

Phase II Site Assessment Report

September 2, 2021

WBS Element: 44691.1.1

State Project: R-5759

Wilkes County

at

Parcel #: 053

Billy Joe Brown and Bobby Joe Brown Property

2032 Statesville Road, North Wilkesboro, NC, 28659

PIN #: 3877-79-0529

Facility ID No.: N/A

Groundwater Incident #: N/A

Prepared For:

Mr. Gordon Box

NCDOT, Geotechnical Engineering Unit

GeoEnvironmental Section

1589 Mail Service Center

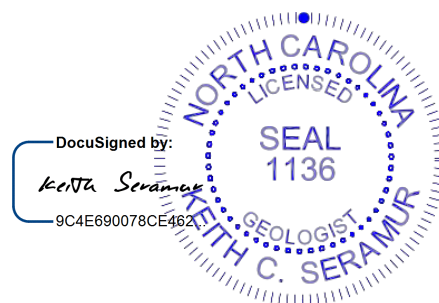
Raleigh, NC 27699-1589

Prepared By:

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1.0 Introduction

1.1 General Site Background Information

Seramur & Associates, PC was contracted to complete a Phase II Environmental Site Assessment at:

Billy Joe Brown, Bobby Joe Brown

Parcel #: 053

2032 Statesville Road; North Wilkesboro, NC, 28659

PIN #: 3877-79-0529

Facility ID No.: N/A

Groundwater Incident #: N/A

Parcel #053 is located along the western side of Statesville Road approximately 450 feet south of the Statesville Road and the Old State Highway 60 intersection. The property is situated above the slope west of the Fishing Creek Stream valley approximately 1,750 feet west of the stream. Bedrock in the area is mapped as Henderson Gneiss, a biotitic augen gneiss (Rankin, D.W., Espenshade, G.H., Shaw, K.W., and Neumann, R.B.. Geologic map of the west half of the Winston-Salem quadrangle, North Carolina-Virginia, U.S. Geologic Survey Misc. Inv. Series Map I-709-B, 1975).

A Notice to Proceed was obtained on June 25, 2021. Our investigation included areas within the proposed Permanent Utility Easements (PUE), Construction Easement (E) and proposed and existing Right-of-Way (R/W) along the western side of Statesville Rd. (Figure 2). The Phase II Site Assessment scope of work included completing a geophysical survey followed by Geoprobe drilling with soil sample collection and laboratory analysis. Geophysical investigations evaluate the potential for underground storage tanks and remnant UST system infrastructure. The purpose of soil analysis is to assess soil quality across the easement (Figure 3). Background research for this project included reviewing historic aerial photographs and NCDEQ databases.

2.0 Scope of Work

2.1 Background Research

According to the Wilkes County Tax Administration records, this property is owned by Billy Joe Brown. Available historic aerial photographs from the USGS EarthExplorer website and Google Earth Pro were reviewed.

The following NCDEQ databases were queried for incidents at Parcel #053:

- Dry Cleaners
- Active USTs
- UST Incident Map
- UST Database
- Hazardous Waste Sites

2.2 Geophysical Surveys

Seramur & Associates collected thirteen transects of geophysical data within the proposed and existing R/W, construction easement, and permanent utility easement along Statesville Road.

Magnetometer transects were attempted across the central and eastern portion of the parcel. This area is underlain by re-enforced concrete which interfered with the magnetometer readings. The Schonstedt magnetic locator was used to screen areas north of the dispenser islands. This area was full of cars, but anomalous magnetic readings were not identified.

Ground Penetrating Radar (GPR) data was collected along the transects using a Geophysical Survey Systems, Inc. UtilityScan GPR System with a 350 MHz hyperstacking antenna. This GPR system is equipped with a calibrated survey wheel. The GPR data was downloaded and saved onto a computer. The GPR transect data has been processed and modeled using Radan® software. The GPR data processing included adjusting time zero, completing a background removal and adjusting the time variable gain to enhance deep reflections. The profiles of the GPR transects are shown in Figures 5a through 5e.

2.3 Soil Sampling and Analyses

On July 15, 2021 Carolina Soil Investigations, LLC mobilized to the site to drill Geoprobe borings and collect soil samples. Our project design typically calls for collecting a shallow and deep soil sample from each boring (Figure 3). The purpose of collecting samples at a depth of ~3.0 feet is to test for petroleum releases related to surface spills and releases from product lines. The purpose of collecting samples at a depth of ~9.0 feet is to test for petroleum releases related to underground storage tanks. Soil borings were drilled within the proposed R/W and easements along Statesville Road.

A track-mounted Geoprobe rig was used to drill five soil borings. A new pair of Nitrile gloves was worn while collecting each soil sample. A representative portion of each soil sample was placed in a zip lock bag and allowed to rest for a period of time to allow volatile vapors to accumulate in the headspace of the bag. A calibrated PhoCheck Tiger Photoionization Detector (PID) was used to screen the headspace in each bag and the concentration of volatile petroleum vapors was measured and recorded (Table 1). The texture and type of soil material in the Geoprobe cores was described and recorded. Table 1 lists the boring data including sample number, depth, PID reading, lithology, and type of soil material.

REDLab, LLC provided onsite laboratory analyses for the soil samples collected from the Geoprobe cores. REDLab analyzed the soil samples for petroleum constituents by Ultra-Violet Fluorescence using a QED HC-1 analyzer. The analytical results are reported as Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) and Total Petroleum Hydrocarbons (TPH). REDLab provided a hydrocarbon spectrum with each of the sample results. This spectrum is used for a tentative identification of the type of hydrocarbon detected by the analytical method. A hydrocarbon fingerprint is interpreted by REDLab for each sample using a library search of spectra for known hydrocarbon types and concentrations. The laboratory reports and fingerprint spectra are included in Appendix B.

3.0 Results of Investigation

Parcel #053 currently operates as an Automotive Repair Shop. In addition, the upper level of the building appears to function as a rental apartment. Aerial images from EarthExplorer indicate that this portion of Statesville Road has been developed since at least 1960 and Parcel #053 appears to be developed as it is today. The Wilkes County Tax Administration indicates that the structure was built in 1955.

The NCDEQ UST Registered Tanks database does not show any record of existing or previous UST Systems at the address of Parcel #053. However, one possible facility name for this parcel is Broadway Gulf. The address for Broadway Gulf is only listed as Highway 115 South in the UST Database. Parcel #053 is adjacent to the Broadway Water Association and about one-third of a mile southeast of the Broadway Volunteer Fire Department. The Wilkes County Tax Administration indicates that Parcel #053 is in the Broadway Tax District. The UST System information for Broadway Gulf is shown in Table 2. The Facility ID Number for Broadway Gulf was searched in the NCDET UST Incident Database, and no evidence of a documented release was found.

SAPC personnel made a pedestrian reconnaissance of the property during the initial site visit on June 25, 2021. No evidence of an active UST system was observed on the property.

3.1 Geophysical Surveys

The thirteen GPR transects were collected across the R/W and easements. This includes on the south side of the property across the front of the building and on the north side of the parcel where the former tank pit was located. The beginning and end of each line was marked on the pavement with white paint and labeled. The GPR profiles did not show evidence of USTs in the R/W or easements (Figures 5a through 5e).

Unfortunately, we were unable to survey in our transect locations. Typically, we will mark the locations of our geophysical grids and transects. Then we complete our Geoprobe drilling. At the end of our field work we survey in all the grid corners, transects and boring locations. Our field work was interrupted halfway through our Geoprobe drilling. We had talked to the property occupants, and they did not have any problems with us working at the property. The owner of the property decided that he longer wanted us on his property, and he became combative. We quickly exited the property without completing our measurements.

3.2 Soil Borings, Sampling and Laboratory Analysis

The soil at Parcel #053 consists of fill material over residuum (saprolite) (Table 1). The fill material and the residuum are primarily silt loam and sandy silt. Groundwater was not encountered at this site. A soil sample was collected from the shallow and deep portions of the Geoprobe cores at each boring.

Five borings were drilled and ten soil samples collected. Each soil sample was analyzed for TPH-GRO and DRO (Table B-3).

Soil boring B-1 was drilled on the south side of the parcel, along the PUE. Borings B-2 through B-5 were drilled on the east side of the property along the proposed R/W parallel to Statesville Road. Petroleum constituents were not detected above NCDEQ UST Action Levels in any of the soil samples collected at Parcel #053 (Table B-3 and Figure 9).

3.3 Conclusions

Parcel #053 is currently an Automotive Repair Shop with the upper level functioning as a rental apartment. The geophysical surveys did not image anomalies consistent with USTs or infrastructure related to a former UST system. Petroleum constituents were not detected above the UST Action Levels in any soil samples collected at Parcel #053.

Parcel #053 was previously a gas station, but it appears that the USTs have been removed. This UST Closure was not properly documented. It was not possible to drill soil borings on the north side of the property in the vicinity of the former USTs because the owner became combative. It is possible that there is soil contamination in the vicinity of the former tank pit. The north side of the parcel in the vicinity of the former USTs is shown as an area that is going to be filled.

4.0 Recommendations

Seramur & Associates does not recommend any further assessment work for Parcel #053 unless NCDOT decides that a greater understanding of soil quality on the north side of the parcel is necessary.

