PRELIMINARY SITE ASSESSMENT

PARCEL 102, BRUCE EVANS
2659 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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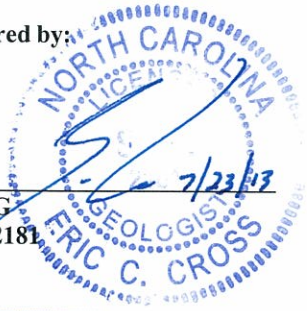

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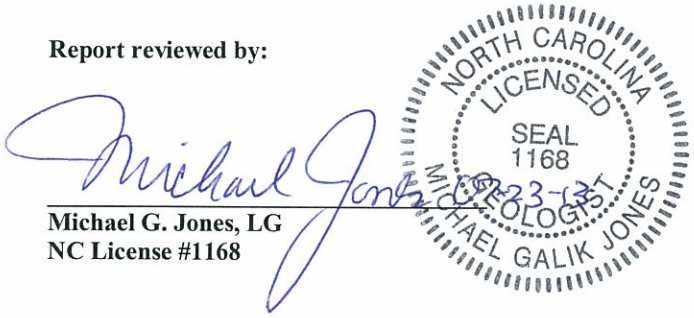

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C-257 –Geology
C-1251 - Engineering

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PARCEL 102, BRUCE EVANS
2659 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 102, Bruce Evans. 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 Bruce Evans property has been developed (contained structures) since at least 1958. The historical aerial photographs appear to show both of the structures that are currently present at the parcel.

  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 6th, Ms. Kromm responded to the email and stated that no incidents are recorded for the Bruce Evans property.

- **Geophysical Survey:** The geophysical investigation suggests that two probable metallic USTs are located within the proposed ROW and/or easement. Global positioning system (GPS) coordinates were taken at the center of each probable UST in North Carolina State Plane, US Survey Feet (1382102.708E, 898298.842N and 1382082.892E, 898299.653N).

- **Limited Soil Assessment:** A total of six 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 soil samples 102-5(5) and 102-6(10) did not detect TPH gasoline range organics (GRO) or diesel range organics (DRO) concentrations above detection limits. Soil samples 102-2(10) and 102-

3(7.5) detected TPH-DRO concentration above detection limits, but below 10 milligrams-per-kilogram (mg/kg). The QED results for soil sample 102-1(10) detected TPH-DRO at 12.6 mg/kg. The QED results for soil sample 102-1(12.5) detected TPH-GRO at 26.2 mg/kg and TPH-DRO at 20.7 mg/kg. The QED results for soil sample 102-4(5) detected TPH-DRO at 40 mg/kg. A duplicate of soil sample 102-1(12.5) was shipped to Pace Analytical for laboratory analysis. The laboratory results for soil sample 102-1(12.5) detected a concentration of DRO at 54.2 mg/kg and GRO of 105 mg/kg. It should be noted that these concentrations were higher than the concentrations generated by the QED analysis. To maintain consistency, the QED results are utilized in this report to determine the presence and level of potential contamination.

- **Limited Groundwater Assessment:** The depth to groundwater at boring 102-1(TW) on the Bruce Evans property was approximately 15.5 feet below land surface (BLS). One groundwater sample was obtained for laboratory analysis. The laboratory results detected Benzene at 685 ug/L, Ethylbenzene at 2,200 micrograms-per-liter (µg/L), Naphthalene at 419 µg/L, Toluene at 6,190 µg/L, Total Xylenes at 10,120 µg/L, n-Propylbenzene at 252 µg/L, 1,2,4-Trimethylbenzene at 1,590 µg/L, and 1,3,5-Trimethylbenzene at 492 µg/L. No other compounds were detected above laboratory detection limits in the groundwater sample.

- **Contaminated Soil Volumes:** Soils with GRO or DRO above detection limits but below 10 mg/kg were observed at the location of borings 102-2 and 102-3. Pyramid reviewed the NCDOT Microstation computer-aided design and drafting (CADD) files to determine proposed excavation/earthwork plans at the locations of the impacted soils. The NCDOT Microstation cross section file that was the closest to borings 102-2 and 102-3 (Cross Section -L- Sta. 182+00.00) indicates that the NCDOT plans minimal to no excavation at this location. Conservatively, Pyramid has calculated volumes of impacted soil based on 1 and 10 feet of excavation below the ground surface at the location of borings 102-2 and 102-3. Pyramid's PSA investigation resulted in an estimated area of **578 square feet of impacted soil in the vicinity of borings 102-2 and 102-3**. **A 1-foot excavation depth results in an approximate volume of 578 cubic feet, or 21 cubic yards of impacted soils at the location of borings 102-2 and 102-3.** A more conservative estimate using an excavation depth of 10 feet below the ground surface results in approximately **5,780 cubic feet, or 214 cubic yards of impacted soil between 0 to 10 feet** at the location of 102-2 and 102-3.

  Soils with GRO or DRO above 10mg/kg were observed at the location of borings 102-1 and 102-4. The NCDOT Microstation cross section file that was closest to borings 102-1 and 102-4 (Cross Section -L- Sta. 181+50.00) indicates NCDOT plans minimal to no excavation at this location. Conservatively, Pyramid has calculated volumes of impacted soil based on 1 and 12.5 feet of excavation below the ground surface at the location of borings 102-1 and 102-4. Pyramid's PSA investigation resulted in an estimated area of **2,500 square feet of impacted soil**

in the vicinity of borings 102-1 and 102-4. A 1-foot excavation depth results in an approximate volume of 2,500 cubic feet, or 93 cubic yards of impacted soils at the location of borings 102-1 and 102-4. A more conservative estimate using an excavation depth of 12.5 feet below the ground surface results in approximately **31,250 cubic feet, or 1,157 cubic yards of impacted soil between 0 to 12.5 feet at the location of 102-1 and 102-4**. The estimates of soil volumes above are based on applying conservative areas of contaminated soil surrounding the location of each boring. Due to the limited amount of soil data collected at this time, more refined areas were not assessed.

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 Bruce Evans. The Bruce Evans property is currently operating as a Sweepstakes facility, located at 2659 Elkin Highway (NC 268) in North Wilkesboro, NC. 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 purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils at the subject properties between the proposed easement/proposed right of way and the existing right of way/edge of pavement (State Project R-2603). The location of the subject site is shown on **Figure 1**, and the parcel boundaries and owner information and shown in **Figure 2**.

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 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 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, interviewed property owners, 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 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 Bruce Evans property has been developed (contained structures) since at least 1958. All of the historical aerial photographs appear to show both of the structures that are currently present at the parcel.

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 6th, Ms. Kromm responded to the email and stated that no incidents are recorded for the Bruce Evans property.

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 reinforced concrete or cultural features, however, two anomalies were characteristic of USTs.

The GPR surveys performed across the anomalies in front of the Sweepstakes building provided evidence of two probable metallic USTs at that location. Global positioning system (GPS) coordinates were taken at the center of each probable UST in North Carolina State Plane, US Survey Feet (**1382102.708E, 898298.842N and 1382082.892E, 898299.653N**). The remaining unknown anomalies were attributed to buried debris.

The geophysical investigation suggests that two probable metallic USTs are located 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 12, 2013, Pyramid mobilized to the site and drilled soil borings, installed one temporary monitoring well, and collected the proposed soil samples and groundwater sample for the PSA. The soil borings and temporary well were completed using a track mounted Geoprobe® Direct-Push rig and hand-auger. Six (6) soil borings (102-1, 102-2, 102-3, 102-4, 102-5, and 102-6) 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 Airport Road, and private utilities associated with the business while remaining in the proposed right of way area. Soil borings 102-1 and 102-2 was installed directly adjacent to the two probable USTs identified by the geophysical survey. Borings 102-3, 102-4, and 102-6 were installed in the area surrounding the probable USTs, both up- and down-gradient, to analyze potentially impacted soils. Boring 102-5 was installed in the northeast portion of the parcel to obtain soil data to the north of the main building. The locations of the borings are shown on **Figure 3**.

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**. In order 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 analyses. The soil samples selected for 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 soil samples 102-5(5) and 102-6(10) did not detect TPH-GRO or TPH-DRO concentrations above detection limits. Soil samples 102-2(10) and 102-3(7.5) detected TPH-DRO concentration above detection limits, but below 10 mg/kg. The QED results for soil sample 102-1(10) detected TPH-DRO at 12.6 mg/kg. The QED results for soil sample 102-1(12.5) detected TPH-GRO at 26.2 mg/kg and TPH-DRO at 20.7 mg/kg. The QED results for soil sample 102-4(5) detected TPH-DRO at 40 mg/kg. The NCDENR action levels for TPH-GRO and TPH-DRO is 10 mg/kg. 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 102-1(12.5) was shipped to Pace Analytical for laboratory analysis. The laboratory results for soil sample 102-1(12.5) detected a concentration of DRO at 54.2 mg/kg and GRO of 105 mg/kg. The NCDENR action levels for TPH-GRO and TPH-DRO is 10 mg/kg. It should be noted that these concentrations were higher than the concentrations generated by the QED analysis. To maintain consistency, the QED results are utilized in this report to determine the presence and level of potential contamination.

The soil sample laboratory results are summarized in **Table 2**, and a copy of the laboratory report and chain-of-custody form is included in **Appendix E**.

4.3 Temporary Monitoring Well Installation

On June 12, 2013, Pyramid converted soil boring 102-1 into a 1-inch diameter temporary monitoring well. Soil boring 102-1(TW) was completed to a total depth of 25 feet below land surface (BLS). The temporary well at 102-1 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 13, 2013, the temporary monitoring well 102-1(TW) was gauged using a properly decontaminated electric water level probe. The depth-to-groundwater was gauged to be at 15.5 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 well screen, and filling the borehole with bentonite chips and portland cement.

4.4 Groundwater Analytical Results

The groundwater sample 102-1(TW) was placed in laboratory prepared containers for analysis of volatile organic compounds (VOCs) by EPA Method 6200B, and the samples

were shipped to Pace Analytical in Huntersville, NC. The laboratory results detected Benzene at 685 ug/L, Ethylbenzene at 2,200 micrograms-per-liter (µg/L), Naphthalene at 419 µg/L, Toluene at 6,190 µg/L, Total Xylenes at 10,120 µg/L, n-Propylbenzene at 252 µg/L, 1,2,4-Trimethylbenzene at 1,590 µg/L, and 1,3,5-Trimethylbenzene at 492 µg/L. No other compounds were detected above laboratory detection limits in the groundwater sample. The groundwater results for sample 102-1(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 Bruce Evans property located 2659 Elkin Highway, North Wilkesboro, NC. The following is a summary of the assessment activities and results.

5.1 Geophysical Investigation

The geophysical investigation suggests that two probable metallic USTs are located within the proposed ROW and/or easement. GPS coordinates were taken at the center of the probable USTs in North Carolina State Plane, US Survey Feet (**1382102.708E, 898298.842N and 1382082.892E, 898299.653N**).

5.2 Limited Soil Assessment

The QED results for soil sample 102-1(10) detected TPH-DRO at 12.6 mg/kg. The QED results for soil sample 102-1(12.5) detected TPH-GRO at 26.2 mg/kg and TPH-DRO at 20.7 mg/kg. The QED results for soil sample 102-4(5) detected TPH-DRO at 40 mg/kg. The QED results for the remaining soil samples for Parcel 102 were below detection limits.

5.3 Limited Groundwater Assessment

Soil boring 102-1 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 15.5 feet bls. The laboratory results detected Benzene at 685 ug/L, Ethylbenzene at 2,200 micrograms-per-liter (µg/L), Naphthalene at 419 µg/L, Toluene at 6,190 µg/L, Total Xylenes at 10,120 µg/L, n-Propylbenzene at 252 µg/L, 1,2,4-Trimethylbenzene at 1,590 µg/L, and 1,3,5-Trimethylbenzene at 492 µg/L. No other compounds were detected above laboratory detection limits in the groundwater sample.

5.4 Recommendations

During road construction activities, it is possible the NCDOT may encounter petroleum impacted soil near soil borings 102-1, 102-2, 102-3, and 102-4. It is likely that the sources of this petroleum contamination are from the two probable USTs identified by the geophysical survey.

