.

3.4 Land Use & Surrounding Properties

The subject property is located inside the city limits of Burnsville, NC. Land use in the immediate vicinity of the site is characterized by commercial properties. The site is bounded on the north by US 19E, to the east by Ace Hardware, west and south by undeveloped properties.

4.0 SUBURFACE INVESTIAGTION

4.1 Geophysical Survey

Schnabel Engineering South, locally 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 existing and/or proposed ROW. 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 estimated 1,575 square meters (5,166 square feet) located on the subject site. . Based on the Geophysical report, anomalies were identified probably due to insignificant buried metal objects, known site features, three (3) linear anomalies caused by buried metal culverts, and an anomaly caused by reinforced concrete.

4.2 Geophysical Survey Results

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

4.3 Subsurface Soils Investigation

Subsurface Environmental Investigations (SEI), based in Statesville, North Carolina, was selected and subcontracted to provide DPT services. On March 31, 2006, EI directed and supervised the advancement of seven (7) soil test borings (GP-2 through GP-4 and GP-9 though GP-12), in the vicinity of the proposed drainage pipe and five (5) borings (GP-5 though GP-8 and GP-1) in the vicinity of the tank or pump areas.

In general, 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 petroleum releases associated with either former and/or present AST system spills and/or releases into the subsurface. The soil borings were advanced to investigative depths ranging from 3.05 – 4.57 meters (10 - 15 feet) bls.

4.4 Soil Test Boring Methodology

A complete descriptive explanation of EI's *Standard Field Operating Procedures* that discusses specific sampling methodology is presented in **Appendix B**.

4.5 Soil Sample Collection Procedures

A total of 12 soil samples were collected for laboratory analysis. Soil samples retained for laboratory analysis were shipped to a representative of 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**.

4.6 Backfill Activities

At the completion of the exploratory subsurface advancement activities, the test borings were backfilled to surface grade. A complete descriptive explanation of EI's *Standard Field Operating Procedures* that discusses backfill procedures is presented in **Appendix B**.

4.7 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 fairly consistent. The on-site geology consists of grass or asphalt with surficial topsoil from the surface to approximately 0.15 meters (0.5-foot) below grade. Layers of soil consisting of light brown to tan sandy CLAY were encountered to the investigated depth of approximately 1.22 meters (4.0 feet) below the land surface (bls). From there, layers of soil consisting of tan sandy SILT were encountered to the investigated depth of approximately 4.57 meters (15.0 feet) below the land surface (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.

4.8 Groundwater Investigation

4.8.1 Temporary Monitoring Well Installation

During the field study (March 31, 2006), soil test boring "GP-1" (located north of the subject ASTs approximately 21 meters (68 feet) to the south of the centerline of US 19E) was converted into a Type I (temporary) 2.54 cm (1.0 inch) diameter groundwater monitoring well (piezometer). The approximate location of the groundwater monitoring well is depicted in **Figure 2**. The well location was selected in the field by the EI Field Geologist (Kevin Horton) based on the topographic location of the boring and suspected impact in this area. The well was installed to a depth of 4.57 meters (15.0 feet) bls.

4.8.2 Monitoring Well Sampling

EI personnel collected a groundwater sample from the referenced temporary monitoring well ("GP-1") for purposes of analytical testing. On March 31, 2006, the samples were transferred to representatives of Prism Laboratories for analytical laboratory testing. Groundwater sampling procedures are discussed in more detail in the *Standard Operating Procedures* presented in **Appendix C**.

The groundwater table was measured in the temporary monitoring well ("GP-1") on April 4, 2006. Groundwater was measured at approximately 0.3475 meters (1.12 feet) below the top of casing (TOC). The TOC was level with the ground surface.

5.0 LABORATORY TESTING AND RESULTS

5.1 Subsurface Soil Analytical Methods

A total of 12 soil samples (GP1 – GP12) were submitted for TPH analyses by Method 8015B with preparation methods for the analysis of Diesel Range Organics (DRO) by GC-FID and Gasoline Range Organics (GRO) by GC-FID. The GRO method is utilized to extract volatile fuels such as gasoline, while the DRO method is utilized to extract less volatile petroleum products such as diesel fuel, No. 2 fuel oil, kerosene, and varsol. One soil sample (GP-7) was submitted for risk-based analysis consisting of EPA methods 8260, 8270, MADEP EPH and VPH.

5.2 Soil Laboratory Analyses Results

Analysis of the soil samples collected showed that only one (1) of the 12 samples (GP-7) showed concentrations of GRO at concentrations above laboratory detection limits. The sample reported concentrations of GRO above the North Carolina Department of Environment and Natural Resources (NCDENR) action limits of 40.0 mg/kg. None of the soil samples collected indicated concentrations of DRO above the method laboratory detection limits.

Risk-Based analysis of one (1) of sample GP-7 (immediately adjacent to the pump island) showed concentrations of VOCs, aliphatics and aromatics at or above the method laboratory detection limits. The approximate location of all the borings are depicted in **Figure 2**.

The specific results of the analytical testing of the soil samples are tabulated and presented in **Table 1**. The complete laboratory results and Chain-of-Custody Records are presented in **Appendix D**.

5.3 Groundwater Laboratory Analysis

Groundwater sample "W-1" collected from the referenced temporary well was submitted for VOCs analysis for aromatic and halogenated volatiles by GC/PID-ELCD for EPA Method 601/602, for semivolatile organic compounds by GC/MS for EPA Method 625 and the top ten peaks identified, for EPH by GC/FID by Method MADEP EPH, and for VPH by GC-PID/FID by MADEP VPH.

5.4 Groundwater Laboratory Analyses Results

Analysis of a groundwater sample collected from a temporary monitoring well ("GP-1") installed immediately adjacent to the subject ASTs approximately 7.5 meters (24.6 feet) south of the centerline of US 19E, did not detect concentrations above method detection limits for VOC, SVOC, aliphatic or aromatic analytes. A summary of the analytical results is tabulated in **Table 2**.

6.0 SUMMARY OF FINDINGS

EI has reviewed information gathered during the Limited PSA study including the site reconnaissance activities, review of NCDOT plan sheets, review of the site investigation including soil collection activities, geophysical report and review of a laboratory analyses report. Compiled below is a summarized list of the significant findings.

- Five (5) ASTs of various sizes are currently located on the eastern portion of the parcel. There are two (2) 28,387-liter (7,500-gallon), one (1) gasoline and one (1) diesel, one (1) 37,850-liter (10,000-gallon) AST with gasoline and two (2) 7,570-liter (2,000-gallon) tanks (one (1) kerosene and one (1) heating oil). The ASTs appears to be situated in the center of the parcel approximately 21 meters (68 feet) to the south of the centerline of US 19E and south just beyond the NCDOT proposed ROW.

- Groundwater was encountered beneath the site at a location immediately adjacent to the subject ASTs approximately 7.5 meters (24.6 feet) south of the centerline of US 19E at a depth of 0.3475 meters (1.12 foot) below the TOC.

- Analyses of one (1) soil sample (GP-7) collected at a depth of approximately 1.22-1.83 meters (4.0-6.0 feet) bls, situated immediately adjacent to the pump islands approximately 17.5 meters (57.4 feet) south of the centerline of US 19E, reported concentrations of GRO (10.7 mg/kg), which is above the NCDENR action limits of 10.0 mg/kg.

- Risk-Based analysis of sample GP-7 collected immediately adjacent to the pump islands (the sample showing the most elevated concentrations of DRO/GRO), showed concentrations of VOCs, SVOCs, aromatics and aliphatics concentrations below laboratory detection limits and MSCC Soil-To-Groundwater cleanup standards.

- Analysis of a groundwater sample ("W-1"), collected from a temporary monitoring well ("GP-1") installed immediately adjacent to the subject ASTs approximately 7.5 meters (24.6 feet) south of the centerline of US 19E, did not detect concentrations above laboratory detection limits of VOC, SVOC, aliphatic or aromatic analytes.

7.0 CONCLUSIONS AND RECOMMENDATIONS

EI personnel have reviewed information obtained during the *Limited PSA* at the site (Parcel 114) and present the following conclusions and recommendations.

Based upon the petroleum hydrocarbon field indicators at shallow depths it appears that the presence of hydrocarbons may be attributed to an AST spill incident.

Based on the current data, the vadose zone in a localized area located directly adjacent the pump islands (located within the NCDOT ROW) has been impacted by petroleum hydrocarbon residuals.

Based on the observation that the pumps and tanks appear to be located outside the proposed right-of-way, the extent of impact could not accurately be determined. Thus, based on the projections stated above, EI estimates that a total estimated volume of approximately **375 cubic meters (491.25 cubic yards) of impacted subsurface soils** are likely present in the vicinity of the pump island within the subsurface.

Based on the groundwater analysis, the groundwater has not been impacted to levels above the methods laboratory detection limits or that exceed the regulatory standards.

Based on the conclusions, particularly based on the detection of GRO soil concentrations above reportable levels, the property owner should be notified of this finding. It also should be noted that the detection of GRO discovered during this investigation normally should be reported to the regulatory agency (NCDENR) by the property owner. At this time, no other recommendations are warranted.

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

TABLES

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
Parcel 114
Arlene Ray, Inc. Property
560 US Highway 19E, Burnsville, NC 28714
State Project No. R-2519A
WBS Element No. 35609.1.1

Sample Identification				GP-1	GP-2	GP-3	GP-4	GP-5	GP-6	GP-7	GP-8	GP-9	GP-10	GP-11	GP-12
Sample Depth Meters (Feet)				1.22-1.83 (4-6)	1.83-2.44 (6-8)	1.83-2.44 (6-8)	1.83-2.44 (6-8)	1.22-1.83 (4-6)	1.83-2.44 (6-8)	1.22-1.83 (4-6)	1.83-2.44 (6-8)	1.83-2.44 (6-8)	1.22-1.83 (4-6)	1.22-1.83 (4-6)	1.22-1.83 (4-6)
Sample Date				3/30/2006											
Field Screening Results-PID (ppm)				1.3	1.9	2.4	2.3	8.5	3.4	14.7	8.2	2.1	7.1	3.3	2.3
Laboratory Analysis	Cleanup Standards (MSCC)									Laboratory Results (mg/kg)					
	Residential MSCC (mg/kg)	Industrial Commercial MSCC (mg/kg)	Soil-to-GW MSCC (mg/kg)												
MADEP VPH															
C5-C8 Aliphatics	939	24528	72							<10					
C9-C12 Aliphatics	9386	245280	3255							<10					
C9-C10 Aromatics	469	12264	34							<10					
MADEP EPH	Cleanup Standards (MSCC)									Laboratory Results (mg/kg)					
C9-C18 Aliphatics	9386	245280	3255							<10					
C19-C36 Aliphatics	469	12264	34							<10					
C11-C22 Aromatics	93860	*	Immobile							<10					
Volatile Organic Compounds Method 8260B/5035	Cleanup Standards (MSCC)									Laboratory Results (mg/kg)					
Benzene	22	200	0.0056							BQL					
Toluene	3200	82000	7							BQL					
Ethylbenzene	1560	40000	0.24							BQL					
Total Xylenes	32000	200000	5							BQL					
2-Butanone (MEK)	9385	245280	0.7							BQL					
Acetone	1564	40880	3							BQL					
Isopropylbenzene (Cumene)	1564	40880	2							BQL					
n-Propylbenzene	156	4088	2							BQL					
1,2,4-Trimethylbenzene	782	20440	8							BQL					
1,3,5-Trimethylbenzene	782	20440	7							BQL					
sec-Butylbenzene	156	4088	3							BQL					
n-Butylbenzene	156	4088	4							BQL					
Naphthalene	63	1635	0.58							BQL					
Diisopropylether (DIPE)	156	4088	0.37							BQL					
Methyl Tert-butyl Ether (MTBE)	156	4088	0.92							BQL					
Methylene chloride	85	763	0.02							BQL					
p-Isopropyltoluene	NS	NS	NS							BQL					
All Remaining Analytes	NA	NA	NA							BQL					
Semivolatile Organic Compounds SW846-8270C	Cleanup Standards (MSCC)									Laboratory Results (mg/kg)					
Naphthalene	63	1635	0.58							BQL					
2-methyl naphthalene	63	1635	3							BQL					
Phenanthrene	469	12264	60							BQL					
All Remaining Analytes	NA	NA	NA							BQL					
Laboratory Analysis (Total Petroleum Hydrocarbons by GC/FID 8015)	NCDENR[1] (Volume 1) Reportable Concentration (mg/kg)			LABORATORY RESULTS (mg/kg)											
Gasoline Range Organics	10 (GRO) - 40 (DRO)			BQL	BQL	BQL	BQL	BQL	BQL	***10.7***	BQL	BQL	BQL	BQL	BQL
Diesel Range Organics				BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL

NOTE:
mg/kg denotes parts per million
MSCC = Maximum Soil Contaminant Concentrations
Bold & Italics Font = In Excess of MSCC Cleanup Standards
[1] NCDENR = North Carolina Department of Enviornment & Natural Resources

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Parcel 114 - Arlene Ray, Inc. Property
560 US Highway 19E
Burnsville, NC 28714
State Project: R-25190A
WBS Element: 35609.1.1

Sample Identification		W-1
Groundwater Depth (From top of casing (Feet)		1
Sample Date		3/31/2006
Volatiles GC 601/602	**2L Groundwater Standards (ug/L)**	**Laboratory Results (ug/L)**
Isopropyl ether (IPE)	70	BQL
m,p Xylenes	530	BQL
Methyl-tert butyl ether (MTBE)	200	BQL
Remaining Analytes	NA	BQL
MADEP VPH	**2L GW Standards (ug/L)**	**Laboratory Results (ug/L)**
C5-C8 Aliphatics	420	<100
C9-C12 Aliphatics	4200	<100
C9-C10 Aliphatics	210	<100
MADEP EPH	**2L GW Standards (ug/L)**	**Laboratory Results (ug/L)**
C9-C18 Aliphatics	4200	<100
C19-C36 Aliphatics	42000	<100
C11-C22 Aromatics	210	<100
Semivolatiles - GCMS Method 625		**Laboratory Results (ug/L)**
All Analytes	N/A	BQL

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

FIGURES

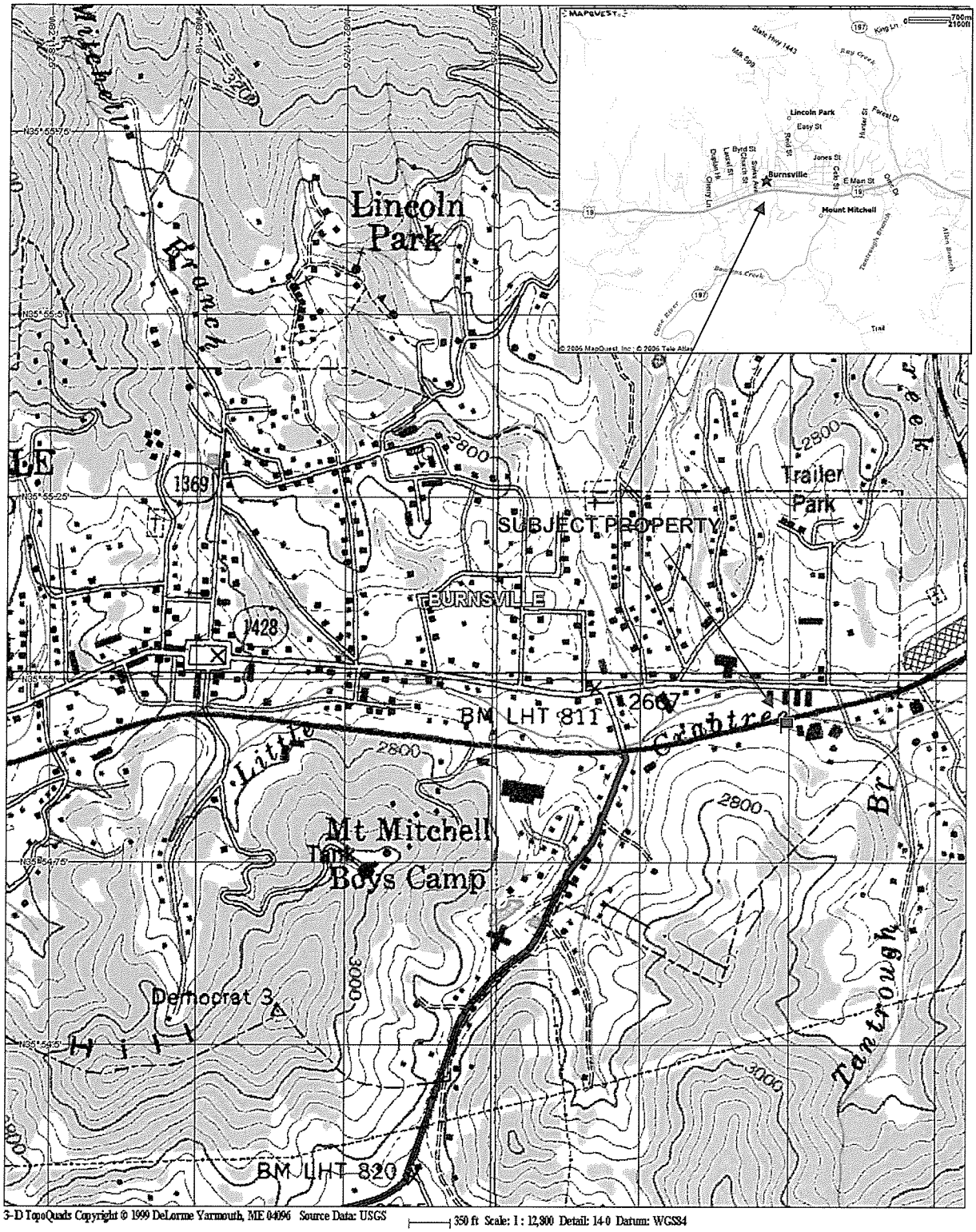

FIGURE NUMBER:	1
QUAD:	Burnsville
PROJECT NUMBER:	ENMO060029
SCALE:	As Shown

SITE LOCATION MAP
Arlene Ray, Inc. Property
560 US Highway 19 E
Parcel 114
Burnsville, North Carolina

