April 29, 2019

North Carolina Department of Transportation
Geotechnical Unit
Mail Service Center 1592
Raleigh, North Carolina 27699-1592

Attention: Mr. Craig Haden email: cehaden@ncdot.gov

Reference: **Preliminary Site Assessment Report**
NCDOT Project I-5986B, WBS Element 47532.1.3
Parcel 214-Lucky's Truck and Trailer Sales
1185 Sadler Drive
Dunn, Harnett County, North Carolina
S&ME Project 4305-18-175A

Dear Mr. Haden:

S&ME, Inc. (S&ME) is submitting this Preliminary Site Assessment (PSA) Report to the North Carolina Department of Transportation (NCDOT). This report presents the background/project information, field activities, findings, conclusions, and recommendations. These services were performed in general accordance with S&ME Proposal No. 4305-18-175 CO-01 REV-01 dated January 2, 2019, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its January 8, 2019 Notice to Proceed Letter.

♦ Background/Project Information

Based on NCDOT's November 2, 2018, Request for Technical and Cost Proposal, the PSA was conducted within the NCDOT right-of-way (ROW) and/or easement as indicated on the preliminary plan sheets provided by NCDOT at the following property:

NCDOT Parcel No.	Property Owner	Site Address
214	RSL, LLC	(Lucky's Truck and Trailer Sales) 1185 Sadler Drive, Dunn, NC

The property is developed with an active truck and trailer dealership. The property is not listed with registered petroleum underground storage tanks (USTs) (active or closed). The property is also not listed with North Carolina Department of Environmental Quality (NCDEQ) Incidents associated with petroleum releases from USTs or aboveground storage tanks.

The PSA included a geophysical survey and subsequent limited soil sampling (four soil borings up to 10 feet below ground surface (ft.-bgs.), within accessible areas of the proposed ROW/easement in preparation for construction activities. Groundwater was not encountered during the advancement of soil borings at the site. Therefore,

groundwater sampling was not performed. **Figure 1** shows the vicinity and site location, and **Figure 2** shows the site and boring locations. Soil sampling results are shown on **Figure 3.**

♦ Field Services

Prior to field activities, a site specific Health and Safety Plan was prepared as required by the Occupational Health and Safety Act (OSHA). Underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator (Troxler Geologic, Inc.) was also used to locate and mark underground utilities.

♦ Geophysical Survey

On February 6, 2019, S&ME personnel performed a geophysical survey within accessible areas of the proposed ROW/easement at Parcel 214. S&ME used a combination of the Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) methods to explore for buried subsurface features at the site such as underground storage tanks (USTs) and other possible buried obstructions. Brief descriptions of these complementary geophysical techniques are presented in the following paragraphs.

Time Domain Electromagnetics (TDEM)

TDEM measures the electrical conductivity of subsurface materials and discriminates between moderately conductive earth materials and very conductive metallic targets within the shallow subsurface. The conductivity is determined by transmitting a time-varying magnetic pulse into the subsurface and measuring the amplitude and phase shift of the secondary magnetic field. The secondary magnetic field is created when the conductive materials become an inductor as the primary magnetic field is passed through them. TDEM data are acquired continuously at a walking pace typically along a series of parallel or perpendicular lines. The system generates audible and visual indications when metallic targets are encountered. These measurements can also be supported with a global positioning system (GPS) which is output directly into the TDEM data file.

We used a Geonics Limited EM-61 MK2 TDEM system in general accordance with ASTM D6820-02 (2007) "*Standard Guide for Use of the Time Domain Electromagnetic Method for Subsurface Investigation.*" Data was collected along lines spaced at approximately five feet using a Juniper® Systems Geode™ sub-meter GPS as positioning support. The presence of vehicles, fences, and other surficial obstructions within the requested survey area however prevented TDEM data collection in several locations. The approximate TDEM data collection paths are presented in **Figure 4**. Golden Software's Surfer® program was used to grid and plot the data (**Figures 5 and 6**). The TDEM data has been presented as Plots A and B in order to provide both opaque and transparent views, respectively.

Ground Penetrating Radar (GPR)

GPR transmits electromagnetic waves into the subsurface from an antenna at a specific frequency and measures the time for wave reflections to be received by interfaces between materials with differing material properties (e.g. soil/metal, etc.). The intensity of the reflected GPR wave is a function of the contrast in the material properties (i.e. dielectric permittivity) at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal.

We used a Geophysical Survey Systems, Inc. (GSSI) SIR® 3000 GPR system equipped with a 400 MHz antenna in general accordance with ASTM D6432-11 "*Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*" to further characterize anomalies/features identified during the TDEM survey.

A total of seven GPR profiles (Lines 1 through 7) were collected for documentation (**Figure 7**). The data was post-processed using the GSSI Radan® 7 GPR software program for additional analysis.

Geophysical Findings

Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site. Anomalous features unrelated to known surficial targets were not identified in the geophysical data sets collected at the site. However, several potential utilities, including a culvert, were identified (**Figure 7**) and marked in the field with white spray paint.

♦ Soil Sampling

On February 19, 2019, Troxler Geologic, Inc. (Troxler's) drill crew utilized a track mounted Geoprobe® rig to advance four soil borings (B-1 through B-4) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 214. The approximate location of the soil borings are shown in **Figure 2**. A photographic log is included in **Appendix I.** Troxler's drill crew advanced the Geoprobe® borings to a depth of approximately 10 ft.-bgs. During the advancement of the soil borings, groundwater was not encountered. Soil samples were continuously collected in four-foot long disposable acetate-plastic sleeves that line the hollow stainless-steel sample probes. Soil recovered from the sleeves was classified on-site by S&ME personnel and screened with a Photoionization Detector (PID) at approximately two foot depth intervals to measure relative headspace concentrations of volatile organic compounds (VOCs).

VOC headspace readings were obtained from an aliquot of each soil sample that was placed in a re-sealable bag. Another portion of the sample was placed in a separate re-sealable bag and stored in an insulated container with ice for possible laboratory analyses. After waiting approximately 15 minutes to allow the sample to reach ambient temperature and headspace equilibrium, the PID probe was inserted into the bag to obtain a headspace reading. A summary of the PID readings and logs of the soil borings are included in **Appendix II.**

No petroleum odors, staining or elevated PID readings were noted within the collected soil samples. Therefore, two soil samples (two to four foot depth interval and eight to ten foot depth interval) were selected from each boring and provided to RED Lab, LLC (Red Lab) for on-site analysis. A total of eight soil samples (two per boring) were analyzed by RED Lab for Total Petroleum Hydrocarbons (TPH)-Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification.

Upon completion of the soil sampling, the soil borings were backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as additional soil cuttings generated during the soil boring advancement and decontamination water, were spread on the ground in accordance with the procedures specified by North Carolina Department of Environmental Quality (NCDEQ). Used gloves, re-sealable bags and acetate sleeves were bagged and disposed off-site.

Soil Analytical Results

Based upon analytical results of soil samples analyzed by RED Lab using UVP spectroscopy, TPH-GRO and TPH-DRO were not reported at concentrations exceeding the North Carolina TPH Action Levels. TPH-DRO was reported at borings B-1 through B-4 at the two to four foot depth intervals at concentrations ranging from 0.1 milligrams per kilograms (mg/kg) to 3.8 mg/kg, which are below its North Carolina TPH Action Level of 100 mg/kg. TPH-GRO was reported at boring B-2 at the two to four foot depth interval at a concentration of 1.8 mg/kg, which is below its North Carolina TPH Action Level of 50 mg/kg. TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits for the remaining soil samples. A summary of the soil analytical results is presented in **Table 1** and shown on **Figure 3.** A copy of the laboratory analytical report provided by RED Lab is presented in **Appendix III.**

♦ Conclusion and Recommendations

The geophysical survey did not identify anomalous features unrelated to known surficial targets in the geophysical data sets collected at the site. However, several potential utilities, including a culvert, were identified. Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site.

S&ME advanced four soil borings (B-1 through B-4) to a depth of approximately 10 ft.-bgs at the site. No petroleum odors, staining or elevated PID readings were noted within soil samples collected from the soil borings. Selected soil samples from the soil borings were analyzed onsite for TPH-GRO and TPH-DRO using UVF spectroscopy. TPH-DRO was reported in the two to four foot depth interval at each soil boring and TPH-GRO was reported at one soil boring at the two to four foot depth interval at concentrations slightly above the laboratory method reporting limits, but well below the North Carolina TPH Action Levels. During the soil boring advancement, groundwater was not encountered. Therefore, groundwater sampling was not performed.

S&ME recommends maintaining an awareness level for the presence of marginally impacted petroleum in soil (below TPH Action Levels) at the site for the safety of workers and the public. If petroleum stained or odorous soils are encountered during construction, these soils should be properly handled and disposed at a licensed facility.

♦ Limitations

The results of this preliminary investigation are limited to the boring locations presented herein. The results of this Preliminary Site Assessment are not all inclusive and may not represent existing conditions across the entire property. These results only reflect the current conditions at the locations sampled on the date this Preliminary Site Assessment was performed. This report has been prepared in accordance with generally accepted environmental engineering and geophysical practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

The geophysical methods used for this survey have inherent limitations. Site metallic features (e.g., buildings, reinforced concrete, vehicles, etc.) and overhead transmission lines can produce a false electromagnetic response and may mask subsurface features. The depth of exploration of the GPR signal is highly site specific, and is greatly limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high

electrical conductivities such as clay soils, and lowest in relatively low conductivity materials such as unsaturated sand. For this project location, the GPR data sets appear to have a maximum depth of penetration of approximately about five ft.-bgs.

Regardless of the thoroughness of a geophysical study, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the methods used and the method's limitations and data coverage. Accordingly, the possibility exists that not all features at a project site will be located due to either subsurface soil conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the methods used. As with most surface geophysical methods, resolution of the subsurface will also decrease with depth. As such, the size and/or contrast of features compared to the imaged subsurface media must be significant enough to produce the anticipated response. The location and/or determination (or the lack thereof) of potential buried features is based on our review of the provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

This Preliminary Site Assessment was performed solely for NCDOT regarding the above-referenced site and assessment area. This report is provided for the sole use of NCDOT. Use of this report by any other parties will be at such party's sole risk. S&ME disclaims liability for any such use or reliance by third parties. The observations presented in this report are indicative of conditions during the time of the assessment and of the specific areas referenced.

Closing

S&ME appreciates the opportunity to provide these services to you. If you have any questions or comments regarding this report, please contact us at your convenience.

Sincerely,

S&ME, Inc.

DocuSigned by:
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Thomas P. Raymond, P.E., P.M.P.
Senior Consultant
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5/6/2019

Attachments:

Table 1: Summary of Soil Sampling Results

Figure 1: Vicinity Map
Figure 2: Site Map
Figure 3: Soil Constituent Map
Figure 4: TDEM Path Location Plan
Figure 5: TDEM Data Plot A
Figure 6: TDEM Data Plot B
Figure 7: Geophysical Anomaly Location Plan

Appendix I: Photographs
Appendix II: Boring Logs
Appendix III: Laboratory Analytical Reports and Chain of Custody

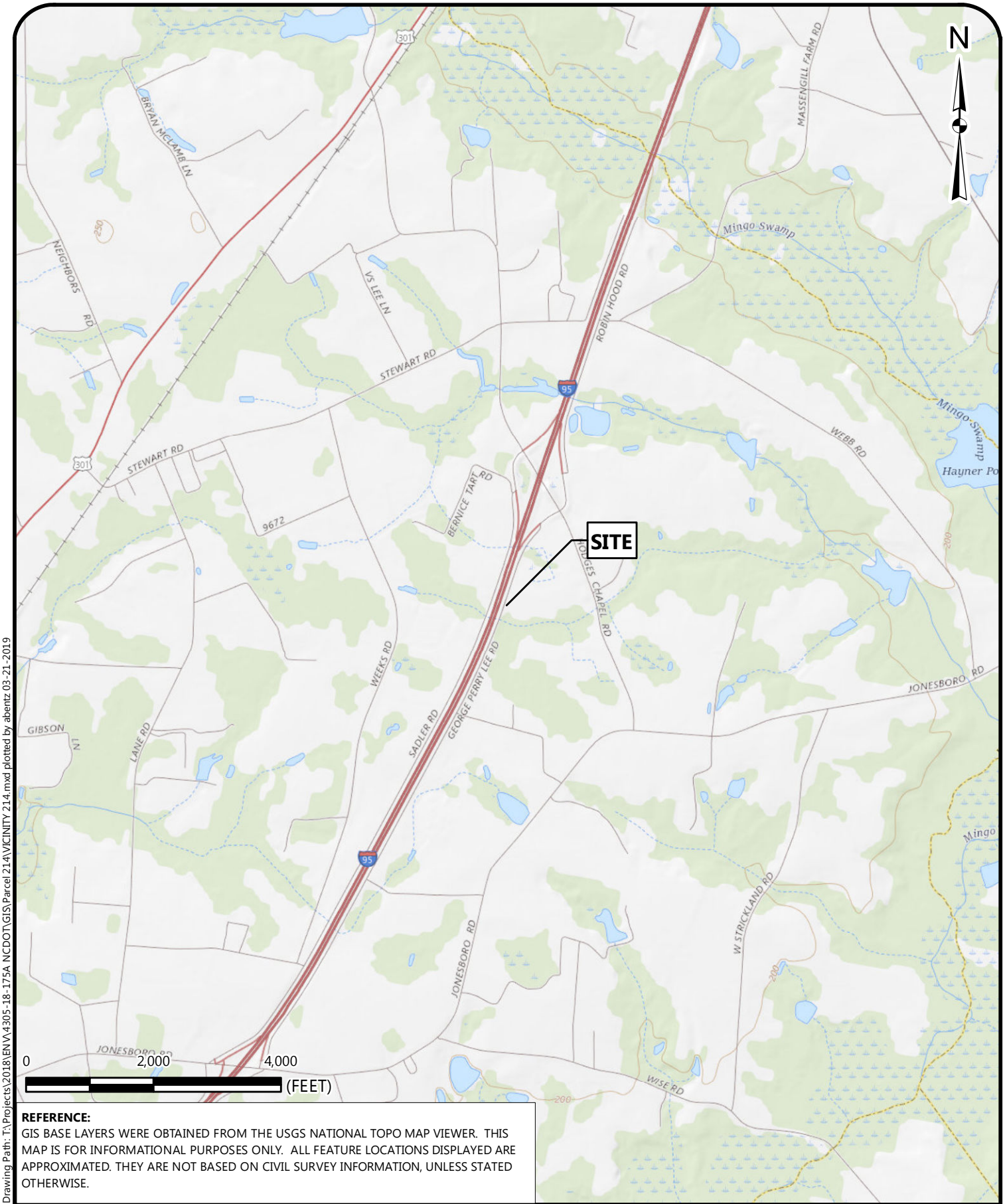
Tables

TABLE 1
SUMMARY OF SOIL SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 214 - (Lucky's Truck and Trailer Sales)
1185 Sadler Drive
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

Analytical Method→			Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by Ultraviolet Fluorescence (UVF) Spectrometry	
Sample ID	Date	Contaminant of Concern→ / Sample Depth (ft.-bgs)	TPH-GRO	TPH-DRO
B-1	2/19/2019	2 to 4	<0.78	**2.3**
		8 to 10	<0.24	<0.1
B-2	2/19/2019	2 to 4	**1.8**	**3.8**
		8 to 10	<0.57	<0.23
B-3	2/19/2019	2 to 4	<0.46	**0.88**
		8 to 10	<0.28	<0.11
B-4	2/19/2019	2 to 4	<0.55	**0.1**
		8 to 10	<0.61	<0.24
North Carolina TPH Action Levels			**50**	**100**

Notes:
1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the North Carolina TPH Action Levels are shown in Shaded and **BOLD** fields.

Figures



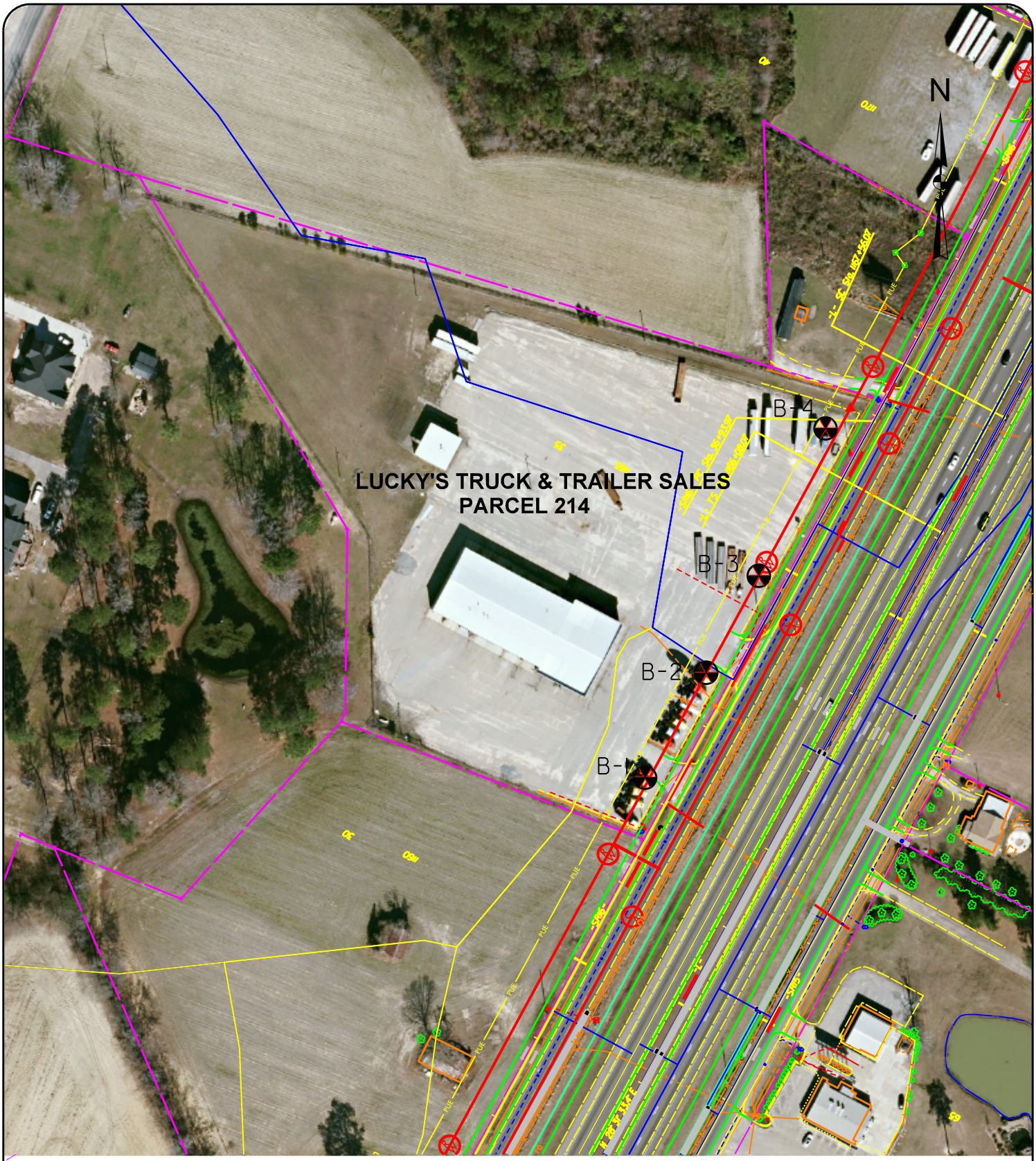
REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE USGS NATIONAL TOPO MAP VIEWER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 214\VICINITY 214.mxd plotted by abentz 03-21-2019

VICINITY MAP

NCDOT I-5986B
PARCEL NO. 214 (LUCKY'S TRUCK AND TRAILER SALES)
1185 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:	FIGURE NO.
1 " = 2,000 '	1
DATE: 3-21-19	
PROJECT NUMBER 4305-18-175A	



LEGEND

Geoenvironmental Boring:

Underground Storage Tank (UST): UST

Map Source: NCDOT Project I-5986B
Image Source: NC ONEMAP, Dated 2016

Known Soil Contamination:

Possible Soil Contamination: — S —

Existing Contamination Known - Water: — W —

0 150 300

GRAPHIC SCALE (IN FEET)

SITE MAP

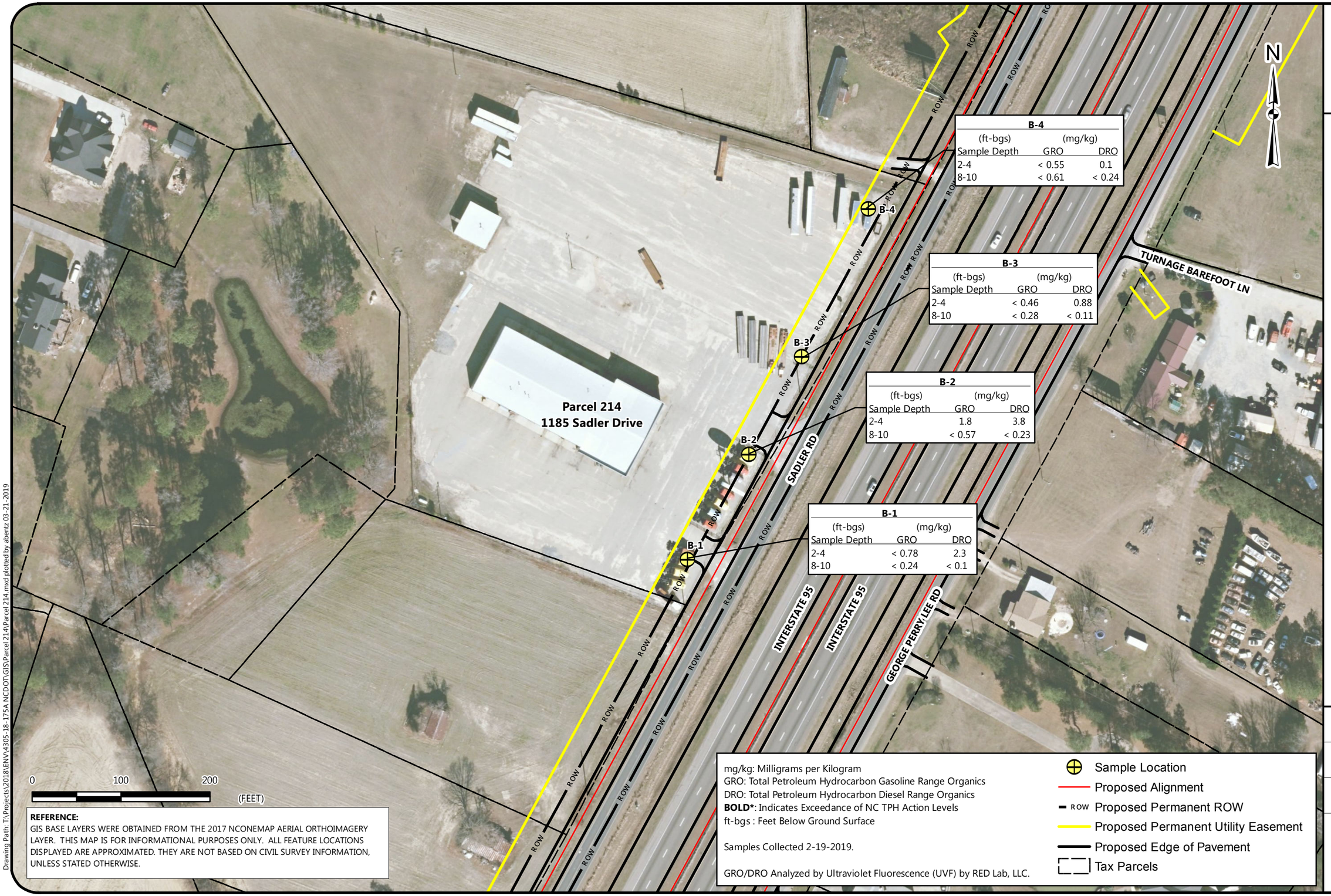
NCDOT Project: I-5986B
PARCEL 214 - (LUCKY'S TRUCK & TRAILER SALES)
1185 Sadler Drive, Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 150'	2
DATE:	
MARCH 2019	
PROJECT NUMBER	
4305-18-175A	

SOIL CONSTITUENT MAP

NCDOT I-5986B

PARCEL NO. 214 (LUCKY'S TRUCK AND TRAILER SALES)
1185 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA



B-4

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.55	0.1
8-10	< 0.61	< 0.24

B-3

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.46	0.88
8-10	< 0.28	< 0.11

B-2

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	1.8	3.8
8-10	< 0.57	< 0.23

B-1

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.78	2.3
8-10	< 0.24	< 0.1

mg/kg: Milligrams per Kilogram
GRO: Total Petroleum Hydrocarbon Gasoline Range Organics
DRO: Total Petroleum Hydrocarbon Diesel Range Organics
BOLD*: Indicates Exceedance of NC TPH Action Levels
ft-bgs : Feet Below Ground Surface

Samples Collected 2-19-2019.

GRO/DRO Analyzed by Ultraviolet Fluorescence (UVF) by RED Lab, LLC.

- Sample Location
- Proposed Alignment
- ROW Proposed Permanent ROW
- Proposed Permanent Utility Easement
- Proposed Edge of Pavement
- Tax Parcels

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE 2017 NCONEMAP AERIAL ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

SCALE:
1 " = 100 '

DATE:
3-21-19

PROJECT NUMBER
4305-18-175

FIGURE NO.
3

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 214\Parcel 214.mxd plotted by abentz 03-21-2019

REFERENCE:
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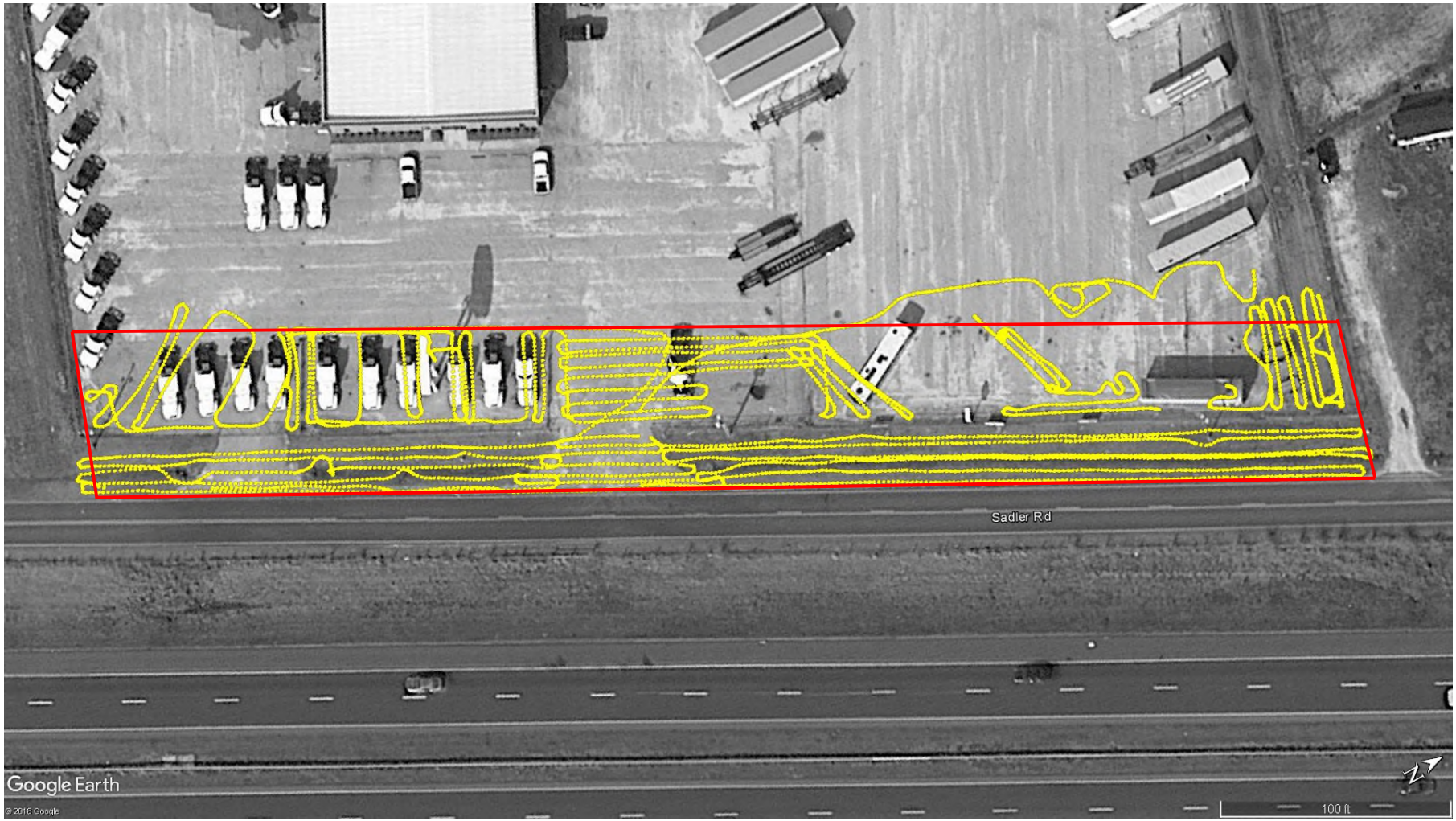
(DATED, MARCH, 04 2018)



LEGEND

Approximate TDEM Path

Approximate Requested Survey Area

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 214 – (LUCKY'S TRUCK AND TRAILER SALES)
1185 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
4

REFERENCE:
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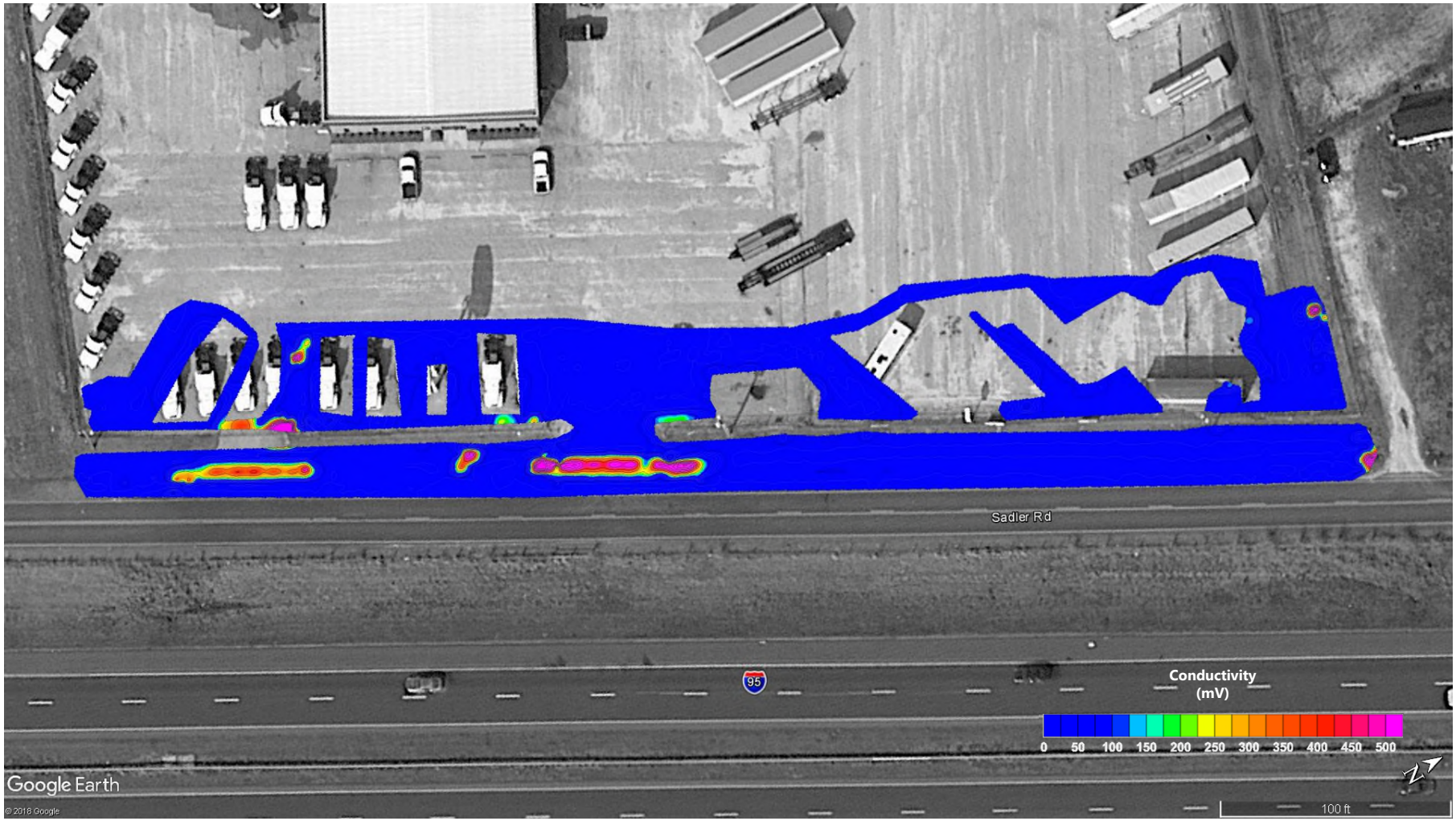
(DATED, MARCH, 04 2018)



TDEM DATA PLOT A

NCDOT PROJECT: I-5986B
PARCEL 214 – (LUCKY'S TRUCK AND TRAILER SALES)
1185 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
5

