

Phase II Site Assessment Report

August 9, 2021

WBS Element: 44691.1.1

State Project: R-5759

Wilkes County

At

Parcel #003

Janet & James Hartley Property

NA Statesville Road, North Wilkesboro, NC 28659

PIN #: 3877-84-1782

Facility ID No.: N/A

Groundwater Incident No.: N/A

Prepared For:

Mr. Gordon Box

NCDOT, Geotechnical Engineering Unit

GeoEnvironmental Section

1589 Mail Service Center

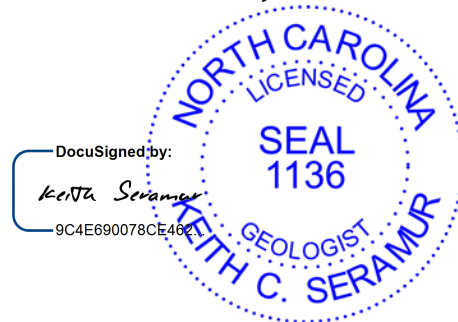
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1.0 Introduction

1.1 General Site Background Information

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

Parcel #003
Janet & James Hartley
PIN #: 3877-84-1782
NA Statesville Road, North Wilkesboro, NC 28659
Facility ID No.: N/A

This parcel is located along the western side of Statesville Road adjacent to the US 421 on-ramp. The property is located on an upland west of the Fishing Creek stream valley. Fishing Creek is approximately 450 feet east of Parcel #003. Bedrock at the property is mapped as gneiss, described as mainly monzonite, granodiorite with some quartz-diorite (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. This investigation covered accessible areas within the proposed easements, proposed and existing Control of Access (C/A), and proposed and existing Right-of-Way (R/W) along the western side of Statesville Rd. (Figure 2). The proposed easements include a Permanent Utility Easement (PUE) along the southeast side of the property and Temporary Construction Easements (E) along the east and north sides of the property. The easement along the northwest side of the property is woods with thick underbrush and was not accessible. The easement along the north side of the property was just within the tree line of the woods and was observed visually. The Phase II Site Assessment scope of work included visual reconnaissance and completing a geophysical survey at the property to investigate the potential for unknown underground storage tanks and remnant infrastructure. 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 Janet & James Hartley. Available historic aerial photographs from the USGS EarthExplorer website and the ArcGIS Online website were reviewed.

The following NCDEQ databases were queried for incidents at Parcel #002:

- 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 PUE, E, C/A and R/W for a geophysical survey at Parcel #003 (Figure 3). Grid 1 extends along the east edge of the property, bordering Statesville Road. Geophysical grid data was collected along transects at a two-foot spacing. Seven additional transects were collected in the grassy area along the northeast corner of the property within the E and C/A. These transects were collected parallel to each other at an approximate 5-10 foot spacing and processed into a 2D grid. The locations of the transects within the grid are shown in Figure 3.

The magnetometer data was collected with a GEM Systems GSM-19W Walking Overhauser Gradiometer. 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 (Figure 4). The lighter shades are lower magnetic readings and the darker shades are higher magnetic readings (Figure 4). Ferrous objects in the subsurface are more magnetic than the surrounding soil and can produce positive and negative magnetic anomalies on the contour maps.

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, 1.9 to 2.2 feet and 3.5 to 3.8 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 3.5 and 3.8 feet.

3.0 Results of Investigation

Parcel #003 is currently an empty lot with tall grass and woods. Historic aerial photographs show that the property was developed with numerous structures in 1960 (Plate 1, Photo 1). Some of these structures appear to have been in the proposed E, C/A and R/W (Plate 1, Photo 2). It is not possible to determine the use of these structures because of the quality of the image. The NCDEQ databases do not indicate that this property operated as a gas station or as any other type of facility that may have used hazardous substances. There are no incident reports mapped on or near the property. These databases typically do not list sites that were active prior to the 1980's. Deed records for the property were searched to look for evidence of prior use. Parcel #003 seems to have been owned by individuals rather than commercial businesses back to at least the 1960's.

Historic aerial photographs from the 1980's until as recent as 1998 (Plate 1, Photo 3) show Parcel #003 covered in what appears to be junk cars. The property was cleared of these vehicles by 2005. Parcel #003 likely operated as a salvage yard which could have resulted in surface spills and possible contaminated soil. Stained soil was not observed during our reconnaissance, but vegetation obstructed our view of much of the ground surface.

3.1 Plate 1 – Aerial Photographs of Parcel #003



Photo 1. 1960 Aerial Photograph showing structures on Parcel #003. Note that Highway 421 has not been built in its current alignment and the pond across Statesville Road is farther to the north.



Photo 2. Recent Aerial Photograph of Parcel #003.