Appendix A**Tables and Figures****Table 1. Soil Boring Data - Parcel #053**

Boring No.	Depth (ft)	Lithology	Soil type	Soil Sample	PID ppm	Comments
B-1	0.0 to 4.0	Silt loam	Fill	S-1	0.0	Sample at 3.0 feet.
B-1	4.0 to 5.0	Sandy silt	Residuum	N/A	N/A	
B-1	5.0 to 10.0	Sandy silt	Residuum	S-2	0.0	Sample at 9.0 feet.
B-2	0.0 to 1.0	Silt loam	Fill	N/A	N/A	
B-2	1.0 to 5.0	Sandy silt	Residuum	S-3	0.0	Sample at 3.0 feet.
B-2	5.0 to 10.0	Sandy silt	Residuum	S-4	0.0	Sample at 8.0 feet.
B-3	0.0 to 1.0	Silt loam	Fill	N/A	N/A	
B-3	1.0 to 5.0	Sandy silt	Residuum	S-5	0.0	Sample at 3.0 feet.
B-3	5.0 to 10.0	Sandy silt	Residuum	S-6	0.0	Sample at 8.0 feet.
B-4	0.0 to 1.5	Silt loam	Fill	N/A	N/A	
B-4	1.5 to 5.0	Sandy silt	Residuum	S-7	0.0	Sample at 2.0 feet. Slight odor.
B-4	5.0 to 10.0	Sandy silt	Residuum	S-8	0.0	Sample at 8.0 feet.
B-5	0.0 to 2.5	Silt loam	Fill	S-7	0.0	Sample at 2.0 feet.
B-5	2.5 to 5.0	Sandy silt	Residuum	N/A	N/A	
B-5	5.0 to 10.0	Sandy silt	Residuum	S-8	0.0	Sample at 8.0 feet.

Table 2. UST System Information

Facility Id	Facility Name	Address1	City	State	Zip
00-0-0000003989	BROADWAY GULF	HIGHWAY 115 SOUTH	NORTH WILKESBORO	NC	28659
00-0-0000003989	BROADWAY GULF	HIGHWAY 115 SOUTH	NORTH WILKESBORO	NC	28659
00-0-0000003989	BROADWAY GULF	HIGHWAY 115 SOUTH	NORTH WILKESBORO	NC	28659
00-0-0000003989	BROADWAY GULF	HIGHWAY 115 SOUTH	NORTH WILKESBORO	NC	28659
00-0-0000003989	BROADWAY GULF	HIGHWAY 115 SOUTH	NORTH WILKESBORO	NC	28659
Tank Id	Installation Date	Perm Close Date	Capacity	Product Name	Tank Status
A	4/13/56 0:00	3/1/82 0:00	3000	Gasoline, Gas Mix	Removed
B	4/13/56 0:00	3/1/82 0:00	3000	Gasoline, Gas Mix	Removed
C	4/13/56 0:00	3/1/82 0:00	3000	Gasoline, Gas Mix	Removed
D	4/13/56 0:00	3/1/82 0:00	550	Oil, New/Used/Mix	Removed
E	4/13/56 0:00	3/1/82 0:00	550	Diesel	Removed

Table B-3: Summary of Soil Sampling Results

Revision Date: 07/16/21

Incident Name: Parcel #053

Analytical Method (e.g., VOC by EPA 8260) →					UVF	UVF
Contaminant of Concern →					TPH GRO (mg/kg)	TPH DRO (mg/kg)
Sample ID	Date Collected (mm/dd/yy)	Source Area	Sample Depth (ft. BGS)	Incident Phase		
S-1	07/16/21	B-1	3.0	Phase II	<0.5	1.0
S-2	07/16/21	B-1	9.0	Phase II	<0.4	0.28
S-3	07/16/21	B-2	3.0	Phase II	<0.5	<0.2
S-4	07/16/21	B-2	8.0	Phase II	<0.3	<0.12
S-5	07/16/21	B-3	3.0	Phase II	<0.22	<0.09
S-6	07/16/21	B-3	8.0	Phase II	<0.2	<0.08
S-7	07/16/21	B-4	2.0	Phase II	<0.3	<0.14
S-8	07/16/21	B-4	8.0	Phase II	<0.25	<0.1
S-9	07/16/21	B-5	2.0	Phase II	3.4	2.5
S-10	07/16/21	B-5	8.0	Phase II	<0.27	0.4
NC DEQ Action Level (mg/kg)					50	100