REFERENCE:
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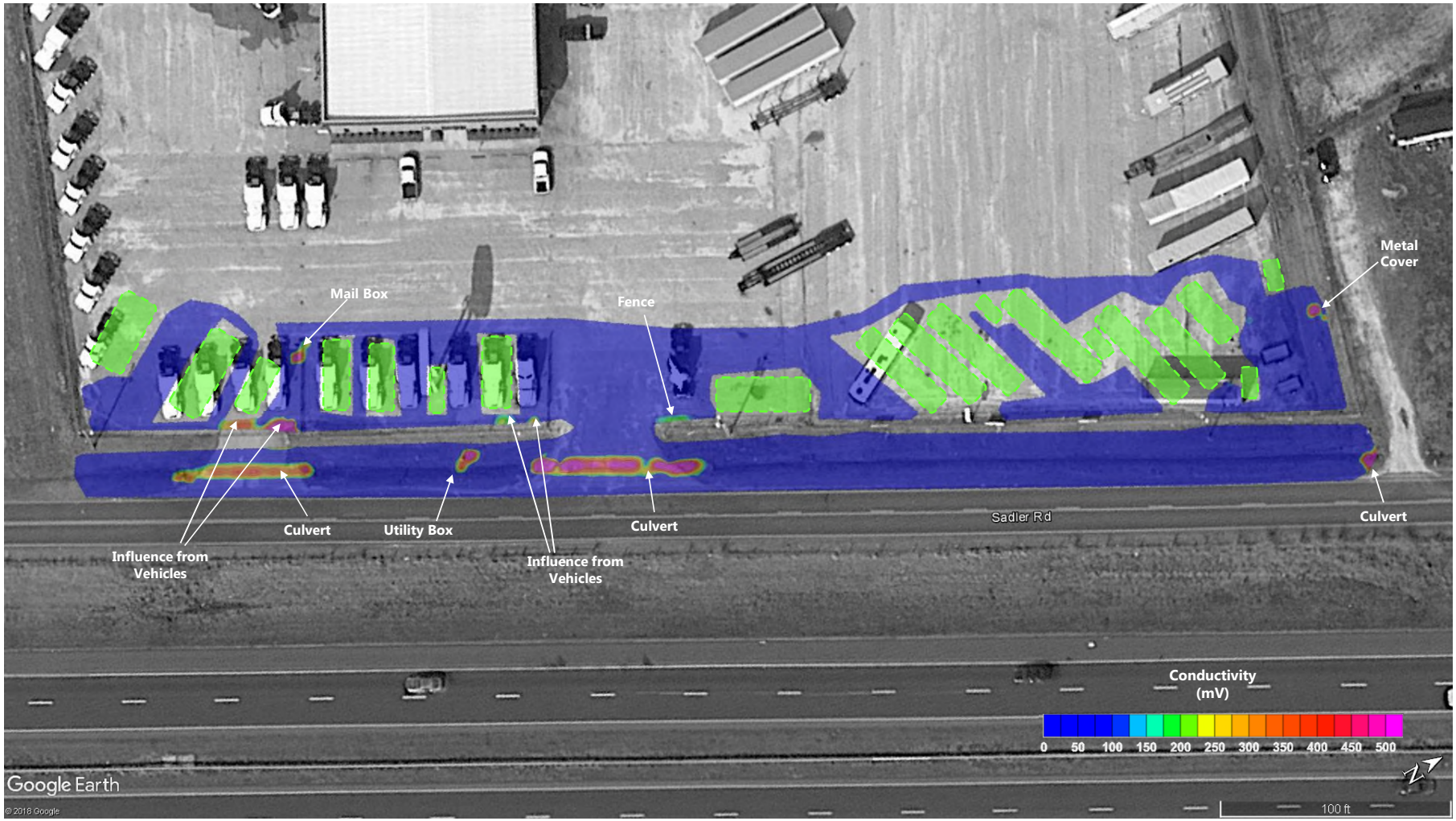
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of Vehicles

TDEM DATA PLOT B

NCDOT PROJECT: I-5986B
PARCEL 214 – (LUCKY'S TRUCK AND TRAILER SALES)
1185 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

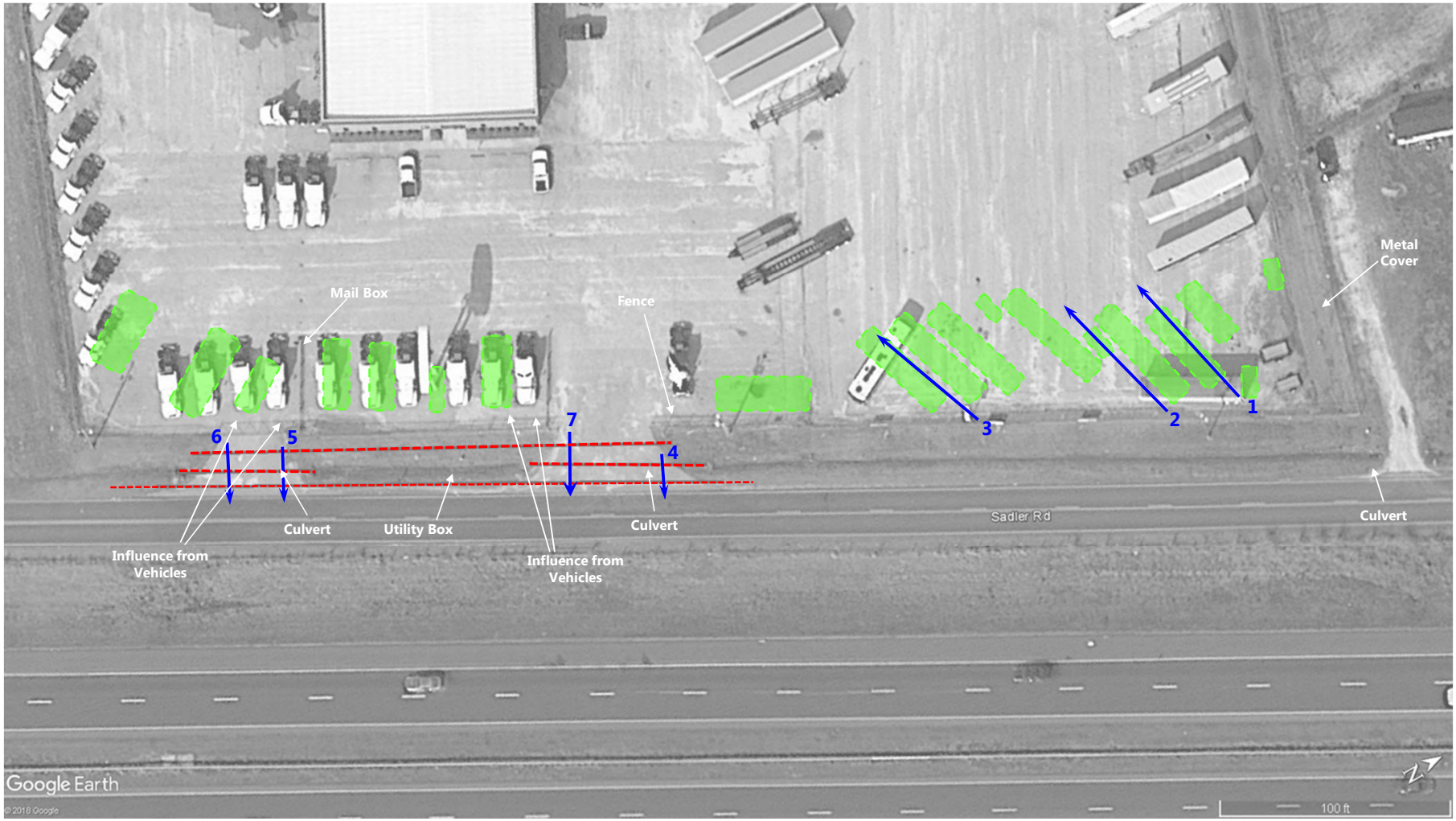
SCALE: AS SHOWN

DATE: 3/22/2019

PROJECT NUMBER 4305-18-175A

FIGURE NO. **6**

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of GPR Profile

Approximate Location of Vehicles

Approximate Location of Possible Utility

GEOPHYSICAL ANOMALY LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 214 – (LUCKY'S TRUCK AND TRAILER SALES)
1185 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

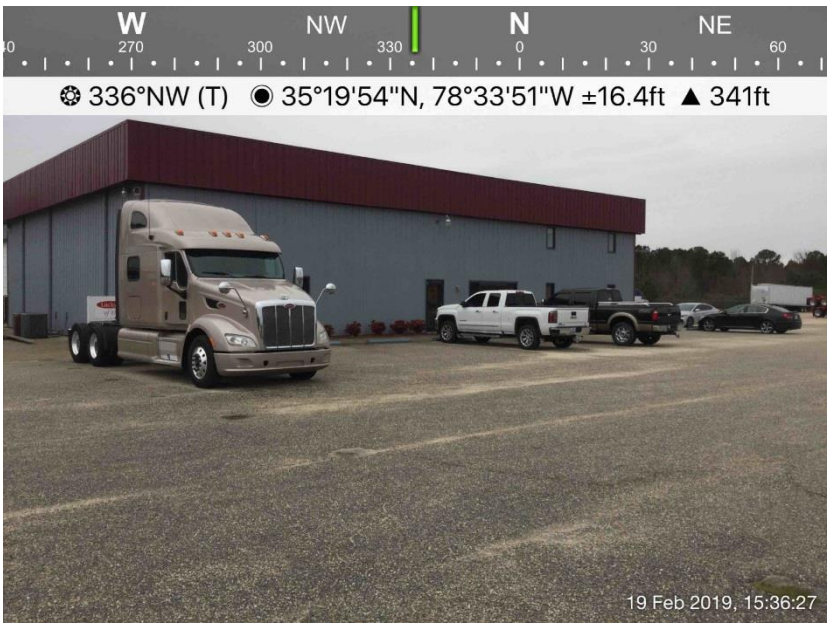
SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
7

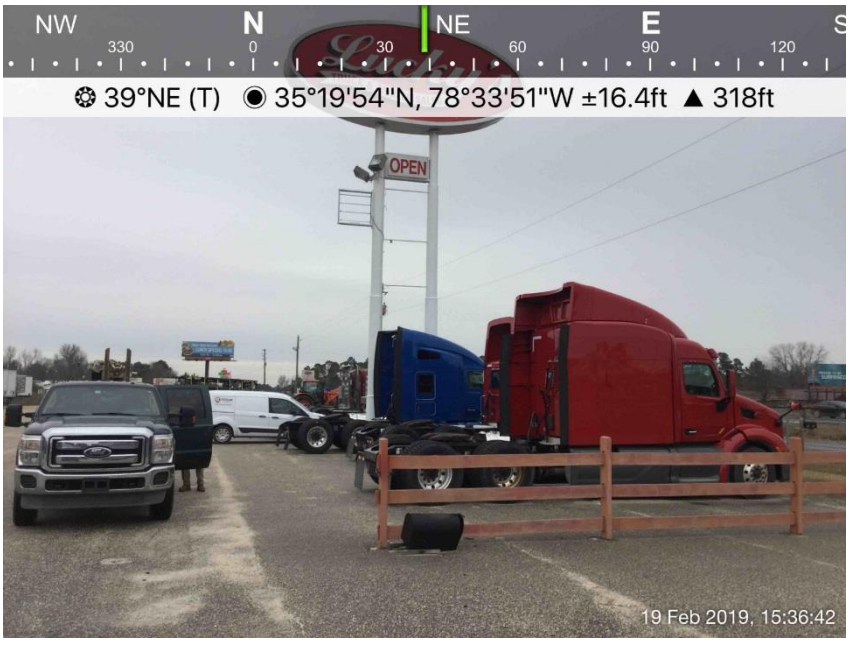
Appendix I – Photographs



Date: 2/19/2019

Photographer: JTH

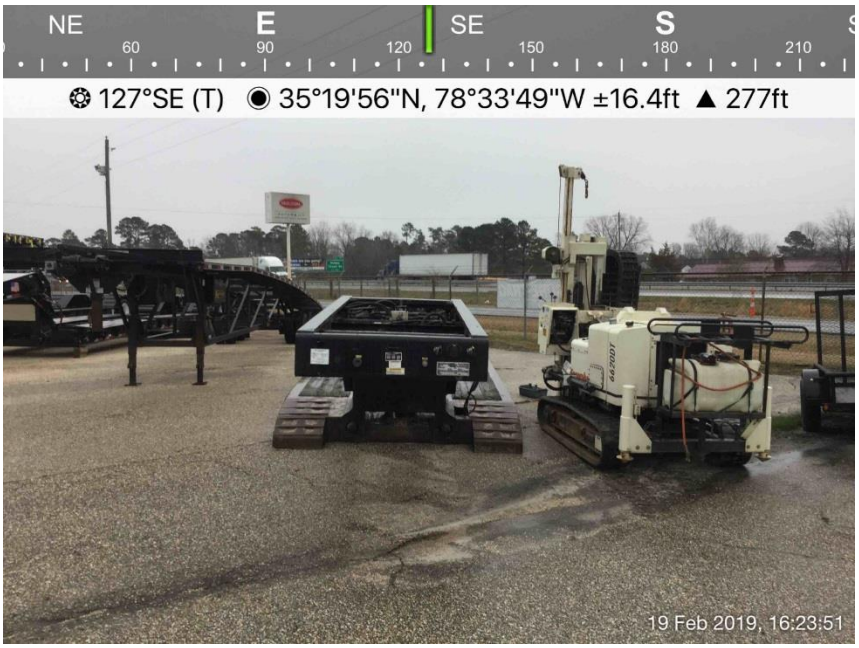
1	**Location / Orientation**	Front view of site looking northwest.
	Remarks	None



Date: 2/19/2019

Photographer: JTH

2	**Location / Orientation**	Front view of site looking northeast.
	Remarks	None



Date: 2/19/2019

Photographer: JTH

3	**Location / Orientation**	Front view of site looking southeast.
	Remarks	Note soil boring B-3

Appendix II – Boring Logs

PROJECT:	**NCDOT I-5986B** Parcel 214-1185 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-1**
DATE DRILLED:	Tuesday, February 19, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel,								
		Silty Sand, Orange, Tan,			0.1	No				
		Clayey Sand, Red, Orange, Tan,			0.6	Yes				
5					0.8	No				
					0.7	No				
10					0.6	Yes				
		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 214-1185 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-2**
DATE DRILLED:	Tuesday, February 19, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel,								
		Silty Sand, Brown,								
		Clayey Sand, Red, Orange, Tan,			0.4	No				
					0.7	Yes				
5					0.9	No				
					1.0	No				
					0.6	Yes				
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 214-1185 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-3**
DATE DRILLED:	Tuesday, February 19, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel,								
		Silty Sand, Brown,								
		Clayey Sand, Red, Orange, Tan,			0.6	No				
					0.5	Yes				
5					0.9	No				
					1.0	No				
10		Boring Terminated at 10 Ft-BGS			0.8	Yes				
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 214-1185 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-4**
DATE DRILLED:	Tuesday, February 19, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel,								
		Silty Sand, Brown,								
		Clayey Sand, Red, Orange, Tan,			0.3	No				
					0.5	Yes				
5					0.3	No				
					0.5	No				
10		Boring Terminated at 10 Ft-BGS			0.4	Yes				
15										
20										
25										
30										

Appendix III – Laboratory Analytical Reports and Chain of Custody

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: S&ME
Address:

Samples taken Tuesday, February 19, 2019
Samples extracted Tuesday, February 19, 2019
Samples analysed Tuesday, February 19, 2019

Contact: JAMIE HONEYCUTT

Operator MAX MOYER

Project: 4305-18-175A ; PARCEL 214

F03640

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	
Soil	B-1 (2-4')	31.3	<0.78	<0.78	2.3	2.3	0.92	0.05	<0.009	0	92	8	Deg Fuel 88.4%,(FCM)
Soil	B-1 (8-10')	9.8	<0.24	<0.24	<0.1	<0.24	<0.005	<0.005	<0.001	0	0	0	PHC ND,(FCM)
Soil	B-2 (2-4')	25.1	<0.63	1.8	3.8	5.6	1.4	0.07	0.001	61.3	35.5	3.1	Deg Fuel 89.2%,(FCM)
Soil	B-2 (8-10')	22.8	<0.57	<0.57	<0.23	<0.57	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)
Soil	B-3 (2-4')	18.3	<0.46	<0.46	0.88	0.88	0.52	0.01	<0.005	0	87.2	12.8	Deg Fuel 73%,(FCM)
Soil	B-3 (8-10')	11.4	<0.28	<0.28	<0.11	<0.28	<0.006	<0.006	<0.001	0	0	0	PHC ND,(FCM)
Soil	B-4 (2-4')	21.8	<0.55	<0.55	0.1	0.1	0.09	0.009	<0.007	0	100	0	Residual HC
Soil	B-4 (8-10')	24.3	<0.61	<0.61	<0.24	<0.61	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 107.9%

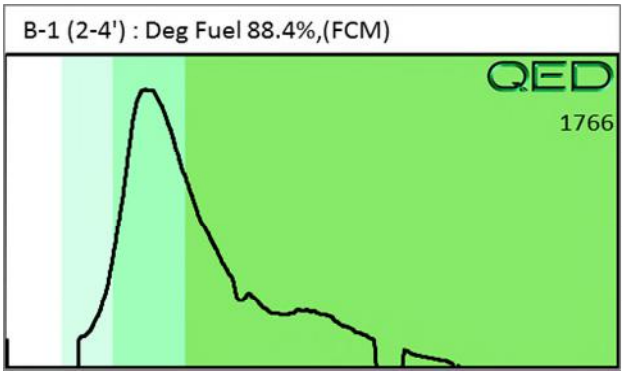
Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content

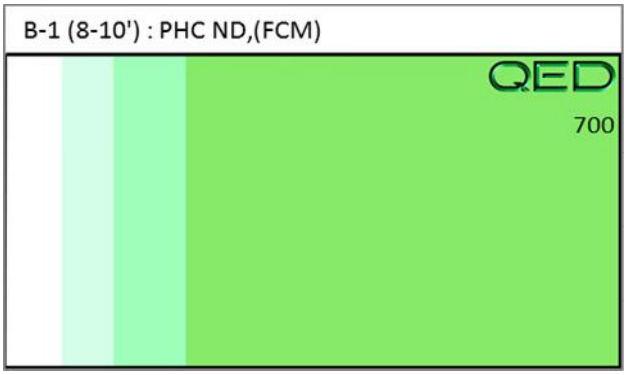
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

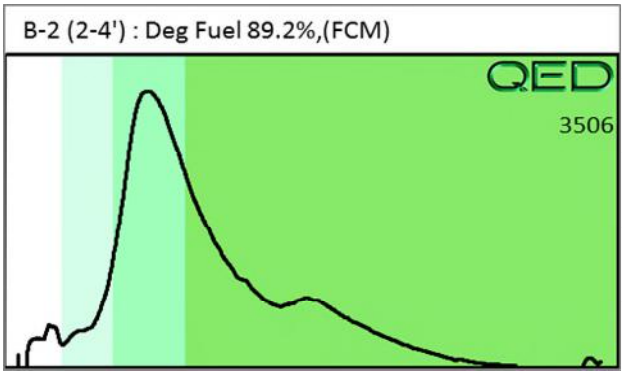
(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

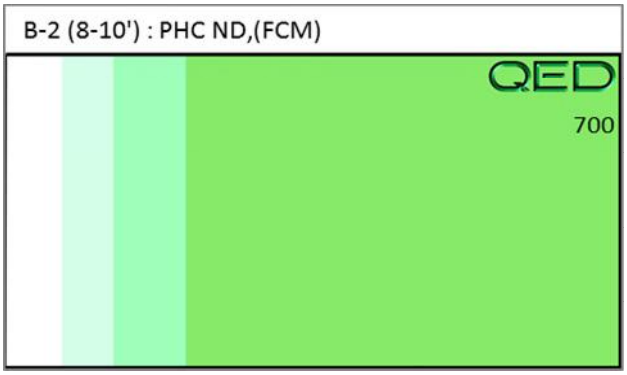
QED Hydrocarbon Fingerprints

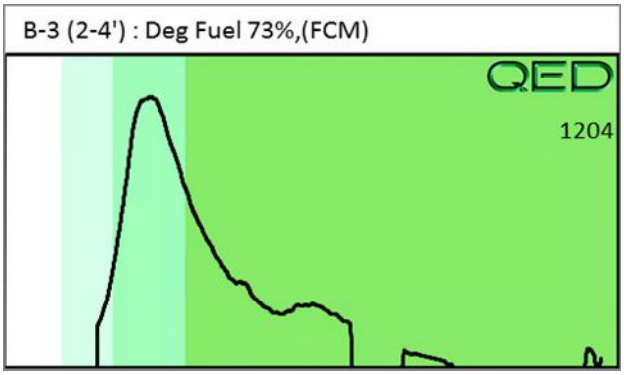
Project: 4305-18-175A ; PARCEL 214 ##################

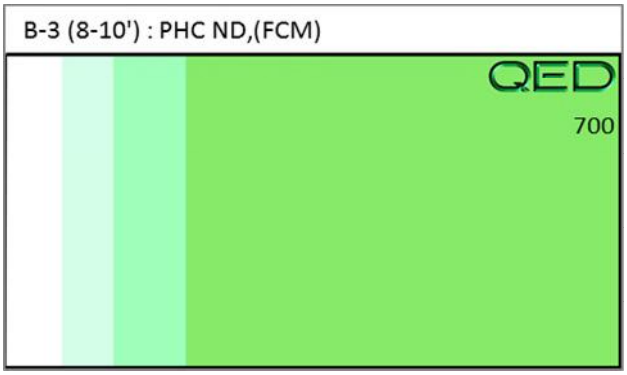


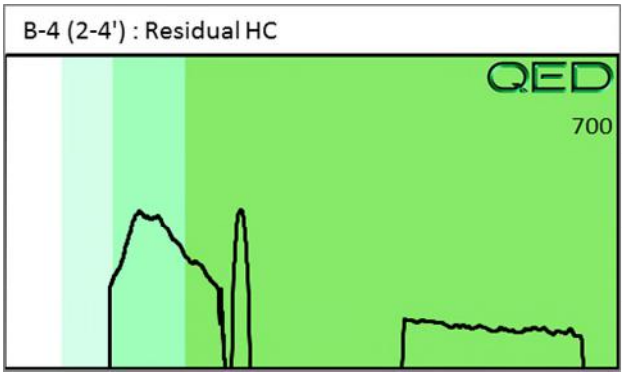


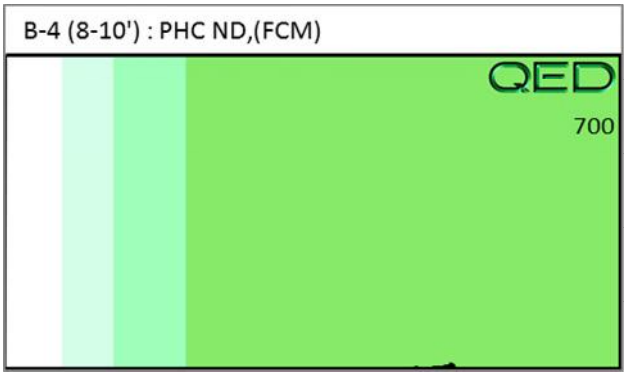












April 29, 2019

North Carolina Department of Transportation
Geotechnical Unit
Mail Service Center 1592
Raleigh, North Carolina 27699-1592

Attention: Mr. Craig Haden email: cehaden@ncdot.gov

Reference: **Preliminary Site Assessment Report**
NCDOT Project I-5986B, WBS Element 47532.1.3
Parcel 107-Pilot Travel Plaza
65 Sadler Drive
Dunn, Harnett County, North Carolina
S&ME Project 4305-18-175A

Dear Mr. Haden:

S&ME, Inc. (S&ME) is submitting this Preliminary Site Assessment (PSA) Report to the North Carolina Department of Transportation (NCDOT). This report presents the background/project information, field activities, findings, conclusions, and recommendations. These services were performed in general accordance with S&ME Proposal No. 4305-18-175 CO-01 REV-01 dated January 2, 2019, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its January 8, 2019 Notice to Proceed Letter.

♦ Background/Project Information

Based on NCDOT's November 2, 2018, Request for Technical and Cost Proposal, the PSA was conducted within the NCDOT right-of-way (ROW) and/or easement as indicated on the preliminary plan sheets provided by NCDOT at the following property:

NCDOT Parcel No.	Property Owner	Site Address
107	Marion Sadler	(Pilot Travel Plaza) 65 Sadler Drive, Dunn, NC

The property is developed with an active truck stop and garage identified as Pilot Travel Plaza, which utilizes several petroleum underground storage tanks (USTs). Information regarding the UST systems listed for this site is provided in the following table:

UST Facility ID No. 0-00-000002304

Number of Tanks	Contents	Capacity (gallons)	Date Installed	Date Removed
1	Gasoline	10,000	1993	Active
1	Gasoline	6,000	1993	Active
5	Diesel	20,000	1993	Active
4	Diesel	10,000	1964	1993
2	Gasoline	6,000	1964	1993
1	Gasoline	10,000	1964	1993
1	Diesel	8,000	1964	1993

The property is listed with two North Carolina Department of Environmental Quality (NCDEQ) Incidents (Incident #9364 and #29412) associated with petroleum releases from USTs which occurred in 1992 and 2006, respectively. The property is also listed with two NCDEQ Incidents (Incidents #90094 and #90216) associated with petroleum releases from aboveground storage tanks which occurred in 2011 and 2016, respectively.

The PSA included a geophysical survey, subsequent limited soil sampling (ten soil borings up to 10 feet below ground surface (ft.-bgs.) and limited groundwater sampling (one groundwater sample), within accessible areas of the proposed ROW/easement in preparation for construction activities. **Figure 1** shows the vicinity and site location, and **Figure 2** shows the site and boring locations. Soil and groundwater sampling results are shown on **Figure 3.**

♦ Field Services

Prior to field activities, a site specific Health and Safety Plan was prepared as required by the Occupational Health and Safety Act (OSHA). Underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator (Troxler Geologic, Inc.) was also used to locate and mark underground utilities.

♦ Geophysical Survey

On February 7, 2019, S&ME personnel performed a geophysical survey within accessible areas of the proposed ROW/easement at Parcel 107. S&ME used a combination of the Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) methods to explore for buried subsurface features at the site such as underground storage tanks (USTs) and other possible buried obstructions. Brief descriptions of these complementary geophysical techniques are presented in the following paragraphs.

Time Domain Electromagnetics (TDEM)

TDEM measures the electrical conductivity of subsurface materials and discriminates between moderately conductive earth materials and very conductive metallic targets within the shallow subsurface. The conductivity is determined by transmitting a time-varying magnetic pulse into the subsurface and measuring the amplitude and phase shift of the secondary magnetic field. The secondary magnetic field is created when the conductive materials become an inductor as the primary magnetic field is passed through them. TDEM data are acquired continuously at a walking pace typically along a series of parallel or perpendicular lines. The system generates audible and visual indications when metallic targets are encountered. These measurements can also be supported with a global positioning system (GPS) which is output directly into the TDEM data file.

We used a Geonics Limited EM-61 MK2 TDEM system in general accordance with ASTM D6820-02 (2007) "*Standard Guide for Use of the Time Domain Electromagnetic Method for Subsurface Investigation.*" Data was collected along lines spaced at approximately five feet using a Juniper® Systems Geode™ sub-meter GPS as positioning support. The presence of vehicles and other surficial obstructions within the requested survey area however prevented TDEM data collection in several locations. The approximate TDEM data collection paths are presented in **Figure 4**. Golden Software's Surfer® program was used to grid and plot the data (**Figures 5 and 6**). The TDEM data has been presented as Plots A and B in order to provide both opaque and transparent views, respectively.

Ground Penetrating Radar (GPR)

GPR transmits electromagnetic waves into the subsurface from an antenna at a specific frequency and measures the time for wave reflections to be received by interfaces between materials with differing material properties (e.g. soil/metal, etc.). The intensity of the reflected GPR wave is a function of the contrast in the material properties (i.e. dielectric permittivity) at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal.

We used a Geophysical Survey Systems, Inc. (GSSI) SIR® 3000 GPR system equipped with a 400 MHz antenna in general accordance with ASTM D6432-11 "*Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*" to further characterize anomalies/features identified during the TDEM survey.

A total of ten GPR profiles (Lines 1 through 10) were collected for documentation (**Figures 7 and 8**). The data was post-processed using the GSSI Radan® 7 GPR software program for additional analysis.

Geophysical Findings

Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site. Anomalous subsurface features were not identified in the TDEM data sets. However, two anomalies (Anomaly I and II) were identified by the GPR survey (**Figures 7 and 8**). Both GPR anomalies are characterized by high amplitude GPR responses less than about two ft.-bgs and likely related to isolated buried targets/debris. The anomalies were also marked in the field using white spray paint. Example GPR profiles are presented in **Figures 9 and 10**.

♦ Soil Sampling

On February 21, 2019, Troxler Geologic, Inc. (Troxler's) drill crew utilized a track mounted Geoprobe® rig to advance ten soil borings (B-1 through B-10) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 107. The approximate location of the soil borings are shown in **Figure 2**. A photographic log is included in **Appendix I.** Troxler's drill crew advanced the Geoprobe® borings up to a depth of approximately 10 ft.-bgs. During the advancement of the soil borings, groundwater was encountered at depths ranging from approximately four ft.-bgs to eight ft.-bgs. Soil samples were continuously collected in four-foot long disposable acetate-plastic sleeves that line the hollow stainless-steel sample probes. Soil recovered from the sleeves was classified on-site by S&ME personnel and screened with a Photoionization Detector (PID) at approximately two foot depth intervals to measure relative headspace concentrations of volatile organic compounds (VOCs).

VOC headspace readings were obtained from an aliquot of each soil sample that was placed in a re-sealable bag. Another portion of the sample was placed in a separate re-sealable bag and stored in an insulated container with ice for possible laboratory analyses. After waiting approximately 15 minutes to allow the sample to reach ambient temperature and headspace equilibrium, the PID probe was inserted into the bag to obtain a headspace reading. A summary of the PID readings and logs of the soil borings are included in **Appendix II.**

Petroleum odors and elevated PID readings were noted at soil boring B-5 starting at a depth of approximately two ft.-bgs and extending to the groundwater table. Groundwater was encountered at boring B-5 at a depth of 7.9 ft.-bgs. Petroleum odors or elevated PID readings were not noted at the other soil borings on the site. Therefore, various soil samples at varying depth intervals were selected from each boring and provided to RED Lab, LLC (Red Lab) for on-site analysis. A total of 21 soil samples were analyzed by RED Lab for Total Petroleum Hydrocarbons (TPH)-Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification.

Soil Analytical Results

TPH-DRO was reported at concentrations exceeding the North Carolina TPH Action Levels at boring B-5. TPH-DRO was reported at borings B-5 at the two to four foot depth interval, four to six foot depth interval and six to eight foot depth interval at concentrations of 214.2 milligrams per kilograms (mg/kg), 256.4 mg/kg and 947.1 mg/kg, respectively, which exceed its North Carolina TPH Action Level of 100 mg/kg. TPH-DRO was also reported at borings B-2, B-6 and B-7 at the two to four foot depth interval at concentrations ranging from 0.12 mg/kg to 4.2 mg/kg. TPH-DRO was reported at boring B-1 at the zero to two foot depth interval at a concentration of 20 mg/kg and at the two to four foot depth interval at a concentration of 94.2 mg/kg. TPH-DRO was also reported at boring B-7 at the six to eight foot depth interval at a concentration of 35.8 mg/kg. TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits at the remaining soil samples. A summary of the soil analytical results is presented in **Table 1** and shown on **Figure 3.** A copy of the laboratory analytical report provided by RED Lab is presented in **Appendix III.**

♦ Groundwater Sampling

During the advancement of the soil borings, groundwater was encountered within approximately 10 ft.-bgs. Therefore, the Geoprobe® was used to advance one of the soil borings into the groundwater table for the

collection of groundwater samples. Based on petroleum odors, elevated PID readings and analytical results of soil samples, soil borings B-5 was selected for the collection of groundwater samples. A temporary monitor well (TW-1) was installed at soil boring B-5 to a depth of approximately 15 ft.-bgs using a five foot section of one-inch diameter, Schedule 40 PVC well riser attached to a 10 foot section of 0.01-inch slotted screen that intersected the groundwater table. Groundwater within the temporary monitor well at soil boring B-5 was measured at 7.9 ft.-bgs. Groundwater from the temporary well was purged until relatively clear using disposable tubing attached to a peristaltic pump. The flow rate was reduced and laboratory supplied containers were filled directly from the tubing, labeled as B-5/TW-1 and placed in an insulated cooler with ice for transport to Con-Test Laboratories for analysis of VOCs by EPA Method 8260 and polycyclic aromatic compounds (PAHs) by EPA Method 8270.

Boring B-3 was also selected for a groundwater sample due to its close proximity to boring B-5 and nearby pump dispensers. However, no indication of a release was identified at B-3. A temporary monitor well was installed at soil boring B-3 to a depth of approximately 15 ft.-bgs using a five foot section of one-inch diameter, Schedule 40 PVC well riser attached to a 10 foot section of 0.01-inch slotted screen that intersected the groundwater table. Groundwater at boring B-3 was encountered at a depth of approximately six ft.-bgs. However, due to the clayey material the temporary well was dry and a groundwater sample was not collected at boring B-3.

Upon completion of the soil and groundwater sampling, the well materials were removed and the soil borings backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as additional soil cuttings generated during the soil boring advancement, purge water and decontamination water, were spread on the ground in accordance with the procedures specified by North Carolina Department of Environmental Quality (NCDEQ). Used gloves, tubing, re-sealable bags and acetate sleeves were bagged and disposed off-site.

Groundwater Analytical Results

Based upon analytical results of groundwater samples analyzed by Con-Test Laboratories, two petroleum related target constituents (MTBE and tert-Butyl alcohol) were reported at B-5/TW-1 at concentrations exceeding their 15A NCAC 2L Groundwater Quality Standards (2L Standards). Numerous additional target constituents were reported in the groundwater at B-5/TW-1 at concentrations above the laboratory method reporting limits but below their 2L Standards. A summary of the groundwater analytical results is presented in **Table 2** and shown on **Figure 3.** A copy of the laboratory analytical report provided by Con-Test Laboratories is presented in **Appendix III.**

♦ Conclusion and Recommendations

The geophysical survey identified two GPR anomalies (Anomaly I and II) which are likely related to buried isolated targets/debris. Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site.

