



September 16, 2021
Kleinfelder File No. RAL21R130512

Mr. John L. Pilipchuk, LG, PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

**SUBJECT: Preliminary Site Assessment Report
Parcel 149, Absher, Terry Lee
WBS Element No. 44691.1.1, TIP No. R-5759
Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and
North Wilkesboro, Wilkes County, NC
Kleinfelder Project No. 20221238.001A**

Dear Mr. Pilipchuk,

Kleinfelder is pleased to provide its report detailing the activities conducted as part of the preliminary site assessment for the subject project.

Kleinfelder appreciates the opportunity to be of service to you. Should you have questions or require additional information, please do not hesitate to contact the undersigned.

Sincerely,
KLEINFELDER, INC.

Evan D. Amber
Staff Professional I

Michael J Burns, LG
Environmental Program Manager

EDA/MJB:asp

R-5759-P149
20221238.001A | RAL21R130512
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700 Statesville Road
September 16, 2021
www.kleinfelder.com



**PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 149, ABSHER, TERRY LEE
PIN 1405818
700 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA**

**NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND
STREET IN WILKESBORO AND NORTH WILKESBORO**

KLEINFELDER PROJECT NO. 20221238.001A

SEPTEMBER 16, 2021

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PROJECT FOR WHICH THIS REPORT WAS PREPARED.**

A Report Prepared for:

Mr. John L. Pilipchuk, LG, PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

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PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND
NORTH WILKESBORO**

Prepared by:



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September 16, 2021

Kleinfelder Project No. 20221238.001A

PRELIMINARY SITE ASSESSMENT REPORT

Site Name and Location: Parcel 149
700 Statesville Road
North Wilkesboro, Wilkes County, North Carolina

Latitude and Longitude: 36.16524°N, -81.13043°W

County Parcel Number 1405818

Facility ID Number: N/A

Leaking UST Incident: N/A

State Project No.: R-5759

NCDOT Project No.: NCDOT WBS Element 44691.1.1

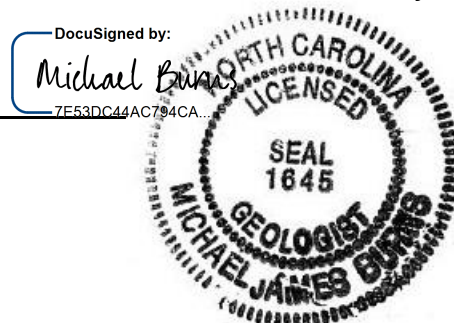
Description: Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro

Date of Report: September 16, 2021

Consultant: Kleinfelder, Inc.
3200 Gateway Center Boulevard | Suite 100
Morrisville, North Carolina 27560
Corporate Geology License No. C-521
Corporate Licensure for Engineering F-1312

SEAL AND SIGNATURE OF CERTIFYING LICENSED GEOLOGIST

I, Michael J Burns, a Licensed Geologist for Kleinfelder, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.



Michael J Burns, LG
NC License No. 1645

TABLE OF CONTENTS

1	INTRODUCTION	4
1.1	SITE DESCRIPTION	4
1.2	SCOPE OF WORK.....	5
2	HISTORY	6
2.1	PARCEL USAGE.....	6
2.2	FACILITY ID NUMBERS	6
2.3	GROUNDWATER INCIDENT NUMBERS	6
3	OBSERVATIONS.....	7
3.1	GROUNDWATER MONITORING WELLS	7
3.2	ACTIVE USTS	7
3.3	FEATURES APPARENT BEYOND THE PROJECT STUDY AREA	7
3.4	INTERIOR OF THE AUTOMOTIVE GARAGE	7
4	METHODS	8
4.1	PROPERTY OWNER CONTACTS	8
4.2	HEALTH AND SAFETY	8
4.3	GEOPHYSICAL INVESTIGATION	8
4.4	SOIL ASSESSMENT	8
4.5	SOIL ANALYSIS.....	10
5	RESULTS	11
5.1	GEOPHYSICAL INVESTIGATION	11
5.2	SOIL SAMPLING DATA	11
5.3	SAMPLE OBSERVATIONS.....	11
5.4	QUANTITY CALCULATIONS	11
6	CONCLUSIONS.....	12
7	RECOMMENDATIONS	13
8	LIMITATIONS	14

TABLES

- 1 Soil Sample Screening Results
- 2 Soil Sample Analytical Summary

FIGURES

- 1 Site Location
- 2 Site Plan

APPENDICES

- A Site Photographs
- B Geophysical Survey Report
- C Boring Logs
- D Analytical Reports and Graphs

**PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 149, ABSHER, TERRY LEE
PIN 1405818
700 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA**

**NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND
NORTH WILKESBORO**

1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report to document assessment activities performed on Parcel 149 (the assessment area is hereafter referred to as the “Project Study Area”). The Project Study Area consists of the southern and western portions of a parcel that are within the right-of-way and/or easement on Wilkes County Tax Assessor’s Office Parcel Number 1405818. Parcel 149 is currently occupied by an automotive exhaust service operation. Parcel 149 is located along the northeastern side of NC 115 (US 421 BUS AKA Statesville Road), east of Veterans Drive, in North Wilkesboro, Wilkes County, North Carolina (Figure 1).

