HUNTER RESEARCH

REEDY ISLAND CART ROAD SITE 4
[7NC-F-153]

U.S. ROUTE 301 PROJECT
ST. GEORGES HUNDRED
NEW CASTLE COUNTY, DELAWARE

PHASE II ARCHAEOLOGICAL INVESTIGATIONS

AND

ALTERNATIVE MITIGATION:
A RESEARCH PROGRAM TO TEST THE CART ROAD PREDICTIVE MODEL THROUGH GEOPHYSICAL SURVEY, LIDAR IMAGE ANALYIS, SOIL COMPACTION STUDIES, TOPOGRAPHIC MAPPING AND ARCHAEOLOGICAL EXCAVATION

PARENT AGREEMENT 1535
TASK 11

Prepared for:

Delaware Department of Transportation
P.O. Box 778
Dover, Delaware 19903

Prepared by:

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APRIL 2014

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MANAGEMENT SUMMARY

This report assesses the eligibility for the National Register of Historic Places of three groups of archaeological material forming part of the Reedy Island Cart Road Site 4 [7NC-F-153] in St. Georges Hundred, New Castle County, Delaware. This 18th-century site was identified during Phase I investigations carried out previously as part of the U.S. Route 301 project. Two of its components, identified as Loci 1 and 3, were considered eligible on the basis of the Phase I data alone, and have been placed into covenants to ensure their permanent protection.

The eligibility of Loci 2 and 4, in the south part of the 7NC-F-153 site area, could not be fully evaluated on the basis of the Phase I study. A Phase II investigation was therefore designed and implemented to resolve the issue.

A third area, Locus 5, was also investigated during this Phase II study. Lying to the south of Loci 2 and 4, Locus 5 had also been subjected to earlier Phase I studies, firstly by Archaeological and Historical Consultants, Inc., and subsequently (in part) by Hunter Research, Inc. Historical research had demonstrated that Locus 5 straddled a late 17th- to early 18th-century boundary between two early plantations. Additionally, ongoing work on the early cart-road network connecting the Upper Chesapeake and the Delaware River indicated that one element of this network ran along this boundary and probably crossed the branch of Drawyer's Creek that lies immediately to the east, running northeastwards from there to meet the present Boyd's Corner Road (also probably part of the network). The research design for the project called for the use of ground-penetrating radar and magnetometer instrumentation to test for anomalies that might be related to the boundary and to the cart road. Any such anomalies were to be investigated by selective machine stripping of the plowzone and the hand excavation of exposed sediments.

Investigation of Loci 2 and 4 confirmed that these were concentrations of 18th-century artifacts, but excavations failed to identify any subsurface features that might be related to actual structures. The working hypothesis was that these loci do reflect the former presence of outbuildings (perhaps quarters for hired laborers or slaves, or barns or other specifically agricultural structures). While no firm conclusions can be drawn from the available evidence it is assumed that any such buildings were of log or ground-sill construction that could not be detected with the techniques employed. It seems clear that there were no post-in-ground structures at the two loci. There were considerable differences in the artifact collections between the two loci. The western (Locus 2) had a decidedly domestic character, while Locus 4 had a smaller and much more limited range of artifacts, including a piece of a 'Fitch' curry comb: a type designed for use on oxen. It is argued that these two loci are non-contributing components to site 7NC-F-153.

The geophysical survey of Locus 5 identified the strong signature of two parallel linear features following the predicted alignment of the cart road. Archaeological exposure of these anomalies at several location showed that they were ditch features about 3 feet wide at the top, one foot wide across the base, and about 0.75 feet deep from the base of the overlying plowzone. A berm between the ditches was typically about seven to eight

feet and was extremely hard and firm although there was no sign of any artificial surfacing. Running roughly down the center of the berm was a series of later, chiefly square or rectangular, post pits, many containing the post molds of round or rectangular posts and probably forming a fenceline.

A formal evaluation of significance process determined that this suite of features probably reflects the presence of the cart road and its subsequent replacement by a boundary fence, and that it was eligible for the National Register under Criterion D. Since this area lies on the proposed U.S. Route 301 carriageway alignment the adverse effect of construction requires treatment. In accordance with the Memorandum of Agreement for the project, treatment through an alternative mitigation strategy is proposed. This tests a predictive archaeological depositional model for the survival of physical traces of these early cart roads. The testing of this model is presented in a subsequent report.

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ACKNOWLEDGMENTS

Thanks are extended to David Clarke and Kevin Cunningham of the Delaware Department of Transportation for oversight, support throughout the project. Gwen Davis of the Delaware State Historic Preservation Office also provided valuable advice on goals and methodology for the project. We are also grateful to Alice Guerrant and Craig Lukezic of the Historic Preservation Office for their input on the project. The work greatly benefitted from The work greatly benefitted from geophysical survey and analysis of the cart road carried out by, Keith Seramur and Edward Ficker of Seramur & Associates, PC. We are also grateful to backhoe operator Matt Miller whose skillful use of his backhoe fitted with a beveled collar enhanced our ability to quickly identify features as he removed the plowzone.

Within Hunter Research, Inc., Ian Burrow served as the Principal and Project Manager for these investigations. Jeanne Ward of Applied Archaeology and History Associates, Inc. served as the Principal Investigator and directed the field investigations. William B. Liebeknecht directed the laboratory analysis. The archaeological field team comprised Susan Ferenbach (Senior Archaeologist), Joelle Browning, Dawn Cheshaek, Timothy Hitchens, Jennifer Danis, Eric Woodruff, Elizabeth Cottrell, Glen Keeton, Glen Mellin, and Wayne Mellin (Field Assistants). Artifact analysis was carried out by Joelle Browning, Timothy Hitchens, Glen Mellin, Wayne Mellin, Elizabeth Cottrell and Dawn Cheshaek under the supervision of Susan Ferenbach. Historical research was performed by Alison K. Haley with guidance from Patrick Harshbarger. Report graphics were prepared by Lindsay Lee, Katie Rettinger, Elizabeth Cottrell and Matthew Pihokker and report formatting was undertaken by Elizabeth Cottrell under the direction of James Lee and Ian Burrow. Report management, final editing, and production were overseen by James Lee. This report was authored by Ian Burrow, Alison K. Haley, Patrick Harshbarger and William B. Liebeknecht.

Ian Burrow, PhD, RPA
Principal

Chapter 1

INTRODUCTION

A. PROJECT BACKGROUND

This report is an Evaluation of Significance study of archaeological resources associated with the Reedy Island Cart Road Site 4 [7NC-F-153], first identified in Phase I studies of this portion (Section 1) of the U.S. Route 301 alignment, and of an adjacent portion of contiguous survey area A&HC 5 along the southern boundary of the 7NC-F-153 site area (Figures 1.1 and 1.2) (Archaeological and Historical Consultants, Inc. 2009, 2010; Hunter Research, Inc. 2010; 2011a). This Phase II Evaluation of Significance was the subject of a detailed management summary report in November 2011 (Hunter Research, Inc. 2011b). The current report is an expansion of that document, presenting the Evaluation of Significance in more detail, and including a developed depositional model for predicting the physical survival of features relating to 17th- and 18th-century cart roads in the U.S. Route 301 project area (Appendix E), which forms the theoretical basis for the Alternative Mitigation study presented in the separate report that follows this one.

The Federal Highway Administration (FHWA) and the Delaware Department of Transportation (DelDOT) will construct a new alignment for U.S. Route 301 in southern New Castle County, Delaware, from just south of the Chesapeake and Delaware Canal as far as the Maryland state line southwest of Middletown (Figure 1.1). In November 2007 a Memorandum of Agreement (MOA) was signed by the Federal Highway Administration, the Delaware State Historic Preservation Officer (DESHPO), the Maryland State Historic Preservation Officer, and the Delaware Department of Transportation. This MOA, prepared pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended) and to 36 CFR 800, sets out the procedures to be followed for historic properties (Federal Highway Administration 2008, Attachment D). This study is one of a now-extensive series of reports prepared for DelDOT on the cultural resources and historic properties of the highway corridor.

For archaeological resources, the MOA stipulations include the following:

1. Phase I identification surveys and, if necessary, Phase II National Register eligibility evaluation surveys, within the APE.
2. Submittal of reports by DelDOT to the Maryland and Delaware State Historic Preservation Officers.
3. Procedures for making National Register eligibility determinations.
4. Treatment of adversely affected eligible archaeological resources, including documentation through research-oriented programs of archaeological data recovery. Such programs will include a public participation plan.
5. Procedures for the treatment of human remains.
6. Curation of artifacts with the Delaware Division of Historical and Cultural Affairs.
7. Procedures for addressing changes to the U.S. Route 301 project design.
8. Procedures for addressing late or unanticipated discoveries in accordance with 36 CFR 800.13.

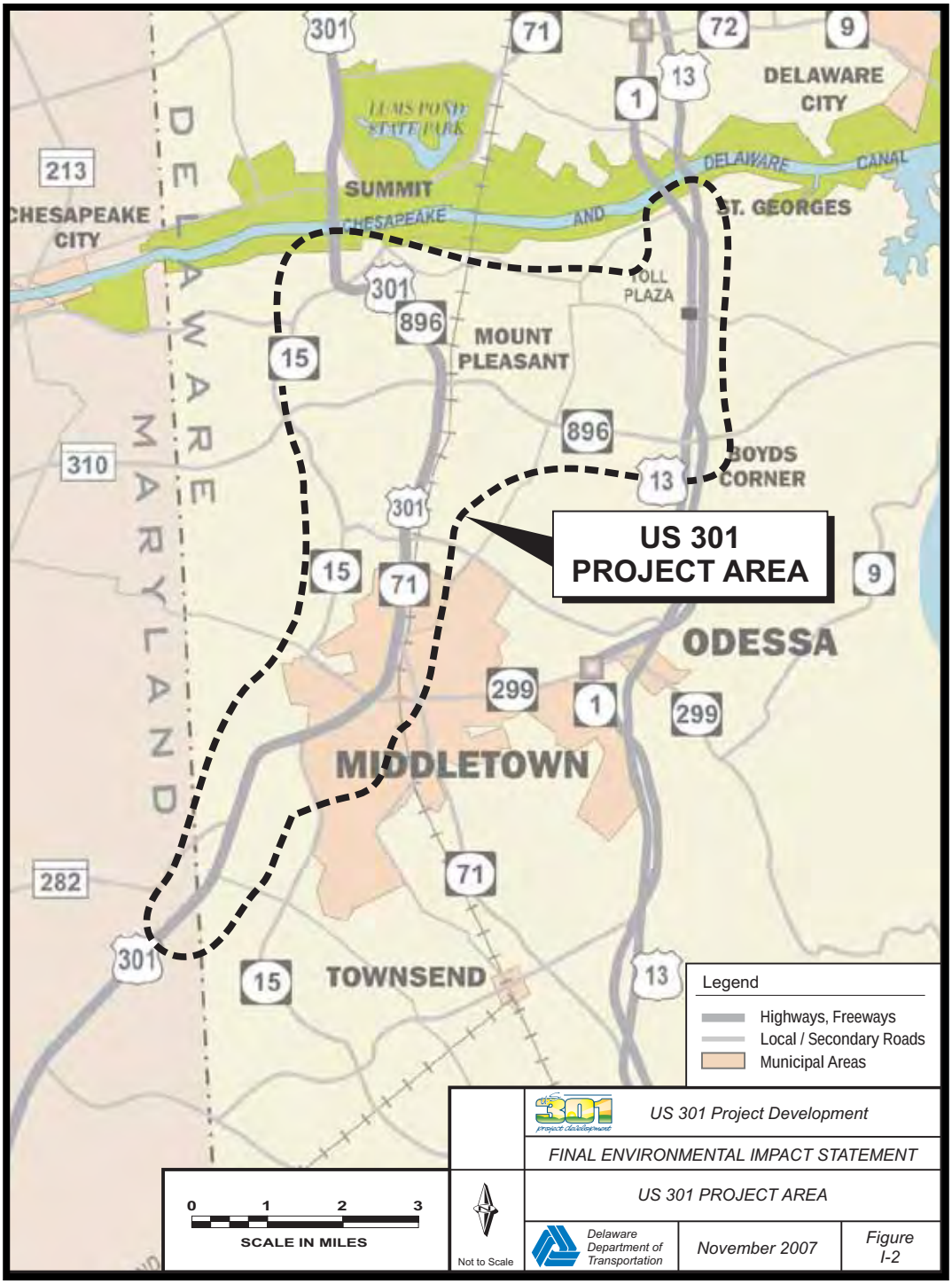


Figure 1.1. General Location of the U.S. 301 Selected Alternative Project Corridor. The area covered by this report is indicated. Source: Federal Highway Administration and Delaware Department of Transportation 2007:Figure I-2.

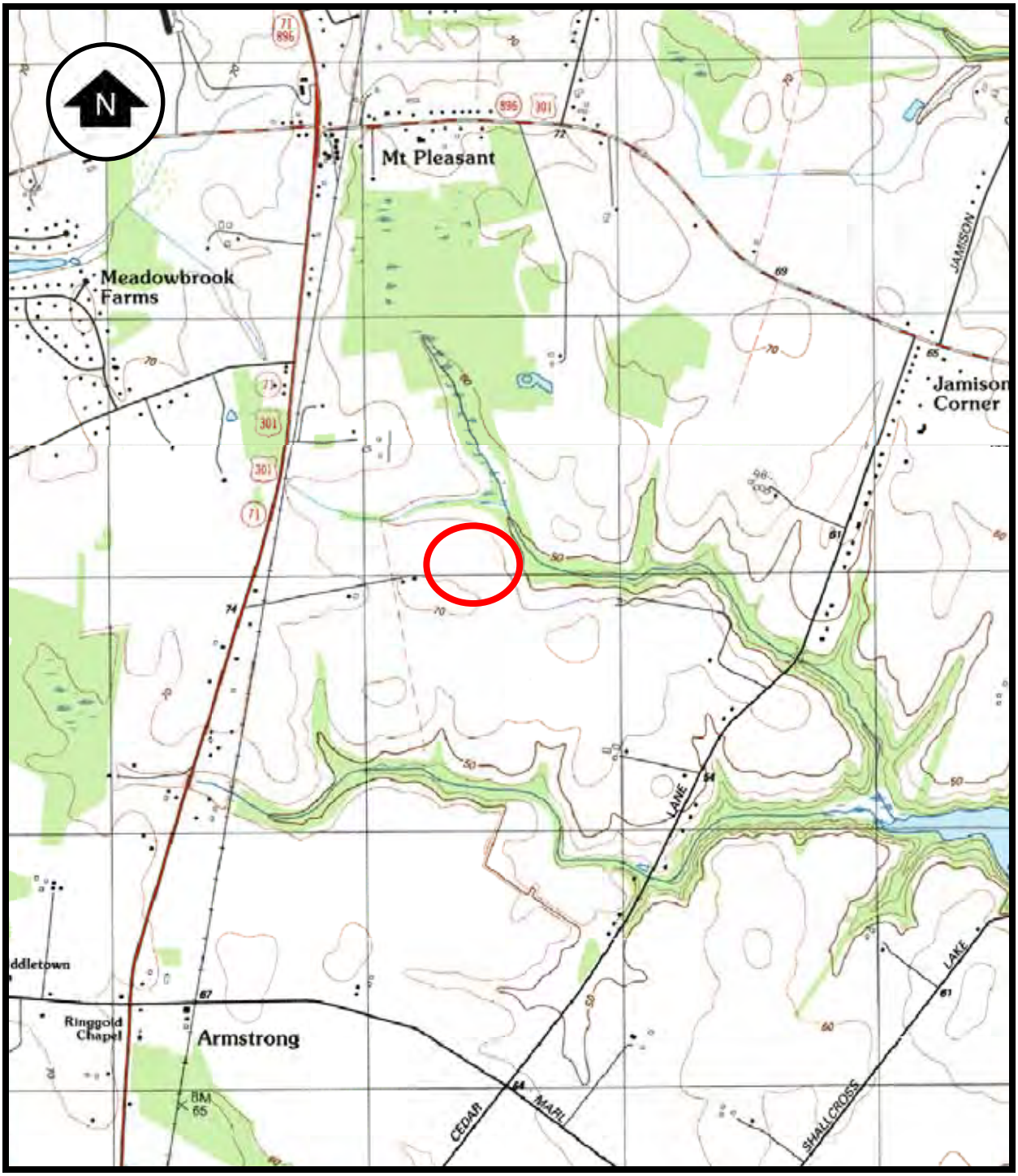


Figure 1.2. Detailed Location of the Phase II Investigations of the Reedy Island Cart Road Site 4 (7NC-F-153, N14533), and a portion of adjacent Survey Area AHC 5. Source: USGS Middletown, Delaware Quadrangle, 1953, photorevised 1986.

The data and research for the Phase I work was presented in:

Archaeological and Historical Consultants, Inc.

2009 Phase IA Archaeological Survey and Testing Strategy, US Route 301 Project Development Purple Section 1, St. Georges Hundred, New Castle County, Delaware. Prepared for Delaware Department of Transportation, Dover, Delaware.

2010 Management Summary, Phase IB Archaeological Survey, Purple Section 1, U.S. 310 Project Development, New Castle County, Delaware.

Hunter Research, Inc.

2010 Delaware State Historic Preservation Office Cultural Resource Survey (CRS) Forms:Reedy Island Cart Road 4 (7NC-F-153, N14533).

2011 Delaware Department of Transportation, U.S. Route 301, Section 1 New Areas (and Section 2, Area 17), St. Georges Hundred, New Castle County, Delaware: Phase IB Archaeological Cultural Resource Survey.

B. PHASE I RESEARCH

Historical research had traced the ownership of the property back to 1780 (Archaeological and Historical Consultants, Inc. 2009). The area was examined through a surface collection, and through 39 shovel tests and four excavation units (Hunter Research, Inc. 2011a:3-38 through 3-51). Prehistoric materials from the area dated from the Late Paleo-Indian/ Early Archaic periods through the Woodland II period and suggest repeated short-term hunting camps over a long period of time. Four clusters (loci) of historic artifacts dating from the late 17th through late 18th century were identified, and it was suggested that there may have been a sequential occupation of this piece of land, which lies along the north side of the Reedy Island Cart Road.

The current study investigates the southern pair of loci, identified as 2 and 4. The Phase I artifact assemblage suggested an occupation beginning *circa* 1690, or possibly earlier, and extending to *circa* 1790. Architectural artifacts from the site and data from Excavation Unit 1 demonstrate that an identified structure in the northeast part of the area (beyond the current impact and study area) had a brick foundation for a wood-framed superstructure. The building had a cellar extending four feet below the surface, and measuring approximately 16 feet by 20 feet (Hunter Research, Inc. 2011a: 3-39 through 3-53).

Also included in the current investigations was A&HC Area 5, comprising a segment of the main alignment immediately south of the proposed Borrow Area in which Loci 1 through 4 of site 7NC-F-153 lie.

C. PHASE II RESEARCH

It was apparent from the Phase I studies that Loci 1 and 3 of 7NC-F-153 possessed a high degree of integrity, and there was a consensus between the Delaware Historic Preservation Office and DelDOT that they were to be treated as eligible for the National Register. The design of the proposed borrow area was modified to exclude the northern part of 7NC-F-153 containing these loci, which will be permanently preserved *in situ*.

The eligibility status of the much lower density Loci 2 and 4 was less clear, and it was felt that a Phase II study of these was required. Additionally, it was appreciated that the southern property boundary of the

site, which is traversed by the U.S. Route 301 alignment, was on the predicted alignment of one of the cart roads (see below, Chapter 2).

The chief objectives of the Phase II investigations were:

1. to define the horizontal and vertical limits of the archaeological resources,
2. to establish the integrity of these resources.
3. to develop preliminary interpretations of the data and function of the sites within the established Delaware historic contexts framework (the Domestic Economy and Landscape domains were considered likely to provide the thematic framework for evaluation), and
4. to undertake supplementary historical research to contribute to the framing of contextual statements and evaluation considerations. Specifically, the nature of the activity areas represented by the artifact concentrations in Loci 2 and 4 was to be characterized, and geophysical survey and follow-up investigations were to be undertaken on the predicted alignment of the Reedy Island Cart Road.

Chapter 2

HISTORICAL RESEARCH

The project area lies in the John Taylor tract, a 17th-century, 250-acre lot situated on the head of Second Drawyer's Creek in St. Georges Hundred, New Castle County, Delaware. John Taylor (Sr.) was a prominent and early landholder, originally from Virginia, who at his death in *circa* 1685 willed the land to his son, John Taylor, Jr. (Archaeological and Historical Consultants, Inc. 2009, 2010). The project area is located in the northeastern corner of the tract near the property boundary with the Snowden tract, later known as the Steele tract (Figure 2.1). A branch of the Reedy Island Cart Road network, connecting the head of the Bohemia River with the Delaware River, was predicted to cross this section of the tract (Figure 2.2). Between 1723 and 1739, the Taylor tract passed through two owners, finally being purchased by Alexander Armstrong. It remained in the Armstrong family until 1824. Between 1824 and 1907, the farm passed through a number of owners, being progressively subdivided and sold for commercial and residential development throughout the 20th century.

Phase II historical research was directed toward support of the archaeological investigation of the Reedy Island Cart Road Locus 4 Site. The focus was on the identification and, where possible, acquisition of, additional primary-source materials that might provide useful data on the occupation and land-use history during the early colonial period, with a particular emphasis on associations with the cart road. The following archives and collections were investigated:

A. MARYLAND STATE ARCHIVES

The Maryland State Archives in Annapolis, Maryland were visited in April of 2011 in order to consult early land records and historic maps of the project area. During the 17th century and the first half of the 18th century, jurisdiction in the project area was unclear. As a result, some records for the project area were filed in Maryland instead of Delaware. No new information was provided through Land Warrants and Patents research.

An early reference to John Taylor (Sr.) was located in the *Proceedings of the Council of Maryland* (Vol. 3: 341). This reference reports that Taylor had given testimony in May 1661 that he had witnessed the shooting of a Native American by John Forster, who was subsequently killed by the Native Americans. This event had reportedly set off a conflict that was eventually settled at a peace council held at Appoquinimink in September 1661.

B. MARYLAND HISTORICAL SOCIETY, HISTORICAL SOCIETY OF PENNSYLVANIA AND LIBRARY OF CONGRESS

As part of developing the historic context for this and other sites located along the cart road, research was undertaken into the history of trade and smuggling and the cart road network. This research into the shipping and customs house records (Maryland Historical Society and Historical Society of Pennsylvania) and the Rumsey Family Papers (Library of Congress) identified smuggling and contraband as an important theme related to the general area lying between the upper eastern shore of the Chesapeake Bay and the

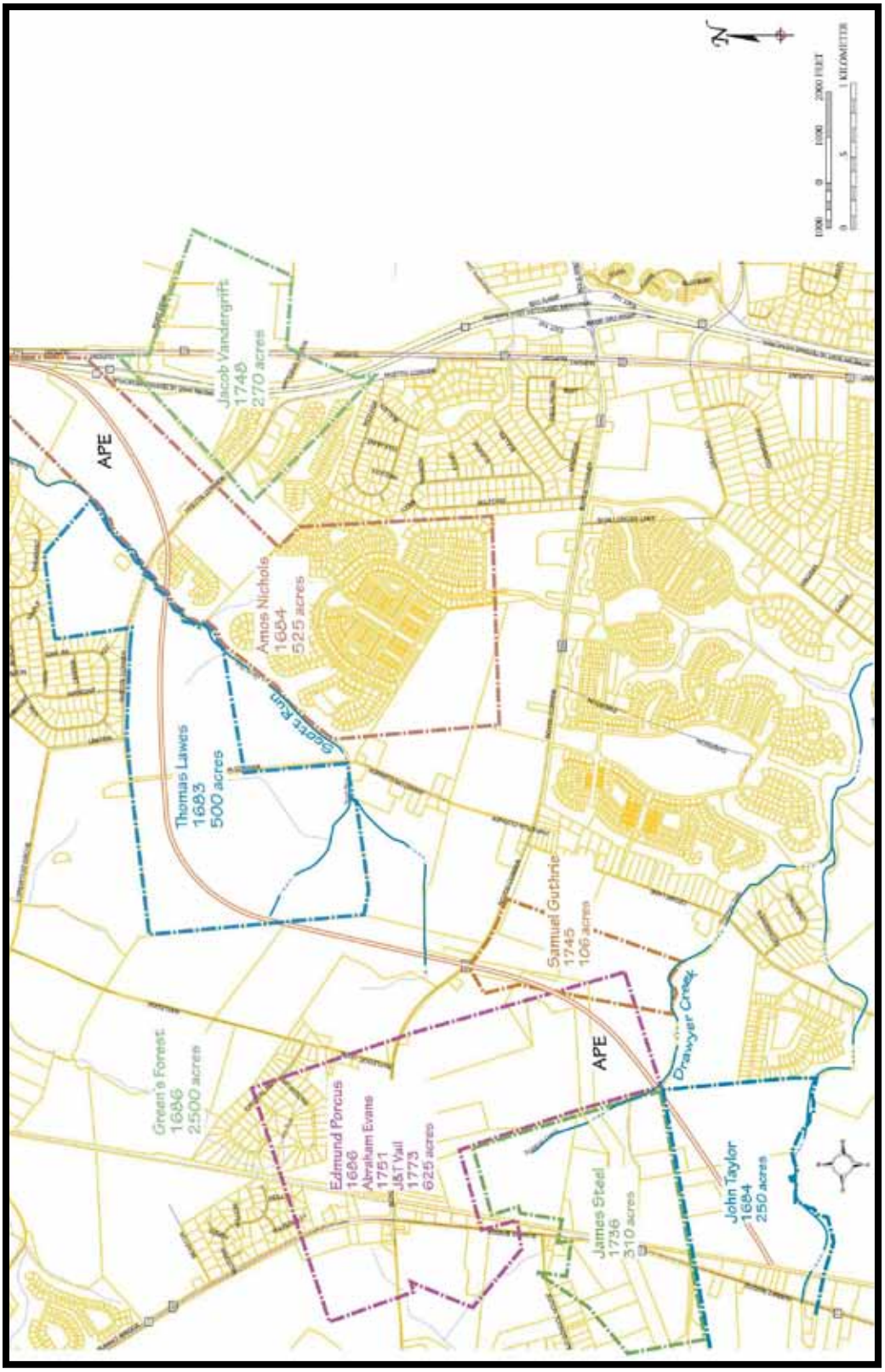


Figure 2.1. The Project Area in Relation to Early Warrants and Patents as Mapped by Archaeological and Historical Consultants Inc. 2010, Figure 3.

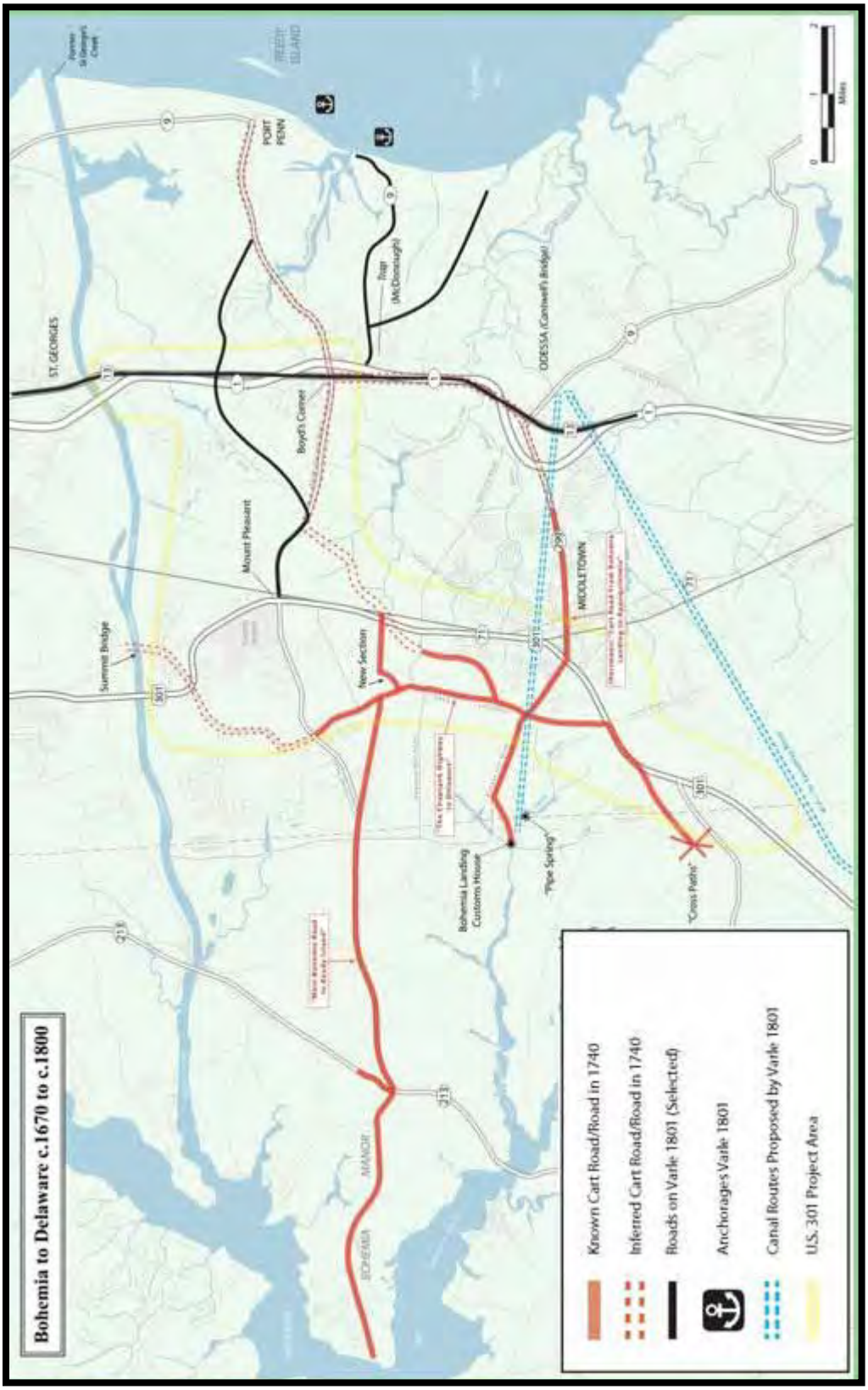


Figure 2.2. The Early Cart Road System from the Upper Chesapeake to the Delaware in the U.S. Route 301 Vicinity, as compiled in 2012. The map is compiled from several sources, but particularly the 1740 Rumsey and 1801 Varle Maps, with inferred or predicted continuations based on topography and other research. The project area is indicated. (Hunter Research, Inc.).

Delaware River. As one might expect when searching for written documentation related to an illicit trade, no references were found that specifically located a smuggling operation or warehousing site along the Reedy Island Cart Road. In general terms, this smuggling appears to have involved ships either lying at anchorage off Reedy Island or calling on the Appoquinimink Creek to avoid the customs agents in Philadelphia. At these locations, ships' captains could offload goods for transport across St. Georges Hundred to the Chesapeake. Chesapeake planters could ship tobacco or other marketable goods back across the watershed avoiding the import duties of the more tightly regulated Maryland and Virginia ports. Delaware, with its historical ties to the Dutch both in the Old and New Worlds, offered potentially lucrative contacts for shipping tobacco outside of the networks regulated by the Navigation Acts. The disputed boundary between Maryland, Pennsylvania and Delaware and the difficulties that the colonies' officials faced in identifying their jurisdictions only served to abet illicit activity.

C. DELAWARE PUBLIC ARCHIVES

The Delaware Public Archives in Dover, Delaware were visited in May of 2011 in order to consult New Castle County Deeds, New Castle County Orphan's Court Records and New Castle County Road Returns. Deed records were consulted to confirm previous research. No new land titles or property owners were identified from this research. Review of Orphan's Court records also returned no new information. The Road Papers found one Road Return dated 1797 referring to the property of Cornelius Armstrong. This was for a road from the forks of Drawyers Creek to Appoquinimink Landing that was to cross the "upper State road leading from Middletown to Mount Pleasant near Cornelius Armstrong." The exact proposed location cannot be determined from this description, but the modern Marl Pit road, about 0.75 miles south of the project area, probably follows the generally intended route. According to subsequent filings, the road was not built due to expense.

D. NEW JERSEY STATE LIBRARY

On file at the New Jersey State Library in Trenton, New Jersey are several texts related to primary documents from New Castle County, Delaware. Carol Garrett published a series of compilations of deed abstracts for New Castle County that supplemented the original deed files consulted at the Delaware Public Archives. The volumes that proved most informative for this project were *New Castle County, Delaware Land Records 1738-1743* and *New Castle County, Delaware Land Records 1749-1752*. No significant additional information was identified from the land record abstracts contained in the two volumes.

Also on file at the New Jersey State Library are transcriptions of *Records of the Court of New Castle, Volume I, 1677-1681* and *Volume II, 1681-1689.* This source proved to contain significant information on John Taylor confirming his status as an important local landholder and official. Among the interesting items gleaned from this source are the following:

1677 John Taylor "of Virginia" petitioned to take up 600 acres of land, promising to settle the same with a "considerable family." The court granted 500 acres (Vol. I: 87).

1677 John Taylor made a complaint against William Butler for payment of a debt. Taylor was not able to produce proof of the debt and the suit was dismissed (Vol. I: 140).

1677 Thomas Snowden petitioned the court to take up 200 acres of land. Snowden was later identified as owning the property immediately north of Taylor's land in the vicinity of the project area (Vol. I: 140-41).

1677 John Taylor was appointed constable. His jurisdiction was from the south side of St. Georges Creek to the Duke (Duck) Creek (Vol. I: 174).

1677 The court instructed property owners to build wolf pits/trap houses because of the continued damage to livestock. John Taylor and Thomas Snowden are instructed to build one joint pit. Presumably this pit was located along their property boundary in the vicinity of the project area (Vol. I: 176-78).

*c.*1678 John Foster replaced John Taylor as constable. The swearing in was held in "ye room of John Taylor" (Vol. I: 299). Taylor's house was known as Lackford Hall and located near the forks of Drawyer's Creek (not within the current project area and on a different tract of land) (Scharf 1888: 986).

*c.*1678 John Taylor petitioned the court to acknowledge his deed of purchase of 250 acres of land from Walter Wharton, deceased. He requested that the tract be resurveyed and that he be held harmless against intruding upon other mens' land.

*c.*1678 John Taylor appointed a tax appraiser for New Castle.

1680 Jacob and Anna Joung sued John Taylor for defamation. Taylor confirmed in court that he had accused Jacob of hiring Indians to kill Christians. Taylor acknowledged before the court that his accusation was based on hearsay and that Joung, as far as he knew, was an honest man (Vol. I: 438).

1681 John Taylor, Thomas Snowden and Phillip Chevalier were each fined 300 pounds of tobacco. The reason is not given (Vol. I: 502).

1681/82 John Taylor acknowledged the sale and satisfaction of 170 acres of his 620 acre tract to Thomas Snowden (Vol. II: 19-20).

1682 John Taylor and Thomas Snowden each paid tax on two tithables. Taylor also paid tax on 200 acres of land (presumably the cleared/productive portion of his larger property). Considering this was likely land near Lackford Hall, it suggests that the project area may not yet have been cleared (Vol. II: 85).

1684 John Taylor (Jr.) petitioned court to appoint guardians for his father's estate (Vol. II: 104).

1685 Jane Taylor (John Sr.'s widow) acknowledged a deed of 100 acres of land at the head of the second Drawyer's creek, given to her by her husband (Vol. II: 108).

D. PENNSYLVANIA GAZETTE

A search for relevant people and place names in the *Pennsylvania Gazette's* online database (available through Accessible Archives) returned no data directly relevant data to the property. However, a reference to the adjacent Steele tract located immediately north of the Taylor tract was identified. On May 5, 1742, the Estate of James Steele listed for sale numerous tracts of land in Pennsylvania and Delaware. The 310-acre Steele tract was described as has "having a rich White Oak swamp" but does not mention the existence of any buildings.

This research focused on the last quarter of the 17th century and the first quarter of the 18th century based on research questions associated with the Reedy Island Cart Road. It strongly suggests that the property was not occupied by its owners during the Taylor period (*circa* 1678-1723), therefore any archaeological evidence of occupation during that period would

likely be related to a previously unknown tenant farm or natural resources procurement or trade-related activities located along the cart road. In 1677, a wolf pit was ordered built, presumably somewhere along the boundary line between Taylor's and Snowden's properties. Considering that wolf pits were unlikely to be built near houses or livestock, it seems likely that the project area was not settled at this early date. As late as 1742, the Steel tract located immediately north of the project area was advertised as being valuable for its white oak swamp, suggesting that much of the poorly draining land near the headwaters of the northern branch of Drawyer's Creek were not being cultivated.

The multiple-generation Armstrong family period of ownership (*circa* 1739-1823) appears to correspond well with the main period of occupation of the site as reflected in the artifact assemblage. Any further research should focus on the Armstrong family. Genealogical records from the Delaware Public Archives and on-line resources may provide additional data related to the Armstrong household structure and its socio-economic status. This context would be useful in analyzing the archaeological data and placing it in historic context(s).

Chapter 3

PHASE II ARCHAEOLOGICAL INVESTIGATIONS

A. FIELD METHODS

The three investigated loci (Figure 3.1) were vegetated with a low winter wheat crop (Photograph 3.1). In Loci 2 and 4 a series of excavation units were hand-dug within the artifact concentrations defined in the Phase IB study. Limited additional surface collection was also undertaken. In Locus 5 the placement of ten machine-excavated trenches was driven by the identification of anomalies in the combined ground-penetrating radar and magnetometer survey (Photograph 3.2). Machined areas were shovel-scraped and then trowelled to identify cultural features, which were then fully excavated or sampled (Photograph 3.3).

B. DESCRIPTION AND RESULTS

1. Locus 2 (Outbuilding?)

Of the 24 units opened in Locus 2, all but five (Excavation Units 5, 8, 10, 12, and 35) had straightforward stratigraphy comprising a clay loam B horizon [7.5YR 5/6] overlaid by a silty loam Ap (or plowzone) horizon. In these 24 units the artifacts were recovered overwhelmingly from plowzone contexts. In Excavation Unit 5 a well-defined post-pit containing a post mold, was identified at the southern end of the unit (Figure 3.2; Photograph 3.4). This yielded a piece of coal and is probably mid-19th century or later. In Excavation Unit 10 an irregular north-south linear feature [Contexts 3 and 4] was identified, with a concentration of burnt or carbonized wood, possibly a plank, on its southern side (Figure 3.2; Photograph 3.5). A possible piece of daub was also recovered from Context 3. Two features were identified in Excavation Unit 12 (Figure 3.2). A tapering-profile hole [4] was filled by a damp silt loam [3] containing chunks of charcoal (Photograph 3.6). It is interpreted as tree-hole. An irregular, shallow feature [5,6] was excavated at the eastern end of the unit and is also interpreted as a tree or bush disturbance (Photograph 3.7). Conjoined units Excavation Units 8 and 35 (Figure 3.3) located two plow-scar features [Excavation Unit 35:5-8], a tree hole [Excavation Unit 8:3,4], and an area of burnt earth [Excavation Unit 8:5, Excavation Unit 35:3,4] that was probably also related to tree removal (Photograph 3.8).

A total of 1,618 artifacts were recovered from the excavations and limited surface collection conducted as part of the Phase II study (Table 3.1). The 99 prehistoric items include three projectile points and five other formal tools. Historic ceramics include mid-18th-century and earlier types (Staffordshire and tin-glazed wares and 20 sherds of white salt-glazed stoneware), confirming an 18th-century occupation in this part of the site. A cauldron fragment, a thimble, window glass, brick and smoking pipe pieces all hint at domestic occupations in the area.

2. Locus 4 (Outbuilding?)

A total of 11 units were opened in Locus 4. No cultural stratigraphy was recorded in any of these excavations. A rodent burrow was identified in Excavation Unit 19. Soil profiles were the same as those in Locus 2, and no artifacts were recovered from contexts below the plowzone horizon.

The artifact count was absolutely and proportionally much lower, at 282 (Table 3.2). Ceramics are dominated by plain redwares. One significant find is

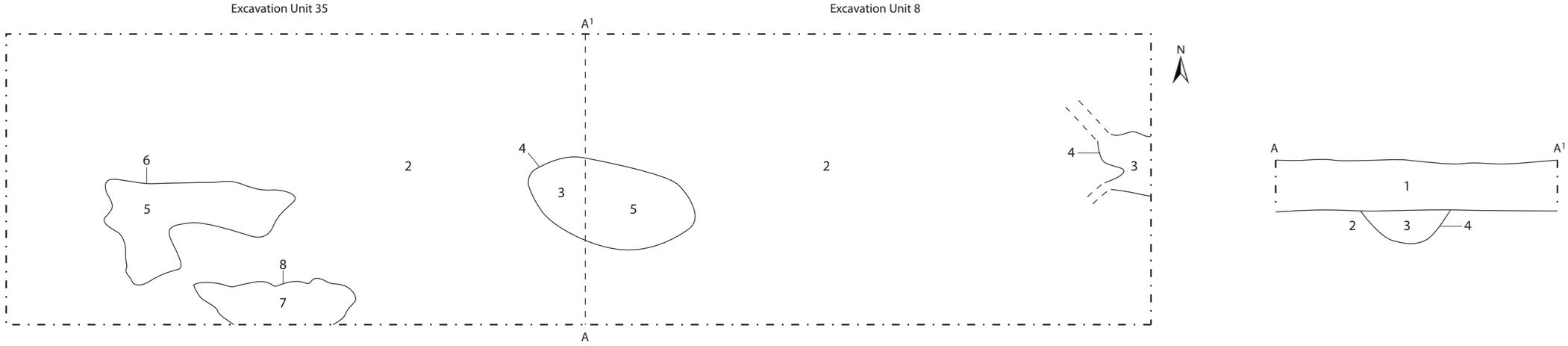
Photograph 3.1. Reedy Island Cart Road Site 4. General view of the site looking northeast (Photographer: Joelle Browning, April, 2011) [HRI Neg,#11017/D4:016].

Figure 3.1. Plan of Phase I and II Investigations at the Reedy Island Cart Road Site 4 (7NC-F-153, N14533), and a Portion of Adjacent Survey Area AHC 5.

Photograph 3.2. Reedy Island Cart Road Site 4. Ground-penetrating radar (foreground) and magnetometer survey in progress (Photographer: Joelle Browning, April 21st, 2011) [HRI Neg,#11017/D4:020].

Photograph 3.3. Reedy Island Cart Road Site 4, Locus 5. Machine stripping, shovel-scraping and trowelling in progress in Trench 5. View facing east (Photographer: Joelle Browning, June 2011) [HRI Neg,#11017/D4:306].

Excavation Units 35 and 8
Plan View



Context List - Excavation Unit 35

Context	*Description [Interpretation]*	*Munsell*
1	Damp, slightly loose silty loam	10 YR 4/4
2	Damp, slightly compact clay loam [B horizon]	10 YR 5/6
3	Damp, slightly compact clay loam, burnt earth	5 YR 4/6
4	Cut	--
5	Plaw scar [not excavated]	10 YR 4/4
6	Cut	--
7	Plow scar [not excavated]	5 YR 4/6
8	Cut	--

Limit of Excavation

0 1 2
Feet

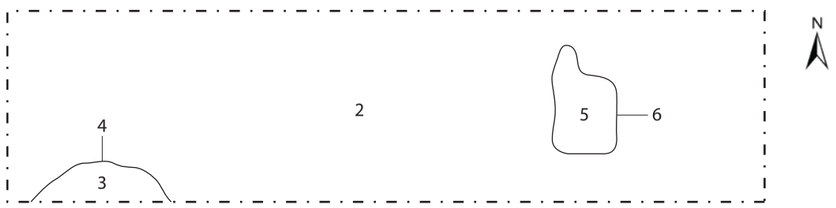
Figure 3.3. Locus 2: Plan and Profile of Cultural and Natural Features in Excavation Units 8 and 35.

Excavation Unit 5
Plan View

Context List - Excavation Unit 5

Context	*Description [Interpretation]*	*Munsell*
1	Damp, slightly compact silty loam	10 YR 4/4
2	Mottled clay loam [B horizon]	10 YR 5/8, 7.5 YR 4/6
3	Sandy clay loam [historic post hole]	10 YR 5/6
4	Cut	--

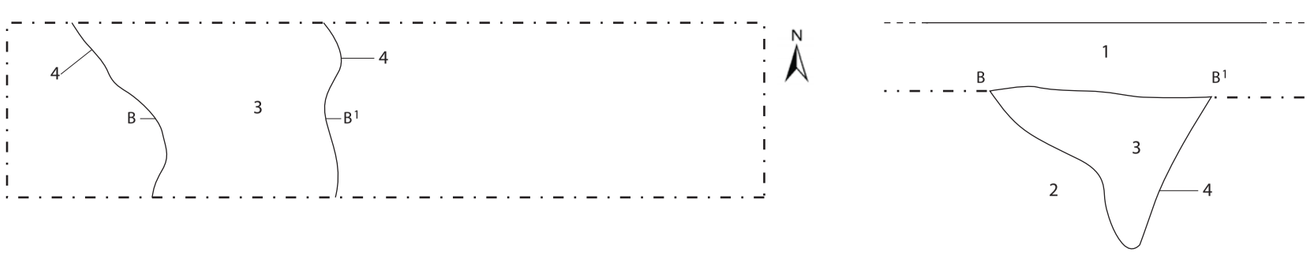
Excavation Unit 12
Plan View



Context List - Excavation Unit 12

Context	*Description [Interpretation]*	*Munsell*
1	Damp, slightly compact silty loam	10 YR 4/3
2	Silty clay loam [B horizon]	10 YR 6/4
3	Damp silty loam with carbon [historic post hole]	10 YR 5/6
4	Cut	--
5	Damp, slightly compact silt with carbon	10 YR 5/4
6	Cut	--

Excavation Unit 10
Plan View



Context List - Excavation Unit 10

Context	*Description [Interpretation]*	*Munsell*
1	Silty loam	10 YR 4/4
2	Clay loam [B horizon]	10 YR 5/6
3	Wet silty loam with carbon [possible prehistoric pit]	10 YR 5/3
4	Cut	--

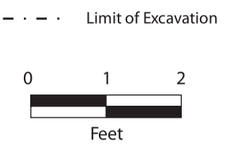
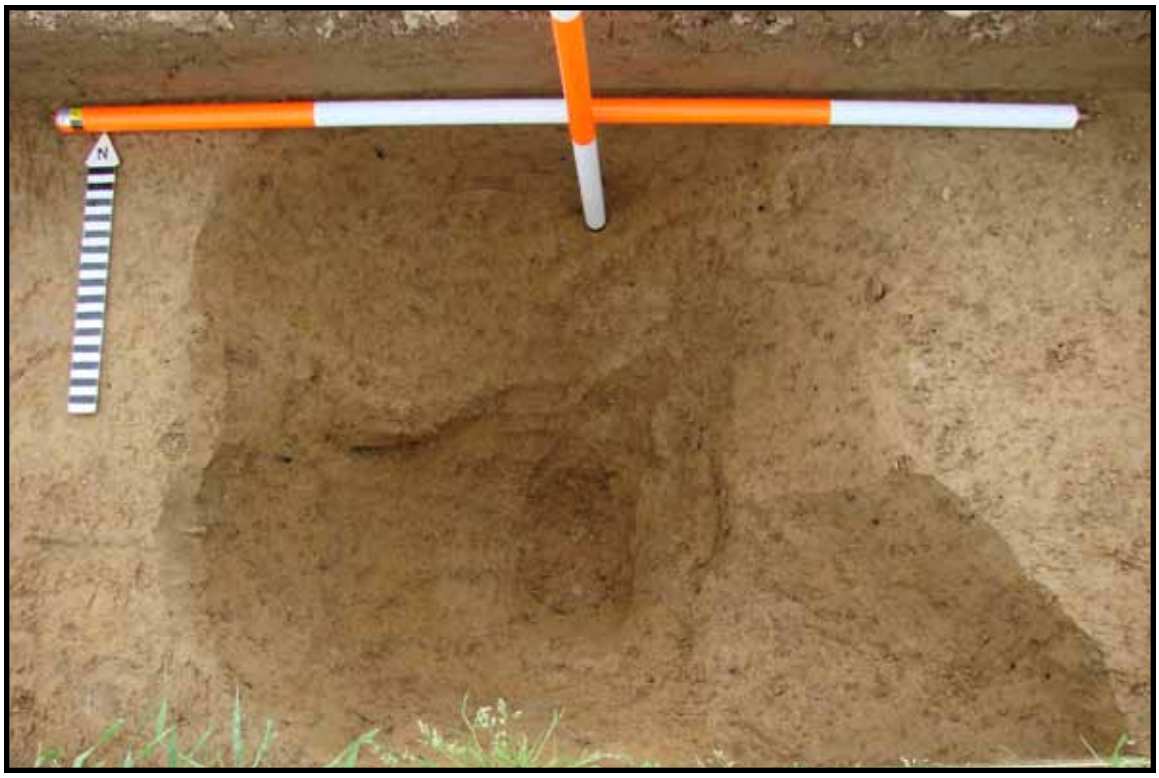
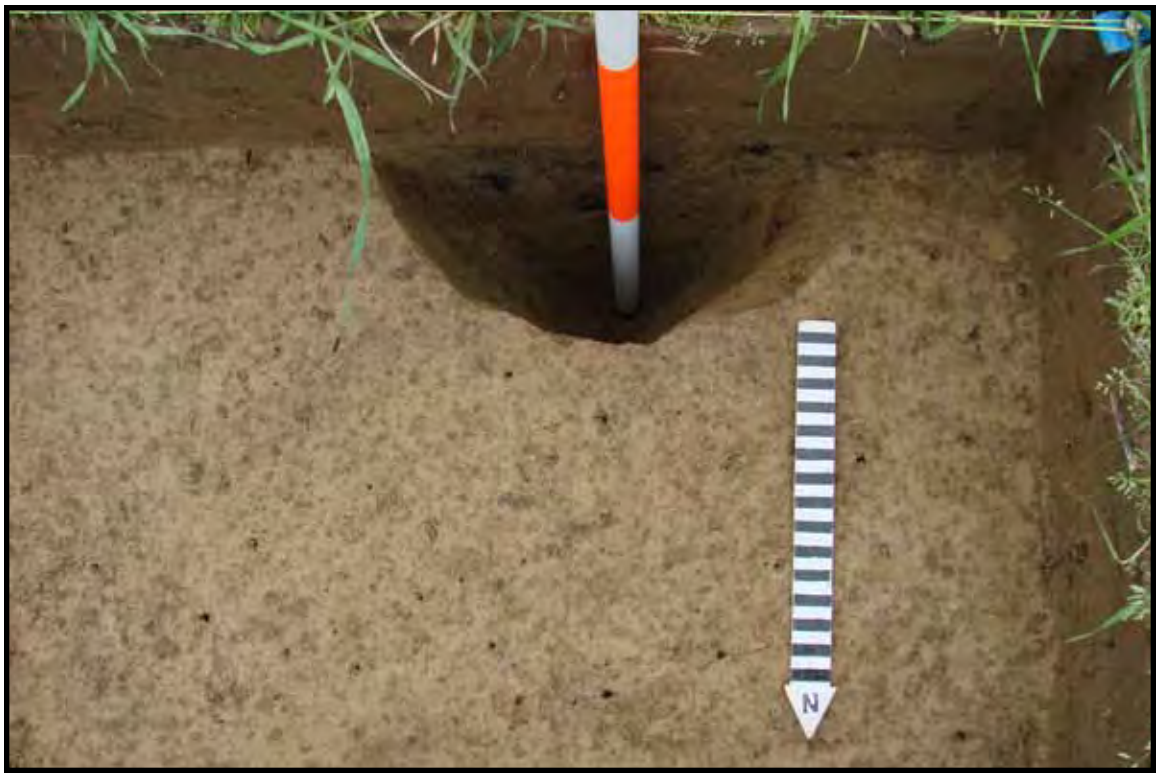


Figure 3.2. Locus 2: Plans and Profiles of Cultural and Natural Features in Excavation Units 5, 10 and 12.

Photograph 3.4. Reedy Island Cart Road Site 4, Locus 2, Excavation Unit 5. Post pit [Contexts 3 and 4] as excavated. View facing northeast (Photographer: Joelle Browning, April 2011) [HRI Neg,#11017/ D4:022].



Photograph 3.5. Reedy Island Cart Road Site 4, Locus 2, Excavation Unit 10. Feature [Contexts 3 and 4] as excavated. View facing north (Photographer: Joelle Browning, April 2011) [HRI Neg,#11017/ D4:053].



Photograph 3.6. Reedy Island Cart Road Site 4, Locus 2, Excavation Unit 12. Feature [Contexts 3 and 4] as excavated. View facing south (Photographer: Joelle Browning, April 2011) [HRI Neg,#11017/ D4:060].

Photograph 3.7. Reedy Island Cart Road Site 4, Locus 2, Excavation Unit 12. Feature [Contexts 5 and 6] as excavated. View facing west (Photographer: Joelle Browning, April 2011) [HRI Neg,#11017/ D4:053].

Table 3.1. Reedy Island Cart Road Site 4, Artifact Types from Locus 2.

Artifact Type	Grand Total
Historic Ceramic Vessel Sherds	760
Coarse Earthenware	683
Red bodied slipware	46
Redware	636
unidentified	1
Earthenware	8
Staffordshire mottled glaze with buff body	1
Staffordshire with buff body	1
tin enameled, buff body	5
unidentified	1
Porcelain	3
Chinese Export	3
Refined Earthenware	38
Creamware	29
Ironstone	2
Jackfield-type	2
Pearlware	4
unidentified	1
Stoneware	28
buff body	1
grey body	7
White salt-glazed	20
Prehistoric Ceramic Vessel Sherds	1
Quartz/mica temper	1
Agriculture/Equestrian	**3**
Ferrous metal	2
buckle	1
horseshoe	1
Ferrous metal and brass	1
tack	1
Arms and Armor	**3**
Flint	3
gun part	3
Building Materials	**567**
Coarse Earthenware	455
brick	455
Ferrous metal	86
nail	86
Glass	26
window	26
Clothing Related	**2**
Brass	1
buckle	1
Copper alloy	1
rivet	1
Energy	**84**
Coal	84
Fauna	**8**
Bone	6
mammal	6
Shell	2
unidentified	2
Glass Vessel Fragments	**57**
Glass	57
bottle	23
curved	31
flat	3
Kitchen	**2**
Ferrous metal	2
cauldron	2
Personal Items	**2**
Glass	2
jewelry	2
Recreation/Activities	**3**
Ball Clay	2
smoking pipe	2
Brass	1
thimble	1
Tools/Hardware	**2**
Ferrous metal	2
spike	2

Table 3.1 (Continued). Reedy Island Cart Road Site 4, Artifact Types from Locus 2.

Artifact Type	Grand Total
Unidentified	**14**
Copper alloy	1
Ferrous metal	10
Slag	3
Indeterminate	**5**
Flora	**2**
Wood	2
carbon sample	2
Unidentified	**3**
Daub	3
Modern	**2**
Unidentified	**2**
Plastic	2
tubes	2
Prehistoric	**103**
Flora	**4**
Wood	4
carbon sample	4
Lithics	**99**
Chert	7
debitage	7
Jasper	56
core	1
debitage	47
projectile point	1
spokeshave	1
tested cobble	2
thermally-altered rock	4
Quartz	9
biface	4
debitage	4
projectile point	1
Quartzite	26
debitage	1
thermally-altered rock	25
Rhyolite	1
projectile point	1
Grand Total	**1618**

Plate 3.2. Reedy Island Cart Road Site 4. Ground-penetrating radar (foreground) and magnetometer survey in progress (Photographer: Joelle Browning, April 21st, 2011) [HRI Neg,#11017/D4:020].

Plate 3.3. Reedy Island Cart Road Site 4, Locus 5. Machine stripping, shovel-scraping and trowelling in progress in Trench 5. View facing east (Photographer: Joelle Browning, June 2011) [HRI Neg,#11017/D4:306].

Plate 3.4. Reedy Island Cart Road Site 4, Locus 2, Excavation Unit 5. Post pit [Contexts 3 and 4] as excavated. View facing northeast (Photographer: Joelle Browning, April 2011) [HRI Neg,#11017/D4:022].

Plate 3.5. Reedy Island Cart Road Site 4, Locus 2, Excavation Unit 10. Feature [Contexts 3 and 4] as excavated. View facing north (Photographer: Joelle Browning, April 2011) [HRI Neg,#11017/D4:053].

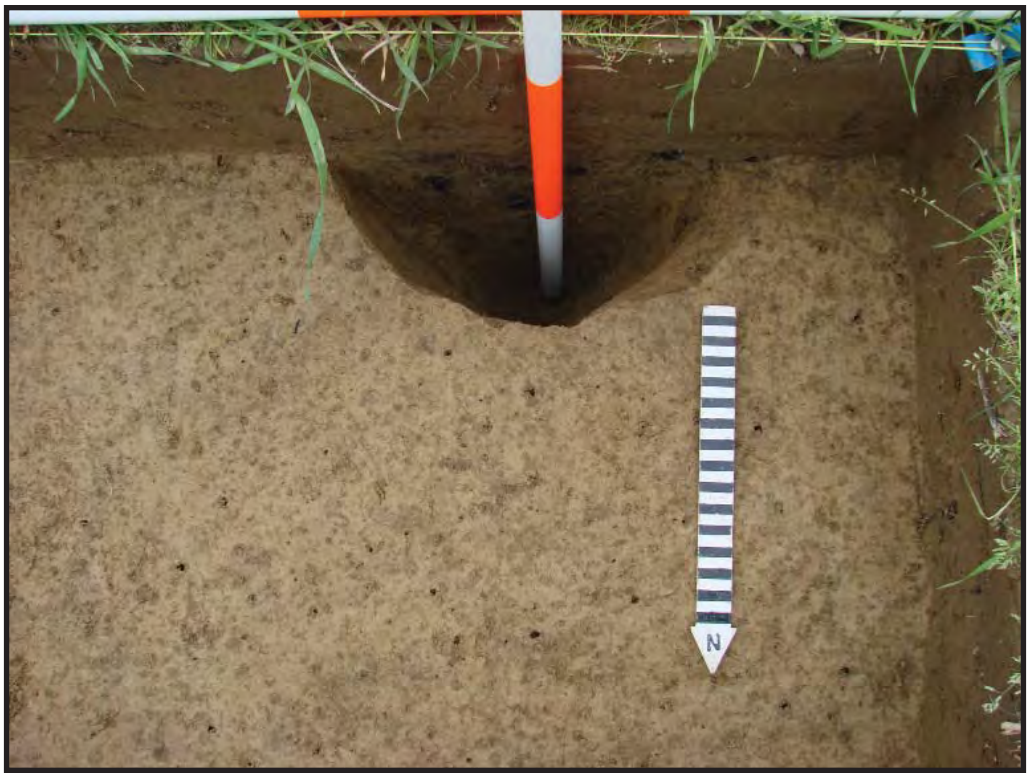


Plate 3.6. Reedy Island Cart Road Site 4, Locus 2, Excavation Unit 12. Feature [Contexts 3 and 4] as excavated. View facing south (Photographer: Joelle Browning, April 2011) [HRI Neg,#11017/D4:060].

Plate 3.7. Reedy Island Cart Road Site 4, Locus 2, Excavation Unit 12. Feature [Contexts 5 and 6] as excavated. View facing west (Photographer: Joelle Browning, April 2011) [HRI Neg,#11017/D4:063].

Plate 3.8. Reedy Island Cart Road Site 4, Locus 2, Excavation Units 8 and 35. Feature [Contexts EU8:5; EU35:3 and 4] as fully excavated. View facing west (Photographer: Joelle Browning, May 2011) [HRI Neg,#11017/D4:258].

Unit 19. Soil profiles were the same as those in Locus 2, and no artifacts were recovered from contexts below the plowzone horizon.

The artifact count was absolutely and proportionally much lower, at 282 (Table 3.2). Ceramics are dominated by plain redwares. One significant find is a curry comb, one of three from these investigations (Plate 3.30). Sixty-two prehistoric items include one projectile point, debitage and thermally altered rock.

3. Locus 5

Work on Locus 5 was directed primarily directed towards the identification and evaluation of the physical evidence of the Reedy Island Cart Road, part of the documented 18th-century network of roads connecting the upper Chesapeake with the Delaware River in the area of the Appoquinimink Creek and Port Penn. The first phase of work was the completion of a remote-sensing survey by Seramur and Associates, PC using ground-penetrating radar and magnetometer instrumentation.

The geophysical survey was undertaken in four conjoined 70-by-70-meter grids (Grids numbered 1 through 4), for a total area of just under 2,000 square meters (21,500 square feet). This was supplemented by three additional areas (Grids 5, 6 and 7) to follow up on three anomalies (1 through 3) identified in the first four grids (Figure 3.4). The machine trenches were then laid out to investigate these anomalies.

Only 106 artifacts were recovered from Locus 5 (Table 3.3). This is in part a result of the excavation technique in that most of the plowzone was not screened. However, more cultural stratigraphy and features were examined here than in Loci 2 and 4 and the artifact density remains low. Two curry comb fragments were recovered, similar to the example from Locus 4. Historic ceramic counts were very low. Four cauldron fragments were also recovered.

Trench 1 (Figure 3.5; Plates 3.9 and 3.10)

This north-south trench was 260 feet long and five feet wide. In addition to several natural or tree-planting features there was one possible prehistoric pit feature [17 and 18] about 105 feet from the southern end of the trench, and two parallel ditch features [cut 10, fill 9 south; cut 12, fill 11 north] (Plate 3.9) . The latter were located on the projected line of the anomaly identified in the magnetometer survey. South of the southern ditch was an area of stone cobbles that was possibly cultural in origin (Plate 3.10).

Trench 2 (Figure 3.6; Plates 3.11 and 3.12)

Trench 2 was placed 122 feet west of Trench 1 and was 145 feet long. Again, two parallel ditch features [5,6; 13,14] were identified, about 12 feet apart on center (Plate 3.11). Several post pits with visible post-molds were identified in the area of the ditches (Plate 3.12), a characteristic noted more extensively in Trench 5 (see below).

