November 5, 2018



Mr. Cyrus Parker, L.G., P.E. Geotechnical Engineering Unit State of N.C. Department of Transportation – Division of Highways P.O. Box 25201 Raleigh, NC 27611-5201

RE: PRELIMINARY SITE ASSESSMENT OF PARCEL 051 – Revision 1 ESP Project No. CS34.366

| WBS: | 34839.1.8 |
|---------------------|--|
| TIP: | U-2579AB |
| County: | Forsyth |
| Description: | Winston-Salem - Northern Beltway Eastern Section (Future I-74) From I-40 to I-40 |
| | Business/US 421 |
| Parcel No.: | 051 |
| Owner: | Jerry M. Pegram |
| Address: | 4314 Kernersville Road, Winston-Salem, NC |
| | |

Dear Mr. Parker:

ESP Associates, Inc. (ESP) is pleased to submit this report on our Preliminary Site Assessment of the subject parcel. This work was performed in accordance with your Request for Proposal dated April 17, 2018 and our Cost Proposal dated May 3, 2018.

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/EDB/CJW



not considered Final unless all signatures are completed

ESP Associates, Inc. 7011 Albert Pick Road Suite E., Greensboro, NC 27409 phone 336.334.7724, fax 803.802.2515 www.espassociates.com

TABLE OF CONTENTS

| 1.0 | INTRODUCTION | 1 |
|-----|---------------------------|---|
| 2.0 | HISTORY | 1 |
| 3.0 | SITE OBSERVATIONS | 1 |
| 4.0 | METHODS | 1 |
| 4.1 | Geophysics | 1 |
| 4.2 | Borings | 1 |
| 4.3 | Soil Sample Protocol | 2 |
| 4.4 | Groundwater | 2 |
| 5.0 | RESULTS | 2 |
| 5.1 | Geophysics | 2 |
| 5.2 | Sample Data | 3 |
| 5.3 | Sample Observations | 3 |
| 6.0 | CONCLUSIONS | 3 |
| 6.1 | Interpretation of Results | 3 |
| 6.2 | Geophysics | 3 |
| 6.3 | Soil | 3 |
| 7.0 | RECOMMENDATIONS | 4 |
| 8.0 | LIMITATIONS | 4 |

TABLES

| Table 1 Son Sample PID Readings | Table 1 | Soil Sample PID Readings |
|---------------------------------|---------|--------------------------|
|---------------------------------|---------|--------------------------|

Table 2Soil Sample UVF Results Summary

FIGURES

| Figure 1 | Parcel 051, Site Vicinity Map |
|----------|---|
| Figure 2 | Parcel 051, Site Photographs |
| Figure 3 | Parcel 051, EM61 Early Time Gate Response |
| Figure 4 | Parcel 051, EM61 Differential Response |
| Figure 5 | Parcel 051, EM61 Early Time Gate Response on Plan Sheet |
| Figure 6 | Parcel 051, EM61 Differential Response on Plan Sheet |
| Figure 7 | Parcel 051, Soil Analytical Results on Plan Sheet |
| Figure 8 | Legend for Plan Sheet Figures |

TABLE OF CONTENTS (continued)

APPENDICES

Appendix A Soil Boring Logs

Appendix B RED Lab Laboratory Testing Report

Appendix C Chain-of-Custody Form

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 (Figure 1). The NCDOT requested that ESP Associates, Inc. (ESP) perform a Preliminary Site Assessment (PSA) of Parcel 051 within the proposed Right of Way (ROW) and/or easement to locate possible underground storage tanks (USTs), sample soil, and delineate potential contaminated soil.

2.0 HISTORY

This parcel is owned by Jerry M. Pegram and is currently occupied by an oil company, consignment shop, and storage facility. The facility is listed in the North Carolina Department of Environmental Quality's (NCDEQ's) UST Section Registry as an active facility with Facility ID #: 0-016313. One diesel UST and one propane aboveground storage tank (AST) are currently in use. There are no known groundwater or soil contamination incidents associated with this facility.

3.0 SITE OBSERVATIONS

During our May 2018 field work, the site was operating as an oil company, consignment shop, and storage facility (Figure 2). The ground in the study area was covered by asphalt, gravel, concrete, and grass.

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on May 22, 2018. We performed direct-push drilling and sampling of subsurface soils within the proposed easement on September 4, 2018. 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 easement of Parcel 051 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. The owner, Mr. Pegram, provided

permission for us to be on site. Mr. Pegram's geologist, Mr. Joseph Best, PG, was present during the drilling and split soil samples with us. Prior to drilling, ESP's utility locating crew marked the private utilities on Parcel 051.

Five borings were drilled, designated B51-1 through B51-5 (Figure 3). The soil borings were advanced using a GeoProbe 7822DT drill rig. Continuous soil samples were obtained to a depth of approximately ten feet using five-foot long Macro Cores®. All soil cores had a recovery of five 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 sunny area for at least 5 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID. The soil samples obtained had PID readings of less than 10 parts per million (ppm) (Table 1).

Soil samples selected for laboratory analysis were Sample S-9 (corresponding depth of 9.0-9.5 feet) from all borings. For each selected sample, 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 five borings drilled on the site.

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 one anomaly (response above background) that did not correspond to known site features.

GPR data were collected over the EM61 anomaly. 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, PAHs, and GRO were below the detection limits for all samples. DRO was detected in 1 of the 5 soil samples tested but below the NCDEQ action level of 100 ppm. The highest DRO reading was 0.9 ppm in Sample S-9 (9.0-9.5 feet) from Boring B51-2.

6.0 CONCLUSIONS

6.1 Interpretation of Results

The results of the PSA for Parcel 051 of NCDOT Project U-2579AB do not indicate the presence of abandoned USTs. No petroleum hydrocarbon soil contamination at or above NCDEQ action levels was detected within the proposed construction easement on Parcel 051.

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 proposed construction easement on Parcel 051 (Figure 7).

7.0 **RECOMMENDATIONS**

The known UST should be removed prior to property acquisition. Other than the known UST, no limitations on construction activities or special handling of excavated soil are recommended for Parcel 051.

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 1SOIL SAMPLE PID READINGS

| Boring | Sample Depth Range with PID > 10 ppm (feet bgs) | Maximum PID Reading (ppm) and Sample Depth (feet bgs) |
|--------|--|--|
| B51-1 | none | 0.6 (5.0-5.5) |
| B51-2 | none | 0.4 (5.0-5.5) |
| B51-3 | none | 0.4 (6.0-6.5) |
| B51-4 | none | 0.7 (8.0-8.5) |
| B51-5 | none | 0.8 (5.0-5.5) |

| 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) |
|--------|-------------------------------------|-------------------|----------------------------|----------------------------|-----------------------------|-----------------|
| B51-1 | S-9 (9.0-9.5) | 9/10/18 | <0.21 | <0.21 | <0.21 | < 0.07 |
| B51-2 | S-9 (9.0-9.5) | 9/10/18 | <0.5 | <0.5 | 0.9 | <0.16 |
| B51-3 | S-9 (9.0-9.5) | 9/10/18 | <0.54 | <0.54 | <0.54 | <0.17 |
| B51-4 | S-9 (9.0-9.5) | 9/10/18 | <0.56 | <0.56 | <0.56 | <0.18 |
| B51-5 | S-9 (9.0-9.5) | 9/10/18 | <0.64 | <0.64 | <0.64 | <0.2 |

TABLE 2SOIL SAMPLE UVF RESULTS SUMMARY

FIGURES



From: USGS US Topo 7.5 - minute map for WINSTON-SALEM EAST, NC Date: 2016, Scale: 1:24,000

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a. Photo from east side of site looking west.



c. Photo of propane AST looking south.



b. Photo from north side of site looking south.



d. Photo of marked known UST.

| PROJECT NO. CS34.366 | FIGURE 2 – PARCEL 051, J |
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| Hydro, Pool or Reservoir Proposed Cable Guiderail Image: Cable Guiderail < | Stream or Body of Water | Existing Cable Guiderail | <u> </u> | LIG Telephone Cable Hand Hole | . R | Utility Located Ob |
| Jurisdictional Stream JS Equality Symbol Image: Construction of the phone Cable LOS D (S.U.E.*) Image: Construction of the phone Cable | Hydro, Pool or Reservoir | Proposed Cable Guiderail | | UG Telephone Cable LOS B (SUE*) | | Utility Traffic Sian |
| Buffer Zone 1 Buffer Zone 1 Buffer Zone 1 Buffer Zone 1 Buffer Zone 2 Pavement Removal Buffer Zone 2 Flow Arrow Buffer Zone 2 Pavement Removal Buffer Zone 2 Flow Arrow Single Tree Grappearing Stream Grappearing Stream Flow Arrow Flow Arrow Flow Arrow Grappearing Stream Grappearing Stream </td <td>Jurisdictional Stream</td> <td>Equality Symbol</td> <td>•</td> <td></td> <td></td> <td>Utility Unknown l</td> | Jurisdictional Stream | Equality Symbol | • | | | Utility Unknown l |
| Buffer Zone 2 BZ 2 VEGETATION: UG Telephone Conduit LOS B (S.U.E.*) Underground Store Flow Arrow Single Tree Single Tree UG Telephone Conduit LOS D (S.U.E.*) AG Tank; Water, Spring Single Shrub a Hedge UG Telephone Conduit LOS D (S.U.E.*) Geoenvironmenta Wetland + Woods Line + Woods Line - - AG Tank; Water, Flase Sump Geoenvironmenta UG Fiber Optics Cable LOS D (S.U.E.*) - - Abandoned Accorr UG Fiber Optics Cable LOS D (S.U.E.*) - - - Abandoned Accorr | Buffer Zone 1BZ 2 2BZ 2 2AZ 2 2 | Pavement Removal | ***** | | r | U/G Tank: Water, |
| Flow Arrow Single Tree Single Tree Single Tree Single Tree Single Tree VG Telephone Conduit LOS B (S.U.E.*) A/G Tank; Water, Spring Single Shrub Single Shrub Single Tree VG Telephone Conduit LOS D (S.U.E.*) A/G Tank; Water, Wetland Hedge Woods Line Woods Line VG Telephone Conduit LOS D (S.U.E.*) SI.U.E.*) SI.U.E.*) UG Telephone Conduit LOS D (S.U.E.*) VG Telephone | Butter Zone 2BZ 2BZ 2 | VEGETATION: | | L/G Telephone Conduit LOS P (SULE *) | | Underground Stor |
| Single Shrub Single Shrub Image: Single Shrub <td< td=""><td>Flow Arrow</td><td>Single Tree</td><td>÷</td><td></td><td></td><td>A/G Tank: Water</td></td<> | Flow Arrow | Single Tree | ÷ | | | A/G Tank: Water |
| spring Wetland Hedge Woods Line UG Fiber Optics Cable LOS B (S.U.E.*) Image: Cooler (S.U.E.*) <t< td=""><td></td><td>Single Shrub</td><td>٥</td><td>LIG Telephone Conduit LOS C (S.U.E.*)</td><td>_</td><td>Geoenvironmenta</td></t<> | | Single Shrub | ٥ | LIG Telephone Conduit LOS C (S.U.E.*) | _ | Geoenvironmenta |
| weitiging * Woods Line * UG riber Optics Cable LOS B (S.U.E.*) * UG riber Optics Cable LOS B (S.U.E.*) * * Woods Line * * Woods Line * * * Woods Line * | spring O | Hedge | | | | U/G Test Hole I C |
| False Sump — U/G Fiber Optics Cable LOS D (S.U.E.*) — End of Information | | Woods Line | - <u></u> | | | Abandoned Accor |
| | rroposea Lateral, Iall, Head Ditch | | | | | End of Information |
| | raise sump — | | | | | |

| PROJECT NO. CS34.366 | FIGURE 8 |
|-------------------------|--|
| scale N/A | LEGEND FOR PLAN SHE |
| DATE 11/6/18 | U-2579AB, WINSTON SALEM – NORTHERN I |
| DMN | (FUTURE I-74) FROM I-40 TO I-40 FORSYTH COUNTY, NORTH |

| PRDJECT R | EFERENCE NO. SHEET NO. |
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| | A/G Rater |
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| le Hand Hole | 5 |
| e LOS B (S.U.E.*) | |
| le LOS C (S.U.E.*) | n |
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| pric Cable LOS C (S.U.E.*) | TY F0 |
| ptic Cable LOS D (S.U.E.*) | |
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| | ô |
| e LOS B (S.U.E.*) | × |
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| | |
| e LOS D (S.U.E. ⁻) | A/G Gas |
| nd Gas Line | |
| WER: | |
| er Manhole | |
| er Cleanout | æ |
| Sewer Line | <u>s</u> |
| nd Sanitary Sewer | A/G Sanitary Sever |
| ain line IOS B /SUE*\ | |
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| | Pss |
| ain Line LOS D (S.U.E.*) | |
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| 05: | |
| | • |
| vith Base | |
| d Object | o |
| Signal Box | ы |
| wn U/G Line LOS B (S.U.E.*) | |
| ater, Gas, Oil | |
| Storage Tank, Approx. Loc. | അം |
| ater, Gas, Oil | |
| enta Boring | |
| | • |
| e LOS A (S.U.E.*) | œ |
| According to Utility Records — | AATUR |
| nation | E.O.I. |
| | |

