January 9, 2020

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-5878, WBS Element 53078.1.1
Parcel 84-Building and Earth
610 Spring Branch Road
Dunn, Harnett County, North Carolina
S&ME Project 4305-19-161

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. 43-1900576 REV-01 dated August 9, 2019, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its September 5,2019 Notice to Proceed Letter.

♦ Background/Project Information

Based on NCDOT's July 24, 2019, 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
84	KAM Leasing, LLC	(Building and Earth) 610 Spring Branch (aka Pope Road), Dunn, NC

The property is developed with a commercial building that is currently occupied by Building and Earth which is a geotechnical, environmental and material testing firm. The building is reported to have previously been occupied by a textile sewing facility. The property is not listed with registered petroleum underground storage tanks (USTs) (active or closed). The property is 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, subsequent limited soil sampling (six 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 (East Coast Underground, LLC) was also used to locate and mark underground utilities.

♦ Geophysical Survey

On July 25, 2019, S&ME completed Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) surveys within accessible areas of the proposed ROW/easement at Parcel 84. 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 "*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 thick vegetation within the survey area, 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 semi-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® 4000 GPR system equipped with a 350 MHz antenna in general accordance with ASTM D6432 "*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 six GPR profiles (Lines 1 through 6) 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. One anomalous feature unrelated to known surficial targets was identified in the geophysical data sets (Anomaly A; **Figures 6 and 7**). Anomaly A is characterized by high amplitude GPR responses located less than about one foot below ground surface (bgs) and may be related to a relatively small isolated buried metallic object. The anomaly was marked in the field using white spray paint. Example GPR profiles are presented in **Figure 8**

♦ Soil Sampling

On October 29, 2019, Troxler Geologic, Inc. (Troxler's) drill crew utilized a track mounted Geoprobe® rig to advance six soil borings (B-1 through B-6) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 84. 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 to 9.7 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 not noted in the collected soil samples. Therefore, a soil sample was selected from each boring at varying depth intervals. The soil samples were placed into laboratory supplied containers and transported to RED Lab, LLC (Red Lab) in an insulated cooler with ice for analysis. A total of six soil

samples (one soil sample per boring) were analyzed by RED Lab for TPH-GRO and TPH-DRO using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification.

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 their respective North Carolina TPH Action Levels. TPH-DRO was reported in borings B-2 and B-3 at the four to six foot depth interval, at concentrations ranging from 0.96 milligram per kilograms (mg/kg) to 1.2 mg/kg, which is slightly above the laboratory method reporting limits but well below its North Carolina TPH Action Level of 100 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 at depths ranging from approximately four to 9.7 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. Due to the lack of petroleum odors or elevated PID readings, boring B-4 was selected at random for collection of a groundwater sample. A temporary monitor well (TW-1) was installed at boring B-4 to a depth of approximately five ft.-bgs using a five foot section of one-inch diameter, Schedule 40 PVC, 0.01-inch slotted screen that intersected the groundwater table. Groundwater within the temporary monitor well at boring B-4 was measured at four ft.-bgs. Groundwater was purged from the temporary well 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 TW-1 and placed in an insulated cooler with ice for transport to Con-Test Laboratories (Con-Test) 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 well materials were removed and the soil borings backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as soil cuttings generated during the soil boring advancement and decontamination water, were spread on the ground in accordance with the procedures specified by NCDEQ. Used gloves and tubing were bagged and disposed off-site.

Groundwater Analytical Results

Based upon analytical results of the groundwater sample analyzed by Con-Test, one target constituent was reported at a concentration slightly above the laboratory method reporting limits and below its 15A NCAC 2L Groundwater Quality Standards (2L Standards). Tetrachloroethylene (PCE), which is a chlorinated solvent, was reported in the groundwater sample at a concentration of 0.43 microgram per liter (µg/L) which is below its 2L Standard of 0.7 µg/L. No other target constituent was reported in the groundwater sample at a concentration exceeding the laboratory method reporting limits. 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 is presented in **Appendix III.**

♦ Conclusion and Recommendations

The geophysical survey identified one anomaly (Anomaly A) which may be related to a relatively small isolated buried metallic object. Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site.

S&ME advanced six soil borings (B-1 through B-6) to a depth of up to approximately 10 ft.-bgs at the site. Petroleum odors and elevated PID readings were not noted in soil samples collected at the borings. Selected soil samples from the soil borings were analyzed for TPH-GRO and TPH-DRO using UVF spectroscopy.

TPH-GRO and TPH-DRO were not reported at concentrations exceeding their respective North Carolina TPH Action Levels. TPH-DRO was reported in borings B-2 and B-3 at the four to six foot depth interval at concentrations slightly above the laboratory method reporting limits but well below its North Carolina TPH Action Level. TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits at the remaining soil samples.

During the soil boring advancement, groundwater was encountered at depths ranging from four to 9.7 ft.-bgs. One temporary well (TW-1) was installed at soil boring B-4. Groundwater at TW-1 was measured at four ft.-bgs and analyzed by Con-Test for VOCs by EPA Method 8260 and PAHs by EPA Method 8270. Tetrachloroethylene (PCE), which is a chlorinated solvent, was reported in the groundwater sample at a concentration of 0.43 µg/L which is below its 2L Standard of 0.7 µg/L. No other target constituent was reported in the groundwater sample at a concentration exceeding the laboratory method reporting limits.

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 marginally impacted with petroleum (below TPH Action Levels) and groundwater marginally impacted with Tetrachloroethylene a chlorinated solvent (below 2L Standards).

It should also be assumed that saturated petroleum and solvent impacted soil will be encountered if construction excavations extend deeper than four ft.-bgs on the site. If construction dewatering is required, impacted groundwater must be properly disposed or treated at a licensed facility. If petroleum stained or odorous soils are encountered during construction, these soils should be properly handled and disposed at a licensed facility.

S&ME recommends maintaining an awareness level for the presence of marginally impacted petroleum and solvents 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., surficial debris, reinforced concrete, utilities, 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 about six 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.

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1/27/2020

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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 5 and 6

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-5878
Parcel 84 - (Building and Earth)
610 Spring Branch Road
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-19-161

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	10/29/2019	6 to 8	<0.53	<0.53
B-2	10/29/2019	4 to 6	<0.5	**0.96**
B-3	10/29/2019	4 to 6	<0.48	**1.2**
B-4	10/29/2019	4 to 6	<0.5	<0.5
B-5	10/29/2019	6 to 8	<0.26	<0.26
B-6	10/29/2019	6 to 8	<0.51	<0.51
North Carolina TPH Action Levels			**50**	**100**

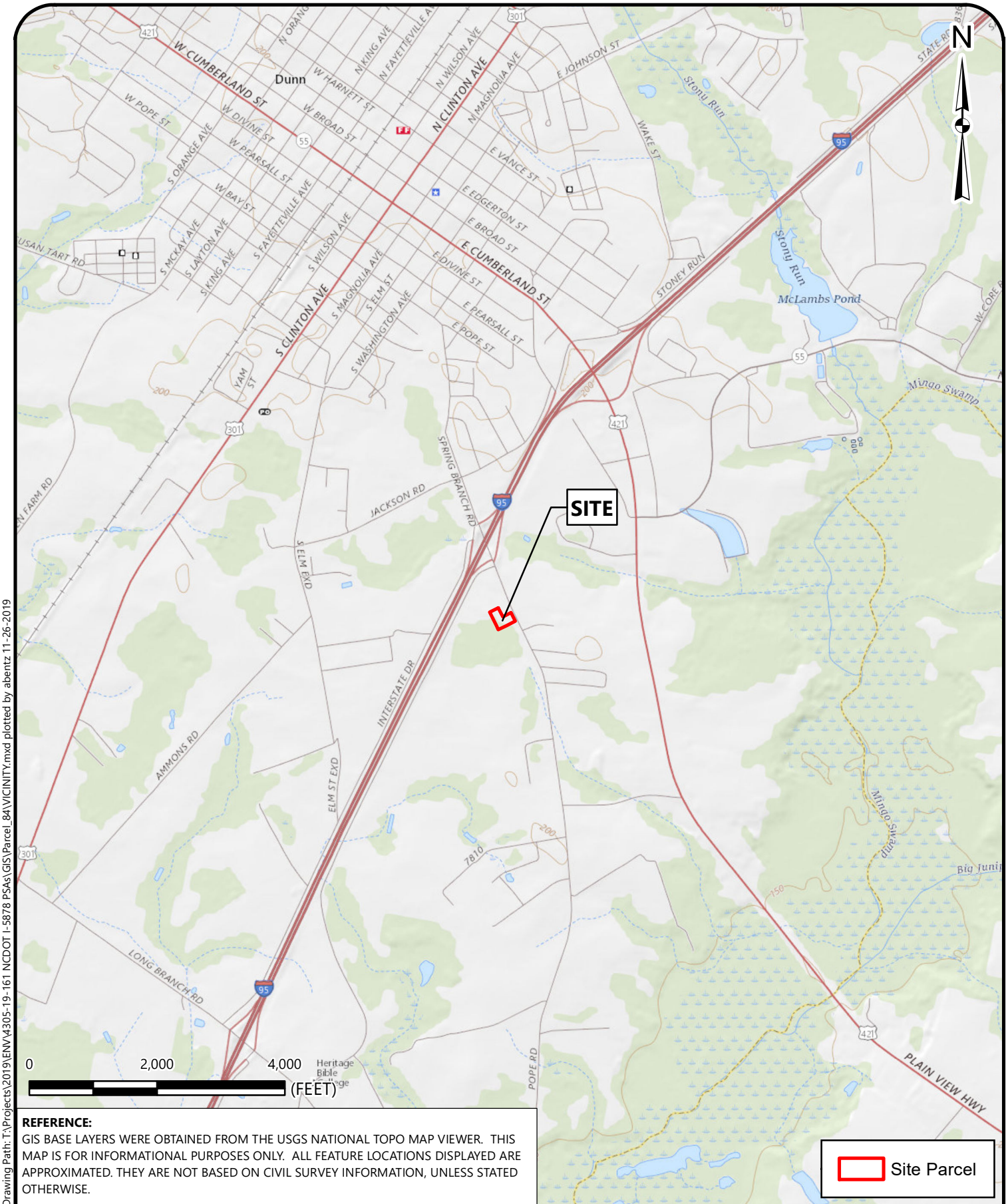
Notes:
1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the North Carolina TPH Action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

TABLE 2
SUMMARY OF GROUNDWATER SAMPLING RESULTS
NCDOT Project I-5878
Parcel 84 - (Building and Earth)
610 Spring Branch Road
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-19-161

Analytical Method→		Volatile Organic Compounds by EPA Method 8260	Polycyclic Aromatic Compounds (PAHs) by EPA Method 8270
Sample ID	Contaminant of Concern→ / Date	Tetrachloroethylene	Constituent Specific
B-4/TW-1	10/29/2019	**0.43 J**	**Below Laboratory Reporting Limits**
2L Standard (µg/L)		**0.7**	**Not Applicable**
GCL (µg/L)		**700**	**Not Applicable**

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\2019\ENV\4305-19-161 NCDOT I-5878 PSAs\GIS\Parcel_84\VICINITY.mxd plotted by abentz 11-26-2019

VICINITY MAP

NCDOT PROJECT I-5878
PARCEL NO. 84 (BUILDING AND EARTH)
610 SPRING BRANCH RD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:	1 " = 2,000 '
DATE:	11-26-19
PROJECT NUMBER	4305-19-161
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 50 100

GRAPHIC SCALE (IN FEET)

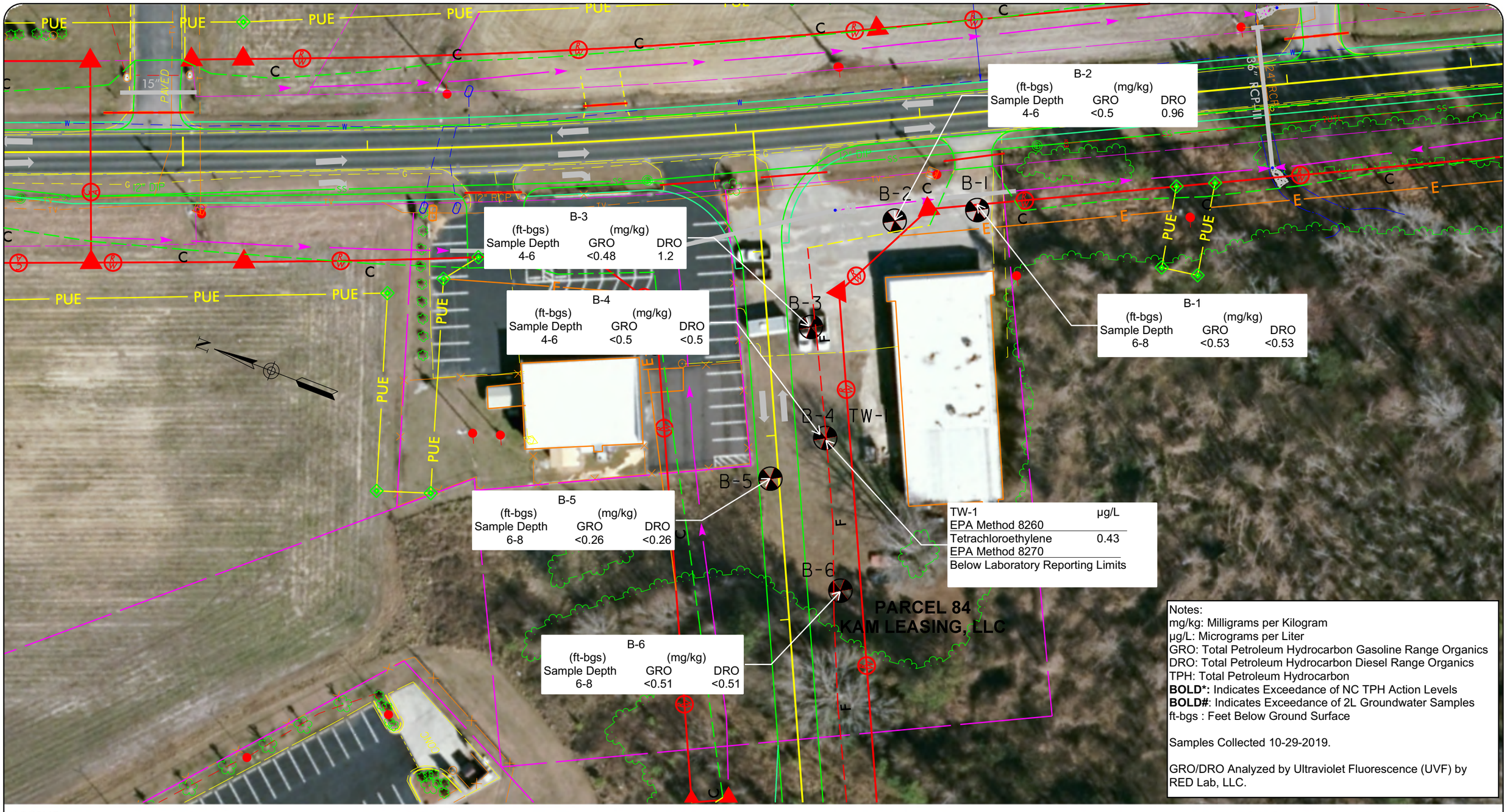
SITE MAP

NCDOT Project: I-5878

PARCEL 84 - BUILDING AND EARTH

610 Spring Branch Rd., Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 50'	2
DATE:	
JAN. 2020	
PROJECT NUMBER	
4305-19-161	



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

Samples Collected 10-29-2019.

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

LEGEND

Geoenvironmental Boring:
Underground Storage Tank (UST): UST
Known Soil Contamination:
Possible Soil Contamination: — S —
Existing Contamination Known - Water: — W —

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

0 50 100
GRAPHIC SCALE (IN FEET)

SOIL AND GROUNDWATER CONSTITUENT MAP

NCDOT Project: I-5878
PARCEL 84 - BUILDING AND EARTH
610 Spring Branch Rd., Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 50'	3
DATE:	
JAN. 2020	
PROJECT NUMBER	
4305-19-161	

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED MARCH 4, 2018)

LEGEND

Approximate TDEM Path

Approximate Requested Survey Area

Location of Vehicles

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5878
PARCEL #84 – (BUILDING AND EARTH)
610 SPRING BRANCH ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

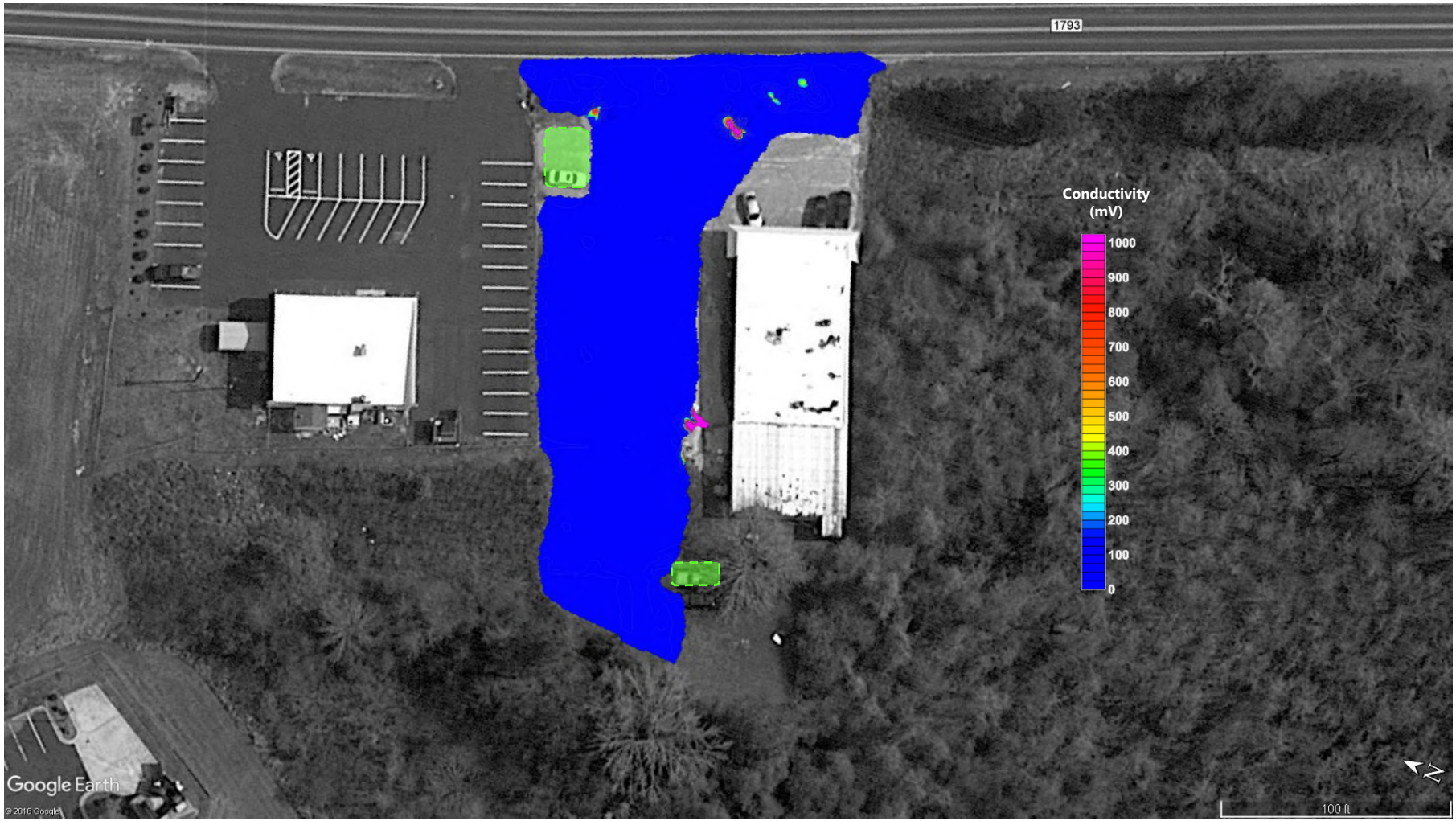
SCALE:
AS SHOWN

DATE:
1/7/2020

PROJECT NUMBER
4305-19-161

FIGURE NO.
4

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED MARCH 4, 2018)



LEGEND

Location of Vehicles

TDEM DATA PLOT A

NCDOT PROJECT: I-5878
PARCEL #84 – (BUILDING AND EARTH)
610 SPRING BRANCH ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

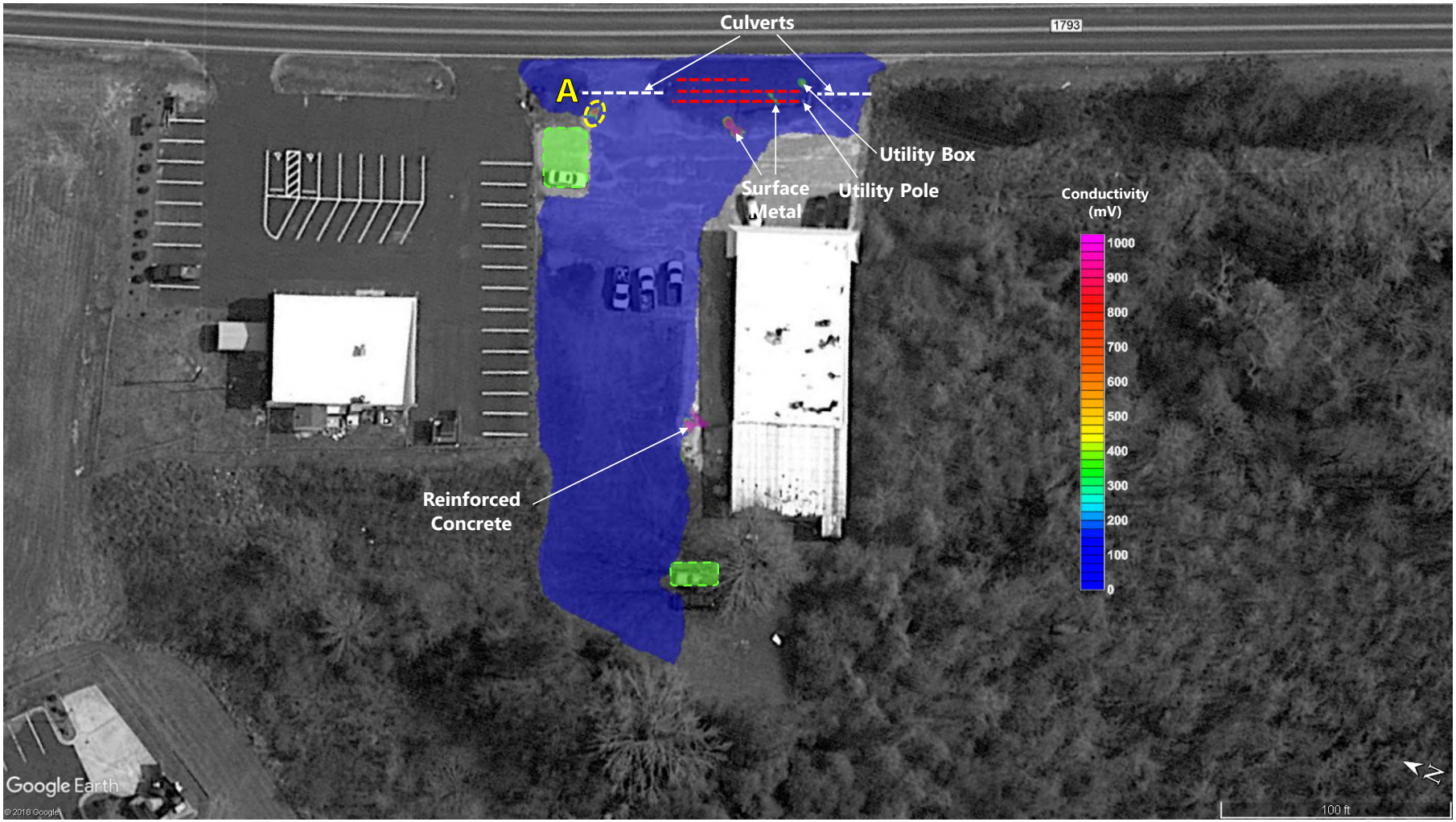
SCALE:
AS SHOWN

DATE:
1/7/2020

PROJECT NUMBER
4305-19-161

FIGURE NO.
5

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED MARCH 4, 2018)



