



September 16, 2021
Kleinfelder File No. RAL21R130513

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 84, Hamby, William H & Jennifer W
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



**PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 84, HAMBY, WILLIAM H & JENNIFER W
PIN 2200405
1524 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

**Copyright 2021 Kleinfelder
All Rights Reserved**

**ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC
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

**PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 84, HAMBY, WILLIAM H & JENNIFER W
PIN 2200405
1524 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**

Prepared by:



Evan D. Amber
Staff Professional I



Abigail R. Shurtleff
Staff Professional II

Reviewed by:



Michael J. Burns, LG
Environmental Program Manager

KLEINFELDER
3200 Gateway Centre Blvd. | Suite 100
Raleigh, North Carolina 27560
P | 919.755.5011

September 16, 2021

Kleinfelder Project No. 20221238.001A

PRELIMINARY SITE ASSESSMENT REPORT

Site Name and Location: Parcel 84
1524 Statesville Road
North Wilkesboro, Wilkes County, North Carolina

Latitude and Longitude: 36.154730°N, -81.115668°W

County Parcel Number 2200405

Facility ID Number: N/A

Leaking UST Incident: N/A

State Project No.: R-5759

NCDOT Project No.: NCDOT WBS Element 44691.1.1

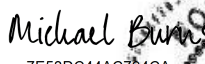
Description: Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro

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.

DocuSigned by:

7E53DC44AC7B4CA...

Michael J Burns, LG
NC License No. 1645

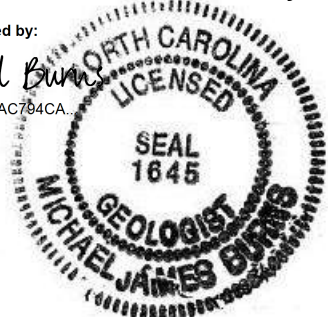


TABLE OF CONTENTS

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
4	METHODS	8
4.1	PROPERTY OWNER CONTACTS	8
4.2	HEALTH AND SAFETY	8
4.3	GEOPHYSICAL INVESTIGATION	8
4.4	SOIL ASSESSMENT	9
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	12
6	CONCLUSIONS.....	13
7	RECOMMENDATIONS	14
8	LIMITATIONS	15

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 84, HAMBY, WILLIAM H & JENNIFER W
PIN 2200405
1524 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 84 (the assessment area is hereafter referred to as the “Project Study Area”). The Project Study Area consists of the northeastern portion of a parcel that is within the right-of-way and/or easement on Wilkes County Tax Assessor’s Office Parcel Number 2200405. Parcel 84 is currently occupied by a used car lot and an office building. Parcel 84 is located along the western side of NC 115 (US 421 BUS AKA Statesville Road), approximately 400-ft northwest of the intersection with North Carolina State Road (SR) 2448 (Damascus Church Road AKA Hunter Road), in North Wilkesboro, Wilkes County, North Carolina (Figure 1).

The Pre-Scoping Comments letter, dated September 20, 2018, prepared by the North Carolina Department of Transportation (NCDOT), did not provide information regarding Parcel 84. Kleinfelder identified the site as an apparently inactive gas station with a pump island remaining on site in the Request for Technical and Cost Proposal (RFP), dated June 1, 2021. As such, the purpose of the PSA was to evaluate whether underground storage tanks and associated soil and/or groundwater contamination is present in the Project Study Area that may result in increased project costs and future liability if acquired by the NCDOT.

1.1 SITE DESCRIPTION

Parcel 84 has listed owners of Hamby, William H. & Jennifer W. The parcel’s street address is 1524 Statesville Road. The parcel consists of a used car lot and an office building in the northeastern portion of the parcel, facing NC 115. The remainder of the parcel is occupied by maintained grass areas. The parcel is bounded by vacant, vegetated land and wooded land to the northwest, west, and southeast, beyond which are residential homes; by NC 115 to the north

and to the east, beyond which is a restaurant (TJ's Café) and an automotive repair facility (Black's Collision Repair Center); and by Old US 421 Road to the north, beyond which is an agricultural equipment supplier business (B&R Equipment). 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, 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 a used car lot and an office building surrounded by maintained grass areas.

The September 20, 2018 Pre-Scoping Comments letter did not include information regarding Parcel 84. Kleinfelder identified the historical usage of the site as an inactive retail gas fueling station. The proposed NCDOT easement passes through the parcel and the prior location of a pump island, and through the likely location of an existing or former UST bed.

Kleinfelder conducted historical research to determine whether additional environmental listings were identified for Parcel 84. 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 been developed as a retail gas fueling station from at least 1980 until at least 2018. The vegetated lands surrounding the office building in the northern, western, and southern portions of the parcel were cleared of trees around 2012. Between 2018 and 2021, the site was converted to a used car lot and the asphalt pavement area was expanded. Historical imagery was not available prior to 1980.
- Kleinfelder searched the registered underground storage tank (UST) database, maintained by the NCDEQ. The site was not listed with a Facility ID Number.
- No other listings for Parcel 84 were identified on any of the available NCDEQ pollution incident databases.

2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcel 84. 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 84 at this time.

3 OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

No active groundwater monitoring wells were observed on Parcel 84 at the time of site exploration, Tuesday, August 3, 2021, and Wednesday August 4, 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. There is a known former UST bed adjacent to the northeastern side of the office building facing NC 115 and along the western boundary of the Project Study Area. Site personnel were under the impression that the USTs had been removed when the fuel island was removed to facilitate development of the property into a used car lot. Concrete debris from the former fuel island was evident just off the paved asphalt parking area south of the building. Former fuel ports and/or product piping were also observed in this area.

3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA

The Project Study Area consisted of the northeastern portion of the parcel within the NCDOT right-of-way or easement. Adjacent to the southeastern side of the office building, just outside of the Project Study Area, an inactive earthen oil pit was observed. According to site personnel, the oil pit was used for automotive and equipment oil changes. Photographs of the oil pit are provided in Appendix A. There were no other features of concern observed in other portions of the parcel beyond the Project Study Area.

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 eight (8) EM anomalies were identified, of which six (6) were directly attributed to visible cultural features at the ground surface, reinforced concrete, or known utilities. One (1) EM anomaly was associated with metal and concrete debris in the southeastern portion of the Project Study Area. One (1) EM anomaly was associated with three (3) probable USTs located beneath the concrete sidewalk along the northeastern side of the office building facing NC 115. Probable UST #1 is approximately 16-ft long by 5-ft wide, Probable UST #2 is approximately 10-ft long by 5-ft wide, and Probable UST #3 is approximately 13-ft long by 5-ft wide.

A copy of the Pyramid Geophysical Investigation Report, detailing the field methodology, is included in Appendix B, and the locations of the probable USTs are indicated on Figure 2.

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 the UST basin 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 3, 2021, and August 4, 2021. SAEDACCO advanced ten (10) soil borings (P84-B1 through P84-B10) by direct-push technology at locations specified by Kleinfelder. The soil boring locations were identified in the field using a GPS. The borings were located within the right-of-way surrounding and projecting outwards from the UST bed into the paved asphalt area and the maintained grass area in the eastern and southeastern portions of the Project Study Area, respectively. Additional borings were advanced in the vicinity of the historical fuel island and in the northern portion of the Project Study Area. Five (5) soil borings were advanced to 15-ft bgs (P84-B6 through B84-B10) to define the vertical extent of suspected soil contamination along the eastern corner of the UST bed. 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 red and reddish-brown sandy silts, clayey silts, and silty sands, with lenses of white and yellowish-brown silts and sands. Groundwater was not

encountered in any of the borings at the termination depths of 12-ft bgs and 15-ft bgs. Copies of the boring logs are included in Appendix C.

4.5 SOIL ANALYSIS

The PID readings from soil boring P84-B2 ranged from 39.9 parts per million (ppm) to 140.0 ppm between 9 to 12-ft bgs, with the highest reading at 11-ft bgs. The PID readings from soil boring P84-B8 ranged from 84.6 ppm to 152.9 ppm between 13 to 15-ft bgs, with the highest reading at 15-ft bgs. All other advanced soil boring PID readings were noted to be low. Based on the PID data and visual observations, between one and four of the samples from each boring was 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 use of petroleum products on Parcel 84. 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 unknown geophysical anomalies within the Project Study Area but did identify three (3) probable USTs located beneath the concrete sidewalk southeast of the building on-site. Probable UST #1 is approximately 16-ft long by 5-ft wide, Probable UST #2 is approximately 10-ft long by 5-ft wide, and Probable UST #3 is approximately 13-ft long by 5-ft wide.

5.2 SOIL SAMPLING DATA

The UVF analysis of soil samples indicated the presence of petroleum impact within the existing right-of-way above NCDEQ Action Levels for soil boring P84-B2 at 8, 9, and 11-ft bgs. Based on corresponding PID readings, contamination at soil boring P84-B2 is estimated to be between 7 and 12-ft bgs. The UVF analysis of soil boring P84-B8 did not indicate the presence of petroleum impact above NCDEQ Action Levels at 11 or 12-ft bgs; however, the high PID readings of 84.6 ppm to 152.9 ppm from 13 to 15-ft bgs likely suggest the presence of petroleum impact above NCDEQ action levels at these depths. Kleinfelder did not assess if soil contamination may be present below 15-ft bgs. Soil borings P84-B2 and P84-B8 were advanced adjacent to and eastwards from the eastern corner of the former UST bed, respectively. The UVF analysis of all other soil samples did not indicate the presence of petroleum impact within other portions of 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, along with the estimated horizontal area of petroleum impact. The laboratory report and graphs are included in Appendix D.

5.3 SAMPLE OBSERVATIONS

Soils were observed for any obvious evidence of contamination. An odor of petroleum was observed for soil boring P84-B1 at 11-ft bgs, for soil boring P84-B2 from 7 to 12-ft bgs, and for soil boring P84-B7 at 13-ft bgs. No visual or olfactory evidence of contamination was noted for the other soil samples from the advanced borings.

