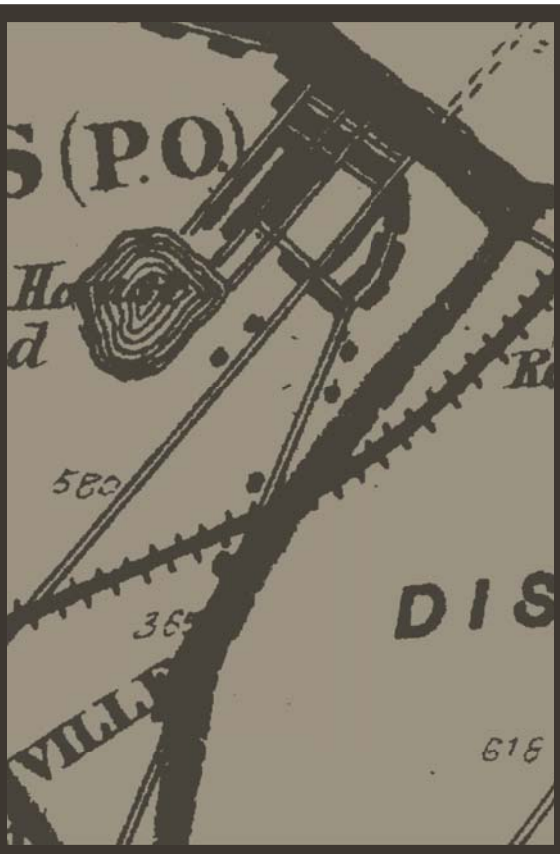

PHASE II ARCHEOLOGICAL EVALUATION OF THE SMITH FARM SITE (7S-D-097) ALONG THE PROPOSED EXTENSION OF THE JUNCTION AND BREAKWATER TRAIL LEWES, SUSSEX COUNTY, DELAWARE

prepared for
Delaware Department of Transportation
Dover, Delaware

by
John Milner Associates, Inc.
West Chester, Pennsylvania

DRAFT
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prepared for

Delaware Department of Transportation
800 Bay Road
Dover, Delaware 19903

by

Timothy Mancl, RPA
Elisabeth LaVigne, RPA
Timothy C. Lloyd, Ph.D., RPA
Daniel R. Griffith
Leslie E. Branch-Raymer, RPA

John Milner Associates, Inc.
535 North Church Street
West Chester, Pennsylvania 19380

November 2013

ABSTRACT

This report presents the purpose, goals, methods, and results of a Phase II archeological evaluation of the Smith Farm Site (7S-D-097), which is located along the proposed Showwater Extension of the Junction and Breakwater Trail located in Lewes, Sussex County, Delaware (Figure 1). The investigation was undertaken for the Delaware Department of Transportation (DelDOT) under Section 106 of the National Historic Preservation Act, as amended. The construction of the new section of trail would connect the current trail head at Gills Neck Road to the Theodore C. Freeman Highway (Road 23), from which it would run northeast along the highway to Monroe Avenue. The purpose of the survey was to evaluate the significance of archeological remains within the portion of the site that is wooded, and that would be affected by the construction project. Funding for the project was provided the Department under Agreement #1536, Task Order 4.

Phase I archeological investigations resulted in the partial delineation of the Smith Farm Site (7S-D-097), preliminarily designated as a Woodland I prehistoric archeological site: Approximately 0.85 acres of the site is within the APE for the proposed Showwater Extension of the Junction and Breakwater Trail. It is located in a wooded area along Road 23 and to the southeast in the agricultural field, between Stations 228 and 237. As defined during the Phase I survey, the site lies between Phase I STUs 59 and 75 (Locus 1), and includes a prehistoric pit feature (Feature 1) identified in STU 50, which is near Station 224 (Locus 2).

Phase II Evaluation of the Smith Farm Site resulted in the recovery of 69 prehistoric artifacts, and the discovery of five features, three of which dated to the historic period, and two of which contained prehistoric artifacts. Analysis of ceramics and archeobotanical remains revealed poor preservation of cultural and botanical remains. Ceramic sherds were heavily degraded by natural, post-occupational site formation processes yet did result in reclassifying the site as belonging to the Woodland II period based on the presence of Townsend ceramics. Analysis did not preclude, however, the possibility of Woodland I period occupation. Analysis of archeobotanitcal remains did not contribute to an understanding of prehistoric occupation of the site. Nearly half the lithics recovered came from a secondary context (colluvial deposits). The remainder illustrated that primary tool production and tool maintenance occurred a the site.

JMA recommends that the portion of the Smith Farm Site within the wooded area of the APE for the Showwater Extension of the Junction and Breakwater Trail lacks significance; therefore, further consideration of archeological deposits in this area is not necessary. Phase II Evaluation of the site illustrated that the portion of the site within the wooded area lacked research potential, as the archeological remains were sparse and heavily degraded by natural, post-occupational processes. Nonetheless, the site taken in its entirety may have integrity and research potential. However, it was not investigated as part of the current evaluation, and therefore, its National Register of Historic Places eligibility remains unknown.

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1.0 INTRODUCTION

1.1 PURPOSE AND GOALS OF THE INVESTIGATION

This report presents the purpose, goals, methods, and results of a Phase II archeological evaluation of the Smith Farm Site (7S-D-097), which is located along the proposed Showwater Extension of the Junction and Breakwater Trail located in Lewes, Sussex County, Delaware (Figure 1). The investigation was undertaken for the Delaware Department of Transportation (DelDOT) under Section 106 of the National Historic Preservation Act, as amended. The construction of the new section of trail would connect the current trail head at Gills Neck Road to the Theodore C. Freeman Highway (Road 23), from which it would run northeast along the highway to Monroe Avenue. The purpose of the survey was to evaluate the significance of archeological remains within the portion of the site that is wooded, and that would be affected by the construction project. Funding for the project was provided the Department under Agreement #1536, Task Order 4.

1.2 DESCRIPTION OF THE SITE AND THE PROJECT AREA

Phase I archeological investigations resulted in the partial delineation of the Smith Farm Site, preliminarily designated as a Woodland I prehistoric archeological site. Approximately 0.85 acres of the Smith Farm site is within the APE. It is located in a wooded area along Road 23 and to the southeast in the agricultural field, between Stations 228 and 237. As defined during the Phase I survey, the site lies between Phase I STUs 59 and 75 (Locus 1), and includes a prehistoric pit feature identified in STU 50, which is near Station 224 (Locus 2). Phase I shovel testing suggested that an approximately 0.27-acre portion of the site (between STUs 73 and 75) may not have been previously disturbed by plowing. The Phase II evaluation was conducted within the apparently unplowed portion of the site roughly between STUs 73 and 75 (Figure 2).

1.3 BACKGROUND FOR THE PHASE II EVALUATION

In February of 2013, JMA (John Milner Associates, Inc.) conducted a Phase I archeological survey in conjunction with the proposed extension of the Junction and Breakwater Trail located in Lewes, Sussex County, Delaware. The purpose of the survey was to identify the presence or absence of archeological remains that would be affected by the construction project in compliance with Section 106 of the National Historic Preservation Act, as amended. Background research into the history of the properties intersected by the project area and a series of shovel test unit (STU) excavations along the centerline of the proposed trail were undertaken. A total of one hundred twenty-two (122) STUs were excavated within four distinct areas: the development berm, the agricultural field, the wooded area, and the highway ROW. A 1x1-m unit was also excavated to examine a possible prehistoric feature identified during shovel testing.

The STUs along the berm behind the Breakwater Development were mostly negative for cultural resources, and the artifacts recovered from the STUs excavated along the Freeman Highway ROW were found in disturbed contexts.

The majority of artifacts recovered were from the agricultural field and the wooded area associated with nearby farm complexes. Based on the sparseness and condition of the historic cultural material, the absence on historical maps of any structures other than outbuildings in the vicinity, the lack of any documented cultural features from surface or subsurface contexts, and the

degree of previous disturbance that has occurred in several areas along the trail APE, JMA concluded that the historical artifacts recovered across the project area do not represent a potentially significant historic archeological site. Accordingly, no further archeological consideration for the historic cultural resources within the project area was recommended.

Prehistoric artifacts including possible Coulbourne Ware, unidentified prehistoric ceramics, and lithic debitage were recovered from STUs within the wooded area and the northern section of the agricultural field. A prehistoric pipe bowl and several unidentified prehistoric wares were recovered from a possible "D" shaped pit feature which was isolated from the rest of the prehistoric site to the northwest. Within the agricultural field, prehistoric artifacts came from the Ap Horizon. Within the wooded area, prehistoric artifacts were recovered from buried intact surfaces and from colluvial deposits.

Based on the on the 29 STUs that were positive for prehistoric artifacts along the northwestern edge of the agricultural field and within the wooded area, JMA defined a tentative site boundary for the Smith Farm Site, which included the isolated feature. The boundary was drawn with the knowledge that it had not been fully delineated due to the APE boundary that constrained the field testing. The site was preliminarily assigned to the Woodland I period based on the recovery of possible Coulbourne Ware. While Delaware has a high concentration of known Woodland I sites, JMA recommended either avoidance of the wooded area or a Phase II survey in order to better delineate the extent and significance of the site for the portion in the unplowed, undisturbed surface within the wooded area

2.0 ENVIRONMENTAL AND CULTURAL CONTEXT

2.1 ENVIRONMENTAL SETTING

The project area lies in the Coastal Plain physiographic province, a relatively flat expanse of Pleistocene/Holocene-age terraces dissected by small rivers (Jordan 1964). The province is underlain by a sand sheet of Quaternary-aged (1.65 million years to present) sediments overlying earlier marine deposits of greater thickness. The Quaternary-aged Columbia formation was deposited by the ancestral Delaware River probably as discharge from continental glaciations sometime in the past (Jordan 1964). The surface of the Columbia formation was modified by at least one sea-level stand approximately 6 m (20 ft.) above the present level circa 125,000 years ago (Toscano and York 1992:321, 325). Streams were incised into the surficial deposits during earlier and subsequent times of lowered sea level. Extensive marshes have developed behind barrier beaches oriented toward Delaware Bay and the Atlantic Ocean as sea level has risen to its present position following the most recent continental glaciation (Kraft et al. 1976; Fletcher et al. 1990; Knebel et al. 1988).

The project area is nearly flat, with an elevation of about 13 feet (4 m) above sea level on a broad plain that rises moving southeast from the Theodore C. Freeman Highway to Gills Neck Road. The regional slope is generally to the east and south. Local waterways are incised into the landscape and graded to lowered sea levels. Stream banks can be relatively high and steep. Higher ground is slightly, almost imperceptibly rolling. Surficial sediments in the region are derived from Pleistocene shallow marine environments including sandy shoals and spits, back barrier environments, and beach ridges (Colquhoun et al. 1991:635–636).

Waterways located near the project area include Broadkill River, the Lewes and Rehoboth Canal (historically Lewes Creek), Ditch Creek, Old Mill Creek, Canary Creek, and Wolfe Glade (historically Wolfe Creek). Broadkill River historically (into at least the first quarter of the twentieth century) flowed directly into Delaware Bay a considerable distance northwest of the project area, while Lewes Creek, roughly paralleling the edge of Delaware Bay and flowing northwestward, emptied into Broadkill River near its mouth. The entire length of Lewes Creek between Broadkill River and Rehoboth was channelized as the Lewes & Rehoboth Canal in the early twentieth century, authorized by the U. S. River and Harbor Act of 1912 and constructed by the U. S. Army Corps of Engineers, which completed work in 1927 (Burris 2008). The natural mouth of Broadkill River was intentionally cut off from the bay and rerouted into Lewes Creek as the extended Broadkill River during the same period. The Lewes & Rehoboth Canal is still known as such east of Roosevelt Inlet, with the channel west of the inlet identified as Broadkill River on the current USGS topographic quadrangle. Ditch Creek, which currently originates in the Great Marsh to the west and flows westward, empties into Old Mill Creek farther west; historical maps indicate that this stream also entered Broadkill River on its eastern end. Canary Creek (formerly called Pagan Creek) is about 6.4 km (4 mi.) in length, draining approximately one-quarter of the Great Marsh, and now empties into Delaware Bay via Roosevelt Inlet (Elliott 1972:42–43). Wolfe Glade drains an area to the southeast of the project area and flows into the Lewes & Rehoboth Canal.

Other bodies of water of note in the area are Block House Pond, White's Pond, Bookhammer's Pond, as well as the Atlantic Ocean. Block House Pond and White's Pond are both named on the 1944 USGS topographic map, but are depicted on the earliest available detailed map from 1848 (USCS). Block House Pond is located to the northwest of the project area, close to historic downtown Lewes. White's Pond is located just to the northeast of the project area, on the other side of Monroe Ave. Early maps depict this as a marshy area with a small central pond, but it appears today to have been mechanically expanded and the area is no longer marshy. Bookhammer's Pond, to the southeast, was created when the railroad was built in 1878 (Hancock 2976: 84), showing up on the 1901 Coastal Survey Map (USC&GS). The Atlantic Ocean is presently located

a little over a mile to the north from the project area. Much of the prosperity of the region historically is due to proximity with the Atlantic through trade, shipping, and fishing, as well as more recently through an expansion of the tourism industry. Determining the shoreline for prehistoric cultures is more complicated, as this shoreline is now underwater. Utilizing a recently updated Holocene sea-level curve for the Delaware coast (Nikitina et al. 2000), we can determine how much lower sea-level was in relation to the current mean seal-level (MSL). In 2,000 BP, sea level in Delaware was 2-4 meters lower than the MSL. This translates to roughly 1.5-2.5 miles from our project area. The earlier Archaic and Paleoindian shorelines were much lower, and thus many of these sites are now underwater.

The majority of the soil that comprises the northwestern part of the agricultural field is Greenwich loam with a 0-2 percent slope (GrA). The area within the wooded area is also a Greenwich loam, but with a 2-5 percent slope (GrB). Greenwich loam is part of the Greenwich Series that is also found across a small portion of the Northern Atlantic Coastal Plain, formed on a parent material of loamy Eolian and alluvial deposits high in silt underlain by loamy and sandy alluvial sediments. This soil type is very deep, well drained, and ideal for agricultural us; however, large areas of this soil type have been developed for urban and residential use. This soil type is classified taxonomically also as a Typic Hapludult, denoting a moderately deep, well drained soil profile that contains an argillic (Bt) horizon. A typical soil profile has AP-Bt1-Bt2-2Bt3-2Bt4-2CB-2C1-2C2-2C3 (NRCS 2006) i.e. a surface plowzone over one or more argillic subhorizons that may include a discontinuity caused by a soil development into two different parent materials. The CB horizon is a transitional horizon containing characteristics of both the subsoil and the parent material which may be a series of different sediment types that shift from loamy Eolian and alluvial deposits into sandy alluvial sediments.

2.2 PREHISTORIC CONTEXT

The following brief, general discussion provides an outline of the prehistoric cultural record of the lower Delmarva Peninsula as it is currently understood (e.g., Custer 1984a, 1986a, 1987, 1989; Custer et al. 1983; Thomas et al. 1975). The prehistoric archeological record of the Delmarva Peninsula can be divided into five major periods:

- Paleoindian period (ca. 14,000–8500 years BP);
- Archaic period (8500–5000 years BP);
- Woodland I period (5000–1000 years BP);
- Woodland II period (1000–400 years BP), and;
- Contact period (ca. AD 1600–present).

2.2.1 PALEOINDIAN PERIOD

Based on archeological data, Native Americans first inhabited Delaware sometime after 14,000 years BP (Custer 1989:81–86). It is thought that small family groups of Paleoindians lived a wandering existence, hunting animals that roamed a mosaic of subarctic-temperate woodland and grassland environments. Game animals may have included musk ox, caribou, moose, and the extinct mastodon; however, modern game animals, such as white-tailed deer, were also present in the region (Custer 1989:95–98). Extinct megafauna (mastodon, mammoth) and large northern mammals (e.g., moose, caribou) roamed the continental shelves at the time (Emory 1966; Emory and Edwards 1966; Edwards and Merrill 1977). The Paleoindian stone tool kit was designed chiefly for hunting and processing animals. Wild plant foods supplemented the diet. Distinctive "fluted" points, characteristic of the early Paleoindian period, show a preference for high-quality stone (Custer 1984b). Use of coastal resources during the Paleoindian period is not known primarily because sea-level rise has drowned the contemporaneous shore (Fletcher 1988; Kellogg 1988; Solecki 1961). Knowledge of the Paleoindian period is, therefore, limited and skewed to the interior of the North American continent.

On the eastern shore of Chesapeake Bay, several Paleoindian sites have been identified. The sites suggest a preference for interior drainage-divide locations near fresh water sources and wetlands (Lowery and Phillips 1994). A single-component Paleoindian site has yet to be discovered in Delaware.

2.2.2 ARCHAIC PERIOD

The beginning of the Archaic period in Delaware is marked by major changes in human adaptations (Custer 1989:122). By 9000 years BP, northern species of plants and animals had migrated out of the Mid-Atlantic region. Temperate plant and animal species were more common, and climatic patterns had become more like those of the present. Few Archaic sites have been excavated in Delaware, however, so what is known must be extrapolated from other areas (Custer 1989:127–129).

Subsistence activities became more generalized during the Archaic period, and people depended increasingly on edible wild plants, as well as animal food sources. Archaic tool kits were less specialized than the earlier Paleoindian tool kits and included plant-processing tools, such as grinding stones, mortars, and pestles. A seasonal, mobile lifestyle exploiting a wide range of resources and settings was probably common. Custer (1986b) found that Archaic-period sites occur in a wider variety of settings than Paleoindian-period sites. Archaic sites appear to have been occupied for longer periods of time, perhaps on a seasonal basis by flexible kinship-based groups (Custer 1989:129). Exchange of stone for tools tied people together across large areas of the eastern United States, enabling more-elaborate exchange networks later in time (Custer 1989:140).

Relatively recent excavations at two sites have added to our knowledge of Archaic occupations of peninsular Delaware. The Blueberry Hill site (7K-C-107), in Kent County near Dover, was occupied during the late Paleoindian and early in the Archaic period (Heite and Blume 1995). Evidence of site occupation was sealed and separated by sediments moved by winds during a period of drier climate. The site was situated on a low knoll overlooking a stream confluence and was infrequently occupied for short periods of time, probably as a hunting and gathering camp. The Two Guys site (7S-F-68) was probably first visited intermittently during Paleoindian times, but was not visited frequently until the early Archaic period. Evidence for mid-Archaic occupation of the site is sparse, but it was revisited more frequently during the later Archaic period (LeeDecker et al. 1996). The site is situated on a sandy ridge in an area of extensive, upland wetlands.

2.2.3 WOODLAND I PERIOD

The Woodland period in Delaware has been subdivided into the Woodland I (or Early Woodland) and the Woodland II (or Late Woodland) (Custer 1984a:28; 1989:33–38). The Woodland I period, ca. 5000 to 1000 years BP, is the first period that is well represented on the Delmarva Peninsula. The period is characterized by a certain degree of sedentism, increased population densities, and a greater degree of contact and exchange between native groups. Woodland I period occupations in Delaware focused on the mid-drainage zone, which in eastern Sussex County is now closer to the coast due to the sea-level transgression (Custer and Mellin 1987:66).

Several distinct cultural complexes can be distinguished within the Woodland I period based on artifact styles, site locations, and inferred behaviors (Custer 1987:33–43; 1989:141–297; 1994:18–45). In addition, stone, and later, ceramic containers were included in the repertoire of technologies in use. The Clyde Farm complex exhibits some continuity in stone artifacts with the late Archaic but includes soapstone (steatite) bowls, Marcey Creek–type ceramics, and experimental pottery wares. Heavy woodworking tools, such as axes, adzes, celts, and gouges, were also more common. Between 2500 and 2000 years BP there were two contemporaneous cultural complexes in Delaware: Wolfe Neck and Delmarva Adena (Custer 1987:249). The Wolfe Neck complex is characterized by grit-tempered, cord- and net-marked pottery. The Delmarva Adena, a local manifestation of the "Adena Interaction Sphere," is slightly younger than the Wolfe Neck Complex and is distinguished by mortuary ceremonialism, artifacts made of materials from outside the region (e.g., Ohio), and more-complex social systems (Custer et al. 1990; Thomas 1987; Thomas and Warren 1970). The

mechanisms by which the Adena Interaction Sphere spread its influence across the majority of the eastern United States is not clearly understood, but its impact on the Middle Atlantic is well represented at several burial sites (Custer 1989:258–275; Thomas 1970, 1976, 1987). Delmarva Adena peoples produced pottery that included crushed ceramic sherds or burned clay in the temper, although the timing of this association has been questioned (Hoffman 1997).

The Carey complex is identified by Mockley shell-tempered ceramics and stemmed Rossville-like stone points, among others (Custer 1987:276–289). The earliest date for shell-tempered pottery on the Delmarva Peninsula is approximately 1700 years BP (Custer 1989:276). Mortuary ceremonialism is not pronounced during the Carey complex (Custer 1989:277). Homogeneity in the Carey complex on the Delmarva Peninsula apparently broke down by ca. 1400 years BP, and regionally distinct cultures developed, especially in northern Delaware. In southern Delaware, the Carey complex continued and developed into the Woodland II Slaughter Creek complex (Custer 1989:289).

Although the subsistence/settlement systems for the Woodland I period are thought to be generally similar to those postulated for the Archaic period, there appears to be a greater degree of complexity due to changes in social organization. An additional factor is the development of modern coastal environments and greater diversity in environments. Numerous Woodland-period sites have been investigated in the region, as discussed below.

The Wolfe Neck site (7S-D-10), also known as the Moore Shell Midden site (Weslager 1939), is a stratified, multicomponent Woodland I site that provided data on which the prehistoric ceramic typology for the region was refined (Griffith and Artusy 1977). The lower levels of the site are representative of the Wolfe Neck complex. Coulbourn clay-tempered ceramics were found in overlying deposits, while shell-tempered Mockley ceramics were found in the uppermost strata of the shell midden (Griffith and Artusy 1977). Coulbourn ceramics have been associated with the Delmarva Adena complex (Custer 1989:173), but new radiocarbon dates from another archeological site on Wolfe Neck (7S-D-61A) may require reevaluation of this association (Hoffman 1997:III-4–III-7). Mockley ceramics are considered a technological precursor of the Woodland II Townsend ceramic series (Custer 1989:173–174).

The Wilgus site (7S-K-21), on Cedar Neck, is a "micro-band base camp" occupied by Delmarva Adena and Carey people. The Adena occupation is represented by an Adena-type bifacial stone tool and debitage of Ohio Flint Ridge chalcedony, a gorget, and Coulbourn ceramics. Artifacts were recovered from the plowzone in the living area of the site on a low knoll. Just off the knoll on the slope was a series of Delmarva Adena middens, each approximately 8 m in diameter, in some cases buried by slopewash and unplowed. Some of the middens contained oyster shell and clam shell, while others were identified as a dark rich soil with artifacts. Food remains represented in the middens included freshwater fish, deer, snake, turtles, and birds. Seasonality indicators suggest fall, winter, and early spring occupation of the site. Numerous *Amaranth* and *Chenopodium* seeds were recovered by flotation (Artusy 1976, 1978; Custer 1989:256–257). A new ceramic type identified at, and named for, the Wilgus site is tempered with both shell and clay. Wilgus ware fills a gap in the ceramic sequence between clay-tempered Coulbourn wares and later shell-tempered Mockley wares, suggesting continuity in regional occupation. Occupation of the Wilgus site by the Carey complex is indicated by Mockley ceramics (Custer 1989:278).

2.2.4 WOODLAND II PERIOD

The Woodland II period, ca. 1000 years BP to AD 1600, is characterized by increasing sedentism (Custer and Mellin 1987) and a breakdown of the exchange systems that existed in Woodland I times. The reasons are not well understood, but it has been suggested that population pressures may have played some role (Custer 1989:300). Although sedentism is often associated with the introduction of agriculture, which provides a steady and reliable subsistence base, there is only meager evidence suggesting that agriculture provided a

significant portion of the diet for people living in southern Delaware. However, previous investigations in the Sussex County coastal region have discovered the remains of probable cultivated plants (e.g., corn, amaranth seeds), and recent excavations at the Two Guys site in Sussex County recovered evidence of a cultivated variety of sumpweed (LeeDecker et al. 1996:136–138). In addition, and perhaps of more importance, marine resources were a primary source of food during the Woodland II period. The Woodland II period is relatively well known in southern Delaware because of extensive early work by the Sussex Society for Archeology and History (SSAH).

2.2.5 CONTACT PERIOD

The archeology of the Contact period, ca. AD 1600 to present, is very poorly understood because no clear-cut Contact-period sites have been identified and thoroughly investigated in Delaware (Custer 1989:340; Grumet 1990:193, 202, 204). Intermittent contact between Native Americans and Spanish and other explorers is poorly documented, but oral traditions imply contacts prior to attempts at colonization (Grumet 1990:192–193). Seventeenth-century and later historical documents contain many references to interactions between Native Americans and Europeans (e.g., Davidson 1982; de Valinger 1950; Mayre 1936a, 1936b, 1937, 1938, 1939, 1940).

The earliest European settlements on the eastern shore of Delaware were those of the Dutch, whose presence in Delaware Bay was well established by the middle of the seventeenth century (Grumet 1990:199–201). Fort Swanendael and a Dutch West Indies Company outpost near Lewes were established in 1631. The first settlement was destroyed and the buildings burned after a misunderstanding between the Dutch and the local inhabitants (Weslager 1969). A number of seventeenth-century European settlements were situated on, or very near, late Woodland II Slaughter Creek-complex sites in the Lewes/Rehoboth area. Early historic cultural material was also found in close association with Native American material, or in separate features, on several sites excavated by the SSAH (e.g., Bonine 1956:31). It is likely that European settlers moved onto the clearings associated with Native American sites. Weslager (1942) quotes Lindstrom in associating the name "Sironesack" (variously spelled, see below) with a large village at Lewes occupied by "natives rich in corn fields." The place is also referred to as "Chenonnessex," "Checonesseck," "Sikonesses," or "Sickpnesyns" (Weslager 1942, 1943a). Land was "purchased" from the Indians by the Dutch in 1629. The names of Quesquakous and Ensanques, inhabitants of "Sickonesyns," appear on a recording of the deed made in Manhattan the following year (Weslager 1949).

Native American society was shattered by European colonization. People were forced off their traditional lands and populations were decimated by disease (e.g., Grumet 1993:2). Migrations and political alliances between neighboring groups led to cultural amalgamations that make it difficult to reconstruct precontact cultural systems. Nonetheless, some Native Americans were able to maintain their identities and communities. In 1711, the Maryland assembly set aside 1000 acres for an Indian reservation in what is now southern Delaware; however, most of the land was apparently sold off in the 1740s (Mayre 1940; Porter 1979:327–329). Many Native Americans left the area at the time to join other groups to the north (Porter 1979:329–330, 1987:46–48). Those who remained in their homeland withdrew into the hinterlands and were able to survive in relative isolation (Porter 1979:331–334). The archeological record for this period is unknown in Delaware; however, the Burr/Haines site in Burlington County, New Jersey (Zebooker and Thomas 1993), may provide a model for the type of archeological site that may be representative of a protohistoric Native American occupation.

