

PRELIMINARY SITE ASSESSMENT

**SR 1997 (FAYETTEVILLE ROAD) WIDENING
TIP NO. U-5797, WBS NO. 44367.1.1**

**NCDOT PARCEL NO. 19
OWNER LIDL US OPERATIONS LLC
2250 ROBERTS AVE
LUMBERTON, ROBESON COUNTY, NORTH CAROLINA**



PREPARED FOR:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
C/O STV ENGINEERS, INC.
1600 PERIMETER PARK DRIVE, SUITE 225
MORRISVILLE, NC 2756002

PREPARED BY:
FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
CARY, NC 27513

PROJECT NUMBER: G19011.00
JUNE 9, 2020





June 9, 2020

Mr. Patrick Livingston, PE
STV Engineers, Inc.
900 W. Trade St, Suite 715
Charlotte, NC 28202

Re: **Preliminary Site Assessment**
SR 1997 (Fayetteville Road) Widening
TIP No. U-5797, WBS No. 44367.1.1
Parcel No. 19
Owner: LIDL US Operations LLC
2250 Roberts Ave
Lumberton, Robeson County, North Carolina

Dear: Mr. Livingston:

Falcon is pleased to present the following Preliminary Site Assessment in support of the above-mentioned Project. Specifically, Falcon sampled soil in proximity to the project limits on this parcel in general accordance with the approved scope of work. Soils requiring remediation or special handling during construction were not identified.

Falcon recommends if drums, USTs, above ground storage tanks (ASTs), petroleum odors or sheen are observed during any excavation associated with any property involved in the project that all work in the vicinity stop until further assessment takes place. Further assessment can include but is not limited to; sampling the soil and groundwater, excavation, and proper handling and disposal of contaminated soils and groundwater.

Please review this report and advise us if you have any questions or concerns. We appreciate this opportunity to provide services to you and look forward to partnering with you on future projects. If you have any questions, please give Falcon a call at (919) 871-0800.

Sincerely,

FALCON ENGINEERING, INC.

A handwritten signature in blue ink, reading "Christopher J. Burkhardt".

Christopher J. Burkhardt
Environmental Services Manager

A handwritten signature in blue ink, reading "Jeremy R. Hamm".

Jeremy R. Hamm, PE
Geotechnical Services Manager

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BORING LOCATION MAP

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UNDERGROUND STORAGE TANK DOCUMENTS

LABORATORY RESULTS

GEOPHYSICAL SURVEY

SECTION 1: INTRODUCTION

1.1 DESCRIPTION

Falcon Engineering, Inc. (Falcon) has completed a Preliminary Site Assessment of NCDOT TIP Project U-5797 Parcel No. 19. Parcel No. 19 is addressed as 2250 Roberts Ave, Lumberton, Robeson County, North Carolina. NCDOT is proposing to widen Fayetteville Road (SR 1997) from Farringdom Street to 22nd Street. The limits of the assessment are between the existing edge of NCDOT maintained pavement (within the existing NCDOT ROW) where accessible, and the proposed NCDOT ROW and/or easement (whichever boundary represents the largest area). Boring locations were placed in the vicinity of proposed excavations for drainage features, utilities, and roadway/ditch cuts to determine if soils requiring remediation or special handling were present where excavation was planned to take place.

1.2 SCOPE OF WORK

Falcon's scope of work included coordination of; public and private utility location near the proposed borings, geophysical surveys, collecting soil samples using direct push methods, and laboratory analysis. Samples were analyzed for petroleum hydrocarbons via UVF technology.



SECTION 2: HISTORY

2.1 PARCEL USAGE

Falcon performed a Phase I Environmental Site Assessment (ESA) for U-5797 under Project No. G17057 dated April 2018. The ESA identified this parcel as a Recognized Environmental Condition (REC) based on the history of the parcel and adjoining parcels. Falcon contacted Mr. Joe Oliver the County Fire Marshal during the ESA to inquire about known USTs along Fayetteville Road in the general area of Parcel No 19. Mr. Oliver sent documents pertaining to USTs that had been installed and/or removed from Baxley's addressed as Highway 211 East, and Taco Bell addressed as Fayetteville Road and Roberts Ave. The exact location of USTs associated with these facilities is not known. Historic air photographs dated 1976 through 2000 show Parcel No. 19 as mostly parking lot with a large commercial building. UST closure documentation including soil sampling results were not available for review.

2.2 FACILITY IDENTIFICATION NUMBER

A Facility Identification Number was not identified for this parcel.

2.3 GROUNDWATER INCIDENT NUMBER

A Groundwater Incident Number was not identified for this parcel.

SECTION 3: SITE OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

Groundwater monitoring wells (MWs) were not observed on this parcel.

3.2 ACTIVE USTS

Active USTs were not observed within the project limits or registered at this parcel.

3.3 FEATURES APPARENT BEYOND ROW/EASEMENT

USTs, monitoring wells, remediation systems, or hydraulic lifts were not observed.

SECTION 4: METHODOLOGY

4.1 GEOPHYSICS

Pyramid Geophysical Services (Pyramid) was subcontracted to perform a geophysical survey of the assessment area. The assessment area is between the existing edge of NCDOT maintained pavement (within the existing NCDOT ROW) where accessible, and the proposed NCDOT ROW and/or easement (whichever boundary represents the largest area). The survey was used to locate private utility lines, as well as possible indications of USTs, and/or their pits.

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61-MK2 (EM61) metal detector integrated with a Geode External GPS/GLONASS receiver. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is georeferenced and can be overlain on aerial photographs and CADD drawings.

GPR data was acquired across select EM anomalies (where identified), using a Geophysical Survey Systems, Inc. (GSSI) UtilityScan DF unit equipped with a dual frequency 300/800 MHz antenna. Pyramid marked their findings on the surface with paint. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and to obtain adequate coverage. A copy of the full Geophysical Report is included in the Attachments.