5.4 QUANTITY CALCULATIONS

The area of petroleum impact above the NCDEQ action levels in the current right-of-way is suspected to be emanating from the southeastern corner of the former UST bed and measures approximately 16-ft wide by 20-ft long. It is unknown whether the plume extends at all westerly, underneath of the commercial building, and this area is outside of the Project Study Area. The estimated area of petroleum impact is depicted on Figure 2.

Estimated Area = 320 square feet-(ft²)

Estimated Thickness = 8-ft

Estimated Impact = 94.8 cubic yards (yd³)

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 identified three (3) probable USTs located beneath the concrete sidewalk on the northeastern side of the building on-site. Probable UST #1 is approximately 16-ft long by 5-ft wide, Probable UST #2 is approximately 10-ft long by 5-ft wide, and Probable UST #3 is approximately 13-ft long by 5-ft wide.
- The site is not listed in the NCDEQ UST Database with a Facility ID Number, thus the exact age and/or construction of the three (3) probable USTs identified during the geophysical survey are not known. An inactive earthen oil pit was also observed along the eastern side of the office building, just outside of the Project Study Area and east of the probable UST bed.
- Petroleum soil impact was detected in two (2) borings advanced within the current right-of-way above the NCDEQ Action Levels for TPH GRO and DRO. The suspected source of the soil contamination is the southeastern corner of the UST bed at approximately 7-ft bgs. The petroleum soil impact is estimated to extend to at least 15-ft bgs and at least 20-ft southeasterly from the source; it unknown whether the impact extends beneath the commercial building on-site. The total volume of petroleum-impacted soils within the Project Study Area is estimated at 94.8-yd³.
- Groundwater was not encountered at the total soil boring depths of 12-ft or 15-ft bgs.

7 RECOMMENDATIONS

Based on results of this Preliminary Site Assessment, Kleinfelder recommends additional sampling or special handling of soils be performed within the estimated area of petroleum impact in the Project Study Area on Parcel 84 in North Wilkesboro, Wilkes County, North Carolina as depicted on Figure 2.

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
8/3/2021	R-5759-P84-B1	1	2.1	
		2	2.7	
		3	0.9	
		4	2.7	
		5	2.9	
		6	3.1	
		7	1.4	
		8	0.3	
		9	2.4	
		10	8.8	UVF Analysis
		11	2.0	UVF Analysis
		12	2.8	
8/3/2021	R-5759-P84-B2	1	1.2	
		2	0.2	
		3	0.0	
		4	0.3	
		5	0.8	UVF Analysis
		6	0.1	
		7	7.2	
		8	11.9	UVF Analysis
		9	51.1	UVF Analysis
		10	39.9	
		11	140.0	UVF Analysis
		12	80.1	
8/3/2021	R-5759-P84-B3	1	1.6	
		2	1.1	
		3	1.5	
		4	0.4	
		5	0.2	
		6	1.0	
		7	0.5	
		8	0.3	
		9	0.3	
		10	0.6	
		11	0.9	
		12	1.2	UVF Analysis
8/3/2021	R-5759-P84-B4	1	1.1	
		2	2.3	
		3	1.9	
		4	0.5	
		5	1.0	
		6	1.2	
		7	3.5	
		8	6.5	UVF Analysis
		9	2.4	
		10	1.4	
		11	1.9	
		12	1.2	
8/3/2021	R-5759-P84-B5	1	0.2	
		2	0.6	
		3	1.9	
		4	1.3	
		5	2.6	UVF Analysis
		6	1.2	
		7	1.6	
		8	1.6	
		9	0.6	
		10	1.7	
		11	0.6	
		12	1.7	
8/3/2021	R-5759-P84-B6	1	1.9	
		2	2.0	
		3	2.3	
		4	2.3	
		5	1.1	
		6	1.4	
		7	2.6	
		8	1.1	
		9	0.2	UVF Analysis
		10	3.0	
		11	1.6	
		12	1.3	
		13	1.7	
		14	1.1	
		15	1.1	
8/4/2021	R-5759-P84-B7	1	0.1	
		2	1.5	
		3	1.5	
		4	1.9	
		5	0.7	
		6	0.6	
		7	2.3	
		8	1.8	
		9	1.5	
		10	0.3	
		11	5.6	
		12	7.5	
		13	8.3	UVF Analysis
		14	4.9	
		15	2.7	
8/4/2021	R-5759-P84-B8	1	2.8	
		2	2.4	
		3	0.4	
		4	1.7	
		5	2.6	
		6	2.9	
		7	3.5	
		8	0.5	
		9	2.0	
		10	5.5	
		11	4.0	UVF Analysis
		12	13.6	UVF Analysis
		13	121.7	
		14	84.6	
		15	153.9	
8/4/2021	R-5759-P84-B9	1	0.4	
		2	0.8	
		3	0.7	
		4	1.6	
		5	0.7	
		6	1.3	
		7	1.5	
		8	1.2	
		9	2.3	
		10	0.7	
		11	2.2	
		12	2.5	UVF Analysis
		13	1.8	
		14	1.0	
		15	0.6	
8/4/2021	R-5759-P84-B10	1	4.1	UVF Analysis
		2	2.8	
		3	1.1	
		4	1.7	
		5	2.5	
		6	0.1	
		7	0.5	
		8	2.1	
		9	0.7	
		10	2.4	
		11	2.4	
		12	2.9	
		13	1.6	
		14	1.4	
		15	3.1	UVF Analysis

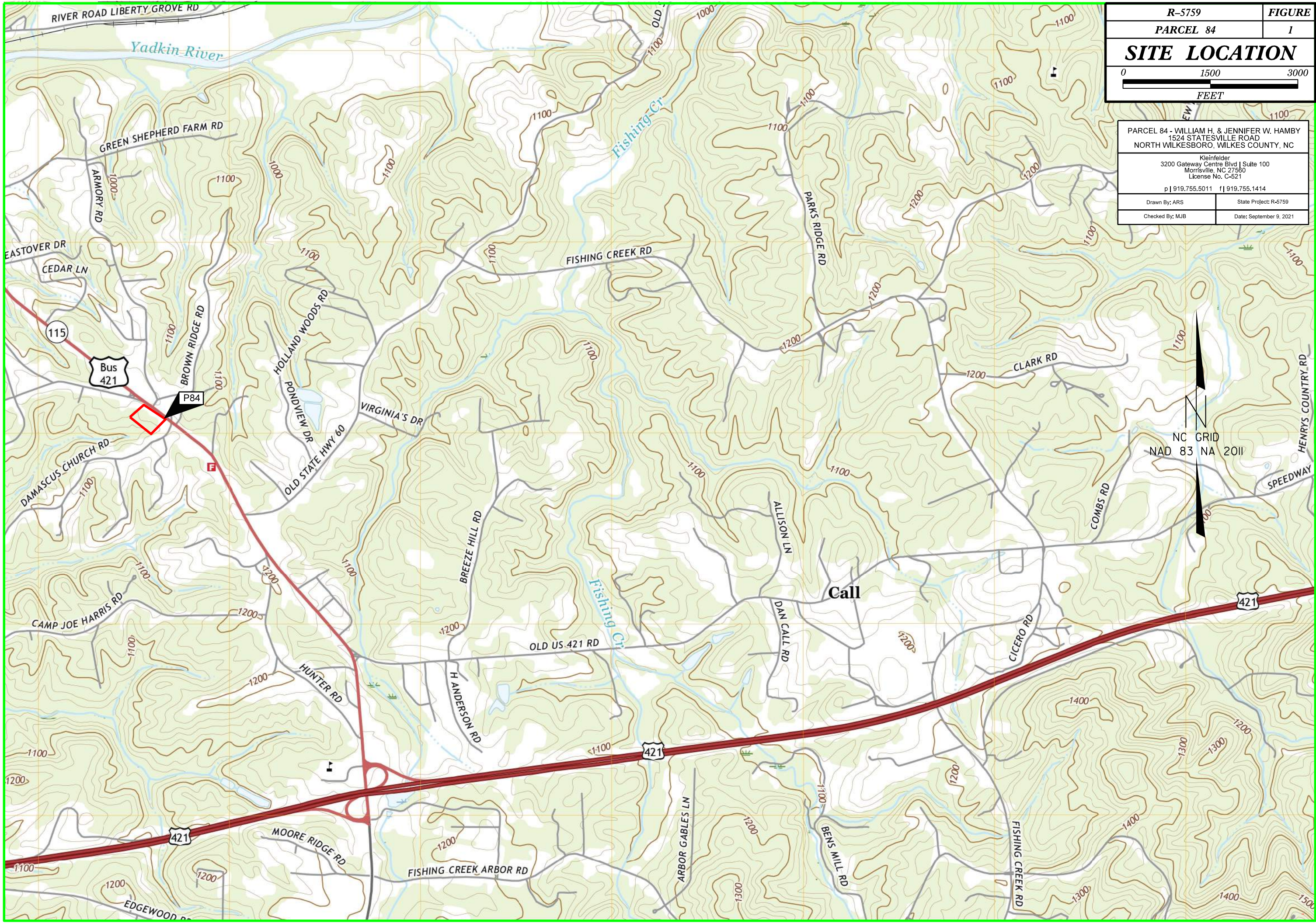
Notes:
1) PID = Photoionization Detector
2) PID readings in parts per million (ppm)
3) NA = Not Analyzed
4) UVF = Ultraviolet Fluorescence

TABLE 2: Soil Sample Analytical Summary

Parameter	Analytical Results																Comparison Criteria		
	Soil Sample Results																		
Sample ID	P84-B1-10	P84-B1-11	P84-B2-5	P84-B2-8	P84-B2-9	P84-B2-11	P84-B3-12	P84-B4-8	P84-B5-5	P84-B6-9	P84-B7-13	P84-B8-11	P84-B8-12	P84-P9-12	P84-B10-1	P84-B10-15	State Action Level	Protection of Groundwater	Residential Health
PID Reading (ppm)	8.8	2.0	0.8	11.9	51.1	140.0	1.2	6.5	2.6	0.2	8.3	4.0	13.6	2.5	4.1	3.1			
Collection Depth (ft bgs)	10	11	5	8	9	11	12	8	5	9	13	11	12	12	1	15			
Collection Date	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21			
UVF Method																			
Diesel Range Organics	1.2	4.1	0.9	470	2,119	3,113	0.9	<0.23	4.7	0.3	0.8	0.7	12.9	<0.16	2.7	0.5	100	--	--
Gasoline Range Organics	<0.50	<0.40	<0.50	390	1,299	1,658	<0.60	<0.50	<0.50	<0.40	2.4	<0.50	<0.50	<0.40	<0.40	<0.60	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



