PRELIMINARY SITE ASSESSMENT

PARCEL 74, MITTIE SHUMATE
805 ELKIN HIGHWAY (NC 268)
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA
STATE PROJECT: R-2603
WBS ELEMENT: 36001.1.2
July 22, 2013

Report prepared for:

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C-257 –Geology
C-1251 - Engineering

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PARCEL 74, MITTIE SHUMATE
805 ELKIN HIGHWAY (NC 286)
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

EXECUTIVE SUMMARY OF RESULTS

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this Preliminary Site Assessment (PSA) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for the Parcel 74, Mittie Shumate. The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils at the subject property within the proposed easement and between the existing right of way (ROW) and edge of pavement with emphasis on the areas of proposed drainage structures (State Project R-2603). This preliminary site assessment was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's May 7, 2013, technical proposal.

The following statements summarize the results of the PSA:

- **Site History:** Historical information reviewed as part of the PSA indicated that the Mittie Shumate property has been developed since at least 1958. The photographs indicate that a mobile home trailer park likely existed at the parcel from at least 1958 until sometime between 1993 and 2006. All structures that were on the property in the past, excluding the current two buildings, were removed intermittently between 1958 and 2008. The two existing structures on the property have been in place since at least 1993.

  On May 22, 2013, Pyramid emailed the Wilkes County parcel addresses to Ms. Carin Kromm, the Winston-Salem Regional Office Supervisor for the North Carolina Department of Environment and Natural Resources (NC DENR) UST Section, with a request to investigate any incidents associated with the parcels. On June 6, 2013, Ms. Kromm responded to the email and stated that site address 805 Elkin Highway does not have any environmental incidents in the DENR database.

- **Geophysical Survey:** The geophysical investigation provided no evidence of metallic USTs within the proposed ROW and/ or easement.

- **Limited Soil Assessment:** A total of four borings were performed across the property and one soil sample from each boring was analyzed with the QED UVF HC-1 Analyzer system from QROS-US for total petroleum hydrocarbons (TPH) petroleum contamination. The QED results for all of the soil samples 74-1(7.5), 74-2(10), 74-2(5), 74-3(7.5), 74-4(7.5), and 74-4(10) did not detect TPH gasoline

range organic (GRO) or TPH diesel range organic (DRO) concentrations above detection limits.

- **Limited Groundwater Assessment:** Soil boring 74-2 was converted into a 1-inch diameter temporary monitoring well (TW) to a total depth of 25 feet below land surface (BLS). The depth-to-groundwater was gauged to be at 15.73 feet BLS. The laboratory detected Methyl-tert-butyl ether (MTBE) at a concentration of 7.3 micrograms-per-liter (µg/l). The current NCAC 2L Groundwater Standard for MTBE is 20 µg/l. The laboratory did not detect any other compounds above laboratory detection limits in the groundwater sample.

- **Contaminated Soil Volumes:** No petroleum-impacted soils were encountered during the PSA investigation at Parcel 74, nor were any probable or possible USTs encountered within the proposed right of way or easement. Therefore, no recommendations are necessary for the treatment or disposal of such materials. It should be noted that, if impacted soil is encountered during road construction outside of the area analyzed by this investigation, the impacted soil should be managed according to NC DENR Division of Waste Management (DWM) UST Section Guidelines and disposed of at a permitted facility.

1.0 Introduction

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this Preliminary Site Assessment (PSA) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for the parcel of Mittie Shumate. The Mittie Shumate property is currently a vacant commercial property, located at 805 Elkin Highway (NC 268) in North Wilkesboro, NC. This preliminary site assessment was conducted on behalf of the NCDOT in accordance with Pyramid's May 7, 2013, technical proposal.

The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils at the subject properties in the proposed easement and existing right of way and edge of pavement (State Project R-2603). The location of the subject site is shown on **Figure 1.**

1.1 Background Information

Based on the NCDOT's March 22, 2013, *Request for Technical and Cost Proposal*, the PSA was conducted in the proposed easement and the area between the existing NCDOT right of way and the edge of pavement with emphasis on the areas of proposed drainage features, in accordance with the computer-aided drafting and design (CADD) files provided to Pyramid by the NCDOT. The PSA included the following:

- Research the properties for past uses and possible releases.
- Conduct a preliminary geophysical site assessment and limited soil assessment in the proposed easement and the area between the existing ROW and the edge of pavement with emphasis on the proposed drainage features.
- Report the depth to groundwater for each site and attempt to obtain one groundwater sample for each site for laboratory analysis by installing temporary monitoring wells.

1.2 Project Information

Prior to field activities, a Health and Safety Plan was prepared. Prior to drilling activities, the public underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator, Northstate Utility Locating Incorporated of Colfax, North Carolina was used to mark the on-site private, buried utilities.

2.0 Site History

Pyramid completed a records review of the NC DENR file, interviewed NC DENR personnel, and reviewed aerial photographs to assess past uses of the property. It should be noted that the NCDOT directed Pyramid to not obtain a First Search radius report detailing the history of the site and surrounding area. For this reason, Pyramid reviewed historical aerial photographs dating back to 1958 available from the Wilkes Soil and Water Conservation office in Wilkesboro and on Google Earth for past uses. The 1958, 1966, 1993, 2006, 2008, and 2012 aerial photographs are included in **Appendix A**. Historical information reviewed as part of the PSA indicated that the Mittie Shumate property has been developed since at least 1958. The photographs indicate that a mobile home trailer park likely existed at the parcel from at least 1958 until sometime between 1993 and 2006. All structures that were on the property in the past, excluding the current two buildings, were removed intermittently between 1958 and 2008. The two existing structures on the property have been in place since at least 1993.

On May 22, 2013, Pyramid emailed the Wilkes County parcel addresses to Ms. Carin Kromm, the Winston-Salem Regional Office Supervisor for the NC DENR UST Section, with a request to investigate any incidents associated with the parcels. On June 6, 2013, Ms. Kromm responded to the email and stated that site address 805 Elkin Highway does not have any environmental incidents in the DENR database.

3.0 Geophysical Investigation

Pyramid performed electromagnetic (EM) and ground penetrating radar (GPR) surveys across the accessible portions of the Parcel. The majority of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences and drainage features. The remaining EM features were minor, and were attributed to metallic debris or utilities.

The geophysical investigation provided no evidence of metallic USTs within the proposed ROW and/or easement.

The full details of the geophysical investigation are included in the Geophysical Investigation Report as **Appendix B**.

4.0 Soil Sampling Activities & Results

4.1 Soil Assessment Field Activities

On June 10, 2013, Pyramid mobilized to the site and drilled soil borings, installed one temporary monitoring well (TW), and collected the proposed soil samples for the PSA.

The soil borings and temporary well were completed using a track mounted Geoprobe® Direct-Push rig and hand-auger. Four (4) soil borings (74-1, 74-2, 74-3, and 74-4) were advanced on the subject property between the NCDOT proposed easement, existing ROW and edge of pavement. The selected locations were chosen to avoid public utilities along Elkin Highway, and private utilities associated with the business while remaining in the proposed right of way area. Soil borings 74-1, 74-2, 74-3, and 74-4 were all installed along the location of a proposed 15-inch drainage pipe across the property. Boring 74-2 was located between this proposed pipe and the concrete pad in front of the vacant building. The locations of the borings are shown on **Figure 2**.

Soil samples were continuously collected in five foot long disposable sleeves from each boring for geologic description, and visual examination for signs of contamination. Soil recovered from each sleeve was screened in the field using an Organic Vapor Analyzer (OVA) every 2 to 2.5 feet depending on the soil recovery of each sleeve. In general, the soil sample with the highest OVA reading was selected from each boring for laboratory analysis. The soil boring logs with the soil descriptions, visual examination, and OVA screening results are included in **Appendix C**. The OVA field screening results are summarized in **Table 1**. To prevent cross contamination, new disposable nitrile gloves were worn by the sampling technician during the sampling activities, and were changed between samples.

The soil samples selected for Total Petroleum Hydrocarbon (TPH) analyses were analyzed utilizing the QED UVF HC-1 Analyzer system from QROS-US. The NCDOT has indicated that this instrument is an acceptable method to provide total petroleum hydrocarbon (TPH) results for soil analysis for the PSA projects. Pyramid's QED-certified technician worked with Pyramid's on-site staff geologist to perform soil contaminant analysis. The soil samples selected to undergo analysis using the QED Analyzer were analyzed for TPH as diesel range organics (DRO) and TPH as gasoline range organics (GRO). The soil samples selected for analysis using the QED were preserved in the field with methanol and were analyzed at the end of each day using the QED. Additionally, 10% of soil samples collected were submitted to a laboratory for analysis to verify the QED results.

The duplicate soil samples selected for laboratory analyses were placed in laboratory prepared containers and shipped to Pace Analytical in Huntersville, NC, to be analyzed under the direction of Pace Analytical Project Manager Kevin Godwin. The selected soil samples were analyzed for TPH as gasoline range organics GRO by EPA Method 8015C/5035 and DRO by EPA Method 8015C/3541.

4.2 Soil Sample Analytical Results

The QED results for all of the soil samples 74-1(7.5), 74-2(10), 74-2(5), 74-3(7.5), 74-4(7.5), and 74-4(10) did not detect TPH-GRO or TPH-DRO concentrations above

detection limits. The soil sample QED results are summarized in **Table 2**. A copy of the QED analysis report is included in **Appendix D**.

A duplicate of soil sample 74-1(7.5) was shipped to Pace Analytical for laboratory analysis. The laboratory results for soil sample 74-1(7.5) did not detect TPH-GRO or TPH-DRO concentrations above laboratory detection limits. The soil sample laboratory results are summarized in **Table 2**. A copy of the laboratory report and chain-of-custody is included in **Appendix E**.

4.3 Temporary Monitoring Well Installation

On June 10, 2013, Pyramid converted soil boring 74-2 into a 1-inch diameter temporary monitoring well (TW). Soil boring 74-2(TW) was completed to a total depth of 25 feet below land surface (BLS). The temporary well at 74-2 was constructed with 15 feet of 1-inch diameter of schedule 80 PVC casing and 10 feet of 1-inch diameter of schedule 80 PVC slotted screen. The temporary well was set in the boring with 10 feet of slotted screen at the bottom of the well.

On June 10, 2013, the temporary monitoring well 74-2(TW) was gauged using a properly decontaminated electric water level probe. The depth-to-groundwater was measured at 15.73 feet BLS. The temporary monitoring well was sampled using new 0.5-inch disposable bailers. Upon completion of the gauging and sampling, the temporary monitoring well was properly abandoned by the drillers by removing the casing, and filling the borehole with bentonite chips and portland cement.

4.4 Groundwater Analytical Results

The groundwater sample 74-2(TW) was placed in laboratory prepared containers for analysis of volatile organic compounds (VOCs) by EPA Method 6200B, and the sample were shipped to Pace Analytical in Huntersville, NC. The analyses detected MTBE at a concentration of 7.3 µg/l. The NCAC 2L Groundwater Standard for MTBE is 20 µg/l. The analyses did not detect any other compounds above laboratory detection limits in the groundwater sample. The groundwater results for sample 74-2(TW) are summarized in **Table 3**. A copy of the laboratory report and chain-of-custody is included in **Appendix E**.