4.2 BORINGS

Regional Probing was subcontracted to advance soil borings using direct push technology. Regional Probing used a truck-mounted Geoprobe® 5410 unit mounted on an off-road modified Ford F350 Diesel 4x4. The unit has auger-capabilities and is equipped with a GH-42 soil-probing hammer, with 21,700 pounds of down force and 28,900 pounds of retraction force. The unit has an on-board tank for decontaminating the geoprobe rods before advancing the probe at each sample location.

4.3 SAMPLE PROTOCOL

Prior to initiating sample collection Falcon contacted NC One Call and requested public utility locations be marked around the proposed sample locations. Sampling was in general accordance with the NC Department of Environmental Quality (DEQ) Division of Waste Management's (DWM) "Guidelines for Site Checks, Tank Closure, and Initial Response and Abatement for UST Releases" (March 1, 2007 Version Change 9 – February 1, 2019) guidance document. Sampling strategy was derived based upon the project scope and objectives as outlined above. Red Lab, LLC was selected to perform the UVF laboratory analytical analysis. Appropriate sterile containers were received by Falcon from Red Lab prior to beginning the fieldwork. The containers were labeled appropriately.

A Minirae 3000 photoionization detector (PID) was used to field screen samples for volatile organics to determine if a release had occurred. The instrument was calibrated per manufacturer instructions prior to use. Falcon staff bagged composite soil samples of each boring in approximately two-foot sections. Representative samples were placed in a sealed plastic bag for approximately 10 minutes to allow soil hydrocarbons to reach equilibrium within the headspace prior to scanning with the PID. One sample per boring was collected from the depth of the proposed cut or from the section above the depth of cut with the highest PID reading.

To avoid cross contamination, a new unused pair of non-powdered nitrile gloves was worn while extracting each sample. Samples were placed in the appropriate laboratory provided containers. The labels on each container were then completed so that each provided the date and time of sampling, method of analysis, sample collector, preservative used and sampling location identification. Samples were placed in an ice filled cooler and transported to the lab. Appropriate chain-of-custody procedures, including the completion of necessary forms, were followed.

SECTION 5: RESULTS

5.1 GEOPHYSICS

The geophysical investigation was performed between March 8 and 19, 2019 to investigate for metallic underground storage tanks (USTs) beneath the survey area. A total of six EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface; therefore a GPR survey was not required. The geophysical data did not record any evidence of metallic USTs within the geophysical survey area at Parcel No. 19.

5.2 SAMPLE DATA

Falcon and our subcontractor advanced three borings (B-25, B-26, B-27) to the proposed excavation depth of the drainage features, utilities, or roadway/ditch cut being assessed. Groundwater was not observed. Please see the Boring Layout Plan in the attachments for a visual depiction of the sample locations. The coordinates (latitude and longitude) that correspond to the sample locations are shown below in Table No. 1 Boring Coordinates.

TABLE NO. 1 BORING COORDINATES

Boring	Latitude	Longitude
B-25	34.6399544	-79.0028739
B-26	34.6398230	-79.0025231
B-27	34.6396857	-79.0020726

Borings were field screened with a PID in sections for evidence of volatile organics. The PID screening results are presented in Table No. 2 PID Readings. Falcon selected soil samples based on the field screening results and the needs of the project. Red Lab analyzed the selected samples and their full analytical report is attached. The results of the laboratory analysis are shown in Table No. 3 Summary of UVF Soil Sampling Results.

Petroleum hydrocarbons above State Action Levels were not detected in the samples.

TABLE NO. 2 PID READINGS

Boring	Depth BGS*	PID**
B-25	0-2.0	0.5
	2.0-4.0	1.2
B-26	0-2.0	0.9
	2.0-4.0	1.1
B-27	0-2.0	0.8
	2.0-4.0	0.9

*BGS = Depth below ground surface in feet

**PID readings are in parts per million

Samples shown in **bold** were selected for analysis

TABLE NO. 3 SUMMARY OF UVF SOIL SAMPLING RESULTS

Sample ID	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
								% light	% mid	% heavy	
B-25	<0.28	<0.28	21.8	21.8	11.1	0.6	<0.011	0	88.6	11.4	Deg Fuel 77.1%,(FCM) (BO)
B-26	<0.26	<0.26	26.6	26.6	12.7	1.4	0.028	0	92.2	7.8	Road Tar 75.1%,(FCM) (BO)
B-27	<0.56	<0.56	7.6	7.6	6.2	0.34	<0.022	0	85.9	14.1	Deg Fuel 90.5%,(FCM)

Results reported in mg/kg (milligrams per kilogram)

5.3 SAMPLE OBSERVATIONS

Obvious visual indications of a release (stained soils, odors, or oily sheen) were not observed. Table No. 4 Soil Observations lists visual soil observations of color and texture.

TABLE NO. 4 SOIL OBSERVATIONS

Sample ID	Depth	Color	Soil Type
B-25	0-2.0	Gray	Silty Clayey Sand (A-2-6)
	2.0-4.0	Gray Brown	Silty Clayey Sand (A-2-6)
B-26	0-2.0	Gray Brown	Silty Sandy Clay (A-6)
	2.0-4.0	Brown Gray	Silty Sandy Clay (A-6)
B-27	0-2.0	Brown Orange	Silty Clayey Sand (A-2-6)
	2.0-4.0	Gray Brown	Silty Clayey Sand (A-2-6)

Depth is in feet below ground surface

5.4 QUANTITIES CALCULATIONS

Soils requiring quantity calculations were not identified.

SECTION 6: CONCLUSIONS

6.1 INTERPRETATION OF RESULTS

This Preliminary Site Assessment was performed to evaluate the soils in proximity to the project limits on this parcel for the presence of petroleum hydrocarbons. The findings are as follows:

- Soil sampling completed on the parcel did not identify contaminants in the soil at levels requiring remediation.

6.2 GEOPHYSICS

The Geophysics report did not identify probable or potential USTs within the project limits on this parcel. Falcon does not anticipate USTs will be encountered within the project limits on this parcel during construction.

6.3 SAMPLING

Sampling results did not identify contaminants in the soil which require remediation in the areas sampled. Based on past project experience, Falcon does not anticipate soil remediation or special handling and disposal will be required during construction on this parcel.