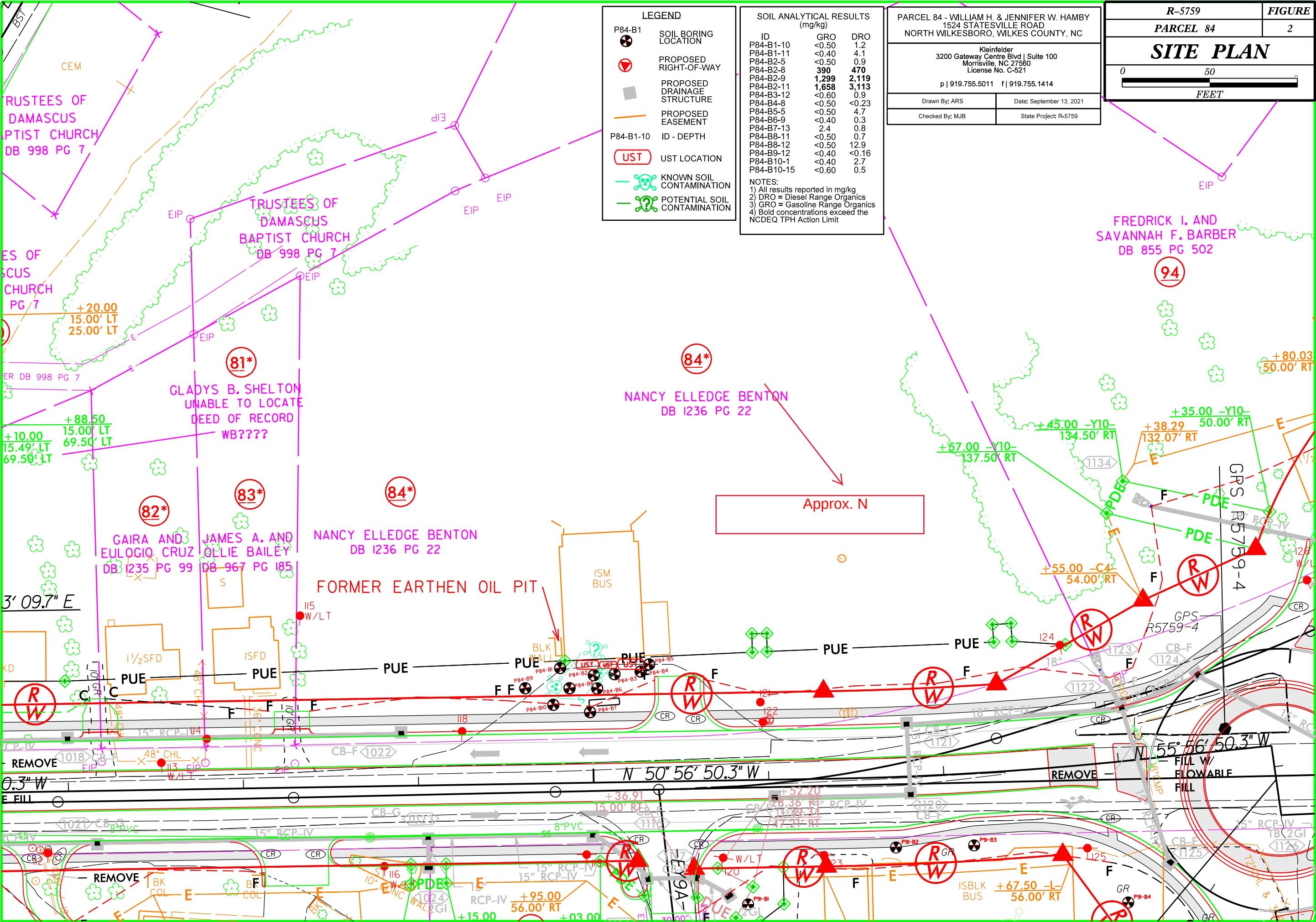
R-5759	FIGURE
PARCEL 84	1
SITE LOCATION	
0 1500 3000 FEET	

PARCEL 84 - WILLIAM H. & JENNIFER W. HAMBY
1524 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 9, 2021



APPENDIX A

SITE PHOTOGRAPHS



View facing southeast from the northwest corner of the Project Study Area along NC 115.



View facing south from the eastern boundary of the Project Study Area along NC 115, towards the used car lot and convenience store.

Original in Color

 KLEINFELDER <i>Bright People. Right Solutions.</i> www.kleinfelder.com	PROJECT NO:20221238.001A	SITE PHOTOGRAPHS	FIGURE A-1
	DRAWN: August 2021		
	DRAWN BY: EDA	Preliminary Site Assessment Report R-5759 – Parcel 84, Nancy Elledge Benton AKA Hamby, William H & Jennifer W 1524 Statesville Road North Wilkesboro, Wilkes County, NC 28659	
	CHECKED BY: MB		
	FILE NAME: Photo Pages		

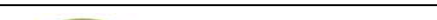


View facing northwest from the southeast corner of the Project Study Area along NC 115.



View facing northwest from the southwestern corner of the Project Study Area, towards a pile of metal and concrete debris, an inactive earthen oil pit, and the former UST bed in front of the convenience store.

Original in Color

 KLEINFELDER <i>Bright People. Right Solutions.</i> www.kleinfelder.com	PROJECT NO:20221238.001A	SITE PHOTOGRAPHS	FIGURE A-2
	DRAWN: August 2021		
	DRAWN BY: EDA	Preliminary Site Assessment Report R-5759 – Parcel 84, Nancy Elledge Benton AKA Hamby, William H & Jennifer W 1524 Statesville Road North Wilkesboro, Wilkes County, NC 28659	
	CHECKED BY: MB		
	FILE NAME: Photo Pages		



View facing northeast towards NC 115 along the southeastern side of the convenience store, depicting an earthen oil pit.



Former fuel ports associated with an inactive UST bed in front of the convenience store facing NC 115.

Original in Color

 KLEINFELDER <i>Bright People. Right Solutions.</i> www.kleinfelder.com	PROJECT NO:20221238.001A	SITE PHOTOGRAPHS	FIGURE A-3
	DRAWN: August 2021		
	DRAWN BY: EDA	Preliminary Site Assessment Report R-5759 – Parcel 84, Nancy Elledge Benton AKA Hamby, William H & Jennifer W 1524 Statesville Road North Wilkesboro, Wilkes County, NC 28659	
	CHECKED BY: MB		
	FILE NAME: Photo Pages		



The former UST bed with three probable USTs outlined with white spray paint on the northern side of the convenience store facing NC 115.



View facing west towards depicting the convenience store, the southern corner of the former UST bed, and the top of an inactive earthen oil pit.

Original in Color

 KLEINFELDER <i>Bright People. Right Solutions.</i> www.kleinfelder.com	PROJECT NO:20221238.001A	SITE PHOTOGRAPHS	FIGURE A-4
	DRAWN: August 2021		
	DRAWN BY: EDA	Preliminary Site Assessment Report R-5759 – Parcel 84, Nancy Elledge Benton AKA Hamby, William H & Jennifer W 1524 Statesville Road North Wilkesboro, Wilkes County, NC 28659	
	CHECKED BY: MB		
	FILE NAME: Photo Pages		

APPENDIX B
GEOPHYSICAL SURVEY REPORT



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2021-190)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 84 NCDOT PROJECT U-5759

1524 STATESVILLE ROAD, NORTH WILKESBORO, NC

August 6, 2021

Report prepared for: Michael Burns, P.G.
Kleinfelder, Inc.
3200 Gateway Centre Blvd., Suite 100
Morrisville, NC 27560

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".

Douglas A. Canavella, P.G.
NC License #1066

503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406

P: 336.335.3174 F: 336.691.0648

C257: GEOLOGY

C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 84 - 1524 Statesville Road
North Wilkesboro, Wilkes County, North Carolina

Table of Contents

Executive Summary	1
Introduction.....	2
Field Methodology.....	2
Discussion of Results.....	3
<i>Discussion of EM Results</i>	3
<i>Discussion of GPR Results</i>	4
Summary & Conclusions	5
Limitations	5

Figures

- Figure 1 – Parcel 84 - Geophysical Survey Boundaries and Site Photographs
- Figure 2 – Parcel 84 - EM61 Metal Detection Contour Map
- Figure 3 – Parcel 84 - GPR Transect Locations and Select Images
- Figure 4 – Parcel 84 - Locations and Sizes of Three Probable USTs
- Figure 5 – Overlay of Metal Detection Results and Three Probable USTs on
NCDOT Engineering Plans

Appendices

- Appendix A – GPR Transect Images

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 84, located at 1524 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 14-16, 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 electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of eight EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed around all sources of significant metallic interference to confirm that the interference did not obscure any significant structures such as USTs. The geophysical survey identified evidence of utilities and/or smaller fragments of buried metallic debris.

Three probable USTs were identified under the sidewalk in front of the building. Probable UST #1 is approximately 16 feet long by 5 feet wide, Probable UST #2 is approximately 10 feet long by 5 feet wide, and Probable UST #3 is approximately 13 feet long by 5 feet wide. Collectively, the geophysical data recorded evidence of three probable metallic USTs at Parcel 84.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 84, located at 1524 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 14-16, 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 apparent former gas station surrounded by asphalt, concrete, and grass surfaces. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

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 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 acquired across select EM anomalies on July 16, 2021, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 control unit coupled to a 350 MHz HS antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the SIR 4000 unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

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	Metal Debris	
2	Building/ Three Probable USTs	✓
3	Reinforced Concrete	
4	Utility	✓
5	Utility/Mailbox	✓
6	Vehicles	✓
7	Trailer	
8	Sign	

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including metal debris, a building, reinforced concrete, utilities, a mailbox, vehicles, a trailer, and a sign. GPR was performed around the building and the vehicles to confirm that the metallic interference did not obscure any significant structures such as USTs.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property as well as select transect images. All of the transect images are included in **Appendix A**. A total of twelve formal GPR transects were performed at the site.