Racial tensions and segregationist law led to a classification of many Native Americans as "Negro" or "mulatto" (Porter 1987; Weslager 1943b). The matter was tested in court in 1855 when Levin Sockum, a storekeeper in Sussex County, sold shot to another "Moor." Lydia Clark, an 87-year-old woman who was purportedly the last fluent speaker of the Nanticoke language (Babcock 1899:280), testified that the "Moors" were descendants of an Irish woman and her African slave. Thus, Levin Sockum was considered a "mulatto"

and convicted of a crime (Porter 1979:340–341, 1987; Weslager 1943b). Racial tensions continued to affect Native American populations in Delaware. In 1875, the Delaware legislature passed a tax measure to support segregated schools (Porter 1979:39–342, 1987; Weslager 1943b). The Nanticoke were considered nonwhite and so were subject to the new law. The Nanticoke protested and resisted the tax, resulting in a new law, passed in 1881, recognizing the "Incorporated Body," which allowed the Nanticoke to establish their own schools. The 1881 law did not specify the cultural identity of the Incorporated Body, so the Nanticoke appealed to the Delaware Assembly for explicit recognition of their Native American heritage in 1903. Nonetheless, the assimilation of the Nanticoke into western society continued, and the Incorporated Body languished somewhat (Porter 1987:72–72).

Near the turn of the century, the relatively new discipline of anthropology recognized the existence of remnant Native American populations in the eastern United States (e.g., Babcock 1899). Frank Speck, an anthropologist at the University of Pennsylvania, began a long association with the Nanticoke in 1911 (Porter 1987; Weslager 1943b). With Speck's help the Nanticoke sought stronger legal status, and a charter incorporating the Nanticoke Indian Association was acquired. The Nanticoke continue the struggle to maintain their cultural identity (Clark 1987; Porter 1979, 1987:79–84). Other communities of Native American descent are also seeking recognition in Delaware. For example, many individuals of the "Moor" community in Kent County trace their ancestry to Native Americans (Babcock 1899; Heite and Blume 1999; Weslager 1943b). Despite the difficulties in recognizing Native American archeological sites after European colonization (Custer 1989:340–341; Porter 1979:333), there has been a continuous Native American presence in Delaware from prehistoric into historic and modern times.

2.3 REGIONAL HISTORICAL CONTEXT

Delaware's recent past, comprising approximately three centuries has been compartmentalized into five temporal study units, as defined by the *Delaware Comprehensive Historic Preservation Plan* (Ames et al. 1987), and these units form the basis for an appropriate chronological framework for the investigation of the state's historic resources:

- Exploration and Frontier Settlement (1630–1730)
- Intensified and Durable Occupation (1730–1770)
- Transformation from Colony to State (1770–1830)
- Industrialization and Capitalization (1830–1880)
- Urbanization and Suburbanization (1880–1940)

In an effort to coordinate the study of aboveground and archeological cultural resources, these temporal study units were adopted unaltered in the *Management Plan for Delaware's Historical Archeological Resources* (De Cunzo and Catts 1990:119).

The following regional historical summary is presented to provide a brief background on important local and regional historical events that shaped and affected the inhabitants of Sussex County. The historical periodization is obtained from the State Historical Plan (Ames et al. 1987; De Cunzo and Catts 1990; Herman and Siders 1986), and descriptions of regional historical events are based on the works of Munroe (1978, 1984), Hoffecker (1977), Hancock (1976), and Scharf (1888).

1630 to 1730: Exploration and Frontier Settlement

The first permanent settlement in the vicinity of Lewes was made in 1630 and was known as Swanendael ("valley of swans"). About a decade earlier the Dutch West India Company had established a trading post on the west side of Delaware Bay (then called Godins Bay after Samuel Godyn, a company supporter)

(Weslager 1969). The new colony of Swanendael was located near the Dutch West India trading station at Whorekil. It was sponsored by the patroons of the Dutch West India Company, under the direction of Samuel Godyn and Samuel Bloomaert. Swanendael was created for the purpose of whaling and raising grain and tobacco. This venture was privately financed, but it ended when the all-male population was wiped out in a massacre by the local Indians, the Sickoneysincks, in 1632. After the destruction of the settlement, the Dutch abandoned any attempts to settle the lower Delaware valley and focused instead on their holdings in New Amsterdam (modern New York) (Zebooker et al. 1996).

Farther north a group of Swedes in the employ of the New Sweden Company built Fort Christina in 1638 in what is now part of the City of Wilmington. Fort Christina thus became the first permanent European settlement in Delaware. The Swedish government supported the venture, and Fort Christina, located at the confluence of the Brandywine and Christina creeks, became the nucleus of a scattered settlement of Swedish and Finnish farmers and traders known as New Sweden (Weslager 1987).

The Dutch claimed the identical land—from the Schuylkill River south—by right of prior discovery, and in 1651 the West India Company retaliated by building Fort Casimir at the present site of New Castle, in an attempt to block Swedish efforts to control commerce on the Delaware River. The Swedes responded by capturing this fort in 1654 and renaming it Fort Trinity. Rivalry between the Swedes and the Dutch continued, and the Dutch returned to the Delaware Valley in 1655 with a large military force and recaptured Fort Trinity and also seized Fort Christina. As a result, New Sweden ceased to exist as a political entity due to a lack of support from the homeland. Nonetheless, Swedish and Finnish families continued to observe their own customs and religion.

In 1657, as a result of peaceful negotiations, the City of Amsterdam acquired Fort Casimir from the West India Company and founded the town in the environs of the fort called New Amstel. This was a unique situation in American colonial history—a European city became responsible for the governance of an American colony. The Dutch erected a small fort at Lewes, called the Whorekil (also spelled Hoerenkil, Horekill, Horekill, and Hoorekill), near the mouth of the Delaware Bay in 1659 for the purpose of blocking English incursions, particularly settlers from the Chesapeake Bay and Virginia, since Lord Baltimore considered the lands on the eastern shore of the Chesapeake Bay and extending to the western shore of the Delaware as part of his proprietorship. At the Whorekil (Lewes) several Dutch families built homes, including Dutch Mennonites under the leadership of Cornelius Plockhoy, who established a semisocialistic community there in July 1663. They too were under the supervision of local officials appointed by the burgomasters of Amsterdam.

English hegemony of the Delaware River and Bay area began in 1664, when Sir Robert Carr attacked the Dutch settlement at New Amstel on behalf of James Stuart, Duke of York, brother of Charles the II. This was an important move on the part of England to secure her economic position in the New World. The settlement at the Whorekil was also seized and pillaged by the English.

A transfer of political authority from the Dutch to the English then followed, and the Dutch settlers who swore allegiance to the English were allowed to retain their lands and personal properties with all the rights of Englishmen. Former Dutch magistrates continued in office under the Duke of York's authority, and the Swedes, Finns, and Dutch alike peacefully accepted the rule of the Duke of York through his appointed governors. In 1670 the first local court was established at the Whorekil by Governor Lovelace. By 1671 the population of the Whorekil consisted of 47 individuals, both Dutch and English (Gehring 1977:100). It was reported at that time that the Marylanders were unlawfully settling within the boundaries of the Duke of York's lands, specifically about 20 miles from the Whorekil in the vicinity of Assawoman Inlet. Indeed, in 1670 Lord Baltimore had created a new county, called Durham, which encompassed all of the lands currently occupied by much of the State of Delaware (Papenfuse and Coale 1982:11). Between 1670 and 1682, when William Penn became the proprietor of the lands from the

Whorekil to New Castle, Baltimore issued at least 45 warrants for lands on the west side of the Delaware Bay, along "Duke Creek" (probably Duck Creek), Slaughter Creek, Prime Hook, Indian River, and Whorekil Creek (Skirven 1930). In 1673, during the third Anglo-Dutch war, the Dutch recaptured New Netherlands, including New Amstel and the Whorekil. The Dutch retained possession of the region only briefly, returning the lands to the English in 1674 in exchange for the captured Dutch colony of Surinam. The short war had an effect on the settlers at the head of Delaware Bay, however, because in December 1673, the Maryland government sent an expeditionary force of 40 men to the Whorekil, which was burned and pillaged for a second time in less than a decade (deValinger 1950). Following the peace treaty, the English again regained control of the region.

In 1682, the granting of proprietary rights to William Penn and his representatives by the Duke of York essentially gave political and economic control of the Delaware region to Philadelphia, the new seat of government in Penn's colony of Pennsylvania (Munroe 1978). Two years earlier, in 1680, Governor Edmund Andros had established the County of Deale, which included the settlements at the Whorekil northward to Cedar Creek. The settlement of the Whorekil region, particularly around the town of Whorekil, and the area 10 miles south at Indian River and Assawoman Inlet, was encouraged by Governor Andros. Between 1676 and 1678, 47 land patents were issued by the Duke of York's government for lands in the area, all fronting on the coast or on navigable streams and rivers (Hancock 1976:17).

With Penn's arrival in 1682, the name of Deale County was again changed, this time to Sussex County, and the name of the town of Whorekil was changed to Lewes, the county seat of the English county of Sussex. In 1682 the first surveyors of highways and bridges were appointed for the county. Sussex County at this time was heavily forested and swampy, and settlement in the county for much of this period was confined to an area within about 10 to 12 miles of the coastline, extending inland along a line running roughly from modern Milford-Milton-Harbeson-Millsboro-Dagsboro. Gristmills were established on Broadkiln Creek (Milton) by 1695 and on Bundick's Branch soon thereafter; an earlier gristmill had existed in Lewes by 1676. Lewes was the only town of any size in the county, and it became a political, maritime, and commercial center for the region.

Yards for shipbuilding were present in Lewes by the early 1680s (Hancock 1976:21). The population of Sussex County has been estimated to have been less than 1000 persons by 1700, and the majority of these inhabitants were farmers, raising crops of tobacco (the primary medium of exchange), corn, wheat, and rye. Hogs and cattle were also raised. The exporting of cattle, by driving them overland from Lewes to New Castle, appears from the records to have been a significant source of income for the settlers of Sussex (Munroe 1978:198).

Political relations between the Three Lower Counties and Pennsylvania deteriorated, and by 1704 representatives from Sussex County began to meet with legislators from New Castle and Kent Counties in a separate assembly at the town of New Castle, but the governor continued to be appointed by Pennsylvania. Economic and social ties, however, continued to link the Lower Counties with Philadelphia throughout the seventeenth and eighteenth centuries (Munroe 1954).

1730 to 1770: Intensified and Durable Occupation

Settlement in Sussex County by the start of this period had penetrated the interior portions of the region, reaching the area of the mid-peninsular divide (just to the west of present-day Georgetown). Patents for land west of the headwaters of the Broadkiln and Indian rivers, and along Gravelly Branch and its tributaries, were being issued from the Pennsylvania government by the second decade of the eighteenth century (Scharf 1888:1237, 1293). According to one contemporary observer:

> The Inhabitants here live scattering generally at 1/2 a mile or miles distance from each other, except in Lewes where 58 families are settled together. The business or Employment of the Country Planters, is almost the same with that of an English Farmer, they commonly raise Wheat, Rye, Indian Corn, and Tobacco, and have Store of Horses, Cows, and Hoggs. The produce they raise is commonly sent to Philadelphia ... The people here have generally the Reputation of being more Industrious than they of some of the Neighboring counties .... (Hancock 1962:139).

On the opposite side of the peninsula, in the area that would become Northwest Fork, Nanticoke, and Seaford hundreds, the Maryland government was issuing patents and warrants as early as the 1680s for lands on the Marshyhope Creek, Clear Brook Branch, and other tributaries of the northwest fork of the Nanticoke River. In 1682 John Nutter of Maryland took up the tract of land between Clear Brook Branch and Bridge Branch that would eventually contain the town of Bridgeville (Hancock 1987:13). Other prominent family names from the western part of Sussex County, such as Cannon, Polk, Richards, and Adams, appeared in the area during this period under Maryland land patents. Until the settling of the dispute over the boundary line between Maryland and Pennsylvania (including the Three Lower Counties) in 1765 by the establishment of the Mason-Dixon Line, the traditional western boundary between Sussex County and Worcester County was the Nanticoke River and its tributaries, particularly Tussocky Branch and Gravelly Branch. Those settlers on the west side of the Nanticoke resided in the Province of Maryland, and those on the east side lived in Sussex County. Needless to say, this rather arbitrary boundary caused considerable confusion and dissension among the "Border People" on the peninsula, and numerous annoying disturbances occurred along the borders of New Castle, Kent, and Sussex counties throughout the period.

For most of the eighteenth century, the land remained heavily wooded and overland passage was difficult. The limited extent and development of the road network in the county is shown on Benjamin Eastburn's map of the Lower Counties in 1737. Major roads included the King's Highway, officially established by an Act of the General Assembly in 1752, which ran northward from Lewes to Cedar Creek and St. Matthews Anglican Church (built in 1707), and from there to Dover and up country to Wilmington (Laws of the State of Delaware 1797:320, 390–394). From Lewes the main road ran south through St. Georges Chapel to Warwick and the ferry crossing on the Indian River, and from Lewes southeast down the Atlantic Coast toward the Inlet. At St. Georges Chapel (built in 1719), a side road extended down Angola Neck, a site of early settlement in the county (Munroe and Dann 1985). In the western part of the county, claimed at this time by Maryland, a major overland route ran from Choptank Bridge across Gravelly Branch in the vicinity of Coverdale Crossroads. The roads were described at the beginning of this period as "very commodious for travelling, the land being level and generally sandy, so that the people usually come to Church Winter and Summer some 7 or 8 miles, and others 12 or 14 miles...." (Hancock 1962:140).

The population of Sussex County grew slowly throughout this period. In 1728, the Reverend William Beckett reported that there were a total of 1750 inhabitants in the county, consisting of 1075 Anglicans, 600 Presbyterians, and 75 Quakers. Beckett also noted that there were 241 slaves and free blacks in the county. The presence of so many Presbyterians, Beckett said, was due to the great influx of at that time of Scotch-Irish settlers "of the most bigotted sort" (Hancock 1962:138). By the 1740s, it was estimated that the population of Sussex County was between 1800 and 2000 (Pennsylvania Archives 1891), and Hancock (1976:26) estimates that by 1775 there were nearly 14,000 inhabitants. The tremendous growth of the population between 1740 and 1775 may be attributable to the strong migration of settlers from the eastern shore of Maryland to Delaware lands, as well as to overseas immigration from Great Britain (Munroe 1978:150).

Throughout the period, farming continued to be the major occupation of the settlers in Sussex. The farms and plantations in Sussex have been generally characterized as subsistence farms, operated by poorer farmers and farm laborers, particularly when compared to the farms located in New Castle County (Main 1973:26–32). Tobacco declined from its position as the prominent cash crop in Kent and Sussex counties and was replaced somewhat by corn and wheat. The lumber industry, particularly the harvesting of vast stands of cedar and pine from the Indian River area, began to grow in importance during this period, and the shellfish industry was established in the bays of Sussex. Shipbuilding remained a significant industry, especially at Lewes, on the Broadkiln, and along Indian River.

An important industry that flourished in the county during this time period was the iron industry. Several iron furnaces and plantations were established along the Nanticoke, Gravelly Branch, and Deep Creek beginning in the 1760s (Tunnell 1954; Heite 1974). These furnaces used bog iron, dug from the surrounding swamps and wetlands, for their sources of ore. The Deep Creek Furnace was established in 1763, as was Nanticoke Forge, located at Middleford. Pine Grove Furnace was located at the present site of Concord, and the Unity Forge (blast furnace), owned by Joseph and Samuel Shankland, was located at the head of the Nanticoke River in Northwest Fork Hundred. Most of these furnaces were out of production by the beginning of the American Revolution.

Lewes continued to be the major town in the region, though there was some dissension in the 1760s among the inhabitants of the southern and western portions of the county to have the county seat moved to the Crossroads on the Broadkiln (present-day Milton). Several small hamlets began to spring up during this time period, mostly located at stream and river crossing points. Besides the Crossroads, also known as Clowes, these hamlets included Bridgebranch (later Bridgeville) in Northwest Fork Hundred, established in 1730 with the erection of a bridge over the creek of the same name; Warwick in Indian River Hundred, a ferry point erected before 1750 on the upper reaches of Indian River; and St. Johnstown in Nanticoke Hundred, the location of crossroads village and Presbyterian Church in the last quarter of the eighteenth century.

While Lewes continued to function as a center of shipbuilding, vessels began to be built in the Indian River region during this period. Several sloops of 10 and 20 tons and at least one schooner of 10 tons were registered in Philadelphia between 1742 and 1746, and at least one of these was built at Warwick Ferry. Owners were generally from Philadelphia, but the masters of the vessels were local (Anonymous 1900).

1770 to 1830: Transformation from Colony to State

By the start of this period, the century-long boundary dispute between Maryland and Pennsylvania had been decided, and the area west of the Nanticoke officially became part of Sussex County. The addition of such a substantial tract of land spurred the creation of five new hundreds in Sussex: Baltimore, Little Creek, Dagsborough, Nanticoke, and Broad Creek. These hundreds in “New Sussex” were joined with the five hundreds of “Old Sussex”: Lewes and Rehoboth, Indian River, Northwest Fork, Broadkill, and Cedar Creek (Hancock 1976:25). Sussex County thus became the largest of the Three Lower Counties, with a surface area of 938 square miles, nearly the size of both New Castle and Kent counties combined. By 1800 the population of the county was 19,358 inhabitants, with nearly 40 percent of the total located in the hundreds of Northwest Fork, Nanticoke, and Broadkill. Northwest Fork, Baltimore, and Dagsborough hundreds held the largest number of enslaved African Americans, with between 18 and 19 percent enslaved persons in their respective populations. Baltimore Hundred contained the fewest number of inhabitants in the county in 1800, with a total of 1395 persons, or approximately 27 persons per square mile. By 1830 the hundred’s population had growth slowly, reaching 2176.

At the start of this period, the American Revolution dominated the social and political scene in the county. Much of the effects of the war were limited to the coastal areas around Lewes, the Mispillion, Broadkill, and Indian rivers, where British blockades and shore raids disrupted trade and commerce. Inland, however, strong loyalist sentiments among the population prevailed, and in 1780 about 400 Tories took part in the Black Camp Rebellion. The headquarters of the rebellion was located in a swamp about six miles north of Georgetown and was quelled with the use of Kent County militia (Hancock 1976:43). Many of the participants in the rebellion were inhabitants of the poorer regions of the county, and complained about a lack of paper currency, and of destitution for their families. Economic grievances of this sort would continue after the Revolution, and throughout the period.

In 1791, the Sussex County legislature voted to move the county seat from Lewes to the new town of Georgetown, located near the center of the county. As a result of this move, improvements in the transportation network, particularly in the interior parts of the county, were undertaken. Near the project area, the overland transportation network focused on gristmills, sawmills, and milldams. One early millseat in the region was erected in 1785 across the head of Assawoman Creek (Conrad 1908:727). Mills and stores, such as at Selbyville, Frankford (Long's Store), Omar (Baltimore Mills), Roxanna, Hall's Store (Ocean View), and Tunnels Store (Johnson's Corner) provided nodal points for the surrounding population, and other services, such as taverns, shops, and stores, were erected in their vicinities. The milldams often provided the easiest means of crossing low, swampy ground and of crossing the millponds, thus becoming ready-made causeways across streams and creeks in the area. The settlement pattern in the area also focused on water transportation, and the Indian River Bay and Assawoman Bay and their tributaries provided access to markets in Maryland, the eastern shore of Virginia, and up the Delaware Bay and River.

Corn agriculture predominated throughout this period in Sussex County, and in the southern part of the county livestock raising contributed substantially to the economy (Macintyre 1986; Michel 1985; Garrison 1988). Homesteads in Sussex were generally characterized by a frame or log 1½-story house averaging less than 450 square feet of living space, a small orchard of apple and peach trees, and usually about four outbuildings, including a corn barn, smokehouse or meat house, and kitchen. Livestock on the farm might include a herd of hogs, cows, sheep, oxen, and an occasional horse. On most plantations, only 50 percent of the total acreage of the farm was under cultivation (Hancock 1987:24–25). "Out plantations" or "out fields'' might be located close by the farm, and were locations of tenant houses or well-used fields. A form of extensive subsistence farming coupled with home manufacturing dominated the economy of Sussex County during this period. Tench Coxe (1814:76), in his report on the manufactures of the United States for the year 1810, indicated that over 70 percent of the looms in the state of Delaware were located in Sussex County. Over 62 percent of the total value of flaxen goods, and over 75 percent of the wool produced in Delaware came from homes in Sussex County. Coxe also reported that the five iron forges in the state were located exclusively in Sussex and produced 215 tons of iron annually. Twenty distilleries in the county produced nearly half of the annual value of all of those establishments in the state. Other categories of manufacturing, such as gristmills, fulling mills, cotton and woolen factories, and snuff mills, were located predominantly in the industrial counties of Kent and New Castle. Although the demise of the iron furnaces of western Sussex County occurred at the start of this period, they were replaced by bloomery forges, which were smaller and more economical to maintain. The forge at Collins Mill Pond and the Unity Forge near Bridgeville are examples of these types of forges (Heite 1974).

1830-1880: Industrialization and Capitalization

The most significant event to occur within the county during this period was the arrival of the railroad. Prior to this time, the preferred method of long-distance travel out of the county had been by steamboat, since overland travel was generally hampered by poor roads. Constructed in the western portion of the

county, the Delaware Railroad reached the town of Seaford in 1856 and exited the state at Delmar by 1859 (Hancock 1976:63). The Delaware, Maryland and Virginia Railroad ran from Harrington to Milford, and from Milford south to Georgetown in 1869 (LeeDecker et al. 1989:32). A third line, the Junction and Breakwater Railroad, was constructed between 1859 and 1868, when it reached Lewes; a spur line eventually connected to Rehoboth in 1878 (Hancock 1976:89). The Queen Anne's Railroad, which ran between the Chesapeake and Delaware bays, was famous in the late 1890s for its excursions to Lewes but was abandoned in 1924 (Eckman 1955:407).

The arrival of the railroad in the county stimulated changes in agriculture and industry and the growth of new towns. The growing of perishable market crops, particularly fruits such as peaches, blackberries, and strawberries, became possible after the railroad. By the end of this period, Sussex County was the leading peach-producing area of Delaware, and most of this crop was shipped by rail or water to urban locations. The transportation of the fruit crops was made possible in turn by the establishment of canneries, like the Fruit Preserving Company and the Georgetown Packing Company, both constructed near the railroad depot in Georgetown by the mid-1870s (Scharf 1888:1241). Other towns, such as Milton and Bridgeville, also constructed packing companies at this time (Hancock 1976:88).

Town and village development was also spurred by the railroad, and depot towns of Lincoln, Ellendale, Selbyville, and Frankford grew and prospered as a direct result of the passage of the railroad. Smaller crossroads hamlets, such as Harbeson (started in l869) and Bennum, sprang up at the railroad stations on the Junction and Breakwater Railroad between Georgetown and Lewes (Eckman 1955:494). Overall, however, the arrival or construction of the railroad had a more immediate effect on the communication and economy of the interior portion of the county. During this period, the eastern part of the county, by the bay and ocean, was still dominated by waterborne trade, passenger service, and communication.

The arrival of the railroad allowed the tourism industry to grow in the county during this time period. Beaches and coastal areas had always held a special allure to the region's inhabitants, and with the improved transportation methods these areas became more accessible to the urban populations of Philadelphia and Baltimore, who no longer had to rely solely on the steamboat to travel to Lewes. The Rehoboth Beach Camp Meeting was organized by the Methodists in 1873, and the Hotel Henlopen, with 75 rooms, was constructed in 1879 (Hancock 1976:90).

At the outbreak of the Civil War, Sussex County was the largest slaveholding area in Delaware, containing over half of the state's slave population. The vast majority of these bondsmen were the property of small farmers and worked as domestic servants or field laborers. Free blacks in the county generally owned little land, and like their enslaved counterparts, worked as day laborers and hired farm hands, though some were skilled artisans. As in the rest of Delaware, blacks were denied the opportunity of education, were not permitted to own firearms, and had their freedom severely circumscribed by laws (Hancock 1976:65). The end of the Civil War and the emancipation of the slaves in Sussex, though providing freedom, did little to improve their social or economic status. Several small, black communities sprang up at the end of this period, notably the villages of Belltown (started in the 1840s) and Jimtown in Lewes and Rehoboth Hundred (Eckman 1955:494).

During the Civil War, Southern sympathies and leanings were strong in the county, particularly in the southern and western hundreds. In Broad Creek Hundred the inhabitants openly celebrated Confederate victories, and the town of Seaford was notorious for its role as an illicit trade center with the south. For the most part, however, the population of the county was pro-Union, or at best neutral, and Sussex's economy did well during the war due to high grain prices and renewed construction activities at the local shipyards (Hancock 1976:89).

As in the previous historical periods described above, corn agriculture continued to dominate in Sussex County. The corn that was raised was used to feed livestock, and the small livestock herds of Sussex County were the chief source of agricultural income for the area's farmers. Home manufactures also continued to be a major source of income in Sussex. Long after New Castle or Kent County farmers ceased any home manufactures, between 50 and 85 percent of the Sussex County farmers reported it as a source of income in the 1849 Census Schedule. The majority of Sussex inhabitants have been characterized as self reliant, and often in addition to farming used smithing, carpentry, fishing, milling, tanning, hunting, and trapping as supplements to their incomes (Michel 1985:10–12; Garrison 1988).

Industrialization in the county still lagged behind that seen in New Castle and Kent counties. By 1860 there were a total of 141 manufacturers of all kinds located in the county, including 37 gristmills, 56 lumber mills, 15 blacksmith shops, and 6 shipyards in Sussex, with smaller numbers of boot and shoe manufacturers, leather works, agricultural implement shops, fisheries, and wagon and carriage shops (U.S. Census of Manufactures 1865:54). The majority of these industries were oriented toward intracounty services, though shipbuilding touched all areas of the Delaware and Chesapeake bays, with ships constructed at Seaford and Laurel as well as at Milton and Lewes, and the lumber industry was nationally known. By the end of this period shipbuilding in villages such as Milton had reached its peak (Eckman 1955:416), and the number of flourmills and gristmills, though still important in the county, had declined to 26 (Passmore et al. 1978:24).

1880 to 1980: Urbanization and Suburbanization

Trends in agriculture begun in the preceding periods continued, and Sussex County remains today the most important agricultural section of the state. At the start of this period, corn was still dominant as a cash crop, the county producing over 1,676,000 bushels in 1900. In turn-of-the-century Lewes & Rehoboth Hundred, a defining characteristic of the region was the large number of highly productive, small farms operated in many cases by people with economic and cultural connections to both the land and the sea (Conrad 1908:728). One author suggested that many of the inhabitants of the hundred were former mariners who had retired to farming life, "where their later days are spent in ease and quiet," foreshadowing the present-day trend of retirees taking up residence along the Delaware seashore (Conrad 1908:728). A nineteenth-century example of this was Captain George Hickman, who owned the tract of land containing the project area.

Today corn and soybeans, both used for feed in the broiler industry, are primary products of the county, and Sussex is characterized by a "broiler-corn-soybean complex." Several large-scale agribusinesses, such as the Newtons and Cannons of Bridgeville and the Townsends of eastern Sussex, dominate the agricultural economy of the county (Munroe 1984:233; Hancock 1976: 100–l0l). The trends in truck farming and market gardening, started in the 1870s, saw their zenith by 1890, when Sussex became the peach-producing center of the state. By 1900 over seven million quarts of strawberries were grown in the county, making Sussex the leading producer in the nation (Hancock 1976:89). By the early 1960s, however, the orchard crops had been supplanted by other more-lucrative agricultural products.