LEGEND

Approximate Location of Geophysical Anomaly

Approximate Location of Possible Utility

Location of Vehicles

TDEM DATA PLOT B

NCDOT PROJECT: I-5878
PARCEL #84 – (BUILDING AND EARTH)
610 SPRING BRANCH ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
1/7/2020

PROJECT NUMBER
4305-19-161

FIGURE NO.
6

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED MARCH 4, 2018)

LEGEND

Approximate Location of Geophysical Anomaly

Approximate Location of Possible Utility

Location of Vehicles

Approximate Location of GPR Profile

GEOPHYSICAL ANOMALY LOCATION PLAN

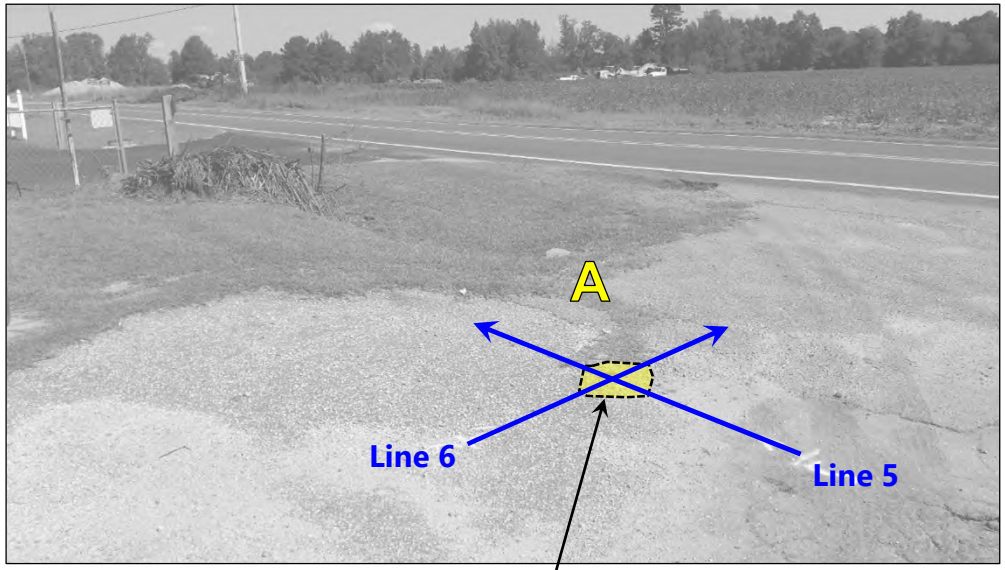
NCDOT PROJECT: I-5878
PARCEL #84 – (BUILDING AND EARTH)
610 SPRING BRANCH ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

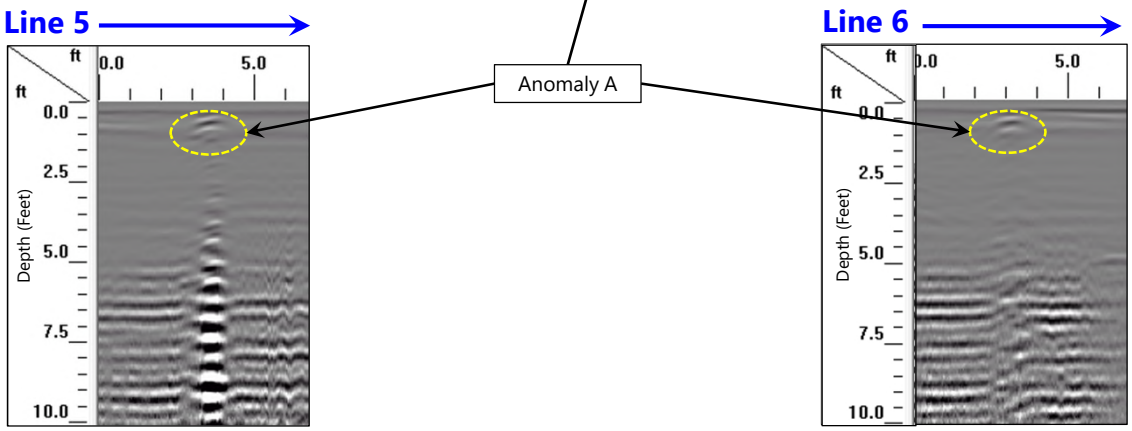
SCALE:
AS SHOWN

DATE:
1/7/2020

PROJECT NUMBER
4305-19-161

FIGURE NO.
7





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

EXAMPLE GPR DATA – LINES 5 AND 6

NCDOT PROJECT: I-5878
PARCEL #84 – (BUILDING AND EARTH)
610 SPRING BRANCH ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: AS SHOWN

DATE: 1/7/2020

PROJECT NUMBER 4305-19-161

FIGURE NO. **8**

Appendix I – Photographs

Date: 10/29/2019

Photographer: JTH

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

Date: 10/29/2019

Photographer: JTH

2	**Location / Orientation**	View looking southwest at the western side of the site.
	Remarks	Geoprobe is at location of boring B-4/TW-1.

Appendix II – Boring Logs

PROJECT:	**NCDOT I-5878** Parcel 84-610 Spring Branch Rd (Building and Earth), Dunn, NC S&ME Project No. 4305-19-161		**BORING LOG: B-1**
DATE DRILLED:	Tuesday, October 29, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 54DT	WATER LEVEL:	7.5
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,								
		Sandy Clay, Tan, Orange, Red,			0.0	No				
					0.0	No				
5					0.0	No				
		Clayey Sand, Tan, Orange, Red,	▼		0.0	Yes	1500			
		Boring Terminated at 8 Ft-BGS								
10										
15										
20										
25										
30										

PROJECT: **NCDOT I-5878**
Parcel 84-610 Spring Branch Rd (Building and Earth), Dunn, NC
S&ME Project No. 4305-19-161

BORING LOG: B-2

DATE DRILLED:	Tuesday, October 29, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 54DT	WATER LEVEL:	7.2
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,								
		Sandy Clay, Tan, Orange, Red,			0.0	No				
					0.4	No				
5					0.8	Yes	1510			
		Clayey Sand, Tan, Orange, Red,	▼		1.4	No				
		Boring Terminated at 8 Ft-BGS								
10										
15										
20										
25										
30										

PROJECT:	**NCDOT I-5878** Parcel 84-610 Spring Branch Rd (Building and Earth), Dunn, NC S&ME Project No. 4305-19-161		**BORING LOG: B-3**
DATE DRILLED:	Tuesday, October 29, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 54DT	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,								
		Sandy Clay, Tan, Orange, Red,			0.0	No				
					0.3	No				
5					0.6	Yes	1520			
		Clayey Sand, Tan, Orange, Red,			0.6	No				
		Boring Terminated at 8 Ft-BGS								
10										
15										
20										
25										
30										

PROJECT:	**NCDOT I-5878** Parcel 84-610 Spring Branch Rd (Building and Earth), Dunn, NC S&ME Project No. 4305-19-161		**BORING LOG: B-4/TW-1**
DATE DRILLED:	Tuesday, October 29, 2019	BORING DEPTH (FT):	13
DRILL RIG:	Geoprobe 54DT	WATER LEVEL:	4
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,								
		Sandy Clay, Tan, Orange, Red,			0.0	No				
			▼		0.2	No				
5					0.2	Yes	1530			
					0.7	No				
		Clayey Sand, Orange, Red, Gray,								
10		Sand, Red,								
		Boring Terminated at 13 Ft-BGS								
15										
20										
25										
30										

PROJECT:	NCDOT I-5878 Parcel 84-610 Spring Branch Rd (Building and Earth), Dunn, NC S&ME Project No. 4305-19-161		**BORING LOG: B-5**
DATE DRILLED:	Tuesday, October 29, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 54DT	WATER LEVEL:	9.7
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,								
		Sandy Clay, Tan, Orange, Red,			0.1	No				
					0.0	No				
5					0.8	No				
					1.5	Yes	1545			
		Clayey Sand, Orange, Red, Gray,	▼							
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5878** Parcel 84-610 Spring Branch Rd (Building and Earth), Dunn, NC S&ME Project No. 4305-19-161		**BORING LOG: B-6**
DATE DRILLED:	Tuesday, October 29, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 54DT	WATER LEVEL:	9.4
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,								
		Sandy Clay, Tan, Orange, Red,			0.0	No				
					1.0	No				
5					0.0	No				
					0.3	Yes	1600			
		Clayey Sand, Orange, Red, 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: 3201 SPRING FOREST RD
RALEIGH NC

Samples taken Tuesday, October 29, 2019
Samples extracted Tuesday, October 29, 2019
Samples analysed Friday, November 1, 2019

Contact: JAMIE HONEYCUTT

Operator MAX MOYER

Project: NCDOT I-5878 PARCEL 84

U00902

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	
s	B-1 (6-8')	21.1	<0.53	<0.53	<0.53	<0.53	<0.11	<0.17	<0.021	0	0	0	PHC not detected,(P)
s	B-2 (4-6')	20.0	<0.5	<0.5	0.96	0.96	0.5	<0.16	<0.02	0	77.9	22.1	Deg Fuel 81%,(FCM)
s	B-3 (4-6')	19.3	<0.48	<0.48	1.2	1.2	0.69	<0.15	<0.019	0	78.9	21.1	Deg Fuel 76.7%,(FCM)
s	B-4 (4-6')	20.0	<0.5	<0.5	<0.5	<0.5	<0.1	<0.16	<0.02	0	0	0	PHC not detected,(BO)
s	B-5 (6-8')	10.4	<0.26	<0.26	<0.26	<0.26	<0.05	<0.08	<0.01	0	0	0	,(FCM)
s	B-6 (6-8')	10.5	<0.51	<0.51	<0.51	<0.51	<0.1	<0.16	<0.02	0	0	0	PHC not detected

Initial Calibrator QC check OK

Final FCM QC Check OK 101%

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

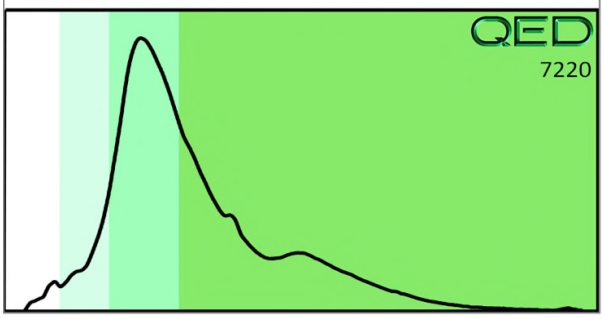
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

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

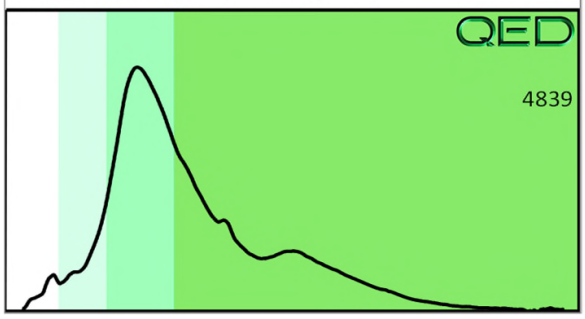
QED Hydrocarbon Fingerprints

Project: NCDOT I-5878 PARCEL 87 ##################

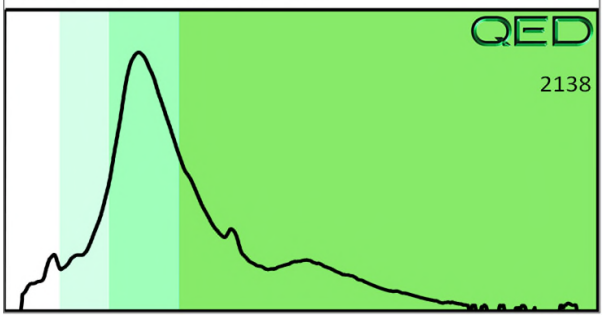
B-1 (4-6') : Deg Fuel 90.8%,(FCM)



B-2 (4-6') : Deg.Fuel 88.6%,(FCM)



B-3 (4-6') : No Match found



NCDOT - I-5878 Parcel 84 B143

Client Name:	S+ME Forest
Address:	3201 Spring Forest Rd Raleigh NC
Contact:	Jamie T Honeycutt
Project Ref.:	NCDOT - I-5878 Parcel 84
Email:	jhoneycutt@smeinc.com
Phone #:	910 977-7614
Collected by:	Jamie T Honeycutt

REDLAB™
RAPID ENVIRONMENTAL DIAGNOSTICS

CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM

Dunn, NC

RED Lab, LLC
5598 Marvin K Moss Lane
MARBIONC Bldg, Suite 2003
Wilmington, NC 28409

Each sample will be analyzed for BTEX, GRO, DRO, TPH, PAH total aromatics and BaP

Sample Collection Date/Time	TAT Requested 24 Hour	TAT Requested 48 Hour	Initials	Sample ID	Total Wt.	Tare Wt.	Sample Wt.
10-29-19 1500			JTH	B-1 6-8'	57.4	45.1	12.3
1510				B-2 4-6'	57.7	44.7	13.0
1520				B-3 4-6'	57.7	44.2	13.5
1530				B-4 4-6'	57.5	44.5	13.0
1545				B-5 6-8'	58.3	44.8	13.5
1600				B-6 6-8'	57.7	45.0	12.7

Comments:

Relinquished by	Date/Time	Accepted by	Date/Time
[signature]	10/31/19 1500	MM 11/1/19	1150
Relinquished by	Date/Time	Accepted by	Date/Time

RED Lab USE ONLY

6

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

November 26, 2019

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

Project Location: Dunn, NC
Client Job Number:
Project Number: 4305-19-161
Laboratory Work Order Number: 19K0024

Enclosed are results of analyses for samples received by the laboratory on October 31, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

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: 11/26/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 4305-19-161

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19K0024

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

PROJECT LOCATION: Dunn, NC

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
TW-1	19K0024-01	Ground Water		SW-846 8260D SW-846 8270E	

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

EXECUTIVE SUMMARY

Client ID: **TW-1** Lab ID: **19K0024-01**

Analyte	Results/Qual		DL	RL	Units	Method
Tetrachloroethylene	0.43	J	0.18	1.0	µg/L	SW-846 8260D

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.

REVISED REPORT 11-25-19: Due to a labeling error the results for method 8270 have been revised with the correct results.

REVISED REPORT 11-19-19: Due to a labeling error the results for method 8260 have been revised with the correct results.

For method 8270, only PAHs were requested and reported.

con-test® ANALYTICAL LABORATORY
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SW-846 8260D

Qualifications:

L-02

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:

trans-1,4-Dichloro-2-butene
B245276-BS1, B245276-BSD1

Vinyl Chloride
B245276-BS1, B245276-BSD1

L-04

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:

tert-Amyl Methyl Ether (TAME)
19K0024-01[TW-1], B245276-BLK1, B245276-BS1, B245276-BSD1

tert-Butyl Ethyl Ether (TBEE)
19K0024-01[TW-1], B245276-BLK1, B245276-BS1, B245276-BSD1

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:

Acetone
B245276-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
19K0024-01[TW-1], B245276-BLK1, B245276-BS1, B245276-BSD1

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:

tert-Amyl Methyl Ether (TAME)
19K0024-01[TW-1], B245276-BLK1, B245276-BS1, B245276-BSD1, S042406-CCV1

tert-Butyl Ethyl Ether (TBEE)
19K0024-01[TW-1], B245276-BLK1, B245276-BS1, B245276-BSD1, S042406-CCV1

V-06

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

Analyte & Samples(s) Qualified:

Acetone
B245276-BS1, B245276-BSD1, S042406-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:

2-Hexanone (MBK)
B245276-BS1, B245276-BSD1, S042406-CCV1

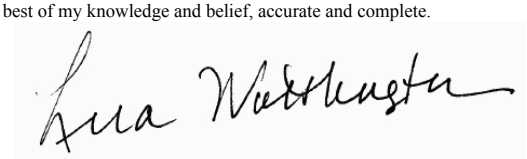
4-Methyl-2-pentanone (MIBK)
B245276-BS1, B245276-BSD1, S042406-CCV1

trans-1,4-Dichloro-2-butene
B245276-BS1, B245276-BSD1, S042406-CCV1

Vinyl Chloride
B245276-BS1, B245276-BSD1, S042406-CCV1

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

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
Technical Representative

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

Project Location: Dunn, NC | Sample Description: | Work Order: 19K0024

Date Received: 10/31/2019

Field Sample #: TW-1 | Sampled: 10/29/2019 16:30

Sample ID: 19K0024-01

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	3.8	µg/L	1	R-05	SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Acrylonitrile	ND	5.0	0.52	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.14	µg/L	1	V-05, L-04	SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Benzene	ND	1.0	0.18	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Bromochloromethane	ND	1.0	0.32	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Bromodichloromethane	ND	0.50	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Bromoform	ND	1.0	0.46	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Bromomethane	ND	2.0	0.78	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
2-Butanone (MEK)	ND	20	1.9	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
tert-Butyl Alcohol (TBA)	ND	20	4.2	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
n-Butylbenzene	ND	1.0	0.21	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
sec-Butylbenzene	ND	1.0	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
tert-Butylbenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.16	µg/L	1	V-05, L-04	SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Carbon Disulfide	ND	5.0	4.4	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Carbon Tetrachloride	ND	1.0	0.11	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Chlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Chlorodibromomethane	ND	0.50	0.21	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Chloroethane	ND	2.0	0.35	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Chloroform	ND	2.0	0.17	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Chloromethane	ND	2.0	0.45	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.53	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2-Dibromoethane (EDB)	ND	0.50	0.19	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Dibromomethane	ND	1.0	0.37	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2-Dichlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,3-Dichlorobenzene	ND	1.0	0.12	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,4-Dichlorobenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.26	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2-Dichloroethane	ND	1.0	0.41	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1-Dichloroethylene	ND	1.0	0.32	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
cis-1,2-Dichloroethylene	ND	1.0	0.13	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
trans-1,2-Dichloroethylene	ND	1.0	0.31	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2-Dichloropropane	ND	1.0	0.20	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,3-Dichloropropane	ND	0.50	0.11	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
2,2-Dichloropropane	ND	1.0	0.20	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1-Dichloropropene	ND	2.0	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
cis-1,3-Dichloropropene	ND	0.50	0.13	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
trans-1,3-Dichloropropene	ND	0.50	0.23	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Diethyl Ether	ND	2.0	0.34	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH

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

Project Location: Dunn, NC | Sample Description: | Work Order: 19K0024

Date Received: 10/31/2019

Field Sample #: TW-1 | Sampled: 10/29/2019 16:30

Sample ID: 19K0024-01

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	0.17	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,4-Dioxane	ND	50	22	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Hexachlorobutadiene	ND	0.60	0.47	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Isopropylbenzene (Cumene)	ND	1.0	0.17	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
p-Isopropyltoluene (p-Cymene)	ND	1.0	0.20	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.25	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Methylene Chloride	ND	5.0	0.34	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	1.7	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Naphthalene	ND	2.0	0.31	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Styrene	ND	1.0	0.11	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	0.27	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	0.22	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Tetrachloroethylene	0.43	1.0	0.18	µg/L	1	J	SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Tetrahydrofuran	ND	10	0.51	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Toluene	ND	1.0	0.14	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2,3-Trichlorobenzene	ND	5.0	0.57	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2,4-Trichlorobenzene	ND	1.0	0.40	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,3,5-Trichlorobenzene	ND	1.0	0.30	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1,1-Trichloroethane	ND	1.0	0.20	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1,2-Trichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Trichloroethylene	ND	1.0	0.24	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	0.33	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2,3-Trichloropropane	ND	2.0	0.25	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.32	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
1,3,5-Trimethylbenzene	ND	1.0	0.14	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
Vinyl Chloride	ND	2.0	0.45	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
m+p Xylene	ND	2.0	0.30	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH
o-Xylene	ND	1.0	0.17	µg/L	1		SW-846 8260D	11/6/19	11/7/19 19:56	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	104	70-130		11/7/19 19:56
Toluene-d8	100	70-130		11/7/19 19:56
4-Bromofluorobenzene	93.6	70-130		11/7/19 19:56

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

Project Location: Dunn, NC | Sample Description: | Work Order: 19K0024

Date Received: 10/31/2019

Field Sample #: TW-1 | Sampled: 10/29/2019 16:30

Sample ID: 19K0024-01

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)	ND	0.30	0.033	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Acenaphthylene (SIM)	ND	0.20	0.035	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Anthracene (SIM)	ND	0.20	0.032	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Benzo(a)anthracene (SIM)	ND	0.050	0.016	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Benzo(a)pyrene (SIM)	ND	0.10	0.012	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Benzo(b)fluoranthene (SIM)	ND	0.050	0.015	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Benzo(g,h,i)perylene (SIM)	ND	0.50	0.018	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Benzo(k)fluoranthene (SIM)	ND	0.20	0.012	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Chrysene (SIM)	ND	0.20	0.015	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Dibenz(a,h)anthracene (SIM)	ND	0.10	0.017	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Fluoranthene (SIM)	ND	0.50	0.025	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Fluorene (SIM)	ND	1.0	0.034	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	0.018	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
2-Methylnaphthalene (SIM)	ND	1.0	0.062	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Naphthalene (SIM)	ND	1.0	0.26	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Phenanthrene (SIM)	ND	0.050	0.030	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA
Pyrene (SIM)	ND	1.0	0.023	µg/L	1		SW-846 8270E	11/5/19	11/6/19 18:47	CLA

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Nitrobenzene-d5	73.1	30-130		11/6/19 18:47
2-Fluorobiphenyl	47.6	30-130		11/6/19 18:47
p-Terphenyl-d14	62.8	30-130		11/6/19 18:47

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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
19K0024-01 [TW-1]	B245276	5	5.00	11/06/19

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K0024-01 [TW-1]	B245268	1000	1.00	11/05/19