S&ME advanced ten soil borings (B-1 through B-10) to a depth of up to approximately 10 ft.-bgs at the site. Petroleum odors and elevated PID readings were noted within the collected soil samples at boring B-5. Selected soil samples from the soil borings were analyzed onsite for TPH-GRO and TPH-DRO using UVF spectroscopy. TPH-DRO were reported in the soil samples collected at boring B-5 at the two to four, four to six and six to eight foot depth intervals at concentrations exceeding the North Carolina TPH Action Levels. During the soil boring advancement, groundwater was encountered at depths ranging from approximately four ft.-bgs to eight ft.-bgs

across the site. One temporary well (TW-1) was installed at soil boring B-5. Groundwater at TW-1 was measured at 7.9 ft.-bgs and analyzed by Con-Test Laboratories for VOCs by EPA Method 8260 and PAHs by EPA Method 8270. Two petroleum related target constituents (MTBE and tert-Butyl alcohol) were reported at concentrations exceeding their 2L Standards.

Based on the findings of the geophysical survey and analytical results of soil and groundwater samples, it is likely that during construction, NCDOT may encounter soil and groundwater impacted with petroleum at the site. Petroleum impacted soil at concentrations exceeding the North Carolina TPH Action Levels soil may be encountered within the vicinity of soil boring B-5 and westward toward soil boring B-7 where TPH detections in soil were reported below action levels. Assuming that a section of petroleum impacted soil approximately seven feet thick, 100 feet long along the corridor and approximately 40 wide at a depth of two to eight ft.-bgs, which is at the groundwater table; up to 900 cubic yards of soil near borings B-5 and B-7 may be impacted.

Petroleum impacted soil at concentrations marginally below the North Carolina TPH Action Levels may be encountered within the vicinity of soil boring B-1. Assuming that a section of petroleum impacted soil approximately two feet thick, 40 feet in diameter at a depth of two to four ft.-bgs, which is at the groundwater table encountered at B-1; up to 95 cubic yards of soil near boring B-1 may be impacted.

Therefore petroleum impacted soil may be encountered during construction to depths of up to approximately eight ft.-bgs; it should also be assumed that saturated petroleum impacted soil will be encountered if construction excavations extend deeper than four ft.-bgs within the vicinity of boring B-1 and eight ft.-bgs within the vicinity of boring, B-5 and B-7. If petroleum stained or odorous soils are encountered during construction, these soils should be properly handled and disposed at a licensed facility. If construction dewatering is required, petroleum impacted groundwater must be properly disposed or treated at a licensed facility.

S&ME recommends maintaining an awareness level for the presence of petroleum in the soil and groundwater at the site for the safety of workers and the public.

♦ Limitations

The results of this preliminary investigation are limited to the boring locations presented herein. The results of this Preliminary Site Assessment are not all inclusive and may not represent existing conditions across the entire property. These results only reflect the current conditions at the locations sampled on the date this Preliminary Site Assessment was performed. This report has been prepared in accordance with generally accepted environmental engineering and geophysical practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

The geophysical methods used for this survey have inherent limitations. Site metallic features (e.g., buildings, reinforced concrete, vehicles, etc.) and overhead transmission lines can produce a false electromagnetic response and may mask subsurface features. The depth of exploration of the GPR signal is highly site specific, and is greatly limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clay soils, and lowest in relatively low conductivity materials such as unsaturated sand. For this project location, the GPR data sets appear to have a maximum depth of penetration of approximately about five ft.-bgs.

Regardless of the thoroughness of a geophysical study, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the methods used and the method's limitations and data coverage. Accordingly, the possibility exists that not all features at a project site will be located due to either subsurface soil conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the methods used. As with most surface geophysical methods, resolution of the subsurface will also decrease with depth. As such, the size and/or contrast of features compared to the imaged subsurface media must be significant enough to produce the anticipated response. The location and/or determination (or the lack thereof) of potential buried features is based on our review of the provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

This Preliminary Site Assessment was performed solely for NCDOT regarding the above-referenced site and assessment area. This report is provided for the sole use of NCDOT. Use of this report by any other parties will be at such party's sole risk. S&ME disclaims liability for any such use or reliance by third parties. The observations presented in this report are indicative of conditions during the time of the assessment and of the specific areas referenced.

Closing

S&ME appreciates the opportunity to provide these services to you. If you have any questions or comments regarding this report, please contact us at your convenience.

Sincerely,

S&ME, Inc.

DocuSigned by:
Jamie Honeycutt
4C890EAEC25F488...

Jamie T Honeycutt
Environmental Professional
jhoneycutt@smeinc.com

DocuSigned by:
Michael Pfeifer
861E52DDEFAF4C7...

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Senior Project Manager
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NORTH CAROLINA PROFESSIONAL SEAL 18760 ENGINEER THOMAS P. RAYMOND

5/6/2019

Attachments:

Table 1: Summary of Soil Sampling Results
Table 2: Summary of Groundwater Sampling Results

Figure 1: Vicinity Map
Figure 2: Site Map
Figure 3: Soil and Groundwater Constituent Map
Figure 4: TDEM Path Location Plan
Figure 5: TDEM Data Plot A
Figure 6: TDEM Data Plot B
Figure 7: Geophysical Anomaly Location Plan
Figure 8: Geophysical Anomaly Location Plan – Detail
Figure 9: Example GPR Data – Lines 6 and 7
Figure 10: Example GPR Data – Lines 3 and 4

Appendix I: Photographs
Appendix II: Boring Logs
Appendix III: Laboratory Analytical Reports and Chain of Custody

Tables

TABLE 1
SUMMARY OF SOIL SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 107 - (Pilot Travel Plaza)
65 Sadler Drive
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

Analytical Method→			Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by Ultraviolet Fluorescence (UVF) Spectrometry	
Sample ID	**Date**	**Contaminant of Concern→** / **Sample Depth (ft.-bgs)**	**TPH-GRO**	**TPH-DRO**
B-1	2/21/2019	0 to 2	<0.65	**20**
		2 to 4	<0.51	**94.2**
B-2	2/21/2019	2 to 4	<0.73	**0.12**
		8 to 10	<0.52	<0.21
B-3	2/21/2019	2 to 4	<0.74	<0.3
		4 to 6	<0.52	<0.21
B-4	2/21/2019	2 to 4	<0.52	<0.21
		8 to 10	<0.61	<0.25
B-5	2/21/2019	2 to 4	<1.6	**214.2**
		4 to 6	<1.5	**256.4**
		6 to 8	<9.1	**947.1**
B-6	2/21/2019	2 to 4	<0.52	**1.1**
		6 to 8	<0.6	<0.24
B-7	2/21/2019	2 to 4	<0.5	**4.2**
		6 to 8	<0.62	**35.8**
B-8	2/21/2019	2 to 4	<0.66	<0.27
		6 to 8	<0.71	<0.29
B-9	2/21/2019	2 to 4	<0.63	<0.25
		6 to 8	<0.68	<0.27
B-10	2/21/2019	2 to 4	<0.57	<0.23
		6 to 8	<0.71	<0.29
North Carolina TPH Action Levels			**50**	**100**

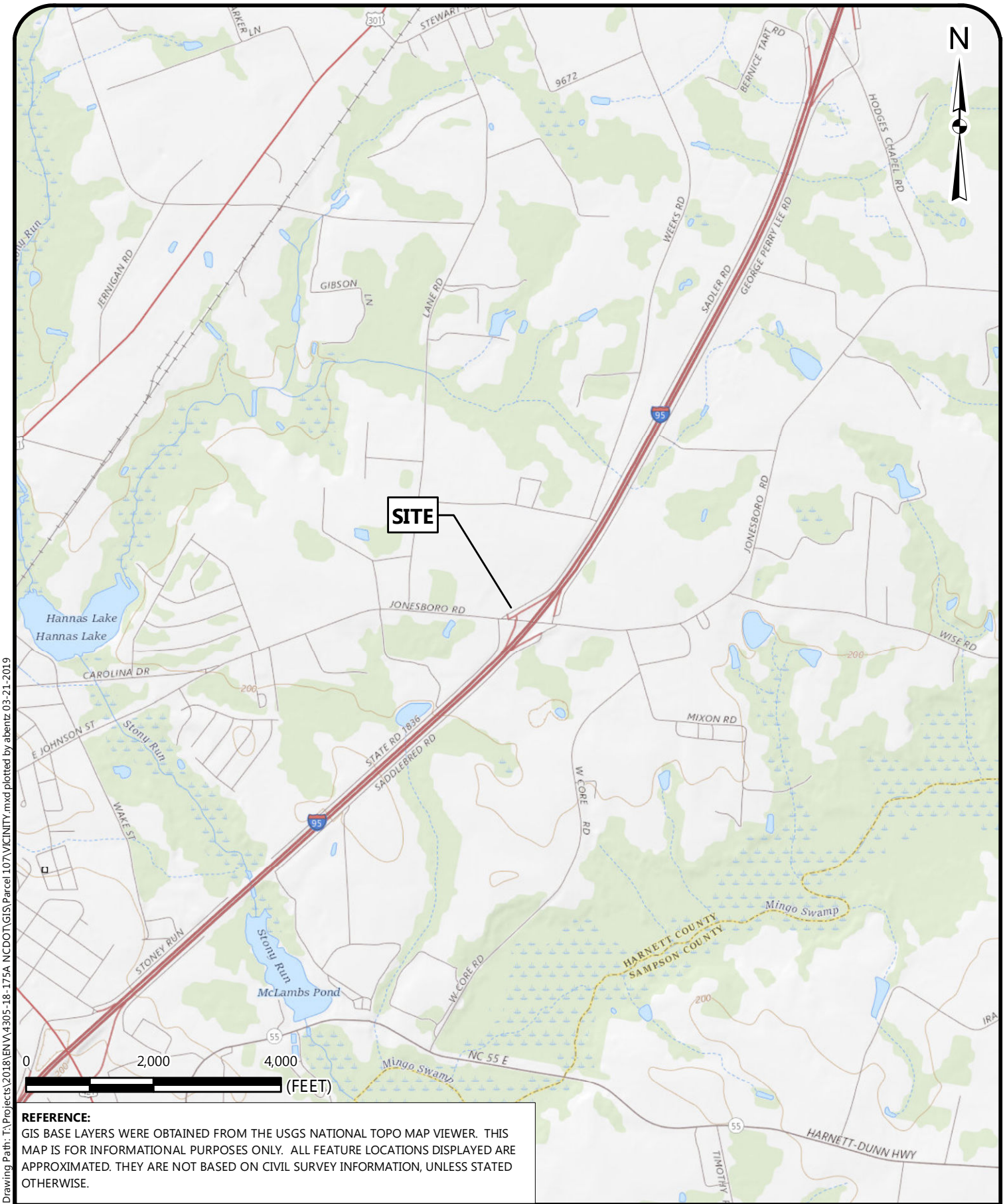
Notes:
1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the North Carolina TPH Action Levels are shown in Shaded and **BOLD** fields.

TABLE 2
SUMMARY OF GROUNDWATER SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 107 - (Pilot Travel Plaza)
65 Sadler Drive
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

Analytical Method→		Volatile Organic Compounds by EPA Method 8260													Polycyclic Aromatic Compounds (PAHs) by EPA Method 8270							
Sample ID	Contaminant of Concern→ Date	Benzene	Ethylbenzene	Diisopropyl Ether	Isopropylbenzene	MTBE	Naphthalene	n-Butylbenzene	sec-Butylbenzene	tert-Amyl Methyl Ether	tert-Butyl Alcohol	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acenaphthene	Anthracene	Acenaphthylene	Fluorene	Naphthalene	Pyrene	Phenanthrene	2-Methylnaphthalene
B-5/TW-1	2/21/2019	**0.12 J**	**0.21 J**	**2**	**0.38 J**	**35**	**1.8 J**	**0.28 J**	**0.70 J**	**4.6**	**11**	**0.34 J**	**0.22 J**	**0.16 J**	**0.76**	**0.11 J**	**0.14 J**	**1.6**	**1.3**	**0.16 J**	**0.89**	**2.6**
2L Standard (µg/L)		**1**	**600**	**70**	**70**	**20**	**6**	**70**	**70**	**128**	**10**	**70**	**400**	**400**	**80**	**2,000**	**200**	**300**	**6**	**200**	**200**	**30**
GCL (µg/L)		**5,000**	**84,500**	**70,000**	**25,000**	**20,000**	**6,000**	**6,900**	**8,500**	**128,000**	**10,000**	**30,000**	**28,500**	**25,000**	**2,120**	**2,000**	**1,965**	**990**	**6,000**	**200**	**410**	**12,500**

Notes:
1. Analytes that are not shown for the method were not detected.
2. Concentrations are reported in micrograms per liter (µg/L).
3. 2L Standard: North Carolina Groundwater Quality Standards: 15A NCAC 2L.0202
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the 2L Standards are shown in Shaded and **BOLD** fields.
6. GCL: Gross Contamination Level.
7. J: Estimated concentration detected below the reporting limit.

Figures



Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 107\VICINITY.mxd plotted by abentz 03-21-2019

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE USGS NATIONAL TOPO MAP VIEWER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

VICINITY MAP

NCDOT I-5986B
NCDOT PARCEL NO. 107 (PILOT TRAVEL PLAZA)
65 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: 1 " = 2,000 '
DATE: 3-21-19
PROJECT NUMBER 4305-18-175A

FIGURE NO. 1

LEGEND

Geoenvironmental Boring:

Underground Storage Tank (UST): UST

Map Source: NCDOT Project I-5986B
Image Source: NC ONEMAP, Dated 2016

Known Soil Contamination:

Possible Soil Contamination: — S —

Existing Contamination Known - Water: — W —

0 100 200
GRAPHIC SCALE (IN FEET)

SITE MAP

NCDOT Project: I-5986B
PARCEL 107 - (PILOT TRAVEL PLAZA)
65 Sadler Road, Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 100'	2
DATE:	
MARCH 2019	
PROJECT NUMBER	
4305-18-175A	

Parcel No. 107
65 Sadler Drive

TW-1	µg/L
EPA Method 8260	
Benzene	0.12
Ethylbenzene	0.21
Diisopropyl Ether	2
Isopropylbenzene	0.38
MTBE	**35#**
Naphthalene	1.8
n-Butylbenzene	0.28
sec-butylbenzene	0.70
tert-Amyl Methyl Ether	4.6
tert-Butyl Alcohol	**11#**
n-Propylbenzene	0.34
1,2,4-Trimethylbenzene	0.22
1,3,5-Trimethylbenzene	0.16
EPA Method 8270	
Acenaphthene	0.76
Anthracene	0.11
Acenaphthylene	0.14
Fluorene	1.6
Naphthalene	1.3
Pyrene	0.16
Phenanthrene	0.89
2-Methylnaphthalene	2.6

B-1

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO (mg/kg)
0-2	< 0.65	20
2-4	< 0.51	94.2

B-2

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO (mg/kg)
2-4	< 0.73	0.12
8-10	< 0.52	< 0.21

B-3

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO (mg/kg)
2-4	< 0.74	< 0.3
4-6	< 0.52	< 0.21

B-4

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO (mg/kg)
2-4	< 0.52	< 0.21
8-10	< 0.61	< 0.25

B-5

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO (mg/kg)
2-4	< 1.6	**214.2***
4-6	< 1.5	**256.4***
6-8	< 9.1	**947.1***

B-6

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO (mg/kg)
2-4	< 0.52	1.1
6-8	< 0.6	< 0.24

B-7

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO (mg/kg)
2-4	< 0.5	4.2
6-8	< 0.62	35.8

B-8

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO (mg/kg)
2-4	< 0.66	< 0.27
6-8	< 0.71	< 0.29

B-9

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO (mg/kg)
2-4	< 0.63	< 0.25
6-8	< 0.68	< 0.27

B-10

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO (mg/kg)
2-4	< 0.57	< 0.23
6-8	< 0.71	< 0.29

Fuel Dispensers
Fuel Dispensers
UST
B-1
B-2
B-3
B-4
B-5/TW-1
B-6
B-7
B-8
B-9
B-10
ROW
SADLER RD
EXIT RAMP 75 S
JONESBORO RD
JERRY CARR RD
INTERSTATE 95
INTERSTATE 95
N
0 75 150 (FEET)

mg/kg: Milligrams per Kilogram
µg/L: Micrograms per Liter
GRO: Total Petroleum Hydrocarbon Gasoline Range Organics
DRO: Total Petroleum Hydrocarbon Diesel Range Organics
BOLD*: Indicates Exceedance of NC TPH Action Levels
BOLD#: Indicates Exceedance of 2L Groundwater Samples
ft-bgs : Feet Below Ground Surface
PAH: Polycyclic Aromatic Compounds

Samples Collected 2-21-2019.

GRO/DRO Analyzed by Ultraviolet Fluorescence (UVF) by RED Lab, LLC.

- Sample Location
- Proposed Alignment
- ROW Proposed Permanent ROW
- Proposed Permanent Utility Easement
- Proposed Edge of Pavement
- Tax Parcels

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE 2017 NCONEMAP AERIAL ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 107\Parcel 107.mxd plotted by abentz 03-21-2019

SOIL AND GROUNDWATER CONSTITUENT MAP

NCDOT I-5986B
PARCEL NO. 107 (PILOT TRAVEL PLAZA)
65 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: 1 " = 75 '
DATE: 3-21-19
PROJECT NUMBER: 4305-18-175
FIGURE NO.: 3

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)

LEGEND

Approximate TDEM Path

Approximate Requested Survey Area

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 107 – (PILOT TRAVEL PLAZA)
65 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

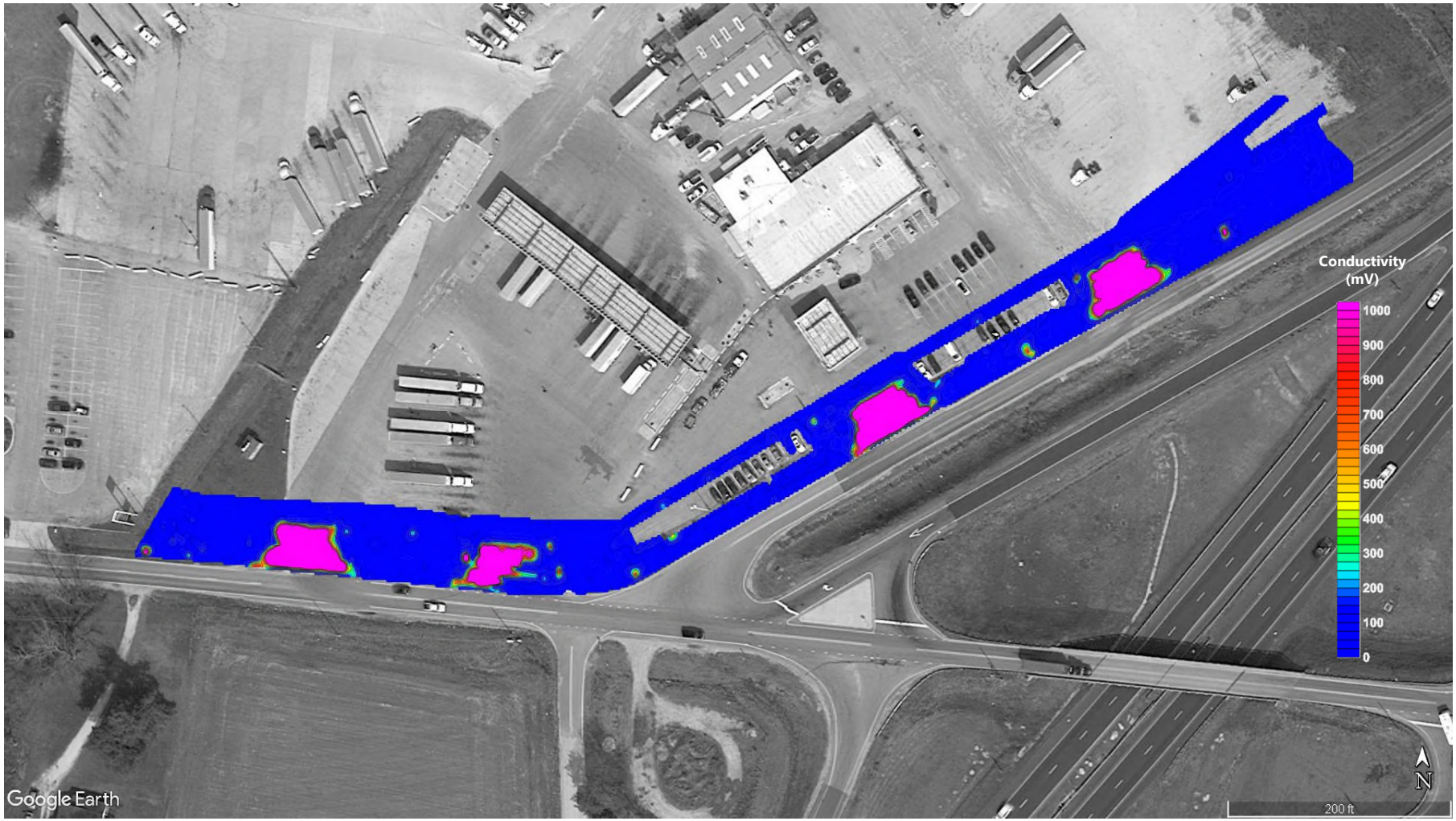
SCALE:
AS SHOWN

DATE:
3/21/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
4

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



TDEM DATA PLOT A

NCDOT PROJECT: I-5986B
PARCEL 107 – (PILOT TRAVEL PLAZA)
65 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

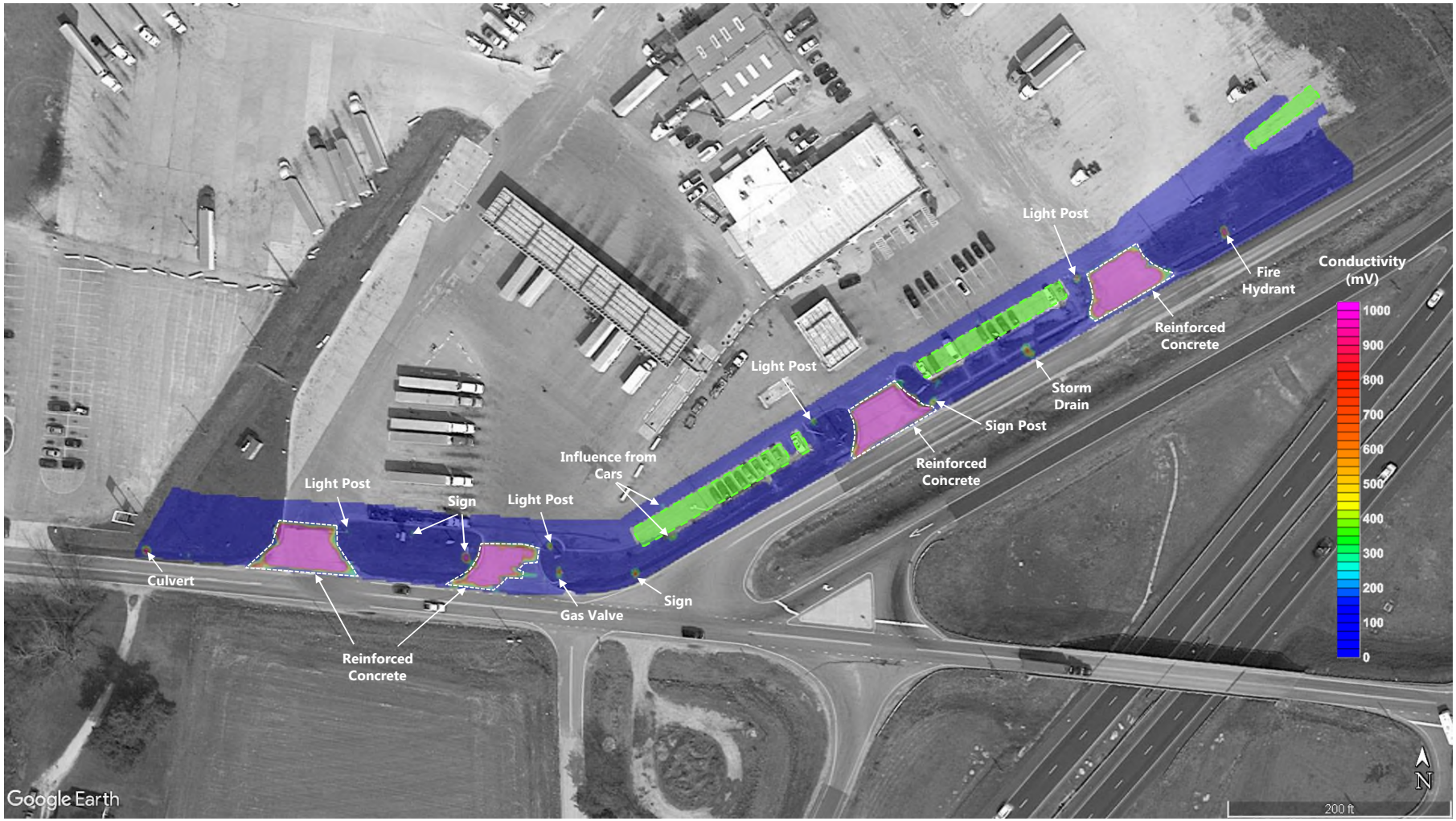
SCALE:
AS SHOWN

DATE:
3/21/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
5

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of Vehicles

TDEM DATA PLOT B

NCDOT PROJECT: I-5986B
PARCEL 107 – (PILOT TRAVEL PLAZA)
65 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

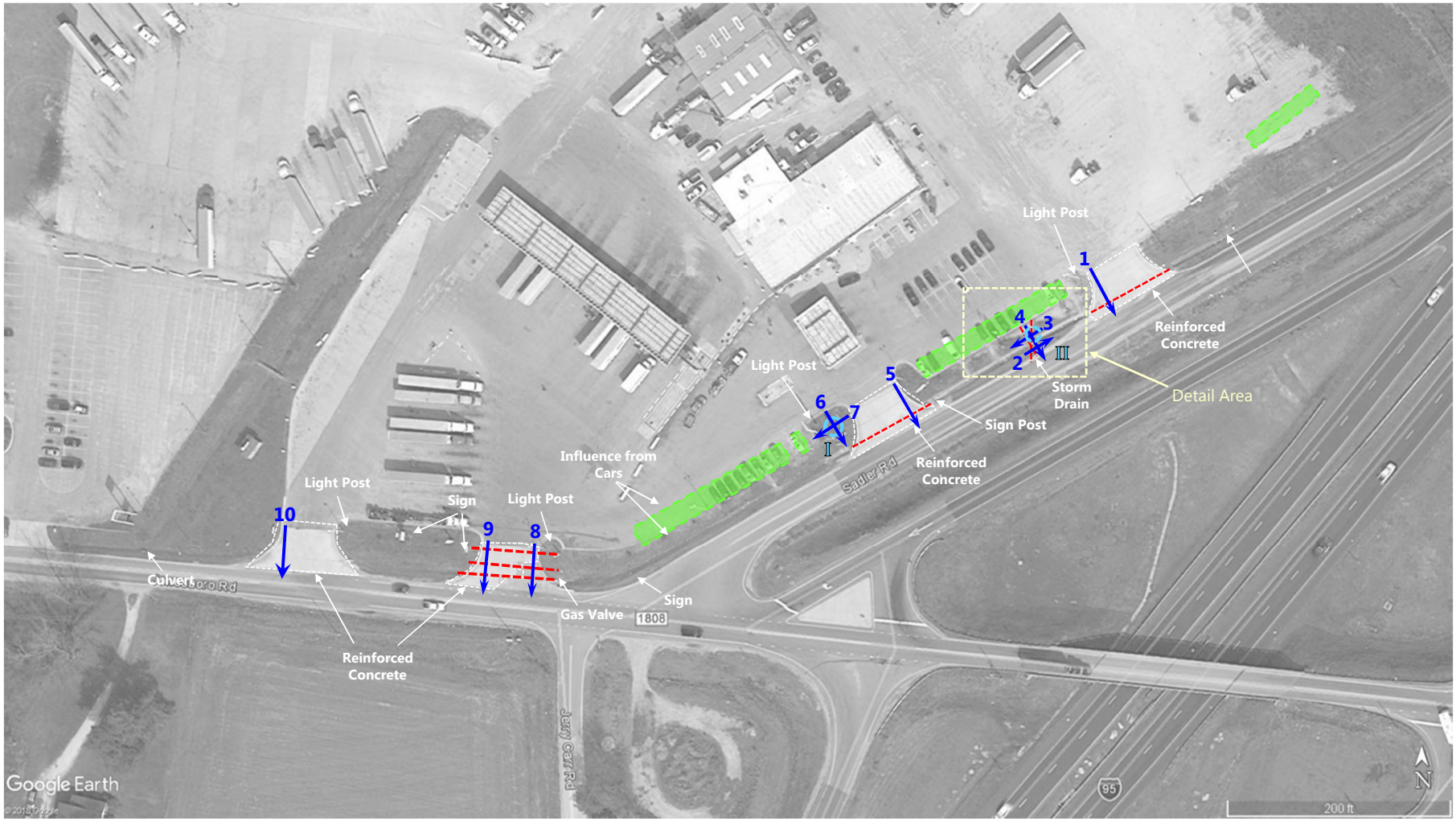
SCALE: AS SHOWN

DATE: 3/21/2019

PROJECT NUMBER 4305-18-175A

FIGURE NO. **6**

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of GPR Anomaly

Approximate Location of GPR Profile

Approximate Location of Vehicles

Approximate Location of Possible Utility

GEOPHYSICAL ANOMALY LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 107 – (PILOT TRAVEL PLAZA)
65 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/21/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
7

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)

LEGEND

Approximate Location of GPR Anomaly

Approximate Location of GPR Profile

Approximate Location of Drop Inlet

Approximate Location of Possible Utility

GEOPHYSICAL ANOMALY LOCATION PLAN - DETAIL

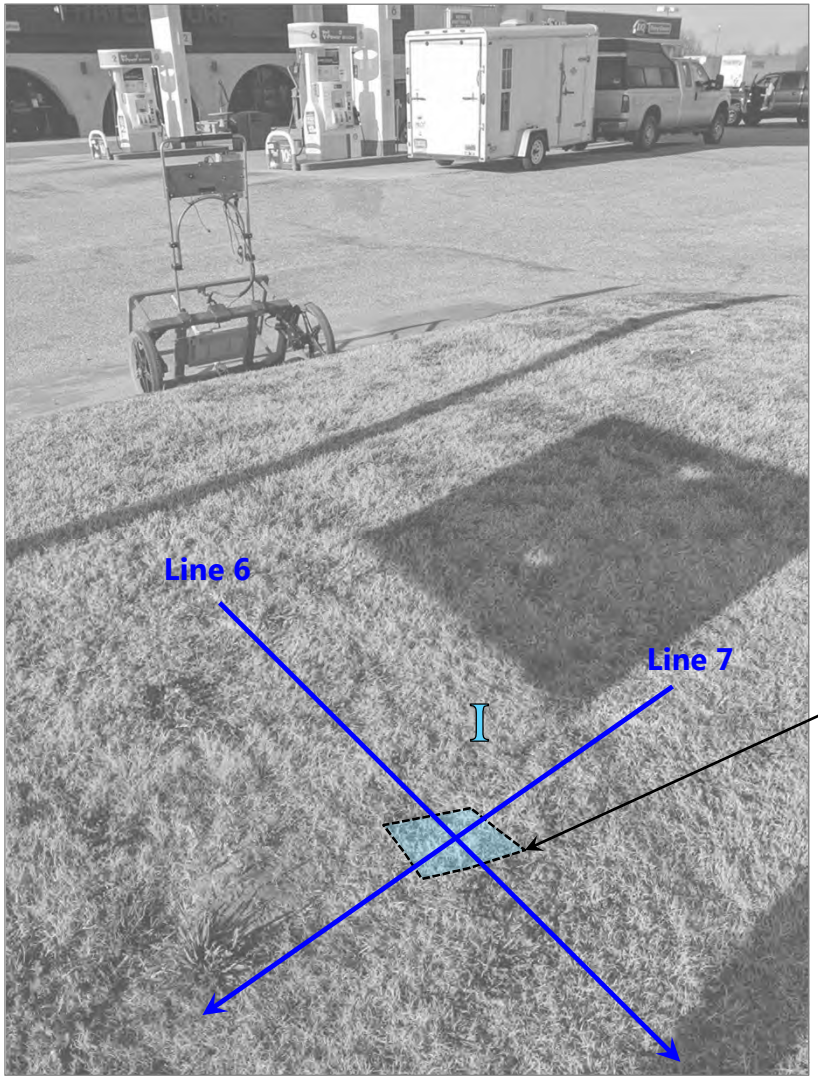
NCDOT PROJECT: I-5986B
PARCEL 107 – (PILOT TRAVEL PLAZA)
65 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

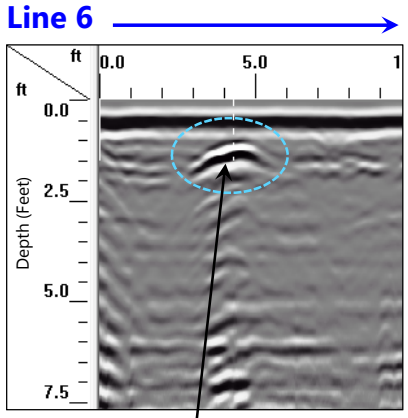
SCALE:
AS SHOWN

DATE:
3/21/2019

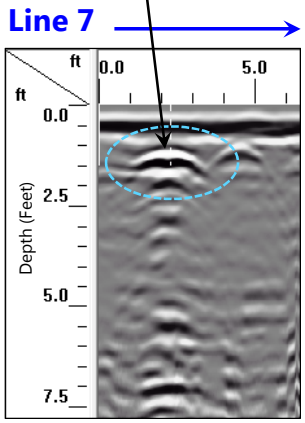
PROJECT NUMBER
4305-18-175A

FIGURE NO.
8





GPR Anomaly I



Note: Presented GPR profile depths are based on an assumed average dielectric and should be considered approximate