Trench 3 (Figure 3.7; Plate 3.13)

This trench was placed well to the east of Trench 1 in order to pick up the projected line of the parallel ditches, which it failed to do. The Trench was 68 feet long and six feet wide. Two large modern disturbances [13,14] lay to the north of a cluster of round and square post holes [Contexts 3 through 12]

Figure 3.4. Geo-Grids 1, 2, 5, 6, and 7 showing Ground Penetrating Radar Slice at 50-65 cm Depth. Note the parallel anomalies in Geo-Grids 1, 2 and 5. Trenches 1 through 10 also shown. Source: Seramur 2011: Figure 4.

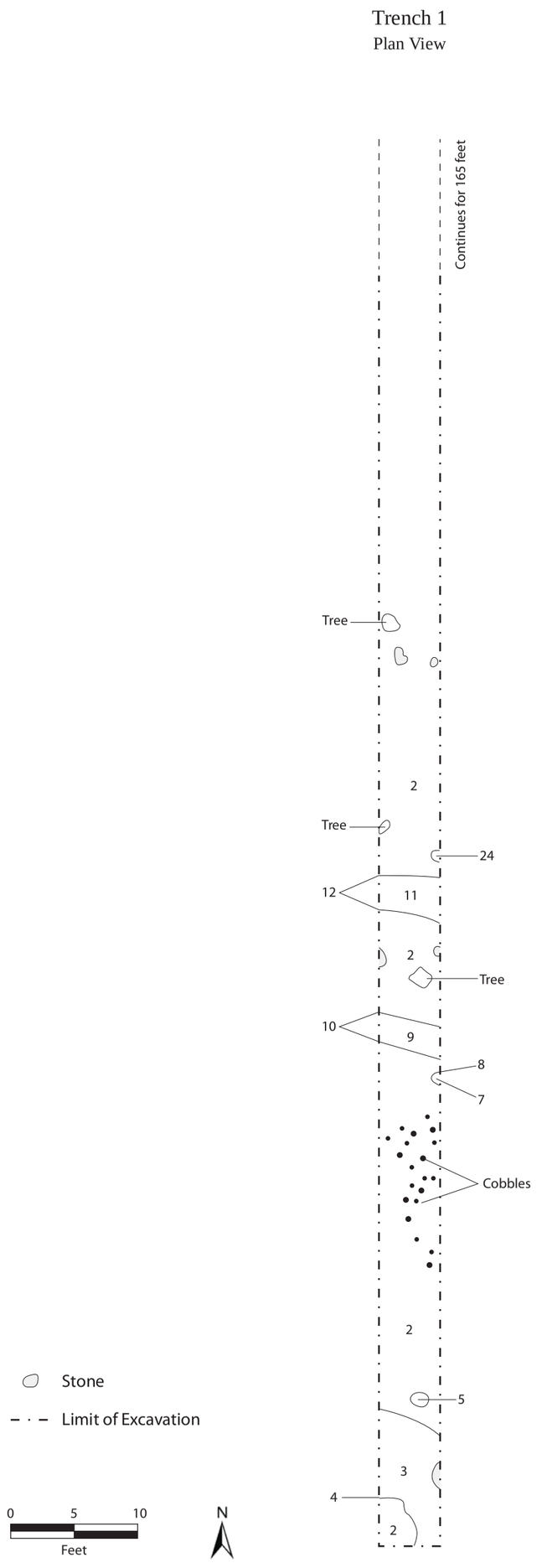


Figure 3.5. The Southern Portion of Trench 1 Showing Parallel Ditches and Other Features.

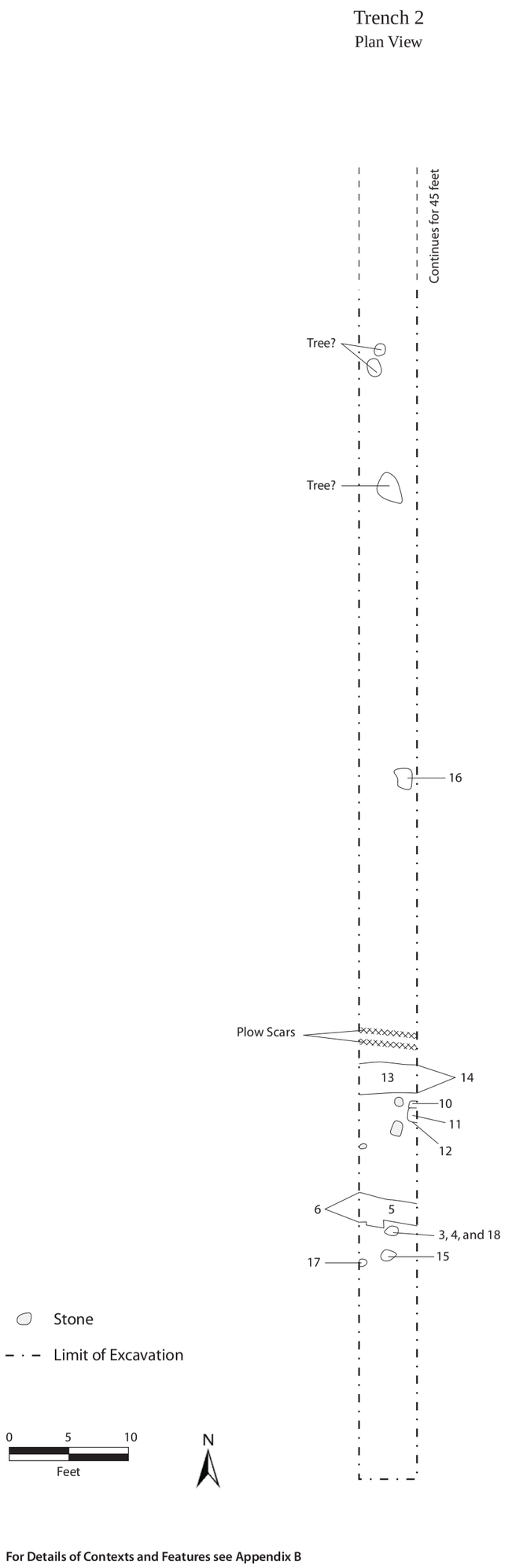
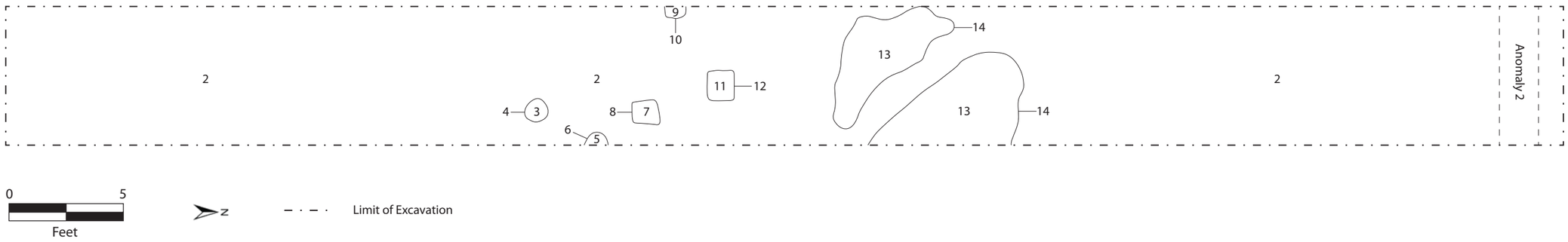


Figure 3.6. The Southern Portion of Trench 1 Showing Parallel Ditches and Other Features.

Trench 3

Plan View



For Details of Contexts and Features see Appendix B

Figure 3.7. Plan of Trench 3.

Table 3.2. Reedy Island Cart Road Site 4, Artifact Types from Locus 4.

Artifact Type	Grand Total
Historic	220
Ceramic Vessel Sherds	80
Coarse Earthenware	69
Red bodied slipware	6
Redware	63
Refined Earthenware	10
Creamware	3
Jackfield-type	2
Pearlware	4
Whiteware	1
Stoneware	1
grey body	1
Agriculture/Equestrian	**1**
Ferrous metal	1
curry comb	1
Building Materials	**102**
Coarse Earthenware	82
brick	82
Ferrous metal	13
nail	13
Glass	7
window	7
Energy	**18**
Coal	18
Fauna	**1**
Shell	1
clam	1
Glass Vessel Fragments	**12**
Glass	12
bottle	3
curved	8
flat	1
Personal Items	**1**
Mica	1
jewelry	1
Unidentified	**5**
Ferrous metal	2
Slag	3
Prehistoric	**62**
Lithics	**62**
Chert	8
debitage	8
Jasper	33
biface	1
core	1
debitage	30
thermally-altered rock	1
Limonite	1
debitage	1
Quartz	3
debitage	3
Quartzite	15
cobble-based tool	1
debitage	1
thermally-altered rock	13
Rhyolite	2
debitage	1
projectile point	1
Grand Total	**282**

Photograph 3.8. Reedy Island Cart Road Site 4, Locus 2, Excavation Units 8 and 35. Feature [Contexts EU8:5; EU35:3 and 4] as fully excavated. View facing west (Photographer: Joelle Browning, May 2011) [HRI Neg,#11017/D4:258].

a curry comb, one of three from these investigations (Photograph 3.30, see below). Sixty-two prehistoric items include one projectile point, debitage and thermally altered rock.

3. Locus 5 (Property Boundary and Cart Road Alignment)

Work on Locus 5 was primarily directed towards the identification and evaluation of the physical evidence of the Reedy Island Cart Road, part of the documented 18th-century network of roads connecting the upper Chesapeake with the Delaware River in the area of the Appoquinimink Creek and Port Penn. The first phase of work was the completion of a remote-sensing survey by Seramur and Associates, PC using ground-penetrating radar and magnetometer instrumentation (Appendix A). The geophysical survey was undertaken in four conjoined 70-meter-square grids (Grids numbered 1 through 4), for a total area of just under 2,000 square meters (21,500 square feet). This was supplemented by three additional areas (Grids 5, 6 and 7) to follow up on three anomalies (1 through 3) identified in the first four grids (Figure 3.4). The machine trenches were then laid out to investigate these anomalies.

Only 106 artifacts were recovered from Locus 5 (Table 3.3). This is in part a result of the excavation technique in that most of the plowzone was not screened. However, more cultural stratigraphy and features were examined here than in Loci 2 and 4, and the artifact density still remains low. Two curry comb fragments were recovered, similar to the example from Locus 4. Historic ceramic counts were very low (n=3). Four cauldron fragments were also recovered. The variation in artifact density between the three examined loci is notable.

Trench 1 (Figure 3.5; Photographs 3.9 and 3.10)

This north-south machine trench was 260 feet long and five feet wide. In addition to several natural or tree-planting features there was one possible prehistoric pit feature [17 and 18] about 105 feet from the southern end of the trench, and two parallel ditch features [cut 10, fill 9 south; cut 12, fill 11 north] (Photograph 3.9). The latter were located on the projected line of the anomaly identified in the magnetometer survey. South of the southern ditch was an area of stone cobbles that was possibly cultural in origin (Photograph 3.10).

Trench 2 (Figure 3.6; Photographs 3.11 and 3.12)

Trench 2 was placed 122 feet west of Trench 1 and was 145 feet long. Again, two parallel ditch features [5,6; 13,14] were identified, about 12 feet apart on center (Photograph 3.11). Several post pits with visible post-molds were identified in the area of the ditches (Photograph 3.12), a characteristic noted more extensively in Trench 5 (see below).

Trench 3 (Figure 3.7; Photograph 3.13)

This trench was placed well to the east of Trench 1 in order to pick up the projected line of the parallel ditches, which it failed to do. The Trench was 68 feet long and six feet wide. Two large modern disturbances [13,14] lay to the north of a cluster of round and square postholes [Contexts 3 through 12]

Trench 4

No cultural features were identified in Trench 4. No artifacts were recovered. Stratigraphy comprised an Ap horizon over a B horizon typical of the site as whole.

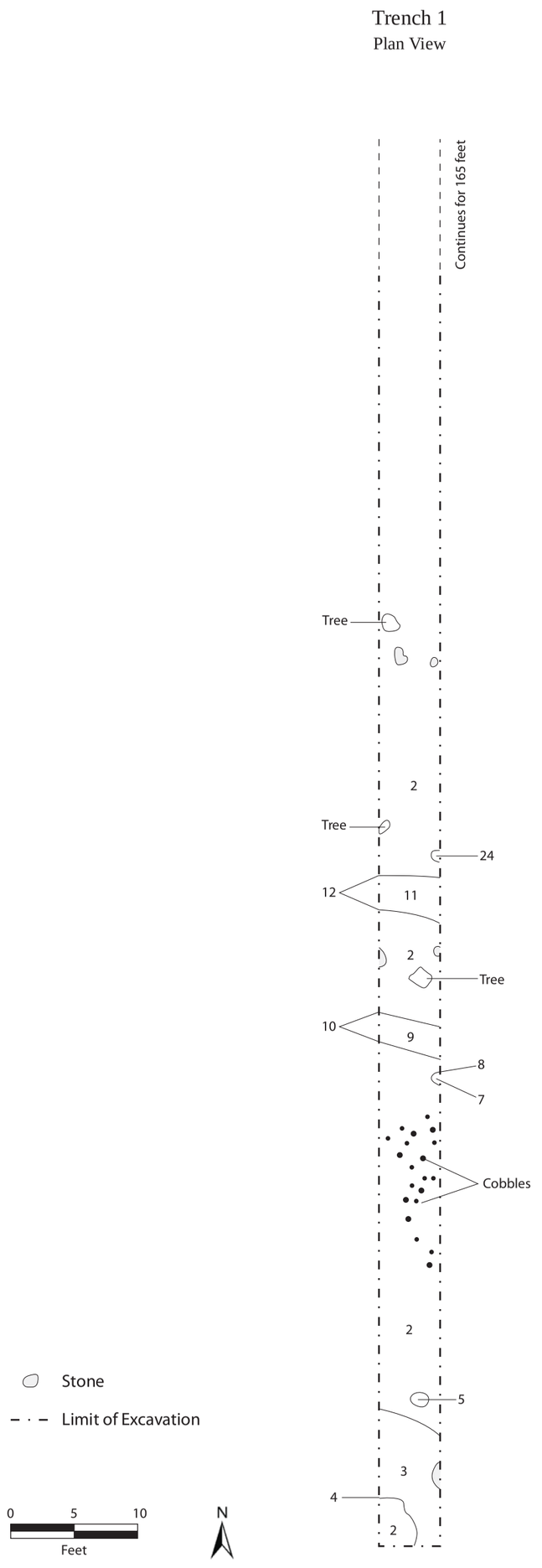


Figure 3.5. The Southern Portion of Trench 1 Showing Parallel Ditches and Other Features.

Figure 3.4. Geo-Grids 1, 2, 5, 6, and 7 showing Ground Penetrating Radar Slice at 50-65 cm Depth. Note the parallel anomalies in Geo-Grids 1, 2 and 5. Trenches 1 through 10 also shown. Source: Seramur 2011: Figure 4.

Photograph 3.9. Reedy Island Cart Road Site 4, Locus 5, Trench 1. Parallel ditch features [Contexts 9 through 12] as exposed. View facing north (Photographer: Joelle Browning, May 2011) [HRI Neg,#11017/D4:110].

Photograph 3.10. Reedy Island Cart Road Site 4, Locus 5, Trench 1. Possible cobbled area south of parallel ditch features. View facing north (Photographer: Joelle Browning, May 2011) [HRI Neg,#11017/D4:107].

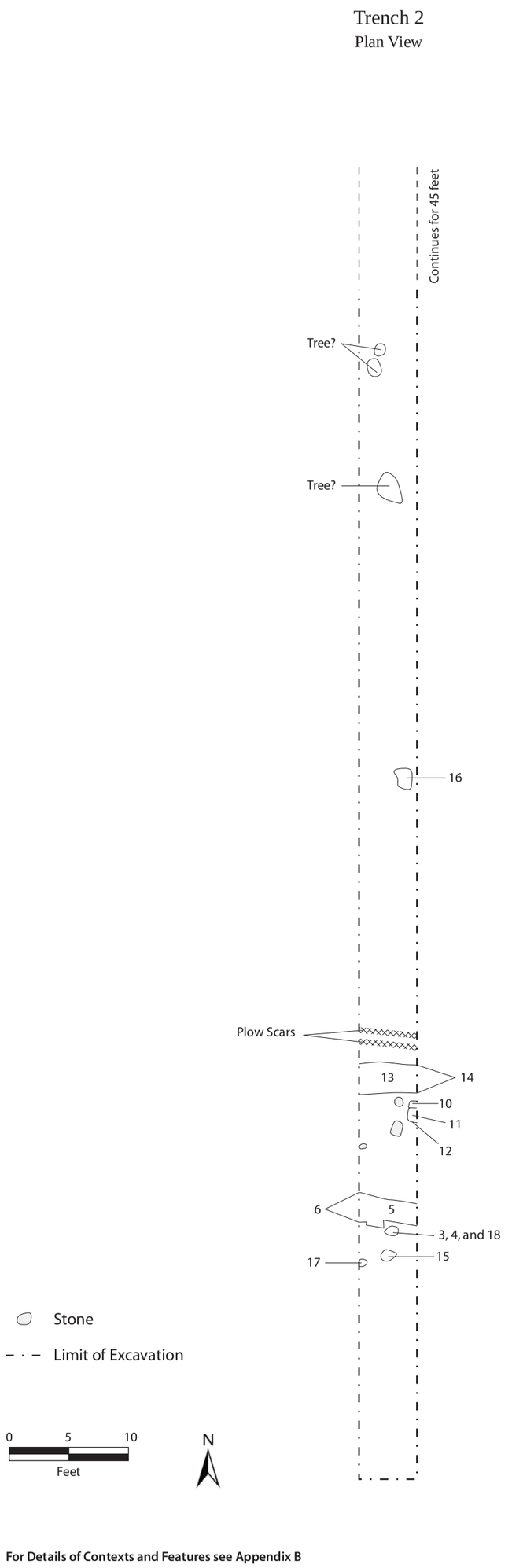
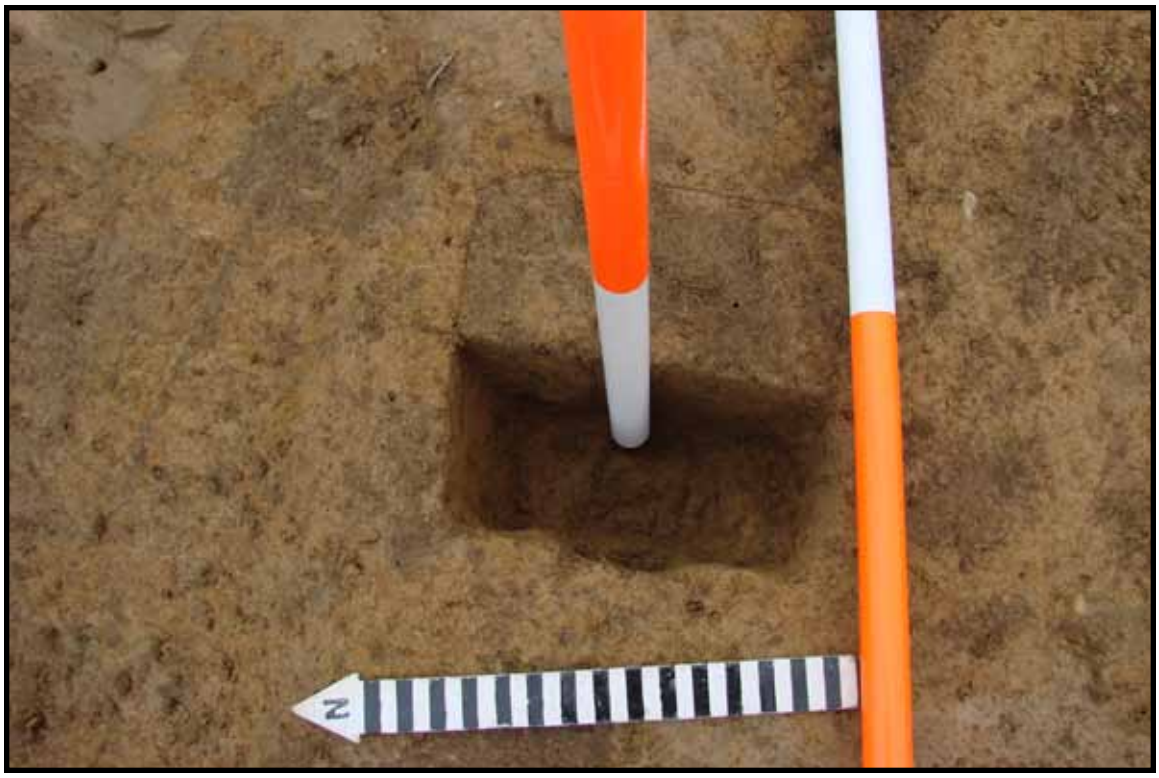


Figure 3.6. The Southern Portion of Trench 1 Showing Parallel Ditches and Other Features.

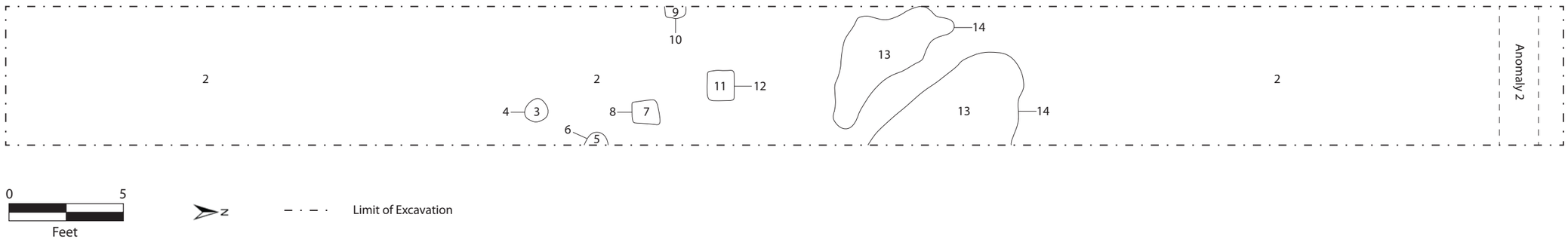
Photograph 3.11. Reedy Island Cart Road Site 4, Locus 5, Trench 2. Parallel ditch features [contexts 5,6; 13,14] as exposed. View facing north (Photographer: Joelle Browning, May 2011) [HRI Neg,#11017/D4:152].



Photograph 3.12. Reedy Island Cart Road Site 4, Locus 5, Trench 2. Posthole [Contexts 7,9] with post mold [Context 8] as sectioned. Posthole lies in area between the two ditches. View facing east (Photographer: Joelle Browning, May 2011) [HRI Neg,#11017/D4:187].

Trench 3

Plan View

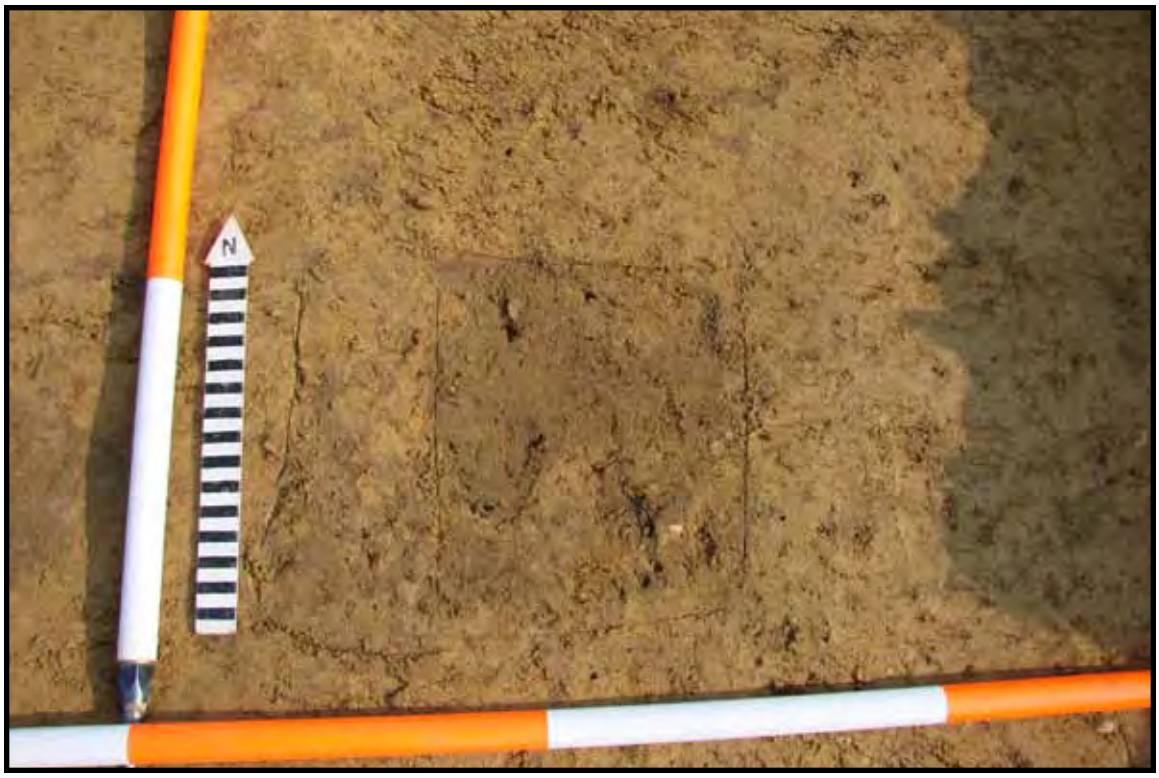


For Details of Contexts and Features see Appendix B

Figure 3.7. Plan of Trench 3.

Table 3.3. Reedy Island Cart Road Site 4, Artifact Types from Locus 5.

Artifact Type	Grand Total
Historic	69
Ceramic Vessel Sherds	3
Coarse Earthenware	2
Redware	2
Porcelain	1
hard paste	1
Agriculture/Equestrian	**2**
Ferrous metal	2
curry comb	2
Building Materials	**31**
Coarse Earthenware	13
brick	13
Ferrous metal	17
nail	17
Glass	1
window	1
Glass Vessel Fragments	**10**
Glass	10
container	1
curved	9
Kitchen	**4**
Ferrous metal	4
cauldron	4
Manufacturing	**3**
Ferrous metal	3
slag	1
stock	2
Tools/Hardware	**11**
Ferrous metal	11
bearing	1
hatchet	1
hook	1
link	2
nut	1
spike	1
swivel link	1
tool	1
unidentified	2
Unidentified	**4**
Ferrous metal	4
Prehistoric	**38**
Flora	**20**
Wood	20
carbon sample	20
Lithics	**17**
Chert	2
debitage	2
Jasper	7
debitage	7
Quartz	1
debitage	1
Quartzite	6
cobble-based tool	3
debitage	1
thermally-altered rock	2
Rhyolite	1
biface	1
Non-Lithic Artifact	**1**
Mica	1
raw material	1
Grand Total	**106**



Photograph 3.13. Reedy Island Cart Road Site 4, Locus 5, Trench 3. Vertical photograph of posthole and post mold [Contexts 11,12] as exposed. North to top of view (Photographer: Joelle Browning, May 2011) [HRI Neg,#11017/D4:284].

Trench 5 (Figure 3.8; Photographs 3.14 through 3.20)

Trench 5 was placed immediately east of the portion of Trench 1 in which the ditches had been initially exposed. When completed, Trench 5 extended 106 feet east-west, with an extension east for a further eight feet at the northern end, and was 20 feet wide, with an extension north for 25 feet at its eastern end. The trench exposed approximately 70 feet of the parallel ditches, which terminated roughly 25 feet west of the east limits of the trench. The plan (Figure 3.8) and the photographs (3.14 through 3.20) characterize the cultural features, which will not all be described here. Details are in Appendix C.

The ditches are well-defined features with flat bases and well-cut sloping sides. The fill was a uniform brown silt loam (10YR 4/4) containing virtually no cultural material. Groups of stones were present at intervals in the upper portion of the fill (Photograph 3.17). Typically, each ditch was about 3 feet wide at the top, one foot wide across the base, and about 0.75 feet deep from the base of the overlying plowzone. The eastern terminals of the ditches appear to be a genuine end-point, rather than being the result of deflation or erosion caused by cultivation and colluvial action. This argument is based on the observation that the termini seem to have been only roughly dug at this point, rather that expressing themselves as a gradual shallowing and fading out of the ditch features as might be expected from plow erosion (Photograph 3.19). No historic artifacts were recovered from the ditch sections that were excavated. The berm between the ditches, typically about seven to eight feet wide at the level of the B horizon, was flat and, when exposed to the sun, extremely hard and firm although there was no sign of any artificial surfacing. Running roughly down the center of the berm was a series of chiefly square or rectangular post pits, many containing the post molds of round or rectangular posts. In several cases replacements of the post pits and posts can be seen. It is possible to discern a roughly 10-foot spacing or clustering in the post pits. In the eastern portion of the trench a complex pit feature [111, 112, 147] lay across the projected line of the northern ditch (Photograph 3.20). This yielded two cast-iron cauldron handle pieces and a swivel link.

Trench 6 (Figure 3.9; Photograph 3.21)

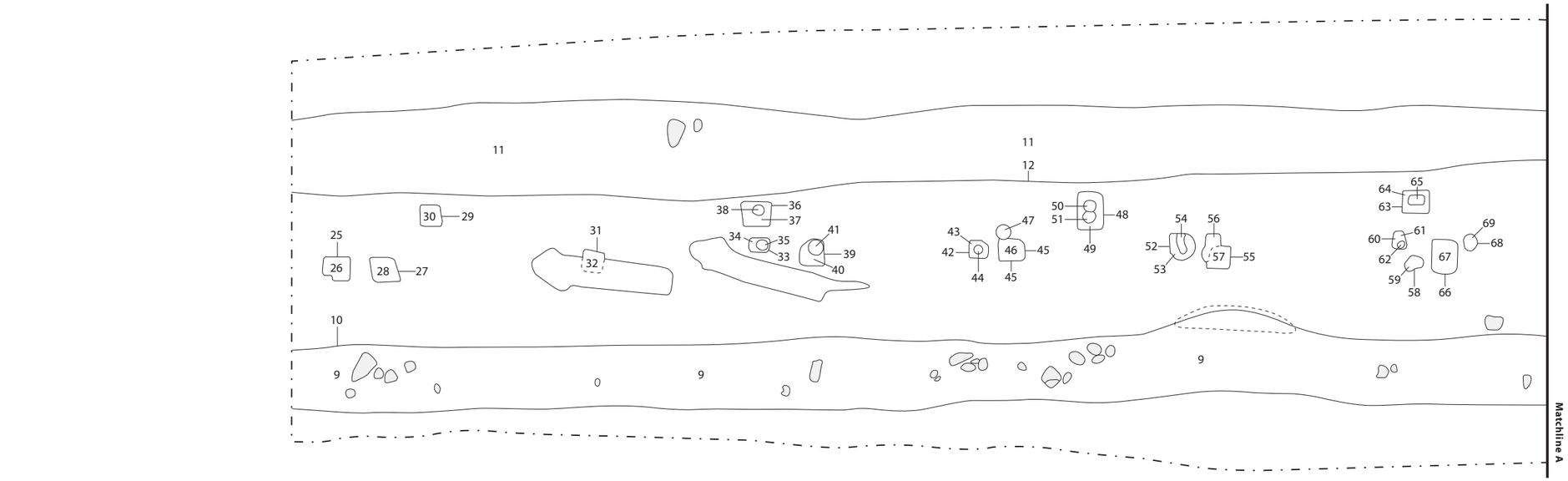
This excavation was placed across the projected line of the parallel ditches as it approaches the woodline. Machine excavation revealed a complex natural stratigraphy of sands and clays and a high water table. No cultural features or artifacts were recovered.

Trench 7 (Figure 3.10; Photographs 3.22-3.24)

Trench 7 was placed well to the west of the other trenches to investigate the parallel ditches at another location and to follow up on artifact and feature indications from the Phase I work. The two parallel ditches were well preserved in the trench and had closely similar profiles to those in Trench 5 (Photographs 3.22 and 3.23). The southern ditch fill [27] yielded a curry comb fragment and had a cluster of brick in the upper portion of the profile. Four features were identified on the berm between the ditches, including a complex multi-period series of post pits (Photograph 3.24). Multiple features to the south of the ditches seem likely to represent a portion of an undated outbuilding. The fill of one large post pit [18] contained a cast iron cauldron body fragment, and a cauldron rim was recovered from the backdirt pile. The trench as a whole yielded more artifacts than the others, supporting the suggestion that there may have been a structure in this area. The bulk of the material consists of ferrous tools and fragments, with only two pieces of ceramic, suggesting non-residential and probably agricultural functions for such a structure.

Trench 5

Plan View



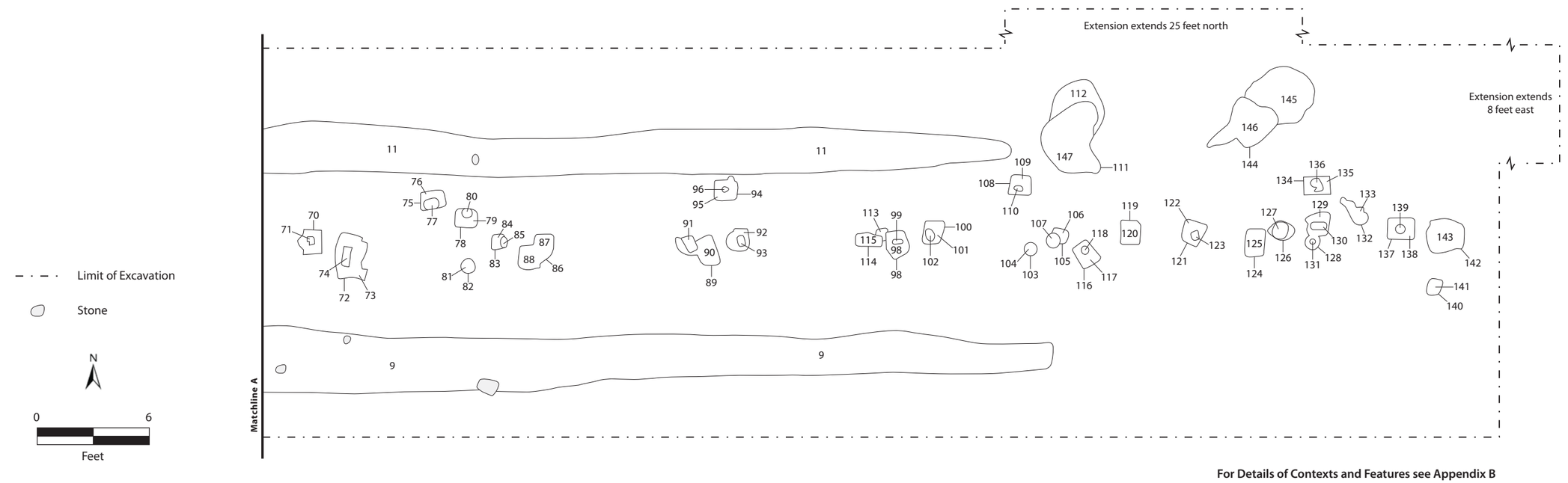


Figure 3.8. Detailed Plan of Features in Trench 5.

Photograph 3.14. Reedy Island Cart Road Site 4, Locus 5, Trench 5 under excavation. The northern linear ditch [Contexts 11,12] is visible on the left, profiled in foreground. Post pits [Contexts 25,27,29] are in foreground to right of ditch. Southern ditch [Contexts 9,10] is covered with back plastic to prevent desiccation. Darker plow-scars and tractor ruts are also visible crossing the trench. View facing east (Photographer: Ian Burrow, June 2011) [HRI Neg,#11017/D6:004].

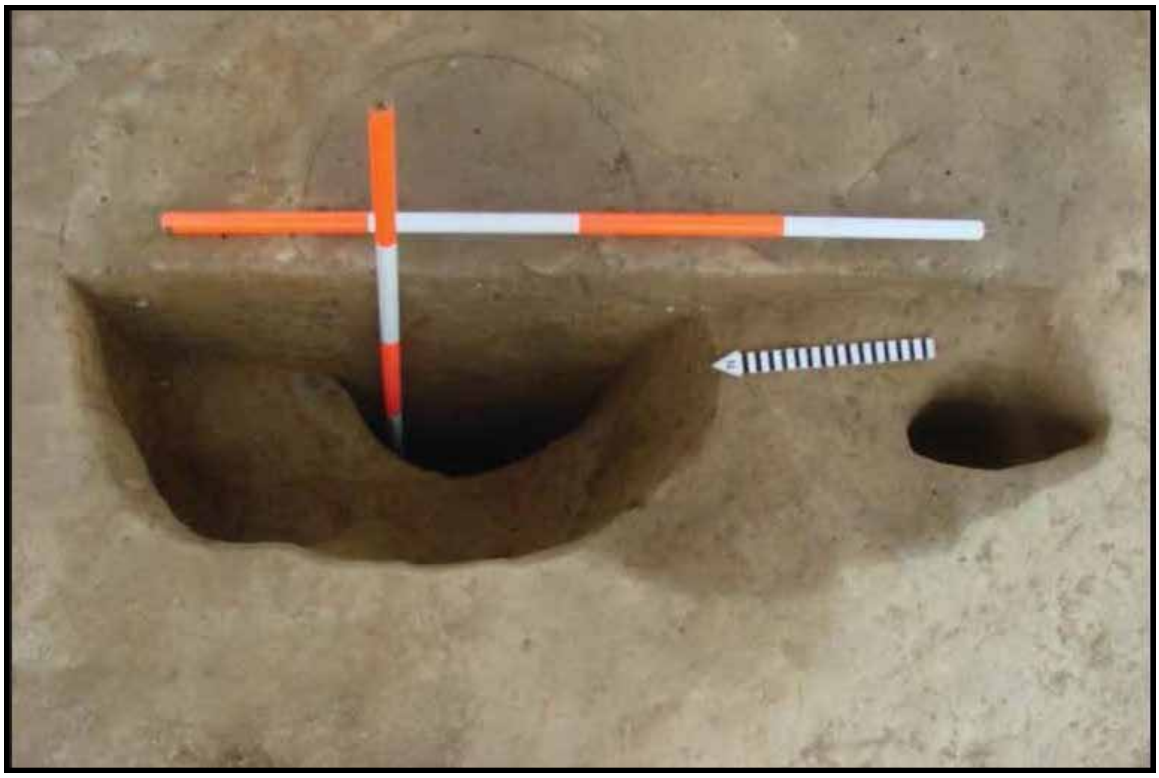
Photograph 3.15. Island Cart Road Site 4, Locus 5, Trench 5, east profile. The excavated northern [Contexts 11,12] and southern [Contexts 9,10] linear ditches can been seen in profile, about 12 feet apart on center. View facing west (Photographer: Ian Burrow, June 2011) [HRI Neg,#11017/D6:009].

Photograph 3.16. Reedy Island Cart Road Site 4, Locus 5, Trench 5. View facing south across trench in area where both the ditches, and the postholes on the berm between them [Contexts 42-51, 148] have been fully excavated (Photographer: Joelle Browning, June 2011) [HRI Neg,#11017/D8:170].

Photograph 3.17. Reedy Island Cart Road Site 4, Locus 5, Trench 5. The southern ditch [Contexts 9,10] as first exposed. Note stones in upper part of fill. View facing north (Photographer: William Liebeknecht, June 2011) [HRI Neg,#11017/D8:074].

Photograph 3.18. Reedy Island Cart Road Site 4, Locus 5, Trench 5. The portion of the southern ditch [Contexts 9,10] in Photograph 3.17, laterally bisected. View facing north (Photographer: William Liebeknecht, June 2011) [HRI Neg,#11017/D8:078].

Photograph 3.19. Reedy Island Cart Road Site 4, Locus 5, Trench 5. The east terminus of the northern ditch [Contexts 11, 12]. The end of the ditch is at the left immediately to the right of the range pole. North indicated by arrow (Photographer: William Liebeknecht, June 2011) [HRI Neg,#11017/D8:141].



Photograph 3.20. Reedy Island Cart Road Site 4, Locus 5, Trench 5. Complex pit/posthole feature [Contexts 111, 112, 147] east of the eastern terminus of northern ditch . View facing down and to east (Photographer: William Liebeknecht, June 2011) [HRI Neg,#11017/D8:177].

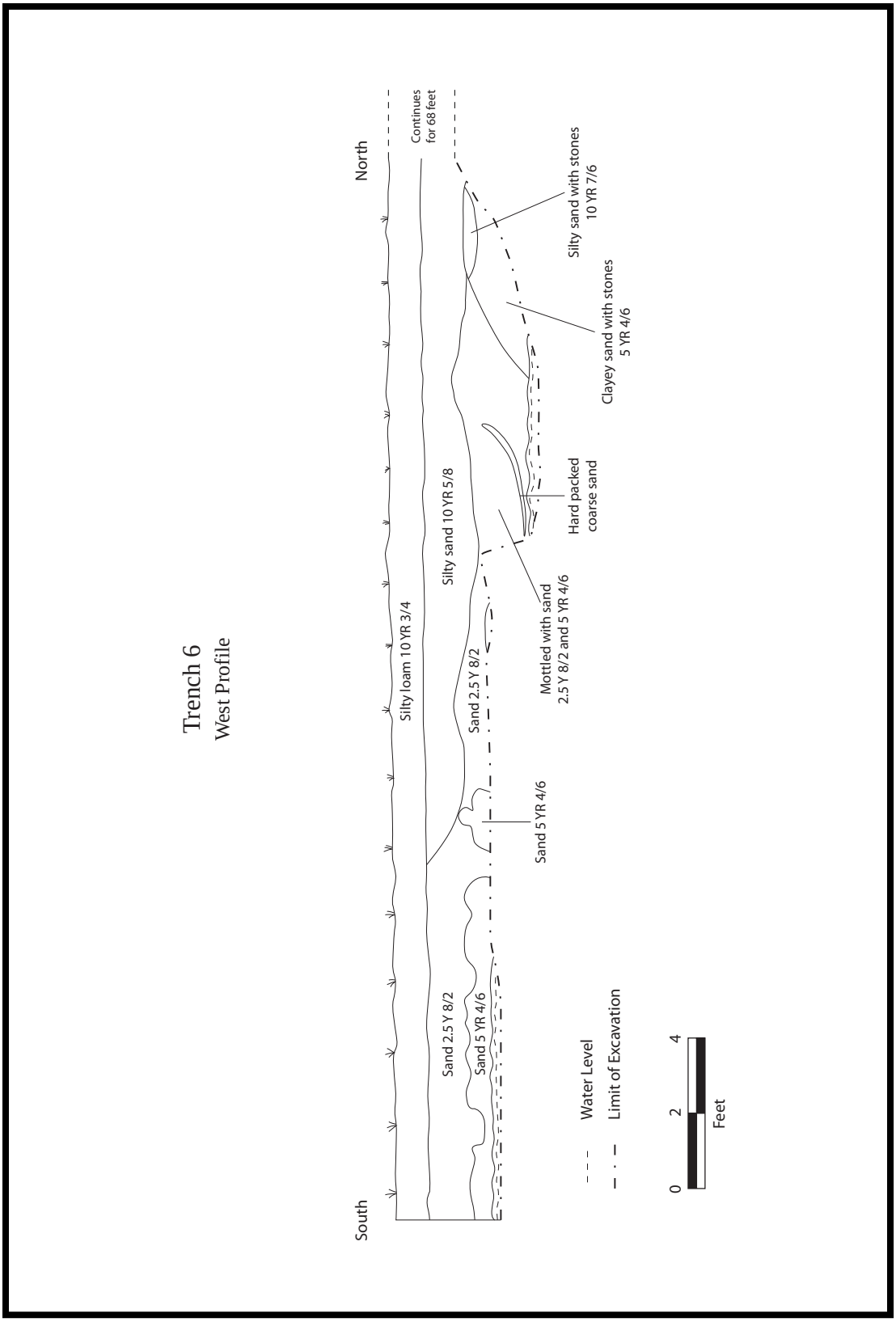


Figure 3.9. Profile of Natural Stratigraphy in Southern 28 feet of Trench 6.

Photograph 3.21. Reedy Island Cart Road Site 4, Locus 5, Trench 6. Natural stratigraphy. Note water table. View facing north-north-west (Photographer: Joelle Browning, June 2011) [HRI Neg,#11017/D8:001].

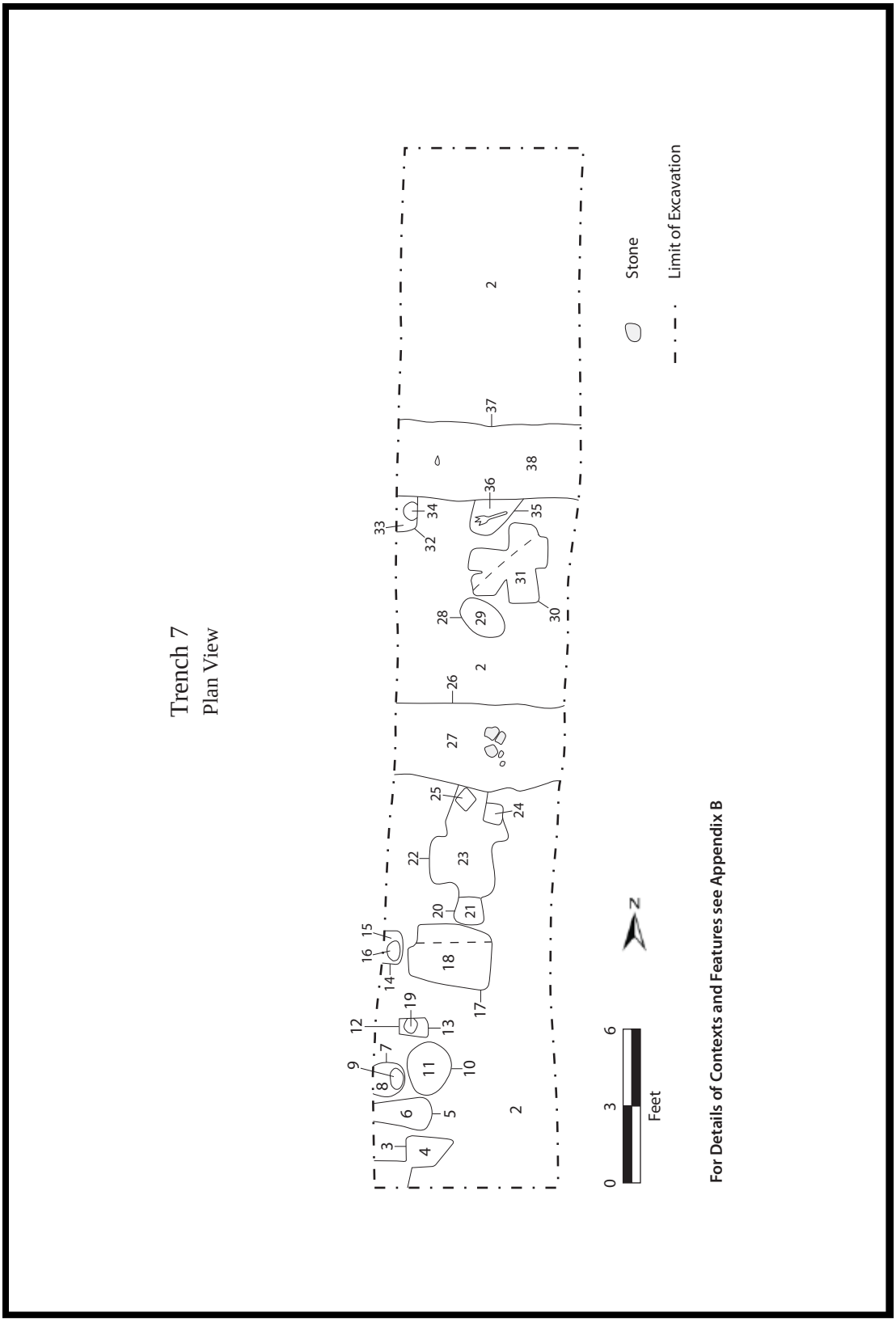
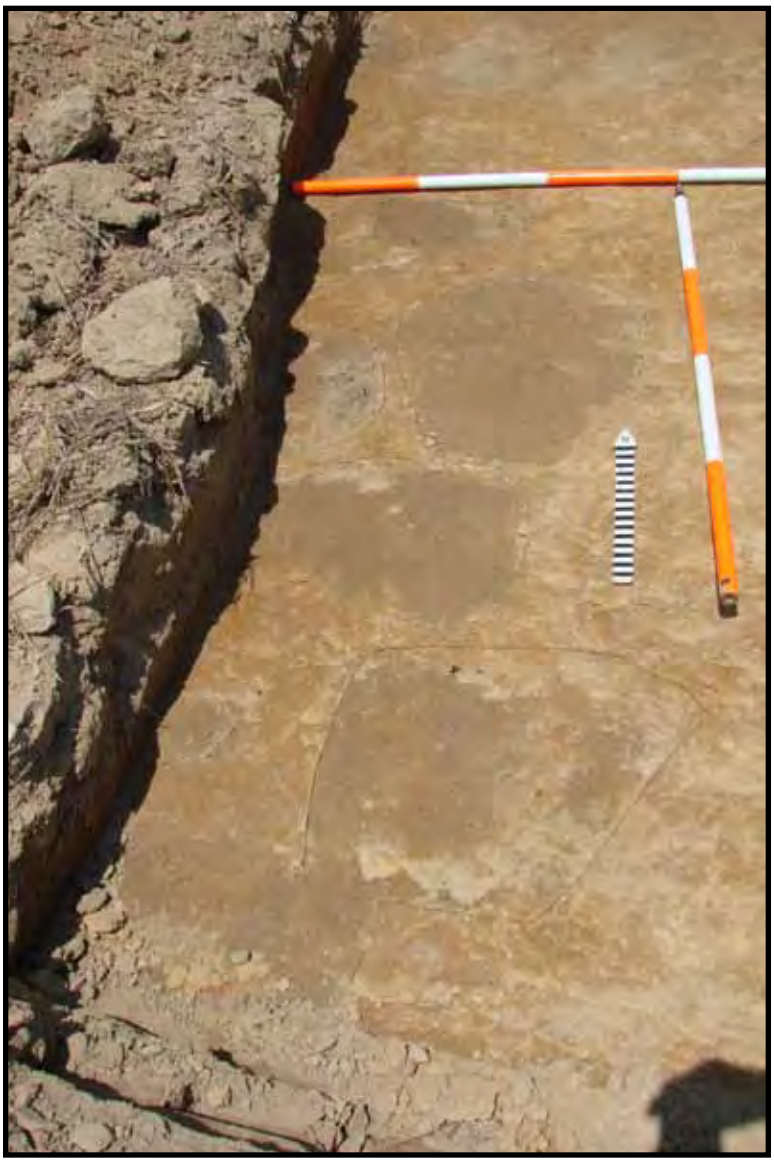


Figure 3.10. Detailed Plan of Features in Trench 7.



Photograph 3.22. Reedy Island Cart Road Site 4, Locus 5, Trench 7. General view after removal of plowzone. Parallel ditches [Contexts 26, 27; 37, 38] visible in middle of trench. Complex of post-pits and other features in southwest corner are at bottom left, framed by scale poles. View facing north (Photographer: Joelle Browning, June 2011) [HRI Neg,#11017/D8:137].

Photograph 3.23. Reedy Island Cart Road Site 4, Locus 5, Trench 7. Southern ditch [Context 27] as excavated. Note iron fence-post fragment in feature [Context 36] immediately south of ditch. View facing west (Photographer: Joelle Browning, June 2011) [HRI Neg,#11017/D4:507].

Photograph 3.24. Reedy Island Cart Road Site 4, Locus 5, Trench 7. Complex post-pit feature [Contexts 30, 31] on berm, half excavated View facing northwest (Photographer: Joelle Browning, June 2011) [HRI Neg,#11017/D4:490].

Trenches 8, 9, 10

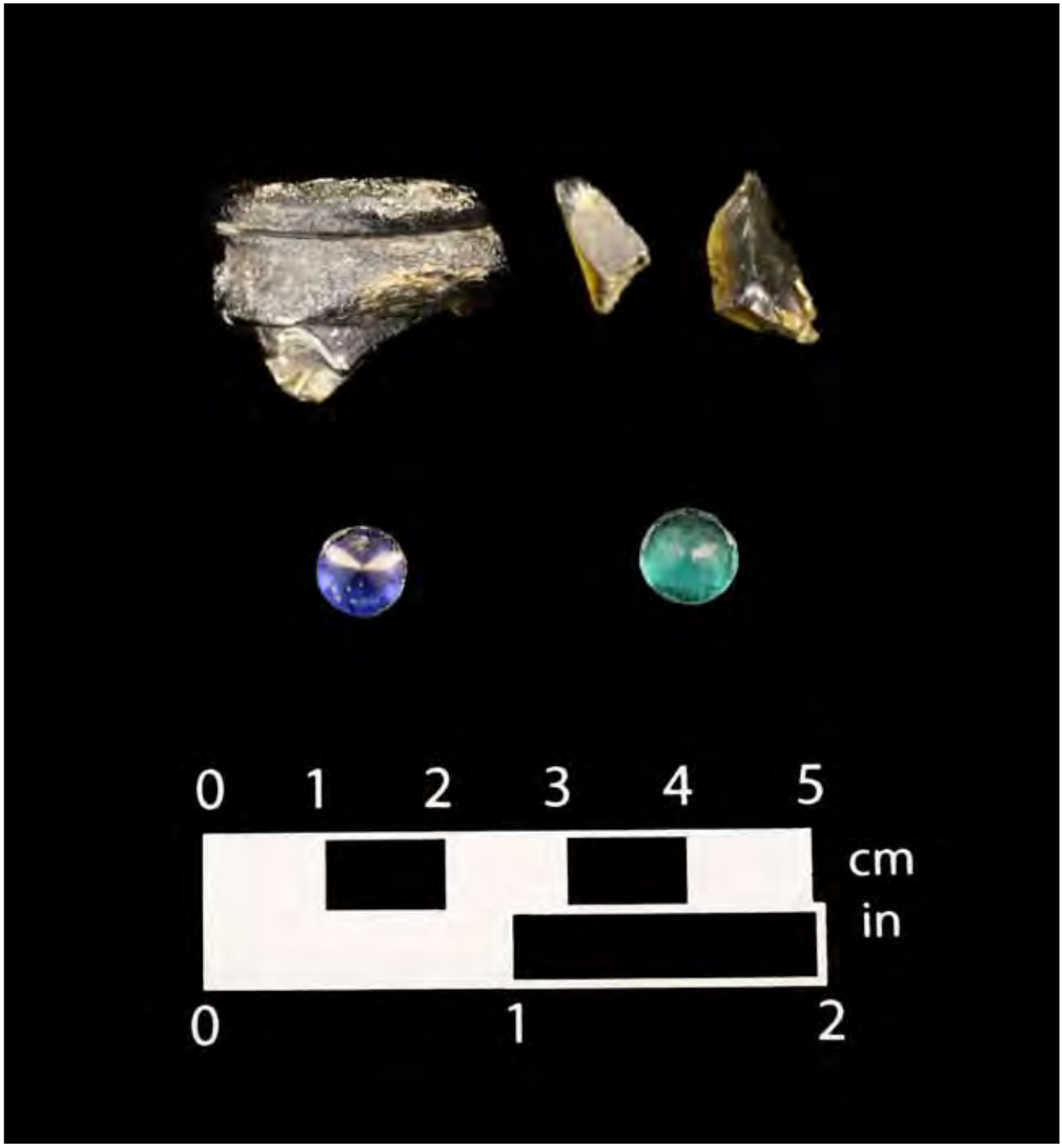
These trenches were placed to examine geophysical anomaly 2, but recovered no artifacts or cultural features.

Material Culture

Photographs 3.25 through 3.30 provide an overview of the more diagnostic of the roughly 2,000 artifacts recovered from the excavation units and trenches. Table 3.3 presents the breakdown of the limited number of items from the trenches in Locus 5. As with most areas examined in the U.S. Route 301 Corridor, there is general scatter of prehistoric lithic items of a wide range of dates, including in this case an Archaic period, Kirk-like biface. At least one pit feature may be prehistoric in origin. Historic ceramics include what now appears to be a typical U.S. Route 301 suite of mid-18th-century scratch blue and white salt-glazed stonewares with some earlier Staffordshire wares and cream-colored ware. Eighteenth-century occupation is also confirmed by the bottle glass and sleeve links. Again, repeating a pattern observed on other sites on U.S. Route 301, are the several fragments of cast iron cauldrons from the site. Another possibly emerging diagnostic item is the curry comb, found both here and at the Rumsey Historic/Prehistoric Site [7NC-F-121, N14501] at the Levels Road interchange. These examples appear to be “Fitch” curry combs, not designed for use directly on horses because the metal teeth can be damaging to the coat and skin. They are therefore used for cleaning the hair and dirt from horse grooming brushes, but are primarily designed for the tougher coats of cattle.

Photograph 3.25. Reedy Island Cart Road Site 4, Loci 2 and 4. Selected prehistoric artifacts from the surface and plowzone [Context 1]. *Top row, left to right:* red-jasper, Kirk-Stemmed-like projectile point *circa* 6,900 to 6,000 B.C. and quartz, contracting-stemmed biface with a thick biconvex cross-section, possibly used as an engraving tool as the distal end exhibits finely tapered reduction. *Bottom row, left to right:* a rhyolite, narrow-bladed biface and a triangular rhyolite biface (Photographer: Lindsay Lee, November 2011) [HRI Neg,#11017/D10:05].

Photograph 3.26. Reedy Island Cart Road Site 4, Locus 2. Selected ceramics from the plowzone. *Top row, left to right:* English wares represented by buff-bodied Staffordshire ware or Dot ware; cream-colored earthenware with cauliflower design; and white salt-glazed stoneware with floral scratch blue decoration. *Second row, left to right:* English wares represented by white salt-glazed stoneware with floral scratch-blue decoration; enameled overglazed white salt-glazed stoneware; and dark blue transfer-printed pearlware. *Bottom row:* slip-decorated and black manganese-glazed, red-bodied earthenwares (Photographer: Lindsay Lee, November 2011) [HRI Neg,#11017/D10:02].



Photograph 3.27. Reedy Island Cart Road Site 4, Locus 2. Selected glass artifacts from the plowzone. *Top row, left to right:* three dark olive green spirits bottle fragments, the first exhibits a string closure. *Bottom row:* a blue and green faceted glass sleeve link or button insert. Faceted glass inserts have been found in Maryland on sites dating from *circa* 1675 to 1765 and from the Roosevelt Inlet shipwreck *circa* 1772 to 1800 (Photographer: Lindsay Lee, November 2011) [HRI Neg,#11017/D10:03].

Photograph 3.28. Reedy Island Cart Road Site 4, Locus 2. Gunflint and flint fragments from the plowzone. *Left to right:* a flake or fragment from a "blonde" gunflint; a fragment or flake from a gray gunflint; and a opaque white, thermally altered gunflint (Photographer: Lindsay Lee, November 2011) [HRI Neg,#11017/D10:04].

Photograph 3.29. Reedy Island Cart Road Site 4, Locus 2. Selected metal artifacts from the plowzone [Context 1]. *Top row, left to right:* a cast iron cauldron body fragment with a casting seam; a triangular cut piece of brass of indeterminate function. *Bottom row:* a large brass decorative horse tack (Photographer: Lindsay Lee, November 2011) [HRI Neg,#11017/D10:01].

Photograph 3.30. Reedy Island Cart Road Site 4, Loci 4 and 5. Wrought and sheet iron "Fitch" type curry combs used in horse and cattle grooming. *Top:* the remains of a curry comb showing the individual angled ribbons made from sheet metal recovered from Locus 5, Trench 7, the ditch fill [Context 27] of the cart road. *Bottom:* the wrought iron spine from a curry comb from Locus 4, general provenience (Photographer: Lindsay Lee, November 2011) [HRI Neg,#11017/D10:06].

Chapter 4

EVALUATION OF SIGNIFICANCE AND RECOMMENDATIONS

A. DATA SUMMARY

The following cultural features and artifacts identified during the Phase II archaeological investigations at the Reedy Island Cart Road Site 4 are considered key for the interpretation and evaluation of the site:

1. A scatter of 18th-century artifacts in Locus 2 and Locus 4. There was a very low artifact recovery in Locus 5.
2. Three examples of "Fitch"-type curry combs, a type normally associated with the grooming of Cattle or oxen.
3. Several cast iron cauldron fragments.
4. One possible structural feature (19th-century post pit) in Locus 2, Excavation Unit 5.
5. A pair of parallel ditch features, traced by geophysical survey and conventional archaeological methods for a distance of approximately 650 feet. The ditches are approximately 12 feet apart on center, and the berm between them is between seven and eight feet wide. The uniform ditch fills contain very few artifacts but included one of the curry comb pieces (Trench 7).
6. Along the berm were clusters of chiefly square or rectangular post pits, which contained square, rectangular or circular posts. The clusters were generally about 10 feet apart.
7. 1,803 historic and 203 prehistoric artifacts from all loci and trenches.

B. HISTORIC CONTEXT, PROPERTY TYPES AND INTEPRETATIONS

Loci 2 and 4 are part of a larger 18th-century site that may be a farmstead in the ownership of the Armstrong family for several generations in the 18th and early 19th centuries. The Phase I investigations identified a house site, and a second area of intensive 18th-century activity, to the north (Loci 1 and 3). This site, like others on the U.S. Route 301 Corridor, has both a predicted association with potable and navigable water sources, and in this case also a strong linkage to the predicted line of one of the cart roads linking the upper Chesapeake (especially the Bohemia River) with the Delaware drainages (particularly the Appoquinimink and nearby Reedy Island). The property lines reconstructed from the early deeds show that the alignment of the parallel ditches lie on a boundary between two substantial landholdings, and the boundary delineation probably used the pre-existing line of this cart road.

There are therefore two components of this site to be interpreted and evaluated: the two loci that lie within the probable farmstead, and the ditches and their associated features.

While the two loci are considered likely to reflect concentrations of activity in the 18th century, extensive testing failed to identify any cultural features that indicated the presence of an actual structure at either location. A probable 19th-century post pit in Locus 2 was similar in character to those identified on the berm between the ditches in Locus 5. At this point it is considered likely that these loci do represent activity areas that may well have included buildings (perhaps on-ground log or frame structures). Locus 2 produced

considerably more artifacts than 4, with a heavy emphasis on redwares in the ceramic assemblage. On the basis of this slight evidence it might be proposed that activity at Locus 2 included dairying, while Locus 4 was perhaps a barn or animal pen (on the basis of the curry comb find). These are no more than testable suggestions.