EI
ENVIRONMENTAL INVESTIGATIONS, INC

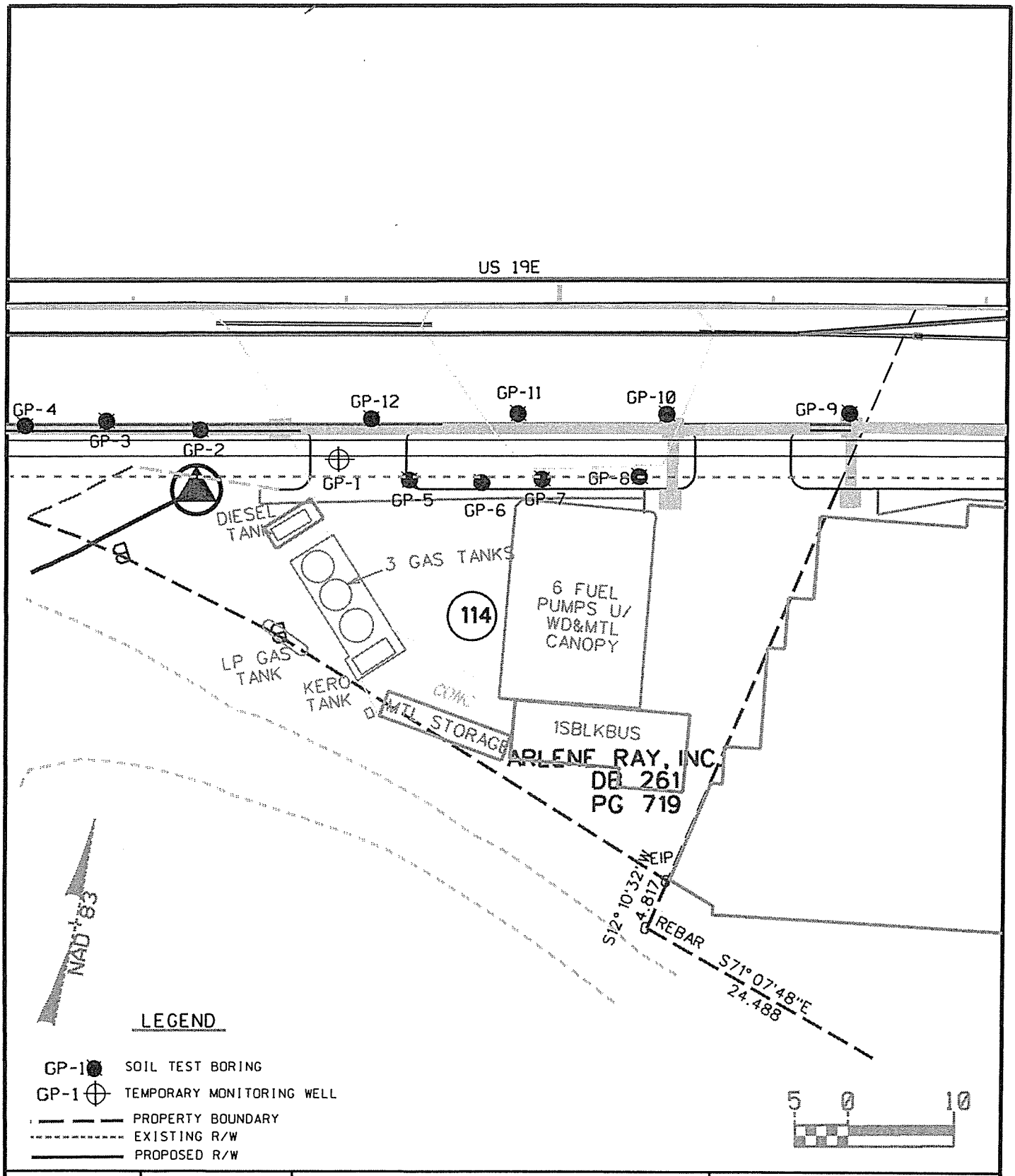

FIGURE:	2	SITE MAP PARCEL 114 ARLENE RAY, INC. PROPERTY 560 US HWY 19E Burnsville, NC 28714 WBS Element: 35609.1.1
DRAWN BY:	NCDOT/RMS	
DATE:	APR 2006	
PROJ NO:	ENM0060029.00	
SCALE:	1 cm = 5m	

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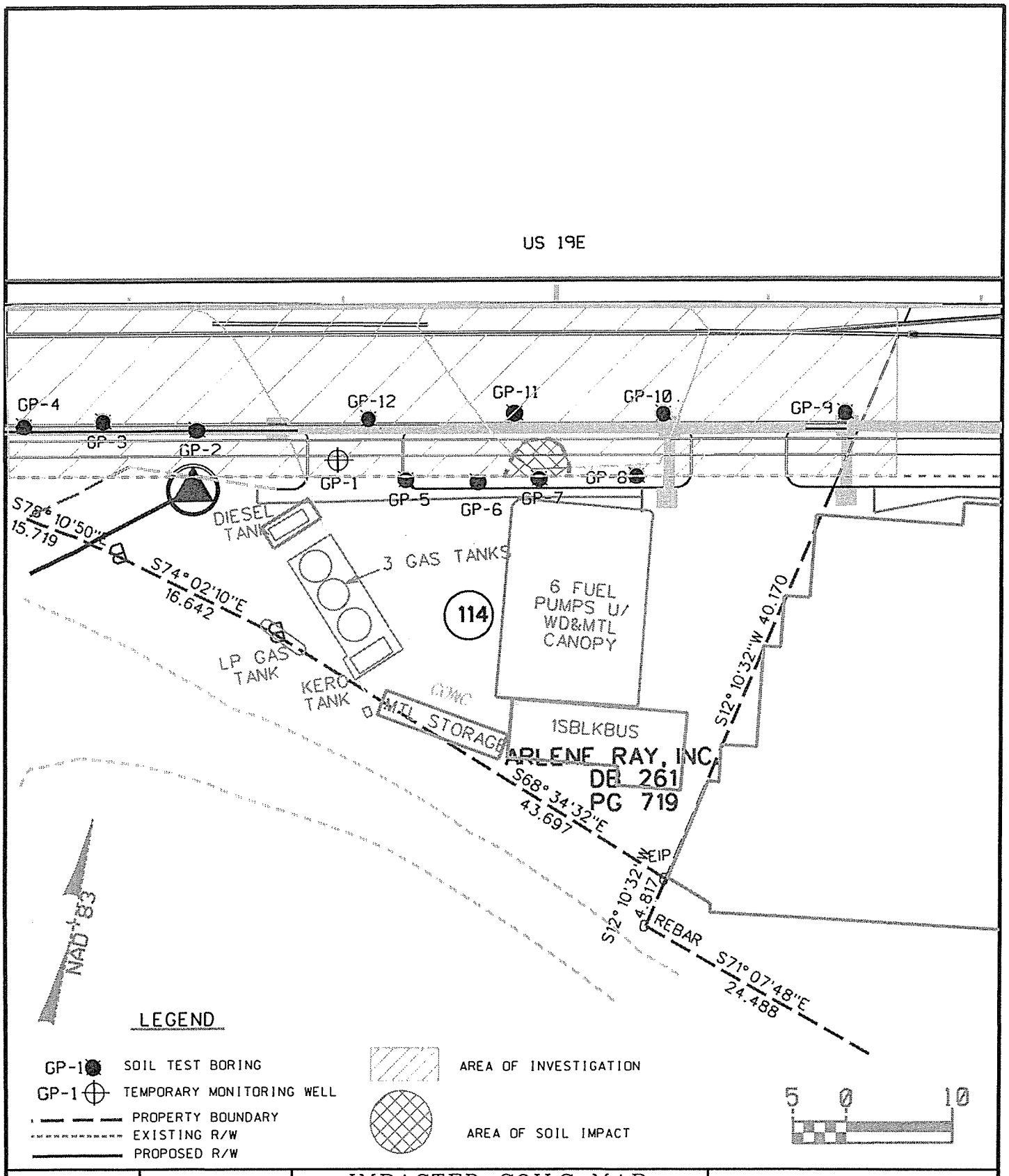


FIGURE:	3
DRAWN BY:	NCDOT/RMS
DATE:	APR 2006
PROJ NO:	ENM0060029.00
SCALE:	1 cm = 5m

IMPACTED SOILS MAP
PARCEL 114
ARLENE RAY, INC. PROPERTY
560 US HWY 19E
Burnsville, NC 28714
WBS Element: 35609.1.1

EI

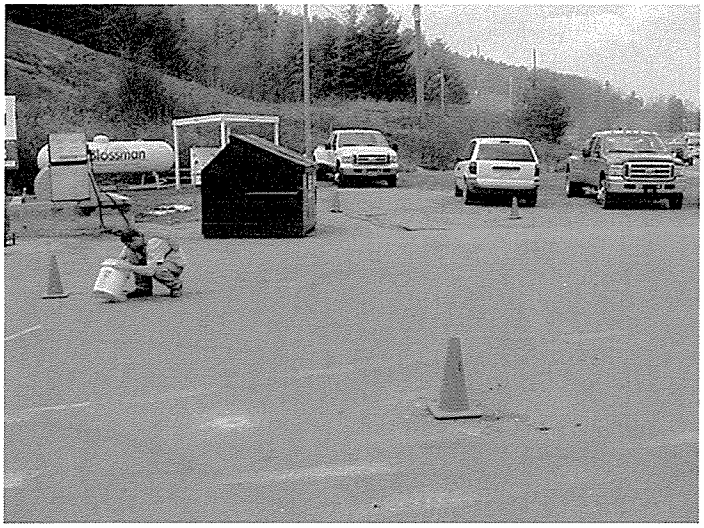
Parcel114.dgn 6/22/2006 2:07:44 PM

APPENDIX A

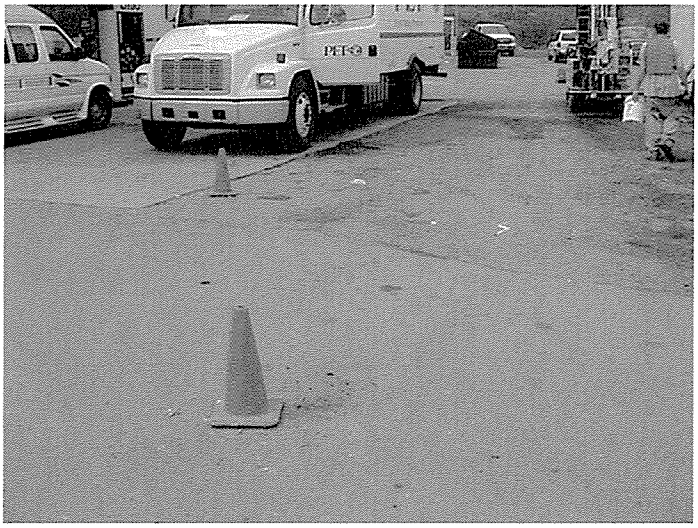
SITE PHOTOGRAPHS

Subject Property

Borings GP2-GP4 facing south



Borings GP1, GP12, GP5 and GP6 facing west



Borings GP8 and GP10 facing west

Boring GP9 and GP10 facing west

Eastern adjoining property

APPENDIX B

STANDARD OPERATING PROCEDURES

STANDARD OPERATING PROCEDURES
Subsurface Assessment Methodology And Sampling Protocol

Parcel 114
Arlene Ray, Inc. Property
560 US Highway 19E
Burnsville, NC 28714

WBS Element # 35609.1.1
State Project # R-2519A
EI Project No. ENMO060029.00

Prepared For:

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State of North Carolina
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May 2006

STANDARD OPERATING PROCEDURES
(Subsurface Assessment Methodology And Sampling Protocol

INTRODUCTION

Environmental Investigations, Inc. (EI) has prepared this STANDARD OPERATING PROCEDURES - Subsurface Assessment Methodology and Sampling Protocol Plan (SPP) for a residential property owned by Arlene Ray, Inc. Property located at 560 US Highway 19E, Burnsville, Yancey County, North Carolina.

The document presented herein describes the methodology and protocol that was utilized during the *Limited Preliminary Site Assessment* conducted at the above referenced project "site".

SAMPLING DESIGN

Prior to conducting a subsurface assessment, a sampling strategy was developed by EI based on the objectives of the investigation. After designing our soil sampling strategy, the appropriate equipment and techniques were selected to conduct the investigation. Our sampling strategy was based upon the premise of accomplishing the following performance objectives:

- collect soil samples that are representative of conditions as they exist at the study site;
- selecting the appropriate sampling device(s);
- taking measures to avoid introducing contamination as a result of poor sampling and/or poor handling techniques;
- reducing the potential of cross contamination between samples;
- defining sampling site selections and collection procedures for the appropriate individual media;
- defining the quality control assurance procedures;
- analytical requirements and limitations; and
- Data interpretation and assessment.

The sampling plan for this study was developed using the non-probabilistic (directed sampling designs) in nature. The location and frequency was based on this approach, to allow for the flexibility of the field coordinator (Geologist) to determine the number of samples collected for analysis. This approach allowed for the study objectives, properties of the matrix, resource constraints and access to sampling points to be adequately performed. Provision for access, use of sampling equipment, was also pre-determined.

The following section of the SPP discusses the sampling equipment available and collection methods which have been utilized to be technically appropriate.

SITE ORIENTATION

Prior to conducting any soil sampling procedures, the EI Project Geologist/Manager reviewed and presented the Site and Safety Health Plan to all participants involved with the project which was developed based on the EI Safety and Health program. All monitoring, protective equipment (latex gloves, Tyvek® suits, etc.), potential hazards associated with the site and general health and safety standards were discussed.

Site Survey

Prior to conducting specific sampling activities, EI personnel will conduct a limited site survey of the target and surrounding areas. Information discovered during the survey will be utilized to better perform the sampling activities and will provide more insight into establishment of the conclusions of this study. The site survey will consist of the following:

- General site layout (UST system layouts, overhead canopies, dispensers, etc.);
- Site access;
- Soil types and depths;
- Surface water drainage pathways;
- Existing site conditions;
- Visible staining of surface soil;
- Vegetation stress, and
- Possible offsite or non-site related sources.

FIELD INVESTIGATIVE PROCEDURES

Sampling Objectives

The general objective of sampling for this project was to collect a sample representative of subsurface and/or groundwater to reduce the potential bias caused by the sampling equipment used to obtain the sample.

The chosen sample locations were evaluated as discrete samples. A discrete sample is defined as "a discrete aliquot representative of a specific location at a given point in time."

Areas of Environmental Concern

The objectives of choosing the proper sampling methods to collect appropriate samples that are representative of the conditions as they exist at the site were as follows:

- Selecting the appropriate sampling device.
- Taking measures to avoid introducing contamination as a result of poor sampling and/or handling techniques.
- Reducing the potential of cross contamination between samples.

The areas of environmental concern consisted of an existing heating oil UST.

SOIL SAMPLING ACTIVITIES

Manual techniques and equipment, such as hand augers, are usually used for surface or shallow, subsurface soil sampling. Power operated equipment is usually associated with collecting deep samples, but this equipment can also be used for collecting shallow samples when the auger hole begins to collapse, or when the soil is so tight that manual auguring is not practical. Based on the request of the property owner, EI mainly used hand augers and to a lesser extent we utilized Direct Push Technology (DPT). The following section discusses the DPT methods employed during the site study.

Soil Sampling Collection Methods

Soil samples were collected utilizing Direct Push Technology (DPT) methods.

Direct Push Technology Methodology

DPT refers to tools and sensors that are inserted into the subsurface without the use of drilling to remove soil and make a path for the tool. To perform the DPT activities, the contractor utilized a GeoProbe® 6600 machine. The GeoProbe® 6600 is a hydraulically-powered probing machine designed, which uses static force and a percussion hammer to advance small diameter sampling tools into the subsurface to collect soil cores, groundwater samples, and or soil gas samples. A GeoProbe relies on a relatively small amount of static (vehicle) weight combined with percussion as the energy for advancement of a tool string.

The advantages of utilizing DPT drilling methods are described as follows:

- avoids the use of drilling fluids and lubricants during drilling;
- the equipment is highly mobile;
- disturbance of geochemical conditions during installation is minimized; and
- The drilling process does not produce drill cuttings.

DPT Soil Sample Collection Methods

Soil samples utilizing DPT methods were collected from the advanced DPT soil borings continuously in 5.0-foot increments using acetate liners contained in a nickel plated macro sampling tubes. Each soil-filled liner was split for field screening and soil sample collection purposes. Soil samples were collected from the liners with disposable vinyl gloves and utilized for soil vapor screening testing and/or laboratory retention. This sampling method allows for continuous soil sampling from the ground surface to the desired depth. Soil samples selected for analyses are referenced in the text section.

Soil Sample Collection Protocol

The following soil sampling collection procedures were utilized during this study:

- Ensured that all equipment, samplers and tools that will come in contact with the sample media was thoroughly decontaminated.
- Informed driller of sample interval (s) for borehole and oversaw the sampling process.
- Prepared and labeled all sample containers. Samples collected for the analytes of volatiles (if applicable) were sampled first.
- Labeled the containers including the location, depth, analyte, date and time of sampling.
- Delegated the driller to prepare the sample liner by cutting the liner in half.
- Placed liners on a clean sheet of plastic.
- Cut the soil core with a clean decontaminated knife to allow of visual soil classification.
- Sniffed the soil core with a PID/FID and recorded instrument readings volatile organics (VOCs) in a logbook (discussed further below).
- Logged the soil core in a logbook, including borehole identification (ID), sample number, date, time and any pertinent data.

- Logged soil classification including: recording percent recovery, color, description of major constituent, soil texture/structure, grading/sorting/plasticity, relative density or hardness consistency, clay, sand, silt, gravel content, grain size, moisture content, odor, staining and the Unified Soil Classification System (USCS) identifier and symbol;
- Physically collected the selected soil samples and placed these samples into laboratory prepared containers.
- Ensured the soil sample did not contain twigs, stones, and other debris from the soil.
- Packed soil samples for shipment, prepared chain-of-custody records and shipping documentation

Soil Vapor Screening

An important tool in performing this study is performing the soil vapor screening or sniffing activities. Field screening is generally performed for a variety of reasons. The technique conducted during this study was used to screen soil samples for measurable levels of volatile organics. The results obtained from this procedure are not quantitative; however the results from several soil samples are relative and allowed the Field Geologist/Project Manager to select samples that are the most contaminated with the contaminated media. Generally, the presence of little or no organic vapor is possibly indicative of non-contaminated soils. Soil samples collected for purposes of soil headspace screening were tested by the following procedures:

- the field instrument was calibrated, prior to use;
- soil samples were collected directly from the DPT soil liners and placed into sealable plastic bags;
- soil samples within the bags were allowed to equilibrate for approximately five minutes;
- the headspace of each bagged sample was screened with the instrument probe for the presence of volatile organic compound (VOCs) with a Mini-RAE Photo-ionization Detector (PID);
- recording the instrument readings (VOCs) in a field logbook; and
- Verified that the FID/PID was reading background levels prior to exposing the probe into another sample.

Collection of Grab Soil Samples

Soil samples may provide two (2) types of soil contamination representation including grab and composite. Samples may be generally collected in random locations from a grid pattern or selected areas believed to be contaminated as evidenced by field indicators (staining, odors and/or measurable volatile organic readings).

For this study, grab samples selected from areas showing field indicators or confirmation soil samples chosen to confirm the absence of volatile organic readings were chosen. The technical definition for a grab sample is as follows: A grab sample is a discrete aliquot representative of a specific location at a given point in time. The sample is collected at one time and at one particular sampling point and depth. Refer to the text or Chain-of-Custody in this study for soil sample selection, date, time and depths of each sample chosen for laboratory analyses.

Sample Handling Procedures

The sample handling procedures were conducted as follows:

1) Disposable surgical latex gloves were used to avoid cross contamination of samples. Gloves were discarded in a designated "waste bag after each sample was collected.

2) Each confirmation sample upon collection was immediately stored in a cooler containing ice. During the sample collection process, care was taken to insure the samples were not collected in direct sunlight. In addition, during the collection process, no parts of the body without gloves touched any part of the sample.

3) Once placed into the cooler, each sample was protected with bubble wrap® and foam was inserted in the base, sides and top of the cooler.

Soil Boring Abandonment Procedures

Due to the fact that holes in the subsurface may act as a conduit for contamination migration, proper sealing of holes is essential for ensuring that a site assessment does not contribute to the spread of contaminants. The objective of hole-sealing is to prevent preferential migration of contaminants through the bore hole. To seal the boreholes advanced during this study, the contractor utilized a method known as surface pouring. Surface pouring entails sealing the boreholes with dry products (e.g., bentonite granules, chips and/or pellets). Once the DPT drive rods have been withdrawn, dry products are physically poured into the bottom of the

borehole and filled vertically up the column to at least two (2) feet from the base of the borehole. Once the dry products have seated into the borehole, the product is hydrated to expand the clay material. After the hydration process has been performed, the remaining portions of the boreholes are backfilled with the soil cores. Due to the nature of DPT, no soil cuttings were generated during soil boring exploration assessment work.