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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 B245276 - SW-846 5030B										
Blank (B245276-BLK1)				Prepared: 11/06/19 Analyzed: 11/07/19						
Acetone	ND	50	µg/L							R-05
Acrylonitrile	ND	5.0	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							L-04, V-05
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							L-04, V-05
Carbon Disulfide	ND	5.0	µg/L							
Carbon Tetrachloride	ND	1.0	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							
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 B245276 - SW-846 5030B												
Blank (B245276-BLK1)				Prepared: 11/06/19 Analyzed: 11/07/19								
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 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	*26.3*		µg/L	25.0		105		70-130				
Surrogate: Toluene-d8	*25.0*		µg/L	25.0		100		70-130				
Surrogate: 4-Bromofluorobenzene	*23.4*		µg/L	25.0		93.6		70-130				
LCS (B245276-BS1)				Prepared: 11/06/19 Analyzed: 11/07/19								
Acetone	181	50	µg/L	100		**181**	*	70-160			V-06, R-05, L-07A	†
Acrylonitrile	11.1	5.0	µg/L	10.0		111		70-130				
tert-Amyl Methyl Ether (TAME)	5.69	0.50	µg/L	10.0		**56.9**	*	70-130			V-05, L-04	
Benzene	8.91	1.0	µg/L	10.0		89.1		70-130				
Bromobenzene	10.3	1.0	µg/L	10.0		103		70-130				
Bromochloromethane	10.1	1.0	µg/L	10.0		101		70-130				
Bromodichloromethane	10.4	0.50	µg/L	10.0		104		70-130				
Bromoform	9.95	1.0	µg/L	10.0		99.5		70-130				
Bromomethane	5.49	2.0	µg/L	10.0		54.9		40-160				†
2-Butanone (MEK)	118	20	µg/L	100		118		40-160				†
tert-Butyl Alcohol (TBA)	80.3	20	µg/L	100		80.3		40-160				†
n-Butylbenzene	11.4	1.0	µg/L	10.0		114		70-130				
sec-Butylbenzene	11.4	1.0	µg/L	10.0		114		70-130				
tert-Butylbenzene	10.9	1.0	µg/L	10.0		109		70-130				
tert-Butyl Ethyl Ether (TBEE)	6.44	0.50	µg/L	10.0		**64.4**	*	70-130			V-05, L-04	
Carbon Disulfide	10.6	5.0	µg/L	10.0		106		70-130				
Carbon Tetrachloride	10.2	1.0	µg/L	10.0		102		70-130				
Chlorobenzene	10.2	1.0	µg/L	10.0		102		70-130				
Chlorodibromomethane	9.54	0.50	µg/L	10.0		95.4		70-130				
Chloroethane	9.75	2.0	µg/L	10.0		97.5		70-130				
Chloroform	8.97	2.0	µg/L	10.0		89.7		70-130				
Chloromethane	8.20	2.0	µg/L	10.0		82.0		40-160				†
2-Chlorotoluene	10.0	1.0	µg/L	10.0		100		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 B245276 - SW-846 5030B												
LCS (B245276-BS1)				Prepared: 11/06/19 Analyzed: 11/07/19								
4-Chlorotoluene	10.6	1.0	µg/L	10.0		106		70-130				
1,2-Dibromo-3-chloropropane (DBCP)	10.3	5.0	µg/L	10.0		103		70-130				
1,2-Dibromoethane (EDB)	9.70	0.50	µg/L	10.0		97.0		70-130				
Dibromomethane	9.89	1.0	µg/L	10.0		98.9		70-130				
1,2-Dichlorobenzene	10.6	1.0	µg/L	10.0		106		70-130				
1,3-Dichlorobenzene	11.1	1.0	µg/L	10.0		111		70-130				
1,4-Dichlorobenzene	10.7	1.0	µg/L	10.0		107		70-130				
trans-1,4-Dichloro-2-butene	13.3	2.0	µg/L	10.0		**133**	*	70-130			L-02, V-20	
Dichlorodifluoromethane (Freon 12)	7.67	2.0	µg/L	10.0		76.7		40-160				†
1,1-Dichloroethane	9.88	1.0	µg/L	10.0		98.8		70-130				
1,2-Dichloroethane	10.9	1.0	µg/L	10.0		109		70-130				
1,1-Dichloroethylene	10.9	1.0	µg/L	10.0		109		70-130				
cis-1,2-Dichloroethylene	9.83	1.0	µg/L	10.0		98.3		70-130				
trans-1,2-Dichloroethylene	10.2	1.0	µg/L	10.0		102		70-130				
1,2-Dichloropropane	9.80	1.0	µg/L	10.0		98.0		70-130				
1,3-Dichloropropane	9.84	0.50	µg/L	10.0		98.4		70-130				
2,2-Dichloropropane	10.1	1.0	µg/L	10.0		101		40-130				†
1,1-Dichloropropene	9.78	2.0	µg/L	10.0		97.8		70-130				
cis-1,3-Dichloropropene	10.1	0.50	µg/L	10.0		101		70-130				
trans-1,3-Dichloropropene	9.66	0.50	µg/L	10.0		96.6		70-130				
Diethyl Ether	10.0	2.0	µg/L	10.0		100		70-130				
Diisopropyl Ether (DIPE)	10.7	0.50	µg/L	10.0		107		70-130				
1,4-Dioxane	102	50	µg/L	100		102		40-130				†
Ethylbenzene	10.6	1.0	µg/L	10.0		106		70-130				
Hexachlorobutadiene	11.6	0.60	µg/L	10.0		116		70-130				
2-Hexanone (MBK)	125	10	µg/L	100		125		70-160			V-20	†
Isopropylbenzene (Cumene)	10.6	1.0	µg/L	10.0		106		70-130				
p-Isopropyltoluene (p-Cymene)	10.6	1.0	µg/L	10.0		106		70-130				
Methyl tert-Butyl Ether (MTBE)	8.54	1.0	µg/L	10.0		85.4		70-130				
Methylene Chloride	10.3	5.0	µg/L	10.0		103		70-130				
4-Methyl-2-pentanone (MIBK)	125	10	µg/L	100		125		70-160			V-20	†
Naphthalene	9.21	2.0	µg/L	10.0		92.1		40-130				†
n-Propylbenzene	10.6	1.0	µg/L	10.0		106		70-130				
Styrene	9.03	1.0	µg/L	10.0		90.3		70-130				
1,1,1,2-Tetrachloroethane	10.7	1.0	µg/L	10.0		107		70-130				
1,1,2,2-Tetrachloroethane	10.6	0.50	µg/L	10.0		106		70-130				
Tetrachloroethylene	10.5	1.0	µg/L	10.0		105		70-130				
Tetrahydrofuran	9.62	10	µg/L	10.0		96.2		70-130			J	
Toluene	9.89	1.0	µg/L	10.0		98.9		70-130				
1,2,3-Trichlorobenzene	8.77	5.0	µg/L	10.0		87.7		70-130				
1,2,4-Trichlorobenzene	10.2	1.0	µg/L	10.0		102		70-130				
1,3,5-Trichlorobenzene	10.3	1.0	µg/L	10.0		103		70-130				
1,1,1-Trichloroethane	10.0	1.0	µg/L	10.0		100		70-130				
1,1,2-Trichloroethane	9.62	1.0	µg/L	10.0		96.2		70-130				
Trichloroethylene	10.3	1.0	µg/L	10.0		103		70-130				
Trichlorofluoromethane (Freon 11)	9.52	2.0	µg/L	10.0		95.2		70-130				
1,2,3-Trichloropropane	10.7	2.0	µg/L	10.0		107		70-130				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	10.0	1.0	µg/L	10.0		100		70-130				
1,2,4-Trimethylbenzene	9.71	1.0	µg/L	10.0		97.1		70-130				
1,3,5-Trimethylbenzene	10.2	1.0	µg/L	10.0		102		70-130				
Vinyl Chloride	22.9	2.0	µg/L	10.0		**229**	*	40-160			L-02, V-20	†

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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 B245276 - SW-846 5030B													
LCS (B245276-BS1)				Prepared: 11/06/19 Analyzed: 11/07/19									
m+p Xylene	21.2	2.0	µg/L	20.0		106		70-130					
o-Xylene	10.8	1.0	µg/L	10.0		108		70-130					
Surrogate: 1,2-Dichloroethane-d4	*26.0*		µg/L	25.0		104		70-130					
Surrogate: Toluene-d8	*25.2*		µg/L	25.0		101		70-130					
Surrogate: 4-Bromofluorobenzene	*24.6*		µg/L	25.0		98.5		70-130					
LCS Dup (B245276-BSD1)				Prepared: 11/06/19 Analyzed: 11/07/19									
Acetone	129	50	µg/L	100		129		70-160	**33.1**	*	25	R-05, V-06	†
Acrylonitrile	10.9	5.0	µg/L	10.0		109		70-130	2.09		25		
tert-Amyl Methyl Ether (TAME)	5.76	0.50	µg/L	10.0		**57.6**	*	70-130	1.22		25	L-04, V-05	
Benzene	8.96	1.0	µg/L	10.0		89.6		70-130	0.560		25		
Bromobenzene	9.94	1.0	µg/L	10.0		99.4		70-130	3.75		25		
Bromochloromethane	10.3	1.0	µg/L	10.0		103		70-130	1.57		25		
Bromodichloromethane	9.92	0.50	µg/L	10.0		99.2		70-130	4.44		25		
Bromoform	9.75	1.0	µg/L	10.0		97.5		70-130	2.03		25		
Bromomethane	6.80	2.0	µg/L	10.0		68.0		40-160	21.3		25		†
2-Butanone (MEK)	107	20	µg/L	100		107		40-160	9.53		25		†
tert-Butyl Alcohol (TBA)	78.4	20	µg/L	100		78.4		40-160	2.38		25		†
n-Butylbenzene	11.6	1.0	µg/L	10.0		116		70-130	1.04		25		
sec-Butylbenzene	11.4	1.0	µg/L	10.0		114		70-130	0.175		25		
tert-Butylbenzene	10.9	1.0	µg/L	10.0		109		70-130	0.366		25		
tert-Butyl Ethyl Ether (TBEE)	6.40	0.50	µg/L	10.0		**64.0**	*	70-130	0.623		25	L-04, V-05	
Carbon Disulfide	10.3	5.0	µg/L	10.0		103		70-130	2.88		25		
Carbon Tetrachloride	10.2	1.0	µg/L	10.0		102		70-130	0.196		25		
Chlorobenzene	9.80	1.0	µg/L	10.0		98.0		70-130	3.51		25		
Chlorodibromomethane	9.48	0.50	µg/L	10.0		94.8		70-130	0.631		25		
Chloroethane	9.49	2.0	µg/L	10.0		94.9		70-130	2.70		25		
Chloroform	8.90	2.0	µg/L	10.0		89.0		70-130	0.783		25		
Chloromethane	8.58	2.0	µg/L	10.0		85.8		40-160	4.53		25		†
2-Chlorotoluene	9.72	1.0	µg/L	10.0		97.2		70-130	2.84		25		
4-Chlorotoluene	10.3	1.0	µg/L	10.0		103		70-130	2.68		25		
1,2-Dibromo-3-chloropropane (DBCP)	11.1	5.0	µg/L	10.0		111		70-130	6.82		25		
1,2-Dibromoethane (EDB)	9.78	0.50	µg/L	10.0		97.8		70-130	0.821		25		
Dibromomethane	9.69	1.0	µg/L	10.0		96.9		70-130	2.04		25		
1,2-Dichlorobenzene	10.6	1.0	µg/L	10.0		106		70-130	0.284		25		
1,3-Dichlorobenzene	10.9	1.0	µg/L	10.0		109		70-130	1.73		25		
1,4-Dichlorobenzene	10.6	1.0	µg/L	10.0		106		70-130	0.848		25		
trans-1,4-Dichloro-2-butene	13.2	2.0	µg/L	10.0		**132**	*	70-130	0.754		25	L-02, V-20	
Dichlorodifluoromethane (Freon 12)	7.56	2.0	µg/L	10.0		75.6		40-160	1.44		25		†
1,1-Dichloroethane	10.0	1.0	µg/L	10.0		100		70-130	1.71		25		
1,2-Dichloroethane	10.8	1.0	µg/L	10.0		108		70-130	0.920		25		
1,1-Dichloroethylene	10.9	1.0	µg/L	10.0		109		70-130	0.275		25		
cis-1,2-Dichloroethylene	10.0	1.0	µg/L	10.0		100		70-130	1.81		25		
trans-1,2-Dichloroethylene	10.1	1.0	µg/L	10.0		101		70-130	0.689		25		
1,2-Dichloropropane	9.61	1.0	µg/L	10.0		96.1		70-130	1.96		25		
1,3-Dichloropropane	9.71	0.50	µg/L	10.0		97.1		70-130	1.33		25		
2,2-Dichloropropane	9.99	1.0	µg/L	10.0		99.9		40-130	1.19		25		†
1,1-Dichloropropene	9.54	2.0	µg/L	10.0		95.4		70-130	2.48		25		
cis-1,3-Dichloropropene	9.81	0.50	µg/L	10.0		98.1		70-130	3.21		25		
trans-1,3-Dichloropropene	9.94	0.50	µg/L	10.0		99.4		70-130	2.86		25		
Diethyl Ether	10.1	2.0	µg/L	10.0		101		70-130	0.795		25		
Diisopropyl Ether (DIPE)	11.0	0.50	µg/L	10.0		110		70-130	2.49		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 B245276 - SW-846 5030B												
LCS Dup (B245276-BSD1)				Prepared: 11/06/19 Analyzed: 11/07/19								
1,4-Dioxane	112	50	µg/L	100		112		40-130	9.05	50		† ‡
Ethylbenzene	10.2	1.0	µg/L	10.0		102		70-130	4.14	25		
Hexachlorobutadiene	11.7	0.60	µg/L	10.0		117		70-130	1.20	25		
2-Hexanone (MBK)	124	10	µg/L	100		124		70-160	1.16	25	V-20	†
Isopropylbenzene (Cumene)	10.4	1.0	µg/L	10.0		104		70-130	1.90	25		
p-Isopropyltoluene (p-Cymene)	10.7	1.0	µg/L	10.0		107		70-130	1.22	25		
Methyl tert-Butyl Ether (MTBE)	8.44	1.0	µg/L	10.0		84.4		70-130	1.18	25		
Methylene Chloride	10.3	5.0	µg/L	10.0		103		70-130	0.388	25		
4-Methyl-2-pentanone (MIBK)	127	10	µg/L	100		127		70-160	1.65	25	V-20	†
Naphthalene	9.61	2.0	µg/L	10.0		96.1		40-130	4.25	25		†
n-Propylbenzene	10.4	1.0	µg/L	10.0		104		70-130	2.09	25		
Styrene	8.78	1.0	µg/L	10.0		87.8		70-130	2.81	25		
1,1,1,2-Tetrachloroethane	10.4	1.0	µg/L	10.0		104		70-130	2.66	25		
1,1,2,2-Tetrachloroethane	10.9	0.50	µg/L	10.0		109		70-130	2.71	25		
Tetrachloroethylene	10.2	1.0	µg/L	10.0		102		70-130	2.90	25		
Tetrahydrofuran	11.0	10	µg/L	10.0		110		70-130	13.8	25		
Toluene	9.64	1.0	µg/L	10.0		96.4		70-130	2.56	25		
1,2,3-Trichlorobenzene	9.14	5.0	µg/L	10.0		91.4		70-130	4.13	25		
1,2,4-Trichlorobenzene	10.4	1.0	µg/L	10.0		104		70-130	1.74	25		
1,3,5-Trichlorobenzene	10.2	1.0	µg/L	10.0		102		70-130	0.978	25		
1,1,1-Trichloroethane	10.2	1.0	µg/L	10.0		102		70-130	1.49	25		
1,1,2-Trichloroethane	9.72	1.0	µg/L	10.0		97.2		70-130	1.03	25		
Trichloroethylene	9.58	1.0	µg/L	10.0		95.8		70-130	7.24	25		
Trichlorofluoromethane (Freon 11)	9.61	2.0	µg/L	10.0		96.1		70-130	0.941	25		
1,2,3-Trichloropropane	10.7	2.0	µg/L	10.0		107		70-130	0.187	25		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	9.99	1.0	µg/L	10.0		99.9		70-130	0.599	25		
1,2,4-Trimethylbenzene	9.62	1.0	µg/L	10.0		96.2		70-130	0.931	25		
1,3,5-Trimethylbenzene	10.0	1.0	µg/L	10.0		100		70-130	1.97	25		
Vinyl Chloride	23.6	2.0	µg/L	10.0		**236**	*	40-160	3.05	25	L-02, V-20	†
m+p Xylene	20.4	2.0	µg/L	20.0		102		70-130	3.84	25		
o-Xylene	10.5	1.0	µg/L	10.0		105		70-130	3.29	25		
Surrogate: 1,2-Dichloroethane-d4	*26.5*		µg/L	25.0		106		70-130				
Surrogate: Toluene-d8	*24.9*		µg/L	25.0		99.8		70-130				
Surrogate: 4-Bromofluorobenzene	*23.9*		µg/L	25.0		95.6		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 B245268 - SW-846 3510C										
Blank (B245268-BLK1)				Prepared & Analyzed: 11/06/19						
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	*73.7*		µg/L	100		73.7	30-130			
Surrogate: 2-Fluorobiphenyl	*51.1*		µg/L	100		51.1	30-130			
Surrogate: p-Terphenyl-d14	*65.3*		µg/L	100		65.3	30-130			
LCS (B245268-BS1)				Prepared & Analyzed: 11/06/19						
Acenaphthene (SIM)	35.2	6.0	µg/L	50.0		70.4	40-140			
Acenaphthylene (SIM)	35.7	4.0	µg/L	50.0		71.4	40-140			
Anthracene (SIM)	38.2	4.0	µg/L	50.0		76.3	40-140			
Benzo(a)anthracene (SIM)	37.0	1.0	µg/L	50.0		74.1	40-140			
Benzo(a)pyrene (SIM)	37.4	2.0	µg/L	50.0		74.8	40-140			
Benzo(b)fluoranthene (SIM)	39.6	1.0	µg/L	50.0		79.2	40-140			
Benzo(g,h,i)perylene (SIM)	40.1	10	µg/L	50.0		80.2	40-140			
Benzo(k)fluoranthene (SIM)	39.8	4.0	µg/L	50.0		79.6	40-140			
Chrysene (SIM)	35.8	4.0	µg/L	50.0		71.7	40-140			
Dibenz(a,h)anthracene (SIM)	42.6	2.0	µg/L	50.0		85.2	40-140			
Fluoranthene (SIM)	37.3	10	µg/L	50.0		74.7	40-140			
Fluorene (SIM)	36.3	20	µg/L	50.0		72.6	40-140			
Indeno(1,2,3-cd)pyrene (SIM)	42.8	2.0	µg/L	50.0		85.6	40-140			
2-Methylnaphthalene (SIM)	34.3	20	µg/L	50.0		68.7	40-140			
Naphthalene (SIM)	32.7	20	µg/L	50.0		65.4	40-140			
Phenanthrene (SIM)	35.9	1.0	µg/L	50.0		71.8	40-140			
Pyrene (SIM)	36.4	20	µg/L	50.0		72.7	40-140			
Surrogate: Nitrobenzene-d5	*74.9*		µg/L	100		74.9	30-130			
Surrogate: 2-Fluorobiphenyl	*56.8*		µg/L	100		56.8	30-130			
Surrogate: p-Terphenyl-d14	*59.6*		µg/L	100		59.6	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 B245268 - SW-846 3510C										
LCS Dup (B245268-BSD1)				Prepared & Analyzed: 11/06/19						
Acenaphthene (SIM)	36.1	6.0	µg/L	50.0		72.2	40-140	2.47	20	
Acenaphthylene (SIM)	36.5	4.0	µg/L	50.0		73.0	40-140	2.22	20	
Anthracene (SIM)	39.5	4.0	µg/L	50.0		79.0	40-140	3.40	20	
Benzo(a)anthracene (SIM)	38.1	1.0	µg/L	50.0		76.2	40-140	2.82	20	
Benzo(a)pyrene (SIM)	38.7	2.0	µg/L	50.0		77.4	40-140	3.47	20	
Benzo(b)fluoranthene (SIM)	41.0	1.0	µg/L	50.0		82.0	40-140	3.43	20	
Benzo(g,h,i)perylene (SIM)	41.6	10	µg/L	50.0		83.3	40-140	3.82	20	
Benzo(k)fluoranthene (SIM)	41.8	4.0	µg/L	50.0		83.6	40-140	4.80	20	
Chrysene (SIM)	37.1	4.0	µg/L	50.0		74.1	40-140	3.35	20	
Dibenz(a,h)anthracene (SIM)	44.3	2.0	µg/L	50.0		88.5	40-140	3.78	20	
Fluoranthene (SIM)	38.4	10	µg/L	50.0		76.8	40-140	2.80	20	
Fluorene (SIM)	37.1	20	µg/L	50.0		74.2	40-140	2.23	20	
Indeno(1,2,3-cd)pyrene (SIM)	44.5	2.0	µg/L	50.0		88.9	40-140	3.76	20	‡
2-Methylnaphthalene (SIM)	35.8	20	µg/L	50.0		71.7	40-140	4.27	20	
Naphthalene (SIM)	33.0	20	µg/L	50.0		66.0	40-140	1.04	20	
Phenanthrene (SIM)	37.1	1.0	µg/L	50.0		74.2	40-140	3.18	20	
Pyrene (SIM)	37.4	20	µg/L	50.0		74.7	40-140	2.71	20	
Surrogate: Nitrobenzene-d5	*77.8*		µg/L	100		77.8	30-130			
Surrogate: 2-Fluorobiphenyl	*59.4*		µg/L	100		59.4	30-130			
Surrogate: p-Terphenyl-d14	*60.7*		µg/L	100		60.7	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-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
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-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
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.

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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 - ISO17025:2017	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
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	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

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CHAIN OF CUSTODY RECORD (North Carolina)

39 Spruce Street
East Longmeadow, MA 01028

Company Name: SAME
Address: 3201 Spring Forest Rd Raleigh NC
Phone: 910 977-7614
Project Name: NCDOT I-5878 Parcel 84
Project Location: DUNN, NC
Project Number: 4305-19-1161
Project Manager: Jamie T Honeycutt
Con-Test Quote Name/Number:
Invoice Recipient: Jamie T Honeycutt
Sampled By: Jamie T. 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@samenc.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code	8260	PAHs 8270	# of Containers	Preservation Code	Container Code
1	TW-1	10/29/19	1630		/	GW	L	/	/			

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: 10/31/19 1500	
Received by: (signature)	Date/Time: 11/1/19 0912	
Relinquished by: (signature)	Date/Time:	
Received by: (signature)	Date/Time:	
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

IMPORTANT!
The wildfires are causing hazardous conditions in California. Learn More

FedEx

411359783302

Delivered
Friday 11/01/2019 at 9:02 am

DELIVERED

Signed for by: R.PETRIAS

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM
Autryville, NC US

TO
East Longmeadow, MA US

Shipment Facts

TRACKING NUMBER
411359783302

SERVICE
FedEx Priority Overnight

WEIGHT
53.4 lbs / 24.22 kgs

DELIVERED TO
Shipping/Receiving

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
53.4 lbs / 24.22 kgs

RETURN REASON

TERMS
Third Party

PACKAGING
Your Packaging

SPECIAL HANDLING SECTION
Deliver Weekday

STANDARD TRANSIT
11/01/2019 by 10:30 am

SHIP DATE
Thu 10/31/2019

ACTUAL DELIVERY
Fri 11/01/2019 9:02 am

Travel History

Local Scan Time

Friday , 11/01/2019

9:02 am	East Longmeadow, MA	Delivered
7:45 am	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
6:27 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 STME

Received By MP Date 11/1/19 Time 902

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 # 2 Actual Temp - 4.1

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 J

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:

January 9, 2020

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-5878, WBS Element 53078.1.1
Parcel 87 – SAK's Thrift Avenue
101 South Sampson Avenue
Dunn, Harnett County, North Carolina
S&ME Project 4305-19-161

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. 43-1900576 REV-01 dated August 9, 2019, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its September 5,2019 Notice to Proceed Letter.

♦ Background/Project Information

Based on NCDOT's July 24, 2019, 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
87	Mack Devaughn Pope	(SAK's Thrift Avenue) 101 South Sampson Avenue, Dunn, NC

The property is developed with a commercial building currently occupied by SAK's Thrift Avenue, a thrift shop. The property is not listed with registered petroleum underground storage tanks (USTs) (active or closed). The property is not listed with North Carolina Department of Environmental Quality (NCDEQ) Incidents associated with petroleum releases from USTs or aboveground storage tanks. A groundwater monitoring well identified as MW-30 is located on the property within the ROW. The monitor well is associated with a previous UST release (NCDEQ Incident #29119-Hasty Mart#38), that occurred at the former Hasty Mart #38 site located southwest of the site, across Sampson Avenue. The former Hasty Mart #38 site was the location of a former gasoline/convenience store and petroleum bulk oil facility, which utilized several USTs. The tanks were removed in 2012. Historically, several petroleum constituents have been reported in groundwater samples collected from MW-30 at concentrations exceeding their respective15A NCAC 2L Groundwater Quality Standards (2L Standards). In 2018, benzene was reported in MW-30 at a concentration of 3,320 micrograms per liter (µg/) which exceeds its 2L Standard of 1 µg/L (*Monitoring Report* prepared by TerraQuest dated April 24, 2018). Copies of pertinent information obtained from the above referenced report are included in **Appendix I.**

The PSA included a geophysical survey and subsequent limited soil sampling (three 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 (East Coast Underground, LLC) was also used to locate and mark underground utilities.

♦ Geophysical Survey

On July 25, 2019, S&ME completed Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) surveys within accessible areas of the proposed ROW/easement at Parcel 87. 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 "*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 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 semi-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® 4000 GPR system equipped with a 350 MHz antenna in general accordance with ASTM D6432 "*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 10 GPR profiles (Lines 1 through 10) 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. Two anomalous features unrelated to known surficial targets were identified in the geophysical data sets (Anomaly A and B; **Figures 6 and 7).** Anomaly A is characterized by high amplitude GPR responses about three feet by five feet in size and located about two ft.-bgs. Although Anomaly A doesn't exhibit responses typically indicative of a large UST, this feature may be related to a buried metal drum or some other buried metallic object. Anomaly B is characterized by high amplitude GPR responses located about one foot bgs and may be related to a relatively small isolated buried metallic object. The anomalies were marked in the field using white spray paint. Example GPR profiles are presented in **Figures 8 and 9.**

♦ Soil Sampling

On October 30, 2019, Troxler Geologic, Inc. (Troxler's) drill crew utilized a track mounted Geoprobe® rig to advance three soil borings (B-1 through B-3) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 87. Soil boring B-2 was located near Anomaly A which was identified during the geophysical survey. The approximate location of the soil borings are shown in **Figure 2**. A photographic log is included in **Appendix II.** Troxler's drill crew advanced the Geoprobe® borings up to a depth of approximately 10 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 III.**

Petroleum odors and elevated PID readings were not noted in the collected soil samples. Groundwater was measured in the existing onsite monitor well (MW-30) at a depth of 7.2 ft.-bgs. Therefore, a soil sample was selected from each boring at the four to six foot depth interval. The soil samples were placed into laboratory supplied containers and transported to RED Lab, LLC (Red Lab) in an insulated cooler with ice for analysis. A total of five soil samples (one soil sample per boring) were analyzed by RED Lab for TPH-GRO and TPH-DRO using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification.

