Solutions-IES
Industrial & Environmental Services

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December 12, 2016

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

Reference: **Preliminary Site Assessment**
Edward Schantz Property (Parcel #139)
6006 Raeford Road
Fayetteville, Cumberland County, North Carolina
State Project: U-4405
WBS Element 39049.1.1
SIES Project No. 2016.0054.NDOT

Dear Mr. Fox:

Solutions-IES, Inc., (SIES) has completed the Preliminary Site Assessment conducted at the above-referenced property. The work was performed in accordance with the Technical and Cost proposal dated September 26, 2016, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated September 26, 2016. Activities associated with the assessment consisted of conducting a geophysical investigation, collecting soil samples for analysis, and reviewing applicable North Carolina Department of Environmental Quality (NCDEQ) records. The purpose of this report is to document the field activities, present the laboratory analyses, and provide recommendations regarding the property.

Location and Description

The Edward Schantz Property (Parcel #139) is located at 6006 Raeford Road in Fayetteville, Cumberland County, North Carolina. The property is situated on the north side of Raeford Road approximately 200 feet west of the intersection of Raeford Road and Skibo Road. Beaver Creek borders the property on the west side (**Figure 1**). The property consists of an active auto service, salvage, and body shop (Ed's Auto Service and Salvage/Cross Creek Body Shop). No visual evidence of underground storage tanks (USTs) was noted during the assessment activities.

A concrete parking area occupies the area in front of the building and salvage yard in the rear of the facility (**Figure 2**). The proposed easement had not been marked at the site at the time of the field work, but NCDOT plan sheets show that the easement will not affect the building.

The NCDOT requested a Preliminary Site Assessment for the right-of-way and proposed easement because the property contains an active automotive repair and salvage yard. The scope of work as

defined in the Request for Technical and Cost Proposal was to evaluate the site with respect to the presence of known and unknown USTs, and assess whether contamination exists on the right-of-way/proposed easement. Because the property contains an automotive repair facility, the NCDOT directed SIES to evaluate the right-of-way/easement for the presence of solvents in addition to petroleum. An estimate of the quantity of impacted soil is to be provided, should impacted soils be encountered.

SIES reviewed the on-line NCDEQ Incident Management database and no incident number was assigned to the site. SIES also examined the UST registration database and found no tanks registered to the property address.

Geophysical Survey

Prior to SIES' mobilization to the site, Pyramid Environmental & Engineering of Greensboro, NC (Pyramid) conducted a geophysical survey in the right-of-way/proposed easement to determine if unknown USTs were present in that area. The geophysical survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic induction meter to locate buried metallic objects, and ground penetrating radar (GPR) using a Geophysical Survey Systems Inc. Utility Scan DF with a dual frequency 300/800 MHz antenna. The instruments were used specifically to locate USTs.

A survey grid was laid out along the right-of-way/proposed easement with the X-axis oriented approximately parallel to Raeford Road and the Y-axis oriented approximately perpendicular to Raeford Road. The grid was positioned to cover the entire right-of-way/proposed easement. The grid was positioned to cover the entire right-of-way/proposed easement, as shown on **Figure 2** of the geophysical survey report in **Attachment A**.

The survey lines were spaced five feet apart and magnetic data were collected continuously along each survey line with a data logger. After collection, the data were reviewed in the field with graphical computer software. Following the electromagnetic survey, a GPR survey was conducted to further evaluate any significant metallic anomalies.

Access was available to all areas of the property, and several anomalies were detected with the geophysical survey. The anomalies were attributed to visible cultural features, metallic debris, underground utilities, signage, or vehicles. Pyramid's detailed report of findings and interpretations is presented in **Attachment A**.

Site Assessment Activities

On October 27, 2016, SIES mobilized to the site to conduct a Geoprobe® direct-push investigation to evaluate subsurface soil conditions on the property to a depth of 10 feet below ground surface (ft bgs). Four direct-push holes (139-SB-1 through 139-SB-4) were advanced throughout the right-of-way/proposed easement (**Figure 2).** As shown on the figure, a northwest oriented easement is located on the west side of the building to an area behind a chain-link fence. SIES proposed one boring in that area; however, Hurricane Matthew caused Beaver Creek to flood and significantly undercut the concrete in the vicinity, creating an unsafe area from which to advance a soil boring. Therefore, no subsurface soil sampling was conducted behind the fence. The soil boring logs are included as **Attachment B**. Borings 139-SB-1 through 139-SB-4 were located to evaluate the subsurface conditions in the right-of-way/easement along Raeford Road (see photos in **Attachment C**).

Continuous sampling using a Geoprobe® resulted in generally good recovery of soil samples from the direct-push holes. Soil samples were collected and contained in four-foot long acetate sleeves inside the direct-push Macro-Core® sampler. Each of the sleeves was divided into two-foot long sections for soil sample screening. Soil from each two-foot interval was placed in a resealable plastic bag and the bag was set aside for volatilization of organic compounds from the soil to the bag headspace. A photoionization detector (PID) probe was inserted into the bag and the reading was recorded (**Table 1**).

Two samples per boring were submitted for analysis; the depth interval with the highest PID reading and one from the bottom (**Table 1**). The selected soil samples were submitted to an on-site mobile laboratory for analysis of total petroleum hydrocarbons (TPH) diesel range organics (DRO) and gasoline range organics (GRO) using ultraviolet fluorescence (UVF) methodology. To evaluate the property with respect to solvents, the soil sample with the highest DRO or GRO result from each boring was submitted to Pace Analytical in Huntersville, NC, for analysis of volatile organic compounds (VOCs) using Method 8260. Each boring was backfilled with bentonite and drill cuttings to the surface after completion.

The lithology encountered by the direct-push samples was generally consistent throughout the site. The ground surface was covered with about 0.5 feet of concrete. Below this surface cover was a light brown fine-grained sand. In borings 139-SB-1 through 139-SB-3, the sand is present to a depth ranging from six to eight ft bgs and is underlain by a mottled red and brown clayey sand. This clayey sand thins in the direction of Beaver Creek and is absent in boring 139-SB-4, which is closest to the creek. No bedrock or groundwater was noted in any of the borings.

According to the 1985 Geologic Map of North Carolina, the site is within of Coastal Plain Physiographic Province in North Carolina near the contact between the Cretaceous Black Creek and Middendorf

Formations. The strata of the Black Creek Formation consist of gray to black clay, thin lenses of fine-grained sand and thick lenses of cross-bedded sand. The lithology may also include glauconite and fossils. In comparison, the Middendorf Formation consists of sand, sandstone, and mudstone that are laterally discontinuous. The soils observed at the site are consistent with the MIddendorf Formation as the parent material.

Analytical Results

The laboratory data are summarized in **Table 1** and the complete report is presented in **Attachment D**. Eight soil samples were submitted for analysis (two samples per boring). Of these samples, four contained detectable GRO compounds ranging from 0.6 to 9.7 milligrams per kilogram (mg/kg). Six of the soil samples contained detectable DRO compounds ranging from 1.3 to 38 mg/kg. The action levels are 50 mg/kg for GRO and 100 mg/kg for DRO[1]. None of the soil samples analyzed for this site contained DRO or GRO concentrations above their respective action levels.

The soil sample with the highest UVF concentrations from each boring was submitted for VOC analysis using Method 8260. As shown on **Table 1** and presented in **Attachment D**, acetone was detected in three of the four soil samples analyzed at concentrations ranging from 0.12 to 0.16 mg/kg. Acetone is a common solvent used in various industries, including degreasers used in automotive repair shops and as a laboratory equipment cleaner. Its consistent presence throughout the investigation area suggests it may be a result of site activities rather than a laboratory artifact. Solvent releases are under the jurisdiction of the NCDEQ's Division of Waste Management Hazardous Waste Section. Action levels for compounds are given in that agency's Preliminary Soil Remediation Goals (PSRGs). The Protection of Groundwater PSRG, the most stringent action level, for acetone is 24 mg/kg. None of the concentrations detected in the soil from the site are above this action level.

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the Edward Schantz Property (Parcel #139) located at 6006 Raeford Road in Fayetteville, Cumberland County, North Carolina. A geophysical survey conducted at the site indicated that no metallic USTs were detected within then right-of-way/proposed easement on the site. Four soil borings were advanced to evaluate the subsurface soil conditions along the right-of-way/proposed easement. None of the eight soil samples analyzed had a GRO or DRO concentration above the action level. Analysis of four soil samples for VOCs indicated that acetone was present in three of the four samples, but the concentrations were below the applicable action level.

[1] NCDEQ, *Guidelines for North Carolina Action Limits for Total Petroleum Hydrocarbons (TPH)*, July 26, 2016,

None of the soil samples had contaminant concentrations above applicable action levels (Table 1). Therefore, no estimate of the volume of soil requiring possible remediation was made.

SIES appreciates the opportunity to work with the NCDOT on this project. Because compounds were detected above the reporting limit in the soil samples, SIES recommends that a copy of this report be submitted to the Division of Waste Management, UST Section, in the Fayetteville Regional Office. If you have any questions, please contact us at (919) 873-1060.

Sincerely,

Michael W. Branson, P.G.
Project Manager

John Palmer, P.G.
Senior Hydrogeologist

Attachments

TABLE 1
SOIL FIELD SCREENING AND ANALYTICAL RESULTS
SHANTZ PROPERTY (PARCEL #139)
FAYETTEVILLE, CUMBERLAND COUNTY, NORTH CAROLINA
STATE PROJECT: U-4405
WBS ELEMENT 39049.1.1
SIES PROJECT NO. 2016.0054.NDOT

SAMPLE ID	DEPTH (ft)	PID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)		
				UVF GRO	UVF DRO	Acetone
Action Level (mg/kg)				50	100	24*
139-SB-1	0 - 2	0.6				
	2 - 4	0.4				
	4 - 6	0.6	139-SB-1-4-6	<0.59	<0.59	
	6 - 8	0.0				
	8 - 10	0.6	139-SB-1-8-10	<0.78	<0.78	<0.112
139-SB-2	0 - 2	0.3				
	2 - 4	0.3				
	4 - 6	1.8	139-SB-2-4-6	<0.67	**10.1**	**0.160**
	6 - 8	1.0				
	8 - 10	0.8	139-SB-2-8-10	**0.92**	**1.3**	
139-SB-3	0 - 2	0.6				
	2 - 4	0.5				
	4 - 6	0.9				
	6 - 8	1.1	139-SB-3-6-8	<0.67	**38**	**0.129**
	8 - 10	0.8	139-SB-3-8-10	**9.7**	**13.3**	
139-SB-4	0 - 2	0.3				
	2 - 4	0.3				
	4 - 6	0.3				
	6 - 8	0.4	139-SB-4-6-8	**6.2**	**21.6**	
	8 - 10	0.6	139-SB-4-8-10	**0.60**	**33.1**	**0.147**

1) ft - feet

2) ppm - parts per million.

3) PID - photoionization ionization detector

4) mg/kg - milligrams per kilogram.

5) UVF DRO - Diesel range organics by UVF.

6) UVF GRO - Gasoline range organics by UVF.

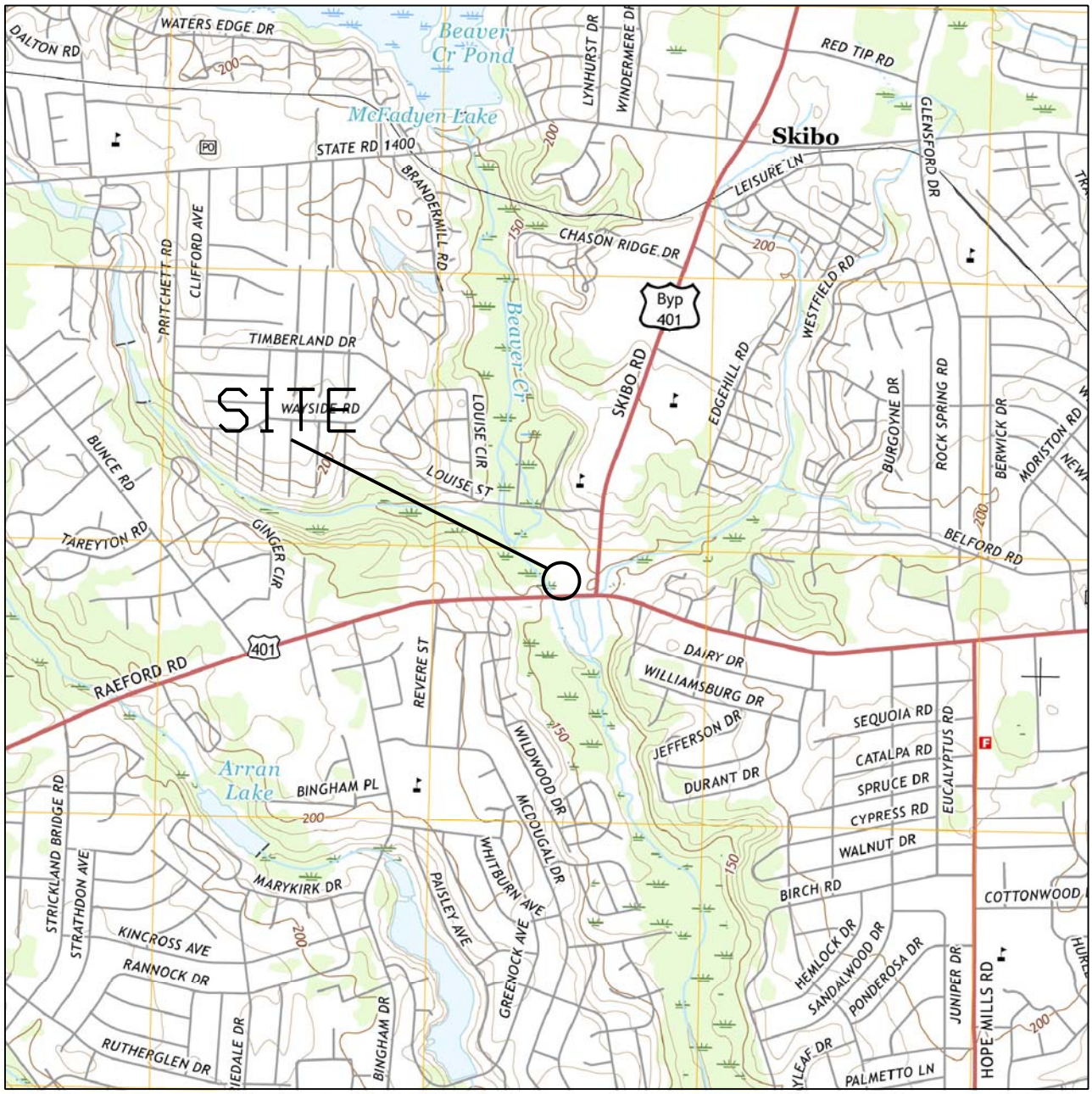
7) Action level based upon NCDEQ memo *Guidelines for North Carolina Action Limits for Total Petroleum Hydrocarbons* - July 29, 2016.

