

Phase II Site Assessment Report

August 16, 2021
WBS Element: 44691.1.1
State Project: R-5759
Wilkes County

At

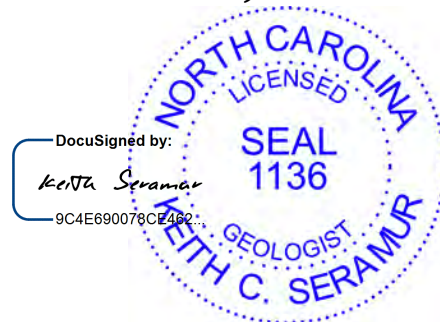
Parcel #060
James D. & Shirley A. Johnson Et Al. Property
2065 Statesville Road, North Wilkesboro, NC 28659
PIN #: 3877-79-6463
Facility ID No.: N/A
Groundwater Incident No.: N/A

Prepared For:

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NCDOT, Geotechnical Engineering Unit
GeoEnvironmental Section
1589 Mail Service Center
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1.0 Introduction

1.1 General Site Background Information

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

Parcel #060
James D. & Shirley A. Johnson Et Al. Property
PIN #: 3877-79-6463
2065 Statesville Road, North Wilkesboro, NC 28659
Facility ID No.: N/A

This parcel is located along the eastern side of Statesville Road approximately 600 feet south of the intersection with Old State Highway 60. The property is on a ridge crest west of the Fishing Creek stream valley, approximately 0.2 miles 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 from NCDOT on June 25, 2021. Our area of investigation was limited to the area surrounding the northernmost building on the property and included the proposed Permanent Utility Easement (PUE), Permanent Drainage Utility Easement (DUE) and proposed and existing Right-of-Way (R/W) along the eastern side of Statesville Rd. (Figure 2). The Phase II Site Assessment scope of work was limited to completing a geophysical survey at the property to investigate the potential for unknown underground storage tanks. Background research for this project included reviewing historic aerial photographs and NCDEQ databases.

2.0 Scope of Work

2.1 Background Research

According to Wilkes County Tax Administration records, the parcel is owned by James D. and Shirley A. Johnson (ETAL). 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 #060:

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

2.2 Geophysical Surveys

Seramur & Associates used the Pythagorean Theorem to establish one rectangular grid across the proposed R/W and easements for a geophysical survey at Parcel #060 (Figure 3). Grid 1 extends along the east edge of the property along Statesville Road. Geophysical grid data was collected along transects at a two-foot spacing. Additionally, five GPR transects were collected around the building.

The magnetometer data was collected with a GEM Systems GSM-19W Walking Overhauser

Magnetometer. This data was compiled in an Excel spreadsheet and a contour map of the magnetometer data was drafted using Golden Software's Surfer® modeling program. The lighter shades are lower magnetic readings and the darker colors are higher magnetic readings (Figure 4). Ferrous objects in the subsurface produce a magnetic field that differs from the surrounding soil and produces positive and negative magnetic anomalies.

A Ground Penetrating Radar (GPR) survey was completed across the grid using 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 grid data has been processed and modeled using GPR Slice® software. The GPR data processing included adjusting time zero, completing a background removal and adjusting the time variable gain to enhance deep reflections. Three-dimensional models of the GPR grid data were produced with GPR Slice® software. Three time slices (or depth slices) were imaged in each grid at depths of 0.3 to 0.6 feet, 1.6 to 1.9 feet and 3.8 to 4.1 feet (Figures 5 through 7). Each depth slice is a horizontal slice or plan view of the reflections across a 0.3-foot thickness of the subsurface. For example, the deep GPR depth slices for the grids show reflections in the radar data between depths of 2.7 and 3.0 feet.

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 8a and 8b. Significant anomalies are notated on the profile images.

2.3 Plate 1 – Photographs of Parcel #060 Photographs taken on July 11th, 2021



3.0 Results of Investigation

Parcel #060 currently operates as a Sweepstakes Parlor. Aerial images from EarthExplorer and Google Earth Pro indicate that this portion of Statesville Road has been developed since at least the 1960s. The 1963 photograph is unclear at this part of the road, but it appears that a different building was developed on the property at this time. The historic photographs do not appear to

show past use of the property that could indicate a potential environmental condition. NCDEQ databases document no incidents or registered USTs at the property.

SAPC personnel made a pedestrian reconnaissance of the property during the initial site visit on July 11, 2021. No evidence of a UST system was observed. A vault was observed off the southeast corner of the building. The Schonstedt locator did not detect ferrous objects in the subsurface at this location.

3.1 Geophysical Surveys

A grid of magnetometer data was collected on the western edge of the property along Statesville Road (Figure 4). A few linear sets of elevated magnetometer readings were recorded across the center of the grid. These elevated magnetometer readings are likely related to utility lines.

The shallow GPR depth slice (0.3-0.6 feet) for Grid 1 shows dispersed medium amplitude reflections in the center of the grid and a high amplitude rectangular anomaly in the north end of the grid (Figure 5). This anomaly is too shallow to be a UST, but could possibly be related to a utility line. The intermediate GPR depth slice (1.6-1.9 feet) for Grid 1 shows some quasi-linear (discontinuous) sets of reflection between the north end of the building and the road (Figure 6). The deep GPR depth slice (3.8 to 4.1 feet) shows a linear high amplitude set of reflections extending from the northwest corner of the building to the roadway (Figure 7). This could be a sewer line or other utility. The GPR profiles at this part of the grid show a hard reflector at depth that could be the bottom of an excavation trench (Inset A on Figure 7)

Five transects of GPR data were collected around the building at Parcel 60 (Figures 8a and 8b). Transects 1 and 2 were collected on the south side of the building. A possible utility trench is observed on both of these profiles between about 25 and 40 feet. Additionally, a few hyperbolae were observed on both of these profiles near the south side of the building and are likely utility lines. Transects 3 and 4 were collected on the north side of the building. A few hyperbolae were imaged on these transects. The magnetometer did not detect ferrous objects in the subsurface at this location. Numerous utility meters are located on this side of the building, so these hyperbolae are interpreted as underground utilities. Transect 5 was collected along the rear (east) side of the building and across the area near the subsurface vault. Evidence of a UST was not imaged at this location (Figure 9b). The GPR passed over an exposed electric wire at the surface around 76 feet through the transect and this produced “ringing” through the entire depth of the profile at this location.

3.2 Conclusions

Parcel #060 is currently operated as a Sweepstakes Parlor. The geophysical surveys did not find evidence of a UST or remnant infrastructure from a UST system at Parcel 60.