8 HEET FIGURES

RN BELTWAY EASTERN SECTION -40 BUSINESS/US421 RTH CAROLINA



7011 Albert Pick Rd., Suite E Greensboro, NC 27409

336.334.7724

www.espassociates.com

APPENDIX A SOIL BORING LOGS

| | FCP | | | FIE | | RING | | | BORING NO. |
|---|---------------|---------------------|-------------------------|--------------------|--------------------|------------------------------|--------------------------|-------------|----------------------|
| | | | | | | | | | |
| | IECT NAME: | SW of UST | DOT 0-2579. F | AD PSA | | PRC | DJ. NO.: <u>CS34.366</u> | | B21-1 |
| TYPE | OF BORING |): | Direct Pus | sh | DATE S | STARTED: 9/4/1 | 18 | SHEE | T: 1 of 1 |
| DRILI | ING FIRM: | | SAEDACC | 0 | DATE F | INISHED: 9/4/1 | 18 | TOTAL DEPTH | H: 10.0 ft |
| DRILI | LER: | | Brian Ewir | | SAMPLE | METHOD: 5' M | acro Core | | V: Dry ft |
| | | <u>.</u> | | | | | . Nance | | I |
| DEPTH (ft | SAMPLE NO. | SAMPLE DEPTH (fi | PID READING (ppm) | | F | FIELD CLASSIF PHYSICAL DE | ICATION AND | | REMARKS |
| | | | | 0.0-0.8 0.8-1.9 | Gravel Orange-b | prown sandy si | ilt w/ clay | | Core 1 Rec 5.0'/5.0' |
| | C 1 | 1015 | 0.6 | | 5 | , | , , | | |
| | 3-1 | 1.0-1.5 | 0.0 | | | | | | |
| - | | | | 1.9-10.0 | Orange-b | prown clayey s | ilt | | |
| 2 | S-2 | 2.0-2.5 | 0.4 | | | | | | |
| | | | | | | | | | |
| - | C 2 | 0.0.05 | 0.2 | | | | | | |
| _3 | 3-3 | 3.0-3.5 | 0.3 | | | | | | |
| · | | | | | | | | | |
| 4 | S-4 | 4.0-4.5 | 0.2 | | | | | | Core 2 Rec 5.0'/5.0' |
| · | | | | | | | | | |
| 5 | S-5 | 50-55 | 0.6 | | | | | | |
| | | 0.0 0.0 | | | | | | | |
| | | | | | | | | | |
| 6 | S-6 | 6.0-6.5 | 0.5 | | | | | | |
| | | | | | | | | | |
| 7 | S-7 | 7.0-7.5 | 0.4 | | | | | | |
| - · · · · · · · · · · · · · · · · · · · | | | | | | | | | |
| | | | | | | | | | |
| 8 | S-8 | 8.0-8.5 | 0.4 | | | | | | |
| | | | | | | | | | |
| 9 (| S-9 | 9.0-9.5 | 0.3 | | | | | | |
| | | | | | | | | | |
| · | | | | Constant and a | | | | | |
| 10 | | San | iple selected | | ry analysis | | | | |
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| 15 | | | | | | | | | |

| | FSP | | | FIELD BORING LOG | BORING NO. |
|---------------------------------------|---------------------------------|---------------------------------|-------------------------------------|--|---|
| PROJ LOCA | ECT NAME: | NCDOT U-2579AB PSA SW of UST | | AB PSA PROJ. NO.: CS34.366 | B51-2 |
| TYPE DRILL DRILL | OF BORING LING FIRM: LER: | : | Direct Pus SAEDACC Brian Ewin | h DATE STARTED: 9/4/18 SHEET: O DATE FINISHED: 9/4/18 TOTAL DEPTH: g SAMPLE METHOD: 5' Macro Core DEPTH TO GW: 2 DT LOGGED RY: D. Nappo COMMENT: | 1 of 1 10.0 ft Dry ft |
| DRILL £ | _ KIG. | E | ල ග | | |
| DEPTH (| SAMPLI NO. | SAMPLI DEPTH (| PID READIN (ppm) | FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION | REMARKS |
| | | | | 0.0-0.4 Gravel 0.4-5.5 Orange-brown sandy, clayey silt | Core 1 Rec 5.0'/5.0' |
| 1 | S-1 | 1.0-1.5 | 0.1 | | |
| 2 | S-2 | 2.0-2.5 | 0.1 | | |
| | | | | | |
| 3 | S-3 | 3.0-3.5 | 0.1 | | |
| | | | | | · |
| 4 | S-4 | 4.0-4.5 | 0.2 | | Core 2 Rec 5.0'/5.0' |
| • | | | | | |
| 5 | S-5 | 5.0-5.5 | 0.4 | 5.5-10.0 Orange-brown sandy silt | |
| | | | | | |
| 6 | S-6 | 6065 | 0.0 | | |
| _0 | 5-0 | 0.0-0.5 | 0.0 | | |
| • | - | | | | |
| _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 | | Samp | le selected | for laboratory analysis | |
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| | FSP | | | FIFLD BORING LOG | BORING NO. |
|---------------------------------|--|----------------------|--|--|---|
| PROJ LOCA | IECT NAME: | NCE NE of UST | OOT U-2579/ | B PSA PROJ. NO.: <u>CS34.366</u> | B51-3 |
| TYPE DRILL DRILL DRILL | OF BORING LING FIRM: LER: LRIG: | 6: G | Direct Pus SAEDACC Brian Ewin eoprobe 782 | DATE STARTED: 9/4/18 SHEET: D DATE FINISHED: 9/4/18 TOTAL DEPTH: g SAMPLE METHOD: 5' Macro Core DEPTH TO GW: 2 DT LOGGED BY: D. Nance COMMENT: | 1 of 1 10.0 ft Dry ft |
|)ЕРТН (ft) | SAMPLE NO. | SAMPLE DEPTH (ft) | PID READING (ppm) | FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION | REMARKS |
| | | | | 0.0-1.0 Asphalt 1.0-10.0 Orange-brown clayey silt | Core 1 Rec 5.0'/5.0' |
| 1 | S-1 | 1.0-1.5 | 0.2 | | |
| 2 | S-2 | 2.0-2.5 | 0.3 | | |
| _3 | S-3 | 3.0-3.5 | 0.3 | | |
| 4 | S-4 | 4.0-4.5 | 0.2 | | Core 2 Rec 5.0'/5.0' |
| _5 | S-5 | 5.0-5.5 | 0.3 | | |
| 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 | 0.2 | | |
| 9 (| S-9 | 9.0-9.5 | 0.1 | | |
| 10 | | Sam | le selected | for laboratory analysis | |
| | | | | | |
| 12 | | | | | |
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| | | | | | |
| _14 | | | | | |
| 15 | | | | | |

| | FSP | | | FIFI | D BORING LOG | | BORING NO. |
|------------------------|--------------------------------|----------------------|-------------------------------------|---------------------|---|--|-----------------------------|
| PROJ | IECT NAME: | NCDOT U-2579AB PSA | | AB PSA | PROJ. NO.: CS34.366 | | B51-4 |
| TYPE DRILL DRILL | OF BORING ING FIRM: LER: | Center of p | Direct Pus SAEDACC Brian Ewin | h :O ng | DATE STARTED: 9/4/18 DATE FINISHED: 9/4/18 SAMPLE METHOD: 5' Macro Core | SHEET: TOTAL DEPTH: DEPTH TO GW: | 1 of 1 10.0 ft Dry ft |
| DRILI | _ RIG: | G | Geoprobe 782 | 22 DT | LOGGED BY: D. Nance | COMMENT: | |
| DEPTH (ft) | SAMPLE NO. | SAMPLE DEPTH (ft) | PID READING (ppm) | | FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION | | REMARKS |
| n | | | | 0.0-0.6 0.6-10.0 | Asphalt Orange-brown sandy, clayey silt | | Core 1 Rec 5.0'/5.0' |
| _1 | S-1 | 1.0-1.5 | 0.6 | | | | |
| | | | | | | | |
| 2 | S-2 | 2.0-2.5 | 0.4 | | | | |
| | S-3 | 30-35 | 0.1 | | | | |
| <u> </u> | | 5.0-5.5 | 0.1 | | | | |
| 4 | S-4 | 4.0-4.5 | 0.1 | | | | Core 2 Rec 5.0'/5.0' |
| 5 | S-5 | 5.0-5.5 | 0.2 | | | | |
| 6 | S-6 | 6.0-6.5 | 0.3 | | | | |
| 7 | S-7 | 7.0-7.5 | 0.6 | | | | |
| 8 | S-8 | 8.0-8.5 | 0.7 | | | | |
| _9 (| S-9 | 9.0-9.5 | 0.6 | | | | |
| _10 | | Sam | ple selected | for laboratory | analysis | | |
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| Ň | FSP | | | FIFI | D BORIN | GLOG | | BORING NO. |
|---------------------------------|---|----------------------|---|---------------------|---|---|--|---|
| PRO. | IECT NAME: | NCE | DOT U-2579A | AB PSA | | PROJ. NO.: <u>CS34.366</u> | | B51-5 |
| TYPE DRILI DRILI DRILI | OF BORING LING FIRM: LER: RIG: | : G | Direct Pusl SAEDACC Brian Ewin eoprobe 782 | h O g 2 DT | DATE STARTED: DATE FINISHED: SAMPLE METHOD: LOGGED BY: | 9/4/18 9/4/18 5' Macro Core D. Nance | SHEET: TOTAL DEPTH: DEPTH TO GW: COMMENT: | 1 of 1 10.0 ft Dry ft |
| DEPTH (ft) | SAMPLE NO. | SAMPLE DEPTH (ft) | PID READING (ppm) | | FIELD CLA PHYSICA | ASSIFICATION AND AL DESCRIPTION | _ | REMARKS |
| - <u> </u> | | | | 0.0-1.2 1.2-10.0 | Asphalt Red-brown sandy, | silty clay | | Core 1 Rec 5.0'/5.0' |
| 1 | S-1 | 1.0-1.5 | 0.6 | | | | | |
| 2 | S-2 | 2.0-2.5 | 0.7 | | | | | |
| 3 | S-3 | 3.0-3.5 | 0.5 | | | | | |
| 4 | S-4 | 4.0-4.5 | 0.5 | | | | | Core 2 Rec 5.0'/5.0' |
| 5 | S-5 | 5.0-5.5 | 0.8 | | | | | |
| 6 | S-6 | 6.0-6.5 | 1.1 | | | | | |
| 7 | S-7 | 7.0-7.5 | 1.2 | | | | | |
| 8 | S-8 | 8.0-8.5 | 1.0 | | | | | |
| 9 (| S-9 | 9.0-9.5 | 0.6 | | | | | |
| <u>10</u> | | Sam | ple selected | for laboratory | y analysis | | | |
| 11 | | | | | | | | |
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APPENDIX B