8) Soil samples were collected on October 27, 2016.

9) **Bold** values are above the detection level.

10) * - Soil-to-groundwater Maximum Soil Contaminant Concentration

FIGURES



SCALE 1:24,000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: FAYETTEVILLE, NC (2016)

PROJECT NUMBER 2016.0054.NDOT
CHECKED BY JEP
PROJECT MANAGER MWB
DATE NOVEMBER 2016
FILE FAYETTEVILLE PSAS

Solutions-IES
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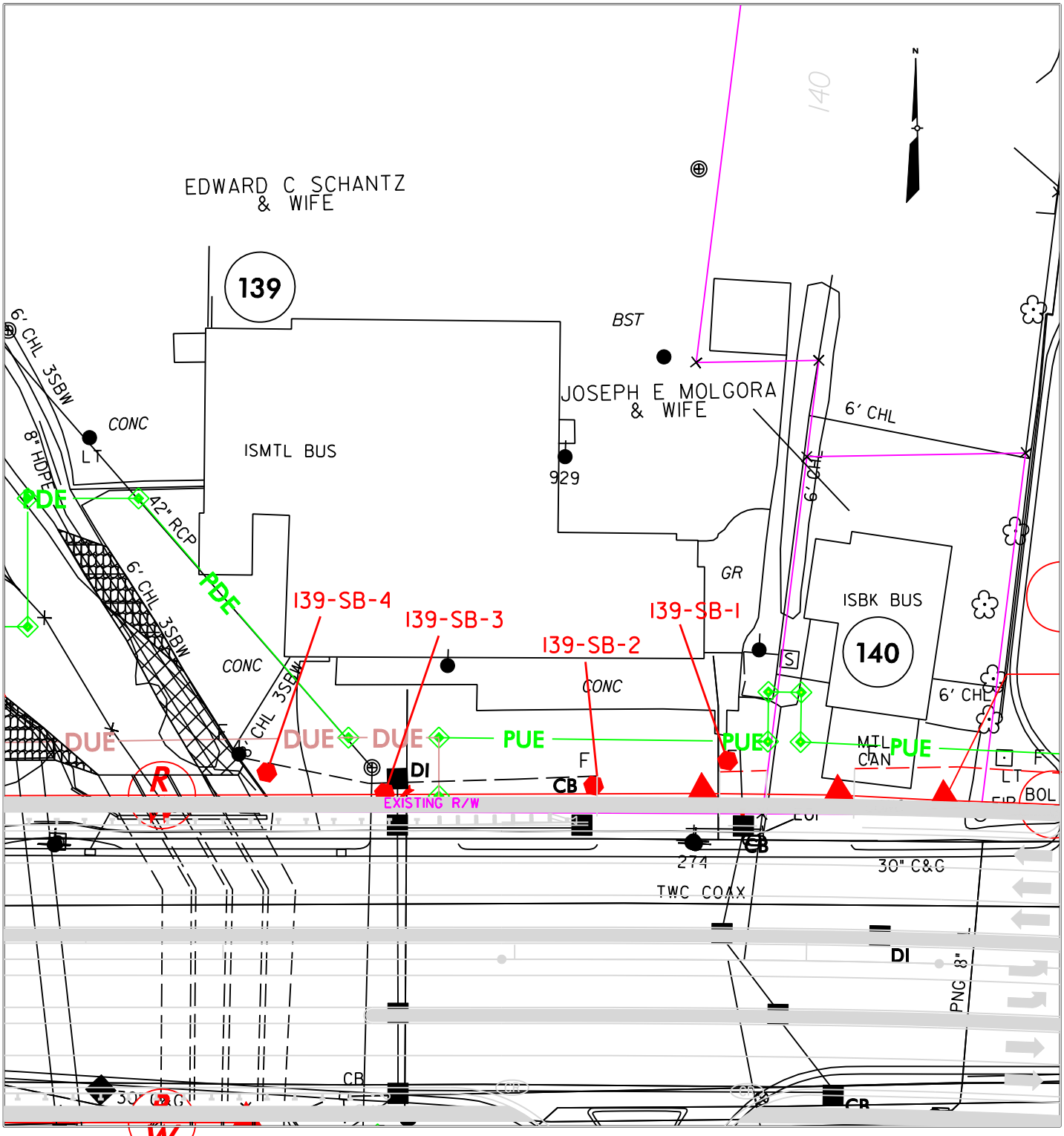
VICINITY MAP

SCHANTZ PROPERTY (PARCEL #139)
FAYETTEVILLE, CUMBERLAND COUNTY NORTH CAROLINA

FIGURE 1

PROJECT NUMBER 2016.0054.NDOT
DRAFTER MWB
CHECKED BY JEP
PROJECT MANAGER MWB
DATE NOVEMBER 2016
FAYETTEVILLE PSAS
FILE



LEGEND

139-SB-1 SOIL SAMPLE LOCATION AND IDENTIFICATION

0 25 50
GRAPHIC SCALE (FEET)

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SITE MAP

SCHANTZ PROPERTY (PARCEL #139)

FAYETTEVILLE, CUMBERLAND COUNTY, NORTH CAROLINA

FIGURE 2

...\reports\FIGURES\139.dgn 11/8/2016 2:52:08 PM

ATTACHMENT A

Pyramid Geophysics

PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2016-265)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
PARCEL 139 – EDWARD SCHANTZ
NCDOT PROJECT U-4405

6006 RAEFORD RD., FAYETTEVILLE, CUMBERLAND COUNTY, NC

NOVEMBER 4, 2016

Report prepared for: **Mike Branson**
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1101 Nowell Road
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Prepared by: _____
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GEOPHYSICAL INVESTIGATION REPORT
Parcel 139 – 6006 Raeford Road
Fayetteville, Cumberland County, North Carolina

Table of Contents

Figures

Appendices

LIST OF ACRONYMS

CADD	Computer Assisted Drafting and Design
DF	Dual Frequency
EM	Electromagnetic
GPR	Ground Penetrating Radar
GPS	Global Positioning System
NCDOT	North Carolina Department of Transportation
ROW	Right-of-Way
SVE	Soil Vapor Extraction
UST	Underground Storage Tank

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for Solutions, IES (Solutions) at Parcel 139, located at 6006 Raeford Road, Fayetteville, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-4405). Solutions directed Pyramid as to the geophysical survey boundaries at the project site, which were designed to extend from the existing edge of pavement to the proposed ROW lines and/or easement lines within the property, whichever distance was greater. Conducted from October 12-17, 2016, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. Minor EM features on the east portion of the survey were suspected to be associated with buried metallic debris, and were investigated by GPR. The GPR scans revealed a suspected utility/conduit extending across the survey area from west to east. No additional structures were observed. Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 139.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Solutions, IES (Solutions) at Parcel 139, located at 6006 Raeford Road, Fayetteville, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-4405). Solutions directed Pyramid as to the geophysical survey boundaries at the project site, which were designed to extend from the existing edge of pavement to the proposed ROW lines and/or easement lines within the property, whichever distance was greater. Conducted from October 12-17, 2016, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included an automotive repair facility surrounded by concrete parking space. Aerial photographs showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61 metal detector integrated with a Trimble AG-114 GPS antenna. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at approximately 0.8 foot intervals along north-south trending or east-west trending, generally

parallel survey lines spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 11.0 software programs.

GPR data were acquired across select EM anomalies on October 17, 2016, using a Geophysical Survey Systems, Inc. (GSSI) UtilityScan DF unit equipped with a dual frequency 300/800 MHz antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 4 feet, based on dielectric constants calculated by the DF unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

Pyramid's classifications of USTs for the purposes of this report are based directly on the geophysical UST ratings provided by the NCDOT. These ratings are as follows:

Geophysical Surveys for Underground Storage Tanks
on NCDOT Projects

High Confidence	Intermediate Confidence	Low Confidence	No Confidence
Known UST Active tank - spatial location, orientation, and approximate depth determined by geophysics.	**Probable UST** Sufficient geophysical data from both magnetic and radar surveys that is characteristic of a tank. Interpretation may be supported by physical evidence such as fill/vent pipe, metal cover plate, asphalt/concrete patch, etc.	**Possible UST** Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist's discretion.

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The

following table presents the list of EM anomalies and the cause of the metallic response, if known:

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Trailer	
2	Metal Pole	
3	Metal Debris	
4	Manhole	
5	Suspected Metallic Debris	☑
6	Vehicles	
7	Light Pole	
8	Rebar Piece	
9	Trash Can	

The majority of the EM anomalies recorded by the survey were directly attributed to visible cultural features such as a trailer, metal poles, a manhole, vehicles, a rebar piece and a trash can. Isolated minor EM anomalies on the east potion of the survey area (Anomaly 5) were suspected to be associated with minor buried debris, and were investigated further with GPR.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property, as well as select transect images. A total of 9 GPR transects were performed at the site across EM anomalies and other areas of interest. Transects 1-3 were performed across a suspected utility/conduit that was observed during reconnaissance GPR scans. This suspected conduit was not evident on the EM differential results contour map included in this report; however, review of the more sensitive bottom coil EM results did provide evidence of a linear feature extending across the property from west to east that was suggestive of a utility/conduit. These GPR transects recorded an isolated, discreet hyperbolic reflector that is consistent with a utility/conduit.

Transects 4-9 were performed across the area containing the minor EM features suspected to be associated with buried metallic debris (Anomaly 5). These transects did not record any significant reflector or disruptions in the data that would be suggestive of distinct objects. It is likely these EM features are associated with minor debris lacking any significant structure.

Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 139.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 139 in Fayetteville, Cumberland County, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. Minor EM features on the east portion of the survey were suspected to be associated with buried metallic debris, and were investigate by GPR.
- The GPR scans revealed a suspected utility/conduit extending across the survey area from west to east. No additional structures were observed.
- Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 139.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Solutions, IES in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR surveys are non-unique and

may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined the definitive presence or absence of metallic USTs, but the evidence collected is sufficient to result in the conclusions made in this report. Additionally, it should be understood that areas containing extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.

N↑

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA

View of Survey Area
(Facing Approximately North)

View of Survey Area
(Facing Approximately Northeast)

TITLE	PARCEL 139 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS
PROJECT	6006 RAEFORD ROAD FAYETTEVILLE, NORTH CAROLINA NCDOT PROJECT U-4405

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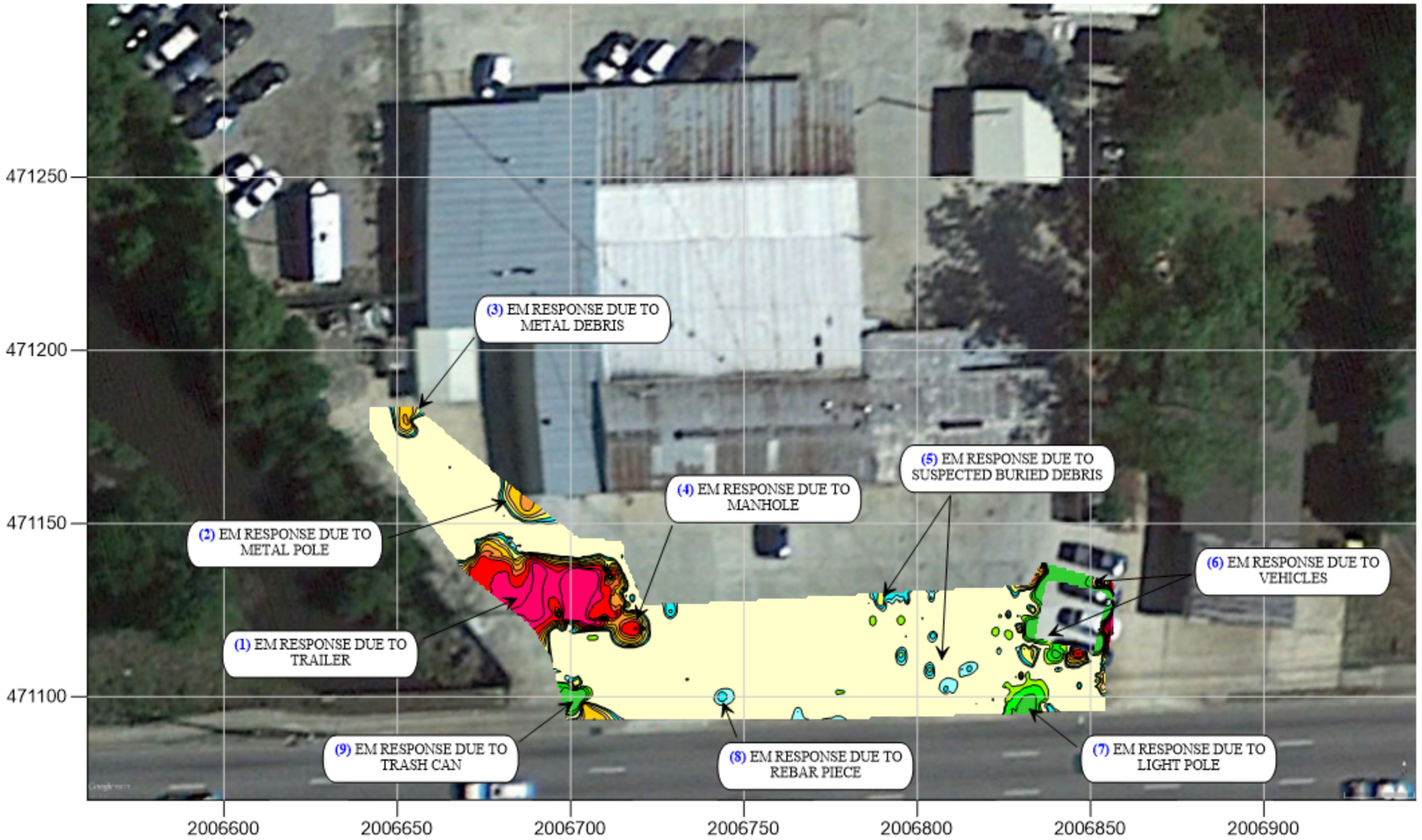
License # C1251 Eng. / License # C257 Geology

DATE	10/31/16	CLIENT	SOLUTIONS, IES
PYRAMID PROJECT #:	2016-265		**FIGURE 1**

N↑

EM61 METAL DETECTION RESULTS



NC STATE PLANE, NORTHING (NAD83, FEET)

NC STATE PLANE, EASTING (NAD83, FEET)

NUMBERS IN BLUE (x) CORRESPOND TO ANOMALY TABLE INCLUDED IN THE REPORT

NO EVIDENCE OF UNKNOWN METALLIC USTs OBSERVED

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM61 data were collected on October 13, 2016, using a Geonics EM61 instrument. GPR data were collected on October 14, 2016, using a GSSI UtilityScan DF unit with a dual frequency 300/800 MHz antenna.