GROUNDWATER INVESTIGATION

The purpose of a monitoring well is to provide an access point for measuring groundwater levels and to collect groundwater samples representing actual in-situ groundwater conditions at that point of access. For the purpose of this investigation, based on the scope of work, EI chose to install temporary groundwater monitoring wells (Type I).

WELL DEVELOPMENT AND GROUNDWATER SAMPLE COLLECTION

Water Development

The groundwater monitor well was purged with a Peristaltic™ pump. Well development allows fresh water from the formation to enter the well and the groundwater samples will more accurately represent actual groundwater conditions. The well was purged of approximately three (3) to five (5) well volumes of water or until dry prior to sampling.

Groundwater Sampling Procedures

After well development activities were performed, groundwater samples were collected from the well(s) with the referenced pump. During the collection process, samples were poured directly from the bailer into the laboratory supplied containers which were placed into an ice chest filled with ice. Under no circumstances were any intermediate sample containers used, i.e. jar, beaker, etc., and then transferred to the sample container. In addition, water samples were not field filtered.

Prior to collecting the water sample, the containers were labeled accordingly. This procedure was performed prior to sampling because sample containers have a tendency to "sweat" when filled with groundwater; this makes it difficult to affix a label to the container after sampling. The sample label also was covered with a clear piece of tape, which was wrapped around the sample container. This procedure prevented the label from detaching from the container during sample storage and shipment.

Each sample container was labeled indicating the sample location (i.e. GP-1, or MW-1, etc.), date and time of collection, sample location, collector, project site, and analysis identification. Other pertinent information was recorded in the field book.

After the groundwater sample(s) was collected, the containers were immediately placed in a sample cooler containing ice. Upon completion, the samples were transported to Paradigm Analytical Laboratories, located in Wilmington, NC using chain-of-custody documentation.

Soil Boring Abandonment Procedures

Due to the fact that holes in the subsurface may act as a conduit for contamination migration, proper sealing of holes is essential for ensuring that a site assessment does not contribute to the spread of contaminants. The objective of hole-sealing is to prevent preferential migration of contaminants through the bore hole. To seal the boreholes advanced during this study, the contractor utilized a method known as surface pouring. Surface pouring entails sealing the boreholes with dry products (e.g., bentonite granules, chips and/or pellets). Once the DPT drive rods have been withdrawn, dry products are physically poured into the bottom of the borehole and filled vertically up the column to at least two (2) feet from the base of the borehole. Once the dry products have seated into the borehole, the product is hydrated to expand the clay material. After the hydration process has been performed, the remaining portions of the boreholes are backfilled with the soil cores. Due to the nature of DPT, no soil cuttings were generated during soil boring exploration assessment work.

LABORATORY ANALYTICAL METHODS

Soil Analytical Methods

Based upon verbal information provided by NCDOT personnel (Eugene Tarascio), EI selected to analyze the chosen soil samples for total petroleum hydrocarbons (TPH) analyses by Method 8015B with preparation methods for the analysis of Diesel Range Organics (DRO) by GC-FID and Gasoline Range Organics (GRO) by GC-FID. The GRO method is utilized to extract volatile fuels such as gasoline, while the DRO method is utilized to extract less volatile petroleum products such as diesel fuel, fuel oil #2, kerosene, and varsol.

One (1) soil sample from the site was analyzed for volatile organics by SW-846 Method 8260 (5035 Prep), for semi-volatiles (SVOCs) by SW-846 Method 8270, and for aliphatics and aromatics by Massachusetts Department of Environmental Protection's (MADEP) method for volatile petroleum hydrocarbons (VPH) and MADEP's method for extractable

petroleum hydrocarbons (EPH), respectively.
These laboratory analytical methods were utilized as required in the *Guidelines* in order to compare results to the DWM's maximum soil contaminant concentration (MSCC) cleanup standards. The MSCC concentrations are also published in the *Guidelines*.

SAMPLE PACKAGING AND SHIPPING

This section discusses the sample packaging and shipping protocol that shall be used to transport collected samples to the laboratories for analytical testing. Samples collected, prepared, preserved and stored must then be readied for packaging and shipping. It is important that the presented protocol be followed to ensure that the samples reach their destination in sound condition. In addition, the samples must be under strict COC from the time they are sampled until the analysis is complete.

Samples collected for this project were classified as environmental materials samples and were not considered hazardous. In addition, the samples collected for this study were not classified as "dangerous goods".

Environmental samples collected for this field study were packed prior to shipment using the following procedures:

1. Secure drain plug on cooler with tape.
2. Place cushioned layer on bottom of cooler (vermiculite or "bubble-wrap" plastic).
3. Line cooler with large heavy duty plastic bag.
4. Place all sample containers in large plastic bag within the cooler. Be sure the lids on all bottles are tight (will not leak).
5. Cushion containers to prevent breakage.
6 Put ice that has been "double bagged" in heavy duty polyethylene bags and placed on top of and/or between the samples within the large plastic bag. Fill all remaining space between the containers with cushion materials.
7 Securely fasten the top of the large plastic bag with tape or tie.
8. Place the Chain-of-Custody Record into a plastic bag, and tape the bag to the inner side of the cooler lid.
9. Close the cooler and securely tape (preferably with fiber tape) the top of the cooler shut. Custody seals should be affixed to the top and sides of the cooler within the securing tape so that the cooler cannot be opened without breaking the seal.
10. Shipping containers (ice cooler) must be marked "THIS END UP", and arrow labels which indicate the proper upward position of the container should be affixed to the container. A label containing the name and address of the shipper should be placed on the containers exterior. Labels

used in the shipment of hazardous materials (e.g., Cargo Only Air Craft, Flammable Solids, etc.) are not permitted to be on the outside of containers used to transport environmental samples.

Shipping Note:
"When samples are to be shipped by common carrier or sent through the United States mail, it must comply with the Department of Transportation Hazardous Materials Regulations (49 CFR 172). The person offering such material for transportation is responsible or ensuring such compliance. For the preservation requirements of 40 CFR, Part 136, Table II, the Office of Hazardous Materials, Materials Transportation Bureau, Department of Transportation has determined that the Hazardous Materials Regulations do not apply to the following materials: Hydrochloric Acid (HCL) in water solutions at concentrations of 0.04% by weight or less (pH about 1.96 or greater); Nitric acid (HN03) in water solutions at concentrations of O.-15% by weight or less (pH about 1. 62 or greater); Sulfuric acid (H2SO4) in water solutions at concentrations of 0.35% by weight or less (pH about 1. 15 or greater); and Sodium Hydroxide (Na OH) in water solutions at concentrations of 0.08% by weight or less (pH about 12.30 or less). This footnote is wholly reproduced from 40 CFR 136.3, which is definitive".

Sample Transportation

The cooler(s) containing the collected soil samples was shipped overnight via Federal Express, with COC documentation, to Prism Laboratories, Inc. in Charlotte, NC. The following protocol was used for sample handling and transportation:

1) The lids on all bottles were tightened to reduce the potential for leakage.
2) The sample identification label on each individual laboratory container was covered with a clear piece of plastic tape. Each container was then placed within an appropriately sized polyethylene bag and sealed.
3) The containers were placed into a bubble-wrap® lined rectangular ice chest (cooler).
4) Ice was placed on top and surrounding bubble-wrap® sample containers. Some of the remaining spaces between the containers were filled with bubble-wrap® and/or ice.
5) The cooler drain plug was secured with clear tape.
6) The COC's was double plastic bagged and was taped to the inner side of the cooler lid.
7) The cooler was closed and securely taped.
8) A label with adhesive tape containing the name and address of the shipper and the address of the laboratory was placed on top of the cooler.

DECONTAMINATION PROCEDURES

Decontamination is the process of washing, rinsing and removing contaminants from exposed surfaces of equipment. Decontamination helps prevent the spread of contamination off-site, and avoids cross-contamination to other samples. The decontamination procedures were performed as follows:

1) Disposable surgical latex gloves were used in lieu of decontamination procedures to collect soil samples.

The soil samples retained for laboratory analyses were placed in the appropriate clean laboratory prepared containers, labeled and subsequently delivered with chain-of-custody documentation (COC) for analysis. Dates and times of sampling may be referenced on the COC's. Specific laboratory analysis methods are referenced in the text of this Study.

QUALITY ASSURANCE PROTOCOL

Field and Laboratory Control Samples

The purpose of this section is to describe the standard control sampling program that supported the data quality objectives for this site. These control samples will included field control Quality Assurance (QA) samples used to assess sources of error. To minimize or consider the impact these errors have on the resulting data, a combination of unique field QA/QC protocols and control samples were developed to meet the QA overall objectives.

Field Control Samples

The elements of the sampling and field QA/QC strategy included the following:

(1) El developed a well thought out sampling strategy for the site. The plan adequately and sufficiently outlined the different types of environmental media and protocol to sample the media.
(2) Sampling methodologies to obtain true representative samples.
(3) Used decontamination procedures in order to reduce cross-contamination potential between sampling points.
(4) Used the proper sample containers, and preservation requirements.
(5) Used the proper storage, and shipping of samples protocol.

Techniques to verify the inclusion of the QA/QC program included scheduled field control samples consisting of field blanks (trip and temperature). The field control samples were

handled similarly as the environmental samples.

Quality Control Samples

A trip and temperature blank were collected during this study.

Laboratory QA/QC Procedures

Laboratory QA/QC procedures are implemented in order to prevent, detects, and corrects potential errors during the analytical process. The reliability and credibility of analytical laboratories are corroborated by the development and performance of their respective QA/QC programs. For this project, the NCDOT contracted laboratory provided and performed their program as they see fit. Standard practices used by the selected laboratory included the following quality control sample information in their generated reports:

(a) laboratory method blanks;
(b) temperature blanks.

INVESTIGATION DERIVED WASTE MANAGEMENT PROTOCOL

The investigation derived waste (IDW) generated during the sampling activities were placed on site. These wastes include any derivative investigative soils leftover from the sampling and backfilling protocol, decontamination water (cleaning of field equipment), bailers, bailer haul-line and PPE equipment, if applicable. The management of IDW for this project complies with applicable or relevant and appropriate requirements (ARAs). The site specific ARAs were followed in consensus with the EPA Standard Operating Procedures (SOP) and Quality Assurance Manual, Region 4 and the *Guidelines For Assessment And Corrective Action*, drafted by the North Carolina Underground Storage Tank Section, effective July 1, 2001.

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: **03/31/06**

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 4.57m | Weather Conditions: Cool | Surface Elevation:
Boring Diameter: 4.0" | Boring Location: Delineation boring

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	
2.00	0.61			100%			NA
4.00	1.22						NA
		8:00	x		ML	Tan sandy SILT (ML), moist to very wet.	1.3
6.00	1.83						
8.00	2.44			100%			0.0
10.00	3.05						1.6
12.00	3.66			10%			NA
14.00	4.27						NA
15.00	4.57						NA
						Boring terminated at 4.57m (15.0') bls. x denotes soil sample at 1.22m - 1.83m (4-6') bls interval collected for laboratory retention.	

ENVIRONMENTAL INVESTIGATIONS, INC.
2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-544-7500

SOIL BORING LOG

Boring No. **GP-2**
Date Drilled: **03/31/06**

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 3.05m
Boring Diameter: 4.0"
Weather Conditions: Cool
Boring Location: Drainage boring
Surface Elevation:

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	NA
2.00	0.61			100%			NA
4.00	1.22				ML	Tan sandy SILT (ML), moist to very wet.	1.9
6.00	1.83	8:30	x	100%			NA
8.00	2.44						2.8
10.00	3.05					Boring terminated at 3.05m (10.0') bls. x denotes soil sample at 1.83m - 2.44m (6-8') bls interval collected for laboratory retention.	

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SOIL BORING LOG

Boring No. GP-3
Date Drilled: 03/31/06

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 3.05m
Boring Diameter: 4.0"
Weather Conditions: Cool
Boring Location: Drainage boring
Surface Elevation:

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	NA
2.00	0.61			100%			NA
4.00	1.22				ML	Tan sandy SILT (ML), moist to very wet.	2.4
6.00	1.83	8:25	x	100%			NA
8.00	2.44						3.3
10.00	3.05					Boring terminated at 3.05m (10.0') bls. x denotes soil sample at 1.83m - 2.44m (6-8') bls interval collected for laboratory retention.	

ENVIRONMENTAL INVESTIGATIONS, INC.

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919-544-7500

SOIL BORING LOG

Boring No. **GP-4**
Date Drilled: **03/31/06**

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 3.05m
Boring Diameter: 4.0"
Weather Conditions: Cool
Boring Location: Drainage boring
Surface Elevation:

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	NA
2.00	0.61			100%			NA
4.00	1.22				ML	Tan sandy SILT (ML), moist to very wet.	2.3
6.00	1.83	8:25	x	100%			NA
8.00	2.44						2.1
10.00	3.05					Boring terminated at 3.05m (10.0') bls. x denotes soil sample at 1.83m - 2.44m (6-8') bls interval collected for laboratory retention.	

ENVIRONMENTAL INVESTIGATIONS, INC.

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Morrisville, North Carolina
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SOIL BORING LOG

Boring No. **GP-5**
Date Drilled: **03/31/06**

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 4.57m
Boring Diameter: 4.0"
Weather Conditions: Cool
Boring Location: Delineation boring
Surface Elevation:

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	NA
2.00	0.61			100%			NA
4.00	1.22						
		9:00	x		ML	Tan sandy SILT (ML), moist to very wet.	8.5
6.00	1.83						0.0
8.00	2.44			100%			4.3
10.00	3.05						NA
12.00	3.66			50%			3.1
14.00	4.27						NA
15.00	4.57						

Boring terminated at 4.57m (15.0') bls.
x denotes soil sample at 1.22m - 1.83m (4-6') bls interval collected for laboratory retention.

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SOIL BORING LOG

Boring No. GP-6
Date Drilled: 03/31/06

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 4.57m
Boring Diameter: 4.0"
Weather Conditions: Cool
Boring Location: Delineation boring
Surface Elevation:

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	NA
2.00	0.61			100%			NA
4.00	1.22				ML	Tan sandy SILT (ML), moist to very wet.	3.4
6.00	1.83	9:10	x	100%			0.0
8.00	2.44						3.2
10.00	3.05						NA
12.00	3.66			40%			2.1
14.00	4.27						NA
15.00	4.57					Boring terminated at 4.57m (15.0') bls. x denotes soil sample at 1.83 - 2.44m (6-8') bls interval collected for laboratory retention.	

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
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SOIL BORING LOG

Boring No. GP-7
Date Drilled: 03/31/06

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 4.57m
Boring Diameter: 4.0"
Weather Conditions: Cool
Boring Location: Delineation boring
Surface Elevation:

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	NA
2.00	0.61			100%			NA
4.00	1.22						
		9:20	x		ML	Tan sandy SILT (ML), moist to very wet.	14.7
6.00	1.83						13.2
8.00	2.44			100%			4.2
10.00	3.05						NA
12.00	3.66			90%			3.6
14.00	4.27						NA
15.00	4.57						

Boring terminated at 4.57m (15.0') bls.
x denotes soil sample at 1.22m - 1.83m (4-6') bls interval collected for laboratory retention.

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SOIL BORING LOG

Boring No. **GP-8**
Date Drilled: **03/31/06**

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 4.57m
Boring Diameter: 4.0"
Weather Conditions: Cool
Boring Location: Delineation boring
Surface Elevation:

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	
2.00	0.61			100%			NA
4.00	1.22						NA
					ML	Tan sandy SILT (ML), moist to very wet.	
6.00	1.83						6.7
		9:40	x	100%			8.2
8.00	2.44						
							NA
10.00	3.05						
							NA
12.00	3.66			100%			
							2.0
14.00	4.27						
15.00	4.57						NA
						Boring terminated at 4.57m (15.0') bls.	
						x denotes soil sample at 1.83 - 2.44m (6-8') bls interval collected for laboratory retention.	

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SOIL BORING LOG

Boring No. **GP-9**
Date Drilled: **03/31/06**

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 3.05m
Boring Diameter: 4.0"
Weather Conditions: Cool
Boring Location: Drainage boring
Surface Elevation:

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	NA
2.00	0.61			100%			NA
4.00	1.22				ML	Tan sandy SILT (ML), moist to very wet.	2.1
6.00	1.83	9:50	x	100%			NA
8.00	2.44						2.6
10.00	3.05					Boring terminated at 3.05m (10.0') bls. x denotes soil sample at 1.83m - 2.44m (6-8') bls interval collected for laboratory retention.	

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SOIL BORING LOG

Boring No. **GP-10**
Date Drilled: **03/31/06**

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 3.05m
Boring Diameter: 4.0"
Weather Conditions: Cool
Boring Location: Drainage boring
Surface Elevation:

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	NA
2.00	0.61			100%			NA
4.00	1.22	10:00	x		ML	Tan sandy SILT (ML), moist to very wet.	7.1
6.00	1.83			100%			NA
8.00	2.44						2.6
10.00	3.05						

Boring terminated at 3.05m (10.0') bls.
x denotes soil sample at 1.22m - 2.83m (4-6') bls interval collected for laboratory retention.

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SOIL BORING LOG

Boring No. **GP-11**
Date Drilled: **03/31/06**

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 3.05m | Weather Conditions: Cool | Surface Elevation:
Boring Diameter: 4.0" | Boring Location: Drainage boring

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	NA
2.00	0.61			100%			NA
4.00	1.22	10:10	x		ML	Tan sandy SILT (ML), moist to very wet.	3.3
6.00	1.83			100%			NA
8.00	2.44						2.8
10.00	3.05						

Boring terminated at 3.05m (10.0') bls.
x denotes soil sample at 1.22m - 2.83m (4-6') bls interval collected for laboratory retention.

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SOIL BORING LOG

Boring No. **GP-12**
Date Drilled: **03/31/06**

Client:	NCDOT	Logged By:	KDH
Project Name:	Parcel #114	Drilling Company:	SEI
Project/Site Location:	560 US Highway 19E, Burnsville, NC 28714	Drill Device:	GeoProbe 6600
Project Number:	ENMO060029.00	Drill Method:	DPT

Total Boring Depth: 3.05m | Weather Conditions: Cool | Surface Elevation:
Boring Diameter: 4.0" | Boring Location: Drainage boring

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
					CL	Light brown to tan sandy CLAY (CL), moist.	NA
2.00	0.61			100%			NA
4.00	1.22	10:20	x		ML	Tan sandy SILT (ML), moist to very wet.	2.3
6.00	1.83			100%			NA
8.00	2.44						2.1
10.00	3.05					Boring terminated at 3.05m (10.0') bls. x denotes soil sample at 1.22m - 2.83m (4-6') bls interval collected for laboratory retention.	

APPENDIX D

LABORATORY RESULTS

Case Narrative

PRISM LABORATORIES, INC.

Date: 4/19/06

Company: NC Dept. of Transportation
Contact: c/o EI / Bob Shaut
Address: Suite 200
2101 Gateway Centre Blvd.
Morrisville, NC 27560

Client Project ID: Parcel 114/NCDOT-Burnsville NC
Client Project Name or No: WBS# 35609.1.1
Prism COC Group No: G0306859
Collection Date(s): 3/31/06
Lab Submittal Date: 3/31/06

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 14 pages. A chain-of-custody is also attached for the samples submitted to Prism for this project.