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 their respective North Carolina TPH Action Levels. TPH-GRO and TPH-DRO were reported in each boring at the four to six foot depth interval. TPH-GRO was reported at concentrations ranging from 2.9 milligrams per kilograms (mg/kg) to 4.3 mg/kg which is well below its North Carolina TPH Action Level of 50. TPH-DRO was reported at concentrations ranging from 1.5 mg/kg to 6.4 mg/kg which is well below its North Carolina TPH Action Level of 100 mg/kg. 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 IV.**

♦ Groundwater Sampling

Groundwater was measured in the existing onsite monitor well located within the ROW at a depth of 7.2 ft.-bgs. Therefore, a groundwater sample was collected from MW-30. Groundwater was purged from MW-30 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 MW-30 and placed in an insulated cooler with ice for transport to Con-Test Laboratories (Con-Test) 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 soil borings were backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as soil cuttings generated during the soil boring advancement and decontamination water, were spread on the ground in accordance with the procedures specified by NCDEQ. Used gloves and tubing were bagged and disposed off-site.

Groundwater Analytical Results

Based upon analytical results of the groundwater sample analyzed by Con-Test, several petroleum related target constituents were reported at concentrations exceeding their 2L Standards. Benzene was the highest constituent reported above its 2L Standard at a concentration of 1,200 µg/L, which exceeds its 2L Standard of 1 µg/L. 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 is presented in **Appendix IV.**

♦ Conclusion and Recommendations

Existing groundwater monitoring well identified as MW-30 is located on the property within the ROW. The well is associated with a UST release from (NCDEQ Incident #29119-Hasty Mart#38) located southwest of the site, across Sampson Avenue. Historically, several petroleum constituents have been reported in groundwater samples collected from MW-30 at concentrations exceeding their respective 2L Standards.

The geophysical survey identified two anomalous features (Anomaly A and B). Anomaly A doesn't exhibit responses typically indicative of a large UST, this feature may be related to a buried metal drum or some other buried metallic object. Anomaly B may be related to a relatively small isolated buried metallic object.

S&ME advanced three soil borings (B-1 through B-3) to a depth of up to approximately 10 ft.-bgs at the site. Soil boring B-2 was located near Anomaly A. Petroleum odors and elevated PID readings were not noted in soil samples collected at the borings. Selected soil samples from the soil borings were analyzed for TPH-GRO and TPH-DRO using UVF spectroscopy.

TPH-GRO and TPH-DRO were not reported at concentrations exceeding their respective North Carolina TPH Action Levels. TPH-GRO and TPH-DRO were reported in each boring at concentrations below their North Carolina TPH Action Levels.

Groundwater at monitor well MW-30 measured 7.2 ft.-bgs. A groundwater sample was collected from MW-30 and analyzed by Con-Test for VOCs by EPA Method 8260 and PAHs by EPA Method 8270. Several petroleum related target constituents 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 marginally impacted soil (below TPH Action Levels) and groundwater impacted with petroleum at the site.

It should also be assumed that saturated petroleum impacted soil will be encountered if construction excavations extend deeper than approximately seven ft.-bgs on the site. If construction dewatering is required, petroleum impacted groundwater must be properly disposed or treated at a licensed facility. If petroleum stained or odorous soils are encountered during construction, these soils should be properly handled and disposed at a licensed facility.

S&ME recommends maintaining an awareness level for the presence of marginally impacted petroleum in the soil (below TPH Action Levels) 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., reinforced concrete, utilities, 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 about seven 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...

Michael W. Pfeifer
Senior Project Manager
mpfeifer@smeinc.com

DocuSigned by:
Tom Raymond
D4B9FB5F636F4BB...

1/27/2020

Thomas P. Raymond, P.E., P.M.P.
Senior Consultant
traymond@smeinc.com

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 2 and 3

Appendix I: NCDEQ File Review
Appendix II Photographs
Appendix III: Boring Logs

Tables

TABLE 1
SUMMARY OF SOIL SAMPLING RESULTS
NCDOT Project I-5878
Parcel 87 - (SAK's Thrift Avenue)
101 South Sampson Avenue
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-19-161

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	10/30/2019	4 to 6	**3.2**	**6.4**
B-2	10/30/2019	4 to 6	**2.9**	**4.5**
B-3	10/30/2019	4 to 6	**4.3**	**1.5**
North Carolina TPH Action Levels			**50**	**100**

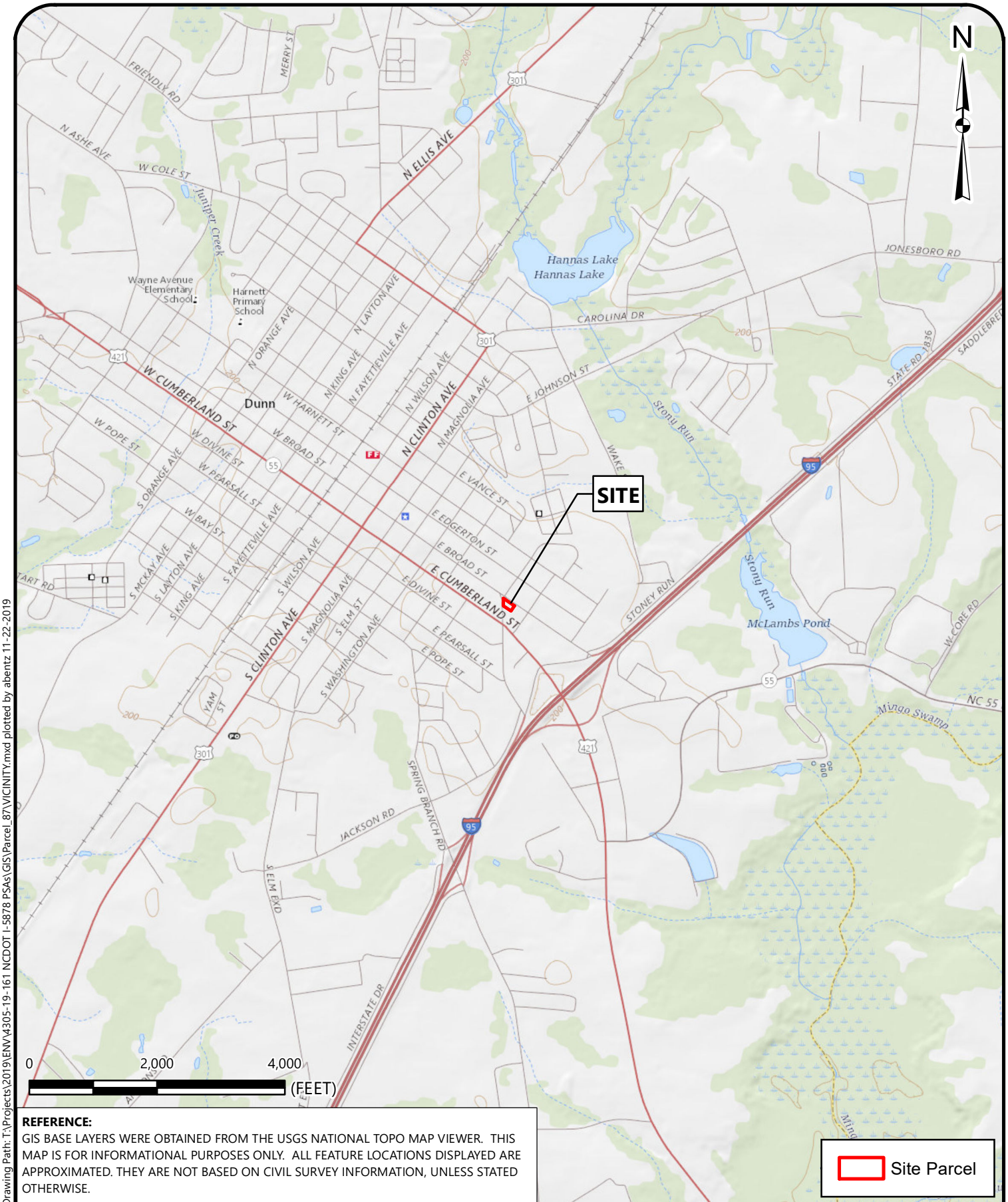
Notes:
1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the North Carolina TPH Action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

TABLE 2
SUMMARY OF GROUNDWATER SAMPLING RESULTS
NCDOT Project I-5878
Parcel 87 - (SAK's Thrift Avenue)
101 South Sampson Avenue
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-19-161

Analytical Method→		Volatile Organic Compounds by EPA Method 8260											Polycyclic Aromatic Compounds (PAHs) by EPA Method 8270	
Sample ID	Contaminant of Concern→ / Date	Benzene	Diisopropyl Ether	Ethylbenzene	Isopropylbenzene	MTBE	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Total Xylenes	Naphthalene	2-Methylnaphthalene
MW-30	10/30/2019	**1,200**	**6.4 J**	**190**	**10 J**	**15 J**	**43**	**22**	**110**	**65**	**13 J**	**125**	**50**	**15**
2L Standard (µg/L)		**1**	**70**	**600**	**70**	**20**	**6**	**70**	**600**	**400**	**400**	**500**	**6**	**30**
GCL (µg/L)		**5,000**	**70,000**	**84,500**	**25,000**	**20,000**	**6,000**	**30,000**	**260,000**	**28,500**	**25,000**	**85,500**	**6,000**	**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\2019\ENV\4305-19-161 NCDOT I-5878 PSAs\GIS\Parcel_87\VICINITY.mxd plotted by abentz 11-22-2019

VICINITY MAP

NCDOT PROJECT I-5878
PARCEL NO. 87 (SAKS THRIFT AVENUE)
101 S. SAMPSON AVE., DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:	FIGURE NO.
1 " = 2,000 '	1
DATE: 11-22-19	
PROJECT NUMBER 4305-19-161	

LEGEND

Geoenvironmental Boring:

Underground Storage Tank (UST): UST

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

Existing Monitoring Well:

Known Soil Contamination:

Possible Soil Contamination: — s —

Existing Contamination Known - Water: — w —

Possible Groundwater Contamination: — w —

0 60 120

GRAPHIC SCALE (IN FEET)

SITE MAP

NCDOT Project: I-5878
PARCEL 87 - SAKs THRIFT AVENUE
101 S. Sampson Ave., Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 60'	2
DATE:	
JAN. 2020	
PROJECT NUMBER	
4305-19-161	

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

Samples Collected 10-30-2019.

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

LEGEND

Geoenvironmental Boring:
Underground Storage Tank (UST): UST

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

Existing Monitoring Well:
Known Soil Contamination:
Possible Soil Contamination:
Existing Contamination Known - Water:
Possible Groundwater Contamination:

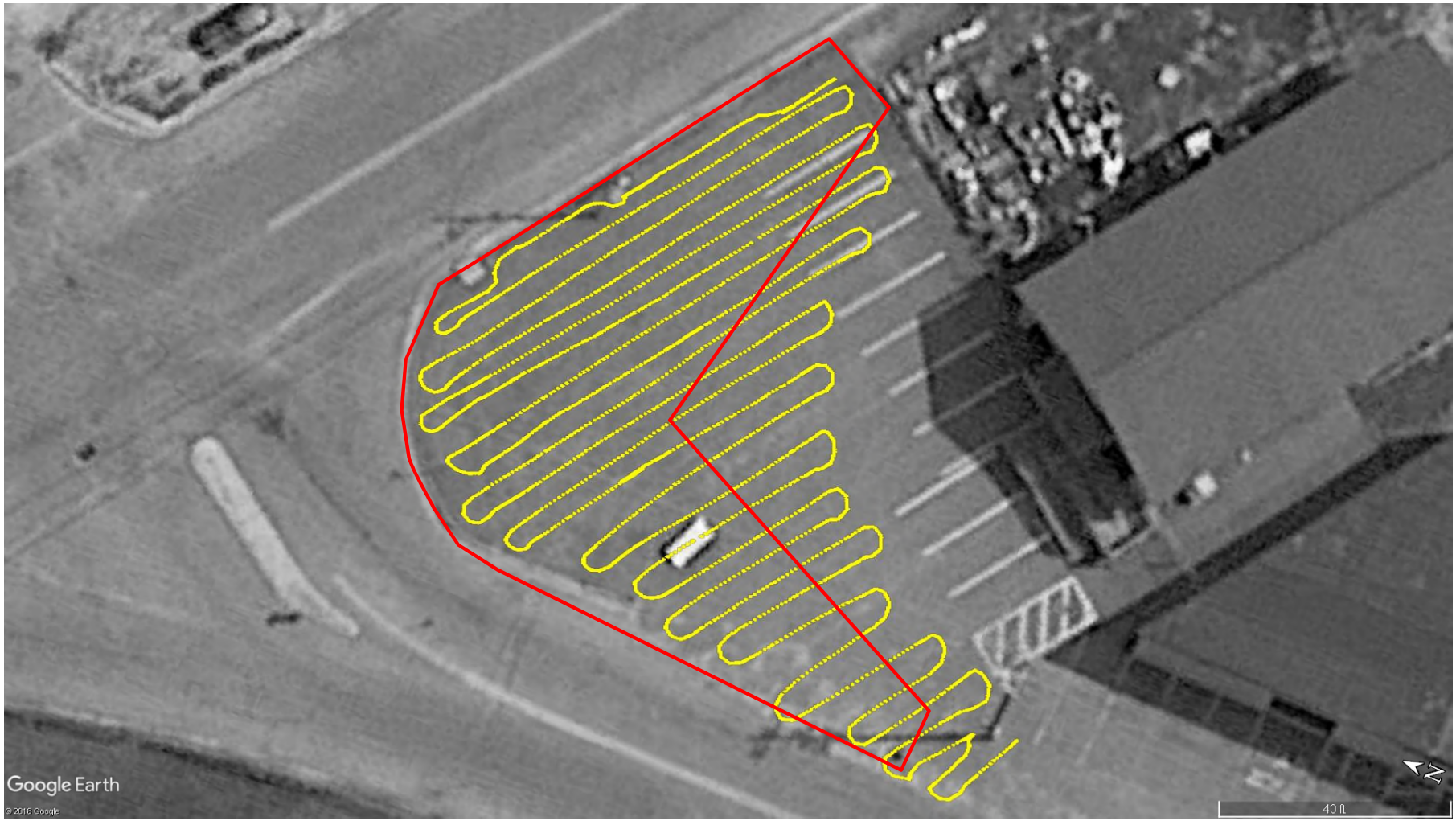
0 60 120
GRAPHIC SCALE (IN FEET)

SOIL AND GROUNDWATER CONSTITUENT MAP

NCDOT Project: I-5878
PARCEL 87 - SAKs THRIFT AVENUE
101 S. Sampson Ave., Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 60'	3
DATE:	
JAN. 2020	
PROJECT NUMBER	
4305-19-161	

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED MARCH 4, 2018)



LEGEND

Approximate TDEM Path

Approximate Requested Survey Area

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5878
PARCEL #87 – (SAKS THRIFT AVENUE)
101 S. SAMPSON AVENUE, DUNN, HARNETT COUNTY, NORTH CAROLINA

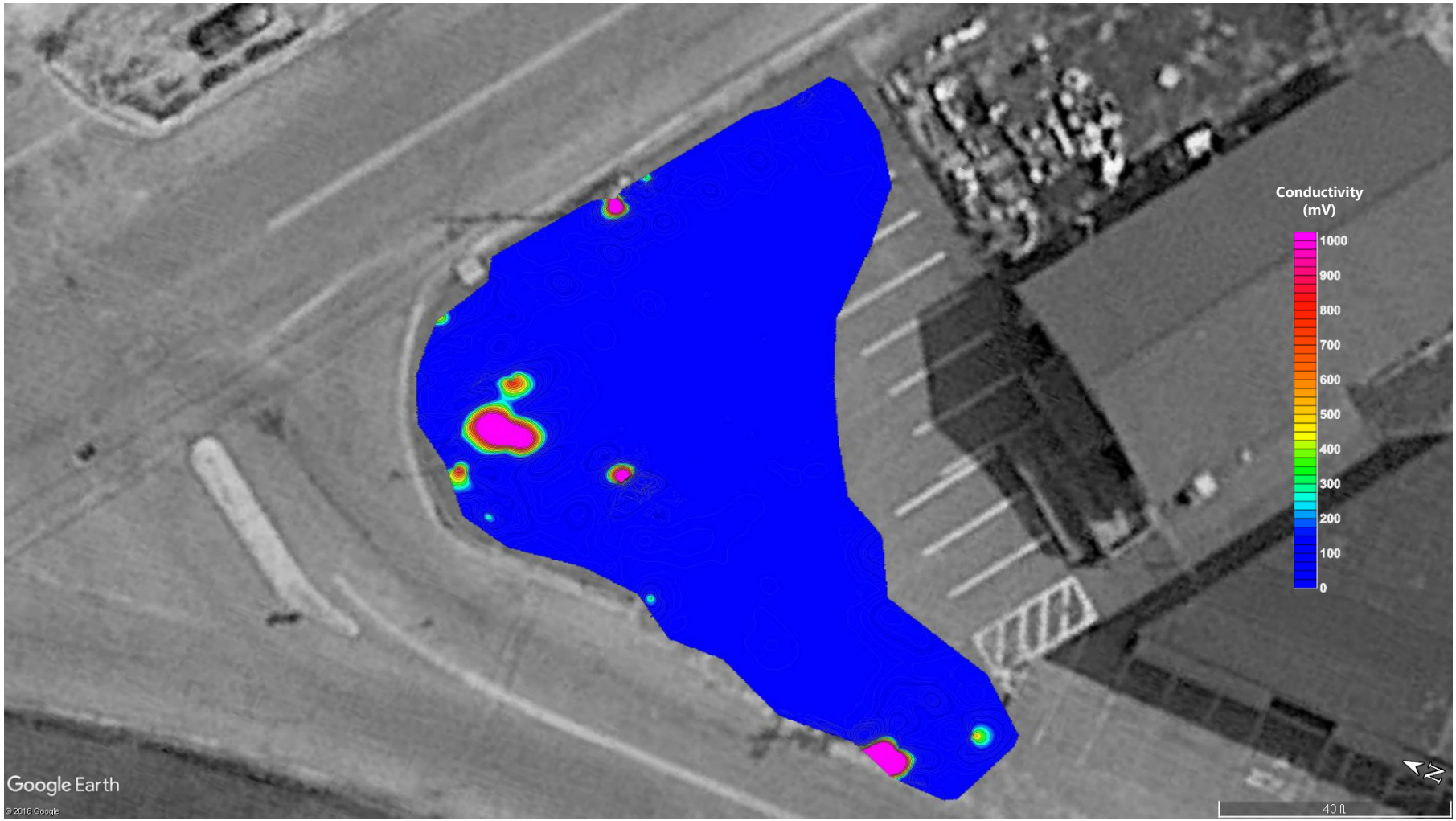
SCALE:
AS SHOWN

DATE:
1/7/2020

PROJECT NUMBER
4305-19-161

FIGURE NO.
4

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED MARCH 4, 2018)



TDEM DATA PLOT A

NCDOT PROJECT: I-5878
PARCEL #87 – (SAKS THRIFT AVENUE)
101 S. SAMPSON AVENUE, DUNN, HARNETT COUNTY, NORTH CAROLINA

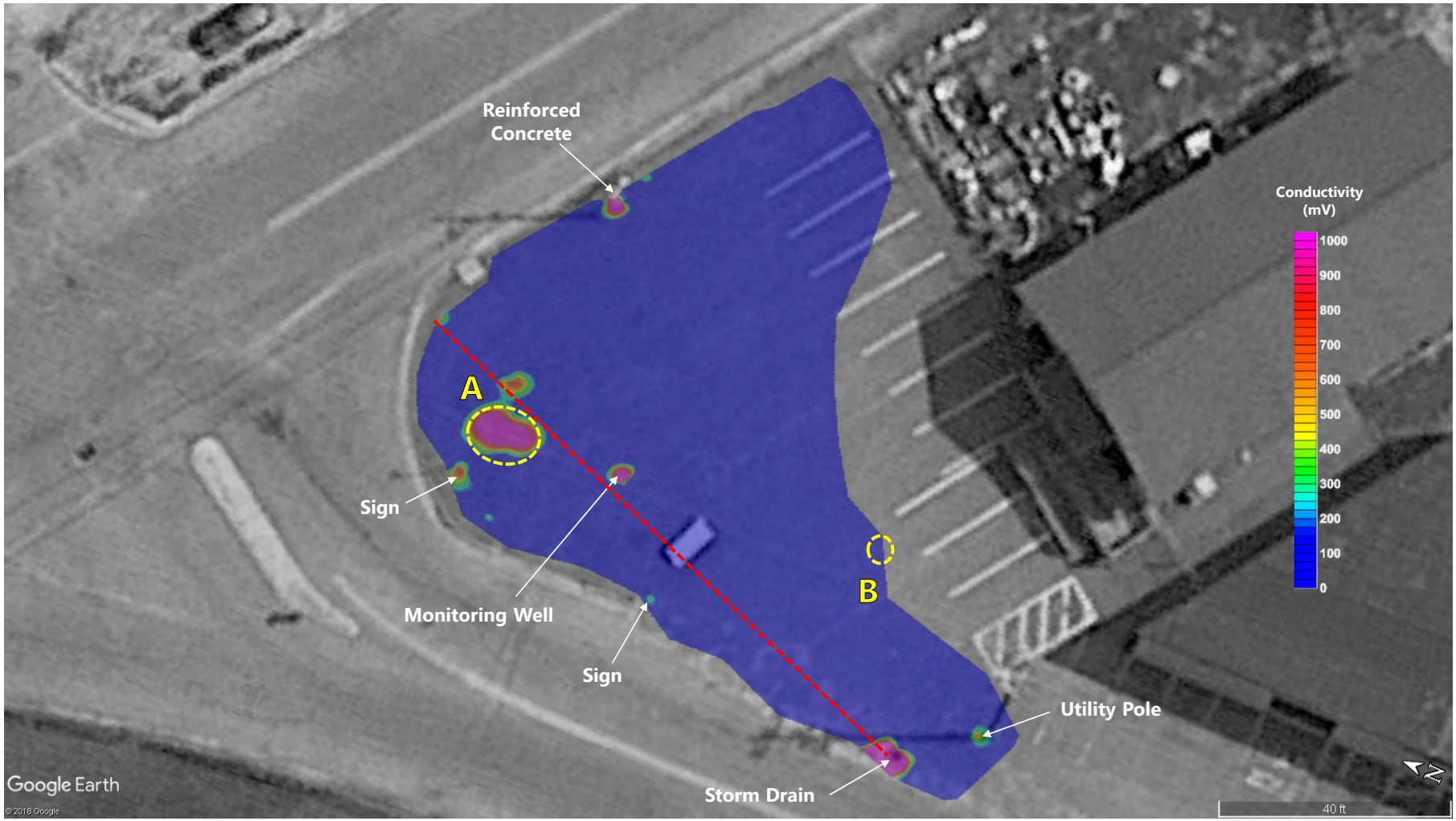
SCALE:
AS SHOWN

DATE:
1/7/2020

PROJECT NUMBER
4305-19-161

FIGURE NO.
5

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED MARCH 4, 2018)