Photo 3. 1998 Aerial Photograph showing what appears to be numerous vehicles scattered across Parcel #003. No structures appear to be present on the eastern side of the property.



3.2 Geophysical Surveys

A grid of magnetometer data was collected along the eastern edge of the property parallel to Statesville Road (Figure 4). A small area of elevated readings in the northeast corner was later identified as a piece of scrap metal and should not be of concern. Four additional magnetometer transects were run over an area where GPR anomalies were observed (Transects 4 through 7). The results were reviewed and showed no evidence of magnetic anomalies characteristic of a UST system.

The shallow GPR depth slice (0.3-0.6 feet) for Grid 1 shows a rectangular higher amplitude reflection that could be an old roadbed/driveway that led to the west side of the property. Scattered reflections were detected across Grids 1 and 2, but these reflections are not characteristic of remnant infrastructure of a former UST system. Magnetic readings were not elevated in the areas of these scattered reflections.

The intermediate GPR depth slice (1.9-2.2 feet) for Grid 1 (Figure 6) shows some scattered reflections. The two high amplitude sets of reflections are observed on the east side of the grid. These are interpreted as likely foundation remnants from the buildings observed in the 1960 aerial photograph (Plate 1, Photo 1). There is a set of high amplitude reflections along the west side of Grid 2. This reflector extends over a distance of at least 10 feet. This set of reflections is not interpreted as a UST system as elevated magnetic readings were not recorded across this anomaly. This set of reflections could also be foundation remnants, or a rubble filled basement of one of the former structures.

The deep GPR depth slice (3.5-3.8 feet) for Grid 1 (Figure 7) shows three areas of high amplitude reflections. Elevated magnetic readings were not detected these anomalies, so they are not likely to be related to a former UST system. The high amplitude set of reflections on the GPR depth slice in Grid 2 appears as an area of discontinuous to chaotic, high amplitude reflections on the GPR profiles (Inset A on Figure 7). These reflections occur at a depth of about 2 feet and extend for 20 feet across the profiles. These reflection characteristics are not consistent with USTs in a tank pit. Additionally, elevated magnetic readings were not detected across this anomaly. This anomaly is likely related to the former structures on Parcel #003.

3.3 Plate 2 – Photographs of Parcel #003



3.4 Visual Reconnaissance

A small area on the north side of the property contains a proposed E. It appears that this area will be used to construct a skim basin, or EC device (per the CAD plans). The thick woods and other underbrush prevented the collection of geophysical data in this area. A visual reconnaissance of the ground surface across this area was conducted.

Photos 1 and 2 in Plate 3 show an example of some of the dense vegetation encountered within the E. Photos 3, 4 and 5 show examples of discarded scrap metal, what appears to be a water pressure tank, a 55-gallon drum and old vehicle parts. It is possible that these objects have been dumped here from the off ramp over the last few decades, but it would seem likely that these objects are material discarded when the property was used as a junk yard. Photo 2 in Plate 1 shows what may be a house and possibly a chicken house in the vicinity of the E.

3.5 Plate 3 – Photographs of Parcel #003



3.6 Conclusions

Parcel #003 is currently an undeveloped parcel. It contained several structures in the past and at one time what appears to be rows of cars in a junk yard. There is no evidence that the property has operated as a gas station or a facility that used hazardous substances. The geophysical survey did not show evidence of USTs or remnant infrastructure of a UST system. Scrap metal, including a 55-gallon drum was observed in the Temporary Construction Easement found along the north side of the property.

4.0 Recommendations

It is possible that there are localized areas of contaminated soil because of past use of the property but locating this type of dispersed soil staining would require stripping a few inches of soil across the entire parcel. Seramur & Associates does not recommend any further assessment work for Parcel #003 at this time.