EXAMPLE GPR DATA – LINES 6 AND 7

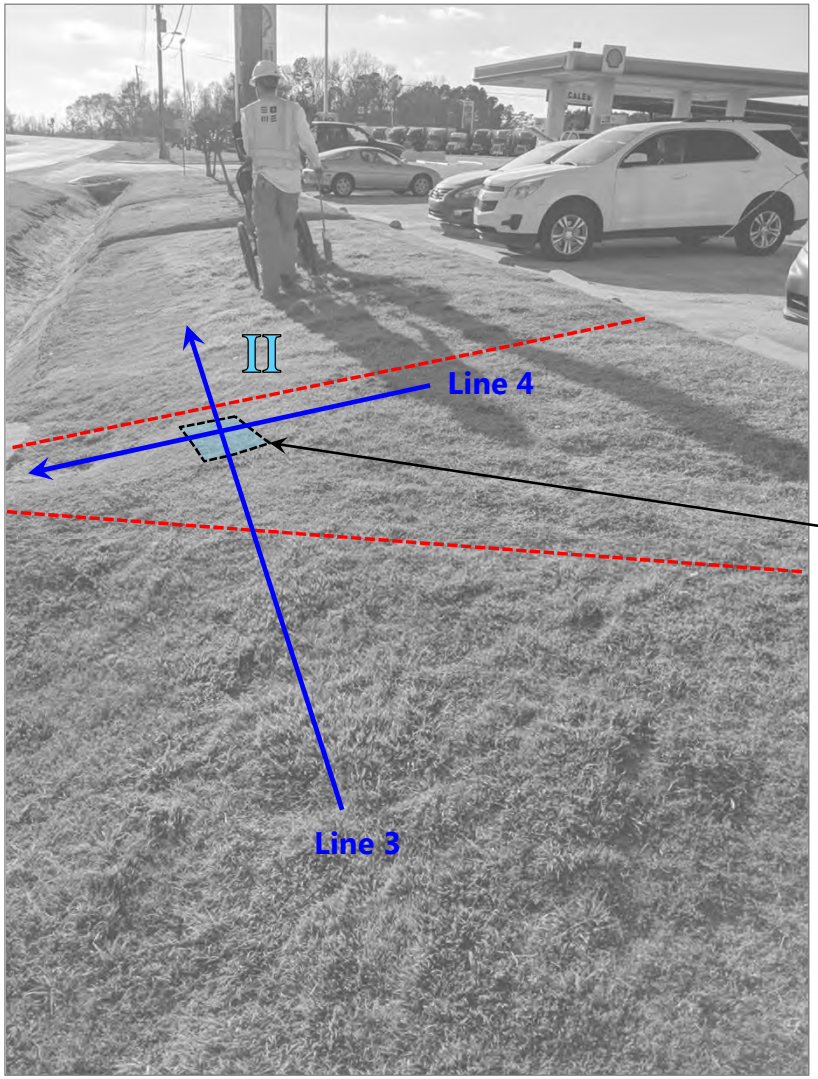
NCDOT PROJECT: I-5986B
PARCEL 107 – (PILOT TRAVEL PLAZA)
65 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

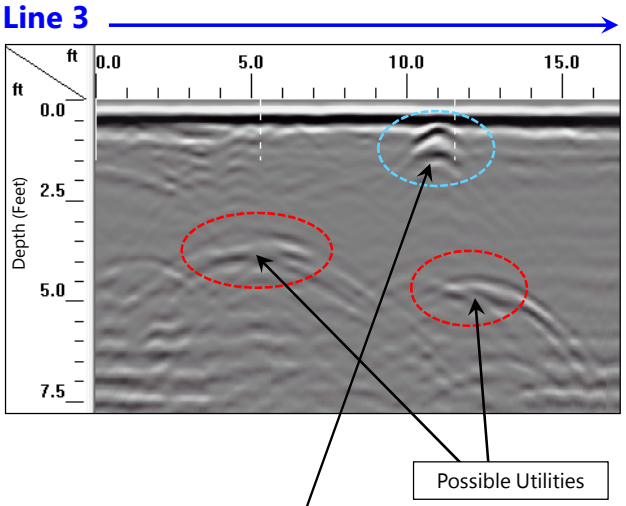
SCALE: AS SHOWN

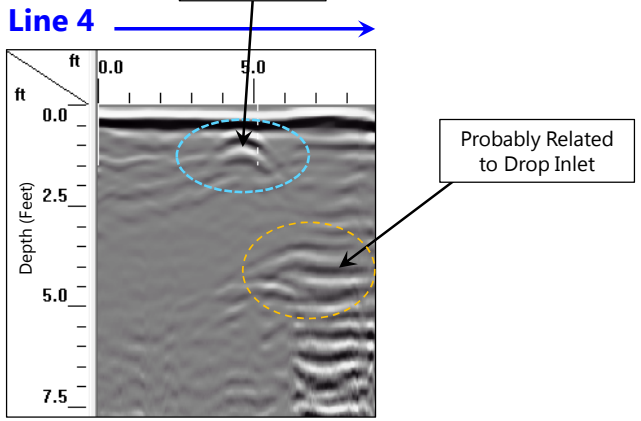
DATE: 3/21/2019

PROJECT NUMBER 4305-18-175A

FIGURE NO. **9**







Note: Presented GPR profile depths are based on an assumed average dielectric and should be considered approximate

EXAMPLE GPR DATA – LINES 3 AND 4

NCDOT PROJECT: I-5986B
PARCEL 107 – (PILOT TRAVEL PLAZA)
65 SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/21/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
10

Appendix I – Photographs

Date: 2/21/2019

Photographer: JTH

1	**Location / Orientation**	View of site looking east
	Remarks	Note soil boring location.

Date: 2/21/2019

Photographer: JTH

2	**Location / Orientation**	Groundwater sampling at B-5/TW-1.
	Remarks	None

Appendix II – Boring Logs

PROJECT:	**NCDOT I-5986B** Parcel 107-65 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-1**
DATE DRILLED:	Thursday, February 21, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	4
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Topsoil, Black,								
		Clayey Sand, Tan, Brown,			0.2	Yes				
					0.5	Yes				
5		Clayey Sand, Red, Orange, Wet,	▼							
		Boring Terminated at 8 Ft-BGS								
10										
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 107-65 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-2**
DATE DRILLED:	Thursday, February 21, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	5
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Topsoil, Black,								
		Clayey Sand, Tan, Brown,			0.6	No				
5					0.9	Yes				
					0.7	No				
		Clayey Sand, Red, Orange, Gray,			0.6	No				
		Sandy Clay, Red, Orange, Gray,			0.7	Yes				
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	NCDOT I-5986B Parcel 107-65 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-3**
DATE DRILLED:	Thursday, February 21, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	6
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	6
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Topsoil, Black,								
		Clayey Sand, Tan, Brown,			0.6	No				
5					0.5	Yes				
		Silty Sand, Tan, Brown, Wet,	▼		0.4	Yes				
		Sandy Clay, Gray,								
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 107-65 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-4**
DATE DRILLED:	Thursday, February 21, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Topsoil, Black,								
		Clayey Sand, Tan, Brown,			0.0	No				
					0.0	Yes				
5		Clayey Sand, Tan, Orange, Red,			0.1	No				
					0.0	No				
		Sandy Clay, Gray, Red,								
10					0.1	Yes				
		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 107-65 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-5/TW-1**
DATE DRILLED:	Thursday, February 21, 2019	BORING DEPTH (FT):	16
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	7.9
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel,								
		Clayey Sand, Tan, Brown, Petroleum Odors			6.0	No				
		Clayey Sand, Tan, Red, Petroleum Odors			5.2	Yes				
5					19.5	Yes				
			▼							
10		Sandy Clay, Gray, Petroleum Odors								
15		Silty Sand, Red, Tan, Petroleum Odors								
		Boring Terminated at 16 Ft-BGS								
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 107-65 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-6**
DATE DRILLED:	Thursday, February 21, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	8
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Topsoil, Black,								
		Clayey Sand, Red, Orange,			2.8	No				
					3.3	Yes				
5					3.1	No				
			▼		2.7	Yes				
		Clayey Sand, Brown, Wet, Petroleum Odors								
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 107-65 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-7**
DATE DRILLED:	Thursday, February 21, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel,								
		Clayey Sand, Brown, Tan,								
		Clayey Sand, Orange,			3.2	No				
					2.8	Yes				
5		Clayey Sand, Red, Orange, Gray, Slight Petroleum Odors			4.0	No				
					12.0	Yes				
10					3.8	No				
		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	NCDOT I-5986B Parcel 107-65 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-8**
DATE DRILLED:	Thursday, February 21, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	8
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Topsoil, Black,								
		Sand, Orange,								
		Clayey Sand, Tan, Brown,			3.1	No				
					3.1	Yes				
5		Clayey Sand, Red, Orange,			2.7	No				
					2.4	Yes				
		Boring Terminated at 8 Ft-BGS	▼							
10										
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 107-65 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-9**
DATE DRILLED:	Thursday, February 21, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Topsoil, Black,								
		Sand, Orange,								
		Clayey Sand, Tan, Brown,			2.7	No				
					3.1	Yes				
5		Clayey Sand, Red, Orange,			2.9	No				
					2.5	Yes				
10					1.3	No				
		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 107-65 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-10**
DATE DRILLED:	Thursday, February 21, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	8
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Topsoil, Black,								
		Sand, Orange,								
		Clayey Sand, Tan, Brown,			3.1	No				
					3.8	Yes				
5		Clayey Sand, Red, Orange,			2.2	No				
			▼		3.0	Yes				
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

Appendix III – Laboratory Analytical Reports and Chain of Custody

QED

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: S&ME
Address:

Samples taken Thursday, February 21, 2019
Samples extracted Thursday, February 21, 2019
Samples analysed Thursday, February 21, 2019

Contact: JAMIE HONEYCUTT

Operator JENN RYAN

Project: 4305-18-175A; PARCEL 107

H09382

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
										C5 - C10	C10 - C18	C18	
Soil	B - 1 (0-2')	26.0	<0.65	<0.65	20	20	10.1	0.74	0.002	0	97.9	2.1	Deg Fuel 76.1%,(FCM)
Soil	B - 1 (2-4')	20.3	<0.51	<0.51	94.2	94.2	47.2	3.5	0.004	0	98.9	1.1	Deg Fuel 89.8%,(FCM)
Soil	B - 2 (2-4')	29.2	<0.73	<0.73	0.12	0.12	0.12	0.04	0.017	0	39.1	60.9	Residual HC
Soil	B - 2 (8-10')	21.0	<0.52	<0.52	<0.21	<0.52	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM),(P)
Soil	B - 3 (2-4')	29.5	<0.74	<0.74	<0.3	<0.74	<0.01	<0.01	<0.009	0	0	0	PHC ND,(FCM)
Soil	B - 3 (4-6')	21.0	<0.52	<0.52	<0.21	<0.52	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM),(P)
Soil	B - 4 (2-4')	20.6	<0.52	<0.52	<0.21	<0.52	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	B - 4 (8-10')	24.5	<0.61	<0.61	<0.25	<0.61	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)
Soil	B - 5 (2-4')	64.6	<1.6	<1.6	214.2	214.2	147.6	5.8	0.003	0	99.4	0.6	Deg.Diesel 82%,(FCM)
Soil	B - 5 (4-6')	58.2	<1.5	<1.5	256.4	256.4	191.2	7.3	0.004	0	99.5	0.5	Deg.Diesel 81.4%,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 100.1%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

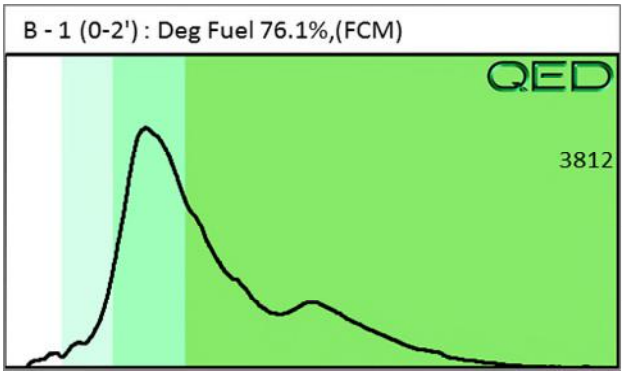
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

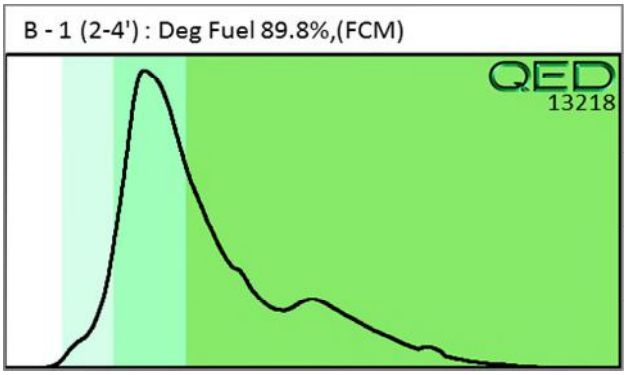
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

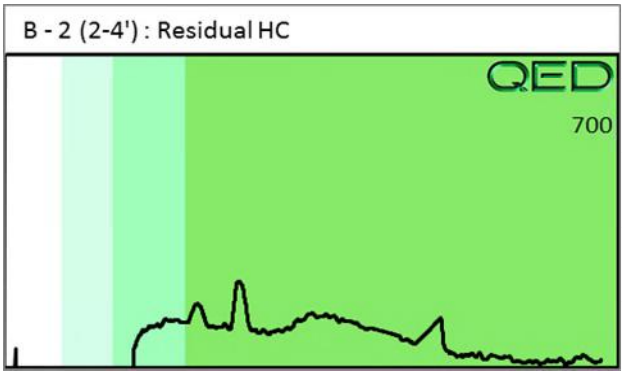
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

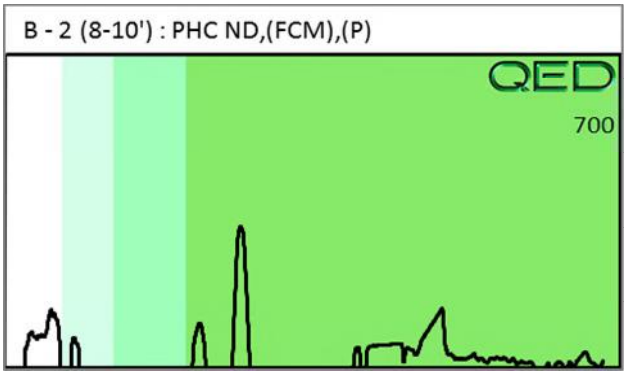
QED Hydrocarbon Fingerprints

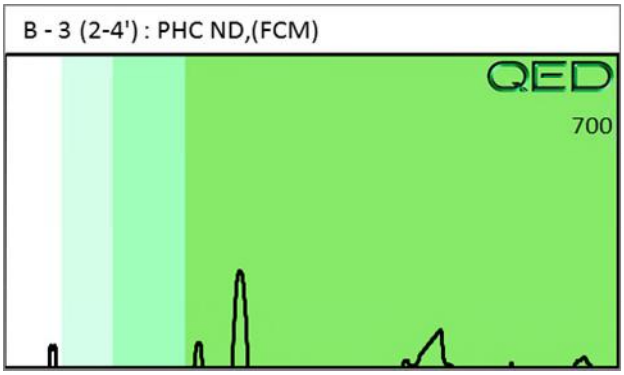
Project: 4305-18-175A; PARCEL 107 ##################

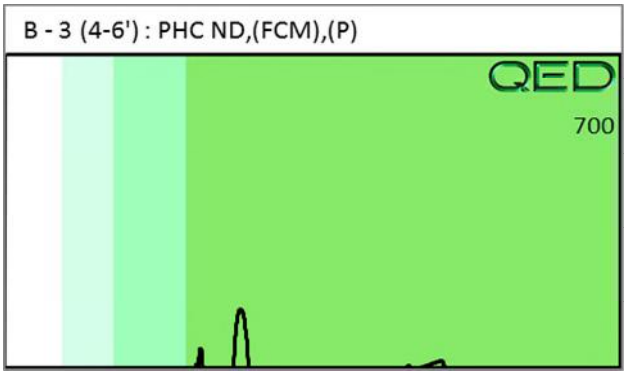


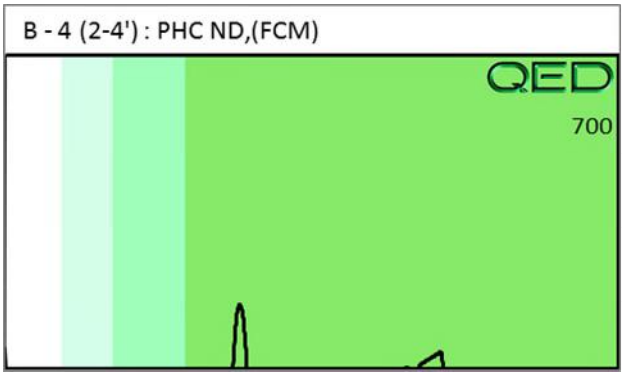


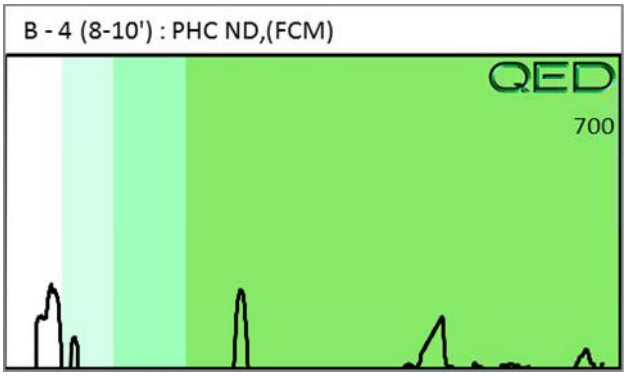


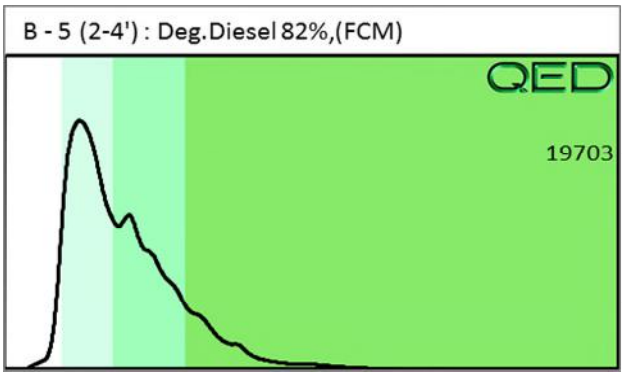


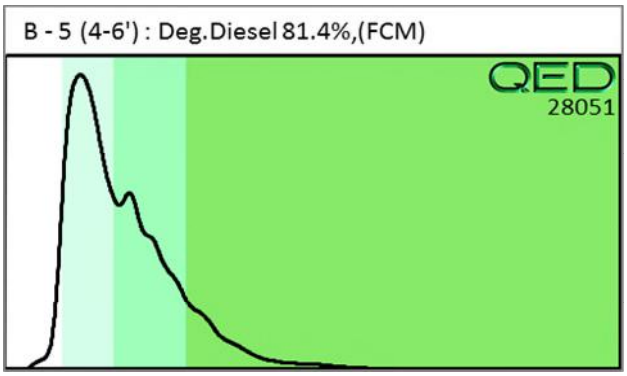












QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: S&ME
Address:

Samples taken Thursday, February 21, 2019
Samples extracted Thursday, February 21, 2019
Samples analysed Thursday, February 21, 2019

Contact: JAMIE HONEYCUTT

Operator JENN RYAN

Project: 4305-18-175A; PARCEL 107

H09382

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
										C5 - C10	C10 - C18	C18	
Soil	B - 5 (6-8')	364.0	<9.1	<9.1	947.1	947.1	725.3	25.7	<0.11	0	99.8	0.2	Deg.Diesel 95%,(FCM)
Soil	B - 6 (2-4')	20.8	<0.52	<0.52	1.1	1.1	0.48	0.02	<0.006	0	92.6	7.4	V.Deg.PHC 77.4%,(FCM)
Soil	B - 6 (6-8')	23.9	<0.6	<0.6	<0.24	<0.6	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 100.3%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

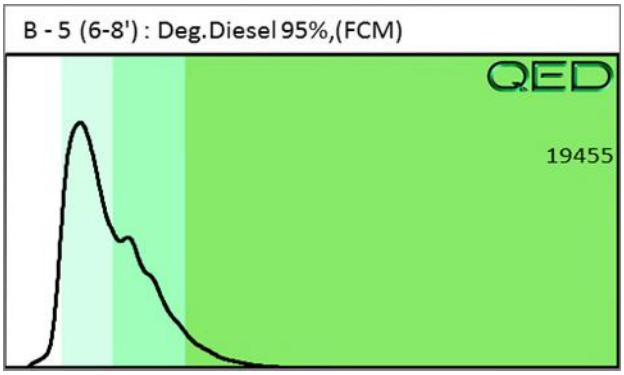
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

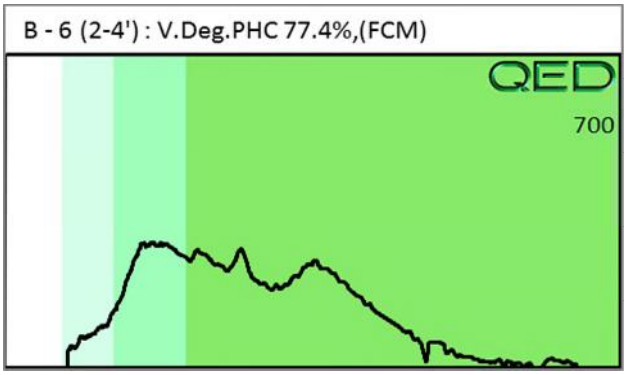
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

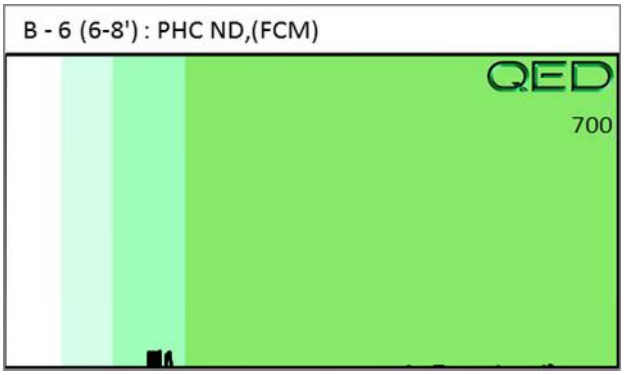
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

QED Hydrocarbon Fingerprints

Project: 4305-18-175A; PARCEL 107 ##################







QED

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: S&ME
Address:

Samples taken Thursday, February 21, 2019
Samples extracted Thursday, February 21, 2019
Samples analysed Thursday, February 21, 2019

Contact: JAMIE HONEYCUTT

Operator JENN RYAN

Project: 4305-18-175A; PARCEL 107

H09382

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
										C5 - C10	C10 - C18	C18	
Soil	B - 7 (2-4')	19.8	<0.5	<0.5	4.2	4.2	0.98	0.15	0.001	0	97.2	2.8	Deg Fuel 92.3%,(FCM),(P)
Soil	B - 7 (6-8')	24.8	<0.62	<0.62	35.8	35.8	28.5	1.1	0.001	0	99.4	0.6	Deg.Diesel 76.9%,(FCM)
Soil	B - 8 (2-4')	26.5	<0.66	<0.66	<0.27	<0.66	<0.01	<0.01	<0.008	0	0	0	PHC ND,(FCM)
Soil	B - 8 (6-8')	28.6	<0.71	<0.71	<0.29	<0.71	<0.01	<0.01	<0.009	0	0	0	PHC ND,(FCM)
Soil	B - 9 (2-4')	25.2	<0.63	<0.63	<0.25	<0.63	<0.01	<0.01	<0.008	0	0	0	PHC ND,(FCM),(P)
Soil	B - 9 (6-8')	27.1	<0.68	<0.68	<0.27	<0.68	<0.01	<0.01	<0.008	0	0	0	PHC ND,(FCM)
Soil	B - 10 (2-4')	22.8	<0.57	<0.57	<0.23	<0.57	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM),(P)
Soil	B - 10 (6-8')	28.6	<0.71	<0.71	<0.29	<0.71	<0.01	<0.01	<0.009	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 99.5%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

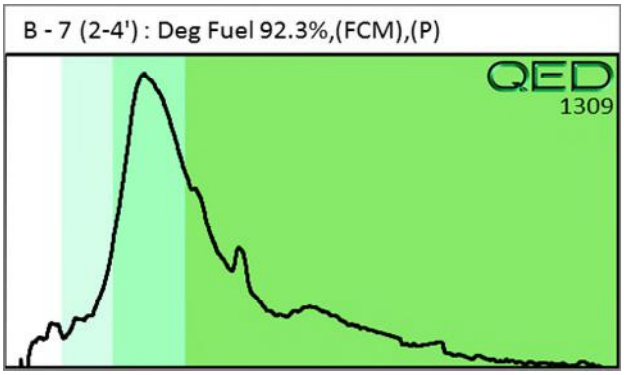
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

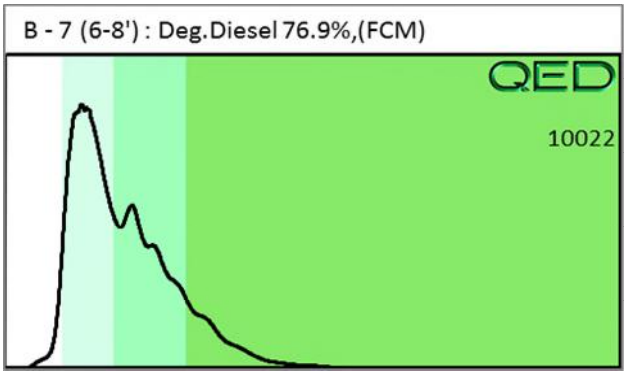
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

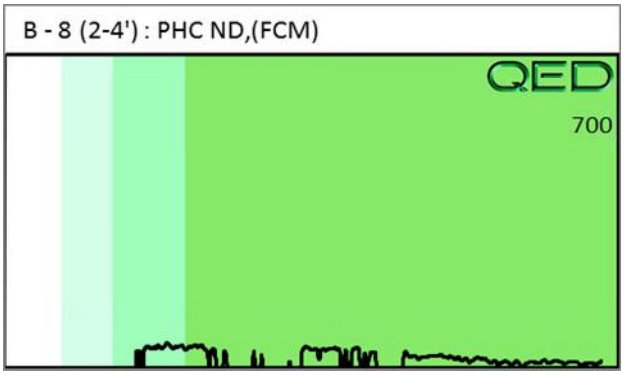
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

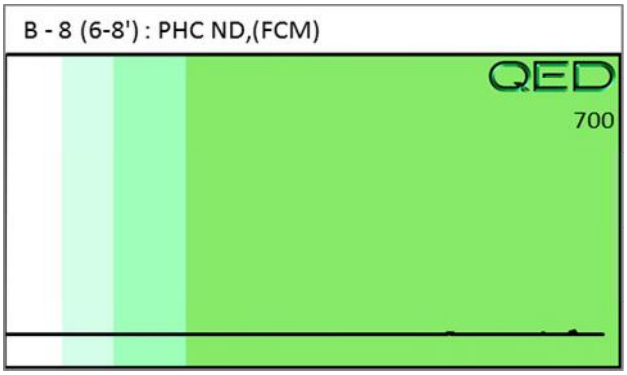
QED Hydrocarbon Fingerprints

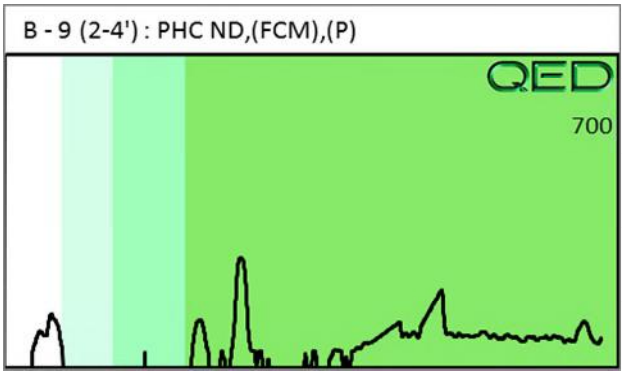
Project: 4305-18-175A; PARCEL 107 ##################

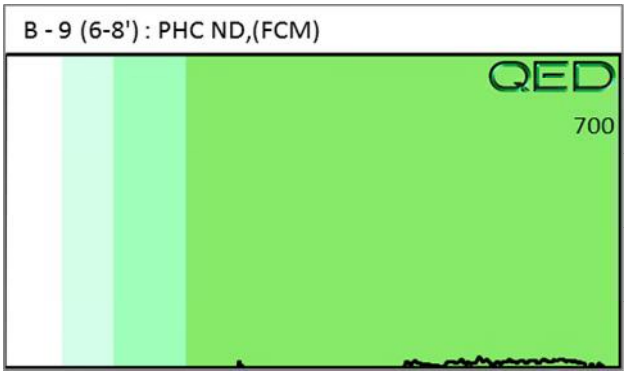


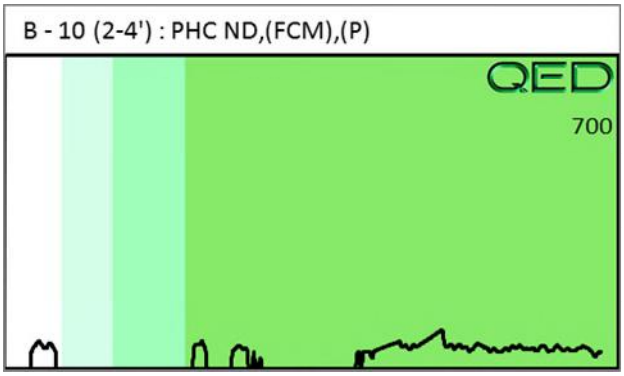


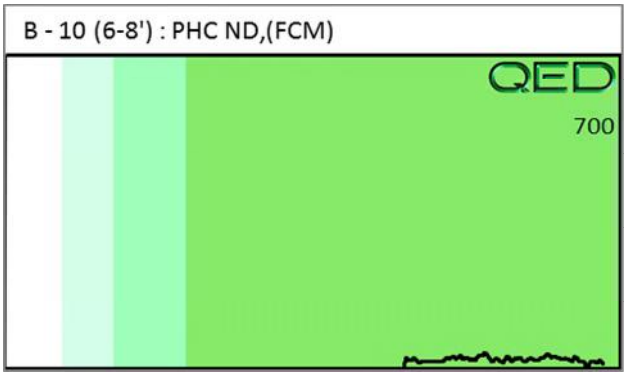












con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

March 6, 2019

Jamie Honeycutt
S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616

Project Location: 65 Sadler Drive, Dunn, NC
Client Job Number:
Project Number: 4305-18-175A
Laboratory Work Order Number: 19B1124

Enclosed are results of analyses for samples received by the laboratory on February 25, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616
ATTN: Jamie Honeycutt

REPORT DATE: 3/6/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 4305-18-175A

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19B1124

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 65 Sadler Drive, Dunn, NC

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
B-5/ TW-1	19B1124-01	Ground Water		SW-846 8260D SW-846 8270D	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

EXECUTIVE SUMMARY

Client ID: **B-5/ TW-1** Lab ID: **19B1124-01**

Analyte	Results/Qual		DL	RL	Units	Method
1,2,4-Trimethylbenzene	0.22	J	0.18	1.0	µg/L	SW-846 8260D
1,3,5-Trimethylbenzene	0.16	J	0.13	1.0	µg/L	SW-846 8260D
Benzene	0.12	J	0.12	1.0	µg/L	SW-846 8260D
Diisopropyl Ether (DIPE)	2.0		0.18	0.50	µg/L	SW-846 8260D
Ethylbenzene	0.21	J	0.13	1.0	µg/L	SW-846 8260D
Isopropylbenzene (Cumene)	0.38	J	0.12	1.0	µg/L	SW-846 8260D
Methyl tert-Butyl Ether (MTBE)	35		0.090	1.0	µg/L	SW-846 8260D
Naphthalene	1.8	J	0.12	5.0	µg/L	SW-846 8260D
n-Butylbenzene	0.28	J	0.15	1.0	µg/L	SW-846 8260D
n-Propylbenzene	0.34	J	0.13	1.0	µg/L	SW-846 8260D
sec-Butylbenzene	0.70	J	0.13	1.0	µg/L	SW-846 8260D
tert-Amyl Methyl Ether (TAME)	4.6		0.11	0.50	µg/L	SW-846 8260D
tert-Butyl Alcohol (TBA)	11	V-05, J	2.2	20	µg/L	SW-846 8260D
2-Methylnaphthalene (SIM)	2.6		0.061	0.98	µg/L	SW-846 8270D
Acenaphthene (SIM)	0.76		0.032	0.29	µg/L	SW-846 8270D
Acenaphthylene (SIM)	0.14	J	0.034	0.20	µg/L	SW-846 8270D
Anthracene (SIM)	0.11	J	0.031	0.20	µg/L	SW-846 8270D
Fluorene (SIM)	1.6		0.033	0.98	µg/L	SW-846 8270D
Naphthalene (SIM)	1.3		0.25	0.98	µg/L	SW-846 8270D
Phenanthrene (SIM)	0.89		0.029	0.049	µg/L	SW-846 8270D
Pyrene (SIM)	0.16	J	0.023	0.98	µg/L	SW-846 8270D

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8270, only PAHs were requested and reported.