ft. BGS = feet below ground surface

mg/kg = milligrams per kilogram

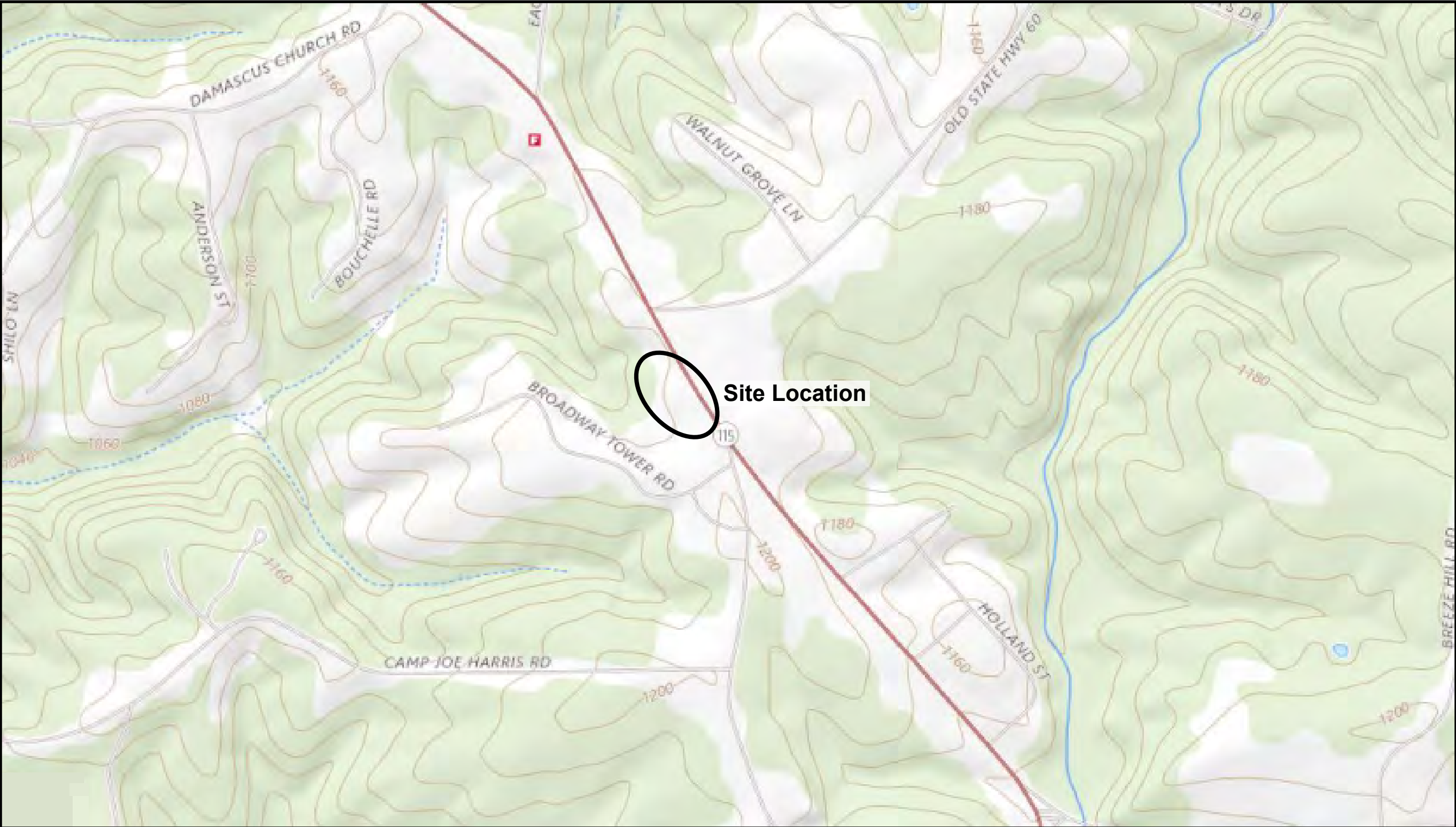


Figure 1 Site Location Map Source: U.S.G.S. The National Map	TIP Number: R-5759 Wilkes County, NC	Billy Joe and Bobby Joe Brown Property 2032 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 053 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	0 400 800 Feet N
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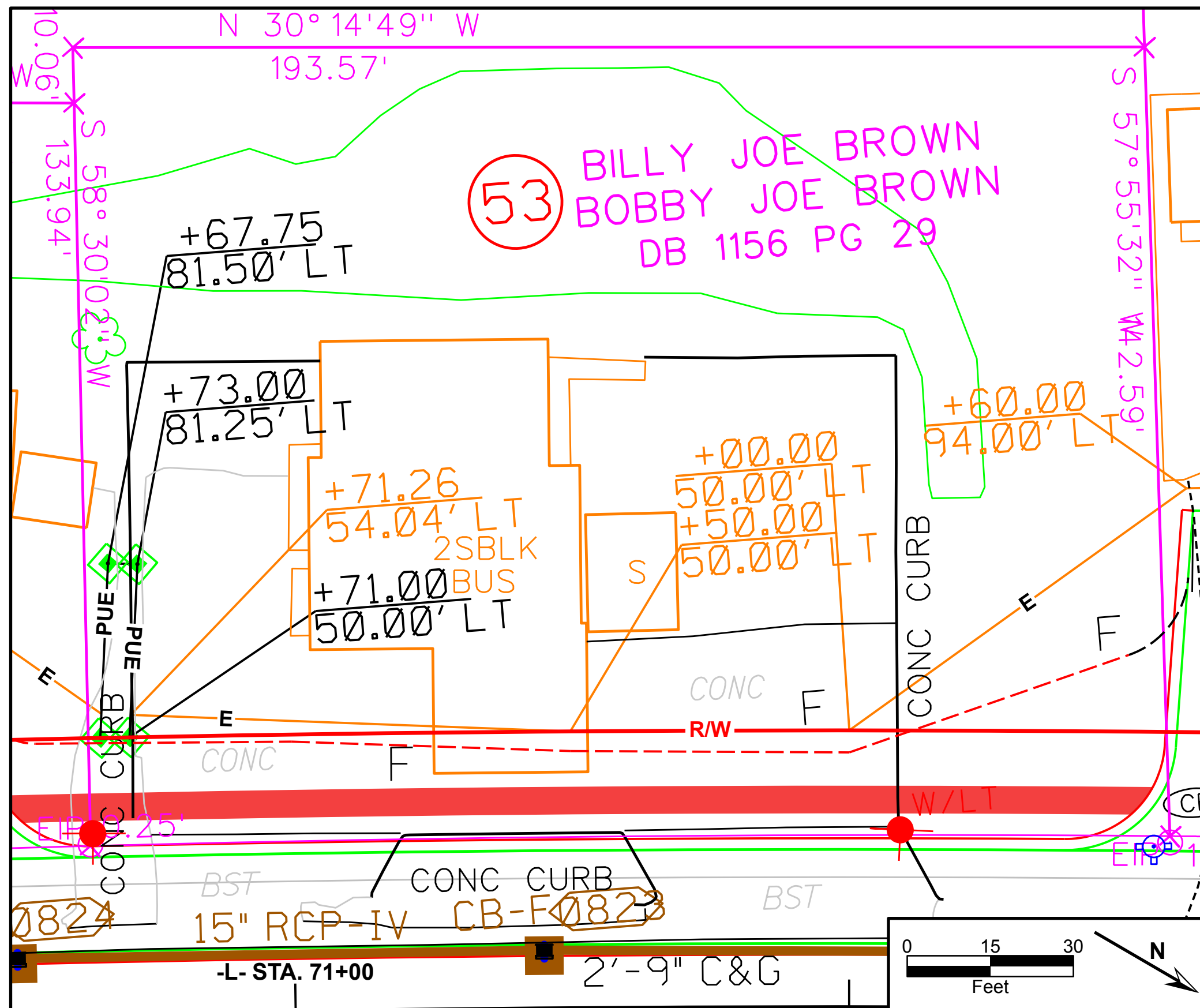


Figure 2 Site Plan	TIP Number: R-5759 Wilkes County, NC	Billy Joe and Bobby Joe Brown Property 2032 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 053 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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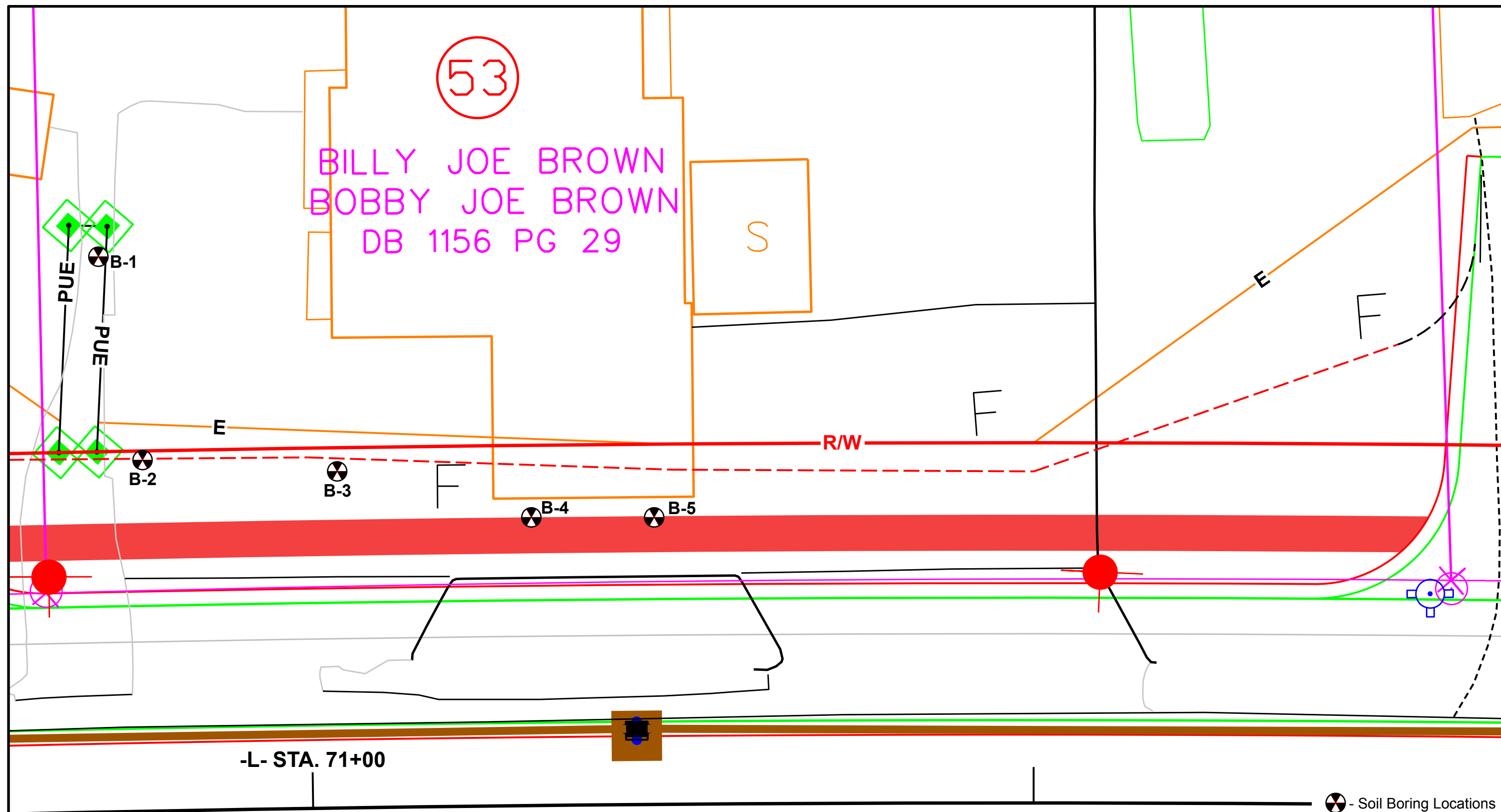


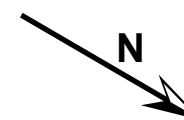
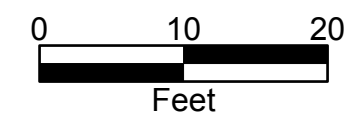
Figure 3
Site Plan with Approximate
Soil Boring Locations

TIP Number: R-5759
Wilkes County, NC

Billy Joe and Bobby Joe
Brown Property
2032 Statesville Road
North Wilkesboro, NC

Parcel I.D. #: 053
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC



53

BILLY JOE BROWN
BOBBY JOE BROWN
DB 1156 PG 29

S

F

E

F

R/W

E

F

B-1
S-1 S-2
BDL BDL
1.0 0.28

B-2
S-3 S-4
BDL BDL
BDL BDL

B-3
S-5 S-6
BDL BDL
BDL BDL

B-4
S-7 S-8
BDL BDL
BDL BDL

B-5
S-9 S-10
3.4 BDL
2.5 0.4

-L- STA. 71+00

⊗ - Soil Boring Locations
BDL - Below Detectable Limit
3.4 - Total Petroleum Hydrocarbons
2.5 - Reported as Gasoline Range
Organics (upper) and Diesel
Range Organics (lower)