5.0 Conclusions and Recommendations

As requested by NCDOT, Pyramid has completed a PSA at the Mittie Shumate property located 805 Elkin Highway, North Wilkesboro, NC. The following is a summary of the assessment activities and results.

5.1 Geophysical Investigation

The geophysical investigation provided no evidence of metallic USTs within the proposed ROW and/or easement.

5.2 Limited Soil Assessment

The QED results for all of the soil samples 74-1(7.5), 74-2(10), 74-2(5), 74-3(7.5), 74-4(7.5), and 74-4(10) did not detect TPH-GRO or TPH-DRO concentrations above detection limits. A duplicate of soil sample 74-1(7.5) was shipped to Pace Analytical for laboratory analysis. The laboratory results for soil sample 74-1(7.5) were below laboratory detection limits for TPH-GRO and TPH-DRO. The NCDENR action levels for TPH-GRO and TPH-DRO are both 10 mg/kg.

5.3 Limited Groundwater Assessment

Soil boring 74-2 was converted into a 1-inch diameter temporary monitoring well to a total depth of 25 feet BLS. The depth-to-groundwater was gauged to be at 15.73 feet BLS. This temporary well was sampled and the analytical results detected MTBE at a concentration of 7.3 µg/l. The analysis did not detect any other compounds above laboratory detection limits in the groundwater sample.

5.4 Recommendations

No petroleum-impacted soils were encountered during the PSA investigation at Parcel 74, nor were any probable or possible USTs encountered within the proposed right of way or easement. Therefore, no recommendations are necessary for the treatment or disposal of such materials.

It should be noted that, if impacted soil is encountered during road construction outside of the area analyzed by this investigation, the impacted soil should be managed according to NCDENR DWM UST Section Guidelines and disposed of at a permitted facility.

6.0 Limitations

The results of this preliminary investigation are limited to the boring locations completed during this limited assessment and presented in this report. The laboratory results only reflect the current conditions at the locations sampled on the date this PSA was performed.

7.0 Closure

This report was prepared for, and is available solely for use by NCDOT and their designees. The contents thereof may not be used or relied upon by any other person without the express written consent and authorization of Pyramid Environmental & Engineering, P.C. (Pyramid). The observations, conclusions, and recommendations documented in this report are based on site conditions and information reviewed at the time of Pyramid's investigation. Pyramid appreciates the opportunity to provide this environmental service.

FIGURES

USGS TOPOGRAPHIC MAP

SITE: 805 ELKIN HIGHWAY LOCATION: N. WILKESBORO, NORTH CAROLINA

USGS IDENTIFICATION

USGS 7.5 MINUTE MAP	ROARING RIVER, N.C.
ORIGINAL DATE:	1966
PHOTOREVISION DATE:	NA

	PRIMARY HIGHWAY, HARD SURFACE
	SECONDARY HIGHWAY, HARD SURFACE
	LIGHT-DUTY ROAD HARD OR IMPROVED SURFACE
	UNIMPROVED ROAD
	STATE ROAD
	U.S. ROUTE
	INTERSTATE ROUTE

SCALES

MILES: 1/2 0 1

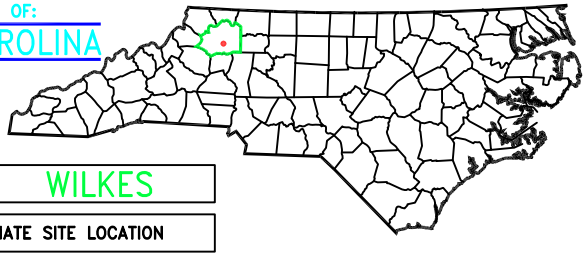
FEET: 1000 0 2000 4000 6000

1" = 2000'

NOTES: ▶ TOPOGRAPHICAL CONTOUR INTERVAL = 20 FEET
▶ PHOTOREVISIONS DENOTED IN PURPLE

MAGNETIC NORTH

COUNTY MAP OF: NORTH CAROLINA



COUNTY: WILKES

APPROXIMATE SITE LOCATION

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT: NCDOT R-2603
PROPERTY NAME: PARCEL 74, MITTIE SHUMATE
CITY: N. WILKESBORO STATE: NORTH CAROLINA
TITLE: TOPOGRAPHIC MAP

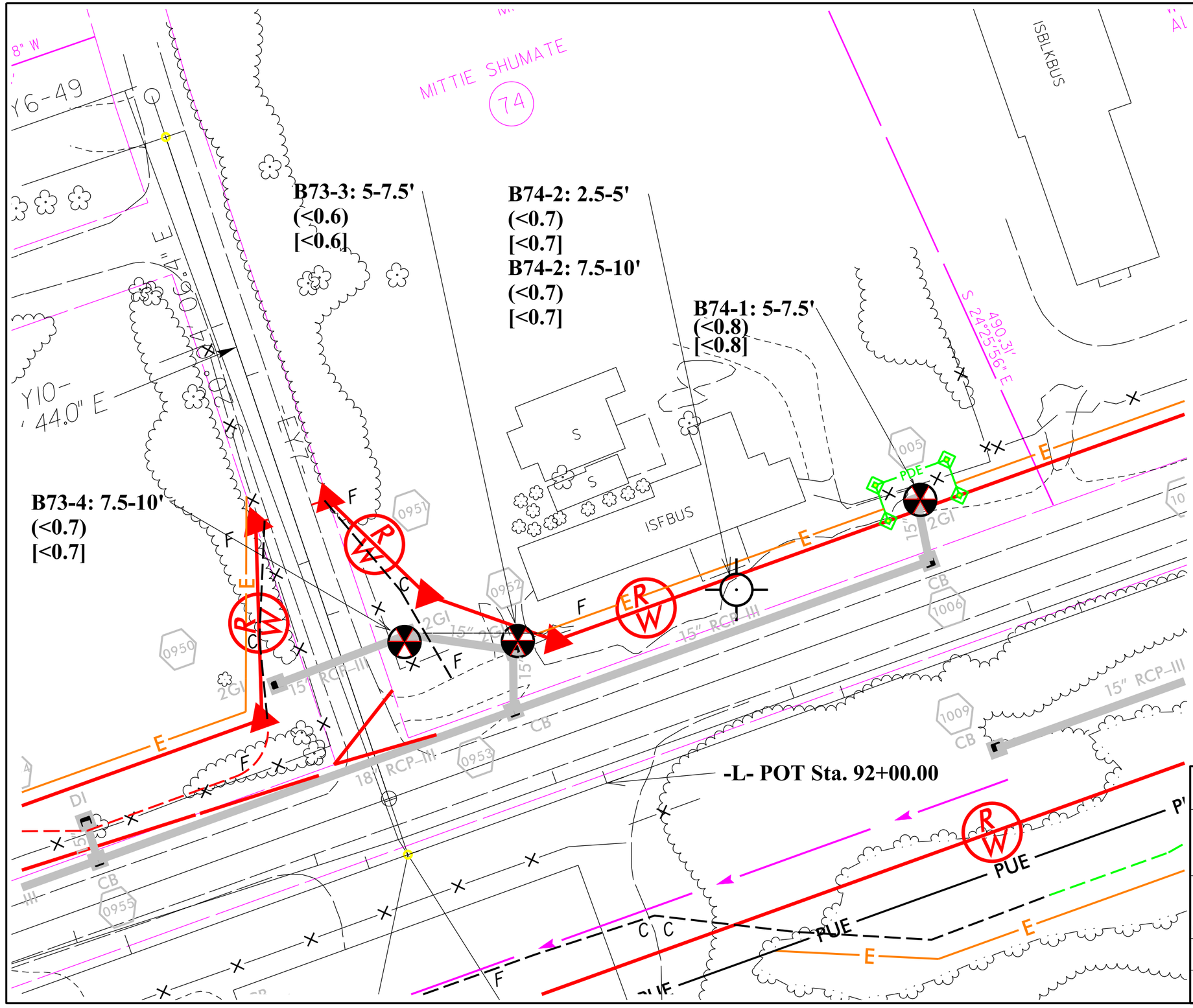
SCALE: 1"=2000'
DATE: 7/9/13
DRAWING NAME: USGSTOPO

DRAWN BY: KAM
CHECK BY: TDL
JOB NO.: 2013-131
TYPE: PSA
FIGURE NUMBER: 1

NOTES

TOPOGRAPHIC MAP USED IN THIS GRAPHIC IS MAPPED, EDITED, AND PUBLISHED BY THE UNITED STATES GEOLOGIC SURVEY, DEPARTMENT OF THE INTERIOR, RESTON VIRGINIA.

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.



LEGEND

- PUE — PROPOSED UTILITY EASEMENT
- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW
- E — PROPOSED CONST. EASEMENT
- DUE — PROP. DRAINAGE UTIL. EASEMENT
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE
- PROPOSED SS TRANSITION LINE
- PROPOSED DRAINAGE PIPING
- PDE — PROPOSED DRAINAGE EASEMENT
- PROPOSED CATCH BASIN
- SOIL SAMPLE BORING LOCATION
- BORING CONVERTED TO MW

(<6.1) TPH-DRO concentration (mg/kg)

[<6.1] TPH-GRO concentration (mg/kg)

(Analytical data obtained by the method of QROS, QED Analyzer)

N

0 50 100

FEET

TITLE: SOIL BORING LOCATIONS AND ESTIMATED AREA OF CONTAMINATION

PROJECT: NCDOT ROW PROJECT R-2603 (36001.1.2)
Mittie Shumate - PARCEL 074
NC 268, WILKES COUNTY, NORTH CAROLINA

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DATE: 7-2-2013	REVISION NO. 0
PYRAMID PROJECT NO. 2013-131	FIGURE NO. 3

TABLES

TABLE 1

Summary of Soil Field Screening Results

NCDOT Project R-2603

805 Elkin Highway (NC268) - Parcel 74

North Wilkesboro, Wilkes County, North Carolina

SOIL BORING	SAMPLE ID	DEPTH (feet bgs)	OVA/FID READINGS (PPM)
74-1	74-1(2.5)	0 to 2.5	1.0
	74-1(5)	2.5 to 5	1.0
	74-1(7.5)	**5 to 7.5**	**1.5**
	74-1(10)	7.5 to 10	1.2
74-2	74-2(2-5)	2 to 5	<1
	74-2(5.0)	2.5 to 5	1.0
	74-2(7.5)	5 to 7.5	1.0
	74-2(10)	7.5 to 10	0.5
74-3	74-3(2.5)	0 to 2.5	<1
	74-3(5.0)	2.5 to 5	<1
	74-3(7.5)	**5 to 7.5**	**1.5**
	74-3(10)	7.5 to 10	1.0
74-4	74-4(2.5)	0 to 2.5	<1
	74-4(5)	2.5 to 5	<1
	74-4(7.5)	5 to 7.5	1.5
	74-4(10)	**7.5 to 10**	**2.0**

bgs= below ground surface

FID= flame-ionization detector

PPM= parts-per-million

= sampled for lab analysis &/or QROS-QED analysis

OVA= Organic Vapor Analyzer

TABLE 2

Summary of Soil Sample Analytical Results

NCDOT State Project R-2603
805 Elkin Highway (NC 268) - Parcel 74
North Wilkesboro, Wilkes County, North Carolina