6.4 QUANTITIES

Soils requiring quantities calculations were not identified.

SECTION 7: RECOMMENDATIONS

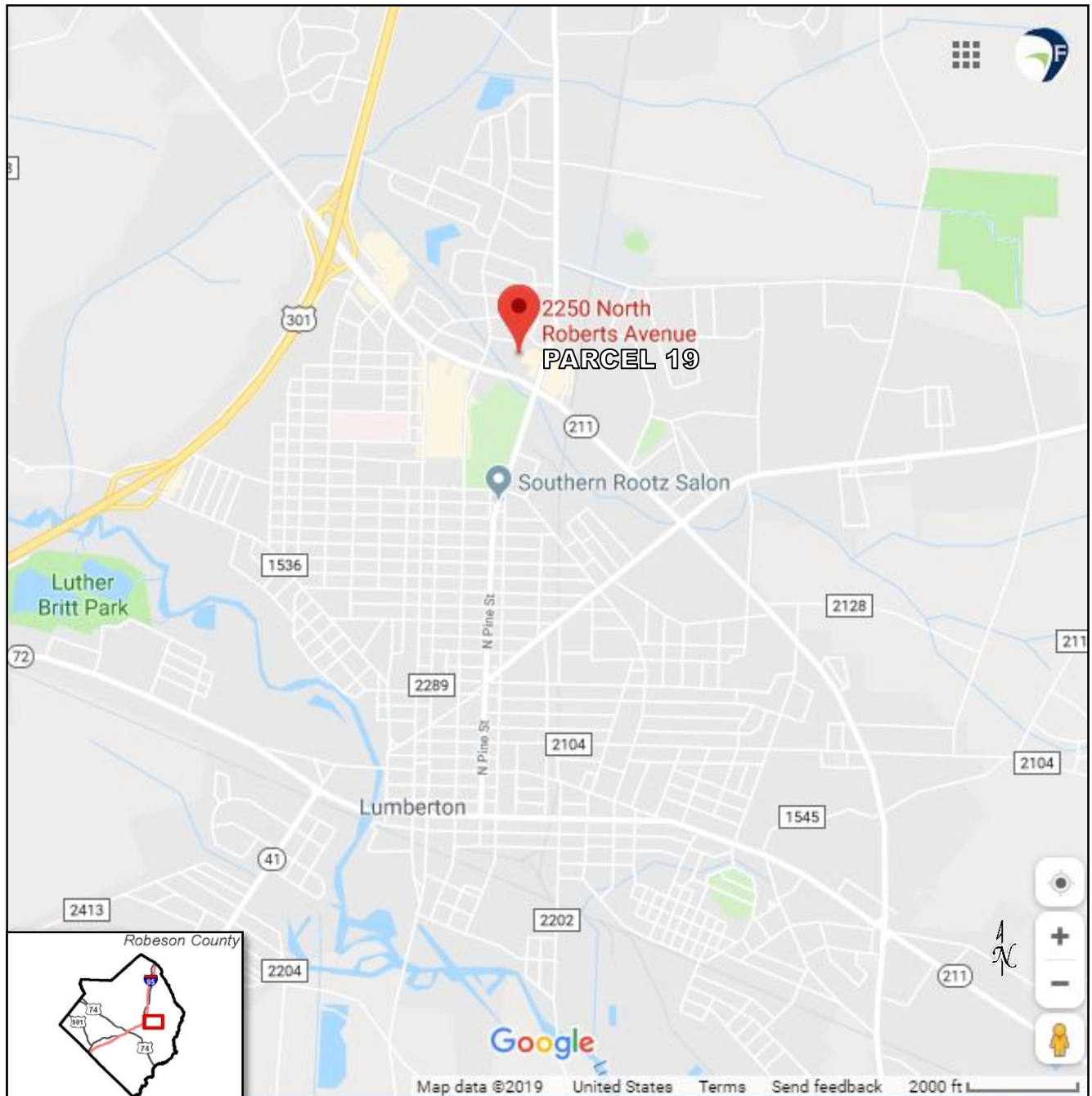
7.1 ADDITIONAL SAMPLING

Contaminants above the Industrial / Commercial Soil Cleanup Levels were not identified; therefore, additional assessment is not warranted at this time. Falcon recommends if drums, USTs, above ground storage tanks (ASTs), petroleum odors or sheen are observed during any excavation associated with any property involved in the project that all work in the vicinity stop until further assessment takes place. Further assessment can include but is not limited to; sampling the soil and groundwater, excavation, and proper handling and disposal of contaminated soils and groundwater.

7.2 SPECIAL HANDLING OF IMPACTED SOIL

Soils requiring special handling were not identified. If suspect contaminated soils are encountered during construction Falcon and the NCDOT GeoEnvironmental Group should be contacted for proper handling instructions.

NCDOT U-5797 (SR 1997 Widening) Parcel 19
Preliminary Site Assessment
Vicinity Map

