March 18, 2022

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

RE: PHASE II INVESTIGATION OF PARCEL 99
Julius Conrad Frazier
2301 Sandy Ridge Road, High Point, NC 27265
ESP Project No. IS14.314

TIP Number:	U-4758
WBS Number:	40251.1.1
County:	GUILFORD
Description:	Johnson St – Sandy Ridge Road from Skeet Club Road to I-40

Dear Mr. Box:

ESP Associates, Inc. (ESP) is pleased to submit this report on our GeoEnvironmental Phase II Investigation of the subject parcel. This work was performed in accordance with your Request for Proposal dated December 7, 2021 and our Cost Proposal dated December 13, 2021.

We appreciate the opportunity to assist you during this phase of the project. If you should have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,

ESP Associates, Inc.

Edward D. Billington, PG
Senior Geologist/Geophysicist
EDB/CRP/CJW

DocuSigned by:
Ed Billington
7402544DC92F4EC...

NORTH CAROLINA LICENSED SEAL 1631 GEOLOGIST EDWARD DAVIS BILLINGTON

not considered Final unless all signatures are completed

ESP Associates, Inc.
7011 Albert Pick Road, Suite E, Greensboro, NC 27409
1.800.960.7317 · NC: 328.334.7724
www.espassociates.com

TABLE OF CONTENTS

TABLES

TABLE OF CONTENTS (continued)

FIGURES

APPENDICES

1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is planning to improve Johnson Street – Sandy Ridge Road from Skeet Club Road to I-40 in High Point. The NCDOT requested that ESP Associates, Inc. (ESP) perform a Phase II geoenvironmental investigation of the proposed right-of-way (ROW), proposed temporary construction easement, proposed permanent utility easement (PUE), proposed permanent drainage easement (PDE), and the proposed permanent drainage/utility easement (DUE) (collectively, easements) for Parcel 99 to locate abandoned underground storage tanks (USTs) and buried drums, sample soil, and delineate potential contaminated soil. Parcel 99 is located at 2301 Sandy Ridge Road in High Point on the north side of the intersection with Sandy Camp Road (Figure 1).

2.0 HISTORY

2.1 Phase I Report

According to the *2015 Johnson Street – Sandy Ridge Road Environmental Report for Planning* (Phase I Report) for U-4758, Parcel 99 may have been a former gas station where a "suspect groundwater monitoring well" and a possible former fuel dispenser were observed. No USTs were observed on site. There is a single-story building with an adjacent barn to the northeast. This site was anticipated to present low geoenvironmental impacts to the project.

2.2 Background Research

We checked the following online sources with the results summarized below:

- North Carolina Department of Environmental Quality (NCDEQ) Division of Waste Management Site Locator Tool
    - Nothing found for this site.
- NCDEQ UST Databases
    - Nothing found for this site.
- Guilford County GIS
    - Property owner is listed as 350 South Land Holdings, LLC (formerly Julius Conrad Frazier).

3.0 SITE OBSERVATIONS

During our February and March 2022 field work, the site contained an active, one-story building occupied by the business Shrimp Connection (Figures 2 and 3). The ground surface in the study area was covered by grass, gravel, debris, and leaf litter in the wooded areas. There was a concrete pad located on the southwest corner of the building which appeared to be a former fuel dispenser location. A possible heating oil line that was disconnected and continued underground was seen on the west side of the house. A discarded, apparently empty above-ground storage tank (AST)

was located in the wooded area approximately 200 feet north of the barn. No monitoring wells were observed on the site.

4.0 METHODS

A portion of the study area was cleared by a subcontractor, HPC, on February 7, 2022 using a rubber-tracked bushhog equipped with a mulching head. ESP performed a geophysical study of the area designated by the NCDOT on February 10 and March 1, 2, and 4, 2022. The geophysical investigation area was approximately 2.0 acres in size and encompassed the accessible areas of the parcel. We performed direct-push drilling and sampling of subsurface soils to depths of 10 feet on March 8, 2022. A photoionization detector (PID) was used to screen subsurface soils in the field and select soil samples for laboratory analysis. Groundwater was encountered during the drilling investigation at one boring (B99-11) located by a dry creek.

4.1 Geophysics

ESP performed a metal detector study over the accessible areas of the site using a Geonics EM61 MK2 with a line spacing of approximately three feet followed by ground-penetrating radar (GPR) data collected over selected EM61 anomalies (Figures 4, 5, and 6). Location control was provided in real-time using a differential global positioning system (DGPS).

4.2 Borings

ESP performed direct-push drilling on Parcel 99 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Fifteen borings were drilled, designated B99-1 through B99-15 (Figure 11). The soil borings were advanced to 10 feet depth below ground surface (bgs) using a hand auger for the first 5 feet and a GeoProbe 54DT drill rig for the second 5 feet. Soil samples were obtained from each boring using the hand auger cuttings and a 5-foot long Macro-Core® tube. Soil cores from the Macro-Core tubes varied in recovery from 36 to 100 percent. The sampling equipment was decontaminated prior to drilling and between borings by the driller by scrubbing the equipment with a Liquinox® detergent solution.

4.3 Soil Sample Protocol

Representative soil samples were taken from the borings at approximate one-foot intervals by the ESP field geologist while wearing nitrile disposable gloves. Each sample was placed in a sealed plastic bag and then kept in a warm area for approximately 10 to 15 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID. The maximum PID readings per boring ranged from 0.2 to 4.9 parts per million (ppm) (Table 1).

Thirteen soil samples were selected for ultraviolet fluorescence (UVF) laboratory analysis, as listed in Table 2. For each selected sample, an approximate 10-gram soil sample was collected from the sample bag using a Terra Core™ sampler and placed into a laboratory-supplied 40-

milliliter volatile organic analysis (VOA) vial containing methanol. Once sealed, the vial was labeled with the sample identification number and then shaken vigorously for about one minute. The samples were packed on ice and sent via overnight delivery to RED Lab, LLC (RED Lab), located in Wilmington, North Carolina, following proper chain-of-custody procedures (Appendix C).

RED Lab used a QED Hydrocarbon Analyzer to quantitatively analyze the soil samples using the UVF method for benzene, toluene, ethylbenzene, and xylene (BTEX); gasoline range organics (GRO); diesel range organics (DRO); total petroleum hydrocarbons (TPH); total aromatics; polycyclic aromatic hydrocarbons (PAHs); and benzo(a)pyrene (BaP).

4.4 Groundwater

Groundwater was encountered at a depth of 3.5 feet in Boring B99-11, located by a dry creek (Figure 11). At the instruction of the NCDOT, the groundwater was not sampled, as the PID readings of the site soil samples did not indicate soil contamination.

5.0 RESULTS

5.1 Geophysics

The EM61 early time gate data show the response from both shallow and deeper metallic objects (Figure 4). The differential response reduces the effect of shallow anomalies and emphasizes anomalies from larger and more deeply buried metallic objects, such as USTs (Figures 5 and 6). Our evaluation of the EM61 data indicated several anomalies that could not be attributed to known cultural features. GPR data collected over these anomalies indicated that they were caused buried debris, a culvert, metal siding on the east side of the barn, and 4 probable USTs, designated UST-1 through UST-4. GPR data collected over the 4 probable USTs are shown on Figures 7 and 8, respectively.

UST-1 is located by the northwest corner of the building, UST-2 is located on the west side of the building, and UST-3 and UST-4 are located at the front of the building by the southwest corner. Based on the GPR data, UST-1 is buried approximately 2 feet bgs and has an approximate diameter of 3 feet, a minimum length of 5 feet, and an approximate volume of 300 gallons. Due to obstructions, GPR data could not be collected over the entire length of UST-1. UST-2 is buried approximately 3 feet bgs and has an approximate diameter of 4 feet, an approximate length of 8 feet, and an approximate volume of 750 gallons.

UST-3 and UST-4 are located side-by-side by the southeast corner of the building. UST-3 is offset to the north by approximately 2 feet compared to UST-4. Based on the GPR data, both probable USTs are buried approximately 3 feet bgs and have approximate diameters of 6 feet, approximate lengths of 12 feet, and approximate volumes of 2,500 gallons each. Apparent product lines extend north from the tanks and turn east towards the relic dispenser island.

In the vicinity of UST-3 and UST-4, the Phase I report indicated a probable monitoring well. GPR data collected in the vicinity of the two USTs indicated 2 shallow reflectors about 6 inches bgs. One of these reflectors was excavated and appeared to be a fill port for UST-4 (Figure 3.H).

5.2 Sample Data

The soil sample UVF hydrocarbon analysis results for BTEX, GRO, DRO, and PAHs are presented in Table 2. The RED Lab laboratory report, which also includes results for TPH, total aromatics, and BaP, is provided in Appendix B. Values are provided in mg/kg (ppm).

5.3 Sample Observations

The results of the laboratory testing indicate that BTEX, GRO, PAHs, and BAP were below the laboratory detection limits in the 13 samples tested (Table 2). DRO was detected in 6 samples, with readings below the NCDEQ action level of 100 ppm for DRO (Figure 12).

6.0 CONCLUSIONS

The results of the Phase II investigation of Parcel 99 for NCDOT Project U-4758 indicates the presence of 4 probable USTs within the proposed ROW and easements. DRO was detected in 6 soil samples but below the NCDEQ Action Level of 100 ppm.

6.1 Geophysics

The geophysical data indicated the presence of 4 probable USTs. UST-2, UST-3, and UST-4 are located on the south and west sides of the building within the proposed ROW and UST-1 is located on the north side of the building just outside of the proposed ROW but within the proposed PUE (Figure 11). The probable USTs are buried approximately 2 and 3 feet bgs with estimated volumes ranging from 300 to 2,500 gallons.

6.2 Soil

The results of the Phase II investigation for Parcel 99 of NCDOT Project U-4758 did not indicate soil contamination above the NCDEQ Action Levels for GRO and DRO in the upper 10 feet in the areas sampled. DRO was detected in 6 samples at levels below the NCDEQ Action Level of 100 ppm for DRO (Figure 12).

7.0 RECOMMENDATIONS

ESP recommends that the 4 probable USTs on Parcel 99 that are located within the proposed ROW and easements be removed in accordance with NCDEQ regulations. ESP also recommends that soil removed in the vicinity of the USTs, the product lines, and the dispenser island be screened for petroleum hydrocarbon contamination, properly handled, segregated, and disposed of offsite in accordance with NCDEQ regulations.

8.0 LIMITATIONS

ESP's professional services have been performed, findings obtained, and recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. ESP is not responsible for the independent conclusions, opinions, or recommendations made by others based on the data presented in this report.

The passage of time may result in a change in the environmental characteristics at this site and surrounding properties. ESP does not warrant against future operations or conditions, or against operations or conditions present of a type or at a location not investigated. ESP does not assume responsibility for other environmental issues that may be associated with the subject site.

TABLES

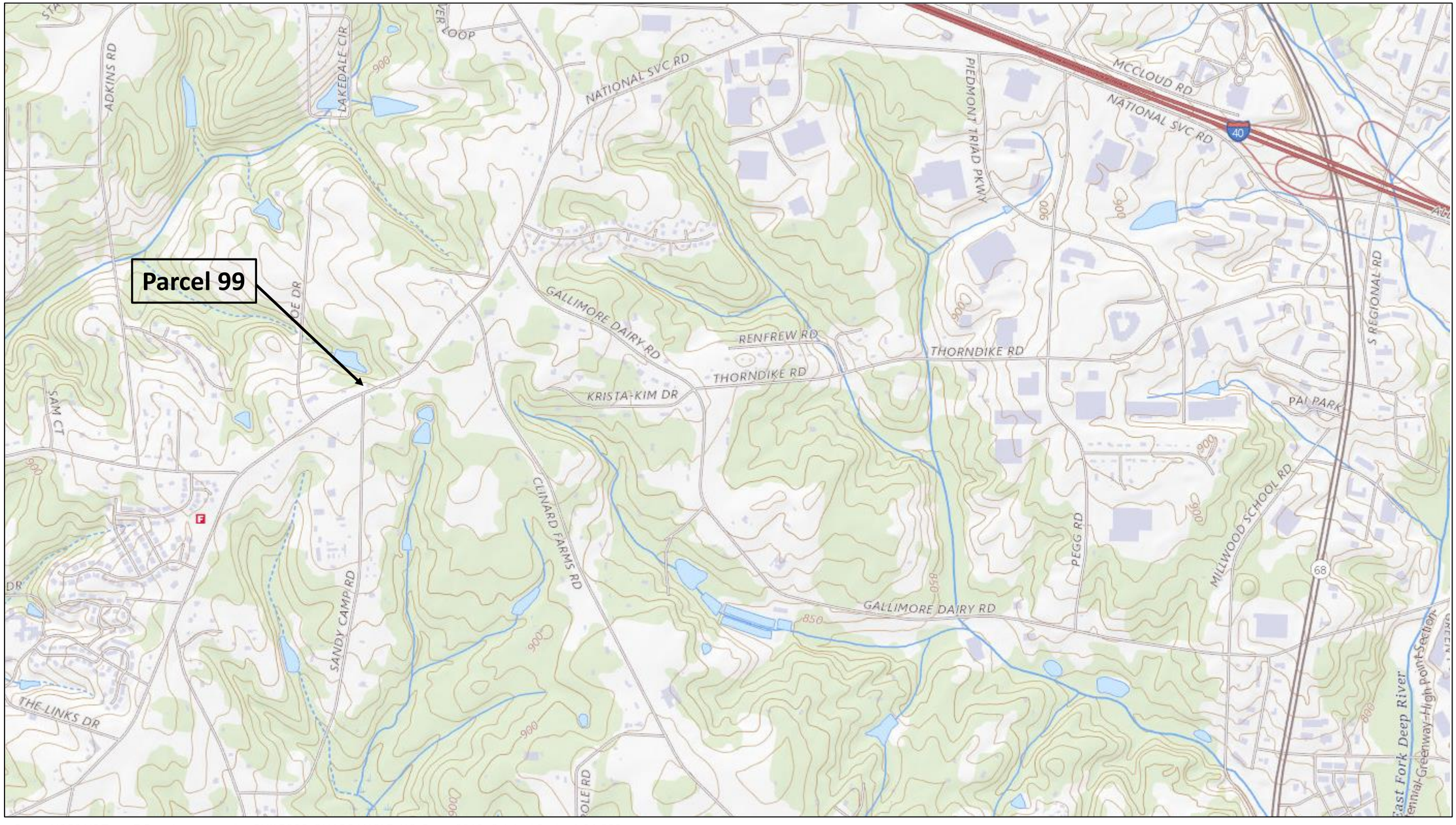
TABLE 1
SOIL SAMPLE PID READINGS

Boring	Sample Depth Range with PID > 10 ppm (feet bgs)	Maximum PID Reading (ppm) and Sample Depth (feet bgs)
B99-1	None	0.2 (7.0 – 7.5)
B99-2	None	0.3 (1.0 – 1.5, 6.0 – 6.5)
B99-3	None	0.3 (1.0 – 1.5, 9.0 – 9.5)
B99-4	None	4.9 (9.0 – 9.5)
B99-5	None	0.7 (9.0 – 9.5)
B99-6	None	0.8 (1.0 – 1.5)
B99-7	None	0.4 (9.0 – 9.5)
B99-8	None	0.6 (2.0 – 2.5)
B99-9	None	0.3 (6.0 – 6.5)
B99-10	None	0.6 (6.0 – 6.5)
B99-11	None	0.5 (8.0 – 8.5)
B99-12	None	0.6 (1.0 – 1.5)
B99-13	None	1.3 (8.0 – 8.5)
B99-14	None	1.0 (1.0 – 1.5)
B99-15	None	1.1 (8.0 – 8.5)

TABLE 2
SOIL SAMPLE UVF RESULTS SUMMARY

Boring	Sample ID (depth in feet bgs)	Date Collected	BTEX (C6-C9) (mg/kg)	GRO (C5-C10) (mg/kg)	DRO (C10-C35) (mg/kg)	PAHs (mg/kg)
B99-2	S-6	3/8/22	<0.39	<0.39	0.96	<0.13
B99-4	S-7	3/8/22	<0.36	<0.36	5.1	<0.12
B99-4	S-9	3/8/22	<0.64	<0.64	10.6	<0.2
B99-5	S-9	3/8/22	<0.54	<0.54	3.5	<0.17
B99-6	S-1	3/8/22	<0.29	<0.29	<0.29	<0.09
B99-6	S-9	3/8/22	<0.25	<0.25	<0.25	<0.08
B99-8	S-2	3/8/22	<0.38	<0.38	<0.38	<0.12
B99-9	S-6	3/8/22	<0.42	<0.42	<0.42	<0.13
B99-10	S-6	3/8/22	<0.42	<0.42	2.5	<0.13
B99-11	S-3	3/8/22	<0.27	<0.27	<0.27	<0.09
B99-12	S-7	3/8/22	<0.38	<0.38	<0.38	<0.12
B99-13	S-8	3/8/22	<0.32	<0.32	<0.32	<0.1
B99-15	S-8	3/8/22	<0.28	<0.28	2.0	<0.09

FIGURES



From: USGS US Topo 7.5 - minute map for GUILFORD QUADRANGLE, NC, Date: 2019, Original Scale: 1:24,000

PROJECT NO. IS14.314	***FIGURE 1 – PARCEL 99, JULIUS CONRAD FRAZIER SITE VICINITY MAP***
SCALE AS SHOWN	***NCDOT PROJECT U-4758***
DATE 3/17/2022	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
BY CRP/EDB	***GUILFORD COUNTY, NORTH CAROLINA***

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

A. Photograph from southeast corner of parcel, looking west.

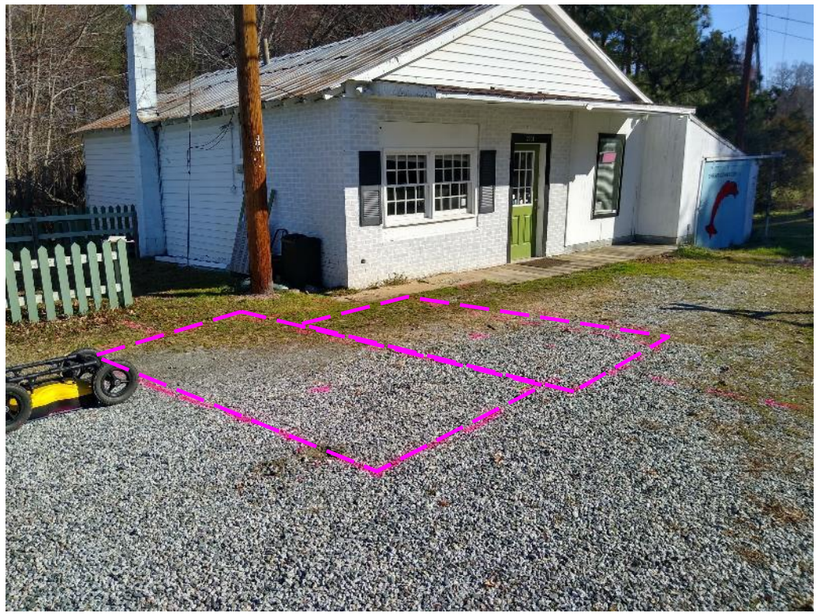
B. Photograph of north end of the building, looking east towards the location of the proposed detention pond.

C. Photograph of the area of buried debris near the west end of the parcel, looking west. Pin flags were for GPR data collection.

D. Photograph of approximate location og UST-1 located on the north end of the building, looking west.

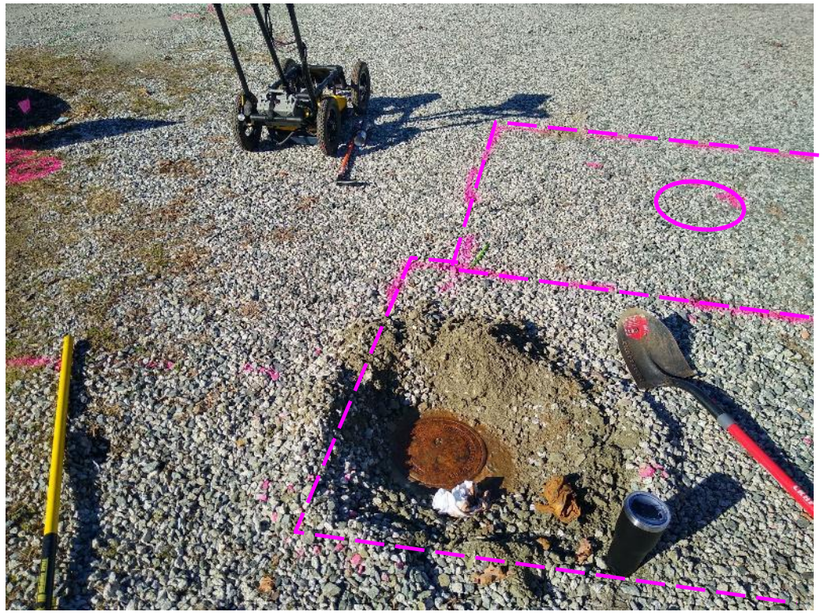
PROJECT NO. IS14.314	***FIGURE 2 – PARCEL 99, JULIUS CONRAD FRAZIER SITE PHOTOGRAPHS, 1 OF 2***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com
SCALE N/A		
DATE 3/17/2022	***NCDOT PROJECT U-4758*** ***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40*** ***GUILFORD COUNTY, NORTH CAROLINA***	
BY CRP/EDB		

E. Photograph of approximate location of UST-2 on the west side of the building, looking north.



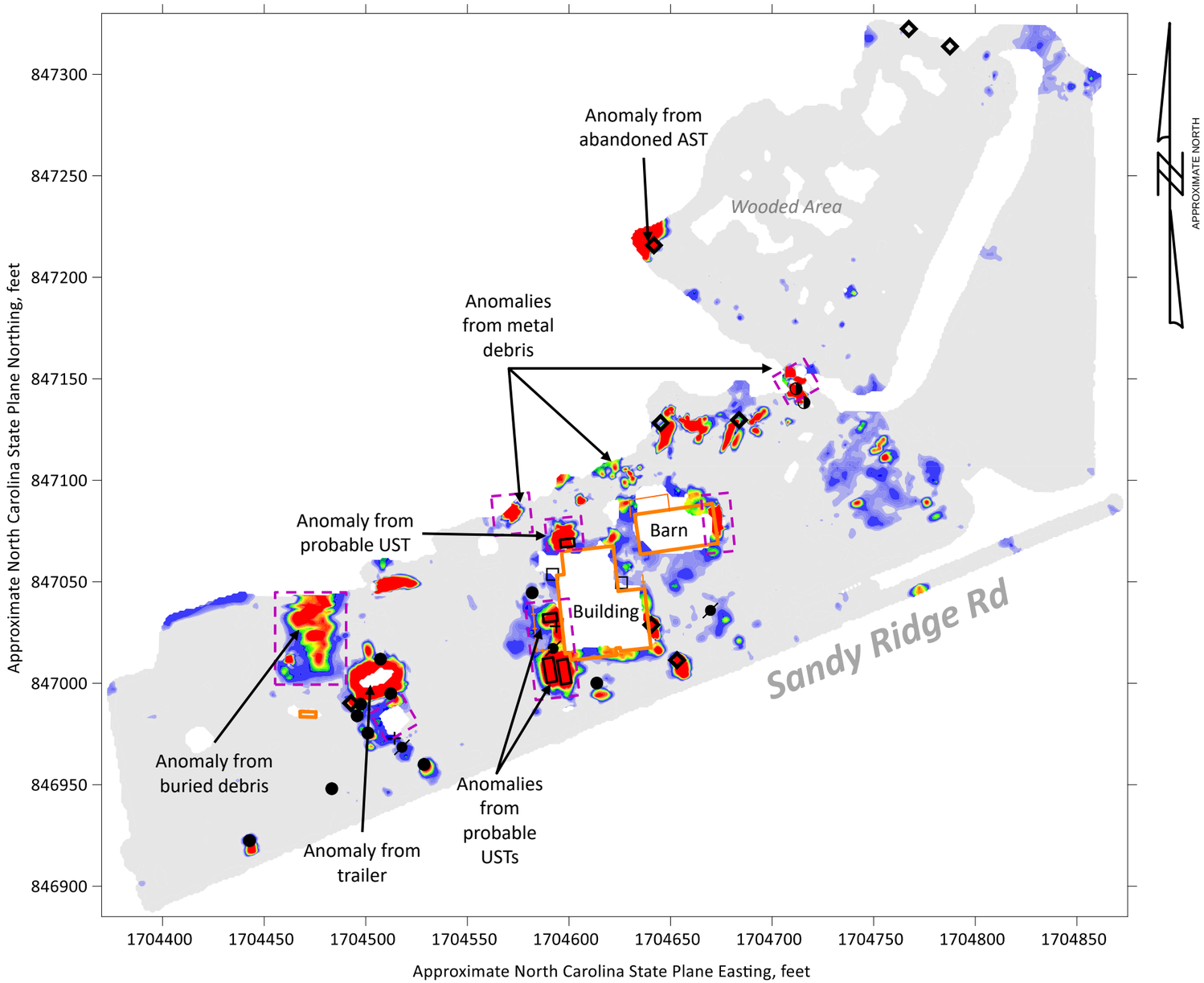
F. Photograph of approximate location of UST-3 (left) and UST-4 (right), looking northeast.