Soils with GRO or DRO above detection limits but below 10 mg/kg were observed at the location of borings 102-2 and 102-3. Pyramid reviewed the NCDOT Microstation CADD files to determine proposed excavation/earthwork plans at the locations of the impacted soils. The NCDOT Microstation cross section file that was the closest to borings 102-2 and 102-3 (Cross Section -L- Sta. 182+00.00) indicates that the NCDOT plans minimal to no excavation at this location. . Conservatively, Pyramid has calculated volumes of impacted soil based on 1 and 10 feet of excavation below the ground surface at the location of borings 102-2 and 102-3. Pyramid's PSA investigation resulted in an estimated area of 578 square feet of impacted soil in the vicinity of borings 102-2 and 102-3. A 1-foot excavation depth results in an approximate volume of 578 cubic feet, or 21 cubic yards of impacted soils at the location of borings 102-2 and 102-3. A more conservative estimate using an excavation depth of 10 feet below the ground surface results in approximately 5,780 cubic feet, or 214 cubic yards of impacted soil between 0 to 10 feet at the location of 102-2 and 102-3.

Soils with GRO or DRO above 10 mg/kg were observed at the location of borings 102-1 and 102-4. The NCDOT Microstation cross section file that was closest to borings 102-1 and 102-4 (Cross Section -L- Sta. 181+50.00) indicates NCDOT plans minimal to no excavation at this location. Conservatively, Pyramid has calculated volumes of impacted soil based on 1 and 12.5 feet of excavation below the ground surface at the location of borings 102-1 and 102-4. Pyramid's PSA investigation resulted in an estimated area of 2,500 square feet of impacted soil in the vicinity of borings 102-1 and 102-4. A 1-foot excavation depth results in an approximate volume of 2,500 cubic feet, or 93 cubic yards of impacted soils at the location of borings 102-1 and 102-4. A more conservative estimate using an excavation depth of 12.5 feet below the ground surface results in approximately 31,250 cubic feet, or 1,157 cubic yards of impacted soil between 0 to 12.5 feet at the location of 102-1 and 102-4. The estimates of soil volumes above are based on applying conservative areas of contaminated soil surrounding the location of each boring. Due to the limited amount of soil data collected at this time, more refined areas were not assessed.

If impacted soil is removed at the location of these soil borings, the impacted soil should be managed according to NC DENR Division of Waste Management (DWM) UST Section Guidelines and the soil should be 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 Preliminary Site Assessment was performed.

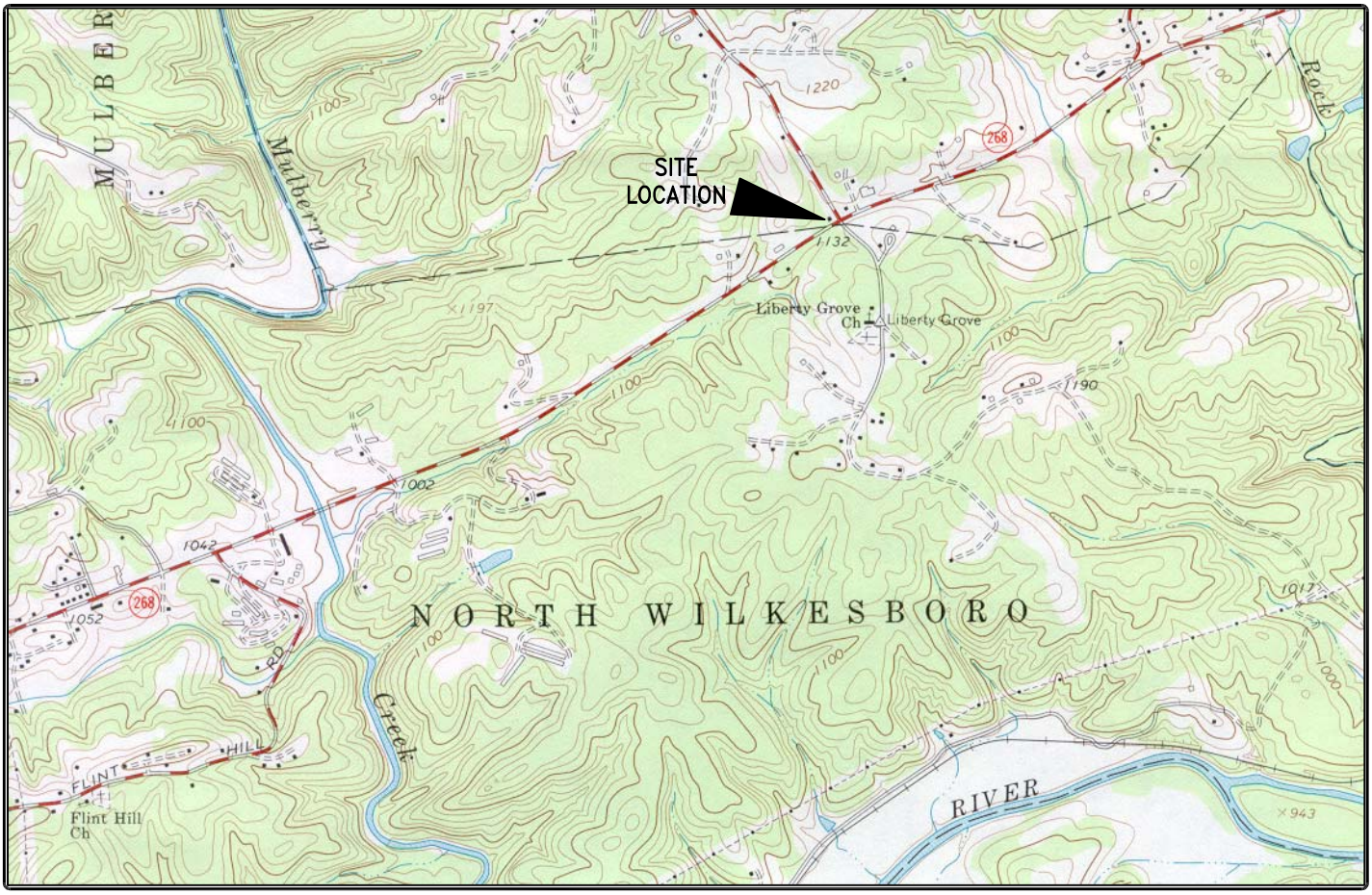
7.0 Closure

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: 2659 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

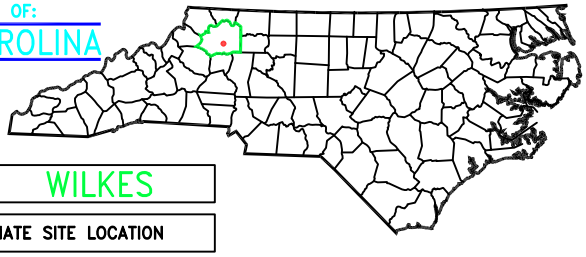
FEET: 1000 0 2000 4000 6000

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 102, BRUCE EVANS

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

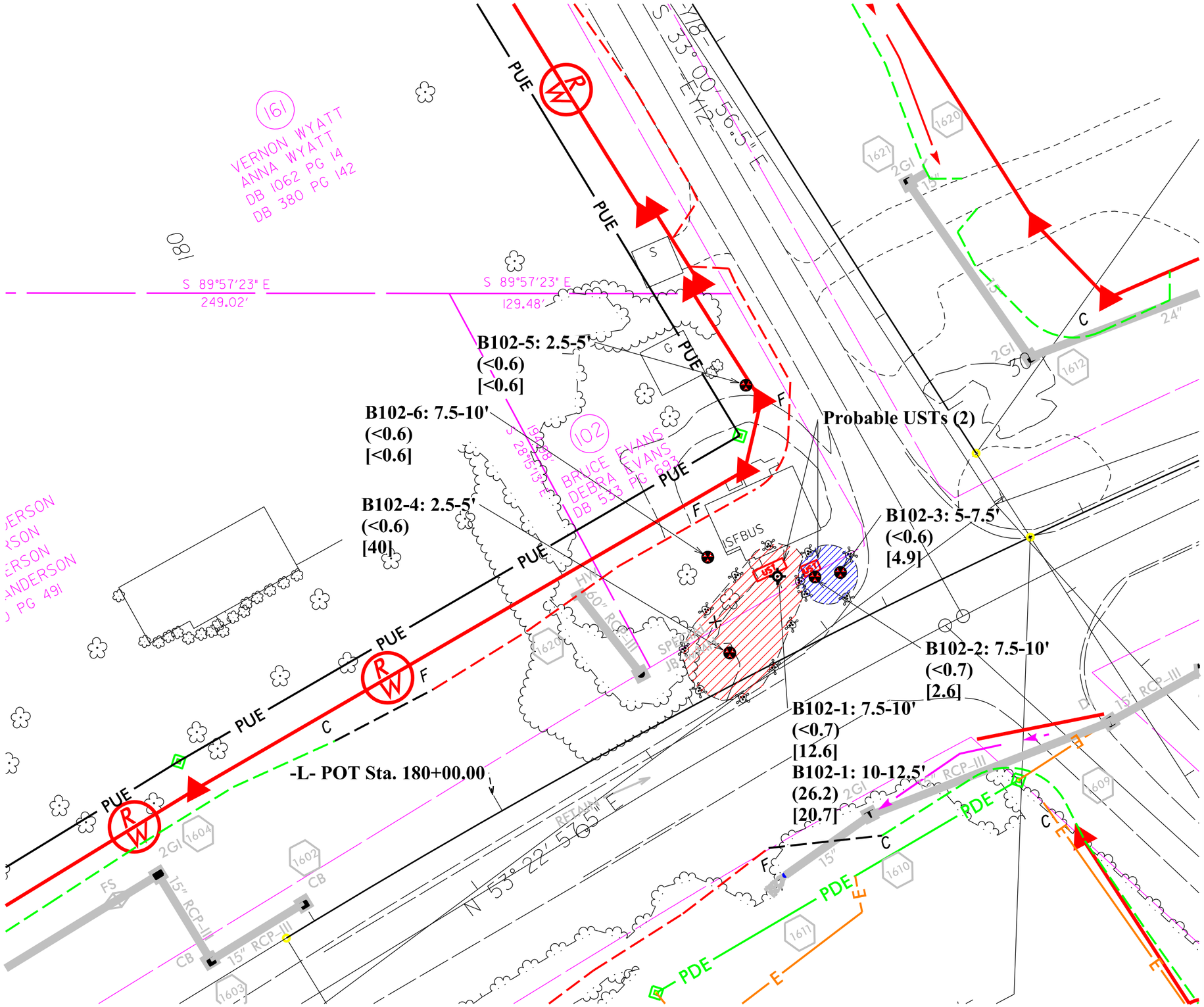
TYPE: PSA

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
- AREA OF CONTAMINATION (>BDL, <10 PPM)
- AREA OF CONTAMINATION (>10 PPM)
- UST — PROBABLE UST

(<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 25 50
FEET

TITLE
SOIL BORING LOCATIONS AND ESTIMATED AREA OF CONTAMINATION

PROJECT
NCDOT ROW PROJECT R-2603 (36001.1.2)
Bruce Evans - PARCEL 102
NC 268, WILKES COUNTY, NORTH CAROLINA

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

TABLES

TABLE 1

Summary of Soil Field Screening Results

NCDOT Project R-2603
2659 Elkin Highway (NC268) - Parcel 102
North Wilkesboro, Wilkes County, North Carolina

SOIL BORING	SAMPLE ID	DEPTH (feet bgs)	OVA/FID READINGS (PPM)
102-1	102-1(0-2.5)	0 to 2.5	0.0
	102-1(5-7.5)	2.5 to 5	1.0
	102-1(7.5-10)	5 to 7.5	1.0
	102-1(10-12.5)	10 to 12.5	400
Water Table	102-1(12.5-15)	12.5 to 15	200
Water Table	102-1(18-20)	18 to 20	>1000
Water Table	102-1(23-25)	23 to 25	800
102-2	102-2(2.5-5)	2.5 to 5	1.0
	102-2(7.5-10)	7.5 to 10	6.0
102-3	102-3(2.5-5)	2.5 to 5	0.5
	102-3(5-7.5)	5 to 7.5	0.5
	102-3(7.5-10)	7.5 to 10	0.5
102-4	102-4(2.5-5)	2.5 to 5	1.0
	102-4(7.5-10)	7.5 to 10	1.0
102-5	102-5(2.5-5)	2.5 to 5	1.5
	102-5(5-7.5)	5 to 7.5	1.0
	102-5(7.5-10)	7.5 to 10	1.5
102-6	102-6(0-5)	0 to 2.5	0.5
	102-6(7.5-10)	7.5 to 10	1.0