The holly wreath industry flourished in Sussex from the 1880s until the 1960s, and many farmers supplemented their incomes during the months of November and December in the holly business. It was an especially significant industry during the Depression, and in 1936 over two million wreaths were shipped from the towns of Bridgeville, Milton, Millsboro, and Selbyville. The industry declined quickly after the Second World War (Eckman 1955:385; Hancock 1976:102).

At the start of the twentieth century, the lumber industry was a significant source of income for Sussex County. In 1909 a record amount of timber, over 55 million cubic feet, was shipped from the county. Most of this was virgin Sussex pine that had grown following the initial cuttings caused by the arrival of

the railroad several generations earlier. Along with lumbering, charcoal production was an important related industry of the county; some charcoal was still being produced in the Redden area as late as the 1950s (Passmore et al. 1978:13,14).

The county also experimented with new agricultural methods, most notably in the chicken industry (broilers, or chickens weighing under three pounds). In 1923, Cecile A. [Long] Steele, the wife of farmer David Wilmer Steele, raised chickens for profit in Ocean View, south of the project area. These were sold to urban markets for broiling, frying, and roasting. She was extremely successful, and the poultry industry grew rapidly; the number of broilers raised in Delaware grew from 7 million in 1934 to 54 million in 1942, or over one-quarter of the entire commercial broiler production in the country (Munroe 1984:214–215). By 1944, 60 million broilers were being raised annually, mostly in the southeastern portion of the county in the vicinity of Millville, Millsboro, Ocean View, and Selbyville. Irwin E. Steele, the son of David and Cecile, inherited the family poultry business after the untimely death of his parents in 1940. Seven years later, Irwin Steele was producing 250,000 fryers on seven farms in the Millville area and was described as "one of the most extensive poultry producers in Delaware"(Reed 1947:318–319).

By 1969, Sussex farmers were deriving an income of over 80 million dollars per year from this source and its associated agricultural jobs of soybean and feed production (Hancock 1976:99–101). "Thanks to broilers, Sussex became one of the richest agricultural counties the eastern United States" (Munroe 1984:216).

In 1939, less than 40 percent of the land in Sussex County was farmed. The acreage of land in farms had declined by nearly one-quarter since 1880, and the number of farms in the county had decreased by 15.3 percent between 1910 and 1940. Both of these trends were largely the result of changing economic conditions and the difficulties in farming marginal lands (Bausman 1941:4, 7). At that time, one of the major problems confronting Sussex farmers was drainage, which today has been largely solved through the construction of a vast network of drainage ditches and channelized streams. The growth of corn and soybeans as cash crops in the county has allowed the reclamation of over 35,000 acres of land from swamp and brush to tillable acreage in the last 40 years (Hancock 1976:100).

Grain farming in the late 1930s was spread fairly evenly across the county, with slightly heavy concentrations of farms in Northwest Fork Hundred and in the southeastern portion of the county. Cannery crops, such as lima beans, tomatoes, and string beans, were grown mostly in Broadkill, Cedar Creek, and Lewes and Rehoboth hundreds, while truck crops and fruit crops were mostly produced in the fertile western hundreds. Timber lands, brushlands, and open untillable lands were the dominant landform in 1941 and covered large portions of the central part of Sussex (Bausman 1941:16–21). Significantly, the farmers of Sussex were characterized in 1941 as being more closely tied to the land than the farmers of New Castle or Kent counties. There were few foreign-born inhabitants in Sussex, and the vast majority were native Delawareans; "in fact, most of the farmers of Sussex County were born and reared in Sussex County" (Bausman 1941:61).

Internal transportation and interregional routes continued to develop and connect Sussex more fully with the Mid-Atlantic region. By 1910, the Maryland, Delaware, and Virginia Railroad extended from Lewes to Love Point, a ferry landing on the Chesapeake Bay, providing easier access for the people of the western shore of Maryland to the Delaware beaches. Prior to 1917, Sussex had less than 35 miles of macadam roads in the county, but in that year the first 20 miles of Coleman DuPont's revolutionary concrete highway was completed, connecting Selbyville with Georgetown. By 1924, the DuPont highway (present-day Route 113) ran the length of the state (Rae 1975; LeeDecker et al. 1992). By the early 1960s, several state-maintained highways (Route 13, Route 1) made travel both into and out of the county easier. The improvements in regional transportation in turn stimulated continued tourism growth

along the beaches, as witnessed by the establishment of Dewey Beach in 1898 and Bethany a few miles south in 1901 (Hancock 1976:90). Currently, tourism remains a powerful economic force in the county, dominating the eastern portions of Sussex for much of any given year.

Industry in Sussex is represented by the presence of a major DuPont nylon plant in Seaford (built in 1939) and other facilities such as Nanticoke Homes of Greenwood and Vlasic Foods at Millsboro (Munroe 1984:189; Hancock 1976:103). By the mid-1970s, there were over 100 firms in Sussex, employing over 12,000 people, and seven of these, including five food-processing plants, one chemical company, and an instrument manufacturer, employ over 250 persons each (Hancock 1976:103).

The population of Sussex at the start of this period was over 36,000, making it larger than Kent County but smaller than the City of Wilmington and New Castle County. Throughout this period, the population of the county has grown steadily, spurred by the growth of the broiler industry, the reclamation of land, and the arrival of light industry to the area. As of 1980, over 98,000 people made their homes in the county (Munroe 1984:269), and this total swells tremendously during the summer season. In spite of this growth, Sussex is still overwhelmingly rural and agricultural, though intensive suburban and resort development in the last decade are dramatically altering the landscape of the eastern part of the county.

2.4 ARCHEOLOGICAL SITES WITHIN ONE MILE OF THE PROJECT AREA

Twenty archeological sites have been previously identified within a 1-mile radius of the project area (Table 1). Of those sites, only a handful of the CRS forms contained information regarding recovered artifacts and identified features. The Townsend #2 (7S-D-1; CRS# S-532) site is described as consisting of 4 small refuse pits; this is not related to the better known Townsend #1 site (7S-G-2; CRS# S-262). The Townsend #1 CRS form contained no information. The Miller-Toms site (7S-D-4; CRS# S–537) contained at least 18 pits, of which 13 shell pits were archeologically excavated, one extended and two flexed burials, Mockley ceramics, and bone tools. The Lewes School House site (7S-D-5; CRS# S-539) consisted of a series of shell pits and one burial. The Railway site (7S-D-12; CRS# S-540) contained several burials, but the age was not noted on the form. The Fort Pump site (7S-D-23; CRS# S-542) contained at least one projectile point, but its typology was not identified. 7S-D-37, Area A and B (CRS# S-724) was characterized as both historic (nineteenth and twentieth century artifacts) and prehistoric (jasper flakes and one serrated biface tip). 7S-D-67, Locus 1 (CRS# S-1051) was a nineteenth to twentieth century historic site. 7S-D-49 (CRS# S-7863) was characterized as possibly Woodland I or II, based on recovered Mockley and Townsend ceramics. 7S-D-50 (CRS# S-7864) and 7S-D-51 (CRS# S-7865) were both unnamed, but classified as Woodland Period; widespread clam shell debris was noted for both. 7S-D-52 (CRS# S-7866) was also unnamed, but designated as a possible brick clamp. Four test units were excavated in a "general flake and shell scatter." The Lewes Boatyard (7S-D-08; CRS# S-10013) is an abandoned boat building yard with visible building foundations that date to between 1940 and 1960.

Significant prehistoric sites for which we have information within this list are the Townsend site (7S-G-002; CRS# S-262), the Miller-Toms site (7S-D-4; CRS# S–537), and the School House site (7S-D-005; CRS#-539), all of which are part of the Woodland II Period Slaughter Creek Complex, defined by the presence of Townsend ceramics, triangular projectile points, large macro-band base camps, and a high density of storage features (Custer 1984: 157; Custer 1989: 325). The Townsend site which is to the southeast of the project area was discovered in 1947 and excavated by the Sussex Archeological Association (Sussex Society of Archeology) in 1948. The endeavor included surface inspection, the excavation of over ninety pit features, and the excavation of a disturbed grave feature. A small percentage of the cultural material was lithic, while the bulk was prehistoric pottery, found in every excavated pit feature. With the exception of 162-grit- and/or clay-tempered sherds, all of the pottery (several thousand vessels, rims, and body sherds) were shell tempered and categorized into the Townsend Series. Artifacts

of tortoise shell, bone, and antler were also numerous at the Townsend site (Omewake and Stewart 1963). Custer classifies this site as a macro-band base camp or village, or a place of relatively long-term occupation areas for multiple family units (Custer 1984: 76; 1989: 320). The Lewes High School site and Miller-Toms site are classified as micro-band base camps, defined as relatively long-term occupation areas for individual or limited family units (Custer 1984: 76; 1989: 325). Several of the unnamed sites were also characterized as being Woodland Period. Based on this background research, the likelihood of encountering a Woodland I or II Period site was favorable.

Table 1. Summary of known archeological sites within a 1-mile radius of the project area.

CRS No.	Site No.	Site Name	Period	Comments
S00262	7S-G-002	Townsend #1	unknown	
S00532	7S-D-001	Townsend #2	unknown	4 small refuse pits
S00537	7S-D-004	Miller-Toms	Woodland II	Mockley/bone tools
S00538	7S-D-033	none	unknown	
S00539	7S-D-005	School House (Lewes)	Woodland	shell pits, burial
S00540	7S-D-012	Railway Site	unknown	burials
S00541	7S-D-032	none	unknown	
S00542	7S-D-023	Fort Pump Site	unknown	projectile point
S00565	7S-G-025	none	unknown	
S00720	7S-D-035	none	unknown	
S00721	7S-D-039	none	unknown	
S00723	7S-D-036	none	unknown	
S00724	7S-D-037	7S-D-37, Area A and B	prehistoric, 19th C	
S00725	7S-D-038	none	unknown	
S01051	7S-D-067	Locus 1, Area A, B, and C	19-20th C	
S07863	7S-D-049	none	Woodland I and II	Mockley & Townsend
S07864	7S-D-050	none	Woodland	
S07865	7S-D-051	none	Woodland	
S07866	7S-D-052	none	Historic	possible brick clamp
S10013	7S-D-087	Lewes Boatyard	20th C	boat building yard

2.5 PROJECT AREA HISTORIC BACKGROUND

The historic background of the properties affected by the proposed trail project was researched using historic maps and aerials available for the region back to the year 1848. Historic deeds and Orphan's Court maps were utilized to track the ownership of these parcels back to 1885. The majority of land through which the proposed trail runs today is composed of the 85.55-acre Tax Parcel 335-8.00-46, sold by Hazell M. Smith to Showfield LLC in 2008 (SCDB: 234). The southern part of the proposed trail runs along the northeastern part of the Breakwater residential development, which was part of Tax Parcel 335-8.00-43 prior to subdivision. It was quickly apparent during research that the majority of this land has been utilized only for agricultural purposes, with sections recently disturbed due to highway construction and housing development. The trail does run through one area that was historically utilized as a farm complex. This was the only known location where significant historic cultural resources might be encountered.

The project area is depicted on the United States Coastal Survey Map of 1848 as a series of agricultural fields, meadow, and woodland (Figure 3). Dwellings and other structures are not depicted as being within the project area. The only landscape feature within the fields is a road that leads across the agricultural fields in a southeasterly direction from Kings Highway. Similarly, no dwellings are depicted in the project area on the Lewes & Rehoboth map (Beers 1868), but neither is the road that is shown in 1848 (Figure 4). The proposed route of the Junction and Breakwater Railroad, built between 1859 and 1868, appears to cross through the project area on Beers' map. Later, more precise maps show that in fact the railway ran parallel to the northern portion of the project area.

As depicted on an 1885 Orphan's Court Plot of the lands of the late Joseph Lafetra (SCOC: 117), a portion of the tracts constituting Tax Parcel 335-8.00-46 were held by Lafetra, William P. Jones and Elihu Morris. The plot also clearly shows how the lines of the Junction and Breakwater Railroad and the Delaware, Maryland and Virginia Railroad line (D. M. & V. Railroad), later known as the Philadelphia, Baltimore, and Washington Railroad, and the Delmarva Division of the Pennsylvania Railroad, divided these once coherent tracts of land. As part of the sale ordered by the court, Morris purchased Lot 1 (16 acres), located on the southwest side of the D. M. & V. Railroad line. Lot 3 (3 acres), on which currently stands the house of Hazell M. Smith, was sold to Theodore Salmons (SCOC 1885: 178). It appears that the remainder of the tax parcel was held in 1881 by David Russel, his heirs selling the tract to Walton T. Virden in 1908 (SCDB 1908: 202, SCDB 1926: 205). However, the 1.31-acre wooded area at the northwest corner of the parcel might not have derived from the land held by Russel. The new property lines and new structures along the railway are depicted on the 1901 Coastal Survey map (USC&GS), but none of these structures are within the project area (Figure 5).

Aerial photographs and USGS topographic quadrangles from 1918 to the present (Figures 6-16) show agricultural structures and landscape features on the Showfield property, though most are not within the project area. At the point where the proposed trail crosses from the Breakwater subdivision into the field are two small sheds, which stand at this location today just to the north of the project area. Only one of these structures is depicted on the earliest USGS topographic maps (Figures 6, 8, 9, 11, and 13), but two structures are clearly visible on the 1954 aerial (Figure 10). Farther into the field, along a road leading to the northeast, a large barn once stood adjacent to the sheds (Figure 7). By 1954 a barn appears farther to the northeast, the older one having had been either moved, or removed and a new one built (Figure 10). It currently still stands at the same location.

Several structures appear on the 1944 USGS topographic map (Figure 8) that we are interpreting as being very large chicken houses. These are gone by 1954 (Figures 9 and 10), though a remnant "ghost" of the largest structure is still visible on the aerial running underneath what appears to be a circular feature with paths leading to it from the northwest, northeast, and southwest. This circle is located across the former

railroad tracks from the Smith house. The circle remains today as an overgrown double ring of sycamore trees, open on the side facing due east. The trees were planted as early as 1961 when the paths are abandoned and vegetation within the circle is visible on the aerial (Figure 11). Sometime after 1961 a dirt horseracing track was built to the southeast of the circle. The track was abandoned after 1992, yet is still visible on modern aerial photographs. The only agricultural structures that intersect directly with the project area are located at the northwest bend of the trail, appearing on the 1937 aerial (Figure 7). This farm complex is discussed further below in conjunction with the deed transfers for this tract.

In the 1940s, Norman B. Bayliss acquired Lot 1 and a 21-acre tract once held by Lafetra (SCDB 1942: 476, SCDB 1943: 92). Otis H. and Hazell M. Smith bought both parcels in 1952, transferring the land to the Fish Products Company, which it appears they owned, in 1953 (SCDB 1952: 98, SCDB 1953: 301). In 1972 the company was reformed as the Smith Meal Company, who within a year transferred the parcels to the Smith's (SCDB 1972: 862, SCDB 1973: 476).

In September of 1941, months before Bayliss bought Lot 1, the Millsboro Feed Company, established in 1922 to serve the growing poultry industry, transferred their 49.8 acres of land to the south of Bayliss's to the company owners, brothers Harry E. and John J. Williams and George F. Outten (SCDB 1941: 85). In the next year Harry gained sole ownership, selling the parcel to the Smiths in 1953 (SCDB 1953: 596). John entered politics, becoming a U.S. Senator from Delaware in 1946, and served for 24 years, retiring in 1970.

The portion of the tax parcel acquired by Virden in 1908 remained in the family until sold to the Smiths in 1980 by his daughter-in-law, the wife of Virden's son Gilbert (SCWB 1942: 297, SCLOA 1944, SCWB 1966: 5, SCDB 1980: 229).

The 1.31-acre wooded area is the remnant of a larger parcel that held the farm complex that is transected by the project area, shown on the 1937 aerial (Figure 7). In the 1930s it was owned by Letitia McKeurick Woodward and Clarence Gray and described as holding a 1½-story frame dwelling (SCDB 1934: 37). In 1944 the parcel and two other tracts were sold to Henlopen Poultry Inc. (later Henlopen Poultry Co.), owned by Edwin R. and John H. Powell, Joshua Turner, and Carol M. Berger (SCDB 1944a: 556, SCDB 1944b: 171). By 1954 the parcel held houses along Kings Highway, with two outbuildings at the rear of a wooded area, a larger outbuilding and a second smaller building closer to the field that was likely a shed (Figures 9 and 10). The large barn that stood to the north of these outbuildings is gone by this time. The remnant of the parcel with what appears to have been a shed is the only portion within the project area, the remainder to the northwest was bisected from the original parcel and covered by the Freeman Highway. Road papers for the highway dating to 1964 depict the larger outbuilding, labeled as “Barracks” (Figure 17). The shed does not appear on these plans, possibly already abandoned and fully razed with the highway construction. Hazell Smith bought this remnant to the southeast of the Highway from the descendants of Edwin R. Powell and Joshua E. Turner in 1997 (SCDB 1997: 256).

Tax Parcel 335-8.00-43 was fully in the hands of the J. G. Townsend Company from 1945 until a part was bought in for development of a subdivision in 2003 (SCDB: 143). Townsend had bought the parcel from heirs George, Sarah, and Howard Riggins, and Anna and Charles Torbert. No structures or cultural landscape elements were evident on the portion constituting the project area on any of the maps or aerial photographs consulted.

3.0 METHODS

3.1 RESEARCH DESIGN

The research design for the project was aimed at providing additional data on the prehistoric cultural context identified during the Phase I investigation and evaluating significance and integrity of archeological resources within the wooded portion of the Smith Farm Site affected by the proposed trail extension construction project. The focus was to characterize the site in relation to settlement patterns during the Woodland I period represented in the region based on previous investigations, syntheses of regional data, and management documents for the region. Comparative research on other sites in the local area and region provided the framework for a determination of eligibility and recommendations for further fieldwork and research, if any.

JMA's archeological research was conducted under the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (September 1983), as well as guidelines specific to the State of Delaware, including, but not limited to, *A Management Plan for Delaware's Prehistoric Cultural Resources* (Custer 1986a), *A Management Plan for the Prehistoric Archeological Resources of Delaware's Atlantic Coastal Region* (Custer 1987), the *Management Plan for Delaware's Historical Archeological Resources* (De Cunzo and Catts 1990), and the *Delaware Statewide Comprehensive Historic Preservation Plan* (Ames et al. 1987). Field investigations were conducted in accordance with SHPO guidelines (Delaware State Historic Preservation Office 1993, 1997).

3.2 BACKGROUND RESEARCH

Background research for the Proposed Extension of the Junction and Breakwater Trail Project included a literature review of relevant geological, ecological, archeological, and historical sources. Previous JMA reports and research of DHPO files and reports for various other projects in the region were utilized, as well as online resources, various archives, and road papers for the Freeman Highway provided by the Department. Environmental background and information on geology, soils, and waterways came from a variety of sources including, but not limited to digitized historic maps, online articles, published articles and books on file at the John Milner Associates, Inc. office in West Chester, the NRCS soils website, and the online USGS Historical Topographic Map Collection.

Regarding historical archeological research, the *Management Plan for Delaware's Historical Archeological Resources* (De Cunzo and Catts 1990) and the historical context developed for examining the archeology of agriculture and rural life in Sussex County (De Cunzo and Garcia 1992) provided the basis for areas of investigation and delineation of property types. Regional historical data was gleaned from JMA's extensive library and various archival sources. Project specific history included the gathering of information from historic maps, deed records, will records, and court documents. Map sources (both published and manuscript) for Sussex County are extremely limited. Historical maps examined for the project included 19th and 20th century Coastal Survey maps, the 1868 *Lewes & Rehoboth* Beers Map, early USGS topographic quadrangles (USGS 1918, 1944, 1954, 1968, 1972, 1984, and 1991), and historic Agricultural Stabilization & Conservation Service (AS&CS) aerials accessed from the Delaware DataMIL. Maps and aerials were precise enough to be brought into Geographic Information System (GIS) software and georeferenced to the correct position in order that the project area could be accurately placed on each map or aerial.

3.3 ARCHEOLOGICAL SURVEY

Phase II field survey consisted of excavation of ten (10) excavation units (EU). Nine EUs were placed on a grid established over the portion of the site in the wooded area using geographic information system (GIS) software in order to ensure accuracy and to make sure testing was carried out only within the limits of the project area. One EU was excavated adjacent to a unit to more fully expose a feature. Excavated soils were screened through one-quarter inch mesh screen, and any recovered artifacts were retained in bags marked with standard provenience information. Stratigraphy observed in the shovel test units was recorded on standardized forms with depth, soil texture, Munsell color, and posited depositional environment. Photographs were taken to document the setting of the study area and to illustrate the survey findings.

3.4 LABORATORY PROCEDURES AND ANALYSIS

Artifacts recovered in the course of the field investigations were cleaned and inventoried following curatorial guidelines and standards established by the Delaware State Historic Preservation Office. To the extent possible, the recovered artifacts were identified as to material, temporal or cultural/chronological association, style, and function Analysis sought patterns in the relative composition of the recovered artifact assemblages, particularly to the extent that such patterns may indicate the functional nature of the assemblages and/or the site formation processes associated with their deposition. The attributes are particularly relevant for the evaluation for the site's archeological and interpretative potential. All cultural material resulting from the project and the associated documentation will be submitted to the Delaware State Historic Preservation Office.

3.4.1 Lithic Analysis

JMA's cataloguing procedures for lithic artifacts included recording attributes, weights, and measurements of technological or functional groups. JMA's artifact inventory contains data for the following headings: Group, Class, Type, and Sub-Type. **Group** includes divisions of core, debitage, flake, biface, uniface, groundstone, use-modified tool, FCR, and other. These groups are based on technological interpretations. The **Class** category consists of raw material designations. **Type** contains reduction stage information. **Sub-Type** contains morphological designations. The latter includes functional interpretations, which will be aided with the use of macroscopic use-wear analysis, when applicable.

3.4.2 Prehistoric Ceramic Analysis

The first step in ceramic analysis, which was conducted by Daniel R. Griffith, was to examine all sherds to identify a comparable range of attributes. In other words, in order to determine ware types, the sherds must exhibit interior and exterior surfaces and be sufficiently large to identify tempering agents and/or paste characteristics. Sherds that were badly weathered, damaged or too small to determine these attributes were counted and weighed by context, the attributes recorded and then the sherds set aside. These sherds were list as "unidentifiable".

Ceramics are particularly suited to answering several basic questions about the American Indian people at the site during periods of ceramic use. Ceramic series are defined and the vessels or vessel groups described. Type definitions consist of those attributes that must be present for a sherd, vessel or vessel group inclusion in the series. The types are defined by nominal scale attributes such as surface treatment and temper. Priority is given to those attributes which regional research shows change more frequently through time and can be determined by visual inspection. Within a series, the analysis recorded a range of

attributes that describe variation and suggest alternate ways of defining a series and its types. Sherds that exhibited a comparable range of attributes were classified by surface treatment and temper. The results were matched against ceramic series defined in the regional literature and assigned to types.

For each sherd, the following attributes were recorded: 1) Catalog number (the number assigned to each context0; 2) EU or STU number; 3) Level within each EU or STU from which the sherd was recovered; 4) Vessel part (count – rim, near rim, body, base); 5) Metrics. For Metric, the following was recorded:

Weight (grams)

Thickness (mm). As many of the sherds were slightly irregular in thickness, three measurements were taken of each sherd and the thickness of the middle range measurement was recorded. Where one or both surfaces of the sherd are missing or damaged, the thickness measurement is unreliable and thickness is listed as "surface missing".

Temper. Temper identification was recorded using visual inspection and a 20X hand lens. Shell temper was identified by the thin, lenticular or flat voids in the paste, as in all cases the shell was leached out. Paste inclusions were noted

Paste. In some instances, paste inclusions are listed as "gritty", which is defined as very small, sub-angular to rounded grains of quartz and/or other mineral types. Paste inclusions were identified as secondary inclusions in the paste, which was either intentionally added to the clay or were included in the clay in its natural state.

Surface Treatment. Exterior – a description of the exterior surface of the vessel including cord twist where possible. Interior – a description of the interior surface of the vessel including cord twist where possible.

Decoration. The manner or technique in which a decoration was applied; if cord marked, cord twist was recorded where possible.

Decorative motif. The decorative motif was described using the convention of fields of decoration where the first decorative motif below the lip of the vessel is described, then each a change in motif moving down the vessel is described in turn.

Type Identification. Where a sherd exhibited clear exterior surface treatment and the temper was identified, a type identification was recorded. In most cases, the sherds were so weathered that surface treatment could not be identified with confidence and the sherds so small that temper may or may not be present, even if the parent vessel contained obvious temper.

3.4.3 Archeobotanical Analysis

The current archeobotanical investigation includes the identification and analysis of macrofloral remains from two flotation samples totaling 17 liters in volume of sediment from Feature 5 and the EU 11 subsoil control sample. The study was conducted by Ms. Leslie Branch-Raymer of Paleobot Consulting. The objectives of this subsistence study are: (1) to assess macroplant preservation at this site and (2) to make a preliminary assessment of prehistoric floral-based subsistence practices and plant use.

Prior to archeobotanical analysis, each sample was subjected to machine-assisted water separation in a 30-gallon Shell Mound Archeological Project (SMAP) type flotation machine by Paleobot Consulting

(Pearsall 1989; Watson 1976). This system is utilized because SMAP-style flotation systems consistently exhibit excellent retrieval rates (Pearsall 1989: 91-94). The heavy fraction trap was lined with 0.80-millimeter mesh.

In the laboratory, each flotation light fraction was first weighed, and then passed through nested geologic sieves (4.0 mm, 2.36 mm, 2.0 mm, 1.18 mm, 1.0 mm, 0.85 mm, 0.71 mm, 0.5 mm). The resulting sample fractions were fully sorted under a binocular microscope (10-25x). All charred plant remains that were greater than 2.0 mm were pulled from the sample matrices and quantified by material type, by weight, and by count. Light fraction material that was smaller than 2.0 mm was sorted, but only charred nutshell and/or seeds were removed. A sample of each flotation heavy fraction was also scanned to assess the success of the flotation process. Minute quantities of carbon were noted during the heavy fraction scans. The extremely low proportion of carbonized macrofloral remains in the heavy fractions indicated that the flotation process was successful.

Identifications were attempted on a subsample of randomly selected wood charcoal fragments from the Feature 5 flotation sample. Due to extremely small sample and specimen size, it was only possible to identify five specimens from the Feature 5 sample to genus; no wood charcoal identifications were attempted from the EU 11 light fraction. Whenever possible, wood specimens are identified to genus. Segments that are too fragmentary or poorly preserved to specifically identify are placed in the more general category of unidentifiable hardwood. Wood taxa are identified by comparison with charred and natural transverse, tangential, and radial thin sections of modern wood, as well as textbook illustrations. The transverse view is emphasized due to magnification limitations, size of the specimens, and time constraints. As needed, dichotomous keys are employed. Since these are geared toward fresh wood they are of limited use, but by employing both the microscopic and macroscopic keys, following multiple paths, and with frequent reference to the comparative collection, a genus can generally be determined.

