May 28, 2019
June 9, 2019 Revision

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

RE: ENVIRONMENTAL SITE ASSESSMENT OF PARCEL 342-REMNANT
Circle K, Taylor Family Properties
4401 Kernersville Road, Kernersville, North Carolina
ESP Project No. GR22.313

TIP No.: U-2579AB
WBS N0.: 34839.1.8
County: Forsyth
Description: Winston-Salem - Northern Beltway Eastern Section (Future I-74) from I-40 to I-40 Business/US 421

Dear Mr. Box:

ESP Associates, Inc. (ESP) is pleased to submit this report on our Phase II Environmental Assessment of the subject parcel. This work was performed in accordance with your Request for Proposal dated April 1, 2019 and our Cost Proposal dated April 15, 2019.

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
DMN/SBM/EDB/CJW

DocuSigned by:
Ed Billington
7402544DC9254E0...

NORTH CAROLINA LICENSED SEAL 1631 GEOLOGIST EDWARD DAVIS BILLINGTON

not considered Final unless all signatures are completed

7011 Albert Pick Road, Suite E, Greensboro, NC 27409
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TABLE OF CONTENTS

TABLES

FIGURES

TABLE OF CONTENTS (continued)

APPENDICES

1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is planning to construct the Winston-Salem - Northern Beltway Eastern Section (Future I-74) From I-40 to I-40 Business/US 421. In May 2018, ESP performed a Preliminary Site Assessment of the proposed right-of-way (ROW) of Parcel 342 that included Borings B342-1 through B342-6. The results of that work were provided in a report to the NCDOT dated November 5, 2018, and indicated that there were no abandoned USTs or petroleum hydrocarbon soil contamination at or above the NCDEQ action levels in the proposed ROW. Groundwater was not encountered within the drilling depths of 10 feet below ground surface.

In April 2019, the NCDOT requested that ESP perform a Phase II Environmental Assessment of the planned remnant of Parcel 342 to locate possible underground storage tanks (USTs), sample soil, and delineate potentially contaminated soil (Figure 1). The remnant is located outside of the proposed ROW.

2.0 HISTORY

This parcel is owned by Taylor Family Properties and is currently occupied by an active gas station/convenience store (Circle K). The facility is listed in the North Carolina Department of Environmental Quality's (NCDEQ's) UST Section Registry with Facility ID #00-0-0000032502. A release was reported in June 2016, assigned Ground Water Incident #44687, and was closed in September 2016. Our online search of the NCDEQ records did not indicate any relevant documents for this site.

3.0 SITE OBSERVATIONS

During our April and May 2019 field work, the site was operating as an active gas station/convenience store (Figure 2). There are currently four 12,000-gallon USTs in use (two gasoline, one diesel, and one kerosene). The ground in the study area was covered by asphalt, concrete, and grass. Portions of the study area were obstructed by air conditioner units, dumpsters, debris, and a shed.

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on April 17, 18 and 23, 2019. We performed direct-push drilling and sampling of subsurface soils within the planned remnant of Parcel 342 on May 2, 2019. A photoionization detector (PID) was used to screen subsurface soils in the field and select soil samples to send for laboratory analysis.

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 about three feet (Figures 3 and 4). Location control was provided in real-time using a differential global positioning system (DGPS). We collected ground-penetrating radar (GPR) data over selected EM61 anomalies and areas of reinforced concrete using our Sensors and Software Noggin 250 GPR system. The GPR data were collected using a line spacing of one to two feet.

4.2 Borings

ESP performed direct-push drilling activities within the proposed remnant of Parcel 342 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Four borings were drilled on May 2, 2019 using direct-push drilling and hand augering (B342-7 through B342-10). The soil borings were advanced using a GeoProbe 54DT direct-push rig. Continuous soil samples were obtained to a depth of approximately ten feet using four-foot long Macro-Core® tubes. Due to the presence of nearby buried utilities, a hand auger was used by the driller for the first 3 to 4 feet of B342-8, B342-9, and B342-10. 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 or hand auger 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 sunny area for at least 5 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID. The PID readings were less than 10 parts per million (ppm) for each soil sample.

For samples selected for laboratory analysis, an approximate 10-gram soil sample was collected from the Macro-Core tube 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 4 borings drilled in the Parcel 342-Remnant.

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).

The EM61 differential results indicated several anomalies (response above background) that did not correspond to known site features. GPR data were collected over the EM61 anomalies. The GPR data collected did not indicate the presence of unknown USTs within the study area.

The EM61 early time gate response and differential response are shown on the plan sheet on Figures 5 and 6, 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 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 indicated that BTEX, GRO, and PAHs were below the detection limits for the four samples tested. DRO was detected in one of the 4 soil samples tested (Sample B342-7/S4) at a concentration of 1.8 ppm, below the NCDEQ action level of 100 ppm.

6.0 CONCLUSIONS

6.1 Interpretation of Results

The results of the Phase II investigation of the planned remnant of Parcel 342 do not indicate the presence of abandoned USTs. No petroleum hydrocarbon soil contamination at or above NCDEQ action levels was detected within the planned remnant of Parcel 342.

6.2 Geophysics

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

6.3 Soil

The results of the PID field screening readings and off-site UVF hydrocarbon analyses do not indicate the presence of contaminated soil at or above the NCDEQ action levels within the planned remnant of Parcel 342 (Figure 7).

7.0 RECOMMENDATIONS

Other than the 4 known USTs within the proposed ROW on Parcel 342, no limitations on construction activities or special handling of excavated soil are recommended for the planned remnant of Parcel 342.