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

2659 Elkin Highway (NC 268) - Parcel 102

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)**
102-1(7.5-10)	6/12/2013	7.5 to 10	1.0	<0.7	**12.6**	12.6	------	------
102-1(10-12.5)	6/12/2013	10 to 12.5	400.0	**26.2**	**20.7**	46.9	**54.2**	**105**
102-2(7.5-10)	6/12/2013	7.5 to 10	6.0	<0.7	2.6	2.6	------	------
102-3(5-7.5)	6/12/2013	5 to 7.5	0.5	<0.6	4.9	4.9	------	------
102-4(2.5-5)	6/12/2013	2.5 to 5	1.0	<0.6	**40**	40	------	------
102-5(2.5-5)	6/12/2013	2.5 to 5	1.5	<0.6	<0.6	<0.6	------	------
102-6(7.5-10)	6/12/2013	7.5 to 10	1.0	<0.6	<0.6	<0.6	------	------
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
2659 Elkin Highway (NC 268) - Parcel 102
North Wilkesboro, Wilkes County, North Carolina

PARAMETER	UNITS	SAMPLE ID 102-1(TW)	NCAC 2L GROUNDWATER STANDARD
EPA Method 6200B; Sample Collection Date: 6/13/13			
Benzene	ug/L	**685**	1
Chloroform	ug/L	ND	70
Diisopropyl Ether (IPE)	ug/L	ND	70
Ethyl Benzene	ug/L	**2200**	600
Isopropylbenzene (Cumene)	ug/L	ND	70
Naphthalene	ug/L	**419**	6
Styrene	ug/L	ND	70
Toluene	ug/L	**6190**	600
Total Xylenes	ug/L	**10120**	500
n-Propylbenzene	ug/L	**252**	70
sec-Butylbenzene	ug/L	ND	70
tert-Butyl methyl ether (MTBE)	ug/L	ND	20
tert-Butylbenzene	ug/L	ND	70
1,2,4-Trimethylbenzene	ug/L	**1590**	400
1,2-Dichloroethane	ug/L	ND	0.4
1,3,5-Trimethylbenzene	ug/L	**492**	400
4-Isopropyltoluene	ug/L	ND	25
All Other Parameters	ug/L	ND	NA

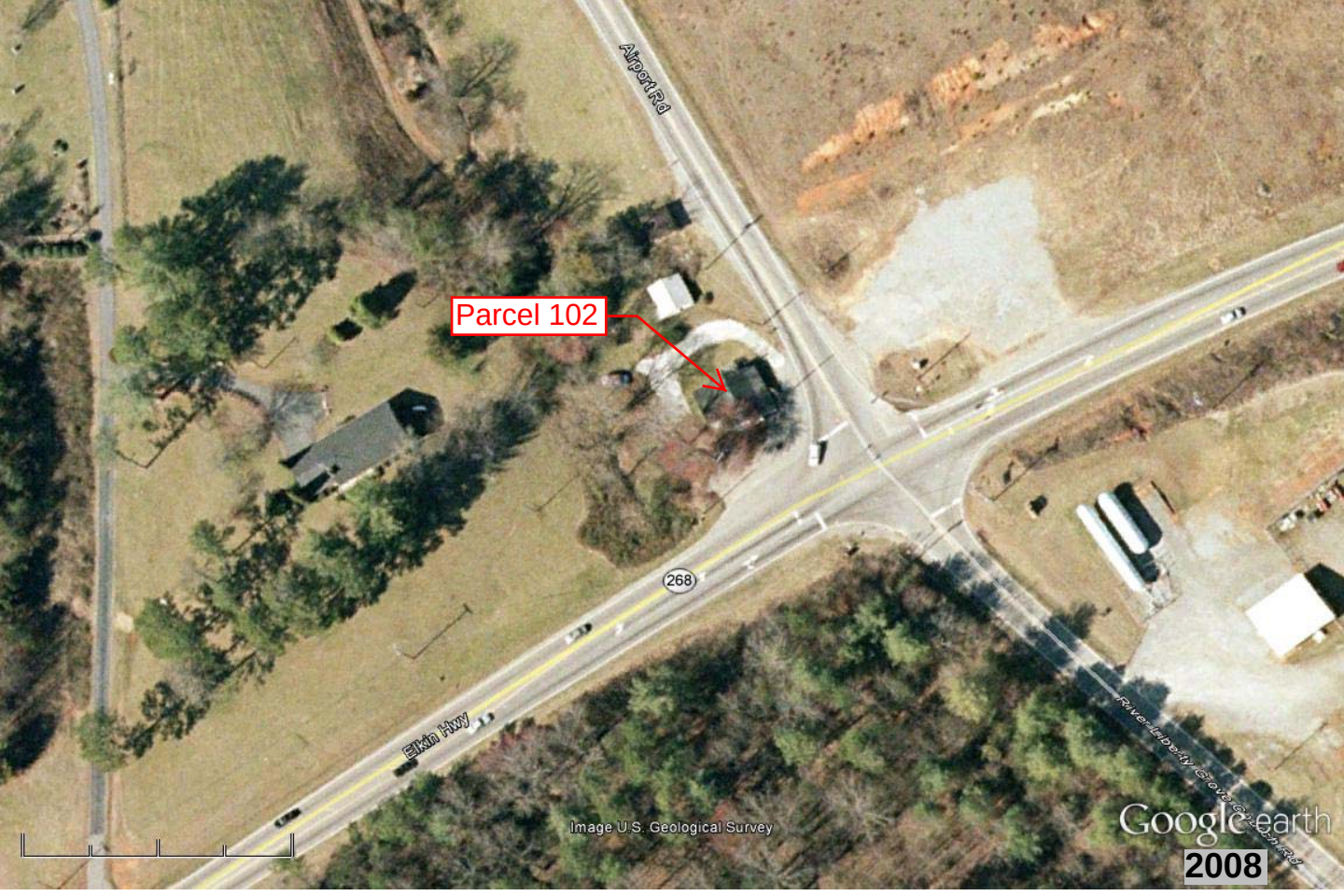
ug/L= micrograms-per-liter
ND= Not Detected
NA= Not Applicable

APPENDIX A

Google earth

feet 800

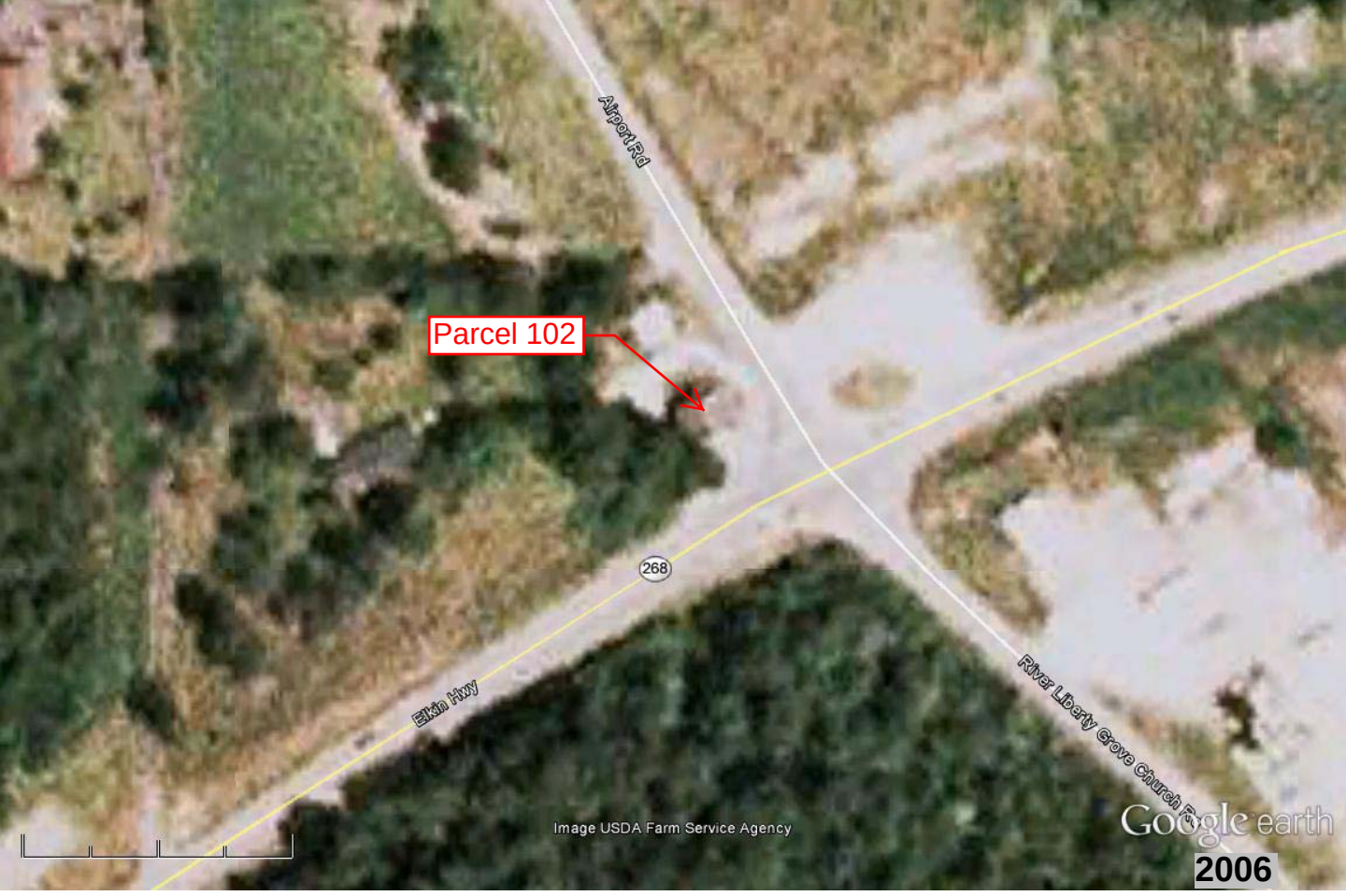
meters 200



Google earth

feet 800

meters 200



Google earth

feet 800

meters 200

Google earth

feet 800

meters 200


Parcel 102
1966


Parcel 102
1958

APPENDIX B

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

PYRAMID ENVIRONMENTAL & ENGINEERING
(PROJECT 2013-131)

NCDOT PROJECT R-2603 (WBS 36000.1.1)

GEOPHYSICAL SURVEYS OF PARCEL 102 – UNDERGROUND STORAGE TANK INVESTIGATION

NORTH WILKESBORO, WILKES COUNTY, NC

JULY 10, 2013

Report prepared for:

Mr. Gordon Box
GeoEnvironmental Project Manager
GeoEnvironmental Section
Geotechnical Engineering Unit
North Carolina Department of Transportation
1020 Birch Ridge Drive
Raleigh, NC 27610

Prepared by: _____

Eric C. Cross, L.G.
NC License #2181

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503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406
P: 336.335.3174 F: 336.691.0648
C257: GEOLOGY C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
NCDOT PRELIMINARY SITE ASSESSMENT
PARCEL 102 – 2659 ELKIN HIGHWAY
North Wilkesboro, Wilkes County, North Carolina

Table of Contents

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 reinforced concrete or cultural features, however, two anomalies were characteristic of USTs. The GPR surveys performed across the anomalies in front of the Sweepstakes building provided evidence of two probable metallic USTs at that location. GPS coordinates were taken at the center of each probable UST in North Carolina State Plane, US Survey Feet (**1382102.708E, 898298.842N and 1382082.892E, 898299.653N)**.
- The remaining unknown anomalies were attributed to buried debris.
- The geophysical investigation suggests that two probable metallic USTs are located within the proposed ROW and/or easement.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT) at Parcel 102 (Bruce Evans, Sweepstakes Building), located at 2659 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 around the intersection of NC 268 and Airport Road. The survey boundaries extended from Airport Road to the west approximately 125 feet, and from NC 268 to the north approximately 160 feet. Conducted on May 24 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 and grassy open areas, as well as heavily vegetated and steeply sloping woods to the west of the survey boundaries. 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 10-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 24, 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 **Figures 2 and 3,** respectively. 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 EM response surrounding the west and north sides of the Sweepstakes building are the result of reinforcement within the building foundation. The EM anomaly at X=75, Y=25 was the result of a metal sign. The EM anomaly at X=103, Y=15 was the result of a power pole. The EM anomaly at X=105, Y=55 was the result of a metal drum. The anomalies directly to the south of the sweepstakes building were characteristic of possible USTs, ad were investigated further with the GPR. The anomaly at X=60, Y=85 was also investigated further with the GPR. The remaining EM features were minor, low amplitude features that were concluded to likely be the result of isolated metallic debris.