Appendix A

Figures

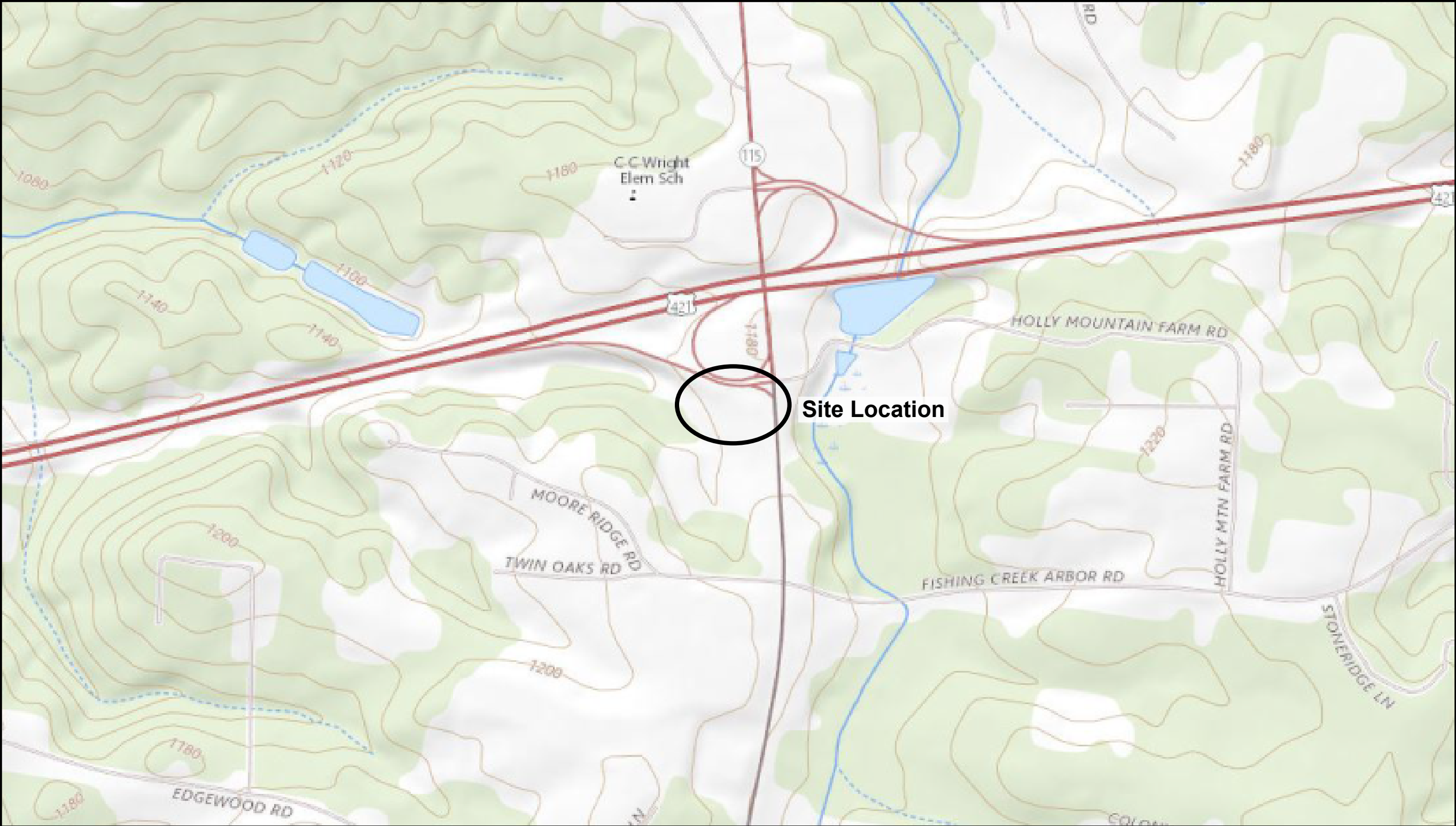


Figure 1 Site Location Map Source: U.S.G.S. The National Map	TIP Number: R-5759 Wilkes County, NC	Janet and James Hartley Property Statesville Road North Wilkesboro, NC	Parcel I.D. #: 003 