Data qualifiers are flagged individually on each sample. A Key Reference for the data qualifiers appears at the bottom of this page. Quality control statements and/or sample specific remarks are included in the sample comments section of the laboratory report for each sample affected.

Please call if you have any questions relating to this analytical report.

Data Reviewed by: Paula A. Gilleland
Signature: Paula A. Gilleland
Review Date: 4/19/06

Project Manager: Angela D. Overcash
Signature: Paula A. Gilleland for Angela Overcash
Approval Date: 4/19/06

Data Qualifier Key Reference:

- #: Result outside of QC Limits
- B: Compound also detected in the method blank
- DO: Compound diluted out.
- E: Estimated concentration, calibration range exceeded
- J: The analyte was positively identified but the value is estimated below the reporting limit
- JH: Estimated concentration with a high bias
- JL: Estimated concentration with a low bias
- M: A matrix effect is present
- T: Tentatively identified compound. The concentration is estimated.

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

PRISM LABORATORIES, INC.
Service Analytical & Environmental Solutions

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

Laboratory Report

04/18/06

N. C. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1
Sample Matrix: Water

Client Sample ID: W-1
Prism Sample ID: 146456
COC Group: G0306859
Time Collected: 03/31/06 10:30
Time Submitted: 03/31/06 13:35

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Purgeable Aromatics by GC-PID									
Benzene	BRL	µg/L	0.50	0.090	1	601/602	04/08/06 22:23	erussell	Q13830
Ethylbenzene	BRL	µg/L	1.0	0.13	1	601/602	04/08/06 22:23	erussell	Q13830
Isopropyl ether (IPE)	BRL	µg/L	5.0	0.041	1	601/602	04/08/06 22:23	erussell	Q13830
m,p-Xylenes	BRL	µg/L	2.0	0.43	1	601/602	04/08/06 22:23	erussell	Q13830
Methyl t-butyl ether (MTBE)	BRL	µg/L	5.0	0.28	1	601/602	04/08/06 22:23	erussell	Q13830
Naphthalene	BRL	µg/L	1.0	0.28	1	601/602	04/08/06 22:23	erussell	Q13830
o-Xylene	BRL	µg/L	1.0	0.29	1	601/602	04/08/06 22:23	erussell	Q13830
Toluene	BRL	µg/L	1.0	0.13	1	601/602	04/08/06 22:23	erussell	Q13830

Surrogate	% Recovery	Control Limits
1,4-Difluorobenzene-PID	103	69 - 140

Semivolatile Organic Compounds by GC/MS									
1,2,4-Trichlorobenzene	BRL	µg/L	9.7	2.4	1	625	04/07/06 23:34	kelliot	Q13852
1,2-Dichlorobenzene	BRL	µg/L	9.7	2.6	1	625	04/07/06 23:34	kelliot	Q13852
1,3-Dichlorobenzene	BRL	µg/L	9.7	1.8	1	625	04/07/06 23:34	kelliot	Q13852
1,4-Dichlorobenzene	BRL	µg/L	9.7	2.3	1	625	04/07/06 23:34	kelliot	Q13852
2,4,5-Trichlorophenol	BRL	µg/L	9.7	2.5	1	625	04/07/06 23:34	kelliot	Q13852
2,4,6-Trichlorophenol	BRL	µg/L	9.7	1.7	1	625	04/07/06 23:34	kelliot	Q13852
2,4-Dichlorophenol	BRL	µg/L	9.7	1.8	1	625	04/07/06 23:34	kelliot	Q13852
2,4-Dimethylphenol	BRL	µg/L	9.7	0.65	1	625	04/07/06 23:34	kelliot	Q13852
2,4-Dinitrophenol	BRL	µg/L	49	0.65	1	625	04/07/06 23:34	kelliot	Q13852
2,4-Dinitrotoluene	BRL	µg/L	9.7	0.82	1	625	04/07/06 23:34	kelliot	Q13852
2,6-Dinitrotoluene	BRL	µg/L	9.7	1.6	1	625	04/07/06 23:34	kelliot	Q13852
2-Chloronaphthalene	BRL	µg/L	9.7	2.1	1	625	04/07/06 23:34	kelliot	Q13852
2-Chlorophenol	BRL	µg/L	9.7	2.1	1	625	04/07/06 23:34	kelliot	Q13852
2-Methylphenol	BRL	µg/L	9.7	2.7	1	625	04/07/06 23:34	kelliot	Q13852

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Laboratory Report

04/18/06

N. C. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1
Sample Matrix: Water

Client Sample ID: W-1
Prism Sample ID: 146456
COC Group: G0306859
Time Collected: 03/31/06 10:30
Time Submitted: 03/31/06 13:35

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
2-Nitrophenol	BRL	µg/L	9.7	2.2	1	625	04/07/06 23:34	kelliot	Q13852
3&4-Methylphenol	BRL	µg/L	9.7	3.6	1	625	04/07/06 23:34	kelliot	Q13852
3,3'-Dichlorobenzidine	BRL	µg/L	49	9.1	1	625	04/07/06 23:34	kelliot	Q13852
4,6-Dinitro-2-methylphenol	BRL	µg/L	49	0.85	1	625	04/07/06 23:34	kelliot	Q13852
4-Bromophenylphenylether	BRL	µg/L	9.7	1.9	1	625	04/07/06 23:34	kelliot	Q13852
4-Chloro-3-methylphenol	BRL	µg/L	9.7	1.7	1	625	04/07/06 23:34	kelliot	Q13852
4-Chlorophenylphenylether	BRL	µg/L	9.7	1.6	1	625	04/07/06 23:34	kelliot	Q13852
4-Nitrophenol	BRL	µg/L	49	0.58	1	625	04/07/06 23:34	kelliot	Q13852
Acenaphthene	BRL	µg/L	9.7	1.8	1	625	04/07/06 23:34	kelliot	Q13852
aphthylene	BRL	µg/L	9.7	2.0	1	625	04/07/06 23:34	kelliot	Q13852
Anthracene	BRL	µg/L	9.7	0.95	1	625	04/07/06 23:34	kelliot	Q13852
Benzo(a)anthracene	BRL	µg/L	9.7	0.91	1	625	04/07/06 23:34	kelliot	Q13852
Benzo(a)pyrene	BRL	µg/L	9.7	0.97	1	625	04/07/06 23:34	kelliot	Q13852
Benzo(b)fluoranthene	BRL	µg/L	9.7	1.7	1	625	04/07/06 23:34	kelliot	Q13852
Benzo(g,h,i)perylene	BRL	µg/L	9.7	2.0	1	625	04/07/06 23:34	kelliot	Q13852
Benzo(k)fluoranthene	BRL	µg/L	9.7	1.8	1	625	04/07/06 23:34	kelliot	Q13852
Bis(2-chloroethoxy)methane	BRL	µg/L	9.7	2.1	1	625	04/07/06 23:34	kelliot	Q13852
Bis(2-chloroethyl)ether	BRL	µg/L	9.7	2.0	1	625	04/07/06 23:34	kelliot	Q13852
Bis(2-chloroisopropyl)ether	BRL	µg/L	9.7	2.3	1	625	04/07/06 23:34	kelliot	Q13852
Bis(2-ethylhexyl)phthalate	BRL	µg/L	9.7	0.69	1	625	04/07/06 23:34	kelliot	Q13852
Butylbenzylphthalate	BRL	µg/L	9.7	0.68	1	625	04/07/06 23:34	kelliot	Q13852
Chrysene	BRL	µg/L	9.7	0.55	1	625	04/07/06 23:34	kelliot	Q13852
Di-n-butylphthalate	BRL	µg/L	9.7	1.4	1	625	04/07/06 23:34	kelliot	Q13852
Di-n-octylphthalate	BRL	µg/L	9.7	2.1	1	625	04/07/06 23:34	kelliot	Q13852
Dibenzo(a,h)anthracene	BRL	µg/L	9.7	1.1	1	625	04/07/06 23:34	kelliot	Q13852
Dibenzofuran	BRL	µg/L	9.7	2.1	1	625	04/07/06 23:34	kelliot	Q13852
ylphthalate	BRL	µg/L	9.7	1.1	1	625	04/07/06 23:34	kelliot	Q13852
Dimethylphthalate	BRL	µg/L	9.7	1.4	1	625	04/07/06 23:34	kelliot	Q13852

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NC Drinking Water Cert. No. 37735

Laboratory Report

04/18/06

. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1
Sample Matrix: Water

Client Sample ID: W-1
Prism Sample ID: 146456
COC Group: G0306859
Time Collected: 03/31/06 10:30
Time Submitted: 03/31/06 13:35

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Fluoranthene	BRL	µg/L	9.7	0.91	1	625	04/07/06 23:34	kelliot	Q13852
Fluorene	BRL	µg/L	9.7	1.4	1	625	04/07/06 23:34	kelliot	Q13852
Hexachlorobenzene	BRL	µg/L	9.7	1.3	1	625	04/07/06 23:34	kelliot	Q13852
Hexachlorobutadiene	BRL	µg/L	9.7	2.1	1	625	04/07/06 23:34	kelliot	Q13852
Hexachlorocyclopentadiene	BRL	µg/L	9.7	2.3	1	625	04/07/06 23:34	kelliot	Q13852
Hexachloroethane	BRL	µg/L	9.7	1.7	1	625	04/07/06 23:34	kelliot	Q13852
Indeno(1,2,3-cd)pyrene	BRL	µg/L	9.7	1.7	1	625	04/07/06 23:34	kelliot	Q13852
Isophorone	BRL	µg/L	9.7	1.6	1	625	04/07/06 23:34	kelliot	Q13852
N-Nitrosodi-n-propylamine	BRL	µg/L	9.7	2.1	1	625	04/07/06 23:34	kelliot	Q13852
thalene	BRL	µg/L	9.7	2.1	1	625	04/07/06 23:34	kelliot	Q13852
Nitrobenzene	BRL	µg/L	9.7	1.8	1	625	04/07/06 23:34	kelliot	Q13852
Pentachlorophenol	BRL	µg/L	9.7	1.7	1	625	04/07/06 23:34	kelliot	Q13852
Phenanthrene	BRL	µg/L	9.7	0.87	1	625	04/07/06 23:34	kelliot	Q13852
Phenol	BRL	µg/L	9.7	0.87	1	625	04/07/06 23:34	kelliot	Q13852
Pyrene	BRL	µg/L	9.7	0.88	1	625	04/07/06 23:34	kelliot	Q13852
Sample Preparation:			1030 mL /		1 mL	625	04/03/06 12:00	smanivanh	P15033

Surrogate	% Recovery	Control Limits
Terphenyl-d14	71	10 - 154
Phenol-d5	13	10 - 48
Nitrobenzene-d5	61	22 - 103
2-Fluorophenol	21	10 - 59
2-Fluorobiphenyl	58	29 - 112
2,4,6-Tribromophenol	58	27 - 125

TIC's By 625 — **Est.Conc** — **Units**

No TICs were detected.

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Laboratory Report

04/18/06

U. S. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1
Sample Matrix: Water

Client Sample ID: W-1
Prism Sample ID: 146456
COC Group: G0306859
Time Collected: 03/31/06 10:30
Time Submitted: 03/31/06 13:35

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Extractable Petroleum Hydrocarbons by GC-FID									
C11-C22 Aromatics	BRL	µg/L	100	71	1	MADEP EPH	04/12/06 16:25	grappaccioli	Q13970
C19-C36 Aliphatics	BRL	µg/L	100	31	1	MADEP EPH	04/12/06 16:25	grappaccioli	Q13970
C9-C18 Aliphatics	BRL	µg/L	100	75	1	MADEP EPH	04/12/06 16:25	grappaccioli	Q13970

* Analysis Note for C11-C22 Aromatics: Adjusted value.

Sample Preparation:	1000 mL / 2 mL	EPH	04/10/06 8:00	smanivanh	P15099		

Surrogate	% Recovery	Control Limits
o-Terphenyl	98	40 - 140
2-Fluorobiphenyl	81	40 - 140
2-Bromonaphthalene	75	40 - 140
1-Chloro-octadecane	121	40 - 140

Volatile Petroleum Hydrocarbons by GC-PID/FID									
C5-C8 Aliphatics	BRL	µg/L	100	50	1	MADEP VPH	04/05/06 16:46	jvogel	Q13860
C9-C10 Aromatics	BRL	µg/L	100	35	1	MADEP VPH	04/05/06 16:46	jvogel	Q13860
C9-C12 Aliphatics	BRL	µg/L	100	50	1	MADEP VPH	04/05/06 16:46	jvogel	Q13860

* Analysis Note for C5-C8 Aliphatics: Adjusted value.
* Analysis Note for C9-C12 Aliphatics: Adjusted value.

Surrogate	% Recovery	Control Limits
2,5-Dibromotoluene-PID	85	70 - 130
2,5-Dibromotoluene-FID	106	70 - 130

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543
Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Laboratory Report

04/18/06

U. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1
Sample Matrix: Water

Client Sample ID: W-1
Prism Sample ID: 146456
COC Group: G0306859
Time Collected: 03/31/06 10:30
Time Submitted: 03/31/06 13:35

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID

Sample Comment(s):

BRL = Below Reporting Limit

J = Estimated value between the Reporting Limit and the MDL

The results in this report relate only to the samples submitted for analysis and meet state certification requirements other than NELAC certification except for those instances indicated in the case narrative and/or test comments.

Angela D. Overcash, V.P. Laboratory Services

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543

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

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Level II QC Report

4/18/06

N. C. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1

COC Group Number: G0306859
Date/Time Submitted: 3/31/06 13:35

Purgeable Aromatics by GC-PID, method 601/602

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
Benzene	ND	0.5	<0.25	µg/L	Q13830
Ethylbenzene	ND	1	<0.5	µg/L	Q13830
Isopropyl ether (IPE)	ND	5	<2.5	µg/L	Q13830
m,p-Xylenes	ND	2	<1	µg/L	Q13830
Methyl t-butyl ether (MTBE)	ND	5	<2.5	µg/L	Q13830
Naphthalene	ND	1	<0.5	µg/L	Q13830
o-Xylene	ND	1	<0.5	µg/L	Q13830
Toluene	ND	1	<0.5	µg/L	Q13830

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Benzene	20.6	20	µg/L	103	39 - 150	Q13830
Ethylbenzene	20.0	20	µg/L	100	32 - 160	Q13830
Isopropyl ether (IPE)	20.7	20	µg/L	103	61 - 134	Q13830
m,p-Xylenes	40.7	40	µg/L	102	65 - 130	Q13830
Methyl t-butyl ether (MTBE)	21.2	20	µg/L	106	74 - 130	Q13830
Naphthalene	20.5	20	µg/L	102	60 - 136	Q13830
o-Xylene	18.0	20	µg/L	90	66 - 129	Q13830
Toluene	20.0	20	µg/L	100	46 - 148	Q13830

Matrix Spike

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
146584	Benzene	83.612	80	µg/L	105	39 - 150	Q13830
	Ethylbenzene	83.560	80	µg/L	104	32 - 160	Q13830
	Isopropyl ether (IPE)	85.780	80	µg/L	107	60 - 132	Q13830
	m,p-Xylenes	166.760	160	µg/L	104	65 - 130	Q13830
	Methyl t-butyl ether (MTBE)	92.360	80	µg/L	110	73 - 130	Q13830
	Naphthalene	83.648	80	µg/L	105	58 - 132	Q13830
	o-Xylene	69.596	80	µg/L	87	66 - 129	Q13830
	Toluene	82.328	80	µg/L	103	46 - 148	Q13830

Matrix Spike Duplicate

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
146584	Benzene	80.8	80	µg/L	101	39 - 150	3	0 - 12	Q13830
	Ethylbenzene	79.4	80	µg/L	99	32 - 160	5	0 - 15	Q13830
	Isopropyl ether (IPE)	83.8	80	µg/L	105	60 - 132	2	0 - 16	Q13830
	m,p-Xylenes	161	160	µg/L	101	65 - 130	4	0 - 21	Q13830
	Methyl t-butyl ether (MTBE)	93.2	80	µg/L	111	73 - 130	1	0 - 26	Q13830
	Naphthalene	86.4	80	µg/L	108	58 - 132	3	0 - 28	Q13830
	o-Xylene	71.7	80	µg/L	90	66 - 129	3	0 - 15	Q13830
	Toluene	79.1	80	µg/L	99	46 - 148	4	0 - 14	Q13830

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Level II QC Report

4/18/06

N. C. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1

COC Group Number: G0306859
Date/Time Submitted: 3/31/06 13:35

Semivolatile Organic Compounds by GC/MS, method 625

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
1,2,4-Trichlorobenzene	ND	10	<5	µg/L	Q13852
1,2-Dichlorobenzene	ND	10	<5	µg/L	Q13852
1,3-Dichlorobenzene	ND	10	<5	µg/L	Q13852
1,4-Dichlorobenzene	ND	10	<5	µg/L	Q13852
2,4,5-Trichlorophenol	ND	10	<5	µg/L	Q13852
2,4,6-Trichlorophenol	ND	10	<5	µg/L	Q13852
2,4-Dichlorophenol	ND	10	<5	µg/L	Q13852
2,4-Dimethylphenol	ND	10	<5	µg/L	Q13852
2,4-Dinitrophenol	ND	50	<25	µg/L	Q13852
2,4-Dinitrotoluene	ND	10	<5	µg/L	Q13852
2,6-Dinitrotoluene	ND	10	<5	µg/L	Q13852
2-Chloronaphthalene	ND	10	<5	µg/L	Q13852
2-Chlorophenol	ND	10	<5	µg/L	Q13852
2-Methylphenol	ND	10	<5	µg/L	Q13852
2-Nitrophenol	ND	10	<5	µg/L	Q13852
3&4-Methylphenol	ND	10	<5	µg/L	Q13852
3,3'-Dichlorobenzidine	ND	50	<25	µg/L	Q13852
4,6-Dinitro-2-methylphenol	ND	50	<25	µg/L	Q13852
4-Bromophenylphenylether	ND	10	<5	µg/L	Q13852
4-Chloro-3-methylphenol	ND	10	<5	µg/L	Q13852
4-Chlorophenylphenylether	ND	10	<5	µg/L	Q13852
4-Nitrophenol	ND	50	<25	µg/L	Q13852
Acenaphthene	ND	10	<5	µg/L	Q13852
Acenaphthylene	ND	10	<5	µg/L	Q13852
Anthracene	ND	10	<5	µg/L	Q13852
Benzo(a)anthracene	ND	10	<5	µg/L	Q13852
Benzo(a)pyrene	ND	10	<5	µg/L	Q13852
Benzo(b)fluoranthene	ND	10	<5	µg/L	Q13852
Benzo(g,h,i)perylene	ND	10	<5	µg/L	Q13852
Benzo(k)fluoranthene	ND	10	<5	µg/L	Q13852
Bis(2-chloroethoxy)methane	ND	10	<5	µg/L	Q13852
Bis(2-chloroethyl)ether	ND	10	<5	µg/L	Q13852
Bis(2-chloroisopropyl)ether	ND	10	<5	µg/L	Q13852
Bis(2-ethylhexyl)phthalate	ND	10	<5	µg/L	Q13852
Butylbenzylphthalate	ND	10	<5	µg/L	Q13852
Chrysene	ND	10	<5	µg/L	Q13852
Di-n-butylphthalate	ND	10	<5	µg/L	Q13852
Di-n-octylphthalate	ND	10	<5	µg/L	Q13852
Dibenzo(a,h)anthracene	ND	10	<5	µg/L	Q13852
Dibenzofuran	ND	10	<5	µg/L	Q13852
Diethylphthalate	ND	10	<5	µg/L	Q13852
Dimethylphthalate	ND	10	<5	µg/L	Q13852