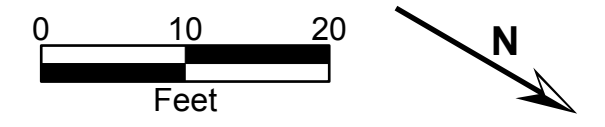
Figure 4
Soil Analytical Results

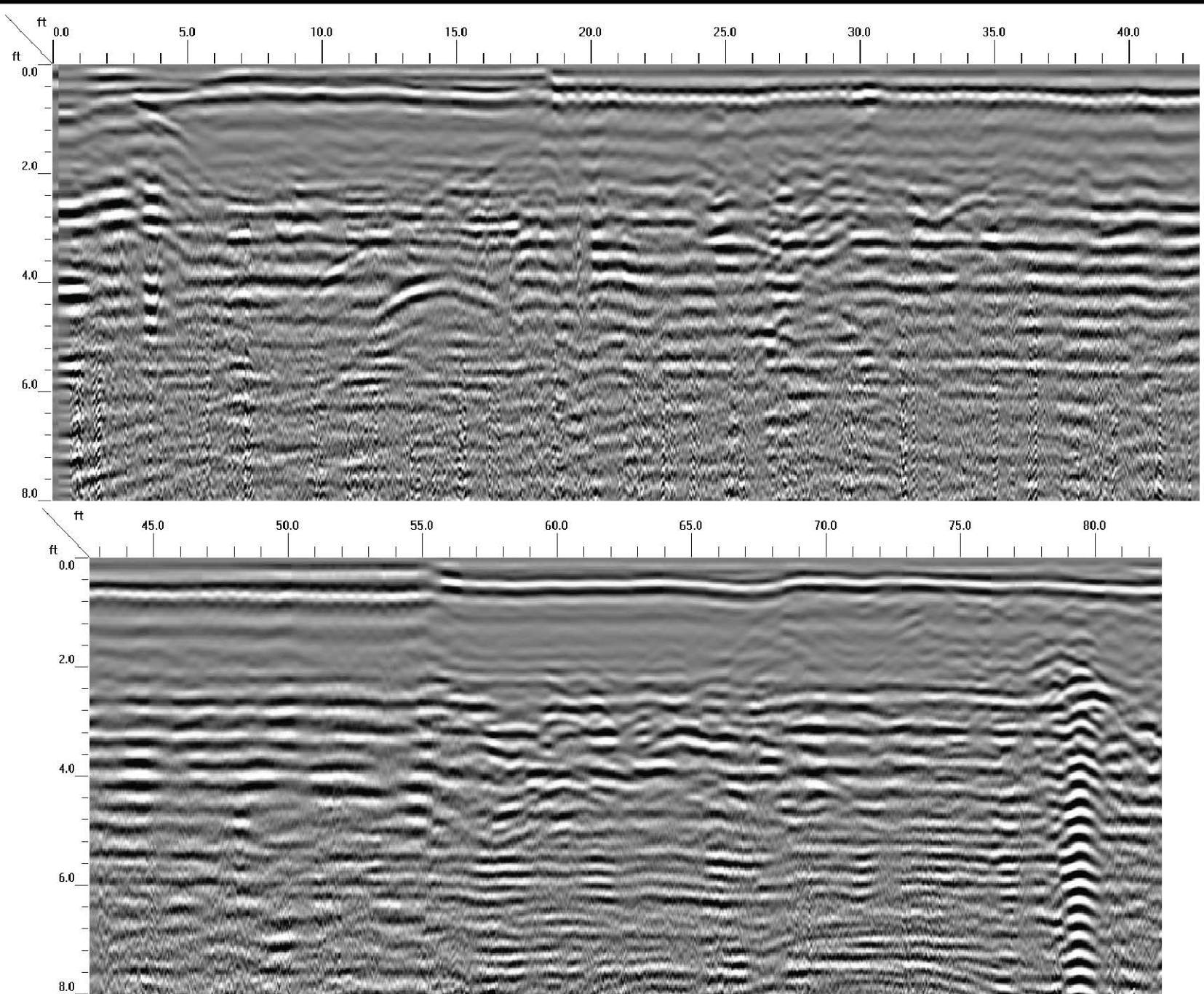
TIP Number: R-5759
Wilkes County, NC

Billy Joe and Bobby Joe
Brown Property
2032 Statesville Road
North Wilkesboro, NC

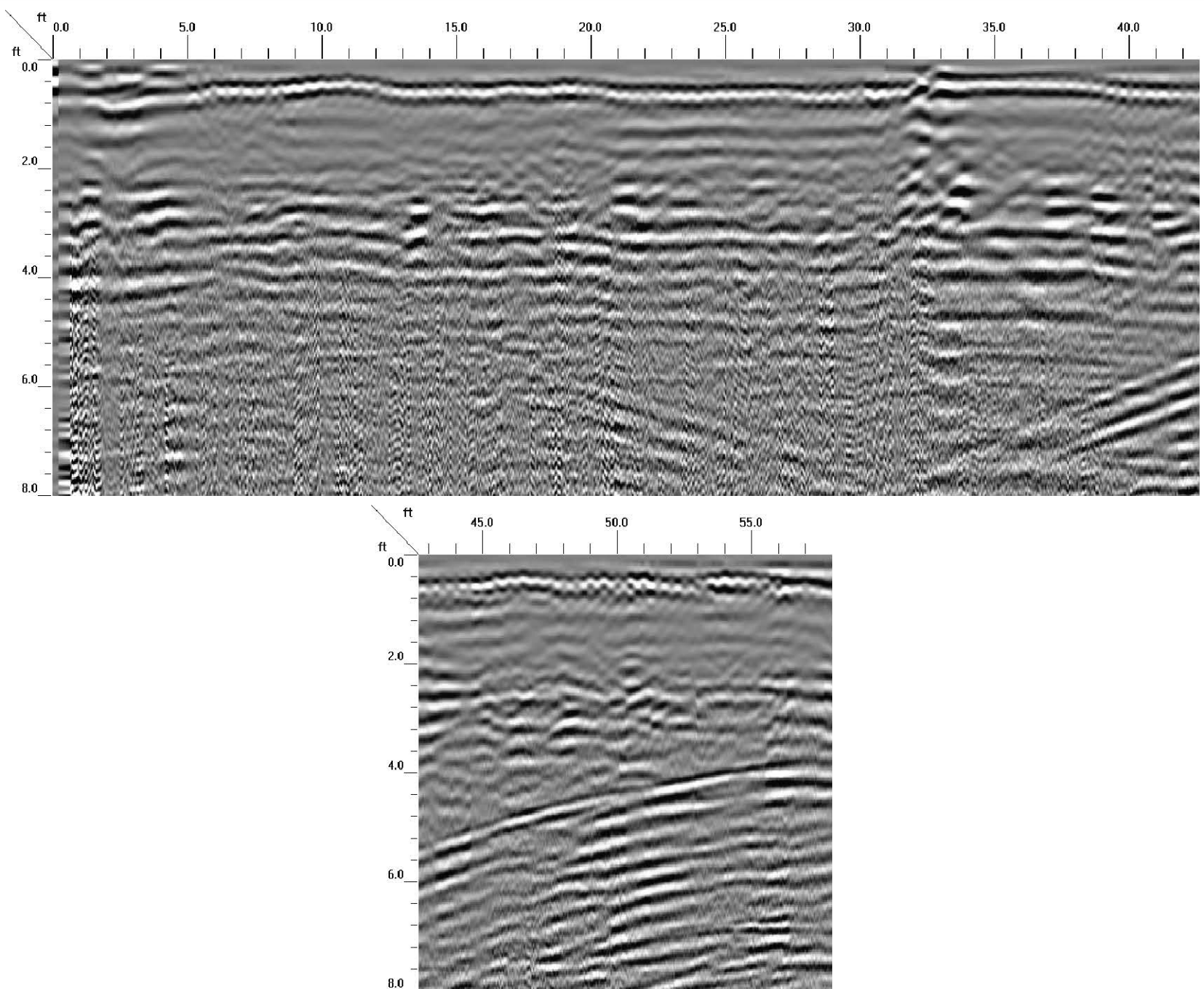
Parcel I.D. #: 053
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC





Transect 1



Transect 2

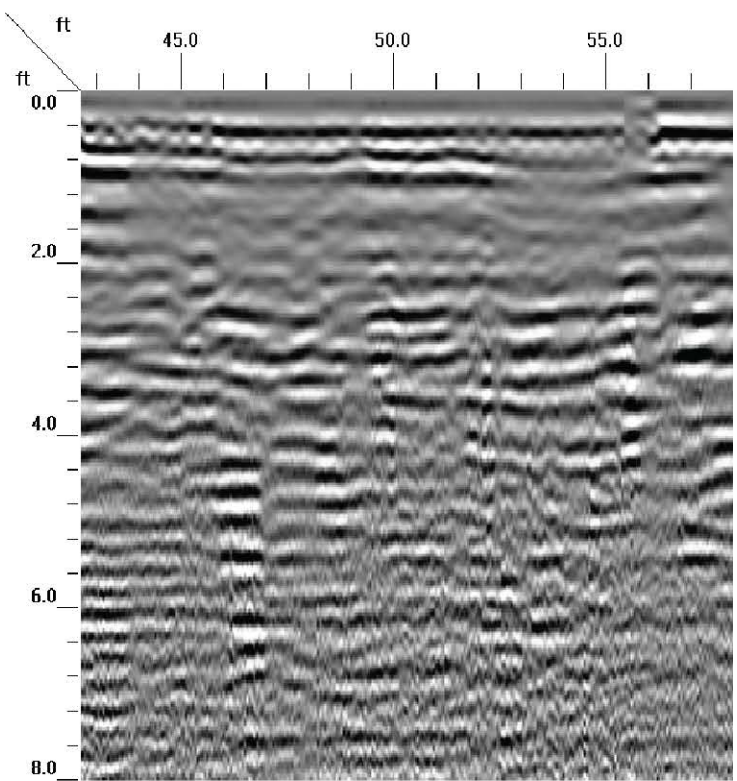
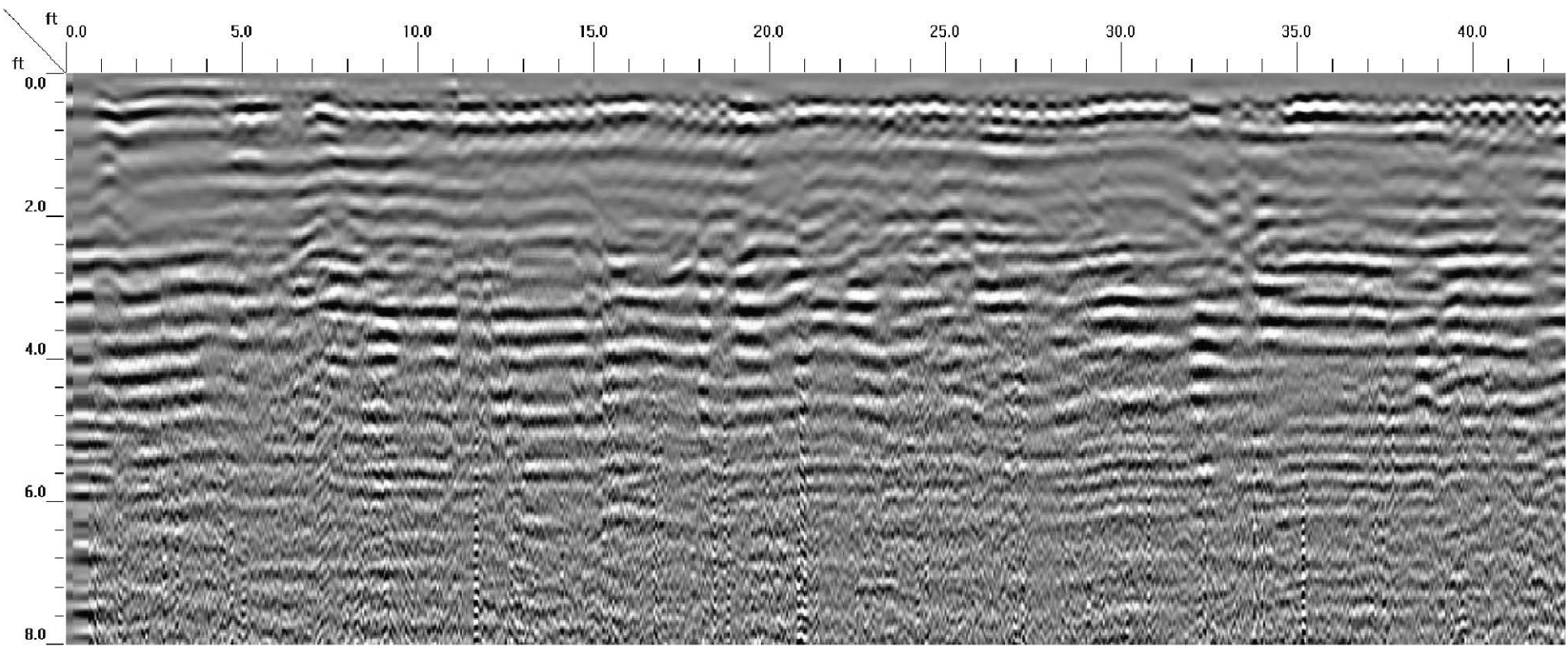
Figure 5a
GPR Transects
1 and 2

TIP Number: R-5759
Wilkes County, NC

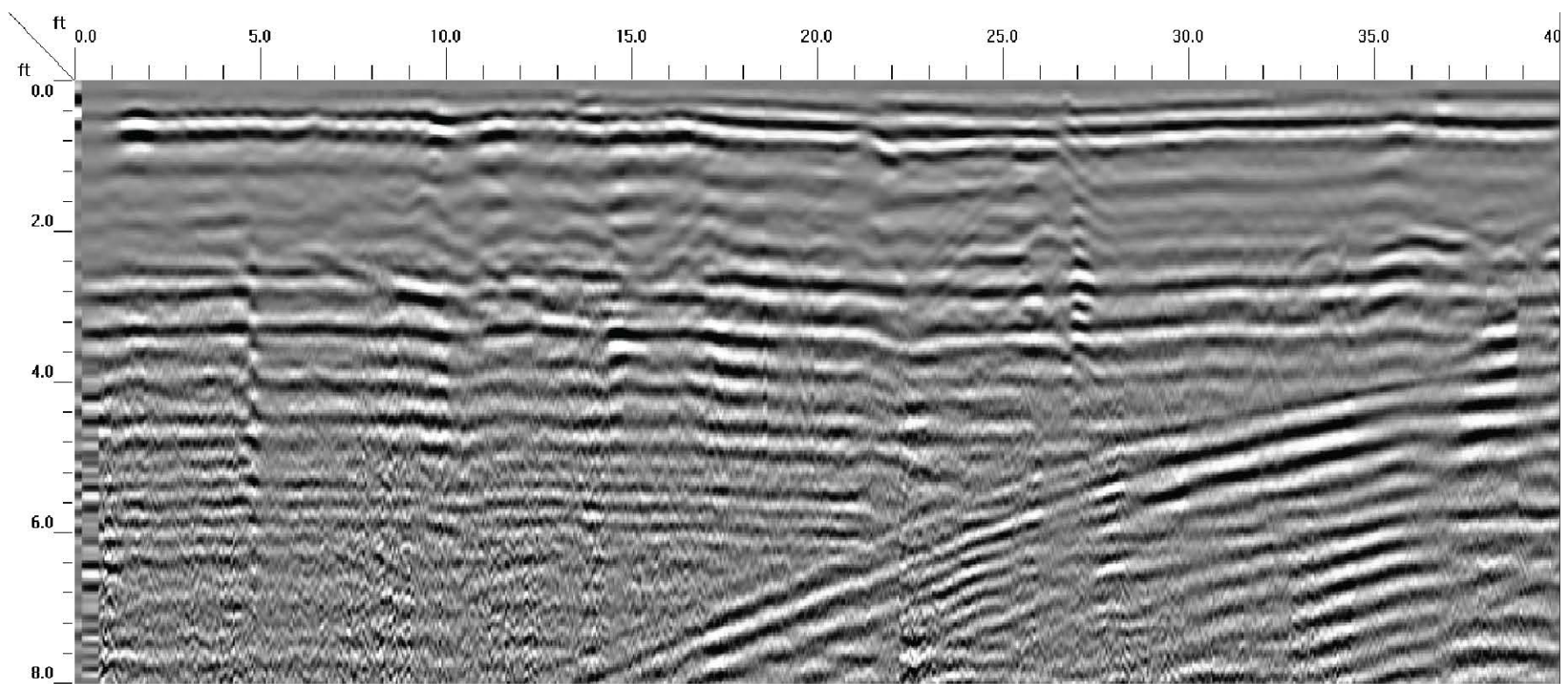
Billy Joe and Bobby Joe
Brown Property
2032 Statesville Road
North Wilkesboro, NC

Parcel I.D. #: 053
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC

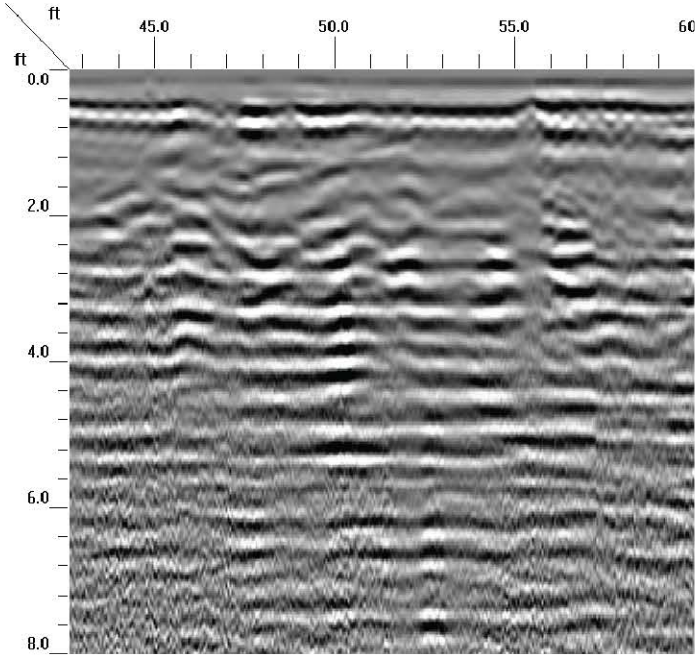
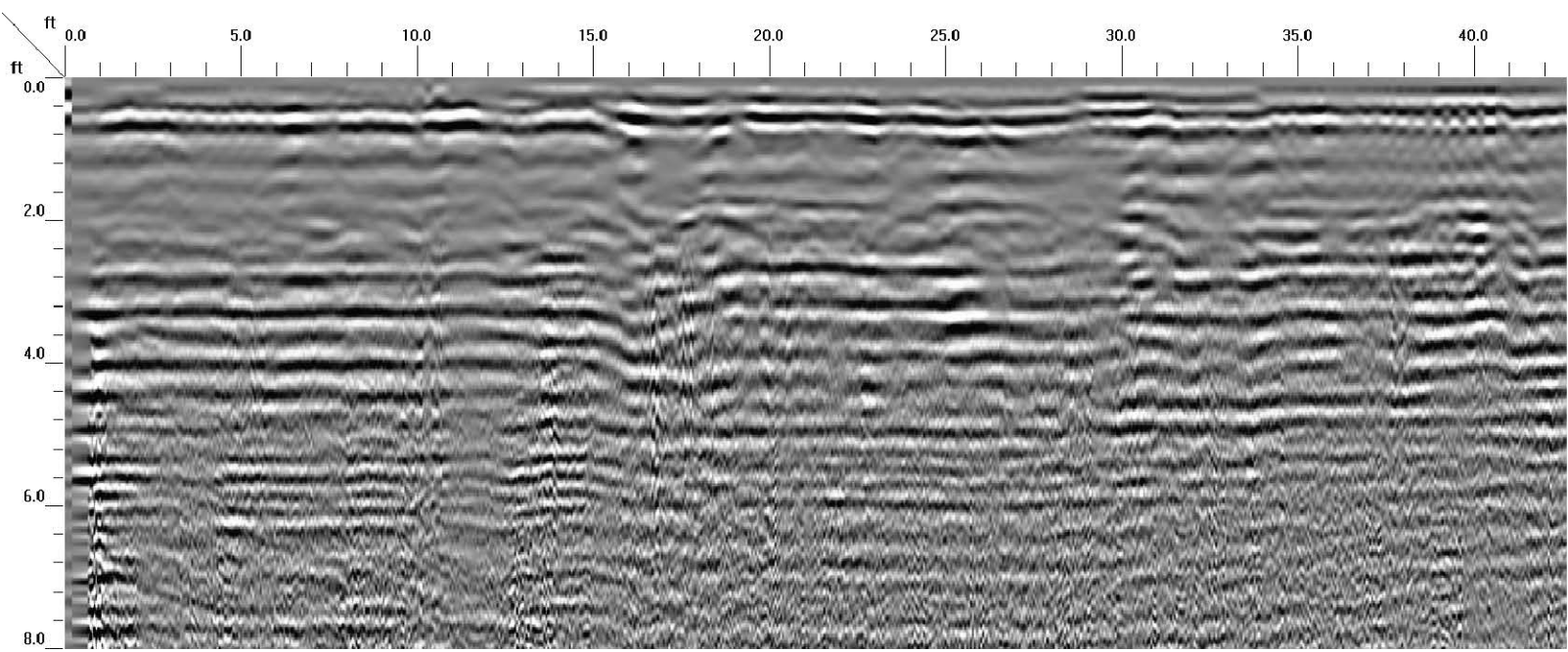


Transect 3

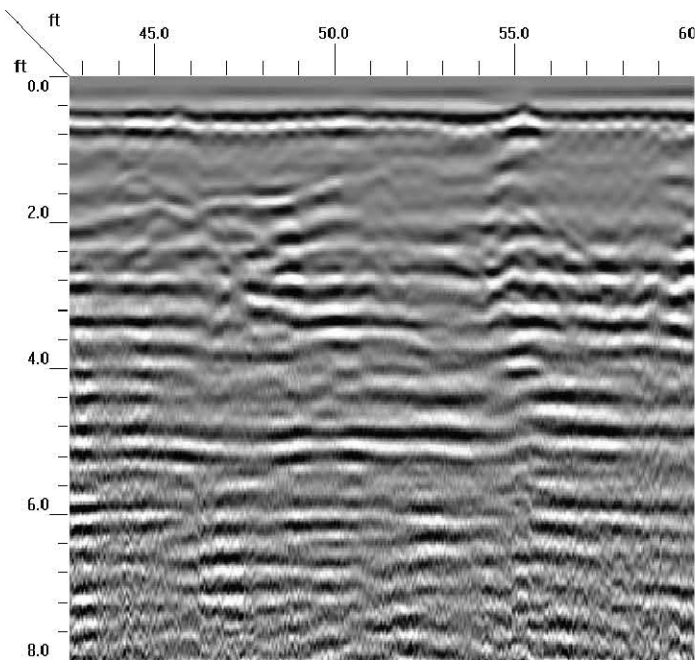
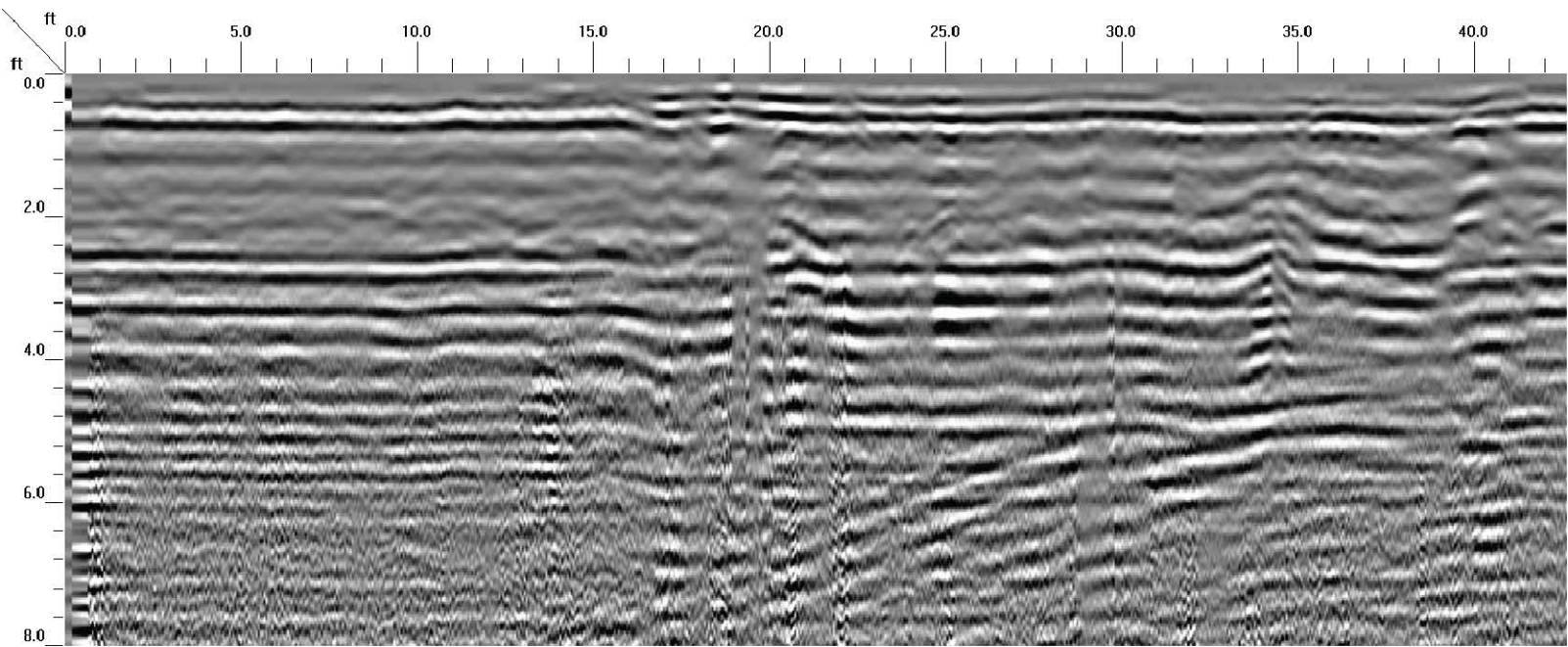


Transect 4

Figure 5b GPR Transects 3 and 4	TIP Number: R-5759 Wilkes County, NC	Billy Joe and Bobby Joe Brown Property 2032 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 053 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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Transect 5



Transect 6

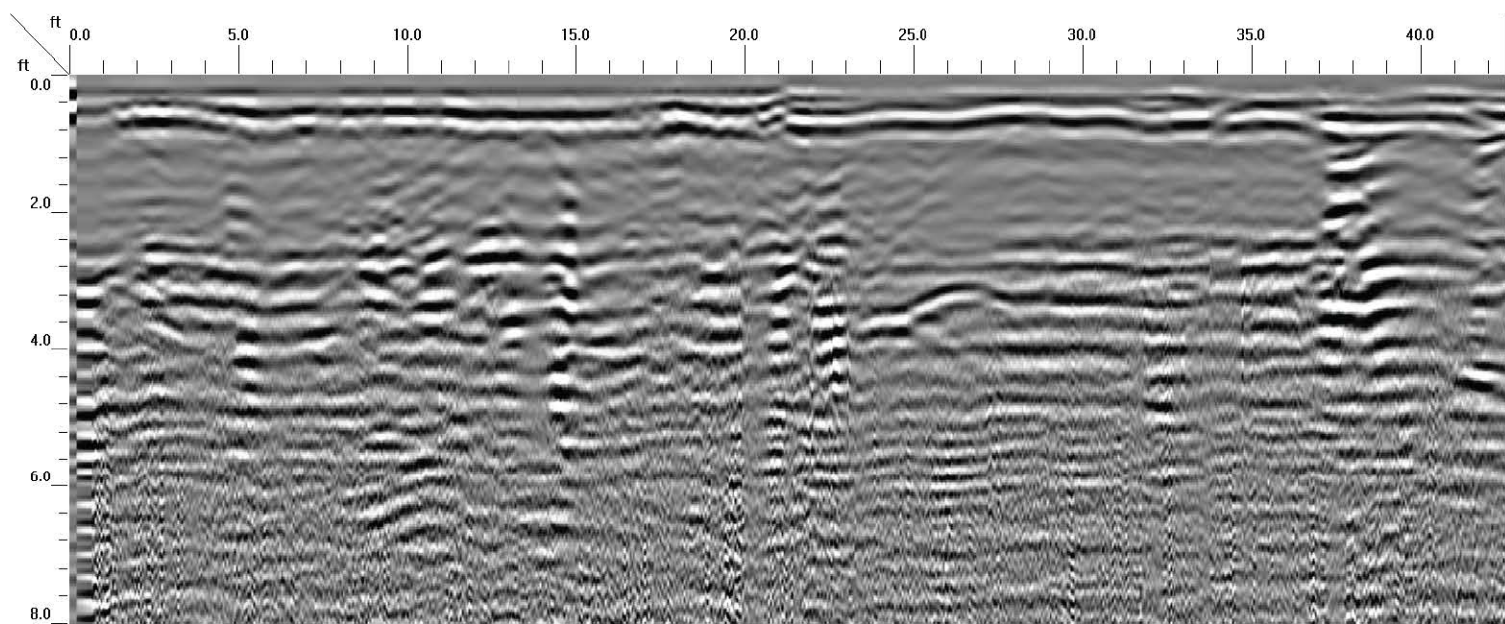
Figure 5c
GPR Transects
5 and 6

TIP Number: R-5759
Wilkes County, NC

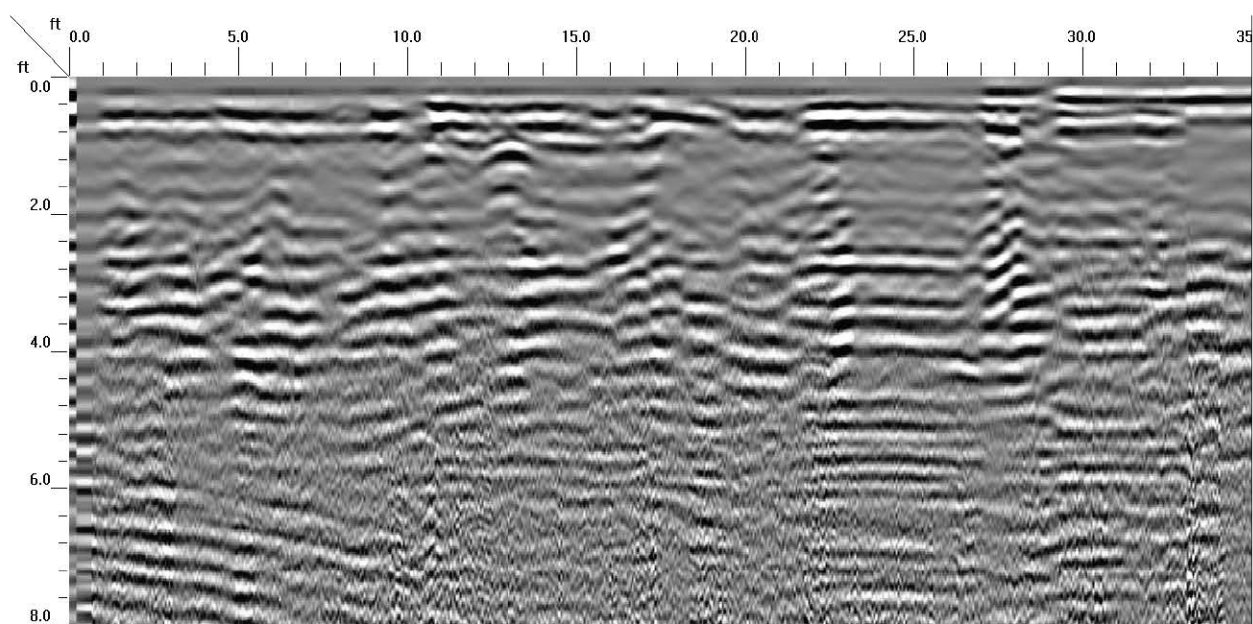
Billy Joe and Bobby Joe
Brown Property
2032 Statesville Road
North Wilkesboro, NC

Parcel I.D. #: 053
Facility I.D. #: N/A

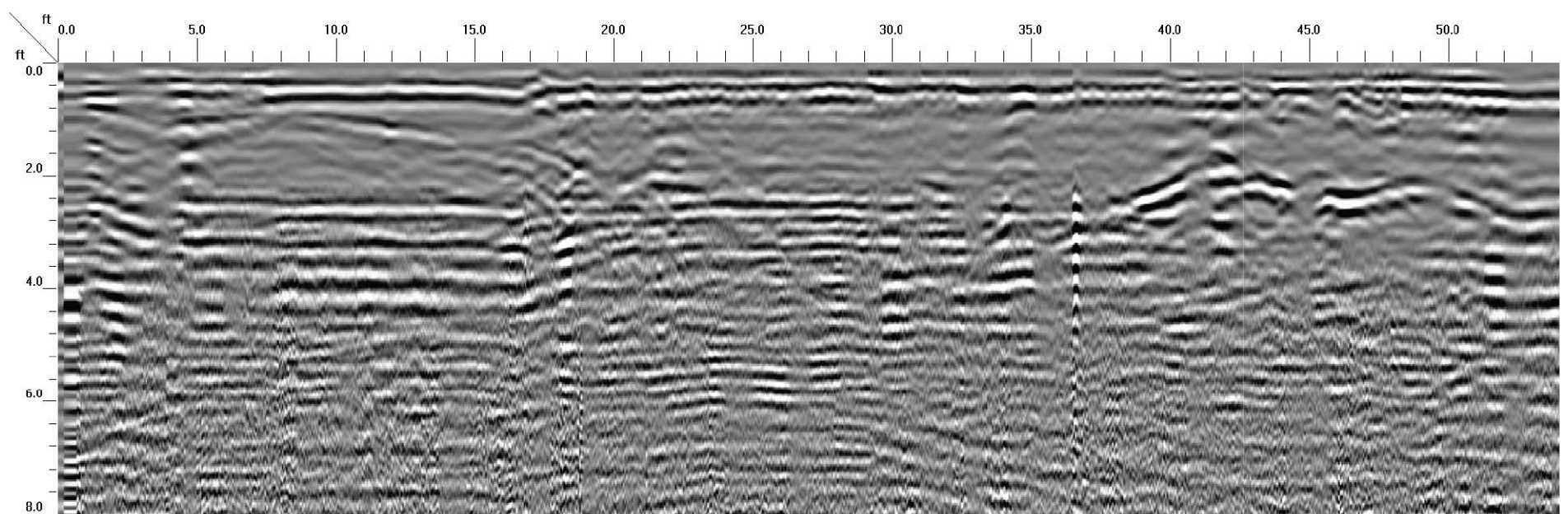
Seramur & Associates, PC
Boone, NC



Transect 7



Transect 8



Transect 9

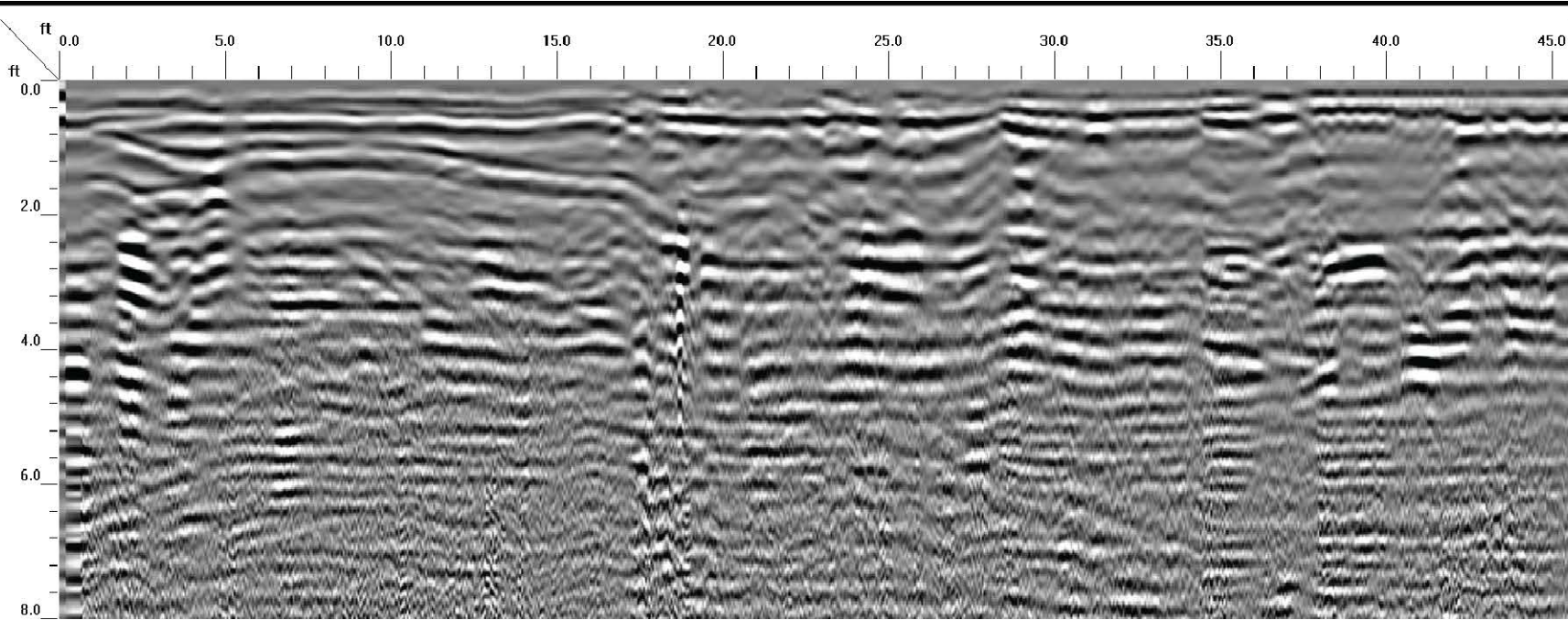
Figure 5d
GPR Transects
7 through 9

TIP Number: R-5759
Wilkes County, NC

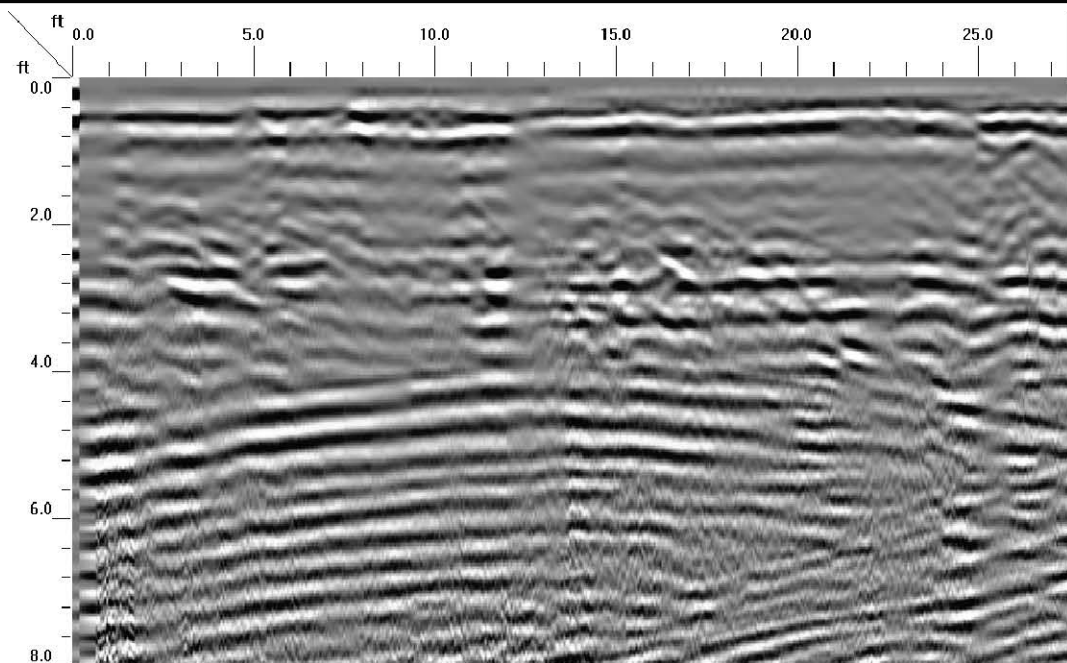
Billy Joe and Bobby Joe
Brown Property
2032 Statesville Road
North Wilkesboro, NC

Parcel I.D. #: 053
Facility I.D. #: N/A

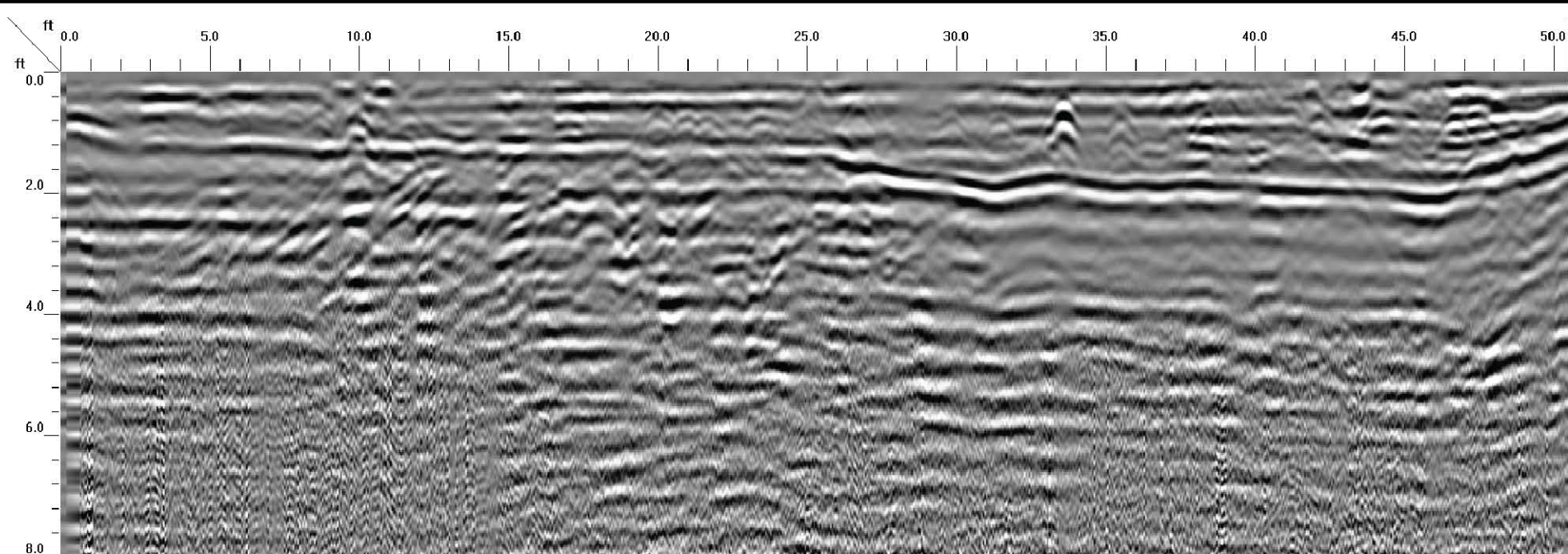
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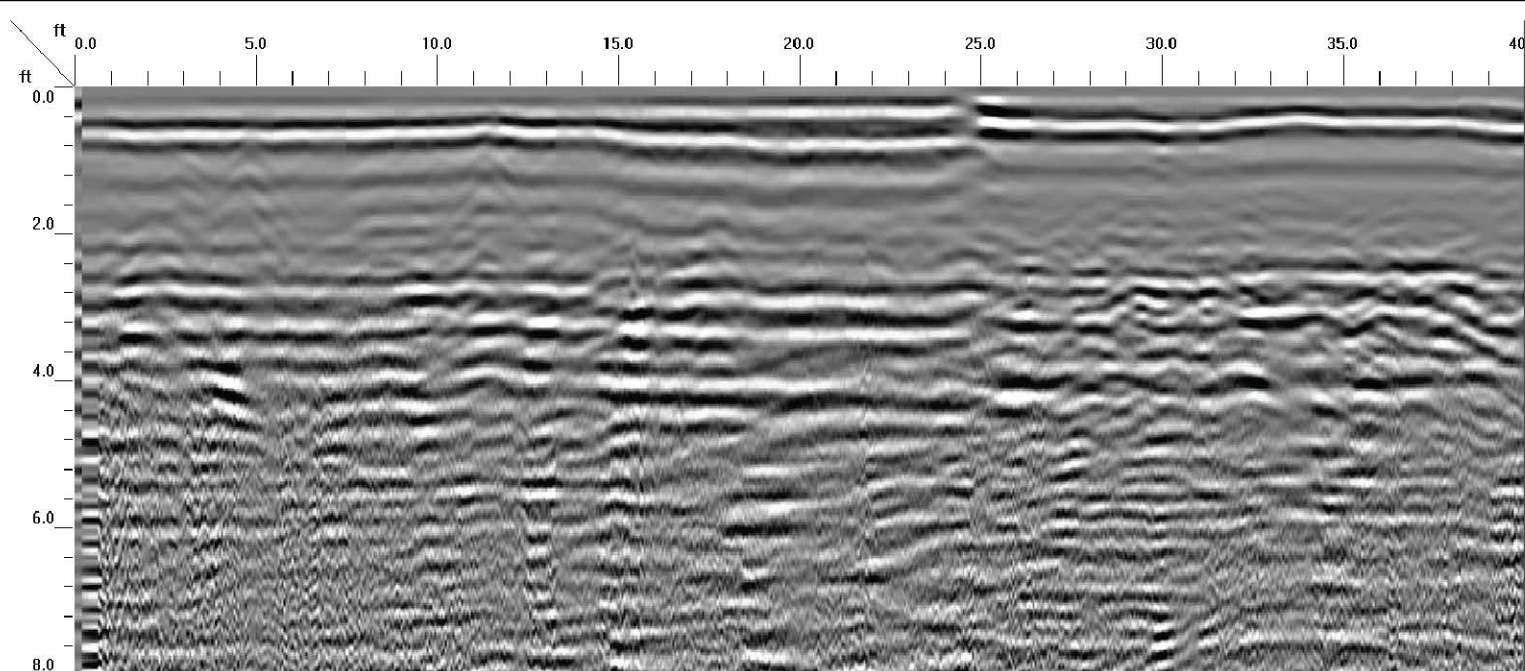
Transect 10



Transect 11



Transect 12



Transect 13

Figure 5e
GPR Transects
10 through 13

TIP Number: R-5759
Wilkes County, NC

Billy Joe and Bobby Joe
Brown Property
2032 Statesville Road
North Wilkesboro, NC

Parcel I.D. #: 053
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC

Appendix B

Laboratory Reports

Hydrocarbon Analysis Results



Client: SERAMUR & ASSOCIATES

Address:



Samples taken

Samples extracted

Samples analysed

Friday, July 16, 2021

Friday, July 16, 2021

Friday, July 16, 2021

Contact: KEITH SERAMUR

Operator

MAX MOYER

Project: NCDOT R-5759 ; P53

													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	S-1	20.0	<0.5	<0.5	1	1	0.4	0.022	<0.0	0	79.2	20.8	V.Deg.PHC 81.4%,(FCM)
Soil	S-2	17.0	<0.4	<0.4	0.28	0.28	0.12	0.006	<0.005	0	74.9	25.1	V.Deg.PHC 82.7%,(FCM)
Soil	S-3	20.0	<0.5	<0.5	<0.2	<0.5	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	S-4	12.0	<0.3	<0.3	<0.12	<0.3	<0.006	<0.006	<0.004	0	0	0	PHC ND,(FCM)
Soil	S-5	9.0	<0.22	<0.22	<0.09	<0.22	<0.005	<0.005	<0.003	0	0	0	PHC ND,(FCM)
Soil	S-6	8.0	<0.2	<0.2	<0.08	<0.2	<0.004	<0.004	<0.002	0	0	0	PHC ND,(FCM)
Soil	S-7	14.0	<0.3	<0.3	<0.14	<0.3	<0.007	<0.007	<0.004	0	0	0	PHC ND,(FCM)
Soil	S-8	10.0	<0.25	<0.25	<0.1	<0.25	<0.005	<0.005	<0.003	0	0	0	PHC ND,(FCM)
Soil	S-9	12.0	<0.3	3.4	2.5	5.93	0.7	0.04	0.001	85.1	12.2	2.7	V.Deg.PHC 88.6%,(FCM)
Soil	S-10	11.0	<0.27	<0.27	0.4	0.4	0.028	0.002	<0.001	0	100	0	Deg Fuel 29.4%,(FCM)
Initial Calibrator QC check			OK			Final FCM QC Check			OK			85.5%	

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

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

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

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

Data generated by HC-1 Analyser

QED Hydrocarbon Fingerprints

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