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	0 400 800 Feet N
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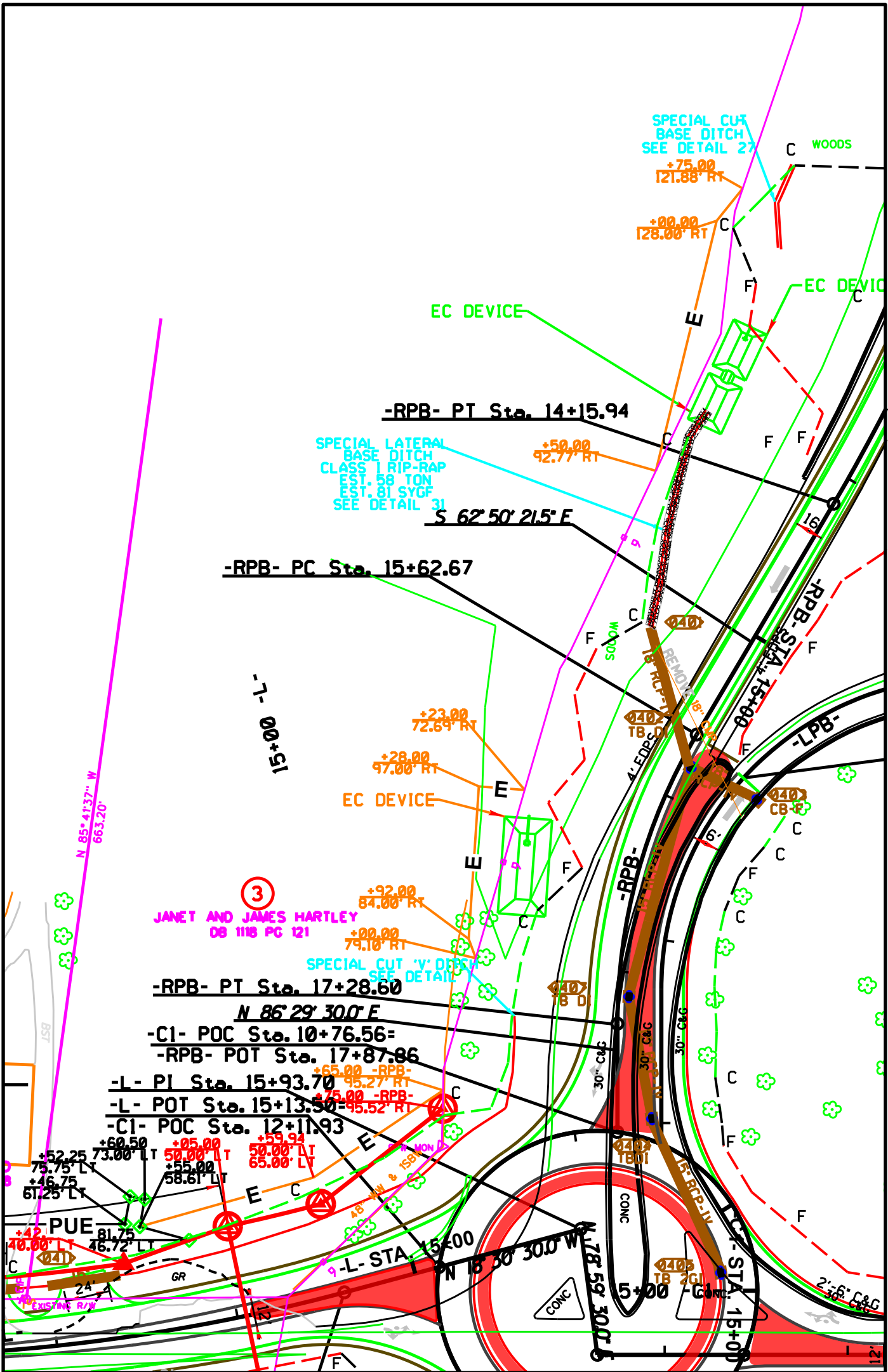
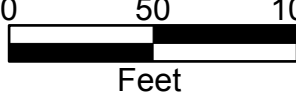
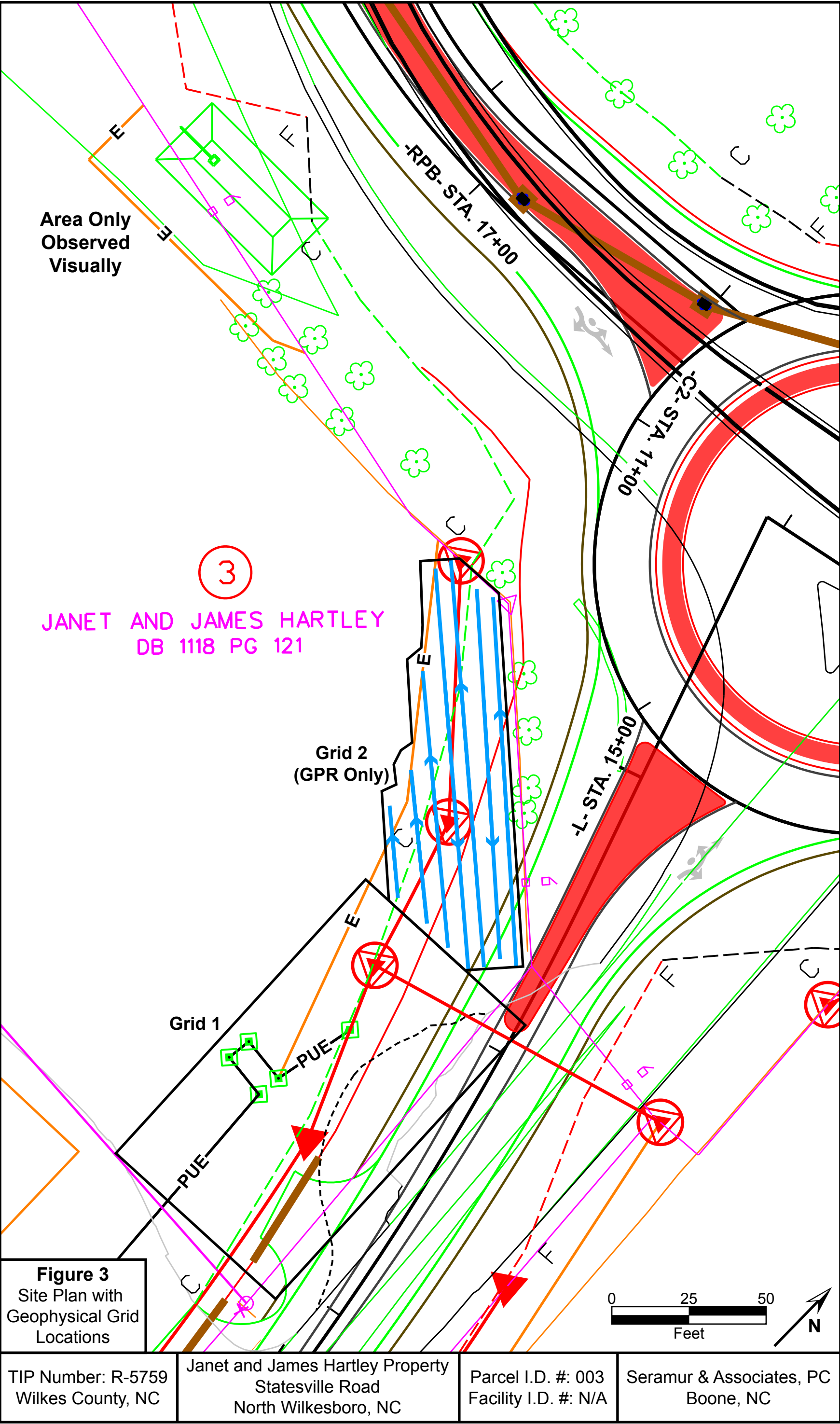


Figure 2 Site Plan	TIP Number: R-5759 Wilkes County, NC	 N  Feet	
Janet and James Hartley Property Statesville Road North Wilkesboro, NC	Parcel I.D. #: 003 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	



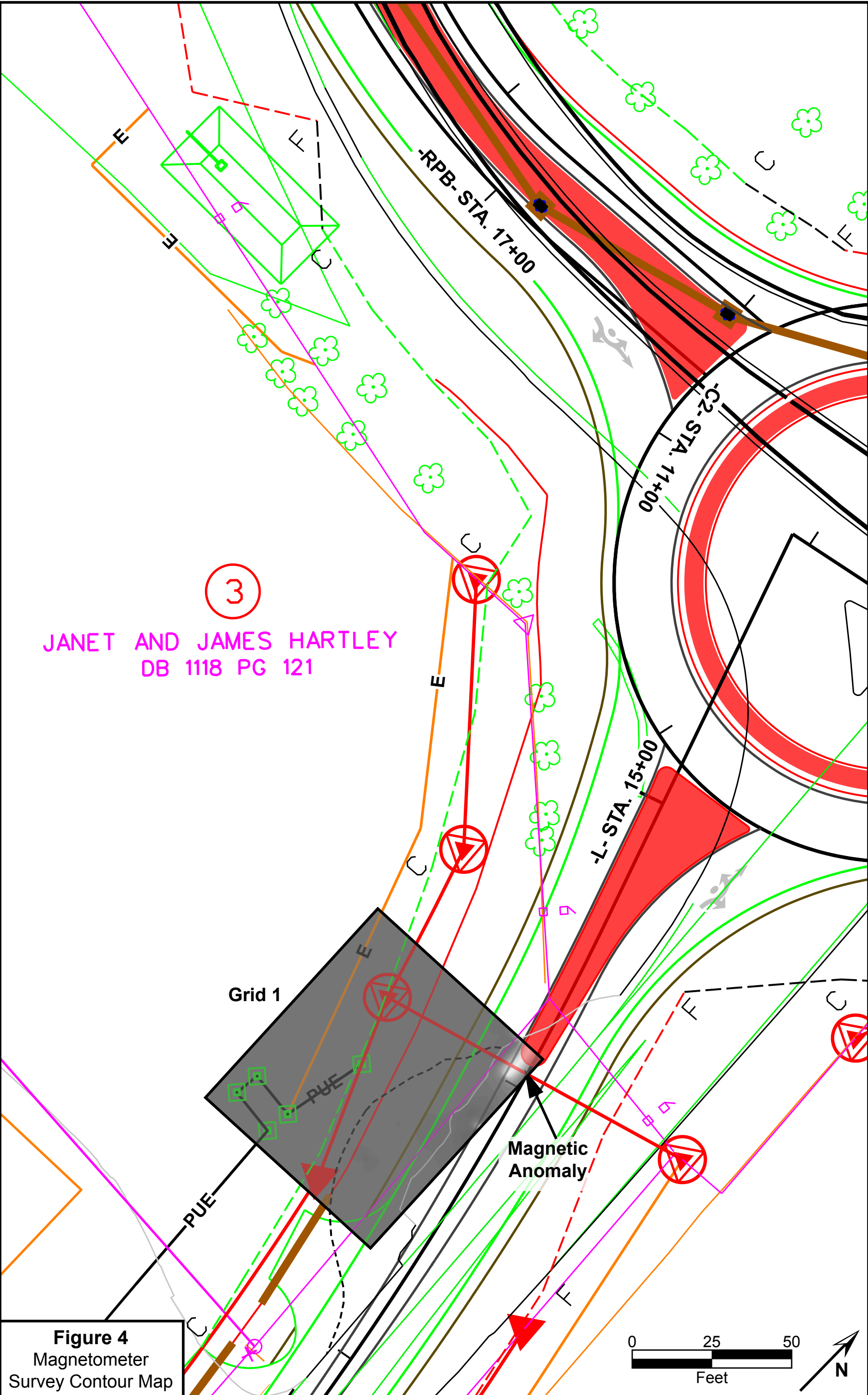
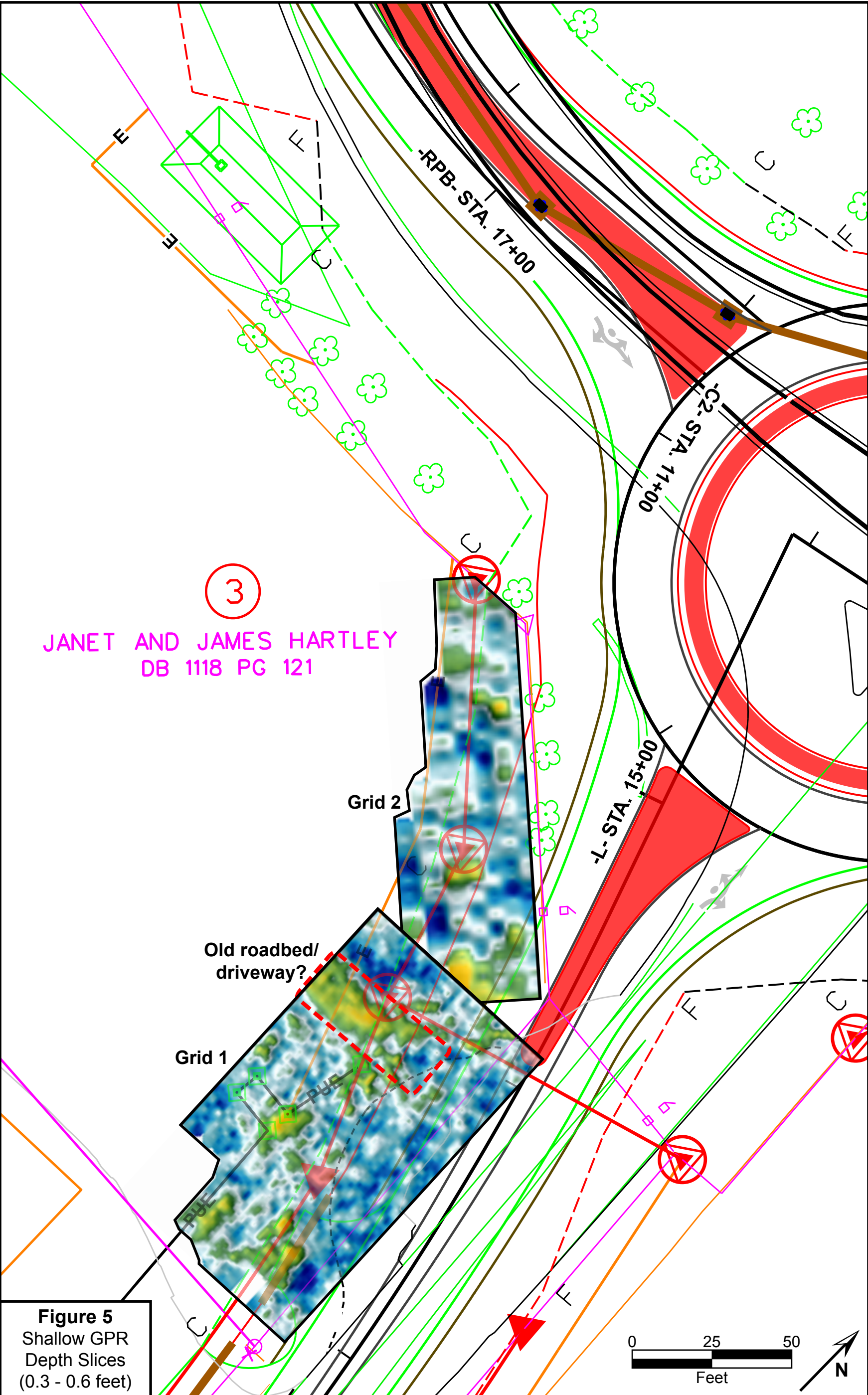


Figure 4 Magnetometer Survey Contour Map			
TIP Number: R-5759 Wilkes County, NC	Janet and James Hartley Property Statesville Road North Wilkesboro, NC	Parcel I.D. #: 003 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC



JANET AND JAMES HARTLEY
DB 1118 PG 121

Figure 5
Shallow GPR
Depth Slices
(0.3 - 0.6 feet)

TIP Number: R-5759 Wilkes County, NC	Janet and James Hartley Property Statesville Road North Wilkesboro, NC	Parcel I.D. #: 003 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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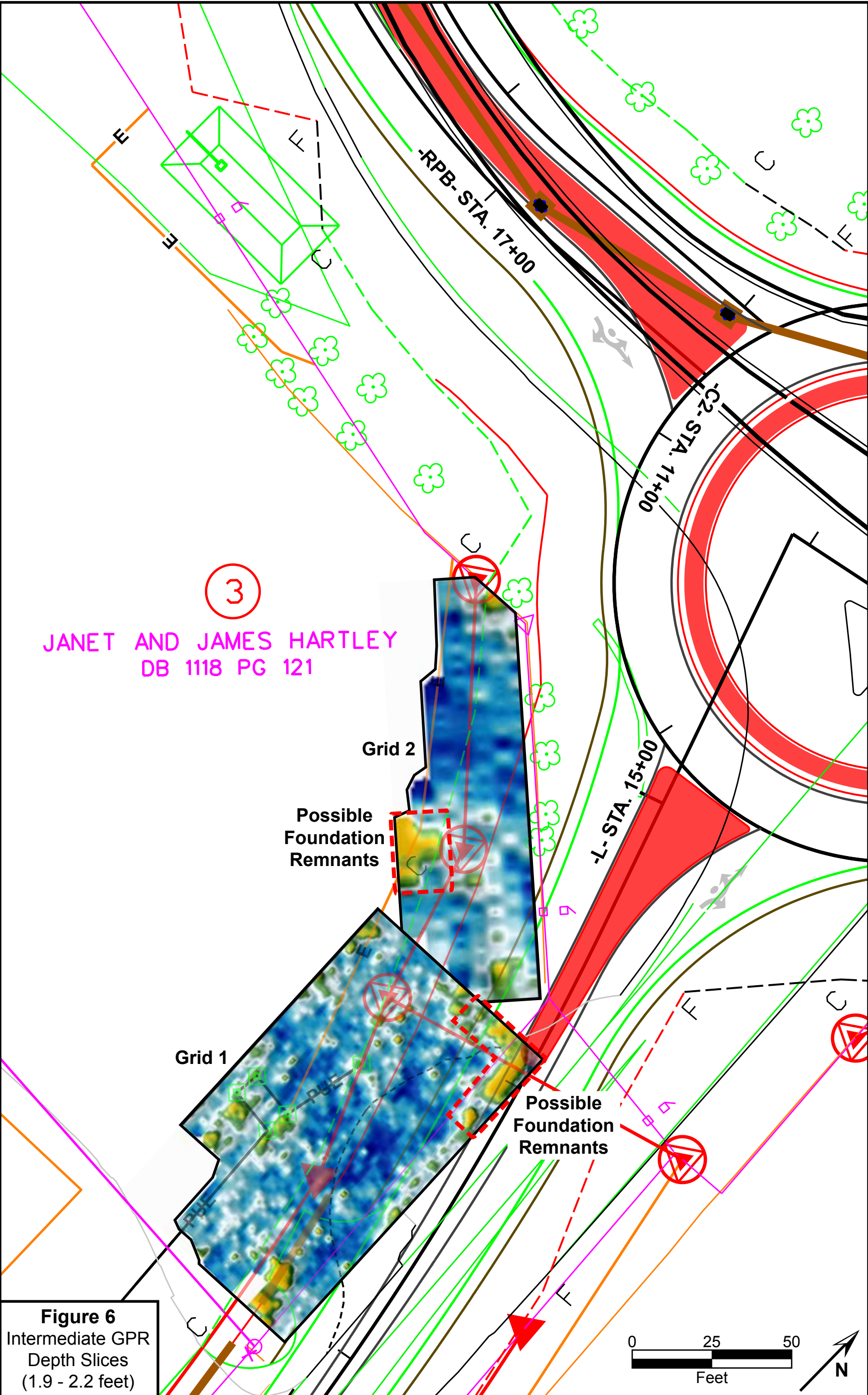


Figure 6
Intermediate GPR
Depth Slices
(1.9 - 2.2 feet)

TIP Number: R-5759 Wilkes County, NC	Janet and James Hartley Property Statesville Road North Wilkesboro, NC	Parcel I.D. #: 003 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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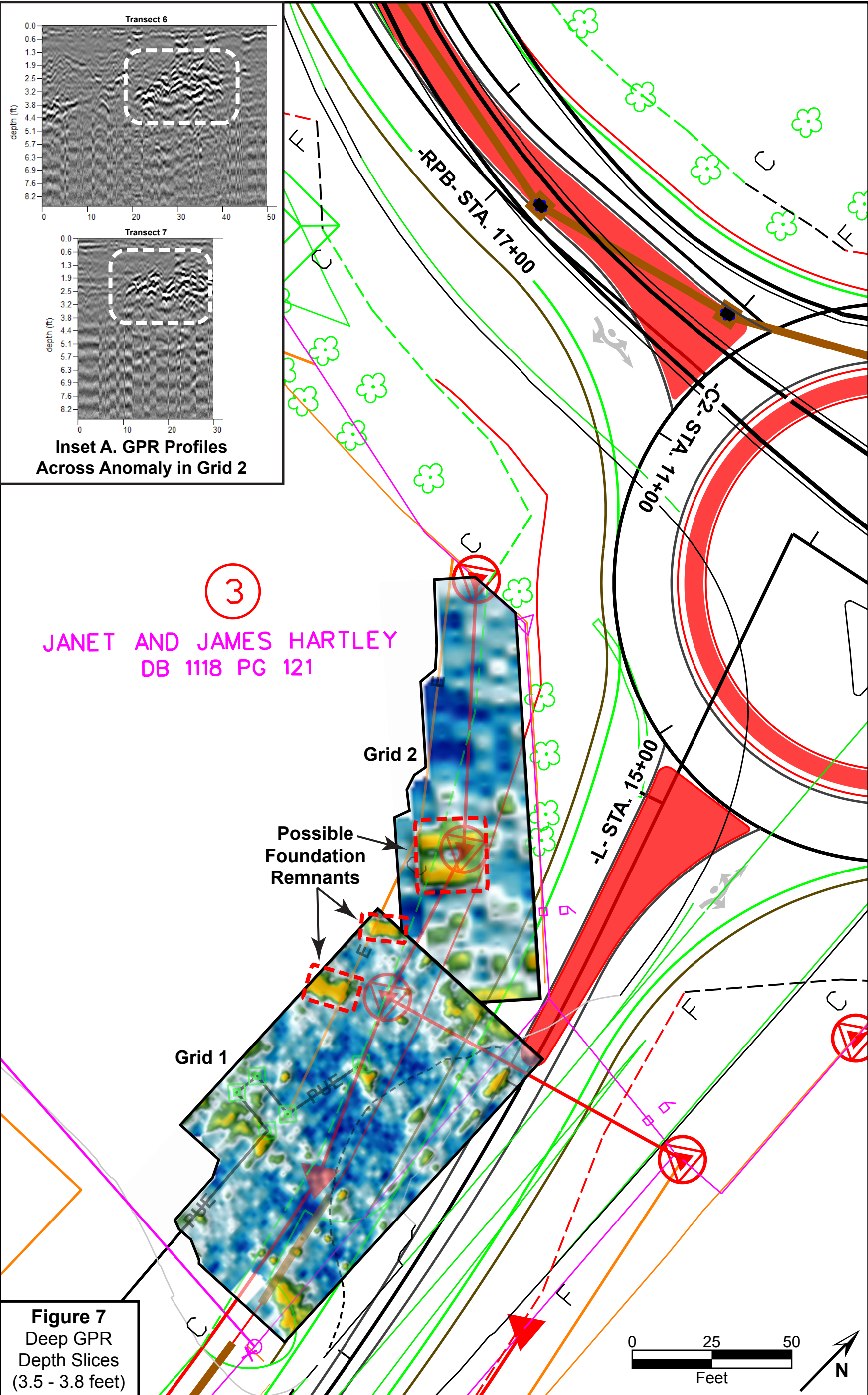


Figure 7
Deep GPR
Depth Slices
(3.5 - 3.8 feet)

TIP Number: R-5759 Wilkes County, NC	Janet and James Hartley Property Statesville Road North Wilkesboro, NC	Parcel I.D. #: 003 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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