The GPR data were viewed in real time as the equipment was surveyed across the anomalies. Transects across EM anomalies were saved to the hard drive for post-processing in the office. **Figure 4** 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, 3 and 4 were performed across the EM anomalies to the south of the building that were characteristic of metallic USTs. These four transects confirmed the presence of two probable USTs in front of the Sweepstakes building. The probable USTs were labeled Tank A (western tank) and Tank B (eastern tank). Transects 1 and 2 defined Tank A, and Transects 3 and 4 defined Tank B. Tank A was observed to be approximately 15 feet in length (east/west) and 5 feet in width (north/south). Tank B was observed to be approximately 8 feet in length (east/west) and 5 feet in width (north south). Both tanks were approximately 2.5 to 3.0 feet below the ground surface. The approximate outlines of the tanks were marked in the field using white spray paint (shown on **Figure 4**). GPS coordinates were taken at the center of each probable UST in North Carolina State Plane, US Survey Feet:

1. **Location of Probable Tank A (NC State Plane, US Feet): 1382082.892E, 898299.653N**

2. **Location of Probable Tank B (NC State Plane, US Feet): 1382102.708E, 898298.842N**

GPR Transects 5 and 6 were performed from north to south and west to east, respectively, across the EM anomaly at X=60, Y=85. The transects recorded evidence of a feature that was consistent

with an isolated buried object or metallic debris. No evidence of additional USTs was recorded at the property.

The geophysical investigation recorded evidence of two probable metallic USTs within the proposed ROW and/or easement in the accessible areas of the parcel property. It should be noted that the parcel boundaries extended further to the west, outside of the survey grid area. However, this portion of the parcel was heavily wooded and steeply sloped, and not accessible by the geophysical instruments.

SUMMARY & CONCLUSIONS

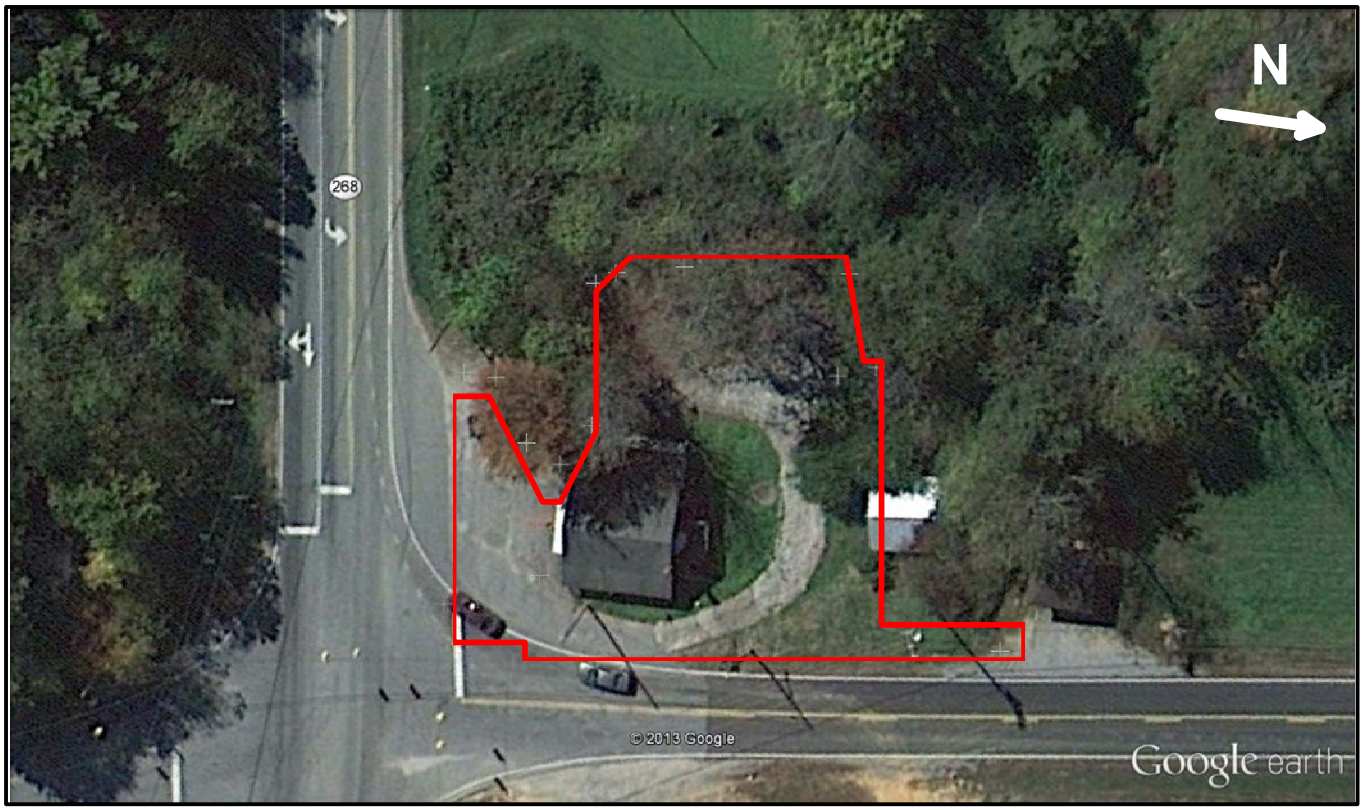
Our evaluation of the EM61 and GPR data collected across Parcel 94, North Wilkesboro, North Carolina provides the following summary and conclusions:

- 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 reinforced concrete or cultural features, however, two anomalies were characteristic of USTs. The GPR surveys performed across the anomalies in front of the Sweepstakes building provided evidence of two probable metallic USTs at that location. GPS coordinates were taken at the center of each probable UST in North Carolina State Plane, US Survey Feet (**1382102.708E, 898298.842N and 1382082.892E, 898299.653N)**.
- The remaining unknown anomalies were attributed to buried debris.
- The geophysical investigation suggests that two probable metallic USTs are located 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 South Portion of Survey Area
(Facing Approximately East)

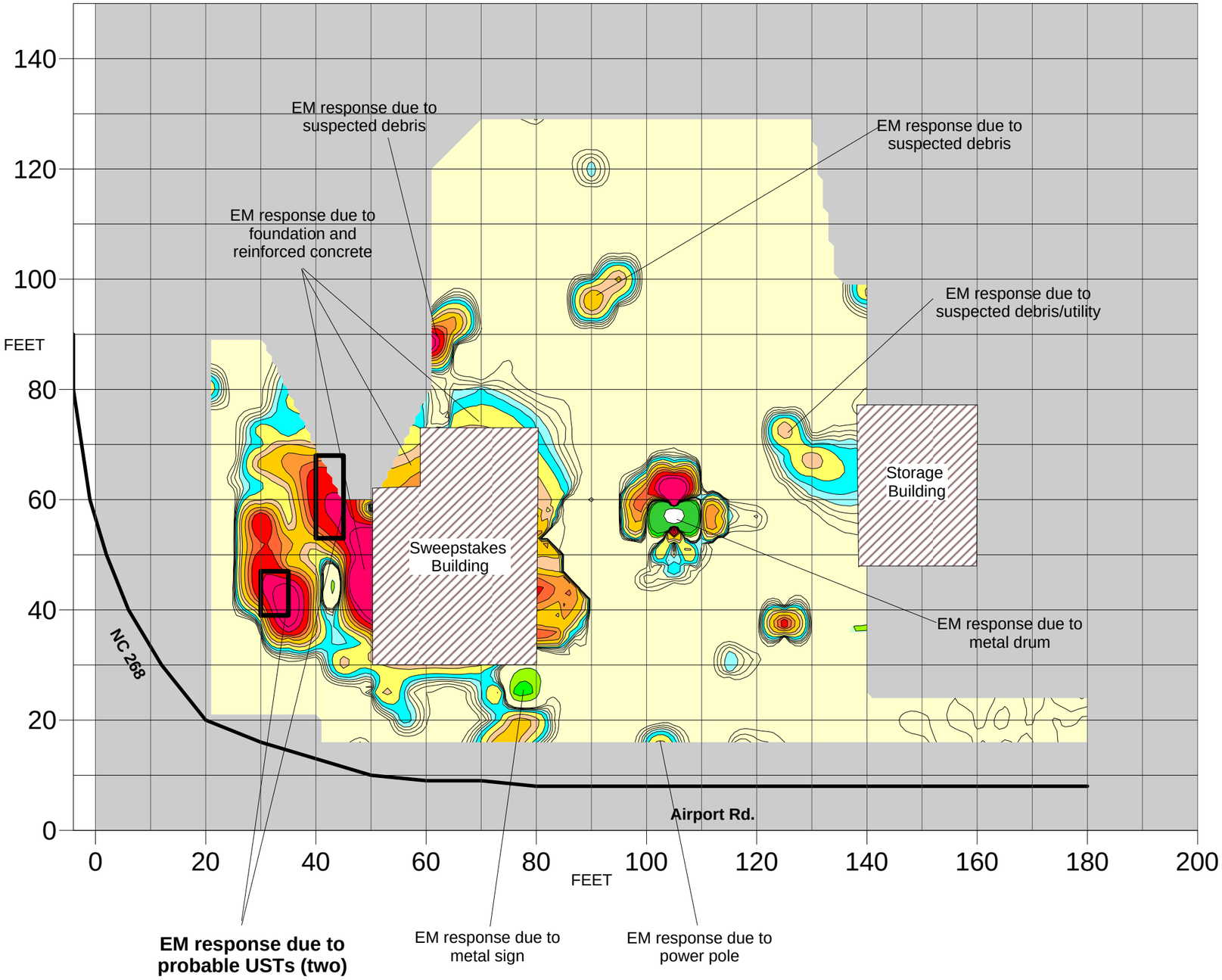
Photograph of East Portion of Survey Area
(Facing Approximately North)

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	NC DEPARTMENT OF TRANSPORTATION		DATE	07/04/13	DRWN ECC
SITE	PARCEL 102, WILKES COUNTY (DOT ROW PROJECT)		LAY		CHKD
CITY	N. WILKESBORO	STATE NORTH CAROLINA	DWG		
TITLE	GEOPHYSICAL RESULTS		JAD	2013-131	FIGURE

GEOPHYSICAL
SURVEY BOUNDARIES &
SITE PHOTOGRAPHS

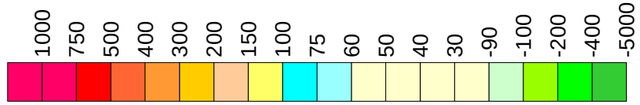
EM61 Bottom Coil Results



EVIDENCE OF TWO PROBABLE 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 24, 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 400MHz antennae.