				QROS - QED Analysis			Laboratory Analysis (Pace)	
SAMPLE ID	**DATE**	**DEPTH (feet)**	**FID/OVA (ppm)**	**GRO (mg/kg) (C5-C10)**	**DRO (mg/kg) (C10-C35)**	**TPH (mg/kg) (C5-C35)**	**EPA Method 3550 DRO (mg/kg)**	**EPA Method 5035 GRO (mg/kg)**
74-1(7.5)	6/10/2013	5 to 7.5	1.5	<0.8	<0.8	<0.8	<6.1	<5.8
74-2(10)	6/10/2013	7.5 to 10	1.0	<0.7	<0.7	<0.7	------	------
74-2(5)	6/10/2013	2.5 to 5	1.0	<0.7	<0.7	<0.7	------	------
74-3(7.5)	6/10/2013	5 to 7.5	1.5	<0.6	<0.6	<0.6	------	------
74-4(7.5)	6/10/2013	5 to 7.5	0.5	<0.7	<0.7	<0.7	------	------
74-4(10)	6/10/2013	7.5 to 10	2.0	<0.7	<0.7	<0.7	------	------
NC Initial Action Level - UST Section for 5035/5030-GRO; 3550-DRO				10	10	NA	10	10

FID= flame-ionizaton detector
PPM= parts-per-million
GRO= Gasoline Range Organics
DRO= Diesel Range Organics
mg/kg= milligrams-per-kilogram
TPH= Total Petroleum Hydrocarbons (GRO + DRO)
NA= Not Applicable
"------" = No Laboratory Analysis

* Bold values indicate concentrations above initial action levels

TABLE 3

Summary of Groundwater Analytical Results

NCDOT State Project R-2603
805 Elkin Highway (NC 268) - Parcel 74
North Wilkesboro, Wilkes County, North Carolina

PARAMETER	UNITS	SAMPLE ID	NCAC 2L GROUNDWATER STANDARD
		74-2(TW)	
EPA Method 6200B; Sample Collection Date: 6/10/13			
Benzene	ug/L	ND	1
Chloroform	ug/L	ND	70
Diisopropyl Ether (IPE)	ug/L	ND	70
Ethyl Benzene	ug/L	ND	600
Isopropylbenzene (Cumene)	ug/L	ND	70
Naphthalene	ug/L	ND	6
Styrene	ug/L	ND	70
Toluene	ug/L	ND	600
Total Xylenes	ug/L	ND	500
n-Propylbenzene	ug/L	ND	70
sec-Butylbenzene	ug/L	ND	70
tert-Butyl methyl ether (MTBE)	ug/L	7.3	20
tert-Butylbenzene	ug/L	ND	70
1,2,4-Trimethylbenzene	ug/L	ND	400
1,2-Dichloroethane	ug/L	ND	0.4
1,3,5-Trimethylbenzene	ug/L	ND	400
4-Isopropyltoluene	ug/L	ND	25
All Other Parameters	ug/L	ND	NA

ug/L= micrograms-per-liter
ND= Not Detected
NA= Not Applicable

APPENDIX A

Google earth

feet 1000

meters 300

Google earth

feet 1000

meters 300

Google earth

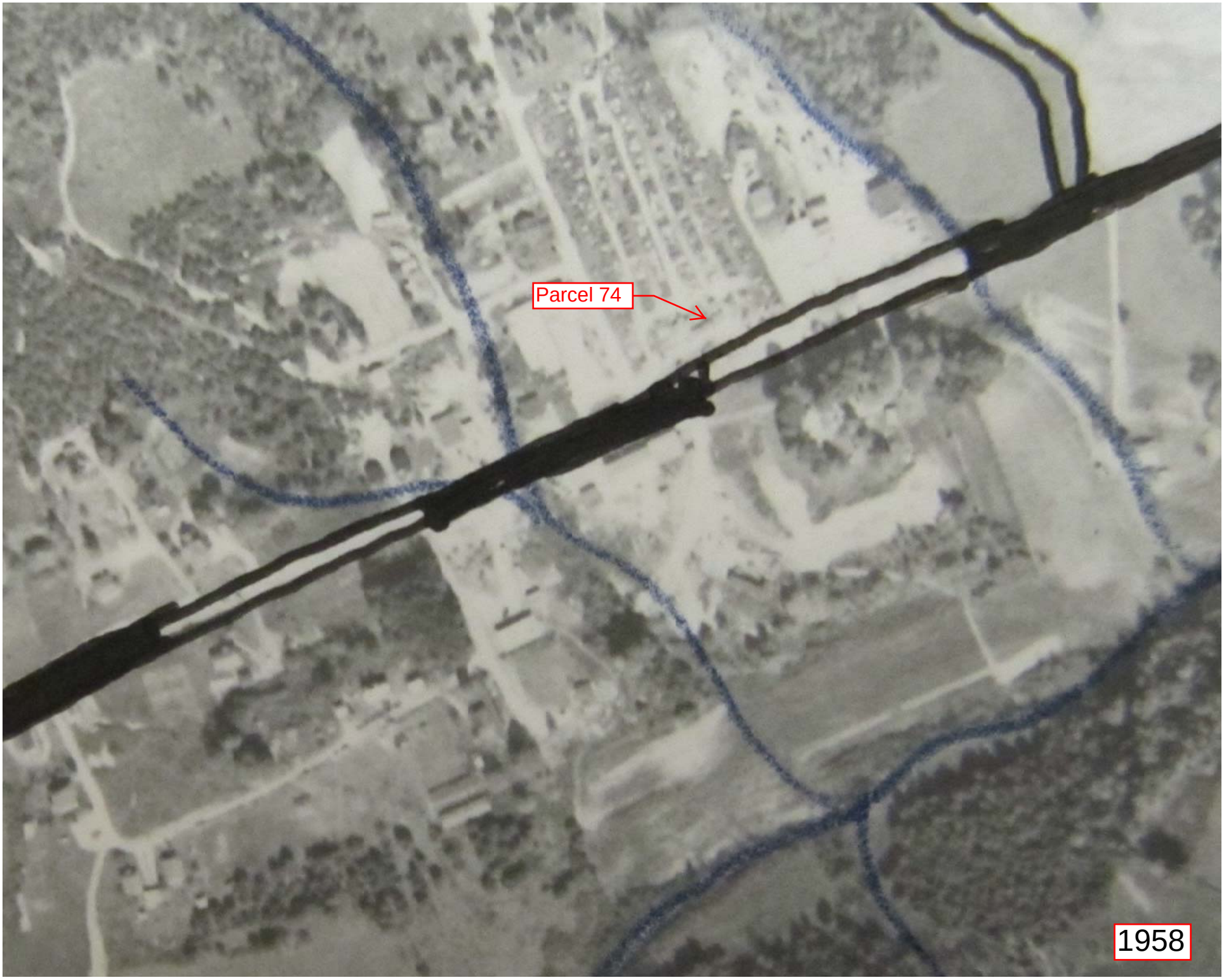
feet 1000
meters 300

Google earth

feet 700

meters 200


Parcel 74
1966


Parcel 74
1958

APPENDIX B

PYRAMID ENVIRONMENTAL & ENGINEERING
(PROJECT 2013-131)

NCDOT PROJECT R-2603 (WBS 36000.1.1)

GEOPHYSICAL SURVEYS OF PARCEL 74 – UNDERGROUND STORAGE TANK INVESTIGATION

NORTH WILKESBORO, WILKES COUNTY, NC

JULY 10, 2013

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GEOPHYSICAL INVESTIGATION REPORT
NCDOT PRELIMINARY SITE ASSESSMENT
PARCEL 74 – 805 ELKIN HIGHWAY
North Wilkesboro, Wilkes County, North Carolina

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Figures

EXECUTIVE SUMMARY

- Electromagnetic (EM) and Ground Penetrating Radar (GPR) surveys were performed across the accessible portions of the Parcel.
- The majority of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences and sign posts. The GPR surveys across remaining areas at the property indicated that non-cultural anomalies were likely due to buried metallic objects or utilities. No evidence was observed to indicate the presence of metallic USTs within the survey area.
- The geophysical investigation suggests that no evidence of metallic USTs was recorded within the proposed ROW and/or easement.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT) at Parcel 74 (Mittie Shumate, JC Ellis Auto Supply), located at 805 Elkin Highway, North Wilkesboro, NC. The geophysical investigation was performed as part of the Preliminary Site Assessment (PSA) conducted by Pyramid at nine separate parcels along NC 268, and focused on the area between the current edge of pavement along NC 268 and the proposed right of way (ROW) and/or easement, whichever was greater. The survey area extended across the southern portion of the parcel, spanning a distance of approximately 240 feet along NC 268, and extending approximately 60 feet at its maximum north/south distance from NC 268 north into the property. Conducted on May 23 and June 3, 2013, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site consisted of a combination of gravel parking space and grassy open areas. Aerial photographs showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 20-foot by 10-foot survey grid was established across the geophysical survey areas using measuring tapes and water-based marking paint. These grid

marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. The EM survey was performed on May 23, 2013, using a Geonics EM61 metal detection instrument. 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. All of the EM61 data were digitally collected at approximately 0.8 foot intervals along north-south trending or east-west trending, parallel survey lines spaced five feet apart. All of the data were downloaded to a computer and reviewed in the field and office using the Geonics DAT61 and Surfer for Windows Version 11.0 software programs.

GPR data were acquired on June 3, 2013, across selected EM61 differential anomalies using a Geophysical Survey Systems, Inc. (GSSI) SIR-2000 unit equipped with a 400 MHz antenna. Data were collected generally from east to west and north to south across specific EM61 anomalies. All of 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 8 feet, based on an estimated two-way travel time of 8 nanoseconds per foot. GPR transect and image files were saved to the hard drive of the SIR unit.

DISCUSSION OF RESULTS

Contour plots of the EM61 bottom coil and differential results obtained across the survey areas at the property are presented in **Figure 2**. The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines, small, isolated metal objects, and areas containing insignificant metal debris. The differential results are obtained from the difference between the top and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drum and UST-size objects and ignore the smaller insignificant metal objects.

Discussion of EM Anomalies: The east/west oriented anomalies between X=20 and X=40, and between X=200 and X=260 were the result of metal fences extending across these areas of the

property. The anomaly at X=75, Y=60 was the combined result of a metal pole and a sign post. The anomaly adjacent to the building centered at X=145, Y=45 was the result of a reinforced concrete pad. The minor anomaly at X=50, Y=40 was suspected to be the result of minor debris, and was investigated further using the GPR.

The GPR data were viewed in real time as the equipment was surveyed across the anomaly. Transects across EM anomalies were saved to the hard drive for post-processing in the office. **Figure 3** presents an aerial photograph showing the location of the GPR transects performed across the anomaly as well as the GPR images that were collected.

GPR Transects 1, 2, and 3 were performed across the anomaly at X=50, Y=40. Transect 1 recorded a feature that suggested an isolated buried object or possible utility at this location. Transects 2 and 3 did not record any significant features. The three GPR transects did not record any evidence of large objects below the ground surface, such as metallic USTs.