Based on the information provided in the Pre-Scoping Comments letter, dated September 20, 2018, prepared by the North Carolina Department of Transportation (NCDOT), the parcel (listed as Site # 17 in the letter) was reported as an exhaust service operation with two bay doors along the western side of the building that may contain in-ground hydraulic lifts. The letter listed anticipated impacts as the possible presence of underground storage tanks (USTs) and petroleum impacted soil and/or groundwater. As such, the purpose of the PSA was to: (A) evaluate whether USTs and/or contaminated soil are present in the Project Study Area that may result in increased project costs and future liability if acquired by the NCDOT; and (B) coordinate with the NCDOT Right of Way Agent to inspect the interior of the automotive garage building on Parcel 149 to evaluate for the presence of in-ground hydraulic lifts.

1.1 SITE DESCRIPTION

Parcel 149 has a listed owner of Absher, Terry Lee. The parcel’s street address is 700 Statesville Road. The parcel consists of an automotive exhaust service operation (Terry’s Muffler Shop) in

the eastern portion of the parcel and a paved asphalt parking lot in the northwestern portion of the parcel.

The parcel is bounded by NC 115 to the south, beyond which is a NCDOT office building (Division 11 Right of Way Office) and residential homes; by Veterans Drive to the west, beyond which is a parking lot and a NCDOT facility (Bituminous Department, Roadside Environmental Department, and the Traffic Services Department); by the Blue Ridge Opportunity Commission building and parking area to the north, beyond which is Orange Street and vacant, vegetated land; and by commercial land to the east associated with Hair & Tanning and Absher's Body & Repair Center, beyond which is commercial land associated with Gems MFG. Systems and A&J Rental.

Photographs of the Project Study Area are provided in Appendix A.

1.2 SCOPE OF WORK

Kleinfelder conducted this PSA in accordance with the NCDOT's June 1, 2021, Request for Technical and Cost Proposal (RFP) and Kleinfelder's June 16, 2021, Technical and Cost Proposal. The NCDOT granted a formal Notice to Proceed on June 21, 2021.

2 HISTORY

2.1 PARCEL USAGE

The parcel consists of an automotive exhaust service operation (Terry's Muffler Shop) in the eastern portion of the parcel and a paved asphalt parking lot in the northwestern portion of the parcel.

The September 20, 2018 Pre-Scoping Comments letter did not list a Facility ID Number associated with the property, but did identify two bay doors along the western side of the building that may contain in-ground hydraulic lifts. The letter listed anticipated impacts as the possible presence of USTs and petroleum impacted soil and/or groundwater. The proposed NCDOT easement passes through a portion of the parcel that encompasses a portion of the building and suggests that the building may be demolished by the NCDOT.

Kleinfelder conducted historical research to determine whether additional environmental listings were identified for Parcel 149. The following are the results of the additional research:

- Based on a review of historical aerial photographs using Google Earth Pro and the NCDOT Historical Aerial Imagery Index, the site appeared to have similar development since at least September 30, 1959. Historical imagery was not available prior to this year.
- Kleinfelder searched the registered UST database, maintained by the NCDEQ. The site was not listed with a Facility ID Number.
- No other listings for Parcel 149 were identified on any of the available NCDEQ pollution incident databases.

2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcel 149. The site was not listed with a Facility ID Number.

2.3 GROUNDWATER INCIDENT NUMBERS

No active groundwater incidents are known to be associated with Parcel 149 at this time.

3 OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

No active groundwater monitoring wells were observed on Parcel 149 at the time of site exploration, Thursday, August 5, 2021.

3.2 ACTIVE USTS

Based on review of the NCDEQ UST database, site visits and previous reports, there are no active regulated USTs located on site.

3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA

The Project Study Area consisted of the southern and western portions of the parcel within the NCDOT right-of-way or easement. There were no other features of concern observed in other portions of the parcel beyond the Project Study Area.

3.4 INTERIOR OF THE AUTOMOTIVE GARAGE

Kleinfelder was not able to observe the interior of the automotive garage building on Parcel 149 to evaluate for the presence of in-ground hydraulic lifts, as Kleinfelder had not received entry authorization from the NCDOT Right of Way Agent by the time of site exploration, Thursday, August 5, 2021.

4 METHODS

4.1 PROPERTY OWNER CONTACTS

As part of Kleinfelder's scope of work, the listed property owner was contacted about the work schedule for the field work and the type of work being performed. The owner did not express any concern or special conditions associated with the work being performed.