SW-846 8260D

Qualifications:

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

1,4-Dioxane
19B1124-01[B-5/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

2-Butanone (MEK)
19B1124-01[B-5/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

Acetone
19B1124-01[B-5/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

Bromomethane
19B1124-01[B-5/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

Chloromethane
19B1124-01[B-5/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

Methylene Chloride
19B1124-01[B-5/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

tert-Butyl Alcohol (TBA)
19B1124-01[B-5/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

Tetrahydrofuran
19B1124-01[B-5/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

V-36

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Carbon Disulfide
B224742-BS1, B224742-BSD1, S033138-CCV1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 65 Sadler Drive, Dunn, NC | Sample Description: | Work Order: 19B1124

Date Received: 2/25/2019

Field Sample #: B-5/ TW-1 | Sampled: 2/21/2019 12:15

Sample ID: 19B1124-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
tert-Amyl Methyl Ether (TAME)	4.6	0.50	0.11	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Benzene	0.12	1.0	0.12	µg/L	1	J	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Bromomethane	ND	2.0	0.94	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
2-Butanone (MEK)	ND	20	2.4	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
tert-Butyl Alcohol (TBA)	11	20	2.2	µg/L	1	V-05, J	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
n-Butylbenzene	0.28	1.0	0.15	µg/L	1	J	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
sec-Butylbenzene	0.70	1.0	0.13	µg/L	1	J	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Chloromethane	ND	2.0	0.55	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 65 Sadler Drive, Dunn, NC | Sample Description: | Work Order: 19B1124

Date Received: 2/25/2019

Field Sample #: B-5/ TW-1 | Sampled: 2/21/2019 12:15

Sample ID: 19B1124-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	2.0	0.50	0.18	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,4-Dioxane	ND	50	26	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Ethylbenzene	0.21	1.0	0.13	µg/L	1	J	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Hexachlorobutadiene	ND	1.0	0.59	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Isopropylbenzene (Cumene)	0.38	1.0	0.12	µg/L	1	J	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
p-Isopropyltoluene (p-Cymene)	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Methyl tert-Butyl Ether (MTBE)	35	1.0	0.090	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Methylene Chloride	ND	5.0	3.2	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Naphthalene	1.8	5.0	0.12	µg/L	1	J	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
n-Propylbenzene	0.34	1.0	0.13	µg/L	1	J	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Tetrahydrofuran	ND	10	1.1	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,2,4-Trimethylbenzene	0.22	1.0	0.18	µg/L	1	J	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
1,3,5-Trimethylbenzene	0.16	1.0	0.13	µg/L	1	J	SW-846 8260D	3/1/19	3/4/19 13:59	LBD
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
m+p Xylene	ND	2.0	0.26	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD
o-Xylene	ND	1.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 13:59	LBD

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	92.0	70-130		3/4/19 13:59
Toluene-d8	97.6	70-130		3/4/19 13:59
4-Bromofluorobenzene	99.9	70-130		3/4/19 13:59

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 65 Sadler Drive, Dunn, NC | Sample Description: | Work Order: 19B1124

Date Received: 2/25/2019

Field Sample #: B-5/ TW-1 | Sampled: 2/21/2019 12:15

Sample ID: 19B1124-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene (SIM)	0.76	0.29	0.032	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Acenaphthylene (SIM)	0.14	0.20	0.034	µg/L	1	J	SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Anthracene (SIM)	0.11	0.20	0.031	µg/L	1	J	SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Benzo(a)anthracene (SIM)	ND	0.049	0.016	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Benzo(a)pyrene (SIM)	ND	0.098	0.012	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Benzo(b)fluoranthene (SIM)	ND	0.049	0.015	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Benzo(g,h,i)perylene (SIM)	ND	0.49	0.018	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Benzo(k)fluoranthene (SIM)	ND	0.20	0.012	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Chrysene (SIM)	ND	0.20	0.015	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Dibenz(a,h)anthracene (SIM)	ND	0.098	0.017	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Fluoranthene (SIM)	ND	0.49	0.025	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Fluorene (SIM)	1.6	0.98	0.033	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.098	0.018	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
2-Methylnaphthalene (SIM)	2.6	0.98	0.061	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Naphthalene (SIM)	1.3	0.98	0.25	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Phenanthrene (SIM)	0.89	0.049	0.029	µg/L	1		SW-846 8270D	2/27/19	3/5/19 13:18	CLA
Pyrene (SIM)	0.16	0.98	0.023	µg/L	1	J	SW-846 8270D	2/27/19	3/5/19 13:18	CLA

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Nitrobenzene-d5 (SIM)	68.8	30-130		3/5/19 13:18
2-Fluorobiphenyl	44.4	30-130		3/5/19 13:18
p-Terphenyl-d14	60.0	30-130		3/5/19 13:18

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Sample Extraction Data

Prep Method: SW-846 5030B-SW-846 8260D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19B1124-01 [B-5/ TW-1]	B224742	5	5.00	03/01/19

Prep Method: SW-846 3510C-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19B1124-01 [B-5/ TW-1]	B224679	1020	1.00	02/27/19

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B224742 - SW-846 5030B										
Blank (B224742-BLK1)				Prepared: 03/01/19 Analyzed: 03/04/19						
Acetone	ND	50	µg/L							V-05
Acrylonitrile	ND	5.0	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	0.50	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							V-05
2-Butanone (MEK)	ND	20	µg/L							V-05
tert-Butyl Alcohol (TBA)	ND	20	µg/L							V-05
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							
Carbon Disulfide	ND	4.0	µg/L							
Carbon Tetrachloride	ND	5.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							V-05
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	µg/L							
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
trans-1,4-Dichloro-2-butene	ND	2.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							
1,1-Dichloropropene	ND	2.0	µg/L							
cis-1,3-Dichloropropene	ND	0.50	µg/L							
trans-1,3-Dichloropropene	ND	0.50	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							V-05
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.60	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B224742 - SW-846 5030B											
Blank (B224742-BLK1)				Prepared: 03/01/19 Analyzed: 03/04/19							
Methylene Chloride	ND	5.0	µg/L							V-05	
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L								
Naphthalene	0.22	2.0	µg/L							J	
n-Propylbenzene	ND	1.0	µg/L								
Styrene	ND	1.0	µg/L								
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L								
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L								
Tetrachloroethylene	ND	1.0	µg/L								
Tetrahydrofuran	ND	10	µg/L							V-05	
Toluene	ND	1.0	µg/L								
1,2,3-Trichlorobenzene	0.18	5.0	µg/L							J	
1,2,4-Trichlorobenzene	ND	1.0	µg/L								
1,3,5-Trichlorobenzene	ND	1.0	µg/L								
1,1,1-Trichloroethane	ND	1.0	µg/L								
1,1,2-Trichloroethane	ND	1.0	µg/L								
Trichloroethylene	ND	1.0	µg/L								
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L								
1,2,3-Trichloropropane	ND	2.0	µg/L								
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	µg/L								
1,2,4-Trimethylbenzene	ND	1.0	µg/L								
1,3,5-Trimethylbenzene	ND	1.0	µg/L								
Vinyl Acetate	ND	20	µg/L								
Vinyl Chloride	ND	2.0	µg/L								
m+p Xylene	ND	2.0	µg/L								
o-Xylene	ND	1.0	µg/L								
Surrogate: 1,2-Dichloroethane-d4	*22.9*		µg/L	25.0		91.4	70-130				
Surrogate: Toluene-d8	*24.1*		µg/L	25.0		96.5	70-130				
Surrogate: 4-Bromofluorobenzene	*25.2*		µg/L	25.0		101	70-130				
LCS (B224742-BS1)				Prepared: 03/01/19 Analyzed: 03/04/19							
Acetone	144	50	µg/L	100		144	70-160			V-05	†
Acrylonitrile	8.22	5.0	µg/L	10.0		82.2	70-130				
tert-Amyl Methyl Ether (TAME)	9.45	0.50	µg/L	10.0		94.5	70-130				
Benzene	8.77	1.0	µg/L	10.0		87.7	70-130				
Bromobenzene	9.76	1.0	µg/L	10.0		97.6	70-130				
Bromochloromethane	10.1	1.0	µg/L	10.0		101	70-130				
Bromodichloromethane	9.78	0.50	µg/L	10.0		97.8	70-130				
Bromoform	10.0	1.0	µg/L	10.0		100	70-130				
Bromomethane	4.60	2.0	µg/L	10.0		46.0	40-160			V-05	†
2-Butanone (MEK)	95.9	20	µg/L	100		95.9	40-160			V-05	†
tert-Butyl Alcohol (TBA)	74.8	20	µg/L	100		74.8	40-160			V-05	†
n-Butylbenzene	8.94	1.0	µg/L	10.0		89.4	70-130				
sec-Butylbenzene	9.27	1.0	µg/L	10.0		92.7	70-130				
tert-Butylbenzene	9.12	1.0	µg/L	10.0		91.2	70-130				
tert-Butyl Ethyl Ether (TBEE)	8.64	0.50	µg/L	10.0		86.4	70-130				
Carbon Disulfide	9.02	4.0	µg/L	10.0		90.2	70-130			V-36	
Carbon Tetrachloride	9.73	5.0	µg/L	10.0		97.3	70-130				
Chlorobenzene	9.87	1.0	µg/L	10.0		98.7	70-130				
Chlorodibromomethane	10.2	0.50	µg/L	10.0		102	70-130				
Chloroethane	8.42	2.0	µg/L	10.0		84.2	70-130				
Chloroform	8.84	2.0	µg/L	10.0		88.4	70-130				
Chloromethane	6.58	2.0	µg/L	10.0		65.8	40-160			V-05	†

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B224742 - SW-846 5030B											
LCS (B224742-BS1)				Prepared: 03/01/19 Analyzed: 03/04/19							
2-Chlorotoluene	10.1	1.0	µg/L	10.0		101	70-130				
4-Chlorotoluene	10.1	1.0	µg/L	10.0		101	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	9.23	5.0	µg/L	10.0		92.3	70-130				
1,2-Dibromoethane (EDB)	9.95	0.50	µg/L	10.0		99.5	70-130				
Dibromomethane	9.97	1.0	µg/L	10.0		99.7	70-130				
1,2-Dichlorobenzene	9.82	1.0	µg/L	10.0		98.2	70-130				
1,3-Dichlorobenzene	9.78	1.0	µg/L	10.0		97.8	70-130				
1,4-Dichlorobenzene	9.82	1.0	µg/L	10.0		98.2	70-130				
trans-1,4-Dichloro-2-butene	9.99	2.0	µg/L	10.0		99.9	70-130				
Dichlorodifluoromethane (Freon 12)	8.62	2.0	µg/L	10.0		86.2	40-160				†
1,1-Dichloroethane	8.96	1.0	µg/L	10.0		89.6	70-130				
1,2-Dichloroethane	8.93	1.0	µg/L	10.0		89.3	70-130				
1,1-Dichloroethylene	9.27	1.0	µg/L	10.0		92.7	70-130				
cis-1,2-Dichloroethylene	9.02	1.0	µg/L	10.0		90.2	70-130				
trans-1,2-Dichloroethylene	9.44	1.0	µg/L	10.0		94.4	70-130				
1,2-Dichloropropane	9.03	1.0	µg/L	10.0		90.3	70-130				
1,3-Dichloropropane	9.16	0.50	µg/L	10.0		91.6	70-130				
2,2-Dichloropropane	11.3	1.0	µg/L	10.0		113	40-130				†
1,1-Dichloropropene	9.26	2.0	µg/L	10.0		92.6	70-130				
cis-1,3-Dichloropropene	9.53	0.50	µg/L	10.0		95.3	70-130				
trans-1,3-Dichloropropene	9.61	0.50	µg/L	10.0		96.1	70-130				
Diethyl Ether	8.93	2.0	µg/L	10.0		89.3	70-130				
Diisopropyl Ether (DIPE)	8.03	0.50	µg/L	10.0		80.3	70-130				
1,4-Dioxane	75.4	50	µg/L	100		75.4	40-130			V-05	†
Ethylbenzene	9.70	1.0	µg/L	10.0		97.0	70-130				
Hexachlorobutadiene	9.96	0.60	µg/L	10.0		99.6	70-130				
2-Hexanone (MBK)	96.8	10	µg/L	100		96.8	70-160				†
Isopropylbenzene (Cumene)	10.1	1.0	µg/L	10.0		101	70-130				
p-Isopropyltoluene (p-Cymene)	9.19	1.0	µg/L	10.0		91.9	70-130				
Methyl tert-Butyl Ether (MTBE)	9.32	1.0	µg/L	10.0		93.2	70-130				
Methylene Chloride	7.95	5.0	µg/L	10.0		79.5	70-130			V-05	
4-Methyl-2-pentanone (MIBK)	83.0	10	µg/L	100		83.0	70-160				†
Naphthalene	10.8	2.0	µg/L	10.0		108	40-130				†
n-Propylbenzene	10.1	1.0	µg/L	10.0		101	70-130				
Styrene	9.96	1.0	µg/L	10.0		99.6	70-130				
1,1,1,2-Tetrachloroethane	10.2	1.0	µg/L	10.0		102	70-130				
1,1,2,2-Tetrachloroethane	10.6	0.50	µg/L	10.0		106	70-130				
Tetrachloroethylene	10.8	1.0	µg/L	10.0		108	70-130				
Tetrahydrofuran	7.74	10	µg/L	10.0		77.4	70-130			V-05, J	
Toluene	9.49	1.0	µg/L	10.0		94.9	70-130				
1,2,3-Trichlorobenzene	11.1	5.0	µg/L	10.0		111	70-130				
1,2,4-Trichlorobenzene	10.7	1.0	µg/L	10.0		107	70-130				
1,3,5-Trichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130				
1,1,1-Trichloroethane	9.32	1.0	µg/L	10.0		93.2	70-130				
1,1,2-Trichloroethane	9.87	1.0	µg/L	10.0		98.7	70-130				
Trichloroethylene	9.58	1.0	µg/L	10.0		95.8	70-130				
Trichlorofluoromethane (Freon 11)	8.82	2.0	µg/L	10.0		88.2	70-130				
1,2,3-Trichloropropane	9.91	2.0	µg/L	10.0		99.1	70-130				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	9.73	1.0	µg/L	10.0		97.3	70-130				
1,2,4-Trimethylbenzene	8.78	1.0	µg/L	10.0		87.8	70-130				
1,3,5-Trimethylbenzene	9.92	1.0	µg/L	10.0		99.2	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B224742 - SW-846 5030B											
LCS (B224742-BS1)				Prepared: 03/01/19 Analyzed: 03/04/19							
Vinyl Acetate	81.5	20	µg/L	100		81.5	70-130				
Vinyl Chloride	7.95	2.0	µg/L	10.0		79.5	40-160				†
m+p Xylene	19.7	2.0	µg/L	20.0		98.5	70-130				
o-Xylene	9.90	1.0	µg/L	10.0		99.0	70-130				
Surrogate: 1,2-Dichloroethane-d4	*23.0*		µg/L	25.0		92.1	70-130				
Surrogate: Toluene-d8	*24.4*		µg/L	25.0		97.6	70-130				
Surrogate: 4-Bromofluorobenzene	*25.2*		µg/L	25.0		101	70-130				
LCS Dup (B224742-BSD1)				Prepared: 03/01/19 Analyzed: 03/04/19							
Acetone	139	50	µg/L	100		139	70-160	3.31	25	V-05	†
Acrylonitrile	8.08	5.0	µg/L	10.0		80.8	70-130	1.72	25		
tert-Amyl Methyl Ether (TAME)	9.17	0.50	µg/L	10.0		91.7	70-130	3.01	25		
Benzene	8.52	1.0	µg/L	10.0		85.2	70-130	2.89	25		
Bromobenzene	9.73	1.0	µg/L	10.0		97.3	70-130	0.308	25		
Bromochloromethane	10.3	1.0	µg/L	10.0		103	70-130	2.75	25		
Bromodichloromethane	9.70	0.50	µg/L	10.0		97.0	70-130	0.821	25		
Bromoform	9.99	1.0	µg/L	10.0		99.9	70-130	0.200	25		
Bromomethane	5.67	2.0	µg/L	10.0		56.7	40-160	20.8	25	V-05	†
2-Butanone (MEK)	93.3	20	µg/L	100		93.3	40-160	2.75	25	V-05	†
tert-Butyl Alcohol (TBA)	75.6	20	µg/L	100		75.6	40-160	1.06	25	V-05	†
n-Butylbenzene	9.00	1.0	µg/L	10.0		90.0	70-130	0.669	25		
sec-Butylbenzene	9.00	1.0	µg/L	10.0		90.0	70-130	2.96	25		
tert-Butylbenzene	8.99	1.0	µg/L	10.0		89.9	70-130	1.44	25		
tert-Butyl Ethyl Ether (TBEE)	8.29	0.50	µg/L	10.0		82.9	70-130	4.13	25		
Carbon Disulfide	8.50	4.0	µg/L	10.0		85.0	70-130	5.94	25	V-36	
Carbon Tetrachloride	9.16	5.0	µg/L	10.0		91.6	70-130	6.03	25		
Chlorobenzene	9.88	1.0	µg/L	10.0		98.8	70-130	0.101	25		
Chlorodibromomethane	9.88	0.50	µg/L	10.0		98.8	70-130	3.48	25		
Chloroethane	8.09	2.0	µg/L	10.0		80.9	70-130	4.00	25		
Chloroform	8.75	2.0	µg/L	10.0		87.5	70-130	1.02	25		
Chloromethane	6.52	2.0	µg/L	10.0		65.2	40-160	0.916	25	V-05	†
2-Chlorotoluene	9.92	1.0	µg/L	10.0		99.2	70-130	2.00	25		
4-Chlorotoluene	9.85	1.0	µg/L	10.0		98.5	70-130	2.90	25		
1,2-Dibromo-3-chloropropane (DBCP)	9.54	5.0	µg/L	10.0		95.4	70-130	3.30	25		
1,2-Dibromoethane (EDB)	9.88	0.50	µg/L	10.0		98.8	70-130	0.706	25		
Dibromomethane	9.64	1.0	µg/L	10.0		96.4	70-130	3.37	25		
1,2-Dichlorobenzene	9.68	1.0	µg/L	10.0		96.8	70-130	1.44	25		
1,3-Dichlorobenzene	9.82	1.0	µg/L	10.0		98.2	70-130	0.408	25		
1,4-Dichlorobenzene	9.71	1.0	µg/L	10.0		97.1	70-130	1.13	25		
trans-1,4-Dichloro-2-butene	10.1	2.0	µg/L	10.0		101	70-130	1.29	25		
Dichlorodifluoromethane (Freon 12)	8.18	2.0	µg/L	10.0		81.8	40-160	5.24	25		†
1,1-Dichloroethane	8.70	1.0	µg/L	10.0		87.0	70-130	2.94	25		
1,2-Dichloroethane	8.83	1.0	µg/L	10.0		88.3	70-130	1.13	25		
1,1-Dichloroethylene	9.08	1.0	µg/L	10.0		90.8	70-130	2.07	25		
cis-1,2-Dichloroethylene	8.62	1.0	µg/L	10.0		86.2	70-130	4.54	25		
trans-1,2-Dichloroethylene	8.88	1.0	µg/L	10.0		88.8	70-130	6.11	25		
1,2-Dichloropropane	8.78	1.0	µg/L	10.0		87.8	70-130	2.81	25		
1,3-Dichloropropane	9.21	0.50	µg/L	10.0		92.1	70-130	0.544	25		
2,2-Dichloropropane	10.7	1.0	µg/L	10.0		107	40-130	5.44	25		†
1,1-Dichloropropene	8.98	2.0	µg/L	10.0		89.8	70-130	3.07	25		
cis-1,3-Dichloropropene	9.29	0.50	µg/L	10.0		92.9	70-130	2.55	25		
trans-1,3-Dichloropropene	9.51	0.50	µg/L	10.0		95.1	70-130	1.05	25		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B224742 - SW-846 5030B											
LCS Dup (B224742-BSD1)				Prepared: 03/01/19 Analyzed: 03/04/19							
Diethyl Ether	8.81	2.0	µg/L	10.0		88.1	70-130	1.35	25		
Diisopropyl Ether (DIPE)	7.86	0.50	µg/L	10.0		78.6	70-130	2.14	25		
1,4-Dioxane	76.5	50	µg/L	100		76.5	40-130	1.47	50	V-05	† ‡
Ethylbenzene	9.39	1.0	µg/L	10.0		93.9	70-130	3.25	25		
Hexachlorobutadiene	9.96	0.60	µg/L	10.0		99.6	70-130	0.00	25		
2-Hexanone (MBK)	94.9	10	µg/L	100		94.9	70-160	1.98	25		†
Isopropylbenzene (Cumene)	9.75	1.0	µg/L	10.0		97.5	70-130	3.53	25		
p-Isopropyltoluene (p-Cymene)	9.17	1.0	µg/L	10.0		91.7	70-130	0.218	25		
Methyl tert-Butyl Ether (MTBE)	9.09	1.0	µg/L	10.0		90.9	70-130	2.50	25		
Methylene Chloride	7.70	5.0	µg/L	10.0		77.0	70-130	3.19	25	V-05	
4-Methyl-2-pentanone (MIBK)	81.8	10	µg/L	100		81.8	70-160	1.49	25		†
Naphthalene	11.0	2.0	µg/L	10.0		110	40-130	1.10	25		†
n-Propylbenzene	9.73	1.0	µg/L	10.0		97.3	70-130	4.13	25		
Styrene	9.86	1.0	µg/L	10.0		98.6	70-130	1.01	25		
1,1,1,2-Tetrachloroethane	10.3	1.0	µg/L	10.0		103	70-130	1.27	25		
1,1,2,2-Tetrachloroethane	10.7	0.50	µg/L	10.0		107	70-130	0.564	25		
Tetrachloroethylene	10.3	1.0	µg/L	10.0		103	70-130	5.41	25		
Tetrahydrofuran	7.30	10	µg/L	10.0		73.0	70-130	5.85	25	V-05, J	
Toluene	9.20	1.0	µg/L	10.0		92.0	70-130	3.10	25		
1,2,3-Trichlorobenzene	11.0	5.0	µg/L	10.0		110	70-130	1.36	25		
1,2,4-Trichlorobenzene	10.6	1.0	µg/L	10.0		106	70-130	0.376	25		
1,3,5-Trichlorobenzene	10.1	1.0	µg/L	10.0		101	70-130	1.08	25		
1,1,1-Trichloroethane	9.32	1.0	µg/L	10.0		93.2	70-130	0.00	25		
1,1,2-Trichloroethane	9.61	1.0	µg/L	10.0		96.1	70-130	2.67	25		
Trichloroethylene	9.24	1.0	µg/L	10.0		92.4	70-130	3.61	25		
Trichlorofluoromethane (Freon 11)	8.42	2.0	µg/L	10.0		84.2	70-130	4.64	25		
1,2,3-Trichloropropane	10.0	2.0	µg/L	10.0		100	70-130	1.10	25		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	9.25	1.0	µg/L	10.0		92.5	70-130	5.06	25		
1,2,4-Trimethylbenzene	8.72	1.0	µg/L	10.0		87.2	70-130	0.686	25		
1,3,5-Trimethylbenzene	9.65	1.0	µg/L	10.0		96.5	70-130	2.76	25		
Vinyl Acetate	80.4	20	µg/L	100		80.4	70-130	1.33	25		
Vinyl Chloride	7.55	2.0	µg/L	10.0		75.5	40-160	5.16	25		†
m+p Xylene	19.3	2.0	µg/L	20.0		96.3	70-130	2.26	25		
o-Xylene	9.64	1.0	µg/L	10.0		96.4	70-130	2.66	25		
Surrogate: 1,2-Dichloroethane-d4	*22.8*		µg/L	25.0		91.4	70-130				
Surrogate: Toluene-d8	*24.2*		µg/L	25.0		96.8	70-130				
Surrogate: 4-Bromofluorobenzene	*25.0*		µg/L	25.0		99.9	70-130				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B224679 - SW-846 3510C										
Blank (B224679-BLK1)				Prepared: 02/27/19 Analyzed: 02/28/19						
Acenaphthene (SIM)	ND	0.30	µg/L							
Acenaphthylene (SIM)	ND	0.20	µg/L							
Anthracene (SIM)	ND	0.20	µg/L							
Benzo(a)anthracene (SIM)	ND	0.050	µg/L							
Benzo(a)pyrene (SIM)	ND	0.10	µg/L							
Benzo(b)fluoranthene (SIM)	ND	0.050	µg/L							
Benzo(g,h,i)perylene (SIM)	ND	0.50	µg/L							
Benzo(k)fluoranthene (SIM)	ND	0.20	µg/L							
Chrysene (SIM)	ND	0.20	µg/L							
Dibenz(a,h)anthracene (SIM)	ND	0.10	µg/L							
Fluoranthene (SIM)	ND	0.50	µg/L							
Fluorene (SIM)	ND	1.0	µg/L							
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	µg/L							
2-Methylnaphthalene (SIM)	ND	1.0	µg/L							
Naphthalene (SIM)	ND	1.0	µg/L							
Phenanthrene (SIM)	ND	0.050	µg/L							
Pyrene (SIM)	ND	1.0	µg/L							
Surrogate: Nitrobenzene-d5 (SIM)	*74.1*		µg/L	100		74.1	30-130			
Surrogate: 2-Fluorobiphenyl	*54.0*		µg/L	100		54.0	30-130			
Surrogate: p-Terphenyl-d14	*63.2*		µg/L	100		63.2	30-130			
LCS (B224679-BS1)				Prepared: 02/27/19 Analyzed: 02/28/19						
Acenaphthene (SIM)	30.4	7.5	µg/L	50.0		60.7	40-140			
Acenaphthylene (SIM)	30.6	5.0	µg/L	50.0		61.2	40-140			
Anthracene (SIM)	32.6	5.0	µg/L	50.0		65.3	40-140			
Benzo(a)anthracene (SIM)	28.2	1.2	µg/L	50.0		56.3	40-140			
Benzo(a)pyrene (SIM)	31.4	2.5	µg/L	50.0		62.7	40-140			
Benzo(b)fluoranthene (SIM)	31.5	1.2	µg/L	50.0		63.0	40-140			
Benzo(g,h,i)perylene (SIM)	32.5	12	µg/L	50.0		65.0	40-140			
Benzo(k)fluoranthene (SIM)	30.4	5.0	µg/L	50.0		60.8	40-140			
Chrysene (SIM)	28.4	5.0	µg/L	50.0		56.8	40-140			
Dibenz(a,h)anthracene (SIM)	35.2	2.5	µg/L	50.0		70.5	40-140			
Fluoranthene (SIM)	31.5	12	µg/L	50.0		63.0	40-140			
Fluorene (SIM)	30.2	25	µg/L	50.0		60.4	40-140			
Indeno(1,2,3-cd)pyrene (SIM)	35.2	2.5	µg/L	50.0		70.4	40-140			
2-Methylnaphthalene (SIM)	29.2	25	µg/L	50.0		58.4	40-140			
Naphthalene (SIM)	26.4	25	µg/L	50.0		52.8	40-140			
Phenanthrene (SIM)	31.7	1.2	µg/L	50.0		63.4	40-140			
Pyrene (SIM)	28.1	25	µg/L	50.0		56.2	40-140			
Surrogate: Nitrobenzene-d5 (SIM)	*57.7*		µg/L	100		57.7	30-130			
Surrogate: 2-Fluorobiphenyl	*44.8*		µg/L	100		44.8	30-130			
Surrogate: p-Terphenyl-d14	*39.9*		µg/L	100		39.9	30-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B224679 - SW-846 3510C										
LCS Dup (B224679-BSD1)				Prepared: 02/27/19 Analyzed: 02/28/19						
Acenaphthene (SIM)	29.6	7.5	µg/L	50.0		59.2	40-140	2.50	20	
Acenaphthylene (SIM)	30.3	5.0	µg/L	50.0		60.6	40-140	0.986	20	
Anthracene (SIM)	32.4	5.0	µg/L	50.0		64.8	40-140	0.692	20	
Benzo(a)anthracene (SIM)	27.9	1.2	µg/L	50.0		55.8	40-140	0.892	20	
Benzo(a)pyrene (SIM)	31.4	2.5	µg/L	50.0		62.9	40-140	0.318	20	
Benzo(b)fluoranthene (SIM)	31.3	1.2	µg/L	50.0		62.6	40-140	0.558	20	
Benzo(g,h,i)perylene (SIM)	32.7	12	µg/L	50.0		65.4	40-140	0.690	20	
Benzo(k)fluoranthene (SIM)	30.5	5.0	µg/L	50.0		61.0	40-140	0.493	20	
Chrysene (SIM)	28.3	5.0	µg/L	50.0		56.6	40-140	0.529	20	
Dibenz(a,h)anthracene (SIM)	35.6	2.5	µg/L	50.0		71.2	40-140	0.988	20	
Fluoranthene (SIM)	31.7	12	µg/L	50.0		63.4	40-140	0.633	20	
Fluorene (SIM)	30.6	25	µg/L	50.0		61.3	40-140	1.40	20	
Indeno(1,2,3-cd)pyrene (SIM)	35.4	2.5	µg/L	50.0		70.8	40-140	0.708	20	‡
2-Methylnaphthalene (SIM)	29.2	25	µg/L	50.0		58.5	40-140	0.171	20	
Naphthalene (SIM)	26.2	25	µg/L	50.0		52.4	40-140	0.570	20	
Phenanthrene (SIM)	31.4	1.2	µg/L	50.0		62.8	40-140	1.03	20	
Pyrene (SIM)	28.1	25	µg/L	50.0		56.2	40-140	0.0889	20	
Surrogate: Nitrobenzene-d5 (SIM)	*56.1*		µg/L	100		56.1	30-130			
Surrogate: 2-Fluorobiphenyl	*43.9*		µg/L	100		43.9	30-130			
Surrogate: p-Terphenyl-d14	*39.2*		µg/L	100		39.2	30-130			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-36	Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260D in Water	
Acetone	NC
Acrylonitrile	NC
tert-Amyl Methyl Ether (TAME)	NC
Benzene	NC
Bromobenzene	NC
Bromochloromethane	NC
Bromodichloromethane	NC
Bromoform	NC
Bromomethane	NC
2-Butanone (MEK)	NC
tert-Butyl Alcohol (TBA)	NC
n-Butylbenzene	NC
sec-Butylbenzene	NC
tert-Butylbenzene	NC
tert-Butyl Ethyl Ether (TBEE)	NC
Carbon Disulfide	NC
Carbon Tetrachloride	NC
Chlorobenzene	NC
Chlorodibromomethane	NC
Chloroethane	NC
Chloroform	NC
Chloromethane	NC
2-Chlorotoluene	NC
4-Chlorotoluene	NC
1,2-Dibromo-3-chloropropane (DBCP)	NC
1,2-Dibromoethane (EDB)	NC
Dibromomethane	NC
1,2-Dichlorobenzene	NC
1,3-Dichlorobenzene	NC
1,4-Dichlorobenzene	NC
trans-1,4-Dichloro-2-butene	NC
Dichlorodifluoromethane (Freon 12)	NC
1,1-Dichloroethane	NC
1,2-Dichloroethane	NC
1,1-Dichloroethylene	NC
cis-1,2-Dichloroethylene	NC
trans-1,2-Dichloroethylene	NC
1,2-Dichloropropane	NC
1,3-Dichloropropane	NC
2,2-Dichloropropane	NC
1,1-Dichloropropene	NC
cis-1,3-Dichloropropene	NC
trans-1,3-Dichloropropene	NC
Diethyl Ether	NC
Diisopropyl Ether (DIPE)	NC
1,4-Dioxane	NC
Ethylbenzene	NC

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260D in Water	
Hexachlorobutadiene	NC
2-Hexanone (MBK)	NC
Isopropylbenzene (Cumene)	NC
p-Isopropyltoluene (p-Cymene)	NC
Methyl tert-Butyl Ether (MTBE)	NC
Methylene Chloride	NC
4-Methyl-2-pentanone (MIBK)	NC
Naphthalene	NC
n-Propylbenzene	NC
Styrene	NC
1,1,1,2-Tetrachloroethane	NC
1,1,2,2-Tetrachloroethane	NC
Tetrachloroethylene	NC
Tetrahydrofuran	NC
Toluene	NC
1,2,3-Trichlorobenzene	NC
1,2,4-Trichlorobenzene	NC
1,3,5-Trichlorobenzene	NC
1,1,1-Trichloroethane	NC
1,1,2-Trichloroethane	NC
Trichloroethylene	NC
Trichlorofluoromethane (Freon 11)	NC
1,2,3-Trichloropropane	NC
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	NC
1,2,4-Trimethylbenzene	NC
1,3,5-Trimethylbenzene	NC
Vinyl Chloride	NC
m+p Xylene	NC
o-Xylene	NC

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

1981124

con-test ANALYTICAL LABORATORY

http://www.contestlabs.com Doc # 379 Rev 1_03242017

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

CHAIN OF CUSTODY RECORD (North Carolina)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name:	S&ME
Address:	3201 Spring Forest Rd Raleigh NC
Phone:	919 877-7614
Project Name:	Parcel 107 DOT-DUNN
Project Location:	65 Sadler Dr. DUNN, NC
Project Number:	4305-18-175A
Project Manager:	Jamie T Honeycutt
Con-Test Quote Name/Number:	
Invoice Recipient:	Jamie Honeycutt
Sampled By:	Jamie Honeycutt

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date:

Rush Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☐ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: jhoneycutt@smeinc.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1] Matrix Code	Conc Code	8260	8270 (ADHs)	# of Containers
1	B-5/TW-1	2-21-19	1215		G	GW	H	1	1	
	~~B-3/TW-2~~	~~2-21-19~~			~~G~~	~~GW~~		~~1~~	~~1~~	

[2] Preservation Code
[3] Container Code

Dissolved Metals Samples
☐ Field Filtered
☐ Lab to Filter

Orthophosphate Samples
☐ Field Filtered
☐ Lab to Filter

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

	Date/Time
Relinquished by: (signature) Jamie Honeycutt	2/25/19 5:00pm
Received by: (signature) 4.0	2/26/19 1002
Relinquished by: (signature)	
Received by: (signature)	
Relinquished by: (signature)	
Received by: (signature)	

North Carolina Detection Limit Requirements
☑ 2L
☐ GWPC
☐ SWSL
☐ IHSB
☐ MSCC
Other:

Program Information
☐ DSCA ☐ UST/Trust Fund
☐ SWS Landfill ☐ REC
☐ IHSB Orphaned Landfill
☐ State Lead
☑ Other: DOT

NELAC and AIHA-LAP, LLC Accredited

Project Entity
☑ Government ☐ Municipality
☐ Federal ☐ Brownfield
☐ City ☐ School

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

FedEx

785691220555

Delivered
Tuesday 2/26/2019 at 10:02 am

DELIVERED

Signed for by: B.BECCA

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM	TO
RALEIGH, NC US	EAST LONGMEADOW, MA US

Shipment Facts

TRACKING NUMBER 785691220555	**SERVICE** FedEx Priority Overnight	**WEIGHT** 51 lbs / 23.13 kgs
DIMENSIONS 24x14x14 in.	**DELIVERED TO** Shipping/Receiving	**TOTAL PIECES** 1
TOTAL SHIPMENT WEIGHT 51 lbs / 23.13 kgs	**TERMS** Third Party	**PACKAGING** Your Packaging
SPECIAL HANDLING SECTION Deliver Weekday	**STANDARD TRANSIT** 2/26/2019 by 10:30 am	**SHIP DATE** Mon 2/25/2019
ACTUAL DELIVERY Tue 2/26/2019 10:02 am		

Travel History

Local Scan Time

Tuesday , 2/26/2019

10:02 am	EAST LONGMEADOW, MA	Delivered
7:56 am	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
7:46 am	WINDSOR LOCKS, CT	At local FedEx facility
6:16 am	EAST GRANBY, CT	At destination sort facility

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client S+ME

Received By RAP Date 2/26/19 Time 10:02

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____ Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 5 Actual Temp - 4.0 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.	2	1 Liter Plastic		16 oz Amb.	
HCL-	3	500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

April 29, 2019

North Carolina Department of Transportation
Geotechnical Unit
Mail Service Center 1592
Raleigh, North Carolina 27699-1592

Attention: Mr. Craig Haden email: cehaden@ncdot.gov

Reference: **Preliminary Site Assessment Report**
NCDOT Project I-5986B, WBS Element 47532.1.3
Parcel 118-Midwest Transport
3607 Hodges Chapel Road
Dunn, Harnett County, North Carolina
S&ME Project 4305-18-175A

Dear Mr. Haden:

S&ME, Inc. (S&ME) is submitting this Preliminary Site Assessment (PSA) Report to the North Carolina Department of Transportation (NCDOT). This report presents the background/project information, field activities, findings, conclusions, and recommendations. These services were performed in general accordance with S&ME Proposal No. 4305-18-175 CO-01 REV-01 dated January 2, 2019, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its January 8, 2019 Notice to Proceed Letter.