The geophysical investigation did not record evidence of metallic USTs within the proposed ROW and/or easement in the accessible areas of the parcel property.

SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across Parcel 74, North Wilkesboro, North Carolina provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the geophysical survey area.
- The majority of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences and sign posts. The GPR surveys across remaining areas at the property indicated that non-cultural anomalies were likely due to buried metallic objects or utilities. No evidence was observed to indicate the presence of metallic USTs within the survey area.
- The geophysical investigation suggests that no evidence of metallic USTs was recorded within the proposed ROW and/or easement.

LIMITATIONS

Geophysical surveys have been performed and this report prepared for the NCDOT 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 that metallic USTs do not lie within the survey area of the Wilkes County property, but that none were detected. Additionally, it should be understood that areas containing vehicles or other restrictions to the accessibility of the geophysical instruments could not be investigated.

Aerial Photograph Showing Approximate Geophysical Survey Boundaries

Photograph of Abandoned On-Site Building
(Facing Approximately North)

Geophysical Survey Area
(Facing Approximately East)

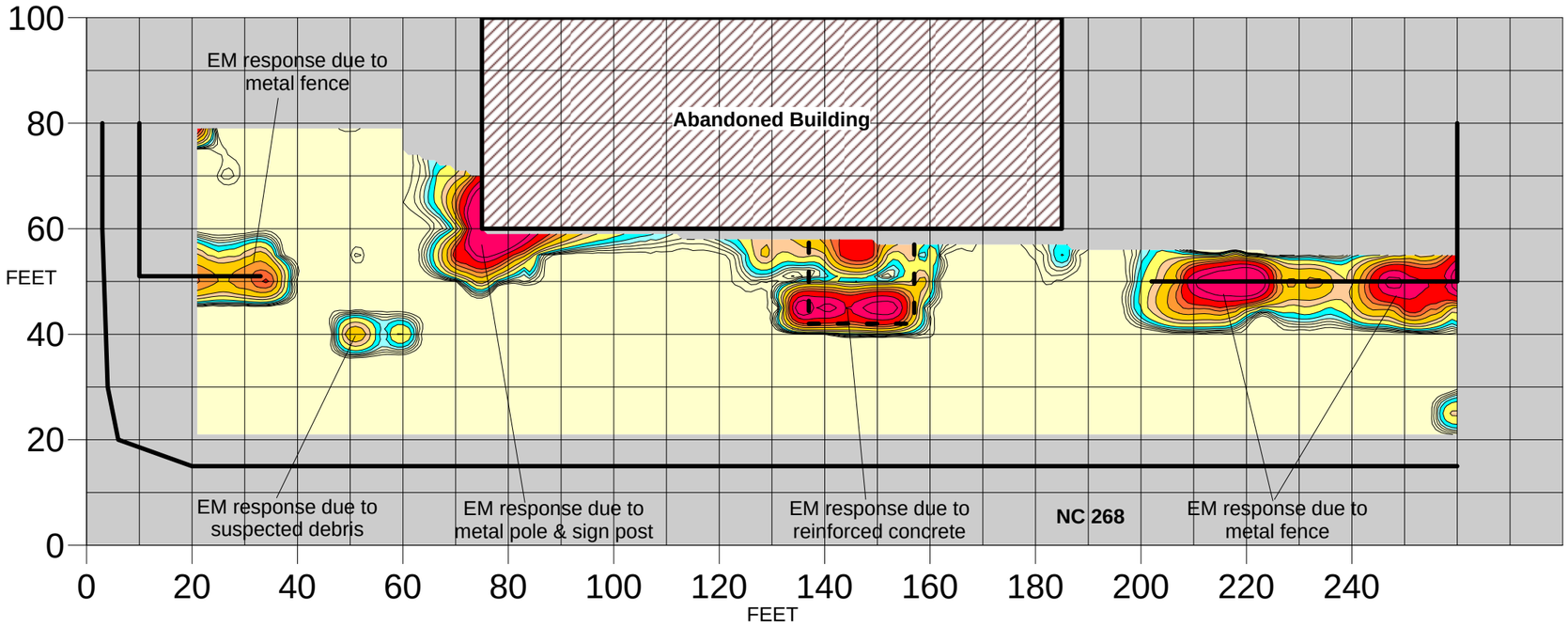
PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	NC DEPARTMENT OF TRANSPORTATION	DATE	07/04/13	DRWN	ECC
SITE	PARCEL 74, WILKES COUNTY (DOT ROW PROJECT)	LAY		CHKD	
CITY	N. WILKESBORO	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JNO	2013-131	FIGURE	

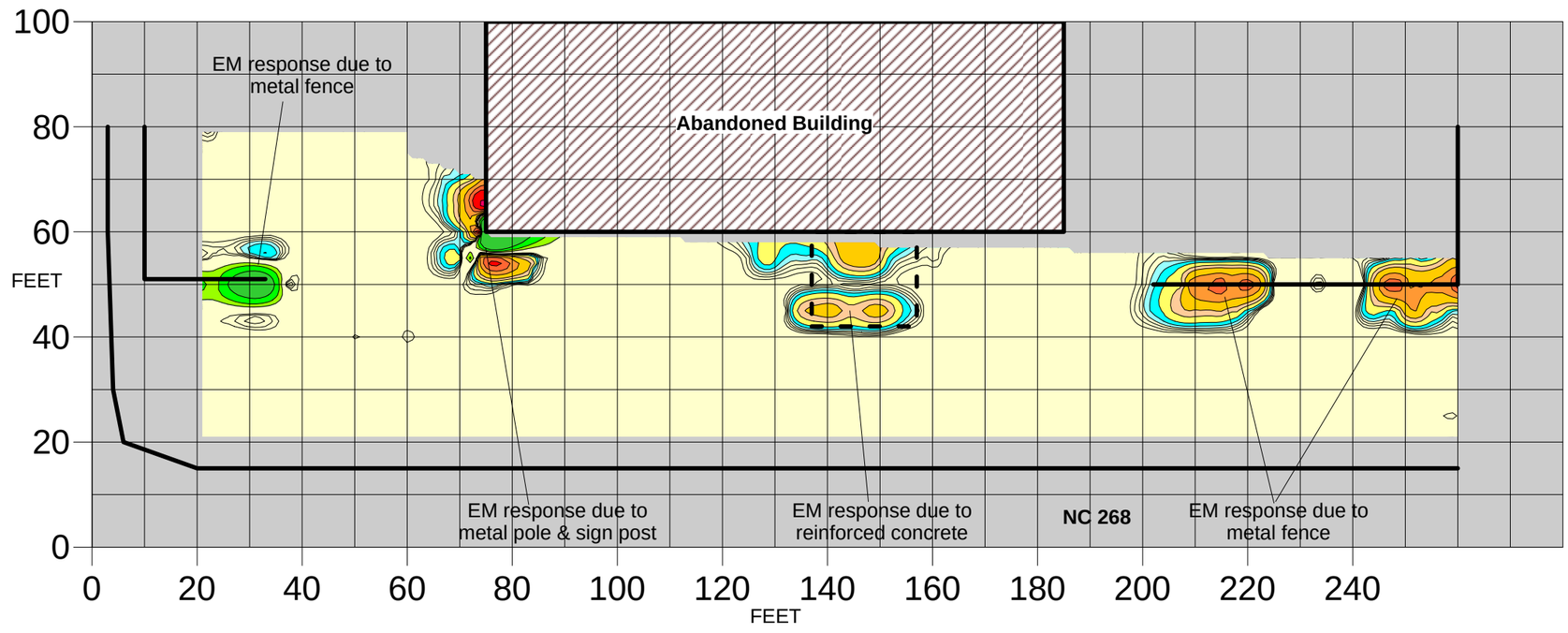
GEOPHYSICAL
SURVEY BOUNDARIES &
SITE PHOTOGRAPHS

FIGURE 1

EM61 Bottom Coil Results



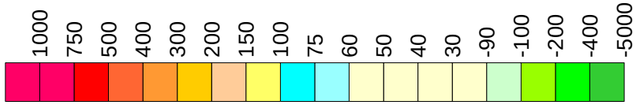
EM61 Differential Results



NO EVIDENCE OF METALLIC USTs OBSERVED

The contour plots show the bottom coil (most sensitive) and differential results of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous buried, metal debris.The EM61 data were collected on May 23, 2013 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were collected on June 3, 2013, using a GSSI SIR 2000 unit coupled to a 400 MHz antennae.

EM61 Metal Detection Response (millivolts)



N

TITLE
PARCEL 74 - EM61 BOTTOM COIL & DIFFERENTIAL RESULTS CONTOUR MAP

PROJECT
NC DEPARTMENT OF TRANSPORTATION
ROW IMPROVEMENT PROJECT
N. WILKESBORO, WILKES COUNTY, NC

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
503 INDUSTRIAL AVENUE
GREENSBORO, NC 27460
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

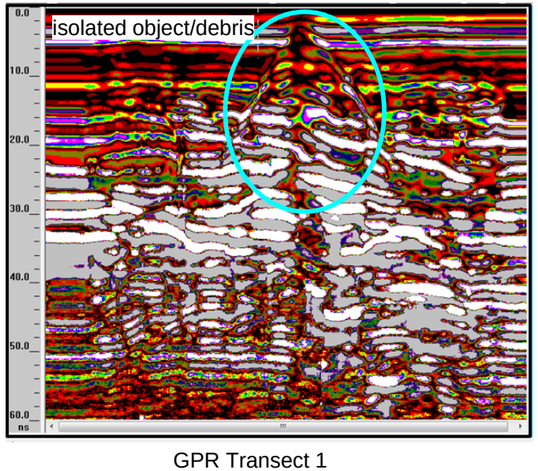
DATE 07/04/2013

CLIENT NCDOT

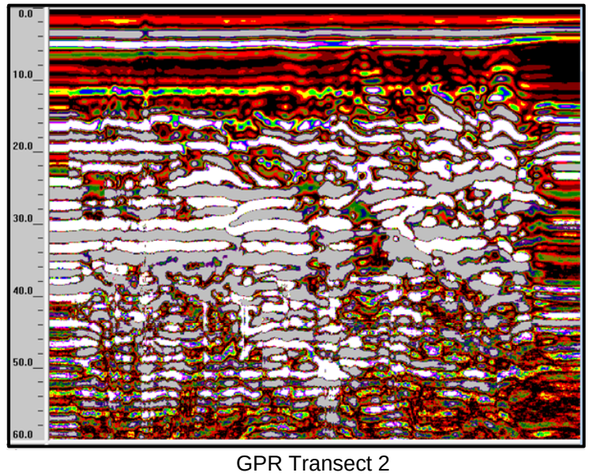
PYRAMID PROJECT #: 2013-131

FIGURE 2

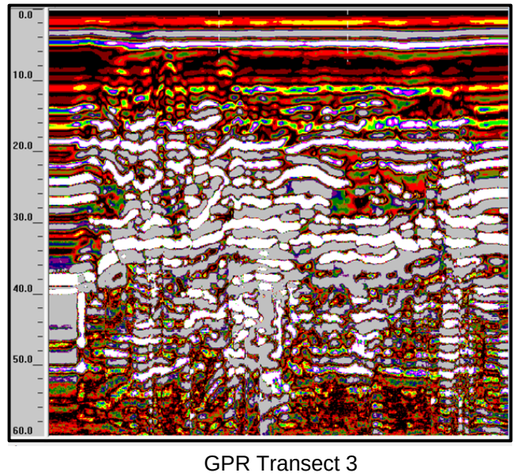
GPR Transects 1, 2, and 3 were performed across the EM anomaly located at X=50 to X=60 at Y=40. The GPR results did not record any significant features, suggesting the anomaly was the result of isolated buried metallic debris. No evidence of a UST was observed. The remaining anomalies were attributed to visible objects at the ground surface or utilities.



GPR Transect 1



GPR Transect 2



GPR Transect 3

N

TITLE

PARCEL 74 - GPR TRANSECT LOCATIONS AND IMAGES

PROJECT

NC DEPARTMENT OF TRANSPORTATION
ROW IMPROVEMENT PROJECT
N. WILKESBORO, WILKES COUNTY, NC

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
503 INDUSTRIAL AVENUE
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License # C1251 Eng. / License # C257 Geology

DATE	07/04/2013	CLIENT	NCDOT
PYRAMID PROJECT #:	2013-131	**FIGURE 3**	

APPENDIX C

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 74, Mittie Shumate N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	74-1
SITE LOCATION:	805 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 74, Mittie Shumate Property, East Side
START DATE:	6/10/13	**COMPLETED:**	6/10/13
GEOLOGIST:	R. Kramer	**DRILLER:**	Geologic Exploration
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	10 feet	**CASING DEPTH:**	N/A

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
	Depths correspond to soil type transitions	Core Sample Depths
0-5"	Concrete	
5"-3'	Reddish brown to tan, clayey-silt (CL), dry, no odor	OVA=74-1(0-2.5): 1.0 PPM
3-6'	Reddish brown to tan, clayey-silt (CL), dry, no odor	OVA=74-1(2.5-5): 1.0 PPM
6-8.5'	Reddish brown, sandy-silt (SM), dry, no odor	OVA=74-1(5-7.5): 1.5 PPM
8.5-10'	Reddish brown to tan, sandy-silt with small amount of pebbles (SM),	OVA=74-1(7.5-10): 1.2 PPM
	dry, no odor	

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
SCREEN LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
DEPTH TO TOP OF SAND _____ BAGS OF SAND ___.
DEPTH TO TOP SEAL _____ BENTONITE USED _____ BAGS OF CEMENT USED ___.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 74, Mittie Shumate N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	74-2(TW)
SITE LOCATION:	805 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 74, Mittie Shumate Property, Center
START DATE:	6/10/13	**COMPLETED:**	6/10/13
GEOLOGIST:	R. Kramer	**DRILLER:**	Geologic Exploration
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	1-inch
TOTAL DEPTH:	25 feet	**CASING DEPTH:**	25-feet

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
	Depths correspond to soil type transitions	Core Sample Depths
0-3"	Concrete	
3"-4'	Reddish brown to tan, clayey-silt (CL), dry, no odor	OVA=74-2(0-2.5): <1 PPM
4-8.5'	Reddish brown to tan, clayey-silt with small quartz pebbles (CL),	OVA=74-2(2.5-5): 1.0 PPM
	dry, no odor	OVA=74-2(5-7.5): <1 PPM
8.5-13'	Reddish brown to tan (mottled), clayey-silt with sand (ML), dry, no odor	OVA=74-2(7.5-10): 0.5 PPM
13-16'	Reddish brown, silt (SC to ML), dry, no odor	
16-25'	Reddish brown to tan, silt with mica (MH), dry, no odor	
	Set 1-inch diameter temporary well at 25 feet with bottom 10 feet of	
	screen.	
	Depth to groundwater = 15.73 feet below land surface.	

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) 15 DEPTH (ft) 0-15 DIAMETER (in) 1 MATERIAL PVC.
SCREEN LENGTH (ft) 10 DEPTH (ft) 15-25 DIAMETER (in) 1 MATERIAL PVC.
DEPTH TO TOP OF SAND 13 BAGS OF SAND 0.5.
DEPTH TO TOP SEAL 10 BENTONITE USED 0.25 BAGS OF CEMENT USED 0.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 74, Mittie Shumate N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	74-3
SITE LOCATION:	805 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 74, Mittie Shumate Property, West Side
START DATE:	6/10/13	**COMPLETED:**	6/10/13
GEOLOGIST:	R. Kramer	**DRILLER:**	Geologic Exploration
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	10 feet	**CASING DEPTH:**	N/A

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
	Depths correspond to soil type transitions	Core Sample Depths
0-7'	Reddish brown, clayey-sandy-silt loam with quartz pebbles (SC),	OVA=74-3(0-2.5): <1 PPM
	dry, no odor	OVA=74-3(2.5-5): <1 PPM
7-10'	Reddish brown to tan, silt with quartz pebbles (ML), dry, no odor	OVA=74-3(5-7.5): 1.5 PPM
		OVA=74-3(7.5-10): 1.0 PPM

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
SCREEN LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
DEPTH TO TOP OF SAND _____ BAGS OF SAND ___.
DEPTH TO TOP SEAL _____ BENTONITE USED _____ BAGS OF CEMENT USED ___.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 74, Mittie Shumate N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	74-4
SITE LOCATION:	805 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 74, Mittie Shumate Property, West Edge
START DATE:	6/10/13	**COMPLETED:**	6/10/13
GEOLOGIST:	R. Kramer	**DRILLER:**	Geologic Exploration
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	10 feet	**CASING DEPTH:**	N/A

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
	Depths correspond to soil type transitions	Core Sample Depths
0-3'	Brown, sandy-silt with pebbles (ML), moist, no odor	OVA=74-4(0-2.5): <1 PPM
3-5'	Brown, clayey-sandy-silt loam with pebbles (ML), moist, no odor	OVA=74-4(2.5-5): <1 PPM
5-7'	Reddish brown to tan, silt (ML), very moist, no odor	OVA=74-4(5-7.5): 1.5 PPM
7-10'	Brown, silt (ML), very moist, no odor	OVA=74-4(7.5-10): 2.0 PPM

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
SCREEN LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
DEPTH TO TOP OF SAND _____ BAGS OF SAND ___.
DEPTH TO TOP SEAL _____ BENTONITE USED _____ BAGS OF CEMENT USED ___.

APPENDIX D

QED

AQROS

Hydrocarbon Analysis Results

Client: NC Department of Transportation
Address: 805 Elkin Highway

6 **Samples analysed**

Contact:

Operator Tim Leatherman

Project: NCDOT R-2603, Pyramid 2013-131

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	74-1(7.5)	15.1	<0.8	<0.8	#DIV/0!	#DIV/0!	< 0.75	< 0.08	< 0.038	0	0	100	Match not possible
s	74-1(7.5) REP	15.1	<0.8	<0.8	<0.8	<0.8	< 0.75	< 0.08	< 0.038	0	0	100	Match not possible
s	74-2(10)	14.4	<0.7	<0.7	<0.7	<0.7	< 0.72	< 0.07	< 0.036	0	100	0	#DIV/0!
s	74-2(10) REP	14.4	<0.7	<0.7	<0.7	<0.7	< 0.72	< 0.07	< 0.036	0	0	100	Match not possible
s	74-2(5)	13.1	<0.7	<0.7	<0.7	<0.7	< 0.65	< 0.07	< 0.033	0	74.3	25.7	Match not possible
s	74-3(7.5)	12.1	<0.6	<0.6	<0.6	<0.6	< 0.6	< 0.06	< 0.03	0	0	100	Match not possible
s	74-4(7.5)	14.6	<0.7	<0.7	<0.7	<0.7	< 0.73	< 0.07	< 0.036	0	0	100	Match not possible
s	74-4(10)	13.1	<0.7	<0.7	<0.7	<0.7	< 0.65	< 0.07	< 0.033	0	0	100	Match not possible

Initial Calibrator QC check

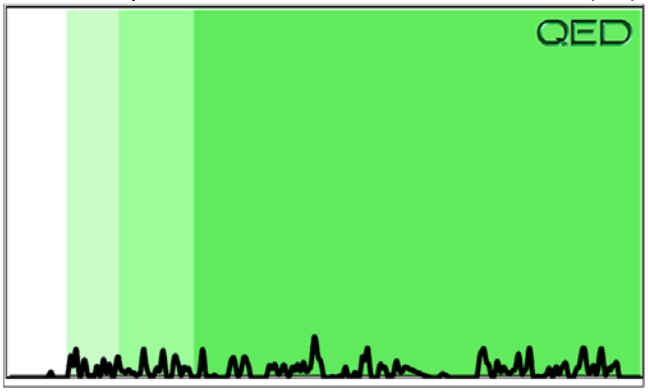
Low Range Calibrator Final check
High Range Calibrator Final check

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

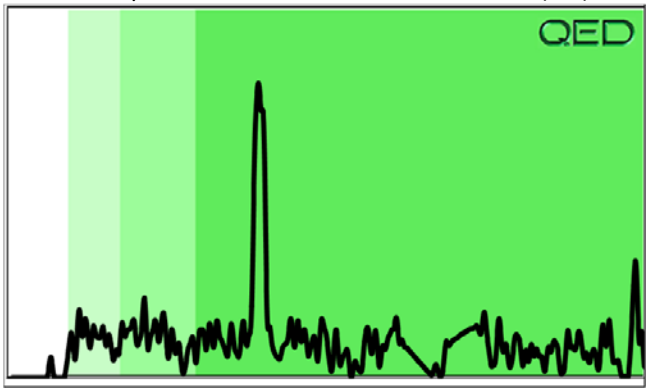
Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

Project NCDOT R-2603

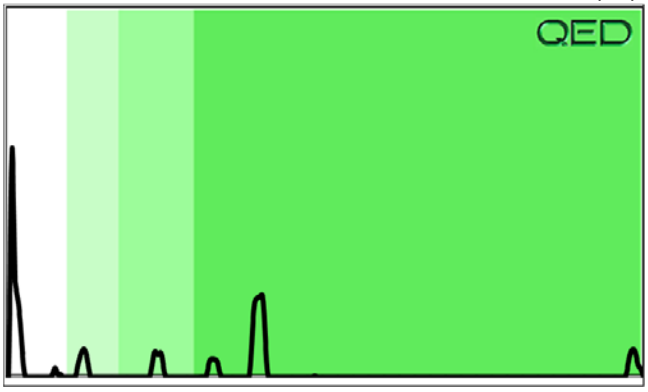
Match not possible 74-1(7.5)