EM61 Metal Detection Response (millivolts)

TITLE
PARCEL 139 - EM61 RESULTS
CONTOUR MAP

PROJECT
6006 RAEFORD ROAD
FAYETTEVILLE, NORTH CAROLINA
NCDOT PROJECT U-4405

Pyramid Geophysics
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License # C1251 Eng. / License # C257 Geology

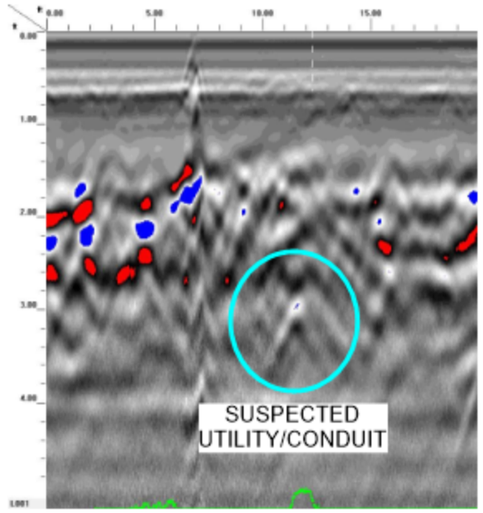
DATE 10/26/2016

CLIENT SOLUTIONS, IES

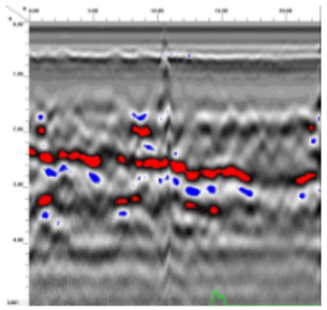
PYRAMID PROJECT #: 2016-265

FIGURE 2

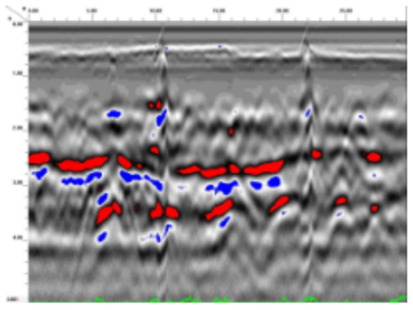
LOCATIONS OF GPR TRANSECTS



GPR TRANSECT 3 (T3)



GPR TRANSECT 4 (T4)



GPR TRANSECT 9 (T9)

TITLE
PARCEL 139 - GPR TRANSECT LOCATIONS AND SELECT IMAGES

PROJECT
6006 RAEFORD ROAD
FAYETTEVILLE, NORTH CAROLINA
NCDOT PROJECT U-4405

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License # C1251 Eng. / License # C257 Geology

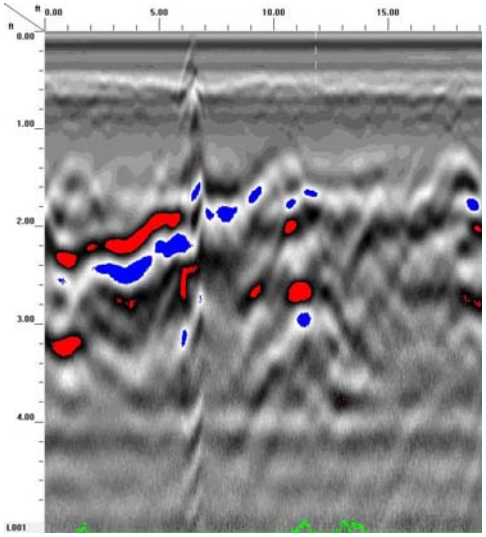
DATE 10/26/2016

CLIENT SOLUTIONS, IES

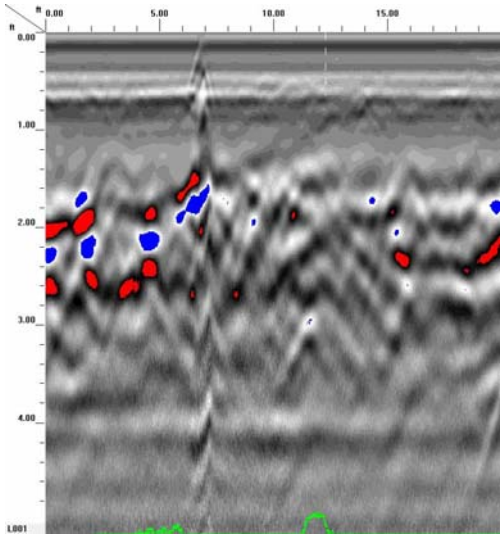
PYRAMID PROJECT #: 2016-265

FIGURE 3

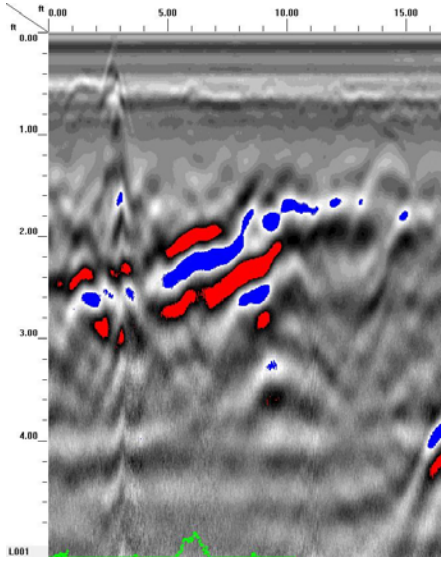
Appendix A – GPR Transect Images



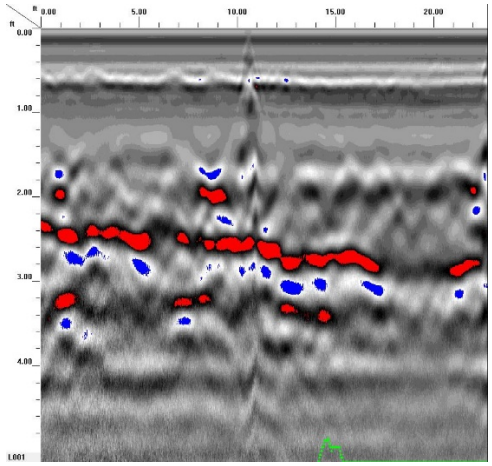
GPR TRANSECT 1



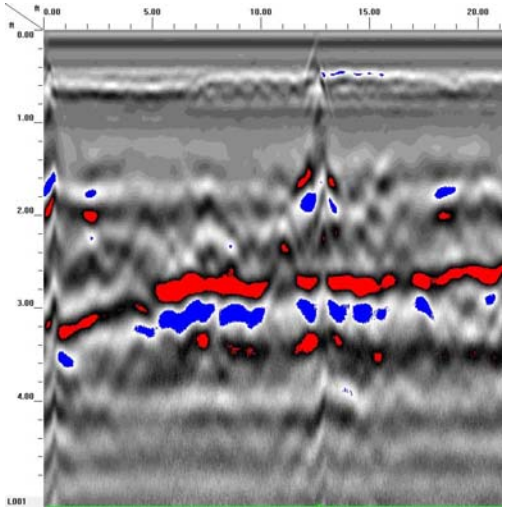
GPR TRANSECT 2



GPR TRANSECT 3



GPR TRANSECT 4



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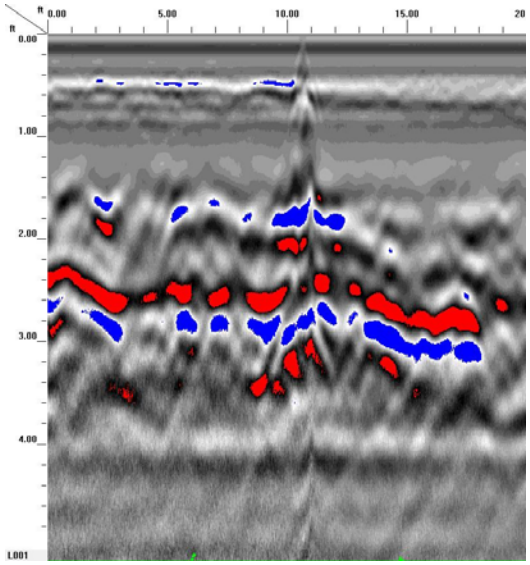

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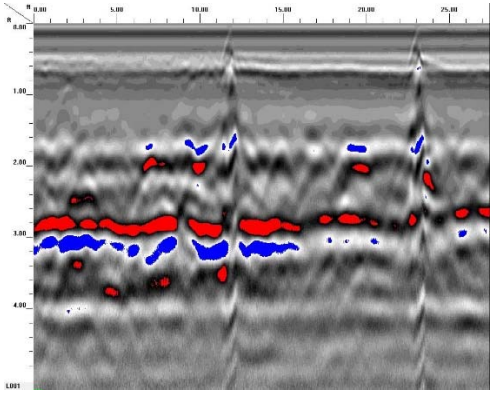
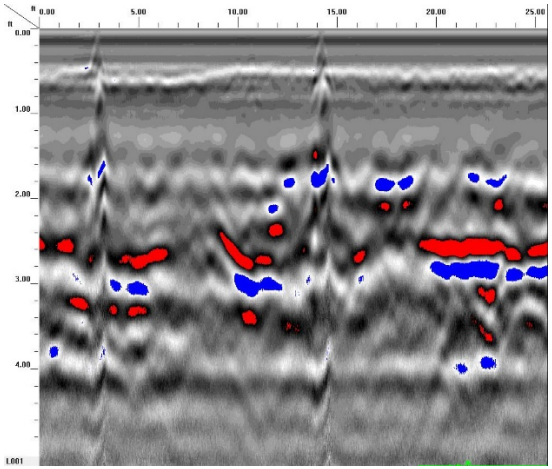
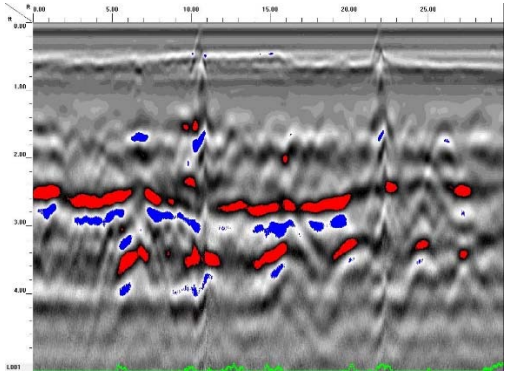


GPR TRANSECT 7



GPR TRANSECT 8



GPR TRANSECT 9

ATTACHMENT B

Solutions-IES
Industrial & Environmental Services

Log of Boring 139-SB-1

BORING LOCATION: Parcel #139, Fayetteville, NC	PROJECT NUMBER: 2016.0054.NDOT
DRILLING CONTRACTOR: Regional Probing Services	DATE STARTED: 10/27/2016 — DATE FINISHED: 10/27/2016
DRILLING METHOD: Direct Push — BOREHOLE DIAMETER: 2.25"	TOTAL DEPTH (ft bgs): 10 ft bgs — SCREEN INTERVAL (ft bgs): NA
DRILLING EQUIPMENT: Geoprobe 5410	NORTHING: NA — EASTING: NA
SAMPLING METHOD: Macro Core	INITIAL DTW: NA — FINAL DTW: NA
LOGGED BY: Samuel McIntyre — CHECKED BY:	

DEPTH (ft bgs)	SAMPLES: Sample ID and Interval	SAMPLES: Recovery	PID (ppm)	DESCRIPTION OF MATERIALS	DEPTH (ft bgs)
0				Concrete.	0
1		80%	0.6		1
2					2
3			0.4	Light brown fine sand. Dry.	3
4	139-SB-1-4-6				4
5		100%	0.6		5
6					6
7			0.0	Light brown and red mottled clayey sand. Dry.	7
8	139-SB-1-8-10				8
9		100%	0.6		9
10					10