♦ Background/Project Information

Based on NCDOT's November 2, 2018, Request for Technical and Cost Proposal, the PSA was conducted within the NCDOT right-of-way (ROW) and/or easement as indicated on the preliminary plan sheets provided by NCDOT at the following property:

NCDOT Parcel No.	Property Owner	Site Address
118	Sease 1995 Family Partnership	(Midwest Transport) 3607 Hodges Chapel Road, Dunn, NC

The property is developed with an active trucking company and garage identified as Midwest Transport. The property is not listed with registered petroleum underground storage tanks (USTs) (active or closed). The property is also not listed with North Carolina Department of Environmental Quality (NCDEQ) Incidents associated with petroleum releases from USTs or aboveground storage tanks. However, what appears to be former dispenser islands located beneath a canopy are located on the eastern portion of the property.

The PSA included a geophysical survey, subsequent limited soil sampling (seven soil borings up to 10 feet below ground surface (ft.-bgs.) and limited groundwater sampling (one groundwater sample), within accessible areas of the proposed ROW/easement in preparation for construction activities. **Figure 1** shows the vicinity and site

location, and **Figure 2** shows the site and boring locations. Soil and groundwater sampling results are shown on **Figure 3.**

♦ Field Services

Prior to field activities, a site specific Health and Safety Plan was prepared as required by the Occupational Health and Safety Act (OSHA). Underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator (Troxler Geologic, Inc.) was also used to locate and mark underground utilities.

♦ Geophysical Survey

On February 5 and 6, 2019, S&ME personnel performed a geophysical survey within accessible areas of the proposed ROW/easement at Parcel 118. S&ME used a combination of the Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) methods to explore for buried subsurface features at the site such as underground storage tanks (USTs) and other possible buried obstructions. Brief descriptions of these complementary geophysical techniques are presented in the following paragraphs.

Time Domain Electromagnetics (TDEM)

TDEM measures the electrical conductivity of subsurface materials and discriminates between moderately conductive earth materials and very conductive metallic targets within the shallow subsurface. The conductivity is determined by transmitting a time-varying magnetic pulse into the subsurface and measuring the amplitude and phase shift of the secondary magnetic field. The secondary magnetic field is created when the conductive materials become an inductor as the primary magnetic field is passed through them. TDEM data are acquired continuously at a walking pace typically along a series of parallel or perpendicular lines. The system generates audible and visual indications when metallic targets are encountered. These measurements can also be supported with a global positioning system (GPS) which is output directly into the TDEM data file.

We used a Geonics Limited EM-61 MK2 TDEM system in general accordance with ASTM D6820-02 (2007) "*Standard Guide for Use of the Time Domain Electromagnetic Method for Subsurface Investigation.*" Data was collected along lines spaced at approximately five feet using a Juniper® Systems Geode™ sub-meter GPS as positioning support. The presence of vehicles, thick vegetation, and other surficial obstructions within the requested survey area however prevented TDEM data collection in several locations. The approximate TDEM data collection paths are presented in **Figure 4**. Golden Software's Surfer® program was used to grid and plot the data (**Figures 5 and 6**). The TDEM data has been presented as Plots A and B in order to provide both opaque and transparent views, respectively.

Ground Penetrating Radar (GPR)

GPR transmits electromagnetic waves into the subsurface from an antenna at a specific frequency and measures the time for wave reflections to be received by interfaces between materials with differing material properties (e.g. soil/metal, etc.). The intensity of the reflected GPR wave is a function of the contrast in the material properties (i.e. dielectric permittivity) at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal.

We used a Geophysical Survey Systems, Inc. (GSSI) SIR® 3000 GPR system equipped with a 400 MHz antenna in general accordance with ASTM D6432-11 "*Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*" to further characterize anomalies/features identified during the TDEM survey.

A total of thirteen (13) GPR profiles (Lines 1 through 13) were collected for documentation (**Figure 7**). The data was post-processed using the GSSI Radan® 7 GPR software program for additional analysis.

Geophysical Findings

Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site. However, one anomalous subsurface feature (Anomaly A) unrelated to known surficial targets was identified in the geophysical data sets (**Figures 5 through 7**). Anomaly A is characterized by high amplitude GPR responses at about one ft.-bgs and likely related to an isolated buried metallic target/debris. The identified anomaly was also marked in the field using white spray paint. Example GPR profiles are presented in **Figure 8**.

♦ Soil Sampling

On February 18 and 19, 2019, Troxler Geologic, Inc. (Troxler's) drill crew utilized a track mounted Geoprobe® rig to advance seven soil borings (B-1 through B-7) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 118. The approximate location of the soil borings are shown in **Figure 2**. A photographic log is included in **Appendix I.** Troxler's drill crew advanced the Geoprobe® borings up to a depth of approximately 10 ft.-bgs. During the advancement of the soil borings, groundwater was encountered at depths ranging from approximately seven to eight ft.-bgs across the site. Soil samples were continuously collected in four-foot long disposable acetate-plastic sleeves that line the hollow stainless-steel sample probes. Soil recovered from the sleeves was classified on-site by S&ME personnel and screened with a Photoionization Detector (PID) at approximately two foot depth intervals to measure relative headspace concentrations of volatile organic compounds (VOCs).

VOC headspace readings were obtained from an aliquot of each soil sample that was placed in a re-sealable bag. Another portion of the sample was placed in a separate re-sealable bag and stored in an insulated container with ice for possible laboratory analyses. After waiting approximately 15 minutes to allow the sample to reach ambient temperature and headspace equilibrium, the PID probe was inserted into the bag to obtain a headspace reading. A summary of the PID readings and logs of the soil borings are included in **Appendix II.**

Petroleum odors and elevated PID readings were noted at soil boring B-2 at the four to six foot and eight to ten foot depth intervals, which are slightly above and at the groundwater level encountered at this boring. Groundwater was encountered at boring B-2 at a depth of eight ft-bgs. Petroleum odors and elevated PID readings were not noted at the other soil borings on the site. Therefore, various soil samples at varying depth intervals were selected from each boring and provided to RED Lab, LLC (Red Lab) for on-site analysis. A total of 14 soil samples were analyzed by RED Lab for Total Petroleum Hydrocarbons (TPH)-Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification.

Soil Analytical Results

TPH-GRO and TPH-DRO were not reported at concentrations exceeding the North Carolina TPH Action Levels. TPH-DRO was reported at boring B-2 at the four to six foot depth interval and the eight to ten foot depth interval at concentrations of 31.7 milligrams per kilograms and 25.1 mg/kg, respectively, which are below its North Carolina TPH Action Level of 100 mg/kg. TPH-DRO was reported in borings B-1, B-4, B-5 and B-6 at the two to four foot depth interval at concentrations ranging from 0.49 mg/kg to 0.96 mg/kg. TPH-DRO was reported at boring B-1 at the eight to ten foot depth interval at a concentration of 0.17 mg/kg and boring B-3 at the four to six foot depth interval at a concentration of 0.08 mg/kg. TPH-GRO was reported at borings B-2 at the four to six foot and eight to ten foot depth intervals at concentrations of 15.7 mg/kg and 4.4 mg/kg, respectively, which are below its North Carolina TPH Action Level of 50 mg/kg. TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits at the remaining soil samples. A summary of the soil analytical results is presented in **Table 1** and shown on **Figure 3.** A copy of the laboratory analytical report provided by RED Lab is presented in **Appendix III.**

♦ Groundwater Sampling

During the advancement of the soil borings, groundwater was encountered within approximately 10 ft.-bgs. Therefore, the Geoprobe® was used to advance one of the soil borings into the groundwater table for the collection of a groundwater sample. Based on petroleum odors, elevated PID readings and analytical results of soil samples, soil boring B-2 was selected for the collection of a groundwater sample. A groundwater sample was collected by advancing the Geoprobe® groundwater sampling screen into the borehole and extending it from a depth of approximately eight to twelve ft.-bgs. Groundwater was purged from the screen until relatively clear using disposable tubing attached to a peristaltic pump. The flow rate was reduced and laboratory supplied containers were filled directly from the tubing, labeled as B-2/TW-1 and placed in an insulated cooler with ice for transport to Con-Test Laboratories for analysis of VOCs by EPA Method 8260 and polycyclic aromatic compounds (PAHs) by EPA Method 8270.

Upon completion of the soil and groundwater sampling, the sampling equipment was removed and the soil borings backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as additional soil cuttings generated during the soil boring advancement, purge water and decontamination water, were spread on the ground in accordance with the procedures specified by North Carolina Department of Environmental Quality (NCDEQ). Used gloves, tubing, re-sealable bags and acetate sleeves were bagged and disposed off-site.

Groundwater Analytical Results

Based upon analytical results of groundwater samples analyzed by Con-Test Laboratories, numerous target constituents were reported at concentrations exceeding their laboratory method reporting limits but none exceeded their 15A NCAC 2L Groundwater Quality Standards (2L Standards). A summary of the groundwater analytical results is presented in **Table 2** and shown on **Figure 3.** A copy of the laboratory analytical report provided by Con-Test Laboratories is presented in **Appendix III.**

♦ Conclusion and Recommendations

The geophysical survey identified one anomaly (Anomaly A) which is likely related to a buried isolated metallic target/debris. Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site.

S&ME advanced seven soil borings (B-1 through B-7) to a depth of up to approximately 10 ft.-bgs at the site. Petroleum odors and elevated PID readings were noted at soil boring B-2 at the four to six foot and eight to ten foot depth intervals. Groundwater was encountered at boring B-2 at a depth of approximately eight ft-bgs. Selected soil samples from the soil borings were analyzed onsite for TPH-GRO and TPH-DRO using UVF spectroscopy. TPH-DRO was reported in soils samples collected at boings B-1, B-2, B-3, B-4, B-5 and B-6 at depths ranging from two to ten ft-bgs. TPH-GRO was reported in soil samples collected at boring B-2 at depths of four to six and eight to ten ft.-bgs. However, TPH-DRO and TPH-GRO were not reported at concentrations exceeding their North Carolina TPH Action Levels. During the soil boring advancement, groundwater was encountered at depths ranging from approximately seven to eight ft-bgs across the site. One temporary well (TW-1) was installed at soil boring B-2. Groundwater at TW-1 was measured at eight ft.-bgs and analyzed by Con-Test Laboratories for VOCs by EPA Method 8260 and PAHs by EPA Method 8270. Numerous target constituents were reported in the groundwater at concentrations exceeding their laboratory method reporting limits but below their 2L Standards.

Within the vicinity of soil boring B-2, petroleum impacted soil may be encountered, where petroleum odors and elevated PID readings and petroleum detections in soil at concentrations below the North Carolina TPH Action Levels were reported. Assuming that a section of petroleum impacted soil approximately four feet thick, 40 feet in diameter at a depth of four to eight ft.-bgs, which is at the groundwater table; up to 200 cubic yards of soil near boring B-2 may be impacted.

S&ME recommends maintaining an awareness level for the presence of marginally impacted petroleum in soil (below TPH Action Levels) and in the groundwater (below 2L Standards) at the site for the safety of workers and the public. If petroleum stained or odorous soils or water are encountered during construction, these soils and water should be properly handled and disposed at a licensed facility.

♦ Limitations

The results of this preliminary investigation are limited to the boring locations presented herein. The results of this Preliminary Site Assessment are not all inclusive and may not represent existing conditions across the entire property. These results only reflect the current conditions at the locations sampled on the date this Preliminary Site Assessment was performed. This report has been prepared in accordance with generally accepted environmental engineering and geophysical practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

The geophysical methods used for this survey have inherent limitations. Site metallic features (e.g., buildings, reinforced concrete, vehicles, etc.) and overhead transmission lines can produce a false electromagnetic response and may mask subsurface features. The depth of exploration of the GPR signal is highly site specific, and is greatly limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the

electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clay soils, and lowest in relatively low conductivity materials such as unsaturated sand. For this project location, the GPR data sets appear to have a maximum depth of penetration of approximately about five ft.-bgs.

Regardless of the thoroughness of a geophysical study, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the methods used and the method's limitations and data coverage. Accordingly, the possibility exists that not all features at a project site will be located due to either subsurface soil conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the methods used. As with most surface geophysical methods, resolution of the subsurface will also decrease with depth. As such, the size and/or contrast of features compared to the imaged subsurface media must be significant enough to produce the anticipated response. The location and/or determination (or the lack thereof) of potential buried features is based on our review of the provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

This Preliminary Site Assessment was performed solely for NCDOT regarding the above-referenced site and assessment area. This report is provided for the sole use of NCDOT. Use of this report by any other parties will be at such party's sole risk. S&ME disclaims liability for any such use or reliance by third parties. The observations presented in this report are indicative of conditions during the time of the assessment and of the specific areas referenced.

Closing

S&ME appreciates the opportunity to provide these services to you. If you have any questions or comments regarding this report, please contact us at your convenience.

Sincerely,

S&ME, Inc.

DocuSigned by:
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Thomas P. Raymond, P.E., P.M.P.
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5/6/2019

NORTH CAROLINA PROFESSIONAL SEAL 18760 ENGINEER THOMAS P. RAYMOND

Attachments:

Table 1: Summary of Soil Sampling Results
Table 2: Summary of Groundwater Sampling Results

Figure 1: Vicinity Map
Figure 2: Site Map
Figure 3: Soil and Groundwater Constituent Map
Figure 4: TDEM Path Location Plan
Figure 5: TDEM Data Plot A
Figure 6: TDEM Data Plot B
Figure 7: Geophysical Anomaly Location Plan
Figure 8: Example GPR Data – Lines 1 and 2

Appendix I: Photographs
Appendix II: Boring Logs
Appendix III: Laboratory Analytical Reports and Chain of Custody

Tables

TABLE 1
SUMMARY OF SOIL SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 118 - (Midwest Transport)
3607 Hodges Chapel Road
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

Analytical Method→			Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by Ultraviolet Fluorescence (UVF) Spectrometry	
Sample ID	**Date**	**Contaminant of Concern→** / **Sample Depth (ft.-bgs)**	**TPH-GRO**	**TPH-DRO**
B-1	2/18/2019	2 to 4	<0.54	**0.58**
		8 to 10	<0.59	**0.17**
B-2	2/18/2019	4 to 6	**15.7**	**31.7**
		8 to 10	**4.4**	**25.1**
B-3	2/18/2019	2 to 4	<0.52	<0.21
		4 to 6	<0.53	**0.08**
B-4	2/19/2019	2 to 4	<0.58	**0.49**
		4 to 6	<0.58	<0.23
B-5	2/19/2019	2 to 4	<0.51	**0.96**
		4 to 6	<0.6	<0.24
B-6	2/19/2019	2 to 4	<0.52	**0.82**
		4 to 6	<0.53	<0.21
B-7	2/19/2019	2 to 4	<0.48	<0.19
		4 to 6	<0.66	<0.26
North Carolina TPH Action Levels			**50**	**100**

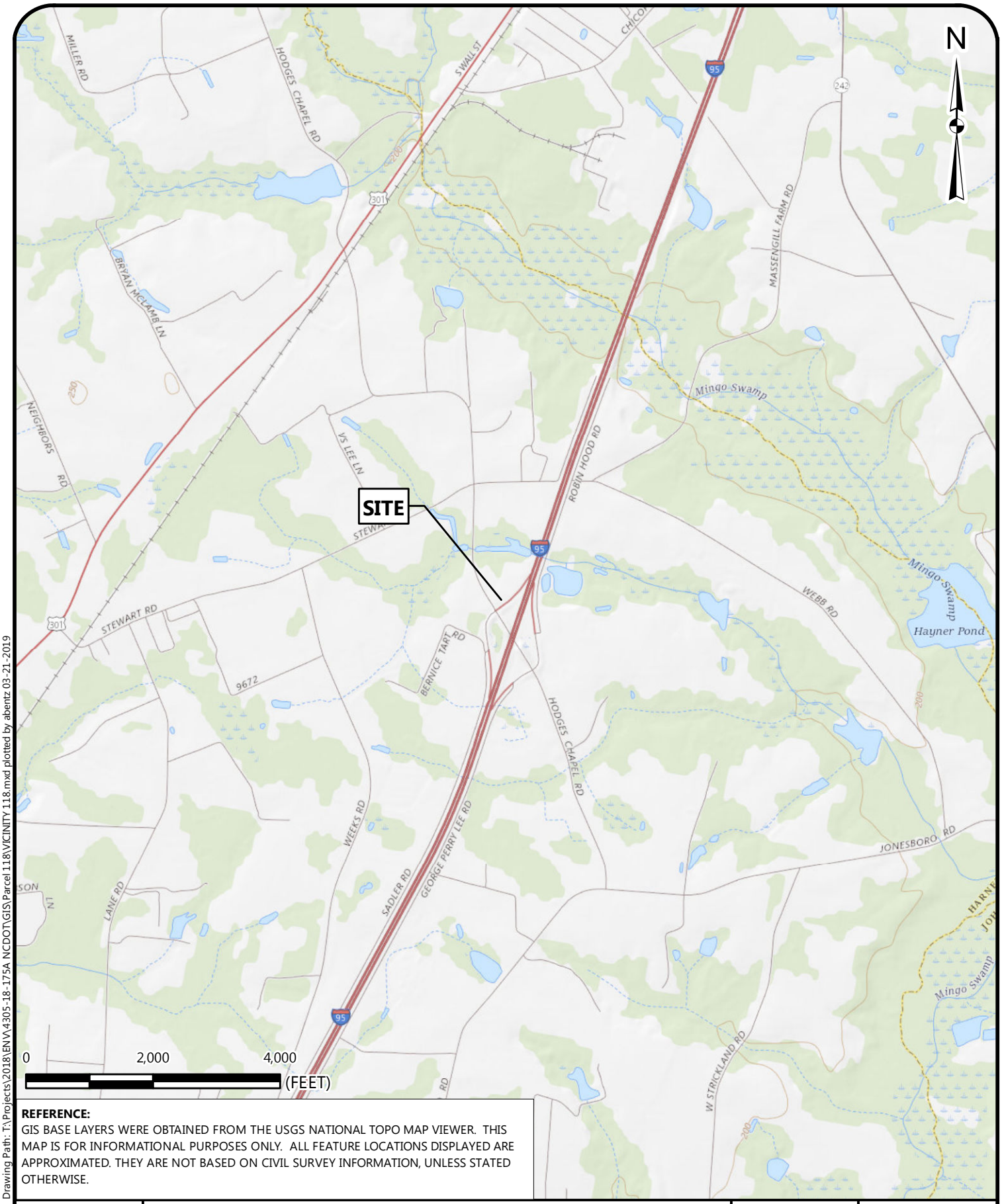
Notes:
1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the North Carolina TPH Action Levels are shown in Shaded and **BOLD** fields.

TABLE 2
SUMMARY OF GROUNDWATER SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 118 - (Midwest Transport)
3607 Hodges Chapel Road
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

Analytical Method→					Polycyclic Aromatic Compounds (PAHs) by EPA Method 8270									
Sample ID	Contaminant of Concern→ / Date	Naphthalene	p-Isopropyltoluene	1,2,4-Trimethylbenzene	Acenaphthene	Anthracene	Acenaphthylene	Chrysene	Fluoranthene	Fluorene	Naphthalene	Pyrene	Phenanthrene	2-Methylnaphthalene
B-2/TW-1	2/19/2019	**3.7 J**	**0.19 J**	**2.0**	**0.86**	**0.10 J**	**0.18 J**	**0.015 J**	**0.040 J**	**1.4**	**3.3**	**0.11 J**	**1.8**	**14**
2L Standard (µg/L)		**6**	**25**	**400**	**80**	**2,000**	**200**	**5**	**300**	**300**	**6**	**200**	**200**	**30**
GCL (µg/L)		**6,000**	**11,700**	**28,500**	**2,120**	**2,000**	**1,965**	**5**	**300**	**990**	**6,000**	**200**	**410**	**12,500**

Notes:
1. Analytes that are not shown for the method were not detected.
2. Concentrations are reported in micrograms per liter (µg/L).
3. 2L Standard: North Carolina Groundwater Quality Standards: 15A NCAC 2L.0202
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the 2L Standards are shown in Shaded and **BOLD** fields.
6. GCL: Gross Contamination Level.
7. J: Estimated concentration detected below the reporting limit.

Figures



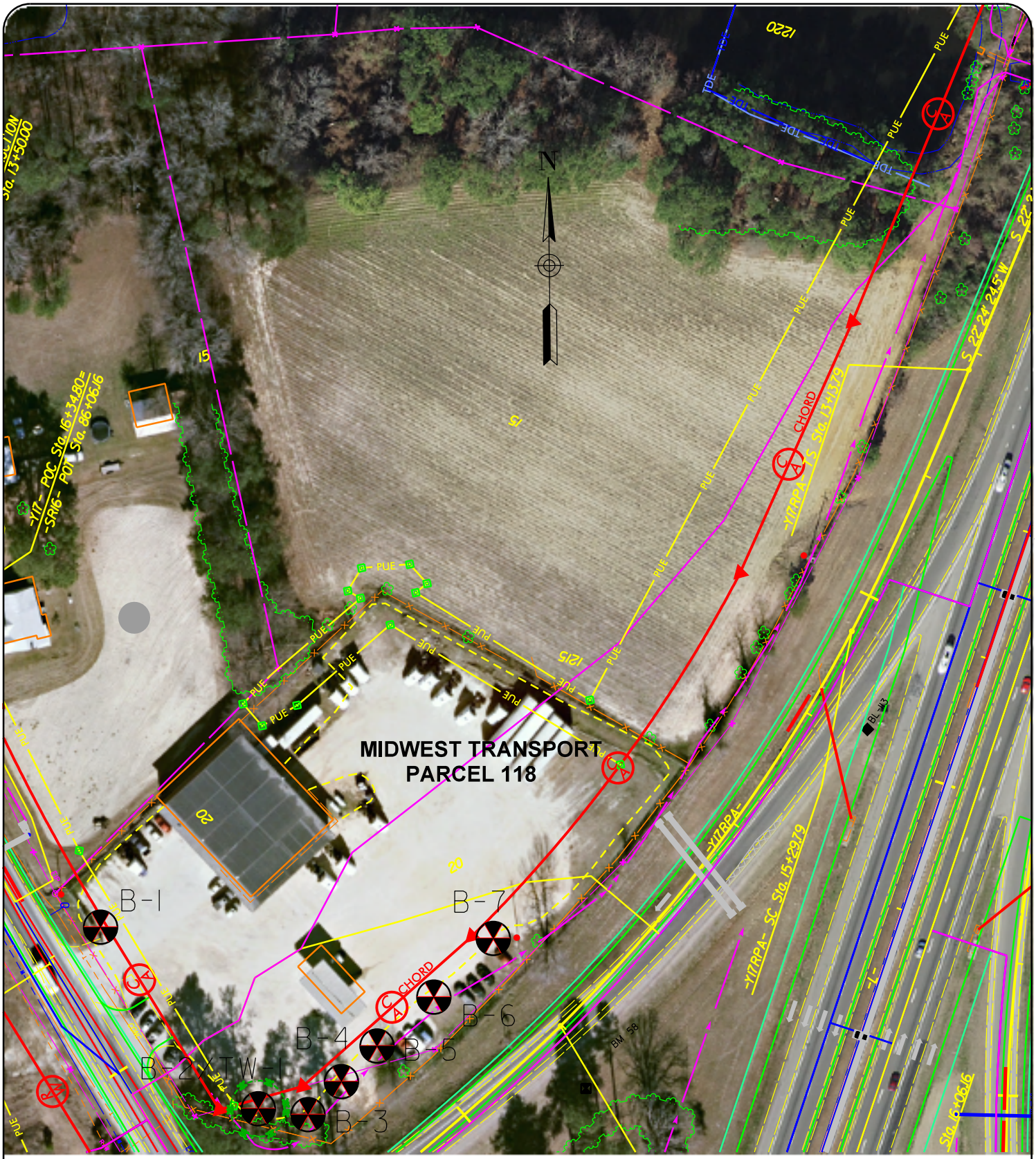
REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE USGS NATIONAL TOPO MAP VIEWER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 118\VICINITY 118.mxd plotted by abentz 03-21-2019

VICINITY MAP

NCDOT I-5986B
PARCEL NO. 118 (MIDWEST TRANSPORT)
3607 HODGES CHAPEL ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:	1 " = 2,000 '
DATE:	3-21-19
PROJECT NUMBER	4305-18-175A
FIGURE NO.	1



LEGEND

Geoenvironmental Boring:

Underground Storage Tank (UST): UST

Map Source: NCDOT Project I-5986B

Image Source: NC ONEMAP, Dated 2016

Known Soil Contamination:

Possible Soil Contamination: — S —

Existing Contamination Known - Water: — W —

0 100 200

GRAPHIC SCALE (IN FEET)

SITE MAP

SCALE:	FIGURE NO.
1" = 100'	2
DATE:	
MARCH 2019	
PROJECT NUMBER	
4305-18-175A	

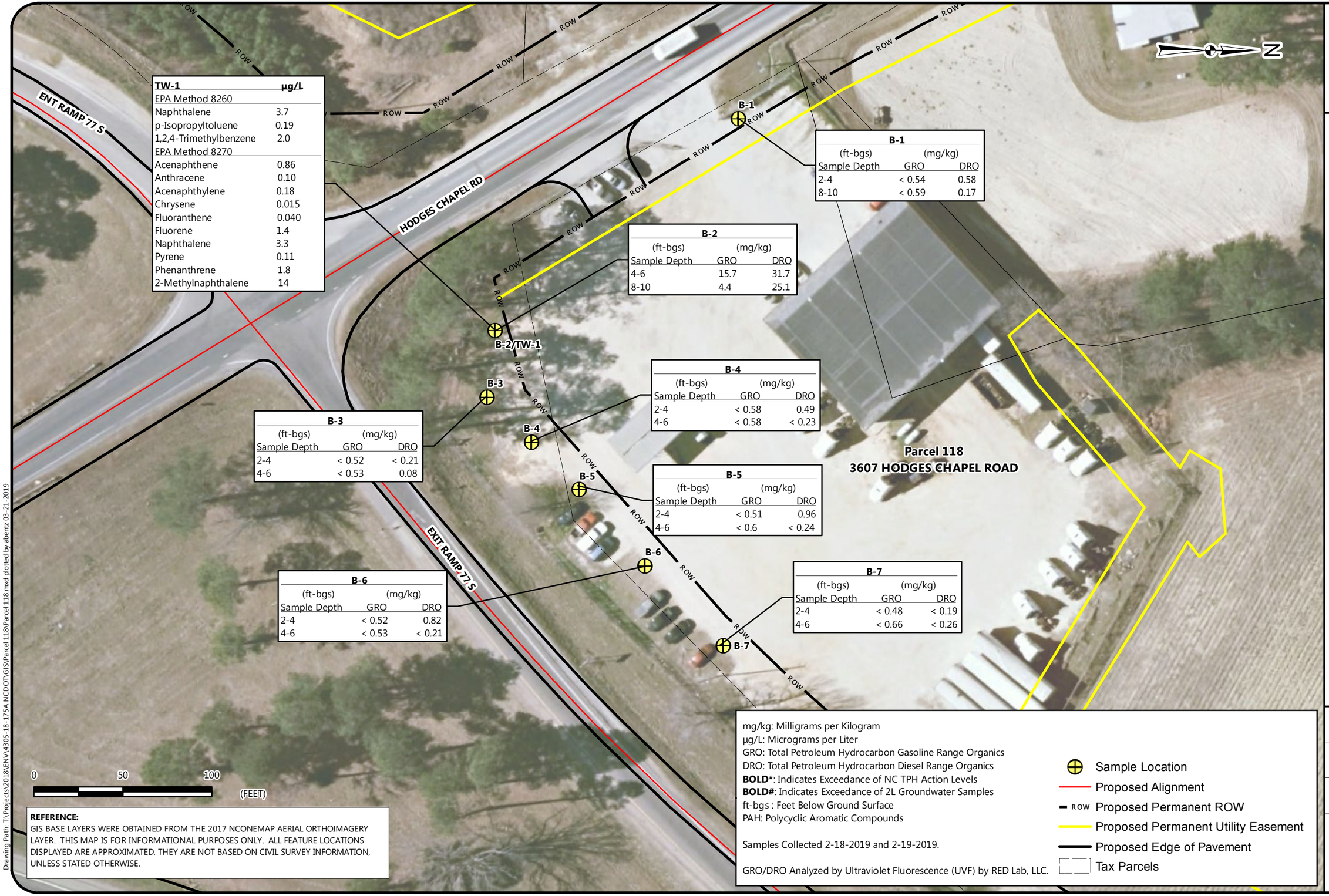
NCDOT Project: I-5986B
PARCEL 118 - (MIDWEST TRANSPORT)
3607 Hodges Chapel Road, Dunn, Harnett County, North Carolina

SOIL AND GROUNDWATER CONSTITUENT MAP

NCDOT I-5986B

PARCEL NO. 118 (MIDWEST TRANSPORT)

3607 HODGES CHAPEL ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA



TW-1	µg/L
EPA Method 8260	
Naphthalene	3.7
p-Isopropyltoluene	0.19
1,2,4-Trimethylbenzene	2.0
EPA Method 8270	
Acenaphthene	0.86
Anthracene	0.10
Acenaphthylene	0.18
Chrysene	0.015
Fluoranthene	0.040
Fluorene	1.4
Naphthalene	3.3
Pyrene	0.11
Phenanthrene	1.8
2-Methylnaphthalene	14

B-1

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.54	0.58
8-10	< 0.59	0.17

B-2

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
4-6	15.7	31.7
8-10	4.4	25.1

B-3

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.52	< 0.21
4-6	< 0.53	0.08

B-4

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.58	0.49
4-6	< 0.58	< 0.23

B-5

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.51	0.96
4-6	< 0.6	< 0.24

B-6

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.52	0.82
4-6	< 0.53	< 0.21

B-7

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.48	< 0.19
4-6	< 0.66	< 0.26

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE 2017 NCONEMAP AERIAL ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

mg/kg: Milligrams per Kilogram
µg/L: Micrograms per Liter
GRO: Total Petroleum Hydrocarbon Gasoline Range Organics
DRO: Total Petroleum Hydrocarbon Diesel Range Organics
BOLD*: Indicates Exceedance of NC TPH Action Levels
BOLD#: Indicates Exceedance of 2L Groundwater Samples
ft-bgs : Feet Below Ground Surface
PAH: Polycyclic Aromatic Compounds

Samples Collected 2-18-2019 and 2-19-2019.

GRO/DRO Analyzed by Ultraviolet Fluorescence (UVF) by RED Lab, LLC.