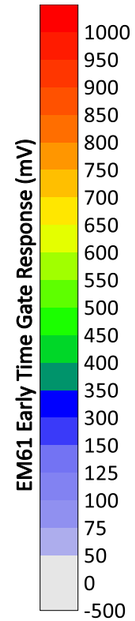
G. Photograph of probable former dispenser island for UST-3 and UST-4, looking north.



H. Photograph of probable fill port for UST-4, looking west. Ellipse shows the approximate location of the probable fill port for UST-3.

PROJECT NO. IS14.314	***FIGURE 3 – PARCEL 99, JULIUS CONRAD FRAZIER SITE PHOTOGRAPHS, 2 OF 2***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com
SCALE N/A		
DATE 3/17/2022	***NCDOT PROJECT U-4758***	
BY CRP/EDB	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***	
	GUILFORD COUNTY, NORTH CAROLINA	





EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet or Catch Basin
- Manhole Cover
- Culvert, storm drain pipe
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Fill Port or Valve Cover
- Monitoring Well
- Buried utility line (marked by others)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

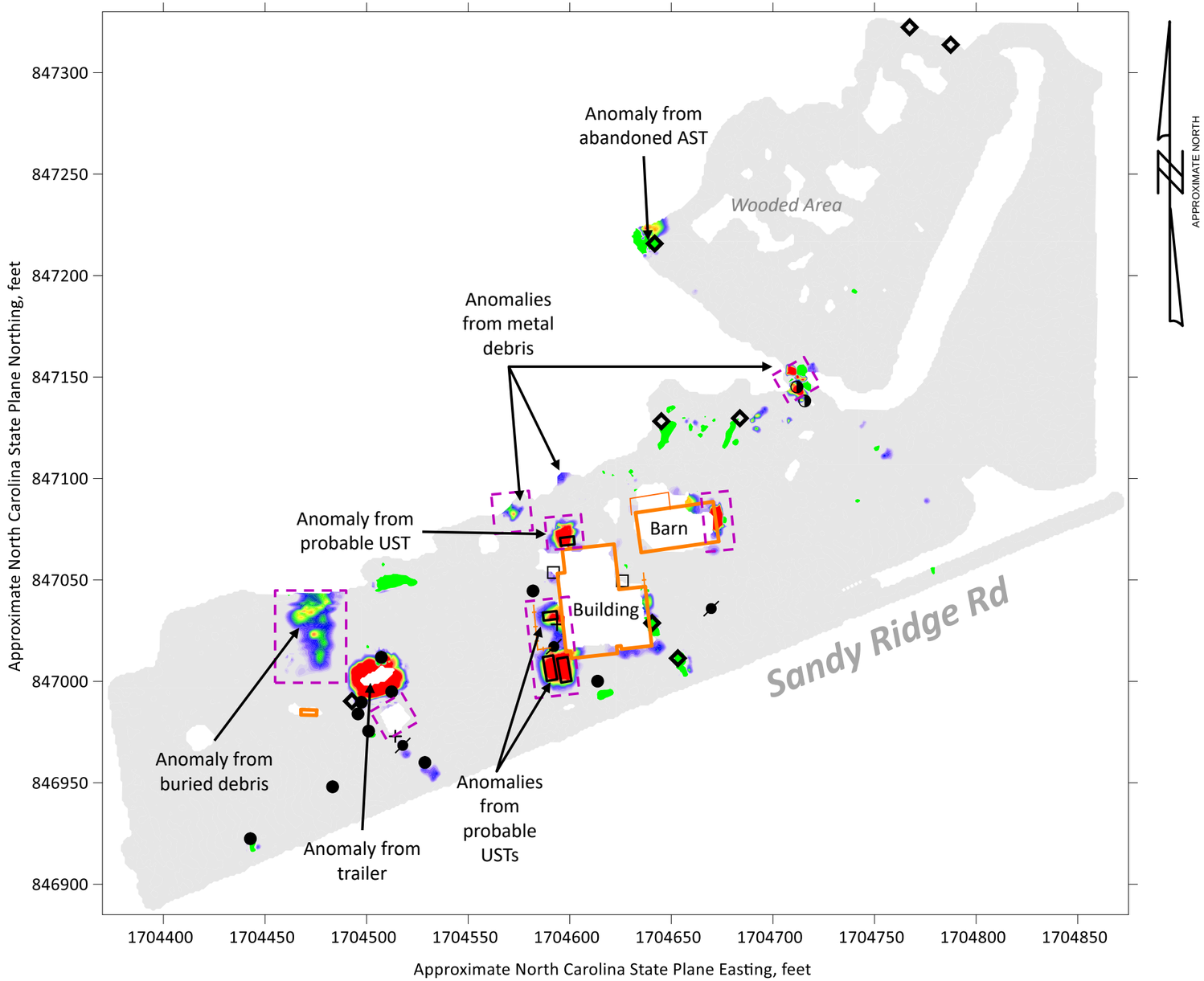
Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

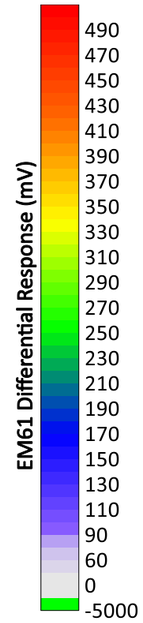
PROJECT NO.	IS14.314
SCALE	AS SHOWN
DATE	3/17/2022
BY	CRP/EDB

FIGURE 4 – PARCEL 99, JULIUS CONRAD FRAZIER EM61 EARLY TIME GATE DATA

NCDOT PROJECT U-4758
JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40
GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com





EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet or Catch Basin
- Manhole Cover
- Culvert, storm drain pipe
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Fill Port or Valve Cover
- Monitoring Well
- Buried utility line (marked by others)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

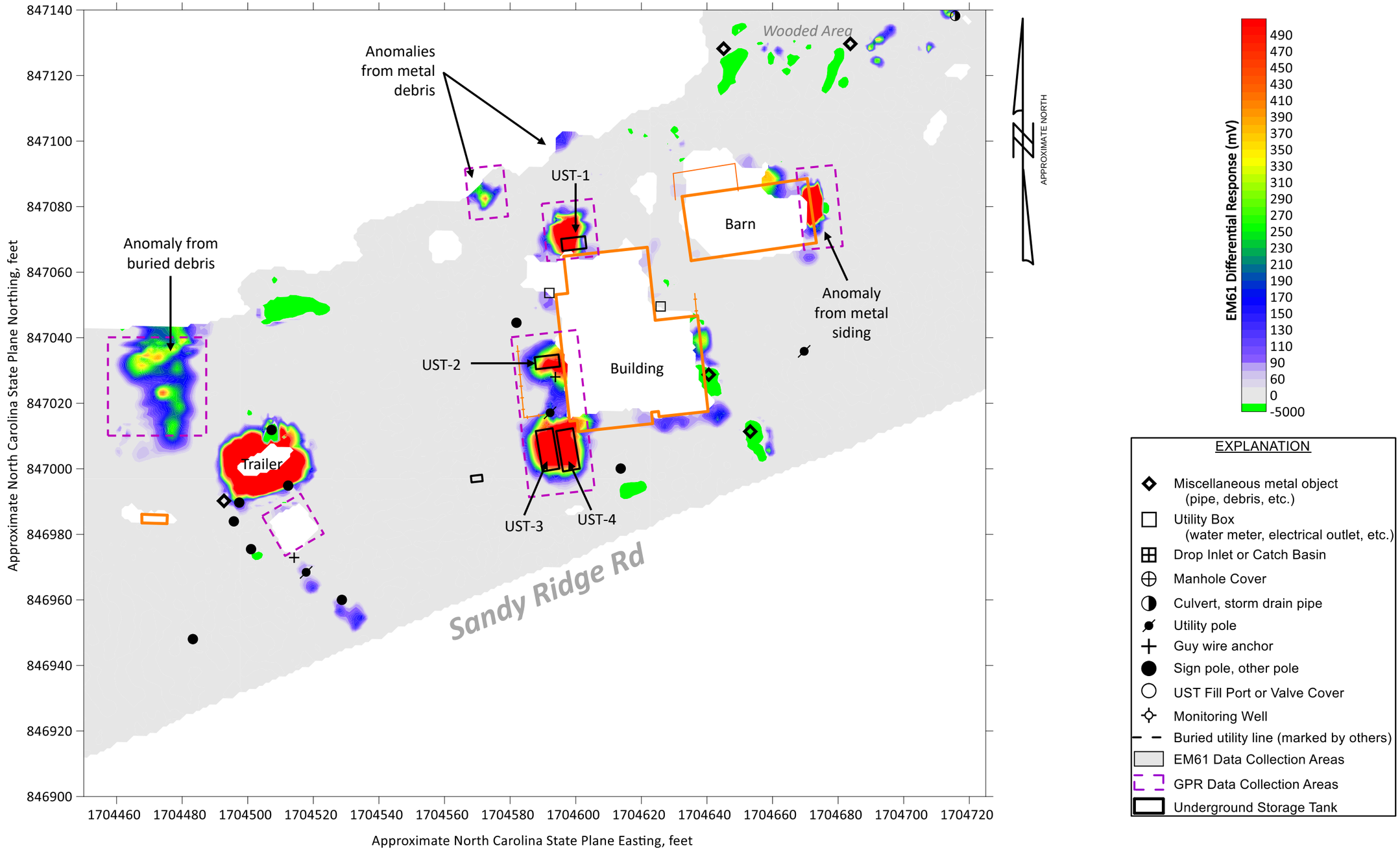
Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO.	IS14.314
SCALE	AS SHOWN
DATE	3/17/2022
BY	CRP/EDB

FIGURE 5 – PARCEL 99, JULIUS CONRAD FRAZIER EM61 DIFFERENTIAL DATA

NCDOT PROJECT U-4758
JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40
GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



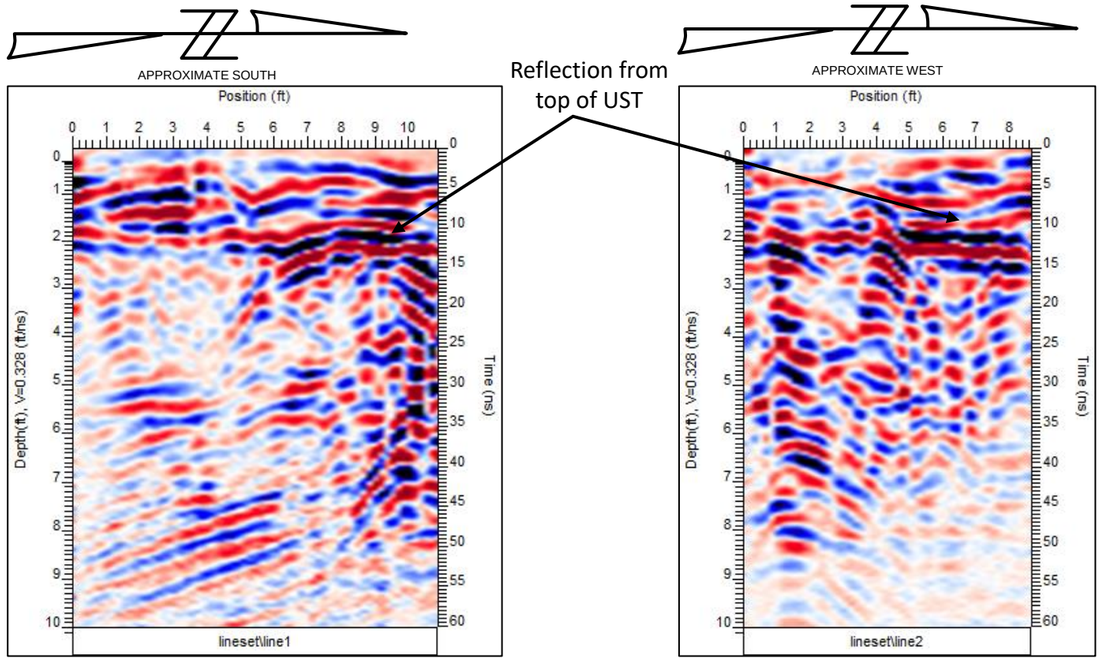
Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO.	IS14.314
SCALE	AS SHOWN
DATE	3/17/2022
BY	CRP/EDB

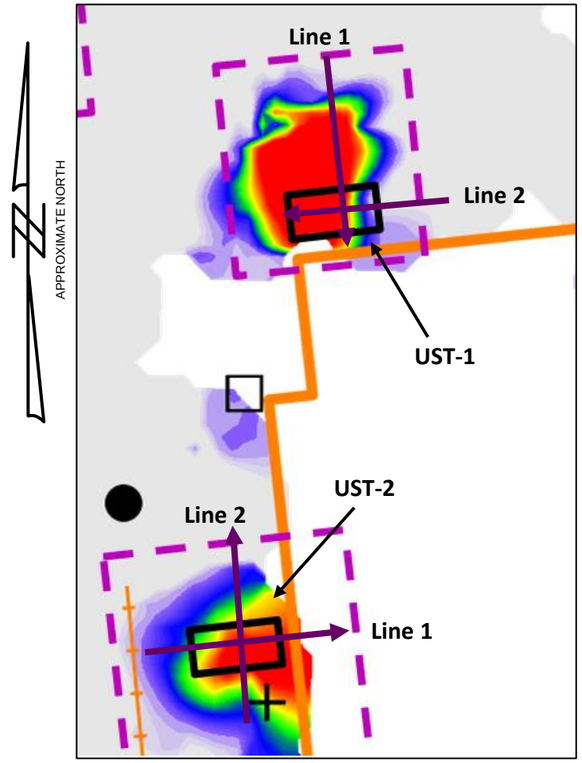
FIGURE 6 – PARCEL 99, JULIUS CONRAD FRAZIER DETAIL AREA, EM61 DIFFERENTIAL DATA

NCDOT PROJECT U-4758
JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40
GUILFORD COUNTY, NORTH CAROLINA

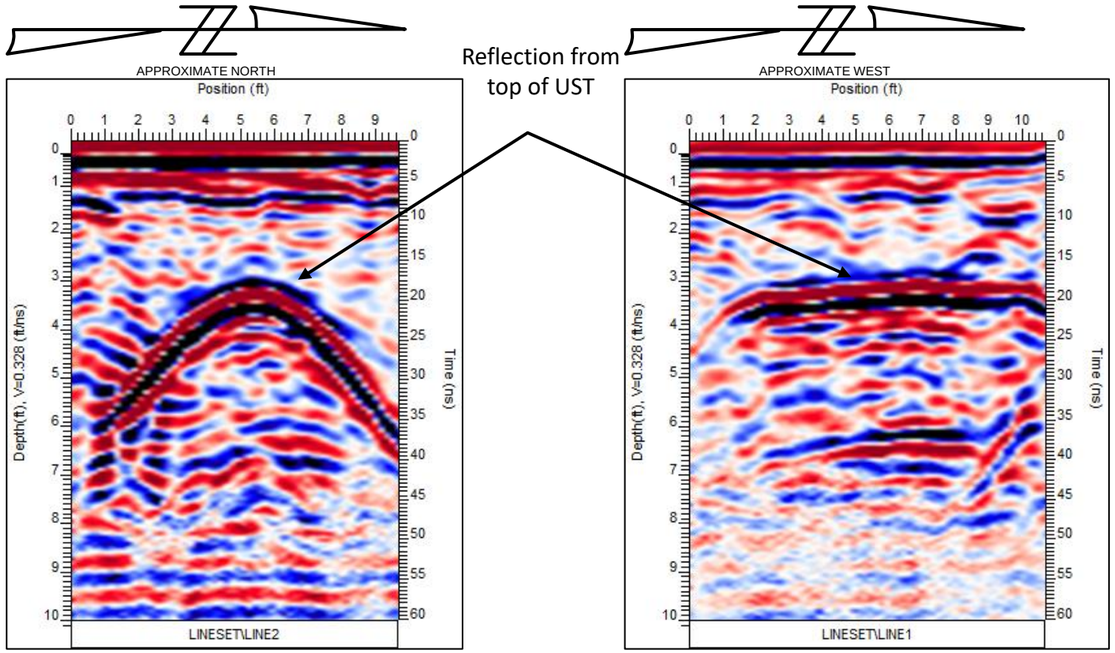
ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



B. Example GPR Line 1 (left) over short axis and Line 2 (right) over long axis of probable UST-1. UST-1 has minimum length of 5 feet but due to the side of the building and obstructions, the full length of UST-1 could not be determined.



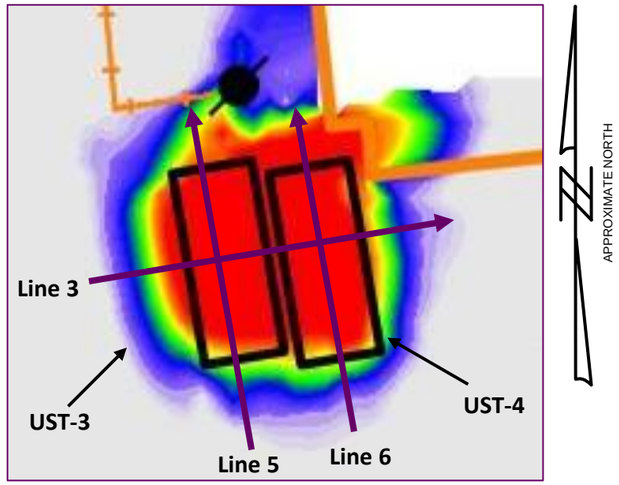
A. Approximate location of example GPR lines over probable UST-1 (top) located on the northwest corner of the building and probable UST-2 (bottom) located on the west side of the building.



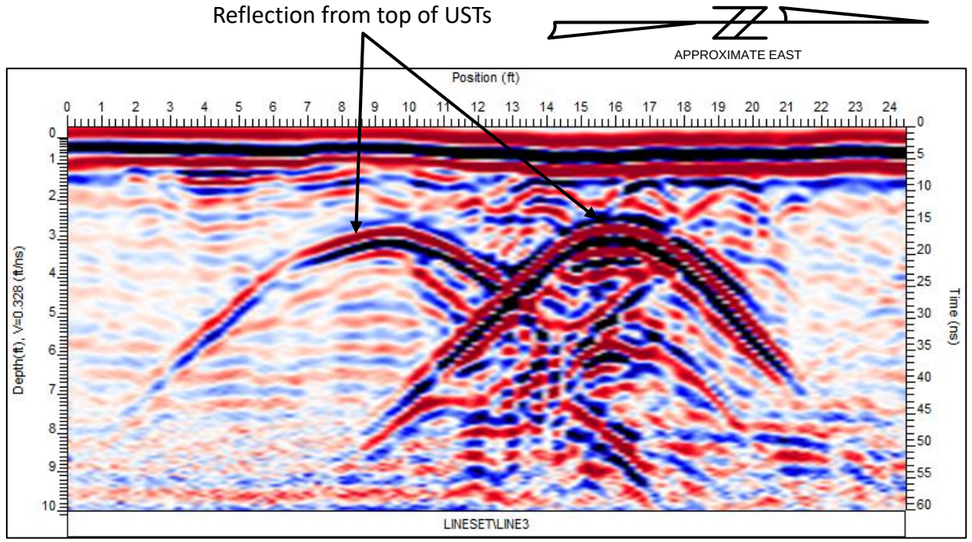
C. Example GPR Line 2 (left) over short axis and Line 1 (right) over long axis of probable UST-2.

PROJECT NO. IS14.314	***FIGURE 7 - PARCEL 99, JULIUS CONRAD FRAZIER GPR IMAGES OF PROBABLE USTS, 1 OF 2***
SCALE AS SHOWN	***NCDOT PROJECT U-4758***
DATE 3/17/2022	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
BY CRP/EDB	***GUILFORD COUNTY, NORTH CAROLINA***

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



A. Approximate location of example GPR lines over 2 probable USTs located at the southwest corner of the building.

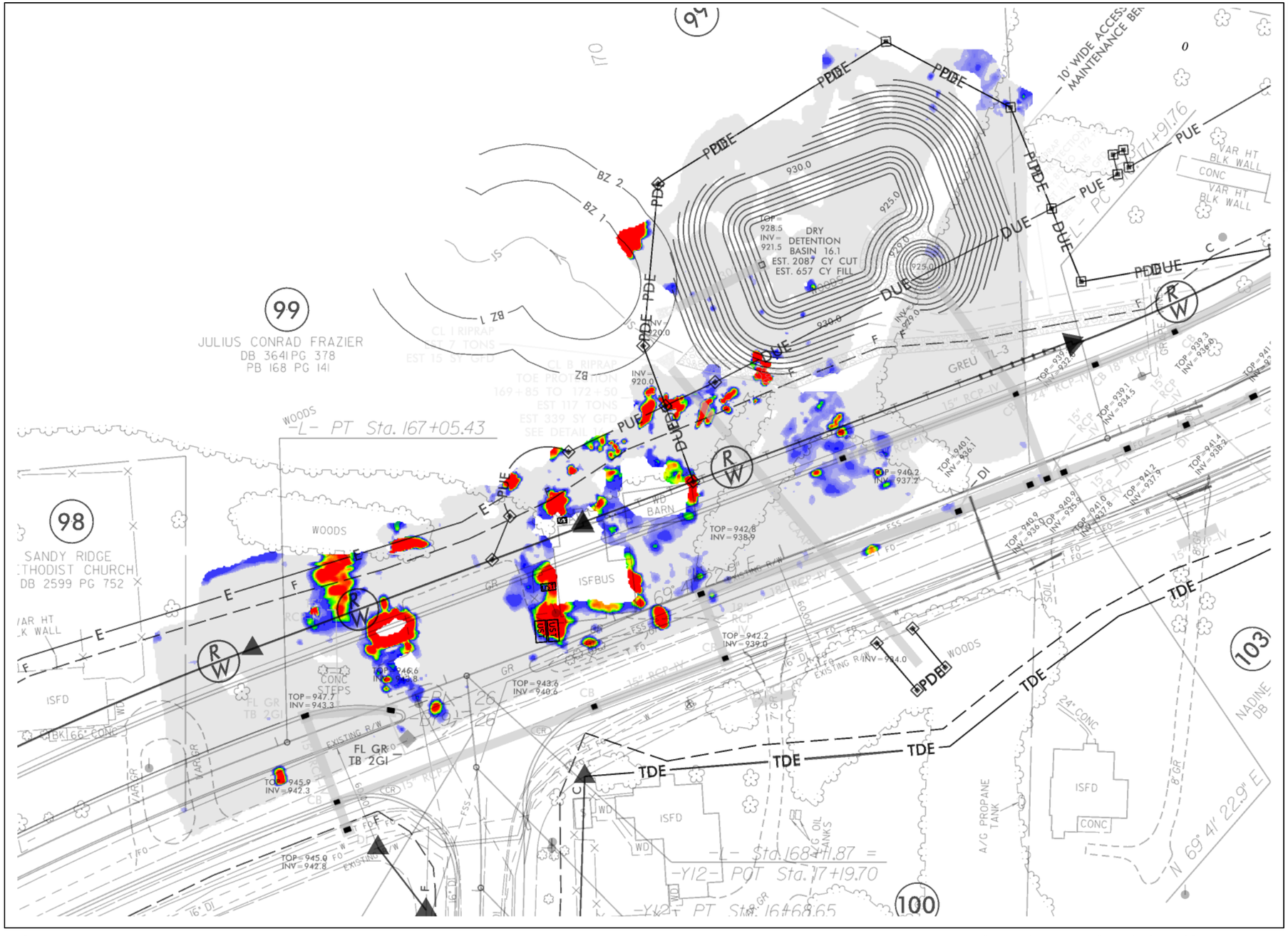


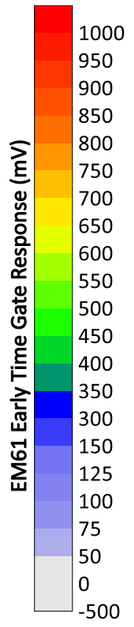
B. Example GPR Line 3 over short axes of 2 probable USTs.

C. Example GPR Lines 5 (left) and 6 (right) over long axis of the western UST (Line 5) and the eastern UST (Line 6).

PROJECT NO. IS14.314	***FIGURE 8 - PARCEL 99, JULIUS CONRAD FRAZIER GPR IMAGES OF PROBABLE USTS, 2 OF 2***
SCALE AS SHOWN	
DATE 3/17/2022	***NCDOT PROJECT U-4758***
BY CRP/EDB	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
	GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com





List of Microstation References

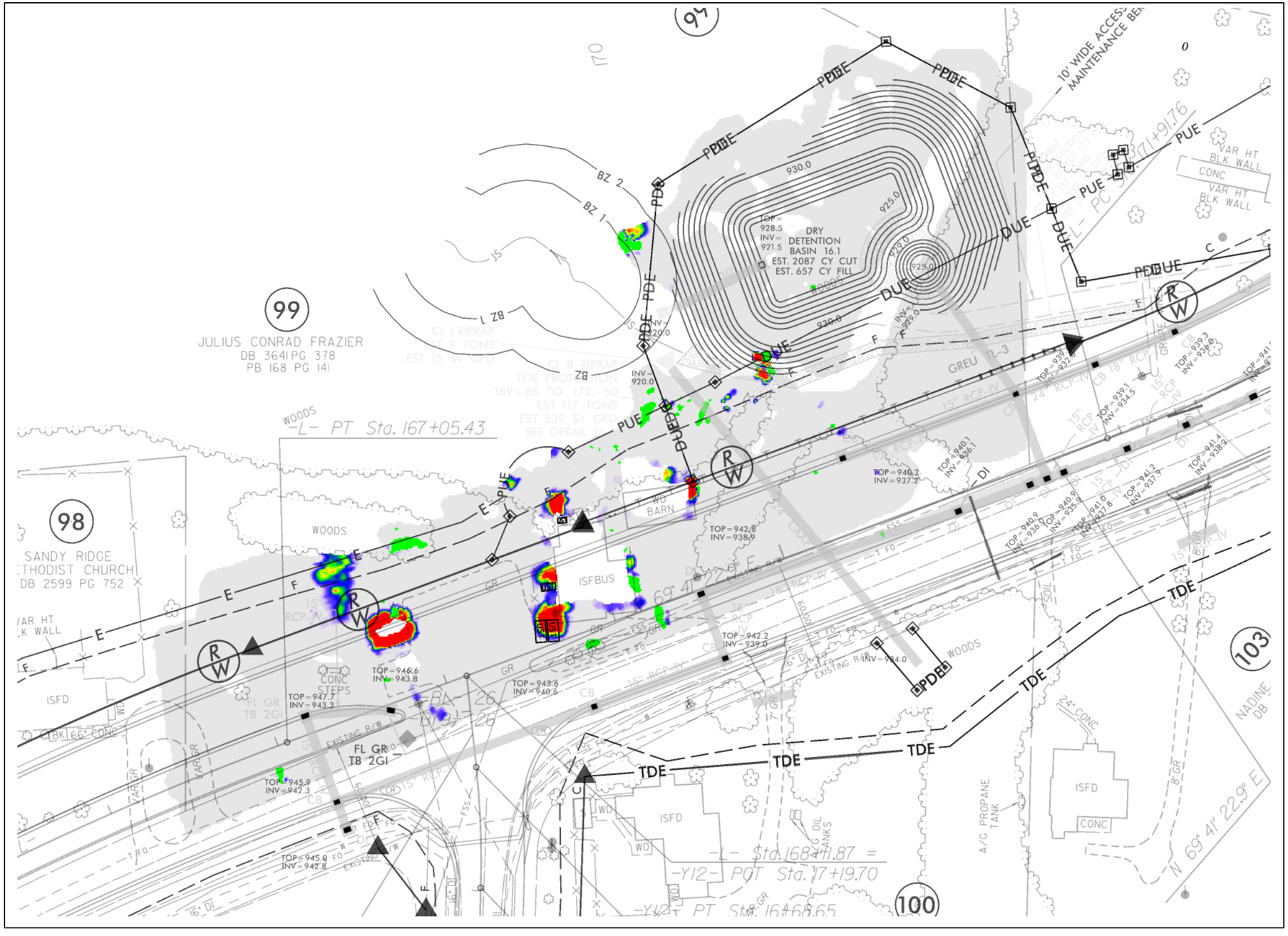
- U4758_Geo_env.dgn
  - U4758_HYD_DRN.dgn
  - U4758_ncdot_fs.dgn
  - U4758_rdy_dsn.dgn
  - U4758_rdy_row.dgn
  - U4758_rdy_ss.dgn

See Figure 13 for explanation of symbols and line types

60 120
FEET

PROJECT NO. IS14.314	***FIGURE 9 –PARCEL 99, JULIUS CONRAD FRAZIER EM61 EARLY TIME GATE DATA ON PLAN SHEET***
SCALE 1" = 60'	
DATE 3/17/2022	***NCDOT PROJECT U-4758***
BY CRP/EDB	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
	GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



List of Microstation References

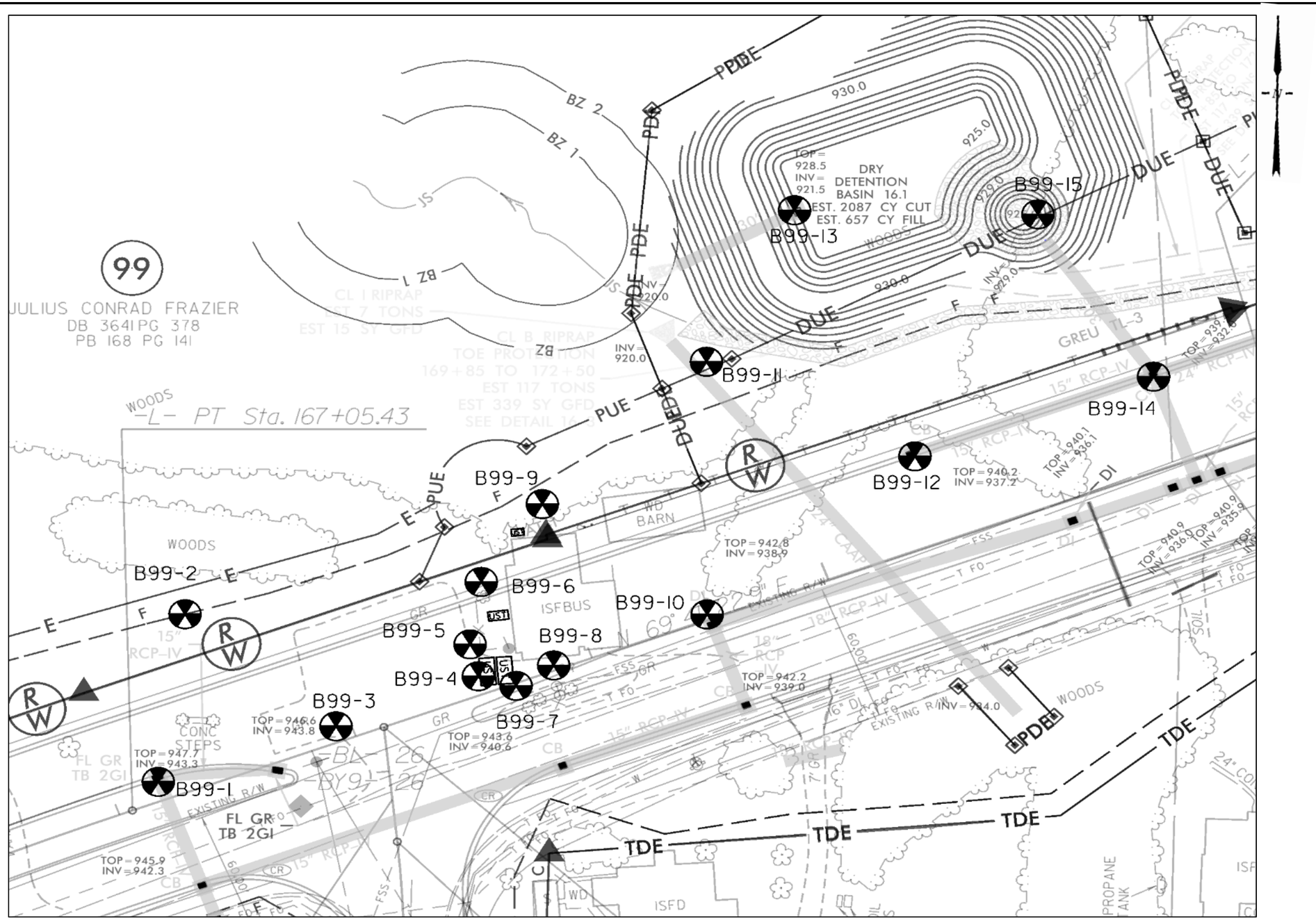
- U4758_Geo_env.dgn
  - U4758_HYD_DRN.dgn
  - U4758_ncdot_fs.dgn
  - U4758_rdy_dsn.dgn
  - U4758_rdy_row.dgn
  - U4758_rdy_ss.dgn

60 120
FEET

See Figure 13 for explanation of symbols and line types

PROJECT NO. IS14.314	***FIGURE 10 –PARCEL 99, JULIUS CONRAD FRAZIER EM61 DIFFERENTIAL DATA ON PLAN SHEET***
SCALE 1" = 60'	
DATE 3/17/2022	***NCDOT PROJECT U-4758***
BY CRP/EDB	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
	GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



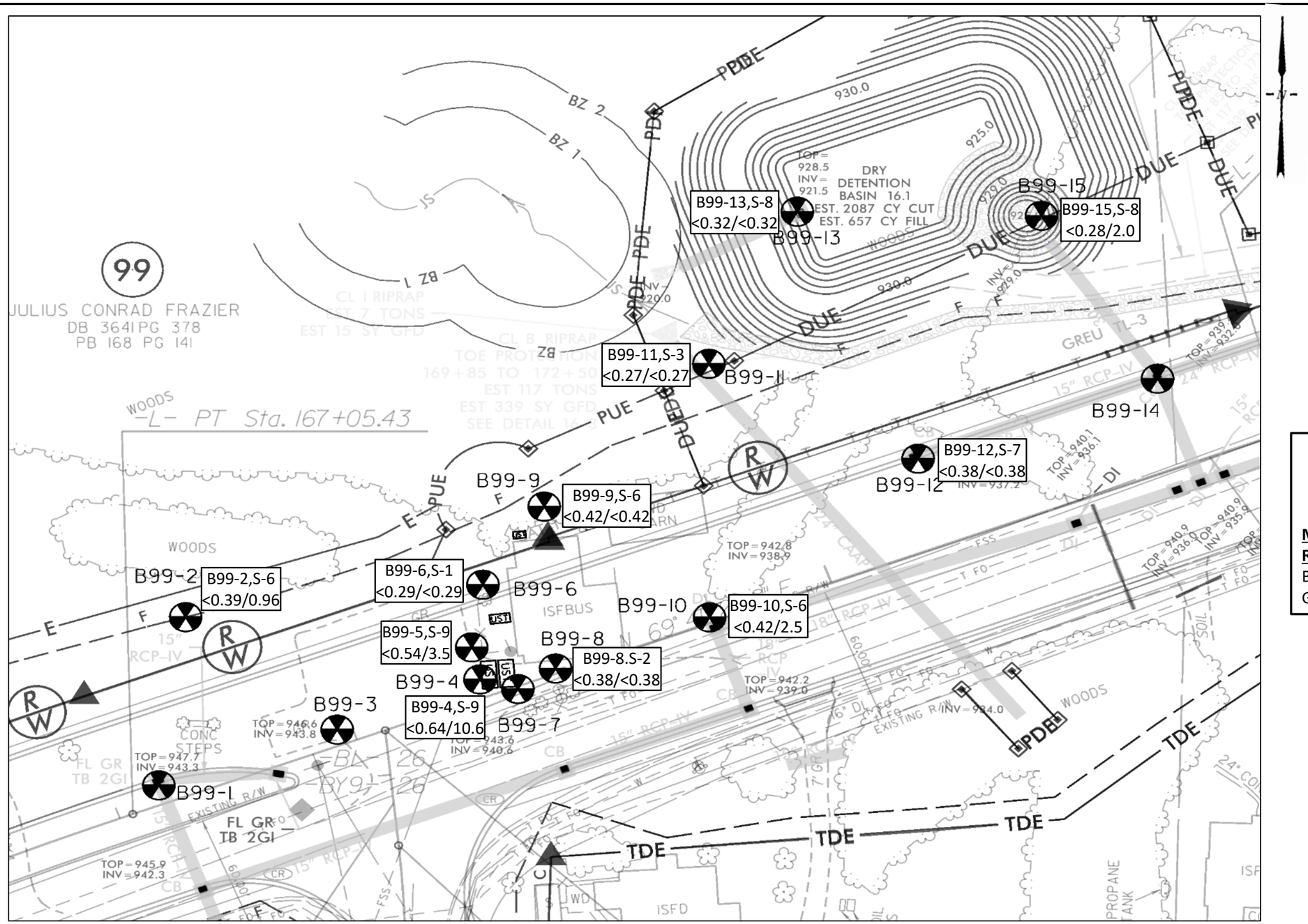
List of Microstation References

- U4758_Geo_env.dgn
  - U4758_HYD_DRN.dgn
  - U4758_ncdot_fs.dgn
  - U4758_rdy_dsn.dgn
  - U4758_rdy_row.dgn
  - U4758_rdy_ss.dgn

See Figure 13 for explanation of symbols and line types

PROJECT NO. IS14.314	***FIGURE 11 –PARCEL 99, JULIUS CONRAD FRAZIER BORING LOCATIONS ON PLAN SHEET***
SCALE 1" = 60'	
DATE 3/17/2022	***NCDOT PROJECT U-4758***
BY CRP/EDB	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
	GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



Explanation

B99-2,S-6
<0.39/0.96

Maximum Analytical Results per Boring
Boring No./Sample No.
GRO/DRO (mg/kg, ppm)

List of Microstation References

- U4758_Geo_env.dgn
  - U4758_HYD_DRN.dgn
  - U4758_ncdot_fs.dgn
  - U4758_rdy_dsn.dgn
  - U4758_rdy_row.dgn
  - U4758_rdy_ss.dgn

60 120
FEET

See Figure 13 for explanation of symbols and line types

PROJECT NO. IS14.314	***FIGURE 12 –PARCEL 99, JULIUS CONRAD FRAZIER SOIL ANALYTICAL RESULTS ON PLAN SHEET***
SCALE 1" = 60'	
DATE 3/17/2022	***NCDOT PROJECT U-4758 JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40 GUILFORD COUNTY, NORTH CAROLINA***
BY CRP/EDB	

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

12/2/2016

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

PROJECT REFERENCE NO. | SHEET NO.

BOUNDARIES AND PROPERTY:
- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin
- Computed Property Corner
- Property Monument
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:
- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:
- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream
- Buffer Zone 1
- Buffer Zone 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch
- False Sump

RAILROADS:
- Standard Gauge
- RR Signal Milepost
- Switch
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:
- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line
- New Right of Way Line with Pin and Cap
- New Right of Way Line with Concrete or Granite R/W Marker
- New Control of Access Line with Concrete C/A Marker
- Existing Control of Access
- New Control of Access
- Existing Easement Line
- New Temporary Construction Easement
- New Temporary Drainage Easement
- New Permanent Drainage Easement
- New Permanent Drainage / Utility Easement
- New Permanent Utility Easement
- New Temporary Utility Easement
- New Aerial Utility Easement

ROADS AND RELATED FEATURES:
- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut
- Proposed Slope Stakes Fill
- Proposed Curb Ramp
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:
- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:
MAJOR:
- Bridge, Tunnel or Box Culvert
- Bridge Wing Wall, Head Wall and End Wall

MINOR:
- Head and End Wall
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB
- Paved Ditch Gutter
- Storm Sewer Manhole
- Storm Sewer

UTILITIES:
POWER:
- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*)
- U/G Power Line LOS C (S.U.E.*)
- U/G Power Line LOS D (S.U.E.*)

TELEPHONE:
- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole
- Telephone Pedestal
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- U/G Telephone Cable LOS B (S.U.E.*)
- U/G Telephone Cable LOS C (S.U.E.*)
- U/G Telephone Cable LOS D (S.U.E.*)
- U/G Telephone Conduit LOS B (S.U.E.*)
- U/G Telephone Conduit LOS C (S.U.E.*)
- U/G Telephone Conduit LOS D (S.U.E.*)
- U/G Fiber Optics Cable LOS B (S.U.E.*)
- U/G Fiber Optics Cable LOS C (S.U.E.*)
- U/G Fiber Optics Cable LOS D (S.U.E.*)

WATER:
- Water Manhole
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*)
- U/G Water Line LOS C (S.U.E*)
- U/G Water Line LOS D (S.U.E*)
- Above Ground Water Line

TV:
- TV Pedestal
- TV Tower
- U/G TV Cable Hand Hole
- U/G TV Cable LOS B (S.U.E.*)
- U/G TV Cable LOS C (S.U.E.*)
- U/G TV Cable LOS D (S.U.E.*)
- U/G Fiber Optic Cable LOS B (S.U.E.*)
- U/G Fiber Optic Cable LOS C (S.U.E.*)
- U/G Fiber Optic Cable LOS D (S.U.E.*)

GAS:
- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*)
- U/G Gas Line LOS C (S.U.E.*)
- U/G Gas Line LOS D (S.U.E.*)
- Above Ground Gas Line

SANITARY SEWER:
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line
- Above Ground Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*)
- SS Forced Main Line LOS C (S.U.E.*)
- SS Forced Main Line LOS D (S.U.E.*)

MISCELLANEOUS:
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box
- Utility Unknown U/G Line LOS B (S.U.E.*)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc.
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT NO. IS14.314	**FIGURE 13**
SCALE N/A	**LEGEND FOR PLAN SHEET FIGURES**
DATE 3/17/2022	**NCDOT PROJECT U-4758**
BY CRP/EDB	**JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40**
	GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

APPENDIX A
SOIL BORING LOGS

FIELD BORING LOG

BORING NO. B99-1

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 152.0' southwest of southwest corner of building
TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Hand Auger & Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 944.8'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
				0.3'-2.8' Yellow to Red Coarse to Fine Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.1		
2	S-2	2.0-2.5	0.1		
				2.8'-8.3' Orange, Fine Sandy SILT, Moist	
3	S-3	3.0-3.5	0.0		
4	S-4	4.0-4.5	0.1		
5	S-5	5.0-5.5	0.1		Macrocore 5.0'-10.0'
					Core Rec 4.7'/5.0'
6	S-6	6.0-6.5	0.1		
				6.8' Grading to Tan	
7	S-7	7.0-7.5	0.2		
8	S-8	8.0-8.5	0.1		
				8.3'-8.8' White to Tan Silty SAND, Moist	
				8.8'-9.5' Tan, Coarse to Fine Sandy SILT	
9	S-9	9.0-9.5	0.1		
				9.5'-10.0' White to Tan Silty SAND, Moist	
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-2

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 151.3' west of southwest corner of building
TYPE OF BORING: Direct Push | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 942.2'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'-5.0'
					Core Rec 1.8'/5.0'
				0.3'-1.3' Gray to Brown Sandy SILT, Moist	
1	S-1	1.0-1.5	0.3		
				1.3'-5.3' Asphalt and Concrete Debris	
2	S-2	2.0-2.5	no sample		
3	S-3	3.0-3.5	no sample		
4	S-4	4.0-4.5	no sample		
5	S-5	5.0-5.5	no sample		
				Refusal at 5.3'. Offset 3.0' north and drilled to 6.0'	
6	S-6	6.0-6.5	0.3	6.0'-10.0' White to Orange to Brown Coarse to Fine Sandy SILT, Moist	Macrocore 6.0'/10.0'
					Core Rec 3.4'/4.0'
7	S-7	7.0-7.5	0.2		
8	S-8	8.0-8.5	0.2		
9	S-9	9.0-9.5	0.1		
10					
11					
12					
13					
14					
15					

Samples highlighted red selected for analytical

FIELD BORING LOG

BORING NO. B99-3

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 72.7' southwest of southwest corner of building
TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Hand Auger & Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 944.8'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Gravel	Hand Auger 0.0'-5.0'
				0.3'-2.3' Red to Yellow Coarse to Fine Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.3		
2	S-2	2.0-2.5	0.1		
				2.3'-9.4' Red to Yellow Fine Sandy SILT, Moist	
3	S-3	3.0-3.5	0.1		
4	S-4	4.0-4.5	0.1		
5	S-5	5.0-5.5	0.2		Macrocore 5.0'-10.0'
					Core Rec 4.6'/5.0'
6	S-6	6.0-6.5	0.2		
7	S-7	7.0-7.5	0.2		
8	S-8	8.0-8.5	0.1		
				9.4'-10.0' White to Tan Silty SAND, Moist	
9	S-9	9.0-9.5	0.3		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-4

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 28.9' southwest of southwest corner of building
TYPE OF BORING: Direct Push | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 943.6'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Gravel	Macrocore 0.0'-5.0'
					Core Rec 3.6'/5.0'
				0.3'-3.2' Red to Orange Silty CLAY, Moist	
1	S-1	1.0-1.5	0.2		
2	S-2	2.0-2.5	0.2		
3	S-3	3.0-3.5	0.2		
				3.2'-7.0' Red to Orange Sandy SILT, Moist	
4	S-4	4.0-4.5	no sample		
5	S-5	5.0-5.5	no sample		Macrocore 5.0'-10.0'
					Core Rec 3.5'/5.0'
6	S-6	6.0-6.5	0.2		
7	S-7	7.0-7.5	0.3	7.0'-10.0' Orange to White Silty SAND, Moist	
8	S-8	8.0-8.5	2.5		
9	S-9	9.0-9.5	4.9		
				9.3' Grading to White and Gray	
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-5

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 16.0' west of southwest corner of building
TYPE OF BORING: Direct Push | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 943.8'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'-5.0'
					Core Rec 4.4'/5.0'
				0.3'-3.4' Red to Orange Silty CLAY, Moist	
1	S-1	1.0-1.5	0.2		
2	S-2	2.0-2.5	0.1		
3	S-3	3.0-3.5	0.1		
				3.4'-8.1' Red to Orange Clayey SILT, Moist	
4	S-4	4.0-4.5	0.1		
5	S-5	5.0-5.5	no sample		Macrocore 5.0'-10.0'
					Core Rec 4.0'/5.0'
6	S-6	6.0-6.5	0.2		
				6.6' Grading to Orange	
7	S-7	7.0-7.5	0.3		
8	S-8	8.0-8.5	0.6		
				8.1'-10.0' White to Orange Silty SAND, Moist	
9	S-9	9.0-9.5	0.7		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-6

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 15.6' southwest of northwest corner of building
TYPE OF BORING: Direct Push | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 942.8'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'-5.0'
					Core Rec 3.5'/5.0'
				0.3'-2.6' Red to Orange Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.8		
2	S-2	2.0-2.5	0.6		
				2.6'-10.0' Red to White to Orange Silty SAND, Moist	
3	S-3	3.0-3.5	0.7		
4	S-4	4.0-4.5	no sample		
5	S-5	5.0-5.5	0.5		Macrocore 5.0-8.0'
				5.1' Grading to Brown and White and Orange	Core Rec 3.0'/3.0'
6	S-6	6.0-6.5	0.5		
7	S-7	7.0-7.5	0.6		
8	S-8	8.0-8.5	0.3		Macrocore 8.0'-10.0
					Core Rec 2.0'/2.0'
9	S-9	9.0-9.5	0.6		
				9.3'-10.0' Grading to Red and Brown	
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-7

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 26.3' south of southwest corner of building
TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Hand Auger & Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 943.5'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
				0.3'-1.9' Red Clayey SAND, Moist	
1	S-1	1.0-1.5	0.2		
				1.9'-10.0' Orange to White Silty SAND, Moist	
2	S-2	2.0-2.5	0.2		
3	S-3	3.0-3.5	0.2		
4	S-4	4.0-4.5	0.2		
5	S-5	5.0-5.5	no sample		Macrocore 5.0'-10.0' Core Rec 3.4'/5.0'
6	S-6	6.0-6.5	0.3		
7	S-7	7.0-7.5	0.2		
8	S-8	8.0-8.5	0.2		
				8.1' Grading to White	
9	S-9	9.0-9.5	0.4		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-8

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 27.25' southeast of southwest corner of building
TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Hand Auger & Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 943.0'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
					Core Rec
				0.3'-5.0' Red to Orange Clayey SAND	
1	S-1	1.0-1.5	0.1		
2	S-2	2.0-2.5	0.6		
3	S-3	3.0-3.5	0.2		
4	S-4	4.0-4.5	0.4		
5	S-5	5.0-5.5	0.2	5.0'-8.1' Red to Orange, Micaceous, Clayey SILT, Moist	
					Macrocore 5.0'-10.0'
					Core Rec 5.0'/5.0'
6	S-6	6.0-6.5	0.2		
7	S-7	7.0-7.5	0.2		
8	S-8	8.0-8.5	0.2		
				8.1'-10.0' Brown to Orange, Micaceous, Fine Sandy SILT, Moist	
9	S-9	9.0-9.5	0.3		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-9

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 35.3' north of northwest corner of building
TYPE OF BORING: Direct Push | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 939.3'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'-5.0'
					Core Rec 3.9'/5.0'
				0.3'-3.8' Red to Brown to Orange Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.2		
2	S-2	2.0-2.5	0.2		
3	S-3	3.0-3.5	0.2		
				3.8'-8.7' Orange to Brown Coarse Sandy SILT, Moist	
4	S-4	4.0-4.5	no sample		
5	S-5	5.0-5.5	no sample		
					Macrocore 5.0'-10.0'
					Core Rec 4.1'/5.0'
6	S-6	6.0-6.5	0.3		
7	S-7	7.0-7.5	0.2		
8	S-8	8.0-8.5	0.1		
				8.7'-10.0' White to Tan to Gray Silty SAND, Moist	
9	S-9	9.0-9.5	0.1		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-10

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 37.8' east of southeast corner of building
TYPE OF BORING: Direct Push | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 939.2'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'-5.0'
					Core Rec 3.5'/5.0'
				0.3'-2.8' Tan to Brown Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.5		
2	S-2	2.0-2.5	0.4		
				2.8'-10.0' Tan to White to Brown Sandy SILT, Moist	
3	S-3	3.0-3.5	0.2		
4	S-4	4.0-4.5	no sample		
5	S-5	5.0-5.5	no sample		Macrocore 5.0'-10.0'
					Core Rec 3.5'/5.0'
6	S-6	6.0-6.5	0.6		
7	S-7	7.0-7.5	0.4		
8	S-8	8.0-8.5	0.4		
9	S-9	9.0-9.5	1.1		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-11

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 122.2' northeast of southeast corner of building
TYPE OF BORING: Direct Push | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Macrocore | DEPTH TO GW: 3.5 ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 923.4'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'-5.0'
					Core Rec 3.8'/5.0'
				0.3'-2.7' Tan Coarse Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.3		
2	S-2	2.0-2.5	0.1		
				2.7'-8.3' Tan to Gray Micaceous Sandy SILT, Moist	
3	S-3	3.0-3.5	0.3		
4	S-4	4.0-4.5	no sample		
5	S-5	5.0-5.5	no sample		
					Macrocore 5.0'-10.0'
					Core Rec 3.3'/5.0
6	S-6	6.0-6.5	0.3		
7	S-7	7.0-7.5	0.3		
8	S-8	8.0-8.5	0.5		
				8.3'-10.0' Orange to White to Gray Silty SAND, Wet	
9	S-9	9.0-9.5	0.4		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-12

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 140.5' northeast of southeast corner of building
TYPE OF BORING: Direct Push | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 929.0'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'-5.0'
					Core Rec 3.7'/5.0'
				0.3'-9.8' Tan Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.6		
2	S-2	2.0-2.5	0.5		
3	S-3	3.0-3.5	0.5		
4	S-4	4.0-4.5	no sample		
5	S-5	5.0-5.5	0.4		
					Macrocore 5.0'-10.0'
					Core Rec 5.0'/5.0'
6	S-6	6.0-6.5	0.3		
7	S-7	7.0-7.5	0.5		
8	S-8	8.0-8.5	0.3		
				8.4' Grading to Gray with Orange	
9	S-9	9.0-9.5	0.4		
				9.8'-10.0' Orange Clayey SAND, Moist	
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-13

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 173.1' from edge of pavement on east side of parcel
TYPE OF BORING: Direct Push | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 926.2'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'/5.0'
					Core Rec 4.6'/5.0'
				0.3'-2.3' Tan and Brown Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.2		
2	S-2	2.0-2.5	0.3		
				2.3'-7.2' Tan and Gray Clayey SAND, Moist	
3	S-3	3.0-3.5	0.3		
4	S-4	4.0-4.5	0.3		
5	S-5	5.0-5.5	no sample		Macrocore 5.0'-10.0'
					Core Rec 4.0'/5.0'
6	S-6	6.0-6.5	0.2		
7	S-7	7.0-7.5	0.3		
				7.2'-10.0' Gray to Brown to White Micaceous Sandy SILT, Moist	
8	S-8	8.0-8.5	1.3		
9	S-9	9.0-9.5	0.4		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-14

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314

LOCATION: Approximately 50.0' northwest from edge of pavement on east side of parcel

TYPE OF BORING	Direct Push	DATE STARTED:	3/8/2022	SHEET:	1 of 1
DRILLING FIRM:	SAEDACCO	DATE FINISHED:	3/8/2022	TOTAL DEPTH:	10.0 ft
DRILLER:	Scott Hunt	SAMPLE METHOD:	Macrocore	DEPTH TO GW:	Dry ft
DRILL RIG:	Geoprobe 54DT	LOGGED BY:	A. Roseman	COMMENT:	Elev: 932.5'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'-5.0'
					Core Rec 4.0'/5.0'
				0.3'-10.0' Brown Sandy CLAY, Moist	
1	S-1	1.0-1.5	1.0		
				1.7' Grading to Tan	
2	S-2	2.0-2.5	0.4		
3	S-3	3.0-3.5	0.4		
4	S-4	4.0-4.5	no sample		
5	S-5	5.0-5.5	0.6		Macrocore 5.0'-10.0'
					Core Rec 5.0'/5.0'
6	S-6	6.0-6.5	0.3		
				6.2' Grading to Tan and Gray	
7	S-7	7.0-7.5	0.5		
8	S-8	8.0-8.5	0.3		
9	S-9	9.0-9.5	0.7		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B99-15

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximately 133.9' northwest from edge of pavement on east side of parcel
TYPE OF BORING: Direct Push | DATE STARTED: 3/8/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/8/2022 | TOTAL DEPTH: 10.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 933.5'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'-5.0'
					Core Rec 5.0'/5.0'
				0.3'-3.4' Red to Tan Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.2		
2	S-2	2.0-2.5	0.3		
3	S-3	3.0-3.5	0.4		
				3.4'-4.5' Red to Tan to White Coarse Sandy SILT, Moist	
4	S-4	4.0-4.5	0.4		
				4.5'-7.9' Tan to Orange, Micaceous Fine Sandy SILT, Moist	
5	S-5	5.0-5.5	0.2		
					Macrocore 5.0'-10.0'
					Core Rec 4.3'/5.0'
6	S-6	6.0-6.5	0.9		
7	S-7	7.0-7.5	0.8		
				7.9'-10.0' Tan to White to Gray Silty Coarse SAND, Moist	
8	S-8	8.0-8.5	1.1		
9	S-9	9.0-9.5	0.4		
10					
11					
12					
13					
14					
15					

APPENDIX B

RED LAB LABORATORY TESTING REPORT

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: ESP
Address: GREENSBORO, NC

Samples taken Tuesday, March 8, 2022
Samples extracted Tuesday, March 8, 2022
Samples analysed Friday, March 11, 2022

Contact: NED BILLINGTON

Operator TORI KELLY

Project: I514.314

U00904

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	B99-2, S-6	15.7	<0.39	<0.39	0.96	0.96	0.33	<0.13	<0.016	0	76.4	23.6	V.Deg.Diesel 78.5%,(FCM)
s	B99-4, S-9	25.5	<0.64	<0.64	10.6	10.6	2.9	<0.2	<0.025	0	86.2	13.8	Deg.Diesel 63.6%,(FCM),(BO)
s	B99-5, S-9	21.5	<0.54	<0.54	3.5	3.5	1.4	<0.17	<0.022	0	76.1	23.9	Deg.Fuel 60.5%,(FCM)
s	B99-6, S-9	10.1	<0.25	<0.25	<0.25	<0.25	<0.05	<0.08	<0.01	0	0	0	,(FCM)
s	B99-8, S-2	15.2	<0.38	<0.38	<0.38	<0.38	<0.08	<0.12	<0.015	0	0	0	PHC not detected
s	B99-9, S-6	16.7	<0.42	<0.42	<0.42	<0.42	<0.08	<0.13	<0.017	0	0	0	PHC not detected
s	B99-10, S-6	16.9	<0.42	<0.42	2.5	2.5	0.58	<0.13	<0.017	0	100	0	Deg.Diesel 75.8%,(FCM)
s	B99-11, S-3	10.9	<0.27	<0.27	<0.27	<0.27	<0.05	<0.09	<0.011	0	0	0	,(FCM)
s	BPP-12, S-7	15.2	<0.38	<0.38	<0.38	<0.38	<0.08	<0.12	<0.015	0	0	0	PHC not detected,(BO)
s	BPP-13, S-8	12.8	<0.32	<0.32	<0.32	<0.32	<0.06	<0.1	<0.013	0	100	0	Residual HC

Initial Calibrator QC check OK Final FCM QC Check OK 100.8 %

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 REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: ESP
Address: GREENSBORO, NC

Samples taken Tuesday, March 8, 2022
Samples extracted Tuesday, March 8, 2022
Samples analysed Friday, March 11, 2022

Contact: NED BILLINGTON

Operator TORI KELLY

Project: I514.314

U00904

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	B99-15, S-8	11.4	<0.28	<0.28	2	2	0.38	<0.09	<0.011	0	100	0	Deg.Diesel 54.5%,(FCM)
s	B99-6, S-1	11.6	<0.29	<0.29	<0.29	0.15	0.15	<0.09	<0.012	0	57.2	42.8	Residual HC
s	B99-4, S-7	14.4	<0.36	<0.36	5.1	5.1	3.1	<0.12	<0.014	0	83.4	16.6	Deg.Fuel 80.6%,(FCM)

Initial Calibrator QC check OK Final FCM QC Check OK 99.2 %

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

APPENDIX C
CHAIN-OF-CUSTODY FORM

Client Name:	ESP
Address:	ON FILE
Contact:	NED BILLINGTON
Project Ref.:	~~U-4756~~ IS14.314
Email:	ON FILE
Phone #:	ON FILE
Collected by:	ANNA ROSMAN

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					
3-8-22		✓	✓		CLP	B99-2, S-6	48.7	39.8	8.9
		✓	✓			B99-4, S-9	49.9	39.7	10.2
		✓	✓			B99-5, S-9	45.8	39.3	6.5
		✓	✓			B99-6, S-9	50.0	40.1	9.9
		✓	✓			B99-8, S-2	49.1	39.9	9.2
		✓	✓			B99-9, S-6	48.5	40.1	8.4
		✓	✓			B99-10, S-6	47.7	39.4	8.3
		✓	✓			B99-11, S-3	51.8	39.0	12.8
		✓	✓			B99-12, S-7	48.9	39.7	9.2
		✓	✓			B99-13, S-8	50.7	39.8	10.9
3-8-22		✓	✓		CRP	B99-15, S-8	52.7	40.4	12.3
3-8-22		✓	✓		CRP	B99-6, S-1	48.6	40.0	8.6
3-8-22		✓	✓		CRP	B99-4, S-7	49.8	40.1	9.7

COMMENTS/REQUESTS:

TARGET GC/UVF ANALYTES:

Relinquished by		Accepted by	Date/Time
[signature]	3-9-22		
Relinquished by		Accepted by	Date/Time
		ECN 3/10/22 11:30AM	

RED Lab USE ONLY

(13)

Ref. No 3-2022-1

REPORT ON GEOENVIRONMENTAL PHASE II GEOPHYSICAL SERVICES

PARCEL 155, CHARLES R. AND MATTIE W. NUCKLES, 2708 SANDY RIDGE RD., COLFAX, NC

WBS 40251.1
ESP Project No. IS14.335

Prepared For:
NCDOT Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, NC 27610

Prepared By:
ESP Associates, Inc
7011 Albert Pick Road
Suite E
Greensboro, NC 27409

January 26, 2023

January 26, 2023

Mr. Gordon Box, PG
ghbox@ncdot.gov
Geotechnical Engineering Unit
North Carolina Department of Transportation
1020 Birch Ridge Drive
Raleigh, NC 27610

Reference: **REPORT ON GEOENVIRONMENTAL PHASE II GEOPHYSICAL SERVICES**
PARCEL 155, CHARLES R. AND MATTIE W. NUCKLES, 2708 SANDY RIDGE RD., COLFAX, NC
ESP Project No. IS14.335

TIP Number: U-4758
WBS Number: 40251.1
County: GUILFORD
Description: Johnson St - Sandy Ridge Road from Skeet Club Road to I-40

Dear Mr. Box:

ESP Associates, Inc. (ESP) is pleased to submit this report on our GeoEnvironmental Phase II Geophysical Investigation of the subject parcel. This work was performed in accordance with your Request for Proposal dated December 6, 2022 and our Cost Proposal dated December 22, 2022.

We appreciate the opportunity to assist you during this phase of the project. If you should have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,

ESP Associates, Inc.

DocuSigned by:
Edward Billington
7402544DC92F4E0...

NORTH CAROLINA LICENSED SEAL 1631 GEOLOGIST EDWARD DAVIS BILLINGTON

Edward D. Billington, PG
Senior Managing Geophysicist

CRP/CWA/EDB

not considered Final unless all signatures are completed

Electronic submission via email

Table of Contents

FIGURES

1.0 INTRODUCTION

1.1 Purpose of Work

The NCDOT is planning to widen 4.4 miles of Johnson Street and Sandy Ridge Road from Skeet Club Road to Interstate 40 in High Point. The proposed work would help reduce congestion and traffic delays by widening the road from two to four lanes. The NCDOT requested that ESP provide geophysical services to locate underground storage tanks (USTs) at Parcel 155 and, after the parcel is acquired, remove the heating oil tank reported to be present by the current owner. Parcel 155 is located at 2708 Sandy Ridge Rd. in Colfax, NC (Figure 1).

1.2 Background Information

We checked the following online sources with the results summarized below:

- NCDEQ Registered Tank Database:
    - Nothing found for this site.
- North Carolina Department of Environmental Quality (NCDEQ) Division of Waste Management Site Locator Tool and the UST Database:
    - Nothing found for this site.
- Guilford County GIS:
    - Property owner is listed as NCDOT (formerly Charles R. and Mattie W. Nuckles).

2.0 FIELD PROCEDURES

2.1 Site Observations

During our January 17, 2023 site visit, there was a single-family residence currently occupied by Mattie W. Nuckles (Figure 2). According to the resident, the former heating oil UST was located outside the kitchen window on the rear side of the house and may have been filled with sand when abandoned. Currently, there is a wooden deck located outside the kitchen window (Figure 2B). A cut metal pipe that penetrated through the brick foundation was seen near the northwest corner of the deck by the kitchen window; this pipe may have been the product line for the former heating oil UST. The site contained multiple concrete pavers, drain lines, drain grates, and cut-off metal fence posts. The site also contained an abandoned well, a chicken coop, a shed, a wooden deck, and a propane AST. The ground surface was covered by concrete pavement and grass.

2.2 Geophysical Data Collection

On January 18,19, and 20, 2023, ESP Staff Scientist Cody Allen, GIT collected metal detection data and ground-penetrating radar (GPR) images at the site. The metal detection data were collected over the accessible areas of the site using a Geonics EM61 MK2 instrument (EM61) at an approximate three-foot line spacing. The EM61 data were processed and reviewed by ESP personnel Edward (Ned) Billington, PG and Ryan Pastrana, PG (Figures 3 and 4). GPR data were collected over selected EM61 anomalies using a Sensors and Software Noggin 250 GPR system. Approximate locations of the EM61 data, relevant site

features, and GPR mark-outs were obtained using a Geode differential GPS (DGPS) instrument connected to a MESA field computer.

The EM61 early time gate response and differential response are shown on the plan sheet on Figures 5 and 6, respectively. The plan sheet data were provided by the NCDOT on January 20, 2023 and include the 75 percent Right of Way (ROW) design plans.

3.0 DISCUSSION OF RESULTS

The EM61 early time gate data show the response from both shallow and deeper metallic objects (Figure 3). The differential response reduces the effect of shallow anomalies and emphasizes anomalies from larger and more deeply buried metallic objects, such as USTs (Figure 4). Our evaluation of the EM61 data indicated several anomalies that could not be attributed to known features; GPR data collected over these anomalies indicated that they were caused by metal drain grates, metal drain pipes, the metal shed door, and the metal carport.

The presence of the wooden deck prevented exploration of that area for the presence of the former heating oil UST. ESP personnel attempted to remove the deck planks in order to probe the soil beneath the deck but the screws were rusted and the planks could not be removed without causing damage to the deck.

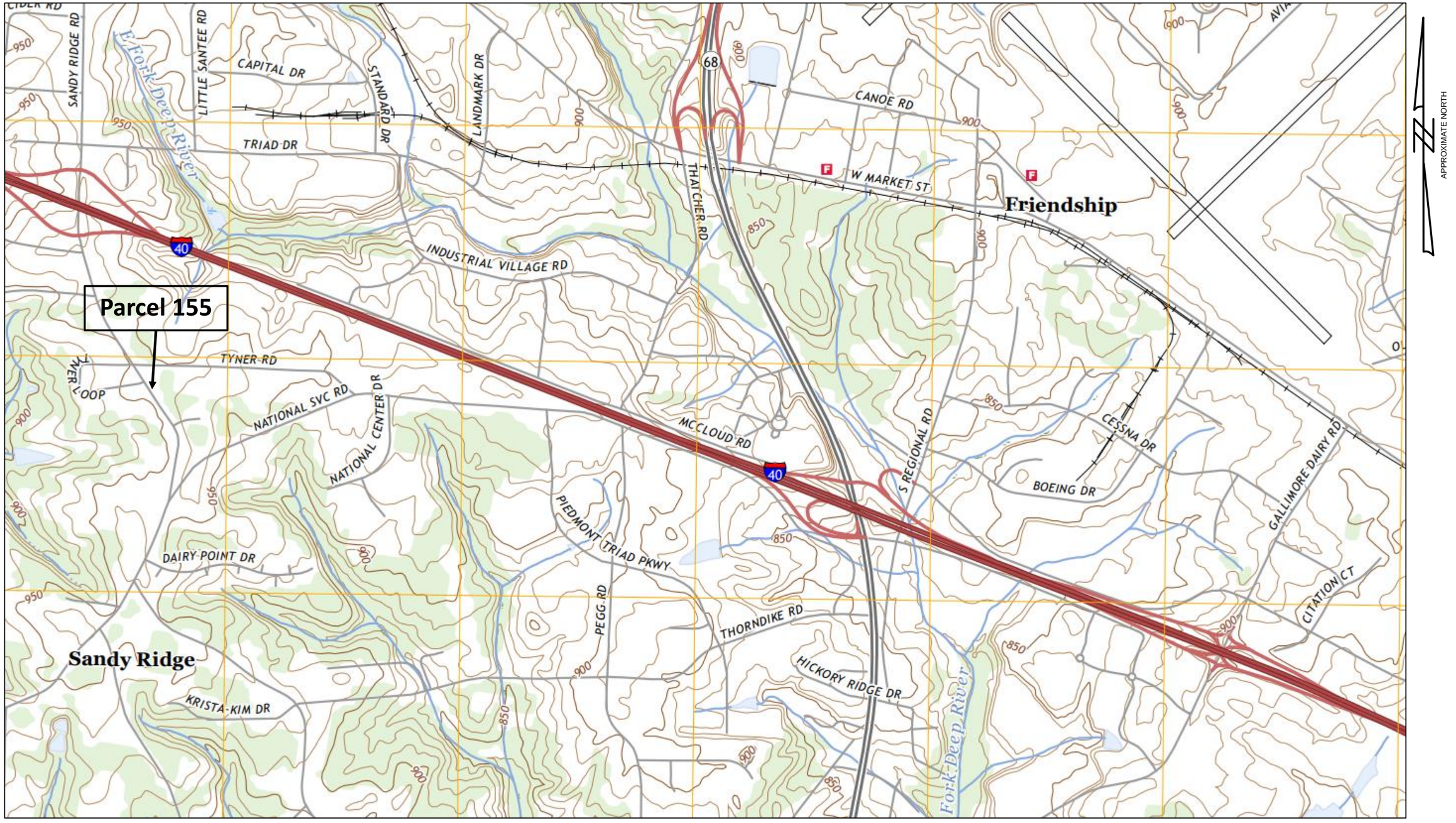
4.0 CONCLUSIONS AND RECOMMENDATIONS

Our review of the geophysical data collected for Parcel 155 does not indicate the presence of metallic USTs within the accessible areas of the geophysical study area. However, the former heating oil UST could be located beneath the wooden deck on the east (rear) side of the house near the kitchen window. Once the deck is removed for construction, this area should be investigated for the reported UST.

5.0 LIMITATIONS

ESP's professional services have been provided in accordance with generally accepted guidelines for performing geophysical surveys. It is recognized that the results of geophysical surveys are non-unique, subject to interpretation, and limited by the specific equipment, methodology, and site conditions. It is possible that not all subsurface features of interest have been identified by this work. The passage of time may result in a change in the conditions at this site. ESP does not warrant against future operations or conditions, or against operations or conditions present of a type or at a location not included as part of this work.

FIGURES



From: USGS Topo 7.5 - minute map for GUILFORD QUADRANGLE, NC, Date: 2022, Original Scale: 1:24,000

PROJECT NO. IS14.335	***FIGURE 1 – PARCEL 155, C.R. & M.W. NUCKLES SITE VICINITY MAP***
SCALE NTS	
DATE 1/25/2023	***NCDOT PROJECT U-4758***
BY CWA/CRP	***JOHNSON ST - SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
	GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

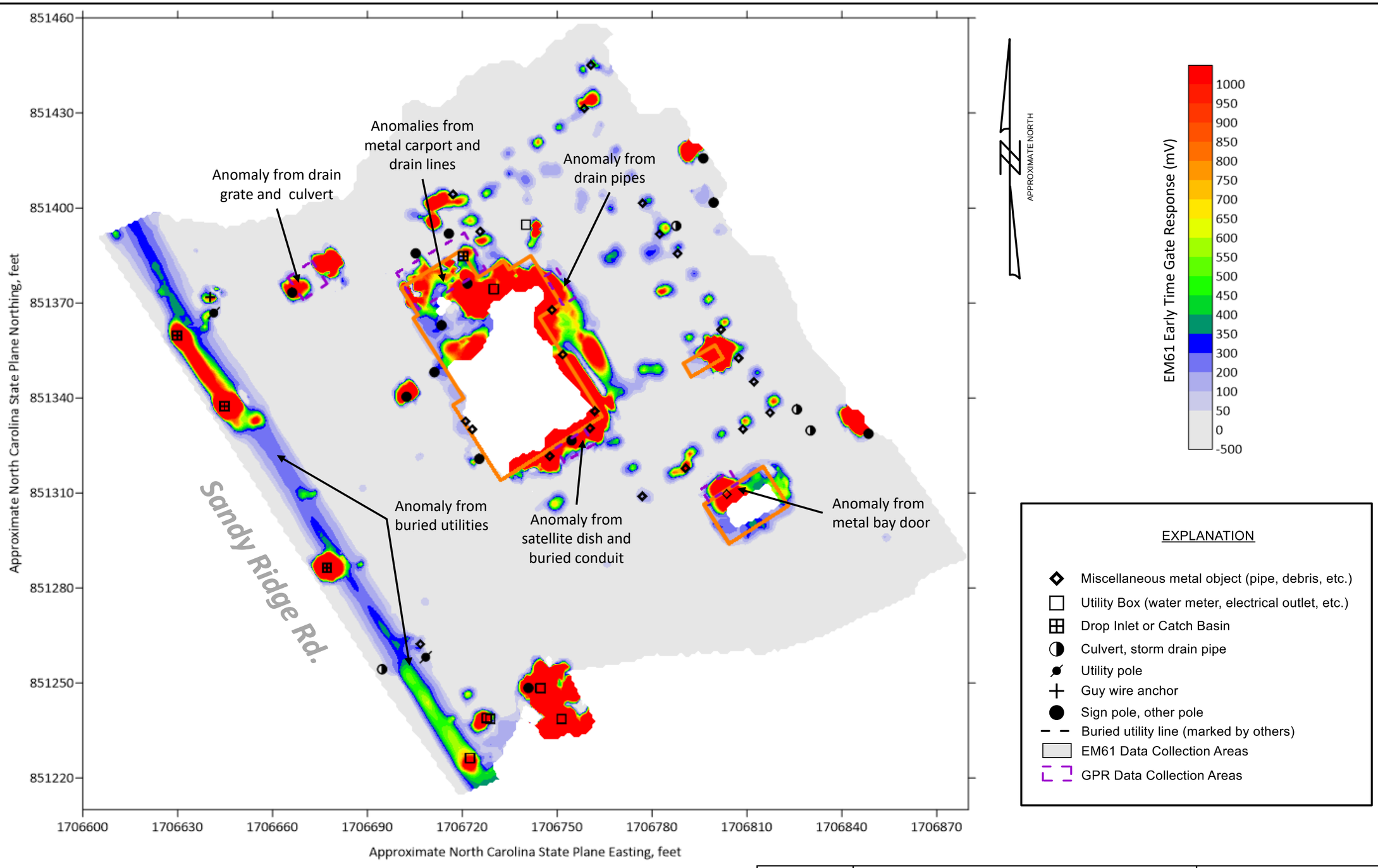
A. Photograph of west side of site and front of house, facing east.

B. Photograph of east side of site and rear of house, facing west. The former heating oil UST is reportedly located outside the kitchen widow beneath the deck.