4.0 RESULTS

4.1 PHASE II ARCHEOLOGICAL FIELD INVESTIGATIONS

As was found during the Phase I investigations, the soil stratigraphy within the wooded area varied between typical upland deposits, and colluvial deposits over a buried A-horizon. The distribution of EUs with the two types of deposits defined the path of a former drainage channel (Figure 18). One prehistoric pit feature (Feature 5) and three historic-period features (Features 4, 6, and 7) were located, as well as two non-cultural features (Features 2 and 3). All features were found within units with uplands soils.

4.1.1 Excavation Units within the Uplands

Excavation units with upland soils were EU 3, EU 6, EU 8, EU 9. EU 10, and EU 11. Of these, EU 3 was on the northern side of the former drainage channel, and the remainder were on the southern side. The A-horizon in each of the EUs, which consisted of a 20 centimeter-thick very dark brown to a dark brown (10YR2/2 to 10YR3/3) sandy silt, except in EU 3 where the horizon was 40 centimeters thick, contained demolition debris from the historic structure that stood in the vicinity during the twentieth century (Figure 19). The debris was especially heavy in EU 9 through EU 11 (Figure 20). The A-horizon was underlain by a yellowish brown to brown (10YR5/4 to 10YR4/3) silty sand E-horizon, which overlaid a yellowish brown to dark yellowish brown (10YR5/6 to 10YR4/6) silty sand or clayey silty sand B-horizon.

Two of the EUs had prehistoric artifacts in the A-horizon (Table 2). Five jasper flakes and a ceramic sherd were recovered from the A-horizon of EU 3, while a single jasper flake was recovered from that of EU 8. Recovered from the E-horizon where 8 Jasper flakes, 4 having cortex, a chalcedony flake, 2 blocky chert fragments, a blocky jasper fragment, one piece of fire-cracked rock, and 3 ceramic sherds (Table 3).

Table 2. Prehistoric Artifacts in the A-horizon

EU No.	Flake	Ceramic
3	1 Jasper: 6-10mm 4 Jasper: 11-15mm 1 Jasper: 16-20mm (cortex) 1 Jasper: 21-25mm	1 unidentified
8	1 Jasper: 11-15mm	

Table 3. Prehistoric Artifacts in the E-horizon

EU No.	STU No.	Flake	Other Lithic	Ceramic
	73			1 unidentified
	73E			1 unidentified
3				1 unidentified
6		1 Chalcedony: 11-15mm		
8		2 Jasper: 16-20mm 1 Jasper: 16-20mm (cortex) 1 Jasper: 21-25mm (cortex)		1 unidentified
9		1 Jasper: 16-20mm (cortex)		
10			1 Chert: blocky (cortex)	
11		1 Jasper: 6-10mm 1 Jasper: 11-15mm 1 Jasper: 11-15mm (cortex) 1 Jasper: 16-20mm (cortex)	1 Chert: blocky (cortex) 1 Jasper: blocky (cortex) 1 Quartzite: FCR	1 unidentified

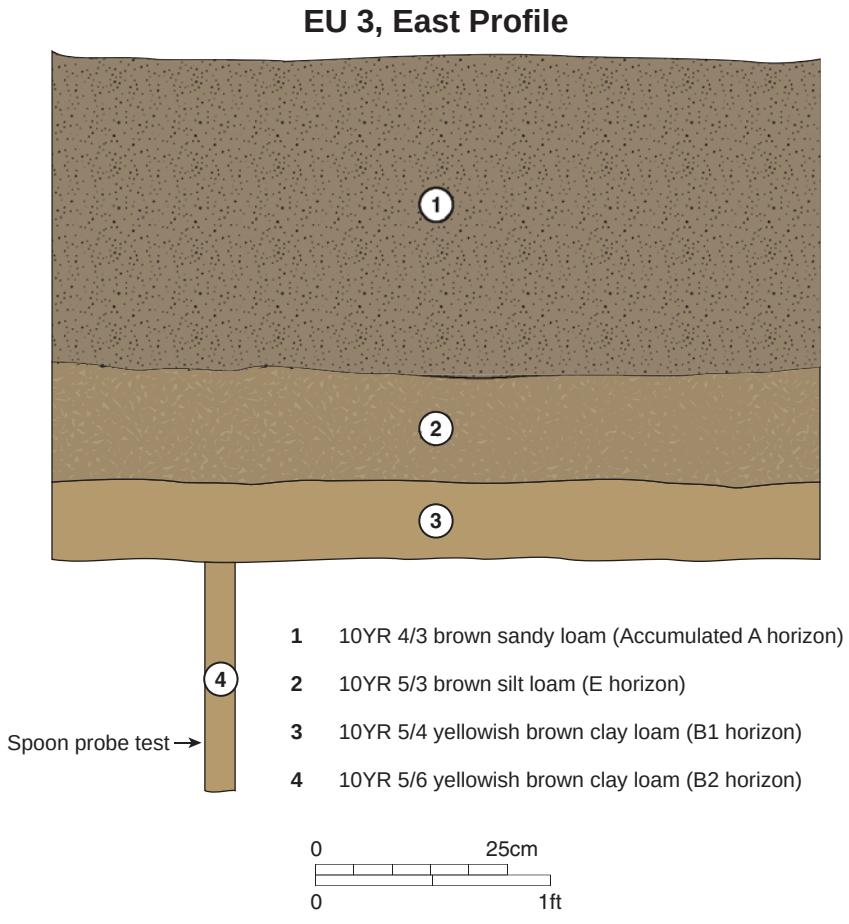


Figure 19. EU 3, east profile.

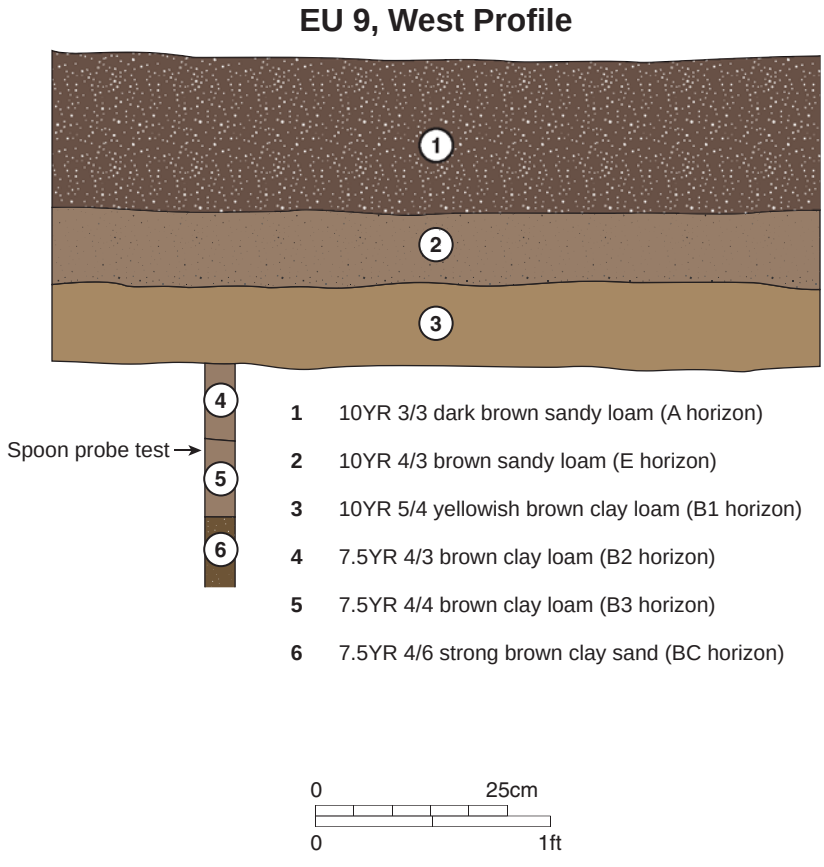


Figure 20. EU 9, west profile.

Five features were located during investigations, three of which dated to the historic period, and two of which contained prehistoric artifacts (Table 4). Two of the historic-period features (Feature 3 and Feature 4) were defined as post holes, with Feature 4 containing the remnant of a post. The third, Feature 6, was a pit feature of undetermined purpose. Feature 3 contained mortar or concrete fragments, window glass (n=4) and unidentified bottle fragments (n=2). Feature 4 was sterile except for the post remnant. Feature 6 contained brick fragments (n=2) and an unidentified piece of iron.

Of the two features containing prehistoric artifacts, Feature 2 was defined as non-cultural. Feature 5 was identified as a large, shallow pit feature. Recovered from Feature 5 were a jasper flake, a chert core, and unidentified ceramics (n=3). Five liters of soil were retained for floatation, as was a five liter soil from the surrounding sub soil to serve as a control. The results of the floation are presented in Section 4.3.

Table 4: Prehistoric Artifacts in Features

FEA No.	Flake	Other Lithic	Ceramic
2			1 unidentified
5	1 Jasper 6-10	1 Chert core	3 unidentified

4.1.2 Excavation Units within the Drainage

Excavation Units within the drainage were EU 2, EU 4, EU 5, and EU 7. The stratigraphy of the EUs with colluvial deposits were similar, expect in EU 4. The colluvial deposit consisted of a 60 to 70 centimeter-thick very dark gray brown to dark brown (10YR3/2 to 10YR3/3) sandy silt (Figure 21). The deposit overlaid a 10 to 15 centimeter thick buried A-horizon consisting of a very dark brown or dark gray brown (10YR2/2 or 2.5Y4/2) sandy silt. The subsoil was a brown (10YR4/3 to 10YR5/3) silty sand. The colluvial deposits in EU 4 had intervening layers of demolition fill containing approximately 50 percent brick and glass fragments, shell, bone, sheet metal nails, redware and whiteware (Figure 22). Plastic and coal were also observed.

Prehistoric artifacts were more commonly found in the colluvial deposits (n=35), than in the buried A-horizon (n=8) (Tables 5 and 6). Of the lithics, the majority were jasper flakes, with nearly half exhibiting cortex.

Table 5. Prehistoric Artifacts in the Colluvial Deposits

EU No.	STU No.	Flake	Other Lithic	Ceramic
	74W	1 Jasper: 16-20mm (cortex) 1 Chert: 21-25mm (cortex)		
2		1 Jasper: 11-15mm (cortex) 1 Chert: 16-20mm		1 unidentified
4		1 Jasper: 11-15mm 1 Jasper: 16-20mm (cortex) 2 Japser: 21-25mm (cortex)	1 Jasper core, utilized?	1 unidentified
5		2 Jasper: 11-15mm 1 Jasper: 11-15mm (cortex) 1 Jasper: 16-20mm (cortex) 1 Chert: 16-20mm	1 Quartzite FCR	1 unidentified
7		3 Jasper: 11-15mm 4 Japser: 11-15mm (cortex) 1 Jasper: 16-20mm 2 Jasper: 16-20mm (cortex)	1 Jasper core	8 unidentified

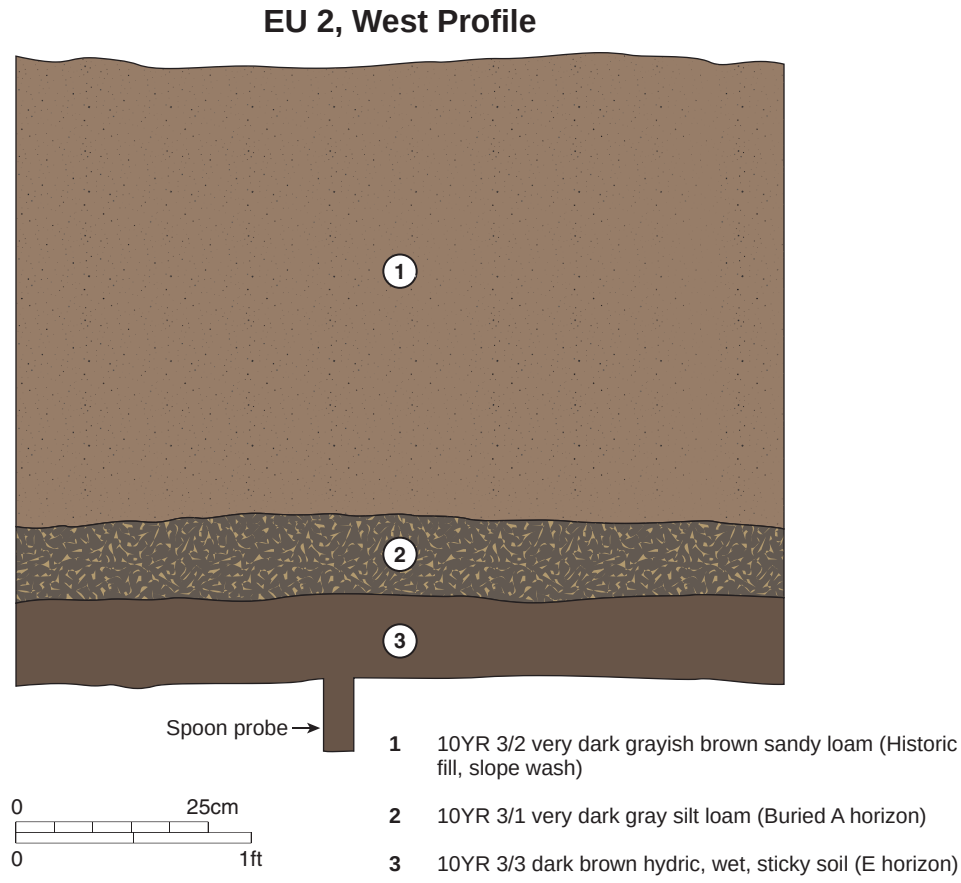


Figure 21. EU 2, west profile.

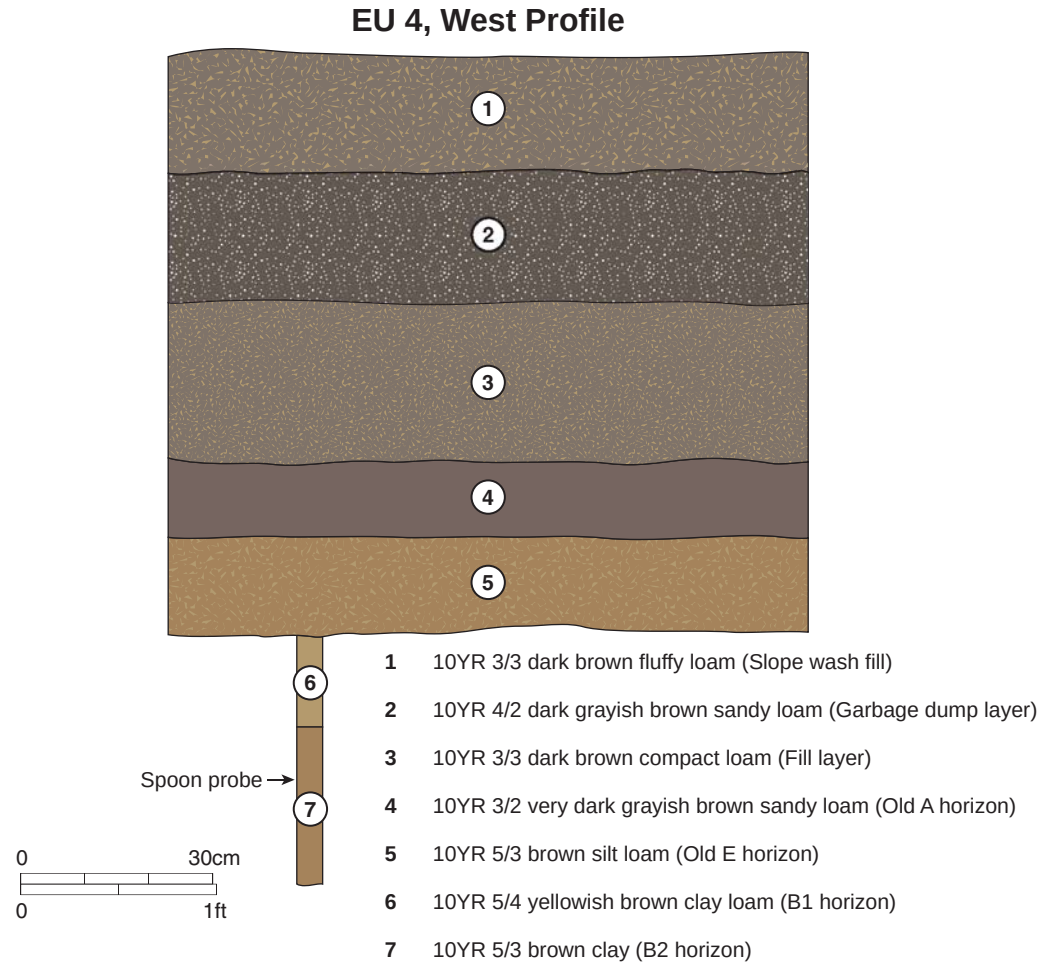


Figure 22. EU 4, west profile.

Table 6. Prehistoric Artifacts in the buried A-horizon

EU No.	STU No.	Flake	Ceramic
	74	1 Jasper: 11-15mm 1 Chert: 16-20mm	
	74S	1 Jasper: 6-10mm	1 Townsend 1 unidentified
	75		2 unidentified
4		2 Jasper: 11-15mm	1 unidentified
5			
7		2 Jasper: 16-20mm (cortex) 1 Jasper: 21-25mm	1 unidentified

4.2 ANALYSIS OF LITHIC MATERIALS

4.2.1 Discussion

The majority of lithics recovered from the wooded portion of the site during Phase I and Phase II investigations consisted of jasper flakes, two cores, and a blocky fragment (89%), with a small percentage consisting of chert flakes and a blocky fragment (8%) and a chalcedony flake (2%) (Table 7). When sorted by size, 74 percent of the assemblage fell within the ranges of 11-15mm (44%) or 16-20mm (30%). The remainder were flakes in size ranges of 6-10mm (8%) or 21-25mm (11%). The remainder of the lithics recovered were cores (4%) and blocky fragments (6%). Of the flakes, 40 percent exhibited cortex.

Table 7. Lithics from Phase I and Phase II Investigations by size and materials

Artifact	Material			Total Count	% of Total
	Chert	Jasper	Chalcedony		
Flake 06-10 mm	-	4	-	4	8%
Flake 11-15 mm	-	22	1	23	44%
Flake 16-20 mm	3	13	-	16	30%
Flake 21-25 mm	1	5	-	6	11%
Core	-	2	-	2	4%
Blocky	2	1	-	3	6%
Total Count	4	47	1	53	
% of Total	8%	89%	2%		

The lithics were recovered from three stratigraphic units: an A horizon, an E horizon, and a colluvial deposit (Table 8). Nearly half the lithics recovered came from the colluvial deposits. The remainder, 54 percent, came from upland contexts (A horizon and E horizon).

Table 8. Prehistoric artifacts from Phase I and Phase II Investigations by stratigraphic unit.

Stratigraphic Unit.	Count.	% of Total
A horizon	16	29%
E horizon	14	25%
Colluvial deposit	26	46%
Total Count	56	

4.2.2 Conclusions

Roughly equal quantities of lithics were recovered from upland contexts as from the colluvial deposits. Those recovered from the colluvial deposits were in a secondary context, having moved from the agricultural field along the drainage, and into their present context. Flake morphology indicates that both primary tool production and tool maintenance occurred at the Smith Farm Site. Materials recovered were from local sources, likely procured among the gravels present in the deposits of the Delaware Bay.

4.3 ANALYSIS OF PREHISTORIC CERAMICS

The raw data table (Table 9) lists two sherds as "Unknown". The classification of "Unknown" differs from "unidentifiable" in that sherds classified as "unidentifiable" were so recorded because the condition of the sherd made identification unreliable. On the other hand, "Unknown" sherds exhibit interior and exterior surfaces and a clearly visible paste, but do not strictly match the defining criteria of known types or exhibit sufficient frequency or concentrated distribution to suspect they may represent an undefined ceramic series or an example of a series defined elsewhere. A close look at the two sherds listed as Unknown reveals that both have very weathered, smooth exterior surfaces, no visible temper and a paste with numerous hematite inclusions. As some sherds identified as Townsend ceramics also have a paste with numerous hematite inclusions, it is possible the two "Unknown" sherds are from a heavily weathered Townsend vessel. However, even for those sherds identified as Townsend, surface weathering was such that the exterior surfaces were mostly classified as "Smooth." There is a type of the Townsend Series defined as Townsend Plain, with smooth exterior surfaces; however, the condition of the sherds in this collection were such that it was not possible to determine whether the sherds represented examples of Townsend Plain, or the smooth exterior surfaces were the result of weathering (Griffith 2012:52). Similarly, some sherds identified as Townsend based on the fabric impressed exterior surface, did not exhibit shell temper. Some Townsend vessels elsewhere, while exhibiting shell temper in larger sherds and vessels, have a lower density of shell temper in the paste such that some sherds of a vessel would not exhibit any temper. Technically, the determination that these sherds represent the Townsend Series is provisional and the identification was based mostly on the "silty" paste typical of many Townsend sherds elsewhere and the thin vessel wall thickness.

Two other issues affect the accuracy of type identification for small sherds where paste and surface treatments are clear. First, very small vessels of some types may not exhibit the temper of the parent type and, in fact, appear to be un-tempered. For example, very small vessels with an opening diameter of two inches or less associated with Townsend ceramics sometimes do not contain shell temper, as if the clay was used in its natural state. Second, small sherds may not accurately represent the range of paste characteristics in the parent vessels. Tempering materials vary in their size, density and distribution within the paste of any given vessel. It is likely, for example, that an otherwise shell tempered vessel would not exhibit shell as temper in every sherd from that vessel. Unidentified sherds remain unidentified primarily due to their size and condition.

4.3.1 Discussion

Overall the forty five recovered ceramic sherds were very small, with the average weight of 1.3 grams. All the sherds were heavily weathered, exhibiting round edges and smoothed exterior and interior surfaces. The general impression of the collection is that the sherds were exposed on or near the surface for an extended period of time and subject to chemical and mechanical weathering by freeze/thaw cycles

Table 9: Analysis of Ceramics from the Phase I and the Phase II Investigations.

Catalog No.	Excavation Unit	Level	Vessel Part	Weight (g)	Thickness (mm)	Exterior Surface	Interior Surface	Temper	Decoration	Type Identification	Notes
2013.5.1.1	STU 59	1	body	2.5	8.13	Fabric	Smooth	shell	none	Townsend	numerous fine hematite inclusions
2013.5.1.2	STU 59N	1	body	2.3	7.68	unidentifiable	Smooth	shell	none	unidentifiable	Mockley or Townsend
2013.5.1.2	STU 59N	1	body	1.6	8.11	Smooth	Smooth	none visible	none	unidentifiable	very weathered
2013.5.1.6	STU 61	1	body	3.4	8.95	Smooth	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.7	STU 61S	1	unidentifiable	0.4	surface missing	surface missing	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.7	STU 61S	1	unidentifiable	0.5	surface missing	surface missing	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.8	STU 61E	1	-	-	-	-	-	-	-	-	not ceramic - coal cinder?
2013.5.1.8	STU 61E	1	body	1	6.42	Smooth	Smooth	none visible	none	unidentifiable	coil break; heavily weathered
2013.5.1.9	STU 61N	1	body	2.4	6.24	Smooth	Smooth	shell	none	Townsend	numerous fine hematite inclusions
2013.5.1.9	STU 61N	1	unidentifiable	0.8	surface missing	Smooth	surface missing	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.9	STU 61N	1	unidentifiable	0.3	surface missing	Smooth	surface missing	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.9	STU 61N	1	unidentifiable	0.4	4.69	Smooth	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.10	STU 63	1	body	1.1	5.41	Smooth	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.10	STU 63	1	unidentifiable	0.6	surface missing	surface missing	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.11	STU 63E	1	unidentifiable	0.3	surface missing	surface missing	surface missing	none visible	none	unidentifiable	
2013.5.1.13	STU 63S	1	body	2.4	6.72	Smooth	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.17	STU 67	1	body	1	5.14	Smooth	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.19	STU 67S	1	body	1.1	6.11	Smooth	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.20	STU 68	1	body	1.1	surface missing	surface missing	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.22	STU 68N	1	body	0.5	5.26	Smooth	Smooth	none visible	none	unidentifiable	very silty paste; no hematitie
2013.5.1.32	STU 73	2	body	1.2	surface missing	surface missing	Smooth	none visible	none	unidentifiable	a few fine hematite inclusions
2013.5.1.35	STU 73E	3	body	0.5	surface missing	surface missing	surface missing	none visible	none	unidentifiable	fine quartz grains; no hematite
2013.5.1.37	STU 74S	4	body	1.6	6.25	Smooth	Smooth	fine shell	none	Townsend	a few fine hematite inclusions
2013.5.1.37	STU 74S	4	unidentifiable	0.4	surface missing	surface missing	Smooth	none visible	none	unidentifiable	a few fine hematite inclusions
2013.5.1.40	STU 75	3	body	1.4	7.63	Smooth	Smooth	shell	none	Townsend	very silty paste; no hematitie

Catalog No.	Excavation Unit	Level	Vessel Part	Weight (g)	Thickness (mm)	Exterior Surface	Interior Surface	Temper	Decoration	Type Identification	Notes
2013.5.1.40	STU 75	3	body	0.8	surface missing	surface missing	Smooth	none visible	none	unidentifiable	a few fine hematite inclusions
2013.5.1.40	STU 75	3	unidentifiable	0.4	6.85	Smooth	Smooth	none visible	none	unidentifiable	a few fine hematite inclusions
2013.5.1.41	2	1	body	1.8	6.62	Fabric	Smooth	none visible	none	Townsend	silty; a few hematite inclusions
2013.5.1.42	2	2	body	1.5	surface missing	Smooth	surface missing	fine shell	none	Townsend	numerous fine hematite inclusions
2013.5.1.44	3	2	-	-	-	-	-	-	-	-	not ceramic - clay concretion
2013.5.1.47	4	3	unidentifiable	0.3	surface missing	Smooth	surface missing	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.48	4	4	body	1.4	5.24	Smooth	Smooth	fine shell	none	Townsend?	slightly gritty; no hematite inclusions
2013.5.1.55	6	Fea. 2	-	-	-	-	-	-	-	-	not ceramic - clay/sand concretion
2013.5.1.57	7	2	body	0.6	4.51	Smooth	Smooth	none visible	none	unidentifiable	silty; a few hematite inclusions
3013.5.1.57	7	2	body	1.7	surface missing	surface missing	Smooth	none visible	none	unidentifiable	slightly gritty; no hematite inclusions
2013.5.1.57	7	2	body	1.1	4.72	Smooth	Smooth	fine shell	none	Townsend?	silty; a few hematite inclusions
2013.5.1.57	7	2	unidentifiable	0.7	surface missing	surface missing	Smooth	none visible	none	unidentifiable	reduced througout
2013.5.1.57	7	2	body	0.5	6.22	Smooth	Smooth	none visible	none	unidentifiable	slightly gritty; no hematite inclusions
2013.5.1.57	7	2	body	1.4	7.29	Smooth	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.57	7	2	near rim	0.5	6.12	Smooth	Smooth	fine shell	Incised line	Townsend	numerous fine hematite inclusions
2013.5.1.57	7	2	body	4.1	7.63	Smooth	Smooth	none visible	none	Unknown	numerous fine hematite inclusions
2013.5.1.58	7	3	body	1	8.05	Smooth	Smooth	fine shell	none	Townsend?	silty paste; no hematite inclusions
2013.5.1.58	7	3	body	0.6	6.14	Smooth	Smooth	shell	none	Townsend?	a few fine hematite inclusions
2013.5.1.60	8	2	body	3.2	6.95	Smooth	Smooth	none visible	none	Unknown	numerous fine hematite inclusions
2013.5.1.67	11	2	body	1.8	6.59	Smooth	Smooth	none visible	none	unidentifiable	numerous fine hematite inclusions
2013.5.1.67	11	2	body	3.5	surface missing	surface missing	surface missing	none visible	none	unidentifiable	gritty; a few fine hematite inclusions
2013.5.1.68	11	Fea. 5	body	0.8	6.22	Smooth	Smooth	none visible	none	unidentifiable	slightly gritty; no hematite inclusions
2013.5.1.68	11	Fea. 5	body	1.7	7.66	Smooth	Smooth	none visible	none	unidentifiable	a few fine hematite inclusions
2013.5.2.2 and .4			-	-	-	-	-	-	-	-	Fired mud daubers nest fragments
2013.5.2.6			unidentifiable	-	-	-	-	-	-	unidentifiable	.

and, in many cases, transported through surface erosion of the soil matrix within which they were embedded.

The only ceramic series that is clearly present in the collection is Townsend. Based on paste characteristics alone, there are four general paste categories present; 1) silty paste with no hematite inclusions, 2) silty with a few hematite inclusions, 3) gritty with no hematite inclusions and 4) gritty with numerous hematite inclusions. Given that inclusions within a ceramic paste, as with temper, may not be evenly distributed within a vessel, the paste characteristics suggest that two different clay sources were used in the production of the vessels represented at the site. One source is quite silty while the other contains a fair amount of grit, or fine angular to sub-angular to rounded quartz grains. The few identified Townsend Series sherds exhibit pastes representing each paste classification, so the paste characteristics do not seem to assist in separating periods of occupation.

Vessel wall thickness measurements suggest that the vessels represented in the sample were small to medium in size, with the largest vessel wall thickness of only 8.95 mm. The majority of the vessel wall thicknesses were in the 6±1 mm range. Larger vessels generally have vessel wall thicknesses in the 9-11 mm range (Griffith 2012).

The distribution of ceramics from the Phase I and II investigations shows interesting patterns that vary with the type of context from which the sherds were recovered. Sherds were recovered from upland contexts, including plow zone shovel tests excavated during the Phase I investigations and in wooded test units in the Phase II investigation. Sherds were also recovered during the Phase I and Phase II investigations from contexts interpreted as colluvial deposits in a minor stream corridor in the wooded area. Calculating the mean ceramic sherd weight for each type of context, the data shows that sherds from the plow zone or upland contexts had an average weight of 3.0 grams, while sherds from colluvial deposits averaged 1.05 grams. The sherds from upland contexts, in spite of plowing or other disturbance, are on average three times larger than those from colluvial contexts. This pattern suggests that sherds in upland contexts are closer to their place of use, discard or loss. The smaller sherds in the colluvial contexts suggest that the sherds experienced additional mechanical damage during colluvial transport to the contexts from which they were recovered. This pattern also supports the argument that ceramics in the colluvial deposits were re-deposited from upland context locations nearby and, where it can be determined, the ceramic types and paste characteristics are the same.

While few sherds could be confidently identified by type, all of the identified Townsend Series sherds in upland contexts were from the field east of the Phase II study area, the likely source of the Townsend and Townsend-like sherds in the colluvial contexts. Townsend sherds and possible Townsend sherds, in Phase II Test Units 2, 4 and 7 are from colluvial deposits, with the largest quantity of any sherd type in Test Unit 7. As Test Unit 7 contained solely colluvial deposits, this pattern suggests that the entry point of eroded sediments from the adjacent field is near this test unit.

In terms of paste characteristics, the focus was on sherds from upland contexts, as the distribution of re-deposited sherds in colluvial deposits is not as informative. Sherds with numerous hematite inclusions in the paste occurred mostly in the Phase I shovel tests east of the Phase II area of investigation, though Phase II Test Units 8 and 11 contained one each. The loci of silty paste ceramics was solely from shovel test 68N, east of the Phase II area of investigation, while gritty sherds with no hematite inclusions were found in shovel test 73E and Test Unit 11 near the center of the Phase II area of investigation. Little can be interpreted from the distribution of ceramic paste types except to say that every identified paste type occurs in the field and its adjacent wooded fringe east of the Phase II project area. Again, this suggests that the source of the ceramics in the colluvial deposits originated in the adjacent field to the east.

4.3.2 Conclusions

While it was not possible to achieve a high frequency of type identifications from the collection, it is possible to say something about what was not present. No sherds in the sample exhibited steatite, crushed quartz, mica or black stone temper. Assuming sherds associated with vessels of these types would exhibit some temper, this observation rules out the presence of Marcey Creek (steatite temper), Selden Island (steatite temper), Wolfe Neck (crushed quartz temper), Dames Quarter (black stone temper) or Hell Island (crushed quartz and mica temper) ceramics. The fact that a few sherds exhibited fine shell temper, but no clear surface treatment, means the presence of Mockley ceramics cannot be ruled out, though the shell temper in Mockley ceramics is typically rather coarse. Similarly, as many of the sherds had no visible temper, we cannot rule out the presence of Coulbourn ceramics, though Coulbourn ceramics grog/clay nodule temper is typically distributed evenly throughout a vessel and is quite identifiable. The only conclusion with any certainty is that at least some of the ceramic sample analyzed was produced by an American Indian occupation that manufactured Townsend Series ceramics. Townsend Series ceramics in Delaware have a 2-sigma radiocarbon dated date range from cal AD 941 to cal AD 1706 (Griffith 2010:31). Due to the nature of the ceramic sample and its context, the results reveal site formation processes more clearly than culture history.

4.4 ANALYSIS OF ARCHEOBOTANICAL MATERIALS

Carbonized macroplant remains recovered from the 17 liters of floated sediment weighing 73.79 grams consisted of only 0.29 grams of wood charcoal, 1.79 grams of resin, and three carbonized seeds (Table 10). In the following discussion, the archeobotanical assemblage from each sample is summarized.

Table 10. Smith Farm Site Archeobotanical Data.

	Feature 5, EU 11	Subsoil Control, EU 11
Sample Volume (L)	8.0	9.0
Light Fraction Weight (g)	58.57	15.22
>2.0 mm Wood Charcoal Weight (g)	0.24	0.05
>2.0 mm Resin Weight (g)	1.67	0.12
Identified Wood Specimen Count		
Pine (*Pinus* sp.)	2	
Hickory (*Carya* sp.)	3	
Unidentifiable	2	
Total	8	
Carbonized Seeds		
Grass Family (Gramineae)	0	3

4.4.1 Feature 5, EU 11 Flotation Sample

Feature 5 is an undetermined prehistoric feature that was found in an upland setting adjacent to a former drainage forming the headwaters of a creek. This cultural anomaly, which was discovered in EU 11, was identified as a large, shallow pit feature. The Feature 5 fill contained 1 jasper flake, 1 chert core, and 3 unidentified ceramics. Eight liters of Feature 5 fill was retained for flotation.

The flotation sample yielded 58.57 grams of light fraction. The light fraction contained a large quantity of uncharred rootlets and twigs, a small number of uncharred herbaceous weed seeds (goosefoot—*Chenopodium* sp., pokeweed—*Phytolacca americana*, copperleaf—*Euphorbia* sp. noted), and 1.91 grams

of carbonized wood and resin. The rootlets, twigs, and uncharred seeds are not considered to date to the prehistoric component.

Flotation of eight liters of sediment yielded a sparse carbonized macroplant assemblage consisting of 0.24 grams of wood charcoal and 1.67 grams of resin. Neither seeds nor nutshell were recovered from this feature. The overall weight density of wood charcoal was a modest 0.03 grams of wood per liter of floated soil; the weight density of resin was a modest 0.21 grams per liter. The resin likely originated from completely carbonized coniferous taxa. Five wood charcoal fragments from two taxa were identified (pine, hickory). Pine represented a 40 percent proportion of the identified wood specimens and hickory accounted for 60 percent of the identified wood.

4.4.2 EU 11 Subsoil Control Sample

Nine liters of subsoil from EU 11 was retained as a control sample for comparison to carbonized macrofloral remains recovered from Feature 5. The flotation sample yielded 15.22 grams of light fraction. The light fraction contained a large quantity of uncharred rootlets and twigs, a small number of uncharred herbaceous weed seeds, and 0.17 grams of carbonized wood and resin. Flotation yielded 0.05 grams of wood charcoal, 0.12 grams of resin, and three charred grass seeds. No carbonized nutshell was recovered from this sample. It was not possible to assess the whether the carbonized grass seeds represented cultural artifacts or incidentally carbonized natural seed rain. The recovery of these fragile specimens demonstrates the potential for preservation of plant food remains. The overall weight density of wood charcoal was a sparse 0.006 grams of wood per liter of floated soil; the weight density of resin was also a low 0.01 grams per liter. No wood charcoal specimens were identified from this feature.

4.4.3 Conclusions

On the basis of limited archeobotanical sampling conducted as part of this Phase II site assessment, we conclude that macroplant preservation at the Smith Field Farm Site is poor. The low density of carbonized plant remains precludes assessment of site seasonality, subsistence practices, local ecology, preferred fuelwoods/building materials, and spatial patterning of carbonized macroplant remains.

5.0 SUMMARY AND RECOMMENDATIONS

5.1 SUMMARY

Phase I archeological investigations resulted in the partial delineation of the Smith Farm Site (7S-D-097), preliminarily designated as a Woodland I prehistoric archeological site- approximately 0.85 acres of the site is within the APE for the proposed Showwater Extension of the Junction and Breakwater Trail. It is located in a wooded area along Road 23 and to the southeast in the agricultural field, between Stations 228 and 237. As defined during the Phase I survey, the site lies between Phase I STUs 59 and 75 (Locus 1), and includes a prehistoric pit feature (Feature 1) identified in STU 50, which is near Station 224 (Locus 2). Phase I shovel testing suggested that an approximately 0.27-acre portion of the site (between STUs 73 and 75) may not have been previously disturbed by plowing. The Phase II evaluation was conducted within the apparently unplowed portion of the site roughly between STUs 73 and 75 (see Figure 2).

Feature 1, located in STU 50 and EU 1 (see Figure 23 for location), is a prehistoric feature isolated from the Smith Farm site to the northwest. Recovered from the feature were what were initially identified as prehistoric pipe bowl fragments and several unidentified/burnt prehistoric wares were. All radials were negative. Re-analysis of artifacts recovered from the feature result in re-defining the remains as fragments of a mud-dauber wasp nest.

Phase II Evaluation of the Smith Farm Site consisted of the hand-excavation of 10 Excavations Units. Excavations resulted in the recovery of 69 prehistoric artifacts, and the discovery of five features, three of which dated to the historic period, and two of which contained prehistoric artifacts. Two of the historic-period features (Feature 3 and Feature 4) were defined as post holes, with Feature 4 containing the remnant of a post. The third, Feature 6, was a pit feature of undetermined purpose. Feature 3 contained mortar or concrete fragments, window glass (n=4) and unidentified bottle fragments (n=2). Feature 4 was sterile except for the post remnant. Feature 6 contained brick fragments (n=2) and an unidentified piece of iron. Of the two features containing prehistoric artifacts, Feature 2 was defined as non-cultural. Feature 5 was identified as a large, shallow pit feature. Recovered from Feature 5 were a jasper flake, a chert core, and unidentified ceramics (n=3). Five liters of soil were retained for floatation, as was a five liter soil sample from the surrounding sub soil to serve as a control.

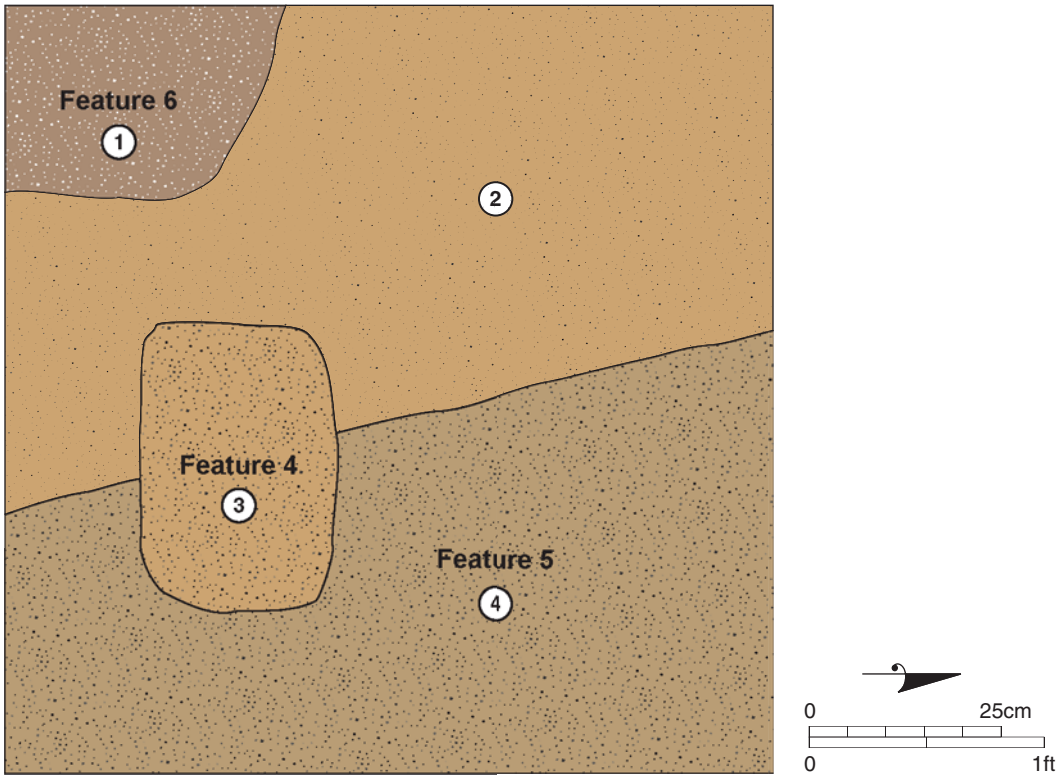
Analysis of ceramics and archeobotanical remains revealed poor preservation of cultural and botanical remains. Ceramic sherds were heavily degraded by natural, post-occupational site formation processes yet, did result in reclassifying the site as belonging to the Woodland II period based on the presence of Townsend ceramics. Analysis did not preclude, however, the possibility of Woodland I period occupation. Analysis of archeobotanical remains did not contribute to an understanding of prehistoric occupation of the site.

Nearly half the lithics recovered came from a secondary context (colluvial deposits). The remainder illustrated that primary tool production and tool maintenance occurred a the site.

5.2 RECOMMENDATIONS

JMA recommends that the portion of the Smith Farm Site within the wooded area of the APE for the Showwater Extension of the Junction and Breakwater Trail lacks significance; therefore, further consideration of archeological deposits in this area is not necessary. Phase II Evaluation of the site illustrated that the portion of the site within the wooded area lacked research potential, as the archeological remains were sparse and heavily degraded by natural, post-occupational processes.

Nonetheless, the site taken in its entirety may have integrity and research potential. However, it was not investigated as part of the current evaluation, and therefore, its National Register of Historic Places eligibility remains unknown.



1 10YR 3/3 dark brown sandy silt

2 10YR 5/4 yellowish brown sandy silt

3 10YR 4/6 dark yellowish brown clayey sandy silt

4 10YR 4/4 dark yellowish brown sandy silt

Figure 23. EU 11, plan view showing features 4, 5, and 6.

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Appendix I:

Artifact Inventory

Artifact Inventory
Phase I Archeological Survey of the Proposed Extension of the Junction and Breakwater Trail
Lewes, Delaware
February 12-25, 2013 JMA

2013.5.	STU/EU	LEVEL	DEPTH	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
1	STU 2	2	34-56 cm bgs	1	Unidentified Bottle Fragment: Clear		
1	STU 2	2	34-56 cm bgs	1	Unidentified Bottle Fragment: Amber		
2	STU 9	2	65-85 cm bgs	1	Unidentified Bottle Fragment: Clear		
3	STU 18	4	43-62 cm bgs	1	Nail: Unidentified		
4	STU 26	2	18-58 cm bgs	1	Redware: Brown Glaze	Glazed Both Surfaces	
5	STU 29	1	0-33 cm bgs	2	Unidentified Bottle Fragment: Amber		
5	STU 29	1	0-33 cm bgs	1	Unidentified Bottle Fragment: Aqua		
6	STU 29	2	33-52 cm bgs	1	Nail: Unidentified		
7	STU 30	1	0-27 cm bgs	1	Redware: Unglazed		
8	STU 31	1	0-28 cm bgs	1	Kitchen Glass: Canning-Lid Liner, Milk Glass	"…W Y…"	1869-present
8	STU 31	1	0-28 cm bgs	1	Miscellaneous, Metal: Iron Buckle		
9	STU 35	1	0-30 cm bgs	1	Window Glass: All Thicknesses		
9	STU 35	1	0-30 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
10	STU 36	1	0-28 cm bgs	1	Fastener, Metal: Spike		
11	STU 37	1	0-30 cm bgs	1	Window Glass: All Thicknesses		
11	STU 37	1	0-30 cm bgs	1	Whiteware: Plain		1810-2000
12	STU 39	1	0-30 cm bgs	1	Window Glass: All Thicknesses		
13	STU 40	1	0-30 cm bgs	1	Redware: Brown Glaze	Glazed Interior, Unglazed Exterior	
14	STU 41	1	0-30 cm bgs	1	Pearlware: Plain		1779-1830
15	STU 42	1	0-28 cm bgs	1	Unidentified Nail: Head Only		
15	STU 42	1	0-28 cm bgs	1	Pearlware: Plain		1779-1830
16	STU 43	1	0-27 cm bgs	1	Redware: Brown Glaze	Glazed Both Surfaces	
16	STU 43	1	0-27 cm bgs	1	Yellowware: Plain		1830-1930
17	STU 44	1	0-27 cm bgs	1	Unidentified Bottle Fragment: Clear		
17	STU 44	1	0-27 cm bgs	1	Unidentified Bottle Fragment: Aqua		
18	STU 45	1	0-30 cm bgs	1	Unidentified Bottle Fragment: Clear		
19	STU 45	Fea 2	30-95 cm bgs	1	Coal, Wood: Charcoal	C14 Sample	
20	STU 46	1	0-25 cm bgs	1	Cut Common Nail: Fragment		1805-2000
20	STU 46	1	0-25 cm bgs	1	Miscellaneous Glass Object: Unidentified	Melted	
21	STU 47	1	0-30 cm bgs	1	Pearlware: Shell Edge	Green	1779-1830
22	STU 49	1	0-30 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
23	STU 50	1	0-25 cm bgs	1	Whiteware: Blue Transfer Print		1815-1915
24	STU 50	Fea 1	45-60 cm bgs	11	Pipe: Bowl Fragment	Parts of One Pipe; Red Body with Quartz Temper	
25	STU 50N	1	0-30 cm bgs	1	Whiteware: Plain		1810-2000

Artifact Inventory
Phase I Archeological Survey of the Proposed Extension of the Junction and Breakwater Trail
Lewes, Delaware
February 12-25, 2013 JMA

2013.5.	STU/EU	LEVEL	DEPTH	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
26	STU 53	1	0-32 cm bgs	1	Whiteware: Plain		1810-2000
27	STU 54	1	0-27 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
27	STU 54	1	0-27 cm bgs	1	Redware: Unglazed		
27	STU 54	1	0-27 cm bgs	1	Redware: Brown Glaze		
28	STU 55	1	0-30 cm bgs	1	Redware: Thick Black Glaze		
28	STU 55	1	0-30 cm bgs	1	Unidentified Ceramic: Earthenware	White Bodied, Surfaces Missing	
28	STU 55	1	0-30 cm bgs	1	Pearlware: Plain		1779-1830
28	STU 55	1	0-30 cm bgs	1	Whiteware: Unidentified	Pink Glaze	1810-2000
29	STU 56	1	0-28 cm bgs	1	White Granite Ware: Plain		1842-1930
29	STU 56	1	0-28 cm bgs	1	Redware: Brown Glaze	Glazed One Surface	
29	STU 56	1	0-28 cm bgs	2	Unidentified Bottle Fragment: Aqua		
29	STU 56	1	0-28 cm bgs	1	Decorated/Embossed Glass Fragment: Clear		
30	STU 57	1	0-30 cm bgs	2	Nail: Unidentified		
30	STU 57	1	0-30 cm bgs	1	Pearlware: Plain		1779-1830
30	STU 57	1	0-30 cm bgs	1	Whiteware: Plain		1810-2000
30	STU 57	1	0-30 cm bgs	2	Redware: Brown Glaze		
31	STU 58	1	0-29 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
31	STU 58	1	0-29 cm bgs	1	Whiteware: Plain		1810-2000
31	STU 58	1	0-29 cm bgs	1	Miscellaneous, Metal: Unidentified		
32	STU 59	1	0-30 cm bgs	1	Coulbourn Ware: Cordmarked, Body	Cord or Net Impressed	2350-2050
33	STU 59 N	1	0-32 cm bgs	1	Window Glass: All Thicknesses		
33	STU 59 N	1	0-32 cm bgs	1	Whiteware: Blue Transfer Print		1815-1915
33	STU 59 N	1	0-32 cm bgs	2	Unidentified Prehistoric Ware: Shell Tempered, Body	Mockley or Townsend, Plain Body	
34	STU 59 E	1	0-26 cm bgs	1	Flake 11-15mm: Jasper		
35	STU 59 W	1	0-38 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
36	STU 60	1	0-34 cm bgs	1	Whiteware: Plain		1810-2000
37	STU 61	1	0-30 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
37	STU 61	1	0-30 cm bgs	3	Nail: Unidentified		
37	STU 61	1	0-30 cm bgs	2	Window Glass: All Thicknesses		
37	STU 61	1	0-30 cm bgs	1	Whiteware: Plain		1810-2000
37	STU 61	1	0-30 cm bgs	1	Coulbourn Ware: Plain, Body		2350-2050
37	STU 61	1	0-30 cm bgs	1	Flake w/Cortex 16-20mm: Jasper		
38	STU 61 S	1	0-37 cm bgs	1	Unidentified Prehistoric Ware: Unidentified	Coulbourn Ware (?)	
38	STU 61 S	1	0-37 cm bgs	1	Whiteware: Plain		1810-2000

Artifact Inventory
Phase I Archeological Survey of the Proposed Extension of the Junction and Breakwater Trail
Lewes, Delaware
February 12-25, 2013 JMA

2013.5.	STU/EU	LEVEL	DEPTH	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
38	STU 61 S	1	0-37 cm bgs	1	Pipe Stem: 5/64th-Inch Ball Clay		1710-1750
39	STU 61 E	1	0-36 cm bgs	1	Unidentified Bottle Fragment: Aqua		
39	STU 61 E	1	0-36 cm bgs	2	Unidentified Prehistoric Ware: Quartz/Mica/Sand Tempered, Body	Possibly Wolfe Neck	
40	STU 61 N	1	0-32 cm bgs	1	Unidentified Nail: Shaft Only		
40	STU 61 N	1	0-32 cm bgs	2	Brick, Fragment: Unidentified, Unglazed		
40	STU 61 N	1	0-32 cm bgs	1	Window Glass: All Thicknesses		
40	STU 61 N	1	0-32 cm bgs	4	Coulbourn Ware: Plain, Body		2350-2050
41	STU 63	1	0-35 cm bgs	1	Nail: Unidentified		
41	STU 63	1	0-35 cm bgs	2	Coulbourn Ware: Cordmarked, Body	Cord or Net Impressed	2350-2050
42	STU 63 E	1	0-30 cm bgs	1	Unidentified Prehistoric Ware: Unidentified		
42	STU 63 E	1	0-30 cm bgs	1	Flake 11-15mm: Chert		
43	STU 63 N	1	0-29 cm bgs	1	Flake 6-10mm: Jasper		
44	STU 63 S	1	0-34 cm bgs	1	Redware: Unglazed		
44	STU 63 S	1	0-34 cm bgs	1	Coulbourn Ware: Cordmarked, Body		2350-2050
45	STU 64	1	0-28 cm bgs	1	Creamware: Light-Colored Yellow		1775-1820
45	STU 64	1	0-28 cm bgs	1	Whiteware: Plain		1810-2000
46	STU 65	1	0-30 cm bgs	3	Unidentified Nail: Shaft Only		
46	STU 65	1	0-30 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
46	STU 65	1	0-30 cm bgs	1	Unidentified Bottle Fragment: Olive Green		
46	STU 65	1	0-30 cm bgs	1	Creamware: Light-Colored Yellow		1775-1820
46	STU 65	1	0-30 cm bgs	1	Unidentified Ceramic: Earthenware	White Bodied	
46	STU 65	1	0-30 cm bgs	1	Redware: Clear Glaze Exterior/White Slip Interior		
47	STU 66	1	0-30 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
47	STU 66	1	0-30 cm bgs	1	Yellowware: Plain		1830-1930
47	STU 66	1	0-30 cm bgs	1	Flake 11-15mm: Jasper		
48	STU 67	1	0-28 cm bgs	1	Coulbourn Ware: Plain, Body		2350-2050
48	STU 67	1	0-28 cm bgs	1	Flake w/Cortex 16-20mm: Jasper		
49	STU 67 E	1	0-26 cm bgs	1	Unidentified Ceramic: Earthenware	White Bodied; Burnt Whiteware (?)	
49	STU 67 E	1	0-26 cm bgs	1	Blocky Fragment 11-15mm: Jasper	Heat Treated	
50	STU 67 S	1	0-28 cm bgs	1	Coulbourn Ware: Plain, Body		2350-2050
50	STU 67 S	1	0-28 cm bgs	2	Flake w/Cortex 11-15mm: Chert	Or Jasper (?)	
51	STU 68	1	0-30 cm bgs	1	Window Glass: All Thicknesses		
51	STU 68	1	0-30 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		

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2013.5.	STU/EU	LEVEL	DEPTH	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
51	STU 68	1	0-30 cm bgs	1	Pearlware: Hand-Painted Underglaze Polychrome	Blue and Brown Band	1795-1830
51	STU 68	1	0-30 cm bgs	1	Coulbourn Ware: Plain, Body		2350-2050
52	STU 68 E	1	0-31 cm bgs	1	White Granite Ware: Plain		1842-1930
53	STU 68 N	1	0-27 cm bgs	1	Hard-Paste Porcelain: Plain		
53	STU 68 N	1	0-27 cm bgs	1	Creamware: Light-Colored Yellow		1775-1820
53	STU 68 N	1	0-27 cm bgs	1	Unidentified Prehistoric Ware: Shell Tempered, Body		
53	STU 68 N	1	0-27 cm bgs	1	Flake w/Cortex 16-20mm: Jasper		
54	STU 68 S	1	0-24 cm bgs	1	Creamware: Light-Colored Yellow		1775-1820
54	STU 68 S	1	0-24 cm bgs	1	Whiteware: Plain		1810-2000
54	STU 68 S	1	0-24 cm bgs	1	Redware: Brown Glaze		
55	STU 71	1	0-23 cm bgs	1	Flake 11-15mm: Jasper		
56	STU 71 S	1	0-34 cm bgs	1	Whiteware: Plain	Burnt	1810-2000
56	STU 71 S	1	0-34 cm bgs	1	Creamware: Light-Colored Yellow		1775-1820
56	STU 71 S	1	0-34 cm bgs	1	Unidentified Bottle Fragment: Aqua		
56	STU 71 S	1	0-34 cm bgs	1	Decorated/Embossed Glass Fragment: Clear		
56	STU 71 S	1	0-34 cm bgs	1	Flake w/Cortex 11-15mm: Chert		
56	STU 71 S	1	0-34 cm bgs	1	Flake w/Cortex 11-15mm: Jasper		
57	STU 71 N	1	0-23 cm bgs	1	Unidentified Bottle Fragment: Olive Green		
57	STU 71 N	1	0-23 cm bgs	1	Pearlware: Monochrome Hand Painted	Blue	1779-1830
58	STU 71 W	1	0-34 cm bgs	1	Unidentified Bottle Fragment: Aqua		
58	STU 71 W	1	0-34 cm bgs	1	Machine-Made Bottle Fragment: Clear		1903-2000
58	STU 71 W	1	0-34 cm bgs	1	Whiteware: Plain		1810-2000
58	STU 71 W	1	0-34 cm bgs	1	Flake w/Cortex 6-10mm: Chert		
58	STU 71 W	1	0-34 cm bgs	1	Flake w/Cortex 26-30mm: Chert		
59	STU 71 E	1	0-27 cm bgs	1	Machine-Made Bottle Fragment: Clear		1903-2000
59	STU 71 E	1	0-27 cm bgs	1	Whiteware: Plain		1810-2000
59	STU 71 E	1	0-27 cm bgs	1	Flake w/Cortex 31-35mm: Chert		
60	STU 71 E Rad	1	0-24 cm bgs	1	Unidentified Bottle Fragment: Aqua		
60	STU 71 E Radial	1	0-24 cm bgs	1	Whiteware: Blue Transfer Print		1815-1915
60	STU 71 E Radial	1	0-24 cm bgs	1	Redware: Thick Black Glaze		
60	STU 71 E Radial	1	0-24 cm bgs	1	Redware: Plain, Clear Glaze	Glazed Interior, Unglazed Exterior	
60	STU 71 E Radial	1	0-24 cm bgs	1	Redware: Unglazed		
60	STU 71 E Radial	1	0-24 cm bgs	1	Imported Brown Stoneware: Unidentified	Eroded	

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2013.5.	STU/EU	LEVEL	DEPTH	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
60	STU 71 E Radial	1	0-24 cm bgs	1	Flake 6-10mm: Jasper		
60	STU 71 E Radial	1	0-24 cm bgs	1	Flake 11-15mm: Chert		
60	STU 71 E Radial	1	0-24 cm bgs	1	Flake w/Cortex 11-15mm: Chert		
61	STU 72	2	8-30 cm bgs	2	Brick, Fragment: Unidentified, Unglazed		
61	STU 72	2	8-30 cm bgs	1	Petroleum Product: Asphalt	Shingle	1920-2000
61	STU 72	2	8-30 cm bgs	1	Unidentified Bottle Fragment: Aqua		
61	STU 72	2	8-30 cm bgs	1	Whiteware: Plain		1810-2000
61	STU 72	2	8-30 cm bgs	1	Whiteware: Annular	Blue	1810-2000
62	STU 73	1	0-30 cm bgs	1	Cut Common Nail: 1.5 - 2 Inch Long		1805-2000
63	STU 73	2	30-45 cm bgs	1	Coulbourn Ware: Cordmarked, Body	Sand and Grog Tempered	2350-2050
64	STU 73 W	2	15-33 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
64	STU 73 W	2	15-33 cm bgs	2	Unidentified Bottle Fragment: Amethyst		1880-1915
64	STU 73 W	2	15-33 cm bgs	1	Creamware: Light-Colored Yellow		1775-1820
64	STU 73 W	2	15-33 cm bgs	1	Whiteware: Molded		1810-2000
65	STU 73 E	2	12-30 cm bgs	1	Redware: Unglazed		
65	STU 73 E	2	12-30 cm bgs	2	Whiteware: Plain		1810-2000
65	STU 73 E	2	12-30 cm bgs	1	Unidentified Bottle Fragment: Aqua		
66	STU 73 E	3	30-43 cm bgs	1	Accokeek Ware: Plain, Body		2350-1950
67	STU 74	2	60-75 cm bgs	1	Flake w/Cortex 16-20mm: Chert		
67	STU 74	2	60-75 cm bgs	1	Flake w/Cortex 11-15mm: Jasper		
68	STU 74 S	4	63-83 cm bgs	2	Coulbourn Ware: Cordmarked, Body	Sand and Grog Tempered	2350-2050
68	STU 74 S	4	63-83 cm bgs	1	Flake 6-10mm: Jasper		
69	STU 74 W	3	20-48 cm bgs	1	Wire Common Nail: 2 - 2.5 Inch Long	Burnt	1850-2000
69	STU 74 W	3	20-48 cm bgs	1	Button: Shell		
69	STU 74 W	3	20-48 cm bgs	1	Fastener, Metal: Spike		
69	STU 74 W	3	20-48 cm bgs	1	White Granite Ware: Plain		1842-1930
69	STU 74 W	3	20-48 cm bgs	1	Decorated/Embossed Glass Fragment: Clear		
70	STU 74 W	4	48-67 cm bgs	1	Flake w/Cortex 16-20mm: Jasper		
70	STU 74 W	4	48-67 cm bgs	1	Flake w/Cortex 21-25mm: Chert		
71	STU 75	3	48-64 cm bgs	2	Coulbourn Ware: Plain, Body	Crushed Quartz and Grog Tempered	2350-2050
71	STU 75	3	48-64 cm bgs	1	Unidentified Prehistoric Ware: Shell Tempered, Body		
72	STU 75 E	2	16-39 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
72	STU 75 E	2	16-39 cm bgs	1	Nail: Unidentified		
72	STU 75 E	2	16-39 cm bgs	1	Redware: Unglazed		

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2013.5.	STU/EU	LEVEL	DEPTH	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
73	STU 101	2	20-50 cm bgs	1	Unidentified Bottle Fragment: Clear		
73	STU 101	2	20-50 cm bgs	1	Whiteware: Blue Transfer Print		1815-1915
74	STU 102	2	10-20 cm bgs	1	Free-Blown Bottle Fragment: Olive Green		
74	STU 102	2	10-20 cm bgs	1	Whiteware: Color Glaze	Blue	1815-2000
75	STU 102	3	20-32 cm bgs	1	Flake w/Cortex 16-20mm: Chert		
76	STU 103	3	30-55 cm bgs	1	White Granite Ware: Plain		1842-1930
76	STU 103	3	30-55 cm bgs	1	Early Refined Earthenware: Buff Body, Manganese Mottled	Tiny Fragment	1680-1780
76	STU 103	3	30-55 cm bgs	1	Flake 6-10mm: Jasper		
77	STU 103	4	55-62 cm bgs	1	White Granite Ware: Plain	"...Made In…"	1842-1930
77	STU 103	4	55-62 cm bgs	1	Unidentified Glass Object: Slag		
78	STU 104	2	11-49 cm bgs	1	Whiteware: Plain		1810-2000
78	STU 104	2	11-49 cm bgs	1	Whiteware: Blue Hand Painted		1810-1930
78	STU 104	2	11-49 cm bgs	2	Pearlware: Plain		1779-1830
78	STU 104	2	11-49 cm bgs	1	Redware: Plain, Clear Glaze		
78	STU 104	2	11-49 cm bgs	1	Redware: Brown Glaze	Glazed One Surface	
78	STU 104	2	11-49 cm bgs	2	Unidentified Glass Object: Slag		
78	STU 104	2	11-49 cm bgs	1	Flake w/Cortex 11-15mm: Jasper		
78	STU 104	2	11-49 cm bgs	1	Fire-Cracked Rock: Untyped		
79	EU 1	1	0-25 cm bgs	1	Brick, Fragment: Unidentified, Unglazed		
79	EU 1	1	0-25 cm bgs	1	Cut Common Nail: Fragment		1805-2000
79	EU 1	1	0-25 cm bgs	1	Window Glass: All Thicknesses		
79	EU 1	1	0-25 cm bgs	1	Unidentified Bottle Fragment: Clear		
80	EU 1	Fea 1, Lyr I, Lvl 1	25-35 cm bgs	1	Other: Unspecified	C14 Sample	
80	EU 1	Fea 1, Lyr I, Lvl 1	25-35 cm bgs	4	Unidentified Prehistoric Ware: Unidentified		
81	EU 1	Fea 1, Lyr I, Lvl 2	35-45 cm bgs	1	Other: Unspecified	C14 Sample	
82	EU 1	Fea 1, Lyr I, Lvl 3	45-51 cm bgs	2	Unidentified Prehistoric Ware: Unidentified	Burnt (?)	
83	EU 1	Fea 1, Lyr II	51-61 cm bgs	1	Flotation: Heavy Fraction		
83	EU 1	Fea 1, Lyr II	51-61 cm bgs	1	Flotation: Light Fraction		
			Total:	234			

Artifact Inventory
Phase II Archeological Survey of the Junction and Breakwater Trail
Smith Farm Site (7S-D-097)
Lewes, Sussex County, Delaware
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2013.5.1.	old #	AREA	FEATURE	EU	LEVEL	DEPTH (CMBS)	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
41	84	Smith Farm: Locus 1		EU 2	1	0-60	1	Coal: Lump/Nugget		
41	84	Smith Farm: Locus 2		EU 2	1	0-60	7	Brick, Fragment: Unidentified, Unglazed	Red	
41	84	Smith Farm: Locus 3		EU 2	1	0-60	1	Pipe Stem: 6/64th-Inch Ball Clay		1680-1710
41	84	Smith Farm: Locus 4		EU 2	1	0-60	1	Hard-Paste Porcelain: Hand-Painted Overglaze	Gilded	
41	84	Smith Farm: Locus 5		EU 2	1	0-60	1	Flake w/Cortex 11-15mm: Jasper		
41	84	Smith Farm: Locus 6		EU 2	1	0-60	7	Nail: Unidentified		
41	84	Smith Farm: Locus 7		EU 2	1	0-60	3	Brick, Fragment: Unidentified, Unglazed	Orange	
41	84	Smith Farm: Locus 8		EU 2	1	0-60	1	Flake 16-20mm: Chert	Possibly Utilized	
41	84	Smith Farm: Locus 9		EU 2	1	0-60	1	Stoneware, Unspecified: Sherd	Eroded	
41	84	Smith Farm: Locus 10		EU 2	1	0-60	1	Miscellaneous, Metal: Unidentified		
41	84	Smith Farm: Locus 11		EU 2	1	0-60	1	Unidentified Prehistoric Ware: Unidentified		
41	84	Smith Farm: Locus 12		EU 2	1	0-60	1	Unidentified Bottle Fragment: Amber		
42	85	Smith Farm: Locus 13		EU 2	2	60-70	1	Unidentified Prehistoric Ware: Unidentified		
43	86	Smith Farm: Locus 14		EU 3	1	0-40	4	Flake 11-15mm: Jasper		
43	86	Smith Farm: Locus 15		EU 3	1	0-40	1	Coal: Lump/Nugget		
43	86	Smith Farm: Locus 16		EU 3	1	0-40	5	Brick, Fragment: Unidentified, Unglazed	Orange	
43	86	Smith Farm: Locus 17		EU 3	1	0-40	1	Coal: Coal Ash (Slag)		

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Lewes, Sussex County, Delaware
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2013.5.1.	old #	AREA	FEATURE	EU	LEVEL	DEPTH (CMBS)	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
43	86	Smith Farm: Locus 18		EU 3	1	0-40	1	Flake 6-10mm: Jasper		
43	86	Smith Farm: Locus 19		EU 3	1	0-40	1	Flake 21-25mm: Jasper		
43	86	Smith Farm: Locus 20		EU 3	1	0-40	1	Flake w/Cortex 16-20mm: Jasper		
43	86	Smith Farm: Locus 21		EU 3	1	0-40	3	Unidentified Bottle Fragment: Clear		
43	86	Smith Farm: Locus 22		EU 3	1	0-40	1	Redware: Brown Glaze		
43	86	Smith Farm: Locus 23		EU 3	1	0-40	1	Miscellaneous, Metal: Unidentified	Lump	
43	86	Smith Farm: Locus 24		EU 3	1	0-40	1	Plumbing, Ceramic: Drainage Pipe		
43	86	Smith Farm: Locus 25		EU 3	1	0-40	2	Whiteware: Plain		1810-2000
43	86	Smith Farm: Locus 26		EU 3	1	0-40	1	Pearlware: Blue Transfer Print		1783-1840
43	86	Smith Farm: Locus 27		EU 3	1	0-40	1	Other: Unidentified	Organic	
43	86	Smith Farm: Locus 28		EU 3	1	0-40	1	Window Glass: All Thicknesses		
43	86	Smith Farm: Locus 29		EU 3	1	0-40	2	Faunal: Oyster Shell Fragments		
43	86	Smith Farm: Locus 30		EU 3	1	0-40	1	Miscellaneous, Metal: Unidentified	Flat	
43	86	Smith Farm: Locus 31		EU 3	1	0-40	1	Pearlware: Plain		1779-1830
43	86	Smith Farm: Locus 32		EU 3	1	0-40	1	Hard-Paste Porcelain: Plain	Plate Fragment	
43	86	Smith Farm: Locus 33		EU 3	1	0-40	13	Brick, Fragment: Unidentified, Unglazed	Red	
43	86	Smith Farm: Locus 34		EU 3	1	0-40	5	Nail: Unidentified		

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2013.5.1.	old #	AREA	FEATURE	EU	LEVEL	DEPTH (CMBS)	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
44	87	Smith Farm: Locus 35		EU 3	2	40-55	1	Unidentified Prehistoric Ware: Unidentified		
45	88	Smith Farm: Locus 36		EU 4	1	0-18	3	Unidentified Bottle Fragment: Clear		
45	88	Smith Farm: Locus 37		EU 4	1	0-18	4	Whiteware: Plain		1810-2000
45	88	Smith Farm: Locus 38		EU 4	1	0-18	1	Whiteware: Plain	Cup Rim	1810-2000
45	88	Smith Farm: Locus 39		EU 4	1	0-18	1	Window Glass: All Thicknesses		
45	88	Smith Farm: Locus 40		EU 4	1	0-18	12	Nail: Unidentified		
45	88	Smith Farm: Locus 41		EU 4	1	0-18	1	Brick, Fragment: Unidentified, Unglazed	Red	
45	88	Smith Farm: Locus 42		EU 4	1	0-18	1	Glass Tableware: Commercial Tumbler		
45	88	Smith Farm: Locus 43		EU 4	1	0-18	3	Coal: Coal Ash (Slag)		
45	88	Smith Farm: Locus 44		EU 4	1	0-18	3	Miscellaneous, Metal: Unidentified		
46	89	Smith Farm: Locus 45		EU 4	2	18-38	1	Decorated/Embossed Glass Fragment: Clear		
46	89	Smith Farm: Locus 46		EU 4	2	18-38	1	Unidentified Bottle Fragment: Aqua		
46	89	Smith Farm: Locus 47		EU 4	2	18-38	1	Redware: Plain, Clear Glaze	Pan Rim	
46	89	Smith Farm: Locus 48		EU 4	2	18-38	1	Hard-Paste Porcelain: Plain		
46	89	Smith Farm: Locus 49		EU 4	2	18-38	2	Faunal: Oyster Shell Fragments		
46	89	Smith Farm: Locus 50		EU 4	2	18-38	1	Machine-Made Bottle Fragment: Clear	Lip	1903-2000
46	89	Smith Farm: Locus 51		EU 4	2	18-38	1	Brick, Fragment: Unidentified, Unglazed	Red	

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2013.5.1.	old #	AREA	FEATURE	EU	LEVEL	DEPTH (CMBS)	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
46	89	Smith Farm: Locus 52		EU 4	2	18-38	1	Storage, Metal: Crown Bottle Cap		1892-2000
46	89	Smith Farm: Locus 53		EU 4	2	18-38	4	Brick, Fragment: Unidentified, Unglazed	Orange	
46	89	Smith Farm: Locus 54		EU 4	2	18-38	1	Glass Tableware: Commercial Tumbler		
46	89	Smith Farm: Locus 55		EU 4	2	18-38	1	Glass Tableware: Unidentified Molded		
46	89	Smith Farm: Locus 56		EU 4	2	18-38	1	Kitchen Glass: Canning Jar, Screw Top		1858-2000
46	89	Smith Farm: Locus 57		EU 4	2	18-38	1	Fastener, Metal: Nonferrous Grommet		
46	89	Smith Farm: Locus 57		EU 4	2	18-38	5	Nail: Unidentified		
46	89	Smith Farm: Locus 57		EU 4	2	18-38	1	Machine-Made Bottle: Milk Bottle		1903-2000
46	89	Smith Farm: Locus 57		EU 4	2	18-38	1	Unidentified Bottle Fragment: Light Blue		
46	89	Smith Farm: Locus 57		EU 4	2	18-38	1	Whiteware: Decal, Overglaze	Plate Fragment	1897-2000
46	89	Smith Farm: Locus 57		EU 4	2	18-38	2	Coca-Cola Bottle Frag, Hobble Skirt: Coke-Bottle Green		1915-2000
46	89	Smith Farm: Locus 57		EU 4	2	18-38	9	Unidentified Bottle Fragment: Clear		
46	89	Smith Farm: Locus 57		EU 4	2	18-38	2	Window Glass: 6 - 7mm Thick	Plate Glass	
47	90	Smith Farm: Locus 57		EU 4	3	38-63	1	Brick, Fragment: Unidentified, Unglazed	Red	
47	90	Smith Farm: Locus 57		EU 4	3	38-63	5	Brick, Fragment: Unidentified, Unglazed	1 W/ Iron Lump Attached	
47	90	Smith Farm: Locus 57		EU 4	3	38-63	1	Redware: Brown Glaze		
47	90	Smith Farm: Locus 57		EU 4	3	38-63	5	Whiteware: Plain		1810-2000

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2013.5.1.	old #	AREA	FEATURE	EU	LEVEL	DEPTH (CMBS)	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
47	90	Smith Farm: Locus 57		EU 4	3	38-63	1	Unidentified Prehistoric Ware: Unidentified		
47	90	Smith Farm: Locus 57		EU 4	3	38-63	1	Core: Jasper	Pebble, Possibly Utilized	
47	90	Smith Farm: Locus 57		EU 4	3	38-63	2	Flake w/Cortex 21-25mm: Jasper		
47	90	Smith Farm: Locus 57		EU 4	3	38-63	1	Redware: Unglazed		
47	90	Smith Farm: Locus 57		EU 4	3	38-63	1	Flake 11-15mm: Jasper		
47	90	Smith Farm: Locus 57		EU 4	3	38-63	1	Flake w/Cortex 16-20mm: Jasper		
47	90	Smith Farm: Locus 57		EU 4	3	38-63	1	Unidentified Bottle Fragment: Aqua		
47	90	Smith Farm: Locus 57		EU 4	3	38-63	1	Free-Blown Bottle Fragment: Olive Green		
47	90	Smith Farm: Locus 57		EU 4	3	38-63	1	Decorated/Embossed Glass Fragment: Aqua		
47	90	Smith Farm: Locus 57		EU 4	3	38-63	4	Unidentified Bottle Fragment: Clear		
48	91	Smith Farm: Locus 57		EU 4	4	63-75	1	Unidentified Prehistoric Ware: Unidentified	Possibly Burned	
48	91	Smith Farm: Locus 57		EU 4	4	63-75	2	Flake 11-15mm: Jasper		
48	91	Smith Farm: Locus 57		EU 4	4	63-75	1	Pipe Bowl Fragment: Ball Clay	Weathered	
49	92	Smith Farm: Locus 57		EU 4	5	75-90	1	Fire-Cracked Rock: Quartzite		
49	92	Smith Farm: Locus 57		EU 4	5	75-90	1	Coal, Wood: Charcoal		
50	93	Smith Farm: Locus 57		EU 5	1	0-32	1	Flake w/Cortex 16-20mm: Jasper		
50	93	Smith Farm: Locus 57		EU 5	1	0-32	1	Flake 16-20mm: Chert		

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2013.5.1.	old #	AREA	FEATURE	EU	LEVEL	DEPTH (CMBS)	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
50	93	Smith Farm: Locus 57		EU 5	1	0-32	1	Flake w/Cortex 11-15mm: Jasper		
51	94	Smith Farm: Locus 57		EU 5	1	32-72	1	Fire-Cracked Rock: Quartzite		
51	94	Smith Farm: Locus 57		EU 5	1	32-72	4	Nail: Unidentified		
51	94	Smith Farm: Locus 57		EU 5	1	32-72	2	Flake 11-15mm: Jasper		
51	94	Smith Farm: Locus 57		EU 5	1	32-72	1	Brick, Fragment: Unidentified, Unglazed	Orange	
51	94	Smith Farm: Locus 57		EU 5	1	32-72	1	Redware: Plain, Clear Glaze	Pie Dish Rim	
51	94	Smith Farm: Locus 57		EU 5	1	32-72	1	Utensil, Metal: Large Spoon	Brass, Plating Worn Off	
52	95	Smith Farm: Locus 57		EU 6	1	0-20	1	Storage, Metal: Tin Can	Possible Fragment	1837-2000
52	95	Smith Farm: Locus 57		EU 6	1	0-20	5	Nail: Unidentified		
52	95	Smith Farm: Locus 57		EU 6	1	0-20	1	Miscellaneous, Metal: Flat Iron		
52	95	Smith Farm: Locus 57		EU 6	1	0-20	1	Miscellaneous, Metal: Flat Iron	Bent	
52	95	Smith Farm: Locus 57		EU 6	1	0-20	2	Brick, Fragment: Unidentified, Unglazed	Orange	
53	96	Smith Farm: Locus 57		EU 6	2	20-35	1	Redware: Brown Glaze		
54	97	Smith Farm: Locus 57		EU 6	3	35-50	1	Flake 11-15mm: Chalcedony		
54	97	Smith Farm: Locus 57		EU 6	3	35-50	3	Coal, Wood: Charcoal		
55	98	Smith Farm: Locus 57	2	EU 6		55-80	7	Coal, Wood: Charcoal		
55	98	Smith Farm: Locus 57	2	EU 6		55-80	1	Unidentified Prehistoric Ware: Unidentified		

Artifact Inventory
Phase II Archeological Survey of the Junction and Breakwater Trail
Smith Farm Site (7S-D-097)
Lewes, Sussex County, Delaware
August 6-15, 2013 JMA

2013.5.1.	old #	AREA	FEATURE	EU	LEVEL	DEPTH (CMBS)	CT	ARTIFACT DESCRIPTION	COMMENTS	DATE RANGE
56	99	Smith Farm: Locus 57		EU 7	1	10-20	1	Brick, Fragment: Unidentified, Unglazed	Orange	
56	99	Smith Farm: Locus 57		EU 7	1	10-20	1	Slipware: Plain, Clear Glaze	Jug Rim	1670-1795
56	99	Smith Farm: Locus 57		EU 7	1	10-20	1	Flake 16-20mm: Jasper	Gray, Chalcedony Like	
56	99	Smith Farm: Locus 57		EU 7	1	10-20	2	Brick, Fragment: Unidentified, Unglazed	Red	
56	99	Smith Farm: Locus 57		EU 7	1	10-20	2	Wire Common Nail: Complete		1850-2000
56	99	Smith Farm: Locus 57		EU 7	1	10-20	4	Wire Common Nail: Complete	Lead Disk Heads	1850-2000
57	100	Smith Farm: Locus 57		EU 7	2		4	Unidentified Bottle Fragment: Clear		
57	100	Smith Farm: Locus 57		EU 7	2		12	Miscellaneous, Metal: Unidentified	Lumps	
57	100	Smith Farm: Locus 57		EU 7	2		1	Redware: Brown Glaze		
57	100	Smith Farm: Locus 57		EU 7	2		1	Unidentified Ceramic: Unglazed White Body		
57	100	Smith Farm: Locus 57		EU 7	2		1	Core: Jasper	Pebble	
57	100	Smith Farm: Locus 57		EU 7	2		1	Redware: Thick Black Glaze	Overfired	
57	100	Smith Farm: Locus 57		EU 7	2		4	Flake w/Cortex 11-15mm: Jasper		
57	100	Smith Farm: Locus 57		EU 7	2		1	Brick, Fragment: Unidentified, Unglazed	Red	
57	100	Smith Farm: Locus 57		EU 7	2		3	Flake 11-15mm: Jasper		
57	100	Smith Farm: Locus 57		EU 7	2		8	Unidentified Prehistoric Ware: Unidentified		
57	100	Smith Farm: Locus 57		EU 7	2		1	Brick, Fragment: Unidentified, Unglazed	Orange	

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57	100	Smith Farm: Locus 57		EU 7	2		2	Flake w/Cortex 16-20mm: Jasper	Pebble	
58	101	Smith Farm: Locus 57		EU 7	3		1	Flake w/Cortex 16-20mm: Jasper		
58	101	Smith Farm: Locus 57		EU 7	3		2	Unidentified Prehistoric Ware: Unidentified		
58	101	Smith Farm: Locus 57		EU 7	3		2	Miscellaneous, Metal: Flat Iron		
58	101	Smith Farm: Locus 57		EU 7	3		1	Flake 21-25mm: Jasper		
59	102	Smith Farm: Locus 57		EU 8	1		1	White Granite Ware: Plain		1842-1930
59	102	Smith Farm: Locus 57		EU 8	1		4	Miscellaneous, Metal: Unidentified	Lumps	
59	102	Smith Farm: Locus 57		EU 8	1		1	Flake 11-15mm: Jasper		
59	102	Smith Farm: Locus 57		EU 8	1		3	Nail: Unidentified		
59	102	Smith Farm: Locus 57		EU 8	1		2	Unidentified Bottle Fragment: Clear		
59	102	Smith Farm: Locus 57		EU 8	1		1	Fastener, Metal: Spike		
60	103	Smith Farm: Locus 57		EU 8	2		1	White Granite Ware: Plain		1842-1930
60	103	Smith Farm: Locus 57		EU 8	2		1	Pearlware: Annular (Dipped)		1780-1830
60	103	Smith Farm: Locus 57		EU 8	2		4	Nail: Unidentified		
60	103	Smith Farm: Locus 57		EU 8	2		2	Whiteware: Blue Hand Painted		1810-1930
60	103	Smith Farm: Locus 57		EU 8	2		5	Unidentified Bottle Fragment: Clear		
60	103	Smith Farm: Locus 57		EU 8	2		1	Unidentified Prehistoric Ware: Unidentified		

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60	103	Smith Farm: Locus 57		EU 8	2		3	Redware: Thick Black Glaze	1 Rim, 2 Body	
60	103	Smith Farm: Locus 57		EU 8	2		2	Faunal: Oyster Shell Fragments		
60	103	Smith Farm: Locus 57		EU 8	2		1	Lamp Chimney, Glass: Clear		
60	103	Smith Farm: Locus 57		EU 8	2		1	Whiteware: Plain		1810-2000
60	103	Smith Farm: Locus 57		EU 8	2		2	Window Glass: All Thicknesses		
60	103	Smith Farm: Locus 57		EU 8	2		1	Flake w/Cortex 16-20mm: Jasper		
60	103	Smith Farm: Locus 57		EU 8	2		2	Flake 16-20mm: Jasper		
60	103	Smith Farm: Locus 57		EU 8	2		1	Flake w/Cortex 21-25mm: Jasper		
60	103	Smith Farm: Locus 57		EU 8	2		1	Decorated/Embossed Glass Fragment: Clear		
60	103	Smith Farm: Locus 57		EU 8	2		1	Redware: Plain, Clear Glaze		
60	103	Smith Farm: Locus 57		EU 8	2		1	Unidentified Ceramic: Unglazed White Body		
60	103	Smith Farm: Locus 57		EU 8	2		1	Unidentified Bottle Fragment: Aqua		
60	103	Smith Farm: Locus 57		EU 8	2		1	Unidentified Bottle Fragment: Clear	Melted	
61	104	Smith Farm: Locus 57		EU 9	1	0-20	3	Faunal: Shell/Snail	Conch Shell	
61	104	Smith Farm: Locus 57		EU 9	1	0-20	1	Brick, Fragment: Unidentified, Unglazed	Orange	
61	104	Smith Farm: Locus 57		EU 9	1	0-20	2	Miscellaneous, Metal: Unidentified		
61	104	Smith Farm: Locus 57		EU 9	1	0-20	2	Miscellaneous, Biological: Other	Wax	

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61	104	Smith Farm: Locus 57		EU 9	1	0-20	1	Cut Common Nail: Complete		1805-2000
61	104	Smith Farm: Locus 57		EU 9	1	0-20	2	Hardware, Metal: Angle Bracket		
61	104	Smith Farm: Locus 57		EU 9	1	0-20	2	Wire Common Nail: Fragment	1 W/ Lead Head	1850-2000
61	104	Smith Farm: Locus 57		EU 9	1	0-20	113	Whiteware: Polychrome Hand Painted	Mends to One Flower Pot W/ "…BER…RY"	1830-1875
61	104	Smith Farm: Locus 57		EU 9	1	0-20	1	Mortar: Portland Cement		1876-2000
61	104	Smith Farm: Locus 57		EU 9	1	0-20	1	Unidentified Nail: Cut or Wrought		
61	104	Smith Farm: Locus 57		EU 9	1	0-20	1	Nail: Unidentified		
61	104	Smith Farm: Locus 57		EU 9	1	0-20	1	Gardening, Ceramic: Flower Pot		
61	104	Smith Farm: Locus 57		EU 9	1	0-20	1	Plumbing, Ceramic: Bathroom Fixture		
61	104	Smith Farm: Locus 57		EU 9	1	0-20	14	Kitchen Glass: Jar, Screw Top	Mends to One Jar, Threaded Mouth	1858-2000
62	105	Smith Farm: Locus 57		EU 9	2	20-30	1	Faunal: Clam		
62	105	Smith Farm: Locus 57		EU 9	2	20-30	6	Nail: Unidentified		
62	105	Smith Farm: Locus 57		EU 9	2	20-30	1	Miscellaneous, Metal: Unidentified		
62	105	Smith Farm: Locus 57		EU 9	2	20-30	1	Whiteware: Blue Transfer Print	Burnt	1815-1915
62	105	Smith Farm: Locus 57		EU 9	2	20-30	1	Whiteware: Plain	Plate Rim, Burnt	1810-2000
62	105	Smith Farm: Locus 57		EU 9	2	20-30	12	Unidentified Bottle Fragment: Clear		
62	105	Smith Farm: Locus 57		EU 9	2	20-30	3	Gardening, Ceramic: Flower Pot		

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62	105	Smith Farm: Locus 57		EU 9	2	20-30	1	Flake w/Cortex 16-20mm: Jasper		
62	105	Smith Farm: Locus 57		EU 9	2	20-30	1	Brick, Fragment: Unidentified, Unglazed	Red	
62	105	Smith Farm: Locus 57		EU 9	2	20-30	3	Miscellaneous, Metal: Flat Iron		
62	105	Smith Farm: Locus 57		EU 9	2	20-30	3	Whiteware: Polychrome Hand Painted	Mends to Flowerpot	1830-1875
62	105	Smith Farm: Locus 57		EU 9	2	20-30	1	Hard-Paste Porcelain: Plain		
62	105	Smith Farm: Locus 57		EU 9	2	20-30	1	Faunal: Oyster Shell Fragments		
62	105	Smith Farm: Locus 57		EU 9	2	20-30	2	Whiteware: Plain		1810-2000
63	106	Smith Farm: Locus 57		EU 10	2		6	Window Glass: All Thicknesses		
63	106	Smith Farm: Locus 57		EU 10	2		3	Nail: Unidentified		
63	106	Smith Farm: Locus 57		EU 10	2		1	Redware: Trailed Slip, Clear Glaze		1670-1850
63	106	Smith Farm: Locus 57		EU 10	2		1	Machine-Made Bottle Fragment: Amber		1903-2000
64	107	Smith Farm: Locus 57		EU 10	3		1	Blocky Fragment w/Cortex 26-30mm: Chert	Possibly Utilized	
65	108	Smith Farm: Locus 57	3	EU 10			1	Mortar: Unidentified		
65	108	Smith Farm: Locus 57	3	EU 10			4	Window Glass: All Thicknesses		
65	108	Smith Farm: Locus 57	3	EU 10			2	Unidentified Bottle Fragment: Clear		
66	109	Smith Farm: Locus 57		EU 11	1	0-20	3	Nail: Unidentified		
66	109	Smith Farm: Locus 57		EU 11	1	0-20	1	Faunal: Oyster Shell Fragments		

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66	109	Smith Farm: Locus 57		EU 11	1	0-20	2	Unidentified Bottle Fragment: Clear		
66	109	Smith Farm: Locus 57		EU 11	1	0-20	1	Plumbing, Ceramic: Bathroom Fixture		
66	109	Smith Farm: Locus 57		EU 11	1	0-20	1	Brick: Fire		
66	109	Smith Farm: Locus 57		EU 11	1	0-20	3	Wire Common Nail: Fragment		1850-2000
66	109	Smith Farm: Locus 57		EU 11	1	0-20	1	Unidentified Metal Object: Slag		
66	109	Smith Farm: Locus 57		EU 11	1	0-20	1	Faunal: Clam		
66	109	Smith Farm: Locus 57		EU 11	1	0-20	2	Brick, Fragment: Unidentified, Unglazed	Red	
66	109	Smith Farm: Locus 57		EU 11	1	0-20	1	Brick, Fragment: Unidentified, Unglazed	Orange	
66	109	Smith Farm: Locus 57		EU 11	1	0-20	2	Window Glass: All Thicknesses		
66	109	Smith Farm: Locus 57		EU 11	1	0-20	1	Flat Glass: Colored	Rippled, Cream Colored Variegated	
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Flake 11-15mm: Jasper		
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Blocky Fragment w/Cortex 16-20mm: Chert		
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Wire Common Nail: Fragment		1850-2000
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Flake 6-10mm: Jasper		
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Unidentified Nail: Cut or Wrought		
67	110	Smith Farm: Locus 57		EU 11	2	20-	3	Window Glass: All Thicknesses		
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Blocky Fragment w/Cortex 6-10mm: Jasper		

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67	110	Smith Farm: Locus 57		EU 11	2	20-	2	Unidentified Prehistoric Ware: Unidentified		
67	110	Smith Farm: Locus 57		EU 11	2	20-	2	Brick, Fragment: Unidentified, Unglazed	Orange	
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Redware: Thick Black Glaze		
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Miscellaneous, Metal: Unidentified		
67	110	Smith Farm: Locus 57		EU 11	2	20-	4	Faunal: Oyster Shell Fragments		
67	110	Smith Farm: Locus 57		EU 11	2	20-	4	Nail: Unidentified		
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Flake w/Cortex 11-15mm: Jasper		
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Fire-Cracked Rock: Quartzite		
67	110	Smith Farm: Locus 57		EU 11	2	20-	2	Brick, Fragment: Unidentified, Unglazed	Red	
67	110	Smith Farm: Locus 57		EU 11	2	20-	1	Flake w/Cortex 16-20mm: Jasper		
67	110	Smith Farm: Locus 57		EU 11	2	20-	4	Unidentified Metal Object: Slag		
68	111	Smith Farm: Locus 57	5	EU 11		30-45	2	Faunal: Oyster Shell Fragments		
68	111	Smith Farm: Locus 57	5	EU 11		30-45	3	Unidentified Prehistoric Ware: Unidentified		
68	111	Smith Farm: Locus 57	5	EU 11		30-45	1	Brick, Fragment: Unidentified, Unglazed	Red	
68	111	Smith Farm: Locus 57	5	EU 11		30-45	1	Flake 6-10mm: Jasper		
68	111	Smith Farm: Locus 57	5	EU 11		30-45	1	Core: Chert	Pebble	
69	112	Smith Farm: Locus 57	6	EU 11		30-45	2	Brick, Fragment: Unidentified, Unglazed	Orange	

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69	112	Smith Farm: Locus 57	6	EU 11		30-45	1	Miscellaneous, Metal: Flat Iron		
70	113	Smith Farm: Locus 57		EU 11	4	40-50	1	Nail: Unidentified		
70	113	Smith Farm: Locus 57		EU 11	4	40-50	1	Brick, Fragment: Unidentified, Unglazed	Orange	
						Total	576			

Appendix II:

Personnel Qualifications

TIMOTHY J. MANCL
Project Archeologist
John Milner Associates, Inc.
The Barclay
535 North Church Street
West Chester, PA 19380
(610) 436-9000 (phone)
(610) 436-8468 (fax)
tmancl@johnmilnerasociates.com (e-mail)

EDUCATION

M.S.	Michigan Technological University	Industrial Archaeology	2003
M.A.	University of Delaware	American History	2001
B.A.	Western Connecticut State University	American Studies	1998

PROFESSIONAL CERTIFICATIONS AND SPECIALIZED TRAINING

OSHA 40-hour Hazardous Waste Operations Certification since 2004.
Registered Professional Archeologist since 2003.

EXPERIENCE PROFILE

Timothy J. Mancl is a graduate of Western Connecticut State University, and holds Master's degrees in American History from the Hagley Program at the University of Delaware and in Industrial Archeology from Michigan Technological University. Mr. Mancl specializes in the history and archeology of nineteenth century American industrial development and processes from New England to the Mid-Atlantic. He has researched and conducted archeological investigations of prehistoric, and urban, industrial, and rural historic-period sites in Connecticut, Delaware, Kentucky, Massachusetts, Michigan, New York, and Pennsylvania, and has conducted state-level documentation of engineering structures in Connecticut and Maryland.

KEY PROJECTS

2012	Project Archeologist, Archeological Investigations on a portion of the Dover Green,, Kent County, Delaware. Delaware Department of Historical and Cultural Affairs.
2012	Project Archeologist, Phase I Archeological Survey and Phase II Archeological Evaluation of the proposed Phase 2A Expansion at the Inland Bays Regional Wastewater Treatment Facility, Sussex County, Delaware. Whitman, Requardt and Associates, LLP, and the Sussex County Engineering Department.
2011	Project Archeologist, Archeological Investigations at the Old Brick Church, Dover, Kent County, Delaware. Delaware Department of Historical and Cultural Affairs.
2011	Project Archeologist, Booklet on the Wilmington, Delaware Water Works and Documentation of the Brandywine Filtration Plant. City of Wilmington, Delaware.
2011	Project Archeologist, Archeological Investigations at the Dutch House, New Castle, Delaware. New Castle Historical Society.
2010	Project Archeologist, Archeological Evaluation of Industrial Sites at Birch Hill Dam, Worchester County, Massachusetts. Army Corps of Engineers. New England District.
2010	Project Archeologist, Archeological Inventory and Assessment of the Sayers Lake Shoreline, Centre County, Pennsylvania. Army Corps of Engineers. Baltimore District.

2009	Project Archeologist, Archeological Inventory and Assessment of the Barren River Lake Shoreline, Allen and Barren Counties, Kentucky. Army Corps of Engineers. Louisville District.
2009	Project Archeologist, Phase II Archeological Evaluation of the Button Site, and the Harmons Hill Road Site, Angola Neck Sanitary Sewer District, Sussex County, Delaware. Whitman, Requardt and Associates, LLP, and the Sussex County Engineering Department.
2008	Project Archeologist, Phase II Archeological Evaluation of the Delaware Airpark Wetland Mitigation Area, Blackiston, Kent County, Delaware. The Federal Aviation Administration, the Delaware Department of Transportation, and the Delaware River and Bay Authority.
2008	Project Archeologist, Phase III Archeological Data Recovery of Dodd-Moore Site, Cheswold, Kent County, Delaware. The Federal Aviation Administration, the Delaware Department of Transportation, and the Delaware River and Bay Authority.
2007	Principal Investigator, Burial Recovery and Cemetery Delineation within the Creekside Development, Millville, Baltimore Hundred, Sussex County, Delaware. Caldera Properties.
2006-2007	Principal Investigator, Phase I and II Archaeological Testing of the Joseph Bancroft & Sons Kentmere Mills, Wilmington, New Castle County, Delaware in connection with the Rockford Falls Development Project. O'Neill Properties Group.
2004-2008	Principal Investigator, fieldworker, and editor, Phase III Mitigation of the Laban Rogers House Site, the Herring Creek Site, and the Olla White Bay Site, and delineation of the Derrickson Cemetery, Baltimore County, Delaware. Carl M. Freemen Companies.
2004	Assistant Field Director, Phase III Data Recovery at the Cruttenden Carriage Works Site, New Haven, Connecticut. Fitzgerald & Halliday, Inc., and the Connecticut Department of Transportation.
2002	Field Director, Archaeological Investigations at the Carp River Forge, Negaunee, Michigan. The Michigan Iron Industry Museum/Michigan Department of History, Arts, and Libraries.

SUMMARY OF PROFESSIONAL ACTIVITIES

Mr. Mancl is the author or co-author of over forty (40) cultural resource reports, and four (4) cultural resource studies. He has served as President of the Archaeological Society of Delaware (2006 to 2011), as a Director for the Society for Industrial Archaeology (2008-2011), and as a board member of the New Castle Historical Society (2009-2012). He currently serves on the Nominations Committee for the Society for Industrial Archaeology (2011-2014).

ELISABETH LAVIGNE
Project Geoarcheologist
John Milner Associates, Inc.
The Barclay
535 North Church Street
West Chester, PA 19380
(610) 436-9000
(610) 436-8468 (fax)
elavigne@johnmilnerassociates.com

EDUCATION

M.A.	Boston University, MA	Geoarcheology	2009
B.A.	Wheaton College, IL	Archeology	2004

EXPERIENCE PROFILE

Elisabeth LaVigne, RPA serves JMA as a Project Geoarcheologist. She holds a Bachelor of Arts degree in Archeology from Wheaton College, IL, and a Master of Arts degree in Geoarcheology from Boston University where she specialized in micromorphology. Her training includes GIS, quantitative geomorphology, sedimentology, geochemistry, and paleoethnobotany. Before coming to JMA, she worked with the Monadnock Archeology Consulting and the State Conservation and Rescue Archeology Program in NH as a lab and field technician. She also has excavated at Gault, TX; Ashkelon, Israel; and Pompeii, Italy, and conducted sediment sample analysis from the Maya site of K'axob in Belize. Since joining JMA, she has been involved in archeological survey, deep testing and trenching projects, and topographic surveying within the Mid-Atlantic, primarily in Pennsylvania and Delaware. Elisabeth also has extensive experience with geographic information systems in archeological contexts. She has worked on numerous geospatial projects for JMA, creating and populating cultural resource geodatabases, modeling viewsheds, georeferencing historic maps, recreating historic survey data, creating archaeological survey maps, and processing field data.

LICENSES/CERTIFICATIONS/TRAINING

Registered Professional Archeologist since 2011
Section 106 Review Process workshop (Chester County Historical Society Cultural Center - 2011)
OSHA 40 Hour HAZWOPER (2011; updated)
OSHA 8 Hour Training for Supervisors (2011)
OSHA Excavation Safety training (2011)
OSHA Confined Spaces Safety training (2011)
UNH Cooperative Extension – ArcGIS 9.3 (2010)

SOFTWARE PROFICIENCIES

ESRI ArcGIS 9.0 – 10
Golden Software's SURFER
TDS Survey Works Foresight DXM
TDS Survey Works Survey Pro
Trimble Pathfinder Office
Microsoft Office Program Suite

PROFESSIONAL AFFILIATIONS

Registry of Professional Archaeologists

PROJECT EXPERIENCE (John Milner Associates, Inc.)

2012-2013 A Phase I archeological survey and GIS-based investigation at Red Lion Dike, New Castle Delaware undertaken in order to determine how the dike waas built and changed over time. A prehistoric site was also located during the survey.

2012 Phase I archeological survey at Sandy Hook, NJ for a proposed biking path.

2012 Phase I archeological survey at the Hopewell Furnace National Historic. Evidence for a historic road for the furnace was located during the survey.

2012 Phase I archeological survey for Eastern University, Radnor, PA.

2012 Phase I and II archeological survey at the historic Dover Green, Delaware which identified the likely location of a historic prison and buried living surfaces.

2012 Archeological Investigation at West Shipyard, Philadelphia, PA. Trenching and archeological excavation were utilized to investigate the remains of a 17th century shipyard.

2012 Phase I archeological survey of field near Sunset Lake, Delaware. Participated in monitoring of metal detection survey, pedestrian survey, and performed historical, GIS-based investigation through the use of historic maps, road plans, and aerials.

2012 GIS-based investigation of the French Mill complex area in East Pikeland, PA, using historic aerials, maps, and road plans. Subsequent geomorphological investigations of the mill race, the possible location of historic races, and mill locations.

2012 Investigation of the Battle at Cooch's Bridge, Delaware. Participated in monitoring of metal detection survey and performed historical, GIS-based investigation through the use of historic maps, road plans, and aerials.

2012 Phase Ib archeological survey at Gettysburg, Pennsylvania. Tested previously identified GPR anomalies and metal detection artifact clusters.

2012 Phase I Archeological Investigation and Phase II Archeological evaluation at a wastewater facility in Sussex County, Delaware.

2011-2012 Phase II Geomorphic assessment, Cobb's Creek Water Reservoir Project, Cumberland County, VA, which included deep testing, trenching, and monitoring of engineering borings; Phase II archeological survey; topographic survey; and GIS-based viewshed analysis.

2011-2012 Fort Christina investigation, Wilmington, DE. Utilized GIS to overlay historic maps in order to locate where the fort may have once been located. Volunteered to assist with the GPR investigation and topography survey at possible location of Fort Christina.

2011 Phase I archeological survey for the proposed PEMA Headquarters in Harrisburg, PA.

2011 Phase I Geomorphic Assessment, Cobb's Creek Water Reservoir Project, Cumberland County, VA. Assessment conducted through deep testing with hand-operated Eijkelkamp Edelman augers. Located two different buried paleosols with archeological potential within the floodplain project area.

2011 Topographic survey at Old Brick Church, Dover, Delaware

2011 Archeological survey at the Dutch House undertaken to investigate sub-surface anomalies detected through a GPR investigation

2011 Topographic survey at the Allee House, Bombay Hook National Wildlife Refuge, Delaware.

2010-2011 NHPA Section 110 Compliance, Cultural resources Investigations, U.S. Army Corps of Engineers American Recovery & Reinvestment Act 2009. 17 Districts of the U.S Army Corps of Engineers. Geodatabase population of cultural resource locations and attributes.

2010 Geomorphologic Assessment, Virginia Avenue Tunnel Railroad Project for the CSX Transportation, Inc. National Gateway Initiative, Washington, District of Columbia. Assessment conducted through use of a geoprobe to locate potential buried landscapes.

2010 Geomorphologic Assessment, U.S. Wildlife Refuge – Mason Neck. Soil cores taken and analyzed to locate potential buried prehistoric landscapes.

2010 Historic Structure Integrity in the Barren Lake study area. Georeferenced historic maps to determine where historic structures may still be preserved for the Army Corps of Engineers.

PROJECT EXPERIENCE (other/previous)

2010 Ground Penetrating Radar and coring project in and around the wetland areas at the Paleoindian Potter Site, Randolph, NH.

2010 Phase Ib/ III Archeological Survey and Geoarcheological Evaluation at the Tenant Swamp Paleoindian site, Keene, NH. Worked as field technician and assisted geomorphologist in the augering and recording of off-site stratigraphy to determine past geomorphic processes and their relation to the site. (Monadnock Archeology Consulting)

2010 Phase I Archeological Surveys in Concord, Effingham, Pembroke, and Newbury, NH. (Monadnock Archeology Consulting)

2010 Rescue/Phase I Archeological Survey which located Paleoindian artifacts in Jefferson, NH.

2010 Excavation and paleomagnetism core retrieval within Archaic and Late Paleoindian levels at Gault, TX.

2010 Lab technician for the NH State Conservation and Rescue Archeology Program. Cleaned, identified, and catalogued artifacts in the state archeology lab.

2008-2009 Micromorphological Analysis of sediments from the Maya site of K'axob in Belize. Found evidence for anthropological activity, past change in water flow direction, and geochemical changes within the soil due to a possible number of causes.

2008 Leon Levy Expedition, Ashkelon, Israel. Participated in the excavation of Bronze and Iron Age levels and the geoarcheological evaluation of possible Iron Age Harbor at Ashkelon. Assisted geoarcheologist to determine the absence of proposed harbor through the use of bucket augering and sediment analysis.

2008 Rowley Marsh Project: Investigated the formation and deterioration of marsh surface ponds through surveying, the analysis of vibracores, and the use of GIS to determine past pond/channel locations and depositional history.

TIMOTHY C. LLOYD, Ph.D., RPA
Principal Archeologist/Project Manager
John Milner Associates, Inc.
1 Croton Point Avenue
Croton-on-Hudson, NY 10520
914-271-0897 (phone)
914-271-0898 (fax)
tlloyd@johnmilnerassociates.com

EDUCATION

Ph.D.	University at Albany, SUNY	Anthropology	2002
M.A.	University at Albany, SUNY	Anthropology	1993
A.B.	University of California at Berkeley	Anthropology	1988

PROFESSIONAL CERTIFICATION

2002	Registered Professional Archaeologist (RPA)
2005	OSHA 40 hour HAZWOPER Safety Training

PROJECT EXPERIENCE (John Milner Associates, Inc.)

2013 HDR, Inc., on behalf of the NYS Department of Environmental Conservation and the US Environmental Protection Agency. Principal Archeologist, Stage/Phase IB cultural resources survey for the New Cassel/Hicksville Groundwater Contamination Site, Nassau County, New York.

2012-2013 Oak Point Associates, Inc., on behalf of the US Naval Facilities Engineering Command. Principal Archeologist, Phase I archeological survey and geophysical survey associated with seawall repair, perimeter fence repair, and sinkhole repair at the Navy Operations Support Center, Bronx County, New York.

2012 Vannase Hangen Brustlin, Inc., on behalf of the National Park Service. Principal Archeologist, Phase I archeological survey for proposed pathways at the Gateway National Recreation Area, Sandy Hook Unit, Monmouth County, New Jersey.

2012 D'Amato Builders and Advisors, LLC, on behalf of Genting New York, LLC. Principal Archeologist, archeological monitoring of construction activities at the Aqueduct Racetrack MTA Station, Queens County, New York.

2012 Westchester County Department of Planning. Principal Archeologist, Phase 1A archeological investigation for the proposed Playland Parkway Pathway, Rye, New York.

2011 Genting New York, LLC. Principal Archeologist, archeological monitoring of construction activities associated with a proposed gaming facility at Aqueduct Racetrack, Queens County, New York.

2011 U.S. Army Corps of Engineers, New York District. Report review/quality control, reports of Section 110 compliance archeological survey of South Rock, Cooke's Island, Village of

Whitehall, Washington County, New York, and cultural resources survey of Schodack-Houghtaling Island, Town of New Baltimore, Greene County, New York.

2010-2011 U.S. Army Corps of Engineers, Huntington, Nashville, and Louisville Districts. Principal Archeologist for Native American geographical cultural affiliations studies for three districts in support of NAGPRA compliance.

2010 John Meyer Consulting, P.C. and 62 Byram Ridge, LLC. Report review/quality control, Phase I archeological survey and Phase II archeological site evaluation for the proposed Byram Ridge Road Subdivision, Town of North Castle, Westchester County, New York.

2009-2010 U.S. Army Corps of Engineers, Buffalo District. Principal Archeologist, Section 110 compliance survey of the 384-acre Mount Morris Dam Intensive Use Area, including Phase I survey and four Phase II site evaluations, Livingston County, New York. Project included the identification of the remnant Squawkie Hill mounds through geo-prospection.

2008-09 Caprock Environmental Services, LLC and Rockies Express Pipeline LLC, Rockies Express East Pipeline. Field Director, responsible for Phase III data recovery of two prehistoric sites (Scott County, IL and Franklin County, IN) and one historic site (Shelby County, IN) for the proposed Rockies Express (REX) Pipeline Project.

2009 New York New York State Office of General Services Design and Construction Group/New York State Museum. Report review/quality control, Phase I archeological investigations at the Coxsackie Correctional Institute, Town of Coxsackie, Green County, New York.

2007-08 NRG, Inc. and Rockies Express Pipeline LLC, Rockies Express East Pipeline (Spread 4). Field Director, responsible for Phase II archeological evaluations of 9 prehistoric sites and 8 historic sites for the proposed Rockies Express (REX) Pipeline Project, Spread 4, Vermillion, Parke, Putnam and Hendricks Counties, Indiana.

2007 NYS Department of Transportation/New York State Museum. Principal Archeologist, Phase IB addendum archeological survey associated with the upgrade of NYS Route 17 to interstate standards. Town of Thompson, Sullivan County.

2007-08 NRG, Inc. and Rockies Express Pipeline LLC, Rockies Express East Pipeline (Spread 4). Field Director, responsible for Phase I cultural resource surveys for a 68-mile segment of a FERC-regulated natural gas pipeline in Indiana: Vermillion, Parke, Putnam, and Hendricks Counties, Indiana.

2007 NYS Department of Transportation/New York State Museum. Principal Archeologist, Phase I archeological survey for proposed park and ride facility, West Shore Expressway at Arthur Kill Road, Richmond County, New York.

2006 NYS Department of Environmental Conservation/New York State Museum. Principal Archeologist, Phase IB addendum archeological survey associated with proposed expansion of the Stony Kill Environmental Education Center. Town of Fishkill, Dutchess County.

2006 Ecology and Environment Engineering, P.C. Project Archeologist, archeological monitoring for the installation of water service connections associated with the Mohonk Road Industrial Plant Superfund Site, Hamlet of High Falls, Ulster County, New York.

2006 NYS Department of Transportation/New York State Museum. Principal Archeologist, Phase IB addendum archeological and architectural survey associated with the upgrade of NYS Route 17 to interstate standards. Towns of Thompson and Mamakating, Sullivan County.

2006 Howard Wind Project. Field Director and report co-author, Phase IA/IB cultural resources survey for proposed wind power project. Town of Howard, Steuben County, New York.

2006 NYS Department of Transportation/New York State Museum. Principal Archeologist, Phase I cultural resources survey for a bridge replacement over the West Canada Creek. Towns of Russia and Deerfield, Counties of Herkimer and Oneida, New York.

2006 NYS Department of Transportation/New York State Museum. Principal Archeologist, Phase I cultural resources survey for a proposed roundabout in the Town of Mayfield, Fulton County, New York.

2006 Blasland, Bouck, & Lee, Inc. Project Archeologist, Phase I archeological survey for the proposed installation of pump stations, gravity sewers, and force mains for the Mahopac Central School District, Town of Mahopac, Westchester County, New York.

2006 NYS Department of Transportation/New York State Museum. Principal Archeologist, Phase I cultural resources survey for a bridge replacement over the Terwilleger Creek. Town of Florida, Montgomery County, New York.

2006 ESS Group, Inc. and Marble River, LLC. Project Archeologist, conducted historical background research as part of Phase IA cultural resources survey for the proposed Marble River Wind Farm, Towns of Clinton and Ellenburg, Clinton County, New York.

2006 NYS Department of Transportation/New York State Museum. Principal Archeologist, three Phase II site examinations of two historic sites and one prehistoric site associated with the upgrade of NYS Rte. 17 to interstate standards. Town of Thompson, Sullivan County, New York.

2006 Estates at Livingston Manor, LLC. Project Archeologist, conducted background research for a Phase IA cultural resources survey of the 1035-acre Andrew Krieger property in the Towns of Rockland, Callicoon, and Liberty in Sullivan County, New York.

2006 NYS Department of Transportation/New York State Museum. Principal Archeologist, Phase I addendum archeological survey of a proposed discharge basin and assessment of impact to a buried nineteenth-century well using ground-penetrating radar. Town of Brookhaven, Suffolk County, New York.

2006 New York State Department of Transportation/Hunt Engineers, Architects, Surveyors. Principal Archeologist, Phase I cultural resources survey for new ramps and drainage realignments associated with the upgrade of NYS Route 17 to interstate standards. Town of Hancock, Delaware County, New York.

2006 Carrie E. Tompkins Elementary School Project. Principal Archeologist, Phase I archeological survey for a proposed bus turnaround lane, Croton-Harmon Union Free School District, Village of Croton-on-Hudson, Westchester County, New York.

2005 Palisade Street Commercial Development Project. Project Archeologist, preparation of a fatal flaw/due diligence identification study for a proposed commercial development in Dobbs Ferry, Westchester County, New York.

2005 LIRO, LLC and Triborough Bridge and Tunnel Authority - Triborough Bridge Rehabilitation Project. Field Director, Phase IB mechanically-aided archeological testing associated with new ramp construction on Ward's Island, New York City, New York.

2005 Glenwood Landing Project. Field Director, Phase III data recovery at a multi-component Native American shell midden in preparation for a residential subdivision. Town of Oyster Bay, Nassau County, New York.

2005 Proposed Rivers and Estuaries Center, Denning's Point, NYS Office of Parks, Recreation and Historic Preservation. Field Director, combined Phase II testing and Phase III data recovery of a multi-component Native American site. Hudson Highlands State Park, City of Beacon, Dutchess County, New York.

2005 Plymouth Lowe's Home Center Project. Field Director, Phase II site examination of a Woodland Period Native American site in the Town of Plymouth, Grafton County, New Hampshire.

2005 NYS Department of Transportation/New York State Museum. Principal Archeologist, Phase II site examinations of two historical sites associated with the upgrade of NYS Rte. 17 to interstate standards. Town of Thompson, Sullivan County, New York.

2005 NYS Department of Transportation/New York State Museum. Principal Archeologist, Phase II site examinations of one Native American lithic scatter and one 19th-century sheet midden associated with the upgrade of NYS Rte. 17 to interstate standards. Towns of Thompson and Mamakating, Sullivan County, New York.

2005 Peaceful Valley Townhouses Project. Principal Archeologist, Phase I archeological survey of a nine-acre residential subdivision in the Town of Johnsburg, Warren County, New York.

2005 Old Roosevelt Field Contaminated Groundwater Superfund Site. Principal Archeologist, Phase IA cultural resources sensitivity assessment of a 214-acre commercial property in the Village of Garden City, Town of Hempstead, Nassau County, New York.

2005 NYS Department of Transportation/New York State Museum. Principal Archeologist, three Phase I cultural resources surveys for bridge replacements in Cayuga and Cortland Counties, New York.

2005 Flat Rock Wind Power Project. Field Director, supplemental Phase IB cultural resources survey at wind turbine generator locations and meteorological tower sites in support of New York State Article VII and SEQR proceedings. Lewis County, New York.

2005 New York City Department of Environmental Protection. Project Archeologist, archeological monitoring at three shaft locations associated with the New York City Water Tunnel #3.

2004 Lovell Street Subdivision Project. Principal Archeologist, Phase 1 archaeological survey of a 12-acre residential subdivision in the Town of Somers, Westchester County, New York.

2004 NYS Department of Transportation/New York State Museum. Principal Archeologist, multiple Phase I archeological and architectural surveys associated with the upgrade of NYS Rt. 17 to interstate standards. Sullivan County, New York.

2004 NYS Department of Transportation/New York State Museum. Principal Archeologist, Phase I archeological and architectural survey for bridge replacement and stream work, Hamlet of Ischua, Cattaraugus County, New York.

2004 Byram Hills Central School District and Thomas Associates. Project Archeologist, conducted background research for a Phase I archeological survey for the proposed athletic field renovations at the Byram Hills High School (Town of North Castle) and the H.C. Crittenden Middle School and the Wampus Elementary School (Village of Armonk), Westchester County, New York.

2004 United States Air Force Air Combat Command. Project Archeologist, Phase I archaeological survey conducted at the Columbia Falls and Moscow Over-The-Horizon Backscatter (OTHB) Radar sites. Town of Columbia Falls, Washington County and the Town of Moscow, Somerset County, Maine.

2004 Athens Generating Company, L.P. Project Archeologist, preparation of an archeological site stewardship plan for the Athens Generating Project, Town of Athens, Greene County, New York.

2003-2004 Conjunction, LLC Empire Connection Project. Historical and archeological sensitivity assessment of electrical transmission lines and converter stations between Albany and New York City, in support of New York State Article VII Application.

2003 Flat Rock Wind Power Project. Field Director, Phase IB cultural resources survey for wind turbine generator locations, electrical interconnects, substations, meteorological tower sites, access roads, and associated 10-mile transmission-line in support of New York State Article VII and SEQR proceedings. Lewis County, New York.

2003 Tappan Zee View Subdivision Project. Project Archeologist, Phase I cultural resources survey and Phase II investigation of a Native American lithic scatter. Village of Tarrytown, Westchester County, New York.

2003 Empire Newsprint Project. Field Director for supplemental Phase 1B survey and Phase II investigation of two Native American sites along an 8-mile transmission line ROW in support of a New York State Article VII Application. Rensselaer County, New York.

2003 Lawrence Aviation Industries, Inc. Superfund Site. Project Archeologist, Phase IA archeological sensitivity assessment of a 126-acre commercial property and portions of the surrounding villages of Port Jefferson and Port Jefferson Station. Town of Brookhaven, Suffolk County, New York.

PROJECT EXPERIENCE (Previous Firms, Partial List)

2003 Field Director, Phase I Cultural Resources Survey of the Proposed Burrows-Murray Mine Expansion Project, Town of Utica, Oneida County, New York. Landmark Archaeology, Inc.

2003 Field Director/Report Co-Author, Phase I Cultural Resources Survey of the Proposed Amsterdam Material Recycling Plant, City of Amsterdam, Montgomery County, New York. Landmark Archaeology, Inc.

2003 Field Director/ Report Co-Author, Phase I Cultural Resources Survey of the Proposed Bethlehem Technology Park, Town of Bethlehem, Albany County, New York. Landmark Archaeology, Inc.

2003 Field Director/ Report Co-Author, Phase I Cultural Resources Survey of the Proposed Hammocks Residential Subdivision and Phase II investigation of prehistoric site A00102.000578, Town of Bethlehem, Albany County, New York. Landmark Archaeology, Inc.

2003 Field Director, Phase I Cultural Resources Survey of the Proposed Hearthstone Village, Town of Colonie, Albany County, New York. Landmark Archaeology, Inc.

2002 Field Director, Phase III mitigation of 25 prehistoric sites on a 200-acre commercial development, Town of Coxsackie, Greene County, New York. Curtin Archaeological Consultants, Inc.

2002 Field Director/ Report Co-Author, Phase I Cultural Resources Survey of the Proposed Phillipin Kill Manor Residential Subdivision, Town of Bethlehem, Albany County, New York. Curtin Archaeological Consultants, Inc.

2002 Assistant Field Director, salvage excavation of a late nineteenth century Alms House cemetery, City of Albany, Albany County, New York. New York State Museum.

2001 Field Director/ Report Co-Author, Phase I Cultural Resources Survey of the Proposed Brenn-Breit Estates Residential Subdivision, Town of Guilderland, Albany County, New York. Curtin Archaeological Consultants, Inc.

2000 Volunteer for the National Park Service Hopewell Culture National Historic Park excavations of the Hopewell Earthworks.

1999 Field Director, Phase II investigation of an historic site in downtown Albany, New York. Curtin Archaeological Consultants, Inc.

1999 Field Director/ Report Co-Author, Phase I Cultural Resources Survey of a Proposed Sewer Line, Town of Stillwater, Saratoga County, New York. Curtin Archaeological Consultants, Inc.

1999 Crew Chief/ Report Co-Author, Phase I Cultural Resources Survey of the Proposed Sanitary Landfill Cell No. 6 Extension, Town of Schuyler Falls, Clinton County, New York. Curtin Archaeological Consultants, Inc.

1999 Crew Chief/ Report Co-Author, Phase I Cultural Resources Survey of the Proposed Christopher Glen Subdivision, Town of Halfmoon, Saratoga County, New York. Curtin Archaeological Consultants, Inc.

1998 Crew Chief/ Report Co-Author, Phase I Cultural Resources Survey of the Proposed Kent Assembly Hall, Putnam County, New York. Curtin Archaeological Consultants, Inc.

1997 Consultant, Skidmore Archaeological Survey, Skidmore College, Saratoga Springs, New York. Creation of a brochure on the Saratoga Lake/Fish Creek Archaeological District and a presentation to the city Planning Commission on the archaeological assessment process.

1996 Crew Chief, Phase II investigation of an historic site in Cadyville, New York. Curtin Archaeological Consultants, Inc.

1996 Field Director, Phase IB Cultural Resources Survey in Plattsburgh, New York. Curtin Archaeological Consultants, Inc.

1996 Teaching Assistant for the University at Albany, SUNY, field school excavation of the multi-component Paris site, Berne, New York.

1995 Instructor/Report Co-Author for the University at Albany, SUNY, field school survey at the West Point Military Academy, New York. Ground checking sites through survey and excavation, establishing site locations with GPS, and testing a GIS-based predictive model for prehistoric site locations.

1994 Teaching Assistant for the University at Albany, SUNY, field school excavation at Flint Mine Hill quarry prehistoric site, Town of Coxsackie, Greene County, New York.

1994 Field Technician/Report Co-Author, Phase II investigation of the prehistoric Terrace site, Town of Bethlehem, Albany County, New York. Curtin Archaeological Consultants, Inc.

1993 Field Technician, Phase III excavation of the multi-component Kettle Creek site, Clinton County, Penn. Engineering-Science, Chtd., Washington DC.

1992 Teaching Assistant for the University at Albany, SUNY, field school excavation of the Transitional Period Stewart site, Easton, New York.

1991 Field Technician, Phase II investigation of a prehistoric site in Saratoga Springs, New York. Greenhouse Consultants, Inc.

PUBLICATIONS

nd The Squawkie Hill Site. *Northeast Anthropologist*, in press.

2011 12Fr336: A Late Archaic and Late Woodland Settlement Along the Lower Whitewater River in Franklin County, Indiana. Authored by J. Sanderson Steven and Timothy Lloyd, with contributions by Leslie Branch-Raymer and Judith Wettstaed. *Indiana Archaeology* 5(2):127:156.

2000 Human Remains as Burial Accompaniments at the Hopewell Site. *West Virginia Archaeologist* 52(1&2):53-70.

1998a Shedding Light on Small Mounds Lost in the Shadows of the Great Mound at the Hopewell Site. *West Virginia Archaeologist* 50(1&2):1-13.

1998b A Reconstruction of the Adena Site. *West Virginia Archaeologist* 50(1&2):14-25.

PROFESSIONAL PAPERS AND PRESENTATIONS

2011 "The Relocation of the Squawkie Hill Mounds With Non-Invasive Geo-Prospection." Authored by Timothy Lloyd, Peter Leach, and Daniel Welch. Poster presented at the 76th Annual Meeting of the Society for American Archeology, Sacramento, CA.

2010 "Late Archaic Site Patterning at Site 12Fr336: A View from the Archeobotanical Remains." Authored by Leslie E. Branch-Raymer and Timothy Lloyd. Paper presented at the 67th Annual Meeting of the Southeastern Archaeological Conference, Lexington, KY.

2010 "Data Recovery of 12Fr336, a Multi-Component Prehistoric Site Along the Whitewater River in Southeastern Indiana." Paper presented at the 75th Annual Meeting of the Society for American Archeology, St. Louis, MO.

2002 Doctoral Dissertation: "Mortuary Patterns, Social Organization and Ideology at the Hopewell Site."

2001 "Directionality in Ohio Hopewell (revised)." Paper presented at the 66th Annual Meeting of the Society for American Archaeology, New Orleans, LA.

2000 "Directionality in Ohio Hopewell." Invited paper presented at the 10th Annual Woodland Conference, Chillicothe, OH. Sponsored by The Museums at Prophetstown and the Hopewell Culture National Historical Park.

2000 "Patterned Variability Among the Burial Mounds at the Hopewell Site." Paper presented at the 65th Annual Meeting of the Society for American Archaeology, Philadelphia, PA.

1999 "Shedding Light on Small Mounds Lost in the Shadows of the Great Mound at the Hopewell Site." Paper presented at the 66th Annual Meeting of the Eastern States Archaeological Federation, Kings Island, OH.

1999 "A Comparison of the Two Large Oblong Mounds at the Hopewell Site." Paper presented at the 64th Annual Meeting of the Society for American Archaeology, Chicago, IL.

1996 "Human Remains as Artifacts at the Hopewell Site." Paper presented at the 61st Annual Meeting of the Society for American Archaeology, New Orleans, LA.

1994 "A Reconstruction of the Adena Site." Paper presented at the 61st Annual Meeting of the Eastern States Archaeological Federation, Albany, NY.

1993 Master's Thesis: "A Reconstruction of the Adena Site."

PROFESSIONAL AFFILIATIONS

Register of Professional Archaeologists
New York Archaeological Council
Ohio Archaeological Council
Society for American Archaeology

RESEARCH INTERESTS

History and Prehistory of the Northeast
Eastern Woodlands Prehistory
Early and Middle Woodland Periods of Ohio (Adena and Hopewell)
Mortuary Ceremonialism
Early American Archeology Archival Research
GIS Applications in Archeology

EMPLOYMENT HISTORY

2007-present	Principal Archeologist/Project Manager John Milner Associates, Inc. Croton-on-Hudson, New York.
2003-2007	Project Archeologist John Milner Associates, Inc. Croton-on-Hudson, New York.
2003	Field Director/Report Author Landmark Archaeology, Inc. Altamont, New York
1995-2003	Part-Time Instructor, Dept. of Anthropology University at Albany, SUNY Albany, New York.
1996-1998	Part-Time Instructor, Dept. of Anthropology Skidmore College Saratoga Springs, New York
1991-2002	Field Technician/Field Director/Report Author Curtin Archaeological Consultants, Inc. Saratoga Springs, New York

LESLIE E. RAYMER
ARCHAEOLOGIST/ARCHAEOBOTANIST
NEW SOUTH ASSOCIATES

EDUCATION

M.A., Anthropology, University of Oklahoma, Norman - 1990
B.A., History, Furman University, Greenville, S.C. - 1980

AREAS OF SPECIALIZATION

Prehistoric Archaeology of the Southeastern United States
Paleoethnobotany
Prehistoric Ceramic Classification

PROFESSIONAL MEMBERSHIPS

Register of Professional Archaeologists
Georgia Council of Professional Archaeologists
Society for Georgia Archaeology

PROFESSIONAL EXPERIENCE

1988-	Archaeologist/Archaeobotanist, New South Associates
1990	Archaeobotanist, Law Environmental
	Archaeobotanist, John Milner Associates
1988	Laboratory Assistant, Garrow and Associates
1987	Archaeobotanist/Laboratory Assistant/Field Technician; Oklahoma Archeological Survey, Oklahoma Department of Transportation, and Oklahoma Conservation Commission
1986-87	Laboratory Assistant, Archaeological Assessments
1986	Crew Chief, Oklahoma Archeological Survey
1984-86	Ethnobotanist, University of Oklahoma Ethnobotanical Laboratory
	Research Specialist, Oklahoma Archeological Survey
1984-85	Laboratory Assistant/Field Technician; Archaeological Assessments, Oklahoma Archeological Survey, Oklahoma Conservation Commission, Oklahoma Department of Transportation, and Texas Historical Commission
1983-84	Librarian/Laboratory Assistant, Oklahoma Archeological Survey
1982	Research Assistant, University of Oklahoma Department of Anthropology
	Ethnobotanical Technician, University of Oklahoma Ethnobotanical Laboratory
1978-81	Student at various Archaeological Field Schools in Georgia and Great Britain

PUBLICATIONS

In prep. Identification of Wood Charcoal from 34LF350. In *Archeological Survey and Testing in the James Fork Watershed, LeFlore County, Oklahoma*, by Lois E. Albert. Oklahoma Archeological Survey, Norman.

2001 Michael C. Bonasera and Leslie E. Raymer. Good for What Ails You: Medicinal Use at Five Points. *Historical Archaeology* 35(3):49-64.

2000 Cultural Features. In Archaeological Excavations in Brasstown Valley. *Early Georgia* 28(2):38-54.

2000 Leslie E. Raymer and M. T. Bonhage-Freund. Archaeobotanical Analysis. In Archaeological Excavations in Brasstown Valley. *Early Georgia* 28(2):74-91.

1993 John D. Hartley and Leslie E. Raymer. Test Excavations at the Antioch Bridge Site: A Fluvially Disturbed Woodland Assemblage in Garvin County, Oklahoma. *Bulletin of the Oklahoma Anthropological Society* XLI:1-42.

1990 *The Form and Function of Subterranean Food Storage Structures: An Ethnoarcheological Study of the Social and Environmental Determinants of Pit Storage.* Master's thesis, University of Oklahoma, Department of Anthropology.

1989 Appendix C. The Analysis and Interpretation of Macroplant Remains from Three Prehistoric Sites in the Lee Creek Valley, Sequoyah County, Oklahoma. In *National Register Testing of Archeological Sites in the Lee Creek Watershed, Sequoyah County, Oklahoma*, by Lois E. Albert. Oklahoma Archeological Survey, Norman.

1986 Paul E. Minnis and Leslie E. Raymer. Macroplant Remains from Curecanti National Recreation Area. In *The Curecanti Archeological Project: 1981 Investigations in Curecanti National Recreation Area, Colorado.* Midwest Archeological Center, Occasional Papers in Anthropology 14.

1986 Leslie E. Raymer and Paul E. Minnis. Macroplant and Ethnobotanical Studies. In *Prehistoric Hunter-Gatherers of South Central Arizona: The Picacho Reservoir Archaic Project.* Anthropological Field Studies No. 13. Arizona State University.

1985 Paul E. Minnis and Leslie E. Raymer. Macroplant Analysis. In *The Picacho Reservoir Archaic Project Annual Report, September 22, 1983 to September 30, 1984.* Arizona State University, OCRM Report No. 65.

TECHNICAL REPORTS

2003 Raymer, Leslie E., *Paleoethnobotany of Site 28MI89, Raritan Landing Project, Middlesex County, New Jersey*. New South Associates Technical Report 1155. Report submitted to URS Corporation..

2003 Raymer, Leslie E., *Paleoethnobotany of Site 28MI202, Raritan Landing Project, Middlesex County, New Jersey*. New South Associates Technical Report 1154. Report submitted to URS Corporation.

2003 Raymer, Leslie E., *Paleoethnobotany of Site 36AL480, Allegheny County, Pennsylvania.* New South Associates Technical Report 1146. Report submitted to URS Corporation.

2003 Raymer, Leslie E., *Paleoethnobotany of Site 28MI178, Raritan Landing Project, Middlesex County, New Jersey*. New South Associates Technical Report 1139. Report submitted to URS Corporation.

2003 Abbott, Lawrence E., Erica E. Sanborn, Leslie E. Raymer, Irwin Rovner, and Lisa D. O'Steen. *Archaeological Data Recovery at 44MC491(Area 1): Woodland Settlement and Subsistence Practices on an Alluvial Island in the Middle Roanoke River Valley, John H. Kerr Reservoir, Mecklenburg County, Virginia.* New South Associates Technical Report 1133. Report submitted to the US Army Corps of Engineers, Wilmington.

2003 Raymer, Leslie E., *Paleoethnobotany of Site 28MI85, Raritan Landing Project, Middlesex County, New Jersey*. New South Associates Technical Report 1111. Report submitted to John Milner Associates, Philadelphia, Pennsylvania.

2003 Raymer, Leslie E., *Wood Charcoal Identifications from Architectural Features Associated with the Mount Pleasant Site, Orange County, Virginia.* New South Associates Technical Report 1081. Report submitted Montpelier Foundation, Montpelier Station, Virginia.

2003 Raymer, Leslie E., *Wood Charcoal Identifications from Fire Related Features Associated with the McGowan Site, a Confederate Winter Encampment Located in Orange County, Virginia.* New South Associates Technical Report 1082. Report submitted Montpelier Foundation, Montpelier Station, Virginia.

2003 Raymer, Leslie E., and Dr. Karl Reinhard. *Paleoethnobotany and Parasitology of Site 28MI84, Raritan Landing Project, New Jersey*. New South Associates Technical Report 1093. Report submitted to John Milner Associates, Philadelphia, Pennsylvania.

2003 Raymer, Leslie E., *Paleoethnobotany of the Liberty Bell Project, Block 1, Independence Mall, Philadelphia, Pennsylvania.* New South Associates Technical Report 1066. Report submitted to John Milner Associates, Philadelphia, Pennsylvania.

2003 Raymer, Leslie E., *Paleoethnobotany of Site 40LD52, Loudon County, Tennessee*. New South Associates Technical Report 1026. Prepared for Alexander Archaeological Consultants, Ringold, Georgia

2003 Raymer, Leslie *Paleoethnobotany of Nineteenth-Century Occupation of the Fillmore North Site, Chazy, New York.*. New South Associates Technical 870. Report submitted to Black Drake Consulting, Champlain, New York.

2003 Raymer, Leslie *Archaeobotanical Analysis from 1999 Excavations at the North Hill and Quarter Sites, Jefferson's Poplar Forest: A Study of Enslaved African-American Subsistence Practices.* New South Associates Technical Report 781. Report prepared for the Corporation for Jefferson's Poplar Forest.

2002 Raymer, Leslie E., *Paleoethnobotany of the PB Farm Site, Prince Georges County, Maryland. New South Associates Technical Report 1013.* Report submitted to URS Corporation, Florence, New Jersey.

2002 Raymer, Leslie E., *Paleoethnobotany of Eighteenth and Nineteenth-Century Occupation of the Wilson Tract Site (38CH687), Chester County, Pennsylvania. New South Associates Technical Report 1014.* Report submitted to URS Corporation, Florence, New Jersey.

2002 Gunn, Joel D., Erica E. Sanborn, Irving D. Rovner and Leslie E. Raymer*Dimensions of Fall Line Site Function: Survey and Testing The West Fayetteville, North Carolina Outer Loop.* New South Associates Technical Report 992. Report submitted to H. W. Lochner, Inc.

2002 Edwards, Matthew J., Johannes H.N. Loubser, and Leslie E. Raymer *Phase II Testing at The Track Site (38BU927), Marine Corps Air Station, Beaufort County, South Carolina.* New South Associates Technical Report 978. Report submitted to the US Army Corps of Engineers, Savannah District.

2002 Appendix: Site 31ON716 Archaeobotanical Remains. In *Archaeological Data Recovery at Site 31ON716 Marine Corps Base Camp Lejeune Onslow County, North Carolina,* by Sean Norris. New South Associates Technical Report 973. Report Submitted to U.S. Army Corps of Engineers, Wilmington District.

2002 Raymer, Leslie, J. Faith Meader, Johannes H. N. Loubser, and J. W. Joseph *A Traditional Cultural Property Study of New Echota, the First Cherokee National Capital from 1825-1828, Gordon County, Georgia*. New South Associates Technical Report 968. Report submitted to GDOT, Atlanta.

2002 Bonhage-Freund, M. T, Art Cohen, Carl Reinhard, and Leslie Raymer *Paleoethnobotany, Palynology, and Parasitology of Eighteenth and Nineteenth Century Occupations of the Picotte-DEC Site, Phase III Data Recovery Excavations, Albany, New York.* New South Associates Technical Report 967. Report submitted to Hartgen Archeological Associates, Renssalear, New York.

2002 Raymer, Leslie *More Than Just a Meal: Paleoethnobotany of the Gateway Visitor's Center, Block 2, Independence Mall, Philadelphia, Pennsylvania.* New South Associates Technical Report 856. Report prepared for John Milner Associates, Inc., Philadelphia, Pennsylvania.

2002 Raymer, Leslie *Paleoethnobotany of Site 31WK223, Wilkes County, North Carolina.* New South Associates Technical Report 959. Report submitted to Coastal Carolina Research, Inc., January 21, 2002

2001 Banguilan, Alvin J., Lawrence Abbott J., Leslie Raymer, Irwin Rovner, Scott Halvorsen, and Charles E. Cantley. *Archaeological Investigations at the Fries Site (31ID301): An Intrasite Spatial Analysis of an Interriverine Piedmont Site in Iredell County, North Carolina.* New South Associates Technical Report 939. Report submitted to Williams Gas Pipelines - Transco, Houston, Texas.

2001 Raymer, Leslie *Macroplant Remains from Site 1MA709, Madison County, Alabama.* New South Associates Technical Report 923. Report submitted to Alexander Archaeological Associates, Inc., Wildwood, Georgia.

2001 Raymer, Leslie *Paleoethnobotany of the Sage's Crossing Site, Chenango County, New York.* New South Associates Technical Report 917. Submitted to Hartgen Archeological Consultants, Rensselaer, New York.

2001 Raymer, Leslie and Lisa D. O'Steen. *Macroplant and Zooarchaeological Remains from the Bailey's Farm Site (44SP228), Spotsylvania County, Virginia.* New South Associates Technical Report 909. Submitted to John Milner Associates, Alexandria, Virginia.

2001 Raymer, Leslie Appendix H. Macroplant Analysis. In *Archaeological Data Recovery at Sites 38SU136/137 and 38SU141, Poinsett Electronic Combat Range, Sumter County, South Carolina,* by J. S. Cable and C. E. Cantley. New South Associates Technical Report 900. Report submitted to the US Corps of Engineers Savannah District by New South Associates, Inc. Atlanta, Georgia.

2001 Raymer, Leslie *Paleoethnobotany of Eighteenth and Nineteenth-Century Occupation of the State University Construction Fund Site, Albany, New York.*. New South Associates Technical Report 889. Report submitted to Hartgen Archeological Associates, Rensselaer, New York.

2001 Banguilan, Alvin J., Lawrence Abbott J., Leslie Raymer, Irwin Rovner, Scott Halvorsen, and Charles E. Cantley. *Phase II Archaeological Investigations at the Fries Site (31ID301) in Iredell County, North Carolina.* New South Associates Technical Report 880. Report submitted to Williams Gas Pipelines - Transco, Houston, Texas.

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