The parallel ditches, and the post pits on the berm between them, present interpretational challenges. A minimalist interpretation would see the ditches as drainage features on each side of a long-established fence line with regularly replaced posts spaced at about 10 foot intervals. Against this view is the different character of the ditch fills from that of the post pits. The later are generally more humic and darker that the uniform, brown soils of the ditch fills, and on this admittedly subjective basis the posts appear to be later. The absence of datable materials from most of these contexts renders absolute and relative dating very difficult.

The very even and consistent character of the ditches, with their flat bottoms and shallow-angled sides, was noted in the excavations. While the contours of the field (sloping very gradually down towards the east-southeast in the area of the ditches) would enable them to function as drainage features to catch runoff from the surrounding areas, there is no physical evidence to indicate that they did so. They are definitely not features produced by modern motorized farm machinery. These were observed in several places (Trench 5 in particular) and are much more irregular, shallower, filled with darker plowzone soils, and usually include tire impressions.

The location of the ditches and the understanding that the Reedy Island Cart Road crossed the landscape in this area does suggest that these features are related to the road. During the excavation the idea was entertained that the ditches themselves represent the location of sled runners or wheels, although the 12-foot separation seems rather wide. An alternative explanation is that the ditches were designed to catch runoff from the berm. The subsoil in this area, while fairly well drained, bakes extremely hard on exposure to the sun, and freezes hard in winter also. If the berm was therefore kept free of loose mud and dirt it would form a usable surface for perhaps six months of the year. It might be objected that if this was the case then at least some evidence of use by wagons, carts or pack animals should be present in the form of ruts or hoof-prints. It does however seem probable that there has been deflation of the soil profile here as a result of historic and modern plowing, and so such evidence might well have been destroyed.

The possible configuration of the road is shown in Figure 4.1. If this interpretation is correct, the berm was a narrow but usable roadbed, able for example to accommodate the standard 4-foot-8½-inch wheel separation of cart or wagon axles on English-tradition vehicles, and even at a pinch allowing for an overall vehicle width of about seven feet for a Conestoga-type wagon. In this context it is however worth remembering that these routes are termed “cart roads” in contemporary documents (Photograph 4.1). This is presumably in contrast to “wagon roads” designed for heavier traffic. The expected primary use of these cart roads was evidently by light, two-wheeled carts and probably by pack animals. The width of the berm would of course preclude any ability of two vehicles to pass each other. If boats were indeed transported along this route, as they were documented as being on the Bohemia Landing to Appoquinimink Road, the use of the ditches as guides for sled runners seems to be indicated. Although the evidence is far from conclusive, it is considered to be sustainable, and testable at other locations.

The main Period of Significance of the site falls within the following periods as defined in the Delaware Historic Preservation Plan: 1630-1730± Exploration and Frontier Settlement; 1730-1770±

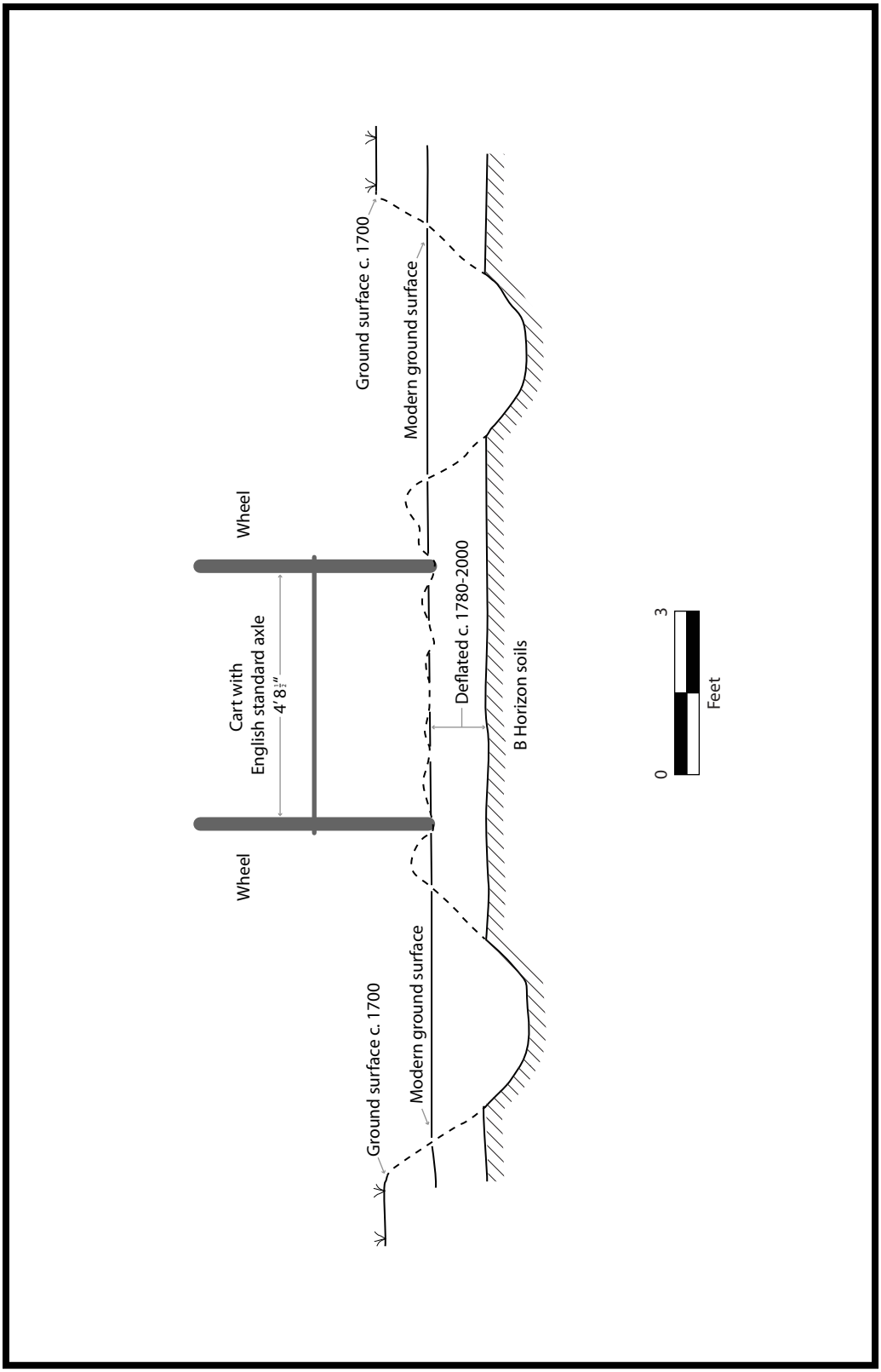


Figure 4.1. Reconstructed Profile of Cart Road in Locus 5 of the Reedy Island Cart-Road Site 4 [7NC-F-153]. Profile assumes the loss of a minimum of one foot of soil since the road was abandoned about 1780. The profile shows how the berm is wide enough for a cart with a standard distance of 4' 8 1/2" between the wheels. The flat-bottomed ditches may have served as guides for sled runners.

Photograph 4.1. Replica ox-cart carrying barrels, Colonial Williamsburg. Source: Crews 2009.

Intensified and Durable Occupation; and 1770-1830± Early Industrialization. The earlier period is included because there is a small amount of material from the site dating to the late 17th and early 18th centuries.

The site is considered to be relevant to the research domains of Agriculture, Transportation and Communication, and Settlement Patterns and Demographic Change identified in the Delaware Historical Archaeological Resources Management Plan (de Cunzo and Catts 1990:16-22).

There are no pre-existing historic contexts that appear to apply to this site. Several contexts were proposed in the Phase II study of the Levels Road Site (Hunter Research, Inc. 2011). Two of these are also applicable here:

1. Landings and Cart Roads

Like the Rumsey Site at Levels Road, the Reedy Island Cart Road Site 4 lies along the historically important transportation corridor between the Bohemia and Appoquinimink Rivers. This corridor was recognized in the early 1660s by Augustine Herrman as a geographically strategic location for carrying on commerce between the Delaware Bay and the upper eastern shore of the Chesapeake Bay. Herrman's Cart Road to Appoquinimink formed one of the earliest and most significant connections linking the upper Chesapeake region with Delaware and Pennsylvania. At New Castle, goods could be loaded aboard ships bound for Dutch New York or Europe. As described in Hunter Research's *Phase IA Cultural Resources Survey, U.S. Route 301, Section 2* (Revised November 2009), a network of cart roads branching from Herrman's Cart Road developed from the 1660s to 1680s.

At its inception, the cart road network was intended to strengthen the ties of trade between the Dutch in Delaware and the English then moving into the upper Chesapeake. Herrman likely intended to use the road to circumvent the Navigation Act of 1661, which restricted English trade in tobacco with the Dutch. The network of roads as it developed during the colonial period is shown on several important maps including the Eastburn map of 1737, the Rumsey map of *circa* 1740, the Mason map of 1768, and the Faden map of 1778. Research into smuggling and contraband, as described below, strengthens the perception of this road as a vital overland link that lay largely beyond the scrutiny of customs officials.

2. Smuggling and Contraband

Supplemental research for the Levels Road study identified smuggling and contraband as an important theme related to the general area lying between the upper eastern shore of the Chesapeake Bay and the Delaware River. In general terms, this smuggling appears to have involved ships lying off of Reedy Island or calling on the Appoquinimink Creek to avoid the customs agents in Philadelphia. At these locations, ships' captains could offload goods for transport across St. Georges Hundred to the Chesapeake. Chesapeake planters could ship tobacco or other marketable goods back across the watershed avoiding the import duties of the more tightly regulated Maryland and Virginia ports. Delaware with its historical ties to the Dutch both in the Old and New Worlds offered potentially lucrative contacts for shipping tobacco outside of the networks regulated by the Navigation Acts. The disputed boundary between Maryland, Pennsylvania and Delaware and the difficulties that the colonies' officials faced in identifying their jurisdictions only served to abet illicit activity.

American avoidance of the Navigation Acts was ongoing throughout the colonial period and has been long noted by historians. Historic documentation of smuggling is fragmentary at best, as would be expected. Existing documentation is almost always from the point of view of the officials who attempted to uphold

the laws governing trade, particularly during periods of time when the English government was energetically asserting imperial control. This documentation must be interpreted carefully but it does point to illicit trade as a common and engrained activity within colonial society that became only worth noting when tensions ran high with the mother country or a particularly energetic governor or proprietor. By the eve of the American Revolution, many colonists had come to see the Navigation Acts not only as trampling on civic rights of representative government but impinging on their customary economic relationships with one another and the rest of the world.

Two periods of time stand out for smuggling activities since they relate to times when smugglers would have been forced to be particularly wary, and perhaps forced to move with some extra care. The first period is the 1680s to 1690s in the tumultuous period following the transition from Dutch to English rule in Delaware. The second period is the mid-1760s to 1770s in the tense years leading up to the American Revolution.

The first period in the 1680s and 1690s followed William Penn's receipt of his Royal Charter in 1681. Information about smuggling during this period figures prominently in the writings of Maryland Governors Edward Randolph and Francis Nicholson both of whom decried the illegal trade between Maryland and Delaware (then the Lower Counties of Pennsylvania) and the ability of European ships, many sailing directly from Scotland, to circumvent the Navigation Acts. The complicity of Maryland planters in this trade was largely overlooked. As recounted by historian Gary B. Nash, this eventually led to an important but little known episode in Delaware history when in 1696 Governor Nicholson used military force in an ill-fated attempt to invade Delaware and enforce the Navigation Acts on the less-than-compliant population of the Town of New Castle. Nicholson was countered by local militia who thwarted his attempt to seize a suspect ship. Pennsylvania's Governor William Markham was deeply offended and Nicholson eventually beat a strategic retreat back to Maryland. When reported to the Court of St. James, the episode only served to deepen the disputes between William Penn and Lord Baltimore over the boundary between their proprietary grants (Nash 1965:229-239).

The second period of heightened scrutiny of smuggling occurred between 1763 and extended through the American Revolution. From the mid-1760s to the start of the Revolution, the prime focus of smuggling was to avoid duties on goods imported from the Caribbean and continental Europe. If Philadelphia customs records are any indication, this trade was largely unregulated outside of the city's immediate port. As in past times, goods delivered to Delaware could be transshipped a short distance to points in Maryland thus avoiding the Chesapeake ports of call and the more numerous customs officials and British ships that prowled the Chesapeake and regulated the trade in tobacco.

C. CRITERIA OF EVALUATION

No investigated components of the Reedy Island Cart Road 4 site are considered to meet National Register significance Criteria A, B or C. Historical research does not indicate association with notable historical figures (Criterion B) or with significant events (Criterion A). Consideration was given to eligibility under Criterion C (for properties showing "the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction"). Guidance in Little *et al.* 2000 indicates that Criterion C may be applicable to archaeological properties where they show a "pattern of features common to a particular class of resources", or where relatively intact architec-

tural remains have been buried through either cultural or natural processes. At this point in research there are insufficient analogues to the proposed road features in Locus 5 for these considerations to be applied.

Consideration of eligibility is therefore focused on Criterion D, which focuses on the ability of a property to yield information important in history.

The National Register Guidelines identify two characteristics necessary for an archaeological property to meet Criterion D:

1. Data Sets

This refers to the demonstrated presence of artifacts and features in physical relationships that will permit analysis pertinent to relevant research questions. The informative archaeological data sets at the Reedy Island Cart Road 4 site chiefly comprise the parallel ditches following the early property line, and the presence of curry combs.

2. Relevant Research Themes, and the Ability of the Data Sets to Address Them

The existing state contexts and research trends, site-specific background research, and the analysis of the archaeological data from the site suggests the following as research themes that are in accord with the overall state plan objectives: Landings and Cart Roads; and Smuggling and Contraband.

Loci 2 and 4 fail to meet Criterion D, in that they do not have data sets that integrate plowzone artifact data with cultural stratigraphy and features. This is in contrast to Loci 1 and 3, which appear to posses this level of integrity and therefore to meet Criterion D. In National Register parlance, Loci 2 and 4 are essentially considered here to be non-contributing components of Reedy Island Cart Road Site 4. It is not however recommended that the site boundary be adjusted, since Loci 2 and 4 do appear to reflect genuine activity areas of the site, even if their information potential is limited.

The parallel ditches and the spatially associated post pits and other features are somewhat challenging to evaluate. If it could be conclusively demonstrated that the ditches and the berm do indeed represent features of the late 17th- and 18th-century cart road there would be little question of their eligibility under Criterion D and (arguably) under Criteria C and possibly B. The alignment of the ditches along an early property boundary line, and the contrast between the fills of the features and those of the probably later post pits on the berm, have been presented here as arguments in support of the cart road hypothesis. Additionally it has been argued that the berm was wide enough and firm enough to support standard-sized carts (and certainly smaller vehicles such as narrow tobacco wagons), although deflation has removed key evidence to support this suggestion.

The post pits appear to relate to a long-lasting fence line post-dating the cart road (and therefore probably 19th and 20th century). Although containing quite specific structural information, these are considered to be examples of a commonplace feature and not to meet eligibility criteria.

National Register guidance additionally identifies seven aspects or qualities of integrity under Criterion D:

Location: the site meets National Register integrity for location, since it lies at its original location, the general character of which remains comprehensible.

Design: under Criterion D, the design component of integrity refers to the preservation of intra-site patterning within the archaeological record, expressed as

"the preservation of distributional information in the plowzone, and the presence of subplowzone features" (Bedell 2002).

Setting: The setting of the site contributes modestly to its significance.

Materials: Under Criterion D, "integrity of material is usually described in terms of the presence of intrusive artifacts/features, the completeness of the artifact/feature assemblage, or the quality of artifact or feature preservation" (Bedell 2002). Locus 5 has demonstrated good quality preservation of features, even though artifact recovery has been very limited.

Workmanship: This quality is not considered relevant to Locus 5.

Feeling and Association: The site does not possess either of these qualities.

On balance it is considered that the berm and ditches meet the tests in the National Register guidelines for archaeological properties, and therefore that these features are eligible for listing in the National Register of Historic Places.

D. ASSESSMENT OF EFFECT, RECOMMENDATIONS AND CONCLUSIONS

It is concluded that the quality of the information from the two loci (2 and 4) that fall within the farmstead is not sufficient to make these individually eligible components of the Reedy Island Cart Road Site 4 (7NC-F-153, N14533). No additional treatment is considered necessary on these resources, particularly since the more significant loci (1 and 3) are to be protected by covenant and will be preserved in place.

While their date and function have not been precisely defined in this study, the identification of two parallel ditch features and the intervening berm at the predicted alignment of one of the early trans-peninsular cart roads is in this consultant's opinion, sufficient grounds for determining them to be eligible under Criterion D. This determination is supported by their placement within two proposed historic contexts developed for one of the other U.S. Route 301 investigations. The physical identification of a transportation feature related to these contexts is of considerable importance.

The construction of the new alignment of U.S. Route 301 at this location will comprise an adverse effect on this eligible property. This adverse effect should be addressed according to the provisions of the 2007 Memorandum of Agreement for the project signed by the Federal Highway Administration, the Delaware State Historic Preservation Officer, the Maryland State Historic Preservation Officer and the Delaware Department of Transportation.

Road design considerations mean that there is no preservation-in-place treatment option for the Locus 5 resources. Documentation of adversely affected features through an archaeologically based research program is an alternative treatment. However, it is considered that the information potential of Locus 5 under Criterion D has been largely exhausted in the current Phase II studies, and that further work would largely replicate the information already obtained at this location. Alternative Mitigation is therefore recommended.

The concept of Alternative (sometimes also characterized as Creative) Mitigation of adverse effects to Historic Properties comes out of the requirements placed on Federal Agencies under 36CFR 800.6. Agencies are charged with resolving adverse effects of their undertakings by finding ways to "avoid, minimize or mitigate" those effects. This process calls for consultation with the State Historic Preservation

Office (and other consulting parties as appropriate) to develop specific plans of treatment for addressing the adverse effects.

In its *Recommended Approach for Consultation on Recovery of Significant Information from Archeological Sites*, the Advisory Council on Historic Preservation notes that "Appropriate treatments for affected archeological sites, or portions of archeological sites, may include active preservation in place for future study or other use, recovery or partial recovery of archeological data, public interpretive display, *or any combination of these and other measures*" (Advisory Council on Historic Preservation 2010, italics added).

The American Association of State Highway and Transportation Officials (AASHTO), defines mitigation as including "any actions that help to offset or compensate for a project's negative impacts on historic properties". While noting that standard mitigation methods have been developed by some states and agencies, AASHTO also urges the development of "creative approaches to the mitigation of adverse effects in order to address the interests of all parties". (AASHTO 2007:17).

Increasingly, there has been a tendency to address adverse effects to certain types of archaeological properties and sites by the use of such creative approaches. These resource types include "marginally eligible sites and sites for which no historic context exists" and "..'sliver takes' of clearly significant sites." Such approaches have included "historic contexts and other studies that are needed for the better evaluation and management of archaeological sites", as well as a considerable range of other measures that have been implemented in different states (Transportation Research Board 2005:30-31; 34).

Since the construction of U.S. Route 301 will adversely affect only a portion of the site, an alternative mitigation approach is an appropriate treatment for the adverse effect.

Appendix E below presents the detailed proposal for supplementary documentation of another portion of the cart road alignment through LIDAR analysis, geophysical survey, limited excavation, and survey of a crossing of the Spring Mill Branch. This proposal is structured as testable hypotheses on the circumstances under which physical remains of these early cart roads will survive as archaeologically detectable features. It is intended as both a specific contribution to the study of the cart road network, and, more broadly, as a methodological contribution to the design of investigations on this property type at other locations.

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Appendix A

ARTIFACT CATALOG

APPENDIX A
ARTIFACT INVENTORY

7NC-F-153 Locus 2 Excavation Unit 5 Context 1 **Catalog # 34**

2	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 4g, Locus 2	Row #	0
1	Historic Building Materials, Coarse Earthenware, brick, fragment, red, C, burned, 28g, Locus 2	Row #	0
20	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 22g, Locus 2	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, D, Locus 2	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, slip decorated interior, clear exterior, clear lead, E, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed, clear with brown speckling, M, surface missing, Locus 2, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, F, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, handle, glazed both surfaces, brown manganese, G, Locus 2, 1740 - 1870	Row #	0
8	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed, black, L, surface missing, multiple vessels, Locus 2, 1700 - 1800	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear with brown speckling, H, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, K, Locus 2, 1740 - 1870	Row #	0
12	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, N, surface missing, multiple vessels, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, hollow ware, lid, salt glaze, Q, Locus 2, 1720 - 1805	Row #	0
2	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, hollow ware, body, salt glaze, scratch, blue, P, Locus 2, 1744 - 1783	Row #	0
2	Historic Energy, Coal, fragment, R, .5g, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, olive green, T, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, flat, fragment, olive green, S, Locus 2	Row #	0
1	Prehistoric Lithics, Chert, debitage, flake fragment, black, U, Locus 2	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, blackened, cortex, V, 11g, Locus 2	Row #	0

Total Artifacts in Context 1: 64

Total Artifacts in Locus 2 Excavation Unit 5 : 64

7NC-F-153 Locus 2 Excavation Unit 6 Context 1 **Catalog # 35**

4	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 14g, Locus 2	Row #	0
2	Historic Building Materials, Ferrous metal, nail, fragment, B, corroded, Locus 2	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, C, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, rim, slip decorated interior, clear exterior, clear lead, E, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated, clear lead, F, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, D, burned, Locus 2, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, K, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim, glazed interior, black, H, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, clear lead, G, surface missing, Locus 2, 1700 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, M, surface missing, Locus 2, 1740 - 1870	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, N, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, black, L, surface missing, Locus 2, 1700 - 1800	Row #	0
1	Historic Clothing Related, Copper alloy, rivet, fragment, P, corroded, Locus 2	Row #	0
4	Historic Energy, Coal, fragment, Q, .5g, Locus 2	Row #	0
2	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, R, one fragment thin walled, possible lamp chimney, Locus 2	Row #	0
1	Historic Personal Items, Glass, jewelry, >90% complete, green, molded, S, Locus 2	Row #	0
1	Historic Unidentified, Slag, fragment, T, melted, .5g, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, brown, cortex, V, 10 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, cortex, U, 20 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, cortex, W, 10 mm class, Locus 2	Row #	0

Total Artifacts in Context 1: 35

Total Artifacts in Locus 2 Excavation Unit 6 : 35

7NC-F-153 Locus 2 Excavation Unit 7 Context 1 **Catalog # 36**

4	Historic Building Materials, Coarse Earthenware, brick, fragment, red, A, 9g, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, B, Locus 2, 1700 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, C, Locus 2, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, D, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, hollow ware, body, enameled overglaze, blue, F, Locus 2, 1755 - 1780	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, hollow ware, body, decorated both surfaces, scratch, blue, E, Locus 2, 1744 - 1783	Row #	0
2	Historic Glass Vessel Fragments, Glass, bottle, body, olive green, G, two vessels, Locus 2	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, H, 40g, Locus 2	Row #	0

Total Artifacts in Context 1: 15

Total Artifacts in Locus 2 Excavation Unit 7 : 15

7NC-F-153 Locus 2 Excavation Unit 8 Context 1 **Catalog # 37**

42	Historic Building Materials, Coarse Earthenware, brick, fragment, red, A, 93g, Locus 2	Row #	0
8	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, B, burned, 130g, Locus 2	Row #	0
1	Historic Building Materials, Coarse Earthenware, brick, fragment, glazed, orange, C, burned, 29g, Locus 2	Row #	0
14	Historic Building Materials, Ferrous metal, nail, fragment, D, corroded, Locus 2	Row #	0
4	Historic Building Materials, Glass, window, fragment, light aqua, E, Locus 2	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, slip decorated interior, clear exterior, l, clear lead, F, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, base, slip decorated interior, unglazed exterior, clear lead, G, Locus 2, 1740 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated, clear lead, H, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base and body, glazed both surfaces, cordoned, brown manganese, N, Locus 2, 1740 - 1870	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

8	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, R, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim, glazed both surfaces, straight rim, brown manganese, Q, Locus 2, 1740 - 1870	Row #	0
16	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, P, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear with brown speckling, K, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim, glazed interior, brown manganese, S, Locus 2, 1740 - 1870	Row #	0
8	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed interior, brown manganese, T, Locus 2, 1740 - 1870	Row #	0
18	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed, brown manganese, U, surface missing, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, clear lead, M, surface missing, Locus 2, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed interior, clear with brown speckling, L, Locus 2, 1740 - 1870	Row #	0
21	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, V, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Earthenware, tin enameled, buff body, unidentified, fragment, light blue, AB, surface missing, Locus 2, 1640 - 1840	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, plate, cavetto, green, W, Locus 2, 1740 - 1785	Row #	0
5	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, X, surface missing, Locus 2, 1762 - 1820	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Pearlware, unidentified, rim, transfer printed, blue, Y, surface missing, Locus 2, 1795 - 1840	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Pearlware, unidentified, fragment, AA, surface missing, Locus 2, 1775 - 1840	Row #	0
2	Historic Ceramic Vessel Sherds, Stoneware, grey body, hollow ware, body, salt glaze, clear lead, AD, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, unidentified, fragment, AC, Locus 2, 1720 - 1805	Row #	0
20	Historic Energy, Coal, fragment, AE, 13g, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, bottle, finish, unidentified finish, olive green, hand applied, AH, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, AF, Locus 2	Row #	0
2	Historic Glass Vessel Fragments, Glass, curved, fragment, olive green, AK, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, light aqua, AG, Locus 2	Row #	0
1	Historic Recreation/Activities, Ball Clay, smoking pipe, bowl, fragment, AL, Locus 2	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, AN, corroded, flat iron fragment, Locus 2	Row #	0
1	Historic Unidentified, Slag, fragment, AM, .5g, Locus 2	Row #	0
1	Prehistoric Lithics, Chert, debitage, flake fragment, black, AP, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, core, brown, AX, L 27.8mm, W 16mm, T 10mm, 5g, Locus 2	Row #	0
2	Prehistoric Lithics, Jasper, debitage, flake fragment, red, cortex, AU, Locus 2	Row #	0
2	Prehistoric Lithics, Jasper, debitage, flake fragment, yellow/brown, AV, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, flake fragment, brown, AT, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, primary reduction flake, yellow/brown, cortex, BA, 50 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, brown, cortex, AR, 10 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, cortex, AQ, 20 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, AS, 10 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, tested cobble, brown, cortex, AY, L 34mm, W 31mm, T 18mm, 26g, one bifacial edge, Locus 2	Row #	0
1	Prehistoric Lithics, Quartz, debitage, flake fragment, white, AW, Locus 2	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

1	Prehistoric Lithics, Quartz, debitage, primary reduction flake, white, cortex, BB, 60 mm class, Locus 2	Row #	0
3	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, BC, 146g, Locus 2	Row #	0

Total Artifacts in Context 1: 209

7NC-F-153 Locus 2 Excavation Unit 8 Context 5 **Catalog # 45**

1	Indeterminate Unidentified, Daub, fragment, A, .5g, Locus 2	Row #	0

Total Artifacts in Context 5: 1

Total Artifacts in Locus 2 Excavation Unit 8 : 210

7NC-F-153 Locus 2 Excavation Unit 9 Context 1 **Catalog # 38**

2	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 9g, Locus 2	Row #	0
20	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 45g, Locus 2	Row #	0
1	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, C, burned, 66g, Locus 2	Row #	0
4	Historic Building Materials, Ferrous metal, nail, fragment, D, corroded, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, slip decorated interior, clear exterior, clear lead, F, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated interior, clear lead, E, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear with brown speckling, M, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim, glazed both surfaces, black, K, possible milk pan, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, G, Locus 2, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, H, greenish tint, Locus 2, 1700 - 1850	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, L, Locus 2, 1700 - 1800	Row #	0
4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, brown manganese, N, surface missing, Locus 2, 1740 - 1870	Row #	0
4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, black, P, surface missing, Locus 2, 1700 - 1800	Row #	0
12	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, Q, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, hollow ware, body, glazed, yellow/brown, R, pineapple, Locus 2, 1750 - 1800	Row #	0
5	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, S, Locus 2, 1762 - 1820	Row #	0
1	Historic Clothing Related, Brass, buckle, tongue, fragment, T, corroded, Locus 2	Row #	0
3	Historic Energy, Coal, fragment, U, 1.5g, Locus 2	Row #	0
3	Historic Glass Vessel Fragments, Glass, bottle, body, olive green, V, Locus 2	Row #	0
1	Prehistoric Lithics, Chert, debitage, whole flake, black, X, 20 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, cortex, Y, 20 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, projectile point, stemmed, whole, red, W, L 31.5mm, W 23.8mm, T 8.5mm, 5g, straight beveled base, contracted stem, horizontal shoulders, straight beveled margins, acute distal end, biconvex in cross section, random flaking, Locus 2	Row #	0
1	Prehistoric Lithics, Quartz, debitage, whole flake, white, AA, 10 mm class, Locus 2	Row #	0

Total Artifacts in Context 1: 75

APPENDIX A (Cont.)
ARTIFACT INVENTORY

Total Artifacts in Locus 2 Excavation Unit 9 : 75

7NC-F-153 Locus 2 Excavation Unit 10 Context 1		**Catalog #**	**39**
18	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 76g, Locus 2	Row #	0
3	Historic Building Materials, Ferrous metal, nail, fragment, B, corroded, Locus 2	Row #	0
2	Historic Building Materials, Glass, window, fragment, light aqua, M, Locus 2	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, rim and body, white slip ground interior, clear exterior, clear lead, C, two vessels, Locus 2, 1740 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, pie plate, rim, slip decorated interior, piecrust rim, clear lead, D, Locus 2, 1740 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, F, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, E, Locus 2, 1700 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed interior, black, G, Locus 2, 1700 - 1800	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, K, surface missing, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, black, H, surface missing, Locus 2, 1700 - 1800	Row #	0
8	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, L, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, N, surface missing, Locus 2, 1762 - 1820	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Pearlware, unidentified, fragment, unidentifiable decoration, blue, P, Locus 2, 1775 - 1840	Row #	0
1	Historic Energy, Coal, fragment, Q, .5g, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, R, melted, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, olive green, S, Locus 2	Row #	0
2	Prehistoric Lithics, Jasper, debitage, flake fragment, brown, V, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, U, 20 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, thermally-altered rock, fragment, reddened, cortex, T, 7g, Locus 2	Row #	0
3	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, W, 186g, Locus 2	Row #	0

Total Artifacts in Context 1: 55

7NC-F-153 Locus 2 Excavation Unit 10 Context 3		**Catalog #**	**40**
1	Indeterminate Unidentified, Daub, fragment, A, burned, 3g, possible daub, Locus 2	Row #	0
4	Prehistoric Flora, Wood, carbon sample, fragment, B, 56g, Locus 2	Row #	0

Total Artifacts in Context 3: 5

Total Artifacts in Locus 2 Excavation Unit 10 : 60

7NC-F-153 Locus 2 Excavation Unit 11 Context 1		**Catalog #**	**41**
3	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 43g, Locus 2	Row #	0
3	Historic Building Materials, Ferrous metal, nail, fragment, B, corroded, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim, glazed interior, brown manganese, C, exterior surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed interior, black, D, Locus 2, 1700 - 1800	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, E, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, F, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
4	Historic Energy, Coal, fragment, G, 5g, Locus 2 *	Row #	0
1	Historic Unidentified, Slag, fragment, H, .5g, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, cortex, K, 30 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, cortex, L, 10 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Quartz, biface, early stage, fragment, white, M, Locus 2	Row #	0

Total Artifacts in Context 1: 18

Total Artifacts in Locus 2 Excavation Unit 11 : 18

7NC-F-153 Locus 2 Excavation Unit 12 Context 1 **Catalog # 42**

1	Historic Agriculture/Equestrian, Ferrous metal, horseshoe, fragment, A, corroded, Locus 2	Row #	0
14	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 30g, Locus 2	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, C, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base, glazed interior, black, D, Locus 2, 1700 - 1800	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, E, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
2	Historic Energy, Coal, fragment, F, 2g, Locus 2 *	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, H, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, amber, G, Locus 2	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, N, flat, square iron fragment, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, L, 20 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, M, 10 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, spokeshave, red, cortex, K, edge damage, L 31.7mm, W 20.7mm, T 10.2mm, 6g, 11.35 mm diameter, Locus 2	Row #	0
2	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, P, 382g, Locus 2	Row #	0

Total Artifacts in Context 1: 29

7NC-F-153 Locus 2 Excavation Unit 12 Context 3 **Catalog # 43**

2	Indeterminate Flora, Wood, carbon sample, fragment, B, 30g, two viles, Locus 2	Row #	0
1	Indeterminate Unidentified, Daub, fragment, A, burned, 10g, Locus 2	Row #	0

Total Artifacts in Context 3: 3

Total Artifacts in Locus 2 Excavation Unit 12 : 32

7NC-F-153 Locus 2 Excavation Unit 13 Context 1 **Catalog # 44**

9	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 107g, Locus 2	Row #	0
2	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, B, 44g, Locus 2	Row #	0
2	Historic Building Materials, Ferrous metal, nail, fragment, C, corroded, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, white slip ground interior, clear exterior, clear lead, D, Locus 2, 1740 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, H, burned, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, F, Locus 2, 1740 - 1870	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, clear lead, E, surface missing, Locus 2, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, brown manganese, G, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, K, surface missing, Locus 2, 1762 - 1820	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, unidentified, unidentified, fragment, L, burned, surface missing, Locus 2	Row #	0
2	Historic Energy, Coal, fragment, M, 1g, Locus 2	Row #	0
5	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, N, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, spall, fragment, red, cortex, P, 20 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, Q, 42g, Locus 2	Row #	0

Total Artifacts in Context 1: 29

Total Artifacts in Locus 2 Excavation Unit 13 : 29

7NC-F-153 Locus 2 Excavation Unit 14 Context 1 **Catalog # 46**

32	Historic Building Materials, Coarse Earthenware, brick, fragment, red, A, 90g, Locus 2	Row #	0
2	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, B, burned, 34g, Locus 2	Row #	0
4	Historic Building Materials, Ferrous metal, nail, fragment, wrought, C, corroded, Locus 2	Row #	0
2	Historic Building Materials, Glass, window, fragment, light aqua, D, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, white slip ground interior, clear exterior, clear lead, E, Locus 2, 1740 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, glazed both surfaces, clear lead, F, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, unglazed, P, Locus 2, 1740 - 1870	Row #	0
5	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, H, Locus 2, 1740 - 1870	Row #	0
4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, K, Locus 2, 1700 - 1800	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, L, burned, Locus 2, 1740 - 1870	Row #	0
7	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed interior, brown manganese, M, Locus 2, 1740 - 1870	Row #	0
7	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, Q, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, brown manganese, N, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, slip decorated interior, clear lead, G, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Porcelain, Chinese Export, hollow ware, lid, blue, R, Locus 2, 1700 - 1840	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, buff body, hollow ware, body, salt glaze exterior, browned interior, clear lead, U, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, hollow ware, body, salt glaze, S, Locus 2, 1720 - 1805	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, unidentified, fragment, salt glaze, scratch, blue, T, Locus 2, 1744 - 1783	Row #	0
5	Historic Energy, Coal, fragment, V, 20g, Locus 2	Row #	0
1	Historic Fauna, Shell, unidentified, fragment, W, .2g, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, bottle, body, olive green, X, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, flake fragment, red, Y, Locus 2	Row #	0
3	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, AA, 143g, Locus 2	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

Total Artifacts in Context 1: 87

Total Artifacts in Locus 2 Excavation Unit 14 : 87

7NC-F-153 Locus 2 Excavation Unit 15 Context 1 **Catalog # 47**

1	Historic Agriculture/Equestrian, Ferrous metal, buckle, fragment, S, corroded, probable horse tack, Locus 2	Row #	0
14	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 28g, Locus 2	Row #	0
5	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 32g, Locus 2	Row #	0
2	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, C, burned, 35g, Locus 2	Row #	0
2	Historic Building Materials, Ferrous metal, nail, fragment, D, corroded, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, white slip ground interior, clear exterior, clear lead, F, Locus 2, 1740 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, pie plate, rim, slip decorated interior, piecrust rim, clear lead, E, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, H, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, G, Locus 2, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed interior, brown manganese, K, exterior surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed interior, black, L, Locus 2, 1700 - 1800	Row #	0
5	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, N, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, M, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, P, surface missing, Locus 2, 1762 - 1820	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, olive green, R, Locus 2	Row #	0
2	Historic Glass Vessel Fragments, Glass, flat, fragment, clear with yellow surfaces, Q, burned, Locus 2	Row #	0

Total Artifacts in Context 1: 44

Total Artifacts in Locus 2 Excavation Unit 15 : 44

7NC-F-153 Locus 2 Excavation Unit 16 Context 1 **Catalog # 48**

1	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, B, burned, 30g, Locus 2	Row #	0
5	Historic Building Materials, Coarse Earthenware, brick, fragment, red, A, 3g, Locus 2	Row #	0
1	Historic Building Materials, Ferrous metal, nail, fragment, C, corroded, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated interior, lid ledge, clear lead, D, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, F, Locus 2, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed, brown manganese, G, surface missing, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, H, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, clear lead, E, surface missing, Locus 2, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Jackfield-type, hollow ware, rim, glazed both surfaces, black, K, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, hollow ware, body, salt glaze, L, Locus 2, 1720 - 1803	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

2	Modern Unidentified, Plastic, tubes, fragment, yellowed, M, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, cortex, N, 10 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, P, 29g, Locus 2	Row #	0

Total Artifacts in Context 1: 23

Total Artifacts in Locus 2 Excavation Unit 16 : 23

7NC-F-153 Locus 2 Excavation Unit 17 Context 1 **Catalog # 49**

1	Historic Building Materials, Ferrous metal, nail, fragment, wrought, A, corroded, Locus 2	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, B, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, E, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, D, burned, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, large hollow ware, rim, glazed interior, brown manganese, C, probable milk pan, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, brown manganese, F, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, G, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Earthenware, unidentified, fragment, K, both surfaces missing, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, rim, molded design, green, H, surface missing, Locus 2, 1740 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, grey body, hollow ware, fragment, salt glaze, clear lead, N, exterior surface missing, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, hollow ware, body, salt glaze, scratch, blue, L, Locus 2, 1744 - 1783	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, unidentified, fragment, salt glaze, M, Locus 2, 1720 - 1805	Row #	0
1	Historic Energy, Coal, fragment, P, .5g, Locus 2	Row #	0
2	Historic Glass Vessel Fragments, Glass, curved, fragment, olive green, Q, Locus 2	Row #	0
1	Historic Recreation/Activities, Ball Clay, smoking pipe, bowl, fragment, S, Locus 2	Row #	0
1	Historic Recreation/Activities, Brass, thimble, fragment, R, Locus 2	Row #	0

Total Artifacts in Context 1: 18

Total Artifacts in Locus 2 Excavation Unit 17 : 18

7NC-F-153 Locus 2 Excavation Unit 24 Context 1 **Catalog # 56**

2	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, B, burned, 3g, Locus 2	Row #	0
19	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 54g, Locus 2	Row #	0
4	Historic Building Materials, Ferrous metal, nail, fragment, C, corroded, Locus 2	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed, brown manganese, K, surface missing, Locus 2, 1740 - 1870	Row #	0
8	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed, black, H, surface missing, Locus 2, 1700 - 1800	Row #	0
4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed interior, black, G, Locus 2, 1700 - 1800	Row #	0
4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, E, Locus 2, 1700 - 1800	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear with brown mottling, D, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, large hollow ware, rim, glazed interior, black, F, exterior surface missing, Locus 2, 1700 - 1800	Row #	0
11	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, L, surface missing, Locus 2, 1740 - 1870	Row #	0
4	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, N, surface missing, Locus 2, 1762 - 1820	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Jackfield-type, hollow ware, body, glazed both surfaces, black, M, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, grey body, hollow ware, body, salt glaze, clear lead, P, Locus 2	Row #	0
2	Historic Energy, Coal, fragment, Q, 1g, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, olive green, S, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, R, Locus 2	Row #	0
1	Historic Kitchen, Ferrous metal, cauldron, body, seam mark, cast, T, corroded, Locus 2	Row #	0
1	Historic Unidentified, Copper alloy, fragment, U, shield-shaped flat copper fragment, Locus 2	Row #	0

Total Artifacts in Context 1: 70

Total Artifacts in Locus 2 Excavation Unit 24 : 70

7NC-F-153 Locus 2 Excavation Unit 29 Context 1 **Catalog # 61**

1	Historic Building Materials, Ferrous metal, nail, fragment, A, corroded, Locus 2	Row #	0
1	Historic Energy, Coal, fragment, B, 1g, Locus 2	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, C, corroded, possible iron tool fragment, Locus 2	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, D, corroded, flat iron fragment, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, flake fragment, yellow/brown, F, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, flake fragment, red, cortex, H, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, cortex, E, 30 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, cortex, G, 20 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, K, 41g, Locus 2	Row #	0

Total Artifacts in Context 1: 9

Total Artifacts in Locus 2 Excavation Unit 29 : 9

7NC-F-153 Locus 2 Excavation Unit 30 Context 1 **Catalog # 62**

2	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, C, burned, 28g, Locus 2	Row #	0
2	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 4g, Locus 2	Row #	0
6	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 3g, Locus 2	Row #	0
2	Historic Building Materials, Ferrous metal, nail, fragment, D, corroded, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, clear lead, E, surface missing, Locus 2, 1700 - 1850	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, F, surface missing, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, G, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, H, surface missing, Locus 2, 1762 - 1820	Row #	0
8	Historic Energy, Coal, fragment, K, 9g, Locus 2	Row #	0
1	Historic Fauna, Bone, mammal, fragment, L, calcined, .5g, Locus 2	Row #	0

1	Prehistoric Ceramic Vessel Sherds, Quartz/mica temper, hollow ware, body, impressed exterior, M, burned, steatite-like inclusion could be decayed schist and incidental temper, probable Hell Island, Locus 2, Late Woodland	Row #	0
1	Prehistoric Lithics, Chert, debitage, flake fragment, black, N, Locus 2	Row #	0
3	Prehistoric Lithics, Jasper, debitage, whole flake, red, S, 10 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, cortex, P, 30 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, cortex, Q, 30 mm class, Locus 2	Row #	0
2	Prehistoric Lithics, Jasper, debitage, whole flake, red, R, 20 mm class, Locus 2	Row #	0

Total Artifacts in Context 1: 37

Total Artifacts in Locus 2 Excavation Unit 30 : 37

7NC-F-153 Locus 2 Excavation Unit 31 Context 1 **Catalog # 63**

8	Historic Building Materials, Coarse Earthenware, brick, fragment, red, A, 38g, Locus 2	Row #	0
1	Historic Building Materials, Ferrous metal, nail, fragment, B, corroded, Locus 2	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, C, Locus 2	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, L, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, D, Locus 2, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, glazed, clear lead, E, interior surface missing, Locus 2, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base and body, glazed both surfaces, black, F, Locus 2, 1700 - 1800	Row #	0
4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, G, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed exterior, black, H, interior surface missing, Locus 2, 1700 - 1800	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, K, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, P, corroded, horseshoe-like iron fragment, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, thermally-altered rock, fragment, reddened, cortex, M, 4g, Locus 2	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, N, 167g, Locus 2	Row #	0

Total Artifacts in Context 1: 24

Total Artifacts in Locus 2 Excavation Unit 31 : 24

7NC-F-153 Locus 2 Excavation Unit 32 Context 1 **Catalog # 64**

4	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 2g, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, slip decorated interior, clear exterior, clear lead, B, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, C, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed exterior, black, D, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base, glazed interior, black, E, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim, unglazed, G, interior surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, black, F, surface missing, Locus 2, 1700 - 1800	Row #	0

1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, K, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, H, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Prehistoric Lithics, Jasper, debitage, flake fragment, yellow/brown, L, Locus 2	Row #	0

Total Artifacts in Context 1: 14

Total Artifacts in Locus 2 Excavation Unit 32 : 14

7NC-F-153 Locus 2 Excavation Unit 33 Context 1 **Catalog # 65**

3	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, C, burned, 94g, Locus 2	Row #	0
4	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 45g, Locus 2	Row #	0
5	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 31g, Locus 2	Row #	0
4	Historic Building Materials, Ferrous metal, nail, fragment, D, Locus 2	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, E, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, slip decorated interior, clear exterior, clear lead, F, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated interior, clear lead, G, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, H, Locus 2, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base and body, glazed both surfaces, cordoned, black, L, Locus 2, 1700 - 1800	Row #	0
9	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, M, Locus 2, 1700 - 1800	Row #	0
10	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed, black, N, surface missing, Locus 2, 1700 - 1800	Row #	0
8	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, P, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, clear lead, K, surface missing, Locus 2, 1700 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Earthenware, tin enameled, buff body, unidentified, fragment, light blue, Q, surface missing, Locus 2, 1680 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Porcelain, Chinese Export, unidentified, base with foot ring, T, Locus 2, 1700 - 1840	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, R, surface missing, Locus 2, 1762 - 1820	Row #	0
2	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, hollow ware, body, salt glaze, scratch, blue, S, Locus 2, 1744 - 1783	Row #	0
2	Historic Fauna, Bone, mammal, unidentified, fragment, U, .2g, Locus 2	Row #	0
2	Historic Glass Vessel Fragments, Glass, bottle, body, olive green, W, two vessels, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, V, Locus 2	Row #	0

Total Artifacts in Context 1: 60

Total Artifacts in Locus 2 Excavation Unit 33 : 60

7NC-F-153 Locus 2 Excavation Unit 34 Context 1 **Catalog # 66**

9	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 5g, Locus 2	Row #	0
2	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, C, burned, 22g, Locus 2	Row #	0
4	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 10g, Locus 2	Row #	0
4	Historic Building Materials, Ferrous metal, nail, fragment, D, corroded, Locus 2	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

2	Historic Building Materials, Glass, window, fragment, light aqua, E, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip trailed interior, clear lead, F, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
5	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, L, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim, glazed both surfaces, black, H, Locus 2, 1700 - 1800	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed interior, brown manganese, M, Locus 2, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, K, Locus 2, 1700 - 1800	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, clear lead, G, surface missing, Locus 2, 1700 - 1850	Row #	0
15	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, Q, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
11	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, P, surface missing, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, brown manganese, N, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, hollow ware, rim, molded design, S, Locus 2, 1762 - 1820	Row #	0
2	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, R, surface missing, Locus 2, 1762 - 1820	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Ironstone, unidentified, base with foot ring, T, Locus 2, 1840-Present	Row #	0
5	Historic Energy, Coal, fragment, U, 3g, Locus 2	Row #	0
3	Historic Fauna, Bone, mammal, unidentified, fragment, V, 4g, Locus 2	Row #	0
2	Historic Glass Vessel Fragments, Glass, bottle, body, olive green, W, Locus 2	Row #	0
1	Historic Personal Items, Glass, jewelry, whole, faceted, cobalt blue, X, .4" diameter, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, Y, 20 mm class, Locus 2	Row #	0

Total Artifacts in Context 1: 81

Total Artifacts in Locus 2 Excavation Unit 34 : 81

7NC-F-153 Locus 2 Excavation Unit 35 Context 1 **Catalog # 67**

1	Historic Arms and Armor, Flint, gun part, musket size, whole, AD, Locus 2	Row #	0
2	Historic Arms and Armor, Flint, gun part, trimmings, fragment, AE, Locus 2	Row #	0
3	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, B, burned, 13g, Locus 2	Row #	0
27	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 20g, Locus 2	Row #	0
6	Historic Building Materials, Ferrous metal, nail, fragment, wrought, C, corroded, Locus 2	Row #	0
3	Historic Building Materials, Glass, window, fragment, light aqua, D, Locus 2	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated interior, clear lead, E, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim and body, glazed both surfaces, cordoned, brown manganese, L, 7" diameter, Locus 2, 1740 - 1870	Row #	0
4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, F, Locus 2, 1700 - 1800	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear with brown mottling, G, Locus 2, 1740 - 1870	Row #	0
4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed, clear lead, H, surface missing, Locus 2, 1700 - 1800	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim, glazed both surfaces, brown manganese, M, Locus 2, 1740 - 1870	Row #	0
5	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, N, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim, glazed both surfaces, slightly everted rim, clear lead, P, Locus 2, 1700 - 1800	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear with brown speckling, Q, Locus 2, 1740 - 1870	Row #	0
8	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed, black, R, surface missing, Locus 2, 1700 - 1800	Row #	0
6	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, brown manganese, S, surface missing, Locus 2, 1740 - 1870	Row #	0
5	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, T, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed interior, clear lead, K, Locus 2, 1700 - 1800	Row #	0
16	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, U, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Ironstone, bowl/dish, rim and body, decal overglaze, scalloped, floral design, polychrome, V, Locus 2, 1880-Present	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Pearlware, unidentified, fragment, blue, W, surface missing, Locus 2, 1775 - 1820	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, unidentified, fragment, salt glaze, scratch, blue, X, Locus 2, 1744 - 1783	Row #	0
9	Historic Energy, Coal, fragment, Y, 10g, Locus 2	Row #	0
3	Historic Glass Vessel Fragments, Glass, bottle, body, olive green, AB, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, AA, Locus 2	Row #	0
1	Historic Tools/Hardware, Ferrous metal, spike, whole, cut, AC, corroded, L 3in, Locus 2	Row #	0
1	Prehistoric Lithics, Chert, debitage, flake fragment, black, AH, Locus 2	Row #	0
1	Prehistoric Lithics, Chert, debitage, primary reduction flake, black, cortex, AG, 50 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, AK, 20 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, thermally-altered rock, fragment, reddened, cortex, AL, 14g, Locus 2	Row #	0
1	Prehistoric Lithics, Quartz, biface, medial fragment, white, AF, W 14.7mm, T 5.8mm, 1.5g, Locus 2	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, AM, 346g, Locus 2	Row #	0

Total Artifacts in Context 1: 125

Total Artifacts in Locus 2 Excavation Unit 35 : 125

7NC-F-153 Locus 2 Excavation Unit 36 Context 1 **Catalog # 68**

32	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 99g, Locus 2	Row #	0
6	Historic Building Materials, Ferrous metal, nail, fragment, B, corroded, Locus 2	Row #	0
3	Historic Building Materials, Glass, window, fragment, light aqua, C, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, slip decorated interior, clear exterior, clear lead, E, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, F, surface missing, Locus 2, 1740 - 1850	Row #	0
6	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, L, Locus 2, 1700 - 1800	Row #	0
6	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed, black, R, surface missing, Locus 2, 1700 - 1800	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

7	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed, brown manganese, S, surface missing, Locus 2, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed interior, black, Q, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim, glazed interior, brown manganese, P, Locus 2, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, N, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed interior, drips on exterior, brown manganese, M, Locus 2, 1740 - 1870	Row #	0
6	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed, clear lead, K, surface missing, Locus 2, 1740 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, H, exhibits a green hue, Locus 2, 1740 - 1850	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, G, Locus 2, 1740 - 1850	Row #	0
18	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, U, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
7	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, T, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Earthenware, tin enameled, buff body, unidentified, fragment, light blue, V, surface missing, Locus 2, 1680 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Porcelain, Chinese Export, unidentified, fragment, unidentifiable decoration, blue, X, Locus 2, 1700 - 1840	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, W, surface missing, Locus 2, 1762 - 1820	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, unidentified, fragment, salt glaze, scratch, blue, Y, Locus 2, 1744 - 1783	Row #	0
2	Historic Energy, Coal, fragment, D, 9.5g, Locus 2	Row #	0
5	Historic Energy, Coal, slag, fragment, AC, 6g, Locus 2	Row #	0
2	Historic Glass Vessel Fragments, Glass, bottle, body, olive green, AB, Locus 2	Row #	0
2	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, AA, Locus 2	Row #	0
3	Prehistoric Lithics, Jasper, debitage, flake fragment, red, cortex, AD, Locus 2	Row #	0
1	Prehistoric Lithics, Quartz, biface, distal fragment, translucent, AE, Locus 2	Row #	0
2	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, AF, 69g, Locus 2	Row #	0

Total Artifacts in Context 1: 127

Total Artifacts in Locus 2 Excavation Unit 36 : 127

7NC-F-153 Locus 2 Excavation Unit 37 Context 1 **Catalog # 69**

1	Historic Agriculture/Equestrian, Ferrous metal and brass, tack, fragment, circular, concave, AK, corroded, 1.8" diameter, probable harness hardware, broken attachment, Locus 2	Row #	0
13	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 66g, Locus 2	Row #	0
4	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, C, burned, 135g, Locus 2	Row #	0
24	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 145g, Locus 2	Row #	0
6	Historic Building Materials, Ferrous metal, nail, fragment, wrought, D, corroded, Locus 2	Row #	0
2	Historic Building Materials, Glass, window, fragment, light aqua, E, Locus 2	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, white slip ground interior, clear exterior, clear with brown mottling, L, Locus 2, 1740 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip trailed interior, clear lead, G, Locus 2, 1740 - 1850	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated interior, clear lead, K, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
11	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, Q, multiple vessels, Locus 2, 1700 - 1800	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim and body, glazed both surfaces, clear with brown mottling, X, burned, Locus 2, 1740 - 1870	Row #	0
4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, P, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base, glazed interior, brown manganese, S, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed interior, clear with brown mottling, M, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base, glazed interior, clear lead, H, Locus 2, 1700 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, F, Locus 2, 1700 - 1850	Row #	0
9	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, black, T, surface missing, Locus 2, 1700 - 1800	Row #	0
21	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, W, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, brown manganese, U, surface missing, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed interior, black, R, Locus 2, 1700 - 1800	Row #	0
9	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, V, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Earthenware, Staffordshire mottled glaze with buff body, hollow ware, body, clear with brown mottling, AA, Locus 2, 1700 - 1775	Row #	0
1	Historic Ceramic Vessel Sherds, Earthenware, tin enameled, buff body, unidentified, fragment, glazed both surfaces, light blue, Y, Locus 2, 1640 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, hollow ware, body, glazed vegetable/fruit shape, green, AB, interior surface missing, Locus 2, 1750 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, hollow ware, body, salt glaze, scratch, blue, AC, Locus 2, 1744 - 1783	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, unidentified, fragment, salt glaze, AD, surface missing, Locus 2, 1720 - 1805	Row #	0
7	Historic Energy, Coal, slag, fragment, AE, 7.5g, Locus 2	Row #	0
1	Historic Fauna, Shell, unidentified, fragment, N, .2g, Locus 2	Row #	0
5	Historic Glass Vessel Fragments, Glass, bottle, body, olive green, AH, Locus 2	Row #	0
3	Historic Glass Vessel Fragments, Glass, curved, fragment, olive green, AG, Locus 2	Row #	0
2	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, AF, Locus 2	Row #	0
1	Prehistoric Lithics, Chert, debitage, flake fragment, black, AM, Locus 2	Row #	0
3	Prehistoric Lithics, Jasper, debitage, flake fragment, red, AQ, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, AN, 20 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, AP, 20 mm class, Locus 2	Row #	0
2	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, AR, 12g, Locus 2	Row #	0
1	Prehistoric Lithics, Rhyolite, projectile point, medial fragment, grey, AL, W 18.6mm, T 11.2mm, 11g, base and tip broken, narrow parallel margins, biconvex in cross section, random flaking, Locus 2	Row #	0

Total Artifacts in Context 1: 153

Total Artifacts in Locus 2 Excavation Unit 37 : 153

APPENDIX A (Cont.)
ARTIFACT INVENTORY

7NC-F-153 Locus 2 Excavation Unit 38 Context 1		Catalog #	70
10	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 29g, Locus 2	Row #	0
18	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 12g, Locus 2	Row #	0
1	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, C, burned, 23g, Locus 2	Row #	0
5	Historic Building Materials, Ferrous metal, nail, fragment, D, corroded, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, white slip ground with brown manganese, clear with brown mottling, X, burned glaze, Locus 2, 1740 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, slip trailed interior, clear lead, K, Locus 2, 1740 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, white slip ground interior, clear exterior, clear with brown mottling, G, Locus 2, 1740 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, white slip ground interior, clear exterior, clear lead, F, Locus 2, 1740 - 1800	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip and copper oxide decorated interior, clear with green decoration, E, Locus 2, 1700 - 1820	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip trailed interior, clear lead, H, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed interior, copper oxide exterior, clear with green decoration, L, Locus 2, 1700 - 1820	Row #	0
7	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, Q, multiple vessels, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, rim and body, glazed both surfaces, everted rim, brown manganese, R, Locus 2, 1740 - 1870	Row #	0
6	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, S, multiple vessels, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base, glazed interior, black, P, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, M, Locus 2, 1700 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, clear lead, N, surface missing, Locus 2, 1700 - 1850	Row #	0
6	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, brown manganese, U, surface missing, Locus 2, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, V, interior surface missing, Locus 2, 1740 - 1870	Row #	0
16	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, W, both surfaces missing, Locus 2, 1740 - 1870	Row #	0
13	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, black, T, surface missing, multiple vessels, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, unidentified, unidentified, fragment, Y, burned, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Earthenware, Staffordshire with buff body, hollow ware, body, glazed both surfaces, clear lead, AA, Locus 2, 1700 - 1775	Row #	0
2	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, AB, surface missing, Locus 2, 1762 - 1820	Row #	0
2	Historic Ceramic Vessel Sherds, Stoneware, grey body, hollow ware, body, salt glaze, clear lead, AE, Locus 2	Row #	0
2	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, hollow ware, body, salt glaze, scratch, blue, AC, two vessels, Locus 2, 1744 - 1783	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, White salt-glazed, unidentified, fragment, salt glaze, AD, Locus 2, 1720 - 1805	Row #	0
1	Historic Energy, Coal, fragment, AF, 3g, Locus 2	Row #	0
2	Historic Glass Vessel Fragments, Glass, bottle, body, olive green, AH, Locus 2	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, AG, Locus 2	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

1	Historic Unidentified, Ferrous metal, fragment, AK, corroded, small thin iron fragment, Locus 2	Row #	0
2	Prehistoric Lithics, Jasper, debitage, flake fragment, red, AL, Locus 2	Row #	0
1	Prehistoric Lithics, Quartz, debitage, shatter, white, AM, 30 mm class, Locus 2	Row #	0
1	Prehistoric Lithics, Quartzite, debitage, primary reduction flake, yellow/brown, AN, 40 mm class, Locus 2	Row #	0

Total Artifacts in Context 1: 118

Total Artifacts in Locus 2 Excavation Unit 38 : 118

7NC-F-153 Locus 2 Excavation Unit 39 Context 1 **Catalog # 71**

2	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 5g, Locus 2	Row #	0
1	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 3g, Locus 2	Row #	0
3	Historic Building Materials, Ferrous metal, nail, fragment, C, corroded, Locus 2	Row #	0
1	Historic Building Materials, Glass, window, fragment, clear/uncolored, D, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, F, Locus 2, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, white slip ground interior, clear lead, E, exterior surface missing, Locus 2, 1740 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Pearlware, hollow ware, body, transfer printed, unidentified decoration, blue, G, Locus 2, 1795 - 1840	Row #	0
1	Historic Fauna, Shell, clam, fragment, H, 5g, Locus 2	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, reddened, cortex, K, 63g, Locus 2	Row #	0

Total Artifacts in Context 1: 12

Total Artifacts in Locus 2 Excavation Unit 39 : 12

7NC-F-153 Locus 2 General Provenience **Catalog # 72**

20	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 81g, Locus 2	Row #	0
5	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, C, burned, 211g, Locus 2	Row #	0
2	Historic Building Materials, Coarse Earthenware, brick, fragment, glazed, red, D, burned, 39g, Locus 2	Row #	0
14	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 63g, Locus 2	Row #	0
11	Historic Building Materials, Ferrous metal, nail, fragment, E, corroded, Locus 2	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, F, Locus 2	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated interior, clear lead, G, exterior surface missing, Locus 2, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed, clear lead, H, interior surface missing, Locus 2, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, P, burned, Locus 2, 1740 - 1870	Row #	0
9	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed, black, M, surface missing, Locus 2, 1700 - 1800	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base and body, glazed both surfaces, brown manganese, K, Locus 2, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, L, Locus 2, 1700 - 1800	Row #	0
5	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, N, surface missing, Locus 2, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, grey body, hollow ware, base, salt glaze exterior, browned interior, clear lead, Q, Locus 2	Row #	0
1	Historic Kitchen, Ferrous metal, cauldron, body, cast, Y, corroded, Locus 2	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

1	Historic Tools/Hardware, Ferrous metal, spike, fragment, wrought, AB, corroded, Locus 2	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, S, corroded, small flat amorphous-shaped iron fragment, Locus 2	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, AC, corroded, possible cauldron fragment, Locus 2	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, R, corroded, wedge-shaped iron fragment, Locus 2	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, AA, corroded, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, tested cobble, brown, cortex, W, L 64.6mm, W 44.2mm, T 35.8mm, 110g, several flakes removed, Locus 2	Row #	0
1	Prehistoric Lithics, Jasper, thermally-altered rock, fragment, red, cortex, V, 4g, Locus 2	Row #	0
1	Prehistoric Lithics, Quartz, biface, late stage, distal fragment, white, U, Locus 2	Row #	0
1	Prehistoric Lithics, Quartz, projectile point, broadspear, >90% complete, white, T, L 47.7mm, W 30.3mm, T 10.2mm, 12g, broken base, tapered shoulders, beveled straight margins, acute distal end, tip edge damage due to use as drill, biconvex in cross section, Locus 2	Row #	0
3	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, X, 250g, Locus 2	Row #	0

Total Artifacts in Suface Collection: 90

Total Artifacts in Locus 2 General Provenience : 90

7NC-F-153 Locus 4 Excavation Unit 18 Context 1 **Catalog # 50**

2	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 76g, Locus 4	Row #	0
1	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, C, 2g, Locus 4	Row #	0
3	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 6g, Locus 4	Row #	0
2	Historic Building Materials, Ferrous metal, nail, fragment, clear/uncolored, D, corroded, Locus 4	Row #	0
1	Historic Building Materials, Glass, window, fragment, F, Locus 4	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, E, Locus 4	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated interior, clear lead, G, exterior surface missing, Locus 4, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed interior, clear with brown mottling, K, Locus 4, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, L, both surfaces missing, Locus 4, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, clear lead, H, exterior surface missing, Locus 4, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, M, surface missing, Locus 4, 1762 - 1820	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Pearlware, unidentified, fragment, unidentified decoration, blue, N, surface missing, Locus 4, 1775 - 1840	Row #	0
1	Historic Ceramic Vessel Sherds, Stoneware, grey body, hollow ware, body, banded, salt glaze, green, P, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, biface, early stage, fragment, red, cortex, Q, burned, 40 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, S, 10 mm class, Locus 4	Row #	0
2	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, cortex, R, 20 mm class, Locus 4	Row #	0