N. C. Department of Transportation
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Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1

COC Group Number: G0306859
Date/Time Submitted: 3/31/06 13:35

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
Fluoranthene	ND	10	<5	µg/L	Q13852
Fluorene	ND	10	<5	µg/L	Q13852
Hexachlorobenzene	ND	10	<5	µg/L	Q13852
Hexachlorobutadiene	ND	10	<5	µg/L	Q13852
Hexachlorocyclopentadiene	ND	10	<5	µg/L	Q13852
Hexachloroethane	ND	10	<5	µg/L	Q13852
Indeno(1,2,3-cd)pyrene	ND	10	<5	µg/L	Q13852
Isophorone	ND	10	<5	µg/L	Q13852
N-Nitrosodi-n-propylamine	ND	10	<5	µg/L	Q13852
Naphthalene	ND	10	<5	µg/L	Q13852
Nitrobenzene	ND	10	<5	µg/L	Q13852
Pentachlorophenol	ND	10	<5	µg/L	Q13852
Phenanthrene	ND	10	<5	µg/L	Q13852
Phenol	ND	10	<5	µg/L	Q13852
Pyrene	ND	10	<5	µg/L	Q13852

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
1,2,4-Trichlorobenzene	71.3	100	µg/L	71	44 - 142	Q13852
1,2-Dichlorobenzene	69.9	100	µg/L	70	32 - 129	Q13852
1,3-Dichlorobenzene	68.8	100	µg/L	69	20 - 124	Q13852
1,4-Dichlorobenzene	67.1	100	µg/L	67	20 - 124	Q13852
2,4,6-Trichlorophenol	69.7	100	µg/L	70	37 - 144	Q13852
2,4-Dichlorophenol	62.4	100	µg/L	62	39 - 135	Q13852
2,4-Dimethylphenol	63.2	100	µg/L	63	32 - 119	Q13852
2,4-Dinitrophenol	76.3	100	µg/L	76	10 - 191	Q13852
2,4-Dinitrotoluene	90.9	100	µg/L	91	39 - 139	Q13852
2,6-Dinitrotoluene	96.7	100	µg/L	97	50 - 158	Q13852
2-Chloronaphthalene	80.1	100	µg/L	80	60 - 118	Q13852
2-Chlorophenol	55.7	100	µg/L	56	23 - 134	Q13852
2-Nitrophenol	71.3	100	µg/L	71	29 - 182	Q13852
3,3'-Dichlorobenzidine	97.6	100	µg/L	98	10 - 262	Q13852
4,6-Dinitro-2-methylphenol	86.0	100	µg/L	86	10 - 181	Q13852
4-Bromophenylphenylether	73.1	100	µg/L	73	53 - 127	Q13852
4-Chloro-3-methylphenol	60.9	100	µg/L	61	22 - 147	Q13852
4-Chlorophenylphenylether	77.7	100	µg/L	78	25 - 158	Q13852
4-Nitrophenol	23.8	100	µg/L	24	10 - 132	Q13852
Acenaphthene	77.6	100	µg/L	78	47 - 145	Q13852
Acenaphthylene	83.1	100	µg/L	83	33 - 145	Q13852
Anthracene	72.3	100	µg/L	72	27 - 133	Q13852
Benzo(a)anthracene	62.2	100	µg/L	62	33 - 143	Q13852
Benzo(a)pyrene	90.4	100	µg/L	90	17 - 163	Q13852
Benzo(b)fluoranthene	96.4	100	µg/L	96	24 - 159	Q13852
Benzo(g,h,i)perylene	49.7	100	µg/L	50	10 - 219	Q13852

PRISM LABORATORIES, INC
Full Service Analytical & Environmental Solutions

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

Level II QC Report

4/18/06

N. C. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1

COC Group Number: G0306859
Date/Time Submitted: 3/31/06 13:35

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
Benzo(k)fluoranthene	93.6	100	µg/L	94	11 - 162	Q13852
Bis(2-chloroethoxy)methane	74.3	100	µg/L	74	33 - 184	Q13852
Bis(2-chloroethyl)ether	63.6	100	µg/L	64	12 - 158	Q13852
Bis(2-chloroisopropyl)ether	73.9	100	µg/L	74	36 - 166	Q13852
Bis(2-ethylhexyl)phthalate	95.1	100	µg/L	95	10 - 158	Q13852
Butylbenzylphthalate	91.3	100	µg/L	91	10 - 152	Q13852
Chrysene	59.9	100	µg/L	60	17 - 168	Q13852
Di-n-butylphthalate	83.3	100	µg/L	83	10 - 118	Q13852
Di-n-octylphthalate	102	100	µg/L	102	10 - 146	Q13852
Dibenzo(a,h)anthracene	59.2	100	µg/L	59	10 - 227	Q13852
Diethylphthalate	86.5	100	µg/L	87	10 - 114	Q13852
Dimethylphthalate	66.1	100	µg/L	66	10 - 112	Q13852
Fluoranthene	70.4	100	µg/L	70	26 - 137	Q13852
Fluorene	88.9	100	µg/L	89	59 - 121	Q13852
Hexachlorobenzene	74.6	100	µg/L	75	10 - 152	Q13852
Hexachlorobutadiene	70.3	100	µg/L	70	24 - 116	Q13852
Hexachloroethane	64.6	100	µg/L	65	40 - 113	Q13852
Indeno(1,2,3-cd)pyrene	58.4	100	µg/L	58	10 - 171	Q13852
Isophorone	83.7	100	µg/L	84	21 - 196	Q13852
N-Nitrosodi-n-propylamine	87.0	100	µg/L	87	10 - 230	Q13852
Naphthalene	73.9	100	µg/L	74	21 - 133	Q13852
Nitrobenzene	87.7	100	µg/L	88	35 - 180	Q13852
Pentachlorophenol	86.0	100	µg/L	86	14 - 176	Q13852
Phenanthrene	83.4	100	µg/L	83	54 - 120	Q13852
Phenol	21.7	100	µg/L	22	10 - 112	Q13852
Pyrene	97.4	100	µg/L	97	52 - 115	Q13852

Matrix Spike

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
146404	1,2,4-Trichlorobenzene	138.627	196.08	µg/L	71	44 - 142	Q13852
	1,2-Dichlorobenzene	132.667	196.08	µg/L	68	32 - 129	Q13852
	1,3-Dichlorobenzene	128.647	196.08	µg/L	66	20 - 124	Q13852
	1,4-Dichlorobenzene	133.294	196.08	µg/L	68	20 - 124	Q13852
	2,4,6-Trichlorophenol	122.294	196.08	µg/L	62	37 - 144	Q13852
	2,4-Dichlorophenol	123.039	196.08	µg/L	63	39 - 135	Q13852
	2,4-Dimethylphenol	113.000	196.08	µg/L	58	32 - 119	Q13852
	2,4-Dinitrophenol	64.784	196.08	µg/L	33	10 - 191	Q13852
	2,4-Dinitrotoluene	187.059	196.08	µg/L	95	39 - 139	Q13852
	2,6-Dinitrotoluene	171.902	196.08	µg/L	88	50 - 158	Q13852
	2-Chloronaphthalene	150.765	196.08	µg/L	77	60 - 118	Q13852
	2-Chlorophenol	109.078	196.08	µg/L	56	23 - 134	Q13852
	2-Nitrophenol	137.294	196.08	µg/L	70	29 - 182	Q13852
	3,3'-Dichlorobenzidine	184.294	196.08	µg/L	94	10 - 262	Q13852
	4,6-Dinitro-2-methylphenol	102.078	196.08	µg/L	52	10 - 181	Q13852

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Level II QC Report

4/18/06

N. C. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1

COC Group Number: G0306859
Date/Time Submitted: 3/31/06 13:35

Matrix Spike

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
	4-Bromophenylphenylether	142.451	196.08	µg/L	73	53 - 127	Q13852
	4-Chloro-3-methylphenol	127.588	196.08	µg/L	65	22 - 147	Q13852
	4-Chlorophenylphenylether	148.765	196.08	µg/L	76	25 - 158	Q13852
	4-Nitrophenol	46.353	196.08	µg/L	24	10 - 132	Q13852
	Acenaphthene	143.275	196.08	µg/L	73	47 - 145	Q13852
	Acenaphthylene	158.216	196.08	µg/L	81	33 - 145	Q13852
	Anthracene	145.118	196.08	µg/L	74	27 - 133	Q13852
	Benzo(a)anthracene	123.039	196.08	µg/L	63	33 - 143	Q13852
	Benzo(a)pyrene	157.588	196.08	µg/L	80	17 - 163	Q13852
	Benzo(b)fluoranthene	199.471	196.08	µg/L	102	24 - 159	Q13852
	Benzo(g,h,i)perylene	88.980	196.08	µg/L	45	10 - 219	Q13852
	Benzo(k)fluoranthene	135.039	196.08	µg/L	69	11 - 162	Q13852
	Bis(2-chloroethoxy)methane	142.529	196.08	µg/L	73	33 - 184	Q13852
	Bis(2-chloroethyl)ether	120.569	196.08	µg/L	61	12 - 158	Q13852
	Bis(2-chloroisopropyl)ether	138.157	196.08	µg/L	70	36 - 166	Q13852
	Bis(2-ethylhexyl)phthalate	177.471	196.08	µg/L	91	10 - 158	Q13852
	Butylbenzylphthalate	178.569	196.08	µg/L	91	10 - 152	Q13852
	Chrysene	113.882	196.08	µg/L	58	17 - 168	Q13852
	Di-n-butylphthalate	160.784	196.08	µg/L	82	10 - 118	Q13852
	Di-n-octylphthalate	197.627	196.08	µg/L	101	10 - 146	Q13852
	Dibenzo(a,h)anthracene	106.667	196.08	µg/L	54	10 - 227	Q13852
	Diethylphthalate	158.608	196.08	µg/L	81	10 - 114	Q13852
	Dimethylphthalate	140.157	196.08	µg/L	71	10 - 112	Q13852
	Fluoranthene	132.647	196.08	µg/L	68	26 - 137	Q13852
	Fluorene	167.020	196.08	µg/L	85	59 - 121	Q13852
	Hexachlorobenzene	143.216	196.08	µg/L	73	10 - 152	Q13852
	Hexachlorobutadiene	138.922	196.08	µg/L	71	24 - 116	Q13852
	Hexachloroethane	125.216	196.08	µg/L	64	40 - 113	Q13852
	Indeno(1,2,3-cd)pyrene	113.078	196.08	µg/L	58	10 - 171	Q13852
	Isophorone	157.647	196.08	µg/L	80	21 - 196	Q13852
	N-Nitrosodi-n-propylamine	160.392	196.08	µg/L	82	10 - 230	Q13852
	Naphthalene	144.510	196.08	µg/L	74	21 - 133	Q13852
	Nitrobenzene	174.765	196.08	µg/L	89	35 - 180	Q13852
	Pentachlorophenol	118.176	196.08	µg/L	60	14 - 176	Q13852
	Phenanthrene	161.529	196.08	µg/L	82	54 - 120	Q13852
	Phenol	57.039	196.08	µg/L	29	10 - 112	Q13852
	Pyrene	187.549	196.08	µg/L	96	52 - 115	Q13852

Matrix Spike Duplicate

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
146404	1,2,4-Trichlorobenzene	147	196.08	µg/L	75	44 - 142	6	0 - 36	Q13852
	1,2-Dichlorobenzene	137	196.08	µg/L	70	32 - 129	3	0 - 38	Q13852
	1,3-Dichlorobenzene	142	196.08	µg/L	73	20 - 124	10	0 - 41	Q13852
	1,4-Dichlorobenzene	139	196.08	µg/L	71	20 - 124	4	0 - 36	Q13852

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Level II QC Report

4/18/06

N. C. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1

COC Group Number: G0306859
Date/Time Submitted: 3/31/06 13:35

Matrix Spike Duplicate

Sample ID:	Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
2,4,6-Trichlorophenol	129	196.08	µg/L	66	37 - 144	5	0 - 30	Q13852
2,4-Dichlorophenol	135	196.08	µg/L	69	39 - 135	9	0 - 31	Q13852
2,4-Dimethylphenol	117	196.08	µg/L	60	32 - 119	4	0 - 26	Q13852
2,4-Dinitrophenol	69.1	196.08	µg/L	35	10 - 191	6	0 - 30	Q13852
2,4-Dinitrotoluene	175	196.08	µg/L	89	39 - 139	7	0 - 29	Q13852
2,6-Dinitrotoluene	187	196.08	µg/L	96	50 - 158	9	0 - 15	Q13852
2-Chloronaphthalene	153	196.08	µg/L	78	60 - 118	1	0 - 21	Q13852
2-Chlorophenol	120	196.08	µg/L	61	23 - 134	9	0 - 35	Q13852
2-Nitrophenol	144	196.08	µg/L	73	29 - 182	5	0 - 34	Q13852
3,3'-Dichlorobenzidine	196	196.08	µg/L	100	10 - 262	6	0 - 50	Q13852
4,6-Dinitro-2-methylphenol	115	196.08	µg/L	59	10 - 181	12	0 - 19	Q13852
4-Bromophenylphenylether	145	196.08	µg/L	74	53 - 127	2	0 - 18	Q13852
4-Chloro-3-methylphenol	138	196.08	µg/L	71	22 - 147	8	0 - 33	Q13852
4-Chlorophenylphenylether	149	196.08	µg/L	76	25 - 158	0	0 - 19	Q13852
4-Nitrophenol	47.9	196.08	µg/L	24	10 - 132	3	0 - 50	Q13852
Acenaphthene	164	196.08	µg/L	83	47 - 145	13	0 - 20	Q13852
Acenaphthylene	158	196.08	µg/L	81	33 - 145	0	0 - 24	Q13852
Anthracene	141	196.08	µg/L	72	27 - 133	3	0 - 30	Q13852
Benzo(a)anthracene	126	196.08	µg/L	64	33 - 143	2	0 - 26	Q13852
Benzo(a)pyrene	169	196.08	µg/L	86	17 - 163	7	0 - 25	Q13852
Benzo(b)fluoranthene	210	196.08	µg/L	107	24 - 159	5	0 - 29	Q13852
Benzo(g,h,i)perylene	110	196.08	µg/L	56	10 - 219	21	0 - 27	Q13852
Benzo(k)fluoranthene	145	196.08	µg/L	74	11 - 162	7	0 - 11	Q13852
Bis(2-chloroethoxy)methane	143	196.08	µg/L	73	33 - 184	0	0 - 31	Q13852
Bis(2-chloroethyl)ether	137	196.08	µg/L	70	12 - 158	13	0 - 36	Q13852
Bis(2-chloroisopropyl)ether	150	196.08	µg/L	77	36 - 166	8	0 - 40	Q13852
Bis(2-ethylhexyl)phthalate	189	196.08	µg/L	96	10 - 158	6	0 - 17	Q13852
Butylbenzylphthalate	199	196.08	µg/L	101	10 - 152	11	0 - 15	Q13852
Chrysene	114	196.08	µg/L	58	17 - 168	0	0 - 25	Q13852
Di-n-butylphthalate	160	196.08	µg/L	82	10 - 118	0	0 - 27	Q13852
Di-n-octylphthalate	207	196.08	µg/L	106	10 - 146	5	0 - 17	Q13852
Dibenzo(a,h)anthracene	125	196.08	µg/L	64	10 - 227	16	0 - 28	Q13852
Diethylphthalate	175	196.08	µg/L	89	10 - 114	10	0 - 16	Q13852
Dimethylphthalate	154	196.08	µg/L	78	10 - 112	9	0 - 15	Q13852
Fluoranthene	134	196.08	µg/L	68	26 - 137	1	0 - 24	Q13852
Fluorene	174	196.08	µg/L	89	59 - 121	4	0 - 15	Q13852
Hexachlorobenzene	146	196.08	µg/L	74	10 - 152	2	0 - 18	Q13852
Hexachlorobutadiene	147	196.08	µg/L	75	24 - 116	6	0 - 34	Q13852
Hexachloroethane	134	196.08	µg/L	68	40 - 113	7	0 - 38	Q13852
Indeno(1,2,3-cd)pyrene	138	196.08	µg/L	70	10 - 171	20	0 - 29	Q13852
Isophorone	168	196.08	µg/L	86	21 - 196	6	0 - 32	Q13852
N-Nitrosodi-n-propylamine	158	196.08	µg/L	81	10 - 230	2	0 - 36	Q13852
Naphthalene	144	196.08	µg/L	74	21 - 133	0	0 - 42	Q13852
Nitrobenzene	202	196.08	µg/L	103	35 - 180	14	0 - 25	Q13852

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Level II QC Report

4/18/06

N. C. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1

COC Group Number: G0306859
Date/Time Submitted: 3/31/06 13:35

Matrix Spike Duplicate

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
	Pentachlorophenol	125	196.08	µg/L	64	14 - 176	5	0 - 21	Q13852
	Phenanthrene	161	196.08	µg/L	82	54 - 120	0	0 - 29	Q13852
	Phenol	59.6	196.08	µg/L	30	10 - 112	4	0 - 39	Q13852
	Pyrene	204	196.08	µg/L	104	52 - 115	8	0 - 15	Q13852

Volatile Petroleum Hydrocarbons by GC-PID/FID, method MADEP VPH

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
C5-C8 Aliphatics	ND	100	<50	µg/L	Q13860
C9-C10 Aromatics	ND	100	<50	µg/L	Q13860
C9-C12 Aliphatics	ND	100	<50	µg/L	Q13860

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
C5-C8 Aliphatics	139	150	µg/L	93	70 - 130	Q13860
C9-C10 Aromatics	38.4	50	µg/L	77	70 - 130	Q13860
C9-C12 Aliphatics	83.5	100	µg/L	84	70 - 130	Q13860

Matrix Spike

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
146456	C5-C8 Aliphatics	147.000	150	µg/L	98	70 - 130	Q13860
	C9-C10 Aromatics	38.100	50	µg/L	76	70 - 130	Q13860
	C9-C12 Aliphatics	98.600	100	µg/L	99	70 - 130	Q13860

Matrix Spike Duplicate

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
146456	C5-C8 Aliphatics	179	150	µg/L	119	70 - 130	20	0 - 25	Q13860
	C9-C10 Aromatics	36.6	50	µg/L	73	70 - 130	4	0 - 25	Q13860
	C9-C12 Aliphatics	126	100	µg/L	126	70 - 130	24	0 - 25	Q13860

PRISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

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

Level II QC Report

4/18/06

N. C. Department of Transportation
Attn: Bob Shaut/EI
c/o Environmental Investigations, Inc
2101 Gateway Centre Blvd. Ste 200
Morrisville, NC 27560

Project Name: Parcel 114
Project ID: NCDOT - Burnsville NC
Project No.: WBS# 35609.1.1

COC Group Number: G0306859
Date/Time Submitted: 3/31/06 13:35

Extractable Petroleum Hydrocarbons by GC-FID, method MADEP EPH

Method Blank

	Result	RL	Control Limit	Units	QC Batch ID
C11-C22 Aromatics	ND	100	<50	µg/L	Q13970
C19-C36 Aliphatics	ND	100	<50	µg/L	Q13970
C9-C18 Aliphatics	ND	100	<50	µg/L	Q13970