4.0 Recommendations

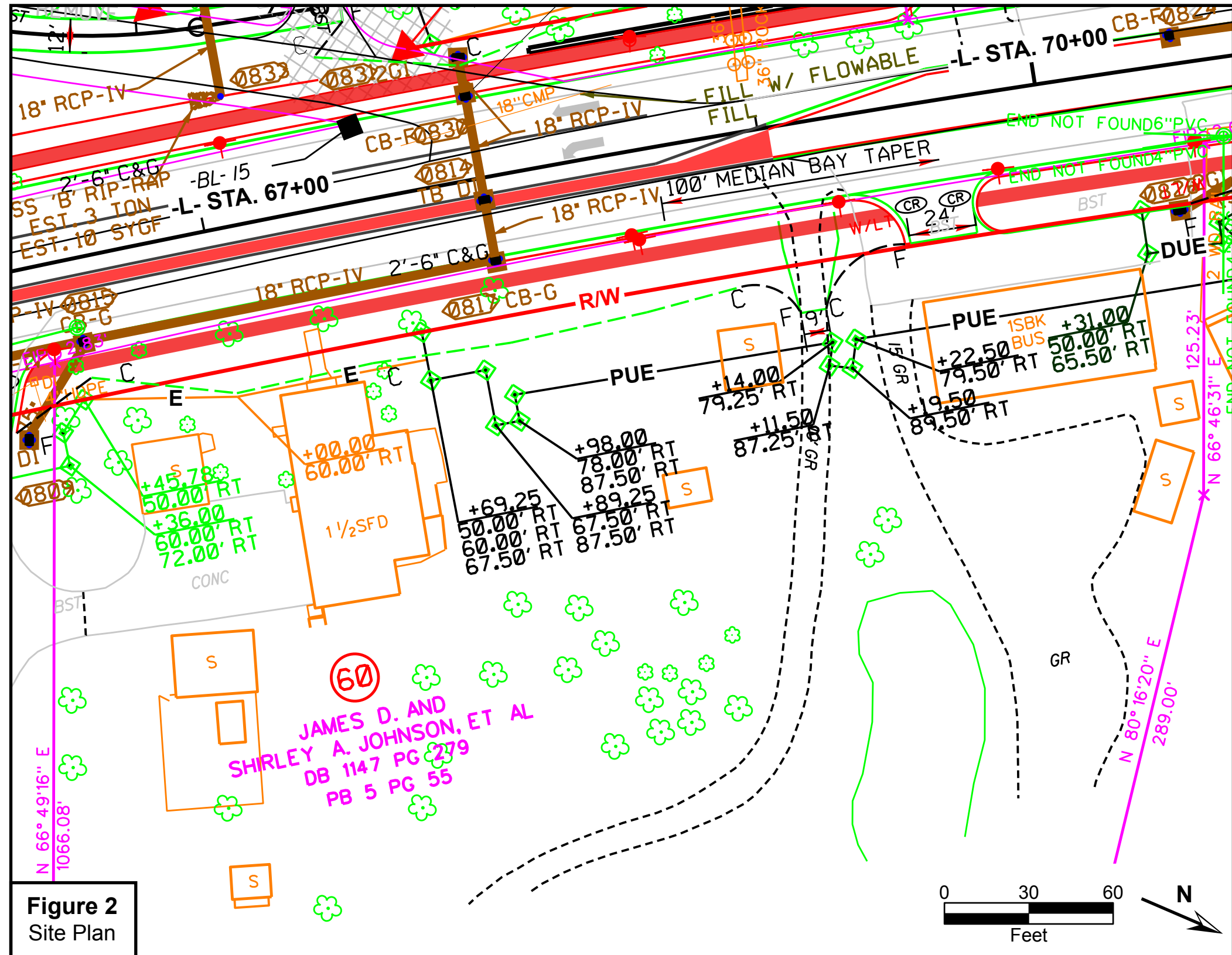
Seramur & Associates does not recommend any further assessment work for Parcel #060.

Appendix A

Figures



Figure 1 Site Location Map Source: U.S.G.S. The National Map	TIP Number: R-5759 Wilkes County, NC	J.D. and S.A. Johnson, et al. Property 2065 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 060 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	0 400 800 Feet N
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TIP Number: R-5759
Wilkes County, NC

J.D. and S.A. Johnson, et al. Property
2065 Statesville Road
North Wilkesboro, NC