End of Boring

Solutions-IES
Industrial & Environmental Services

Log of Boring 139-SB-2

BORING LOCATION: Parcel #139, Fayetteville, NC	PROJECT NUMBER: 2016.0054.NDOT
DRILLING CONTRACTOR: Regional Probing Services	DATE STARTED: 10/27/2016 — DATE FINISHED: 10/27/2016
DRILLING METHOD: Direct Push — BOREHOLE DIAMETER: 2.25"	TOTAL DEPTH (ft bgs): 10 ft bgs — SCREEN INTERVAL (ft bgs): NA
DRILLING EQUIPMENT: Geoprobe 5410	NORTHING: NA — EASTING: NA
SAMPLING METHOD: Macro Core	INITIAL DTW: NA — FINAL DTW: NA
LOGGED BY: Samuel McIntyre — CHECKED BY:	

DEPTH (ft bgs)	SAMPLES: Sample ID and Interval	SAMPLES: Recovery	PID (ppm)	DESCRIPTION OF MATERIALS	DEPTH (ft bgs)
0				Concrete.	0
1		75%	0.3		1
2					2
3			0.3		3
4	139-SB-2-4-6			Light brown fine sand. Dry.	4
5		100%	1.8		5
6					6
7			1.0		7
8	139-SB-2-8-10			Light brown and red mottled clayey sand. Dry.	8
9		100%	0.8		9
10					10

End of Boring

Solutions-IES
Industrial & Environmental Services

Log of Boring 139-SB-3

BORING LOCATION: Parcel #139, Fayetteville, NC	PROJECT NUMBER: 2016.0054.NDOT
DRILLING CONTRACTOR: Regional Probing Services	DATE STARTED: 10/27/2016 — DATE FINISHED: 10/27/2016
DRILLING METHOD: Direct Push — BOREHOLE DIAMETER: 2.25"	TOTAL DEPTH (ft bgs): 10 ft bgs — SCREEN INTERVAL (ft bgs): NA
DRILLING EQUIPMENT: Geoprobe 5410	NORTHING: NA — EASTING: NA
SAMPLING METHOD: Macro Core	INITIAL DTW: NA — FINAL DTW: NA
LOGGED BY: Samuel McIntyre — CHECKED BY:	

DEPTH (ft bgs)	SAMPLES: Sample ID and Interval	SAMPLES: Recovery	PID (ppm)	DESCRIPTION OF MATERIALS	DEPTH (ft bgs)
0				Concrete.	0
1		100%	0.6		1
2					2
3			0.5		3
4				Light brown fine sand. Dry.	4
5			0.9		5
6	139-SB-3-6-8	100%			6
7			1.1		7
8	139-SB-3-8-10				8
9		100%	0.8	Light brown and red mottled clayey sand. Dry.	9
10					10

End of Boring

Solutions-IES
Industrial & Environmental Services

Log of Boring 139-SB-4

BORING LOCATION: Parcel #139, Fayetteville, NC	PROJECT NUMBER: 2016.0054.NDOT
DRILLING CONTRACTOR: Regional Probing Services	DATE STARTED: 10/27/2016 — DATE FINISHED: 10/27/2016
DRILLING METHOD: Direct Push — BOREHOLE DIAMETER: 2.25"	TOTAL DEPTH (ft bgs): 10 ft bgs — SCREEN INTERVAL (ft bgs): NA
DRILLING EQUIPMENT: Geoprobe 5410	NORTHING: NA — EASTING: NA
SAMPLING METHOD: Macro Core	INITIAL DTW: NA — FINAL DTW: NA
LOGGED BY: Samuel McIntyre — CHECKED BY:	

DEPTH (ft bgs)	SAMPLES: Sample ID and Interval	SAMPLES: Recovery	PID (ppm)	DESCRIPTION OF MATERIALS	DEPTH (ft bgs)
0				Concrete.	0
1		100%	0.3		1
2					2
3			0.3		3
4					4
5		100%	0.3	Light brown fine sand. Dry.	5
6	139-SB-4-6-8				6
7			0.4		7
8	139-SB-4-8-10				8
9		100%	0.6		9
10				End of Boring	10

ATTACHMENT C

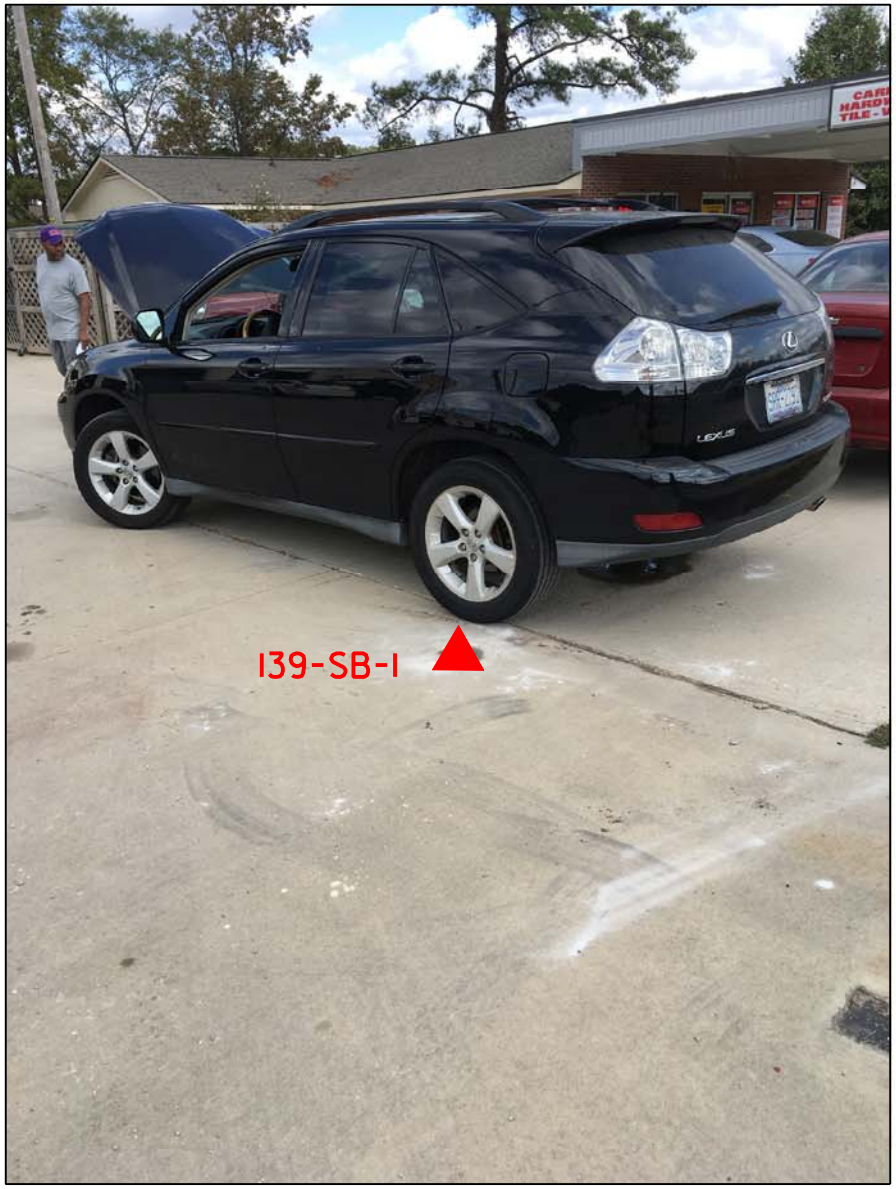


PHOTO 1
SOIL BORING LOOKING NORTHEAST

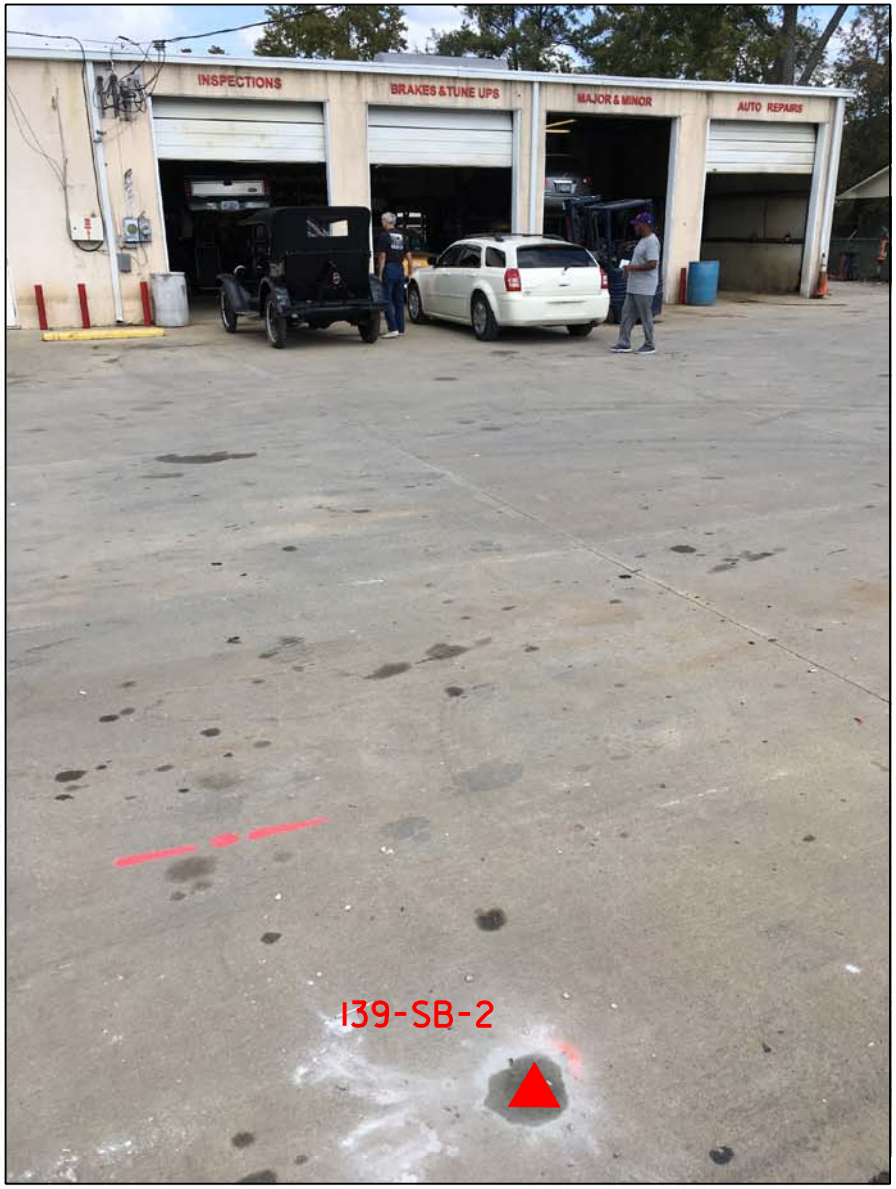


PHOTO 2
SOIL BORING LOOKING NORTH

PHOTO 3
SOIL BORING LOOKING NORTH

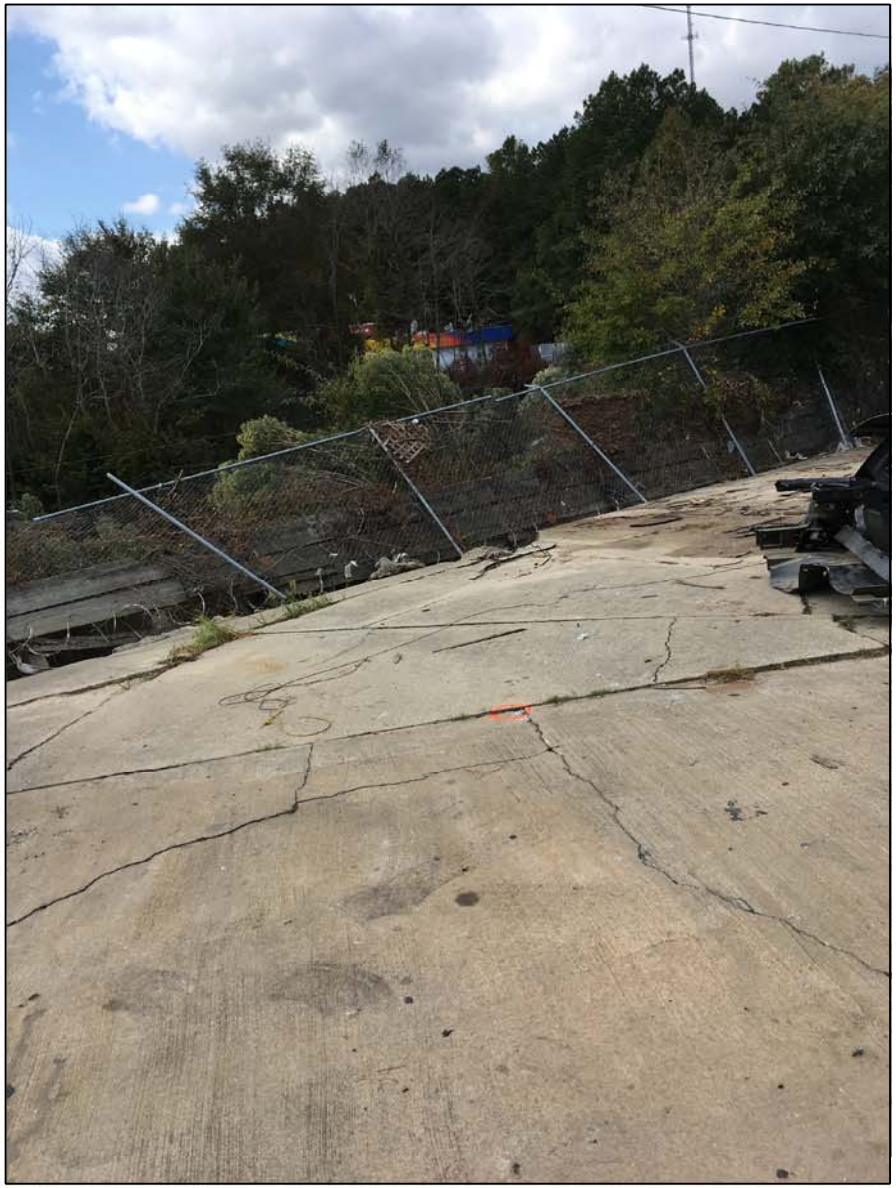


PHOTO 4
INVESTIGATION AREA DAMAGED BY HURRICANE MATTHEW

PHOTO 5

INVESTIGATION AREA DAMAGED BY HURRICANE MATTHEW

ATTACHMENT D

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: NCDOT
Address: Parcel: 139 6006 Raeford Road
Fayetteville, NC