Total Artifacts in Context 1: 23

Total Artifacts in Locus 4 Excavation Unit 18 : 23

7NC-F-153 Locus 4 Excavation Unit 19 Context 1 **Catalog # 51**

1	Historic Building Materials, Coarse Earthenware, brick, fragment, red, A, 1g, Locus 4	Row #	0
1	Historic Building Materials, Ferrous metal, nail, fragment, B, corroded, Locus 4	Row #	0
2	Historic Building Materials, Glass, window, fragment, light aqua, C, Locus 4	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated interior, clear lead, D, exterior surface missing, Locus 4, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed interior, clear lead, E, Locus 4, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed interior, black, F, Locus 4, 1700 - 1800	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, G, both surfaces missing, Locus 4, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, H, surface missing, Locus 4, 1762 - 1820	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Pearlware, unidentified, fragment, transfer printed, blue, K, surface missing, Locus 4, 1795 - 1840	Row #	0
1	Historic Personal Items, Mica, jewelry, fragment, circular, silver, M, .5g, 10.8 mm, mica used in place of glass for cuff links etc., Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, L, 10 mm class, Locus 4	Row #	0

Total Artifacts in Context 1: 15

Total Artifacts in Locus 4 Excavation Unit 19 : 15

7NC-F-153 Locus 4 Excavation Unit 20 Context 1 **Catalog # 52**

3	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 2g, Locus 4	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed interior, brown manganese, C, Locus 4, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, B, Locus 4, 1700 - 1850	Row #	0
1	Prehistoric Lithics, Chert, debitage, whole flake, black and white, E, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Chert, debitage, whole flake, black, D, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, cortex, G, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, F, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, H, 20 mm class, Locus 4	Row #	0

Total Artifacts in Context 1: 10

Total Artifacts in Locus 4 Excavation Unit 20 : 10

7NC-F-153 Locus 4 Excavation Unit 21 Context 1 **Catalog # 53**

1	Historic Ceramic Vessel Sherds, Refined Earthenware, Whiteware, unidentified, fragment, lustre, A, surface missing, Locus 4, 1815-Present	Row #	0
1	Historic Glass Vessel Fragments, Glass, flat, fragment, olive green, B, Locus 4	Row #	0
1	Prehistoric Lithics, Chert, debitage, whole flake, black, H, 10 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, cortex, D, 40 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, E, 30 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, F, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, G, 10 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, reddened, cortex, C, 50 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Quartzite, cobble-based tool, abrading stone, tan, cortex, K, L 92mm, W 71mm, T 28mm, 228g, Locus 4	Row #	0

Total Artifacts in Context 1: 9

Total Artifacts in Locus 4 Excavation Unit 21 : 9

APPENDIX A (Cont.)
ARTIFACT INVENTORY

7NC-F-153 Locus 4 Excavation Unit 22 Context 1 **Catalog # 54**

3	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 9g, Locus 4	Row #	0
2	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, C, burned, 16g, Locus 4	Row #	0
3	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 17g, Locus 4	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed interior, brown manganese, D, Locus 4, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, unglazed, E, interior surface missing, Locus 4, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, F, both surfaces missing, Locus 4, 1740 - 1870	Row #	0
4	Historic Energy, Coal, fragment, G, 2g, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, H, 10 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, K, 49g, Locus 4	Row #	0

Total Artifacts in Context 1: 19

Total Artifacts in Locus 4 Excavation Unit 22 : 19

7NC-F-153 Locus 4 Excavation Unit 23 Context 1 **Catalog # 55**

7	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 120g, Locus 4	Row #	0
10	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 18g, Locus 4	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, slip decorated interior, clear exterior, clear lead, C, Locus 4, 1740 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, D, Locus 4, 1700 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, F, Locus 4, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base, glazed interior, black, G, Locus 4, 1700 - 1800	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, black, H, surface missing, Locus 4, 1700 - 1800	Row #	0
11	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, K, both surfaces missing, Locus 4, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed, clear lead, E, surface missing, Locus 4, 1700 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Refined Earthenware, Jackfield-type, hollow ware, body, glazed both surfaces, black, L, Locus 4, 1740 - 1850	Row #	0
7	Historic Energy, Coal, fragment, M, 4g, Locus 4	Row #	0
3	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, N, Locus 4	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, Q, corroded, thin curved iron fragment, Locus 4	Row #	0
2	Historic Unidentified, Slag, slag, fragment, P, 3.5g, Locus 4	Row #	0
1	Prehistoric Lithics, Chert, debitage, whole flake, grey, X, 10 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Chert, debitage, whole flake, grey, W, 20 mm class, Locus 4	Row #	0
2	Prehistoric Lithics, Jasper, debitage, red, cortex, T, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, flake fragment, yellow/brown, V, Locus 4	Row #	0
2	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, cortex, S, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, U, 10 mm class, Locus 4	Row #	0
2	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, Y, 36g, Locus 4	Row #	0
1	Prehistoric Lithics, Rhyolite, projectile point, medial fragment, grey, R, W 22.9mm, T 6.7mm, 5g, straight, beveled margins, flattened cross section, random flaking, Locus 4	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

Total Artifacts in Context 1: 63

Total Artifacts in Locus 4 Excavation Unit 23 : 63

7NC-F-153 Locus 4 Excavation Unit 25 Context 1 **Catalog # 57**

4	Historic Building Materials, Coarse Earthenware, brick, fragment, red, B, 6g, Locus 4	Row #	0
2	Historic Building Materials, Coarse Earthenware, brick, fragment, glazed, orange, C, burned, 92g, Locus 4	Row #	0
14	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 60g, Locus 4	Row #	0
1	Historic Building Materials, Ferrous metal, nail, fragment, D, corroded, Locus 4	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, E, Locus 4	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, unidentified, fragment, slip decorated interior, clear exterior, clear lead, F, Locus 4, 1740 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, H, Locus 4, 1700 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, G, Locus 4, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, K, interior surface missing, Locus 4, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, L, both surfaces missing, Locus 4, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Pearlware, unidentified, fragment, M, surface missing, Locus 4, 1775 - 1840	Row #	0
3	Historic Energy, Coal, fragment, N, 1g, Locus 4	Row #	0
3	Historic Glass Vessel Fragments, Glass, bottle, base, olive green, Q, Locus 4	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, clear/uncolored, P, Locus 4	Row #	0
2	Historic Glass Vessel Fragments, Glass, curved, fragment, olive green, R, Locus 4	Row #	0
1	Prehistoric Lithics, Chert, debitage, whole flake, white, S, 10 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Chert, debitage, whole flake, black, cortex, T, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, spall, red, cortex, U, 30 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, V, 10 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Quartzite, debitage, whole flake, red, W, 50 mm class, Locus 4	Row #	0
3	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, Y, 166g, Locus 4	Row #	0
1	Prehistoric Lithics, Rhyolite, debitage, whole flake, grey, X, 30 mm class, Locus 4	Row #	0

Total Artifacts in Context 1: 48

Total Artifacts in Locus 4 Excavation Unit 25 : 48

7NC-F-153 Locus 4 Excavation Unit 26 Context 1 **Catalog # 58**

8	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 13g, Locus 4	Row #	0
1	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, W, 54g, Locus 4	Row #	0
2	Historic Building Materials, Ferrous metal, nail, fragment, B, corroded, Locus 4	Row #	0
1	Historic Building Materials, Glass, window, fragment, light aqua, C, Locus 4	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, hollow ware, body, white slip ground interior, clear exterior, clear lead, D, Locus 4, 1740 - 1800	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Red bodied slipware, plate, body, slip decorated interior, clear lead, E, Locus 4, 1740 - 1850	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, G, Locus 4, 1700 - 1800	Row #	0

APPENDIX A (Cont.)
ARTIFACT INVENTORY

1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, clear lead, F, Locus 4, 1700 - 1850	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, L, both surfaces missing, Locus 4, 1740 - 1870	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed interior, black, K, exterior surface missing, Locus 4, 1700 - 1800	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed interior, black, H, Locus 4, 1700 - 1800	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, aqua, M, Locus 4	Row #	0
1	Historic Unidentified, Slag, slag, fragment, N, 1g, Locus 4	Row #	0
1	Prehistoric Lithics, Chert, debitage, whole flake, black, P, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, core, brown, cortex, U, L 49mm, W 46mm, T 27mm, 53g, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, R, 10 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, brown, cortex, T, 30 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, Q, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Quartz, debitage, whole flake, translucent, S, 10 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, blackened, V, 10g, Locus 4	Row #	0

Total Artifacts in Context 1: 31

Total Artifacts in Locus 4 Excavation Unit 26 : 31

7NC-F-153 Locus 4 Excavation Unit 27 Context 1 **Catalog # 59**

3	Historic Building Materials, Coarse Earthenware, brick, fragment, orange, A, 1g, Locus 4	Row #	0
2	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, fragment, glazed interior, brown manganese, C, Locus 4, 1740 - 1870	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, brown manganese, B, Locus 4, 1740 - 1870	Row #	0
3	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, glazed interior, brown manganese, D, exterior surface missing, Locus 4, 1740 - 1870	Row #	0
4	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, E, both surfaces missing, Locus 4, 1740 - 1870	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, G, 20 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, F, 30 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, red, H, 10 mm class, Locus 4	Row #	0
2	Prehistoric Lithics, Quartz, debitage, flake fragment, translucent, K, Locus 4	Row #	0
4	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, L, 119g, Locus 4	Row #	0

Total Artifacts in Context 1: 22

Total Artifacts in Locus 4 Excavation Unit 27 : 22

7NC-F-153 Locus 4 Excavation Unit 28 Context 1 **Catalog # 60**

3	Historic Building Materials, Coarse Earthenware, brick, fragment, blackened, B, burned, 135g, Locus 4	Row #	0
7	Historic Building Materials, Coarse Earthenware, brick, fragment, red, A, 125g, Locus 4	Row #	0
1	Historic Building Materials, Ferrous metal, nail, fragment, C, corroded, Locus 4	Row #	0
4	Historic Energy, Coal, fragment, E, 39g, Locus 4	Row #	0
1	Historic Glass Vessel Fragments, Glass, curved, fragment, light aqua, D, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, flake fragment, red, H, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, cortex, F, 30 mm class, Locus 4	Row #	0
1	Prehistoric Lithics, Jasper, debitage, whole flake, yellow/brown, G, 20 mm class, Locus 4	Row #	0

1	Prehistoric Lithics, Jasper, thermally-altered rock, fragment, reddened, cortex, L, 5g, Locus 2	Row #	0
1	Prehistoric Lithics, Limonite, debitage, flake fragment, brown, K, Locus 2	Row #	0
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, M, 34g, Locus 2	Row #	0

Total Artifacts in Context 1: 22

Total Artifacts in Locus 4 Excavation Unit 28 : 22

7NC-F-153 Locus 4 General Provenience **Catalog # 73**

1	Historic Agriculture/Equestrian, Ferrous metal, curry comb, tang, fragment, forged, E, corroded, curry comb for grooming horses, similar to one found at Rumsey (104.AE), exhibits attachment two iron rivets, Locus 4	Row #	0
2	Historic Building Materials, Coarse Earthenware, brick, fragment, red, A, burned, 58g, Locus 4	Row #	0
3	Historic Building Materials, Ferrous metal, nail, fragment, B, corroded, Locus 4	Row #	0
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, base, unglazed, C, interior surface missing, Locus 4, 1740 - 1870	Row #	0
1	Historic Unidentified, Ferrous metal, fragment, D, corroded, Locus 4	Row #	0

Total Artifacts in Suface Collection: 8

Total Artifacts in Locus 4 General Provenience : 8

Total Number of Artifacts: 1900

*** Item Discarded in Laboratory**

Appendix B

SUMMARY OF SUBSURFACE TESTING

APPENDIX B

SUMMARY OF SUBSURFACE TESTING

Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Excavation Unit	5	1	damp, slightly compact silty loam, Pz horizon, overlies contexts 2, 3 and 4	10YR 4/4	-- Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Glass Vessel Fragments Prehistoric Lithics
		2	mottled clay loam, B horizon, overlaid by context 1, cut by context 2	10YR 5/8, 7.5YR 4/6	--
		3	sandy clay loam, historic post hole, fill of context 4, overlaid by context 1	10YR 5/6	--
		4	filled by context 3, overlaid by context 1, cuts context 2	--	--
Excavation Unit	6	1	damp, slightly compact silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Clothing Related Historic Energy Historic Glass Vessel Fragments Historic Personal Items Historic Unidentified Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 5/6	--
Excavation Unit	7	1	silty loam, Pz horizon, overlies context 2	10YR 5/3	Historic Building Materials Historic Ceramic Vessel Sherds Historic Glass Vessel Fragments Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 5/6	--

APPENDIX B (Cont.)

SUMMARY OF SUBSURFACE TESTING

Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Excavation Unit	8	1	silty loam, Pz horizon, overlies context 2 to 6	10YR 4/4	-- Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Glass Vessel Fragments Historic Recreation/Activities Historic Unidentified Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1, cut by contexts 4 and 6	7.5YR 5/6	--
		3	damp, slightly compact silty loam with carbon , tree disturbance, overlaid by context 1, fill of context 4	10YR 4/4	--
		4	filled by context 3, overlaid by context 1, cuts context 2	--	--
		5	damp, slightly compact clay loam with carbon , burnt earth, overlaid by context 1, fill of context 6	5YR 4/6	Indeterminate Unidentified
		6	filled by context 5, overlaid by context 1, cuts context 2	--	--
Excavation Unit	9	1	silty loam, Pz horizon, overlies context 2	10YR 5/3	Historic Building Materials Historic Ceramic Vessel Sherds Historic Clothing Related Historic Energy Historic Glass Vessel Fragments Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	10YR 4/6	--

APPENDIX B (Cont.)

SUMMARY OF SUBSURFACE TESTING

Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Excavation Unit	10	1	silty loam, Pz horizon, overlies contexts 2 to 4	10YR 4/4	--
					Historic Building Materials
					Historic Ceramic Vessel Sherds
					Historic Energy
					Historic Glass Vessel Fragments
					Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1, overlies context 5, cut by context 4	10YR 5/6	--
		3	wet silty loam with carbon , possible prehistoric pit, overlaid by context 1, fill of context 4	10YR 5/3	Indeterminate Unidentified
					Prehistoric Flora
		4	filled by context 3, overlaid by context 1, cuts context 2	--	--
		5	coarse sand, C horizon, overlaid by contexts 2 to 4	7.5YR 5/6	--
Excavation Unit	11	1	silty loam, Pz horizon, overlies context 2	10YR 4/3	Historic Building Materials
					Historic Ceramic Vessel Sherds
					Historic Energy*
					Historic Unidentified
					Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 6/6	--

APPENDIX B (Cont.)

SUMMARY OF SUBSURFACE TESTING

Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Excavation Unit	12	1	damp, slightly compact silty loam, Pz horizon, overlies contexts 2 to 6	10YR 4/3	Historic Agriculture/Equestrian Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy* Historic Glass Vessel Fragments Historic Unidentified Prehistoric Lithics
		2	silty clay loam, B horizon, overlaid by context 1, cut by contexts 4 and 6	10YR 6/4	--
		3	damp silty loam with carbon , historic post hole, overlaid by context 1, fill of context 4	10YR 5/4	Indeterminate Flora Indeterminate Unidentified
		4	filled by context 3, overlaid by context 1, cuts context 2	--	--
		5	damp, slightly compact silt with carbon , probable tree disturbance, overlaid by context 1, fill of context 6	10YR 5/4	--
		6	filled by context 5, overlaid by context 1, cuts context 2	--	--
Excavation Unit	13	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Glass Vessel Fragments Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 5/6	--
Excavation Unit	14	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Fauna Historic Glass Vessel Fragments Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 5/6	--

APPENDIX B (Cont.)

SUMMARY OF SUBSURFACE TESTING

Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Excavation Unit	15	1	silty loam, Pz horizon, overlies context 2	10YR 4/3	Historic Agriculture/Equestrian Historic Building Materials Historic Ceramic Vessel Sherds Historic Glass Vessel Fragments
		2	silty clay, B horizon, overlaid by context 1	7.5YR 5/6	--
Excavation Unit	16	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Modern Unidentified Prehistoric Lithics
		2	silty clay, B horizon, overlaid by context 1	7.5YR 5/6	--
Excavation Unit	17	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Glass Vessel Fragments Historic Recreation/Activities
		2	silty clay, B horizon, overlaid by context 1	7.5YR 5/6	--
Excavation Unit	18	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	10YR 5/6	--
Excavation Unit	19	1	silty loam, Pz horizon, overlies contexts 2 to 4	10YR 4/3	Historic Building Materials Historic Ceramic Vessel Sherds Historic Personal Items Prehistoric Lithics
		2	clayey silt with gravel pockets , B horizon, overlaid by context 1, cut by context 4	7.5YR 5/6	--
		3	loam, possible rodent burrow, overlaid by context 1, fill of context 4	10YR 4/6	--
		4	filled by context 3, overlaid by context 1, cuts context 2	--	--

APPENDIX B (Cont.)

SUMMARY OF SUBSURFACE TESTING

Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Excavation Unit	20	1	damp, slightly compact silty loam, Pz horizon, overlies context 2	10YR 4/4	-- Historic Building Materials Historic Ceramic Vessel Sherds Prehistoric Lithics
		2	damp, slightly compact clay loam with gravel , B horizon, overlaid by context 1	7.5YR 4/6	--
Excavation Unit	21	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Ceramic Vessel Sherds Historic Glass Vessel Fragments Prehistoric Lithics
		2	damp, slightly compact clay loam, B horizon, overlaid by context 1	10YR 5/6	--
Excavation Unit	22	1	damp, slightly loose silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Prehistoric Lithics
		2	clay loam with gravel , B horizon, overlaid by context 1	10YR 5/6	--
Excavation Unit	23	1	damp, slightly compact silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Glass Vessel Fragments Historic Unidentified Prehistoric Lithics
		2	clayey silt, B horizon, overlaid by context 1	7.5YR 5/8	--
Excavation Unit	24	1	damp slightly compact silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Glass Vessel Fragments Historic Kitchen Historic Unidentified
		2	clay loam, B horizon, overlaid by context 1	10YR 5/6	--

APPENDIX B (Cont.)

SUMMARY OF SUBSURFACE TESTING

Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Excavation Unit	25	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Glass Vessel Fragments Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 4/6	--
Excavation Unit	26	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Glass Vessel Fragments Historic Unidentified Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 5/6	--
Excavation Unit	27	1	damp silty loam, Pz horizon, overlies context 2	10YR 4/3	Historic Building Materials Historic Ceramic Vessel Sherds Prehistoric Lithics
		2	clayey silt, B horizon, overlaid by context 1	10YR 4/6	--
Excavation Unit	28	1	damp, slightly loose silty loam with coal , Pz horizon, overlies context 2	10YR 4/3	Historic Building Materials Historic Energy Historic Glass Vessel Fragments Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 5/6	--
Excavation Unit	29	1	damp, slightly loose silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Energy Historic Unidentified Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	10YR 5/6	--

APPENDIX B (Cont.)

SUMMARY OF SUBSURFACE TESTING

Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Excavation Unit	30	1	damp, fairly loose silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Fauna Prehistoric Ceramic Vessel Sherd Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	10YR 5/4	--
Excavation Unit	31	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Unidentified Prehistoric Lithics
		2	clayey silt, B horizon, overlaid by context 1	10YR 4/6	--
Excavation Unit	32	1	slightly damp, slightly compact silty loam, Pz horizon, overlies context 2	10YR 4/3	Historic Building Materials Historic Ceramic Vessel Sherds Prehistoric Lithics
		2	slightly damp, slightly compact clay loam, B horizon, overlaid by context 1	10YR 5/6	--
Excavation Unit	33	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Fauna Historic Glass Vessel Fragments
		2	clayey silt, B horizon, overlaid by context 1	10YR 4/6	--

APPENDIX B (Cont.)

SUMMARY OF SUBSURFACE TESTING

Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Excavation Unit	34	1	damp, slightly loose silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Fauna Historic Glass Vessel Fragments Historic Personal Items Prehistoric Lithics
		2	damp, slightly compact clay loam, B horizon, overlaid by context 1	10YR 5/6	--
Excavation Unit	35	1	damp, slightly loose silty loam, Pz horizon, overlies contexts 2 to 4	10YR 4/4	Historic Arms and Armor Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Glass Vessel Fragments Historic Tools/Hardware Prehistoric Lithics
		2	damp, slightly compact clay loam, B horizon, overlaid by context 1, cut by context 4	10YR 5/6	--
		3	damp, slightly compact clay loam, burnt earth, overlaid by context 1, fill of context 4	5YR 4/6	--
		4	filled by context 3, overlies context 1, cuts context 2	--	--
Excavation Unit	36	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Glass Vessel Fragments Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 5/6	--

APPENDIX B (Cont.)

SUMMARY OF SUBSURFACE TESTING

Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Excavation Unit	37	1	silty loam, Pz horizon, overlies context 2	10YR 4/4	Historic Agriculture/Equestrian Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Fauna Historic Glass Vessel Fragments Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 5/6	--
Excavation Unit	38	1	silty loam, Pz horizon, overlies context 2	10YR 3/4	Historic Building Materials Historic Ceramic Vessel Sherds Historic Energy Historic Glass Vessel Fragments Historic Unidentified Prehistoric Lithics
		2	silty clay with gravel , B horizon, overlaid by context 1	10YR 4/6	--
Excavation Unit	39	1	silty loam, Pz horizon, overlies context 2	10YR 4/3	Historic Building Materials Historic Ceramic Vessel Sherds Historic Fauna Prehistoric Lithics
		2	clay loam, B horizon, overlaid by context 1	7.5YR 4/6	--

*** Discarded**

Appendix C

CRS SITE FORMS

DELAWARE STATE HISTORIC PRESERVATION OFFICE
15 THE GREEN, DOVER, DE 19901

CULTURAL RESOURCE SURVEY
PROPERTY IDENTIFICATION FORM

CRS #	N14533
SPO Map	06-07-29
Hundred	St. Georges
Quad	Middletown
Other	

1. **HISTORIC NAME/FUNCTION:** Reedy Island Cart Road Site 4

2. **ADDRESS/LOCATION:** U.S. Route 301 (Section 1)

3. **TOWN/NEAREST TOWN:** Middletown **vicinity?** ☐

4. **MAIN TYPE OF RESOURCE:** **building** ☐ **structure** ☐ **site** ☒ **object** ☐ **landscape** ☐ **district** ☐

5. **MAIN FUNCTION OF PROPERTY:** Residential

6. **PROJECT TITLE/ REASON FOR SURVEY (if applicable):**
U.S. Route 301 Phase IB

7. **ADDITIONAL FORMS USED:**

#:	Form:	List property types:
	CRS 2 Main Building Form	
	CRS 3 Secondary Building Form	
	CRS 4 Archaeological Site Form	Historic and Prehistoric site
	CRS 5 Structure (Building-Like) Form	
	CRS 6 Structure (Land Feature) Form	
	CRS 7 Object Form	
	CRS 8 Landscape Elements Form	
	CRS 9 Map Form	N/A
	CRS 14 Potential District Form	

8. **SURVEYOR INFORMATION:**

Surveyor name: William B. Liebeknecht

Principal Investigator name: William B. Liebeknecht (Phase I) And Jeanne Ward (Phase Ii)

Principal Investigator signature:

Organization: Hunter Research, Inc. **Date:** 11/5/2010

9. OTHER NOTES OR OBSERVATIONS: **CRS# N14533**

Prior to the field survey the area was plowed and disked. Rains over the next couple of days increased the surface visibility from about 80 to nearly 100 percent. The entire area was walked from east to west and then from south to north. A White Spectrum metal detector was then employed to survey the areas where 18th century historic artifacts were clustered on the surface. Artifact clusters were then tested, employing 39 shovel tests and four excavation units each measuring 2.5 feet by 10 feet. A total of 3,796 artifacts were recovered from this area. Prehistoric artifacts were generally located along the northern and eastern perimeter of the borrow area along the first terrace of the Spring Mill Branch, a branch of the Drawyer Creek. Four distinct clusters of historic artifacts dating to the late 17th through late-18th century were clustered within the borrow area. Historic Cluster 1 is dominated by red brick fragments and redware with minor amounts of domestic debris. Historic Cluster 2 consists of a light collection of domestic artifacts dating to the mid-18th century. Historic Cluster 3 consists of a dense assemblage of domestic debris dating from the late 17th century to the late 18th century. Historic Cluster 4 represents another light collection of domestic artifacts dating to the mid-18th century. Prehistoric materials from this area date from the Late Paleo/Early Archaic through the Woodland II periods and suggest repeated short-term hunting camps over a long period of time.

The artifact assemblage currently suggests an occupation beginning circa 1690, or possibly earlier, and extending to circa 1790. Architectural artifacts from the site and data from Excavation Unit 1, demonstrate the identified structure had a brick foundation for a wood framed superstructure. The building had a cellar extending four feet below the surface, measuring approximately 16 feet by 20 feet.

10. STATE HISTORIC CONTEXT FRAMEWORK (check all appropriate boxes; refer to state management plan(s)):

a) Time period(s)

- ☐ Pre-European Contact
- ☐ Paleo-Indian
- ☒ Archaic
- ☒ Woodland I
- ☒ Woodland II
- ☐ 1600-1750∀ Contact Period (Native American)
- ☒ 1630-1730∀ Exploration and Frontier Settlement
- ☒ 1730-1770∀ Intensified and Durable Occupation
- ☒ 1770-1830∀ Early Industrialization
- ☐ 1830-1880∀ Industrialization and Early Urbanization
- ☐ 1880-1940∀ Urbanization and Early Suburbanization
- ☐ 1940-1960∀ Suburbanization and Early Ex-urbanization

b) Geographical zone

- ☐ Piedmont
- ☒ Upper Peninsula
- ☐ Lower Peninsula/Cypress Swamp
- ☐ Coastal
- ☐ Urban (City of Wilmington)

c) Historic period theme(s)

- ☒ Agriculture
- ☐ Forestry
- ☐ Trapping/Hunting
- ☐ Mining/Quarrying
- ☐ Fishing/Oystering
- ☐ Manufacturing
- ☐ Retailing/Wholesaling
- ☐ Finance
- ☐ Professional Services
- ☒ Transportation and Communication
- ☒ Settlement Patterns and Demographic Changes
- ☐ Architecture, Engineering and Decorative Arts
- ☐ Government
- ☐ Religion
- ☐ Education
- ☐ Community Organizations
- ☐ Occupational Organizations
- ☐ Major Families, Individuals and Events

DELAWARE STATE HISTORIC PRESERVATION OFFICE
15 THE GREEN, DOVER, DE 19901

CULTURAL RESOURCE SURVEY
ARCHAEOLOGICAL SITE FORM

CRS # N14533
Site # 7NC-F-153
Soil Map # WEB

1. **INFORMANT:** William B. Liebeknecht

2. **SURFACE CONDITION:** cultivated ☒ wooded ☐ fallow ☐ submerged ☐ marsh ☐ beach/shoreline ☐ urban ☐

   other:

   integrity: The integrity of the site is very good

3. **SOIL TYPE:** Reybold Queponco Complex, Matapeake silt loam

4. **DESCRIPTION OF FIELD WORK (check all that apply):** surface collection ☒ visibility 90 %

   shovel test ☒ measured unit ☒ mechanical stripping ☒

   remote sensing ☒ walkover ☒ informant collection ☐

5. **COLLECTIONS:**

   a) **Repository** Hunter Research, Inc., Odessa Lab At This Time **Accession #**

   Collector/consultant Hunter Research, Inc.

   Date 10/2011 **Surface** ☒ **Excavation** ☒

   b) **Repository** A&HC, INC. AT THIS TIME **Accession #**

   Collector/consultant Archaeological & Historical Consultants, Inc.

   Date 11/8/2010 **Surface** ☒ **Excavation** ☐

   c) **Repository** **Accession #**

   Collector/consultant

   Date **Surface** ☐ **Excavation** ☐

   d) **Repository** **Accession #**

   Collector/consultant

   Date **Surface** ☐ **Excavation** ☐

Prehistoric
A low grade grey chert narrow bladed projectile point with a contracting stem
A banded dark grey chert triangular projectile point with basal notching known as an Eshback type (Late Archaic or Woodland I 3,230 BC to 1,500 BC). The margins exhibit grinding (Fogelman 1988).
A white quartz narrow bladed projectile point with a straight stem
A red jasper narrow bladed projectile point with a basally notched straight stem Neville/Stanley type circa 6,000 BC to 5,000 BC (Justice 1987).
A yellow/brown jasper narrow bladed projectile point with a contracting stem
A grey chert narrow bladed projectile point flat in cross-section with side notching and basal grinding Meadowood like (Woodland I period circa 1,000-385 BC), (Fogelman 1988).
A black and grey chert narrow bladed elongated triangular projectile point flat in cross-section similar to Meadowood cache blades
A dark brown jasper triangular projectile point reworked into a concave scraper
A large chalcedony humped back scraper (possibly Early Archaic or late Paleo period)
Debitage
Thermally altered rock fragments

Historic
A brass Chinese coin with a square hole in the center. Marked Kung Pu (Board of Public Works) in Boo-Yuwan (Peking/Beijing), it was initially thought to have been minted during the Qing/Ching Dynasty between 1662 and 1722, but the current identification suggests that it dates to the reign of later Qing/Ching Emperor Kao Tsung, between 1736 and 1795. (Calgary Coin and Antique Gallery n.d.; Sea Eagle Coins n.d.).

Westerwald grey bodied stoneware with cobalt blue and incised decoration (one sherd has purple manganese infilling)
White salt-glazed stoneware
Grey bodied salt-glazed stoneware
Scratch blue white salt-glazed stoneware (tea bowls, cups and a punch or slop bowl)
Buff-bodied slip combed Staffordshire ware
Tin enameled buff-bodied earthenware
Redware (black glazed, clear lead glazed, manganese glazed, slip trailed, combed and copper oxide)
Jackfield ware
Agateware
Creamware
Pearlware (blue and green shell edge)
Chinese export porcelain (one handle sherd is hollow cast with an applied scrolled heart)
White tobacco pipe stem fragments
A clear glass intaglio also known as “tassies” impressed with a small building, probably a church with a cross on the top Intaglio's were commonly made into rings so that you could press this into hot wax as a seal on a letter and to leave your initials or a design.
Two glass sleeve link inserts (one blue and the other green)
An iron knife with a pewter guard and a wooden handle
One flint strike-a-light
Olive green mallet bottle fragments
Olive green case bottle fragments
Pale aqua window glass
Window glass pale aqua and pale olive (possibly from Wistarburg Glassworks)

A brass shield shaped harness mount
Cast brass bulbous finial (two pieces)
Cast iron cauldron fragments (body and ears)
Two cast and wrought iron curry combs (for grooming horses)
A cast iron trivet
Wrought iron gudgeon strap hinge
A wrought iron wedge (pin for a wagon or cart)
Wrought iron nails
Bone (pig and cow)
Oyster shell
Red brick fragments (some glazed)
Mortar (sampled)

Lovett Field Dump
19th cnetury glass
Whiteware
Ironstone Granite China

7. FEATURES:

Excavation Unit 1 was placed in historic locus 3 near where the metal detector made several positive hits. This unit originally measured 2 ½ feet by ten feet, but was expanded to 15 feet long following the removal of the plowzone, at which point the edge of a cellar hole was encountered at the south end of the unit. Shallow shovel tests, which removed only the plowzone in the immediate area, were successful in tracing out the projected dimensions of the cellar hole. The length of the cellar hole is projected to be 20 feet, the width is projected to be 16 feet and the depth to floor below the plowzone is three feet. The cellar has a red brick foundation one brick length wide, suggesting a frame superstructure. Excavation Unit 1 in produced 1069 artifacts from Context 1 (an active plowzone), the fill of the cellar hole (Context 5) and the builder's trench (Context 8). A shallow post-hole was located next to the foundation, three feet from the southwest corner. Artifacts recovered from the fill of the cellar hole suggest it was filled prior to 1776, based on the absence of pearlware.

Excavation Unit 2 was placed in historic locus 2, a cluster of domestic artifacts dating to the mid-18th century. Following the removal of the plowzone (Context 1), a sterile sandy loam subsoil (Context 2) was encountered. A total of 82 historic artifacts were recovered from the plowzone. These artifacts consisted of ceramics (redware, creamware, tin enameled buff bodied earthenware, white salt-glazed stoneware, vessel glass, bone, brick, nails and window glass. Although no physical evidence of a structure was observed, the number of architectural and domestic artifacts suggests a house was formerly located nearby. No cultural features or artifacts were observed below the plowzone.

Excavation Unit 3 was placed in historic locus 1, a cluster of domestic artifacts dating to the mid-18th century. Following the removal of the plowzone (Context 1), a silty sand with gravel subsoil, Context 2, was encountered. A total of 69 historic and 16 prehistoric artifacts were recovered from the plowzone. A quartz contracting-stemmed projectile point and a single sherd of redware were recovered from the top of the subsoil and may be intrusive. Historic artifacts consist of creamware, redware, vessel glass, a tobacco pipe stem, wrought nails and red brick, suggesting a structure once stood in the general vicinity during the second half of the 18th century. Prehistoric artifacts consisted of a hammerstone, debitage and thermally altered rock fragments, suggesting lithic reduction or curation of stone tools took place here.

Excavation Unit 4 was placed in historic locus 4, a loose cluster of domestic artifacts dating to the mid-18th century. Following the removal of the plowzone (Context 1), the sterile clay loam subsoil (Context 2) was encountered. A total of nine historic and eight prehistoric artifacts were recovered from the plowzone. These artifacts consisted of redware, creamware, vessel and window and red brick. Although no physical evidence of a structure was observed, the number of architectural and domestic artifacts suggesting a house was formerly located nearby. Prehistoric artifacts from the plowzone consisted of a flake tool, a chert core, debitage and a thermally fracture rock fragment. These artifacts reflect the reduction of local cobbles for the production of stone tools. No cultural features or artifacts were observed below the plowzone.

Phase II Testing revealed the presence of a late 17th through 18th century cart road and multiple postholes thought to be later evidence of property divisions. Two large postholes situated at the eastern terminus are of indeterminate function but may reflect a large gate.

8. DOCUMENTATION:

Publication/report title	Year
Phase IA Archaeological Survey and Testing Strategy, US Route 301 Project Development Purple Section 1, St. Georges Hundred, New Castle County, Delaware, Prepared for Delaware Department of Transportation, Dover Delaware by Archaeological & Historical Consultants, Inc.	2009
Delaware Department of Transportation U.S. Route 301, Section 1 New Areas (And Section 2, Area 17) St. Georges Hundred New Castle County, Delaware Phase IB Archaeological Cultural Resource Survey Parent Agreement 1415 Task 12 Management Summary Prepared for the Delaware Department of Transportation by William Liebeknecht, Principal Investigator and Ian Burrow, Principal Hunter Research, Inc.	2010
Mangaement Summary Agreement 1416, Task 7, Phase IB Archaeological Survey, Purple Section 1, U.S. Route 301 Project Development Purple Section 1, St. Georges Hundred, New Castle County, Delaware, Prepared for Delaware Department of Transportation, Dover Delaware by Archaeological & Historical Consultants, Inc.	2010
Delaware Department of Transportation U.S. Route 301, Section 1 (Purple) St. Georges Hundred New Castle County, Delaware, Elkins Site Loci A & B 7NC-G-174, N14524, Management Summary, Phase II Assessment of Significance Survey *Prepared for:* Delaware Department of Transportation *by:* Jeanne Ward, Principal Investigator and Ian Burrow, Principal Hunter Research, Inc.	October 2011
Delaware Department of Transportation U.S. Route 301, Section 1 (Purple) St. Georges Hundred New Castle County, Delaware, Elkins Site Loci A & B 7NC-G-174, N14524, Phase II Assessment of Significance Survey *Prepared for:* Delaware Department of Transportation *by:* Ian Burrow, Principal Hunter Research, Inc.	March 2014

Supporting documentation on file: (Mark the appropriate boxes)

Field notes	**yes** ☒	**no** ☐
Maps	**yes** ☒	**no** ☐
Drawings	**yes** ☒	**no** ☐
Photographs	**yes** ☒	**no** ☐
Lab Analysis	**yes** ☒	**no** ☐

Other:

DELAWARE STATE HISTORIC PRESERVATION OFFICE
15 THE GREEN, DOVER, DE 19901

CULTURAL RESOURCE SURVEY MAP FORM

CRS # N14533

1. ADDRESS/LOCATION: New alignment of Route 301 Section 1, Area 7

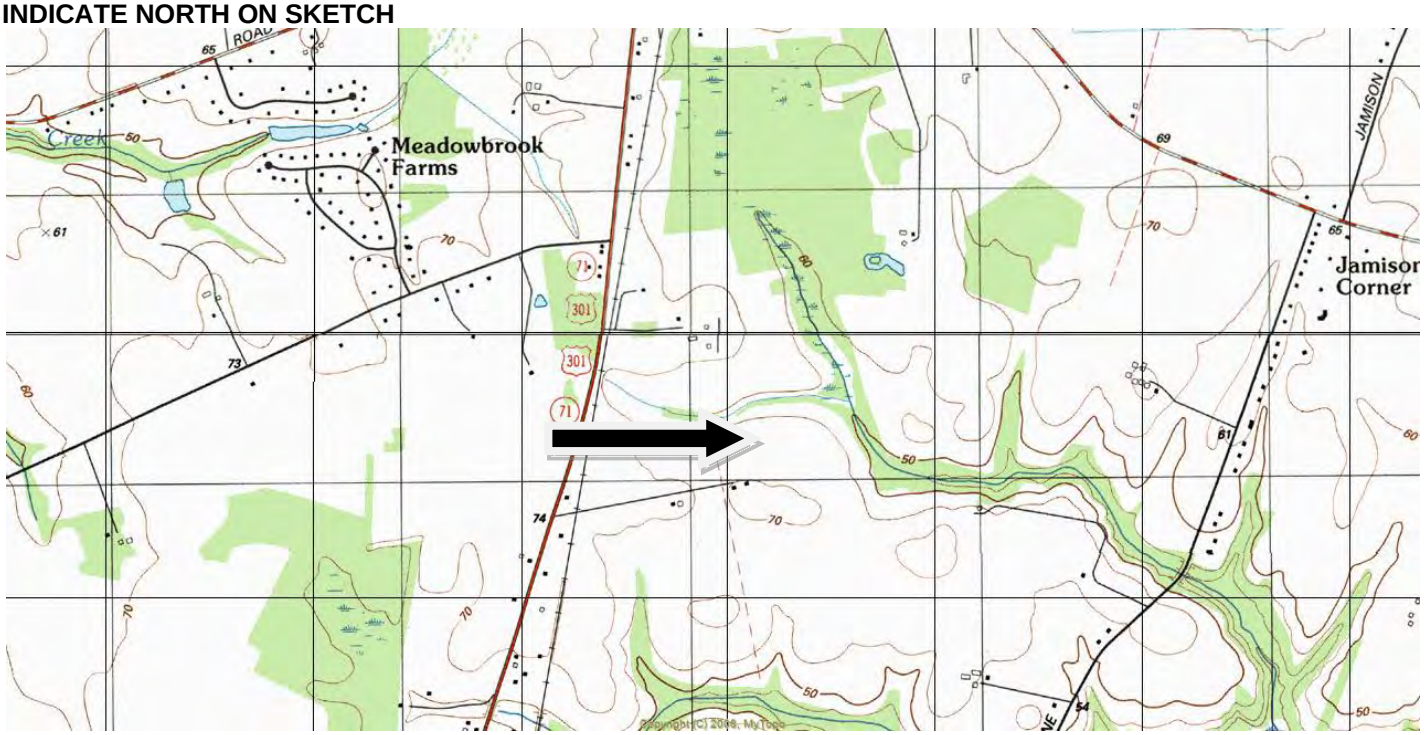
2. NOT FOR PUBLICATION ☐ reason: _____

3. LOCATION MAP:

Indicate position of resource in relation to geographical landmarks such as streams and crossroads.

(attach section of USGS quad map with location marked or draw location map)

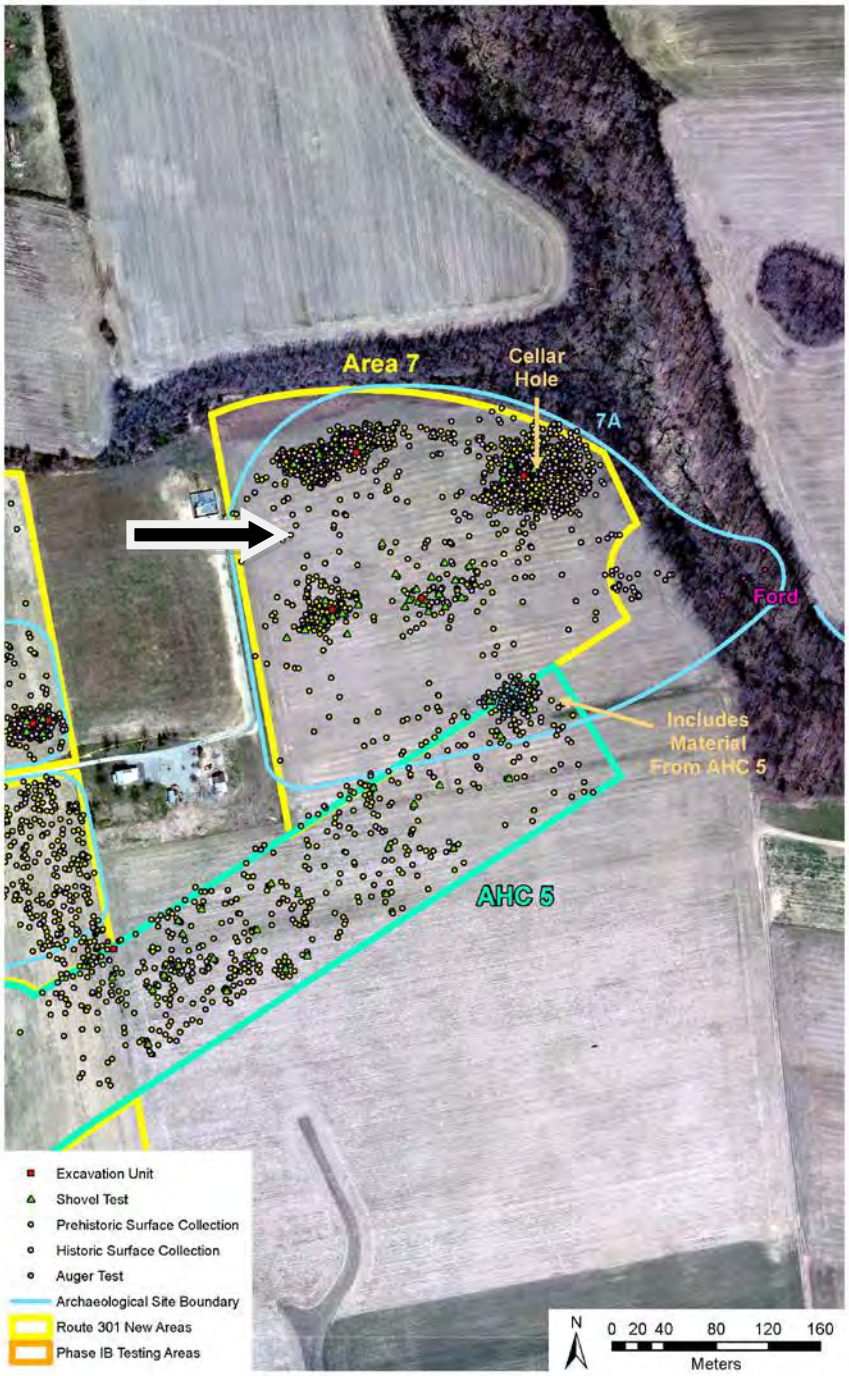
INDICATE NORTH ON SKETCH



4. Phase I SITE PLAN:

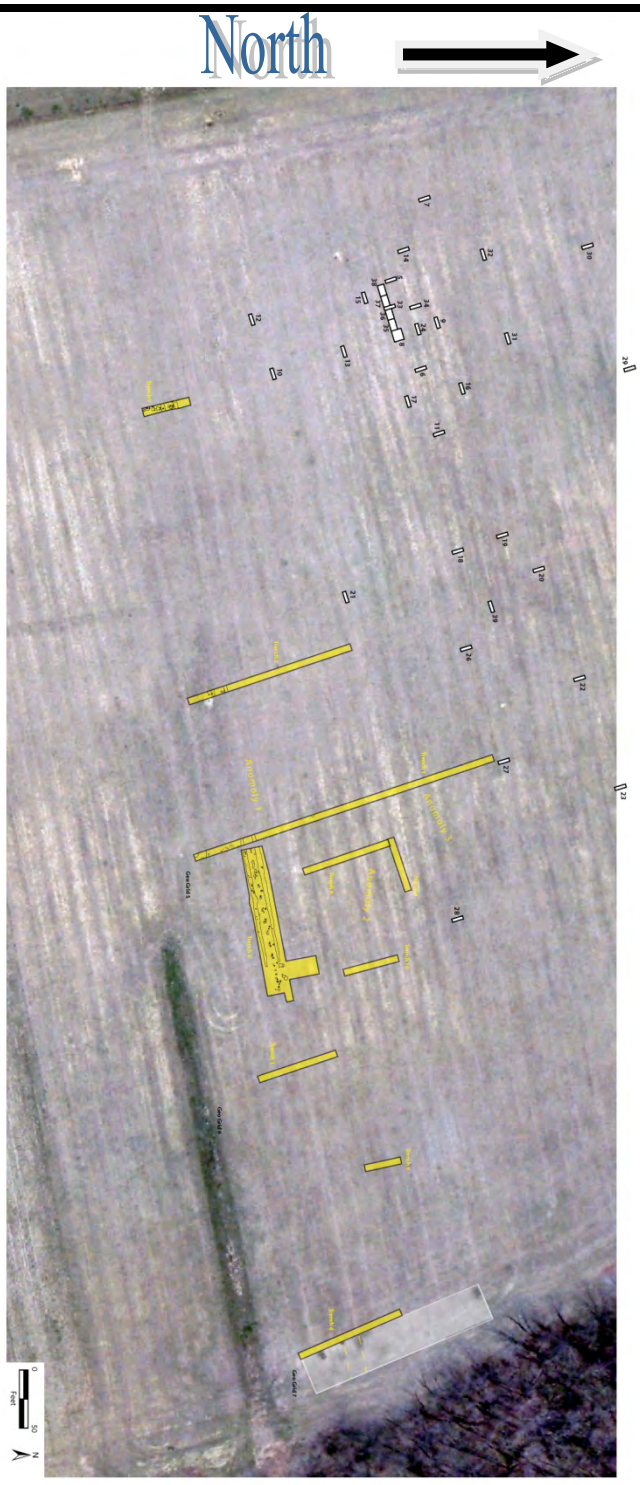
CRS # N14533

INDICATE NORTH ON PLAN



4. Phase II SITE PLAN:

INDICATE NORTH ON PLAN



Appendix D

CART ROAD PREDICTIVE MODEL

SUPPLEMENTARY DOCUMENTATION OF THE CART ROAD ALIGNMENT THROUGH ARCHAEOLOGICAL AND GEOPHYSICAL INVESTIGATIONS

1. Research Objectives

The overall objectives of these investigations are

a) to test the predicted alignment of the Reedy Island Cart Road Alignment in a specific area where the depositional model predicts that physical features of the road will survive;
b) to document these features and compare them with the existing data, and
c) to establish the nature of the East Spring Branch drainage crossing. These research contributions are part of the overall alternative mitigation program for this resource.

The Model

The cart road alignments run across four main types of environmental setting within the Route 301 corridor (see Figure 1):

Zone 1: Essentially level farm fields
Zone 2: Farm fields with slight slopes towards drainages and wetlands
Zone 3: Wetlands, underlain by clay and lying adjacent to drainages
Zone 4: Drainage crossings

The following depositional conditions are predicted for these zones, based largely on the data from Reedy Island Cart Road 4:

ZONE 1

Where the cart road crossed level farm fields, initial use created deep ruts within the upper sandy loam soils. For over a century after the abandonment of the road (i.e. circa 1780 to 1880) animal-traction plowing would have erased the upper portion of the ruts, blending them into the plowzone, but possibly leaving lower components in place. Subsequent mechanized plowing penetrated deeper in to the soil and increased erosion, especially through deflation on these level uplands. Up to two feet of the upper soil profile appears to have been lost in some locations along the Route 301 corridor, as evidenced by heavily truncated historic features such as cellars and postholes.

ZONE 2

As in Zone 1 the period of initial use would have created deep ruts in the upper sandy loam soils and the period following (c.1780 to 1880) would have erased the upper portion of the ruts blending them into the plowzone. What differentiates Zone 2 from Zone 1 is the slight slope towards water courses. In areas of slight slopes towards drainages eroded soils from higher adjacent areas (Zone 1) were accreted during the period of mechanized plowing, partly burying the earlier plowzone and preserving the truncated ruts of the cart roads. On steeper slopes colluvial processes would tend to remove the material and deposit it further downslope.

ZONE 3
Closer to the water the underlying clay lies closer to the surface. There is slight evidence that gravels may have been emplaced to form an informal road bed above the clay in this. Most of these clay areas were probably not plowed during the first century after abandonment but mechanized plowing in the 20th century took advantage of these marginal areas and likely erased any traces of the roadbeds

ZONE 4
Crossings of the actual drainages would either have been by use of bridges or by means of a ford. Fords could be quite informal, simply making use of a portion of the stream having a solid exposed rocky base. This could be improved with wood corduroy or with gravel. Bridges required capital investment and were not common in the 18th century, being largely confined to major roads or "king's highways". The Reedy Island cart road spur is considered very unlikely have had bridges constructed along its alignment, and fords are much more likely at drainage crossings.

These zones are shown on the Preliminary Construction Plans profile of the area of the U.S. 301 crossing of Springmill Branch (Figure 2).

If the above model is valid, the best chances of documenting remains of the cart road within the proposed alignment are in Zones 2 and 4 with a lower chance in Zone 3 and little or no chance in Zone 1. The best potential area conforming to these criteria within the proposed alignment lies within Section 1, Segment 6 buried beneath the plowzone of an agricultural field on the slight slope near the edge of the woods. Elements of the cart road are also visible in Section 1 between Segments 5 and 6 where a ford constructed of gravel was observed in the bed of the headwaters of northern branch of Drawyer Creek. The ford was observed during the Phase IA walkover by Geo-archaeologist John Stiteler (A&HC 2009).

2. Implementation (Figure 3)

a. LIDAR Image Analysis
LIDAR (Light Detection And Ranging) is an optical remote sensing that can measure the distance to, or other properties of, targets by illuminating the target with laser light and analyzing the backscattered light. LIDAR technology has applications in archaeology, geomorphology and contour mapping as well as a host of other fields. LIDAR operates on the same principles as radar and sonar.

LIDAR has many applications in the field of archaeology including aiding in the planning of fieldwork, mapping features beneath forest canopy, and providing an overview of broad, continuous features that may be indistinguishable on the ground such as the now buried 17th century cart road. LIDAR can create high-resolution digital elevation models (DEMs) of archaeological sites that can reveal micro-topography that are otherwise hidden by vegetation. LIDAR-derived products can be integrated into a Geographic Information System (GIS) for analysis and interpretation. Its ability to penetrate forest canopy has led to the discovery of features that were not distinguishable through traditional geo-spatial methods and are difficult to

reach through field surveys. The intensity of the returned signal can be used to detect features buried under flat vegetated surfaces such as fields, especially when mapping using the infrared spectrum. The presence of these features affects plant growth and thus the amount of infrared light reflected back.

It is intended to obtain and analyze LIDAR imagery from DelDOT for the proposed project area. DelDOT holds the data both as point data and as 2 foot contours. Analysis will be undertaken by Seramur and Associates PC, as detailed in Section E.

b. Testing for Physical Survival of the East Spring Branch Crossing through Non-Intrusive Survey

Testing the predictive model will start with mapping of the probable ford location on the East Spring Branch between Segments 5 and 6 in Section 1 of the Route 301 corridor. The probable ford is the only place where the stream can currently be crossed without sinking into the stream bed. It also aligns with the projected line of the section of the cart road identified to the west (Hunter Research, Inc. 2011b, Chapter 3). On the east side of the stream is an apparent borrow pit and a probable ramp leading to the ford location. There are also two large pieces of granite, which is not native to this area of Delaware, lying near the drainage.

Mapping will require some clearing of understory to facilitate use of the total station, and this clearance will be undertaken in accordance with prevailing environmental controls and conditions. The map will include close-interval contour mapping based on a surveyed grid as well as showing specific features and topographic detail.

c. Geophysical Survey (see Section E: proposal from Seramur & Associates PC)

A combined Ground Penetrating Radar and Gradiometer Survey will be undertaken with the objective of identifying the signature of the 18th century cart-road that is believed to have run through the project area. Approximately one acre of surface area will be covered in the field on the east side of the East Spring Branch, with 22,000 linear feet surveyed.

Ground penetrating radar (GPR) and gradiometer data will be collected using a GSSI SIR3000 GPR system equipped with a 400 MHz antenna and a Geometrics G858 Cesium Vapor Gradiometer. A 2-foot grid will be used in order to target former historic structures. The purpose of the two 2-foot grids will be to identify anomalies possibly associated with features of the cart road and artifacts. The geophysical data will be processed and used to identify areas of soil disturbance related to historic signatures within the APE, as specified by Hunter Research, Inc. The GPR signal can be adversely affected by the presence of clayey soils that reduce the maximum depth of penetration to 1-3 feet below surface. Soils at the site away from the clay are described as silt loam and should be suitable for GPR surveys. The site currently has a winter cover crop planted and it will be assumed this crop will be harvested by the time the geophysical survey is conducted.

Three field days are estimated be required to complete the geophysical surveys. Anomalies will be marked in the field from the GPR as the surveys are conducted. It will not be possible to mark the gradiometer anomalies in the field since the person collecting the gradiometer data cannot stop along a survey line once data is being recorded. At the conclusion of the fieldwork

and analyses, a report will be prepared summarizing the survey procedures and results. Anomalies mapped across the survey blocks will be shown on site maps and 3 dimensional time (or depth) slice models of GPR survey data will be produced as well as maps of the gradiometer data.

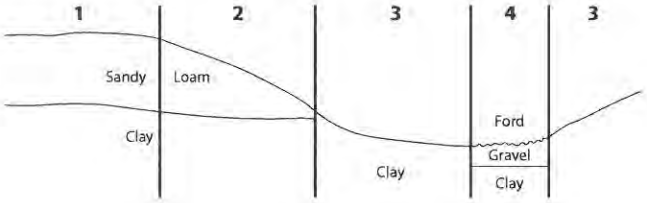
The GPR and gradiometer surveys should determine the location of soil disturbance related to historic cart road and related features across the property. On receipt of the report, consultation between Hunter Research, DelDOT and DelSHPO will determine any adjustments to the field excavation strategy proposed below.

d. Machine-assisted Excavation of Transects across Predicted Alignment

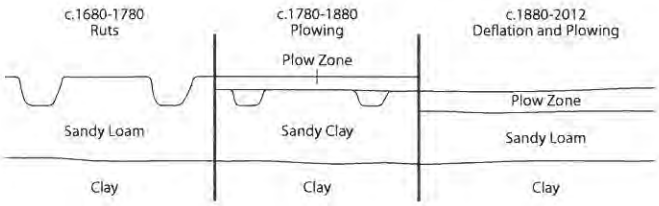
An archaeologically directed backhoe with a flat-blade bucket will be used to remove the plowzone in three staggered trenches, measuring 100 to 120-feet long north-south. These machine trenches will be placed to cross the alignment of the cart road in areas where the geophysical survey suggests that features from the road may lie. The prime objective is to expose the remains of the parallel ruts if present, the methodology being deliberately similar to that employed on the west side of the creek. Following the stripping, the trenches will be shovel scraped and trowelled to identify and define the cultural features. Detailed mapping of each trench will be completed.

In addition to the search for visual identification of cart road features, a soil compaction investigation using a basic soil compaction meter/penetrometer will be undertaken. This will provide immediate relative compaction data across the predicted line of the road and adjacent portions of the field, and is check on and supplement to the manual excavation. Compaction results will be checked against the known road alignment on the west of the stream, where a single narrow supplementary trench will be placed across the road alignment to expose the ditches (see Figure 3). Compaction testing will then be undertaken both between and outside the ditch alignments.

Cart Road Settings/Zones



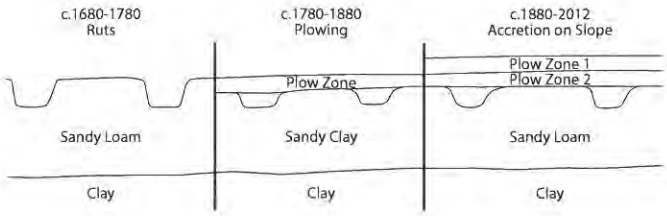
ZONE 1



ZONE 1 Level Farm Fields

c. 1680-1780 Period of use with deep ruts
c. 1780-1880 100 years of plowing erases the upper signature
c. 1880-2012 Another 100+ years of plowing coupled with erosion deflates the profile which continues to be plowed eliminating the remaining profile

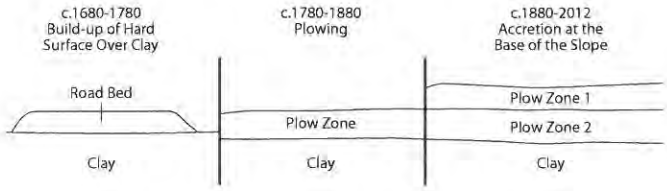
ZONE 2



ZONE 2 Slight Slope Down Toward Water

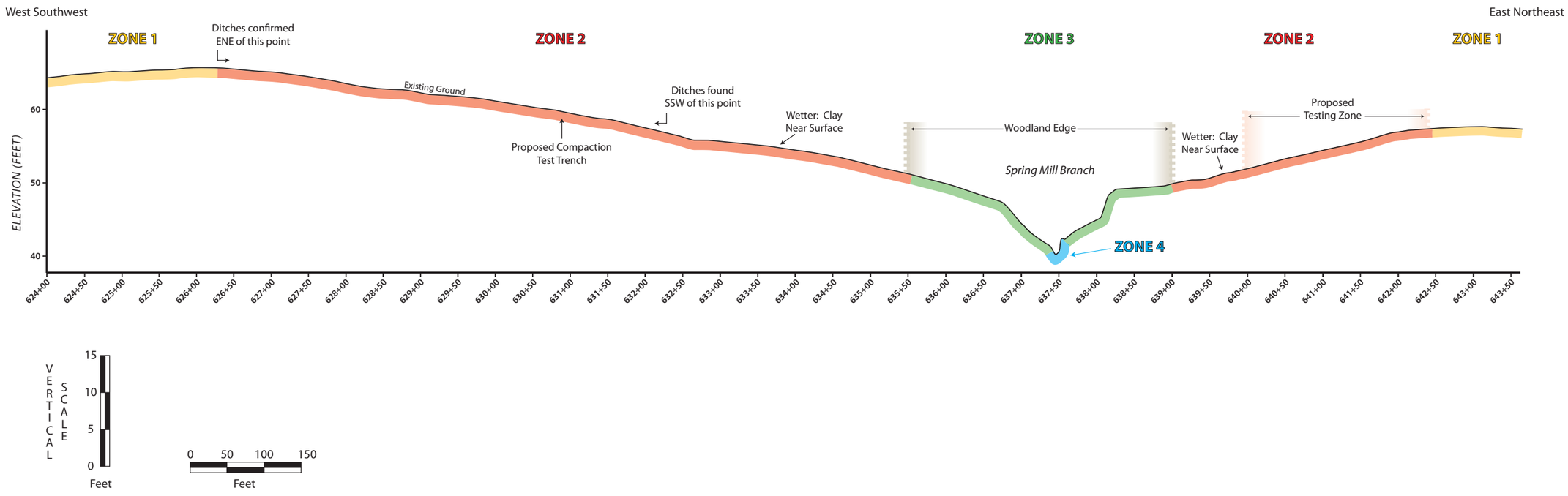
c. 1680-1780 Period of use with deep ruts
c. 1780-1880 100 years of plowing erases the upper signature
c. 1880-2012 Eroded soils from zone 1 shift down slope burying earlier plowzone preserving cart road ruts

ZONE 3



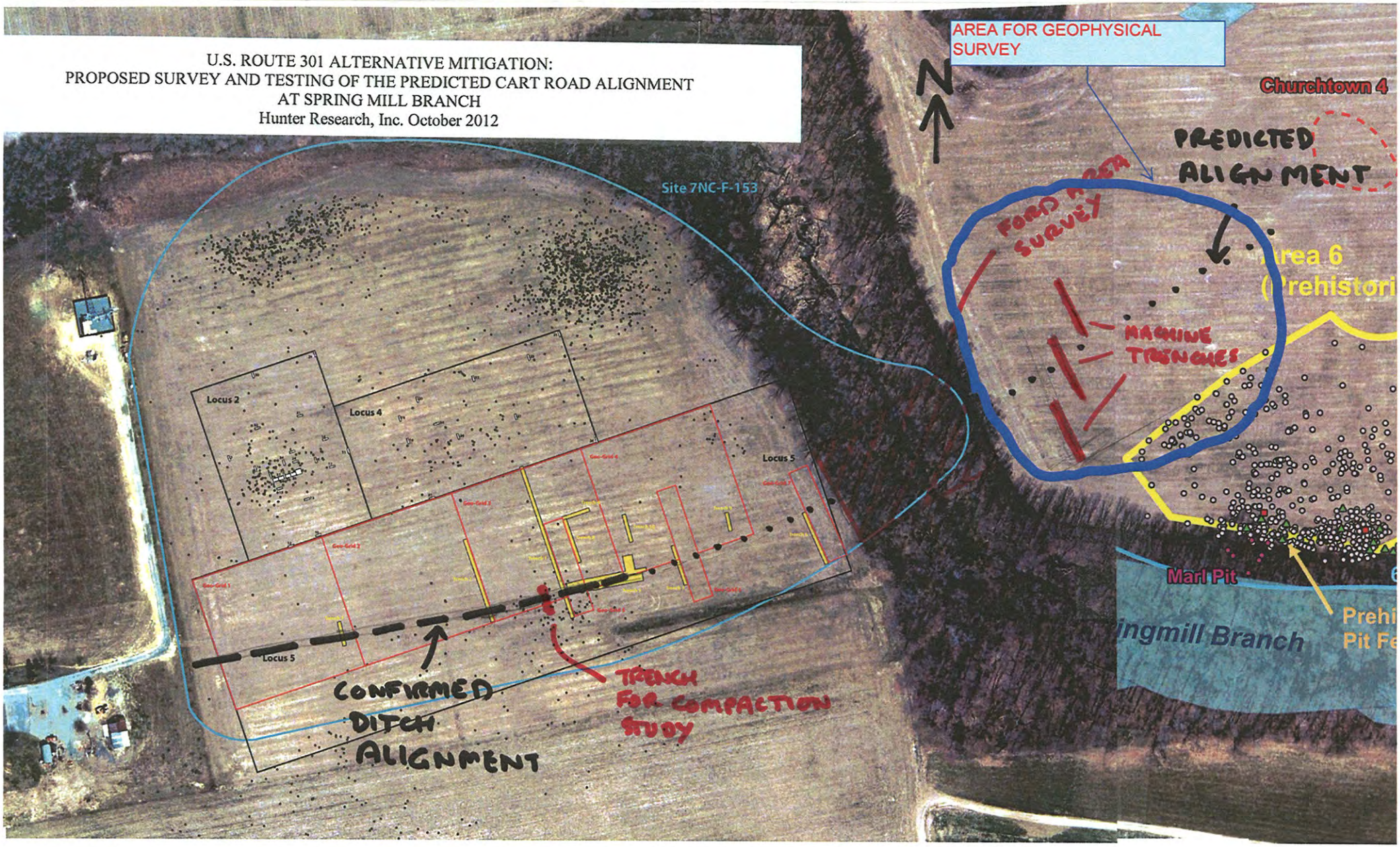
ZONE 3 Wetlands with Underlying Clay

c. 1680-1780 Hard surface added to form road bed over clay soils
c. 1780-1880 Plowing eliminates road bed
c. 1880-2012 Eroded soils from zone 1 shift down slope to bury initial plow zone



2. Profile of the U.S. Route 301 Centerline at the Springmill Branch crossing, with the Cart Road Setting Zones, Existing Archaeological Data, and Proposed Archaeological Testing Area shown. Base Map: DelDOT Preliminary Construction Plans Sheets 30 through 32.