LEGEND

Approximate Location of Geophysical Anomaly

Approximate Location of Possible Utility

TDEM DATA PLOT B

NCDOT PROJECT: I-5878
PARCEL #87 – (SAKS THRIFT AVENUE)
101 S. SAMPSON AVENUE, DUNN, HARNETT COUNTY, NORTH CAROLINA

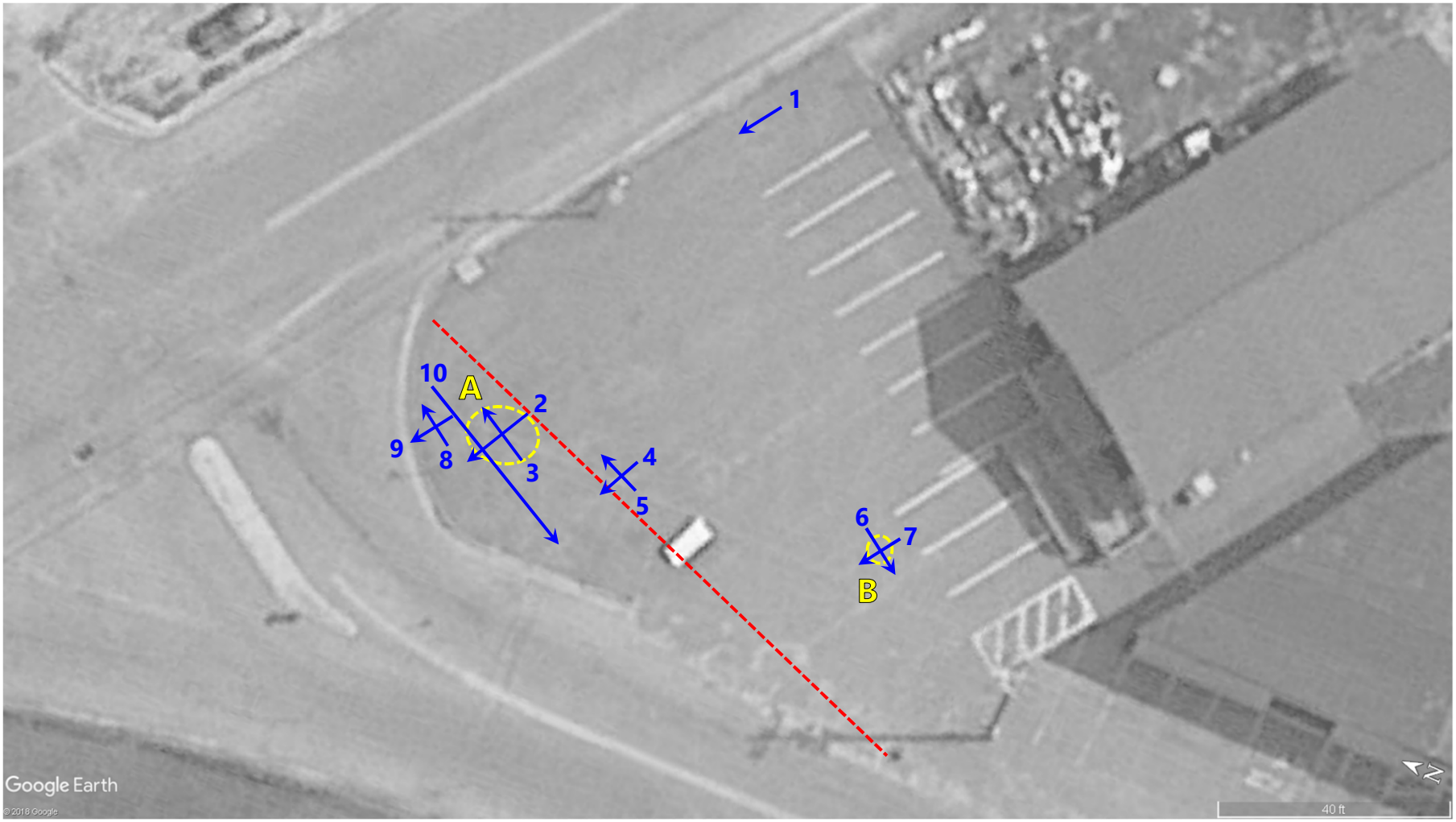
SCALE: AS SHOWN

DATE: 1/7/2020

PROJECT NUMBER 4305-19-161

FIGURE NO. 6

REFERENCE:
GOOGLE EARTH PRO AERIAL PHOTOGRAPH
(DATED, MARCH 4, 2018)



LEGEND

Approximate Location of Geophysical Anomaly

Approximate Location of Possible Utility

Approximate Location of GPR Profile

GEOPHYSICAL ANOMALY LOCATION PLAN

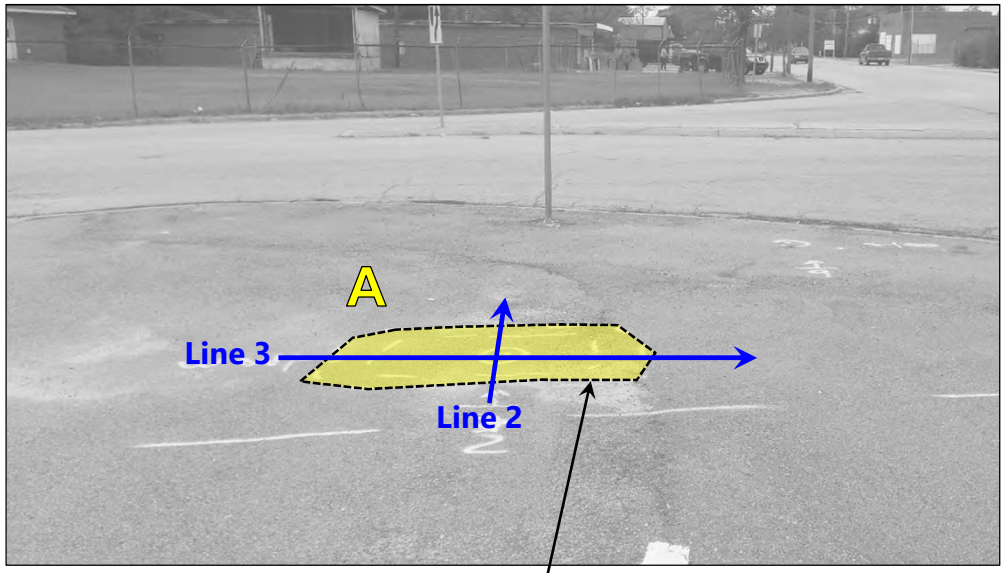
NCDOT PROJECT: I-5878
PARCEL #87 – (SAKS THRIFT AVENUE)
101 S. SAMPSON AVENUE, DUNN, HARNETT COUNTY, NORTH CAROLINA

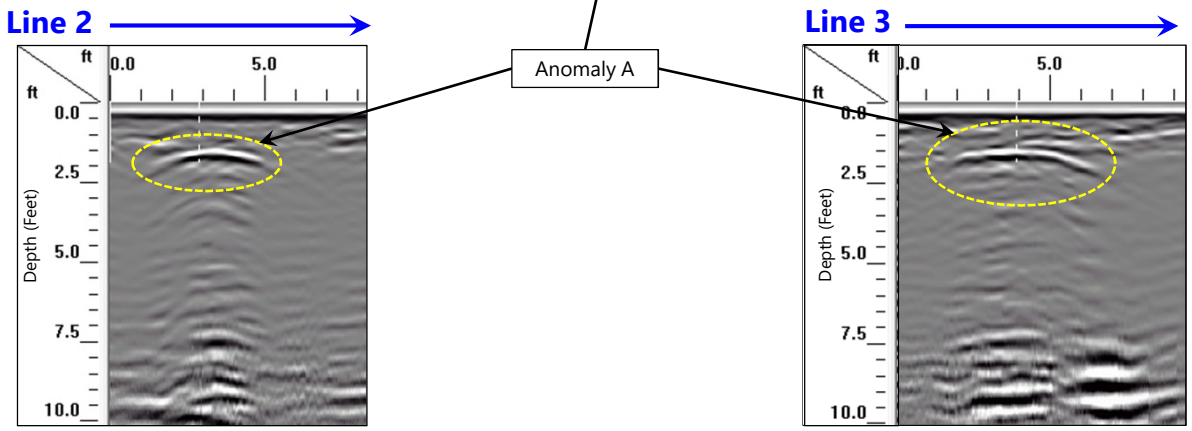
SCALE:
AS SHOWN

DATE:
1/7/2020

PROJECT NUMBER
4305-19-161

FIGURE NO.
7





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

EXAMPLE GPR DATA – LINES 2 AND 3

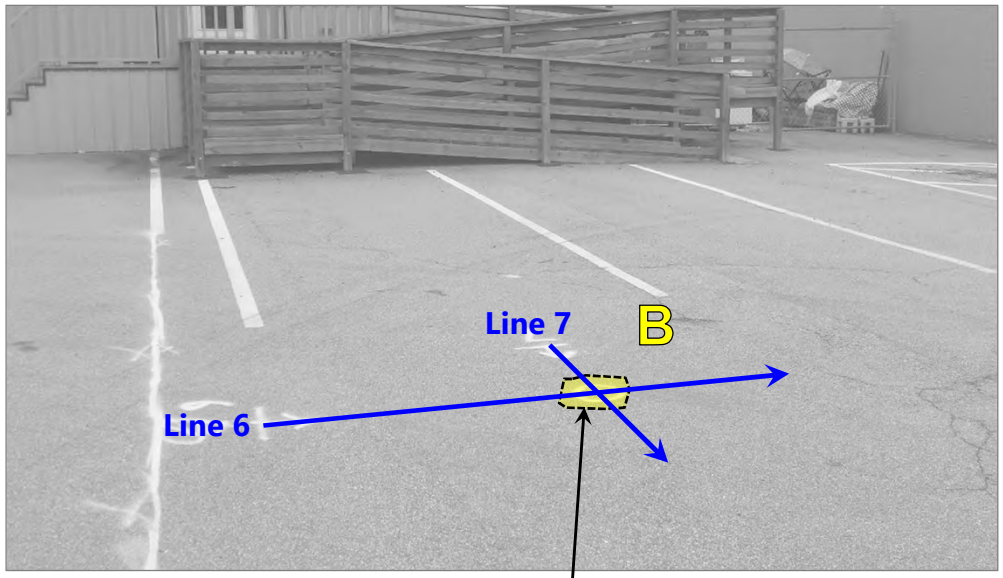
NCDOT PROJECT: I-5878
PARCEL #87 – (SAKS THRIFT AVENUE)
101 S. SAMPSON AVENUE, DUNN, HARNETT COUNTY, NORTH CAROLINA

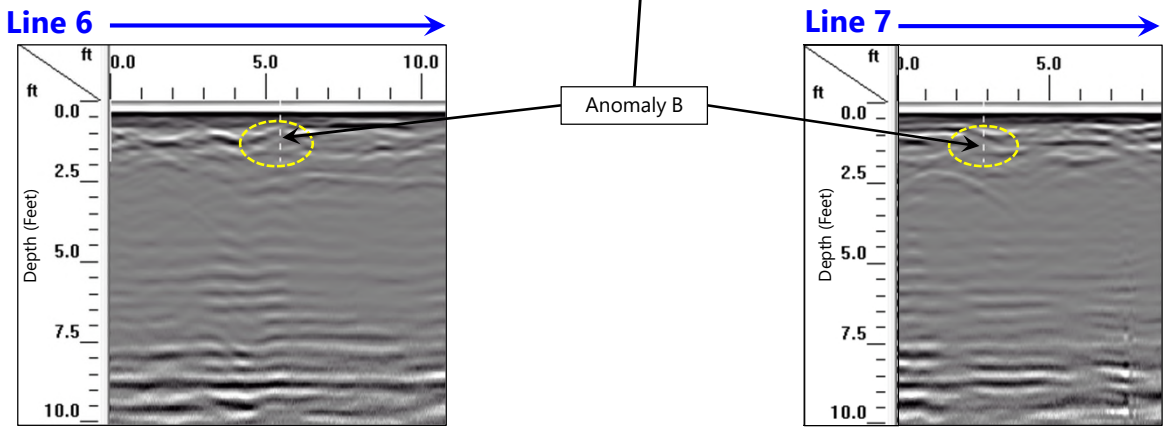
SCALE: AS SHOWN

DATE: 1/7/2020

PROJECT NUMBER 4305-19-161

FIGURE NO. **8**





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-5878
PARCEL #87 – (SAKS THRIFT AVENUE)
101 S. SAMPSON AVENUE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: AS SHOWN

DATE: 1/7/2020

PROJECT NUMBER 4305-19-161

FIGURE NO. 9

Appendix I – NCDEQ File Review

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

MONITORING REPORT

(April 24, 2018 event)

HASTY MART No. 38
815 E. CUMBERLAND STREET
DUNN, HARNETT COUNTY, NORTH CAROLINA, 28334

Latitude: 35.30274° N Longitude: 78.60203° W

Facility ID No. 0-009708
NCDWM-UST Incident No. 29119
NCDWM-UST Risk Ranking: INTERMEDIATE (170D)

Release Information:
Date Release Discovered: 3/18/04
Estimated Release Quantity: Unknown
Release Cause/Source: Leaking dispenser(s) and/or product line coupling(s)
UST Capacities: (1) 10,000-gallon gasoline (2) 8,000-gallon gasoline (1) 20,000-gallon kerosene (1) 20,000-gallon diesel (3) 20,000-gallon gasoline

UST Owner/Responsible Party/Property Owner:
Wayne Oil Company, Inc.
1301 Wayne Memorial Drive
Goldsboro, NC 27534

Terraquest Project No. 01404

May 22, 2018

100 E. Ruffin Street • Mebane, North Carolina 27302
Telephone (919) 563-9091 • Facsimile (919) 563-9095
www.terraquestpc.com

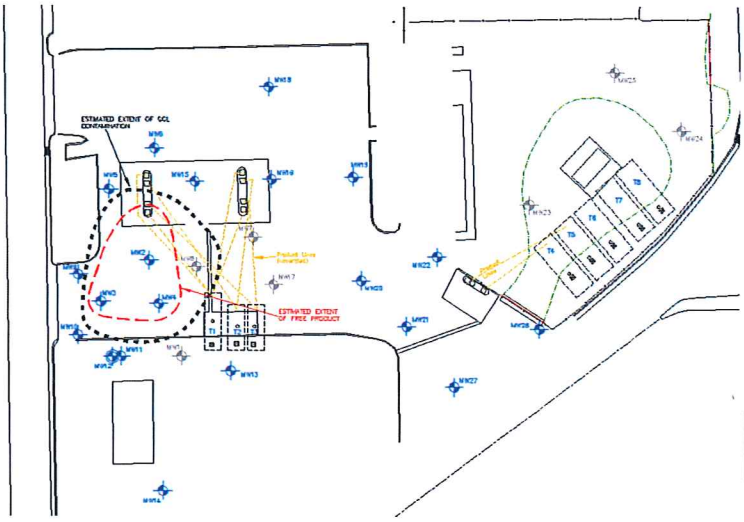
The groundwater analytical data is summarized in Table 6 and on Figure 7. Historical groundwater analytical data is included in Appendix C that also contains concentration versus time graphs to show trending. The full analytical report is provided in Appendix D.

6.0 SOURCE ZONE DEPLETION STATUS

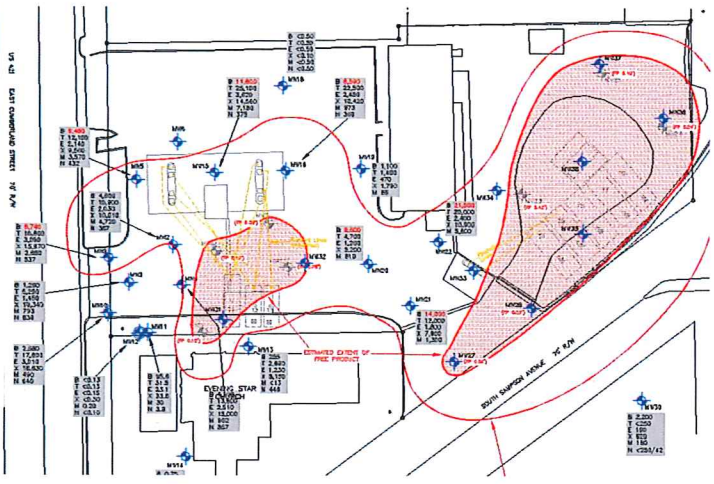
This release incident exists without corrective action goals at the current time. The presence of free product and GCL violations cause the Intermediate Risk ranking of the site. Following emergency response to the release incident where free product and gasoline vapors were present in the sanitary sewer, free product was recovered through several MMPE and AFVR events. Ultimately, the UST system was removed and a large volume of contaminated soil was removed including parts of the smear zone. The presence of storm sewer piping prevented the excavation of all contaminated soil. Following monitoring results that showed persistent free product and groundwater contamination, an air sparge pilot test was performed in April 2017 with favorable results.

The presence of free product and the groundwater contaminant plume have changed as shown:

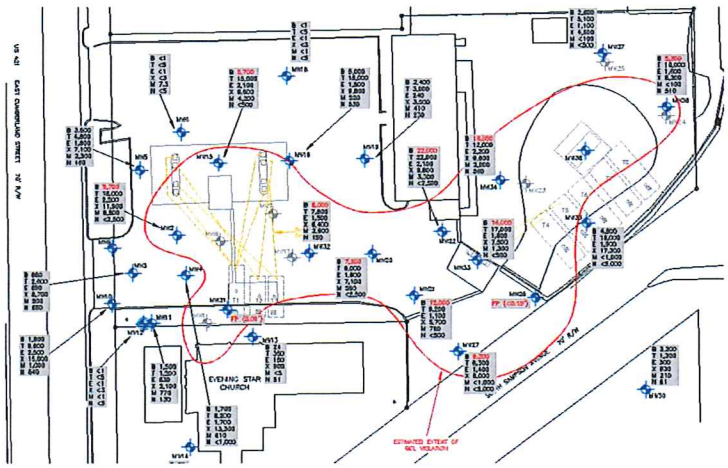
6/2004: (no bulk UST area data)



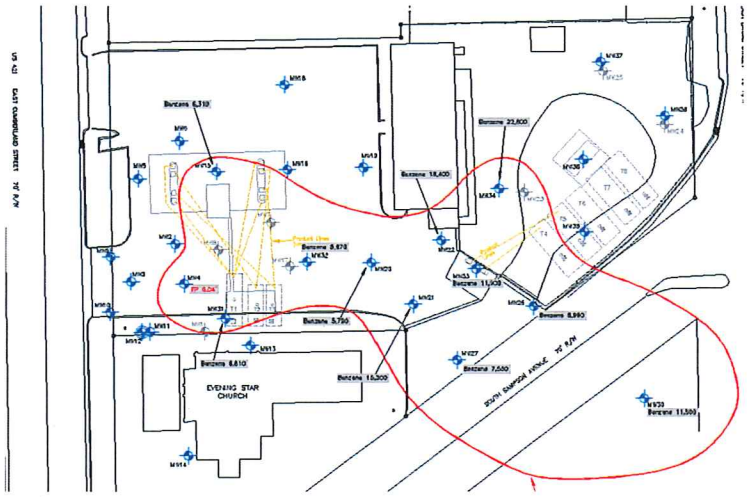
CSA 2011/2012:



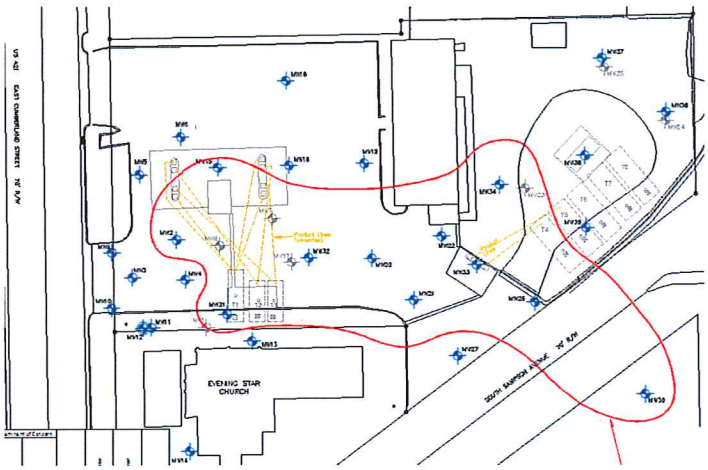
3/2013:



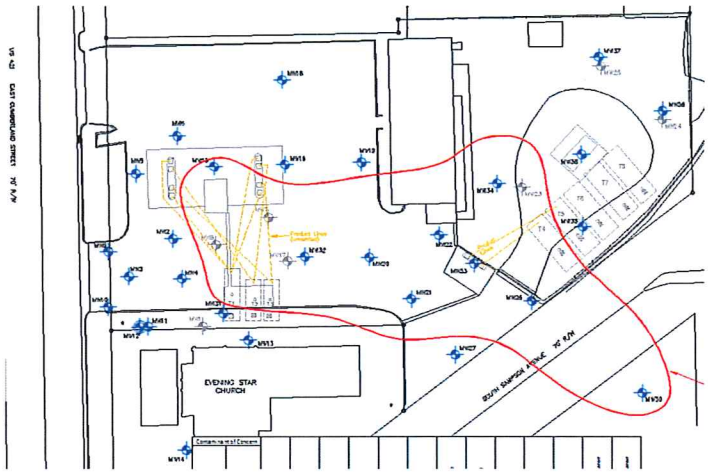
4/2014:



10/2015:



4/2016:



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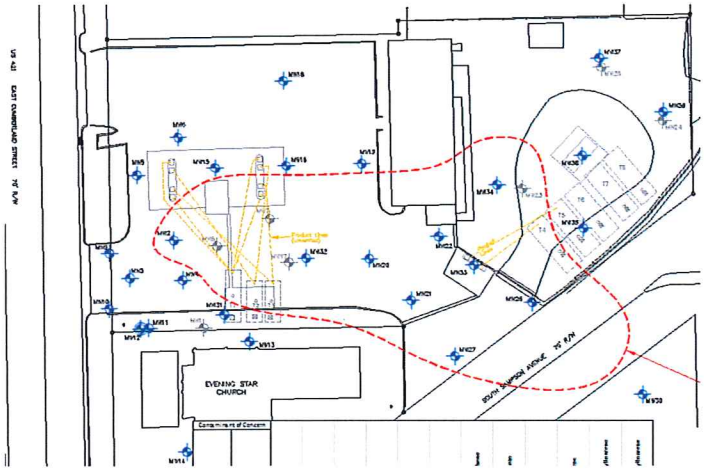

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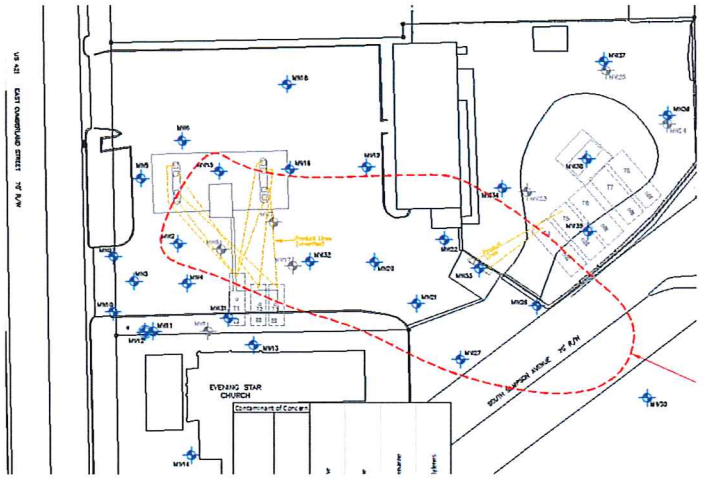
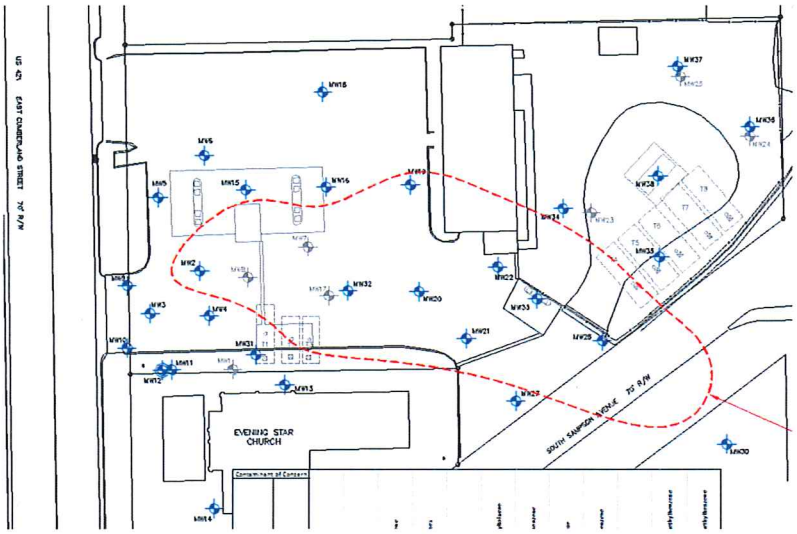


4/2018:



7.0 CONCLUSIONS AND RECOMMENDATIONS

Terraquest personnel have recently conducted a groundwater sampling event at the Hasty Mart #38 facility. Free product and GCL violations remain at the. Terraquest has had favorable results with an air sparge pilot test and recommends installing several sparge wells and operating a sparge system for at least six months to a year to reduce core contaminant concentrations. Terraquest recommends aggressive treatment of this plume to ensure human health and the environment are protected. Groundwater monitoring should continue.

8.0 LIMITATIONS

This report is limited to the investigation of petroleum-type compounds, and does not imply that other unforeseen adverse impacts to the environment are not present at the facility. In addition, subsurface heterogeneities not identified during the current study may influence the migration of groundwater or contaminants in unpredicted ways. The limited amount of sampling and testing conducted during this study cannot practically reveal all subsurface heterogeneities. Furthermore, the subsurface conditions, particularly groundwater flow, elevations, and water quality may very through time. The opinions and conclusions arrived at in this report are in

Table 5

MONITORING WELL CONSTRUCTION INFORMATION

Date: 4/24/18

Incident Name: Hasty Mart No. 38 Incident No. 29119

Facility ID No: 0-009708

Well ID	Date Installed	Date Water Level Measured	Well Casing Depth (feet BGS)	Screened Interval (x to y feet BGS)	Bottom of Well (feet BGS)	Top of Casing Elevation (feet)	Depth to Water from Top of Casing (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)	Comments
MW2	3/20/04	4/24/18	3	3 - 13	13	99.31	5.68	0	93.63	2"-diameter Type II monitoring well
MW3	3/25/04	-	2	2 - 12	12	99.36	-	-	-	2"-diameter Type II monitoring well
MW4	3/25/04	4/24/18	2	2 - 12	12	99.55	5.86	0	93.69	2"-diameter Type II monitoring well
MW5	3/25/04	4/24/18	2	2 - 12	12	99.28	5.60	0	93.68	2"-diameter Type II monitoring well
MW6	5/10/04	-	3	3 - 12	12	99.37	-	-	-	2"-diameter Type II monitoring well
MW9	5/10/04	-	3	3 - 12	12	99.12	-	-	-	2"-diameter Type II monitoring well
MW10	5/10/04	-	3	3 - 12	12	99.42	-	-	-	2"-diameter Type II monitoring well
MW11	5/10/04	-	3	3 - 12	12	100.11	-	-	-	2"-diameter Type II monitoring well
MW12	6/1 - 6/3/04	4/24/18	OC: 20 IC: 30	30 - 35	35	100.08	6.57	0	93.51	2"-diameter Type III monitoring well
MW13	5/6/10	4/24/18	2	2 - 12	12	99.55	3.32	0	96.23	2"-diameter Type II monitoring well
MW14	5/6/10	-	2	2 - 12	12	98.85	-	-	-	2"-diameter Type II monitoring well
MW15	7/11/11	4/24/18	3	3 - 12	12	99.40	5.74	0	93.66	2"-diameter Type II monitoring well
MW16	7/11/11	4/24/18	3	3 - 12	12	99.91	6.94	0	92.97	2"-diameter Type II monitoring well
MW18	10/12/11	-	3	3-15	15	99.91	-	-	-	2"-diameter Type II monitoring well
MW19	10/12/11	4/24/18	3	3-15	15	100.57	6.98	0	93.59	2"-diameter Type II monitoring well
MW20	10/12/11	-	3	3-15	15	100.29	-	-	-	2"-diameter Type II monitoring well
MW21	1/17/12	4/24/18	3	3-15	15	99.97	6.24	0	93.73	2"-diameter Type II monitoring well
MW22	1/17/12	-	3	3-15	15	100.04	-	-	-	2"-diameter Type II monitoring well
MW26	4/18/12	4/24/18	3	3-15	15	98.73	5.05	0	93.68	2"-diameter Type II monitoring well
MW27	4/18/12	4/24/18	3	3-15	15	98.77	5.05	0	93.72	2"-diameter Type II monitoring well
MW28	10/4/12	-	3	3-15	15	99.40	-	-	-	2"-diameter Type II monitoring well
MW29	10/4/12	-	3	3-15	15	99.48	-	-	-	2"-diameter Type II monitoring well
MW30	10/4/12	4/24/18	3	3-15	15	99.38	6.63	0	92.75	2"-diameter Type II monitoring well
MW31	3/20/13	4/24/18	3	3-15	15	100.03	4.50	0	95.53	2"-diameter Type II monitoring well
MW32	3/20/13	4/24/18	3	3-15	15	99.95	6.27	0	93.68	2"-diameter Type II monitoring well
MW33	3/20/13	4/24/18	3	3-15	15	99.72	6.15	0.13	93.66	2"-diameter Type II monitoring well
MW34	3/20/13	4/24/18	3	3-15	15	99.93	6.07	0	93.86	2"-diameter Type II monitoring well
MW35	3/20/13	4/24/18	3	3-15	15	99.69	5.90	0	93.79	2"-diameter Type II monitoring well
MW36	3/20/13	4/24/18	3	3-15	15	99.53	5.62	0	93.91	2"-diameter Type II monitoring well
MW37	3/20/13	-	3	3-15	15	99.87	-	-	-	2"-diameter Type II monitoring well
MW38	8/6/13	-	4	3-16	15	99.68	-	-	-	2"-diameter Type II monitoring well
ABANDONED MONITORING WELLS										
MW1	3/20/04	-	8	8 - 18	18	100.00	-	-	-	2"-diameter Type II monitoring well
MW7	5/10/04	-	3	3 - 12	12	99.74	-	-	-	2"-diameter Type II monitoring well
MW8	5/10/04	-	3	3 - 12	12	99.67	-	-	-	2"-diameter Type II monitoring well
MW17	7/11/11	-	3	3 - 12	12	99.82	-	-	-	2"-diameter Type II monitoring well
MW23	4/18/12	-	3	3-15	15	99.92	-	-	-	2"-diameter Type II monitoring well
MW24	4/18/12	-	3	3-15	15	99.52	-	-	-	2"-diameter Type II monitoring well
MW25	4/18/12	-	3	3-15	15	99.82	-	-	-	2"-diameter Type II monitoring well

Notes:

1. All units in feet.
2. BGS = Below Ground Surface
3. Groundwater elevations corrected for the presence of free product using (top of casing - depth to water) + (product thickness x 0.729).

Table 6

SUMMARY OF GROUNDWATER SAMPLING RESULTS

Date: 5/21/18

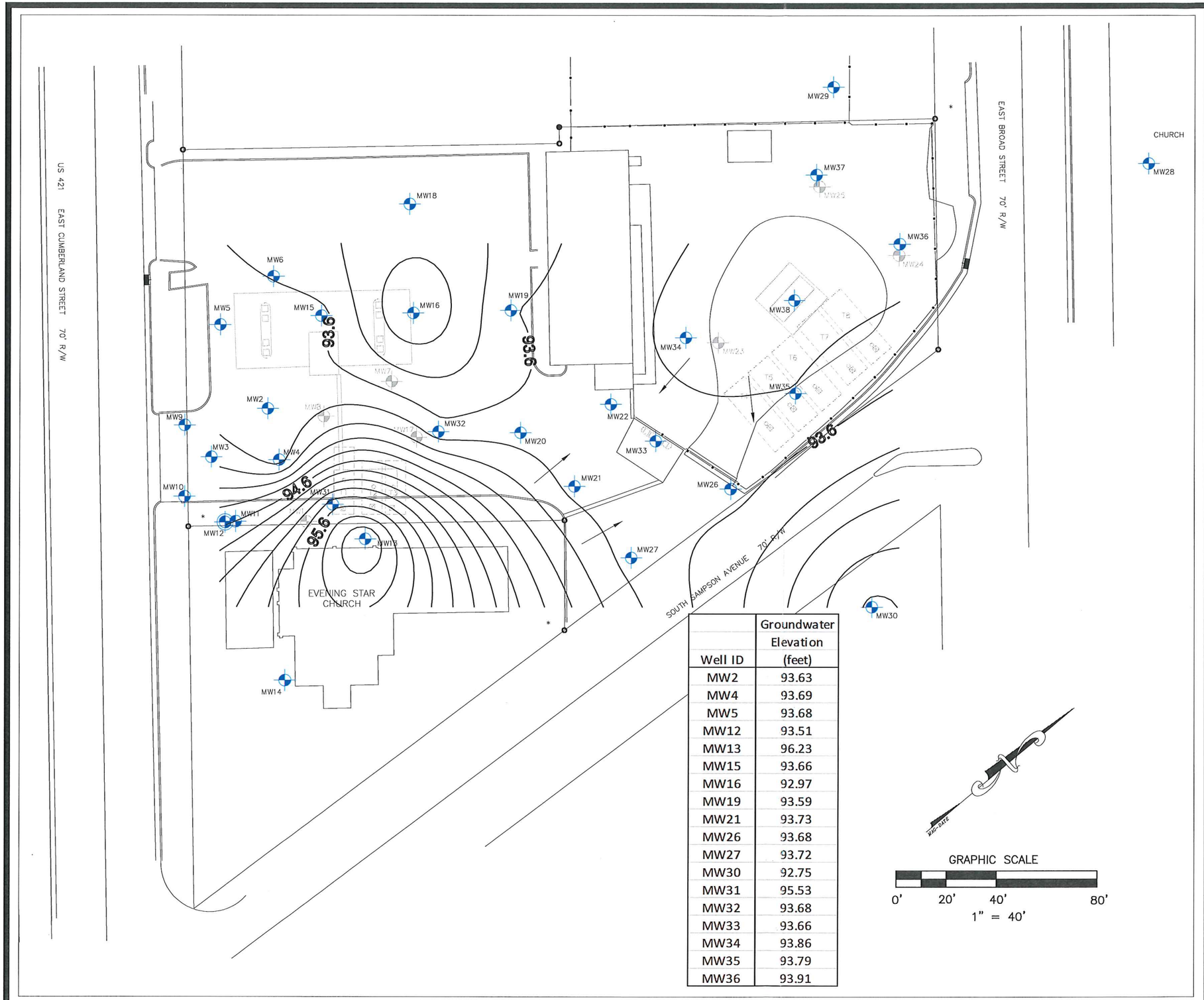
Incident Name: Hasty Mart No. 38 Incident No. 29119

Facility ID No: 0-009708

Analytical Method		6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B	6200B
Contaminant of Concern																	
Well ID	Date Collected	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	IPE	4-Isopropyltoluene	Isopropylbenzene	Naphthalene	n-Propylbenzene	Styrene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	Chloroform	1,2-Dichloroethane
MW2	4/24/18	**6,040**	**18,600**	**3,670**	**21,500**	**3,840**	**308**	**294**	**286**	**1,040**	**478**	**410**	**4,040**	**1,070**	**268**	< 32.0	< 18.0
MW4	4/24/18	**151**	**465**	**327**	**4,350**	**209**	< 9.20	**241**	**130**	**900**	**193**	< 7.40	**3,830**	**1,440**	< 35.0	< 16.0	< 9.00
MW5	4/24/18	**1,230**	**1,090**	**865**	**2,063**	**1,160**	**55.8**	**37.5**	**41.5**	**158**	**77**	< 1.85	**685**	**193**	< 8.75	< 4.00	< 2.25
MW12	4/24/18	< 0.160	< 0.0570	< 0.0920	< 0.122	< 0.169	< 0.0920	< 0.130	< 0.0980	< 0.0940	< 0.0650	< 0.0740	< 0.103	< 0.0870	< 0.350	< 0.160	< 0.0900
MW13	4/24/18	< 0.160	< 0.0570	**0.41**	**4.27**	< 0.169	< 0.0920	< 0.130	< 0.0980	< 0.0940	**1.15**	< 0.0740	**2.19**	**1.28**	< 0.350	< 0.160	< 0.0900
MW15	4/24/18	**2,410**	**11,400**	**4,470**	**19,300**	**984**	< 18.4	< 26.0	**288**	**944**	**424**	< 14.8	**3,080**	**922**	< 70.0	< 32.0	< 18.0
MW16	4/24/18	**2,670**	**15,900**	**3,130**	**13,410**	**258**	< 9.20	**151**	**160**	**663**	**273**	**214**	**2,110**	**622**	< 35.0	**34**	< 9.00
MW19	4/24/18	***8,780***	**17,800**	**1,610**	**8,140**	**1,330**	< 9.20	**152**	**141**	**562**	**218**	**207**	**1,530**	**512**	< 35.0	< 16.0	< 9.00
MW21	4/24/18	***9,440***	**7,900**	**600**	**5,270**	**386**	< 18.4	< 26.0	< 19.6	**810**	< 13.0	< 14.8	**970**	**436**	< 70.0	< 32.0	< 18.0
MW26	-	***FREE PRODUCT NOTED IN BAILER WHEN PURGING ATTEMPTED - NO SAMPLE***															
MW27	4/24/18	**2,500**	**1,490**	**1,120**	**4,370**	**47.8**	**10.3**	**46.5**	**69.5**	**480**	**144**	< 1.85	**1,440**	**425**	< 8.80	< 4.00	**16.8**
MW30	4/24/18	**3,320**	**338**	**445**	**1,154**	**88.5**	**27.5**	**36.8**	**35.5**	**135**	**50.3**	< 1.85	**279**	**75**	< 8.75	< 4.00	< 2.25
MW31	4/24/18	**9.98**	**0.71**	**7.62**	**6.78**	< 0.169	< 0.0920	**1.98**	**1.62**	**7.6**	**4.69**	< 0.0740	**14.4**	**10.6**	< 0.352	< 0.160	< 0.0900
MW32	4/24/18	***8,320***	**10,400**	**1,390**	**6,970**	**2,400**	< 18.4	< 26.0	< 19.6	**798**	**248**	**376**	**894**	**370**	< 70.0	< 32.0	< 18.0
MW33	-	***0.13 FEET OF FREE PRODUCT***															
MW34	4/24/18	**2,490**	**4,100**	**277**	**1,848**	**527**	< 9.20	< 13.0	**112**	**376**	**118**	**185**	**319**	**172**	< 35.0	< 16.0	< 9.00
MW35	4/24/18	**644**	**5,320**	**1,360**	**11,100**	< 4.23	< 2.30	**44.5**	**65.8**	**673**	**149**	< 1.85	**2,120**	**684**	< 8.75	< 4.00	< 2.25
MW36	4/24/18	**38.3**	**45.6**	**17**	**73.6**	< 0.169	< 0.0920	**1.63**	**1.83**	**9.44**	**3.05**	**1.93**	**33.7**	**12.4**	< 0.352	< 0.160	< 0.0900
	2L Standard	1	600	600	500	20	70	25	70	6	70	70	400	400	6,000	70	0.4
	GCL	5,000	260,000	84,500	85,500	20,000	70,000	NE	25,000	6,000	30,000	70,000	28,500	25,000	6,000,000	70,000	400

Notes:

1. All results in ug/l = parts per billion (ppb)
2. Bold denotes a detection
3. Shading denotes a GCL violation
4. < - denotes less than sample detection limit.



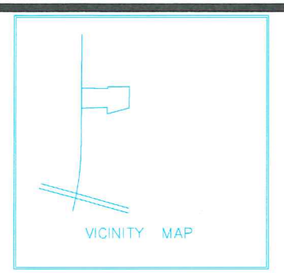
Well ID	Groundwater Elevation (feet)
MW2	93.63
MW4	93.69
MW5	93.68
MW12	93.51
MW13	96.23
MW15	93.66
MW16	92.97
MW19	93.59
MW21	93.73
MW26	93.68
MW27	93.72
MW30	92.75
MW31	95.53
MW32	93.68
MW33	93.66
MW34	93.86
MW35	93.79
MW36	93.91

MAP DATE

GRAPHIC SCALE

0' 20' 40' 80'

1" = 40'



LEGEND

The groundwater elevation as measured on 4/24/18 is listed in feet.

The groundwater flow direction is indicated by the arrows placed perpendicular to the contour lines. There is a very low local hydraulic gradient.

The Type III monitoring well MW12 was not used in the construction of this map.

Note: MW1 – MW5 Elevations & Locations Were Surveyed By Joyner Piedmont Surveying.
MW6 – MW30 Were Surveyed By TerraQuest Environmental Consultants.

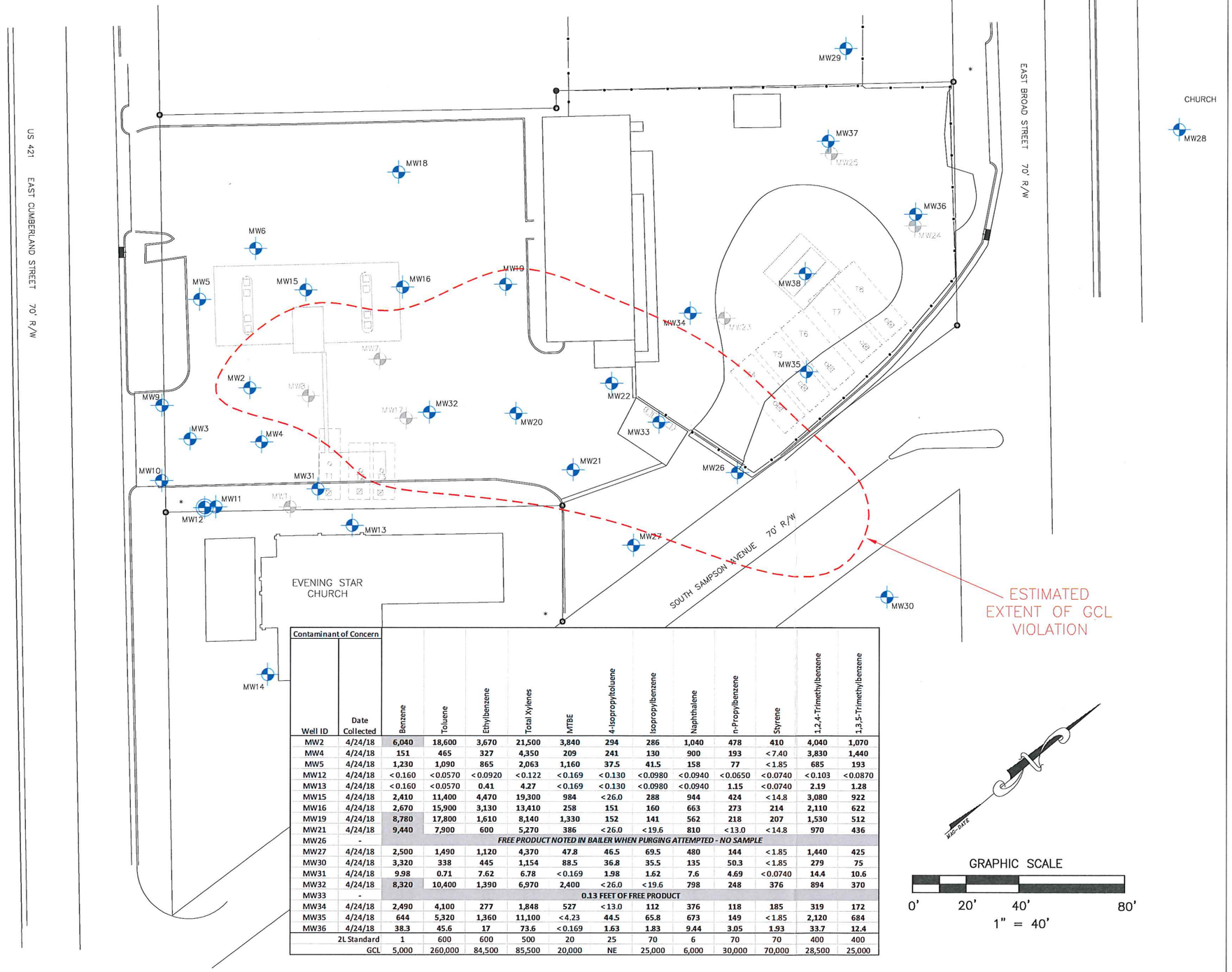
APRIL 15, 2004

POTENTIOMETRIC SURFACE MAP (4/24/18)
HASTY MART No. 38
815 E. Cumberland Street
Dunn, NC 28334

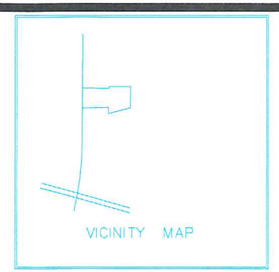
WAYNE OIL COMPANY, INC. GOLDSBORO, NC

PROJECT NO: 01404	CHECKED BY: MJB	FIGURE NO.	4
SCALE: 1"=40'	DRAWN BY: MJB/JAK/RDK	DATE:	5/3/18

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.



Contaminant of Concern													
Well ID	Date Collected	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	4-Isopropyltoluene	Isopropylbenzene	Naphthalene	n-Propylbenzene	Styrene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
MW2	4/24/18	6,040	18,600	3,670	21,500	3,840	294	286	1,040	478	410	4,040	1,070
MW4	4/24/18	151	465	327	4,350	209	241	130	900	193	<7.40	3,830	1,440
MW5	4/24/18	1,230	1,090	865	2,063	1,160	37.5	41.5	158	77	<1.85	685	193
MW12	4/24/18	<0.160	<0.0570	<0.0920	<0.122	<0.169	<0.130	<0.0980	<0.0940	<0.0650	<0.0740	<0.103	<0.0870
MW13	4/24/18	<0.160	<0.0570	0.41	4.27	<0.169	<0.130	<0.0980	<0.0940	1.15	<0.0740	2.19	1.28
MW15	4/24/18	2,410	11,400	4,470	19,300	984	<26.0	288	944	424	<14.8	3,080	922
MW16	4/24/18	2,670	15,900	3,130	13,410	258	151	160	663	273	214	2,110	622
MW19	4/24/18	8,780	17,800	1,610	8,140	1,330	152	141	562	218	207	1,530	512
MW21	4/24/18	9,440	7,900	600	5,270	386	<26.0	<19.6	810	<13.0	<14.8	970	436
MW26	-	FREE PRODUCT NOTED IN BAILER WHEN PURGING ATTEMPTED - NO SAMPLE											
MW27	4/24/18	2,500	1,490	1,120	4,370	47.8	46.5	69.5	480	144	<1.85	1,440	425
MW30	4/24/18	3,320	338	445	1,154	88.5	36.8	35.5	135	50.3	<1.85	279	75
MW31	4/24/18	9.98	0.71	7.62	6.78	<0.169	1.98	1.62	7.6	4.69	<0.0740	14.4	10.6
MW32	4/24/18	8,320	10,400	1,390	6,970	2,400	<26.0	<19.6	798	248	376	894	370
MW33	-	0.13 FEET OF FREE PRODUCT											
MW34	4/24/18	2,490	4,100	277	1,848	527	<13.0	112	376	118	185	319	172
MW35	4/24/18	644	5,320	1,360	11,100	<4.23	44.5	65.8	673	149	<1.85	2,120	684
MW36	4/24/18	38.3	45.6	17	73.6	<0.169	1.63	1.83	9.44	3.05	1.93	33.7	12.4
	2L Standard	1	600	600	500	20	25	70	6	70	70	400	400
	GCL	5,000	260,000	84,500	85,500	20,000	NE	25,000	6,000	30,000	70,000	28,500	25,000



LEGEND

Select analytical results for the 4/24/18 groundwater sampling event are provided in ug/L.

Historical results were considered for wells not sampled during this event.

Analytical results are summarized in Table 6 and the full analytical report is provided in Appendix D of the April 2018 Monitoring Report.

Note: MW1 – MW5 Elevations & Locations Were Surveyed By Joyner Piedmont Surveying.
MW6 – MW30 Were Surveyed By TerraQuest Environmental Consultants.