Contact:

Project: 2016.0054.NDOT

Samples taken 10/27/2016
Samples extracted 10/27/2016
Samples analysed 10/27/2016

Operator Candy Elliott

U04049

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	139-SB-1-4-6	23.5	<0.59	<0.59	<0.59	<0.59	<0.12	<0.02	<0.002	0	0	0	(P) (BO)
s	139-SB-1-8-10	31.1	<0.78	<0.78	<0.78	<0.78	<0.16	<0.02	<0.003	0	0	100	
s	139-SB-2-4-6	26.9	<0.67	<0.67	10.1	10.1	4.6	0.22	0.003	0	74.6	25.4	V.Deg.PHC (FCM) 63.1%
s	139-SB-2-8-10	26.7	<0.67	0.92	1.3	2.2	1.3	0.28	0.018	44.2	40.4	15.3	Pyrogenic HC (FCM) 67.9%
s	139-SB-3-6-8	26.9	<0.67	<0.67	38	38	20	0.92	0.009	0	82.4	17.6	V.Deg.PHC (FCM) 74.5%
s	139-SB-3-8-10	22.5	<0.56	9.7	13.3	23	3.9	0.16	0.002	73.2	21.3	5.5	V.Deg.Gas (FCM) (BO) 68.3%
s	139-SB-4-6-8	26.9	<0.67	6.2	21.6	27.8	8.5	0.38	0.005	44.3	44	11.7	Deg.Fuel (FCM) (BO) 80.7%
s	139-SB-4-8-10	24.1	<0.6	0.6	33.1	33.7	19.7	0.77	0.008	2.7	84	13.3	Deg.Fuel (FCM) (BO) 82%

Initial Calibrator QC check OK

Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content

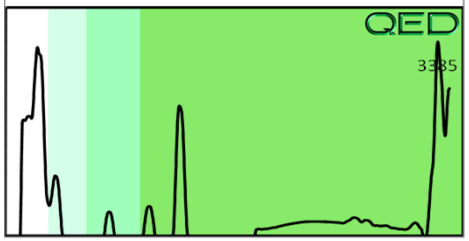
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

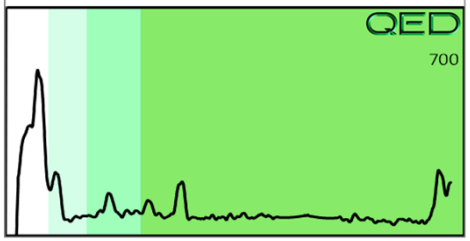
QED Hydrocarbon Fingerprints

Project: 2016.0054.NDOT 10/27/2016

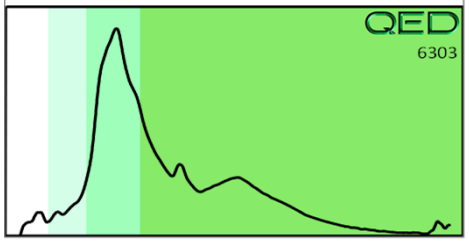
139-SB-1-4-6 : (P) (BO)



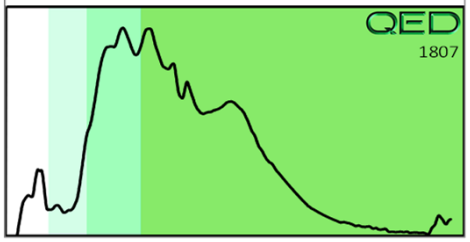
139-SB-1-8-10 :



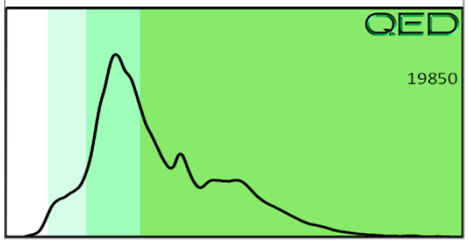
139-SB-2-4-6 : V.Deg.PHC (FCM) 63.1%



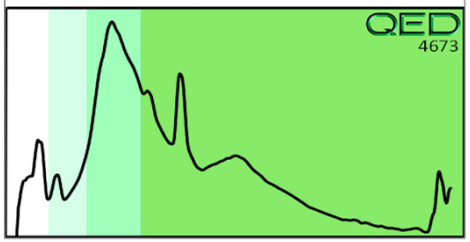
139-SB-2-8-10 : Pyrogenic HC (FCM) 67.9%



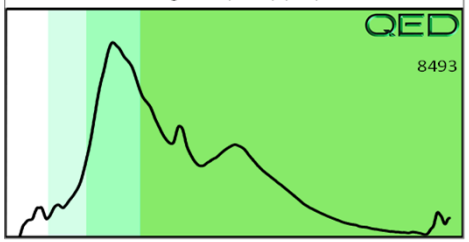
139-SB-3-6-8 : V.Deg.PHC (FCM) 74.5%



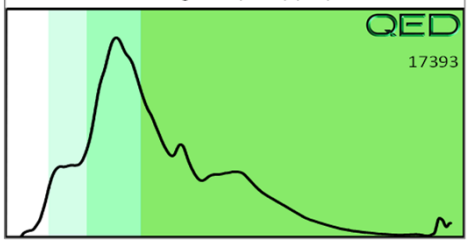
139-SB-3-8-10 : V.Deg.Gas (FCM) (BO) 68.3%



139-SB-4-6-8 : Deg.Fuel (FCM) (BO) 80.7%



139-SB-4-8-10 : Deg.Fuel (FCM) (BO) 82%



Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

November 03, 2016

Mike Branson
Solutions-IES
1101 Nowell Road
Raleigh, NC 27607

RE: Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Dear Mike Branson:
Enclosed are the analytical results for sample(s) received by the laboratory on October 31, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Taylor Ezell
taylor.ezell@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92317871001	**139-SB-1-8-10**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92317871002	**139-SB-2-4-6**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92317871003	**139-SB-3-6-8**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C
92317871004	**139-SB-4-8-10**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	KDF	1	PASI-C

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Sample: 139-SB-1-8-10 **Lab ID: 92317871001** Collected: 10/27/16 14:15 Received: 10/31/16 08:52 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	112	1		11/01/16 16:11	67-64-1	
Benzene	ND	ug/kg	5.6	1		11/01/16 16:11	71-43-2	
Bromobenzene	ND	ug/kg	5.6	1		11/01/16 16:11	108-86-1	
Bromochloromethane	ND	ug/kg	5.6	1		11/01/16 16:11	74-97-5	
Bromodichloromethane	ND	ug/kg	5.6	1		11/01/16 16:11	75-27-4	
Bromoform	ND	ug/kg	5.6	1		11/01/16 16:11	75-25-2	
Bromomethane	ND	ug/kg	11.2	1		11/01/16 16:11	74-83-9	
2-Butanone (MEK)	ND	ug/kg	112	1		11/01/16 16:11	78-93-3	
n-Butylbenzene	ND	ug/kg	5.6	1		11/01/16 16:11	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.6	1		11/01/16 16:11	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.6	1		11/01/16 16:11	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.6	1		11/01/16 16:11	56-23-5	
Chlorobenzene	ND	ug/kg	5.6	1		11/01/16 16:11	108-90-7	
Chloroethane	ND	ug/kg	11.2	1		11/01/16 16:11	75-00-3	
Chloroform	ND	ug/kg	5.6	1		11/01/16 16:11	67-66-3	
Chloromethane	ND	ug/kg	11.2	1		11/01/16 16:11	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.6	1		11/01/16 16:11	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.6	1		11/01/16 16:11	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.6	1		11/01/16 16:11	96-12-8	
Dibromochloromethane	ND	ug/kg	5.6	1		11/01/16 16:11	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.6	1		11/01/16 16:11	106-93-4	
Dibromomethane	ND	ug/kg	5.6	1		11/01/16 16:11	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.6	1		11/01/16 16:11	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.6	1		11/01/16 16:11	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.6	1		11/01/16 16:11	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	11.2	1		11/01/16 16:11	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.6	1		11/01/16 16:11	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.6	1		11/01/16 16:11	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.6	1		11/01/16 16:11	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.6	1		11/01/16 16:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.6	1		11/01/16 16:11	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.6	1		11/01/16 16:11	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.6	1		11/01/16 16:11	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.6	1		11/01/16 16:11	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.6	1		11/01/16 16:11	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.6	1		11/01/16 16:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.6	1		11/01/16 16:11	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.6	1		11/01/16 16:11	108-20-3	
Ethylbenzene	ND	ug/kg	5.6	1		11/01/16 16:11	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.6	1		11/01/16 16:11	87-68-3	
2-Hexanone	ND	ug/kg	55.9	1		11/01/16 16:11	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.6	1		11/01/16 16:11	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.6	1		11/01/16 16:11	99-87-6	
Methylene Chloride	ND	ug/kg	22.4	1		11/01/16 16:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	55.9	1		11/01/16 16:11	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.6	1		11/01/16 16:11	1634-04-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Sample: 139-SB-1-8-10 **Lab ID: 92317871001** Collected: 10/27/16 14:15 Received: 10/31/16 08:52 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	5.6	1		11/01/16 16:11	91-20-3	
n-Propylbenzene	ND	ug/kg	5.6	1		11/01/16 16:11	103-65-1	
Styrene	ND	ug/kg	5.6	1		11/01/16 16:11	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.6	1		11/01/16 16:11	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.6	1		11/01/16 16:11	79-34-5	
Tetrachloroethene	ND	ug/kg	5.6	1		11/01/16 16:11	127-18-4	
Toluene	ND	ug/kg	5.6	1		11/01/16 16:11	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.6	1		11/01/16 16:11	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.6	1		11/01/16 16:11	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.6	1		11/01/16 16:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.6	1		11/01/16 16:11	79-00-5	
Trichloroethene	ND	ug/kg	5.6	1		11/01/16 16:11	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.6	1		11/01/16 16:11	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.6	1		11/01/16 16:11	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.6	1		11/01/16 16:11	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.6	1		11/01/16 16:11	108-67-8	
Vinyl acetate	ND	ug/kg	55.9	1		11/01/16 16:11	108-05-4	
Vinyl chloride	ND	ug/kg	11.2	1		11/01/16 16:11	75-01-4	
Xylene (Total)	ND	ug/kg	11.2	1		11/01/16 16:11	1330-20-7	
m&p-Xylene	ND	ug/kg	11.2	1		11/01/16 16:11	179601-23-1	
o-Xylene	ND	ug/kg	5.6	1		11/01/16 16:11	95-47-6	
Surrogates								
Toluene-d8 (S)	102	%	70-130	1		11/01/16 16:11	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130	1		11/01/16 16:11	460-00-4	
1,2-Dichloroethane-d4 (S)	123	%	70-132	1		11/01/16 16:11	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**13.5**	%	0.10	1		11/01/16 11:49		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Sample: 139-SB-2-4-6 **Lab ID: 92317871002** Collected: 10/27/16 14:20 Received: 10/31/16 08:52 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	**160**	ug/kg	137	1		11/01/16 16:30	67-64-1	
Benzene	ND	ug/kg	6.8	1		11/01/16 16:30	71-43-2	
Bromobenzene	ND	ug/kg	6.8	1		11/01/16 16:30	108-86-1	
Bromochloromethane	ND	ug/kg	6.8	1		11/01/16 16:30	74-97-5	
Bromodichloromethane	ND	ug/kg	6.8	1		11/01/16 16:30	75-27-4	
Bromoform	ND	ug/kg	6.8	1		11/01/16 16:30	75-25-2	
Bromomethane	ND	ug/kg	13.7	1		11/01/16 16:30	74-83-9	
2-Butanone (MEK)	ND	ug/kg	137	1		11/01/16 16:30	78-93-3	
n-Butylbenzene	ND	ug/kg	6.8	1		11/01/16 16:30	104-51-8	
sec-Butylbenzene	ND	ug/kg	6.8	1		11/01/16 16:30	135-98-8	
tert-Butylbenzene	ND	ug/kg	6.8	1		11/01/16 16:30	98-06-6	
Carbon tetrachloride	ND	ug/kg	6.8	1		11/01/16 16:30	56-23-5	
Chlorobenzene	ND	ug/kg	6.8	1		11/01/16 16:30	108-90-7	
Chloroethane	ND	ug/kg	13.7	1		11/01/16 16:30	75-00-3	
Chloroform	ND	ug/kg	6.8	1		11/01/16 16:30	67-66-3	
Chloromethane	ND	ug/kg	13.7	1		11/01/16 16:30	74-87-3	
2-Chlorotoluene	ND	ug/kg	6.8	1		11/01/16 16:30	95-49-8	
4-Chlorotoluene	ND	ug/kg	6.8	1		11/01/16 16:30	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	6.8	1		11/01/16 16:30	96-12-8	
Dibromochloromethane	ND	ug/kg	6.8	1		11/01/16 16:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	6.8	1		11/01/16 16:30	106-93-4	
Dibromomethane	ND	ug/kg	6.8	1		11/01/16 16:30	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	6.8	1		11/01/16 16:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	6.8	1		11/01/16 16:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	6.8	1		11/01/16 16:30	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	13.7	1		11/01/16 16:30	75-71-8	
1,1-Dichloroethane	ND	ug/kg	6.8	1		11/01/16 16:30	75-34-3	
1,2-Dichloroethane	ND	ug/kg	6.8	1		11/01/16 16:30	107-06-2	
1,1-Dichloroethene	ND	ug/kg	6.8	1		11/01/16 16:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	6.8	1		11/01/16 16:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	6.8	1		11/01/16 16:30	156-60-5	
1,2-Dichloropropane	ND	ug/kg	6.8	1		11/01/16 16:30	78-87-5	
1,3-Dichloropropane	ND	ug/kg	6.8	1		11/01/16 16:30	142-28-9	
2,2-Dichloropropane	ND	ug/kg	6.8	1		11/01/16 16:30	594-20-7	
1,1-Dichloropropene	ND	ug/kg	6.8	1		11/01/16 16:30	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	6.8	1		11/01/16 16:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	6.8	1		11/01/16 16:30	10061-02-6	
Diisopropyl ether	ND	ug/kg	6.8	1		11/01/16 16:30	108-20-3	
Ethylbenzene	ND	ug/kg	6.8	1		11/01/16 16:30	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	6.8	1		11/01/16 16:30	87-68-3	
2-Hexanone	ND	ug/kg	68.4	1		11/01/16 16:30	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	6.8	1		11/01/16 16:30	98-82-8	
p-Isopropyltoluene	ND	ug/kg	6.8	1		11/01/16 16:30	99-87-6	
Methylene Chloride	ND	ug/kg	27.4	1		11/01/16 16:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	68.4	1		11/01/16 16:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	6.8	1		11/01/16 16:30	1634-04-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
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ANALYTICAL RESULTS

