



June 5, 2020

Ashley B. Cox, Jr, LG
Geotechnical Engineering Unit
North Carolina Department of Transportation
1020 Birch Ridge Drive
Raleigh, NC 27610

RE: PHASE II INVESTIGATION OF PARCEL 261
The Auto Store, William R. Vaughn
4964 Reidsville Road, Walkertown, NC
ESP Project No. GR22.325

TIP Number: R-2577A
WBS Number: 37405.1.2
County: FORSYTH
Description: US 158 from North of US 421 to SR 1965 (Belews Creek Road)

Dear Mr. Cox:

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 received on April 14, 2020, and our Cost Proposal dated April 23, 2020.

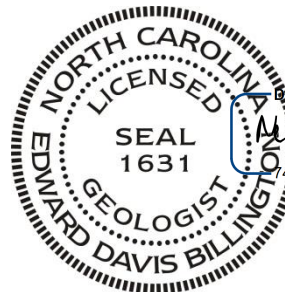
We appreciate the opportunity to assist you during this phase of the project. If you should have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,

ESP Associates, Inc.

A handwritten signature in blue ink, appearing to read "Edward D. Billington".

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



DocuSigned by:

Ed Billington

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1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is planning to widen U.S. 158 (Reidsville Road) from north of U.S. 421/I-40 Business to Belews Creek Road (S.R. 1965) in Forsyth County. The primary purpose of this project is to improve traffic operations. The NCDOT requested that ESP Associates, Inc. (ESP) perform a Phase II geoenvironmental investigation of the existing right-of-way (ROW), the proposed ROW, the proposed temporary construction easement (E), and the proposed permanent utility easement (PUE) (collectively, ROW/easements) of Parcel 261 to locate possible underground storage tanks (USTs), sample soil, and delineate potential contaminated soil. Parcel 261 is located on the south side of US 158 (Reidsville Road) approximately 1000 feet southwest of the Darrow Road intersection (SR 2405). (Figure 1).

2.0 HISTORY

2.1 Ownership

The following is the current parcel ownership, according to the Forsyth County GIS (<https://www.forsyth.cc/Tax/geodata.aspx>):

- Deed Date: 05/06/1993
- Current Owner: Vaughn, William Ronald
- Owner's Address: 3850 Beeson Dairy Rd., Winston Salem, NC 27105

2.2 NCDEQ Information

This parcel was listed as Site 4 in the 2004 Phase 1 report that was provided by the NCDOT. We checked the following sources at the NCDEQ with the results summarized below:

- Division of Waste Management Site Locator Tool
 - No listing.
- NC UST Facility Operating Permits
 - No listing.
- Registered USTs Database
 - No listing.
- Incident Management Database (Regional USTs)
 - No listing.
- Winston-Salem Regional NCDEQ Office
 - No files available.

3.0 SITE OBSERVATIONS

During our May 2020 field work, the site was occupied by three buildings associated with a used vehicle business (The Auto Store) (Figure 2). The ground in the study area was covered by asphalt pavement, gravel, and grass.

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on May 4 and 11, 2020. The geophysical investigation area was approximately 0.34 acres and encompassed the ROW/easements. We performed direct-push drilling and sampling of subsurface soils on May 14, 2020. A photoionization detector (PID) was used to screen subsurface soils 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 (Figures 3 and 4). Location control was provided in real-time using a differential global positioning system (DGPS). One EM61 anomaly was observed that required additional investigation using a Noggin 250 MHz ground-penetrating radar (GPR).

4.2 Borings

ESP performed direct-push drilling activities within the ROW/easements of Parcel 261 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Seven borings were drilled, designated B261-1 through B261-7 (Figure 8). The soil borings were advanced using a GeoProbe 7822DT drill rig. Soil samples were obtained to a maximum depth of approximately 10 feet using two 5-foot long Macro-Core® tubes. Soil cores varied in recovery from 3.4 to 5.0 feet (68 to 100 percent recovery). Boring B261-1 had initial poor recovery due to loose gravel and mulch, and had to be offset 3 times to obtain acceptable recovery (B261-1A, B261-1B, and B261-1C). Likewise, Borings B261-3, B261-5, and B261-6 had to be offset once each due to poor initial recovery. The sampling equipment was decontaminated prior to drilling and between borings by the driller using a Liquinox® detergent solution.

4.3 Soil Sample Protocol

Representative soil samples were taken from the Macro-Core tubes 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 PID readings ranged from 0.1 to 5.6 parts per million (ppm) (Table 1 and Appendix A).

Five soil samples were selected for 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 ultraviolet fluorescence (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 not encountered in the 7 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 differential response indicated the anomalies within the ROW/easements were caused by known site features.

One EM61 anomaly next to the northeast corner of the office building outside of the proposed ROW/easements was evaluated further with GPR and indicated a possible UST (Figure 5). The GPR data indicated that this possible UST was approximately 5 feet in diameter and 12 feet long, and buried approximately 6 feet below ground surface.

The EM61 early time gate data and differential data are shown on the plan sheet on Figures 6 and 7, respectively.

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 milligrams per kilogram (mg/kg or ppm).

5.3 Sample Observations

The results of the laboratory testing indicate that DRO was detected in 4 samples but the concentrations were well below the NCDEQ action level of 100 ppm (Table 2, Figure 9). BTEX, GRO, PAHs, and BaP values were below the laboratory detection limits for the 5 samples tested.

6.0 CONCLUSIONS

The results of the Phase II investigation for Parcel 261 of NCDOT Project R-2577A indicates that there is no evidence for abandoned USTs in the proposed ROW/easements. The geophysical data did indicate a possible UST outside of the proposed ROW/easements. Laboratory testing detected DRO in 4 of the 5 soil samples tested but the readings were well below the NCDEQ action level of 100 ppm for DRO. The PID readings during sampling ranged from 0.1 to 5.6 ppm.

7.0 RECOMMENDATIONS

No limitations on construction activities or special handling of excavated soil are recommended for Parcel 261. Groundwater was not encountered in the upper 10 feet in the study area.