GPR Transects 1-12 were performed across the areas of significant metallic interference. GPR Transects 1-4 were performed on the sidewalk in front of the building. Transects 1-3 showed large, high-amplitude hyperbolic reflectors and Transect 4 showed three large, high-amplitude lateral reflectors, typical of USTs. These features have been classified as three probable USTs. Probable UST #1 is approximately 16 feet long by 5 feet wide, Probable UST #2 is approximately 10 feet long by 5 feet wide, and Probable UST #3 is approximately 13 feet long by 5 feet wide. **Figure 4** provides the locations and sizes of the three probable USTs, overlain on an aerial, along with ground-level photographs. The remaining transects showed evidence of possible buried utilities and/or debris.

Collectively, the geophysical data recorded evidence of three probable metallic USTs at Parcel 84. **Figure 5** provides an overlay of the metal detection results and three probable USTs on the NCDOT engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 84 in North Wilkesboro, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- GPR was performed around all sources of significant metallic interference to confirm that the interference did not obscure any significant structures such as USTs.
- The geophysical survey identified evidence of utilities and/or smaller fragments of buried metallic debris.
- Three probable USTs were identified under the sidewalk in front of the building. Probable UST #1 is approximately 16 feet long by 5 feet wide, Probable UST #2 is approximately 10 feet long by 5 feet wide, and Probable UST #3 is approximately 13 feet long by 5 feet wide.
- Collectively, the geophysical data recorded evidence of three probable metallic USTs at Parcel 84.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Kleinfelder, Inc. in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR surveys are non-unique and may not represent actual subsurface conditions. The EM61 and GPR 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 Northwest)



View of Survey Area (Facing Approximately Southeast)



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

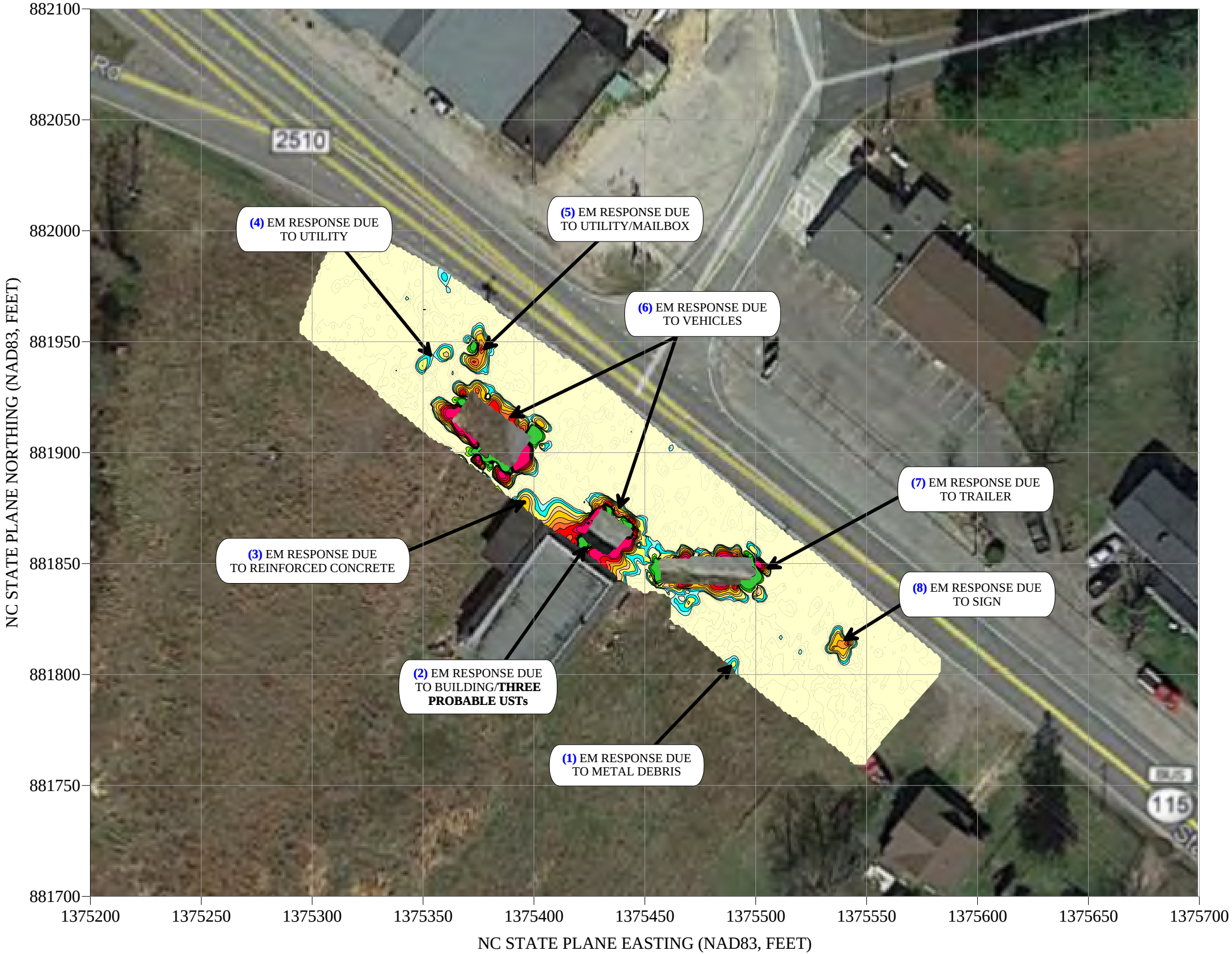
PROJECT
PARCEL 84
NORTH WILKESBORO, NORTH CAROLINA
NCDOT PROJECT U-5759

TITLE
PARCEL 84 -
GEOPHYSICAL SURVEY BOUNDARIES
AND SITE PHOTOGRAPHS

DATE
7/19/2021
PYRAMID
PROJECT #:
2021-190

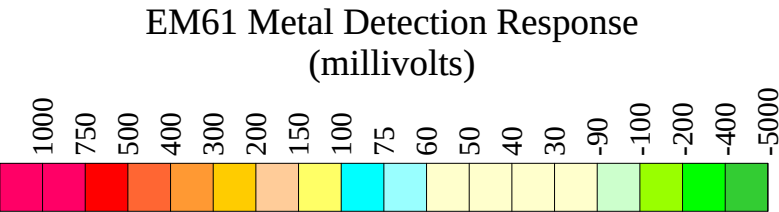
CLIENT
Kleinfelder
FIGURE 1

EM61 METAL DETECTION RESULTS



EVIDENCE OF THREE PROBABLE 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 14, 2021, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on July 16, 2021.



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

PROJECT
PARCEL 84
NORTH WILKESBORO, NORTH CAROLINA
NCDOT PROJECT U-5759

TITLE
PARCEL 84 -
EM61 METAL DETECTION CONTOUR MAP

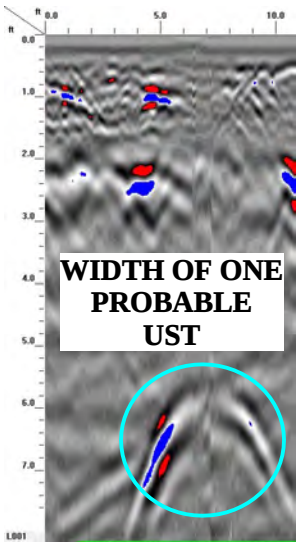
DATE
7/19/2021

PYRAMID
PROJECT #:
2021-190

CLIENT
Kleinfelder

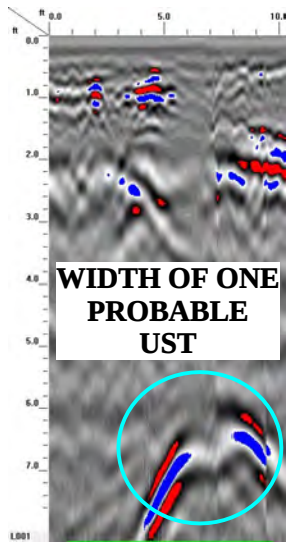
FIGURE 2

GPR TRANSECT LOCATIONS



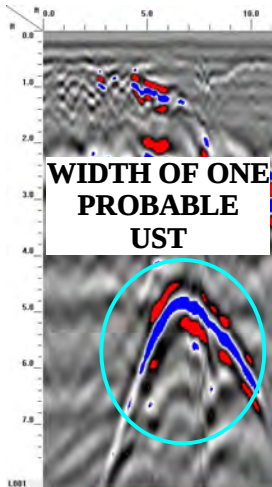
WIDTH OF ONE
PROBABLE
UST

GPR TRANSECT 1 (T1)



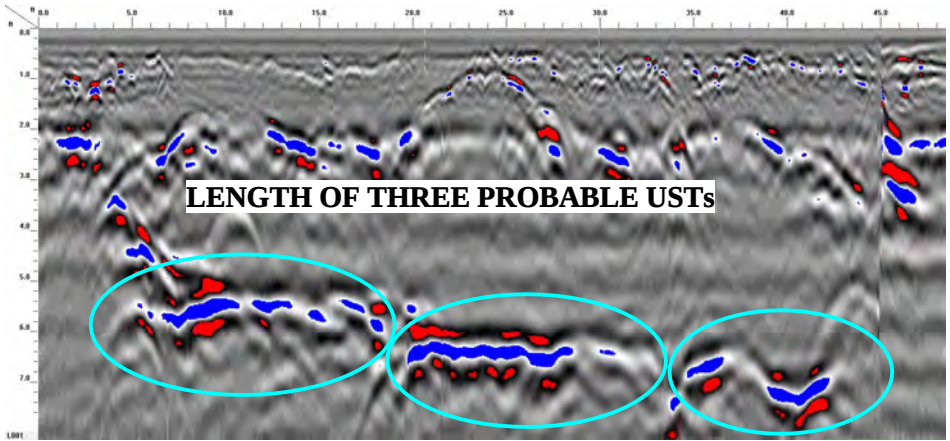
WIDTH OF ONE
PROBABLE
UST

GPR TRANSECT 2 (T2)