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Sample: 139-SB-2-4-6 **Lab ID: 92317871002** Collected: 10/27/16 14:20 Received: 10/31/16 08:52 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	6.8	1		11/01/16 16:30	91-20-3	
n-Propylbenzene	ND	ug/kg	6.8	1		11/01/16 16:30	103-65-1	
Styrene	ND	ug/kg	6.8	1		11/01/16 16:30	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	6.8	1		11/01/16 16:30	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	6.8	1		11/01/16 16:30	79-34-5	
Tetrachloroethene	ND	ug/kg	6.8	1		11/01/16 16:30	127-18-4	
Toluene	ND	ug/kg	6.8	1		11/01/16 16:30	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	6.8	1		11/01/16 16:30	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	6.8	1		11/01/16 16:30	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	6.8	1		11/01/16 16:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	6.8	1		11/01/16 16:30	79-00-5	
Trichloroethene	ND	ug/kg	6.8	1		11/01/16 16:30	79-01-6	
Trichlorofluoromethane	ND	ug/kg	6.8	1		11/01/16 16:30	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	6.8	1		11/01/16 16:30	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	6.8	1		11/01/16 16:30	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	6.8	1		11/01/16 16:30	108-67-8	
Vinyl acetate	ND	ug/kg	68.4	1		11/01/16 16:30	108-05-4	
Vinyl chloride	ND	ug/kg	13.7	1		11/01/16 16:30	75-01-4	
Xylene (Total)	ND	ug/kg	13.7	1		11/01/16 16:30	1330-20-7	
m&p-Xylene	ND	ug/kg	13.7	1		11/01/16 16:30	179601-23-1	
o-Xylene	ND	ug/kg	6.8	1		11/01/16 16:30	95-47-6	
Surrogates								
Toluene-d8 (S)	102	%	70-130	1		11/01/16 16:30	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130	1		11/01/16 16:30	460-00-4	
1,2-Dichloroethane-d4 (S)	120	%	70-132	1		11/01/16 16:30	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**14.2**	%	0.10	1		11/01/16 11:49		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
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(704)875-9092

ANALYTICAL RESULTS

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Sample: 139-SB-3-6-8 **Lab ID: 92317871003** Collected: 10/27/16 14:25 Received: 10/31/16 08:52 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	**129**	ug/kg	106	1		11/01/16 16:50	67-64-1	
Benzene	ND	ug/kg	5.3	1		11/01/16 16:50	71-43-2	
Bromobenzene	ND	ug/kg	5.3	1		11/01/16 16:50	108-86-1	
Bromochloromethane	ND	ug/kg	5.3	1		11/01/16 16:50	74-97-5	
Bromodichloromethane	ND	ug/kg	5.3	1		11/01/16 16:50	75-27-4	
Bromoform	ND	ug/kg	5.3	1		11/01/16 16:50	75-25-2	
Bromomethane	ND	ug/kg	10.6	1		11/01/16 16:50	74-83-9	
2-Butanone (MEK)	ND	ug/kg	106	1		11/01/16 16:50	78-93-3	
n-Butylbenzene	ND	ug/kg	5.3	1		11/01/16 16:50	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.3	1		11/01/16 16:50	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.3	1		11/01/16 16:50	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.3	1		11/01/16 16:50	56-23-5	
Chlorobenzene	ND	ug/kg	5.3	1		11/01/16 16:50	108-90-7	
Chloroethane	ND	ug/kg	10.6	1		11/01/16 16:50	75-00-3	
Chloroform	ND	ug/kg	5.3	1		11/01/16 16:50	67-66-3	
Chloromethane	ND	ug/kg	10.6	1		11/01/16 16:50	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.3	1		11/01/16 16:50	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.3	1		11/01/16 16:50	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.3	1		11/01/16 16:50	96-12-8	
Dibromochloromethane	ND	ug/kg	5.3	1		11/01/16 16:50	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.3	1		11/01/16 16:50	106-93-4	
Dibromomethane	ND	ug/kg	5.3	1		11/01/16 16:50	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.3	1		11/01/16 16:50	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.3	1		11/01/16 16:50	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.3	1		11/01/16 16:50	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	10.6	1		11/01/16 16:50	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.3	1		11/01/16 16:50	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.3	1		11/01/16 16:50	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.3	1		11/01/16 16:50	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.3	1		11/01/16 16:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.3	1		11/01/16 16:50	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.3	1		11/01/16 16:50	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.3	1		11/01/16 16:50	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.3	1		11/01/16 16:50	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.3	1		11/01/16 16:50	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.3	1		11/01/16 16:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.3	1		11/01/16 16:50	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.3	1		11/01/16 16:50	108-20-3	
Ethylbenzene	ND	ug/kg	5.3	1		11/01/16 16:50	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.3	1		11/01/16 16:50	87-68-3	
2-Hexanone	ND	ug/kg	53.2	1		11/01/16 16:50	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.3	1		11/01/16 16:50	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.3	1		11/01/16 16:50	99-87-6	
Methylene Chloride	ND	ug/kg	21.3	1		11/01/16 16:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	53.2	1		11/01/16 16:50	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.3	1		11/01/16 16:50	1634-04-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Sample: 139-SB-3-6-8 **Lab ID: 92317871003** Collected: 10/27/16 14:25 Received: 10/31/16 08:52 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	5.3	1		11/01/16 16:50	91-20-3	
n-Propylbenzene	ND	ug/kg	5.3	1		11/01/16 16:50	103-65-1	
Styrene	ND	ug/kg	5.3	1		11/01/16 16:50	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.3	1		11/01/16 16:50	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.3	1		11/01/16 16:50	79-34-5	
Tetrachloroethene	ND	ug/kg	5.3	1		11/01/16 16:50	127-18-4	
Toluene	ND	ug/kg	5.3	1		11/01/16 16:50	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.3	1		11/01/16 16:50	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.3	1		11/01/16 16:50	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.3	1		11/01/16 16:50	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.3	1		11/01/16 16:50	79-00-5	
Trichloroethene	ND	ug/kg	5.3	1		11/01/16 16:50	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.3	1		11/01/16 16:50	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.3	1		11/01/16 16:50	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.3	1		11/01/16 16:50	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.3	1		11/01/16 16:50	108-67-8	
Vinyl acetate	ND	ug/kg	53.2	1		11/01/16 16:50	108-05-4	
Vinyl chloride	ND	ug/kg	10.6	1		11/01/16 16:50	75-01-4	
Xylene (Total)	ND	ug/kg	10.6	1		11/01/16 16:50	1330-20-7	
m&p-Xylene	ND	ug/kg	10.6	1		11/01/16 16:50	179601-23-1	
o-Xylene	ND	ug/kg	5.3	1		11/01/16 16:50	95-47-6	
Surrogates								
Toluene-d8 (S)	101	%	70-130	1		11/01/16 16:50	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130	1		11/01/16 16:50	460-00-4	
1,2-Dichloroethane-d4 (S)	123	%	70-132	1		11/01/16 16:50	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**8.7**	%	0.10	1		11/01/16 11:49		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Sample: 139-SB-4-8-10 **Lab ID: 92317871004** Collected: 10/27/16 14:30 Received: 10/31/16 08:52 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	**147**	ug/kg	121	1		11/01/16 17:10	67-64-1	
Benzene	ND	ug/kg	6.1	1		11/01/16 17:10	71-43-2	
Bromobenzene	ND	ug/kg	6.1	1		11/01/16 17:10	108-86-1	
Bromochloromethane	ND	ug/kg	6.1	1		11/01/16 17:10	74-97-5	
Bromodichloromethane	ND	ug/kg	6.1	1		11/01/16 17:10	75-27-4	
Bromoform	ND	ug/kg	6.1	1		11/01/16 17:10	75-25-2	
Bromomethane	ND	ug/kg	12.1	1		11/01/16 17:10	74-83-9	
2-Butanone (MEK)	ND	ug/kg	121	1		11/01/16 17:10	78-93-3	
n-Butylbenzene	ND	ug/kg	6.1	1		11/01/16 17:10	104-51-8	
sec-Butylbenzene	ND	ug/kg	6.1	1		11/01/16 17:10	135-98-8	
tert-Butylbenzene	ND	ug/kg	6.1	1		11/01/16 17:10	98-06-6	
Carbon tetrachloride	ND	ug/kg	6.1	1		11/01/16 17:10	56-23-5	
Chlorobenzene	ND	ug/kg	6.1	1		11/01/16 17:10	108-90-7	
Chloroethane	ND	ug/kg	12.1	1		11/01/16 17:10	75-00-3	
Chloroform	ND	ug/kg	6.1	1		11/01/16 17:10	67-66-3	
Chloromethane	ND	ug/kg	12.1	1		11/01/16 17:10	74-87-3	
2-Chlorotoluene	ND	ug/kg	6.1	1		11/01/16 17:10	95-49-8	
4-Chlorotoluene	ND	ug/kg	6.1	1		11/01/16 17:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	6.1	1		11/01/16 17:10	96-12-8	
Dibromochloromethane	ND	ug/kg	6.1	1		11/01/16 17:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	6.1	1		11/01/16 17:10	106-93-4	
Dibromomethane	ND	ug/kg	6.1	1		11/01/16 17:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	6.1	1		11/01/16 17:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	6.1	1		11/01/16 17:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	6.1	1		11/01/16 17:10	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	12.1	1		11/01/16 17:10	75-71-8	
1,1-Dichloroethane	ND	ug/kg	6.1	1		11/01/16 17:10	75-34-3	
1,2-Dichloroethane	ND	ug/kg	6.1	1		11/01/16 17:10	107-06-2	
1,1-Dichloroethene	ND	ug/kg	6.1	1		11/01/16 17:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	6.1	1		11/01/16 17:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	6.1	1		11/01/16 17:10	156-60-5	
1,2-Dichloropropane	ND	ug/kg	6.1	1		11/01/16 17:10	78-87-5	
1,3-Dichloropropane	ND	ug/kg	6.1	1		11/01/16 17:10	142-28-9	
2,2-Dichloropropane	ND	ug/kg	6.1	1		11/01/16 17:10	594-20-7	
1,1-Dichloropropene	ND	ug/kg	6.1	1		11/01/16 17:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	6.1	1		11/01/16 17:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	6.1	1		11/01/16 17:10	10061-02-6	
Diisopropyl ether	ND	ug/kg	6.1	1		11/01/16 17:10	108-20-3	
Ethylbenzene	ND	ug/kg	6.1	1		11/01/16 17:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	6.1	1		11/01/16 17:10	87-68-3	
2-Hexanone	ND	ug/kg	60.7	1		11/01/16 17:10	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	6.1	1		11/01/16 17:10	98-82-8	
p-Isopropyltoluene	ND	ug/kg	6.1	1		11/01/16 17:10	99-87-6	
Methylene Chloride	ND	ug/kg	24.3	1		11/01/16 17:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	60.7	1		11/01/16 17:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	6.1	1		11/01/16 17:10	1634-04-4	

Pace Analytical Services, LLC
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(704)875-9092

ANALYTICAL RESULTS

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Sample: 139-SB-4-8-10 **Lab ID: 92317871004** Collected: 10/27/16 14:30 Received: 10/31/16 08:52 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	6.1	1		11/01/16 17:10	91-20-3	
n-Propylbenzene	ND	ug/kg	6.1	1		11/01/16 17:10	103-65-1	
Styrene	ND	ug/kg	6.1	1		11/01/16 17:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	6.1	1		11/01/16 17:10	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	6.1	1		11/01/16 17:10	79-34-5	
Tetrachloroethene	ND	ug/kg	6.1	1		11/01/16 17:10	127-18-4	
Toluene	ND	ug/kg	6.1	1		11/01/16 17:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	6.1	1		11/01/16 17:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	6.1	1		11/01/16 17:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	6.1	1		11/01/16 17:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	6.1	1		11/01/16 17:10	79-00-5	
Trichloroethene	ND	ug/kg	6.1	1		11/01/16 17:10	79-01-6	
Trichlorofluoromethane	ND	ug/kg	6.1	1		11/01/16 17:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	6.1	1		11/01/16 17:10	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	6.1	1		11/01/16 17:10	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	6.1	1		11/01/16 17:10	108-67-8	
Vinyl acetate	ND	ug/kg	60.7	1		11/01/16 17:10	108-05-4	
Vinyl chloride	ND	ug/kg	12.1	1		11/01/16 17:10	75-01-4	
Xylene (Total)	ND	ug/kg	12.1	1		11/01/16 17:10	1330-20-7	
m&p-Xylene	ND	ug/kg	12.1	1		11/01/16 17:10	179601-23-1	
o-Xylene	ND	ug/kg	6.1	1		11/01/16 17:10	95-47-6	
Surrogates								
Toluene-d8 (S)	100	%	70-130	1		11/01/16 17:10	2037-26-5	
4-Bromofluorobenzene (S)	87	%	70-130	1		11/01/16 17:10	460-00-4	
1,2-Dichloroethane-d4 (S)	124	%	70-132	1		11/01/16 17:10	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**27.1**	%	0.10	1		11/01/16 11:49		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