U.S. ROUTE 301 ALTERNATIVE MITIGATION:
PROPOSED SURVEY AND TESTING OF THE PREDICTED CART ROAD ALIGNMENT
AT SPRING MILL BRANCH
Hunter Research, Inc. October 2012



Appendix E

PROJECT ADMINISTRATIVE DATA

APPENDIX E

Project Administrative Data

HUNTER RESEARCH, INC.
PROJECT SUMMARY

Project Name:	Reedy Island Cart Road Site 4 [7NC-F-153], U.S. Route 301 Project, St. Georges Hundred, New Castle County, Delaware, Phase II Archaeological Investigations
Level of Survey:	II
HRI Project Reference:	13036
Date of Report:	April 2014
Client:	Delaware Department of Transportation
Review Agency:	Delaware State Historic Preservation Office
Artifacts/Records Deposited:	Delaware State Museum

PROJECT CHRONOLOGY

Date of Contract Award:	6/19/2013
Notice to Proceed:	6/19/2013
Background Research:	September - December 2011
Fieldwork:	May - June 2011
Analysis:	October - November 2011
Report Written:	January - April 2014

PROJECT PERSONNEL

Principal Investigator(s):	Ian Burrow, William Liebeknecht
Background Researcher(s):	Patrick Harshbarger, Alison Haley
Field Supervisor(s):	Sue Ferenbach, Glen Mellin
Field Assistant(s):	Tim Hitchens, Glen Keeton
Analyst(s):	Sue Ferenbach, William Liebeknecht
Draftperson(s):	Matthew Pihokker, Elizabeth Cottrell
Report Author(s):	William Liebeknecht, Ian Burrow

REEDY ISLAND CART ROAD SITE 4
[7NC-F-153]

ALTERNATIVE MITIGATION:
A RESEARCH PROGRAM TO TEST THE CART ROAD PREDICTIVE MODEL THROUGH GEOPHYSICAL SURVEY, LIDAR IMAGE ANALYIS, SOIL COMPACTION STUDIES, TOPOGRAPHIC MAPPING AND ARCHAEOLOGICAL EXCAVATION

U.S. ROUTE 301 PROJECT
ST. GEORGES HUNDRED
NEW CASTLE COUNTY, DELAWARE

PARENT AGREEMENT 1535
TASK 11

Prepared for:

Delaware Department of Transportation
P.O. Box 778
Dover, Delaware 19903

Prepared by:

Ian Burrow, Principal
William B. Liebeknecht, Principal Investigator
Patrick Harshbarger, Principal Historian
Alison Haley, Historian
Hunter Research, Inc.

APRIL 2014

MANAGEMENT SUMMARY

This report forms part of the Alternative Mitigation treatment program for the Reedy Island Cart Road 4 Site [7NC-F-153], a historic archaeological site treated as eligible for the National Register of Historic Places under the 2007 Memorandum of Agreement for the U.S. Route 301 project in New Castle County, Delaware. Phase I and II studies at 7NC-F-153 showed it to consist of four 18th-century domestic loci, and a fifth area to the south which contained features probably relating to a late 17th- and 18th-century cart road connecting Choptank Road with the east-west route leading to Bohemia Manor from Port Penn and Reedy Island. The cart road features are contributing elements to 7NC-F-153. Since they could not be avoided, a treatment program was agreed to address the adverse effect of the U.S. Route 301 construction.

The component of the treatment plan documented in this report is the testing of a depositional model developed to predict the physical survival of cart-road features in different topographic zones within the U.S. Route 301 corridor. Soils were predicted to have been subject to different degrees of deflation and colluviation depending on the degree of slope and the extent to which they had been cultivated. This deflation and colluviation would have either preserved or destroyed the physical features relating to the road.

The model was tested in the area immediately east of 7NC-F-153, comprising a crossing of the Spring Mill Branch of the Drawyers Creek drainage and the agricultural field on its eastern side. A total of six distinct but complementary and integrated techniques were used in combination to test the model.

Firstly, LIDAR imagery of the area was obtained and reviewed as bare earth contours at two foot intervals. It was hoped that this technique would be particularly effective in identifying features around the wooded crossing point of the creek. Several possible crossing points were identified, but none showed conclusively cultural features.

This was followed up with detailed contour mapping of the crossing area using a total station. This technique proved more useful than the LIDAR, and identified possible ramp-like features on both sides of the incised valley through which the drainage runs. These are interpreted as landscaping features designed to facilitate access by carts to the crossing.

Two remote sensing technologies, ground-penetrating radar (GPR) and gradiometry, were used in tandem on the sloping agricultural field on the east side of the drainage in an attempt to identify signatures that could be related to the cart-road alignments. The GPR approach located several paired linear anomalies that appeared similar to the parallel ditches or ruts noted in the Phase II work at 7NC-F-153. These were provisionally interpreted as several roadway alignments converging on the crossing zone from the east.

MANAGEMENT SUMMARY (CONTINUED)

Gradiometry proved more effective at identifying natural geomorphological features, particularly infilled circular and ovoid seasonal drainage features known as Delmarva Bays. An extant example of one of these bays remains in another portion of the field. Other identified points were predicted to be cultural in origin.

After review of the remote-sensing data, a series of 14 machine-assisted trenches were placed in the agricultural field and on the vegetated east margin of the Spring Mill Branch. These were intended to investigate the physical expression of the anomalies found in the GPR and gradiometer surveys.

Trench B-A-H yielded a large deep prehistoric storage pit (not predicted by the remote sensing). Trenches T and U, which were located within the secondary growth wooded upland between the Spring Mill Branch and the agricultural field, identified possible shallow traces of ditches/ruts. Despite the strong imagery from the remote sensing data, it was not possible to identify any corresponding physical expressions of the linear features in the remaining trenches. Review of the apparently contradictory data suggests that the linear features visible on the GPR reflect real chemical, magnetic and compaction contrasts in the soils that are simply not observable by conventional visual and tactile archaeological techniques.

The final technique deployed was the use of a penetrometer to test for differences in soil compaction predicted to be created by animal-powered wheeled transport over a defined cart road route. Results from the main investigation area were compared with readings from a re-exposed section of the cart road alignment in 7NC-F-153 to the west of the Spring Mill Branch. The studies showed that the “berm” area between the ditches or ruts was significantly more compact than areas outside the ditches or ruts. The bases of ditches/ruts themselves showed compaction intermediate between the “berm” and areas beyond. The working hypothesis from these data is that the “berm” reflects compaction created by draught animals pulling carts, wagons or sleds.

Overall, this research program showed that the original model was over-optimistic in its prediction of the likely physical survival of features of these early, somewhat ephemeral, roads. The distinctive ditches or ruts now seem likely to survive as physically observable features only where protected first by colluviation and then by successional growth. However, ground-penetrating radar frequencies appear to have the ability to detect the signature of these features, which therefore survive almost as “ghosts” in the soil profile.

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ACKNOWLEDGMENTS

Thanks are extended to David Clarke and Kevin Cunningham of the Delaware Department of Transportation for oversight and support throughout the project. Gwen Davis of the Delaware State Historic Preservation Office also provided valuable advice on goals and methodology for the project. We are also grateful to Alice Guerrant and Craig Lukezic of the Historic Preservation Office for input on the work. The work greatly benefitted from geophysical survey and LIDAR processing and analysis of the cart road carried out by Keith Seramur and Edward Ficker of Seramur & Associates, PC. We are also grateful to backhoe operator Matt Miller whose skillful use of his backhoe fitted with a beveled collar enhanced our ability to identify features as he carefully removed the plowzone.

Within Hunter Research, Inc., Ian Burrow served as Project Manager for these investigations. William Liebeknecht, Principal Investigator, directed the field investigations and laboratory analysis. The archaeological field team comprised Susan Ferenbach and Glen Mellin (Senior Archaeologists), Timothy Hitchens, and Glen Keeton, (Field Assistants). Artifact analysis was carried out by Susan Ferenbach. Report graphics were prepared by Elizabeth Cottrell and Matt Pihokker and report formatting was undertaken by Elizabeth Cottrell, both under the direction of James Lee and Ian Burrow. Report management, final editing, and production were overseen by James Lee. This report was authored by William Liebeknecht and Ian Burrow.

William B. Liebeknecht, MA, RPA, Principal Investigator

Chapter 1

RESEARCH DESIGN AND OBJECTIVES

A. INTRODUCTION

1. Historic Properties and Regulatory Framework

Phase II evaluation studies of the Reedy Island Cart Road Site 4 [7NC-F-153] concluded that a suite of archaeological features in Locus 5, comprising two parallel ditches, an intervening berm, and associated post settings are related to the alignment of one of the late 17th- and 18th-century cart roads connecting the Bohemia Manor area along the Upper Chesapeake Bay in Maryland with anchorages and landings on the Delaware (Figures 1.1 and 1.2)(Hunter Research, Inc. 2011a, 2011b, 2014). The studies also concluded that these features were eligible for the National Register under Criterion D. Working within the framework of the 2007 Memorandum of Agreement (MOA), the Federal Highway Administration, the Delaware State Historic Preservation Officer, and the Delaware Department of Transportation determined that an Alternative Mitigation Program would be an appropriate treatment for the adverse effect of the U.S. Route 301 undertaking on these eligible archaeological resources.

As part of the Phase II recommendations, Hunter Research, Inc. prepared a testable depositional model that predicted the topographic settings in which physical traces of these early, and in most cases long-abandoned, roads will be found (Hunter Research, Inc. 2014: Appendix E). In the intensively cultivated and deflated soils of this part of Delaware survival of these features was considered likely to be intermittent and to require the use of multiple techniques for successful identification. This document reports on and assesses the implementation of this Alternative Mitigation Program

2. Historic Context: Augustine Herrman's Cart Roads (Figure 1.3)

The cart road alignment examined in this study is part of the network of early roads across this part of the Delmarva Peninsula that owes its origins to Augustine Herrman in the third quarter of the 17th century. Immediately upon the receipt of his grant of the 6,000-acre Bohemia Manor tract, Augustine Herrman began the construction of a wagon road that extended between a newly created landing at the head of the Bohemia River across the peninsular ridge line to a landing on the Appoquinimink River near the modern day site of Odessa, Delaware.

The scale of this enterprise is shown from early descriptions of the road. In 1679, Dr. Benjamin wrote in a journal account of his trip from Boston to New Castle that "*About 8 myles below New Castle is a Creek* [the Appoqunimink]*, by wch you may come to a neck of land 12 myles over . wch are drawn goods to & from Maryland & Sloopes also of 30 tuns are carried overland in this place on certain sleds drawn by oxen, & launched again into the water on ye other side"* (Mountford 2002). In 1697 Governor, Francis Nicholson claimed that boats and shallops were portaged utilizing sleighs and "great carts" along the eight-mile-long cart road (Hunter Research, Inc. 2009:4-8 to 4-10).

A second, longer route connected the Augustine Creek/Reedy Island area with the main Bohemia Manor property. The 1740 Rumsey Map shows another road branching from the east side of Choptank Road, north of the Bohemia Landing road, and heading off to the northeast and (based on archaeological and cartographic evidence) intersecting with the east-west route from Reedy Island to Bohemia (mentioned

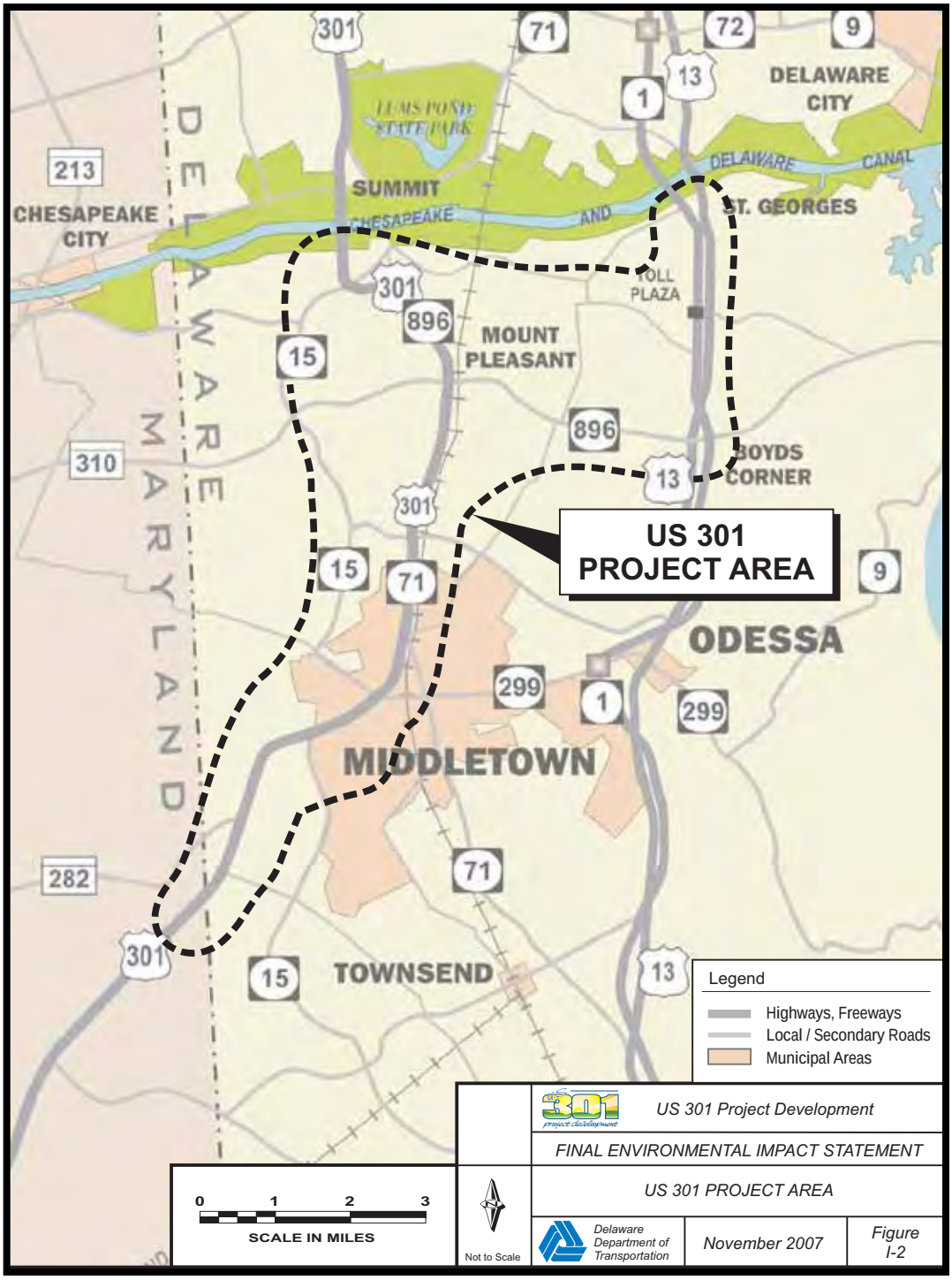


Figure 1.1. General Location of the U.S. 301 Selected Alternative Project Corridor. The area covered by this report is indicated. Source: Federal Highway Administration and Delaware Department of Transportation 2007:Figure I-2.

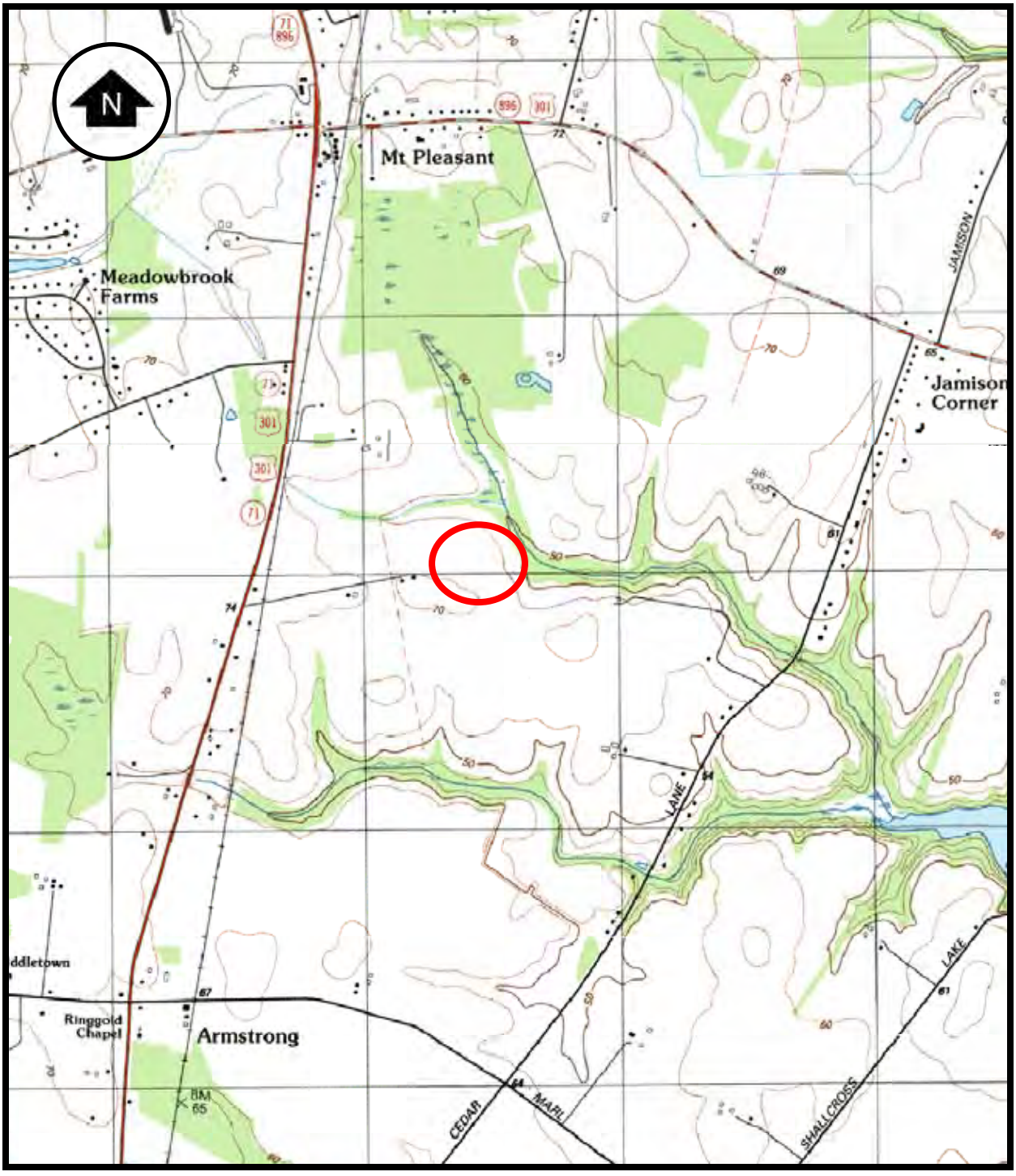


Figure 1.2. Detailed Location of the Alternative Mitigation Studies and the adjacent Phase I and II Investigations of the Reedy Island Cart Road Site 4 (7NC-F-153, N14533). Source: USGS Middletown, Delaware Quadrangle, 1953, photorevised 1986.

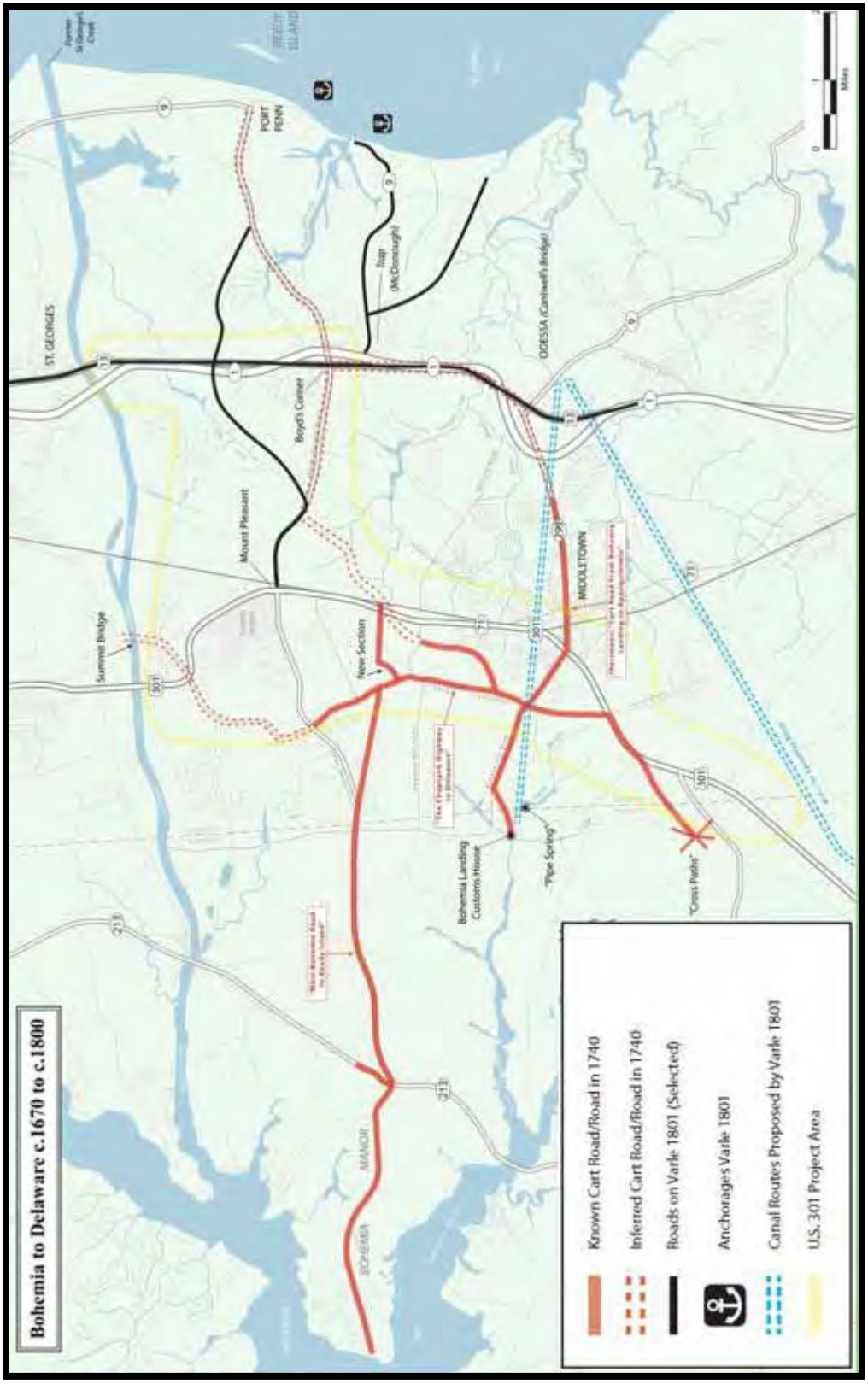


Figure 1.3. The Early Cart Road System from the Upper Chesapeake to the Delaware in the U.S. Route 301 Vicinity, as compiled in 2012. The map is compiled from several sources, but particularly the 1740 Rumsey and 1801 Varle Maps, with inferred or predicted continuations based on topography and other research. The project area is indicated. (Hunter Research, Inc.)

above) to the west of Boyd's Corner. This road can perhaps be seen as a cut-off route that would enable traffic coming from Bohemia Landing and heading to Appoquinimink/Odessa to instead divert northwards to Reedy Island. The route saves over two miles of that distance by skirting the headwaters of Drawyers Creek rather than following the north-south Choptank Road up to its intersection with the Bohemia/Reedy Island road. The construction date of this road is unclear although it was likely to have been built in the second half of the 17th century. It is this road which has been the object of the studies documented here.

B. THE OBJECTIVES

The overall objectives of these investigations were to:

1. Test the predicted alignment of the Reedy Island Cart Road in a specific area where the depositional model predicts that physical features of the road will survive, using multiple techniques (Figure 1.4);

2. Document these features and compare them with the existing data; and

3. Establish the nature of the East Spring Branch drainage crossing.

C. THE MODEL

The cart road alignment runs across four main types of environmental settings within the U.S. Route 301 corridor (Figure 1.5): Zone 1 -essentially level farm fields; Zone 2 - farm fields with slight slopes trending towards drainages and wetlands; Zone 3 - wetlands, underlain by clay and lying adjacent to drainages; and Zone 4 - drainage crossings. These zones are shown on the preliminary construction plans profile of the area of the U.S. Route 301 crossing of Springmill Branch (Figure 1.5). The following depositional conditions were predicted for these zones, based largely on the data from Reedy Island Cart Road Site 4:

Zone 1: Where the cart road crossed level farm fields, initial use created deep ruts within the upper sandy loam soils. For over a century after the abandonment of the road (i.e. *circa* 1780 to 1880) animal-traction plowing would have erased the upper portion of the ruts, blending them into the plowzone, but possibly leaving lower components in place. Subsequent mechanized plowing penetrated deeper in to the soil and increased erosion, especially through deflation on these level uplands. Up to two feet of the upper soil profile appears to have been lost in some locations along the U.S. Route 301 corridor, as evidenced by heavily truncated historic features such as cellar holes and postholes.

Zone 2: As in Zone 1 the period of initial use would have created deep ruts in the upper sandy loam soils and the period following (*circa* 1780 to 1880) would have erased the upper portion of the ruts blending them into the plowzone. What differentiates Zone 2 from Zone 1 is the slight slope towards watercourses. In areas of slight slopes towards drainages eroded soils from higher adjacent areas (Zone 1) were accreted during the period of mechanized plowing, partly burying the earlier plowzone and preserving the truncated ruts of the cart roads. On steeper slopes colluvial processes would tend to remove the soil materials and deposit them further downslope.

Zone 3: Closer to the water the underlying clay lies closer to the surface. There is slight evidence that gravels may have been emplaced to form an informal road bed above the clay in this. Most of these clay areas were probably not plowed during the first century after abandonment but mechanized plowing in the 20th century took advantage of these marginal areas and likely erased any traces of the built-up roadbeds.

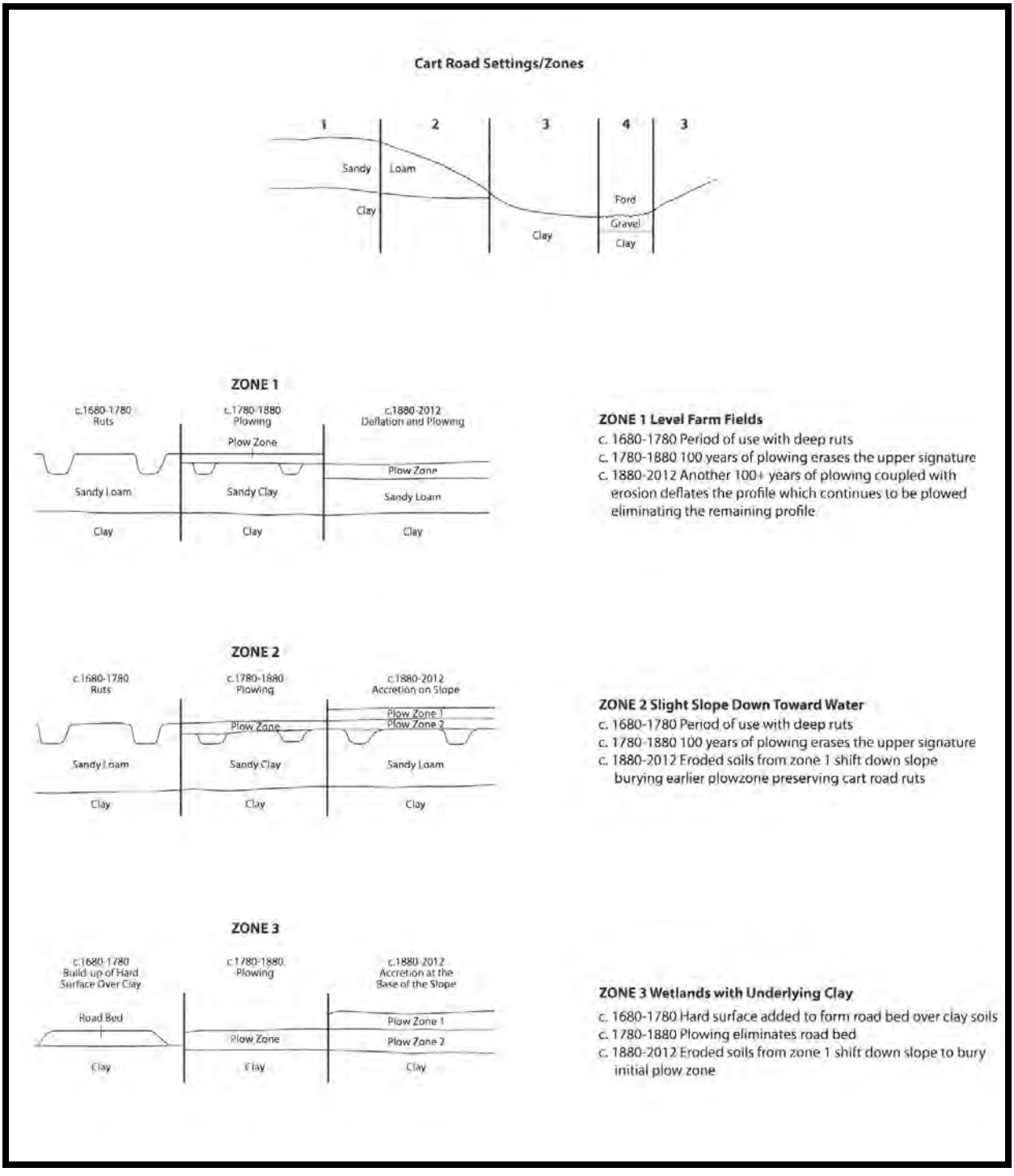
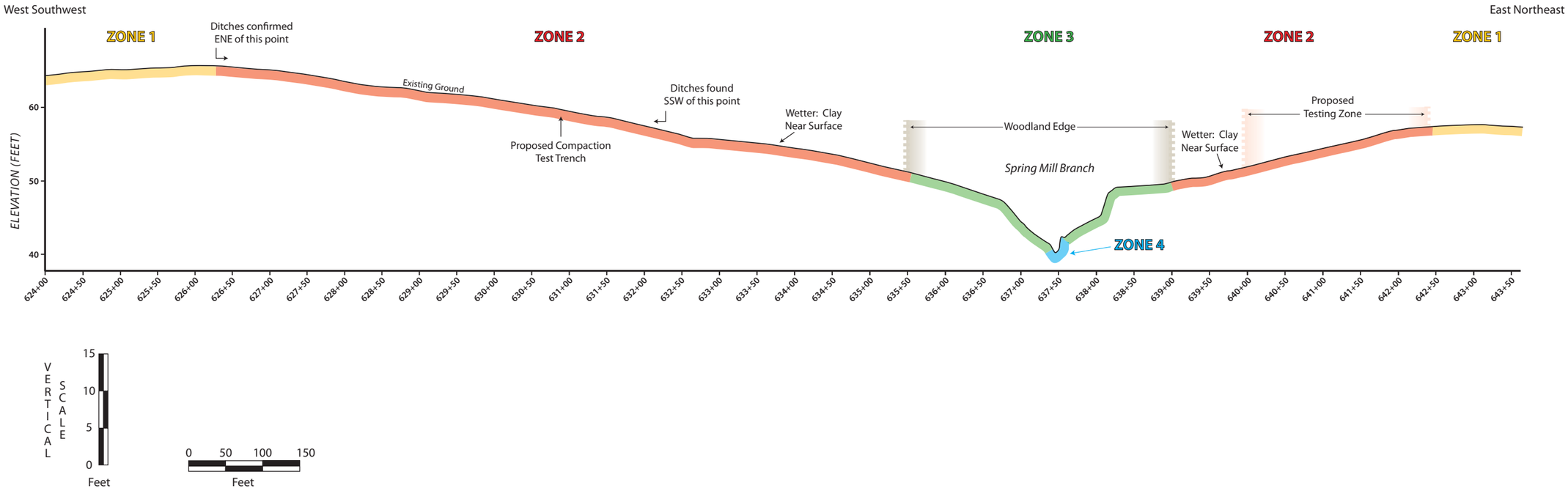


Figure 1.4. Model of Cart Road Setting Zones.



2. Profile of the U.S. Route 301 Centerline at the Springmill Branch crossing, with the Cart Road Setting Zones, Existing Archaeological Data, and Proposed Archaeological Testing Area shown. Base Map: DelDOT Preliminary Construction Plans Sheets 30 through 32.

Figure 1.5. Profile of the U.S. Route 301 Centerline at the Spring Mill Branch.

Zone 4: Crossings of the actual drainages would either have been by use of bridges or by means of a ford. Fords could be quite informal, simply making use of a portion of the stream having a solid exposed rocky base. This could be improved with wood corduroy or with gravel. Bridges required capital investment and were not common in the 18th century, being largely confined to major roads or "king's highways". The Reedy Island cart road spur is considered very unlikely to have had bridges constructed along its alignment, and fords are much more likely at drainage crossings.

If the above model is valid, the best chances of documenting remains of the cart road within the proposed alignment are in Zones 2 and 4 with a lower chance in Zone 3 and little or no chance in Zone 1. The best potential area conforming to these criteria within the proposed alignment was identified within Section 1, Segment 6, buried beneath the plowzone of an agricultural field on the slight slope near the edge of the woods, immediately east of the Reedy Island Cart Road 4 site. Elements of the cart road are also visible in Section 1 between Segments 5 and 6 where a ford constructed of gravel was observed in the bed of the headwaters of northern branch (Spring Mill Branch) of Drawyer Creek. The ford was observed during the Phase IA walkover by Geo-archaeologist John Stiteler (Archaeological and Historical Consultants, Inc. 2009).

Chapter 2

IMPLEMENTATION

A. INTRODUCTION

This chapter describes the following investigations and field activities carried out within the limits of the project area: LIDAR imagery analysis, detailed mapping, geophysical survey, mechanical test trenching, and compaction testing (Figure 2.1).

B. LIDAR IMAGE ANALYSIS

LIDAR (Light Detection And Ranging) is an optical remote sensing that can measure the distance to, or other properties of, targets by illuminating the target with laser light and analyzing the backscattered light. LIDAR technology has applications in archaeology, geomorphology and contour mapping as well as a host of other fields. LIDAR operates on the same principles as radar and sonar.

LIDAR has many applications in the field of archaeology including aiding in the planning of fieldwork, mapping features beneath forest canopy, and providing an overview of broad, continuous features that may be indistinguishable on the ground such as the now-buried 17th-century cart road. LIDAR can be used to create high-resolution digital elevation models (DEMs) of archaeological sites that can reveal micro-topography that is otherwise hidden by vegetation. LIDAR-derived products can be integrated into a Geographic Information System (GIS) for analysis and interpretation. Its ability to penetrate forest canopy has led to the discovery of features that were not distinguishable through traditional geo-spatial methods and are difficult to reach through field surveys. The intensity of the returned signal can be used to detect features buried under flat vegetated surfaces such as fields, especially when mapping using the infrared spectrum. The presence of these features affects plant growth and thus the amount of infrared light reflected back.

LIDAR data was obtained from the National Oceanographic and Atmospheric Administration's "2007 Delaware Coastal Program Lidar: Kent and New Castle Counties" (Figure 2.2). The data acquisition occurred in 7 missions between March 31 and April 5, 2007 in Kent and New Castle Counties, Delaware. The data have been classified and were flown to derive bare earth contours at two foot intervals. Multiple returns were recorded for each laser pulse along with an intensity value for each return. The points have a 1.4 m ground spacing (1.0 m ground spacing within the Wilmington Urban Area). This data set is a raster file of z values with 3712 columns and 2081 rows. The data set was extracted from a larger classified data set and only includes points classified as Ground, Model Key-point (mass point), and Bathymetric LiDAR Points within the geographic bounds (Figure 2.3).

Figure 2.4 shows the last LIDAR returns or bare earth model of the possible cart road crossing of Spring Branch. Three arrows have been sketched over Figure 2.4. The first arrow shows an area where the stream channel has an unusual configuration (trending southwest-northeast). The streambed widens at this point. This could be due to springs discharging to the stream or historic modification of the channel. The second arrow points to an area where there is a gentle slope down to the stream channel from the southwest. This is near one of the shoals or riffles observed in the field. The third arrow is located at the bend in the stream channel. The stream channel morphology changes at

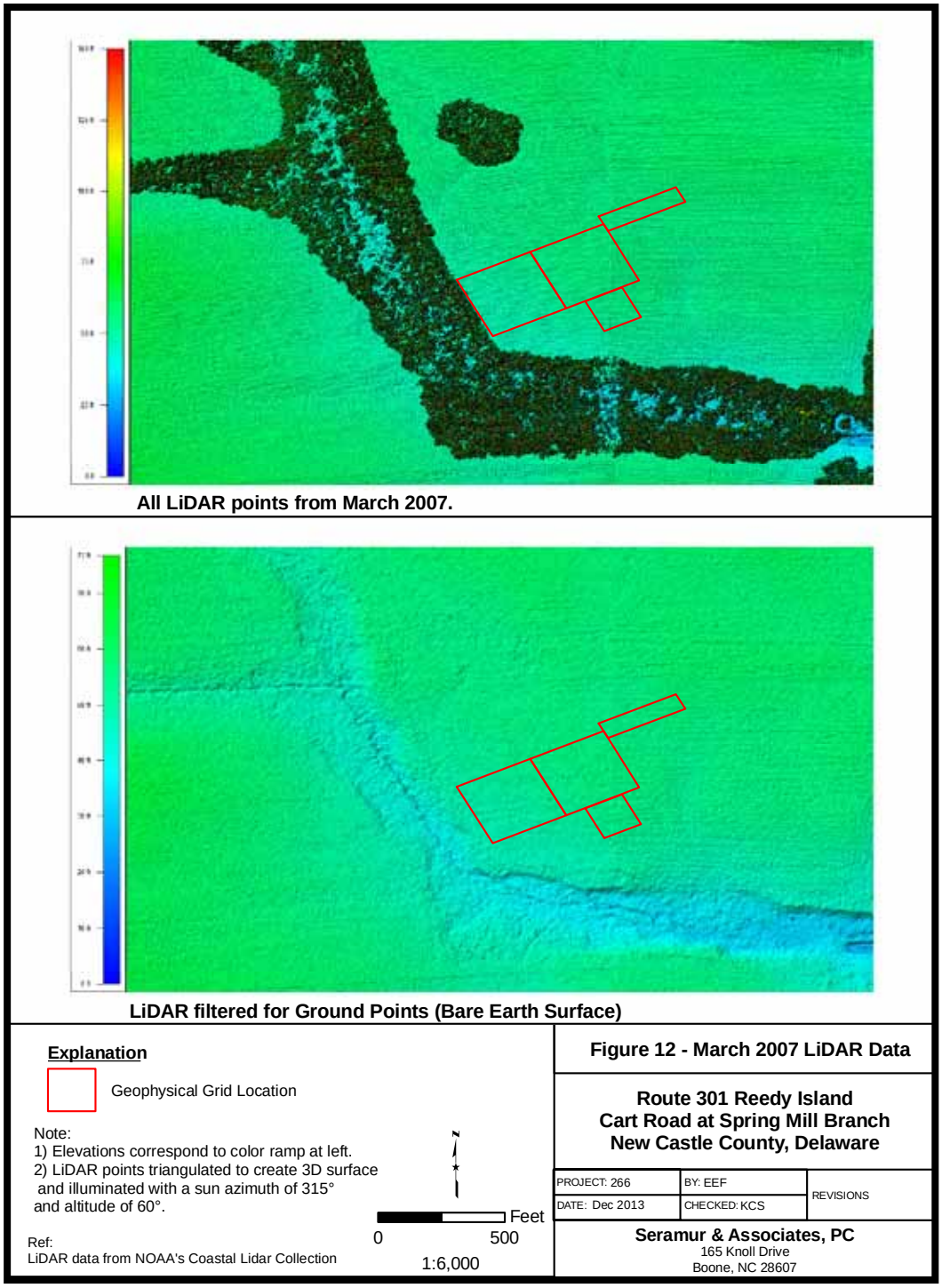


Figure 2.2. LiDAR Points (Seramur Figure 12).

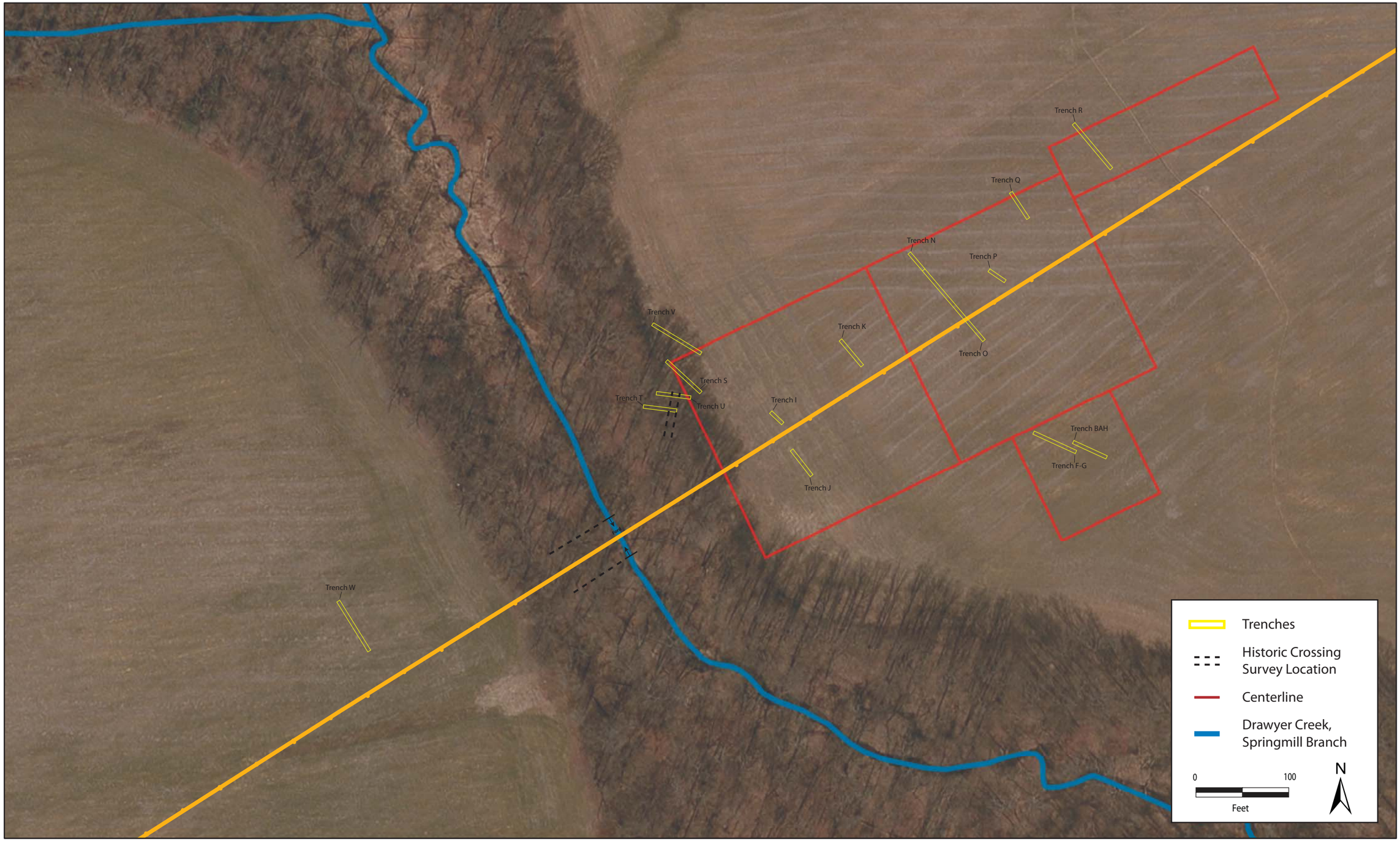


Figure 2.1. Map of Project Area showing location of Geophysical Grid, Historic Crossing Survey Location, and Excavation Trenches.

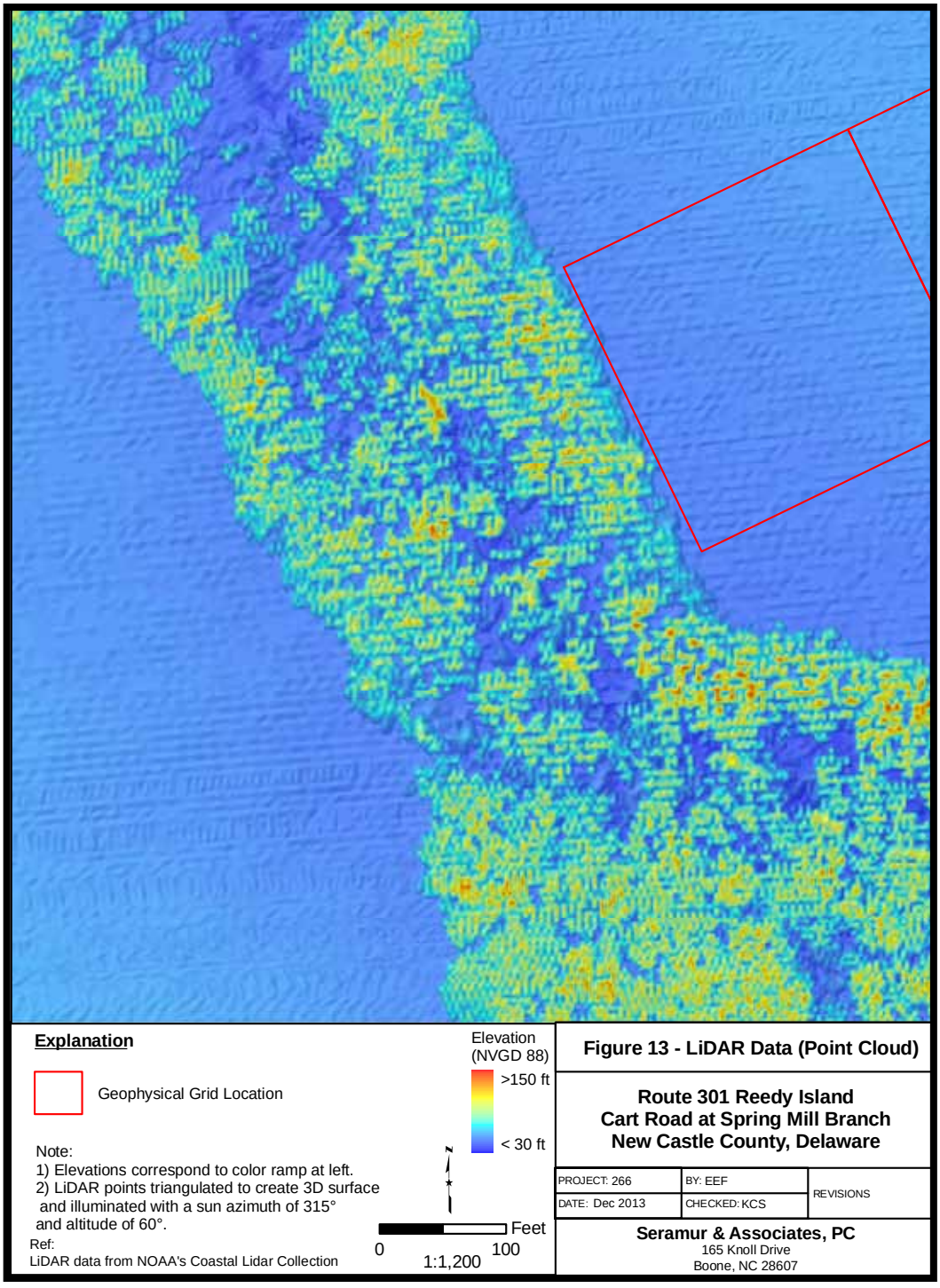


Figure 2.3. LiDAR Point Cloud at Historic Crossing (Seramur Figure 13).

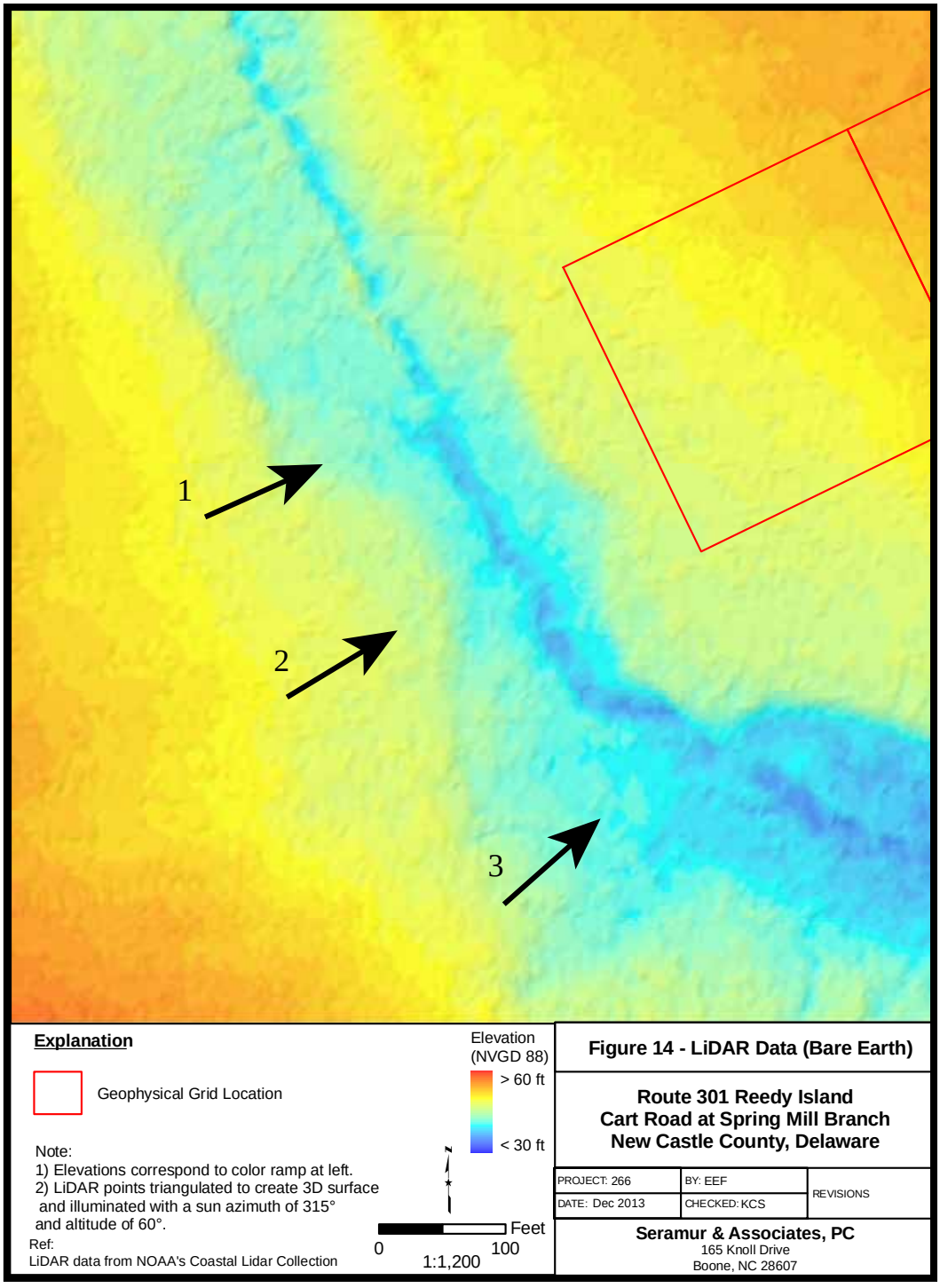


Figure 2.4. LiDAR Bare Earth image at Historic Crossing with possible crossing sites indicated on LiDAR marked by arrows (Seramur Figure 14).

this bend in the river. Upstream the channel is narrow and appears relatively confined. Downstream of the bend the channel appears to meander across a wide lowland area (broad dark blue area on Figure 2.4). A historic crossing of Spring Branch would have been more practical upstream of the bend, along the narrow confined portion of the channel.

C. TESTING FOR PHYSICAL SURVIVAL OF THE EAST SPRING BRANCH CROSSING THROUGH NON-INTRUSIVE SURVEY

Testing the predictive model involved mapping of the probable ford location on the East Spring Branch between Segments 5 and 6 in Section 1 of the U.S. Route 301 corridor (Figure 2.5). The probable ford is the only place where the stream can currently be crossed without sinking into the streambed. It also aligns with the projected line of the section of the cart road identified to the west (Hunter Research, Inc. 2011b: Chapter 3). On the east side of the stream an apparent borrow pit and a probable ramp leads to or away from the ford location. There are also two large pieces of granite, which is not native to this area of Delaware, lying adjacent to the stream at the probable ford.

Mapping required clearing of understory vegetation to facilitate use of the total station. This clearance was undertaken in accordance with prevailing environmental controls and conditions, clearing only briars, vines, small diameter trees and dead wood. The mapping involved close-interval contour mapping based on a surveyed grid tied to Delaware Department of Transportation's (DelDOT) established stations as well as showing specific features and topographic details.

On the east side of the Spring Mill Branch a baseline was established along the perimeter of the wooded upland within the agricultural field. Survey points were established every five feet along the baseline and every five feet perpendicular to the baseline down to and across the Spring Mill Branch. The resulting map provided detailed, two-foot contour resolution of the area around the wooded crossing (Figure 2.5). Elevations ranged from 42 feet above mean sea level (AMSL) to 54 feet AMSL. Prior to clearing and contour mapping of the area, a potential roadway was noted heading northeast up and away from the probable ford roughly along the alignment of the centerline. Following the removal of the understory the initial trajectory seemed less likely as the gradient would have been difficult to traverse with a heavy payload. Clearing of the understory did however reveal another more likely path heading north-northeast on a 45 degree angle away from the centerline crossing of the stream at the probable ford. Along this trajectory there is a visible disruption in the natural course of the contour lines. Trenches T and U positioned to investigate this alignment, encountered traces of a pair of probable parallel ruts (see below). Another disruption of the natural contours is visible immediately northwest of Station 639+00 suggesting perhaps another parallel alignment situated 25 feet east of the alignment observed in Trenches T and U. Due to mature vegetation in this area and budget constraints this potential alignment was not investigated using subsurface testing.

On the west side of the Spring Mill Branch clearing of the understory and close interval mapping show a disruption of the natural contours about 40 feet northwest and 40 feet southeast of the centerline suggesting the cart road may have meandered widely from side to side avoiding potential hazards. No subsurface testing was conducted on this side of the stream.

D. GEOPHYSICAL SURVEY

1. Methods

The combined Ground Penetrating Radar (GPR) and Gradiometer Survey was undertaken with the objective of identifying the signature of the cart road. Approximately one acre of surface area was initially scheduled to be covered in the field on the east side of the East Spring Branch. This was increased to 3.7 acres in the field.

The study area, located in an agricultural field, was tilled and disked prior to the investigations and planted with a winter cover crop that enabled smooth running of the geophysical equipment across the ground surface. Hunter Research marked an area approximately 250 foot square on the east side of Spring Mill Branch that aligned with the cart road on the west side of the stream. Seramur & Associates laid out survey grids to collect data along 0.5 meter transects. Grids 1 and 2 were each 76 square meters (249.4 feet by 249.4 feet). Each grid approximates the size of the initial target area laid out by Hunter Research. Grid 2 was added to Grid 1 along the alignment of the cart road (Figure 2.6). Grids 1 and 2 were divided into 4 sections (A through D) for the GPR survey. This limits the size of the data files and allows the data to be processed at different target depths across the terrain.

The GPR data was processed at the end of each day and evaluated. Linear anomalies were observed crossing the northern half of Grids 1 and 2. Grid 3 was therefore added onto the northeastern corner of Grid 2 to follow these anomalies (Figure 2.6). Grid 4 was added to an elevated area south of Grid 2 to assess if there was a southern route for the cart road in this area. Hunter Research had reported a possible historic site in the area of Grid 4. The GPR system was available for a few hours at the end of the budgeted field time. Grid 4b was added to widen GPR coverage of this southern survey area.

The GPR survey was completed using the Geophysical Survey Systems, Inc. 400 MHz antenna and a SIR-3000 Single Channel GPR Data Acquisition System. Radanã software was used to produce a 3-dimensional (3-D) model of the geophysical data. Magnetic field data was collected using the Geometrics Cesium Vapor G858 Magnetometer. Gradiometer data was obtained by using two vertically separated magnetometer sensors that measure changes in the earth's magnetic field along the grid transect. The gradient between the magnetometer readings from each sensor was recorded and used to map anomalies across the survey area. MagMapperã software is used to export the magnetic field gradient data into X, Y, Z ASCII columnar format files. These data files were imported into Surferã software where they were compiled into gradiometer images. The data was processed to eliminate extreme gradiometer measurements (those exceeding $\pm$15 nanoTesla).

The GPR and gradiometer grids were compiled in Adobe Illustratorã and exported as tiff files. Tiff files were then imported into ArcGIS Desktopã Geographical Information Software to georeference the compiled grids. Geophysical data was collected along survey lines spaced 0.5 m apart. The grid layout and orientation are shown in Figure 2.6, with the X and Y values for the grid corners labeled.

2. Results

The GPR data is presented in Figures 2.7 and 2.8. The fields had been plowed in a northwest-southeast orientation in the past. The 3-D models of GPR data were sliced to depths between 0.45 to 0.65 m. The plow scars produce strong linear anomalies in the northwest-southeast direction. Some of these scars extended to a depth of 0.5 m. The slice thickness was varied from 0.1 to 1.0 m during the data processing to determine the best thickness for identifying GPR reflectors (anomalies) potentially associated with

Figure 2.5. Topographic Survey of the postulated Cart-Road Crossing of the East Spring Branch.

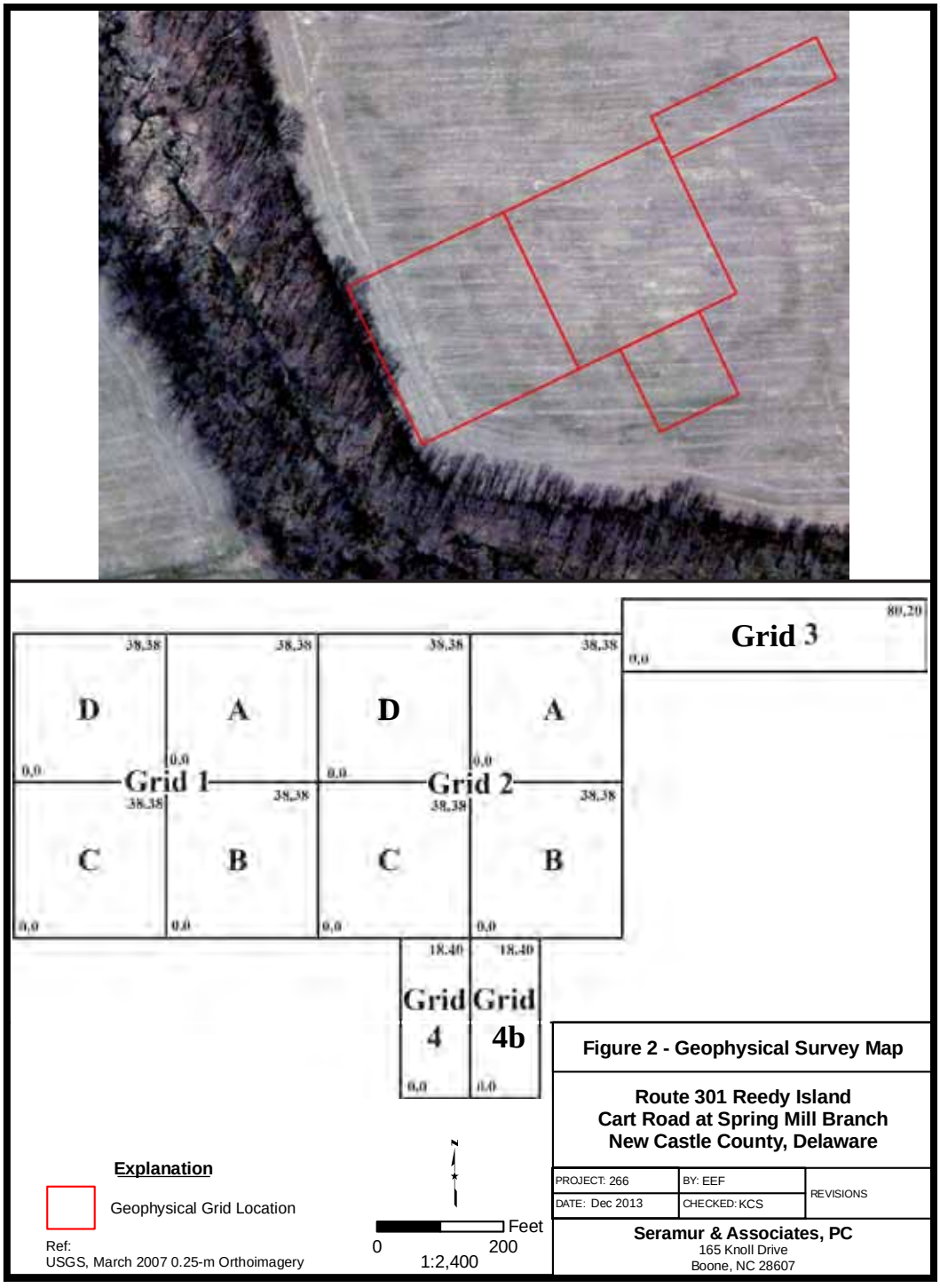


Figure 2.6. Geophysical Survey Grid (Seramur & Associates, PC 2013, Figure 2).

the cart road. Linear anomalies that could possibly represent the cart road appear to be best illustrated using a slice thickness of 0.2 m or 20 cm. GPR reflections imaged in the radar data were selected at depths between 35-55 cm, 45-65 cm and 55-75 cm. Each sub-grid was evaluated separately and the appropriate depth for the grid slice was selected.