Parcel I.D. #: 060
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC

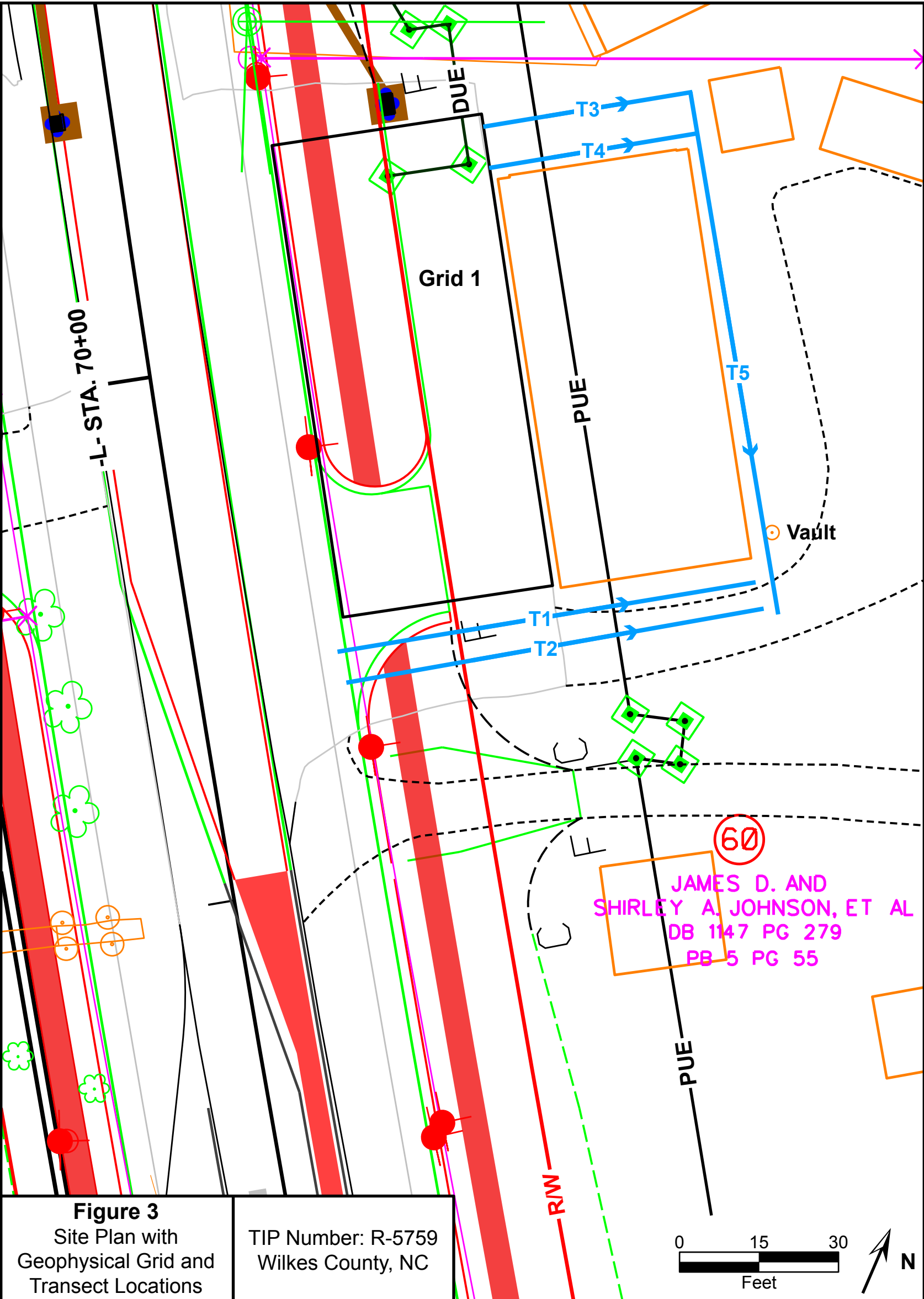


Figure 3 Site Plan with Geophysical Grid and Transect Locations	TIP Number: R-5759 Wilkes County, NC		0 15 30 Feet N
J.D. and S.A. Johnson, et al. Property 2065 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 060 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	

