Preliminary Site Assessment Gary Beam Property Parcel #938 Shelby, Cleveland County, NC

H&H Job No. ROW-201 State Project R-2707C WBS Element # 34497.1.2 October 17, 2008



2923 South Tryon Street Suite 100 Charlotte, NC 28203 704-586-0007

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Preliminary Site Assessment Gary Beam Property Parcel #938 Shelby, Cleveland County, North Carolina H&H Project ROW-201

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Preliminary Site Assessment Gary Beam Property Parcel #938 Shelby, Cleveland County, North Carolina H&H Project ROW-201

1.0 Introduction

Hart & Hickman, PC (H&H) has prepared this Preliminary Site Assessment (PSA) report documenting assessment activities performed at the Gary Beam property (NC DOT Parcel #938) located at 1001 Cherryville Road in Shelby, Cleveland County, North Carolina. This assessment was conducted on behalf of the North Carolina Department of Transportation (NC DOT) in accordance with the scope of work outlined in our August 18, 2008 proposal.

The purpose of this assessment was to determine the potential for underground storage tank (UST) systems and impacted soils due to historical site operations at the subject property in the proposed construction areas related to NC DOT State Project R-2707C. A site location map is included as Figure 1 and a site map is presented as Figure 2. The NC DOT preliminary plan of the construction area near the Gary Beam property (NC DOT Parcel #938) is included in Appendix A.

The property formerly operated as the 330 Mini Mart and dispensed petroleum products for retail sale. A former quilt shop and several sheds are also located on the property. H&H reviewed UST incident files for the former 330 Mini Mart at the North Carolina Department of Environment and Natural Resources (DENR) Asheville Regional Office to better target former UST system areas and to find the locations of previously reported petroleum impacts.

Five petroleum USTs were removed from the site on March 11, 1993. The UST systems consisted of two 1,000-gallon gasoline USTs, one 2,000-gallon gasoline UST, one 550-gallon gasoline UST, one 550-gallon kerosene UST, and associated pump islands. Petroleum impacted soils were encountered during UST removal activities. Total Petroleum Hydrocarbons (TPH) were detected in UST closure samples ranging from 130 mg/kg to 11,000 mg/kg. No impacted soil was removed from the site. The UST system locations are shown on Figure 2.

Subsequent assessment activities reveled that ground water was also impacted in excess of the 15A NCAC 2L.0202 Ground Water Quality Standards (2L standards) due to the petroleum release at the site. As part of assessment activities six Type II monitoring wells and one Type III monitoring well were installed at the site. The depth to ground water was approximately 13 ft. A soil vapor extraction (SVE) and air sparge (AS) system was installed and started at the site in January 1996 to remediate petroleum impacted soils and ground water.

On September 29, 1998, DENR issued a risk-based Notice of No Further Action (NFA) letter for the 330 Mini Mart site. The DENR NFA letter stated that the soil contamination does not exceed the industrial/commercial maximum soil contaminant concentrations (MSCCs) and impacted groundwater does not exceed gross contamination levels established in 15A NCAC 2L .0115. Soil was not cleaned up to the residential MSCCs and is not suitable for residential use. Additionally, ground water was not cleaned up to the 2L Standard and is not suitable for use as a water supply. A copy of the NFA letter is included in Appendix B.

Monitoring wells and AS/SVE wells associated with assessment and remediation activities at the site have been abandoned. The AS/SVE system has also been removed from the site.

2.0 Site Assessment

Soil Assessment Field Activities

Prior to advancing soil borings, H&H reviewed a geophysical survey performed by Schnabel Engineering (Schnabel) on August 19 and 21, 2008. Schnabel utilized ground penetrating radar (GPR) and time domain electromagnetic (TDEM) technology to identify geophysical anomalies and potential USTs at the site. The Schnabel results indicated several magnetic anomalies attributed to known site features, two linear anomalies in response to buried concrete drainage pipes, and several anomalies not attributed to known site features. Schnabel was initially concerned that the linear feature on the western portion of the property was potentially a UST. H&H personnel later field verified that the linear feature on the western portion of the property was a concrete drainage pipe. The GPR survey did not show evidence of USTs at the TDEM anomalies. Schnabel's report

including a site map depicting the results of the GPR and TDEM surveys is included in Appendix C.

H&H mobilized to the Gary Beam property on August 27, 2008 to advance twelve soil borings (938-1 through 938-12) by direct push technology (DPT). Prior to conducting soil borings, utilities were marked by NC One Call. Borings were also cleared to a five foot depth by hand auger. H&H utilized Probe Technology, Inc. of Concord, North Carolina to advance soil borings 938-1 through 938-12 by DPT (Figure 3). To facilitate the selection of soil samples for laboratory analysis from these borings, soil was screened continuously for the presence of volatile organic compounds (VOCs) with an organic vapor analyzer (OVA). Additionally, H&H observed the soil for visual and olfactory indications of petroleum impacts. In general, a soil sample from each boring that exhibited the highest reading on the OVA was selected for laboratory analysis. Soil boring logs are included in Appendix D.

H&H submitted thirteen samples from the twelve soil borings for laboratory analysis. Soil samples are identified by the NC DOT Parcel number, soil boring, and the depth interval in feet (ft). Samples were sent to Prism Laboratories Inc. of Charlotte, North Carolina under standard chain-of-custody procedure for analysis of total petroleum hydrocarbons (TPH) for gasoline-range organics (GRO) and diesel-range organics (DRO) by EPA Method 8015B. Sample depths and analytical results are summarized in Table 1. Laboratory analytical data sheets for the Parcel 938 samples and chain-of-custody documentation for this site are provided in Appendix E. The analytical results are discussed below.

3.0 Analytical Results

Target analytes were detected in five soil samples collected from Parcel 938. Concentrations of TPH GRO detected in soil samples 938-1 and 938-8 exceed the NC DENR Action Level of 10 mg/kg. Concentrations of TPH DRO were detected in soil samples 938-1, 938-2 (2-4 ft and 8-10 ft), 938-4, and 938-8 above the NC DENR Action Level of 10 mg/kg.

Based on laboratory analytical results, TPH concentrations are present on Parcel 938 in two areas at the site: at the former gasoline UST basin (near boring 938-2) and at the former kerosene UST basin (near boring 938-8). H&H estimates that there are a total of 270 cubic yards (400 tons) of impacted soil between depths of 2 and 12 ft near boring 938-2 and a total of 170 cubic yards (260 tons) of impacted soil between depths of 3 and 12 ft near boring 938-8. DOT plans indicate proposed fill in the areas of impacted soil; therefore, it is not likely the impacted soils will be disturbed.

4.0 Summary and Regulatory Considerations

H&H has reviewed DENR incident files, geophysical survey results and collected a total of thirteen soil samples at Parcel 938. No USTs appear to be present on the subject property. Review of DENR files indicate previously reported petroleum impacted soil and ground water at the site. USTs associated with the petroleum release were removed from the site in 1993. DENR issued a risk-based Notice of No Further Action letter for impacted soil and ground water on September 29, 1998.

Analytical results of soil samples collected by H&H indicate TPH DRO and TPH GRO at concentrations above the NC DENR Action Level in five of the soil samples collected. H&H estimates that there are a total of 270 cubic yards (400 tons) of impacted soil between depths of 2 and 12 ft near boring 938-2 and a total of 170 cubic yards (260 tons) of impacted soil between depths of 3 and 12 ft near boring 938-8. The impacted soil is situated in two localized areas. DOT plans indicate proposed fill in the areas of impacted soil; therefore, it is not likely the impacted soils will be disturbed.

5.0 Signature Page

This report was prepared by:

David Graham

Project Geologist for Hart and Hickman, PC

This report was reviewed by:

Matt Bramblett, PE

Principal and Project Manager for

Matt Bramblett

Hart and Hickman, PC

Table 1
Soil Analytical Results
Gary Beam Property #938
Shelby, North Carolina
H&H Job No. ROW-201

Sample ID	938-1	938-2	938-2	938-3	938-4	938-5	938-6	938-7	938-8	938-9	938-10	938-11	938-12	NC DENR
Sample Depth (ft)	6-8	2-4	8-10	6-8	6-8	8-10	8-10	4-6	6-8	6-8	6-8	6-8	6-8	Action
Sample Date	8/27/2008	8/27/2008	8/27/2008	8/27/2008	8/27/2008	8/27/2008	8/27/2008	8/27/2008	8/27/2008	8/27/2008	8/27/2008	8/27/2008	8/27/2008	Level
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
TPH-GRO (EPA Method 5035/8015B) Gasoline-Range Organics (GRO) TPH-DRO (EPA Method 8015B) Diesel-Range Organics (DRO)	490 240	10 130	<5.7 28	<5.9 <8.2	<6.3 11	<6.2 <8.7	<6.3 <8.8	<5.9 <8.2	140 990	<5.8 <8.1	<6.1 <8.5	<6.1 <8.5	<6.2 <8.6	10 10

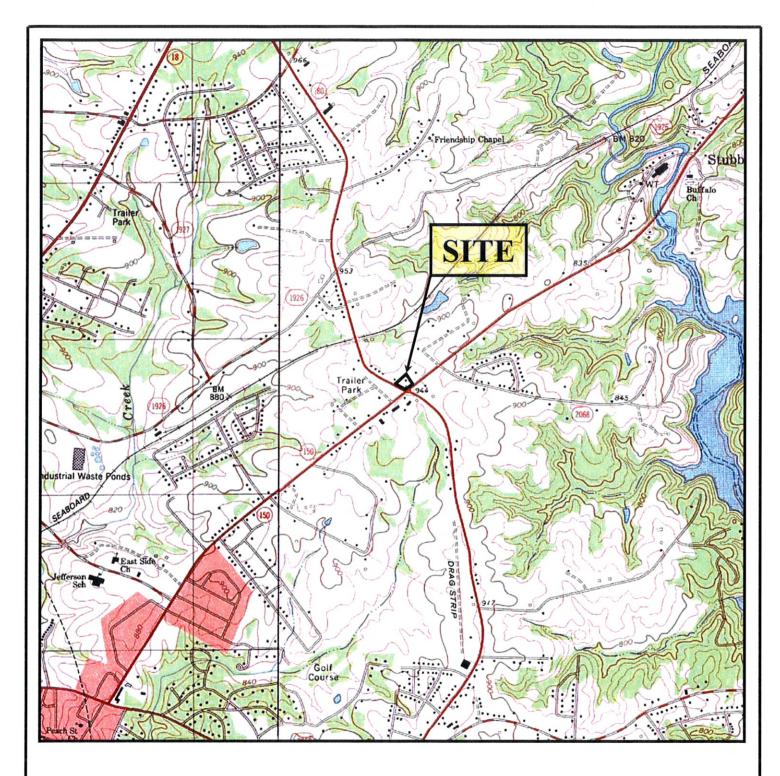
Notes:

TPH = total petroleum hydrocarbons

mg/kg = milligrams per kilogram

Bold denotes value in excess of NC DENR Action Levels

S:\AAA-Master Projects\NC DOT Right-of-Way -ROW\ROW-201 Shelby PSA\Soil Analytical Table







U.S.G.S. QUADRANGLE MAP

WACO, NC 1973

QUADRANGLE 7.5 MINUTE SERIES (TOPOGRAPHIC) TITLE

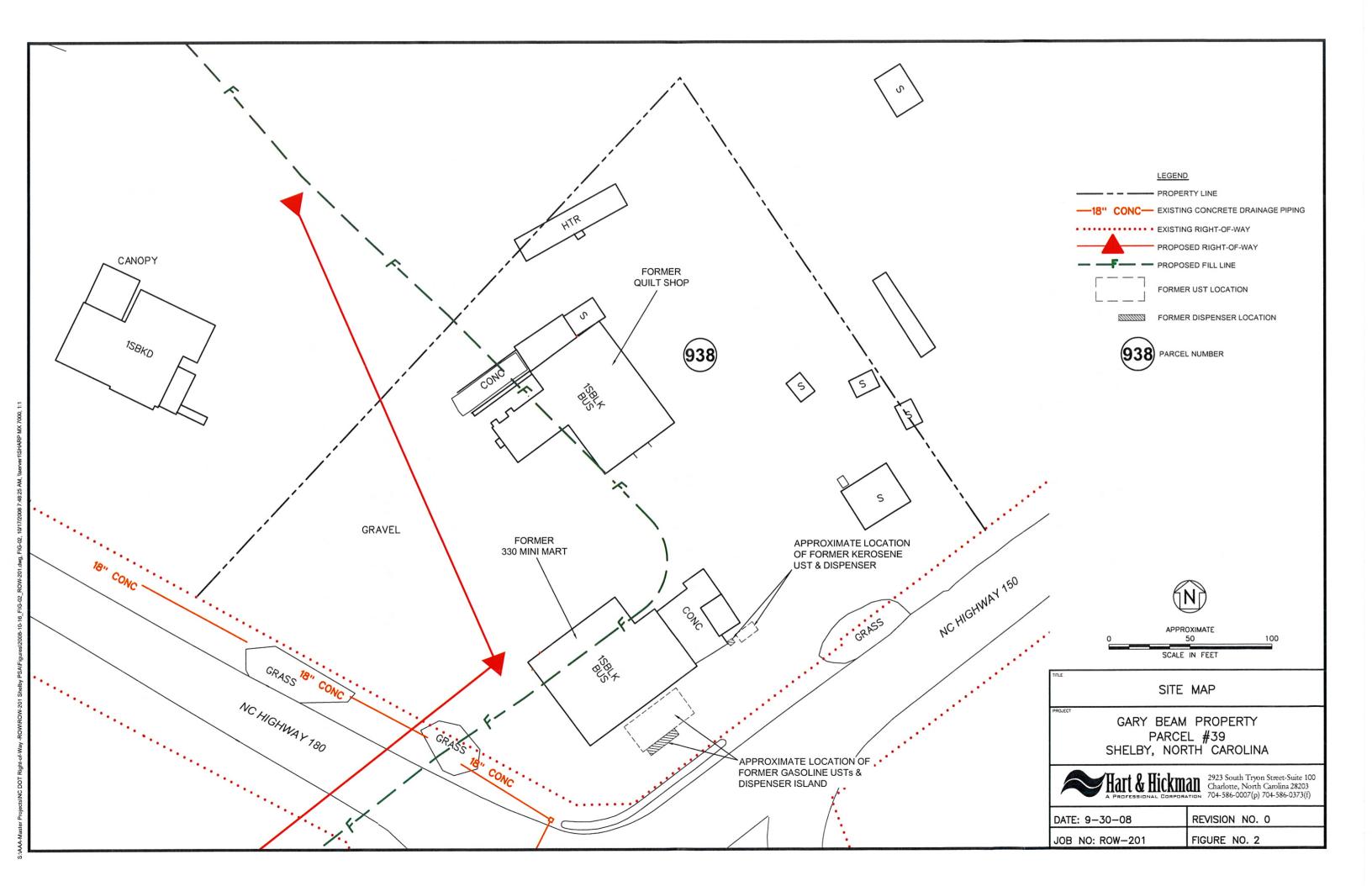
SITE LOCATION MAP

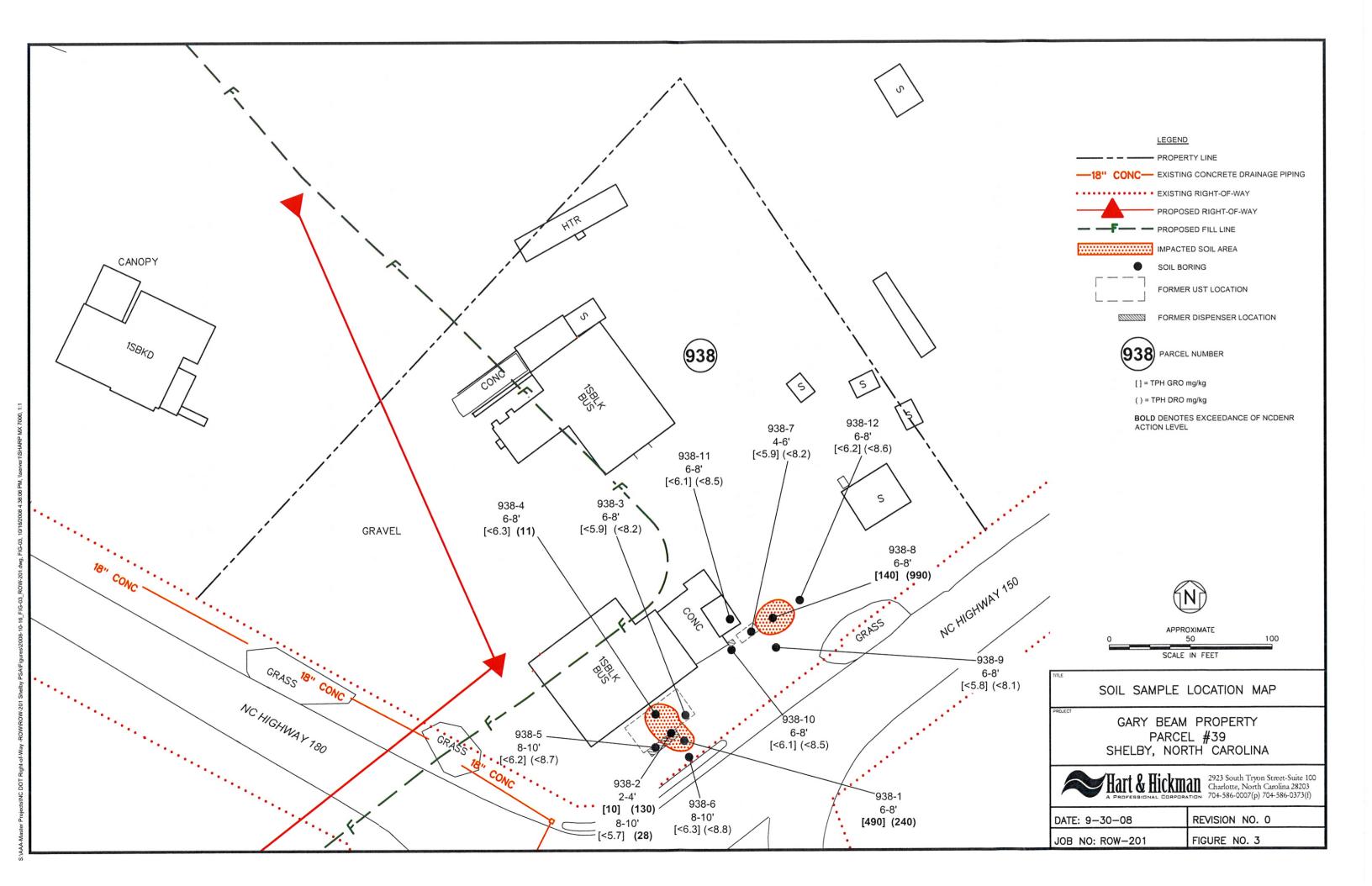
PROJECT

GARY BEAM PROPERTY PARCEL 39 SHELBY, NORTH CAROLINA



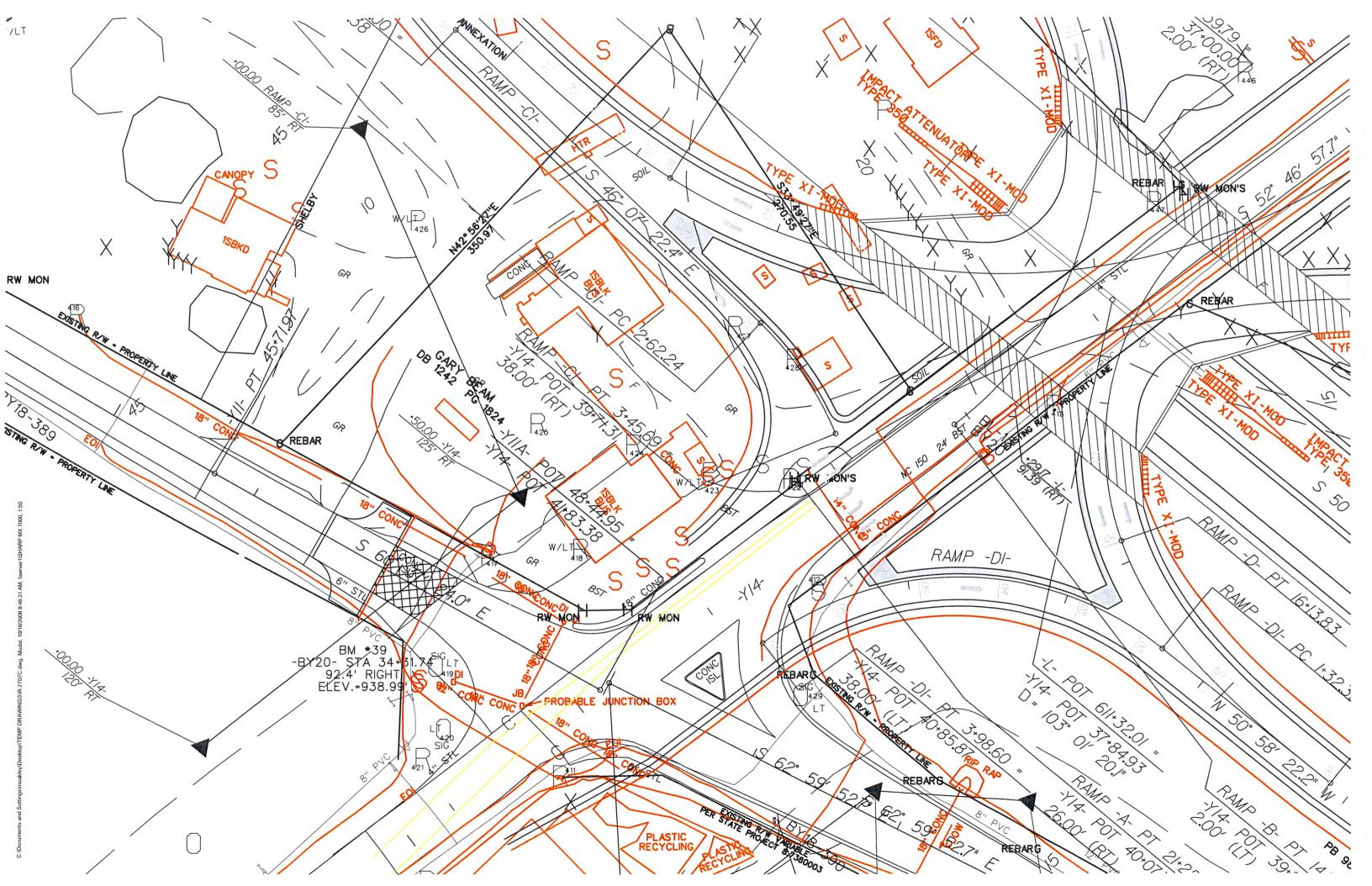
DATE:	9-16-08	REVISION NO:	0
JOB NO:	ROW-201	FIGURE:	1





Appendix A

NC DOT Preliminary Plan



Appendix B

Notice of No Further Action





NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

MOORESVILLE REGIONAL OFFICE

DIVISION OF WASTE MANAGEMENT

September 29, 1998

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Petroleum World, Inc. 681 NC 120 Highway Mooresboro, North Carolina 28114-6713 Attention: Debbie Sailors

SEP 3 D ROSS

GOVERNOR

RE:

Notice of No Further Action 15A NCAC 2L .0115(h)

RISK-BASED ASSESSMENT AND CORRECTIVE ACTION FOR PETROLEUM UNDERGROUND

STORAGE TANKS (USTs)

330 Mini-Mart 1001 Cherryville Road, Shelby Cleveland County, N.C. Low Risk Classification Pollution Incident # 10208

Dear Ms. Sailors:

7 27

On September 28, 1998, the Division of Waste Management (DWM) Mooresville Regional Office received Site Closure Request for the above-referenced site. A review of the report shows that soil contamination does not exceed the industrial/commercial maximum soil contaminant concentrations established in 15A NCAC 2L.0115(m) or the soil cleanup levels established by the Department in the "Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater" (March 1997)]. A review of the Site Closure Request and the pollution incident file also shows that contaminated groundwater does not exceed gross contamination levels that were established in 15A NCAC 2L .0115(g).

Based on information provided to date, the DWM determines that no further action is required for this incident. This determination is conditional pending completion of the public notice specified below. Once proper public notice has been given, this determination will apply unless the DWM later determines that the discharge or release poses an unacceptable risk or a potentially unacceptable risk to human health or the environment.

Please be advised that because contaminated groundwater has not been restored to the level of the standard or interim standard established in 15A NCAC 2L .0202, groundwater within the area of contamination or within the area where contamination is expected to migrate, is not suitable for use as a water supply. Also be advised that because contaminated soil was not cleaned up to the residential maximum soil contaminant concentrations, the property containing soil contamination is not suitable for residential use (e.g., homes, day care centers, schools, recreation areas).

> 919 NORTH MAIN STREET, MOORESVILLE, NORTH CAROLINA 28115 PHONE 704-663-1699 FAX 704-663-6040 - 50% RECYCLED/10% POST-CONSUMER PAPER AN EQUAL OPPORTUNITY / APPIRHATIVE ACTION EMPLOYER

5 Mini Mart Scruember 29, 1998 Page Two

Pursuant to 15A NCAC 2L .0115(e), you have a continuing obligation to notify the DWM of any changes that you know of or should know of, that might affect the level of risk assigned to the discharge or release. Such changes include, but are not limited to, changes in zoning of real property, use of real property or the use of groundwater that has been contaminated or is expected to be contaminated by the discharge or release, if such change could cause the DWM to reclassify the risk. Please note that this responsibility not only pertains to changes involving the property on which the release occurred, but to changes involving the surrounding properties as well.

Please be advised that you must comply with the public notice requirements of 15A NCAC 2L .0115(k) as specified below. If public notice is not provided as required, this no further action determination will be deemed invalid. Within 30 days of receipt of this no further action notice, you must provide a copy of this notice to the following persons:

- local health director;
- chief administrative officer (i.e., Mayor, Chairman of the County Commissioners, County Manager, City Manager or other official of equal or similar position) of each political jurisdiction in which the contamination occurs;
- all property owners and occupants within or contiguous to the area containing contamination; and
- all property owners and occupants within or contiguous to the area where the contamination is expected to migrate.

Copies of this no further action notice must be sent to the persons listed above by certified mail. If it is impractical to provide notice by certified mail to the occupants of apartment buildings, condominiums, office buildings, etc., you may post a y of this notice in a prominent place where the occupants are most likely to see it.