APRIL 15, 2004

GROUNDWATER ANALYTICAL RESULTS (4/24/18)

HASTY MART No. 38
815 E. Cumberland Street
Dunn, NC 28334

WAYNE OIL COMPANY, INC. GOLDSBORO, NC

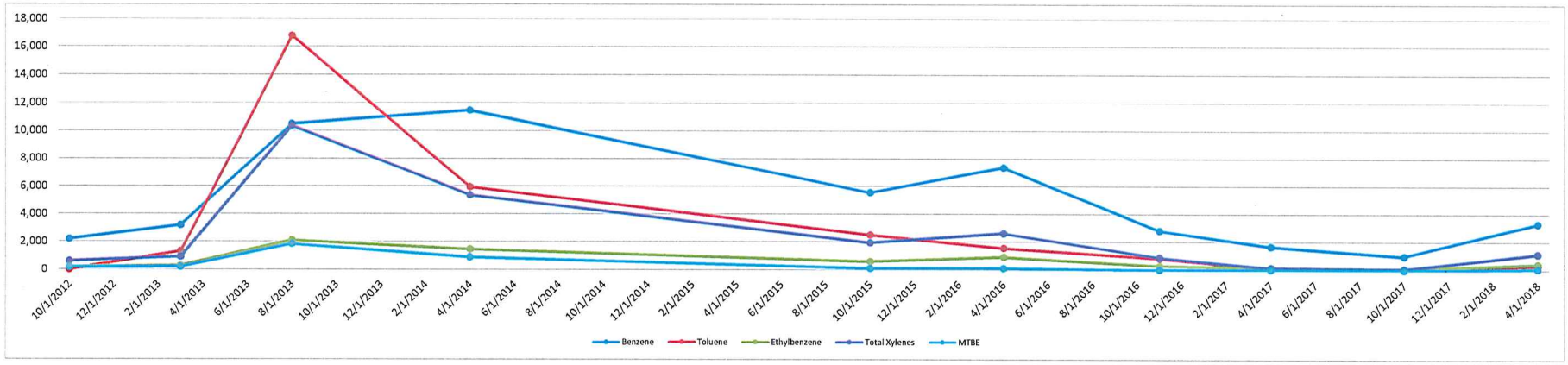
PROJECT NO: 01404	CHECKED BY: MJB	FIGURE NO.	7
SCALE: 1"=40'	DRAWN BY: MJB/JAK/RDK	DATE:	5/18/18

TERRAquest
ENVIRONMENTAL CONSULTANTS, P.C.

Complete Groundwater Analytical Data History for MW30
Hasty Mart No. 38, Dunn, NC
Wayne Oil Company

Date	U.S. EPA Method	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	IPE	sec-Butylbenzene	4-Isopropyltoluene	Isopropylbenzene	Naphthalene	n-Propylbenzene	Styrene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aromatics	C9-C22 Aromatics	Lead	EDB
10/4/12	6200B	**2,200**	<250	**190**	**620**	**180**	**73**	-	-	<50	**42**	-	-	**130**	<50	<	**7,700**	**1,800**	<100	**550**	**6.7**	<0.010
3/25/13	6200B	**3,200**	**1,300**	**300**	**930**	**210**	**59**	-	-	**11**	**81**	-	-	**190**	**45**	<	-	-	-	-	-	-
8/13/13	6200B	**10,500**	**16,800**	**2,120**	**10,390**	**1,860**	**652**	-	-	**50.7**	**494**	-	-	**2,170**	**258**	<	-	-	-	-	-	-
4/8/14	6200B	**11,500**	**5,940**	**1,470**	**5,380**	**923**	**297**	**6.9**	**5.9**	**56.2**	**467**	**155**	**19.3**	**1,220**	**302**	<	-	-	-	-	-	-
10/19/15	6200B	**5,560**	**2,500**	**610**	**1,960**	**129**	**50**	<1.20	<1.78	**24.6**	**197**	**64.2**	<1.48	**417**	**98.6**	<	-	-	-	-	-	-
4/21/16	6200B	**7,360**	**1,570**	**931**	**2,617**	**130**	**47**	<1.84	<1.78	**36.4**	**268**	**98.2**	<1.48	**673**	**159**	<	-	-	-	-	-	-
11/2/16	6200B	**2,820**	**842**	**313**	**897**	**32**	<9.2	<9.2	<8.9	<9.8	**271**	**31**	<7.4	**196**	**49**	<	-	-	-	-	-	-
4/18/17	6200B	**1,680**	**96**	**201**	**158**	**33**	**17**	<	<4.45	<4.90	**146**	**23**	<3.70	**59**	**8.5**	**122**	-	-	-	-	-	-
10/30/17	6200B	**994**	**20**	**100**	**81**	<4.22	<2.30	<	<	**37.5**	**101**	**10.2**	<1.85	**42.5**	**34**	<	-	-	-	-	-	-
4/24/18	6200B	**3,320**	**338**	**445**	**1,154**	**88.5**	**27.5**	<	**36.8**	**35.5**	**135**	**50.3**	< 1.85	**279**	**75**	< 8.75	-	-	-	-	-	-
	2L Standard	1	600	600	500	20	70	70	25	70	6	70	70	400	400	6,000	400	700	10,000	200	15	0.02
	GCL	5,000	260,000	84,500	85,500	20,000	70,000	8,500	NE	25,000	6,000	30,000	70,000	28,500	25,000	6,000,000	NE	NE	NE	NE	15,000	50

Notes:
1: All results in parts per billion (ppb) except as noted.
2: Bold denotes a detected concentration; Shading denotes a GCL violation.
3: Analytical reports contain a complete list of analytes and results.
4: < = less than the specified sample detection limit.
5. Naphthalene was tested by methods 6200B and 625BNA.
6. "NE" - Not established

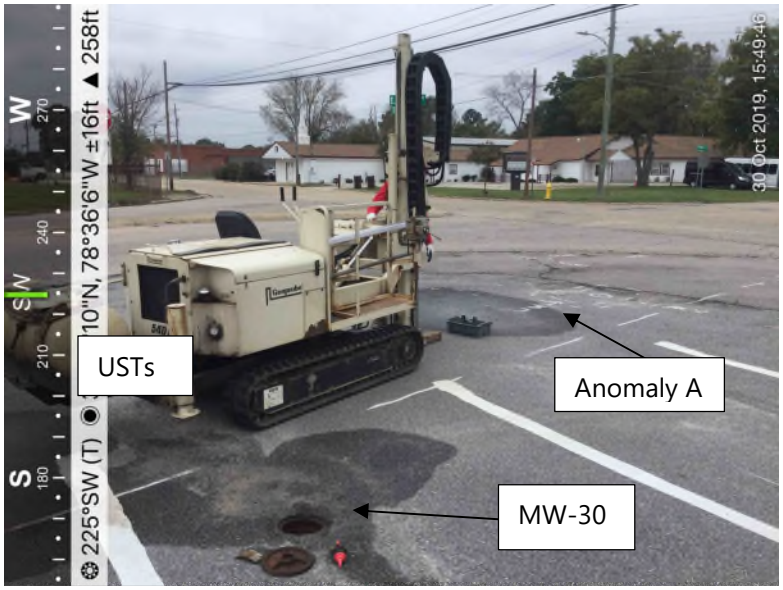


Appendix II – Photographs

Date: 10/30/2019

Photographer: JTH

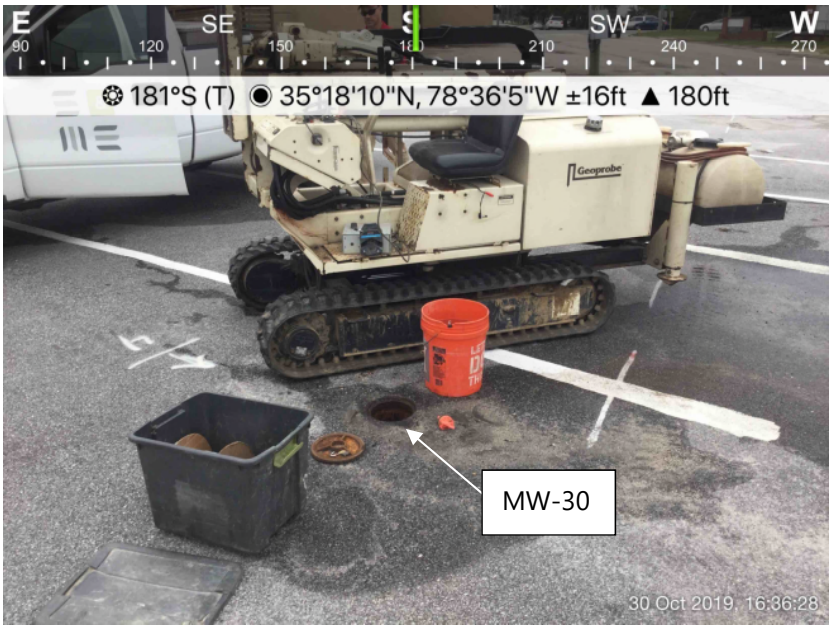
1	**Location / Orientation**	Front view of site looking southeast.
	Remarks	None.



Date: 10/30/2019

Photographer: JTH

2	**Location / Orientation**	View looking southwest at location of boring B-2.
	Remarks	Note MW-30 and Anomaly A.



Date: 10/30/2019

Photographer: JTH

3	**Location / Orientation**	Close up view of MW-30.
	Remarks	None.

Appendix III – Boring Logs

PROJECT:	**NCDOT I-5878** Parcel 87-101 South Sampson Avenue (SAK's Thrift Avenue), Dunn, NC S&ME Project No. 4305-19-161		**BORING LOG: B-1**
DATE DRILLED:	Wednesday, October 30, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 54DT	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
0		Asphalt, Gravel,								
		Sandy Clay, Gray, Tan, Orange,			5.6	No				
					6.2	No				
5					5.5	Yes	1530			
		Boring Terminated at 8 Ft-BGS								
10										
15										
20										
25										
30										

PROJECT:	**NCDOT I-5878** Parcel 87-101 South Sampson Avenue (SAK's Thrift Avenue), Dunn, NC S&ME Project No. 4305-19-161		**BORING LOG: B-2**
DATE DRILLED:	Wednesday, October 30, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 54DT	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,								
		Sandy Clay, Gray, Tan, Orange,			6.7	No				
					9.6	No				
5					9.0	Yes	1545			
		Clayey Sand, Gray,								
		Boring Terminated at 8 Ft-BGS								
10										
15										
20										
25										
30										

PROJECT:	**NCDOT I-5878** Parcel 87-101 South Sampson Avenue (SAK's Thrift Avenue), Dunn, NC S&ME Project No. 4305-19-161		**BORING LOG: B-3**
DATE DRILLED:	Wednesday, October 30, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 54DT	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,								
		Sandy Clay, Gray, Tan, Orange,			4.5	No				
					6.7	No				
5					8.6	Yes	1600			
		Boring Terminated at 8 Ft-BGS								
10										
15										
20										
25										
30										

Appendix IV – Laboratory Analytical Reports and Chain of Custody

QED

REDLAB™ RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: S&ME
Address: 3201 SPRING FOREST RD
RALEIGH NC

Samples taken Wednesday, October 30, 2019
Samples extracted Wednesday, October 30, 2019
Samples analysed Friday, November 1, 2019

Contact: JAMIE HONEYCUTT

Operator MAX MOYER

Project: NCDOT I-5878 PARCEL 87

U00902

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	
S	B-1 (4-6')	20.8	<0.52	3.2	6.4	9.6	3.9	<0.17	<0.021	67.4	26.1	6.5	Deg Fuel 90.8%,(FCM)
S	B-2 (4-6')	20.3	<0.51	2.9	4.5	7.4	2.5	<0.16	<0.02	74.9	19.4	5.7	Deg.Fuel 88.6%,(FCM)
S	B-3 (4-6')	20.2	<0.5	4.3	1.5	5.8	0.96	<0.16	<0.02	92.4	6	1.6	No Match found

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

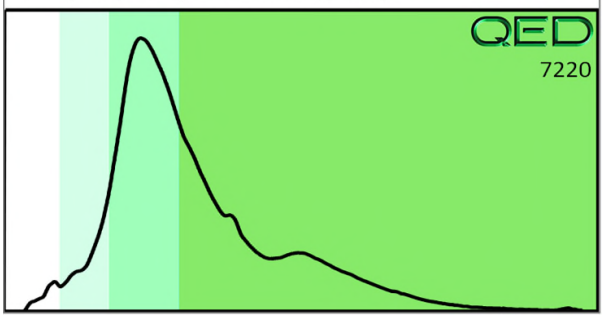
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

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

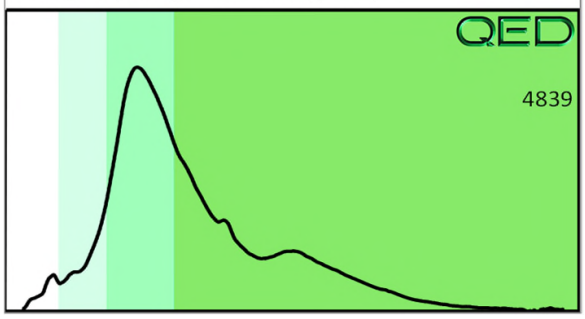
QED Hydrocarbon Fingerprints

Project: NCDOT I-5878 PARCEL 87 ##################

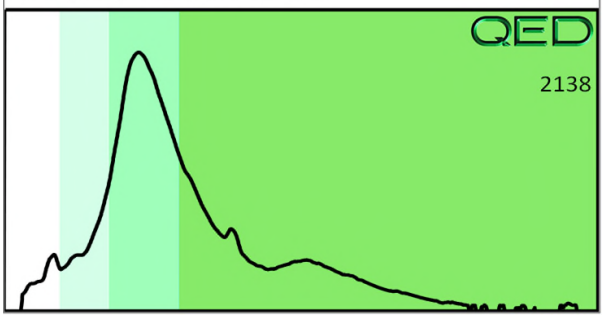
B-1 (4-6') : Deg Fuel 90.8%,(FCM)



B-2 (4-6') : Deg.Fuel 88.6%,(FCM)



B-3 (4-6') : No Match found



B143

Client Name:	SME
Address:	3201 Spring Forest Rd Raleigh NC
Contact:	Jamie T Honeycutt
Project Ref.:	NCDOT I-5878 Parcel 87
Email:	jhoneycutt@SMEINC.com
Phone #:	919 877-7614
Collected by:	Jamie T Honeycutt

NCDOT I-5878 Parcel 87
Dunn, NC

REDLAB™
RAPID ENVIRONMENTAL DIAGNOSTICS

RED Lab, LLC
5598 Marvin K Moss Lane
MARBIONC Bldg, Suite 2003
Wilmington, NC 28409

Each UVF sample will be analyzed for total BTEX, GRO, DRO, TPH, PAH total aromatics and BaP. Standard GC Analyses are for BTEX and Chlorinated Solvents: VC, 1,1 DCE, 1,2 cis DCE, 1,2 trans DCE, TCE, and PCE. Specify target analytes in the space provided below.

CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM

Sample Collection Date/Time	TAT Requested 24 Hour	TAT Requested 48 Hour	Analysis Type UVF	Analysis Type GC	Initials	Sample ID	Total Wt. SG-8	Tare Wt.	Sample Wt.
10-30-19 / 1530		✓	✓		JTH	B-1 4-6'	[illegible]	44.3	12.5
↓ / 1545		↓	↓		↓	B-2 4-6'	57.5	44.7	12.8
↓ / 1600		↓	↓		↓	B-3 4-6'	57.6	44.7	12.9

COMMENTS/REQUESTS:

TARGET GC/UVF ANALYTES:

Relinquished by		Accepted by	Date/Time
James Honeycutt 10/31/19 1500		MM 11/1/19	1150
Relinquished by		Accepted by	Date/Time

RED Lab USE ONLY

Ref. No 3

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

November 20, 2019

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

Project Location: Dunn, NC
Client Job Number:
Project Number: 4305-19-161
Laboratory Work Order Number: 19K0023

Enclosed are results of analyses for samples received by the laboratory on October 31, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

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: 11/20/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 4305-19-161

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19K0023

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

PROJECT LOCATION: Dunn, NC

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-30	19K0023-01	Ground Water		SW-846 8260D SW-846 8270E	

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

EXECUTIVE SUMMARY

Client ID: **MW-30** Lab ID: **19K0023-01**

Analyte	Results/Qual		DL	RL	Units	Method
1,2,4-Trimethylbenzene	65		3.6	20	µg/L	SW-846 8260D
1,3,5-Trimethylbenzene	13	J	2.8	20	µg/L	SW-846 8260D
Benzene	1200		3.6	20	µg/L	SW-846 8260D
Diisopropyl Ether (DIPE)	6.4	J	3.4	10	µg/L	SW-846 8260D
Ethylbenzene	190		2.6	20	µg/L	SW-846 8260D
Isopropylbenzene (Cumene)	10	J	3.4	20	µg/L	SW-846 8260D
m+p Xylene	84		6.0	40	µg/L	SW-846 8260D
Methyl tert-Butyl Ether (MTBE)	15	J	5.0	20	µg/L	SW-846 8260D
Naphthalene	43		6.2	40	µg/L	SW-846 8260D
n-Propylbenzene	22		2.6	20	µg/L	SW-846 8260D
o-Xylene	41		3.4	20	µg/L	SW-846 8260D
Toluene	110		2.8	20	µg/L	SW-846 8260D
2-Methylnaphthalene (SIM)	15		0.62	10	µg/L	SW-846 8270E
Naphthalene (SIM)	50		2.6	10	µg/L	SW-846 8270E

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.

REVISED REPORT 11-20-19: Due to a labeling error the results for method 8270 have been revised with the correct results.

REVISED REPORT 11-19-19: Due to a labeling error the results for method 8260 have been revised with the correct results.

For method 8270, only PAHs were requested and reported.
For method 8260D elevated reporting limit for sample 19K0023-01 due to high concentrations of target compounds.

SW-846 8260D

Qualifications:

RL-11

Elevated reporting limit due to high concentration of target compounds.

Analyte & Samples(s) Qualified:

19K0023-01[MW-30]

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:

Bromomethane
B245122-BS1, B245122-BSD1, S042311-CCV1

Chloromethane
B245122-BS1, B245122-BSD1, S042311-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.

Tod E. Kopyscinski
Laboratory Director

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

Project Location: Dunn, NC | Sample Description: | Work Order: 19K0023

Date Received: 10/31/2019

Field Sample #: MW-30 | Sampled: 10/30/2019 16:30

Sample ID: 19K0023-01

Sample Matrix: Ground Water

Sample Flags: RL-11

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	1000	76	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Acrylonitrile	ND	100	10	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
tert-Amyl Methyl Ether (TAME)	ND	10	2.8	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Benzene	1200	20	3.6	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Bromobenzene	ND	20	3.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Bromochloromethane	ND	20	6.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Bromodichloromethane	ND	10	3.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Bromoform	ND	20	9.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Bromomethane	ND	40	16	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
2-Butanone (MEK)	ND	400	39	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
tert-Butyl Alcohol (TBA)	ND	400	83	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
n-Butylbenzene	ND	20	4.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
sec-Butylbenzene	ND	20	3.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
tert-Butylbenzene	ND	20	3.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	10	3.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Carbon Disulfide	ND	100	89	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Carbon Tetrachloride	ND	20	2.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Chlorobenzene	ND	20	3.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Chlorodibromomethane	ND	10	4.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Chloroethane	ND	40	7.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Chloroform	ND	40	3.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Chloromethane	ND	40	9.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
2-Chlorotoluene	ND	20	2.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
4-Chlorotoluene	ND	20	2.8	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	100	11	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,2-Dibromoethane (EDB)	ND	10	3.8	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Dibromomethane	ND	20	7.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,2-Dichlorobenzene	ND	20	3.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,3-Dichlorobenzene	ND	20	2.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,4-Dichlorobenzene	ND	20	2.6	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
trans-1,4-Dichloro-2-butene	ND	40	6.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Dichlorodifluoromethane (Freon 12)	ND	40	5.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,1-Dichloroethane	ND	20	3.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,2-Dichloroethane	ND	20	8.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,1-Dichloroethylene	ND	20	6.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
cis-1,2-Dichloroethylene	ND	20	2.6	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
trans-1,2-Dichloroethylene	ND	20	6.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,2-Dichloropropane	ND	20	4.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,3-Dichloropropane	ND	10	2.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
2,2-Dichloropropane	ND	20	4.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,1-Dichloropropene	ND	40	3.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
cis-1,3-Dichloropropene	ND	10	2.6	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
trans-1,3-Dichloropropene	ND	10	4.6	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Diethyl Ether	ND	40	6.8	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH

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

Project Location: Dunn, NC | Sample Description: | Work Order: 19K0023

Date Received: 10/31/2019

Field Sample #: MW-30 | Sampled: 10/30/2019 16:30

Sample ID: 19K0023-01

Sample Matrix: Ground Water

Sample Flags: RL-11

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	6.4	10	3.4	µg/L	20	J	SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,4-Dioxane	ND	1000	450	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Ethylbenzene	190	20	2.6	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Hexachlorobutadiene	ND	12	9.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
2-Hexanone (MBK)	ND	200	30	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Isopropylbenzene (Cumene)	10	20	3.4	µg/L	20	J	SW-846 8260D	11/5/19	11/6/19 12:05	EEH
p-Isopropyltoluene (p-Cymene)	ND	20	4.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Methyl tert-Butyl Ether (MTBE)	15	20	5.0	µg/L	20	J	SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Methylene Chloride	ND	100	6.8	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
4-Methyl-2-pentanone (MIBK)	ND	200	33	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Naphthalene	43	40	6.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
n-Propylbenzene	22	20	2.6	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Styrene	ND	20	2.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,1,1,2-Tetrachloroethane	ND	20	5.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,1,2,2-Tetrachloroethane	ND	10	4.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Tetrachloroethylene	ND	20	3.6	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Tetrahydrofuran	ND	200	10	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Toluene	110	20	2.8	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,2,3-Trichlorobenzene	ND	100	11	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,2,4-Trichlorobenzene	ND	20	8.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,3,5-Trichlorobenzene	ND	20	6.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,1,1-Trichloroethane	ND	20	4.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,1,2-Trichloroethane	ND	20	3.2	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Trichloroethylene	ND	20	4.8	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Trichlorofluoromethane (Freon 11)	ND	40	6.6	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,2,3-Trichloropropane	ND	40	5.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	20	6.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,2,4-Trimethylbenzene	65	20	3.6	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
1,3,5-Trimethylbenzene	13	20	2.8	µg/L	20	J	SW-846 8260D	11/5/19	11/6/19 12:05	EEH
Vinyl Chloride	ND	40	9.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
m+p Xylene	84	40	6.0	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH
o-Xylene	41	20	3.4	µg/L	20		SW-846 8260D	11/5/19	11/6/19 12:05	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	94.5	70-130		11/6/19 12:05
Toluene-d8	102	70-130		11/6/19 12:05
4-Bromofluorobenzene	96.5	70-130		11/6/19 12:05

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

Project Location: Dunn, NC | Sample Description: | Work Order: 19K0023

Date Received: 10/31/2019

Field Sample #: MW-30 | Sampled: 10/30/2019 16:30

Sample ID: 19K0023-01

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)	ND	0.30	0.033	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Acenaphthylene (SIM)	ND	0.20	0.035	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Anthracene (SIM)	ND	0.20	0.032	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Benzo(a)anthracene (SIM)	ND	0.050	0.016	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Benzo(a)pyrene (SIM)	ND	0.10	0.012	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Benzo(b)fluoranthene (SIM)	ND	0.050	0.015	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Benzo(g,h,i)perylene (SIM)	ND	0.50	0.018	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Benzo(k)fluoranthene (SIM)	ND	0.20	0.012	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Chrysene (SIM)	ND	0.20	0.015	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Dibenz(a,h)anthracene (SIM)	ND	0.10	0.017	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Fluoranthene (SIM)	ND	0.50	0.025	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Fluorene (SIM)	ND	1.0	0.034	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	0.018	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
2-Methylnaphthalene (SIM)	15	10	0.62	µg/L	10		SW-846 8270E	11/5/19	11/7/19 8:30	CLA
Naphthalene (SIM)	50	10	2.6	µg/L	10		SW-846 8270E	11/5/19	11/7/19 8:30	CLA
Phenanthrene (SIM)	ND	0.050	0.030	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA
Pyrene (SIM)	ND	1.0	0.023	µg/L	1		SW-846 8270E	11/5/19	11/6/19 19:15	CLA