WIDTH OF ONE
PROBABLE
UST

GPR TRANSECT 3 (T3)



LENGTH OF THREE PROBABLE USTs

GPR TRANSECT 4 (T4)



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

PROJECT
PARCEL 84
NORTH WILKESBORO, NORTH CAROLINA
NCDOT PROJECT U-5759

TITLE
PARCEL 84 -
GPR TRANSECT LOCATIONS AND SELECT IMAGES

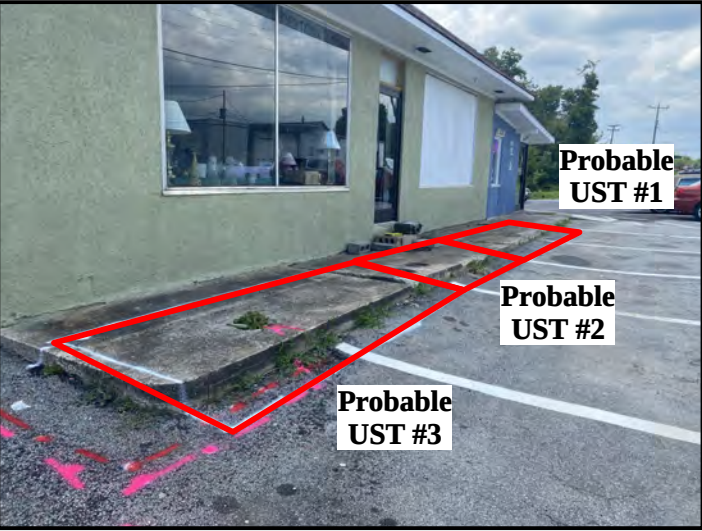
DATE
7/19/2021

PYRAMID
PROJECT #:
2021-190

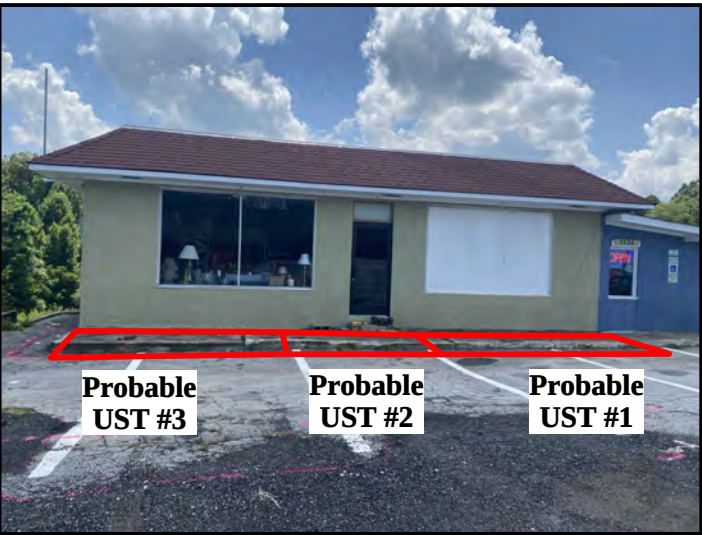
CLIENT
Kleinfelder

FIGURE 3

LOCATIONS OF THREE PROBABLE USTs



View of Three Probable USTs
(Facing Approximately Northwest)



View of Three Probable USTs
(Facing Approximately Southwest)



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

PROJECT
PARCEL 84
NORTH WILKESBORO, NORTH CAROLINA
NCDOT PROJECT U-5759

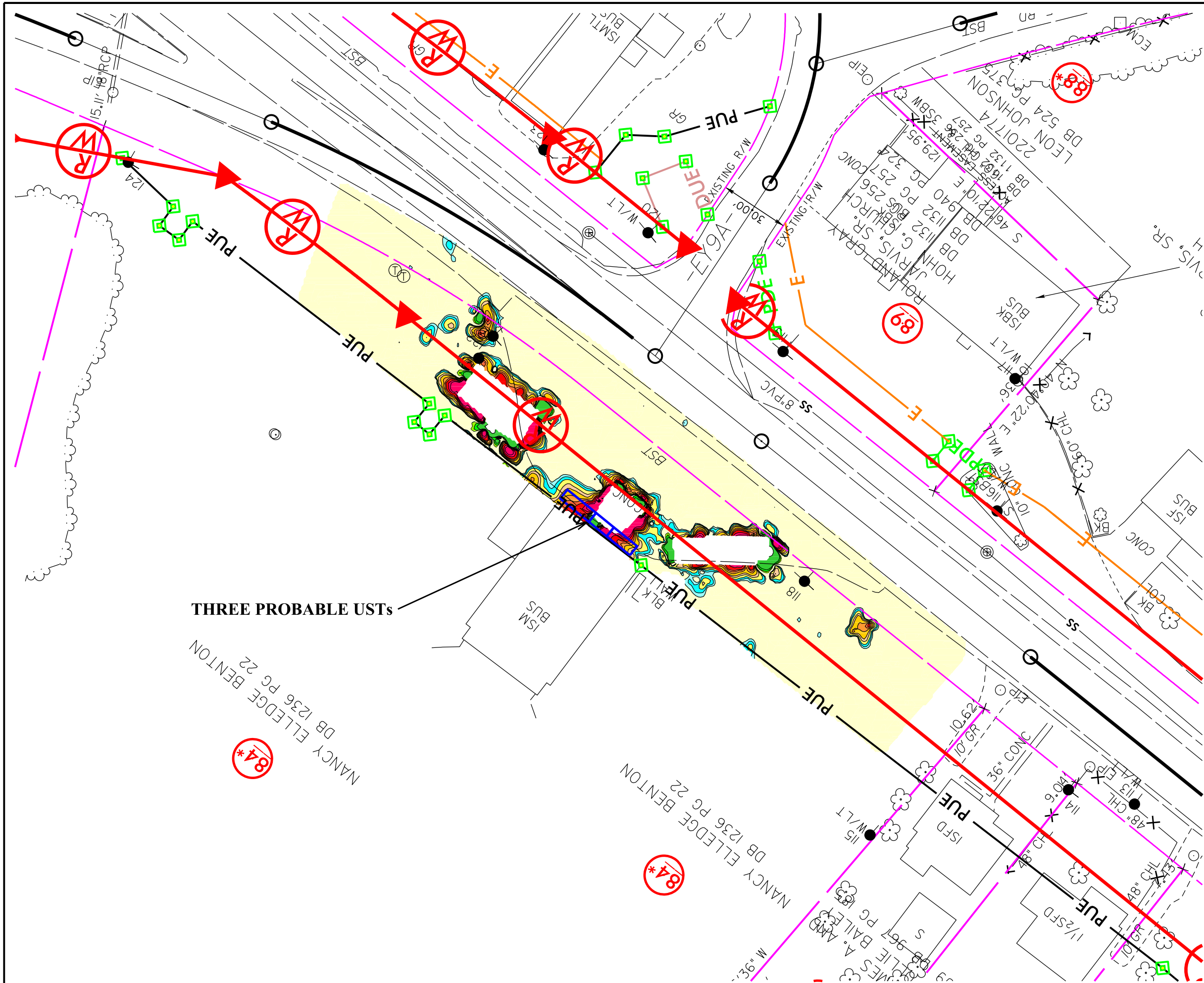
TITLE
PARCEL 84 -
LOCATIONS AND SIZES OF THREE
PROBABLE USTs

DATE
7/19/2021

PYRAMID
PROJECT #:
2021-190

CLIENT
Kleinfelder

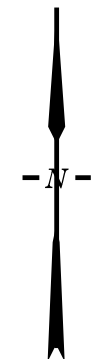
FIGURE 4



LEGEND

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

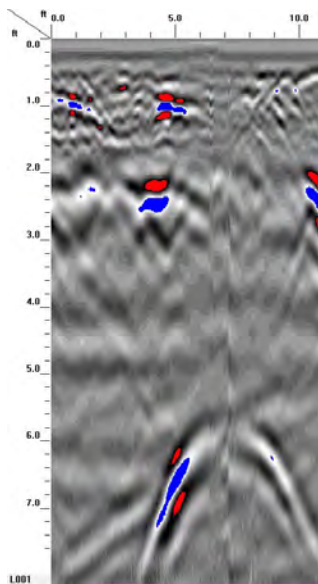
EM61 Metal Detection Response (millivolts)



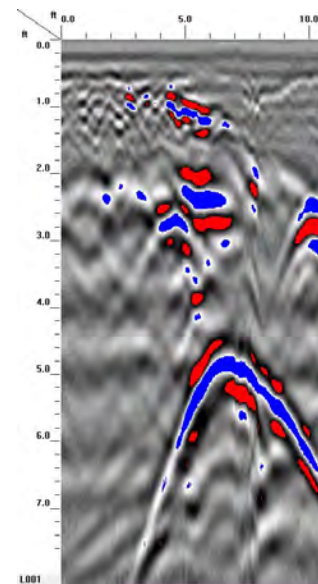
THREE PROBABLE USTs

TITLE OVERLAY OF METAL DETECTION RESULTS AND THREE PROBABLE USTs ON NCDOT ENGINEERING PLANS	
PROJECT PARCEL 84 WILKESBORO, NORTH CAROLINA NCDOT PROJECT R-5759	
 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology	
DATE: 8-9-2021	REVISION NO. 0
PYRAMID PROJECT NO. 2021-190	FIGURE NO. 5