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

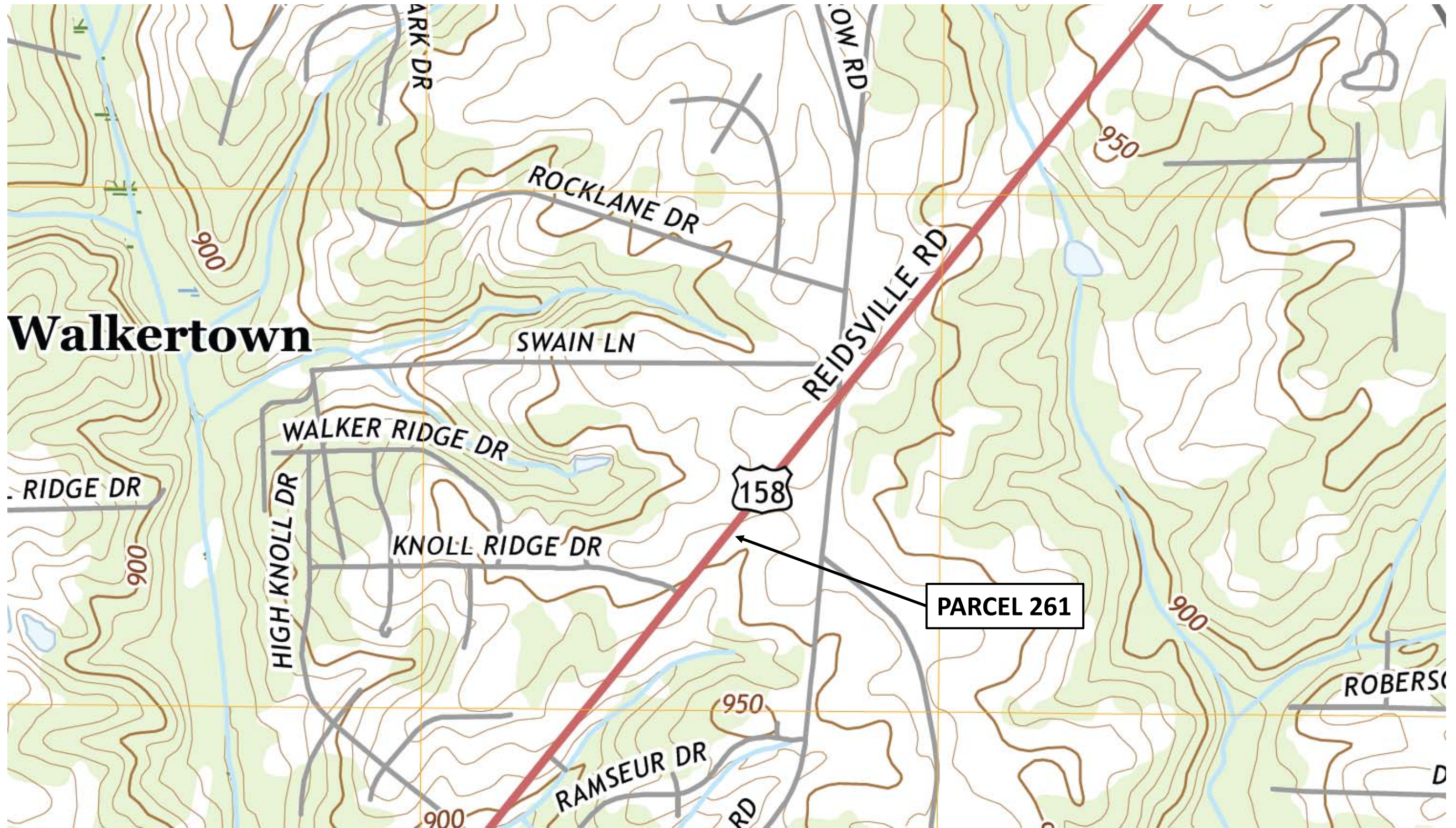
TABLE 1
SOIL SAMPLE PID READINGS

Boring	Sample Depth Range with PID > 10 ppm (feet bgs)	Maximum PID Reading (ppm) and Sample Depth (feet bgs)
B261-1	none	1.9 (1.0-1.5)
B261-2	none	1.1 (9.0-9.5)
B261-3	none	0.5 (7.0-7.5)
B261-4	none	0.8 (1.0-1.5)
B261-5	none	1.0 (9.0-9.5)
B261-6	none	5.6 (3.0-3.5)
B261-7	none	0.8 (2.0-2.5)

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)
B261-1	S6 (6.0-6.5)	5/14/20	<0.4	<0.4	1.4	<0.13
B261-4	S5 (5.0-5.5)	5/14/20	<0.46	<0.46	<0.46	<0.15
B261-5	S6 (6.0-6.5)	5/14/20	<0.43	<0.43	0.43	<0.14
B261-6	S8 (8.0-8.5)	5/14/20	<0.47	<0.47	1.8	<0.15
B261-7	S2 (2.0-2.5)	5/14/20	<0.47	<0.47	1.1	<0.15

FIGURES



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

PROJECT NO.	GR22.325
SCALE	AS SHOWN
DATE	5/29/2020
BY	CRP/EDB

**FIGURE 1 – PARCEL 261, WILLIAM R. VAUGHN
SITE VICINITY MAP**

**NCDOT PROJECT R-2577A
US 158 FROM NORTH OF US 421 TO SR 1965
FORSYTH COUNTY, NORTH CAROLINA**



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A. Photograph from northeast end, looking southwest.



B. Photograph from middle of parcel, looking northeast.



C. Photograph from southwest end of parcel, looking northeast.



D. Photograph of drilling operations, looking southwest.

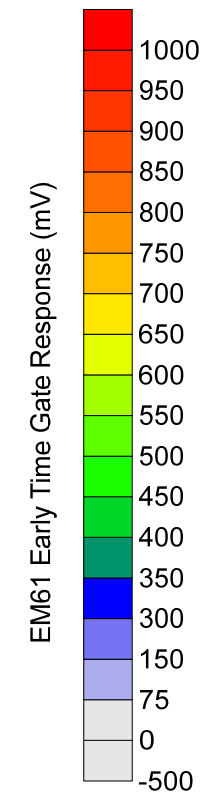
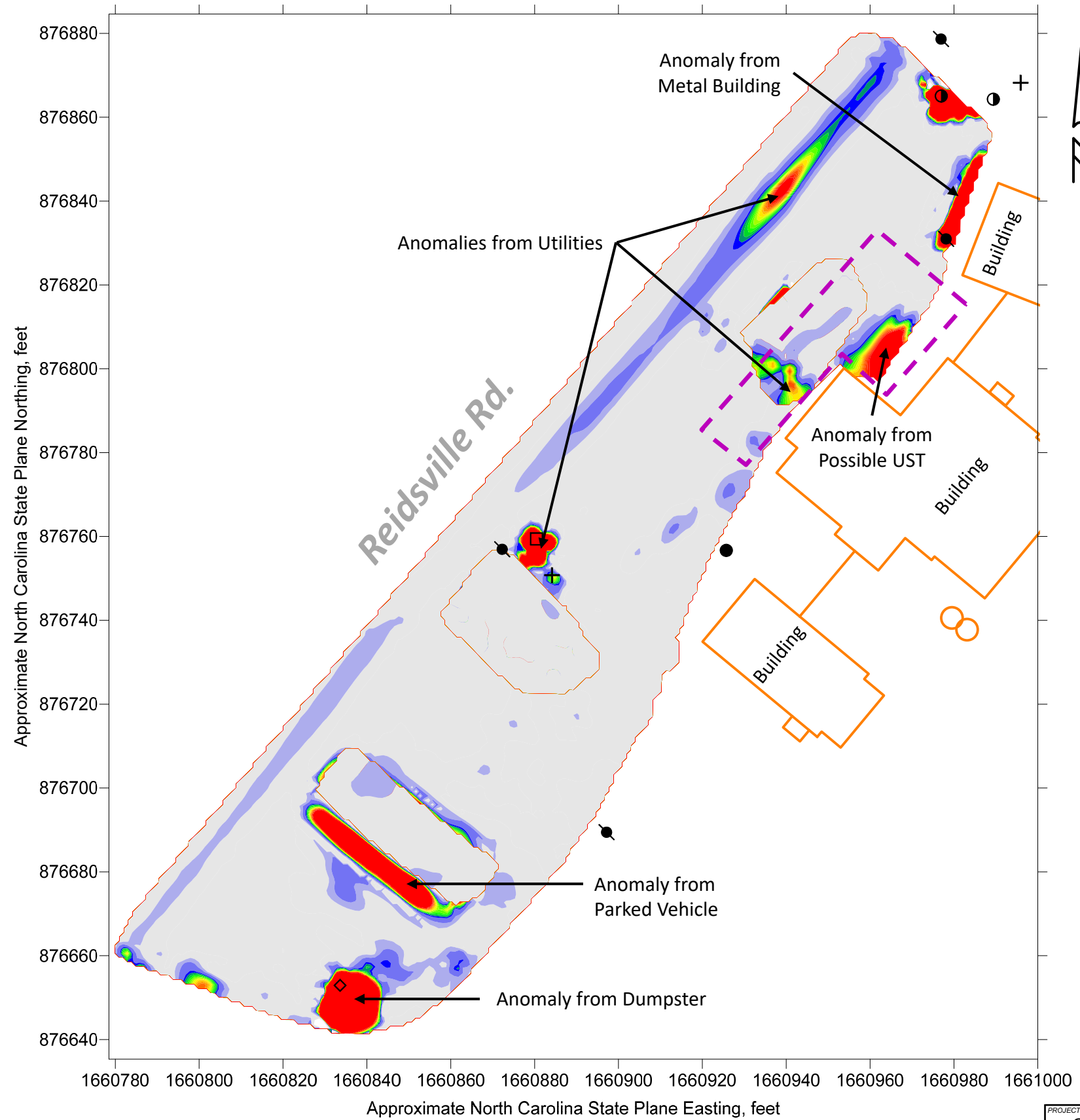
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SCALE	N/A
DATE	5/29/2020
BY	CRP/EDB

**FIGURE 2 – PARCEL 261, WILLIAM R. VAUGHN
SITE PHOTOGRAPHS**

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EXPLANATION	
	Miscellaneous metal object (pipe, debris, etc.)
	Utility Box (water meter, electrical outlet, etc.)
	Drop Inlet, Catch Basin, Manhole
	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

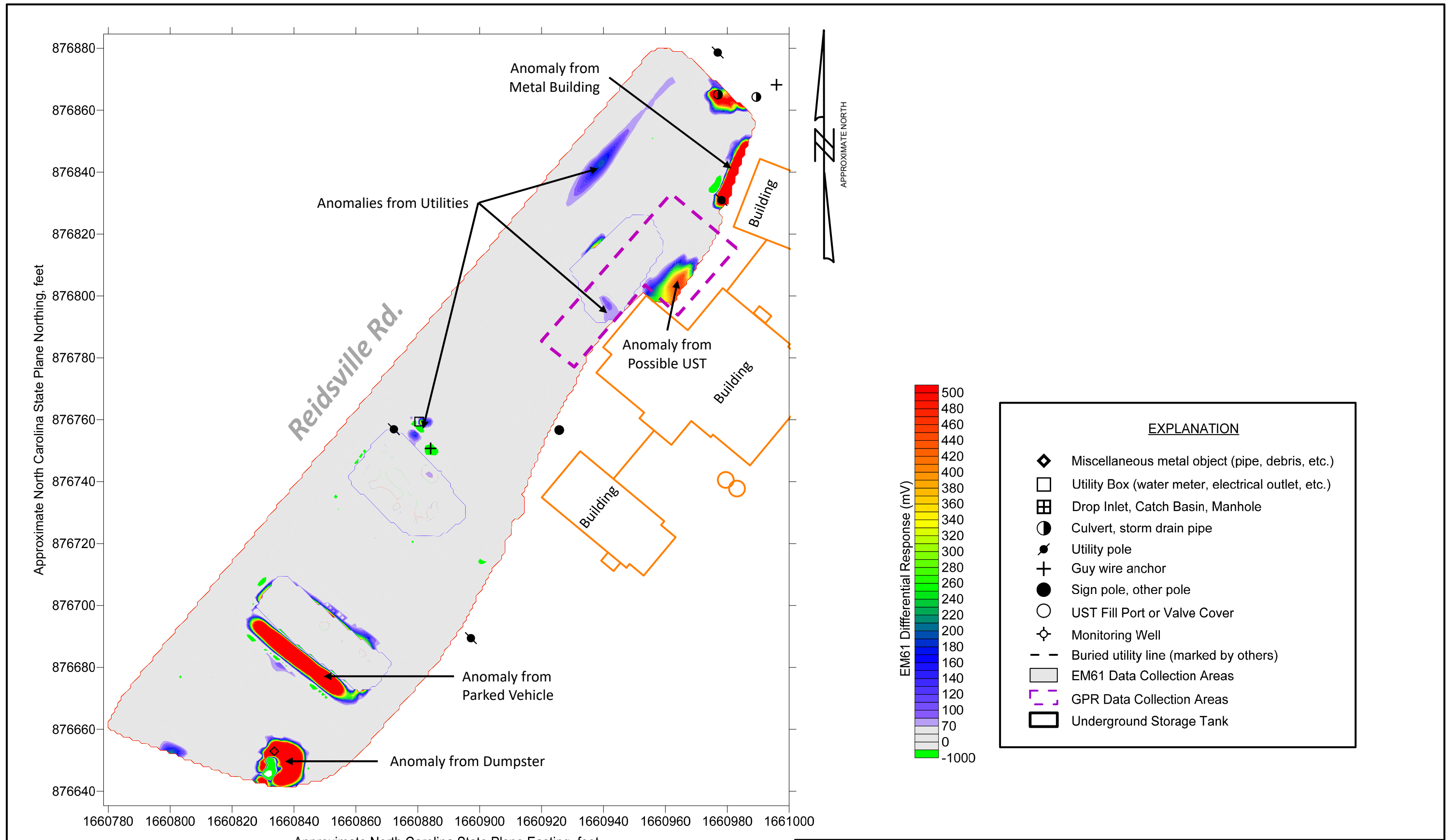
Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

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FIGURE 3 – PARCEL 261, WILLIAM R. VAUGHN
EM61 EARLY TIME GATE DATA
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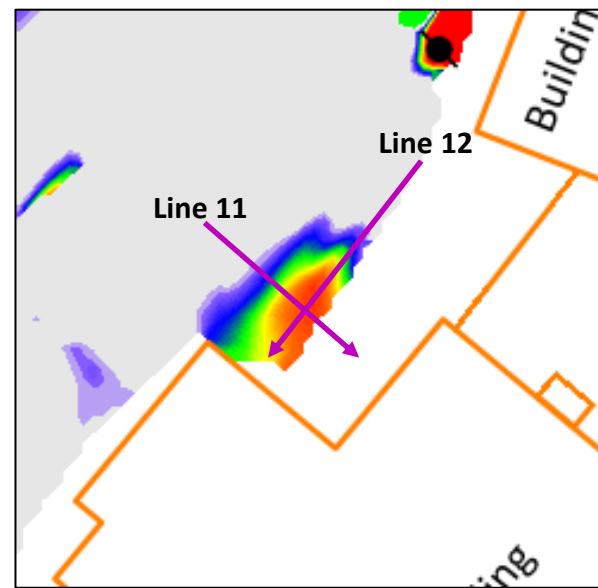
Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

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FIGURE 4 – PARCEL 261, WILLIAM R. VAUGHN
EM61 DIFFERENTIAL DATA
NCDOT PROJECT R-2577A
US 158 FROM NORTH OF US 421 TO SR 1965
FORSYTH COUNTY, NORTH CAROLINA

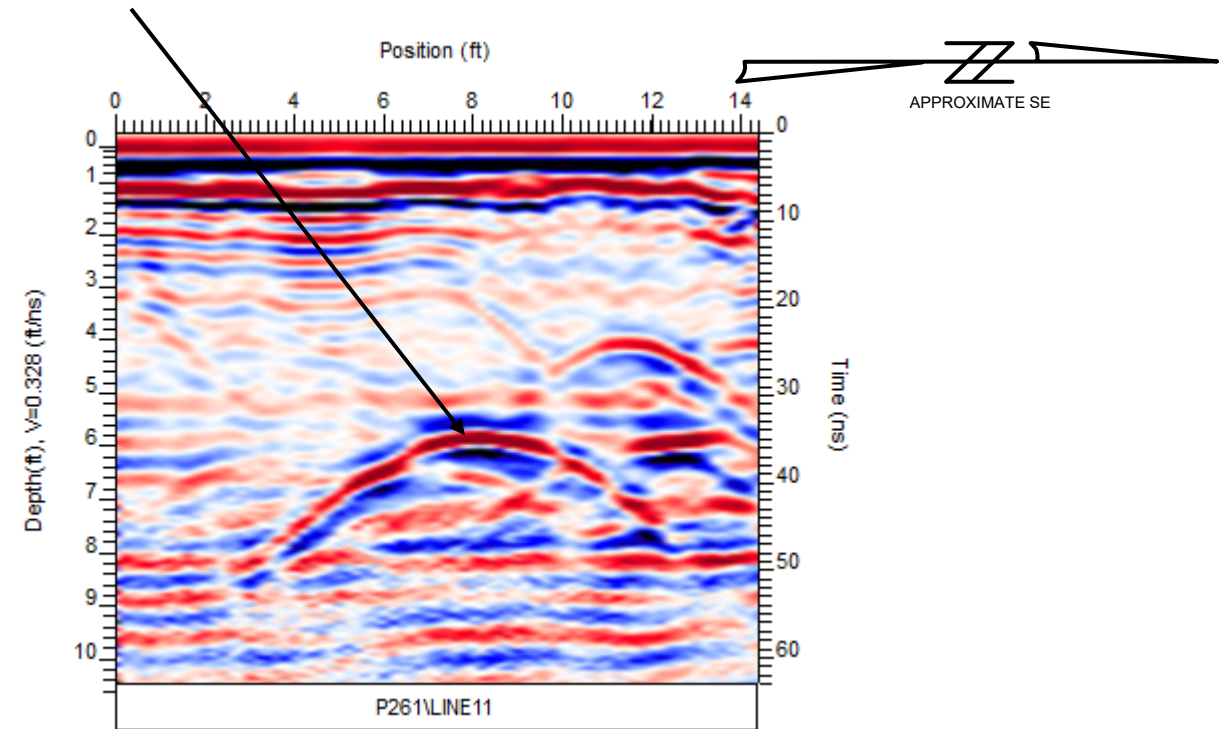


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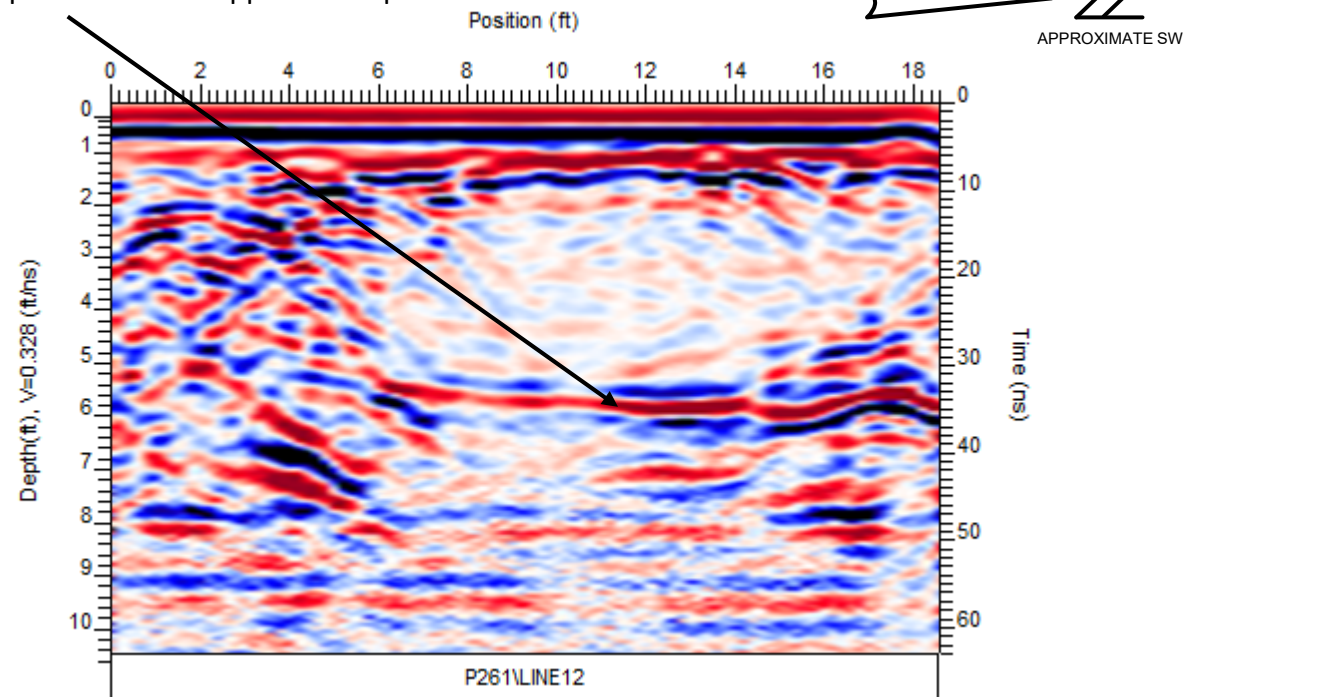
A. EM61 differential data with example GPR line locations.

Reflection from top of possible UST at approx. 6' depth



B. GPR Line 11 over short axis of possible UST. GPR data indicate approximate diameter of 5 feet.

Reflection from top of possible UST at approx. 6' depth



C. GPR Line 12 over long axis of possible UST. GPR data indicate approximate length of 12 feet.

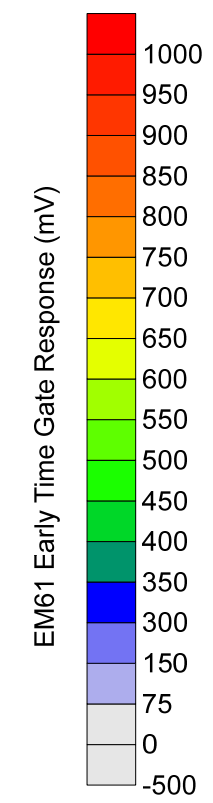
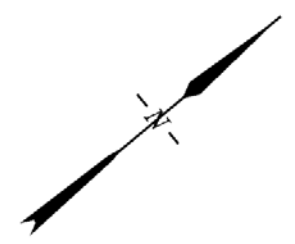
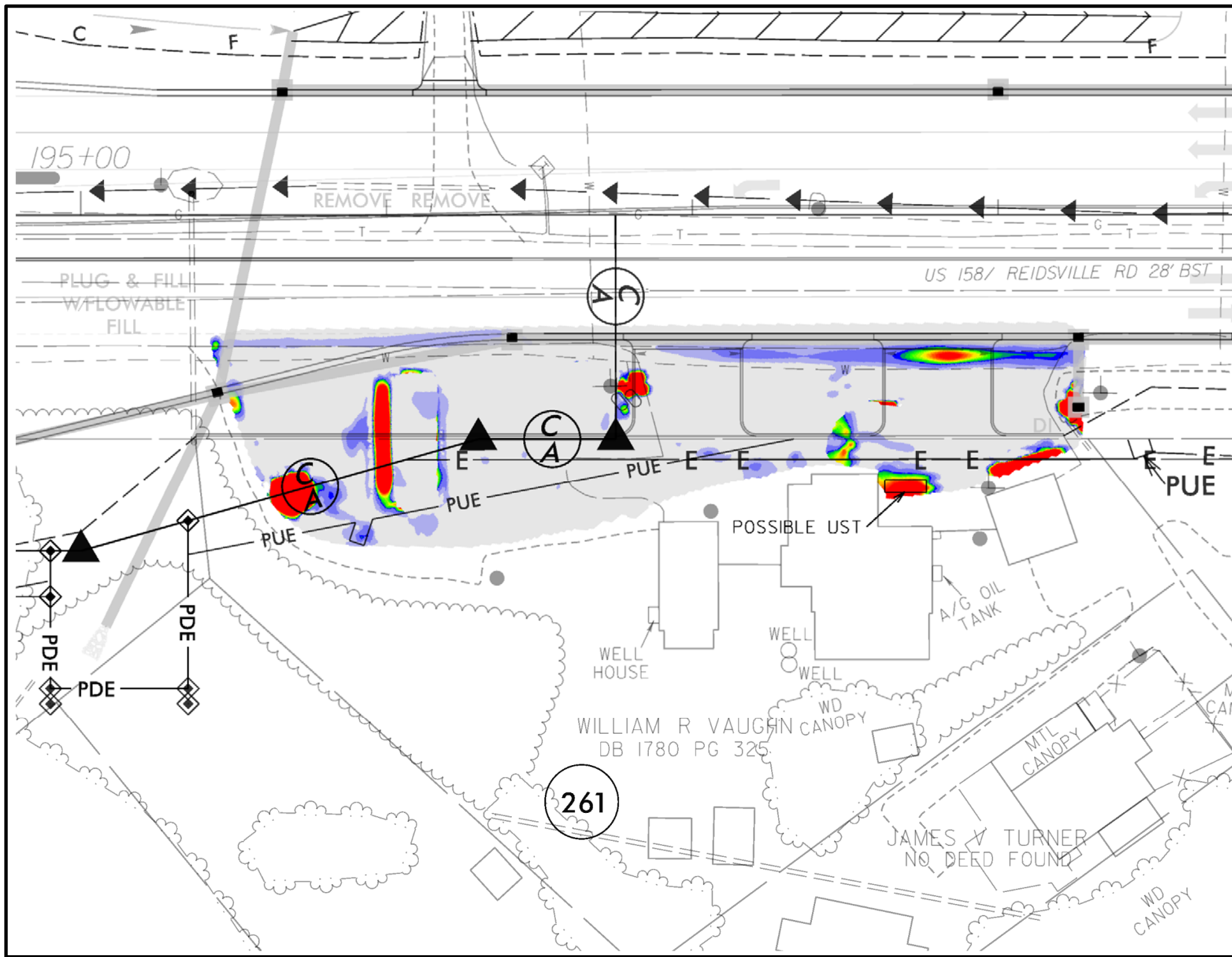
PROJECT NO.	GR22.325
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**FIGURE 5 – PARCEL 261 , WILLIAM R. VAUGHN
GPR IMAGES OVER POSSIBLE UST**

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- ☑ R-2577A_Geo_env.dgn
- ☑ R-2577A_hyd_drn.dgn
- ☑ R2577A_ncdot_fs.dgn
- ☑ R-2577A_rdy_dsn.dgn
- ☑ R-2577A_rdy_dsn_driveways.dgn
- ☑ R-2577A_rdy_dsn_guardrail.dgn
- ☑ R-2577A_rdy_HISTORIC.dgn
- ☑ R-2577A_rdy_map_owner_no.dgn
- ☑ R-2577A_rdy_row.dgn
- ☑ R-2577A_rdy_row_AG.dgn
- ☑ R-2577A_rdy_row_SB.dgn
- ☑ R-2577A_rdy_ss.dgn



See Figure 10 for explanation of symbols and line types

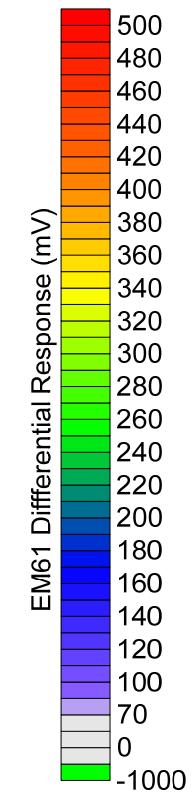
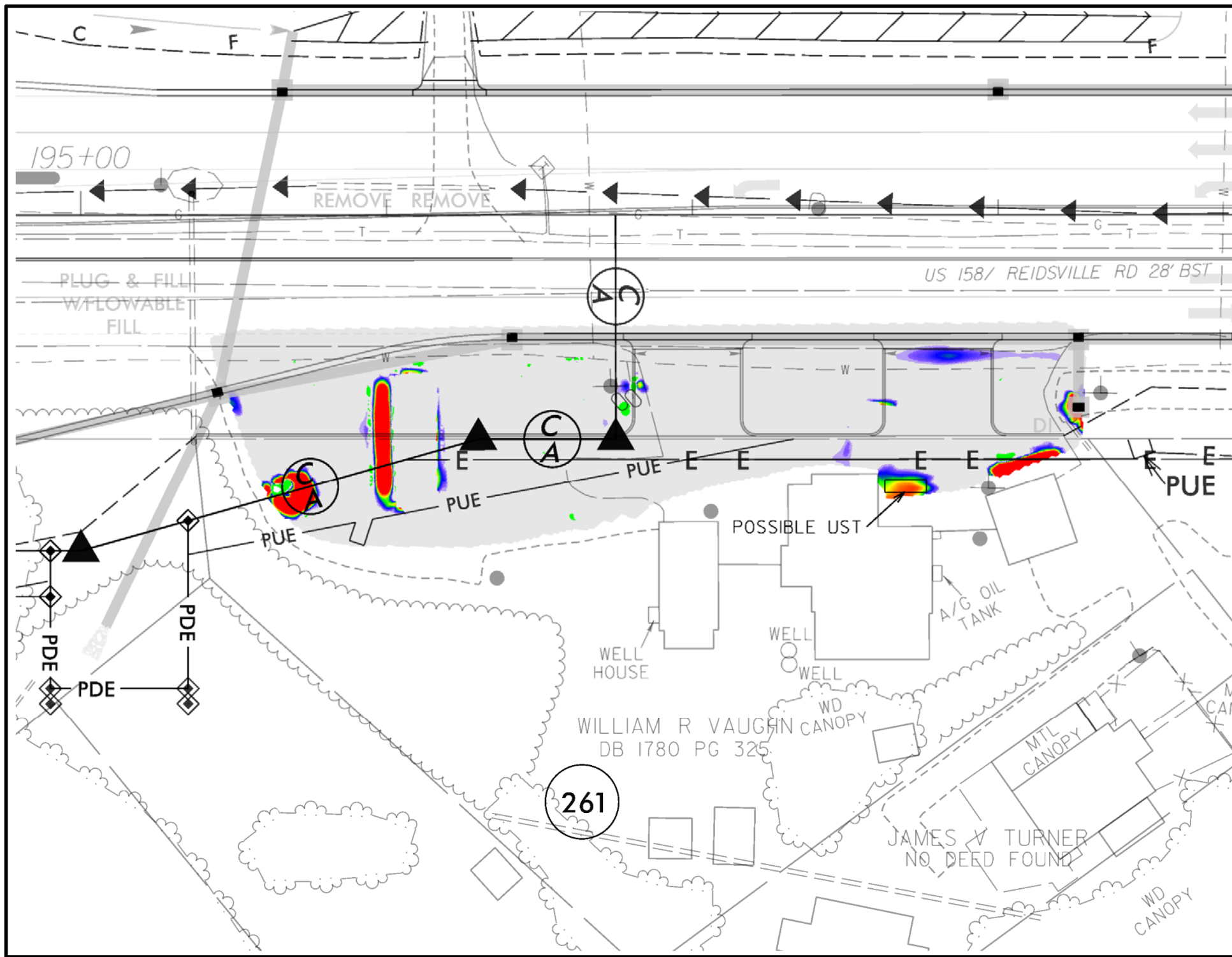
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FIGURE 6 – PARCEL 261, WILLIAM R. VAUGHN
EM61 EARLY TIME GATE DATA ON PLAN SHEET

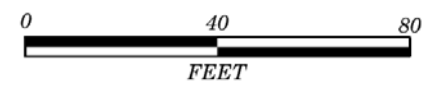
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- ☑ R-2577A_Geo_env.dgn
- ☑ R-2577A_hyd_drn.dgn
- ☑ R2577A_ncdot_fs.dgn
- ☑ R-2577A_rdy_dsn.dgn
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- ☑ R-2577A_rdy_HISTORIC.dgn
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- ☑ R-2577A_rdy_row.dgn
- ☑ R-2577A_rdy_row_AG.dgn
- ☑ R-2577A_rdy_row_SB.dgn
- ☑ R-2577A_rdy_ss.dgn



See Figure 10 for explanation of symbols and line types

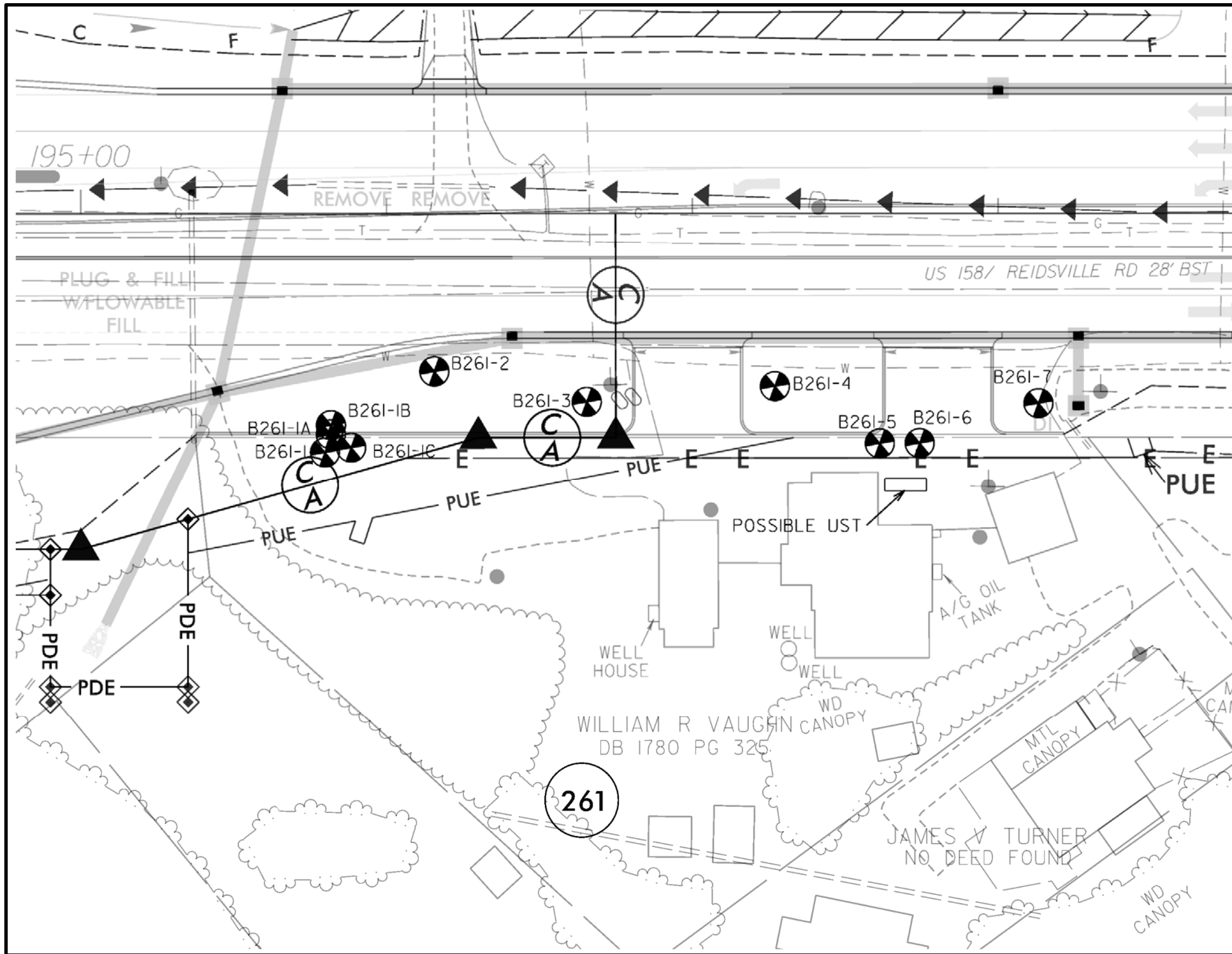
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FIGURE 7 – PARCEL 261 , WILLIAM R. VAUGHN
EM61 DIFFERENTIAL DATA ON PLAN SHEET

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- R-2577A_Geo_env.dgn
- R-2577A_hyd_drn.dgn
- R2577A_ncdot_fs.dgn
- R-2577A_rdy_dsn.dgn
- R-2577A_rdy_dsn_driveways.dgn
- R-2577A_rdy_dsn_guardrail.dgn
- R-2577A_rdy_HISTORIC.dgn
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- R-2577A_rdy_row_AG.dgn
- R-2577A_rdy_row_SB.dgn
- R-2577A_rdy_ss.dgn



See Figure 10 for explanation of symbols and line types

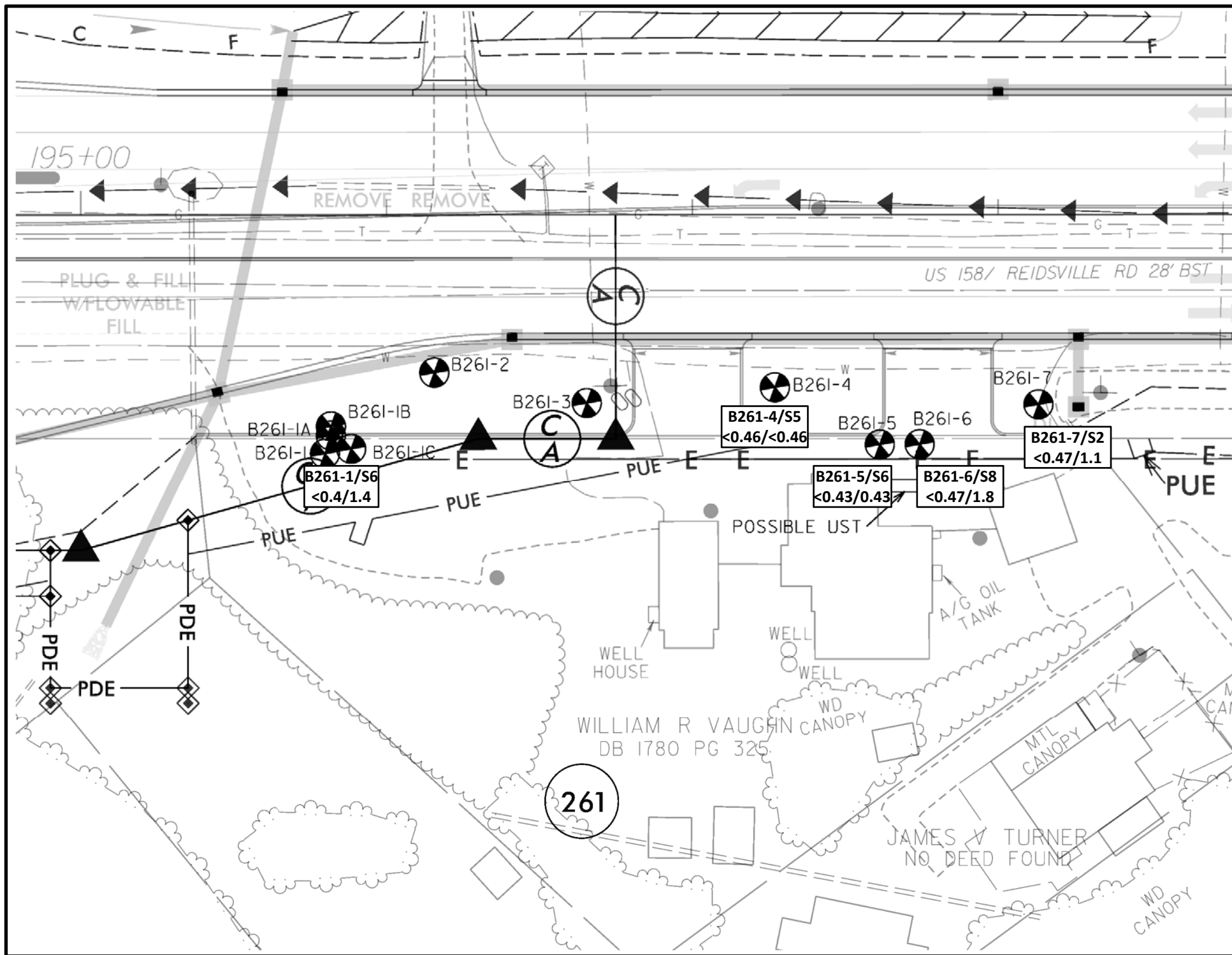
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**FIGURE 8 – PARCEL 261, WILLIAM R. VAUGHN
BORING LOCATIONS ON PLAN SHEET**

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Explanation	
Maximum Analytical Results per Boring	
B261-1/S6	<0.4/1.4
	Boring No./Sample No.
	GRO/DRO (mg/kg, ppm)

- R-2577A_Geo_env.dgn
- R-2577A_hyd_drn.dgn
- R2577A_ncdot_fs.dgn
- R-2577A_rdy_dsn.dgn
- R-2577A_rdy_dsn_driveways.dgn
- R-2577A_rdy_dsn_guardrail.dgn
- R-2577A_rdy_HISTORIC.dgn
- R-2577A_rdy_map_owner_no.dgn
- R-2577A_rdy_row.dgn
- R-2577A_rdy_row_AG.dgn
- R-2577A_rdy_row_SB.dgn
- R-2577A_rdy_ss.dgn



See Figure 10 for explanation of symbols and line types

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**FIGURE 9 – PARCEL 261, WILLIAM R. VAUGHN
SOIL ANALYTICAL RESULTS ON PLAN SHEET**

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12/2/2016

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

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	⑫
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	-o-o-o-
Proposed Chain Link Fence	-o-o-o-
Proposed Barbed Wire Fence	-o-o-o-
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----
Existing Historic Property Boundary	-----
Known Contamination Area: Soil	-S-S-S-
Potential Contamination Area: Soil	-S-S-S-
Known Contamination Area: Water	-W-W-W-
Potential Contamination Area: Water	-W-W-W-
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	⊕

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

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.	GR22.325
SCALE	N/A
DATE	5/29/2020
BY	CRP/EDB

FIGURE 10
LEGEND FOR PLAN SHEET FIGURES
NCDOT PROJECT R-2577A
US 158 FROM NORTH OF US 421 TO SR 1965
FORSYTH 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.

B261-1

PROJECT NAME: NCDOT R-2577A Phase II PROJ. NO.: GR22.325

LOCATION: Southwest End of Parcel

TYPE OF BORING: Direct Push DATE STARTED: 5/14/20 SHEET: 1 of 1

DRILLING FIRM: SAEDACCO DATE FINISHED: 5/14/20 TOTAL DEPTH: 10.0 ft

DRILLER: Brian Ewing SAMPLE METHOD: 5' Macrocore DEPTH TO GW: N/A ft

DRILL RIG: GeoProbe 722DT LOGGED BY: R. Pastrana COMMENT: _____

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.7' - Gravel and Soil Mix	Core 1 Rec 3.9'/5.0'
				0.7' - 1.4' - Organics (Mulch)	B261-1 -REC 2.7'/5.0'
1	S-1	1.0-1.5	1.9		
				1.4' - 4.0' - Red-Brown, Clayey SILT, Moist	B261-1A - Offset 5' Rec 3.9'/5.0'
2	S-2	2.0-2.5	0.6		
3	S-3	3.0-3.5	0.5	3.0' - Brown	
4	S-4	4.0-4.5	0.3	4.0' - 5.0' - White and Black, Silty SAND, with Rock Fragments, Dry	
5	S-5	5.0-5.5	0.3	5.0' - 10.0' - Tan-Brown to Gray-Brown, Sandy CLAY with Layers of Clayey SAND, Moist to Very Moist	Core 2 Rec 3.7'/5.0'
					B261-1 -REC 0.4'/5.0'
6	S-6	6.0-6.5	0.4		B261-1A - Offset 5' Rec 0.2'/5.0'
7	S-7	7.0-7.5	0.1		B261-1B - Offset 5' Rec 0.0'/5.0'
					B261-1C - Offset 5' Rec 3.7'/5.0'
8	S-8	8.0-8.5	0.2		
9					
10					
11					
12					
13					
14					
15					



FIELD BORING LOG

BORING NO.

B261-2

PROJECT NAME: NCDOT R-2577A Phase II PROJ. NO.: GR22.325

LOCATION: Approximately 50 feet N of B261-1, next to highway

TYPE OF BORING: Direct Push DATE STARTED: 5/14/20 SHEET: 1 of 1

DRILLING FIRM: SAEDACCO DATE FINISHED: 5/14/20 TOTAL DEPTH: 10.0 ft

DRILLER: Brian Ewing SAMPLE METHOD: 5' Macrocore DEPTH TO GW: N/A ft

DRILL RIG: GeoProbe 722DT LOGGED BY: R. Pastrana COMMENT: _____

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.6' - Gravel 0.6' - 1.2' - Organics (Mulch)	Core 1 Rec 3.7'/5.0'
1	S-1	1.0-1.5	1.0		
				1.2' - 10.0' - Red-Brown to Brown, Clayey and Sandy SILT, Moist	
2	S-2	2.0-2.5	0.4		
3	S-3	3.0-3.5	0.6		
4					
5	S-5	5.0-5.5	0.5		Core 2 Rec 4.4'/5.0'
6	S-6	6.0-6.5	0.5		
7	S-7	7.0-7.5	0.8		
8	S-8	8.0-8.5	0.7		
9	S-9	9.0-9.5	1.1		
10					
11					
12					
13					
14					
15					



FIELD BORING LOG

BORING NO.

B261-3

PROJECT NAME: NCDOT R-2577A Phase II PROJ. NO.: GR22.325

LOCATION: Middle of Parcel / Next to Gravel and Asphalt Transition

TYPE OF BORING: Direct Push DATE STARTED: 5/14/20 SHEET: 1 of 1

DRILLING FIRM: SAEDACCO DATE FINISHED: 5/14/20 TOTAL DEPTH: 10.0 ft

DRILLER: Brian Ewing SAMPLE METHOD: 5' Macrocore DEPTH TO GW: N/A ft

DRILL RIG: GeoProbe 722DT LOGGED BY: R. Pastrana COMMENT: _____

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.5' - Gravel	Core 1 Rec 4.2'/5.0'
				0.5' - 5.0' - Red-Brown to Brown, Clayey and Sandy SILT, Moist	1st Attempt Rec 1.3'/5.0'
1	S-1	1.0-1.5	0.3		2nd Attempt Rec 4.2'/5.0'
2	S-2	2.0-2.5	0.3		
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	0.4	5.0' - 7.6' - Red-Brown, Sandy SILT, Moist	Core 2 Rec 4.7'/5.0'
6	S-6	6.0-6.5	0.3		
7	S-7	7.0-7.5	0.5		
				7.6' -10.0' - Tan-Brown, Sandy CLAY, Moist	
8	S-8	8.0-8.5	0.3		
9	S-9	9.0-9.5	0.2		
10					
11					
12					
13					
14					
15					



FIELD BORING LOG

BORING NO.

B261-4

PROJECT NAME: NCDOT R-2577A Phase II PROJ. NO.: GR22.325

LOCATION: Middle of Asphalt / near Office Building

TYPE OF BORING: Direct Push DATE STARTED: 5/14/20 SHEET: 1 of 1

DRILLING FIRM: SAEDACCO DATE FINISHED: 5/14/20 TOTAL DEPTH: 10.0 ft

DRILLER: Brian Ewing SAMPLE METHOD: 5' Macrocore DEPTH TO GW: N/A ft

DRILL RIG: GeoProbe 722DT LOGGED BY: R. Pastrana COMMENT: _____

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' Asphalt	Core 1 Rec 3.8'/5.0'
				0.4' - 5.0' - Red-Brown to Orange-Brown, Clayey SILT, Moist	
1	S-1	1.0-1.5	0.8		
2	S-2	2.0-2.5	0.5		
3	S-3	3.0-3.5	0.5		
4					
5	S-5	5.0-5.5	0.4	5.0' - 10.0' - Orange-Brown to Red-Brown, Silty CLAY, Dry to Moist	Core 2 Rec 5.0'/5.0'
6	S-6	6.0-6.5	0.4		
7	S-7	7.0-7.5	0.2		
8	S-8	8.0-8.5	0.3		
9	S-9	9.0-9.5	0.3		
10					
11					
12					
13					
14					
15					



FIELD BORING LOG

BORING NO.

B261-5

PROJECT NAME: NCDOT R-2577A Phase II PROJ. NO.: GR22.325

LOCATION: Adjacent to Southwest End of Possible UST

TYPE OF BORING: Direct Push DATE STARTED: 5/14/20 SHEET: 1 of 1

DRILLING FIRM: SAEDACCO DATE FINISHED: 5/14/20 TOTAL DEPTH: 10.0 ft

DRILLER: Brian Ewing SAMPLE METHOD: 5' Macrocore DEPTH TO GW: N/A ft

DRILL RIG: GeoProbe 722DT LOGGED BY: R. Pastrana COMMENT: _____

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' Asphalt	Core 1 Rec 4.1'/5.0'
				0.4' - 5.0' - Red-Brown, Sandy SILT, Micaceous, Moist	1st Attempt Rec 1.7'/5.0'
1	S-1	1.0-1.5	0.2		2nd Attempt Rec 4.1'/5.0'
2	S-2	2.0-2.5	0.3		
3	S-3	3.0-3.5	0.1		
4	S-4	4.0-4.5	0.6		
5	S-5	5.0-5.5	0.5	5.0' - 7.0' - Red-Brown, Clayey SILT, Moist	Core 2 Rec 4.2'/5.0'
6	S-6	6.0-6.5	0.7		
7	S-7	7.0-7.5	0.4	7.0' - 10.0' - Red-Brown to Tan-Brown, Silty CLAY, Moist to Dry	
8	S-8	8.0-8.5	0.6		
9	S-9	9.0-9.5	1.0		
10					
11					
12					
13					
14					
15					



FIELD BORING LOG

BORING NO.

B261-6

PROJECT NAME: NCDOT R-2577A Phase II PROJ. NO.: GR22.325

LOCATION: Adjacent to Northeast End of Possible UST

TYPE OF BORING: Direct Push DATE STARTED: 5/14/20 SHEET: 1 of 1

DRILLING FIRM: SAEDACCO DATE FINISHED: 5/14/20 TOTAL DEPTH: 10.0 ft

DRILLER: Brian Ewing SAMPLE METHOD: 5' Macrocore DEPTH TO GW: N/A ft

DRILL RIG: GeoProbe 722DT LOGGED BY: R. Pastrana COMMENT: _____

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' Asphalt	Core 1 Rec 3.6'/5.0'
				0.4' - 5.0' - Red-Brown, Clayey and Sandy SILT, Moist	1st Attempt Rec 2.3'/5.0'
1	S-1	1.0-1.5	1.5		2nd Attempt Rec 3.6'/5.0'
2	S-2	2.0-2.5	0.7	2.0' - with Asphalt Fragments	
3	S-3	3.0-3.5	5.6		
4					
5	S-5	5.0-5.5	0.4	5.0' - 10.0' - Red-Brown to Tan-Brown, Sandy and Silty CLAY, Dry to Moist	Core 2 Rec 4.5'/5.0'
6	S-6	6.0-6.5	0.9		
7	S-7	7.0-7.5	1.4		
8	S-8	8.0-8.5	4.2		
9	S-9	9.0-9.5	3.9		
10					
11					
12					
13					
14					
15					



FIELD BORING LOG

BORING NO.**B261-7**

PROJECT NAME: NCDOT R-2577A Phase II PROJ. NO.: GR22.325
 LOCATION: Northeast End of Parcel near Proposed Drop Inlet
 TYPE OF BORING: Direct Push DATE STARTED: 5/14/20 SHEET: 1 of 1
 DRILLING FIRM: SAEDACCO DATE FINISHED: 5/14/20 TOTAL DEPTH: 10.0 ft
 DRILLER: Brian Ewing SAMPLE METHOD: 5' Macrocore DEPTH TO GW: N/A ft
 DRILL RIG: GeoProbe 722DT LOGGED BY: R. Pastrana COMMENT: _____

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' Asphalt 0.4' - 1.7' - Brown, Clayey SAND, Moist	Core 1 Rec 3.4'/5.0'
1	S-1	1.0-1.5	0.6		
2	S-2	2.0-2.5	0.8	1.7' - 10.0' - Red-Brown to Brown, Sandy SILT, Micaceous, Moist	
3	S-3	3.0-3.5	0.5		
4					
5	S-5	5.0-5.5	0.4		Core 2 Rec 5.0'/5.0'
6	S-6	6.0-6.5	0.5		
7	S-7	7.0-7.5	0.3		
8	S-8	8.0-8.5	0.7		
9	S-9	9.0-9.5	0.6		
10					
11					
12					
13					
14					
15					

APPENDIX B

RED LAB LABORATORY TESTING REPORT



Hydrocarbon Analysis Results

Client: ESP
Address: 7011 Albert Pick Rd
 Ste E
 Greensboro, NC 27409

Samples taken Thursday, May 14, 2020
Samples extracted Thursday, May 14, 2020
Samples analysed Monday, May 18, 2020

Contact: Ned Billington

Operator Harry Wooten

Project: GR22.325

										F03640			
Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	B261-1 , S6	15.9	<0.4	<0.4	1.4	1.4	0.72	<0.13	<0.016	0	83.3	16.7	V.Deg.PHC 94.3%,(FCM)
s	B261-4 , S5	18.5	<0.46	<0.46	<0.46	<0.46	<0.09	<0.15	<0.018	0	80.6	19.4	PHC not detected
s	B261-5 , S6	17.2	<0.43	<0.43	0.43	0.43	0.24	<0.14	<0.017	0	89.2	10.8	Residual HC
s	B261-6 , S8	18.8	<0.47	<0.47	1.8	1.8	0.85	<0.15	<0.019	0	90.9	9.1	Road Tar 94.3%,(FCM)
s	B261-7 , S2	19.0	<0.47	<0.47	1.1	1.1	0.55	<0.15	<0.019	0	92.4	7.6	Road Tar 93.5%,(FCM)
Initial Calibrator QC check										OK			
Final FCM QC Check										OK			101.8 %

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