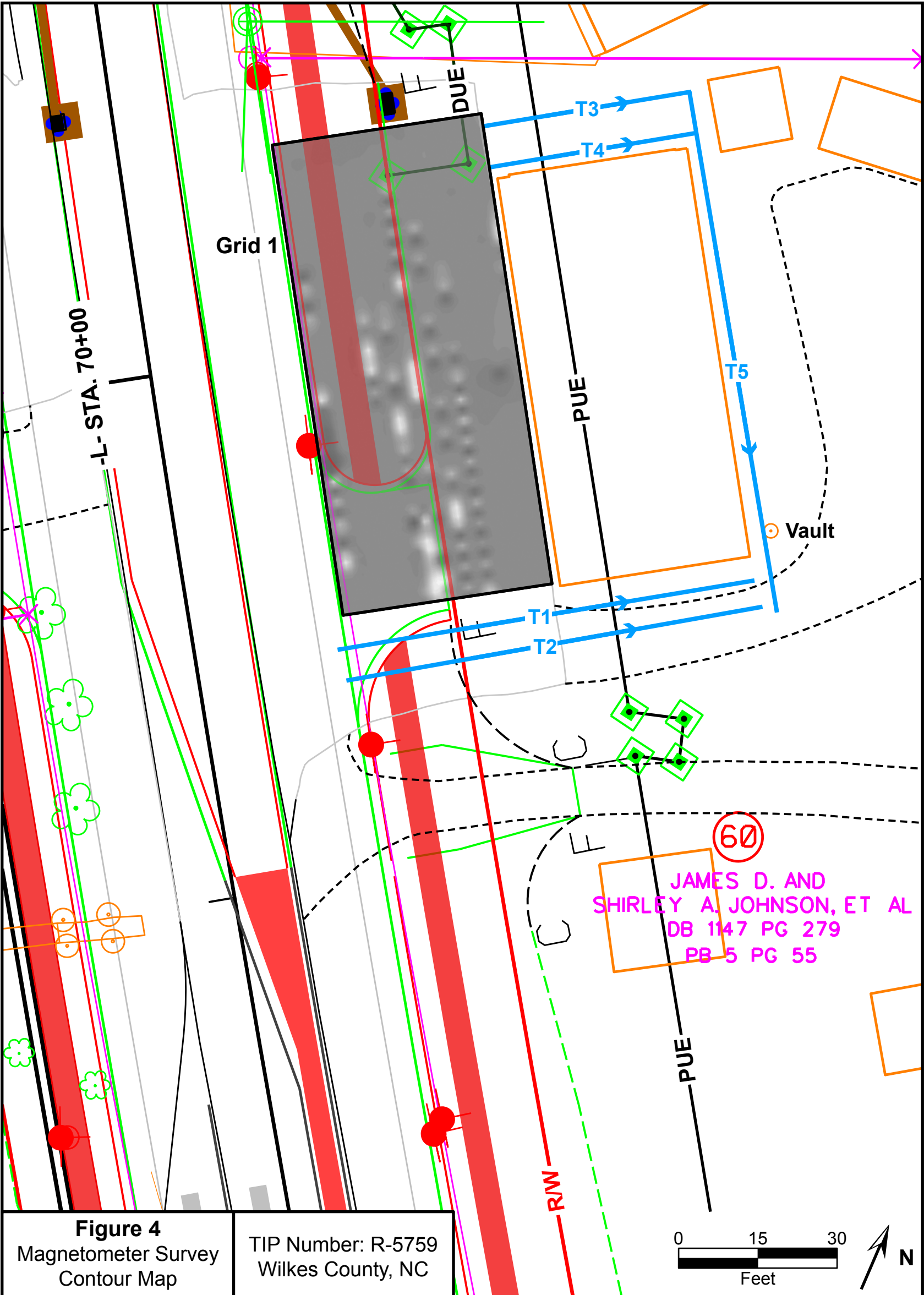
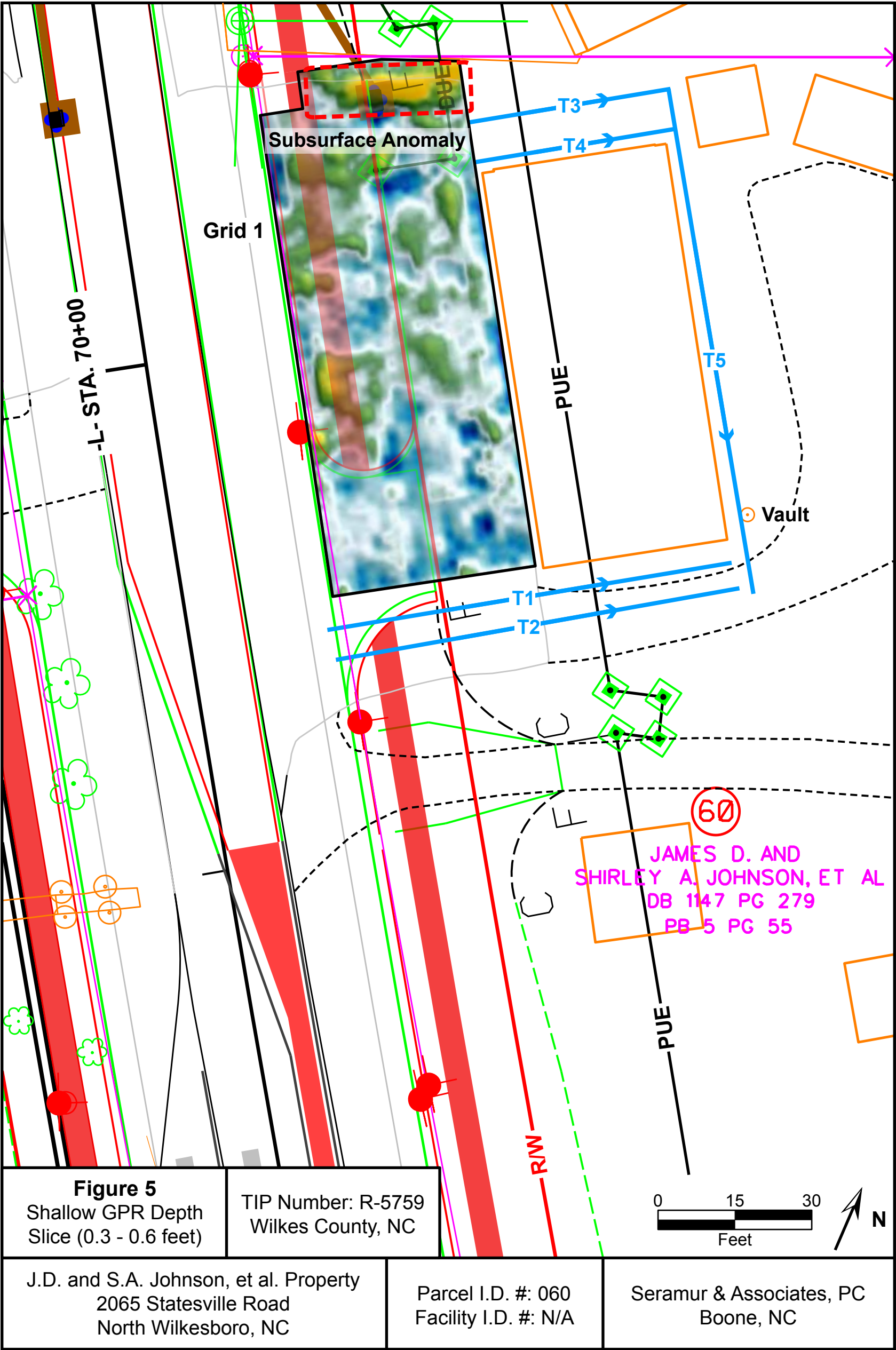
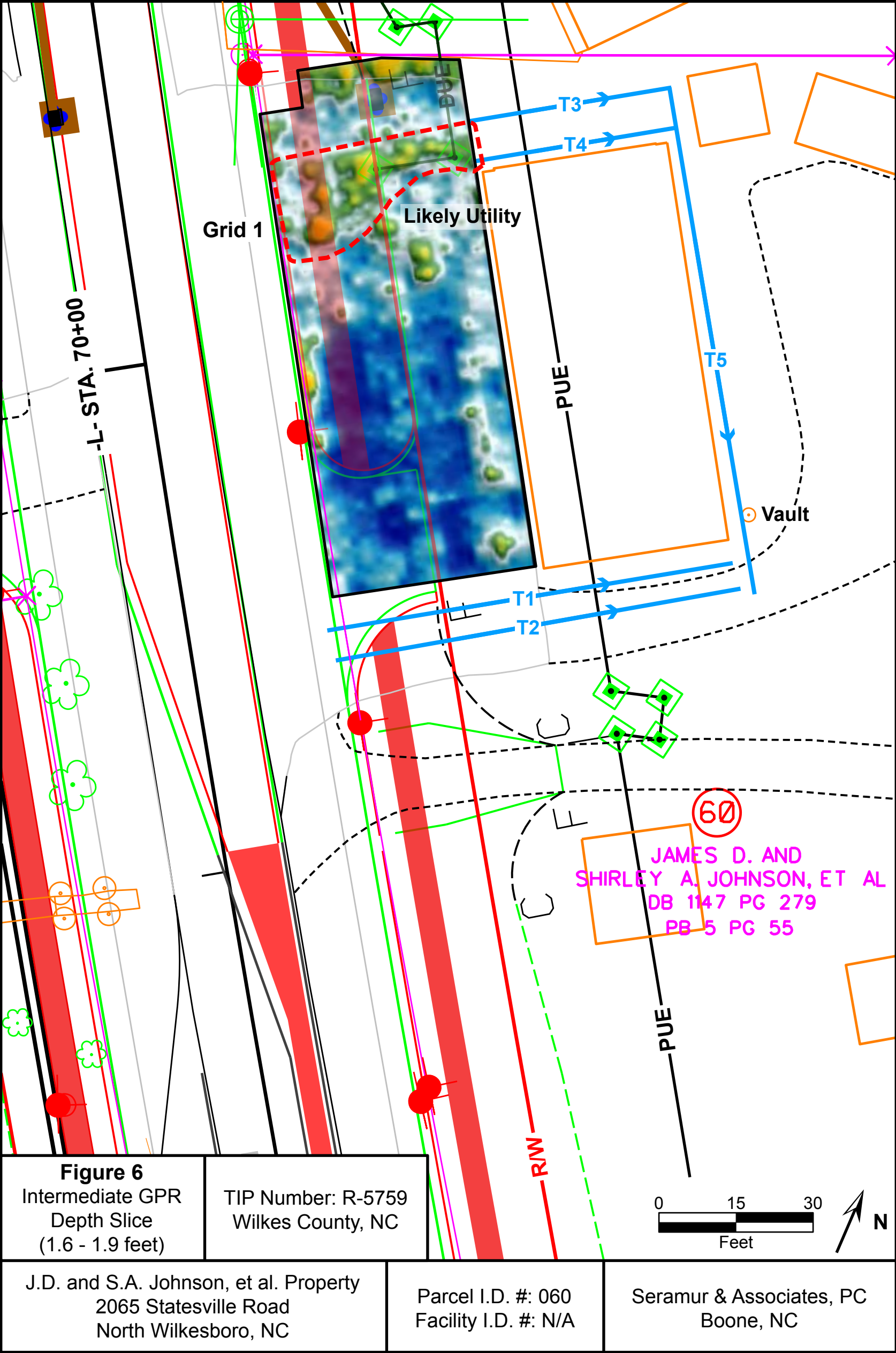


Figure 4 Magnetometer Survey Contour Map	TIP Number: R-5759 Wilkes County, NC		0 15 30 Feet N
J.D. and S.A. Johnson, et al. Property 2065 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 060 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	





