Draper Aden Associates
Engineering • Surveying • Environmental Services

114 Edinburgh South Drive
Suite 200
Cary, North Carolina 27511
919.827.0864
www.daa.com

June 18, 2020

Mr. Craig Haden
North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Reference: **Preliminary Site Assessment for the Judith L. Moss Property (Parcel 53)**
1710 W Wilson Street
Tarboro, Edgecombe County, North Carolina
State Project: U-4424
WBS Element 39062.1.2
DAA Project No. 20080204-010103

Dear Mr. Haden:

Draper Aden Associates (DAA) completed a Preliminary Site Assessment at the above-referenced property. DAA performed the work in accordance with the Technical and Cost proposal dated April 22, 2020, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated April 23, 2019. Activities associated with the assessment consisted of conducting a geophysical investigation to identify whether an underground storage tank (UST) exists within or near the proposed right-of-way/easement (ROW/easement) and collecting soil and groundwater samples for laboratory analysis. The purpose of this report is to document the field activities, present the laboratory analyses, and provide recommendations regarding the property.

Location and Description

The Judith L. Moss Property (Parcel #53) is located at 1710 W. Wilson Street in Tarboro, Edgecombe County, North Carolina. The property is situated on the west side of W. Wilson Street approximately 500 feet north of the intersection with Simpson Drive (**Figure 1**). The property was a former automotive fueling station, but as of the date of the fieldwork, it was vacant and unused (**Figure 2**).

The structure on site is a single-story brick building with a concrete apron in front of the building. The concrete apron may have been part of a dispenser island, but no visual evidence at ground surface of a UST was noted.

The NCDOT requested a Preliminary Site Assessment for the proposed ROW/easement because the property is a former automotive fueling station. The scope of work as defined in the Request for Technical and Cost Proposal was to evaluate the proposed ROW/easement with respect to the presence of known and unknown USTs and assess whether contamination existed in the subsurface within the proposed ROW/easement. An estimate of the quantity of impacted soil was to be provided if impacted soils were encountered.

DAA reviewed the on-line North Carolina Department of Environmental Quality (NCDEQ) Incident Management database and no incident has been assigned to the site. DAA also examined the UST registration database to obtain UST ownership information; however, these files were not accessible online during the preparation of this report and a facility identification could not be obtained or verified.

Geophysical Survey

Prior to DAA's mobilization to the site for drilling, we conducted a geophysical survey within and near the proposed ROW/easement (i.e., study area) to identify potential unknown USTs. Areas near the ROW/easement were not within the scope of work, but the equipment traverses necessitated crossing the ROW/easement lines. The geophysical survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic (EM) induction meter to locate buried metallic objects, and ground penetrating radar (GPR) using a Noggin 250 with 250 MHz antennae specifically to locate USTs.

The geophysical team laid out a survey grid along the proposed right-of-way with the X-axis oriented approximately parallel to W Wilson Street and the Y-axis oriented approximately perpendicular to W. Wilson Street. **Figure 1** of the geophysical survey report in **Attachment A** shows the EM survey area.

The EM survey lines were spaced five feet apart and the instruments collected magnetic data continuously along each survey line with a data logger. After collection, DAA reviewed the data in the field with graphical user interface computer software. Following the electromagnetic survey, a GPR survey was conducted to further evaluate any notable metallic anomalies. GPR transects are shown on **Figures 5 through 7** of **Attachment A**.

DAA detected several anomalies in the study area. The survey attributed the all but one of the anomalies to visible cultural features or underground utilities. The geophysical data indicated two anomalies that required further investigation with GPR. A magnetic anomaly (Anomaly 1) was located at the northeast corner of the right-of-way/easement, and one anomaly (Anomaly 2) was located about 60 feet to the southwest of Anomaly 1. GPR signatures suggest USTs. Based on the lack of additional information or visual evidence of a tank, DAA classified the anomaly as a possible UST. **Attachment A** presents DAA's detailed report of findings and interpretations.

Site Assessment Activities

On May 18, 2020, DAA mobilized to the site to conduct a Geoprobe® direct-push investigation to evaluate subsurface soil and groundwater conditions within the proposed ROW/easement to a depth of 10 to 12 feet below ground surface (ft bgs). DAA advanced three direct-push probes (SB-1 through SB-3) at select locations (**Figure 2)**. The soil boring logs are included as **Attachment B**. The borings were located to evaluate the subsurface conditions in the study area (**Attachment C**).

The lithology encountered by the direct-push samples was generally consistent throughout the site. The ground surface was covered by approximately 6 inches of gravel or topsoil. Below this surface cover was a brown to light brown medium- to fine-grained sand, which appeared to be fill to a depth of about 2 to 3 ft bgs. Below this sand was a sandy clay grading into a clay. Neither bedrock nor groundwater was encountered in any of the borings. Each boring was backfilled with a mix of bentonite (swelling clay to seal the boring) and drill cuttings to the surface after completion.

According to the 1985 Geologic Map of North Carolina, the site is within the Coastal Plain Physiographic Province in North Carolina. The strata indicated for this area is the Yorktown Formation, comprising fossiliferous clay and sand.

Continuous sampling using a Geoprobe® resulted in good recovery of soil samples from the direct-push holes. DAA collected, documented, and contained soil samples in four-foot long acetate sleeves inside the direct-push Macro-Core® sampler. The soils observed at the site are consistent with Yorktown Formation strata (see **Attachment B**)

Each of the sleeves was divided into two-foot long sections for soil sample screening. Soil from each two-foot interval was placed in a resealable plastic bag and the bag was set aside to allow time for volatilization of potential organic compounds to the bag headspace. A photoionization detector (PID) probe was inserted into the bag and the reading was recorded (**Table 1**).

Following completion of the soil sampling, the boring with the highest recorded PID field screen results or indications of potential contamination (odors, staining, etc.) was converted to a temporary groundwater monitoring well using the direct push screen point. No groundwater was noted in the boring during drilling; however, the Geoprobe® screen was advanced to 16 feet and a groundwater sample was collected using low-flow techniques.

DAA submitted for laboratory analysis one soil sample from each of the three borings at the depth interval with the highest PID reading measured at the time of collection (**Table 1**). The soil samples were submitted to REDLab in Wilmington, North Carolina, for analysis of total petroleum hydrocarbons (TPH) diesel range organics (DRO) and gasoline range organics (GRO) using ultraviolet fluorescence (UVF) methodology.

The groundwater sample was analyzed for volatile organic compounds (VOCs) using EPA Method 8260 and for semivolatile organic compounds (SVOCs) using EPA Method 8270. Contest Laboratories in East Longmeadow, Massachusetts conducted the VOC and SVOC analyses.

Analytical Results

Table 1 summarizes the soil laboratory results for the three soil samples for TPH DRO/GRO, and **Table 2** summarizes the groundwater laboratory results. **Attachment D** presents the complete laboratory reports**.**

One soil sample, SB-1, contained a detectable DRO concentration of 3.6 milligrams per kilogram (mg/kg). No other sample contained detectable DRO or GRO concentrations. The action levels are 50 mg/kg for GRO and 100 mg/kg for DRO[1]. None of the soil samples analyzed for this site contained DRO or GRO concentrations above their respective action levels.

The groundwater analytical results (**Table 2**) indicate the detection of several petroleum compounds. DAA compared these concentrations to the Groundwater Quality Standards established in 15A NCAC 2L (2L Standards). None of the VOC or SVOC compounds detected were present in concentrations above the applicable 2L Standards.

Contaminated Soil Volume Estimate

The UVF analytical results (**Table 1, Figure 3)** of the soil samples collected on May 18, 2020, indicate that none of the soil samples contained DRO or GRO concentrations above applicable action level. Therefore, no estimate of the volume of soil necessitating possible remediation was required for this report.

Conclusions and Recommendations

DAA conducted a Preliminary Site Assessment to evaluate the NCDOT proposed ROW/easement on the Judith L, Moss Property (Parcel #53) located at 1710 W. Wilson Street in Tarboro, Edgecombe County, North Carolina. A geophysical survey conducted at the site indicated the presence of two possible USTs within or near the proposed ROW/easement; however, no visual signs of a UST were noted at ground surface.

Three soil borings and one temporary well screen point were advanced to evaluate the subsurface soil and groundwater conditions within the proposed ROW/easement. None of the soil samples analyzed contained a GRO or DRO concentration above the action level. Groundwater contained several compounds, but none above the 2L Standards.

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

Because compounds were detected above the action level in the soil and groundwater samples, DAA recommends that a copy of this report be submitted to the Division of Waste Management, UST Section, in the Raleigh Regional Office.

DAA appreciates the opportunity to work with the NCDOT on this project. If you have any questions, please contact us at (919) 827-0864.

Sincerely,

Draper Aden Associates

DocuSigned by:
Mike Branson
942B7ACDE09841E...

6/25/2020

Michael W. Branson, P.G.
Project Manager

William D. Newcomb, P.G.
Senior Hydrogeologist

Attachments

NORTH CAROLINA LICENSED SEAL 467 GEOLOGIST MICHAEL W. BRANSON

TABLES

TABLE 1
SOIL FIELD SCREENING AND ANALYTICAL RESULTS
JUDITH L MOSS PROPERTY (PARCEL 46)
TARBORO, EDGECOMBE COUNTY, NORTH CAROLINA
STATE PROJECT: U-4424
WBS ELEMENT 39062.1.2
DAA PROJECT NO. 20080204-010103

SAMPLE ID	DEPTH (ft)	PID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	
				UVF GRO	UVF DRO
	Action Level (mg/kg)			50	100
SB-1	0 - 2	2.5	SB-1	<0.74	3.6
	2 - 4	2.2			
	4 - 6	1.3			
	6 - 8	1			
	8 - 10	1.4			
SB-2	0 - 2	4			
	2 - 4	4.2			
	4 - 6	3.9			
	6 - 8	4.9	SB-2	<0.76	<0.76
	8 - 10	2.1			
	10 - 12	1.8			
SB-3	0 - 2	3.9			
	2 - 4	4.1			
	4 - 6	4.8	SB-3	<0.68	<0.68
	6 - 8	4.2			
	8 - 10	4.2			

1) ft - feet
2) ppm - parts per million
3) PID - photoionization detector
4) mg/kg - milligrams per kilogram
5) UVF DRO - Diesel range organics by ultraviolet fluorescence (UVF)
6) UVF GRO - Gasoline range organics by UVF
7) Action level for TPH based upon NCDEQ memo *Guidelines for North Carolina Action Limits for Total Petroleum Hydrocarbons* - July 29, 2016. VOC action levels based on Maximum Soil Contaminant Concentrations.
8) Soil samples were collected on May 18, 2020.

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
JUDITH L MOSS PROPERTY (PARCEL 46)
TARBORO, EDGECOMBE COUNTY, NORTH CAROLINA
STATE PROJECT: U-4424
WBS ELEMENT 39062.1.2
DAA PROJECT NO. 20080204-010103

SAMPLE ID	**SB-2**	
Analyte	15A NCAC 2L Standard (µg/L)	Concentration (µg/L)
Volatile Organic Compounds		
Ethylbenzene	600	1.2
n-Propylbenzene	70	1.0
Toluene	600	1.6
1,2,4-Trimethylbenzene	400	1.2
Xylenes (Total)	500	5.5
Semivolatile Organic Compounds		
2-Methylnaphthalene	30	0.12 J
Naphthalene	6	0.36 J

1) µg/L - micrograms per liter
2) Groundwater sample was collected on May 18, 2020.
3) J - Estimated value between the method detection limit and the reporting lim
4) IMAC - Interim Maximum Allowable Concentration

FIGURES

PROJECT NUMBER 20080204-010103

CHECKED BY WDN

PROJECT MANAGER MWB

DATE JUNE 2020

EDGECOMBE COUNTY PSA

FILE

SCALE 1:24,000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: TARBORO, NC (2019)

Draper Aden Associates
Engineering • Surveying • Environmental Services

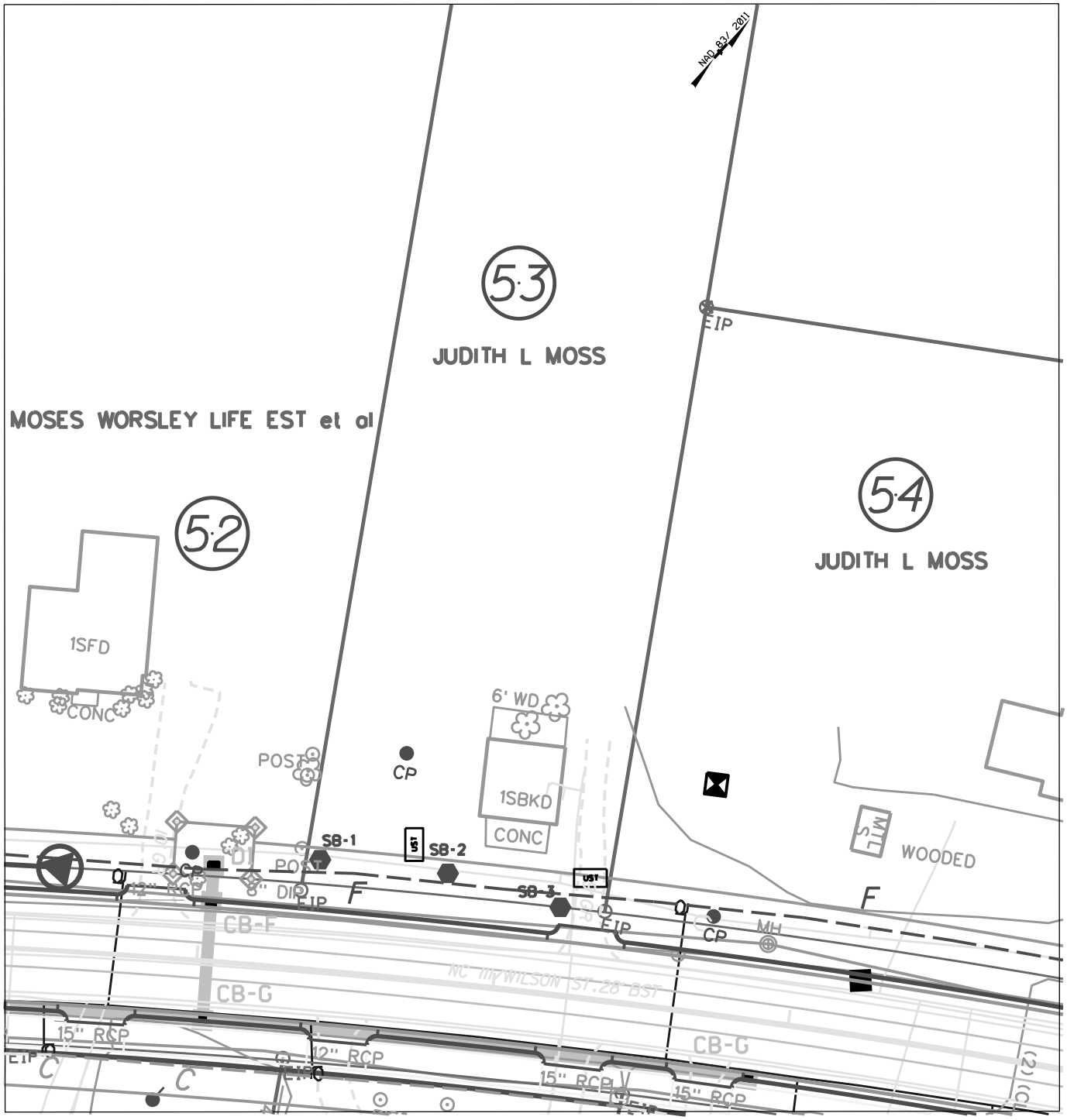
114 EDINBURGH SOUTH DRIVE
CARY, NORTH CAROLINA 27511
TEL: (919) 873-1060 FAX: (919) 873-1074

VICINITY MAP

JUDITH L MOSS PROPERTY
1710 W WILSON STREET
TARBORO, NORTH CAROLINA

FIGURE 1

PROJECT NUMBER	19080269-010103
DRAFTER	MWB
CHECKED BY	WDN
PROJECT MANAGER	MWB
DATE	MAY 2020
FILE	EDGECOMBE COUNTY PSAS



LEGEND

UST — POSSIBLE UST LOCATION

SB-1 — BORING LOCATION AND ID

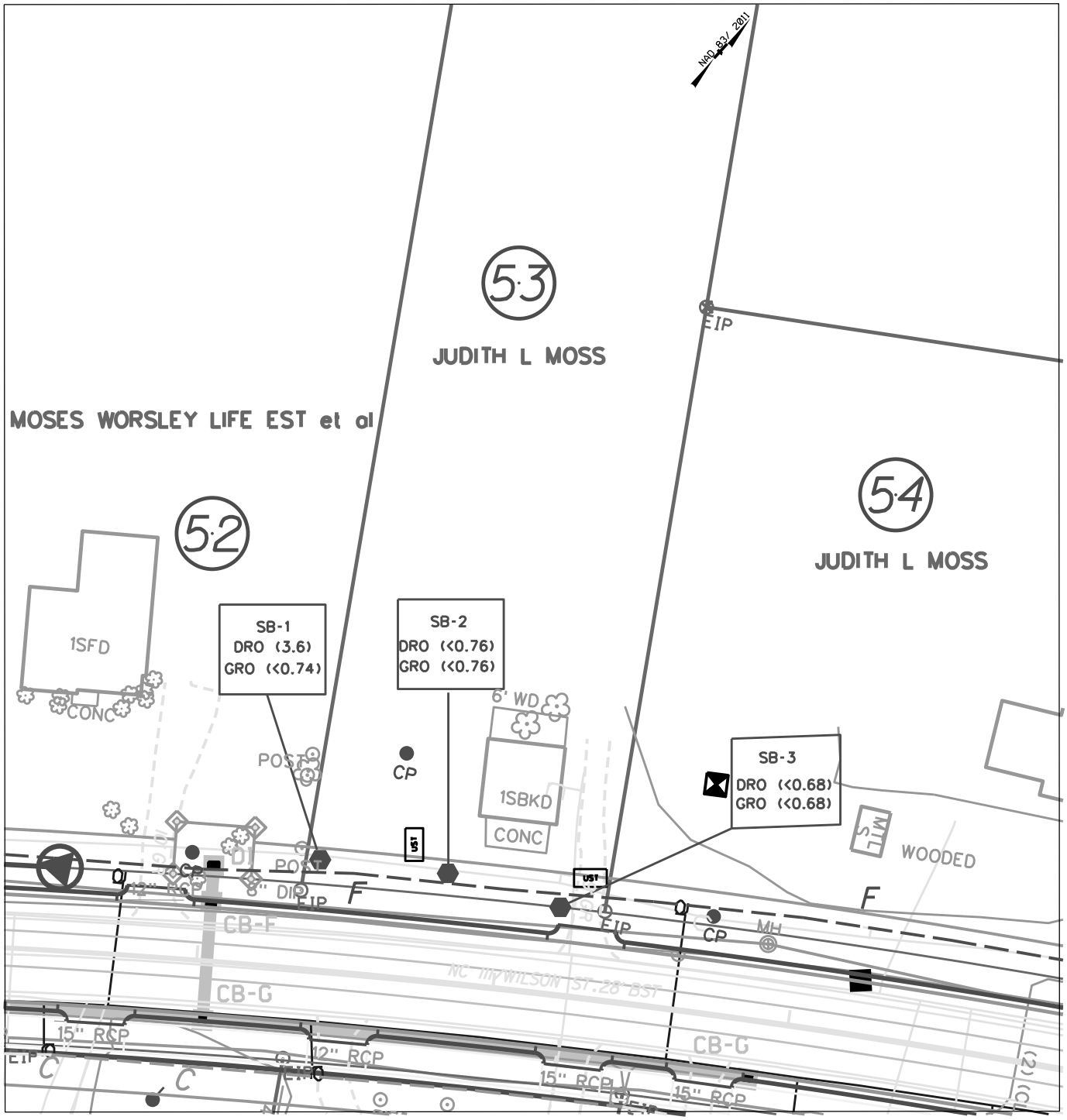
0 25 50
GRAPHIC SCALE (FEET)

Draper Aden Associates
Engineering • Surveying • Environmental Services
114 EDINBURGH SOUTH DRIVE
CARY, NORTH CAROLINA 27511
TEL: (919) 873-1060 FAX: (919) 873-1074

SITE MAP
JUDITH L MOSS PROPERTY
1710 W WILSON STREET
TARBORO, NORTH CAROLINA

FIGURE
2

PROJECT NUMBER	19080269-010103
DRAFTER	MWB
CHECKED BY	WDN
PROJECT MANAGER	MWB
DATE	MAY 2020
FILE	EDGECOMBE COUNTY PSAS



LEGEND

UST — POSSIBLE UST LOCATION

SB-1 — BORING LOCATION AND ID

DRO (123) DIESEL RANGE ORGANICS (MILLIGRAMS PER KILOGRAM)

GRO (123) GASOLINE RANGE ORGANICS (MILLIGRAMS PER KILOGRAM)

0 25 50
GRAPHIC SCALE (FEET)

Draper Aden Associates
Engineering • Surveying • Environmental Services
114 EDINBURGH SOUTH DRIVE
CARY, NORTH CAROLINA 27511
TEL: (919) 873-1060 FAX: (919) 873-1074

SOIL ANALYTICAL RESULTS MAP
JUDITH L MOSS PROPERTY
1710 W WILSON STREET
TARBORO, NORTH CAROLINA

FIGURE
3

ATTACHMENT A

Geophysical Study
For Possible USTs
1710 West Wilson Street
Tarboro, North Carolina

North Carolina Department of Transportation
1589 Mail Service Center
Raleigh, NC 27699-1589 37918

May 28, 2020

DAA Project Number: 20080204-010203

Draper Aden Associates
Engineering • Surveying • Environmental Services

Draper Aden Associates
Engineering • Surveying • Environmental Services

2206 South Main Street
Blacksburg, Virginia 24060
540.552.0444
www.daa.com

May 28, 2020

Mr. John Pilipchuck, P.E
Geotechnical Engineering Unit
N.C. Department of Transportation
1589 Mail Service Center
Raleigh, NC 27699-1589 37918

RE: Geophysical Study for Possible USTs
1710 West Wilson Street, Tarboro, North Carolina
Draper Aden Associates Project No. 20080204-010203

Dear Mr. Pilipchuck:

Draper Aden Associates has completed the geophysical study at 1710 West Wilson Street near Tarboro, North Carolina. The objective of this study was to assist in determining if any underground storage tanks (USTs) may be present beneath the study area. To meet this objective, a combination of ground penetrating radar (GPR) and electromagnetic induction (EM) techniques were utilized. The following report documents our methodologies and findings.

We value our professional relationship with N.C. Department of Transportation and hope that you will contact us with any similar needs in the future. If you have any questions regarding this report, or if we can be of any further service to you please do not hesitate to contact us.

Sincerely,
Draper Aden Associates

Johanna Vaughan, P.G.
Geologist

Francis Douglas Pinckney, P.E.
Team Leader/Senior Project Engineer
Geotechnical and Construction Services

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FIGURES

1.0 EXECUTIVE SUMMARY

Draper Aden Associates (DAA) was retained by N.C. Department of Transportation to conduct a geophysical study at 1710 West Wilson Street in Tarboro, North Carolina. The objective of this study was to assist in determining if any underground storage tanks (USTs) may be present beneath the study area. To meet this objective, a combination of ground penetrating radar (GPR) and EM61 electromagnetic induction techniques were utilized.

The EM61 data were collected on April 29 and May 4, 2020 in grid fashion with sub-parallel traverses spaced approximately four feet apart, tracked by a GPS unit capable of sub-foot accuracy. The contoured results from the EM61 data reveal the locations of two anomalies which may represent possible USTs, identified as Anomaly 1 and Anomaly 2. Anomaly 1 is located approximately 22 feet southwest of the southwest corner of the former store building. Anomaly 2 is located approximately 23 feet east of the southeast corner of the former store building.

GPR data were collected at the site on April 29, 2020 utilizing the same grid as the EM data collection, with sub-parallel traverses spaced approximately two feet apart, a GPS unit capable of sub-foot accuracy. Analysis of the GPR data in cross-section revealed a limited number of hyperbolic reflectors consistent with possible USTs, located approximately 1.5 feet below the ground surface. These features correlate to Anomalies 1 and 2 identified in the EM61 data. Plan-view analysis of the GPR data reveals an anomaly in the depth slices between 2.5 and 3.5 feet depth which correlate well with EM61 Anomaly 1. The depth slices from 4.5 to 5.5 feet depth reveal an anomaly that is coincident with EM61 Anomaly 2.

The combined analysis of the EM61 and GPR data reveals generally good correlation between the two methods, with two coincident anomalies observed in the data from each method (Anomalies 1 and 2). It is uncertain if Anomalies 1 and 2 represent USTs, but of the collected geophysical data, these features are the most likely to represent potential USTs.

2.0 INTRODUCTION

Draper Aden Associates (DAA) was retained by N.C. Department of Transportation to conduct a geophysical study at 1710 West Wilson Street in Tarboro, North Carolina (Figure 1). The objective of this study was to assist in determining if any underground storage tanks (USTs) may be present beneath the study area. To meet this objective, a combination of ground penetrating radar (GPR) and electromagnetic induction (EM) techniques were utilized. The following report documents our methodologies and findings.

The tasks involved in this study included:

1. Collection, processing, and interpretation of EM61 data;
2. Collection, processing, and interpretation of GPR data;
3. Preparation of this document to detail our methods and findings.

3.0 ELECTROMAGNETIC INDUCTION (EM) STUDY

3.1 EM Field Methods

The instrument used for this investigation was the EM61 manufactured by Geonics, LTD. The EM61 data were collected on April 29 and May 4, 2020 in grid fashion with sub-parallel traverses spaced approximately four feet apart (Figure 2). The distribution of the EM61 data was tracked by a global positioning system (GPS) unit capable of sub-foot accuracy. The collected data were subsequently contoured laterally and analyzed for evidence of any possible USTs.

3.2 EM61 Results

The contoured results from the EM61 data are presented in Figure 3, overlain onto Google Earth aerial imagery. The data reveals a pair of anomalies which may represent possible USTs, identified as Anomaly 1 and Anomaly 2. Anomaly 1 is located approximately 22 feet southwest of the southwest corner of the former store building. Anomaly 2 is located approximately 23 feet east of the southeast corner of the former store building. It is uncertain if these two anomalies represent USTs, but of the collected data, these features are the most likely to possibly represent USTs. Since the EM61 instrument is particularly sensitive to buried metallic materials or objects, we consider it likely that these anomalies are metallic in composition.

4.0 GPR STUDY

4.1 GPR Field Methods

The instrument used for this investigation was the Noggin 250 manufactured by Sensors and Software, Inc. in Ontario, Canada, which utilizes a 250 MHz antenna mounted on a moveable cart. GPR data were collected on April 29, 2020 utilizing the same grid as the EM61 data collection, with sub-parallel traverses spaced approximately two feet apart, tracked by a GPS unit capable of sub-foot accuracy (Figure 4).

4.2 GPR Results

The GPR data were analyzed as vertical cross-sections and as depth slices, or plan-view maps of the GPR response from various depth intervals for evidence of possible USTs. Figure 5 depicts three sample GPR cross-sections from the collected data which contain broad hyperbolic reflectors consistent with possible USTs, located approximately 1.5 feet below the ground surface. These features correlate to Anomalies 1 and 2 identified in the EM61 data.

Figures 6 and 7 illustrate GPR depth slices in 6-inch-thick depth intervals spanning from 1.0 to 6.0 feet depth. An anomaly seen in the depth slices from 2.5 to 3.0 feet depth and 3.0 to 3.5 feet depth correlates well with EM Anomaly 1. The depth slices from 4.5 to 5.0 feet depth and 5.5 to 5.5 feet depth reveal an anomaly that is coincident with EM Anomaly 2. Numerous other areas of elevated GPR response observed throughout the depth slices may represent miscellaneous buried objects, materials, or conditions, such as intermittent clay layers or zones of wet soil. However, due to a general lack of elevated EM response in other areas (beyond the vicinities of Anomalies 1 and 2), these other areas of anomalous GPR response are considered likely to not be metallic in composition.

5.0 CONCLUSIONS

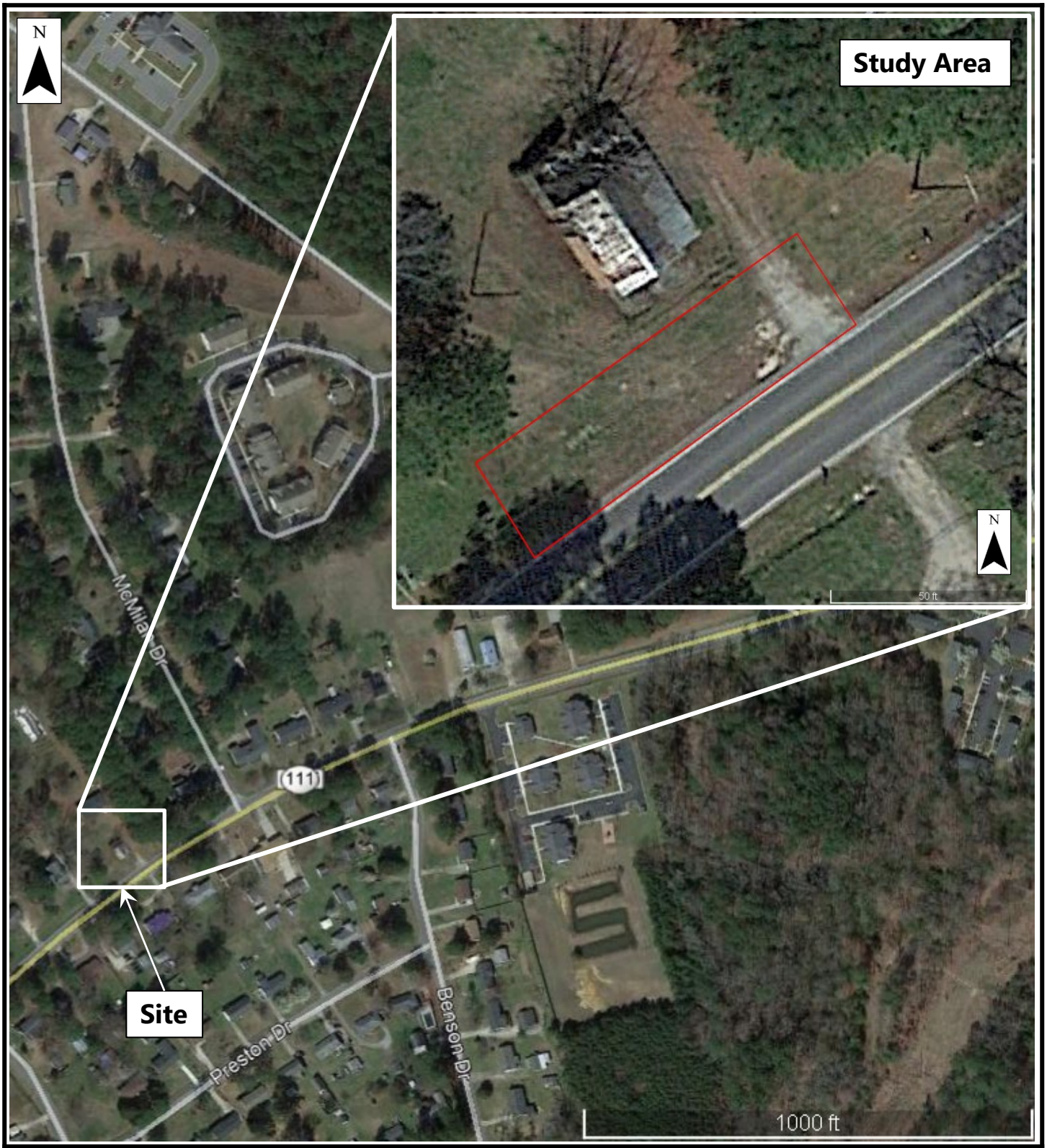
The combined analysis of the EM61 and GPR data reveals generally good correlation between the two methods, with two coincident anomalies observed in the data from each method (Anomalies 1 and 2).

It is uncertain if Anomalies 1 and 2 represent USTs, but of the collected geophysical data, these features are the most likely to represent potential USTs. Since the EM61 instrument is particularly sensitive to buried metallic materials or objects, we consider it likely that Anomalies 1 and 2 are metallic in composition. Furthermore, the locations of Anomalies 1 and 2 were characterized in profile view of the GPR data as broad hyperbolic reflectors, which is consistent with possible USTs. The results of the study are summarized in Figure 8, depicting the locations of Anomalies 1 and 2.

6.0 LIMITATIONS

This study was conducted by registered professional geologists with extensive experience in the collection, processing, and interpretation of geophysical data. It should be noted, however, that all geophysical methods are interpretive, and additional invasive exploration would be required to verify or refute the interpretations within this report.

7.0 FIGURES



Site Location

Geophysical Study for Possible USTs
1710 West Wilson Street, Tarboro, NC

PROJECT: 20080204-010203

Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia
Virginia Beach, VA

DESIGNED: JMV
DRAWN: JMV
CHECKED: CMP
DATE: 05/15/2020

FIGURE
1

EM61 Traverse Map

Geophysical Study for Possible USTs
1710 West Wilson Street, Tarboro, NC

PROJECT: 20080204-010203

Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
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DESIGNED: JMV
DRAWN: JMV
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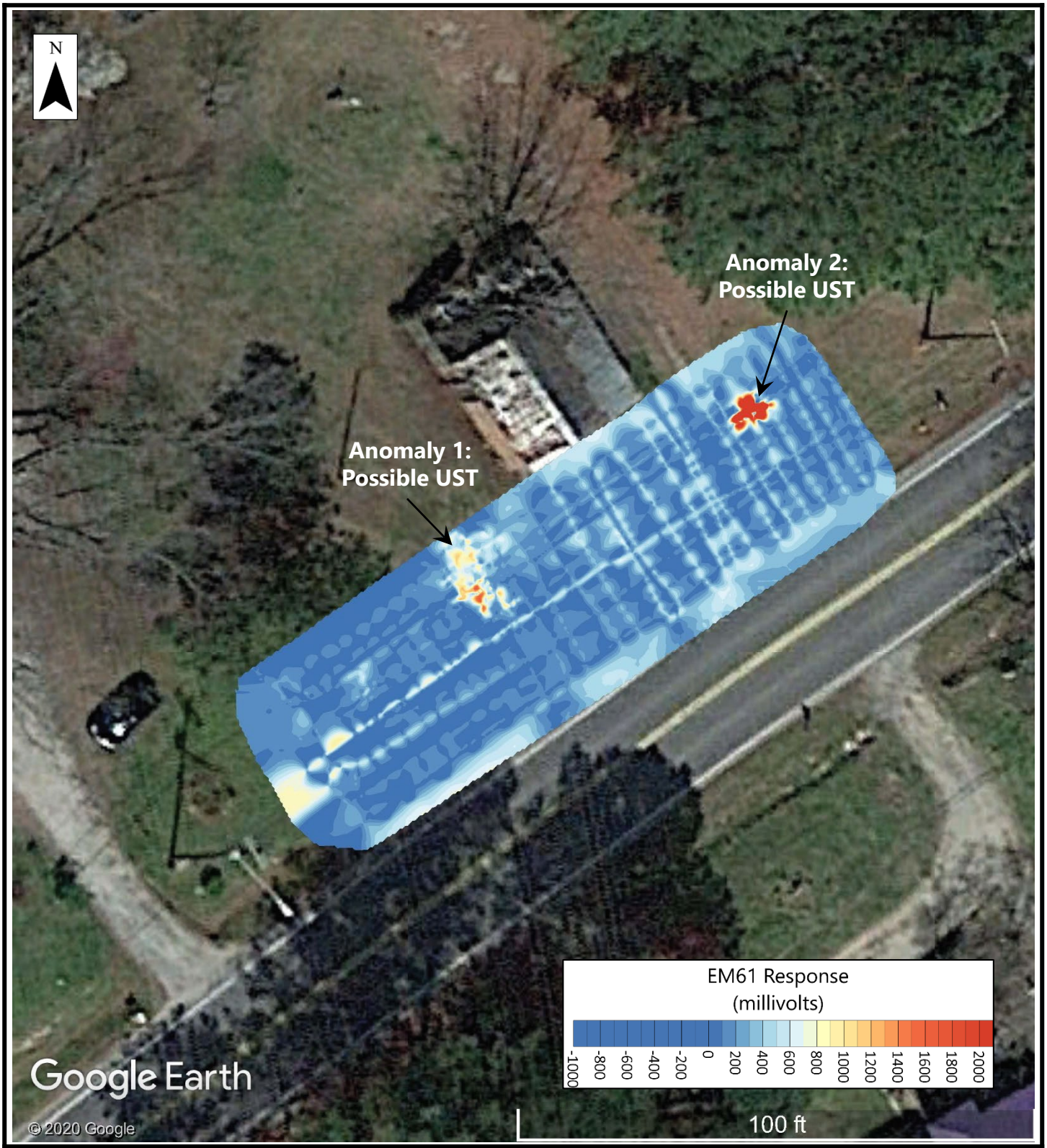
FIGURE
2



Contoured EM61 Results

Geophysical Study for Possible USTs
1710 West Wilson Street, Tarboro, NC

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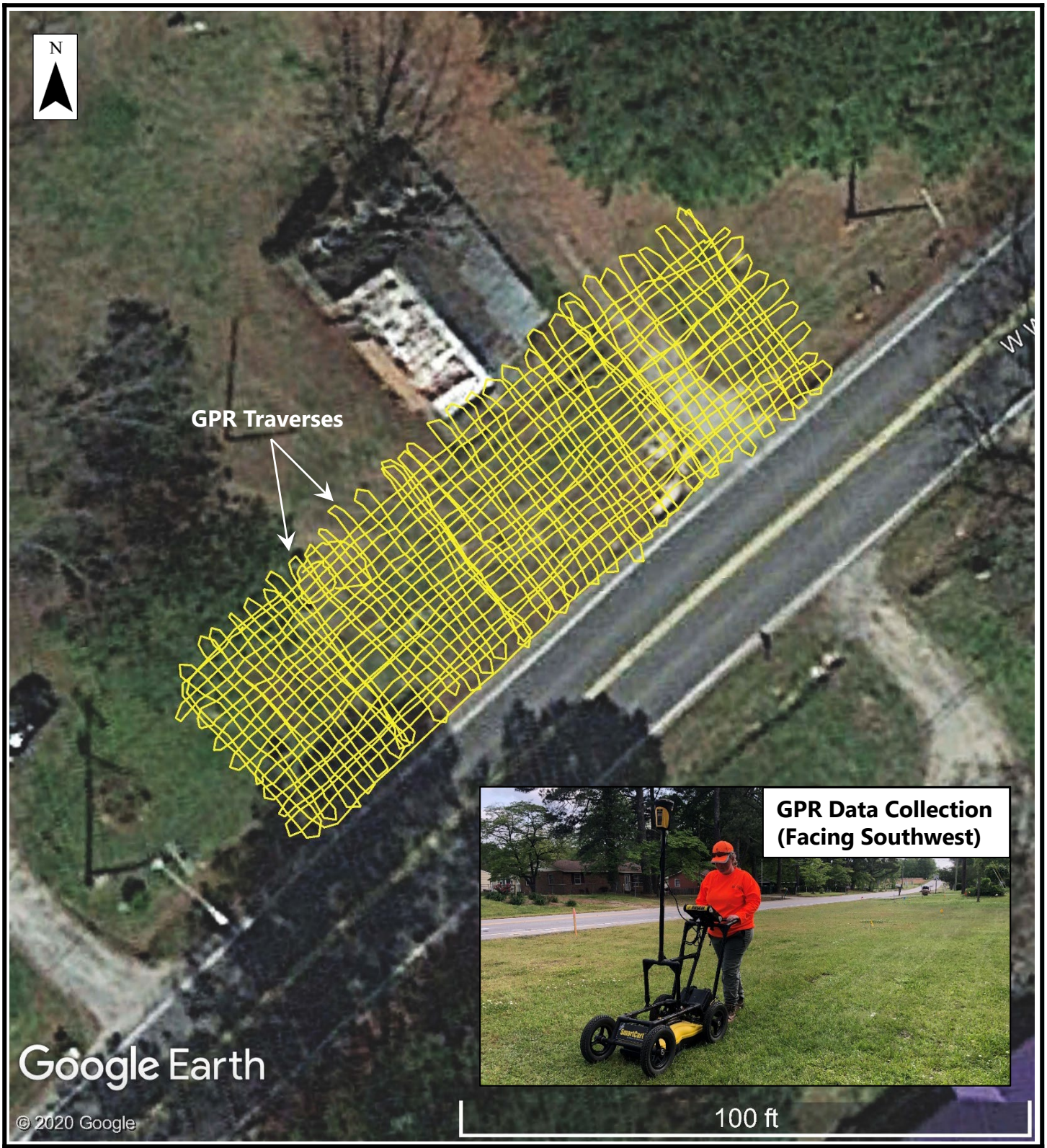
Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia
Virginia Beach, VA

DESIGNED: JMV
DRAWN: JMV
CHECKED: CMP
DATE: 05/15/2020

FIGURE
3



GPR Traverse Map

Geophysical Study for Possible USTs
1710 West Wilson Street, Tarboro, NC

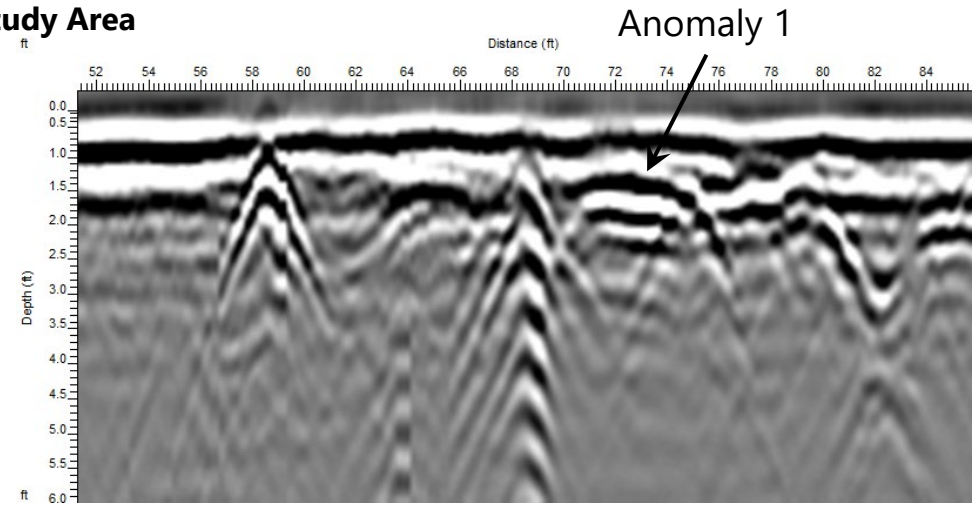
PROJECT: 20080204-010203

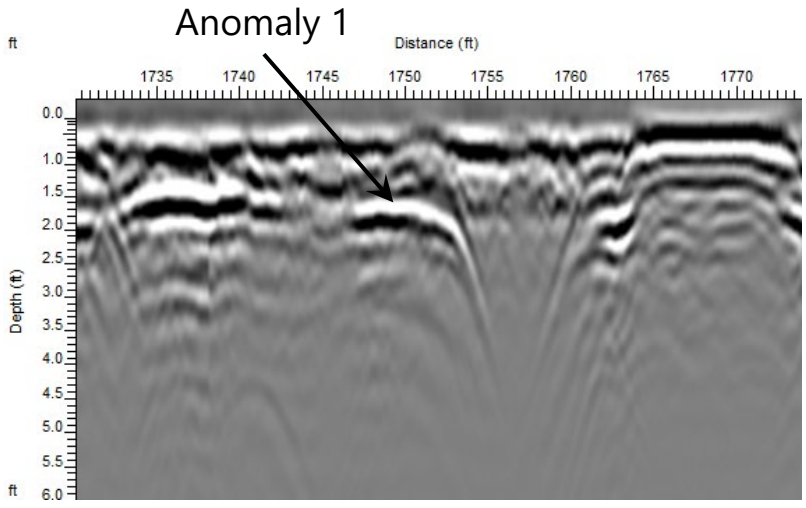
Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia
Virginia Beach, VA

DESIGNED: JMV
DRAWN: JMV
CHECKED: CMP
DATE: 05/15/2020

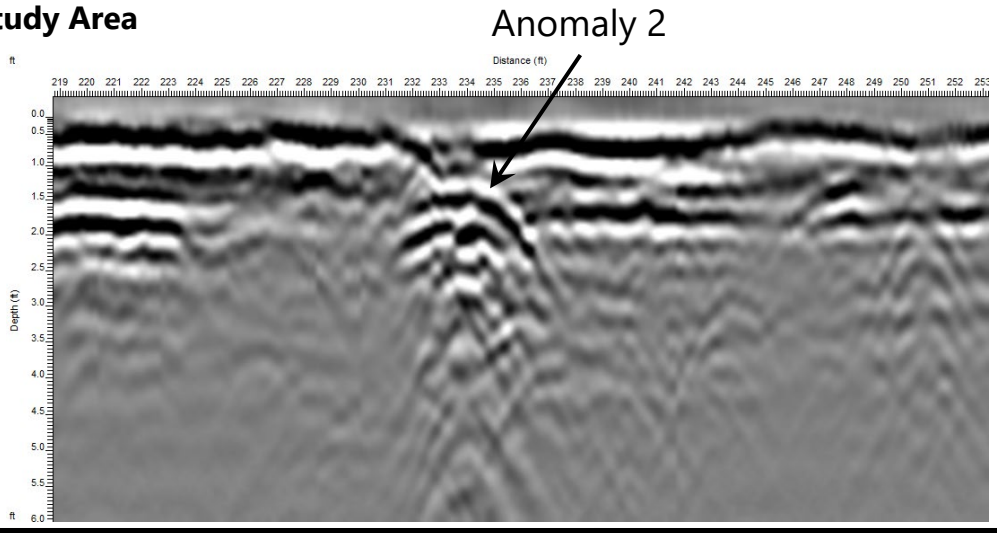
FIGURE
4

Southwest Portion of the Study Area





Northeast Portion of the Study Area



Sample GPR Cross-sections From the Collected Data

Geophysical Study for Possible USTs
1710 West Wilson Street, Tarboro, NC

PROJECT: 20080204-010203

Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
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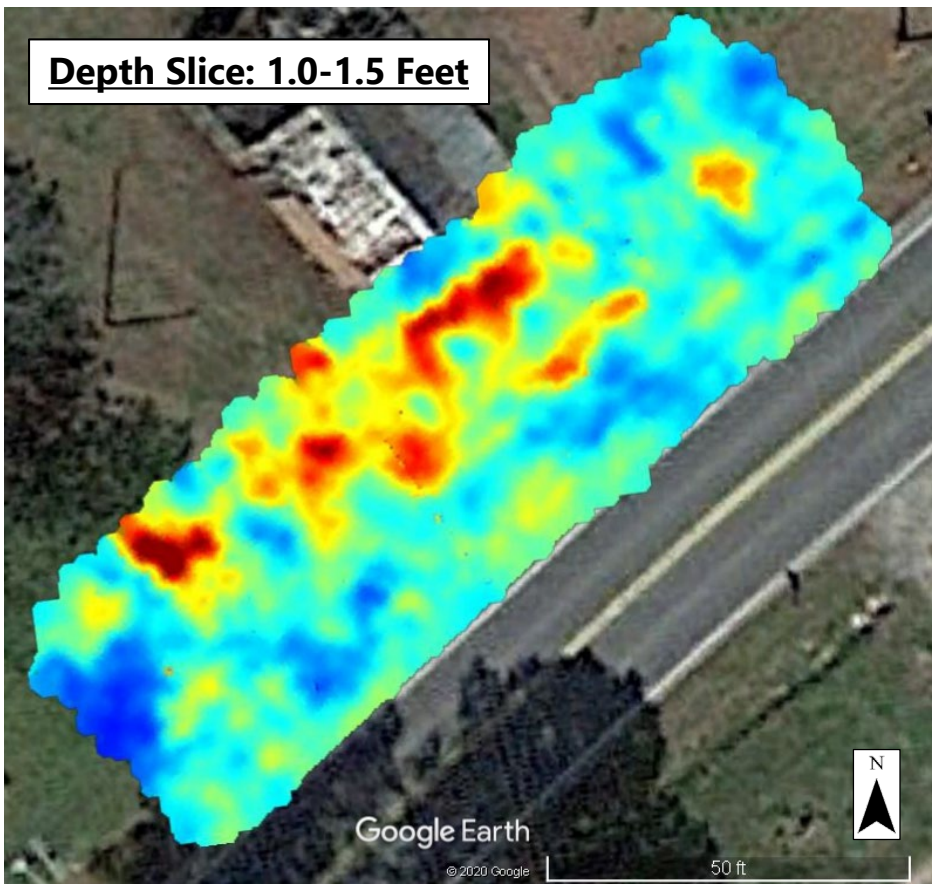
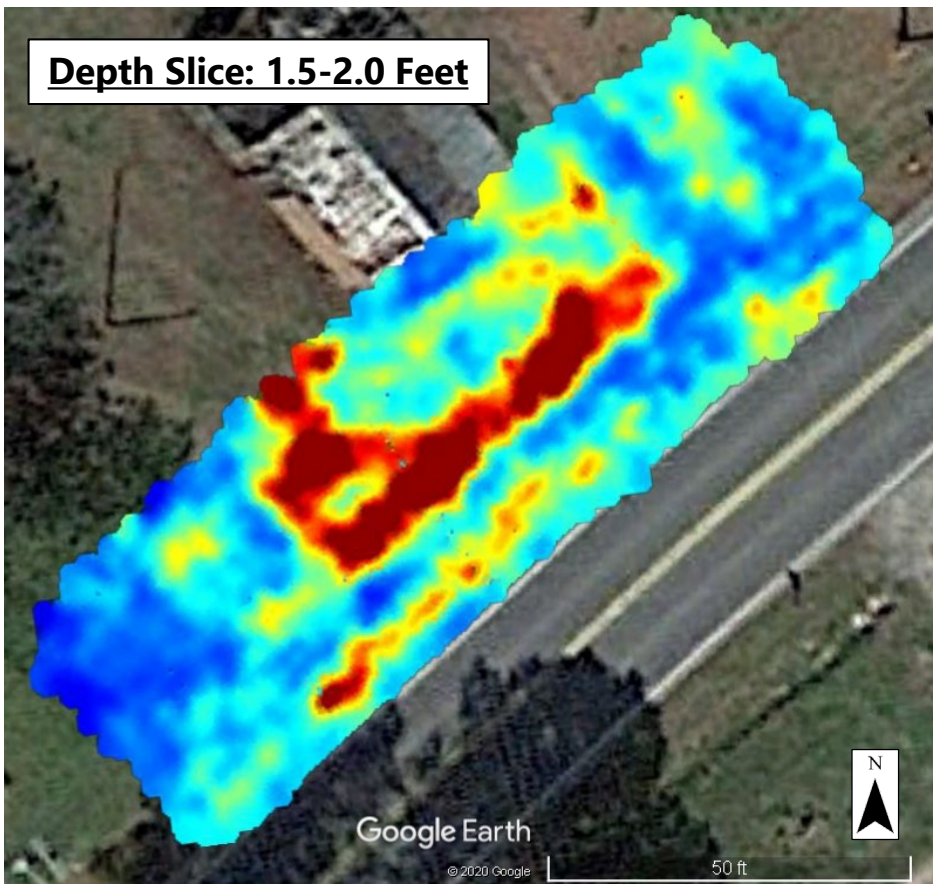
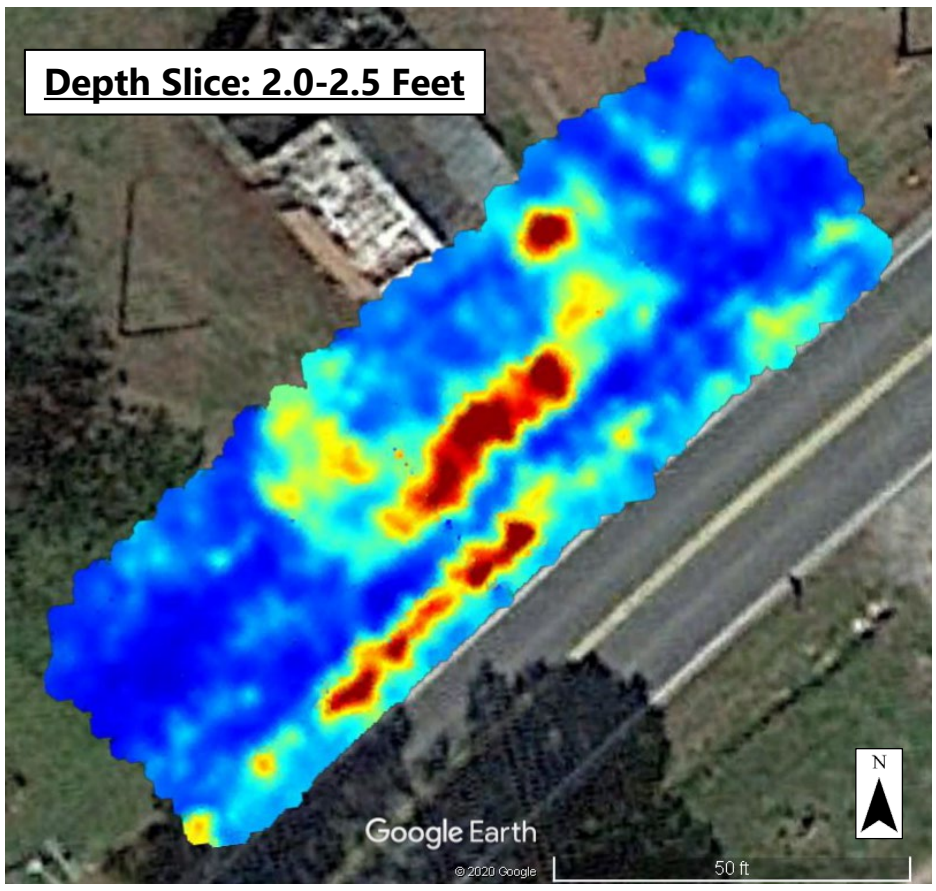
Raleigh, NC
Fayetteville, NC
Northern Virginia
Virginia Beach, VA

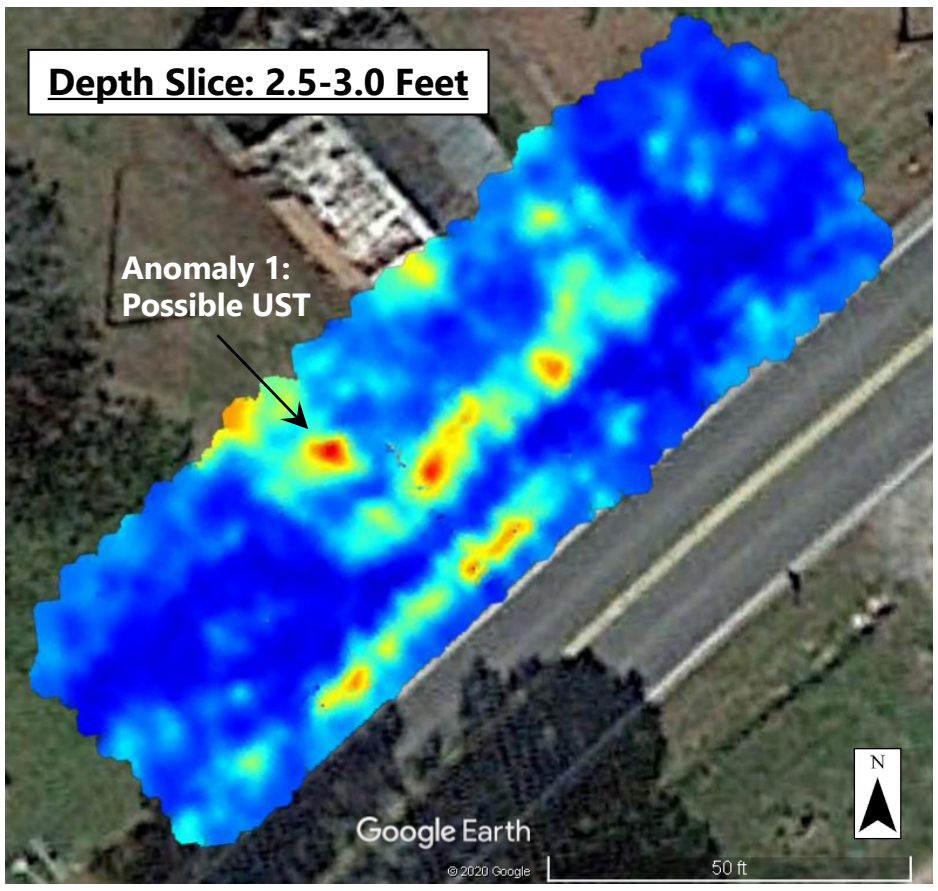
DESIGNED: JMV
DRAWN: JMV
CHECKED: CMP
DATE: 05/15/2020

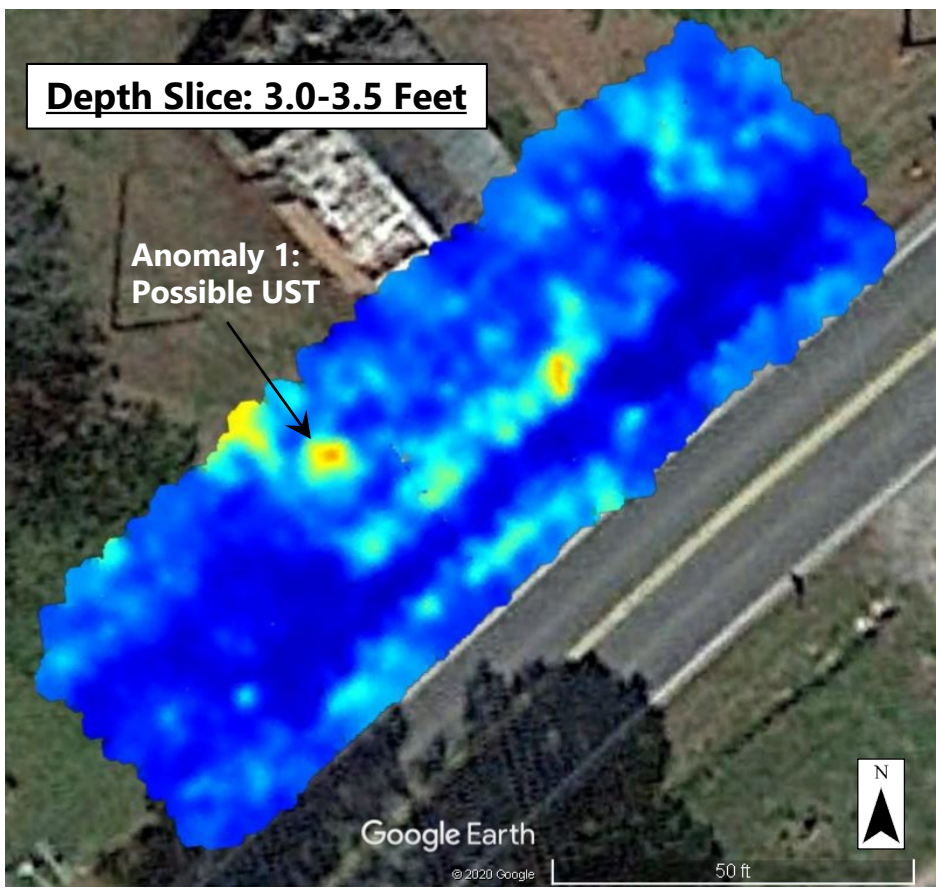
FIGURE
5

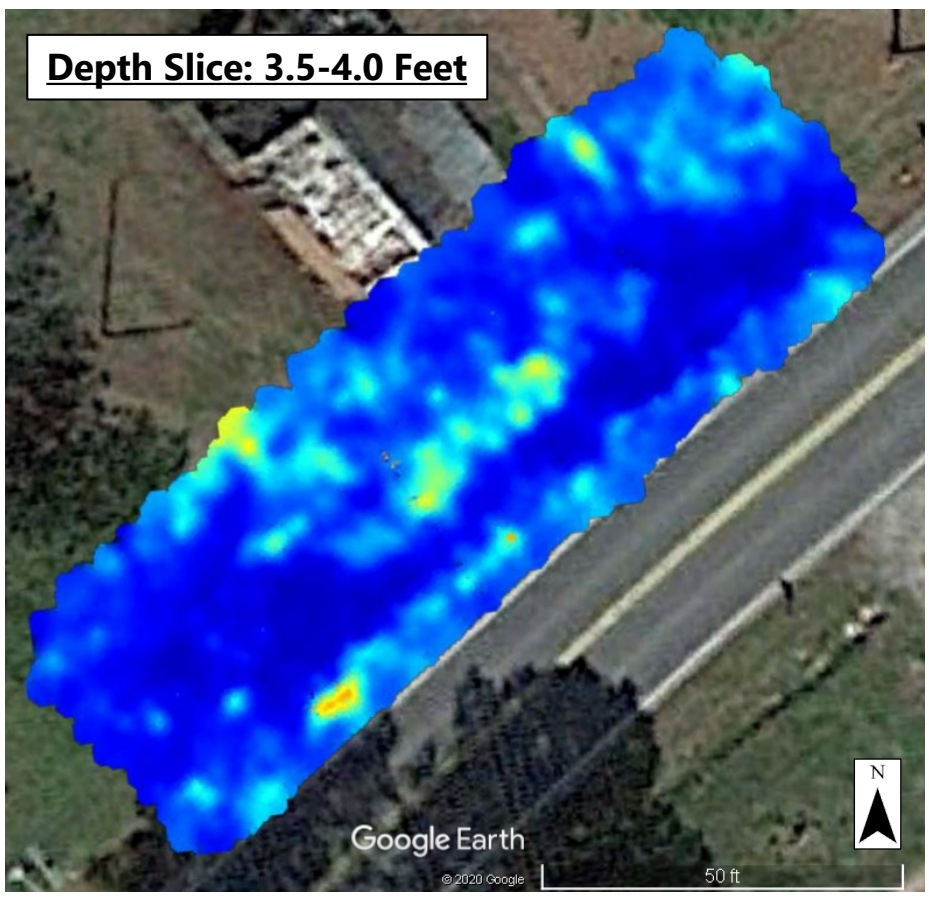












GPR Depth Slices from 1.0 Foot to 4.0 Feet Depth

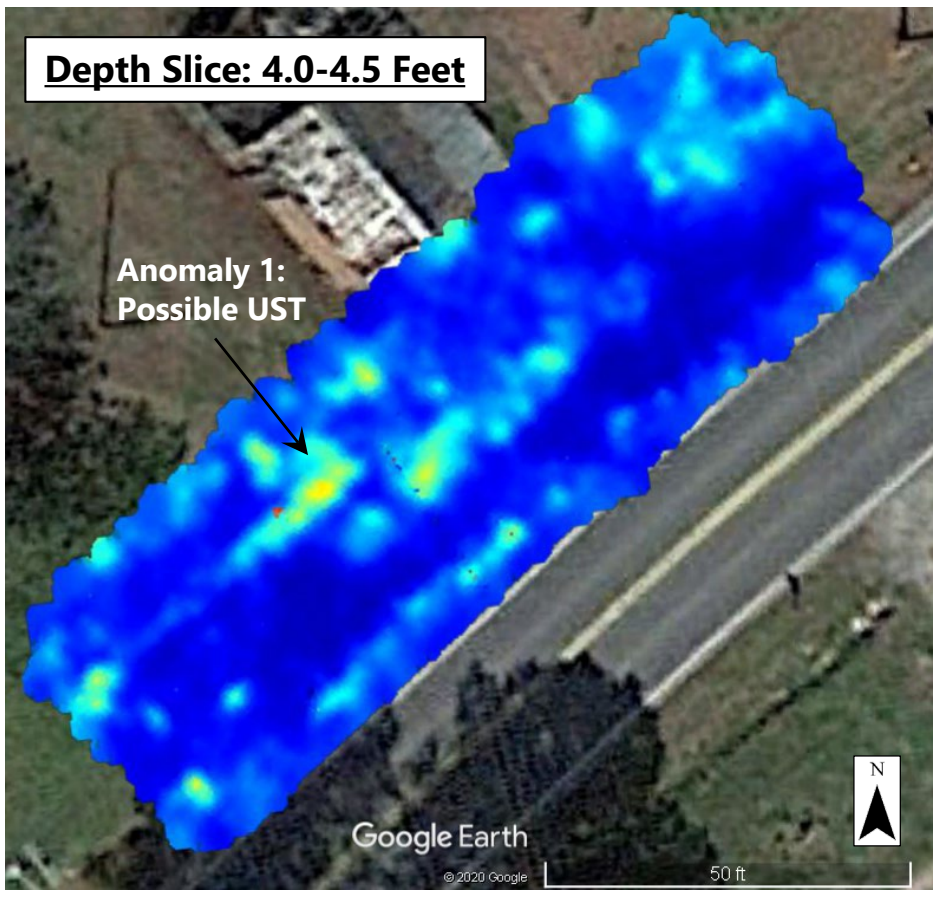
Geophysical Study for Possible USTs
1710 West Wilson Street, Tarboro, NC

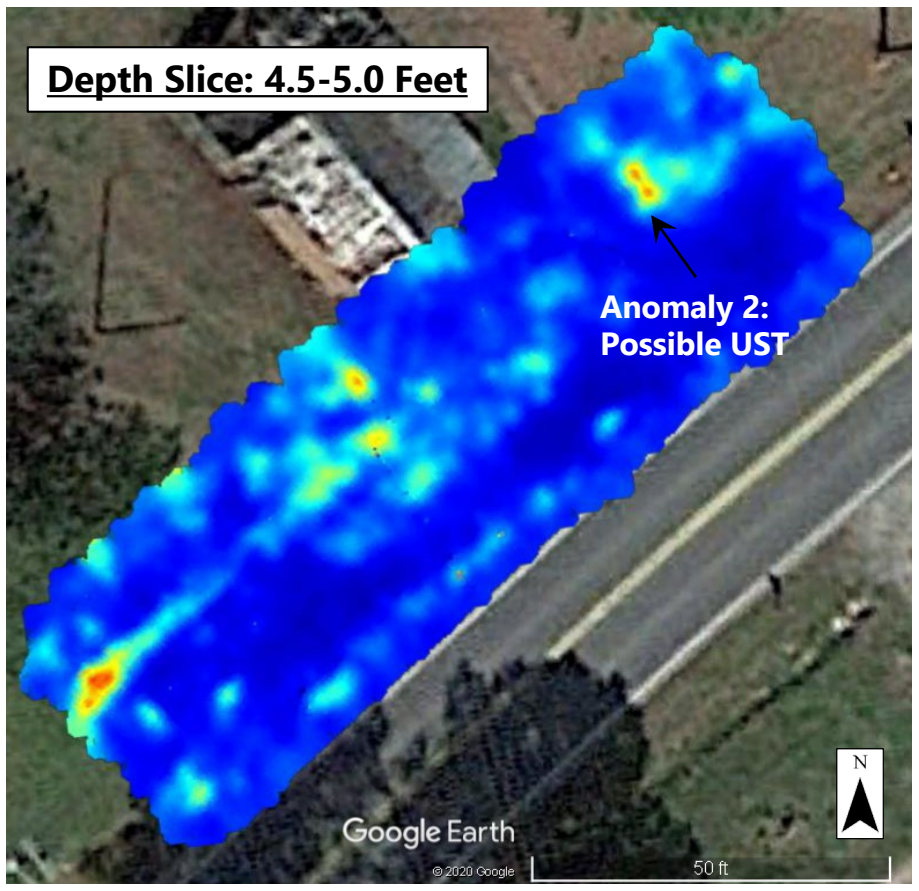
PROJECT: 20080204-010203

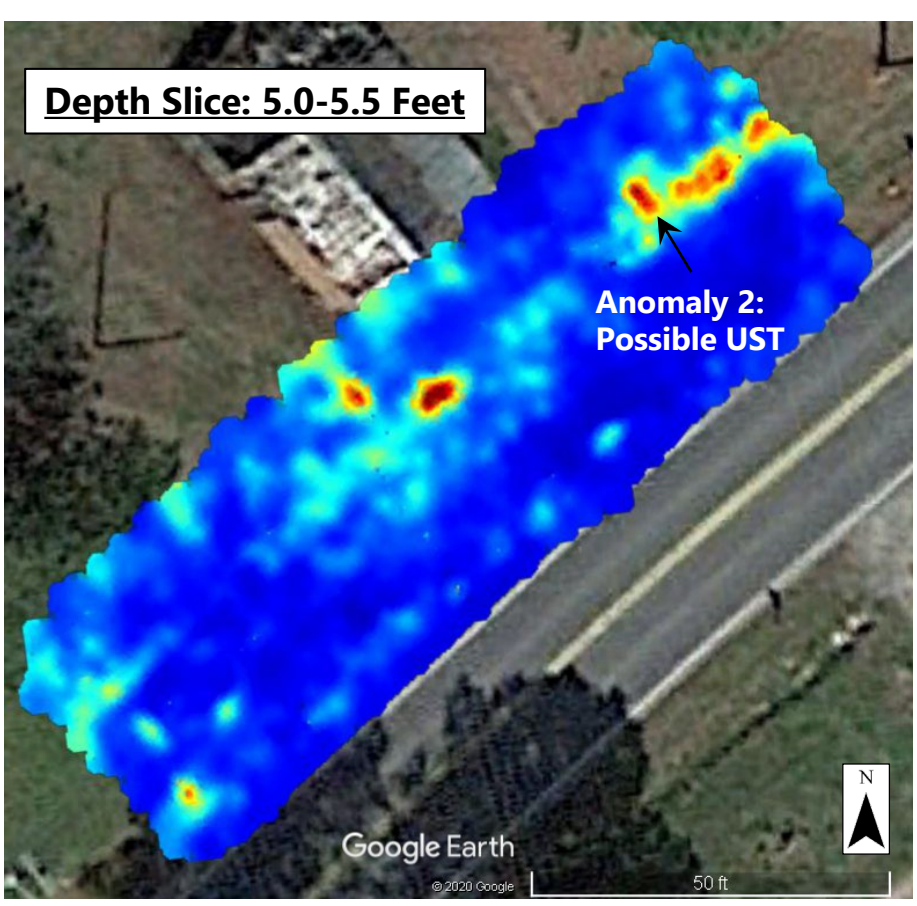
Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia
Virginia Beach, VA

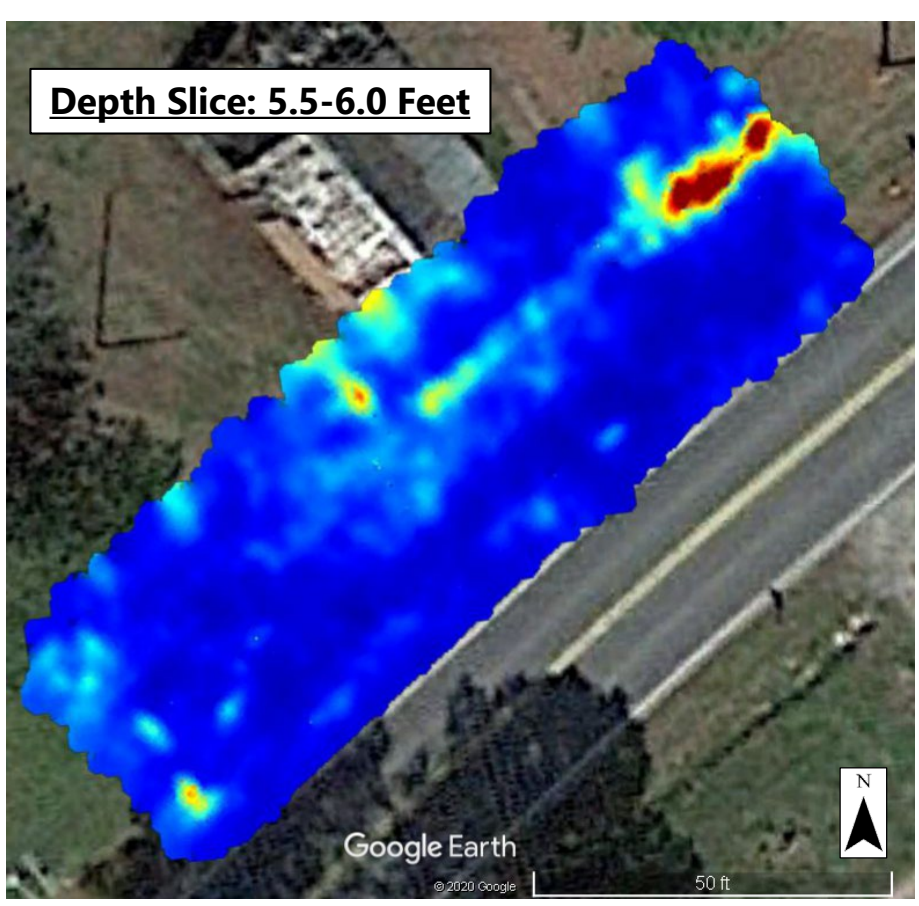
DESIGNED: JMV
DRAWN: JMV
CHECKED: CMP
DATE: 05/15/2020