C. Photograph of south side of house showing AC unit, satellite dish, and propane AST, facing north.

C. Photograph of north side of house, showing metal carport, building, facing southeast.

PROJECT NO. IS14.335	***FIGURE 2 – PARCEL 155, C.R. & M.W. NUCKLES SITE PHOTOGRAPHS***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com
SCALE N/A		
DATE 1/25/2023	***NCDOT PROJECT U-4758***	
BY CWA/CRP	***JOHNSON ST - SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***	
	GUILFORD COUNTY, NORTH CAROLINA	



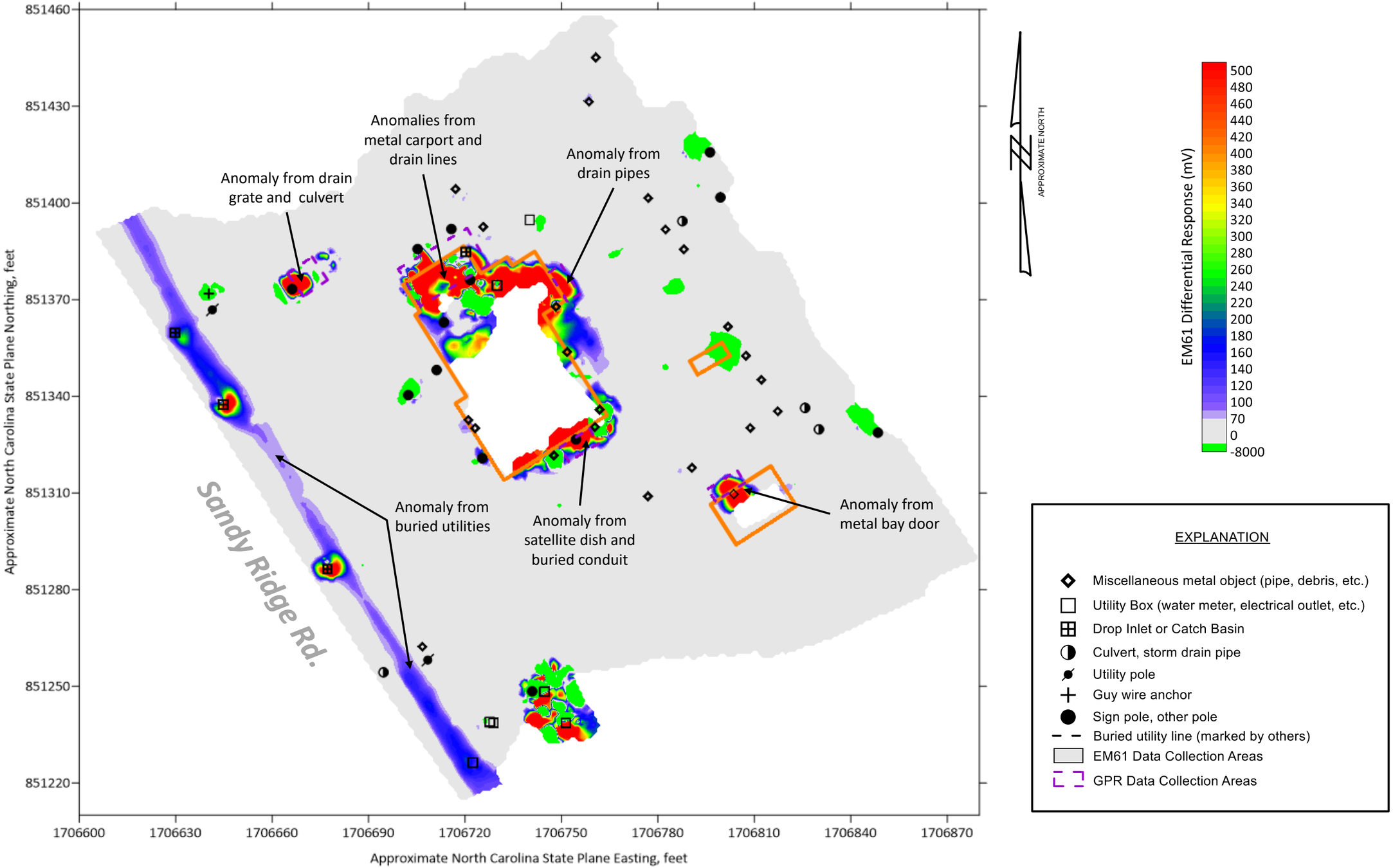
Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO.	IS14.335
SCALE	AS SHOWN
DATE	1/25/2023
BY	CWA/CRP

FIGURE 3 – PARCEL 155, C.R. & M.W. NUCKLES
EM61 EARLY TIME GATE DATA

NCDOT PROJECT U-4758
JOHNSON ST - SANDY RIDGE RD FROM SKEET CLUB RD TO I-40
GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



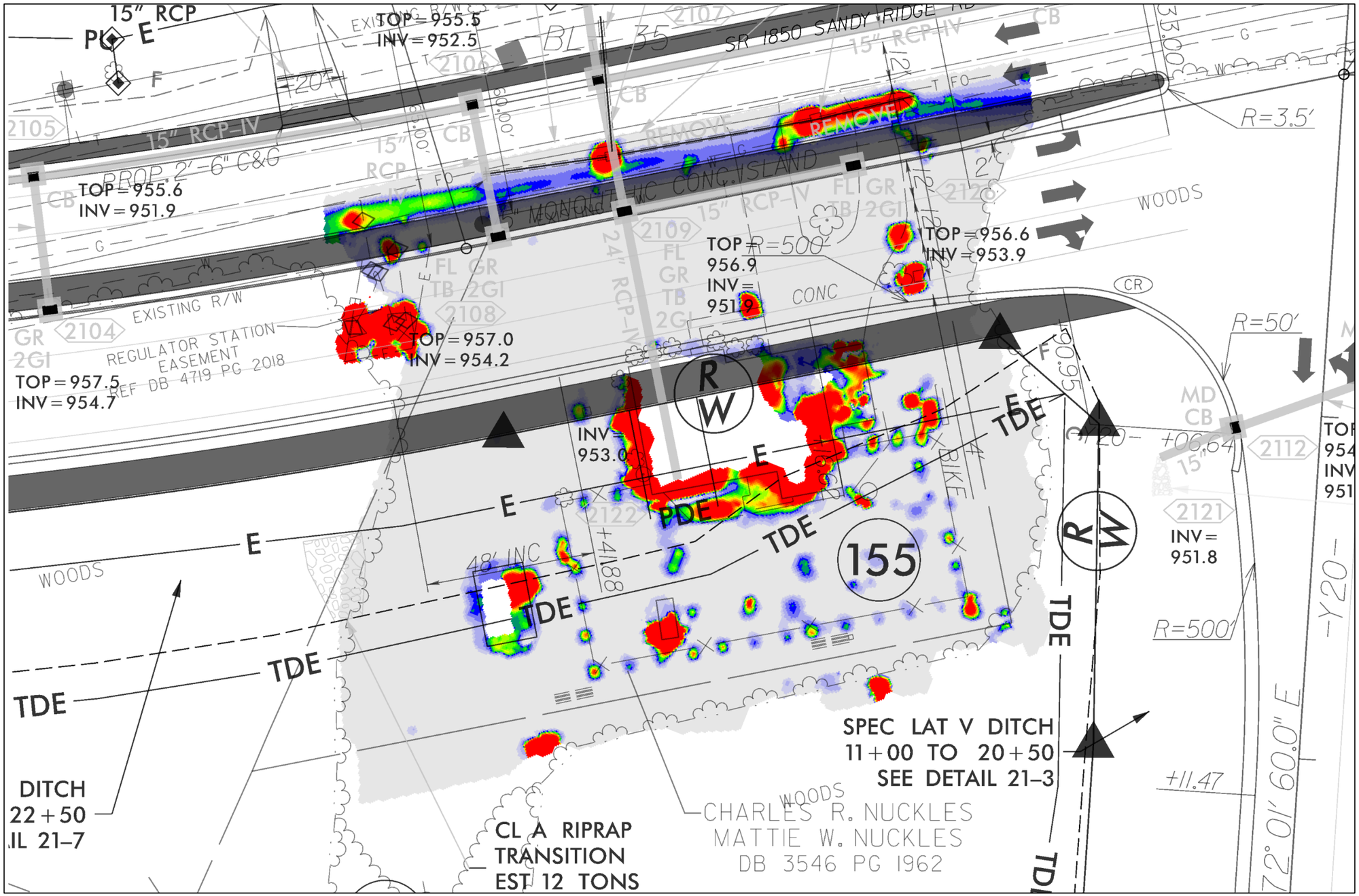
Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO.	IS14.335
SCALE	AS SHOWN
DATE	1/25/2023
BY	CWA/CRP

FIGURE 4 – PARCEL 155, C.R. & M.W. NUCKLES EM61 DIFFERENTIAL DATA

NCDOT PROJECT U-4758
JOHNSON ST - SANDY RIDGE RD FROM SKEET CLUB RD TO I-40
GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



List of Microstation References

- U4758_Geo_Env.dgn
  - U4758_rdy_ss.dgn
  - U-4758_rdy_WEX.dgn
  - U4758_HYD_DRN.dgn
  - U4758_ncdot_fs.dgn
  - U4758_rdy_dsn.dgn
  - U4758_rdy_row.dgn

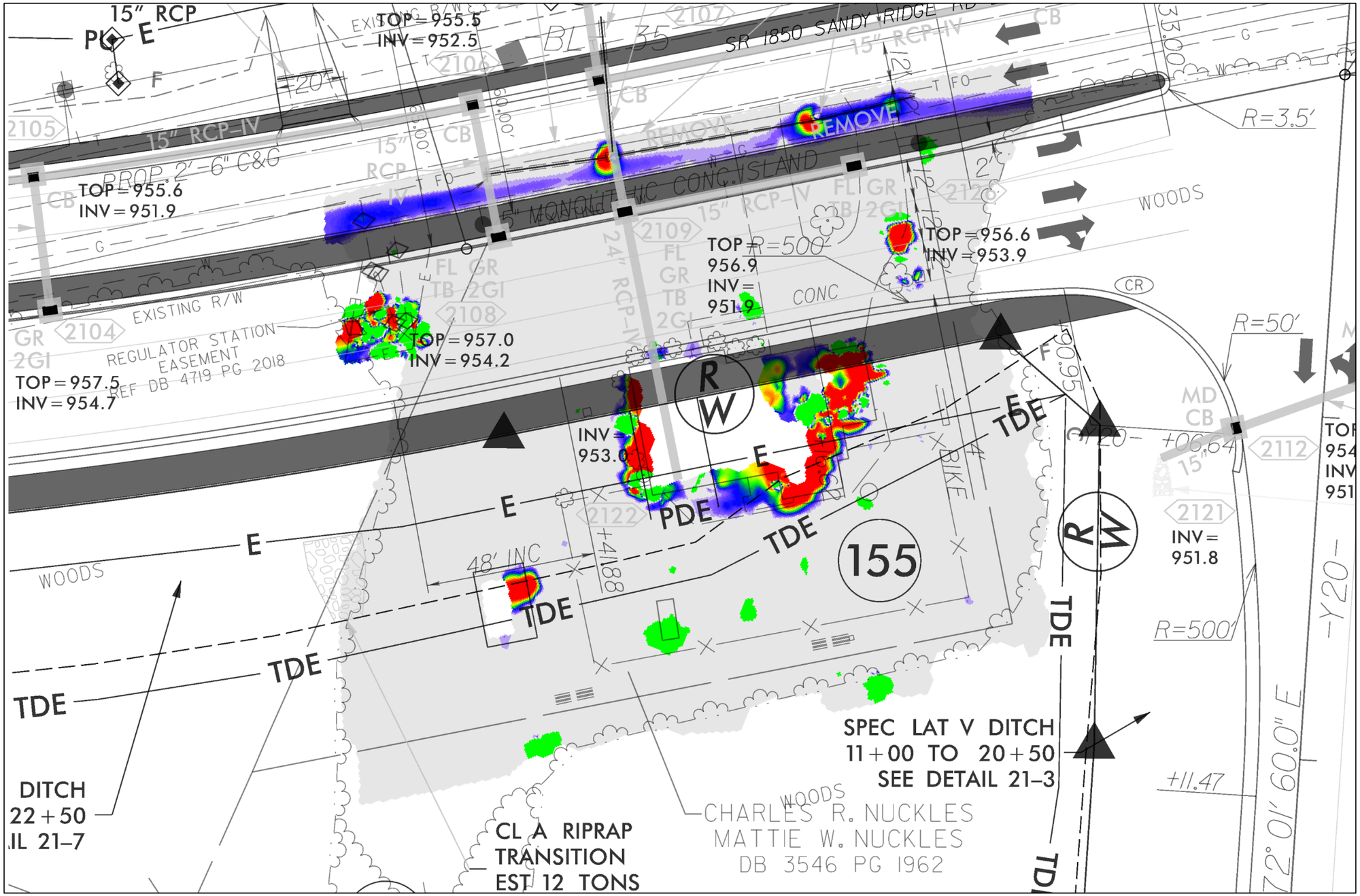
0 30 60
FEET

See Figure 7 for explanation of symbols and line types.

Note: Locations of geophysical data and USTs are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations.

PROJECT NO. IS14.335	***FIGURE 5 – PARCEL 155, C.R. & M.W. NUCKLES EM61 EARLY TIME GATE DATA ON PLAN SHEET***
SCALE 1" = 30'	
DATE 1/25/2023	***NCDOT PROJECT U-4758***
BY CWA/CRP	***JOHNSON ST - SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
	GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



List of Microstation References

- U4758_Geo_Env.dgn
  - U4758_rdy_ss.dgn
  - U-4758_rdy_WEX.dgn
  - U4758_HYD_DRN.dgn
  - U4758_ncdot_fs.dgn
  - U4758_rdy_dsn.dgn
  - U4758_rdy_row.dgn

See Figure 7 for explanation of symbols and line types.

Note: Locations of geophysical data and USTs are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations.

PROJECT NO. IS14.335	***FIGURE 6 – PARCEL 155, C.R. & M.W. NUCKLES EM61 DIFFERENTIAL DATA ON PLAN SHEET***
SCALE 1" = 30'	
DATE 1/25/2023	***NCDOT PROJECT U-4758***
BY CWA/CRP	***JOHNSON ST - SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
	GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

9/18/2021

PROJECT REFERENCE NO.	SHEET NO.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Existing Concrete Monument (ECM)
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream
- Buffer Zone 1
- Buffer Zone 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch
- False Sump

RAILROADS:

- Standard Gauge
- RR Signal Milepost
- Switch
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Control of Access Line
- Proposed Control of Access Line
- Proposed ROW and CA Line
- Existing Easement Line
- Proposed Temporary Construction Easement
- Proposed Temporary Drainage Easement
- Proposed Permanent Drainage Easement
- Proposed Permanent Drainage/Utility Easement
- Proposed Permanent Utility Easement
- Proposed Temporary Utility Easement
- Proposed Aerial Utility Easement

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut
- Proposed Slope Stakes Fill
- Proposed Curb Ramp
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:
- Bridge, Tunnel or Box Culvert
- Bridge Wing Wall, Head Wall and End Wall

MINOR:
- Head and End Wall
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB
- Paved Ditch Gutter
- Storm Sewer Manhole
- Storm Sewer

UTILITIES:

** SUE – Subsurface Utility Engineering*
LOS – Level of Service – A,B,C or D (Accuracy)

POWER:
- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)*
- U/G Power Line (SUE – LOS C)*
- U/G Power Line (SUE – LOS D)*

TELEPHONE:
- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole
- Telephone Pedestal
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- U/G Telephone Test Hole (SUE – LOS A)*
- U/G Telephone Cable (SUE – LOS B)*
- U/G Telephone Cable (SUE – LOS C)*
- U/G Telephone Cable (SUE – LOS D)*
- U/G Telephone Conduit (SUE – LOS B)*
- U/G Telephone Conduit (SUE – LOS C)*
- U/G Telephone Conduit (SUE – LOS D)*
- U/G Fiber Optics Cable (SUE – LOS B)*
- U/G Fiber Optics Cable (SUE – LOS C)*
- U/G Fiber Optics Cable (SUE – LOS D)*

WATER:
- Water Manhole
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line Test Hole (SUE – LOS A)*
- U/G Water Line (SUE – LOS B)*
- U/G Water Line (SUE – LOS C)*
- U/G Water Line (SUE – LOS D)*
- Above Ground Water Line

TV:
- TV Pedestal
- TV Tower
- U/G TV Cable Hand Hole
- U/G TV Test Hole (SUE – LOS A)*
- U/G TV Cable (SUE – LOS B)*
- U/G TV Cable (SUE – LOS C)*
- U/G TV Cable (SUE – LOS D)*
- U/G Fiber Optic Cable (SUE – LOS B)*
- U/G Fiber Optic Cable (SUE – LOS C)*
- U/G Fiber Optic Cable (SUE – LOS D)*

GAS:
- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE – LOS A)*
- U/G Gas Line (SUE – LOS B)*
- U/G Gas Line (SUE – LOS C)*
- U/G Gas Line (SUE – LOS D)*
- Above Ground Gas Line

SANITARY SEWER:
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line
- Above Ground Sanitary Sewer
- SS Force Main Line Test Hole (SUE – LOS A)*
- SS Force Main Line (SUE – LOS B)*
- SS Force Main Line (SUE – LOS C)*
- SS Force Main Line (SUE – LOS D)*

MISCELLANEOUS:
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box
- Utility Unknown U/G Line (SUE – LOS B)*
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc.
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT NO.	IS14.335
SCALE	N/A
DATE	1/25/2023
BY	CWA/CRP

FIGURE 7
LEGEND FOR PLAN SHEET FIGURES

NCDOT PROJECT U-4758
JOHNSON ST - SANDY RIDGE RD FROM SKEET CLUB RD TO I-40
GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

March 22, 2022

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

RE: PHASE II INVESTIGATION OF PARCEL 175
Bessemer Improvement Company
3016 Sandy Ridge Road, Colfax, NC 27235
ESP Project No. IS14.314

TIP Number:	U-4758
WBS Number:	40251.1.1
County:	GUILFORD
Description:	Johnson St – Sandy Ridge Road from Skeet Club Road to I-40

Dear Mr. Box:

ESP Associates, Inc. (ESP) is pleased to submit this report on our GeoEnvironmental Phase II Investigation of the subject parcel. This work was performed in accordance with your Request for Proposal dated December 7, 2021 and our Cost Proposal dated December 13, 2021.

We appreciate the opportunity to assist you during this phase of the project. If you should have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,

ESP Associates, Inc.

DocuSigned by:
Ed Billington
7402544DC92F4EC...

NORTH CAROLINA LICENSED SEAL 1631 GEOLOGIST EDWARD DAVIS BILLINGTON

Edward D. Billington, PG
Senior Geologist/Geophysicist
EDB/CRP/CJW

not considered Final unless all signatures are completed

TABLE OF CONTENTS

TABLES

TABLE OF CONTENTS (continued)

FIGURES

APPENDICES

1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is planning to improve Johnson Street – Sandy Ridge Road from Skeet Club Road to I-40 in High Point. The NCDOT requested that ESP Associates, Inc. (ESP) perform a Phase II geoenvironmental investigation of the proposed right-of-way (ROW) and proposed permanent utility easement (PUE) for Parcel 175 to locate underground storage tanks (USTs), sample soil, and delineate potential contaminated soil. Parcel 175 is located at 3016 Sandy Ridge Road in Colfax on the east side of Sandy Ridge Road near the intersection with Norcross Road (Figure 1).

2.0 HISTORY

2.1 Phase I Report

According to the *2015 Johnson Street – Sandy Ridge Road Environmental Report for Planning* (Phase I Report) for U-4758, Parcel 175 is a former hydraulic repair and sales business that currently operates as a truck parts specialist. This property appears in the NCDEQ database as Incident No. 6287 (UST #WS-2734). The waste-oil UST leak was reported on 7/18/1990 and was closed out 2/6/2006. This site was anticipated to present low geoenvironmental impacts to the project.

2.2 Background Research

We checked the following online sources with the results summarized below:

- NCDEQ Division of Waste Management Site Locator Tool
    - The site is shown as having had **UST Incident No. 6287**. Linked documents included the following:
        - **UST Closure Report dated July 10, 1990.** This report indicated that (1) 1,000-gallon gasoline UST, (1) 2,000-gallon diesel UST, and (1) 1,000-gallon waste-oil UST were removed (Appendix D1). Soil samples were collected and laboratory analysis did not detect gasoline range organics (GRO) or diesel range organics (DRO) beneath the gasoline and diesel USTs. However, analysis of the bottom soil samples taken from the waste-oil UST pit indicated total petroleum hydrocarbons (TPH) concentrations as oil and grease of 4,016 parts per milligram (ppm), or milligrams per kilogram (mg/kg) at the west end, and 12,982 ppm at the east end, both above the NCDEQ soil quality action level of 25 ppm.
        - **Phase 1 Limited Site Assessment Report (LSA) dated February 1, 2006.** This report indicated that a one temporary monitoring well was installed and one soil boring was drilled at the waste-oil UST location with both groundwater and soil samples collected for laboratory analysis. The results from the soil samples indicated that compounds detected were below the soil-to-groundwater maximum soil contaminant concentrations (MSCCs).

Groundwater samples did not detect any concentrations that exceed the North Carolina Code 2L Drinking Water Standards (NCAC 2L) Standards.
    - **Notice of No Further Action dated February 6, 2006.** The NCDEQ classified the site as low risk and issued a notice of No Further Action.
- NCDEQ UST Databases
    - Nothing found for this site.
- Guilford County GIS
    - Property owner is listed as Bessemer Improvement Company.

2.3 Other Information

There was one monitoring well observed on the west side of the parcel, next to Sandy Ridge Road. This is an offsite monitoring well associated with **UST incident No. 44550** for Parcel 176 - Circle K Store 1526 and designated MW-14 (Table 3 and Appendix D2).

- **Ground Monitoring Report dated November 11, 2019**. This is the most recent GW report received by the NCDEQ and addresses GW contamination in the vicinity of the automobile tank pit in the southeastern corner of the Parcel 176. The GW report concluded that dissolved groundwater concentrations for MTBE exceed 2L Standards in monitoring well MW-14 (Appendix D-2). Groundwater flow in the area is generally towards the east-southeast (Appendix D-3). The GW sample results are provided in Appendix D-4 and summarized in Table 3 for MW-14. The closest water-supply wells are located approximately 550 feet downgradient and are used for potable supply.

3.0 SITE OBSERVATIONS

During our February and March 2022 field work, the site contained an active building occupied by the business Truck Parts Specialist (Figure 2 and 3). The ground surface in the study area was covered by grass, gravel, asphalt pavement, and concrete pavement. No evidence was seen for existing USTs. There was one monitoring well (MW-14) observed on site.

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on February 18 and March 2, 2022. The geophysical investigation area was approximately 0.9 acres and encompassed the accessible areas of the subject parcel. We performed direct-push drilling and sampling of subsurface soils to depths of 10 to 15 feet on March 7, 2022. A photoionization detector (PID) was used to screen soil samples in the field and select soil samples to send for laboratory analysis. Groundwater was not encountered during the drilling investigation.

4.1 Geophysics

ESP performed a metal detector study over the accessible areas of the site using a Geonics EM61 MK2 with a line spacing of approximately three feet followed by ground-penetrating radar (GPR) data collected over selected EM61 anomalies (Figures 3 and 4). Location control was provided in real-time using a differential global positioning system (DGPS).

4.2 Borings

ESP performed direct-push drilling on Parcel 175 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Ten borings were drilled, designated B175-1 through B175-10 (Figure 7 and Appendix A). The soil borings were advanced using a hand auger and a GeoProbe 54DT drill rig. Soil samples were obtained to a depth of approximately 10 or 15 feet using hand auger cuttings and 5-foot long Macro-Core® tubes. Soil cores varied in recovery from 60 to 96 percent. The sampling equipment was decontaminated prior to drilling and between borings by the driller using Liquinox® detergent solution.

4.3 Soil Sample Protocol

Representative soil samples were taken from hand auger cuttings and the Macro-Core (core) tubes at approximate one-foot intervals by the ESP field geologist while wearing nitrile disposable gloves. Each sample was sealed in a plastic bag and then kept in a warm area for approximately 10 to 15 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID. The maximum PID readings per boring ranged from 0.7 to 2.3 ppm (Table 1).

Eight soil samples were selected for ultraviolet fluorescence (UVF) laboratory analysis, as listed in Table 2. For each selected sample, an approximate 10-gram soil sample was collected from the sample bag using a Terra Core™ sampler and placed into a laboratory-supplied 40-milliliter volatile organic analysis (VOA) vial containing methanol. Once sealed, the vial was labeled with the sample identification number and then shaken vigorously for about one minute. The samples were packed on ice and sent via overnight delivery to RED Lab, LLC (RED Lab), located in Wilmington, North Carolina, following proper chain-of-custody procedures (Appendix C).

RED Lab used a QED Hydrocarbon Analyzer to quantitatively analyze the soil samples using the UVF method for BTEX, GRO, DRO, TPH, total aromatics, polycyclic aromatic hydrocarbons (PAHs), and benzo(a)pyrene (BaP).

4.4 Groundwater

Groundwater was not encountered in the 10 borings.

5.0 RESULTS

5.1 Geophysics

The EM61 early time gate data show the response from both shallow and deeper metallic objects (Figure 3). The differential response reduces the effect of shallow anomalies and emphasizes anomalies from larger and more deeply buried metallic objects, such as USTs (Figure 4). Our evaluation of the EM61 data indicated one anomaly at the northeast end of the study area that could not be attributed to known cultural features; GPR data collected over this anomaly indicated that it was caused by reinforced concrete. The GPR data did not indicate buried objects below the concrete slab.

The EM61 early time gate response and differential response are shown on the plan sheet for NCDOT Project U-4758 on Figures 5 and 6.

5.2 Sample Data

The soil sample UVF hydrocarbon analysis results for BTEX, GRO, DRO, and PAHs are presented in Table 2. The RED Lab laboratory report, which also includes results for TPH, total aromatics, and BaP, is provided in Appendix B. Values are provided in mg/kg, or ppm.

5.3 Sample Observations

The results of the laboratory testing indicate that BTEX, GRO, DRO, PAHs, and BaP were below the laboratory detection limits in the 8 samples tested.

6.0 CONCLUSIONS

The results of the Phase II investigation of Parcel 175 for NCDOT Project U-4758 indicate that there is no evidence for USTs in the proposed ROW or proposed PUE. The laboratory testing did not indicate the presence of petroleum compounds above the NCDEQ action levels for GRO or DRO. Groundwater was not encountered in the 10 borings. However, groundwater petroleum contamination is known to be present in MW-14, based on previous investigations associated with Parcel 175.

6.1 Geophysics

The geophysical data did not indicate the presence of abandoned USTs.

6.2 Soil

DRO, GRO, BTEX and PAHs were not detected in any of the soil samples tested.

7.0 RECOMMENDATIONS

No limitations on construction activities or special handling of excavated soil are recommended for Parcel 175.

Groundwater was not encountered in the 10 borings. Based on the planned cut depths and proposed drainage features, it does not appear that groundwater will be encountered during construction. However, if groundwater is encountered during construction, it may be contaminated and should be screened for petroleum hydrocarbons, properly handled, segregated, and disposed of in accordance with NCDEQ regulations.

8.0 LIMITATIONS

ESP's professional services have been performed, findings obtained, and recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. ESP is not responsible for the independent conclusions, opinions, or recommendations made by others based on the data presented in this report.

The passage of time may result in a change in the environmental characteristics at this site and surrounding properties. ESP does not warrant against future operations or conditions, or against operations or conditions present of a type or at a location not investigated. ESP does not assume responsibility for other environmental issues that may be associated with the subject site.

TABLES

TABLE 1
SOIL SAMPLE PID READINGS

Boring	Sample Depth Range with PID > 10 ppm (feet bgs)	Maximum PID Reading (ppm) and Sample Depth (feet bgs)
B175-1	None	1.7 (12.0 – 12.5)
B175-2	None	2.2 (11.0-11.5)
B175-3	None	2.3 (1.0 – 1.5)
B175-4	None	1.7 (6.0 – 6.5)
B175-5	None	1.2 (11.0 – 11.5)
B175-6	None	0.7 (9.0 – 9.5)
B175-7	None	0.9 (8.0 – 8.5)
B175-8	None	1.0 (6.0 – 6.5)
B175-9	None	0.9 (9.0 – 9.5)
B175-10	None	0.7 (6.0 – 6.5)

TABLE 2
SOIL SAMPLE UVF RESULTS SUMMARY

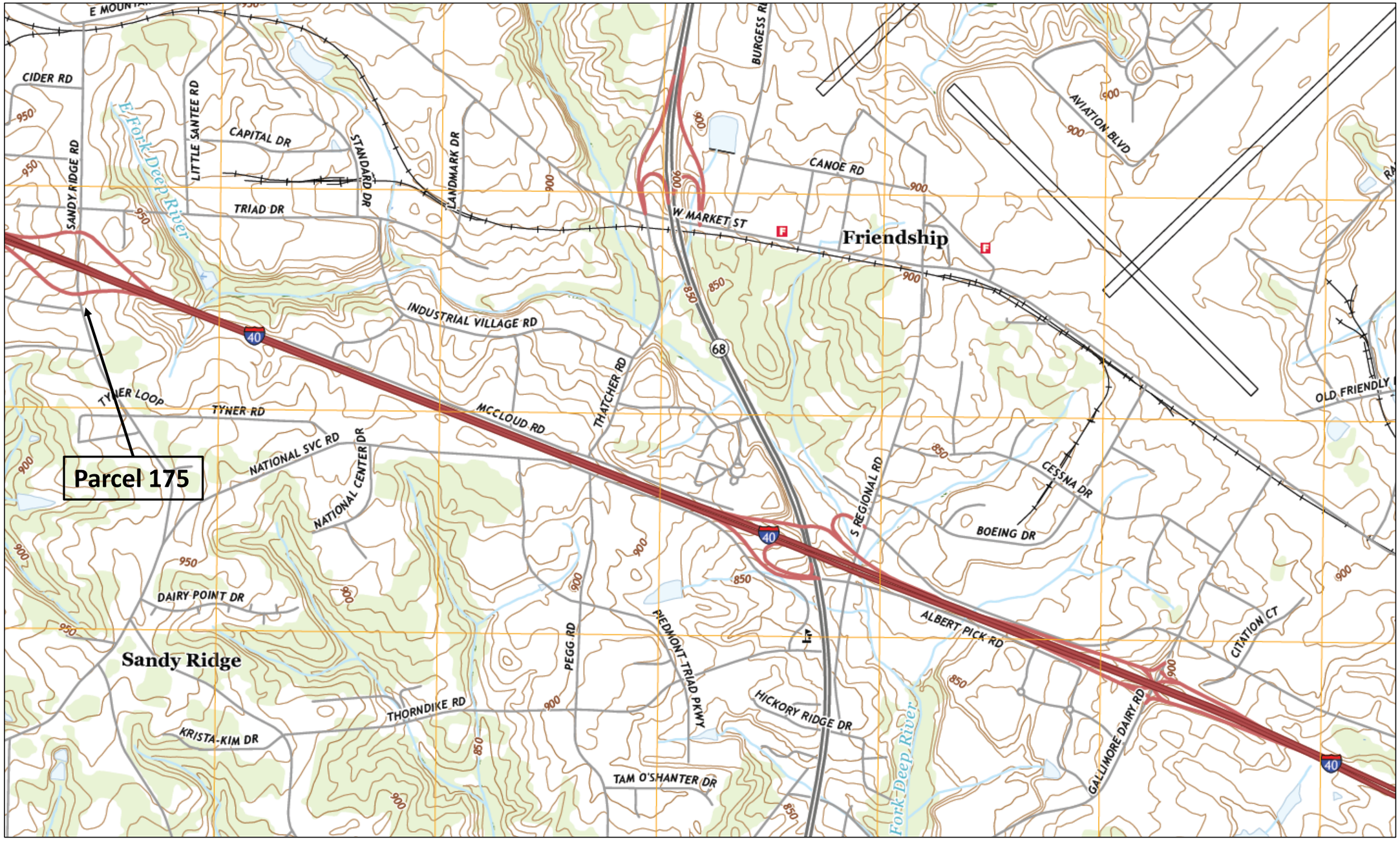
Boring	Sample ID (depth in feet bgs)	Date Collected	BTEX (C6-C9) (mg/kg)	GRO (C5-C10) (mg/kg)	DRO (C10-C35) (mg/kg)	PAHs (mg/kg)
B175-1	S-14	3/7/22	<0.4	<0.4	<0.4	<0.13
B175-2	S-1	3/7/22	<0.64	<0.64	<0.64	<0.2
B175-3	S-14	3/7/22	<0.36	<0.36	<0.36	<0.12
B175-4	S-6	3/7/22	<0.6	<0.6	<0.6	<0.19
B175-5	S-14	3/7/22	<0.74	<0.37	<0.37	<0.12
B175-6	S-7	3/7/22	<0.26	<0.26	<0.26	<0.08
B175-8	S-9	3/7/22	<0.35	<0.35	<0.35	<0.11
B175-10	S-6	3/7/22	<0.2	<0.2	<0.2	<0.07

TABLE 3
MONITORING WELL LOCATION WITH 2019 MONITORING REPORT RESULTS

Monitoring Well	Northing	Easting	Depth to Groundwater, feet	2019 Monitoring Report Results		
				Detected Compound	Detected Level, ug/L	NC 2L Groundwater Standard ug/L
MW-14	853357	1705739	38.77	MTBE	**26.7**	20

The complete summary of GW sampling results from the 2019 MR for Parcel 176 is provided in Appendix D-4.

FIGURES



From: USGS US Topo 7.5 - minute map for GUILFORD QUADRANGLE, NC, Date: 2019, Original Scale: 1:24,000

PROJECT NO. IS14.314	***FIGURE 1 – PARCEL 175, BESSEMER IMPROVEMENT CO. SITE VICINITY MAP***
SCALE AS SHOWN	***NCDOT PROJECT U-4758***
DATE 3/22/2022	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
BY CRP/EDB	***GUILFORD COUNTY, NORTH CAROLINA***

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

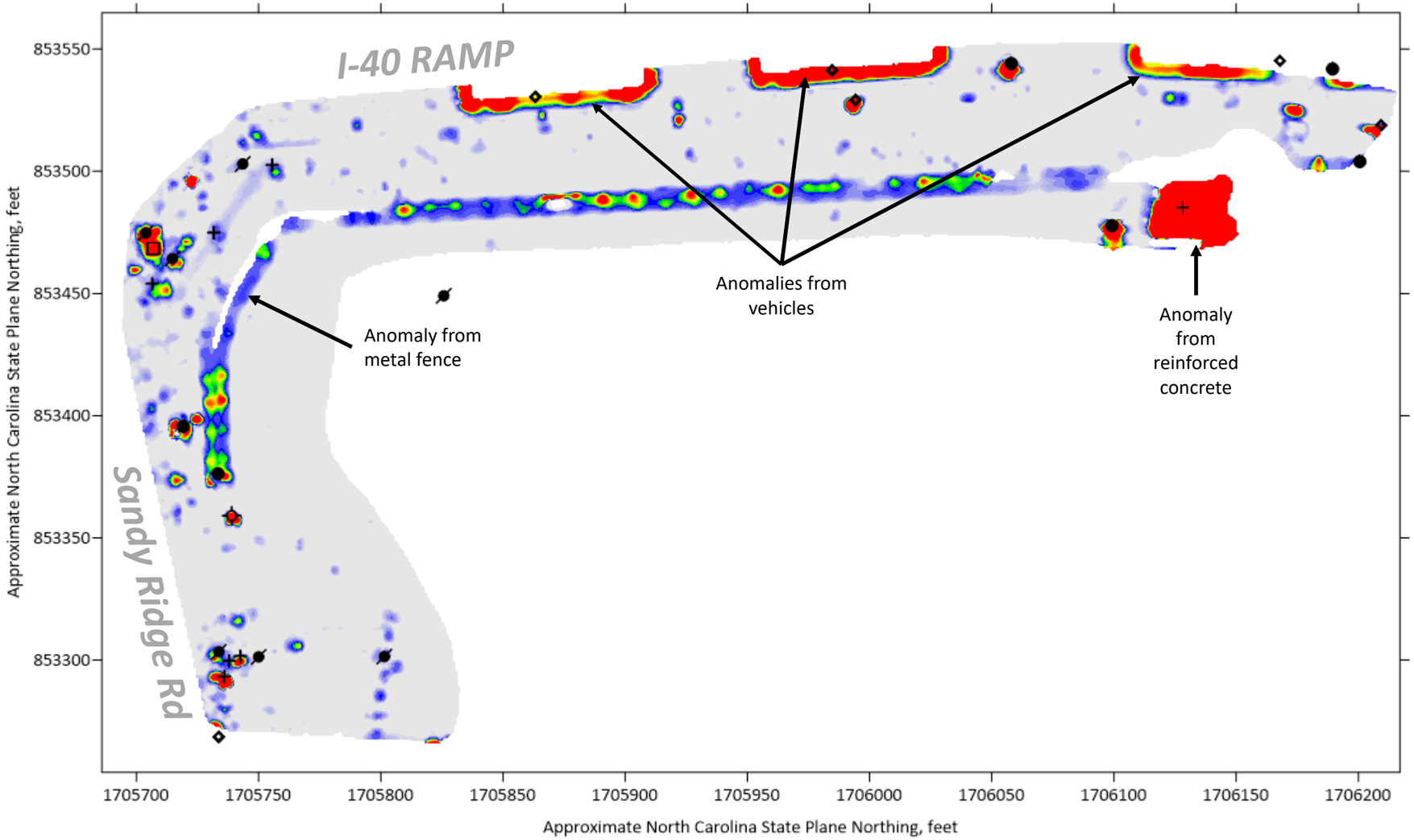
A. Photograph from northwest corner of building, facing east.

B. Photograph from west side of parcel, facing east with MW-14 in foreground.

C. Photograph of drilling Boring B175-1 on west side of parcel, facing west.

D. Photograph from northeast corner of parcel, facing east, I-40 ramp to right.

PROJECT NO. IS14.314	***FIGURE 2 – PARCEL 175, BESSEMER IMPROVEMENT CO. SITE PHOTOGRAPHS***	ESP Associates, Inc.
SCALE N/A		7011 Albert Pick Rd., Suite E Greensboro, NC 27409
DATE 3/22/2022	***NCDOT PROJECT U-4758***	336.334.7724
BY CRP/EDB	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40 GUILFORD COUNTY, NORTH CAROLINA***	www.espassociates.com



APPROXIMATE NORTH

EM61 Early Time Gate Response (mV)

1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
225
150
100
80
60
50
40
0
-500

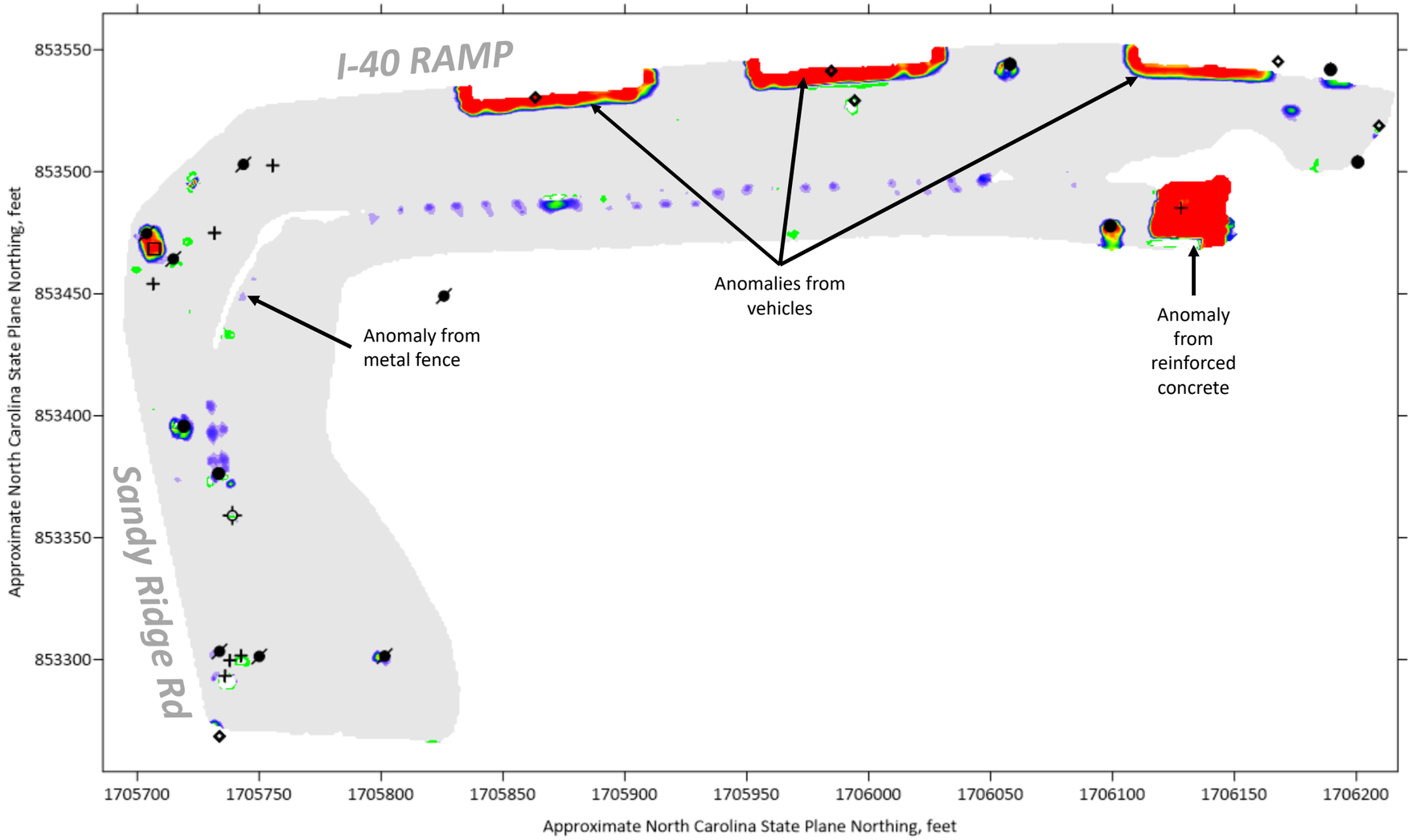
EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet or Catch Basin
- Manhole Cover
- Culvert, storm drain pipe
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Fill Port or Valve Cover
- Monitoring Well
- Buried utility line (marked by others)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO. IS14.314	***FIGURE 3 – PARCEL 175, BESSEMER IMPROVEMENT CO. EM61 EARLY TIME GATE DATA***
SCALE AS SHOWN	***NCDOT PROJECT U-4758***
DATE 3/22/2022	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
BY CRP/EDB	***GUILFORD COUNTY, NORTH CAROLINA***

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



APPROXIMATE NORTH

EM61 Early Time Gate Response (mV)

1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
225
150
100
80
60
50
40
0
-500

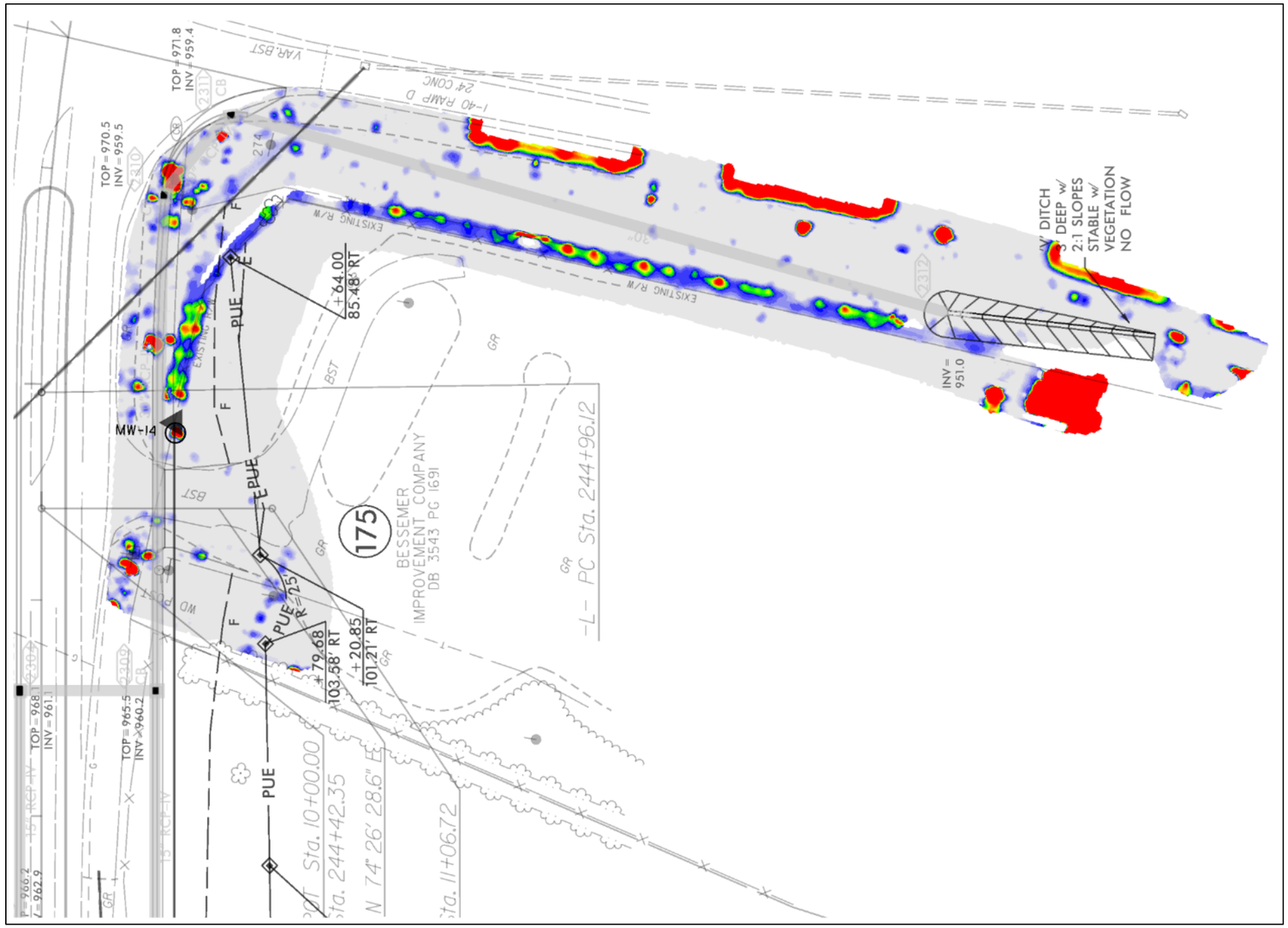
EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet or Catch Basin
- Manhole Cover
- Culvert, storm drain pipe
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Fill Port or Valve Cover
- Monitoring Well
- Buried utility line (marked by others)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO. IS14.314	***FIGURE 4 – PARCEL 175, BESSEMER IMPROVEMENT CO. EM61 DIFFERENTIAL DATA***
SCALE AS SHOWN	***NCDOT PROJECT U-4758***
DATE 3/22/2022	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
BY CRP/EDB	***GUILFORD COUNTY, NORTH CAROLINA***

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



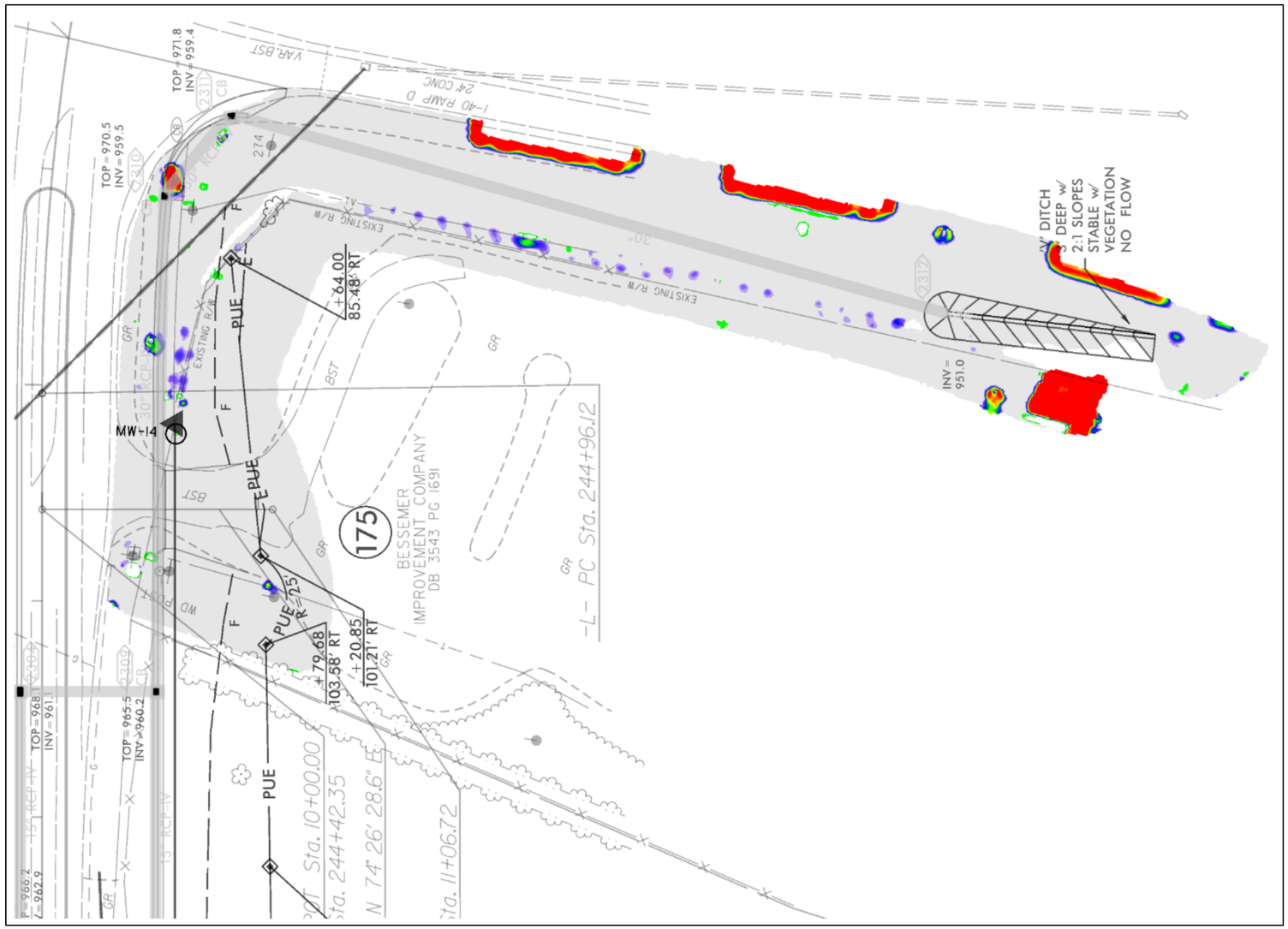
List of Microstation References

- U4758_Geo_env.dgn
  - U4758_HYD_DRN.dgn
  - U4758_ncdot_fs.dgn
  - U4758_rdy_dsn.dgn
  - U4758_rdy_row.dgn
  - U4758_rdy_ss.dgn

See Figure 9 for explanation of symbols and line types

PROJECT NO. IS14.314	**FIGURE 5 – PARCEL 175, BESSEMER IMPROVEMENT CO. EM61 EARLY TIME GATE DATA ON PLAN SHEET**
SCALE 1" = 60'	
DATE 3/22/2022	**NCDOT PROJECT U-4758**
BY CRP/EDB	**JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40 GUILFORD COUNTY, NORTH CAROLINA**

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



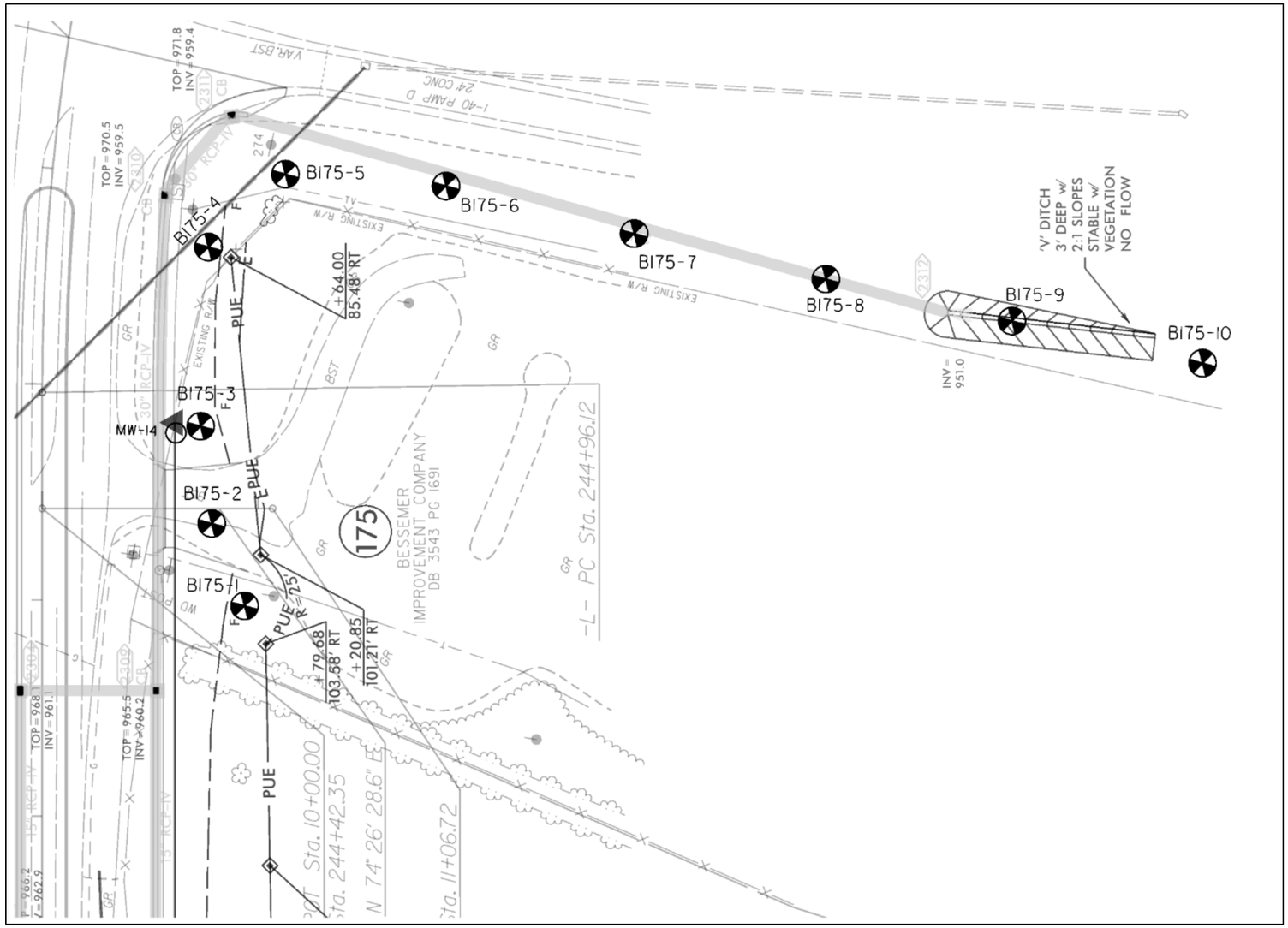
List of Microstation References

- U4758_Geo_env.dgn
  - U4758_HYD_DRN.dgn
  - U4758_ncdot_fs.dgn
  - U4758_rdy_dsn.dgn
  - U4758_rdy_row.dgn
  - U4758_rdy_ss.dgn

See Figure 9 for explanation of symbols and line types

PROJECT NO. IS14.314	***FIGURE 6 – PARCEL 175, BESSEMER IMPROVEMENT CO. EM61 DIFFERENTIAL DATA ON PLAN SHEET***
SCALE 1" = 60'	
DATE 3/22/2022	***NCDOT PROJECT U-4758***
BY CRP/EDB	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
	GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



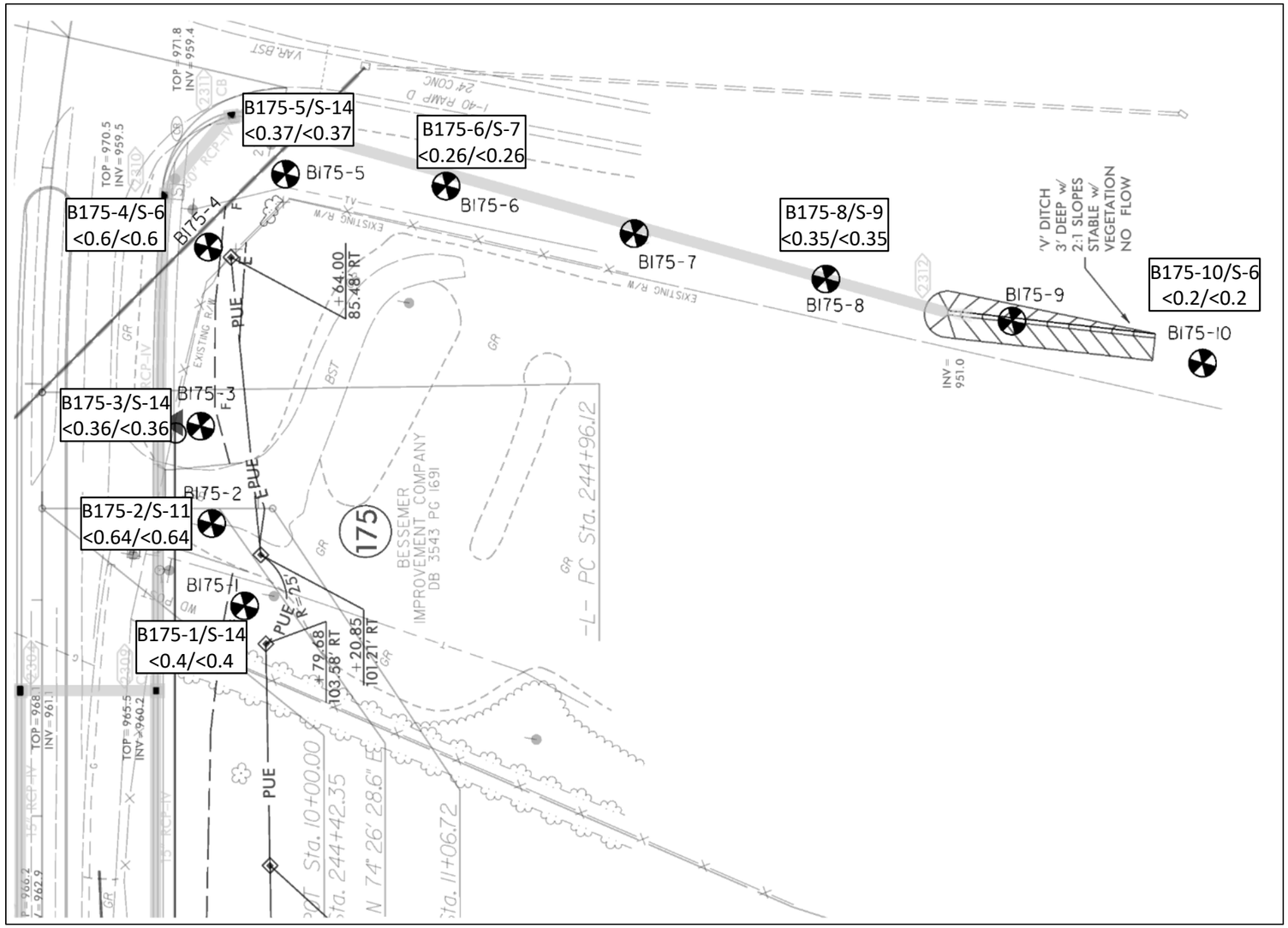
List of Microstation References

- U4758_Geo_env.dgn
  - U4758_HYD_DRN.dgn
  - U4758_ncdot_fs.dgn
  - U4758_rdy_dsn.dgn
  - U4758_rdy_row.dgn
  - U4758_rdy_ss.dgn

See Figure 9 for explanation of symbols and line types

PROJECT NO. IS14.314	***FIGURE 7 – PARCEL 175, BESSEMER IMPROVEMENT CO. BORING LOCATIONS ON PLAN SHEET***
SCALE 1" = 60'	***NCDOT PROJECT U-4758***
DATE 3/22/2022	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
BY CRP/EDB	***GUILFORD COUNTY, NORTH CAROLINA***

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com



N

Explanation

B175-1/S-14
<0.4/<0.4

Maximum Analytical Results per Boring
Boring No./Sample No.
GRO/DRO (mg/kg, ppm)

List of Microstation References

- U4758_Geo_env.dgn
  - U4758_HYD_DRN.dgn
  - U4758_ncdot_fs.dgn
  - U4758_rdy_dsn.dgn
  - U4758_rdy_row.dgn
  - U4758_rdy_ss.dgn

See Figure 9 for explanation of symbols and line types

60 120
FEET

PROJECT NO. IS14.314	***FIGURE 8 – PARCEL 175, BESSEMER IMPROVEMENT CO. SOIL ANALYTICAL RESULTS ON PLAN SHEET***
SCALE 1" = 60'	
DATE 3/22/2022	***NCDOT PROJECT U-4758***
BY CRP/EDB	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***
	GUILFORD COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

12/2/2016

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

PROJECT REFERENCE NO. | SHEET NO.

BOUNDARIES AND PROPERTY:
- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin
- Computed Property Corner
- Property Monument
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:
- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:
- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream
- Buffer Zone 1
- Buffer Zone 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch
- False Sump

RAILROADS:
- Standard Gauge
- RR Signal Milepost
- Switch
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:
- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line
- New Right of Way Line with Pin and Cap
- New Right of Way Line with Concrete or Granite R/W Marker
- New Control of Access Line with Concrete C/A Marker
- Existing Control of Access
- New Control of Access
- Existing Easement Line
- New Temporary Construction Easement
- New Temporary Drainage Easement
- New Permanent Drainage Easement
- New Permanent Drainage / Utility Easement
- New Permanent Utility Easement
- New Temporary Utility Easement
- New Aerial Utility Easement

ROADS AND RELATED FEATURES:
- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut
- Proposed Slope Stakes Fill
- Proposed Curb Ramp
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:
- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:
MAJOR:
- Bridge, Tunnel or Box Culvert
- Bridge Wing Wall, Head Wall and End Wall

MINOR:
- Head and End Wall
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB
- Paved Ditch Gutter
- Storm Sewer Manhole
- Storm Sewer

UTILITIES:
POWER:
- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*)
- U/G Power Line LOS C (S.U.E.*)
- U/G Power Line LOS D (S.U.E.*)

TELEPHONE:
- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole
- Telephone Pedestal
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- U/G Telephone Cable LOS B (S.U.E.*)
- U/G Telephone Cable LOS C (S.U.E.*)
- U/G Telephone Cable LOS D (S.U.E.*)
- U/G Telephone Conduit LOS B (S.U.E.*)
- U/G Telephone Conduit LOS C (S.U.E.*)
- U/G Telephone Conduit LOS D (S.U.E.*)
- U/G Fiber Optics Cable LOS B (S.U.E.*)
- U/G Fiber Optics Cable LOS C (S.U.E.*)
- U/G Fiber Optics Cable LOS D (S.U.E.*)

WATER:
- Water Manhole
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*)
- U/G Water Line LOS C (S.U.E.*)
- U/G Water Line LOS D (S.U.E.*)
- Above Ground Water Line

TV:
- TV Pedestal
- TV Tower
- U/G TV Cable Hand Hole
- U/G TV Cable LOS B (S.U.E.*)
- U/G TV Cable LOS C (S.U.E.*)
- U/G TV Cable LOS D (S.U.E.*)
- U/G Fiber Optic Cable LOS B (S.U.E.*)
- U/G Fiber Optic Cable LOS C (S.U.E.*)
- U/G Fiber Optic Cable LOS D (S.U.E.*)

GAS:
- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*)
- U/G Gas Line LOS C (S.U.E.*)
- U/G Gas Line LOS D (S.U.E.*)
- Above Ground Gas Line

SANITARY SEWER:
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line
- Above Ground Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*)
- SS Forced Main Line LOS C (S.U.E.*)
- SS Forced Main Line LOS D (S.U.E.*)

MISCELLANEOUS:
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box
- Utility Unknown U/G Line LOS B (S.U.E.*)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc.
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT NO. IS14.314	***FIGURE 9– PARCEL 175, BESSEMER IMPROVEMENT CO. LEGEND FOR PLAN SHEET FIGURES***	ESP Associates, Inc.
SCALE N/A		7011 Albert Pick Rd., Suite E Greensboro, NC 27409
DATE 3/22/2022	***NCDOT PROJECT U-4758***	336.334.7724
BY CRP/EDB	***JOHNSON ST– SANDY RIDGE RD FROM SKEET CLUB RD TO I-40***	www.espassociates.com
	GUILFORD COUNTY, NORTH CAROLINA	

APPENDIX A
SOIL BORING LOGS

FIELD BORING LOG

BORING NO. B175-1

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314

LOCATION: Approximately 67.2' east from edge of pavement south of driveway

TYPE OF BORING	Direct Push & Hand Auger	DATE STARTED:	3/7/2022	SHEET:	1 of 1
DRILLING FIRM:	SAEDACCO	DATE FINISHED:	3/7/2022	TOTAL DEPTH:	15.0 ft
DRILLER:	Scott Hunt	SAMPLE METHOD:	Hand Auger & Macrocore	DEPTH TO GW:	Dry ft
DRILL RIG:	Geoprobe 54DT	LOGGED BY:	A. Roseman	COMMENT:	Elev: 962.0'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
				0.3'-15.0' Red, Micaceous, Clayey SILT, Moist	
1	S-1	1.0-1.5	0.6		
2	S-2	2.0-2.5	0.4		
3	S-3	3.0-3.5	0.6		
4	S-4	4.0-4.5	0.8		
5	S-5	5.0-5.5	0.2		Macrocore 5.0'-10.0' Core Rec 4.7'/5.0'
6	S-6	6.0-6.5	1.2		
7	S-7	7.0-7.5	1.2		
8	S-8	8.0-8.5	1.3		
9	S-9	9.0-9.5	1.2		
10	S-10	10.0-10.5	no sample		Macrocore 10.0'-15.0' Core Rec 3.0'/5.0'
11	S-11	11.0-11.5	no sample		
12	S-12	12.0-12.5	1.7		
13	S-13	13.0-13.5	1.4		
14	S-14	14.0-14.5	2.4		
15					

Samples highlighted red selected for analytical

FIELD BORING LOG

BORING NO. B175-2

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314

LOCATION: Approximatley 45.3' northeast from edge of pavement south of driveway

TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 3/7/2022 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/7/2022 | TOTAL DEPTH: 15.0 ft

DRILLER: Scott Hunt | SAMPLE METHOD: Hand Auger & Macrocore | DEPTH TO GW: Dry ft

DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 964.0'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
				0.3'-13.0' Red, Micaceous, Clayey SILT, Moist	
1	S-1	1.0-1.5	1.5		
2	S-2	2.0-2.5	1.1		
3	S-3	3.0-3.5	0.8		
4	S-4	4.0-4.5	0.5		
5	S-5	5.0-5.5	no sample		Macrocore 5.0'-10.0' Core Rec 4.0'/5.0'
6	S-6	6.0-6.5	1.1		
7	S-7	7.0-7.5	0.3		
8	S-8	8.0-8.5	0.5		
9	S-9	9.0-9.5	1.0		
10	S-10	10.0-10.5	no sample		Macrocore 10.0'-15.0' Core Rec 3.8'/5.0'
11	S-11	11.0-11.5	2.2		
12	S-12	12.0-12.5	2.0		
				12.4' Grading to Yellow	
13	S-13	13.0-13.5	0.9	13.0'-15.0' Yellow to Gray to Red Micaceous, Coarse to Fine Sandy SILT, Moist	
14	S-14	14.0-14.5	2.0		
15					

FIELD BORING LOG

BORING NO. B175-3

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314

LOCATION: Approximately 24.6' southeast of monitoring well on west side of parcel

TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 3/7/2022 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/7/2022 | TOTAL DEPTH: 15.0 ft

DRILLER: Scott Hunt | SAMPLE METHOD: Hand Auger & Macrocore | DEPTH TO GW: Dry ft

DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 964.8'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
				0.3'-7.2' Red, Micaceous, Clayey SILT, Moist	
1	S-1	1.0-1.5	2.3		
2	S-2	2.0-2.5	0.7		
3	S-3	3.0-3.5	0.3		
4	S-4	4.0-4.5	0.8		
5	S-5	5.0-5.5	0.5		Macrocore 5.0'-10.0'
					Core Rec 4.5'/5.0'
6	S-6	6.0-6.5	1.3		
				6.8' Grading to Yellow	
7	S-7	7.0-7.5	0.9		
				7.2'-8.3' Yellow to Gray, Coarse to Fine Sandy SILT, Moist	
8	S-8	8.0-8.5	1.3		
				8.3'-15.0' White to Gray Silty Coarse to Fine SAND, Moist	
9	S-9	9.0-9.5	0.8		
10	S-10	10.0-10.5	no sample		Macrocore 10.0'-15.0'
					Core Rec 4.0'/5.0'
11	S-11	11.0-11.5	0.7		
12	S-12	12.0-12.5	0.6		
13	S-13	13.0-13.5	1.2		
14	S-14	14.0-14.5	1.7		
15					

FIELD BORING LOG

BORING NO. B175-4

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314
LOCATION: Approximatley 92.8' north of driveway
TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 3/7/2022 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/7/2022 | TOTAL DEPTH: 15.0 ft
DRILLER: Scott Hunt | SAMPLE METHOD: Hand Auger & Macrocore | DEPTH TO GW: Dry ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 967.4'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION		REMARKS
				0.0'-0.3'	Topsoil	Hand Auger 0.0'-5.0'
				0.3'-12.3'	Red, Micaceous, Clayey SILT, Moist	
1	S-1	1.0-1.5	0.5			
2	S-2	2.0-2.5	0.7			
3	S-3	3.0-3.5	0.4			
4	S-4	4.0-4.5	0.5			
5	S-5	5.0-5.5	no sample			Macrocore 5.0'-10.0' Core Rec 4.0'/5.0'
6	S-6	6.0-6.5	1.7	6.0'	Grading to Orange	
7	S-7	7.0-7.5	0.5			
8	S-8	8.0-8.5	0.9			
9	S-9	9.0-9.5	0.7			
10	S-10	10.0-10.5	no sample			Macrocore 10.0'-15.0' Core Rec 4.0'/5.0'
11	S-11	11.0-11.5	0.4			
12	S-12	12.0-12.5	0.4			
				12.3'-14.9'	Red to Orange to Black, Micacous Coarse to Fine Sandy SILT, Moist	
13	S-13	13.0-13.5	0.3			
14	S-14	14.0-14.5	0.4	14.0'	Grading to Yellow-Brown	
				14.9'-15.0'	White, Coarse Silty SAND, Moist	
15						

FIELD BORING LOG

BORING NO. B175-5

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314

LOCATION: Approximately 42.8' south of on-ramp pavement

TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 3/7/2022 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/7/2022 | TOTAL DEPTH: 15.0 ft

DRILLER: Scott Hunt | SAMPLE METHOD: Hand Auger & Macrocore | DEPTH TO GW: Dry ft

DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 966.7'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
				0.3'-1.8' Red, Micaceous Silty CLAY, Moist	
1	S-1	1.0-1.5	0.4		
				1.8'-8.5' Red, Micaceous, Clayey SILT, Moist	
2	S-2	2.0-2.5	0.5		
3	S-3	3.0-3.5	0.3		
				3.2' Grading to Orange	
4	S-4	4.0-4.5	0.2		
5	S-5	5.0-5.5	no sample		Macrocore 5.0'-10.0
					Core Rec 4.0'/5.0'
6	S-6	6.0-6.5	0.3		
7	S-7	7.0-7.5	0.6		
8	S-8	8.0-8.5	0.9		
				8.5'-10.0' White to Gray, Micaceous, Coarse to Fine Silty SAND, Moist	
9	S-9	9.0-9.5	0.6		
10	S-10	10.0-10.5	no sample		Macrocore 10.0'-15.0'
					Core Rec 4.0'/5.0'
11	S-11	11.0-11.5	1.2		
12	S-12	12.0-12.5	0.9		
13	S-13	13.0-13.5	0.9		
14	S-14	14.0-14.5	0.4		
15					

FIELD BORING LOG

BORING NO. B175-6

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314

LOCATION: Approximately 33.9' south of onramp pavement

TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 3/7/2022 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/7/2022 | TOTAL DEPTH: 15.0 ft

DRILLER: Scott Hunt | SAMPLE METHOD: Hand Auger & Macrocore | DEPTH TO GW: Dry ft

DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: 960.1'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
				0.3'-3.2' Red, Micaceous, Clayey SILT, Moist	
1	S-1	1.0-1.5	0.2		
2	S-2	2.0-2.5	0.3		
				3.2'-15.0' Orange, Micaceous, Fine Sandy SILT, Moist	
3	S-3	3.0-3.5	0.4		
4	S-4	4.0-4.5	0.4		
5	S-5	5.0-5.5	no sample		Macrocore 5.0'-10.0'
					Core Rec 3.0'/5.0'
6	S-6	6.0-6.5	no sample		
7	S-7	7.0-7.5	0.4		
				7.2' Grading to White and Tan	
8	S-8	8.0-8.5	0.6		
9	S-9	9.0-9.5	0.7		
10	S-10	10.0-10.5	no sample		Macrocore 10.0'-15.0'
					Core Rec 4.0'/5.0'
11	S-11	11.0-11.5	0.3		
12	S-12	12.0-12.5	0.3		
13	S-13	13.0-13.5	0.5		
				13.1' Grading to Red and Brown and Black	
14	S-14	14.0-14.5	0.5		
15					

FIELD BORING LOG

BORING NO. B175-7

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314

LOCATION: Approximately 87.9' northwest of northwest corner of building

TYPE OF BORING	Direct Push & Hand Auger	DATE STARTED:	3/7/2022	SHEET:	1 of 1
DRILLING FIRM:	SAEDACCO	DATE FINISHED:	3/7/2022	TOTAL DEPTH:	10.0 ft
DRILLER:	Scott Hunt	SAMPLE METHOD:	Hand Auger & Macrocore	DEPTH TO GW:	Dry ft
DRILL RIG:	Geoprobe 54DT	LOGGED BY:	A. Roseman	COMMENT:	Elev: 956.4'

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
				0.3'-2.3' Red, Micaceous, Clayey SILT, Moist	
1	S-1	1.0-1.5	0.5		
2	S-2	2.0-2.5	0.3		
				2.3'-9.9' Red, Micaceous, Fine Sandy SILT, Moist	
3	S-3	3.0-3.5	0.7		
4	S-4	4.0-4.5	0.6		
5	S-5	5.0-5.5	0.5		Macrocore 5.0'-10.0'
					Core Rec 4.6'/5.0'
6	S-6	6.0-6.5	0.4		
7	S-7	7.0-7.5	0.4		
				7.6' Grading to Red, Orange, and Black	
8	S-8	8.0-8.5	0.9		
9	S-9	9.0-9.5	0.8		
				9.9'-10.0' White to Gray Silty Coarse to Fine SAND, Moist	
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B175-8

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314

LOCATION: Approximately 45.4' north of northwest corner of building

TYPE OF BORING	Direct Push & Hand Auger	DATE STARTED:	3/7/2022	SHEET:	1 of 1
DRILLING FIRM:	SAEDACCO	DATE FINISHED:	3/7/2022	TOTAL DEPTH:	10.0 ft
DRILLER:	Scott Hunt	SAMPLE METHOD:	Hand Auger & Macrocore	DEPTH TO GW:	Dry ft
DRILL RIG:	Geoprobe 54DT	LOGGED BY:	A. Roseman	COMMENT:	Elev: n/a

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
				0.3'-8.4' Red, Clayey SILT, Moist	
1	S-1	1.0-1.5	0.4		
2	S-2	2.0-2.5	0.3		
3	S-3	3.0-3.5	0.5		
4	S-4	4.0-4.5	0.5		
5	S-5	5.0-5.5	0.3		Macrocore 5.0'-10.0' Core Rec 4.7'/5.0'
6	S-6	6.0-6.5	1.0		
7	S-7	7.0-7.5	0.6		
8	S-8	8.0-8.5	0.3		
				8.4'-10.0' Brown, Micaceous, Fine Sandy SILT, Moist	
9	S-9	9.0-9.5	0.7		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B175-9

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314

LOCATION: Approximately 78.3' northwest of northeast corner of building

TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 3/7/2022 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/7/2022 | TOTAL DEPTH: 10.0 ft

DRILLER: Scott Hunt | SAMPLE METHOD: Hand Auger & Macrocore | DEPTH TO GW: Dry ft

DRILL RIG: Geoprobe 54DT | LOGGED BY: A. Roseman | COMMENT: Elev: n/a

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Hand Auger 0.0'-5.0'
				0.3'-10.0' Red, Micaceous, Silty, CLAY with Gravel, Moist	
1	S-1	1.0-1.5	0.5		
				1.8' Same, no gravel	
2	S-2	2.0-2.5	0.3		
3	S-3	3.0-3.5	0.5		
4	S-4	4.0-4.5	0.4		
5	S-5	5.0-5.5	0.4		Macrocore 5.0'-10.0'
					Core Rec 4.8'/5.0'
6	S-6	6.0-6.5	0.4		
7	S-7	7.0-7.5	0.4		
8	S-8	8.0-8.5	0.5		
9	S-9	9.0-9.5	0.9		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B175-10

PROJECT NAME: NCDOT U-4758 Phase II | PROJ. NO.: IS14.314

LOCATION: Approximately 81.8' northeast of northeast corner of building

TYPE OF BORING	Direct Push	DATE STARTED:	3/7/2022	SHEET:	1 of 1
DRILLING FIRM:	SAEDACCO	DATE FINISHED:	3/7/2022	TOTAL DEPTH:	10.0 ft
DRILLER:	Scott Hunt	SAMPLE METHOD:	Macrocore	DEPTH TO GW:	Dry ft
DRILL RIG:	Geoprobe 54DT	LOGGED BY:	A. Roseman	COMMENT:	Elev: n/a

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0'-0.3' Topsoil	Macrocore 0.0'-5.0'
					Core Rec 3.7'/5.0'
				0.3'-10.0' Red to Brown, Micaceous, Fine Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.2		
2	S-2	2.0-2.5	0.4		
3	S-3	3.0-3.5	0.3		
4	S-4	4.0-4.5	no sample		
5	S-5	5.0-5.5	0.3		Macrocore 5.0'-10.0'
					Core Rec 4.6'/5.0'
6	S-6	6.0-6.5	0.7		
7	S-7	7.0-7.5	0.5		
8	S-8	8.0-8.5	0.3		
9	S-9	9.0-9.5	0.4		
10					
11					
12					
13					
14					
15					

APPENDIX B

RED LAB LABORATORY TESTING REPORT

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: ESP
Address: GREENSBORO, NC

Samples taken Monday, March 7, 2022
Samples extracted Monday, March 7, 2022
Samples analysed Friday, March 11, 2022

Contact: NED BILLINGTON

Operator CLAIRE NAKAMURA

Project: I514.314

U00904

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	B175-1, S-14	16.1	<0.4	<0.4	<0.4	<0.4	<0.08	<0.13	<0.016	0	0	0	PHC not detected,(BO)
s	B175-2, S-1	25.5	<0.64	<0.64	<0.64	<0.64	<0.13	<0.2	<0.025	0	0	0	PHC not detected
s	B175-3, S-14	14.4	<0.36	<0.36	<0.36	<0.36	<0.07	<0.12	<0.014	0	0	0	,(FCM)
s	B175-4, S-6	23.9	<0.6	<0.6	<0.6	<0.6	<0.12	<0.19	<0.024	0	0	0	PHC not detected
s	B175-5, S-14	14.9	<0.74	<0.37	<0.37	<0.37	<0.07	<0.12	<0.015	73.8	0	26.2	Residual HC,(BO)
s	B175-6, S-7	10.4	<0.26	<0.26	<0.26	<0.26	<0.05	<0.08	<0.01	0	0	0	,(FCM)
s	B175-8, S-9	14.1	<0.35	<0.35	<0.35	<0.35	<0.07	<0.11	<0.014	0	0	0	,(FCM)
s	B175-10, S-6	8.1	<0.2	<0.2	<0.2	<0.2	<0.04	<0.07	<0.008	0	0	0	,(FCM)

Initial Calibrator QC check OK Final FCM QC Check OK 103.8 %

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

APPENDIX C
CHAIN-OF-CUSTODY FORM

Client Name:	ESP
Address:	ON FILE
Contact:	NED BILLINGTON
Project Ref.:	I514.314
Email:	ON FILE
Phone #:	ON FILE
Collected by:	ANNA ROSEMANN

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					
3-7-22		✓	✓		CRP	B175-1, S-14	48.2	39.5	8.7
						B175-2, S-1	50.3	40.1	10.2
						B175-3, S-14	48.8	39.1	9.7
						B175-4, S-6	50.9	40.0	10.9
						B175-5, S-14	49.5	40.1	9.4
						B175-6, S-7	49.7	40.1	9.6
						B175-8, S-9	49.9	40.0	9.9
3-7-22		✓	✓		CRP	B175-10, S-6	52.5	40.2	12.3

COMMENTS/REQUESTS:

TARGET GC/UVF ANALYTES:

Relinquished by		Accepted by	Date/Time
[signature]	3-8-22		
Relinquished by		**Accepted by**	**Date/Time**
		ECN 3/10/22 11:30 AM	

RED Lab USE ONLY

(8)

Ref. No 3-2022-1

APPENDIX D
RELEVANT NCDEQ INFORMATION

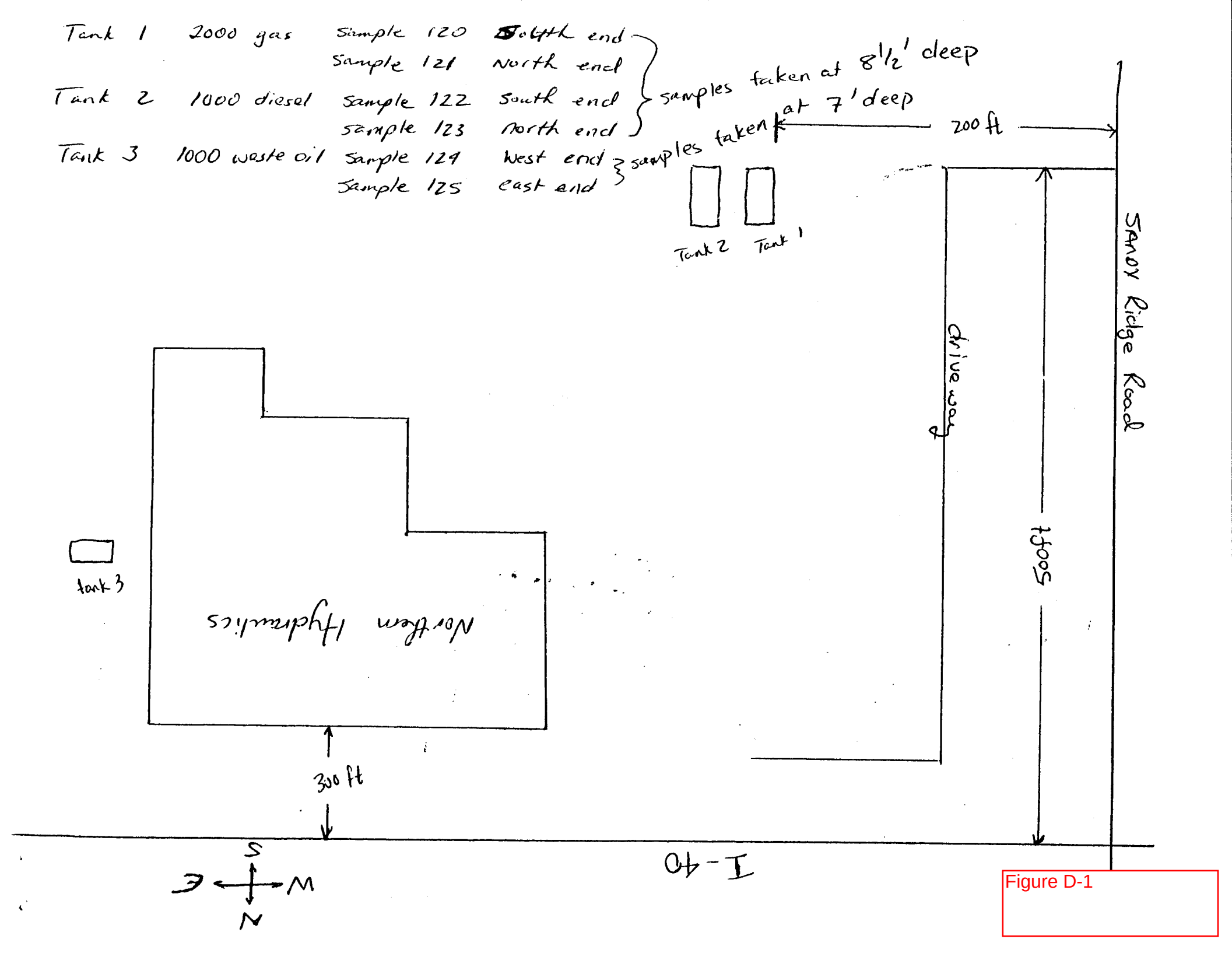

Tank 1 2000 gas Sample 120 South end
Sample 121 North end
Tank 2 1000 diesel Sample 122 South end
Sample 123 North end
Tank 3 1000 waste oil Sample 124 West end
Sample 125 East end
samples taken at 8 1/2' deep
samples taken at 7' deep
200 ft
Tank 2
Tank 1
Sandy Ridge Road
driveway
500 ft
tank 3
Northern Hydraulics
300 ft
I-40
S
E
W
N

Figure D-1

DOT R/W

CONCRETE

CONCRETE

CIRCLE K # 1526

AUTO FUEL CANOPY

SANDY RIDGE ROAD

PARCEL 175

MW-1
15.4
27
47.1
109
15.2
9.8

MW-7
<0.50
<0.50
<0.50
<1.5
10.1
<0.50

MW-8
<0.50
<0.50
<0.50
<1.5
7.2
<0.50

MW-14
<0.50
<0.50
<0.50
<1.5
26.7
<0.50

MW-4
<0.50
<0.50
<0.50
<1.5
0.4
<0.50

MW-9
<0.50
<0.50
<0.50
<1.5
0.46J
<0.50

MW-12D
<0.50
<0.50
<0.50
<1.5
1.1
<0.50

MW-13
<0.50
<0.50
<0.50
<1.5
<0.50
<0.50

MW-1 MW-2 MW-3 MW-4 MW-7 MW-8 MW-9 MW-10 NL MW-11 MW-12D MW-13 MW-14

GRASS

GRASS

DOT R/W GRASS

VACANT FIELD

NORCROSS ROAD

LEGEND

= MONITORING WELL LOCATION

NL = NOT LOCATED

Well ID	2L	GCL
Benzene	1	*5,000*
Toluene	600	*260,000*
Ethylbenzene	600	*84,500*
Xylenes, Total	500	*85,500*
MTBE	20	*20,000*
Naphthalene	6	6,000

N

0 15 30

APPROXIMATE SCALE IN FEET

Figure D-2
UST Incident No. 44550 for Parcel 176
2019 GW Monitoring Well Results

ATC ASSOCIATES OF NORTH CAROLINA, P.C.
Charlotte, North Carolina 28273 (704) 529-3200 FAX (704) 529-3272

PROJECT NO. CIRK152604
DATE 11/05/19
SCALE AS SHOWN
REV. BY SB
PREP. BY LB
DCSA ID
CAD FILE NORCROSSSM

TITLE FIGURE 4
CONSTITUENTS OF CONCERN MAP
CIRCLE K NO. 1526
8400 NORCROSS ROAD
COLFAX, GUILFORD COUNTY, NORTH CAROLINA

NOTES

UST 4

DOT R/W

CONCRETE

CONCRETE

CIRCLE K # 1526

AUTO FUEL CANOPY

SANDY RIDGE ROAD

PARCEL 175

MW-14
56.80

60.47
MW-8

60.61
MW-1

MW-7
60.65

60.6
60.5
60.4
60.3
60.2
60.1

MW-11
60.62

MW-2
60.56

MW-9
60.27

60.19
MW-12D
59.81

MW-4

MW-3
60.47

DOT R/W
GRASS

MW-10
NL

CONCRETE

GRASS

GRASS

VACANT FIELD

NORCROSS ROAD

MW-13
60.91

LEGEND

- = MONITORING WELL LOCATION
- 60.27 = GROUNDWATER ELEVATION IN FEET
- NL = NOT LOCATED
- = GROUNDWATER ELEVATION CONTOUR (DASHED WHERE PRESUMED)
- = GROUNDWATER FLOW DIRECTION

N

0 15 30

APPROXIMATE SCALE IN FEET

ATC ASSOCIATES OF NORTH CAROLINA, P.C.
Charlotte, North Carolina 28273 (704) 529-3200 FAX (704) 529-3272

PROJECT NO. CIRK152604
DATE 11/05/19
SCALE AS SHOWN
REV. BY SB
PREP. BY LB
DCSA ID
CAD FILE NORCROSSSM

TITLE FIGURE 3
GROUNDWATER ELEVATION CONTOUR MAP
CIRCLE K NO. 1526
8400 NORCROSS ROAD
COLFAX, GUILFORD COUNTY, NORTH CAROLINA

Figure D-3
UST Incident No. 44550 for Parcel 176
2019 GW Elevation Contour Map
indicating direction groundwater GW flow.

Table 4: Summary of Groundwater Sampling Results

Revision Date: 8/22/19 | Incident Number and Name: 44346/Circle K 1526 | Facility ID #: 0-001979

Analytical Method (e.g. EPA 601)				EPA Method 6200B																								610	8270						
Contaminant of Concern																																			
Well ID	Date Collected	Sample ID	Incident Phase	Acetone	Benzene	Toluene	Ethylbenzene	Xylenes, Total	Methyl-tert-butyl ether	Naphthalene	Carbon Tetrachloride	Tetrachloroethylene	Isopropylbezene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Diisopropyl ether	n-Propyl Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Bromodichloromethane	Chlorodibromomethane	Dibromochloromethane	2-Hexanone	2-Butanone	4-Methyl-2-pentanone	Methyl Chloride	p-Isopropyltoluene	Chloroethane	Chloroform	Benzo(a)-anthracene	2-Methylnaphthalene	Acenaphthene	Fluorene	Naphthalene	Phenanthrene	Pyrene
MW-1	8/6/2014	MW-1	IAA	--	< 1	< 1	< 1	< 3	**60.5**	< 2	--	--	< 1	< 2	< 1	NA	< 1	< 1	< 1	< 1	NA	NA	--	--	NA	NA	--	NA	--	NA	< 0.33	NA	NA	NA	NA	NA	NA
	4/8/2015	MW-1	LSA	--	< 1.0	< 1.0	< 1.0	< 1.0	**31**	< 5.0	--	--	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	--	--	NA	NA	--	NA	--	NA	< 5.0	NA	NA	NA	NA	NA	NA
	7/8/2015	MW-1	LSA	--	< 1.0	< 1.0	< 1.0	< 1.0	**27**	< 5.0	--	--	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	--	--	NA	NA	--	NA	--	NA	< 5.0	NA	NA	NA	NA	NA	NA
	6/1/2017	MW-1	CSA	--	<0.50	<0.50	<0.50	0.48J	**28**	<1.0	--	--	<0.50	0.57	0.23J	0.19J	<0.50	<0.50	<0.50	<0.50	0.95	0.26J	--	--	<5.0	<5.0	--	<0.50	--	14	NA	0.17J	<0.30	<1.0	<1.0	0.061	0.035
	10/3/2019	MW-1	Post-CSA	24.8	**15.4**	27.4	47.1	109	15.2	**9.8**	<0.50	<0.50	7.7	45	32.5	1.9	12.5	2.4	3.4	<0.50	2.4	NA	**0.77**	26.2	7.7	9.7	0.75	3.1	0.48J	20.4	NA	NA	NA	NA	NA	NA	NA
MW-2	8/6/2014	MW-2	IAA	--	< 1	< 1	< 1	< 3	12.9	< 2	--	--	< 1	< 2	< 1	NA	< 1	< 1	< 1	< 1	NA	NA	--	--	NA	NA	--	NA	--	NA	**1.1 J**	NA	NA	NA	NA	NA	NA
	4/8/2015	MW-2	LSA	--	< 1.0	< 1.0	< 1.0	< 1.0	8.8	< 5.0	--	--	< 1.0	< 5.0	< 1.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	--	--	NA	NA	--	NA	--	NA	< 5.0	NA	NA	NA	NA	NA	NA
	7/8/2015	MW-2	LSA	--	< 1.0	< 1.0	< 1.0	< 1.0	5.9	< 5.0	--	--	< 1.0	< 5.0	< 1.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	--	--	NA	NA	--	NA	--	NA	< 5.0	NA	NA	NA	NA	NA	NA
	6/1/2017	MW-2	CSA	***Free Product***																																	
	10/3/2019	MW-2	Post-CSA																																		
MW-3	8/6/2014	MW-3	IAA	--	< 1	< 1	< 1	< 3	10.5	< 2	--	--	< 1	< 2	< 1	NA	< 1	< 1	< 1	< 1	NA	NA	--	--	NA	NA	--	NA	--	NA	< 0.33	NA	NA	NA	NA	NA	NA
	4/8/2015	MW-3	LSA	--	< 1.0	2.5	1.6	7.2	12	< 5.0	--	--	< 1.0	< 5.0	< 1.0	15	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	--	--	NA	NA	--	NA	--	NA	< 5.0	NA	NA	NA	NA	NA	NA
	7/8/2015	MW-3	LSA	--	**6.1**	34	18	90	12	<2	--	--	< 1.0	< 5.0	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	--	--	NA	NA	--	NA	--	NA	< 5.0	NA	NA	NA	NA	NA	NA
	6/1/2017	MW-3	CSA	***Free Product***																																	
	10/3/2019	MW-3	Post-CSA																																		
MW-4	10/14/2014	MW-4	IAA	--	< 1	< 1	< 1	< 3	1.4	< 2	--	--	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	NA	NA	--	--	NA	NA	--	NA	--	NA	< 0.15	NA	NA	NA	NA	NA	NA
	4/8/2015	MW-4	LSA	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	--	--	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	--	--	NA	NA	--	NA	--	NA	< 5.0	NA	NA	NA	NA	NA	NA
	7/8/2015	MW-4	LSA	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	--	--	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	--	--	NA	NA	--	NA	--	NA	< 5.0	NA	NA	NA	NA	NA	NA
	6/1/2017	MW-4	CSA	--	<0.50	<0.50	<0.50	<1.50	1.2	<1.0	--	--	<0.50	0.39J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	<5.0	<5.0	--	<0.50	--	6.4	NA	0.095J	<0.30	0.052J	<1.0	0.14	<1.0
	10/3/2019	MW-4	Post-CSA	<10	<0.50	<0.50	<0.50	<1.5	0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.20J	<0.50	<0.50	<5.0	<2.5	<2.5	<0.50	<0.50	<0.50	7.7	NA	NA	NA	NA	NA	NA	NA
MW-5	10/3/2019	MW-5	Post-CSA	<10	<0.50	<0.50	<0.50	<1.5	0.31J	<0.50	<0.50	0.13J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.17J	<0.50	<0.50	<5.0	<2.5	<2.5	<0.50	<0.50	<0.50	15.4	NA	NA	NA	NA	NA	NA	NA
MW-6	10/3/2019	MW-6	Post-CSA	<10	<0.50	<0.50	<0.50	<0.50	0.34J	<0.50	0.71	0.24J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.47J	<0.50	<0.50	<5.0	<2.5	<2.5	<0.50	<0.50	<0.50	31.8	NA	NA	NA	NA	NA	NA	NA
MW-7	6/1/2017	MW-7	CSA	--	0.25J	0.34J	0.15J	1.68J	5.6	<1.0	--	--	<0.50	0.59	0.98	3.3	<0.50	0.25J	<0.50	<0.50	<0.50	<0.50	--	--	<5.0	<5.0	--	<0.50	--	1.4	NA	0.46J	<0.30	0.084J	0.13J	0.10	<1.0
	10/3/2019	MW-7	Post-CSA	<10	<0.50	<0.50	<0.50	<1.5	10.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	3.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<2.5	<2.5	<0.50	<0.50	<0.50	2.7	NA	NA	NA	NA	NA	NA	NA
MW-8	6/1/2017	MW-8	CSA	--	0.23J	0.28J	0.18J	1.5	17	<1.0	--	--	<0.50	<0.50	0.96	7.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	<5.0	<5.0	--	<0.50	--	5.4	NA	0.10J	<0.30	<1.0	<1.0	0.054	<1.0
	10/3/2019	MW-8	Post-CSA	<10	<0.50	<0.50	<0.50	<0.50	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.65	<0.50	<0.50	<0.50	<0.50	0.33J	<0.50	<0.50	<5.0	<2.5	<2.5	<0.50	<0.50	<0.50	12.1	NA	NA	NA	NA	NA	NA	NA
MW-9	6/1/2017	MW-9	CSA	--	0.53	0.45J	0.13J	6.64J	17	<1.0	--	--	<0.50	0.52	0.16J	14	<0.50	<0.50	<0.50	<0.50	0.47J	<0.50	--	--	2.8J	6.8	--	<0.50	--	12	NA	<1.0	<0.30	<1.0	0.16J	0.071	<1.0
	10/3/2019	MW-9	Post-CSA	<10	<0.50	<0.50	<0.50	<0.50	0.46J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.21J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<2.5	<2.5	<0.50	<0.50	<0.50	1.8	NA	NA	NA	NA	NA	NA	NA
MW-10	6/1/2017	MW-10	CSA	--	**9.6**	76	68	310	<2.0	**24**	**--**	**--**	11	150	40	<2.0	26	15	6.6	<2.0	<2.0	<2.0	--	--	<20	<20	--	4.4	--	6.2	NA	26	<0.30	<1.0	**15**	<0.050	1.4
MW-11	6/1/2017	MW-11	CSA	--	**94**	480	180	**880**	6.5	**66**	**--**	**--**	32	**440**	120	<5.0	**78**	60	<5.0	<5.0	<5.0	<5.0	--	--	<50	<50	--	18	--	3.5J	NA	**59**	1.7J	4.0J	**38**	4.6	4.5
	10/3/2019	MW-11	Post-CSA	***Free Product***																																	
MW-12D	6/14/2016	MW-12D	CSA	--	<0.50	<0.50	<0.50	<1.50	0.93	<1.0	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	<5.0	<5.0	--	<0.50	--	2.3	NA	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	10/3/2019	MW-12D	Post-CSA	<10	<0.50	<0.50	<0.50	<0.50	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.17J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	7.8	NA	NA	NA	NA	NA	NA	NA
MW-13	10/3/2018	MW-13	Post-CSA	--	<0.5	<0.5	<0.5	<1.5	<0.5	<0.5	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	<0.5	<0.5	--	<0.5	--	<0.5	NA	NA	NA	NA	NA	NA	NA
	10/3/2019	MW-13	Post-CSA	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<2.5	<2.5	<0.50	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA	NA
MW-14	10/3/2018	MW-14	Post-CSA	--	<5	<5	<5	<15	**297**	<5	--	--	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--	<5	<5	--	<5	--	17.8	NA	NA	NA	NA	NA	NA	NA
	10/3/2019	MW-14	Post-CSA	<10	<0.50	<0.50	<0.50	<0.50	**26.7**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<2.5	<2.5	<0.50	<0.50	<0.50	4.9	NA	NA	NA	NA	NA	NA	NA
2L Standard				6,000	1	600	600	500	20	6	NE	0.7	70	400	400	70	70	70	70	70	NE	NE	0.4	40	NE	NE	5	NE	NE	70	0.05	30	80	300	6	200	200
GCL = gross contamination level				6,000,000	5,000	260,000	84,500	85,500	20,000	6,000	NE	700	25,000	28,500	25,000	70,000	30,000	6,900	8,500	15,000	NE	NE	400	40,000	NE	NE	5,000	NE	NE	70,000	4.7	12,500	2,120	990	6,000	410	200

Results in ug/L

Concentrations in bold exceeded the 2L Standard

Concentrations in bold and italics exceeded the GCL

NA= Not Analyzed

J = Estimated Value

NE= Not Established

Figure D-4
UST Incident No. 44550 for Parcel 176
2019 MR - Summary of groundwater sampling results