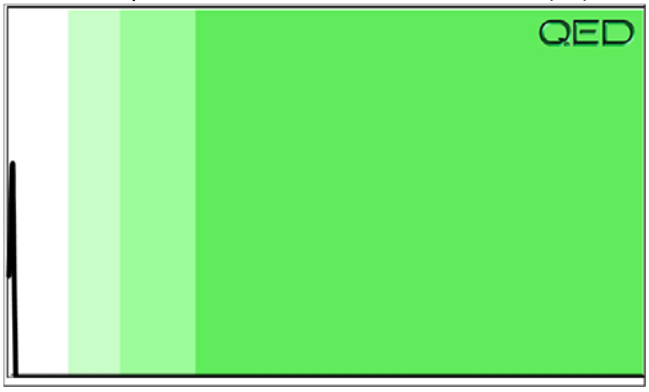
Match not possible 74-1(7.5) REP



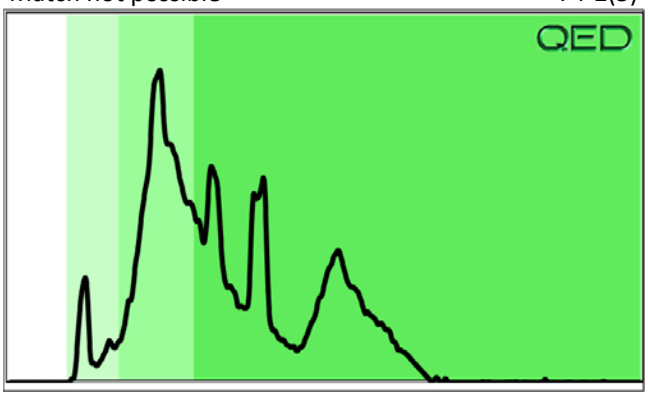
#DIV/0! 74-2(10)



Match not possible 74-2(10) REP



Match not possible 74-2(5)



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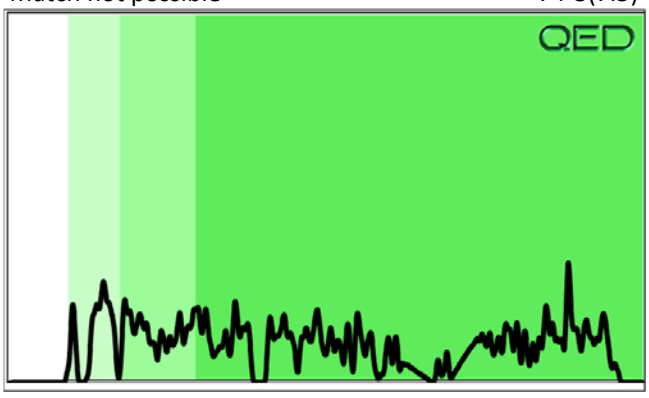
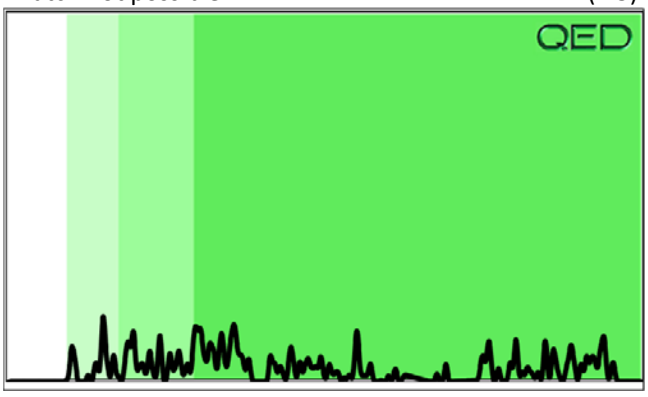
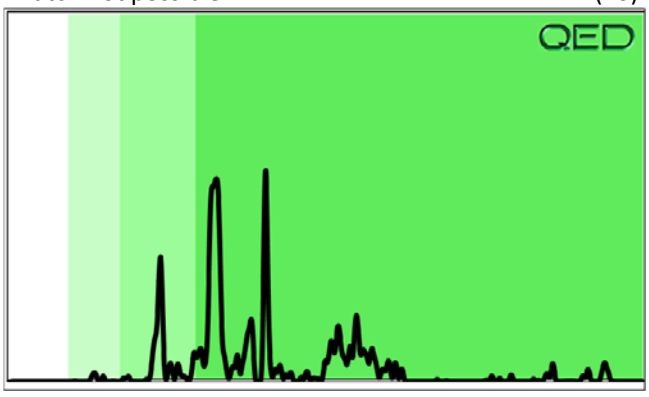


Match not possible 74-4(7.5)



Match not possible 74-4(10)



APPENDIX E

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

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

June 24, 2013

Chemical Testing Engineer
NCDOT
Materials & Tests Unit
1801 Blue Ridge Road
Raleigh, NC 27607

RE: Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

Dear Chemical Engineer:
Enclosed are the analytical results for sample(s) received by the laboratory on June 12, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

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

Sincerely,

Kevin Godwin

kevin.godwin@pacelabs.com
Project Manager

Enclosures

cc: Tim Leatherman, Pyramid

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(828)254-7176

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

CERTIFICATIONS

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

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
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92161351001	**74-2 (TW)**	SM 6200B	CAH	64	PASI-C
92161351002	**74-1 (7.5')**	EPA 8015 Modified	EJK	2	PASI-C
		EPA 8015 Modified	GAW	2	PASI-C
		ASTM D2974-87	TNM	1	PASI-C

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(828)254-7176

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

PROJECT NARRATIVE

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

Method: **EPA 8015 Modified**
Description: 8015 GCS THC-Diesel
Client: NCDOT West Central
Date: June 24, 2013

General Information:
1 sample was analyzed for EPA 8015 Modified. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
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PROJECT NARRATIVE

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

Method: **EPA 8015 Modified**
Description: Gasoline Range Organics
Client: NCDOT West Central
Date: June 24, 2013

General Information:
1 sample was analyzed for EPA 8015 Modified. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

Method: **SM 6200B**
Description: 6200B MSV
Client: NCDOT West Central
Date: June 24, 2013

General Information:
1 sample was analyzed for SM 6200B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/23350

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92161461003

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 995346)
  - 1,1-Dichloropropene
  - Carbon tetrachloride
  - Methylene Chloride
- MSD (Lab ID: 995347)
  - 1,1,1-Trichloroethane
  - 1,1-Dichloroethene
  - 1,1-Dichloropropene
  - 1,3-Dichloropropane
  - Carbon tetrachloride
  - Chloroform
  - Methylene Chloride
  - Vinyl chloride
  - trans-1,3-Dichloropropene

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PROJECT NARRATIVE

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

Method: **SM 6200B**
Description: 6200B MSV
Client: NCDOT West Central
Date: June 24, 2013

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

Sample: 74-2 (TW) **Lab ID: 92161351001** Collected: 06/10/13 14:45 Received: 06/12/13 15:42 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Benzene	ND	ug/L	0.50	1		06/20/13 18:02	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		06/20/13 18:02	108-86-1	
Bromochloromethane	ND	ug/L	0.50	1		06/20/13 18:02	74-97-5	
Bromodichloromethane	ND	ug/L	0.50	1		06/20/13 18:02	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/20/13 18:02	75-25-2	
Bromomethane	ND	ug/L	5.0	1		06/20/13 18:02	74-83-9	
n-Butylbenzene	ND	ug/L	0.50	1		06/20/13 18:02	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		06/20/13 18:02	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		06/20/13 18:02	98-06-6	
Carbon tetrachloride	ND	ug/L	0.50	1		06/20/13 18:02	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/20/13 18:02	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/20/13 18:02	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/20/13 18:02	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/20/13 18:02	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		06/20/13 18:02	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		06/20/13 18:02	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	1		06/20/13 18:02	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/20/13 18:02	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	0.50	1		06/20/13 18:02	106-93-4	
Dibromomethane	ND	ug/L	0.50	1		06/20/13 18:02	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/20/13 18:02	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/20/13 18:02	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/20/13 18:02	106-46-7	
Dichlorodifluoromethane	ND	ug/L	0.50	1		06/20/13 18:02	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/20/13 18:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/20/13 18:02	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/20/13 18:02	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/20/13 18:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/20/13 18:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/20/13 18:02	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		06/20/13 18:02	142-28-9	
2,2-Dichloropropane	ND	ug/L	0.50	1		06/20/13 18:02	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		06/20/13 18:02	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/20/13 18:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/20/13 18:02	10061-02-6	
Diisopropyl ether	ND	ug/L	0.50	1		06/20/13 18:02	108-20-3	
Ethylbenzene	ND	ug/L	0.50	1		06/20/13 18:02	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	1		06/20/13 18:02	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		06/20/13 18:02	98-82-8	
Methylene Chloride	ND	ug/L	2.0	1		06/20/13 18:02	75-09-2	
Methyl-tert-butyl ether	**7.3**	ug/L	0.50	1		06/20/13 18:02	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		06/20/13 18:02	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		06/20/13 18:02	103-65-1	
Styrene	ND	ug/L	0.50	1		06/20/13 18:02	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1		06/20/13 18:02	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/20/13 18:02	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/20/13 18:02	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

Sample: 74-2 (TW) **Lab ID: 92161351001** Collected: 06/10/13 14:45 Received: 06/12/13 15:42 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Toluene	ND	ug/L	0.50	1		06/20/13 18:02	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	1		06/20/13 18:02	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	1		06/20/13 18:02	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/20/13 18:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/20/13 18:02	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/20/13 18:02	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/20/13 18:02	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	0.50	1		06/20/13 18:02	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		06/20/13 18:02	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		06/20/13 18:02	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		06/20/13 18:02	75-01-4	
m&p-Xylene	ND	ug/L	1.0	1		06/20/13 18:02	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		06/20/13 18:02	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	70-130	1		06/20/13 18:02	17060-07-0	
Dibromofluoromethane (S)	103	%	70-130	1		06/20/13 18:02	1868-53-7	
4-Bromofluorobenzene (S)	95	%	70-130	1		06/20/13 18:02	460-00-4	
Toluene-d8 (S)	99	%	70-130	1		06/20/13 18:02	2037-26-5	

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ANALYTICAL RESULTS

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

Sample: 74-1 (7.5') **Lab ID: 92161351002** Collected: 06/10/13 11:00 Received: 06/12/13 15:42 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Components	ND	mg/kg	6.1	1	06/12/13 17:30	06/15/13 00:56	68334-30-5	
Surrogates								
n-Pentacosane (S)	106	%	41-119	1	06/12/13 17:30	06/15/13 00:56	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	5.8	1	06/13/13 13:09	06/14/13 14:43	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	84	%	70-167	1	06/13/13 13:09	06/14/13 14:43	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**17.6**	%	0.10	1		06/17/13 09:50		

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QUALITY CONTROL DATA

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

QC Batch: GCV/6988
QC Batch Method: EPA 5035A/5030B
Analysis Method: EPA 8015 Modified
Analysis Description: Gasoline Range Organics
Associated Lab Samples: 92161351002

METHOD BLANK: 992052 Matrix: Solid
Associated Lab Samples: 92161351002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	6.0	06/14/13 09:23	
4-Bromofluorobenzene (S)	%	82	70-167	06/14/13 09:23	

LABORATORY CONTROL SAMPLE: 992053

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	49.9	47.4	95	70-165	
4-Bromofluorobenzene (S)	%			90	70-167	

MATRIX SPIKE SAMPLE: 992897

Parameter	Units	92161404002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	ND	55.8	65.9	118	47-187	
4-Bromofluorobenzene (S)	%				90	70-167	

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QUALITY CONTROL DATA

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

QC Batch: MSV/23350
QC Batch Method: SM 6200B
Analysis Method: SM 6200B
Analysis Description: 6200B MSV
Associated Lab Samples: 92161351001

METHOD BLANK: 995344
Matrix: Water
Associated Lab Samples: 92161351001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,1,1-Trichloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,1-Dichloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,1-Dichloroethene	ug/L	ND	0.50	06/20/13 13:58	
1,1-Dichloropropene	ug/L	ND	0.50	06/20/13 13:58	
1,2,3-Trichlorobenzene	ug/L	ND	2.0	06/20/13 13:58	
1,2,3-Trichloropropane	ug/L	ND	0.50	06/20/13 13:58	
1,2,4-Trichlorobenzene	ug/L	ND	2.0	06/20/13 13:58	
1,2,4-Trimethylbenzene	ug/L	ND	0.50	06/20/13 13:58	
1,2-Dibromo-3-chloropropane	ug/L	ND	1.0	06/20/13 13:58	
1,2-Dibromoethane (EDB)	ug/L	ND	0.50	06/20/13 13:58	
1,2-Dichlorobenzene	ug/L	ND	0.50	06/20/13 13:58	
1,2-Dichloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,2-Dichloropropane	ug/L	ND	0.50	06/20/13 13:58	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	06/20/13 13:58	
1,3-Dichlorobenzene	ug/L	ND	0.50	06/20/13 13:58	
1,3-Dichloropropane	ug/L	ND	0.50	06/20/13 13:58	
1,4-Dichlorobenzene	ug/L	ND	0.50	06/20/13 13:58	
2,2-Dichloropropane	ug/L	ND	0.50	06/20/13 13:58	
2-Chlorotoluene	ug/L	ND	0.50	06/20/13 13:58	
4-Chlorotoluene	ug/L	ND	0.50	06/20/13 13:58	
Benzene	ug/L	ND	0.50	06/20/13 13:58	
Bromobenzene	ug/L	ND	0.50	06/20/13 13:58	
Bromochloromethane	ug/L	ND	0.50	06/20/13 13:58	
Bromodichloromethane	ug/L	ND	0.50	06/20/13 13:58	
Bromoform	ug/L	ND	0.50	06/20/13 13:58	
Bromomethane	ug/L	ND	5.0	06/20/13 13:58	
Carbon tetrachloride	ug/L	ND	0.50	06/20/13 13:58	
Chlorobenzene	ug/L	ND	0.50	06/20/13 13:58	
Chloroethane	ug/L	ND	1.0	06/20/13 13:58	
Chloroform	ug/L	ND	0.50	06/20/13 13:58	
Chloromethane	ug/L	ND	1.0	06/20/13 13:58	
cis-1,2-Dichloroethene	ug/L	ND	0.50	06/20/13 13:58	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/20/13 13:58	
Dibromochloromethane	ug/L	ND	0.50	06/20/13 13:58	
Dibromomethane	ug/L	ND	0.50	06/20/13 13:58	
Dichlorodifluoromethane	ug/L	ND	0.50	06/20/13 13:58	
Diisopropyl ether	ug/L	ND	0.50	06/20/13 13:58	
Ethylbenzene	ug/L	ND	0.50	06/20/13 13:58	
Hexachloro-1,3-butadiene	ug/L	ND	2.0	06/20/13 13:58	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	06/20/13 13:58	

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QUALITY CONTROL DATA

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

METHOD BLANK: 995344 Matrix: Water

Associated Lab Samples: 92161351001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/L	ND	1.0	06/20/13 13:58	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/20/13 13:58	
Methylene Chloride	ug/L	ND	2.0	06/20/13 13:58	
n-Butylbenzene	ug/L	ND	0.50	06/20/13 13:58	
n-Propylbenzene	ug/L	ND	0.50	06/20/13 13:58	
Naphthalene	ug/L	ND	2.0	06/20/13 13:58	
o-Xylene	ug/L	ND	0.50	06/20/13 13:58	
sec-Butylbenzene	ug/L	ND	0.50	06/20/13 13:58	
Styrene	ug/L	ND	0.50	06/20/13 13:58	
tert-Butylbenzene	ug/L	ND	0.50	06/20/13 13:58	
Tetrachloroethene	ug/L	ND	0.50	06/20/13 13:58	
Toluene	ug/L	ND	0.50	06/20/13 13:58	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/20/13 13:58	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/20/13 13:58	
Trichloroethene	ug/L	ND	0.50	06/20/13 13:58	
Trichlorofluoromethane	ug/L	ND	1.0	06/20/13 13:58	
Vinyl chloride	ug/L	ND	1.0	06/20/13 13:58	
1,2-Dichloroethane-d4 (S)	%	98	70-130	06/20/13 13:58	
4-Bromofluorobenzene (S)	%	98	70-130	06/20/13 13:58	
Dibromofluoromethane (S)	%	103	70-130	06/20/13 13:58	
Toluene-d8 (S)	%	101	70-130	06/20/13 13:58	

LABORATORY CONTROL SAMPLE: 995345

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	48.8	98	60-140	
1,1,1-Trichloroethane	ug/L	50	49.4	99	60-140	
1,1,2,2-Tetrachloroethane	ug/L	50	49.4	99	60-140	
1,1,2-Trichloroethane	ug/L	50	50.5	101	60-140	
1,1-Dichloroethane	ug/L	50	48.2	96	60-140	
1,1-Dichloroethene	ug/L	50	48.3	97	60-140	
1,1-Dichloropropene	ug/L	50	60.3	121	60-140	
1,2,3-Trichlorobenzene	ug/L	50	52.9	106	60-140	
1,2,3-Trichloropropane	ug/L	50	54.1	108	60-140	
1,2,4-Trichlorobenzene	ug/L	50	52.6	105	60-140	
1,2,4-Trimethylbenzene	ug/L	50	49.0	98	60-140	
1,2-Dibromo-3-chloropropane	ug/L	50	48.7	97	60-140	
1,2-Dibromoethane (EDB)	ug/L	50	56.4	113	60-140	CU
1,2-Dichlorobenzene	ug/L	50	50.5	101	60-140	
1,2-Dichloroethane	ug/L	50	46.4	93	60-140	
1,2-Dichloropropane	ug/L	50	50.1	100	60-140	
1,3,5-Trimethylbenzene	ug/L	50	48.0	96	60-140	
1,3-Dichlorobenzene	ug/L	50	47.7	95	60-140	
1,3-Dichloropropane	ug/L	50	53.3	107	60-140	
1,4-Dichlorobenzene	ug/L	50	52.6	105	60-140	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

LABORATORY CONTROL SAMPLE: 995345

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	47.4	95	60-140	
2-Chlorotoluene	ug/L	50	50.5	101	60-140	
4-Chlorotoluene	ug/L	50	46.6	93	60-140	
Benzene	ug/L	50	48.4	97	60-140	
Bromobenzene	ug/L	50	48.9	98	60-140	
Bromochloromethane	ug/L	50	50.8	102	60-140	
Bromodichloromethane	ug/L	50	49.9	100	60-140	
Bromoform	ug/L	50	52.8	106	60-140	
Bromomethane	ug/L	50	47.2	94	60-140	
Carbon tetrachloride	ug/L	50	54.8	110	60-140	
Chlorobenzene	ug/L	50	51.5	103	60-140	
Chloroethane	ug/L	50	45.6	91	60-140	
Chloroform	ug/L	50	49.1	98	60-140	
Chloromethane	ug/L	50	49.3	99	60-140	
cis-1,2-Dichloroethene	ug/L	50	46.9	94	60-140	
cis-1,3-Dichloropropene	ug/L	50	52.6	105	60-140	
Dibromochloromethane	ug/L	50	52.8	106	60-140	
Dibromomethane	ug/L	50	46.4	93	60-140	
Dichlorodifluoromethane	ug/L	50	36.9	74	60-140	
Diisopropyl ether	ug/L	50	50.2	100	60-140	
Ethylbenzene	ug/L	50	51.5	103	60-140	
Hexachloro-1,3-butadiene	ug/L	50	49.5	99	60-140	
Isopropylbenzene (Cumene)	ug/L	50	50.1	100	60-140	
m&p-Xylene	ug/L	100	100	100	60-140	
Methyl-tert-butyl ether	ug/L	50	51.2	102	60-140	
Methylene Chloride	ug/L	50	55.2	110	60-140	
n-Butylbenzene	ug/L	50	49.0	98	60-140	
n-Propylbenzene	ug/L	50	47.7	95	60-140	
Naphthalene	ug/L	50	53.1	106	60-140	
o-Xylene	ug/L	50	47.7	95	60-140	
sec-Butylbenzene	ug/L	50	45.7	91	60-140	
Styrene	ug/L	50	52.7	105	60-140	
tert-Butylbenzene	ug/L	50	45.9	92	60-140	
Tetrachloroethene	ug/L	50	51.1	102	60-140	
Toluene	ug/L	50	45.4	91	60-140	
trans-1,2-Dichloroethene	ug/L	50	49.2	98	60-140	
trans-1,3-Dichloropropene	ug/L	50	56.7	113	60-140	
Trichloroethene	ug/L	50	49.7	99	60-140	
Trichlorofluoromethane	ug/L	50	44.5	89	60-140	
Vinyl chloride	ug/L	50	45.7	91	60-140	
1,2-Dichloroethane-d4 (S)	%			93	70-130	
4-Bromofluorobenzene (S)	%			103	70-130	
Dibromofluoromethane (S)	%			99	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 995346 995347

Parameter	Units	92161461003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	23.2	25.0	116	125	60-140	7	
1,1,1-Trichloroethane	ug/L	ND	20	20	25.9	28.7	129	143	60-140	10	M0
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	24.1	25.4	121	127	60-140	5	
1,1,2-Trichloroethane	ug/L	ND	20	20	24.1	26.4	120	132	60-140	9	
1,1-Dichloroethane	ug/L	ND	20	20	26.1	26.7	130	134	60-140	2	
1,1-Dichloroethene	ug/L	ND	20	20	26.8	29.9	134	150	60-140	11	M0
1,1-Dichloropropene	ug/L	ND	20	20	30.9	33.3	155	167	60-140	7	M0
1,2,3-Trichlorobenzene	ug/L	ND	20	20	24.2	25.8	118	126	60-140	6	
1,2,3-Trichloropropane	ug/L	ND	20	20	26.7	27.6	133	138	60-140	4	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	25.8	26.5	127	130	60-140	3	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	24.9	26.4	125	132	60-140	6	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	25.4	26.0	127	130	60-140	2	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	27.0	27.2	135	136	60-140	1	
1,2-Dichlorobenzene	ug/L	ND	20	20	25.0	26.3	125	131	60-140	5	
1,2-Dichloroethane	ug/L	ND	20	20	22.0	22.1	110	111	60-140	0	
1,2-Dichloropropane	ug/L	ND	20	20	24.6	28.1	123	140	60-140	13	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	24.4	26.6	122	133	60-140	9	
1,3-Dichlorobenzene	ug/L	ND	20	20	23.9	25.2	120	126	60-140	5	
1,3-Dichloropropane	ug/L	ND	20	20	27.4	28.2	137	141	60-140	3	M0
1,4-Dichlorobenzene	ug/L	ND	20	20	25.4	27.9	127	140	60-140	10	
2,2-Dichloropropane	ug/L	ND	20	20	24.5	25.3	122	126	60-140	3	
2-Chlorotoluene	ug/L	ND	20	20	26.4	27.8	132	139	60-140	5	
4-Chlorotoluene	ug/L	ND	20	20	23.0	24.6	115	123	60-140	7	
Benzene	ug/L	ND	20	20	24.0	25.8	120	129	60-140	7	
Bromobenzene	ug/L	ND	20	20	25.9	26.9	130	134	60-140	4	
Bromochloromethane	ug/L	ND	20	20	24.2	27.3	121	137	60-140	12	
Bromodichloromethane	ug/L	ND	20	20	24.1	25.7	121	128	60-140	6	
Bromoform	ug/L	ND	20	20	24.8	25.6	124	128	60-140	3	
Bromomethane	ug/L	ND	20	20	21.5	24.4	107	122	60-140	13	
Carbon tetrachloride	ug/L	ND	20	20	28.7	31.5	144	158	60-140	9	M0
Chlorobenzene	ug/L	ND	20	20	25.5	27.0	128	135	60-140	6	
Chloroethane	ug/L	ND	20	20	27.3	28.1	137	140	60-140	3	
Chloroform	ug/L	ND	20	20	27.0	28.4	135	142	60-140	5	M0
Chloromethane	ug/L	ND	20	20	23.8	24.6	119	123	60-140	3	
cis-1,2-Dichloroethene	ug/L	ND	20	20	25.6	26.5	128	132	60-140	3	
cis-1,3-Dichloropropene	ug/L	ND	20	20	25.9	26.7	129	133	60-140	3	
Dibromochloromethane	ug/L	ND	20	20	25.0	27.2	125	136	60-140	8	
Dibromomethane	ug/L	ND	20	20	22.8	22.6	114	113	60-140	1	
Dichlorodifluoromethane	ug/L	ND	20	20	20.0	21.6	100	108	60-140	7	
Diisopropyl ether	ug/L	ND	20	20	26.0	27.8	130	139	60-140	7	
Ethylbenzene	ug/L	ND	20	20	25.9	27.1	130	135	60-140	4	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	24.2	25.6	121	128	60-140	6	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	24.7	25.1	123	126	60-140	2	
m&p-Xylene	ug/L	ND	40	40	49.8	52.5	124	131	60-140	5	
Methyl-tert-butyl ether	ug/L	1.9	20	20	28.7	29.3	134	137	60-140	2	
Methylene Chloride	ug/L	ND	20	20	28.1	30.0	141	150	60-140	7	M0
n-Butylbenzene	ug/L	ND	20	20	25.5	26.5	127	133	60-140	4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 995346 995347

Parameter	Units	92161461003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
n-Propylbenzene	ug/L	ND	20	20	24.9	26.6	124	132	60-140	7	
Naphthalene	ug/L	ND	20	20	24.3	26.4	118	129	60-140	8	
o-Xylene	ug/L	ND	20	20	24.3	25.0	121	125	60-140	3	
sec-Butylbenzene	ug/L	ND	20	20	24.2	25.4	120	126	60-140	5	
Styrene	ug/L	ND	20	20	25.1	25.6	126	128	60-140	2	
tert-Butylbenzene	ug/L	ND	20	20	23.9	26.1	119	131	60-140	9	
Tetrachloroethene	ug/L	ND	20	20	25.6	27.6	126	136	60-140	8	
Toluene	ug/L	ND	20	20	23.2	24.4	116	122	60-140	5	
trans-1,2-Dichloroethene	ug/L	ND	20	20	25.7	28.0	128	140	60-140	9	
trans-1,3-Dichloropropene	ug/L	ND	20	20	26.7	29.0	133	145	60-140	8	M0
Trichloroethene	ug/L	ND	20	20	24.2	26.2	121	131	60-140	8	
Trichlorofluoromethane	ug/L	ND	20	20	25.9	26.9	130	134	60-140	4	
Vinyl chloride	ug/L	ND	20	20	25.2	28.4	126	142	60-140	12	M0
1,2-Dichloroethane-d4 (S)	%						99	99	70-130		
4-Bromofluorobenzene (S)	%						100	98	70-130		
Dibromofluoromethane (S)	%						100	99	70-130		
Toluene-d8 (S)	%						96	98	70-130		

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QUALITY CONTROL DATA

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

QC Batch: OEXT/22536
QC Batch Method: EPA 3546
Analysis Method: EPA 8015 Modified
Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92161351002

METHOD BLANK: 990888 Matrix: Solid
Associated Lab Samples: 92161351002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Components	mg/kg	ND	5.0	06/12/13 12:13	
n-Pentacosane (S)	%	94	41-119	06/12/13 12:13	

LABORATORY CONTROL SAMPLE: 990889

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Components	mg/kg	66.7	53.5	80	49-113	
n-Pentacosane (S)	%			82	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 990890 990891

Parameter	Units	92161133002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Components	mg/kg	ND	77.3	77.3	66.9	58.5	84	73	10-146	13	
n-Pentacosane (S)	%						101	87	41-119		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

QC Batch: PMST/5600
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92161351002

SAMPLE DUPLICATE: 991747

Parameter	Units	92161026001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	21.4	20.5	5	

SAMPLE DUPLICATE: 991748

Parameter	Units	92161351002 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	17.6	17.1	3	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

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.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

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.

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

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

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

CU	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: R-2603 Parcel 74 36001.1.2
Pace Project No.: 92161351

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92161351002	**74-1 (7.5')**	EPA 3546	OEXT/22536	EPA 8015 Modified	GCSV/14847
92161351002	**74-1 (7.5')**	EPA 5035A/5030B	GCV/6988	EPA 8015 Modified	GCV/6990
92161351001	**74-2 (TW)**	SM 6200B	MSV/23350		
92161351002	**74-1 (7.5')**	ASTM D2974-87	PMST/5600		

Pace Analytical	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document Number: F-CHR-CS-03-rev.11	Issuing Authority: Pace Huntersville Quality Office

Client Name: Pyramid

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1102 T1301 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Temp Correction Factor **T1102**: No Correction **T1301**: No Correction

Corrected Cooler Temp.: 1.4 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C **Comments:**

Date and Initials of person examining contents: MCOR

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8. only one plug w/ methanol in it / rest w/ just soil.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix:_____		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☐Yes ☑No ☐N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution: Sample was preserved with methanol upon receipt.

SCURF Review: JD **Date:** 6/12/13

SRF Review: JD **Date:** 6/13/13

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)

WO#: 92161351

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

1667303

Section A Required Client Information:

Company: Pyramid Environmental
Address: 503 Industrial Ave. Greensboro, N.C.
Email To: Tim@PyramidEnvironmental.com
Phone: 336-335-3174 Fax:
Requested Due Date/TAT: Normal

Section B Required Project Information:

Report To: Tim Leatherman
Copy To: Pyramid
Purchase Order No.: WBS 36001.1.2
Project Name: NCDOT R-2603 Parcel 74
Project Number: WBS 36001.1.2

Section C Invoice Information:

Attention:
Company Name: NCDOT
Address:
Pace Quote Reference: WBS 36001.1.2 NCDOT
Pace Project Manager: Kevin Godwin
Pace Profile #: 5900-1, 2

REGULATORY AGENCY

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

Site Location STATE: NC

Section D Required Client Information

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N: 6200 B	DRO (3550)	GRO (5035)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	74-2 (TW)	WT	G			6/10/13	1445		4			X						X	X	X		9216135 1 001
2																							
3	74-1 (7.5')	SL	G			6/10/13	11:00		4	X						X		X	X			002
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PARCEL # 74	Ryan Kramer/Pyramid	6/12/13	08:00		6/12/13	11:30	1.4	Y	N	Y
		6/12/13	15:42	Fed Ex Pace	6/12/13	1542				

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Ryan Kramer
SIGNATURE of SAMPLER: Ryan Kramer
DATE Signed (MM/DD/YY): 6/12/13

*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.

APPENDIX F

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Eric Cross, Ryan Kramer **Date:** 5/22/13 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross & R. Kramer:
On site: 8AM
Mobilize to site. Performed geophysical surveys using EM61 magnetometer and/or GPR.
Performed geophysical data analysis/processing in field and in evening.
Leave site: 6PM
Associated mileage – 84 miles

T. Leatherman:
Travel to Soil & Water offices in Wilkesboro, NC to review maps/aerials
Hours associated with trip - 7
Associated mileage – 191 miles

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Eric Cross, Ryan Kramer, Tim Leatherman **Date:** 5/23/13 **Mon Tue Wed Th Fri Sat**

TASKS PERFORMED:

E. Cross & R. Kramer
On site: 8AM
Performed geophysical surveys using EM61 magnetometer and/or GPR. Performed geophysical data analysis/processing in field and in evening.
Leave site: 6PM

T. Leatherman
Site Reconnaissance
Hours associated with recon – 7
Mileage for recon – 185

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Eric Cross, Ryan Kramer **Date:** 5/24/13 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

On site: 8AM
Performed geophysical surveys using EM61 magnetometer and/or GPR. Performed geophysical data analysis/processing in field and in evening.
Leave site: 6PM

Demobilization Mileage - 150

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Eric Cross, Time Leatherman **Date:** 6/3/13 **Mon** **Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross
On site: 8AM
Mobilize to site. Performed geophysical surveys using EM61 magnetometer and/or GPR.
Performed geophysical data analysis/processing in field and in evening.
Leave site: 6PM
Mobilization mileage – 150 miles

T. Leatherman
Mobilize to site, assist with geophysics.
Hours – 5
Mileage for mobilization/demobilization – 203

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Eric Cross, Time Leatherman **Date:** 6/4/13 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross & T. Leatherman
On site: 8AM
Performed geophysical surveys using EM61 magnetometer and/or GPR. Performed geophysical data analysis/processing in field. Investigated proposed boring locations. Supervised utility locating.
Leave site: 4PM

E. Cross demobilization mileage: 150

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Tim Leatherman **Date:** 6/7/13 **MonTue Wed Th Fri Sat Sun**

TASKS PERFORMED:

Travel to NCDENR Regional Office to perform file review
Hours associated with file review – 4.75
Mileage to travel to regional office – 58

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Tim Leatherman, Ryan Kramer **Date:** 6/10/13 **Mon** **Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

Mobilize to job site from Greensboro. Performed geoprobe boring supervision, soil and groundwater sampling, QED analysis. Hours for personnel vary, see timesheets.

Mileage associated with mobilization/demobilization for all vehicles, week of June 10th = 542

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Tim Leatherman, Ryan Kramer **Date:** 6/11/13 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

Performed geoprobe boring supervision, soil and groundwater sampling, QED analysis. Hours for personnel vary, see timesheets.

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Tim Leatherman, Ryan Kramer, Brett Higgins **Date:** 6/12/13 **Mon Tue Wed Th Fri**

TASKS PERFORMED:

Performed geoprobe boring supervision, soil and groundwater sampling, QED analysis. Hours for personnel vary, see timesheets.

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Tim Leatherman, Brett Higgins **Date:** 6/13/13 **Mon Tue Wed Th Fri**

TASKS PERFORMED:

Performed geoprobe boring supervision, soil and groundwater sampling, QED analysis. Travel to Greensboro from job site. Hours for personnel vary, see timesheets.