FIGURE
6









GPR Depth Slices from 4.0 Feet to 6.0 Feet Depth

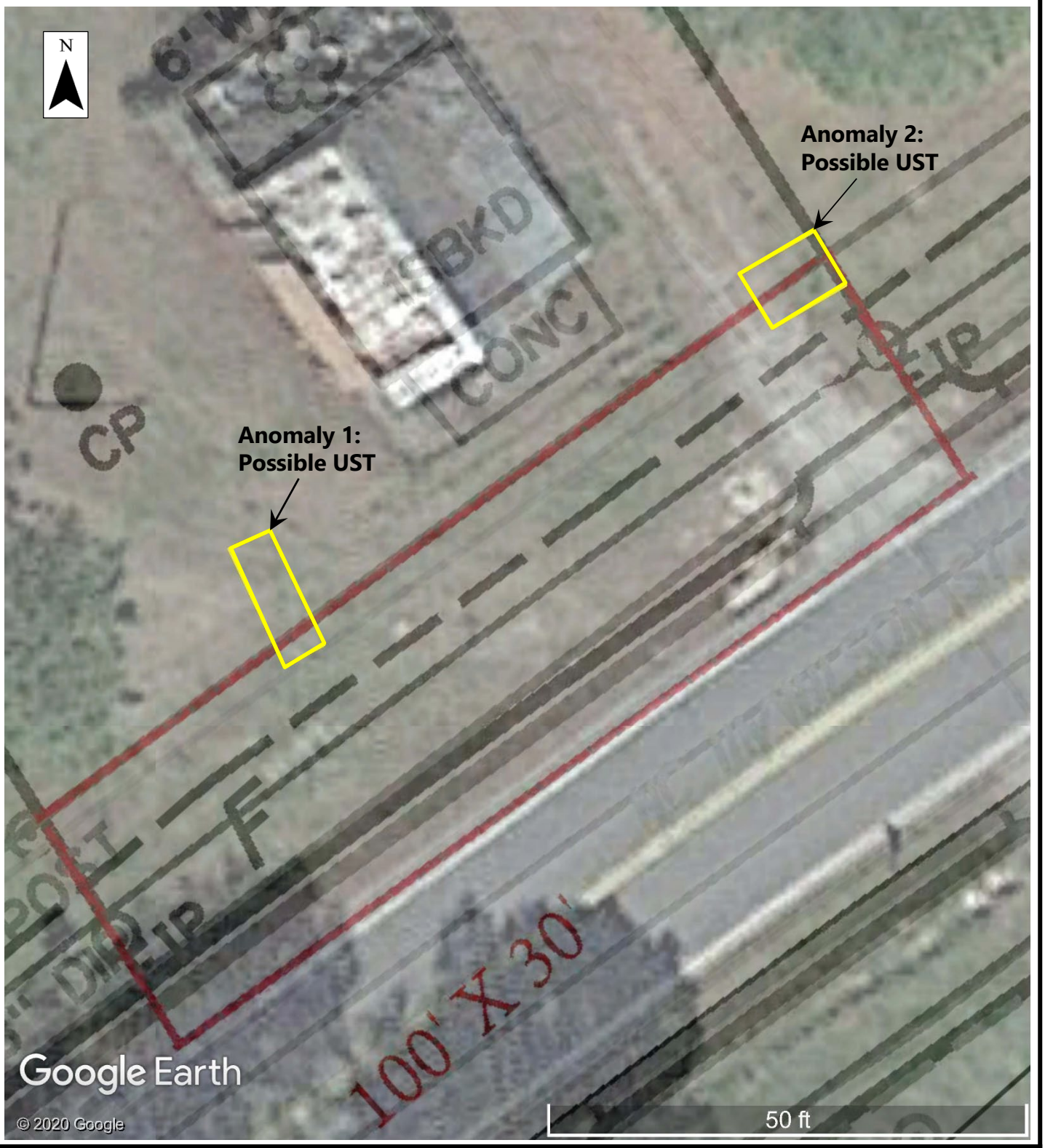
Geophysical Study for Possible USTs
1710 West Wilson Street, Tarboro, NC

PROJECT: 20080204-010203

Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia
Virginia Beach, VA

DESIGNED: JMV
DRAWN: JMV
CHECKED: CMP
DATE: 05/15/2020

FIGURE
7



Geophysical Study for Possible USTs
1710 West Wilson Street, Tarboro, NC

Summary of GPR and EM61 Results

PROJECT: 20080204-010203

Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia
Virginia Beach, VA

DESIGNED: JMV
DRAWN: JMV
CHECKED: CMP
DATE: 05/15/2020

FIGURE
8

ATTACHMENT B

Draper Aden Associates
Engineering • Surveying • Environmental Services

BORING ID: **SB-1**

PROJECT NAME: Tarboro PSA	PROJECT NUMBER: 20080204-010103
CLIENT: NCDOT- John Pilipchuk, PE	DATE: 5/18/2020
SITE LOCATION: 1710 W. Wilson St., Tarboro, NC	TOTAL DEPTH (ft bgs): 8
DRILLING CONTRACTOR: DAA- Sean Jarvah	BORING COORDINATES:
DRILLING METHOD: Direct Push	BOREHOLE DIAMETER (inches): 2
DRILLING EQUIPEMENT: Geoprobe	DEPTH TO WATER (ft bgs): NE
LOGGED BY: Brandy Barnes	PROJECT MANAGER: Mike Branson, PG

DEPTH (ft bgs)	SAMPLES: Sample ID	SAMPLES: Recovery %	PID Reading (ppm)	USCS	LITHOLOGIC DESCRIPTION:	Notes:
0–2	SB-1	60	3	SP	POORLY GRADED SAND, Brown to light brown, fine-grained, upper one foot is fill material	
2–3			2			
3–4				CH/CL	CLAY, Gray, with orange, mottled	
4–5			1			
5–6		100				
6–7			1			
7–8						
8–9		100	1			
9–10						

End of Borehole at 10 feet

Draper Aden Associates
Engineering • Surveying • Environmental Services

BORING ID: **SB-2**

PROJECT NAME: Tarboro PSA	PROJECT NUMBER: 20080204-010103
CLIENT: NCDOT- John Pilipchuk, PE	DATE: 5/18/2020
SITE LOCATION: 1710 W. Wilson St., Tarboro, NC	TOTAL DEPTH (ft bgs): 8
DRILLING CONTRACTOR: DAA- Sean Jarvah	BORING COORDINATES:
DRILLING METHOD: Direct Push	BOREHOLE DIAMETER (inches): 2
DRILLING EQUIPEMENT: Geoprobe	DEPTH TO WATER (ft bgs): NE
LOGGED BY: Brandy Barnes	PROJECT MANAGER: Mike Branson, PG

DEPTH (ft bgs)	SAMPLES: Sample ID	SAMPLES: Recovery %	PID Reading (ppm)	USCS	LITHOLOGIC DESCRIPTION:	Notes:
0–2		50	4	SP	POORLY GRADED SAND, Light brown to brown with orange, fine-grained to medium grained, upper one foot to two feet is fill	
2–4			4	SC	CLAYEY SAND, Dark brown to black, with gray, fine-grained to medium grained	
4–6		70	4	SC	CLAYEY SAND, Dark brown to black, with gray, fine-grained to medium grained Wet, with some orange and staining	
6–8	SB-2		5	CH/CL	CLAY, Gray and orange, with seams of medium-grained to course-grained clayey sand	
8–10		100	2	CH/CL	CLAY, Gray and orange, with seams of medium-grained to course-grained clayey sand	
10–12			2	CH/CL	CLAY, Gray and orange, with seams of medium-grained to course-grained clayey sand Dark reddish brown and orange	

End of Borehole at 12 feet

Draper Aden Associates
Engineering • Surveying • Environmental Services

BORING ID: **SB-3**

PROJECT NAME: Tarboro PSA	PROJECT NUMBER: 20080204-010103
CLIENT: NCDOT- John Pilipchuk, PE	DATE: 5/18/2020
SITE LOCATION: 1710 W. Wilson St., Tarboro, NC	TOTAL DEPTH (ft bgs): 8
DRILLING CONTRACTOR: DAA- Sean Jarvah	BORING COORDINATES:
DRILLING METHOD: Direct Push	BOREHOLE DIAMETER (inches): 2
DRILLING EQUIPEMENT: Geoprobe	DEPTH TO WATER (ft bgs): NE
LOGGED BY: Brandy Barnes	PROJECT MANAGER: Mike Branson, PG

DEPTH (ft bgs)	SAMPLES: Sample ID	SAMPLES: Recovery %	PID Reading (ppm)	USCS	LITHOLOGIC DESCRIPTION:	Notes:
0–1			4		GRAVEL FILL	
1–2		40		SP	POORLY GRADED SAND, Light brown, fine-grained to medium-grained	
2–3			4	SC	CLAYEY SAND, Light brown to brown with light gray gravel and burned debris	
3–4						
4–5	SB-3		5			
5–6		70				
6–7			4	CH/CL	CLAY, Light gray, tan, and orange, with dark brown, fine-grained to medium-grained, mottled	
7–8						
8–9		100	4			
9–10						

End of Borehole at 10 feet

ATTACHMENT C

PHOTOGRAPH 1. Location of SB-1.

PHOTOGRAPH 2. Location of SB-2, no photograph of SB-3..

ATTACHMENT D

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: DAA
Address: 114 Edinburgh S. Dr.
Cary, NC 27511

Samples taken Monday, May 18, 2020
Samples extracted Monday, May 18, 2020
Samples analysed Wednesday, May 20, 2020

Contact: Michael Branson

Operator Harry Wooten

Project: Tarboro PSA 20080204-010103

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	SB-1	29.7	<0.74	<0.74	3.6	3.6	1.6	<0.24	<0.03	0	84.6	15.4	Deg.Fuel 88.8%,(FCM)
s	SB-2	30.6	<0.76	<0.76	<0.76	<0.76	<0.15	<0.24	<0.031	0	0	0	PHC not detected,(BO)
s	SB-3	27.2	<0.68	<0.68	<0.68	<0.68	<0.14	<0.22	<0.027	0	0	0	PHC not detected,(BO)

Initial Calibrator QC check OK Final FCM QC Check OK 100.9 %

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

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

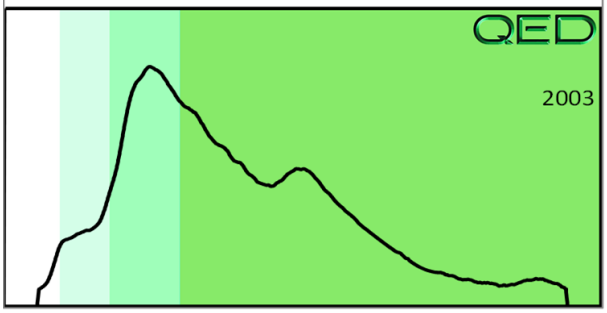
(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

QED Hydrocarbon Fingerprints

Project: Tarboro PSA 20080204

Wednesday, May 20, 2020

SB-1 : Deg.Fuel 88.8%,(FCM)



SB-2 : PHC not detected,(BO)

SB-3 : PHC not detected,(BO)

Parcel 53

Client Name:	DAA
Address:	114 Edinburgh S. Dr. Cary, NC 27511
Contact:	M. Bronstein
Project Ref.:	Tarboro PSA 20080804 010103
Email:	mbronstein@daa.com
Phone #:	
Collected by:	Brandy Barnes

REDLAB™
RAPID ENVIRONMENTAL DIAGNOSTICS

CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM

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.

Sample Collection	TAT Requested		Analysis Type		Initials	Sample ID	Total Wt.	Tare Wt.	Sample Wt.
Date/Time	24 Hour	48 Hour	UVF	GC					
5/18/20 1350		X	X		BB	SB-1	51.4	44.0	~~7.4~~
1325		X	X		BB	SB-2	51.0	43.8	7.2
1250		X	X		BB	SB-3	52.2	44.1	8.1

COMMENTS/REQUESTS:

TARGET GC/UVF ANALYTES:

Relinquished by		Accepted by	Date/Time
Brandy Barnes	1250 5/18/20		
Relinquished by		Accepted by	Date/Time
			20 May 2020 12:00

RED Lab USE ONLY

(3)

Ref. No 402

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

May 28, 2020

Mike Branson
Draper Aden Associates
114 Edinburgh Drive South, Suite 200
Cary, NC 27519

Project Location: Tarboro, NC - Parcel 53
Client Job Number:
Project Number: 20080204-010103
Laboratory Work Order Number: 20E0838

Enclosed are results of analyses for samples received by the laboratory on May 19, 2020. 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

Draper Aden Associates
114 Edinburgh Drive South, Suite 200
Cary, NC 27519
ATTN: Mike Branson

REPORT DATE: 5/28/2020

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 20080204-010103

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 20E0838

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

PROJECT LOCATION: Tarboro, NC - Parcel 53

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB-2	20E0838-01	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

CASE NARRATIVE SUMMARY

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

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

SW-846 8260D

Qualifications:

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:

Trichlorofluoromethane (Freon 11)
20E0838-01[SB-2], B258487-BLK1, B258487-BS1, B258487-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:

1,1,1,2-Tetrachloroethane
20E0838-01[SB-2], B258487-BLK1, B258487-BS1, B258487-BSD1, S048715-CCV1

Bromoform
20E0838-01[SB-2], B258487-BLK1, B258487-BS1, B258487-BSD1, S048715-CCV1

Dichlorodifluoromethane (Freon 12
20E0838-01[SB-2], B258487-BLK1, B258487-BS1, B258487-BSD1, S048715-CCV1

tert-Butyl Alcohol (TBA)
20E0838-01[SB-2], B258487-BLK1, B258487-BS1, B258487-BSD1, S048715-CCV1

Trichlorofluoromethane (Freon 11)
20E0838-01[SB-2], B258487-BLK1, B258487-BS1, B258487-BSD1, S048715-CCV1

SW-846 8270E

Qualifications:

V-04

Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.

Analyte & Samples(s) Qualified:

Benzidine
20E0838-01[SB-2], B258532-BLK1, B258532-BS1, B258532-BSD1, S048748-CCV1, S048793-CCV1

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:

Aniline
20E0838-01[SB-2], B258532-BLK1, B258532-BS1, B258532-BSD1, S048748-CCV1, S048793-CCV1

Benzidine
20E0838-01[SB-2], B258532-BLK1, B258532-BS1, B258532-BSD1, S048748-CCV1, S048793-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:

Benzoic Acid
20E0838-01[SB-2], S048793-CCV1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

4-Chloroaniline
20E0838-01[SB-2], B258532-BLK1, B258532-BS1, B258532-BSD1, S048748-CCV1, S048793-CCV1

Aniline
20E0838-01[SB-2], S048793-CCV1

con-test® ANALYTICAL LABORATORY
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.

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: Tarboro, NC - Parcel 53 | Sample Description: | Work Order: 20E0838

Date Received: 5/19/2020

Field Sample #: SB-2 | Sampled: 5/18/2020 14:40

Sample ID: 20E0838-01

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		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Acrylonitrile	ND	5.0	0.52	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.14	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Benzene	ND	1.0	0.18	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Bromochloromethane	ND	1.0	0.32	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Bromodichloromethane	ND	0.50	0.16	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Bromoform	ND	1.0	0.46	µg/L	1	V-05	SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Bromomethane	ND	2.0	1.4	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
2-Butanone (MEK)	ND	20	1.9	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
tert-Butyl Alcohol (TBA)	ND	20	4.2	µg/L	1	V-05	SW-846 8260D	5/21/20	5/21/20 12:19	MFF
n-Butylbenzene	ND	1.0	0.21	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
sec-Butylbenzene	ND	1.0	0.16	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
tert-Butylbenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.16	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Carbon Disulfide	ND	5.0	4.4	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Carbon Tetrachloride	ND	1.0	0.11	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Chlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Chlorodibromomethane	ND	0.50	0.21	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Chloroethane	ND	2.0	0.36	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Chloroform	ND	2.0	0.17	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Chloromethane	ND	2.0	0.45	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.53	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,2-Dibromoethane (EDB)	ND	0.50	0.19	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Dibromomethane	ND	1.0	0.37	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,2-Dichlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,3-Dichlorobenzene	ND	1.0	0.12	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,4-Dichlorobenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.26	µg/L	1	V-05	SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,2-Dichloroethane	ND	1.0	0.41	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,1-Dichloroethylene	ND	1.0	0.32	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
cis-1,2-Dichloroethylene	ND	1.0	0.13	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
trans-1,2-Dichloroethylene	ND	1.0	0.31	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,2-Dichloropropane	ND	1.0	0.20	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,3-Dichloropropane	ND	0.50	0.11	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
2,2-Dichloropropane	ND	1.0	0.20	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,1-Dichloropropene	ND	2.0	0.16	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
cis-1,3-Dichloropropene	ND	0.50	0.13	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
trans-1,3-Dichloropropene	ND	0.50	0.23	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Diethyl Ether	ND	2.0	0.34	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF

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

Project Location: Tarboro, NC - Parcel 53 | Sample Description: | Work Order: 20E0838

Date Received: 5/19/2020

Field Sample #: SB-2 | Sampled: 5/18/2020 14:40

Sample ID: 20E0838-01

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	5/21/20	5/21/20 12:19	MFF
1,4-Dioxane	ND	50	22	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Ethylbenzene	1.2	1.0	0.13	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Hexachlorobutadiene	ND	0.60	0.47	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Isopropylbenzene (Cumene)	ND	2.0	0.17	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
p-Isopropyltoluene (p-Cymene)	ND	2.0	0.20	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.25	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Methylene Chloride	ND	5.0	0.34	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
4-Methyl-2-pentanone (MIBK)	ND	10	1.7	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Naphthalene	ND	5.0	0.31	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
n-Propylbenzene	1.0	1.0	0.13	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Styrene	ND	2.0	0.11	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,1,1,2-Tetrachloroethane	ND	1.0	0.27	µg/L	1	V-05	SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,1,2,2-Tetrachloroethane	ND	0.50	0.22	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Tetrachloroethylene	ND	1.0	0.18	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Tetrahydrofuran	ND	10	0.51	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Toluene	1.6	1.0	0.14	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,2,3-Trichlorobenzene	ND	5.0	0.57	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,2,4-Trichlorobenzene	ND	1.0	0.40	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,3,5-Trichlorobenzene	ND	1.0	0.30	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,1,1-Trichloroethane	ND	1.0	0.20	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,1,2-Trichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Trichloroethylene	ND	1.0	0.24	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Trichlorofluoromethane (Freon 11)	ND	2.0	0.33	µg/L	1	V-05, L-04	SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,2,3-Trichloropropane	ND	2.0	0.25	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.32	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,2,4-Trimethylbenzene	1.2	1.0	0.18	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
1,3,5-Trimethylbenzene	ND	1.0	0.14	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
Vinyl Chloride	ND	2.0	0.45	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
m+p Xylene	4.0	2.0	0.30	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF
o-Xylene	1.5	1.0	0.17	µg/L	1		SW-846 8260D	5/21/20	5/21/20 12:19	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	115	70-130		5/21/20 12:19
Toluene-d8	97.0	70-130		5/21/20 12:19
4-Bromofluorobenzene	98.6	70-130		5/21/20 12:19

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

Project Location: Tarboro, NC - Parcel 53 | Sample Description: | Work Order: 20E0838

Date Received: 5/19/2020

Field Sample #: SB-2 | Sampled: 5/18/2020 14:40

Sample ID: 20E0838-01

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	0.31	0.034	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Acenaphthylene (SIM)	ND	0.21	0.036	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Acetophenone	ND	10	0.41	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Aniline	ND	5.2	0.77	µg/L	1	V-05, V-34	SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Anthracene (SIM)	ND	0.21	0.033	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Benzidine	ND	21	17	µg/L	1	V-04, V-05	SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Benzo(a)anthracene (SIM)	ND	0.052	0.016	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Benzo(a)pyrene (SIM)	ND	0.10	0.012	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Benzo(b)fluoranthene (SIM)	ND	0.052	0.015	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Benzo(g,h,i)perylene (SIM)	ND	0.52	0.019	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Benzo(k)fluoranthene (SIM)	ND	0.21	0.012	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Benzoic Acid	ND	10	5.5	µg/L	1	V-06	SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Bis(2-chloroethoxy)methane	ND	10	0.49	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Bis(2-chloroethyl)ether	ND	10	0.53	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Bis(2-chloroisopropyl)ether	ND	10	0.75	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Bis(2-Ethylhexyl)phthalate	ND	10	0.54	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
4-Bromophenylphenylether	ND	10	0.31	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Butylbenzylphthalate	ND	10	0.30	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Carbazole	ND	10	0.29	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
4-Chloroaniline	ND	10	0.35	µg/L	1	V-34	SW-846 8270E	5/21/20	5/27/20 13:38	BGL
4-Chloro-3-methylphenol	ND	10	0.50	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2-Chloronaphthalene	ND	10	0.47	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2-Chlorophenol	ND	10	0.39	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
4-Chlorophenylphenylether	ND	10	0.32	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Chrysene (SIM)	ND	0.21	0.015	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Dibenz(a,h)anthracene (SIM)	ND	0.10	0.018	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Dibenzofuran	ND	5.2	0.27	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Di-n-butylphthalate	ND	10	0.47	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
1,2-Dichlorobenzene	ND	5.2	0.47	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
1,3-Dichlorobenzene	ND	5.2	0.48	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
1,4-Dichlorobenzene	ND	5.2	0.39	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
3,3-Dichlorobenzidine	ND	10	0.37	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2,4-Dichlorophenol	ND	10	0.31	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Diethylphthalate	ND	10	0.23	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2,4-Dimethylphenol	ND	10	0.82	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Dimethylphthalate	ND	10	0.32	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
4,6-Dinitro-2-methylphenol	ND	10	2.0	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2,4-Dinitrophenol	ND	10	1.7	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2,4-Dinitrotoluene	ND	10	0.34	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2,6-Dinitrotoluene	ND	10	0.36	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Di-n-octylphthalate	ND	10	0.54	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	10	0.39	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Fluoranthene (SIM)	ND	0.52	0.026	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Fluorene (SIM)	ND	1.0	0.035	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR

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

Project Location: Tarboro, NC - Parcel 53 | Sample Description: | Work Order: 20E0838

Date Received: 5/19/2020

Field Sample #: SB-2 | Sampled: 5/18/2020 14:40

Sample ID: 20E0838-01

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
Hexachlorobenzene	ND	10	0.45	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Hexachlorobutadiene	ND	10	0.61	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Hexachlorocyclopentadiene	ND	10	4.9	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Hexachloroethane	ND	10	0.55	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	0.019	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Isophorone	ND	10	0.31	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
1-Methylnaphthalene	ND	5.2	0.29	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2-Methylnaphthalene (SIM)	0.12	1.0	0.064	µg/L	1	J	SW-846 8270E	5/21/20	5/28/20 2:00	IMR
2-Methylphenol	ND	10	0.47	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
3/4-Methylphenol	ND	10	0.21	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Naphthalene (SIM)	0.36	1.0	0.26	µg/L	1	J	SW-846 8270E	5/21/20	5/28/20 2:00	IMR
2-Nitroaniline	ND	10	0.41	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
3-Nitroaniline	ND	10	0.43	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
4-Nitroaniline	ND	10	0.51	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Nitrobenzene	ND	10	0.42	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2-Nitrophenol	ND	10	0.43	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
4-Nitrophenol	ND	10	0.65	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
N-Nitrosodimethylamine	ND	10	1.9	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
N-Nitrosodiphenylamine/Diphenylamine	ND	10	0.30	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
N-Nitrosodi-n-propylamine	ND	10	0.53	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Pentachloronitrobenzene	ND	10	1.5	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Pentachlorophenol	ND	10	0.34	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Phenanthrene (SIM)	ND	0.052	0.031	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Phenol	ND	10	0.20	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
Pyrene (SIM)	ND	1.0	0.024	µg/L	1		SW-846 8270E	5/21/20	5/28/20 2:00	IMR
Pyridine	ND	5.2	2.9	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
1,2,4,5-Tetrachlorobenzene	ND	10	0.35	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
1,2,4-Trichlorobenzene	ND	5.2	0.58	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2,4,5-Trichlorophenol	ND	10	0.49	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL
2,4,6-Trichlorophenol	ND	10	0.34	µg/L	1		SW-846 8270E	5/21/20	5/27/20 13:38	BGL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	38.2	15-110		5/27/20 13:38
Phenol-d6	28.1	15-110		5/27/20 13:38
Nitrobenzene-d5	70.2	30-130		5/28/20 2:00
Nitrobenzene-d5	62.3	30-130		5/27/20 13:38
2-Fluorobiphenyl	62.7	30-130		5/27/20 13:38
2-Fluorobiphenyl	66.1	30-130		5/28/20 2:00
2,4,6-Tribromophenol	68.5	15-110		5/27/20 13:38
p-Terphenyl-d14	62.9	30-130		5/28/20 2:00
p-Terphenyl-d14	71.0	30-130		5/27/20 13:38

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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20E0838-01 [SB-2]	B258487	5	5.00	05/21/20

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20E0838-01 [SB-2]	B258532	970	1.00	05/21/20

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20E0838-01 [SB-2]	B258763	970	1.00	05/21/20

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

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B258487 - SW-846 5030B										
Blank (B258487-BLK1)				Prepared & Analyzed: 05/21/20						
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							V-05
Bromomethane	ND	2.0	µg/L							
2-Butanone (MEK)	ND	20	µg/L							
tert-Butyl Alcohol (TBA)	ND	20	µg/L							V-05
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							
Carbon Disulfide	ND	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							V-05
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 B258487 - SW-846 5030B											
Blank (B258487-BLK1)				Prepared & Analyzed: 05/21/20							
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							V-05	
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							L-04, V-05	
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	*27.5*		µg/L	25.0		110	70-130				
Surrogate: Toluene-d8	*23.6*		µg/L	25.0		94.5	70-130				
Surrogate: 4-Bromofluorobenzene	*25.2*		µg/L	25.0		101	70-130				
LCS (B258487-BS1)				Prepared & Analyzed: 05/21/20							
Acetone	89.2	50	µg/L	100		89.2	70-160				†
Acrylonitrile	11.2	5.0	µg/L	10.0		112	70-130				
tert-Amyl Methyl Ether (TAME)	8.36	0.50	µg/L	10.0		83.6	70-130				
Benzene	10.5	1.0	µg/L	10.0		105	70-130				
Bromobenzene	10.3	1.0	µg/L	10.0		103	70-130				
Bromochloromethane	10.8	1.0	µg/L	10.0		108	70-130				
Bromodichloromethane	8.78	0.50	µg/L	10.0		87.8	70-130				
Bromoform	8.87	1.0	µg/L	10.0		88.7	70-130			V-05	
Bromomethane	5.25	2.0	µg/L	10.0		52.5	40-160				†
2-Butanone (MEK)	110	20	µg/L	100		110	40-160				†
tert-Butyl Alcohol (TBA)	68.8	20	µg/L	100		68.8	40-160			V-05	†
n-Butylbenzene	11.7	1.0	µg/L	10.0		117	70-130				
sec-Butylbenzene	12.0	1.0	µg/L	10.0		120	70-130				
tert-Butylbenzene	11.5	1.0	µg/L	10.0		115	70-130				
tert-Butyl Ethyl Ether (TBEE)	9.32	0.50	µg/L	10.0		93.2	70-130				
Carbon Disulfide	8.24	5.0	µg/L	10.0		82.4	70-130				
Carbon Tetrachloride	8.42	1.0	µg/L	10.0		84.2	70-130				
Chlorobenzene	9.77	1.0	µg/L	10.0		97.7	70-130				
Chlorodibromomethane	8.21	0.50	µg/L	10.0		82.1	70-130				
Chloroethane	7.43	2.0	µg/L	10.0		74.3	70-130				
Chloroform	10.6	2.0	µg/L	10.0		106	70-130				
Chloromethane	6.19	2.0	µg/L	10.0		61.9	40-160				†
2-Chlorotoluene	10.9	1.0	µg/L	10.0		109	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 B258487 - SW-846 5030B												
LCS (B258487-BS1)				Prepared & Analyzed: 05/21/20								
4-Chlorotoluene	10.9	1.0	µg/L	10.0		109		70-130				
1,2-Dibromo-3-chloropropane (DBCP)	9.15	5.0	µg/L	10.0		91.5		70-130				
1,2-Dibromoethane (EDB)	9.22	0.50	µg/L	10.0		92.2		70-130				
Dibromomethane	8.99	1.0	µg/L	10.0		89.9		70-130				
1,2-Dichlorobenzene	10.2	1.0	µg/L	10.0		102		70-130				
1,3-Dichlorobenzene	10.8	1.0	µg/L	10.0		108		70-130				
1,4-Dichlorobenzene	10.1	1.0	µg/L	10.0		101		70-130				
trans-1,4-Dichloro-2-butene	10.5	2.0	µg/L	10.0		105		70-130				
Dichlorodifluoromethane (Freon 12)	6.26	2.0	µg/L	10.0		62.6		40-160			V-05	†
1,1-Dichloroethane	10.8	1.0	µg/L	10.0		108		70-130				
1,2-Dichloroethane	8.15	1.0	µg/L	10.0		81.5		70-130				
1,1-Dichloroethylene	8.71	1.0	µg/L	10.0		87.1		70-130				
cis-1,2-Dichloroethylene	11.3	1.0	µg/L	10.0		113		70-130				
trans-1,2-Dichloroethylene	9.51	1.0	µg/L	10.0		95.1		70-130				
1,2-Dichloropropane	10.1	1.0	µg/L	10.0		101		70-130				
1,3-Dichloropropane	9.46	0.50	µg/L	10.0		94.6		70-130				
2,2-Dichloropropane	9.00	1.0	µg/L	10.0		90.0		40-130				†
1,1-Dichloropropene	9.29	2.0	µg/L	10.0		92.9		70-130				
cis-1,3-Dichloropropene	8.99	0.50	µg/L	10.0		89.9		70-130				
trans-1,3-Dichloropropene	8.97	0.50	µg/L	10.0		89.7		70-130				
Diethyl Ether	9.14	2.0	µg/L	10.0		91.4		70-130				
Diisopropyl Ether (DIPE)	10.5	0.50	µg/L	10.0		105		70-130				
1,4-Dioxane	125	50	µg/L	100		125		40-130				†
Ethylbenzene	10.6	1.0	µg/L	10.0		106		70-130				
Hexachlorobutadiene	9.47	0.60	µg/L	10.0		94.7		70-130				
2-Hexanone (MBK)	96.2	10	µg/L	100		96.2		70-160				†
Isopropylbenzene (Cumene)	10.3	1.0	µg/L	10.0		103		70-130				
p-Isopropyltoluene (p-Cymene)	10.8	1.0	µg/L	10.0		108		70-130				
Methyl tert-Butyl Ether (MTBE)	8.07	1.0	µg/L	10.0		80.7		70-130				
Methylene Chloride	10.0	5.0	µg/L	10.0		100		70-130				
4-Methyl-2-pentanone (MIBK)	99.2	10	µg/L	100		99.2		70-160				†
Naphthalene	10.8	2.0	µg/L	10.0		108		40-130				†
n-Propylbenzene	10.4	1.0	µg/L	10.0		104		70-130				
Styrene	10.4	1.0	µg/L	10.0		104		70-130				
1,1,1,2-Tetrachloroethane	8.45	1.0	µg/L	10.0		84.5		70-130			V-05	
1,1,2,2-Tetrachloroethane	9.22	0.50	µg/L	10.0		92.2		70-130				
Tetrachloroethylene	9.18	1.0	µg/L	10.0		91.8		70-130				
Tetrahydrofuran	11.2	10	µg/L	10.0		112		70-130				
Toluene	9.73	1.0	µg/L	10.0		97.3		70-130				
1,2,3-Trichlorobenzene	9.65	5.0	µg/L	10.0		96.5		70-130				
1,2,4-Trichlorobenzene	10.4	1.0	µg/L	10.0		104		70-130				
1,3,5-Trichlorobenzene	9.75	1.0	µg/L	10.0		97.5		70-130				
1,1,1-Trichloroethane	9.20	1.0	µg/L	10.0		92.0		70-130				
1,1,2-Trichloroethane	9.18	1.0	µg/L	10.0		91.8		70-130				
Trichloroethylene	8.72	1.0	µg/L	10.0		87.2		70-130				
Trichlorofluoromethane (Freon 11)	6.45	2.0	µg/L	10.0		**64.5**	*	70-130			V-05, L-04	
1,2,3-Trichloropropane	9.56	2.0	µg/L	10.0		95.6		70-130				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	9.13	1.0	µg/L	10.0		91.3		70-130				
1,2,4-Trimethylbenzene	10.6	1.0	µg/L	10.0		106		70-130				
1,3,5-Trimethylbenzene	10.0	1.0	µg/L	10.0		100		70-130				
Vinyl Chloride	6.50	2.0	µg/L	10.0		65.0		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 B258487 - SW-846 5030B											
LCS (B258487-BS1)				Prepared & Analyzed: 05/21/20							
m+p Xylene	21.4	2.0	µg/L	20.0		107	70-130				
o-Xylene	10.7	1.0	µg/L	10.0		107	70-130				
Surrogate: 1,2-Dichloroethane-d4	*24.7*		µg/L	25.0		98.8	70-130				
Surrogate: Toluene-d8	*24.6*		µg/L	25.0		98.5	70-130				
Surrogate: 4-Bromofluorobenzene	*26.9*		µg/L	25.0		107	70-130				
LCS Dup (B258487-BSD1)				Prepared & Analyzed: 05/21/20							
Acetone	91.1	50	µg/L	100		91.1	70-160	2.08	25		†
Acrylonitrile	10.4	5.0	µg/L	10.0		104	70-130	7.52	25		
tert-Amyl Methyl Ether (TAME)	8.33	0.50	µg/L	10.0		83.3	70-130	0.359	25		
Benzene	10.4	1.0	µg/L	10.0		104	70-130	0.960	25		
Bromobenzene	10.2	1.0	µg/L	10.0		102	70-130	0.195	25		
Bromochloromethane	10.5	1.0	µg/L	10.0		105	70-130	2.92	25		
Bromodichloromethane	8.94	0.50	µg/L	10.0		89.4	70-130	1.81	25		
Bromoform	8.36	1.0	µg/L	10.0		83.6	70-130	5.92	25	V-05	
Bromomethane	5.82	2.0	µg/L	10.0		58.2	40-160	10.3	25		†
2-Butanone (MEK)	111	20	µg/L	100		111	40-160	0.987	25		†
tert-Butyl Alcohol (TBA)	64.0	20	µg/L	100		64.0	40-160	7.29	25	V-05	†
n-Butylbenzene	11.7	1.0	µg/L	10.0		117	70-130	0.171	25		
sec-Butylbenzene	12.1	1.0	µg/L	10.0		121	70-130	1.16	25		
tert-Butylbenzene	11.6	1.0	µg/L	10.0		116	70-130	0.782	25		
tert-Butyl Ethyl Ether (TBEE)	9.64	0.50	µg/L	10.0		96.4	70-130	3.38	25		
Carbon Disulfide	7.55	5.0	µg/L	10.0		75.5	70-130	8.74	25		
Carbon Tetrachloride	8.48	1.0	µg/L	10.0		84.8	70-130	0.710	25		
Chlorobenzene	9.61	1.0	µg/L	10.0		96.1	70-130	1.65	25		
Chlorodibromomethane	8.24	0.50	µg/L	10.0		82.4	70-130	0.365	25		
Chloroethane	7.52	2.0	µg/L	10.0		75.2	70-130	1.20	25		
Chloroform	10.8	2.0	µg/L	10.0		108	70-130	1.22	25		
Chloromethane	6.08	2.0	µg/L	10.0		60.8	40-160	1.79	25		†
2-Chlorotoluene	10.8	1.0	µg/L	10.0		108	70-130	0.739	25		
4-Chlorotoluene	10.9	1.0	µg/L	10.0		109	70-130	0.276	25		
1,2-Dibromo-3-chloropropane (DBCP)	9.06	5.0	µg/L	10.0		90.6	70-130	0.988	25		
1,2-Dibromoethane (EDB)	9.22	0.50	µg/L	10.0		92.2	70-130	0.00	25		
Dibromomethane	8.93	1.0	µg/L	10.0		89.3	70-130	0.670	25		
1,2-Dichlorobenzene	10.3	1.0	µg/L	10.0		103	70-130	1.46	25		
1,3-Dichlorobenzene	10.7	1.0	µg/L	10.0		107	70-130	1.21	25		
1,4-Dichlorobenzene	10.3	1.0	µg/L	10.0		103	70-130	1.67	25		
trans-1,4-Dichloro-2-butene	9.18	2.0	µg/L	10.0		91.8	70-130	13.1	25		
Dichlorodifluoromethane (Freon 12)	6.23	2.0	µg/L	10.0		62.3	40-160	0.480	25	V-05	†
1,1-Dichloroethane	11.1	1.0	µg/L	10.0		111	70-130	2.65	25		
1,2-Dichloroethane	8.22	1.0	µg/L	10.0		82.2	70-130	0.855	25		
1,1-Dichloroethylene	8.87	1.0	µg/L	10.0		88.7	70-130	1.82	25		
cis-1,2-Dichloroethylene	11.2	1.0	µg/L	10.0		112	70-130	1.42	25		
trans-1,2-Dichloroethylene	9.45	1.0	µg/L	10.0		94.5	70-130	0.633	25		
1,2-Dichloropropane	9.71	1.0	µg/L	10.0		97.1	70-130	4.04	25		
1,3-Dichloropropane	9.45	0.50	µg/L	10.0		94.5	70-130	0.106	25		
2,2-Dichloropropane	9.06	1.0	µg/L	10.0		90.6	40-130	0.664	25		†
1,1-Dichloropropene	9.00	2.0	µg/L	10.0		90.0	70-130	3.17	25		
cis-1,3-Dichloropropene	9.34	0.50	µg/L	10.0		93.4	70-130	3.82	25		
trans-1,3-Dichloropropene	8.87	0.50	µg/L	10.0		88.7	70-130	1.12	25		
Diethyl Ether	9.63	2.0	µg/L	10.0		96.3	70-130	5.22	25		
Diisopropyl Ether (DIPE)	10.7	0.50	µg/L	10.0		107	70-130	1.60	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 B258487 - SW-846 5030B												
LCS Dup (B258487-BSD1)				Prepared & Analyzed: 05/21/20								
1,4-Dioxane	127	50	µg/L	100		127		40-130	1.84	50		† ‡
Ethylbenzene	10.4	1.0	µg/L	10.0		104		70-130	1.05	25		
Hexachlorobutadiene	9.30	0.60	µg/L	10.0		93.0		70-130	1.81	25		
2-Hexanone (MBK)	97.7	10	µg/L	100		97.7		70-160	1.60	25		†
Isopropylbenzene (Cumene)	10.2	1.0	µg/L	10.0		102		70-130	1.37	25		
p-Isopropyltoluene (p-Cymene)	10.7	1.0	µg/L	10.0		107		70-130	0.928	25		
Methyl tert-Butyl Ether (MTBE)	8.13	1.0	µg/L	10.0		81.3		70-130	0.741	25		
Methylene Chloride	9.70	5.0	µg/L	10.0		97.0		70-130	3.15	25		
4-Methyl-2-pentanone (MIBK)	102	10	µg/L	100		102		70-160	2.60	25		†
Naphthalene	11.1	2.0	µg/L	10.0		111		40-130	2.92	25		†
n-Propylbenzene	10.4	1.0	µg/L	10.0		104		70-130	0.673	25		
Styrene	10.4	1.0	µg/L	10.0		104		70-130	0.481	25		
1,1,1,2-Tetrachloroethane	8.44	1.0	µg/L	10.0		84.4		70-130	0.118	25	V-05	
1,1,2,2-Tetrachloroethane	9.22	0.50	µg/L	10.0		92.2		70-130	0.00	25		
Tetrachloroethylene	8.98	1.0	µg/L	10.0		89.8		70-130	2.20	25		
Tetrahydrofuran	10.6	10	µg/L	10.0		106		70-130	5.32	25		
Toluene	9.56	1.0	µg/L	10.0		95.6		70-130	1.76	25		
1,2,3-Trichlorobenzene	9.77	5.0	µg/L	10.0		97.7		70-130	1.24	25		
1,2,4-Trichlorobenzene	10.6	1.0	µg/L	10.0		106		70-130	1.62	25		
1,3,5-Trichlorobenzene	9.98	1.0	µg/L	10.0		99.8		70-130	2.33	25		
1,1,1-Trichloroethane	8.89	1.0	µg/L	10.0		88.9		70-130	3.43	25		
1,1,2-Trichloroethane	9.44	1.0	µg/L	10.0		94.4		70-130	2.79	25		
Trichloroethylene	9.17	1.0	µg/L	10.0		91.7		70-130	5.03	25		
Trichlorofluoromethane (Freon 11)	6.68	2.0	µg/L	10.0		**66.8**	*	70-130	3.50	25	L-04, V-05	
1,2,3-Trichloropropane	9.81	2.0	µg/L	10.0		98.1		70-130	2.58	25		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	8.91	1.0	µg/L	10.0		89.1		70-130	2.44	25		
1,2,4-Trimethylbenzene	10.7	1.0	µg/L	10.0		107		70-130	0.282	25		
1,3,5-Trimethylbenzene	9.97	1.0	µg/L	10.0		99.7		70-130	0.500	25		
Vinyl Chloride	6.51	2.0	µg/L	10.0		65.1		40-160	0.154	25		†
m+p Xylene	21.3	2.0	µg/L	20.0		106		70-130	0.749	25		
o-Xylene	10.6	1.0	µg/L	10.0		106		70-130	1.41	25		
Surrogate: 1,2-Dichloroethane-d4	*25.2*		µg/L	25.0		101		70-130				
Surrogate: Toluene-d8	*24.6*		µg/L	25.0		98.4		70-130				
Surrogate: 4-Bromofluorobenzene	*26.3*		µg/L	25.0		105		70-130				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B258532 - SW-846 3510C										
Blank (B258532-BLK1)				Prepared: 05/21/20 Analyzed: 05/26/20						
Acetophenone	ND	10	µg/L							
Aniline	ND	5.0	µg/L							V-05
Benzidine	ND	20	µg/L							V-04, V-05
Benzoic Acid	ND	10	µg/L							
Bis(2-chloroethoxy)methane	ND	10	µg/L							
Bis(2-chloroethyl)ether	ND	10	µg/L							
Bis(2-chloroisopropyl)ether	ND	10	µg/L							
Bis(2-Ethylhexyl)phthalate	ND	10	µg/L							
4-Bromophenylphenylether	ND	10	µg/L							
Butylbenzylphthalate	ND	10	µg/L							
Carbazole	ND	10	µg/L							
4-Chloroaniline	ND	10	µg/L							V-34
4-Chloro-3-methylphenol	ND	10	µg/L							
2-Chloronaphthalene	ND	10	µg/L							
2-Chlorophenol	ND	10	µg/L							
4-Chlorophenylphenylether	ND	10	µg/L							
Dibenzofuran	ND	5.0	µg/L							
Di-n-butylphthalate	ND	10	µg/L							
1,2-Dichlorobenzene	ND	5.0	µg/L							
1,3-Dichlorobenzene	ND	5.0	µg/L							
1,4-Dichlorobenzene	ND	5.0	µg/L							
3,3-Dichlorobenzidine	ND	10	µg/L							
2,4-Dichlorophenol	ND	10	µg/L							
Diethylphthalate	ND	10	µg/L							
2,4-Dimethylphenol	ND	10	µg/L							
Dimethylphthalate	ND	10	µg/L							
4,6-Dinitro-2-methylphenol	ND	10	µg/L							
2,4-Dinitrophenol	ND	10	µg/L							
2,4-Dinitrotoluene	ND	10	µg/L							
2,6-Dinitrotoluene	ND	10	µg/L							
Di-n-octylphthalate	ND	10	µg/L							
1,2-Diphenylhydrazine/Azobenzene	ND	10	µg/L							
Hexachlorobenzene	ND	10	µg/L							
Hexachlorobutadiene	ND	10	µg/L							
Hexachlorocyclopentadiene	ND	10	µg/L							
Hexachloroethane	ND	10	µg/L							
Isophorone	ND	10	µg/L							
1-Methylnaphthalene	ND	5.0	µg/L							
2-Methylphenol	ND	10	µg/L							
3/4-Methylphenol	ND	10	µg/L							
2-Nitroaniline	ND	10	µg/L							
3-Nitroaniline	ND	10	µg/L							
4-Nitroaniline	ND	10	µg/L							
Nitrobenzene	ND	10	µg/L							
2-Nitrophenol	ND	10	µg/L							
4-Nitrophenol	ND	10	µg/L							
N-Nitrosodimethylamine	ND	10	µg/L							
N-Nitrosodiphenylamine/Diphenylamine	ND	10	µg/L							
N-Nitrosodi-n-propylamine	ND	10	µg/L							
Pentachloronitrobenzene	ND	10	µg/L							
Pentachlorophenol	ND	10	µg/L							
Phenol	ND	10	µg/L							

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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 B258532 - SW-846 3510C											
Blank (B258532-BLK1)				Prepared: 05/21/20 Analyzed: 05/26/20							
Pyridine	ND	5.0	µg/L								
1,2,4,5-Tetrachlorobenzene	ND	10	µg/L								
1,2,4-Trichlorobenzene	ND	5.0	µg/L								
2,4,5-Trichlorophenol	ND	10	µg/L								
2,4,6-Trichlorophenol	ND	10	µg/L								
Surrogate: 2-Fluorophenol	*101*		µg/L	200		50.3	15-110				
Surrogate: Phenol-d6	*70.3*		µg/L	200		35.2	15-110				
Surrogate: Nitrobenzene-d5	*80.6*		µg/L	100		80.6	30-130				
Surrogate: 2-Fluorobiphenyl	*80.5*		µg/L	100		80.5	30-130				
Surrogate: 2,4,6-Tribromophenol	*169*		µg/L	200		84.5	15-110				
Surrogate: p-Terphenyl-d14	*93.6*		µg/L	100		93.6	30-130				
LCS (B258532-BS1)				Prepared: 05/21/20 Analyzed: 05/26/20							
Acetophenone	39.4	10	µg/L	50.0		78.7	40-140				
Aniline	31.7	5.0	µg/L	50.0		63.4	40-140			V-05	
Benzidine	30.5	20	µg/L	50.0		60.9	40-140			V-04, V-05	
Benzoic Acid	17.6	10	µg/L	50.0		35.2	10-130				†
Bis(2-chloroethoxy)methane	40.9	10	µg/L	50.0		81.8	40-140				
Bis(2-chloroethyl)ether	38.8	10	µg/L	50.0		77.5	40-140				
Bis(2-chloroisopropyl)ether	43.4	10	µg/L	50.0		86.9	40-140				
Bis(2-Ethylhexyl)phthalate	44.4	10	µg/L	50.0		88.7	40-140				
4-Bromophenylphenylether	40.1	10	µg/L	50.0		80.2	40-140				
Butylbenzylphthalate	40.6	10	µg/L	50.0		81.2	40-140				
Carbazole	40.7	10	µg/L	50.0		81.4	40-140				
4-Chloroaniline	35.8	10	µg/L	50.0		71.7	40-140			V-34	
4-Chloro-3-methylphenol	38.5	10	µg/L	50.0		77.1	30-130				
2-Chloronaphthalene	34.0	10	µg/L	50.0		68.0	40-140				
2-Chlorophenol	35.1	10	µg/L	50.0		70.2	30-130				
4-Chlorophenylphenylether	39.1	10	µg/L	50.0		78.2	40-140				
Dibenzofuran	40.6	5.0	µg/L	50.0		81.1	40-140				
Di-n-butylphthalate	43.6	10	µg/L	50.0		87.3	40-140				
1,2-Dichlorobenzene	28.9	5.0	µg/L	50.0		57.9	40-140				
1,3-Dichlorobenzene	27.2	5.0	µg/L	50.0		54.3	40-140				
1,4-Dichlorobenzene	27.5	5.0	µg/L	50.0		55.0	40-140				
3,3-Dichlorobenzidine	44.5	10	µg/L	50.0		88.9	40-140				
2,4-Dichlorophenol	38.3	10	µg/L	50.0		76.6	30-130				
Diethylphthalate	40.4	10	µg/L	50.0		80.7	40-140				
2,4-Dimethylphenol	32.7	10	µg/L	50.0		65.4	30-130				
Dimethylphthalate	40.0	10	µg/L	50.0		80.1	40-140				
4,6-Dinitro-2-methylphenol	39.5	10	µg/L	50.0		79.1	30-130				
2,4-Dinitrophenol	36.2	10	µg/L	50.0		72.3	30-130				
2,4-Dinitrotoluene	38.5	10	µg/L	50.0		77.0	40-140				
2,6-Dinitrotoluene	40.6	10	µg/L	50.0		81.2	40-140				
Di-n-octylphthalate	43.3	10	µg/L	50.0		86.6	40-140				
1,2-Diphenylhydrazine/Azobenzene	45.1	10	µg/L	50.0		90.2	40-140				
Hexachlorobenzene	39.5	10	µg/L	50.0		79.0	40-140				
Hexachlorobutadiene	28.0	10	µg/L	50.0		56.1	40-140				
Hexachlorocyclopentadiene	24.6	10	µg/L	50.0		49.3	30-140				†
Hexachloroethane	26.3	10	µg/L	50.0		52.6	40-140				
Isophorone	39.2	10	µg/L	50.0		78.3	40-140				
1-Methylnaphthalene	34.4	5.0	µg/L	50.0		68.8	40-140				
2-Methylphenol	34.9	10	µg/L	50.0		69.8	30-130				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B258532 - SW-846 3510C											
LCS (B258532-BS1)				Prepared: 05/21/20 Analyzed: 05/26/20							
3/4-Methylphenol	34.2	10	µg/L	50.0		68.3	30-130				
2-Nitroaniline	50.6	10	µg/L	50.0		101	40-140				
3-Nitroaniline	39.8	10	µg/L	50.0		79.7	40-140				
4-Nitroaniline	40.4	10	µg/L	50.0		80.9	40-140				
Nitrobenzene	36.2	10	µg/L	50.0		72.3	40-140				
2-Nitrophenol	38.0	10	µg/L	50.0		76.0	30-130				
4-Nitrophenol	20.4	10	µg/L	50.0		40.9	10-130				†
N-Nitrosodimethylamine	24.6	10	µg/L	50.0		49.2	40-140				
N-Nitrosodiphenylamine/Diphenylamine	44.6	10	µg/L	50.0		89.3	40-140				
N-Nitrosodi-n-propylamine	42.4	10	µg/L	50.0		84.8	40-140				
Pentachloronitrobenzene	40.3	10	µg/L	50.0		80.7	40-140				
Pentachlorophenol	35.0	10	µg/L	50.0		70.0	30-130				
Phenol	18.3	10	µg/L	50.0		36.6	20-130				†
Pyridine	20.1	5.0	µg/L	50.0		40.1	10-140				†
1,2,4,5-Tetrachlorobenzene	36.3	10	µg/L	50.0		72.6	40-140				
1,2,4-Trichlorobenzene	30.8	5.0	µg/L	50.0		61.7	40-140				
2,4,5-Trichlorophenol	37.6	10	µg/L	50.0		75.3	30-130				
2,4,6-Trichlorophenol	38.6	10	µg/L	50.0		77.2	30-130				
Surrogate: 2-Fluorophenol	*101*		µg/L	200		50.6	15-110				
Surrogate: Phenol-d6	*75.4*		µg/L	200		37.7	15-110				
Surrogate: Nitrobenzene-d5	*78.2*		µg/L	100		78.2	30-130				
Surrogate: 2-Fluorobiphenyl	*82.5*		µg/L	100		82.5	30-130				
Surrogate: 2,4,6-Tribromophenol	*163*		µg/L	200		81.3	15-110				
Surrogate: p-Terphenyl-d14	*86.1*		µg/L	100		86.1	30-130				
LCS Dup (B258532-BSD1)				Prepared: 05/21/20 Analyzed: 05/26/20							
Acetophenone	36.3	10	µg/L	50.0		72.7	40-140	8.03	20		
Aniline	28.4	5.0	µg/L	50.0		56.7	40-140	11.1	50	V-05	‡
Benzidine	27.8	20	µg/L	50.0		55.6	40-140	9.16	20	V-04, V-05	
Benzoic Acid	17.1	10	µg/L	50.0		34.2	10-130	2.77	50		† ‡
Bis(2-chloroethoxy)methane	36.7	10	µg/L	50.0		73.5	40-140	10.8	20		
Bis(2-chloroethyl)ether	34.6	10	µg/L	50.0		69.2	40-140	11.3	20		
Bis(2-chloroisopropyl)ether	37.6	10	µg/L	50.0		75.2	40-140	14.4	20		
Bis(2-Ethylhexyl)phthalate	41.2	10	µg/L	50.0		82.5	40-140	7.29	20		
4-Bromophenylphenylether	38.2	10	µg/L	50.0		76.4	40-140	4.83	20		
Butylbenzylphthalate	38.7	10	µg/L	50.0		77.3	40-140	4.92	20		
Carbazole	39.2	10	µg/L	50.0		78.4	40-140	3.75	20		
4-Chloroaniline	34.0	10	µg/L	50.0		68.1	40-140	5.21	20	V-34	
4-Chloro-3-methylphenol	37.0	10	µg/L	50.0		74.0	30-130	4.11	20		
2-Chloronaphthalene	31.7	10	µg/L	50.0		63.3	40-140	7.15	20		
2-Chlorophenol	33.4	10	µg/L	50.0		66.9	30-130	4.84	20		
4-Chlorophenylphenylether	38.4	10	µg/L	50.0		76.8	40-140	1.76	20		
Dibenzofuran	38.9	5.0	µg/L	50.0		77.7	40-140	4.28	20		
Di-n-butylphthalate	40.0	10	µg/L	50.0		80.0	40-140	8.65	20		
1,2-Dichlorobenzene	29.4	5.0	µg/L	50.0		58.8	40-140	1.61	20		
1,3-Dichlorobenzene	28.1	5.0	µg/L	50.0		56.1	40-140	3.26	20		
1,4-Dichlorobenzene	28.4	5.0	µg/L	50.0		56.9	40-140	3.32	20		
3,3-Dichlorobenzidine	41.1	10	µg/L	50.0		82.2	40-140	7.83	20		
2,4-Dichlorophenol	36.3	10	µg/L	50.0		72.5	30-130	5.50	20		
Diethylphthalate	39.1	10	µg/L	50.0		78.1	40-140	3.27	20		
2,4-Dimethylphenol	30.4	10	µg/L	50.0		60.8	30-130	7.29	20		
Dimethylphthalate	39.0	10	µg/L	50.0		78.1	40-140	2.58	50		‡

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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 B258532 - SW-846 3510C										
LCS Dup (B258532-BSD1)				Prepared: 05/21/20 Analyzed: 05/26/20						
4,6-Dinitro-2-methylphenol	37.7	10	µg/L	50.0		75.4	30-130	4.77	50	‡
2,4-Dinitrophenol	35.7	10	µg/L	50.0		71.4	30-130	1.31	50	‡
2,4-Dinitrotoluene	38.0	10	µg/L	50.0		76.1	40-140	1.20	20	
2,6-Dinitrotoluene	39.2	10	µg/L	50.0		78.4	40-140	3.56	20	
Di-n-octylphthalate	40.2	10	µg/L	50.0		80.3	40-140	7.55	20	
1,2-Diphenylhydrazine/Azobenzene	37.8	10	µg/L	50.0		75.6	40-140	17.7	20	
Hexachlorobenzene	37.6	10	µg/L	50.0		75.1	40-140	5.03	20	
Hexachlorobutadiene	28.1	10	µg/L	50.0		56.3	40-140	0.356	20	
Hexachlorocyclopentadiene	22.6	10	µg/L	50.0		45.3	30-140	8.42	50	† ‡
Hexachloroethane	27.0	10	µg/L	50.0		54.0	40-140	2.70	50	‡
Isophorone	34.9	10	µg/L	50.0		69.7	40-140	11.6	20	
1-Methylnaphthalene	32.9	5.0	µg/L	50.0		65.7	40-140	4.61	20	
2-Methylphenol	34.0	10	µg/L	50.0		67.9	30-130	2.76	20	
3/4-Methylphenol	31.3	10	µg/L	50.0		62.5	30-130	8.87	20	
2-Nitroaniline	44.4	10	µg/L	50.0		88.7	40-140	13.2	20	
3-Nitroaniline	39.1	10	µg/L	50.0		78.2	40-140	1.93	20	
4-Nitroaniline	41.1	10	µg/L	50.0		82.1	40-140	1.55	20	
Nitrobenzene	32.7	10	µg/L	50.0		65.4	40-140	10.0	20	
2-Nitrophenol	35.6	10	µg/L	50.0		71.1	30-130	6.63	20	
4-Nitrophenol	20.0	10	µg/L	50.0		39.9	10-130	2.38	50	† ‡
N-Nitrosodimethylamine	23.9	10	µg/L	50.0		47.8	40-140	3.01	20	
N-Nitrosodiphenylamine/Diphenylamine	40.9	10	µg/L	50.0		81.8	40-140	8.74	20	
N-Nitrosodi-n-propylamine	37.1	10	µg/L	50.0		74.2	40-140	13.3	20	
Pentachloronitrobenzene	40.0	10	µg/L	50.0		79.9	40-140	0.971	20	
Pentachlorophenol	34.6	10	µg/L	50.0		69.2	30-130	1.15	50	‡
Phenol	16.7	10	µg/L	50.0		33.4	20-130	9.26	20	†
Pyridine	19.5	5.0	µg/L	50.0		39.0	10-140	2.73	50	† ‡
1,2,4,5-Tetrachlorobenzene	33.6	10	µg/L	50.0		67.2	40-140	7.73	20	
1,2,4-Trichlorobenzene	29.9	5.0	µg/L	50.0		59.9	40-140	2.93	20	
2,4,5-Trichlorophenol	36.4	10	µg/L	50.0		72.9	30-130	3.29	20	
2,4,6-Trichlorophenol	36.8	10	µg/L	50.0		73.7	30-130	4.61	50	‡
Surrogate: 2-Fluorophenol	*101*		µg/L	200		50.3	15-110			
Surrogate: Phenol-d6	*69.5*		µg/L	200		34.8	15-110			
Surrogate: Nitrobenzene-d5	*71.6*		µg/L	100		71.6	30-130			
Surrogate: 2-Fluorobiphenyl	*76.8*		µg/L	100		76.8	30-130			
Surrogate: 2,4,6-Tribromophenol	*170*		µg/L	200		84.8	15-110			
Surrogate: p-Terphenyl-d14	*82.9*		µg/L	100		82.9	30-130			
Batch B258763 - SW-846 3510C										
Blank (B258763-BLK1)				Prepared: 05/21/20 Analyzed: 05/27/20						
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							

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QUALITY CONTROL

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B258763 - SW-846 3510C										
Blank (B258763-BLK1)				Prepared: 05/21/20 Analyzed: 05/27/20						
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	*86.0*		µg/L	100		86.0	30-130			
Surrogate: 2-Fluorobiphenyl	*76.3*		µg/L	100		76.3	30-130			
Surrogate: p-Terphenyl-d14	*74.9*		µg/L	100		74.9	30-130			
LCS (B258763-BS1)				Prepared: 05/21/20 Analyzed: 05/27/20						
Acenaphthene (SIM)	45.4	6.0	µg/L	50.0		90.8	40-140			
Acenaphthylene (SIM)	44.2	4.0	µg/L	50.0		88.4	40-140			
Anthracene (SIM)	49.1	4.0	µg/L	50.0		98.3	40-140			
Benzo(a)anthracene (SIM)	48.5	1.0	µg/L	50.0		97.1	40-140			
Benzo(a)pyrene (SIM)	51.6	2.0	µg/L	50.0		103	40-140			
Benzo(b)fluoranthene (SIM)	53.7	1.0	µg/L	50.0		107	40-140			
Benzo(g,h,i)perylene (SIM)	54.6	10	µg/L	50.0		109	40-140			
Benzo(k)fluoranthene (SIM)	52.5	4.0	µg/L	50.0		105	40-140			
Chrysene (SIM)	47.3	4.0	µg/L	50.0		94.6	40-140			
Dibenz(a,h)anthracene (SIM)	57.9	2.0	µg/L	50.0		116	40-140			
Fluoranthene (SIM)	51.2	10	µg/L	50.0		102	40-140			
Fluorene (SIM)	48.4	20	µg/L	50.0		96.9	40-140			
Indeno(1,2,3-cd)pyrene (SIM)	60.7	2.0	µg/L	50.0		121	40-140			
2-Methylnaphthalene (SIM)	43.4	20	µg/L	50.0		86.8	40-140			
Naphthalene (SIM)	39.6	20	µg/L	50.0		79.2	40-140			
Phenanthrene (SIM)	46.6	1.0	µg/L	50.0		93.2	40-140			
Pyrene (SIM)	45.4	20	µg/L	50.0		90.9	40-140			
Surrogate: Nitrobenzene-d5	*87.1*		µg/L	100		87.1	30-130			
Surrogate: 2-Fluorobiphenyl	*90.5*		µg/L	100		90.5	30-130			
Surrogate: p-Terphenyl-d14	*73.7*		µg/L	100		73.7	30-130			
LCS Dup (B258763-BSD1)				Prepared: 05/21/20 Analyzed: 05/27/20						
Acenaphthene (SIM)	43.9	6.0	µg/L	50.0		87.7	40-140	3.49	20	
Acenaphthylene (SIM)	42.5	4.0	µg/L	50.0		85.1	40-140	3.83	20	
Anthracene (SIM)	47.5	4.0	µg/L	50.0		95.0	40-140	3.39	20	
Benzo(a)anthracene (SIM)	47.2	1.0	µg/L	50.0		94.5	40-140	2.71	20	
Benzo(a)pyrene (SIM)	50.2	2.0	µg/L	50.0		100	40-140	2.75	20	
Benzo(b)fluoranthene (SIM)	52.7	1.0	µg/L	50.0		105	40-140	1.92	20	
Benzo(g,h,i)perylene (SIM)	53.0	10	µg/L	50.0		106	40-140	2.90	20	
Benzo(k)fluoranthene (SIM)	51.4	4.0	µg/L	50.0		103	40-140	2.12	20	
Chrysene (SIM)	46.0	4.0	µg/L	50.0		92.0	40-140	2.79	20	
Dibenz(a,h)anthracene (SIM)	56.8	2.0	µg/L	50.0		114	40-140	1.99	20	
Fluoranthene (SIM)	49.4	10	µg/L	50.0		98.8	40-140	3.58	20	
Fluorene (SIM)	47.3	20	µg/L	50.0		94.6	40-140	2.34	20	
Indeno(1,2,3-cd)pyrene (SIM)	59.0	2.0	µg/L	50.0		118	40-140	2.94	20	‡
2-Methylnaphthalene (SIM)	42.2	20	µg/L	50.0		84.5	40-140	2.66	20	
Naphthalene (SIM)	39.2	20	µg/L	50.0		78.4	40-140	1.07	20	
Phenanthrene (SIM)	44.9	1.0	µg/L	50.0		89.9	40-140	3.67	20	
Pyrene (SIM)	44.5	20	µg/L	50.0		89.0	40-140	2.14	20	
Surrogate: Nitrobenzene-d5	*83.6*		µg/L	100		83.6	30-130			
Surrogate: 2-Fluorobiphenyl	*88.7*		µg/L	100		88.7	30-130			
Surrogate: p-Terphenyl-d14	*72.7*		µg/L	100		72.7	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
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant 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-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.
V-04	Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.
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-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

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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
SW-846 8270E in Soil	
Acetophenone	NY,NH,ME,NC,VA
Aniline	NY,NH,ME,NC,VA
Benzidine	CT,NY,NH,ME,NC,VA
Benzoic Acid	NY,NH,ME,NC,VA
Bis(2-chloroethoxy)methane	CT,NY,NH,ME,NC,VA
Bis(2-chloroethyl)ether	CT,NY,NH,ME,NC,VA
Bis(2-chloroisopropyl)ether	CT,NY,NH,ME,NC,VA
Bis(2-Ethylhexyl)phthalate	CT,NY,NH,ME,NC,VA
4-Bromophenylphenylether	CT,NY,NH,ME,NC,VA
Butylbenzylphthalate	CT,NY,NH,ME,NC,VA
Carbazole	NC
4-Chloroaniline	CT,NY,NH,ME,NC,VA
4-Chloro-3-methylphenol	CT,NY,NH,ME,NC,VA
2-Chloronaphthalene	CT,NY,NH,NC,VA
2-Chlorophenol	CT,NY,NH,ME,NC,VA
4-Chlorophenylphenylether	CT,NY,NH,ME,NC,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270E in Soil	
Dibenzofuran	CT,NY,NH,ME,NC,VA
Di-n-butylphthalate	CT,NY,NH,ME,NC,VA
1,2-Dichlorobenzene	NY,NH,ME,NC,VA
1,3-Dichlorobenzene	NY,NH,ME,NC,VA
1,4-Dichlorobenzene	NY,NH,ME,NC,VA
3,3-Dichlorobenzidine	CT,NY,NH,ME,NC,VA
2,4-Dichlorophenol	CT,NY,NH,ME,NC,VA
Diethylphthalate	CT,NY,NH,ME,NC,VA
2,4-Dimethylphenol	CT,NY,NH,ME,NC,VA
Dimethylphthalate	CT,NY,NH,ME,NC,VA
4,6-Dinitro-2-methylphenol	CT,NY,NH,ME,NC,VA
2,4-Dinitrophenol	CT,NY,NH,ME,NC,VA
2,4-Dinitrotoluene	CT,NY,NH,ME,NC,VA
2,6-Dinitrotoluene	CT,NY,NH,ME,NC,VA
Di-n-octylphthalate	CT,NY,NH,ME,NC,VA
1,2-Diphenylhydrazine/Azobenzene	NY,NH,ME,NC,VA
Hexachlorobenzene	CT,NY,NH,ME,NC,VA
Hexachlorobutadiene	CT,NY,NH,ME,NC,VA
Hexachlorocyclopentadiene	CT,NY,NH,ME,NC,VA
Hexachloroethane	CT,NY,NH,ME,NC,VA
Isophorone	CT,NY,NH,ME,NC,VA
1-Methylnaphthalene	NC
2-Methylphenol	CT,NY,NH,ME,NC,VA
3/4-Methylphenol	CT,NY,NH,ME,NC,VA
Naphthalene	CT,NY,NH,ME,NC,VA
2-Nitroaniline	CT,NY,NH,ME,NC,VA
3-Nitroaniline	CT,NY,NH,ME,NC,VA
4-Nitroaniline	CT,NY,NH,ME,NC,VA
Nitrobenzene	CT,NY,NH,ME,NC,VA
2-Nitrophenol	CT,NY,NH,ME,NC,VA
4-Nitrophenol	CT,NY,NH,ME,NC,VA
N-Nitrosodimethylamine	CT,NY,NH,ME,NC,VA
N-Nitrosodi-n-propylamine	CT,NY,NH,ME,NC,VA
Pentachloronitrobenzene	NY,NC
Pentachlorophenol	CT,NY,NH,ME,NC,VA
Phenol	CT,NY,NH,ME,NC,VA
Pyridine	CT,NY,NH,ME,NC,VA
1,2,4,5-Tetrachlorobenzene	NY,NC
1,2,4-Trichlorobenzene	CT,NY,NH,ME,NC,VA
2,4,5-Trichlorophenol	CT,NY,NH,ME,NC,VA
2,4,6-Trichlorophenol	CT,NY,NH,ME,NC,VA
2-Fluorophenol	NC
SW-846 8270E in Water	
Acetophenone	NY,NC
Aniline	CT,NY,NC,ME,VA
Benzidine	CT,NY,NC,ME,NH,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270E in Water	
Benzoic Acid	NY,NC,ME,NH,VA
Bis(2-chloroethoxy)methane	CT,NY,NC,ME,NH,VA
Bis(2-chloroethyl)ether	CT,NY,NC,ME,NH,VA
Bis(2-chloroisopropyl)ether	CT,NY,NC,ME,NH,VA
Bis(2-Ethylhexyl)phthalate	CT,NY,NC,ME,NH,VA
4-Bromophenylphenylether	CT,NY,NC,ME,NH,VA
Butylbenzylphthalate	CT,NY,NC,ME,NH,VA
Carbazole	NC
4-Chloroaniline	CT,NY,NC,ME,NH,VA
4-Chloro-3-methylphenol	CT,NY,NC,ME,NH,VA
2-Chloronaphthalene	CT,NY,NC,ME,NH,VA
2-Chlorophenol	CT,NY,NC,ME,NH,VA
4-Chlorophenylphenylether	CT,NY,NC,ME,NH,VA
Dibenzofuran	CT,NY,NC,ME,NH,VA
Di-n-butylphthalate	CT,NY,NC,ME,NH,VA
1,2-Dichlorobenzene	CT,NY,NC,ME,NH,VA
1,3-Dichlorobenzene	CT,NY,NC,ME,NH,VA
1,4-Dichlorobenzene	CT,NY,NC,ME,NH,VA
3,3-Dichlorobenzidine	CT,NY,NC,ME,NH,VA
2,4-Dichlorophenol	CT,NY,NC,ME,NH,VA
Diethylphthalate	CT,NY,NC,ME,NH,VA
2,4-Dimethylphenol	CT,NY,NC,ME,NH,VA
Dimethylphthalate	CT,NY,NC,ME,NH,VA
4,6-Dinitro-2-methylphenol	CT,NY,NC,ME,NH,VA
2,4-Dinitrophenol	CT,NY,NC,ME,NH,VA
2,4-Dinitrotoluene	CT,NY,NC,ME,NH,VA
2,6-Dinitrotoluene	CT,NY,NC,ME,NH,VA
Di-n-octylphthalate	CT,NY,NC,ME,NH,VA
1,2-Diphenylhydrazine/Azobenzene	NY,NC
Hexachlorobenzene	CT,NY,NC,ME,NH,VA
Hexachlorobutadiene	CT,NY,NC,ME,NH,VA
Hexachlorocyclopentadiene	CT,NY,NC,ME,NH,VA
Hexachloroethane	CT,NY,NC,ME,NH,VA
Isophorone	CT,NY,NC,ME,NH,VA
1-Methylnaphthalene	NC
2-Methylphenol	CT,NY,NC,NH,VA
3/4-Methylphenol	CT,NY,NC,NH,VA
Naphthalene	CT,NY,NC,ME,NH,VA
2-Nitroaniline	CT,NY,NC,ME,NH,VA
3-Nitroaniline	CT,NY,NC,ME,NH,VA
4-Nitroaniline	CT,NY,NC,ME,NH,VA
Nitrobenzene	CT,NY,NC,ME,NH,VA
2-Nitrophenol	CT,NY,NC,ME,NH,VA
4-Nitrophenol	CT,NY,NC,ME,NH,VA
N-Nitrosodimethylamine	CT,NY,NC,ME,NH,VA
N-Nitrosodi-n-propylamine	CT,NY,NC,ME,NH,VA
Pentachloronitrobenzene	NC

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270E in Water	
Pentachlorophenol	CT,NY,NC,ME,NH,VA
Phenol	CT,NY,NC,ME,NH,VA
Pyridine	CT,NY,NC,ME,NH,VA
1,2,4,5-Tetrachlorobenzene	NY,NC
1,2,4-Trichlorobenzene	CT,NY,NC,ME,NH,VA
2,4,5-Trichlorophenol	CT,NY,NC,ME,NH,VA
2,4,6-Trichlorophenol	CT,NY,NC,ME,NH,VA
2-Fluorophenol	NC

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
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	04/1/2021
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2021
RI	Rhode Island Department of Health	LAO00112	12/30/2020
NC	North Carolina Div. of Water Quality	652	12/31/2020
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	07/30/2021
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
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

20E0838 parcel 53

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: Draper Aden Associates
Address: 114 Edinburgh S. Dr., Cary, NC 27511
Phone:
Project Name: Tarboro PSA P53
Project Location: Tarboro, NC Parcel 53
Project Number: 20080204-010103
Project Manager: M. Branson
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: Brandy Barnes

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:
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code	3	2									# of Containers
								H	/									[2] Preservation Code
								V	A									[3] Container Code
								8260 VOCs	8270 SVOCs									ANALYSIS REQUESTED
1	SB-2	5/18/20	1440		X	GW		X	X									

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:
Brandy Barnes	5/19/20 1155
Received by: (signature)	Date/Time:
	5/19/20 1155
Relinquished by: (signature)	Date/Time:
	5/19/20 1630
Received by: (signature)	Date/Time:
	5/20 1614
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!
We are continuing to respond to the impact of COVID-19 around the world. See our latest updates. For COVID-19-related recipient closures, you can redirect packages, Ask FedEx, or contact the shipper.

FedEx®

149454201820

Delivered
Wednesday 5/20/2020 at 10:14 am

DELIVERED

Signed for by: R.PIETRIAS

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM	TO
Raleigh, NC US	EAST LONGMEADOW, MA US

Multiple-piece Shipment

3 Piece shipment

TRACKING NUMBER	SHIPPER CITY, STATE	SHIP DATE	STATUS	DELIVERY DATE	DESTINATION/RECIPIENT CITY, STATE
149454201809 (master)	RALEIGH, NC	5/19/2020		5/20/2020	East Longmeadow, MA
149454201810	RALEIGH, NC	5/19/2020		5/20/2020	East Longmeadow, MA
149454201820	RALEIGH, NC	5/19/2020		5/20/2020	East Longmeadow, MA

Shipment Facts

TRACKING NUMBER
149454201820

SERVICE
FedEx Priority Overnight

MASTER TRACKING NUMBER
149454201809

WEIGHT
10 lbs / 4.54 kgs

DIMENSIONS
25x14x14 in.

DELIVERED TO
Receptionist/Front Desk

TOTAL PIECES
3

TOTAL SHIPMENT WEIGHT
10 lbs / 4.54 kgs

TERMS
Third Party

PACKAGING
Your Packaging

SPECIAL HANDLING SECTION
Deliver Weekday, Non Standard Packaging

STANDARD TRANSIT
5/20/2020 by 10:30 am

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: Draper Aden

Received By: DAP Date: 5/26 Time: 1014

How were the samples received? In Cooler: T No Cooler: _____ On Ice: T No Ice: _____

Direct from Sampling: _____ Ambient: _____ Melted Ice: _____

By Gun #: 2 Actual Temp - 2.8

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

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

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

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

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

Did COC include all pertinent Information? Client: T Analysis: T Sampler Name: T

Project: T ID's: T Collection Dates/Times: T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F

Are there Rushes? MP & F Who was notified? _____

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:

Draper Aden Associates
Engineering • Surveying • Environmental Services

114 Edinburgh South Drive
Suite 200
Cary, North Carolina 27511
919.827.0864
www.daa.com

June 15, 2020

Mr. Craig Haden
North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Reference: **Geophysical Survey for The Bryanna Company, Limited Partnership**
Property (Parcel 79)
700 Western Boulevard
Tarboro, Edgecombe County, North Carolina
State Project: U-4424
WBS Element 39062.1.2
DAA Project No. 20080204-010103

Dear Mr. Haden:

Draper Aden Associates (DAA) was assigned a Preliminary Site Assessment at the above-referenced property; however, during the site walkover it was determined that soil and groundwater sampling would be difficult because of the steep slopes in the proposed right-of-way/easement (ROW/easement). Based on these observations, the NCDOT was contacted and DAA was advised to conduct the geophysical survey. DAA performed the work in accordance with the Technical and Cost proposal dated April 22, 2020, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated April 23, 2019.

On April 29 and May 4, 2020, DAA traveled to the property and conducted the geophysical survey. The survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic (EM) induction meter to locate buried metallic objects, and ground penetrating radar (GPR) using a Noggin 250 with 250 MHz antennae specifically to locate USTs.

The geophysical team laid out a survey grid along the proposed right-of-way with the X-axis oriented approximately parallel to W Wilson Street and the Y-axis oriented approximately parallel to Western Boulevard. **Figure 1** of the geophysical survey report in **Attachment A** shows the EM survey area.

The EM survey lines were spaced five feet apart and the instruments collected magnetic data continuously along each survey line with a data logger. After collection, DAA reviewed the data

in the field with graphical user interface computer software. Following the electromagnetic survey, a GPR survey was conducted to further evaluate any notable metallic anomalies. GPR transects are shown on **Figures 5 and 6** of **Attachment A**.

DAA detected several anomalies in those areas accessible to the study area. The survey attributed all the anomalies to visible cultural features or underground utilities. None of the anomalies exhibited electromagnetic or GPR responses indicative of USTs. **Attachment A** presents DAA's detailed report of findings and interpretations.

Conclusions and Recommendations

DAA conducted a geophysical survey to evaluate the NCDOT proposed ROW/easement on The Bryanna Company, Limited Partnership Property (Parcel #79) located at 700 Western Boulevard in Tarboro, Edgecombe County, North Carolina. The survey did not indicate the presence of a UST within the proposed ROW/easement.

DAA appreciates the opportunity to work with the NCDOT on this project. If you have any questions, please contact us at (919) 827-0864.

Sincerely,

Draper Aden Associates

DocuSigned by:
Mike Branson
942B7ACDE09841E...

Michael W. Branson
6/25/2020

Michael W. Branson, P.G.
Project Manager

Attachments

ATTACHMENT A

Geophysical Study
For Possible USTs
700 Western Boulevard
Tarboro, North Carolina

North Carolina Department of Transportation
1589 Mail Service Center
Raleigh, NC 27699-1589 37918

May 28, 2020

DAA Project Number: 20080204-010203

Draper Aden Associates
Engineering • Surveying • Environmental Services

Draper Aden Associates
Engineering • Surveying • Environmental Services

2206 South Main Street
Blacksburg, Virginia 24060
540.552.0444
www.daa.com

May 28, 2020

Mr. John Pilipchuck, P.E
Geotechnical Engineering Unit
N.C. Department of Transportation
1589 Mail Service Center
Raleigh, NC 27699-1589 37918

RE: Geophysical Study for Possible USTs
700 Western Boulevard, Tarboro, North Carolina
Draper Aden Associates Project No. 20080204-010203

Dear Mr. Pilipchuck:

Draper Aden Associates has completed the geophysical study at 700 Western Boulevard in Tarboro, North Carolina. The objective of this study was to assist in determining if any underground storage tanks (USTs) may be present beneath the study area. To meet this objective, a combination of ground penetrating radar (GPR) and electromagnetic induction (EM) techniques were utilized. The following report documents our methodologies and findings.

We value our professional relationship with N.C. Department of Transportation and hope that you will contact us with any similar needs in the future. If you have any questions regarding this report, or if we can be of any further service to you please do not hesitate to contact us.

Sincerely,
Draper Aden Associates

Johanna Vaughan, P.G.
Geologist

Francis Douglas Pinckney, P.E.
Team Leader/Senior Project Engineer
Geotechnical and Construction Services

TABLE OF CONTENTS

FIGURES

1.0 EXECUTIVE SUMMARY

Draper Aden Associates (DAA) was retained by N.C. Department of Transportation to conduct a geophysical study at 700 Western Boulevard near Tarboro, North Carolina. The objective of this study was to assist in determining if any underground storage tanks (USTs) may be present beneath the study area. To meet this objective, a combination of ground penetrating radar (GPR) and electromagnetic induction (EM) techniques were utilized.

The EM61 data were collected on April 29 and May 4, 2020 in grid fashion with sub-parallel traverses spaced approximately four feet apart.

The contoured results from the EM61 data do not clearly reveal the occurrence of any possible UST locations, but rather the occurrence of numerous "hotspots" interpreted as metallic surface features such as drain grates, or manhole covers. The GPR data were collected on April 29, 2020 utilizing the same grid as the EM61 data collection, but with sub-parallel traverses spaced approximately two feet apart.

The combined analysis of the EM61 and GPR data reveals numerous anomalies which are likely the geophysical response to manmade features such as manholes, drain grates, utility poles, fire hydrants, buried utilities, and other similar features. However, the geophysical data do not reveal any anomalies within the study area which can be confidently interpreted as possible USTs.

2.0 INTRODUCTION

Draper Aden Associates (DAA) was retained by N.C. Department of Transportation to conduct a geophysical study at 700 Western Boulevard near Tarboro, North Carolina (Figure 1). The objective of this study was to assist in determining if any underground storage tanks (USTs) may be present beneath the study area. To meet this objective, a combination of ground penetrating radar (GPR) and electromagnetic induction (EM) techniques were utilized. The following report documents our methodologies and findings.

The tasks involved in this study included:

1. Collection, processing, and interpretation of EM61 data;
2. Collection, processing, and interpretation of GPR data;
3. Preparation of this document to detail our methods and findings.

3.0 ELECTROMAGNETIC INDUCTION (EM) STUDY

3.1 EM Field Methods

The instrument used for this investigation was the EM61 manufactured by Geonics, LTD. The EM61 data were collected on April 29 and May 4, 2020 in grid fashion with sub-parallel traverses spaced approximately four feet apart (Figure 2). The distribution of the EM61 data was tracked by a global positioning system (GPS) unit capable of sub-foot accuracy. The collected data were subsequently contoured laterally and analyzed for evidence of any possible USTs.

3.2 EM61 Results

The contoured results from the EM61 data are presented in Figure 3, overlain onto Google Earth aerial imagery. The EM61 results reveal many anomalies that are coincident with manmade features at the ground surface such as drain grates, manholes, utility poles, etc. None of the EM61 anomalies can be conclusively interpreted as a possible UST

4.0 GPR STUDY

4.1 GPR Field Methods

The instrument used for this investigation was the Noggin 250 manufactured by Sensors and Software, Inc. in Ontario, Canada, which utilizes a 250 MHz antenna mounted on a moveable

cart. GPR data were collected on April 29, 2020 utilizing the same grid as the EM61 data collection, with sub-parallel traverses spaced approximately two feet apart, tracked by a GPS unit capable of sub-foot accuracy (Figure 4).

4.2 GPR Results

The GPR data were analyzed as vertical cross-sections and as depth slices, or plan-view maps of the GPR response from various depth intervals for evidence of possible USTs. Analysis of the GPR data in cross-section revealed numerous hyperbolic reflectors which likely represented buried utilities, as their signature continued for substantial distances across numerous adjacent GPR traverses. However, no broad hyperbolic reflectors consistent with possible USTs were identified within the GPR cross-sections that would indicate a possible UST.

Figures 5 and 6 illustrate the plan-view GPR response in 6-inch-thick depth intervals spanning from 1.0 to 6.0 feet depth. Numerous areas of elevated GPR response are observed throughout the depth slices which are interpreted to represent miscellaneous buried objects or materials such as buried utilities, or varying soil conditions, such as intermittent clay layers or zones of wet soil.

5.0 CONCLUSIONS

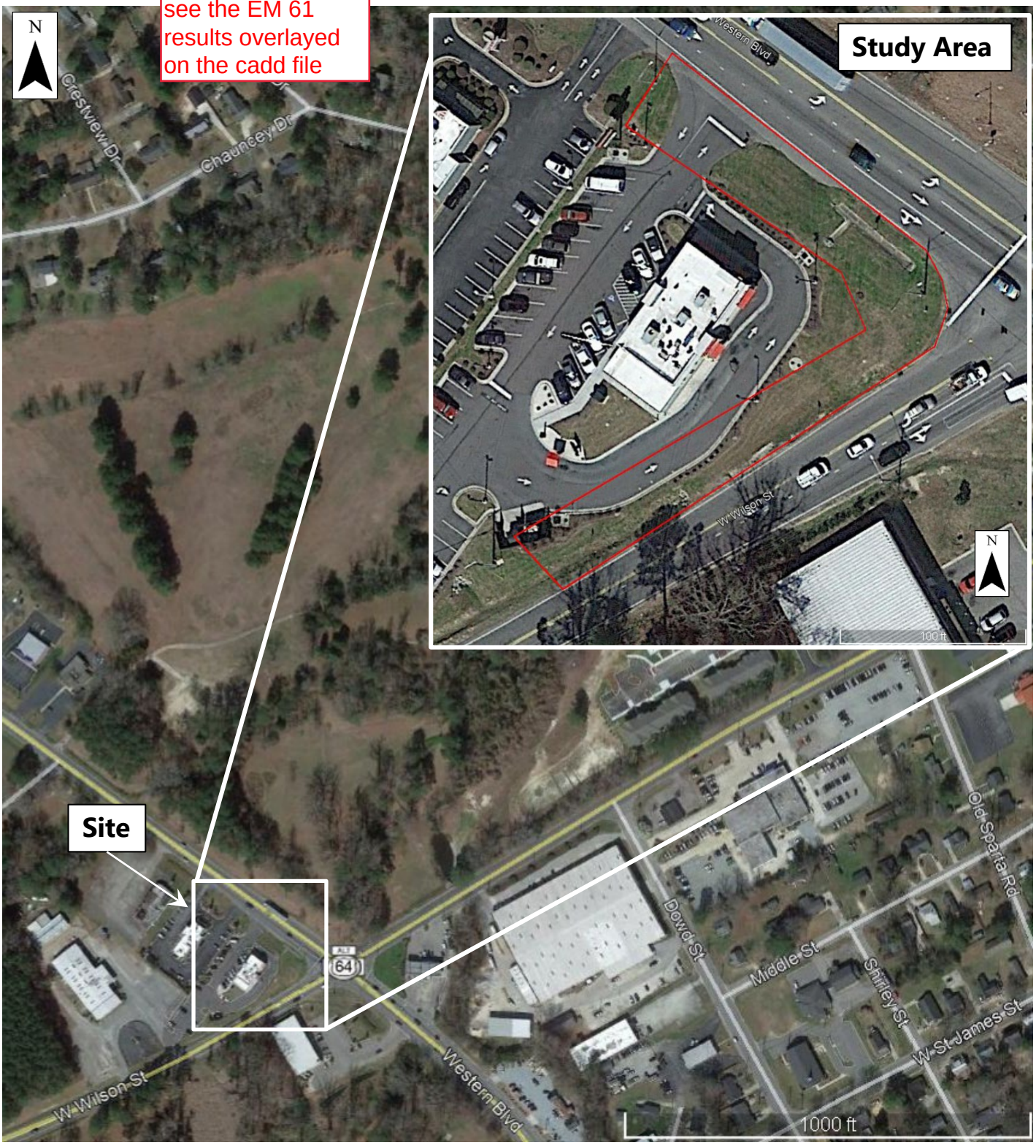
The combined analysis of the EM61 and GPR data reveals numerous anomalies which are likely the geophysical response to manmade features such as manholes, drain grates, utility poles, hydrants, buried utilities, and other similar features. However, the geophysical data do not reveal any anomalies within the study area which can be confidently interpreted as possible USTs.

6.0 LIMITATIONS

This study was conducted by registered professional geologists with extensive experience in the collection, processing, and interpretation of geophysical data. It should be noted, however, that all geophysical methods are interpretive, and additional invasive exploration would be required to verify or refute the interpretations within this report.

7.0 FIGURES

Would also like to see the EM 61 results overlayed on the cadd file



Site Location

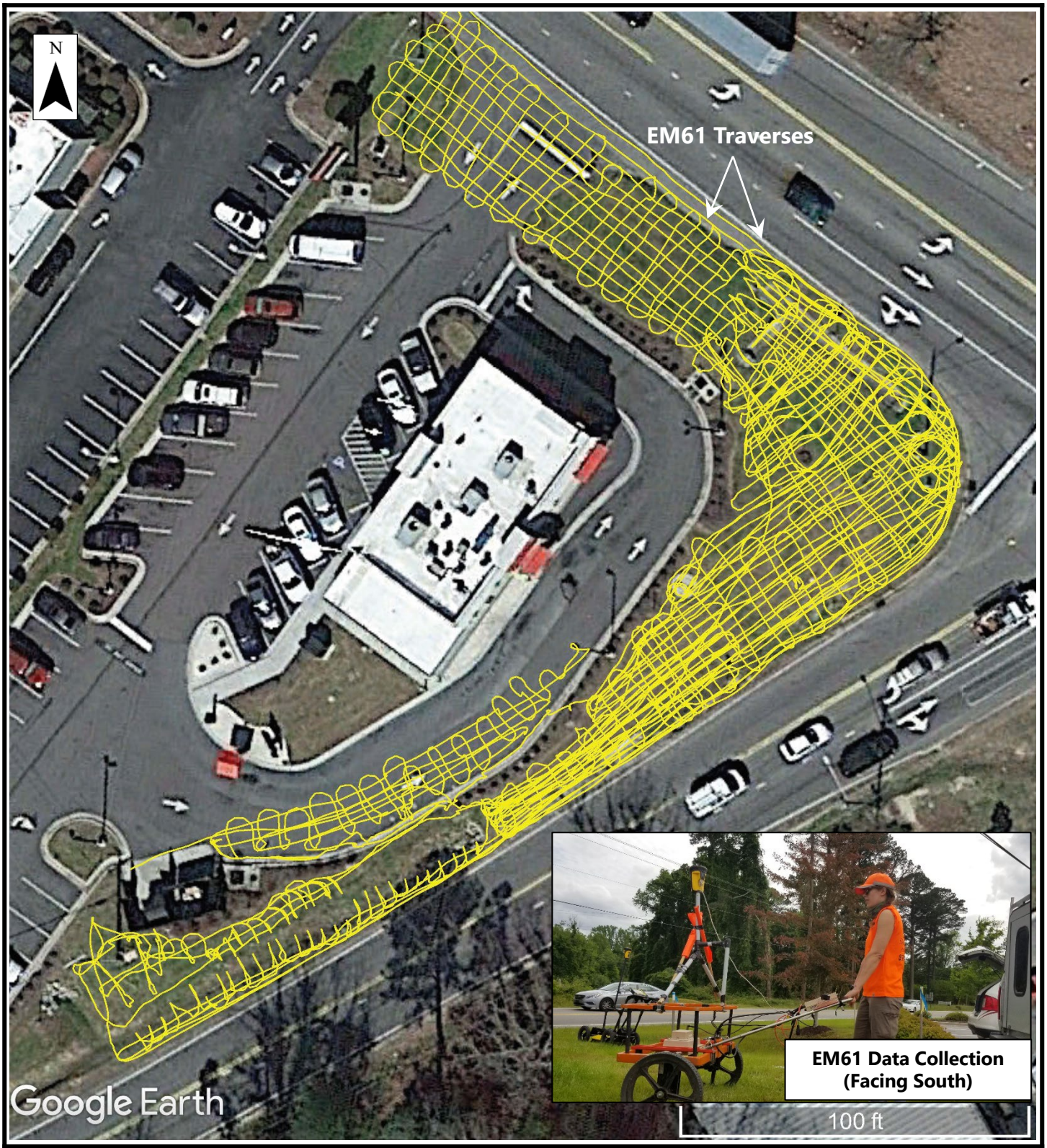
Geophysical Study for Possible USTs
700 Western Boulevard, Tarboro, NC

PROJECT: 20080204-010203

Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia
Virginia Beach, VA

DESIGNED: JMV
DRAWN: JMV
CHECKED: CMP
DATE: 05/18/2020

FIGURE
1



EM61 Traverse Map

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Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
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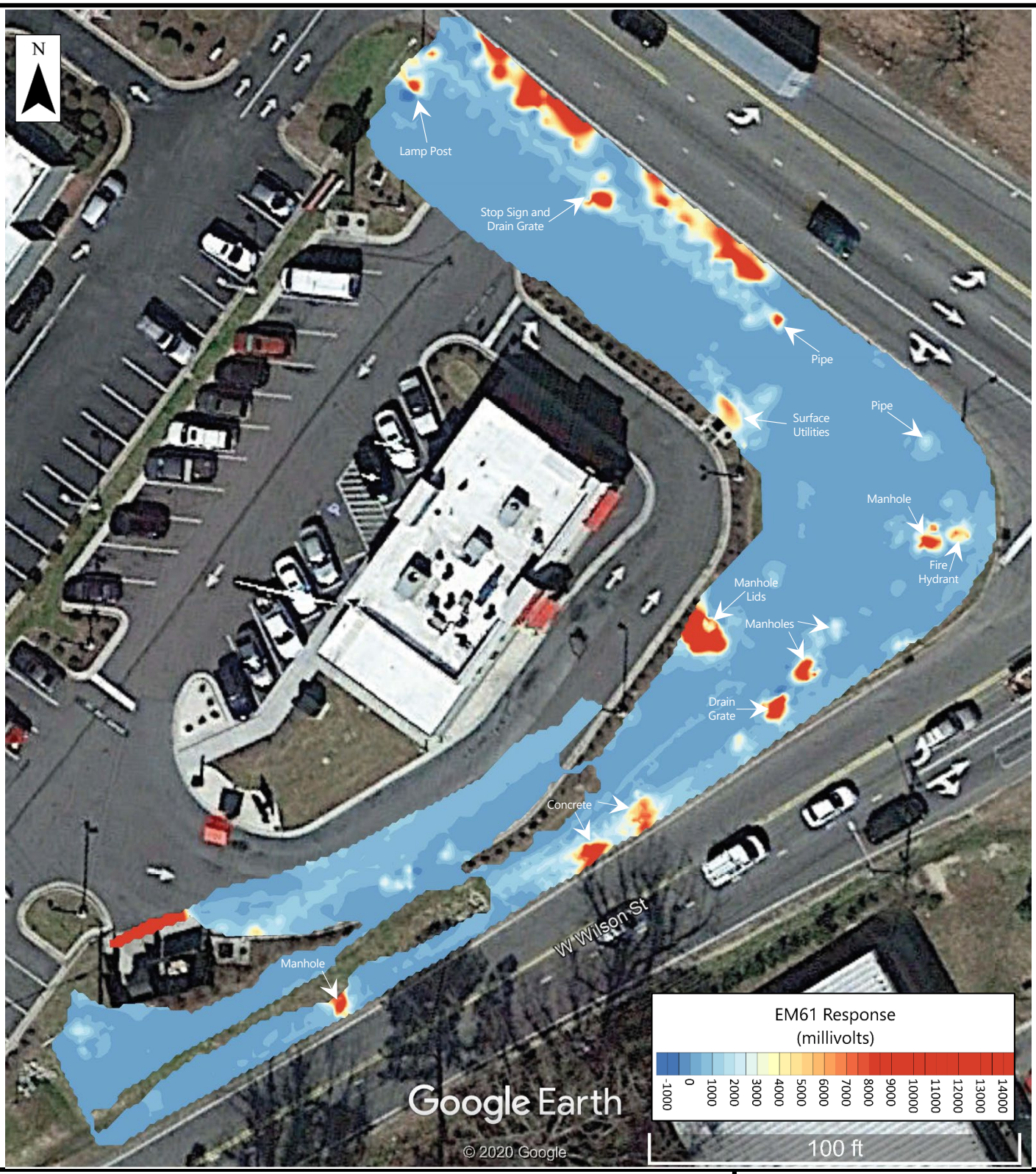
FIGURE
2



Contoured EM61 Results

Geophysical Study for Possible USTs
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Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
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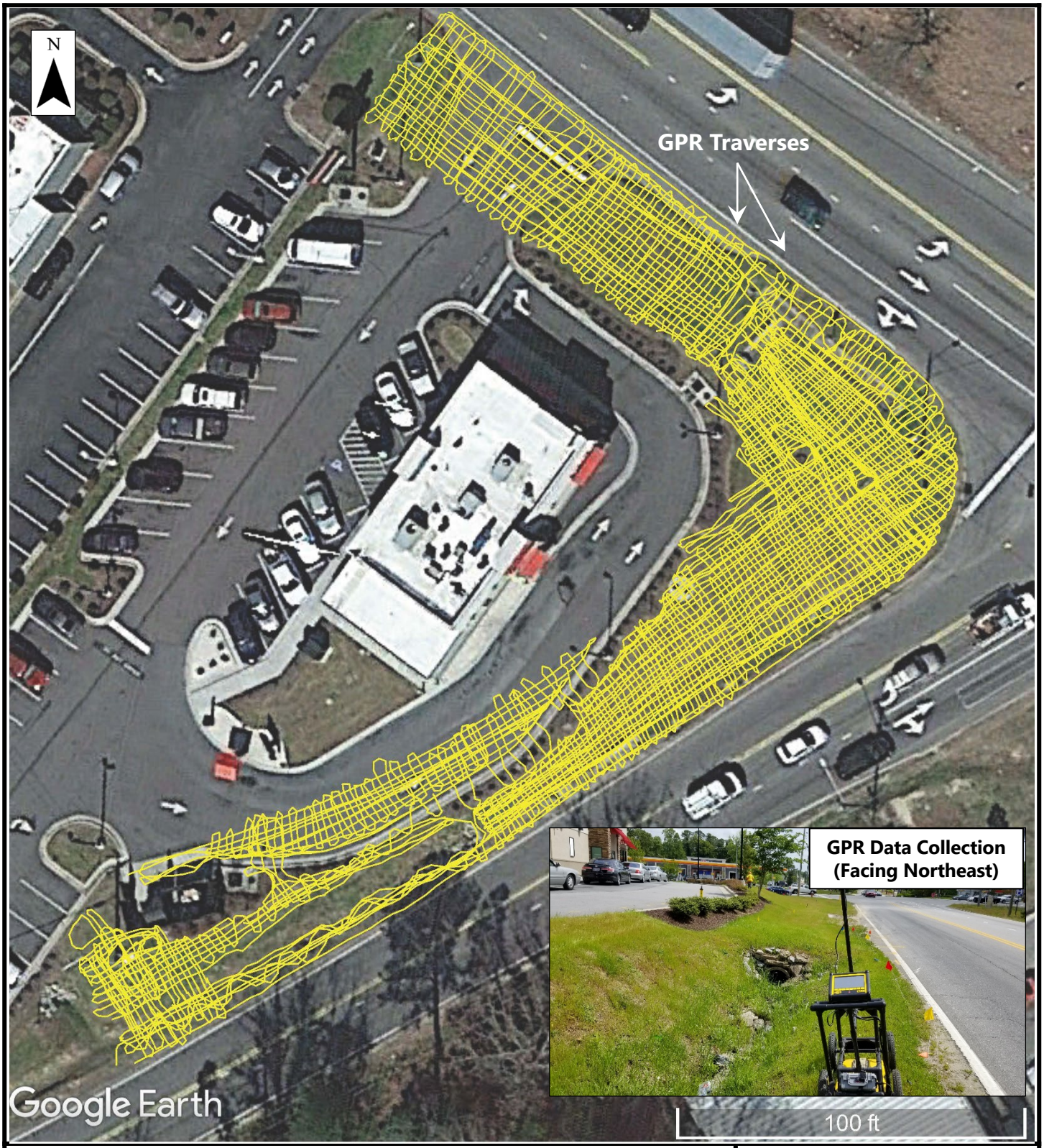
FIGURE
3