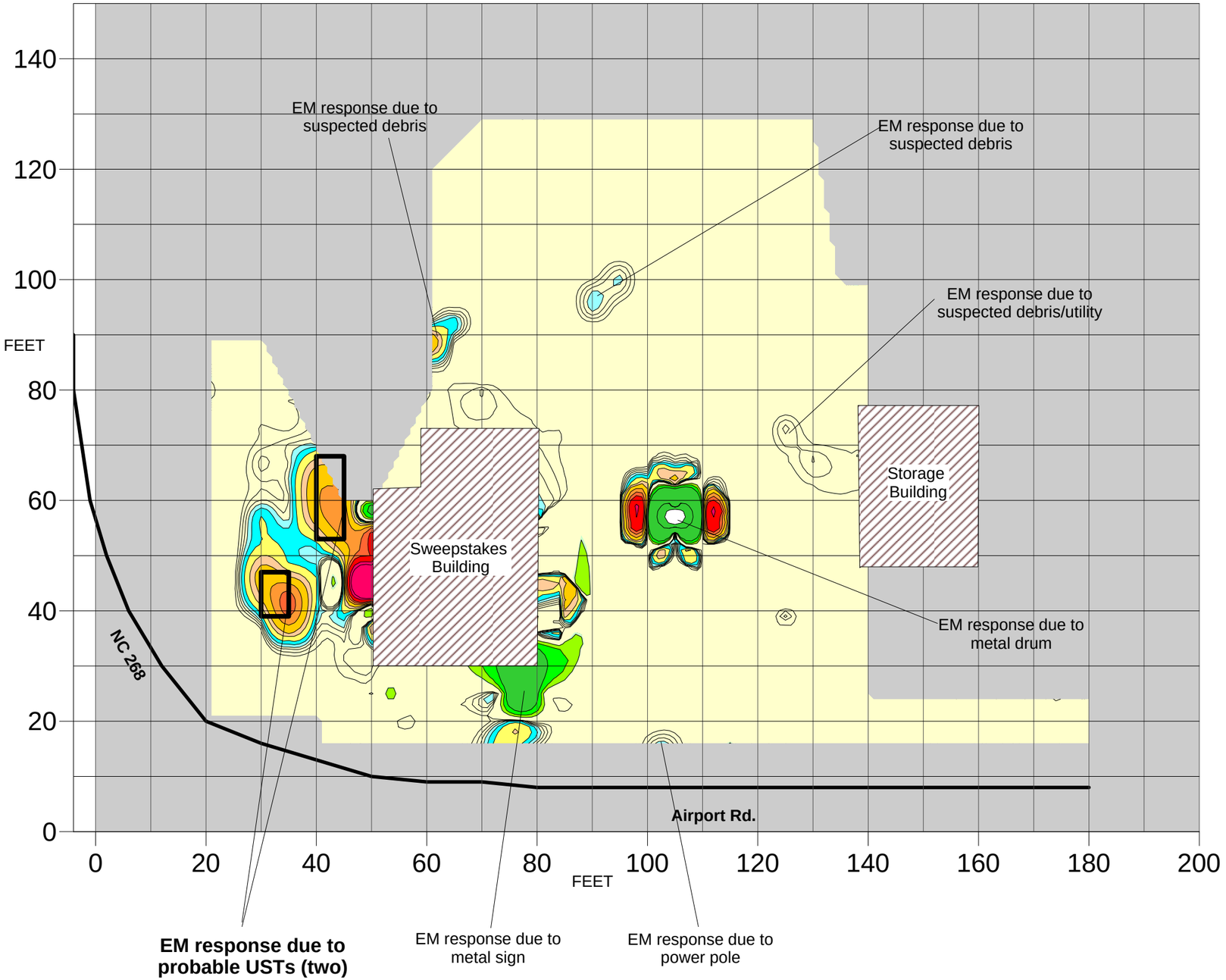
EM61 Metal Detection Response (millivolts)



N

TITLE	PARCEL 102 - EM61 BOTTOM COIL 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**

EM61 Differential Results



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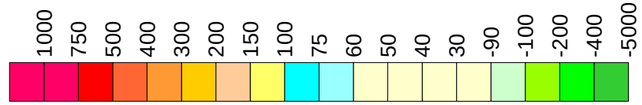
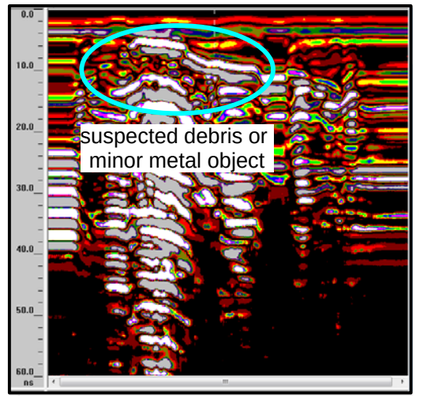
The contour plots show the bottom coil (most sensitive) and differential results of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous buried, metal debris.The EM61 data were collected on May 24, 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 400MHz antennae.

EM61 Metal Detection Response (millivolts)

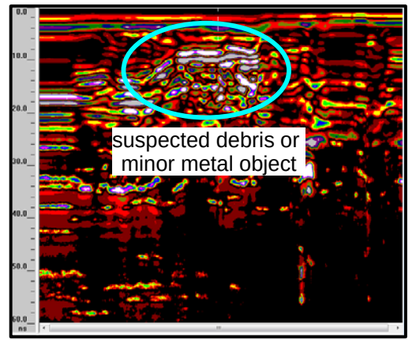


N

TITLE	PARCEL 102 - EM61 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 3**

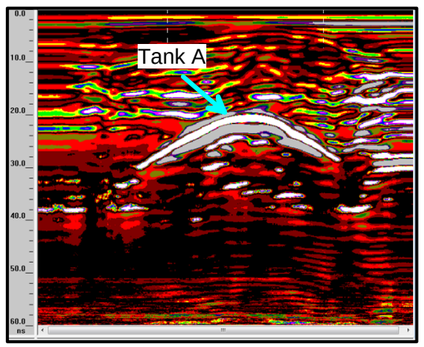


GPR Transect 5

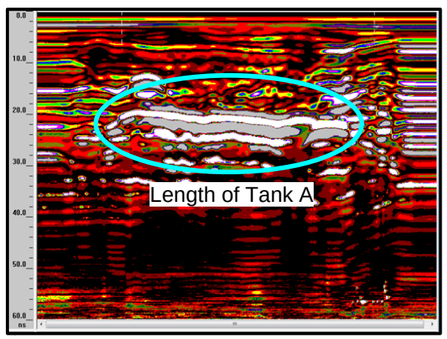


GPR Transect 6

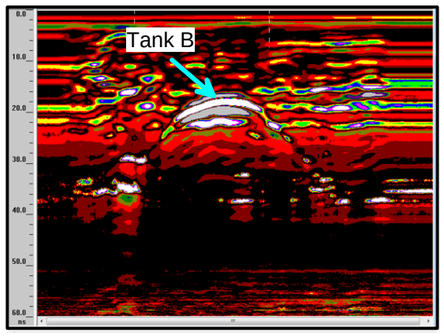
N



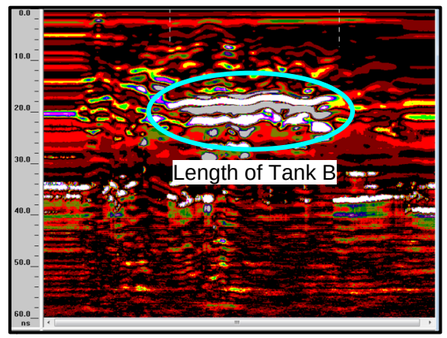
GPR Transect 1



GPR Transect 2



GPR Transect 3



GPR Transect 4

TITLE

PARCEL 102 - 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
GREENSBORO, NC 27460
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

DATE	CLIENT
07/04/2013	NCDOT
PYRAMID PROJECT #: 2013-131	**FIGURE 4**

APPENDIX C

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 102, Bruce Evans, N. Wilkesboro, NC	**BORING/WELL NO:**	102-1(TW)
SITE LOCATION:	2659 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 102, Bruce Evans Property, In-front of Building
START DATE:	6/12/13	**COMPLETED:**	6/12/13
GEOLOGIST:	B. Higgins	**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
	Asphalt Surface	
0-5'	Orange - red and white, slightly micaceous silt (ML), soft, no odor	OVA=102-1(0-2.5): 0.0 PPM
5-10'	Orange and reddish brown, slightly micaceous silt (CL), firm, no odor	OVA=102-1(5-7.5): 1.0 PPM
10-12.5'	Medium brown, slightly micaceous silty-clay (MH to CL), moist,	102-1(7.5-10): 1.0 PPM
	moderate to strong petroleum odor (old gasoline odor)	102-1(10-12.5): 400 PPM
12.5-18'	Same as 10 to 12.5 feet, slight to moderate petroleum odor	102-1(12.5-15): 200 PPM
18-20'	Mottled tan to orange & red micaceous silty-clay (MH to CL), moist,	102-1(18-20): >1000 PPM
	mostly in water table, strong petroleum odor	
20-25'	Same as 18-20 feet; then change at 23 feet to firm orange and red	OVA=102-1(23-25): 800 PPM
	micaceous silt with some clay (MH to CL)	
	Temporary well set at 25 feet with lower 10 feet screen. Let well set	
	over night. Temporary well 102-1(TW) was gauged on 6/13/13.	
	Depth-to-Groundwater for 102-1(TW) was 15.50 feet BLS.	

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 102, Bruce Evans, N. Wilkesboro, NC	**BORING/WELL NO:**	102-2
SITE LOCATION:	2659 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 102, Bruce Evans Property, In-front of Building
START DATE:	6/12/13	**COMPLETED:**	6/12/13
GEOLOGIST:	B. Higgins	**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
	Asphalt Surface	
0-5'	Mottled orange to red and orange to brown, slightly micaceous	OVA=102-2(2.5-5): 1.0 PPM
	silty-clay (MH), no odor	
7.5-10'	Partial Recovery - mottled orange to red and orange to brown,	OVA=102-2(7.5-10): 6.0 PPM
	slightly micaceous silt-clay loam (MH), 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 102, Bruce Evans, N. Wilkesboro, NC	**BORING/WELL NO:**	102-3
SITE LOCATION:	2659 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 102, Bruce Evans Property, In-front of Building
START DATE:	6/12/13	**COMPLETED:**	6/12/13
GEOLOGIST:	B. Higgins	**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
	Asphalt Surface	
0-5'	Partial Recovery - Reddish-brown, slightly micaceous silt (MH),	OVA=102-3(2.5-5): 0.5 PPM
	no odor	
5-7.5'	Partial Recovery - mottled orange to red and orange to brown,	OVA=102-3(5-7.5): 0.5 PPM
	slightly micaceous silt-clay loam (MH), no odor	
7.5-10'	Medium brown to orange brown, slightly micaceous silt with some very	OVA=102-3(7.5-10):0.5 PPM
	fine sand (ML to MH), firm, 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 102, Bruce Evans, N. Wilkesboro, NC	**BORING/WELL NO:**	102-4
SITE LOCATION:	2659 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 102, Bruce Evans Property, West Side of Property
START DATE:	6/12/13	**COMPLETED:**	6/12/13
GEOLOGIST:	B. Higgins	**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
2.5-5	Partial Recovery - Reddish-brown, highly micaceous silt with rock	OVA=102-4(2.5-5): 1.0 PPM
	fragments (MH), moist, no odor	
7.5-10'	Partial Recovery - mottled orange to red and orange to brown,	OVA=102-4(7.5-10):1.0 PPM
	micaceous clayey-silt (MH), firm, 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 102, Bruce Evans, N. Wilkesboro, NC	**BORING/WELL NO:**	102-5
SITE LOCATION:	2659 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 102, Bruce Evans Property, North of Building
START DATE:	6/12/13	**COMPLETED:**	6/12/13
GEOLOGIST:	B. Higgins	**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
2.5-5	Partial Recovery - orange & red to orange & brown, micaceous silt (MH),	OVA=102-5(2.5-5): 1.5 PPM
	firm, no odor	
5-7.5'	mottled orange to red and orange to brown, slightly micaceous silt (MH),	OVA=102-5(5-7.5): 1.0 PPM
	firm to hard, no odor	
7.5-10'	mottled orange to red and orange to brown, slightly micaceous silt (MH),	OVA=102-5(7.5-10):1.5 PPM
	firm to hard, 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 102, Bruce Evans, N. Wilkesboro, NC	**BORING/WELL NO:**	102-6
SITE LOCATION:	2659 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 102, Bruce Evans Property, West of Building
START DATE:	6/12/13	**COMPLETED:**	6/12/13
GEOLOGIST:	B. Higgins	**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 Dpeths
0-5'	Partial Recovery - orange & red to orange & brown, slightly micaceous	OVA=102-6(0-5): 0.5 PPM
	silty-clay (MH), soft, no odor	
7.5-10'	Tan to light brown, micaceous silt (MH), soft, moist, no odor	OVA=102-6(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 ___.