4.2 HEALTH AND SAFETY

Prior to commencing the field work, Kleinfelder personnel developed a Site-Specific Health and Safety Plan (HASP) covering activities to be performed. The site-specific HASP was discussed with all Kleinfelder personnel involved with the project and at a daily on-site "tail gate" safety meetings with subcontractors and sub consultants. In addition to the HASP, Kleinfelder utilized its comprehensive Corporate Health and Safety Program, targeted to address those specific and critical tasks that involve Kleinfelder personnel and subcontractors. The Loss Prevention System (LPS™), a behavior-based program, is Kleinfelder's company-wide safety system implemented and embraced by all levels of the company.

4.3 GEOPHYSICAL INVESTIGATION

Pyramid Environmental & Engineering, P.C (Pyramid) conducted a geophysical investigation in the Project Study Area between July 14 and 16, 2021. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to locate potential geophysical anomalies and potential USTs within the Project Study Area.

A total of five (5) EM anomalies were identified, all of which were directly attributed to visible cultural features at the ground surface, including a drop inlet, vehicles, a building, bollards, and a mailbox. Parked vehicles within the Project Study Area prevented GPR equipment access to collect verification data.

A copy of the Pyramid Geophysical Investigation Report, detailing the field methodology, is included in Appendix B.

4.4 SOIL ASSESSMENT

The scope of work for the soil assessment was to evaluate the presence of soil contamination along the existing right-of-way and/or easement to evaluate whether known impact is present in

this area and maybe migrating off-site. The soil borings were planned to be advanced to maximum depths of 12-feet below the ground surface (ft bgs) since the depth of any former UST basins may be up to 10-ft bgs. Field screening using a photoionization detector (PID) was conducted at 1-foot intervals beginning from the ground surface to total boring depth. The soil sample with the highest PID reading above background or the sample from the maximum drilled depth was selected for on-site laboratory analyses.

Prior to the drilling activities, public utilities were marked by NC One Call and private utilities were marked by Pyramid.

Kleinfelder subcontracted South Atlantic Environmental Drilling and Construction Company (SAEDACCO) to perform the drilling on-site on August 5, 2021. SAEDACCO advanced three (3) soil borings (P149-B1 through P149-B3) by direct-push technology at locations specified by Kleinfelder. An additional boring was attempted within the right-of-way along Veterans Drive in the western portion of the parcel, which struck an unmarked municipal water supply pipe at approximately 4-ft bgs. The Town of North Wilkesboro handled the repair of the pipe as the party responsible for not originally marking the utility per NC811. No additional soil borings were attempted in this area after the utility was struck. The soil boring locations were identified in the field using a GPS. The borings were located within the right-of-way on the southern and western sides of the building in the vicinity of the bay doors. The soil boring locations are shown on Figure 2.

Soil samples were collected by driving Macro Core™ samplers in 5-foot intervals to boring termination where direct-push technology was applied. Each soil core was cut open, the soil samples were classified, and the soil divided into 1-foot sections. Each 1-foot section, collected via either method, was screened in the field using a PID. The PID readings are summarized in Table 1.

Soils were determined to be primarily composed of reddish-brown, yellowish-brown, dark brown, and gray clays and sandy clays from the surface to 8-10-ft bgs, with reddish-brown and yellowish-brown silty sands, sands, and sandy silts comprising soils at deeper depths. Soil borings P149-B1 and P149-B2 contained black and white rock fragments at 10-ft bgs and 12-ft bgs, respectively. Groundwater was not encountered in any of the borings at the termination depths of 12-ft bgs. Copies of the boring logs are included in Appendix C.

4.5 SOIL ANALYSIS

The PID readings from soil borings advanced were noted to be low, with a maximum of concentration of 5.9 parts per million (ppm) from soil boring P149-B1 at 9-ft bgs. Based on the PID data and visual observations, one or two of the samples from each boring were selected for on-site laboratory analysis.

Selected samples were analyzed by RED Lab, LLC utilizing ultraviolet fluorescence (UVF) methodology to provide real-time analytical results of Total Petroleum Hydrocarbons (TPH), Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The UVF method was selected because of the suspected historical or current use of petroleum products on Parcel 149. The UVF analysis also provided data regarding Environmental Protection Agency 16 total Polycyclic Aromatic Hydrocarbons (PAHs), and Benzo(a)pyrene (BaP).

5 RESULTS

5.1 GEOPHYSICAL INVESTIGATION

The EM and GPR surveys did not identify USTs or unknown geophysical anomalies within the accessible portions of the Project Study Area.

5.2 SOIL SAMPLING DATA

The UVF analysis of soil samples did not indicate the presence of petroleum impact in any of the soil samples analyzed. As such, shallow soil impact does not appear to be present within the existing right-of-way above NCDEQ Action Levels. A summary of soil sample PID readings are presented in Table 1, and laboratory analytical results are presented in Table 2. The laboratory results associated with each boring are presented on Figure 2. The laboratory report and graphs are included in Appendix D.

5.3 SAMPLE OBSERVATIONS

Soils were observed for any obvious evidence of contamination. No visual or olfactory evidence of contamination was noted in any of the soil samples from the borings.

5.4 QUANTITY CALCULATIONS

Kleinfelder did not identify soil impact in the current right-of-way.