The cart road orientation was projected to range between southwest-northeast to east-west. This is an orientation perpendicular to, or oblique to, the direction (north-south) that the GPR data was collected. Collecting data oblique or perpendicular to the direction of the target anomalies reduces the possibility of introducing artifacts into the GPR data. A background of dispersed GPR reflections occurs across the west side of Grid 1 (Figure 2.7). This area is on the slope up from the Spring Mill Branch drainage. Sediment eroded off the upland surface has accumulated on this slope. Deep plow scars produce relatively strong northwest-southeast orientated reflections across the central survey area (Figure 2.7). The central and eastern grids are located on the upland surface. These plow scars extend down into the B horizon or subsoil.

Two prominent east-west linear GPR reflections extend across the northern portion of Grids 1 and 2 (Figure 2.9a). Proposed trench locations I, K, N and Q were located across these anomalies (Figure 2.9b). The spacing of these parallel anomalies is about 6 to 8 feet. Two additional sets of parallel linear anomalies were identified in Grid 2 (Figure 2.9c). Trenches O and P were located across these southwest-northeast trending anomalies (Figure 2.9d). There is an elongate, rectangular area with a low reflection density in Grid 1 (Figure 10a). Two southwest-northeast trending linear anomalies were traced through this area and Trench J was located across these anomalies (Figure 10b). Several east-west to southwest-northeast trending linear anomalies are located in southern Grid 2 and Grids 4 and 4b (Figure 2.7). A rectangular outline of GPR reflections was noted in Grid 4b (Figure 2.8). Hunter Research excavated trenches B-A-H and G-F across these anomalies (Figure 2.8). Trench B-A-H was excavated along the southwest side of the rectangular anomaly. Hunter Research reported a large pit feature in the trench near point B.

The gradiometer data is presented in Figures 2.11 and 2.12. Three anomaly types were observed in the gradiometer data. The first were large oval features, which are addressed in the Delmarva Bay discussion below. The second were a series of linear southwest-northeast trending anomalies showing an elevated magnetic gradient (Figures 2.11 and 2.12). These linear anomalies did not show up in the GPR data. They could be related to bedding or changes in iron content in the underlying fluvial and marine sediment. The G858 magnetometer is very sensitive and metallic objects produce a strong magnetic signal in the gradiometer data. These show up on the gradiometer images as polar (white and black) anomalies (Figure 2.11). These metallic anomalies are circled on Figure 2.12. There is a line of these metallic anomalies that trends along the linear set of GPR anomalies in the northern portion of Grids 1 and 2 (Figures 2.8 and 2.12).

Several areas of interest were noted in Grids 4 and 4b on the gradiometer and GPR data. These were flagged in the field using plastic stemmed pin flags and assigned letter point locations A through H for later identification and testing by the archaeological field team. These areas of interest are referred to in the text here after as “Points”. They include a complex of circular anomalies in the vicinity of Points G, H and F (Figure 2.11). At the conclusion of the geophysical fieldwork and analyses, a report was prepared summarizing the survey procedures and results (Appendix A). Anomalies mapped across the survey blocks were identified on site maps. It was anticipated that the GPR and gradiometer surveys would determine the location of soil disturbance related to historic cart road

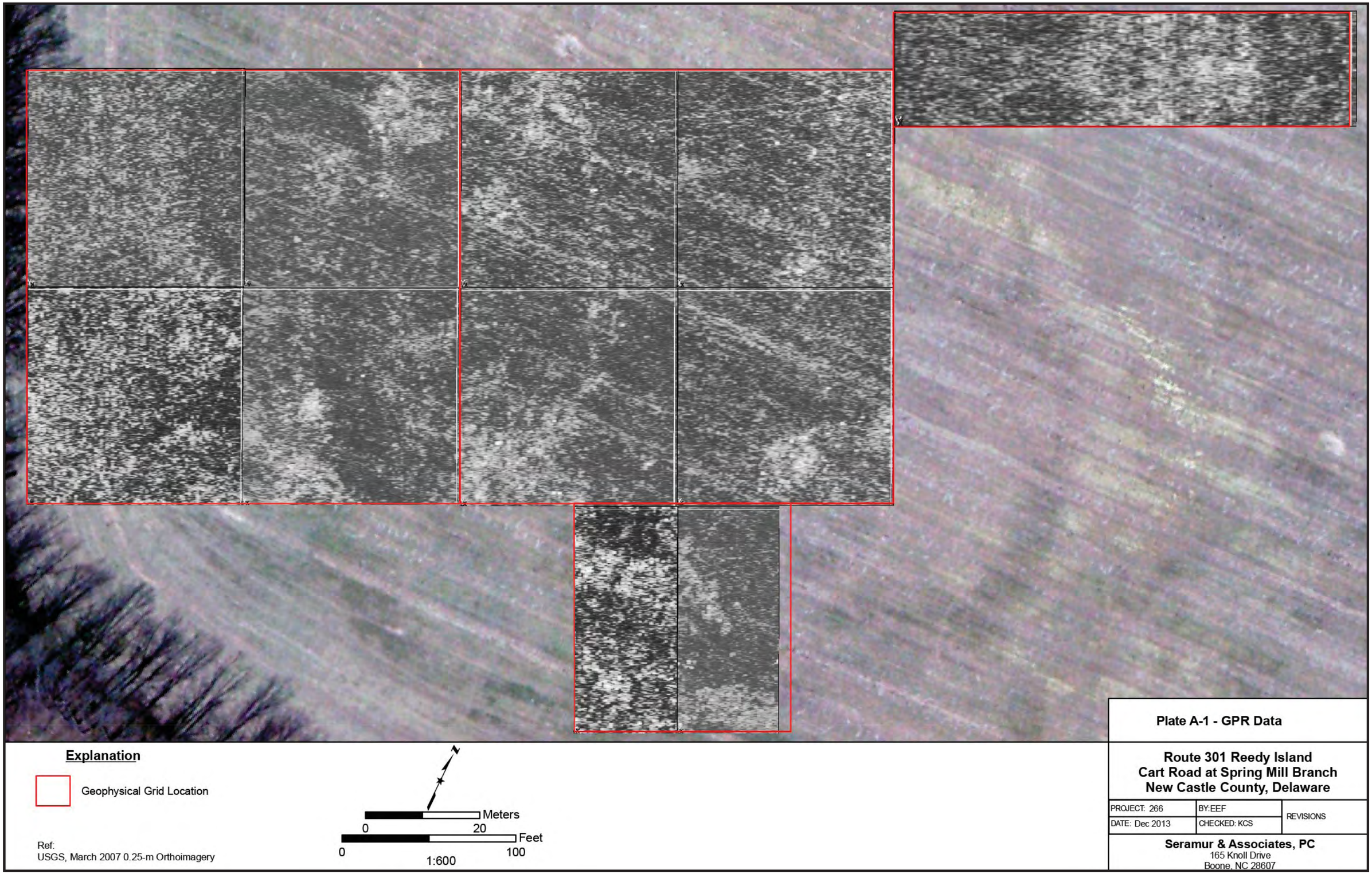


Figure 2.7. Ground Penetrating Radar Data (Seramur & Associates, PC 2013, Figure A1).

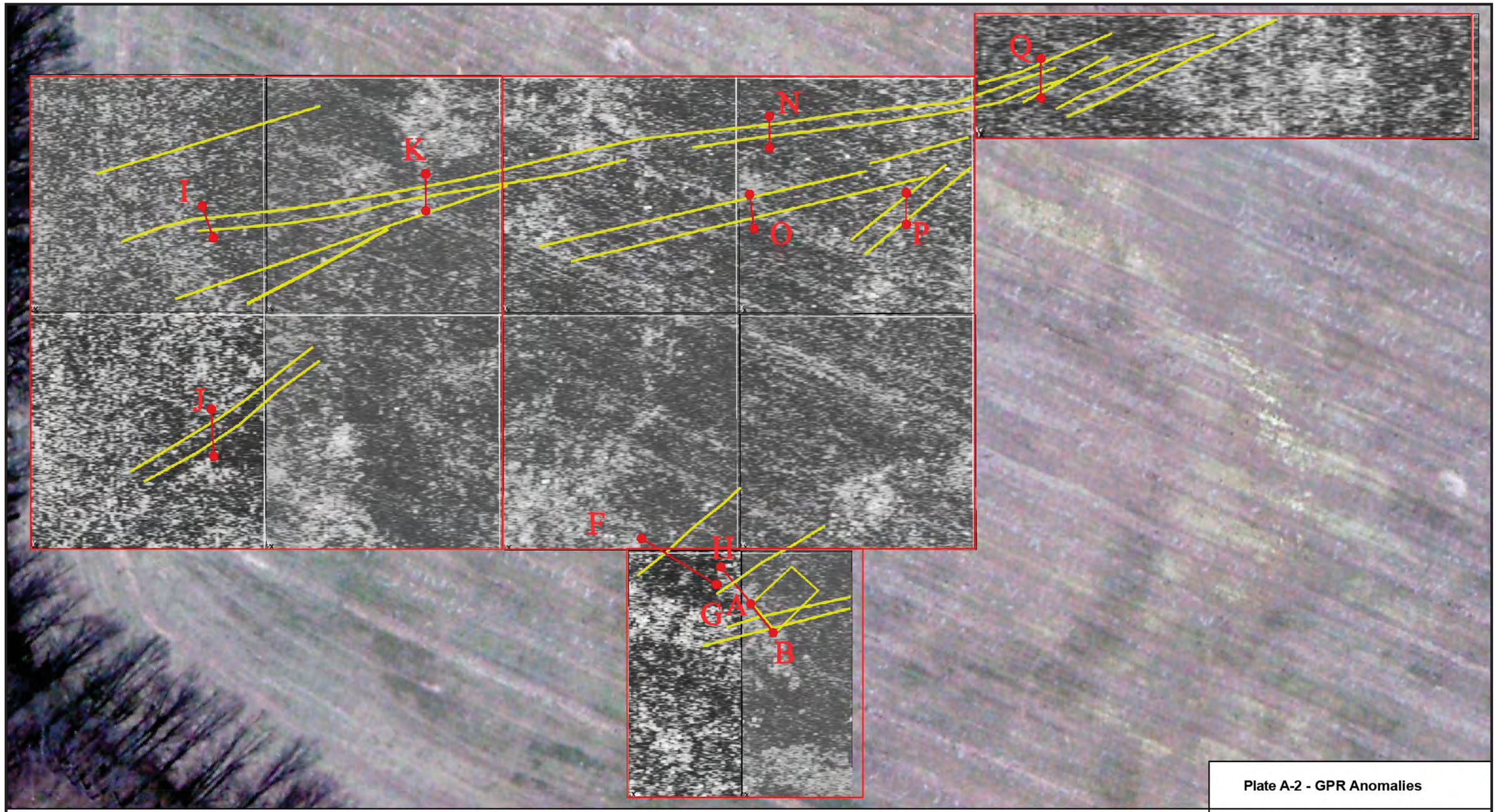


Figure 2.8. Ground Penetrating Radar Anomalies (Seramur & Associates, PC 2013, Figure A2).

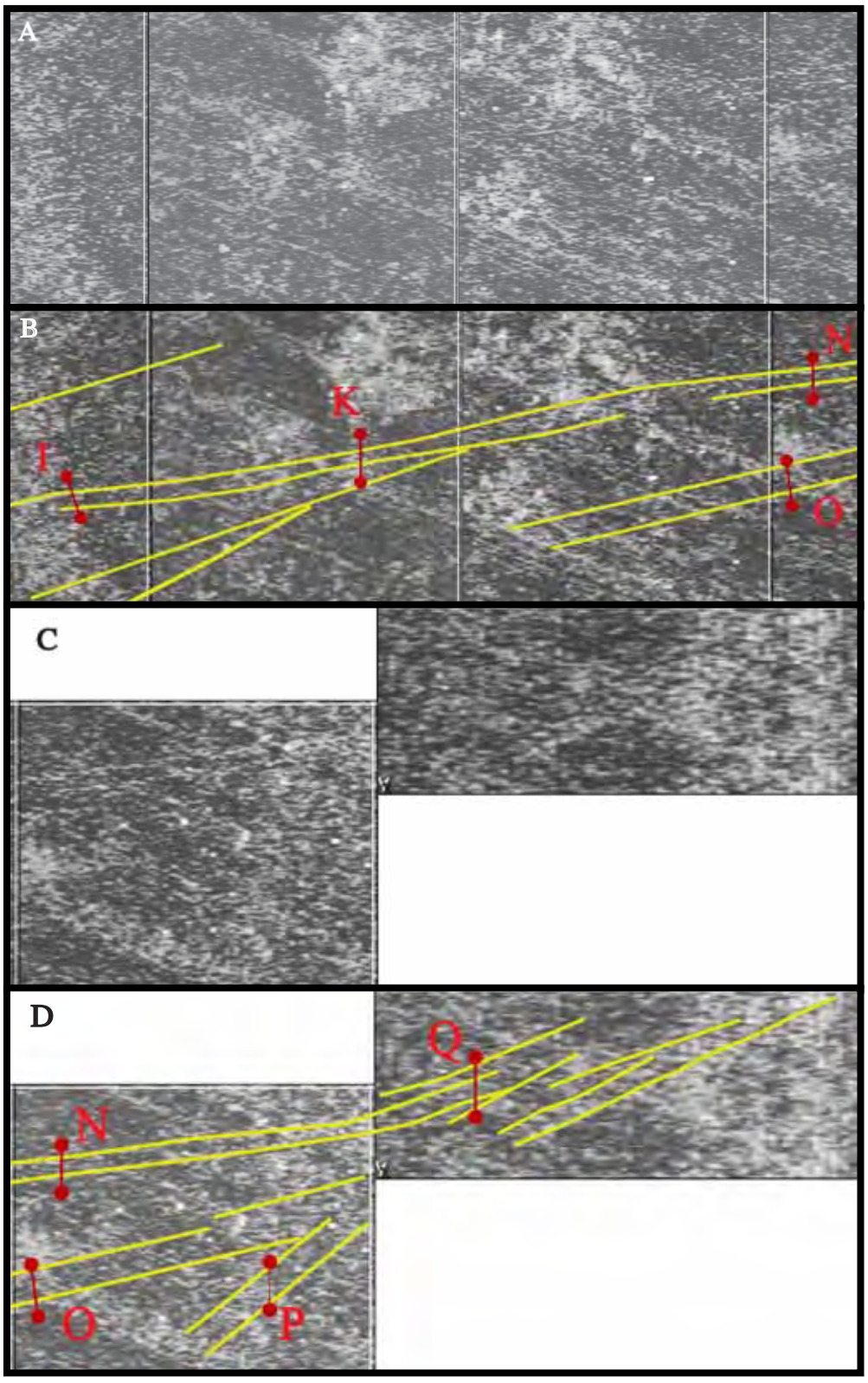


Figure 2.9. East-West Linear GPR Reflections. Recommended excavation locations shown in red (Seramur & Associates, PC 2013, Figure 3).

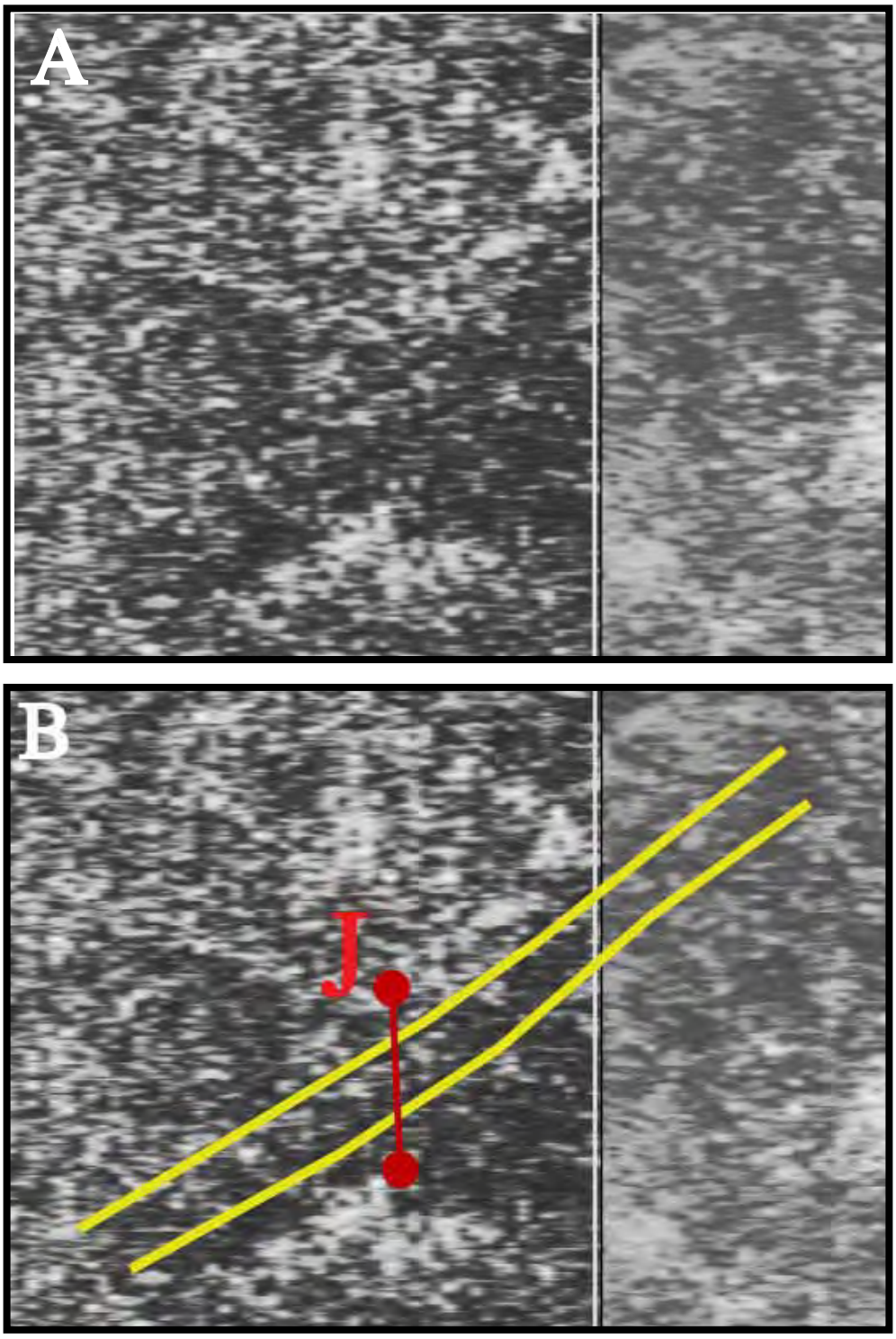


Figure 2.10. Elongate Rectangle in Grid 1 with low-density GPR Reflections (Seramur & Associates, PC 2013, Figure 4).

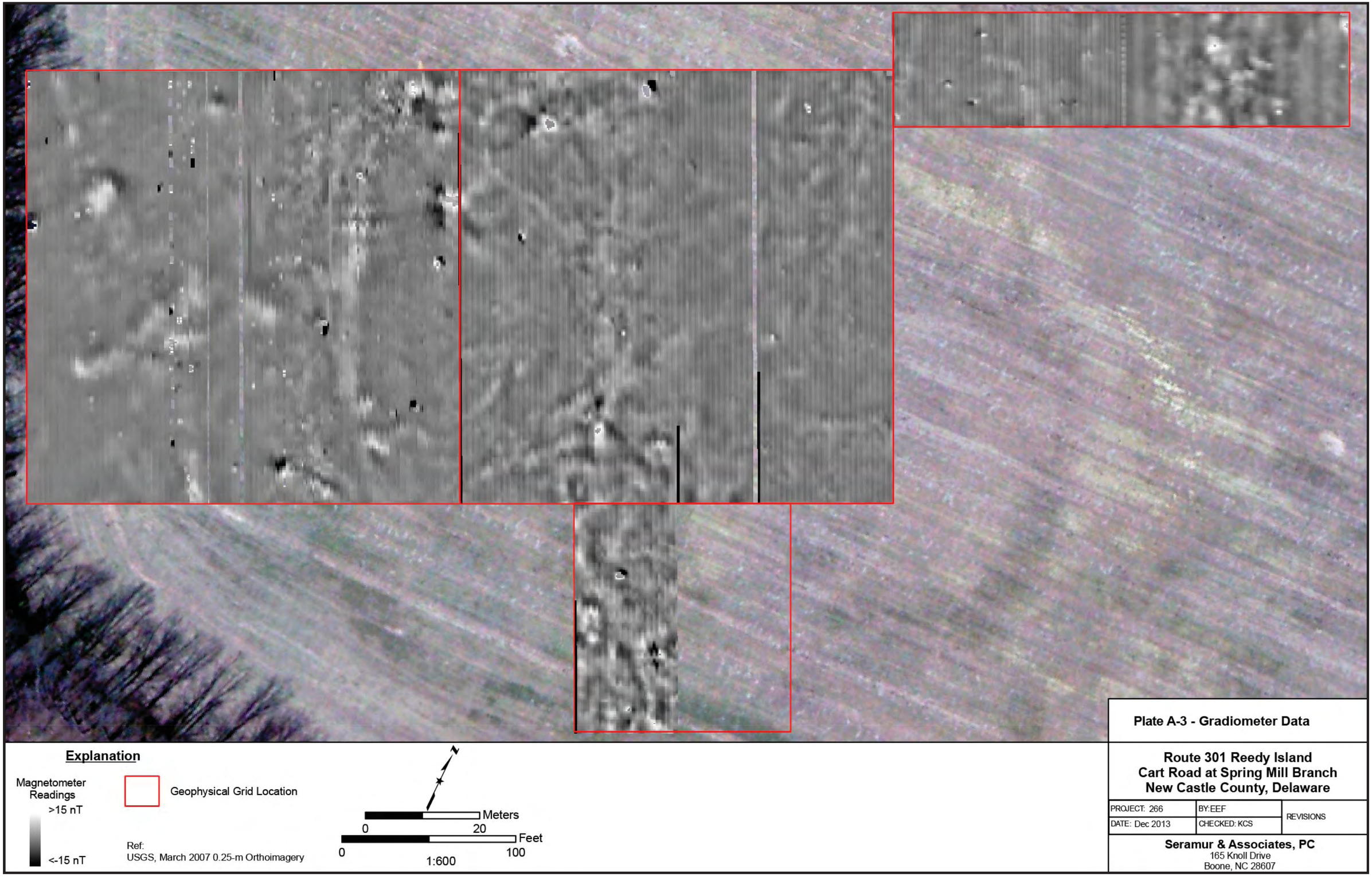


Figure 2.11. Gradiometer Data (Seramur & Associates, PC 2013, Figure A3).

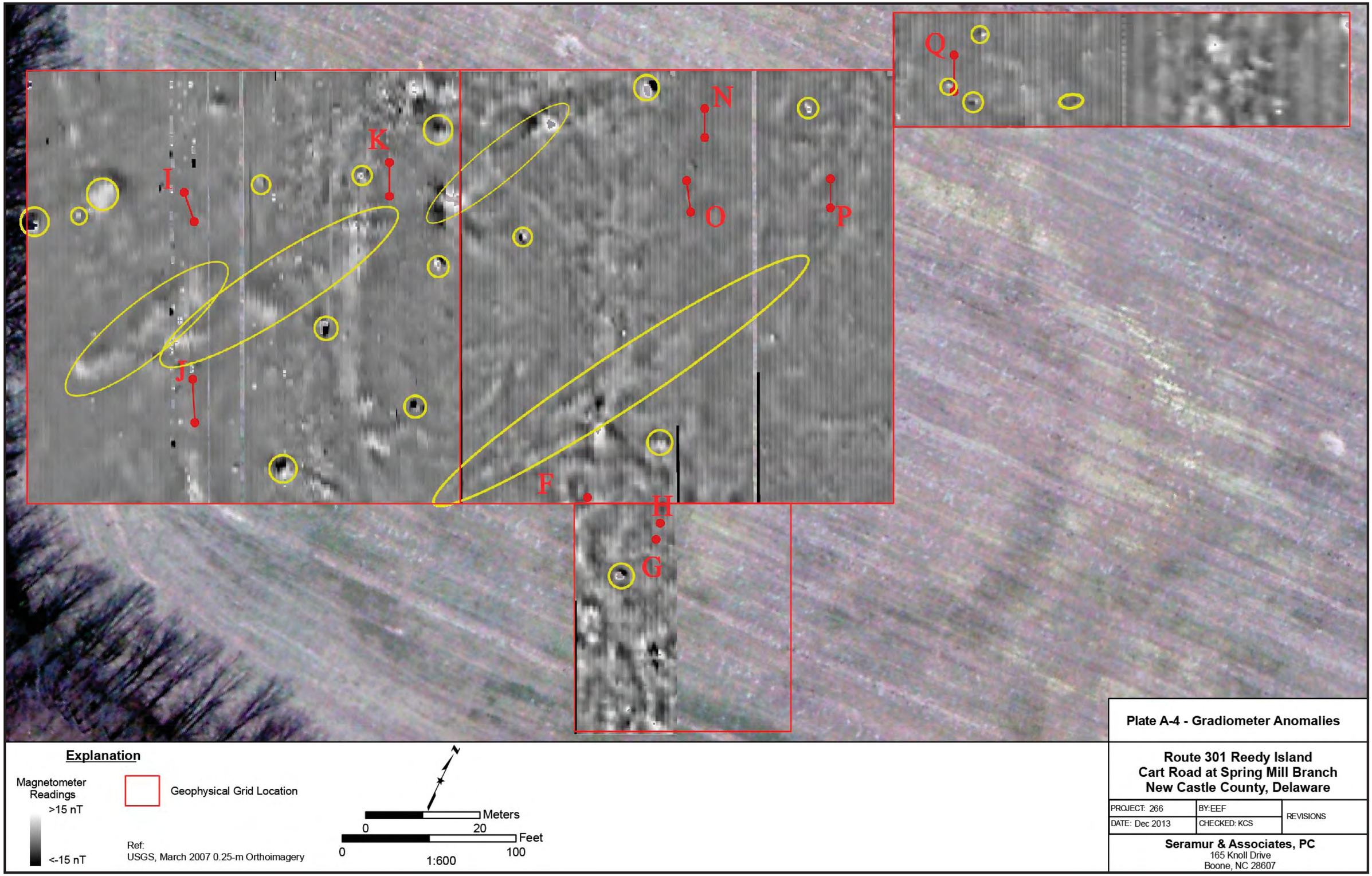


Figure 2.12. Gradiometer Anomalies (Seramur & Associates, PC 2013, Figure A4).

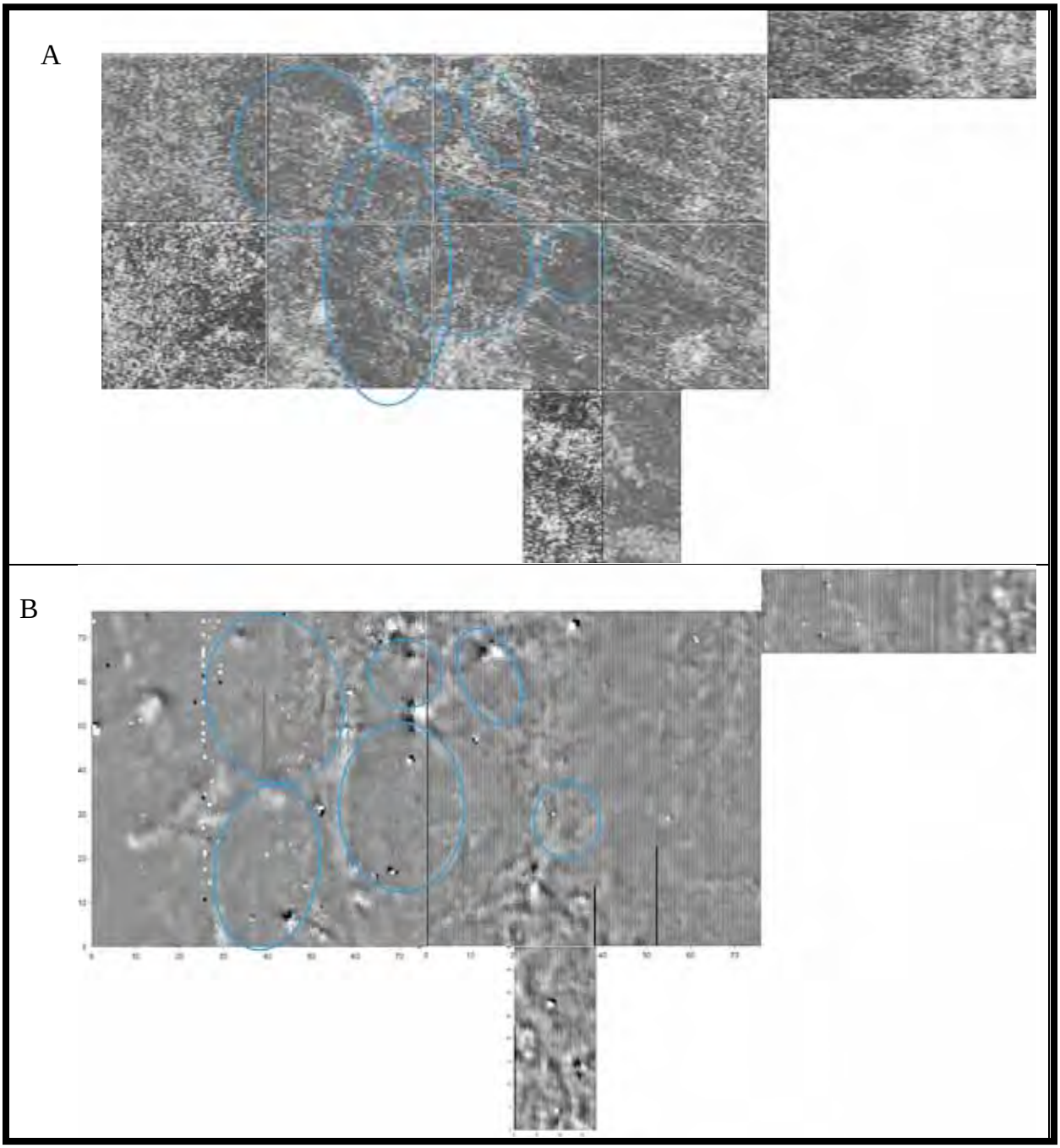


Figure 2.13. Oval subsurface features showing in Ground-Penetrating Radar (A) and Gradiometer (B) data. These are interpreted as former seasonal wetlands or Delmarva Bays. Note possible fenceline marked by white dots (magnetic anomalies) roughly along Easting 30 on Gradiometer mapping. (Seramur & Associates, PC 2013, Figure 5).

and related features across the property. On receipt of the report, Hunter Research adjusted the original plan for testing based on the GPR data.

3. Delmarva Bays

The coastal plain sediments in the project area are mapped as the Columbia Formation, sand with gravel and beds of clayey silt. Shallow deposits in the study area are silt to very fine sand. Soil is mapped as the Othello Silt Loam and the Reybold Silt Loam. The Othello Silt Loam is mapped along the western side of the field and forms in depressions, flats and swales. The Reybold Silt Loam is mapped on the upland surface and forms on interfluves. Both of these soils form in silty aeolian sediment deposited over fluviomarine sediment (USDA 2013). Un-drained depressions formed in the Columbia Formation are commonly referred to as Delmarva Bays (Davias 2012; Ramsey 2005). These are also known as wet flatwood swamps and form seasonal wetlands across the Delmarva Peninsula. These wetlands occur in subtle depressions and are seasonally flooded in the spring from snowmelt and spring rains. These features are thought to be remnant Pleistocene landforms related to periglacial and aeolian processes (Newell and Clark 2008).

A circular, wooded area in the northwest corner of the farm field is not plowed because it is a seasonal wetland or Delmarva Bay. The aerial photograph of the upland portion of the study area shows several round to elliptical features (Figure 2.6). These features are visible because of slight changes in soil moisture. These features were also observed on the GPR and magnetometer data (Figure 2.13a and 2.13b). The GPR depicts these as areas of low-density reflections (Figure 2.13a). The GPR signal is attenuated by clay soils and the low-density reflections in the center of these circular features could indicate a higher clay content in the soil. The perimeters of these circular features are observed on the gradiometer data as areas with a high magnetic field gradient (Figure 2.13b). The perimeter of seasonal wetlands would experience frequent changes in moisture content. Iron precipitation occurs in areas along the top of the water table as a result of changes between reducing saturated conditions and oxidized aerated or drained soils. The rims of these circular features appear to be outlined by soil with a higher iron oxide concentration. The circular features observed in the study area are former seasonal wetlands. These remnant Pleistocene features could have been drained and plowed after European settlement.

E. MACHINE-ASSISTED EXCAVATION OF TRANSECTS ACROSS PREDICTED ALIGNMENT

An archaeologically directed backhoe with a flat-blade bucket was used to remove the plowzone from 14 trenches (B-A-H, F-G, I, J, K, N, O, P, Q, R, S, T, U, and V), on the east side of the Spring Mill Branch. These trenches measured from 17 to 100 feet in length and were 3.5 feet wide (Photographs 2.1-2.15). The trenches were positioned to cross the projected alignment of the cart road and in areas where the geophysical survey suggested that features from the cart road may have been detected as well as a possible projection of the cart road revealed following the removal of understory of the wooded area adjacent to the Spring Mill Branch during the mapping phase. The prime objective was to expose the remains of the parallel ditches/ruts if present, the methodology being deliberately similar to that employed on the west side of the creek.

An additional trench (Trench W) was excavated on the west side of the Spring Mill Branch to re-locate the well-defined ditches/ruts identified during Phase II investigations of the Reedy Island Cart Road Site 4

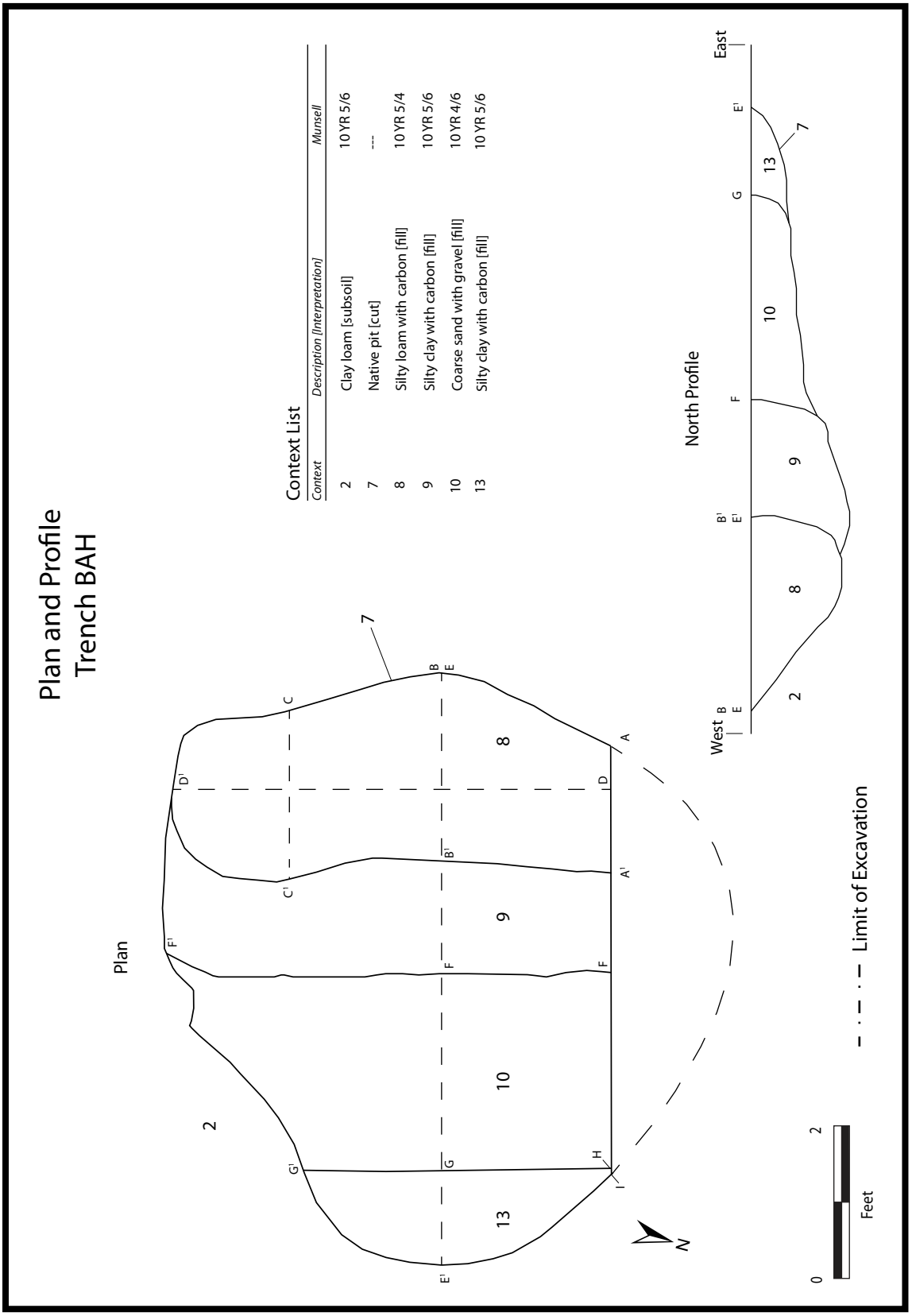
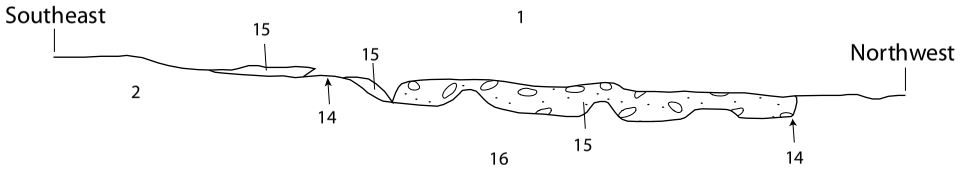


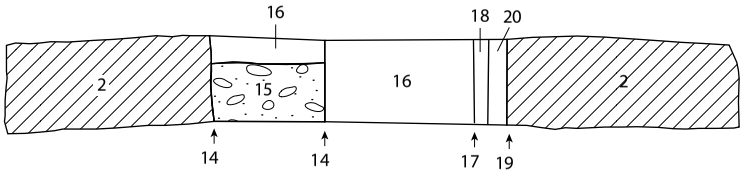
Figure 2.14. Plan and Profile of East end of Trench BAH.

Trench U
Profile and Plan View

Southwest Wall Profile



Planview



Sandy clay

Sandy loam

0 2

Feet

N

Context List

Context	*Description [Interpretation]*	*Munsell*
1	Silty loam [A horizon]	10 YR 4/3
2	Clay loam [subsoil]	10 YR 5/3
14	Cut of 15 [fill]	---
15	Silty clay with gravel [fill]	10 YR 5/4
16	Sandy clay [cart road]	10 YR 5/6
17	Cut of 18 [fill]	---
18	Silt [fill]	10 YR 4/3
19	Cut of 20[fill]	---
20	Sandy silt	10 YR 6/4
22	Compact sandy clay loam with gravel [subsoil]	10 YR 5/3

Figure 2.15. Plan and Profile of Trench U.

Photograph 2.1. Reedy Island Cart Road Supplemental Testing. Trench B-A-H view showing anomaly at the east end of the trench following the removal of the plowzone, looking southeast (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-098].

Photograph 2.2. Reedy Island Cart Road Supplemental Testing. Trench F-G view looking north (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-062].

Photograph 2.3. Reedy Island Cart Road Supplemental Testing. Trench I view looking north, northwest (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-029].

Photograph 2.4. Reedy Island Cart Road Supplemental Testing. Trench J view looking south, southeast (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-031].

Photograph 2.5. Reedy Island Cart Road Supplemental Testing. Trench K view looking north, northwest (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-032].

Photograph 2.6. Reedy Island Cart Road Supplemental Testing. Trench N view looking north (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-034].

Photograph 2.7. Reedy Island Cart Road Supplemental Testing. Trench O view looking north (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-037].

Photograph 2.8. Reedy Island Cart Road Supplemental Testing. Trench P view looking north, northwest (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-040].

Photograph 2.9. Reedy Island Cart Road Supplemental Testing. Trench Q view looking north (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-052].

Photograph 2.10. Reedy Island Cart Road Supplemental Testing. Trench R view looking south (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-058].

Photograph 2.11. Reedy Island Cart Road Supplemental Testing. Trench S view looking northwest (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-165].

Photograph 2.12. Reedy Island Cart Road Supplemental Testing. Trenches T and U view looking northwest (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-160].

Photograph 2.13. Reedy Island Cart Road Supplemental Testing. Trench U view showing light traces of the cart road ruts indicated by the pink ribbon, looking northwest (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-159].

Photograph 2.14. Reedy Island Cart Road Supplemental Testing. Trench U close up view showing gravel filled east rut looking south (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-147].

Photograph 2.15. Reedy Island Cart Road Supplemental Testing. Trench V view looking north, northwest (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-096].

Photograph 2.16. Reedy Island Cart Road Supplemental Testing. Trench W overall view showing excavated ruts of the Reedy Island cart road, looking south (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-136].

Photograph 2.17. Reedy Island Cart Road Supplemental Testing. Trench B-A-H view showing fully excavated prehistoric pit near the east end of the trench, looking north, northeast (Photographer: Sue Ferenbach, November 2013) [HRI Neg.#13039 D1-176].

(Hunter Research 2014), and to perform comparative penetrometer testing. This trench was 63 feet long by 3.5 feet wide (Photograph 2.16).

Following mechanical stripping, the trenches were shovel-scraped and trowelled to identify and define the cultural features. Obvious plow scars were removed to avoid possible confusion with older cart road ditches/ruts. Due to heavy erosion of the topsoil-plowzone, the profile was truncated. Erosion coupled with over three hundred years of plowing appears to have erased any visual detection of the cart road on this side of the Spring Mill Branch. The only trenches with observed visual evidence of cultural activities were Trench B-A-H, which had a large deep prehistoric storage pit and Trenches T and U with possible shallow traces of ditches/ruts which were located within the protected wooded upland between the Spring Mill Branch and the agricultural field (Figures 2.14 and 2.15).

1. Trench B-A-H

This 39-by-4-foot trench was positioned to intersect with geophysical points of interest B, A and H. The plowzone [context 1], only 0.5 feet in depth, was mechanically removed with a backhoe. Following the removal of the plowzone a large prehistoric pit measuring 7.3 feet north-south by 7.8 feet east-west was encountered at the top of the B horizon at the east end of Trench B-A-H in the area of Point B (Figure 2.14; Photograph 2.17). This pit was distinguished from the surrounding B horizon [2] by its darker organic soils and upcast C horizon gravels at the top of the B horizon [context 2]. Four separate soils (silty loam [8], silty clay with carbon flecking [9], coarse sand with gravel [10] and silty clay with carbon flecking [13]) within the cut [7] of the pit were observed to be unnaturally stacked and extending to a depth of 1.3 feet below the top of the B horizon [2]. A total of 82 prehistoric lithic artifacts, three pieces of burnt clay and numerous small pieces of charcoal were recovered from the fill of the pit [8, 9, 10 and 13]. The lithics consist of 66 pieces of debitage (quartz, jasper, chert, quartzite and argillite), 7 thermally fractured rock fragments, and a quartz core fragment from context 8; eight unmodified stones (atypical of the surrounding C horizon gravels) from contexts 9 and 10; and one thermally fractured rock fragment from context 13. The debitage consists entirely of secondary and tertiary flakes between 10 and 50 mm in size, with most flakes smaller than 20 mm.

2. Trench T

Located within a thin wooded strip of upland between the Spring Mill Branch and the agricultural field, Trench T was 36 feet long by 3.5 feet wide. Both maneuvering the backhoe and removing the root infested topsoil within this woodlot proved difficult. Distinguishing the between the A and B horizons [1 and 2] was impossible given the dry soil conditions and the broken sunlight through the fragmented fall canopy. As a result the A horizon and the top of the B horizon were removed as one context to a depth 0.7 feet below the surface. Upon cleaning the surface of the machine–excavated trench it became clear that there were two separate horizons visible in the profile. There were also what appeared to be shallow ditches/ruts that had been completely removed through the mechanical excavation. To further explore the possible ditches/ruts another trench (Trench U) was laid out parallel to Trench T, in hopes that the features would continue along a projected north-south path towards the agricultural field.

3. Trench U

In order not to repeat the mistakes made in Trench T, excavation of Trench U was only initiated after an early snow shower provided the moisture needed to

better discern the differences between the soil strata. Trench U was located parallel to Trench T within a thin wooded strip of upland between the Spring Mill Branch and the agricultural field, closer to the agricultural field than T. The trench was 37 feet long by 3.5 feet wide (Figure 2.15). This area was formerly part of the agricultural field before the wooded area expanded east into the fertile plowed field. As a result the plowzone [1], which is 1.3 feet deep, represents an accretion of wind-blown topsoil added to the plowzone that typically would have been between ten inches to a foot thick. Careful removal of these sediments [1] revealed faint but discernable parallel bands running north-south through the base of the trench. These bands are likely to be cart road ruts. The east band measured 2.35 feet wide with straight, sharply defined edges [14] and the west band measured 1.6 feet wide also had straight, sharp edges [17/19]. The eastern, wider rut has an undulating bottom and appeared to have been intentionally filled with a mix of silty clay with dense gravels [15]. This may have been an attempt to fill in a widening gap in the road and to provide a rough material to prevent heavily loaded wagons, carts or sleighs from sinking into the ground. At higher levels, prior to erosion, gravel may have been placed between the ruts to provide traction to the horses or oxen. The western rut exhibits a flat bottom and was filled with silt [18] and sandy silt [20] extending down 0.2 feet below the top of the B horizon [22]. The area between the two ditches/ruts consists of compacted sandy clay [16]. Soils outside the ditches/ruts consist of clayey sand [2] towards the field and sandy clay loam with small gravels [22] closer to the wetlands.

4. Trench S

The trajectory of the projected path of the cart road observed in Trenches T and U was further examined with the excavation of Trench S adjacent to the strip of wooded upland within the field. This trench was 77 feet long by 3.5 feet wide. Penetrometer readings taken within this trench indicated that the soils were compacted, likely from heavy farm machinery making turns at the end of the field. When tractors make the turn at the end of a field they typically pull accumulated soils into the return. The increased volume translates into increased weight, thus resulting in more compacted soils. The increased compaction in this area of the field likely masked any evidence of the cart road.

F. COMPACTION STUDIES

In addition to the search for cart road features, a soil compaction investigation using a basic soil compaction meter/penetrometer was undertaken. In this instance an AMS E-280 spring-operated pocket penetrometer was used to measure the compressive strength of the soils from 0 to 4.5 tons per square foot with readings indicated by a rubber friction ring. These readings provided immediate relative compaction data across the predicted line of the road and comparative data for adjacent portions of the field. Compaction results were checked against the known road alignment on the west side of the stream, where a single narrow supplementary trench (Trench W) had been placed across the known alignment of the road to re-expose the ditches/ruts (see Figure 2.1). It was predicted that traffic along the road would compact the soils. This soil compaction was measured with the penetrometer and mapped across all excavated trenches.

1. East Side of Spring Branch

Visual evidence of the cart road was not observed in any of the trenches employed to ground truth the geophysical data on the East side of Spring Mill Branch. It was hoped that the cart road crossing the study area would have compressed the soils below the roadbed. A compacted road surface would limit

infiltration of surface water, diverting it to the side of the road. Surface water infiltration into the deeper soil horizons could soften or reduce compaction of subsoil along the edge of the cart road. Changes in both soil compaction and soil moisture content can produce anomalies within the GPR data. The penetrometer data was reviewed with respect to the GPR anomalies tested to assess possible trends related to the cart road (Appendix B).

Trenches B-A-H and G-F were excavated in an area where multiple linear and circular anomalies were observed. These anomalies were flagged in case they were structures or disturbance associated with the cart road. As discussed above, a large prehistoric pit feature was recorded in the vicinity of Point B. Penetrometer readings in the vicinity of Point B range from 1.25 to 2.4 tons/square foot (Figure 2.16) (Appendix B). These readings represent compaction values for culturally disturbed soils within the fill of the pit.

Two southwest-northeast trending linear anomalies were observed crossing line B-A (Figure 2.16). These anomalies could be associated with some of the large variations in penetrometer values recorded between 10 and 20 feet. The penetrometer data collected along lines B-A-H and G-F is quite variable (Figure 2.16) (Appendix B).

There is one area of consistently high penetrometer measurements along line G-F. The gradiometer data showed multiple anomalies in this area, possibly associated with iron oxide concentrations in the B horizon. The variable penetrometer data along these two lines could be associated with differences in iron cementation within the B horizon.

Trenches I, K, N and Q were located across two prominent parallel east-west linear GPR reflections (Figure 2.9a and 2.9b). Penetrometer measurements along Trenches I and N indicated soil with the highest compaction value (4.5 tons/square foot) with a few areas of softer soil (Figure 2.17)(Appendix B). The linear anomalies along line I could be associated with the lower penetrometer measurements at 4 feet and 9 feet (Figure 2.17). The linear anomalies along line N could be associated with the lower penetrometer measurements at 7 feet and 13 feet (Figure 2.17). These lower penetrometer measurements are at a similar spacing to the linear GPR anomalies but the absence of compacted soils suggests they are not related to a transportation route.

The penetrometer measurements in trenches K and Q show compacted soil in the center of the trenches and softer soil on the margins of the trenches (Figure 2.18)(Appendix B). This is the expected pattern for penetrometer readings across a smaller farm lane or access road. The compacted soil only extends from 13 to 17 feet in Trench K, which would be too narrow to be the cart road. East of Trench Q another trench (Trench R) was excavated on more level ground along the trajectory of the linear anomaly. In Trench R, penetrometer readings varied with no clear indication of the cart road.

Penetrometer testing in Trench O extended for 100 feet (Figure 2.19). This trench was located across two prominent parallel east-west linear GPR reflections (Figure 2.9a and 2.9b) southeast of similar GPR reflections investigated by Trenches I, K, N and Q. The penetrometer data shows variability across the trench except between 34 feet and 44 feet (Figure 2.19). These consistent (4.5 tons/square foot) penetrometer measurements between 34 and 44 feet could be related to soil compaction along the cart road (Appendix B). The high penetrometer measurements in Trench O show that the plow zone soils in upland areas have been eroded down to the stiff B-horizon subsoil. Visual evidence of the cart road has been eroded from this portion of the study area.

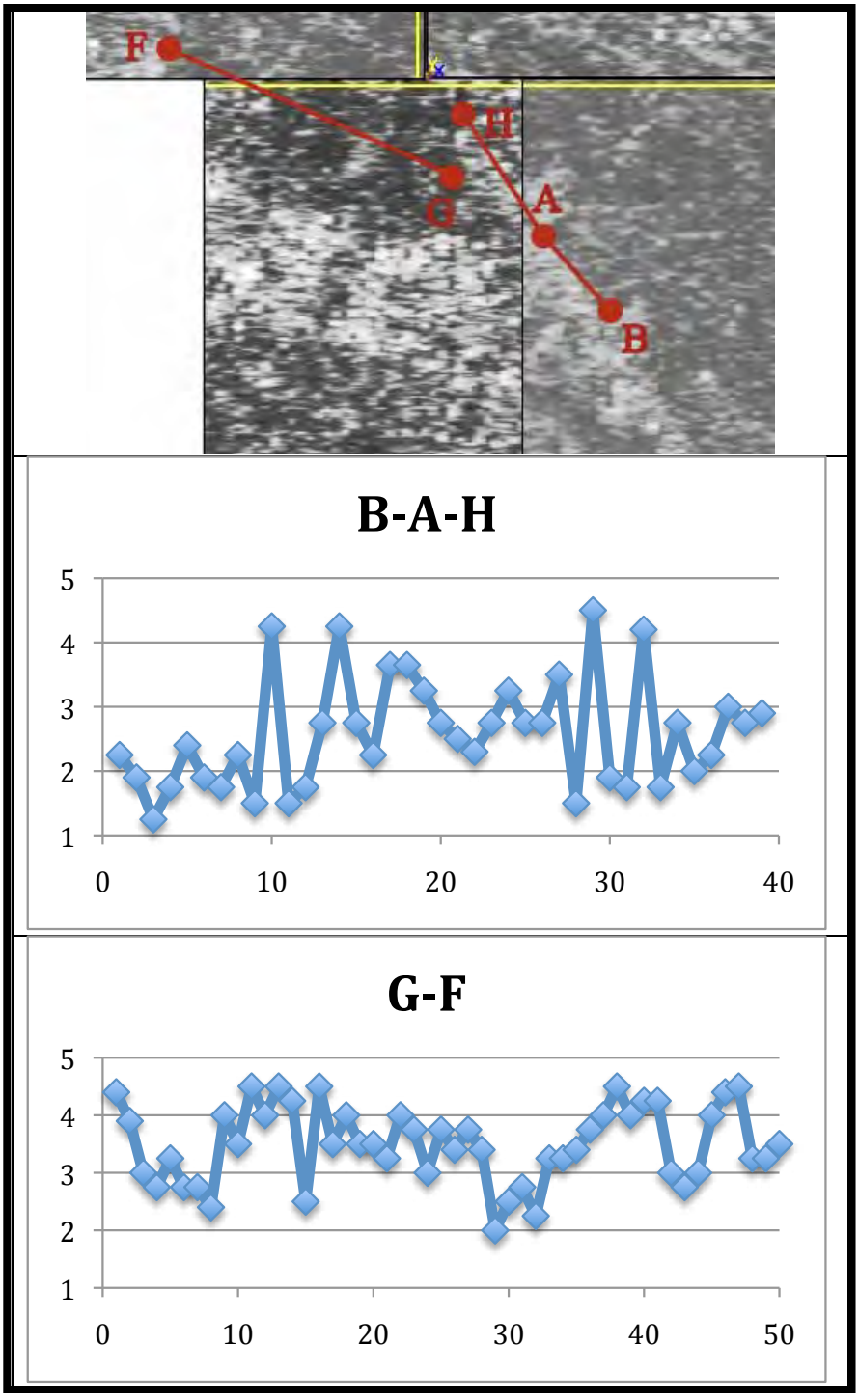
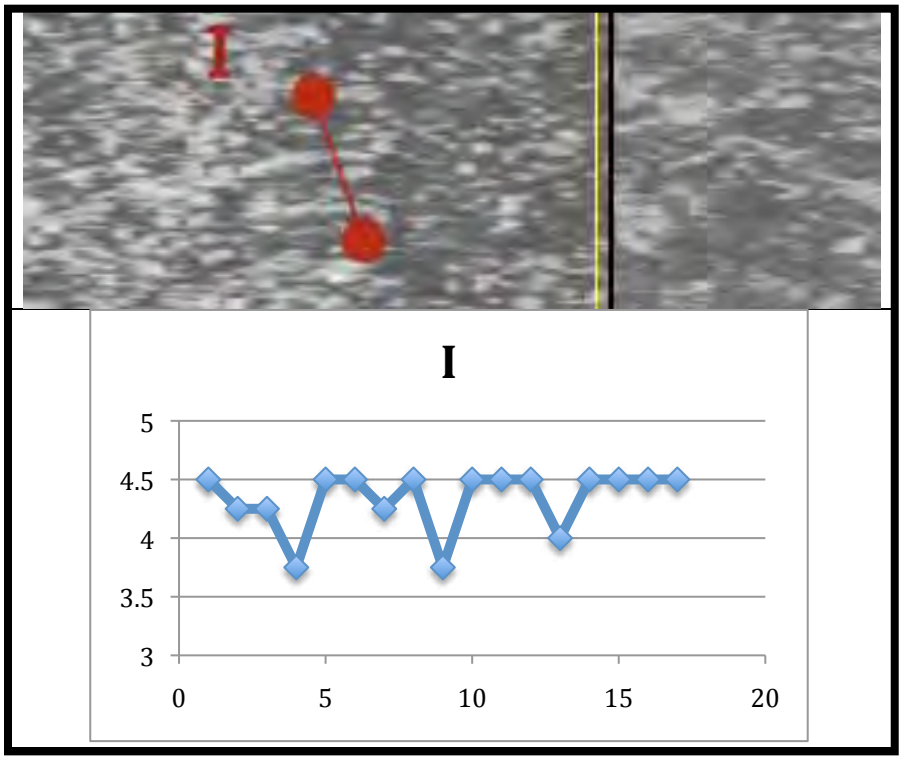


Figure 2.16. Penetrometer Graphs B-A-H and G-F. (Seramur & Associates, PC 2013, Figure 6).



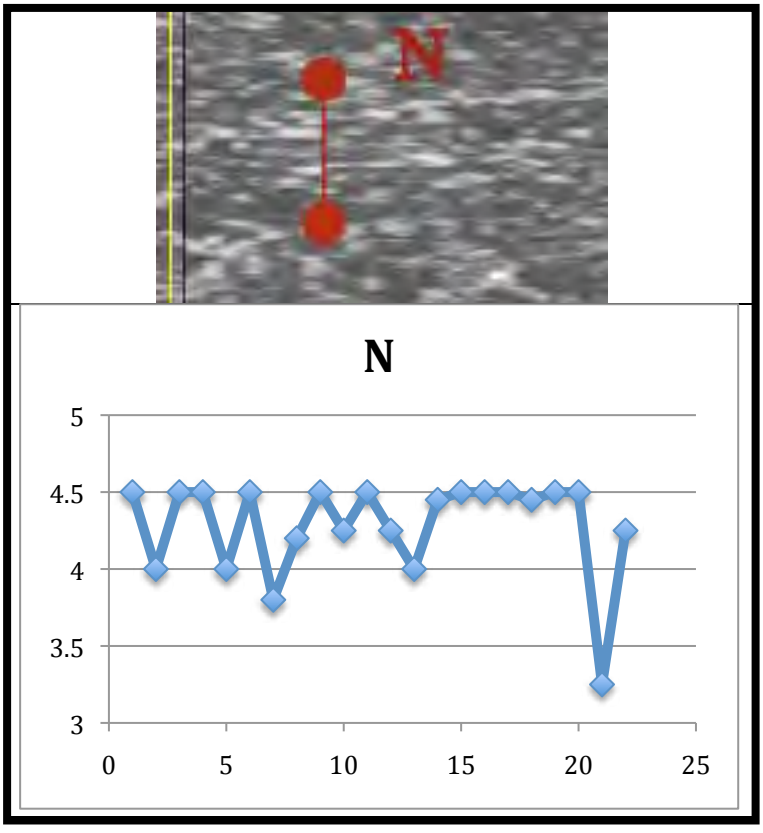


Figure 2.17. Penetrometer Graphs I and N. (Seramur & Associates, PC 2013, Figures 7 and 8).

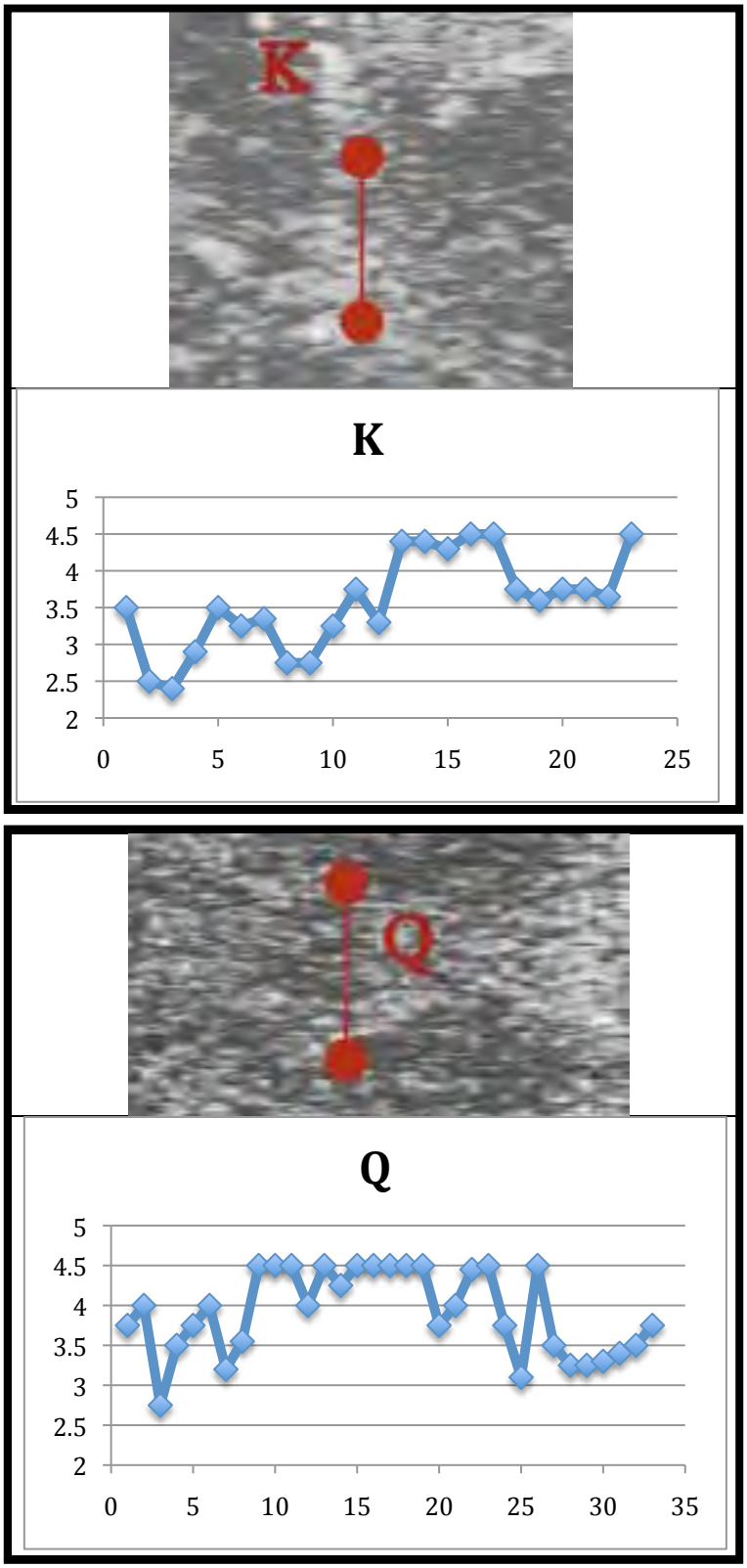


Figure 2.18. Penetrometer Graphs K and Q. (Seramur & Associates, PC 2013, Figures 9 and 10).