APPENDIX D

QED

AQROS

Hydrocarbon Analysis Results

Client: NC Department of Transportation
Address: 2659 Elkin Highway

Samples taken
Samples extracted
8 **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	102-1(7.5-10)	14.4	<0.7	<0.7	12.6	12.6	4.85	< 0.07	< 0.036	65.3	29	5.8	Degraded Fuel (est) 97.4%
s	102-1(10-12.5)	63.9	<3.2	26.2	20.7	46.9	13.38	1	< 0.16	96.2	3.5	0.3	PAH (PFM)
s	102-1(10-12.5) REP	14.4	<0.7	41.6	24.9	66.5	17.51	1.17	< 0.036	97.3	2.3	0.4	PAH (PFM)
s	102-2(7.5-10)	14.4	<0.7	<0.7	0.9	0.9	< 0.72	< 0.07	< 0.036	55.5	32.6	11.9	PAH
s	102-2(7.5-10)	10.3	<0.5	<0.5	2.6	2.6	1.03	< 0.05	< 0.026	58.2	30.8	11	Degraded Fuel (est) 91.4%
s	102-3(5-7.5)	12.5	<0.6	<0.6	4.9	4.9	1.29	< 0.06	< 0.031	48.7	43.6	7.6	Degraded Fuel (est) 97.9%
s	102-4(2.5-5)	13.0	<0.6	<0.6	40	40	13.83	0.23	< 0.032	40.7	48.3	11	Degraded Fuel (est) 88.7%
s	102-5(2.5-5)	12.5	<0.6	<0.6	<0.6	<0.6	< 0.63	< 0.06	< 0.031	0	0	100	Match not possible
s	102-6(7.5-10)	12.3	<0.6	<0.6	<0.6	<0.6	< 0.61	< 0.06	< 0.031	0	0	100	Match not possible

Initial Calibrator QC check

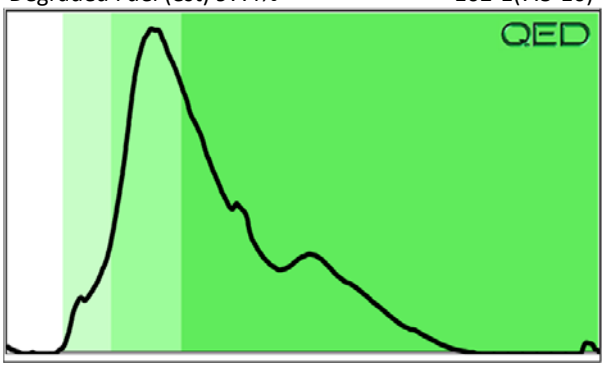
Low Range Calibrator Final check
High Range Calibrator Final check

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

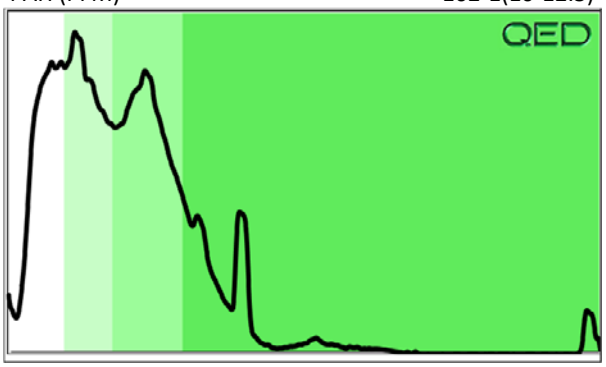
Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted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

Project NCDOT Wilkes County

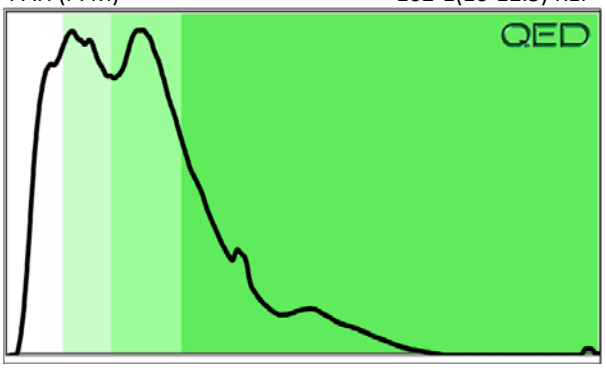
Degraded Fuel (est) 97.4% 102-1(7.5-10)



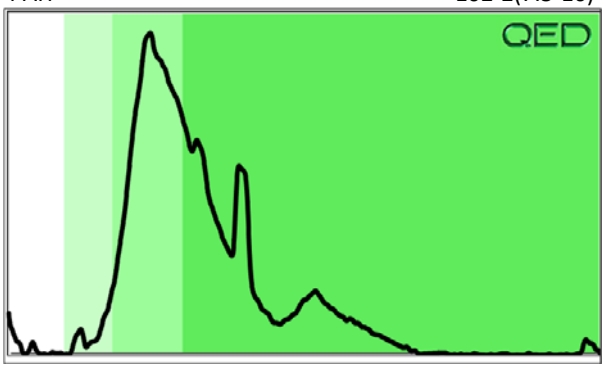
PAH (PFM) 102-1(10-12.5)



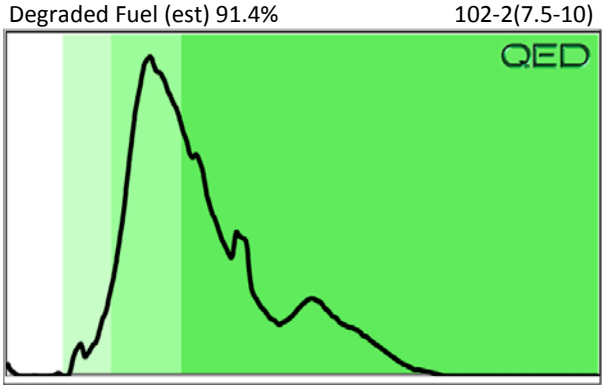
PAH (PFM) 102-1(10-12.5) REP



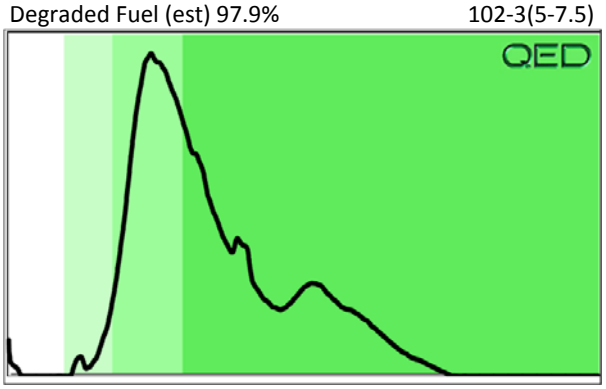
PAH 102-2(7.5-10)



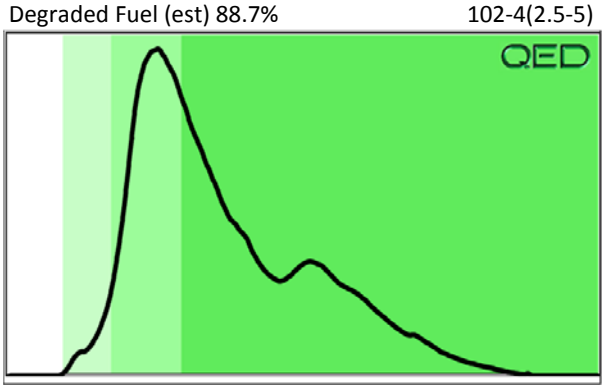
Degraded Fuel (est) 91.4% 102-2(7.5-10)



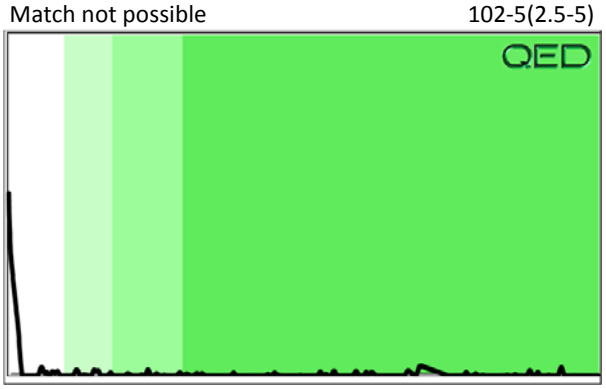
Degraded Fuel (est) 97.9% 102-3(5-7.5)



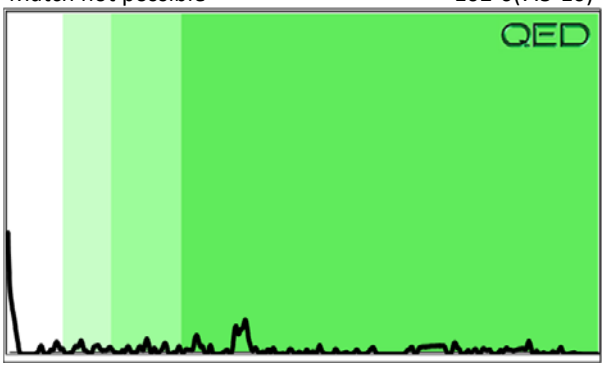
Degraded Fuel (est) 88.7% 102-4(2.5-5)



Match not possible 102-5(2.5-5)



Match not possible 102-6(7.5-10)



APPENDIX E

Pace Analytical Services, Inc.
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(828)254-7176

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

June 26, 2013

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

RE: Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

Dear Chemical Engineer:
Enclosed are the analytical results for sample(s) received by the laboratory on June 14, 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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CERTIFICATIONS

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

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

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SAMPLE ANALYTE COUNT

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92161645001	**102-1 (10-12.5)**	EPA 8015 Modified	EJK	2	PASI-C
		EPA 8015 Modified	GAW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92161645002	**102-1 (TW)**	SM 6200B	CAH	64	PASI-C

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

Method: **EPA 8015 Modified**
Description: 8015 GCS THC-Diesel
Client: NCDOT West Central
Date: June 26, 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.

QC Batch: OEXT/22603

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92161592003

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

- MS (Lab ID: 993629)
  - Diesel Components
- MSD (Lab ID: 993630)
  - Diesel Components

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

Method: **EPA 8015 Modified**
Description: Gasoline Range Organics
Client: NCDOT West Central
Date: June 26, 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: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

Method: **SM 6200B**
Description: 6200B MSV
Client: NCDOT West Central
Date: June 26, 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/23404

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92162480001

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

- MS (Lab ID: 997883)
  - Carbon tetrachloride
  - Dichlorodifluoromethane
  - Naphthalene
- MSD (Lab ID: 997884)
  - 1,1-Dichloropropene
  - Carbon tetrachloride
  - Chloroethane
  - Dichlorodifluoromethane

R1: RPD value was outside control limits.