6 CONCLUSIONS

Based on results of the EM/GPR survey, soil assessment and field observations, Kleinfelder has reached the following conclusions:

- The GPR and EM investigation did not identify USTs or unknown features within the accessible portions of the Project Study Area.
- The site is not listed in the NCDEQ UST Database with a Facility ID Number. No indication of the presence or likely presence of inactive USTs was observed on Parcel 149 at the time of site exploration, August 5, 2021.
- No soil impact was detected in borings advanced within the current right-of-way above the NCDEQ Action Levels for TPH GRO and DRO.
- Groundwater was not encountered in the soil borings at a depth of 12-ft bgs.
- Kleinfelder was not provided access by the NCDOT Right of Way Agent to the interior of the automotive garage building to evaluate for the presence of in-ground hydraulic lifts by the time of site exploration, August 5, 2021.

7 RECOMMENDATIONS

Based on results of this Preliminary Site Assessment, Kleinfelder recommends that no additional sampling or special handling of soils be performed within the Project Study Area on Parcel 149 in North Wilkesboro, Wilkes County, North Carolina.

8 LIMITATIONS

Kleinfelder's work will be performed in a manner consistent with that level of care and skill ordinarily exercised by other members of its profession practicing in the same locality, under similar conditions and at the date the services are provided. Kleinfelder's conclusions, opinions and recommendations will be based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, Kleinfelder's clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that NCDOT has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. NCDOT is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of

Kleinfelder's services. NCDOT is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

TABLES

Table 1: Soil Sample Screening Results

Date	Sample ID	Depth (ft)	PID Reading	Notes
8/5/2021	R-5759-P149-B1	1	0.0	
		2	1.0	
		3	1.7	
		4	1.9	
		5	1.1	
		6	0.2	
		7	2.2	
		8	3.0	
		9	5.9	UVF Analytical
		10	5.5	
		11	3.3	
		12	1.7	
8/5/2021	R-5759-P149-B2	1	0.8	
		2	1.1	
		3	0.3	
		4	0.1	
		5	3.6	UVF Analytical
		6	0.0	
		7	2.2	
		8	3.1	
		9	3.5	
		10	3.6	UVF Analytical
		11	1.8	
		12	2.2	
8/5/2021	R-5759-P149-B3	1	2.6	
		2	0.2	
		3	0.5	UVF Analytical
		4	2.5	
		5	0.4	
		6	4.6	
		7	0.9	
		8	5.3	UVF Analytical
		9	5.2	
		10	2.8	
		11	1.0	
		12	0.1	

1) PID = Photoionization Detector

2) PID readings in parts per million (ppm)

3) NA = Not Analyzed

4) UVF = Ultraviolet Fluorescence

TABLE 2: Soil Sample Analytical Summary

Parameter	Analytical Results					Comparison Criteria		
	Soil Sample Results							
Sample ID	P149-B1-9	P149-B2-5	P149-B2-10	P149-B3-3	P149-B3-8	State Action Level	Protection of Groundwater	Residential Health
PID Reading (ppm)	5.9	3.6	3.6	0.5	5.3			
Collection Depth (ft bgs)	9	5	10	3	8			
Collection Date	8/5/21	8/5/21	8/5/21	8/5/21	8/5/21			
UVF Method								
Diesel Range Organics	<0.18	1.4	0.08	19.5	0.08	100	--	--
Gasoline Range Organics	<0.4	<0.6	<0.5	<0.6	<0.6	50	--	--

Notes:

Results displayed in milligrams per kilogram (mg/kg)

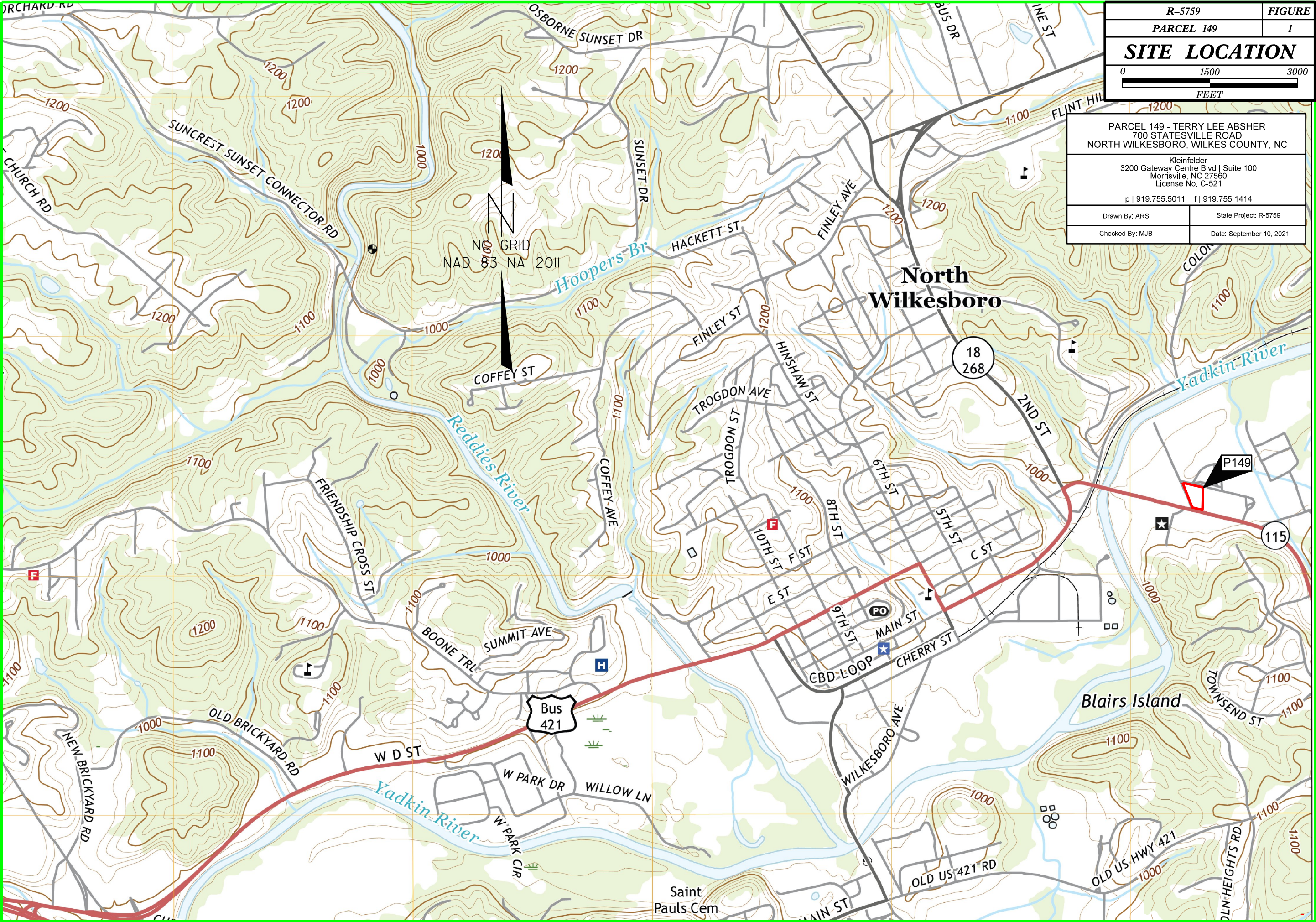
ft bgs = Feet below ground surface

Bold = Above Laboratory Detection Level

Highlighted concentrations exceed the NCDEQ action level

UVF = Ultraviolet Fluorescence

FIGURES



R-5759	FIGURE
PARCEL 149	1
SITE LOCATION	
0 1500 3000 FEET	

PARCEL 149 - TERRY LEE ABSHER 700 STATESVILLE ROAD NORTH WILKESBORO, WILKES COUNTY, NC	
Kleinfelder 3200 Gateway Centre Blvd Suite 100 Morrisville, NC 27560 License No. C-521 p 919.755.5011 f 919.755.1414	
Drawn By: ARS	State Project: R-5759
Checked By: MJB	Date: September 10, 2021

APPENDIX A

SITE PHOTOGRAPHS



View facing east from the northern portion of the Project Study Area along Veterans Drive, depicting two bay doors of the automotive exhaust service station.



View facing east from the northern portion of the Project Study Area along Veterans Drive, depicting two bay doors of the automotive exhaust service station.

Original in Color



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SITE PHOTOGRAPHS

Preliminary Site Assessment Report
R-5759 – Parcel 149, Absher, Terry Lee
700 Statesville Road
North Wilkesboro, Wilkes County, NC 28659

FIGURE

A-1



View facing west from the southeastern corner of the Project Study Area along NC 115.

Original in Color



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FILE NAME:	Photo Pages

SITE PHOTOGRAPHS

Preliminary Site Assessment Report
R-5759 – Parcel 149, Absher, Terry Lee
700 Statesville Road
North Wilkesboro, Wilkes County, NC 28659

FIGURE

A-2

APPENDIX B
GEOPHYSICAL SURVEY REPORT



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2021-190)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 149 NCDOT PROJECT U-5759

700 STATESVILLE ROAD, NORTH WILKESBORO, NC

August 6, 2021

Report prepared for: Michael Burns, P.G.
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3200 Gateway Centre Blvd., Suite 100
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Prepared by: _____

A handwritten signature in black ink, appearing to read "E. Cross".

Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____

A handwritten signature in black ink, appearing to read "Doug Canavella".

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C257: GEOLOGY

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GEOPHYSICAL INVESTIGATION REPORT
Parcel 149 - 700 Statesville Road
North Wilkesboro, Wilkes County, North Carolina

Table of Contents

Executive Summary	3
Introduction.....	2
Field Methodology.....	2
Discussion of Results.....	3
<i>Discussion of EM Results</i>	3
Summary & Conclusions	4
Limitations	5

Figures

- Figure 1 – Parcel 149 - Geophysical Survey Boundaries and Site Photographs
- Figure 2 – Parcel 149 - EM61 Metal Detection Contour Map
- Figure 3 – Overlay of Metal Detection Results on NCDOT Engineering Plans

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 (Pyramid) conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 149, located at 700 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted on July 16, 2021, 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 five EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. Verification ground penetrating radar (GPR) data was not collected due to the vehicles at the site. These areas were not able to be effectively investigated with GPR. These areas could be revisited in a supplemental geophysical investigation should they be cleared of these objects. The geophysical data recorded no evidence of metallic USTs at Parcel 149.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 149, located at 700 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted on July 16, 2021, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site consisted of an automotive repair facility surrounded by asphalt, concrete, and grass surfaces. Most of the site is occupied by vehicles. These areas were not able to be effectively investigated with GPR. These areas could be revisited in a supplemental geophysical investigation should they be cleared of these objects. 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 collected at the site. Most of the site is occupied by vehicles. These areas were not able to be effectively investigated with GPR. These areas could be revisited in a supplemental geophysical investigation should they be cleared of these objects.

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	Drop Inlet	
2	Vehicles	
3	Building	
4	Bollards	
5	Mailbox	

All of the EM anomalies were directly attributed to visible cultural features at the ground surface, including a drop inlet, vehicles, a building, bollards, and a mailbox. Verification ground penetrating radar (GPR) data was not collected due to the vehicles at the site. These areas were not able to be effectively investigated with GPR. These areas could be revisited in a supplemental geophysical investigation should they be cleared of these objects.

The geophysical data recorded no evidence of metallic USTs at Parcel 149. **Figure 3** provides an overlay of the metal detection results on the NCDOT engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 data collected at Parcel 149 in North Wilkesboro, 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.
- Verification GPR data was not collected due to the vehicles at the site. These areas were not able to be effectively investigated with GPR. These areas could be

revisited in a supplemental geophysical investigation should they be cleared of these objects.

- The geophysical data recorded no evidence of metallic USTs at Parcel 149.

LIMITATIONS

A geophysical survey has been performed and this report was prepared for Kleinfelder, Inc. 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 West)



View of Survey Area (Facing Approximately North)