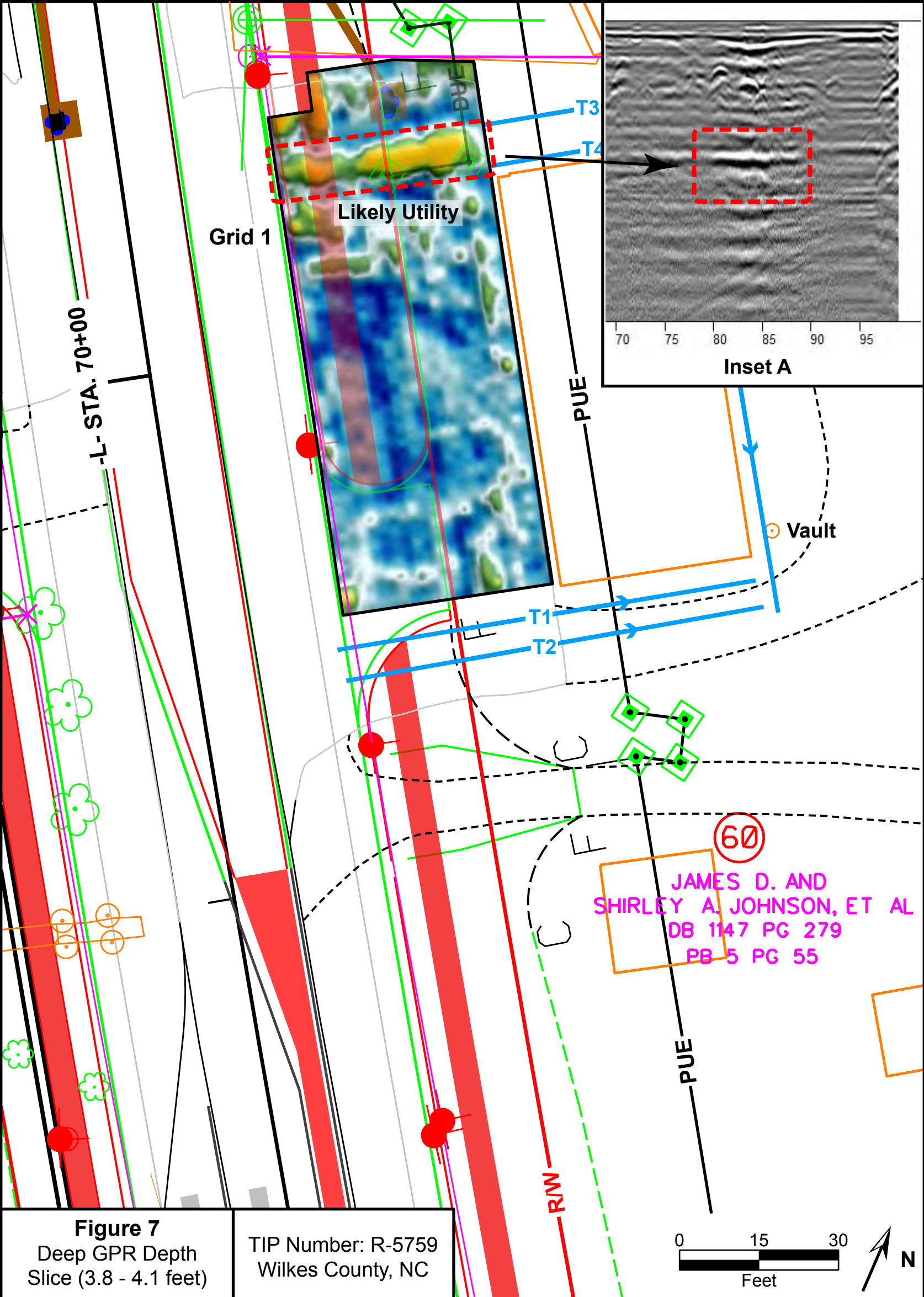
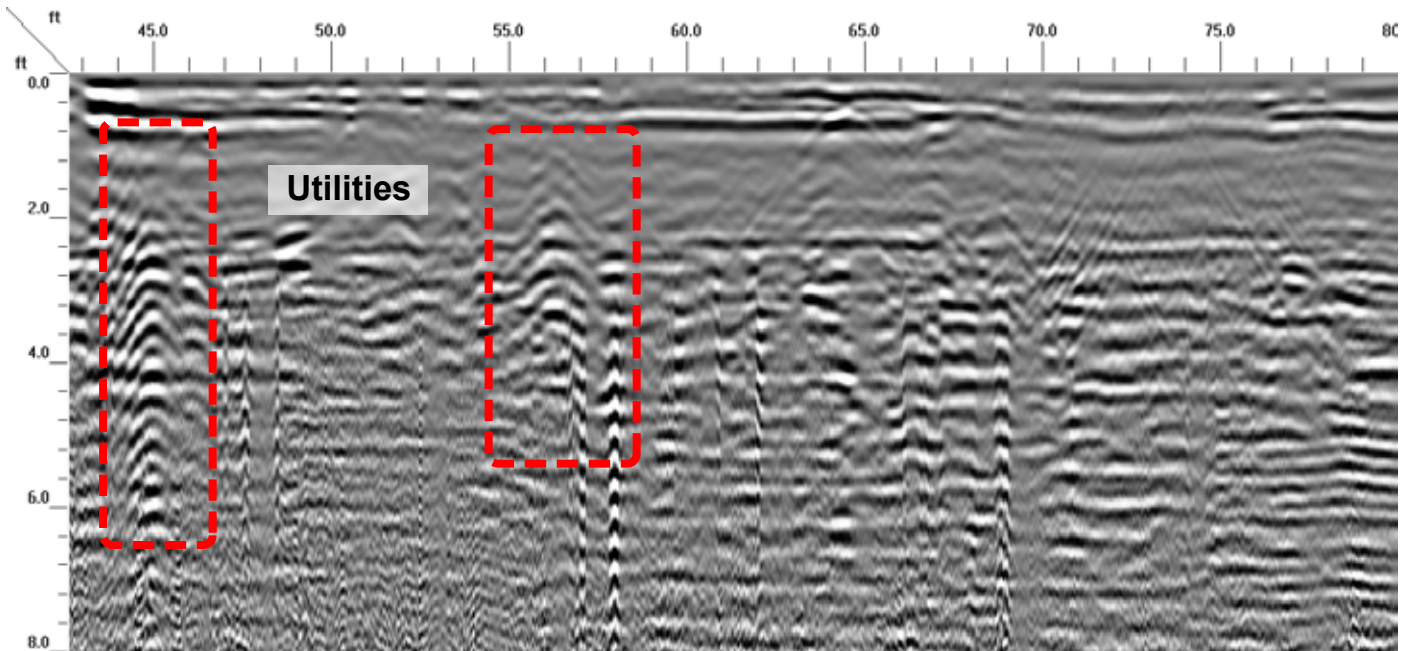
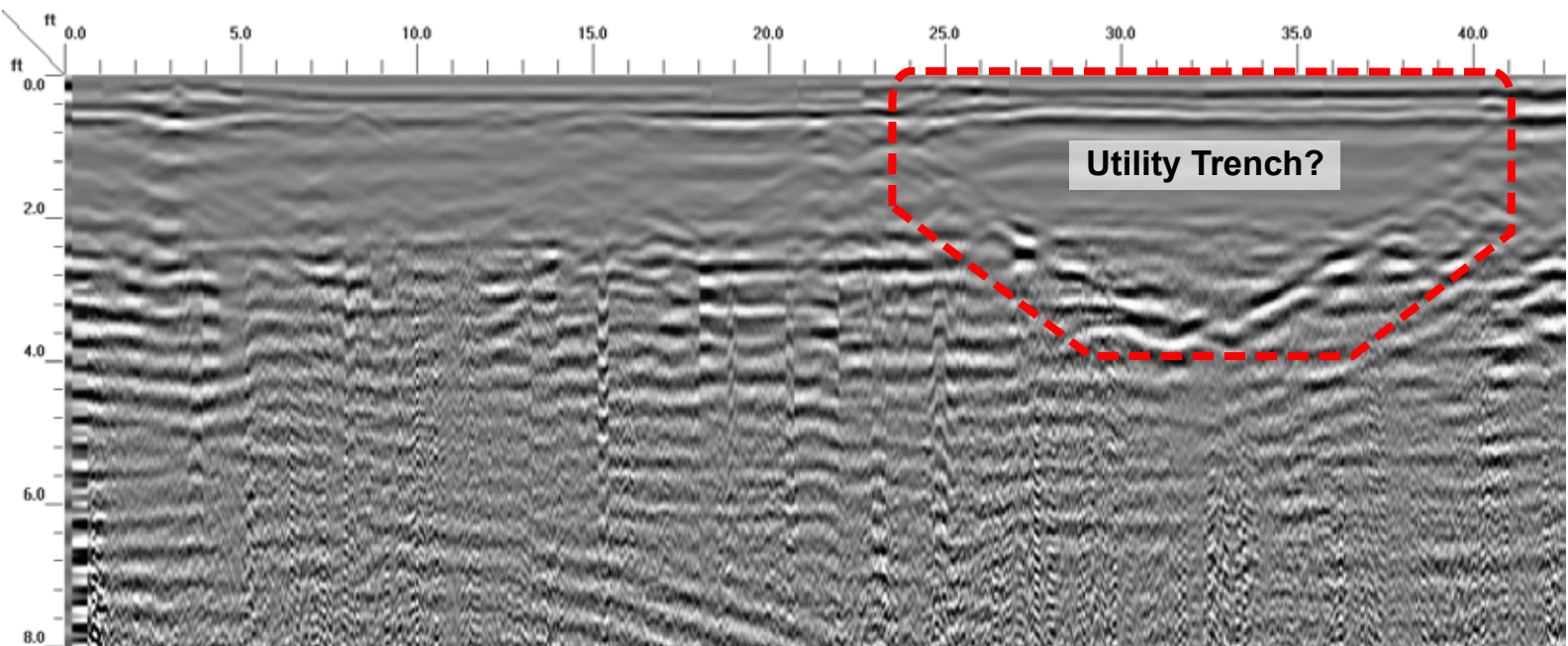
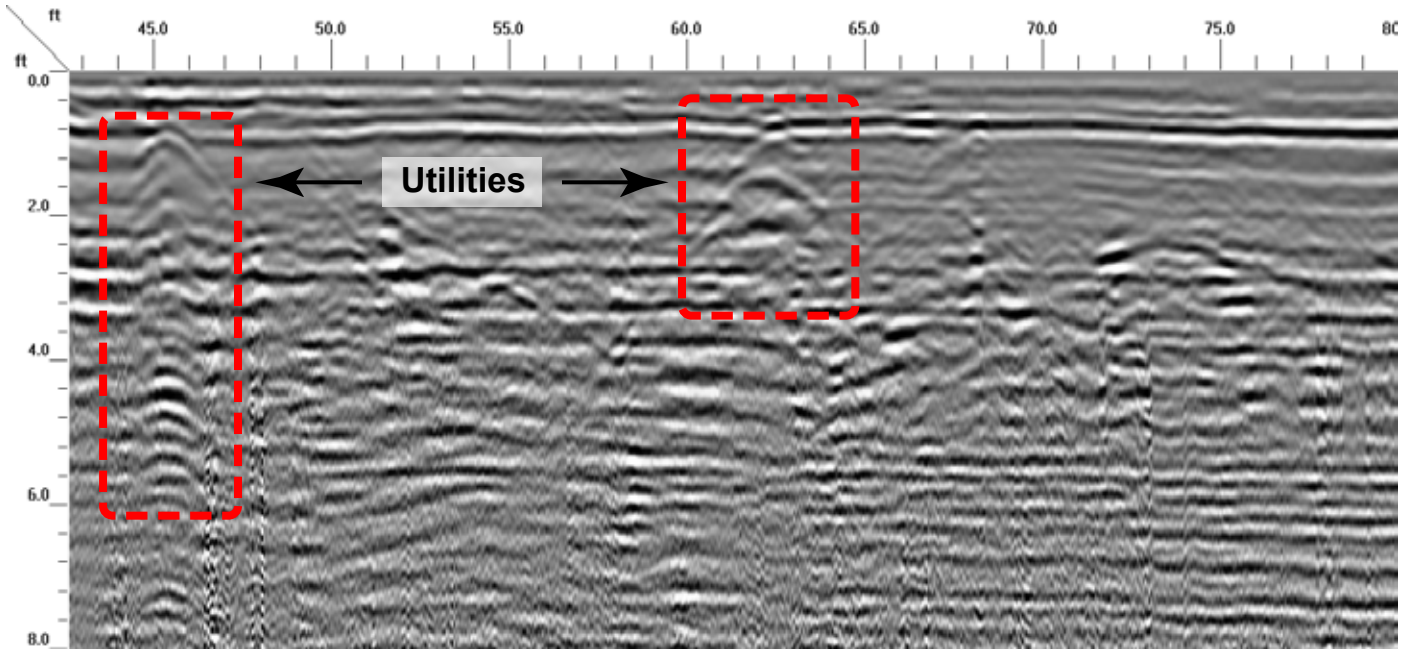
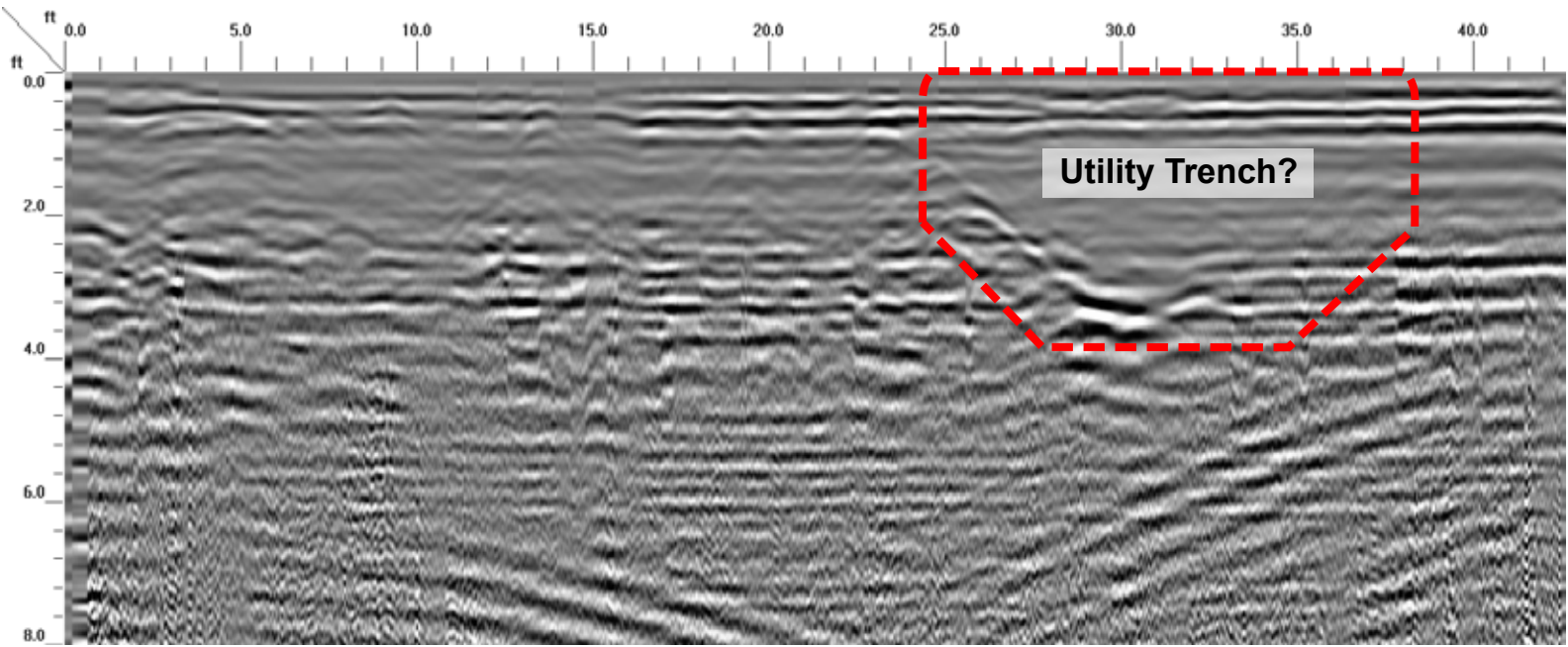


Figure 7 Deep GPR Depth Slice (3.8 - 4.1 feet)	TIP Number: R-5759 Wilkes County, NC		
J.D. and S.A. Johnson, et al. Property 2065 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 060 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	

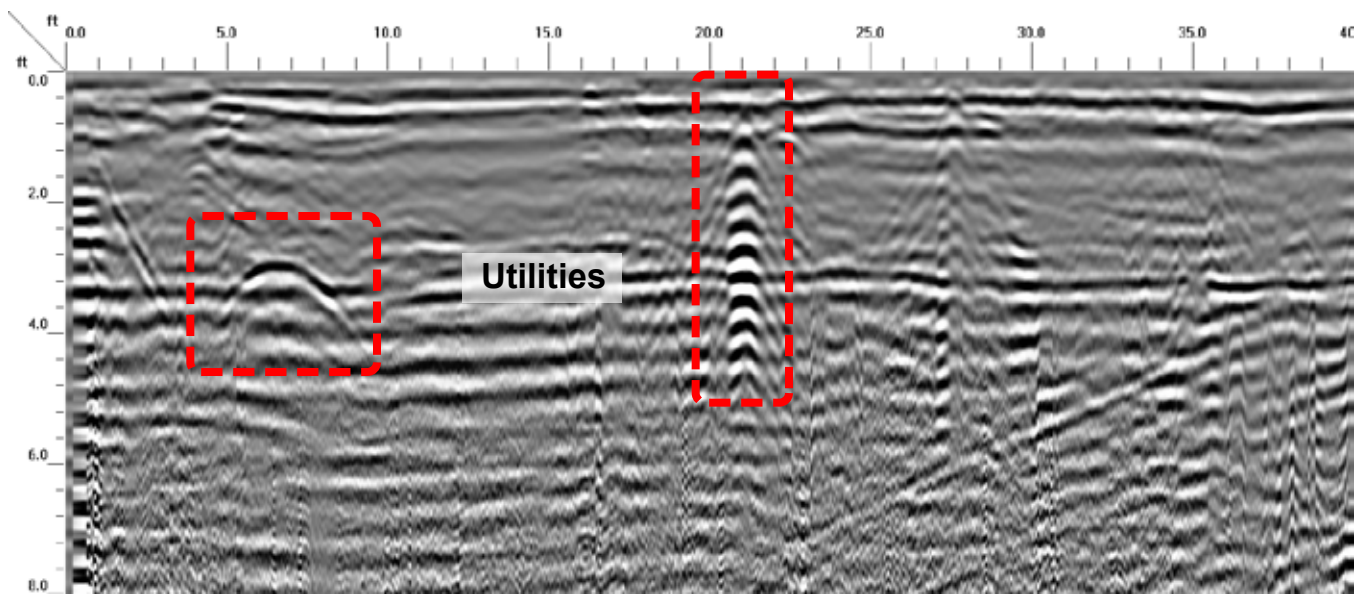


Transect 1

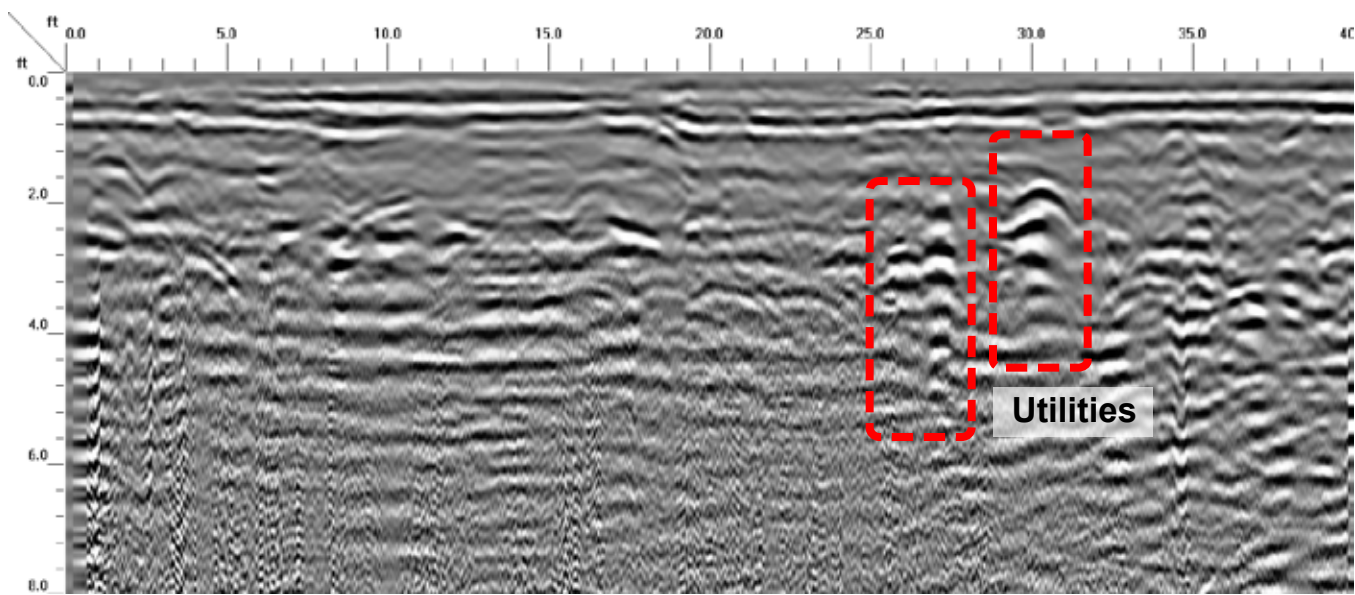


Transect 2

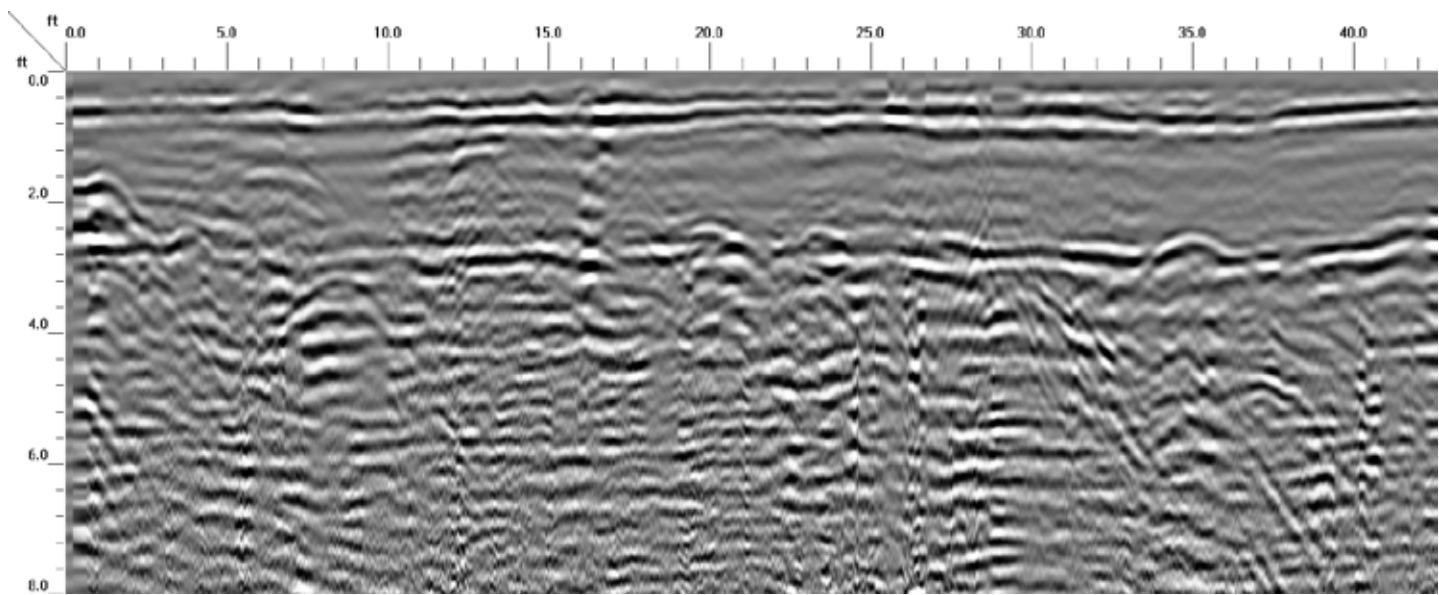
Figure 8a GPR Transects 1 and 2	TIP Number: R-5759 Wilkes County, NC	J.D. and S.A. Johnson, et al. Property 2065 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 060 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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Transect 3



Transect 4



Transect 5

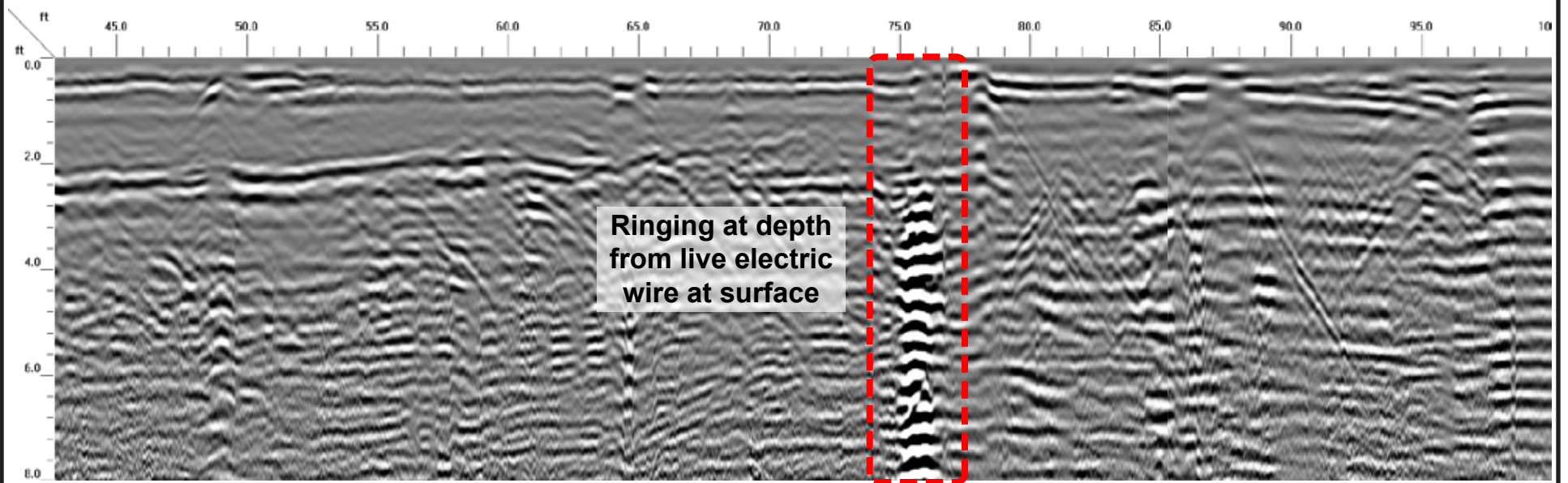


Figure 8b GPR Transects 3 through 5	TIP Number: R-5759 Wilkes County, NC	J.D. and S.A. Johnson, et al. Property 2065 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 060 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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