Within 60 days of receiving this no further action notice, you must provide the DWM Mooresville Regional Office with proof of receipt of the copy of the notice or of refusal by the addressee to accept delivery of the copy of the notice. If a copy of the notice is posted, you must provide the DWM with a description of the manner in which the notice was posted.

Interested parties may examine the Site Closure Request along with other site information in the DWM Mooresville Regional Office. In addition, comments on the Site Closure Request may be submitted to me at the letterhead address.

Please be advised that you must close any monitoring wells used to investigate or remediate this incident in accordance with 15A NCAC 2C .0113.

Should you have any questions concerning this notice, please contact me at (704) 663-1699, ext. 244.

Sincerely,

Robert B. Krebs, P.G.

Regional UST Supervisor

Attachments: 15A NCAC 2C .0113

Brian Bishop - Shield Environmental Fav Sweat - Incident Management Files Appendix C

Schnabel Geophysical Report



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

September 9, 2008

Mr. Matt Bramblett, PE, Project Manger Hart & Hickman, PC 2923 South Tryon Street, Suite 100 Charlotte, NC 28203

Via email (pdf)

Mr. Cyrus Parker and Mr. Ethan Caldwell, NCDOT

Mr. David Graham, Hart & Hickman, PC

State Project:

R-2707C

WBS Element:

34497.1.2

County:

cc:

Cleveland

Description:

US 74 Shelby Bypass West of NC 226 to West of NC 150

SUBJECT:

Parcel #938, Gary Beam Property NC150/NC180

Report on Geophysical Surveys to Locate Possible UST's

Schnabel Engineering Project No. 08210020.01

Dear Mr. Bramblett:

This letter contains our report on the geophysical surveys we conducted on the subject property. We understand this letter report will be included as an appendix in your report to the NCDOT. The report includes two 8.5x11 color figures and two 11x17 color figures.

1.0 INTRODUCTION

Schnabel Engineering conducted geophysical surveys on August 19 and August 21, 2008, in the accessible areas of Parcel 938 (Gary Beam Property) under our 2008 contract with the NCDOT. Parcel 938 is located at the northwest corner of the intersection of NC 150 and NC 180. Site photos of the parcel are shown in Figure 1. The work was conducted at the locations indicated by Hart & Hickman, PC (Hart & Hickman) to support their environmental assessment of the subject parcel. 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 site.

2.0 FIELD METHODOLOGY

Locations of geophysical data points were obtained using a sub-meter Trimble Pro-XRS DGPS system. References to direction and location in this report are based on the US State Plane 1983 system, North Carolina 3200 zone, using the NAD 83 datum, with units in US survey feet. The locations of existing site features (buildings, trailers, signs, etc.) were recorded for later correlation with the geophysical data and for location references to the NCDOT drawings. The geophysical investigation consisted of an electromagnetic (EM) induction survey using a Geonics EM61-MK2 instrument, and a ground-penetrating radar survey using a Geophysical Survey Systems SIR-3000 system equipped with a 400 MHz antenna. Photographs of the equipment used are shown in Figure 2.

The EM61 data were collected along parallel survey lines spaced about 2.5 feet apart. The EM61 and DGPS data were recorded digitally using a field computer and later transferred to a desktop computer for data processing. The GPR data were collected over selected EM61 anomalies and over the planned boring locations. The GPR data were reviewed in the field to evaluate the possible presence of UST's. The GPR data also were recorded digitally and later transferred to a desktop computer for further review.

Preliminary results were sent to Matt Bramblett and David Graham of Hart & Hickman and Cyrus Parker and Ethan Caldwell of the NCDOT on August 22, 2008.

3.0 DISCUSSION OF RESULTS

The contoured EM61 data are shown on Figures 3 and 4. The EM61 early time gate results are plotted on Figure 3. The early time gate data provide the most sensitive detection of metal object targets, regardless of size. Figure 4 shows the difference between the response of the top and bottom coils of the EM61 instrument (differential response). The difference is taken to remove the effect of surface and very shallowly buried metallic objects. Typically, the differential response emphasizes anomalies from deeper and larger objects such as UST's.

The early time gate and differential results show several anomalies attributed to known site features, two linear anomalies in response to buried concrete drainage pipes, and several anomalies not attributed to known site features (Figures 3 and 4). The anomalies not attributed to known site features were surveyed with GPR, as shown on Figures 3 and 4. The GPR data did not indicate the presence of possible UST's in the areas of the parcel that were surveyed.

4.0 CONCLUSIONS

Our evaluation of the geophysical data collected on Parcel 938 of Project R-2707C in Shelby, NC indicates the following:

• The geophysical data do not indicate the presence of possible UST's in the areas surveyed.

5.0 LIMITATIONS

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

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

Sincerely,

SCHNABEL ENGINEERING SOUTH, P.C.

Jeremy S. Strohmeyer, L.G.

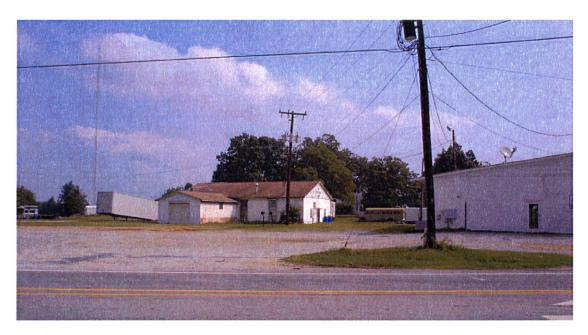
Project Manager

Edward D. Billington, L.G.

Senior Vice President



Parcel 938 - Gary Beam Property, looking northwest



Parcel 938 - Gary Beam Property, looking north



NC Department of Transportation Geotechnical Engineering Unit

State Project No. R-2707C Cleveland County, North Carolina PARCEL 938 SITE PHOTOS



Geonics EM61-MK2

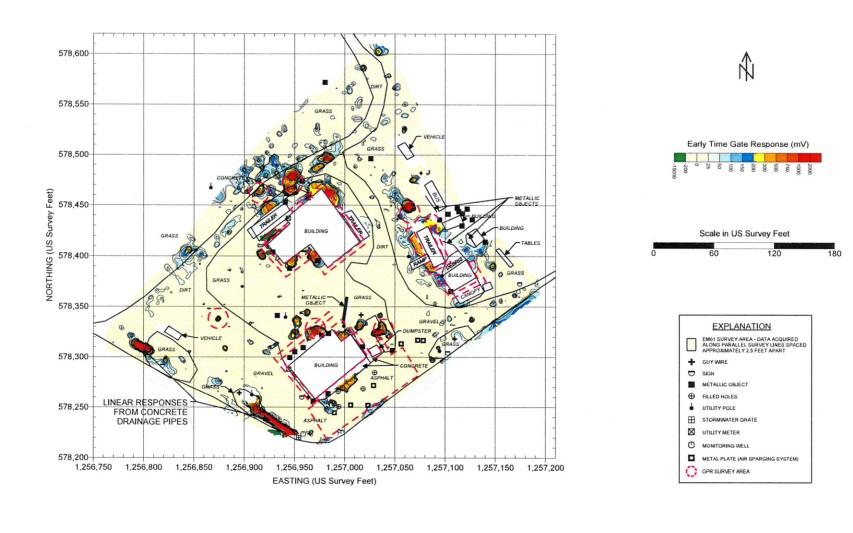


Geophysical Survey Systems SIR-3000 with 400 MHz antenna



NC Department of Transportation Geotechnical Engineering Unit

State Project No. R-2707C Cleveland County, North Carolina PHOTOS OF GEOPHYSICAL EQUIPMENT

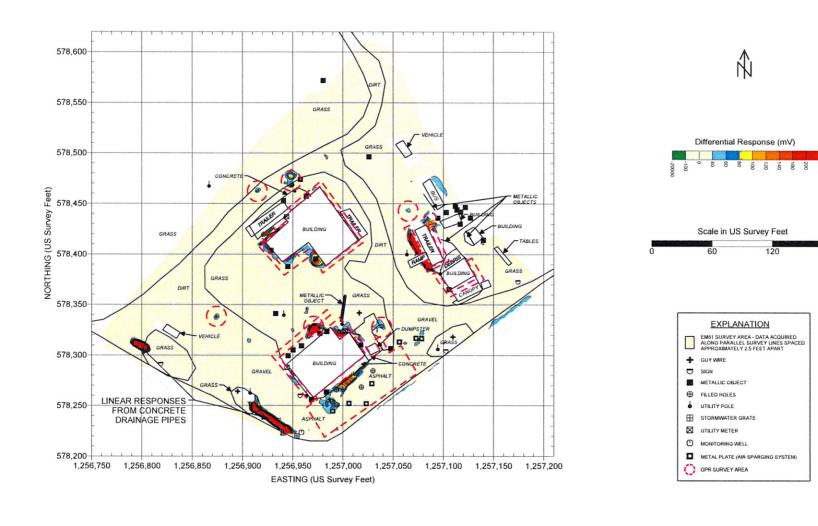


Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on August 19, 2008, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina Zone 3200, using the NAD 1983 datum. GPR data were acquired on August 21, 2008, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.



NC Department of Transportation Geotechnical Engineering Unit

State Project No. R-2707C Cleveland County, North Carolina EM61 EARLY TIME GATE RESPONSE



Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as drums and tanks. The EM data were collected on a ubugust 19, 2008, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 1983 datum. GPR data were acquired on August 21, 2008, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.



NC Department of Transportation Geotechnical Engineering Unit

State Project No. R-2707C Cleveland County, North Carolina EM61 DIFFERENTIAL RESPONSE

Appendix D

Soil Boring Logs



3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-1

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina

DEPTH (ft)	RECOVERY (%)	BLOW COUNT		OVA (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH
	REC	BLC	BKG.	SAMP.				
-0.0 -						Yellow, orange SAND with petroleum odor, Dry		0.0
2.5-			0	0				-2.5
			0	1260		White, yellow silty SAND with petroleum odor, Dry		
j.0-								-5.
7.5			0	690		Orange, red sandy CLAY with petroleum odor; decreasing amounts of sand with depth, Dry		- - - - -7.
.,			0	3096				-
0.0-			0	2083				-10 -10
-			0_	1799		Bottom of borehole at 12.0 feet.		-
2.5-								-12 - - -

DRILL RIG/ METHOD: Probe Technologies **DRILL RIG/ METHOD:** Geoprobe 66DT / DPT

SAMPLING METHOD: DPT Sleeves

LOGGED BY HLB DRAWN BY:

LOG OF BORING - HART HICKMAN, GDT - 10/17/08 07:32 - S:\AAA-MASTER GINT PROJECTS\ROW-201,GPJ

BORING STARTED 8/27/08 BORING COMPLETED: 8/27/08 TOTAL DEPTH: 12

SURFACE ELEV: DEPTH TO WATER: Remarks:



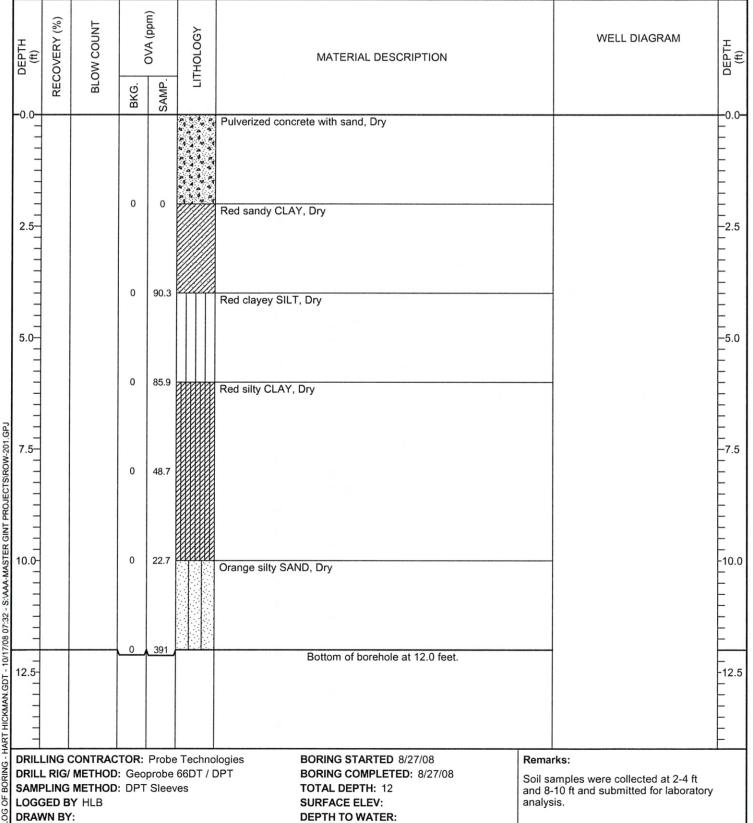
3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-2

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina



DRILLING CONTRACTOR: Probe Technologies DRILL RIG/ METHOD: Geoprobe 66DT / DPT

SAMPLING METHOD: DPT Sleeves LOGGED BY HLB

DRAWN BY:

BORING STARTED 8/27/08 **BORING COMPLETED: 8/27/08**

TOTAL DEPTH: 12 SURFACE ELEV: **DEPTH TO WATER:**

Remarks:

Soil samples were collected at 2-4 ft and 8-10 ft and submitted for laboratory analysis.