QC Batch: 335217 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92317871001, 92317871002, 92317871003, 92317871004

METHOD BLANK: 1858123 Matrix: Solid
Associated Lab Samples: 92317871001, 92317871002, 92317871003, 92317871004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.1	11/01/16 11:53	
1,1,1-Trichloroethane	ug/kg	ND	5.1	11/01/16 11:53	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.1	11/01/16 11:53	
1,1,2-Trichloroethane	ug/kg	ND	5.1	11/01/16 11:53	
1,1-Dichloroethane	ug/kg	ND	5.1	11/01/16 11:53	
1,1-Dichloroethene	ug/kg	ND	5.1	11/01/16 11:53	
1,1-Dichloropropene	ug/kg	ND	5.1	11/01/16 11:53	
1,2,3-Trichlorobenzene	ug/kg	ND	5.1	11/01/16 11:53	
1,2,3-Trichloropropane	ug/kg	ND	5.1	11/01/16 11:53	
1,2,4-Trichlorobenzene	ug/kg	ND	5.1	11/01/16 11:53	
1,2,4-Trimethylbenzene	ug/kg	ND	5.1	11/01/16 11:53	
1,2-Dibromo-3-chloropropane	ug/kg	ND	5.1	11/01/16 11:53	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.1	11/01/16 11:53	
1,2-Dichlorobenzene	ug/kg	ND	5.1	11/01/16 11:53	
1,2-Dichloroethane	ug/kg	ND	5.1	11/01/16 11:53	
1,2-Dichloropropane	ug/kg	ND	5.1	11/01/16 11:53	
1,3,5-Trimethylbenzene	ug/kg	ND	5.1	11/01/16 11:53	
1,3-Dichlorobenzene	ug/kg	ND	5.1	11/01/16 11:53	
1,3-Dichloropropane	ug/kg	ND	5.1	11/01/16 11:53	
1,4-Dichlorobenzene	ug/kg	ND	5.1	11/01/16 11:53	
2,2-Dichloropropane	ug/kg	ND	5.1	11/01/16 11:53	
2-Butanone (MEK)	ug/kg	ND	102	11/01/16 11:53	
2-Chlorotoluene	ug/kg	ND	5.1	11/01/16 11:53	
2-Hexanone	ug/kg	ND	51.1	11/01/16 11:53	
4-Chlorotoluene	ug/kg	ND	5.1	11/01/16 11:53	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	51.1	11/01/16 11:53	
Acetone	ug/kg	ND	102	11/01/16 11:53	
Benzene	ug/kg	ND	5.1	11/01/16 11:53	
Bromobenzene	ug/kg	ND	5.1	11/01/16 11:53	
Bromochloromethane	ug/kg	ND	5.1	11/01/16 11:53	
Bromodichloromethane	ug/kg	ND	5.1	11/01/16 11:53	
Bromoform	ug/kg	ND	5.1	11/01/16 11:53	
Bromomethane	ug/kg	ND	10.2	11/01/16 11:53	
Carbon tetrachloride	ug/kg	ND	5.1	11/01/16 11:53	
Chlorobenzene	ug/kg	ND	5.1	11/01/16 11:53	
Chloroethane	ug/kg	ND	10.2	11/01/16 11:53	
Chloroform	ug/kg	ND	5.1	11/01/16 11:53	
Chloromethane	ug/kg	ND	10.2	11/01/16 11:53	
cis-1,2-Dichloroethene	ug/kg	ND	5.1	11/01/16 11:53	
cis-1,3-Dichloropropene	ug/kg	ND	5.1	11/01/16 11:53	
Dibromochloromethane	ug/kg	ND	5.1	11/01/16 11:53	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

METHOD BLANK: 1858123 Matrix: Solid
Associated Lab Samples: 92317871001, 92317871002, 92317871003, 92317871004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/kg	ND	5.1	11/01/16 11:53	
Dichlorodifluoromethane	ug/kg	ND	10.2	11/01/16 11:53	
Diisopropyl ether	ug/kg	ND	5.1	11/01/16 11:53	
Ethylbenzene	ug/kg	ND	5.1	11/01/16 11:53	
Hexachloro-1,3-butadiene	ug/kg	ND	5.1	11/01/16 11:53	
Isopropylbenzene (Cumene)	ug/kg	ND	5.1	11/01/16 11:53	
m&p-Xylene	ug/kg	ND	10.2	11/01/16 11:53	
Methyl-tert-butyl ether	ug/kg	ND	5.1	11/01/16 11:53	
Methylene Chloride	ug/kg	ND	20.4	11/01/16 11:53	
n-Butylbenzene	ug/kg	ND	5.1	11/01/16 11:53	
n-Propylbenzene	ug/kg	ND	5.1	11/01/16 11:53	
Naphthalene	ug/kg	ND	5.1	11/01/16 11:53	
o-Xylene	ug/kg	ND	5.1	11/01/16 11:53	
p-Isopropyltoluene	ug/kg	ND	5.1	11/01/16 11:53	
sec-Butylbenzene	ug/kg	ND	5.1	11/01/16 11:53	
Styrene	ug/kg	ND	5.1	11/01/16 11:53	
tert-Butylbenzene	ug/kg	ND	5.1	11/01/16 11:53	
Tetrachloroethene	ug/kg	ND	5.1	11/01/16 11:53	
Toluene	ug/kg	ND	5.1	11/01/16 11:53	
trans-1,2-Dichloroethene	ug/kg	ND	5.1	11/01/16 11:53	
trans-1,3-Dichloropropene	ug/kg	ND	5.1	11/01/16 11:53	
Trichloroethene	ug/kg	ND	5.1	11/01/16 11:53	
Trichlorofluoromethane	ug/kg	ND	5.1	11/01/16 11:53	
Vinyl acetate	ug/kg	ND	51.1	11/01/16 11:53	
Vinyl chloride	ug/kg	ND	10.2	11/01/16 11:53	
Xylene (Total)	ug/kg	ND	10.2	11/01/16 11:53	
1,2-Dichloroethane-d4 (S)	%	125	70-132	11/01/16 11:53	
4-Bromofluorobenzene (S)	%	95	70-130	11/01/16 11:53	
Toluene-d8 (S)	%	102	70-130	11/01/16 11:53	

LABORATORY CONTROL SAMPLE: 1858124

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	54.2	59.3	109	74-137	
1,1,1-Trichloroethane	ug/kg	54.2	60.8	112	67-140	
1,1,2,2-Tetrachloroethane	ug/kg	54.2	59.6	110	72-141	
1,1,2-Trichloroethane	ug/kg	54.2	63.7	117	78-138	
1,1-Dichloroethane	ug/kg	54.2	61.4	113	69-134	
1,1-Dichloroethene	ug/kg	54.2	62.2	115	67-138	
1,1-Dichloropropene	ug/kg	54.2	59.5	110	69-139	
1,2,3-Trichlorobenzene	ug/kg	54.2	63.7	118	70-146	
1,2,3-Trichloropropane	ug/kg	54.2	66.4	122	69-144	
1,2,4-Trichlorobenzene	ug/kg	54.2	60.1	111	68-148	
1,2,4-Trimethylbenzene	ug/kg	54.2	59.8	110	74-137	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

LABORATORY CONTROL SAMPLE: 1858124

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromo-3-chloropropane	ug/kg	54.2	69.7	129	65-140	
1,2-Dibromoethane (EDB)	ug/kg	54.2	63.8	118	77-135	
1,2-Dichlorobenzene	ug/kg	54.2	62.6	115	77-141	
1,2-Dichloroethane	ug/kg	54.2	65.5	121	65-137	
1,2-Dichloropropane	ug/kg	54.2	59.8	110	72-136	
1,3,5-Trimethylbenzene	ug/kg	54.2	58.5	108	76-133	
1,3-Dichlorobenzene	ug/kg	54.2	60.2	111	74-138	
1,3-Dichloropropane	ug/kg	54.2	60.7	112	71-139	
1,4-Dichlorobenzene	ug/kg	54.2	59.8	110	76-138	
2,2-Dichloropropane	ug/kg	54.2	63.0	116	68-137	
2-Butanone (MEK)	ug/kg	108	138	127	58-147	
2-Chlorotoluene	ug/kg	54.2	61.1	113	73-139	
2-Hexanone	ug/kg	108	140	129	62-145	
4-Chlorotoluene	ug/kg	54.2	59.7	110	76-141	
4-Methyl-2-pentanone (MIBK)	ug/kg	108	146	135	64-149	
Acetone	ug/kg	108	150	138	53-153	
Benzene	ug/kg	54.2	61.3	113	73-135	
Bromobenzene	ug/kg	54.2	61.5	113	75-133	
Bromochloromethane	ug/kg	54.2	67.2	124	73-134	
Bromodichloromethane	ug/kg	54.2	64.1	118	71-135	
Bromoform	ug/kg	54.2	61.7	114	66-141	
Bromomethane	ug/kg	54.2	63.2	116	53-160	
Carbon tetrachloride	ug/kg	54.2	59.1	109	60-145	
Chlorobenzene	ug/kg	54.2	58.0	107	78-130	
Chloroethane	ug/kg	54.2	62.4	115	64-149	
Chloroform	ug/kg	54.2	63.4	117	70-134	
Chloromethane	ug/kg	54.2	65.4	121	52-150	
cis-1,2-Dichloroethene	ug/kg	54.2	67.2	124	70-133	
cis-1,3-Dichloropropene	ug/kg	54.2	61.6	114	68-134	
Dibromochloromethane	ug/kg	54.2	64.8	120	71-138	
Dibromomethane	ug/kg	54.2	61.8	114	74-130	
Dichlorodifluoromethane	ug/kg	54.2	65.0	120	40-160	
Diisopropyl ether	ug/kg	54.2	67.5	124	69-141	
Ethylbenzene	ug/kg	54.2	58.1	107	75-133	
Hexachloro-1,3-butadiene	ug/kg	54.2	56.2	104	68-143	
Isopropylbenzene (Cumene)	ug/kg	54.2	58.2	107	76-143	
m&p-Xylene	ug/kg	108	119	110	75-136	
Methyl-tert-butyl ether	ug/kg	54.2	66.5	123	68-144	
Methylene Chloride	ug/kg	54.2	68.5	126	45-154	
n-Butylbenzene	ug/kg	54.2	59.0	109	72-137	
n-Propylbenzene	ug/kg	54.2	58.5	108	76-136	
Naphthalene	ug/kg	54.2	67.0	124	68-151	
o-Xylene	ug/kg	54.2	59.2	109	76-141	
p-Isopropyltoluene	ug/kg	54.2	58.2	107	76-140	
sec-Butylbenzene	ug/kg	54.2	58.5	108	79-139	
Styrene	ug/kg	54.2	59.3	109	79-137	
tert-Butylbenzene	ug/kg	54.2	52.8	97	74-143	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(704)875-9092

QUALITY CONTROL DATA

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

LABORATORY CONTROL SAMPLE: 1858124

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	54.2	49.5	91	71-138	
Toluene	ug/kg	54.2	59.8	110	74-131	
trans-1,2-Dichloroethene	ug/kg	54.2	61.3	113	67-135	
trans-1,3-Dichloropropene	ug/kg	54.2	62.8	116	65-146	
Trichloroethene	ug/kg	54.2	61.2	113	67-135	
Trichlorofluoromethane	ug/kg	54.2	63.4	117	59-144	
Vinyl acetate	ug/kg	108	103	95	40-160	
Vinyl chloride	ug/kg	54.2	59.0	109	56-141	
Xylene (Total)	ug/kg	163	178	110	76-137	
1,2-Dichloroethane-d4 (S)	%			118	70-132	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE SAMPLE: 1858924

Parameter	Units	92317912001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	18.6	15.8	85	70-130	
1,1,1-Trichloroethane	ug/kg	ND	18.6	18.1	98	70-130	
1,1,2,2-Tetrachloroethane	ug/kg	ND	18.6	16.9	91	70-130	
1,1,2-Trichloroethane	ug/kg	ND	18.6	17.4	94	70-130	
1,1-Dichloroethane	ug/kg	ND	18.6	18.7	101	70-130	
1,1-Dichloroethene	ug/kg	ND	18.6	19.5	105	49-180	
1,1-Dichloropropene	ug/kg	ND	18.6	18.0	97	70-130	
1,2,3-Trichlorobenzene	ug/kg	ND	18.6	14.4	78	70-130	
1,2,3-Trichloropropane	ug/kg	ND	18.6	18.0	97	70-130	
1,2,4-Trichlorobenzene	ug/kg	ND	18.6	14.2	77	70-130	
1,2,4-Trimethylbenzene	ug/kg	ND	18.6	17.8	96	70-130	
1,2-Dibromo-3-chloropropane	ug/kg	ND	18.6	15.2	82	70-130	
1,2-Dibromoethane (EDB)	ug/kg	ND	18.6	17.9	97	70-130	
1,2-Dichlorobenzene	ug/kg	ND	18.6	17.3	93	70-130	
1,2-Dichloroethane	ug/kg	ND	18.6	19.5	105	70-130	
1,2-Dichloropropane	ug/kg	ND	18.6	17.1	92	70-130	
1,3,5-Trimethylbenzene	ug/kg	ND	18.6	17.8	96	70-130	
1,3-Dichlorobenzene	ug/kg	ND	18.6	16.5	89	70-130	
1,3-Dichloropropane	ug/kg	ND	18.6	17.0	92	70-130	
1,4-Dichlorobenzene	ug/kg	ND	18.6	16.5	89	70-130	
2,2-Dichloropropane	ug/kg	ND	18.6	18.3	99	70-130	
2-Butanone (MEK)	ug/kg	ND	37.1	38.2J	103	70-130	
2-Chlorotoluene	ug/kg	ND	18.6	16.5	89	70-130	
2-Hexanone	ug/kg	ND	37.1	32.1J	86	70-130	
4-Chlorotoluene	ug/kg	ND	18.6	17.4	94	70-130	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	37.1	36.6J	99	70-130	
Acetone	ug/kg	ND	37.1	40.4J	109	70-130	
Benzene	ug/kg	ND	18.6	18.5	100	50-166	
Bromobenzene	ug/kg	ND	18.6	18.0	97	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