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	Date Collected	Sample Depth Range with PID > 10 ppm (feet bgs)	Maximum PID Reading (ppm) and Sample Depth (feet bgs)
B342-7	5/2/19	none	3.3 (4.0-4.5)
B342-8	5/2/19	none	2.5 (1.0-1.5)
B342-9	5/2/19	none	3.5 (5.0-5.5)
B342-10	5/2/19	none	2.7 (9.0-9.5)

TABLE 2
SOIL SAMPLE UVF RESULTS SUMMARY

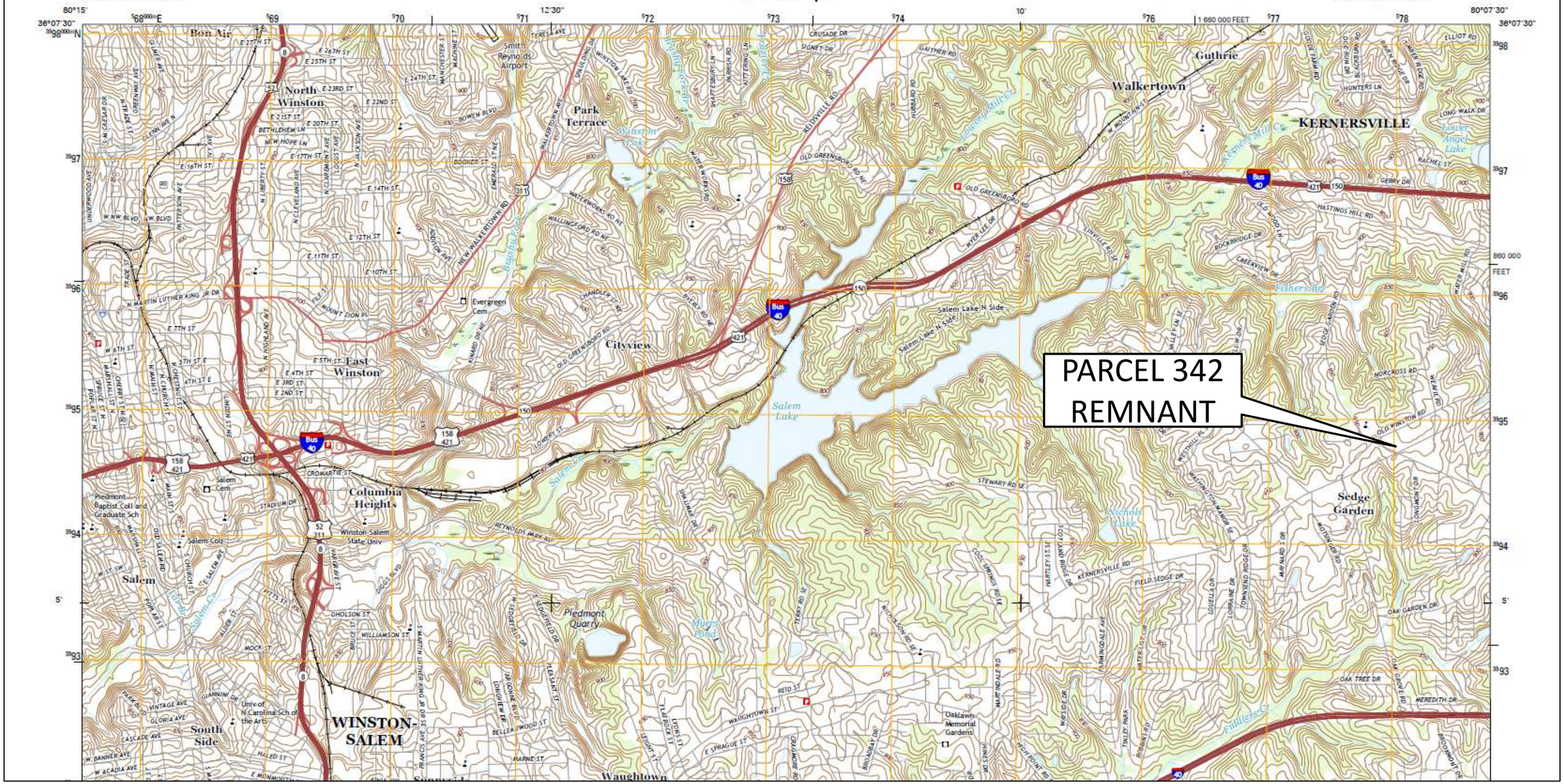
Boring	Sample ID (depth in feet bgs)	Date Collected	BTEX (C6-C9) (mg/kg)	GRO (C5-C10) (mg/kg)	DRO (C10-C35) (mg/kg)	PAHs (mg/kg)
B342-7	S4 (4.0-4.5)	5/2/19	<0.61	<0.61	1.8	<0.2
B342-8	S8 (8.0-8.5)	5/2/19	<0.26	<0.26	<0.26	<0.08
B342-9	S5 (5.0-5.5)	5/2/19	<0.15	<0.15	<0.15	<0.05
B342-10	S9 (9.0-9.5)	5/2/19	<0.36	<0.36	<0.36	<0.12

FIGURES

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

WINSTON-SALEM EAST QUADRANGLE
NORTH CAROLINA
7.5-MINUTE SERIES



From USGS US Topo 7.5 – minute map for Winston-Salem East QUADRANGLE, NC, Date: 2016, Original Scale 1:24,000

PROJECT NO. GR22.313	***FIGURE 1 – PARCEL 342-REMNANT, TAYLOR FAMILY PROP. SITE VICINITY MAP***
SCALE N/A	
DATE 6/9/19	***NCDOT PROJECT U-2579AB, WINSTON-SALEM - NORTHERN BELTWAY EASTERN SECTION (FUTURE I-74) FORSYTH COUNTY, NORTH CAROLINA***
BY SBM/EDB	

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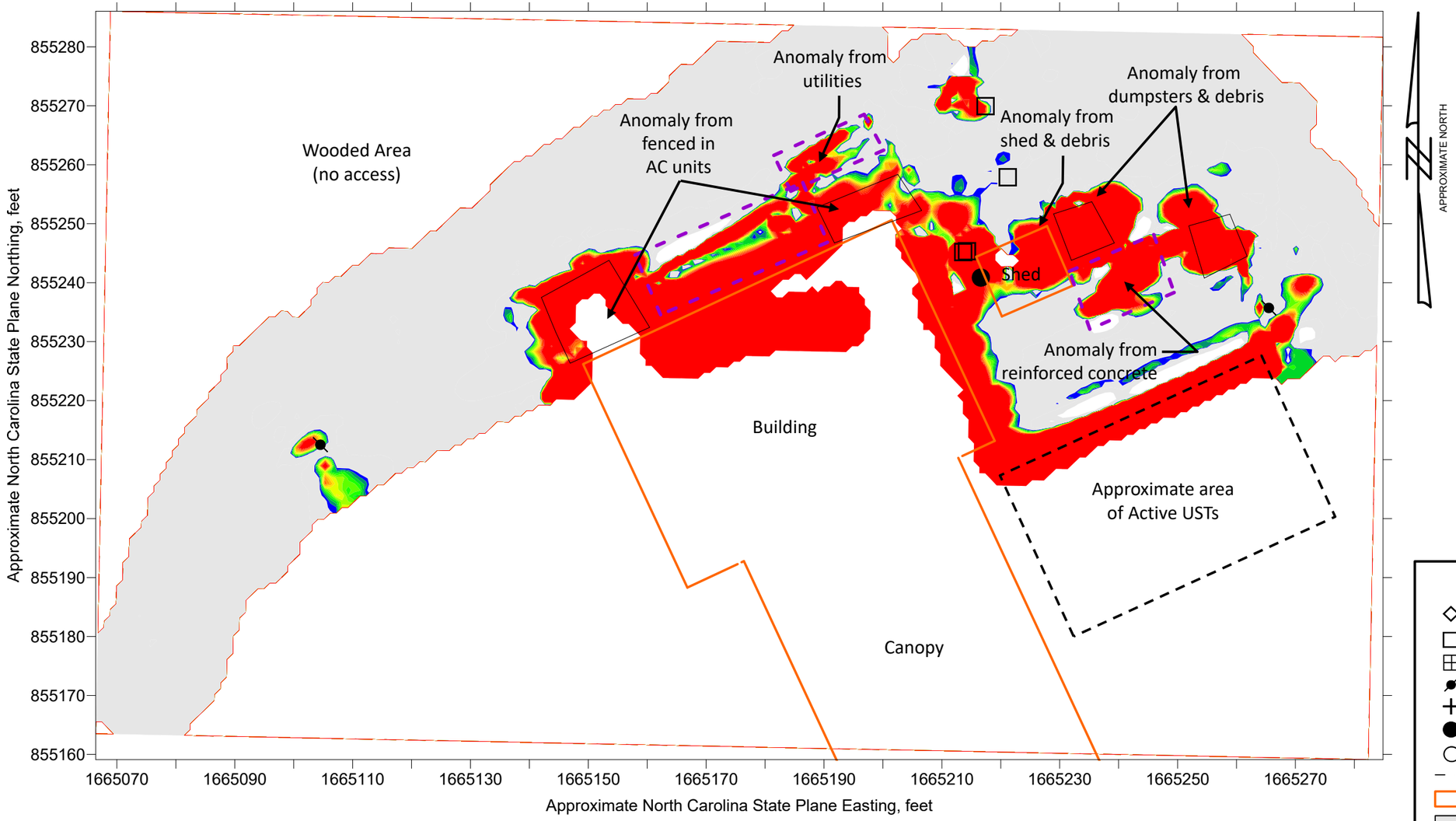
A. Photograph of edge of known USTs and part of study area on east side of the gas station, looking west.

B. Photograph of study area on the east side of the gas station, looking southwest.

C. Photograph of rear of the gas station building with fenced-in air conditioning systems, looking southwest.

D. Photograph of western part of the study area, looking northeast.

PROJECT NO. GR22.313	***FIGURE 2 – PARCEL 342-REMNANT, TAYLOR FAMILY PROP. SITE PHOTOGRAPHS***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com
SCALE N/A		
DATE 6/9/19	***NCDOT PROJECT U-2579AB, WINSTON-SALEM - NORTHERN BELTWAY EASTERN SECTION (FUTURE I-74) FORSYTH COUNTY, NORTH CAROLINA***	
BY SBM/EDB		



EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Storm drain
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Valve Cover or Fill Port
- Buried utility line (marked by others)
- Existing Building (per NCDOT file)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

PROJECT NO. GR22.313	***FIGURE 3 – PARCEL 342-REMNANT, TAYLOR FAMILY PROP. EM61 EARLY TIME GATE RESPONSE***
SCALE AS SHOWN	
DATE 6/9/19	***NCDOT PROJECT U-2579AB, WINSTON-SALEM - NORTHERN BELTWAY EASTERN SECTION (FUTURE I-74) FORSYTH COUNTY, NORTH CAROLINA***
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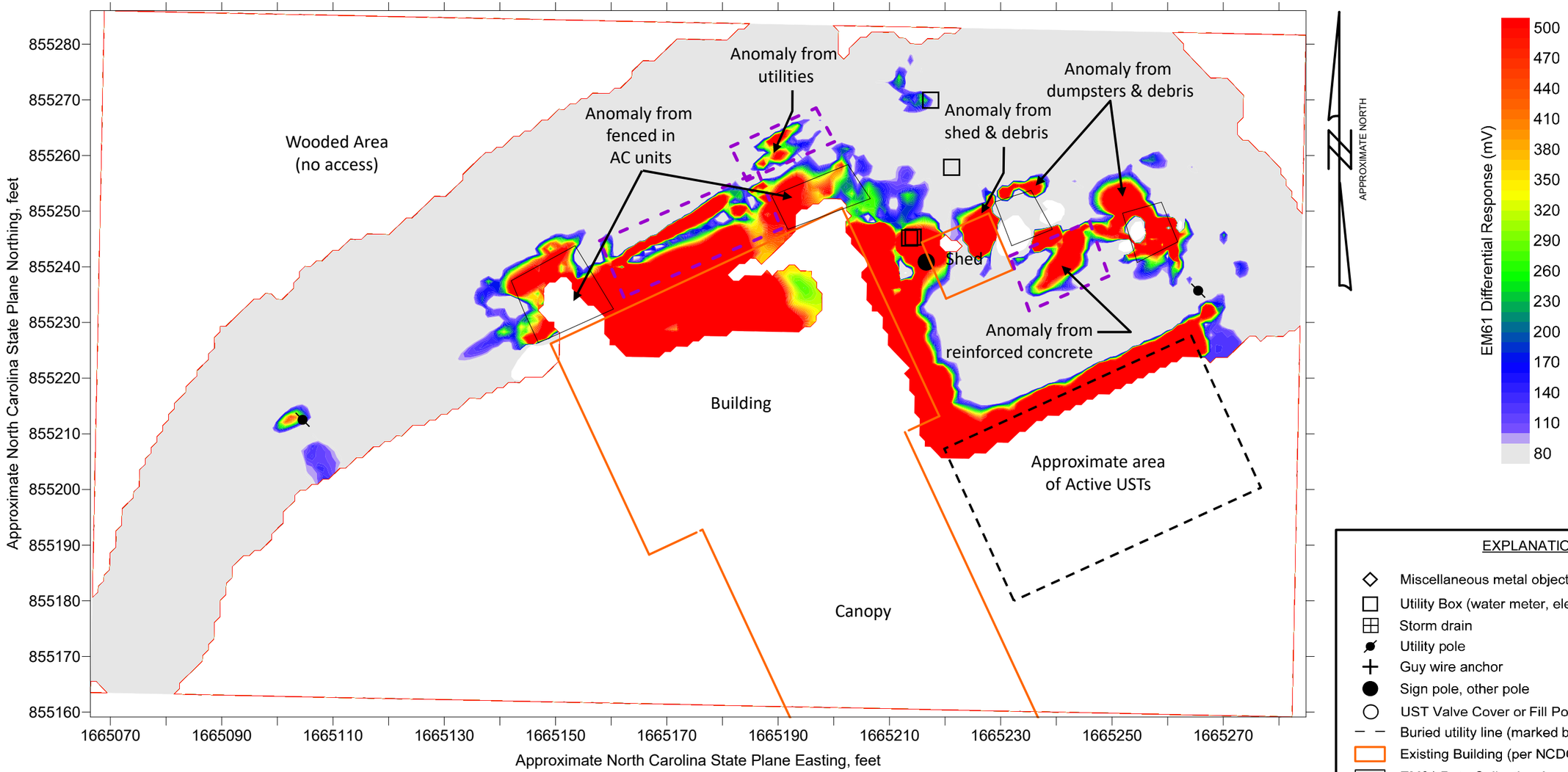

EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Storm drain
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Valve Cover or Fill Port
- Buried utility line (marked by others)
- Existing Building (per NCDOT file)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

PROJECT NO.	GR22.313
SCALE	AS SHOWN
DATE	6/9/19
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FIGURE 4 – PARCEL 342-REMNANT, TAYLOR FAMILY PROP. EM61 DIFFERENTIAL RESPONSE