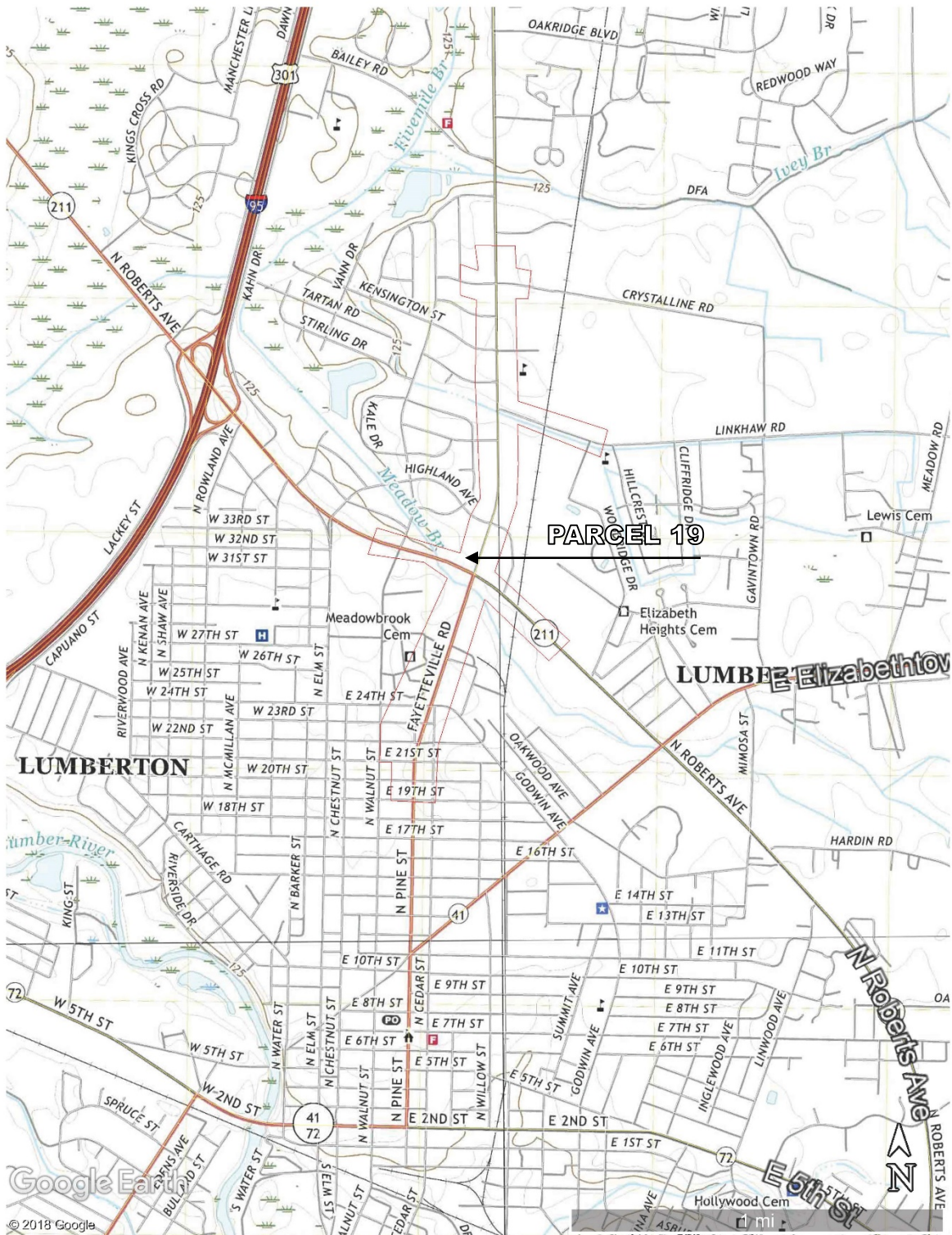


Project No.: G19011.00
Date: September 2019
Source: Google Maps

NCDOT U-5797 (SR 1997 Widening) Parcel 19

Preliminary Site Assessment

USGS Topographic Maps



Project No.: G19011.00
Date: September 2019
Source: "NW, NE, SW, and SE Lumberton, NC" 2019



NCDOT U-5797 (SR 1997 Widening) Parcel 19

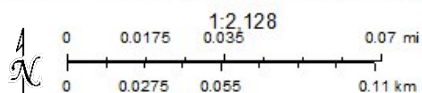
Preliminary Site Assessment

Parcel Location Map



September 5, 2019

-  County Line
-  City Limits
-  Streets
-  Parcels



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Project No.: G19011.00
Date: September 2019
Source: Robeson County GIS

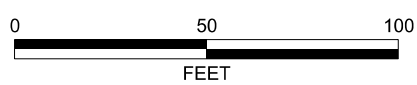
NAD 83/ NSRS 2007

20

LIDL US OPERATIONS LLC

LIMITS AREA OF GEOPHYSICAL EXPLORATION

NS LLC



NOTES:

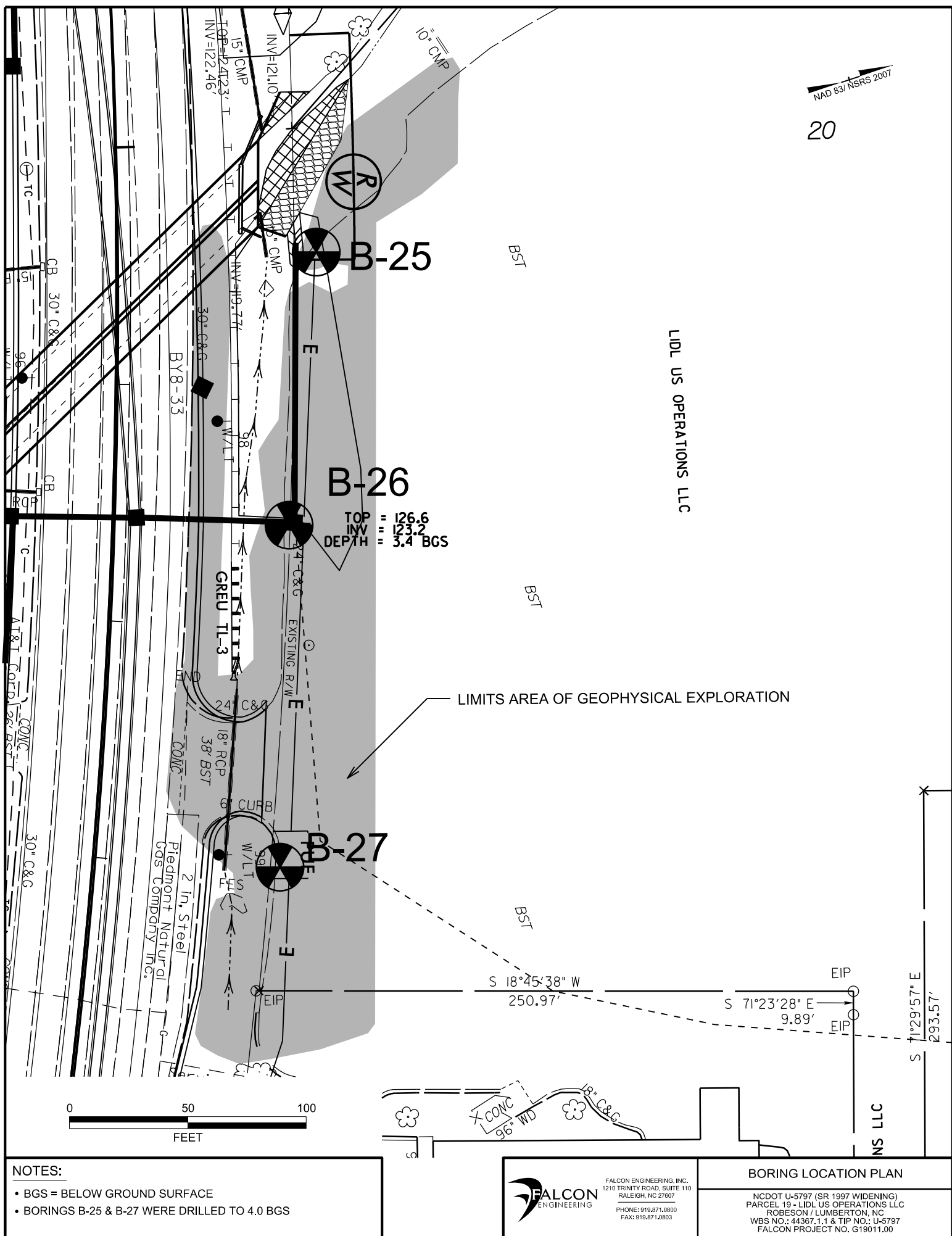
- BGS = BELOW GROUND SURFACE
- BORINGS B-25 & B-27 WERE DRILLED TO 4.0 BGS



FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
RALEIGH, NC 27607
PHONE: 919.871.0800
FAX: 919.871.0803

BORING LOCATION PLAN

NCDOT U-5797 (SR 1997 WIDENING)
PARCEL 19 - LIDL US OPERATIONS LLC
ROBESON / LUMBERTON, NC
WBS NO.: 44367.1.1 & TIP NO.: U-5797
FALCON PROJECT NO. G19011.00



NCDOT U-5797 (SR 1997 Widening) Parcel 19
Preliminary Site Assessment
1990 Aerial Photograph



Project No.: G19011.00
Date: September 2019
Source: NCDOT Historical Aerial Imagery Index

NCDOT U-5797 (SR 1997 Widening) Parcel 19
Preliminary Site Assessment
1985 Aerial Photograph



Project No.: G19011.00
Date: September 2019
Source: NCDOT Historical Aerial Imagery Index

NCDOT U-5797 (SR 1997 Widening) Parcel 19
Preliminary Site Assessment
1976 Aerial Photograph



Project No.: G19011.00
Date: September 2019
Source: ERIS Aerial Photographs

NCDOT U-5797 (SR 1997 Widening) Parcel 19
Preliminary Site Assessment
Site Photographs



Photograph No. 1: General view of Boring B-25.



Photograph No. 2: General view of Boring B-26.

NCDOT U-5797 (SR 1997 Widening) Parcel 19
Preliminary Site Assessment
Site Photographs



Photograph No. 3: General view of Boring B-27.

DIVISION OF ENVIRONMENTAL MANAGEMENT

June 26, 1991

Mr. Sam Everett
1203 East 11th Street
Lumberton, NC 28358

SUBJECT: Review of Lab Results
UST Soil Assessment
Oscar Baxley Grocery
Highway 211 - East
Lumberton, Robeson County

Dear Mr. Everett:

This is to acknowledge receipt of the above mentioned soil assessment dated June 14, 1991.

Based on review of the lab results, no additional soil excavation and removal is required. Should new information become available concerning this matter, we reserve the right to reverse this finding.

Should you have any questions or need clarification, please contact Mrs. Cindy Hegg of this office at (919) 486-1541.

Sincerely,

original signed by

[Signature]
M. J. Noland, P.E.
Regional Supervisor

C.H/
MJN/CH/gc

Site Investigation Report For Permanent Closure of U.S.T.

FOR TANKS IN NC	Return Completed Form To: The appropriate DEM Regional Office according to the county of the facility's location. [SEE MAP ON REVERSE SIDE OF OWNER'S COPY (BLUE) FOR REGIONAL OFFICE ADDRESS].	Sate Use Only I.D. Number _____ Date Received _____
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INSTRUCTIONS

Please complete and return within (30) days following completion of site investigation.

I. Ownership of Tank(s)	II. Location of Tank(s)
Owner Name (Corporation, Individual, Public Agency, or Other Entity) <i>Pauline Barker Everett</i>	Facility Name or Company <i>Oscar Barker Grocery</i>
Street Address <i>1203 East 11th Street</i>	Facility ID # (if available) <i>None</i>
City <i>Robeson</i>	Street Address or State Road <i>1203 East</i>
County <i>Lumberton NC</i>	City <i>Robeson Lumberton</i>
Zip Code <i>28358</i>	Zip Code <i>28358</i>
Area Code <i>919</i>	Area Code <i>None</i>
Telephone Number <i>738-5863</i>	Telephone Number <i>None</i>

III. Contact Person

Name <i>Sam Everett</i>	Job Title <i>Husband of owner</i>	Telephone Number <i>(919) 738-5863</i>
Closure Contractor <i>Floyd Grading Co</i>	<i>PO Box 3107 Lumberton NC 28359</i>	
Lab <i>Oxford Laboratories Inc</i>	<i>1316 South 5th Street Wilmington, NC 28401</i>	

IV. U.S.T. Information				V. Excavation Condition				VI. Additional Information Required	
Tank No.	Size in Gallons	Tank Dimensions	Last Contents	Water In Excavation		Free Product		Notable Odor or Visible Soil Contamination	
				Yes	No	Yes	No	Yes	No
1	550	42" x 7'6"	GAS		✓		✓		✓
2	550	42" x 7'6"	GAS		✓		✓		✓

See reverse side of blue copy (owner's copy) for additional information required by N.C. - DEM in the written report and sketch.

VII. Check List

Check the activities completed.

- ☒ Contact local fire marshal
 - ☒ Notify DEM Regional Office before abandonment.
 - ☒ Drain & flush piping into tank.
 - ☒ Remove all product and residuals from tank
 - ☒ Excavate down to tank.
 - ☒ Clean and inspect tank.
 - ☒ Remove drop tube, fill pipe, gauge pipe, vapor recovery tank connections, submersible pumps and other tank fixtures.
 - ☒ Cap or plug all lines except the vent and fill lines.
 - ☒ Purge tank of all product & flammable vapors.
 - ☒ Cut one or more large holes in the tanks.
 - ☒ Backfill the area.
- Date Tank Permanently closed: *5/23/91*

- ABANDONMENT IN PLACE**
- ☐ Fill tank until material overflows tank opening;
 - ☐ Plug or cap all openings;
 - ☐ Disconnect and cap or remove vent line
 - ☐ Solid inert material used - please specify: _____

- REMOVAL**
- ☒ Create vent hole
 - ☒ Label tank
 - ☒ Dispose of tank in approved manner
 - Final tank destination: *Floyd Grading Co*

VIII. Certification (Read and Sign)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Print name and official title of owner or owner's authorized representative <i>Sam Everett</i>	Signature <i>Sam Everett</i>	Date Signed <i>5/23/91</i>
---	---------------------------------	-------------------------------

Notice of Intent: UST Permanent Closure or Change-in-Service

FOR
TANKS
IN
NC

Return Completed Form To:

The appropriate DEM Regional Office according to the county of the facility's location. [SEE REVERSE SIDE OF OWNER'S COPY (BLUE) FOR REGIONAL OFFICE ADDRESS].

State Use Only

I. D. Number _____

Date Received _____

INSTRUCTIONS

Complete and return thirty (30) days prior to closure or change-in-service.

I. OWNERSHIP OF TANK(S)

Tank Owner Name: Pauline Bunley Everett
(Corporation, Individual, Public Agency, or Other Entity)
Street Address: 1203 East 11th Street
County: Robeson
City: Lumberton State: NC Zip Code: 28358
Tele. No. (Area Code): 919-738-5863

II. LOCATION OF TANK(S)

Facility Name or Company: Oscar Bunley Grocery
Facility ID # (if available): None
Street Address or State Road: Highway 211 - East
County: Robeson City: Lumberton Zip Code: 28358
Tele. No. (Area Code): None

III. CONTACT PERSON

Name: Sam Everett Job Title: Husband Telephone Number: 919, 738-5863

IV. TANK REMOVAL, CLOSURE IN PLACE, CHANGE-IN-SERVICE

1. Contact Local Fire Marshall.
2. Plan the entire closure event.
3. Conduct Site Soil Assessments.
4. If Removing Tanks or Closing in Place refer to API Publications. 2015 "Cleaning Petroleum Storage Tanks" & 1604 "Removal & Disposal of Used Underground Petroleum Storage Tanks".
5. Provide a sketch locating piping, tanks and soil sampling locations.
6. Fill out form GW/UST-2 "Site Investigation Report for Permanent Closure" and return within 30 days following the site investigation.
7. Keep records for 3 years.

V. WORK TO BE PERFORMED BY:

(Contractor) Name: Floyd Grading Co.
Address: P.O. Box 3197 Lumberton State: N.C. Zip Code: 28359
Contact: Calvin F. Floyd Phone: Office 671-1177

VI. TANK(S) SCHEDULED FOR CLOSURE OR CHANGE-IN-SERVICE

TANK ID#	TANK CAPACITY	LAST CONTENTS	PROPOSED ACTIVITY		
			CLOSURE		CHANGE-IN-SERVICE
			Removal	Abandonment In Place	New Contents Stored
<u>1</u>	<u>550</u>	<u>GAS</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>2</u>	<u>550</u>	<u>GAS</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	

VII. OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE

Print name and official title

Sam Everett - Owner

*Scheduled Removal Date: 5/23/91

Signature: Sam Everett

Date Submitted: 5/23/91

*If scheduled work date changes, notify your appropriate DEM Regional Office 48 hours prior to originally scheduled date.

APPLICATION TO USE, INSTALL, CONDUCT PROCESSES OR
CARRY ON OPERATIONS INVOLVING OR CREATING CONDI-
TIONS DEEMED HAZARDOUS TO LIFE OR PROPERTY

10-14-83
Date

To Chief of Fire Department, City of Lumberton, N. C.

Application is hereby made by the undersigned for a Permit to

Use
Install
Operate
Conduct

in or on the premises known as TACO-BELL / FAYETTEVILLE ROAD + ROBERTS ~~Street~~ or Avenue
the following materials, processes or operations.

(Describe briefly what is to be done and state what hazardous materials are to be used.)

FOR THE REMOVAL OF 4 - 4000 GALLON

UNDERGROUND GASOLINE STORAGE TANKS.

#12-83

Conditions, surroundings and arrangements to be in accordance with the Fire Prevention Ordinance.

This application ^{is} ~~is not~~ approved insofar
as Zoning and Building Ordinances are
concerned.

Inspector of Buildings

C. M. Lumberton Jr.
Name of Applicant

P.O. Box 1887
Lumberton N.C.
Address of Applicant

Complete plans and construction details must be filed on all major projects and when requested by the chief of the fire department.



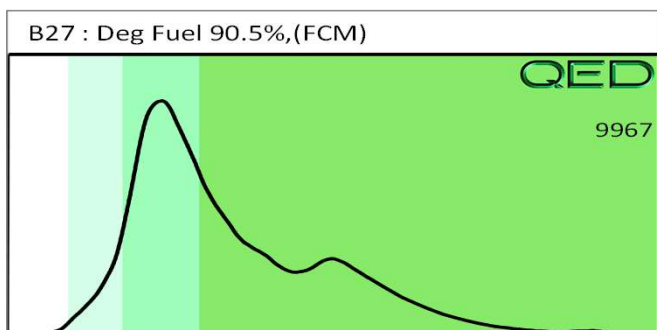
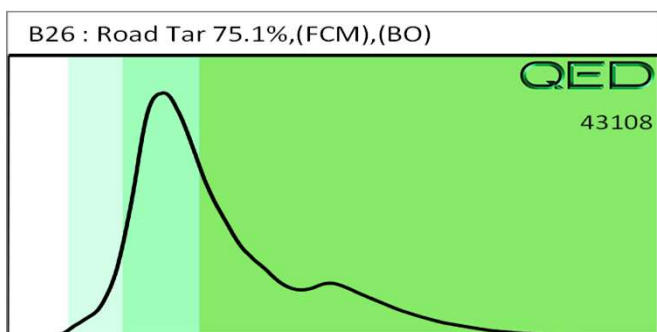
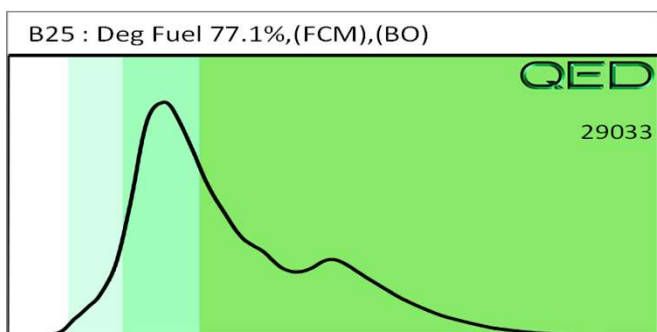
Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

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 call range : (M) = Modified Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 analyser





PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2019-091)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 19 NCDOT PROJECT U-5797

HIGHWAY 211 EAST, LUMBERTON, NC

APRIL 22, 2019

Report prepared for: Christopher J. Burkhardt, PWS
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Prepared by: _____

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Reviewed by: _____

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C257: GEOLOGY

C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 19 - Highway 211 East
Lumberton, Robeson County, North Carolina

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LIST OF ACRONYMS

CADD	Computer Assisted Drafting and Design
DF	Dual Frequency
EM.....	Electromagnetic
GPR.....	Ground Penetrating Radar
GPS	Global Positioning System
NCDOT.....	North Carolina Department of Transportation
ROW	Right-of-Way
UST	Underground Storage Tank

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for Falcon Engineers at Parcel 19, located on Highway 211 East in Lumberton, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project U-5797). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from March 18-19, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The geophysical investigation consisted of an electromagnetic (EM) induction-metal detection survey. A total of six EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface; therefore, a GPR survey was not required. The geophysical data did not record any evidence of metallic USTs within the geophysical survey area at Parcel 19.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Falcon Engineers at Parcel 19, located on Highway 211 East in Lumberton, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project U-5797). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from March 18-19, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included asphalt parking areas and grass medians near a commercial restaurant building. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of an electromagnetic (EM) induction-metal detection survey. Pyramid collected the EM data using a Geonics EM61-MK2 (EM61) metal detector integrated with a Geode External GPS/GLONASS receiver. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at approximately 0.8-foot intervals along north-south trending or east-west trending, generally parallel survey lines, spaced five feet apart. The data were downloaded to a

computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 15.0 software programs.

GPR data were not required due to all EM anomalies being directly attributed to visible cultural features at the ground surface (See *Discussion of Results* section below).

Pyramid's classifications of USTs for the purposes of this report are based directly on the geophysical UST ratings provided by the NCDOT. These ratings are as follows:

Geophysical Surveys for Underground Storage Tanks on NCDOT Projects			
High Confidence	Intermediate Confidence	Low Confidence	No Confidence
Known UST Active tank - spatial location, orientation, and approximate depth determined by geophysics.	Probable UST Sufficient geophysical data from both magnetic and radar surveys that is characteristic of a tank. Interpretation may be supported by physical evidence such as fill/vent pipe, metal cover plate, asphalt/concrete patch, etc.	Possible UST Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist's discretion.

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The following table presents the list of EM anomalies and the cause of the metallic response, if known:

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Fence	
2	Sign	
3	Surface Metal	
4	Utility	
5	Utility	
6	Sign	

All of the EM anomalies were directly attributed to visible cultural features at the ground surface, including a fence, signs, surface metal, and utilities. Therefore, a GPR survey was not required.

The geophysical data did not record any evidence of unknown metallic USTs within the geophysical survey area at Parcel 19. **Figure 3** provides an overlay of the EM61 metal detection contour map onto the NCDOT MicroStation engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 data collected at Parcel 19 in Lumberton, North Carolina, provides the following summary and conclusions:

- The EM61 survey provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- All of the EM anomalies were directly attributed to visible cultural features at the ground surface; therefore, a GPR survey was not required.
- The geophysical data did not record any evidence of unknown metallic USTs within the geophysical survey area at Parcel 19.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Falcon Engineers in accordance with generally accepted guidelines for EM61 surveys. It is generally recognized that the results of the EM61 surveys are non-unique and may not represent actual subsurface conditions. The EM61 results obtained for this project have not conclusively determined the definitive presence or absence of metallic USTs, but the evidence collected is sufficient to result in the conclusions made in this report. Additionally, it should be understood that areas containing extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area
(Facing Approximately North)



View of Survey Area
(Facing Approximately West)



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PROJECT
PARCEL 19
LUMBERTON, NORTH CAROLINA
NCDOT PROJECT U-5797

TITLE
PARCEL 19 - GEOPHYSICAL
SURVEY BOUNDARIES AND SITE PHOTOGRAPHS

DATE
3/26/2019
PYRAMID
PROJECT #:
2019-091

CLIENT
FALCON ENGINEERS
FIGURE 1

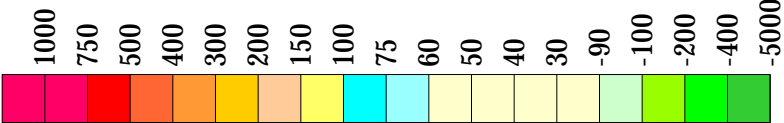
EM61 METAL DETECTION RESULTS

NO EVIDENCE OF METALLIC
USTs OBSERVED.

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM data were collected on March 18-19, 2019, using a Geonics EM61-MK2 instrument. All of the EM anomalies were associated with surface features and verification GPR was not necessary.



EM61 Metal Detection Response
(millivolts)



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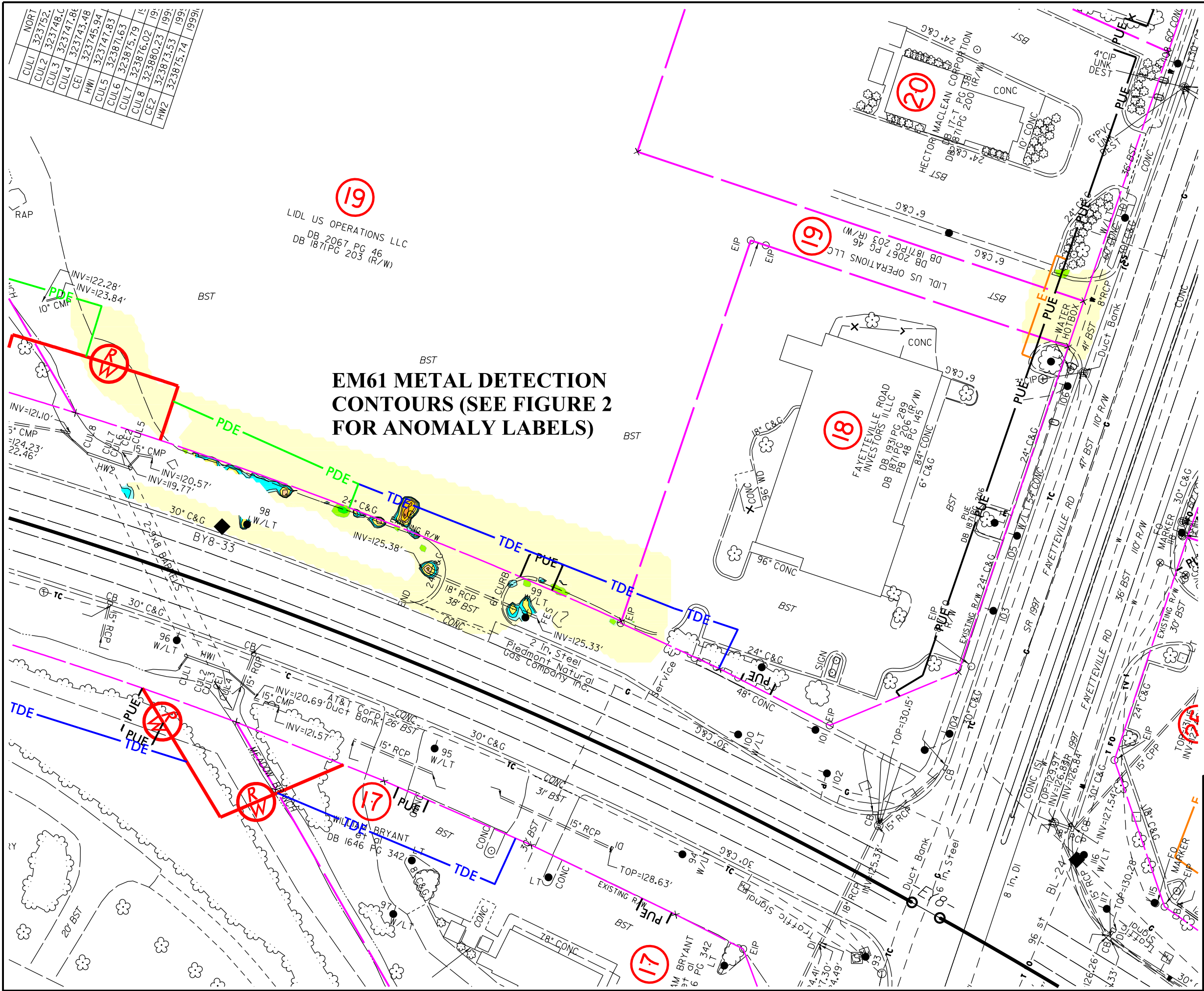
PROJECT
PARCEL 19
LUMBERTON, NORTH CAROLINA
NCDOT PROJECT U-5797

TITLE
PARCEL 19 -
EM61 METAL DETECTION CONTOUR MAP

DATE
3/26/2019
PYRAMID
PROJECT #: 2019-091

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FIGURE 2

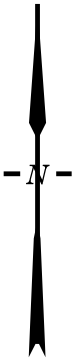
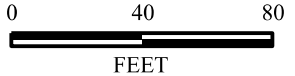
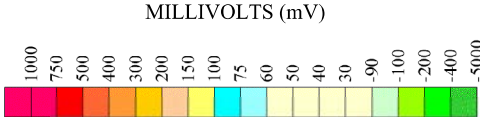
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CUL2	323748.0	
CUL3	323747.8	
CUL4	323747.8	
CE1	323743.48	
HW1	323745.94	
CUL5	323871.63	
CUL6	323875.79	
CUL7	323876.02	
CUL8	323880.23	
CE2	323873.53	
HW2	323875.74	



**EM61 METAL DETECTION
CONTOURS (SEE FIGURE 2
FOR ANOMALY LABELS)**

LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED PERMANENT UTILITY EASEMENT
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE



TITLE OVERLAY OF METAL DETECTION RESULTS ON NCDOT ENGINEERING PLANS	
PROJECT PARCEL 019 LUMBERTON, NORTH CAROLINA NCDOT PROJECT U-5797	
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DATE: 04-11-2019	REVISION NO. 0
PYRAMID PROJECT NO. 2019-091	FIGURE NO. 3