GPR Traverse Map

Geophysical Study for Possible USTs
700 Western Boulevard, Tarboro, NC

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Draper Aden Associates
Engineering • Surveying • Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
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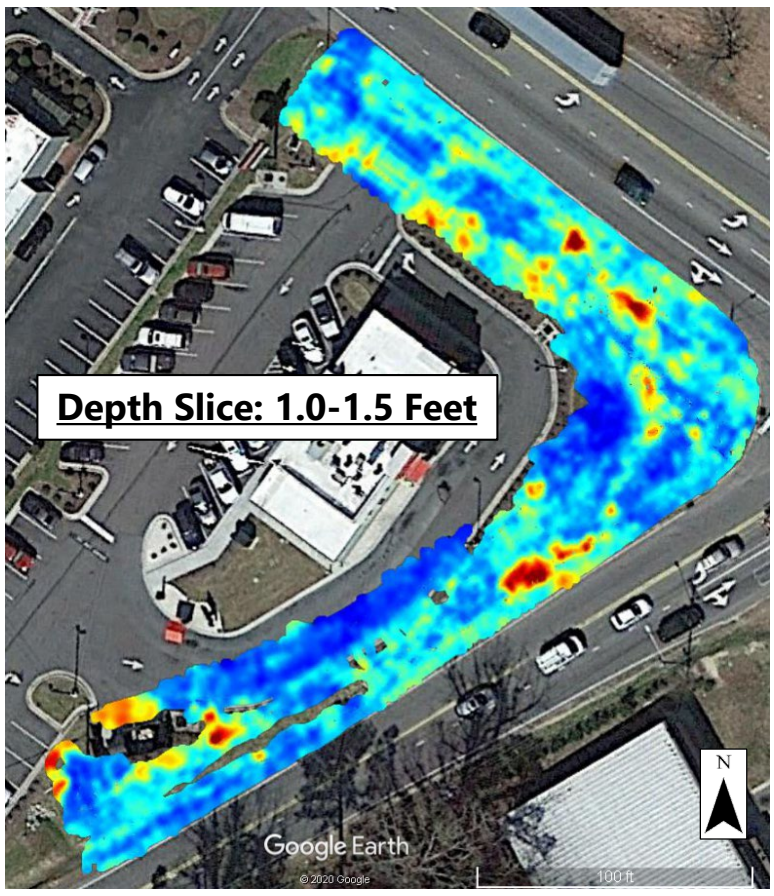
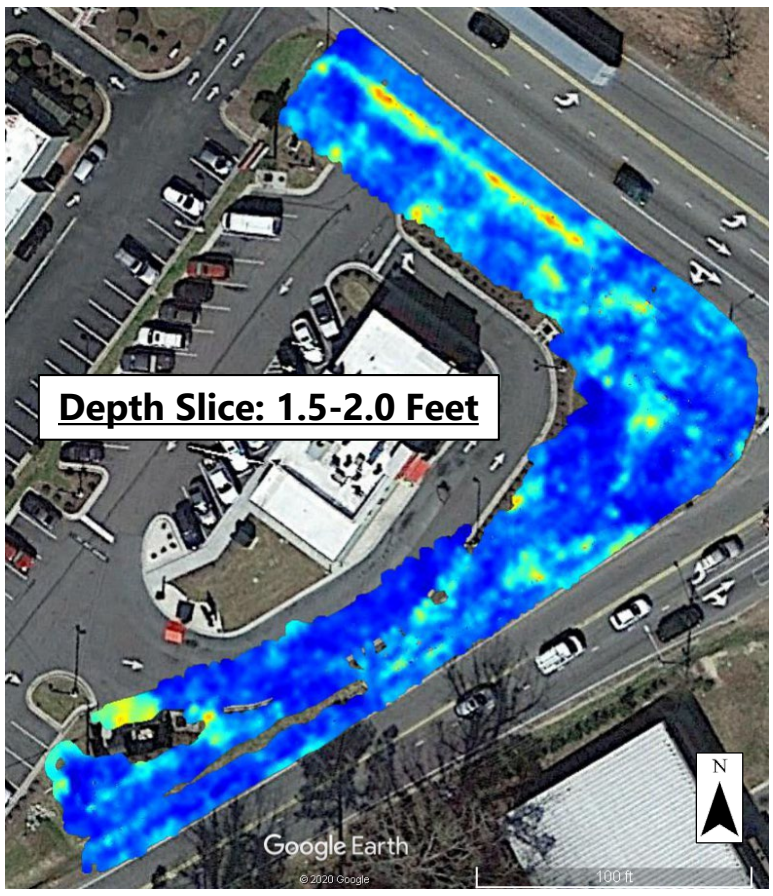
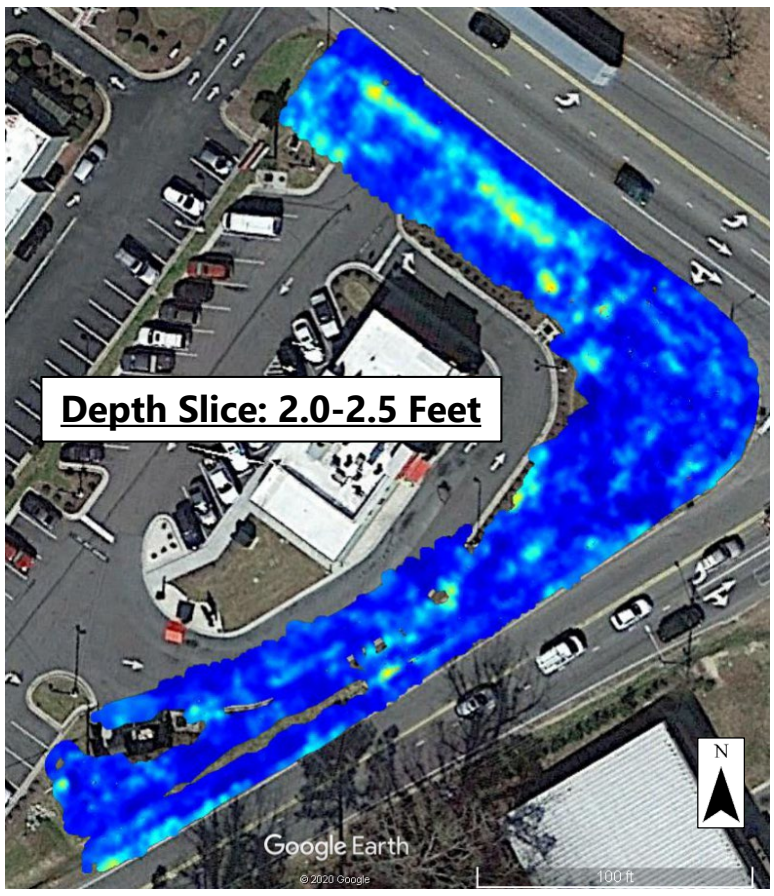
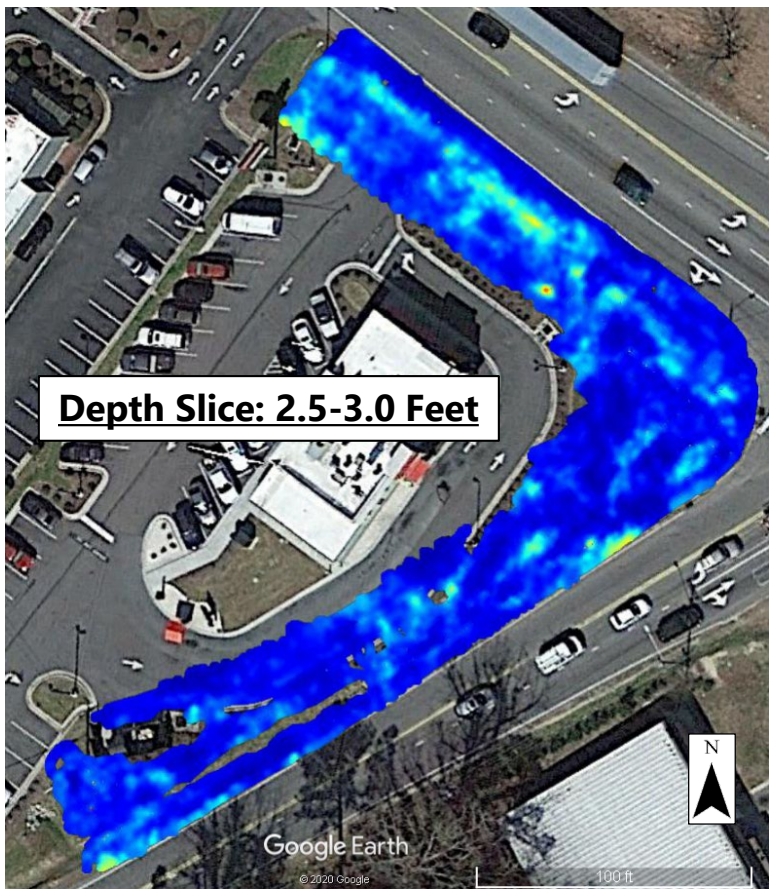
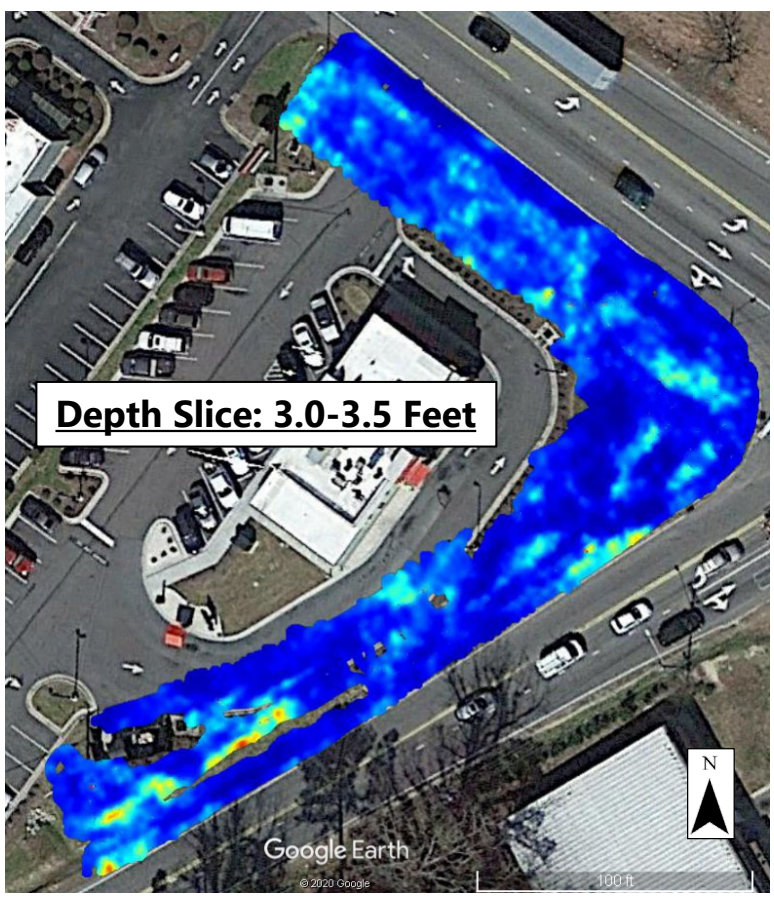
FIGURE
4

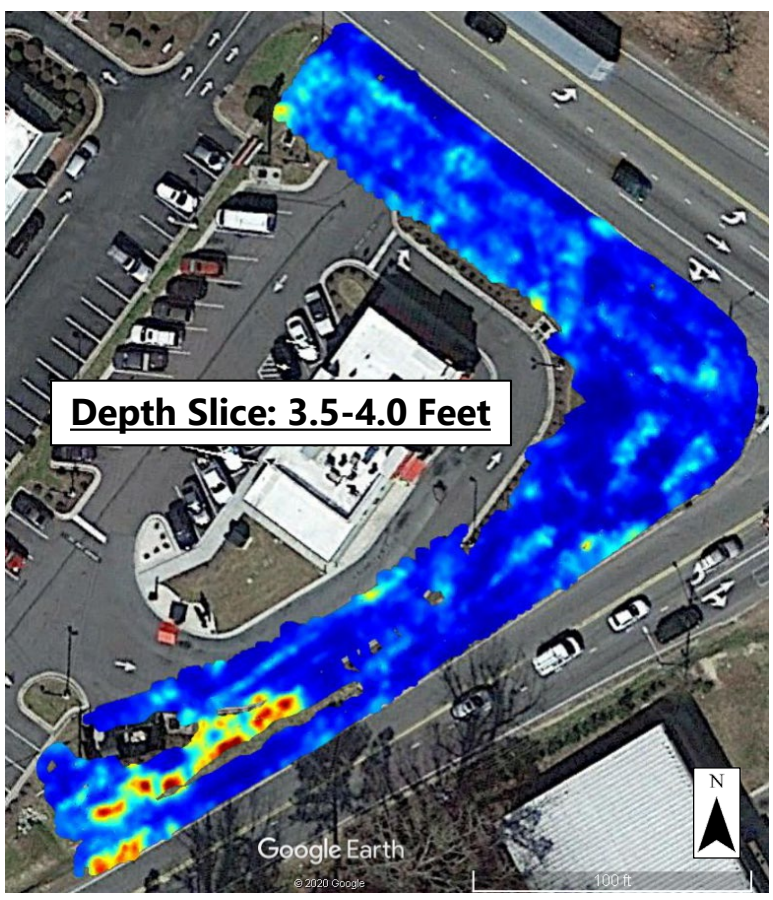












GPR Depth Slices from 1.0 Feet to 4.0 Feet Depth

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Draper Aden Associates
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2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
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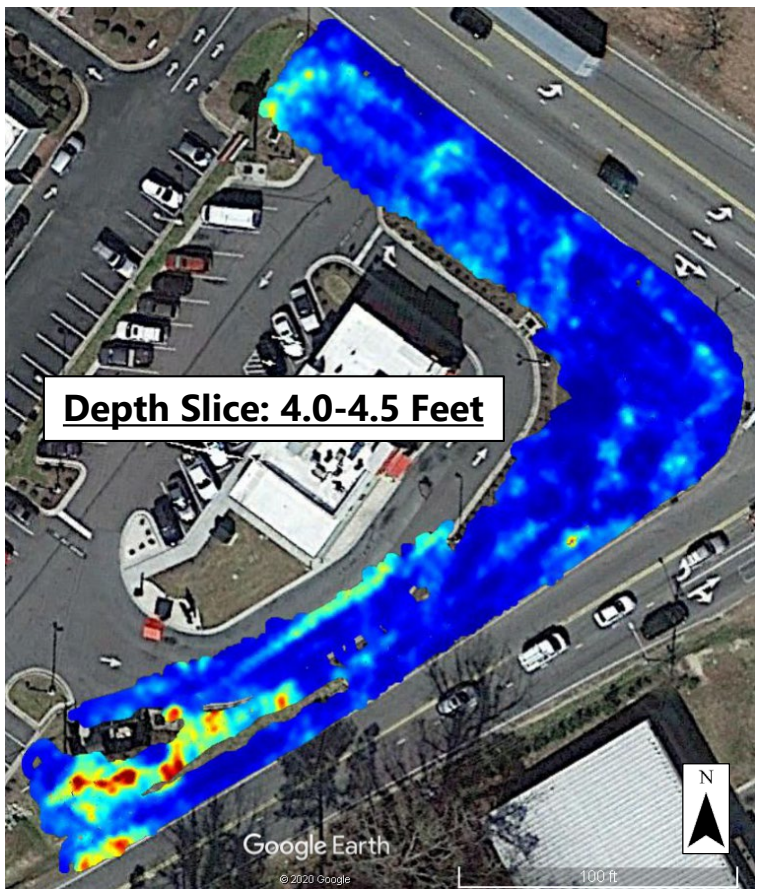
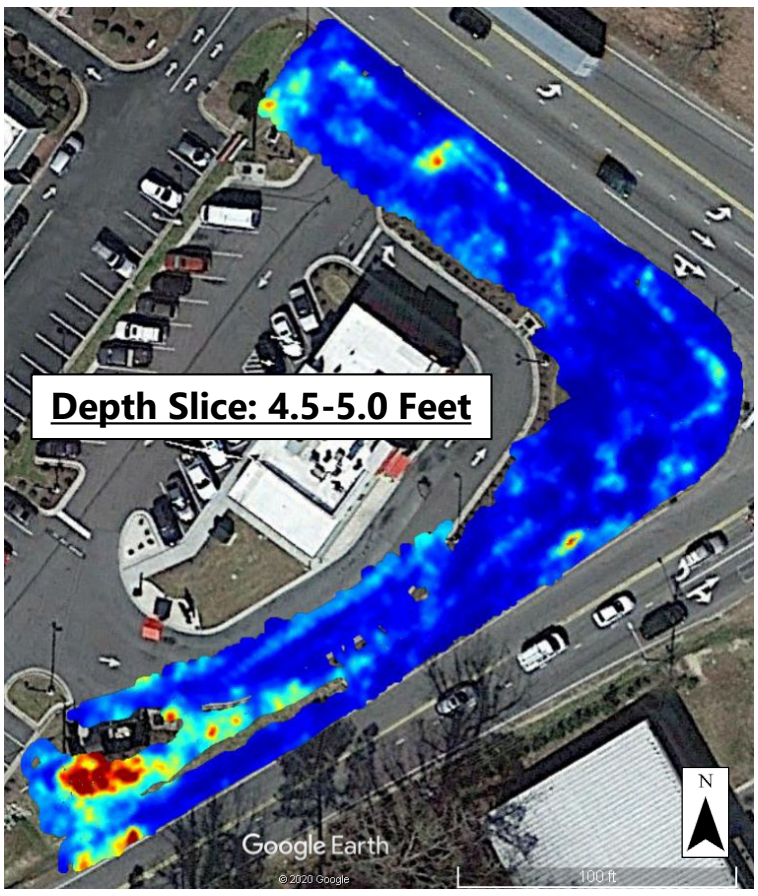
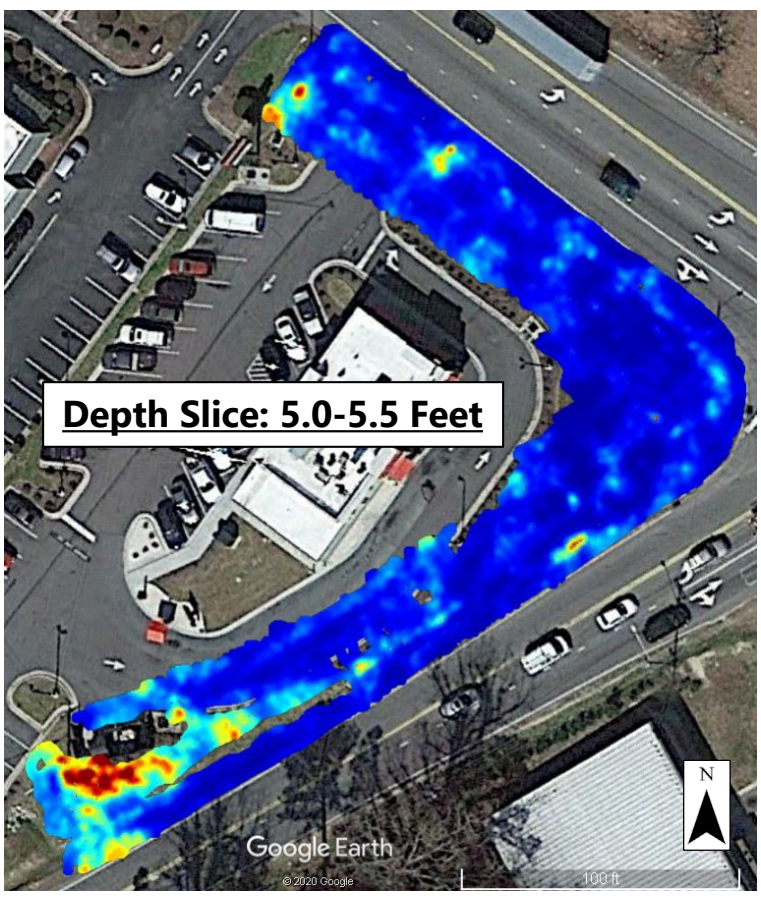
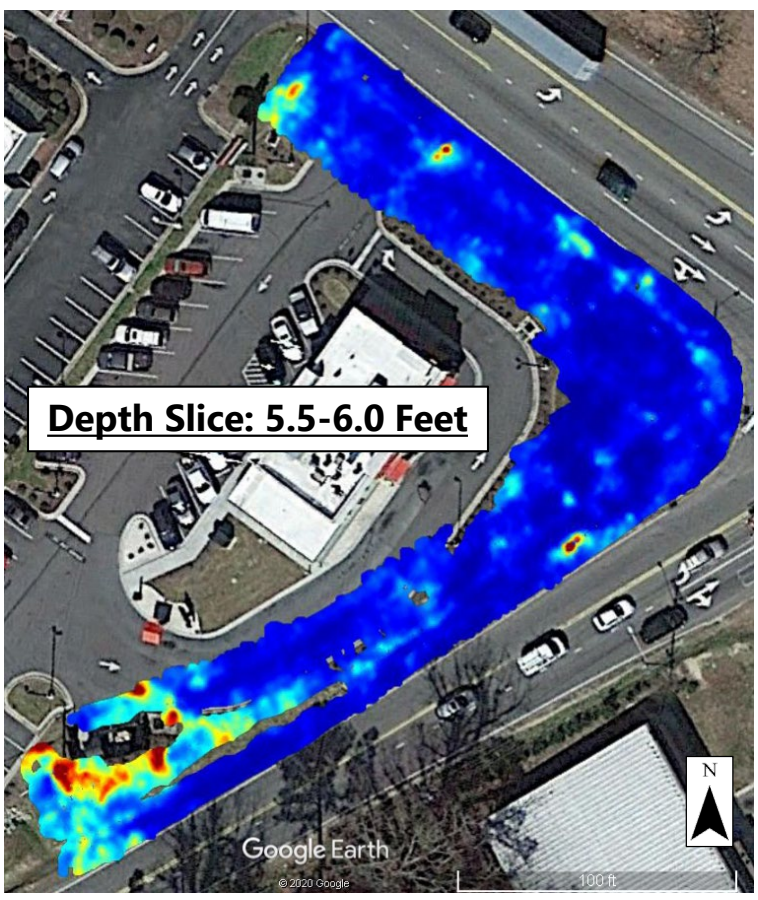
FIGURE
5









GPR Depth Slices from 4.0 Feet to 6.0 Feet Depth

Geophysical Study for UST Investigation
700 Western Boulevard, Tarboro, NC

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Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia
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FIGURE
6