3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-3

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina

DEPTH (ft) RECOVERY (%)	BLOW COUNT	OVA (ppm)		LITHOLOGY	WELL DIAGRAM MATERIAL DESCRIPTION	DEPTH
	B	BKG.	SAMP.			
2.5-		0 5.2 5	0 0 9.8 6.3		Red-orange clayey SAND, Dry Yellow-white SAND, Dry Yellow-orange sandy CLAY, Dry Orange silty CLAY, Dry	-0.0
= =	5	5.4	87			
12.5-			<u>.</u>		Bottom of borehole at 12.0 feet.	-12.
DRILLING COM DRILL RIG/ ME SAMPLING ME LOGGED BY H DRAWN BY:	THOD: (Geopro	obe 6	66DT / C		



3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-4

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina

DEPTH (ft)	RECOVERY (%)	BLOW COUNT		OVA (ppm)	LITHOLOGY	WELL DIAGRAM MATERIAL DESCRIPTION	DEPTH (ft)
	22	ω	BKG.	SAMP.			
-0.0- - - -						Red-brown sandy CLAY, Dry	
2.5-			3	3		Brown clayey SAND, Dry	-2.5 -
5.0			2	2		Orange CLAY, Dry	-5.0
1.673	=		1.7	14.1			-
7.5-10-2-MON-201-16F3			3	57		Orange sandy SILT, Dry	-7.5 - - - - - -
			3.5	29			-10.0 -10.0 - - - -
			4	7.8		Bottom of borehole at 12.0 feet.	
12.5- 12.5- DRILLI DRILL							-12.5 - - - - -
	L RIG/ PLING GED B	CONTRAC METHOD METHOD Y HLB	: Geo	probe	66DT / [



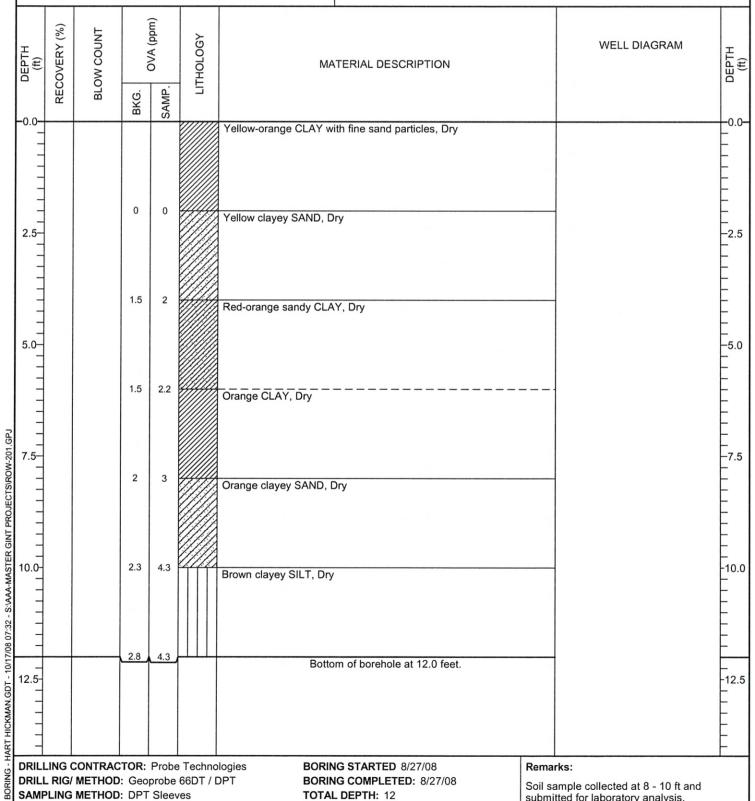
3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-5

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina



DRILLING CONTRACTOR: Probe Technologies DRILL RIG/ METHOD: Geoprobe 66DT / DPT SAMPLING METHOD: DPT Sleeves

LOGGED BY HLB DRAWN BY:

-0G OF

BORING STARTED 8/27/08 BORING COMPLETED: 8/27/08 TOTAL DEPTH: 12

SURFACE ELEV: **DEPTH TO WATER:** Remarks:



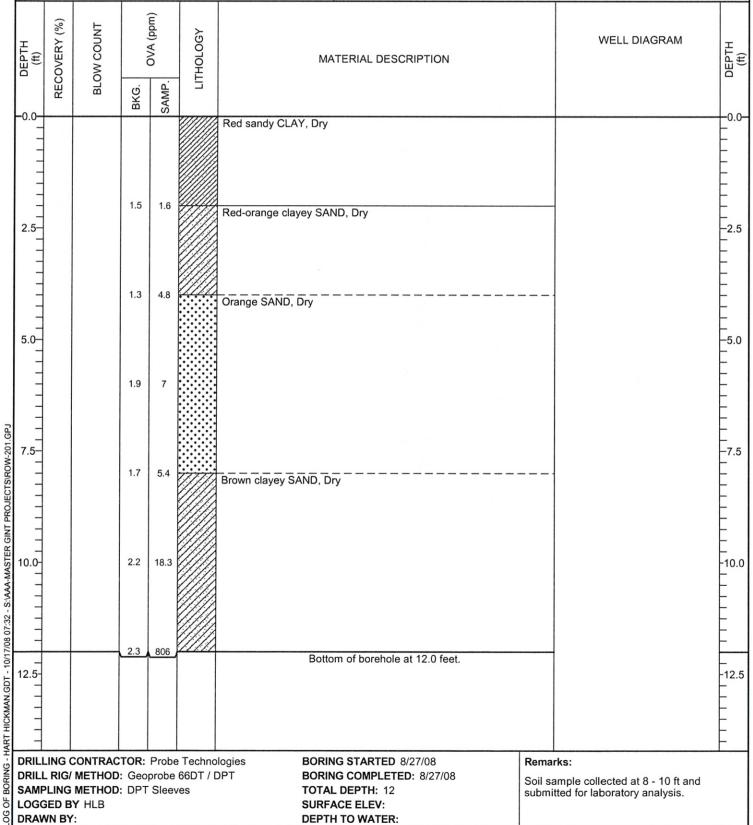
3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-6

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina



DRILLING CONTRACTOR: Probe Technologies DRILL RIG/ METHOD: Geoprobe 66DT / DPT

SAMPLING METHOD: DPT Sleeves LOGGED BY HLB

DRAWN BY:

BORING STARTED 8/27/08 BORING COMPLETED: 8/27/08 TOTAL DEPTH: 12 SURFACE ELEV:

DEPTH TO WATER:

Remarks:



3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-7

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina

DEPTH (ft) RECOVERY (%)	BLOW COUNT		OVA (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM
-0.0-	BLC	BKG.	SAMP.	5		
2.5-		1.3	3.5		Moist brown silty CLAY	
5.0-		1.5	3.9		Very wet sandy CLAY White-orange wet SAND	
10.0-		- 12 - 12 - 12 - 13 - 13 - 13 - 13 - 13 - 13 - 13 - 13				-1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -
12.5-					Bottom of borehole at 12.0 feet.	-1 -1 1
DRILL RIC	CONTRAC 6/ METHOD G METHOD	: Geo	probe	66DT / [DPT BORING COMPLETED: 8/27/08	emarks: oil sample collected at 4 - 6 ft and ubmitted for laboratory analysis. No

LOGGED BY HLB DRAWN BY:

-0G OF

TOTAL DEPTH: 12 SURFACE ELEV: **DEPTH TO WATER:**

Remarks:

Soil sample collected at 4 - 6 ft and submitted for laboratory analysis. No soil was recovered between 2-4 ft and 8-12 ft due perched water.



3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-8

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina

-							
DEPTH (ft)	RECOVERY (%)	BLOW COUNT		OVA (ppm)	LITHOLOGY	WELL DIAGRAM MATERIAL DESCRIPTION	DEPTH (ft)
	REC	BLC	BKG.	SAMP.			
-0.0 - - - -						Orange clayey SAND, Dry	
2.5-			0.9	3.1			- - - -2.5
			1.5	20		Orange CLAY, Dry	
5.0-			1	4.1			-5.0
AA-MASTEK GINT PROJECTSKROW-201.GFU	8		1.9	353		Orange-brown sandy CLAY, Dry	-7.5 -7.5 -
10.01 1 1 1 1 1 1 1 1 1			3	336		Brown-orange clayey SILT, Dry	-10.0
17/08 07:32 - 8			5	414		Bottom of borehole at 12.0 feet.	-
HART HICKMAN.GDT - 10/17/08 07:32 - S:VA. 1 1 1 1 1 1 1 1 1						Bottom of borenoie at 12.0 leet.	- -12.5 - - - - -
DRILL DRILL SAMP	. RIG/ LING ED B	CONTRAC METHOD METHOD Y HLB	: Geo	probe	66DT / I		



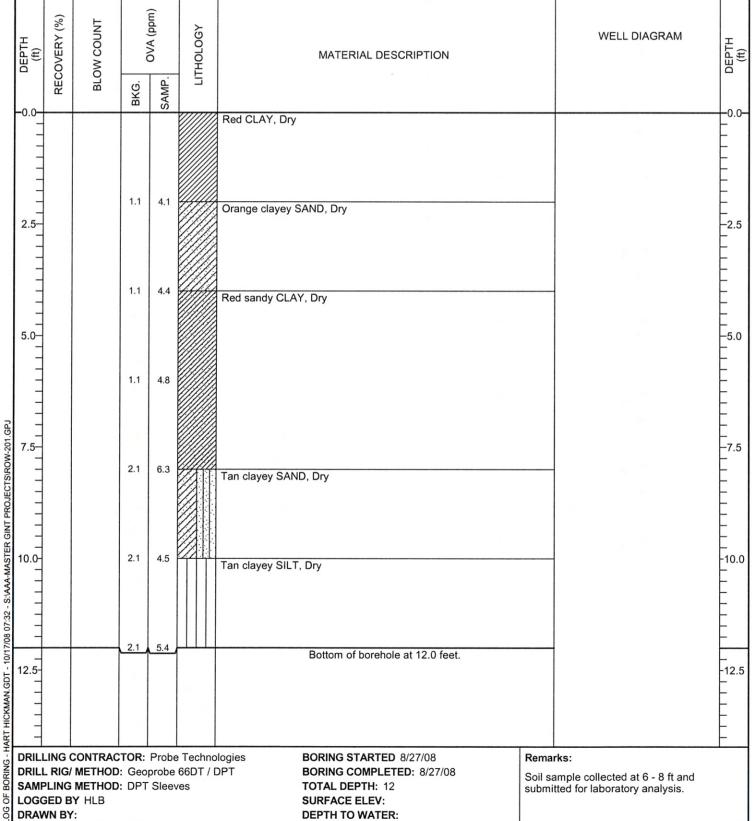
3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-9

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina



DRILLING CONTRACTOR: Probe Technologies DRILL RIG/ METHOD: Geoprobe 66DT / DPT

SAMPLING METHOD: DPT Sleeves

LOGGED BY HLB DRAWN BY:

BORING STARTED 8/27/08 BORING COMPLETED: 8/27/08

TOTAL DEPTH: 12 SURFACE ELEV: **DEPTH TO WATER:** Remarks:



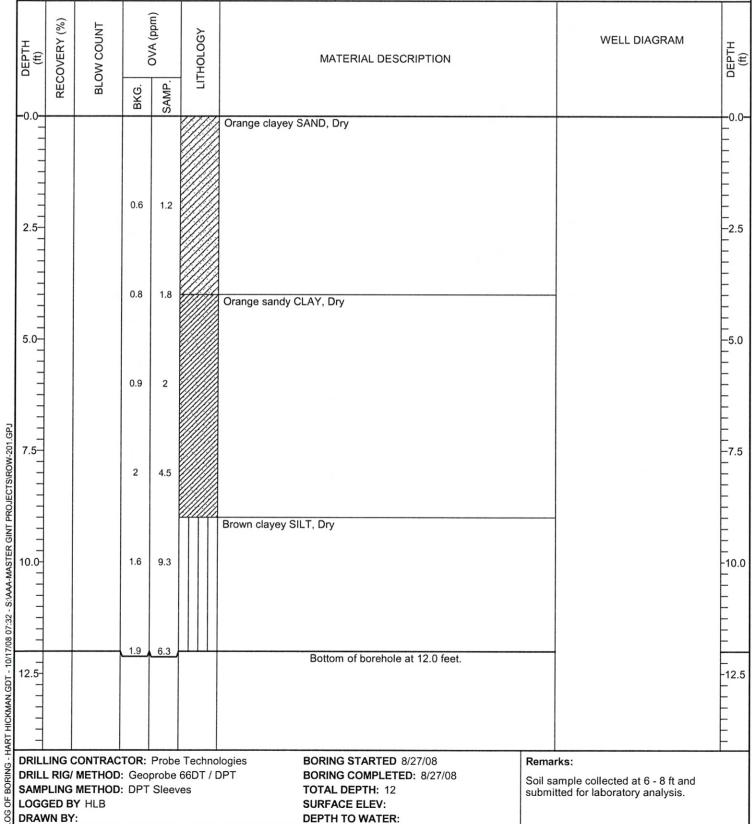
3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-10

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina



DRILLING CONTRACTOR: Probe Technologies DRILL RIG/ METHOD: Geoprobe 66DT / DPT

SAMPLING METHOD: DPT Sleeves LOGGED BY HLB

DRAWN BY:

BORING STARTED 8/27/08 BORING COMPLETED: 8/27/08

TOTAL DEPTH: 12 SURFACE ELEV: **DEPTH TO WATER:** Remarks:



2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-11

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina

DEPTH (ft)	RECOVERY (%)	BLOW COUNT		OVA (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM	DEPTH (ft)
-0.0-	REC	BLC	BKG.	SAMP.] 5			
-0.0-						Orange-tan clayey SAND, wet		-0.0- - - - - -
2.5-			1.11	1.5				_ _ _ _ _2.5
			1.1	3.9				_ _ _ _ _ _
5.0-			1	4.3		Red-tan CLAY, Moist		- -5.0 - - - -
TS/ROW-201.GPJ			2	4.6				
AA-MASTER GINT PROJECTS/ROW-201.GPJ 0.01		,	1.9	2.7				- - - - - -10.0
8 07:32 - S:'AAA-MA								_ _ _ _ _
10/17/00						Bottom of borehole at 12.0 feet.	1	
HART HICKMAN, GDT - 10/17/08 07:32 - S:VA								-12.5
DRILI DRILI SAME	L RIG/ PLING SED B	CONTRAC METHOD METHOD Y HLB	: Geo	probe	66DT / [PPT BORING COMPLETED: 8/27/08 Soil : TOTAL DEPTH: 12 subm SURFACE ELEV: soil v	arks: sample collected at 6 - 8 ft and nitted for laboratory analysis. No was recovered at 10 - 12 ft due to hed water.	



2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007(p) 704-586-0373(f)

3334 Hillsborough St. Raleigh, North Carolina 27607 919-847-4241(p) 919-847-4261(f)

BORING NUMBER 938-12

PROJECT: Gary Beam Property, Parcel #938

JOB NUMBER: ROW-201

LOCATION: Shelby, North Carolina

DEPTH (ft)	RECOVERY (%)	BLOW COUNT		P. OVA (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	WELL DIAGRAM (#)
-0.0-	~		BKG.	SAMP.			0.0
0.5 - - - - - - - 2.5			0.4	3.2		Tan silty SAND, Dry	-0.0
5.0			1.1	4.1			- 2.3
			0.3	3.7		White, orange silty CLAY, Dry	-5.0 - - - - - - - -
AA-MASTER GINT PROJECTSIROW-201.GPJ 0.01			1	4.9			-7.5 -7.5 - - - -
3 07:32 - S:VAAA-MASTER GI 0 1 1 1 1 1 0 1 1			1.2	4			-10.0 -10.0 - - - -
0/17/08			1.2	2.5		Bottom of borehole at 12.0 feet.	
HART HICKMAN,GDT - 10/17/08 07:32 - S:Aa 1	-						-12.5 _ _ _ _ _
DRILI DRILI SAME	L RIG/ PLING GED B	METHOD: METHOD: METHOD: Y HLB	: Geo	probe	66DT / E	PT BORING COMPLETED: 8/27/08 Soil sam	s: nple collected at 6 - 8 ft and nd for laboratory analysis.

Appendix E

Laboratory Analytical Report

Case Narrative



Date:

09/05/08

Company: North Carolina Department of Transportation

Contact:

David Graham

Address: c/o Hart and Hickman

2923 South Tryon St. Ste 100

Charlotte, NC 28203

Client Project ID:

ROW-201

Prism COC Group No:

G0808732

Collection Date(s):

08/27/08

Lab Submittal Date(s):

08/27/08

Client Project Name Or No:

WBS# 34497.1.2

This data package contains the analytical results for the project identified above and includes a Case Narrative, Laboratory Report and Quality Control Data totaling 15 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 end of this case narrative, Quality control statements and/or sample specific remarks are included in the sample comments section of the laboratory report for each sample affected.

Semi Volatile Analysis

No Anomalies Reported

Volatile Analysis

No Anomalies Reported

Metals Analysis

N/A

Wet Lab and Micro Analysis

N/A

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

Date Reviewed by:

Project Manager:

Angela D. Overcash

Signature: Review Date:

09/05/08

Signature: Approval Date:

09/05/08

Data Qualifiers Key Reference:

- B: Compound also detected in the method blank.
- #: Result outside of the QC limits.
- 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.
- H: Estimated concentration with a high bias.
- L: Estimated concentration with a low bias.
- M: A matrix effect is present.

Notes: This report should not be reproduced, except in its entirety, without the written consent of Prism Laboratories, Inc. The results in this report relate only to the samples submitted for analysis.



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID:

ROW-201

Project No.:

WBS# 34497.1.2

Sample Matrix: Soil

Prism Sample ID 223440

Client Sample ID 938-1 (6-8)

COC Group:

% Recovery

46 #

G0808732

Time Collected:

08/27/08 10:40

Time Submitted: 08/27/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination Percent Solids	82.4	%			1	SM2540 G	09/02/08 15:00	mbarber	
Diesel Range Organics (DRO) by GO Diesel Range Organics (DRO)	240	mg/kg	8.5	1.4	1	8015B	09/02/08 11:28	jvogel	Q3508
Sample Preparatio	n:			25 g	/ 1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate		% Recovery	Cor	ntrol Limits
					o-Terphen	yl	83		49 - 124
Sample Weight Determination									
Weight 1	5.57	g			1	GRO	09/02/08 0:00	Ibrown	
Weight 2	5.45	9			1	GRO	09/02/08 0:00	lbrown	
Gasoline Range Organics (GRO) by	GC-FID								
Gasoline Range Organics (GRO)	490	mg/kg	12	7.6	100	8015B	09/02/08 21:31	dliamm	Q3506

Surrogate recovery was outside of the control limits. Matrix interference is suspected.

Surrogate

aaa-TFT

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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

Control Limits

55 - 129



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID: Project No.: ROW-201

WBS# 34497.1.2

Sample Matrix: Soil

Client Sample ID 938-2 (2-4)

Prism Sample ID 223442

COC Group:

G0808732

Time Collected:

08/27/08 11:00

Time Submitted: 08/27/08

16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analys	st Batch ID
Percent Solids Determination Percent Solids	86.2	%			1	SM2540 G	09/02/08 15:00	mbarber	
Diesel Range Organics (DRO) by GO	C-FID								
Diesel Range Organics (DRO)	130	mg/kg	8.1	1.3	1	8015B	09/02/08 12:03	jvogel	Q35083
Sample Preparation:			25.	01 g	/ 1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate	l	% Recovery	Co	ontrol Limits
					o-Terphen	yl	91		49 - 124
Sample Weight Determination									
Weight 1	5.29	9			1	GRO	09/02/08 0:00	Ibrown	
Weight 2	6.23	g			1	GRO	09/02/08 0:00	Ibrown	
Gasoline Range Organics (GRO) by	GC-FID								
Gasoline Range Organics (GRO)	10	mg/kg	5.8	3.6	50	8015B	09/02/08 15:12	dliamm	Q35067
					Surrogate	:	% Recovery	Co	ontrol Limits
					aaa-TFT		104		55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID:

ROW-201

Client Sample ID 938-2 (8-10)

Project No .:

Sample Matrix: Soil

WBS# 34497.1.2

COC Group:

Prism Sample ID 223443

G0808732

Time Collected:

08/27/08 15:40

Time Submitted: 08/27/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination Percent Solids	87.9	%			1	SM2540 G	09/02/08 15:00	mbarber	
<u>Diesel Range Organics (DRO) by GC</u> Diesel Range Organics (DRO)	- <u>FID</u> 28	mg/kg	7.9	1.3	1	8015B	09/02/08 12:39	jvogel	Q35083
Sample Preparation:			25.	.14 g	/ 1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate	í	% Recovery	Con	trol Limits
					o-Terphen	yl	81		49 - 124
Sample Weight Determination									
Weight 1	5.57	9			1	GRO	09/02/08 0:00	Ibrown	
Weight 2	5.73	9			1	GRO	09/02/08 0:00	Ibrown	
Gasoline Range Organics (GRO) by	GC-FID								
Gasoline Range Organics (GRO)	BRL	mg/kg	5.7	3.6	50	8015B	09/02/08 15:44	dliamm	Q35067

Surrogate recovery was outside the control limits. No target compounds were detected in this sample. No further action was taken.

Surrogate	% Recovery	Control Limits
aaa-TFT	146 #	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100

Project ID: Project No.:

Sample Matrix: Soil

ROW-201

WBS# 34497.1.2

Client Sample ID 938-3 (6-8)

Prism Sample ID 223444

COC Group:

G0808732

Time Collected:

08/27/08 11:30

Charlotte, NC 28203

Time Submitted: 08/27/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination Percent Solids	84.5	%			1	SM2540 G	09/02/08 15:00	mbarber	
Diesel Range Organics (DRO) by G			0.0		2	00455	00/00/00 40 45	5 1	005000
Diesel Range Organics (DRO)	BRL	mg/kg	8.2	1.3	1	8015B	09/02/08 13:15	jvogei	Q35083
Sample Preparation:			25.	16 g /	1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate	•	% Recovery	Con	trol Limits
					o-Terphen	yl	76	_	49 - 124
Sample Weight Determination									
Weight 1	5.45	9			1	GRO	09/02/08 0:00	brown	
Weight 2	5.81	g			1	GRO	09/02/08 0:00	Ibrown	
Gasoline Range Organics (GRO) by	GC-FID								
Gasoline Range Organics (GRO)	BRL	mg/kg	5.9	3.7	50	8015B	09/02/08 16:16	dliamm	Q35067
					Surrogate		% Recovery	Con	itrol Limits
							To the second se	COI	
					aaa-TFT		113		55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID: Project No.: ROW-201

WBS# 34497.1.2

Sample Matrix: Soil

Client Sample ID 938-4 (6-8)

Prism Sample ID 223445

COC Group:

G0808732

Time Collected:

08/27/08 11:45

Time Submitted: 08/27/08

16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination Percent Solids	79.4	%			1	SM2540 G	09/02/08 15:00	mbarber	
Diesel Range Organics (DRO) by GO Diesel Range Organics (DRO)	<u>-FID</u> 11	mg/kg	8.8	1.4	1	8015B	09/02/08 13:50	jvogel	Q35083
Sample Preparation:			25.	.08 g	/ 1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate	1	% Recovery	Cont	rol Limits
					o-Terphen	yl	68		49 - 124
Sample Weight Determination Weight 1	5.12	g			1	GRO	09/02/08 0:00	Ibrown	
Weight 2	5.04	g			1	GRO	09/02/08 0:00	Ibrown	
Gasoline Range Organics (GRO) by Gasoline Range Organics (GRO)	<u>GC-FID</u> BRL	mg/kg	6.3	3.9	50	8015B	09/02/08 16:47	dliamm	Q3506
					Surrogate	•	% Recovery	Cont	trol Limits
					aaa-TFT		83		55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID: Project No .: ROW-201

WBS# 34497.1.2

Sample Matrix: Soil

Client Sample ID 938-5 (8-10)

Prism Sample ID 223446

COC Group:

G0808732

Time Collected:

08/27/08 12:00

Time Submitted: 08/27/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination Percent Solids	80.6	%			1	SM2540 G	09/02/08 15:00	mbarber	
Diesel Range Organics (DRO) by GC Diesel Range Organics (DRO)	<u>-FID</u> BRL	mg/kg	8.7	1.4	1	8015B	09/02/08 14:26	jvogel	Q35083
Sample Preparation:			25.	02 g /	1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate	9	% Recovery	/ Cor	ntrol Limits
					Surrogate o-Terphen		% Recovery	, Coi	ntrol Limits 49 - 124
Sample Weight Determination								, Cor	
Sample Weight Determination Weight 1	5.08	g						/ Cor	
	5.08 5.25	g g			o-Terphen	yl	82		

Surrogate recovery was outside the control limits. No target compounds were detected in this sample. No further action was taken.

Surrogate	% Recovery	Control Limits
aaa-TFT	142 #	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services

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Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID: Project No.: ROW-201

WBS# 34497.1.2

Sample Matrix: Soil

Prism Sample ID 223447

Client Sample ID 938-6 (8-10)

COC Group:

G0808732

Time Collected: Time Submitted: 08/27/08

08/27/08 12:30

16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination Percent Solids	79.4	%			1	SM2540 G	09/02/08 15:00	mbarber	
Diesel Range Organics (DRO) by G Diesel Range Organics (DRO)	C-FID BRL	mg/kg	8.8	1.4	1	8015B	09/02/08 15:02	jvogel	Q35083
Sample Preparation	on:			25 g	1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate	9	% Recovery	Cont	rol Limits
					o-Terphen	ıyl	59		19 - 124
Sample Weight Determination						0.7.0	00/00/00 000		
Weight 1	5.30	g			1	GRO	09/02/08 0:00	Ibrown	
Weight 2	5.09	g			1	GRO	09/02/08 0:00	Ibrown	
Gasoline Range Organics (GRO) by	y GC-FID								
Gasoline Range Organics (GRO)	BRL	mg/kg	6.3	3.9	50	8015B	09/02/08 17:50	dliamm	Q35067
					Surrogate	e	% Recovery	Cont	rol Limits
					aaa-TFT		105		55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID: Project No .: ROW-201

Sample Matrix: Soil

WBS# 34497.1.2

COC Group:

Client Sample ID 938-7 (4-6)

Prism Sample ID 223448

G0808732

Time Collected:

08/27/08 13:30

Time Submitted: 08/27/08

16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination Percent Solids	84.6	%			1	SM2540 G	09/02/08 15:00	mbarber	
Diesel Range Organics (DRO) by GC- Diesel Range Organics (DRO)	· <u>FID</u> BRL	mg/kg	8.2	1.3	1	8015B	09/02/08 15:38	jvogel	Q35083
Sample Preparation:			25.	28 g /	/ 1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate	•	% Recovery	Cont	trol Limits
					o-Terphen	yl	78		49 - 124
Sample Weight Determination Weight 1	6.70	g			1	GRO	09/02/08 0:00	Ibrown	
Weight 2	6.20	g			1	GRO	09/02/08 0:00	Ibrown	
Gasoline Range Organics (GRO) by Gasoline Range Organics (GRO)	<u>GC-FID</u> BRL	mg/kg	5.9	3.7	50	8015B	09/02/08 18:22	dliamm	Q35067
					Surrogate	•	% Recovery	Con	trol Limits
					aaa-TFT		117		55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID:

ROW-201

Client Sample ID 938-8 (6-8)

Project No.: Sample Matrix: Soil

WBS# 34497.1.2

Prism Sample ID 223449 COC Group:

G0808732

Time Collected:

08/27/08 13:50

Time Submitted: 08/27/08

16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination								2 121	
Percent Solids	78.9	%			1	SM2540 G	09/02/08 15:00	mbarber	
Diesel Range Organics (DRO) by G	C-FID								
Diesel Range Organics (DRO)	990	mg/kg	89	14	10	8015B	09/03/08 11:19 j	vogel	Q35083
Sample Preparation:			25.	.24 g	1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate	1	% Recovery	Cont	rol Limits
					o-Terphen	yl	DO #	2	49 - 124
Sample Weight Determination									
Weight 1	5.44	g			1	GRO	09/02/08 0:00	brown	
Weight 2	5.39	g			1	GRO	09/02/08 0:00	brown	
Gasoline Range Organics (GRO) by	GC-FID								
Gasoline Range Organics (GRO)	140	mg/kg	13	7.9	100	8015B	09/02/08 22:03	dliamm	Q35067
					Surrogate	·	% Recovery	Cont	trol Limits
					aaa-TFT		86		55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID: Project No.: ROW-201

WBS# 34497.1.2

Sample Matrix: Soil

Client Sample ID 938-9 (6-8)

Prism Sample ID 223450

COC Group:

G0808732

Time Collected:

08/27/08 14:15

Time Submitted: 08/27/08 16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination Percent Solids	86.0	%			1	SM2540 G	09/02/08 15:00	mbarber	
Diesel Range Organics (DRO) by GO Diesel Range Organics (DRO)	C-FID BRL	mg/kg	8.1	1.3	1	8015B	09/02/08 16:50	jvogel	Q35083
Sample Preparation:			25.	01 g	/ 1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate)	% Recovery	Cor	ntrol Limits
					o-Terphen	yl	67		49 - 124
Sample Weight Determination Weight 1	6.04	g			1	GRO	09/02/08 0:00	Ibrown	
Weight 2	5.90	g			1	GRO	09/02/08 0:00	Ibrown	
Gasoline Range Organics (GRO) by Gasoline Range Organics (GRO)	GC-FID BRL	mg/kg	5.8	3.6	50	8015B	09/02/08 18:54	dliamm	Q35067
					Surrogate	9	% Recovery	Co	ntrol Limits
					aaa-TFT		85		55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Project ID: Project No.: ROW-201

WBS# 34497.1.2

Client Sample ID 938-10 (6-8)

223451

COC Group:

Prism Sample ID G0808732

Time Collected:

08/27/08 14:45

Charlotte, NC 28203

Sample Matrix: Soil

Time Submitted: 08/27/08

16:45

obarr

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Percent Solids Determination Percent Solids	81.4	%			1	SM2540 G	09/02/08 15:00	mbarber	

Diesel Range Organics (DRO) BRL

Diesel Range Organics (DRO) by GC-FID

8.5 mg/kg

8015B

3545

09/02/08 17:26 jvogel

Q35083

Sample Preparation:

25.33 q /

1 mL

08/29/08 10:00

P22444

					Surrogate		% Reco	very	Control Limits
					o-Terphen			6	49 - 124
Sample Weight Determination Weight 1 Weight 2	6.04 6.10	g g			1	GRO GRO	09/02/08 0 09/02/08 0	:00 Ibrown	
Gasoline Range Organics (GRO) by Gasoline Range Organics (GRO)	<u>GC-FID</u> BRL	mg/kg	6.1	3.8	50	8015B	09/02/08 1	9:25 Ibrown	Q35067

Surrogate	% Recovery	Control Limits
aaa-TFT	88	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID: Project No .: ROW-201

WBS# 34497.1.2

Sample Matrix: Soil

Client Sample ID 938-11 (6-8)

Prism Sample ID

223452

COC Group:

G0808732

Time Collected: Time Submitted: 08/27/08

08/27/08 15:00

16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analys	t Batch ID
Percent Solids Determination Percent Solids	81.7	%			1	SM2540 G	09/02/08 15:00	mbarber	
Diesel Range Organics (DRO) by G Diesel Range Organics (DRO)	C-FID BRL	mg/kg	8.5	1.4	1	8015B	09/02/08 18:01	jvogel	Q35083
Sample Preparation:			25.	15 g /	1 mL	3545	08/29/08 10:00	pbarr	P22444
					Surrogate		% Recovery	Co	ntrol Limits
					o-Terphen	yl	61		49 - 124
Sample Weight Determination Weight 1	6.21	g			1	GRO	09/02/08 0:00	Ibrown	
Weight 2	6.25	9			1	GRO	09/02/08 0:00	Ibrown	
Gasoline Range Organics (GRO) by Gasoline Range Organics (GRO)	y GC-FID BRL	mg/kg	6.1	3.8	50	8015B	09/02/08 19:57	dliamm	Q35067
					Surrogate		% Recovery	, Co	ntrol Limits
					aaa-TFT		112		55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



Laboratory Report

09/05/08

North Carolina Department of Transportation Attn David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Charlotte, NC 28203

Project ID: Project No.: ROW-201

WBS# 34497.1.2

Sample Matrix: Soil

Client Sample ID 938-12 (6-8)

Prism Sample ID 223453

COC Group:

G0808732

Time Collected: Time Submitted: 08/27/08

08/27/08 15:30

16:45

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst
Percent Solids Determination Percent Solids	81.2	%			1	SM2540 G	09/02/08 15:00	mbarber

Diesel Range Organics (DRO) by GC-FID
Diesel Range Organics (DRO)

BRL

mg/kg

86

1.4

8015B

09/02/08 18:37 jvogel

Q35083

Batch

ID

Sample Preparation:

25.1 g /

1 mL

3545 08/29/08 10:00

pbarr

P22444

					Surrogat	е	% Recovery		Control Limits
					o-Terphenyl		82		49 - 124
Sample Weight Determination						000	00/00/00 0 00	11	
Weight 1	6.25	g			1	GRO	09/02/08 0:00	lbrown	
Weight 2	5.94	g			1	GRO	09/02/08 0:00	Ibrown	
Gasoline Range Organics (GRO) by	GC-FID								
Gasoline Range Organics (GRO)	BRL	mg/kg	6.2	3.9	50	8015B	09/02/08 20:28	dliamm	Q35067

Surrogate	% Recovery	Control Limits
aaa-TFT	85	55 - 129

Sample Comment(s):

BRL = Below Reporting Limit

Values are reported down to the reporting limits only. No J-flags applied.

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.

All results are reported on a dry-weight basis

Angela D. Overcash, V.P. Laboratory Services



Level II QC Report

North Carolina Department of

Transportation

Attn: David Graham c/o Hart and Hickman 2923 South Tryon St. Ste 100 Project ID: Project No.: **ROW-201**

WBS# 34497.1.2

COC Group Number: G0808732

Date/Time Submitted: 8/27/200 16:45

Gasoline Range Organics (GRO) by GC-FID, method 8015B

Method Blank									QC Batch
	Result	RL	Control Limit	Units					ID
Gasoline Range Organics (GRO)	s ND	5	<2.5	mg/kg					Q35067
Laboratory Control Sample	Result	Spike Amou	ınt	Units	Recovery %	Recovery Ranges %			QC Batch ID
Gasoline Range Organics (GRO)	44.9	50		mg/kg	90	67-116			Q35067
Matrix Spike					Recovery	Recovery Ranges			QC Batch
Sample ID:	Result	Spike Amou	ınt	Units	%	%			1D
223442 Gasoline Range Organics (GRO)	51.4	50		mg/kg	85	57-113			Q35067
Matrix Spike Duplicate					Recovery	Recovery Ranges	RPD	RPD Range	QC Batch
Sample ID:	Result	Spike Amou	ınt	Units	%	%	%	%	ID
223442 Gasoline Range Organics (GRO)	48.2	50		mg/kg	79	57-113	6	0 - 23	Q35067

Diesel Range Organics (DRO) by GC-FID, method 8015B

Method Blank	Result	RL	Control Limit	Units					QC Batch ID
Diesel Range Organics (DRO)	ND	7	<3.5	mg/kg					Q35083
Laboratory Control Sample	Result	Spike Amou	ınt	Units	Recovery %'	Recovery Ranges %			QC Batch ID
Diesel Range Organics (DRO)	74.3	80		mg/kg	93	55-109			Q35083
Matrix Spike Sample ID:	Result	Spike Amou	ınt	Units	Recovery %	Recovery Ranges %			QC Batch ID
223319 Diesel Range Organics (DRO)	65.7	80		mg/kg	82	50-117			Q35083
Matrix Spike Duplicate Sample ID:	Result	Spike Amou	ınt	Units	Recovery %	Recovery Ranges %	RPD %	RPD Range %	QC Batch ID
223319 Diesel Range Organics (DRO)	68.2	80		mg/kg	85	50-117	4	0 - 24	Q35083

#-See Case Narrative



30 A	12	CHAIN OF CUSTODY RECORD							LAB USE ONLY								
	LABORATO	PRIES, INC.	12.	PAGE OF QUOTE # TO ENSURE PROPER BILLING:							Samples INTACT upon arrival?						
Full Service	00. 201							Heceived ON WET ICE? Temp 22 27									
449 Springbrook Road • F Phone: 704/529-6364 • F	28224-0543	Project Name: 700 W - 701 Short Hold Analysis: (Yes) (No) UST Project: (Yes) (No)							Carlotte Whathalan	PROPER PRESERVATIVES indicated? Received WITHIN HOLDING TIMES?							
Client Company Name	*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements Invoice To:								CUSTODY SEALS INTACT?								
Report To/Contact Na									VOLATILES rec'd W/OUT HEADSPACE?								
Reporting Address:									PROPER CONTAINERS used?								
Phone: 586-0007		s) (No):									TO BE EII	LEDINE	V CLIENT/S	AMPLING PER	SONNEL		
Email (Yes) (No) Email		Requested Due Date								TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL Certification: NELAC USACE FL NC SC OTHER N/A SC NO SC N							
EDD Type: PDFEx																	
Site Location Name:																	
Site Location Physical ハc バの	Address:	2180		(SEE REVE	RSE FOR TE	RMS & CONDIT	IONS REGARDING S, INC. TO CLIENT	SERVICES	s		Sample lo	ed Upon	Collection: Y	res <u>b</u> no			
	TIME	MATRIX	SAMPLE CONTAINER					ANAL		YSES REQUE	STED	/ /		PRISM			
CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	MILITARY HOURS	(SOIL, WATER OR SLUDGE)	*TYPE SEE BELOW	NO.	SIZE	PRESERVA- TIVES	Là	100 x	PO PO	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	/ /	R	EMARKS	ID NO.		
938-1(6-8)	8/27	1040	SL		4		,	7	%	Wh.					223440		
918-1 (8-10)	- 1	1545	1)			1		1			Cancell	led pur Bore	223441		
928-2 (2-4)		1100													223442		
978-2 (8-10)		1540													223443		
938-3(6-8)		1130													2234478		
938-4 (6-8)		1,45													223445		
928-5(8-10)		1200								1					223446		
938-6(8-10		1230													223447		
938-7 (4-6)		1330								\perp					223448		
938-8(6-8)	V	1350			V			1	A	V					223449		
	3.0'Do	ne()	Sampled	By (Print Name	K	2	u	Affilia	ation	Mi	M		PRESS D	OOWN FIRMLY	Y - 3 COPIES		
Sampler's dignature			t - de ette e fo	- Driam to pro-	good with	the analyses	as requested	above. A	Any chan	ges m	ust be			PRISM	USE ONLY		
Relinguished By: (Signature)		ject wanager. 1	Rei	e charges for any changes after analyses have been initialized. Received By: (Signature)					Date		Military/Hour	Additi	ional Commen	site Arrival	Time:		
Relinquished By: (Signature) Received By: (Signature)									Date		-	-		Site Depart	ure Time:		
Hemiquished by: (digitatore)									-			Field Tech	Fee:				
Relinquished By: (Signature)				Winny Comme						7-08	16:45			Mileage:			
	ES ARE NOT ACCE	PTED AND VERIFIE	APED SHUT WIT D AGAINST COC	H CUSTODY SEALS	S FOR TRANS AT THE LABO	PORTATION TO DRATORY.	THE LABORATOR	Y.	COC Gro		232						
□ Fed Ex □ UPS ▼ Hand-delivered □ Prism Field Service □ Other □ NPDES: UST: GROUNDWATER: DRINKING WATER: SOLID WASTE: RCRA								Α		LANDFILL OTHER:					EVERSE FOR & CONDITIONS		
DNC DSC DNC D	SC DNC	sc	NC DSC	O NO	c usc	□ NC	asc anc		O NC			-		0	ORIGINAL		
*CONTAINER TYPE C	ODES: A = A	mber C = Clea	r G = Glass	P = Plastic; 7	TL = Teflon	-Lined Cap	VOA = Volatile	e Organi	cs Analys	sis (Ze	ero Head Sp	ace)		_	- 100 Table 12/2 ¹		



Full Service A 449 Springbrook Road • P Phone: 704/529-6364 • F flient Company Name: eport To/Contact Nar eporting Address: thone: mail (Yes) (No) Email EDD Type: PDF Ex fite Location Name: fite Location Physical	Requested Due Date								Samples INTACT upon arrival? Received ON WET ICE? Temp 514							
CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)		E CONTA	SIZE	PRESERVA- TIVES	DA	o has		SES REQU	ESTED		REMA	ARKS	PRISM LAB ID NO.
938-9 (6-8)	8172	1415	26		Ц			a	+	4	f = f	7				223450
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938-11 (6-8) 938-17 (6-8)		1530	1/		1			1	1							223453
			*													
								-	-		-					
Sampler's Signature			Sampled	By (Print Name)		O Do ,		Affilia		H ges mu	i H			PRESS DO		Y - 3 COPIES
Upon relinquishing, this submitted in writing to	the Prism Proj	ect Manager. T	here will be	charges for any	changes	after analys	ses have been in	nitialized	Date Date		Military/Hou	ırs /	Additio] nal Comments:	Site Arriva	l Time:
Refinquished By: (Signature)	~													Site Depa	rture Time:	
Relinquished By: (Signature)			Received By: (Signature)											Field Tech	Fee:	
Relinquished By: (Signature)	Paccived For Prism Laboratories By: Part Date S-27-66							16:45	5			Mileage:				
SAMPLE	S ARE NOT ACCE	PIED AND VERIFIE	D AGAINST CO	UNTIL RECEIVED	AT THE LAB	ORATORY.	- The endonminant			- 15 - 100 min - 100	3737	+				
□ Fed Ex □ UPS ★ Hand NPDES: UST: □ NC □ SC □ NC □	SC ONC	OWATER: D	RINKING W	□ NC	D WAST	□ NC	OSC ONC	□SC	LANDFI	LL	OTHER:	SC				REVERSE FOR & CONDITIONS ORIGINAL
*CONTAINED TYPE CO		mhor C - Clea	r G = Glass	P = Plastic: T	I = Teflo	n-Lined Cap	VOA = Volatile					pace)			C	JOIGINAL