Laboratory Control Sample

	Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
C11-C22 Aromatics	1830	1700	µg/L	108	40 - 140	Q13970
C19-C36 Aliphatics	529	800	µg/L	66	40 - 140	Q13970
C9-C18 Aliphatics	386	600	µg/L	64	40 - 140	Q13970

Matrix Spike

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	QC Batch ID
146849	C11-C22 Aromatics	1505.200	1700	µg/L	89	40 - 140	Q13970
	C19-C36 Aliphatics	683.800	800	µg/L	85	40 - 140	Q13970
	C9-C18 Aliphatics	470.600	600	µg/L	78	40 - 140	Q13970

Matrix Spike Duplicate

Sample ID:		Result	Spike Amount	Units	Recovery %	Recovery Range %	RPD %	RPD Range %	QC Batch ID
146849	C11-C22 Aromatics	1330	1700	µg/L	78	40 - 140	12	0 - 50	Q13970
	C19-C36 Aliphatics	537	800	µg/L	67	40 - 140	24	0 - 50	Q13970
	C9-C18 Aliphatics	390	600	µg/L	65	40 - 140	19	0 - 50	Q13970

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name:	Environmental Investigations, Inc.	Laboratory Name:	Prism Laboratories, Inc.
Project Name:	NCDOT - Burnsville, NC	NC Certification # (Lab):	402
Site Location:	Hwy 19E, Burnsville, NC	Sample Matrix:	Water

Sample Information and Analytical Results							
Method for Ranges: MADEP VPH VPH Surrogate Standards: Aliphatic - 2,5-Dibromotoluene / Aromatic - 2,5-Dibromotoluene							
Sample Identification:			146456	NA	NA	NA	NA
Collection Option (for soil*):			NA	NA	NA	NA	NA
Date Collected:			3/31/06				
Date Received:			3/31/06				
Date Extracted:			NA	NA	NA	NA	NA
Date Analyzed:			4/5/06				
% Dry Solids:			NA	NA	NA	NA	NA
Dilution Factor:			1				
Hydrocarbon Ranges in ug/L:			Sample Results	Sample Results	Sample Results	Sample Results	Sample Results
C5-C8 Aliphatics ***			<100				
C9-C12 Aliphatics ***			<100				
C9-C10 Aromatics **			<100				
Blank:	C5-C8 Aliphatics		<100	<100	<100	<100	<100
	C9-C12 Aliphatics		<100	<100	<100	<100	<100
	C9-C10 Aromatics		<100	<100	<100	<100	<100
RL:	C5-C8 Aliphatics		100				
	C9-C12 Aliphatics		100				
	C9-C10 Aromatics		100				
MDL:	C5-C8 Aliphatics		50				
	C9-C12 Aliphatics		50				
	C9-C10 Aromatics		35				
Surrogate Acceptance Range:		Blank	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %
Aliphatic Surrogate % Rec. - FID:		97	106				
Aromatic Surrogate % Rec. - PID:		75	85				

* Option 1 = Established fill line on vial
* Option 2 = Sampling device (indicate brand, e.g., EnCore TM)
* Option 3 = Field weight of soil

** Unadjusted value - should exclude the concentration of any surrogate(s), internal standards and/or concentrations of other ranges that elute within the specified range.
*** Adjusted value

MDL = Method Detection Limit RL = Reporting Limit Blank = Laboratory Method Blank or Trip Blank (whichever is higher - indicate type)

Were all performance/acceptance standards for required QA/QC procedures achieved?	**YES**	No - Details Attached
Were any significant modifications to the VPH method made?	**NO**	Yes - Details Attached

Comments: VPH trip blank was not submitted to the laboratory.

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name:	Environmental Investigations, Inc.	Laboratory Name:	Prism Laboratories, Inc.
Project Name:	NCDOT - Burnsville, NC	NC Certification # (Lab):	402
Site Location:	Hwy 19E, Burnsville, NC	Sample Matrix:	Water

Sample Information and Analytical Results							
Method for Ranges: MADEP EPH							
EPH Surrogate Standards: Aliphatic - 1-Chloro-octadecane / Aromatic - o-Terphenyl							
EPH Fractionation Surrogates: #1 - 2-Bromonaphthalene / #2 - Fluorobiphenyl							
Sample Identification:			146456	NA	NA	NA	NA
Date Collected:			3/31/06				
Date Received:			3/31/06				
Date Extracted:			4/10/06				
Date Analyzed:			4/12/06				
% Dry Solids:			NA	NA	NA	NA	NA
Dilution Factor:			1				
Hydrocarbon Ranges in ug/L:			Sample Results	Sample Results	Sample Results	Sample Results	Sample Results
C9-C18 Aliphatics *			<100				
C19-C36 Aliphatics *			<100				
C11-C22 Aromatics **			<100				
Blank:	C9-C18 Aliphatics		<100	<100	<100	<100	<100
	C19-C36 Aliphatics		<100	<100	<100	<100	<100
	C11-C22 Aromatics		<100	<100	<100	<100	<100
RL:	C9-C18 Aliphatics		100				
	C19-C36 Aliphatics		100				
	C11-C22 Aromatics		100				
MDL:	C9-C18 Aliphatics		75				
	C19-C36 Aliphatics		31				
	C11-C22 Aromatics		71				
Surrogate Acceptance Range:		Blank	40-140 %	40-140 %	40-140 %	40-140 %	40-140 %
Aliphatic Surrogate % Rec.:		98	121				
Aromatic Surrogate % Rec.:		87	98				
Fractionation Surrogate Accep. Range:		Blank	40-140 %	40-140 %	40-140 %	40-140 %	40-140 %
Frac. Surrogate #1 % Rec.:		54	75				
Frac. Surrogate #2 % Rec.:		71	81				

* Unadjusted value - should exclude the concentration of any surrogate(s), internal standards and/or concentrations of other ranges that elute within the specified range.

** Adjusted value

MDL = Method Detection Limit RL = Reporting Limit Blank = Laboratory Method Blank

Were all performance/acceptance standards for required QA/QC procedures achieved?	**YES**	No - Details Attached
Was blank correction applied as a significant modification of the method?	Yes	**NO**
Were any significant modifications to the EPH method made?	**NO**	Yes - Details Attached

Comments:

CHAIN OF CUSTODY RECORD

PRISM LABORATORIES, INC.

Full Service Analytical & Environmental Solutions

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

PAGE 1 OF 1 QUOTE # TO ENSURE PROPER BILLING: _____

Project Name: NCDOT - Burnsville, NC

Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)

*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements

Invoice To: NCDOT

Address: WBS Element 35609.1.1

Purchase Order No./Billing Reference: TIP # R-2519A

Requested Due Date ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days ☐ 5 Days

"Working Days" ☐ 6-9 Days ☒ Standard 10 days

Samples received after 15:00 will be processed next business day.

Turnaround time is based on business days, excluding weekends and holidays.

(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

Client Company Name: EI

Report To/Contact Name: Bob Shaw

Reporting Address: Morrisville, NC

Phone: 919 657 7500 Fax (Yes) (No): _____

Email (Yes) (No) Email Address _____

EDD Type: ____ PDF X Excel ____ Other

Site Location Name: Parcel 114

Site Location Physical Address: Hwy 19E Burnsville, NC

LAB USE ONLY

	YES	NO	N/A
Samples INTACT upon arrival?	√		
Received ON WET ICE? Temp 3.9°	√		
PROPER PRESERVATIVES Indicated?	√		
Received WITHIN HOLDING TIMES?	√		
CUSTODY SEALS INTACT?			√
VOLATILES rec'd W/OUT HEADSPACE?	√		√ (CB)
PROPER CONTAINERS used?	√		

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC ____ USACE ____ FL ____ NC X

SC ____ OTHER ____ N/A ____

Water Chlorinated: YES ____ NO X

Sample Iced Upon Collection: YES X NO ____

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER *TYPE SEE BELOW	SAMPLE CONTAINER NO.	SAMPLE CONTAINER SIZE	PRESERVATIVES	ANALYSES REQUESTED 624	602	EPH	VPH			REMARKS	PRISM LAB ID NO.
W-1	3/31	1080	W					X	X	X	X				146456

PRESS DOWN FIRMLY - 3 COPIES

Sampler's Signature _____ Sampled By (Print Name) Kevin Hester Affiliation EI

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

Relinquished By: (Signature)	Received By: (Signature)	Date 3/31/06	Military/Hours 1335
Relinquished By: (Signature)	Received By: (Signature)	Date	
Relinquished By: (Signature)	Received For Prism Laboratories By:	Date 3/31/06	1335

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

☐ Fed Ex ☐ UPS ☐ Hand-delivered ☐ Prism Field Service ☐ Other _____

Log-In Group No. G0306859

Additional Comments:

PRISM USE ONLY

Site Arrival Time:

Site Departure Time:

Field Tech Fee:

Mileage:

NPDES:	UST:	GROUNDWATER:	DRINKING WATER:	SOLID WASTE:	RCRA:	CERCLA	LANDFILL	OTHER:
☐ NC ☐ SC ☐ _____	☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____	☐ NC ☐ SC ☐ _____

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL

Mr. Bob Shaut
Environmental Investigations
2101 Gateway Centre Boulevard
Suite 200
Morrisville NC 27560
Report Number: G106-582

Client Project: NCDOT

Dear Mr. Shaut:

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.

4/18/06

Laboratory Director — Date
J. Patrick Weaver

Paradigm Analytical Laboratories, Inc. | 5500 Business Dr., Wilmington, NC 28405 t (910) 350-1903 f (910) 350-1557 www.sgs.com

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

Client Sample ID: GP1
Client Project ID: NCDOT
Lab Sample ID: G106-582-1
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 8:00
Date Received: 4/1/2006
Matrix: Soil
Solids 71.63

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.02	5035	1	04/05/06
Diesel Range Organics	BQL	8.60	3541	1	04/11/06

Comments:

Flags:

Reviewed By: _____
TPH_LIMS_v1.9

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

Client Sample ID: GP2
Client Project ID: NCDOT
Lab Sample ID: G106-582-2
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 8:30
Date Received: 4/1/2006
Matrix: Soil
Solids 74.49

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.87	5035	1	04/05/06
Diesel Range Organics	BQL	8.36	3541	1	04/11/06

Comments:

Flags:

Reviewed By: _____

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

Client Sample ID: GP3
Client Project ID: NCDOT
Lab Sample ID: G106-582-3
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 8:25
Date Received: 4/1/2006
Matrix: Soil
Solids 80.98

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.42	5035	1	04/05/06
Diesel Range Organics	BQL	7.66	3541	1	04/11/06

Comments:

Flags:

Reviewed By: _____
TPH_LIMS_v1.9

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

Client Sample ID: GP4
Client Project ID: NCDOT
Lab Sample ID: G106-582-4
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 8:15
Date Received: 4/1/2006
Matrix: Soil
Solids 68.55

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	8.61	5035	1	04/05/06
Diesel Range Organics	BQL	8.50	3541	1	04/11/06

Comments:

Flags:

Reviewed By: _____

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

Client Sample ID: GP5
Client Project ID: NCDOT
Lab Sample ID: G106-582-5
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 9:00
Date Received: 4/1/2006
Matrix: Soil
Solids 82.63

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.19	5035	1	04/05/06
Diesel Range Organics	BQL	7.28	3541	1	04/08/06

Comments:

Flags:

Reviewed By: _____
TPH_LIMS_v1.9

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

Client Sample ID: GP6
Client Project ID: NCDOT
Lab Sample ID: G106-582-6
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 9:16
Date Received: 4/1/2006
Matrix: Soil
Solids 81.93

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.00	5035	1	04/05/06
Diesel Range Organics	BQL	7.22	3541	1	04/08/06

Comments:

Flags:

Reviewed By: _____
TPH_LIMS_v1.9

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

Client Sample ID: GP7
Client Project ID: NCDOT
Lab Sample ID: G106-582-7
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 9:20
Date Received: 4/1/2006
Matrix: Soil
Solids 78.12

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	**10.7**	6.25	5035	1	04/05/06
Diesel Range Organics	BQL	7.46	3541	1	04/08/06

Comments:

Flags:

Reviewed By: _____
TPH_LIMS_v1.9

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: GP8
Client Project ID: NCDOT
Lab Sample ID: G106-582-8
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 9:40
Date Received: 4/1/2006
Matrix: Soil
Solids 73.34

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.45	5035	1	04/05/06
Diesel Range Organics	BQL	8.40	3541	1	04/08/06

Comments:

Flags:

Reviewed By: _____

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

Client Sample ID: GP9
Client Project ID: NCDOT
Lab Sample ID: G106-582-9
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 9:50
Date Received: 4/1/2006
Matrix: Soil
Solids 76.13

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.47	5035	1	04/05/06
Diesel Range Organics	BQL	8.01	3541	1	04/08/06

Comments:

Flags:

Reviewed By: _____

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

Client Sample ID: GP10
Client Project ID: NCDOT
Lab Sample ID: G106-582-10
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 10:00
Date Received: 4/1/2006
Matrix: Soil
Solids 73.22

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.85	5035	1	04/05/06
Diesel Range Organics	BQL	8.36	3541	1	04/08/06

Comments:

Flags:

Reviewed By: _____
TPH_LIMS_v1.9

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

Client Sample ID: GP11
Client Project ID: NCDOT
Lab Sample ID: G106-582-11
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 10:10
Date Received: 4/1/2006
Matrix: Soil
Solids 78.05

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	8.78	5035	1	04/05/06
Diesel Range Organics	BQL	7.51	3541	1	04/08/06

Comments:

Flags:

Reviewed By: _____
TPH_LIMS_v1.9

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

Client Sample ID: GP12
Client Project ID: NCDOT
Lab Sample ID: G106-582-12
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/31/2006 10:20
Date Received: 4/1/2006
Matrix: Soil
Solids 76.78

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.47	5035	1	04/05/06
Diesel Range Organics	BQL	8.04	3541	1	04/08/06

Comments:

Flags:

Reviewed By: _____
TPH_LIMS_v1.9

SGS

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: GP7
Client Project ID: NCDOT
Lab Sample ID: G106-582-7D
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 3/31/2006 9:20
Date Received: 4/1/2006
Matrix: Soil
%Solids: 78.1

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	1370	50	4/7/2006
Benzene	BQL	55.0	50	4/7/2006
Bromobenzene	BQL	55.0	50	4/7/2006
Bromochloromethane	BQL	55.0	50	4/7/2006
Bromodichloromethane	BQL	55.0	50	4/7/2006
Bromoform	BQL	55.0	50	4/7/2006
Bromomethane	BQL	55.0	50	4/7/2006
2-Butanone	BQL	1370	50	4/7/2006
n-Butylbenzene	41.8	27.5	50	4/7/2006
sec-Butylbenzene	BQL	55.0	50	4/7/2006
tert-Butylbenzene	BQL	55.0	50	4/7/2006
Carbon disulfide	BQL	55.0	50	4/7/2006
Carbon tetrachloride	BQL	55.0	50	4/7/2006
Chlorobenzene	BQL	55.0	50	4/7/2006
Chloroethane	BQL	55.0	50	4/7/2006
Chloroform	BQL	55.0	50	4/7/2006
Chloromethane	BQL	55.0	50	4/7/2006
2-Chlorotoluene	BQL	55.0	50	4/7/2006
4-Chlorotoluene	BQL	55.0	50	4/7/2006
Dibromochloromethane	BQL	55.0	50	4/7/2006
1,2-Dibromo-3-chloropropane	BQL	275	50	4/7/2006
Dibromomethane	BQL	55.0	50	4/7/2006
1,2-Dibromoethane (EDB)	BQL	55.0	50	4/7/2006
1,2-Dichlorobenzene	BQL	55.0	50	4/7/2006
1,3-Dichlorobenzene	BQL	55.0	50	4/7/2006
1,4-Dichlorobenzene	BQL	55.0	50	4/7/2006
trans-1,4-Dichloro-2-butene	BQL	275	50	4/7/2006
1,1-Dichloroethane	BQL	55.0	50	4/7/2006
1,1-Dichloroethene	BQL	55.0	50	4/7/2006
1,2-Dichloroethane	BQL	55.0	50	4/7/2006
cis-1,2-Dichloroethene	BQL	55.0	50	4/7/2006
trans-1,2-dichloroethene	BQL	55.0	50	4/7/2006
1,2-Dichloropropane	BQL	55.0	50	4/7/2006
1,3-Dichloropropane	BQL	55.0	50	4/7/2006
2,2-Dichloropropane	BQL	55.0	50	4/7/2006
1,1-Dichloropropene	BQL	55.0	50	4/7/2006
cis-1,3-Dichloropropene	BQL	55.0	50	4/7/2006
trans-1,3-Dichloropropene	BQL	55.0	50	4/7/2006
Dichlorodifluoromethane	BQL	275	50	4/7/2006
Diisopropyl ether (DIPE)	BQL	55.0	50	4/7/2006
Ethylbenzene	BQL	55.0	50	4/7/2006
Hexachlorobutadiene	BQL	55.0	50	4/7/2006

SGS

Results for Volatiles
by GCMS 8260B/5035

Client Sample ID: GP7
Client Project ID: NCDOT
Lab Sample ID: G106-582-7D
Lab Project ID: G106-582
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 3/31/2006 9:20
Date Received: 4/1/2006
Matrix: Soil
%Solids: 78.1

Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
2-Hexanone	BQL	275	50	4/7/2006
Iodomethane	BQL	55.0	50	4/7/2006
Isopropylbenzene	BQL	55.0	50	4/7/2006
4-Isopropyltoluene	BQL	55.0	50	4/7/2006
Methylene chloride	BQL	275	50	4/7/2006
4-Methyl-2-pentanone	BQL	275	50	4/7/2006
Methyl-tert-butyl ether (MTBE)	BQL	55.0	50	4/7/2006
Naphthalene	BQL	55.0	50	4/7/2006
n-Propyl benzene	**111**	55.0	50	4/7/2006
Styrene	BQL	55.0	50	4/7/2006
1,1,1,2-Tetrachloroethane	BQL	55.0	50	4/7/2006
1,1,2,2-Tetrachloroethane	BQL	55.0	50	4/7/2006
Tetrachloroethene	BQL	55.0	50	4/7/2006
Toluene	**32.4**	27.5	50	4/7/2006
1,2,3-Trichlorobenzene	BQL	55.0	50	4/7/2006
1,2,4-Trichlorobenzene	BQL	55.0	50	4/7/2006
Trichloroethene	BQL	55.0	50	4/7/2006
1,1,1-Trichloroethane	BQL	55.0	50	4/7/2006
1,1,2-Trichloroethane	BQL	55.0	50	4/7/2006
Trichlorofluoromethane	BQL	55.0	50	4/7/2006
1,2,3-Trichloropropane	BQL	55.0	50	4/7/2006
1,2,4-Trimethylbenzene	**108**	55.0	50	4/7/2006
1,3,5-Trimethylbenzene	BQL	31.3	50	4/7/2006
Vinyl chloride	BQL	55.0	50	4/7/2006
m-,p-Xylene	**162**	110	50	4/7/2006
o-Xylene	BQL	55.0	50	4/7/2006

	Spike Added	Spike Result	Percent Recovered
4-Bromofluorobenzene	10	9.53	95
1,2-Dichloroethane-d4	10	9.19	92
Toluene-d8	10	9.97	100

Comments:

Flags:
BQL = Below Quantitation Limits.