- Sample Location
- Proposed Alignment
- ROW Proposed Permanent ROW
- Proposed Permanent Utility Easement
- Proposed Edge of Pavement
- Tax Parcels

SCALE: 1 " = 50 '

DATE: 3-21-19

PROJECT NUMBER: 4305-18-175

FIGURE NO.: 3

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 118\Parcel 118.mxd plotted by abentz 03-21-2019

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)

LEGEND

Approximate TDEM Path

Approximate Requested Survey Area

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 118 – (MIDWEST TRANSPORT)
3607 HODGES CHAPEL ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

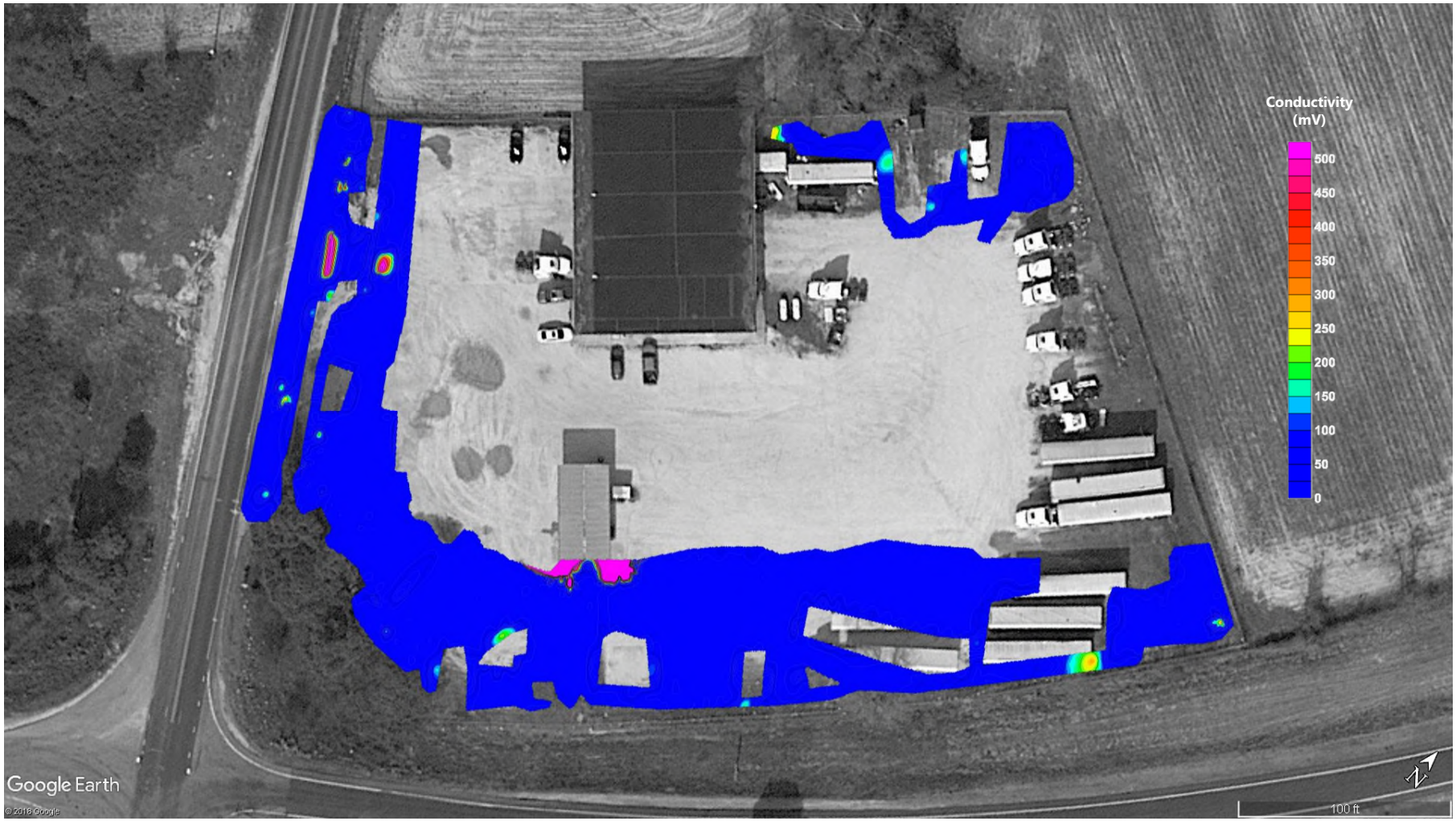
SCALE:
AS SHOWN

DATE:
3/21/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
4

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



TDEM DATA PLOT A

NCDOT PROJECT: I-5986B
PARCEL 118 – (MIDWEST TRANSPORT)
3607 HODGES CHAPEL ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

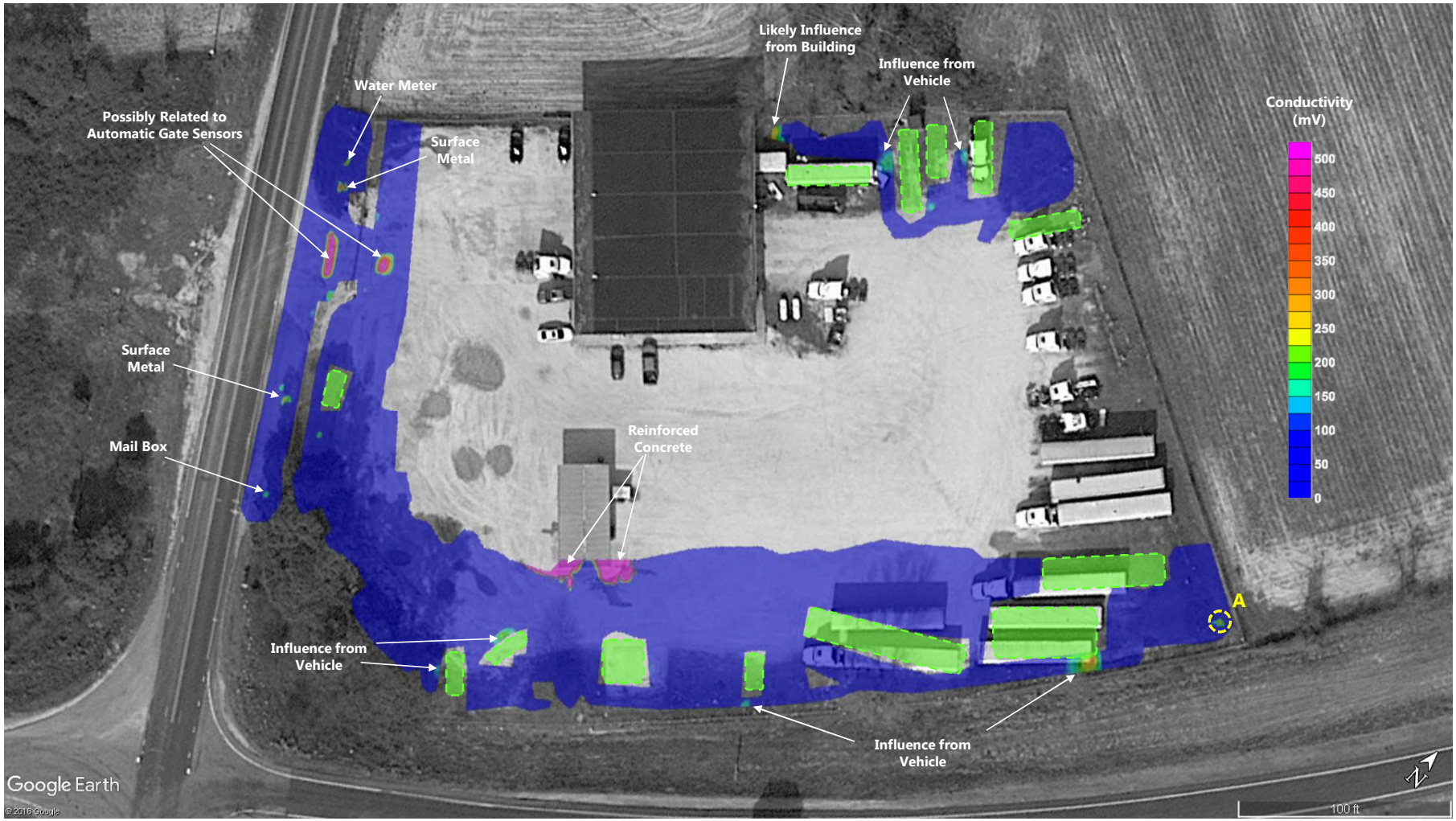
SCALE:
AS SHOWN

DATE:
3/21/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
5

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of TDEM Anomaly

Approximate Location of Vehicles

TDEM DATA PLOT B

NCDOT PROJECT: I-5986B
PARCEL 118 – (MIDWEST TRANSPORT)
3607 HODGES CHAPEL ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

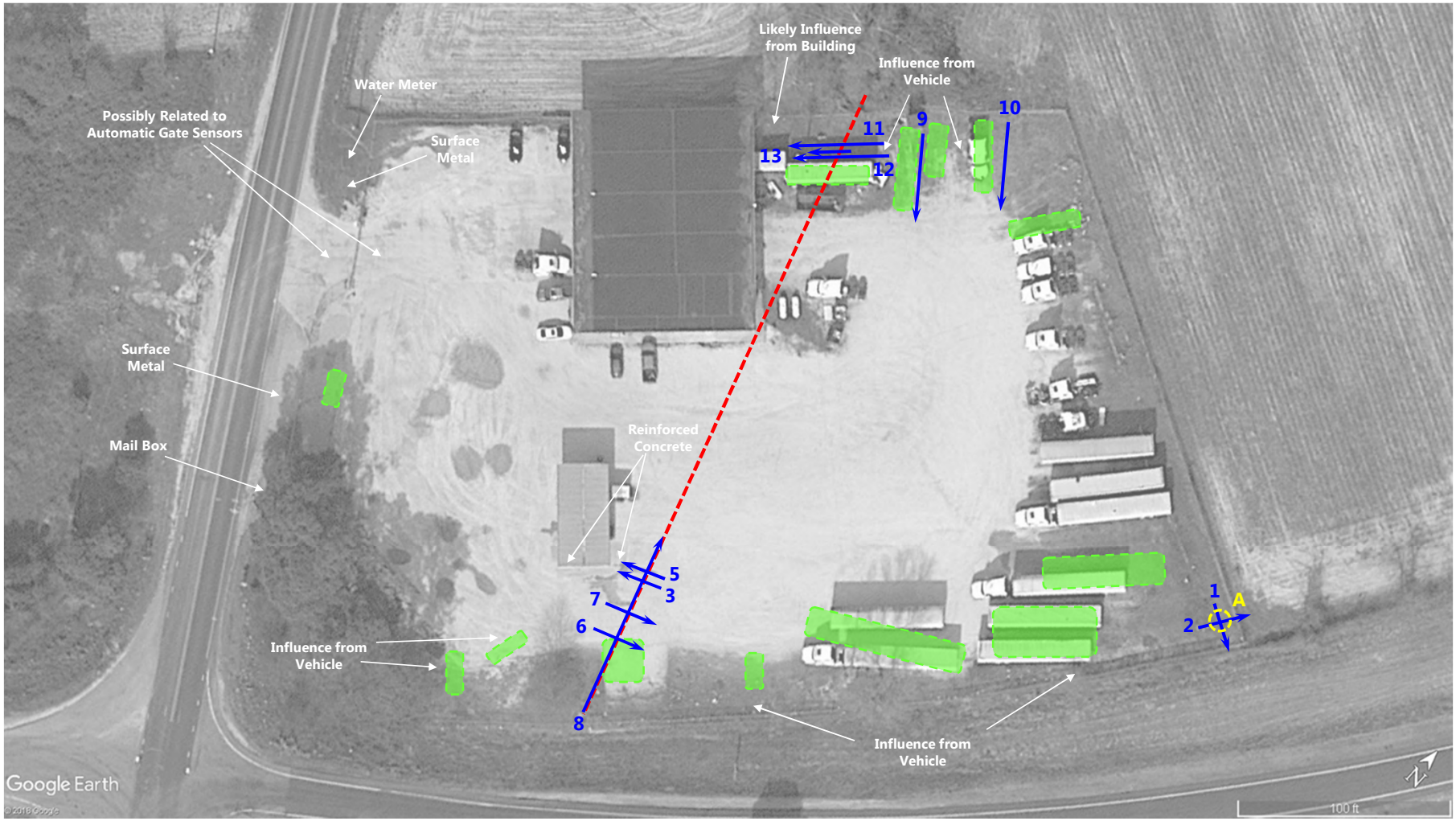
SCALE: AS SHOWN

DATE: 3/21/2019

PROJECT NUMBER 4305-18-175A

FIGURE NO. **6**

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of TDEM Anomaly

Approximate Location of Vehicles

Approximate Location of Possible Storm Utility

Approximate Location of GPR Profile

GEOPHYSICAL ANOMALY LOCATION PLAN

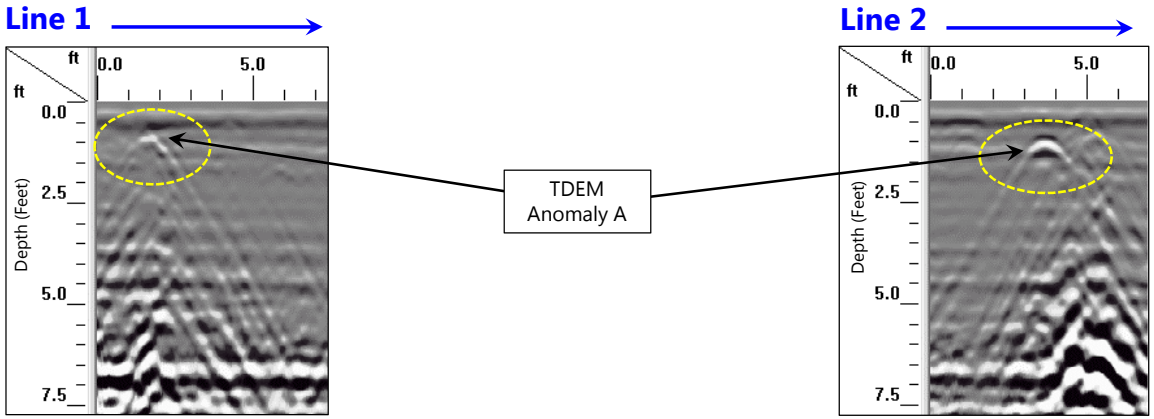
NCDOT PROJECT: I-5986B
PARCEL 118 – (MIDWEST TRANSPORT)
3607 HODGES CHAPEL ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/21/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
7



Note: Presented GPR profile depths are based on an assumed average dielectric and should be considered approximate

EXAMPLE GPR DATA – LINES 1 AND 2

NCDOT PROJECT: I-5986B
PARCEL 118 – (MIDWEST TRANSPORT)
3607 HODGES CHAPEL ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: AS SHOWN

DATE: 3/21/2019

PROJECT NUMBER 4305-18-175A

FIGURE NO. **8**

Appendix I – Photographs

Date: 2/19/2019

Photographer: JTH

1	**Location / Orientation**	Front view of site looking northeast.
	Remarks	Note garage/office building.

Date: 2/19/2019

Photographer: JTH

2	**Location / Orientation**	View of former fuel dispenser canopy.
	Remarks	Note soil boring B-5.

Date: 2/19/2019

Photographer: JTH

3	**Location / Orientation**	View looking east at soil boring locations.
	Remarks	None

Date: 2/19/2019

Photographer: JTH

4	**Location / Orientation**	View of groundwater sampling at B-2/TW-1.
	Remarks	Sampling from Geoprobe screen.

Appendix II – Boring Logs

PROJECT:	**NCDOT I-5986B** Parcel 118-3607 Hodges Chapel Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-1**
DATE DRILLED:	Monday, February 18, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Sand, Orange, Coarse,			3.2	No				
					3.5	Yes				
5		Silty Sand, Brown,								
					3.7	No				
		Clayey Sand, Orange, Gray,			1.7	No				
10					3.0	Yes				
		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 118-3607 Hodges Chapel Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-2/TW-1**
DATE DRILLED:	Monday, February 18, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	8
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Sand, Orange, Coarse,			2.0	No				
					3.0	No				
5		Clayey Sand, Orange, Black, Petroleum Odors			15.2	Yes				
			▼		4.6	No				
10		Boring Terminated at 10 Ft-BGS			10.1	Yes				
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 118-3607 Hodges Chapel Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-3**
DATE DRILLED:	Monday, February 18, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	6.8
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Sand, Orange, Red,			2.8	No				
					3.6	Yes				
5		Sandy Clay, Gray,	▼		4.1	Yes				
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 118-3607 Hodges Chapel Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-4**
DATE DRILLED:	Monday, February 18, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	7
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Sand, Orange, Red,			2.2	No				
					2.2	Yes				
5		Sandy Clay, Gray,	▼		3.1	Yes				
		Boring Terminated at 8 Ft-BGS								
10										
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 118-3607 Hodges Chapel Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-5**
DATE DRILLED:	Tuesday, February 19, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	7
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Gravel, Black,								
		Clayey Sand, Orange,			0.3	No				
		Silty Sand, Black,			0.9	Yes				
5		Clayey Sand, Brown, Tan,			0.9	Yes				
		Clayey Sand, Gray,	▼							
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 118-3607 Hodges Chapel Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-6**
DATE DRILLED:	Tuesday, February 19, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	7
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Gravel, Black,								
		Clayey Sand, Orange,			0.8	No				
		Silty Sand, Black,			0.9	Yes				
5		Clayey Sand, Brown, Tan,			1.0	Yes				
		Clayey Sand, Gray,	▼							
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 118-3607 Hodges Chapel Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-7**
DATE DRILLED:	Tuesday, February 19, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	7
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Gravel, Black,								
		Clayey Sand, Orange,			0.8	No				
		Silty Sand, Black,			0.9	Yes				
5		Clayey Sand, Brown, Tan,			1.0	Yes				
		Clayey Sand, Gray,	▼							
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

Appendix III – Laboratory Analytical Reports and Chain of Custody

QED

REDLAB
RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: S&ME
Address:

Samples taken Monday, February 18, 2019
Samples extracted Monday, February 18, 2019
Samples analysed Monday, February 18, 2019

Contact: JAMIE HONEYCUTT

Operator MAX MOYER

Project: 4305-18-175A ; PARCEL 118

F03640

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	
Soil	B-1 (2-4')	21.7	<0.54	<0.54	0.58	0.58	0.26	0.01	<0.007	0	78.5	21.5	V.Deg.PHC 91.3%,(FCM)
Soil	B-1 (8-10')	23.6	<0.59	<0.59	0.17	0.17	0.16	0.02	<0.007	0	80.1	19.9	Residual HC
Soil	B-2 (4-6')	19.0	<0.47	15.7	31.7	47.4	24	0.91	0.002	44	55	1.1	Deg.Diesel 50.8%,(FCM)
Soil	B-2 (8-10')	19.0	<0.47	4.4	25.1	29.5	13.9	0.48	<0.006	27.7	71.5	0.8	Deg.Diesel 92%,(FCM)
Soil	B-3 (2-4')	20.8	<0.52	<0.52	<0.21	<0.52	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	B-3 (4-6')	21.1	<0.53	<0.53	0.08	0.08	0.07	0.008	<0.006	0	100	0	Residual HC

Initial Calibrator QC check OK

Final FCM QC Check OK 98.6%

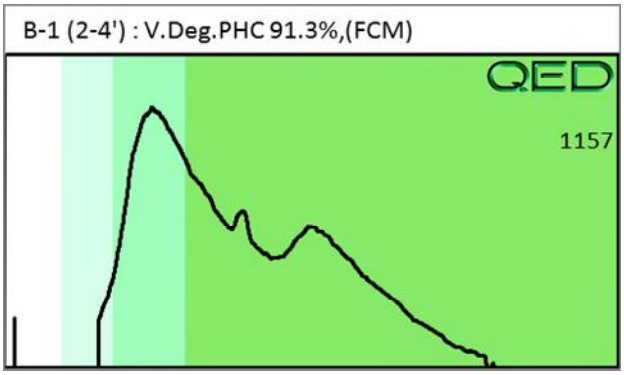
Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content

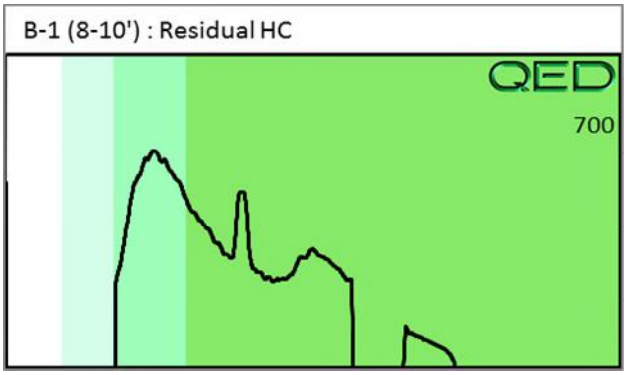
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

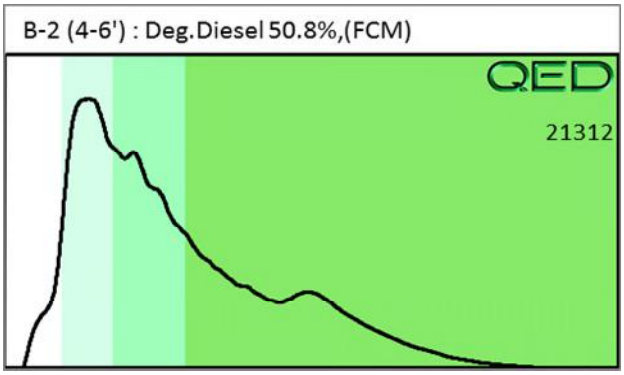
(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

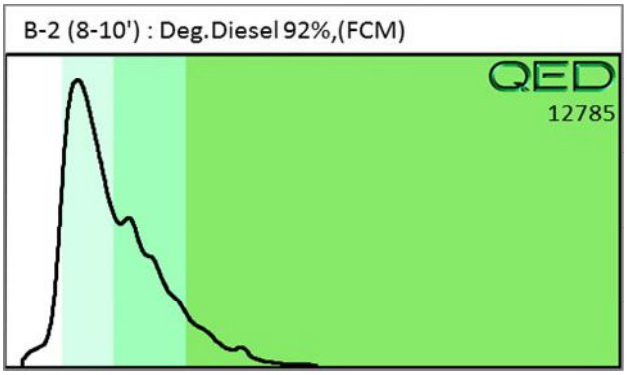
QED Hydrocarbon Fingerprints

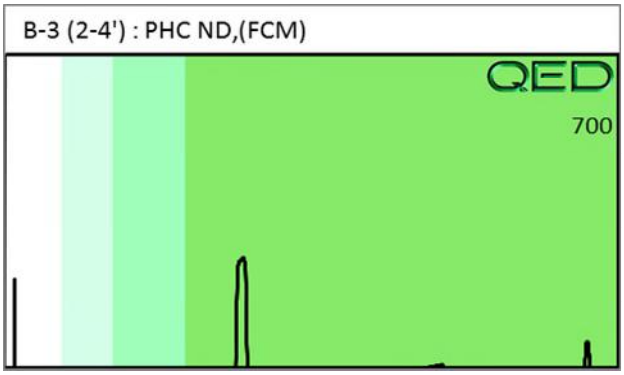
Project: 4305-18-175A ; PARCEL 118 ##################

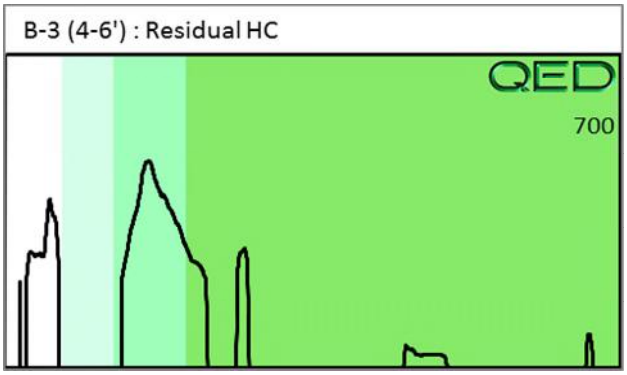












QED

REDLAB
RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: S&ME
Address:

Samples taken Tuesday, February 19, 2019
Samples extracted Tuesday, February 19, 2019
Samples analysed Tuesday, February 19, 2019

Contact: JAMIE HONEYCUTT

Operator MAX MOYER

Project: 4305-18-175A ; PARCEL 118

F03640

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	
Soil	B-4 (2-4')	23.0	<0.58	<0.58	0.49	0.49	0.47	0.05	<0.007	0	93.3	6.7	Residual Deg.PHC
Soil	B-4 (4-6')	23.0	<0.58	<0.58	<0.23	<0.58	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)
Soil	B-5 (2-4')	20.3	<0.51	<0.51	0.96	0.96	0.46	0.02	0.001	0	77	23	V.Deg.PHC 63.7%,(FCM)
Soil	B-5 (4-6')	23.9	<0.6	<0.6	<0.24	<0.6	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)
Soil	B-6 (2-4')	21.0	<0.52	<0.52	0.82	0.82	0.68	0.08	<0.006	0	97.7	2.3	PHC ND,(FCM)
Soil	B-6 (4-6')	21.1	<0.53	<0.53	<0.21	<0.53	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	B-7 (2-4')	19.3	<0.48	<0.48	<0.19	<0.48	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 110.7%

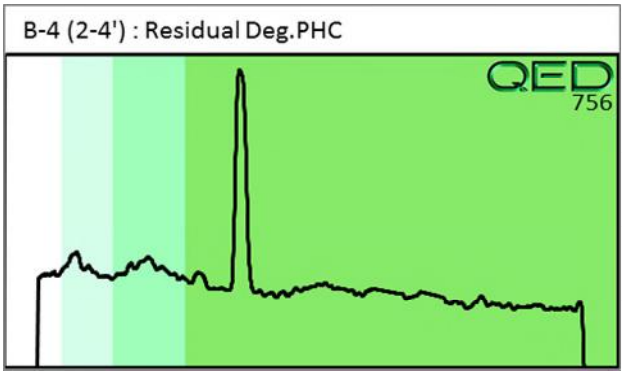
Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content

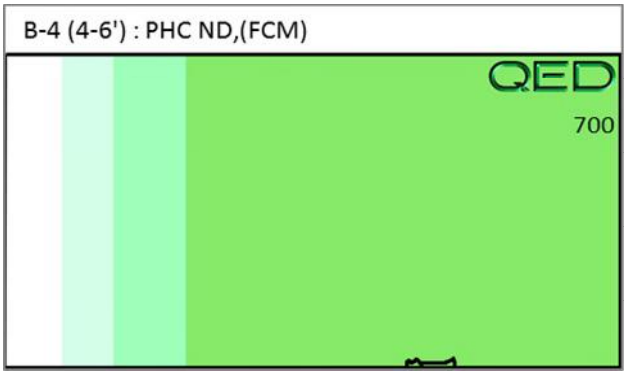
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

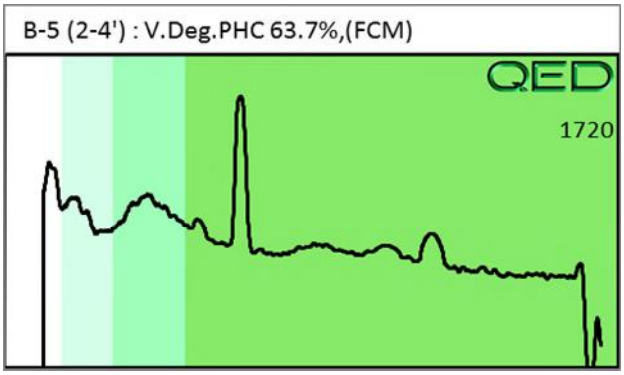
(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

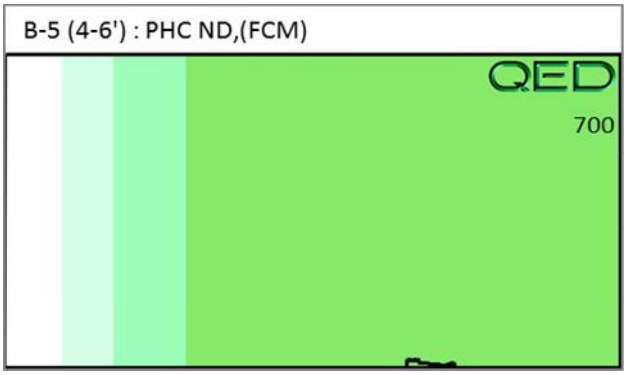
QED Hydrocarbon Fingerprints

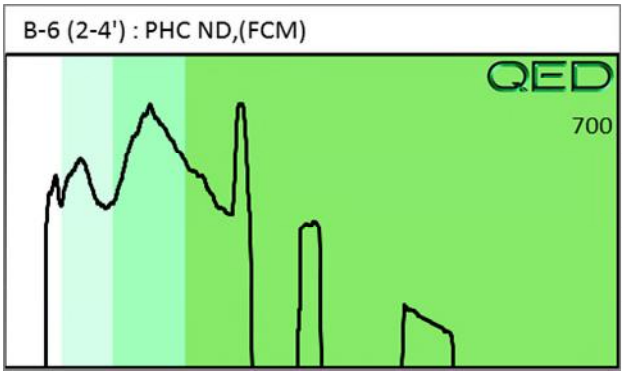
Project: 4305-18-175A ; PARCEL 118 ##################

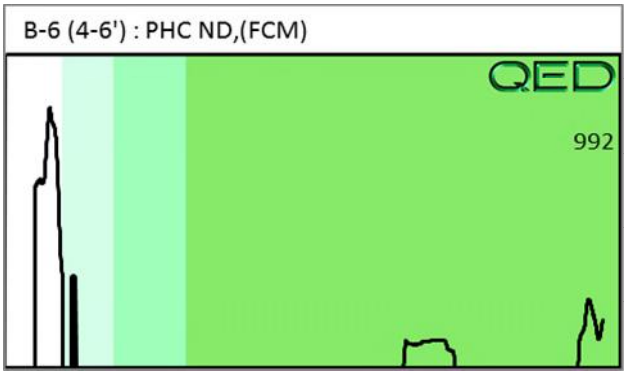


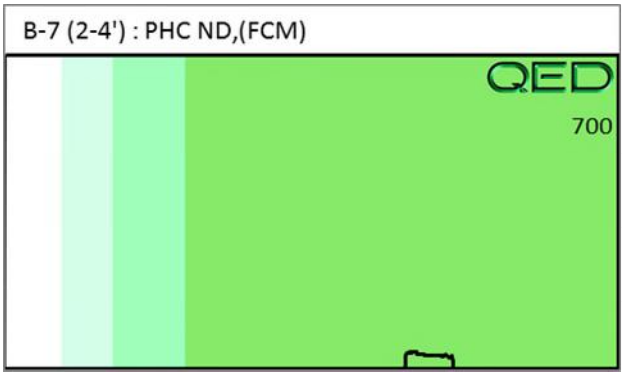












QED

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: S&ME
Address:

Samples taken Tuesday, February 19, 2019
Samples extracted Tuesday, February 19, 2019
Samples analysed Tuesday, February 19, 2019

Contact: JAMIE HONEYCUTT

Operator MAX MOYER

Project: 4305-18-175A ; PARCEL 118

F03640

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	
Soil	B-7 (4-6')	26.3	<0.66	<0.66	<0.26	<0.66	<0.01	<0.01	<0.008	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 99.1%

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

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

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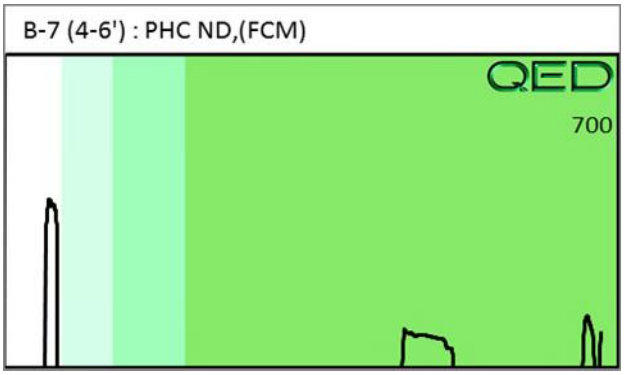
QED Hydrocarbon Fingerprints

Project: 4305-18-175A ; PARCEL 118 ##################



con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

February 28, 2019

Jamie Honeycutt
S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616

Project Location: 3607 Hodges Chapel Road, Dunn, NC
Client Job Number:
Project Number: 4305-18-175A
Laboratory Work Order Number: 19B0930

Enclosed are results of analyses for samples received by the laboratory on February 20, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616
ATTN: Jamie Honeycutt

REPORT DATE: 2/28/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 4305-18-175A

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19B0930

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 3607 Hodges Chapel Road, Dunn, NC

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
B-2/ TW-1	19B0930-01	Ground Water		SW-846 8260D SW-846 8270D	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

EXECUTIVE SUMMARY

Client ID: **B-2/ TW-1** Lab ID: **19B0930-01**

Analyte	Results/Qual		DL	RL	Units	Method
1,2,4-Trimethylbenzene	2.0		0.18	1.0	µg/L	SW-846 8260D
Naphthalene	3.7	J	0.12	5.0	µg/L	SW-846 8260D
p-Isopropyltoluene (p-Cymene)	0.19	J	0.15	1.0	µg/L	SW-846 8260D
2-Methylnaphthalene (SIM)	14		0.12	2.0	µg/L	SW-846 8270D
Acenaphthene (SIM)	0.86		0.033	0.30	µg/L	SW-846 8270D
Acenaphthylene (SIM)	0.18	J	0.035	0.20	µg/L	SW-846 8270D
Anthracene (SIM)	0.10	J	0.032	0.20	µg/L	SW-846 8270D
Chrysene (SIM)	0.015	J	0.015	0.20	µg/L	SW-846 8270D
Fluoranthene (SIM)	0.040	J	0.025	0.50	µg/L	SW-846 8270D
Fluorene (SIM)	1.4		0.034	1.0	µg/L	SW-846 8270D
Naphthalene (SIM)	3.3		0.26	1.0	µg/L	SW-846 8270D
Phenanthrene (SIM)	1.8		0.030	0.050	µg/L	SW-846 8270D
Pyrene (SIM)	0.11	J	0.023	1.0	µg/L	SW-846 8270D

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8270, only PAHs were requested and reported.