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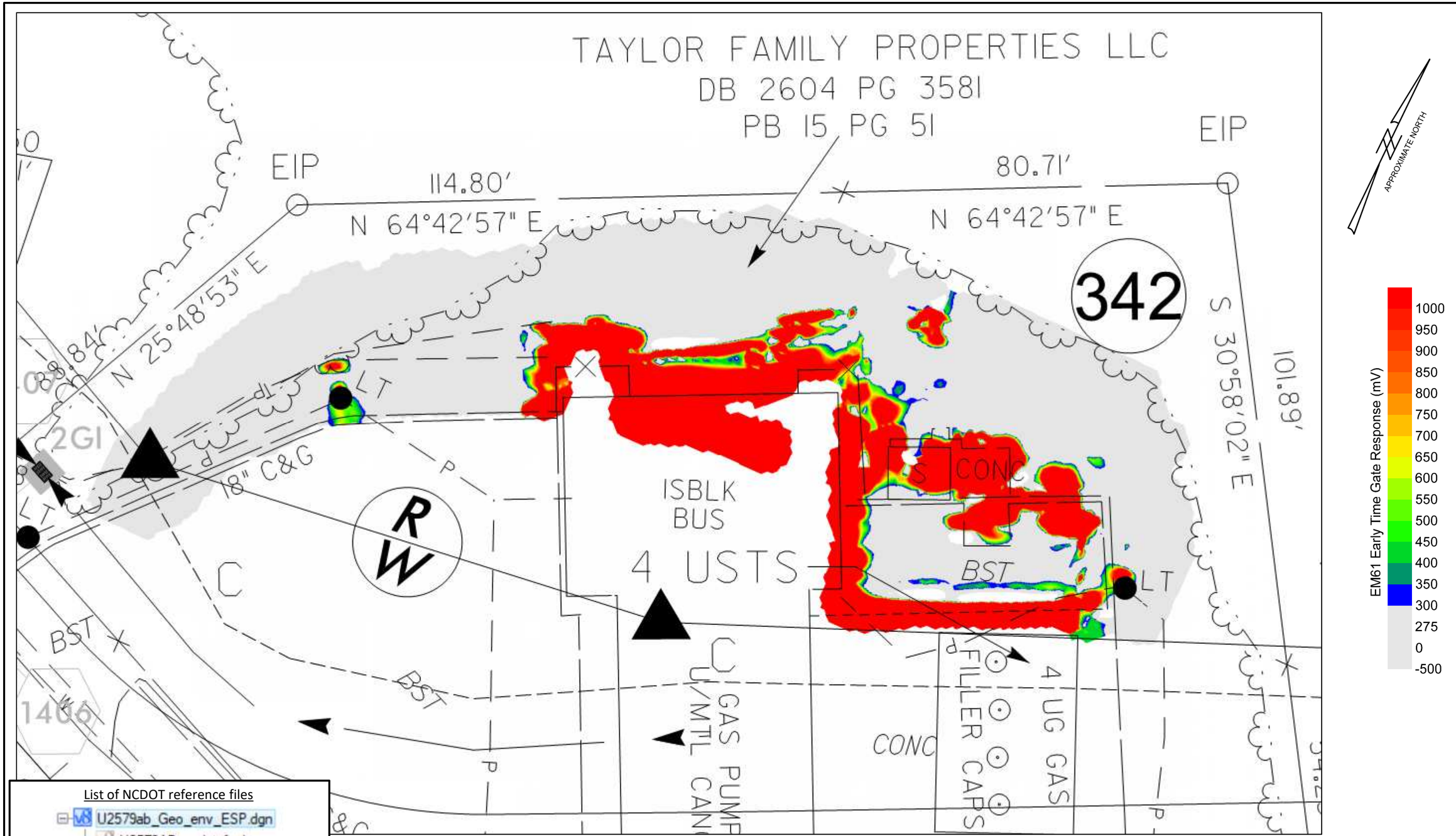

List of NCDOT reference files

- U2579ab_Geo_env_ESP.dgn
  - U2579AB_ncdot_fs.dgn
  - u2579ab_rdy_row.dgn
  - u2579ab_rdy_ss.dgn
  - U2579AB_hyd_dm.dgn
  - u2579ab_rdy_dsn.dgn

20' 0' 20'

GRAPHIC SCALE

See Figure 9 for explanation of symbols and line types

PROJECT NO.	GR22.313
SCALE	1" = 20'
DATE	6/9/19
BY	SBM/EDB

FIGURE 5 – PARCEL 342-REMNANT, TAYLOR FAMILY PROP. EM61 EARLY TIME GATE RESPONSE ON PLAN SHEET

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TAYLOR FAMILY PROPERTIES LLC
DB 2604 PG 3581
PB 15 PG 51

EIP
114.80'
N 64°42'57" E
EIP
80.71'
N 64°42'57" E
342
S 30°58'02" E
101.89'
N 25°48'53" E
88.84'
18" C&G
ISBLK
BUS
4 USTS
CONC
BST
LT
R
W
C
BST
BST
1406
GAS PUMP
U/MTL CANO
FILLER CAPS
4 UG GAS
CONC
APPROXIMATE NORTH

EM61 Differential Response (mV)
500
470
440
410
380
350
320
290
260
230
200
170
140
110
80

List of NCDOT reference files
- U2579ab_Geo_env_ESP.dgn
  - U2579AB_ncdot_fs.dgn
  - u2579ab_rdy_row.dgn
  - u2579ab_rdy_ss.dgn
  - U2579AB_hyd_dm.dgn
  - u2579ab_rdy_dsn.dgn

20' 0' 20'
GRAPHIC SCALE

See Figure 9 for explanation of symbols and line types

PROJECT NO.	GR22.313
SCALE	1" = 20'
DATE	6/9/19
BY	SBM/EDB

FIGURE 6 – PARCEL 342-REMNANT, TAYLOR FAMILY PROP. EM61 DIFFERENTIAL RESPONSE ON PLAN SHEET

NCDOT PROJECT U-2579AB, WINSTON-SALEM - NORTHERN BELTWAY EASTERN SECTION (FUTURE I-74) FORSYTH COUNTY, NORTH CAROLINA

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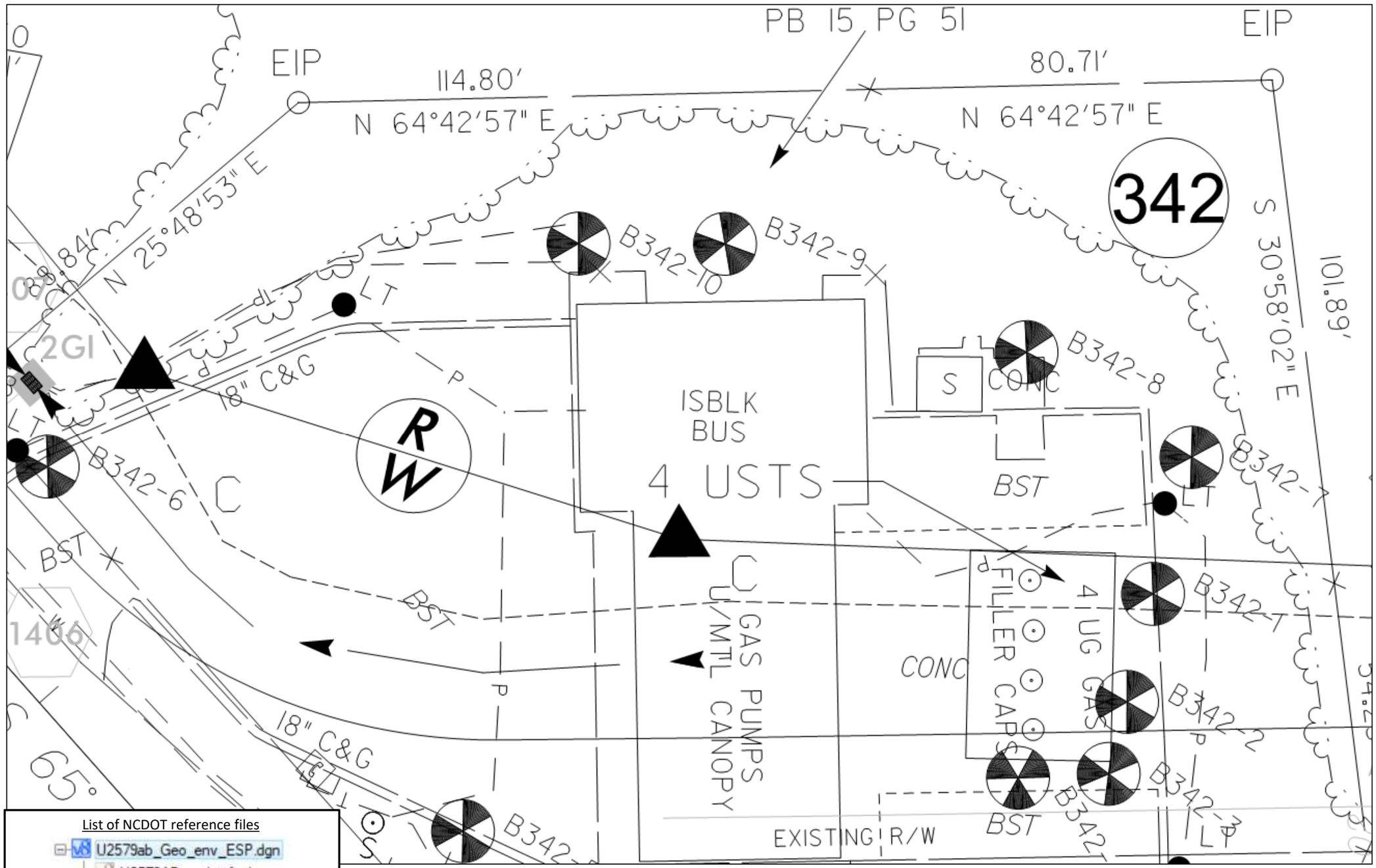

List of NCDOT reference files

- U2579ab_Geo_env_ESP.dgn
  - U2579AB_ncdot_fs.dgn
  - u2579ab_rdy_row.dgn
  - u2579ab_rdy_ss.dgn
  - U2579AB_hyd_dm.dgn
  - u2579ab_rdy_dsn.dgn

20' 0' 20'

GRAPHIC SCALE

See Figure 9 for explanation of symbols and line types

PROJECT NO.	GR22.313
SCALE	1" = 20'
DATE	6/9/19
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FIGURE 7 – PARCEL 342-REMNANT, TAYLOR FAMILY PROP. BORING LOCATIONS ON PLAN SHEET

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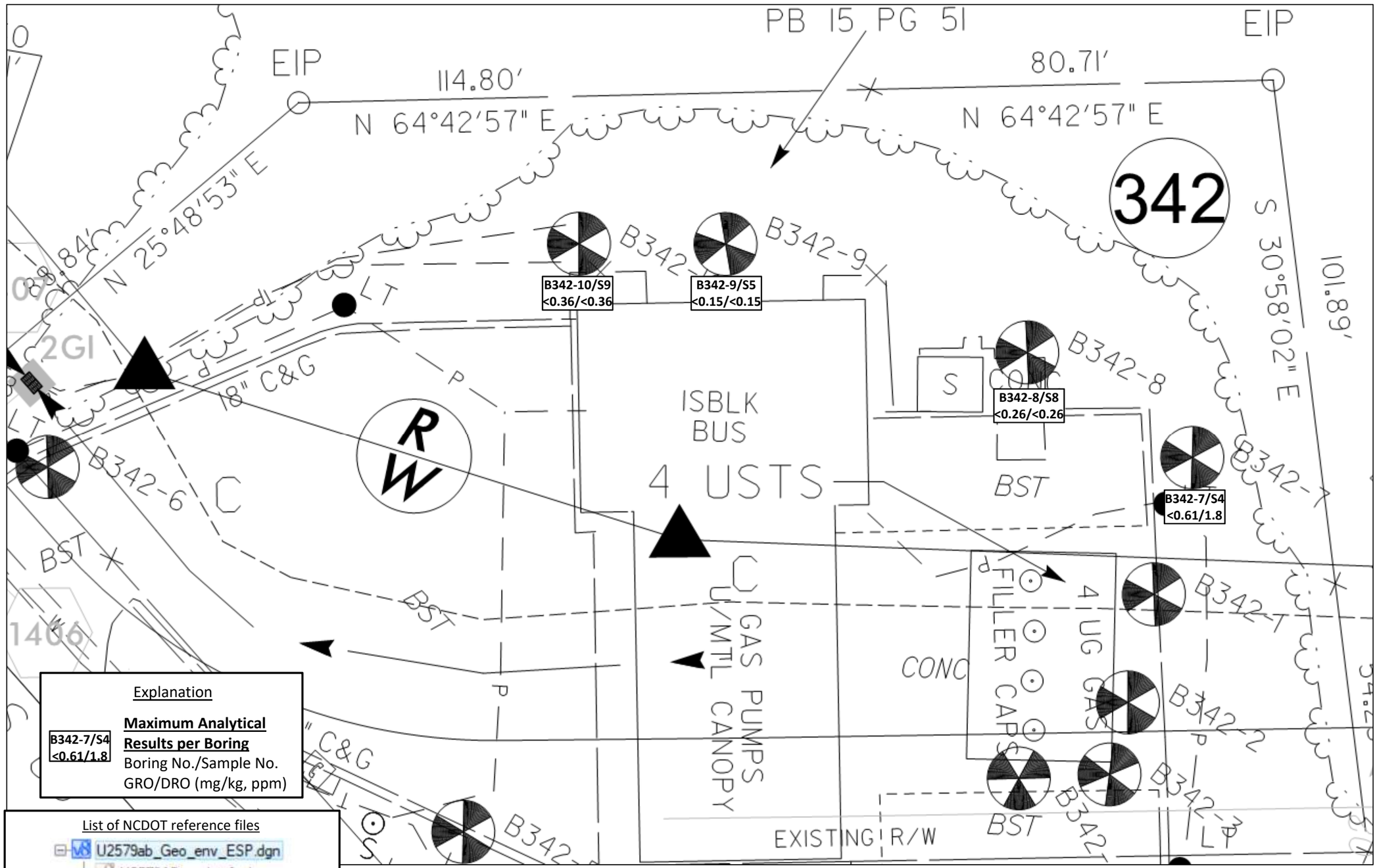

Explanation

B342-7/S4
<0.61/1.8

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

List of NCDOT reference files

- U2579ab_Geo_env_ESP.dgn
  - U2579AB_ncdot_fs.dgn
  - u2579ab_rdy_row.dgn
  - u2579ab_rdy_ss.dgn
  - U2579AB_hyd_dm.dgn
  - u2579ab_rdy_dsn.dgn

See Figure 9 for explanation of symbols and line types

PROJECT NO.	GR22.313
SCALE	1" = 20'
DATE	6/9/19
BY	SBM/EDB

FIGURE 8 – PARCEL 342-REMNANT, TAYLOR FAMILY PROP. SOIL ANALYTICAL RESULTS ON PLAN SHEET

NCDOT PROJECT U-2579AB, WINSTON-SALEM - NORTHERN BELTWAY EASTERN SECTION (FUTURE I-74) FORSYTH COUNTY, NORTH CAROLINA

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04/26/15

PROJECT REFERENCE NO. | SHEET NO.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin
- 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 (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite R/W Marker
- Proposed Control of Access Line with Concrete C/A Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line (E)
- Proposed Temporary Construction Easement (E)
- Proposed Temporary Drainage Easement (TDE)
- Proposed Permanent Drainage Easement (PDE)
- Proposed Permanent Drainage / Utility Easement (DUE)
- Proposed Permanent Utility Easement (PUE)
- Proposed Temporary Utility Easement (TUE)
- Proposed Aerial Utility Easement (AUE)
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut
- Proposed Slope Stakes Fill
- Proposed Curb Ramp (CR)
- 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 (Vineyard)

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- 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 (T)
- 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 (W)
- 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 (A/G Water)

TV:

- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (H)
- 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 (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line
- Above Ground Sanitary Sewer (A/G 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. (UST)
- 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.	GR22.313
SCALE	N/A
DATE	6/9/19
BY	SBM/EDB

FIGURE 9
LEGEND FOR PLAN SHEET FIGURES

NCDOT PROJECT U-2579AB, WINSTON-SALEM - NORTHERN BELTWAY EASTERN SECTION (FUTURE I-74)
FORSYTH COUNTY, NORTH CAROLINA

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APPENDIX A
SOIL BORING LOGS

FIELD BORING LOG

BORING NO. B342-7

PROJECT NAME: NCDOT U-2579AB | PROJ. NO.: GR22.313
LOCATION: Northeast side of known USTs; in the grass
TYPE OF BORING: Direct Push | DATE STARTED: 5/2/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/2/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Stefan Smith | SAMPLE METHOD: 4' Macro Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: S. Montgomery | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 - 0.1 Grass, root mat	Core 1 Rec 4.0'/4.0'
				0.1 - 3.0 Red to red brown clayey sand, dry	
1	S-1	1.0-1.5	1.7		
2	S-2	2.0-2.5	0.5		
3	S-3	3.0-3.5	0.3	3.0 - 4.0 Red to red brown clayey silt, dry	
					Core 2 Rec 4.0'/4.0'
4	S-4	4.0-4.5	3.3	4.0 - 5.0 Red to red brown and white sandy clay, dry	
5	S-5	5.0-5.5	0.4	5.0 - 8.5 Red to red brown clayey sand, dry	
6	S-6	6.0-6.5	2.5		
7	S-7	7.0-7.5	0.8		
8	S-8	8.0-8.5	1.0	8.5 - 10.0 Mottled white, gray and black sand, dry	Core 3 Rec 2.0'/2.0'
9	S-9	9.0-9.5	0.4		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B342-8

PROJECT NAME: NCDOT U-2579AB | PROJ. NO.: GR22.313
LOCATION: Behind dumpster # 1; in the grass
TYPE OF BORING: Direct Push | DATE STARTED: 5/2/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/2/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Stefan Smith | SAMPLE METHOD: 4' Macro Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: S. Montgomery | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 - 0.1 Grass, root mat	Hand augering from 0.0' -3.0'
				0.1 - 8.0 Red to red brown clayey silt, dry	No odor
1	S-1 H.A.	1.0-1.5	2.5		
2	S-2 H.A.	2.0-2.5	1.3		
3	S-3 H.A.	3.0-3.5	0.7		
					Core 1 Rec 1.0'/1.0'
4	S-4	4.0-4.5	0.7		Core 2 Rec 4.0'/4.0'
5	S-5	5.0-5.5	0.3		
6	S-6	6.0-6.5	0.6		
7	S-7	7.0-7.5	0.3		
8	S-8	8.0-8.5	0.4	8.5 - 10.0 Mottled white, gray and black sand, dry	Core 3 Rec 2.0'/2.0'
					No odor
9	S-9	9.0-9.5	0.2		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B342-9

PROJECT NAME: NCDOT U-2579AB | PROJ. NO.: GR22.313
LOCATION: Behind gas station, center of building
TYPE OF BORING: Direct Push | DATE STARTED: 5/2/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/2/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Stefan Smith | SAMPLE METHOD: 4' Macro Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 54DT, Hand Auger (H.A.) | LOGGED BY: S. Montgomery | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 - 0.1 Grass, root mat	H.A. 0.0' -3.0'
				0.1 - 8.0 Red to red brown clayey sand, dry	
1	S-1 H.A.	1.0-1.5	0.2		
2	S-2 H.A.	2.0-2.5	1.3		
3	S-3 H.A.	3.0-3.5	1.2		
					Core 1 Rec 1.0'/1.0'
4	S-4	4.0-4.5	2.3		Core 2 Rec 4.0'/4.0'
5	S-5	5.0-5.5	3.5		
6	S-6	6.0-6.5	2.8		
7	S-7	7.0-7.5	1.0		
8	S-8	8.0-8.5	1.2	8.0 - 10.0 Tan to red brown sandy clay, dry	Core 3 Rec 2.0'/2.0'
9	S-9	9.0-9.5	1.6		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B342-10

PROJECT NAME: NCDOT U-2579AB | PROJ. NO.: GR22.313
LOCATION: Behind AC unit, northwest corner of gas station building
TYPE OF BORING: Direct Push | DATE STARTED: 5/2/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/2/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Stefan Smith | SAMPLE METHOD: 4' Macro Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: S. Montgomery | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 - 0.1 Grass, root mat	H.A. from 0.0' -4.0'
				0.1 - 2.0 Red brown clayey sand, dry	
1	S-1 H.A.	1.0-1.5	1.0		
2	S-2 H.A.	2.0-2.5	2.0	2.0 -4.5 Red Brown clayey sand, very wet	
					Wet clayey sand thought to have been from water main near the borehole 2' deep
3	S-3 H.A.	3.0-3.5	1.0		
4	S-4 H.A.	4.0-4.5	2.2	4.5 - 8.0 Red brown clayey sand, dry	Core 1 Rec 4.0'/4.0'
5	S-5	5.0-5.5	1.9		
6	S-6	6.0-6.5	0.9		
7	S-7	7.0-7.5	0.5		
					Core 3 Rec 2.0'/2.0'
8	S-8	8.0-8.5	1.3	8.0 - 8.5 Red brown clayey sand, moist	
				8.5 - 10.0 Dark gray sand, moist	
9	S-9	9.0-9.5	2.7		
10					
11					
12					
13					
14					
15					

APPENDIX B

RED LAB LABORATORY TESTING REPORT

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: ESP ASSOCIATES
Address: GREENSBORO, NC

Samples taken Thursday, May 2, 2019
Samples extracted Thursday, May 2, 2019
Samples analysed Tuesday, May 7, 2019

Contact: NED BILLINGTON

Operator CAROLINE STEVENS

Project: GR22.313 GROUP 2

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	B342-7 S4	24.5	<0.61	<0.61	1.8	1.8	1.3	<0.2	<0.025	0	50.3	49.7	V.Deg.PHC 75.8%,(FCM),(P)
s	B342-8 S8	10.4	<0.26	<0.26	<0.26	<0.26	<0.05	<0.08	<0.01	0	0	0	,(FCM)
s	B342-9 S5	5.9	<0.15	<0.15	<0.15	<0.15	<0.03	<0.05	<0.006	0	0	0	,(FCM)
s	B342-10 S9	14.4	<0.36	<0.36	<0.36	<0.36	<0.07	<0.12	<0.014	0	0	0	,(FCM)

Initial Calibrator QC check OK Final FCM QC Check OK 96.8 %

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 Assoc.
Address:	Greensboro
Contact:	Ned Billington
Project Ref.:	GR22.313
Email:	on file
Phone #:	
Collected by:	S. Montgomery

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

Sample Collection Date/Time	TAT Requested 24 Hour	TAT Requested 48 Hour	Initials	Sample ID			Total Wt.	Tare Wt.	Sample Wt.
5/2/19		✓	CJS	B39-1	54	Group 1	55.9	44.9	11
5/2/19		✓	EDS	B39-2	59		57.1	45.2	11.9
5/2/19		✓	EDS	B39-3	58		56.2	44.7	11.5
5/2/19		✓	EDS	B39-4	54		56.9	44.5	12.4
5/2/19		✓	EDS	B39-4	59		55.7	44.7	11
5/2/19		✓	EDS	B39-5	55		54.8	44.9	9.9
5/2/19		✓	EDS	B342-7	54	Group 2	55.5	44.9	10.6
5/2/19		✓	EDS	B342-8	58		54.4	44.8	9.6
5/2/19		✓	EDS	B342-9	55		55.0	44.8	10.2
5/2/19		✓	EDS	B342-10	59		54.3	44.6	9.7

Comments: UVF, pls report each group separately

Relinquished by	Date/Time	Accepted by	Date/Time
Ned Billington	5/6/19		
Relinquished by	Date/Time	Accepted by	Date/Time

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10

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