Reviewed By: _____

SGS

Results for Semivolatiles
by GCMS 8270

Client Sample ID: GP7
Client Project ID: NCDOT
Lab Sample ID: G106-582-7J
Lab Project ID: G106-582
Report Basis: Dry weight

Analyzed By: MRC
Date Collected: 3/31/2006 9:20
Date Received: 4/1/2006
Date Extracted: 4/4/2006
Matrix: Soil
% Solids: 78.12

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Acenaphthene	BQL	383	1	4/7/2006
Acenaphthylene	BQL	383	1	4/7/2006
Anthracene	BQL	383	1	4/7/2006
Benzo[a]anthracene	BQL	383	1	4/7/2006
Benzo[a]pyrene	BQL	383	1	4/7/2006
Benzo[b]fluoranthene	BQL	383	1	4/7/2006
Benzo[g,h,i]perylene	BQL	383	1	4/7/2006
Benzo[k]fluoranthene	BQL	383	1	4/7/2006
Benzoic Acid	BQL	767	1	4/7/2006
Bis(2-chloroethoxy)methane	BQL	383	1	4/7/2006
Bis(2-chloroethyl)ether	BQL	383	1	4/7/2006
Bis(2-chloroisopropyl)ether	BQL	383	1	4/7/2006
Bis(2-ethylhexyl)phthalate	BQL	383	1	4/7/2006
4-bromophenyl phenyl ether	BQL	383	1	4/7/2006
Butylbenzylphthalate	BQL	383	1	4/7/2006
2-Chloronaphthalene	BQL	383	1	4/7/2006
2-Chlorophenol	BQL	383	1	4/7/2006
4-Chloro-3-methylphenol	BQL	383	1	4/7/2006
4-Chloroaniline	BQL	1920	1	4/7/2006
4-Chlorophenyl phenyl ether	BQL	383	1	4/7/2006
Chrysene	BQL	383	1	4/7/2006
Dibenzo[a,h]anthracene	BQL	383	1	4/7/2006
Dibenzofuran	BQL	383	1	4/7/2006
Di-n-Butylphthalate	BQL	383	1	4/7/2006
1,2-Dichlorobenzene	BQL	383	1	4/7/2006
1,3-Dichlorobenzene	BQL	383	1	4/7/2006
1,4-Dichlorobenzene	BQL	383	1	4/7/2006
3,3'-Dichlorobenzidine	BQL	767	1	4/7/2006
2,4-Dichlorophenol	BQL	383	1	4/7/2006
Diethylphthalate	BQL	383	1	4/7/2006
Dimethylphthalate	BQL	383	1	4/7/2006
2,4-Dimethylphenol	BQL	383	1	4/7/2006
Di-n-octylphthalate	BQL	383	1	4/7/2006
4,6-Dinitro-2-methylphenol	BQL	1920	1	4/7/2006
2,4-Dinitrophenol	BQL	1920	1	4/7/2006
2,4-Dinitrotoluene	BQL	383	1	4/7/2006
2,6-Dinitrotoluene	BQL	383	1	4/7/2006
Diphenylamine *	BQL	383	1	4/7/2006
Fluoranthene	BQL	383	1	4/7/2006
Fluorene	BQL	383	1	4/7/2006
Hexachlorobenzene	BQL	383	1	4/7/2006
Hexachlorobutadiene	BQL	383	1	4/7/2006
Hexachlorocyclopentadiene	BQL	767	1	4/7/2006
Hexachloroethane	BQL	383	1	4/7/2006

8270_LIMS_V1.96

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Results for Semivolatiles by GCMS 8270

Client Sample ID: GP7
Client Project ID: NCDOT
Lab Sample ID: G106-582-7J
Lab Project ID: G106-582
Report Basis: Dry weight

Analyzed By: MRC
Date Collected: 3/31/2006 9:20
Date Received: 4/1/2006
Date Extracted: 4/4/2006
Matrix: Soil
% Solids: 78.12

Compound	Result ug/Kg	RL ug/Kg	Dilution Factor	Date Analyzed
Indeno(1,2,3-c,d)pyrene	BQL	383	1	4/7/2006
Isophorone	BQL	383	1	4/7/2006
2-Methylnaphthalene	BQL	383	1	4/7/2006
2-Methylphenol	BQL	383	1	4/7/2006
3- & 4-Methylphenol	BQL	383	1	4/7/2006
Naphthalene	BQL	383	1	4/7/2006
2-Nitroaniline	BQL	383	1	4/7/2006
3-Nitroaniline	BQL	1920	1	4/7/2006
4-Nitroaniline	BQL	1920	1	4/7/2006
Nitrobenzene	BQL	383	1	4/7/2006
2-Nitrophenol	BQL	383	1	4/7/2006
4-Nitrophenol	BQL	1920	1	4/7/2006
N-Nitrosodi-n-propylamine	BQL	383	1	4/7/2006
Pentachlorophenol	BQL	1920	1	4/7/2006
Phenanthrene	BQL	383	1	4/7/2006
Phenol	BQL	383	1	4/7/2006
Pyrene	BQL	383	1	4/7/2006
1,2,4-Trichlorobenzene	BQL	383	1	4/7/2006
2,4,5-Trichlorophenol	BQL	383	1	4/7/2006
2,4,6-Trichlorophenol	BQL	383	1	4/7/2006

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.7	77
2-Fluorophenol	10	8.3	83
Nitrobenzene-d5	10	8.3	83
Phenol-d6	10	8.8	88
2,4,6-Tribromophenol	10	7.9	79
4-Terphenyl-d14	10	7.5	75

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

Flags:
BQL = Below Quantitation Limits.

Reviewed By: _____

8270_LIMS_V1.96

SGS

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Environmental Investigations

Project Name: NCDOT

Sample Information and Analytical Results	
Sample Identification	GP7
Sample Matrix	Soil
Date Collected	03/31/06
Date Received	04/01/06
Date Extracted	04/04/06
Date Analyzed	04/10/06
Dry Weight	78.1
Dilution Factor	1:1
C_9-C_{18} Aliphatics*	< 10 (mg/Kg)
C_{19}-C_{36} Aliphatics*	< 10 (mg/Kg)
C_{11}-C_{22} Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	85
Aromatic Surrogate % Recovery	63
Fractionation Surrogate 1 % Recovery	99

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G106-582-7K

Reviewed By: [signature]

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Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 12/28/05

Calibration Ranges and Limits

Range	MDL (2/2004) (µg/L)	ML (µg/L)	RL (µg/L)	RL (mg/Kg)
C_9-C_{18} Aliphatics	3.84	12.2	100	10
C_{19}-C_{36} Aliphatics	0.57	1.8	100	10
C_{11}-C_{22} Aromatics	4.54	14.4	100	10

Calibration Concentration Levels

Range	Levels (µg/mL)	%RSD or CCC	Method of Quantitation
C_9-C_{18} Aliphatics	6	24.90	Calibration Factor
	30		
	60		
	120		
	240		
C_{19}-C_{36} Aliphatics	8	15.4	Calibration Factor
	40		
	80		
	160		
	320		
C_{11}-C_{22} Aromatics	17	9.8	Calibration Factor
	85		
	170		
	340		
	680		

Calibration Check Date: 04/10/06

Calibration Check

Range	Levels (µg/mL)	RPD
C_9-C_{18} Aliphatics	120	12.7
C_{19}-C_{36} Aliphatics	160	5.4
C_{11}-C_{22} Aromatics	340	0.1

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit

RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

SGS

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Environmental Investigations

Project Name: NCDOT

Sample Information and Analytical Results	
Sample Identification	GP7
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	03/31/06
Date Received	04/01/06
Date Extracted	03/31/06
Date Analyzed	04/05/06
Dry Weight	78
Dilution Factor	1
C_5-C_8 Aliphatics**	< 10 (mg/Kg)
C_9-C_{12} Aliphatics**	< 10 (mg/Kg)
C_9-C_{10} Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	100
Surrogate % Recovery - FID	110

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: g106-582-7a

Reviewed By: _____

SGS

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 02/11/06 PID Initial Calibration Date: 02/11/06

Calibration Ranges and Limits

Range	MDL (07/15/2004) (µg/L)	ML (µg/L)	RL (µg/L)	RL (mg/Kg)
C_5-C_8 Aliphatics	4.4	14	100	10
C_9-C_{12} Aliphatics	3.4	11	100	10
C_9-C_{10} Aromatics	0.13	0.41	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	%RSD or CCC	Method of Quantitation
C_5-C_8 Aliphatics	40	10.8	Calibration Factor
	1000		
	2000		
	3000		
	4000		
C_9-C_{12} Aliphatics	10	0.99	Linear Regression
	250		
	500		
	750		
	1000		
C_9-C_{10} Aromatics	10	19.30	Calibration Factor
	250		
	500		
	750		
	1000		

Calibration Check Date: 04/04/06

Calibration Check

Range	Levels (µg/L)	(mg/Kg)	RPD
C_5-C_8 Aliphatics	2000	200	4.3
C_9-C_{12} Aliphatics	500	50	-7.9
C_9-C_{10} Aromatics	500	50	6.7

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

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List of Reporting Abbreviations
and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

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.

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Locations Nationwide
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- Hawaii
- Louisiana
- Maryland
- New Jersey
- North Carolina
- West Virginia

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056743

(1)
CLIENT: EI
CONTACT: Bob Shaut PHONE NO: (919) 657 7500
PROJECT: NC DOT SITE/PWSID#: Parcel # 114
REPORTS TO: EI FAX NO.: (919) 657 7551
INVOICE TO: NCDOT QUOTE # WBS Element 35609.1.1
P.O. NUMBER Tip # R-2519A

SGS Reference: G106-582

PAGE 1 OF 2

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used	(3) GRO/DRO	8260	8270	EPH	VPH	REMARKS
	GP1	3/31	800	S				X	X				
	GP2		830										
	GP3		825										
	GP4		815										
	GP5		900										
	GP6		916										
	GP7		920					X	X	X	X	X	
	GP8		940										
	GP9		950										
	GP10		1000										

3 x

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Kevin Horton	3/31	2:15pm	
Relinquished By: (2)	Date	Time	Received By:
	4/1/00	1045	FED EX
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier: Fedex
Shipping Ticket No: 851607865202
Samples Received Cold? (Circle) YES NO
Temperature °C: 4.9 °F:
Special Deliverable Requirements:
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
Requested Turnaround Time and Special Instructions: Standard

White - Retained by Lab
Yellow - Returned with Report
Pink - Retained by Sampler

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Locations Nationwide
- Alaska
- Hawaii
- Louisiana
- Maryland
- New Jersey
- North Carolina
- West Virginia

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056744

(1)

CLIENT: EI

CONTACT: Bob Shaut PHONE NO: (919) 657 7500

PROJECT: NCDOT SITE/PWSID#: Parcel 114

REPORTS TO: EI FAX NO.: (919) 657 7551

INVOICE TO: NCDOT QUOTE #: WBS Element 35609.1.1

P.O. NUMBER: TIP# R-2519A

SGS Reference:

PAGE 2 OF 2

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used	Analysis Required (3) GRO/DRO	REMARKS
	GP11	3/31	1010	S				X	
	GP12	↓	1020	↓				X	

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Kevin Horton	3/31	2:15pm	
Relinquished By: (2)	Date	Time	Received By:
	4/1/08	1045	ERIN Stafford
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier: Fedex

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 4.3 4.9

Special Deliverable Requirements:

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

Requested Turnaround Time and Special Instructions:

Standard

☐ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 5500 Business Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557
☐ 1258 Greenbrier Street Charleston, WV 25311 Tel: (304) 346-0725 Fax: (304) 346-0761

White - Retained by Lab
Yellow - Returned with Report
Pink - Retained by Sampler

APPENDIX E

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

May 8, 2006

Mr. Robert M. Shaut
EI, Inc.
2101 Gateway Centre Boulevard, Suite 200
Morrisville, NC 27560

Via email (pdf)

RE: State Project: R-2519A, WBS Element 35609.1.1, Yancey County
US 19E from east of SR 1336 (Jacks Creek Road) to SR 1186 (Old US 19)

SUBJECT: Report on Geophysical Surveys for Locating Possible UST's on 14 Parcels
Schnabel Engineering Project No. 05211014.01-07

Dear Mr. Shaut:

This letter contains our report on the geophysical surveys we conducted on the subject properties. This letter report includes one 8.5x11 color figure and thirty-two 11x17 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 metal product lines in the accessible areas of the sites.

Schnabel Engineering conducted geophysical surveys on March 13 through 17, 2006, in the accessible areas of the proposed right-of-way (ROW) sections of the parcels: 040, 042, 088, 099, 114, 115, 117, 134, 144, 167, 177, 194, 196 and 214. Photographs of these properties are included on Figures 1 through 4. Photographs of UST locations as marked in the field are included on Figure

5.

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. A Fisher Gemini-3 was used in the conduction mode to trace exposed vent pipes and product lines. Photographs of these instruments are shown in Figure 6.

2.0 FIELD METHODOLOGY

2.1 Location Control

Locations of geophysical data points and site features were obtained using a sub-meter Trimble Pro-XRS DGPS system on Parcels 40, 42, 88, 99, 114, 115, 117, 134, 144, 167, 177, 194, and 214. An X-Y survey grid was set up on Parcel 196. References to direction and location in this report for Parcel 196 are based on this local site grid. References to direction and location in this report for Parcels 40, 42, 88, 99, 114, 115, 117, 134, 144, 167, 177, 194, and 214 are based on the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 83 datum, with units in meters. 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 in the accessible portions of the parcels along parallel survey lines spaced approximately one meter 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-half to one meter 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 USTs. The GPR data also were recorded digitally and later transferred to a desktop computer for further review.

Preliminary results were sent to Bob Shaut of EI on March 20, 2006.

3.0 DISCUSSION OF RESULTS

The contoured EM61 data are shown on Figures 7 through 34. The EM61 early time gate results are plotted on Figures 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, and 33. The early time gate data provide the most sensitive detection of metal object targets, regardless of size. Figures 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, and 32 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 USTs.

3.1 Parcel 040 - Andrew E. Brown Property (Andy's, Inc.)

The parcel owned by Andrew E. Brown is located approximately 61 meters east of NCSR 1375 on the north side of US Highway 19E. The EM61 results are shown on Figure 7 (early time gate) and Figure 8 (differential). Two vehicles could not be moved at the time of our surveys. The early time gate results show anomalies probably due to reinforced concrete, several small anomalies probably caused by insignificant buried metal objects, several anomalies caused by known site features, and a large linear anomaly probably caused by a buried utility. The observed anomalies not attributed to known site features are removed in the differential data set. GPR surveys were conducted over three areas of reinforced concrete. The GPR data did not indicate the presence of USTs in the areas surveyed.

3.2 Parcel 042 - Danny Hensley Property (Burnsville Independent)

The parcel owned by Danny Hensley is located approximately 244 meters to the east of NCSR 1196

on the south side of US Highway 19E. The EM61 results are shown on Figure 9 (early time gate) and Figure 10 (differential). Several vehicles and trailers could not be moved at the time of our surveys. The early time gate results show several small anomalies probably caused by insignificant buried metal objects, and several anomalies caused by known site features. The observed anomalies not attributed to known site features are removed in the differential data set. GPR surveys were not conducted on the site.

3.3 Parcel 088 - Bill Riddle Property (Riddle Fuel Oil Company)

The parcel owned by Bill Riddle is located approximately 488 meters to the west of NC Highway 197 on the north side of US Highway 19E. The EM61 results are shown on Figure 11 (early time gate) and Figure 12 (differential). The early time gate results show several small anomalies probably caused by insignificant buried metal objects, linear anomalies probably caused by buried utilities, two linear anomalies probably caused by buried metal culverts, and several anomalies caused by known site features. The observed anomalies not attributed to known site features are removed in the differential data set. GPR surveys were not conducted on the site.

3.4 Parcel 099 - Charles Dellinger Property (Texaco)

The parcel owned by Charles Dellinger is located at the southwestern quadrant of the intersection of US Highway 19E and NC 197. The EM61 results are shown on Figure 13 (early time gate) and Figure 14 (differential). The early time gate results show several small anomalies probably caused by insignificant buried metal objects, linear anomalies probably caused by buried utilities, and several anomalies caused by known site features. The observed anomalies not attributed to known site features are removed in the differential data set. GPR surveys were not conducted on the site.

3.5 Parcel 114 - Arlene Ray, Inc. Property (Burnsville Gas, Inc.)

The parcel owned by Arlene Ray, Inc. is located at the southwest quadrant of US Highway 19E and NCSR 1140. The EM61 results are shown on Figure 15 (early time gate) and Figure 16

(differential). The early time gate results show several small anomalies probably caused by insignificant buried metal objects, three linear anomalies probably caused by buried metal culverts, an anomaly probably caused by reinforced concrete, and several anomalies caused by known site features. The observed anomalies not attributed to known site features are removed in the differential data set. GPR surveys were conducted to investigate the reinforced concrete. The GPR data did not indicate the presence of USTs in the areas surveyed.

3.6 Parcel 115 - Tom Morgan Property (Convenience King 22)

The parcel owned by Tom Morgan is located at the intersection of Main Street and US Highway 19E. The EM61 results are shown on Figure 17 (early time gate) and Figure 18 (differential). The early time gate results show several small anomalies probably caused by insignificant buried metal objects, several anomalies probably caused by buried metal culverts, and several anomalies caused by known site features. Some of the observed anomalies not attributed to known site features are removed in the differential data set. GPR surveys were conducted to investigate several EM61 differential anomalies on the site. The GPR data did not indicate the presence of USTs in the areas surveyed.

3.7 Parcel 117 - Samuel S. Styles Property (Former Sam's Oil Company)

The parcel owned by Samuel S. Styles is located on the north side of US 19 East Business (East Main Street) just west of SR 1436. The EM61 results are shown on Figure 19 (early time gate) and Figure 20 (differential). The early time gate results show several small anomalies probably caused by insignificant buried metal objects, an anomaly probably caused by a buried metal culvert, and several anomalies caused by known site features. The observed anomalies not attributed to known site features are removed in the differential data set. GPR surveys were conducted to investigate several EM61 differential anomalies on the site. GPR surveys were not conducted behind the building in the area of the observed fill port because of the presence of large metallic obstructions and debris, and because this area was not within the intended survey area indicated by EI. The GPR data did not indicate the presence of USTs in the areas surveyed. The Gemini-3 was used in the

conduction mode in an attempt to trace out the extent of the vent pipe on the east side of the building. A signal was not detected, which suggests the vent pipe either does not extend very far under the surface beyond the exposed section, or the vent pipe extends beneath the building. A signal would have been detected if the vent pipe connected directly to a UST next to the building.

3.8 Parcel 134 - Keith Presnell Property (Austin Automotive)

The parcel owned by Keith Presnell is located at the northeast quadrant of the intersection of US Highway 19E and NCSR 1329. The EM61 results are shown on Figure 21 (early time gate) and Figure 22 (differential). Several vehicles and trailers could not be moved at the time of our surveys. The early time gate results show several small anomalies probably caused by insignificant buried metal objects, linear anomalies probably caused by utilities, and several anomalies caused by known site features. The observed anomalies not attributed to known site features are removed in the differential data set. GPR surveys were not conducted on the site.