503 INDUSTRIAL AVENUE
GREENSBORO, NC 27406
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

PROJECT
PARCEL 149
NORTH WILKESBORO, NORTH CAROLINA
NCDOT PROJECT U-5759

TITLE
PARCEL 149 -
GEOPHYSICAL SURVEY BOUNDARIES
AND SITE PHOTOGRAPHS

DATE
7/19/2021

PYRAMID
PROJECT #:
2021-190

CLIENT
Kleinfelder

FIGURE 1

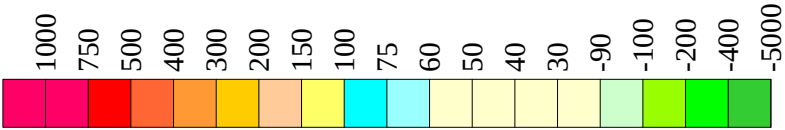
EM61 METAL DETECTION RESULTS

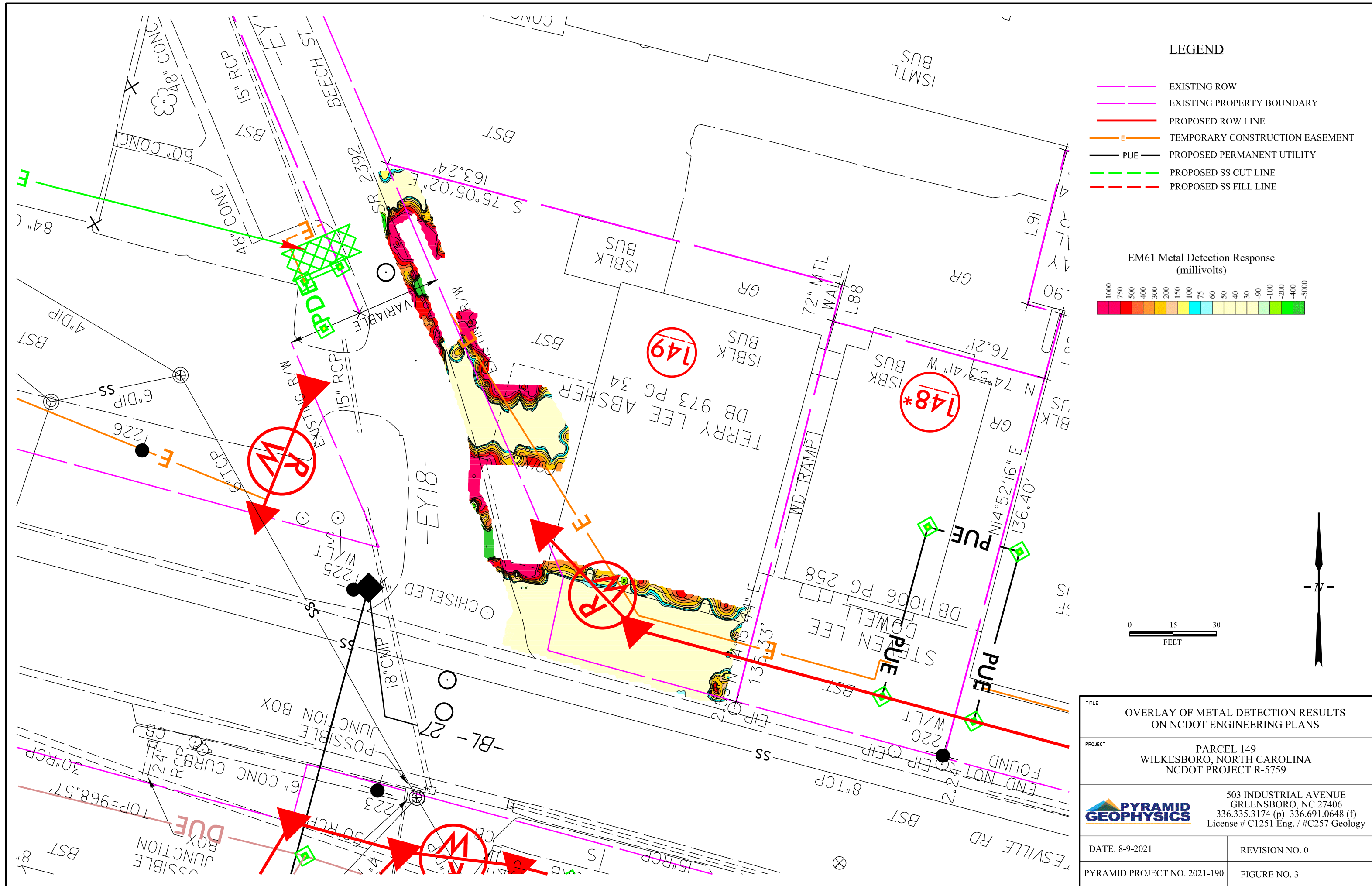


NO EVIDENCE OF METALLIC USTs WAS OBSERVED.

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 July 16, 2021, using a Geonics EM61-MK2 instrument. Verification GPR data were not collected due to the vehicles at the site. These areas were not able to be effectively investigated with GPR. These areas can be revisited for GPR investigation should they be cleared of these objects.

EM61 Metal Detection Response (millivolts)





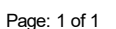
APPENDIX C

BORING LOGS

ENVIRONMENTAL BORING LOG P149-B1

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The environmental boring was backfilled with bentonite.



Date Begin - End: 8/05/2021		Drilling Company: SAEDACCO		ENVIRONMENTAL BORING LOG P149-B2					
Logged By: E. AMBER		Drill Crew: S. HUNT							
Hor.-Vert. Datum: Not Available		Drilling Equipment: 6620DT GeoProbe							
Plunge: -90 degrees		Drilling Method: See Drilling Method Column							
Weather: SUNNY		Bore Diameter:							
FIELD EXPLORATION									
Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt		
							Lithologic Description		
5	Geoprobe						ASPHALT: black		
							Clayey SILT: reddish brown		
							CLAY: gray		
10							Sandy SILT: yellowish brown and gray		
							Sandy SILT: light brown, slightly micaceous		
The borehole was terminated at approximately 12 ft. below ground surface.							<u>GROUNDWATER LEVEL INFORMATION:</u> Groundwater was not observed during drilling or after completion. <u>GENERAL NOTES:</u> The environmental boring was backfilled with bentonite.		
						PROJECT NO.: 20221238.001A		ENVIRONMENTAL BORING LOG P149-B2	
						DRAWN BY: EA		NCDOT R-5759 PSAs North Wilkesboro, NC	
						CHECKED BY: MJB			
						DATE: 8/12/2021			

Date Begin - End: 8/05/2021		Drilling Company: SAEDACCO		ENVIRONMENTAL BORING LOG P149-B3					
Logged By: E. AMBER		Drill Crew: S. HUNT							
Hor.-Vert. Datum: Not Available		Drilling Equipment: 6620DT GeoProbe							
Plunge: -90 degrees		Drilling Method: See Drilling Method Column							
Weather: SUNNY		Bore Diameter:							
FIELD EXPLORATION									
Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt		
							Lithologic Description		
5 10	Geoprobe				2.6 0.2 0.5 2.5 0.4 4.6 0.9 5.3 5.2 2.8 1.0 0.1		ASPHALT: black		
							Sandy CLAY: dark brown		
							CLAY: dark brown		
							CLAY: gray, moist		
							Silty SAND: yellowish brown		
							SAND: reddish brown and red		
The borehole was terminated at approximately 12 ft. below ground surface.						<u>GROUNDWATER LEVEL INFORMATION:</u> Groundwater was not observed during drilling or after completion. <u>GENERAL NOTES:</u> The environmental boring was backfilled with bentonite.			
 KLEINFELDER Bright People. Right Solutions.						PROJECT NO.: 20221238.001A		ENVIRONMENTAL BORING LOG P149-B3	
						DRAWN BY: EA CHECKED BY: MJB DATE: 8/12/2021		NCDOT R-5759 PSAs North Wilkesboro, NC	

APPENDIX D

ANALYTICAL REPORT AND GRAPHS

Hydrocarbon Analysis Results



Client: KLEINFELDER

Address:



Samples taken
Samples extracted
Samples analysed



Thursday, August 5, 2021

Thursday, August 5, 2021

Thursday, August 5, 2021

Contact: ABI SHURTLEFF

Operator

MAX MOYER

Project: R-5759 ; PARCEL 149

T03308

Matrix	Sample ID	Dilution used	BTEX	GRO	DRO	TPH	Total Aromatics	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
			C6-C9	C5-C10	C10-C35	C5-C35	C10-C35			C5:10	C10:C18	C18+	
Soil	B1 - 9	18.0	<0.4	<0.4	<0.18	<0.4	<0.009	<0.009	<0.005	0	0	0	PHC ND,(FCM)
Soil	B2 - 5	24.0	<0.6	<0.6	1.4	1.4	0.8	0.05	0.002	0	88.5	11.5	Deg Fuel 76.7%,(FCM),(BO)
Soil	B2 - 10	21.0	<0.5	<0.5	0.08	0.08	0.07	0.008	<0.006	0	71.9	28.1	Residual HC

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

114.4%

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

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

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

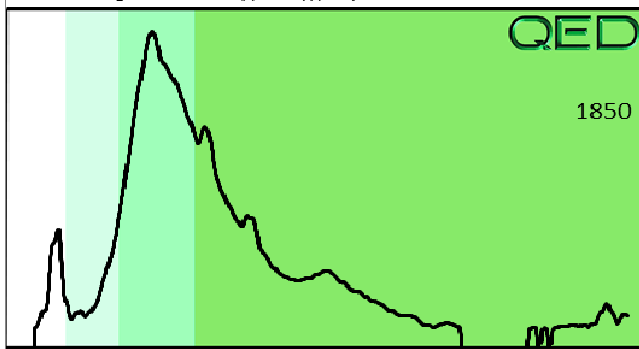
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser

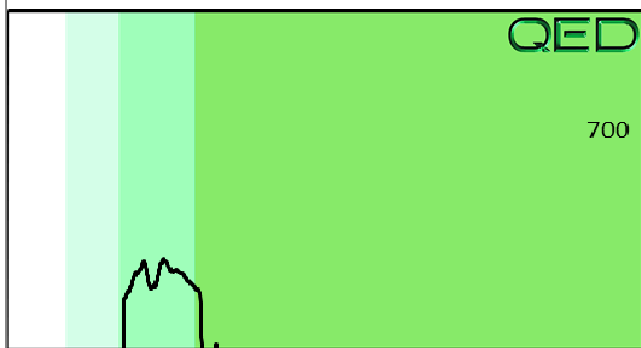
B1 - 9 : PHC IND, (FCM)



B2 - 5 : Deg Fuel 76.7%, (FCM), (BO)



B2 - 10 : Residual HC



Hydrocarbon Analysis Results



Client: KLEINFELDER

Address:



Samples taken
Samples extracted
Samples analysed



Thursday, August 5, 2021

Thursday, August 5, 2021

Thursday, August 5, 2021

Contact: ABI SHURTLEFF

Operator

MAX MOYER

Project: R-5759 ; PARCEL 149

T03308

Matrix	Sample ID	Dilution used	BTEX	GRO	DRO	TPH	Total Aromatics	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
			C6-C9	C5-C10	C10-C35	C5-C35	C10-C35			C5:10	C10:C18	C18+	
Soil	B3 - 3	24.0	<0.6	<0.6	19.5	19.5	10.4	0.3	0.001	0	91.6	8.4	V.Deg.PHC 89.2%,(FCM)
Soil	B3 - 8	24.0	<0.6	<0.6	0.08	0.08	0.06	0.007	<0.007	0	100	0	PHC ND,(FCM)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

85.3%

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

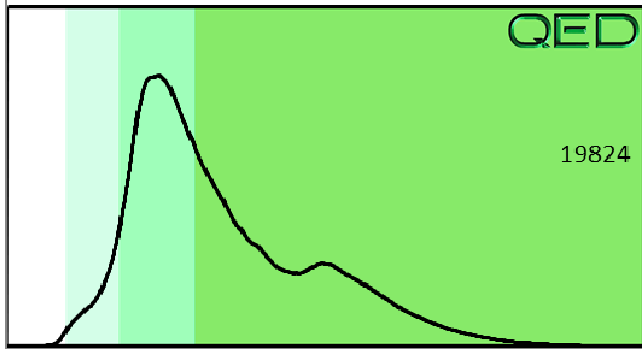
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

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

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

Data generated by HC-1 Analyser

B3 - 3 : V.Deg.PHC 89.2%,(FCM)



B3 - 8 : PHC ND,(FCM)