RED LAB LABORATORY TESTING REPORT

| Q | ED | | | | | | | | | | | | QROS |
|---|---|---|--|---|--|--|---|---|--|--|-------------------------------------|------------------------------------|---|
| | | | | Hydroca | arbon An | alysis Re | esults | | | | | | |
| Client: Address: | ESP ASSOCIATES, INC. 7011 ALBERT PICK ROAD SUITE E GREENSBORO NC 27409 | | | | | | | | Sa Sample Sampl | mples es exti es ana | taken acted alysed | | Monday, September 10, 2018 Monday, September 10, 2018 Wednesday, September 12, 2018 |
| Contact: | DILLON NANCE | | | | | | | | | Ор | erator | | NICK HENDRIX |
| Project: | U-2579 AB | | | | | | | | | | | | |
| | | _ | | | | | Total | | | | | | U00904 |
| Matrix | Sample ID | Dilution used | BTEX (C6 - C9) | GRO (C5 - C10) | DRO (C10 - C35) | TPH (C5 - C35) | Aromatics | 16 EPA PAHs | BaP | (| % Ratios | 6 | HC Fingerprint Match |
| | | | | | | | (010-033) | | | C5 - C10 | C10 - C18 | C18 | |
| S | B51-5 (S-9) | 25.5 | <0.64 | <0.64 | <0.64 | <0.64 | <0.13 | <0.2 | <0.025 | 0 | 0 | 0 | PHC not detected |
| S | B51-4 (S-9) | 22.2 | <0.56 | <0.56 | <0.56 | <0.56 | <0.11 | <0.18 | <0.022 | 0 | 0 | 0 | PHC not detected |
| S | B51-3 (S-9) | 21.4 | <0.54 | <0.54 | <0.54 | <0.54 | <0.11 | <0.17 | <0.021 | 0 | 0 | 0 | PHC not detected,(BO) |
| S | B51-2 (S-9) | 20.0 | <0.5 | <0.5 | 0.9 | 0.9 | <0.1 | <0.16 | <0.02 | 0 | 100 | 0 | Deg.Fuel 51%,(FCM) |
| S | B51-1 (S-9) | 8.2 | <0.21 | <0.21 | <0.21 | <0.21 | <0.04 | <0.07 | <0.008 | 0 | 0 | 100 | ,(FCM),(BO),(P) |
| | | | | | | | | | | | | | |
| | Initial | Calibrator | QC check | OK | | | | | Final FC | CM QC | Check | OK | 96.4 % |
| Concentratic Abbreviation B = Blank D % Ratios est | on values in mg/kg for soil samples and m ns :- FCM = Results calculated using Func rift : (SBS)/(LBS) = Site Specific or Library timated aromatic carbon number proportio | g/L for water sa lamental Calib Background S ns : HC = Hyd | amples. Soil ration Mode Subtraction a rocarbon : P | values uncor : % = confide pplied to resu HC = Petrole | rected for moi nce of hydroc ilt : (BO) = Ba um HC : FP = | sture or stone arbon identific ckground Orga Fingerprint or | content. Finge ation : (PFM) = anics detected hly. Data | erprints prov = Poor Finge : (OCR) = 0 generated b | ide a tentativ erprint Match Dutside cal ra by HC-1 Ana | ve hydro n : (T) = ⁻ ange : (N allyser | carbon id Turbid : (/) = Mod | dentifica (P) = Pa lifed Res | tion. rticulate detected sult. |

APPENDIX C CHAIN-OF-CUSTODY FORM

| Client Name: | ESP Associates, FAC |
|---------------|--|
| Address: | FOILAIbert Pick Raisie E Greensland, NC 27409 |
| Contact: | Dillon Nonce |
| Project Ref.: | 12-2579AB |
| Email: | d.nance@espassicites.com |
| Phone #: | 336-404-3117 |
| Collected by: | D. Nance |



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 | TAT Rec | quested | Matrix | | Sample ID | | UVF | GC BTEX | Total Wt. | Tare Wt. | Sample Wt. |
|-------------------|-----------|-----------------|--------|-----------|-----------|-------------|---------|-----------|-----------|--------------|------------|
| Date/Time | 24 Hour | 48 Hour | (S/W) | | Sumpre 15 | | | | 11.0 | 242 | |
| 9/10/18 | | V | 5 | B36-5 | 5-7 | | V | | 50.5 | 74.2 | 0.7 |
| 1 | | 1 | ľ | B36-4 | 5-9 | | 1 | | 50.5 | 44. | 6.4 |
| | | | | B36-3 | 5-9 | | | | 53.0 | 94.1 | 8.7 |
| | | | | R36-2 | 5-9 | | | | 48.4 | 44.0 | 4.4 |
| | | | | B36-1 | 5-9 | | | | 50,4 | 44.3 | 61 |
| | | | | R60-4 | 5-18 | | | | 51.2 | 44.3 | 6.9 |
| | | | | R60-3 | 5-7 | | | | 51.7 | 44.4 | 7.3 |
| | | | | 660-2 | 5-8 | | | | 49.6 | 44.3 | 5.3 |
| | | | | B60-1 | 5-10 | | | | 51.2 | 44.5 | 6.7 |
| | | | | B575-5 | 5-8 | | | | 50,5 | 44.3 | 6.2 |
| | | | | B50-4 | 5-10 | | | | 49.3 | 44.0 | 5.3 |
| | | | | RED-3 | 6-9 | | | | 46.0 | 44.0 | 2.6 |
| | | | | 850-7 | 9-9 | | | | 50.7 | 44.2 | 6.5 |
| | | | | R50-1 | 5-9 | | | | 49.9 | 43.9 | 6.0 |
| | | | | 251-5 | 6.9 | | | | 49.5 | 44.0 | 5,5 |
| | | | | 251-4 | 5-9 | | | | 50.3 | 44.0 | 6.3 |
| | | | | 251-3 | 6-9 | | | | 47.1 | 44.3 | 2.8 |
| | | 1 | 1 | 061-7- | 5-9 | | | | 48.2 | 44.2 | 40 |
| | | | | 061-1 | 5-9 | | | | 53.7 | 44.0 | 97 |
| | | | | DZI | | | 0 | | | | |
| Comments: | ost sa | moles u | nderwa | raht. C | soil mat | in cole | sentati | 2 | R | ED Lab USE | ONLY |
| comments. | cled - | dated | sutts | la cae la | noff ted | OHA | 12) | | | | |
| Relina | uished by | In the set of a | Date | e/Time | | Accepted by | -li | Date/Time | 1 | \sum | |
| Dialar | 1.1.1 | | 9/10/ | 18 16:00 | | N | - 9/1 | 11,22 | 1 | (1α) | |
| Relina | uished by | | Date | e/Time | | Accepted by | 1. | Date/Time |] | (1) | |
| | , | | | - | | | | | | \smile | |

November 5, 2018



Mr. Cyrus Parker, L.G., P.E. Geotechnical Engineering Unit State of N.C. Department of Transportation – Division of Highways P.O. Box 25201 Raleigh, NC 27611-5201

RE: PRELIMINARY SITE ASSESSMENT OF PARCEL 054 – Revision 1 ESP Project No. CS34.366

| WBS: | 34839.1.8 |
|---------------------|--|
| TIP: | U-2579AB |
| County: | Forsyth |
| Description: | Winston-Salem - Northern Beltway Eastern Section (Future I-74) From I-40 to I-40 |
| | Business/US 421 |
| Parcel No.: | 054 |
| Owner: | George Nick Angle |
| Address: | 4341-53 Kernersville Road Winston-Salem, NC |
| | |

Dear Mr. Parker:

ESP Associates, Inc. (ESP) is pleased to submit this report on our Preliminary Site Assessment of the subject parcel. This work was performed in accordance with your Request for Proposal dated April 17, 2018 and our Cost Proposal dated May 3, 2018.

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/EDB/CJW



not considered Final unless all signatures are completed

7011 Albert Pick Road, Suite E, Greensboro, NC 27409 1.800.960.7317 · NC: 336.334.7724 www.espassociates.com

TABLE OF CONTENTS

| 1.0 | INTRODUCTION | 1 |
|-----|---------------------------|---|
| 2.0 | HISTORY | 1 |
| 3.0 | SITE OBSERVATIONS | 1 |
| 4.0 | METHODS | 1 |
| 4.1 | Geophysics | 1 |
| 4.2 | Borings | 1 |
| 4.3 | Soil Sample Protocol | 2 |
| 4.4 | Groundwater | 2 |
| 5.0 | RESULTS | 2 |
| 5.1 | Geophysics | 2 |
| 5.2 | Sample Data | 3 |
| 5.3 | Sample Observations | 3 |
| 6.0 | CONCLUSIONS | 3 |
| 6.1 | Interpretation of Results | 3 |
| 6.2 | Geophysics | 3 |
| 6.3 | Soil | 3 |
| 7.0 | RECOMMENDATIONS | 4 |
| 8.0 | LIMITATIONS | 4 |

TABLES

| Table 1 | Soil Sample PID Readings |
|---------|--------------------------|
|---------|--------------------------|

Table 2Soil Sample UVF Results Summary

FIGURES

| Figure 1 | Parcel 054, Site Vicinity Map |
|---------------------|---|
| Figure 2 | Parcel 054, Site Photographs |
| Figure 3 | Parcel 054, EM61 Early Time Gate Response |
| Figure 4 | Parcel 054, EM61 Differential Response |
| Figure 5 | Parcel 054, EM61 Early Time Gate Response on Plan Sheet |
| Figure 6 | Parcel 054, EM61 Differential Response on Plan Sheet |
| T ' 7 | |

- Figure 7 Parcel 054, Soil Analytical Results on Plan Sheet
- Figure 8 Legend for Plan Sheet Figures

TABLE OF CONTENTS (continued)

APPENDICES

Appendix A Soil Boring Logs

Appendix B RED Lab Laboratory Testing Report

Appendix C Chain-of-Custody Form

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 (Figure 1). The NCDOT requested that ESP Associates, Inc. (ESP) perform a Preliminary Site Assessment (PSA) of Parcel 054 within the proposed Right of Way (ROW) and/or easement to locate possible underground storage tanks (USTs), sample soil, and delineate potential contaminated soil.

2.0 HISTORY

This parcel is owned by George Nick Angle and is currently occupied by several active businesses. The facility is listed in the North Carolina Department of Environmental Quality's (NCDEQ's) UST Section Registry with Facility ID #: 0-016068 and was assigned Ground Water Incident #: 14721. Three USTs were removed from the parcel in 1994 and the site's UST release incident was reportedly closed out in 2006. Two monitoring wells are on site and appear to be active but are locked with padlocks; therefore, ESP was unable to sample these wells (Figure 3).

3.0 SITE OBSERVATIONS

During our May 2018 field work, the site was operating as several active businesses (Figure 2). The ground in the study area was covered by asphalt, concrete, and grass.

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on May 24, 2018. We performed direct-push drilling and sampling of subsurface soils within the proposed easement on September 6, 2018. 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).

4.2 Borings

ESP performed direct-push drilling activities within the easement of Parcel 054 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Five borings were drilled, designated B54-1 through B54-5 (Figure 3). The soil borings were advanced using a GeoProbe 7822DT drill rig. Continuous soil samples were obtained to a depth of approximately ten feet using five-foot long Macro Cores®. Soil cores had a recovery of three to five 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 sunny area for at least 5 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID. All of the soil samples obtained had a PID reading of less than 10 parts per million (ppm).

Soil samples selected for laboratory analysis were Sample S-9 (corresponding depth of 9.0-9.5 feet) from each of Borings B54-1, B54-3, and B54-5; Sample S-8 (8.0-8.5 feet) from Boring B54-2; Sample S-7 (7.0-7.5 feet) from Boring B54-4. For each selected sample, 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 five borings drilled on the site.

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 did not indicate any anomalies (response above background) that did not correspond to known site features.

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, PAHs, and GRO were below the detection limits for all samples. DRO was detected in 2 of the 5 soil samples tested but below the NCDEQ action level of 100 ppm. The highest DRO reading was 10 ppm in Sample S-9 (9.0-9.5 feet) from Boring B54-3.

6.0 CONCLUSIONS

6.1 Interpretation of Results

The results of the PSA for Parcel 054 of NCDOT Project U-2579AB do not indicate the presence of abandoned USTs. No petroleum hydrocarbon soil contamination at or above NCDEQ action levels was detected within the proposed construction easement on Parcel 054.

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 proposed construction easement on Parcel 054 (Figure 7).

7.0 **RECOMMENDATIONS**

No limitations on construction activities or special handling of excavated soil are recommended for Parcel 054.