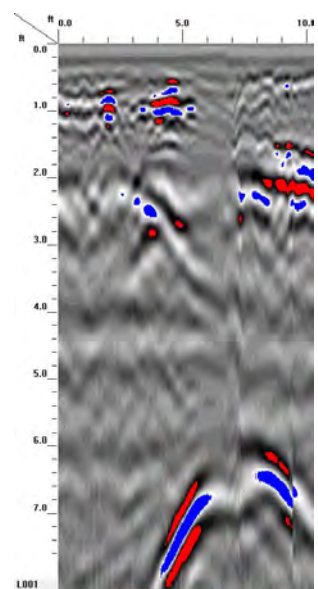
Appendix A – GPR Transect Images



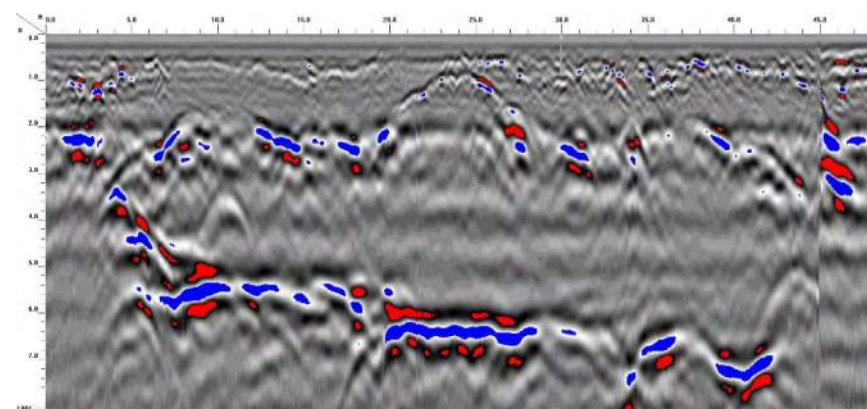
GPR TRANSECT 1



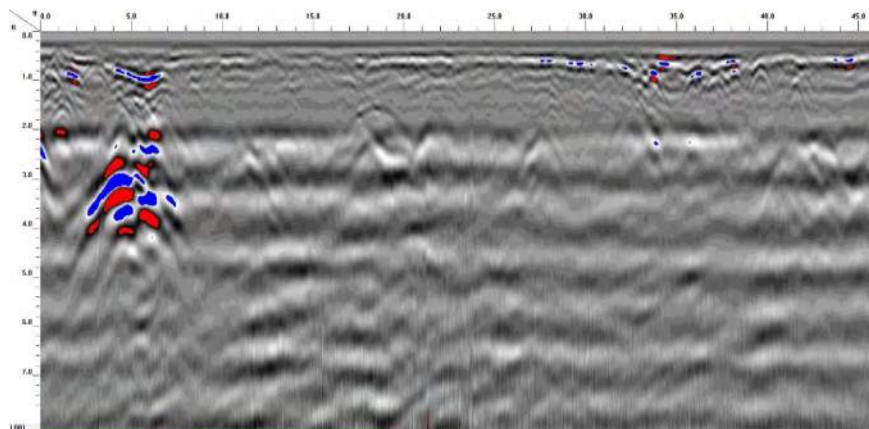
GPR TRANSECT 3



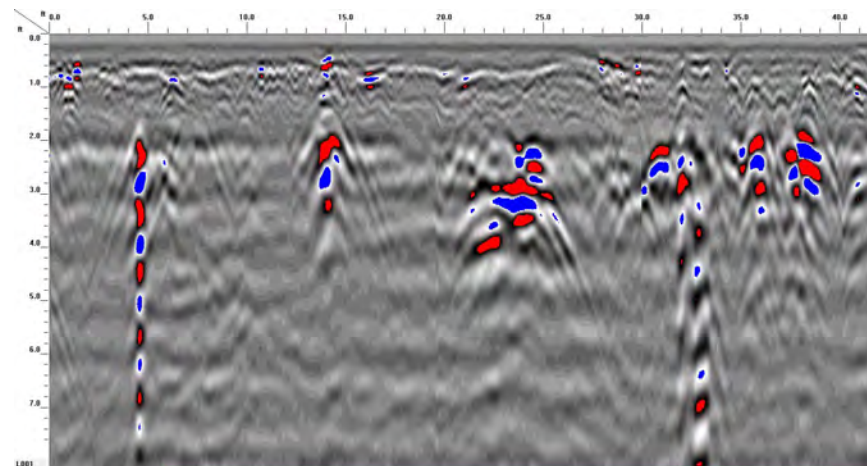
GPR TRANSECT 2



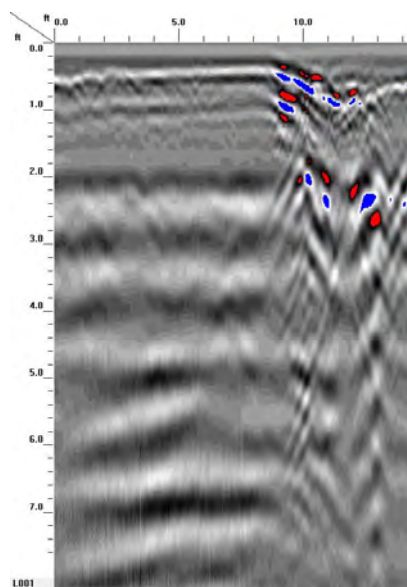
GPR TRANSECT 4



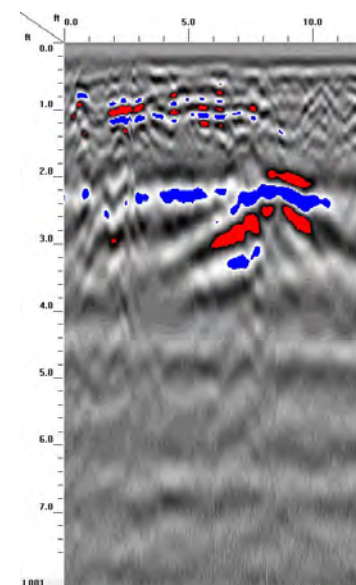
GPR TRANSECT 5



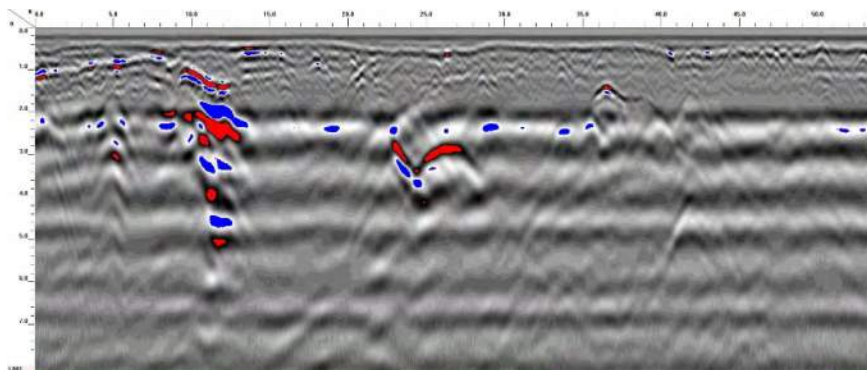
GPR TRANSECT 7



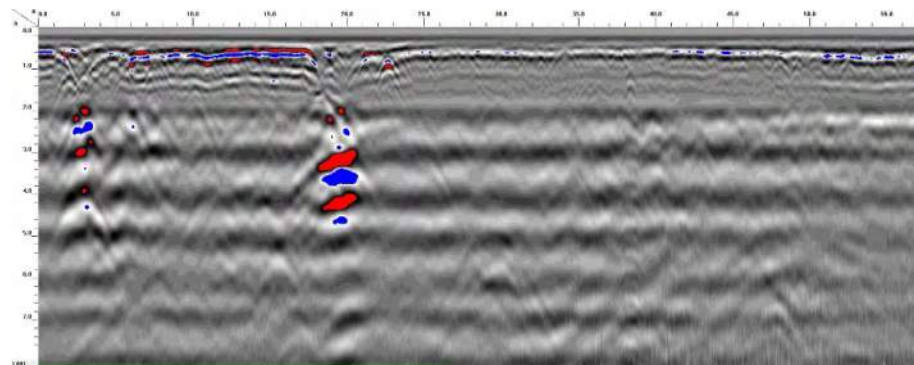
GPR TRANSECT 6



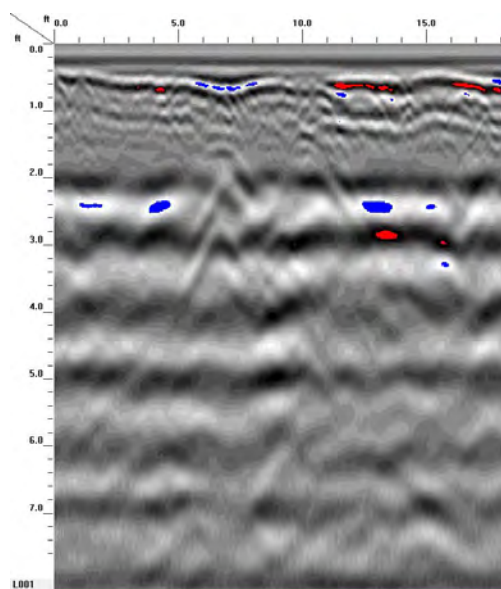
GPR TRANSECT 8



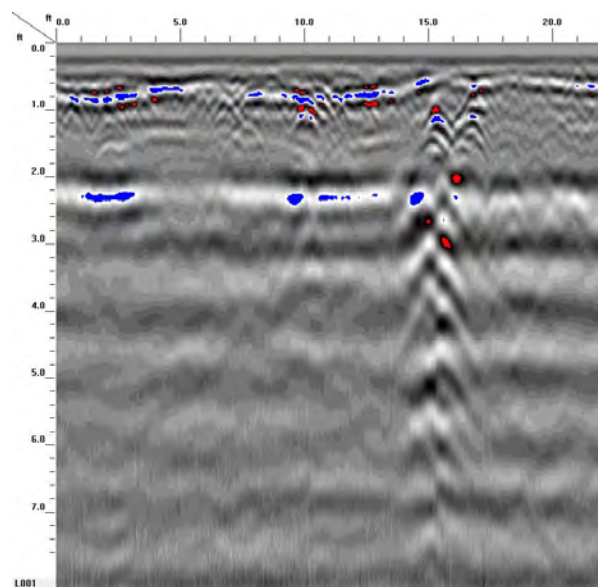
GPR TRANSECT 9



GPR TRANSECT 11



GPR TRANSECT 10



GPR TRANSECT 12

APPENDIX C

BORING LOGS

Date Begin - End: 8/03/2021		Drilling Company: SAEDACCO		ENVIRONMENTAL BORING LOG P84-B1	
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: CLOUDY		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
						ASPHALT: black
					2.1	Sandy CLAY: reddish brown
					2.7	
					0.9	
					2.7	
						Sandy SILT: reddish brown
					2.9	
					3.1	
						Sandy SILT: white and red
					1.4	
					0.3	
					2.4	
						Sandy SILT: red
					8.8	
					2.0	
						Sandy SILT: white and red, odor, odor of petroleum
					2.8	
The borehole was terminated at approximately 12 ft. below ground surface. GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The environmental boring was backfilled with bentonite.						