3.9 Parcel 144 - Peggy Jones Property (Prives & Perches)

The parcel owned by Peggy Jones is located approximately 305 meters west of NCSR 1141 on the south side of US Highway 19E. The EM61 results are shown on Figure 23 (early time gate) and Figure 25 (differential). The early time gate results show several small anomalies probably caused by insignificant buried metal objects, two linear anomalies probably caused by buried metal culverts, an anomaly probably caused by a partially buried metal conduit pipe, and several anomalies caused by known site features. The observed anomalies not attributed to known site features are removed in the differential data set. GPR surveys were not conducted on the site. The Gemini-3 was used in the conduction mode to trace out the extent of the metal conduit pipe that was visible in the area of the former pump island, which was then marked out on the ground surface. The conduit pipe was traced to the front of the building, and the owner of the property informed our representative that on the wall inside the building a switch existed that was used to turn the pump off and on. The owner also informed our representative that the USTs and product lines were removed at the same time as the pump island, but the conduit pipe for the electrical was left in place.

3.10 Parcel 167 - Edd Cassida Property (Edd's Independent Station)

The parcel owned by Edd Cassida is located at the southwest quadrant of the intersection of US Highway 19E and NCSR 1142. The EM61 results are shown on Figure 25 (early time gate) and Figure 26 (differential). The early time gate results show several small anomalies probably caused by insignificant buried metal objects, two linear anomalies probably caused by buried metal culverts, and several anomalies caused by known site features. The observed anomalies not attributed to known site features are removed in the differential data set. GPR surveys were not conducted on the site.

3.11 Parcel 177 - Johnnie Bennett Property (Former BP Gas Station)

The parcel owned by Johnnie Bennett is located at the southwest quadrant of the intersection of US Highway 19E and NCSR 1143. The EM61 results are shown on Figure 27 (early time gate) and Figure 28 (differential). The early time gate results show several small anomalies probably caused by insignificant buried metal objects, an anomaly probably caused by reinforced concrete, and several anomalies caused by known site features. The observed anomalies not attributed to known cultural features are removed in the differential data set. GPR surveys were conducted to investigate the reinforced concrete. The GPR data did not indicate the presence of USTs in the areas surveyed.

3.12 Parcel 194 - William Ira Young Property (Former Gas Station)

The parcel owned by William Ira Young is located at the northwest quadrant of the intersection of SR 1323 and US Highway 19E. The EM61 results are shown on Figure 29 (early time gate) and Figure 30 (differential). Three site visits were required in order to survey the areas of concern because the site owner could only move obstructing trailers around at specific times. The early time gate results show several small anomalies probably caused by insignificant buried metal objects, an anomaly probably caused by a buried metal culvert, a linear anomaly probably caused by a buried utility, vent pipe line, or product line, and several anomalies caused by known site features. Some of

the observed anomalies not attributed to known site features are removed in the differential data set. Information provided by EI indicated a vent pipe at the southwest corner of the building, and three fill ports located southwest of the building. These features could not be located at the time of our surveys. GPR surveys were conducted to investigate the linear anomaly extending from the southwest corner of the building, as well as the areas occupied by trailers to the southwest of the building. The GPR data indicated the presence of one probable UST as shown on Figures 29 and 30, which was marked out on the ground surface as shown on Figure 5. The GPR data indicate that the UST is approximately 1.0 meter in diameter and about 1.5 meters in length, with an approximate capacity of 1100-1200 liters. It appears to be buried 1.0 to 1.5 meters below the ground surface.

3.13 Parcel 196 - Ed Gouge Property (Heritage Tire)

The parcel owned by Ed Gouge is located on the south side of US Highway 19E approximately 60 meters east of SR 1144. A local X-Y site grid was laid out for positioning of the geophysical surveys at this parcel because the steep valley walls at this location did not allow enough satellite visuals to provide a reliable GPS signal to be used for positioning. The EM61 results are shown on Figure 31 (early time gate) and Figure 32 (differential). The early time gate results show several small anomalies probably caused by insignificant buried metal objects, an anomaly probably caused by a buried metal culvert, and several anomalies caused by known site features. Some of the observed anomalies not attributed to known cultural features are removed in the differential data set. GPR surveys were conducted to investigate three EM61 differential anomalies on the site. The GPR data did not indicate the presence of USTs in the areas surveyed.

3.14 Parcel 214 - Charles R. Dellinger

The parcel owned by Charles Dellinger is located at the southwest corner of the intersection of US Highway 19E and SR 1146 (Cane Bridge Road). The EM61 results are shown on Figure 33 (early time gate). A malfunction with the top coil of the EM61 caused it to record random erroneous data, which influenced the differential data set. The differential data set was not used and has not been included in this report. The early time gate results show several small anomalies probably caused by

insignificant buried metal objects, an anomaly probably caused by a reinforced concrete bridge, and several anomalies caused by known site features. GPR surveys were conducted to investigate two EM61 early time gate anomalies on the site. The GPR data did not indicate the presence of USTs in the areas surveyed.

4.0 CONCLUSIONS

Our evaluation of the geophysical data collected on 14 Parcels on State Project R-2519A in Yancey County, NC indicate the following:

- The geophysical data indicate the presence of one possible UST on parcel 194. The possible UST is about 1.0 meter in diameter and about 1.5 meters in length, with an approximate capacity of 1100 to 1200 liters.

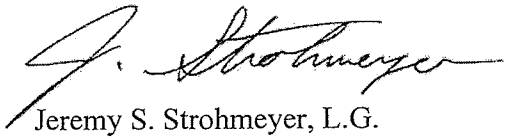
- The geophysical data do not indicate the presence USTs in the areas surveyed on parcels 040, 042, 088, 099, 114, 115, 117, 134, 144, 167, 177, 196, and 214.

5.0 LIMITATIONS

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

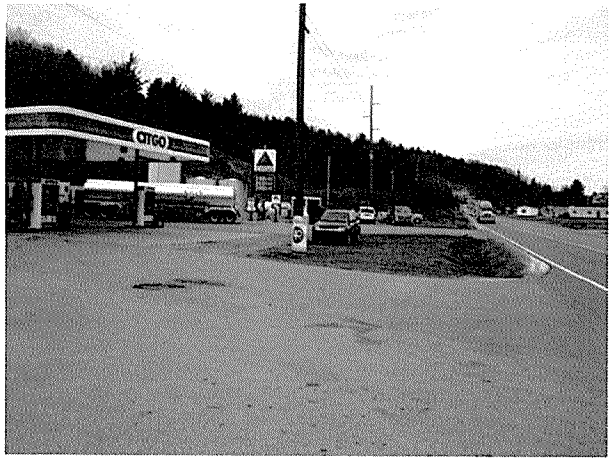
Thank you for the opportunity to serve you on this project. Please call if you need additional information or have any questions.

Sincerely,



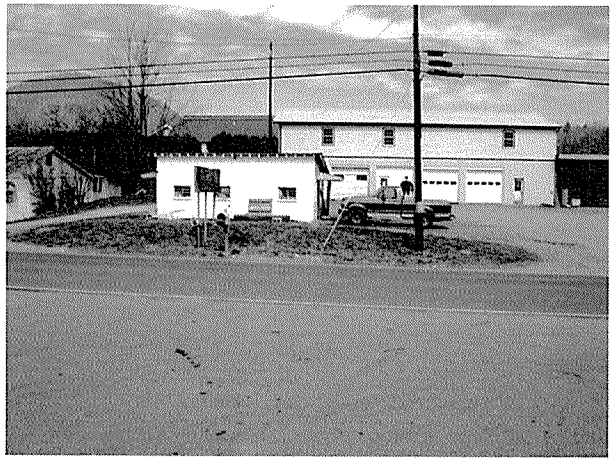
Jeremy S. Strohmeyer, L.G.
Project Manager

JS/RC
Attachment: Figures (1-33)

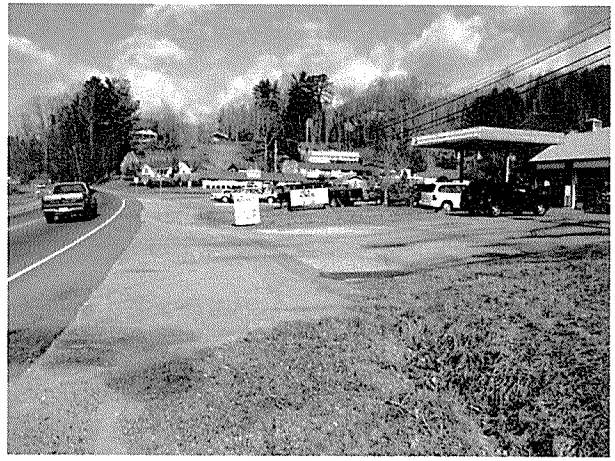


Parcel 114 - Arlene Ray Property, looking southwest

Parcel 115 - Tom Morgan Property, looking southwest

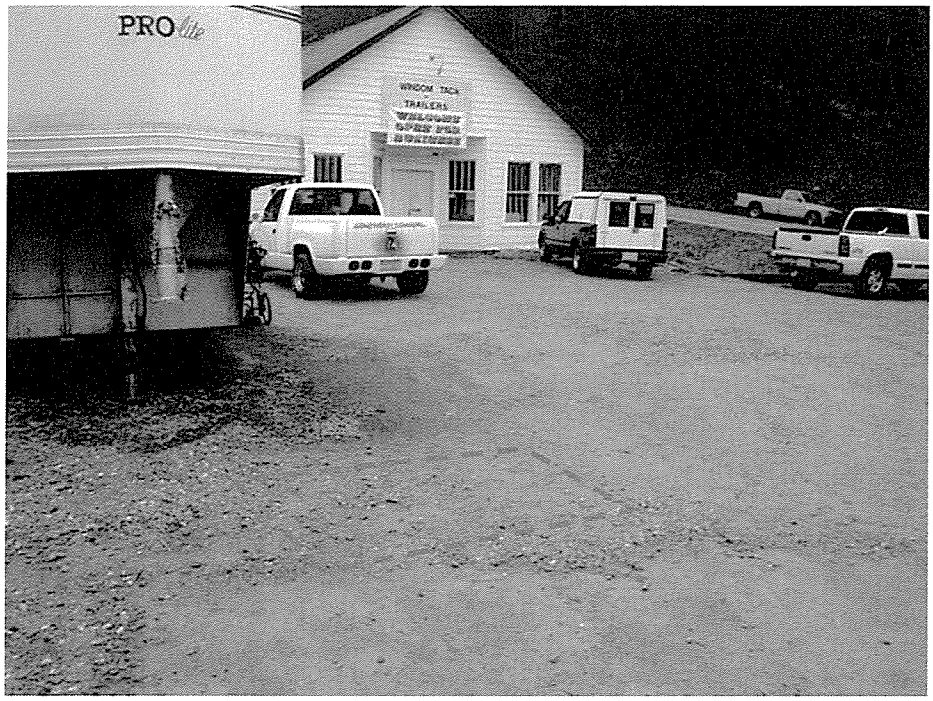


Parcel 117 - Samuel S. Styles Property, looking north



Parcel 134 - Keith Presnell Property, looking northwest

Schnabel Engineering	NC Department of Transportation Geotechnical Engineering Unit State Project No. R-2519A Yancey County, North Carolina	SITE PHOTOS FIGURE 2



Location of possible UST as marked on site, looking northeast

Location of possible UST as marked on site, looking west

Schnabel Engineering	NC Department of Transportation Geotechnical Engineering Unit	**PHOTOS OF POSSIBLE UST LOCATION**
	State Project No. R-2519A Yancey County, North Carolina	FIGURE 5

Geonics EM61-MK2

Geophysical Survey Systems SIR-2000 with 400 MHz antenna

Fisher Gemini-3 used in conduction mode

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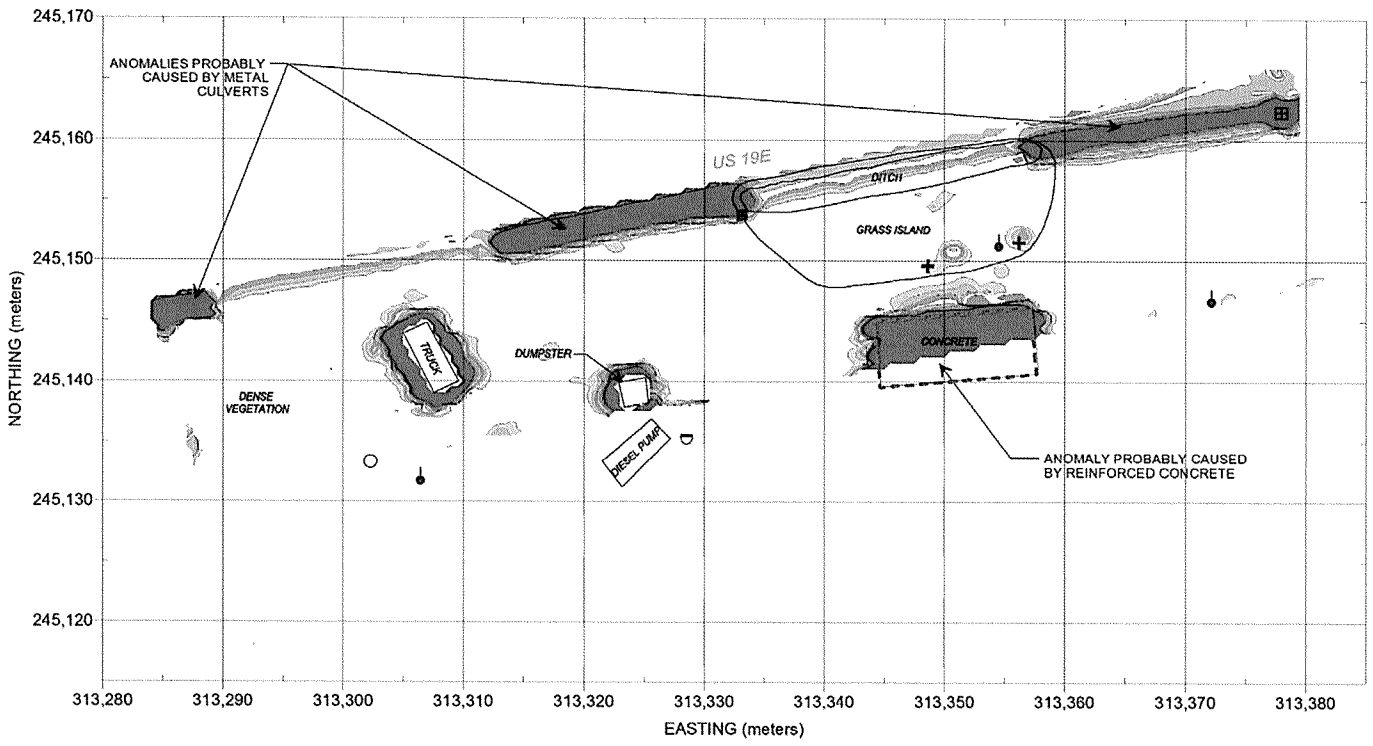
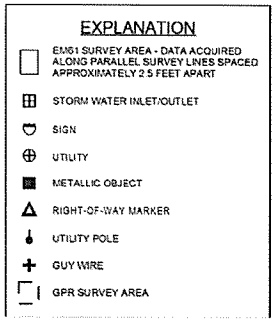
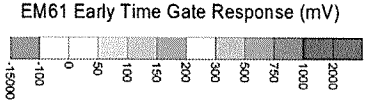
Yancey County, North Carolina

PHOTOS OF GEOPHYSICAL EQUIPMENT

FIGURE 6







Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on March 13, 2006, using a Geonics EM61-MK2 instrument. Positioning for EM61 survey provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 1983 datum. GPR data were acquired on March 16, 2006, using a Geophysical Survey Systems, Inc. SIR-2000 equipped with a 400 MHz antenna.

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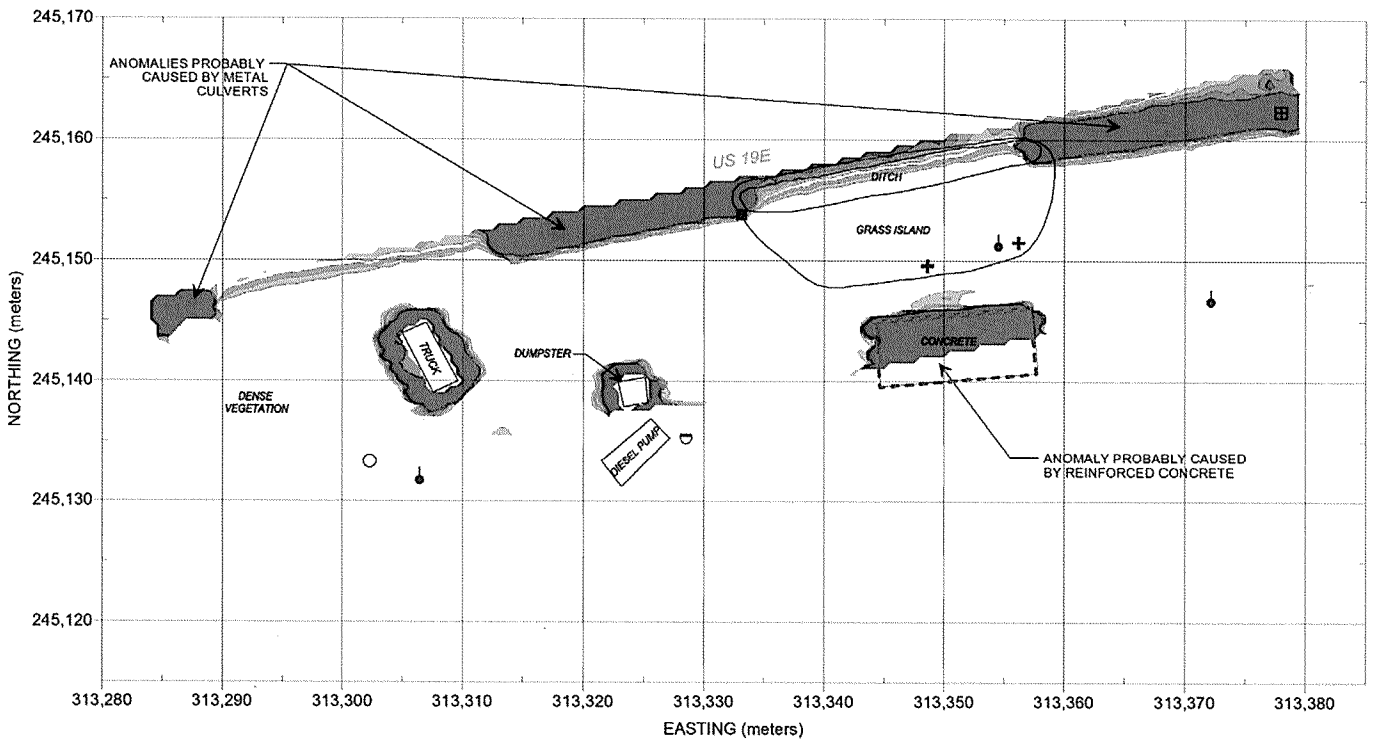
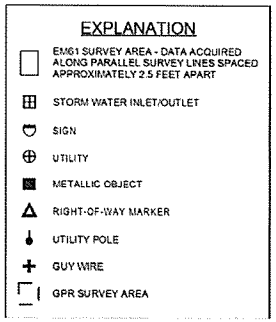
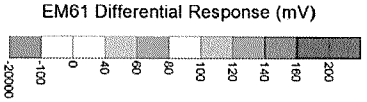
Yancey County, North Carolina

PARCEL 114
EM61 EARLY TIME GATE RESPONSE

FIGURE 15







Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as pipes and tanks. The EM data were collected on March 13 ,2006, using a Geonics EM61-MK2 instrument. 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. GPR data were acquired on March 16, 2006, using a Geophysical Survey Systems, Inc. SIR-2000 equipped with a 400 MHz antenna.

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PARCEL 114
EM61 DIFFERENTIAL RESPONSE

FIGURE 16