- MSD (Lab ID: 997884)
  - Chloroethane

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

Method: **SM 6200B**
Description: 6200B MSV
Client: NCDOT West Central
Date: June 26, 2013

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

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ANALYTICAL RESULTS

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

Sample: 102-1 (10-12.5) **Lab ID: 92161645001** Collected: 06/12/13 15:30 Received: 06/14/13 12:50 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	**54.2**	mg/kg	6.1	1	06/15/13 08:35	06/20/13 03:07	68334-30-5	
Surrogates								
n-Pentacosane (S)	96	%	41-119	1	06/15/13 08:35	06/20/13 03:07	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	**105**	mg/kg	5.1	1	06/21/13 09:05	06/21/13 12:46	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	141	%	70-167	1	06/21/13 09:05	06/21/13 12:46	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**17.4**	%	0.10	1		06/25/13 08:00		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

Sample: 102-1 (TW) **Lab ID: 92161645002** Collected: 06/13/13 08:30 Received: 06/14/13 12:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Benzene	**685**	ug/L	2.5	5		06/23/13 21:31	71-43-2	
Bromobenzene	ND	ug/L	2.5	5		06/23/13 21:31	108-86-1	
Bromochloromethane	ND	ug/L	2.5	5		06/23/13 21:31	74-97-5	
Bromodichloromethane	ND	ug/L	2.5	5		06/23/13 21:31	75-27-4	
Bromoform	ND	ug/L	2.5	5		06/23/13 21:31	75-25-2	
Bromomethane	ND	ug/L	25.0	5		06/23/13 21:31	74-83-9	
n-Butylbenzene	ND	ug/L	2.5	5		06/23/13 21:31	104-51-8	
sec-Butylbenzene	ND	ug/L	2.5	5		06/23/13 21:31	135-98-8	
tert-Butylbenzene	ND	ug/L	2.5	5		06/23/13 21:31	98-06-6	
Carbon tetrachloride	ND	ug/L	2.5	5		06/23/13 21:31	56-23-5	
Chlorobenzene	ND	ug/L	2.5	5		06/23/13 21:31	108-90-7	
Chloroethane	ND	ug/L	5.0	5		06/23/13 21:31	75-00-3	
Chloroform	ND	ug/L	2.5	5		06/23/13 21:31	67-66-3	
Chloromethane	ND	ug/L	5.0	5		06/23/13 21:31	74-87-3	
2-Chlorotoluene	ND	ug/L	2.5	5		06/23/13 21:31	95-49-8	
4-Chlorotoluene	ND	ug/L	2.5	5		06/23/13 21:31	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	5		06/23/13 21:31	96-12-8	
Dibromochloromethane	ND	ug/L	2.5	5		06/23/13 21:31	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.5	5		06/23/13 21:31	106-93-4	
Dibromomethane	ND	ug/L	2.5	5		06/23/13 21:31	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	2.5	5		06/23/13 21:31	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.5	5		06/23/13 21:31	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.5	5		06/23/13 21:31	106-46-7	
Dichlorodifluoromethane	ND	ug/L	2.5	5		06/23/13 21:31	75-71-8	
1,1-Dichloroethane	ND	ug/L	2.5	5		06/23/13 21:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.5	5		06/23/13 21:31	107-06-2	
1,1-Dichloroethene	ND	ug/L	2.5	5		06/23/13 21:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.5	5		06/23/13 21:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2.5	5		06/23/13 21:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.5	5		06/23/13 21:31	78-87-5	
1,3-Dichloropropane	ND	ug/L	2.5	5		06/23/13 21:31	142-28-9	
2,2-Dichloropropane	ND	ug/L	2.5	5		06/23/13 21:31	594-20-7	
1,1-Dichloropropene	ND	ug/L	2.5	5		06/23/13 21:31	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	2.5	5		06/23/13 21:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.5	5		06/23/13 21:31	10061-02-6	
Diisopropyl ether	ND	ug/L	2.5	5		06/23/13 21:31	108-20-3	
Ethylbenzene	**2200**	ug/L	50.0	100		06/25/13 01:57	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	5		06/23/13 21:31	87-68-3	
Isopropylbenzene (Cumene)	**102**	ug/L	2.5	5		06/23/13 21:31	98-82-8	
Methylene Chloride	ND	ug/L	10.0	5		06/23/13 21:31	75-09-2	
Methyl-tert-butyl ether	ND	ug/L	2.5	5		06/23/13 21:31	1634-04-4	
Naphthalene	**419**	ug/L	10.0	5		06/23/13 21:31	91-20-3	
n-Propylbenzene	**252**	ug/L	2.5	5		06/23/13 21:31	103-65-1	
Styrene	ND	ug/L	2.5	5		06/23/13 21:31	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.5	5		06/23/13 21:31	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.5	5		06/23/13 21:31	79-34-5	
Tetrachloroethene	ND	ug/L	2.5	5		06/23/13 21:31	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

Sample: 102-1 (TW) **Lab ID: 92161645002** Collected: 06/13/13 08:30 Received: 06/14/13 12:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Toluene	**6190**	ug/L	50.0	100		06/25/13 01:57	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	10.0	5		06/23/13 21:31	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	5		06/23/13 21:31	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	2.5	5		06/23/13 21:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.5	5		06/23/13 21:31	79-00-5	
Trichloroethene	ND	ug/L	2.5	5		06/23/13 21:31	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	5		06/23/13 21:31	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	5		06/23/13 21:31	96-18-4	
1,2,4-Trimethylbenzene	**1590**	ug/L	50.0	100		06/25/13 01:57	95-63-6	
1,3,5-Trimethylbenzene	**492**	ug/L	2.5	5		06/23/13 21:31	108-67-8	
Vinyl chloride	ND	ug/L	5.0	5		06/23/13 21:31	75-01-4	
m&p-Xylene	**7400**	ug/L	100	100		06/25/13 01:57	179601-23-1	
o-Xylene	**2720**	ug/L	50.0	100		06/25/13 01:57	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	105	%	70-130	5		06/23/13 21:31	17060-07-0	
Dibromofluoromethane (S)	107	%	70-130	5		06/23/13 21:31	1868-53-7	
4-Bromofluorobenzene (S)	112	%	70-130	5		06/23/13 21:31	460-00-4	
Toluene-d8 (S)	101	%	70-130	5		06/23/13 21:31	2037-26-5	

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QUALITY CONTROL DATA

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

QC Batch: GCV/7002
QC Batch Method: EPA 5035A/5030B
Analysis Method: EPA 8015 Modified
Analysis Description: Gasoline Range Organics
Associated Lab Samples: 92161645001

METHOD BLANK: 996935 Matrix: Solid
Associated Lab Samples: 92161645001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	6.0	06/21/13 08:58	
4-Bromofluorobenzene (S)	%	87	70-167	06/21/13 08:58	

LABORATORY CONTROL SAMPLE: 996936

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	50	53.1	106	70-165	
4-Bromofluorobenzene (S)	%			84	70-167	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 996937 996938

Parameter	Units	92161979001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Gasoline Range Organics	mg/kg	ND	66.3	66.3	74.1	74.2	111	111	47-187	0	
4-Bromofluorobenzene (S)	%						90	84	70-167		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

QC Batch: MSV/23404
QC Batch Method: SM 6200B
Analysis Method: SM 6200B
Analysis Description: 6200B MSV
Associated Lab Samples: 92161645002

METHOD BLANK: 997881
Matrix: Water
Associated Lab Samples: 92161645002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	0.50	06/23/13 17:49	
1,1,1-Trichloroethane	ug/L	ND	0.50	06/23/13 17:49	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/23/13 17:49	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/23/13 17:49	
1,1-Dichloroethane	ug/L	ND	0.50	06/23/13 17:49	
1,1-Dichloroethene	ug/L	ND	0.50	06/23/13 17:49	
1,1-Dichloropropene	ug/L	ND	0.50	06/23/13 17:49	
1,2,3-Trichlorobenzene	ug/L	ND	2.0	06/23/13 17:49	
1,2,3-Trichloropropane	ug/L	ND	0.50	06/23/13 17:49	
1,2,4-Trichlorobenzene	ug/L	ND	2.0	06/23/13 17:49	
1,2,4-Trimethylbenzene	ug/L	ND	0.50	06/23/13 17:49	
1,2-Dibromo-3-chloropropane	ug/L	ND	1.0	06/23/13 17:49	
1,2-Dibromoethane (EDB)	ug/L	ND	0.50	06/23/13 17:49	
1,2-Dichlorobenzene	ug/L	ND	0.50	06/23/13 17:49	
1,2-Dichloroethane	ug/L	ND	0.50	06/23/13 17:49	
1,2-Dichloropropane	ug/L	ND	0.50	06/23/13 17:49	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	06/23/13 17:49	
1,3-Dichlorobenzene	ug/L	ND	0.50	06/23/13 17:49	
1,3-Dichloropropane	ug/L	ND	0.50	06/23/13 17:49	
1,4-Dichlorobenzene	ug/L	ND	0.50	06/23/13 17:49	
2,2-Dichloropropane	ug/L	ND	0.50	06/23/13 17:49	
2-Chlorotoluene	ug/L	ND	0.50	06/23/13 17:49	
4-Chlorotoluene	ug/L	ND	0.50	06/23/13 17:49	
Benzene	ug/L	ND	0.50	06/23/13 17:49	
Bromobenzene	ug/L	ND	0.50	06/23/13 17:49	
Bromochloromethane	ug/L	ND	0.50	06/23/13 17:49	
Bromodichloromethane	ug/L	ND	0.50	06/23/13 17:49	
Bromoform	ug/L	ND	0.50	06/23/13 17:49	
Bromomethane	ug/L	ND	5.0	06/23/13 17:49	
Carbon tetrachloride	ug/L	ND	0.50	06/23/13 17:49	
Chlorobenzene	ug/L	ND	0.50	06/23/13 17:49	
Chloroethane	ug/L	ND	1.0	06/23/13 17:49	
Chloroform	ug/L	ND	0.50	06/23/13 17:49	
Chloromethane	ug/L	ND	1.0	06/23/13 17:49	
cis-1,2-Dichloroethene	ug/L	ND	0.50	06/23/13 17:49	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/23/13 17:49	
Dibromochloromethane	ug/L	ND	0.50	06/23/13 17:49	
Dibromomethane	ug/L	ND	0.50	06/23/13 17:49	
Dichlorodifluoromethane	ug/L	ND	0.50	06/23/13 17:49	
Diisopropyl ether	ug/L	ND	0.50	06/23/13 17:49	
Ethylbenzene	ug/L	ND	0.50	06/23/13 17:49	
Hexachloro-1,3-butadiene	ug/L	ND	2.0	06/23/13 17:49	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	06/23/13 17:49	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

METHOD BLANK: 997881 Matrix: Water

Associated Lab Samples: 92161645002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/L	ND	1.0	06/23/13 17:49	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/23/13 17:49	
Methylene Chloride	ug/L	ND	2.0	06/23/13 17:49	
n-Butylbenzene	ug/L	ND	0.50	06/23/13 17:49	
n-Propylbenzene	ug/L	ND	0.50	06/23/13 17:49	
Naphthalene	ug/L	ND	2.0	06/23/13 17:49	
o-Xylene	ug/L	ND	0.50	06/23/13 17:49	
sec-Butylbenzene	ug/L	ND	0.50	06/23/13 17:49	
Styrene	ug/L	ND	0.50	06/23/13 17:49	
tert-Butylbenzene	ug/L	ND	0.50	06/23/13 17:49	
Tetrachloroethene	ug/L	ND	0.50	06/23/13 17:49	
Toluene	ug/L	ND	0.50	06/23/13 17:49	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/23/13 17:49	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/23/13 17:49	
Trichloroethene	ug/L	ND	0.50	06/23/13 17:49	
Trichlorofluoromethane	ug/L	ND	1.0	06/23/13 17:49	
Vinyl chloride	ug/L	ND	1.0	06/23/13 17:49	
1,2-Dichloroethane-d4 (S)	%	103	70-130	06/23/13 17:49	
4-Bromofluorobenzene (S)	%	97	70-130	06/23/13 17:49	
Dibromofluoromethane (S)	%	106	70-130	06/23/13 17:49	
Toluene-d8 (S)	%	101	70-130	06/23/13 17:49	

LABORATORY CONTROL SAMPLE: 997882

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	51.8	104	60-140	
1,1,1-Trichloroethane	ug/L	50	50.7	101	60-140	
1,1,2,2-Tetrachloroethane	ug/L	50	49.2	98	60-140	
1,1,2-Trichloroethane	ug/L	50	50.7	101	60-140	
1,1-Dichloroethane	ug/L	50	49.3	99	60-140	
1,1-Dichloroethene	ug/L	50	46.4	93	60-140	
1,1-Dichloropropene	ug/L	50	53.4	107	60-140	
1,2,3-Trichlorobenzene	ug/L	50	49.9	100	60-140	
1,2,3-Trichloropropane	ug/L	50	51.0	102	60-140	
1,2,4-Trichlorobenzene	ug/L	50	52.0	104	60-140	
1,2,4-Trimethylbenzene	ug/L	50	48.7	97	60-140	
1,2-Dibromo-3-chloropropane	ug/L	50	44.4	89	60-140	
1,2-Dibromoethane (EDB)	ug/L	50	54.3	109	60-140	
1,2-Dichlorobenzene	ug/L	50	49.7	99	60-140	
1,2-Dichloroethane	ug/L	50	49.1	98	60-140	
1,2-Dichloropropane	ug/L	50	52.0	104	60-140	
1,3,5-Trimethylbenzene	ug/L	50	48.3	97	60-140	
1,3-Dichlorobenzene	ug/L	50	47.6	95	60-140	
1,3-Dichloropropane	ug/L	50	55.5	111	60-140	
1,4-Dichlorobenzene	ug/L	50	49.1	98	60-140	