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Nitrobenzene-d5	68.3	30-130		11/6/19 19:15
Nitrobenzene-d5	77.3	30-130		11/7/19 8:30
2-Fluorobiphenyl	48.3	30-130		11/6/19 19:15
2-Fluorobiphenyl	59.7	30-130		11/7/19 8:30
p-Terphenyl-d14	50.3	30-130		11/6/19 19:15
p-Terphenyl-d14	56.5	30-130		11/7/19 8:30

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
19K0023-01 [MW-30]	B245122	0.25	5.00	11/05/19

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K0023-01 [MW-30]	B245268	1000	1.00	11/05/19
19K0023-01RE1 [MW-30]	B245268	1000	1.00	11/05/19

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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 B245122 - SW-846 5030B										
Blank (B245122-BLK1)				Prepared: 11/05/19 Analyzed: 11/06/19						
Acetone	ND	50	µg/L							
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	5.0	µg/L							
Carbon Tetrachloride	ND	1.0	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							
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 B245122 - SW-846 5030B											
Blank (B245122-BLK1)				Prepared: 11/05/19 Analyzed: 11/06/19							
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 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	*23.6*		µg/L	25.0		94.4	70-130				
Surrogate: Toluene-d8	*24.4*		µg/L	25.0		97.4	70-130				
Surrogate: 4-Bromofluorobenzene	*24.4*		µg/L	25.0		97.4	70-130				
LCS (B245122-BS1)				Prepared: 11/05/19 Analyzed: 11/06/19							
Acetone	88.7	50	µg/L	100		88.7	70-160				†
Acrylonitrile	8.30	5.0	µg/L	10.0		83.0	70-130				
tert-Amyl Methyl Ether (TAME)	9.48	0.50	µg/L	10.0		94.8	70-130				
Benzene	10.7	1.0	µg/L	10.0		107	70-130				
Bromobenzene	10.4	1.0	µg/L	10.0		104	70-130				
Bromochloromethane	10.4	1.0	µg/L	10.0		104	70-130				
Bromodichloromethane	10.5	0.50	µg/L	10.0		105	70-130				
Bromoform	9.77	1.0	µg/L	10.0		97.7	70-130				
Bromomethane	9.88	2.0	µg/L	10.0		98.8	40-160			V-20	†
2-Butanone (MEK)	87.5	20	µg/L	100		87.5	40-160				†
tert-Butyl Alcohol (TBA)	80.3	20	µg/L	100		80.3	40-160				†
n-Butylbenzene	9.81	1.0	µg/L	10.0		98.1	70-130				
sec-Butylbenzene	11.1	1.0	µg/L	10.0		111	70-130				
tert-Butylbenzene	10.9	1.0	µg/L	10.0		109	70-130				
tert-Butyl Ethyl Ether (TBEE)	9.24	0.50	µg/L	10.0		92.4	70-130				
Carbon Disulfide	11.8	5.0	µg/L	10.0		118	70-130				
Carbon Tetrachloride	10.3	1.0	µg/L	10.0		103	70-130				
Chlorobenzene	11.4	1.0	µg/L	10.0		114	70-130				
Chlorodibromomethane	10.0	0.50	µg/L	10.0		100	70-130				
Chloroethane	11.6	2.0	µg/L	10.0		116	70-130				
Chloroform	10.4	2.0	µg/L	10.0		104	70-130				
Chloromethane	9.02	2.0	µg/L	10.0		90.2	40-160			V-20	†
2-Chlorotoluene	10.6	1.0	µg/L	10.0		106	70-130				

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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 B245122 - SW-846 5030B										
LCS (B245122-BS1)				Prepared: 11/05/19 Analyzed: 11/06/19						
4-Chlorotoluene	10.5	1.0	µg/L	10.0		105	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	9.08	5.0	µg/L	10.0		90.8	70-130			
1,2-Dibromoethane (EDB)	10.8	0.50	µg/L	10.0		108	70-130			
Dibromomethane	10.4	1.0	µg/L	10.0		104	70-130			
1,2-Dichlorobenzene	11.0	1.0	µg/L	10.0		110	70-130			
1,3-Dichlorobenzene	11.5	1.0	µg/L	10.0		115	70-130			
1,4-Dichlorobenzene	11.2	1.0	µg/L	10.0		112	70-130			
trans-1,4-Dichloro-2-butene	7.67	2.0	µg/L	10.0		76.7	70-130			
Dichlorodifluoromethane (Freon 12)	8.34	2.0	µg/L	10.0		83.4	40-160			†
1,1-Dichloroethane	10.7	1.0	µg/L	10.0		107	70-130			
1,2-Dichloroethane	9.98	1.0	µg/L	10.0		99.8	70-130			
1,1-Dichloroethylene	11.0	1.0	µg/L	10.0		110	70-130			
cis-1,2-Dichloroethylene	10.6	1.0	µg/L	10.0		106	70-130			
trans-1,2-Dichloroethylene	10.5	1.0	µg/L	10.0		105	70-130			
1,2-Dichloropropane	10.8	1.0	µg/L	10.0		108	70-130			
1,3-Dichloropropane	10.3	0.50	µg/L	10.0		103	70-130			
2,2-Dichloropropane	8.49	1.0	µg/L	10.0		84.9	40-130			†
1,1-Dichloropropene	10.5	2.0	µg/L	10.0		105	70-130			
cis-1,3-Dichloropropene	10.0	0.50	µg/L	10.0		100	70-130			
trans-1,3-Dichloropropene	9.41	0.50	µg/L	10.0		94.1	70-130			
Diethyl Ether	10.8	2.0	µg/L	10.0		108	70-130			
Diisopropyl Ether (DIPE)	10.1	0.50	µg/L	10.0		101	70-130			
1,4-Dioxane	86.6	50	µg/L	100		86.6	40-130			†
Ethylbenzene	11.0	1.0	µg/L	10.0		110	70-130			
Hexachlorobutadiene	9.83	0.60	µg/L	10.0		98.3	70-130			
2-Hexanone (MBK)	84.3	10	µg/L	100		84.3	70-160			†
Isopropylbenzene (Cumene)	11.1	1.0	µg/L	10.0		111	70-130			
p-Isopropyltoluene (p-Cymene)	10.7	1.0	µg/L	10.0		107	70-130			
Methyl tert-Butyl Ether (MTBE)	10.3	1.0	µg/L	10.0		103	70-130			
Methylene Chloride	11.0	5.0	µg/L	10.0		110	70-130			
4-Methyl-2-pentanone (MIBK)	86.6	10	µg/L	100		86.6	70-160			†
Naphthalene	7.64	2.0	µg/L	10.0		76.4	40-130			†
n-Propylbenzene	10.6	1.0	µg/L	10.0		106	70-130			
Styrene	10.9	1.0	µg/L	10.0		109	70-130			
1,1,1,2-Tetrachloroethane	11.3	1.0	µg/L	10.0		113	70-130			
1,1,2,2-Tetrachloroethane	10.8	0.50	µg/L	10.0		108	70-130			
Tetrachloroethylene	11.5	1.0	µg/L	10.0		115	70-130			
Tetrahydrofuran	9.60	10	µg/L	10.0		96.0	70-130			J
Toluene	10.9	1.0	µg/L	10.0		109	70-130			
1,2,3-Trichlorobenzene	8.06	5.0	µg/L	10.0		80.6	70-130			
1,2,4-Trichlorobenzene	8.70	1.0	µg/L	10.0		87.0	70-130			
1,3,5-Trichlorobenzene	9.18	1.0	µg/L	10.0		91.8	70-130			
1,1,1-Trichloroethane	10.4	1.0	µg/L	10.0		104	70-130			
1,1,2-Trichloroethane	11.0	1.0	µg/L	10.0		110	70-130			
Trichloroethylene	11.1	1.0	µg/L	10.0		111	70-130			
Trichlorofluoromethane (Freon 11)	9.61	2.0	µg/L	10.0		96.1	70-130			
1,2,3-Trichloropropane	10.3	2.0	µg/L	10.0		103	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	11.5	1.0	µg/L	10.0		115	70-130			
1,2,4-Trimethylbenzene	10.8	1.0	µg/L	10.0		108	70-130			
1,3,5-Trimethylbenzene	10.4	1.0	µg/L	10.0		104	70-130			
Vinyl Chloride	9.58	2.0	µg/L	10.0		95.8	40-160			†

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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 B245122 - SW-846 5030B											
LCS (B245122-BS1)				Prepared: 11/05/19 Analyzed: 11/06/19							
m+p Xylene	21.3	2.0	µg/L	20.0		106	70-130				
o-Xylene	11.1	1.0	µg/L	10.0		111	70-130				
Surrogate: 1,2-Dichloroethane-d4	*23.4*		µg/L	25.0		93.6	70-130				
Surrogate: Toluene-d8	*25.0*		µg/L	25.0		99.9	70-130				
Surrogate: 4-Bromofluorobenzene	*24.6*		µg/L	25.0		98.4	70-130				
LCS Dup (B245122-BSD1)				Prepared: 11/05/19 Analyzed: 11/06/19							
Acetone	91.2	50	µg/L	100		91.2	70-160	2.72	25		†
Acrylonitrile	9.01	5.0	µg/L	10.0		90.1	70-130	8.20	25		
tert-Amyl Methyl Ether (TAME)	9.41	0.50	µg/L	10.0		94.1	70-130	0.741	25		
Benzene	10.4	1.0	µg/L	10.0		104	70-130	3.23	25		
Bromobenzene	10.0	1.0	µg/L	10.0		100	70-130	4.00	25		
Bromochloromethane	10.4	1.0	µg/L	10.0		104	70-130	0.865	25		
Bromodichloromethane	10.2	0.50	µg/L	10.0		102	70-130	3.68	25		
Bromoform	10.2	1.0	µg/L	10.0		102	70-130	3.91	25		
Bromomethane	9.76	2.0	µg/L	10.0		97.6	40-160	1.22	25	V-20	†
2-Butanone (MEK)	89.8	20	µg/L	100		89.8	40-160	2.63	25		†
tert-Butyl Alcohol (TBA)	83.6	20	µg/L	100		83.6	40-160	4.00	25		†
n-Butylbenzene	9.65	1.0	µg/L	10.0		96.5	70-130	1.64	25		
sec-Butylbenzene	11.0	1.0	µg/L	10.0		110	70-130	1.18	25		
tert-Butylbenzene	10.8	1.0	µg/L	10.0		108	70-130	1.11	25		
tert-Butyl Ethyl Ether (TBEE)	9.17	0.50	µg/L	10.0		91.7	70-130	0.760	25		
Carbon Disulfide	10.8	5.0	µg/L	10.0		108	70-130	8.59	25		
Carbon Tetrachloride	10.2	1.0	µg/L	10.0		102	70-130	1.46	25		
Chlorobenzene	11.5	1.0	µg/L	10.0		115	70-130	0.610	25		
Chlorodibromomethane	9.73	0.50	µg/L	10.0		97.3	70-130	2.84	25		
Chloroethane	10.8	2.0	µg/L	10.0		108	70-130	7.24	25		
Chloroform	10.1	2.0	µg/L	10.0		101	70-130	2.53	25		
Chloromethane	8.77	2.0	µg/L	10.0		87.7	40-160	2.81	25	V-20	†
2-Chlorotoluene	10.7	1.0	µg/L	10.0		107	70-130	0.845	25		
4-Chlorotoluene	10.4	1.0	µg/L	10.0		104	70-130	1.34	25		
1,2-Dibromo-3-chloropropane (DBCP)	8.90	5.0	µg/L	10.0		89.0	70-130	2.00	25		
1,2-Dibromoethane (EDB)	10.7	0.50	µg/L	10.0		107	70-130	1.58	25		
Dibromomethane	10.2	1.0	µg/L	10.0		102	70-130	2.33	25		
1,2-Dichlorobenzene	11.0	1.0	µg/L	10.0		110	70-130	0.181	25		
1,3-Dichlorobenzene	11.4	1.0	µg/L	10.0		114	70-130	0.872	25		
1,4-Dichlorobenzene	10.9	1.0	µg/L	10.0		109	70-130	3.07	25		
trans-1,4-Dichloro-2-butene	8.71	2.0	µg/L	10.0		87.1	70-130	12.7	25		
Dichlorodifluoromethane (Freon 12)	8.23	2.0	µg/L	10.0		82.3	40-160	1.33	25		†
1,1-Dichloroethane	10.2	1.0	µg/L	10.0		102	70-130	4.40	25		
1,2-Dichloroethane	9.91	1.0	µg/L	10.0		99.1	70-130	0.704	25		
1,1-Dichloroethylene	10.6	1.0	µg/L	10.0		106	70-130	3.90	25		
cis-1,2-Dichloroethylene	10.1	1.0	µg/L	10.0		101	70-130	5.01	25		
trans-1,2-Dichloroethylene	10.3	1.0	µg/L	10.0		103	70-130	2.50	25		
1,2-Dichloropropane	10.8	1.0	µg/L	10.0		108	70-130	0.649	25		
1,3-Dichloropropane	10.4	0.50	µg/L	10.0		104	70-130	0.870	25		
2,2-Dichloropropane	8.15	1.0	µg/L	10.0		81.5	40-130	4.09	25		†
1,1-Dichloropropene	10.4	2.0	µg/L	10.0		104	70-130	1.06	25		
cis-1,3-Dichloropropene	9.73	0.50	µg/L	10.0		97.3	70-130	3.14	25		
trans-1,3-Dichloropropene	9.66	0.50	µg/L	10.0		96.6	70-130	2.62	25		
Diethyl Ether	10.3	2.0	µg/L	10.0		103	70-130	4.65	25		
Diisopropyl Ether (DIPE)	9.94	0.50	µg/L	10.0		99.4	70-130	1.99	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 B245122 - SW-846 5030B										
LCS Dup (B245122-BSD1)				Prepared: 11/05/19 Analyzed: 11/06/19						
1,4-Dioxane	92.6	50	µg/L	100		92.6	40-130	6.72	50	† ‡
Ethylbenzene	10.7	1.0	µg/L	10.0		107	70-130	2.12	25	
Hexachlorobutadiene	10.1	0.60	µg/L	10.0		101	70-130	2.41	25	
2-Hexanone (MBK)	84.4	10	µg/L	100		84.4	70-160	0.0712	25	†
Isopropylbenzene (Cumene)	10.6	1.0	µg/L	10.0		106	70-130	3.96	25	
p-Isopropyltoluene (p-Cymene)	10.5	1.0	µg/L	10.0		105	70-130	2.36	25	
Methyl tert-Butyl Ether (MTBE)	10.2	1.0	µg/L	10.0		102	70-130	0.585	25	
Methylene Chloride	10.6	5.0	µg/L	10.0		106	70-130	3.60	25	
4-Methyl-2-pentanone (MIBK)	90.1	10	µg/L	100		90.1	70-160	4.02	25	†
Naphthalene	8.02	2.0	µg/L	10.0		80.2	40-130	4.85	25	†
n-Propylbenzene	10.3	1.0	µg/L	10.0		103	70-130	2.11	25	
Styrene	10.4	1.0	µg/L	10.0		104	70-130	4.90	25	
1,1,1,2-Tetrachloroethane	11.3	1.0	µg/L	10.0		113	70-130	0.265	25	
1,1,2,2-Tetrachloroethane	11.1	0.50	µg/L	10.0		111	70-130	3.01	25	
Tetrachloroethylene	11.5	1.0	µg/L	10.0		115	70-130	0.348	25	
Tetrahydrofuran	10.0	10	µg/L	10.0		100	70-130	4.28	25	
Toluene	10.5	1.0	µg/L	10.0		105	70-130	3.82	25	
1,2,3-Trichlorobenzene	7.86	5.0	µg/L	10.0		78.6	70-130	2.51	25	
1,2,4-Trichlorobenzene	8.34	1.0	µg/L	10.0		83.4	70-130	4.23	25	
1,3,5-Trichlorobenzene	8.42	1.0	µg/L	10.0		84.2	70-130	8.64	25	
1,1,1-Trichloroethane	9.84	1.0	µg/L	10.0		98.4	70-130	5.24	25	
1,1,2-Trichloroethane	11.0	1.0	µg/L	10.0		110	70-130	0.364	25	
Trichloroethylene	11.1	1.0	µg/L	10.0		111	70-130	0.180	25	
Trichlorofluoromethane (Freon 11)	9.30	2.0	µg/L	10.0		93.0	70-130	3.28	25	
1,2,3-Trichloropropane	10.0	2.0	µg/L	10.0		100	70-130	2.85	25	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	11.1	1.0	µg/L	10.0		111	70-130	4.07	25	
1,2,4-Trimethylbenzene	10.7	1.0	µg/L	10.0		107	70-130	0.650	25	
1,3,5-Trimethylbenzene	9.97	1.0	µg/L	10.0		99.7	70-130	3.93	25	
Vinyl Chloride	9.25	2.0	µg/L	10.0		92.5	40-160	3.51	25	†
m+p Xylene	21.3	2.0	µg/L	20.0		106	70-130	0.0470	25	
o-Xylene	11.1	1.0	µg/L	10.0		111	70-130	0.541	25	
Surrogate: 1,2-Dichloroethane-d4	*22.9*		µg/L	25.0		91.5	70-130			
Surrogate: Toluene-d8	*25.2*		µg/L	25.0		101	70-130			
Surrogate: 4-Bromofluorobenzene	*24.6*		µg/L	25.0		98.5	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 B245268 - SW-846 3510C										
Blank (B245268-BLK1)				Prepared & Analyzed: 11/06/19						
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	*73.7*		µg/L	100		73.7	30-130			
Surrogate: 2-Fluorobiphenyl	*51.1*		µg/L	100		51.1	30-130			
Surrogate: p-Terphenyl-d14	*65.3*		µg/L	100		65.3	30-130			
LCS (B245268-BS1)				Prepared & Analyzed: 11/06/19						
Acenaphthene (SIM)	35.2	6.0	µg/L	50.0		70.4	40-140			
Acenaphthylene (SIM)	35.7	4.0	µg/L	50.0		71.4	40-140			
Anthracene (SIM)	38.2	4.0	µg/L	50.0		76.3	40-140			
Benzo(a)anthracene (SIM)	37.0	1.0	µg/L	50.0		74.1	40-140			
Benzo(a)pyrene (SIM)	37.4	2.0	µg/L	50.0		74.8	40-140			
Benzo(b)fluoranthene (SIM)	39.6	1.0	µg/L	50.0		79.2	40-140			
Benzo(g,h,i)perylene (SIM)	40.1	10	µg/L	50.0		80.2	40-140			
Benzo(k)fluoranthene (SIM)	39.8	4.0	µg/L	50.0		79.6	40-140			
Chrysene (SIM)	35.8	4.0	µg/L	50.0		71.7	40-140			
Dibenz(a,h)anthracene (SIM)	42.6	2.0	µg/L	50.0		85.2	40-140			
Fluoranthene (SIM)	37.3	10	µg/L	50.0		74.7	40-140			
Fluorene (SIM)	36.3	20	µg/L	50.0		72.6	40-140			
Indeno(1,2,3-cd)pyrene (SIM)	42.8	2.0	µg/L	50.0		85.6	40-140			
2-Methylnaphthalene (SIM)	34.3	20	µg/L	50.0		68.7	40-140			
Naphthalene (SIM)	32.7	20	µg/L	50.0		65.4	40-140			
Phenanthrene (SIM)	35.9	1.0	µg/L	50.0		71.8	40-140			
Pyrene (SIM)	36.4	20	µg/L	50.0		72.7	40-140			
Surrogate: Nitrobenzene-d5	*74.9*		µg/L	100		74.9	30-130			
Surrogate: 2-Fluorobiphenyl	*56.8*		µg/L	100		56.8	30-130			
Surrogate: p-Terphenyl-d14	*59.6*		µg/L	100		59.6	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 B245268 - SW-846 3510C										
LCS Dup (B245268-BSD1)				Prepared & Analyzed: 11/06/19						
Acenaphthene (SIM)	36.1	6.0	µg/L	50.0		72.2	40-140	2.47	20	
Acenaphthylene (SIM)	36.5	4.0	µg/L	50.0		73.0	40-140	2.22	20	
Anthracene (SIM)	39.5	4.0	µg/L	50.0		79.0	40-140	3.40	20	
Benzo(a)anthracene (SIM)	38.1	1.0	µg/L	50.0		76.2	40-140	2.82	20	
Benzo(a)pyrene (SIM)	38.7	2.0	µg/L	50.0		77.4	40-140	3.47	20	
Benzo(b)fluoranthene (SIM)	41.0	1.0	µg/L	50.0		82.0	40-140	3.43	20	
Benzo(g,h,i)perylene (SIM)	41.6	10	µg/L	50.0		83.3	40-140	3.82	20	
Benzo(k)fluoranthene (SIM)	41.8	4.0	µg/L	50.0		83.6	40-140	4.80	20	
Chrysene (SIM)	37.1	4.0	µg/L	50.0		74.1	40-140	3.35	20	
Dibenz(a,h)anthracene (SIM)	44.3	2.0	µg/L	50.0		88.5	40-140	3.78	20	
Fluoranthene (SIM)	38.4	10	µg/L	50.0		76.8	40-140	2.80	20	
Fluorene (SIM)	37.1	20	µg/L	50.0		74.2	40-140	2.23	20	
Indeno(1,2,3-cd)pyrene (SIM)	44.5	2.0	µg/L	50.0		88.9	40-140	3.76	20	‡
2-Methylnaphthalene (SIM)	35.8	20	µg/L	50.0		71.7	40-140	4.27	20	
Naphthalene (SIM)	33.0	20	µg/L	50.0		66.0	40-140	1.04	20	
Phenanthrene (SIM)	37.1	1.0	µg/L	50.0		74.2	40-140	3.18	20	
Pyrene (SIM)	37.4	20	µg/L	50.0		74.7	40-140	2.71	20	
Surrogate: Nitrobenzene-d5	*77.8*		µg/L	100		77.8	30-130			
Surrogate: 2-Fluorobiphenyl	*59.4*		µg/L	100		59.4	30-130			
Surrogate: p-Terphenyl-d14	*60.7*		µg/L	100		60.7	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).
RL-11	Elevated reporting limit due to high concentration of target compounds.
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.

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	
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 - ISO17025:2017	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
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	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

19K0003

con-test ANALYTICAL LABORATORY

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

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

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: 910 977-7614
Project Name: NCDOT I-5878 Parcel 87
Project Location: Dunn, NC
Project Number: 4305-19-161
Project Manager: Jamie T Honeycutt
Con-Test Quote Name/Number:
Invoice Recipient: Jamie T Honeycutt
Sampled By: Jamie T 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	Matrix Code[1]	Conc Code	8260	PAHs by 8270
1	MW-30	10/30/19	1630		/	GW	H	✓	✓

# of Containers
[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

Relinquished by: (signature)	Date/Time:
[signature]	10/31/19 1500
Received by: (signature) [signature] 4.1	Date/Time: 11/1/19 902
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

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

NORTH CAROLINA

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

[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)

IMPORTANT!
The wildfires are causing hazardous conditions in California. Learn More

FedEx

411359783302

Delivered
Friday 11/01/2019 at 9:02 am

DELIVERED

Signed for by: R.PETRIAS

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM	TO
Autryville, NC US	East Longmeadow, MA US

Shipment Facts

TRACKING NUMBER 411359783302	**SERVICE** FedEx Priority Overnight	**WEIGHT** 53.4 lbs / 24.22 kgs
DELIVERED TO Shipping/Receiving	**TOTAL PIECES** 1	**TOTAL SHIPMENT WEIGHT** 53.4 lbs / 24.22 kgs
RETURN REASON	**TERMS** Third Party	**PACKAGING** Your Packaging
SPECIAL HANDLING SECTION Deliver Weekday	**STANDARD TRANSIT** 11/01/2019 by 10:30 am	**SHIP DATE** Thu 10/31/2019

ACTUAL DELIVERY
Fri 11/01/2019 9:02 am

Travel History

Local Scan Time

Friday , 11/01/2019

9:02 am	East Longmeadow, MA	Delivered
7:45 am	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
6:27 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 STME

Received By MP Date 11/1/19 Time 902

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 # 2 Actual Temp - 4.1
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: