REPORT OF FINDINGS

TERRESTRIAL AND UNDERWATER ARCHAEOLOGICAL SURVEY, AND SITE AND ANOMALY EVALUATION FOR THE PREFERRED ALTERNATIVE OF THE MID-CURRITUCK BRIDGE PROJECT IN CURRITUCK AND DARE COUNTIES, NORTH CAROLINA

STIP NO. R-2576

Cemetery at 31CK146

Spirit house at 31CK146

PREPARED FOR:	UNDER CONTRACT TO:	SUBMITTED BY:
North Carolina Turnpike Authority **Raleigh, North Carolina**	**Parsons Brinkerhoff, Inc.** **Raleigh, North Carolina**	**Panamerican Consultants, Inc.** **Tuscaloosa, Alabama** **and** **Memphis, Tennessee**

REVISED DRAFT REPORT ♦ NOVEMBER 2012

[THIS REPORT CONTAINS SENSITIVE INFORMATION AND IS NOT FOR PUBLIC DISTRIBUTION]

REVISED DRAFT REPORT

TERRESTRIAL AND UNDERWATER ARCHAEOLOGICAL SURVEY, AND SITE AND ANOMALY EVALUATION FOR THE PREFERRED ALTERNATIVE OF THE MID-CURRITUCK BRIDGE PROJECT IN CURRITUCK AND DARE COUNTIES, NORTH CAROLINA

STIP NO. R-2576

PREPARED FOR:
North Carolina Turnpike Authority
CH 94-0809
Federal Project No. BRSTP-000S(494)
State Project No. 6.049002T

UNDER CONTRACT TO:
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NOVEMBER 2012

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MANAGEMENT SUMMARY

This report has been prepared for the Mid-Currituck Bridge Study by Panamerican Consultants, Inc. (PCI). It describes the results of an archaeological survey, and both site and anomaly evaluations completed for the Preferred Alternative of the proposed Mid-Currituck Bridge Project in Currituck and Dare counties, North Carolina (CH 94-0809). The project will connect the mainland with the Currituck County Outer Banks and will cross Currituck Sound. The purpose of this project was to determine the presence or absence of historically significant cultural resources within the proposed Area of Potential Effect (APE) and, if present, to assess their National Register of Historic Places (NRHP) eligibility. The APE is defined as the maximum ground disturbance limits associated with the Preferred Alternative. These investigations are required by the North Carolina Department of Transportation and are sponsored by the Federal Highway Administration in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800, *Protection of Historic Properties)* and the Abandoned Shipwreck Act of 1987 (*Abandoned Shipwreck Act Guidelines*, National Park Service, *Federal Register*, Vol. 55, No. 3, December 4, 1990, pages 50116-50145). Cemeteries that are not considered eligible for the NRHP are subject to compliance with NCGS 65.

Conducted in September and October 2011 with additional work conducted in September 2012, and comprised of both Terrestrial and Underwater archaeological investigations, findings from the investigations indicate that no historically significant cultural resources are present within the proposed APE, either on land or in the water. However, four cemeteries are present within the APE and require avoidance or removal of graves prior to impact by project activities. As there is a strong possibility of unmarked graves in or around the known cemeteries, PCI recommends either using methods of remote sensing to demonstrate the absence of graves in the areas adjacent to the marked plots or closely monitoring the controlled stripping of the area. The following is a brief discussion of the findings.

Five previously recorded sites exist within the APE, including 31CK36/31CK36**, 31CK145**, 31CK146**, 31CK174**, and 31CK216**. In addition to these, 16 previously unrecorded sites or isolated finds (31CK218** through 31CK233**) were identified, none of which are considered eligible for the NRHP. No further work is needed at these sites.

Site 31CK36/31CK36** was recorded in 1981. The state site form for this site lists it as having "both" components suggesting a historic and prehistoric presence yet it only lists lithic material as having been collected from the site. The UTM coordinates provided places the site in the northeast corner of a property occupied by Precision Auto Care. This area has had approximately three-fourths of a meter of soil removed which would have destroyed the site if this is its true location. Shovel testing involved with the current project encountered historic material to the northwest of this location (31CK218) but a clear connection with this site is elusive given the absence of prehistoric materials. Site 31CK36 has limited potential for yielding important information about this time period and is considered not eligible for the NRHP and no further work is recommended.

Site 31CK145** is the Walker-Newbern-Morrissette Cemetery, which also contains a nineteenth to twentieth century artifact scatter. This graveyard contains three separate plots containing 19 marked grave locations. Local tradition maintains that members of the Morrissette family are buried in a fourth unmarked plot just to the east of this location. PCI's land title research confirms the presence of the Morrissette family on these lands. While it is not eligible for inclusion on the NRHP, all cemeteries fall under the provisions of North Carolina's Cemetery

Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted. Since the possibility of unmarked graves at this cemetery is high, PCI recommends using remote sensing to demonstrate the absence of graves in the areas adjacent to the marked plots.

Site 31CK146** is a small graveyard known locally as the Dempsey Burton Cemetery. It contains five marked graves with interment dates ranging between 1906 and 1982. PCI's land title research confirms that Dempsey Burton owned this property from 1818 to at least 1867. While it is not eligible for inclusion on the NRHP, all cemeteries fall under the provisions of North Carolina's Cemetery Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted. Since the possibility of older unmarked graves at this cemetery is high, PCI recommends using remote sensing to discern the presence of graves in the areas adjacent to the marked plots.

Site 31CK174** is the Ryckwald cemetery, a small plot containing two marked graves. While it is not eligible for inclusion in the NRHP, all cemeteries fall under the provisions of North Carolina's Cemetery Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted. Since the possibility of unmarked graves being present at this cemetery cannot be ruled out, PCI recommends using methods of remote sensing to check for the presence of graves in the areas adjacent to the marked plots.

Site 31CK216** was recorded in 2007 by the landowner. This occurrence was an isolated find that consisted of a bayonet and scabbard found on the ground surface. The bayonet is twentieth century in origin and it was conjectured by the recorder that it was possibly a World War I weapon. This area is low and marshy and unremarkable. The bayonet probably represents a lost object and is not reflective of any concerted human activity in the immediate area. This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP. No further work is recommended.

Site 31CK218** is a nineteenth to twentieth century farmstead found in a soybean field along the east side of U.S. 158. Shovel testing and test units placed at the site found artifacts primarily within a well-homogenized plow zone. This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP. No further work is recommended.

Site 31CK219** is a redeposited historic trash dump. The majority of artifacts recovered from this location were found on the surface of a graded dirt road. The artifacts were reflective of nineteenth to twentieth century material culture. This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP. No further work is recommended.

Site 31CK220** is a historic farmstead located approximately 15 m northwest of 31CK146, the Dempsey Burton Cemetery. Artifacts recovered from shovel testing and unit excavation are suggestive of a nineteenth to twentieth century occupation. This recovery came primarily from a homogenized plow zone or as the result of bioturbation in lower strata. This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP. No further work is recommended.

Site 31CK221** is representative of a historic farmstead with an artifact assemblage suggestive of the nineteenth and twentieth centuries. An unknown prehistoric isolated find was also present here. The recoveries came primarily from a homogenized plow zone or as a result of bioturbation in lower strata. This site has limited potential for yielding important information about these time periods and is considered not eligible for the NRHP. No further work is recommended.

Site 31CK222/31CK222** is a light prehistoric lithic scatter plus a nineteenth to twentieth century occurrence. Shovel testing and test unit excavation found it to be a very light density site existing within the plow zone of a soybean field. A single Guilford PPK was recovered suggesting an Early Archaic occupation. Because of the light density of artifacts and lack of intact stratified deposits, this site has limited potential for yielding important information about these time periods and is considered not eligible for the NRHP. No further work is recommended.

Site 31CK223/31CK223** produced two artifacts, one nineteenth to twentieth century historic and the other unknown prehistoric, existing 30 m apart. Subsequent shovel testing around each failed to recover additional artifacts. No further work is recommended.

Site 31CK224/31CK224** is a multi-component site consisting of a nineteenth to twentieth century farmstead with a sparse undifferentiated Woodland component. With the original farm house being razed in the 1980s and given the sparseness of the prehistoric artifacts, neither component seems likely to yield important information about the past. This site is considered not eligible for the NRHP. No further work is recommended.

Site 31CK225** consists of a light scatter of historic artifacts (late nineteenth to twentieth century) along the edge of a cultivated field. The scatter and its location are indicative of a trash dump. This site has limited potential for yielding important new information about this time period and is considered not eligible for the NRHP. No further work is recommended.

Site 31CK226** consists of a light scatter of historic artifacts (nineteenth to twentieth century) along the edge of a cultivated field. The scatter and its location are indicative of a trash dump. This site has limited potential for yielding important new information about this time period and is considered not eligible for the NRHP. No further work is recommended.

Site 31CK227** is an isolated find that consists of a single piece of brown salt glazed stoneware. Additional testing failed to recover other artifacts in the area. No further work is recommended.

Site 31CK228** is an isolated find that consists of a single piece of aqua bottle glass. Further testing failed to recover additional artifacts in the area. No further work is recommended.

Site 31CK229** is a late nineteenth to twentieth century artifact scatter with an associated house ruin and cemetery. A domestic house site of this period has limited potential for yielding important new information about our past and is considered not eligible for the NRHP. However, all cemeteries fall under the provisions of North Carolina's Cemetery Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted.. Local tradition maintains that there were three other graves just to the north of the marked graves. Since the possibility of unmarked graves at this cemetery is high, PCI recommends using remote sensing to demonstrate the absence of graves in the areas immediately adjacent to the marked plots.

Site 31CK230** is an isolated find that consists of a single piece of aqua container glass. Further testing failed to recover additional artifacts in the area. No further work is recommended.
Site 31CK231** is an isolated find consisting of undecorated whiteware. Further testing failed to recover additional artifacts in the area. No further work is recommended.

Site 31CK232** consists of a light scatter of nineteenth to twentieth century historic artifacts. This site has limited potential for yielding important new information about this time period and is considered not eligible for the NRHP. No further work is recommended.

Site 31CK233** is an isolated find consisting of a single piece of ferrous metal. Further testing failed to recover additional artifacts in the area. No further work is recommended.

Comprised of a magnetometer and sidescan sonar survey of the actual bridge corridor across Currituck Sound, a total of 84 magnetic anomalies and 58 sidescan sonar contacts were recorded during the survey conducted in September 2011. While extensive review and analysis of remote sensing data indicated that none of the anomalies or sidescan sonar targets were considered representative of a potentially significant submerged cultural resource, based on the data presented in the initial Draft Report, the North Carolina State Historic Preservation Office Underwater Unit, however, recommended that the source of two individual anomalies, and five groups or clusters consisting of multiple anomalies and sonar contacts within the survey corridor be identified and assessed by archaeological divers. Subsequent archaeological assessment of these targets conducted in September 2012 indicated that none represent a potentially significant submerged cultural resource, and it is recommended that no further archaeological work is warranted.

ACKNOWLEDGMENTS

The successful completion of this project is the direct result of the input and hard work of numerous individuals. The authors would first like to thank Parsons Brinkerhoff, and specifically Mr. John Page, for allowing PCI the opportunity to conduct this investigation.

The authors would also like to thank the archaeological crew who partook in this investigation. They included Paul Jackson, RPA, Warren Carruth, RPA, Michael Ecks, and Justin Quinley. The remote sensing survey crew consisted of Dr. Michael Faught and James Duff. Andy Lydecker, marine archaeologist and GIS specialist, analyzed the data and produced the survey maps. The archaeological dive team consisted of Michael Murray, James Duff, Matt Gifford, and Matt Elliot.

Local residents, Ruth Walker Crane, Charles Angus, and Ned Markert, consented to interviews about the area and their family history. Their insight and information were much appreciated and very helpful.

In-house PCI personnel, who must be thanked for their assistance with this report production, include Amy Carruth, Debbie Snow, Lauren Morrison, and Rachel Kyker, Editor. Laboratory analysis of artifacts was done by Alanna Jackson, Lauren Morrison, Craig Pickering, and William Turner under the supervision of Kelley Sommers. Geographic Information System maps were accomplished by Johnny Koors and test unit profiles were digitized by Ben Chrismond.

Stephen R, James, Jr., RPA and Michael C. Murray authored the underwater sections; Kelley Sommers wrote the Laboratory Methods chapter; Amy Carruth wrote the Environmental Background chapter; Warren Carruth, RPA was responsible for the remaining chapters; and Amy Carruth pulled everything together in a, hopefully, cohesive fashion.

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I. INTRODUCTION

This technical report has been prepared for the North Carolina Turnpike Authority by Panamerican Consultants, Inc. (PCI). It describes the results of an archaeological survey and site evaluation completed for the Preferred Alternative of the proposed Mid-Currituck Bridge Project in Currituck and Dare counties, North Carolina (CH 94-0809). Currently, Parsons Brinkerhoff, Inc., of Raleigh, North Carolina (Parsons Brinkerhoff), is under contract with the North Carolina Turnpike Authority (NCTA), a division of the North Carolina Department of Transportation (NCDOT) to perform required environmental and engineering studies of the proposed Mid-Currituck Bridge. Associated with the proposed highway widening and bridge project, and in partial fulfillment of their obligations under various state and federal statutes, NCTA, entrusted with the protection and preservation of all cultural resources that may be adversely affected by their project activities, sponsored an archaeological survey and site evaluation. Subsequently, PCI was contracted by Parsons Brinkerhoff to determine the actual presence or absence of historically significant cultural resources within the proposed Area of Potential Effect (APE) and, if present, to assess their National Register of Historic Places (NRHP) eligibility. The APE is defined as the maximum ground disturbance limits associated with the Preferred Alternative. These investigations are required by the NCDOT and are sponsored by the Federal Highway Administration (FHWA) in compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (36 CFR 800, *Protection of Historic Properties)* and the Abandoned Shipwreck Act of 1987 (*Abandoned Shipwreck Act Guidelines*, National Park Service, *Federal Register*, Vol. 55, No. 3, December 4, 1990, pages 50116 to 50145).

Located on North Carolina's Coastal Plain, the project area extends from Currituck Bank, the northernmost in a chain of long, narrow barrier islands on the Coastal Plain's eastern limit known as the Outer Banks, to the mainland, which is separated from the Outer Banks by a series of shallow sounds, in this case Currituck Sound. Situated near the northern end of both the Outer Banks and the separating sound, the project area extends from Currituck Bank westward across Currituck Sound to the mainland, which is marked by numerous swamps and whose elevation is generally less than 20 feet above sea level. The project area and APE are located approximately 1.5 miles south of Coinjock, where the Preferred Alternative (presented as MCB4/C1 in the Mid-Currituck Bridge Draft Environmental Impact Statement) intersects U.S. 158 just north of Aydlett Road. The preferred alternative parallels Aydlett to the north and projects east across Maple Swamp to the community of Aydlett, which is itself situated on a thin finger of land that generally runs north and south and forms the western shore of Currituck Sound. From Aydlett, the proposed bridge corridor extends easterly across Currituck Sound where several miles later it intersects NC 12 on Currituck Bank south of Corolla. The project area also includes several sections of NC 12 that are proposed to be widened (Figure 1.1).

For the purposes of this investigation, an archaeological survey and site evaluation was conducted of the APE both on land and in the waters of the sound. The area surveyed was based upon the APE as indicated on engineering maps provided by Parsons Brinkerhoff, and investigation techniques followed those provided in a Scope of Work submitted to and approved by NCDOT prior to the current investigation (Appendix A). Archaeological resources that were present within the APE were evaluated for historical significance based on the application of NRHP criteria for evaluation as stipulated in 36 CFR 60.4 and presented in National Register Bulletin 15 (National Park Service 1985).

The terrestrial archaeological survey took place from September 21 through October 28, 2011 under the direction of Paul D. Jackson, RPA. Mr. Jackson was assisted by Warren Carruth, RPA; Michael Ecks; and Justin Quinley. The contract called for background research and intensive archaeological survey and site evaluation of the study corridor. The primary goal of

this survey was to identify all cultural resources including archaeological sites and cemeteries that may be impacted by this proposed bridge project and evaluate their significance. To achieve this goal a combination of fieldwork and archival research was employed. The project area was shovel tested at 30-m intervals with the exception of the two proposed corridors that cross Maple Swamp. This location was considered to be a low probability area and was tested at 100-m intervals. Archival research and informant interviews were used to increase our understanding of the historic sites present and gather the information necessary to address Criterion B when considering NRHP eligibility. Findings from the investigations indicate that no historically significant terrestrial cultural resources are present within the proposed APE. However, four (n=4) cemeteries are present within the APE and require avoidance or removal of graves prior to impact by project activities.

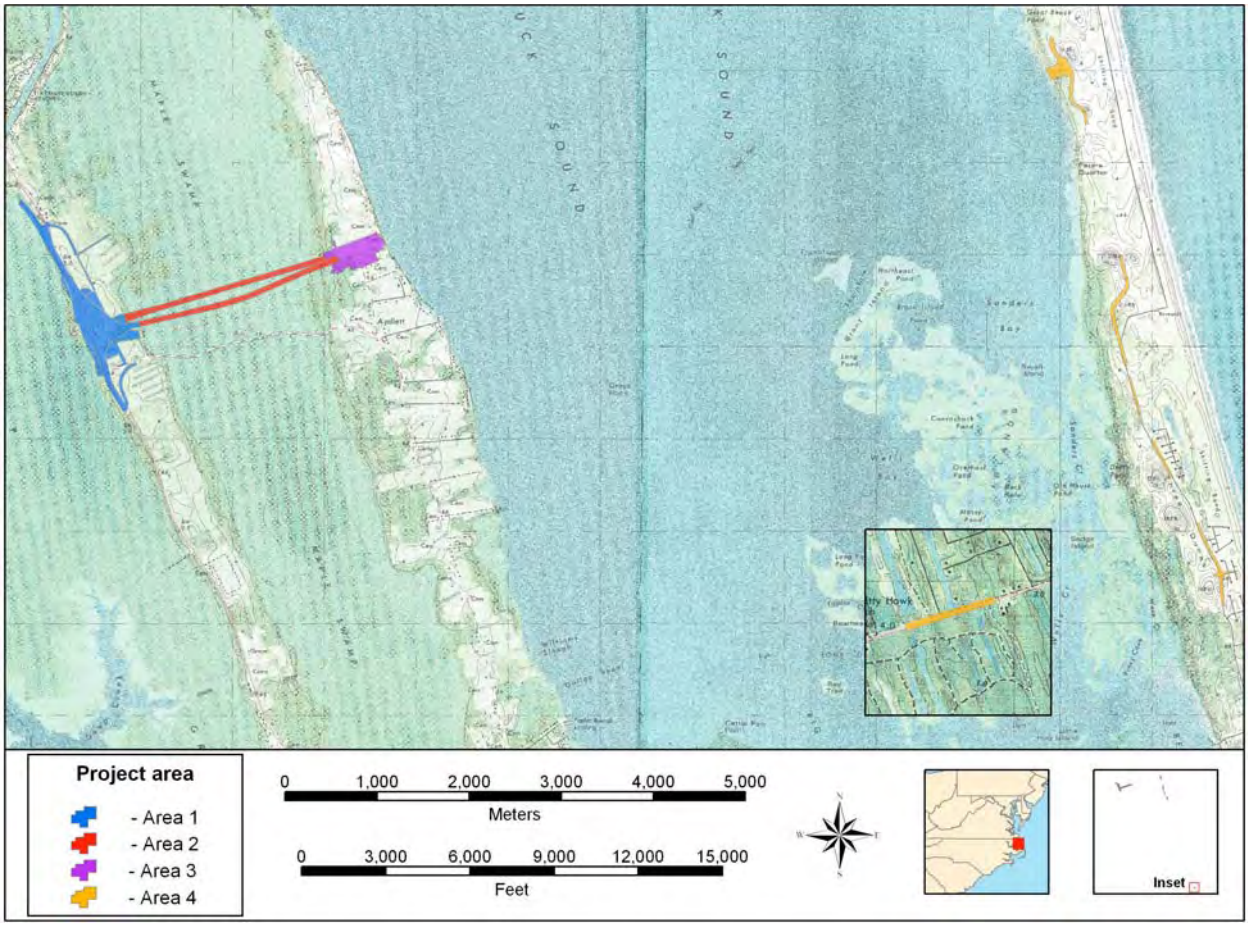

Figure 1.1. Map showing the project areas and general location of project (from Coinjock, Mossey Islands, and Kitty Hawk, North Carolina 7.5-minute USGS topographic quadrangles).

Comprised of a magnetometer and sidescan sonar survey of the actual bridge corridor across Currituck Sound, a total of 84 magnetic anomalies and 58 sidescan sonar contacts were recorded during the survey conducted in September 2011. While extensive review and analysis of remote sensing data indicated that none of the anomalies or sidescan sonar targets were considered representative of a potentially significant submerged cultural resource, based on the data presented in the initial Draft Report, the North Carolina State Historic Preservation Office (SHPO) Underwater Unit, however, recommended that the source of two individual anomalies, and five groups or clusters consisting of multiple anomalies and sonar contacts within the survey corridor be identified and assessed by archaeological divers. Subsequent

archaeological assessment of these targets conducted in September 2012 indicated that none represent a potentially significant submerged cultural resource, and it is recommended that no further archaeological work is warranted.

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II. ENVIRONMENTAL BACKGROUND

Currituck County and Dare County exist in the northeastern corner of North Carolina on the Atlantic Coastal Plain. Currituck Sound divides the area into an eastern strand and a western mainland. The eastern strand, or the Outer Banks, is part of a barrier island chain stretching from Virginia to South Carolina. The Atlantic Coastal Plain is relatively flat and low, and includes Pleistocene terraces ranging from sea level to about 260 feet above mean sea level (AMSL). The project area is within the Pasquotank River Basin, which helps to form the Albemarle-Pamlico Estuarine System, the second-largest estuarine system in the United States (CZR Incorporated 2009). Maple Swamp and Great Swamp exist within the project area, and the primary drainage in the vicinity is North River, which also contains a portion of the Intracoastal Waterway.

The project area encompassed approximately 289 acres and was a combination of linear areas along existing roadways and through swamps along with larger block areas for approaches and stormwater treatment areas. Current land use varies from residential properties, commercial properties, farmland (primarily soybeans and corn), and swampland.

The project area is located south of Coinjock within the Southeastern Evergreen Forest region (Braun 1950), which is typical of the Coastal Plain area. The plant communities include coniferous, mixed coniferous and hardwood, deciduous hardwood, and mixed deciduous and broad-leaved evergreen hardwoods. The Outer Banks includes evergreen shrub bogs, cypress swamps, cedar bogs, savannahs, and flatwoods.

Four vegetative zones occur on the Outer Banks: foredune-beach, shrub, maritime forest, and marsh. The foredune-beach zone is bordered by the Atlantic Ocean and is constantly shaped by wave action and blowing sand. The only vegetation is above the high tide line and includes sea oats, seashore elder, and American beachgrass. Currituck County has the distinction of being the southern limit of American beachgrass and the northern limit of sea oats. Shore birds, such as black-bellied plovers, ruddy turnshores, and sandpipers, frequent the beach area, while rabbits, opossums, and foxes can be found in the dune areas. The shrub zone is adjacent and contains some of the same plants, such as sea oats and American beachgrass, but also has live oaks, yaupon holly, northern bayberry, waxmyrtle, broom sedge, and saltmeadow cordgrass. Animals and birds inhabiting this zone include rabbits, foxes, hawks, and various songbirds. The maritime forest is more sheltered from salt spray and supports live oak, yaupon holly, loblolly pine, and redbay, as well as quail, rabbits, foxes, rodents, snakes, hawks, and songbirds. The marsh exists between the maritime forest and Currituck Sound. Vegetation includes black needlebrush, big cordgrass, cattails, sawgrass, waxmyrtle, and willow. Fauna found here includes raccoon, muskrat, nutria, waterfowl, and marsh birds (Tant 1982).

This area has hot, humid summers and cool winters with occasional cold snaps. The abundant rainfall is dispersed throughout the year and is usually around 28 inches. Hurricanes can strike every few years and bring wind and flooding. Snow is rare in winter, but summer thunderstorms occur on average of 40 days each year (Tant 1982).

Soils in the county were generally formed by sandy and loamy fluviomarine deposits or marine deposits. Many of the soils are hydric and are not well suited as site soils. The soils found at the newly recorded and expanded sites are described below and in Table 2.1 (Tant 1982).

Table 2.1. Soil Types within New and Expanded Sites.

Site	Symbol	Type
31CK145**	At	Augusta fine sandy loam
	BoA	Bojac loamy sand, 0 to 3 percent slopes
	No	Nimmo loamy sand
31CK218**	StA	State fine sandy loam, 0 to 2 percent slopes
31CK219**	Ds	Dragston loamy fine sand
31CK220**	StB	State fine sandy loam, 2 to 6 percent slopes
31CK221**	StB	State fine sandy loam, 2 to 6 percent slopes
31CK222/31CK222**	StB	State fine sandy loam, 2 to 6 percent slopes
31CK223/31CK223**	StB	State fine sandy loam, 2 to 6 percent slopes
31CK224/31CK224**	StA	State fine sandy loam, 0 to 2 percent slopes
31CK225**	To	Tomotley fine sandy loam
31CK226**	Ds	Dragston loamy fine sand
31CK227**	StA	State fine sandy loam, 0 to 2 percent slopes
31CK228**	CnA	Conetoe loamy sand, 0 to 3 percent slopes
31CK229**	CnA	Conetoe loamy sand, 0 to 3 percent slopes
31CK230**	Ds	Dragston loamy fine sand
31CK231**	CnA	Conetoe loamy sand, 0 to 3 percent slopes
31CK232**	Ds	Dragston loamy fine sand
31CK233**	StB	State fine sandy loam, 2 to 6 percent slopes

Augusta fine sandy loam is somewhat poorly drained, nearly level soil occurring on flats or depressions on marine terraces. The surface layer consists of dark brown fine sandy loam. The subsoil contains three layers: a top layer of yellowish brown sandy clay loam with brownish yellow and dark grayish brown mottling; a middle layer of light brownish gray clay loam with brownish yellow, grayish brown, and yellowish brown mottling; and a bottom layer of mottled brownish yellow and light gray sandy clay loam. This is underlain by gray sandy loam with brownish yellow and yellowish brown mottling. Only one site contained this soil type.

Bojac loamy sand, 0 to 3 percent slopes, occurs on low ridges near streams and Currituck Sound. This well drained soil has a surface layer of brown loamy sand. The subsoil is yellowish brown sandy loam in the upper portion with reddish brown sandy loam in the lower portion. This is underlain by strong brown and yellowish brown sand. Bojac loamy sand occurs at one site within the project area.

Conetoe loamy sand, 0 to 3 percent slopes, is well drained and is found on smooth to slightly rounded low ridges along the streams and sounds. The surface layer consists of grayish brown loamy sand and overlies a subsurface layer of light yellowish brown loamy sand. The subsoil is strong brown sandy clay loam and sandy loam over light yellowish brown loamy sand. Beneath this is yellow and very pale brown sand. Three of the sites contain this soil type.

Dragston loamy fine sand is somewhat poorly drained and nearly level soil found on low ridges along streams flowing into Currituck Sound. The surface layer is dark brown loamy fine sand. The underlying subsoil has an upper portion of light yellowish brown sandy loam with gray and brownish yellow mottling over a middle portion of light yellowish brown sandy loam with yellowish brown and light gray mottling over a lower portion of light gray sandy loam with yellowish brown mottling. This is underlain by light gray loamy sand with yellowish red and strong brown mottling. Four of the newly recorded sites share this soil type.

Nimmo loamy sand is nearly level, poorly drained soil occurring on low, smooth ridges and in depressions or flats on marine terraces. The surface layer consists of dark grayish brown loamy

sand. The subsoil is light brownish gray sandy loam with light yellowish brown mottling over gray sandy loam with light yellowish brown mottling. The underlying soil is light brownish gray sand and pale yellow sand. This soil exists within a portion of one site.

State fine sandy loam, 0 to 2 percent slopes and 2 to 6 percent slopes, are well drained soils existing on low ridges and slightly rounded ridges along Currituck and Albemarle Sounds and their tributaries. They have a surface layer of dark yellowish brown fine sandy loam. The subsoil consists of yellowish brown sandy loam over yellowish brown sandy clay loam over brownish yellow sandy loam. The underlying material is very pale brown loamy sand with strong brown and yellowish brown mottling over brownish yellow sand with very pale brown mottling. This was the dominant site soil, with eight sites containing this soil.

Tomotley fine sandy loam is poorly drained, nearly level soil found on flats on marine terraces and depressions on stream terraces. It has a surface layer of very dark grayish brown fine sandy loam over a subsurface layer of light brownish gray fine sandy loam with dark gray mottling. The subsoil has an upper part of gray sandy clay loam with yellowish brown and strong brown mottling over a middle part of gray sandy clay loam with red, yellowish brown, and strong brown mottling over a lower part of light gray fine sandy loam with strong brown and yellowish brown mottling. This is underlain by light gray loamy fine sand with strong brown and light yellowish brown mottling. Only one site contained this soil.

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III. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The following synopsis of the Prehistoric Background and the Historic Background was taken from James and Lydecker (2009), as was a portion of the Previous Archaeological Investigations section.

PREHISTORIC BACKGROUND

PALEOINDIAN (BEFORE CA. 10,000 B.P.).

Despite recent claims of finds of pre-Paleoindian deposits along the Savannah River dating to 50,000 years ago (Walton and Coren 2004), the earliest evidence of human settlement in the North American Southeast dates from the Paleoindian period. The Paleoindian period in the Southeast has been defined through isolated finds of fluted projectile points and associated hearths or ephemeral features. Models of Paleoindian culture, adaptations, and subsistence are typically based on more substantial data from a series of archaeological sites in western North America, and modern anthropological studies of existing gatherer-hunter groups. Paleoindians are viewed as primarily nomadic hunters, focusing on large game. However, although evidence is sparse, it is doubtful that the hunting of large Pleistocene mammals was the exclusive focus of Paleoindian populations. As in modern gatherer/hunter populations, the exploitation of wild plant foods and smaller game likely comprised a significant portion of Paleoindian subsistence. Populations were sparse across most of the Southeast. There are, however, some areas with concentrations of Late Paleoindian sites that indicate either a denser population or repeated seasonal use of local resources.

Over most of North America, Paleoindian period sites are marked by a distinctive tool assemblage. Most characteristic of this period are fluted lanceolate projectile points. These tools average 7.5 cm (3 in.) in length, and exhibit parallel or slightly convex sides, concave bases, and a distinctive narrow, vertical flake (or flute) removed from each face of the blade. Other somewhat less distinctive features of Paleoindian lithic assemblages include bifacially flaked knives, end scrapers, burins, and gravers (Griffin 1967; Kelly 1938, 1950; O'Steen et al. 1986).

The climate during the Paleoindian period was colder and drier than at present. Typical vegetation patterns likely consisted of spruce-pine forests prior to the arrival of Paleoindians to southeastern North America (Davis 1976; Watts 1971; Wright 1971), but had changed to mixed deciduous forests (oak, hickory, walnut, elm, willow, maple) by 10,000 B.P. (Anderson et al. 1996; Delcourt and Delcourt 1981, 1983; Ward and Davis 1999). Additionally, the coast was located hundreds of miles (220–300 [355–480 km]) to the east of its present-day location, and any sites that may have been occupied are now inundated (Phelps 1983). With that said, two fluted points have been reported in Camden County, indicative of a Paleoindian occupation, while the Currituck County site files list two Paleoindian component sites (Novick 1995).

EARLY ARCHAIC (10,000–8,000 B.P.).

The Archaic period represents a time of adaptation to the early Holocene environment. At this time, intervals of hot dry weather were punctuated by periods of increased precipitation and cooler temperatures. The oak-hickory forest was firmly established by the end of the Paleoindian period (Watts 1971; Whitehead 1973). Archaic populations' subsistence strategies were focused on seasonally available floral and faunal resources, including hickory nuts, acorn, and mammalian resources like deer (Anderson and Hanson 1988; Ledbetter 1992). The Early Archaic is generally believed to end with the onset of the Hypsithermal interval (8,000–4,000 B.P.), a warming period marked by an advance of pine forests on the Coastal Plains and the

creation of extensive riverine swamps and wetlands (Anderson et al. 1996; Delcourt and Delcourt 1981, 1983).

The Early Archaic subperiod is distinguished from the preceding Paleoindian period on the basis of the technological change from large fluted projectile points to simpler, smaller, and more diverse tools. Characteristic lithic artifacts associated with Early Archaic sites include ovate, stemmed, notched, and beveled quartz bifaces. Diagnostic point types identified by Coe (1964) are found throughout the Carolinas and other areas of the Southeast as well.

Recent scholarship has produced different models to explain the movements of Early Archaic settlements. One model put forth by Anderson and Hanson (1988) suggests small bands of Early Archaic people (50-150 individuals per band) focused on river drainages, moving their settlements seasonally to take advantage of readily available resources. Daniel proposes a different model (1998), suggesting these populations were "tethered" to good-quality lithic sources and moved their settlements relative to a few major outcroppings of rhyolite and chert. Both models are based on modern hunter-gatherer studies, though, and may not be entirely accurate if the environment was as resource-rich relative to modern conditions as others researchers have suggested (Ward 1983).

Surface scatters located near water sources typify Early Archaic sites from the Coast and Coastal Plain. Base camps and temporary procurement camps make up the range of known site types for the Archaic period on the coast, reflecting exploitation of various resources in diverse environments (Ward and Davis 1999). Resource procurement sites outnumber base camps nearly 10 to 1 (Phelps 1983).

MIDDLE ARCHAIC (8,000–5,000 B.P.)

During the Middle Archaic subperiod, the post-glacial Altithermal brought warmer temperatures and a drier climate. The favorably temperate climate is thought to have influenced settlement patterns, subsistence strategies, and technological innovations during this time period (Dragoo 1975).

The Middle Archaic appears to show an increase in more permanent settlements, particularly in the large river valleys. It is likely that band-level organization prevailed, and that gathering and hunting on a seasonal schedule continued. Major traits seen among Middle Archaic sites in North Carolina include their large numbers, the location of such sites in nearly all topographic settings, and the low artifact frequency and diversity of assemblages from these sites.

Characteristic artifacts of the Middle Archaic include stemmed and lanceolate projectile points. The Middle Archaic is also known for the earliest extensive use of ground stone technology (i.e., grooved and polished axes). Local lithic sources became the preferred material for flaked stone tool production (Johnson 1989; Ledbetter et al. 1981), suggestive of limited mobility of populations.

LATE ARCHAIC (5,000–3,000 B.P.)

The Late Archaic subperiod is seen as a time of major technological shifts, diversification in settlement types, and increased sedentism. In the Piedmont and Coastal Plain regions of the Carolinas and Georgia, the primary development that distinguishes the Late Archaic from preceding subperiods is pottery manufacture. Stallings Island pottery is tempered with Spanish moss that would be carbonized upon firing, resulting in a rather porous vessel (Ward and Davis 1999). This earliest pottery type is sometimes decorated with punctations, incising, and pinching. The roughly contemporaneous sand-tempered Thom's Creek ceramic series is found as a minority type in southern Coastal Plain assemblages, but does not appear to have extended into the northern Coastal Plain of North Carolina. A third ceramic type, Hamp's Landing, is a

crushed limestone or marl-tempered ware with surface treatments including thong marked, cord marked, net impressed, fabric impressed, and simple stamped. Three radiocarbon dates associated with Hamp's Landing sherds place the type in the Late Archaic subperiod (Jones et al. 1997; Sanborn and Abbott 1999), although other researchers continue to suggest Hamp's Landing dates to the Early and Middle Woodland subperiods due to stratigraphic evidence (Herbert 1999; Jones et al. 1997; Mathis 1999; Ward and Davis 1999). Lastly, recent excavations at 31CB114 recovered a New River sherd with a cremation yielding a radiocarbon date firmly at the beginning of the Late Archaic subperiod, which suggests that coarse-sand tempering may have had earlier beginnings than previously thought (Sanborn and Abbott 1999). The use of non-fiber tempering so relatively early may have been a functional response by populations living in areas where Spanish moss is not as readily available.

Large residential base camps or villages are present for this period (Anderson and Joseph 1988), and these settlements are focused along both major rivers and their tributaries. Smaller, less-intensively occupied sites include terrace and upland hunting and gathering camps, and quarries. The subsistence systems did not change substantially between subperiods, although there is evidence of emergent horticulture at Late Archaic sites in the Southeast and Midwest (Chomko and Crawford 1978; Cowan 1985). There was also an increase in reliance on riverine resources.

One Archaic site has been recorded north of Aydlett on the western shore of Currituck Sound. Site 31CK40 has Early through Late Archaic components, but because of a lack of integrity due to erosion, is not recommended as eligible for listing on the NRHP.

WOODLAND PERIOD (3,000–350 B.P.)

As noted by Ward and Davis (1999), archaeological research along the North Carolina coast has long supported the notion of studying the northern and southern coastal regions as distinct, separate areas. This is as apparent and useful a designation in the Woodland period as it is in the later Historic period. Part of the reason for this divide between the north and south regions can be explained by environmental factors (Gunn 2002; Ward and Davis 1999). Barrier islands (Outer Banks) along the embayed north coastal region are located farther from the coast than in the south, providing greater access to estuarine resources but little protection from wind and cold. Conversely, the south coastal region is limited in the quantity of estuarine resources due to the nearness of sea islands to the mainland. Inlets of the New River, White Oak River, and Cape Fear River, among others, bisect islands along the southern coast but do not form the large bays and sounds found to the north. However, the southern coast, though "unembayed," is more protected from wind and cold than the north coastal region.

These environmental differences are caused in part by the underlying geology of the area (Gunn 2002). Somewhat simply put, sediments piled against Piedmont bedrock formations were in place by 100 million years ago (Upper Cretaceous), to be acted upon by riverine and oceanic currents. However, an episode of geologic uplift centered on the southern Coastal Plain began around 50 million years ago (Cenozoic), lifting this region and resulting in a somewhat drier, drought-prone climate.

EARLY WOODLAND (3,000–2,300 B.P.)

During the Early Woodland, horticultural activities focused on the exploitation of domesticated plants, such as squashes, gourds, chenopodium, sunflower, and amaranth. Foraging activities continued to exploit wild plant foods, with a variety of nuts being heavily relied upon (Fritz 1988). Storage and cooking pits began to be used (Caldwell 1958), and large collections of acorn, hickory, and walnut remains have been recovered from such pits (Bowen 1982). The domestication of plant foods is believed to be associated with a more sedentary settlement system (Ward and Davis 1999; Wood and Ledbetter 1990). Villages with semi-permanent domestic structures were located along rivers and creeks. Small, short duration sites in upland

areas, rock shelters in the uplands, and isolated circular structures in the flood plains are also commonly identified as Early Woodland habitation sites.

The Early Woodland subperiod on the northern Coastal Plain has been designated the Deep Creek phase (Loftfield 1976), a cultural identification useful in separating it from the New River phase common to the southern Coastal Plain (Phelps 1983). Both of these phases have undergone considerable refinement, particularly in terms of the ceramic series identified with each (as is the case with the entirety of the ceramic sequencing on the North Carolina coast). New River phase ceramics include a predominance of Deep Creek ceramics that correspond to the Thom's Creek fine sand-tempered ceramics and Deptford wares of South Carolina. Common surface treatments include: plain, cord marked, net impressed, and fabric impressed.

MIDDLE WOODLAND (2,300–1,200 B.P.)

The Middle Woodland subperiod represents a time of continued population growth and increased cultural complexity. However, evidence of dense middens, refuse/storage pits, and permanent structures are rare for the Middle Woodland subperiod in the study area. Sites are located in more diverse locations and are more dispersed than during the Early Woodland subperiod, and suggest populations focused on a variety of estuarine and riverine resources. Many of these were shell collecting locations, as evidenced by the quantities of shell present at these sites. Ward and Davis (1999:205) note, however, that it seems unlikely that Middle Woodland populations did not also target mammalian resources, particularly deer, for hides (clothing), sinew and other tissues, as well as bones and antlers (tools, fishhooks).

The Middle Woodland subperiod along the northern Coastal Plain is identified with the Mount Pleasant phase ceramics that are composed of sand and grit in a clay body with surface treatments of net and fabric impressed, cord marked, and plain. The triangular Roanoke projectile point/knife (PP/K) is common to this subperiod, and burials include flexed and semiflexed as well as cremations.

This subperiod is marked elsewhere in the Southeast by exotic artifacts, such as copper panpipes, earspools, cut mica, and platform pipes (Butler 1979; Chapman and Keel 1979; Jefferies 1976; Ward and Davis 1999).

LATE WOODLAND (1,200–350 B.P.)

Described as a transitional subperiod elsewhere in the prehistoric Southeast, the Late Woodland represents a continuing expansion of agricultural subsistence patterns. Late Woodland artifact assemblages are marked by ground stone tools recovered with increasing regularity, reflecting the ever-increasing dependence on plant food processing. This is contrary to what the archaeological record contains for much of the North Carolina Piedmont, Coastal Plain, and Coastal regions, where Late Woodland cultural practices lasted until European contact.

Late Woodland subperiod cultural traditions on the northern North Carolina coast begin with the Collington phase. Representative of the Carolina Algonquians, which would be potentially present within the geographic swath of the project area, cultural markers include shell-tempered ceramics. Settlement patterns for the Late Woodland include widely spaced villages consisting of several longhouses each (Mathis 1995). While these structures may be evidence of year-round occupation of the coast, seasonal exploitation of gathered, hunted, and fished resources (rather than a reliance on domesticated plants) were still elements of the preferred subsistence strategy, at least until the end of the fifteenth century.

Group-oriented ceremonialism was an aspect of Late Woodland life along the North Carolina coast, as evidenced by the construction of sand mounds and communal ossuaries. Sand mounds dot the southern Sandhill region and Coastal Plain, and contain primary tightly flexed burials and

secondary interments of bundle burials, scattered loose bones, and cremations (Irwin et al. 1999). Some individual interments are associated with burial goods, while other artifacts have been recovered in the mound fill but with no direct association with any burial.

Examinations of historic accounts and careful excavation of numerous ossuaries and burials along the North Carolina coast has resulted in a working hypothesis to explain the sequence of events between death and burial (Mathis 1993a, 1995; Ward and Davis 1999). Historic accounts from the seventeenth century record the "Feast of the Dead" as conducted by the Huron in the Great Lakes region. While using these accounts as a direct analogy for Algonquian or Algonquian-related groups on the northern North Carolina coast may be a bit of a stretch, the similar use of mass graves by both groups may imply similar cultural practices. Following death, a body may have been placed upon a scaffold or buried in a temporary pit for de-fleshing. Pits containing a few small human bones or bone fragments and little else may be evidence of these temporary pits. Scaffolding may be harder to identify in the archaeological record, but the incompleteness of secondary burials in the ossuaries is strong evidence that the bodies were de-fleshed in a place or way that resulted in the loss of smaller skeletal elements.

According to historic accounts, after a certain number of years (8 to 12), all of the community members who had died since the last ceremony were interred in mass graves following several days of ritual preparations. "Cemeteries" were emptied of their remains, bones were cleaned (adhering flesh removed), and the bundles of bones were wrapped in skins or robes. The recently deceased were similarly dressed but left "in the flesh" (as it were). If the remains were those of commoners or lower status individuals they were placed into one or more large, open pits. Ossuary pits on the North Carolina coast have been recorded as being 1.5 to 3 m across (Mathis 1993b). If the person was of a higher status in the community, the body may have been interred separately and been accompanied with grave goods (e.g., ceramic vessels, shell cups and beads, etc.). Mathis (1993b) speculates that completeness of the skeleton may also be an indication of higher status, suggesting the bodies were better cared for during de-fleshing. Lastly, accounts of the Huron ritual mention that food offerings were placed above the pit. This may have also occurred along the North Carolina coast, as evidenced by quantities of shell sometimes found capping the interments (Mathis 1993b).

Three linguistic groups interacted across the North Carolina Coastal Plain region in the Late Woodland and Historic periods, although only two of these may have directly impacted the study area. At the time of European contact, Iroquoian-speaking groups occupied the northern inner Coastal Plain, their territory ending at approximately the Neuse River. These Iroquoian sites are commonly identified with the Cashie phase (1,200–350 B.P.), with distinctive pebble-tempered ceramic wares. Algonquian speaking groups dominated the coast, with recent research suggesting this territory extended as far south as the Cape Fear River (Loftfield 1987; Mathis 1995). This southern expression of Algonquian culture seems to date to at least 1,100 B.P., and is differentiated from the historically better-known Algonquian groups in Virginia with the moniker "Carolina Algonquian" (Mathis 1995). Early English exploration of the Carolina and Virginia coasts (A.D. 1500–1584) may coincide with a "retraction" of Carolina Algonquian groups from the southern North Carolina coast, although Mathis (1995) speculates that they may have begun earlier than this time period. In any case, Carolina Algonquian groups were abandoning their villages south of the Neuse River, or were assimilating to expanding Iroquoian and Siouan cultures, or both, to the extent that later sites are not distinctly "Carolina Algonquian."

There are several well-documented sites with Woodland components near the current APE. Located to the south of Aydlett near Poplar Branch Landing on the shore of Currituck Sound, one of the best known and most documented is the Baum site (31CK9), an extensive shell midden containing a large ossuary. While the Baum site is well documented, there are at least three recorded but lesser-known sites with Woodland components in the vicinity of the project

area: 31CK14, 31CK26, and 31CK28. All shell middens containing Woodland period ceramics, the sites have not been assessed relative to NRHP eligibility.

HISTORIC INDIAN PERIOD.

(The following culture history is derived from Ward and Davis [1999] except where noted.) While a review of the historic period for the Southeast typically begins with Spanish exploration and settlement, the historic period for the study area begins somewhat later than the rest of North Carolina. For instance, early exploration by Hernando De Soto (A.D. 1540) (Hudson 1997) and later incursions by Juan Pardo (A.D. 1566–1568) (Hudson 1990) were limited in their contact to only those native groups occupying the Piedmont and western Appalachian and Blue Ridge regions of the state. Direct contact between native coastal groups and Europeans did not occur until numerous English settlement attempts of the late 1580s. Following the abandonment of the "Lost Colony" in 1589, sustained contact between Indians and Europeans along the North Carolina coast was halted until Virginia settlers began moving southward in the middle of the seventeenth century (Ward and Davis 1999). Settlements along the southern Coast were short-lived, including attempts by Puritans from Massachusetts and English colonists from Barbados to settle at the mouth of the Cape Fear River.

Conflict between Europeans and Indians along the coast came to a head in the early 1700s, but the roots of these disputes reached back into the late 1600s. Settlements from Virginia sprung up around Albemarle Sound, and traders and colonists beat back native groups into the northern Coastal Plain. Land appropriations for settlements and farms, combined with a brisk and illegal Indian slave trade, pushed the Tuscarora populations to request permission to move to Pennsylvania. This deal soured, however, when the North Carolina colonial government refused to testify to the past good behavior of the Tuscarora. The Indians rose up in September 1711, killing 130 colonists in the first day of fighting. However, after three years the Indians had suffered over 1,000 casualties to the colonists' 200, and nearly 1,000 other Indians were sold into slavery. The remaining native groups were forced to abandon their homes, and many moved to Pennsylvania and New York. The Carolina Algonquian language was essentially silenced from coastal Carolina at this time (Mathis 1995).

HISTORIC BACKGROUND

The project area is located adjacent to Currituck Sound, an area rich in history. In response to the stronghold Spain held over Florida, England pursued the idea of creating a foothold in the New World that would allow England to profit from the riches of the New World. In 1584, Sir Walter Raleigh was granted a charter from England's Queen Elizabeth to explore and locate a suitable place to colonize north of Spanish Florida. Other explorers would soon follow Raleigh's initial forays into the New World.

EARLY EXPLORATIONS

On July 4, 1584, Captains Philip Amadas and Arthur Barlowe arrived off the Outer Banks of North Carolina in two English barks. The expedition had been sent out by Sir Walter Raleigh to explore the coastline of America in hopes of finding an appropriate place to establish an English colony (Stick 1958:14). Both Amadas and Barlowe made detailed observations of the area as well as of the native Indians. After hearing the reports from Amadas and Barlowe, Raleigh immediately planned a second expedition consisting of seven vessels and approximately 600 men. The expedition left England on April 9, 1585 to establish the English settlement (Stick 1958:17).

Under the command of Sir Richard Grenville, the expedition arrived off the Outer Banks at Ocracoke and proceeded north until they reached Roanoke Island. It was here that Grenville decided to establish a settlement and a fort. Grenville, however, soon after departed the

settlement, along with a large number of his soldiers. Grenville left behind 107 soldiers under the command of Ralph Lane (Stick 1958:17-18).

By June, the conditions at Roanoke Island had become despondent. Lane and his men had attacked an Algonquian village, and relations between Lane and the natives deteriorated quickly. Soon after, Sir Francis Drake arrived at the settlement after a series of successful raids in the Caribbean and Florida (Stick 1958:18). Although Drake was willing to supply Lane with any provisions he might require, Lane decided to abandon the settlement and return to England.

One week after Lane had deserted, a relief vessel arrived to find the settlement abandoned. Soon after, another fleet arrived under the command of Grenville. Grenville left behind 15 men to remain at the fort during the winter of 1586-1587. During this time, Raleigh was planning yet another expedition to Virginia to be headed by John White. White was an artist whose drawings today are still among the best and most detailed North American scenes of the early colonization period (Stick 1958:19). He produced one of the earlier maps detailing the North Carolina Coastal Plain and Outer Banks and two inlets, Port Ferdinando and Port Lane. White's plan was to stop at Roanoke Island to pick up the 15 colonists and head north to Chesapeake Bay, but upon arriving at Roanoke Island they found the fort demolished and the men gone. The vessel's captain refused to continue north to Chesapeake Bay, so White and the colonists elected to stay on the island (Hartzer 1983:4). White, anticipating a permanent settlement, immediately began to repair the fort and buildings.

White and a number of colonists decided to return to England to secure additional provisions and recruit more colonists. On August 27, 1587, White and the other colonists departed Roanoke Island, leaving behind 112 colonists (including his daughter and granddaughter). By the time White was ready to return to Roanoke Island, Spain was preparing the Spanish Armada for an attack on England. Because many of the larger vessels were needed to defend England, White was only given a 30-ton bark and a 25-ton pinnace as transportation back to Roanoke Island (Stick 1958:20). White was captured by the Spanish on his way back to the settlement, and was again detained in his efforts to return to Roanoke Island.

It was not until 1590 that White was able to return to the Outer Banks. After finally arriving at Roanoke Island, White and his party found all the colonists gone, including his daughter and granddaughter. No one has ever discovered what happened to the lost colony. Some feel that they were attacked by Native Americans. The explanation of the lost colony remains a mystery to this day. In another attempt to establish a foothold in the New World, England abandoned Roanoke Island and began to concentrate on Chesapeake Bay, farther to the north. Roanoke Island and the Outer Banks were left behind to the Native Americans for another 75 years (Stick 1958:21).

The original charter for North Carolina was obtained from King Charles I in 1629, and named "Carolana," although no permanent colony was established. By 1663, Charles II issued a second grant of the land south of Virginia. It was then renamed "Carolina." The grant was issued to eight proprietors who established centers of settlement. Each of the areas grew slowly throughout most of the seventeenth century, mostly due to the geography of the eastern North Carolina. North Carolina was surrendered by the proprietors in 1729, and thus became a royal colony (Hartzer 1983:4-5).

Permanent settlement of the North Carolina area was slow in development. Five Ports of Entry were established within North Carolina: Port Roanoke, Port Beaufort, Port Brunswick, Port Bath Town, and Port Currituck, which was designated in 1682. Located opposite Currituck Inlet, port records consistently show that Port Currituck shipped less volume than the other four Ports of Entry (Meverden 2005). This is explained by the fact that Currituck Sound had few rivers connecting it with various inland farms and settlements, as opposed to Roanoke, which sat at the

mouth of Albemarle Sound and was fed by numerous major river systems (Figure 3.1). With water transportation the means of shipment for almost all goods, it is easy to see why Roanoke would surpass Port Currituck, and why Port Currituck would play a secondary role. Furthermore, Currituck also competed against the deep-water port of Norfolk, which was located just to the north.

While Roanoke Inlet was a major early entry point to accessible areas of coastal North Carolina, in 1665, the depth of Roanoke Inlet was recorded at 11 to 15 feet. By 1700, the depth of the channel was only 10 feet; the Inlet was shoaling up and would eventually close. Many of the captains of the larger vessels during the time felt that it was more expeditious to enter the sounds through Ocracoke Inlet, located to the south of Roanoke Inlet (Stick 1958:25-26). Eventually, Ocracoke Inlet became the most widely used inlet in North Carolina for all vessel traffic.

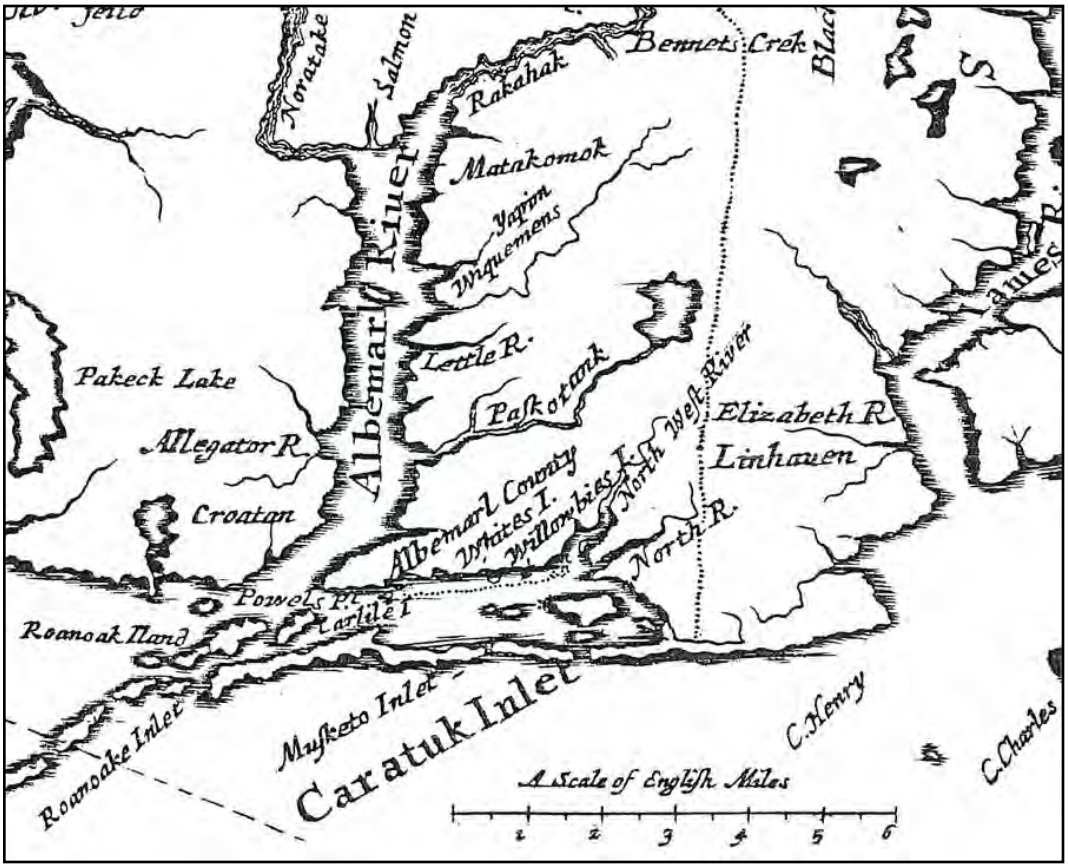

Figure 3.1. Excerpt of the 1733 Mosley Map of North Carolina showing "Caratuk Inlet" (as presented in Novick 1995:4.3). Note "Roanoake Inlet" to the left.

With settlements concentrated along the Coast and the Coastal Plain adjacent to major waterways, the primary means of subsistence consisted of farming. The majority of exports initially consisted of crops such as corn, tobacco, and wheat, as well as livestock such as cattle, pigs, sheep, and horses. Initial attempts to raise other commercial crops such as rice, indigo, and flax were unsuccessful. Other means of subsistence relied on animal skins and furs that then progressed into more lucrative resources, such as wood products (e.g., staves and shingles), and naval stores (e.g., turpentine, pitch) (Merrens 1964:85-86). It was in this latter export type that Currituck led the other ports in the late 1700s. Based on Britishcustoms documents, between 1768 and 1772, a total of 246 vessels entered the port. The majority of these were not from

Europe, but from the Caribbean or the other colonies, the source of the majority of imports (Novick 1995:4.9-4.12). By the advent of the Revolution, tobacco became a leading export crop.

During the early eighteenth century, the coast of North Carolina became the cruising ground for some of the more infamous pirates of the period. The large number of vessels passing Cape Hatteras made it an ideal location for piracy. Such pirates to cruise the waters off North Carolina included Christopher Moody, "Calico Jack" Rackam, Anne Bonny, and Blackbeard (Edward Teach). Blackbeard made Bath, North Carolina his home after receiving a pardon from then-Governor Eden. In return, Blackbeard divided his prizes with Eden and Government Secretary Tobias Knight (Stick 1958:30). Blackbeard was killed on November 22, 1718, by Lieutenant Robert Maynard of the British Navy, thus signaling the end of piracy around the area (Stick 1958:32).

With the start of the American Revolution, the coast of North Carolina played an important role in keeping necessary shipping routes open to the American rebels. The British were successful in blockading all ports and harbors that had sufficient water depth for their large warships. However, the Outer Banks proved to be nearly impossible to blockade due to the shallow inlets and extreme conditions off the coastline. The inability to effectively blockade the inlets of North Carolina allowed the American rebels to keep necessary shipping routes open. With the advantage of the shallow waterways and extensive river systems within the Outer Banks, necessary provisions and supplies were shipped to troops throughout North Carolina and into Virginia with a high degree of success (Stick 1958:44-45).

Currituck County's population was 6,928 at the end of the Revolution, and by 1820, the population had risen to 8,098. With no manufacturers listed for the county, apart from the large plantations, the majority were yeomen farmers cultivating on average 100 acres or less and producing a diversity of crops. However, by 1828 Currituck Inlet had closed, making entry into the port and shipment of these goods problematic.

Ocracoke Inlet remained the only inlet into the sound below Currituck Inlet and above Beaufort until 1846, when a hurricane opened two new inlets through the Outer Banks. The first to open was halfway between Old Hatteras Inlet and Hatteras Village; the second opened on Bodie Island. These were named Hatteras Inlet and Oregon Inlet, respectively. C.O. Boutelle, who was employed with the United States Survey, was on Bodie Island when the hurricane hit and made the following observations:

> On the morning of the September gale, the sound waters were all piled up to the southeast, from the effects of the northeast blow of the previous days. The weather was clear, nearly calm, until about 11 a.m., when a sudden squall came up from the southwest, and the waters came upon the beach with such fury that Mr. Midgett, within three quarters of a mile of his house when the storm began, was unable to reach it until four in the afternoon. He sat upon his horse on a small sand knoll, for five hours, and witnessed the destruction of his property and (as he then supposed) of his family also, without the power to move a foot to their rescue, and, for two hours, expecting every moment to be swept to sea himself.
>
> The force of the water coming in so suddenly, and having a head of two or three feet, broke through the small portion of sea beach which had formed since the March gale, and created the inlets. They were insignificant at first–not more than twenty feet wide–and the northern one much the deepest and the widest. In the westerly winds which prevailed in September, the current from the sound gradually widened them; and then in the October gale, they came about as wide as they are now. The northern one has since been gradually filling, and is now a mere hole at the low water…[but the southern one] between high water marks, measured on the line is 202 yards [wide and] between low water marks, 107 yards [as presented in Watts 1991:28; Stick 1958:279-280].

Named "Oregon" Inlet after the first steamboat (owned by W.H. Willard of Washington, North Carolina) to pass through the new opening, Oregon Inlet became an important passage for

vessels heading into Pamlico and Albemarle Sound (Watts 1991:28; Angley 1985:6). However, due to the shallow bar and shifting shoals within the inlet only shallow-draft vessels frequented the opening. By 1909, it was reported that the inlet had moved more than a mile south of its 1849 location. As stated by Watts (1991:63), "during the 140-year period from 1849 until 1989, the north shoulder (Bodie Island) moved 10,650 ft. to the south and the south shoulder (Pea Island) moved south a total of 13,120 ft."

Efforts to improve navigation through Oregon Inlet were proposed during the early 1870s. While a government survey deemed dredging of the inlet impractical, measures were taken to improve the safety of Oregon Inlet. A third lighthouse, constructed on Bodie Island, became operable in 1872 at a total cost of $14,000 (Watts 1991:33). During construction of the lighthouse, five vessels wrecked off Bodie Island, attesting to the hazards of the inlet.

Affecting the economic growth of Currituck County, the Dismal Swamp Canal, designed to obtain timber from the Dismal Swamp, was completed in 1805. Extending from the Elizabeth River (Norfolk) and going to the Pasquotank River to the west of the current APE, the canal did allow shipment of many types of goods, but it was hampered by size. With a renewed increase in canals through the east, a second canal was proposed and completed in 1859. As illustrated in Figure 3.2, the Albemarle and Chesapeake Canal was cut from the Elizabeth River to the upper reaches of the North Landing River where it entered Coinjock Bay. A second canal, the Chesapeake and Albemarle Canal (C&A) was cut through the southern end of Coinjock Bay to the upper end of the North River that emptied into Albemarle Sound just north and across the sound from Roanoke Island.

Steamboat companies like the Currituck and Norfolk Steamboat Company formed to carry freight and passengers along the length of the canal. With the start of the Civil War, the canal saw a tremendous increase in shipping associated with the construction of coastal fortifications (Meverden 2005:13-14). The area played an important role during the Civil War, and because Hatteras Inlet was the deepest access through the banks, the Confederates established two fortifications on the north side of the inlet. The strategic location of Roanoke Island established it as the key to all rear defenses to Norfolk. Control over Roanoke Island meant control over the Albemarle and Currituck Sounds, eight rivers (North, West, Pasquotank, Perquimans, Little, Chowan, Roanoke, and Alligator), five canals (Albemarle, Chesapeake, Dismal Swamp, Northwest, and Suffolk), and two railroads (Petersburg and Norfolk) (Iobst n.d.).

In order to protect Roanoke Island, the Confederates constructed a number of fortifications on and around the island. They built three forts (Huger, Blanchard, and Bartow) on the north end of the island to overlook Croatan Sound. A number of small defensive works in the middle of the island and the east shoreline also aided in protection from Union advancements.

Union troops began to encroach upon the area by 1861. The Union objective was to gain control over the numerous sounds in the area and then move onto the North Carolina mainland. In the fall of 1861 both of the Confederate forts at Hatteras were taken. On February 7, 1862, Union troops were ready to attack and would later take the fortifications on Roanoke Island (Barrett 1963:76). By June of 1862, the canal was firmly in Union control and would remain so enabling unencumbered movement throughout the area by vessels carrying both troops and supplies.

In the years to follow the war, both the region and the A&C Canal recovered. Although railroads were making inroads into the viability of the Canal and spelled the demise of several passenger and freight lines such as the Old Dominion Steamships, Currituck Sound vessel traffic increased with the introduction of vessels that had once plied the Dismal Swamp Canal trade. These included the screw steamers *Lucy*, *Thomas Newton*, *C.W. Petit*, and *Harbinger*, along with the sternwheelers *Undyne* and *Comet* (Meverden 2005:19).

The economy of the Currituck County continued to expand during the post-war period. In addition to farming, naval stores, and lumber—the traditional economies of the area—from the 1870s until World War II the area's most profitable industry was fowling and commercial fisheries. Formed prior to the Civil War, several hunting clubs with large and elegant hunting lodges were constructed on the barrier island or the bank of Currituck to take advantage of the numerous flocks of migratory waterfowl. Catering to wealthy northeastern businessmen, the clubs were opulent and remain so today; several are listed on the NRHP. While guides were needed by these hunters, the demand for waterfowl by both northern and European markets created an industry supplied and manned by Currituck market gunners. Packed in ice and shipped north by the thousands, commercial waterfowling was prohibited in 1918, the result of its own success in decimating the migratory bird population.

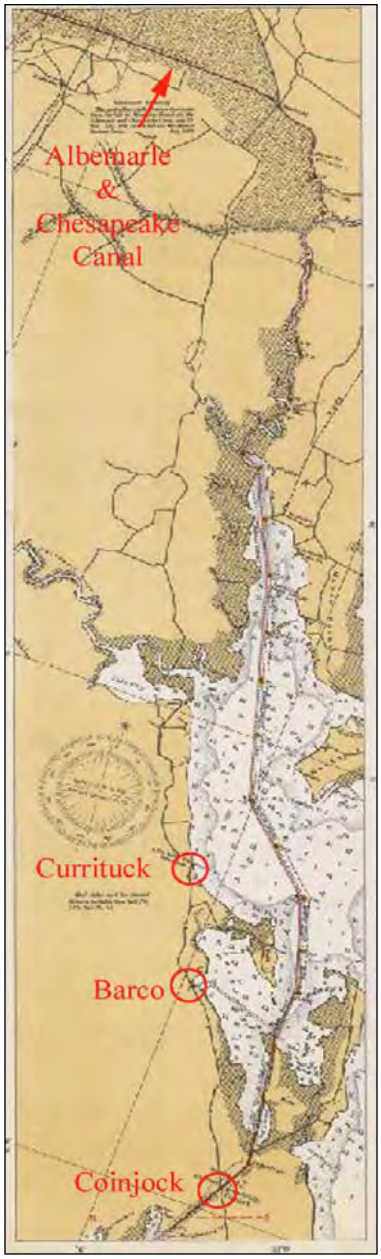

Figure 3.2. Map showing location of Albemarle & Chesapeake Canal and the C&A Canal cut at Coinjock (excerpt from U.S. Coastal Survey 1936 "Intracoastal Waterway Norfolk to Pungo River).

In addition to fowling, the fishing industry included the harvesting of whales, porpoises, turtles, oysters, clams, shrimp, crabs, and varieties of fish. The most successful commercial crop in the sounds of coastal Carolina during this period was the shad fishery. Huge schools of shad used to pass from the inlets through the major sounds towards spawning grounds in the Albemarle Sound and its tributaries. Fisherman learned to catch the spawning shad by placing "pound nets" into the sandy bottom of the sounds in effect funneling the fish into nets. These nets were so widely used in the sounds that a 1905 law rescinded the practice and called for all sounds to remain free of nets of all kinds (Stick 1970:42-44).

In 1870, Dare County was formed from portions of the surrounding counties of Currituck, Hyde and Tyrell. However, the county would remain isolated because of a lack of bridges crossing the sounds. The town of Manteo would become the county seat in 1899. During the twentieth century, improvements to local transportation with the "Good Roads" program of 1920 would make access into the area easier and the isolation that brought the Wright brothers to the area for aviation experiments would be gone. A focus of the current investigation, U.S. Highway 158 would be built from Barco to Coinjock in 1925, and within the next decade would extend to Point Harbor. Built in 1933, Wright Memorial Bridge would connect the highway to the Outer Banks (Russ and Seibel 2006).

PREVIOUS TERRESTRIAL ARCHAEOLOGICAL INVESTIGATIONS

Archaeological work in the coastal plains of North Carolina has its beginnings in the mound explorations of Cyrus Thomas (1985 [1894]). As the Smithsonian Institution's Director of Mound Explorations, Thomas investigated mound groups in the Midwest and southeast, publishing his findings in several Smithsonian Monographs. His investigations, along with those of C.B. Moore, were instrumental in disproving earlier theories regarding a lost "Moundbuilder" culture. Other early archaeological work was conducted by J.A. Holmes in 1883 and Charles Peabody in 1910. While not necessarily archaeological investigations by today's standards, these explorations formed the basis on which later scientific development was built.

Three studies form a more accepted baseline for modern prehistoric archaeological investigations in coastal North Carolina. The earliest is William Haag's survey of the coast in 1958, followed by Stanley South's survey of the southern North Carolina coast (1976). Coe's study of the Piedmont and Interior Coastal Plain (1964) developed several well-defined chronological sequences at several sites, including the Doerschuk site in Montgomery County, the Hardaway site in Stanly County, and the Gaston site in Halifax County. These stratigraphic sequences still form the basis of many North Carolina archaeological interpretations (Novick 1995:3.1).

Historic archaeological investigations were conducted by the National Park Service from the late 1940s to the early 1950s (Harrington 1962) and included excavations of the remains of Fort Raleigh, and later excavations by the State of North Carolina at several prominent archaeological sites including Old Salem and Brunswick Town.

With the advent of historic preservation laws, archaeology in eastern North Carolina began to develop more fully. Still, as of 1994, fewer than 100 archaeological sites had been recorded in Currituck County (Novick 1995:3.1). Archaeological projects undertaken to comply with Section 106 were undertaken for subdivisions, highways, and bridges, and continuing up until the present time, have helped to generate a solid cultural historic timeline for the region. In addition to Section 106 compliance projects, much of the recent archaeological work on the Coastal Plain has been conducted through East Carolina University by Dr. David Phelps (Phelps 1983) and through State Historic Preservation Office (SHPO) survey and planning grants for at least a half dozen counties, including Currituck (Tippitt 1988).

More specific to the current project, there have been several archaeological investigations conducted near the project area. Perhaps the best known is Phelps's work at the Baum site, 31CK9, located to the south of Aydlett near Poplar Branch Landing on the west shore of Currituck Sound. A large Middle and Late Woodland period shell midden containing several ossuaries, and nominated to the National Register by Phelps in 1980, the Mount Pleasant phase to Collington phase site has been investigated several times, the most recent being in 2006. In August 2005, the Office of State Archaeology (OSA) identified suspected human remains eroding from the existing bluff at the site (Abbott and Hall 2005a), and retrieved them in October of the same year (Abbott and Hall 2005b). The site was also recently investigated in 2006 by Coastal Carolina Research, Inc. (CCR) in response to a planned development. Limited testing concluded that the area investigated within the development was the fringe of the village. This area was subsequently mitigated through data recovery (Lautzenheiser and Stewart 2006).

During the investigations of the Baum site, both the OSA and CCR investigated another nearby shell midden site, 31CK129. Located on the shoreline north of the Baum site, OSA recovered two historic burials at the site. Later data recovery by CCR in response to a planned development determined that the site was eroded into the sound, lacked integrity, and did not meet NRHP eligibility criteria (Abbott and Hall 2005c; Bamann and Gosser 2007).

Perhaps the most relevant investigation that should be mentioned was a precursor to the terrestrial and underwater archaeological background study for the mid-Currituck bridge (James and Lydecker 2009). In 1994, Lee Novick of the North Carolina Department of Transportation (NCDOT) conducted a background study for the bridge over Currituck Sound. Titled *Archaeological Background Report, Mid Currituck Bridge (R-2576) Study Area, Currituck County, North Carolina* (Novick 1995), this body of work was the foundation, in large part, for the findings of the background investigation.

The NCDOT also conducted a survey for a proposed Visitor's Center and Rest Area just north of the intersection of U.S. 158 and NC 168. The archaeological investigations recorded Site 31CK178/31CK178**, a multi-component site with both historic and prehistoric materials, which was recommended as eligible for listing on the NRHP (Glover 2005).

Also relevant to the current investigation, Environmental Services, Inc., of Raleigh, North Carolina conducted a cemetery survey along portions of NC 168, U.S. 158, and SR 1125 for the Eastern North Carolina Natural Gas Project for a proposed pipeline. The cemeteries, the majority of which were recorded along U.S. 158, fall under the provisions of North Carolina's Cemetery Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted (Seibel et al. 2002).

PREVIOUS UNDERWATER ARCHAEOLOGICAL INVESTIGATIONS

A number of historical and archaeological research studies have been conducted relative to the presence of shipwreck remains in the bays and sounds of North Carolina, and several have included areas within Currituck County, as well as adjacent to the boundaries of the proposed Mid-Currituck Bridge corridor.

Although located on the Atlantic side of Currituck Spit (Bank), in November of 1985 archaeologists from the Underwater Archaeology Unit (now Branch) conducted a visual survey of the ocean beach from the U.S. Army Corps of Engineers pier at Duck, North Carolina, to the Virginia border, a distance of 26.4 miles. The purpose was to locate and examine any exposed remains on the beach (Bright 1985). In addition to numerous collections of modern debris, the team located four potential shipwreck sites. These included the North Bodie Island site (0011BOB), which consisted of two timbers measuring 10–14 feet long; the Currituck Steamer site (0001CKB), consisting of visible iron wreckage approximately 200 feet offshore; a single

frame (0002CKB); and a plywood boat (0003CKB), consisting of the bottom hull of a modern vessel. The recommendations of the survey included further investigations for sites 0011BOB, 0002CKB or 0003CKB, as these were either isolated timbers or of modern origin, although they did note that continued monitoring of the vicinity of each site might reveal additional ship timbers. Further recommendations included examination of Site 0001CKB by divers.

In March of 1989, archaeologists from the Underwater Archaeology Unit conducted a visual survey of 19 miles of Atlantic beach from Poyners Hill to the Virginia border (Bright 1989). The survey was conducted to search for shipwreck remains that had been exposed by a recent storm. The survey identified partial remains of six different vessels, many of them isolated timbers, along with several concrete structures from a rocket fuel test facility. Sites located include the Floor Timber site (0004CKB), consisting of a single oak floor timber approximately 8 feet long with trunnels and drift pins; the Rocket Fuel Test site (0005CKB), consisting of two large concrete structures measuring approximately four feet by six feet (its location is given adjacent to 0006CKB, but this is suspect and it may represent missile sites to the north); the Keelson site (0006CKB), consisting of a 38 foot long keelson with the remains of several frames attached; the Whale Head Beach Wreck (0007CKB), consisting of a copper clad wooden vessel approximately 100 feet long and 30 feet in the beam, intact to the turn of the bilge; the Ship Timber site (0008CKB), a 30 foot long timber with a scarph joint at one end; the Gunnel Section site (0009CKB), consisting of a section of wooden sailing ship gunwale made from heart pine; and the Surf Wreck (0010CKB), a wooden shipwreck visible in the surf zone at mid-tide. No recommendations were given with respect to any of the located sites.

In March of 1990, archaeologists from the Underwater Archaeology Unit examined a series of wrecks in the Outer Banks (Bright 1990). The survey revisited sites 0011CKB, 0012CKB, 0013CKB, 0014CKB, 0001CKB, and 0020BOB but did not locate any additional sites. Excluding the Currituck Steamer Wreck (0001CKB), all of the sites were isolated occurrences represented by a single timber. No recommendations were made for further investigation or preservation.

In August of 1998, archaeologists from the Underwater Archaeology Unit examined the Ocean Hill Wreck (00016CKB), a shipwreck site exposed during Hurricane Bonnie (Henry 1998). Located just north of Corolla, investigation of the highly fragmented site determined the approximate tonnage of the wooden hulled vessel to be between 200 and 500 gross tons. Construction techniques were said to be consistent with those of a nineteenth-century vessel. No recommendations were made for further investigation or preservation.

In March of 1999, archaeologists from the Underwater Archaeology Unit conducted two field surveys on beaches in the Outer Banks (Henry 1999), and examined several existing shipwreck sites, including the Ocean Hill Wreck (0016CKB), which was found to be in a condition very similar to when it was first cataloged two years prior. In addition, coordinates were taken on two wrecks that were situated on the beach: the O'Keefe site (0015CKB) and the Currituck Steamer site (0001CKB). Situated along the beach near the state line and well north of the APE, several new isolated finds were identified, including a small knee timber (0019CKB), a probable keelson component (0017CKB), and a single plank with treenails (0018CKB). Recommendations included plotting the located isolated finds on topographic maps for future relocation.

More relevant to the current investigation, in January 2001, maritime archaeologists from the Underwater Archaeology Branch (previously the Unit) examined the wreck designated as 0001CKS, or the Hambone 1 site, the first shipwreck site given a site number in Currituck Sound (Henry 2001). Located just west of the Corolla Lighthouse, the site was located and dived. Archaeologists determined the wreck to be a flat bottomed vessel with a hard chine, most likely a barge, and after examining the structure and comparing it to other regional shipwrecks, most notably the Cypress Landing Shipwreck, hypothesized that the vessel at 0001CKS represents a

northeastern North Carolina regional vessel type. Given its position in close proximity to the Currituck Lighthouse, along with the presence of bricks on the wreck, the authors further hypothesized that it may have been utilized in the transport of the bricks used in the construction of the lighthouse. Recommendations for further investigations included gathering additional information regarding the vessel's cargo and structure.

In 2003, maritime archaeologists from UAB attempted to examine three shipwreck sites in the Knotts Island Channel opposite the now-closed Currituck Inlets (Lawrence 2003a). One wreck was supposed to be the Revolutionary War schooner *Polly*, while the other two vessels reportedly dated to the late eighteenth or early nineteenth centuries. Foul weather prevented the team from performing a magnetometer survey or diving inspection.

In August of 2003, archaeologists from UAB examined the wreck of the *Metropolis*, 0021CKB (Lawrence 2003b). The research was undertaken in response to an interest in erecting a North Carolina Highway Historical Marker for the vessel. Located just south of Albacore Street and 900 feet offshore Currituck Beach, magnetometer investigations located a sizeable anomaly in the known vicinity of the wreck site. However, divers were unable to locate the source of the anomaly. Since the survey did not locate other anomalies in the area, and local divers confirmed the site as the approximate location of the *Metropolis*, it was considered highly likely that the anomaly represented the remains of the vessel in question.

In 2004, Environmental Services, Inc., of Raleigh, North Carolina conducted a remote sensing survey and diver investigations parallel to the Wright Memorial Bridge. This investigation was associated with the cemetery survey for the Eastern North Carolina Natural Gas Project for a proposed pipeline noted above. Although outside the current APE, the study identified one vessel (0002CKS), a 20 to 30 foot long wooden vessel located in an anchorage area associated with Promenade Watersports, a boat rental facility located on the southeastern side of the bridge (Seibel et al. 2002).

One of the most relevant investigations that should be mentioned was a recent remote sensing sampling survey conducted as part of an East Carolina University Master's degree thesis. Titled *Currituck Sound Regional Remote Sensing Survey, Currituck County, North Carolina* (Meverden 2005), the thesis developed a predictive modeling framework and then tested it with the survey of two areas of Currituck Sound, a northern and southern survey area. Eight potentially significant anomalies and 12 sidescan sonar targets were located. However, locational information was not present within the study and was, therefore, not correlated with the boundaries of the current APE.

The most recent relevant submerged cultural resources investigation was the 2006 investigation by the UAB of three shipwreck sites: the Undine (0004CKS), the Clyde Spruill Wreck site (0006CKS), and the Jimmy Markert Wreck (0005CKS). The *Undine*, a sternwheeler, lies off MacKay Island (east of Knott's Island), and the Jimmy Markert wreck lies off Church's Island. The Clyde Spruill Wreck site lies just south of Poplar Branch Landing in the Little Narrows (Bryan 2006).

Although unassociated with cultural resources, a large bathymetric and sidescan sonar survey of the proposed Mid-Currituck Bridge project area was conducted by the U.S. Army Corps of Engineers, Engineer Research and Development Center under contract with PB Americas (Forte and Martz 2007). Designed to map bottom depths and identify submerged aquatic vegetation, of which 1.31 square miles were identified, the data was not originally employed to identify potential cultural resources nor was it reviewed during the current study. However, the mosaiced acoustic data was a useful tool along with the bathymetric data in the current cultural resources remote sensing survey of the submerged portions of the project area.

Archaeological Sites Within or Near the APE

The archaeological site files were accessed at the North Carolina Office of State Archaeology (OSA) in order to identify previously recorded archaeological sites within the APE. Two previously recorded archaeological sites (31CK36/31CK36** and 31CK216**) and three historic cemeteries (31CK145**, 31CK146**, and 31CK174**) are located within the APE, all of which were revisited and are discussed in the results chapter. Two archaeological sites were recorded near the APE and are described below. In addition, numerous historic cemeteries were recorded outside the current APE along U.S. Highway 158 as a result of a survey for a proposed pipeline (Seibel et al. 2002).

Site 31CK11 is located south of the project area and was recorded in 1975. This Late Woodland site was partially excavated by David Phelps of East Carolina University. The site is located on Currituck Sound and is said to suffer from heavy erosion.

Site 31CK26 is also situated south of the project area on Currituck Sound. Recorded in 1974, the site was said to be a “Late Campsite” and “Late Village Site.” It was noted that ceramics and lithics were collected and a midden was present. No recommendations were listed on the site form.

IV. TERRESTRIAL FIELD AND RESEARCH METHODS

FIELD METHODS

The archaeological survey and site evaluation for the Mid-Currituck bridge project involved approximately 289 acres and required 96 person-days to complete. The methodology employed followed the basic plan set forth in the Scope of Work (Appendix A). Surface inspection was combined with interval subsurface shovel testing. Transects were spaced at 30-m intervals, with the individual shovel tests within these performed at either 15 or 30-m intervals. The only exceptions were the five transects that crossed Maple Swamp (Transects 1, 2, 40, 41, and 88). They were tested at 100-m intervals because the swamp was considered a low probability area. A typical shovel test was cylindrical and measured approximately 38 cm (15 in.) in diameter. A test was dug to 1 m in depth or to sterile subsoil or until ground water was reached. Soils were passed through 1/4-in. (0.64 cm) hardware cloth for the collection of artifacts. The soil stratigraphy of all shovel tests was mapped and described and the soils of at least one test for each site or occurrence was matched to a Munsell color chart. All shovel tests were then backfilled and their locations were plotted on project maps.

A shovel test location could be excluded from consideration if it was underneath pavement, in a wetland, had standing water, or was in an area marked by a severe disturbance in the ground surface. Positive shovel tests were bound with additional tests at 15-m intervals in appropriate cardinal directions in a cruciform pattern until double negatives were found or a natural barrier was reached that would have inhibited site occupation. A site was defined as three or more artifacts within 30 m of each other belonging to the same broad component of either prehistoric or historic. The more promising site locations had the cruciform pattern filled in with a 15-m grid across its boundaries to further identify potential subsurface activity areas. This was crucial in selecting the most appropriate place for test units and to retrieve cultural artifacts and temporal data to aid in evaluating the NRHP eligibility of the site.

In addition to shovel tests, 1-x-1 m or 1-x-2 m test units were excavated at certain sites that needed further assessment for significance evaluation. Prior to excavation, a plan view of the surface features of the site were drawn to scale, including shovel tests. Test units were added to the map as they were placed. Unit excavation began by outlining the unit with string and establishing a datum on the highest corner of the unit. Datum was set 10 cm above the ground surface and used for taking all depth measurements within the unit. Next, the unit was excavated noting natural stratigraphy using shovels and trowels, and soil was screened through 1/4-in. (0.64 cm) hardware cloth. Notes were taken for each level of excavation using standardized PCI forms. Unit excavation was terminated when sterile subsoil was reached. Upon completion of the unit, at least one profile was mapped and photographed and the unit was backfilled.

Standard field forms were used to record all archaeological sites and isolated finds, shovel tests, and test units. All artifacts encountered during the field work were collected, bagged, and labeled with all relevant provenience information for transportation to our Tuscaloosa, Alabama laboratory for processing and categorizing. Digital color photographs were taken to illustrate project area conditions and location, cultural and natural features, disturbances, and field procedures. A photographic log was maintained for each camera, listing all photographs and the direction in which the images were taken. Global Positioning System (GPS) coordinates were recorded using an eTrex Garmin for all initial positive shovel tests, test units, features, and sites.

The 289 acres involved in this project were divided into four separate tracts of land. Area 1 involved the western bridge approach south of Coinjock on the mainland. In this location the

project area paralleled U.S. 158 and included various service road corridors and stormwater treatment areas (Figure 4.1). The area was primarily agricultural (Figures 4.2 and 4.3) with a handful of private residences and businesses scattered along the highway (Figures 4.4 and 4.5). The land west of U.S. 158 drops off in elevation, quickly transitioning to swamp. In this area there were several shovel test locations along Transects 37, 38, and 48 where hydric soils or standing water was encountered (Figure 4.6). There were also shovel tests in the western portions of Transects 19 through 23 that could not be dug due to three businesses that exist there.

Area 2 consisted of two proposed corridors that run roughly east-west for 2,420 m across Maple Swamp (Figure 4.7). The southernmost route was traversed by Transects 1 and 2, and the northernmost one with Transects 40 and 41. As an added precaution Transect 88 was run between the two proposed corridors. As stated earlier, the shovel tests were dug at 100-m intervals across Maple Swamp because it was considered a low probability area. Beyond this, crews were given license to judgmentally test any low rise encountered while traversing the swamp. Work in this area was complicated by the fact that the forest had been cut down a number of years ago and for reasons that are not entirely clear, many of the trees were left where they fell (Figure 4.8). Vines have had time to cover the rotting trees creating a formidable vegetative barrier that obscured any surface visibility. It was quite rainy when the survey was conducted and standing water and hydric soils were common occurrences along these transects.

Area 3 involved the 500-m portion of the project area that separates Maple Swamp and Currituck Sound and includes a staging area and a service road corridor (see Figure 4.7). Most of this area is forested, with the exception of two private residences (Figure 4.9). This location includes the proposed bridge landing along the western shore of Currituck Sound. There were no real obstacles to the testing strategy encountered in this area.

Area 4 contained the portion of the project area on the Outer Banks (Figure 4.10). This area included six discontinuous parts whose total length was approximately 3,875 metes. The northernmost tract was designated Area 4A and it included the bridge landing on the eastern shore of Currituck Sound and both sides of NC 12, south from its intersection with Herring Street (Figure 4.11). The Scope of Work recommended just digging a single line of shovel tests along NC 12, but the crew attempted shovel tests on both sides of the road, with many “no digs” due to pavement, ditches, development, and other disturbances. Area 4A included housing developments as well as wooded portions with some marshy areas.

Area 4B was approximately 1,500 m south of Area 4A and was tested at 30-m intervals along both sides of NC 12. The APE here consisted of little more than a 100 ft. right-of-way of the highway. While portions of Area 4B are undeveloped, residential and commercial development has disturbed much of this route (Figure 4.12).

Area 4C began a little more than 100 m south of the southernmost end of Area 4B. This short stretch contained houses on both sides of NC 12. The houses along the east side were about 40 m off the road, while the structures on the west side were set further back and were sparser. Small trees and grasses were present near the road (Figure 4.13).

Area 4D was located about 325 m south of Area 4C and contained tightly packed houses behind a privacy fence on the west side of NC 12 and more sparsely placed houses further back from the east side. Small pines, hardwoods, and grasses exist near the road (Figure 4.14).

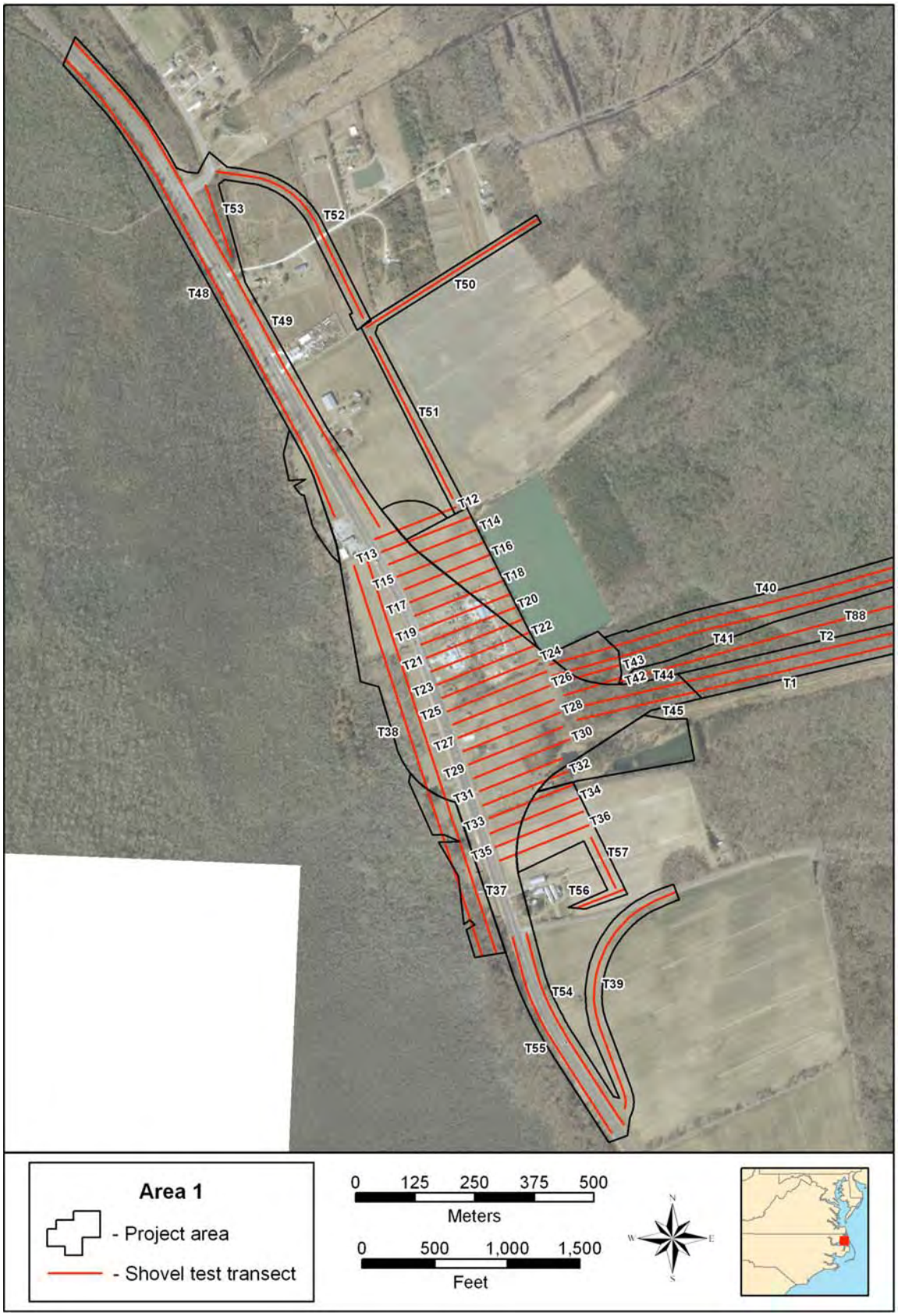

Figure 4.1. Map showing the location of shovel test transects within Area 1.

Figure 4.2. Photograph of agricultural field within Area 1, facing north.

Figure 4.3. Photograph of agricultural field/pasture within Area 1, facing north-northeast.

Figure 4.4. Photograph of thrift store on U.S. 158 within Area 1, facing north-northeast.

Figure 4.5. Photograph of gravel business on U.S. 158 within Area 1, facing east.

Figure 4.6. Photograph of standing water west of U.S. 158 within Area 1, facing west.

Area 4E began almost 600 m south of Area 4D in an undeveloped section with tree and brush covered dunes. As the route continued south, houses and a shopping center appeared, although they were set back from the road about 20 meters. The southern end of Area 4E contains residences on both sides of the road. An unnamed intersection was present about one-third up the route, going north to south, with one way entering a shopping center and the other a residential community (Figure 4.15). This portion was too disturbed for testing.

Area 4F lies along a stretch of U.S. 158, east of where it crosses Currituck Sound onto the Outer Banks. Most of the south side consists of a wetland (Figure 4.16), which inhibited testing. The north side contained a golf course at the west end and a shopping center at the east end (Figure 4.17).

RESEARCH METHODS

Historic research was also a large part of this project and included land deed records, census records, historic maps, wills, and informant interviews. Land deed records were accessed at both the Currituck County Courthouse in Currituck and the North Carolina State Archives in Raleigh. Other information, such as census records, was accessed on Ancestry.com. Informant interviews were conducted with Ruth Walker Crane, Charles Angus, and Ned Markert and were very illuminating.

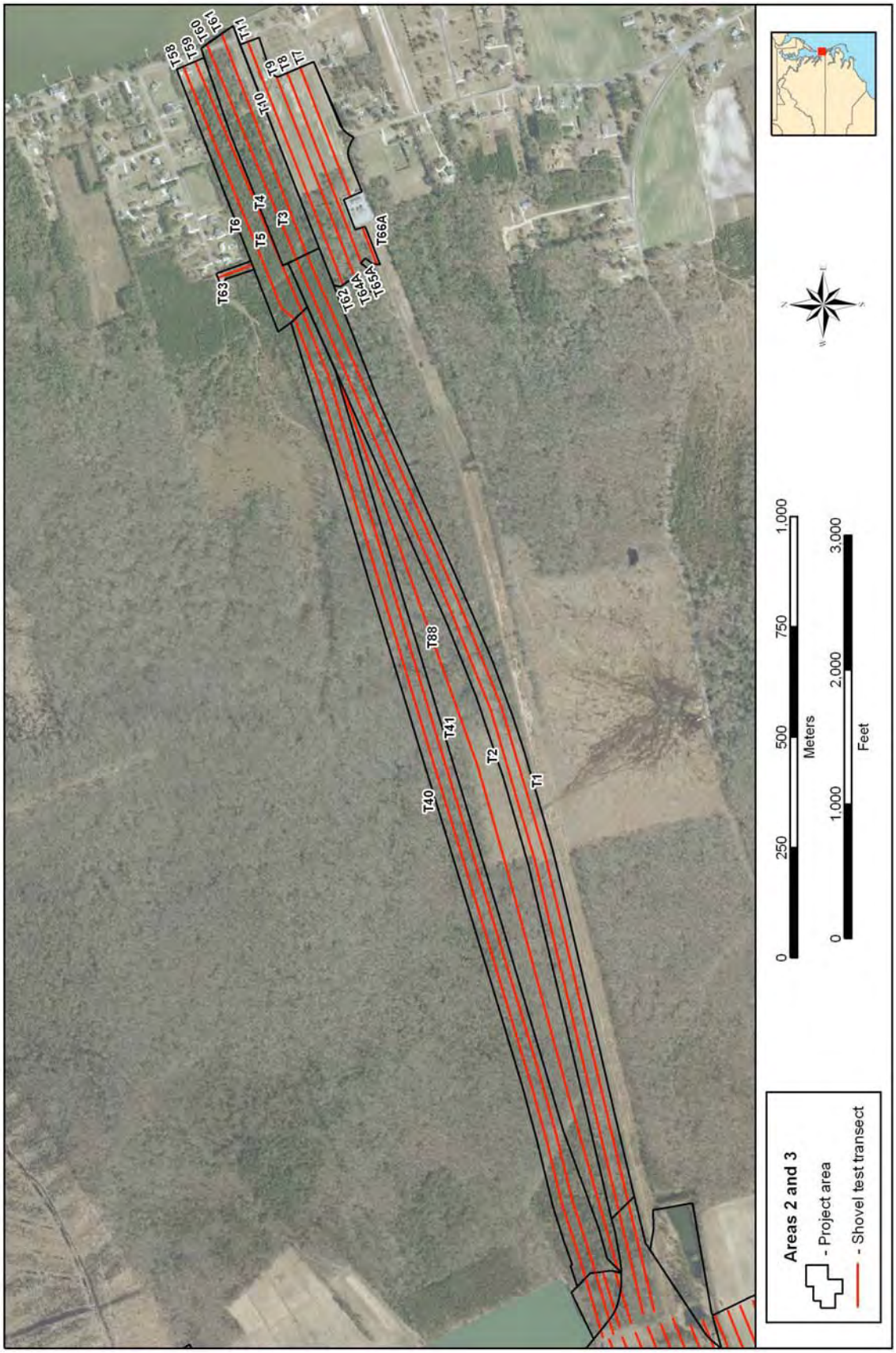

Figure 4.7. Map showing the location of shovel test transects within Areas 2 and 3.

Figure 4.8. Photograph showing Maple Swamp within Area 2, facing northeast.

Figure 4.9. Photograph showing Transect 59 within Area 3, facing west.

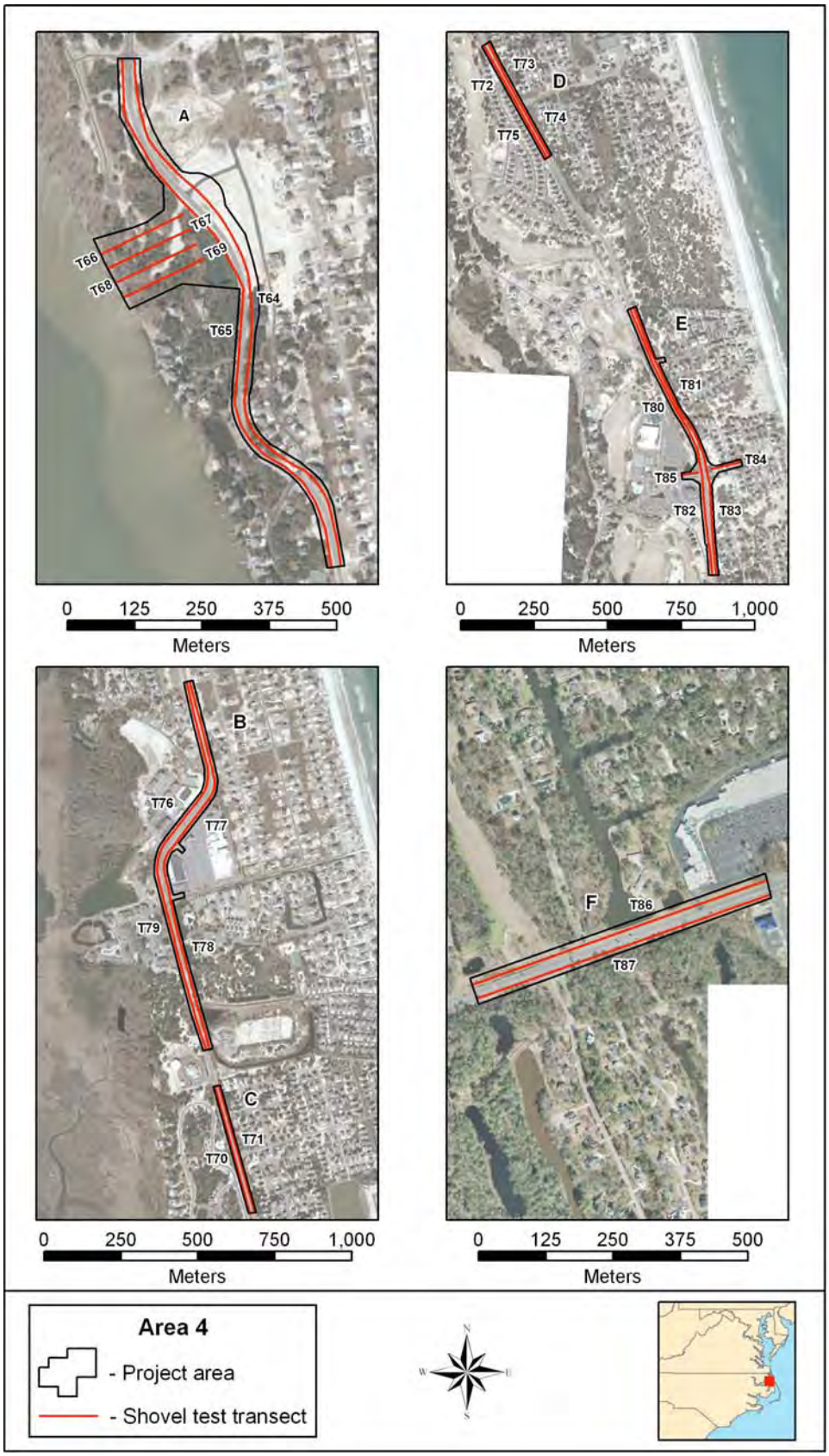

Figure 4.10. Map showing the location of shovel test transects within Area 4.

Figure 4.11. Photograph showing residences on NC 12 within Area 4A, facing north.

Figure 4.12. Photograph showing businesses on NC 12 within Area 4B, facing southwest.

Figure 4.13. Photograph showing vegetation on NC 12 within Area 4C, facing north.

Figure 4.14. Photograph showing residences on NC 12 within Area 4D, facing south.

Figure 4.15. Photograph showing development on NC 12 within Area 4E, facing south.

Figure 4.16. Photograph showing wetland south of U.S. 158 within Area 4F, facing south.

Figure 4.17. Photograph showing development on U.S. 158 within Area 4F, facing west.

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V. SUBMERGED CULTURAL RESOURCES INVESTIGATION METHODS

PROJECT AREA ENVIRONMENT

Figures 5.1 through 5.4 convey the environment and illustrates the working conditions of the survey area. Figures 5.1 through 5.3 illustrate that the western terminus of the bridge corridor ends predominantly at an eroding steep bluff adjacent and parallel to Narrow Shore Road (SR 1137). The southern edge of the ROW at this location is opposite a timber seawall that fronts the bluff at this location; the bluff here a well-manicured lawn. The northern edge of the ROW, highly eroded and nearly vertical, is adjacent to where the erosion is capped by limestone riprap.

The eastern end of both the bridge and survey corridor, as shown in Figures 5.4 and 5.5, end in a natural, forested shore. Damage to the trees in the form of blow-downs by Hurricane Irene indicate the shore was eroded during this storm.

Depths over the sound varied but generally ranged between 5 ft. to 10 ft. with the deepest depths recorded near the western shore and the shallowest near the eastern shoreline. Numerous crab trap buoys and their buoy lines had to be avoided during the survey so as not to foul the survey vessel's propeller or damage or displace the crab trap. High winds caused the survey to be postponed for a day because of high waves mainly on the eastern side of the sound.

Figure 5.1. Looking northwest at the western terminus of the remote sensing survey area. Left of photograph along the seawall is the southern edge of the ROW. Northern edge of the ROW begins near riprap.

PERSONNEL

All of the personnel involved with this remote sensing survey had more than requisite experience to effectively and safely complete the project as contracted. Mr. Stephen R. James, Jr., served as Principal Investigator and helped to analyze data; Dr. Michael Faught served as Remote Sensing Specialist; and Mr. James Duff served as both the Remote Sensing Technician and the boat captain. Mr. Andy Lydecker, marine archaeologist and GIS specialist, analyzed the data and produced the survey maps.

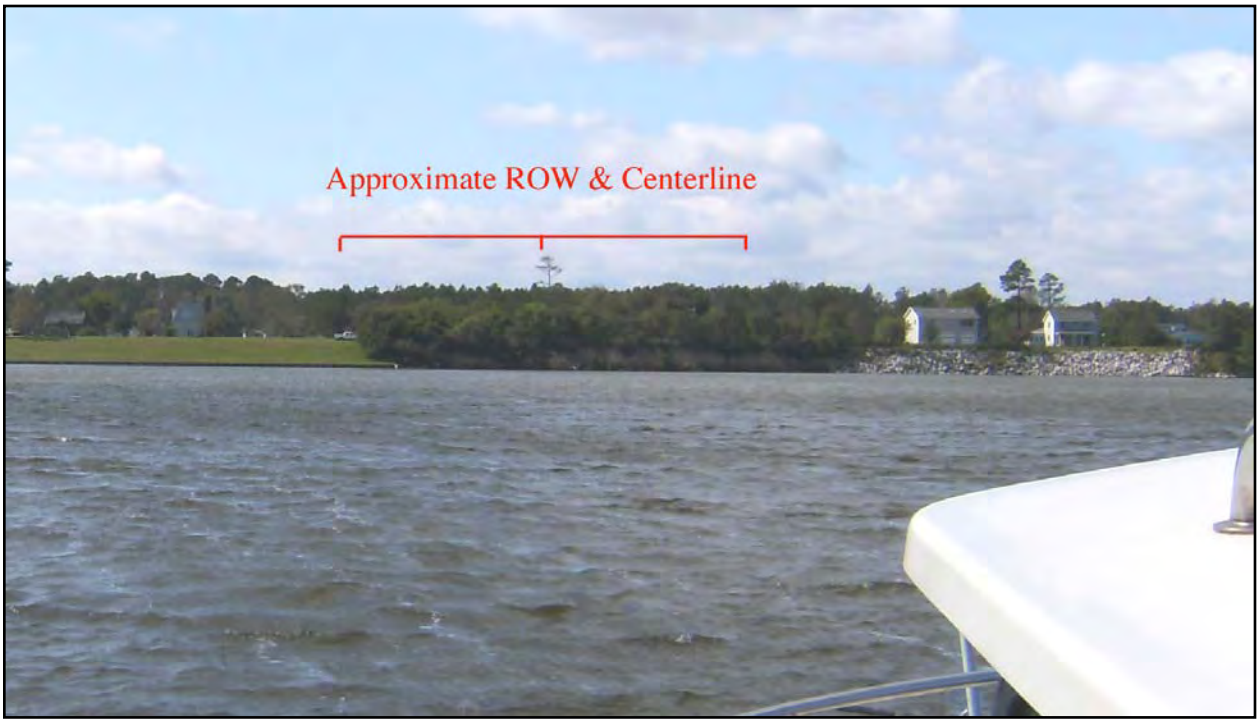

Figure 5.2. Photograph of the western terminus of the remote sensing survey area showing general location of the ROW for the bridge corridor.

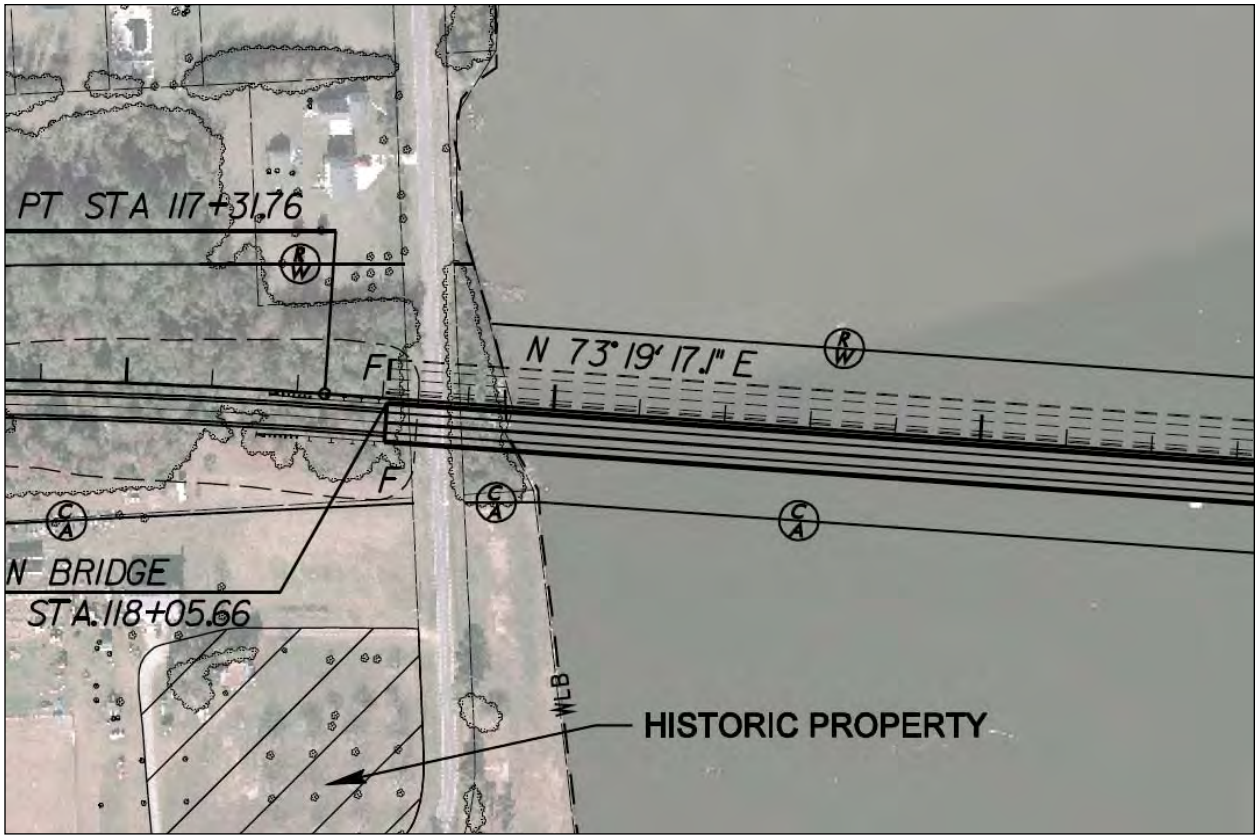

Figure 5.3. Engineering Plan excerpt of the western terminus of the bridge corridor showing location of the ROW and centerline for the bridge corridor (courtesy of Parsons Brinkerhoff).

Figure 5.4. Photograph of the eastern terminus of the remote sensing survey area showing general location of the ROW for the bridge corridor. Note recent blow downs of large trees at left from Hurricane Irene.

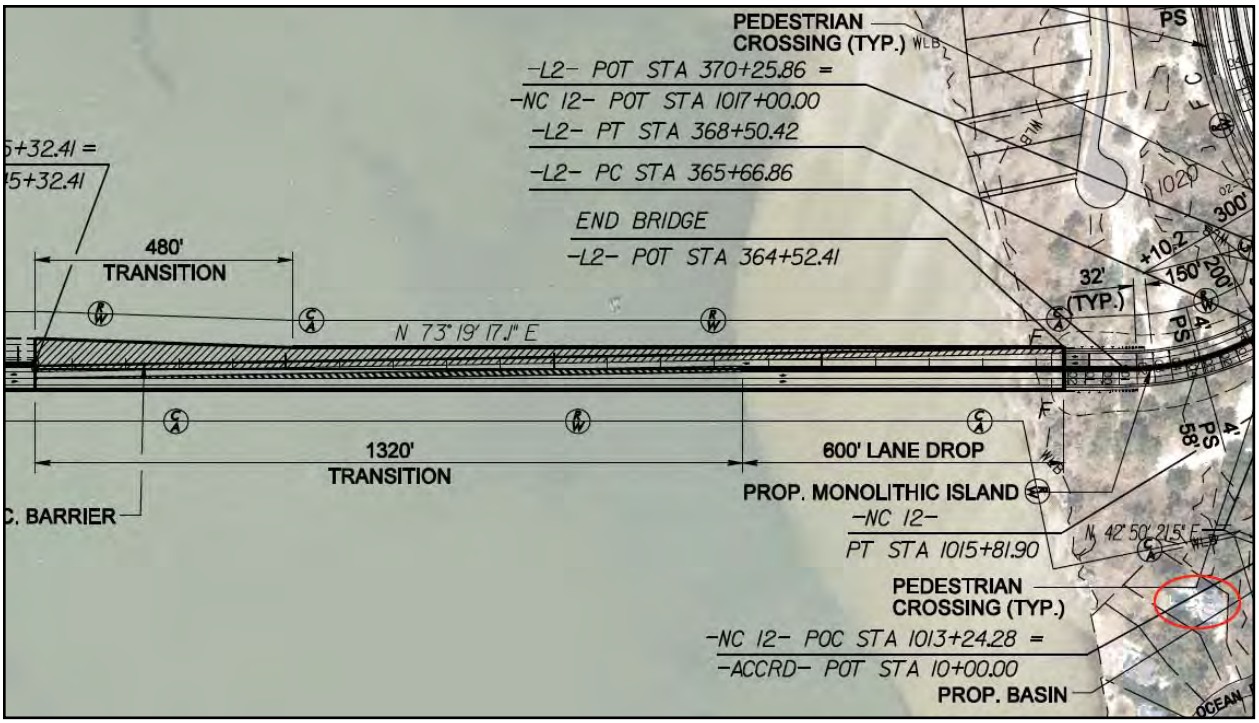

Figure 5.5. Engineering Plan excerpt of the eastern terminus of the bridge corridor showing location of the ROW and centerline for the bridge corridor. Note house circled in red is same as that seen above at right (courtesy of Parsons Brinkerhoff).

REMOTE SENSING SURVEY EQUIPMENT AND METHODS

The remote sensing tools chosen for this investigation were the magnetometer (to detect ferrous materials), and sidescan sonar (to create images of the bottom). Locational control was conducted with DGPS technology. Analyses of this data was conducted with HYPACK[â] and SonarWiz.MAP. Each of these is described in detail below.

DIFFERENTIAL GLOBAL POSITIONING SYSTEM

The primary consideration in the search for any submerged item is positioning. Accurate positioning is essential during the running of survey tracklines, and it is essential in returning to recorded locations for remote sensing refinement or diver investigations. Positioning was accomplished on this project using two Trimble DSM12/212 global-based positioning systems and antennae; one was used for the subbottom, and one split to the navigation/mag computer and to the sidescan (Figure 5.6).

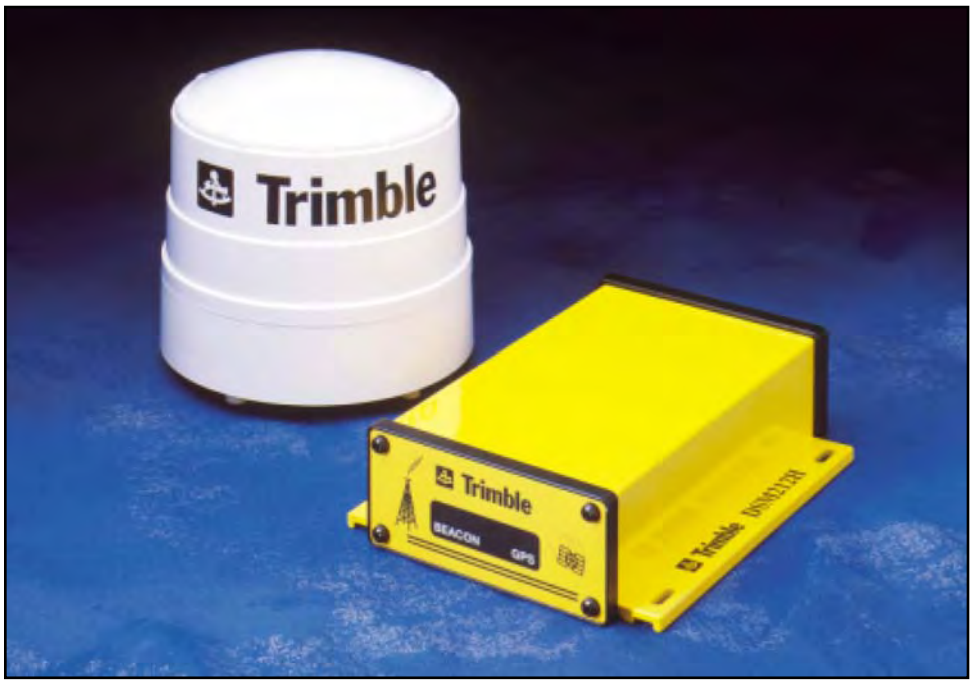

Figure 5.6. Trimble Navigation DSM 12/212 global-based positioning system used during the investigation.

The DSM12/212 global positioning system attains sub-meter precision with a dual-channel MSK differential beacon receiver. This electronic device combines data from satellites and shore-based differential beacon stations, which increase the precision of the satellite data alone. DGPS positions were updated at 1-second intervals, the same rate as the magnetic data was recorded (Trimble Navigation Limited 1998:1-2).

The project was planned in the North Carolina State Plane East, survey feet, NAD83, and all sidescan, subbottom, and magnetometer target data has been converted to grid. The DGPS data streams are in geographic format, NAD83 (i.e., latitude, longitude). The raw data from the sidescan and subbottom devices are archived in this format, the magnetic data is in state plane.

Navigation was conducted with a Sony VAIO® computer, using the 2011 version of the Hypack Max® for navigation, which was written and developed by Coastal Oceanographics, Inc.

specifically for marine survey applications. The magnetometer data was acquired with this program as well.

All positioning coordinates are based on the position of either of the two DGPS antennae. Layback for each of the remote sensing devices was noted and used in the target location determination (Figure 5.7). This layback information is critical for accurate positioning of targets in the data analysis phase and to relocate any targets for additional investigations.

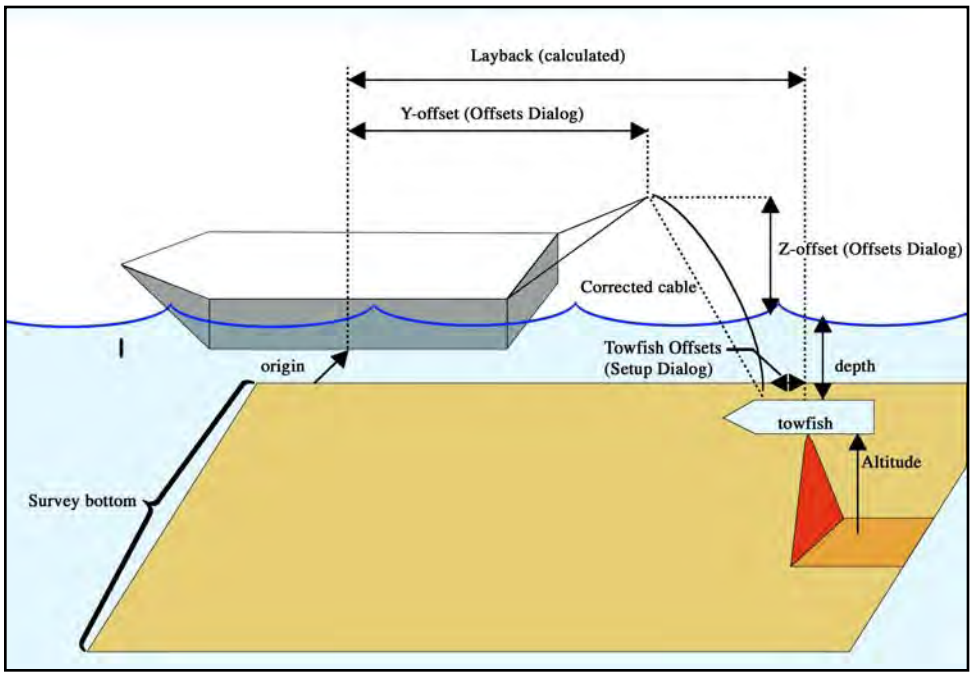

Figure 5.7. Equipment schematic illustrating layback (courtesy of Coastal Oceanographics, Inc.).

MAGNETOMETER

Magnetometers measure the intensity of magnetic forces with a sensor that measures and records the ambient (background) magnetic strength and if present, deviations from the ambient background (anomalies) caused by magnetic fields of ferrous objects and other sources such as high voltage cables (Breiner 1973). These measurements are recorded in gammas, the standard unit of magnetic intensity.

The success of the magnetometer to detect anomalies in local magnetic fields has resulted in the instrument being a principal remote sensing tool of maritime archaeologists because anomalies can represent components of shipwrecks and other historic debris or objects hazardous to dredging or navigation. While it is not possible to identify specific ferrous objects from the magnetic field contours, it is occasionally possible to approximate shape, mass, and alignment characteristics of wrecks or other structures based on complex magnetic field patterns (see Tables 8.1 and 8.2 in Chapter 8 for examples). In addition, other data (historic accounts, use patterns of the area, diver inspection), which overlap data from other remote sensing technologies, such as the sidescan sonar and prior knowledge of similar targets, can lead to an accurate identification of potential targets.

There are three types of commercially available marine magnetometers: proton precession; cesium; and Overhauser. Over the course of the project PCI employed two types of these, a

Marine Magnetics SeaSPY® Overhauser magnetometer and a Geometrics® 822 cesium magnetometer (Figure 5.8).

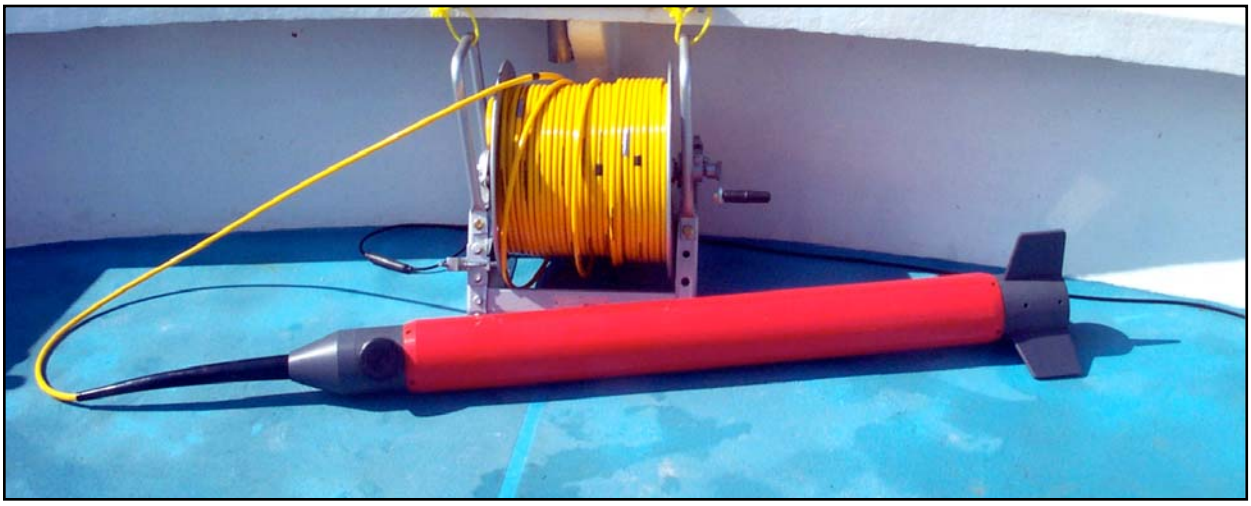

Figure 5.8. Marine Magnetics *SeaSPY*® Overhauser magnetometer used during the survey.

Because of the shallow project area depths, the magnetometer towfish was activated with a float to allow it to be towed at approximately 1 ft. in the water column. With the shallow area depths, the towfish was generally between 6 to 10 ft. off the bottom depending on area of survey (Figure 5.9). Data was stored in the navigation computer and archived. Both instruments are capable of sub-second recordation for precise location control, but data was collected at 1-second intervals, providing a record of both the ambient field as well as the character and amplitude of the anomalies encountered. All survey electronics were powered by a 110-volt gasoline powered generator.

SIDESCAN SONAR

The remote sensing instrument used to search for physical features on or above the ocean floor was a Marine Sonic Technology® (MST) Sea Scan sidescan sonar system (Figure 5.10). The sidescan sonar is an instrument that, through the transmission of dual fan-shaped pulses of sound and reception of reflected sound pulses, produces an acoustic image of the bottom. Under ideal circumstances, the sidescan sonar is capable of providing a near-photographic representation of the bottom on either side of the trackline of a survey vessel.

The Sea Scan PC has internal capability for removal of the water column from the instrument's video printout, as well as correction for slant range distortion. This sidescan sonar was utilized with the navigation system to provide manual positioning of fix or target points on the digital printout. Sidescan sonar data are useful in searching for the physical features indicative of submerged cultural resources. Specifically, the record is examined for features showing characteristics such as height above bottom, linearity, and structural form. Additionally, potential acoustic targets are checked for any locational match with the data derived from the magnetometer and the subbottom profiler.

Figure 5.9. Floating of the magnetometer sensor during survey. Several unplanned lines were run parallel to the shore so as to survey as close to the shore as possible. Looking northwest at the western terminus of the bridge corridor.

Figure 5.10. Marine Sonic Technology® Sea Scan sidescan sonar system.

The MST® Sea Scan PC sidescan sonar was linked to a towfish that employed a 600 kilohertz power setting and a variable side range of 20 meters-per-channel (131 ft.) on each of the survey lines. The 20-meters-per-channel setting was chosen to provide detail and 100% overlapping coverage with the 50-ft. line spacing to insure full coverage of the survey area. The power setting was selected in order to provide maximum possible detail on the record generated; 600 kilohertz was the preferred frequency.

SURVEY VESSEL

The vessel employed during the remote sensing survey was a 25-ft. Parker, a modified V-hulled motor vessel powered by a 200 hp Yamaha 4-stroke engine. The vessel has a covered cabin and ample deck area for the placement and operation of the necessary remote sensing and diving equipment. The vessel conforms to all U.S. Coast Guard specifications, according to class, and it has a full compliment of safety equipment. The Parker carried appropriate emergency supplies, including: lifejackets, a spare parts kit, a tool kit, first-aid supplies, a flare gun, air horns, and paddles (Figure 5.11). The trailered survey vessel was launched and recovered each day of survey at the Poplar Branch boat ramp.

Figure 5.11. PCI's 25-ft. Parker employed for the remote sensing survey investigation.

SURVEY PROCEDURES

Spaced at 50-ft. intervals and aligned on and parallel to ROW centerline as seen in Figures 5.3 and 5.5 above, 7 survey lines encompassing a 300-ft. wide swath were conducted over the corridor ROW. This included the centerline and 3 parallel offsets to either side (Figure 5.12). An additional 9 lines, 2,000 ft. in length each and spaced at 50-foot intervals, were run north and south of the ROW on the western end to ensure coverage of potential staging areas. The magnetometer, sidescan, and DGPS were mobilized and tested, and the trackline running began. The helmsman viewed a video monitor, linked to the DGPS and navigational computer, to aid in directing the course of the vessel down the survey tracklines. The monitor displayed the pre-plotted trackline, the real time position of the survey vessel, and the path of the survey vessel. The speed of the survey vessel was maintained at approximately three to four knots for the uniform acquisition of data. As the survey vessel maneuvered down each trackline, the navigation system monitored the position of the survey vessel relative to the tracklines every second, each of which was recorded by the computer. Event marks delineated the start and end of each trackline. The positioning points along the traveled line were recorded on the computer hard drive and the magnetic data was also stored digitally (Figure 5.13).

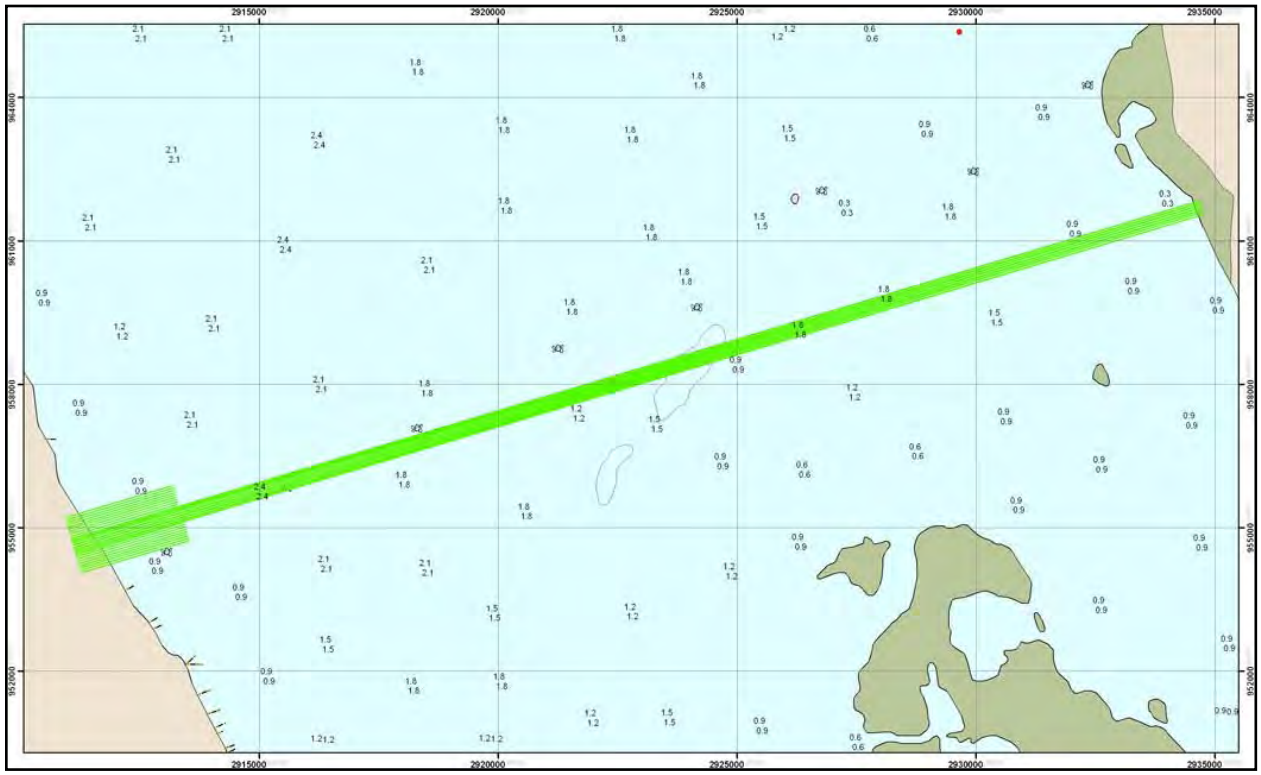

Figure 5.12. Planned magnetometer and sidescan sonar survey lines.

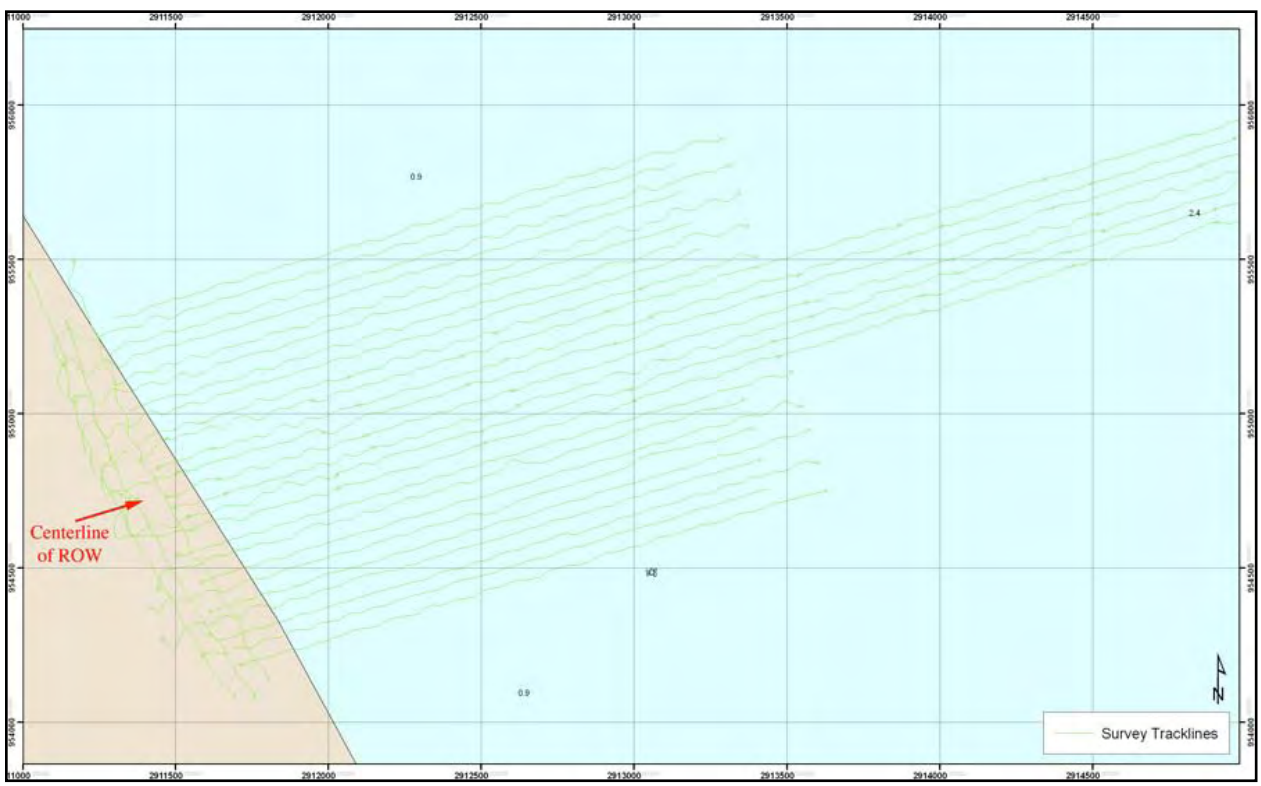

Figure 5.13. Actual track of survey lines that were run on the west end of the corridor. Grid squares are 500 feet.

DATA ANALYSIS

DATA PROCESSING

Once collected, survey data was processed and analyzed using an array of software packages designed to display, edit, manipulate, map, and compare proximities of raster, vector, and tabular data. These packages include SonarWiz.MAP for mosaicing sidescan sonar and subbottom profiler data, mapping target extents and generating target reports, figure details, and GIS layers; Hypack® Single Beam Editor, Hypack® TIN Modeler, and Hypack® Export for tabulating anomaly characteristics and contouring magnetic data, and generating GIS data layers. ESRI ArcMap and ArcView are used to display the data on background charts, to conduct a "proximity analysis" for each of the three types of targets (e.g., see which magnetometer, sidescan, and subbottom profiler anomalies are near each other and may explain each other) and to create maps and figures for this report.

MAGNETIC DATA COLLECTION AND PROCESSING

Data from the magnetometer is collected using Hypack Max®. The data is stored as *.RAW files by line, time, and day. Raw data files are opened, and layback parameters are set. Contour maps are produced of the magnetic data with the TIN Modeler. The DXF file is saved and exported into the combined GIS database. The contour maps allow a graphic illustration of anomaly locations, spatial extent, and association with other anomalies. Magnetic data is reviewed by the Hypack® Single Beam Editor (Figure 5.14), and the location, strength, duration, and type of anomaly is transcribed to a spreadsheet along with comments.

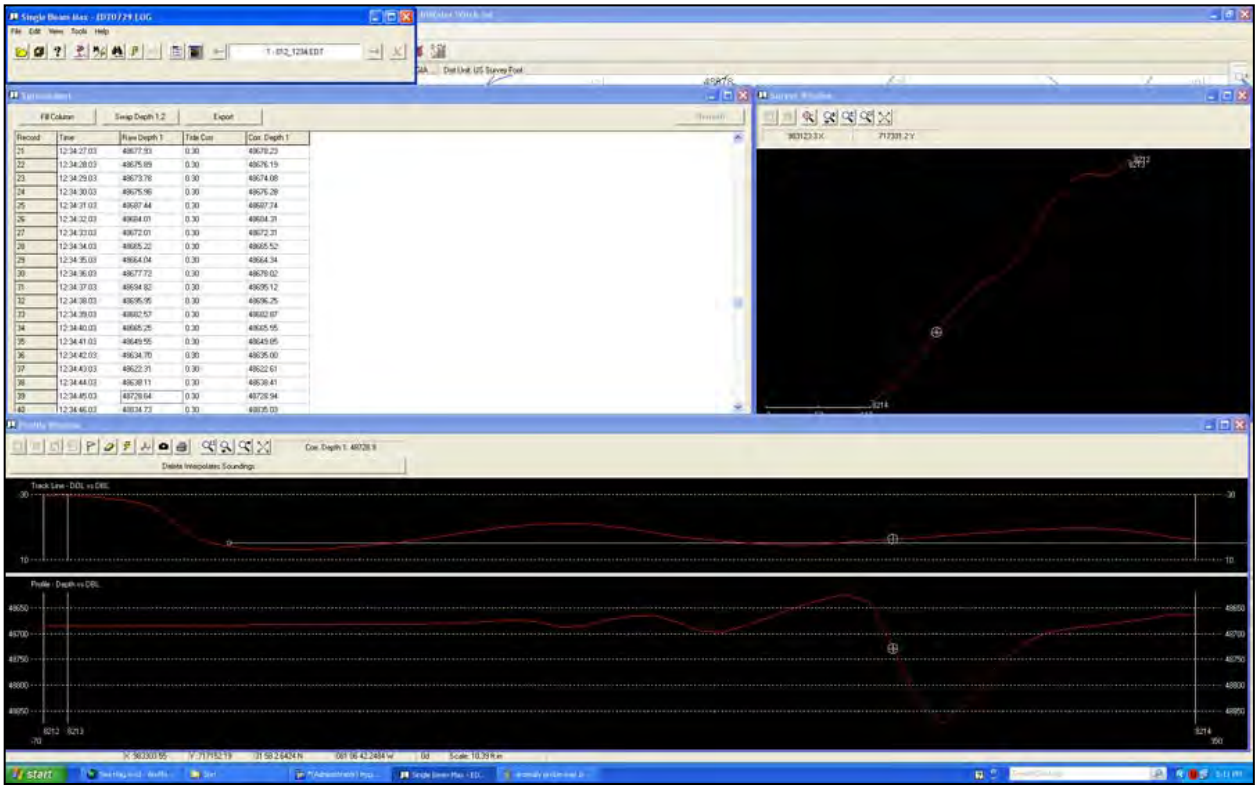

Figure 5.14. Hypack® Single Beam Editor magnetic data display of a section of a survey line. Using these windows one can analyze and tabulate anomaly position, strength, duration, and type. The peaks of these variations are the locations of anomaly coordinates (cross in circle); their width is the duration.

SIDESCAN SONAR DATA COLLECTION AND PROCESSING

Post processing of sidescan sonar is accomplished using SonarWiz.MAP, a product that enables the user to view the sidescan data in digitizer waterfall format, pick targets and enter target parameters including length, width, height, material, and other characterizations into a database of contacts. In addition, SonarWiz.MAP "mosaics" the sidescan data by associating each pixel (equivalent to about 10 cm) of the sidescan image with its geographic location determined from the DGPS position (layback rectified) and distance from the DGPS position (Figure 5.15). SonarWiz.MAP is the industry standard for mosaicing capability, and the results are exported as geo-referenced Tiffs for importing to the GIS database of the project.

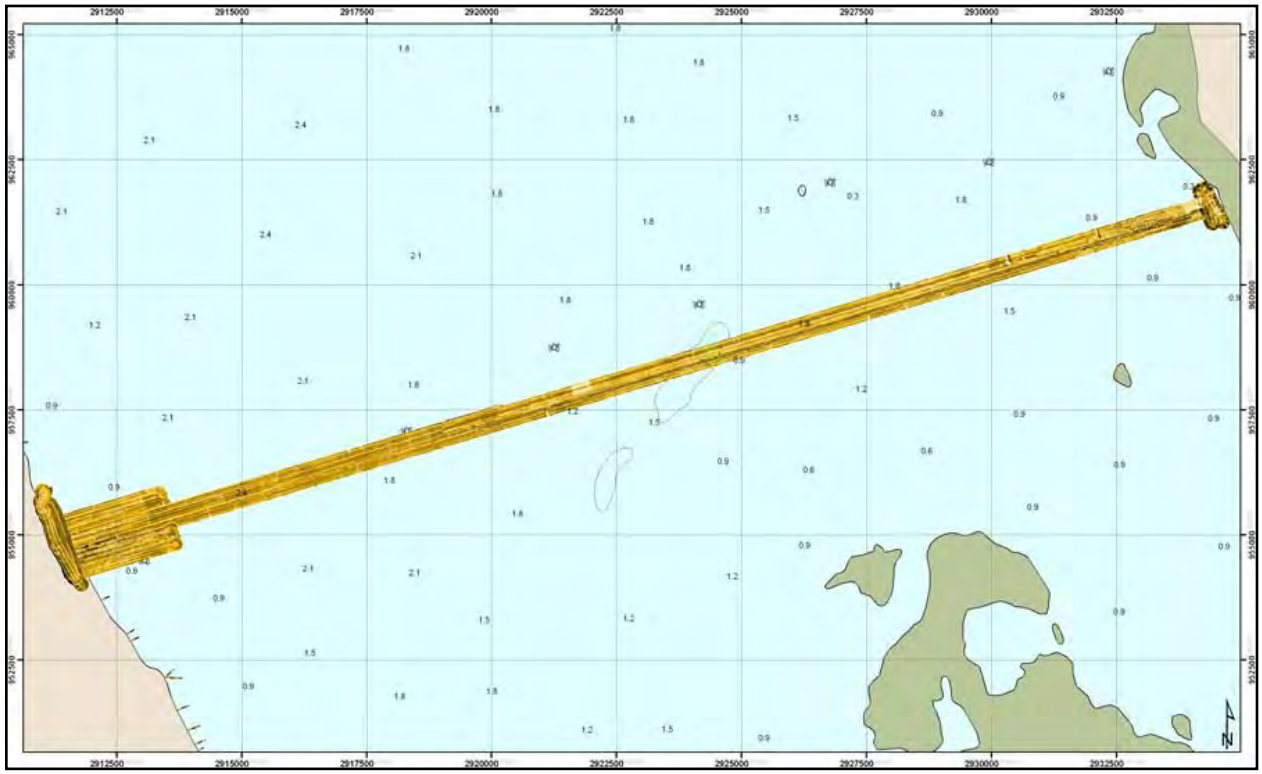

Figure 5.15. Mosaic of survey area generated with SonarWiz.MAP software.

DATA ANALYSIS CRITERIA, THEORY, AND COMMENTARY

The remote sensing survey of the Currituck Sound Bridge Corridor Project area intended to locate and identify the presence or absence of potentially significant submerged cultural resources that if present might be adversely affected by proposed navigation improvement activities. However, the interpretation of remote sensing data obtained from both the magnetometer and sidescan sonar, as stated by Pearson et al. (1991) "relies on a combination of sound scientific knowledge and practical experience." The evaluation of remote sensing anomalies, with regard to a determination that the anomaly does or does not represent shipwreck remains, depends on a variety of factors. These include the detected characteristics of the individual anomalies (e.g., magnetic anomaly strength and duration, sidescan image configuration) associated with other sidescan or magnetic targets on the same or adjacent lines and relationships to observable target sources, such as channel buoys or pipeline crossings, etc.

MAGNETOMETER

Interpretation of data collected by the magnetometer, the tool of choice by the underwater archaeologist for locating shipwrecks, is perhaps the most problematic. Magnetic anomalies are evaluated and prioritized based on magnetic amplitude or deflection of gamma intensity from the ambient background in concert with duration or spatial extent (distance in feet along a trackline of an anomaly influences the ambient background); they are also correlated with sidescan targets. Because the sonar record gives a visible indication of the target, identification or evaluation of potential significance is based on visible target shape, size, and presence of structure, as well as association with magnetic anomalies. Targets, such as isolated sections of pipe, can normally be immediately discarded as non-significant, while large areas of above-sediment wreckage are generally easy to identify.

The problems of differentiating between modern debris and shipwrecks, based on remote sensing data, have been discussed by several authors. This difficulty is particularly true in the case of magnetic data; therefore, it has received the most attention in the current body of literature dealing with the subject. Pearson and Saltus (1990:32) state "even though a considerable body of magnetic signature data for shipwrecks is now available, it is impossible to positively associate any specific signature with a shipwreck or any other feature." There is no doubt that the only positive way to verify a magnetic source object is through physical examination. With that said, however, the size and complexity of a magnetic signature does provide a usable key for distinguishing between modern debris and shipwreck remains (see also Garrison et al. 1989; Irion and Bond 1984; Pearson et al. 1993). Specifically, the magnetic signatures of most shipwrecks tend to be large in area and tend to display multiple magnetic peaks of differing amplitude.

In a study conducted for the Minerals Management Service for magnetic anomalies in the northern Gulf of Mexico, Garrison et al. (1989) indicate that a shipwreck signature will cover an area between 10,000 and 50,000 square meters. Using the Garrison et al. (1989) study, as well as years of "practical experience," in an effort to assess potential significance of remote sensing targets, the Pearson et al. (1991) study developed general characteristics of magnetometer signatures most likely to represent shipwrecks. The report states that "the amplitude of magnetic anomalies associated with shipwrecks varies considerably, but, in general, the signature of large watercraft or portions of watercraft, range from moderate to high intensity (> 50 gammas) when the sensor is at distances of 20 feet or so" (Pearson et al. 1991:70). Employing a table of magnetic data from various sources as baseline data, the report goes on to state that "data suggests that at a distance of 20 feet or less, watercraft of moderate size are likely to produce a magnetic anomaly (this would be a complex signature [i.e., a cluster of dipoles and/or monopoles]) greater than 80 or 90 feet across the smallest dimension..." (Pearson et al. 1991:70). While establishing baseline amounts of amplitude and duration reflective of the magnetic characteristics for a shipwreck site, the report "recognizes that a considerable amount of variability does occur" (Pearson et al. 1991:70).

In addition to anomaly strength and duration considerations, all anomalies were assessed for type (monopole [negative or positive influence], dipole [negative and positive influence], or complex) and association with other magnetic anomalies (i.e., clustering) and sidescan sonar targets. With regard to analysis of these anomalies, relative to potential significance, many will be found to represent a small, single source object (a localized deviation), and are generally identified and labeled as non-significant, especially in an area of high use (however, this is not generally the case with the current environment). As seen on contour maps, the contour lines for this type of anomaly can be seen to approach, or go to but not beyond, the adjacent survey trackline on which it is located. This visual interpretation is corroborated during the analysis of the electronic magnetometer strip-chart data of each survey trackline. An examination of the strip-chart will show that the target was recorded only on a single transect, and that it was not recorded (i.e., did

not influence the ambient magnetic background) on adjacent lines. This is especially true when an anomaly's readings are large deviations but are recorded on only one line. This indicates the source for this target must be a small, discrete object, and the magnetometer sensor must have passed closely by or directly over the object in order to generate the large readings on this survey line, yet not be recorded or have had an influence on adjacent lines. Because these anomalies represent single source objects, they are not considered representative of a potentially significant submerged cultural resource and are not recommended for avoidance.

It cannot be understated that the majority of anomalies recorded during any survey are generated by debris and not shipwrecks. As stated by Gearhart (2011:91-92), "archaeologists have repeatedly struggled to characterize reliable differences between magnetic signatures of shipwrecks and debris," employing amplitude, duration (i.e., spatial extent), and complexity of the signature as vague defining criteria, along with judgmental experience, and further states that "present methods for marine magnetic data interpretation are uncertain at best and scientifically unfounded at worst." However, and as will be discussed, the employment of induced magnetism identified over twenty years ago as a potential defining characteristic of an anomaly, can eliminate many anomalies from consideration as shipwrecks.

In Garrison et al.'s 1989 study to establish an interpretive framework that would help identify the nature of magnetic anomalies, it was predicted correctly that anomalies caused by debris might be differentiated from shipwreck anomalies based on the contrast between permanent and induced magnetism. The study states:

> "While it may not be analytically possible to contrast iron and steel by remnant magnetization one may be able to characterize anomalies as to their inductive magnetization…The argument here would rely on the structural complexity of a shipwreck having a large or detectable inductive magnetization. Anomalies without this component could be classified as exclusively ferromagnetic features and by local extension debris" [Garrison et al. 1989:2:224].

In his article entitled *Archaeological Interpretation of Marine Magnetic Data*, Gearhart (2011) expands on Garrison et al.'s 1998 premise and convincingly shows that while "one cannot distinguish between the anomaly produced by a shipwreck and one produced by a similarly complex concentration of magnetic debris…shipwreck anomalies can be characterized by their induced magnetic fields and are distinguishable from a significant proportion of simple-source anomalies." He goes on to state, "the most important parameter to consider when interpreting anomalies based on magnetic induction is the direction of magnetic moment" (Gearhart 2011:106) and "deviation from the northerly magnetic moment direction, common to all induced anomalies, has proven to be the single most powerful discriminator between simple-source anomalies and complex-source anomalies, including shipwrecks" (Gearhart 2011:102).

In simplistic terms, the contour map of the magnetic moment of an induced anomaly will have its negative value to the north and its positive value to the south. Gearhart presents contours of numerous known wreck and debris anomalies and illustrates that magnetic moments of shipwrecks (in the earth's northern hemisphere) are oriented to the north (no more than a 26-degree deviation), as are those of complex debris sites (i.e., large areas of wire rope), while those of simple-source debris anomalies are not. He concludes by suggesting ± 20 degrees from magnetic north as an orientation that will allow the successful differentiation of simple-source debris anomalies from most complex-source anomalies and virtually all shipwrecks (Gearhart 2011). In testing this predicted characteristic, we reviewed data from several past surveys and anomaly and wreck investigations (Krivor 2005; Lydecker 2007, James et al. 2002). While not an exhaustive review, we found these same principles apply with no deviation from Gearhart's findings and leads us to also conclude that identifying and categorizing the magnetic moment of an induced anomaly does allow the researcher the ability to differentiate a large percentage of debris source anomalies from potentially significant resources during analysis.

SIDESCAN SONAR

In contrast to magnetic data, sidescan interpretation is less problematic, as objects are reconstructed as they look to the eye. Targets, such as isolated sections of pipe, can normally be immediately discarded as non-significant, while large areas of above-sediment wreckage as well as geologic features (i.e., rock outcrops) are generally apparent. The chief factors considered in analyzing sidescan data, with regard to wreckage, include: linearity, height off bottom, size, associated magnetics, and environmental context. Since historic resources in the form of shipwrecks usually contain large amounts of ferrous compounds, complex sidescan targets with complex magnetic anomalies are of the greatest importance. The usual outcome of targets with no associated magnetics are items, such as rocks, trees, and other non-historic debris of limited interest to the archaeologist. With that said, it is possible that prehistoric canoes could be located with the instrument if they were present and exposed above bottom sediments.

CLUSTERING

Since an archaeological remote sensing survey involves the collection of several different types of data, each of which has the potential to locate significant cultural resources, attention must be given to groups of targets. These groups, referred to as clusters, occur when a target exists that produces both a sidescan sonar return and a magnetic signature. Also, a magnetic source that extends across several survey lines will produce an anomaly on each line, and since these anomalies are related, they will form a cluster. Previously discovered archaeological sites will also be considered as part of a cluster. Although criteria used to determine a cluster is somewhat subjective, anomalies, sidescan targets, and previously identified archaeological sites will generally be included in a cluster if they lie within 65 ft. of one another.

UNDERWATER ARCHAEOLOGICAL TESTING METHODS

Conducted between September 2 and September 9, 2012, archaeological investigation of the anomalies entailed a remote sensing refinement of the selected targets and subsequent archaeological diver investigation to identity and assess the target sources. The project took place during a period when air temperatures ranged from the upper 70s to the mid-80s. Weather conditions throughout the week were found to be mostly favorable for survey and dive operations and while the majority of the project was located within the sound and in navigational waters, very little vessel traffic was encountered. Water depths relative to diving and shallow water hydroprobing ranged from 4 to 8 ft. within the entire proposed area.

Project personnel included Michael C. Murray, Dr. Michael Faught, Mr. James Duff, and Mr. Matt Gifford. Mr. Murray served as the Field Director and Dr. Michael Faught served as the Remote Sensing Specialist. The primary archaeological divers were Mr. James Duff and Mr. Michael C. Murray. All remote sensing refinement and diving was conducted from Panamerican's 25-ft. Parker described above.

REMOTE SENSING REFINEMENT SURVEY PROCEDURES

Prior to diving investigations, geophysical remote sensing refinement surveys were conducted at each of the targets. Spaced at 25-ft. intervals and centered on the target coordinates, pre-plotted survey lines were conducted to effectively cover the area surrounding each target (Figure 5.16). The magnetometer, or sidescan sonar, and DGPS were mobilized and tested, and the trackline running began. The helmsman viewed a video monitor linked to the DGPS and navigational computer to aid in directing the course of the vessel along survey tracklines over and parallel to each target. The speed of the survey vessel was maintained at approximately 3 to 4 knots for the uniform acquisition of data. As the survey vessel maneuvered down each trackline, the navigation system monitored the position of the survey vessel relative to the tracklines every second, each of which was recorded by the computer. Event marks delineated the start and end

of each trackline. The positioning points along the traveled line were recorded on the computer hard drive, and the magnetic and subbottom data were also stored digitally.

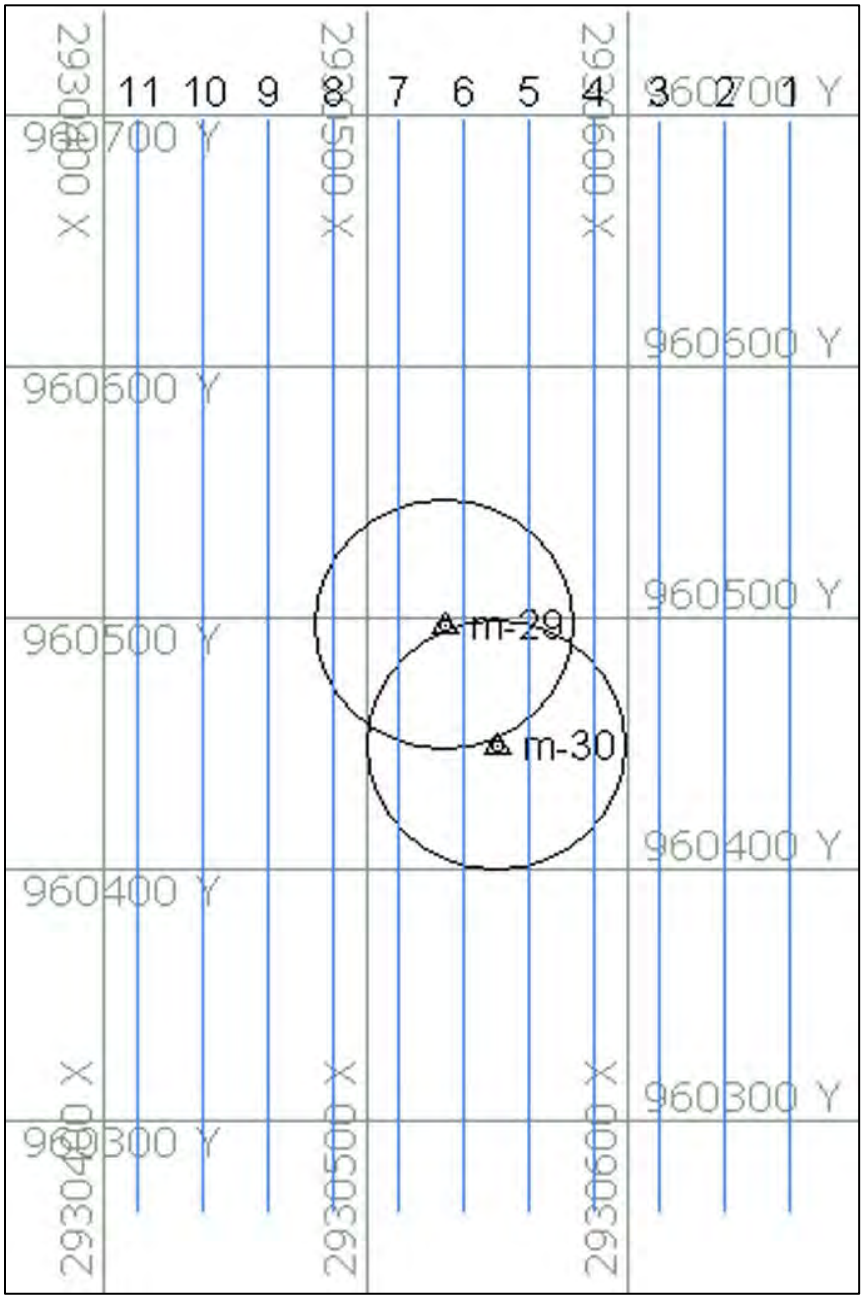

Figure 5.16. Refinement survey transects spaced at 25-ft. intervals were conducted at each target to refine the source(s) location. Illustrated are planned lines at Cluster/Group 5 which consisted of Anomalies M-29, M-30, and M-25.

Once the refinement survey was completed, refinement magnetic contour maps were produced of each of the magnetic targets. Based on proven principles of magnetism, the source material for a dipole anomaly is located directly between the positive and negative fields (Figure 5.17). Buoys were placed at this refined source material location between the positive and negative contours for each anomaly as illustrated in Figure 5.18.

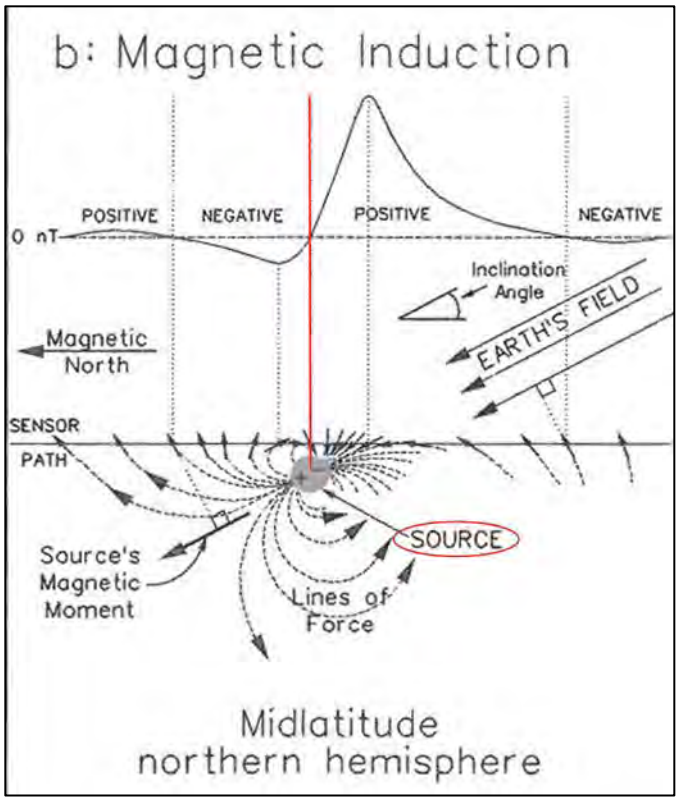

Figure 5.17. Location of source material between positive and negative magnetic readings of a dipole (as presented in Gearhart 2011:94).

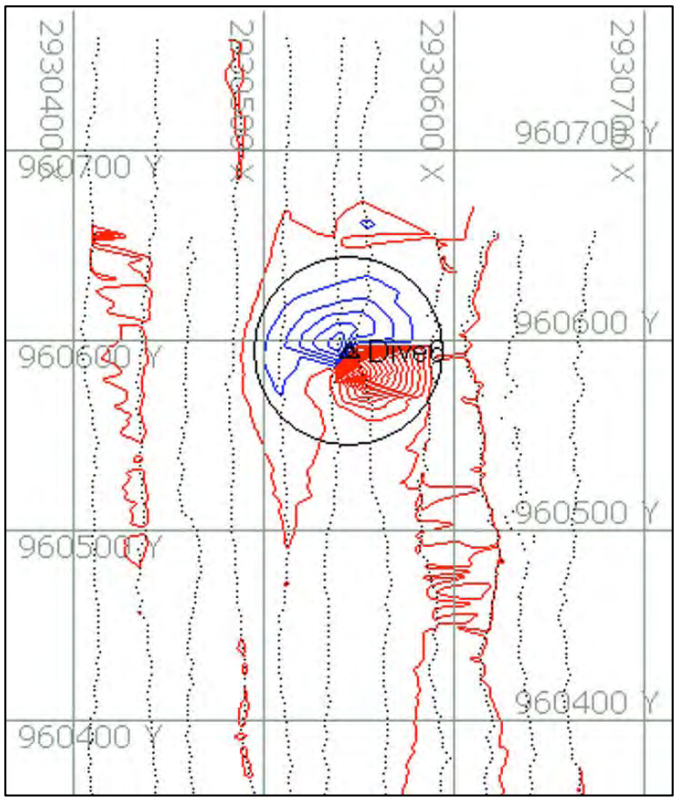

Figure 5.18. Buoy location for source location of Cluster/Group 5 Anomalies M-29 and M-30.

ARCHAEOLOGICAL DIVER INVESTIGATION PROCEDURES

The second phase of the anomaly identification and assessment included an on-site diver investigation of the targets. Surface Supplied Air (SSA) was chosen as the most efficient and safe method of conducting investigations within the project area. Divers employed a Kirby-Morgan Superlite-17 dive helmet connected to a surface-supplied air source, radio communications cable, safety tether, and pneumo hose (Figure 5.19). On the surface various individuals and pieces of equipment ensured safe diving operations. A dive tender was required to aid the diver in donning and doffing equipment and to tend the diver while submerged and moving about the sea floor. The radio communications operator kept in constant contact with the diver and relayed messages between the diver and the surface support team. A standby diver was required on site in the event of an emergency situation that would require aid to the primary diver. Finally, a dive supervisor was present on site at all times to coordinate the activity of the diver and surface support team to achieve the project goals.

Figure 5.19. Surface Supplied Air-equipped diver (Jim Duff) preparing to enter the water with 10-ft. hydro-probe.

Air for SSA diving was provided by a cascade system of three 80-cubic-foot (cf) SCUBA bottles, opened to supply air one at a time. Pressure gauges and check valves were included in the air supply system. Two levels of redundant backup air supply were used, including an aluminum 80-cf SCUBA cylinder linked to the SSA cascade system and a 50-cf aluminum SCUBA cylinder worn by the diver and connected to the dive helmet. The dive supervisor acted as timekeeper and radio operator, monitoring the air supply system during each dive to ensure that air pressure was correctly maintained and adequate reserve air was always available (Figure 5.20).

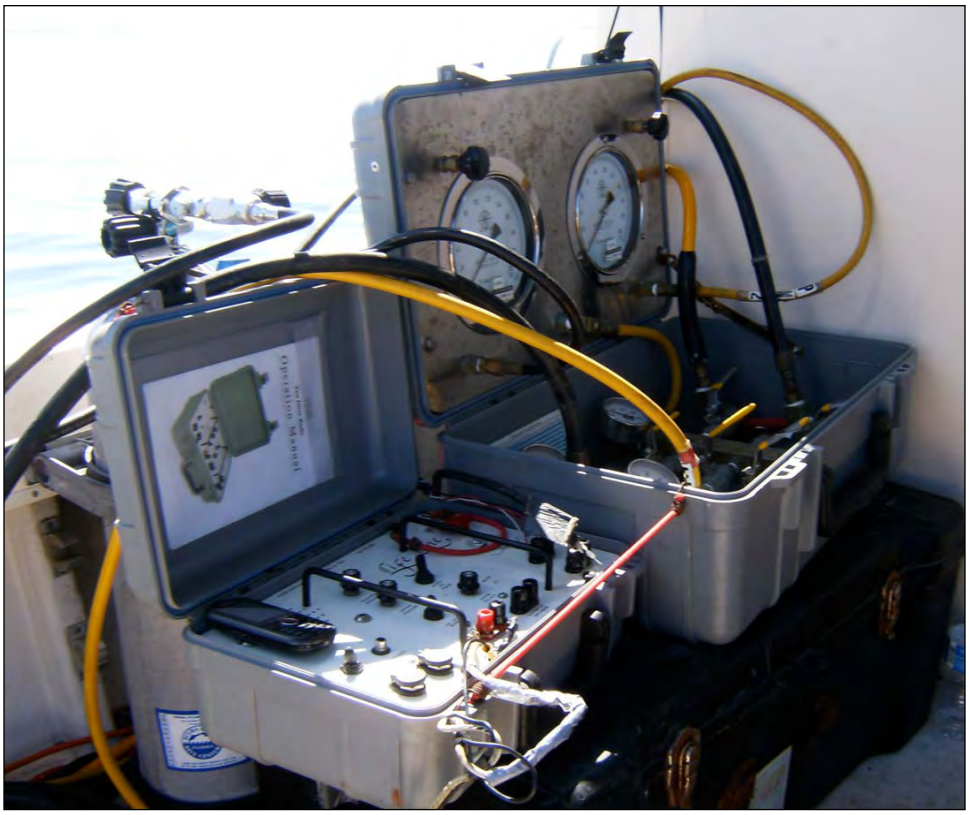

Figure 5.20. Dive station. Diver-to-Surface radio is box in the front, dive manifold with pneumo gauges is to the back right, and cascade system of tanks can be seen behind radio and manifold.

Prior to commencement of diving operations, a Pre-Dive Safety Meeting was held with all members of the dive team and vessel crew. All safety and diving procedures were discussed in detail. Diving commenced upon completion of the meeting.

Based on the refined remote sensing survey data, each target was buoyed at its respective refined coordinate location. Prior to anchoring, the direction of the tidal current and wind direction relative to each target buoy had to be ascertained, so that when anchored, the distance from and the orientation of the survey vessel's stern to the buoy were optimal. The standard operating procedure for the diver was to enter the water and be directed to the buoy location. Employing the buoy as the center point, he then conducted a visual inspection and metal detector survey of the bottom. Performing a series of arcs by pivoting on his umbilical, which was let out in 10-ft. increments from the stern of the vessel, the diver covered an area approximately 100 ft.2 surrounding the buoy (Figure 5.21). If nothing was encountered during the visual (i.e., sidescan sonar contact source) and metal detector sweeps (i.e., anomaly source), then a grid pattern of hydro-probes was conducted. Employing the 10-ft. long hydroprobe, probes were conducted in the four cardinal directions out to a distance of 20 ft. from the refinement buoy (Figure 5.22).

Figure 5.21. Metal detector employed for the initial investigation of the magnetic anomalies.

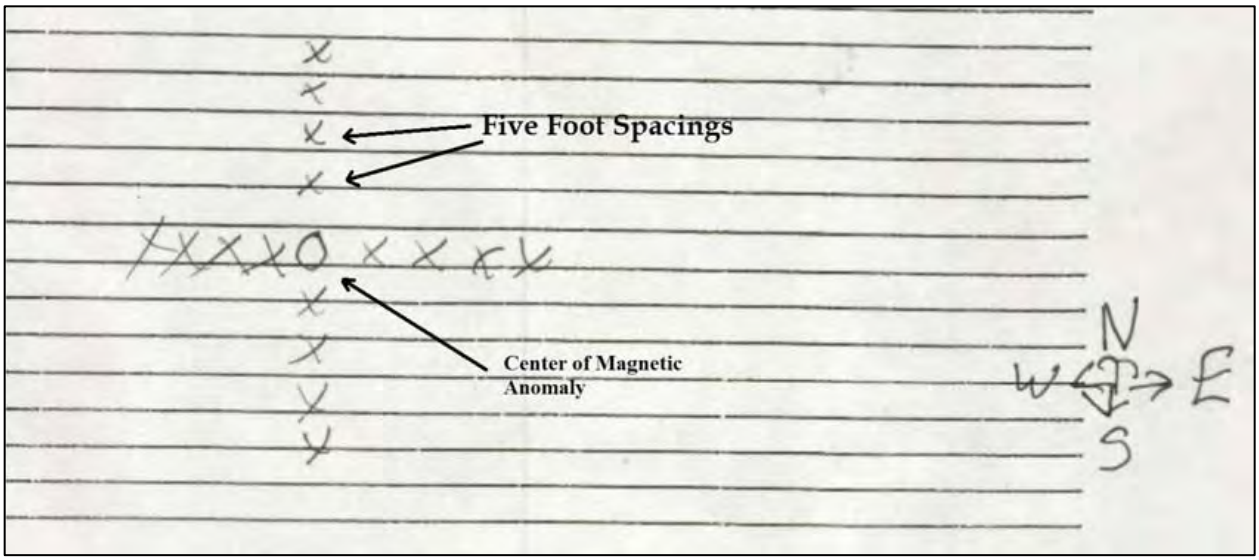

Figure 5.22. Taken from a dive log, shown are probe locations relative to the refinement buoy at one of the magnetic targets.

Probing of anomalies or features is an effective means of determining the spatial extent and burial depth of a given target located beneath the sea floor. The hydro-probe apparatus consists of a water pump, lengths of garden hose, and the probe that is ½-in. galvanized pipe. The hose was connected to the ½-in. diameter steel probe by a cam-lock. The hydro-probe used for this investigation was 10 ft. in length and powered by a 5-hp Honda water pump. The basic function of the hydro-probe is to aid in determining the presence or absence of buried cultural material, and, if present, spatial extent of the material, types of overburden (i.e., sand, mud, shell), the type of cultural material, and depth of overburden. This is accomplished by forcing water through the 10-ft. pipe attached to the water pump's effluent hose. The force of the water ejected from the pipe end effectively allows the probe to be inserted through sediments of varying density (e.g., sands, silts, shell hash) and depth, thereby contacting the feature if present and/or sediment layers (Figure 5.23).

Figure 5.23. Probing was conducted at magnetic targets with a 10-ft.-long hydro-probe. Approximately 9 ft. deep at this target, the T-top of the probe with attached garden hose is visible, as is the diver's umbilical (lower center) which leads to his red dive helmet just visible below the surface adjacent to the probe.

VI. LABORATORY METHODS AND COLLECTION CURATION

PCI conducted the archaeological survey and site evaluation for the proposed Mid-Currituck Bridge Project in Currituck and Dare counties, North Carolina. Materials recovered were transported to the PCI laboratory facilities for cleaning, stabilization, analysis, and preparation for curation. Upon initial receipt of materials and field forms, bag lists were entered into a computer database for use with a labeling program. Materials were cleaned and, if necessary, stabilized before classification and quantification by laboratory analysts. Cultural materials were sorted on the basis of morphologic attributes, raw-material type (i.e., chert, quartz, etc.), measurements, and/or function. The "Classification" section describes various categories used to classify materials and summarizes attributes observed during examinations of selected specimens. The "Curation" section discusses the preparation of cultural and archival material for curation.

PCI cultural material classifications incorporate mutually exclusive categories based primarily on morphologic and metric attributes. Previously defined types are often used to facilitate chronological assessments and intrasite comparisons. The following are category definitions coupled with descriptions of selected specimens recovered during the investigation. Type frequencies are summarized in Appendix B.

CLASSIFICATION OF INDIAN ARTIFACTS

CHIPPED-STONE IMPLEMENTS

Morphologic attributes and metric characteristics were used to distinguish various categories of chipped-stone implements. Projectile points were classified in accordance with previously defined types whenever possible. Following are descriptions of the various categories. Using methods described by Justice (1987), the following intact chipped-stone implement measurements were utilized in order to type projectile points: maximum length; width; stem length; stem width; and thickness (Figure 6.1).

Projectile Points

Projectile points are well-crafted symmetrical hafted bifaces, rarely unifaces, presumably used as tips of projectiles such as darts or arrows or, in some cases, knives. Only one previously defined type was used to classify projectile points recovered during the survey. Projectile point fragments that could not be definitively categorized as to type, such as bifaces are included in "Other Chipped-Stone Artifacts" categories.

Guilford

This type is has an elongated, stemless form with excurvate blade edges and a variable base morphology (Coe 1964:43). Guilford points occur from the Late Middle Archaic time period, ranging from about 6000 to 5000 B.P (Ward and Davis 1999:59). One quartzite specimen of this type was recovered during the investigation (Figure 6.2a).

Other Chipped-Stone Artifacts

This category includes biface implements excluding projectile points.

Biface

The Biface category is a residual category for chipped-stone artifacts that represent fragments of projectile points, or intact chipped-stone objects that cannot be placed with confidence in any

defined types and exhibit bifacial flaking. The investigations yielded two undifferentiated chert bifaces (Figure 6.2 b-c).

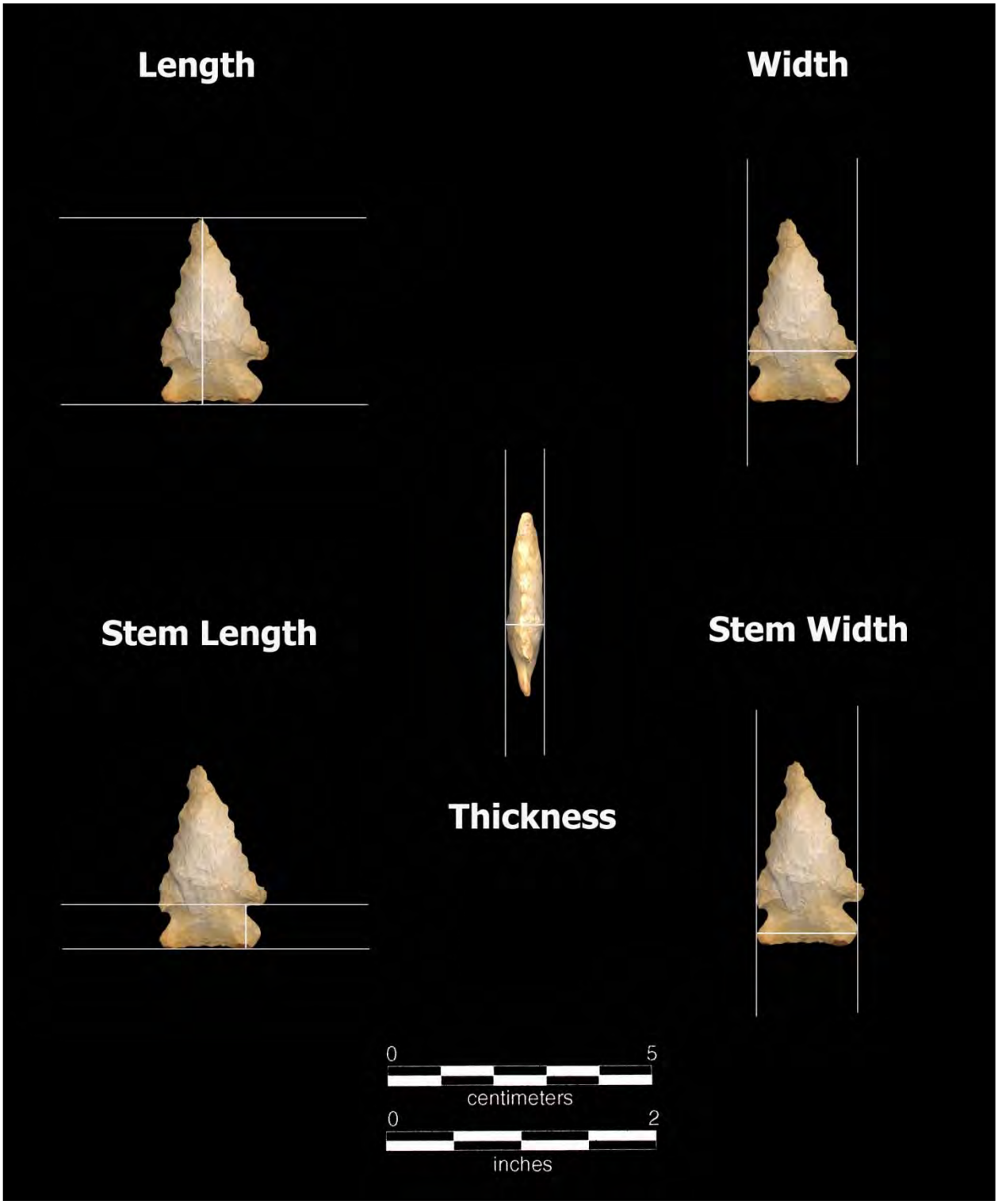

Figure 6.1. Points of reference used to obtain the following intact chipped-stone implement measurements: maximum length, width, stem length, stem width, and thickness.

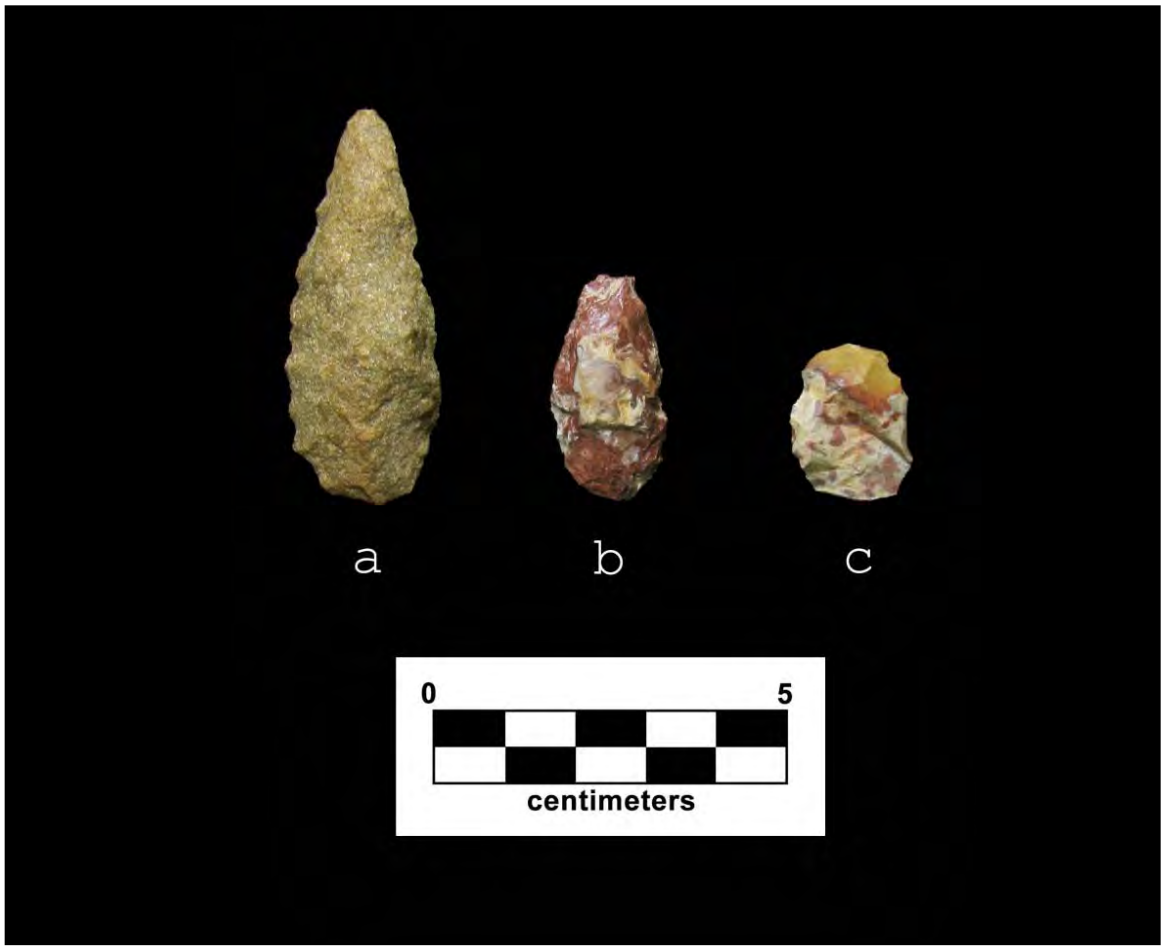

Figure 6.2. Chipped-stone implements: a) quartzite Guilford projectile point (31CK222/31CK222); b) undifferentiated chert biface (31CK222/31CK222**); and c) undifferentiated chert biface (31CK224/31CK224**).**

CHIPPED-STONE DEBITAGE

Chipped-stone debitage is the byproduct of stone-knapping activities. Raw material types recovered during the investigation consisted of chert, quartz, quartzite, and sandstone. A total of 19 specimens were recovered, one of which was lost in the field.

Shatter

Although included with flakes in an overall debitage category, shatter is also analyzed as a separate entity. Shatter consists of small pieces of lithic debitage, obviously produced by the breaking of larger stone specimens. Shatter lacks the features of flake debitage in that they lack a bulb of percussion and are more rectanguloid than flakes, which are much thinner in thickness as compared to length. Only a few specimens recovered were classified as shatter.

Other Stone

The Other Stone category includes subcategories used for the purposes of this report. The following is a description of these Other Stone categories and specimens recovered during PCI's investigation.

Unmodified Stone

The Unmodified Stone category consists of rocks and minerals that do not show indisputable evidence of human modification. Quartz, sandstone, and granite (gravel) are included in this category and were recovered during the investigation.

INDIAN CERAMICS

Only one sand/grit-tempered plain sherd was recovered during the investigation, as well as a sherdlet which measures less than 1/2 inch.

WORKED GLASS

Olive glass was often knapped and made into scrapers by Creek Indians from the seventeenth century on and also by early nineteenth century non-Indian inhabitants of the region. Therefore, obviously reworked olive glass will frequently be evidence of Indian occupation during the historic period but can also be associated with non-Indian peoples as well. Evidence of glass working, such as debitage or actual tools is not a definitive indicator of Indian habitation but is often found in such contexts. Several specimens of worked container glass of various colors were recovered (Figure 6.3).

Figure 6.3. Worked container glass from 31CK220: a) clear; b) aqua; c) pink; and d) olive green.**

CLASSIFICATION OF NON-INDIAN ARTIFACTS

During PCI's investigation, a wide variety of non-Indian artifacts were recovered. In an attempt to gain a better understanding of the non-Indian sites encountered, these artifacts have been sorted into various artifact groups similar to those employed by South (1977). The artifact groups utilized during this analysis include Architectural, Kitchen, Activities, Clothing, Personal, Arms, Tobacco, and Other Material.

Non-Indian artifacts were sorted primarily on the basis of morphological attributes, maker's marks, and function. Unlike Indian artifacts, many of the non-Indian objects are still in use today, and presumptions regarding function are on much firmer footings. In addition, there is a substantial body of published descriptions and histories concerning many non-Indian artifact types.

ARCHITECTURAL GROUP

The Architectural Group artifacts recovered during the investigations included nails, brick, mortar, window glass fragments, asbestos siding fragments, and possible building material.

Nails

Nails are often useful items for making chronological assessments. Wrought, or hand forged, nails were produced from antiquity up to the mid-nineteenth century, when improvements in cut nails largely replaced them. Wrought nails are still made for specialty uses and at tourist blacksmith shops. They can be easily distinguished by the fact that the shaft tapers on all four sides to a point. According to Nelson (1968), machine-cut nails were manufactured in the late eighteenth century, at about 1790, and continue to be made today, though in a slightly different way. The first cut nails still had hand-forged heads and were not completely machine-made until the early nineteenth century. In the 1830s, the "modern" machine-cut nail was perfected (Orser 2002). These nails are more uniform in appearance and feature two tapering sides and two straight sides. It is not unusual to still find cut nails being used in sub-flooring for hardwood floors (Fontana and Greenleaf 1962). Wire nails were first made in the 1850s, but American machinery for producing wire nails was not perfected until the 1860s or 1870s. Like machine-cut nails, wire nails continue to be made today. These mass-produced specimens exhibit round shanks and heads with distinctive parallel lines just below the head. According to Orser (2002), these marks were made as the gripper die held the wire shank while the machine stamped the head. Two wrought nails were recovered (Figure 6.4), although numerous ferrous metal machine-cut nails (36) and wire nails (112) were recovered during the survey.

Brick

While often not definitive, bricks exhibit many visual characteristics that are somewhat diagnostic. These may include markings left by the manufacturing process (inherent and intentional), color, density, hardness, texture, size, and shape. Additionally, chemical analysis of the material can yield spatial and temporal data.

Historically, the manufacture of brick has been achieved by the methods of molding, pressing, or extrusion (London 1988). Each method produces characteristics that are common to the process. Notably, some of these characteristics overlap from process to process; so many times a combination of attributes must be used in order to make a confident decision regarding brick type. Several bricks or brick fragments were recovered during the investigation. Of these, two were determined to be hand made or molded brick (Figure 6.5c), and several fragments were found to be glazed (Figure 6.5 a-b). Many brick fragments were observed, but not collected.

Molded Brick

Molding is the earliest method of brick production, and was predominant until the mid-1870s. In order to fashion brick in this manner, clay, sand, and water were mixed by hand and tamped into a wooden mold. The top of the mold was subsequently leveled with a wooden or metal straight edge, and set out to dry. Due to the relatively light compression factor involved in this process, brick manufactured by this method tended to exhibit the lowest relative density and strength (London 1988; McKee 1973). This method is still in use today on a limited basis, primarily to produce materials for interior ornamental use.

Characteristics common to this method of manufacture are relatively easy to distinguish. One side will usually retain indications of the leveling process, evidenced by striations produced by the leveling tool along with harder particles in the mixture aligned on the path the tool was moved. Additionally, as the wooden molds were used continuously they began to wear, becoming rounded along the edges. The soft mud mixture would intrude into these worn areas, leaving characteristic flared edges on the product.

Pressed Brick

Pressing was the next method of brick manufacture to be practiced, and involved the use of plungers to compress the material into the mold, which often was constructed of metal. Typically, this was done by hand until approximately 1870, when steam power was readily available. During this process, the material is compressed by a plunger, resulting in a denser, stronger, more uniform product. Additionally, the mixture is not required to contain as much, if any, moisture prior to insertion in the mold, thus reducing the required drying time (London 1988; McKee 1973).

Figure 6.4. Ferrous metal wrought nails from 31CK224/31CK224 and 31CK221**.**

Figure 6.5. Bricks and fragments recovered: a) alkaline glazed (31CK220); b) brown glazed (31CK220**); and c) hand made brick (31CK229**).**

One of the visual characteristics common to this process is a depression, or "frog," in the bonding surface of the brick. Another characteristic is the lack of striations from scraping or cutting on any surface of the brick due to the manufacturing method, which involves compression. Finally, the "dry-pressed" version of this manufacturing process can result in crazing or minute cracking of the surface of the product. This effect is the result of a lack of pressure during the compression process, and affects the structural, as well as aesthetic, qualities of the brick. Additionally, the edges of dry-pressed brick tend to crumble more easily as a result of the absence of water to facilitate the bonding process. Pressed brick are still manufactured today, in greater quantities than molded brick, but the predominant method of production has become extrusion.

Extruded Brick

The process of extrusion was introduced into the United States at approximately the same time as pressing, but by the early part of the twentieth century had become the preeminent method of manufacture (McCollam 1976). During this process, clay, water, and the tempering material are processed in a pug mill prior to being forced through a shaping die. The clay prism is subsequently cut by metal blades or wires into individual bricks. This method of manufacture provides more uniform results in terms of the end product. A major drawback is the tendency of the material to become laminar during the actual extrusion, resulting in planes of weakness within the brick (London 1988; McKee 1973). This hindrance was overcome by the practice of introducing grog, or fired brick ground into small pieces, into the mixture before extrusion. This material tended to help interrupt the lamination effect, resulting in a stronger product. The

practice of coring, or leaving voids in the center of the extruded clay prism, was introduced to this manufacturing method ca. 1900. This practice, adopted after it was realized that nothing would be compromised in terms of structural integrity up to a certain percentage of volume, conserved raw materials and provided for a higher quantity of product per weight with respect to shipping. Additionally, it provides the same structural benefits as the frog with respect to bonding and stability.

Extruded brick, all of which are cut in one fashion or another, exhibit the effects of this part of the process on at least two sides of the product. These effects include the previously mentioned striations found in molded brick, but having been caused by the particles of grog, they are generally more uniform in size. This is due to the practice of screening the grog prior to addition to the mixture in order to facilitate the cutting process by culling out the larger pieces.

Mortar

Often the mortar holding bricks together deteriorates before excavation or crumbles away to small particles that fall through the mesh within the screen used to collect artifacts. Several specimens were recovered during the survey.

Window Glass

Early window glass was distorted and wavy with varying thickness within one sheet of glass. This has led to the myth of glass "flowing" with age, but it is probably due to imperfect glass and early manufacturing methods. One early method was crown glass, which was used from the late seventeenth century throughout the eighteenth century. This involved a gather of glass being blown into a crown or hollow globe, then reheating and using centrifugal force to spin the glass into a flat disk measuring 5 to 6 ft. in diameter. This caused the glass along the edges to be thinner, with the center glass thicker and more distorted. The thin glass was the more desirable so small diamonds were cut from this to be inserted into lead lattices for windows. Much of the window glass in the early nineteenth century was made using the cylinder glass method. This involved a gather of glass being blown into a sphere, which was then swung into a cylinder shape. Before cooling, the cylinder was cut open and spread apart into a flat shape, which could then be cut into panes that were of equal thickness. As time went by, the populace desired larger window panes, which called for thicker glass. So cylinder glass steadily increased in thickness throughout the nineteenth century and even into the twentieth century. There was an abundance of window glass with varying thicknesses recovered during the survey.

Other Material

Other architectural material recovered included several asbestos siding fragments and a few specimens of possible building material.

KITCHEN GROUP

The Kitchen Group included ceramics, glass, and metal artifacts. Ceramics were further divided by ware and decoration. Glass was sorted on the basis of color and morphological attributes. Metal was sorted based on material and morphological attributes.

Ceramics

Moderate amounts of non-Indian ceramic artifacts were recovered during the survey. The specimens included white-bodied types, porcelain, earthenware, yellowware, stoneware, and terracotta. Following are discussions of these types.

White-Bodied Ceramics

This includes creamware, pearlware, and whiteware varieties. Whiteware exhibits a white clay body and a clear glaze and lacks the colored tints of creamware and pearlware. Because of the

difficulty in sorting whiteware from similar ironstone ceramics (Price 1979), coupled with the fact that both types date to about the same period, PCI generally classifies both as whiteware.

Creamware is the oldest type of white-bodied ceramics, dating from 1762 to 1820. It was a lead-glazed refined earthenware, also known as "Queensware," introduced by the Wedgewood Company as a cheap substitute for porcelain (Noël Hume 1969). Creamware designs were simple, usually consisting of a relief molded edge or a black transfer print, though most creamware was undecorated. The clear glaze pooled yellow in dips and crevices. Pearlware was produced by adding cobalt oxide to the glaze of creamware, which caused blue-green pooling in crevices. This was done to better replicate the expensive fine china imported from Asia. Pearlware was popular from about 1779 to 1830 (South 1972). Decoration is more diverse on pearlware and whiteware than creamware. Whiteware began to replace pearlware in popularity around 1820 and is still manufactured today.

White-Bodied Ceramic Decorations

Chronologically, there were several important decoration types used on white-bodied ceramics, with many of the same designs appearing both on pearlware and whiteware. Annularware consists of painted bands encircling the vessel. Within this broad category are many variations. Mocha decorations consist of dendritic ornamentations located between the painted bands (Noël Hume 1969; Price 1979). These feathery designs were supposedly made by a combination of tobacco juice and urine applied to a wet clay slip on the vessel. South (1972) dates the mocha decoration from approximately 1795 to 1890. Other annularware designs feature polychrome swirls of dots, cubes, and worms, along with rouletted bands. Trailed designs can also be found between bands of color.

Pearlware and whiteware shell-edged rims consist of a molded decoration on which colored bands were applied, usually blue (Price 1979). Green is also fairly common, though yellow is rare. Shell-edged decorations date from about 1780 to 1860 (Price 1979). Notably, shell-edged decorations associated with whiteware specimens date to the latter end of the period. There are many variations of this theme. The classic shell-edge version automatically brought to mind is said to be representative of a cockle shell. Most versions feature a scalloped rim with either impressed curved lines, impressed straight lines, an impressed bud pattern, or other embossed features. Later versions are more cheaply done and may have only a painted band without any relief molding or rim scallops (Stelle 2001).

Hand-painted decorations can be of any time period, but were most common from about 1820 to 1860. Dark blue and black appeared first on the scene, followed by red and green as polychrome designs became popular. Hand-painted polychrome whiteware was produced into the 1890s but was most popular from 1830 to 1860 (Stelle 2001). Gilding can be hand applied or done with a machine. This liquid metal highlighting became common after 1890 and was produced through the 1930s (Esary 1982).

Sponging or spattering was another decorative technique employed in the nineteenth century. A cut sponge was dipped in color (blue, green, red, yellow, brown, black, or a combination) and dabbed onto the vessel. This was sometimes only on the border, though it could cover the entire vessel, and was popular from 1830 to 1860 (Esary 1982).

Transfer printed decorations consist of primarily monochrome designs applied to ceramics via copperplate engravings (Price 1979). Although transfer printing was mastered as early as the 1750s, this technique did not become popular on white-bodied ceramics until sometime between the 1770s and 1790s (Noël Hume 1969). New technologies enabled the design to be placed under the glaze, making a more durable product with more complex designs. An added bonus was a higher production rate (Samford 1997). An innovation around 1840 led to two or more

separate printed colors on a single specimen (Price 1979). For instance, the border or marley may be one color and the center design may be another color. A single color transfer printed item may also have added hand painting known as clobbering. This was most common after 1840 and involved applying colored enamels to highlight areas usually on the rim of the vessel (Samford 1997). Transfer print wares were produced until about 1890, when decals became popular, but most transfer printing ceased by the 1860s to 1870s. Blue was the most popular color and the most predominant in the early years of transfer printing as cobalt stood up best to the high heat required. As the technology developed, other colors became possible, with red being the most problematic (Samford 1997). According to Samford (1997), design motifs can be used to help date transfer printed wares. Central designs include Chinese (pagodas, junks, willows), American and British views (building or landscape features), American historical (battles, state seals), exotic views (minarets, non-indigenous animals, foreign dress), romantic (strolling couples, water, gazebos), classical (urns, temples), floral (group of central flowers or small repeating pattern), pastoral (rural farm scenes), gothic (ruins, turrets), and Japanese (fans, cherry branches). With merely fragments, these motifs can be difficult to recognize. The central exotic view was most popular from 1820 to 1842, with the marley scene vignette at a peak from 1832 to 1847 (Samford 1997). It is uncertain where to place the black transfer print featuring a central design with a harp-playing cherub, but the non-continuous repeating floral marley design had a peak production from 1829 to 1843, although the manufacture did not end until 1894.

Flow blue (or mulberry) decorations are comprised of painted or transfer printed designs, which "flowed out or bled into the surrounding undecorated portions of the vessels" (Price 1979:21). According to Price (1979), flow blue decorations were most popular from approximately 1830 to 1860, although Samford (1997) mentions a resurgence of popularity at the turn of the twentieth century. Flow mulberry had a production high from 1841 to 1858 (Samford 1997).

Decal decorative techniques consist of polychrome decorations made possible through the use of decals (Majewski and O'Brien 1984). Although this type of decoration persists, decal decorations were most popular from 1890 into the 1930s. Decals were applied over the glaze and both look and feel slightly raised above the surface in contrast to transfer printed designs, which were placed under the glaze (University of Utah 1992).

Many specimens of whiteware found are undecorated or have a relief molded rim. This cheap, mass produced ware was common as it was inexpensive and widely available. Relief molded decoration can be from a wide temporal range, but is most common in the late nineteenth century.

White-Bodied Ceramic Summary

Several specimens of creamware were recovered during the survey. Types of creamware consisted of relief molded and undecorated pieces (Figure 6.6). Pearlware was also prevalent throughout the survey, and included annular banded (Figure 6.7a), annularware "Finger Painted Wormy" (Figure 6.7c), blue hand painted (Figure 6.7b), green hand painted, green glazed (Figure 6.7d), blue transfer printed, black transfer printed (Figure 6.7e), relief molded (Figure 6.7f), and undecorated. There was one impressed pearlware base, which is most likely part of an unknown maker's mark. Due to the small size of the fragments, no other information could be ascertained.

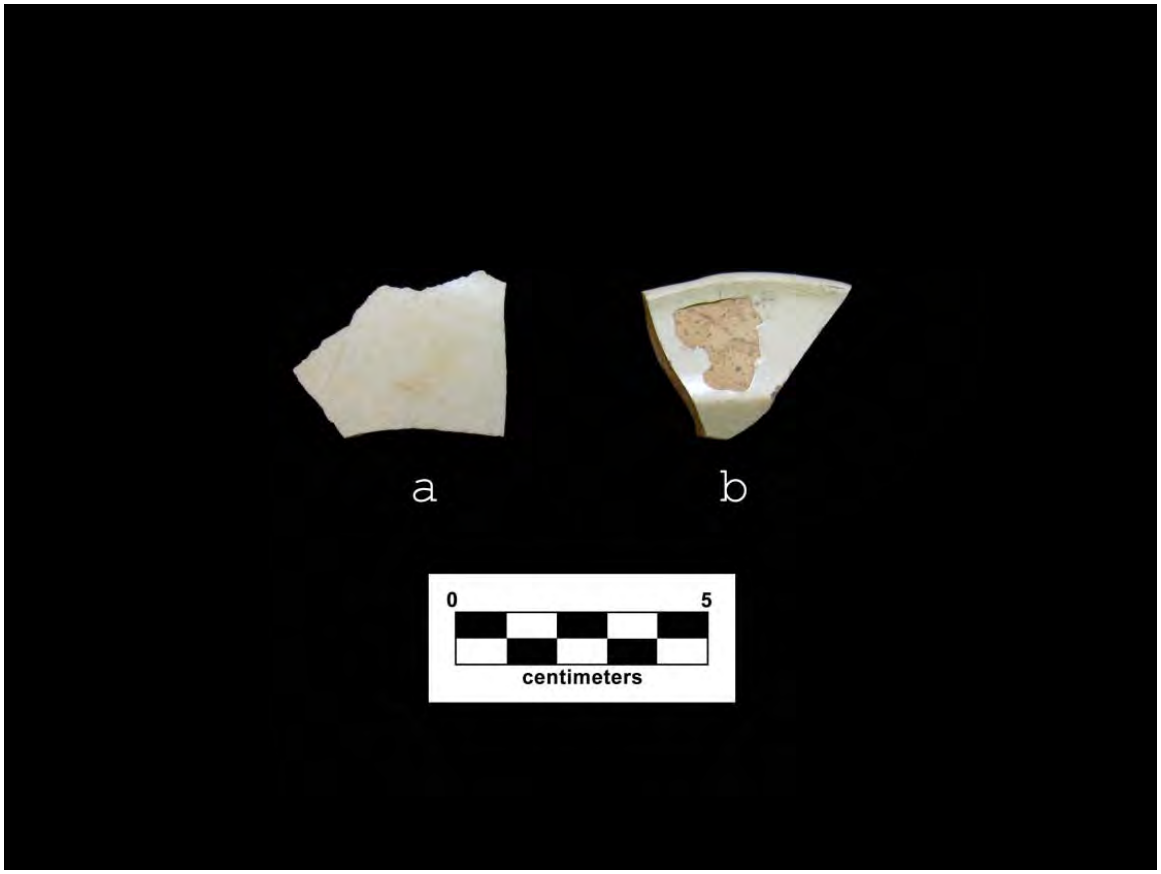

Figure 6.6. Creamware: a) undecorated (31CK218) and b) relief molded scalloped rim (31CK232**).**

Many specimens of whiteware were recovered during the survey. Types of whiteware included annular banded, red hand painted (Figure 6.8b), black transfer printed (Figure 6.8e), blue transfer printed (Figure 6.8f), red transfer printed (Figure 6.8g), blue shell-edged (Figure 6.8d), decal (Figure 6.8a), flow blue (Figure 6.8c), red and green sponged (Figure 6.8h), relief molded, relief molded and gilded (Figure 6.8i), and undecorated. Several of the specimens were found to be burned.

Ironstone

Ironstone is a name for white-bodied ceramics that are similar to whiteware but are higher fired and therefore harder and more durable. This type of ceramic was introduced around the same time as whiteware in the nineteenth century. Ironstone is not generally sorted separately from whiteware by PCI, as the distinction in hardness of the clay body does not always correspond to the name of the ware given by manufacturers and distributors. In other words, “ironstone” labeled ceramics can be no harder than common whiteware. The name “Ironstone” was patented by Charles James Mason of Staffordshire in 1813.

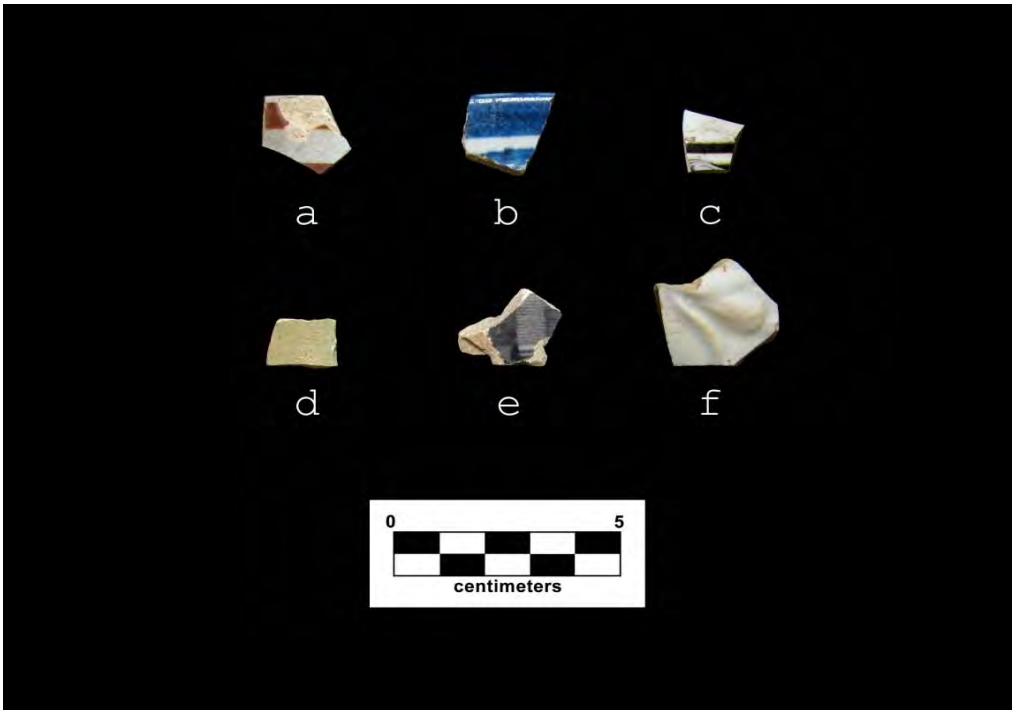

Figure 6.7. Pearlware: a) annular banded (31CK221); b) hand painted (31CK218**); c) annular ware(31CK220**); d) green glazed (31CK220**); e) transfer printed (31CK220**); and f) relief molded (31CK218**).**

Figure 6.8. Ceramics: a) decal whiteware (31CK218); b) hand painted whiteware (31CK229**); c) flow blue whiteware (31CK224/31CK224**); d) shell edged whiteware (31CK218**); e) transfer printed whiteware (31CK220**); f) transfer printed whiteware (31CK220**); g) transfer printed whiteware (31CK224/31CK224**); h) sponged whiteware (31CK220**); i) gilded whiteware (31CK219**); j) yellowware (31CK218**); and k) gilded porcelain (31CK220**).**

Porcelain

Porcelain was sorted from white-bodied ceramics on the basis of its opacity. The fine clay body of porcelain is translucent along thinner edges. Porcelain was considered the finest and most expensive of the non-Indian ceramics (Weaver et al. 1993). Porcelain imported from Asia, and later manufactured in Europe, has a long history and is difficult to date without Chinese reign marks or distinctive decorative patterns (Noël Hume 1969). Furthermore, as South (1977) points out, the ending date of manufacture and the date of archaeological deposition are sometimes unrelated. Valued items are often passed from one generation to the next; therefore, because porcelain is one of the most expensive ceramics of its day, the likelihood that it was deposited soon after the ending manufacture date is quite low.

Field investigations yielded a small sample of porcelain specimens. Types of decoration included gilded (Figure 6.8k) and undecorated.

Earthenware

Earthenware is typically indicative of utilitarian types. Specimens recovered included Albany glazed (Figure 6.9c), brown glazed, tin glazed (Figure 6.9a-b), unglazed, and undecorated. Several specimens were found to be burned.

Yellowware

Yellowware was first produced in England and sent to the United States. Finally, clays were found in the New Jersey, Pennsylvania, and Ohio areas that fired as yellow and by the 1830s large factories were producing yellowware in this country (Cooper 2000). These utilitarian wares included mixing bowls, milk pans, pitchers, pie plates, beanpots, and baking and serving dishes. Much of the pottery received a clear, lead glaze, but some types were decorated. Common decorations are Rockingham or Bennington and annularware. Rockingham or Bennington decorations involved adding manganese and sometimes umber to the glaze (Stelle 2001). The mottled effect was achieved by dipping, brushing, sponging, or splashing the glaze onto the piece. This decorative technique was most popular from 1840 to 1900. Annularware has a glazed surface with encircling bands of white, blue, black, or brown around the vessel. Occasionally, a dendritic pattern is added between the bands and is then referred to as mocha. Some specimens exhibit relief molding or hand painting. The small sample of yellowware types recovered were undecorated (Figure 6.8j).

Stoneware

Stoneware is a vitrified ceramic fired at high temperatures that typically takes the form of utilitarian vessels (Greer 1981). Certain stoneware glazes are particularly useful as chronological markers. Salt-glazed stonewares are recognized by a textured surface resembling that of an orange peel (Greer 1981). According to South (1972), salt-glazed stoneware was manufactured as early as the late seventeenth century. It was produced by throwing salt into the kiln during firing, which vaporized, leaving a shiny surface (Stelle 2001). The interior of the vessel may be unglazed or may feature an Albany slip glaze. Greer (1981:263) indicated that "salt-glazed vessels generally date to the period prior to the twentieth century."

Albany slip glaze is a dark brown to black slip-clay glaze named for the alluvial clays of the Hudson River Valley in New York from which it was made (Greer 1981). According to Greer (1981), Albany glazes became popular outside of New York during the last quarter of the nineteenth century. It is rare after 1910 and an ending date of 1940 has been put forth by Zilmer (1987). For the purposes of this study, any brown glaze encountered during analysis that was not considered dark enough to be classified as Albany was simply described as brown.

Bristol glaze is a chemical-produced white glaze first developed in England during the Victorian period (Greer 1981). Bristol glaze was adopted for stonewares by American potters during the 1880s. A combination of Albany and Bristol glazes were common until about 1920, from which time Bristol was almost always used alone.

Figure 6.9. Earthenware ceramics: a) tin glazed (31CK220); b) tin glazed (31CK221**); and c) Albany lead glazed (31CK220**).**

Alkaline is a common form of glaze for stoneware. Alkaline glaze is created from ash and sand and is, according to Greer (1981), found exclusively in the Deep South. Alkaline glaze dates "... before 1900 in most instances, but the use of this glaze continued well into the twentieth century in small, remote potteries in Alabama, Georgia, and North Carolina" (Greer 1981:264).

Invariably, there will be specimens that will exhibit glazes that cannot be confidently identified as any of those described above. If a glaze could not be specifically identified, then the specimen was categorized simply on glaze color and/or decoration (i.e., light green glazed, brown glazed, blue glazed, and sponged, etc.). Various combinations of exterior and interior glazes were present within the Phase I stonewares.

Stoneware glazes included Albany, Bristol, tan, tan salt, gray salt, brown, brown salt, alkaline, blue, and unglazed (in combination and separately) (Figure 6.10). Decorations included relief molded and annular banded (for full descriptions see Appendix B). There was one specimen that was classified as Rhenish / Westerwald stoneware, as it is know by both names (1650 to 1775). This type is characterized by a bright cobalt blue on gray salt-glazed stoneware, and can come in a variety of forms and decorations (Figure 6.10e). Another stoneware specimen was categorized as a relief molded alkaline glass glazed exterior / brown glass glazed interior stoneware (Figure 6.10f). This is indicative of large amount of ground glass used as a fluxing component, which gives the glaze a smooth, transparent, or glassy appearance (Greer 1981). Only one vessel form was recognized as a Bristol glazed stoneware jug fragment (Figure 6.11). Several of the stoneware specimens were found to be burned.

Figure 6.10. Stoneware: a) gray salt-glazed (31CK224/31CK224); b) brown glazed (31CK227**); c) brown salt glazed (31CK227**); d) tan salt-glazed (31CK220**); e) Rhenish / Westerwald (31CK221**); f) alkaline glass (31CK219**); g) relief molded blue (31CK219**); and h) green transfer printed porcelaneous (31CK218**).**

Figure 6.11. Bristol glazed stoneware jug fragment from 31CK145 (two views).**

Porcelaneous Stoneware

This type is defined as a utilitarian ware that has both attributes of porcelain and stoneware. By 1888 this type replaced the use of stoneware at restaurants and hotels, and later became used as an institutional ware. One specimen of green transfer printed porcelaneous stoneware was recovered (Figure 6.10h).

Terra Cotta

Only two fragments of terra cotta were recovered. Both were undecorated and one was a burned base. It is uncertain as to whether this is utilitarian kitchen ware or simply flower pot fragments.

Other

There were three remaining ceramic specimens that were extremely fragmented, and void of glaze or decoration. These were classified as ceramic paste since there was no evidence for specific classification.

Glass

Glass is an important artifact type for dating archaeological contexts. Like ceramics, glass displays several physical characteristics that are distinct for given time periods. Among these are: color, seams, bases, finishes/lips, and labels. When conducting analysis on bottles, it is important to understand the terms used for basic landmarks on the vessel. The bottle base refers to the flattened area of the bottle upon which it rests when oriented in an upright position. The shoulder of the bottle is the area that becomes rounded in order to allow for the narrow circumference of the base of the neck. The body of the bottle is that area lying between the base and the shoulder. The bottle neck is the elongated portion located between the shoulder and the finish. The bottle finish is the widened area that sits on top of the neck. The bottle lip is the area located at the apex of the vessel where the interior surface meets the exterior surface.

Finding entire glass bottles is rare in archaeology; often only fragments are recovered. There are often bases without finishes or several bases and several finishes with no clear determination of which goes with which. Obviously, good solid dating is only possible with a complete specimen due to the myriad forms of production and finish types. Since fragments are the usual finds, this chapter looks at glass in a piecemeal way focusing on seams, bases, and finishes in an attempt to glean as much as possible from fragmentary samples.

Glass Color

Glass color is sometimes an important chronological marker. Dark olive-green glass was used in the eighteenth and early nineteenth centuries, and was sometimes referred to as “black glass.” Around 1860, customers began to prefer clear glass because they could better inspect the contents. Soda lime, the initial decolorant, was expensive and was replaced by manganese dioxide around 1880. Manganese reacts to heat or sunlight by turning the glass purple. Manganese came primarily from Germany and it presumably was no longer imported at the beginning of World War I. Consequently, the standard interpretation has been that amethyst glass dates to between 1880 and 1916 (Weaver et al. 1993). However, recent studies (Lockhart 2006) indicate that the use of manganese as a decolorant slowly declined between 1910 and 1925. The reason for this decline was the introduction of machine-made glass bottles. The manganese made the glass less suited to use in bottling machines and so was abandoned by 1925 after experience with these problems convinced all manufacturers to abandon the use of manganese as a decolorant. Aqua glass was common throughout the nineteenth century and until about 1920. Exceptions to this are soda bottles, which continue to be made in aqua hues, and canning jars, which were produced through the 1930s.

Seams

Bottle seams are important chronological markers as well. Prior to the twentieth century, bottles were either free blown or blown into molds (Polak 1994). Bottles that were free blown are characterized by their lack of seams and symmetry. When initially blown, the vessels have a globular shape due to surface tension and can be reshaped using tools or centrifugal force (Toulouse 1969). Bottle makers began blowing glass into molds in large quantities in the early 1800s. Types used were tapered dip molds, turn-molds, hinged bottom molds, two-piece molds, three-piece dip bottom molds, and three-part (or more) molds. Some of these are often difficult, if not impossible, to discern without having a complete bottle. The method of manufacture determines the length and placement of the seams (Figure 6.12).

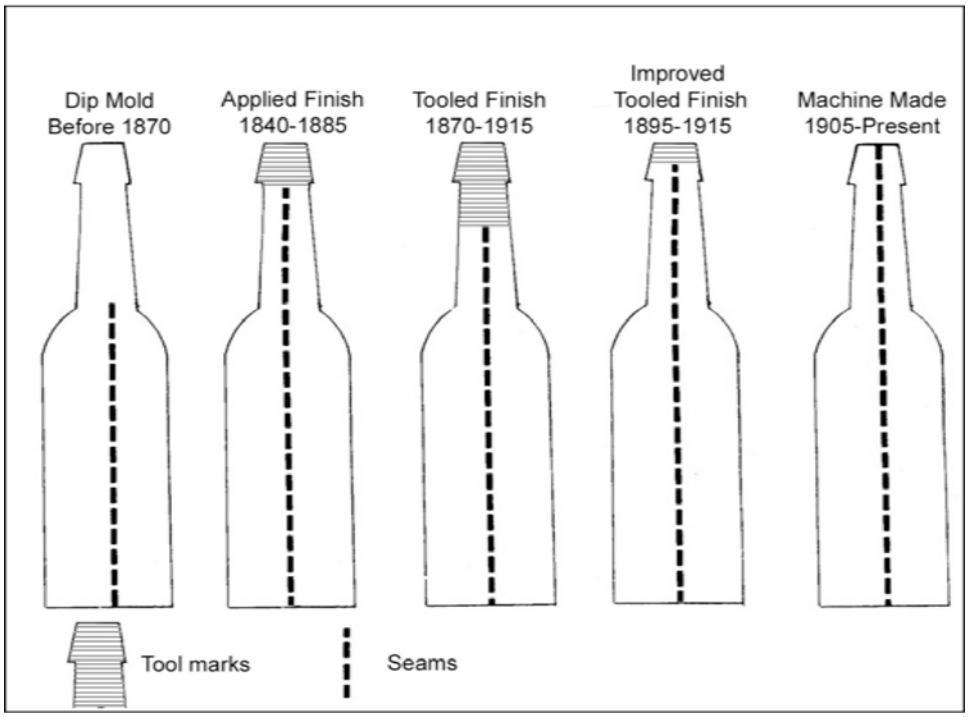

Figure 6.12. Glass bottle seams chronology (drawn by Charles Redwine based on images from Polak [1994] and data from U.S. Department of the Interior, Bureau of Land Management 2010).

Tapered dip molds formed the base and body of the bottle as glass was blown into the mold, which had a smaller diameter at the base and widened at the top of the mold in the shoulder area allowing the formed bottle to be easily removed from the mold. The glass-blower had to shape the shoulder, neck, and finish by hand. Specimens blown into a dip mold will exhibit a horizontal seam at the shoulder due to a slight blowover at the top of the mold. This method was used from about 1818 to 1860 (Stelle 2001).

Turn-mold bottles will have no vertical seams as the bottles were rotated inside the mold, which obliterated any mold seams. Often, horizontal striations are present on the surface of the bottle. This style became popular in the United States in the 1870s and was used until the advent of completely machine-made bottles during the early twentieth century (Toulouse 1969).

Hinged-bottom molds were used in a similar fashion as tapered dip molds except bottle removal was facilitated by opening the mold. This made it possible to have embossed letters on the body of the bottle, something not possible with tapered dip molds or turn-molds. As with tapered dip molds, there will be a horizontal seam at the shoulder where blowover occurred, and there will

be two vertical seams on opposing sides of the body where the two halves of the hinged mold met. Also, as with tapered dip molds, the glass-blower had to shape the shoulder, neck, and finish by hand. Variations of this method of manufacture have been utilized since the first century A.D. in the Mediterranean (Toulouse 1969).

Two-piece molds used a side-hinged mold that formed not only the base and body, but also the shoulder and neck, only leaving the finish to be done by hand. This mold leaves seams across the base and up opposing sides (Deiss 1981). Depending on the method used to hold the bottle for finishing, this dates from 1818 to 1875 (Stelle 2001).

Three-piece dip bottom molds also formed the base, body, shoulder, and neck. This type of mold was similar to the tapered dip mold in that the base and body were blown into a mold that left no seams on the base or body, but featured an additional hinged mold on top that formed the shoulders and neck. Bottles made from this method will exhibit a horizontal shoulder seam and two seams on opposing sides of the shoulder and neck (Deiss 1981). Once again, the finish was done by hand. This method of manufacture was in use from approximately 1830 to 1905.

Three-piece plate bottom molds utilized two side pieces and a base plate, which centered the bottle within the mold. Side seams run up the body and neck, intersecting with a seam around the base (Deiss 1981). Other multi-part molds were made for paneled side bottles with hexagon or even, octagon shapes (Toulouse 1969).

Machine-made bottles were made possible by an invention of Michael Owens in 1903, though it was not in widespread use until 1920 (Holscher 1965). A distinction of the Owens bottle is that the body seams generally do not line up with the neck seams (Kendrick 1966). It took time for new ideas and technology to spread throughout the industry, but by 1917 it is estimated that 50 percent of bottles were completely machine-made; by 1925 the figure had risen to 90 percent; and by 1930 the change was virtually complete (Deiss 1981). A totally machine-made bottle will exhibit seams that go around the base, up each side all the way to the top of the finish and across the finish.

Bases

The earliest free-blown bottles have pontil scars where the blowpipe was attached to the base while the lip was being finished. The appearance of the pontil scars reveal the type of blowpipe or rod used. An open circle of glass on the base is the product of a hollow blowpipe, while a solid circle of glass was made with a solid rod. Grainy “sand” pontils occur as an attempt to prevent the jagged glass scar and can easily be felt with the fingers. In this scenario, the rod was dipped in sand prior to being attached to the base, thus preventing the glass from adhering well. A technique began around 1840 used an improved pontil, which was an iron rod heated to extreme temperatures (Stelle 2001). This heated rod was pressed to the base where it adhered, often leaving behind a dark, iron residue without the jagged glass (Deiss 1981).

In the mid-nineteenth century, the snap-case came into use and eliminated the need for pontil rods. In this method a clamp held the sides of the bottle firmly to allow for finishing. Occasionally, the clamp left visible indentations on the side of the bottle. The snap-case was used from about 1860 until 1915 (Deiss 1981).

Seams present on bottle bases can give a clue as to the manufacturing process used. Two readily identifiable methods are post bottom mold and cup bottom mold. With post bottom molds there will be a circular seam centered on the base, which intersects the side seams at a perpendicular angle (Toulouse 1969). This type of base can be found on any bottle formed in a multi-part mold and does not, by itself, give a definitive date of manufacture. Bottles produced using a cup bottom mold feature a seam that encircles the base at the area where the base meets the sides. It

follows the shape of the bottle and does not have to be circular. Most machine-made bottles feature cup bottom mold seams.

Bottles manufactured using an Owens automated machine will exhibit an Owens' scar, which is a feathery, irregular area on the base. This was caused by shearing the bottle from the mold and is indicative of a completely machine-made bottle.

Finishes

Early free-blown bottles had rudimentary finishes. These include fire polished, in which the vessel was cut from the blowpipe and reheated to smooth the surface; and applied string, in which a ribbon of glass was wrapped around the neck below the lip. In early specimens, the ribbon of glass was flat and uneven in width. Applied tooled finishes involved using a tool to shape the glass ribbon, often bringing the ribbon to a point jutting out from the bottle. This applied glass is distinct from the glass used to shape the vessel (Deiss 1981). Applied tooled and improved tooled were both used on mold blown bottles as well. Improved tooling involved heating and tooling to erase seams on the lips from the mold and "to smooth the break-off which resulted form the detachment of the blowpipe and to form the inside of the neck for a tapered cork or other closure" (Deiss 1981:59). Applied tooled finishes include cork, wax seal, internal threads, blob, Hutchinson, Lightning, and crown, some of which can date as early as 1820 and extend until 1910. Improved tooled finishes date from around 1870 to 1915 and include cork, Hutchinson, lightning, and crown. In bottles produced by each of these methods there will usually be faint ripple-like horizontal markings, known as tooling marks, above the end of the seam. Starting in 1905 with near total replacement of mold blown bottles by 1915, bottle seams extend completely up the bottle and over the lip, and are known as machine-made bottles. It should be noted that the transition from applied finishes to tooled finishes was completed more quickly for small bottles than for large bottles. On the other hand, the change from tooled finishes to full machine manufacture was more rapid for larger bottles than it was for smaller ones. Myriad finishes were, and are, in existence and are too numerous to describe within the scope of this report (Figure 6.13). Finishes found during the current investigation will be discussed in the Glass Summary section.

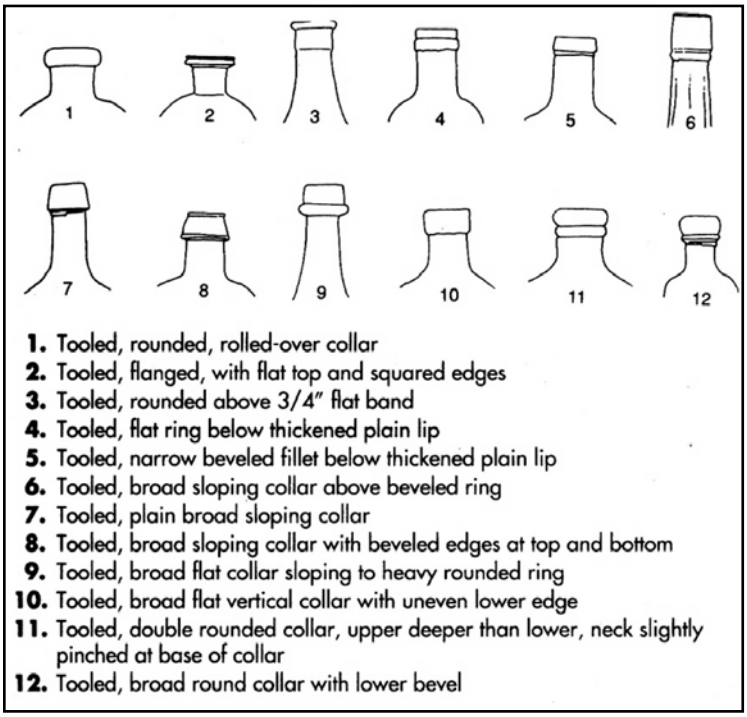

Figure 6.13. Nineteenth and twentieth century bottle finishes (Polak 1994:21).

Closures

Prior to 1902, when the outside of the finish was equipped with threads, various stoppers and lids were used to seal in the contents of bottles. Closures for finishes include glass marbles that lodge within the neck (1873 to 1879), glass stoppers (1850 to 1900), Hutchinson stoppers (1879 to early 1900s), and the Lightning stopper (1880 to early 1900s) (Polak 1994). The crown cap was invented in 1897 and consists of a metal piece, lined with cork, that was crimped around a relatively thin rolled-over finish. Modified versions of this cap are used today with beer and soft drinks (Polak 1994). Finally, in 1902 a threaded finish was developed that accepted metal screw caps. It should be noted that early glassblowers can be credited with producing the earliest threaded finishes, however these extremely rare finishes were very crude and irregular; therefore they are easily distinguished from their modern counterparts (Polak 1994).

Other Production Methods

In addition to color, seams, bases, and finishes, other production methods are good temporal indicators. Pattern molded glass predominates from 1765 to 1774 but is still manufactured today in places where mouth blowing of glassware persists (Jones and Sullivan 1989). Pattern molded glass can be recognized by irregular thickness and less than perfect symmetry. Designs of pattern molded glass are the same on the interior as on the exterior (Jones and Sullivan 1989). Press molded glass became prominent in the United States during the early nineteenth century and is still used today (Jones and Sullivan 1989). Pressed glass can be distinguished from pattern molded glass because the glass is pressed into the mold using a plunger, therefore the design on the interior is a reflection of the plunger and not the mold. In other words, the exterior shape need not reflect the interior design in pressed specimens (Jones and Sullivan 1989). Seams are present on pressed glass specimens and they may even exhibit pontil scars, though these were often ground and polished (Deiss 1981). Furthermore, press molding was not widely used for the manufacture of commercial containers except for jars. These jars are usually display items such as inkwells and cosmetic containers (Jones and Sullivan 1989). Notably, not all pressed glass exhibits a decorative design; the exterior may be plain in some instances such as the cosmetic jars and inkwells mentioned before.

Labels

Once glassmakers began to incorporate molds into their production, it was possible to insert a plate mold inside the casting mold to create a raised message on the bottle's exterior. Bottle manufacturers adopted this technique of embossing around 1869 (Kendrick 1966). Embossed lettering continued until machine-made bottles began to appear around the late nineteenth century, at which time paper and painted labels became predominant. Embossing did not disappear entirely; after the repeal of prohibition, bottles were embossed with messages such as "Federal Law Forbids Sale or Reuse of this Bottle." These messages appeared on bottles from 1934 to 1965. Furthermore, some bottling companies such as Coca-Cola™ still produce embossed bottles today.

Glass Summary

During PCI's survey, a large collection of fragments of Kitchen Group glass were encountered. Most of the glass artifacts do not retain any temporally diagnostic characteristics. The remaining minority are temporally diagnostic based on color, base, and finish type. Several of the fragments appear to be worked (for full descriptions of glass see Appendix B).

There were no applied finishes recovered. Tooled finishes were found in various styles, including patent (Figure 6.14a), prescription (Figure 6.14f), and blob (Figure 6.14e). Some machine-made finishes were found, such as patent, small mouth external thread (Figure 6.14j), and capseat (Figure 6.14d), all pointing to a twentieth century date. Other finishes recovered

included large mouth interrupted external thread (Figure 6.14k), large mouth external thread (Figure 6.14h), bead, double ring (Figure 6.14i), and crown (Figure 6.14c).

Figure 6.14. Bottle finishes: a) tooled patent (31CK220); b) external thread (31CK218**); c) crown (31CK225**); d) capseat (31CK218**); e) tooled blob (31CK220**); f) tooled prescription (31CK224/31CK224**); g) smooth rim canning jar (31CK219**); h) external thread (31CK219**); i) double ring (31CK220**); j) external thread (31CK218**); and k) external thread (31CK218**).**

Bead finishes feature a rounded ring of glass and are used primarily on medicinal bottles, but can also be found on liquor, food, condiment, and general utility bottles. These finishes can occur on early nineteenth century free-blown bottles to twentieth century machine-made bottles, and as such are not very good at dating without further information. Blob finishes are most commonly found on soda and mineral water bottles from the 1840s through the end of the mouth-blown era (1920 or so) and beer bottles from the 1870s into the 1910s. This style was occasionally but not commonly used on other types of bottles including patent or proprietary medicines and even a few figured flasks dating from the mid-19th century. Capseat finishes were common on milk bottles. They were almost always machine-made from the 1920s to the 1960s. Crown finishes are common on soda, mineral water, and beer bottles beginning in 1895 on tooled finished bottles. As machine-made bottles began to dominate around 1910, crown finishes continued and are still present today. Double ring finishes date from 1840 to 1920 and are found on mouth-blown and machine-made bottles, although they are uncommon on machine-made bottles. Patent or extract finishes have a long date range, from 1850 to 1930, and are found on extracts, patent and proprietary medicines, liquor bottles, hair tonics, and inks Small mouth external thread finishes date from the late nineteenth century to the present and can be found on most any kind of machine-made bottle except beer and soda. Large mouth external thread finishes can be found on canning jars and other food storage jars beginning in 1858 and continuing to the present. These threaded finishes can be continuous, interrupted, or lug type. Prescription finishes were

used on druggist bottles from 1870 until about 1920 and were almost always tooled, mouth-blown bottles (Lindsey 2010).

Glass closures were found in the form of canning jar lid liners, a smooth rim lightning-type closure, and a plastic screw cap. Milk glass canning jar lid liners were made to be inserted into a zinc cap, eliminating the metallic taste of canned goods. Lewis Boyd received a patent for this idea in 1869 and these liners were produced until 1964 (Lindsey 2010). The lightning-type closure gave rise to the very popular jar of the same name - the Lightning fruit jar (which dates from 1882 to 1900). This and numerous other jars used this closure type in various forms between about 1880 and up until the mid-twentieth century. In the 20th century Lightning-type closures for canning jars had the sealing surface on a narrow flared bead just below the rim instead of the broad chunky band as on the Lightning jars. This was a change somewhat analogous to the sealing surface shift of Mason jars of that same era from the shoulder to a bead rim just below the threads. The newer Lightning-type closures also dispensed with the tie wire that encircled the neck and dimples molded into the opposite sides of the neck provided the anchor point to hold the ends of the lever wire (Creswick 1987) (Figure 6.14g). A plastic "Jergens" screw cap was found on a bottleneck with a small mouth external thread finish (Figure 6.14b). The exact date of this artifact is unknown, though the company, originally Jergens Soap Co., has been in operation since 1882 to present (Cox 2008).

Types of bottle bases found are not as numerous as the various finishes. PCI's survey revealed an indeterminate pontil scar (Figure 6.15c). One discernible manufacturer's mark was that of the Hazel-Atlas Glass Company, which was formed in 1902 as a result of the merger of the Hazel Glass Company (started 1887) and the Atlas Glass Company (started 1896). The manufacturer's mark was reportedly first used in 1923 until 1964. Two pieces of clear container glass featured a "Mil-Kay" bottle company painted label, which dates to ca. 1940 (Figure 6.15b).

Metal Kitchen Group Artifacts

During PCI's survey, a brass "Avon Silver Plate" spoon and a ferrous metal turn key (to a sardine can) were recovered and included in this group.

ACTIVITIES GROUP

A number of artifacts were placed in this category. The Activities Group represents a broad, generalized artifact group containing primarily ferrous metal items such as a wood splitting wedge, bolts, hinge, nuts, railroad spikes, screws, staples, and tacks. Items of brass included a hinge and a key escutcheon. Other specimens found included a decorative lead metal trolley car (Figure 6.16a), porcelain insulator, brown glazed possible porcelain insulator, porcelain doll arm (Figure 6.16d), a bisque figurine, and plastic.

CLOTHING GROUP

The Clothing Group contained items pertaining to clothing, primarily buttons, along with glass beads (Figure 6.16e), and other clothing related articles. Buttons included materials of brass, milk glass, ferrous metal, and plastic. One brass button was classified as a snap button.

PERSONAL GROUP

This group contained a brass metal cuff link (Figure 6.16b), a brass possible clock part, a brass possible clock gear, a stainless steel possible clock part (Figure 6.16c).

ARMS GROUP

The Arms Group consisted of one brass metal .22 caliber bullet casing. In some cases, it is uncertain if the items belonged to the historic occupation or whether they represent modern hunting or military activities.

Figure 6.15. Other glass: a) clear handle fragment(31CK218); b) clear "Mil-Kay" with painted label (31CK220**); and c) aqua base with indeterminate pontil (31CK219**).**

Figure 6.16. Miscellaneous artifacts: a) lead trolley car toy (31CK145); b) brass cufflink (31CK218**); c) stainless steel possible clock part (31CK218**); d) porcelain doll arm (31CK220**); and e) blue glass bead (31CK224/31CK224**).**

TOBACCO GROUP

The artifacts in this group are associated with tobacco use and typically include fragments of smoking pipes made of earthenware, stoneware, or kaolin. Several kaolin pipe fragments were recovered and included a kaolin smoking pipe bowl fragment (Figure 6.17a), four relief molded kaolin smoking pipe bowl fragments (Figure 6.17b), and three kaolin smoking pipe stem fragments with hole diameters measuring 5/64 inches (Figure 6.17c). There was also one relief molded unglazed stoneware smoking pipe bowl fragment (Figure 6.17e). One unglazed earthenware smoking pipe bowl fragment (Figure 6.17d), as well as one red-brown glazed earthenware anthropomorphic smoking pipe bowl fragment (Figure 6.17f) were recovered.

Figure 6.17. Smoking pipe bowls and stem fragments recovered: a) kaolin pipe bowl fragment (31CK220); b) kaolin pipe bowl fragment (31CK220**); c) kaolin pipe stem fragment (31CK221**); d) unglazed earthenware pipe bowl fragment (31CK220**); e) unglazed stoneware pipe bowl fragment (31CK218**); and f) earthenware anthropomorphic pipe bowl fragment (31CK220**).**

OTHER MATERIAL

This group included materials that could not be confidently placed in the earlier described categories along with some modern material and unmodified natural items. These consisted of slag, unknown carbon, charcoal, coal, walnut shell, fulgurite, oyster shell, unspecified bone (some burned), unidentified large mammal tooth fragment, undifferentiated rubber, and undifferentiated metal fragments (aluminum, brass, ferrous, ferrous with rubber gasket, lead, and stainless steel).

CURATION

Following cleaning, stabilization, classification, cataloguing, and quantification of material by the PCI laboratory staff, cultural materials and documentary records accumulated during a project were prepared for final curation. This process included packaging of material and copying documentary records.

During laboratory analysis, materials were catalogued in the following manner. Materials were grouped into lots by type and provenience. For example, 14 pieces of 1/4-in. chert debitage exhibiting cortex recovered from a single unit and level were grouped together into a single lot and provided a sequential lot number within that particular provenience. Lot numbers were provided in catalogue records and on bag labels. Additionally, each item was assigned PCI accession numbers as well as North Carolina accession numbers.

Materials were bagged by lot number in appropriately sized, 4 mil polyethylene, resealable plastic bags. Labels composed of provenience information, accession numbers, and lot numbers were produced on acid-free, archival quality paper and placed inside each bag. In addition, the same provenience, accession, and lot information was printed on adhesive labels and placed on the exterior of each bag. A laser printer was used to generate the labels using a special labeling program developed by PCI. This method produces more stable and legible labels than the more commonly used markers, which are subject to the problems of illegible handwriting and permanent ink rubbing off the exteriors of plastic bags.

Unstable and/or fragile materials were packaged accordingly. For instance, a fragile glass ornament may have been wrapped in archival-quality tissue and placed in a rigid container for protection. Labels (as described above) were placed inside the containers and on the exteriors.

Documentary records, including notes, field and analysis forms, photographic records, and logs are curated with cultural materials. Field and laboratory documentary records are copied on acid-free, archival quality paper.

All curated materials were placed in acid-free, archival-quality boxes with interior and exterior labels produced on acid-free paper. In addition, inventory sheets itemizing the contents were produced on acid-free paper and placed within each box. Upon final approval and acceptance of the reports for this investigation, the documentary and cultural materials generated during this project will be transported to the repository facilities at the Office of State Archaeology, Archaeological Research Center in Raleigh, North Carolina, for final curation.

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VII. TERRESTRIAL FIELD RESULTS

A total of five previously recorded sites were revisited during the course of this survey (31CK36/31CK36**, 31CK145**, 31CK146**, 31CK174** and 31CK216**). Three of these sites are historic cemeteries with marked graves (31CK145**, 31CK146**, and 31CK174**), one was recorded as a multi-component site (31CK36/31CK36**), and one was a historic isolated find (31CK216**). In addition to these, this survey prompted the discovery of 16 new sites or isolated finds recorded as 31CK218** through 31CK233** (Figures 7.1 and 7.2). All of the newly recorded sites contained historic components, some with an isolated prehistoric find within the site. Only one site (31CK222/31CK222**) contained a predominant prehistoric component, which was Early Archaic. None of the sites are recommended as eligible for the NRHP (Table 7.1), although the cemeteries are protected by North Carolina's Cemetery Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted. As there is a strong possibility of unmarked graves, PCI recommends either using methods of remote sensing to demonstrate the absence of graves in the areas immediately adjacent to the marked plots or closely monitoring the controlled stripping of the area.

PREVIOUSLY RECORDED SITES

*SITE 31CK36/31CK36***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 415520 Northing 4020450
Site Size .....unknown
Components .....unknown prehistoric, unknown historic
Landform..... low ridge
NRHP Recommendations ..... not eligible, site destroyed

Site 31CK36/31CK36** was recorded in 1981 and reported as having both an historic and prehistoric component, yet the site form only lists non-diagnostic lithic material in the artifact inventory. This assemblage included debitage and ground or pecked stone artifacts and the archaeologists recommended that no further work was necessary on this site. The coordinates recorded for its location place it on the east side of U.S. 158 in the northeast corner of a property presently occupied by Precision Auto Care. The ground surface of this tract has been graded and in the site location approximately 75 cm of soil has been removed (Figure 7.3). During this survey, shovel testing in close proximity to this graded area revealed a soil stratigraphy that indicated this removal of soil would have been adequate to remove any strata containing cultural materials.

It is very likely that this site has been destroyed. The only thing that calls this into question is the fact that the site form reports that the locational reliability of the UTMs given are accurate only within a 100-m radius. The 30-m shovel test grid established during this project surrounds this area. A historic site was encountered to the northwest of this location (31CK218**), but a clear connection with this site is elusive given the absence of prehistoric materials. This site has in all likelihood been destroyed. No further work is recommended

*SITE 31CK145***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 415544 Northing 4020087
Site Size ..... 250 m north-south by 75 m east-west

Components .....twentieth century cemetery, nineteenth to twentieth century artifact scatter, prehistoric isolated find
Landform..... low ridge
NRHP Recommendations .....not eligible; marked graves are present with a probability of unmarked graves nearby

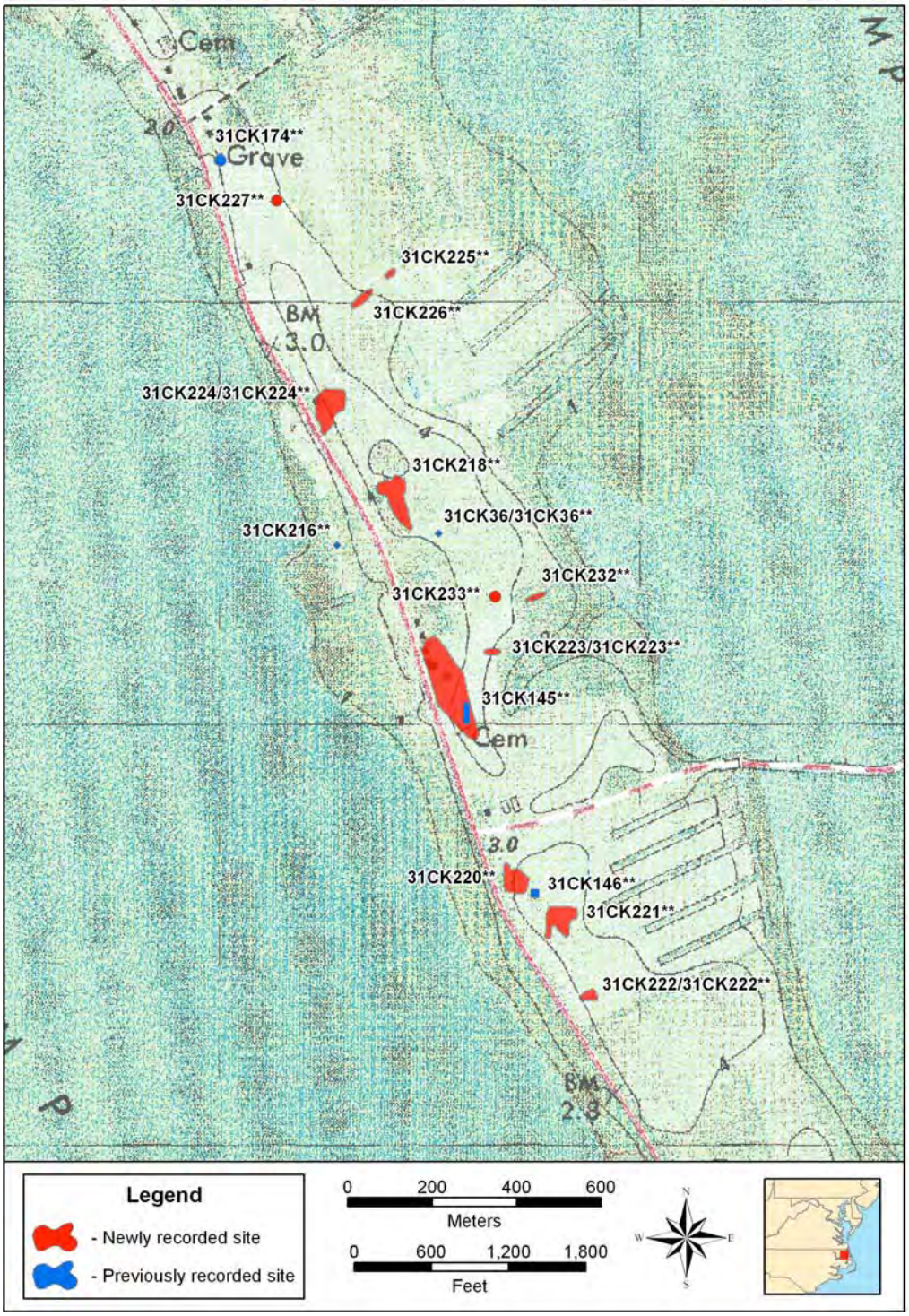

Figure 7.1. Locations of previously recorded and newly recorded sites in Area 1.

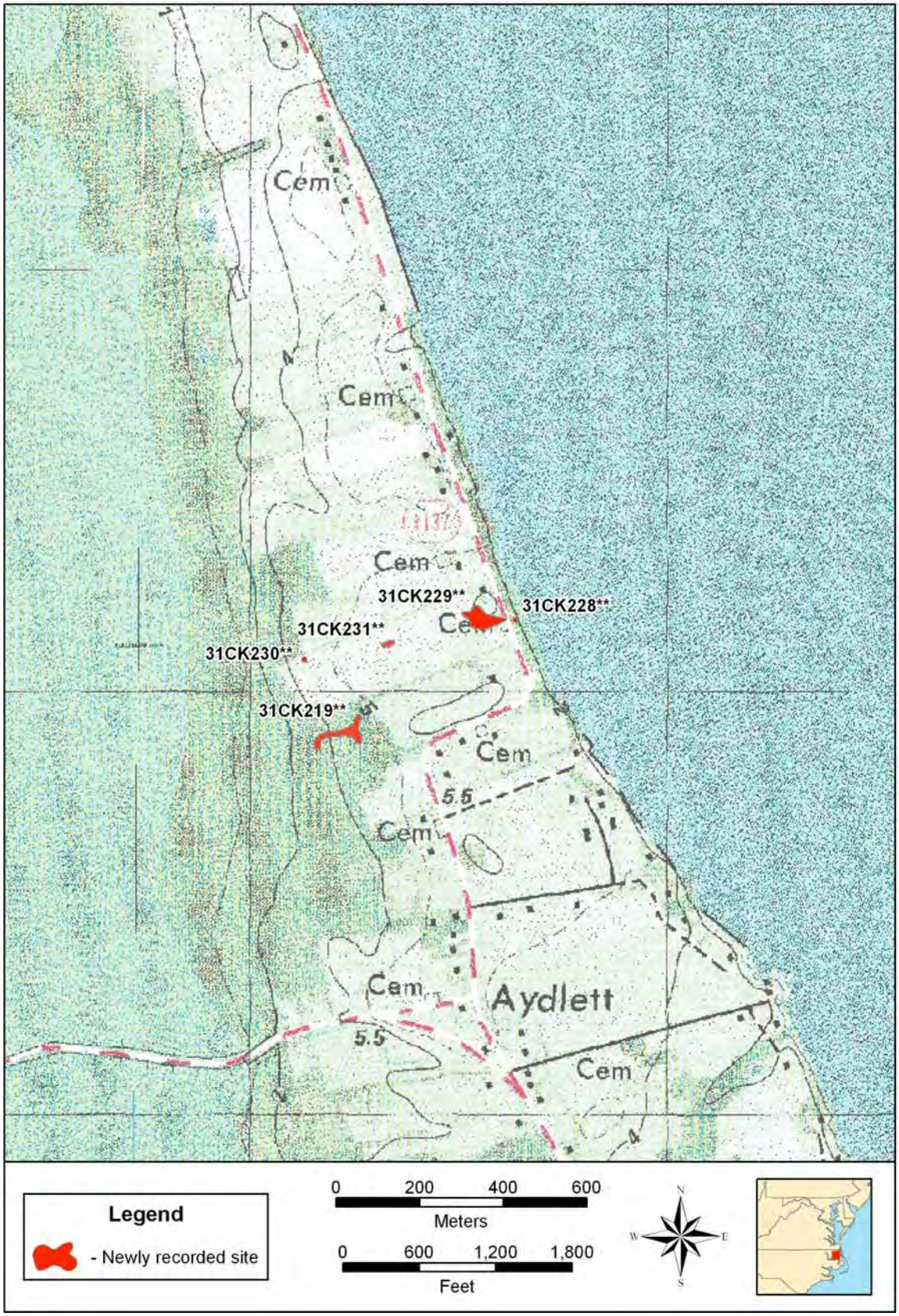

Figure 7.2. Locations of previously recorded and newly recorded sites in Area 3.

Table.7.1. Site Components and NRHP Eligibility.

Site Number	*Components*	*NRHP Eligibility*	*Recommendation*
31CK36/31CK36**	unknown prehistoric, unknown historic	not eligible	no further work
31CK145**	twentieth century Walker-Newbern-Morrisette Cemetery, nineteenth to twentieth century artifact scatter, prehistoric isolated find	not eligible	avoid or remove graves, search for additional unmarked graves
31CK146**	twentieth century Dempsey Burton Cemetery	not eligible	avoid or remove graves, search for additional unmarked graves
31CK174**	twentieth century Ryckwald Cemetery	not eligible	avoid or remove graves, search for additional unmarked graves
31CK216**	twentieth century isolated find	not eligible	no further work
31CK218**	nineteenth to twentieth century	not eligible	no further work
31CK219**	nineteenth to twentieth century	not eligible	no further work
31CK220/31CK220**	nineteenth to twentieth century, prehistoric isolated find	not eligible	no further work
31CK221/31CK221**	nineteenth to twentieth century, prehistoric isolated find	not eligible	no further work
31CK222/31CK222**	Early Archaic, nineteenth to twentieth century	not eligible	no further work
31CK223/31CK223**	unknown prehistoric and historic isolated finds	not eligible	no further work
31CK224/31CK224**	Woodland, nineteenth to twentieth century	not eligible	no further work
31CK225**	late nineteenth to twentieth century	not eligible	no further work
31CK226**	nineteenth to twentieth century	not eligible	no further work
31CK227**	nineteenth to twentieth century isolated find	not eligible	no further work
31CK228**	twentieth century isolated find	not eligible	no further work
31CK229**	twentieth century Saunders cemetery, late nineteenth to twentieth century artifact scatter	not eligible	avoid or remove graves, search for additional unmarked graves
31CK230**	nineteenth to twentieth century isolated find	not eligible	no further work
31CK231**	nineteenth to twentieth century isolated find	not eligible	no further work
31CK232**	nineteenth to twentieth century	not eligible	no further work
31CK233**	nineteenth to twentieth century isolated find	not eligible	no further work

The artifacts recovered at 31CK145** are representative of a nineteenth to twentieth century farmstead. This site number was originally assigned to the Walker-Newbern-Morrisette Cemetery which exists in close proximity to three artifact concentrations encountered during this survey. These areas were combined into a single site that incorporates the cemetery when it was realized that the site is primarily reflective of a single farming family's use of the land (the Walkers). The site abuts the east side of U.S. 158, running 250 m north-south and extending back from the road for 75 meters. A total of 29 shovel tests were dug within the boundaries of this site with only eight of them recovering artifacts (Figure 7.4).

Figure 7.3. Photograph showing disturbance to Site 31CK36/31CK36, facing south.**

These included brick fragments, wire nails and fragments, a machine-cut nail, a fence staple, window glass, unknown possible building material, whiteware, creamware, a Bristol glazed stoneware jug fragment, container glass, a porcelain possible insulator, a lead toy trolley car, unspecified bone, and undifferentiated aluminum and ferrous metal. A quartz flake was also found that merely represents an isolated occurrence of a tool sharpening. The ground surface is flat and surface exposure was non-existent due to the manicured lawns present at this location. The site currently has two privately owned homes and a rental property within its limits (Figure 7.5). The cemetery contains four separate family plots. The fenced Newbern plot contains six marked graves (Figure 7.6); the unfenced combination Walker-Newbern plot has both markers with no names (Newbern) and eight marked spaces (Walker) (Figure 7.7); a concrete slab marks unnamed infant graves (Figure 7.8); and the Morrisette plot is unmarked, but according to Walker (1995) contains two individuals. All seem to be twentieth century interments.

The artifacts encountered here are representative of a nineteenth to twentieth century farmstead. Historic research shows that the Walker family owned the property during this period. This site is complicated by the fact that local tradition maintains that there are unmarked graves of earlier landowners just outside of the marked family plots (Walker 1995). The earliest identified land owner for this tract of land was a man named Cason Morrisette. Exactly when he purchased the land could not be ascertained, but in March of 1838 a deed was recorded when he used it as collateral to secure a $380 loan. He seems to have already been well established on this land by this time as the cows, hogs, and slaves associated with his farm are listed as assets that would be sold with the property if Cason defaulted on the loan (Deed Book 21:477). This deed involved two contiguous tracts, one of 50 acres and the other of 53. The southern boundary of the property is listed as Narrow Shore Swamp Road, which seems to travel the same path as modern-day Aydlett Road (Deed Book 21:477). This small road formed the boundary between Cason's

property and Dempsey Burton's property to the south, which is where 31CK220** and 31CK221** are located.

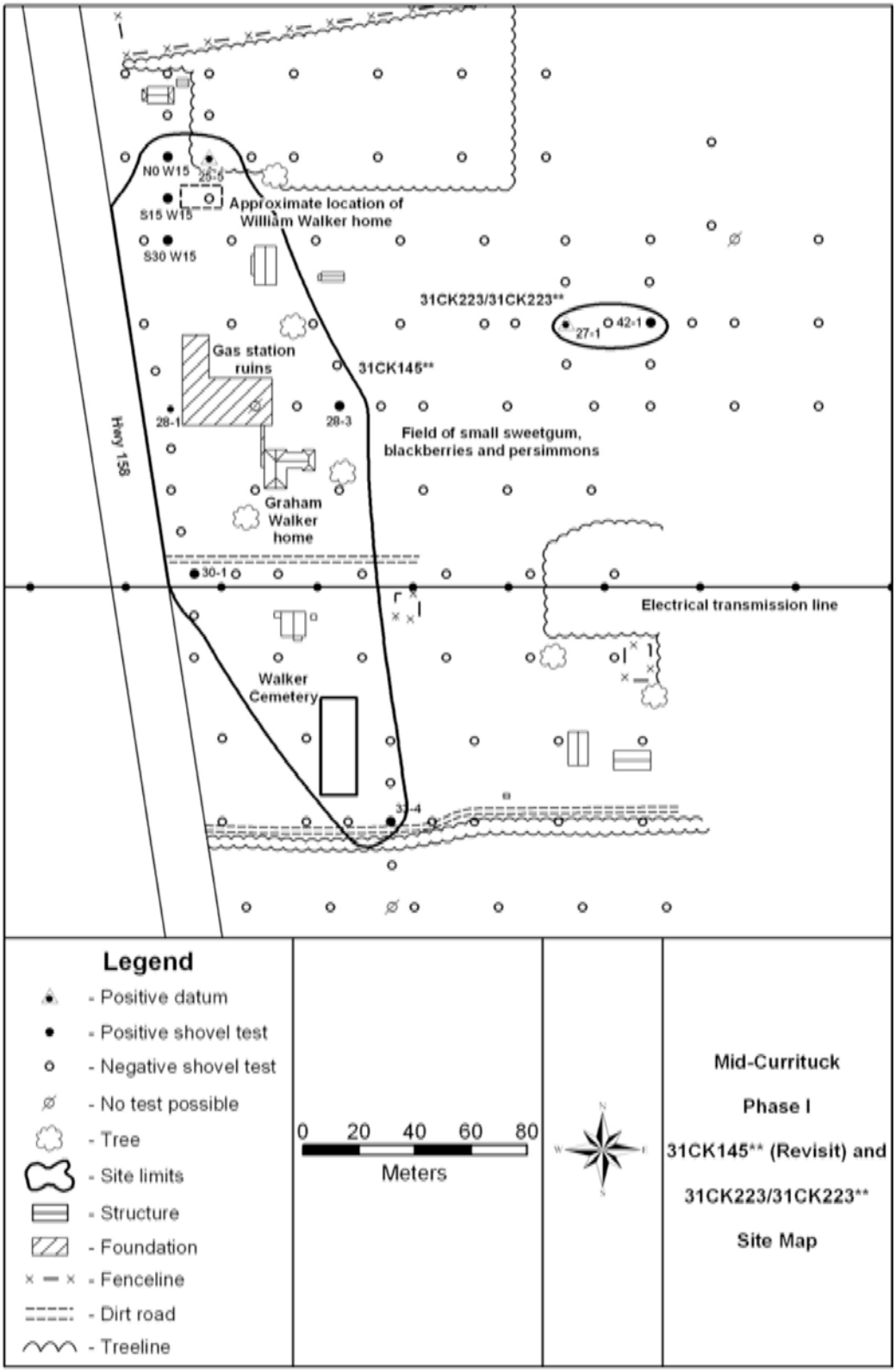

Figure 7.4. Site map for Site 31CK145 and 31CK223/31CK223**.**

Figure 7.5. Site 31CK145 cemeteries and residences, facing north-northwest.**

Figure 7.6. Site 31CK145 fenced Newbern Cemetery, facing west.**

Figure 7.7. Site 31CK145 Walker-Newbern Cemetery, facing northwest.**

Figure 7.8. Site 31CK145 unmarked infant graves, facing west.**

Evidently Cason Morrisette was able to make the payments on this loan as when he died in the 1840s both tracts were transferred to his wife and five children as equal owners (Deed Book 25:274). While ownership remained divided, for a time it seems that Cason's sons Peter and Asa took over farming operations on the two tracts. Peter and his family worked the southern tract that bounded Dempsey Burton's land and Asa and his family worked the tract just to the north (Deed Book 32:584). Asa had died by 1875 and the next year Peter transferred his remaining 1/6 interest in that farm to his brother's widow for $1 (Deed Book 32:584).

The division of the property's ownership after Cason's death complicates tracking its ownership, but it is clear that in the 1890s a man named Nathanial J. Walker began to buy the land from various surviving heirs (Deed Book 41:579-580). In one transaction the deed states it is conveying the land once owned by Asa and Peter Morrisette, but the land is no longer divided into two tracts and is now said to contain 75 acres (Deed Book 41:579). Cason Morrisette's son (Cason Jr.) had sold 25 acres of the family's land to Thomas Everton in 1859 (Deed Book 28:335).

While he consolidated the ownership of this property, there is no evidence that Nathanial J. Walker ever lived at this location. He died in 1921 and his wife and brother assumed ownership of the property, transferring it the very next year to Nathanial's two sons William and Carl (Deed Book 60:70). They held the property in joint tenancy until 1924 when it was divided between the two brothers just as Asa and Peter Morrisette had done so many years before (Deed Book 61:76). William Walker raised his family and farmed this land until his death in 1951. The house they lived in was torn down in 1972 (Figure 7.9) (Ruth Walker Crane, personal communication 2011). The artifacts recovered from the extreme northern end of the site are in close proximity to this structure's location and relate to its occupation. In 1961, William Walker's son Graham built a single-story house and a gas station (no longer extant) just to the south of the original family house. The artifacts recovered from this area are representative of this event and the home's continuing occupation.

This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP and no further work is recommended. All cemeteries fall under the provisions of North Carolina's Cemetery Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted. Local tradition maintains that there are unmarked graves of earlier landowners just outside of the marked family plots (Walker 1995). Since the possibility of unmarked graves at this cemetery is high, PCI recommends either using methods of remote sensing to demonstrate the absence of graves in the areas immediately adjacent to the marked plots or closely monitoring the controlled stripping of the area. There may also be buried gasoline tanks present from the old gas station.

*SITE 31CK146***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 414875 Northing 4021610
Site Size ..... 14 m north-south by 12 m east-west
Components ..... twentieth century cemetery
Landform..... low ridge
NRHP Recommendations .....not eligible; marked graves are present with a probability of unmarked graves nearby

This site is known locally as the Dempsey Burton Cemetery and it was first recorded during an archaeological survey in 2002. Dempsey Burton originally settled this land in 1818 and he and his family lived here for most of the nineteenth century (for a more complete discussion of chain of title for this site see 31CK220**). This small cemetery is located about 60 m east of U.S. 158

in a soybean field. There is a fenced enclosure surrounding the graves that measures approximately 14 m north-south by 12 m east-west (Figure 7.10). Presently there are four headstones visible at this location with internment dates ranging between 1906 and 2001. The oldest is the grave of Captain William M. Burton who was Dempsey Burton's grandson. The remaining graves consist of two individuals with the last name of Parker and one with the last name of Sneed.

What is notable about this cemetery is the elaborate way in which it has been decorated (Figure 7.11). There is a gateway along the eastern perimeter that has a plywood arch built over it that has been painted like a rainbow. An accompanying plywood pot of gold is situated at the southern end of the rainbow. Just a few meters west of this gate there is what appears to be a "spirit house." It unclear if this small dollhouse-like structure is covering a grave, but it takes the form of a church measuring 145 cm east-west by 1 m north-south. It has a gabled roof, lapped siding, and its windows have had pieces of various colored broken glass arranged in the opening to give the appearance of stained glass (Figure 7.12). There is a functioning door on the west side of the structure and at the time this site was visited, it was being utilized by a large groundhog as a façade hiding the entrance to his burrow within the spirit house.

Figure 7.9. Photograph of William Walker house at 31CK145 demolished in 1972 (from Ancestry.com).**

Figure 7.10. Site map for Site 31CK146.**

Figure 7.11. Photograph of Site 31CK146 Dempsey Burton Cemetery, facing east.**

Three large wooden crosses constructed out of pressure-treated landscape timbers stand to the south of the spirit house. The western side of the cemetery fence has collapsed but the original entrance is marked by a lattice archway that incorporates two bench seats. To the south of this there are plaster statues between 60 and 80 cm tall that depict Jesus, Mary, and Joseph (Figure 7.13). These figures stand before a piece of concrete that shows evidence of having had additional concrete plastered to its surface. The exact meaning of this is perhaps known only to the artist. The embellishments to this cemetery have been so energetically applied as to elevate them to the level of folk art.

The artifact scatter that most likely represents Dempsey Burton's house (31CK220**) lies less than 30 m to the northwest of the cemetery. The fact that there are no headstones for Dempsey, his wife Martha, or any of his children in the graveyard and yet his grandson is buried there, seems to elevate the chances that additional graves are present. The Burton's were also known to have owned slaves and while they may have been buried elsewhere it is not unheard of for them to have been interred just outside the family plot.

This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP and no further work is recommended. All cemeteries fall under the provisions of North Carolina's Cemetery Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted. It should be considered highly likely that there are additional graves both within the fenced enclosure and in the immediate area. Since the possibility of unmarked graves at this cemetery is so high, PCI recommends using methods of remote sensing to detect additional graves within the enclosure and in the areas immediately adjacent to the marked plots.

Figure 7.12. Photograph of "spirit house" at Site 31CK146, facing southeast.**

Figure 7.13. Plaster statues at Site 31CK146, facing west.**

*SITE 31CK174***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates ..... Easting 415005 Northing 4021330
Site Size .....10-x-10 m
Components ..... twentieth century cemetery
Landform..... low ridge
NRHP Recommendations ..... not eligible; marked graves are present

This occurrence is a small mid-twentieth century cemetery containing the graves of John and Martha Ryckwald. Recorded as a site in 2002 during a gas pipeline survey, there is some confusion concerning its exact location. The state site form gives a correct description and photograph of its location and describes it as a single headstone marking two graves. It also cites Margaret Walker's book on cemeteries in the area saying that this site corresponds to her Location #14, which are the Ryckwald graves (Walker 1995). But the UTM coordinates given on the site form are 280 m north and 130 m west of the Ryckwald graves, which actually places it at a completely different cemetery. This different location is labeled as a cemetery on the Coinjock topographic maps and the Ryckwald cemetery is marked with the word "grave." The Ryckwald graves are within the current project area reflective of the coordinates given here, but the UTM coordinates recorded on the state site file for 31CK174** are not.

These graves exist about 20 m east of Water Lily Road at its intersection with the modern corridor of U.S. 158 (Figure 7.14). The area is planted in grass and is bound by drainage ditches to the south and west (Figure 7.15). A local informant reported that the Ryckwald home had stood to the northeast of these graves (personal communication, Ned Markert 2011). There is a slight crown to the landform in that area that looks like a likely location for the home, but it is outside of the project area.

Two graves are present here that mark the final resting place of John G. Ryckwald (1889 to 1951) and Martha N. Ryckwald (1875 to 1947). They are marked with a single headstone (Figure 7.16).

This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP and no further work is recommended. All cemeteries fall under the provisions of North Carolina's Cemetery Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted.

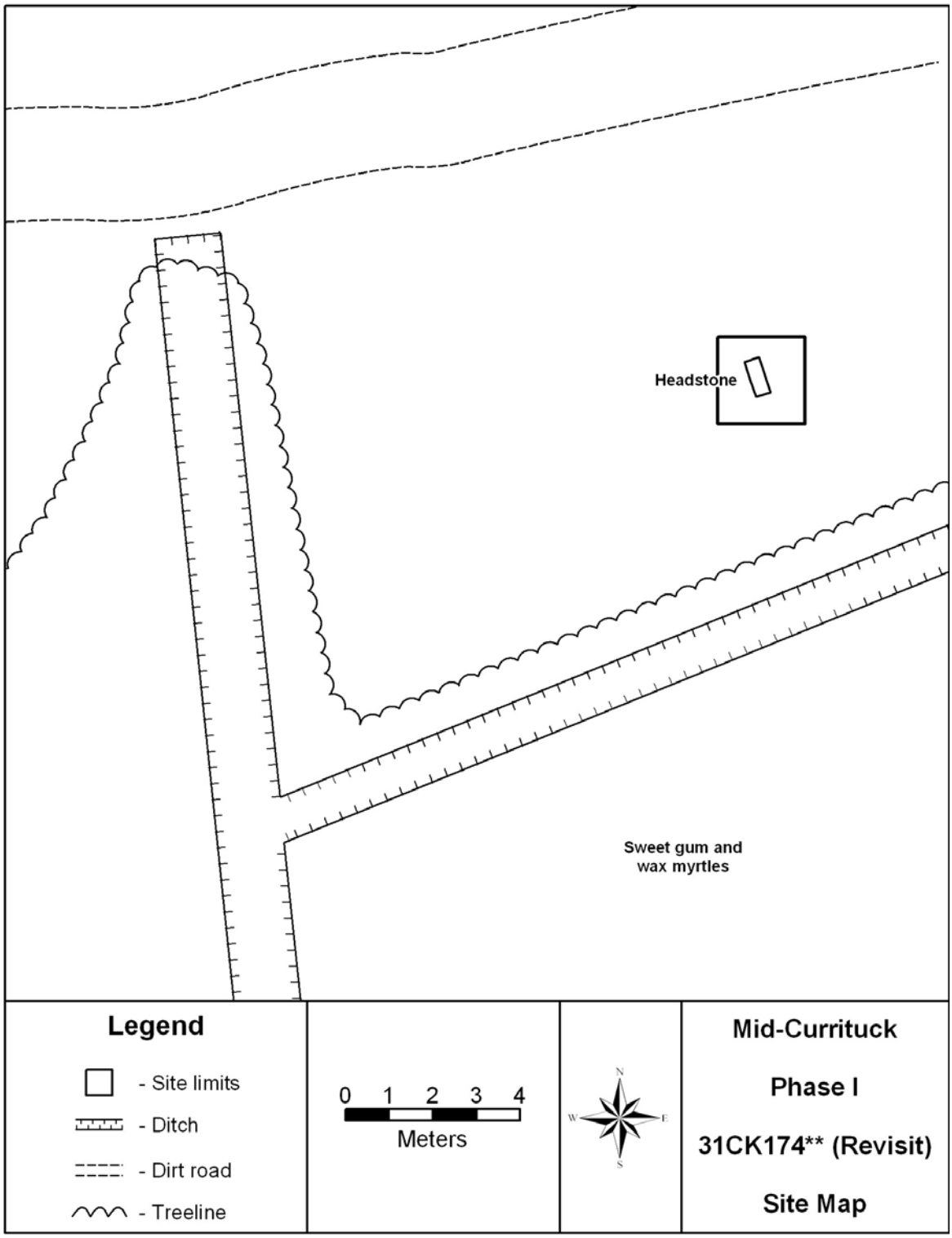

Figure 7.14. Site map for Site 31CK174.**

Figure 7.15. Photograph of Site 31CK174, facing east-southeast.**

Figure 7.16. Photograph of headstone at Site 31CK174, facing east.**

*SITE 31CK216***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates ..... Easting 415280 Northing 4020420
Site Size .....isolated find
Components .....twentieth century
Landform..... low rise on flood plain
NRHP Recommendations ..... not eligible

Site 31CK216** was recorded in 2007 by the landowner. This occurrence is an isolated find that consisted of a bayonet and scabbard found on the ground surface. The site is located approximately 40 m west of U.S. 158 on a low rise in a flood plain that is part of the Pasquotank River drainage (Figure 7.17). The bayonet is twentieth century in origin and it was conjectured by the recorder that it was possibly a World War I weapon.

The coordinates for this site were visited during this survey and the area was found to be low and wet. The 25th shovel test dug on Transect 38 was on the same landform only 8 m north-northeast of this location and it filled with water at a depth of 20 cmbs. This area is low and marshy and unremarkable.

Figure 7.17. Photograph of Site 31CK216, facing west.**

The bayonet probably represents a lost object and is not reflective of any concerted human activity in the immediate area. This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP and no further work is recommended.

NEWLY RECORDED SITES

*SITE 31CK218***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 415418 Northing 4020533
Site Size ..... 130 m north-south by 70 m east-west
Components ..... nineteenth to twentieth century
Landform..... low ridge
NRHP Recommendations ..... not eligible

The artifacts recovered at 31CK218** are representative of a nineteenth to twentieth century domestic habitation. This site is located in a cultivated field about 40 m from the east side of U.S. 158 (Figure 7.18). The ground surface at this location is flat and surface exposure was nearly 100 percent. Numerous artifacts were collected from the ground surface within the site's boundaries, including a brick fragment, mortar fragments, whiteware, stoneware, and glass. It was first detected in a series of positive shovel tests in transects 13 through 17, and then further defined by a 15-m grid. A total of 19 shovel tests were dug within the boundaries of this site with 15 of these recovering cultural materials, revealing a site measuring 130 m north-south by 70 m east-west (Figure 7.19). The artifacts found in shovel tests included brick fragments, unknown possible building material, machine-cut and wire nails, window glass, creamware, pearlware, stoneware, yellowware, whiteware, container glass, a canning jar lid liner, a stoneware smoking pipe bowl fragment, a fence staple, oyster shell, coal, slag, and undifferentiated brass and ferrous metal. The site was further tested by the excavation of two 1-x-1 m test units. These units were placed in close proximity to the more productive shovel tests.

Figure 7.18. Photograph of Site 31CK218, facing east-northeast.**

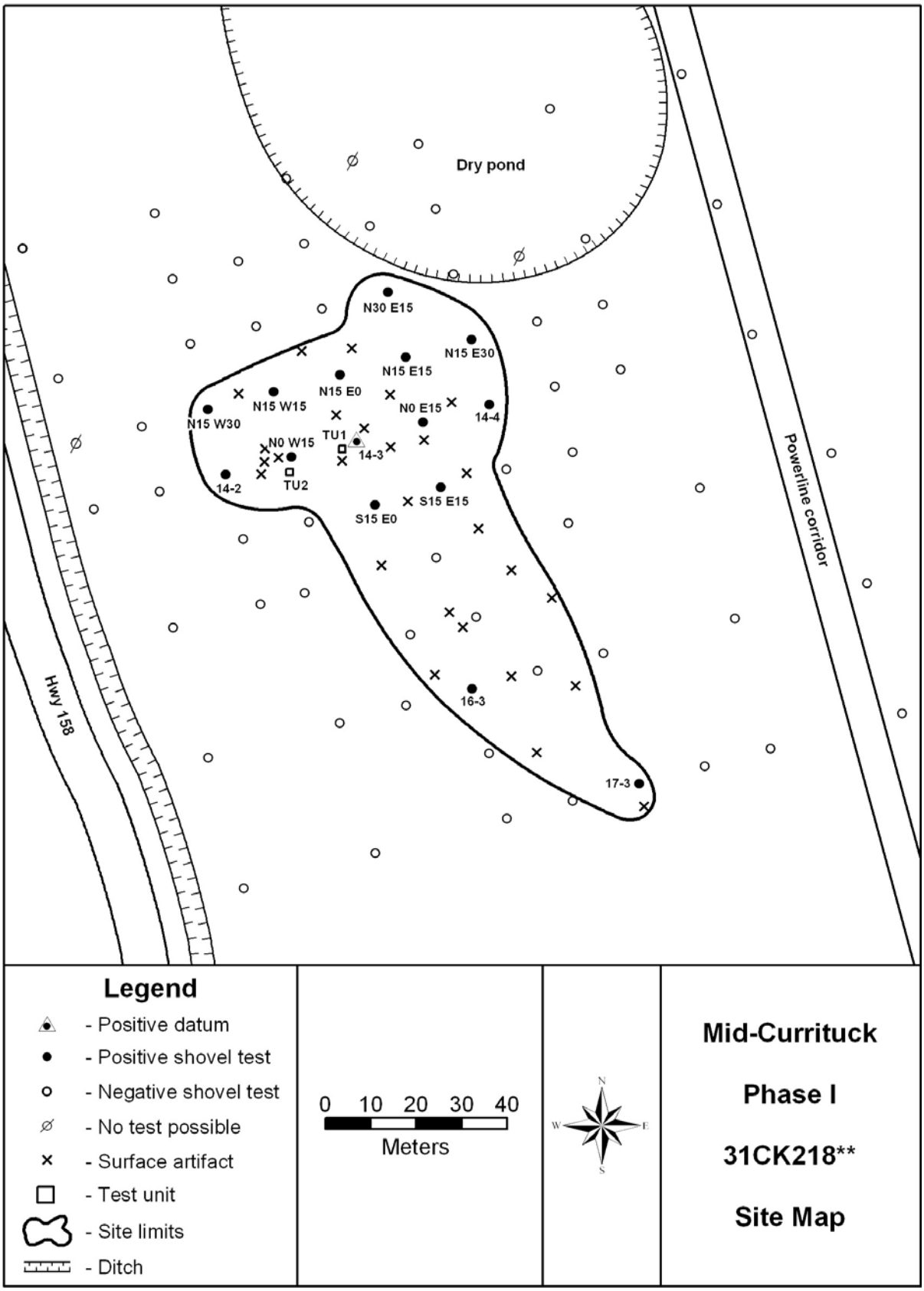

Figure 7.19. Site 31CK218 site map.**

Test Unit 1

Test Unit 1 was a 1-x-1 m unit that was placed 25 cm southwest of Shovel Test T14-3, which yielded a total of 16 historic artifacts including glass (both container and window), whiteware, and creamware. A GPS reading was taken at the northeast corner of the unit which read as follows: Zone 18S E415410 N4020555, NAD27. A total of four 10-cm levels were dug within Test Unit 1. Levels 3 and 4 were split into A and B portions since stratigraphic changes occurred within their limits. Excavation of the unit exposed a soil profile comprised of three distinct stratigraphic layers (Figure 7.20):

- **Stratum I (plow zone):** very dark grayish brown (10YR 3/2) loamy sand (10 to 35 cmbd);
- **Stratum II:** yellowish brown (10YR 5/6) loamy sand (30 to 48 cmbd); and
- **Stratum III:** yellowish red (5YR 4/6) sandy clay (40 to 50 cmbd).

Level 1 (10 to 20 cmbd) was composed of Stratum I soil, which is representative of the plow zone in this cultivated field. A total of 96 historic artifacts were recovered from this level. The artifact assemblage was numerically dominated by examples of container glass, although 20 pieces of window glass were also recovered. In addition to these, there were several pieces of whiteware, a railroad spike, a wire nail, undifferentiated stainless steel and ferrous metal, and half a dozen brick fragments. No cultural features were observed in the floor of the unit at the end of this level.

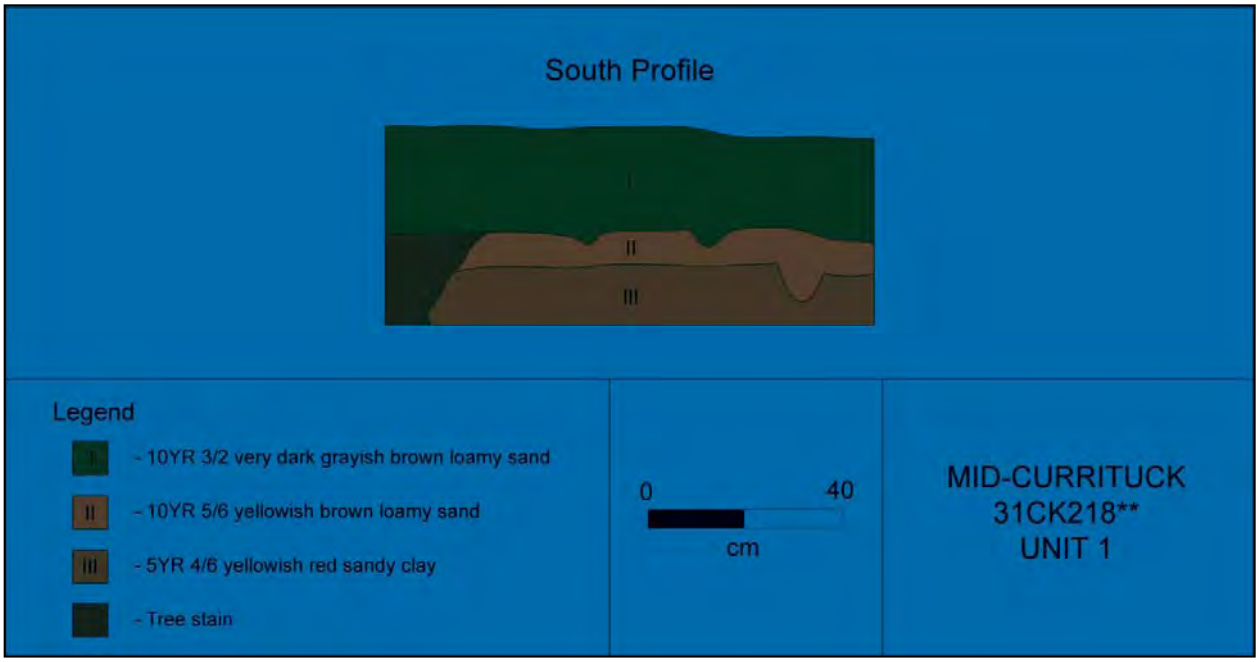

Figure 7.20. Site 31CK218, Unit 1 south profile.**

Level 2 (20 to 30 cmbd) continued into the soil of Stratum I. A total of 185 artifacts were recovered which was nearly twice the number found in Level 1. There were a few examples of whiteware, one of creamware, and one Bristol glazed stoneware fragment, but the assemblage was again dominated by container glass. There were a higher percentage of architectural artifacts present in this level including brick fragments (n=22), window glass (n=25), cut nails/fragments (n=5), and wire nails/fragments (n=18). Two pieces of plastic were found as

well as a bolt, nuts, coal, and a brass button. There were 15 fragments of undifferentiated iron, two of brass, and one of stainless steel.

Level 3A (30 to 35 cmbd) encompassed the remaining Stratum I soil that existed within this level. The assemblage was reflective of what had been found in previous levels, but the count was down significantly with only 36 items recovered. These included brick fragments, wire nails/fragments, window glass, whiteware, container glass, possible clock parts, and undifferentiated ferrous metal. There were no features observed but plow scars were evident at the interface between Stratum I and Stratum II.

Level 3B (35 to 40 cmbd) consisted of the Stratum II soils within this level. The artifact count continued to decline with only five items recovered. These included window glass, milk glass, and undifferentiated ferrous metal. At the bottom of this level Stratum III was just beginning to show in the northwest and southeast corners of the unit.

Level 4A (40 to 48 cmbd) consisted of the remaining Stratum II soils within this level. Artifact recovery was very light consisting of a single piece of clear container glass and some undifferentiated ferrous metal. When the surface of Stratum III was fully exposed no cultural features were observed in the floor of the unit.

Level 4B (40 to 50 cmbd) consisted entirely of Stratum III soil. No artifacts were recovered from this sandy clay material and the unit excavation was terminated.

Test Unit 2

Test Unit 2 was a 1-x-1 m unit that was placed 50 cm southwest of Shovel Test N0, W15 which yielded 24 historic artifacts. A GPS reading was taken at the northeast corner of the unit which read as follows: Zone 18S E415393 N4020545, NAD27. A total of four 10-cm levels were dug within Test Unit 2. Excavation of the unit exposed a soil profile comprised of three distinct stratigraphic layers (Figure 7.21):

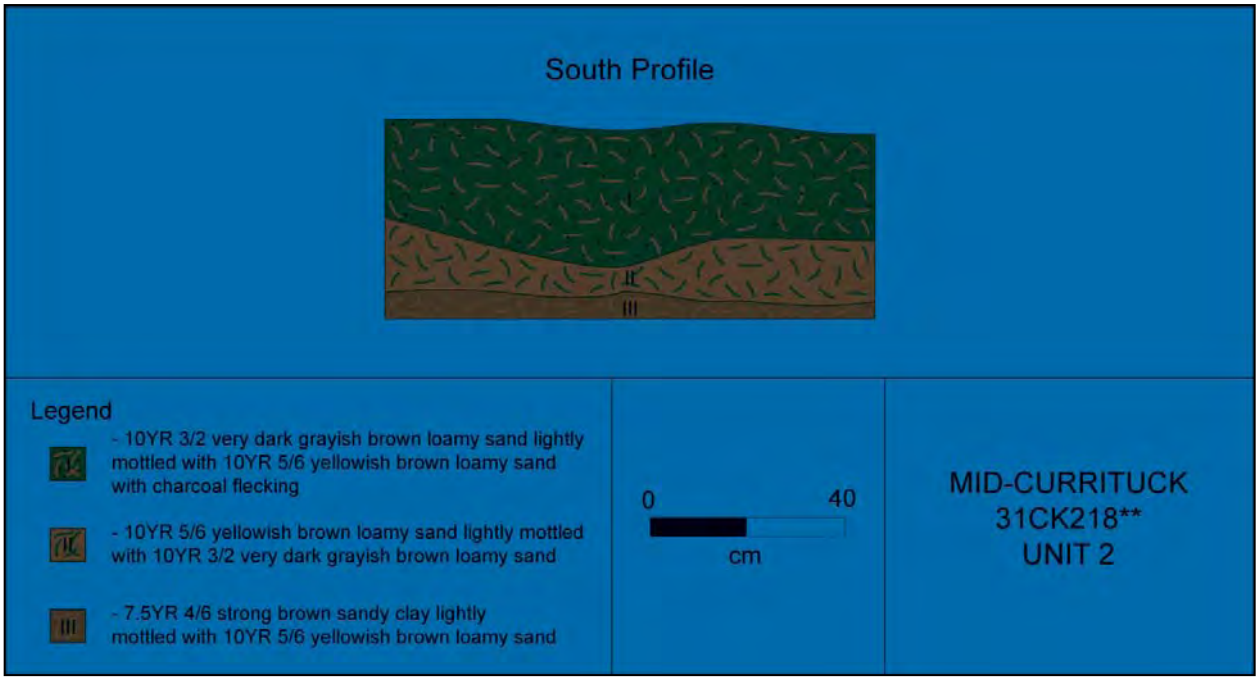

Figure 7.21. Site 31CK218, Unit 2 south profile.**

- **Stratum I (plow zone):** very dark grayish brown (10YR 3/2) loamy sand lightly mottled with yellowish brown (10YR 5/6) loamy sand (10 to 35 cmbd);
- **Stratum II:** yellowish brown (10YR 5/6) loamy sand lightly mottled with 10YR 3/2 very dark grayish brown loamy sand (30 to 48 cmbd); and
- **Stratum III:** strong brown (7.5YR 4/6) sandy clay lightly mottled with 10YR 5/6 yellowish brown loamy sand (45 to 50 cmbd).

Level 1 (10 to 20 cmbd) was composed entirely of Stratum I soil, which is representative of the plow zone in this cultivated field. A total of 54 historic artifacts were recovered from this level. The artifacts assemblage was numerically dominated by examples of container glass, although two pieces of window glass were also recovered. In addition to these there were several pieces of whiteware, wire nails/fragments, a few brick and mortar fragments, and a piece of asbestos siding. A brass cuff link, undifferentiated ferrous metal, and a white plastic button were also found. No cultural features were observed in the floor of the unit at the end of this level.

Level 2 (20 to 30 cmbd) continued into the soil of Stratum I. The artifact recovery consisted of 112 items which was slightly more than double that of Level I. Of this number, 15 ceramics were found including examples of pearlware, porcelain, whiteware, and yellowware. Container glass made up close to half the assemblage. There were a higher percentage of architectural artifacts present in this level including brick and mortar fragments, window glass, and wire and cut nails/fragments. Also recovered was a railroad spike and undifferentiated ferrous metal. No cultural features were observed in the floor of the unit at the end of this level, but Stratum II began to show up across the floor of the unit.

Level 3 (30 to 40 cmbd) consisted primarily of Stratum II soils. The assemblage was reflective of what had been found in previous levels, but the count was down significantly with only 16 items recovered. Ten of these items were shards of container glass. The remainder consisted of creamware and undifferentiated ferrous metal. There were no cultural features observed.

Level 4 (40 to 50 cmbd) began with the remaining Stratum II soils within this level. Artifact recovery was very light consisting of a cut nail, creamware, a piece of rubber, and undifferentiated ferrous metal. Stratum III was encountered about midway through this level and contained no cultural material.

The artifacts recovered at Site 31CK218** produced evidence of a nineteenth to twentieth century domestic habitation. Land title research was conducted to further enhance our understanding of this historic site. The earliest landowner of this property that could be found archivally was Caleb Everton. A transaction transferring this land to him was not found, but in an 1848 deed involving property just to the south of this location, he is cited as the landowner to the north (Deed Book 25:274). Little could be learned about this individual, but the property must have stayed in the family because in 1859, a J.J. Everton was cited as the individual that owned the land (Deed Book 28:335). Twenty-one years later, census records show that a man named Thomas Everton was then living on the farm (Ancestry.com).

Thomas Everton's son, John, sold the tract containing 245 acres to Derwood B. Parker in 1904 for $1,500 (Deed Book 46:466). Derwood and Martha Parker raised their family and farmed near this location from this time through the 1930s. While it is certain that D.B. Parker owned this land it can not be said for certain that the house site at 31CK218** is the Parker home. The census records of this period show numerous rental properties in the area and precise boundaries reflective of this kind of land use could not be distilled from the historical record. After the Parker's died, the land then passed to Marvin Waterfield of Virginia, as dictated by Martha Parker's will, in 1941 (Will Book 7:370). Waterfield was an absentee owner and probably

rented it out during much of his period of ownership. In 1954, he sold the tract which now included 365 acres to James A. Midgett and Mildred Markert both of whom were children of Ray Midgett (Deed Book 84:461-462). This deed acknowledged that the property was rented for the entire year of 1954 by a man named Marshall Grady (Deed Book 84:461). In 1964, Leander G. Markert bought the entire 365 acres, still referred to in the deed as the "Parker tract" from his brother-in-law, James A. Midgett (Deed Book 100:126). This land was still owned by this family at the time of the survey. A local informant reported that the structure at 31CK218** had been a two-story wood framed house that was not torn down until the late 1970s. During most of the 1960s, it was remembered that Sherman and Viola Woods lived at this location as renters (personal communication, Ned Markert 2011).

Shovel testing and test units placed at the site found artifacts primarily within a well-homogenized plow zone. This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP and no further work is recommended.

*SITE 31CK219***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 418215 Northing 4020901
Site Size ..... 65 m north-south by 110 m east-west
Components ..... nineteenth to twentieth century
Landform..... low ridge
NRHP Recommendations ..... not eligible

The artifacts recovered at 31CK219** are representative of a nineteenth to twentieth century trash dump. This location is situated in a densely forested area made up primarily of water oaks, sweet gums, and pines (Figure 7.22). Surface exposure was limited to the surface of the dirt roads that cross the area. There are some pushpiles along the northern edge of the site that probably relate to the construction of the Power Company sub-station just to the south. Most of the artifacts recovered from this site came from the surface exposure provided by the dirt road. These artifacts included stoneware, whiteware, porcelain, container glass, and a spoon. Only a single positive shovel test was recorded within the boundaries of this 65-x-110 m site, which recovered a fragment of window glass (Figure 7.23).

This site appears to be little more than a dumping location for the trash of a former landowner. The artifacts recovered were reflective of nineteenth to twentieth century material culture. The current landowner reported seeing trash from a former owner broadcast in this area prior to the construction of the power sub-station (personal communication Charles Angus). The recovery was directly tied to this road having been moved around by intermittent grading. This site's interpretation as a trash dump is supported by the near absence of architectural artifacts.

This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP. No further work is recommended.

Figure 7.22. Photograph of Site 31CK219, facing west.**

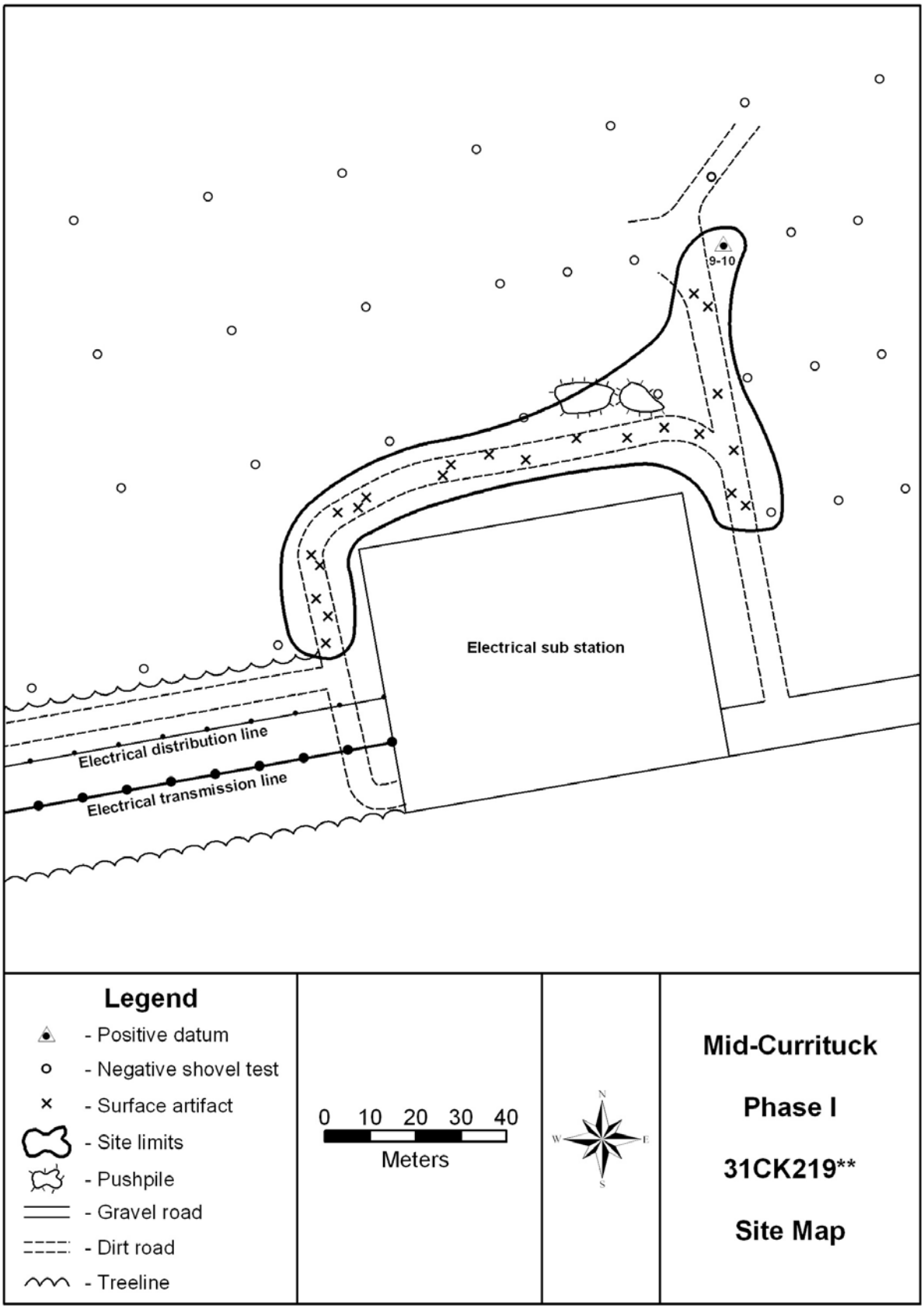

Figure 7.23. Site 31CK219 site map.**

*SITE 31CK220***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates ..... Easting 415699 Northing 4019626
Site Size ..... 70 m north-south by 60 m east-west
Components ..... nineteenth to twentieth century, unknown prehistoric isolated find
Landform..... low ridge
NRHP Recommendations ..... not eligible

The artifacts recovered at 31CK220** are representative of a nineteenth to twentieth century domestic habitation. This site is located in a cultivated field about 10 m from the east side of U.S. 158. The ground surface at this location is flat and surface exposure was only about 10 percent due to the presence of knee-high soybeans at the time of the survey (Figure 7.24). The site was first detected by four positive shovel tests on Transect 54 and then further defined by a 15-m shovel test grid. A total of 14 shovel tests were dug within the boundaries of this site with 12 of these recovering cultural materials (Figure 7.25). This included brick fragments, wire nail fragments, window glass, whiteware, earthenware, creamware, pearlware, tin-glazed earthenware, yellowware, stoneware, container glass, an earthenware smoking pipe bowl fragment, a porcelain doll arm, and undifferentiated brass and ferrous metal. This defined a site measuring 70 m north-south by 60 m east-west. The site was further tested by the excavation of a 1-x-2 m test unit. This unit was placed in close proximity to the most productive shovel test encountered at the site.

Figure 7.24. Photograph of Site 31CK220, facing south.**

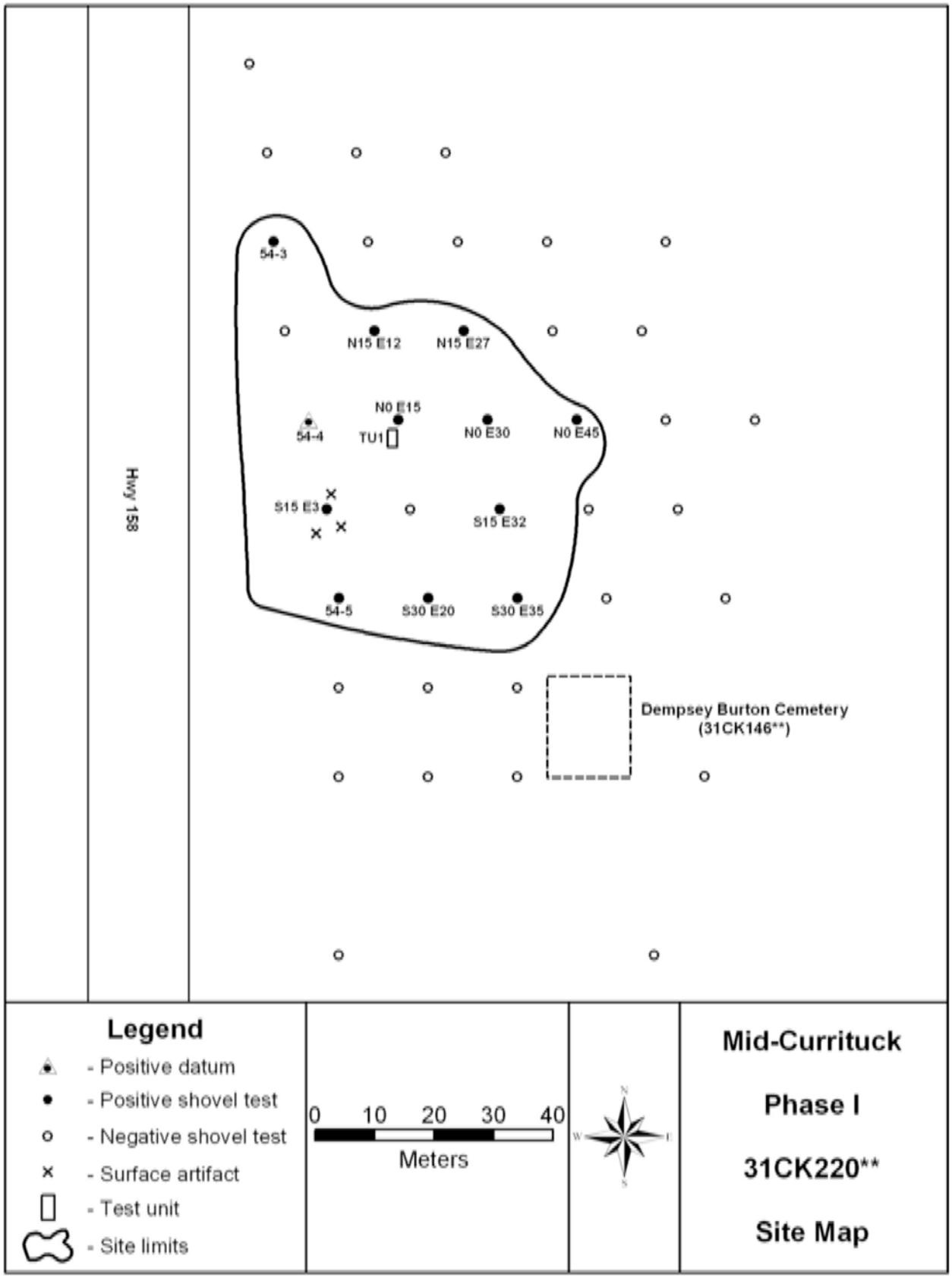

Figure 7.25. Site 31CK220 site map.**

Test Unit 1

Test Unit 1 was a north-south oriented 1-x-2 m unit that was placed 40 cm southwest of Shovel Test N0, E15 which yielded 51 historic artifacts. A GPS reading was taken at the northeast corner of the unit which read as follows: Zone 18S E415697 N4019642, NAD27. A total of four 10-cm levels were dug within Test Unit 1. Excavation of the unit exposed a soil profile comprised of three distinct stratigraphic layers (Figure 7.26):

- **Stratum I (plow zone):** dark yellowish brown (10YR 4/4) sandy loam (10 to 33 cmbd);
- **Stratum II:** brownish yellow (10YR 6/6) sandy loam (29 to 45 cmbd); and
- **Stratum III:** strong brown (7.5YR 5/8) sandy clay (40 to 50 cmbd).

Level 1 (10 to 20 cmbd) was composed entirely of Stratum I soil, which is representative of the plow zone in this soybean field. A total of 199 historic artifacts were recovered from this level and of this number 164 were made of glass. Most of these were container glass (n=133) of various colors but the assemblage also included window glass (n=30) and a four-hole milk glass button. Architectural artifacts included the window glass already mentioned, a cut nail fragment, and small brick fragments. Other recoveries consisted of whiteware, undifferentiated ferrous metal fragments, a small piece of lead, an unglazed earthenware pipe bowl fragment, and a piece of yellow plastic of unknown function. When this level was completed no cultural features were noted in the floor of the unit.

Level 2 (20 to 30 cmbd) continued into the soil of Stratum I. The recovery from this level consisted of 737 items with glass artifacts making up well over half of this. Architectural artifacts included a large amount of window glass, brick and mortar fragments, and nail fragments (both cut and wire). There were three times as many wire nails present as cut. The ceramics were varied including utilitarian earthenwares, whiteware, creamware, pearlware, porcelain, and stoneware. Other artifacts recovered from the level included bisque figurine fragments, a .22 cal bullet casing, a ferrous metal button, a railroad spike, fence staples, kaolin pipe fragments, a piece of brass, a fragment of a large mammal tooth, undifferentiated ferrous metal fragments, and a single sandstone flake. No cultural features were observed in the floor of the unit at the end of this level, but Stratum II was beginning to show up across the floor of the unit.

Level 3 (30 to 40 cmbd) had just a few centimeters of Stratum I still present but it consisted primarily of Stratum II soils. Some staining was noted within this level near the center of the unit. It was explored as a possible feature, but it was found to be a tree stain. The recovery from this level was similar to what had been found in previous levels but the count was down significantly with 227 items recovered. Glass artifacts were the most numerous. Most of this consisted of container glass although there were over two dozen pieces of window glass in this collection. Other architectural artifacts were brick and nail fragments, with over twice as many wire nail fragments as cut. The ceramics encountered in this level included lead glazed earthenware, stoneware, whiteware, pearlware, and creamware. Other artifacts included kaolin pipe fragments, a piece of undifferentiated lead, undifferentiated ferrous metal fragments and a piece of brown plastic. When this level was completed there were no cultural features observed in the floor of the unit.

Level 4 (40 to 50 cmbd) began with the remaining Stratum II soils. The clay subsoil of Stratum III was encountered about midway through this level. No artifacts were encountered during the excavation of this level and when it was completed no features were noted in the floor of the unit.

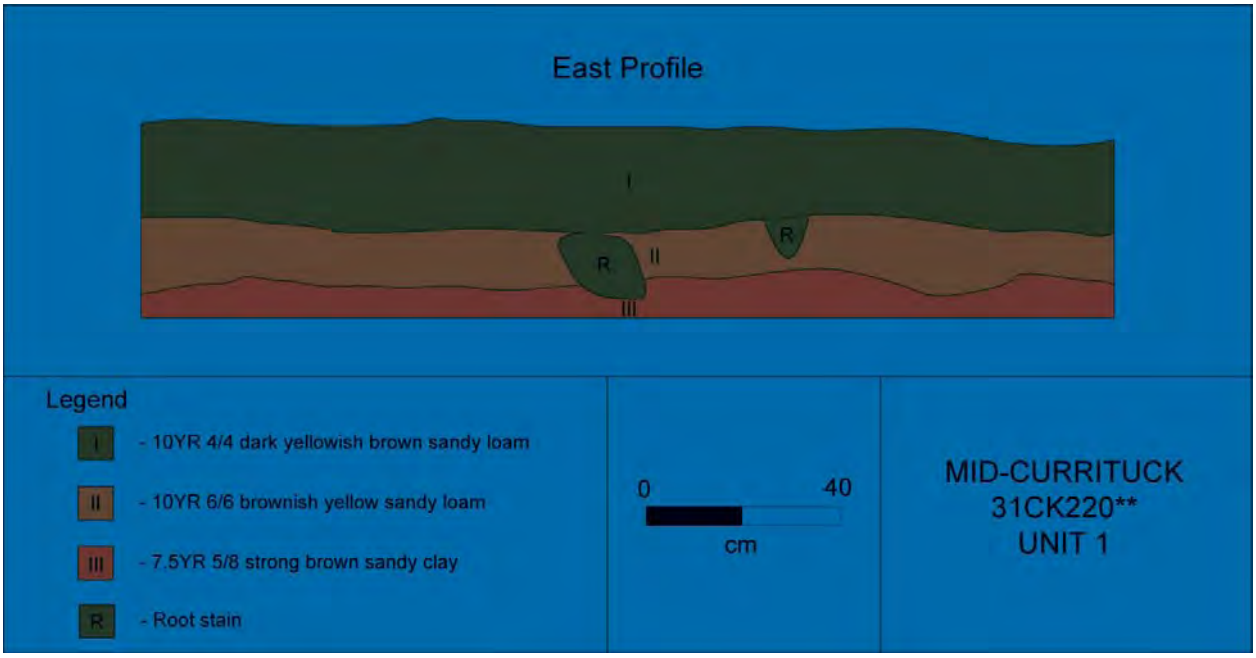

Figure 7.26. Site 31CK220, Unit 1 east profile.**

The artifacts recovered at Site 31CK220** produced evidence of a nineteenth to twentieth century domestic habitation. Dempsey Burton was the earliest landowner found that was directly associated with this tract of land. In January of 1818, the State of North Carolina granted him 60 acres of unoccupied land that was described as being in the "backwoods" of Currituck County (Deed Book 15:302). Census records show that he was a native North Carolinian but exactly where he was born and raised could not be ascertained. He was around 21 years old when he acquired the grant and probably started his farming operation there shortly afterwards. He first appeared in census records in 1830 and at this time the ages and gender of the people living in his household were suggestive of a wife and young daughter and included four enslaved persons as well (Ancestry.com). It was not until later that census records included information on the value of the property owned by the individuals listed. But the economic situation of the Burton family is revealed by the fact that they owned four slaves, suggesting they had at the least a middling economic status.

By the time the 1850 census was taken, Burton's family now included two daughters and the value of his real estate was listed at $1,100 (Ancestry.com). The local community was made up of small farmers like himself and when this value is compared to his neighbor's property it actually puts him near the top. It is unclear if this amount included any additional properties Burton had purchased in the area since his original grant. It is known that he owned two additional tracts; one of 120 acres and one of 50 acres near the Albemarle and Chesapeake Canal north of the project area. Evidence of this was found in later transactions when he sold these properties to his sister and when the Albemarle and Chesapeake Canal Company negotiated for a 100 ft. wide easement across one of them in 1856 (Deed Book 30:205; Deed Book 27:458).

On the eve of the Civil War the 1860 census, the now 63-year-old Burton was living at this location with his wife, three children, and a probable in-law named Sarah Morrisette (Ancestry.com). Burton's wife was a Morrisette and her family's property was just north of his place. He may have been too old for military service, but lived to experience the economic downturn across the South after the war. It is unclear how this affected him but it was in 1867 that he sold his other tracts near the canal to his sister (Deed Book 30:205). Burton must have

died during the next decade as the last census he appeared in at this location was 1870 although his family was still there in the 1880s and possibly longer (Ancestry.com). Gaps in the historic record made it impossible to determine who lived in the house after the Burtons. Local informant Ruth Crane, a resident of the area since the 1930s, reported that the Umphlett family lived there and that the house stood until the early 1940s (personal communication, Ruth Crane 2011).

Shovel testing and the test unit placed at the site found artifacts exist almost entirely within a well-homogenized plow zone. With the absence of intact deposits this site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP. No further work is recommended.

*SITE 31CK221***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 415809 Northing 4019551
Site Size ..... 75 m north-south by 70 m east-west
Components ..... nineteenth to twentieth century, unknown prehistoric isolated find
Landform..... low ridge top
NRHP Recommendations ..... not eligible

The artifacts recovered at 31CK221** are representative of a nineteenth to twentieth century domestic habitation. This site is located in a cultivated field about 60 m from the east side of U.S. 158. The ground surface at this location is fairly flat with perhaps a slight fall towards the west. Surface exposure was only about 10 percent due to the presence of knee-high soybeans at the time of the survey (Figure 7.27). The site was first detected by a surface scatter of artifacts encountered along Transect 37. These consisted of creamware, stoneware, and a kaolin pipe stem fragment. The site limits were further defined with a 15-m shovel test grid. A total of 19 shovel tests were dug within the boundaries of this site with 16 of these recovering cultural materials to reveal a site measuring 75 m north-south by 70 m east-west (Figure 7.28). The recovery included brick fragments, earthenware, whiteware, stoneware, creamware, container glass, and undifferentiated ferrous metal. The site was further tested by the excavation of a 1-x-2 m test unit. This unit was placed in close proximity to one of the more productive shovel tests.

Test Unit 1

Test Unit 1 was a 1-x-2 m that was placed 1 m south of Shovel Test N0 E30 which yielded four historic artifacts. A GPS reading was taken at the northeast corner of the unit which read as follows: Zone 18S E415809 N4019551, NAD27. A total of four 10-cm levels were dug within Test Unit 1. Excavation of the unit exposed a soil profile comprised of three distinct stratigraphic layers (Figure 7.29):

- **Stratum I (plow zone):** dark yellowish brown (10YR 4/4) sandy loam (10 to 35 cmbd);
- **Stratum II:** brownish yellow (10YR 6/6) sandy loam (28 to 50 cmbd); and
- **Stratum III:** strong brown (7.5YR 5/8) sandy clay loam (34 to 50 cmbd).

Level 1 (10 to 20 cmbd) was composed entirely of Stratum I soil, which is representative of the plow zone in this cultivated field. A total of 15 historic artifacts were recovered from this level. This assemblage contained container glass, lead glazed earthenware, creamware, whiteware, and brick fragments. No cultural features were observed in the floor of the unit at the end of this level.

Figure 7.27. Photograph of Site 31CK221, facing east.**

Level 2 (20 to 30 cmbd) continued into the soil of Stratum I, although it did contain a small amount of Stratum II encountered in some areas. The artifact recovery was still light (n=33), but more than doubled from the previous level. Ceramics were the most numerous type of artifact making up nearly two-thirds of the recovery. Included in this assemblage were earthenwares (Albany slipped, brown glazed, and tin glazed), as well as creamware, pearlware, and whiteware. A few brick fragments and a single wrought nail were the only architectural artifacts recovered. Container glass was present as well as a kaolin pipe fragment, a piece of undifferentiated ferrous metal, and a single chert flake. No cultural features were observed in the floor of the unit at the end of this level.

Level 3 (30 to 40 cmbd) consisted primarily of Stratum II with some Stratum III soil showing up near the base of the level. The ceramics recovered from this level included Albany slipped earthenware, creamware, and pearlware. There were 45 small brick fragments encountered, only five of which were retained for a sample. Additional artifacts included container glass, a ferrous metal tack, a piece of undifferentiated ferrous metal, and a single chert flake. At the base of this level Stratum III was exposed across much of the unit. Near the center of the unit some staining was noted and initially interpreted as a possible pit feature. This area was bisected, but during its excavation it became apparent that this occurrence was in fact a tree stain. There were no cultural features observed within this level or in the unit floor after its excavation.

Level 4 (40 to 50 cmbd) consisted of Stratum III soils and a small amount of material associated with the tree stain already mentioned. No artifacts were recovered from this level. When it was completed other than a few root stains, the entire floor consisted of the sandy clay subsoil of Stratum III.

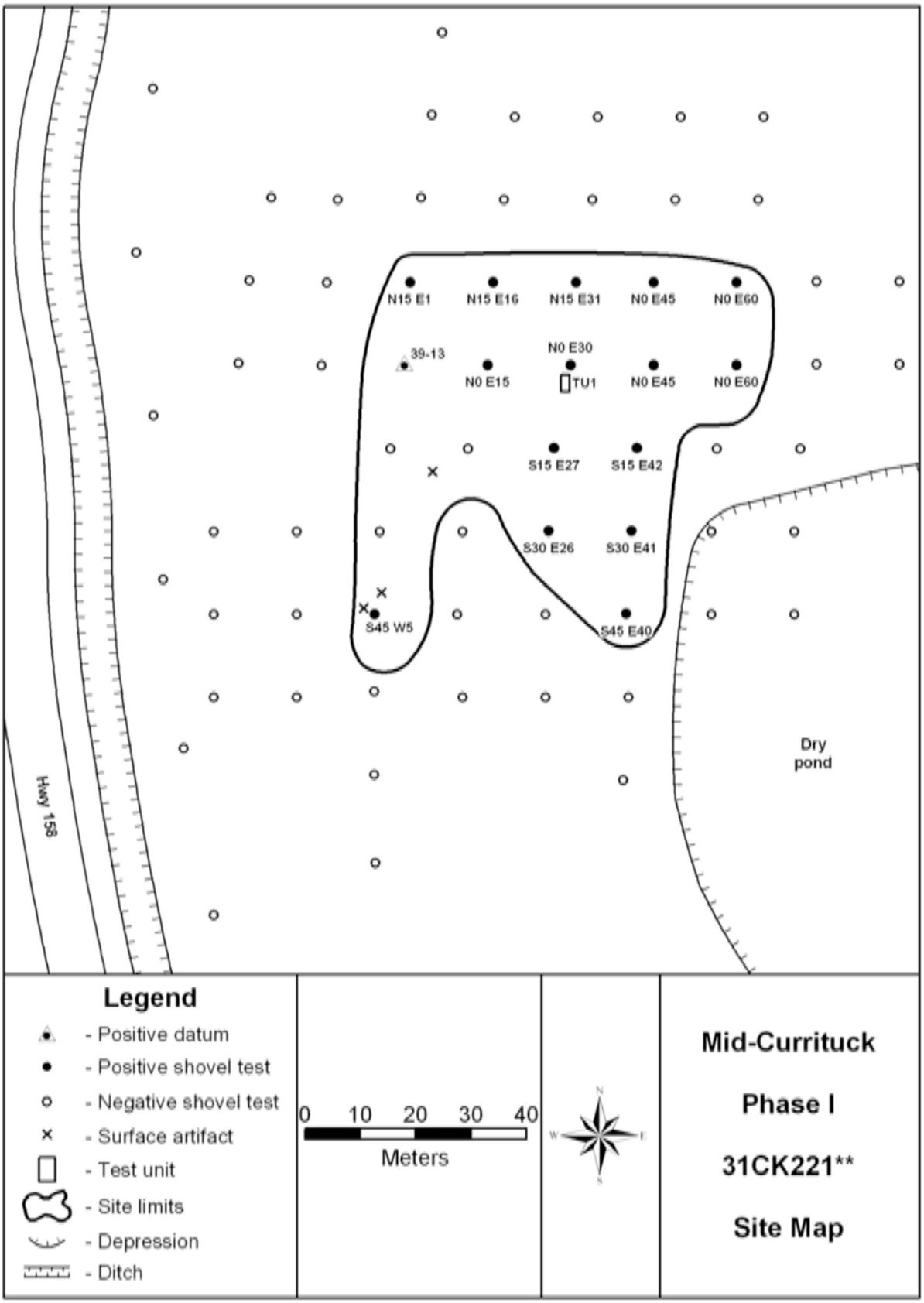

Figure 7.28. Site 31CK221 site map.**

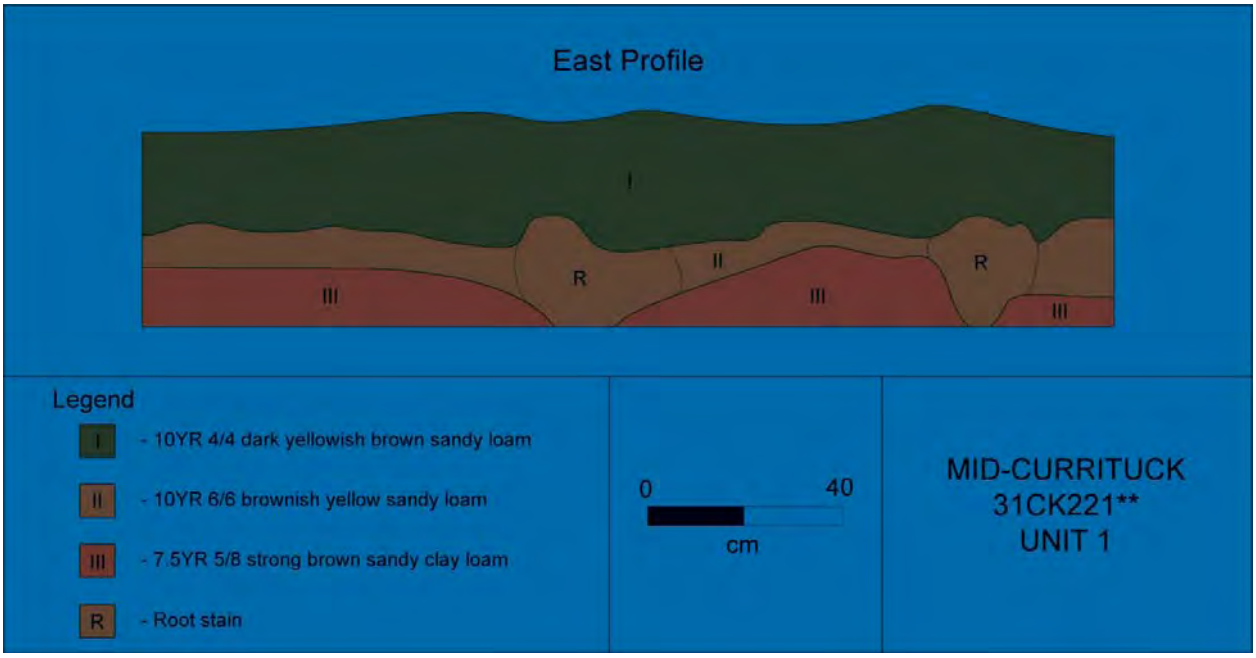

Figure 7.29. Site 31CK221, Unit 1 east profile.**

The artifacts recovered at Site 31CK221** produced evidence of a nineteenth to twentieth century domestic habitation. This site has the same landownership history as Site 31CK220** and appears archaeologically as a second domestic habitation on this property. One possible explanation for this is that one of the structures was a slave cabin. Dempsey Burton was the earliest landowner found that was directly associated with this tract of land. In January of 1818, the State of North Carolina granted him 60 acres of unoccupied land that was described as being in the "backwoods" of Currituck County (Deed Book 15:302). Later census records show that he was a native North Carolinian but exactly where he was born and raised could not be ascertained. He was around 21 years old when he acquired the grant and probably started his farming operation there shortly afterwards. He first appears in census records in 1830 and at this time the ages and gender of the people living in his household are suggestive of a wife and young daughter and included four enslaved persons as well (Ancestry.com). It was not until later that census records included information on the value of the property owned by the individuals listed. But the economic status of the Burton family is revealed by the fact that they owned four slaves suggesting a middling economic status.

By the time the 1850 census was taken Burton's family now included two daughters and the value of his real estate was listed at $1,100 (Ancestry.com). The local community was made up of small farmers like himself and when this value is compared to his neighbor's property it actually puts him near the top. It is unclear if this amount included any additional properties Burton had purchased in the area since his original grant. It is known that he owned two additional tracts; one of 120 acres and one of 50 acres near the Albemarle and Chesapeake Canal north of the project area. Evidence of this was found in later transactions when he sold these properties to his sister and when the Albemarle and Chesapeake Canal Company negotiated for a 100 ft. wide easement across one of them in 1856 (Deed Book 30:205; Deed Book 27:458).

On the eve of the Civil War the 1860 census found the now 63-year-old Burton living with his wife, three children, and a probable in-law named Sarah Morrisette (Ancestry.com). He was probably too old for military service but lived to experience the economic downturn across the South after the war. It is unclear how this affected him, but it was in 1867 that he sold his other

tracts near the canal to his sister (Deed Book 30:205). Burton must have died during the next decade as the last census he appeared in at this location was 1870 though his family was still there in 1880 (Ancestry.com). Gaps in the historic record made it impossible to determine who lived in the house after the Burtons.

Shovel testing and the test unit placed at the site found artifacts primarily within a well-homogenized plow zone. With a lack of intact deposits, this site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP. No further work is recommended.

*SITE 31CK222/31CK222***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 415875 Northing 4019353
Site Size ..... 25 m north-south by 40 m east-west
Components .....Early Archaic, nineteenth to twentieth century
Landform..... low ridge
NRHP Recommendations ..... not eligible

Site 31CK222/31CK222** is a sparse prehistoric lithic scatter with a very sparse nineteenth to twentieth century occurrence. The site is located in a cultivated field about 25 m from the east side of U.S. 158. The ground surface at this location is flat and surface exposure was limited to approximately 10 percent due to the knee-high soybeans present when the fieldwork was conducted (Figure 7.30). This occurrence was first detected by positive Shovel Test 20 on Transect 39 which recovered a single quartz flake. The limits of the site were then defined by a 15-m grid. A total of four additional shovel tests were dug within the boundaries of this site with three of these recovering cultural materials to reveal a site measuring 25 m north-south by 40 m east-west (Figure 7.31). Items recovered from the shovel tests consisted of debitage (chert, quartz, and sandstone). The site was further tested by the excavation of two 1-x-1 m test units. These units were placed in close proximity to the most productive shovel test.

Figure 7.30. Photograph of Site 31CK222/31CK222, facing north.**

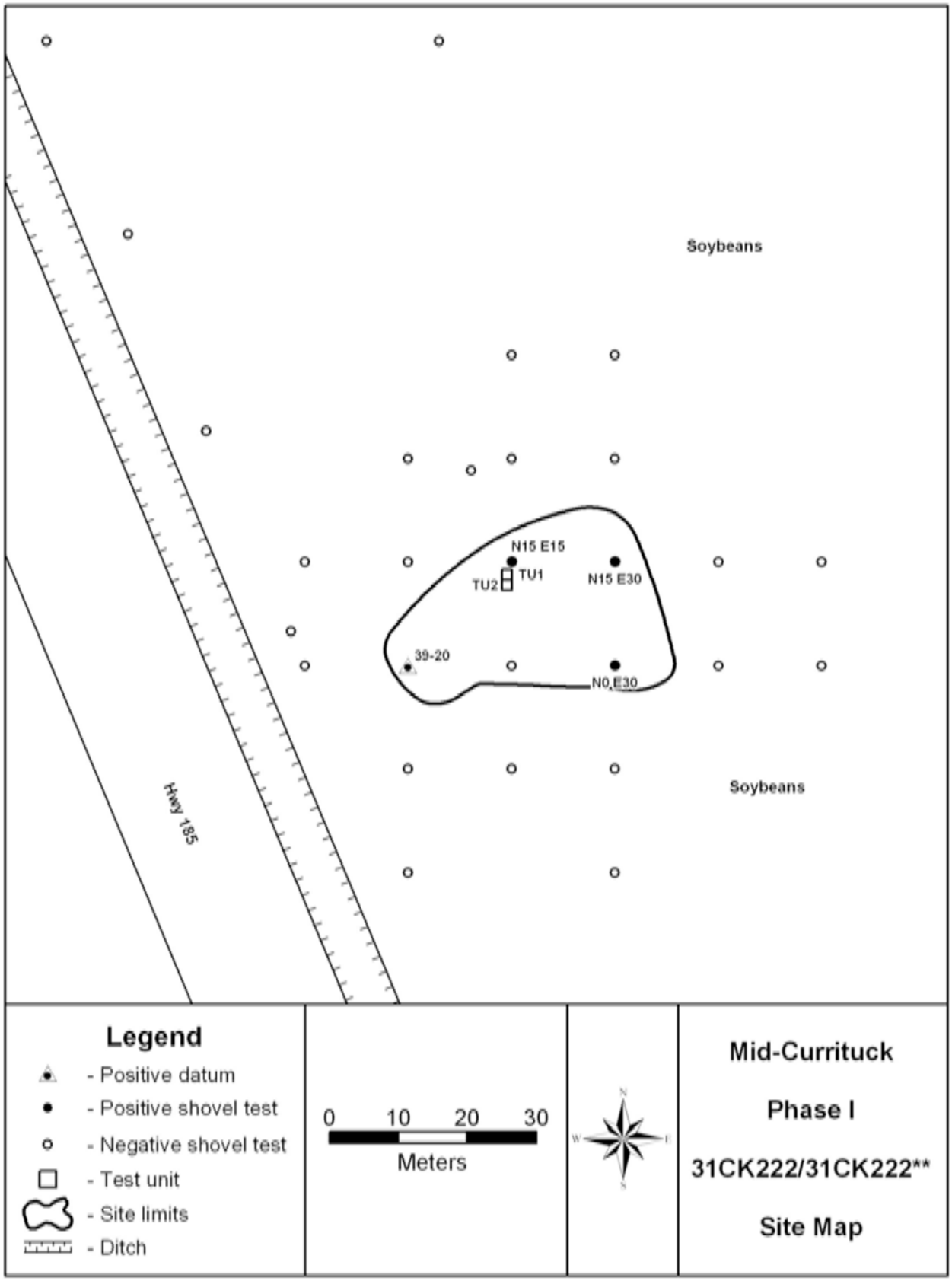

Figure 7.31. Site 31CK222/31CK222 site map.**

Test Unit 1

Test Unit 1 was a 1-x-1 m test unit that was placed 50 cm south of Shovel Test N15 E15 which yielded four pieces of debitage. A GPS reading was taken at the northeast corner of the unit which read as follows: Zone 18S E415866 N4019365, NAD27. A total of six 10-cm levels were dug within Test Unit 1. Excavation of the unit exposed a soil profile comprised of three distinct stratigraphic layers (Figure 7.32):

- **Stratum I (plow zone):** dark yellowish brown (10YR 3/6) sandy loam (10 to 39 cmbd);
- **Stratum II:** strong brown (7.5YR 5/8) sandy loam (32 to 68 cmbd); and
- **Stratum III:** yellowish red (5YR 5/8) sandy clay loam (65 to 70 cmbd).

Level 1 (10 to 20 cmbd) was composed entirely of Stratum I soil, which is representative of the plow zone in this cultivated field. No artifacts were recovered from this level. When it was completed the soils of Stratum I remained in the floor of the unit with no cultural features apparent.

Level 2 (20 to 30 cmbd) continued into the soil of Stratum I. The only recovery from this level was a Guilford quartzite projectile point. No cultural features were observed in the floor of the unit at the end of this level although Stratum II was beginning to show in some areas.

Level 3 (30 to 40 cmbd) started out with Stratum I soils but by mid-level Stratum II was exposed across most of the unit. No artifacts were recovered from this level and no features or stains were noted in the floor of the unit.

Level 4 (40 to 50 cmbd) consisted entirely of Stratum II soils. Artifact recovery included two pieces of debitage, one of quartz and one of chert. This level ended within Stratum II with no cultural features noted in the floor of the unit.

Level 5 (50 to 60 cmbd) involved only the soils of Stratum II. The recovery from this level consisted of a single chert flake. This level ended within Stratum II with no cultural features noted in the floor of the unit.

Level 6 (60 to 70 cmbd) began with Stratum II soil, but halfway through it the sandy clay of Stratum III was fully exposed across the floor of the unit. No artifacts were recovered from this level and no cultural features were noted.

Test Unit 2

Test Unit 2 was a 1-x-1 m unit that adjoined the north wall of Test Unit 1 and actually bisected Shovel Test N15 E15 which was the only location that recovered more than one prehistoric artifact. A GPS reading was taken at the northeast corner of the unit which read as follows: Zone 18S
E415866 N4019366, NAD27. A total of six 10-cm levels were dug within Test Unit 2. Excavation of the unit exposed a soil profile comprised of three distinct stratigraphic layers (see Figure 7.32):

- **Stratum I (plow zone):** dark yellowish brown (10YR 3/6) sandy loam (10 to 39 cmbd);
- **Stratum II:** strong brown (7.5YR 5/8) sandy loam (32 to 68 cmbd); and
- **Stratum III:** yellowish red (5YR 5/8) sandy clay loam (65 to 70 cmbd).

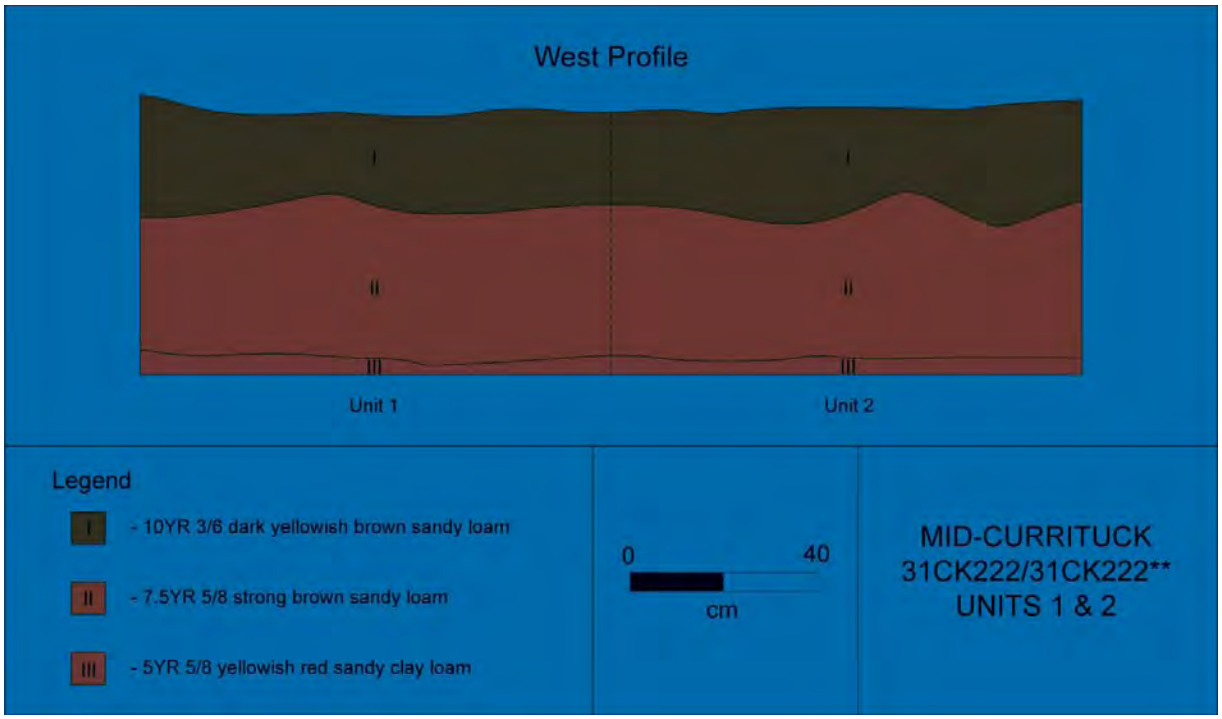

Figure 7.32. Site 31CK222/31CK222, Units 1 and 2 west profile.**

Level 1 (10 to 20 cmbd) was composed entirely of Stratum I soil, which is representative of the plow zone in this cultivated field. No artifacts were recovered from this level. When it was completed the soils of Stratum I remained in the floor of the unit with no cultural features apparent.

Level 2 (20 to 30 cmbd) continued into the soil of Stratum I. A couple of chert flakes and quartz flakes were recovered along with a small amount of historic material (a brick fragment, undecorated whiteware, and clear container glass). No cultural features were observed in the floor of the unit at the end of this level.

Level 3 (30 to 40 cmbd) started out with Stratum I soils but by mid-level Stratum II was exposed across most of the unit. A chert biface and two pieces of chert debitage were recovered from this level. When it had been completed, Stratum II was fully exposed across the floor of the unit with no features or stains noted.
Level 4 (40 to 50 cmbd) consisted entirely of Stratum II soils. A single piece of quartz debitage is all that was recovered from this level. This level ended within Stratum II with no cultural features noted in the floor of the unit.

Level 5 (50 to 60 cmbd) involved only the soils of Stratum II. There were no artifacts recovered from this level. It ended within Stratum II with no cultural features noted in the floor of the unit.

Level 6 (60 to 70 cmbd) began with Stratum II soil but halfway through, it the sandy clay of Stratum III was fully exposed across the floor of the unit. No artifacts were recovered from this level and no cultural features were noted.

This site has a very sparse prehistoric lithic scatter along with a very slight nineteenth to twentieth century occurrence. The only prehistoric diagnostic artifact encountered was a single Guilford point that was recovered in Test Unit 1, suggesting an Early Archaic occupation.

Shovel testing and test units placed at the site found artifacts primarily within a well-homogenized plow zone. This site has limited potential for yielding important information about either time period and is considered not eligible for the NRHP and no further work is recommended.

*SITE 31CK223/31CK223***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates ..... Easting 415645 Northing 4020170
Site Size ..... 10 m north-south by 30 m east-west
Components ..... unknown prehistoric isolated find, nineteenth to twentieth century isolated find
Landform..... low ridge
NRHP Recommendations ..... not eligible

This occurrence consisted of two isolated finds, one historic and one prehistoric. The vegetation in this area consisted of grasses, young sweet gums, and blackberry vines, with a more mature forest to the east consisting of planted pines and larger sweet gums (Figure 7.33). The ground surface is relatively flat with a slight slope towards the southeast. Shovel Test 1 on Transect 27 recovered two pieces of chert debitage and Shovel Test 1 on Transect 42 recovered a brick fragment. These recoveries were 30 m apart and both were used as central locations during radial testing with no additional artifacts being recovered (Figure 7.34). Surface exposure was about 10 percent but no additional artifacts were observed.

There is very little that can be said regarding this occurrence. The debitage is of an unknown prehistoric period and probably represents nothing more than the spot where someone stopped to sharpen a stone tool. The historic material no doubt relates to the area's long history of farming. This location was once owned and farmed by Cason Morrisette, Asa Morrisette, and William Walker (see Site 31CK145** for more complete land title information) and no doubt relates to activities from one of these operations.

This occurrence has limited potential for yielding important information about any time period and is considered not eligible for the NRHP and no further work is recommended.

Figure 7.33. Photograph of Site 31CK223/31CK223, facing southwest.**

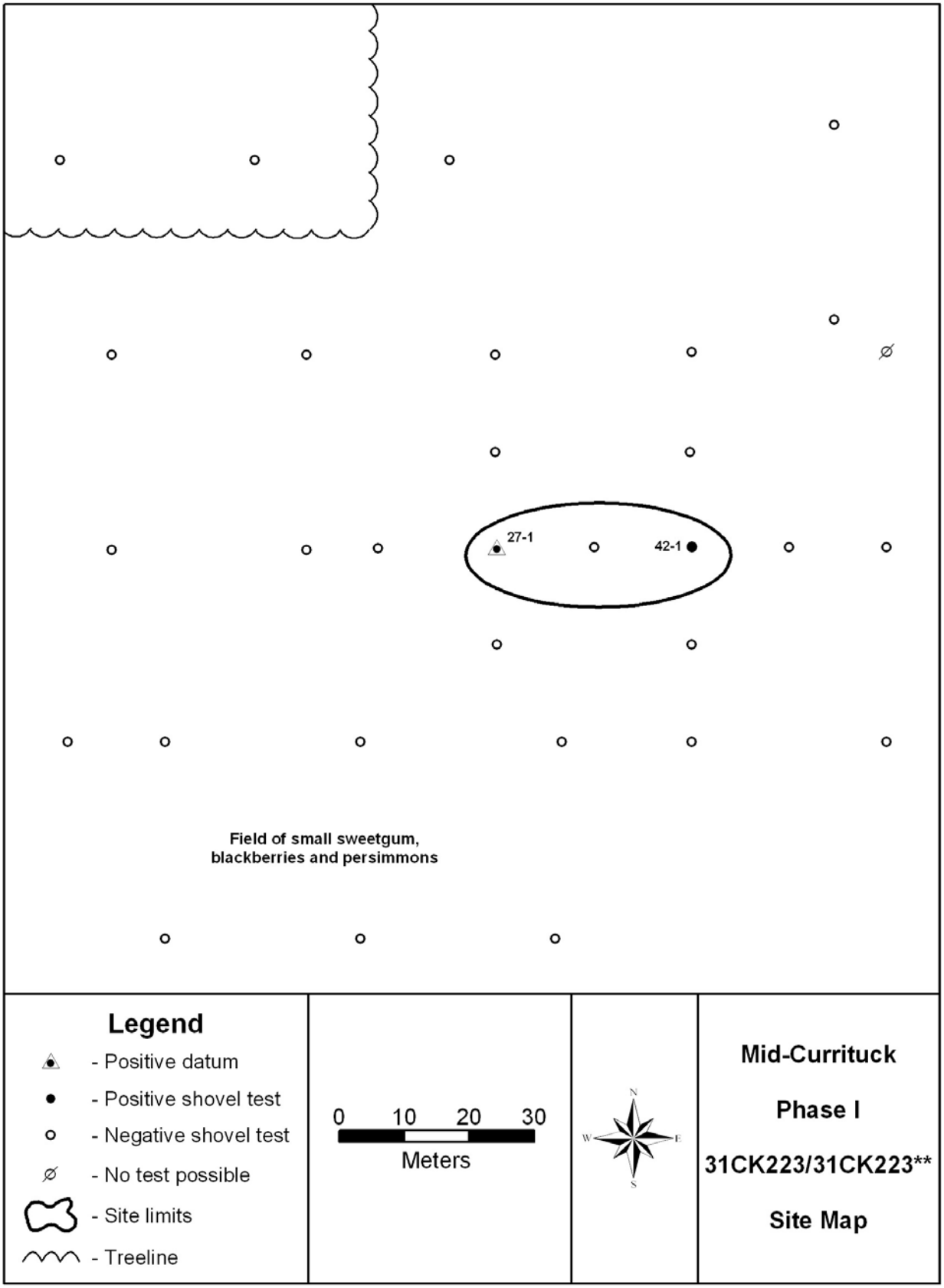

Figure 7.34. Site 31CK223/31CK223 site map.**

*SITE 31CK224/31CK224***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates ..... Easting 415259 Northing 4020750
Site Size ..... 115 m north-south by 75 m east-west
Components ..... Woodland, nineteenth to twentieth century
Landform..... low ridge
NRHP Recommendations ..... not eligible

This is a multi-component site consisting of a sparse Woodland component and a nineteenth century to present farmstead as well. The site abuts the east side of U.S.158 extending back from the road for 75 meters. It includes the manicured yard of the Markert home and extends south another 45 m into a cultivated field (Figure 7.35). Surface exposure was nonexistent in the yard of the Markert home and 100 percent in the cultivated field. Several historic artifacts were recovered from the surface in this location, including stoneware, whiteware, and container glass. The site was first detected in a string of positive shovel tests on Transect 49 and then the limits of the site were defined with a 15-m grid. A total of 22 shovel tests were dug within the limits of this site and 19 of these recovered cultural material (Figure 7.36). This included brick fragments, wire nails/fragments, a wrought nail, window glass, creamware, whiteware, terracotta, earthenware, container glass, a glass bead, a bolt, coal, undifferentiated ferrous metal, a sand/grit-tempered plain sherd, and a sherdlet. The site was further tested by the excavation of two test units. These units were placed in close proximity to the more productive shovel tests.

Test Unit 1

Test Unit 1 was a north-south oriented 1-x-2 m unit that was placed within a surface scatter of artifacts close to positive Shovel Test S45 E15. A GPS reading was taken at the northeast corner of the unit which read as follows: Zone 18S E415273 N4020722, NAD27. A total of four 10-cm

Figure 7.35. Photograph of Site 31CK224/31CK224, facing east.**

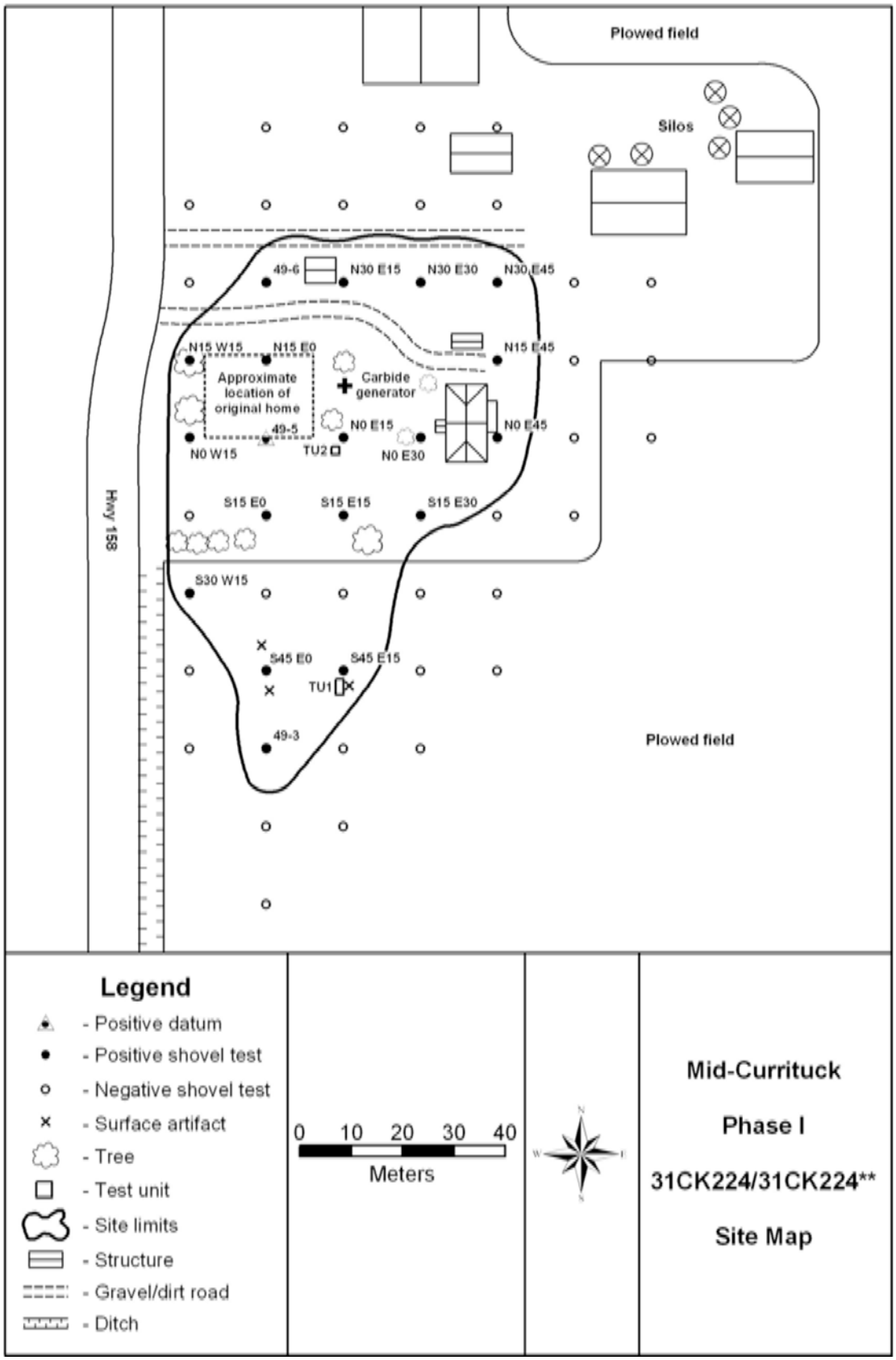

Figure 7.36. Site 31CK224/31CK224 site map.**

levels were dug within Test Unit 1. Excavation of the unit exposed a soil profile comprised of two distinct stratigraphic layers (Figure 7.37):

- **Stratum I (plow zone):** dark grayish brown (10YR 4/2) loamy sand lightly mottled with 10YR 6/5 yellowish brown loamy sand (10 to 37 cmbd) and
- **Stratum II:** yellowish brown (10YR 5/6) loamy sand (33 to 50 cmbd).

Level 1 (10 to 20 cmbd) was composed entirely of Stratum I soil, which is representative of the plow zone in this cultivated field. A total of six artifacts were recovered from this level. Historic materials were the most numerous including small amounts of container glass, a piece of whiteware, and an undifferentiated piece of ferrous metal. The sole prehistoric artifact was a piece of chert that had been bifacially worked. No cultural features were observed in the floor of the unit at the end of this level.

Level 2 (20 to 30cmbd) continued into the soil of Stratum I. The artifact recovery continued to be light (n=11) but was nearly doubled from the previous level. A single chert flake constituted the prehistoric recovery. Historic materials included container glass, an equal number of cut and wire nail fragments, a piece of whiteware, a brick fragment, a possible brass clock part, and a piece of undifferentiated ferrous metal. No cultural features were observed in the floor of the unit at the end of this level.

Level 3 (30 to 40 cmbd) began with Stratum I soils but near its midpoint the interface with Stratum II was reached. The total number of artifacts declined significantly, and the assemblage contained no prehistoric material. The recovery included a piece of blue transfer printed whiteware, a piece of brown glazed earthenware, and two pieces of aqua bottle glass that cross mended. In the northwest corner of the unit at 35 cmbd there was an area of charcoal flecking approximately 30 cm in diameter. This occurrence continued throughout the remaining levels of the unit and was interpreted as a tree stain. When this level had been completed, Stratum II was exposed across the floor of the unit with no cultural features observed.

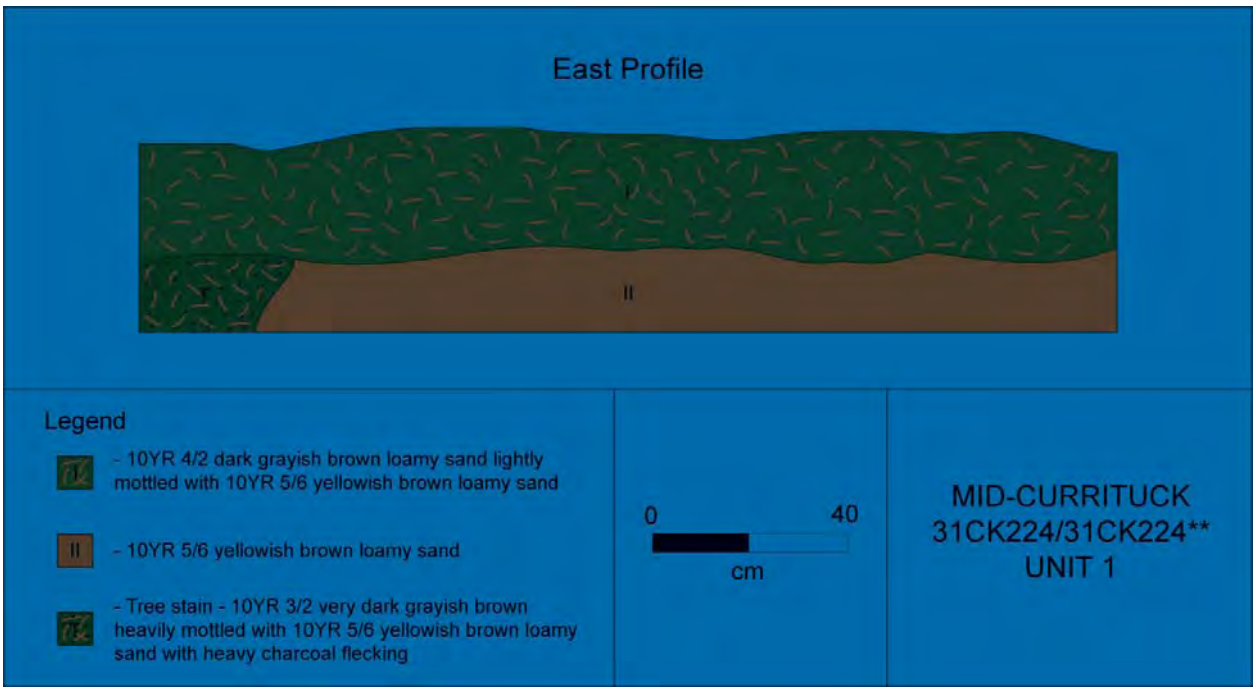

Figure 7.37. Site 31CK224/31CK224, Unit 1 east profile.**

Level 4 (40 to 50 cmbd) consisted of Stratum II soils and a small amount of material associated with the tree stain already mentioned. No artifacts were recovered from this level. When it was completed other than a few root stains the entire floor consisted of Stratum II with no cultural features present.

Test Unit 2

Test Unit 2 was a 1-x-1 m unit that was placed 1 m south of Shovel Test N0 E15. A GPS reading was taken at the northeast corner of the unit which read as follows: Zone 18S E415253, N4020755, NAD27. A total of four 10-cm levels were dug within Test Unit 2. Excavation of the unit exposed a soil profile comprised of two distinct stratigraphic layers (Figure 7.38):

- **Stratum I:** dark brown (7.5YR 3/2) loamy sand (10 to 39 cmbd) and
- **Stratum II:** yellowish brown (10YR 5/6) loamy sand lightly mottled with 7.5YR 3/2 dark brown loamy sand (35 to 50 cmbd).

Level 1 (10 to 20 cmbd) was composed entirely of Stratum I soil. The only recovery was historic and consisted of a brick fragment and a piece of clear container glass. When this level was completed the floor of the unit consisted of Stratum I soil with no features observed.

Level 2 (20 to 30 cmbd) continued into the soil of Stratum I and contained a total of 49 artifacts. There were a few examples of whiteware, a fragment of terracotta, and a piece of unglazed earthenware, but container glass made up the largest percentage of the assemblage. Other artifacts were window glass, a brick fragment, a few cut nail fragments, a wire nail, pieces of undifferentiated ferrous metal, a piece of undifferentiated lead, a brass snap closure, and pieces of asbestos siding which were noted and then discarded. When this level was completed there were no cultural features seen in the floor of the unit.

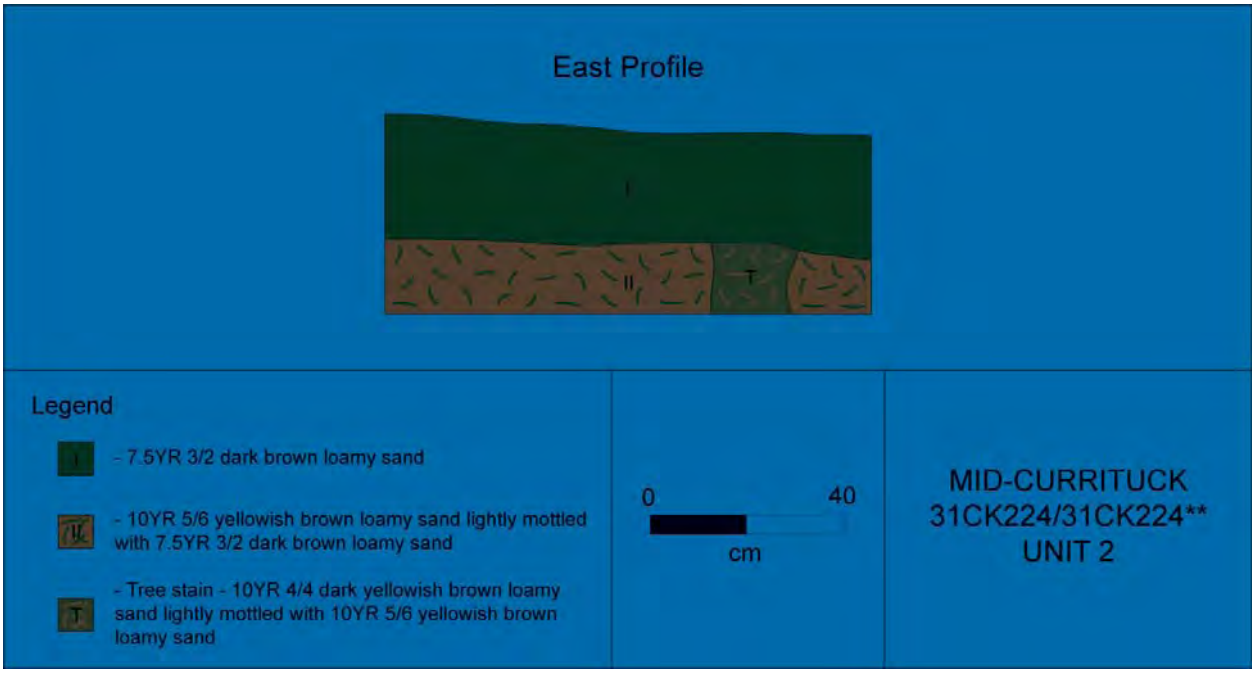

Figure 7.38. Site 31CK224/31CK224, Unit 2 east profile.**

Level 3 (30 to 40 cmbd) encompassed the remaining Stratum I soil that existed within this level and a portion of Stratum II. The interface between the two was reached at approximately 35

cmbd. The assemblage was reflective of what had been found in previous levels but the count was down significantly (n=13). This assemblage included container glass, whiteware, cut nails, wire nails/fragments, and a piece of undifferentiated brass. When the level was completed the floor of the unit consisted of Stratum II soils. There were no features observed but a tree stain was noted just below the interface between the two stratigraphic layers.

Level 4 (40 to 50 cmbd) consisted entirely of Stratum II soils. No artifacts were recovered from this level. The tree stain noted in Level 3 continued but no cultural features were noted in the floor of the unit.

The prehistoric component of this site is quite sparse and is probably a Woodland short term seasonal camp. None of the material contained any diagnostic attributes that could help place the artifacts in a specific time period, other than the presence of pottery indicating a Woodland component. The historic component is part of a working farm that has been in operation since at least the late nineteenth century. The earliest landowner that could be identified with this property was Charles S. Crane. Exactly when he acquired the property could not be ascertained, but in 1925 he sold the property to Ray P. Midgett (Deed Book 61:560). Records suggest the Crane family may have lived at this location since before 1880. In the census of that year, Charles Crane was six years old and listed as a member of his father's (S.B. Crane, a farmer) family (Ancestry.com). The order of appearance in the census records places this family in the immediate area. When Ray Midgett acquired the land the deed already referred to the tract as the "home place" which may suggest that it was the Crane home place before he purchased it.

The original farm house was torn down in the 1980s and replaced with the one the Markert family currently lives in. The older home sat close to U.S. 158 and was already on the property when Ray Midgett purchased it (personal communication, Ned Markert 2011). This makes it likely that the house was constructed during the Crane's tenure of the property. An interesting feature of this site is the carbide generator, which had provided lighting for the original house. Built into the ground, it still exists today and is relatively intact. Ray Midgett's children, James and Mildred, inherited the property when he passed on. Mildred Markert and her family maintain ownership of the property today.

With the original farm house being razed in the 1980s, and given the sparseness of the prehistoric artifacts, neither component seems likely to yield important information about the past and are not considered eligible for the NRHP. No further work is recommended.

*SITE 31CK225***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 415404 Northing 4021068
Site Size ..... 10 m north-south by 30 m east-west
Components ..... late nineteenth to twentieth century
Landform..... low ridge
NRHP Recommendations ..... not eligible

The artifacts recovered at 31CK225** are representative of a late nineteenth to twentieth century trash dump. This location is situated along the edge of a cultivated field (Figure 7.39). Surface exposure was 90 percent and a total of four historic artifacts were recovered from this setting. This material included three examples of machine-made bottle glass and a small brick fragment. Subsurface recovery was limited to what was found in Transect 50, Shovel Test 6, which recovered a single piece of clear glass. Testing around this location failed to identify additional buried deposits (Figure 7.40).

Figure 7.39. Photograph of Site 31CK225, facing south.**

The artifacts recovered here were reflective of a late nineteenth to twentieth century material culture but this site appears to be little more than a dumping location for trash. The linear disposition of this light scatter parallels the dirt farm road which follows the nearby property line. It is likely that this occurrence relates to activities in the agricultural fields or trash dumped along their perimeter.

This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP. No further work is recommended.

*SITE 31CK226***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 415336 Northing 4021008
Site Size ..... 15 m north-south by 55 m east-west
Components ..... nineteenth to twentieth century
Landform..... low ridge top
NRHP Recommendations ..... not eligible

The artifacts recovered at 31CK226** are representative of a nineteenth to twentieth century trash dump. This location is situated along the edge of a cultivated field (Figure 7.41). Surface exposure was 90 percent but no surface recoveries were made at this location. The site was first detected by the recovery from Transect 50, Shovel Test 2, which recovered three historic artifacts, including a piece of aqua glass, a piece of undecorated creamware, and a small brick fragment. Two additional positive shovel tests recovered eight additional artifacts including container glass, a brick fragment, a wire nail fragment, and undifferentiated ferrous metal.

The artifacts recovered here were reflective of nineteenth to twentieth century material culture but this site appears to be little more than a dumping location for trash. The linear disposition of this light scatter parallels the dirt farm road which follows the nearby property line (see Figure 7.40). It is likely that this occurrence relates to activities in the agricultural fields or trash dumped along its perimeter.

This site has limited potential for yielding important information about this time period and is considered not eligible for the NRHP and no further work is recommended.

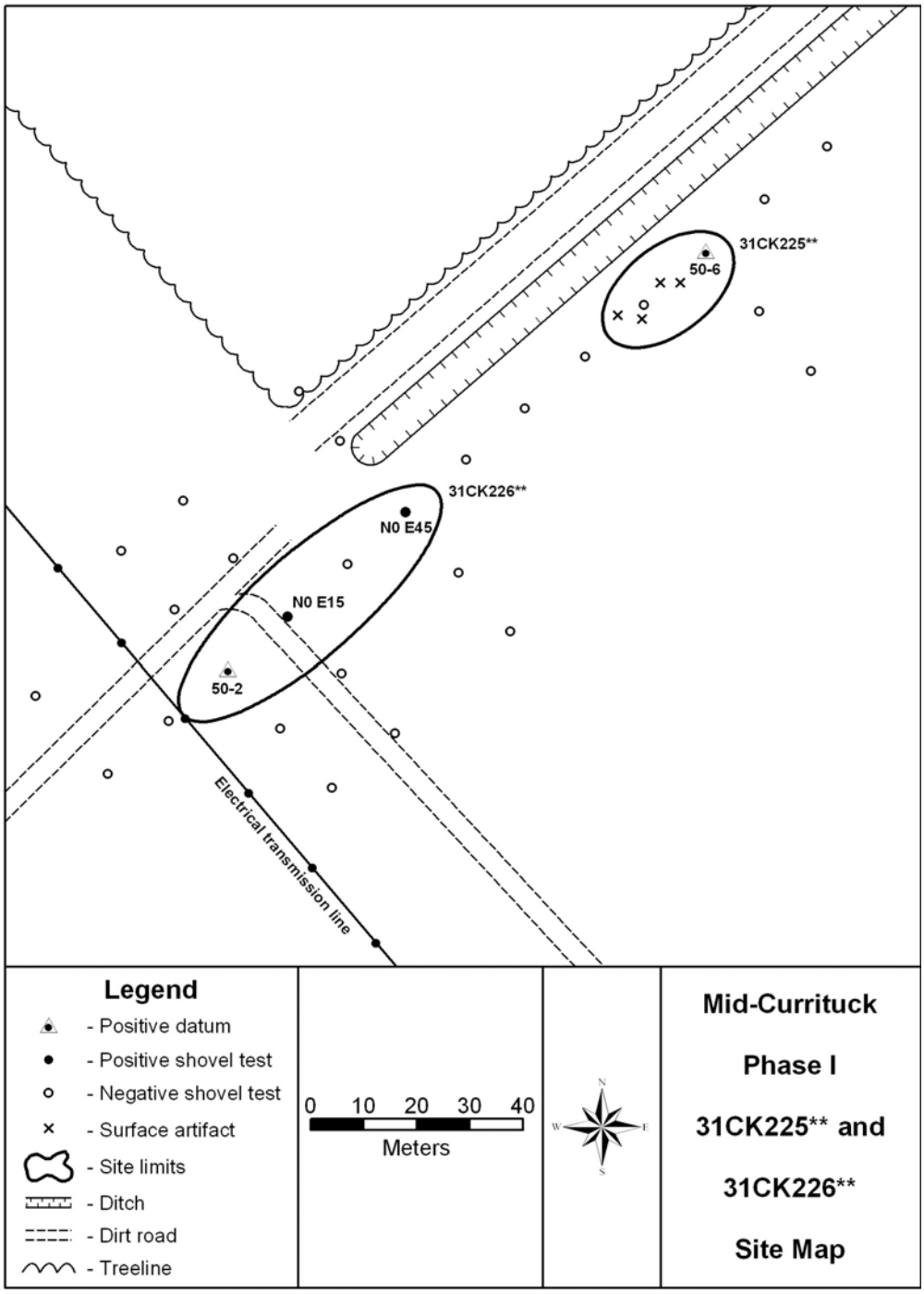

Figure 7.40. Sites 31CK225 and 31CK226** site map.**

Figure 7.41. Photograph of Site 31CK226, facing west.**

*SITE 31CK227***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates ..... Easting 415137 Northing 4021240
Site Size ..... 10-m diameter
Components ..... nineteenth to twentieth century
Landform..... low ridge top
NRHP Recommendations ..... not eligible

This occurrence consisted of a single piece of brown salt-glazed stoneware recovered from Shovel Test 9 on Transect 52. This location is situated along the western edge of a power line corridor. The ground surface is flat at this location with no surface visibility and the surrounding vegetation consisted of young pines, sweet gums, cedars, and wax myrtles (Figures 7.42 and 7.43). This area was radial tested with no additional recoveries made.

There is very little that can be said regarding this occurrence. The single piece of stoneware no doubt relates to the farming activities so endemic to the history of land use in this area. This occurrence has limited potential for yielding important information about any time period and is considered not eligible for the NRHP and no further work is recommended.

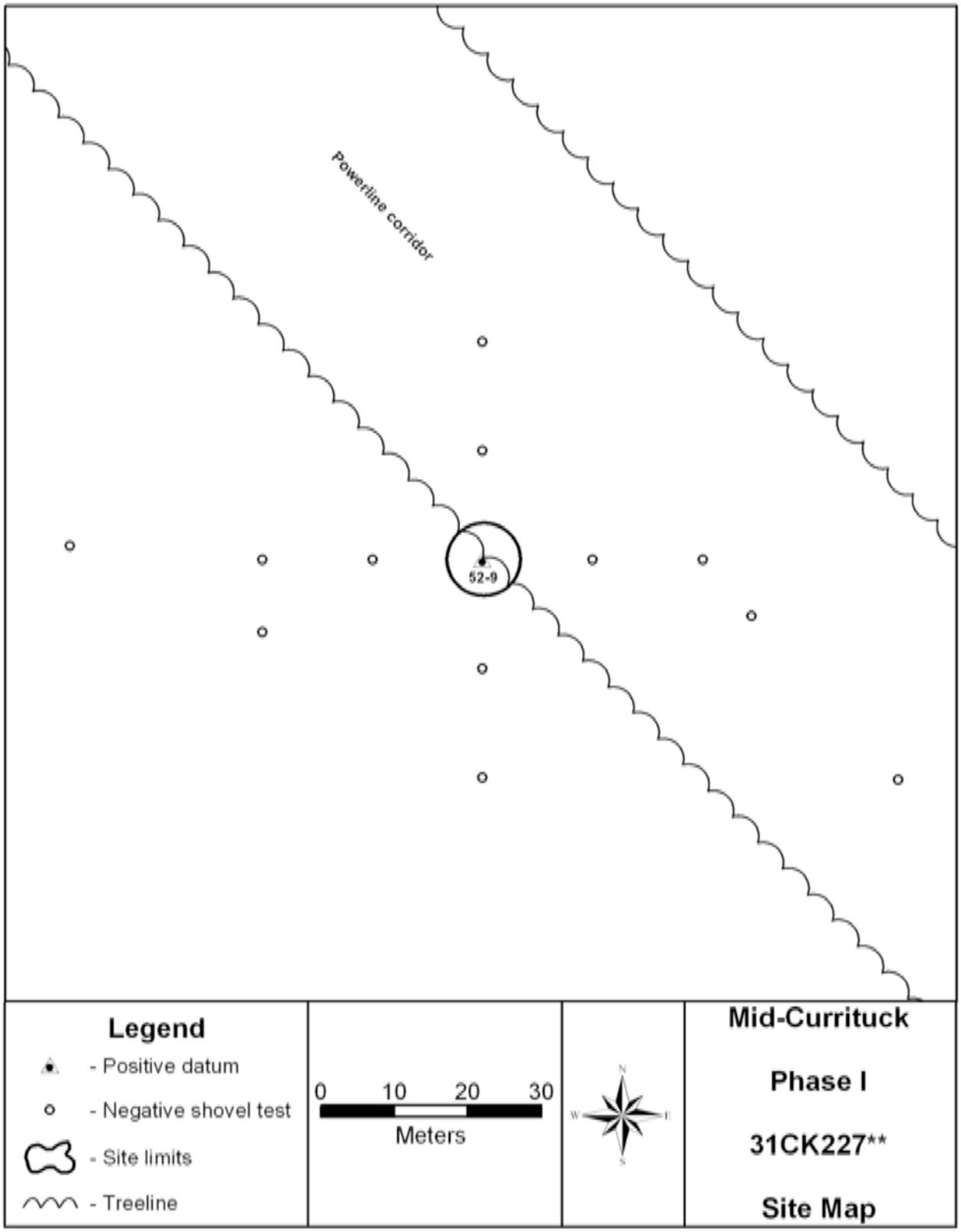

Figure 7.42. Site 31CK227 site map.**

Figure 7.43. Photograph of Site 31CK227, facing north.**

*SITE 31CK228***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates ..... Easting 418630 Northing 4021169
Site Size ..... 10-m diameter
Components .....twentieth century
Landform..... low ridge
NRHP Recommendations ..... not eligible

This occurrence consisted of a single piece of aqua bottle glass recovered from Shovel Test 1 on Transect 61. The recovery was made approximately 15 m east of Narrow Shore Road on a narrow strip of land between this road and Currituck Sound. The area is densely forested with privet, water tolerant oaks, and wild roses with no surface visibility existent (Figures 7.44 and 7.45). This positive occurrence was radial tested with no additional artifacts recovered.

There is very little that can be said regarding this occurrence. The appearance of the single piece of aqua bottle glass is consistent with a twentieth century soda bottle. This occurrence is likely representative of a roadside midden that exists along most roadsides in America.

This occurrence has limited potential for yielding important information about any time period and is considered not eligible for the NRHP. No further work is recommended.

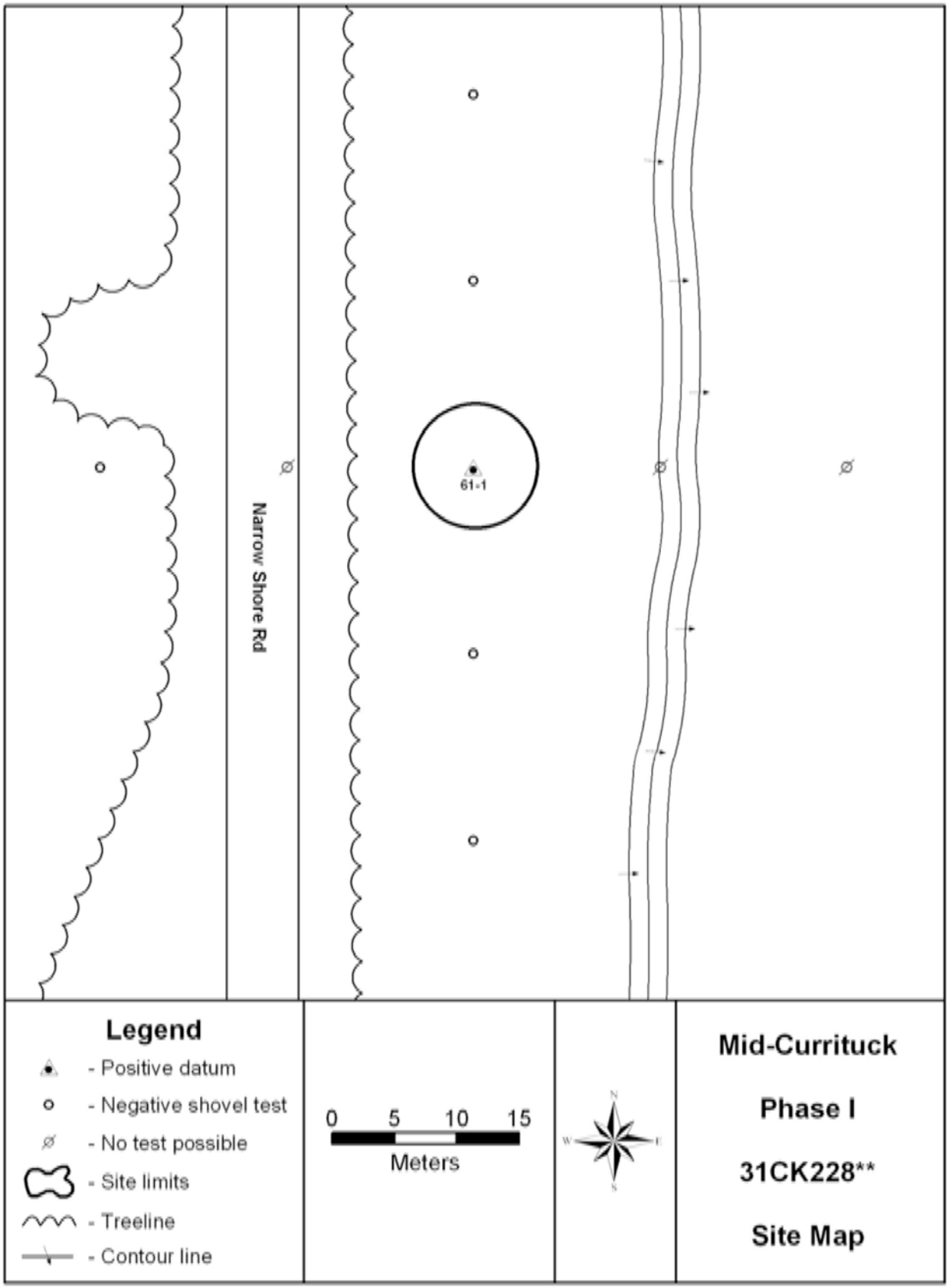

Figure 7.44. Site 31CK228 site map.**

Figure 7.45. Photograph of Site 31CK228, facing west.**

*SITE 31CK229***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates ..... Easting 418544 Northing 4021173
Site Size ..... 60 m north-south by 70 m east-west
Components .....twentieth century cemetery, late nineteenth to twentieth century artifact scatter
Landform..... low ridge
NRHP Recommendations .....not eligible; marked graves are present with a probability of unmarked graves nearby

This site is a late nineteenth to twentieth century artifact scatter with an associated house ruin and cemetery. The cemetery contains two marked graves and is located about 8 m west of Narrow Shore Road; the house itself is about 45 m west of this location. Only one of the graves has an epitaph, marking the final resting place of Mary E. Saunders who died in 1915 (Figure 7.46). Immediately around the graves the vegetation has been cleared, but the rest of the area is thickly forested with sweet gum, privet, sassafras, and a few cedars (Figure 7.47). The understory is choked with wisteria, wild roses, and green briar.

Figure 7.46. Photograph of Mary Saunders grave at Site 31CK229, facing north-northwest.**

While it is in an advanced state of decay, portions of the house are still standing (Figure 7.48). The main living area of the house measured 20-x-30 ft. with the long axis running very close to north-south (355 degrees). There is a porch across the front of the house (east side) and a 12-x-12 ft. porch or room centered off the back. A 12-x-12 ft. detached kitchen sits 10 ft. behind this back room and there is some evidence that this gap had been spanned with a covered walkway. Approximately 15 ft. south of the kitchen is a ceramic-lined well 2 ft. in diameter (Figure 7.49). Wire nails dominate what is observable on the structure with one exception. At the southeast corner of the house there is still a section of the wall standing. These timbers have been assembled using a mortise and tenon technique and fastened with 3/4 inch wooden pegs and cut nails (Figure 7.50). The rafters which lie on top of the decomposing structure exhibit saw marks indicating they were milled, but the house sits on a 10-x-10 inch sill which shows some evidence of having at least been trued with an adze (Figure 7.51). The foundation piers were all constructed out of hand-made bricks, although one showed obvious signs of having been repaired with end-augured brick.

Shovel Tests 4 and 5 on Transect 60 first encountered subsurface artifacts associated with this site, although artifacts on the surface are present. A small surface collection consisted of brick, machine-cut and wire nails, and window glass. The limits of the site were defined with a 15-m grid. A total of nine shovel tests were dug within the boundaries of this site with only four of these recovering cultural materials. This revealed a site measuring 60 m north-south by 70 m east-west (Figure 7.52). Artifacts recovered as a result of shovel testing include brick, window glass, whiteware, container glass, unspecified bone, and undifferentiated ferrous metal.

The site was further tested by the excavation of a 1-x-2 m test unit. This unit was placed between the well and the back porch and kitchen area (Figure 7.53). This location was selected in hopes of encountering a midden representative of the site's entire period of occupation.

Figure 7.47. Photograph of Site 31CK229, facing west.**

Figure 7.48. Photograph of house ruin at Site 31CK229, facing southwest.**

Figure 7.49. Photograph of ceramic-lined well at Site 31CK229, facing southwest.**

Figure 7.50. Photograph showing mortise and tenon joint and wooden pegs at Site 31CK229, facing southeast.**

Figure 7.51. Photograph of adze marks and wooden pegs at Site 31CK229, facing west.**

Test Unit 1

Test Unit 1 was a 1-x-2 m unit that was placed in an open area between the back porch and well. A GPS reading was taken at the northeast corner of the unit which read as follows: Zone 18S E418543 N4021141, NAD27. A total of five 10-cm levels were dug within Test Unit 1. Excavation of the unit exposed a soil profile comprised of two distinct stratigraphic layers (Figure 7.54):

- **Stratum I:** dark grayish brown (10YR 4/2) loamy sand (10 to 46 cmbd) and
- **Stratum II:** brownish yellow (10YR 6/6) sand heavily mottled with dark grayish brown (10YR 4/2) loamy sand (40 to 60 cmbd).

Level 1 (10 to 22 cmbd) contained a heavy concentration of roots and was composed entirely of Stratum I soil. Recovery from this level was very light consisting of only three historic artifacts including a brick fragment, a wire nail, and a piece of container glass. A brick fragment was recovered from the surface of the test unit. This level ended within Stratum I and when it was completed there were no cultural features noted in the floor of the unit.

Level 2 (20 to 30 cmbd) continued into the soil of Stratum I where the large amount of roots present continued to be a problem. The recovery from this level consisted of 41 historic artifacts. Architectural artifacts included a piece of window glass and nail fragments. There was a single cut nail and one cut nail fragment, compared to 15 wire nails in the recovery. There was a small amount of glass including a piece of container glass, a piece of a glass plate, and a piece of a milk glass canning jar lid liner. The recovery also included a brass hinge and key escutcheon, a small amount of whiteware, a turnkey from a sardine can, a ferrous metal hinge, a screw, and a

small amount of undifferentiated ferrous metal. No cultural features were observed in the floor of the unit at the end of this level.

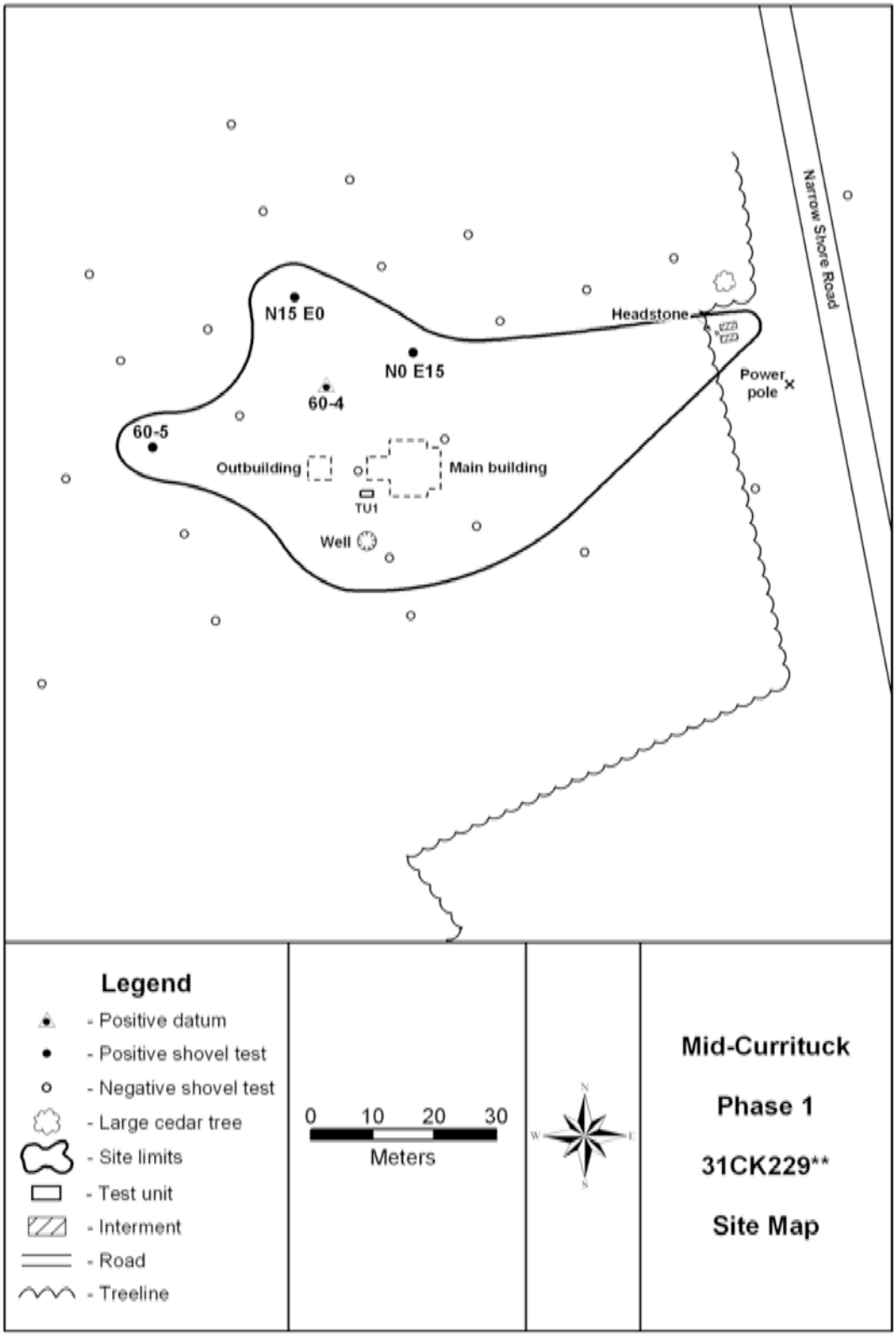

Figure 7.52. Site 31CK229 site map.**

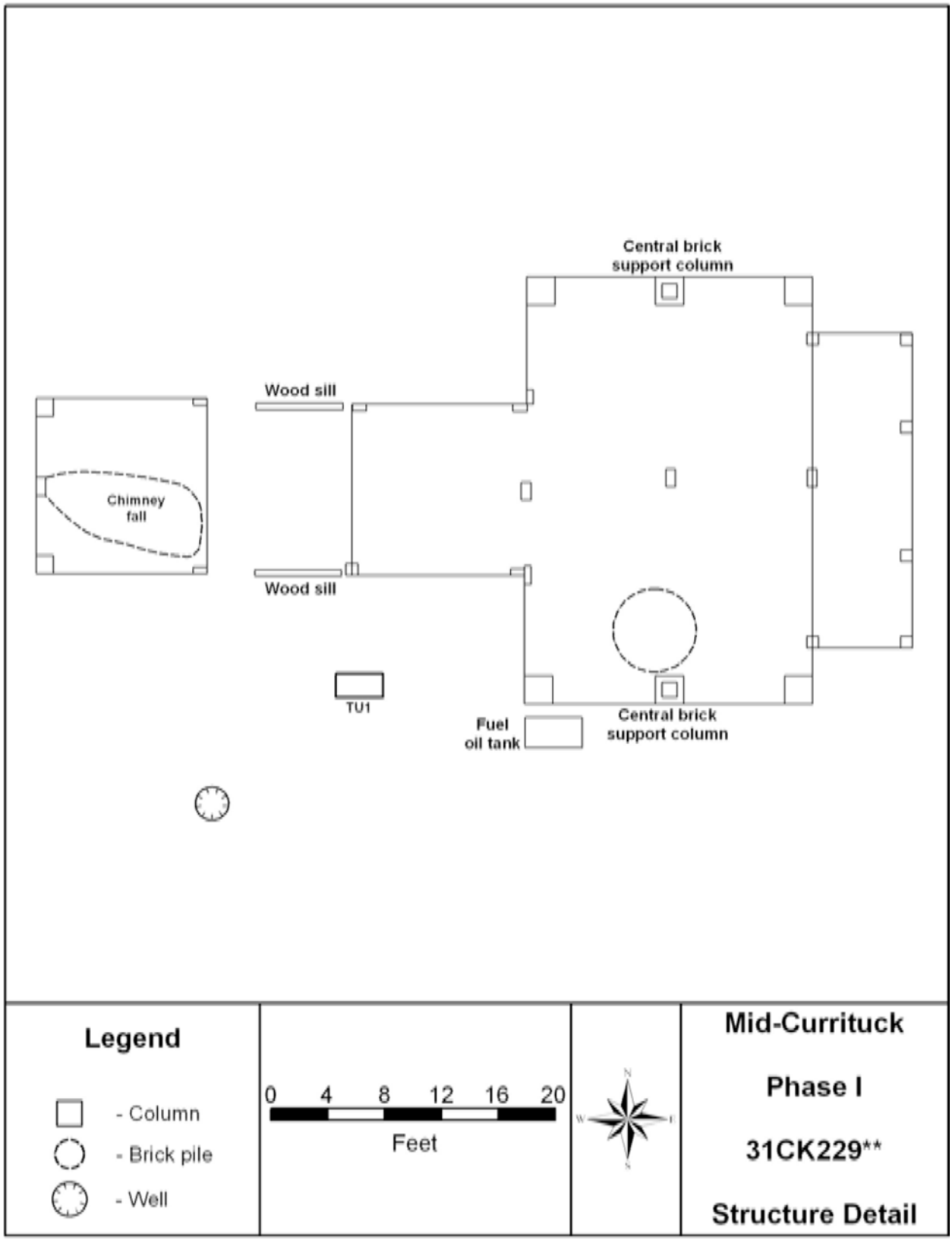

Figure 7.53. Site 31CK229 structure detail.**

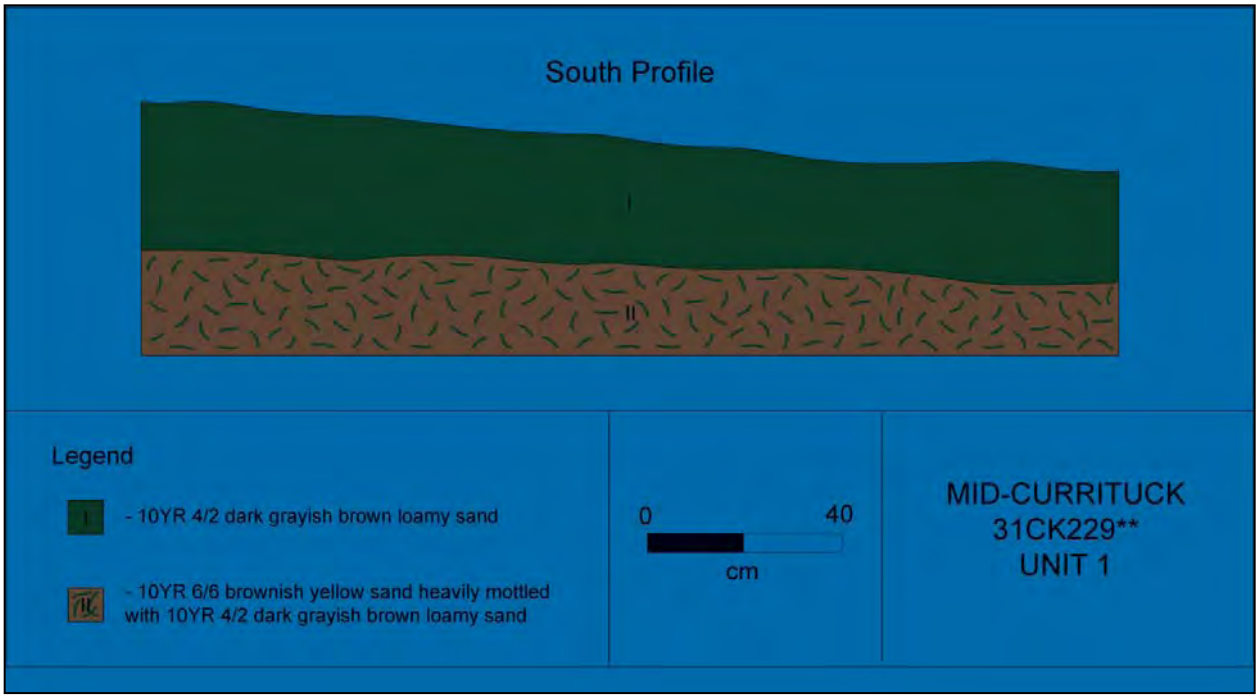

Figure 7.54. Site 31CK229, Unit 1 south profile.**

Level 3 (30 to 40 cmbd) also consisted of Stratum I soils. The recovery from this level was similar to what had been found in previous levels, but the count was down significantly with just 11 items recovered. This assemblage included a brick fragment, a piece of clear glass, a piece of whiteware, a couple of wire nails, and half a dozen undifferentiated ferrous metal fragments. This level ended within Stratum I but Stratum II was beginning to show up in the eastern half of the unit. When it was completed there were no cultural features observed in the floor of the unit.

Level 4 (40 to 50 cmbd) consisted of a few centimeters of Stratum I soils in the west half of the unit with most of the remainder being Stratum II. The artifact recovery was very light with only a single piece of aqua colored container glass recovered. When this level was completed no features were noted in the floor of the unit.

Level 5 (50 to 60cmbd) consisted entirely of Stratum II soils. No artifacts were recovered from this level and no cultural features were observed in the floor of the unit after its excavation.

This site is a twentieth century house site with an associated cemetery. Conducting historic research for this specific property was problematic due to unrecorded transactions and the changing size of the individual tracts of land in this area. The current property card in the Currituck County courthouse for the land where this site is located cites a 1919 transaction in which D.W. Woodhouse, acting as the administrator of the estate of John Saunders, conveyed this land to Clarence O'Neal. This document stated that John Saunders had lived at this location at the time of his death (Deed Book 57:375). While it was not ascertained exactly when John Saunders acquired the property it seems likely that the house at 31CK229** was his and it may be that the unmarked grave next to Mary Saunders' is his final resting place.

It is possible that he acquired the property through an unrecorded transaction within the Saunders family. Daniel Saunders owned a tract of land south of here as early as 1887 (Deed Book 38:524). He purchased the land at public auction after a man named Thomas Harney failed to repay a loan in which he had used the property as collateral (Mortgage Book 1:321-322). In the

will of Daniel Saunders probated in 1917, he left all of his land to Adelia Saunders without naming the amount or location (Will Book 5:512). Her descendants sold the property to the south of this site to the current owners in 1976 (Deed Book 142:717). That land and standing structure is eligible under Criterion C for Architecture as a NRHP property (Foley 2008), although it should be noted that this is outside of the archaeological APE.

A domestic house ruin of this period has limited potential for yielding important new information about our past and is considered not eligible for the NRHP. However, all cemeteries fall under the provisions of North Carolina's Cemetery Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted. Local tradition maintains that there were three other graves marked with wooden crosses just to the north of the marked graves (Walker 1995). Since the possibility of unmarked graves at this cemetery is high, PCI recommends either using methods of remote sensing to demonstrate the absence of graves in the areas immediately adjacent to the marked plots or closely monitoring the controlled stripping of the area.

*SITE 31CK230***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 418126 Northing 4021075
Site Size ..... 10-m diameter
Components ..... nineteenth to twentieth century
Landform..... low ridge
NRHP Recommendations ..... not eligible

This occurrence is an isolated find consisting of a single piece of aqua colored glass. Recovered from the third shovel test on Transect 63, this find was made in a planted pine forest just south of Lighthouse Road. The ground surface is flat here and the understory is fairly open with small sweet gums and wild grapes present (Figures 7.55 and 7.56). Leaf matter obscured any surface visibility. Radial testing failed to recover any other artifacts.

There is very little that can be said regarding this occurrence. This historic material no doubt relates to the area's long history of farming. The exact boundaries of early land ownership in this area could not be discerned from the historic record. Daniel Saunders was associated with a tract of land southeast of here in 1887 and it may be that this artifact relates to him or someone from the Saunders family (see Site 31CK229** for more complete land title information).

This occurrence has limited potential for yielding important information about any time period and is considered not eligible for the NRHP. No further work is recommended.

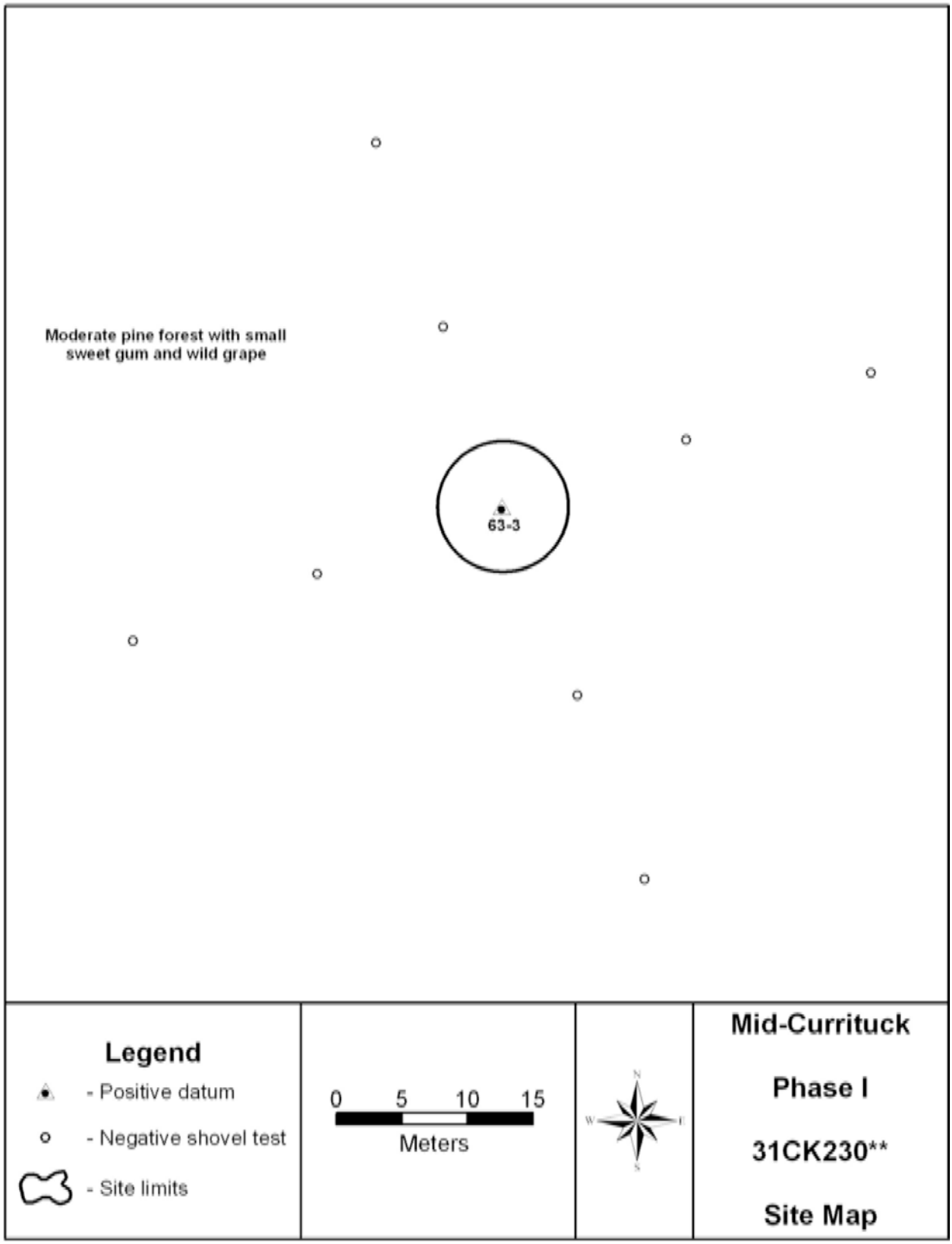

Figure 7.55. Site 31CK230 site map.**

Figure 7.56. Photograph of Site 31CK230, facing west.**

*SITE 31CK231***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 418326 Northing 4021114
Site Size ..... 10-m diameter
Components .....nineteenth to twentieth century
Landform..... low ridge
NRHP Recommendations ..... not eligible

The initial find at this location consisted of a single piece of undecorated whiteware recovered from the ninth shovel test on Transect 58. The area is flat and moderately forested with pines, sweet gums, and a few bay trees (Figures 7.57 and 7.58). Fallen leaf matter obscured any surface visibility at the time of the survey. This occurrence was radial tested with the only other artifact acquired being a piece of melted aqua glass recovered 15 m east of the original recovery.

There is very little that can be said regarding this occurrence. This historic material no doubt relates to the area's long history of farming. The exact boundaries of early landownership in this area could not be discerned from the historic record. Daniel Saunders was associated with a tract of land southeast of here in 1887 and it may be that this artifact relates to him or someone from the Saunders family (see Site 31CK229** for more complete land title information).

This occurrence has limited potential for yielding important information about any time period and is considered not eligible for the NRHP. No further work is recommended.

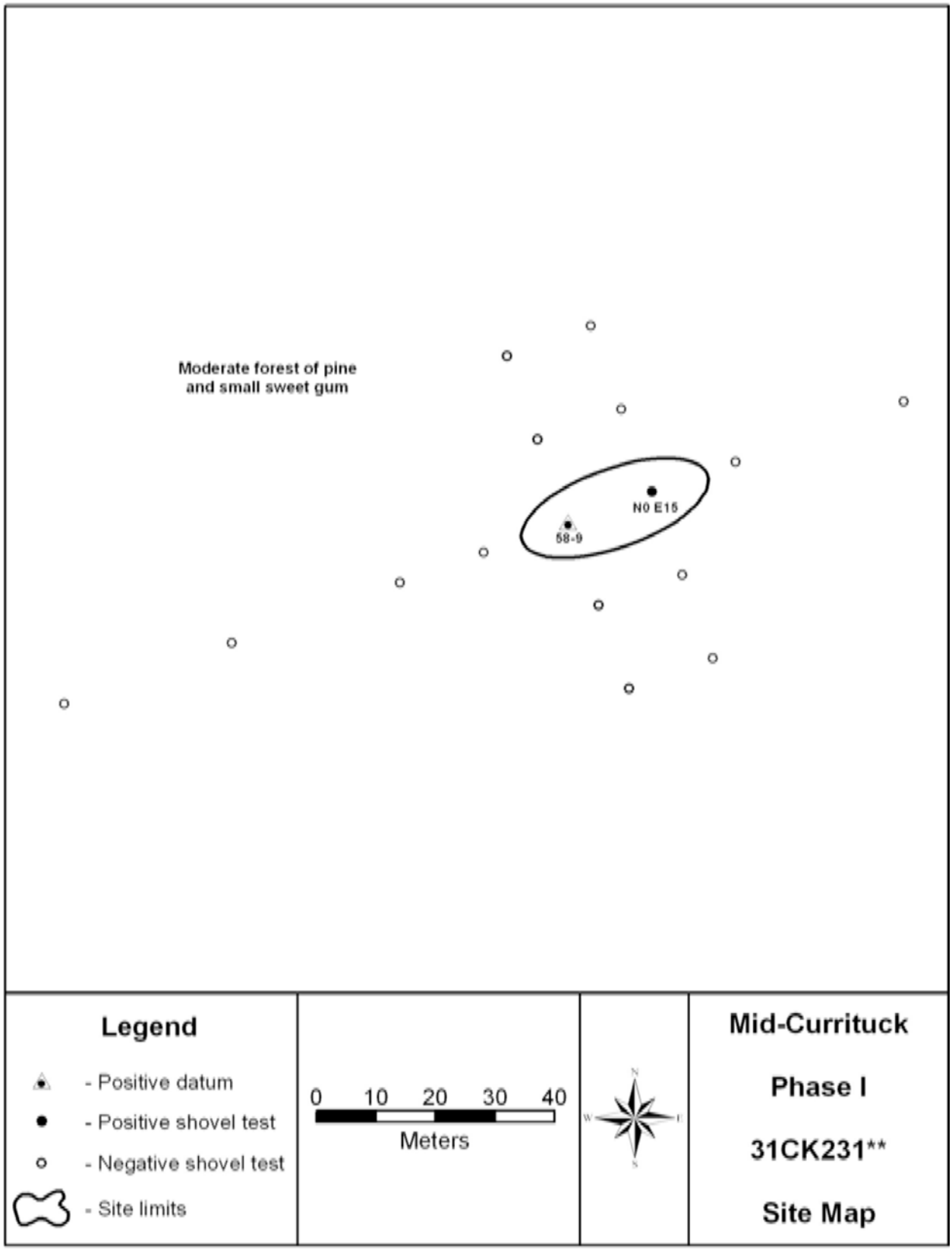

Figure 7.57. Site 31CK231 site map.**

Figure 7.58. Photograph of Site 31CK231, facing north.**

*SITE 31CK232***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates..... Easting 415748 Northing 4020300
Site Size ..... 10 m north-south by 45 m east-west
Components ..... nineteenth to twentieth century
Landform..... low ridge
NRHP Recommendations ..... not eligible

The initial find at this location consisted of a single piece of undecorated creamware recovered from the second shovel test dug on Transect 41. The area where this recovery was made is moderately forested with pines, sweet gums, hickory, and a few bay trees (Figure 7.59). Fallen leaf matter obscured any surface visibility at the time of the survey. This occurrence was tested with a 15-m grid and two additional recoveries were made (Figure 7.60). Approximately 30 m west of the initial recovery, an iron wedge, probably for wood splitting, was found and 15 m east a piece of whiteware and two pieces of container glass were recovered.

The artifacts encountered here are representative of the activities relating to a nineteenth to twentieth century farmstead. The earliest identified landowner for this tract of land was Cason Morrisette. Exactly when he purchased the land could not be ascertained, but in March of 1838 a deed was recorded when he used it as collateral to secure a $380 loan. He seems to have already been well established on this land at this time as the cows, hogs, and slaves associated with his farm are listed as assets that would be sold with the property if Cason defaulted on the loan (Deed Book 21:477). This deed involved two contiguous tracts, one of 50 acres and the other 53.

The eastern limits of both tracts ran into Maple Swamp. Evidently Cason Morrisette was able to make the payments on this loan as when he died in the 1840s both tracts were transferred to his wife and five children as equal owners (Deed Book 25:274).

Figure 7.59. Photograph of Site 31CK232, facing southeast.**

While ownership remained divided, for a time it seems that Cason's sons Peter and Asa took over farming operations on the two tracts. Peter and his family worked the southern tract that bounded Dempsey Burton's land and Asa and his family worked the tract just to the north (Deed Book 32:584). Asa had died by 1875 and the next year Peter transferred his remaining 1/6 interest in that farm to his brother's widow for $1.00 (Deed Book 32:584).

The division of the property's ownership after Cason's death complicates tracking its ownership, but it is clear that in the 1890s a man named Nathanial J. Walker began to buy the land from various surviving heirs (Deed Book 41:579; Deed Book 41:580). In one transaction the deed states it is conveying the land once owned by Asa and Peter Morrisette but the land is no longer divided into two tracts and is now said to contain 75 acres (Deed Book 41:579). Cason Morrisette's son (Cason Jr.) had sold 25 acres of the family's land to Thomas Everton in 1859 (Deed Book 28:335).

While he consolidated the ownership of this property, there is no evidence that Nathanial J. Walker ever lived at this location. He died in 1921 and his wife and brother assumed ownership of the property, transferring it the very next year to Nathanial's two sons William and Carl (Deed Book 60:70). They held the property in joint tenancy until 1924 when it was divided between the two brothers just as Asa and Peter Morrisette had done so many years before (Deed Book 61:76). William N. Walker raised his family and farmed this land until his death in 1951. With so small an artifact assemblage present at this site it is difficult to say exactly what activity they represent.

This occurrence has limited potential for yielding important information about any time period and is considered not eligible for the NRHP. No further work is recommended.

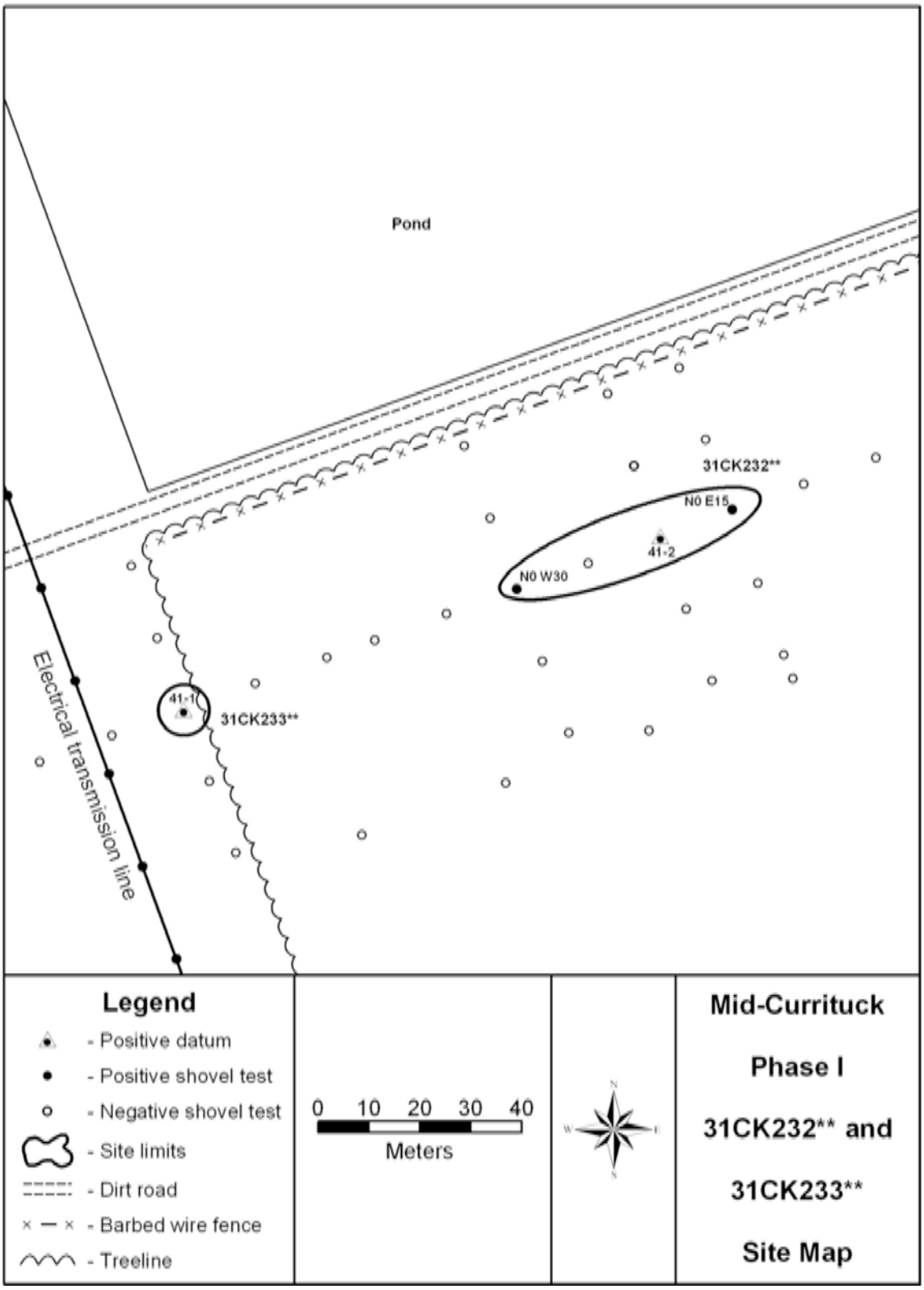

Figure 7.60. Sites 31CK232 and 31CK233** site map.**

*SITE 31CK233***

USGS Quadrangle..... Coinjock, NC 7.5-minute quad
UTM (NAD27) Coordinates ..... Easting 415654 Northing 4020299
Site Size ..... 10-m diameter
Components ..... nineteenth to twentieth century
Landform..... low ridge
NRHP Recommendations ..... not eligible

This occurrence consisted of a single piece of undifferentiated ferrous metal recovered from Shovel Test 1 on Transect 41. This location is situated along the eastern edge of a power line corridor. The ground surface is flat with no surface visibility due to the grass growing in the power line corridor (Figure 7.61). Just east of this location the vegetation consisted of pines, sweet gum, wax myrtles, water oak, and red oak. This area was radial tested with no additional recoveries made (see Figure 7.60).

There is very little that can be said regarding this occurrence. The single piece of ferrous metal probably relates to the farming activities so endemic to the history of land use in this area. This occurrence has limited potential for yielding important information about any time period and is considered not eligible for the NRHP. No further work is recommended.

Figure 7.61. Photograph of Site 31CK233, facing north.**

VIII. MARITIME ARCHAEOLOGICAL INVESTIGATION RESULTS

The marine survey area consisted of the proposed bridge corridor that extends easterly across Currituck Sound from Aydlett in Currituck County for several miles where it connects to the shore on Currituck Bank south of Corolla in Dare County. The survey, consisting of a magnetometer, and sidescan sonar, was undertaken between October 13 and 16, 2011 during which a total of 84 magnetic anomalies and 58 sidescan sonar contacts were recorded. Employing the discussions on target analysis, magnetic anomalies were assessed for potential significance based on magnetic deviation (above and/or below ambient background), duration (distance in feet along a trackline an anomaly influences the ambient background), type (monopole [negative or positive influence]), dipole (negative and positive influence, or complex), and association with other magnetic anomalies (i.e., clustering) and sidescan sonar targets. Sidescan sonar targets, as visual images, were assessed for linearity, height off bottom, size, associated magnetics, and environmental context. None are considered potentially significant.

MAGNETOMETER RESULTS

As listed in Table 8.1 and illustrated in Figures 8.1 through 8.8, 84 magnetic anomalies were recorded within the survey area. Table 8.2 includes: target location, type (i.e., monopole, dipole, complex), gamma deviation and duration, and association with other targets, both magnetic and sidescan from the current survey. Figure 8.1 is the magnetic contour map key of the entire corridor showing coverage. Figures 8.2 through 8.8 correspond to the map key and show the detail that will be presented in for all of the contour maps as large Z-fold type maps. The magnetic contour maps are presented at a ten-gamma contour.

Based in part on the anomaly signature (i.e., amplitude, deviation, clustering, etc.) and or sidescan target association, 61 of the recorded anomalies represent single-source objects, 3 are associated with crab pots, 19 are associated with a dock along the western shore that is well south of the corridor, and 1 is a small object (near the docks). Presented below are anomalies by group:

Single Source: M-01, M-02, M-03, M-04, M-06, M-07, M-08, M-09, M-11, M-12, M-13, M-14, M-15, M-16, M-17, M-21, M-29, M-30, M-33, M-34, M-35, M-36, M-37, M-39, M-40, M-41, M-42, M-43, M-44, M-45, M-46, M-47, M-48, M-49, M-50, M-51, M-52, M-53, M-55, M-56, M-57, M-58, M-59, M-60, M-61, M-62, M-63, M-64, M-65, M-66, M-67, M-68, M-69, M-70, M-71, M-72, M-73, M-74, M-75, M-76, M-80

Crab Pots: M-05, M-10, M-54

Dock: M-19, M-20, M-22, M-23, M-25, M-26, M-27, M-28, M-77, M-78, M-79, M-81, M-82, M-83, M-84, M-85, M-86, M-87, M-88

Debris/Object: M-38

Extensive review and analysis of all of these anomalies indicates that none are considered representative of a potentially significant submerged cultural resource. With respect to the single source objects without associated sidescan images, examination of both the contour map and the strip chart for these anomalies indicates that each target was recorded only on a single transect, and neither was recorded (i.e., did not influence the ambient magnetic background) on adjacent

lines. Because some of the single-source anomaly readings are large deviations, yet were recorded on only one line, this indicates the source for these targets must be small, discrete objects. The magnetometer sensor must have passed closely by or directly over the object to generate the large readings on a survey line yet not be recorded or have had an influence on an adjacent 50-ft. spaced line. The single-source anomaly type is not considered representative of a potentially significant submerged cultural resource.

Table 8.1. Magnetic Anomalies.

Anomaly	Easting	Northing	Map	Deviation	Duration (ft.)	Type	Association	Description
M-01	2920405	957576	3	32	18	M		Single Source
M-02	2920667	957650	3	15	12	M		Single Source
M-03	2920860	957710	3	14	18	M		Single Source
M-04	2920935	957731	3	27	18	M		Single Source
M-05	2925533	959106	4	38	42	D	C-43	Crab Trap
M-06	2926373	959364	5	52	36	CM		Single Source
M-07	2927261	959628	5	30	18	M		Single Source
M-08	2927308	959639	5	15	18	M		Single Source
M-09	2919457	957227	3	32	18	M		Single Source
M-10	2920000	957396	1	9	18	M	C-26	Crab Trap
M-11	2921798	957938	3	17	18	CM		Single Source
M-12	2922126	958038	3	34/-2	8	D		Single Source
M-13	2912124	954722	1	18/-24	12	D	M-71	Single Source
M-14	2913093	954905	1	11/-14	13	D	M-72	Single Source
M-15	2912106	954559	1	29/-10	5	D	M-73	Single Source
M-16	2912550	954682	1	-20	4	M	M-74	Single Source
M-17	2912366	954589	1	-10	9	CM		Single Source
M-19	2911696	954280	1	-675	4	M		Dock
M-20	2911771	954304	1	-3450	3	M		Dock
M-21	2912140	954417	1	-24	4	M	M-80	Single Source
M-22	2911767	954253	1	11	3	M		Dock
M-23	2911594	954216	1	-803	6	M	M-84, C-57	Dock
M-25	2911671	954207	1	-2626	4	M		Dock
M-26	2911638	954262	1	-1288	8	M		Dock
M-27	2911721	954270	1	-856	48	M		Dock
M-28	2911742	954228	1	-63	11	M	M-88	Dock
M-29	2930530	960497	6	-18	41	M	M-30	Single Source
M-30	2930550	960449	6	100/-16	24	D	M-29	Single Source
M-33	2921077	957622	3	9/-34	7	D		Single Source
M-34	2923330	958225	4	16	8	M		Single Source
M-35	2930657	960435	6	14/-8	8	D		Single Source
M-36	2927005	959300	5	28/-3	7	D		Single Source
M-37	2927262	959375	5	17	7	M		Single Source
M-38	2927701	959504	5	12/-4	8	D	C-10	Debris
M-39	2927821	959528	5	20/-3	9	D		Single Source
M-40	2915054	955810	2	15	4	M		Single Source
M-41	2915091	955821	2	15	4	M		Single Source
M-42	2915807	956032	2	32	3	M		Single Source
M-43	2916589	956266	2	28	3	M		Single Source
M-44	2916801	956334	2	12	6	M		Single Source

Anomaly	Easting	Northing	Map	Deviation	Duration (ft.)	Type	Association	Description
M-45	2918130	956722	2	36	3	M		Single Source
M-46	2918279	956772	2	19	3	M		Single Source
M-47	2918533	956854	2	25	3	M	M-48	Single Source
M-48	2918553	956858	2	9	3	M	M-47	Single Source
M-49	2918783	956928	3	12	3	M		Single Source
M-50	2918964	956985	3	10	3	M		Single Source
M-51	2919391	957116	3	34	3	M	M-52, M-53	Single Source
M-52	2919421	957114	3	16	3	M	M-51, M-53	Single Source
M-53	2919448	957124	3	18	3	M	M-51, M-52	Single Source
M-54	2918823	956794	3	-15	6	M	C-07	Crab Trap
M-55	2919279	956920	3	-8	8	M		Single Source
M-56	2926564	959105	5	18/-8	10	D		Single Source
M-57	2926616	959110	5	10	6	M		Single Source
M-58	2927539	959389	5	-7	12	CD		Single Source
M-59	2932263	960817	6	-22	5	M		Single Source
M-60	2914530	955593	1	-144	11	M		Single Source
M-61	2914041	955403	1	24/-2	7	D		Single Source
M-62	2916901	956257	2	28	7	M		Single Source
M-63	2914486	955691	1	-31	7	M		Single Source
M-64	2915008	955855	2	4/-35	7	D		Single Source
M-65	2915506	956006	2	-30	4	M		Single Source
M-66	2915977	956141	2	-25	3	M		Single Source
M-67	2915057	955909	2	-50	5	M		Single Source
M-68	2919967	957365	3	21/-3	9	D		Single Source
M-69	2920187	957430	3	32	6	M		Single Source
M-70	2912698	955613	1	32/-3	7	D		Single Source
M-71	2912124	954722	1	18/-24	11	D	M-13	Single Source
M-72	2913093	954905	1	11/-13	21	CD	M-14	Single Source
M-73	2912106	954559	1	30/-11	4	D	M-15	Single Source
M-74	2912550	954682	1	3/-20	7	D	M-16	Single Source
M-75	2912197	954490	1	3/-390	11	D	M-76	Single Source
M-76	2912165	954484	1	-60	3	M	M-75	Single Source
M-77	2911696	954280	1	-140	4	M	M-78, M-79	Dock
M-78	2911747	954301	1	-72	3	CM	M-76, M-79	Dock
M-79	2911787	954307	1	-109	6	CM	M-76, M-78	Dock
M-80	2912140	954417	1	-21	4	M	M-21	Single Source
M-81	2911655	954221	1	-15	7	M	M-83, C-04	Dock
M-82	2911767	954254	1	20	3	M	M-84, C-04	Dock
M-83	2911583	954238	1	-218	42	M	M-85, C-03	Dock
M-84	2911617	954174	1	-193	7	M	M-82, C-57	Dock
M-85	2911650	954251	1	-381	8	M	M-83, C-03	Dock
M-86	2911676	954201	1	-203	24	M	M-85	Dock
M-87	2911720	954278	1	-75	4	M	M-85	Dock
M-88	2911742	954228	1	-47	12	M	M-28	Dock

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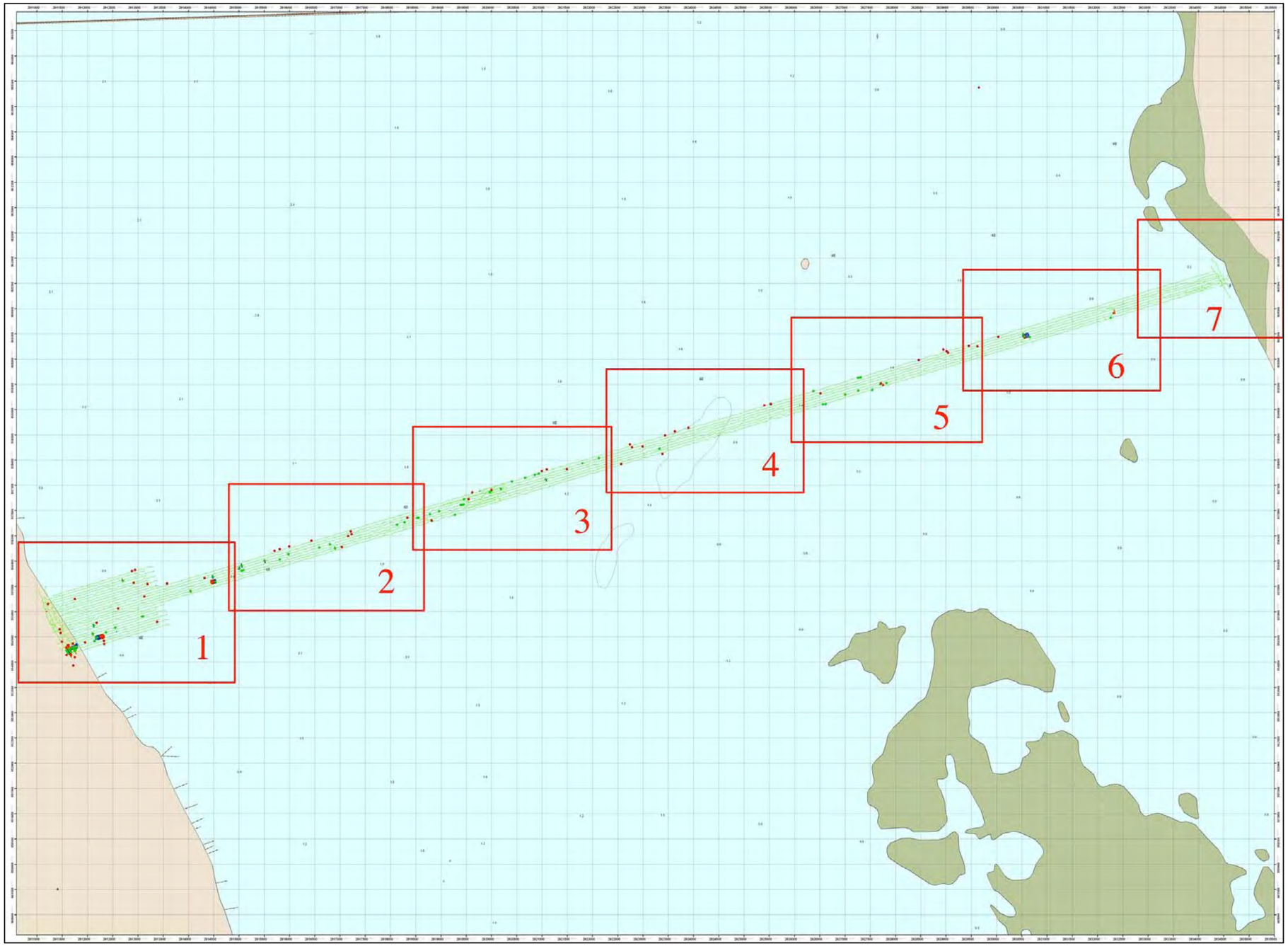

Figure 8.1. Magnetic Contour Maps Key.

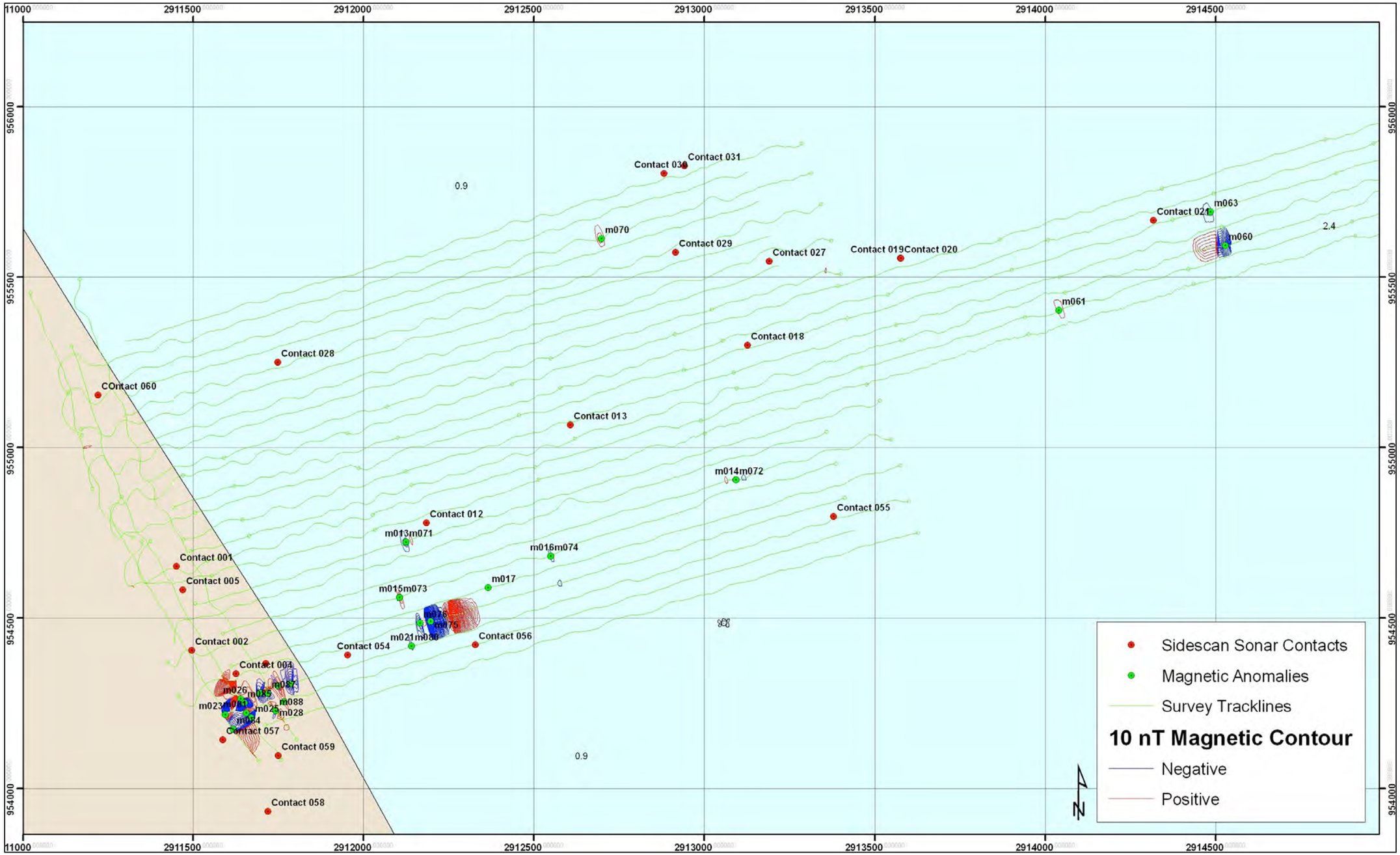

Figure 8.2. Magnetic Contour Map 1 showing coverage of the western side of the bridge corridor. Note both magnetic anomalies and sidescan sonar targets are shown. Large magnetic cluster at bottom left is a dock well outside of the ROW. Survey grid is in feet.

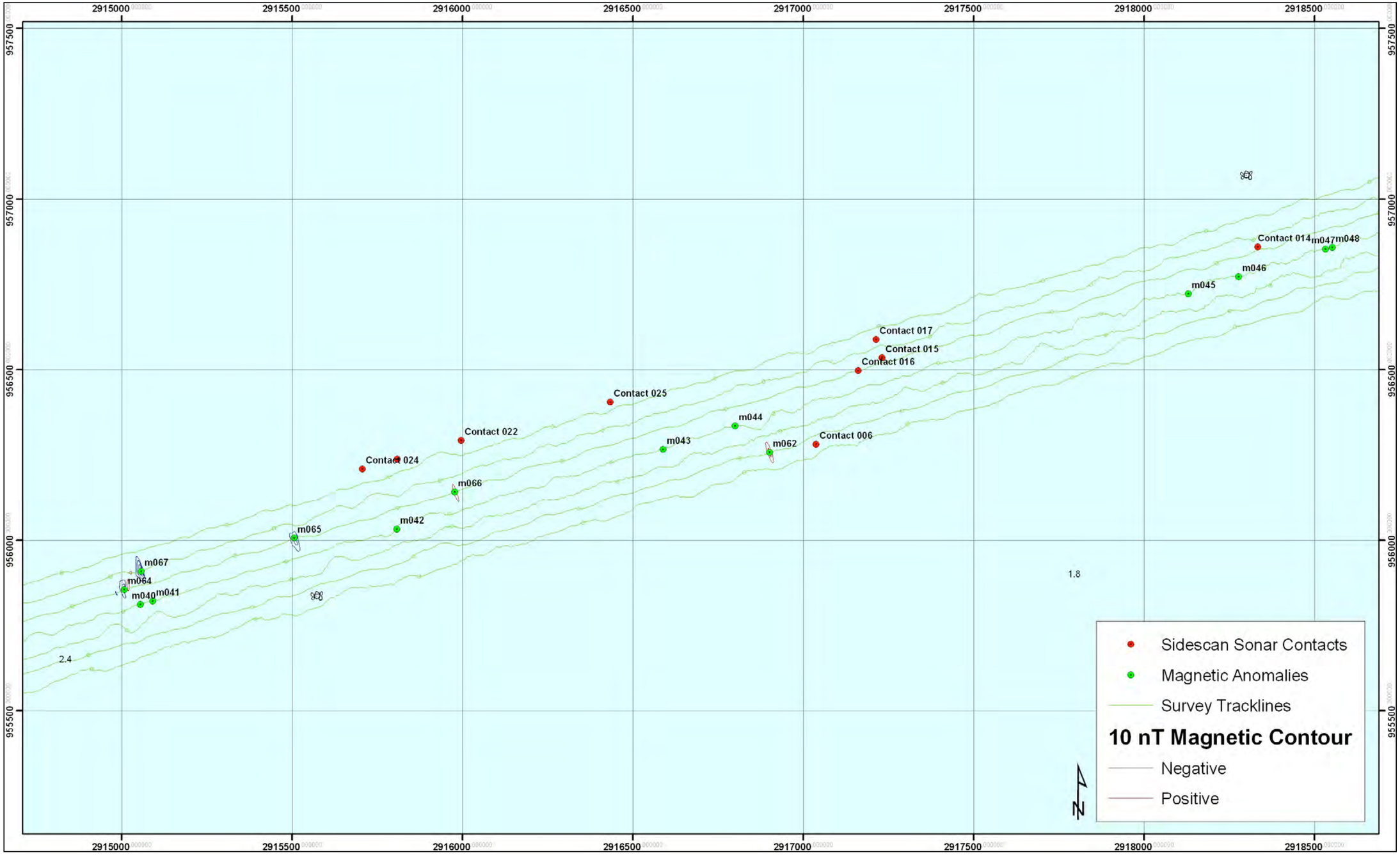

Figure 8.3. Magnetic Contour Map 2. Note both magnetic anomalies and sidescan sonar targets are shown. Survey grid is in feet.

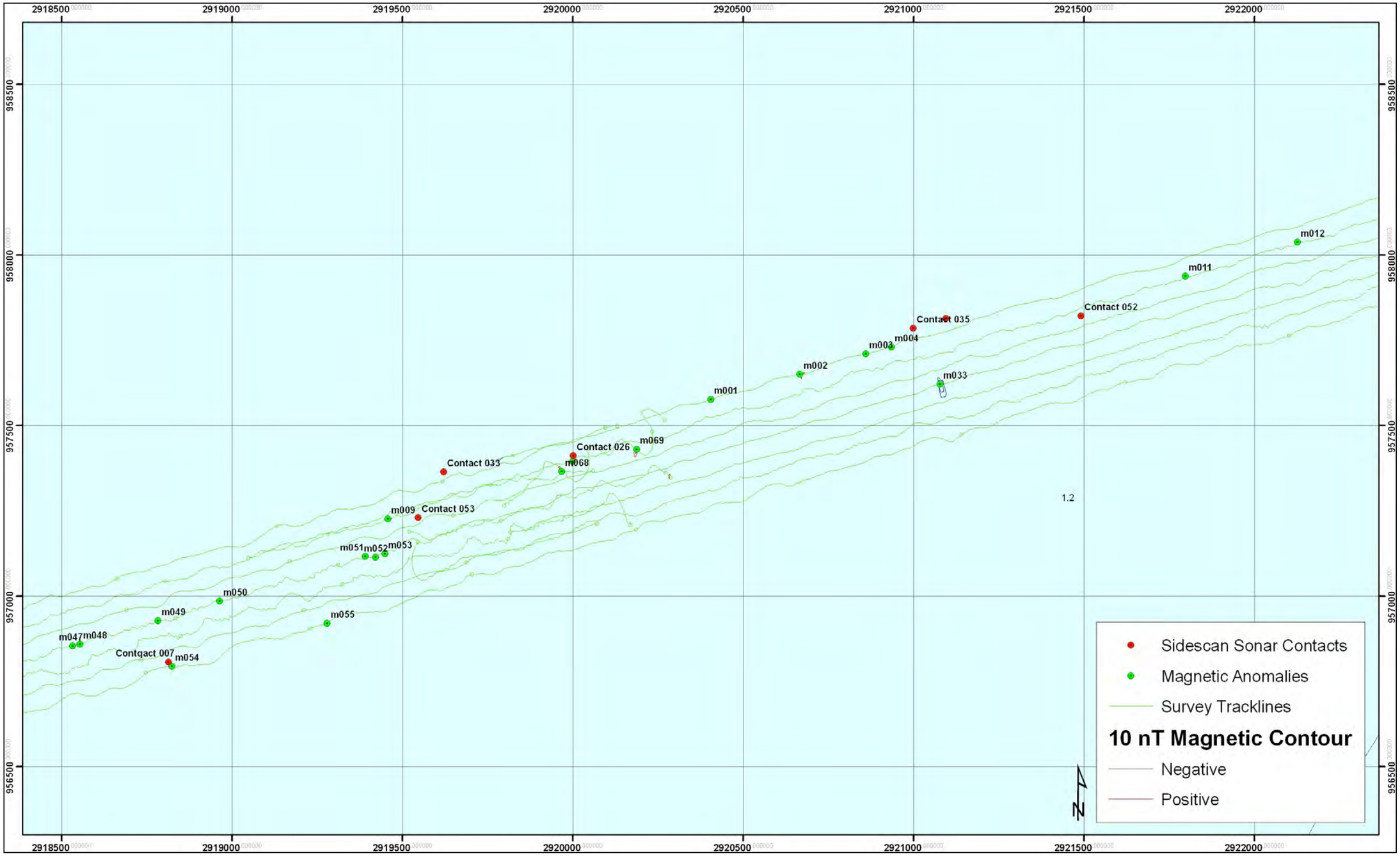

Figure 8.4. Magnetic Contour Map 3. Note both magnetic anomalies and sidescan sonar targets are shown. Survey grid is in feet.

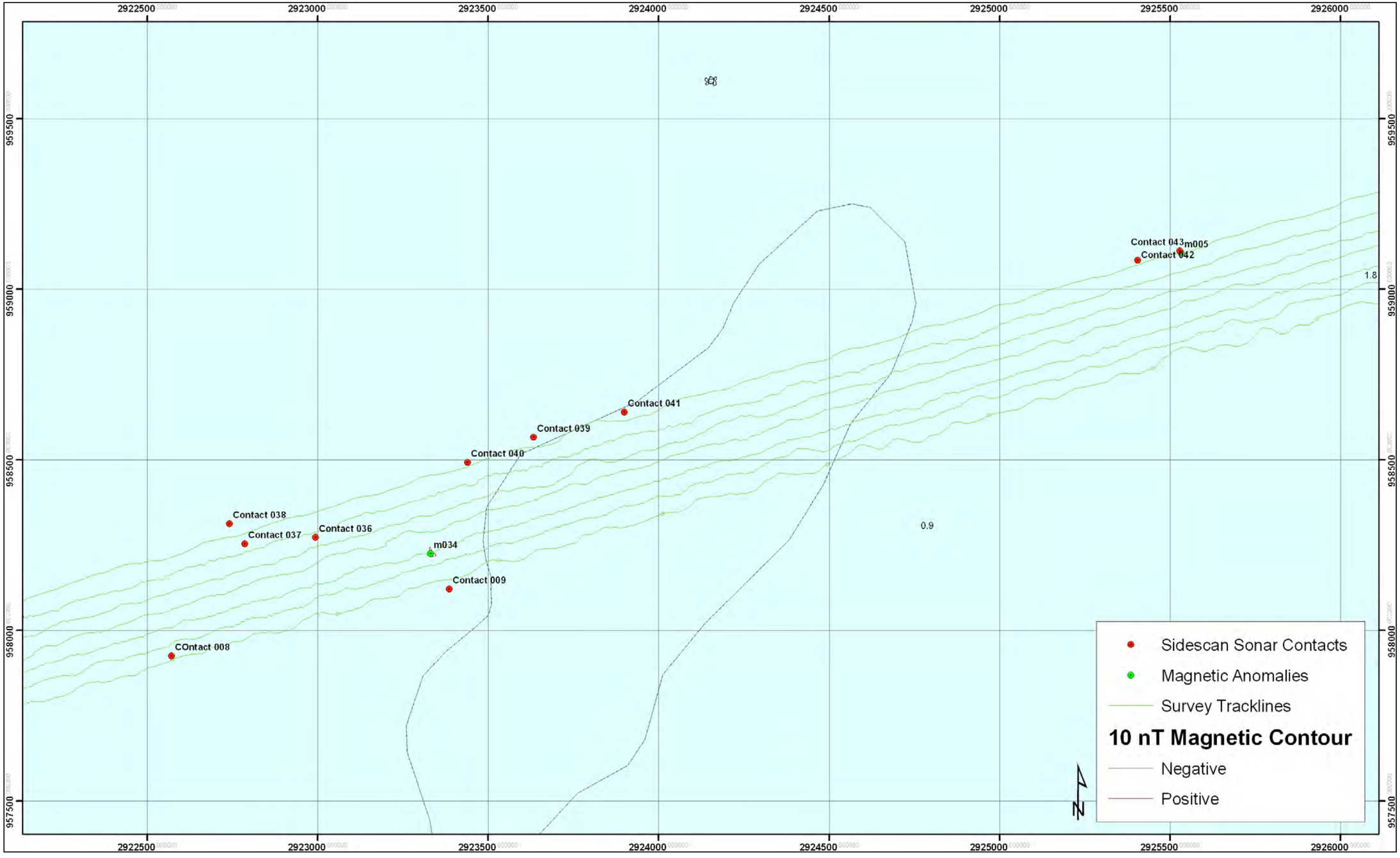

Figure 8.5. Magnetic Contour Map 4. Note both magnetic anomalies and sidescan sonar targets are shown. Survey grid is in feet

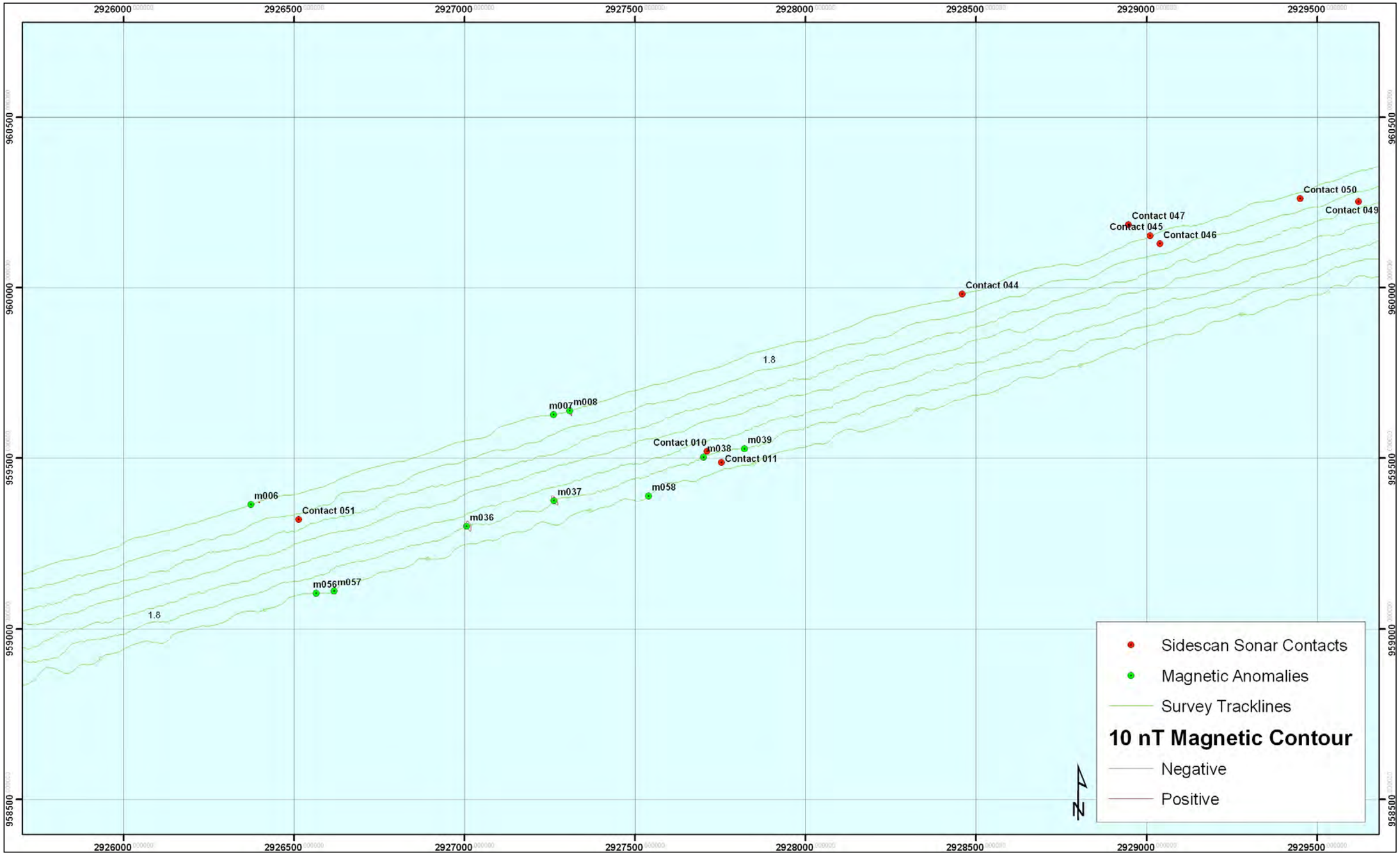

Figure 8.6. Magnetic Contour Map 5. Note both magnetic anomalies and sidescan sonar targets are shown. Survey grid is in feet.

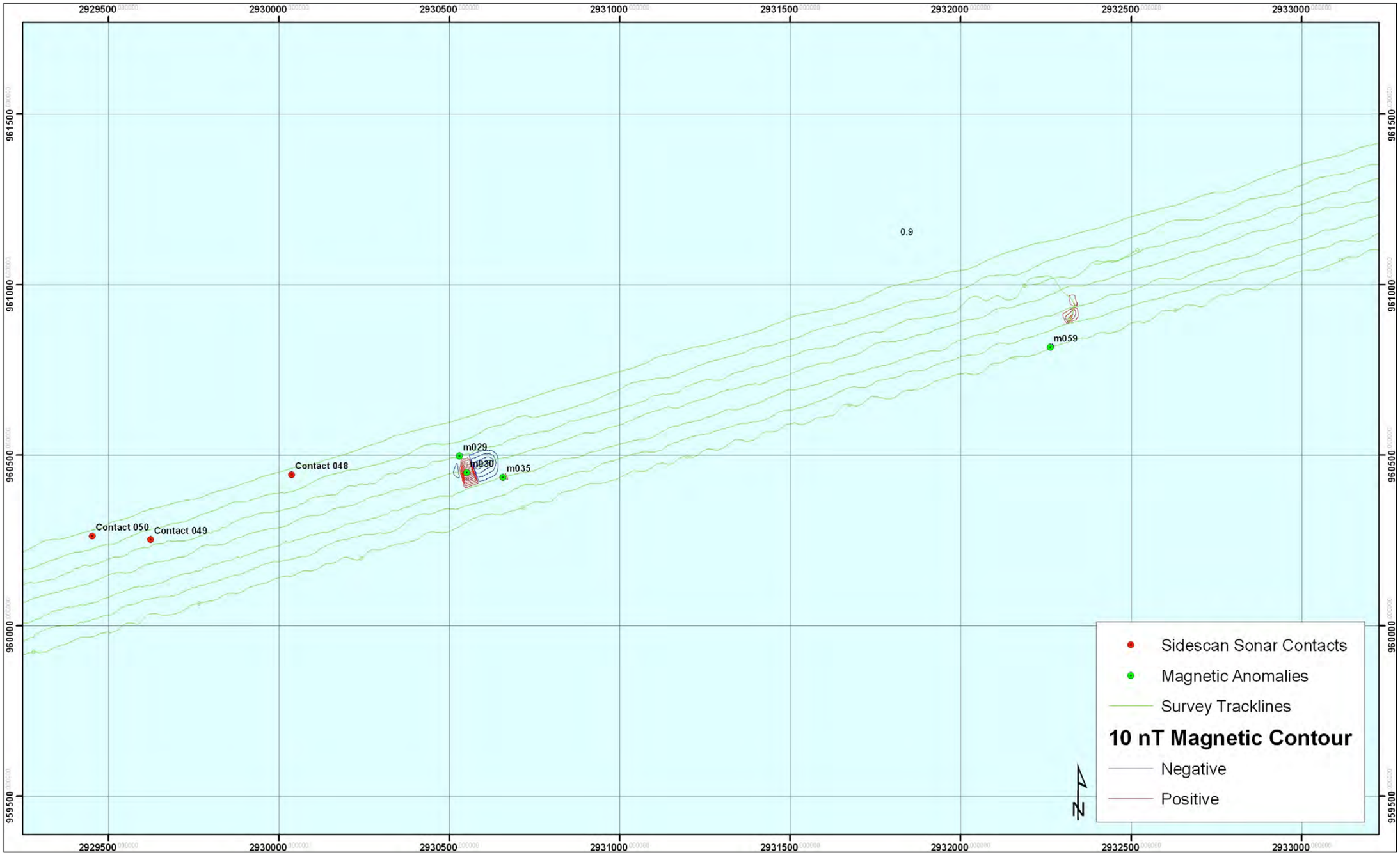

Figure 8.7. Magnetic Contour Map 6. Note both magnetic anomalies and sidescan sonar targets are shown. Survey grid is in feet.

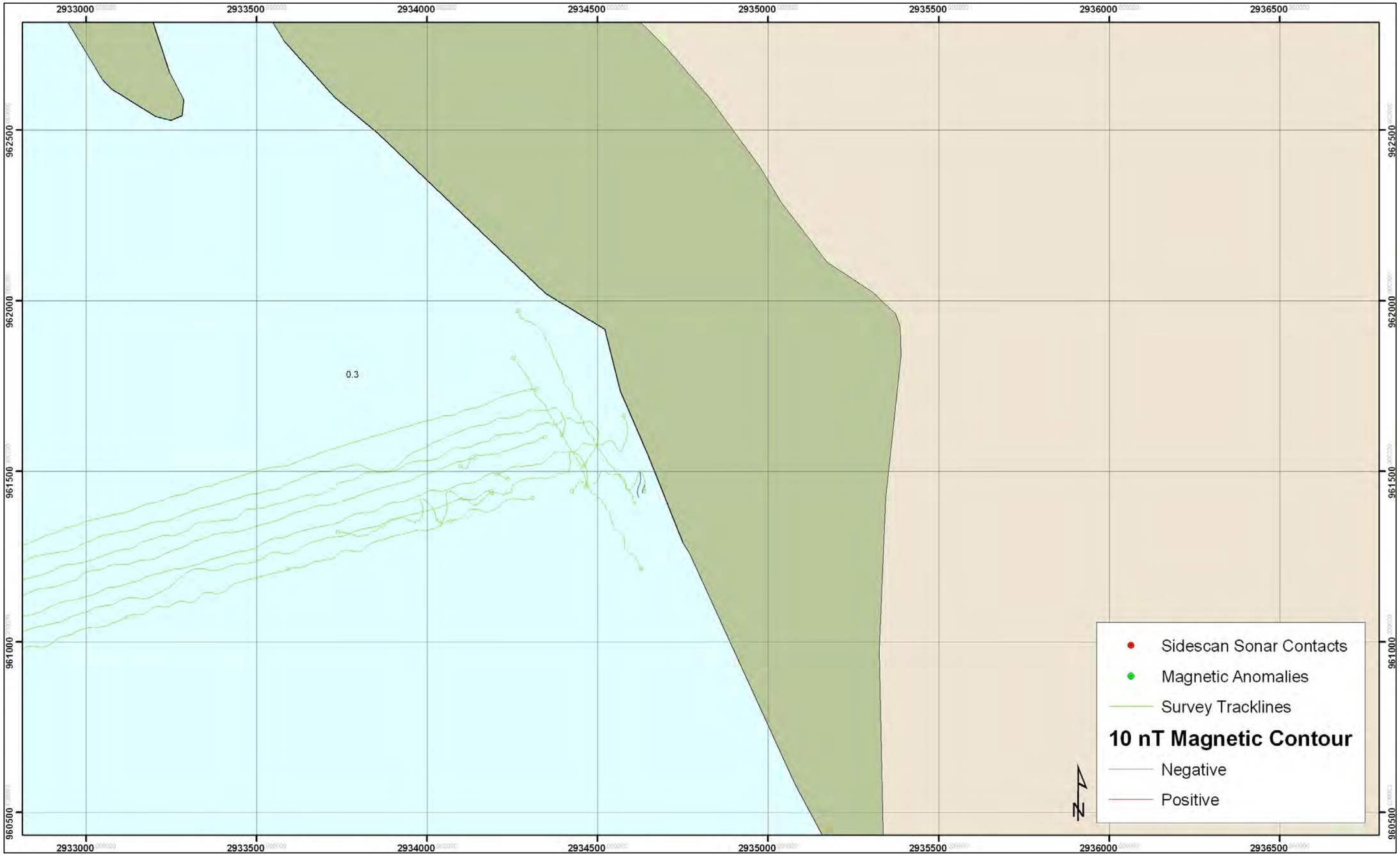

Figure 8.8. Magnetic Contour Map 7. Note both magnetic anomalies and sidescan sonar targets are shown. Survey grid is in feet.

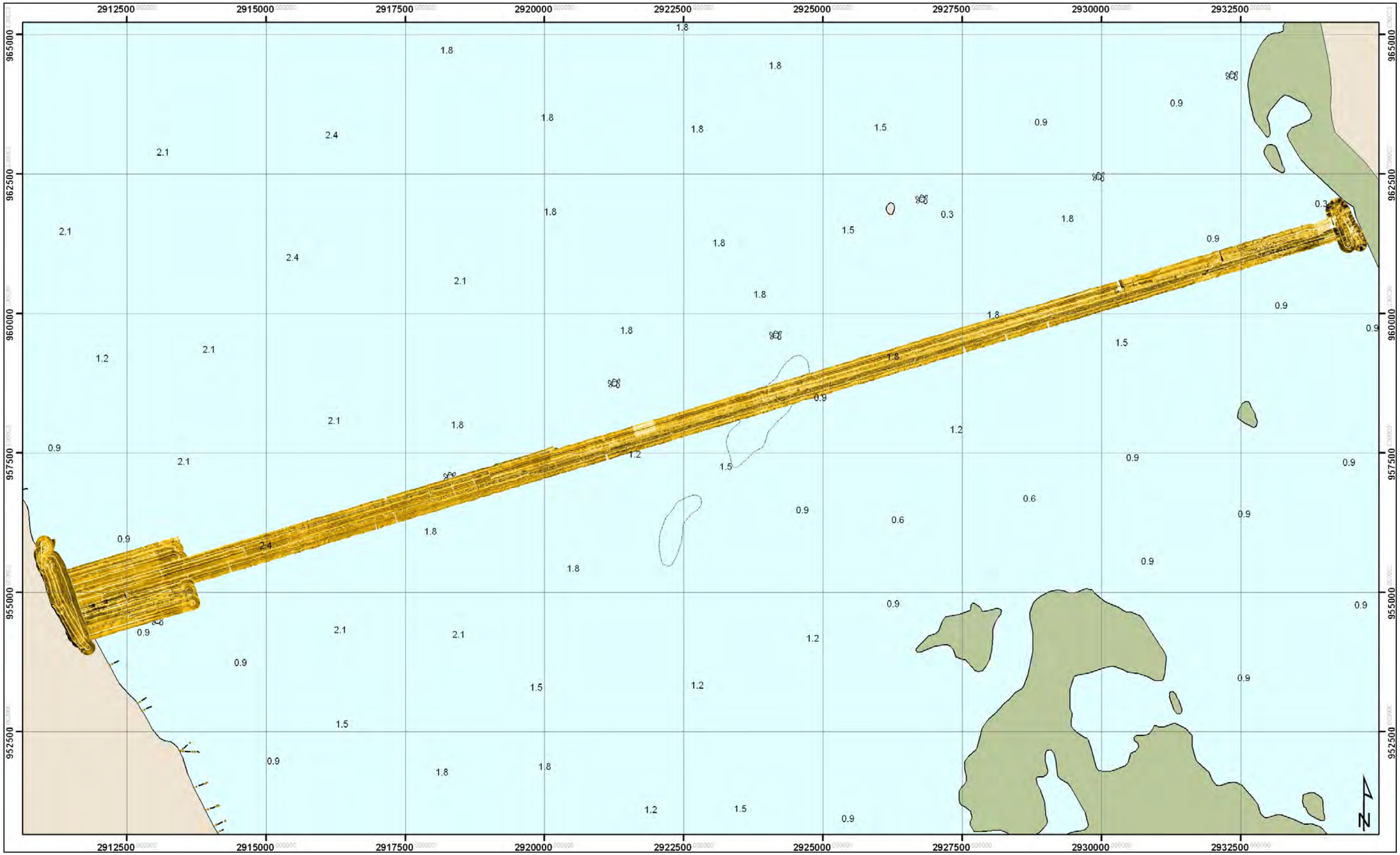

Figure 8.9. Sidescan sonar mosaic showing total coverage of survey area.

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SIDESCAN SONAR RESULTS

As listed in Table 8.2 and Appendix C, a total of 60 sidescan sonar targets were identified during the analysis of the sidescan sonar data of the Currituck survey area. Figure 8.9 presents the sidescan mosaic of the project area showing coverage of the project area, while their locations can be found on the magnetic contour maps above. Appendix C is a table with images of all sidescan sonar targets. These 60 targets, which included any object or anomalous bottom return that was not uniform sand bottom or a sand wave feature, consist of 19 crab traps, 4 dock images, and 35 objects. The objects are comprised of small logs or pilings, small tree stumps, and other small non-significant objects, most which lacked magnetic association. Figure 8.10 shows one of the recorded crab traps. Lists of the acoustic targets, categorized by group, are as follows:

Crab Trap: C-01, C-02, C-07, C-08, C-09, C-13, C-14, C-16, C-19, C-22, C-23, C-24, C-25, C-26, C-33, C-35, C-41, C-42, C-43

Dock: C-03, C-04, C-57, C-58

Objects: C-05, C-06, C-10, C-11, C-12, C-15, C-17, C-18, C-21, C-27, C-28, C-29, C-30, C-31, C-34, C-36, C-37, C-38, C-39, C-40, C-44, C-45, C-46, C-47, C-48, C-49, C-50, C-51, C-52, C-53, C-54, C-55, C-56, C-59, C-60

Table 8.2. Sidescan Sonar Targets

Target	Map	Easting	Northing	Length	Width	Description	Association
C-01	1	2911450	954651	3.4	4.1	crab trap	
C-02	1	2911495	954404	9.6	2.4	crab trap	
C-03	1	2911713	954366	3.2	4	log?	M85, M87, Dock
C-04	1	2911625	954337	8.6	2.2	unknown	M83, M85, Dock
C-05	1	2911469	954582	39.7	2.7	piling?	
C-06	2	2917038	956281	13.7	2.8	unknown	
C-07	3	2918813	956806	2.7	3.9	crab trap	M54
C-08	4	2922570	957924	3.3	3.5	crab trap	
C-09	4	2923385	958121	2.6	6	crab trap	
C-10	5	2927710	959521	25.7	12	debris?	M38
C-11	5	2927753	959488	21	19	debris?	
C-12	1	2912184	954779	32.5	14.5	Fish school	
C-13	1	2912606	955066	7.1	4.1	crab trap	
C-14	2	2918334	956860	6.9	5.6	crab trap	
C-15	2	2917231	956534	9.9	4.7	log?	
C-16	2	2917162	956497	7.1	3.7	crab trap	
C-17	2	2917214	956589	5.8	5.7	unknown	
C-18	1	2913128	955300	16.2	3.3	log?	
C-19	1	2913576	955555	4.5	3.6	crab trap	
C-21	1	2914319	955667	11.1	7.5	unknown	
C-22	2	2915996	956293	12.4	7.3	crab trap	
C-23	2	2915809	956237	7.5	7.7	crab trap	
C-24	2	2915706	956208	5.1	3.9	crab trap	
C-25	2	2916434	956405	4	3.1	crab trap	
C-26	3	2920001	957411	8.7	9.5	crab trap	M10
C-27	1	2913191	955547	2.6	3.1	log?	

Target	Map	Easting	Northing	Length	Width	Description	Association
C-28	1	2911748	955250	11.7	3.5	log?	
C-29	1	2912916	955573	18.4	1.3	debris?	
C-30	1	2912881	955805	15.1	3.7	log?	
C-31	1	2912942	955827	15.6	1.8	log?	
C-33	3	2919621	957363	8.1	7.3	crab trap	
C-34	3	2921096	957815	7.3	1.9	log?	
C-35	3	2921000	957785	37.9	33.9	crab traps	
C-36	4	2922993	958273	61.3	10.3	Fish	
C-37	4	2922785	958253	8.9	7.1	unknown	
C-38	4	2922740	958312	11.4	6.9	unknown	
C-39	4	2923633	958566	6.6	8.1	crab trap	
C-40	4	2923439	958492	8.2	6.6	unknown	
C-41	4	2923900	958640	5.1	5.9	crab trap	
C-42	4	2925406	959085	3.7	2.5	crab trap	
C-43	4	2925529	959113	2.9	2.5	crab trap	M5
C-44	5	2928460	959982	8.5	3.2	log?	
C-45	5	2929011	960154	13.9	10.9	tree stump	
C-46	5	2929040	960129	11.4	2.6	log?	
C-47	5	2928948	960186	21.6	11.2	unknown	
C-48	6	2930037	960443	17.7	8.8	unknown	
C-49	6	2929623	960253	8.1	6.4	unknown	
C-50	6	2929452	960263	7.7	4.6	unknown	
C-51	5	2926513	959321	14.5	12.2	tree stump	
C-52	3	2921492	957822	12.6	4.9	log?	
C-53	3	2919546	957230	11.7	5	log?	
C-54	1	2911953	954392	30.2	2.4	log?	
C-55	1	2913379	954798	19	1.7	log?	
C-56	1	2912327	954422	18.7	3	log?	
C-57	1	2911586	954142	48.6	15.9	dock	M23, M84, Dock
C-58	1	2911719	953933	47.8	16.5	dock	
C-59	1	2911749	954096	33.9	2.9	linear/pipe?	
C-60	1	2911220	955154	20.4	3.8	piling	

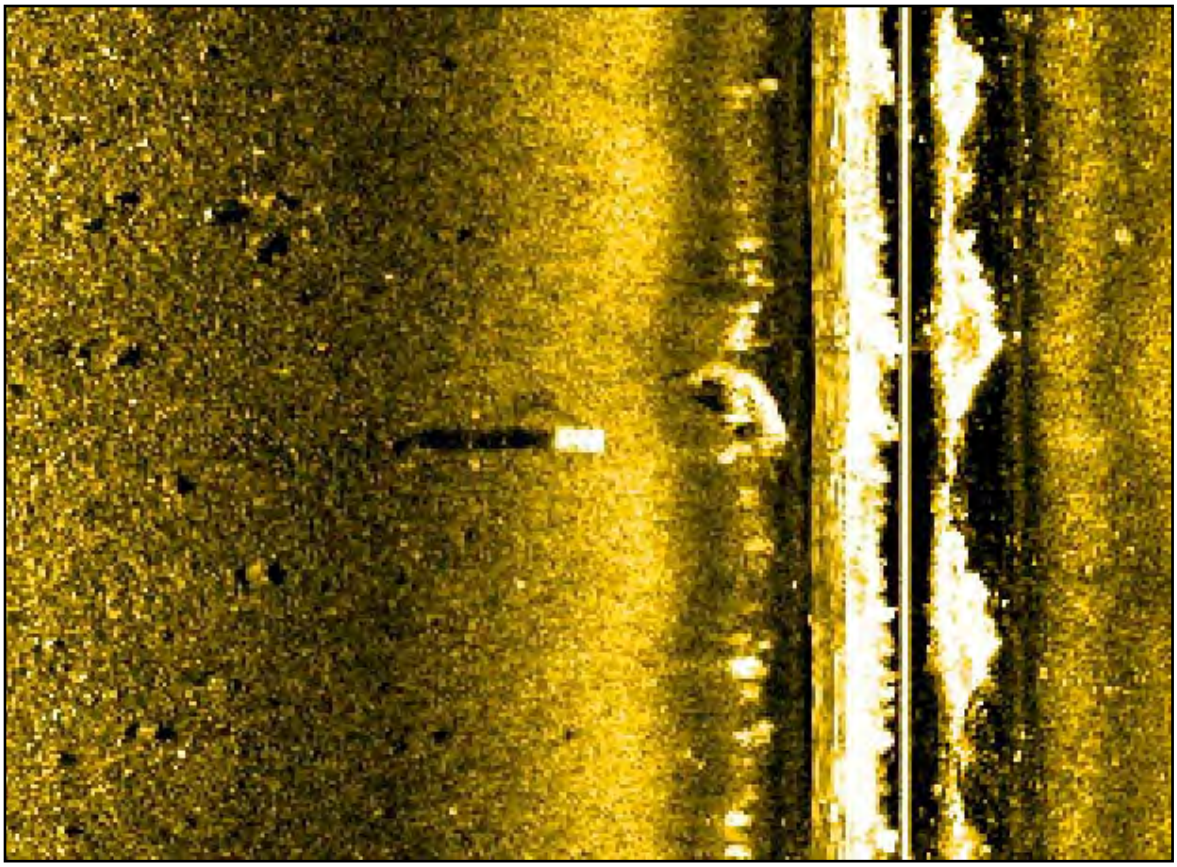

Figure 8.10. Sidescan Sonar target C-43, a crab trap that is associated with Anomaly M-5. Images for all acoustic targets are found in Appendix C.

MARINE ARCHAEOLOGICAL DIVING RESULTS

While extensive review and analysis of the remote sensing data indicated that none of the anomalies or sidescan sonar targets were considered representative of a potentially significant submerged cultural resource, based on the data presented in the report the North Carolina SHPO Underwater Unit, however, recommended that the source of several magnetic targets within the survey corridor be identified and assessed by archaeological divers. Individual targets recommended for additional assessment included two individual anomalies and five groups/clusters consisting of multiple anomalies and sonar contacts. Table 8.3 lists the targets subsequently recommended for identification and assessment. Their general locations are presented in Figure 8.1 above. Table 8.4 lists the field results of those same anomalies.

Table 8.3. Magnetic Anomalies and Sonar Contacts Recommended for Diver Investigation.

Target Type	Anomaly/Sonar Contact	General Location (see Figure 8.1)
Single Anomalies	M-05	Map 4
	M-60	Map 1
Group 1	M-21, 75, 76, 80	Map 1
Group 2	M13, 14, 71, 72	Map 4
Group 3	M-64, 67, possibly M-40, 41	Map 2
Group 4	M-38, 39, Contacts 10, 11	Map 5
Group 5	M-29, 30, and 35	Map 6

REFINEMENT SURVEY RESULTS

All targets were investigated employing the above refinement survey methodology. During the refinement survey it was found that several of the anomalies were located within a buried power cable corridor that runs partially through the bridge corridor on the western side. The presence of the cable corridor was known during the original survey, and the data was reviewed real-time and during data analysis to determine if linear anomalies representing cables were present. While some anomalies were recorded within the cable area, the linear signatures of the cables/powerlines were not readily visible within the 2011 data. They were very apparent during the 2012 refinement survey and the cables are the obviously sources for some of the anomalies (Figure 8.11). During the current refinement survey, the exact location of the cables had been recently both buoyed and demarcated with PVC piping within the larger (i.e., wider) cable area seen on maps, with buoys placed on the western end and PVC pipes marking the cable east of the buoys (Figures 8.12 through 8.14). An unnamed local interviewed at the nearby dock stated that the powerline had just recently been marked.

During the refinement survey it was observed that some of the anomaly locations were within the newly marked corridor. Therefore, the locations of the recently placed buoys and PVC pipes were marked with the DGPS during the refinement survey. Illustrated in Figures 8.14 and 8.15, it was found that of the two anomalies and five clusters to be investigated, the locations of Anomaly M-60, Group 1 (M-21, M-75, M-76, and M-80), and Anomalies M-14 and M-72 of Group 2 fall within the buoyed powerline corridor (see Table 8.4). These anomalies were subsequently not investigated by archaeological divers, as the powerlines represented an unsafe working environment for the diver, especially with regard to the probing of the targets and possible contact with the cables. Furthermore, the cables were undoubtedly the source for these anomalies, precluding additional investigation.

Table 8.4. Results of Anomaly Investigations.

Target Type	Anomaly/Sonar Contact	General Location (see Figure 8.1)	Investigated	Results
Single Anomaly	M-05	Map 4	Yes	Negative: Silty and sandy bottom. Disarticulated oyster shell was found at 1ft of depth.
Single Anomaly	M-60	Map 1	No	Unsafe due to location in powerlines
Group 1	M-21, 75, 76, 80	Map 1	No	Unsafe due to location in powerlines
Group 2	M13, 71	Map 1	Yes	Negative: probes to full 10ft, Silty sandy bottom.
Group 2	M14, 72	Map 1	No	Unsafe due to location in powerlines
Group 3	M-64, 67, M-40, 41	Map 2	No	Unsafe due to location in powerlines
Group 4	M-38, 39, Contact C-10	Map 5	Yes	Negative: silty sandy bottom, probes to full 10ft. C-10 – Crab Pot
Group 4	Contact C-11	Map 5	Yes	Negative: Silty Sandy Bottom. Sweeps conducted out 40 either side of buoy.
Group 5	M-29, 30, 35	Map 6	Yes	Negative: Mixture of sand and mud. Probes to full 10ft.

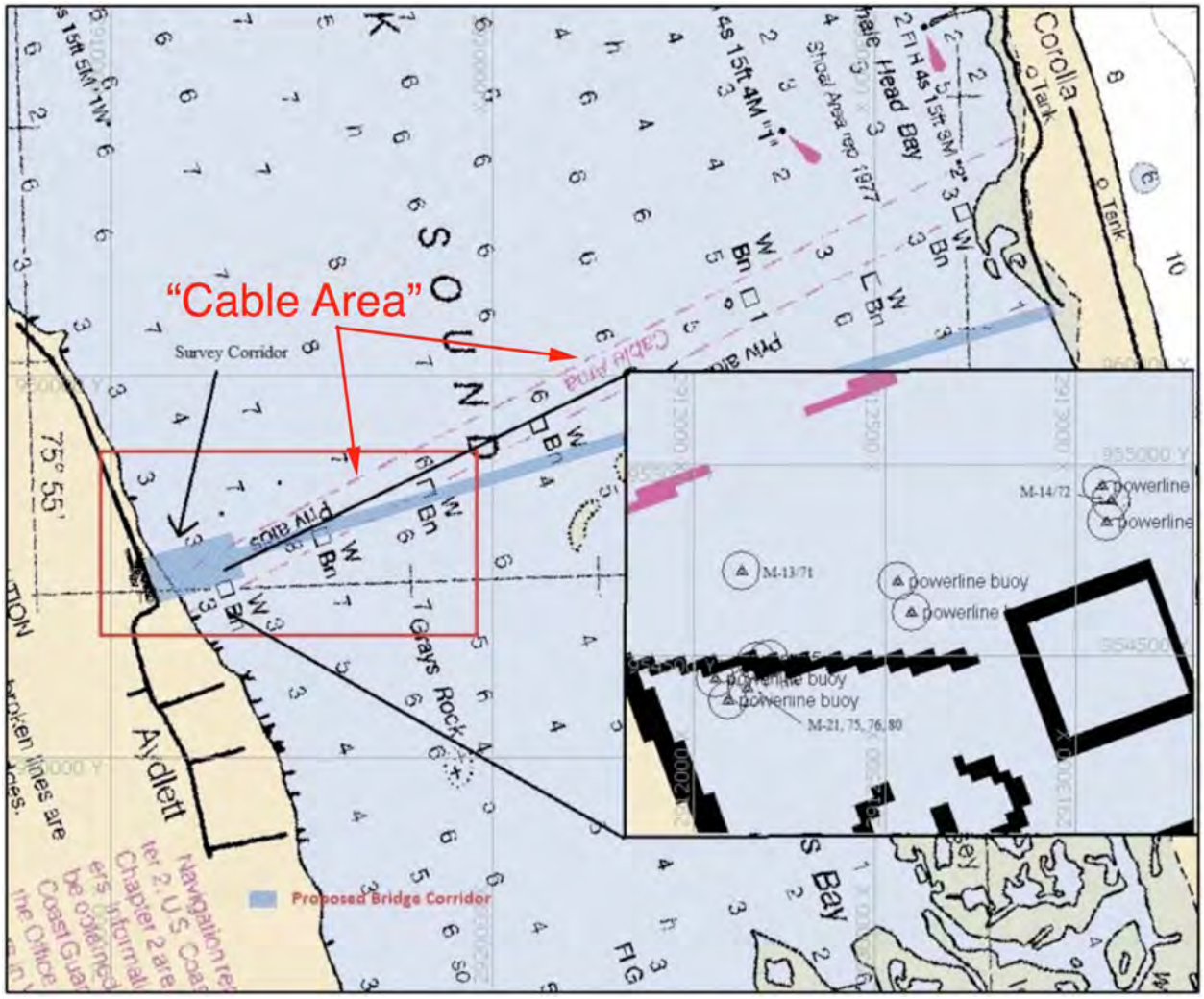

Figure 8.11. Navigation map showing cable corridor and inset showing location of anomalies and buoyed cable/powerline corridor.

Figure 8.12. Buoyed western end of the powerline corridor; view to the north.

Figure 8.13. View of the powerline corridor marked with PVC pipe; view to the southwest.

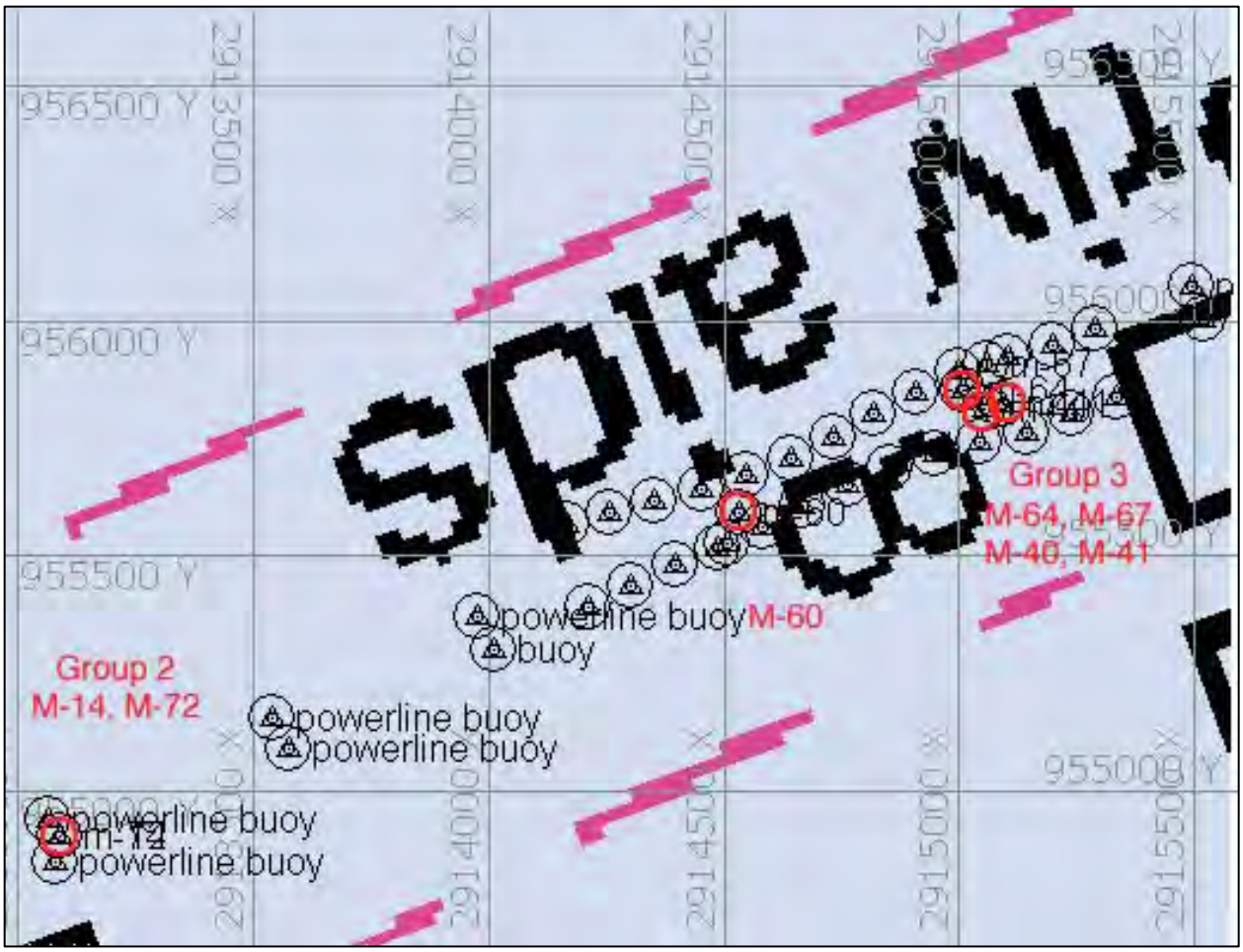

Figure 8.14. Locations of Group 2, Group 3, and Anomaly M-60 (in red) within the buoyed and PVC-marked exact powerline corridor location.

Representative of the survey findings with respect to the presence of the powerlines and anomaly locations, Figure 8.15 shows the refinement survey of Anomalies M-14/M-72 of Group 2 in relation to the buoyed cable corridor. Figure 8.16 is a close-up of the actual anomaly location with respect to the magnetic signatures of the cables.

While the presence of the cable area was known during the 2011 magnetometer survey, it is unknown why the previous survey did not pick up the linear signature of the powerlines as was observed in the 2012 data, the linear signature being a classic representation observed for an *in situ* pipeline, powerline, cable, or other linear feature. The only explanation for this difference may be the direction of the survey lines. The 2011 survey transect more or less paralleled the powerlines while the 2012 refinement survey transected the powerlines in a perpendicular direction.

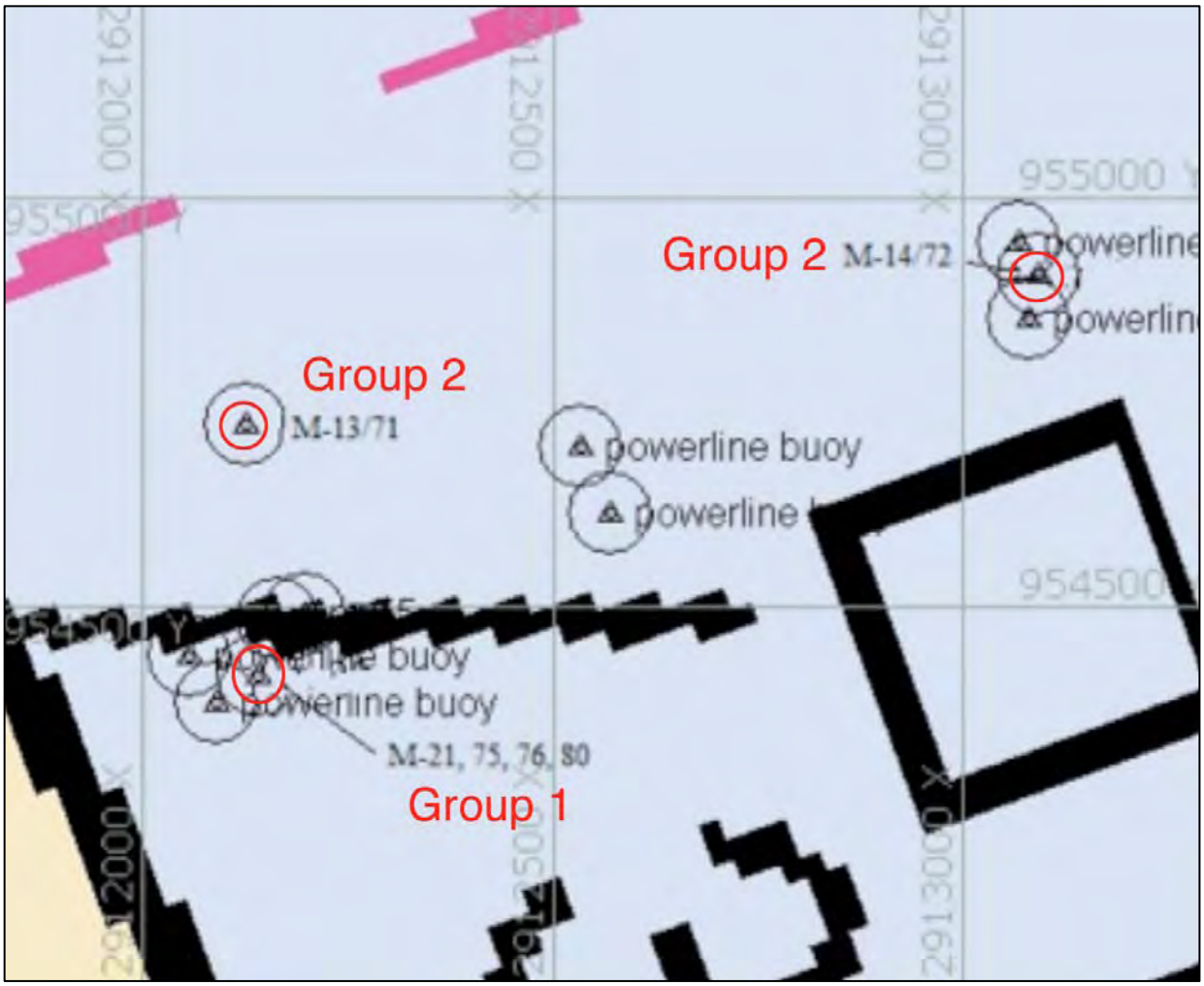

Figure 8.15. Location of Group 1 and Group 2 within the buoyed and PVC-marked powerline corridor location (note that Anomalies M13/71 are a portion of Group 2, and are not within the marked corridor).

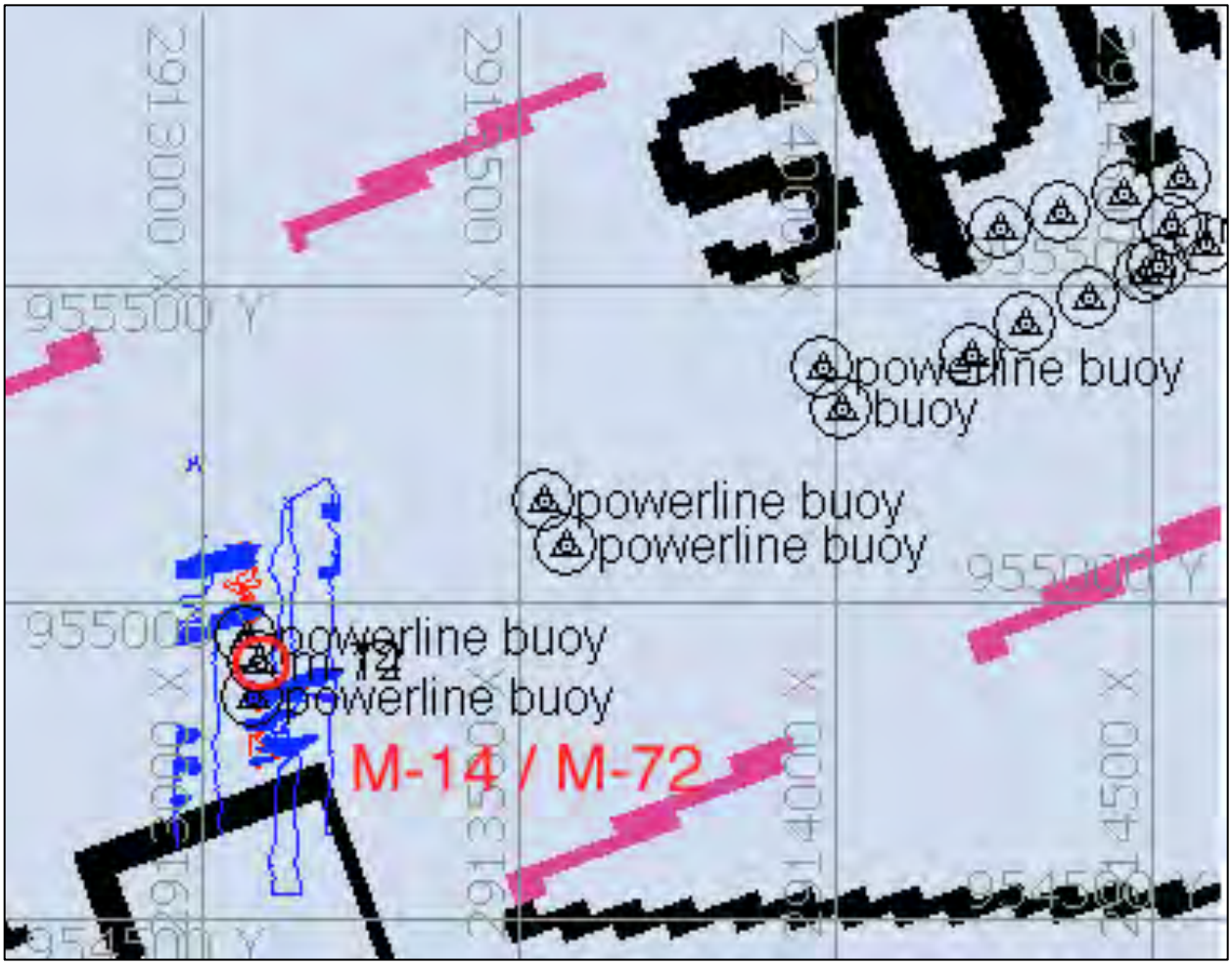

Figure 8.16. Refinement survey showing location of Anomalies M-14/M-72 of Group 2 in relation to the linear anomalies that represent the powerline locations and alignment within the buoyed cable corridor.

As previously stated, because Anomaly M-60, Group 1 (M-21, M-75, M-76, and M-80), and Anomalies M-14 and M-72 of Group 2 were located within the buoyed powerline corridor, they were not investigated by the archaeological divers. The powerlines represented an unsafe working environment for the diver especially with regard to probing of the targets and possible contact with the cables. Furthermore, the cables were undoubtedly the source for these anomalies precluding additional investigation.

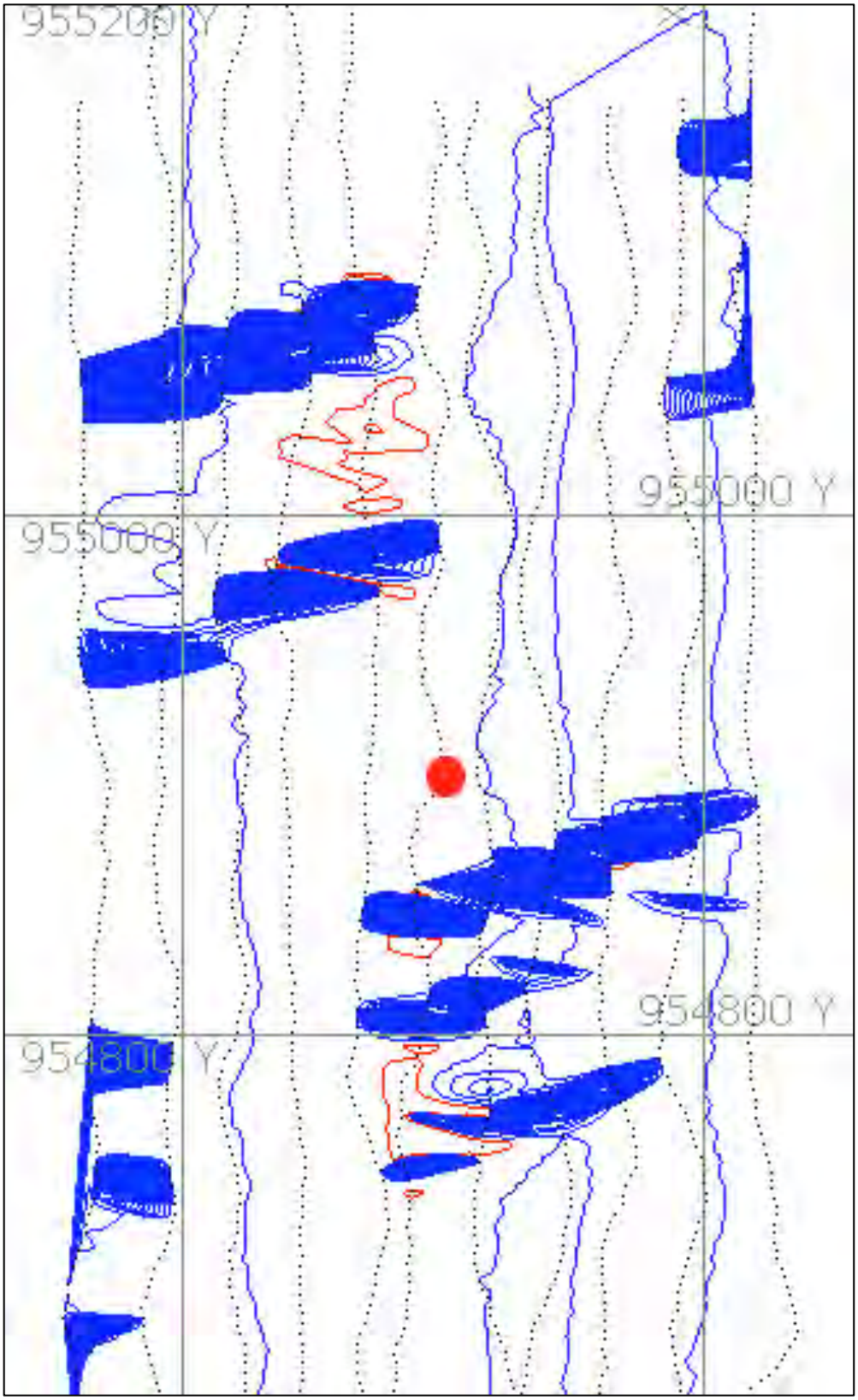

Figure 8.17. Magnetic contour refinement map showing location of M-14/M-72 coordinates (red dot) in relation to the linear anomalies that represent the powerline locations. It appears that there are five cables present; three to the south and two to the north, with the anomaly directly in between.

ARCHAEOLOGICAL DIVING INVESTIGATION RESULTS

M-05

Upon completion of the refinement survey, archaeological divers investigated the remaining targets, starting with M-05, which is a single anomaly (Figure 8.18). Originally having a magnetic deviation of 38 nTs and a duration of 42 ft., it was identified as a crab trap because of its sidescan sonar image (see Table 8.1 above), the refinement survey indicated a total absence of magnetics. Although it was obvious the crab trap had been removed, the target was still investigated with both metal detector sweeps and hydraulic probing to a depth of 10 ft. below bottom, all were negative.

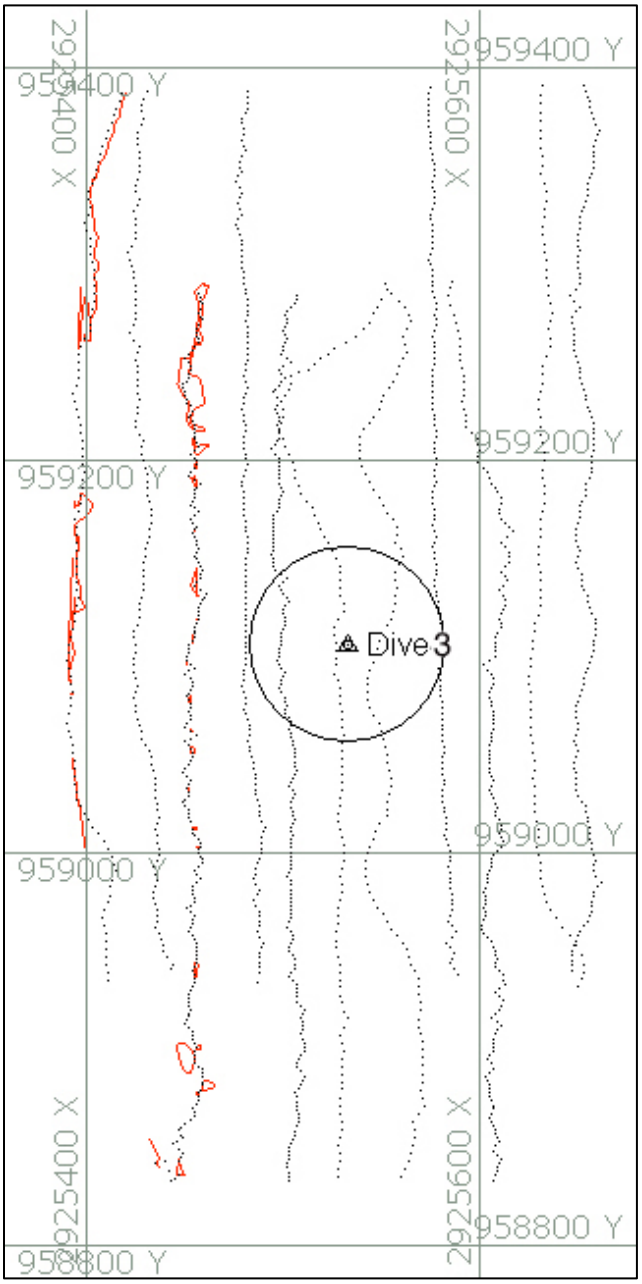

Figure 8.18. Magnetic contour refinement map showing location of buoyed M-05 coordinates (note the total lack of magnetics).

GROUP 2 M-13 AND M-71

Anomalies M-13 and M-17 form a small anomaly cluster within Group 2 (Figure 8.19). Originally having a magnetic deviation of 42 nTs and a duration of 12 ft., refinement of the anomaly location resulted in an absence of magnetics. Located north of the delineated powerline corridor, the target was still investigated with both metal detector sweeps and hydraulic probing to a depth of 10 ft. below bottom, all were negative.

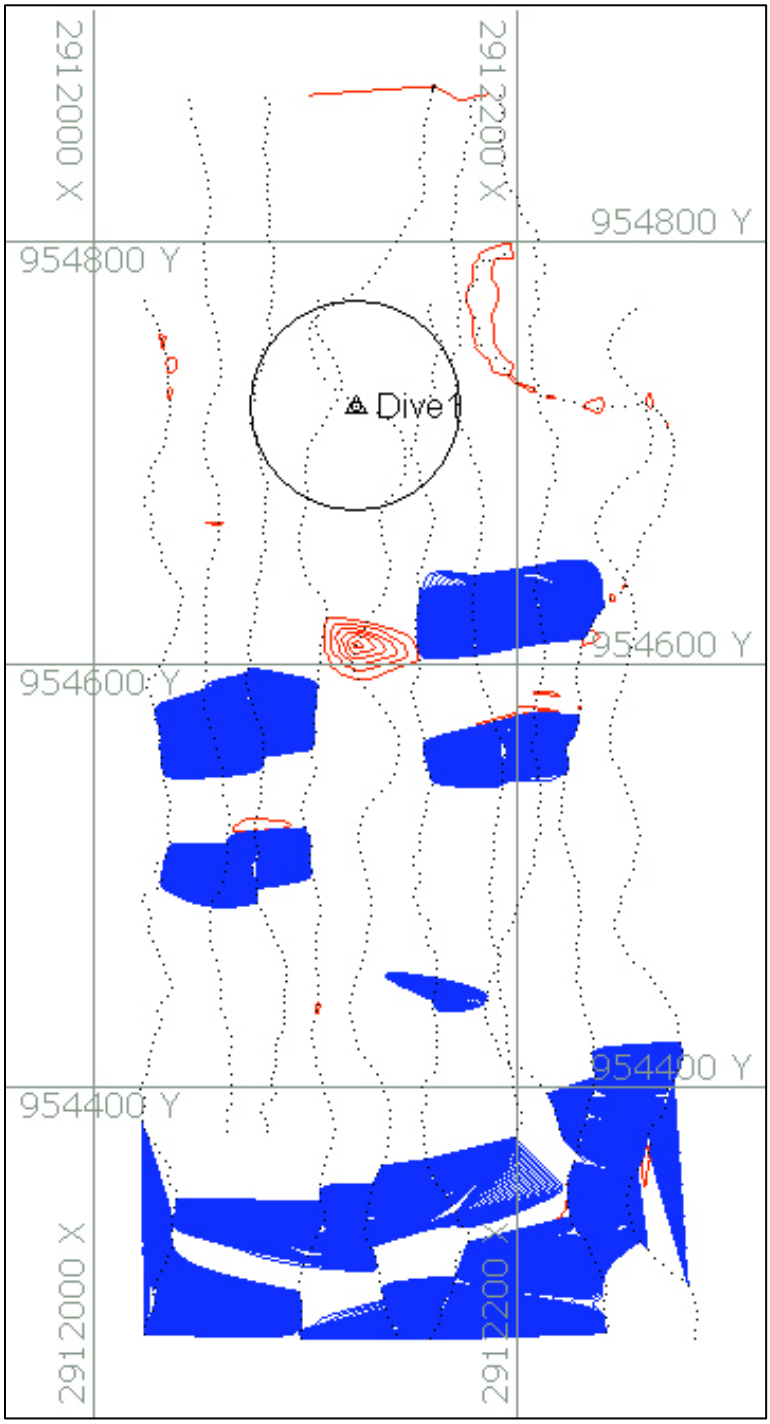

Figure 8.19. Magnetic contour refinement map showing location of buoyed Group 2 Anomaly M-13/71 coordinates located north of the delineated powerlines (note the total lack of magnetics for the anomaly).

GROUP 4 ANOMALIES M-38 AND M-39, AND CONTACTS C-10 AND C-11

Group 4 is comprised of Anomaly M-38, a single-source anomaly of 16 nTs with an 8-ft. duration, which is associated with sidescan sonar contact C-10 (identified as debris), Anomaly M-39 to the northeast (23 nTs, 9-ft. duration), and sidescan sonar contact C-11 (originally identified as debris to the southeast of M-38; Figure 8.20).

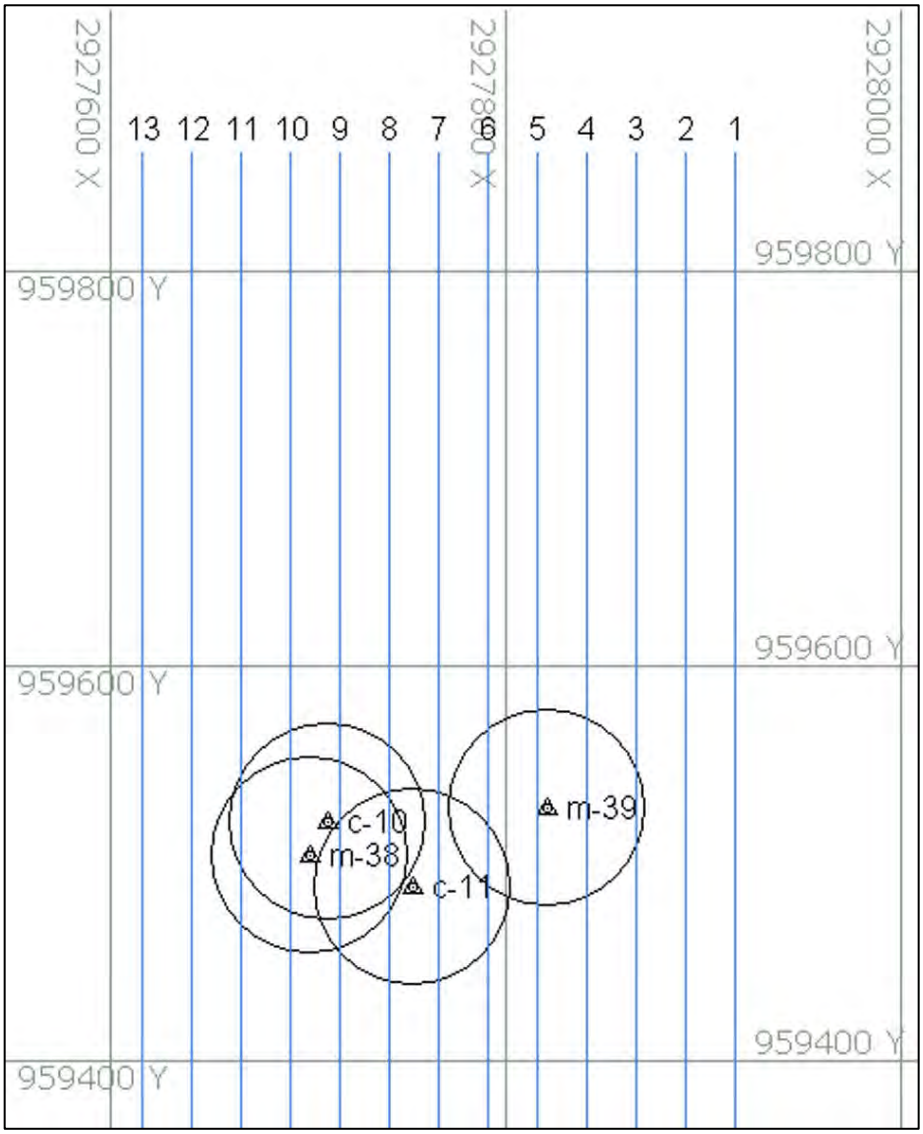

Figure 8.20. Original 2011 locations of Group 4 Anomalies M-38 and M-39, and Sidescan Sonar Contacts C-10 and C-11.

Illustrated in Figures 8.21 and 8.22, the 2012 magnetic and sonar refinement survey showed a lack of an anomaly at the M-38 location (most likely indicating a transient crab pot), a small single-source anomaly at M-39, and a lack of sonar contacts at the 2011 locations. Figure 8.21, a sonar mosaic, shows two additional sonar contacts that were not present during the 2011 survey: one is over 100 ft. to the south of C-11, has an associated anomaly, and likely represents a crab pot; and one northeast of C-11 that is approximately 100 ft. and has an associated anomaly, again associated with a crab pot. The changing magnetics and sonar contact locations are attributable

to the crab fishing industry that witnesses constant movement of small, square metal traps throughout the area.

Diving was not conducted at Anomaly M-38, and Contacts C-10 and C-11 owing to the current lack of targets at their respective 2011 locations. Diving was also not conducted at the single-source anomaly to the south, as its associated contact appeared to represent a crab trap. Diving investigations were conducted at M-39 because it still retained an anomaly at its 2011 location. Diving was also conducted on the anomaly to the north of M-38. Both anomaly investigations included visual and metal detector sweeps and hydraulic probing to a depth of 10 ft. below bottom, all were negative.

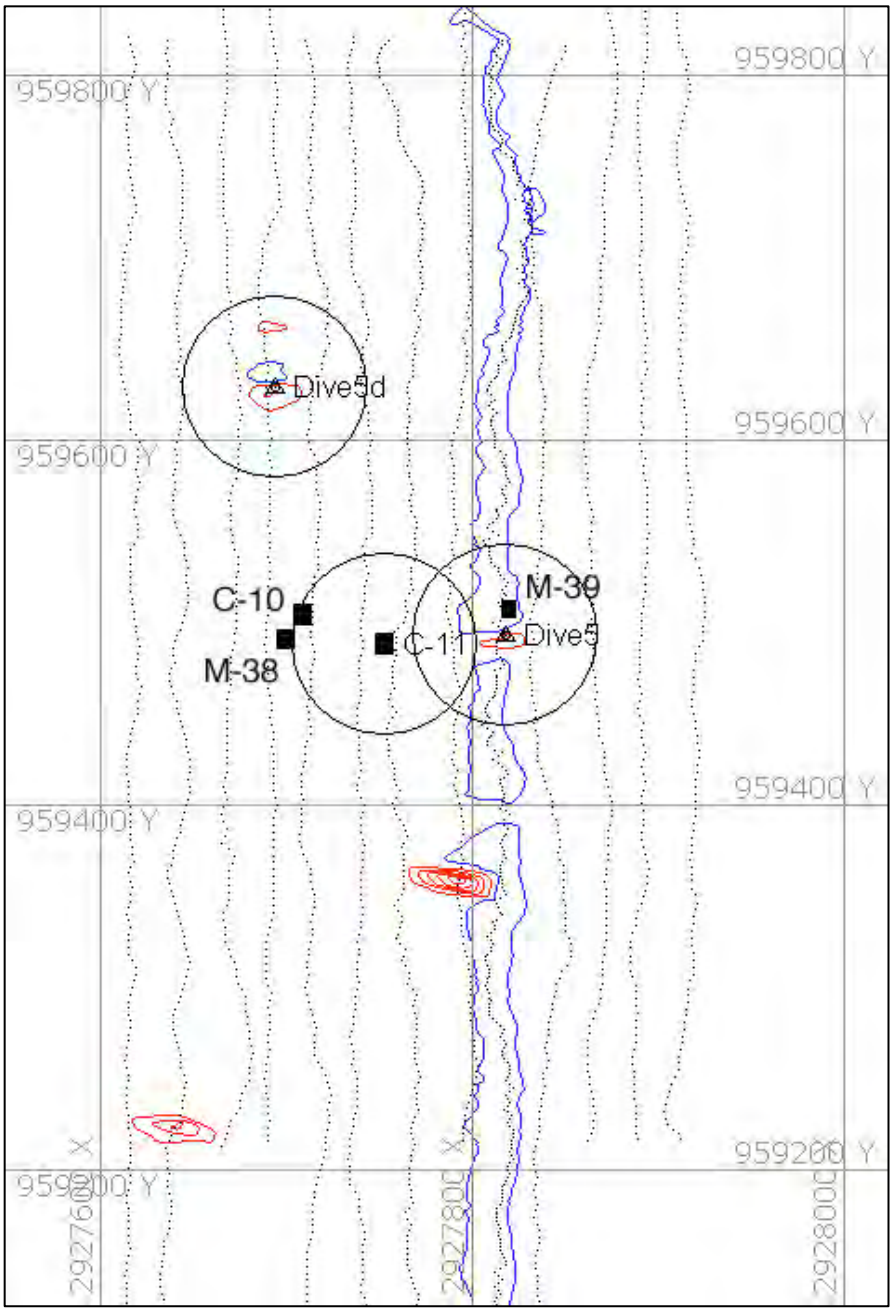

Figure 8.21. 2012 refinement magnetic contour map in relation to 2011 anomaly locations of Group 4 Anomalies M-38 and M-39, and Sidescan Sonar Contacts C-10 and C-11.

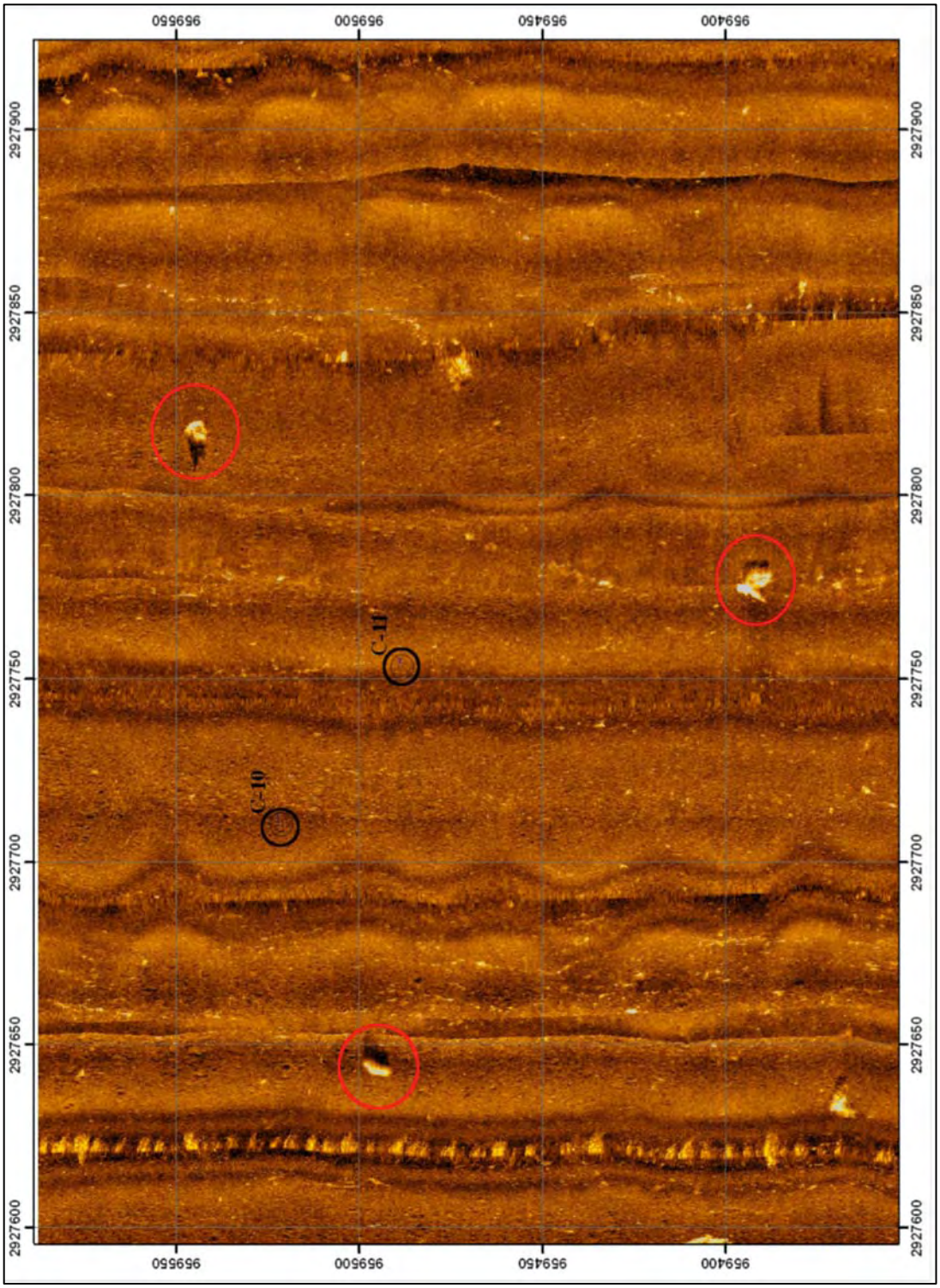

Figure 8.22. Original location of Sonar Contacts C-10 and C-11 (circled in black) overlain on the 2012 Group 4 sonar mosaic. The mosaic shows additional sonar contacts that were not present during the 2011 survey: one is over 100 ft. to the south of C-11, has an associated anomaly, and likely represents a crab pot; and one northeast of C-11 that is approximately 100 ft. and has an associated anomaly, again associated with a crab pot. The changing sonar contact and anomaly locations are all attributable to the crab fishing industry that witnesses constant movement of traps throughout the area.

IX. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Conducted in September and October 2011 with additional work conducted in September 2012, and comprised of both Terrestrial and Underwater archaeological investigations, findings from the investigations indicate that no historically significant cultural resources are present within the proposed APE, either on land or in the water. However, four cemeteries are present within the APE and require avoidance or removal of graves prior to impact by project activities. There is a strong possibility of the presence of unmarked graves in these areas that should be addressed by remote sensing methods or diligent monitoring.

The terrestrial survey consisted of surface and subsurface investigations along 88 transects of varying length in four project areas. In the course of this investigation, a total of five previously recorded sites were revisited and 16 new sites or isolated finds were recorded. All of the newly discovered sites contained nineteenth to twentieth century historic components, some with an isolated prehistoric find within the site. Only one site (31CK222/31CK222**) contained a predominant prehistoric component, which was Early Archaic. The sites are generally sparse, occur within plow zones, or are disturbed to the point that none are potentially significant.

The marine survey area consisted of the proposed bridge corridor that extends easterly across Currituck Sound from Aydlett in Currituck County for several miles where it then connects to the shore on Currituck Bank south of Corolla in Dare County. Comprised of a magnetometer and sidescan sonar survey of the actual bridge corridor across Currituck Sound, a total of 84 magnetic anomalies and 58 sidescan sonar contacts were recorded during the remote sensing survey conducted in 2011. While extensive review and analysis of the remote sensing data indicated that none of the anomalies or sidescan sonar targets were considered representative of a potentially significant submerged cultural resource, based on the data presented in the initial Draft Report, the North Carolina SHPO Underwater Unit, however, recommended that the source of two individual anomalies and five groups/clusters consisting of multiple anomalies and sonar contacts within the survey corridor be identified and assessed by archaeological divers. Subsequent archaeological assessment of these targets conducted in September 2012 indicated that none represent a potentially significant submerged cultural resource, and it is recommended that no further archaeological work is warranted.

RECOMMENDATIONS

As mentioned earlier, four historic cemeteries are present along the route and must be addressed. All cemeteries fall under the provisions of North Carolina's Cemetery Act (NC General Statute 65-13) and must be removed and relocated if they will be impacted. Local knowledge claims there are unmarked graves in the vicinity of the known, marked graves that cannot be discounted. It is recommended that remote sensing be used in order to ascertain the presence or absence of other burials prior to any ground disturbing activities. Any burials, marked or unmarked, should be preferably avoided. If avoidance is not possible, the burials should be removed and relocated elsewhere. The remainder of the archaeological sites is recommended as not eligible for the NRHP and no further work is deemed necessary.

PROCEDURES TO DEAL WITH UNEXPECTED DISCOVERIES

Reasonable effort has been made during this investigation to identify and evaluate possible locations of historic archaeological sites and potential prehistoric site locations. However, the possibility exists that evidence of prehistoric and historic resources may yet be encountered within the project limits not previously identified in the above conclusions and

recommendations. Should any evidence of historic resources be discovered during dredging activities, it is recommended that all work in that portion of the project area cease immediately. Evidence of historic resources includes: aboriginal or historic pottery, prehistoric stone tools, bone or shell tools, as well as historic shipwreck remains. Should questionable materials be uncovered during dredging of the project area, procedures contained in *ACHP 36 CFR Part 800* will take effect.

X. REFERENCES

Abbott, Lawrence E., Jr., and Dolores A. Hall

2005a Report of Fieldwork, 31CK9 (The Baum Site) and 31CK129. Letter on file at the Office of State Archaeology, Raleigh, North Carolina. August.

2005b Report of Fieldwork, 31CK9. Letter on File at the Office of State Archaeology, Raleigh, North Carolina. November.

2005c Report of Fieldwork, 31CK129. Letter on File at the Office of State Archaeology, Raleigh, North Carolina. October.

Anderson, David G., and Glen T. Hanson

1988 Early Archaic Settlement in the Southeastern United States: A Case Study from the Savannah River Basin. *American Antiquity* 53:262286.

Anderson, D.G. and J.W. Joseph

1988 *Prehistory and History Along the Upper Savannah River: Technical Synthesis of Cultural Resource Investigations, Richard B. Russell Multiple Resource Area*. Volume I. Garrow and Associates, Inc., Atlanta, Georgia. U.S. Department of the Interior-Park Service, Interagency Archaeological Services, Atlanta, Georgia.

Anderson, David G., Lisa D. O'Steen, and Kenneth E. Sassaman

1996 Environmental and Chronological Considerations. In *The Paleoindian and Early Archaic Southeast*, edited by David G. Anderson and Kenneth E. Sassaman, pp. 3-15. The University of Alabama Press, Tuscaloosa.

Angley, Wilson

1985 *An Historical Overview of Oregon Inlet*. North Carolina Division of Archives and History, Raleigh.

Bamann, Susan E. and Dennis Gosser

2007 *Archaeological Data Recovery of Site 31CK9, Proposed Currituck Crossing Subdivision, Currituck County, North Carolina*. Coastal Carolina Research, Inc. Prepared for the Cox Development Company, LLC, Vienna, Virginia.

Barrett, J.G.

1963 *The Civil War in North Carolina*. University of North Carolina Press, Chapel Hill, North Carolina.

Bowen, William R.

1982 *Archaeological Investigations at 9CK(DOT)7, Cherokee County, Georgia*. Georgia Department of Transportation, Atlanta.

Braun, E. Lucy

1950 *Deciduous Forests of Eastern North America.* Blakiston Company, Philadelphia.

Breiner, S.

1973 *Applications Manual to Portable Magnetometers.* Geometrics, Inc. (available at www.geometrics.com).

Bright, Leslie S.
1985 *North Bodie Island Currituck Beach Survey*. North Carolina Underwater Archaeology Unit.

1989 *Currituck Beach – Poyners Hill to Virginia Line Survey*. North Carolina Underwater Archaeology Unit.

1990 *Outer Banks Beached Shipwreck Survey*. North Carolina Underwater Archaeology Unit.

Bryan, Will
2006 *Underwater Archaeological Investigations in Currituck Sound*. North Carolina Underwater Archaeology Branch, North Carolina Division of Archives and History.

Butler, Brian M.
1979 Hopewellian Contacts in Southern Middle Tennessee. In *Hopewell Archaeology*, edited by David S. Brose and N'omi Greber, pp. 150-156. Kent State University Press, Kent, Ohio.

Caldwell, Joseph R.
1958 Trend and Tradition in the Prehistory of the Eastern United States. *Memoirs of the American Anthropological Association* 88.

Chapman, Jefferson, and Bennie C. Keel
1979 Candy Creek-Connestee Components in Eastern Tennessee and Western North Carolina and Their Relationship with Adena-Hopewell. In *Hopewell Archaeology*, edited by David S. Brose and N'omi Greber, pp. 157-161. Kent State University Press, Kent, Ohio.

Chomko, Stephen A., and Gary W. Crawford
1978 Plant Husbandry in Prehistoric Eastern North America: New Evidence for its Development. *American Antiquity* 43:405-408.

Coe, Joffre
1964 *The Formative Cultures of the Carolina Piedmont*. Transactions of the American Philosophical Society, Vol. 54(5).

Cooper, MR Emmanuel
2000 *Ten Thousand Years of Pottery*. University of Pennsylvania Press.

Cowan, C. Wesley
1985 Understanding the Evolution of Plant Husbandry in Eastern North America: Lessons from Botany, Ethnography, and Archaeology. In *Prehistoric Food Production in North America*, edited by R. Ford, pp. 205-243, University of Michigan Museum of Anthropology, Anthropological Papers 75, Ann Arbor.

Cox, Jim
2008 Sold on Radio. *Advertisers in the Golden Age of Broadcasting*. McFarland and Co. Jefferson, North Carolina and London.

Creswick, Alice M.
1987 *The Fruit Jar Works, Vol. 1 & 2*. Alice M. Creswick, publisher.

CZR Incorporated
2009 Mid-Currituck Bridge Study: Natural Resources Technical Report. Prepared by CZR Incorporated, Wilmington, North Carolina for Parsons Brinckerhoff, Morrisville, North Carolina and the North Carolina Turnpike Authority, Raleigh, North Carolina.

Davis, M.B.
1976 Pleistocene Biogeography of Temperate Deciduous Forests. *Geoscience and Man* 13:13-26.

Deiss, Ronald W.
1981 *The Development and Application of a Chronology for American Glass.* Master's thesis on file at Illinois State University.

Delcourt, Paul A. and Hazel R. Delcourt
1981 Vegetation Maps for Eastern North America: 40,000 Years B.P. to Present. In *Geobotany: An Integrating Experience*, edited by R. Romans, pp. 123-166. Plenum Press, New York.

1983 Late Quaternary Vegetational Dynamics and Community Stability Reconsidered. *Quaternary Research* 19:265-271.

Dragoo, Don W.
1975 Some Aspects of Eastern North American Prehistory: A Review. *American Antiquity* 41(1):327.

Esary, Mark Edward
1982 Archaeological Geographical and Historical Comparison. Eleven Nineteenth-Century Archaeological Sites Near Belleville. M.S. thesis. Illinois State University. Normal, Illinois.

Foley, Courtney
2008 *Historic Architectural Resources Report, Mid-Currituck Bridge Project, TIP No. R-2576, Currituck and Dare Counties, North Carolina.* Prepared for The North Carolina Turnpike Authority by The North Carolina Department of Transportation.

Fontana, Bernard L. and J. Cameron Greenleaf
1962 Johnny Ward's Ranch: A study in historical archaeology. *The Kiva* 28 (1-2): October- December 1962.

Forte, M. and T. Martz
2007 *Currituck Sound Hydrographic and Submerged Aquatic Vegetation Survey*. Prepared for PB Americas, Inc., Morrisville, North Carolina by the U.S. Army Engineer Research and Development Center, Kitty Hawk, North Carolina.

Fritz, Gayle J.
1988 Crops Before Corn in the East: Early and Middle Woodland Period Paleoethnobotany. Paper presented at the 45th Southeastern Archaeological Conference.

Garrison, E., C.P. Giammona, F.J. Kelly, A.R. Trip, and G.A. Wolff
1989 *Historic Shipwrecks and Magnetic Anomalies of the Northern Gulf of Mexico: Reevaluation of Archaeological Resource Management Zone 1. Volume II: Technical Narrative.* OCS Study/MMS 89-0024. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Regional Office, New Orleans.

Gearhart, R.L.
2011 "Archaeological Interpretation of Marine Magnetic Data," in *The Oxford Handbook of Maritime Archaeology*. Edited by Alexis Catsambis, Ben Ford and Donny L. Hamilton, Oxford University Press.

Glover, G.F.
2005 *Archaeological Study, New Visitor's Center and Rest Area at the Intersection of U.S. 158 and NC 168*. Prepared by the North Carolina Department of Transportation.

Greer, Georgeanna H.
1981 *American Stonewares: The Art and Craft of Utilitarian Potters.* Schiffer Publishing Limited. Exton, Pennsylvania.

Griffin, James B.
1967 Eastern North American Archaeology: A Summary. *Science* 156:175191.

Gunn, Joel D.
2002 Steep Shore, Deadly Environment: The Case for a Cultural Anvil Along the Unembayed Atlantic Coast. *North Carolina Archaeology* 51:1-33.

Harrington, J.C.
1962 *Search for the City of Raleigh*. National Park Service Archaeological Research Series 6.

Hartzer, R.B.
1983 *To Great and Useful Purpose: A History of the Wilmington District U.S. Army Corps of Engineers*. On file, Panamerican Consultants, Inc., Memphis, Tennessee.

Henry, Nathan
1998 Site Report: Ocean Hill Wreck 0016CKB. North Carolina Underwater Archaeology Unit.

1999 Investigation of the Metropolis Site, 0021CKB. North Carolina Underwater Archaeology Unit.

2001 Initial Inspection of 0001CKS, Hambone 1 Site. North Carolina Underwater Archaeology Branch, North Carolina Division of Archives and History.

Herbert, Joseph M.
1999 Prehistoric Pottery Taxonomy and Sequence on the Southern Coast of North Carolina. *North Carolina Archaeology* 48:37-58.

Holscher, H.H.
1965 Hollow and Specialty Glass: Background and Challenge. *The Glass Industry*, Vol. 46: June-November. Toledo, Ohio.

Hudson, Charles
1990 *The Juan Pardo Expeditions*. Smithsonian Institution Press, Washington, D.C.

1997 *Knights of Spain, Warriors of the Sun*. University of Georgia Press, Athens.

Iobst, R.W.
n.d. The Battle of Roanoke Island. Draft ms. on file, North Carolina Department of Cultural Resources, Division of Archives and History, Research Branch.

Irion, J.B. and C.L. Bond
1984 *Identification and Evaluation of Submerged Anomalies, Mobile Harbor, Alabama*. Espey, Huston & Associates, Austin, Texas. Submitted to the U.S. Army Corps of Engineers, Mobile District.

Irwin, Jeffrey, D. Wayne, C.J. Boyko, Joseph M. Herbert, and Chad Braley
1999 Woodland Burial Mounds in the North Carolina Sandhills and Southern Coastal Plain. *North Carolina Archaeology* 48:59-86.

James, Stephen R., Jr. and Andrew D.W. Lydecker
2009 *Phase I Terrestrial and Underwater Archaeological Background Study, Mid-Currituck Bridge Study, Currituck & Dare Counties, North Carolina.* Prepared by Panamerican Consultants, Inc., Memphis, Tennessee for PB Americas, Inc., Charlotte, North Carolina.

James, S.R. Jr., M.C. Krivor, A. Whitehead, K. Zoelmer, and M.C. Tuttle
2002 *National Register of Historic Places Eligibility Evaluations of Targets 3B-2-2 and 3B-2-6 Located Within Item 3B-2 of the Upper Yazoo Projects and Limited Survey and National Register of Historic Places Eligibility Evaluations of All Bridges, Structures, and Targets 4-6, 4-7, 4-11, 4-12, 4-15, and 4-16 Located Within Item 4B of the Upper Yazoo Projects, Leflore County, Mississippi*. Submitted to the USACE, Vicksburg District by Panamerican Consultants, Inc., Memphis, Tennessee.

Jefferies, Richard W.
1976 *The Tunnacunnhee Site: Evidence of Hopewell Interaction in Northeast Georgia*. Anthropological Papers of the University of Georgia No. 1. Athens.

Johnson, Jay K.
1989 The Utility of Production Trajectory Modeling as a Framework for Regional Analysis. In *Alternative Approaches to Lithic Analysis*, edited by D.O. Henry and G.H. Odell, pp. 119-138. Archaeological Papers of the American Anthropological Association No. 1.

Jones, David C., Christopher T. Espenshade, and Linda Kennedy
1997 *Archaeological Investigation at 31On190, Cape Island, Onslow County, North Carolina*. On file, North Carolina Division of Archives and History, Raleigh.

Jones, Olive and Catherine Sullivan
1989 *The Parks Canada Glass Glossary for the Description of Containers, Tableware, Flat Glass, and Closures*. National Historic Parks and Sites, Canadian Parks Service, Environment Canada. Ott-tawa.

Justice, Noel D.
1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States: A Modern Survey and Reference*. Indiana University Press, Bloomington, Indiana.

Kelly, A.R.
1938 Preliminary Report on Archaeological Explorations at Macon, Georgia. *Bureau of American Ethnology Bulletin* 119:168. Washington.

1950 An Early Flint Industry in Southwest Georgia. Short Contributions to the Geology, Geography, and Archaeology of Georgia. Geological Survey Bulletin, Number 56, pp. 146-153. Department of Mines, Mining, and Geology, Atlanta.

Kendrick, Grace
1966 *The Antique Bottle Collector*. 3rd edition. Western Printing and Publishing, Nevada.

Krivor, Michael C.
2005 *Bonner Bridge Cultural Resources Survey and Diver Assessment of Submerged Targets, Dare County, North Carolina*. Conducted for the North Carolina Department of Transportation under contract to Parson, Brinkerhoff, Quade & Douglas, Inc., by Panamerican Consultants, Inc, Memphis, Tennessee.

Lautzenheiser, L. and J. Stewart
2006 *Archaeological Survey and Limited Testing, Sites 31CK9 and 31CK129, Currituck County, North Carolina*. Coastal Carolina Research, Inc. Prepared for the Cox Development Company, LLC, Vienna, Virginia.

Lawrence, Richard
2003a *Investigation of Two Shipwreck Sites in Knotts Island Channel*. North Carolina Underwater Archaeology Branch, North Carolina Division of Archives and History.

2003b *Investigation of the Metropolis Site, 0021CKB*. North Carolina Underwater Archaeology Branch, North Carolina Division of Archives and History.

Ledbetter, R. Gerald
1992 *Archaeological Investigations at the Pumpkin Pile Site (9PO27), Polk County, Georgia*. Report prepared for the Soil Conservation Service, Athens, Georgia.

Ledbetter, R. Gerald, Stephen A. Kowalewski, and Lisa O'Steen
1981 Chert of Southern Oconee County, Georgia. *Early Georgia* 9(1-2):1-13.

Lindsey, Bill
2010 Historic Glass Bottle Identification and Information Website. Electronic document, http://www.sha.org/bottle/index.htm, accessed January 2012.

Lockhart, Bill
2006 "The Color Purple: Dating Solarized Amethyst Glass Containers." In *Historical Archaeology*. Vol. 40, No. 2.

Loftfield, Thomas C.
1976 *"A Briefe and True Report…" An Archaeological Interpretation of the Southern North Carolina Coast*. Unpublished PhD dissertation, Department of Anthropology, University of North Carolina, Chapel Hill.

1987 *Excavations at 31ON305, the Flynt Site at Sneads Ferry, North Carolina*. On file, Department of Sociology and Anthropology, University of North Carolina, Wilmington.

London, Mark
1988 *Respectful Rehabilitation: Masonry, How to Care For Old and Historic Brick and Stone*. National Trust for Historic Preservation in the United States. United States of America.

Lydecker, Andrew D.W.
2007 *Historic Assessment and Diver Evaluations of Two Magnetic Anomalies Near Sand Key, Pinellas County, Florida.* Prepared for the U.S. Army Corps of Engineers, Jacksonville District, under subcontract to the U.S. Army Corps of Engineers, Memphis District. Panamerican Consultants, Inc., Memphis, Tennessee.

McCollam, Harold C.
1976 The Brick and Tile Industry in Stark County, 1809-1976. The Stark County Historical Society. Canton, Ohio.

McKee, Harley J.
1973 *Introduction to Early American Masonry, Stone, Brick, Mortar, and Plaster*. National Trust/Columbia University Series on the Technology of Early American Building. National Trust for Historic Preservation and Columbia University.

Majewski, Teresita and Michael J. O'Brien
1984 An Analysis of Historical Ceramics from the Central Salt River Valley of Northeast Missouri, In *Cannon Reservoir Human Ecology Project*, edited by Michael J. O'Brien, pp. 19-121. University of Missouri Department of Anthropology Publications in Archaeology 3. Columbia.

Mathis, Mark A.
1993a Broad Reach: The Truth About What We've Missed. In *Site Destruction in Georgia and the Carolinas*, edited by David G. Anderson and Virginia Horak, pp. 39-48. National Park Service, Atlanta, Georgia.

1993b *Mortuary Practices at the Broad Reach Site*. Ms. on file, North Carolina Division of Archives and History, Raleigh.

1995 *The Carolina Algonquians: Comments from the Fringe (the Southern Frontier).* Paper presented at the 27th Algonquian Conference, Chapel Hill, North Carolina.

1999 Oak Island: A Retiring Series. *North Carolina Archaeology* 48:18-36.

Merrens, H.R.
1964 *Colonial North Carolina in the Eighteenth Century: A Study in Historical Geography*. University of North Carolina Press, Chapel Hill.

Meverden, Keith N.
2005 Currituck Sound Regional Remote Sensing Survey, Currituck County, North Carolina. Unpublished Master's thesis, East Carolina University, North Carolina.

Nelson, Lee H.
1968 Nail Chronology as an Aid to Dating Old Buildings. *History News* 24(11)(Technical Leaflet 48). American Association for State and Local History, Nashville.

Noël Hume, Ivor
1969 *A Guide to Artifacts of Colonial America*. Alfred A. Knopf. New York

Novick, Lee
1995 Archaeological Background Report, Mid Currituck Bridge (R-2576) Study Area, Currituck County, North Carolina. Prepared by the North Carolina Department of Transportation.

Orser, Charles E.
2002 *Encyclopedia of Historical Archaeology.* Routledge (Taylor and Francis Group), Florence, Kentucky.

O'Steen, Lisa D., R. Jerald Ledbetter, Daniel T. Elliott, and William W. Barker
1986 PaleoIndian Sites of the Inner Piedmont of Georgia: Observations of Settlement in the Oconee Watershed. *Early Georgia* 13:1-63.

Pearson, Charles E., Bryan L. Guevin, and Allen R. Saltus, Jr.
1991 *Remote-Sensing Survey of the Lower Pearl and West Pearl Rivers, Louisiana and Mississippi*. Coastal Environments, Inc., Baton Rouge, Louisiana. Prepared for the U.S. Army Corps of Engineers, Vicksburg District.

Pearson, C.E., S.R. James, Jr., K.G. Hudson, and J. Duff
1993 *Underwater Archaeology Along the Lower Navidad and Lavaca Rivers, Jackson County, Texas*. Coastal Environments, Inc., Baton Rouge, Louisiana. Submitted to the U.S. Army Corps of Engineers, Galveston District.

Pearson, C.E., and A.R. Saltus, Jr.
1990 *Cultural Resources Investigation at Island 86, Mississippi River, Arkansas-Mississippi.* Coastal Environments, Inc., Baton Rouge, Louisiana. Submitted to the U.S. Army Corps of Engineers, Vicksburg District.

Phelps, David S.
1983 Archaeology of the North Carolina Coast and Coastal Plain: Problems and Hypotheses. In *The Prehistory of North Carolina: An Archaeology Symposium*, edited by Mark A. Mathis and Jeffrey J. Crow, pp. 1-52. North Carolina Division of Archives and History, Raleigh.

Polak, Michael
1994 *The Confident Collector: Bottles Identification and Price Guide.* Avon Books. New York.

Price, Cynthia R.
1979 *Nineteenth Century Ceramics in the Eastern Ozark Border Region.* Center for Archaeological Research, Monograph Series No. 1, Southwest Missouri State University, Springfield.

Russ, Terri and Scott Seibel
2006 *An Intensive Cultural Resource Investigation: Marshes Light Development, Manteo North Carolina.* Environmental Services, Inc., Raleigh, North Carolina. Conducted for Quible and Associates, Inc.

Samford, Patricia M.
1997 Response to a Market: Dating English Underglaze Transfer-Printed Wares. *Historical Archaeology* 31(2):1-30.

Sanborn, Erica E., and Lawrence E. Abbott, Jr.
1999 Early Ceramic Traditions on the Southern Coastal Plain of North Carolina. *North Carolina Archaeology* 48:3-17.

Seibel, Scott, G. DiGregorio, and G.C. Smith
2002 An Intensive Cemetery Survey, Eastern North Carolina Natural Gas Phase VII, Currituck County, North Carolina. Prepared for the Eastern North Carolina Natural Gas Company by Environment Services, Inc. Raleigh, North Carolina

South, Stanley
1972 Evolution and Horizon as Revealed in Ceramic Analysis in Historic Archaeology. Conference on Historic Site Archaeology Papers 6:71-116.

1976 *An Archaeological Survey of Southeastern North Carolina.* University of South Carolina Institute of Archaeology and Anthropology Notebook 8.

1977 *Method and Theory in Historic Archaeology.* Academic Press, New York.

Stelle, Lenville J.
2001 *An Archaeological Guide to Historic Artifacts of the Upper Sangamon Basin.* Center For Social Research, Parkland College. http://virtual.parkland.cc.il.us/lstelle1/len/archguide/documents/arcguide.htm, accessed January 2012.

Stick, David
1958 *The Outer Banks of North Carolina 1584-1958*. University of North Carolina Press, Chapel Hill.

1970 *Dare County: A History*. State Department of Archives and History, Raleigh, North Carolina.

Tant, Philip L.
1982 *Soil Survey of Currituck County, North Carolina.* United States Department of Agriculture, Soil Conservation Service.

Thomas, C.
1985[1894] *Report on the Mound Explorations of the Bureau of Ethnology.* Classics of Smithsonian Anthropology. Smithsonian Institution Press, Washington, D.C.

Tippitt, V.A.
1988 An Archaeological Reconnaissance of Selected Portions of Gates, Camden, and Currituck Counties. Archaeology Laboratory, East Carolina University.

Toulouse, Julian Harrison
1969 Primer on Mold Seams. *The Western Collector*, November-December 1969.

Trimble Navigation Limited
1998 *DSM12/212 Operation Manual.* Trimble Navigation Limited, Sunnyvale, California.

University of Utah
1992 Intermountain Antiquities Computer System User's Guide. University of Utah, Salt Lake City. Electronic document, http://www.anthro.utah.edu/imacs.html, accessed January 2012.

Walker, Margaret
1995 *Currituck County, North Carolina Cemetery Records.* Gateway Press.

Walton, Marsha, and Michael Coren
2004 *Scientist: Man in Americas Earlier than Thought*. Electronic document available online, www.CNN.com/2004/TECH/science/11/17/carolina.dig/index.htm, accessed November 17, 2004.

Ward, H. Trawick
1983 A Review of Archaeology in the North Carolina Piedmont: A Study of Change. In *The Prehistory of North Carolina: An Archaeology Symposium*, edited by Mark A. Mathis and Jeffrey J. Crow, pp. 53-81. North Carolina Division of Archives and History, Raleigh.

Ward, H. Trawick, and R.P. Stephen Davis, Jr.
1999 *Time Before History: The Archaeology of North Carolina*. University of North Carolina Press, Chapel Hill.

Watts, Gordon
1991 *Historical and Cartographic Research to Identify and Assess the Potential for Cultural Resources in the Proposed Corridor for a Replacement Bridge on N.C. 12 Across Oregon Inlet, Dare County, North Carolina*. Prepared by Tidewater Atlantic Research, Inc. of Washington, North Carolina and submitted to Parsons, Brinckerhoff, Quade & Douglas, Inc. of Raleigh, North Carolina for the North Carolina Department of Transportation.

Watts, W.A.
1971 The Vegetation Record of a Mid-Wisconsin Interstadial in Northwest Georgia. *Quaternary Research* 3:257-268.

Weaver, Guy G., Jeffrey L. Holland, Patrick H. Garrow, and Martin B. Reinbold
1993 *The Gowen Farmstead: Archaeological Data Recovery at Site 40DV401 (Area D), Davidson County, Tennessee*, Prepared for Metropolitan Nashville Airport Authority and Division of Archaeology Tennessee Department of Conservation, by Garrow and Associates, Inc., Memphis Tennessee.

Whitehead, Donald R.
1973 Late Wisconsin Vegetational Changes in Unglaciated Eastern North America. *Quaternary Research* 3:621631.

Wood, W. Dean and R. Jerald Ledbetter
1990 *Rush: An Early Woodland Period Site in Northwest Georgia*. Submitted to the Georgia Department of Transportation, Office of Environmental Analysis, Atlanta, Georgia.

Wright, H.E., Jr.
1971 Late Quaternary Vegetational History of North America. In *The Late Cenozoic Glacial Ages*, edited by K.K. Turekian, pp. 425-464. Yale University Press, New Haven.

Zilmer, Dana L.
1985 A Socioeconomic Indexing of 19th Century Illinois Farmsteads. Manuscript on file. Department of Anthropology. University of Illinois. Urbana, Illinois.

APPENDIX A: SCOPE OF WORK

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SCOPE OF WORK

TERRESTRIAL AND UNDERWATER ARCHAEOLOGICAL SURVEY

AND SITE EVALUATION

PREFERRED ALTERNATIVE

MID-CURRITUCK BRIDGE PROJECT

CURRITUCK COUNTY, NORTH CAROLINA

STIP NO. R-2576

The SUBCONTRACTOR will perform the archaeological field investigations in consultation with the Archaeology Group of the North Carolina Department of Transportation (NCDOT), to determine the actual presence or absence of historically significant cultural resources within the proposed APE and, if present, to assess their NRHP eligibility. These investigations are required by the NCTA and are sponsored by the Federal Highway Administration (FHWA) in compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (36 CFR 800, *Protection of Historic Properties)* and the Abandoned Shipwreck Act of 1987 (*Abandoned Shipwreck Act Guidelines*, National Park Service, *Federal Register*, Vol. 55, No. 3, December 4, 1990, pages 50116-50145).

1.1.1 Project Setting

Located on North Carolina's Coastal Plain, the project area extends from Currituck Bank, the northernmost in a chain of long, narrow barrier islands on the Coastal Plain's eastern limit known as the Outer Banks, to the mainland, which is separated from the Outer Banks by a series of shallow sounds, in our case the shallow Currituck Sound. Situated near the northern end of both the Outer Banks and the separating sound, the project area extends from Currituck Bank westward across Currituck Sound to the mainland, which is marked by numerous swamps and whose elevation is generally less than 20 feet above sea level.

Based on engineering maps provided by PB, the project area is located approximately 1.5 miles south of Coinjock, where the Preferred Alternative intersects U.S. 158 just north of Aydlett Road. The Preferred Alternative parallels Aydlett Road to the north and projects east across Maple Swamp to the community of Aydlett, which is itself situated on a thin finger of land that generally runs north and south and forms the western shore of Currituck Sound. From Aydlett, the Preferred Alternative C-1 corridor extends easterly across Currituck Sound where several miles later it intersects NC 12 on Currituck Bank south of Corolla. The project area also includes several sections of NC12 that are proposed to be widened (Figure 1).

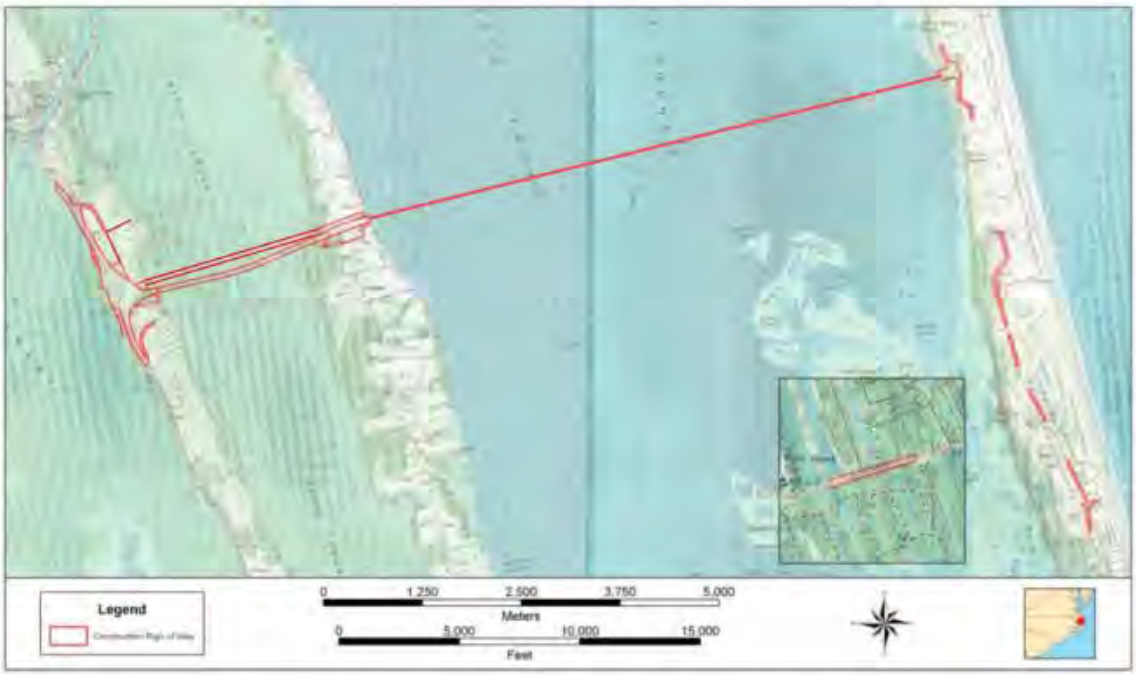

Figure 1. Proposed Project Area (map courtesy of PB Americans, Inc.).

1.1.2 Area of Potential Effect (APE)

For the purposes of this investigation, the APE will require an archaeological field investigation both on land and in the waters of the sound (see Figure 2). The area to be surveyed is based upon the APE as indicated on engineering maps provided by PB and include the following areas:

- Maximum Right of Way (ROW) Limits
- Temporary Construction Easements
- Permanent Drainage Easements
- Potential Areas for Bridge Runoff Infiltration Ponds

Archaeological resources that are present within the APE will be evaluated for historical significance based on the application of National Register of Historic Places (NRRHP) criteria for evaluation as stipulated in 36 CFR 60.4 and presented in National Register Bulletin 15 (National Park Service n.d.).

1.1.3 Project Requirements

A combined Terrestrial and Underwater investigation, the cultural resources scope of work for an archaeological survey includes five tasks:

1) Technical and cost proposal providing comprehension of the project.
2) Owner notification letters, background research and intensive terrestrial archaeological survey, site identification, and site evaluation of the study corridor/high probability landform areas based upon a clearly defined field methodology.
3) Intensive submerged cultural resources remote sensing survey of the submerged portions of the study corridor based upon a clearly defined field methodology.
4) Laboratory analysis and artifact curation.
5) Management Summary of the fieldwork results, and preparation of a report on the archaeological investigations with recommendations of NRHP eligibility of archaeological sites discovered within the APE.

Task 1. Technical/Cost Proposal

This proposal will initiate the research design and field strategies for the archaeological survey and site evaluation for the Mid-Currituck Bridge Study. Personnel to conduct the archaeological survey will include Stephen James, Principal Investigator; Dr. Michael Faught, Underwater Field Director; and Warren Curruth, Terrestrial Field Director. Vitae will be submitted on request. All personnel assigned to this project exceed the qualifications for professional archaeologists as listed in the Secretary of Interior's Professional Standards (48 FR 22716).

Within this proposal, a discussion will be provided with the types of analysis to be performed concerning the artifacts recovered from the field. In addition, this proposal will state explicitly any assumptions used in developing the field strategy and analytical strategies. This includes any background assumptions garnered from previous work and current models, the use of soils and other environmental parameters, and the breakdown of total number of shovel tests anticipated for the terrestrial portions of the study corridor.

The proposal budget for the archaeological survey will include the level of effort delineated in man-days and costs for the following: 1) consultation and project management, 2) research and field survey/site assessment, 3) site form preparation, data analysis, artifact cataloging, and 4) report preparation. Direct expenses, such as per diem, mileage (by trip destination), field supplies, photocopying, and report production will be itemized in the cost proposal. Upon receiving the notice to proceed, work will begin immediately.

Task 2. Notification Letters, Background Research, Intensive Terrestrial Archaeological Survey, and Site Evaluation

Owner Notification Letters

Prior to the commencement of all field activities Ownership Notification Letters will be prepared and mailed to all landowners within the APE. Both a list of landowners and their addresses, along with a sample notification letter will be provided by NCTA.

Intensive Terrestrial Archaeological Survey, and Site Evaluation

The intensive survey designed for this project will attempt to identify all cultural resources including archaeological sites and cemeteries within the sections of the defined APE. For ease of survey and shovel testing explanation we have divided the project area into four different survey areas (Figure 2).

Area 1 consists of the tract of the proposed area that runs northwest-southeast and essentially parallels U.S. 158. The linear sections in this area that encompass portions of U.S. 158 will have a single shovel-test transect run parallel to the existing highway. Areas without an existing road will have two shovel-test transects. Several small, noncontiguous storm-water treatment areas will have a series of 30 m shovel-test transects. We estimate a minimum of 650 shovel tests will need to be excavated in this area.

Area 2 is a long section of project area that runs east-west through Maple Swamp. This is the longest portion of the route and encompasses approximately 2,420 m in distance. Two shovel-test transects will be run along this route but because the area is essentially swamp, a shovel test will be attempted every 100 m in distance. In addition, any high-land areas will be tested along the route. At a minimum 48 shovel tests will be excavated.

Area 3 is a small section running east-west and is directly attached to Area 2. Within this section is a 500 m in length portion that separates Maple Swamp from Currituck Sound. Also within this section are two construction staging easement areas that cover approximately 27 acres. The 500 m length portion will have two shovel-test transects with shovel tests spaced 30 m apart. Approximately 34 shovel tests will be excavated in this area. The 27 acre portion of Area 3 will require approximately 122 shovel tests along several 30 m transects.

Area 4 is the final area and consists of a six long stretches of land east of Currituck Sound on the Outer Banks. An existing road runs the length of the project area and a single shovel-test transect should be sufficient to examine it. The six areas total approximately 3,875 m in length and 129 shovel test locations will be placed along this route.

Lastly, several areas were added in the latest round of revisions. These include service roads 1 and 2 near Area 1, and a proposed straight bridge corridor through Maple Swamp (green below), and a small access road adjoining Area 3. Additionally, the area between the newly proposed straight bridge corridor and the original alternate route corridor (see Area 2 above) will be surveyed. Methodological approach for these areas will be similar to other sections. In total, the additional areas will require an estimated 226 shovel test locations.

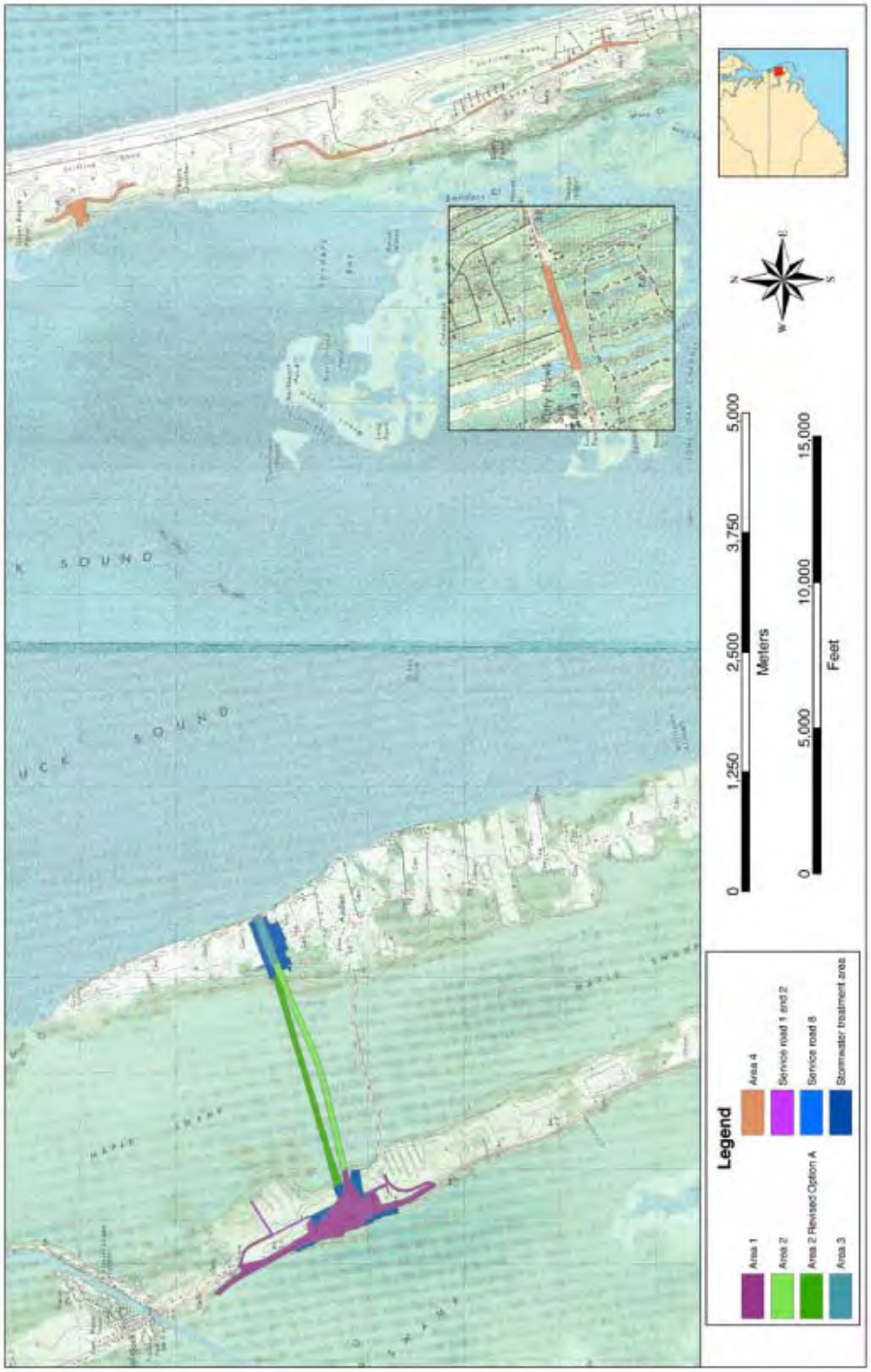

Figure 2. *Location of APE and described survey areas.*

In the pedestrian survey of these areas, shovel testing will be used in areas of low ground surface visibility. The general standard interval between shovels tests and transects will be 30 or 15 meters. The variation in intervals is determined by landform presence and presumed archaeological site potential. This interval can shrink to 10 or 7.5 meters in situations that merit further testing and delineation of sites on smaller landforms in the APE.

When a site is discovered based on a positive shovel test, the testing interval will be reduced and additional shovel tests will be excavated in a cruciform pattern around the original shovel test. Once the site dimensions have been established, a grid will be excavated to further identify potential subsurface activity areas and retrieval of cultural artifacts and temporal data useful in producing a competent evaluation of the NRHP eligibility of the site. Site boundaries will be based upon positive shovel test locations (2 negative/sterile shovel tests in a row on a grid), the distribution of surface artifacts, or slope/hillside/creek/wetlands or any other natural barrier that would have prevented habitation.

In addition to shovel tests, 1-x-1 meter test units will be excavated to examine the vertical and horizontal limits of artifacts in order to further assess site significance and make recommendations of eligibility to the NRHP. The number of test units and other efforts required to evaluate each site will be based on the level of effort needed to appropriately assess the applicability of Section 4 (f) of the Department of Transportation Act, as well as Section 106 and Section 110 of the National Historic Preservation Act. However, it is projected that no more than 2 1-x-1 meter units will be excavated at each site.

Standards field forms will be used to record all archaeological sites and isolated finds, shovel tests, test units, and features encountered, etc. Photographs will be taken as necessary to document sites and features. All sites will be assessed for significance and recommendations for eligibility in the NRHP will be issued. Sufficient information will be gathered for each site to support the recommendations. All sites indentified by the survey will be delineated in the field by GIS-GPS technologies and transferred onto scaled locational maps as shape files.

Shovel tests will measure approximately 15 inches (38 centimeters) in diameter and will be excavated to sterile subsoil or to the underlying bedrock. Each shovel test that is excavated will be screened through ¼-inch hardware mesh screens and all cultural material will be collected and recorded by individual provenience. Information for positive shovel tests will include soil color and texture, and the stratigraphic relationship of the artifacts. Soil information will also be recorded for all negative shovel tests in order to characterize the nature of deposits in the project area.

Background and Documentary Research

In order to fully understand the individual archaeological components that may be identified during this investigation, previous research in the area will be consulted. Depending on the results of the survey, additional historic research may be necessary and will include sources such as census records; land deeds; historic maps and plats; family

papers; wills; probate inventories; and military records from the Department of Archives and History, county courthouse, local and regional libraries; and informant interviews.

Excavation Procedures and Standards

The site-testing plan will conform to the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (36 CFR Part 61) and will follow these specific standards:

1) A datum will be placed in the site vicinity and all units (shovel tests and test units) will be laid out according to a grid established in reference to the datum. Measurements will be recorded using metric units, with English system equivalents. Prior to excavation, a plan view of the surface features and elevation of the site will be drawn to scale and tied to the highway design plans.
2) A system of designation of individual cultural features, excavation units and levels will be devised and keyed to the excavation drawings, written records, and photographs.
3) Test units will be a standardized size (i.e., 1-x-1 m), although half units or rectangular units of roughly the equivalent size may be used as necessary. Soil features will be excavated discreetly, rather than within units.
4) All hand-excavated soils, expect those associated with cultural features, will be shifted through ¼-inch mesh. Soils from features will be screened through a combination of 1/4-1/8- and 1/16- based on the type of special analysis required. Excavation levels will conform to natural soil strata as much as possible. Soils will be described using Munsell Soil Color Charts.
5) All cultural features will be properly recorded, and a representative sample of the features will be excavated by hand. Feature locations will be noted on the general site map. Written descriptions of features will include dimensions, shape, matrix color and texture, depth below surface, stratigraphy, and recovered materials. Features will be mapped in plan view prior to cross-section excavation, and in profile to record the cross-section. Features will be excavated by methods appropriate to their size and type. The depth and type of fill material will determine the extent of sampling; e.g. modern fill deposited to fill a well shaft will not be hand-excavated or screened. Intact deposits will be sampled by either screening a portion of each discrete deposit or bisecting the shaft. This will also depend on the depth and stability of the fill.
6) Flotation and/or fine-screened samples of feature fill will be processed for floral and faunal analysis if appropriate materials are present.
7) A photographic record of the excavations will be maintained, including all features in plan view and cross-section and at least one soil profile of each excavation unit.

1.2 Task 3. Submerged Cultural Resources Remote Sensing Survey

A comprehensive remote sensing survey will be conducted of the submerged areas of the proposed project area which consist of the Preferred Alternative's C-1 bridge corridor over Currituck Sound. This remote sensing investigation will be comprised of a magnetometer and side-scan sonar investigation. The remote sensing will, through the use of the magnetometer, side scan, fathometer and DGPS navigation system, accurately map potentially significant features if present (i.e., shipwrecks).

Magnetic and Side-Scan Sonar Survey. The magnetometer shall have a sensitivity of 1 gamma with 1-second repeatability. The magnetometer will be towed at a speed of not more than 4knots. The sensor shall employ a depressor or other device capable of maintaining no greater than a 15-20 foot tow height above the bay floor or because the area is thought to be fairly shallow, half the distance to the bottom. In order to ensure survey of an area that will encompass the entire Area of Potential Effect (APE) for bridge construction, a corridor width of 300 feet will be surveyed (150 foot either side of the centerline). Survey lanes shall be placed at 50 -foot intervals. The side-scan sonar shall have 500 - 700 kHz capability and will be operated at a range scale appropriate to assure overlapping coverage from adjacent lanes. At individual targets, the field director may narrow the lane interval in order to define magnetic or sonar characteristics. The side-scan sonar and magnetometer will be operationally compatible and magnetometer and side-scan sonar records will be electronically interfaced with an electronic navigation-positioning system offering repositioning accuracy of 3 meters or less. Positioning must be by corrected DGPS. All hard-copy analog or image records will be regularly annotated with real time, absolute (e.g. lat./long.), and relative position (transect number and distance), and event numbers. Marine instrumentation will also include a fathometer interfaced with the navigational recording system. Latitude and longitude, NC State Plane coordinates, water depth, and reproductions of acoustic and magnetic targets will be included in the draft and final reports. Magnetic data will also be presented as a contour map. The vessel to be employed during the remote-sensing survey will be SUBCONTRACTOR's 25-foot Parker survey vessel. Powered by a 225-hp Yamaha Saltwater-Series II engine, the Parker has an enclosed cabin and ample deck area for the placement and operation of the necessary remote-sensing equipment. The Parker conforms to all U.S Coast Guard specifications according to class and has a full compliment of safety equipment.

Analysis of Remote Sensing Data. Once collected, survey data is processed and analyzed using an array of software packages designed to display, edit, manipulate, map, and compare proximities of raster, vector, and tabular data. These packages include SonarWiz.MAP for mosaicing sidescan sonar data, mapping target extents and generating target reports, figure details, and GIS layers; Hypack® Single Beam Editor, Hypack® TIN Modeler, and Hypack® Export for tabulating anomaly characteristics and contouring magnetic data, and generating GIS data layers. ESRI ArcMap and ArcView are used to display the data on background charts, to conduct a "proximity analysis" for each of the two types of targets (e.g. see which magnetometer, sidescan targets) are near each other and may explain each other) and to create maps and figures for this report.

Task 4. Laboratory Analysis and Artifact Curation

A number of methodologies can be adopted for the purpose of analysis of cultural material and the evaluation of archaeological deposits. The following is a possible list, but is not limited to the types of analysis that we will conduct.

1) Intra-Site Pattern Analysis: A site plan illustrating the employed excavation plan along with features and artifact clusters will be generated. The position of all features and excavation units, as well as any other archaeological or environmental elements deemed necessary, will be tied to the position of the permanent site datum. These examinations will allow for the creation of hypotheses regarding past human behavioral and adaptive patterns.
2) Inter-Site Pattern Analysis: Maps of the project area illustrating site locations will be used to formulate hypotheses concerning geographic relationships (between sites, between sites and known resources, between sites and physiographic, etc.).
3) Artifact Analysis: Artifacts will be analyzed, typed, quantified, and described in comparison to established typologies for the region.
4) Feature Content Analysis: If features, like refuse pits, are encountered, the fill material will be subjected to fine screening (wet or dry) and samples of the matrix will be taken for floatation processing to recover floral and faunal samples for analysis.

Artifact Curation and Storage

All cultural materials recovered from highway rights-of-way in North Carolina become the property and responsibility of the North Carolina Department of Cultural Resources (DCR). The NCDOT, in cooperation with the DCR insures proper preservation and curation of artifacts resulting from archaeological investigations on state highway and bridge projects.

1) Artifacts recovered from any archaeological sites identified will be stored in bags or containers labeled by provenience unit, stratum, date, and other pertinent information. With the exception historic construction materials, such as brick fragments, all artifacts will be washed, dried, inventoried, and marked with a permanent accession number. The aforementioned exemptions will be discarded following proper documentation and inventorying. If necessary, preservation specialists from the DCR will be consulted with regards to preservation treatments for perishable items and materials.
2) Accession numbers will be assigned by the Office of State Archaeology. After analysis is complete, an inventory of all artifacts and samples is prepared for inclusion with these materials and other appropriate documentation in the curation package as per the instructions outlined in the Archaeological Curation Standards and Guidelines (Office of State Archaeology 1995). Cultural materials will be

temporarily stored at SUBCONTRACTOR's laboratory or at the NCDOT until such time as the curation package and materials will be transferred to a facility maintained by the DCR for permanent storage.

Task 5. Management Summary and Archaeological Reports

The management summary will be provided to PB Americas, Inc, within 10 days after completion of the fieldwork. This summary will be submitted by e-mail with hard copies sent to the PB Americas Inc.. Results of the intensive survey of the project will be summarized. NRHP recommendations for all archaeological sites discovered and assessed will be presented. With the exception of site location information provided by the OSA to obtain official site numbers, the results of the archaeological survey conducted by SUBCONTRACTOR for PB Americas, Inc. will not be discussed nor disseminated until after such results have been received and reviewed by NCTA, NCDOT and FHWA.

The archaeological report will comply with standards of the FHWA, the Secretary of Interior's standards for Intensive Archaeological Survey (FR 44739), and will follow the North Carolina Office of State Archaeology's Archaeological Survey Report Guidelines. The draft report will be submitted to NCTA for review in digital formal with hard copies sent to the NCTA. NCTA will coordinate reviews with NCDOT and FHWA. A final report will be submitted only after receiving comments from NCTA, NCDOT and FHWA on the draft reports. In addition, the final report will include the following key elements:

1) **Results of Background Research**. Sufficient background research will be included within the reports to demonstrate the SUBCONTRACTOR's familiarity with the types of archaeological remains likely to be encountered in the project area. This will include results of an examination of all archaeological sites records known for the areas, review of all previous known archaeological research in the project vicinities and examination of relevant historical sources, as well as environmental, geological, and land use data for the project vicinities. When warranted, SUBCONTRACTOR will utilize previously generated documentary and environmental research/data from preceding archaeological survey reports.

2) **Archaeological Site Significance Assessment and NRHP Recommendations.** All archaeological sites discovered within the APE will have clear concise significance assessments as well as recommendations concerning eligibility to the NRHP. These recommendations will be shown in a summary table format in addition to descriptive text in the reports. For archaeological sites recommended as not eligible, sufficient justification will be provided. Archaeological sites recommended as eligible to the NRHP will have clear application of the criteria for eligibility. This will include a detailed description of the field methods

employed and will also incorporate a basic research design indicating potential site specific research questions that may be addressed.

3) **Remote Sensing Target Significance**. Relative to the remote sensing survey, SUBCONTRACTOR's report will completely describe each target's magnetic and/or sonar characteristics including intensity, duration, estimated mass, height, length, water depth, position relative to the bottom, and absolute position. When practical, the analysis and description will relate the discovered sites to any potential features or sites derived from project documentation. All magnetic and side-scan sonar data shall be summarized in a table that also indicates recommendations for each discovered target (if present) and will categorize each as potentially significant or not significant. Recommendations for avoidance or additional work will be submitted for each potentially significant target.

4) **Scale Mapping and Locational Information.** Reports will include scale mapping sufficient to allow the NCDOT to make management decisions concerning possible effects and impacts to archaeological resources evaluated by the consultant. The maps will include but not be limited to shovel test and test unit locations, site features, GPS-GIS shape file site boundary delineations, landmarks and their relationship to the project areas and the define APE. The mapping for each project will be included as an appendix to the draft and final reports.

5) **Additional Work Recommendations.** Detailed recommendations for additional work for any NRHP eligible site will be a component of the report.

Deliverables

SUBCONTRACTOR shall submit the following deliverables to PB Americas, Inc.:

A. A proposal illustrating the comprehension of the projects and Scope of Work
B. Dated management summary reporting results of the intensive archaeological survey and evaluation investigations.
C. Three initial copies of the draft reports on the intensive archaeological survey and evaluation investigations for NCTA, NC DOT and FHWA review with complete North Carolina Archaeological Site Forms.
D. Ten copies of the revised draft report (should revisions be required by NCTA, NCDOT pr FHWA) for inter-agency (NFNC, EBCI) review and comment.
E. Ten copies of the final report on medium weight bond paper, bound or stapled, after all agency comments (including SHPO and FHWA) have been addressed.
F. One unbound copy and one digital copy of the project in a format agreed to by NCDOT.

Schedule

SUBCONTRACTOR will respond to any comments concerning this Scope of Work immediately. Fieldwork will be completed within five weeks after notice to proceed is issued. The management summary will be submitted within 10 days of the completion of fieldwork. The draft report and any North Carolina Archaeological site forms will be submitted within five weeks of the completion of the fieldwork. Final reports and site forms will be submitted within three weeks of the receipt of NCTA, NCDOT and FHWA comments. Other agency comments including those provided by SHPO and NFNC may require subsequent revisions to the final report prior to its acceptance.

Records Management and Curation of Collections

SUBCONTRACTOR's laboratory will be employed for the temporary storage of all artifacts and records resulting from the investigations undertaken under this SOW until the appropriate curation facility is determined. Artifacts recovered during the investigation will be labeled and boxed according to North Carolina Office of State Archeology curation guidelines. All records, photographs, drawings, electronic media produced or obtained under this SOW will be the property of the state, and any arrangement for curation, reproduction, or distribution of said materials must receive prior approval from NCDOT.

Additional Provisions

Should any unmarked human burials or human skeletal remains be encountered during any of these investigations, SUBCONTRACTOR will immediately notify NCDOT, PB Americas, Inc. and the proposed authorities as provided under the provisions of North Carolina General Statutes No. 70 [3], "the Unmarked Human Burial and Human Skeletal Remains Protection Act." All excavation in the vicinity of human remains will be halted until proper authority to continue is issued.

References Cited

James, Stephen and Andy Lydecker

2009 *Phase I Terrestrial and Underwater Archaeological Background Study, Mid-Currituck Bridge Study, Currituck & Dare Counties, North Carolina.* Submitted to PB Americas, Inc. by Panamerican Consultants, Inc., Memphis, Tennessee.

National Park Service

n.d *How to Apply the National Register Criteria for Evaluation.* National Register Bulletin 15. U.S. Department of the Interior, Interagency Resources Division.

APPENDIX B: MATERIAL RECOVERED

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Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
31CK145**		***NC ACCESSION #:*** 2011.0471				
	N0 W15/S-II/D=30-60 cmbs					
		debitage (1/4-inch quartz flake with cortex)	1	1.6	76	31332-271
		glass (amber container)	1	0.6	76	31332-272
		Location Totals	*2*	*2.2*		
	S15 W15/S-I/D=0-25 cmbs					
		brick fragment	2	14.1	75	31332-270
		burned Bristol glazed stoneware jug fragment [1 piece]	2	427.8	75	31332-267
		decorative lead metal trolley car	1	2.0	75	31332-266
		ferrous metal wire nail fragment	1	2.6	75	31332-268
		glass (aqua container [1 piece, worked])	4	31.5	75	31332-263
		glass (window)	1	2.4	75	31332-264
		undecorated whiteware	1	3.4	75	31332-265
		undifferentiated ferrous metal	1	47.3	75	31332-269
		Location Totals	*13*	*531.1*		
	S30 W15/S-I/D=0-20 cmbs					
		brown glazed porcelain possible insulator	1	11.6	77	31332-275
		ferrous metal wire nail fragment	1	1.0	77	31332-276
		glass (aqua container)	1	0.8	77	31332-273
		possible building material	2	3.4	77	31332-277
		undecorated whiteware base	1	2.4	77	31332-274
		Location Totals	*6*	*19.2*		
	T25-5/S-I/D=0-55 cmbs					
		burned relief molded whiteware with scalloped rim	1	11.1	7	31332-027
		glass (clear container [possibly worked])	3	3.8	7	31332-026
		glass (clear container)	1	0.9	7	31332-025
		Location Totals	*5*	*15.8*		
Site			*26*	*568.3*		
31CK218**		***NC ACCESSION #:*** 2011.0472				
	General Surface Collection					
		extruded brick fragment	1	789.6	104	31332-361
		glass (aqua melted container)	1	1.3	38	31332-098
		glass (clear bottleneck with plastic "Jergens" screw cap)	1	9.9	38	31332-097
		glass (milk)	1	0.3	38	31332-100
		glass (milk relief molded)	1	5.4	38	31332-101
		glass (red lip)	1	0.8	38	31332-099
		green transfer printed porcelaneous stoneware	1	5.7	38	31332-104

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		mortar fragment	2	28.3	38	31332-106
		tan glazed exterior/unglazed interior stoneware	1	11.1	38	31332-105
		undecorated whiteware	1	1.7	38	31332-102
		undecorated whiteware rim	1	10.8	38	31332-103
		Location Totals	*12*	*864.9*		
	N0 E15/S-I/D=0-10 cmbs					
		brick fragment	1	1.9	41	31332-130
		glass (aqua container)	1	0.5	41	31332-128
		glass (clear container)	2	1.3	41	31332-126
		glass (clear relief molded container)	1	1.6	41	31332-127
		undifferentiated ferrous metal	1	6.6	41	31332-129
		Location Totals	*6*	*11.9*		
	N0 W15/S-I/D=0-20 cmbs					
		brick fragment	1	4.0	40	31332-125
		decal whiteware rim	1	1.9	40	31332-123
		ferrous metal machine-cut nail fragment	1	4.6	40	31332-124
		glass (aqua container)	2	2.5	40	31332-117
		glass (clear container)	8	6.7	40	31332-115
		glass (clear lip with external threading)	1	1.2	40	31332-116
		glass (green relief molded base [possibly worked])	1	4.5	40	31332-118
		glass (milk canning lid liner)	1	5.9	40	31332-120
		glass (milk lip)	1	0.8	40	31332-119
		glass (window)	4	1.4	40	31332-121
		undecorated whiteware	3	9.3	40	31332-122
		Location Totals	*24*	*42.8*		
	N15 E0/S-I/D=0-30 cmbs					
		brick fragment	2	63.1	39	31332-112
		coal	1	1.6	39	31332-113
		ferrous metal wire nail	1	8.3	39	31332-110
		glass (aqua container)	1	3.1	39	31332-109
		glass (clear container [worked])	1	14.5	39	31332-108
		glass (clear container)	4	5.4	39	31332-107
		slag	1	8.7	39	31332-114
		undifferentiated ferrous metal	1	68.5	39	31332-111
		Location Totals	*12*	*173.2*		
	N15 E15/S-I/D=0-23 cmbs					
		glass (aqua container)	1	0.8	37	31332-096
		Location Totals	*1*	*0.8*		

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
	N15 E30/S-I/D=0-22 cmbs					
		relief molded unglazed stoneware smoking pipe bowl fragment	1	1.5	44	31332-140
		Location Totals	*1*	*1.5*		
	N15 W15/S-I/D=0-19 cmbs					
		asbestos siding fragment	1	3.7	43	31332-139
		brick fragment	1	38.4	43	31332-138
		glass (amber base)	1	12.5	43	31332-137
		glass (clear relief molded container)	1	2.7	43	31332-136
		Location Totals	*4*	*57.3*		
	N15 W30/S-I/D=0-24 cmbs					
		glass (green decorative)	1	0.3	36	31332-093
		granite (gravel)	1	9.9	36	31332-095
		undifferentiated ferrous metal	1	6.4	36	31332-094
		Location Totals	*3*	*16.6*		
	N30 E15/S-I/II/D=0-60 cmbs					
		ferrous metal machine-cut nail fragment	1	5.1	45	31332-144
		ferrous metal staple	1	10.6	45	31332-145
		glass (aqua container)	1	1.7	45	31332-143
		glass (clear base with Owen's suction scar [worked])	1	20.8	45	31332-142
		glass (clear container [worked])	1	9.1	45	31332-141
		undifferentiated ferrous metal	2	86.5	45	31332-146
		Location Totals	*7*	*133.8*		
	S15 E0/S-I/D=0-20 cmbs					
		glass (amber container [worked])	1	5.2	42	31332-132
		glass (amber embossed container)	1	0.3	42	31332-133
		glass (clear container)	5	2.5	42	31332-131
		impressed pearlware base	1	21.4	42	31332-134
		undifferentiated brass metal	1	0.3	42	31332-135
		Location Totals	*9*	*29.7*		
	S15 E15/S-I/D=0-25 cmbs					
		brick fragment	1	3.4	46	31332-150
		glass (clear container [possibly worked])	1	3.8	46	31332-148
		glass (clear container)	1	4.0	46	31332-147
		undifferentiated ferrous metal	1	11.6	46	31332-149
		Location Totals	*4*	*22.8*		
	Surface 10 m W of T14-3					
		brick fragment	2	26.5	35	31332-090

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		coal	1	15.2	35	31332-092
		glass (clear bottleneck with machine-made capseat finish)	1	4.4	35	31332-087
		glass (clear container)	1	1.8	35	31332-086
		possible building material	1	0.3	35	31332-091
		relief molded creamware	1	4.1	35	31332-088
		undecorated whiteware base	1	1.4	35	31332-089
		Location Totals	*8*	*53.7*		
	T14-2/S-II/D=0-25 cmbs					
		blue shell edged whiteware rim	1	2.5	2	31332-002
		Location Totals	*1*	*2.5*		
	T14-3/S-I/D=0-30 cmbs					
		glass (amethyst container [worked])	1	5.6	3	31332-006
		glass (clear container [worked])	2	6.5	3	31332-004
		glass (clear container)	1	0.5	3	31332-003
		glass (clear embossed container [worked])	1	4.4	3	31332-005
		glass (green container [possibly worked])	1	1.0	3	31332-007
		glass (green milk relief molded)	1	0.9	3	31332-012
		glass (milk)	1	0.5	3	31332-008
		glass (milk relief molded bottleneck with interrupted external thread finish)	1	5.6	3	31332-009
		glass (window)	2	3.6	3	31332-013
		relief molded whiteware rim	1	6.0	3	31332-010
		undecorated creamware	2	5.5	3	31332-011
		undecorated whiteware	2	2.1	3	31332-014
		Location Totals	*16*	*42.2*		
	T14-4/S-I/II/D=0-50 cmbs					
		ferrous metal staple	1	5.9	4	31332-016
		glass (clear container)	2	0.3	4	31332-015
		Location Totals	*3*	*6.2*		
	T16-3/S-I/D=0-35 cmbs					
		blue shell edged whiteware with scalloped rim	1	2.1	5	31332-019
		Bristol glazed stoneware	1	1.8	5	31332-022
		glass (window)	1	0.4	5	31332-017
		oyster shell	1	0.5	5	31332-023
		undecorated creamware	1	0.5	5	31332-020
		undecorated whiteware rim	1	0.9	5	31332-018
		undecorated yellowware	1	0.8	5	31332-021
		Location Totals	*7*	*7.0*		
	T17-3/S-I/D=0-33 cmbs					

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		blue hand painted pearlware rim	1	1.6	6	31332-024
		Location Totals	*1*	*1.6*		
	Unit 1/S-I/L-1/D=9-20 cmbd					
		brick fragment	6	29.5	105	31332-390
		burned undecorated whiteware	2	1.4	105	31332-384
		decal whiteware	1	3.1	105	31332-385
		ferrous metal railroad spike	1	87.4	105	31332-388
		ferrous metal wire nail	1	2.1	105	31332-387
		glass (amber base [possibly worked])	1	9.0	105	31332-376
		glass (amber bottleneck)	1	1.0	105	31332-375
		glass (amber container)	4	5.1	105	31332-374
		glass (amethyst container [worked])	1	4.0	105	31332-373
		glass (aqua container)	8	9.4	105	31332-371
		glass (aqua embossed container [worked])	1	4.8	105	31332-372
		glass (clear base [worked])	1	13.9	105	31332-369
		glass (clear base)	1	3.9	105	31332-368
		glass (clear container [possibly worked])	6	7.6	105	31332-364
		glass (clear container [worked])	3	8.4	105	31332-363
		glass (clear container)	20	17.7	105	31332-362
		glass (clear embossed container [possibly worked])	2	4.6	105	31332-367
		glass (clear lip)	1	0.6	105	31332-365
		glass (clear melted container)	3	3.5	105	31332-370
		glass (clear relief molded container [worked])	1	1.6	105	31332-366
		glass (cobalt blue bottleneck with small mouth external thread finish)	1	1.8	105	31332-378
		glass (cobalt blue container)	1	2.2	105	31332-377
		glass (milk)	1	2.5	105	31332-379
		glass (milk embossed canning lid liner)	3	4.3	105	31332-380
		glass (window [worked])	3	2.8	105	31332-382
		glass (window)	17	14.2	105	31332-381
		undecorated whiteware	3	2.4	105	31332-383
		undifferentiated ferrous metal	1	10.1	105	31332-389
		undifferentiated stainless steel	1	1.7	105	31332-386
		Location Totals	*96*	*260.6*		
	Unit 1/S-I/L-2/D=20-30 cmbd					
		black plastic	1	1.2	106	31332-432
		brass metal button	1	0.3	106	31332-421
		brick fragment	22	52.3	106	31332-431
		Bristol glazed stoneware	1	0.1	106	31332-420

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		clear plastic	1	0.1	106	31332-433
		coal	3	1.3	106	31332-434
		decal whiteware	1	4.2	106	31332-418
		ferrous metal bolt	1	15.4	106	31332-428
		ferrous metal machine-cut nail	1	7.1	106	31332-424
		ferrous metal machine-cut nail fragment	4	25.4	106	31332-425
		ferrous metal nut	2	95.0	106	31332-429
		ferrous metal wire nail	5	8.7	106	31332-426
		ferrous metal wire nail fragment	13	21.6	106	31332-427
		glass (amber bottleneck with bead finish)	1	2.1	106	31332-408
		glass (amber container [worked])	1	2.0	106	31332-407
		glass (amber container)	1	0.9	106	31332-406
		glass (amethyst container [worked])	1	6.4	106	31332-405
		glass (amethyst container)	3	1.8	106	31332-404
		glass (aqua bottleneck with small mouth external thread finish)	1	2.6	106	31332-402
		glass (aqua container)	7	6.7	106	31332-401
		glass (aqua relief molded base [worked])	1	21.8	106	31332-403
		glass (clear bottleneck [possibly worked])	1	4.5	106	31332-395
		glass (clear bottleneck with bead finish [worked])	1	3.8	106	31332-396
		glass (clear container [possibly worked])	2	4.0	106	31332-393
		glass (clear container [worked])	12	41.9	106	31332-392
		glass (clear container)	33	23.0	106	31332-391
		glass (clear embossed base with "Hazel Atlas Glass Co." manufacturer's mark [1923-1964])	1	5.9	106	31332-398
		glass (clear embossed container [possibly worked])	1	2.2	106	31332-397
		glass (clear lip)	1	0.6	106	31332-394
		glass (clear melted container)	3	10.1	106	31332-400
		glass (clear relief molded container [possibly worked])	3	8.5	106	31332-399
		glass (green container)	2	3.3	106	31332-409
		glass (milk)	1	0.2	106	31332-415
		glass (milk canning lid liner)	2	4.0	106	31332-416
		glass (olive green container [possibly worked])	1	1.2	106	31332-411
		glass (olive green container)	1	2.2	106	31332-410
		glass (olive green melted container)	1	1.6	106	31332-412
		glass (window [possibly worked])	5	9.0	106	31332-414
		glass (window)	20	20.2	106	31332-413
		undecorated creamware	1	1.8	106	31332-419
		undecorated whiteware	3	9.5	106	31332-417

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		undifferentiated brass metal	2	10.8	106	31332-422
		undifferentiated ferrous metal	15	55.6	106	31332-430
		undifferentiated stainless steel	1	3.5	106	31332-423
		Location Totals	*185*	*504.4*		
	Unit 1/S-I/L-3A/D=30-35 cmbd					
		brass metal possible clock part	1	0.8	107	31332-445
		brick fragment	2	5.6	107	31332-450
		burned undecorated whiteware base	1	3.6	107	31332-444
		burned undecorated whiteware rim	1	1.5	107	31332-443
		ferrous metal wire nail	1	8.9	107	31332-447
		ferrous metal wire nail fragment	2	4.0	107	31332-448
		glass (amber container)	1	1.2	107	31332-437
		glass (clear container [worked])	1	2.3	107	31332-436
		glass (clear container)	9	10.7	107	31332-435
		glass (green container)	2	2.9	107	31332-438
		glass (milk)	1	0.5	107	31332-439
		glass (milk canning lid liner)	1	3.2	107	31332-440
		glass (pink container)	1	0.1	107	31332-441
		glass (window)	6	5.9	107	31332-442
		stainless steel possible clock part	1	36.1	107	31332-446
		undifferentiated ferrous metal	5	14.0	107	31332-449
		Location Totals	*36*	*101.3*		
	Unit 1/S-II/L-3B/D=35-40 cmbd					
		glass (milk melted)	1	2.9	108	31332-451
		glass (window)	2	1.7	108	31332-452
		undifferentiated ferrous metal	2	3.8	108	31332-453
		Location Totals	*5*	*8.4*		
	Unit 1/S-II/L-4A/D=40-48 cmbd					
		glass (clear container)	1	10.2	109	31332-454
		undifferentiated ferrous metal	5	4.8	109	31332-455
		Location Totals	*6*	*15.0*		
	Unit 2/S-I/L-1/D=10-20 cmbd					
		asbestos siding fragment	1	4.3	111	31332-476
		brass metal cuff link	1	1.0	111	31332-471
		brick fragment	2	25.9	111	31332-478
		ferrous metal wire nail	3	21.2	111	31332-472
		ferrous metal wire nail fragment	1	2.8	111	31332-473
		fulgurite	1	1.4	111	31332-475

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		glass (amber melted container)	1	0.6	111	31332-465
		glass (amethyst container)	1	1.0	111	31332-464
		glass (aqua container [worked])	2	5.8	111	31332-463
		glass (aqua container)	3	4.6	111	31332-462
		glass (clear base)	1	1.9	111	31332-459
		glass (clear bottleneck with machine-made patent finish)	1	2.5	111	31332-458
		glass (clear container [worked])	1	8.0	111	31332-457
		glass (clear container)	18	13.7	111	31332-456
		glass (clear melted container)	2	2.1	111	31332-461
		glass (clear relief molded base)	1	5.8	111	31332-460
		glass (green milk embossed)	1	2.1	111	31332-466
		glass (window)	2	1.5	111	31332-467
		mortar fragment	2	66.9	111	31332-479
		undecorated whiteware	1	1.3	111	31332-468
		undecorated whiteware base	1	3.6	111	31332-470
		undecorated whiteware rim	4	4.9	111	31332-469
		undifferentiated ferrous metal	2	7.2	111	31332-474
		white plastic button	1	0.8	111	31332-477
		Location Totals	*54*	*190.9*		
	Unit 2/S-I/L-2/D=20-30 cmbd					
		brick fragment	12	18.9	112	31332-512
		ferrous metal machine-cut nail	1	14.6	112	31332-506
		ferrous metal machine-cut nail fragment	6	31.2	112	31332-507
		ferrous metal railroad spike	1	68.3	112	31332-510
		ferrous metal wire nail	2	8.3	112	31332-508
		ferrous metal wire nail fragment	1	2.4	112	31332-509
		glass (amber container)	2	1.2	112	31332-490
		glass (amber melted container)	1	1.4	112	31332-492
		glass (amber relief molded container)	1	2.6	112	31332-491
		glass (aqua container [worked])	2	3.4	112	31332-487
		glass (aqua container)	9	9.2	112	31332-486
		glass (aqua embossed container)	1	4.2	112	31332-488
		glass (aqua melted container)	3	2.7	112	31332-489
		glass (clear container [worked])	2	7.3	112	31332-481
		glass (clear container)	18	13.5	112	31332-480
		glass (clear embossed container [worked])	1	3.7	112	31332-482
		glass (clear handle [1 piece, worked])	2	15.5	112	31332-483
		glass (clear melted container)	1	1.9	112	31332-485

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		glass (clear relief molded container)	2	3.6	112	31332-484
		glass (green container [1 piece])	2	12.8	112	31332-493
		glass (milk)	1	0.3	112	31332-494
		glass (milk canning lid liner)	1	1.7	112	31332-496
		glass (milk possible handle)	1	0.8	112	31332-495
		glass (window)	5	3.8	112	31332-497
		mortar fragment	1	29.4	112	31332-513
		relief molded pearlware	2	6.4	112	31332-503
		undecorated pearlware	1	0.8	112	31332-501
		undecorated pearlware rim [1 piece]	2	44.8	112	31332-502
		undecorated porcelain	1	0.7	112	31332-504
		undecorated porcelain rim	1	1.6	112	31332-505
		undecorated whiteware	6	5.7	112	31332-498
		undecorated whiteware rim	1	1.1	112	31332-499
		undecorated yellowware	1	3.0	112	31332-500
		undifferentiated ferrous metal	18	81.6	112	31332-511
		Location Totals	*112*	*408.4*		
	Unit 2/S-II/III/L-4/D=40-50 cmbd					
		ferrous metal machine-cut nail	1	10.7	114	31332-521
		undecorated creamware	1	9.5	114	31332-519
		undecorated creamware rim	1	5.0	114	31332-520
		undifferentiated ferrous metal	4	8.7	114	31332-522
		undifferentiated rubber	1	5.0	114	31332-523
		Location Totals	*8*	*38.9*		
	Unit 2/S-II/L-3/D=30-40 cmbd					
		glass (amber melted container)	1	0.7	113	31332-516
		glass (clear container)	7	5.0	113	31332-514
		glass (clear melted container)	2	2.7	113	31332-515
		undecorated creamware [4=1]	5	11.2	113	31332-517
		undifferentiated ferrous metal	1	7.7	113	31332-518
		Location Totals	*16*	*27.3*		
Site			*637*	*3023.7*		
31CK219**	***NC ACCESSION #:*** 2011.0473					
	General Surface Collection					
		Bristol glazed exterior/Albany glazed interior stoneware base	1	45.1	47	31332-173
		burned relief molded gilded whiteware rim	1	18.9	47	31332-167
		burned undecorated whiteware	4	81.2	47	31332-164

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		burned undecorated whiteware base	2	5.1	47	31332-168
		burned undecorated whiteware rim [2=1]	6	43.4	47	31332-166
		decal whiteware base	1	7.0	47	31332-165
		decorative brass metal "Avon Silver Plate" spoon	1	22.4	47	31332-174
		glass (amber lid [possibly worked])	1	15.2	47	31332-158
		glass (amethyst relief molded container [possibly worked])	1	35.8	47	31332-157
		glass (aqua base [worked])	1	14.1	47	31332-155
		glass (aqua base with indeterminate pontil)	1	33.5	47	31332-156
		glass (aqua bottleneck with large mouth external thread finish [possibly worked])	1	7.7	47	31332-153
		glass (aqua embossed bottleneck with machine-made lightning finish [possibly	1	12.9	47	31332-154
		glass (clear base with "Hazel-Atlas Glass Co." manufacturer's mark with valve mark [1923-1964, worked])	1	18.0	47	31332-152
		glass (clear bottleneck with patent finish [worked])	1	5.7	47	31332-151
		glass (green relief molded container)	1	8.3	47	31332-159
		glass (milk)	1	2.3	47	31332-160
		glass (milk bottleneck with small mouth external thread finish [possibly worked])	2	10.9	47	31332-161
		glass (milk canning lid liner)	2	17.2	47	31332-163
		glass (milk embossed base)	1	15.6	47	31332-162
		relief molded alkaline glass glazed exterior/brown glass glazed interior stoneware	1	13.6	47	31332-171
		relief molded blue glazed stoneware	1	24.2	47	31332-172
		relief molded brown glazed stoneware	1	14.1	47	31332-170
		undecorated porcelain [1 piece]	2	1.4	47	31332-169
		Location Totals	*36*	*473.6*		
	T9-10/S-I/D=0-30 cmbs					
		glass (window)	1	1.2	1	31332-001
		Location Totals	*1*	*1.2*		
Site			*37*	*474.8*		

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	N0 E15/S-I/D=0-29 cmbs					
		brick fragment	3	24.4	50	31332-200
		brick fragment - not collected	22		50	31332-201
		brown glazed stoneware	1	0.9	50	31332-194
		ferrous metal wire nail fragment	3	5.6	50	31332-197
		glass (amber container)	1	0.5	50	31332-190
		glass (aqua base [possibly worked])	1	7.6	50	31332-188
		glass (aqua container)	1	0.9	50	31332-189
		glass (clear bottleneck [worked])	1	4.2	50	31332-187

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		glass (clear container [worked])	2	1.6	50	31332-185
		glass (clear container)	4	4.6	50	31332-184
		glass (clear lip)	1	1.5	50	31332-186
		glass (window [worked])	2	2.5	50	31332-191
		red-brown glazed earthenware anthropomorphic smoking pipe bowl fragment	1	4.3	50	31332-195
		shale	3	0.6	50	31332-199
		undecorated whiteware	1	0.5	50	31332-192
		undecorated whiteware base	1	7.6	50	31332-193
		undifferentiated brass metal	2	0.2	50	31332-196
		undifferentiated ferrous metal	1	20.8	50	31332-198
		Location Totals	*51*	*88.3*		
	N0 E30/S-I/D=0-22 cmbs					
		Albany lead glazed earthenware	1	4.6	56	31332-223
		brown glazed stoneware	1	2.5	56	31332-224
		glass (amber embossed container [worked])	1	1.5	56	31332-221
		glass (aqua base [worked])	1	5.2	56	31332-219
		glass (aqua relief molded container [worked])	1	3.1	56	31332-220
		glass (clear base with partial unknown manufacturer's mark [possibly worked])	1	6.9	56	31332-218
		glass (clear container)	3	2.9	56	31332-217
		glass (milk)	1	1.2	56	31332-222
		undifferentiated ferrous metal	1	12.9	56	31332-225
		Location Totals	*11*	*40.8*		
	N0 E45/S-I/D=0-26 cmbs					
		brick fragment	1	3.2	52	31332-209
		ferrous metal wire nail fragment	1	3.1	52	31332-208
		glass (aqua container)	1	1.1	52	31332-205
		glass (clear container)	2	1.3	52	31332-204
		glass (pink relief molded container [worked])	1	6.9	52	31332-206
		undecorated whiteware	2	2.3	52	31332-207
		Location Totals	*8*	*17.9*		
	N15 E12/S-I/D=0-30 cmbs					
		brick fragment	2	4.6	51	31332-203
		glass (clear container [possibly worked])	1	0.8	51	31332-202
		Location Totals	*3*	*5.4*		
	N15 E27/S-I/D=0-25 cmbs					
		glass (aqua container)	1	0.5	48	31332-175
		unglazed earthenware	2	0.3	48	31332-176
		Location Totals	*3*	*0.8*		

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
	S15 E3/S-I/D=0-22 cmbs					
		brick fragment	1	1.2	49	31332-182
		glass (amber container)	4	1.2	49	31332-178
		glass (amber embossed container)	1	1.8	49	31332-179
		glass (clear container)	8	4.7	49	31332-183
		glass (window)	9	4.8	49	31332-177
		porcelain doll arm	1	4.0	49	31332-180
		undifferentiated ferrous metal	1	2.0	49	31332-181
		Location Totals	*25*	*19.7*		
	S15 E32/S-I/D=0-20 cmbs					
		glass (aqua container)	1	0.3	55	31332-216
		Location Totals	*1*	*0.3*		
	S30 E20/S-I/D=0-25 cmbs					
		brick fragment	2	42.8	54	31332-215
		glass (clear container)	1	0.4	54	31332-211
		green glazed pearlware	1	0.9	54	31332-212
		undecorated tin glazed earthenware	1	0.8	54	31332-213
		undifferentiated ferrous metal	2	7.6	54	31332-214
		Location Totals	*7*	*52.5*		
	S30 E35/S-I/D=0-20 cmbs					
		glass (aqua container)	2	2.9	53	31332-210
		Location Totals	*2*	*2.9*		
	T54-3/S-I/D=0-25 cmbs					
		undecorated yellowware	1	0.8	26	31332-070
		Location Totals	*1*	*0.8*		
	T54-4/S-I/II/D=0-60 cmbs					
		glass (amber container)	1	0.7	27	31332-072
		glass (amber relief molded base [possibly worked])	1	15.7	27	31332-073
		glass (clear embossed container [worked])	1	5.5	27	31332-071
		glass (olive green container [worked])	1	1.3	27	31332-074
		undecorated creamware	1	1.2	27	31332-076
		undecorated pearlware	2	0.9	27	31332-075
		Location Totals	*7*	*25.3*		
	Unit 1/S-I/L-1/D=10-20 cmbd					
		black transfer printed whiteware rim	1	0.6	115	31332-547
		brick fragment	2	30.9	115	31332-554
		ferrous metal machine-cut nail fragment	1	4.4	115	31332-550
		glass (amber bottleneck with double ring finish)	1	1.7	115	31332-540

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		glass (amber container)	24	21.2	115	31332-536
		glass (amber embossed container)	1	2.5	115	31332-538
		glass (amber relief molded base)	2	5.9	115	31332-539
		glass (amber relief molded container)	2	3.0	115	31332-537
		glass (aqua bottleneck with tooled blob finish [worked])	1	17.0	115	31332-535
		glass (aqua container)	12	12.0	115	31332-532
		glass (aqua embossed container)	3	6.7	115	31332-534
		glass (aqua relief molded container)	1	2.2	115	31332-533
		glass (clear base)	2	3.9	115	31332-529
		glass (clear bottleneck with large mouth external thread finish)	2	4.9	115	31332-531
		glass (clear container [worked])	9	14.7	115	31332-525
		glass (clear container)	55	44.3	115	31332-524
		glass (clear embossed container)	1	0.3	115	31332-526
		glass (clear lip)	1	1.2	115	31332-530
		glass (clear relief molded container [2=1])	9	14.7	115	31332-527
		glass (clear relief molded container [worked])	2	6.3	115	31332-528
		glass (cobalt blue bottleneck)	2	0.8	115	31332-542
		glass (cobalt blue container [worked])	1	1.5	115	31332-541
		glass (milk button [4 holes])	1	0.5	115	31332-552
		glass (window)	30	20.8	115	31332-543
		undecorated whiteware	14	19.5	115	31332-544
		undecorated whiteware base	1	1.9	115	31332-545
		undecorated whiteware rim	2	7.4	115	31332-546
		undifferentiated ferrous metal	13	106.6	115	31332-551
		undifferentiated lead metal	1	3.8	115	31332-549
		unglazed earthenware smoking pipe bowl fragment	1	1.4	115	31332-548
		yellow plastic	1	0.7	115	31332-553
		Location Totals	*199*	*363.3*		
	Unit 1/S-II/L-2/D=20-30 cmbd					
		Albany lead glazed earthenware	1	0.5	116	31332-615
		alkaline glazed brick fragment	1	3.2	116	31332-630
		Bisque figurine	3	1.2	116	31332-617
		black transfer printed pearlware	1	1.7	116	31332-605
		blue transfer printed pearlware	2	5.0	116	31332-604
		blue transfer printed whiteware	1	4.5	116	31332-611
		brass metal .22 caliber bullet casing	1	0.5	116	31332-620
		brick fragment	18	70.1	116	31332-629
		brick fragment - not collected	43		116	31332-637

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		burned kaolin smoking pipe stem fragment [hole diameter = 5/64 in.]	1	0.6	116	31332-633
		burned undecorated whiteware	1	3.2	116	31332-607
		ceramic paste	1	0.6	116	31332-616
		debitage (1/2-inch sandstone flake without cortex)	1	7.7	116	31332-555
		ferrous metal button	1	1.0	116	31332-622
		ferrous metal machine-cut nail fragment	4	17.1	116	31332-625
		ferrous metal railroad spike	1	67.3	116	31332-623
		ferrous metal staple	1	6.8	116	31332-624
		ferrous metal wire nail	3	28.6	116	31332-626
		ferrous metal wire nail fragment	12	58.1	116	31332-627
		gilded porcelain rim	1	14.3	116	31332-612
		glass (amber bottleneck with double ring finish)	1	3.4	116	31332-591
		glass (amber container [worked])	10	16.2	116	31332-584
		glass (amber container)	41	33.3	116	31332-583
		glass (amber embossed base [worked])	2	4.8	116	31332-586
		glass (amber embossed container)	2	1.7	116	31332-585
		glass (amber embossed relief molded base [worked])	1	20.0	116	31332-590
		glass (amber embossed relief molded container [worked])	1	0.9	116	31332-589
		glass (amber relief molded container [possibly worked])	2	2.1	116	31332-588
		glass (amber relief molded container)	3	5.7	116	31332-587
		glass (amethyst bottleneck with tooled patent finish [possibly worked])	1	18.6	116	31332-582
		glass (amethyst container [possibly worked])	2	1.9	116	31332-581
		glass (amethyst container)	1	0.2	116	31332-580
		glass (aqua base)	1	1.5	116	31332-576
		glass (aqua bottleneck with patent finish)	1	2.5	116	31332-578
		glass (aqua container [possibly worked])	3	5.9	116	31332-573
		glass (aqua container [worked])	5	23.1	116	31332-572
		glass (aqua container)	30	23.8	116	31332-571
		glass (aqua embossed container [worked])	1	4.8	116	31332-575
		glass (aqua embossed container)	1	0.7	116	31332-574
		glass (aqua melted container)	2	1.0	116	31332-579
		glass (aqua relief molded lip)	1	1.0	116	31332-577
		glass (clear "Mil-Kay"container with painted label [ca. 1940, goes with Bag 117	1	17.4	116	31332-559
		glass (clear base [worked])	3	13.7	116	31332-567
		glass (clear base)	2	3.1	116	31332-566
		glass (clear bottleneck with large mouth external thread finish)	2	7.5	116	31332-565
		glass (clear bottleneck)	1	8.6	116	31332-564
		glass (clear container [possibly worked])	10	11.5	116	31332-558

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		glass (clear container [worked])	16	48.0	116	31332-557
		glass (clear container)	140	103.7	116	31332-556
		glass (clear embossed base [possibly worked])	1	7.4	116	31332-569
		glass (clear embossed base [worked])	3	21.7	116	31332-568
		glass (clear embossed container)	2	8.9	116	31332-560
		glass (clear lip)	3	2.5	116	31332-563
		glass (clear melted container)	4	6.1	116	31332-570
		glass (clear relief molded container [worked])	4	23.4	116	31332-562
		glass (clear relief molded container)	8	14.4	116	31332-561
		glass (milk relief molded button [4 holes])	1	0.2	116	31332-618
		glass (olive green container [worked])	1	2.7	116	31332-594
		glass (olive green container)	1	1.3	116	31332-593
		glass (red base [worked])	1	5.3	116	31332-592
		glass (window [possibly worked])	9	11.2	116	31332-597
		glass (window [worked])	12	16.4	116	31332-596
		glass (window)	76	47.1	116	31332-595
		gray salt glazed exterior/unglazed interior stoneware	1	3.8	116	31332-613
		mortar fragment	2	117.1	116	31332-631
		porcelain insulator	1	4.6	116	31332-632
		red and green sponged whiteware	1	0.3	116	31332-610
		relief molded creamware base	1	1.8	116	31332-600
		relief molded kaolin smoking pipe bowl fragment	1	0.3	116	31332-619
		sandstone	2	6.4	116	31332-635
		tan salt glazed exterior/unglazed interior stoneware	1	12.7	116	31332-614
		undecorated creamware	4	2.7	116	31332-598
		undecorated creamware rim	1	1.5	116	31332-599
		undecorated pearlware	3	1.7	116	31332-601
		undecorated pearlware base	1	6.2	116	31332-602
		undecorated pearlware rim	1	2.2	116	31332-603
		undecorated whiteware	17	25.4	116	31332-606
		undecorated whiteware base	1	3.6	116	31332-608
		undecorated whiteware rim	1	0.6	116	31332-609
		undifferentiated brass metal	1	1.3	116	31332-621
		undifferentiated ferrous metal	184	623.7	116	31332-628
		unidentified large mammal tooth fragment	1	0.7	116	31332-634
		unknown carbon	1	3.2	116	31332-636
		Location Totals	*737*	*1667.0*		
	Unit 1/S-II/L-3/D=30-40 cmbd					

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		Albany lead glazed earthenware	4	22.4	117	31332-662
		annularware "Finger Painted Wormy" pearlware	1	0.8	117	31332-658
		brick fragment	3	66.7	117	31332-670
		Bristol glazed exterior/Albany glazed interior stoneware	1	5.9	117	31332-660
		brown glazed brick fragment	1	48.5	117	31332-671
		brown plastic	1	0.4	117	31332-673
		charcoal	4	0.9	117	31332-674
		ferrous metal machine-cut nail	3	14.0	117	31332-664
		ferrous metal machine-cut nail fragment	1	2.0	117	31332-665
		ferrous metal wire nail fragment	10	17.1	117	31332-666
		glass (amber bottleneck with machine-made small mouth external thread finish)	1	8.0	117	31332-651
		glass (amber container [worked])	2	3.5	117	31332-647
		glass (amber container)	10	6.8	117	31332-646
		glass (amber lip)	1	0.5	117	31332-650
		glass (amber relief molded base)	1	2.9	117	31332-649
		glass (amber relief molded container)	1	1.4	117	31332-648
		glass (amethyst container)	1	0.6	117	31332-645
		glass (aqua bottleneck with bead finish)	1	4.0	117	31332-644
		glass (aqua container)	9	11.7	117	31332-643
		glass (clear "Mil-Kay" container with painted label [ca. 1940, goes with Bag 116	1	4.9	117	31332-642
		glass (clear container [worked])	1	1.4	117	31332-641
		glass (clear container)	30	22.5	117	31332-638
		glass (clear melted container)	1	0.7	117	31332-640
		glass (clear relief molded container)	3	2.6	117	31332-639
		glass (milk canning lid liner)	1	1.0	117	31332-653
		glass (olive green container)	1	0.7	117	31332-652
		glass (window)	24	19.5	117	31332-654
		gray salt glazed exterior/Albany glazed interior stoneware	1	1.4	117	31332-661
		kaolin smoking pipe bowl fragment	1	2.1	117	31332-668
		relief molded kaolin smoking pipe bowl fragment	3	2.1	117	31332-669
		sandstone	1	3.2	117	31332-672
		undecorated creamware	2	2.0	117	31332-659
		undecorated pearlware	1	2.7	117	31332-657
		undecorated whiteware	2	0.7	117	31332-655
		undecorated whiteware rim	2	1.3	117	31332-656
		undifferentiated ferrous metal	95	350.6	117	31332-667
		undifferentiated lead metal	1	1.6	117	31332-663
		Location Totals	*227*	*639.1*		

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
Site			*1282*	*2924.1*		
31CK221**		***NC ACCESSION #:*** 2011.0475				
	General Surface Collection					
		annular banded tan glazed stoneware rim	1	1.4	14	31332-049
		kaolin smoking pipe stem fragment [hole diameter = 5/64 in.]	1	0.8	14	31332-051
		Rhenish/Westerwald stoneware	1	12.3	14	31332-050
		undecorated creamware	1	1.4	14	31332-048
		Location Totals	*4*	*15.9*		
	N0 E15/S-I/D=0-35 cmbs					
		brick fragment	2	17.9	68	31332-252
		undecorated whiteware	1	1.6	68	31332-251
		Location Totals	*3*	*19.5*		
	N0 E30/S-I/D=0-30 cmbs					
		brick fragment	3	30.3	58	31332-232
		Bristol glazed exterior/unglazed interior stoneware	1	1.5	58	31332-231
		Location Totals	*4*	*31.8*		
	N0 E45/S-I/D=0-30 cmbs					
		brick fragment	8	16.4	64	31332-243
		brown glazed brick fragment	1	2.9	64	31332-244
		undecorated whiteware	1	0.1	64	31332-242
		Location Totals	*10*	*19.4*		
	N0 E60/S-I/D=0-30 cmbs					
		glass (olive green container [1 piece, possibly worked])	2	4.1	61	31332-236
		Location Totals	*2*	*4.1*		
	N15 E1/S-I/D=0-25 cmbs					
		brick fragment	1	0.7	66	31332-248
		glass (olive green melted container)	1	0.7	66	31332-247
		Location Totals	*2*	*1.4*		
	N15 E16/S-I/D=0-30 cmbs					
		brick fragment	5	3.8	59	31332-233
		Location Totals	*5*	*3.8*		
	N15 E31/S-I/D=0-30 cmbs					
		brick fragment	7	13.4	70	31332-254
		brown glazed brick fragment	1	2.7	70	31332-255
		Location Totals	*8*	*16.1*		
	N15 E45/S-I/D=0-25 cmbs					
		brick fragment	2	2.1	71	31332-256

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		Location Totals	*2*	*2.1*		
	N15 E60/S-I/D=0-30 cmbs					
		brick fragment	2	2.1	67	31332-250
		undecorated whiteware	2	1.8	67	31332-249
		Location Totals	*4*	*3.9*		
	S15 E27/S-I/D=0-30 cmbs					
		brick fragment	2	10.8	57	31332-230
		ceramic paste	1	0.2	57	31332-228
		undecorated creamware	1	0.2	57	31332-226
		undecorated creamware rim	1	0.2	57	31332-227
		undifferentiated ferrous metal	1	1.1	57	31332-229
		Location Totals	*6*	*12.5*		
	S15 E42/S-I/D=0-30 cmbs					
		brick fragment	5	62.0	63	31332-241
		undecorated creamware	1	0.2	63	31332-239
		undecorated creamware rim	1	0.7	63	31332-240
		Location Totals	*7*	*62.9*		
	S30 E26/S-I/D=0-25 cmbs					
		brick fragment	1	10.3	65	31332-246
		glass (olive green container)	1	0.7	65	31332-245
		Location Totals	*2*	*11.0*		
	S30 E41/S-I/D=0-25 cmbs					
		brick fragment	1	2.8	60	31332-235
		undecorated creamware	1	0.5	60	31332-234
		Location Totals	*2*	*3.3*		
	S45 E40/S-I/D=0-20 cmbs					
		brick fragment	1	1.6	62	31332-238
		undecorated whiteware	1	0.4	62	31332-237
		Location Totals	*2*	*2.0*		
	S45 W5/S-I/D=0-30 cmbs					
		brick fragment	1	0.3	69	31332-253
		Location Totals	*1*	*0.3*		
	Unit 1/S-I/L-1/D=10-20 cmbd					
		Albany lead glazed earthenware	1	1.0	118	31332-680
		Albany lead glazed earthenware rim	1	0.3	118	31332-681
		brick fragment	6	35.6	118	31332-682
		glass (aqua container)	2	1.2	118	31332-677
		glass (clear container)	2	0.3	118	31332-675

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		glass (clear melted container)	1	0.3	118	31332-676
		undecorated creamware	1	0.7	118	31332-679
		undecorated whiteware	1	0.2	118	31332-678
		Location Totals	*15*	*39.6*		
	Unit 1/S-I/L-2/D=20-30 cmbd					
		Albany glazed earthenware	1	0.4	119	31332-697
		annular banded pearlware rim	1	1.3	119	31332-691
		brick fragment	3	49.9	119	31332-701
		burned brown glazed earthenware	1	1.5	119	31332-696
		burned undecorated whiteware	2	0.9	119	31332-694
		debitage (1/4-inch chert flake without cortex)	1	0.4	119	31332-683
		ferrous metal wrought nail	1	3.7	119	31332-699
		glass (aqua container)	2	0.6	119	31332-685
		glass (clear container)	2	0.7	119	31332-684
		glass (olive green container)	1	1.9	119	31332-686
		green hand painted pearlware	1	0.1	119	31332-690
		kaolin smoking pipe stem fragment [hole diameter = 5/64 in.]	1	3.4	119	31332-698
		undecorated creamware	4	1.1	119	31332-692
		undecorated creamware base	1	1.1	119	31332-693
		undecorated pearlware	5	3.1	119	31332-688
		undecorated pearlware rim	1	0.2	119	31332-689
		undecorated tin glazed earthenware	1	0.8	119	31332-695
		undecorated whiteware	3	1.0	119	31332-687
		undifferentiated ferrous metal	1	1.6	119	31332-700
		Location Totals	*33*	*73.7*		
	Unit 1/S-II/III/L-3/D=30-40 cmbd					
		Albany lead glazed earthenware	2	0.7	120	31332-709
		annular banded pearlware rim	1	0.2	120	31332-708
		blue transfer printed pearlware rim	1	0.6	120	31332-707
		brick fragment	5	103.5	120	31332-713
		brick fragment - not collected	40		120	31332-714
		ceramic paste	1	0.5	120	31332-710
		debitage (<1/4-inch chert flake without cortex)	1	0.1	120	31332-702
		ferrous metal tack	1	2.2	120	31332-711
		glass (clear container)	2	0.2	120	31332-703
		glass (olive green container)	3	3.1	120	31332-704
		undecorated creamware	1	0.2	120	31332-705

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		undecorated pearlware	1	0.1	120	31332-706
		undifferentiated ferrous metal	1	7.3	120	31332-712
		Location Totals	*60*	*118.7*		
Site			*172*	*442.0*		
31CK222		***NC ACCESSION #:*** 2011.0476				
	N0 E30					
		quartzite flake - lost in field	1		74	31332-262
		Location Totals	*1*			
	N15 E15/S-I/D=0-15 cmbs					
		debitage (1/4-inch chert flake with cortex)	1	1.0	72	31332-257
		debitage (1/4-inch quartz flake with cortex)	1	0.6	72	31332-258
		debitage (1/4-inch sandstone flake with cortex)	1	0.6	72	31332-260
		debitage (1/4-inch sandstone flake without cortex)	1	0.5	72	31332-259
		Location Totals	*4*	*2.7*		
	N15 E30/S-II/D=30-50 cmbs					
		debitage (1/4-inch chert flake without cortex)	1	0.1	73	31332-261
		Location Totals	*1*	*0.1*		
	T39-13/S-I/D=0-32 cmbs					
		brick fragment	2	4.4	13	31332-047
		burned undecorated earthenware	1	1.3	13	31332-046
		unglazed earthenware	1	0.5	13	31332-045
		Location Totals	*4*	*6.2*		
	T39-20/S-I/D=0-30 cmbs					
		debitage (1/4-inch quartz flake without cortex)	1	0.6	15	31332-052
		Location Totals	*1*	*0.6*		
	Unit 1/S-I/L-2/D=20-30 cmbd					
		quartzite Guilford projectle point	1	11.3	121	31332-715
		Location Totals	*1*	*11.3*		
	Unit 1/S-II/L-4/D=40-50 cmbd					
		debitage (<1/4-inch quartz flake without cortex)	1	0.1	122	31332-716
		debitage (1/4-inch chert shatter without cortex)	1	0.9	122	31332-717
		Location Totals	*2*	*1.0*		
	Unit 1/S-II/L-5/D=50-60 cmbd					
		debitage (1/4-inch chert flake with cortex)	1	0.6	123	31332-718
		Location Totals	*1*	*0.6*		
	Unit 2/S-I/L-2/D=20-30 cmbd					
		brick fragment	1	13.5	124	31332-723

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		debitage (1/4-inch chert flake with cortex)	2	2.3	124	31332-719
		debitage (1/4-inch quartz flake with cortex)	2	0.5	124	31332-720
		glass (clear container)	2	0.4	124	31332-721
		undecorated whiteware	1	0.3	124	31332-722
		Location Totals	*8*	*17.0*		
	Unit 2/S-I/L-3/D=30-40 cmbd					
		chert undifferentiated biface	1	4.8	125	31332-726
		debitage (1/2-inch chert shatter with cortex)	1	9.4	125	31332-725
		debitage (1/4-inch chert flake with cortex)	1	2.9	125	31332-724
		Location Totals	*3*	*17.1*		
	Unit 2/S-II/L-4/D=40-50 cmbd					
		debitage (1/4-inch quartz flake without cortex)	1	0.2	126	31332-727
		Location Totals	*1*	*0.2*		
Site			*27*	*56.8*		
31CK223&223**	***NC ACCESSION #:*** 2011.0477					
	S45 E0/S-I/D=0-24 cmbs					
		brown glazed exterior/Albany glazed interior earthenware	1	2.6	78	31332-278
		Location Totals	*1*	*2.6*		
	T27-1/S-I/II/D=20-30 cmbs					
		debitage (1/4-inch chert shatter with cortex)	2	2.5	8	31332-028
		Location Totals	*2*	*2.5*		
	T42-1/S-I/II/D=0-35 cmbs					
		brick fragment	1	6.5	19	31332-055
		Location Totals	*1*	*6.5*		
Site			*4*	*11.6*		
31CK224&224**	***NC ACCESSION #:*** 2011.0478					
	General Surface Collection					
		glass (clear melted container)	1	2.0	86	31332-305
		gray salt glazed exterior/unglazed interior stoneware	1	12.3	86	31332-307
		undecorated whiteware rim	1	2.1	86	31332-306
		Location Totals	*3*	*16.4*		
	N0 E15/S-I/D=0-25 cmbs					
		glass (clear container)	1	2.3	79	31332-279
		glass (window)	1	1.2	79	31332-280
		undifferentiated ferrous metal	1	3.4	79	31332-281
		Location Totals	*3*	*6.9*		

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
	N0 E30/S-I/D=0-20 cmbs					
		glass (amber embossed container)	1	0.4	82	31332-293
		glass (clear container)	2	0.7	82	31332-292
		glass (olive green container)	1	2.2	82	31332-294
		undifferentiated ferrous metal	2	5.4	82	31332-295
		Location Totals	*6*	*8.7*		
	N0 E45/S-I/D=0-36 cmbs					
		glass (clear container)	1	1.0	89	31332-311
		undecorated creamware	1	0.4	89	31332-312
		Location Totals	*2*	*1.4*		
	N0 W15/S-I/D=0-40 cmbs					
		flow blue whiteware rim	1	0.4	81	31332-290
		glass (clear container)	2	2.4	81	31332-288
		glass (clear relief molded container)	1	4.2	81	31332-289
		undifferentiated ferrous metal	3	21.3	81	31332-291
		Location Totals	*7*	*28.3*		
	N15 E0/S-I/D=0-24 cmbs					
		brick fragment	1	3.0	88	31332-310
		sherdlet	1	1.8	88	31332-309
		Location Totals	*2*	*4.8*		
	N15 E45/S-I/D=0-19 cmbs					
		coal	3	0.8	90	31332-316
		glass (clear melted bottleneck)	1	2.4	90	31332-313
		undecorated terracotta	1	0.9	90	31332-315
		undifferentiated ferrous metal	1	1.3	90	31332-314
		Location Totals	*6*	*5.4*		
	N15 W15/S-I/D=0-20 cmbs					
		brick fragment	1	2.2	84	31332-301
		glass (blue bead)	1	1.6	84	31332-299
		undifferentiated ferrous metal	2	7.1	84	31332-300
		Location Totals	*4*	*10.9*		
	N30 E15/S-I/D=0-35 cmbs					
		brick fragment	2	5.1	94	31332-332
		ferrous metal bolt	1	12.2	94	31332-330
		ferrous metal wire nail	3	30.0	94	31332-328
		ferrous metal wire nail fragment	3	29.9	94	31332-329
		glass (amber container)	1	1.1	94	31332-325
		glass (clear container)	1	0.9	94	31332-324

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		glass (red relief molded lip)	1	2.9	94	31332-326
		glass (window)	1	1.4	94	31332-327
		undifferentiated ferrous metal	5	106.7	94	31332-331
		Location Totals	*18*	*190.2*		
	N30 E30/S-I/D=0-15 cmbs					
		ferrous metal wire nail	1	7.8	93	31332-323
		glass (clear container)	1	2.3	93	31332-322
		Location Totals	*2*	*10.1*		
	N30 E45/S-I/D=0-20 cmbs					
		brick fragment	1	7.4	85	31332-304
		glass (clear container)	1	4.4	85	31332-302
		undifferentiated ferrous metal	1	1.9	85	31332-303
		Location Totals	*3*	*13.7*		
	S15 E0/S-I/D=0-26 cmbs					
		brick fragment	1	2.9	91	31332-319
		decal whiteware rim	1	2.6	91	31332-318
		glass (window)	1	0.6	91	31332-317
		Location Totals	*3*	*6.1*		
	S15 E15/S-I/D=0-30 cmbs					
		asbestos siding fragment	2	0.3	80	31332-286
		glass (aqua container [worked])	1	1.3	80	31332-283
		glass (clear container [worked])	1	4.0	80	31332-282
		glass (cobalt blue base with partial unknown manufacturer's mark [worked])	1	3.9	80	31332-284
		undifferentiated ferrous metal	3	4.1	80	31332-285
		walnut shell	2	2.7	80	31332-287
		Location Totals	*10*	*16.3*		
	S15 E30/S-I/II/D=0-30 cmbs					
		ferrous metal wire nail fragment	3	4.3	83	31332-297
		glass (milk)	2	3.5	83	31332-296
		sandstone	1	1.4	83	31332-298
		Location Totals	*6*	*9.2*		
	S30 W15/S-I/D=0-20 cmbs					
		glass (clear container)	1	0.9	92	31332-320
		sand/grit-tempered plain sherd	1	2.6	92	31332-321
		Location Totals	*2*	*3.5*		
	S45 E15/S-I/D=0-25 cmbs					
		brick fragment	1	0.9	87	31332-308
		Location Totals	*1*	*0.9*		

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
	T49-3/S-I/II/D=0-50 cmbs					
		ferrous metal wrought nail	1	4.1	20	31332-057
		undecorated whiteware rim	1	5.3	20	31332-056
		Location Totals	*2*	*9.4*		
	T49-5/S-I/II/D=0-60 cmbs					
		undecorated whiteware	1	2.5	21	31332-058
		Location Totals	*1*	*2.5*		
	T49-6/S-I/II/D=0-65 cmbs					
		brick fragment	1	294.1	22	31332-064
		ferrous metal wire nail fragment	1	1.3	22	31332-062
		glass (aqua embossed container)	1	1.0	22	31332-060
		glass (clear container)	2	5.8	22	31332-059
		undecorated whiteware	1	2.3	22	31332-061
		undifferentiated ferrous metal	5	77.6	22	31332-063
		Location Totals	*11*	*382.1*		
	Unit 1/S-I/L-1/D=10-20 cmbd					
		chert undifferentiated biface	1	2.4	127	31332-728
		glass (aqua container)	2	0.6	127	31332-730
		glass (clear container [worked])	1	1.3	127	31332-729
		undecorated whiteware	1	0.7	127	31332-731
		undifferentiated ferrous metal	1	3.4	127	31332-732
		Location Totals	*6*	*8.4*		
	Unit 1/S-I/L-2/D=20-30 cmbd					
		brass metal gear possible clock part	1	1.7	128	31332-738
		brown glazed brick fragment	1	4.0	128	31332-737
		debitage (1/2-inch chert flake with cortex)	1	4.4	128	31332-733
		ferrous metal machine-cut nail fragment	2	2.4	128	31332-739
		ferrous metal wire nail fragment	2	3.5	128	31332-740
		glass (aqua container)	1	0.7	128	31332-735
		glass (clear container)	1	0.7	128	31332-734
		undecorated whiteware	1	2.2	128	31332-736
		undifferentiated ferrous metal	1	55.6	128	31332-741
		Location Totals	*11*	*75.2*		
	Unit 1/S-II/L-3/D=30-40 cmbd					
		blue transfer printed whiteware	1	0.8	129	31332-743
		brown glazed exterior/unglazed interior earthenware	1	0.1	129	31332-744
		glass (aqua bottleneck with tooled prescription finish [1 piece])	2	8.2	129	31332-742
		Location Totals	*4*	*9.1*		

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
	Unit 2/S-I/L-1/D=10-20 cmbd					
		brick fragment	1	7.1	131	31332-746
		glass (clear embossed container)	1	2.6	131	31332-745
		Location Totals	*2*	*9.7*		
	Unit 2/S-I/L-2/D=20-30 cmbd					
		annular banded whiteware rim	1	0.2	132	31332-760
		asbestos siding fragment - not collected	16		132	31332-770
		brass metal snap button	1	1.2	132	31332-762
		brick fragment	1	7.7	132	31332-768
		burned terracotta base [1 piece]	2	33.6	132	31332-769
		burned undecorated whiteware	1	4.0	132	31332-758
		burned undecorated whiteware rim	1	2.5	132	31332-759
		ferrous metal machine-cut nail fragment	3	11.0	132	31332-764
		ferrous metal wire nail	1	2.0	132	31332-765
		glass (aqua container [possibly worked])	1	2.2	132	31332-754
		glass (aqua embossed container)	1	2.0	132	31332-755
		glass (clear container [worked])	1	3.5	132	31332-748
		glass (clear container)	3	3.3	132	31332-747
		glass (clear embossed container)	1	6.1	132	31332-749
		glass (clear melted container)	3	12.5	132	31332-753
		glass (clear relief molded container [possibly worked])	1	3.8	132	31332-751
		glass (clear relief molded container with scalloped rim)	1	7.5	132	31332-752
		glass (clear relief molded container)	1	11.5	132	31332-750
		glass (milk embossed)	1	2.4	132	31332-756
		glass (window)	1	0.9	132	31332-757
		undifferentiated ferrous metal	4	11.5	132	31332-766
		undifferentiated ferrous metal with rubber gasket	1	13.1	132	31332-767
		undifferentiated lead metal	1	9.2	132	31332-763
		unglazed earthenware	1	2.8	132	31332-761
		Location Totals	*49*	*154.5*		
	Unit 2/S-I/L-3/D=30-40 cmbd					
		burned red transfer printed whiteware	1	1.0	133	31332-774
		burned relief molded whiteware with scalloped rim	1	2.7	133	31332-775
		ferrous metal machine-cut nail fragment	2	6.2	133	31332-777
		ferrous metal wire nail	2	4.7	133	31332-778
		ferrous metal wire nail fragment	2	3.4	133	31332-779
		glass (amber container)	1	1.5	133	31332-772
		glass (amber relief molded [possibly worked])	1	3.9	133	31332-773

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		glass (clear container)	2	6.3	133	31332-771
		undifferentiated brass metal	1	1.3	133	31332-776
		Location Totals	*13*	*31.0*		
Site			*177*	*1014.7*		
31CK225**		***NC ACCESSION #:*** 2011.0479				
	General Surface Collection					
		brick fragment	1	131.6	95	31332-336
		glass (clear bottleneck with crown finish [worked])	1	8.1	95	31332-334
		glass (clear container [possibly worked])	1	1.4	95	31332-333
		glass (cobalt blue bottleneck with small mouth external thread finish)	1	0.6	95	31332-335
		Location Totals	*4*	*141.7*		
	T50-6/S-I/D=0-20 cmbs					
		glass (clear container [worked])	1	2.0	24	31332-068
		Location Totals	*1*	*2.0*		
Site			*5*	*143.7*		
31CK226**		***NC ACCESSION #:*** 2011.0480				
	N0 E15/S-I/D=0-25 cmbs					
		brick fragment	1	4.3	96	31332-341
		glass (aqua container)	1	0.6	96	31332-339
		glass (clear container [possibly worked])	1	1.0	96	31332-338
		glass (clear container)	1	0.3	96	31332-337
		undifferentiated ferrous metal	1	1.4	96	31332-340
		Location Totals	*5*	*7.6*		
	N0 E45/S-I/D=0-25 cmbs					
		ferrous metal wire nail fragment	1	2.6	97	31332-343
		glass (clear container)	1	1.8	97	31332-342
		undifferentiated ferrous metal	1	1.8	97	31332-344
		Location Totals	*3*	*6.2*		
	T50-2/S-II/D=20-35 cmbs					
		brick fragment	1	1.9	23	31332-067
		glass (aqua container)	1	0.7	23	31332-065
		undecorated creamware	1	0.9	23	31332-066
		Location Totals	*3*	*3.5*		
Site			*11*	*17.3*		
31CK227**		***NC ACCESSION #:*** 2011.0481				

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
	T52-9/S-I/II/D=0-30 cmbs					
		brown salt glazed exterior/unglazed interior stoneware	1	4.6	25	31332-069
		Location Totals	*1*	*4.6*		
Site			*1*	*4.6*		
31CK228**		***NC ACCESSION #:*** 2011.0482				
	T61-1/S-I/II/D=20-40 cmbs					
		glass (aqua base [worked])	1	13.1	33	31332-084
		Location Totals	*1*	*13.1*		
Site			*1*	*13.1*		
31CK229**		***NC ACCESSION #:*** 2011.0483				
	General Surface Collection					
		extruded brick	1	1585.7	100	31332-355
		ferrous metal machine-cut nail	1	18.0	100	31332-352
		ferrous metal machine-cut nail fragment	1	2.5	100	31332-353
		ferrous metal wire nail	2	3.8	100	31332-354
		glass (window)	1	12.3	100	31332-351
		Location Totals	*6*	*1622.3*		
	N0 E15/S-I/II/D=10-40 cmbs					
		brick fragment	1	159.4	98	31332-346
		red transfer printed whiteware	1	6.2	98	31332-345
		Location Totals	*2*	*165.6*		
	N15 E0/S-I/D=0-25 cmbs					
		glass (clear container)	3	3.7	99	31332-347
		glass (window)	1	3.0	99	31332-348
		undifferentiated ferrous metal	2	1.5	99	31332-349
		unspecified bone	2	0.3	99	31332-350
		Location Totals	*8*	*8.5*		
	T60-4/S-I/II/D=0-70 cmbs					
		glass (clear container) - not collected	2		31	31332-079
		undifferentiated ferrous metal	1	2.4	31	31332-078
		Location Totals	*3*	*2.4*		
	T60-5/S-I/D=0-30 cmbs					
		glass (amber container)	1	3.4	32	31332-083
		glass (amethyst relief molded container [worked])	1	10.9	32	31332-082
		glass (aqua container)	1	3.6	32	31332-081
		glass (clear container [worked])	1	1.6	32	31332-080

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		Location Totals	*4*	*19.5*		
	Unit 1/S-I/L-1/D=0-22 cmbd					
		brick fragment	1	5.2	136	31332-782
		container glass - lost in lab	1		136	31332-783
		ferrous metal wire nail	1	1.7	136	31332-781
		Location Totals	*3*	*6.9*		
	Unit 1/S-I/L-2/D=20-30 cmbd					
		brass metal hinge	1	61.5	137	31332-789
		brass metal key escutcheon with 2 holes	1	24.0	137	31332-790
		burned undecorated whiteware	2	2.7	137	31332-788
		ferrous metal hinge	1	376.7	137	31332-796
		ferrous metal machine-cut nail	1	14.5	137	31332-792
		ferrous metal machine-cut nail fragment	1	2.2	137	31332-793
		ferrous metal screw	8	29.6	137	31332-795
		ferrous metal turn key [to a sardine can]	1	3.4	137	31332-791
		ferrous metal wire nail	15	31.9	137	31332-794
		glass (clear container)	3	3.1	137	31332-784
		glass (clear relief molded plate fragment)	1	8.3	137	31332-785
		glass (milk embossed "Boyd" canning lid liner)	2	2.5	137	31332-787
		glass (window)	1	1.1	137	31332-786
		undifferentiated ferrous metal	3	3.8	137	31332-797
		Location Totals	*41*	*565.3*		
	Unit 1/S-I/L-3/D=30-40 cmbd					
		brick fragment	1	11.2	138	31332-802
		ferrous metal wire nail	2	8.3	138	31332-800
		glass (clear lip)	1	0.9	138	31332-798
		relief molded whiteware rim	1	1.0	138	31332-799
		undifferentiated ferrous metal	6	20.0	138	31332-801
		Location Totals	*11*	*41.4*		
	Unit 1/S-II/L-4/D=40-50 cmbd					
		glass (aqua container)	1	1.7	139	31332-803
		Location Totals	*1*	*1.7*		
	Unit 1/Surface Collection					
		extruded brick	1	1776.5	135	31332-780
		Location Totals	*1*	*1776.5*		
Site			*80*	*4210.1*		

31CK230** ***NC ACCESSION #:*** 2011.0484

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
	T63-3/S-I/D=0-30 cmbs					
		glass (aqua container [worked])	1	2.5	34	31332-085
		Location Totals	*1*	*2.5*		
Site			*1*	*2.5*		
31CK231**	***NC ACCESSION #:*** 2011.0485					
	N0 E15/S-I/D=30-50 cmbs					
		glass (aqua melted container)	1	1.1	101	31332-356
		Location Totals	*1*	*1.1*		
	T58-9/S-I/D=0-60 cmbs					
		undecorated whiteware	1	3.3	30	31332-077
		Location Totals	*1*	*3.3*		
Site			*2*	*4.4*		
31CK232**	***NC ACCESSION #:*** 2011.0486					
	N0 E15/S-I/D=0-25 cmbs					
		burned undecorated whiteware	1	2.4	102	31332-359
		glass (clear container [possibly worked])	1	0.7	102	31332-357
		glass (olive green melted container)	1	1.8	102	31332-358
		Location Totals	*3*	*4.9*		
	N0 W30/S-I/D=60-70 cmbs					
		ferrous metal wood splitting wedge	1	1226.4	103	31332-360
		Location Totals	*1*	*1226.4*		
	T41-2/S-II/D=40-55 cmbs					
		undecorated creamware with scalloped rim	1	6.6	16	31332-053
		Location Totals	*1*	*6.6*		
Site			*5*	*1237.9*		
31CK233**	***NC ACCESSION #:*** 2011.0487					
	T41-1/S-I/D=30-60 cmbs					
		undifferentiated ferrous metal	1	44.5	17	31332-054
		Location Totals	*1*	*44.5*		
Site			*1*	*44.5*		
Locus 19	***NC ACCESSION #:***					
	T28-1/S-I/D=0-25 cmbs					
		burned undecorated whiteware	2	1.5	9	31332-030

Site	Location	Type	Quantity	Weight (g)	Bag #	Accession #
		burned unspecified bone	2	4.3	9	31332-036
		ferrous metal wire nail	1	3.0	9	31332-032
		ferrous metal wire nail fragment	2	9.0	9	31332-033
		glass (clear relief molded lip)	1	2.1	9	31332-029
		quartz pebble	1	0.2	9	31332-035
		undifferentiated aluminum metal	2	1.6	9	31332-031
		undifferentiated ferrous metal	1	38.9	9	31332-034
		unspecified bone	1	7.4	9	31332-037
		Location Totals	*13*	*68.0*		
	T28-3/S-I/D=0-25 cmbs					
		melted plastic possible cup	1	44.7	10	31332-038
		Location Totals	*1*	*44.7*		
	T30-1/S-I/D=0-80 cmbs					
		ferrous metal staple	1	9.2	11	31332-040
		undecorated whiteware	1	3.6	11	31332-039
		Location Totals	*2*	*12.8*		
Site			*16*	*125.5*		
Locus 8		***NC ACCESSION #:***				
	T33-4/S-I/D=50-90 cmbs					
		brick fragment	2	44.7	12	31332-044
		ferrous metal machine-cut nail	1	2.9	12	31332-043
		glass (clear container)	1	0.7	12	31332-041
		undecorated creamware	1	2.1	12	31332-042
		Location Totals	*5*	*50.4*		
Site			*5*	*50.4*		
Project Totals			*2490*	*14370.0*		

APPENDIX C: SIDESCANSONAR TARGET IMAGES

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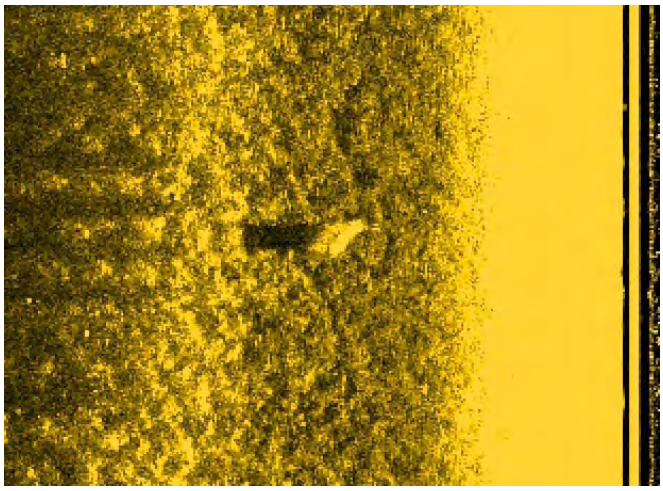
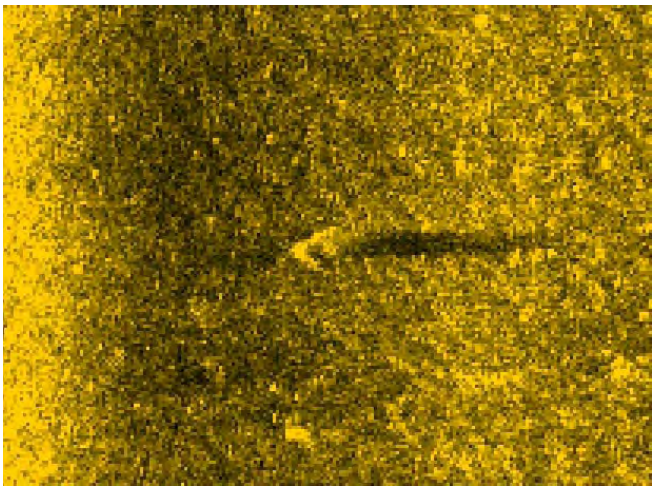
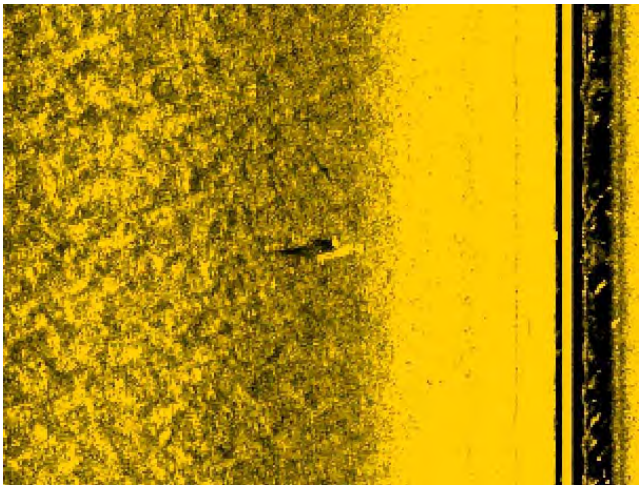
Contact	Image
C-01	
C-02	
C-03	

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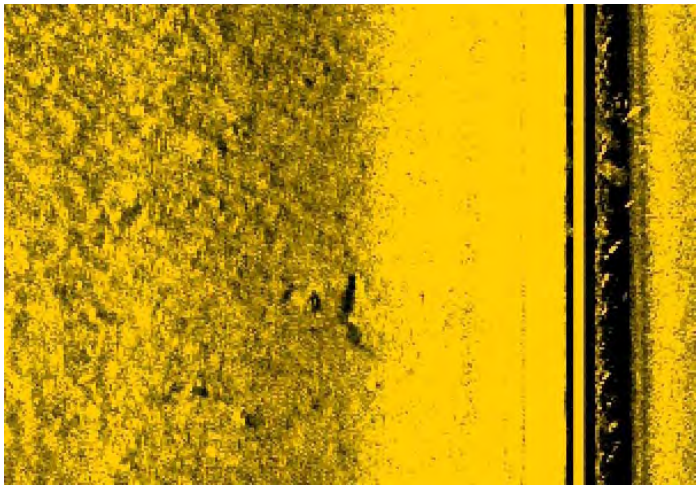
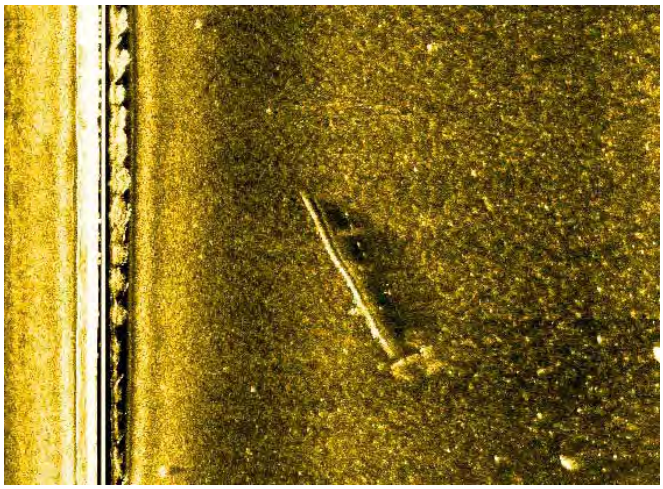
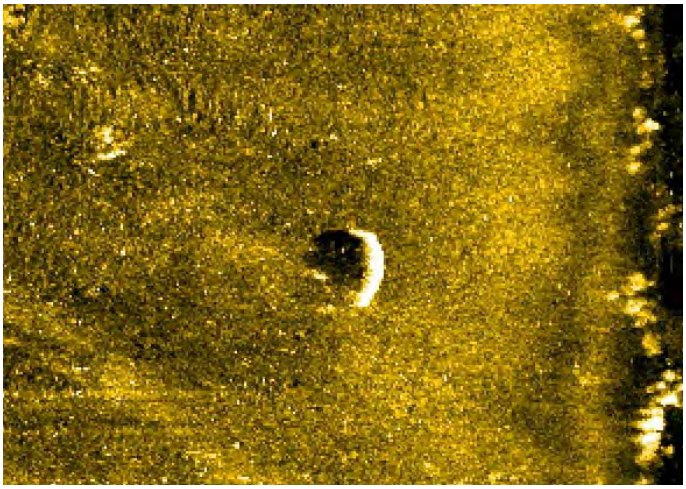
C-04	
C-05	
C-06	

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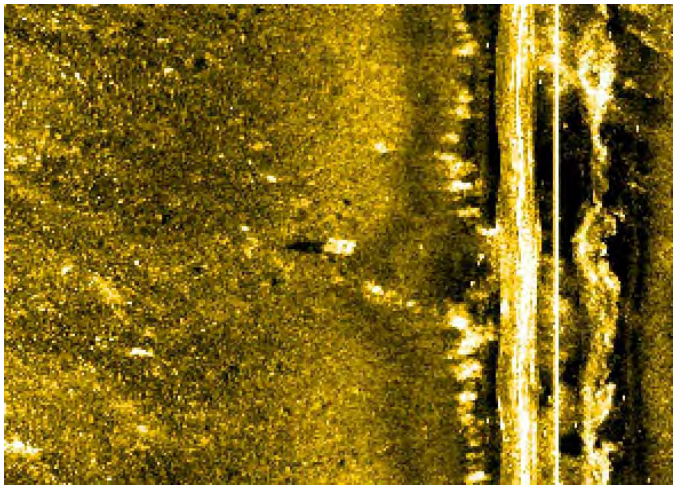
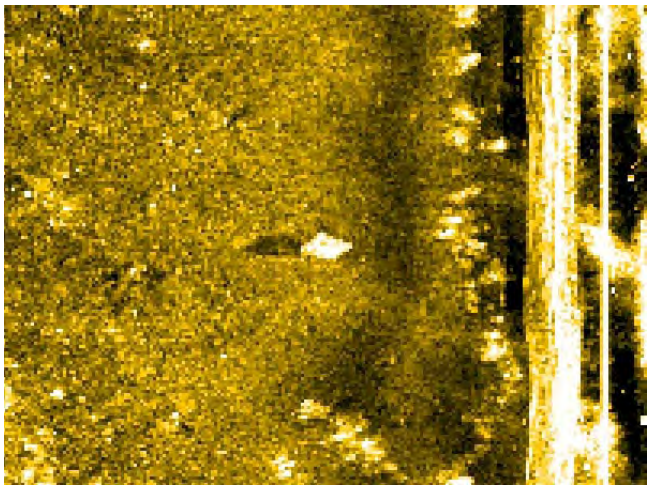
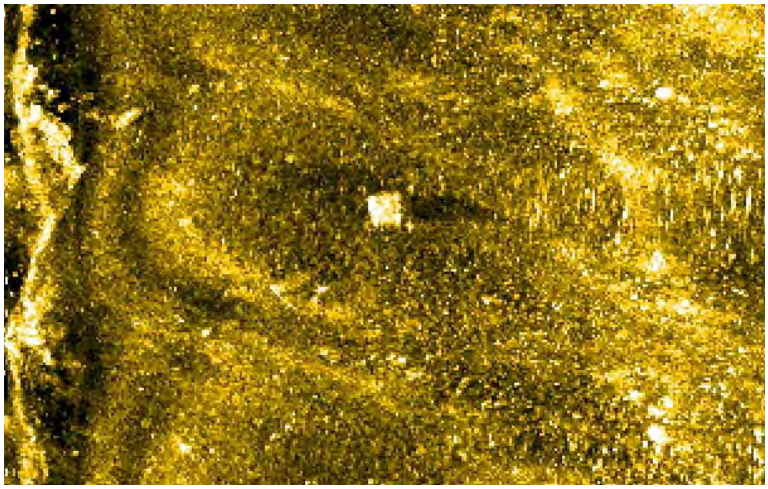
C-07	
C-08	
C-09	

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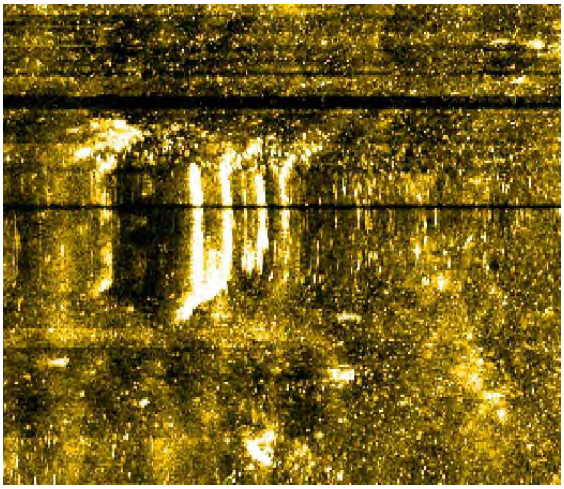
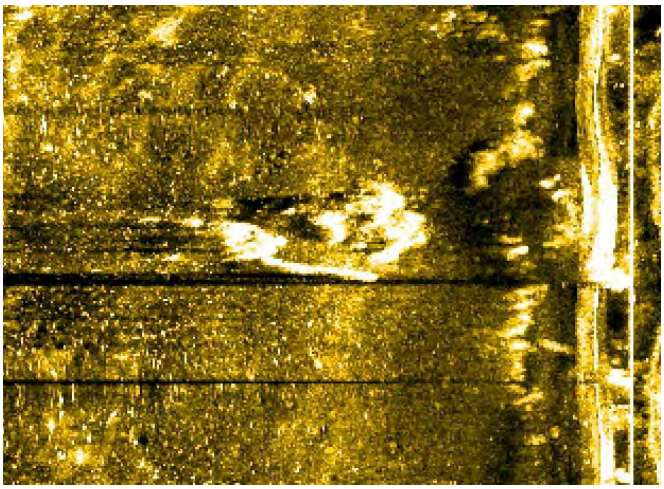
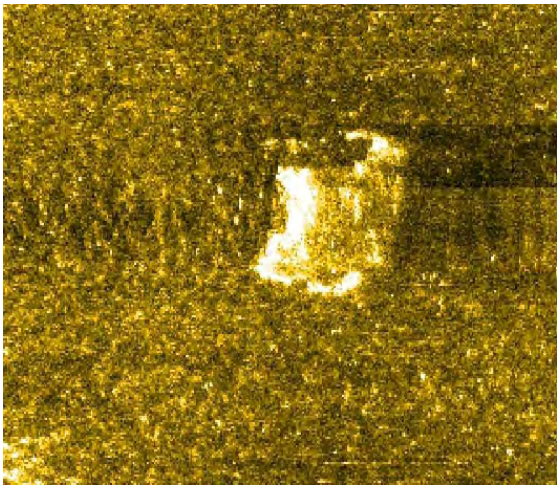
C-10	
C-11	
C-12	

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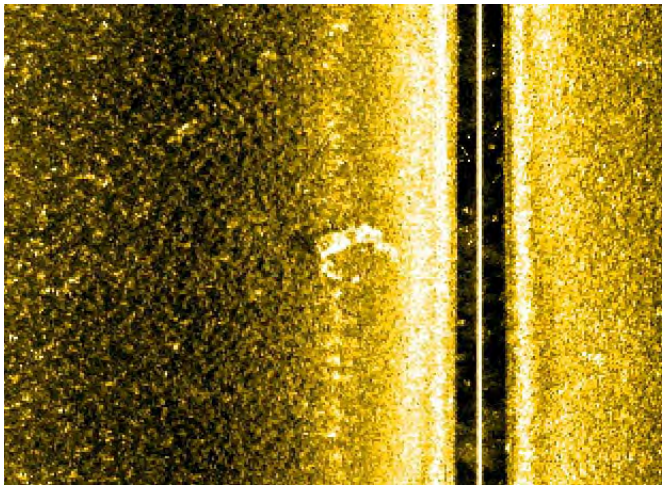
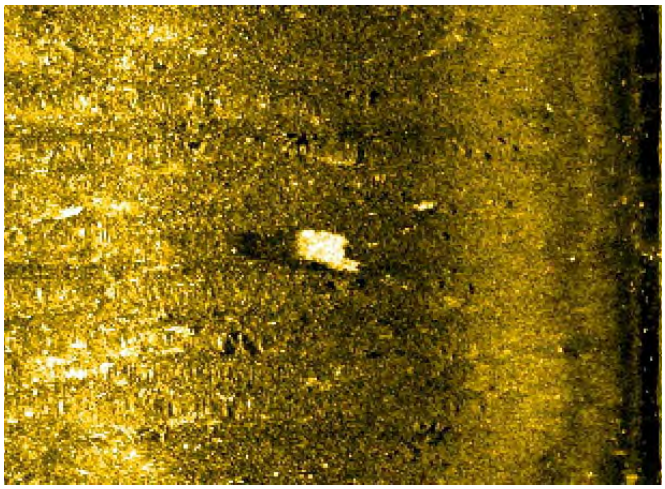
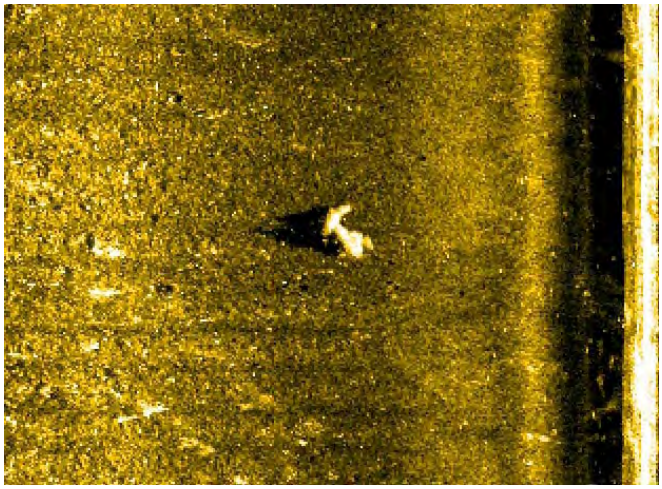
C-13	
C-14	
C-15	

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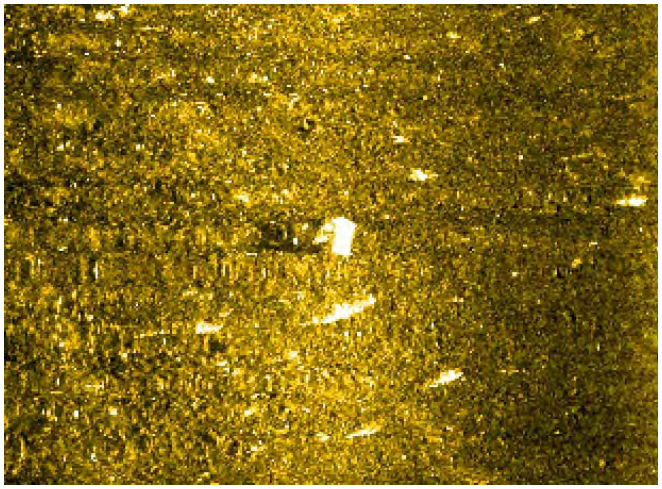
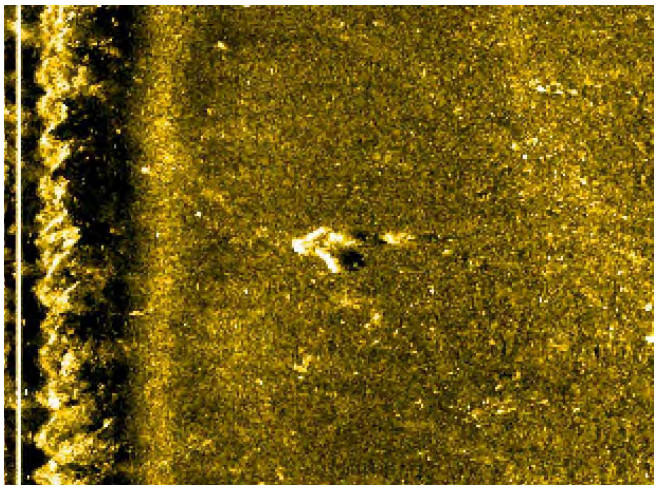
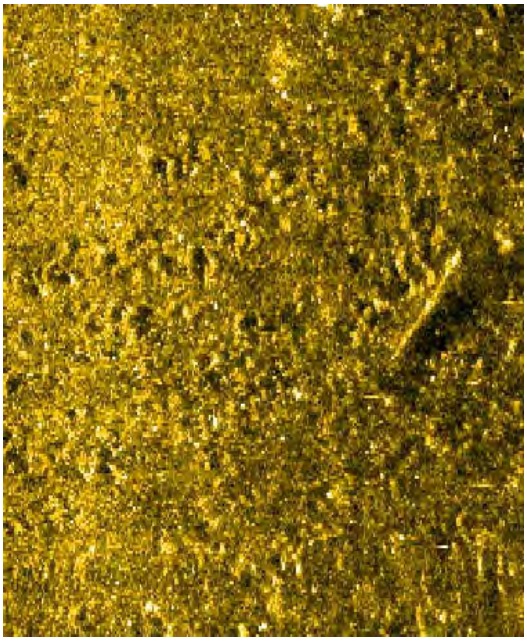
C-16	
C-17	
C-18	

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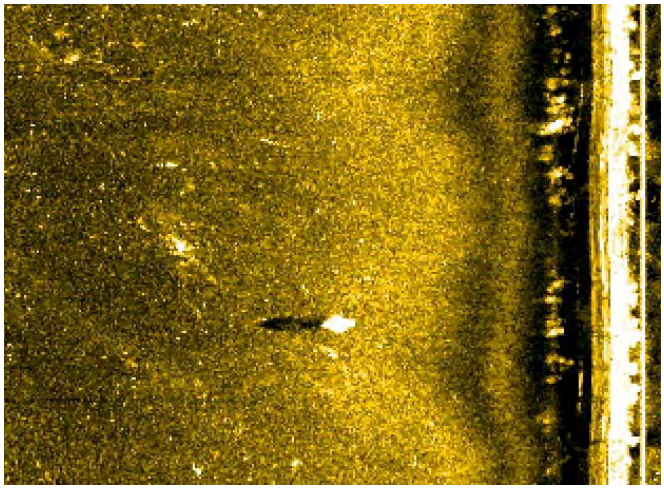
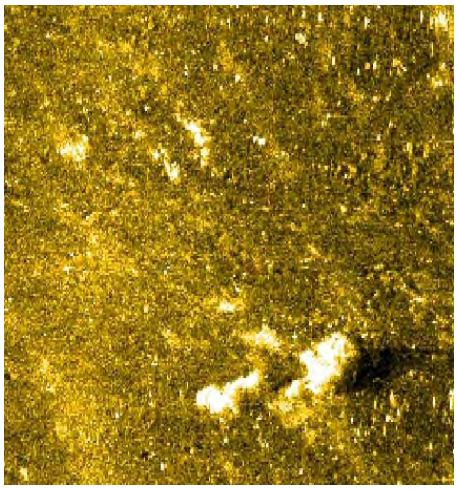
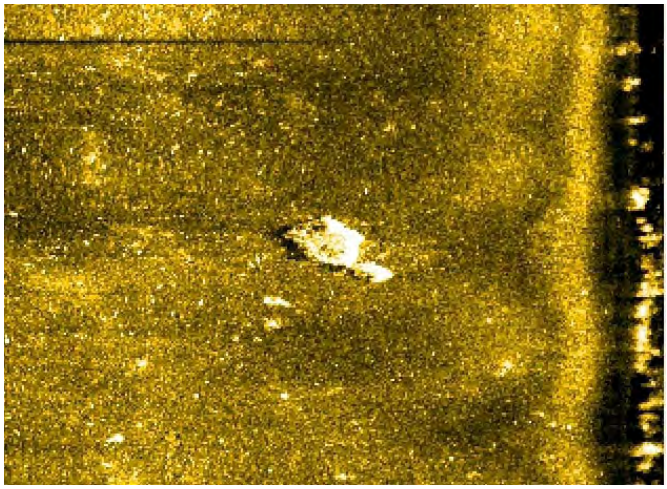
C-19	
C-21	
C-22	

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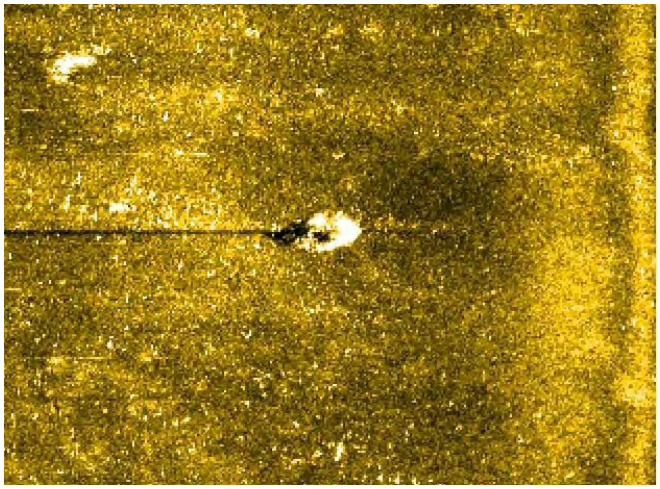
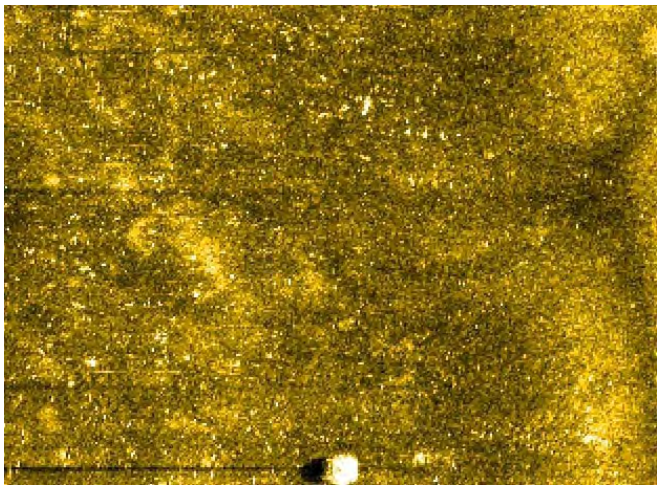
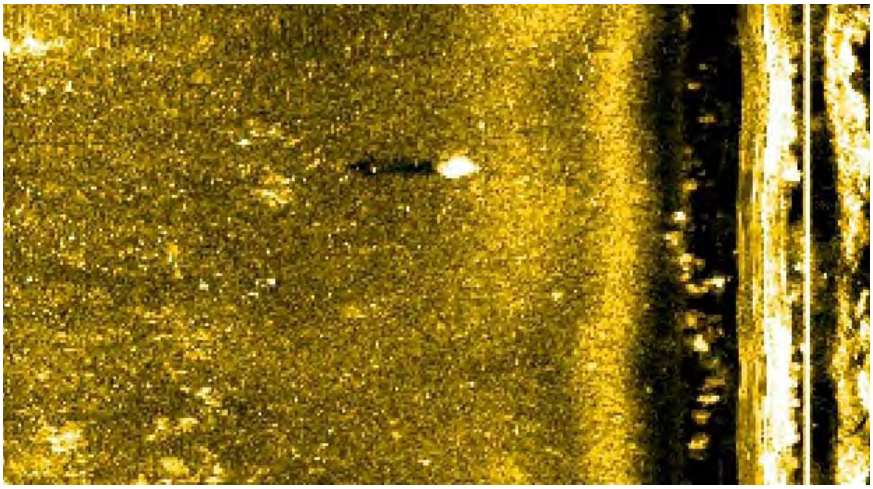
C-23	
C-24	
C-25	
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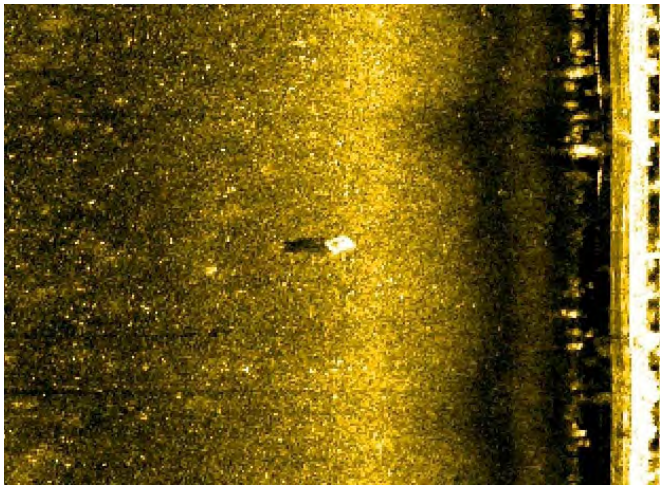
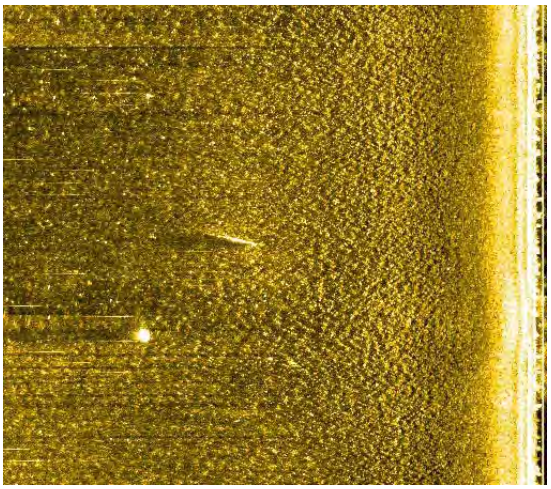
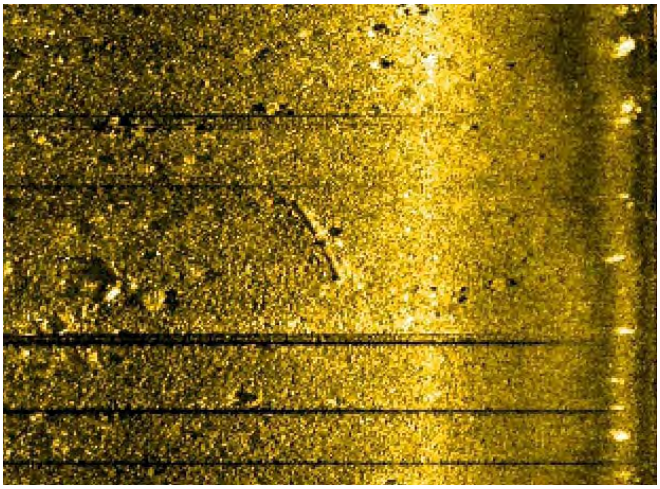
C-27	
C-28	
C-29	

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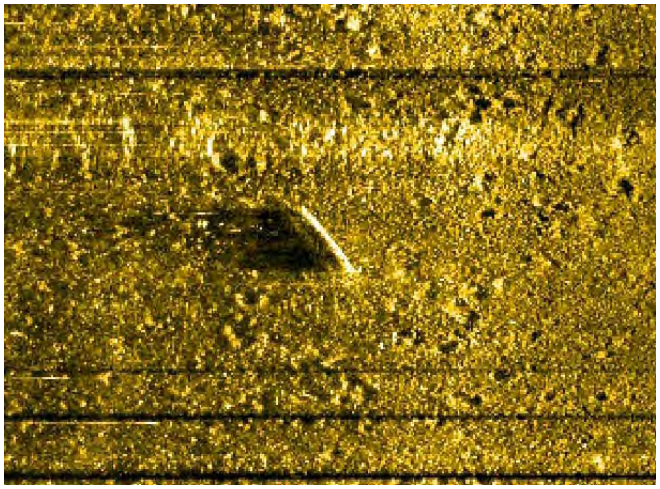
C-30	
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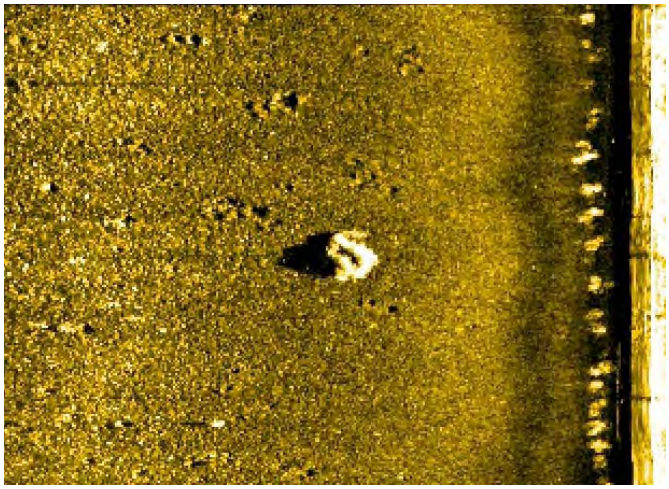
C-33	

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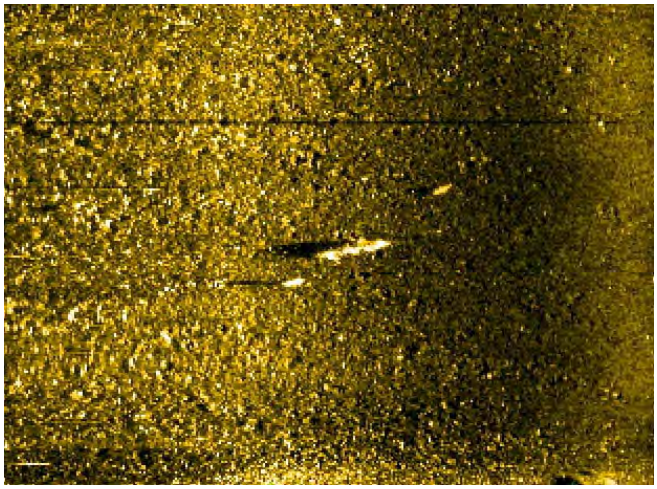
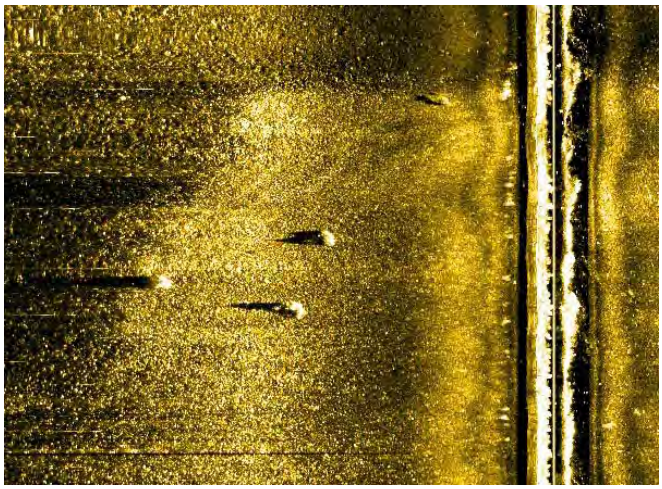
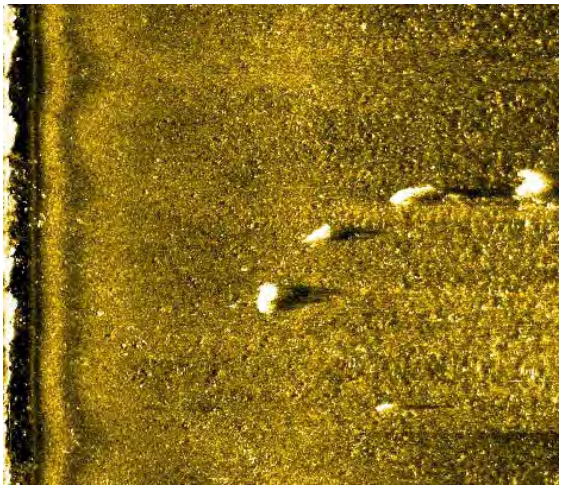
C-34	
C-35	
C-36	

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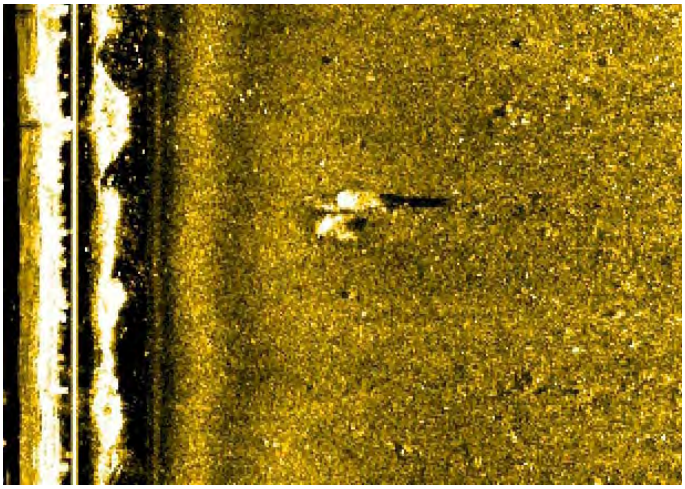
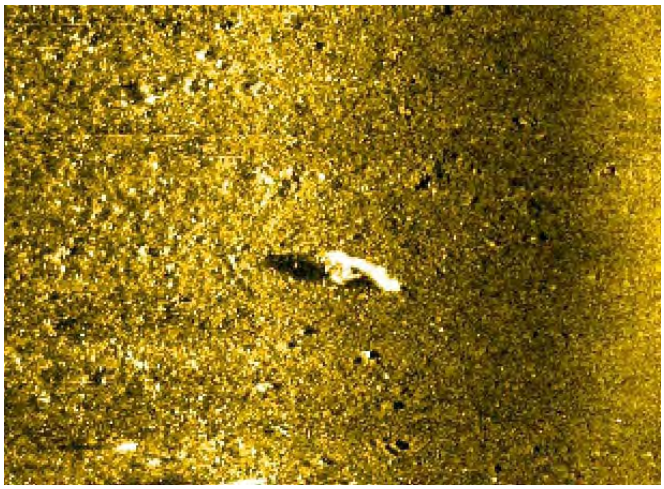
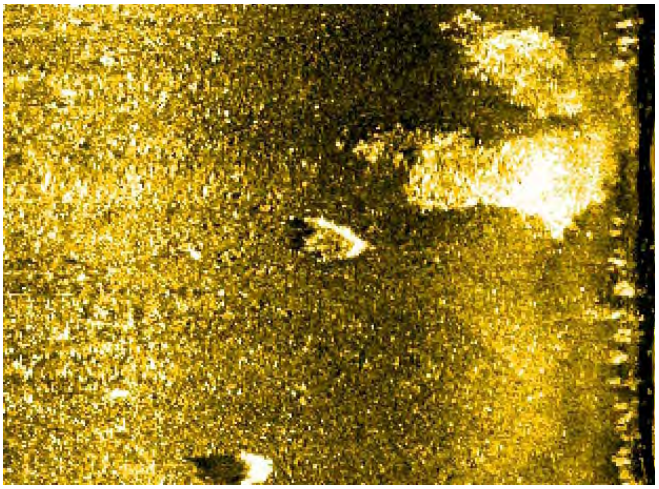
C-37	
C-38	
C-39	

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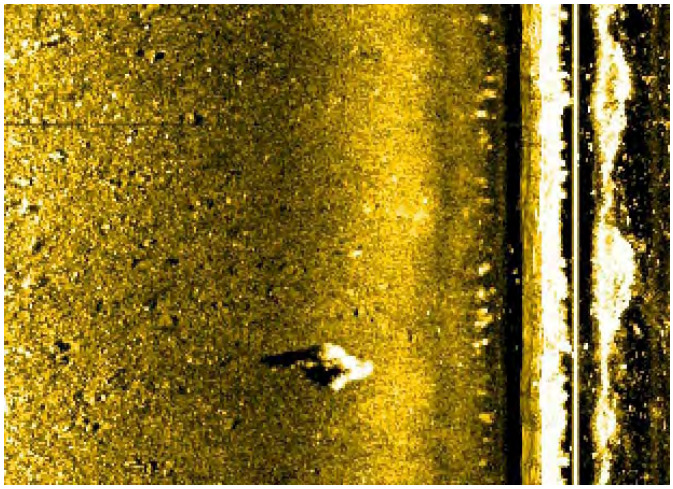
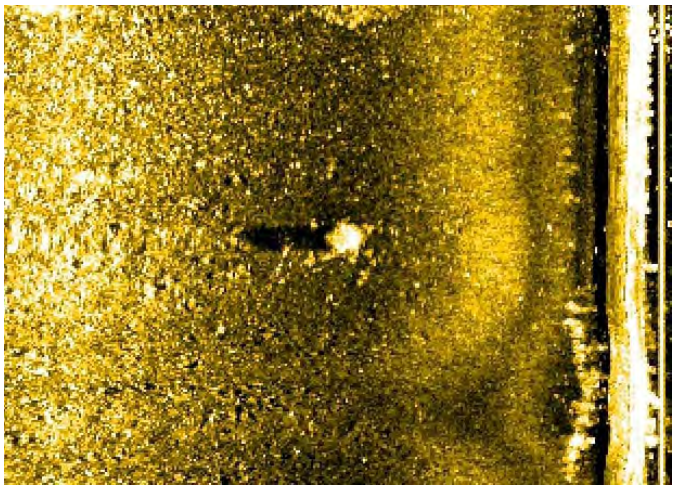
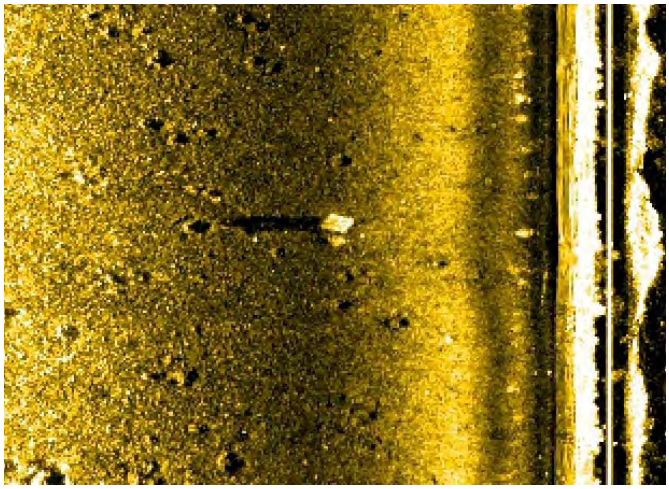
C-40	
C-41	
C-42	

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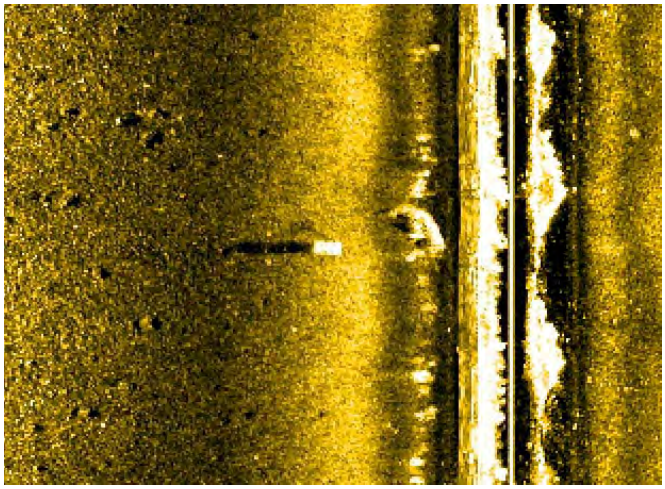
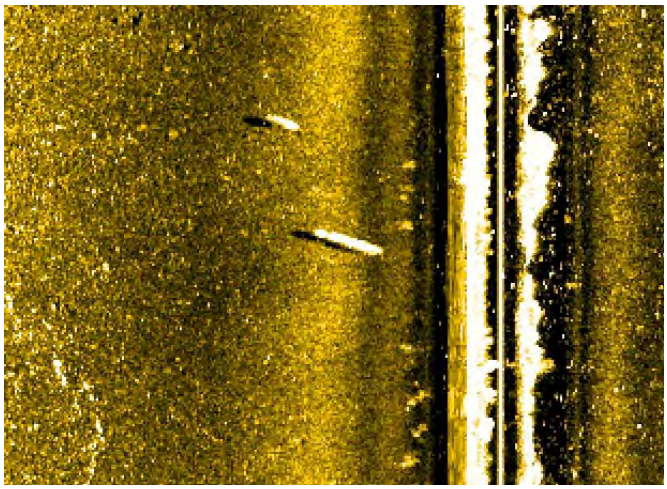
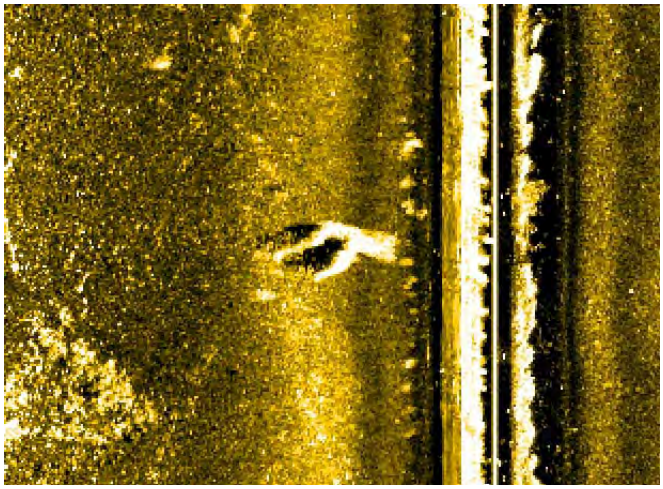
C-43	
C-44	
C-45	

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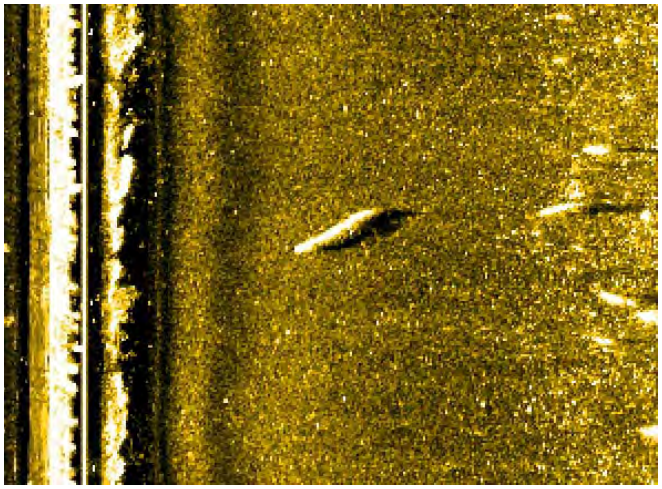
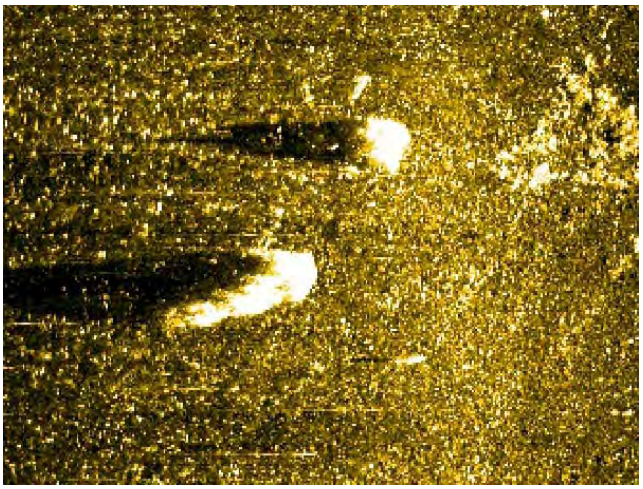
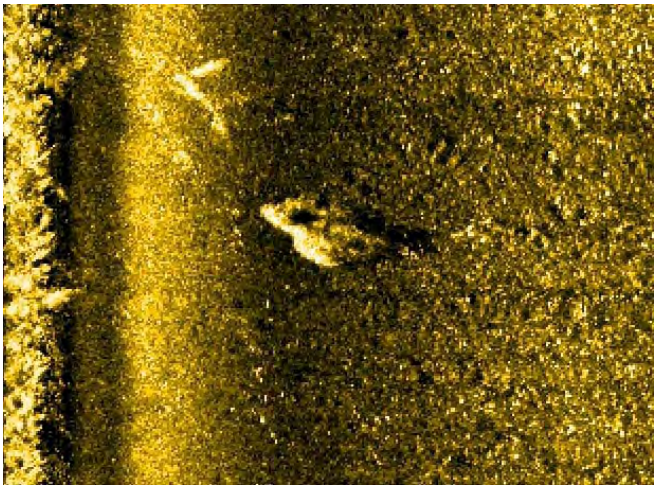
C-46	
C-47	
C-48	

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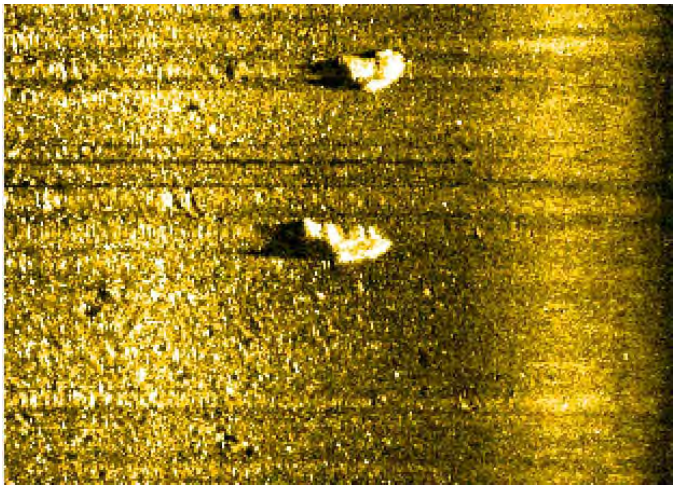
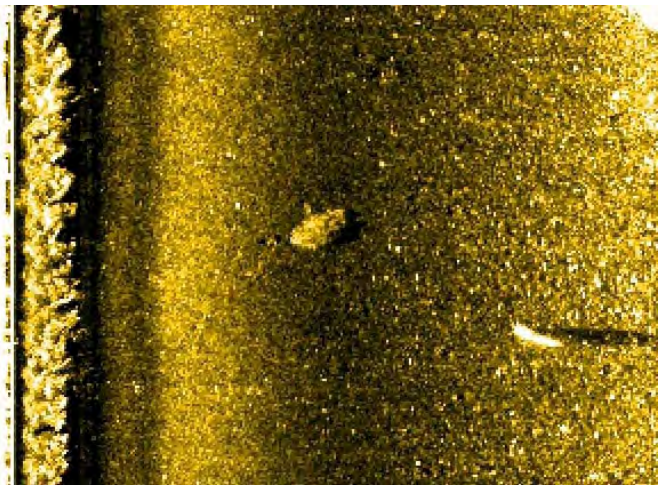
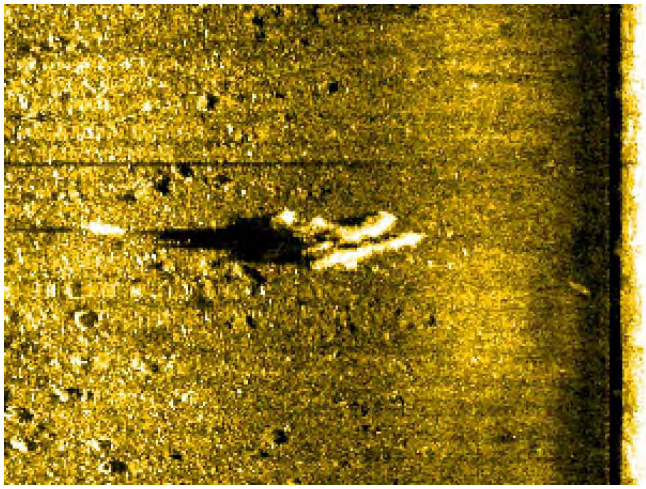
C-49	
C-50	
C-51	

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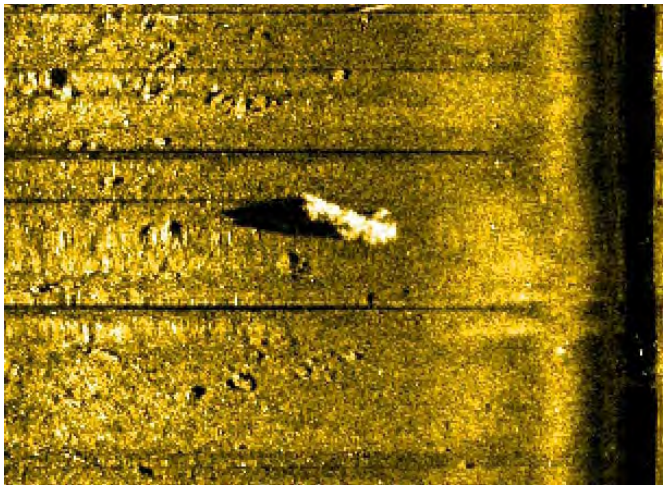
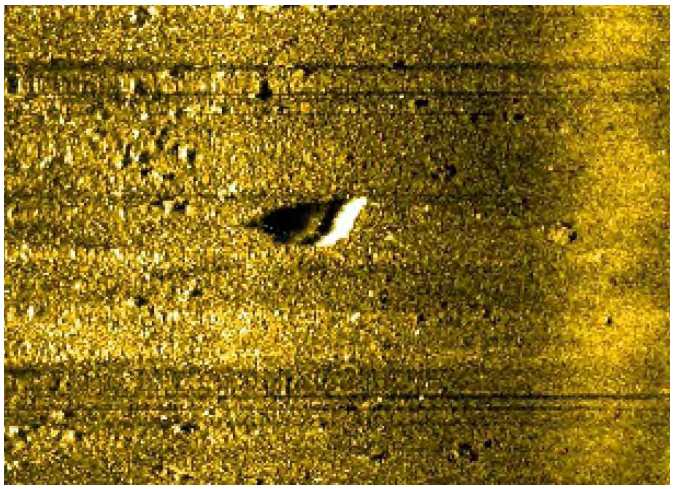
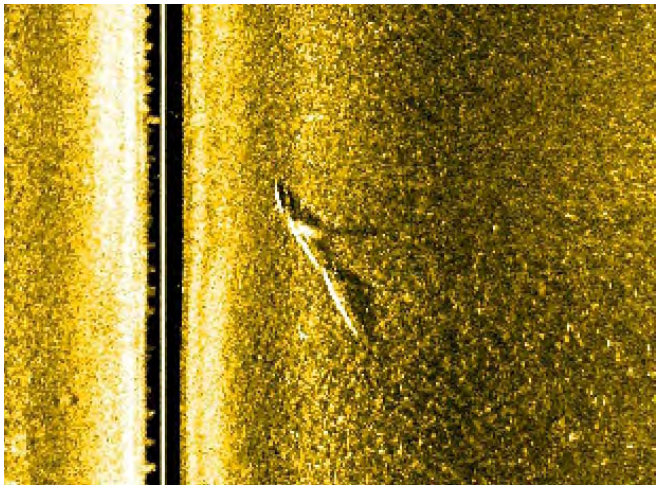
C-52	
C-53	
C-54	
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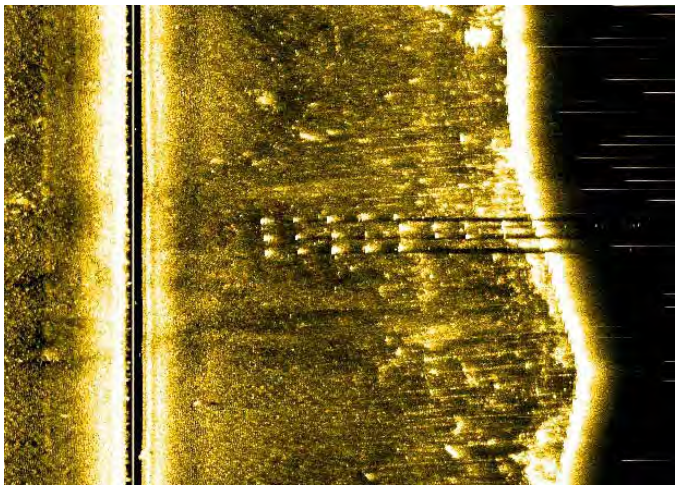
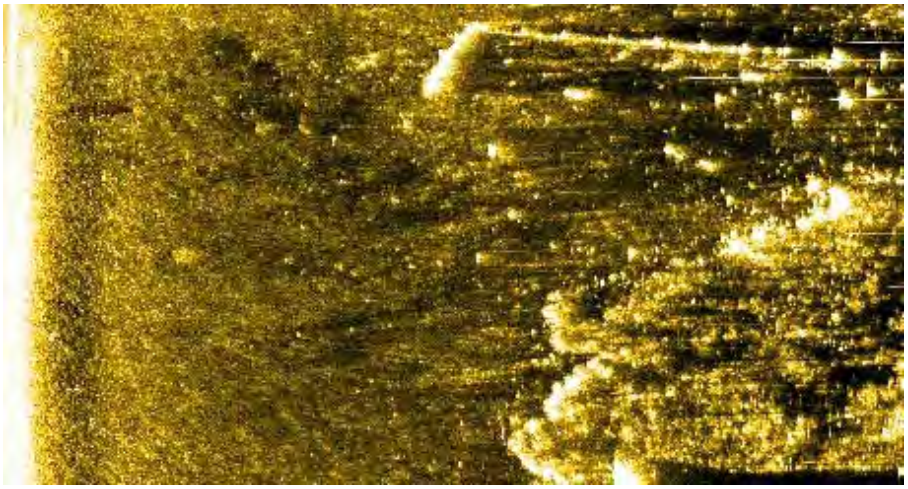
C-57	
C-58	

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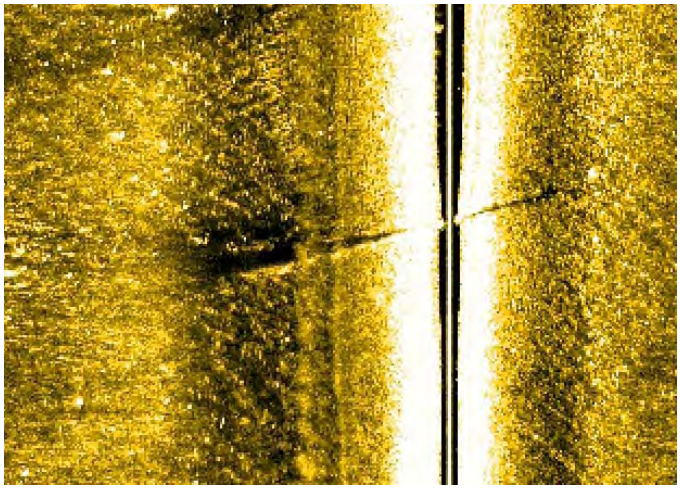
C-59	
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