May 9, 2019

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

RE: GEOENVIRONMENTAL PHASE II INVESTIGATION OF PARCEL 7
Foothills Firearms and Ammo, Crystal Cleaners and Laundry Inc.
724 S. State St., Yadkinville, North Carolina
ESP Project No. GR22.309

TIP Number:	U-5809
WBS Number:	44382.1.1
County:	YADKIN
Description:	Construct median along US 601 (State Street) from US 421 to SR 1146 (Lee Avenue) and add roundabouts at both ends of project

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 January 25, 2019 and our Cost Proposal dated February 1, 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
EDB/NAZ

DocuSigned by:
Ed Billington
7402544DC9...

NORTH CAROLINA LICENSED SEAL 1631 GEOLOGIST EDWARD DAVIS BILLINGTON

not considered Final unless all signatures are completed

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1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is planning to construct a median along US 601 (State Street) from US 421 to SR 1146 (Lee Avenue). Roundabouts will be added at both ends of the project. The NCDOT requested that ESP Associates, Inc. (ESP) perform a Phase II Investigation of the proposed right-of-way (ROW) and proposed easement of Parcel 7 to locate possible underground storage tanks (USTs), sample soil, and delineate potential contaminated soil. The study area for Parcel 7 is approximately 0.18 acre and is located at 724 South State Street in Yadkinville, North Carolina (Figure 1).

2.0 HISTORY

This site is owned by Crystal Cleaners & Laundry, Inc. and, prior to 2014, operated as the Crystal Cleaners and Laundry. The business began operating as a gun and ammunition retail business in or around 2014. ESP contacted the NCDEQ and obtained records of site visits conducted in 2012 and 2014 (Appendix D). These memos indicate that the site used PCE (tetrachloroethylene) from 1984 through 2001, switched to DF-2000 (petroleum solvent) in 2001, then closed operations sometime between 2012 and 2014.

3.0 SITE OBSERVATIONS

During our February and March 2019 field work, the site was occupied by the Foothills Firearms and Ammo store (Figure 2). The ground in the study area was covered by asphalt pavement and grass. A possible former petroleum dispenser island patch was observed in the asphalt pavement outside of the proposed easement (Figure 2, Photo C).

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on February 19 and 27, 2019. We performed sampling of subsurface soils within the proposed ROW/easement on March 4 and 5, 2019. Due to a miscommunication with the laboratory, we had to return to the site on April 25, 2019 and to obtain additional soil samples to test for solvents. 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 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 ROW/easement of Parcel 7 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Five borings were drilled, designated B7-1 through B2-5 (Figure 7). The soil borings were advanced using a GeoProbe 7822DT drill rig. Soil samples were obtained to a depth of approximately 10 feet using two 5-foot long Macro-Core® tubes. The borings were redrilled with an approximate 0.5 to 1.0-foot offset on April 25, 2019 using a Geoprobe 54DT with the boreholes designated B7-1A through B7-5A. Soil samples were obtained to a depth of approximately 10 feet using three 4-foot long Macro-Core® tubes. Soil cores varied in recovery from 1.9 to 5 feet. 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 5 to 10 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID.

Due to the history as a dry-cleaning site and since a possible former petroleum pump island was observed on the site, soil samples were selected from each sampling event to test for both petroleum hydrocarbons and chlorinated solvents. For each selected sample, a 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. Ten milligrams (mg) of soil was collected for the petroleum hydrocarbon analysis and 5 mg of soil was collected for the chlorinated solvent analysis. Once sealed, each 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 selected 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). RED lab also used a FROG-4000 gas chromatograph (GC) to check selected samples for chlorinated alkanes, including vinyl chloride, 1,1-dichlorethene, trans-dichlorethene, cis-dichlorethene, trichlorethene, and tetrachlorethene.

4.4 Groundwater

Groundwater was not encountered during the drilling investigation, although some possible perched water was encountered at a depth of approximately 5.0 feet in one boring (B7-5/5A). The sample from this depth had a strong petroleum odor.

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 responses corresponded to known site features, such as buried utilities and reinforced concrete. GPR data were collected over selected EM61 anomalies. The GPR data 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 PID field readings are summarized in Table 1. The soil sample UVF hydrocarbon analysis results for BTEX, GRO, DRO, and PAHs are presented in Table 2. The RED Lab UVF laboratory report, which also includes results for TPH, total aromatics, and BaP, is provided in Appendix B. The RED Lab FROG-4000 GC results are summarized in Table 3 and the report is provided in Appendix B. Values are provided in milligrams per kilogram (mg/kg or ppm).

5.3 Sample Observations

The PID readings exceeded 10 ppm in Borings B7-3A and B7-5A with values of 324 and 88.8 ppm, respectively. The results of the UVF laboratory testing indicate that BTEX was 60.9 ppm for Sample B7-3A/S5 and below the laboratory detection limits for the other samples tested. GRO was detected in 4 samples and exceeded the NCDOT action level of 50 ppm in Sample B7-3A/S5. DRO was detected in all 7 samples tested and exceeded the NCDEQ action level of 100 ppm in Samples B7-5/S2 and B7-3A/S5. PAHs were detected in all 7 samples with values ranging from 0.13 to 5.3 ppm.

The FROG-4000 GC analysis did not detect chlorinated alkanes in the 5 samples tested.

6.0 CONCLUSIONS

6.1 Interpretation of Results

The results of the Phase II Investigation for Parcel 7 of NCDOT Project U-5809 do not indicate the presence of abandoned USTs within the study area. Petroleum hydrocarbon soil contamination was detected above the NCDEQ action levels for GRO and DRO within the study area on Parcel 7.

6.2 Geophysics

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

6.3 Soil

The results of the laboratory UVF hydrocarbon analyses indicate the presence of contaminated soil above the NCDEQ action level for DRO in one sample (B7-5, S2) and above the NCDEQ action level for GRO and DRO in another sample (B7-3A, S5) (Figure 8). Based on the PID readings and the UFV results, the hydrocarbon soil contamination appears to extend from Boring B7-3/3A to Boring B7-5/5A and from a depth of approximately 2.0 feet to 10.0 feet. Chlorinated solvents were not detected.

6.4 Estimated Quantities

Assuming an average contaminated soil thickness of 8.0 feet, the volume of contaminated soil within the proposed ROW/easement is estimated as follows:

3,890 sq.ft. * 8.0 ft. = 31,120 cu.ft. = 1,153 cu.yd.

7.0 RECOMMENDATIONS

ESP recommends that soil removed from the site as part of NCDOT construction activities be screened for petroleum hydrocarbon contamination, properly handled, segregated, and disposed of in accordance with NCDEQ regulations. A strong odor was observed in a few samples but not in all of the contaminated samples.

Groundwater was not encountered during this investigation to a depth of 10 feet below ground surface. If groundwater is encountered during construction, it should be tested for contamination and handled appropriately, as previous investigations on an adjacent site indicated BTEX groundwater contamination.

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)
B7-1	none	0.0
B7-2	none	4.0 (3.0-3.5)
B7-3	none	1.7 (8.0-8.5)
B7-4	none	3.1 (8.0-8.5)
B7-5	none	4.7 (2.0-2.5)
B7-1A	none	0.7 (9.0-9.5)
B7-2A	none	10.0 (6.0-6.5)
B7-3A	5.0-9.5	324 (5.0-5.5)
B7-4A	none	3.2 (8.0-8.5)
B7-5A	4.0-5.5, 8.0-8.5	88.8 (5.0-5.5)

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)
B7-2	S8 (8.0-8.5)	3/4/19	<0.51	<0.51	4.7	0.13
B7-5	S2 (2.0-2.5)	3/5/19	<0.59	35.8	**104.5**	3.1
B7-2A	S6 (6.0-6.5)	4/25/19	<0.52	3.9	65.5	2.3
B7-3A	S5 (5.0-5.5)	4/25/19	**60.9**	**144.6**	**102.6**	5.3
B7-3A	S9 (9.0-9.5)	4/25/19	<1.5	<1.5	96.9	2.2
B7-5A	S5 (5.0-5.5)	4/25/19	<1.8	44.4	50.6	1.5
B7-5A	S8 (8.0-8.5)	4/25/19	<1.4	<1.4	45.7	1.0

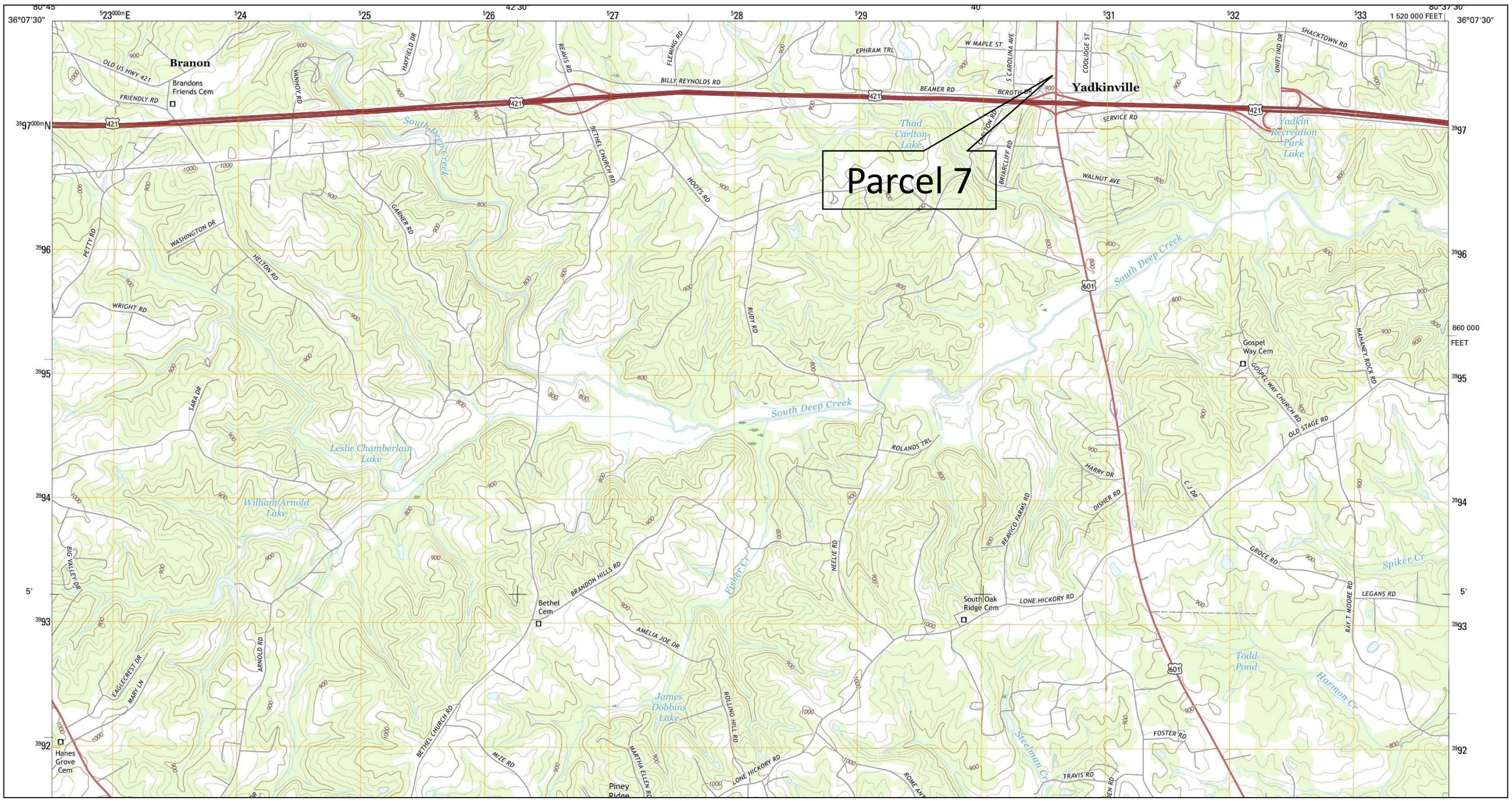
***bold** values indicate results exceed the NCDEQ action levels for total petroleum hydrocarbons of 50 ppm for TPH GRO and 100 ppm for TPH DRO.