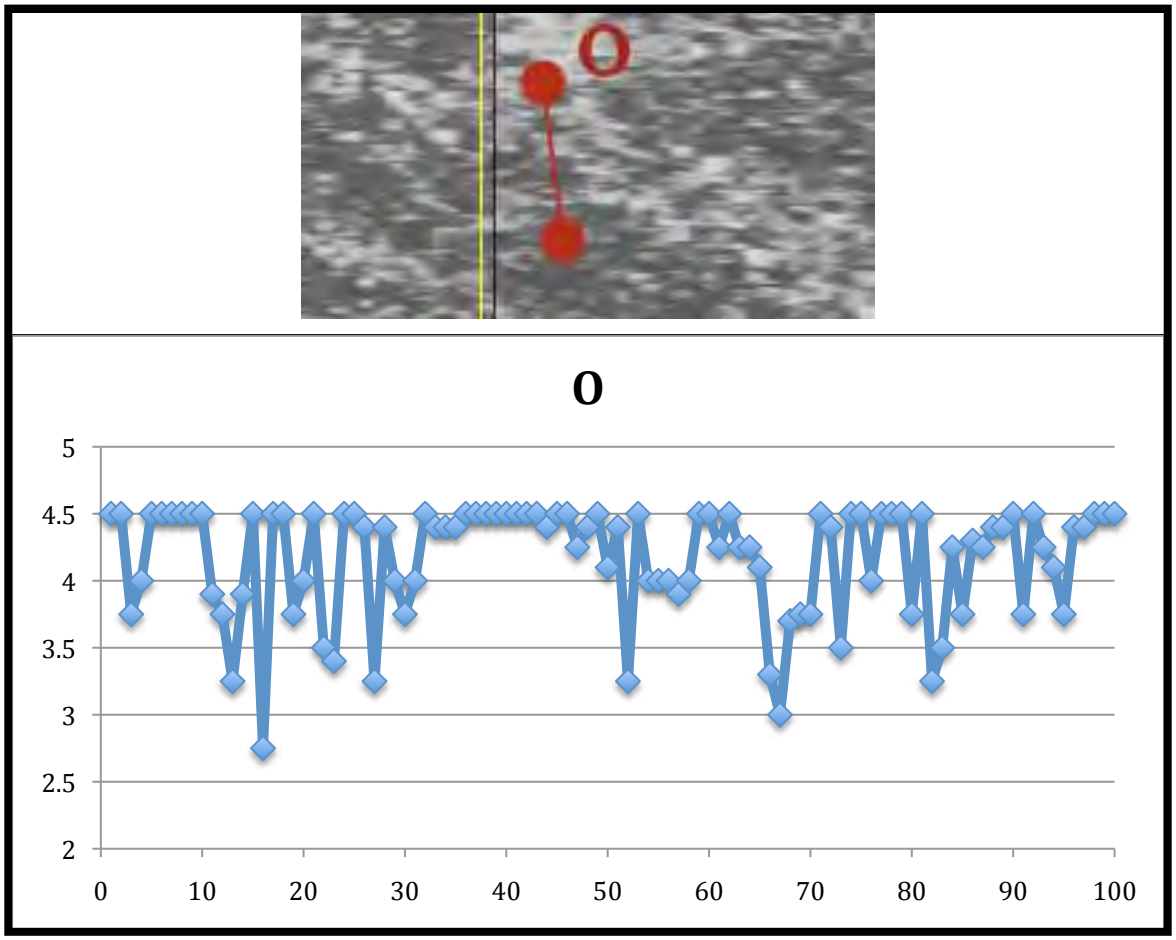
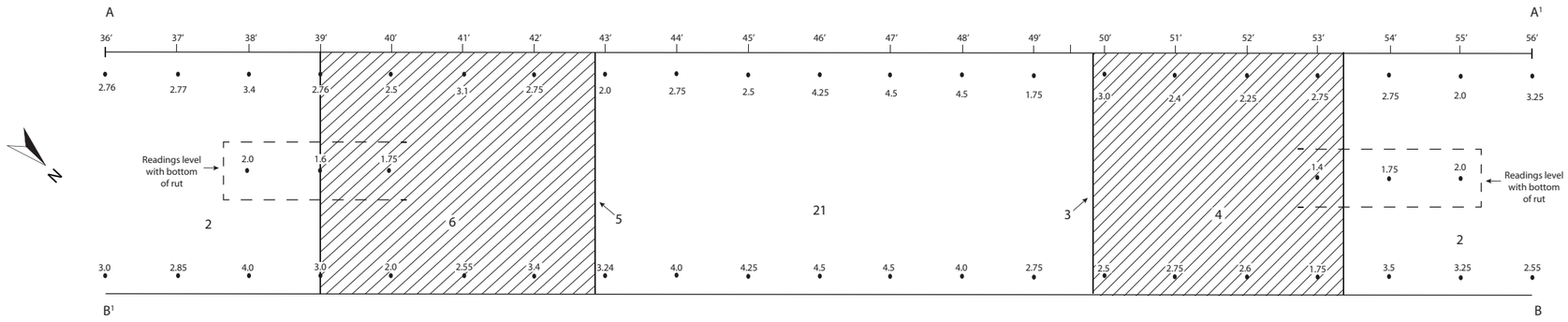


Figure 2.19. Penetrometer Graph O. (Seramur & Associates, PC 2013, Figure 10 on page 13: duplicate number).

Trench W
Plan View with Penetrometer Readings



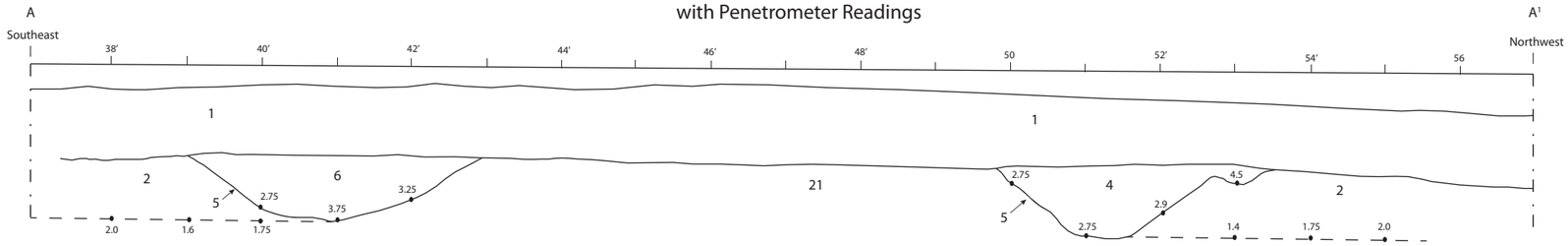
Context List

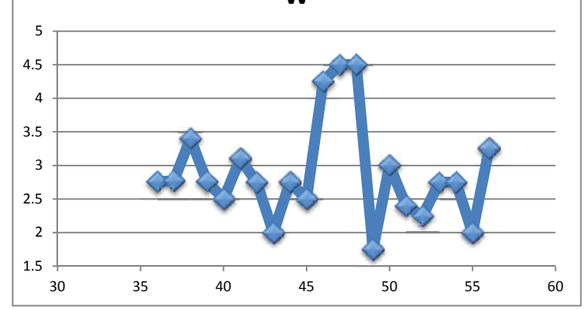
Context	*Description [Interpretation]*	*Munsell*
1	Silty loam [Ap horizon]	---
2	Silty loam [subsoil]	10 YR 5/4
3	[fill]	---
4	Silty loam [fill]	10 YR 4/4
5	[fill]	---
6	Silty loam [fill]	10 YR 4/4
21	Coarse, compact sandy loam [cart road]	10 YR 5/4

0 2
Feet

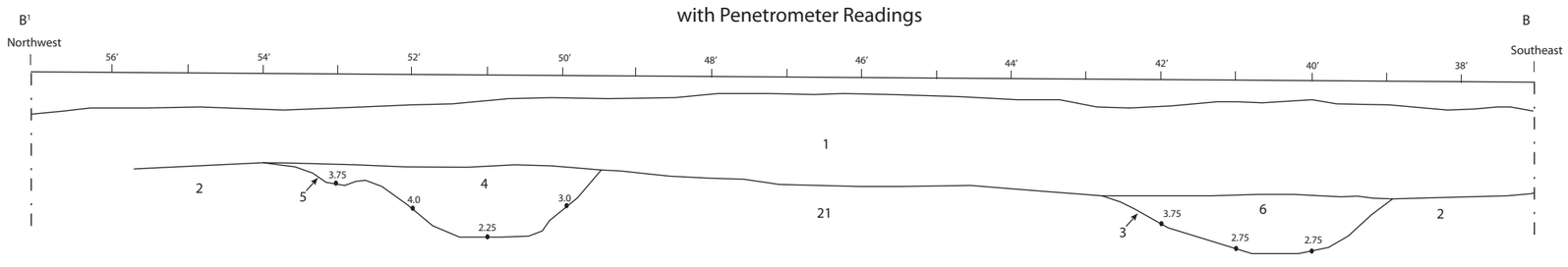
Limit of Excavation

Southwest Profile with Penetrometer Readings





Northeast Profile with Penetrometer Readings



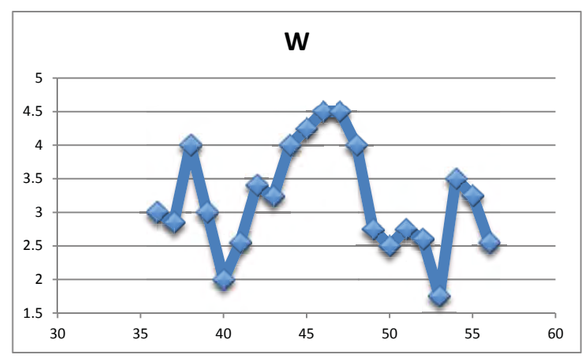


Figure 2.20. Profile and Penetrometer Graph of Trench W.

Penetrometer readings in Trench T ranged from 2.60 to 4.5+ tons/square foot (Appendix B). In this case because the trench had been excavated below the bottom of the ditches/ruts, the data did not show enough variation to produce a positive signature. Penetrometer readings in Trench U ranged from 4.5 to 4.5++ tons/square foot (Appendix B). The ground was so hard along the interior edge of the woods that readings extended beyond the instrument's scale. Readings beyond 4.5 were approximated, with one plus sign estimated to have a value of 0.5 tons/square foot. Using this approach a maximum of two plus signs could be recorded. In this case the visual identification of the ditches/ruts was more informative than the penetrometer readings, which offered little variability indicative of the cart road.

Trenches V and S were located within the agricultural field close to the wood line. It was hoped that traces might still be visible within the field where modern farm equipment would have had to turn, thus theoretically depositing soils and building up a protective layer. Stripping of the plowzone revealed some subsoil disturbances but nothing that was convincingly related to the cart road. These soils were also very compacted, with penetrometer readings in both trenches ranging from 3.75 to 4.5++ tons/square foot with almost all readings around 4.5 tons/square foot (Appendix B).

2. West Side of Spring Branch

Penetrometer readings in Trench W were taken to provide a comparison of the known data related to the path of the Cart Road to data collected from the east side of the Spring Mill Branch (Figure 2.20). Penetrometer measurements along Trench W indicated soil with the highest compaction value (4.5 tons/square foot) were located between the ditches/ruts, which had maximum values of 3.4 tons/square foot in the southern rut and 3.0 tons/square foot in the northern rut with lower values outside of the ditches/ruts (Appendix B). Readings taken from the subsoil outside of the ditches/ruts at the same depth as the bottom of the rut (2.0 tons/square foot or below) show significantly less compaction as would be expected. What was not expected was the compaction of the berm area between the ditches/ruts, which was more compact than the ditches/ruts themselves. This suggests that the weight of the draft animals (oxen, mules or horses) used to pull the heavy loads compacted the soils more than the vehicles employed to carry the cargo. This appears to confirm the suggestion that the berm area normally functioned as the cart road, while the ditches/ruts may have been used less frequently, perhaps for the placement of the runners for large sleds. This would make an excellent research and experimental topic.

Chapter 3

ANALYSIS OF RESULTS AND EVALUATION OF MODEL

A. ANALYSIS OF THE MODEL

As described in the model, the cart road alignment runs across four main types of environmental settings or zones within the U.S. Route 301 corridor (Figure 1.3):

Zone 1: Essentially level farm fields,

Zone 2: Farm fields with slight slopes trending towards drainages and wetlands,

Zone 3: Wetlands, underlain by clay and lying adjacent to drainages, and

Zone 4: Drainage crossings.

In order to test the validity of the model, all four zones were tested using a combined ground penetrating radar and gradiometer survey followed up with ground-truthing in the form of mechanical test trenches and penetrometer readings. Detailed mapping of the crossing was also employed to record sight differences in the landscape topography which may have been the result of the former cart road.

1. Zone 1

As time and budget permitted, one trench (Trench R) was placed in Zone 1 where the cart road was projected to cross level farm fields and where ground penetrating radar (GPR) and gradiometer survey had detected linear traces. These were hypothesized to be in line with the cart road alignment. Ground-truthing failed to identify any visual stratigraphic remains that could be related to the cart road. The negative results are thought to be directly related to deflation of the soils brought on, as the model suggests, by over two centuries of agricultural activities. Deflation of the topsoil has resulted in the mixing of the remaining topsoil with the underlying B horizon. This mixing essentially erased any visible remains of the cart road. Penetrometer testing failed to reveal any areas of compacted soils that might be related to the cart road traffic.

The relative clarity of the features on the GPR survey contrasts with the apparent absence of observable contrasts in soil color or texture, and with the lack of variation in the penetrometer readings. Keith Seramur of Seramur & Associates, PC, explains this contrast as follows:

> The radar energy transmitted into the ground by the GPR system reflects off of the contact or boundary between soils with different dielectric properties. These contacts are shown on the GPR record as anomalies and layered strata. Dielectric property of a soil material is dependent on soil conductivity, which is strongly influenced by clay content, soil moisture and the presence of iron oxides. Areas with higher B-horizon clay content will retain moisture and iron oxides will precipitate onto the surface of the clay minerals. The 400 mHz antenna used in this survey is very sensitive and can image small changes in dielectric properties within the soil profile (Seramur 2013).

The Reedy Island cart road would have made several changes to the top of the soil profile. Use of the cart road would initially compact the soil and then carve ruts into the road. This type of disturbance will change soil formation processes (eluviation and illuviation) at depth. Water ponding up in ruts infiltrates into the subsoil, increasing the translocation of clays and iron oxides down into the soil profile below the footprint of the rut. Ditches excavated along the cart

road would have a similar effect. This could have resulted in slight changes in clay and iron oxide content in the soil profile below the cart road.

Plow zone stripping did not identify visual evidence of the two linear GPR anomalies that extend across the central and eastern portion of the survey grids. It was possible to process the GPR data in order to map very subtle changes in the dielectric properties of soil just below the plow zone. The subtle reflections of the two linear anomalies were difficult to distinguish from background noise on vertical profiles or cross-section of the radar data. It was only after assembling the radar data into a three dimensional grid that the linear anomalies were evident. The reflections are only visible on a thin slice of the radar data. The depth to the linear anomalies varied across the study area, so each grid had to be processed separately in order to image the anomalies at different depths.

These anomalies were not present in the GPR data at depths less than 45 to 50 cm. The depth of these two linear anomalies on the GPR record appears to correlate with the base of the plow zone or the top of the undisturbed soil profile. The depth slices are used to rule out the possibility that these linear anomalies were an artifact of recent plow zone disturbance.

We attribute these linear anomalies to one or more changes in soil properties including clay content, percent iron oxides and soil moisture. The most likely explanation for the linear anomalies imaged on the radar slices is a historic disturbance along the top of the soil profile that affected pedogenic processes at depth. This disturbance could have been the Reedy Island cart road or some other type of travel extending from the southwestern corner of the field at Spring Branch up to the northeast. Erosion and plowing removed visual evidence of the soil disturbance that produced these anomalies." (Keith Seramur, 4/15/14).

2. Zone 2

Zone 2 was one of the primary foci of the investigations, and therefore a total of 11 trenches were dedicated to testing the predictive model in this zone (Trenches B-A-H, F-G, I, J, K, N, O, P, Q, S and V) on the east side of the Spring Mill Branch and one trench on the west side (Trench W). These trenches were strategically placed to detect linear traces identified by the ground penetrating radar and gradiometer survey. As with the Zone 1 testing program, ground-truthing here produced negative visual results. However, in contrast to the situation in Zone 1, penetrometer readings in Trenches I, K, N, O, and Q recorded what could be interpreted as remnant traces of one of the former alignments of the cart road.

The previous work on the Zone 2 topography on the west side of the Spring Mill Branch showed accretion of the plowzone as predicted by the model. By contrast, the plowzone soils on the east side had suffered much more deflation than anticipated, reducing the maximum thickness of the plowzone to a mere six inches across Zone 2. GPR and penetrometer readings in Trenches I, K, N, O, and Q recorded what could be interpreted as remnant traces of one of the former alignments of the cart road. Even so, indications of linear features were detected by two of the three testing methods.

On the west side of Spring Mill Branch, Zone 2 had been tested by Hunter Research, Inc. and Seramur & Associates, PC in 2011 as part of Phase II investigations of the Reedy Island Cart Road Site 4 [7NC-F-153]. The combined ground penetrating radar and gradiometer survey had revealed two well-defined, parallel linear traces that were readily visible beneath the plowzone at the top of the B horizon (Hunter Research, Inc. 2014). Transects across the cart road alignment were subjected to penetrometer testing in the current investigations (Trench W) . These readings revealed that not only were the ditches or ruts signifi-

cantly more compacted than the adjacent B-horizon soils, but so was the berm area between them. This is consistent with the interpretation of these features (see Hunter Research, Inc. 2014: Figure 4.1).

3. Zone 3

The wooded wetlands, underlain by clay and lying adjacent to the Spring Mill Branch, were tested employing two trenches (Trenches T & U). Closer to the creek the underlying clays lie closer to the surface. What appear to be traces of the cart road exhibited intentional infilling with gravel. This may have been done to provide traction in the slippery mud for the team of animals used to haul the heavy loads out of the wetlands, although similar material was not found on the berm area where it would have been even more useful for this purpose. It was assumed that most of these clay areas adjacent to the stream would have been plowed with the advent of mechanized plowing in the 20th century, taking advantage of marginal areas and thus erasing any traces of the roadbed. Testing within this area revealed thin remnants of the cart road, changing the model slightly.

4. Zone 4

Testing of the Spring Mill Branch took the form of clearing the understory vegetation so that a detailed map could be constructed of the crossing area. The actual stream crossing exhibited densely packed gravels that were likely placed in the stream where clays had provided a solid surface thus creating an informal ford. Clearing of the vegetation suggested there was probably more than one approach to the crossing. This makes perfect sense given fluctuating levels of the stream, developing ruts or potholes and the potential for traffic arriving at the crossing simultaneously from two different directions.

B. EVALUATION

Overall the model proved to be helpful in identifying the ephemeral traces of the Reedy Island Cart Road. As predicted, no physical signs of the road were identified in Zone 1 (although the GPR survey did identify anomalies). Only slight traces survived within Zone 2 where it had been felt the chances were best to identify visual remains of the cart road. Zone 3, which was previously thought to retain little or no chance of identifying remains of the cart road, exhibited the shallow remains of the gravel-filled ruts within the woods adjacent to Zone 4, the stream crossing.

The development of the soils within Zone 3 proved to be more complex than originally hypothesized. The model should therefore be adjusted by dividing Zone 3 into two parts with the first part consisting of the wooded margin adjacent to the agricultural field where unchecked successional growth of the woods has reclaimed part of the agricultural field and the other part confined to the essentially old-growth woodlands adjacent to the stream, which would have been subjected to alluvial erosion but would have also been protected from plowing. This area would also have been capped by continual development of the O horizon (Figure 3.1).

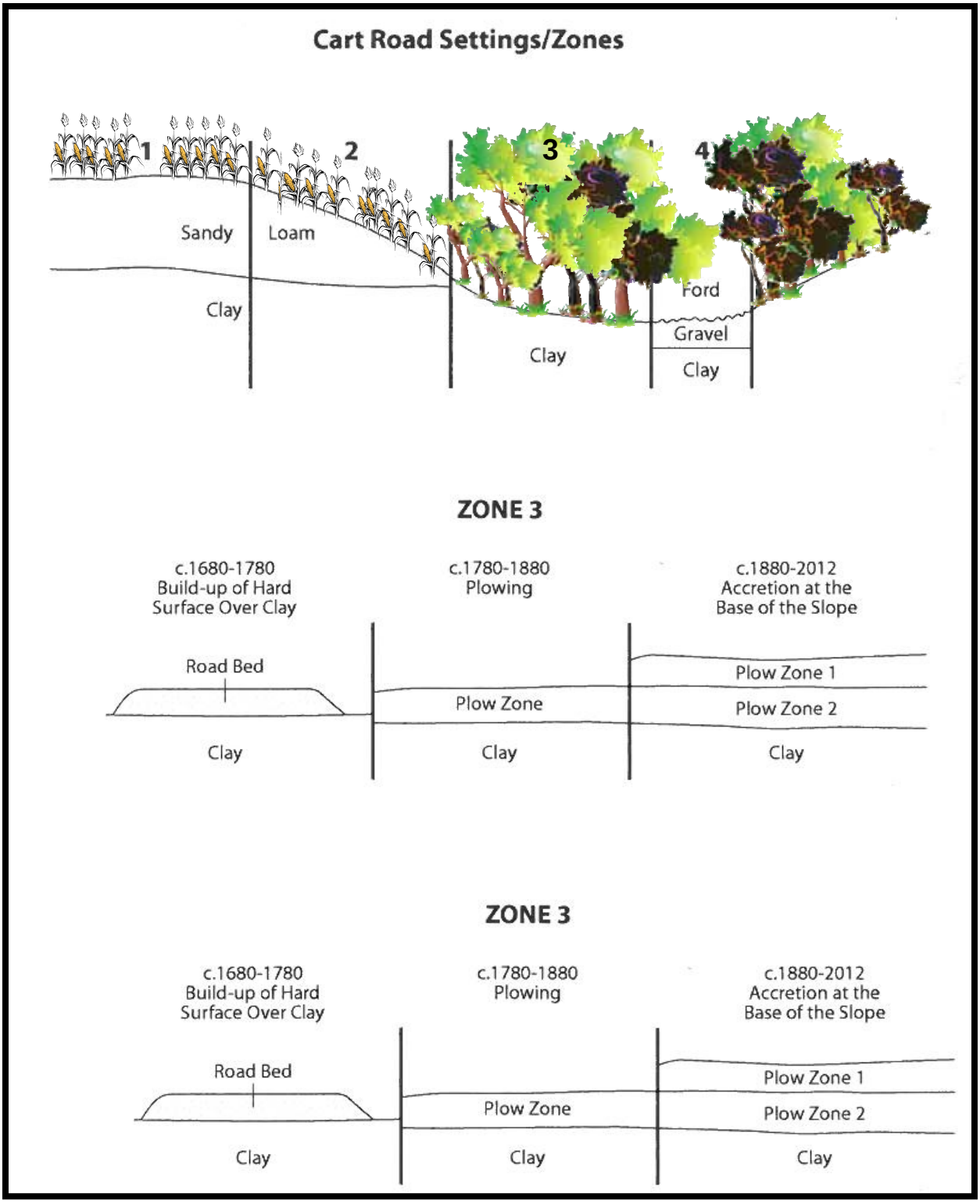


Figure 3.1. Adjusted Model of Cart Road Setting Zones Based on Data Gleaned From the Project.

Chapter 4

CONCLUSIONS AND RECOMMENDATIONSACKGROUND

The predictive model proved to be helpful and worthy of future consideration when looking for early historic ephemeral pathways. With adjustments to Zone 3, the predictive model should be a more reliable tool for future investigators.

The use of LIDAR data provided only minor supplemental information to what was physically observed in the field. LIDAR was minimally useful in this instance but as seen on sites elsewhere it can be instrumental in locating otherwise hidden features across the landscape. As the technology improves finer resolution could provide more useful digital elevation models. Examination of areas wider than the project area may be helpful in locating the trajectory of former roadways no longer present within project boundaries.

The Ground Penetrating Radar and Gradiometer Surveys conducted by Seramur & Associates, P.C. were effective at showing subtle changes in the physical properties of the soils such as moisture and compaction across the landscape. Linear traces provided specific target areas to be tested or ground-truthed. Mechanically excavated trenches placed over the geophysical anomalies provided mixed results. One prehistoric pit was immediately visible when the plowzone was removed from Anomaly B, but there were no visible signs of the cart road.

One-foot-interval soil compaction testing along the entire length of each trench using a hand-held penetrometer provided immediately informative data that was useful in the field and in the overall interpretation of the probable path or paths of the cart road. Traces of the former alignments of the cart road in the form of compacted pathways were observed in Trenches I, K, N, O, and Q on the east side of the Spring Mill Branch and in Trench W, on the west side of the Spring Mill Branch. In the future if similar former roadways are suspected or possibly detected, the use of an inexpensive, easy-to-use pocket penetrometer is recommended.

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Appendix A

GEOPHYSICAL SURVEY AND LIDAR PROCESSING TO INVESTIGATE THE REEDY ISLAND CART ROAD

SERAMUR & ASSOCIATES, PC

DECEMBER 2013

Geophysical Survey and LiDAR Processing to Investigate the Reedy Island Cart Road

Route 301, East Side of Spring Mill Branch
New Castle County, Delaware

Prepared for:

Hunter Research, Inc.
120 West State Street
Trenton, NJ 08608

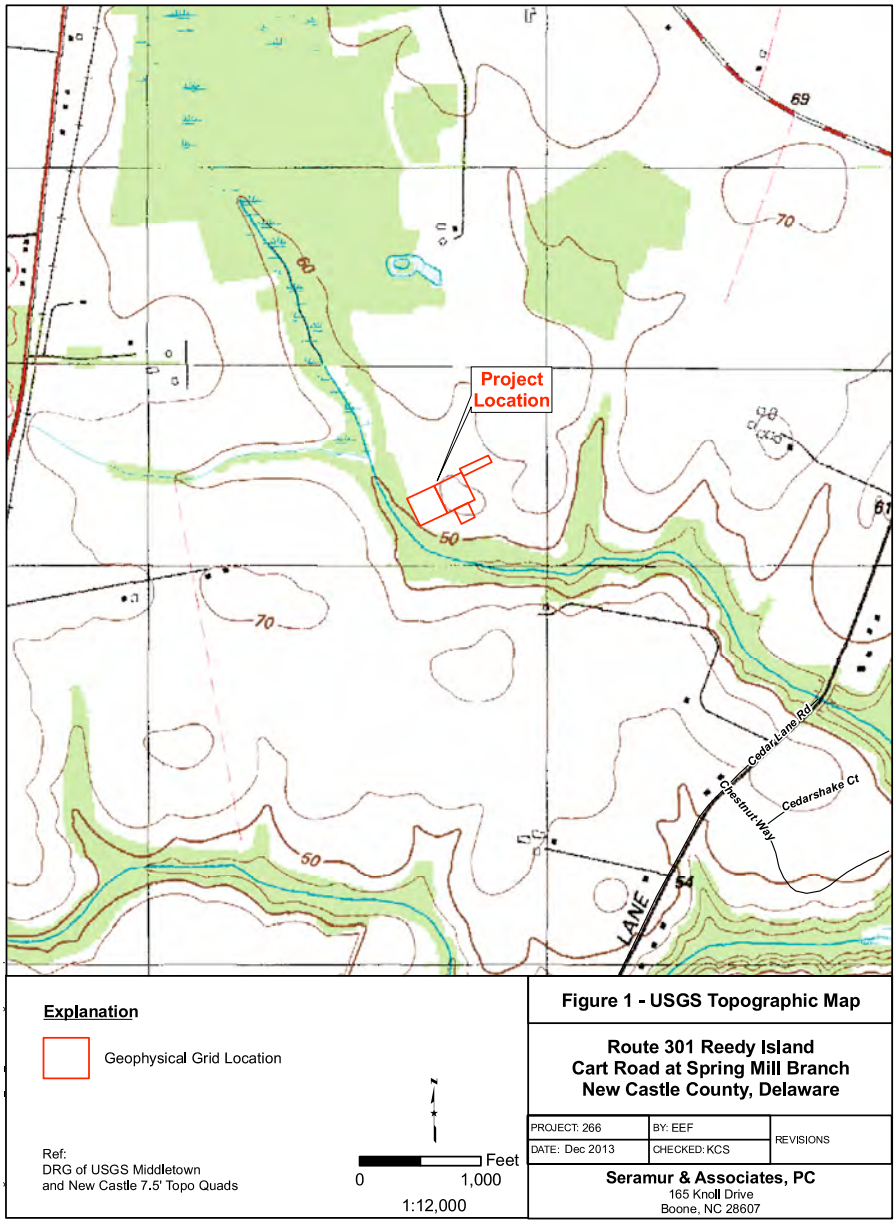
Prepared by:

Seramur & Associates, PC
165 Knoll Drive
Boone, NC 28607

December 30, 2013

Project Scope

Seramur & Associates, PC was contracted to complete a geophysical survey along a possible segment of the Reedy Island Cart Road on the east side of Spring Mill Branch in New Castle County (Figure 1). The purpose of the survey was to determine if anomalies in the geophysical data would show the location of this section of the cart road. Seramur and Associates budgeted for a total of 3.7 acres (15,000 m^2) of survey using both Ground Penetrating Radar (GPR) and Gradiometer geophysical systems.



A site meeting was conducted on October 30, 2013 with Hunter Research personnel for a reconnaissance of the survey area. A linear set of GPR and magnetometer anomalies on

the west side of Spring Branch were determined to be ditches or ruts representing the alignment of the Reedy Island Cart Road. Hunter Research marked an area approximately 250 feet square on the east side of Spring Branch that aligned with the cart road on the west side of the stream.

The study area is located in an agricultural field that was tilled and disked in preparation for running geophysical equipment across the ground surface. Seramur & Associates laid out survey grids to collect data along 0.5 meter transects. Grids 1 and 2 are each 76 square meters (249.4 ft x 249.4 ft). Each grid approximates the size of the initial target area laid out by Hunter Research. Grid 2 was added to Grid 1 along the alignment of the Reedy Island Cart Road (Figure 2). Grids 1 and 2 were divided into 4 sections (A through D) for the GPR survey. This limits the size of the data files and allows the data to be processed at different target depths across the terrain.

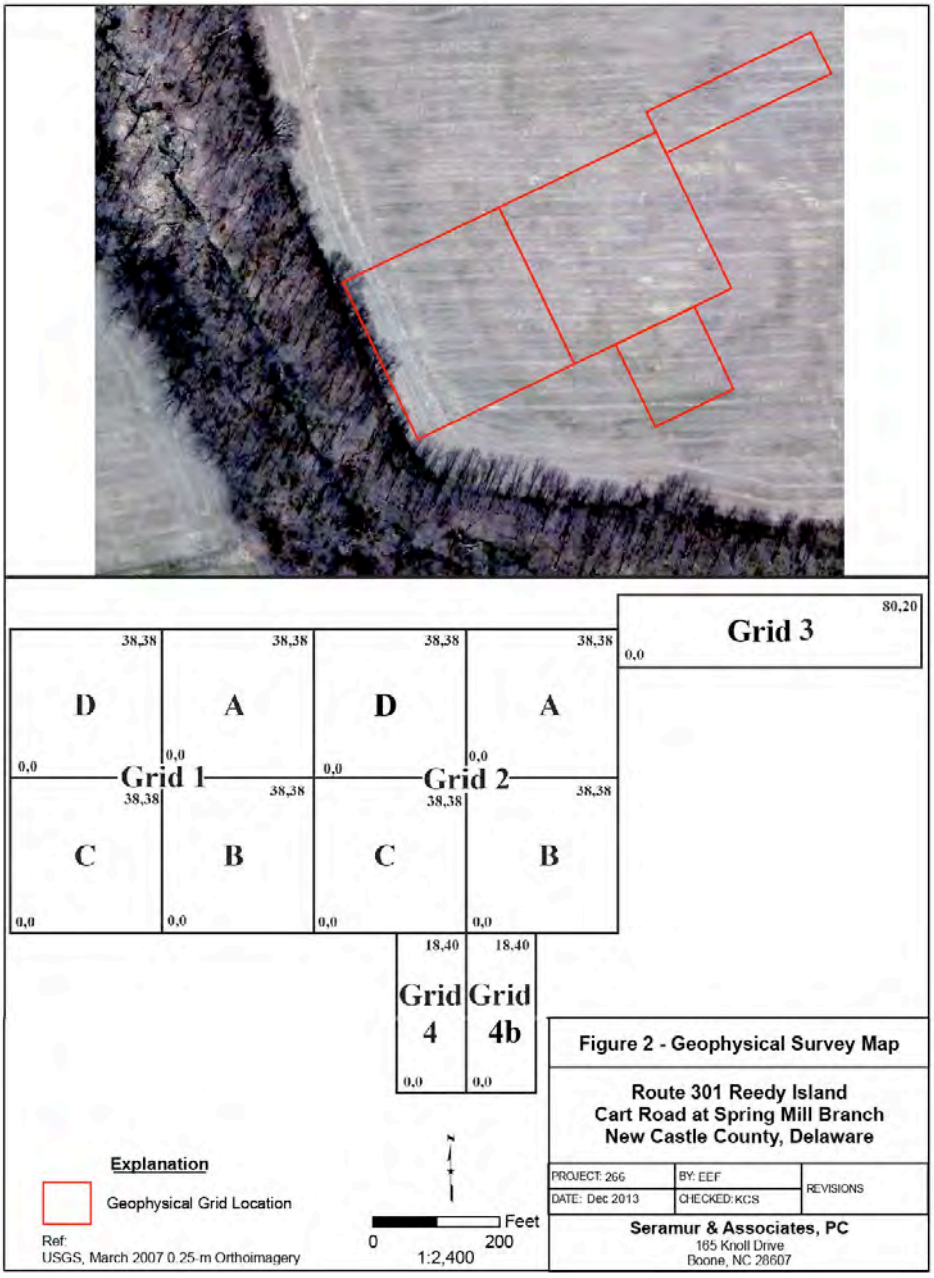
The GPR data was processed at the end of each day and evaluated. Linear anomalies were observed crossing the northern half of Grids 1 and 2. Grid 3 was added onto the northeastern corner of Grid 2 to follow these anomalies (Figure 2). Grid 4 was added to an elevated area south of Grid 2 to assess if there was a southern route for the cart road. Hunter Research had reported a possible historic site in the area of Grid 4. The GPR system was available for a few hours at the end of the budgeted field time. Grid 4b was added to widen GPR coverage of this southern survey area.

Geophysical Systems

The GPR survey was completed using the Geophysical Survey Systems, Inc. 400 MHz antenna and a SIR-3000 Single Channel GPR Data Acquisition System. Radan© software is used to produce a 3-dimensional (3-D) model of the geophysical data. GPR anomalies can be evaluated by selecting horizontal slices through the 3-D model of each grid at different depths. These horizontal slices show the radar reflections returned over a particular thickness of the 3-D model.

Magnetic field data was collected using the Geometrics Cesium Vapor G858 Magnetometer. Gradiometer data is obtained by using two vertically separated magnetometer sensors that measure changes in the earth's magnetic field along the grid transect. The gradient between the magnetometer readings from each sensor is recorded and used to map anomalies across the survey area. MagMapper© software is used to export the magnetic field gradient data into X, Y, Z ASCII columnar format files. These data files were imported into Suffer© software where they were compiled into gradiometer images. The data was process to eliminate extreme gradiometer measurements, those exceeding $\pm$15 nanoTesla.

The GPR and gradiometer grids were compiled in Adobe Illustrator© and exported as tiff files. Tiff files were then imported into ArcGIS Desktop© Geographical Information Software to georeference the compiled grids.



Geophysical data was collected along survey lines spaced 0.5 m apart. The grid layout and orientation is shown in Figure 2 with the X and Y values for the grid corners labeled.

GPR Anomalies

The GPR data is presented in Plates A-1 and A-2 of Appendix 1. The agriculture fields are plowed in a northwest-southeast orientation. The 3-D models of GPR data were sliced to depths between 0.45 to 0.65 m. The plow scars produce strong linear anomalies in the northwest-southeast direction. Some of these scars extended to a depth of 0.5 m. The slice thickness was varied from 0.1 to 1.0 m during the data processing to determine the best thickness for identifying GPR reflectors (anomalies) potentially associated with the cart road. Linear anomalies that could possibly represent the cart road appear to be best

illustrated using a slice thickness of 0.2 m or 20 cm. GPR reflections imaged in the radar data were selected at depths between 35-55 cm, 45-65 cm and 55-75 cm. Each sub-grid was evaluated separately and the appropriate depth for the grid slice was selected.

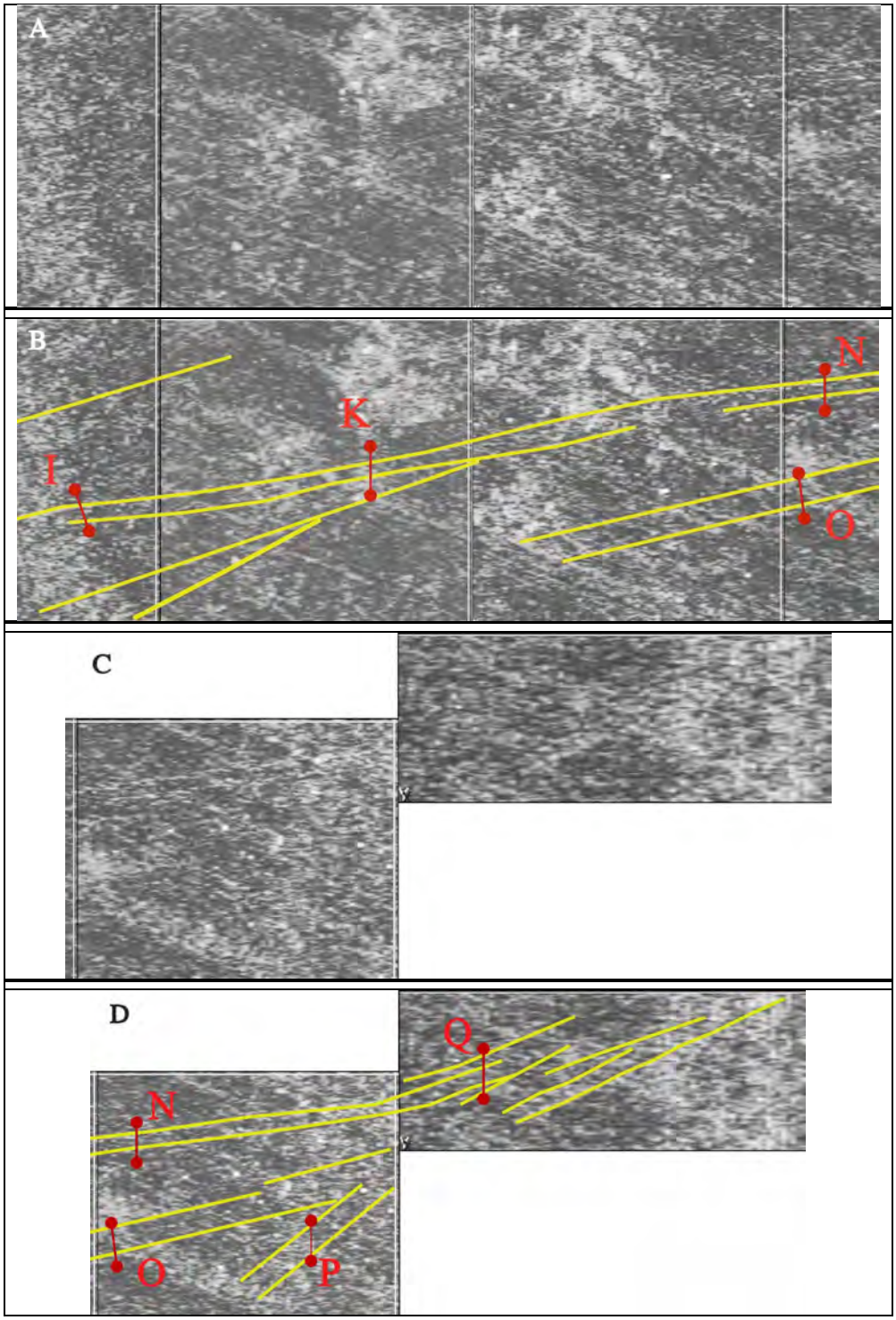


Figure 3. East-west linear GPR reflections extend across the northern portion of Grids 1 and 2 (a & b). Two additional sets of linear anomalies were observed in Grid 2, extending into Grid 3 (c & d).

The cart road orientation should range between southwest-northeast to east-west. This is an orientation perpendicular to, or oblique to the direction (north-south) that the GPR data was collected. Collecting data oblique or perpendicular to the direction of the target anomalies reduces the possibility of introducing artifacts into the GPR data.

A background of dispersed GPR reflections occurs across the west side of Grid 1 (Plate A-1). This area is on the slope up from the Spring Branch drainage. Sediment eroded off the upland surface has accumulated on this slope. Deep plow scars produce relatively strong northwest-southeast orientated reflections across the central survey area (Plate A-1). The central and eastern grids are located on the upland surface. These plow scars extend down into the B-horizon or subsoil.

Two prominent east-west linear GPR reflections extend across the northern portion of Grids 1 and 2 (Figure 3a). Proposed trench locations I, K, N and Q were located across these anomalies (Figure 3b). The spacing of these parallel anomalies is about 6 to 8 feet. Two additional sets of parallel linear anomalies were identified in Grid 2 (Figure 3c). Trenches O and P were located across these southwest-northeast trending anomalies (Figure 3d).

There is an elongate, rectangular area with a low reflection density in Grid 1 (Figure 4a). Two southwest-northeast trending linear anomalies are traced through this area and Trench J was located across these anomalies (Figure 4b).

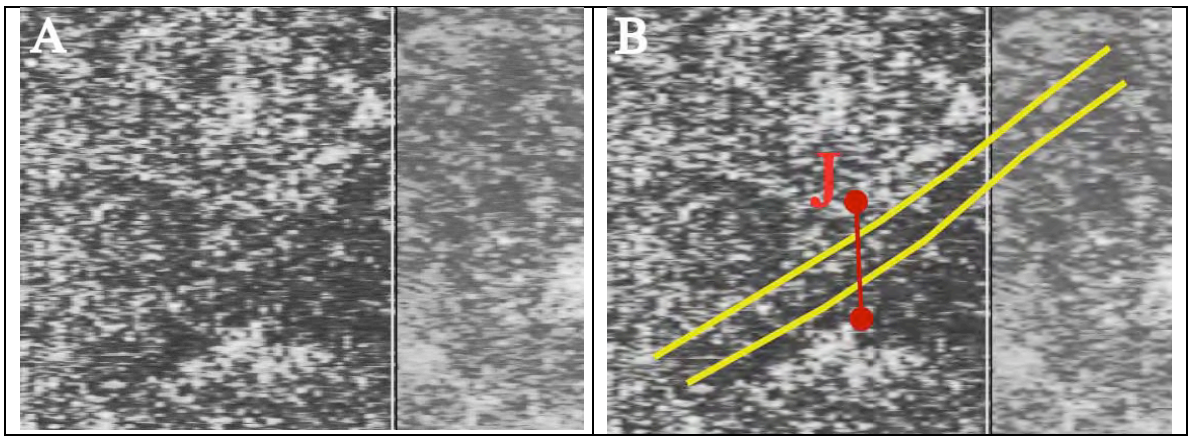


Figure 4. Elongate rectangle with low-density GPR reflections (a). Parallel linear anomalies traced through this rectangle (b).

Several east-west to southwest-northeast trending linear anomalies are located in southern Grid 2 and Grids 4 and 4b (Plate A-1). A rectangular outline of GPR reflections was noted in Grid 4b (Plate A-2). Hunter Research excavated trenches B-A-H and G-F across these anomalies (Plate A-2). Trench B-A-H was excavated along the southwest side of the rectangular anomaly. Hunter Research reported a large pit feature was recorded in the trench near point B.

Gradiometer Anomalies

The gradiometer data is presented in Plates A-3 and A-4 of Appendix 1. Three anomaly types are observed in the gradiometer data. The first are large oval features, which are

addressed in the Delmarva Bay discussion below. The second are a series of linear southwest-northeast trending anomalies showing an elevated magnetic gradient (Plates A-3 and A-4). These linear anomalies did not show up in the GPR data. They could be related to bedding or changes in iron content in the underlying fluvial and marine sediment.

The G858 magnetometer is very sensitive and metallic objects produce a strong magnetic signal in the gradiometer data. These show up on the gradiometer images as polar (white and black) anomalies (Plate A-3). These metallic anomalies are circled on Plate A-4. There is a line of these metallic anomalies that trends along the linear set of GPR anomalies in the northern portion of Grids 1 and 2 (Plates A-2 and A-4)

Several areas of interest were noted in Grids 4 and 4b on the gradiometer and GPR data. These were flagged in the field as point locations A through H. This includes a complex of circular anomalies in the vicinity of points G, H and F (Plate A-3). We were not able to conclude from our field survey whether these were pedogenic or cultural features.

Delmarva Bays

The coastal plain sediments in the project area are mapped as the Columbia Formation, sand with gravel and beds of clayey silt. Shallow deposits in the study area are silt to very fine sand. Soil is mapped as the Othello Silt Loam and the Reybold Silt Loam. The Otheelo Silt loam is mapped along the western side of the field and forms in depressions flats and swales. The Reybold Silt Loam is mapped on the upland surface and forms on interfluves. Both of these soils form in silty aeolian sediment deposited over fluviomarine sediment (USDA, 2013).

Undrained depressions formed in the Columbia Formation are commonly referred to as Delmarva Bays (Ramsey, 2005; Davias, 2012). These are also known as wet flatwood swamps and form seasonal wetlands across the Delmarva Peninsula. These wetlands occur in subtle depressions and are seasonally flooded in the spring from snowmelt and spring rains. These features are thought to be remnant Pleistocene landforms related to periglacial and aeolian processes (Newell and Clark, 2008).

A circular wooded area in the northwest corner of the farm field is not plowed because it is a seasonal wetland or Delmarva bay (See Cover Photo). The aerial photograph of the upland portion of the study area shows several round to elliptical features (Figure 2). These features are visible because of slight changes in soil moisture. These features were also observed on the GPR and magnetometer data (Figure 5a and 5b). The GPR depicts these as areas of low density reflections (Figure 5a). The GPR signal is attenuated by clay soils and the low-density reflections in the center of these circular features could indicate a higher clay content in the soil.

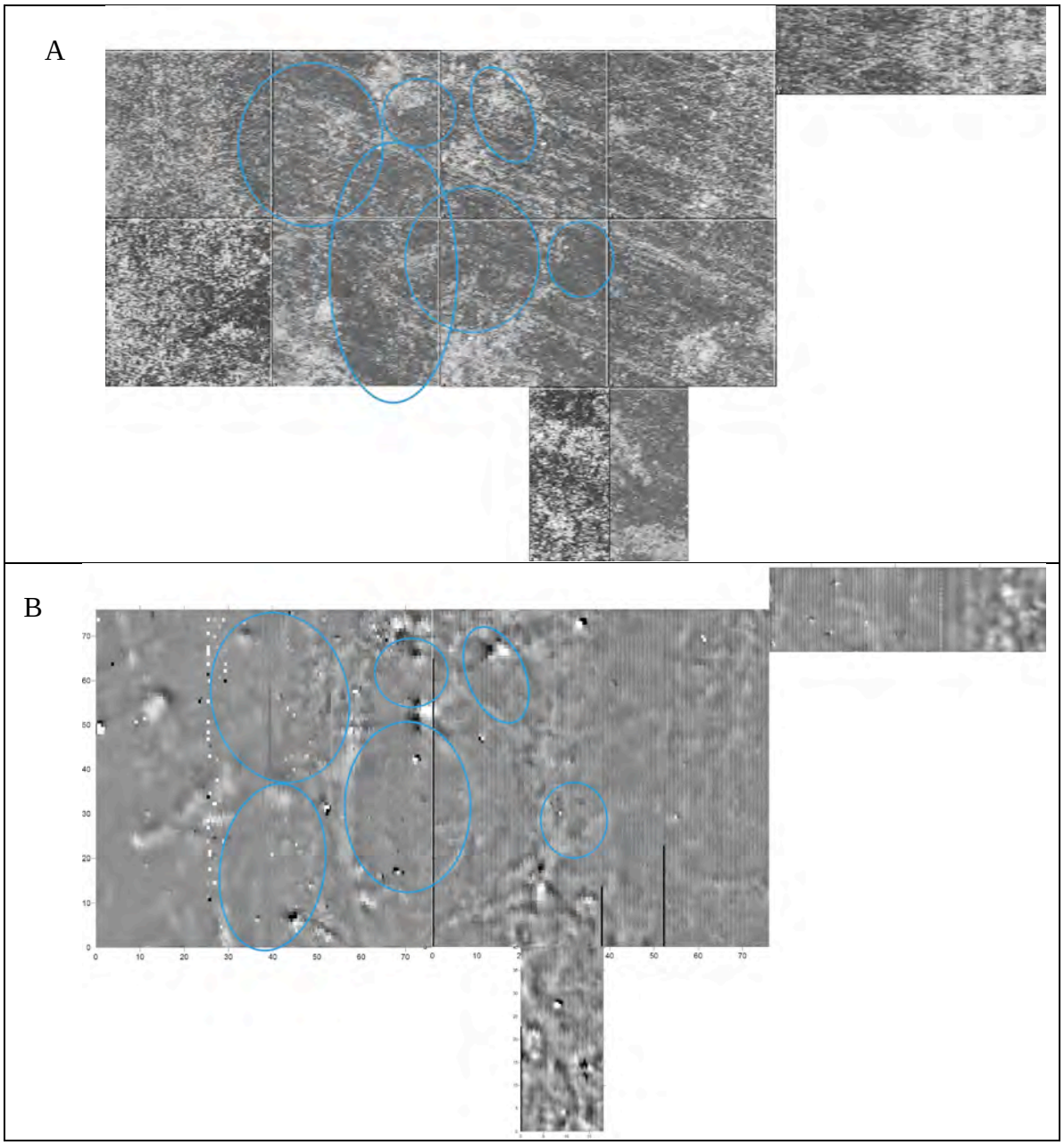


Figure 5. Geophysical survey data showing outlines of oval subsurface features. GPR shows low density reflections surrounded by oval rings or radar reflections (a). Gradiometer data shows circular to oval shaped outlines of magnetic anomalies (b).

The perimeters of these circular features are observed on the gradiometer data as areas with a high magnetic field gradient (Figure 5b). The perimeter of seasonal wetlands would experience frequent changes moisture content or wetting and drying. Iron precipitation occurs in areas along the top of the water table as a result of changes between reducing saturated conditions and oxidized aerated or drained soils. The rims of these circular features appear to be outlined by soil with a higher iron oxide concentration.

The circular features observed in the study area are former seasonal wetlands. These

remnant Pleistocene features could have been drained and plowed after European settlement.

Penetrometer Testing

A hand penetrometer was used to evaluate the compaction of soil materials associated with the cart road. Hunter Research provided penetrometer data for our review. Traffic along the road could compact soil. This soil compaction might be measured with a penetrometer and possibly mapped along the cart road. The geophysical survey west of Spring Branch identified possible ditch lines or ruts along the cart road. One possible signature for the cart road would be compacted soil in the center of the cart path with unconsolidated soil along the edges.

Visible evidence of the cart road was not observed in any of the trenches excavated east of Spring Branch. A cart road crossing the study area could have affected soil material below the roadbed. A compacted road surface would limit infiltration of surface water diverting it to the side of the road. Surface water infiltration into the deeper soil horizons could soften or reduce compaction of subsoil along the edge of the cart road. Changes in both soil compaction and soil moisture content can produce anomalies within the GPR data. The penetrometer data will be reviewed with respect to the GPR anomalies tested to assess possible trends related to the cart road.

Trenches B-A-H and G-F were excavated in an area where multiple linear and circular anomalies were observed. These anomalies were flagged in case they were structures or disturbance associated with the cart road. Hunter Research reported that a large prehistoric pit feature was recorded in the vicinity of point B. Penetrometer readings in the vicinity of point B range from 1.25 to 2.4 tons/ft^2 (Figure 6). These readings represent the compaction values for culturally disturbed soil material.

Two southwest-northeast trending linear anomalies were observed crossing line B-A (Figure 6). These anomalies could be associated with some of the large variations in penetrometer values recorded between 10 and 20 feet. The penetrometer data collected along lines B-A-H and G-F is quite variable (Figure 6). There is one area of consistently high penetrometer measurements along line G-F. The gradiometer data showed multiple anomalies in this area, possibly associated with iron oxide concentrations in the B-horizon. The variable penetrometer data along these two lines could be associated with differences in iron cementation within the B-horizon.

Proposed trench locations I, K, N and Q were located across two prominent east-west linear GPR reflections (Figure 3a & 3b). Penetrometer measurements along Trenches I and N indicated soil with the highest compaction value (4.5 tons/ft^2) with a few areas of softer soil (Figures 7 and 8). The linear anomalies along line I could be associated with the lower penetrometer measurements at 4 feet and 9 feet (Figure 7). The linear anomalies along line N could be associated with the lower penetrometer measurements at 7 feet and 13 feet (Figure 8). These lower penetrometer measurements are at a similar spacing to the linear anomalies

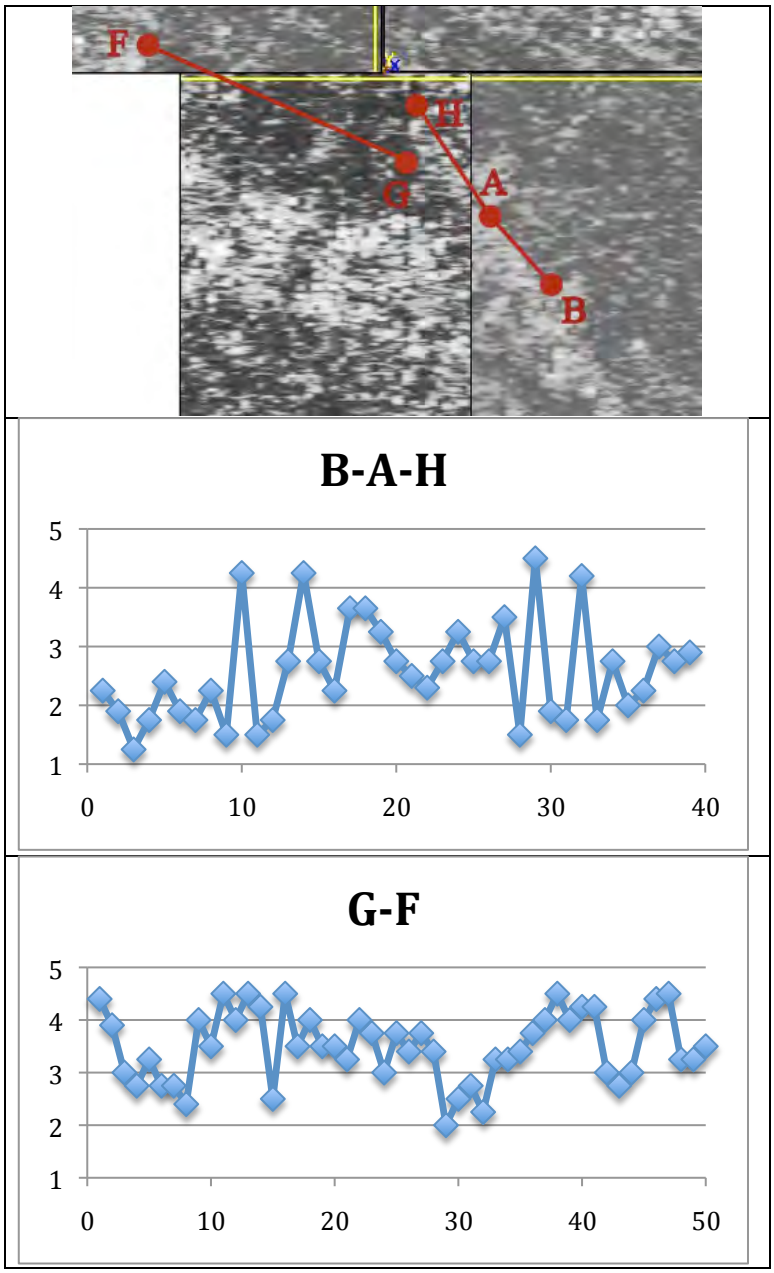


Figure 6. Location of lines B-A-H and G-F on the GPR grids and associated penetrometer data collected along those lines.

The penetrometer measurements in trenches K and Q show compacted soil in the center of the trenches and softer soil on the margins of the trenches (Figures 9 and 10). This is the expected pattern for penetrometer readings across the cart road. However, the compacted soil only extends from 13 to 17 feet in Trench K.

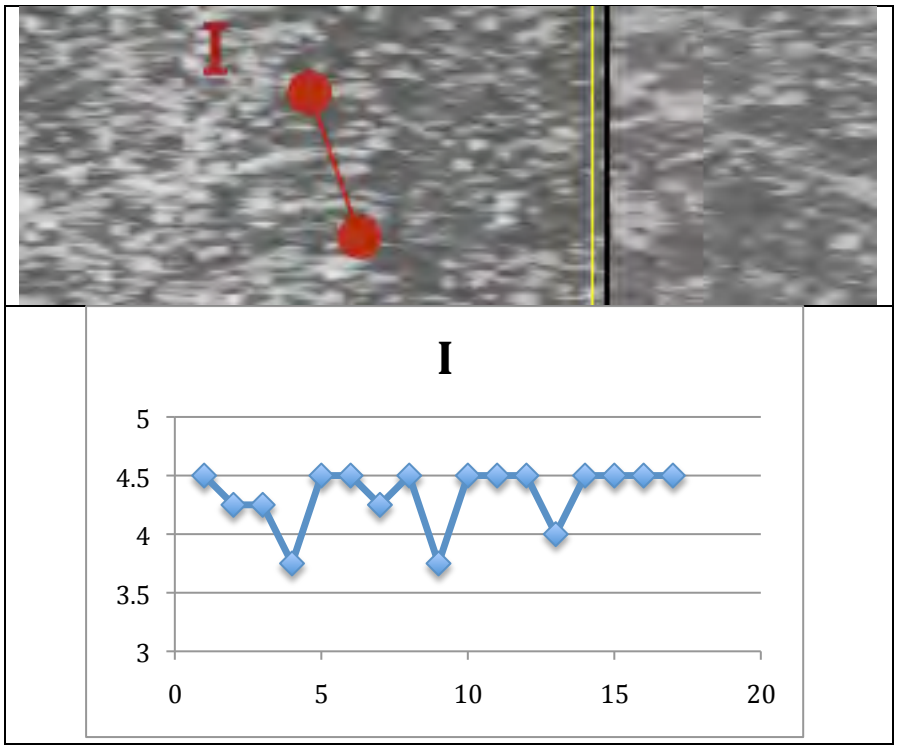


Figure 7. GPR data and penetrometer values for Trench I.

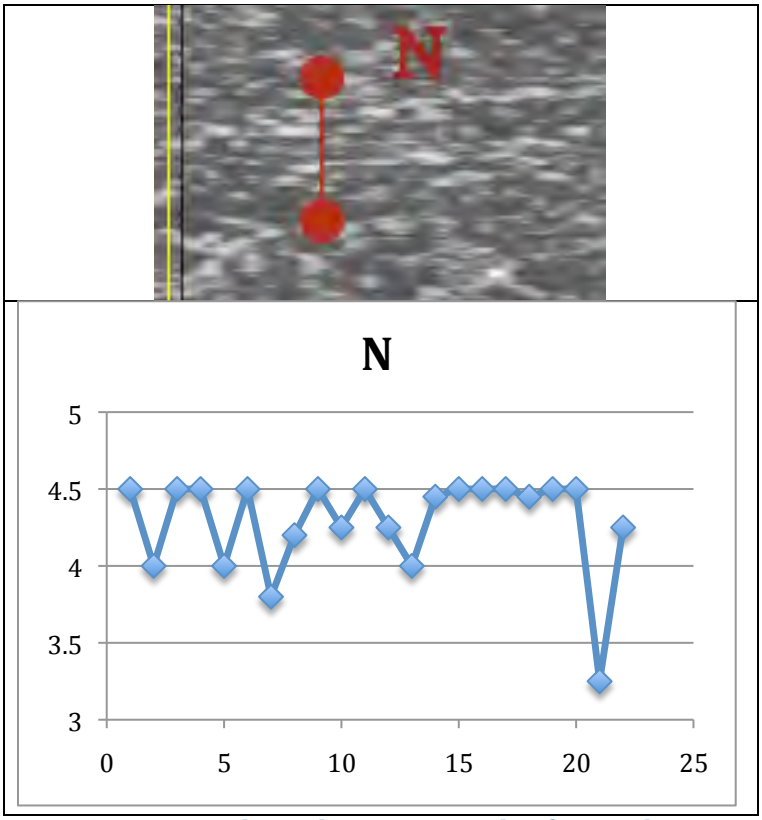


Figure 8. GPR data and penetrometer values for Trench N.

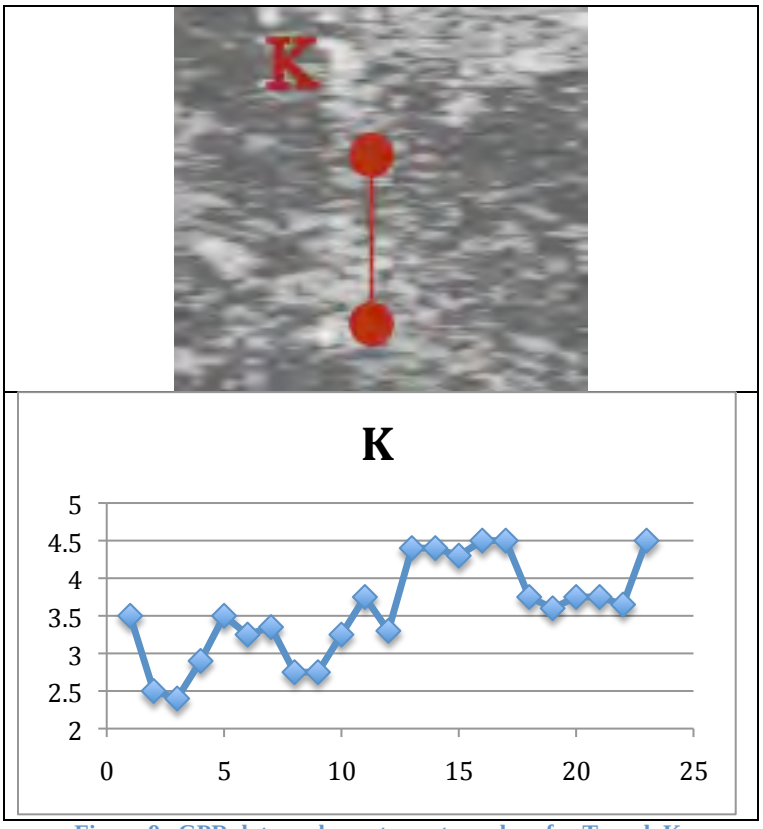


Figure 9. GPR data and penetrometer values for Trench K.

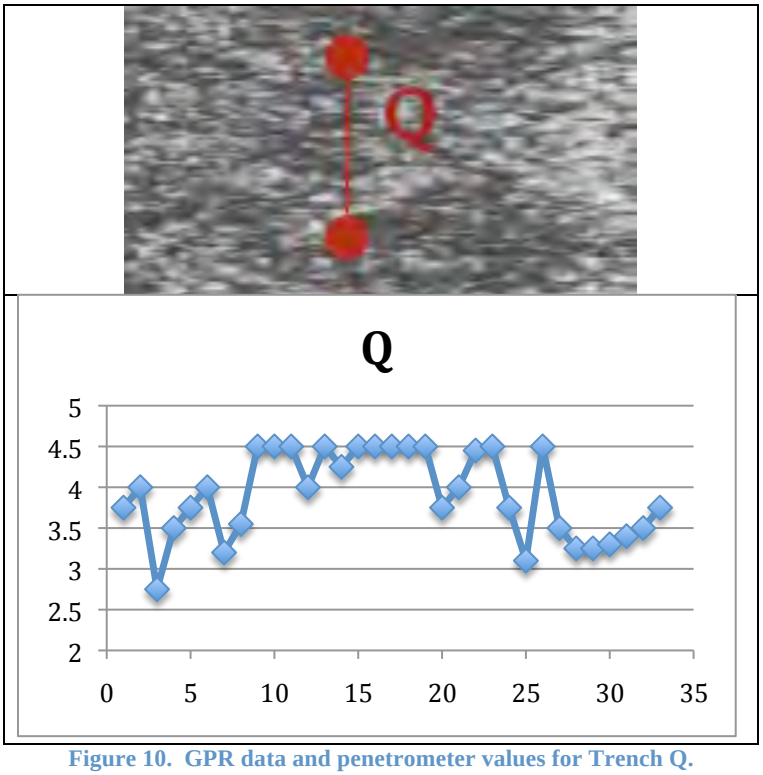


Figure 10. GPR data and penetrometer values for Trench Q.

Penetrometer testing in Trench O extended for 100 feet (Figure 11). It is uncertain exactly how these measurements align with the GPR anomalies. The penetrometer data shows variability across the trench except between 34 feet and 44 feet (Figure 11). These consistently high (4.5 tons/ft^2) penetrometer measurements could be related to soil compaction along the cart road.

The high penetrometer measurements in Trench O show that the plow zone in upland areas have been eroded down to the stiff B-horizon subsoil. Visual evidence of the cart road has been eroded from this portion of the study area.

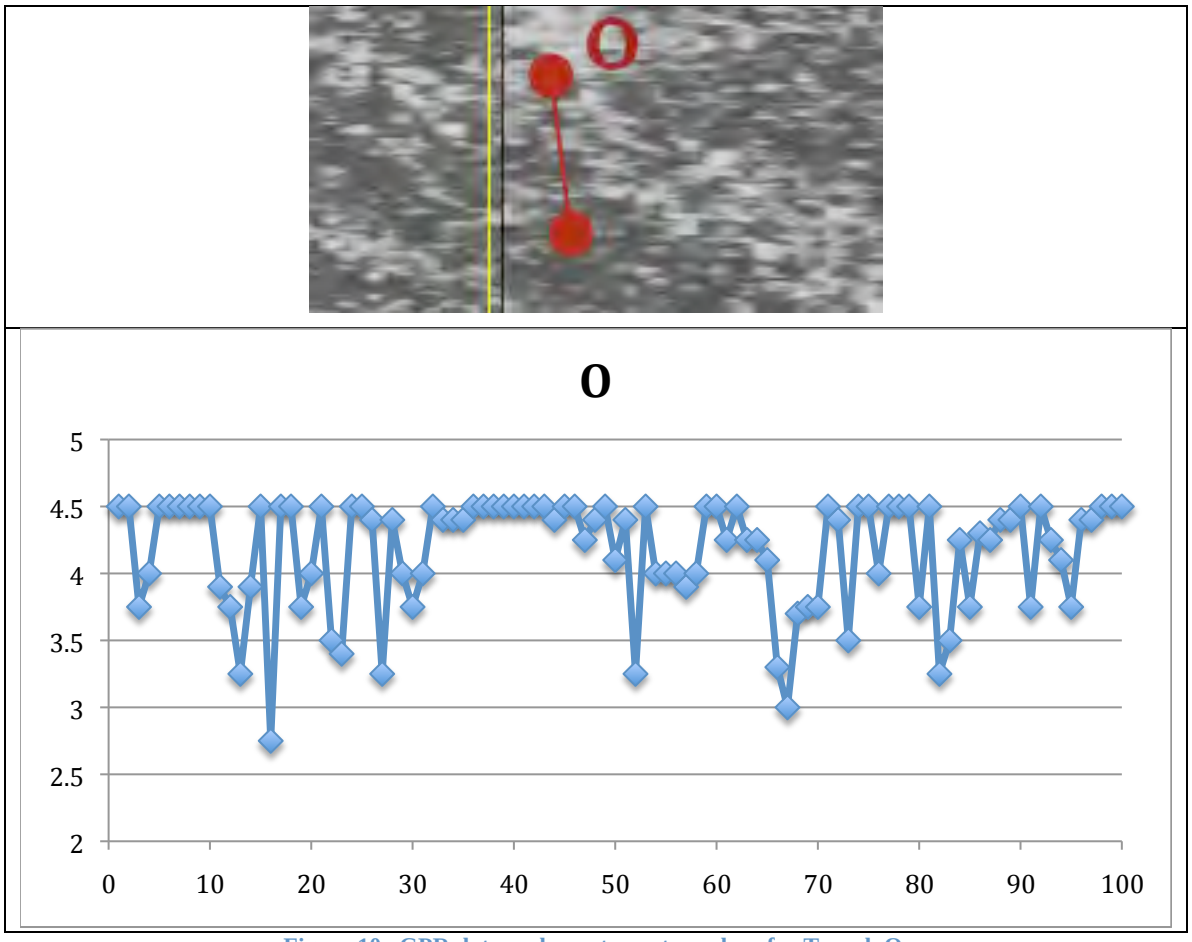


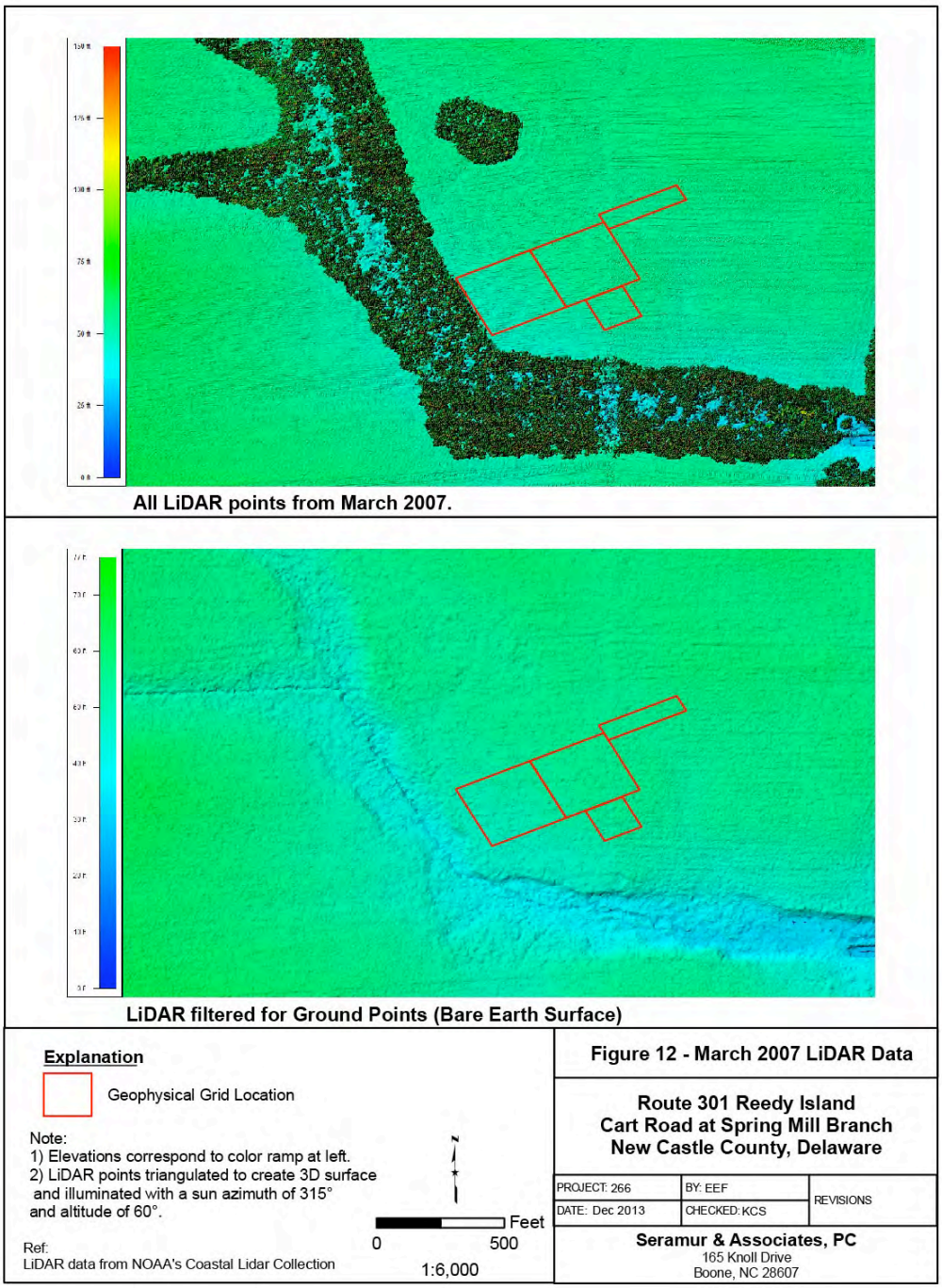
Figure 10. GPR data and penetrometer values for Trench O.

Summary of Geophysical Survey

Anomalies identified in the GPR data indicate changes in the physical properties of the soil across the survey grids. The GPR processing showed that the soil properties associated with these anomalies is only preserved over a 20 cm thick section of the subsoil. The physical properties that produce the GPR reflections are interpreted to be changes in soil moisture content and soil compaction. The linear alignment of these anomalies indicates that they are likely associated with roads or paths across the study area. This evidence of former roads and/or paths occurs along the base of the plow zone. The age of these features is not known.

Processed LiDAR Data

LiDAR data was obtained from the National Oceanographic and Atmospheric Administration's "2007 Delaware Coastal Program Lidar: Kent and New Castle Counties".



The data acquisition occurred in 7 missions between March 31 and April 5, 2007 in Kent and New Castle Counties, Delaware. The data have been classified and were flown to derive bare earth contours at 2 feet. Multiple returns were recorded for each laser pulse

along with an intensity value for each return. The points have a 1.4 m ground spacing (1.0 m ground spacing within the Wilmington Urban Area). This data set is a raster file of z values with 3712 columns and 2081 rows. The data set was extracted from a larger classified data set and only includes points classified as Ground, Model Key-point (mass point), and Bathymetric LiDAR Points within the geographic bounds.

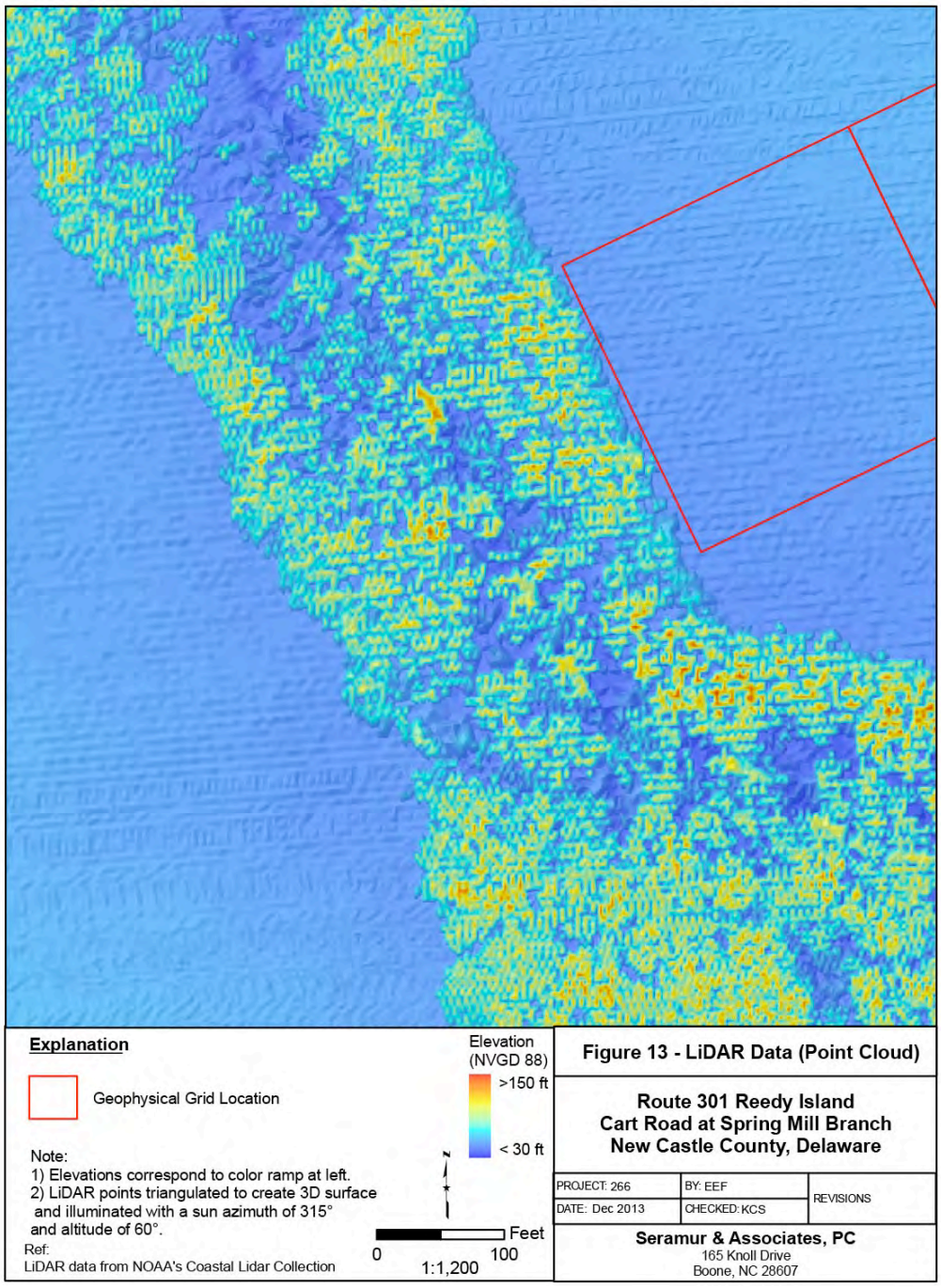
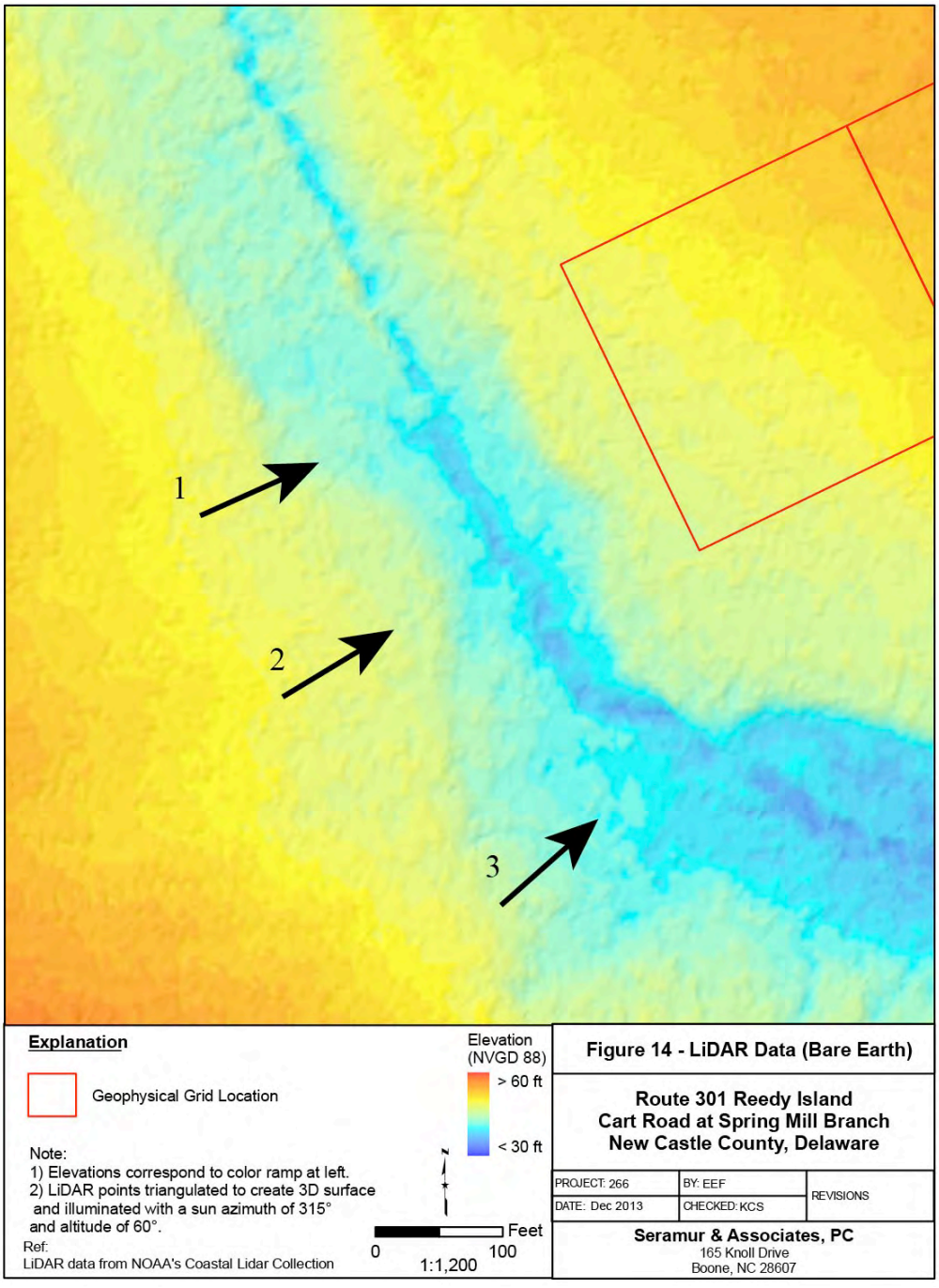


Figure 12 shows the LiDAR images with all points and with filtered ground surface points. Figure 13 is a larger scale image of all data from the LiDAR point cloud or data

set. Figure 14 shows the last LiDAR returns or bare earth model of the possible cart road crossing of Spring Branch.



Three arrows have been sketched over this last image. The first arrow shows an area where the stream channel has an unusual configuration (trending southwest-northeast). The streambed widens at this point. This could be due to springs discharging to the stream or historic modification of the channel. The second arrow points to an area where there is gentle slope down to the stream channel from the southwest. This is near one of

the shoals or riffles observed in the field. The third arrow is located at the bend in the stream channel. The stream channel morphology changes at this bend in the river. Upstream the channel is narrow and appears relatively confined. Downstream of the bend the channel appears to meander across a wide lowland area (broad dark blue area on Figure 14). A historic crossing of Spring Branch would have been more practical upstream of the bend, along the narrow confined portion of the channel.

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U.S.D.A.
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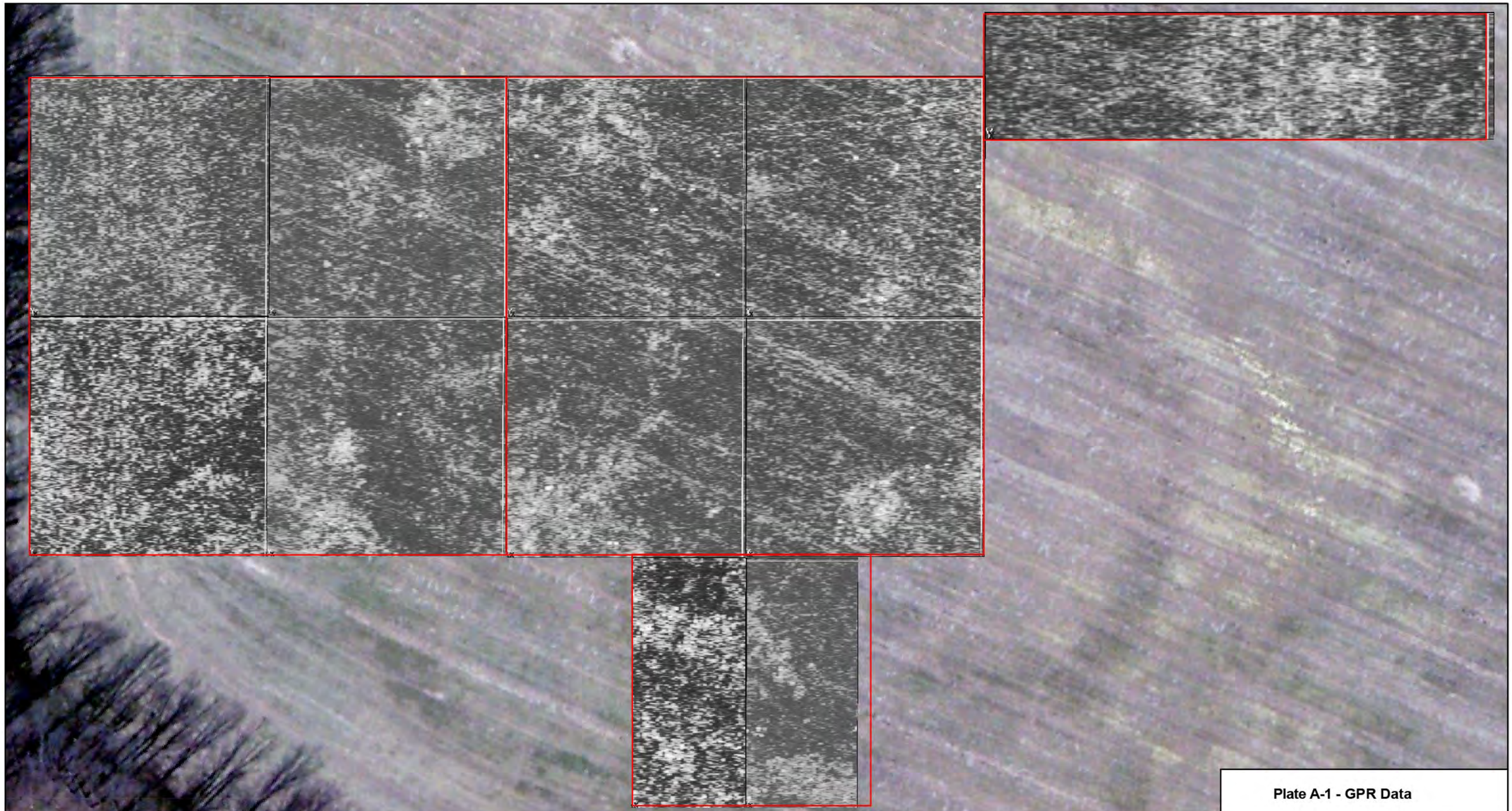
Appendix A
Ground Penetrating Radar and Magnetometer Data



Explanation

Geophysical Grid Location

Ref:
USGS, March 2007 0.25-m Orthoimagery

N

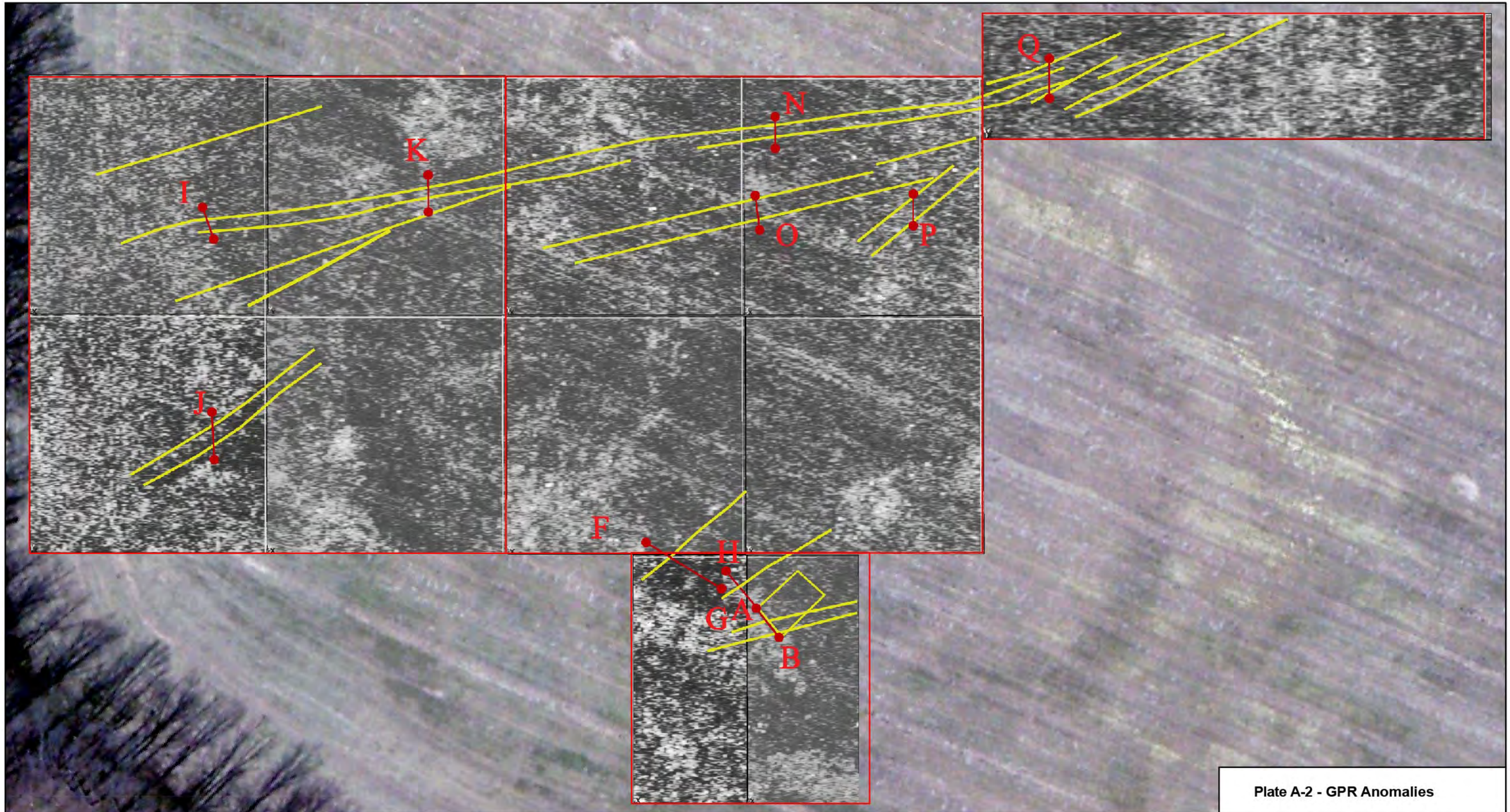
Meters
0 20
Feet
0 100
1:600

Plate A-1 - GPR Data

Route 301 Reedy Island
Cart Road at Spring Mill Branch
New Castle County, Delaware

PROJECT: 266	BY:EEF	REVISIONS
DATE: Dec 2013	CHECKED: KCS	

Seramur & Associates, PC
165 Knoll Drive
Boone, NC 28607



Explanation

Geophysical Grid Location

Ref:
USGS, March 2007 0.25-m Orthoimagery

N

Meters
0 20
Feet
0 100
1:600

Plate A-2 - GPR Anomalies

Route 301 Reedy Island
Cart Road at Spring Mill Branch
New Castle County, Delaware

PROJECT: 266	BY:EEF	REVISIONS
DATE: Dec 2013	CHECKED: KCS	

Seramur & Associates, PC
165 Knoll Drive
Boone, NC 28607

Explanation

Magnetometer Readings

>15 nT

<-15 nT

Geophysical Grid Location

Ref:
USGS, March 2007 0.25-m Orthoimagery

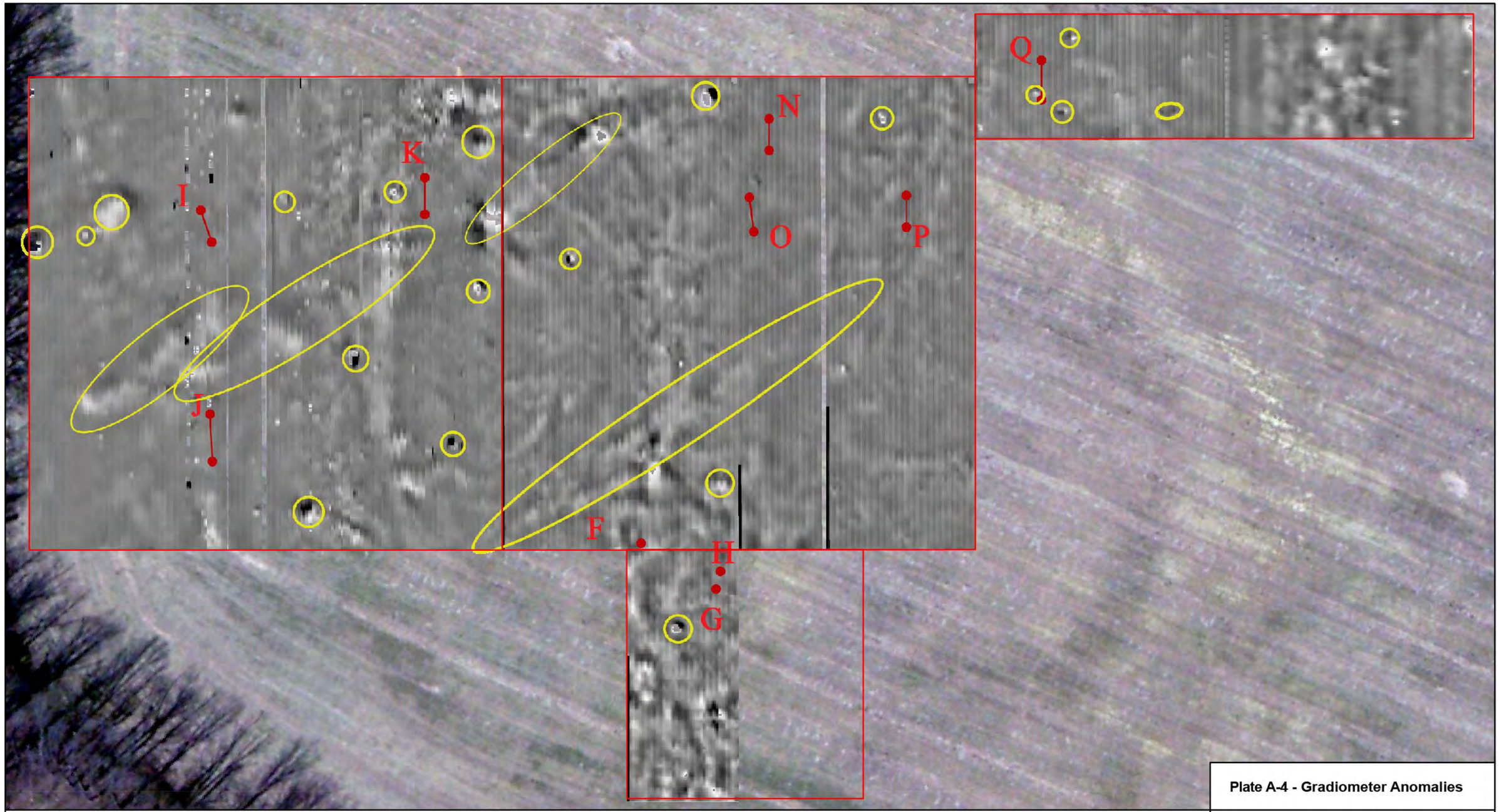
Meters
0 20
Feet
0 100
1:600

Plate A-3 - Gradiometer Data

Route 301 Reedy Island
Cart Road at Spring Mill Branch
New Castle County, Delaware

PROJECT: 266	BY:EEF	REVISIONS
DATE: Dec 2013	CHECKED: KCS	

Seramur & Associates, PC
165 Knoll Drive
Boone, NC 28607



Explanation

Magnetometer Readings
>15 nT
<-15 nT

Geophysical Grid Location

Ref:
USGS, March 2007 0.25-m Orthoimagery

Meters
0 20
Feet
0 100
1:600

Plate A-4 - Gradiometer Anomalies

Route 301 Reedy Island
Cart Road at Spring Mill Branch
New Castle County, Delaware

PROJECT: 266	BY:EEF	REVISIONS
DATE: Dec 2013	CHECKED: KCS	

Seramur & Associates, PC
165 Knoll Drive
Boone, NC 28607

Appendix B

PENETROMETER READINGS

Appendix B

U.S. Route 301 Supplementary Documentation of Cart Road Dimensions and Penetrometer Readings

Trenches East of Spring Mill Branch

Trench B-A-H (39’ x 4’ x .5’)									
1’ = 2.25		9’ = 1.5		17’ = 3.65		25’ = 2.75		33’ = 1.75
2’ = 1.9		10’ = 4.25		18’ = 3.65		26' = 2.75		34' = 2.75
3’ = 1.25		11’ = 1.5		19’ = 3.25		27’ = 3.5		35’ = 2.0
4’ = 1.75		12’ = 1.75		20’ = 2.75		28’ = 1.5		36’ = 2.25
5’ = 2.4		13’ = 2.75		21’ = 2.5		29’ = 4.5		37’ = 3.0
6’ = 1.9		14’ = 4.25		22’ = 2.3		30’ = 1.9		38’ = 2.75
7’ = 1.75		15’ = 2.75		23’ = 2.75		31’ = 1.75		39’ = 2.9
8’ = 2.25		16’ = 2.25		24’ = 3.25		32’ = 4.2		

Trench F-G (50’ x 3.5’ x .5’)									
1’ = 4.4		11’ = 4.5		21’ = 3.25		31’ = 2.75		41’ = 4.25
2’ = 3.9		12’ = 4.0		22’ = 4.0		32’ = 2.25		42’ = 3.0
3’ – 3.0		13’ = 4.5		23’ = 3.75		33’ = 3.25		43’ = 2.75
4’ = 2.75		14’ = 4.25		24’ = 3.0		34’ = 3.25		44’ = 3.0
5’ = 3.25		15’ = 2.5		25’ = 3.75		35’ = 3.4		45’ = 4.0
6’ = 2.75		16’ = 4.5		26’ = 3.4		36’ = 3.75		46’ = 4.4
7’ = 2.75		17’ = 3.5		27’ = 3.75		37’ = 4.0		47’ = 4.5
8’ = 2.4		18’ = 4.0		28’ = 3.4		38’ = 4.5		48’ = 3.25
9’ = 4.0		19’ = 3.5		29’ = 2.0		39’ = 4.0		49’ = 3.25
10’ = 3.5		20’ = 3.5		30’ = 2.5		40’ = 4.25		50’ = 3.5

Trench I (17’ x 3.5’ x .5’)				
1’ = 4.5		7’ = 4.25		13’ = 4.0
2’ = 4.25		8’ = 4.5		14’ = 4.5
3’ = 4.25		9’ = 3.75		15’ = 4.5
4’ = 3.75		10’ = 4.5		16’ = 4.5
5’ = 4.5		11’ = 4.5		17’ = 4.5
6’ = 4.5		12’ = 4.5		

Trench J (35’ x 3.5’ x .5’)								
1’ = 3.75		9’ = 4.5		17’ = 4.5		25’ = 4.5		33’ = 3.75
2’ = 4.5		10’ = 4.5		18’ = 4.25		26’ = 4.5		34’ = 3.25
3’ = 4.45		11’ = 4.5		19’ = 4.5		27’ = 4.5		35’ = 4.5
4’ = 3.5		12’ = 4.5		20’ = 4.5		28’ = 4.5		
5’ = 4.5		13’ = 4.5		21’ = 4.0		29’ = 3.75		
6’ = 4.5		14’ = 4.5		22’ = 3.75		30’ = 4.5		
7’ = 4.5		15’ = 4.5		23’ = 3.25		31’ = 4.5		
8’ = 4.5		16’ = 4.5		24’ = 4.0		32’ =3.6		

Trench K (23’ x 3.5’ x .5’)						
1’ = 3.5		8’ = 2.75		15’ = 4.3		22’ = 3.65
2’ = 2.5		9’ =2.75		16’ = 4.5		23’ = 4.5
3’ = 2.4		10’ = 3.25		17’ = 4.5		
4’ = 2.9		11’ = 3.75		18’ = 3.75		
5’ =3.5		12’ = 3.3		19’ = 3.6		
6’ = 3.25		13’ = 4.4		20’ = 3.75		
7’ = 3.35		14’ = 4.4		21’ = 3.75		

Trench N (22’ x 3.5’ x .5’)						
1’ = 4.5		8' = 4.2		15' = 4.5		22' = 4.25
2’ = 4.0		9' = 4.5		16' = 4.5		
3’ = 4.5		10' = 4.25		17' = 4.5		
4’ = 4.5		11' =4.5		18' = 4.45		
5' = 4.0		12' = 4.25		19' = 4.5		
6' = 4.5		13' = 4.0		20' = 4.5		
7' = 3.8		14' = 4.45		21' = 3.25		

Trench O (100' x 3.5' x .5')							
1' = 4.5		21' = 4.5		41' = 4.5		61' = 4.25		81' = 4.5
2' = 4.5		22' = 3.5		42' = 4.5		62' = 4.5		82' = 3.25
3' = 3.75		23' = 3.4		43' = 4.5		63' = 4.25		83' = 3.5
4' = 4.0		24' = 4.5		44' = 4.4		64' = 4.25		84' = 4.25
5' = 4.5		25' = 4.5		45' = 4.5		65' = 4.1		85' = 3.75
6' = 4.5		26' = 4.4		46' = 4.5		66' = 3.3		86' = 4.3
7' = 4.5		27' = 3.25		47' = 4.25		67' =3.0		87' = 4.25
8' = 4.5		28' = 4.4		48' = 4.4		68' =3.7		88' = 4.4
9' = 4.5		29' = 4.0		49' = 4.5		69' = 3.75		89' = 4.4
10' = 4.5		30' = 3.75		50' = 4.1		70' = 3.75		90' = 4.5
11' = 3.9		31' = 4.0		51' = 4.4		71' = 4.5		91' = 3.75
12' = 3.75		32' = 4.5		52' = 3.25		72' = 4.4		92' = 4.5
13' = 3.25		33' = 4.4		53' = 4.5		73' = 3.5		93' = 4.25
14' = 3.9		34' = 4.4		54' = 4.0		74' = 4.5		94' = 4.1
15' = 4.5		35' = 4.4		55' = 4.0		75' = 4.5		95' = 3.75
16' = 2.75		36' = 4.5		56' = 4.0		76' = 4.0		96' = 4.4
17' = 4.5		37' = 4.5		57' = 3.9		77' = 4.5		97' = 4.4
18' = 4.5		38' = 4.5		58' = 4.0		78' = 4.5		98' = 4.5
19' = 3.75		39' = 4.5		59' = 4.5		79' = 4.5		99' = 4.5
20' = 4.0		40' = 4.5		60' = 4.5		80' = 3.75		100' = 4.5

Trench P (21' x 3.5' x .5')				
1' = 3.5		8' = 4.25		15' = 4.1
2' = 3.9		9' = 4.5		16' = 4.4
3' = 4.25		10' = 4.5		17' = 4.5
4' = 3.75		11' = 4.5		18' = 4.5
5' = 4.5		12' = 4.5		19' = 4.0
6' = 2.4		13' = 4.5		20' = 3.25
7' = 4.5		14' = 3.75		21' = 4.5

Trench Q (33' x 3.5' x .5')								
1'= 3.75		8' = 3.55		15' = 4.5		22' = 4.45		29' = 3.25
2' = 4.0		9' = 4.5		16' = 4.5		23' = 4.5		30' = 3.3
3' = 2.75		10' = 4.5		17' = 4.5		24' = 3.75		31' = 3.4
4' = 3.5		11' = 4.5		18' = 4.5		25' = 3.1		32' = 3.5
5' = 3.75		12' = 4.0		19' = 4.5		26' = 4.5		33' = 3.75
6' = 4.0		13' = 4.5		20' = 3.75		27' = 3.5		
7' = 3.20		14' = 4.25		21' = 4.0		28' = 3.25		

Trench R (63' x 3.5' x .5')								
1' = 1.4		15' = 4.0		29' = 2.4		43' = 2.75		
2' = 2.5		16' = 4.5		30' = 3.5		44' = 3.0		
3' = 3.75		17' = 3.75		31' = 3.4		45' = 1.75		57' = 3.4
4' = 3.25		18' = 2.75		32' = 3.25		46' = 3.25		58' = 3.9
5' = 3.5		19' = 2.75		33' = 3.4		47' = 2.5		59' = 3.0
6' = 2.75		20' = 2.5		34' = 3.25		48' = 3.5		60' = 4.25
7' = 4.5		21' = 4.25		35' = 3.25		49' = 3.75		61' = 4.5
8' = 4.25		22' = 3.25		36' = 2.0		50' = 3.9		62' = 2.25
9' = 3.75		23' = 4.5		37' = 2.75		51' = 3.0		63' = 2.5
10' = 2.75		24' = 2.25		38' = 2.5		52' = 3.0		
11' = 2.25		25' = 3.0		39' = 2.9		53' = 2.75		
12' = 3.5		26' = 2.5		40' = 2.5		54' = 2.75		
13' = 3.5		27' = 3.0		41' = 3.5		55' = 3.75		
14' = 3.4		28' = 3.0		42' = 3.75		56' = 4.25		

Trench S (77' x 3.5' x 1')								
1' = 4.5+		17' = 4.5		**33' = 4.5++**		**49' = 4.5**		
2' = 4.5		18' = 4.5		**34' = 4.5++**		**50' = 4.5**		
3' = 4.5		19' = 4.5		**35' = 4.5++**		**51' = 3.75**		65' = 4.5+
4' = 4.5		20' = 4.5+		**36' = 4.5+**		**52' = 4.4**		66' = 4.5++
5' = 4.5+		21' = 4.5		**37' = 4.5**		**53' = 4.5+**		67' = 4.5+
6' = 4.5		22' = 4.5		**38' = 4.5**		**54' = 4.5+**		68 ' = 4.5
7' = 4.5		23' = 4.5		**39' = 4.5+**		**55' = 4.5**		69' = 4.5
8' = 4.5		24' = 4.5+		**40' = 4.5**		**56' = 4.5+**		70' = 4.5
9' = 4.5+		25' = 4.5		**41' = 4.5**		57' = 4.5		71' = 4.5
10' = 4.5+		26' = 4.5		**42' = 4.5 +**		58' = 4.5		72' =4.5+
11' = 4.5		27' = 4.5+		**43' = 4.5+**		59' = 4.5++		73' = 4.5
12' = 3.25		28' = 4.5+		**44' = 4.5++**		60' = 4.5+		74' = 4.0
13' = 4.5		29' = 4.5		**45' = 4.5**		61' = 4.5		75' = 4.5
14' = 4.5+		30' = 4.5		**46' = 4.5+**		62' = 4.5		76' = 4.5++
15' = 4.5+		31' = 4.5++		**47' = 4.5+**		63' = 4.5		77' = 4.5
16' = 4.5+		32' = 4.5		**48' = 4.5**		64' = 4.5++		

Trench T (36' x 3.5' x .7')								
1' = 2.6		**9' = 4.5+**		**17' = 4.5+**		25' = 3.75		33' = 4.5
2' = 4.25		**10' = 4.5+**		**18' = 4.25**		26' = 4.0		34' = 3.0
3' = 3.25		**11' = 4.5**		**19' = 3.75**		27' = 4.25		35' = 4.5
4' = 4.5		**12' = 4.5**		**20' = 3.4**		28' = 3.25		36' = 3.9
5' = 3.75		**13' = 4.0**		**21' = 4.5+**		29' = 4.5		
6' = 4.5+		**14' = 4.25**		**22' = 4.5+**		30' = 4.5		
7' = 4.5+		**15' = 4.25**		**23' = 4.25**		31' = 3.9		
8' = 4.4		**16' = 4.25**		**24' = 4.5**		32' = 4.4		

Trench U (37' x 3.5' x 1.4')								
1' = 4.5		9' = 4.5+		**17' = 4.5++**		**25' = 4.5++**		33' = 4.5
2' = 4.5+		10' = 4.5++		**18' = 4.5++**		26' = 4.5++		34' = 4.5+
3' = 4.5		**11' = 4.5+**		**19' = 4.5++**		27' = 4.5++		35' = 4.5+
4' = 4.5		**12' = 4.5++**		**20' = 4.5++**		28' =4.5++		36' = 4.5++
5' = 4.5		**13' = 4.5**		**21' = 4.5++**		29' = 4.5+		37' = 4.5
6' = 4.5		**14' = 4.5++**		**22' = 4.5++**		30' = 4.5++		
7' = 4.5		**15' = 4.5++**		**23' = 4.5++**		31' = 4.5+		
8' = 4.5		**16' = 4.5++**		**24' = 4.5++**		32' = 4.5++		
	East Rut		West Rut					
	10.5'= 4.5		**25' = 4.5++**					
	11' = 4.5++							
	12' = 4.5							
	13' = 4.5+							
	14' = 4.5++							
	15' = 4.5+							
	16' = 4.5++							

Trench V (61' x 3.5' x 1')								
1' = 4.5		14' = 4.4		27' = 4.5		40' = 4.5		52' = 4.5++
2' = 4.5		15' = 4.5		28' = 4.4		41' = 4.5		53' = 4.5
3' = 4.5		16' = 4.5+		29' = 4.5		42' = 4.5		54' = 4.5
4' = 4.25		17' = 4.5		30' = 4.5		42' = 4.5		55' = 4.5
5' = 4.25		18' = 4.5		31' = 4.5		43' = 4.5		56' = 4.5
6' = 4.5		19' = 4.5		32' = 4.3		44' = 4.5		57' = 4.5
7' = 4.5		20' = 4.5		33' = 4.5		45' = 4.5		58' = 4.5+
8' = 4.5+		21' = 4.5		34' = 4.5		46' = 4.3		59' = 4.5+
9' = 4.5		22' = 4.5		35' = 4.5		47' = 4.5		60' = 4.5++
10' = 4.5		23' = 4.4		36' = 4.5		48' = 4.5+		61' = 4.5
11' = 4.5		24' = 4.5		37' = 4.5		49' = 4.5+		
12' = 4.5		25' = 4.5		38' = 3.75		50' = 4.5		
13' = 4.5		26' = 4.5		39' = 4.5+		51' = 4.5+		

Trench West of Spring Mill Branch

Trench W (63' x 3.5 x 1')												
				North Rut		**South Rut**		**Level with bottom of ruts**		**Subsoil under ruts**		
West edge of trench		**East edge of trench**		**West**	**East**	**West**	**East**	**(Subsoil)**		**West**	**Middle**	**East**
36' = 2.76		3										
37' = 2.77		2.85										
38' = 3.4		4						2				
39' = 2.76		**3**						1.6				
40' 2.5		**2**				**2.75**	**2.75**	1.75				
41' = 3.1		**2.55**				**3.75**	**2.75**			1.75	1.6	2
42' = 2.75		**3.4**				**3.25**	**3.75**					
43' = 2.0		**3.24**										
44' = 2.75		**4**										
45' = 2.5		**4.25**										
46' = 4.25		**4.5**										
47' = 4.5		**4.5**										
48' = 4.5		**4**										
49' = 1.75		**2.75**										
50' = 3.0		**2.5**		**2.75**	**3**							
51' = 2.4		**2.75**		**2.75**	**2.25**							
51.5'										2.75	2	2
52' = 2.25		**2.6**		**2.9**	**4.4**							
53' = 2.75		**1.75**		**4.5**	**3.75**			1.4				
54' = 2.75		3.5						1.75				
55' = 2.0		3.25						2				
56' = 3.25		2.55										

Appendix C

SUMMARY OF SUBSURFACE TESTING

APPENDIX C

SUMMARY OF SUBSURFACE TESTING

Location	Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Trench BAH	Trench	BAH	1	silty loam, Ap horizon, overlies contexts 2, 7, 8, 9, 10 and 13	10YR 4/4	--
			2	clay loam, subsoil, overlaid by context 1, cut by context 7	10YR 5/6	--
			7	native pit, filled by contexts 8, 9, 10 and 13, overlaid by context 1, cuts context 2	--	--
			8	silty loam with carbon , fill of context 7, overlaid by context 1, abuts context 9	10YR 5/4	Prehistoric Chipped Lithics
						Prehistoric Lithics
						Prehistoric Non-Lithic Artifact
			9	silty clay with carbon , fill of context 7, overlaid by context 1, abuts contexts 8 and 9	10YR 5/6	Prehistoric Lithics
						Prehistoric Unmodified Lithic
			10	coarse sand with gravel , fill of context 7, overlaid by context 1, abuts contexts 9 and 10	10YR 4/6	Prehistoric Lithics
			13	silty clay with carbon , fill of context 7, overlaid by context 1, abuts context 10	10YR 5/6	Prehistoric Lithics
						Prehistoric Non-Lithic Artifact
Trench FG	Trench	FG	1	silty loam, Ap horizon, overlies contexts 2, 11 and 12	10YR 4/4	--
			2	clay loam, subsoil, overlaid by context 1, cut by context 11	7.5YR 5/6	--
			11	with carbon filled by context 12, overlaid by context 1, cuts context 2	--	--
			12	silty loam, tap root, fill of context 11, overlaid by context 1	10YR 2/1	Prehistoric Lithics
Trench I	Trench	I	1	silty loam, Ap horizon, overlies context 2	10YR 4/3	--
			2	mottled clayey silt, subsoil, overlaid by context 1	10YR 6/2, 10YR 7/6, 10YR 7/1	--
Trench J	Trench	J	1	silty loam, Ap horizon, overlies context 2	10YR4/3	--
			2	mottled clay loam, subsoil, overlaid by context 1	10YR 7/1, 10YR 7/6, 10YR 6/2	--
Trench K	Trench	K	1	silty loam, Ap horizon, overlies context 2	10YR 4/3	--
			2	clay loam, subsoil, overlaid by context 1	10YR 5/6	--

APPENDIX C (Cont.)

SUMMARY OF SUBSURFACE TESTING

Location	Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Trench N	Trench	N	1	silty loam, Ap horizon, overlies context 2	10YR 4/3	--
			2	clay loam, subsoil, overlaid by context 1	10YR 5/6	--
Trench O	Trench	O	1	silty loam, Ap horizon, overlies context 2	10YR 4/4	--
			2	clay loam, subsoil, overlaid by context 1	10YR 5/6	--
Trench P	Trench	P	1	silty loam, Ap horizon, overlies context 2	10YR 4/4	--
			2	clay loam, subsoil, overlaid by context 1	10YR 5/6	--
Trench Q	Trench	Q	1	clay loam, Ap horizon, overlies context 2	10YR 4/4	--
			2	clay loam, subsoil, overlaid by context 1	7.5YR 5/6	--
			23	compact, mottled clay loam, wetlands anamoly, overlaid by context 1	7.5YR 5/6, 7.YR 4/4	--
Trench R	Trench	R	1	silty loam, Ap horizon, overlies context 2	10YR 4/4	--
			2	silty loam, subsoil, overlaid by context 1	10YR 5/6	--
Trench S	Trench	S	1	silty loam, Ap horizon, overlies context 2	10YR 4/3	--
			2	mottled clay loam, subsoil, overlaid by context 1	10YR 5/3, 10YR 6/4	--
Trench T	Trench	T	1	silty loam, A horizon, overlies context 2	10YR 5/3	--
			2	mottled silty loam, subsoil, overlaid by context 1	10YR 5/4, 10YR 6/3	--
Trench U	Trench	U	1	silty loam, A horizon, overlies contexts 2, 14 to 20 and 22	10YR 4/3	--
			2	clay loam, subsoil, overlaid by context 1, cut by context 14	10YR 5/3	--
			14	filled by context 15, overlaid by context 1, cuts context 2 and 16	--	--
			15	silty clay with gravel , east rut, fill of context 14, overlaid by context 1	10YR 5/4	--
			16	sandy clay, cart road, overlaid by context 1, cut by contexts 14 and 17	--	--
			17	filled by context 18, overlaid by context 1, cuts contexts 16 and 20		--
			18	silt, east half of west rut, fill of context 17, overlaid by context 1		--

APPENDIX C (Cont.)

SUMMARY OF SUBSURFACE TESTING

Location	Unit Type	No.	Context	Soil Description/Interpretation	Munsell	Cultural Materials
Trench U	Trench	U	19	filled by context 20, overlaid by context 1, cuts context 22	--	--
			20	sandy silt, west half of west rut, fill of context 19, overlaid by context 1, cut by context 17		--
			22	compact sandy clay loam with gravel , subsoil, overlaid by context 1, cut by context 19	10YR 5/3	--
Trench V	Trench	V	1	silty loam, Ap horizon, overlies contexts 2 and 24	10YR 4/4	--
			2	compact, mottled clay loam, subsoil, overlaid by context 1	10YR 5/6, 10YR 6/4, 10YR 7/2	--
			24	compact, mottled silty clay, subsoil, overlaid by context 1	10YR 7/2, 10YR 5/6	--
Trench W	Trench	W	1	silty loam, Ap horizon, overlies contexts 2 to 6 and 21	10YR 4/4	--
			2	silty loam, subsoil, overlaid by context 1, cut by contexts 3 and 5	10YR 5/4	--
			3	filled by context 4, overlaid by context 1, cuts contexts 2 and 21	--	--
			4	silty loam, south rut, fill of context 3, overlaid by context 1	10YR 4/4	--
			5	filled by context 6, overlaid by context 1, cuts contexts 2 and 21	--	--
			6	silty loam, north rut, fill of context 5, overlaid by context 1	10YR 4/4	--
			21	coarse, compact sand loam, cart road, overlaid by context 1, cut by contexts 3 and 5	10YR 5/4	Historic Ceramic Vessel Sher --

*** Discarded**

Appendix D

ARTIFACT INVENTORY

APPENDIX D
ARTIFACT INVENTORY

Trench W Trench Context 6 **Catalog # 1**

1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, hollow ware, body, glazed both surfaces, black, 1700 - 1800	Row # A
1	Historic Ceramic Vessel Sherds, Coarse Earthenware, Redware, unidentified, fragment, unglazed, 1700 - 1870	Row # B
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Creamware, unidentified, fragment, 1762 - 1820	Row # C
1	Historic Ceramic Vessel Sherds, Refined Earthenware, Pearlware, unidentified, fragment, 1775 - 1840	Row # D

Total Artifacts in Context 6: 4

Trench BAH Trench Context 8 **Catalog # 2**

1	Prehistoric Chipped Lithics, Quartz, core, whole, translucent, cortex, L 54.69mm, W 56.33mm, T 53.31mm, 226g	Row # A
2	Prehistoric Lithics, Argillite, debitage, secondary reduction flake, whole, grey, 40 mm class	Row # L
1	Prehistoric Lithics, Chert, debitage, primary reduction flake, whole, black, cortex, 40 mm class	Row # E
2	Prehistoric Lithics, Chert, debitage, secondary reduction flake, whole, black, cortex, 20 mm class	Row # F
2	Prehistoric Lithics, Chert, debitage, secondary reduction flake, whole, grey, cortex, 20 mm class	Row # H
2	Prehistoric Lithics, Chert, debitage, secondary reduction flake, whole, black, 20 mm class	Row # C
4	Prehistoric Lithics, Chert, debitage, tertiary reduction flake, whole, black, 10 mm class	Row # D
3	Prehistoric Lithics, Chert, debitage, tertiary reduction flake, whole, grey, 10 mm class	Row # K
2	Prehistoric Lithics, Chert, debitage, tertiary reduction flake, whole, black, cortex, 10 mm class	Row # G
2	Prehistoric Lithics, Jasper, debitage, bifacial edge flake, whole, brown, cortex, 30 mm class	Row # B
1	Prehistoric Lithics, Jasper, debitage, secondary reduction flake, whole, yellow/brown, 20 mm class	Row # R
2	Prehistoric Lithics, Jasper, debitage, secondary reduction flake, whole, red, cortex, 20 mm class	Row # N
3	Prehistoric Lithics, Jasper, debitage, secondary reduction flake, whole, red, 20 mm class	Row # P
1	Prehistoric Lithics, Jasper, debitage, tertiary reduction flake, whole, yellow/brown, cortex, 10 mm class	Row # S
2	Prehistoric Lithics, Jasper, debitage, tertiary reduction flake, whole, brown, 10 mm class	Row # M
3	Prehistoric Lithics, Jasper, debitage, tertiary reduction flake, whole, red, 10 mm class	Row # Q
1	Prehistoric Lithics, Quartz, debitage, primary reduction flake, whole, translucent, cortex, 50 mm class	Row # T
1	Prehistoric Lithics, Quartz, debitage, secondary reduction flake, whole, translucent, 40 mm class	Row # U
5	Prehistoric Lithics, Quartz, debitage, secondary reduction flake, whole, translucent, 30 mm class	Row # V
1	Prehistoric Lithics, Quartz, debitage, secondary reduction flake, whole, white, 20 mm class	Row # W
16	Prehistoric Lithics, Quartz, debitage, secondary reduction flake, whole, translucent, 20 mm class	Row # X
11	Prehistoric Lithics, Quartz, debitage, tertiary reduction flake, whole, translucent, 10 mm class	Row # Y
1	Prehistoric Lithics, Quartzite, debitage, secondary reduction flake, whole, grey, 30 mm class	Row # AA
7	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, 164g	Row # AC
1	Prehistoric Lithics, Schist, debitage, secondary reduction flake, whole, grey, 40 mm class	Row # AB
2	Prehistoric Non-Lithic Artifact, Clay, fragment, reddened, burned, .5g	Row # AD

Total Artifacts in Context 8: 79

Trench BAH Trench Context 9 **Catalog # 3**

1	Prehistoric Lithics, Schist, unmodified stone, fragment, black, cortex, 24g	Row # B
1	Prehistoric Unmodified Lithics, Quartzite, unmodified stone, whole, yellow/brown, cortex, 5 lbs	Row # A

Total Artifacts in Context 9: 2

Trench BAH Trench Context 10 **Catalog # 4**

3	Prehistoric Lithics, Quartzite, unmodified stone, fragment, brown, cortex, 3.8 lbs	Row # A
3	Prehistoric Lithics, Quartzite, unmodified stone, whole, brown, cortex, 3.5 lbs	Row # C
3	Prehistoric Lithics, Schist, unmodified stone, fragment, black, 2.4 lbs	Row # B

Total Artifacts in Context 10: 9

APPENDIX D (Cont.)
ARTIFACT INVENTORY

Trench FG Trench Context 12		**Catalog # 5**
1	Prehistoric Lithics, Jasper, debitage, secondary reduction flake, whole, reddened, cortex, 20 mm class	Row # B
1	Prehistoric Lithics, Jasper, debitage, secondary reduction flake, whole, reddened, cortex, 30 mm class	Row # A
2	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, 27g	Row # C
Total Artifacts in Context 12: 4		
Trench BAH Trench Context 13		**Catalog # 6**
1	Prehistoric Lithics, Quartzite, thermally-altered rock, fragment, reddened, cortex, 88g	Row # B
1	Prehistoric Non-Lithic Artifact, Clay, fragment, reddened, burned, 3g	Row # A
Total Artifacts in Context 13: 2		
Total Artifacts in Trench : 100		

Total Number of Artifacts: 100

*** Item Discarded in Laboratory**