	PROJECT NO.: 20221238.001A	ENVIRONMENTAL BORING LOG P84-B1
	DRAWN BY: EA CHECKED BY: MJB DATE: 8/12/2021	

Depth (feet)	FIELD EXPLORATION						
	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt
							Lithologic Description
5 <							



PROJECT NO.:
20221238.001A

DRAWN BY: EA

CHECKED BY: MJB

DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P84-B2

NCDOT R-5759 PSAs
North Wilkesboro, NC

Date Begin - End: 8/03/2021		Drilling Company: SAEDACCO		ENVIRONMENTAL BORING LOG P84-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: CLOUDY		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						ASPHALT: black					
							SILT: reddish brown and pink					
							Clayey SILT: reddish brown					
							Sandy SILT: reddish brown					
							Silty SAND: white					
							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 P84-B3	
							DRAWN BY: EA		NCDOT R-5759 PSAs North Wilkesboro, NC			
							CHECKED BY: MJB					
							DATE: 8/12/2021					

Date Begin - End:	8/03/2021	Drilling Company:	SAEDACCO	ENVIRONMENTAL BORING LOG P84-B4
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:	CLOUDY	Bore Diameter:		

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	FIELD EXPLORATION	
							Surface Condition: Asphalt	Lithologic Description
								ASPHALT: black
					1.1			Clayey SILT: reddish brown
					2.3			
					1.9			
					0.5			
					1.0			
5					1.2			
					3.5			
					6.5			Sandy SILT: white
					2.4			
10					1.4			
					1.9			SILT: reddish brown
					1.2			
The borehole was terminated at approximately 12 ft. below ground surface.							GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The environmental boring was backfilled with bentonite.	

PROJECT NO.:
20221238.001A

DRAWN BY: EA

CHECKED BY: MJB

DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P84-B4NCDOT R-5759 PSAs
North Wilkesboro, NC

Date Begin - End: 8/03/2021		Drilling Company: SAEDACCO		ENVIRONMENTAL BORING LOG P84-B5	
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: CLOUDY		Bore Diameter:			

FIELD EXPLORATION						
Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log
Surface Condition: Bare Earth and Grass						
Lithologic Description						
						Clayey SILT: reddish brown
					0.2	
					0.6	
					1.9	
					1.3	
					2.6	
					1.2	
					1.6	
						Silty SAND: white
					1.6	
					0.6	
						Sandy SILT: reddish brown
					1.7	
						SILT: yellowish brown
					0.6	
						SILT: white
					1.7	
The borehole was terminated at approximately 12 ft. below ground surface. GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The environmental boring was backfilled with bentonite.						

	PROJECT NO.: 20221238.001A	ENVIRONMENTAL BORING LOG P84-B5	
	DRAWN BY: EA		NCDOT R-5759 PSAs North Wilkesboro, NC
	CHECKED BY: MJB		
	DATE: 8/12/2021		

Date Begin - End: 8/03/2021
Logged By: E. AMBER
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: CLOUDY

Drilling Company: SAEDACCO
Drill Crew: S. HUNT
Drilling Equipment: 6620DT GeoProbe
Drilling Method: See Drilling Method Column
Bore Diameter:

ENVIRONMENTAL BORING LOG P84-B6

Depth (feet)	FIELD EXPLORATION						
	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt
							Lithologic Description
5 							

The borehole was terminated at approximately 15 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
 Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
 The environmental boring was backfilled with bentonite.

PROJECT NO.:
20221238.001A

DRAWN BY: EA

CHECKED BY: MJB

DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P84-B6NCDOT R-5759 PSAs
North Wilkesboro, NC

Date Begin - End: 8/04/2021		Drilling Company: SAEDACCO		ENVIRONMENTAL BORING LOG P84-B7	
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
						ASPHALT: black
					0.1	Sandy CLAY: reddish brown
					1.5	
					1.5	
					1.9	Sandy SILT: yellowish brown
					0.7	SILT: pink and white and reddish brown
					0.6	
					2.3	
					1.8	
					1.5	
					0.3	Silty SAND: white
					5.6	Sandy SILT: reddish brown
					7.5	
					8.3	Silty SAND: white
					4.9	Sandy SILT: yellowish brown, odor
					2.7	Silty SAND: white
The borehole was terminated at approximately 15 ft. below ground surface. GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The environmental boring was backfilled with bentonite.						

	PROJECT NO.: 20221238.001A	ENVIRONMENTAL BORING LOG P84-B7
	DRAWN BY: EA CHECKED BY: MJB DATE: 8/12/2021	

Date Begin - End: 8/04/2021		Drilling Company: SAEDACCO		ENVIRONMENTAL BORING LOG P84-B8	
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
						ASPHALT: black
					2.8	Clayey SILT: reddish brown
					2.4	
					0.4	
					1.7	Sandy SILT: yellowish brown
					2.6	
					2.9	
					3.5	Silty SAND: white
					0.5	
					2.0	
					5.5	Sandy SILT: reddish brown and white
					4.0	
					13.6	
					121.7	
					84.6	
					153.9	
The borehole was terminated at approximately 15 ft. below ground surface. GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The environmental boring was backfilled with bentonite.						

	PROJECT NO.: 20221238.001A	ENVIRONMENTAL BORING LOG P84-B8	
	DRAWN BY: EA		NCDOT R-5759 PSAs North Wilkesboro, NC
	CHECKED BY: MJB		
	DATE: 8/12/2021		

Date Begin - End: 8/04/2021		Drilling Company: SAEDACCO		ENVIRONMENTAL BORING LOG P84-B9	
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: Grass & Weeds						
Lithologic Description						
						TOPSOIL: brown
					0.4	SILT: reddish brown
					0.8	
					0.7	Clayey SILT: reddish brown and yellowish brown
					1.6	
					0.7	Sandy SILT: reddish brown with white
					1.3	
					1.5	
					1.2	SAND: white
					2.3	SILT: reddish brown
					0.7	Sandy SILT: reddish brown and yellowish brown
					2.2	
					2.5	
					1.8	SAND: white
					1.0	Sandy SILT with Silt: reddish brown and white
					0.6	Clayey SILT: reddish brown and brown
The borehole was terminated at approximately 15 ft. below ground surface. GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The environmental boring was backfilled with bentonite.						

	PROJECT NO.: 20221238.001A	ENVIRONMENTAL BORING LOG P84-B9	
	DRAWN BY: EA		NCDOT R-5759 PSAs North Wilkesboro, NC
	CHECKED BY: MJB		
	DATE: 8/12/2021		

Date Begin - End: 8/04/2021
Logged By: E. AMBER
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: SUNNY

Drilling Company: SAEDACCO
Drill Crew: S. HUNT
Drilling Equipment: 6620DT GeoProbe
Drilling Method: See Drilling Method Column
Bore Diameter:

ENVIRONMENTAL BORING LOG P84-B10

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	FIELD EXPLORATION	
							Surface Condition: Asphalt	Lithologic Description
								ASPHALT: black
					4.1			Silty CLAY: yellowish brown
					2.8			
					1.1			Clayey SILT: reddish brown
					1.7			
					2.5			SILT: white and reddish brown and yellowish brown
					0.1			
					0.5			
					2.1			
					0.7			
					2.4			
					2.4			
					2.9			Sandy SILT: white and pink
					1.6			Clayey SILT: reddish brown
					1.4			
					3.1			SAND: white
15							The borehole was terminated at approximately 15 ft. below ground surface. GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: The environmental boring was backfilled with bentonite.	



PROJECT NO.:
20221238.001A

DRAWN BY: EA

CHECKED BY: MJB

DATE: 8/12/2021

ENVIRONMENTAL BORING LOG P84-B10

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

Tuesday, August 3, 2021
 Tuesday, August 3, 2021
 Tuesday, August 3, 2021

Contact: ABI SHURTLEFF

Operator

MAX MOYER

Project: R-5759 ; PARCEL 84

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 - 10	22.0	<0.5	<0.5	1.2	1.2	0.7	0.09	<0.007	0	100	0	Residual PHC
Soil	B1 - 11	19.0	<0.4	<0.4	4.1	4.1	1.2	0.06	<0.004	0	96.8	3.2	V.Deg.PHC 46.5%,(FCM)
Soil	B2 - 8	26.0	<0.6	390	470	860	88.2	3.3	0.001	84.1	15.8	0.1	Deg.Light Fuel 56%,(FCM)
Soil	B2 - 9	144.0	<3.6	1299	2119	3418	187.4	7.3	<0.028	89.3	10.6	0.1	Deg.Kerosene 90.1%,(FCM)
Soil	B2 - 11	170.0	<4.3	1658	3113	4771	260	10.2	<0.0	88.5	11.5	0	Deg.Kerosene 90.6%,(FCM)
Soil	B3 - 12	24.0	<0.6	<0.6	0.9	0.9	0.7	0.09	<0.005	0	97.4	2.6	Residual PHC
Soil	B4 - 8	23.0	<0.5	<0.5	<0.23	<0.5	<0.012	<0.012	<0.007	0	0	0	PHC ND,(FCM)
Soil	B2 - 5	22.0	<0.5	<0.5	0.9	0.9	0.4	0.013	0.001	0	92.7	7.3	V.Deg.PHC 55.9%,(FCM)
Soil	B5 - 5	20.0	<0.5	<0.5	4.7	4.7	2	0.1	0.002	0	80.8	19.2	V.Deg.PHC 94.9%,(FCM),(BO)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

108.9%

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.

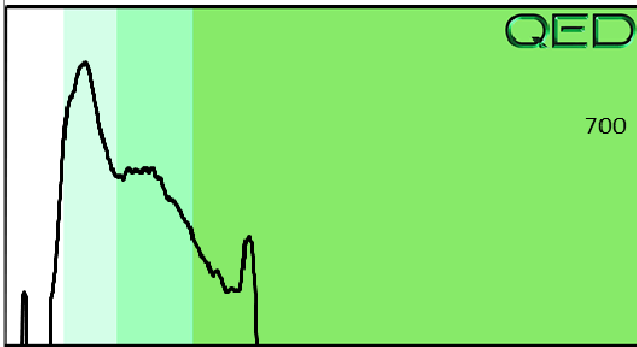
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

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.

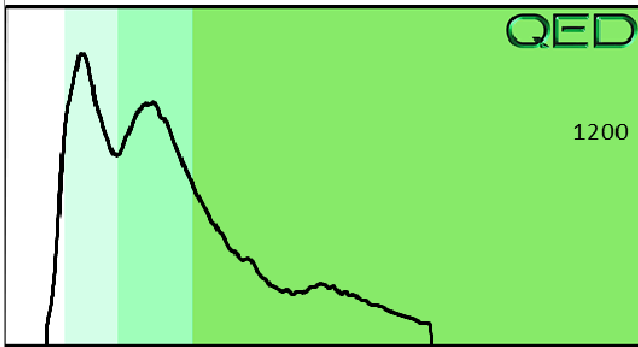
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser

B1 - 10 : Residual PHC



B1 - 11 : V.Deg.PHC 46.5%,(FCM)



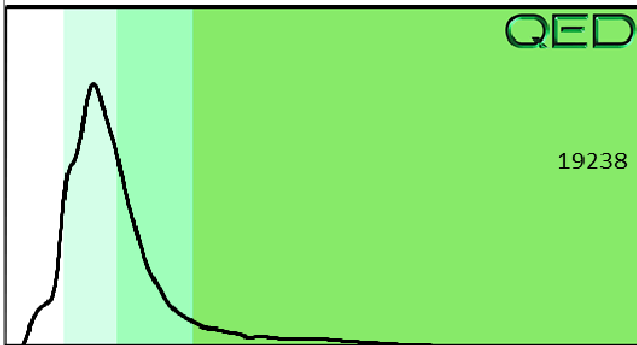
B2 - 8 : Deg.Light Fuel 56%,(FCM)



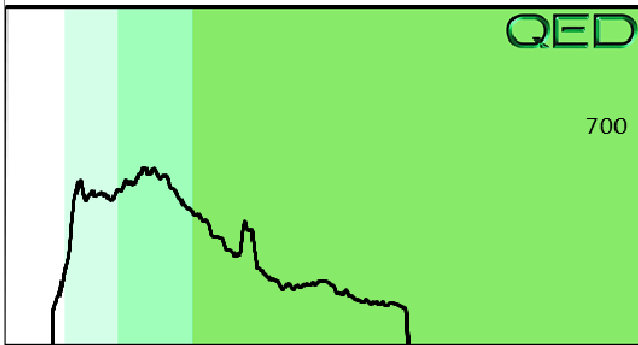
B2 - 9 : Deg.Kerosene 90.1%,(FCM)



B2 - 11 : Deg.Kerosene 90.6%,(FCM)



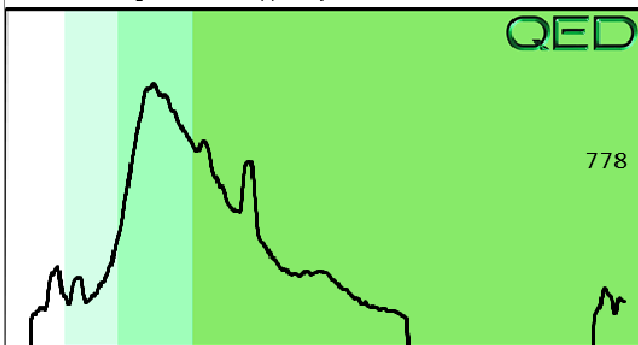
B3 - 12 : Residual PHC



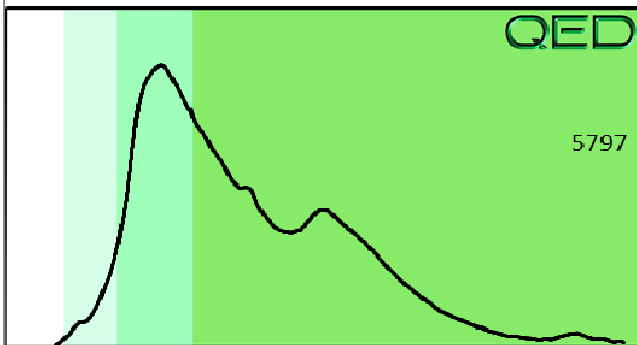
B4 - 8 : PHC ND,(FCM)



B2 - 5 : V.Deg.PHC 55.9%,(FCM)



B5 - 5 : V.Deg.PHC 94.9%,(FCM),(BO)



Hydrocarbon Analysis Results



Client: KLEINFELDER

Address:



Samples taken
Samples extracted
Samples analysed



Tuesday, August 3, 2021

Tuesday, August 3, 2021

Tuesday, August 3, 2021

Contact: ABI SHURTLEFF

Operator

MAX MOYER

Project: R-5759 ; PARCEL 84

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	B6 - 9	19.0	<0.4	<0.4	0.3	0.3	0.31	0.014	<0.003	0	87	13	PHC ND,(FCM)
Soil	B7 - 13	19.0	<0.4	2.4	0.8	3.25	0.6	0.07	<0.006	83	16.6	0.4	Residual PHC
Soil	B8 - 11	21.0	<0.5	<0.5	0.7	0.7	0.6	0.07	<0.005	0	96.6	3.4	Residual PHC
Soil	B8 - 12	23.0	<0.5	<0.5	12.9	12.9	7.1	0.26	<0.007	0	99.4	0.6	Deg.Light PHC 77.4%,(FCM)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

90.1%

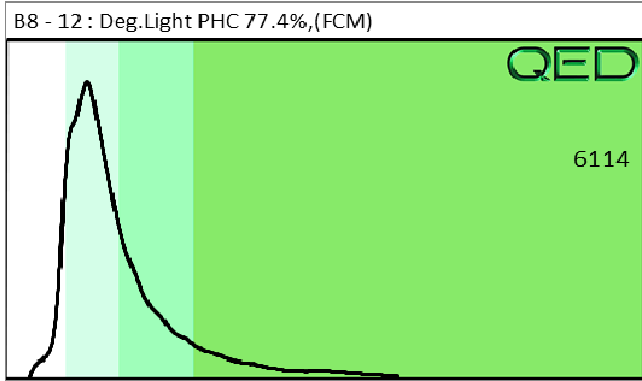
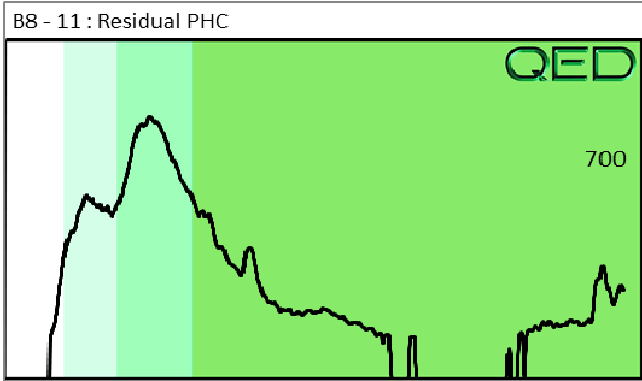
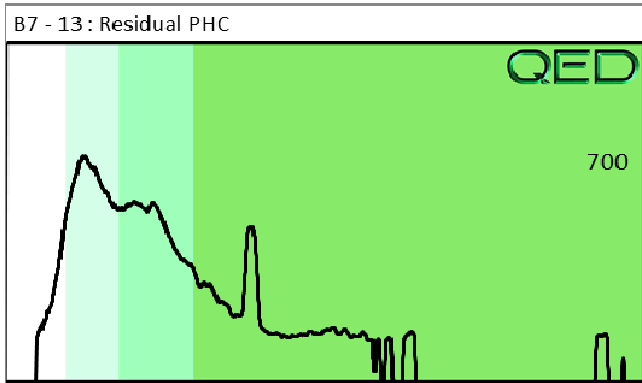
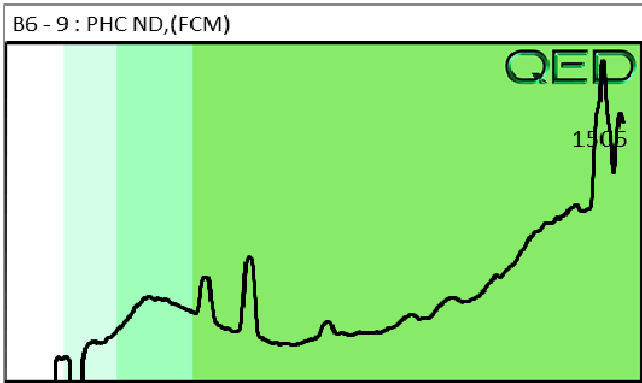
Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

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



Hydrocarbon Analysis Results



Client: KLEINFELDER

Address:



Samples taken
Samples extracted
Samples analysed



Wednesday, August 4, 2021

Wednesday, August 4, 2021

Wednesday, August 4, 2021

Contact: ABI SHURTLEFF

Operator

MAX MOYER

Project: R-5759 ; PARCEL 84

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	B9 - 12	16.0	<0.4	<0.4	<0.16	0.011	0.011	0.001	<0.005	0	100	0	Residual HC
Soil	B10 - 1	19.0	<0.4	<0.4	2.7	2.7	1.2	0.06	0.001	0	84.4	15.6	V.Deg.Light Fuel 89.9%,(FCM)
Soil	B10 - 15	24.0	<0.6	<0.6	0.5	0.5	0.4	0.06	<0.007	0	97.4	2.6	Residual PHC

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

94.9%

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