MATRIX SPIKE SAMPLE: 1858924

Parameter	Units	92317912001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromochloromethane	ug/kg	ND	18.6	19.5	105	70-130	
Bromodichloromethane	ug/kg	ND	18.6	17.8	96	70-130	
Bromoform	ug/kg	ND	18.6	14.1	76	70-130	
Bromomethane	ug/kg	ND	18.6	17.1	92	70-130	
Carbon tetrachloride	ug/kg	ND	18.6	17.0	92	70-130	
Chlorobenzene	ug/kg	ND	18.6	17.2	93	43-169	
Chloroethane	ug/kg	ND	18.6	20.4	110	70-130	
Chloroform	ug/kg	ND	18.6	18.8	102	70-130	
Chloromethane	ug/kg	ND	18.6	19.5	105	70-130	
cis-1,2-Dichloroethene	ug/kg	ND	18.6	18.3	99	70-130	
cis-1,3-Dichloropropene	ug/kg	ND	18.6	16.5	89	70-130	
Dibromochloromethane	ug/kg	ND	18.6	16.6	90	70-130	
Dibromomethane	ug/kg	ND	18.6	18.1	97	70-130	
Dichlorodifluoromethane	ug/kg	ND	18.6	21.2	114	70-130	
Diisopropyl ether	ug/kg	ND	18.6	20.3	109	70-130	
Ethylbenzene	ug/kg	ND	18.6	18.0	97	70-130	
Hexachloro-1,3-butadiene	ug/kg	ND	18.6	14.1	76	70-130	
Isopropylbenzene (Cumene)	ug/kg	ND	18.6	17.8	96	70-130	
m&p-Xylene	ug/kg	ND	37.1	36.2	98	70-130	
Methyl-tert-butyl ether	ug/kg	ND	18.6	20.0	108	70-130	
Methylene Chloride	ug/kg	ND	18.6	23.6	69	70-130	M1
n-Butylbenzene	ug/kg	ND	18.6	17.3	93	70-130	
n-Propylbenzene	ug/kg	ND	18.6	18.4	99	70-130	
Naphthalene	ug/kg	ND	18.6	16.4	88	70-130	
o-Xylene	ug/kg	ND	18.6	17.7	95	70-130	
p-Isopropyltoluene	ug/kg	ND	18.6	17.4	94	70-130	
sec-Butylbenzene	ug/kg	ND	18.6	18.2	98	70-130	
Styrene	ug/kg	ND	18.6	17.3	93	70-130	
tert-Butylbenzene	ug/kg	ND	18.6	16.3	88	70-130	
Tetrachloroethene	ug/kg	ND	18.6	14.9	81	70-130	
Toluene	ug/kg	ND	18.6	18.4	99	52-163	
trans-1,2-Dichloroethene	ug/kg	ND	18.6	19.4	104	70-130	
trans-1,3-Dichloropropene	ug/kg	ND	18.6	15.9	86	70-130	
Trichloroethene	ug/kg	ND	18.6	16.9	91	49-167	
Trichlorofluoromethane	ug/kg	ND	18.6	20.9	113	70-130	
Vinyl acetate	ug/kg	ND	37.1	20.9J	56	70-130	M1
Vinyl chloride	ug/kg	ND	18.6	18.9	102	70-130	
1,2-Dichloroethane-d4 (S)	%				114	70-132	
4-Bromofluorobenzene (S)	%				98	70-130	
Toluene-d8 (S)	%				100	70-130	

SAMPLE DUPLICATE: 1858923

Parameter	Units	92317874002 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

SAMPLE DUPLICATE: 1858923

Parameter	Units	92317874002 Result	Dup Result	RPD	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	ND		
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		
1,1,2-Trichloroethane	ug/kg	ND	ND		
1,1-Dichloroethane	ug/kg	ND	ND		
1,1-Dichloroethene	ug/kg	ND	ND		
1,1-Dichloropropene	ug/kg	ND	ND		
1,2,3-Trichlorobenzene	ug/kg	ND	ND		
1,2,3-Trichloropropane	ug/kg	ND	ND		
1,2,4-Trichlorobenzene	ug/kg	ND	ND		
1,2,4-Trimethylbenzene	ug/kg	ND	ND		
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		
1,2-Dichlorobenzene	ug/kg	ND	ND		
1,2-Dichloroethane	ug/kg	ND	ND		
1,2-Dichloropropane	ug/kg	ND	ND		
1,3,5-Trimethylbenzene	ug/kg	ND	ND		
1,3-Dichlorobenzene	ug/kg	ND	ND		
1,3-Dichloropropane	ug/kg	ND	ND		
1,4-Dichlorobenzene	ug/kg	ND	ND		
2,2-Dichloropropane	ug/kg	ND	ND		
2-Butanone (MEK)	ug/kg	ND	ND		
2-Chlorotoluene	ug/kg	ND	ND		
2-Hexanone	ug/kg	ND	ND		
4-Chlorotoluene	ug/kg	ND	ND		
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		
Acetone	ug/kg	ND	ND		
Benzene	ug/kg	ND	ND		
Bromobenzene	ug/kg	ND	ND		
Bromochloromethane	ug/kg	ND	ND		
Bromodichloromethane	ug/kg	ND	ND		
Bromoform	ug/kg	ND	ND		
Bromomethane	ug/kg	ND	ND		
Carbon tetrachloride	ug/kg	ND	ND		
Chlorobenzene	ug/kg	ND	ND		
Chloroethane	ug/kg	ND	ND		
Chloroform	ug/kg	ND	ND		
Chloromethane	ug/kg	ND	ND		
cis-1,2-Dichloroethene	ug/kg	ND	ND		
cis-1,3-Dichloropropene	ug/kg	ND	ND		
Dibromochloromethane	ug/kg	ND	ND		
Dibromomethane	ug/kg	ND	ND		
Dichlorodifluoromethane	ug/kg	ND	ND		
Diisopropyl ether	ug/kg	ND	ND		
Ethylbenzene	ug/kg	ND	ND		
Hexachloro-1,3-butadiene	ug/kg	ND	ND		
Isopropylbenzene (Cumene)	ug/kg	ND	ND		
m&p-Xylene	ug/kg	ND	ND		

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QUALITY CONTROL DATA

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

SAMPLE DUPLICATE: 1858923

Parameter	Units	92317874002 Result	Dup Result	RPD	Qualifiers
Methyl-tert-butyl ether	ug/kg	ND	ND		
Methylene Chloride	ug/kg	ND	ND		
n-Butylbenzene	ug/kg	ND	ND		
n-Propylbenzene	ug/kg	ND	ND		
Naphthalene	ug/kg	ND	ND		
o-Xylene	ug/kg	ND	ND		
p-Isopropyltoluene	ug/kg	ND	ND		
sec-Butylbenzene	ug/kg	ND	ND		
Styrene	ug/kg	ND	ND		
tert-Butylbenzene	ug/kg	ND	ND		
Tetrachloroethene	ug/kg	ND	ND		
Toluene	ug/kg	ND	ND		
trans-1,2-Dichloroethene	ug/kg	ND	ND		
trans-1,3-Dichloropropene	ug/kg	ND	ND		
Trichloroethene	ug/kg	ND	ND		
Trichlorofluoromethane	ug/kg	ND	ND		
Vinyl acetate	ug/kg	ND	ND		
Vinyl chloride	ug/kg	ND	ND		
Xylene (Total)	ug/kg	ND	ND		
1,2-Dichloroethane-d4 (S)	%	117	110	26	
4-Bromofluorobenzene (S)	%	96	95	20	
Toluene-d8 (S)	%	103	101	22	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

QC Batch: 335136 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92317871001, 92317871002, 92317871003, 92317871004

SAMPLE DUPLICATE: 1857839

Parameter	Units	92317879001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	14.4	15.2	5	

SAMPLE DUPLICATE: 1857840

Parameter	Units	92317874003 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	17.6	18.0	2	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NCDOT FAYETTVILLE:PARCEL 139
Pace Project No.: 92317871

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92317871001	**139-SB-1-8-10**	EPA 8260	335217		
92317871002	**139-SB-2-4-6**	EPA 8260	335217		
92317871003	**139-SB-3-6-8**	EPA 8260	335217		
92317871004	**139-SB-4-8-10**	EPA 8260	335217		
92317871001	**139-SB-1-8-10**	ASTM D2974-87	335136		
92317871002	**139-SB-2-4-6**	ASTM D2974-87	335136		
92317871003	**139-SB-3-6-8**	ASTM D2974-87	335136		
92317871004	**139-SB-4-8-10**	ASTM D2974-87	335136		

Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: Sept. 21, 2016 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.01	Issuing Authority: Pace Quality Office

Laboratory receiving samples:

Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☒ Raleigh ☐ Mechanicsville ☐

Sample Condition Upon Receipt

Client Name: Solutions IES **Project #:**

WO# : 92317871

92317871

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace ☐ Other:____

Custody Seal Present? ☐ Yes ☒ No **Seals Intact?** ☐ Yes ☒ No **Date/Initials Person Examining Contents:** RP 10/31/16

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other:____

Thermometer: ☑ IR Gun ID: T1505 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Correction Factor: **Cooler Temp Corrected (°C):** 4.2°C **Biological Tissue Frozen?** ☐ Yes ☒ No ☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☒ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☒ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☒ Yes	☐ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☒ No	☐ N/A	4.
Sufficient Volume?	☒ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☒ Yes	☐ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	7.
Samples Field Filtered?	☐ Yes	☒ No	☐ N/A	8. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☒ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: Soil				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☒ No	☐ N/A	10.
Trip Blank Present?	☐ Yes	☒ No	☐ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☒ No	☐ N/A	

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Sample Discrepancy: _____

Project Manager SCURF Review: TC **Date:** 10/31/16

Project Manager SRF Review: TC **Date:** 10/31/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

**Bottom half of box is to list number of bottles

Project

WO#: 92317871

PM: PTE Due Date: 11/09/16

CLIENT: 92-SOLUTIONS

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP3S-250 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP3Z-250 mL Plastic ZN Acetate & NaOH (>9)	BP3C-250 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	Cubitainer	VSGU-20 mL Scintillation vials (N/A)	GN
1	\				\	\	\	\			\		\	\	\						6				\	\			
2	\				\	\	\	\			\		\	\	\						6				\	\			
3	\				\	\	\	\			\		\	\	\						6				\	\			
4	\				\	\	\	\			\		\	\	\						6				\	\			
5	\				\	\	\	\			\		\	\	\										\	\			
6	\				\	\	\	\			\		\	\	\										\	\			
7	\				\	\	\	\			\		\	\	\										\	\			
8	\				\	\	\	\			\		\	\	\										\	\			
9	\				\	\	\	\			\		\	\	\										\	\			
10	\				\	\	\	\			\		\	\	\										\	\			
11	\				\	\	\	\			\		\	\	\										\	\			
12	\				\	\	\	\			\		\	\	\										\	\			

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

2035091

Section A — **Required** Client Information:

- Company: SOLUTIONS-IES
- Address: 1101 NOWELL RD, RALEIGH NC 27607
- Email To: MBRANSON@SOLUTIONS-IES
- Phone: 919-873-1060 Fax:
- Requested Due Date/TAT: STD

Section B — **Required** Project Information:

- Report To: MIKE BRANSON
- Copy To:
- Purchase Order No.:
- Project Name: NCDOT FAYETTEVILLE: PARCEL 139
- Project Number: 2016.0054.NDOT

Section C — Invoice Information:

- Attention: NCDOT WBS: 39049.1.1
- Company Name:
- Address:
- Pace Quote Reference:
- Pace Project Manager: TAYLOR EZELL
- Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: NC

Section D — **Required** Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Preservatives: Unpreserved, H_2SO_4, HNO_3, HCl, NaOH, $Na_2S_2O_3$, Methanol, Other: DI H_2O / $NAHSO_4$

Requested Analysis Filtered (Y/N) — Analysis Test: VOCs 8260

Pace Project No./ Lab I.D.: 92317971

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	VOCs 8260	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	139-SB-1-8-10	SL	G			10/27/16	1415		6	X						X	X		X		001
2	139-SB-2-4-6	SL	G			10/27/16	1420		6	X						X	X		X		002
3	139-SB-3-6-8	SL	G			10/27/16	1425		6	X						X	X		X		003
4	139-SB-4-8-10	SL	G			10/27/16	1430		6	X						X	X		X		004
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Samuel A. McIntyre / SIES	10/27		B. [illegible] / Pace	10/31/16	0852		Y	N	Y
	[signature] (SW)	10/31/2016		[signature] / Pace	10/31/16	01100				
	[signature] / Pace	10/31/2016	1500	RP Pace HVL	10/31/16	1500	4.2	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: SAMUEL MCINTYRE

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10/31/2016

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007