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 1SOIL SAMPLE PID READINGS

| Boring | Sample Depth Range with PID > 10 ppm (feet bgs) | Maximum PID Reading (ppm) and Sample Depth (feet bgs) |
|--------|--|--|
| B54-1 | none | 1.3 (5.0-5.5) |
| B54-2 | none | 1.0 (8.0-8.5) |
| B54-3 | none | 2.1 (9.0-9.5) |
| B54-4 | none | 1.1 (5.0-5.5) |
| B54-5 | none | 1.6 (1.0-1.5) |

| 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) |
|--------|-------------------------------------|-------------------|----------------------------|----------------------------|-----------------------------|-----------------|
| B54-1 | S-9 (9.0-9.5) | 9/10/18 | <0.51 | <0.51 | <0.51 | <0.16 |
| B54-2 | S-8 (8.0-8.5) | 9/10/18 | <0.45 | <0.45 | 1.3 | <0.15 |
| B54-3 | S-9 (9.0-9.5) | 9/10/18 | < 0.82 | < 0.82 | 10 | <0.26 |
| B54-4 | S-7 (7.0-7.5) | 9/10/18 | <0.64 | <0.64 | <0.64 | <0.2 |
| B54-5 | S-9 (9.0-9.5) | 9/10/18 | <0.29 | <0.29 | <0.29 | <0.09 |

TABLE 2SOIL SAMPLE UVF RESULTS SUMMARY

FIGURES



From: USGS US Topo 7.5 - minute map for WINSTON-SALEM EAST, NC Date: 2016, Scale: 1:24,000

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a. Photo from northeast side of site looking southwest.



c. Photo from northwest side of site looking southeast.



b. Photo from east side of site looking west.



d. Photo from southwest side of site looking northeast.

| PROJECT NO. CS34.366 | FIGURE 2 – PARCEL 054, | |
|-------------------------|---|--|
| AS SHOWN | SITE PHOTOG | |
| DATE 11/6/18 | U-2579AB, WINSTON SALEM – NORTHE | |
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| CS34.366 | FIGURE 5 – PARCEL 054, C | | |
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| SCALE AS SHOWN | EM61 EARLY TIME GATE RES | | |
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| PROJECT NO. CS34.366 | FIGURE 6- PARCEL 054, | | |
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| PROJECT NO. CS34.366 | FIGURE 7 – PARCEL 054, G | |
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| Flow Arrow Single Tree Single Tree Single Tree Single Tree Single Tree VG Telephone Conduit LOS B (S.U.E.*) A/G Tank; Water, Spring Single Shrub Single Shrub Single Tree VG Telephone Conduit LOS D (S.U.E.*) A/G Tank; Water, Wetland Hedge Woods Line Woods Line VG Telephone Conduit LOS D (S.U.E.*) SI.U.E.*) SI.U.E.*) UG Telephone Conduit LOS D (S.U.E.*) VG Telephone | Butter Zone 2BZ 2BZ 2 | VEGETATION: | | L/G Telephone Conduit LOS P (SULE *) | | Underground Stor |
| Single Shrub Single Shrub Image: Single Shrub <td< td=""><td>Flow Arrow</td><td>Single Tree</td><td>÷</td><td></td><td></td><td>A/G Tank: Water</td></td<> | Flow Arrow | Single Tree | ÷ | | | A/G Tank: Water |
| spring Wetland Hedge Woods Line UG Fiber Optics Cable LOS B (S.U.E.*) Image: Cooler (S.U.E.*) <t< td=""><td></td><td>Single Shrub</td><td>٥</td><td>LIG Telephone Conduit LOS C (S.U.E.*)</td><td>_</td><td>Geoenvironmenta</td></t<> | | Single Shrub | ٥ | LIG Telephone Conduit LOS C (S.U.E.*) | _ | Geoenvironmenta |
| weitiging * Woods Line * UG riber Optics Cable LOS B (S.U.E.*) * UG riber Optics Cable LOS B (S.U.E.*) * * Woods Line * * Woods Line * * * Woods Line * | spring O | Hedge | | | | U/G Test Hole I C |
| False Sump — U/G Fiber Optics Cable LOS D (S.U.E.*) — End of Information | | Woods Line | - <u></u> | | | Abandoned Accor |
| | rroposea Lateral, Iall, Head Ditch | | | | | End of Information |
| | raise sump — | | | | | |

| PROJECT NO. CS34.366 | FIGURE 8 | |
|-------------------------|--|--|
| scale N/A | LEGEND FOR PLAN SHE | |
| DATE 11/6/18 | U-2579AB, WINSTON SALEM – NORTHER | |
| DMN | (FUTURE I-74) FROM I-40 TO I-40 FORSYTH COUNTY, NORTH | |

| PRDJECT R | EFERENCE NO. SHEET NO. |
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| | A/G Rater |
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| le Hand Hole | 5 |
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| e LOS D (S.U.E. ⁻) | A/G Gas |
| nd Gas Line | |
| WER: | |
| er Manhole | |
| er Cleanout | æ |
| Sewer Line | <u>s</u> |
| nd Sanitary Sewer | A/G Sanitary Sever |
| ain line IOS B /SUE*\ | |
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| ain Line LOS D (S.U.E.*) | |
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| vith Base | |
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| Signal Box | ы |
| wn U/G Line LOS B (S.U.E.*) | |
| ater, Gas, Oil | |
| Storage Tank, Approx. Loc. | അം |
| ater, Gas, Oil | |
| enta Boring | |
| | • |
| e LOS A (S.U.E.*) | œ |
| According to Utility Records — | AATUR |
| nation | E.O.I. |
| | |

8 HEET FIGURES

RN BELTWAY EASTERN SECTION -40 BUSINESS/US421 RTH CAROLINA



7011 Albert Pick Rd., Suite E Greensboro, NC 27409

336.334.7724

www.espassociates.com

APPENDIX A SOIL BORING LOGS

| | FSP | | | FIFI | DB | ORING | | | BORING NO. |
|------------|--------------|---------------------|------------------------|----------------|----------|------------------------------|--------------------------|-------------|----------------------|
| | | | | | | | | | |
| PROJ | | | of site grass | AD POA | ilhoves | PRC | J. NO.: <u>CS34.366</u> | <u> </u> | B54-1 |
| TYPE | OF BORING | | Direct Pus | h | DATE | STARTED: 9/6/1 | 18 | SHEET | : 1 of 1 |
| DRILI | _ING FIRM: | | SAEDACC | 0 | DATE | FINISHED: 9/6/1 | 18 | TOTAL DEPTH | : 10.0 ft |
| DRILI | _ER: | | Brian Ewin | ng | SAMPL | E METHOD: 5' Ma | acro Core | DEPTH TO GW | : Dry ft |
| DRILI | _ RIG: | G | eoprobe 782 | 22 DT | L | OGGED BY: D. | . Nance | COMMENT | |
| EPTH (ft) | AMPLE NO. | SAMPLE EPTH (ft) | PID EADING (ppm) | | | FIELD CLASSIF PHYSICAL DE | ICATION AND SCRIPTION | | REMARKS |
| | 0) | 0 0 | ₩ | 0.0-0.2 | Topsoil | | | | Core 1 Rec 5 0'/5 0' |
| • | | | | 0.2-10.0 | Orange | e-brown sandy, c | clayey silt | | |
| 1 | S-1 | 1015 | 0.6 | | | | | | |
| _ ' | 0 1 | 1.0-1.0 | 0.0 | | | | | | |
| • | | | | | | | | | |
| 2 | S-2 | 2.0-2.5 | 0.2 | | | | | | |
| | | | | | | | | | |
| • | | | | | | | | | |
| _3 | S-3 | 3.0-3.5 | 0.4 | | | | | | |
| | | | | | | | | | |
| · | S-4 | 40-45 | 0.4 | | | | | | Core 2 Rec 5.0'/5.0' |
| _4 | | 4.0-4.3 | 0.1 | | | | | | |
| | | | | | | | | | |
| 5 | S-5 | 5.0-5.5 | 1.3 | | | | | | |
| | | | | | | | | | |
| - | | | | | | | | | |
| 6 | S-6 | 6.0-6.5 | 0.4 | | | | | | _ |
| - | | | | | | | | | |
| 7 | S-7 | 7075 | 0.6 | | | | | | |
| _ / | 0-1 | 7.0-7.5 | 0.0 | | | | | | = |
| | | | | | | | | | |
| 8 | S-8 | 8.0-8.5 | 0.3 | | | | | | |
| - | | | | | | | | | |
| | h | | | | | | | | |
| 9 (| S-9 | 9.0-9.5 | 0.4 | | | | | | _ |
| - | | | | | | | | | |
| 10 | | Sam | ple selected | for laboratory | analysis |] | | | |
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| FSP FIELD BORING LOG | BORING NO. |
|---|--|
| PROJECT NAME: NCDOT U-2579AB PSA PROJ. NO.: CS34.366 E | 354-2 |
| TYPE OF BORING: Direct Push DATE STARTED: 9/6/18 SHEET: DRILLING FIRM: SAEDACCO DATE FINISHED: 9/6/18 TOTAL DEPTH: 1 DRILLER: Brian Ewing SAMPLE METHOD: 5' Macro Core DEPTH TO GW: D DRILL RIG: Geoprope 7822 DT LOGGED BY: D Nance COMMENT: | 1 of 1 0.0 ft Dry ft |
| | |
| H) H) H) H) H) H) H) H) | REMARKS |
| 0.0-0.3 Asphalt O 0.3-8.6 Orange-brown sandy silt 0 | Core 1 Rec 5.0'/5.0' |
| 1 S-1 1.0-1.5 0.6 | |
| 2 S-2 2.0-2.5 0.6 | |
| | |
| <u>3</u> S-3 <u>3.0-3.5</u> 0.5 | |
| | |
| 4 S-4 4.0-4.5 0.6 00 | Core 2 Rec 4.0'/5.0' |
| 5 S-5 5.0-5.5 0.7 | |
| | |
| 6 S-6 6.0-6.5 0.5 | |
| | |
| 7 S-7 7.0-7.5 0.5 | |
| | |
| 8 S-8 8.0-8.5 1.0 8.6-9.0 White-tan silty sand | |
| | |
| 9 Sample selected for laboratory analysis | |
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| | FSP | | | FIEL | DB | ORIN | G LOG | | | BORING NO. |
|------------|---------------|----------------------|-------------------------|----------------|--------------------|------------------------|----------------------|-----------|-------------|----------------------|
| PROJ | IECT NAME: | NCE | DOT U-2579/ | AB PSA | | | PROJ. NO.: <u>CS</u> | \$34.366 | | B54-3 |
| TYPE | OF BORING | East side of | Direct Pus | h | DATE | STARTED: 9 | 9/6/18 | | SHEE | Γ: 1 of 1 |
| DRILL | LING FIRM: | <u> </u> | SAEDACC | 0 | DATE | FINISHED: | 9/6/18 | | TOTAL DEPTH | H: 10.0 ft |
| DRILI | _ER: | | Brian Ewin | g | SAMPLE | E METHOD: | 5' Macro Core | | DEPTH TO GW | /: Dry ft |
| DRILI | _ RIG: | G | eoprobe 782 | 2 DT | L(| OGGED BY: | D. Nance | | | Г: |
| DEPTH (ft) | SAMPLE NO. | SAMPLE DEPTH (ft) | PID READING (ppm) | | | FIELD CLAS PHYSICAL | SSIFICATION A | AND PN | | REMARKS |
| • | | | | 0.0-0.3 | Asphalt Brown t | o grav siltv s | sand | | | Core 1 Rec 5.0'/5.0' |
| | 0 / | | | | | | | | | |
| _1 | S-1 | 1.0-1.5 | 0.7 | | | | | | | |
| | | | | | | | | | | |
| 2 | S-2 | 2.0-2.5 | 0.7 | | | | | | | |
| | | 210 210 | | | | | | | | |
| | | | | | | | | | | |
| 3 | S-3 | 3.0-3.5 | 0.9 | | | | | | | |
| | | | | | | | | | | |
| · | 0.4 | | 0.7 | | | | | | | |
| _4 | 5-4 | 4.0-4.5 | 0.7 | | | | | | | Core 2 Rec 4.075.0 |
| - | | | | | | | | | | |
| 5 | S-5 | 5.0-5.5 | 0.5 | | | | | | | |
| - Ŭ | | | | | | | | | | |
| | | | | | | | | | | |
| 6 | S-6 | 6.0-6.5 | 0.5 | | | | | | | |
| | | | | | | | | | | |
| | 0 7 | | | | | | | | | |
| _ / | 5-7 | 7.0-7.5 | 0.3 | | | | | | | |
| | | | | | | | | | | |
| 8 | S-8 | 8.0-8.5 | 0.5 | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 9 (| S-9 | 9.0-9.5 | 2.1 | | | | | | | |
| | | | | | | | | | | |
| 40 | | Sam | ple selected | for laboratory | analysis | | | | | |
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| | FSP | | | FIELD BORING LOG | BORING NO. |
|---|---------------|---------------------|-------------------------|---|----------------------|
| PROJ LOCA | IECT NAME: | NCE East side of | OOT U-2579 | AB PSA PROJ. NO.: CS34.366 | B54-4 |
| | OF BORING | : | Direct Pus | DATE STARTED: 9/6/18 SHEET | 1 of 1 |
| DRILL | ER: | | Brian Ewin | g SAMPLE METHOD: 5' Macro Core DEPTH TO GW | Dry ft |
| DRILL | _ RIG: | G | eoprobe 782 | 2 DT LOGGED BY: D. Nance COMMENT | |
| DEPTH (ft | SAMPLE NO. | SAMPLE DEPTH (ft | PID READING (ppm) | FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION | REMARKS |
| | | | | 0.0-0.3 Asphalt 0.3-10.0 Brown to gray silty sand w/ rock frags | Core 1 Rec 5.0'/5.0' |
| 1 | S-1 | 1.0-1.5 | 0.6 | | |
| 2 | S-2 | 2.0-2.5 | 0.7 | | |
| 3 | S-3 | 3.0-3.5 | 0.9 | | |
| 4 | S-4 | 4.0-4.5 | 0.7 | | Core 2 Rec 3.0'/5.0' |
| • | | | | | |
| 5 | S-5 | 5.0-5.5 | 1.1 | | |
| • | | | | | |
| _6 | S-6 | 6.0-6.5 | 1.0 | | |
| • | | | | | |
| 7 (| S-7 | 7.0-7.5 | 0.6 | | Refusal at 8.0' |
| • | | | | | |
| 8 | | Samp | le selected | or laboratory analysis | |
| a | | | | | |
| 9 | | | | | |
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| | FSP | | | FIFI | DR | | OG | | BORING NO. |
|------------|---------------|----------------------|-------------------------|---------------------|------------------|-----------------------------------|-----------------------|--------------|----------------------|
| | | | | | .00 | | | | |
| PRO | IECT NAME: | | Sedge Gard | AD POA | of building | PROJ. | NO.: <u>CS34.366</u> | | B54-5 |
| TYPE | OF BORING | | Direct Pus | h | DATE | STARTED: 9/6/18 | | SHEET | 1 of 1 |
| DRILI | _ING FIRM: | | SAEDACC | 0 | DATE | FINISHED: 9/6/18 | | TOTAL DEPTH: | 10.0 ft |
| DRILI | _ER: | | Brian Ewin | ng | SAMPL | E METHOD: 5' Macro | o Core | DEPTH TO GW | Dry ft |
| DRILI | _ RIG: | G | eoprobe 782 | 22 DT | _ L | OGGED BY: D. Na | ance | COMMENT | |
| DEPTH (ft) | SAMPLE NO. | SAMPLE DEPTH (ft) | PID READING (ppm) | | | FIELD CLASSIFICA PHYSICAL DESC | ATION AND CRIPTION | | REMARKS |
| | | | | 0.0-0.1 0.3-10.0 | Topsoil Brown | to gray silty sand | | | Core 1 Rec 3.5'/5.0' |
| - | Q 1 | 4045 | 1.6 | 0175 | Brown | to grav sandy silt | | | |
| _1 | 5-1 | 1.0-1.5 | 1.0 | 0.1-7.5 | DIOWII | to gray saridy sill | | | |
| - | | | | | | | | | |
| 2 | S-2 | 2.0-2.5 | 1.1 | | | | | | |
| <u> </u> | | | | | | | | | |
| : | | | | | | | | | |
| _3 | S-3 | 3.0-3.5 | 1.2 | | | | | | |
| | | | | | | | | | |
| | S-4 | No Rec | N/A | | | | | | Core 2 Rec 5 0'/5 0' |
| _4 | 0 T | NOREC | | | | | | | 0010 2 1100 0.070.0 |
| | | | | | | | | | |
| 5 | S-5 | 5.0-5.5 | 1.0 | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| _6 | S-6 | 6.0-6.5 | 0.6 | | | | | | |
| - | | | | | | | | | |
| 7 | S-7 | 7.0-7.5 | 0.5 | 7.5-10.0 | Brown | to white-gray silty s | and | | |
| - | | | | | | | | | |
| | | | | | | | | | |
| 8 | S-8 | 8.0-8.5 | 0.7 | | | | | | |
| - | | | | | | | | | |
| | 5-9 | 0.0.0.5 | 0.7 | | | | | | |
| _9 \ | | 9.0-9.5 | 0.7 | | | | | | |
| | | | | | | 1 | | | |
| 10 | | Sam | ole selected | for laboratory | y analysis | | | | |
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APPENDIX B