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QUALITY CONTROL DATA

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

LABORATORY CONTROL SAMPLE: 997882

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	46.6	93	60-140	
2-Chlorotoluene	ug/L	50	51.6	103	60-140	
4-Chlorotoluene	ug/L	50	50.3	101	60-140	
Benzene	ug/L	50	48.3	97	60-140	
Bromobenzene	ug/L	50	48.6	97	60-140	
Bromochloromethane	ug/L	50	53.7	107	60-140	
Bromodichloromethane	ug/L	50	50.7	101	60-140	
Bromoform	ug/L	50	53.4	107	60-140	
Bromomethane	ug/L	50	49.1	98	60-140	
Carbon tetrachloride	ug/L	50	58.0	116	60-140	
Chlorobenzene	ug/L	50	51.1	102	60-140	
Chloroethane	ug/L	50	55.1	110	60-140	
Chloroform	ug/L	50	50.0	100	60-140	
Chloromethane	ug/L	50	41.5	83	60-140	
cis-1,2-Dichloroethene	ug/L	50	48.8	98	60-140	
cis-1,3-Dichloropropene	ug/L	50	56.0	112	60-140	
Dibromochloromethane	ug/L	50	52.8	106	60-140	
Dibromomethane	ug/L	50	53.8	108	60-140	
Dichlorodifluoromethane	ug/L	50	47.3	95	60-140	
Diisopropyl ether	ug/L	50	50.0	100	60-140	
Ethylbenzene	ug/L	50	50.2	100	60-140	
Hexachloro-1,3-butadiene	ug/L	50	48.0	96	60-140	
Isopropylbenzene (Cumene)	ug/L	50	48.4	97	60-140	
m&p-Xylene	ug/L	100	100	100	60-140	
Methyl-tert-butyl ether	ug/L	50	49.7	99	60-140	
Methylene Chloride	ug/L	50	52.9	106	60-140	
n-Butylbenzene	ug/L	50	48.6	97	60-140	
n-Propylbenzene	ug/L	50	47.7	95	60-140	
Naphthalene	ug/L	50	50.6	101	60-140	
o-Xylene	ug/L	50	48.1	96	60-140	
sec-Butylbenzene	ug/L	50	46.9	94	60-140	
Styrene	ug/L	50	54.2	108	60-140	
tert-Butylbenzene	ug/L	50	46.4	93	60-140	
Tetrachloroethene	ug/L	50	49.1	98	60-140	
Toluene	ug/L	50	48.7	97	60-140	
trans-1,2-Dichloroethene	ug/L	50	50.0	100	60-140	
trans-1,3-Dichloropropene	ug/L	50	59.2	118	60-140	
Trichloroethene	ug/L	50	49.7	99	60-140	
Trichlorofluoromethane	ug/L	50	45.2	90	60-140	
Vinyl chloride	ug/L	50	47.8	96	60-140	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			103	70-130	
Dibromofluoromethane (S)	%			98	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 997883 997884

Parameter	Units	92162480001 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	23.7	23.4	119	117	60-140	1	
1,1,1-Trichloroethane	ug/L	ND	20	20	25.1	27.0	125	135	60-140	7	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	22.6	22.8	113	114	60-140	1	
1,1,2-Trichloroethane	ug/L	ND	20	20	23.0	23.6	115	118	60-140	3	
1,1-Dichloroethane	ug/L	ND	20	20	24.5	25.8	122	129	60-140	5	
1,1-Dichloroethene	ug/L	ND	20	20	24.9	25.2	125	126	60-140	1	
1,1-Dichloropropene	ug/L	ND	20	20	26.6	28.7	133	143	60-140	8	M0
1,2,3-Trichlorobenzene	ug/L	ND	20	20	22.1	21.7	110	109	60-140	2	
1,2,3-Trichloropropane	ug/L	ND	20	20	24.8	25.4	124	127	60-140	2	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	22.3	22.6	112	113	60-140	1	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	26.2	24.1	131	120	60-140	8	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	21.1	21.8	106	109	60-140	3	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	24.2	23.7	121	118	60-140	2	
1,2-Dichlorobenzene	ug/L	ND	20	20	23.4	24.4	117	122	60-140	4	
1,2-Dichloroethane	ug/L	ND	20	20	21.6	24.2	108	121	60-140	11	
1,2-Dichloropropane	ug/L	ND	20	20	24.1	23.8	121	119	60-140	1	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	24.2	24.1	121	121	60-140	0	
1,3-Dichlorobenzene	ug/L	ND	20	20	22.2	22.2	111	111	60-140	0	
1,3-Dichloropropane	ug/L	ND	20	20	25.7	25.3	129	127	60-140	1	
1,4-Dichlorobenzene	ug/L	ND	20	20	22.8	22.8	114	114	60-140	0	
2,2-Dichloropropane	ug/L	ND	20	20	24.1	26.4	121	132	60-140	9	
2-Chlorotoluene	ug/L	ND	20	20	24.7	25.2	123	126	60-140	2	
4-Chlorotoluene	ug/L	ND	20	20	24.1	24.5	121	123	60-140	2	
Benzene	ug/L	ND	20	20	22.6	23.1	113	115	60-140	2	
Bromobenzene	ug/L	ND	20	20	22.8	23.4	114	117	60-140	3	
Bromochloromethane	ug/L	ND	20	20	24.7	27.1	123	136	60-140	9	
Bromodichloromethane	ug/L	ND	20	20	21.9	23.0	109	115	60-140	5	
Bromoform	ug/L	ND	20	20	23.9	22.9	119	114	60-140	4	
Bromomethane	ug/L	ND	20	20	22.7	25.7	114	128	60-140	12	
Carbon tetrachloride	ug/L	ND	20	20	30.8	29.3	154	147	60-140	5	M0
Chlorobenzene	ug/L	ND	20	20	24.5	24.4	122	122	60-140	0	
Chloroethane	ug/L	ND	20	20	19.2	32.4	96	162	60-140	51	M0,R1
Chloroform	ug/L	ND	20	20	25.0	26.0	125	130	60-140	4	
Chloromethane	ug/L	ND	20	20	22.6	22.0	113	110	60-140	3	
cis-1,2-Dichloroethene	ug/L	ND	20	20	23.2	24.0	116	120	60-140	4	
cis-1,3-Dichloropropene	ug/L	ND	20	20	25.3	26.1	126	130	60-140	3	
Dibromochloromethane	ug/L	ND	20	20	24.1	24.1	121	121	60-140	0	
Dibromomethane	ug/L	ND	20	20	24.7	24.3	123	121	60-140	1	
Dichlorodifluoromethane	ug/L	ND	20	20	29.2	29.2	146	146	60-140	0	M0
Diisopropyl ether	ug/L	ND	20	20	23.2	24.9	116	125	60-140	7	
Ethylbenzene	ug/L	ND	20	20	24.9	24.3	124	122	60-140	2	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	22.5	24.9	113	125	60-140	10	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	23.5	23.3	118	117	60-140	1	
m&p-Xylene	ug/L	ND	40	40	51.6	49.6	129	124	60-140	4	
Methyl-tert-butyl ether	ug/L	ND	20	20	23.0	24.6	115	123	60-140	7	
Methylene Chloride	ug/L	ND	20	20	25.0	26.0	125	130	60-140	4	
n-Butylbenzene	ug/L	ND	20	20	23.9	24.8	119	124	60-140	4	

REPORT OF LABORATORY ANALYSIS

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

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

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

QUALITY CONTROL DATA

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 997883 997884

Parameter	Units	92162480001 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	23.9	23.4	119	117	60-140	2	
Naphthalene	ug/L	ND	20	20	32.1	23.9	161	120	60-140	29	M0
o-Xylene	ug/L	ND	20	20	24.9	23.3	124	116	60-140	7	
sec-Butylbenzene	ug/L	ND	20	20	23.4	23.0	117	115	60-140	2	
Styrene	ug/L	ND	20	20	24.7	24.6	123	123	60-140	0	
tert-Butylbenzene	ug/L	ND	20	20	23.1	22.8	115	114	60-140	1	
Tetrachloroethene	ug/L	ND	20	20	24.4	25.7	122	129	60-140	5	
Toluene	ug/L	ND	20	20	23.7	23.6	118	118	60-140	0	
trans-1,2-Dichloroethene	ug/L	ND	20	20	24.0	25.4	120	127	60-140	5	
trans-1,3-Dichloropropene	ug/L	ND	20	20	25.7	27.1	129	136	60-140	5	
Trichloroethene	ug/L	ND	20	20	23.5	23.5	117	118	60-140	0	
Trichlorofluoromethane	ug/L	ND	20	20	25.1	25.3	125	127	60-140	1	
Vinyl chloride	ug/L	ND	20	20	25.6	26.6	128	133	60-140	4	
1,2-Dichloroethane-d4 (S)	%						99	103	70-130		
4-Bromofluorobenzene (S)	%						104	99	70-130		
Dibromofluoromethane (S)	%						99	102	70-130		
Toluene-d8 (S)	%						98	96	70-130		

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QUALITY CONTROL DATA

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

QC Batch: OEXT/22603
QC Batch Method: EPA 3546
Analysis Method: EPA 8015 Modified
Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92161645001

METHOD BLANK: 993627 Matrix: Solid
Associated Lab Samples: 92161645001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Components	mg/kg	ND	5.0	06/18/13 14:50	
n-Pentacosane (S)	%	108	41-119	06/18/13 14:50	

LABORATORY CONTROL SAMPLE: 993628

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Components	mg/kg	66.7	61.8	93	49-113	
n-Pentacosane (S)	%			93	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 993629 993630

Parameter	Units	92161592003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Components	mg/kg	97.9	74.5	74.5	98.1	88.1	0	-13	10-146	11	M0
n-Pentacosane (S)	%						98	100	41-119		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

QC Batch: PMST/5622
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92161645001

SAMPLE DUPLICATE: 996045

Parameter	Units	92161961001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	22.7	21.5	6	

SAMPLE DUPLICATE: 996046

Parameter	Units	92162036001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	7.5	6.3	18	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

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

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NCDOT Parcel 102 36001.1.2
Pace Project No.: 92161645

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92161645001	**102-1 (10-12.5)**	EPA 3546	OEXT/22603	EPA 8015 Modified	GCSV/14878
92161645001	**102-1 (10-12.5)**	EPA 5035A/5030B	GCV/7002	EPA 8015 Modified	GCV/7004
92161645002	**102-1 (TW)**	SM 6200B	MSV/23404		
92161645001	**102-1 (10-12.5)**	ASTM D2974-87	PMST/5622		

Client Name: PyGmid

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.: 3.7 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: DN 6/14

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.
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:_____

SCURF Review:	VD	**Date:**	6/14/13
SRF Review:	VD	**Date:**	6/17/13

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# : 92161645

92161645

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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

1667309

Section A — Required Client Information:

Company: Pyramid Environmental
Address: 503 Industrial Ave. Greensboro, NC 27406
Email To: Tim
Phone: 336.335.3174 Fax:
Requested Due Date/TAT: Normal

Section B — Required Project Information:

Report To: Tim Leatherman - Pyramid
Copy To:
Purchase Order No: WBS 36001.1.2
Project Name: NCDOT Wilkes County Parcel 102
Project Number: WBS 36001.1.2

Section C — Invoice Information:

Attention: NCDOT
Company Name: NCDOT
Address:
Pace Quote Reference: WBS 36001.1.2 NCDOT
Pace Project Manager: Kevin Godwin
Pace Profile #: 5300-1, 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)	5035-GRO	3550-DRO 6200B	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	102-1 (10-12.5)	SL	G			6/12/13	15:30		4	X						X			X	X			001
2	102-1 (TW)	WT	G			6/13/13	8:30		4				X							X			002
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

9216645

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)
	Timothy D. Leatherman / Pyramid	6/14/13	10:42	David Neve / Pace	6/14/13	10:42				
	David Moore / Pace	6/14/13	12:50	J Moore / Pace	6-14	1250	3.9	y	n	y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Timothy D. Leatherman
SIGNATURE of SAMPLER: Timothy D. Leatherman
DATE Signed (MM/DD/YY): 6/13/13

ORIGINAL

*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.