TABLE 3
SOIL SAMPLE GC RESULTS SUMMARY

Boring	Sample ID (depth in feet bgs)	Date Collected	Chlorinated Alkanes Concentration*
B7-2A	S6 (6.0-6.5)	4/25/19	Non-detect
B7-3A	S5 (5.0-5.5)	4/25/19	Non-detect
B7-3A	S9 (9.0-9.5)	4/25/19	Non-detect
B7-5A	S5 (5.0-5.5)	4/25/19	Non-detect
B7-5A	S8 (8.0-8.5)	4/25/19	Non-detect

*****Samples were tested for vinyl chloride, 1,1-dichlorethene, trans-dichlorethene, cis-dichlorethene, trichlorethene, and tetrachlorethene.

FIGURES



From: USGS US Topo 7.5 - minute map for LONE HICKORY, NC QUADRANGLE, NC, Date: 2016, Original Scale: 1:24,000

PROJECT NO. GR22.309	***FIGURE 1 - PARCEL 7, CRYSTAL CLEANERS & LAUNDRY SITE VICINITY MAP***
SCALE AS SHOWN	***U-5809, CONSTRUCT MEDIAN ALONG US 601 (STATE STREET) FROM US 421 TO SR 1146 (LEE AVENUE) AND ADD ROUNDABOUTS YADKIN COUNTY, NORTH CAROLINA***
DATE 5/7/19	
BY EDB	

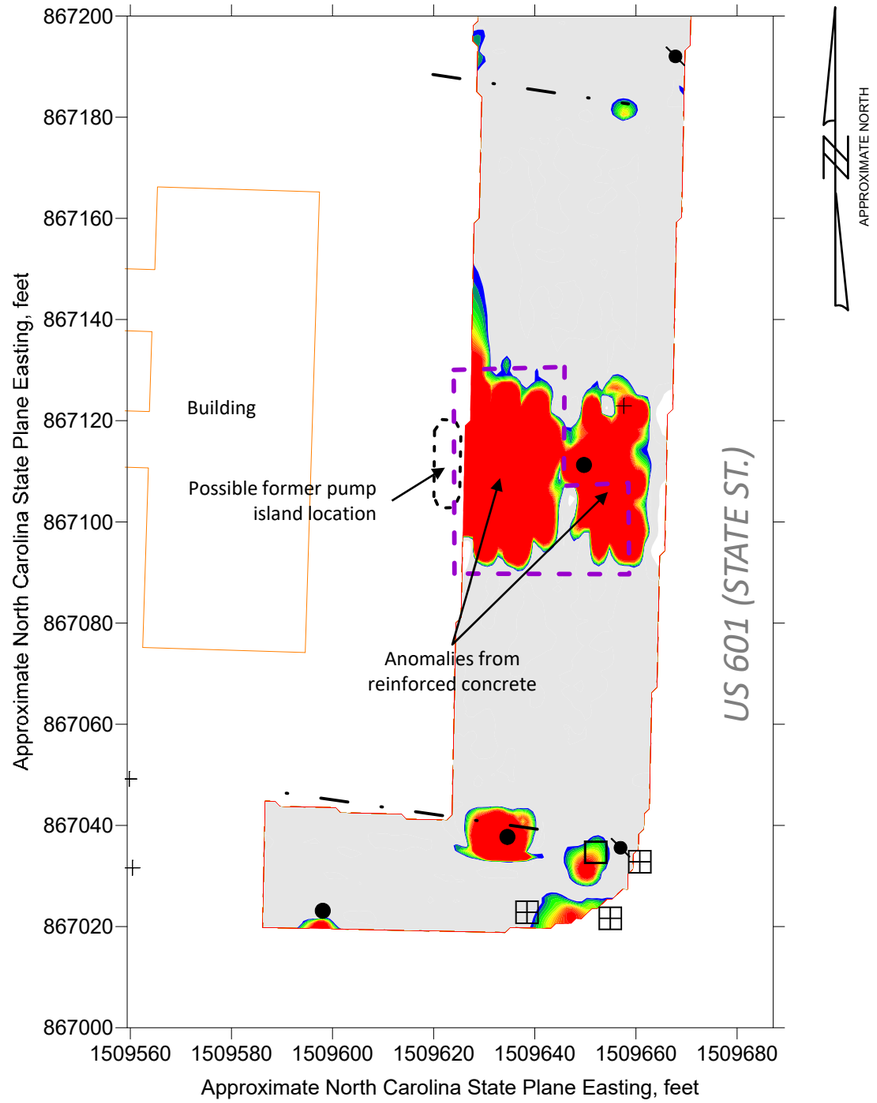
ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

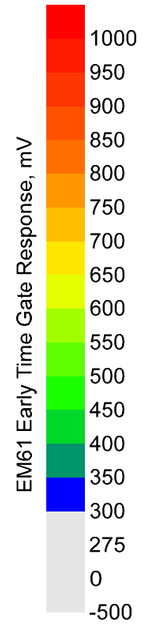
A. Photo of proposed easement area, looking north.

B. 2018 Google Earth image of site, looking southwest.

C. Photo of possible former pump island location, center of site.

PROJECT NO. GR22.309	***FIGURE 2 – PARCEL 7, CRYSTAL CLEANERS & LAUNDRY SITE PHOTOGRAPHS***	ESP Associates, Inc.
SCALE NTS		7011 Albert Pick Rd., Suite E Greensboro, NC 27409
DATE 5/7/19	***U-5809, CONSTRUCT MEDIAN ALONG US 601 (STATE STREET) FROM US 421 TO SR 1146 (LEE AVENUE) AND ADD ROUNDABOUTS YADKIN COUNTY, NORTH CAROLINA***	336.334.7724
BY EDB		www.espassociates.com





EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet or Catch Basin
- Manhole
- Power pole
- Guy wire anchor
- Sign pole, other pole
- UST System Monitoring
- Monitoring well
- Building (from NCDOT files)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- UST — Approximate location of known UST

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.	GR22.309
SCALE	AS SHOWN
DATE	5/7/19
BY	EDB

FIGURE 3 - PARCEL 7, CRYSTAL CLEANERS & LAUNDRY EM61 EARLY TIME GATE RESPONSE

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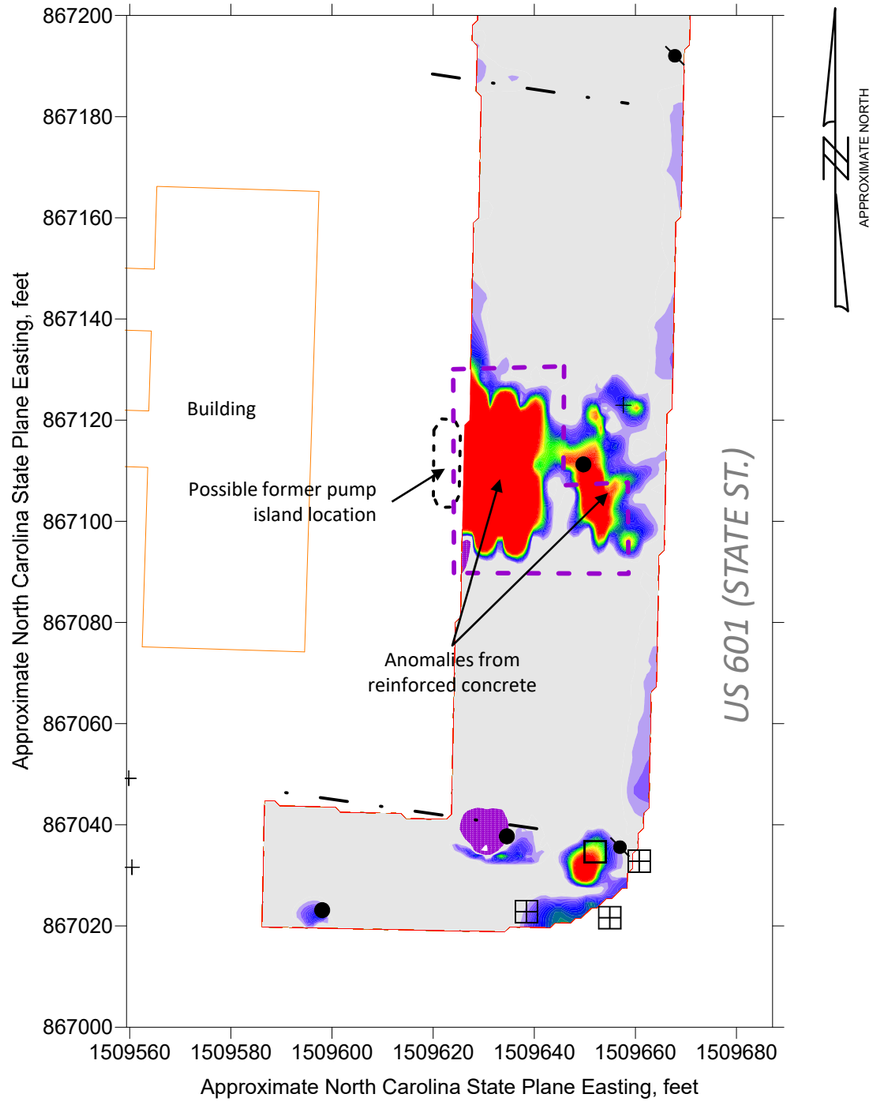
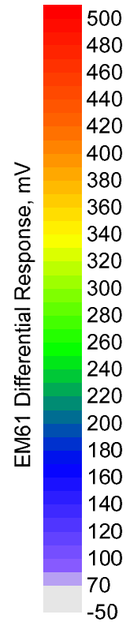
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com





EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet or Catch Basin
- Manhole
- Power pole
- Guy wire anchor
- Sign pole, other pole
- UST System Monitoring
- Monitoring well
- Building (from NCDOT files)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- UST — Approximate location of known UST

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.	GR22.309
SCALE	AS SHOWN
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FIGURE 4 - PARCEL 7, CRYSTAL CLEANERS & LAUNDRY EM61 DIFFERENTIAL RESPONSE

U-5809, CONSTRUCT MEDIAN ALONG US 601 (STATE STREET) FROM US 421 TO SR 1146 (LEE AVENUE) AND ADD ROUNDABOUTS YADKIN COUNTY, NORTH CAROLINA

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7011 Albert Pick Rd., Suite E
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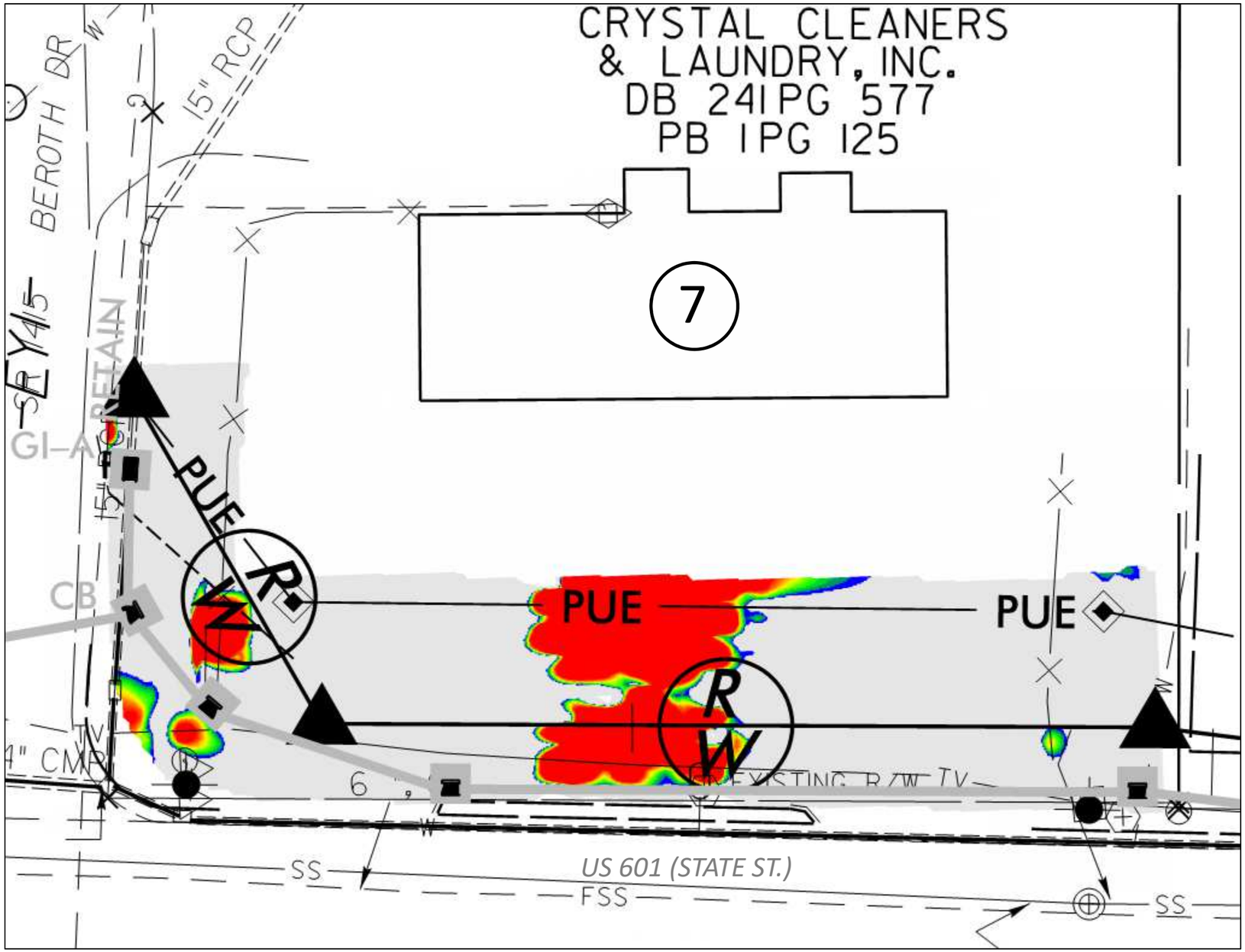
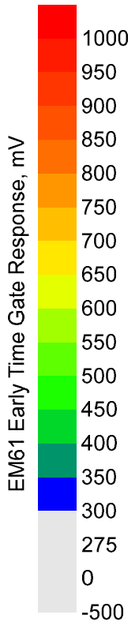
336.334.7724
www.espassociates.com

APPROXIMATE NORTH





See Figure 9 for explanation of symbols and line types

List of NCDOT reference files

- U-5809_Geo_env_ESP.dgn
  - u5809_ls_fs.dgn
  - U-5809_hyd_dm.dgn

20’ 0’ 20’

GRAPHIC SCALE

PROJECT NO.	GR22.309
SCALE	1” = 20’
DATE	5/7/19
BY	EDB

FIGURE 5 – PARCEL 7, CRYSTAL CLEANERS & LAUNDRY EM61 EARLY TIME GATE RESPONSE ON PLAN SHEET

U-5809, CONSTRUCT MEDIAN ALONG US 601 (STATE STREET) FROM US 421 TO SR 1146 (LEE AVENUE) AND ADD ROUNDABOUTS YADKIN COUNTY, NORTH CAROLINA

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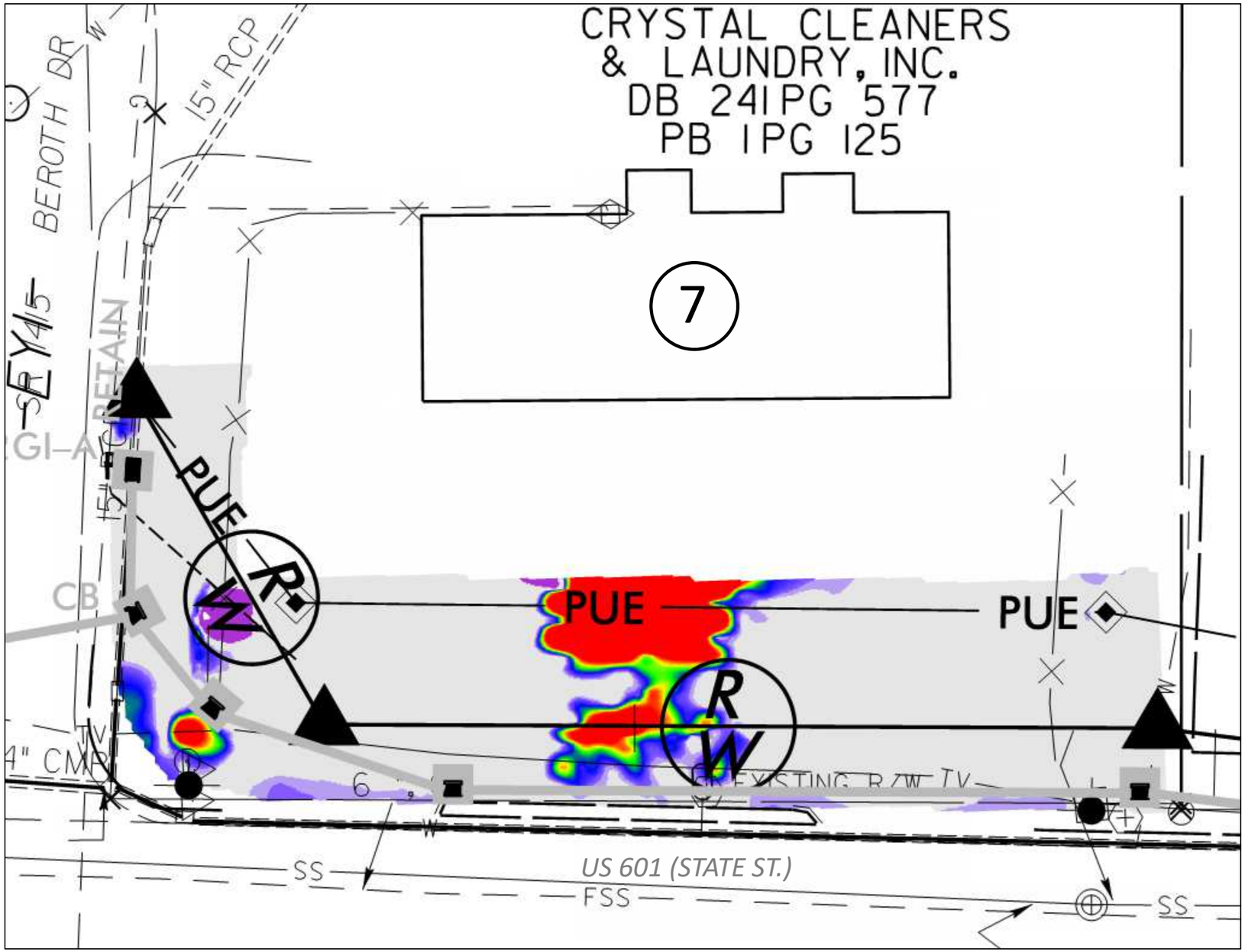
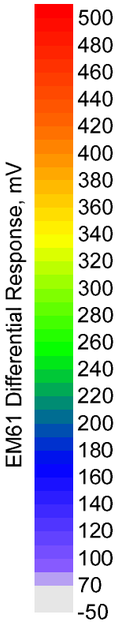
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com





See Figure 9 for explanation of symbols and line types

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  - u5809_ls_fs.dgn
  - U-5809_hyd_dm.dgn

20’ 0’ 20’

GRAPHIC SCALE

PROJECT NO.	GR22.309
SCALE	1” = 30’
DATE	5/7/19
BY	EDB

FIGURE 6 – PARCEL 7, CRYSTAL CLEANERS & LAUNDRY EM61 DIFFERENTIAL RESPONSE ON PLAN SHEET

U-5809, CONSTRUCT MEDIAN ALONG US 601 (STATE STREET) FROM US 421 TO SR 1146 (LEE AVENUE) AND ADD ROUNDABOUTS YADKIN COUNTY, NORTH CAROLINA

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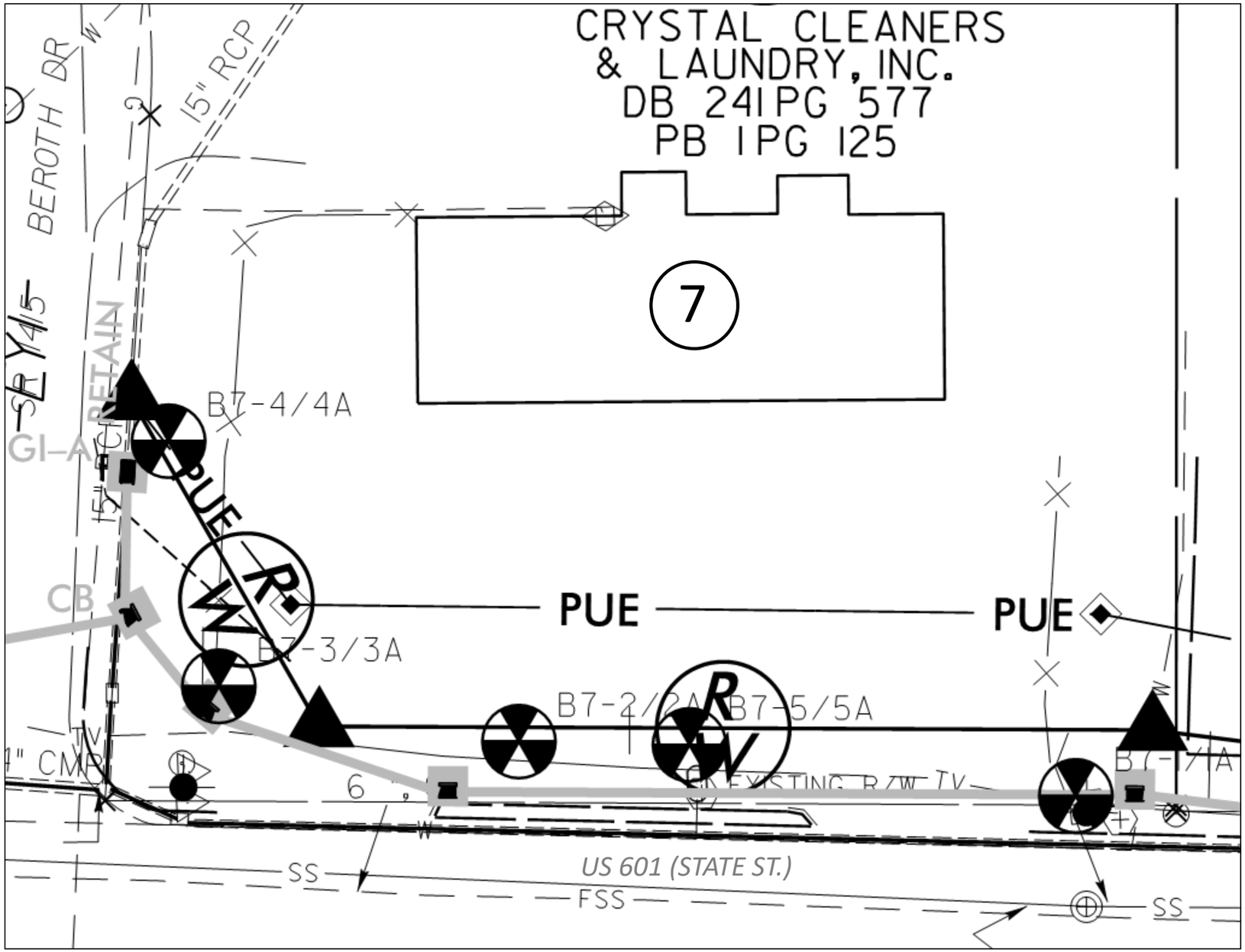
Greensboro, NC 27409
336.334.7724
www.espassociates.com



See Figure 9 for explanation of symbols and line types

List of NCDOT reference files

- U-5809_Geo_env_ESP.dgn
  - u5809_ls_fs.dgn
  - U-5809_hyd_dm.dgn

20’ 0’ 20’

GRAPHIC SCALE

PROJECT NO.	GR22.309
SCALE	1” = 50’
DATE	5/7/19
BY	EDB

FIGURE 7 – PARCEL 7, CRYSTAL CLEANERS & LAUNDRY BORING LOCATIONS ON PLAN SHEET

U-5809, CONSTRUCT MEDIAN ALONG US 601 (STATE STREET) FROM US 421 TO SR 1146 (LEE AVENUE) AND ADD ROUNDABOUTS YADKIN COUNTY, NORTH CAROLINA

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7011 Albert Pick Rd., Suite E
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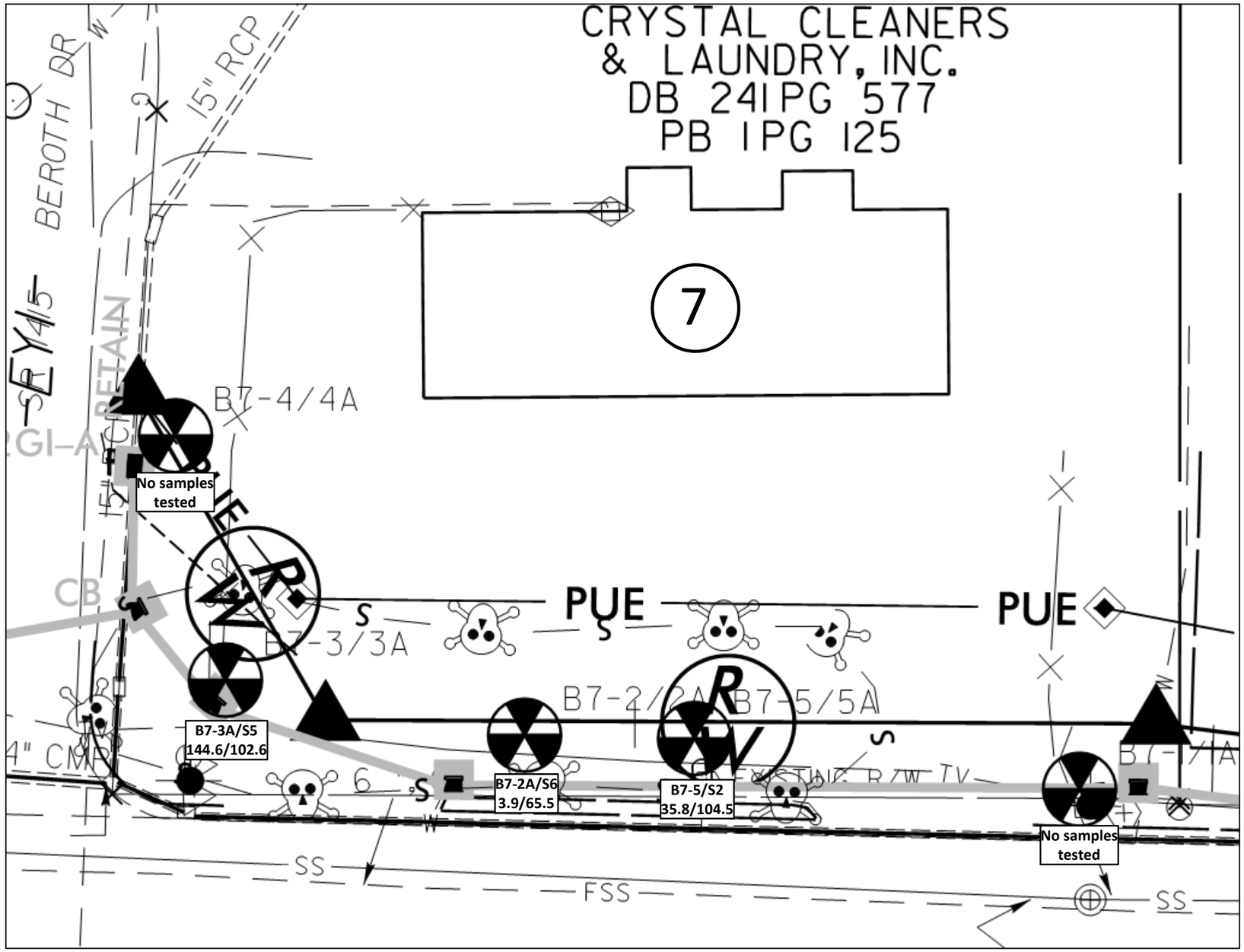


Explanation

B7-2/S6 3.9/65.5 **Maximum Analytical Results per Boring**
Boring No./Sample No.
GRO/DRO (mg/kg, ppm)

See Figure 9 for explanation of symbols and line types

List of NCDOT reference files

- U-5809_Geo_env_ESP.dgn
  - u5809_ls_fs.dgn
  - U-5809_hyd_dm.dgn

20’ 0’ 20’
GRAPHIC SCALE

PROJECT NO.	GR22.309
SCALE	1” = 50’
DATE	5/7/19
BY	EDB

FIGURE 8 – PARCEL 7, CRYSTAL CLEANERS & LAUNDRY SOIL ANALYTICAL RESULTS ON PLAN SHEET

U-5809, CONSTRUCT MEDIAN ALONG US 601 (STATE STREET) FROM US 421 TO SR 1146 (LEE AVENUE) AND ADD ROUNDABOUTS YADKIN COUNTY, NORTH CAROLINA

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

04/26/15

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
- 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 (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (T)
- 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 (TV)
- TV Tower
- U/G TV Cable Hand Hole (TV)
- 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 (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (UNK)
- 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.	GR22.309
SCALE	N/A
DATE	5/7/19
BY	EDB

FIGURE 9
LEGEND FOR PLAN SHEET FIGURES

U-5809, CONSTRUCT MEDIAN ALONG US 601 (STATE STREET) FROM US 421 TO SR 1146 (LEE AVENUE) AND ADD ROUNDABOUTS YADKIN 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. B7-1

PROJECT NAME: NCDOT U-5809 PSA | PROJ. NO.: GR22.309

LOCATION: Grassy strip by highway, N end of parcel

TYPE OF BORING: Direct Push | DATE STARTED: 3/4/19 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/4/19 | TOTAL DEPTH: 10.0 ft

DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macro Core | DEPTH TO GW: N/A ft

DRILL RIG: Geoprobe 7822DT | LOGGED BY: E. Billington | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 -0.1, Root mat	Core 1 Rec 3.5'/5.0'
				0.1 - 10.0, Brown sandy clay with little gravel	
1	S-1	1.0-1.5	0.0		
2	S-2	2.0-2.5	0.0		
3	S-3	3.0-3.5	0.0		
4	~~S-4~~	~~4.0-4.5~~			
5	S-5	5.0-5.5	0.0		Core 2 Rec 5.0'/5.0' Sample stuck in barrel, redrilling
6	S-6	6.0-6.5	0.0		
7	S-7	7.0-7.5	0.0		
8	S-8	8.0-8.5	0.0		
9	S-9	9.0-9.5	0.0		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-2

PROJECT NAME: NCDOT U-5809 PSA | PROJ. NO.: GR22.309
LOCATION: Center of parcel by highway, near sign
TYPE OF BORING: Direct Push | DATE STARTED: 3/4/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/5/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macro Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 7822DT, hand auger (HA) | LOGGED BY: E. Billington | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 -0.6, Asphalt, gravel road base	Core 1 Rec 2.0'/5.0'
				0.6 - 6.9, Mottled tan, grey and brown sandy silt	0-6.9' Prob fill
1	S-1	1.0-1.5	2.1		
					3/5 - returned to HA top 5 feet
2	S-2 HA	2.0-2.5	1.5		
					S3 odor
3	S-3 HA	3.0-3.5	4.0		
4	S-4 HA	4.0-4.5	3.3		Core 2 Rec 4.1'/5.0'
5	S-5	5.0-5.5	1.7		Core 2 Rec 4.1'/5.0'
6	S-6	6.0-6.5	1.5		
				6.9 - 10.0, grey clayey sand, v. moist	
7	S-7	7.0-7.5	1.7		
8	S-8	8.0-8.5	2.5		
9	~~S-9~~	~~9.0-9.5~~			
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-3

PROJECT NAME: NCDOT U-5809 PSA | PROJ. NO.: GR22.309
LOCATION: SE corner of parcel, on grass
TYPE OF BORING: Direct Push | DATE STARTED: 3/4/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/4/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macro Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 7822DT | LOGGED BY: E. Billington | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 -0.1, Root mat	Core 1 Rec 2.8'/5.0'
				0.1 - 10.0, Brown, tan to grey brown sandy silt with clay	
1	S-1	1.0-1.5	0.0		
2	S-2	2.0-2.5	0.0		
3	~~S-3~~	~~3.0-3.5~~			
4	~~S-4~~	~~4.0-4.5~~			
5	S-5	5.0-5.5	0.4		
					Core 2 Rec 3.1'/5.0'
6	S-6	6.0-6.5	0.8		
7	S-7	7.0-7.5	0.5		
8	S-8	8.0-8.5	1.7		
9	~~S-9~~	~~9.0-9.5~~			
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-4

PROJECT NAME: NCDOT U-5809 PSA | PROJ. NO.: GR22.309
LOCATION: Grassy strip, middle of S. edge
TYPE OF BORING: Direct Push | DATE STARTED: 3/5/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/5/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macro Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 7822DT | LOGGED BY: E. Billington | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 -0.1, Root mat	Core 1 Rec 3.4'/5.0'
				0.1 - 5.6, Orange-brown to greenish brown, sandy silt, moist	
1	S-1	1.0-1.5	1.1		
2	S-2	2.0-2.5	1.5		
3	S-3	3.0-3.5	0.7		
4	~~S-4~~	~~4.0-4.5~~			
5	S-5	5.0-5.5	2.7		
					Core 2 Rec 5.0'/5.0'
				5.6 - 10.0, greenish brown to grey-brown sandy clay, moist	
6	S-6	6.0-6.5	2.0		
7	S-7	7.0-7.5	2.3		
8	S-8	8.0-8.5	3.1		
9	S-9	9.0-9.5	1.7		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-5

PROJECT NAME: NCDOT U-5809 PSA | PROJ. NO.: GR22.309
LOCATION: 30' N of B7-2
TYPE OF BORING: Direct Push | DATE STARTED: 3/5/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 3/5/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macro Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 7822DT | LOGGED BY: E. Billington | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 -0.3, Asphalt, gravel base	Core 1 Rec 2.2'/5.0'
				0.3 - 5.0, Medium brown to dark brown to blackish brown, sandy silt, moist	
1	S-1	1.0-1.5	1.1		
2	S-2	2.0-2.5	4.7		2.0' possible staining
3	~~S-3~~	~~3.0-3.5~~			
4	~~S-4~~	~~4.0-4.5~~			
5	S-5	5.0-5.5	2.6	5.0 - 6.0, Light brown to grey silty sand, wet	Core 2 Rec 4.1'/5.0'
6	S-6	6.0-6.5	1.7	6.0 - 10.0, med brown clayey sand	
7	S-7	7.0-7.5	1.5		
8	S-8	8.0-8.5	0.6		
9	S-9	9.0-9.5	2.4		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-1A

PROJECT NAME: NCDOT U-5809 PSA | PROJ. NO.: GR22.309

LOCATION: Grassy strip by highway, N end of parcel

TYPE OF BORING: Direct Push | DATE STARTED: 4/25/19 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 4/25/19 | TOTAL DEPTH: 10.0 ft

DRILLER: Will Keyes | SAMPLE METHOD: 4' Macro-Core | DEPTH TO GW: N/A ft

DRILL RIG: Geoprobe 54DT | LOGGED BY: E. Billington | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 - 0.2, Root mat	Core 1 Rec 4.0'/4.0'
				0.2 - 2.0, Medium brown sandy silt, dry to moist	
1	S-1	1.0-1.5	0.1		Plugged core barrel, 2.5 hr delay
2	S-2	2.0-2.5	0.2		
				2.0 - 10.0, Medium brown to orange, sandy clay	
3	S-3	3.0-3.5	0.4		
4	S-4	4.0-4.5	0.4		Core 2 Rec 4.0'/4.0'
5	S-5	5.0-5.5	0.5		
6	S-6	6.0-6.5	0.2		
7	S-7	7.0-7.5	0.4		
8	S-8	8.0-8.5	0.5		Core 3 Rec 2.0'/2.0'
				8.6 - 8.9, Seam of brown silty sand	
9	S-9	9.0-9.5	0.7		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-2A

PROJECT NAME: NCDOT U-5809 PSA | PROJ. NO.: GR22.309

LOCATION: Center of parcel by highway, near sign

TYPE OF BORING: Direct Push | DATE STARTED: 4/25/19 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 4/25/19 | TOTAL DEPTH: 10.0 ft

DRILLER: Will Keyes | SAMPLE METHOD: 4' Macro-Core | DEPTH TO GW: N/A ft

DRILL RIG: Geoprobe 54DT | LOGGED BY: E. Billington | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 -0.4, Asphalt, gravel base	Core 1 Rec 2.6'/4.0'
				0.4 - 9.0, Light brown to tannish brown, sandy silt	
1	S-1	1.0-1.5	0.4		
2	S-2	2.0-2.5	1.4		
3	~~S-3~~	~~3.0-3.5~~			
4	S-4	4.0-4.5	0.9		Core 2 Rec 2.5'/4.0'
				4.0 - Grading to dark grey-brown	
5	S-5	5.0-5.5	1.8		
6	S-6	6.0-6.5	10.0		
7	~~S-7~~	~~7.0-7.5~~			
8	S-8	8.0-8.5	5.7		Core 3 Rec 2.0'/2.0'
9	S-9	9.0-9.5	1.9	9.0 - 10.0, Grey-brown clayey sand, moist	
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-3A

PROJECT NAME: NCDOT U-5809 PSA | PROJ. NO.: GR22.309
LOCATION: SE corner of parcel, grassy area
TYPE OF BORING: Direct Push | DATE STARTED: 4/25/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 4/25/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Will Keyes | SAMPLE METHOD: 4' Macro-Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: E. Billington | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 -0.3 Root mat	Core 1 Rec 1.9'/4.0'
				0.3 - 5.5, brown to dark brown sandy silt	
1	S-1	1.0-1.5	0.1		
2	S-2	2.0-2.5	0.2		
3	~~S-3~~	~~3.0-3.5~~			
4	S-4	4.0-4.5	2.4		Core 2 Rec 2.4'/4.0'
5	S-5	5.0-5.5	324		
					5.0' - Odor
				5.5 - grading to with some clay	
6	S-6	6.0-6.5	112		
7	~~S-7~~	~~7.0-7.5~~			
8	S-8	8.0-8.5	103		Core 3 Rec 2.0'/2.0'
9	S-9	9.0-9.5	182		9.0' - Odor
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-4A

PROJECT NAME: NCDOT U-5809 PSA | PROJ. NO.: GR22.309
LOCATION: Grassy strip, middle of S. edge of parcel
TYPE OF BORING: Direct Push | DATE STARTED: 4/25/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 4/25/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Will Keyes | SAMPLE METHOD: 4' Macro-Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: E. Billington | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 -0.3 Root mat	Core 1 Rec 3.0'/4.0'
				0.3 - 6.6, Red-brown to dark grey-brown sandy silt	
1	S-1	1.0-1.5	0.4		
2	S-2	2.0-2.5	1.4		
3	~~S-3~~	~~3.0-3.5~~			
4	S-4	4.0-4.5	1.1		Core 2 Rec 4.0'/4.0'
5	S-5	5.0-5.5	0.5		
6	S-6	6.0-6.5	0.7		
				6.6 - 10.0, Very dark brown to medium brown sandy clay	
7	~~S-7~~	~~7.0-7.5~~			
8	S-8	8.0-8.5	3.2		Core 3 Rec 2.0'/2.0'
9	S-9	9.0-9.5	0.6		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-5A

PROJECT NAME: NCDOT U-5809 PSA | PROJ. NO.: GR22.309
LOCATION: 30' N of B7-2/2A
TYPE OF BORING: Direct Push | DATE STARTED: 4/25/19 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 4/25/19 | TOTAL DEPTH: 10.0 ft
DRILLER: Will Keyes | SAMPLE METHOD: 4' Macro-Core | DEPTH TO GW: N/A ft
DRILL RIG: Geoprobe 54DT | LOGGED BY: E. Billington | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0 -0.4, Asphalt, gravel base	Core 1 Rec 2.6'/4.0'
				0.4 - 2.3, tan to red-brown sandy silt	
1	S-1	1.0-1.5	0.7		
2	S-2	2.0-2.5	1.6		
				2.3 - 4.0, Dark grey-brown sandy clay	
3	~~S-3~~	~~3.0-3.5~~			
4	S-4	4.0-4.5	66.3		Core 2 Rec 2.6'/4.0'
				4.0 - 4.9 Lense of silt	
5	S-5	5.0-5.5	88.8	4.9 - 7.9, Dark grey-brown silty sand, wet	4.9' perched water
6	S-6	6.0-6.5	3.8		
7	~~S-7~~	~~7.0-7.5~~			
8	S-8	8.0-8.5	40.6	7.9 - 10.0, Grey-brown sandy clay, dry	Core 3 Rec 2.0'/2.0'
9	S-9	9.0-9.5	3.0		
10					
11					
12					
13					
14					
15					

APPENDIX B

RED LAB LABORATORY TESTING REPORT

Hydrocarbon Analysis Results

Client: ESP ASSOCIATES INC.
Address: 7011 ALBERT PICK RD
SUITE E GREENSBORO, NC 27409

Contact: NED BILLINGTON

Project: GR22.309

Samples taken Monday, March 4, 2019
Samples extracted Monday, March 4, 2019
Samples analysed Tuesday, March 12, 2019

Operator CAROLINE STEVENS

U00902

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
Soil	B7-5 S2	23.6	<0.59	35.8	104.5	140.3	68.8	3.1	0.015	38.4	60	1.6	Deg Fuel 76.5%,(FCM)
Soil	B7-2 S8	20.5	<0.51	<0.51	4.7	4.7	2.5	0.13	<0.003	0	97.3	2.7	Deg Fuel 75.5%,(FCM)

Initial Calibrator QC check OK Final FCM QC Check OK 96.0%

Analysis by QED HC-1 Analyser

Concentration values in mg/kg for soil and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected
HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only : % Ratios estimated carbon number proportions : (OCR)/(Q) = Outside cal range, values and HC match estimates : ND = Not Detected
(B) = Blank Drift : (M) = Adjusted value : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : SB = sample selected as site background

QED

REDLAB™ RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: ESP
Address: GREENSBORO

Samples taken Thursday, April 25, 2019
Samples extracted Thursday, April 25, 2019
Samples analysed Tuesday, April 30, 2019

Contact: NED BILLINGTON

Operator JENN RYAN

Project: GR22.309

U00902

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
s	B7 - 2A S6	20.6	<0.52	3.9	65.5	69.4	57	2.3	<0.021	15.6	75.4	9	Deg.Fuel 84.9%,(FCM),(BO)
s	B7 - 3A S5	22.4	60.9	144.6	102.6	247.2	143.3	5.3	<0.022	94.8	4.9	0.3	Deg Gas 78.5%,(FCM)
s	B7 - 3A S9	60.7	<1.5	<1.5	96.9	96.9	44.4	2.2	<0.061	0	81.3	18.7	Deg.PHC 78.6%,(FCM)
s	B7 - 5A S5	71.3	<1.8	44.4	50.6	95	28.7	1.5	<0.071	68.9	27.4	3.7	Deg Fuel 69.5%,(FCM)
s	B7 - 5A S8	56.2	<1.4	<1.4	45.7	45.7	20.9	1	<0.056	0	77.1	22.9	V.Deg.PHC 95%,(FCM),(P)

Initial Calibrator QC check OK

Final FCM QC Check OK 99.5 %

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

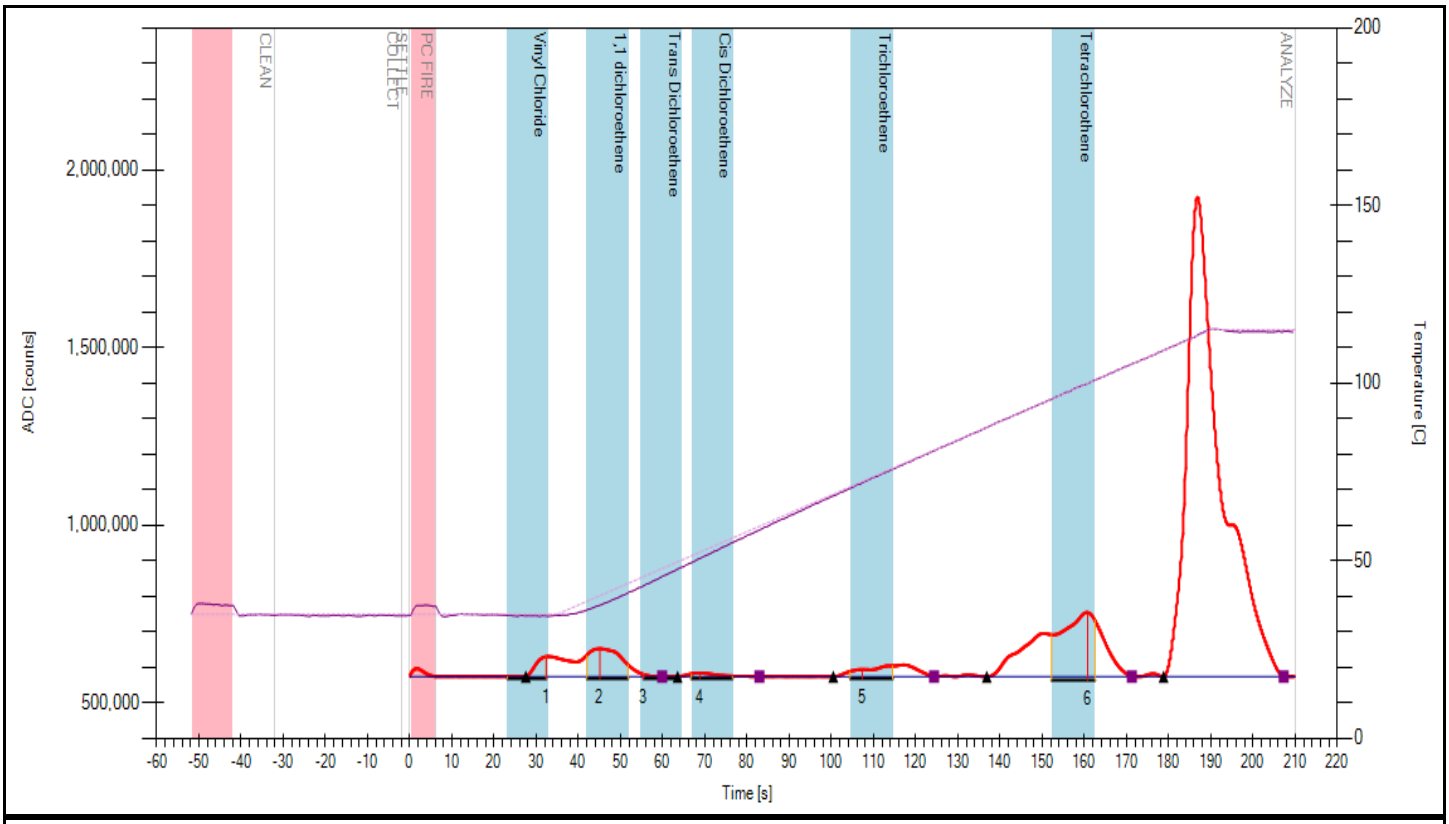
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

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

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

FROG-0080:Ta=35, Tb=155, Tc=20, Ct=35, Ht=115, collect=30, clean=10, presettle=10, settle=2, fire=6
Dilution = 500
B7-3A S5

Peak	Analyte Name	Time	Height	Area	Concentration	Final Conc.
1	Vinyl Chloride	-	-	-	0.00	0
2	1,1 dichloroethene	-	-	-	0.00	0
3	Trans Dichloroethene	-	-	-	0.00	0
4	Cis Dichloroethene	-	-	-	0.00	0
5	Trichloroethene	-	-	-	0.00	0
6	Tetrachlorothene	-	-	-	0.00	0



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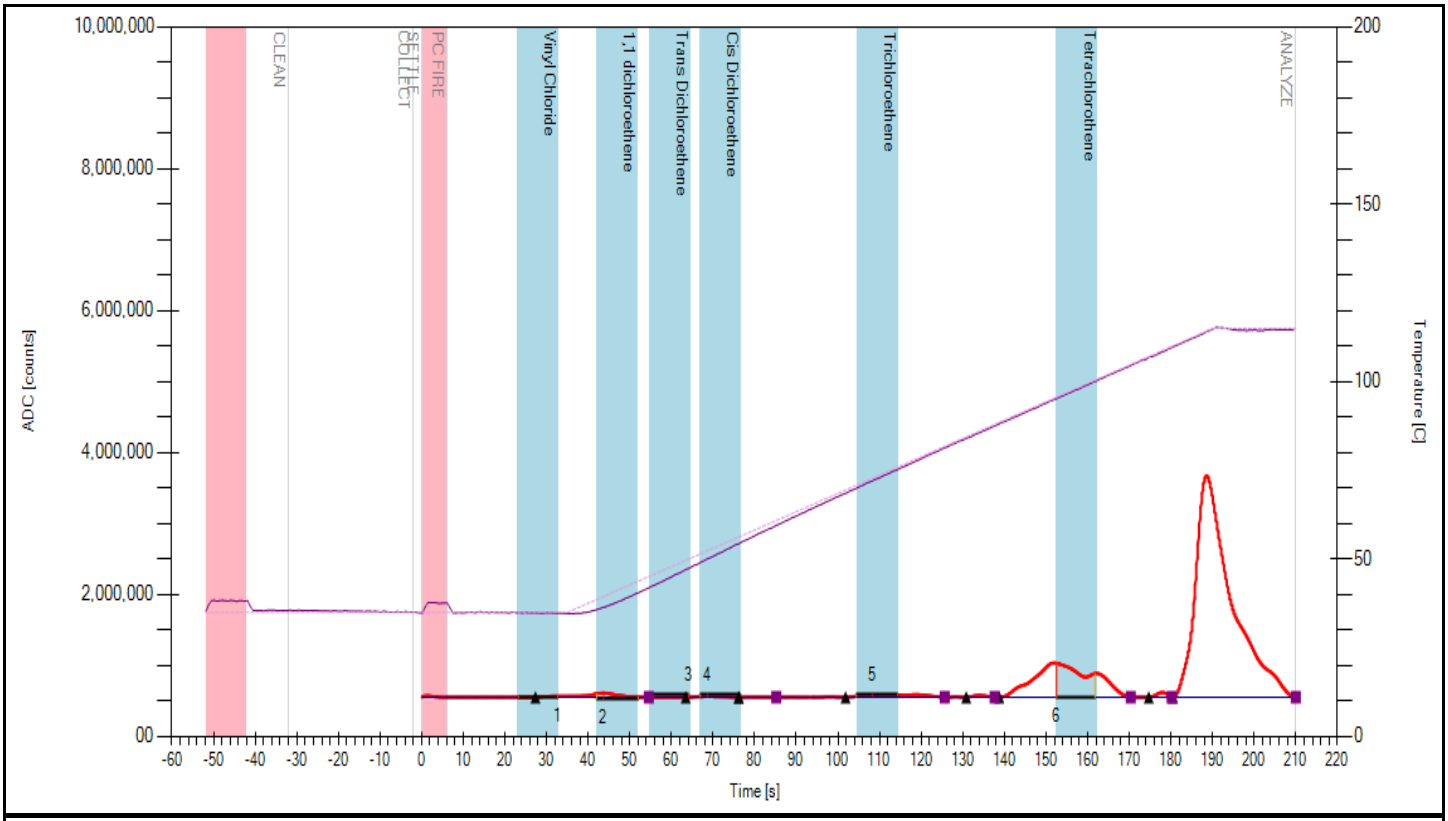
B7-3A S9

Peak	Analyte Name	Time	Height	Area	Concentration	Final Conc.
1	Vinyl Chloride	-	-	-	0.00	0
2	1,1 dichloroethene	-	-	-	0.00	0
3	Trans Dichloroethene	-	-	-	0.00	0
4	Cis Dichloroethene	-	-	-	0.00	0
5	Trichloroethene	-	-	-	0.00	0
6	Tetrachlorothene	-	-	-	0.00	0



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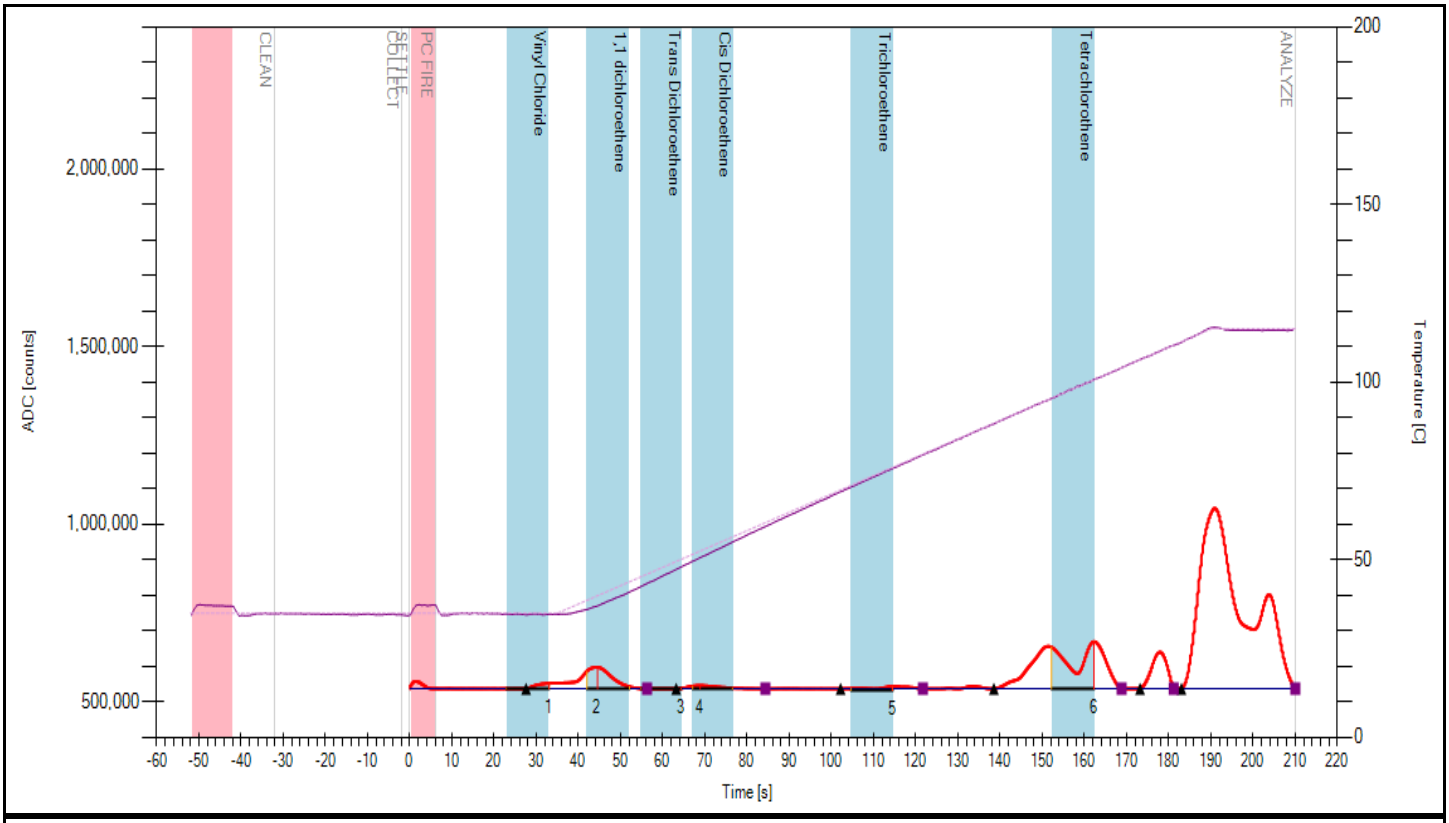
Dilution = 336
B7-5A S5

Peak	Analyte Name	Time	Height	Area	Concentration	Final Conc.
1	Vinyl Chloride	-	-	-	0.00	0
2	1,1 dichloroethene	-	-	-	0.00	0
3	Trans Dichloroethene	-	-	-	0.00	0
4	Cis Dichloroethene	-	-	-	0.00	0
5	Trichloroethene	-	-	-	0.00	0
6	Tetrachlorothene	-	-	-	0.00	0



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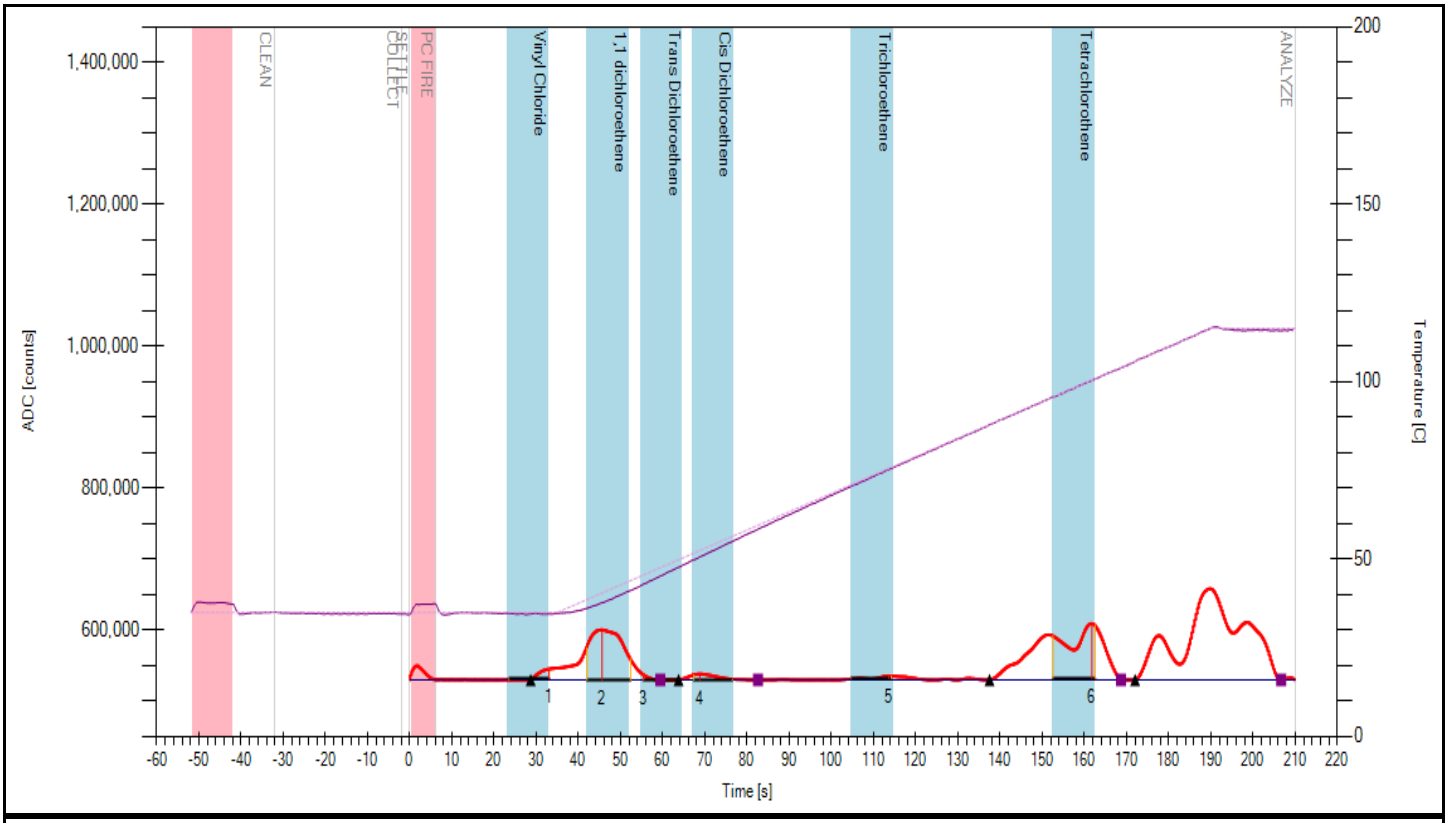
B7-5A S8

Peak	Analyte Name	Time	Height	Area	Concentration	Final Conc.
1	Vinyl Chloride	-	-	-	0.00	0
2	1,1 dichloroethene	-	-	-	0.00	0
3	Trans Dichloroethene	-	-	-	0.00	0
4	Cis Dichloroethene	-	-	-	0.00	0
5	Trichloroethene	-	-	-	0.00	0
6	Tetrachlorothene	-	-	-	0.00	0



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B7-2A S6

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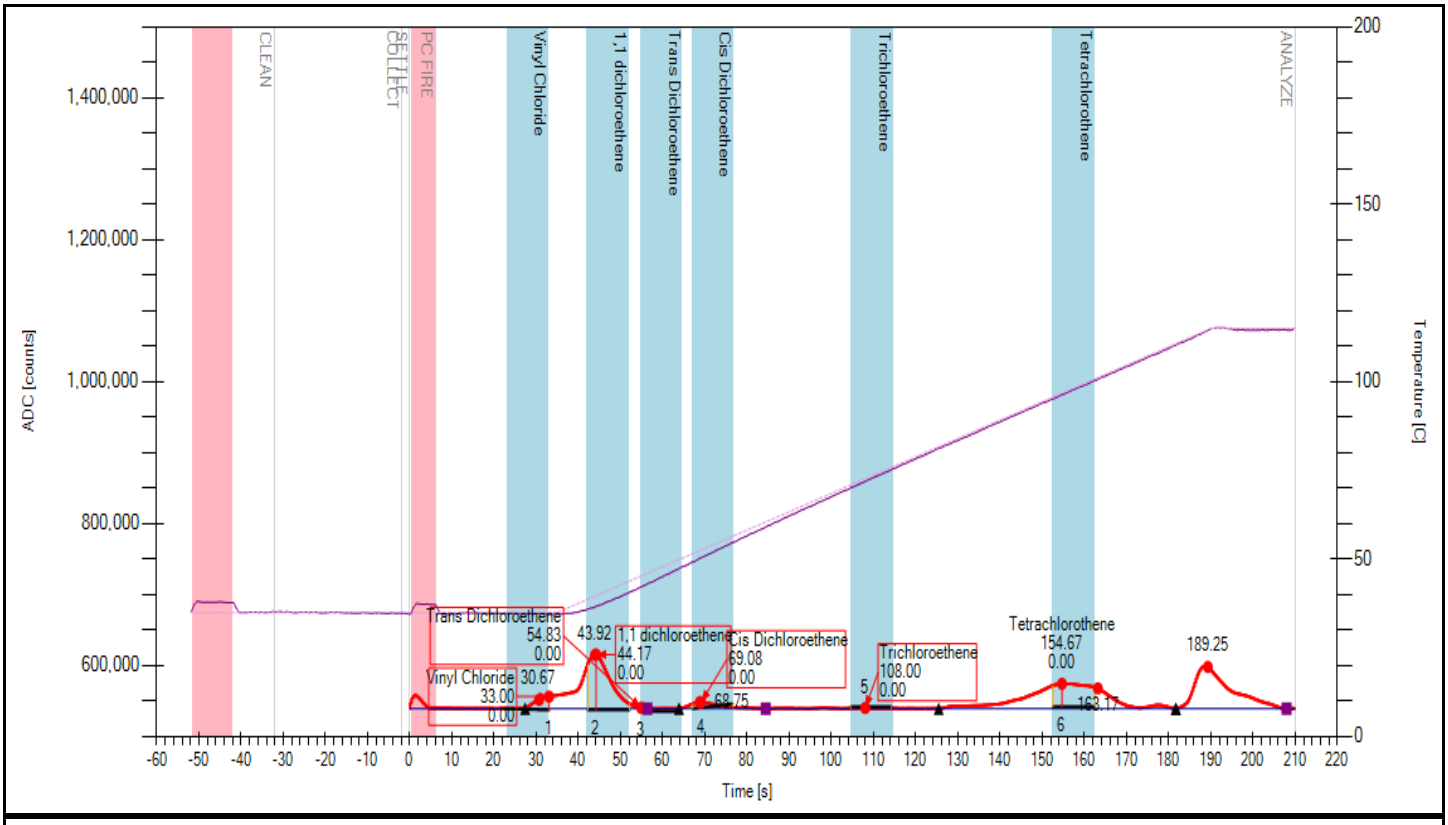
1	Vinyl Chloride	-	-	-	0.00	0
2	1,1 dichloroethene	-	-	-	0.00	0
3	Trans Dichloroethene	-	-	-	0.00	0
4	Cis Dichloroethene	-	-	-	0.00	0
5	Trichloroethene	-	-	-	0.00	0
6	Tetrachlorothene	-	-	-	0.00	0



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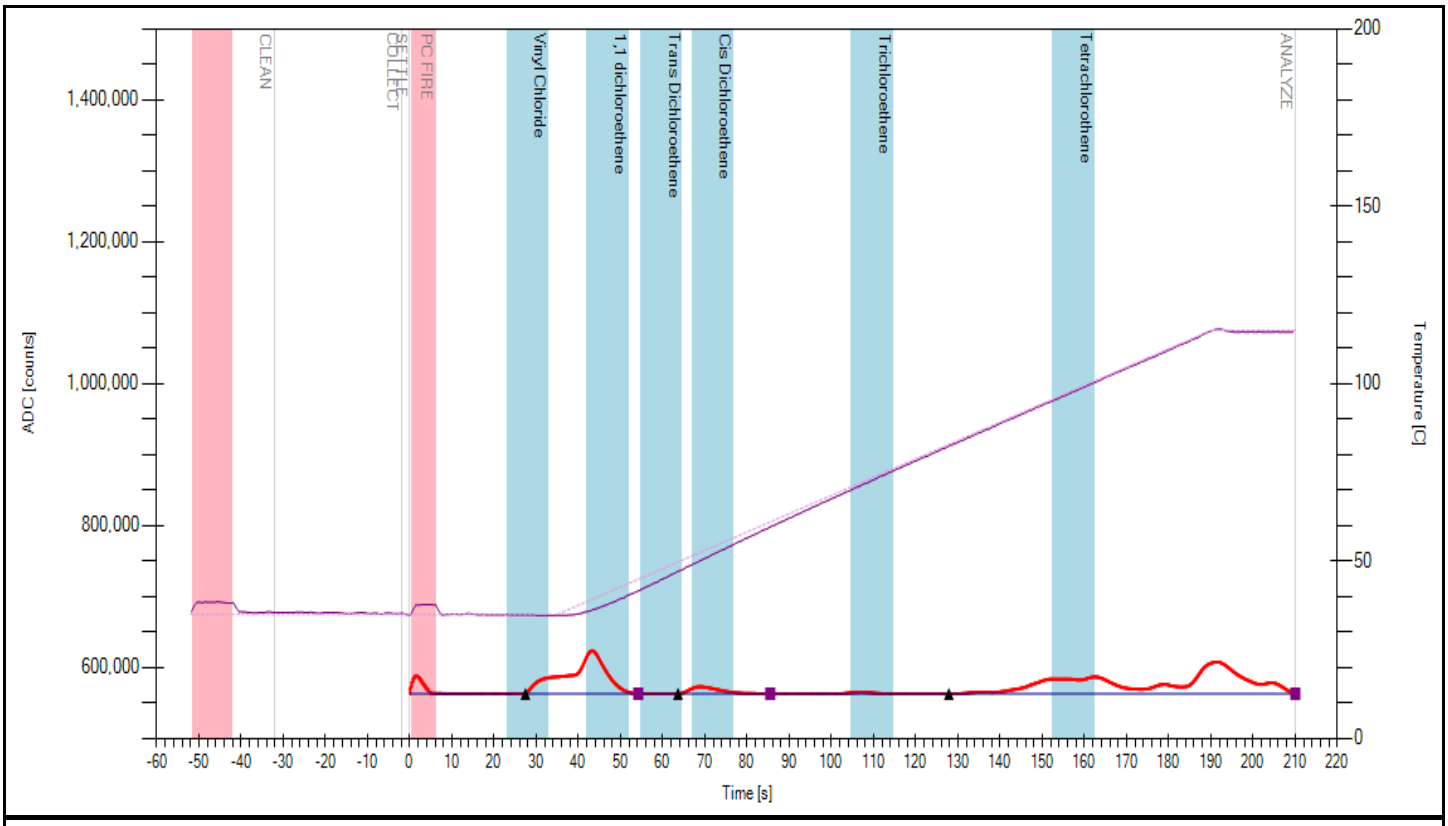
-	Blank	-	-	-	-	-



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APPENDIX C
CHAIN-OF-CUSTODY FORM

Client Name:	ESP Associates, Inc.
Address:	7011 Albert Pick Rd, Suite G Greensboro, NC 27409
Contact:	Ned Billington
Project Ref.:	6R22.309
Email:	nbillington@espassociates.com
Phone #:	336-420-5452
Collected by:	Sane

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	Matrix (S/W)	Sample ID	UVF	GC BTEX	Total Wt.	Tare Wt.	Sample Wt.
3/5/19		✓	S	B7-5, S2	✓		55.2	44.2	11.0
3/4/19				B7-2, S8			56.9	44.2	12.7
3/5/19				B8-1, S2			56.2	45.5	10.7
3/5/19				B8-2, S8			53.8	43.9	9.9
3/5/19				B8-3, S3			56.0	44.6	11.4
3/4/19				B10-1, S3			54.6	43.9	10.7
3/4/19				B10-2, S8			54.7	43.9	10.8
3/4/19				B10-3, S5			53.3	44.0	9.3
3/4/19				B10-4, S2			54.6	44.5	10.1
3/4/19				B21-1, S2			55.3	44.3	11.0
3/4/19				B21-2, S2			54.9	44.6	10.3
3/4/19		↓	↓	B21-3, S6	↓		54.0	43.6	10.4
3/4/19		✓	S	B7-1, S2		GC	56.9	44.7	12.2
3/4/19				B7-2, S6			57.0	44.8	12.2
3/4/19				B7-3, S2			56.9	44.4	12.5
3/5/19				B7-4, S5			58.0	44.5	13.5
3/5/19		↓	↓	B7-5, S2		↓	57.3	44.4	12.9

No Results for this set

Comments:

Relinquished by	Date/Time	Accepted by	Date/Time
[signature]	3/6/19	[signature]	3/12/19 12p
Relinquished by	Date/Time	Accepted by	Date/Time

RED Lab USE ONLY

17

Client Name:	ESP
Address:	Greensboro
Contact:	Ned Billington
Project Ref.:	GR22.309
Email:	
Phone #:	Onsite
Collected by:	Ned Billington

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	Matrix (S/W)	Sample ID	UVF	GC BTEX	Total Wt.	Tare Wt.	Sample Wt.
4/25/19		✓	S	B7-2A S6	✓		58.4	45.8	12.6
4/25/19		✓	S	B7-3A S5	✓		57.2	45.6	11.6
4/25/19		✓	S	B7-3A S9	✓		58.9	45.4	13.5
4/25/19		✓	S	B7-5A S5	✓		55.2	43.7	11.5
4/25/19		✓	S	B7-5A S8	✓		56.7	44.1	14.6

Comments:

Relinquished by	Date/Time	Accepted by	Date/Time
Ned Billington	4/29/19		4130
Relinquished by	Date/Time	Accepted by	Date/Time

RED Lab USE ONLY

5

Client Name:	ESP Assoc.
Address:	Greensboro
Contact:	Ned Billington
Project Ref.:	GR22,309
Email:	on file
Phone #:	
Collected by:	Ned Billington

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					
~~4/25/19~~	~~✓~~			~~✓~~	~~EDB~~	~~B7-1A S2~~ ~~B7-2A S6~~	51.0	44.3	6.7
4/25/19	✓			✓	EDB	B7-3A S5	50.2	43.8	6.4
4/25/19	✓			✓	EDB	B7-3A S9	50.8	44.8	6.0
4/25/19	✓			✓	EDB	B7-5A S5	51.4	44.3	7.1
4/25/19	✓			✓	EDB	B7-5A S8	56.9	44.1	12.8
4/25/19	✓			✓	EDB	B7-2A S6 *			
						* this one has 10 grams soil			

COMMENTS/REQUESTS:

TARGET GC/UVF ANALYTES: Chlorinated ~~Alkanes and Fuel Additives~~ Solvents

Relinquished by		Accepted by	Date/Time
[signature]	4/29/19	[signature]	4/1/19 9:00am
Relinquished by		Accepted by	Date/Time

RED Lab USE ONLY
B114 (5)
Ref. No 042519A

APPENDIX D
NCDEQ 2012 AND 2014 MEMORANDA

NORTH CAROLINA DIVISION OF WASTE MANAGEMENT
Dry Cleaning Solvent Cleanup Act (DSCA) Compliance Program
Initial Inspection Report
Date: 5/14/2012

Facility Identification
Crystal Cleaners & Laundry
Facility ID: 990001C
EPA Generator ID: CESQG
County/FIPS: Yadkin/197
DSCA Cleanup ID:

Facility Data
Crystal Cleaners & Laundry
724 State Street
Yadkinville NC 27055
Lat: 36.121207 **Long:** -80.660513
SIC: 7216 / Dry Cleaning Plants, Except Rugs
NAICS: 81232/ Dry Cleaning and Laundry Services (except Coin-Operated)
Date of Facility Establishment: 1/1/1984

Compliance Data
Inspection Date: 5/10/2012
Time In: 09:45 AM **Time Out:** 11:05 AM
Inspector(s): Pam Moore
Operating Status: OO/Operating
Compliance Codes: C/In Compliance (Overall)
Action Code: 10/Initial Inspection

Contact Data

Facility Contact	Facility Owner	Property Owner
Melinda Hoots 724 State St. Yadkinville, NC 27055 (336) 679-3151	Nolan Brown PO Box 969 Yadkinville, NC 27057	Nolan Brown PO Box 969 Yadkinville, NC 27057

Classification Data
Service Type: Full Service (Active)
Solvent: DF2000
System: Dry-to-Dry
Installation Date: 1/1/2001
Installation Category: N/A
Consumption Category: N/A
HW Generator Status: CESQG

Inspector's Signature: Pamela Moore

Date of Signature:

Comments

(I) DIRECTIONS: From the Peace Street lot, go west on Peace Street and take the ramp onto Capital Blvd North. Merge onto Wade Ave. Continue to follow Wade Ave which becomes I-40 W. Go about 62 miles on I-40 W. Keep right at exit 131 to take I-40 W toward Greensboro and go 38 miles. Take exit 188 for US-421 N toward Yadkinville/Wilkesboro and go about 20 miles. Take exit 257 for US-601 toward Yadkinville/Mocksville. Turn right onto US-601/S State St. The facility is on the left.

(II) FACILITY HISTORY: The facility was established in 1984 by Nolan Brown as a perc plant but changed to petroleum in 2001. Mr. Brown is the current owner. The facility is open from 6:00 a.m. to 6:00 p.m. Monday through Friday. The facility is stand alone and does not service any pickup stores.

Solvent History:

Solvent	Dates Used
Perchloroethylene	1984 to 2001
DF2000	2001 to present

Previous Inspections:

Date	Visit Type	Violation Types	Worst Violation(s)	Action Taken	Date Sent	Response Due	Received Date	Inspector
9/17/2008	Outreach Training Visit	MMP	Spill containment	CAL	9/17/2008	10/10/2008	10/10/2008	Jack Kitchen

Complaints: NA

DSCA Sampling: None

(III) FACILITY CLASSIFICATION: Because Crystal Cleaners uses a petroleum based dry cleaning machine there is no facility classification.

NEW STATIONARY PERFORMANCE STANDARDS (NSPS) CATEGORY: The dry cleaning machine was installed after December 14, 1982, but the facility's total drying capacity is less than 84 lbs.; therefore, Crystal Cleaners is not subject to NSPS Subpart JJJ regulations.

Dry Cleaning Equipment Summary

Mach No	Type of Machine	Gen	Manufacturer (Mfr)	Model #	Serial #	Mfr Date (year)	Install Date (year)	Solvent Used	Observed Operating?
1	Dry-to-Dry	non-perc	Union	HL 860	667F10359A	1/1/2001	1/1/2001	DF2000	yes

HAZARDOUS WASTE GENERATOR CATEGORY - CESQG: Crystal Cleaners & Laundry is classified as a Conditionally Exempt Small Quantity Generator because the facility generated less than 220 pounds of waste per month at the time of the inspection, and stores less than 2,200 pounds of hazardous waste on site.

(IV) INSPECTION SUMMARY: On May, 10, 2012, Pam Moore, Compliance Inspector, with the North Carolina Division of Waste Management, Dry Cleaning Solvent Cleanup Act (DSCA) Program conducted a Compliance Inspection at Crystal Cleaners & Laundry (picture 1). The inspector met with Mr. David Tickle, store financial manager, who provided the inspector access to the facility's equipment and available records. Ms. Melinda Hoots, facility manager, was away from the facility on business and the attendant called Mr. Tickle who came to the facility to meet with Ms. Moore.

The Union HL860 (60-lb. capacity) petroleum dry cleaning machine (picture 2) is equipped with secondary containment around and underneath the dry cleaning machine. The machine was observed in operation. Mr. Tickle said the machine is operated from about 7:00 a.m. to 10:30 a.m. Monday through Friday and processes an average of two loads per day. No perceptible leaks were observed by the inspector while the machine was in operation. Separator water is collected in a closed container (picture 3) located within the spill pan of the dry cleaning machine. Less than one gallon was in the container and Mr. Tickle said that the machine generates about one gallon of separator water per week. The separator water is drummed and disposed by a licensed waste hauler. When the inspector asked Mr. Tickle how often the solvent filters are changed on the dry cleaning machine, he told the inspector that Michael Sizemore is the maintenance person for the facility and that he takes care of filter changes. Mr. Tickle called Mr. Sizemore and was told some of the filters on the machine are changed weekly, some are changed monthly and some are changed semi-annually. Mr. Sizemore drains the filters more than 8 hours prior to removing and disposing in the waste drum. Solvent waste from the dry cleaning machine is plumbed directly to a waste drum (picture 4) located in spill containment adjacent to the dry cleaning machine. The waste drum was sealed and labeled. One empty 15-gallon waste drum was observed behind the dry cleaning machine. Several empty waste drums were stored in a locked shed behind the facility.

Two 55-gallon solvent drums were stored on site in spill containment (picture 5). One drum was full and one was about half full. Mr. Tickle stated that it is unusual for the facility to store solvent on site, and that they usually do not. He said it was likely due to an impending price increase and so extra solvent was purchased prior to the price increase. The spill containment unit housing the solvent drums is equipped with an expandable bladder. Solvent (DF2000) is purchased from N. S. Farrington Co.

The clothes press vacuum pump (picture 6) is located in the boiler room. The vacuum pump was installed in 2011 to replace the old vacuum pump. Pump condensate is collected in a container (picture 7) and disposed in the waste drum. No condensate was in the container, as the pump is drained at the end of the day. Less than one gallon of condensate is generated by the vacuum pump each week. During the outreach visit in 2008 the inspector stated pump condensate did not appear to be collected. This issue has been corrected.

The spotting table is located to the right of the dry cleaning machine and is equipped with a waste collection container. No waste was in the container. Mr. Tickle said the spotting table produces very little waste and that the container is periodically emptied into the waste drum.

Mr. Sizemore, the maintenance mechanic, keeps a log of solvent filter changes and any maintenance repairs conducted on the dry cleaning machine.

Waste manifests dating to 2006 were on site. A review of the manifests shows that Crystal Cleaners had 1,218 lbs. of solvent waste picked up from the facility from June 2011 to May 2012 for an average of 102 lbs. per month, categorizing the facility as a Conditionally Exempt Small Quantity Generator (CESQG). Crystal Cleaners contracts with Safety Kleen (EPA ID#TXR000050930) to haul their waste to the Safety Kleen facility in Cranston, R.I. Solvent purchase receipts were on site. The last solvent purchase was on May 7, 2012 for 55 gallons.

The operation and maintenance manuals for the dry cleaning machine were on site. An emergency information form was completed and posted directly above the telephone near the front of the facility. Emergency spill cleanup material (pig mats) was on site. The Material Safety Data Sheets (MSDS) for the solvent and spotting agents were in a binder at the front counter.

The following is a summary of Crystal Cleaners & Laundry compliance with respect to the DSCA Required Minimum Management Practices provided in 15A NCAC 02S.0202, National Emission Standards for Hazardous Air Pollutants (NESHAP) found in 40 CFR Part 63 Subpart M and Resource Conservation and Recovery Act (RCRA) referenced in 40 CFR part 261.5 and 262.

MMP VIOLATIONS - 15A NCAC 02S.0202

None

RCRA VIOLATIONS - Hazardous Waste Regulations: 40 CFR Part 262.34

None

(V) CONCLUSIONS: Based on observations documented by the DSCA Inspector during the 5/10/2012 inspection, Crystal Cleaners & Laundry is currently in compliance with the applicable regulations.

(VI) ENFORCEMENT HISTORY (NOVs, NREs, Penalties): None.

(VII) RECOMMENDATIONS: Because the facility was found to be in compliance, no response to the DSCA compliance checklist is required. The next inspection should be scheduled for May 2014.

Memo

To: File

From: Jack Kitchen

CC:

Date: 8/13/2014

Re: Crystal Cleaners 990001C (Decommissioned)

Crystal Cleaners & Laundry
724 State Street
Yadkinville NC 27055
Lat: 36.121207 **Long:** -80.660513

Property Owner:
Nolan Brown
PO Box 969
Yadkinville, NC 27057

Notes: Crystal Cleaners & Laundry was established in 1984 by Nolan Brown as a perc plant but changed to petroleum in 2001. The facility operated as a DF2000 / nonhazardous hydrocarbon solvent dry cleaner until 2014

On August 13, 2014, Jack Kitchen, Compliance Inspector, with the North Carolina Division of Waste Management, Dry Cleaning Solvent Cleanup Act (DSCA) conducted an onsite visit and confirmed that the business had closed and that no dry cleaning equipment or dry cleaning solvent waste remained on the property. The facility is now occupied by Foothills Firearms and Ammo since August 1, 2014. The new business is owned by Mr. Jeff Whitacre. On the day of the onsite visit, employee Ryan Hudson provided access to the facility.

Picture 1: Foothills Firearms and Ammo store previously Crystal Cleaners & Laundry

Picture 2: Interior of facility.