RED LAB LABORATORY TESTING REPORT

| | | | | Hydroca | arbon An | alysis Re | esults | | | | | | |
|--------------------|---|------------------|-------------------|-------------------|--------------------|-------------------|---------------------------------|----------------|------------------------|----------------------------|--------------------------|------|--|
| Client: Address | ESP ASSOCIATES, INC. : 7011 ALBERT PICK ROAD SUITE E GREENSBORO NC 27409 | | | | | | | | San Sample Sampl | mples es extr es ana | taken acted Ilysed | | Monday, September 10, 2018 Monday, September 10, 2018 Wednesday, September 12, 207 |
| Contact: | DILLON NANCE | | | | | | | | | Ор | erator | | NICK HENDRIX |
| Project: | U-2579 AB | | | | | | | | | | | | |
| | | | | | | | | | | | | | 1009 |
| 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 | c | % Ratios | | HC Fingerprint Match |
| | | | | | | | (010 000) | | | C5 - C10 | C10 - C18 | C18 | |
| s | B54-1 (S-9) | 20.3 | <0.51 | <0.51 | <0.51 | <0.51 | <0.1 | <0.16 | <0.02 | 0 | 0 | 0 | PHC not detected |
| S | B54-2 (S-8) | 18.2 | <0.45 | <0.45 | 1.3 | 1.3 | 1.2 | <0.15 | <0.018 | 0 | 62.8 | 37.2 | V.Deg.PHC 71.2%,(FCM),(BO) |
| S | B54-3 (S-9) | 32.9 | <0.82 | <0.82 | 10 | 10 | 5.1 | <0.26 | <0.033 | 9.9 | 71.1 | 19 | Deg.PHC 73.6%,(FCM) |
| S | B54-4 (S-7) | 25.5 | <0.64 | <0.64 | <0.64 | <0.64 | <0.13 | <0.2 | <0.025 | 0 | 0 | 0 | PHC not detected |
| S | B54-5 (S-9) | 11.6 | <0.29 | <0.29 | <0.29 | <0.29 | <0.06 | <0.09 | <0.012 | 0 | 0 | 0 | ,(FCM) |
| S | B36-5 (S-7) | 22.2 | <0.56 | <0.56 | <0.56 | <0.56 | <0.11 | <0.18 | <0.022 | 0 | 73.3 | 26.7 | Residual HC,(BO),(P) |
| S | B36-4 (S-9) | 21.9 | <0.55 | <0.55 | 0.75 | 0.75 | 0.72 | <0.18 | <0.022 | 0 | 74.1 | 25.9 | Residual HC,(BO),(P) |
| S | B36-3 (S-9) | 47.2 | <1.2 | <1.2 | 2.5 | 2.5 | <0.24 | <0.38 | <0.047 | 0 | 100 | 0 | Deg.Diesel 45.3%,(FCM) |
| | B36-2 (S-9) | 35.0 | <0.88 | 1.9 | 5.2 | 7.1 | 3 | <0.28 | <0.035 | 49.8 | 43.9 | 6.2 | Deg.Fuel 74.3%,(FCM) |
| S | B36-1 (S-9) | 23.0 | <0.57 | <0.57 | <0.57 | <0.57 | <0.11 | <0.18 | <0.023 | 0 | 27.9 | 72.1 | Residual HC,(BO) |
| S S | Initia | l Calibrator | QC check | OK | | | | | Final FC | CM QC | Check | OK | 101.1 |
| S S | | | | | | | | | | | | | |
| S S | | | | | | | | | | | | | |

APPENDIX C CHAIN-OF-CUSTODY FORM

| Client Name: | ESP Associates, Inc. | |
|---------------|--|---------|
| Address: | 7011 Albert Pick Rd. Ste E Greensbard, NE 27409 | DI |
| Contact: | Dillon Nonce | |
| Project Ref.: | U-2579 AB | |
| Email: | d. nance Despressication | CAPID E |
| Phone #: | 336-404-3117 | CHAIN |
| Collected by: | D. Nance | |



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 | TAT Red | quested | Matrix | | | | _ | | |
|-----------------------|-----------|---------|--------|-----------------------|-------|-----------|-----------|------------|------------|
| Date/Time | 24 Hour | 48 Hour | (S/W) | Sample ID | UVF | GC BTEX | Total Wt. | Tare Wt. | Sample Wt. |
| 9/10/18 | | V | 5 | B331-5 5-9 | V | | 49.2 | 43.9 | 6 5.2 |
| | | 1 | | B331-4 5-9 | 2 | | \$52.7 | 45.6 | 8.1 |
| | | | | B331-3 5-9 | | | 51.6 | 44.1 | 7.5 |
| | × | | | B331-2 5-9 | | | 53.0 | 45.8 | 7.2 |
| | | | | B331-1 5-9 | | | 52.0 | 45.4 | 6.6 |
| | | | | B352-3 9-9 | | 47.4 | | 43.7 | 3.7 |
| | | | | B352-2 5-3 | | | 52.8 | 43.7 | 9.1 |
| | | | | B352-1 5.9 | | | 519 | 43.8 | 8.1 |
| | | | | B342-6 5-3 | | | 49.8 | 44.4 | 5.4 |
| | | | | B342-5 5-4 | | | 52.2 | 44.1 | . 8.1 |
| | | | | B342-4 5-5 | | | 51.8 | 9 BAB 41.9 | 6.9 |
| | | | | B342-4 5-9 | | 5 | 2.0 44 | MANA YSI | 8.0 |
| | | | | B342-3 5-9 | | | 52.1 | 44.4 | 7.7 |
| | | | | B34Z-2 5-9 | | | 50.7 | 43.7 | 7.0 |
| | | | | B342-1 5-9 | | - | 50.1 | 43.9 | 6.2 |
| | | | | B54-1 5-9 | | | 51.0 | 44.1 | 6.9 |
| | | | | B54-2 5-3 | | | 51.2 | 43.5 | 7.7 |
| | | | | B54-3 5-9 | | | 51.9 | 44.0 | 7,9 |
| | | | | B54-4 5-7 | | | 49.8 | 44.3 | 5.5 |
| V | | Y | V | 1054-5 5-9 | | | 51.2 | 44.3 | |
| Comments: * Mo | fected | es un- | result | arachy unaffected. WH | aliz) | | RE | D Lab USE | ONLY |
| Relinq | uished by | | Date | /Time Accepted by , | | Date/Time | | 5 | |
| DN | ance | | 9/1 | 0/18/16:00 | 9/11 | (:.)* | (| 101 | |
| Reling | uished by | | Date | /Time Accepted by | | Date/Time | | | |
| | | | | | | | | | |

November 5, 2018



Mr. Cyrus Parker, L.G., P.E. Geotechnical Engineering Unit State of N.C. Department of Transportation – Division of Highways P.O. Box 25201 Raleigh, NC 27611-5201

RE: PRELIMINARY SITE ASSESSMENT OF PARCEL 060 – Revision 1 ESP Project No. CS34.366

| WRS. | 3/839 1 8 |
|---------------------|--|
| WD 0. | 5-657.1.0 |
| TIP: | U-2579AB |
| County: | Forsyth |
| Description: | Winston-Salem - Northern Beltway Eastern Section (Future I-74) From I-40 to I-40 |
| | Business/US 421 |
| Parcel No.: | 060 |
| Owner: | Michael & Kristina Tozer |
| Address: | 4260 Kernersville Road, Winston-Salem, NC |

Dear Mr. Parker:

ESP Associates, Inc. (ESP) is pleased to submit this report on our Preliminary Site Assessment of the subject parcel. This work was performed in accordance with your Request for Proposal dated April 17, 2018 and our Cost Proposal dated May 3, 2018.

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/EDB/CJW



not considered Final unless all signatures are completed

TABLE OF CONTENTS

| 1.0 | INTRODUCTION | 1 |
|-----|---------------------------|---|
| 2.0 | HISTORY | 1 |
| 3.0 | SITE OBSERVATIONS | 1 |
| 4.0 | METHODS | 1 |
| 4.1 | Geophysics | 1 |
| 4.2 | Borings | 2 |
| 4.3 | Soil Sample Protocol | 2 |
| 4.4 | Groundwater | 2 |
| 5.0 | RESULTS | 2 |
| 5.1 | Geophysics | 2 |
| 5.2 | Sample Data | 3 |
| 5.3 | Sample Observations | 3 |
| 6.0 | CONCLUSIONS | 3 |
| 6.1 | Interpretation of Results | 3 |
| 6.2 | Geophysics | 3 |
| 6.3 | Soil | 4 |
| 7.0 | RECOMMENDATIONS | 4 |
| 8.0 | LIMITATIONS | 4 |

TABLES

| Table 1 Son Sample PID Readings | Table 1 | Soil Sample PID Readings |
|---------------------------------|---------|--------------------------|
|---------------------------------|---------|--------------------------|

Table 2Soil Sample UVF Results Summary

FIGURES

| Figure 1 | Parcel 060, | Site | Vicinity | Map |
|----------|-------------|------|----------|-----|
| 0 | , | | | |

- Figure 2 Parcel 060, Site Photographs
- Figure 3 Parcel 060, EM61 Early Time Gate Response
- Figure 4 Parcel 060, EM61 Differential Response
- Figure 5 Parcel 060, EM61 Early Time Gate Response on Plan Sheet
- Figure 6 Parcel 060, EM61 Differential Response on Plan Sheet
- Figure 7 Parcel 060, Soil Analytical Results on Plan Sheet
- Figure 8 Legend for Plan Sheet Figures

TABLE OF CONTENTS (continued)

APPENDICES

Appendix A Soil Boring Logs

Appendix B RED Lab Laboratory Testing Report

Appendix C Chain-of-Custody Form

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 (Figure 1). The NCDOT requested that ESP Associates, Inc. (ESP) perform a Preliminary Site Assessment (PSA) of Parcel 060 within the proposed Right of Way (ROW) and/or easement to locate possible underground storage tanks (USTs), sample soil, and delineate potential contaminated soil.

2.0 HISTORY

This parcel is owned by Michael & Kristina Tozer and is currently occupied by an auto repair shop. The facility is listed in the North Carolina Department of Environmental Quality's (NCDEQ's) UST Section Registry with Facility ID #: 0-015981 and was assigned Ground Water Incident #: 16461. Four USTs were removed from the parcel in 1996 and the site's UST release incident was closed out in 1998.

3.0 SITE OBSERVATIONS

During our May 2018 field work, the site was operating as an active auto repair shop (Figure 2). The ground in the study area was covered by asphalt, gravel, concrete, and grass. Used oil drums were stored on the ground on the west side of the building and there were some dark stains on the ground by the drums (Figure 2.c). There were many non-functioning automobiles parked within the parcel that the owner was unwilling to move, limiting our study area. The auto repair shop building did not appear to contain a hydraulic lift.

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on May 24, 2018. We performed direct-push drilling and sampling of subsurface soils within the proposed easement on September 5, 2018. 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 easement of Parcel 060 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Four borings were drilled, designated B60-1 through B60-4 (Figure 3). The soil borings were advanced using a GeoProbe 7822DT drill rig. Continuous soil samples were obtained to a depth of approximately ten feet using five-foot long Macro Cores®. Soil cores had a recovery of three to five 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 sunny area for at least 5 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID. All of the soil samples obtained had a PID reading of less than 10 parts per million (ppm) (Table 1).

Soil samples selected for laboratory analysis were Sample S-10 (corresponding depth of 9.0-10.0 feet) from Boring B60-1; Sample S-8 (7.0-8.0 feet) from Boring B60-2; Sample S-7 (6.0-7.0 feet) from Boring B60-3; Sample S-18 (18.0-18.5 feet) from Boring B60-4. For each selected sample, 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 four borings drilled on the site.

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 was below the detection limits for all samples. GRO was detected in 1 of the 4 soil samples tested but below the NCDEQ action level of 50 ppm. The highest GRO reading was 0.55 ppm in Sample S-18 (18.0-18.5 feet) from Boring B60-4. DRO was detected in 3 of the 4 soil samples tested but below the NCDEQ action level of 100 ppm. The highest DRO reading was 5.3 ppm in Sample S-7 (6.0-7.0 feet) from Boring B60-3. PAHs were detected in 1 of the 4 soil samples tested. The highest PAH reading was 0.2 ppm in sample S-18 (18.0-18.5).

6.0 CONCLUSIONS

6.1 Interpretation of Results

The results of the PSA for Parcel 060 of NCDOT Project U-2579AB do not indicate the presence of abandoned USTs. However, some areas of the site could not be investigated due to the many parked cars that could not be moved. No petroleum hydrocarbon soil contamination at or above NCDEQ action levels was detected within the proposed construction easement on Parcel 060.

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 study area on Parcel 060 (Figure 7).

7.0 **RECOMMENDATIONS**

No limitations on construction activities or special handling of excavated soil are recommended for Parcel 060.

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 1SOIL SAMPLE PID READINGS

| Boring | Sample Depth Range with PID > 10 ppm (feet bgs) | Maximum PID Reading (ppm) and Sample Depth (feet bgs) | | |
|--------|--|--|--|--|
| B60-1 | none | 1.1 (8.0-9.0) | | |
| B60-2 | none | 1.0 (0.0-1.0) | | |
| B60-3 | none | 0.5 (5.0-6.0) | | |
| B60-4 | none | 2.1 (18.0-18.5) | | |

| Borin | 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) |
|-------|----------------------------------|-------------------|----------------------------|----------------------------|-----------------------------|-----------------|
| B60- | 1 S-10 (9.0-10.0) | 9/10/18 | <0.3 | <0.3 | 0.76 | <0.1 |
| B60- | 2 S-8 (7.0-8.0) | 9/10/18 | <0.66 | <0.66 | 4.2 | <0.21 |
| B60- | 3 S-7 (6.0-7.0) | 9/10/18 | <0.48 | <0.48 | 5.3 | 0.2 |
| B60- | 4 S-18 (18.0-18.5) | 9/10/18 | <0.29 | 0.55 | <0.29 | <0.09 |

TABLE 2SOIL SAMPLE UVF RESULTS SUMMARY

FIGURES



From: USGS US Topo 7.5 - minute map for WINSTON-SALEM EAST, NC Date: 2016, Scale: 1:24,000

| PROJECT NO. CS34.366 | FIGURE 1 – PARCEL 060, MIC | | |
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| DATE 11/6/18 | U-2579AB, WINSTON SALEM – NORTHER | | |
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IAEL & KRISTINA TOZER Y MAP

RN BELTWAY EASTERN SECTION -40 BUSINESS/US421 RTH CAROLINA



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a. Photo from northeast side of site looking southwest.



c. Photo of used oil barrels.





d. Photo of ASTs.

| PROJECT NO. CS34.366 | FIGURE 2 – PARCEL 060, MICH | |
|-------------------------|---|--|
| AS SHOWN | SITE PHOTO | |
| DATE 11/6/18 | U-2579AB, WINSTON SALEM – NORTHER | |
| DMN | (FUTURE I-74) FROM I-40 TO I FORSYTH COUNTY, NOF | |

HAEL & KRISTINA TOZER GRAPHS

ERN BELTWAY EASTERN SECTION I-40 BUSINESS/US421 DRTH CAROLINA



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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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DMN



EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Drop Inlet or Catch Basin
- Power pole
- Guy wire anchor
- Sign pole, other pole
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Approximate soil boring location

FIGURE 3 – PARCEL 060, MICHAEL & KRISTINA TOZER EM61 EARLY TIME GATE RESPONSE

U-2579AB, WINSTON SALEM – NORTHERN BELTWAY EASTERN SECTION (FUTURE I-74) FROM I-40 TO I-40 BUSINESS/US421 FORSYTH COUNTY, NORTH CAROLINA



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of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

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DMN



EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Drop Inlet or Catch Basin
- Power pole
- Guy wire anchor
- Sign pole, other pole
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Approximate soil boring location

FIGURE 4 – PARCEL 060, MICHAEL & KRISTINA TOZER EM61 DIFFERENTIAL RESPONSE

U-2579AB, WINSTON SALEM – NORTHERN BELTWAY EASTERN SECTION (FUTURE I-74) FROM I-40 TO I-40 BUSINESS/US421 FORSYTH COUNTY, NORTH CAROLINA



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| Church Proposed Subes Fill Proposed Subes Fill Proposed Telephone Pole O Dam Proposed Curb Ramp III Utility Pole III HYDROLOGY: Proposed Guadrail III Utility Pole III Stream or Body of Water Existing Cable Guiderail IIII Utility Pole IIII Hydro, Pool or Reservoir Proposed Cable Guiderail IIIIII IIIIIIII Located OE IIIIIIII Located OE Jurisdictional Stream IIIIIII Proposed Cable Guiderail IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII | School | Proposed Slope Stakes Cut | / | Existing Telephone Pole | · _ | SS Forced Main I |
| Dam Fropsee Cube Ramp G MISCELLANEOUS: HYDROLOGY: Existing Metal Guardrail Fropsee Guardrail Fropsee Guardrail G MISCELLANEOUS: Hydro, Pool or Reservoir Propsee Guardrail Fropsee Guardrail Fropsee Guardrail Fropsee Guardrail G Utility Pole G Jurisdictional Stream III Propsee Guardrail Fropsee Guardrail Fropsee Guardrail G Utility Pole with E Buffer Zone 1 Propsee Cable Guiderail Fropsee Guardrail Fropsee Guardrail G Utility Traffic Sign Buffer Zone 2 Fropsee Cable Guiderail Fropsee Guardrail Fropsee Guardrail G Utility Traffic Sign Buffer Zone 2 Fropsee Cable Guiderail Fropsee Guardrail Fropsee Guardrail G Utility Traffic Sign Buffer Zone 2 Fropsee Guardrail Fropsee Guardrail Fropsee Guardrail Fropsee Guardrail G Utility Traffic Sign Buffer Zone 2 Fropsee Guardrail Fropsee Guardrail Fropsee Guardrail Fropsee Guardrail G Utility Traffic Sign Flow Arrow Fropsee Guardrail Fropsee Guardrail G G Fropsee Ga | Church | Proposed Slope Stakes Fill | | Proposed Telephone Pole | • • | |
| HYDROLOGY: Existing Media Guardrail Image: Construction of the second seco | Dam | Froposed Curb Kamp | | Telephone Manhole | • • | MISCELLANEOUS: |
| Arrichtender Proposed Guardrail Image: Stream or Body of Water Image: Water | HYDROLOGY | Existing Metal Guardrail | <u> </u> | Telephone Pedesta | • 🔟 | Utility Pole —— |
| Hydro, Pool or Reservoir Listing Cable Guiderail Linit Linit Utility Located Ot Jurisdictional Stream Listing Cable Guiderail Linit Linit Linit Linit Utility Located Ot Jurisdictional Stream Listing Cable Guiderail Linit Linit Linit Linit Utility Located Ot Buffer Zone 1 Listing Cable Guiderail Linit Proposed Cable Guiderail Linit Utility Traffic Sign Buffer Zone 2 Listing Cable Guiderail Pavement Removal Listing Cable LOS D (S.U.E.*) Listing Cable LOS D (S.U.E.*) Utility Unknown U Biappearing Stream Single Tree Single Shrub Linit VEGETATION: Utility Cated Ot Spring Single Shrub Single Shrub Init Init Modes Line Init UG Telephone Conduit LOS D (S.U.E.*) Init Ud Tank; Water, Vetland Vetland Vetland Init Modes Line Init Modes Line Init Init Modes Line Init Init Modes Line Init Init Init Modes Line Init Init Init Init Init Init | Stream or Body of Water | Proposed Guardrail | | Telephone Cell Tower | * | Utility Pole with E |
| Jurisdictional Stream | Hvdro. Pool or Reservoir —————— | Existing Cable Guiderail | | U/G Telephone Cable Hand Hole | | Utility Located Ob |
| Buffer Zone 1 Buffer Zone 2 BuZ 1 Equality Symbol Pavement Removal WG UG Telephone Cable LOS C (S.U.E.*) Image: Cable LOS D (S.U.E.*) </td <td>Jurisdictional Stream</td> <td>Proposed Cable Guiderail</td> <td></td> <td>U/G Telephone Cable LOS B (S.U.E.*)</td> <td>·/</td> <td>Utility Traffic Sign</td> | Jurisdictional Stream | Proposed Cable Guiderail | | U/G Telephone Cable LOS B (S.U.E.*) | ·/ | Utility Traffic Sign |
| Buffer Zone 2 Buffer Zone 2 Pavement Removal VEGETATION: VEGETATION: VG Telephone Cable LOS D (S.U.E.*) r U/G Tank; Water, Disappearing Stream Single Tree Single Shrub C V VG Telephone Conduit LOS B (S.U.E.*) | Buffer Zone 1 | Equality Symbol | <u> </u> | U/G Telephone Cable LOS C (S.U.E.*) | · | Utility Unknown U |
| Flow Arrow VEGETATION: UG Telephone Conduit LOS B (S.U.E.*) Underground Store Disappearing Stream Single Tree Single Strub Image: Conduit LOS D (S.U.E.*) AG Tank; Water, Spring Image: Conduit LOS D (S.U.E.*) | Buffer Zone 2 BZ 2 | Pavement Removal | $\sim\sim\sim\sim\sim$ | U/G Telephone Cable LOS D (S.U.E.*) | r | U/G Tank; Water, |
| Disappearing Stream Single Tree Image: Single Stream Image: | Flow Arrow | VEGETATION: | | U/G Telephone Conduit LOS B (S.U.E.*) | rc | Underground Stor |
| Spring Single Shrub o UG Telephone Conduit LOS D (S.U.E.*) π Geoenvironmenta Wetland + Hedge Woods Line WG Fiber Optics Cable LOS B (S.U.E.*) - UG Test Hole LOC Proposed Lateral, Tail, Head Ditch + Woods Line - - WG Fiber Optics Cable LOS C (S.U.E.*) - - Abandoned Accor False Sump WG Fiber Optics Cable LOS D (S.U.E.*) - < | Disappearing Stream | Single Tree | ÷ | U/G Telephone Conduit LOS C (S.U.E.*) | n | A/G Tank; Water, |
| Wetland + Hedge UG Fiber Optics Cable LOS B (S.U.E.*) | Spring @ | Single Shrub | ٥ | U/G Telephone Conduit LOS D (S.U.E.*) | π | Geoenvironmenta |
| Proposed Lateral, Tail, Head Ditch — Woods Line — Abandoned Accor False Sump — V/G Fiber Optics Cable LOS D (S.U.E.*) — — No — End of Information | Wetland | Hedge | | U/G Fiber Optics Cable LOS B (S.U.E.*) | 1 10 | U/G Test Hole LC |
| False Sump — IN End of Information | Proposed Lateral, Tail, Head Ditch | Woods Line | | U/G Fiber Optics Cable LOS C (S.U.E.*) | 1 10 | Abandoned Accor |
| | False Sump | | | U/G Fiber Optics Cable LOS D (S.U.E.*) | . <u> </u> | End of Information |
| | · · · · · · · · · · · · · · · · · · · | | | | | |

| FIGURE 8 | PROJECT NO. CS34.366 |
|--|-------------------------|
| LEGEND FOR PLAN SHE | scale N/A |
| U-2579AB, WINSTON SALEM – NORTHERN E | DATE 11/6/18 |
| (FUTURE I-74) FROM I-40 TO I-40 FORSYTH COUNTY, NORTH | DMN |

| PRDJECT R | EFERENCE NO. SHEET NO. |
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| Sewer Line | <u>s</u> |
| nd Sanitary Sewer | A/G Sanitary Sever |
| ain line IOS B /SUE*\ | |
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| ain Line LOS D (S.U.E.*) | |
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| 05: | |
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| vith Base | |
| d Object | o |
| Signal Box | 5 |
| wn U/G Line LOS B (S.U.E.*) | |
| ater, Gas, Oil | |
| Storage Tank, Approx. Loc. —— | (18 10) |
| ater, Gas, Oil | |
| enta Borina | |
| | • |
| e LOS A (S.U.E.*) | œ |
| According to Utility Records — | AATUR |
| nation | E.O.I. |
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8 HEET FIGURES

RN BELTWAY EASTERN SECTION -40 BUSINESS/US421 RTH CAROLINA



7011 Albert Pick Rd., Suite E Greensboro, NC 27409

336.334.7724

www.espassociates.com

APPENDIX A SOIL BORING LOGS

| | FSP | | | FIFI | DB | | G I OG | | | BORING NO. |
|--------------|--------------|---------------|-------------------------|-------------------------|-------------------------|------------------------|------------------------------|-----------|---------|----------------------|
| PROJ | | NCE | OT U-2579/ | • • • AB PSA | | P | | 4 366 | | B60-1 |
| LOCA | TION: | E side of for | mer pump is | sland | | · | NO0. NO <u>000</u> | 4.500 | | 500 1 |
| TYPE | OF BORING | : | Direct Pus | h | DATE | STARTED: 9 | /5/18 | | SHEET | T: 1 of 1 |
| | | | SAEDACC Brian Ewin | 0 | | FINISHED: 9 | /5/18 Macro Coro | | | 1: <u>10.0</u> ft |
| DRILL | _ RIG: | G | eoprobe 782 | 9 2 DT | SAIVIFLE | GGED BY: N | . Billington | | COMMENT | т. <u>Diy п</u> |
| (Ħ) | ш | ц(1 | Ŋ | | | | | | | |
| DEPTH | SAMPL NO. | SAMPL | PID READIN (ppm) | | | FIELD CLAS PHYSICAL | SIFICATION AN DESCRIPTION | D | | REMARKS |
| | | | | 0.0-0.3 0.3-4.5 | Asphalt Orange- | brown sand | y clay to silty cl | ay w/sand | | Core 1 Rec 5.0'/5.0' |
| | Q 1 | 0.0.4.0 | 0.2 | | | | | , | | |
| _ <u> </u> | 3-1 | 0.0-1.0 | 0.2 | | | | | | | |
| | | | | | | | | | | |
| 2 | S-2 | 1.0-2.0 | 0.2 | | | | | | | |
| a | | | | | | | | | | |
| 3 | S-3 | 2.0-3.0 | 0.3 | | | | | | | |
| | | | | | | | | | | |
| • | | | | | | | | | | |
| _4 | S-4 | 3.0-4.0 | 0.4 | | | | | | | Core 2 Rec 5.0'/5.0' |
| • | | | | 4.5-10.0 | Orange- | brown sand | / silt | | | |
| _5 | S-5 | 4.0-5.0 | 0.3 | | | | | | | |
| • | | | | | | | | | | |
| 6 | S-6 | 5.0-6.0 | 03 | | | | | | | |
| _0 | 0.0 | 5.0-0.0 | 0.0 | | | | | | | |
| | | | | | | | | | | |
| 7 | S-7 | 6.0-7.0 | 0.4 | | | | | | | |
| · | | | | | | | | | | |
| 8 | S-8 | 7.0-8.0 | 0.4 | | | | | | | |
| · | | | | | | | | | | |
| 0 | 5-9 | 8000 | 1 1 | | | | | | | |
| _ <u> </u> | | 0.0-9.0 | | | | | | | | |
| | \frown | | | | | | | | | |
| _10 | S-10 | 9.0-10.0 | 0.8 | | | | | | | |
| İ —— | | | | | | | | | | |
| 11 | | Sam | ple selected | for laborato | ory analysis | | | | | |
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| | FSP | | | FIFI | DB | | G | | BORING NO. |
|-------------|---------------|----------------------|-------------------------|----------------|----------|---|---------------|--------------|----------------------|
| PROJ | ECT NAME: | NCE | DOT U-2579/ | AB PSA | | PROJ. NO.: | CS34.366 | | B60-2 |
| LOCA | TION: | W side of fo | ormer pump i | sland | | | | | |
| TYPE | OF BORING | i: | Direct Pus | h | DATE | STARTED: <u>9/5/18</u> | | SHEET | 1 of 1 |
| DRILL | ING FIRM: | | SAEDACC | 0 | DATE | FINISHED: <u>9/5/18</u> | | TOTAL DEPTH: | 9.0 ft |
| DRILL | _ER: | | Brian Ewin | ig D D T | _SAMPL | E METHOD: 5' Macro Co | re | DEPTH TO GW: | Dry ft |
| DRILL | _ RIG: | G | eoprobe 782 | 2 D1 | _ L' | OGGED BY: N. Billington | | COMMENT | |
| DEPTH (ft) | SAMPLE NO. | SAMPLE DEPTH (ft) | PID READING (ppm) | | | FIELD CLASSIFICATIO PHYSICAL DESCRIP | N AND TION | | REMARKS |
| | | | | 0.0-0.5 | Asphal | t a-brown silty clay | | | Core 1 Rec 3.0'/5.0' |
| • | | | | 0.0-0.0 | Orange | brown Sitty Clay | | | |
| 1 | S-1 | 0.0-1.0 | 1.0 | | | | | | |
| • —— | | | | | | | | | |
| 2 | S-2 | 1.0-2.0 | 0.5 | | | | | | |
| • | | | | | | | | | |
| | 6.0 | | 0.1 | | | | | | |
| _3 | 5-3 | 2.0-3.0 | 0.1 | | | | | | |
| | | | | | | | | | |
| | S-4 | No Boo | Ν/Δ | | | | | | Core 2 Rec 5 0'/5 0' |
| _4 | 0-4 | NO REC | | | | | | | Cole 2 Nec 3.073.0 |
| - | | | | | | | | | |
| 5 | S-5 | 4 0-5 0 | 0.1 | | | | | | |
| | | 4.0-3.0 | | | | | | | = |
| | | | | | | | | | |
| 6 | S-6 | 5.0-6.0 | 0.3 | | | | | | |
| - Ŭ | | | | | | | | | |
| - | | | | | | | | | |
| 7 | S-7 | 6.0-7.0 | 0.2 | 8.0-9.0 | Orange | e-brown sandy silt | | | |
| | | | | | | | | | |
| · | | | | | | | | | |
| 8 | S-8 | 7.0-8.0 | 0.0 | | | | | | |
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| 9 | | Samp | le selected | for laboratory | analysis | | | | |
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| | FCP | | | FIFI | | | BORING NO. | | |
|------------|---------------|----------------------|--|----------------|--|-------------|----------------------|--|--|
| | LJI | | 07.1.0570 | | | | | | |
| PRO | IECT NAME: | NCL By ovisting | 001 U-2579/ | AB PSA | PROJ. NO.: CS34.366 | | B60-3 | | |
| TYPE | OF BORING | by existing t | Direct Push DATE STARTED: 9/5/18 SHFFT | | | | | | |
| DRILI | _ING FIRM: | | SAEDACC | :0 | DATE FINISHED: 9/5/18 | TOTAL DEPTH | l: 10.0 ft | | |
| DRILI | _ER: | | Brian Ewin | ng | SAMPLE METHOD: 5' Macro Core | DEPTH TO GW | /: Dry ft | | |
| DRILI | _ RIG: | G | eoprobe 782 | 22 DT | LOGGED BY: D. Nance | COMMENT | [| | |
| DEPTH (ft) | SAMPLE NO. | SAMPLE DEPTH (ft) | PID READING (ppm) | | FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION | | REMARKS | | |
| | | | | 0.0-0.1 | Asphalt Orange-brown silty clay w/sand | | Core 1 Rec 4.0'/5.0' | | |
| · | S 1 | | 0.0 | 1070 | | | | | |
| _1 | 5-1 | 0.0-1.0 | 0.2 | 1.0-7.0 | Orange-brown sandy sin | | | | |
| - | | | | | | | | | |
| 2 | S-2 | 1.0-2.0 | 0.2 | | | | | | |
| | | | | | | | | | |
| 3 | S-3 | 20-30 | 0.3 | | | | | | |
| _3 | 00 | 2.0-3.0 | 0.0 | | | | | | |
| | | | | | | | | | |
| 4 | S-4 | 3.0-4.0 | 0.3 | | | | Core 2 Rec 3.0'/5.0' | | |
| | | | | | | | | | |
| 5 | S-5 | 4050 | 0.3 | | | | | | |
| _5 | | 4.0-3.0 | | | | | | | |
| | | | | | | | | | |
| 6 | S-6 | 5.0-6.0 | 0.5 | | | | | | |
| | | | | | | | | | |
| 7 (| S-7 | 60-70 | 0.4 | 7 0-8 0 | Orange to tan and grav silty sand | | | | |
| _′ \ | | 0.0-7.0 | 0.4 | 1.0 0.0 | | | | | |
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| 8 | | Samp | le selected | for laboratory | analysis | | | | |
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| | FCD | | | FIFI | | | | | | BORING NO. |
|------------|-----------|------------|--------------|----------------|------------|---------------|----------------|--------|-------------|----------------------|
| | | | | | ים ס | | | | | |
| PRO | ECT NAME: | | DOT U-2579/ | AB PSA | | _ | PROJ. NO.: CS | 34.366 | | B60-4 |
| | | Front Near | Direct Pue | ms on SW side | | g STADTED: | 0/5/19 | | | T: 1 of 1 |
| | | <u>.</u> | SAEDACC | :0 | DATE | FINISHED. | 9/5/18 | | | H: 19.0 ft |
| DRILI | _ER: | | Brian Ewin | ig | SAMPLE | METHOD: | 5' Macro Core | | DEPTH TO GV | V: Dry ft |
| DRILI | RIG: | G | eoprobe 782 | 22 DT | LC | GGED BY: | D. Nance | | COMMEN | T: |
| (ft) | щ | ц; (ff) | ŋ | | - | | | | - | |
| Ŧ | J O . | THL | | | | FIELD CLA | SSIFICATION AN | ND | | REMARKS |
| OEP | SAI | SAI | REA (p | | | PHISICA | L DESCRIPTION | N | | |
| | | | | 0.0-0.3 | Gravel | | | | | Core 1 Rec 4.0'/5.0' |
| • ——— | S-1 | 1.0-1.5 | 0.3 | 0.3-7.2 | Orange- | red silty cl | ау | | | |
| 2 | S-2 | 2.0-2.5 | 0.4 | | | | | | | |
| | S-3 | 30-35 | 0.2 | | | | | | | |
| ! <u> </u> | | 0.0-0.0 | 0.2 | | | | | | | |
| _4 | S-4 | 4.0-4.5 | 0.1 | | | | | | | |
| t | S-5 | 5.0-5.5 | 0.8 | | | | | | | Core 2 Rec 5.0'/5.0' |
| 6 | S-6 | 60-65 | 1.3 | | | | | | | |
| | | 0.0-0.0 | | | | | | | | |
| | S-7 | 7.0-7.5 | 1.5 | 7 2-19 0 | Orange | brown san | dy clavey silt | | | |
| 8 | S-8 | 8.0-8.5 | 0.4 | 1.2 10.0 | Orange | brown san | | | | |
| | S-9 | 9.0-9.5 | 0.4 | | | | | | | |
| 10 | S-10 | 10.0-10.5 | 0.1 | | | | | | | Core 3 Rec 5.075.0 |
| _ 10 | • • • | 10.0-10.5 | | | | | | | | |
| | S-11 | 11.0-11.5 | 0.2 | | | | | | | |
| 12 | S-12 | 12.0-12.5 | 0.2 | | | | | | | |
| | S-13 | 13 0-13 5 | 0.3 | | | | | | | |
| | 0 10 | 10.0-10.0 | 0.0 | | | | | | | |
| _14 | S-14 | 14.0-14.5 | 0.3 | | | | | | | |
| | S-15 | 15.0-15.5 | 0.4 | | | | | | | Core 4 Rec 4.0'/5.0' |
| 16 | S-16 | 16.0-16.5 | 0.6 | | | | | | | |
| - | S-17 | 17.0-17.5 | 1.1 | | | | | | | |
| | | | | | | | | | | |
| _18 | S-18 | 18.0-18.5 | 2.1 | | | | | | | _ |
| [<u> </u> | _``\ | | | | | | | | | |
| 20 | | Sam | ple selected | for laboratory | y analysis | | | | | |
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APPENDIX B

RED LAB LABORATORY TESTING REPORT

| Q | ED | | | | | | | | | | | ſ | | 5 |
|--|---|---|--|---|---|---|---|--|--|---|---------------------------------------|------------------------------------|--|--------------------------------|
| | | | | Hydroca | arbon An | alysis Re | esults | | | | | | | |
| Client: Address: | ESP ASSOCIATES, INC. 7011 ALBERT PICK ROAD SUITE E GREENSBORO NC 27409 | | | | | | | | Sar Sample Sampl | mples es exti es ana | taken racted alysed | | Monday, September 10 Monday, September 10 Wednesday, September |), 2018), 2018 12, 2018 |
| Contact: | DILLON NANCE | | | | | | | | | Ор | erator | | NICK HENDRIX | |
| Project: | U-2579 AB | | | | | | | | | | | | | |
| | | | | | | | Total | | | | | | | U00904 |
| Matrix | Sample ID | Dilution used | BTEX (C6 - C9) | GRO (C5 - C10) | DRO (C10 - C35) | TPH (C5 - C35) | Aromatics (C10-C35) | 16 EPA PAHs | BaP | ſ | % Ratios | i | HC Fingerprint Match | |
| | | | | | | | | | | C5 - C10 | C10 - C18 | C18 | | |
| S | B60-4 (S-18) | 11.6 | <0.29 | 0.55 | <0.29 | 0.55 | <0.06 | <0.09 | <0.012 | 99.4 | 0.6 | 0 | ,(FCM),(P) | |
| S | B60-3 (S-7) | 19.2 | <0.48 | <0.48 | 5.3 | 5.3 | 3.7 | 0.2 | <0.019 | 0 | 82.4 | 17.6 | Deg Fuel 72.5%,(FCM) | |
| S | B60-2 (S-8) | 26.4 | <0.66 | <0.66 | 4.2 | 4.2 | 1.8 | <0.21 | <0.026 | 0 | 74.1 | 25.9 | Deg.Fuel 78.6%,(FCM),(P) | |
| S | B60-1 (S-10) | 11.9 | <0.3 | <0.3 | 0.76 | 0.76 | 0.25 | <0.1 | <0.012 | 0 | 85.6 | 14.4 | V.Deg.Diesel 74.8%,(FCM) | |
| S | B50-5 (S-9) | 12.9 | <0.32 | <0.32 | <0.32 | <0.32 | <0.06 | <0.1 | <0.013 | 0 | 79.3 | 20.7 | ,(FCM),(BO) | |
| S | B50-4 (S-10) | 12.8 | <0.32 | 0.58 | <0.32 | 0.58 | <0.06 | <0.1 | <0.013 | 94.3 | 5.7 | 0 | Deg.PHC 71.8%,(FCM) | |
| S | B50-3 (S-9) | 13.8 | <0.35 | 0.7 | 0.48 | 1.18 | <0.07 | <0.11 | <0.014 | 95.9 | 4.1 | 0 | Deg.Fuel 68.3%,(FCM) | |
| S | B50-2 (S-9) | 21.5 | <0.54 | <0.54 | <0.54 | <0.54 | <0.11 | <0.17 | <0.022 | 0 | 100 | 0 | PHC not detected | |
| S | B50-1 (S-9) | 23.3 | <0.58 | <0.58 | <0.58 | <0.58 | <0.12 | <0.19 | <0.023 | 0 | 0 | 0 | PHC not detected,(BO) | |
| | Initial (| Calibrator | QC check | OK | | | | | Final FC | CM QC | Check | OK | | 103.3 % |
| Concentratio Abbreviatior B = Blank D % Ratios es | on values in mg/kg for soil samples and mg/ ns :- FCM = Results calculated using Funda rift : (SBS)/(LBS) = Site Specific or Library E timated aromatic carbon number proportion | L for water sa mental Calib Background S s : HC = Hyde | amples. Soil ration Mode subtraction a rocarbon : P | values uncor : % = confide pplied to resu HC = Petrole | rected for moi nce of hydroca It : (BO) = Baa um HC : FP = | sture or stone arbon identific ckground Org Fingerprint or | a content. Finge cation : (PFM) = anics detected hly. Data g | rprints prov - Poor Finge : (OCR) = C generated b | ide a tentativ erprint Match Outside cal ra oy HC-1 Ana | ve hydro h : (T) = ⁻ ange : (N Il yser | carbon id Turbid : (l /) = Modi | lentificat P) = Pai ifed Res | tion. rticulate detected sult. | |

APPENDIX C CHAIN-OF-CUSTODY FORM

| Client Name: | ESP Associates, FAC |
|---------------|--|
| Address: | 7011 Albert Pick Rd. Ste E Greensland, NC 27409 |
| Contact: | Dillon Nonce |
| Project Ref.: | 12-2579AB |
| Email: | d.nance@espassiciates.com |
| Phone #: | 336-404-3117 |
| Collected by: | D. Nance |



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 | TAT Rec | quested | Matrix | | Sample ID | | UVF | GC BTEX | Total Wt. | Tare Wt. | Sample Wt. |
|-------------------|-----------|--------------|--------|-----------|-----------|-------------|---------|-----------|-----------|--------------|------------|
| Date/Time | 24 Hour | 48 Hour | (S/W) | | Sumple is | | | | 11.0 | 242 | |
| 9/10/18 | | V | 5 | B36-5 | 5-7 | | V | | 50.5 | 74.2 | 0.7 |
| 1 | | 1 | 1 | B36-4 | 5-9 | | 1 | | 50.5 | 44. | 6.4 |
| | | | | B36-3 | 5-9 | | | | 53.0 | 94.1 | 8.7 |
| | | | | R36-2 | 5-9 | | | | 48.4 | 44.0 | 4.4 |
| | | | | B36-1 | 5-9 | | | | 50,4 | 44.3 | 61 |
| | | | | R60-4 | 5-18 | | | | 51.2 | 44.3 | 6.9 |
| | | | | R60-3 | 5-7 | | | | 51.7 | 44.4 | 7.3 |
| | | | | 660-2 | 5-8 | | | 4 | 49.6 | 44.3 | 5.3 |
| | | | | B60-1 | 5-10 | | | | 51.2 | 44.5 | 6.7 |
| | | | | B575-5 | 5-8 | | | | 50,5 | 44.3 | 6.2 |
| | | | | B50-4 | 5-10 | | | | 49.3 | 44.0 | 5.3 |
| | | | | RED-3 | 6-9 | | | | 46.0 | 44.0 | 2.6 |
| | | | | 850-7 | 9-9 | | | | 50.7 | 44.2 | 6.5 |
| | | | | R50-1 | 5-9 | | | | 49.9 | 43.9 | 6.0 |
| | | | | 251-5 | 6.9 | | | | 49.5 | 44.0 | 5.5 |
| | | | | 251-4 | 5-9 | | | | 50.3 | 44.0 | 6.3 |
| | | | | 251-3 | 6-9 | | | | 47.1 | 44.3 | 2.8 |
| | | | / | 061-7- | 5-9 | | | | 48.2 | 44.2 | 40 |
| | | | | 061-1 | 5-9 | | | | 53.7 | 44.0 | 97 |
| | | | | DZI | | | 0 | | | | |
| Comments: | ost sa | moles u | nderwa | raht. C | soil mat | in (cole | sentati | 2 | R | ED Lab USE | ONLY |
| comments. | cled - | dates | sutts | la cae la | souff ted | OHA | 12) | | | | |
| Relina | uished by | I'm int of a | Date | e/Time | | Accepted by | P de | Date/Time | 1 | \sum | |
| Dialar | 1.1.1 | | 9/10/ | 18 16:00 | | N | - 9/1 | 11,22 | 1 | (1α) | |
| Reling | uished by | | Date | e/Time | | Accepted by | 1. | Date/Time | | | |
| | , | | | - | | | | | | \smile | |