SW-846 8260D

Qualifications:

L-07A

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

Vinyl Acetate

B224172-BS1

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

Acetone

19B0930-01[B-2/ TW-1], B224172-BLK1, B224172-BS1, B224172-BSD1, S032911-CCV1

Vinyl Acetate

B224172-BLK1, B224172-BS1, B224172-BSD1, S032911-CCV1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane

19B0930-01[B-2/ TW-1], B224172-BLK1, B224172-BS1, B224172-BSD1, S032911-CCV1

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Bromochloromethane

B224172-BS1, B224172-BSD1, S032911-CCV1

V-36

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Carbon Disulfide

B224172-BS1, B224172-BSD1, S032911-CCV1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 3607 Hodges Chapel Road, Dunn Sample Description: Work Order: 19B0930

Date Received: 2/20/2019

Field Sample #: B-2/ TW-1 Sampled: 2/19/2019 11:45

Sample ID: 19B0930-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1	R-05	SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Bromomethane	ND	2.0	0.94	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
2-Butanone (MEK)	ND	20	2.4	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Chloromethane	ND	2.0	0.55	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 3607 Hodges Chapel Road, Dunn Sample Description: Work Order: 19B0930

Date Received: 2/20/2019

Field Sample #: B-2/ TW-1 Sampled: 2/19/2019 11:45

Sample ID: 19B0930-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.50	0.18	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,4-Dioxane	ND	50	26	µg/L	1	V-16	SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Hexachlorobutadiene	ND	1.0	0.59	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Isopropylbenzene (Cumene)	ND	1.0	0.12	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
p-Isopropyltoluene (p-Cymene)	0.19	1.0	0.15	µg/L	1	J	SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Methylene Chloride	ND	5.0	3.2	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Naphthalene	3.7	5.0	0.12	µg/L	1	J	SW-846 8260D	2/22/19	2/27/19 2:24	LBD
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Tetrahydrofuran	ND	10	1.1	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,2,4-Trimethylbenzene	2.0	1.0	0.18	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
1,3,5-Trimethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
m+p Xylene	ND	2.0	0.26	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD
o-Xylene	ND	1.0	0.13	µg/L	1		SW-846 8260D	2/22/19	2/27/19 2:24	LBD

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	93.1	70-130		2/27/19 2:24
Toluene-d8	98.2	70-130		2/27/19 2:24
4-Bromofluorobenzene	101	70-130		2/27/19 2:24

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 3607 Hodges Chapel Road, Dunn Sample Description: Work Order: 19B0930

Date Received: 2/20/2019

Field Sample #: B-2/ TW-1 Sampled: 2/19/2019 11:45

Sample ID: 19B0930-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene (SIM)	0.86	0.30	0.033	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Acenaphthylene (SIM)	0.18	0.20	0.035	µg/L	1	J	SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Anthracene (SIM)	0.10	0.20	0.032	µg/L	1	J	SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Benzo(a)anthracene (SIM)	ND	0.050	0.016	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Benzo(a)pyrene (SIM)	ND	0.10	0.012	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Benzo(b)fluoranthene (SIM)	ND	0.050	0.015	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Benzo(g,h,i)perylene (SIM)	ND	0.50	0.018	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Benzo(k)fluoranthene (SIM)	ND	0.20	0.012	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Chrysene (SIM)	0.015	0.20	0.015	µg/L	1	J	SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Dibenz(a,h)anthracene (SIM)	ND	0.10	0.017	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Fluoranthene (SIM)	0.040	0.50	0.025	µg/L	1	J	SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Fluorene (SIM)	1.4	1.0	0.034	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	0.018	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
2-Methylnaphthalene (SIM)	14	2.0	0.12	µg/L	2		SW-846 8270D	2/23/19	2/27/19 13:28	CLA
Naphthalene (SIM)	3.3	1.0	0.26	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Phenanthrene (SIM)	1.8	0.050	0.030	µg/L	1		SW-846 8270D	2/23/19	2/26/19 14:34	CLA
Pyrene (SIM)	0.11	1.0	0.023	µg/L	1	J	SW-846 8270D	2/23/19	2/26/19 14:34	CLA

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Nitrobenzene-d5 (SIM)	82.4	30-130		2/26/19 14:34
Nitrobenzene-d5 (SIM)	89.4	30-130		2/27/19 13:28
2-Fluorobiphenyl	51.5	30-130		2/26/19 14:34
2-Fluorobiphenyl	58.7	30-130		2/27/19 13:28
p-Terphenyl-d14	55.0	30-130		2/26/19 14:34
p-Terphenyl-d14	62.1	30-130		2/27/19 13:28

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 5030B-SW-846 8260D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19B0930-01 [B-2/ TW-1]	B224172	5	5.00	02/22/19

Prep Method: SW-846 3510C-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19B0930-01 [B-2/ TW-1]	B224345	1000	1.00	02/23/19
19B0930-01RE1 [B-2/ TW-1]	B224345	1000	1.00	02/23/19

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B224172 - SW-846 5030B										
Blank (B224172-BLK1)				Prepared: 02/22/19 Analyzed: 02/26/19						
Acetone	ND	50	µg/L							R-05
Acrylonitrile	ND	5.0	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	0.50	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							
2-Butanone (MEK)	ND	20	µg/L							
tert-Butyl Alcohol (TBA)	ND	20	µg/L							
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							
Carbon Disulfide	ND	4.0	µg/L							
Carbon Tetrachloride	ND	5.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	µg/L							
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
trans-1,4-Dichloro-2-butene	ND	2.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							
1,1-Dichloropropene	ND	2.0	µg/L							
cis-1,3-Dichloropropene	ND	0.50	µg/L							
trans-1,3-Dichloropropene	ND	0.50	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							V-16
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.60	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B224172 - SW-846 5030B											
Blank (B224172-BLK1)				Prepared: 02/22/19 Analyzed: 02/26/19							
Methylene Chloride	ND	5.0	µg/L								
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L								
Naphthalene	ND	2.0	µg/L								
n-Propylbenzene	ND	1.0	µg/L								
Styrene	ND	1.0	µg/L								
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L								
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L								
Tetrachloroethylene	ND	1.0	µg/L								
Tetrahydrofuran	ND	10	µg/L								
Toluene	ND	1.0	µg/L								
1,2,3-Trichlorobenzene	ND	5.0	µg/L								
1,2,4-Trichlorobenzene	ND	1.0	µg/L								
1,3,5-Trichlorobenzene	ND	1.0	µg/L								
1,1,1-Trichloroethane	ND	1.0	µg/L								
1,1,2-Trichloroethane	ND	1.0	µg/L								
Trichloroethylene	ND	1.0	µg/L								
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L								
1,2,3-Trichloropropane	ND	2.0	µg/L								
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	µg/L								
1,2,4-Trimethylbenzene	ND	1.0	µg/L								
1,3,5-Trimethylbenzene	ND	1.0	µg/L								
Vinyl Acetate	ND	20	µg/L							R-05	
Vinyl Chloride	ND	2.0	µg/L								
m+p Xylene	ND	2.0	µg/L								
o-Xylene	ND	1.0	µg/L								
Surrogate: 1,2-Dichloroethane-d4	*23.4*		µg/L	25.0		93.8	70-130				
Surrogate: Toluene-d8	*24.6*		µg/L	25.0		98.5	70-130				
Surrogate: 4-Bromofluorobenzene	*25.5*		µg/L	25.0		102	70-130				
LCS (B224172-BS1)				Prepared: 02/22/19 Analyzed: 02/26/19							
Acetone	125	50	µg/L	100		125	70-160			R-05	†
Acrylonitrile	9.46	5.0	µg/L	10.0		94.6	70-130				
tert-Amyl Methyl Ether (TAME)	10.7	0.50	µg/L	10.0		107	70-130				
Benzene	10.3	1.0	µg/L	10.0		103	70-130				
Bromobenzene	10.3	1.0	µg/L	10.0		103	70-130				
Bromochloromethane	12.0	1.0	µg/L	10.0		120	70-130			V-20	
Bromodichloromethane	10.6	0.50	µg/L	10.0		106	70-130				
Bromoform	10.2	1.0	µg/L	10.0		102	70-130				
Bromomethane	5.35	2.0	µg/L	10.0		53.5	40-160				†
2-Butanone (MEK)	98.5	20	µg/L	100		98.5	40-160				†
tert-Butyl Alcohol (TBA)	92.4	20	µg/L	100		92.4	40-160				†
n-Butylbenzene	9.08	1.0	µg/L	10.0		90.8	70-130				
sec-Butylbenzene	9.48	1.0	µg/L	10.0		94.8	70-130				
tert-Butylbenzene	9.57	1.0	µg/L	10.0		95.7	70-130				
tert-Butyl Ethyl Ether (TBEE)	9.76	0.50	µg/L	10.0		97.6	70-130				
Carbon Disulfide	11.6	4.0	µg/L	10.0		116	70-130			V-36	
Carbon Tetrachloride	10.9	5.0	µg/L	10.0		109	70-130				
Chlorobenzene	10.4	1.0	µg/L	10.0		104	70-130				
Chlorodibromomethane	11.4	0.50	µg/L	10.0		114	70-130				
Chloroethane	10.0	2.0	µg/L	10.0		100	70-130				
Chloroform	10.5	2.0	µg/L	10.0		105	70-130				
Chloromethane	7.80	2.0	µg/L	10.0		78.0	40-160				†

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B224172 - SW-846 5030B											
LCS (B224172-BS1)				Prepared: 02/22/19 Analyzed: 02/26/19							
2-Chlorotoluene	10.5	1.0	µg/L	10.0		105	70-130				
4-Chlorotoluene	10.3	1.0	µg/L	10.0		103	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	8.31	5.0	µg/L	10.0		83.1	70-130				
1,2-Dibromoethane (EDB)	11.0	0.50	µg/L	10.0		110	70-130				
Dibromomethane	11.3	1.0	µg/L	10.0		113	70-130				
1,2-Dichlorobenzene	9.99	1.0	µg/L	10.0		99.9	70-130				
1,3-Dichlorobenzene	10.0	1.0	µg/L	10.0		100	70-130				
1,4-Dichlorobenzene	9.73	1.0	µg/L	10.0		97.3	70-130				
trans-1,4-Dichloro-2-butene	9.34	2.0	µg/L	10.0		93.4	70-130				
Dichlorodifluoromethane (Freon 12)	8.72	2.0	µg/L	10.0		87.2	40-160				†
1,1-Dichloroethane	10.5	1.0	µg/L	10.0		105	70-130				
1,2-Dichloroethane	10.2	1.0	µg/L	10.0		102	70-130				
1,1-Dichloroethylene	10.4	1.0	µg/L	10.0		104	70-130				
cis-1,2-Dichloroethylene	10.2	1.0	µg/L	10.0		102	70-130				
trans-1,2-Dichloroethylene	10.8	1.0	µg/L	10.0		108	70-130				
1,2-Dichloropropane	10.2	1.0	µg/L	10.0		102	70-130				
1,3-Dichloropropane	10.5	0.50	µg/L	10.0		105	70-130				
2,2-Dichloropropane	9.51	1.0	µg/L	10.0		95.1	40-130				†
1,1-Dichloropropene	10.7	2.0	µg/L	10.0		107	70-130				
cis-1,3-Dichloropropene	10.2	0.50	µg/L	10.0		102	70-130				
trans-1,3-Dichloropropene	10.0	0.50	µg/L	10.0		100	70-130				
Diethyl Ether	10.3	2.0	µg/L	10.0		103	70-130				
Diisopropyl Ether (DIPE)	9.31	0.50	µg/L	10.0		93.1	70-130				
1,4-Dioxane	94.9	50	µg/L	100		94.9	40-130			V-16	†
Ethylbenzene	9.99	1.0	µg/L	10.0		99.9	70-130				
Hexachlorobutadiene	9.55	0.60	µg/L	10.0		95.5	70-130				
2-Hexanone (MBK)	95.9	10	µg/L	100		95.9	70-160				†
Isopropylbenzene (Cumene)	10.6	1.0	µg/L	10.0		106	70-130				
p-Isopropyltoluene (p-Cymene)	9.60	1.0	µg/L	10.0		96.0	70-130				
Methyl tert-Butyl Ether (MTBE)	10.7	1.0	µg/L	10.0		107	70-130				
Methylene Chloride	9.81	5.0	µg/L	10.0		98.1	70-130				
4-Methyl-2-pentanone (MIBK)	91.0	10	µg/L	100		91.0	70-160				†
Naphthalene	8.58	2.0	µg/L	10.0		85.8	40-130				†
n-Propylbenzene	10.5	1.0	µg/L	10.0		105	70-130				
Styrene	10.5	1.0	µg/L	10.0		105	70-130				
1,1,1,2-Tetrachloroethane	11.1	1.0	µg/L	10.0		111	70-130				
1,1,2,2-Tetrachloroethane	10.0	0.50	µg/L	10.0		100	70-130				
Tetrachloroethylene	11.4	1.0	µg/L	10.0		114	70-130				
Tetrahydrofuran	8.68	10	µg/L	10.0		86.8	70-130			J	
Toluene	10.6	1.0	µg/L	10.0		106	70-130				
1,2,3-Trichlorobenzene	9.96	5.0	µg/L	10.0		99.6	70-130				
1,2,4-Trichlorobenzene	9.88	1.0	µg/L	10.0		98.8	70-130				
1,3,5-Trichlorobenzene	10.1	1.0	µg/L	10.0		101	70-130				
1,1,1-Trichloroethane	10.7	1.0	µg/L	10.0		107	70-130				
1,1,2-Trichloroethane	11.1	1.0	µg/L	10.0		111	70-130				
Trichloroethylene	11.4	1.0	µg/L	10.0		114	70-130				
Trichlorofluoromethane (Freon 11)	9.37	2.0	µg/L	10.0		93.7	70-130				
1,2,3-Trichloropropane	10.1	2.0	µg/L	10.0		101	70-130				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	10.5	1.0	µg/L	10.0		105	70-130				
1,2,4-Trimethylbenzene	9.12	1.0	µg/L	10.0		91.2	70-130				
1,3,5-Trimethylbenzene	10.2	1.0	µg/L	10.0		102	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes	
Batch B224172 - SW-846 5030B													
LCS (B224172-BS1)				Prepared: 02/22/19 Analyzed: 02/26/19									
Vinyl Acetate	65.2	20	µg/L	100		**65.2**	*	70-130				R-05, L-07A	
Vinyl Chloride	8.95	2.0	µg/L	10.0		89.5		40-160					†
m+p Xylene	20.6	2.0	µg/L	20.0		103		70-130					
o-Xylene	10.3	1.0	µg/L	10.0		103		70-130					
Surrogate: 1,2-Dichloroethane-d4	*23.7*		µg/L	25.0		94.7		70-130					
Surrogate: Toluene-d8	*24.5*		µg/L	25.0		97.9		70-130					
Surrogate: 4-Bromofluorobenzene	*25.2*		µg/L	25.0		101		70-130					
LCS Dup (B224172-BSD1)				Prepared: 02/22/19 Analyzed: 02/26/19									
Acetone	94.8	50	µg/L	100		94.8		70-160	**27.3**	*	25	R-05	†
Acrylonitrile	9.77	5.0	µg/L	10.0		97.7		70-130	3.22		25		
tert-Amyl Methyl Ether (TAME)	10.3	0.50	µg/L	10.0		103		70-130	3.43		25		
Benzene	10.3	1.0	µg/L	10.0		103		70-130	0.388		25		
Bromobenzene	10.6	1.0	µg/L	10.0		106		70-130	2.20		25		
Bromochloromethane	12.4	1.0	µg/L	10.0		124		70-130	3.36		25	V-20	
Bromodichloromethane	10.9	0.50	µg/L	10.0		109		70-130	3.07		25		
Bromoform	10.3	1.0	µg/L	10.0		103		70-130	0.586		25		
Bromomethane	6.67	2.0	µg/L	10.0		66.7		40-160	22.0		25		†
2-Butanone (MEK)	90.8	20	µg/L	100		90.8		40-160	8.10		25		†
tert-Butyl Alcohol (TBA)	92.1	20	µg/L	100		92.1		40-160	0.358		25		†
n-Butylbenzene	9.28	1.0	µg/L	10.0		92.8		70-130	2.18		25		
sec-Butylbenzene	9.52	1.0	µg/L	10.0		95.2		70-130	0.421		25		
tert-Butylbenzene	9.52	1.0	µg/L	10.0		95.2		70-130	0.524		25		
tert-Butyl Ethyl Ether (TBEE)	9.75	0.50	µg/L	10.0		97.5		70-130	0.103		25		
Carbon Disulfide	11.1	4.0	µg/L	10.0		111		70-130	3.96		25	V-36	
Carbon Tetrachloride	10.6	5.0	µg/L	10.0		106		70-130	2.14		25		
Chlorobenzene	10.5	1.0	µg/L	10.0		105		70-130	0.287		25		
Chlorodibromomethane	11.4	0.50	µg/L	10.0		114		70-130	0.351		25		
Chloroethane	9.72	2.0	µg/L	10.0		97.2		70-130	3.24		25		
Chloroform	10.3	2.0	µg/L	10.0		103		70-130	1.83		25		
Chloromethane	7.75	2.0	µg/L	10.0		77.5		40-160	0.643		25		†
2-Chlorotoluene	10.6	1.0	µg/L	10.0		106		70-130	0.190		25		
4-Chlorotoluene	10.4	1.0	µg/L	10.0		104		70-130	0.386		25		
1,2-Dibromo-3-chloropropane (DBCP)	8.81	5.0	µg/L	10.0		88.1		70-130	5.84		25		
1,2-Dibromoethane (EDB)	11.1	0.50	µg/L	10.0		111		70-130	0.903		25		
Dibromomethane	11.1	1.0	µg/L	10.0		111		70-130	1.78		25		
1,2-Dichlorobenzene	10.1	1.0	µg/L	10.0		101		70-130	1.19		25		
1,3-Dichlorobenzene	10.2	1.0	µg/L	10.0		102		70-130	0.990		25		
1,4-Dichlorobenzene	9.70	1.0	µg/L	10.0		97.0		70-130	0.309		25		
trans-1,4-Dichloro-2-butene	9.55	2.0	µg/L	10.0		95.5		70-130	2.22		25		
Dichlorodifluoromethane (Freon 12)	8.54	2.0	µg/L	10.0		85.4		40-160	2.09		25		†
1,1-Dichloroethane	10.2	1.0	µg/L	10.0		102		70-130	2.80		25		
1,2-Dichloroethane	10.4	1.0	µg/L	10.0		104		70-130	2.04		25		
1,1-Dichloroethylene	9.88	1.0	µg/L	10.0		98.8		70-130	4.84		25		
cis-1,2-Dichloroethylene	10.3	1.0	µg/L	10.0		103		70-130	1.07		25		
trans-1,2-Dichloroethylene	10.5	1.0	µg/L	10.0		105		70-130	2.63		25		
1,2-Dichloropropane	10.0	1.0	µg/L	10.0		100		70-130	1.78		25		
1,3-Dichloropropane	10.4	0.50	µg/L	10.0		104		70-130	0.479		25		
2,2-Dichloropropane	9.41	1.0	µg/L	10.0		94.1		40-130	1.06		25		†
1,1-Dichloropropene	10.5	2.0	µg/L	10.0		105		70-130	1.98		25		
cis-1,3-Dichloropropene	10.2	0.50	µg/L	10.0		102		70-130	0.784		25		
trans-1,3-Dichloropropene	10.1	0.50	µg/L	10.0		101		70-130	0.894		25		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes	
Batch B224172 - SW-846 5030B												
LCS Dup (B224172-BSD1)				Prepared: 02/22/19 Analyzed: 02/26/19								
Diethyl Ether	10.0	2.0	µg/L	10.0		100	70-130	2.75		25		
Diisopropyl Ether (DIPE)	9.40	0.50	µg/L	10.0		94.0	70-130	0.962		25		
1,4-Dioxane	87.0	50	µg/L	100		87.0	40-130	8.75		50	V-16	† ‡
Ethylbenzene	10.2	1.0	µg/L	10.0		102	70-130	2.57		25		
Hexachlorobutadiene	9.49	0.60	µg/L	10.0		94.9	70-130	0.630		25		
2-Hexanone (MBK)	93.8	10	µg/L	100		93.8	70-160	2.21		25		†
Isopropylbenzene (Cumene)	10.8	1.0	µg/L	10.0		108	70-130	1.21		25		
p-Isopropyltoluene (p-Cymene)	9.59	1.0	µg/L	10.0		95.9	70-130	0.104		25		
Methyl tert-Butyl Ether (MTBE)	10.7	1.0	µg/L	10.0		107	70-130	0.187		25		
Methylene Chloride	9.45	5.0	µg/L	10.0		94.5	70-130	3.74		25		
4-Methyl-2-pentanone (MIBK)	94.0	10	µg/L	100		94.0	70-160	3.17		25		†
Naphthalene	8.74	2.0	µg/L	10.0		87.4	40-130	1.85		25		†
n-Propylbenzene	10.4	1.0	µg/L	10.0		104	70-130	0.478		25		
Styrene	10.6	1.0	µg/L	10.0		106	70-130	1.33		25		
1,1,1,2-Tetrachloroethane	10.8	1.0	µg/L	10.0		108	70-130	2.84		25		
1,1,2,2-Tetrachloroethane	11.1	0.50	µg/L	10.0		111	70-130	10.6		25		
Tetrachloroethylene	11.2	1.0	µg/L	10.0		112	70-130	1.59		25		
Tetrahydrofuran	9.65	10	µg/L	10.0		96.5	70-130	10.6		25	J	
Toluene	10.5	1.0	µg/L	10.0		105	70-130	0.951		25		
1,2,3-Trichlorobenzene	10.3	5.0	µg/L	10.0		103	70-130	3.16		25		
1,2,4-Trichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130	2.89		25		
1,3,5-Trichlorobenzene	10.1	1.0	µg/L	10.0		101	70-130	0.198		25		
1,1,1-Trichloroethane	10.6	1.0	µg/L	10.0		106	70-130	0.659		25		
1,1,2-Trichloroethane	11.0	1.0	µg/L	10.0		110	70-130	1.17		25		
Trichloroethylene	10.5	1.0	µg/L	10.0		105	70-130	8.21		25		
Trichlorofluoromethane (Freon 11)	9.02	2.0	µg/L	10.0		90.2	70-130	3.81		25		
1,2,3-Trichloropropane	10.6	2.0	µg/L	10.0		106	70-130	5.02		25		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	9.91	1.0	µg/L	10.0		99.1	70-130	5.50		25		
1,2,4-Trimethylbenzene	9.23	1.0	µg/L	10.0		92.3	70-130	1.20		25		
1,3,5-Trimethylbenzene	10.2	1.0	µg/L	10.0		102	70-130	0.391		25		
Vinyl Acetate	91.2	20	µg/L	100		91.2	70-130	**33.3**	*	25	R-05	
Vinyl Chloride	8.77	2.0	µg/L	10.0		87.7	40-160	2.03		25		†
m+p Xylene	20.6	2.0	µg/L	20.0		103	70-130	0.194		25		
o-Xylene	10.4	1.0	µg/L	10.0		104	70-130	1.06		25		
Surrogate: 1,2-Dichloroethane-d4	*23.6*		µg/L	25.0		94.2	70-130					
Surrogate: Toluene-d8	*24.9*		µg/L	25.0		99.6	70-130					
Surrogate: 4-Bromofluorobenzene	*26.2*		µg/L	25.0		105	70-130					

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B224345 - SW-846 3510C										
Blank (B224345-BLK1)				Prepared: 02/23/19 Analyzed: 02/26/19						
Acenaphthene (SIM)	ND	0.30	µg/L							
Acenaphthylene (SIM)	ND	0.20	µg/L							
Anthracene (SIM)	ND	0.20	µg/L							
Benzo(a)anthracene (SIM)	ND	0.050	µg/L							
Benzo(a)pyrene (SIM)	ND	0.10	µg/L							
Benzo(b)fluoranthene (SIM)	ND	0.050	µg/L							
Benzo(g,h,i)perylene (SIM)	ND	0.50	µg/L							
Benzo(k)fluoranthene (SIM)	ND	0.20	µg/L							
Chrysene (SIM)	ND	0.20	µg/L							
Dibenz(a,h)anthracene (SIM)	ND	0.10	µg/L							
Fluoranthene (SIM)	ND	0.50	µg/L							
Fluorene (SIM)	ND	1.0	µg/L							
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	µg/L							
2-Methylnaphthalene (SIM)	ND	1.0	µg/L							
Naphthalene (SIM)	ND	1.0	µg/L							
Phenanthrene (SIM)	ND	0.050	µg/L							
Pyrene (SIM)	ND	1.0	µg/L							
Surrogate: Nitrobenzene-d5 (SIM)	*77.0*		µg/L	100		77.0	30-130			
Surrogate: 2-Fluorobiphenyl	*56.4*		µg/L	100		56.4	30-130			
Surrogate: p-Terphenyl-d14	*59.9*		µg/L	100		59.9	30-130			
LCS (B224345-BS1)				Prepared: 02/23/19 Analyzed: 02/26/19						
Acenaphthene (SIM)	34.4	7.5	µg/L	50.0		68.9	40-140			
Acenaphthylene (SIM)	34.0	5.0	µg/L	50.0		68.0	40-140			
Anthracene (SIM)	37.6	5.0	µg/L	50.0		75.1	40-140			
Benzo(a)anthracene (SIM)	32.0	1.2	µg/L	50.0		64.0	40-140			
Benzo(a)pyrene (SIM)	37.0	2.5	µg/L	50.0		74.1	40-140			
Benzo(b)fluoranthene (SIM)	37.3	1.2	µg/L	50.0		74.6	40-140			
Benzo(g,h,i)perylene (SIM)	38.5	12	µg/L	50.0		77.0	40-140			
Benzo(k)fluoranthene (SIM)	36.9	5.0	µg/L	50.0		73.8	40-140			
Chrysene (SIM)	34.2	5.0	µg/L	50.0		68.3	40-140			
Dibenz(a,h)anthracene (SIM)	41.5	2.5	µg/L	50.0		83.0	40-140			
Fluoranthene (SIM)	34.3	12	µg/L	50.0		68.6	40-140			
Fluorene (SIM)	34.4	25	µg/L	50.0		68.8	40-140			
Indeno(1,2,3-cd)pyrene (SIM)	40.7	2.5	µg/L	50.0		81.4	40-140			
2-Methylnaphthalene (SIM)	33.5	25	µg/L	50.0		67.0	40-140			
Naphthalene (SIM)	31.4	25	µg/L	50.0		62.8	40-140			
Phenanthrene (SIM)	35.6	1.2	µg/L	50.0		71.1	40-140			
Pyrene (SIM)	31.8	25	µg/L	50.0		63.7	40-140			
Surrogate: Nitrobenzene-d5 (SIM)	*63.0*		µg/L	100		63.0	30-130			
Surrogate: 2-Fluorobiphenyl	*48.4*		µg/L	100		48.4	30-130			
Surrogate: p-Terphenyl-d14	*47.8*		µg/L	100		47.8	30-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B224345 - SW-846 3510C										
LCS Dup (B224345-BSD1)				Prepared: 02/23/19 Analyzed: 02/26/19						
Acenaphthene (SIM)	34.5	7.5	µg/L	50.0		69.0	40-140	0.217	20	
Acenaphthylene (SIM)	34.0	5.0	µg/L	50.0		68.1	40-140	0.221	20	
Anthracene (SIM)	37.1	5.0	µg/L	50.0		74.2	40-140	1.27	20	
Benzo(a)anthracene (SIM)	31.4	1.2	µg/L	50.0		62.7	40-140	2.13	20	
Benzo(a)pyrene (SIM)	36.6	2.5	µg/L	50.0		73.2	40-140	1.22	20	
Benzo(b)fluoranthene (SIM)	37.0	1.2	µg/L	50.0		74.0	40-140	0.740	20	
Benzo(g,h,i)perylene (SIM)	38.7	12	µg/L	50.0		77.4	40-140	0.454	20	
Benzo(k)fluoranthene (SIM)	37.4	5.0	µg/L	50.0		74.8	40-140	1.21	20	
Chrysene (SIM)	33.5	5.0	µg/L	50.0		67.0	40-140	1.92	20	
Dibenz(a,h)anthracene (SIM)	41.4	2.5	µg/L	50.0		82.7	40-140	0.302	20	
Fluoranthene (SIM)	35.0	12	µg/L	50.0		70.0	40-140	2.09	20	
Fluorene (SIM)	35.6	25	µg/L	50.0		71.3	40-140	3.64	20	
Indeno(1,2,3-cd)pyrene (SIM)	40.7	2.5	µg/L	50.0		81.4	40-140	0.00	20	‡
2-Methylnaphthalene (SIM)	34.5	25	µg/L	50.0		69.0	40-140	2.94	20	
Naphthalene (SIM)	31.6	25	µg/L	50.0		63.2	40-140	0.556	20	
Phenanthrene (SIM)	35.4	1.2	µg/L	50.0		70.8	40-140	0.423	20	
Pyrene (SIM)	31.0	25	µg/L	50.0		62.1	40-140	2.54	20	
Surrogate: Nitrobenzene-d5 (SIM)	*62.2*		µg/L	100		62.2	30-130			
Surrogate: 2-Fluorobiphenyl	*46.1*		µg/L	100		46.1	30-130			
Surrogate: p-Terphenyl-d14	*44.5*		µg/L	100		44.5	30-130			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
L-07A	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-36	Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260D in Water	
Acetone	NC
Acrylonitrile	NC
tert-Amyl Methyl Ether (TAME)	NC
Benzene	NC
Bromobenzene	NC
Bromochloromethane	NC
Bromodichloromethane	NC
Bromoform	NC
Bromomethane	NC
2-Butanone (MEK)	NC
tert-Butyl Alcohol (TBA)	NC
n-Butylbenzene	NC
sec-Butylbenzene	NC
tert-Butylbenzene	NC
tert-Butyl Ethyl Ether (TBEE)	NC
Carbon Disulfide	NC
Carbon Tetrachloride	NC
Chlorobenzene	NC
Chlorodibromomethane	NC
Chloroethane	NC
Chloroform	NC
Chloromethane	NC
2-Chlorotoluene	NC
4-Chlorotoluene	NC
1,2-Dibromo-3-chloropropane (DBCP)	NC
1,2-Dibromoethane (EDB)	NC
Dibromomethane	NC
1,2-Dichlorobenzene	NC
1,3-Dichlorobenzene	NC
1,4-Dichlorobenzene	NC
trans-1,4-Dichloro-2-butene	NC
Dichlorodifluoromethane (Freon 12)	NC
1,1-Dichloroethane	NC
1,2-Dichloroethane	NC
1,1-Dichloroethylene	NC
cis-1,2-Dichloroethylene	NC
trans-1,2-Dichloroethylene	NC
1,2-Dichloropropane	NC
1,3-Dichloropropane	NC
2,2-Dichloropropane	NC
1,1-Dichloropropene	NC
cis-1,3-Dichloropropene	NC
trans-1,3-Dichloropropene	NC
Diethyl Ether	NC
Diisopropyl Ether (DIPE)	NC
1,4-Dioxane	NC
Ethylbenzene	NC

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260D in Water	
Hexachlorobutadiene	NC
2-Hexanone (MBK)	NC
Isopropylbenzene (Cumene)	NC
p-Isopropyltoluene (p-Cymene)	NC
Methyl tert-Butyl Ether (MTBE)	NC
Methylene Chloride	NC
4-Methyl-2-pentanone (MIBK)	NC
Naphthalene	NC
n-Propylbenzene	NC
Styrene	NC
1,1,1,2-Tetrachloroethane	NC
1,1,2,2-Tetrachloroethane	NC
Tetrachloroethylene	NC
Tetrahydrofuran	NC
Toluene	NC
1,2,3-Trichlorobenzene	NC
1,2,4-Trichlorobenzene	NC
1,3,5-Trichlorobenzene	NC
1,1,1-Trichloroethane	NC
1,1,2-Trichloroethane	NC
Trichloroethylene	NC
Trichlorofluoromethane (Freon 11)	NC
1,2,3-Trichloropropane	NC
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	NC
1,2,4-Trimethylbenzene	NC
1,3,5-Trimethylbenzene	NC
Vinyl Chloride	NC
m+p Xylene	NC
o-Xylene	NC

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

19B0950

http://www.contestlabs.com Doc # 379 Rev 1_03242017

CHAIN OF CUSTODY RECORD (North Carolina)

con-test ANALYTICAL LABORATORY
Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com
39 Spruce Street
East Longmeadow, MA 01028

Company Name:	S&ME
Address:	3201 Spring Forest Rd Raleigh, NC
Phone:	919 877-2614
Project Name:	Parcel 118 DOT-DNN
Project Location:	3007 Hodges Chapel Rd, Dunn, NC
Project Number:	4305-18-175A
Project Manager:	Jamie Haverkost
Con-Test Quote Name/Number:	
Invoice Recipient:	
Sampled By:	Jamie T Haverkost

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date:

Rush Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: jhaverkost@smeinc.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1]Matrix Code	Conc Code	8260	8270 (PAH)	# of Containers
	B-2 / TW-1	2.19.19	1145		/	GW	M	/	/	

[2] Preservation Code
[3] Container Code

Dissolved Metals Samples
☐ Field Filtered
☐ Lab to Filter

Orthophosphate Samples
☐ Field Filtered
☐ Lab to Filter

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time: 2/20/19 1400
Received by: (signature)	Date/Time: 2/20/19 1400
Relinquished by: (signature)	Date/Time: 2/20/19 1700
Received by: (signature)	Date/Time: 2/21/19 1025
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

North Carolina Detection Limit Requirements
☐ 2L
☐ GWPC
☐ SWSL
☐ IHSB
☐ MSCC
Other:

Program Information
☐ DSCA ☐ UST/Trust Fund
☐ SWS Landfill ☐ REC
☐ IHSB Orphaned Landfill
☐ State Lead
☐ Other:

NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality
☐ Federal ☐ Brownfield
☐ City ☐ School

Other
☐ Chromatogram
☐ *AIHA-LAP, LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

FedEx

774519142837

Delivered
Thursday 2/21/2019 at 10:25 am

DELIVERED

Signed for by: B.BECCA

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM	TO
Raleigh, NC US	EAST LONGMEADOW, MA US

Shipment Facts

TRACKING NUMBER
774519142837

SERVICE
FedEx Priority Overnight

WEIGHT
15 lbs / 6.8 kgs

DIMENSIONS
25x14x14 in.

DELIVERED TO
Shipping/Receiving

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
15 lbs / 6.8 kgs

TERMS
Third Party

SHIPPER REFERENCE
80

PACKAGING
Your Packaging

SPECIAL HANDLING SECTION
Deliver Weekday, Additional Handling Surcharge

STANDARD TRANSIT
2/21/2019 by 10:30 am

SHIP DATE
Wed 2/20/2019

ACTUAL DELIVERY
Thu 2/21/2019 10:25 am

Travel History

Local Scan Time

Thursday , 2/21/2019

10:25 am	EAST LONGMEADOW, MA	Delivered
8:58 am	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
8:47 am	WINDSOR LOCKS, CT	At local FedEx facility

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client STMF

Received By RAP Date 2/21/19 Time 1025

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____ Direct from Sampling ____ Ambient ____ Melted Ice ____

By Gun # 1 Actual Temp - 4.9

Were samples within Temperature? 2-6°C T By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? ____

Are there Rushes? F Who was notified? ____

Are there Short Holds? F Who was notified? ____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid ____ Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.	2	1 Liter Plastic		16 oz Amb.	
HCL-	3	500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments: