APPENDIX D

RESULTS OF SHPO/NJSM FILE SEARCH

Memo

To	**Charles Harman**	File no.: TBD
From	**Christy Benes**	cc:
Tel	**732.302.9500**	
Fax	**732.302.9504**	
Date	**September 18, 2015**	

Subject Cultural Search

This memo has been prepared to inform you that on September 15, 2015, I visited the New Jersey Department of Environmental Protection's Historic Preservation Office (SHPO) and the New Jersey State Museum's Bureau of Archaeology and Ethnology. While there, I performed a cultural resources search for the areas surrounding the Supawna Meadows National Wildlife Refuge (the Refuge). The results of the preliminary search indicated that there are historic structures and archaeological sites where historic and prehistoric artifacts were recovered on the property.

Two separate reports were located at the SHPO that studied the cultural and historic resources on the property in the vicinity of project activities. The results of these studies are provided below:

- Heite, E.F. and L.B. Heite, 1986; Preliminary Cultural Resource Reconnaissance Investigation in Connection With Comprehensive Navigation Study. Delaware River, Delaware and New Jersey.
  The purpose of this study was to report the results of a preliminary cultural resource reconnaissance at proposed United States Army Corps of Engineers (USACOE) disposal areas along the Delaware River. The Refuge property was the site of two of the proposed disposal areas investigated (24CC and 24T). Only area 24CC lies within an area of the Refuge in which activities are presently scheduled. Investigation of area 24CC revealed two historic buildings standing next to the disposal area and a cemetery located near Lighthouse Road. In addition, six distinct archaeological sites or concentrations were discovered within this tract. The authors recommended that any development of this area should be preceded by further archaeological survey since known historic and prehistoric artifacts were recovered and are known to lie between this area and Salem Cove.

- GAI Consultants, Inc. (GAI), 1993; Phase I Cultural Resources Investigation of Wetland Mitigation Areas. Salem River Navigation Project, Pennsville Township, Salem County, New Jersey.
  In this study, GAI investigated three parcels of land, measuring a total of approximately 15 acres, located within the Refuge on behalf of the USACOE. GAI identified the location of three sites that contained prehistoric artifacts (28-Sa-121 – Area A, 28-Sa-122 – Area B, and 28-Sa-123 – Area C) likely representing a series of Late Woodland

Amec Foster Wheeler
Environment & Infrastructure, Inc.
285 Davidson Avenue, Suite 405
Somerset, New Jersey 08873
Tel (732) 302-9500
Fax (732) 302-9504
www.amecfw.com

period camps. From these sites, 92 prehistoric and 64 historic historic/modern artifacts were recovered. They also discovered the nineteenth-century farm complex associated with Samuel Urion on the property, which at that point was considered potentially eligible for nomination to the National Register of Historic Places. The authors recommended that additional Phase II archaeological surveys be conducted on the grounds and, if any impacts to the farm buildings were proposed, that additional architectural research and a Phase I investigation of the buildings be performed.

Additional information was recovered from the SHPO with regard to the Samuel Urion/Yerkes Farmstead (c. 1820) located within the Refuge property boundaries, and near where project activities are slated. This farm complex has been listed as eligible for inclusion in the National Register of Historic Places. During the SHPO's review of this complex, they noted additional historic structures that border the Refuge property which have not been listed or investigated, but they felt would be eligible should the owners care to pursue. These buildings included, but were not limited to, the Mecum house (1735), the Copner house (c. 1740), the James Johnson house (c. 1815), the John Johnson house (c.1800), and the Supawna house on the Salem River (c. 1726). The Pennsville Historical Society is working to get these other structures included in the register.

The search at the New Jersey State Museum revealed the results of four of the six archaeological dig sites from the Heite and Heite investigation (28-Sa-65, 28-Sa-66, 28-Sa-67, and 28-Sa-68) and the three areas documented by GAI (28-Sa-121, 28-Sa-122, and 28-Sa-123).

There are other registered historic landmarks and documented archaeological sites on or adjacent to the Supawna Meadows National Wildlife Refuge that are not presented in this memo, as they are not located in areas where project activities are scheduled.

Because there are historical structures and archaeological sites with documented cultural resources recovered on, or near, where project activities are scheduled, it may be necessary to conduct further archaeological investigations at the exact locations where piezometers will be installed.

Christy L. Benes, B.S.
Senior Biologist

2 JULY 1986

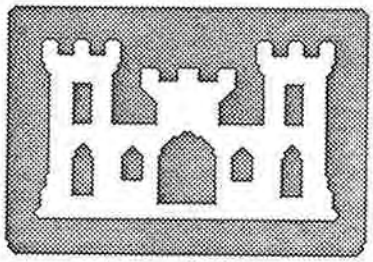
DOC 17321
MULT
A
77
10 1442

PRELIMINARY CULTURAL RESOURCE RECONNAISSANCE INVESTIGATION

IN CONNECTION WITH

COMPREHENSIVE NAVIGATION STUDY DELAWARE RIVER, DELAWARE AND NEW JERSEY

PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CONTRACT DACW 61-86-M-0230



BY
EDWARD F. HEITE AND LOUISE B. HEITE
SOPA

P. O. BOX 53
CAMDEN, DELAWARE 19934

MAY 1986

MULT
A
77

ID1442

Abstract

This is a report of preliminary cultural resource reconnaissance at proposed disposal areas along Delaware River in Delaware and New Jersey. Cultural resource investigations at areas bordering the Delaware River in New Jersey have identified a high incidence of sites. Proposed disposal areas adjacent to the Salem River, Salem County, New Jersey, have been investigated separately.

The authors were engaged to study thirteen areas along the river. While all of the sites lie wholly in one state, some involve interstate movement of dredged materials that may include cultural objects. It is therefore difficult to isolate the historical interests of either state, even within the study of a single disposal area.

This study was carried out to satisfy provisions of the Environmental Policy Act, Executive Order 11593, and 36CFR 50, 66, and 800, and other applicable laws and regulations that require public agencies to consider prehistoric and historic resources.

TABLE OF CONTENTS

LIST OF FIGURES

TABLE 1: SUMMARY OF FINDINGS

Disposal Area Number	County and subdivision	Affected Resources Prehistoric	Historic	National Register Site(s) Affected	Further Work Recommended
	Gloucester:				
17N	W.Deptford	none	none	none	none
15D	Logan	yes	yes	Salisbury	mitigation
15E	Logan	possible	possible	none	phase II
	Salem:				
15G	Oldman's	yes	yes	none	none
15M	Oldman's	yes	probable	none	phase II
21W	Carney's Point	yes	yes	none	phase II
21V	Carney's Point	none	none	none	none
20I	Pennsville	probable	probable	none	phase II
24CC	Pennsville	yes	yes	none	phase II
24T	Pennsville	yes	probable	none	phase II
	New Castle:				
23C	New Castle Hundred	none	yes	Buena Vista	phase II
20H	New Castle Hundred	none	yes	Buena Vista	phase II

Introduction

The prospective disposal areas under investigation lie along the shores of Delaware River and Salem Cove in New Castle County, Delaware, Gloucester County, New Jersey, and Salem County, New Jersey. Each of the thirteen sites will be treated separately in the body of this report.

Research method included a review of the documentary history that relates to each site, followed by field examination. The scope of work required the authors to conduct pedestrian, windshield, or ærial survey of each site. Each site was viewed from the air and from the ground. The New Jersey and Delaware SHPO files and the New Jersey State Museum files were consulted. The authors also consulted records of the Salem County planning department and the county historical societies of Salem and Gloucester counties. The scope of work also called for estimates of any additional investigations which might be necessary at each site.

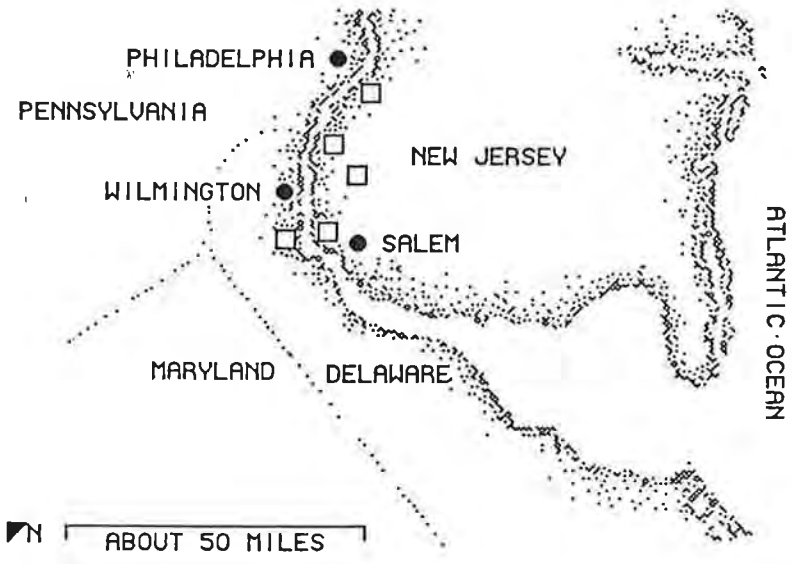


FIGURE 1: General locations of study areas are shown as open squares on this sketch map of the Delaware estuary. The sites are discussed in north-south (downstream) sequence.

Prehistoric and Historic Overview

Man has lived on the shores of the Delaware River for at least ten millenia, possibly longer. Previous studies have shown that all possible disposal areas along the river must be considered potentially significant until proven otherwise (McHugh 1983). Custer (1984) has published an ecological model for prehistoric settlement in Delaware, which probably is equally applicable for the study area in New Jersey. The shore zone's prehistory, according to Custer's model, was affected most significantly by fluctuations in sea level, which has generally risen since the end of the Pleistocene. During twelve millenia, the Delaware has evolved from a flowing fresh river in Paleo times to the present drowned estuary.

When the Paleo people first entered the present Delaware estuary, the climate was far different from the present. Glaciers were retreating, pouring masses of debris and floods of fresh water onto the plains. The streams that were to become the Delaware and Susquehanna writhed and twisted, cutting new channels and blocking old ones as they pushed the South Jersey and Delmarva landmasses farther into the rising ocean.

Glacial streams, as the Delaware was, can be unpredictable. Instead of gradually sending a regular seasonal supply of meltwater into the lowlands below, glaciers store meltwater in huge lakes, breaking forth every few years in massive surges, known in Iceland as *jökulhlaups*. When a *jökulhlaup* comes down the valley, pent-up water, ice, sand and boulders sweep all before them. Great blocks of ice are swept down the river, to be buried for years before they melt away entirely. A valley subject to such devastating periodic floods is not particularly inviting to settlement.

The frigid dry ground around a glacier supports only a fragile groundcover of grasses. Overgrazing, flood erosion, fire, or even the hoofprints of animals, can expose the ground to wind erosion of the most violent kind (Gudmundsson and Kjartansson 1984; Williams 1985: 33). Throughout the region, æolian sands testify to great wind-borne soil movements that occurred before the forest cover developed.

Into this hostile environment came the region's first people, stalking the great Pleistocene herbivores. Their spearpoints and other debris can be found most commonly along ridgetops throughout the area. Fluted points of the Paleo people have been found along the river, but there are no reports of Paleo period sites in the tidal wetlands, which were dry land during those times, when the ocean lay eighty miles eastward of its present shore (Chesler 1982:32, 56).

The region's present estuarine resources had not yet developed during much of the Archaic period, which coincides with the Atlantic climatic episode (6540-3110 BC), the transition between Pleistocene and Holocene environments (Custer 1984: 63). Most reported sites of the Archaic period in South Jersey are found along bodies of water, as are sites of later origin. Multicomponent sites characterize the lower river and bay environments (Chesler 1982: 72).

Archaic people began to use diverse lithic sources that are found as cobbles among the riverside gravels. Whereas the Paleo hunters went to great pains to find quality cryptocrystaline silicates, their Archaic successors were satisfied with quartz, quartzite and rhyolite (Custer 1984: 67). Archaic people were beginning the long progress toward a sedentary lifestyle, establishing base camps in resource-rich areas where they could live for much of the year.

Custer hypothesizes that macro-band base camps of the Archaic period may have been located at the confluences of tributaries with the Delaware in places now deeply buried in silt and covered by the waters of the river and bay (Custer 1984: 73).

Sites of the Woodland period Riggins Complex of Salem and Cumberland counties are concentrated in the Cohansey and Maurice river drainages, often on sandy islands in salt marshes (Chesler 1982:66). Late Woodland sites in New Jersey tend to cluster along the rivers, with larger sites on the main trunks of the Delaware's tributaries.

Early Woodland people in Delaware tended to establish their macro-band base camps along rivers where fresh and salt waters meet. From these sites they would seasonally migrate in small bands to the bayside marshes (Custer 1984:132). The late Woodland period in Delaware was characterized by increasingly sedentary village life and incipient agriculture, still centered in mid-drainage. On the coastal marshes Delaware Woodland sites tend to be smaller than the ones in mid-drainage.

The Delaware Bay region was initially settled by Dutch traders during the first quarter of the seventeenth century. The Dutch settlements were limited to a short-lived whaling station at Zwaanendael, near the present Lewes, Delaware, and to a somewhat later fort and trading station in the present state of New Jersey, near Gloucester. The whaling station, which was established in 1631, was destroyed within the year by hostile Indians. The Dutch did not attempt any more settlements on the Delaware side of the bay until 1651, although they were familiar with and explored the area.

The Dutch fort served to protect the trading network which the Dutch established with the Susquehannocks of southern Pennsylvania and Maryland. Archæological studies conducted during the last fifteen years have shown that there was little aboriginal settlement in most of the present area of Delaware, although sites have been located in the hilly northern end of the state. Corroborating evidence that there was little Indian activity in most of Delaware comes from Indian deeds to Delaware land, which were signed for the most part by sachems living in present-day New Jersey, where the native population was apparently larger.

The Dutch monopoly on Delaware Bay settlement ended in 1638, when a band of Swedish settlers under the leadership of Peter Minuit established a community on the banks of the Christina River in the vicinity of present-day Wilmington. Minuit had been in the New World before this time, and had probably seen the area during a trading or exploratory venture. The Swedish colony was the brainchild of the Swedish king Gustavus Adolphus, but he died before colonizing actually began. His daughter and heir, Christina, under the guidance of her chief minister Axel Oxenstierna, continued her father's effort. Because her interests lay elsewhere, Christina approached colonization without much energy. The Swedish colony survived nevertheless, although it received virtually no support from its mother country .

In 1641 a small group of Englishmen from New Haven settled on Varckens Kill (Salem River) in the vicinity of the present Salem, New Jersey, foreshadowing Fenwick's colony there by thirty-five years. The Dutch governor Stuyvesant protested this incursion, but the New Englanders remained. Later that year, the Swedish government chose an experienced military leader, Johann Printz, to be their colony's governor. He was instructed to win the new English settlers to acceptance of Swedish rule (Johnson 1930: 68).

Printz tried the English for trespass in 1643. They exhibited Indian deeds to much of the east bank of the river and to some of the west as well, which Printz chose not to

recognize. In spite of being found guilty of trespass, the English stayed on (Johnson 1930: 230-233). Near the English colony, Printz built Fort Elfsborg on a point in the river that would effectively control the channel. During its eight-year effective life, Elfsborg was able to force Dutch ships to strike their flags (Myers 1912: 27).

On another occasion, the same year, Elfsborg was visited by mutineers from the party of Sir Edmund Plowden, who held a dubious English grant to the Delaware drainage, which he called New Albion. When he came to settle in 1643, some of his men mutinied and went over to the Swedes. The Swedes returned the mutineers, but were unwilling to recognize the New Albion grant. Despite vigorous Dutch protests, Elfsborg was ultimately defeated by mosquitoes, who made it uninhabitable.

Although the New Sweden colony received at best sporadic support from Sweden, the Dutch perceived it as a threat to their control of the Delaware Bay. In 1651, the Dutch moved their main fortification on the Delaware from New Jersey to Fort Casimir at the present site of New Castle, Delaware. The reason given for this move was to allow closer monitoring of the Swedes, whom the Dutch suspected of draining off the fur trade. Actually, the fur trade was more probably dwindling as a result of depletion of the wildlife resources; the Swedish colony did not receive enough support from home to make effective trading competitors.

The Swedes captured the Dutch fort in 1654 without incident, but the following year Peter Stuyvesant personally not only recaptured the Dutch fort, but also took control of Christinaham and terminated New Sweden. This action also was without incident. The Swedish colonists were encouraged to stay, with the promise of religious toleration and confirmation in their land and property in exchange for political loyalty to the Dutch. Most stayed.

Dutch control lasted until 1663, when the English attacked the Dutch holdings in the New World as part of the larger Anglo-Dutch Wars. Charles II granted to his brother James, Duke of York, all the territory from Maine to the east bank of the Delaware, James promptly dispatched a loyal supporter, Richard Nicholls, as Deputy Governor, to take and administer the territory. James' charter contained no mention of the west bank of the Delaware, but it was apparent to Nicholls and the other commissioners, Samuel Maverick, George Cartwright, and Robert Carr, that their master's authority would always be in some jeopardy from the Dutch at New Amstel if it were not reduced as well.

In September of 1664, after they had occupied New Amsterdam, Nicholls, Cartwright, and Maverick commissioned Captain John Carr to go to the Delaware and subdue the Dutch. Carr's instructions required him to act with great restraint, and to use force only as a last resort. He was to offer the people of New Amstel all the liberties enjoyed by the English on English lands, and also freedom of conscience in religion and a continuance for at least six months of their civil government, provided that they take an oath of allegiance to England. Only Vice-Director Alexander d'Hinojossa, the commander of the Dutch forces in Fort Casimir, and a handful of soldiers resisted. Carr reduced them handily.

The colony fell, without much in the way of military action. The English offered generous terms of surrender to all settlers, including again promises of religious toleration and confirmation of their landholdings.A few years later, a small group of Swedes briefly rose in an abortive rebellion commonly called "The Long Finn's Rebellion". These people had been incited by a recent immigrant who claimed to be the son of the Swedish hero General Konigsmark. The little rebellion was ended almost as soon as it began, and the

ringleaders were sent into servitude in the West Indies. Most of the local rebels received heavy fines, but remained in the colony.

The New Jersey proprietary was established on the southern part of the Duke's grant, but actually in the middle of the land under his courts' jurisdiction. The courts at New Castle and Upland continued to exercise jurisdiction of the territory that is now New Jersey until after the colonists there had established themselves. Overall, the transition from New York administration to New Jersey went smoothly except in the Salem Tenth.

Major John Fenwick, a New Jersey proprietor, came to America with a group of followers and promptly established a government based at Salem. New York's Governor Sir Edmund Andros, also an old soldier, was unwilling to share power with a part-owner of the new proprietary. Fenwick settled at Salem and began granting lands and holding courts, in defiance of Andros and the courts at New Castle. In the ensuing power struggle, Andros jailed Fenwick.

Ultimately Andros was obliged to recognize the new colony, but only after more regular government had been established by the other New Jersey proprietors. William Penn, a New Jersey proprietor, got his first taste of New World administration when he helped Fenwick financially in return for the tract known today as Penn's Neck between the Salem and Delaware rivers.

By the 1680's, landholding patterns in the area had taken on a characteristic configuration: farms consisted of long, narrow tracts running across the necks from riverbank to riverbank, or from riverbank to the ridge between streams, often a nominal mile deep. Each neck consitituted a kind of *de facto* political subdivision. But the compact settlements of European immigrants of the middle seventeenth century had been replaced by the time of Penn's grant (1682) by a dispersed rural settlement of mostly native-born residents with a common mixed but not yet homogenous ethnic heritage.

Penn's receipt of the Delaware counties in 1682 changed the orientation of the nearby countryside away from New Castle and towards Philadelphia. Until shortly before 1682, New Castle had been the seat of administration as well as the port of entry for all the Delaware River settlements, and most transportation arteries led towards that town. With the reorientation of the Three Lower Counties towards Philadelphia, the area around the lower ferry across the Christiana (now Wilmington) took on new importance as part of the overland route from New Castle County to the new colonial capital. Water transportation, however, remained the main means of commerce between Philadelphia and the rest of the Delaware Valley.

The first third of the eighteenth century saw rapid growth in the number of compact settlements on the Delaware. The reasons remain cloudy, but this period also saw the development of an effective internal road system, as well as an end to the supply of ungranted good land in the tidal part of the valley.

The Penn family continued to hold large tracts in Penn's Neck into the eighteenth century; some areas of good farmland across the river from New Castle [including area 20I] were not granted until the third decade of the eighteenth century.

Meadowlands, in which the project area abounds, were among the most valuable resources for the first European settlers. Each Dutch grant to a farm included a proportion of meadow and upland. In some cases the meadow portion of a farm was separated from the upland, but the two parts were regarded as a single entity.

New Castle and Salem, the first substantial settlements on the river, both were built on sandspits in the midst of tide marshes. Both communities had, from the beginning, town marsh lands held in common by the townspeople. Both communities erected communal dykes to drain the fens and keep out the river.

During the eighteenth century, the farmers of Salem County set out to reclaim the broad meadowlands with dykes and sluice gates. In Salem County alone, there were 71 meadow bank companies, the earliest chartered in 1794. Meadow banking and swamp draining continued through the nineteenth century, until thousands of acres were under control. Only constant maintenance could hold back the water, and maintenance was expensive. Laborers, called "mud men," were needed to keep the dykes in repair.

The best mud men, according to Thomas Bowen of Salem, were Irish, whose agricultural tradition included work with peat. By the 1930s, manual laborers were becoming hard to find and money was even scarcer. When the banks began to wash out, the bank companies had no money to repair them. William Hancock of Mannington described to the author the loss of the now-inundated Mannington meadow, which his family had farmed before the Depression. Roads that now go to the edge of the water once crossed Salem River.

While their neighbors were banking the meadows, farmers inland were draining the swamps and lowgrounds with extensive ditch enterprises. The ditch projects opened large areas of former swamp, where the rich organic soil and high water table have made desirable farm land. Blueberries in particular thrive in the drained swamps.

A second era of fort-building began early in the nineteenth century, with construction of batteries on Pea Patch Island and later on the New Jersey and Delaware shores. Chastened by the ease with which the British had attacked our major cities during the War of 1812, the United States embarked upon a major program of coast defense, much of which was never tried in combat. To protect Philadelphia and the Chesapeake and Delaware Canal, batteries were built on the New Jersey and Delaware shores. The battery on Pea Patch Island, which grew to become the great Fort Delaware, was constantly modernized into the twentieth century. Forts Mott and duPont on the shores facing the island were among the last coast defense installations erected. Although the forts never fired on an enemy, they remained government installations until after World War II.

A fort on Cape Henlopen, envisioned by the Swedish government's instructions to Governor Printz, was finally built and backed up by batteries and railroad guns inland. Fort Miles made the upriver forts redundant, only to be superseded itself when the value of coastal guns faded.

Ecological setting

Most of the sites discussed here are in the alluvial river valley of the Delaware, but several different ecological settings are involved. Some of the sites lie on sand dunes next to present and former watercourses. Others lie deep in swamplands, while others are upland sites. Man has used each of these environments differently during the past hundred centuries or so.

The one disposal area opposite Philadelphia, 17N, is a cove in the river at the mouth of a minor tributary. The natural ground along the shore is high and well drained, but the disposal area lies on fill in the river. Situations along the river at the mouths of minor tributaries have been identified as having a high potential for containing prehistoric sites. Shad, a staple of both prehistoric and historic diets, were caught here in abundance.

Near the mouth of Oldman's Creek, disposal areas 15D and 15E consist of tidal marsh now covered by dredged material. The marshes were full of resources that attracted both prehistoric and historic people. Sandy high grounds adjoining these marshes are rich in archæological sites, but the marshes themselves are not considered to be culturally sensitive. They consist mostly of peat that has built up during recent centuries as water levels have risen. Below the marshy peat there should be the ground surface that was exposed during Paleo and Archaic time, when the present high ground was far from the water's edge. An important mixed historic and prehistoric site lies on a sandy hillock next to one of these marshes.

Proposed disposal areas 15G and 15M lie principally on the well-drained low sandy ridges adjoining tidal marshes. These sandy ridges are rich in archæological resources from prehistoric and historic periods . Kardas and Larrabee investigated a similar area between 15D and 15G. Area 15G has been covered, but area 15M is undisturbed.

On both sides of the Penns Grove – Auburn Road are sites 21W and 21V. These sites consist of sandy fingers of high ground interleaved with wetlands and drained swamplands. The rich game supplies in the swamps here have attracted hunters since prehistory, but the sites were not very habitable before the swamp levels were lowered. The soil is powdery and dusty, in low places stained with the organic black color of swamp soils.

Proposed disposal areas 20I, 24CC, and 24T are dry but low-lying sandy fields along the edges of marshes near the mouth of Salem River.

On the Delaware side, the two proposed disposal sites are on gravelly hills well above the river. A perennial freshwater stream separates the two sites. Some of the earliest settlers in the region settled on this property, which continues [for the moment at least] to be fertile and productive farmland.

Narrative

Of the thirteen disposal areas, eleven lie in New Jersey on the east bank of the Delaware River. From Big Timber Creek southward to the mouth of Salem River, the proposed disposal sites are located in some of the most significant historic areas of the state. Occupation of these areas during the first half of the seventeenth century has been amply documented. The two sites in Delaware are located on land that was owned by important historic figures and adjacent to the nationally-significant home of Delaware's best-known statesman. Since they lie near the rivers, all of these sites must be considered possible locations of prehistoric settlements.

Site 17N: Washington Park
West Deptford Township, Gloucester County

Site 17N lies opposite League Island, site of the Philadelphia Naval Shipyard, below the mouth of Big Timber Creek. According to an old soil map, the soils here were originally Sassafras sand and tidal marsh (Burke and Lee 1926). The area was formerly known as Ladd's Cove or Howell's Cove, an area of marshy shallows (USC&GS 1848). The proposed disposal area consists of natural marsh and made land on the edge of an active oil refinery. A point of woodland, at the mouth of an unnamed creek, may be natural high ground.

Legend, without much foundation, holds that George Washington rested at the house that once stood here in August 1777. Later that fall, better-documented events of the Revolution occurred nearby at Red Bank, when Continental troops repelled a much larger and better armed Hessian force under Count Carl Emil Ulrich Von Donop. This particular site rose to prominence more than a century later, when New Jersey outlawed horse-race betting in 1893.

William J. "Billy" Thompson, an Irish immigrant who was called "The Duke of Gloucester," had been operating a hotel and racetrack a short distance upstream in Gloucester City. To make up for his loss of racing revenues, Thompson bought 600 acres of the old Howell estate, Fancy Hill. The site already contained a brick, two-story, five-bay house on a low knoll overlooking the river. Offshore was Howell's Fishery, a well-known source of shad.

On the opposite shore was League Island, the site of a Navy base that was still insular in form as well as name, but well stocked with sailors in need of entertainment. The southern edge of Philadelphia was some distance to the north, and Fancy Hill was decidedly rural; Philadelphians of that era customarily escaped the city by taking the steamboats to New Jersey, where they would eat shad.

Shad had helped Thompson make his fortune in the first place. While Thompson was managing the Buena Vista Hotel in Gloucester City from 1870 to 1893, his planked shad became a famous delicacy. It moved with him to Fancy Hill.

FIGURE 2: Much-enlarged detail of U. S. Coast and Geodetic Survey *Map of Delaware Bay and River,* 1848, courtesy Hagley Museum and Library. Lowgrounds along the river were embanked at that time. The horseshoe-shaped drive marks the Howell mansion. The small stream that is the east boundary of the proposed disposal area is shown entering the river through a sluice, and some of the presently swampy ground along this tributary was under cultivation.

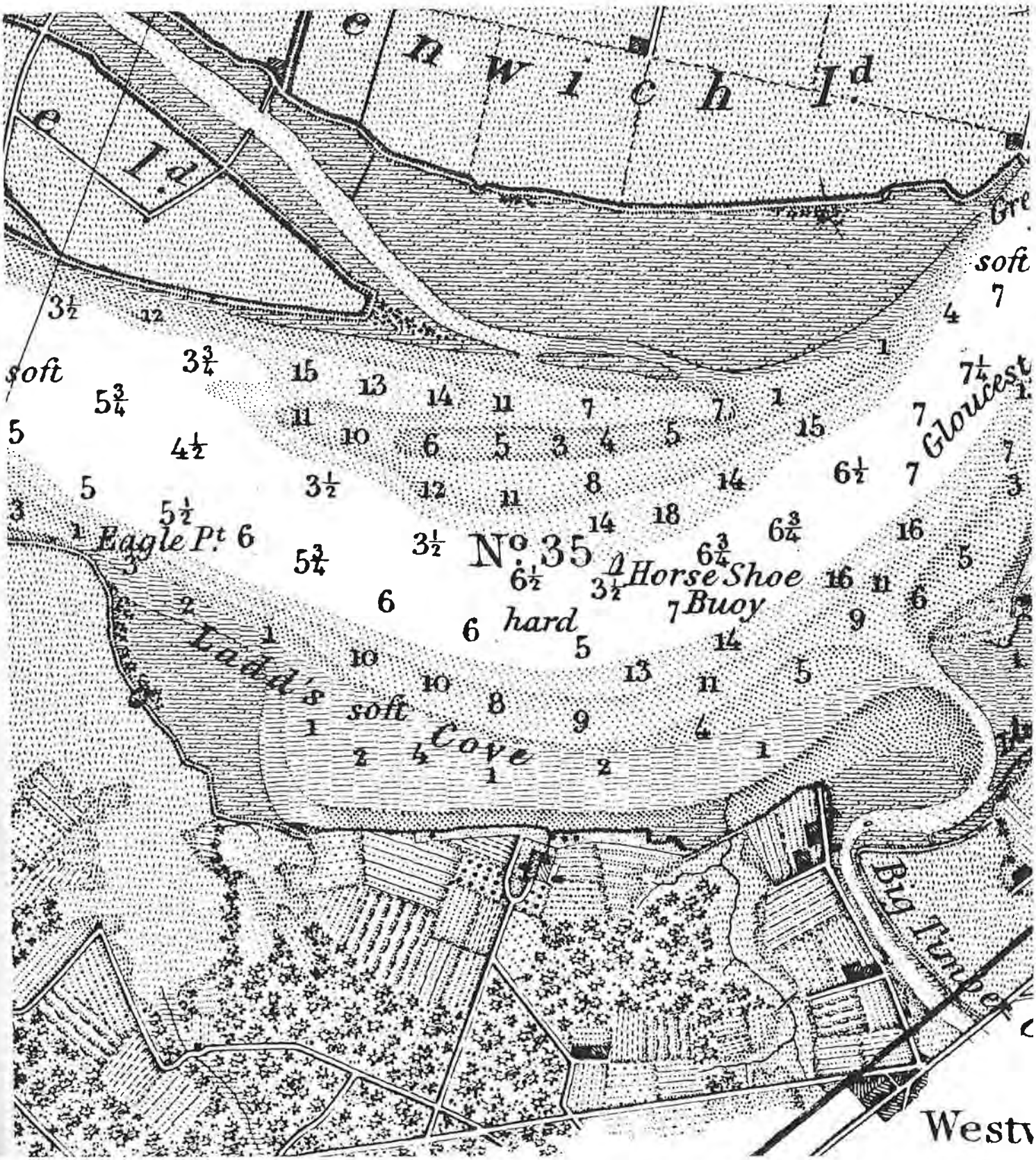


FIGURE 3: Detail of a map entitled *Shore Front of the Delaware River, in the County of Gloucester, showing the Exterior Wharf Lines Established thereon by the Riparian Commissioners of the State of New Jersey, 1877, R. M. Pancoast, Surveyor,* courtesy Salem County Historical Society. The scale is given as 1:40,000.

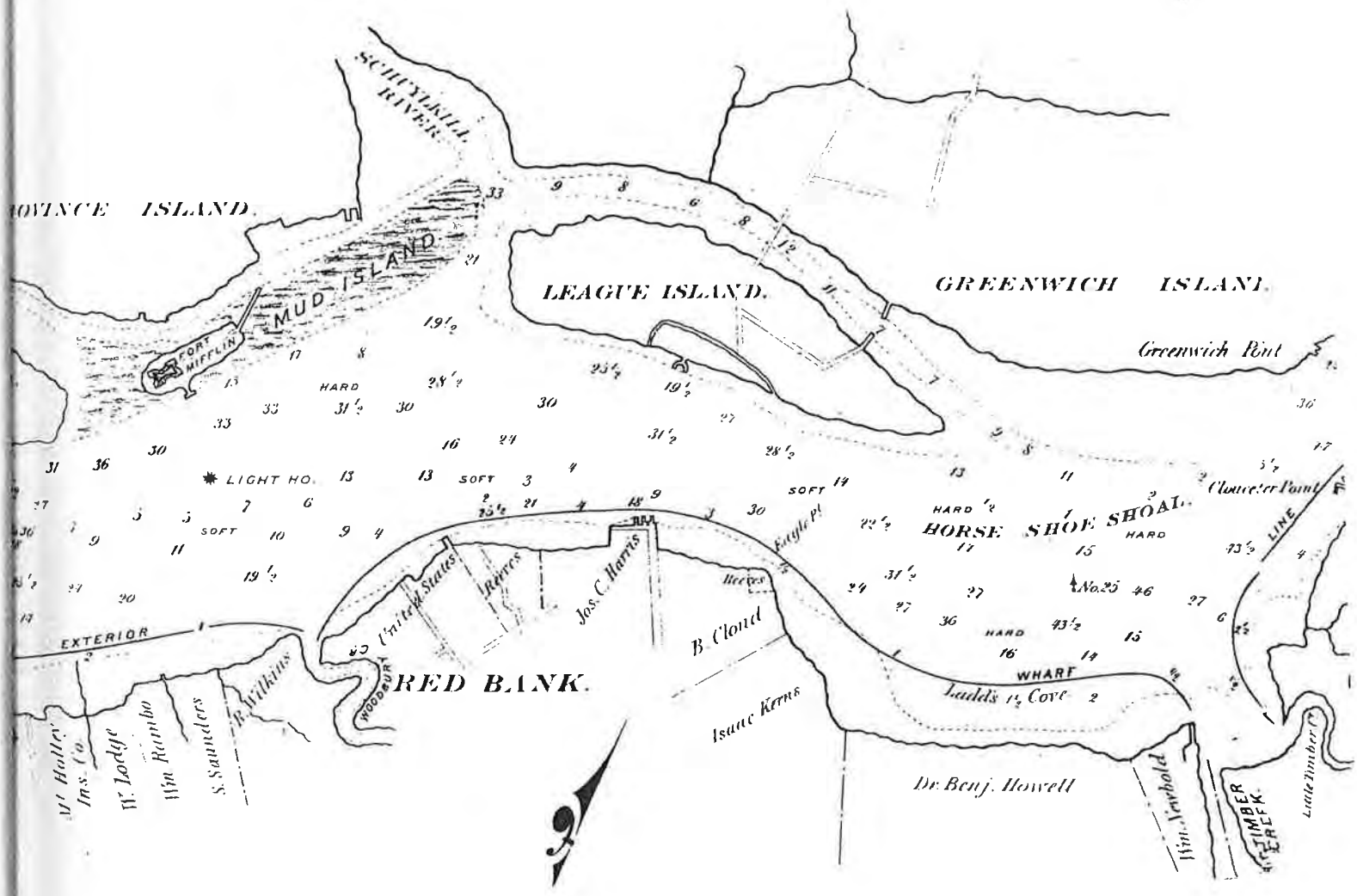
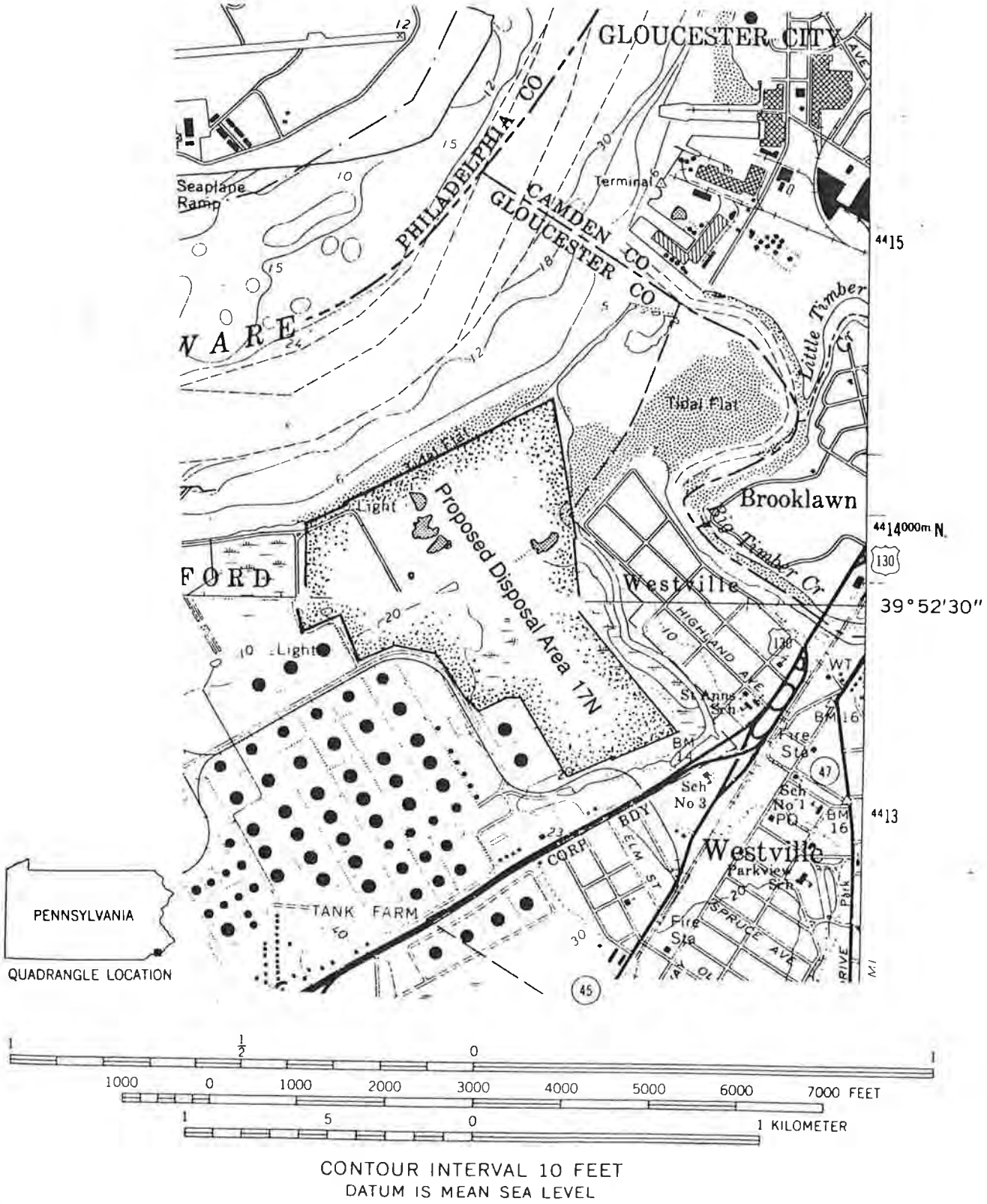


FIGURE 4: Detail of USGS Woodbury and Philadelphia 7.5' quadrangles, showing the location of area 17N. The present dyke line is near the location of the outer end of Thompson's steamboat pier.



Planked shad is prepared by attaching shad fillets to boards, which are then propped up in front of a slow fire. The shad cooks for hours, during which time it is slathered with rich sauces. When it is finished, the saying goes, "you throw away the fish and eat the plank." Shad planking was often associated with beer and politics, since the prospective banqueters traditionally quenched their thirsts with lager as they waited long hours for the fish to cook.

While he exploited the shad fishery and kept a hotel in the old farmhouse, Thompson was not content to operate a mere bucolic resort for shad fanciers. His Camden, Gloucester, and Woodbury Railway Company was chartered to run interurban electric trains into the park. A pier 1800 feet into the river bridged the shallows and permitted steamers to call.

When sweltering Philadelphians debarked from his steamers at Washington Park, Thompson provided a multitude of inducements for them to spend money. Victor Herbert and John Philip Sousa provided music, while daily balloon ascents competed for attention with a device called the "electric fountain." Visitors could ride the "world's largest" Ferris wheel or one of several merry-go-rounds In 1899, Thompson opened what probably was the first motion-picture theater in New Jersey, known as Lubin's. The largest crowd was said to have come to hear William Jennings Bryan. More physical forms of entertainment were provided by the "natatorium," or swimming pool, in the river and a bicycle track with a shed large enough to hold 2,000 bicycles.

For those who did not prefer Gloucester shad, Washington Park had a "Little Germany" beer garden and concessions selling all sorts of food and drink. One evening in 1909, an untended fire under a pot of clambake sauce in the old Howell mansion kitchen started a fire that quickly engulfed many other buildings. The park reopened, but never thereafter was more than a shadow of its former self.

Thompson died in July 1912 while on a trip to Ireland with his youngest son. The next February, the park was sold to satisfy his creditors. The park brought $53,800 from George W. Jessup and Son, a real-estate firm acting for the Campbell Soup Company. The new owners immediately leased the park to the Stetser Brothers, who had been operating the remains for two years. Another fire in 1913 further damaged the park and reduced the Stetsers' chances of success. They stayed on for two more seasons, finally closing in 1914 (*Gloucester County Democrat* , February 27, 1913; Woodbury *Daily Times*, February 21, 1971; *Gloucester City News*, August 27, 1970; Hoelle 1982).

Campbell Soup Company then announced that the old park site would become a "monster soup cannery" that would be a "model plant in efficiency and provisions for employees' comfort." The two-million-dollar plant was to have a million square feet of floor space, complete with recreational facilities for the workers (*Gloucester County Democrat*, April 15, 1915).

Campbell's plant never materialized, but in 1918 another factory was built on the remains of Washington Park. The site was converted into a plant for loading silk bags of cannon powder. Magazines and factory buildings were still under construction in November, when the Armistice made it obsolete. The plant was huge; there were over 3,000 production workers in the incomplete factory, on which 800 construction workers were still building when it closed (*Gloucester County Democrat*, April 11, 1918, November 21, 1918).

A decade later, the overgrown site was cleared, but no plant was built. Instead, Campbell's started a tomato plantation there. According to the soil maps, the site was Sassafras sand, which has good agricultural qualities (Marley 1962). To make new ground, the shore was riprapped with blocks of crushed soup cans and fill was pumped in from the river (*Courier-Post*, May 31, 1934). Corps of Engineers maps dated 1934 and 1942 indicate that the cove was entirely filled during this period.

Washington Park was finally converted into a tank farm and refinery, which exists there today. The present shoreline is far into the original Howell's Cove, out to the end of the 1800-foot steamboat pier, and the shad fishery lies deeply buried under the dredged material.

Extensive filling has covered much of the shoreline, the fishery, and other features of the historic site. Sassafras soils elsewhere frequently contain prehistoric sites, but here they have been disturbed beyond any chance of recognition. While there remains a remote chance that fragments of the amusement park may survive in the refinery, the proposed disposal area is unlikely to contain historic or prehistoric remains that would be affected by the proposed dredging activities.

According to the New Jersey State Museum, there are no archæological sites reported within the boundaries of the proposed disposal area, but sixteen sites are known within a one-mile radius in New Jersey. Of these, four are located in Camden County and the rest are in Gloucester (Cater Webb, personal communication, in the appendix hereto).

Sites 15D and 15E: Birch, Raccoon and Oldman's creeks Logan Township, Gloucester County, New Jersey

Proposed disposal areas 15D and 15E consist largely of former wetlands along the Delaware River that have already been used for disposal of dredged material. On the landward side of these disposal areas are high fields that have been productive farmland. Birch Creek separates area 15D from area 15E. Raccoon Creek figures prominently in the history of the seventeenth-century Swedish and Finnish settlements on the Delaware. The Raccoon settlement eventually built its church at Swedesboro, a few miles upstream, which became the community's focus. Early in the settlement history, Swedish and Finnish settlers lived mostly on the lower reaches of the Raccoon.

Salisbury Site, a National Register property, lies between Raccoon and Birch creeks, between Route 130 and the Delaware River. Disposal area 15D overlaps this site, registered March 7, 1979. In all, the State Museum identified three known archæological sites that are partly or wholly in this disposal area. The 1962 soil map shows the proposed disposal area as tide marsh surrounding a large field of Downer loamy sand, a soil type that tends to be droughty and subject to wind erosion. When Dorothy Cross first excavated here, she noted æolian sand deposits, which she characterized as dunes (Cross 1941: 52). These soils originally supported oak forests, which would have been an attractive food source for both prehistoric and historic people. Cross identified the Salisbury Site as a prehistoric site of the contact period, but it probably was occupied by early European settlers as well.

Raccoon Creek, according to Mickle's history (1845), took its name from the *Naraticon* band of Indians, from which the word raccoon is derived. The first European settlement at the mouth of Raccoon Creek, called New Stockholm, was established by Swedish settlers. When a party of 230 English Quaker colonists arrived in the *Kent* in

1677, they took shelter first in the Swedes' abandoned houses there. The town faded, but there are later deed references to the town land of New Stockholm. The center of Swedish settlements in the region moved upstream to the modern Swedesboro. The village of Bridgeport was settled near a drawbridge just above the mouth of Raccoon Creek around the time of the Revolution (Richards 1925).

West (downstream) of Birch Creek, disposal area 15E lies on made land and tide marsh. This disposal area appears to be congruent with the historic tide marsh, as shown in the 1848 map. This site lies off the end of a local roadway known as Old Ferry Road. The Marcus Hook ferry during the eighteenth century transported passengers across the Delaware here. Peter Kalm visited the Pennsylvania side of the ferry in 1748, but did not cross. A hotel was advertised for sale here in 1769 (Richards 1925). By 1848, the navigation chart (reproduced herewith) contained no indication of a ferry, hotel, or landing, on the river. It does, however, show a road running in the general vicinity of the abandoned pier that appears on current USGS maps.

A known archæological site is reported adjacent to the Monsanto plant, on the edge of area 15E. Between areas 15E and 15G is the Oldman's Number One disposal area that was explored by Kardas and Larrabee (1982). Like the Salisbury Site, this disposal area yielded both prehistoric and early historic artifacts.

Because sites were found in similar locations nearby, there exists a high likelihood that historic and prehistoric sites will be found on the natural high ground adjacent to area 15E. A considerable tract remains under cultivation and available for archæological survey. This stretch of river is so historically and archæologically significant that any proposed work here should be preceded by extensive subsurface testing. Because of previous dredge disposal activity, these sites may have been disturbed and deeply buried; any testing at all would be expensive.

FIGURE 5: Greatly enlarged detail of the 1848 Coast and Geodetic Survey map, showing areas 15D, 15E and 15G, the area of the Salisbury site, and the mouth of Raccoon Creek. Note the (unidentified) stream connecting Birch Creek with Raccoon Creek inland of the marshes. The Salisbury Site lay on the landward side of this creek.

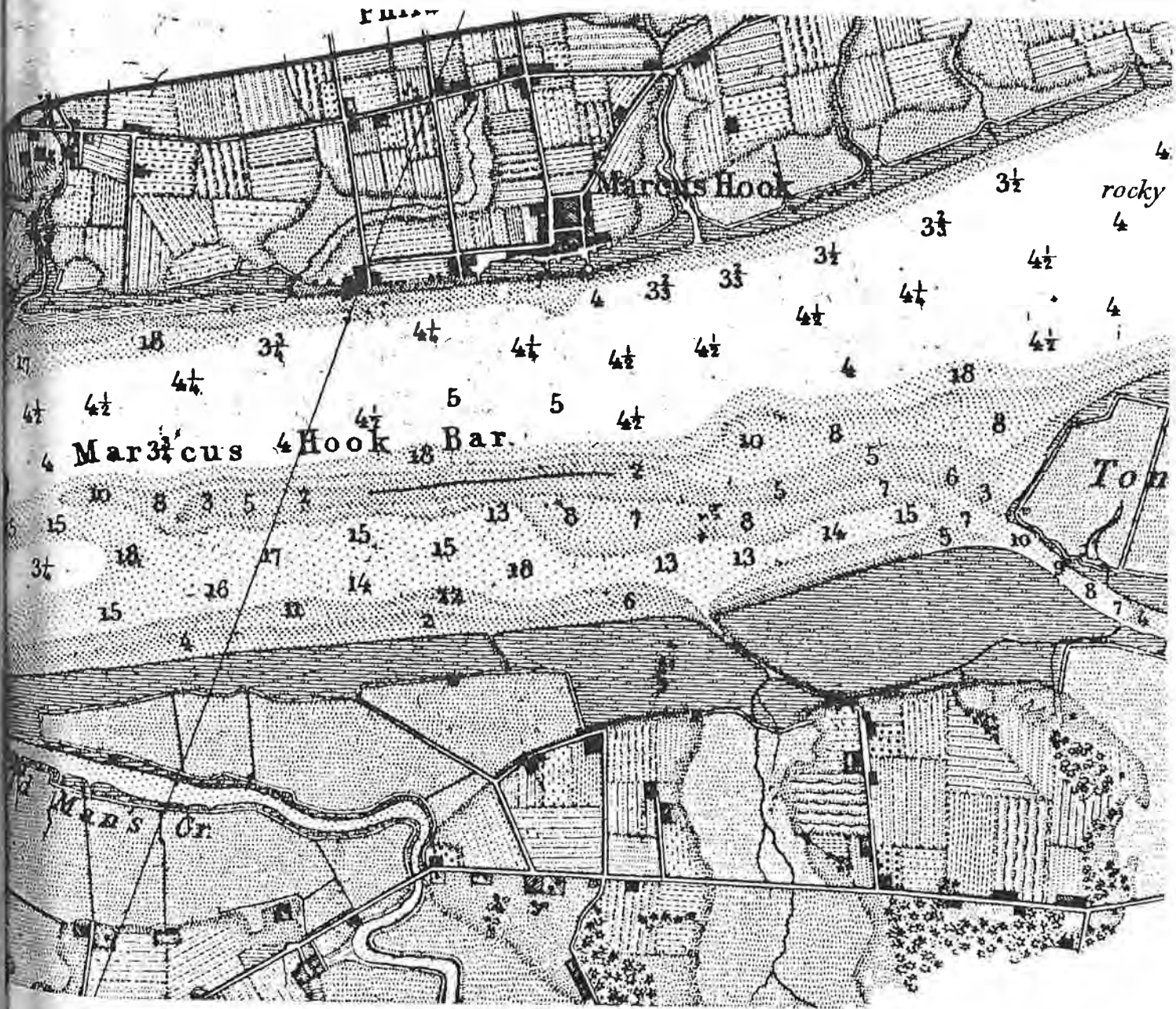


FIGURE 6: Detail of USGS Marcus Hook quadrangle, showing locations of proposed disposal areas 15G, 15E, and 15D in Gloucester and Salem counties. The small creek has been filled in.

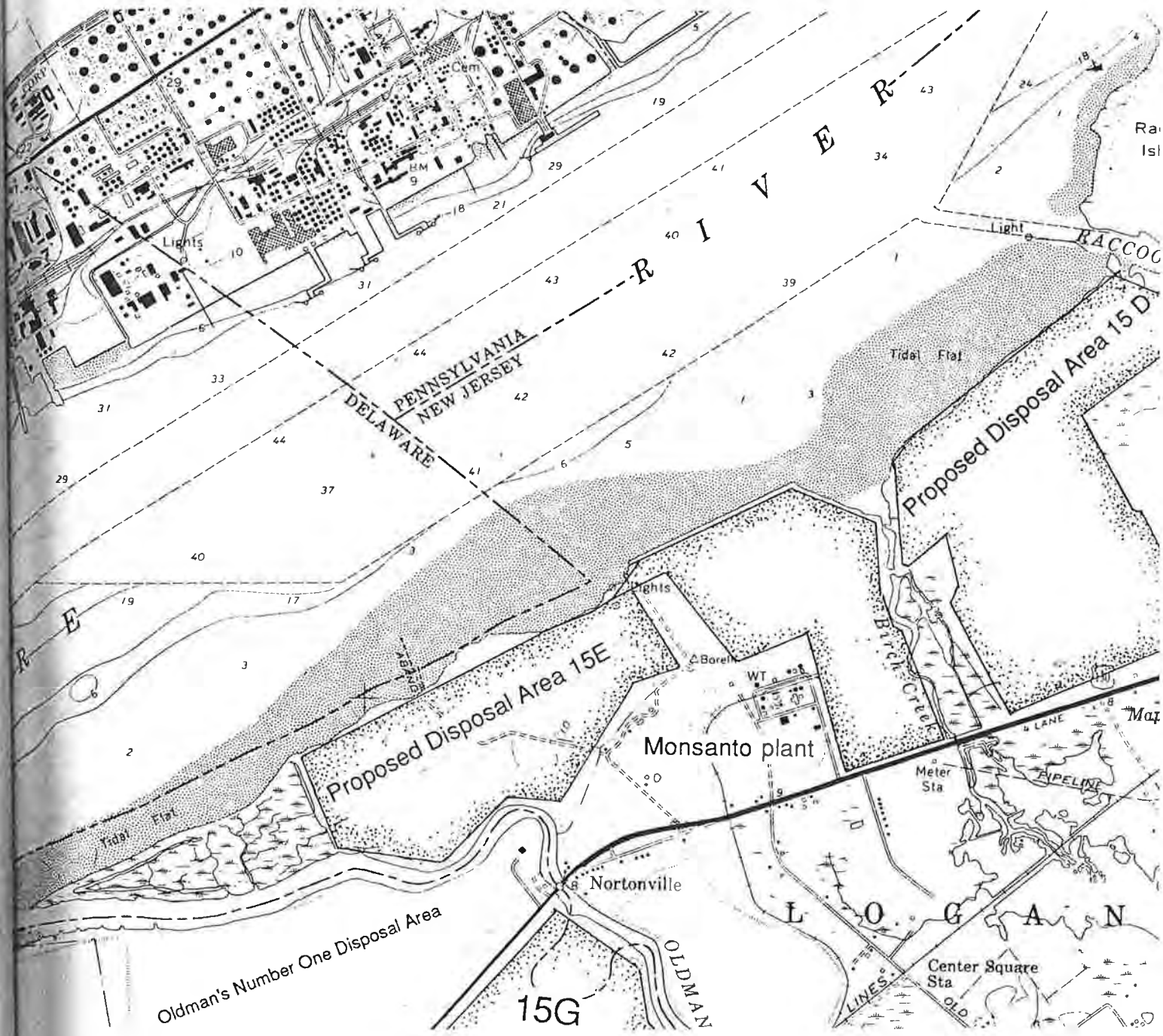
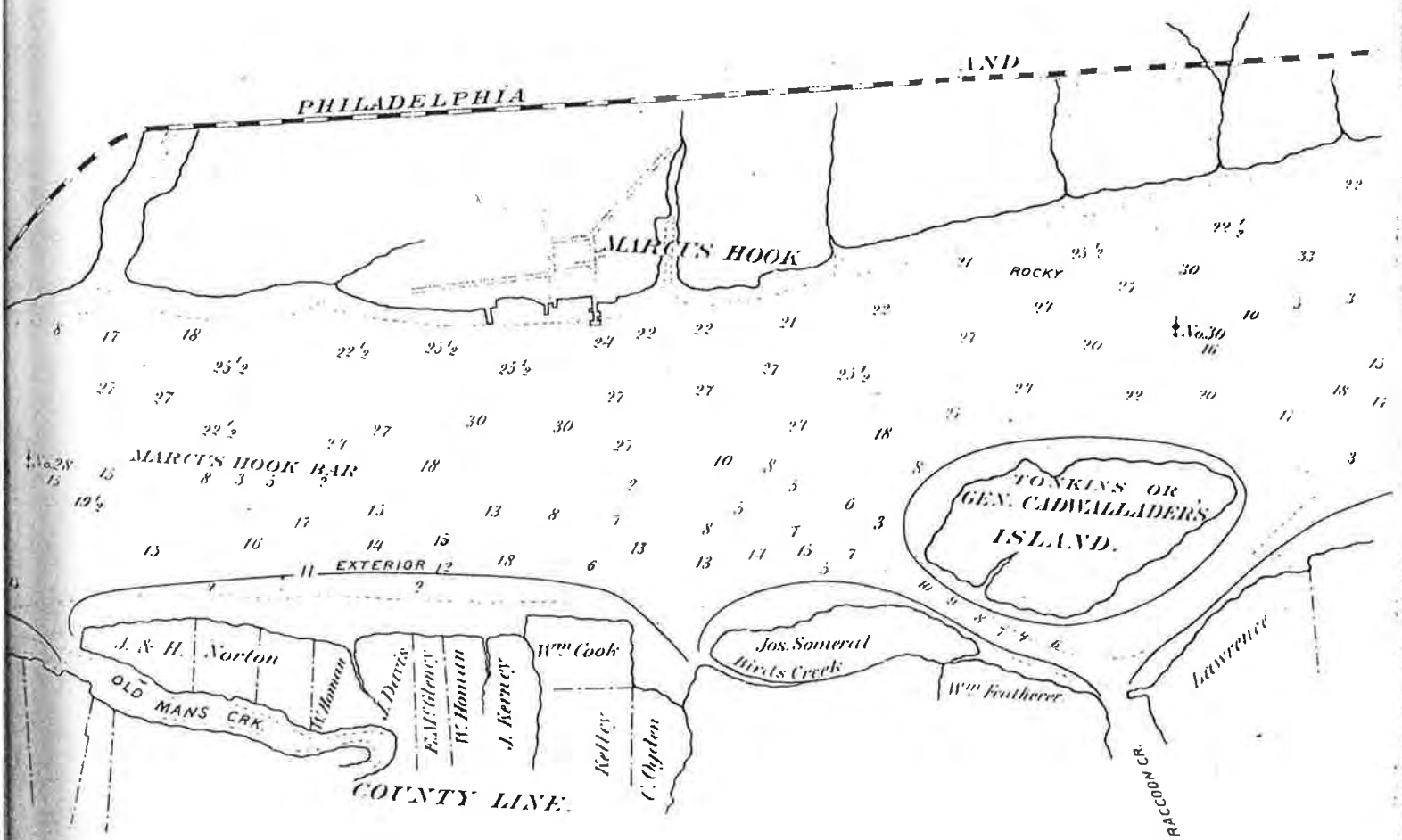


FIGURE 7: Detail of a map titled *Shore Front of the Delaware River, in the County of Gloucester, showing the Exterior Wharf Lines Established thereon by the Riparian Commissioners of the State of New Jersey, 1877, R. M. Pancoast, Surveyor,* courtesy of the Salem County Historical Society. The scale is given as 1:40,000. Bird's Creek, which shows on this map, is now totally filled in. General Cadwallader's Island, its form and location changed considerably, is approximately in the location of Raccoon Island.



Site 15G: Oldman's Creek
Oldman's Township, Salem County, New Jersey

Oldman's Creek, the boundary between Gloucester and Salem counties, was called by the Swedes Alderman's Kilen, of which the present name is a translation. The early Quaker settlers of New Jersey tried to call it Berkeley River in honor of one of the proprietors, but the old name persisted (Mickle 1845:121). Area 15G lies athwart the original course of the creek in both Gloucester and Salem counties.

According to the 1848 map, this disposal area was occupied by one or two houses on the Salem County side. The 1939 edition of the USGS Marcus Hook quadrangle shows houses in the same locations and a road crossing the meadow to a settlement on the creek called Jumbo, near the railroad bridge. Local residents interviewed during this survey report that the Jumbo houses were occupied within living memory. Only ruins stand there now. The potential for existence of historical archæological sites is high.

Two known prehistoric sites, 28-Sa-49 and 28-Sa-50, overlap this disposal area. It is reported that prehistoric remains have been found here. According to one account, extensive prehistoric remains were found when the railroad was built.

The existing disposal area covers the natural ground surface with at least ten feet of fill. Although there is a very high likelihood that cultural materials exist here, they are beyond the reach of any effect that additional dredge disposal might inflict. If, however, there is any proposal to change the disposal area or to build new banks, there may be archæological impacts.

Site 15M: Porcupine Road at Pedricktown
Oldman's Township, Salem County, New Jersey

Pedricktown takes its name from Roger Pedrick, progenitor of a large family in the vicinity. He received the thousand-acre site from the proprietor, John Fenwick, in 1682 (Cushing and Sheppard 1883: 204). The immediate vicinity of the proposed disposal area has been occupied intensively and continously since that time. Nearby, on the bank of Oldman's Creek, the local chapter of the Archæological Society of New Jersey excavated a large prehistoric site with burials.

An almost continuous line of prehistoric sites border both banks of Oldman's Creek and its tributary, Beaver Creek, near this disposal area. Three known sites lie between this area and the marshes along Oldman's Creek; one of them, 28-Sa-58, overlaps this area. Within a mile, there are about twenty known sites and probably more unknown sites.

Sassafras–Galestown–Woodstown loamy sands occupy most of the site, with patches of Pocomoke–Berryland loamy sand and a number of wet patches. There is no difference between the soils of this proposed disposal area and the soil of the prehistoric burial site that was excavated nearby. In spite of its wet places, the area is under cultivation. The Pocomoke–Berryland parcels tend to be wet and therefore are unlikely to support prehistoric or historic habitation sites. The Sassafras–Galestown–Woodstown soils are better drained and tend to be droughty (Powley 1969).

The 1848 map (following page) shows cultivated land clustered around the village center, but woods covering more than half of the proposed disposal area. Porcupine Road, the western boundary of the site, was not cut through at the time of the 1848 map, which shows it terminating in the "r" of "Pedricktown."

If this site should be considered for use as a disposal area, it will be necessary to conduct testing and probably data recovery. Because of the dry spring season, a large part of the area had not been cultivated by the end of May. A field under grain crop had not yet been harvested. If this disposal area is seriously considered, it should be systematically surface-collected during several cultivation cycles. Such long-term systematic surface collection should provide a very clear cultural map.

Around the edge of the proposed disposal area is the historic village of Pedricktown, which has not been analysed in the county historic-site inventory. The inventory currently covers only the southern part of the county. When it finally reaches the north end of the county, it will undoubtedly include a number of Pedricktown structures, many of which border the proposed disposal area. Any proposed disposal area on this site would surely affect the architectural resources in Pedricktown. It would therefore be necessary to ask the State Historic Preservation Officer to issue a determination of eligibility (or ineligibility) for the Pedricktown historic district. In order to make a determination, the State Historic Preservation Officer would need a survey of the standing structures as well as the archæological sites.

FIGURE 8: Much-enlarged detail of the 1848 U. S. Coast and Geodetic Survey map, showing the locations of areas 15M and 15G, with 15E at the top along the river.

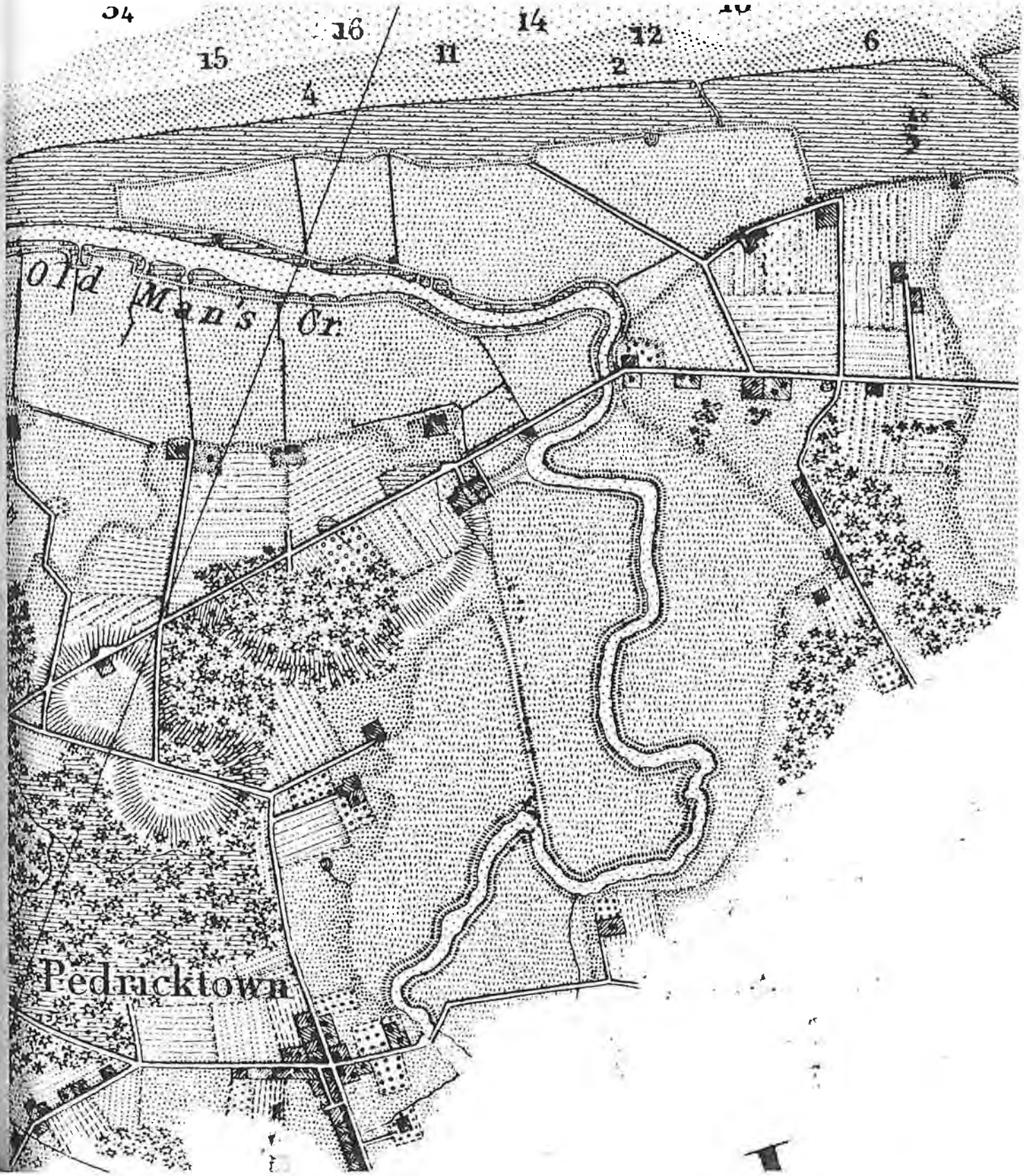
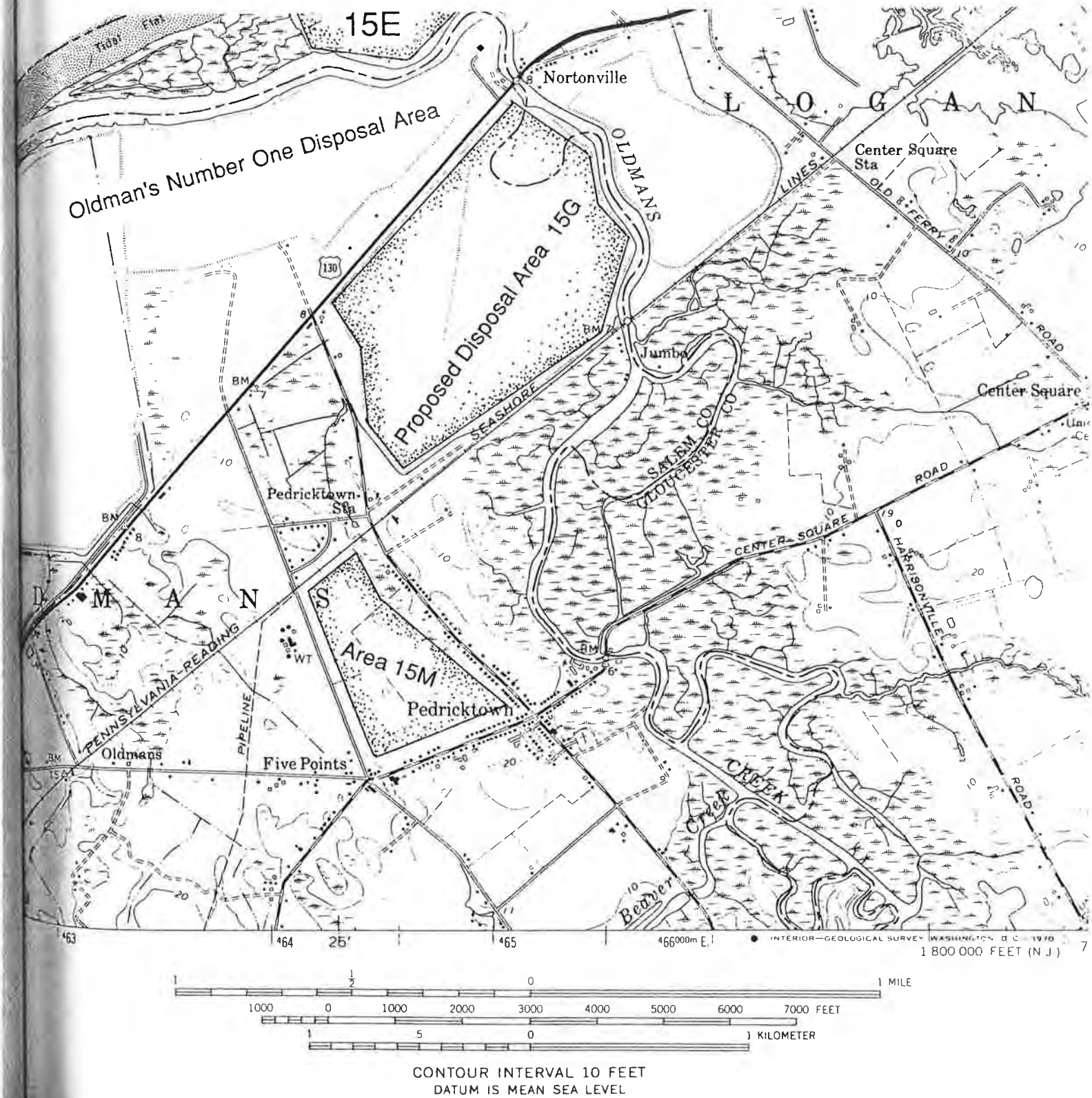


FIGURE 9: Detail of USGS Marcus Hook 7.5' quadrangle, showing areas 15M and 15G, with part of 15E at the top. Between 15G and 15E, north of Route 130, is the disposal area explored by Kardas and Larrabee, Oldman's Number One.



Sites 21W and 21V: Penns Grove-Auburn Road
Carney's Point Township, Salem County, New Jersey

Game Branch, one of the sources of Salem River, rises in a swamp adjacent to disposal areas 21V and 21W. A retired local farmer, who helps to cultivate a blueberry patch in the adjacent field, informed one of the authors that he has never entered the swamp, which is a forbidding mass of vegetation. On the sandy ridges and drained depressions around the swamp, there is considerable cultivation. Comparison with the 1848 map (figure 11) reveals that the swamp has shrunk considerably over the years.

One archæological site, 28-Sa-59, is located within a mile of these proposed disposal areas, farther down Game Creek.

Soils in the cultivated ground are loamy sands of the groups Pocomoke–Berryland, Sassafras–Galestown–Woodstown, and Woodstown–Klej–Sassafras. All are low-lying soils with moisture problems. The ground supports blueberries as well as other crops (Powley 1969).

Dry weather delayed cultivation of this ground, but it was available for viewing when the author visited it on May 28. Area 21W is cultivated as a series of small patches, some of them only two or three acres, among swampy lowgrounds. All over the plowed fields there were oyster and clam shells, which must have been brought in by people. A few pieces of dark beverage bottle and white clay pipe stems gave evidence that the site has been occupied during the eighteenth or early nineteenth centuries. There were also pieces of refined white earthenware of the nineteenth century throughout the site. No habitation site was evident.

Throughout the site were pieces of quartz that appeared to be reduction debris from prehistoric implement manufacture, but no worked or retouched quartz chips turned up in the surface survey. There are undoubtedly prehistoric artifacts on the site, as reported by some of the local children. Area 21V was originally more swampy than 21W and is therefore less likely to contain prehistoric remains. None were noted in the surface investigation.

FIGURE 10: Detail of the Penns Grove 7.5' USGS quadrangle, showing the locations of sites 21W and 21V.

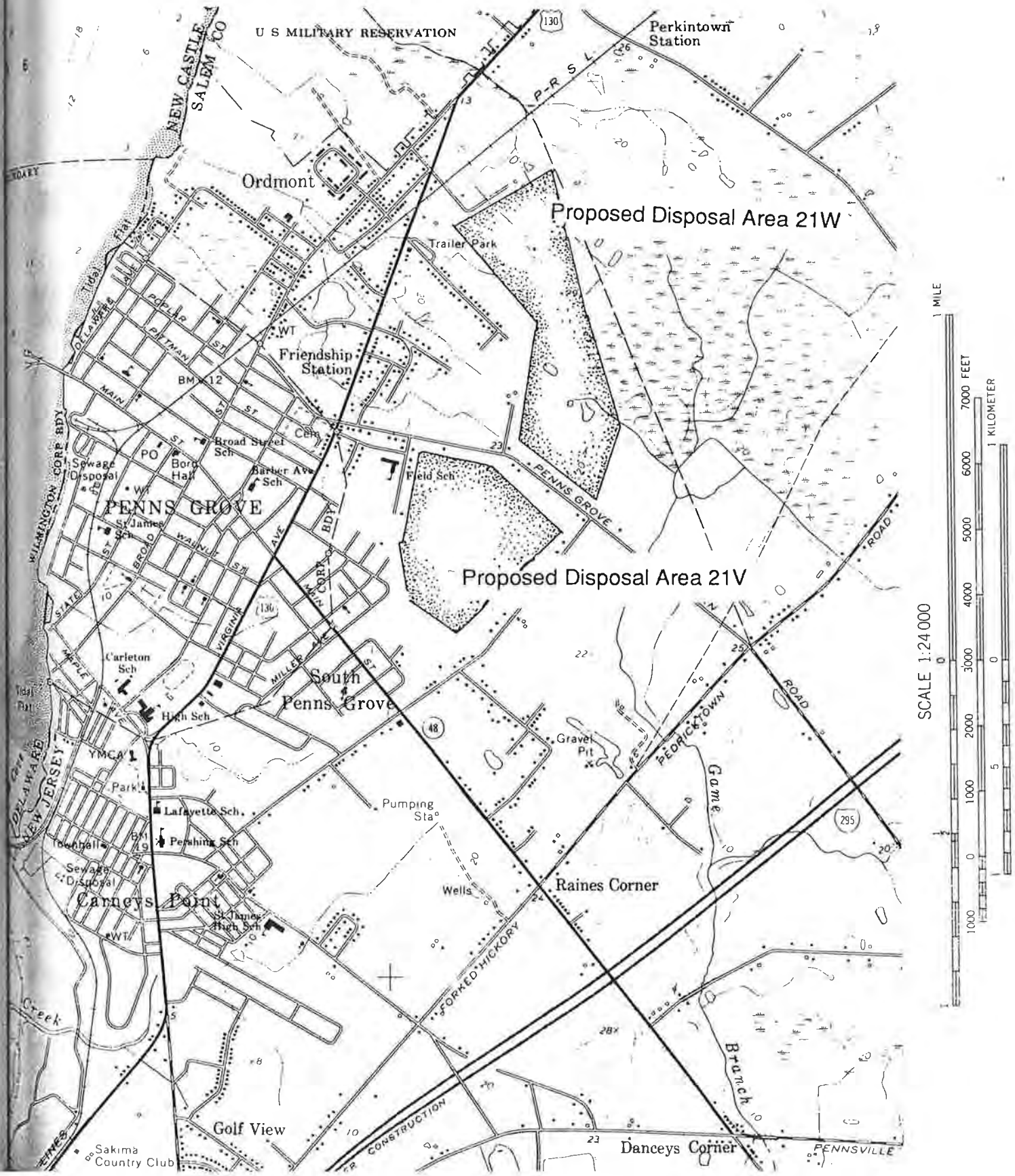
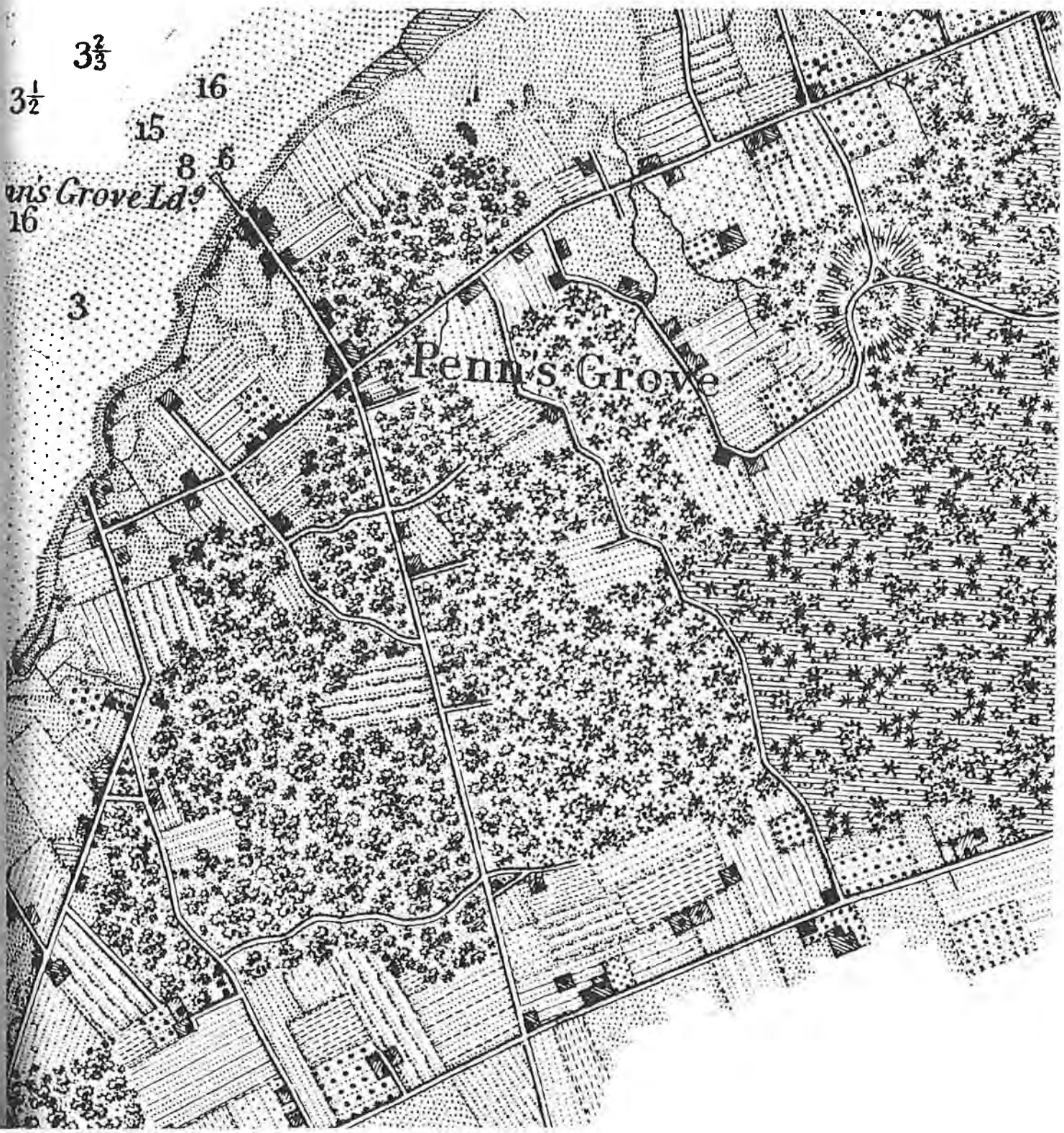


FIGURE 11: In this much-enlarged detail of the 1848 USC&GS map, the modern road between the two disposal areas has not yet been built. The crooked road shown to the right of center is in the general vicinity. The swamp, much larger than at present, is on the right edge of the figure.



Site 20I: Lehigh Road
Pennsville Township, Salem County, New Jersey

Area 20I lies between Miles Creek and Killicohook Wildlife Refuge. Part of the area has already been filled with dredged material, while in some areas the original ground surface remains exposed. Since the eighteenth century, this parcel has been a single farm, although sometimes it has been partitioned among several owners. On the north was the Miles farm (now the Township industrial park), and on the south was the Weatherby farm (now Killicohook Wildlife Refuge). The property lines were Miles Creek and the present course of Lehigh Road, much as they are today. Even though the tract today has several owners, its arable portions are cultivated by members of the Wood family as if it were one or two farms. During the eighteenth century, the farm also was divided.

Thomas Miles obtained 300 acres in Penn's Neck in about 1735 and built a house on the present Tufts Road in 1735 that stood until 1956 (Sanderlin 1965:85-88). Miles, who is well known as a surveyor, called himself a weaver in his will. He left £50 to build a schoolhouse in the lower part of Penn's Neck. Executors were his brother in law Sinnick Sinnickson and his son Francis; the will was proved May 21, 1743 (*New Jersey Archives* III).

His son, Francis, left the bulk of his estate to finance the schooling of poor children of the township, after bequests to his widow and other heirs (*New Jersey Archives* XXXIII). Miles' home farm became the "Township" farm, also known as the "Guard House" farm, held in trust for educating the poor children of the township to the present day. The township is developing an industrial park on the property, which lies along the north bank of Miles or Cantwell Creek.

Andrew Sinnickson and William Bilderback, executors of Francis Miles, in 1771, sold an outlying part of his property to William Saunders. The 25-acre parcel adjoined Albert Bilderback, Earick Philpot, and Alan Congleton, and probably lay inland of the proposed disposal area 20I (Salem County Historical Society deed 367). The remaining tract was a long, narrow parcel, which had apparently been considered the core of the Miles home farm.

The original parcel that contains area 20I extended from the present Lehigh Road to Miles or Cantwell's Creek, but it was divided about the time of the Revolution into the John Congleton and Albert Bilderback farms. In 1800, John Congleton and his wife conveyed to Nathaniel Harris two parcels "where they live" between Cantwell's or Miles' Creek and the land of Edmund Weatherby's estate. Harris reconveyed the same back to them immediately. This "dummy" or "straw man" transaction serves to provide us with a description of the farm that now includes the proposed disposal area. The Weatherby line was roughly the present route of Lehigh Road. The first part, 125.5 acres on the head of the creek, included a boundary that bisected a barn site, indicating that it had been part of a larger farm. Another parcel, 45 acres, was high ground and marsh on the riverside. This included the two acres Congleton had bought from Uriah Paul fifteen years earlier (Salem County Historical Society deed 1441).

Between Congleton's two home parcels was a farm that the Congletons had conveyed to Albert Bilderback in 1781. This tract's southeastern boundary passed through the barn. The northeast boundary was Miles Creek and on the southwest it abutted Weatherby's property (now Kilicohook Refuge) and Congleton's shorefront parcel (Salem County Deed Book N: 262). Albert Bilderback's son Joseph sold this part of the farm to Jacob Fox. Congleton's riverfront "wild marsh," was bought by Fox in 1819 from the

executors of Daniel Stout (Salem County Deed Book X:106). With this transaction, the riverfront farm between Lehigh Road and Miles Ceek again became a single parcel.

The lowgrounds remained unimproved until 1852, when Ebenezer Dunn, James Mecum, Henry Fox, and John Casperson formed the Miles Creek Bank Company. The new bank, which is still the riverside levee, provided drainage for Miles Creek meadows and a small tributary of the Delaware that lay slightly downstream in approximately the middle of the proposed disposal area (Salem County Banks and Roads E: 61).

The proposed disposal area is legally an undeveloped part of the Penn's Beach subdivision. In all, there are about 70 city blocks platted on the site, divided into twenty-foot building lots. Penn's Beach was laid out in 1926 as a resort community. The Philadelphia *Record* gave chances on lots with every new subscription, and each lot deed included a share in the yacht club on Riviera Drive. Lots that weren't raffled were sold. Since the original lots were almost too small for building, it was necessary for a prospective builder to accumulate several adjacent lots (Sanderlin 1965:18). North of Miles Creek, most of the Penn's Beach lots were eventually settled; south of the creek, very little transpired. The south portion today is farmed by the Wood family, who own several of the blocks. Other blocks have been taken by the township for taxes, while scattered lots are owned by absent individuals.

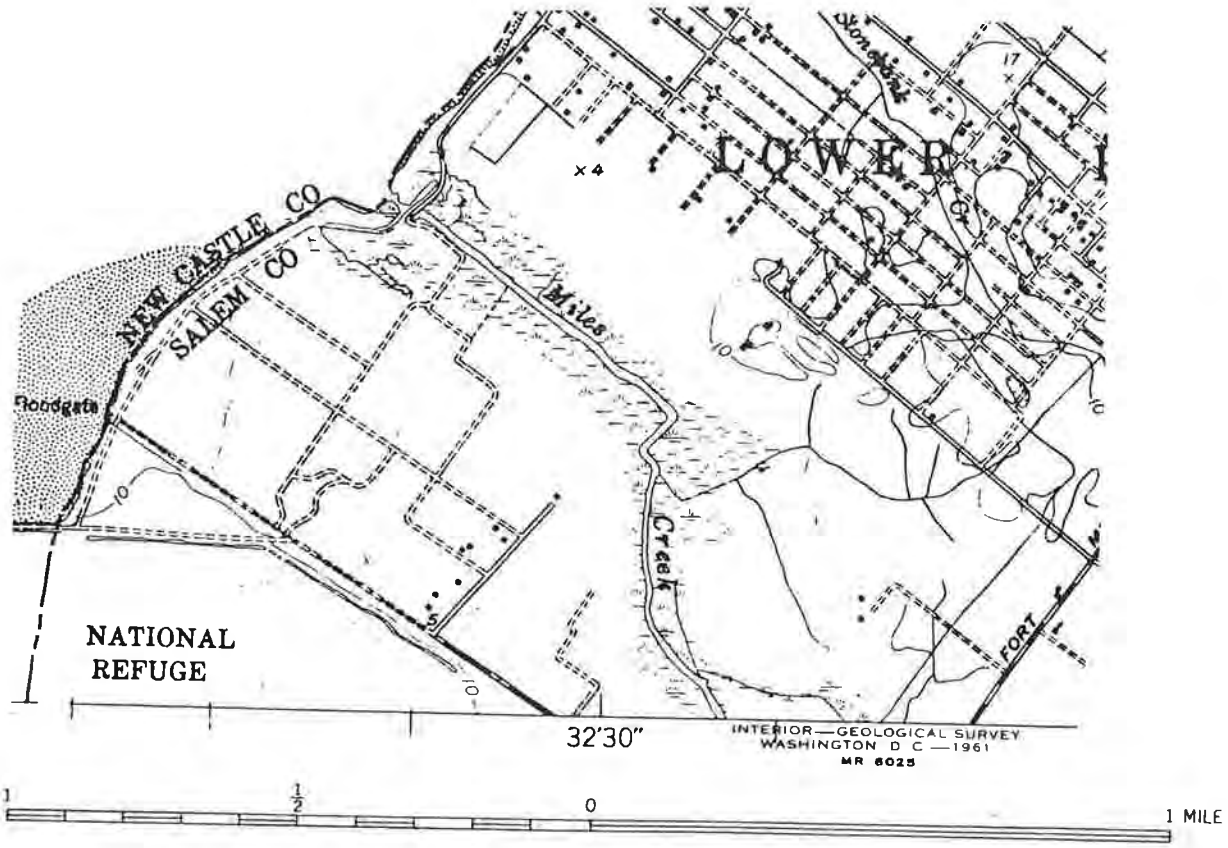
Near the Delaware River, part of this area has been filled with dredged material. What was formerly the lowgrounds of Miles Creek is now cultivated. To the south, inland, are houses on relatively higher ground; the soil is Galestown sand. Near the Wood farmhouse is a known historic site, and to the east of it is a reported prehistoric site. Both are outside the proposed disposal area.

The road known today as Lehigh Road provided access to the river as early as 1785, when a "lane" is described in a deed for two acres on the river. Uriah Paul conveyed to John Congleton a riverside site adjacent to Edmund Wetherby's and other land of Congleton (Salem County Historical Society deed 471). If this obviously valuable site was a house, landing, or ferry site, its remains should be found in the southwest corner of the proposed disposal area, in a copse of woods by the river side. Local informants report that the copse of woods has yielded prehistoric artifacts.

At the time of first reconnaissance, March 26, the site had not yet been cultivated for the 1986 season. Acting upon reports of discoveries by local avocational archæologists, the authors returned several times to surface collect the site. A scattering of nineteenth-century artifacts was found along a ridge of natural ground in the southern part of the disposal area, but it was not possible to surface collect in the copse along the river at the southwest corner of the area.

Local avocational archæologists report that there is a large prehistoric site inland (east) of the present Wood farmhouse, and that historic smoking pipes have been found west of the house. On May 28 the site was revisited; the field west of the farmhouse had been cultivated and soil visibility was good. Where tobacco pipe fragments had been reported there was a scattering of nineteenth century artifacts. If this area should be selected, the natural high ground on the southern, eastern, and southwestern side should be further tested.

FIGURE 13: Comparison of the 1948 edition (top) and current edition (below) of the 7.5' series USGS topographic quadrangles. Note the vestigial street pattern of Penns Beach in the 1948 map. The Miles house, still standing in 1948, stood on a hillock in the present industrial park.



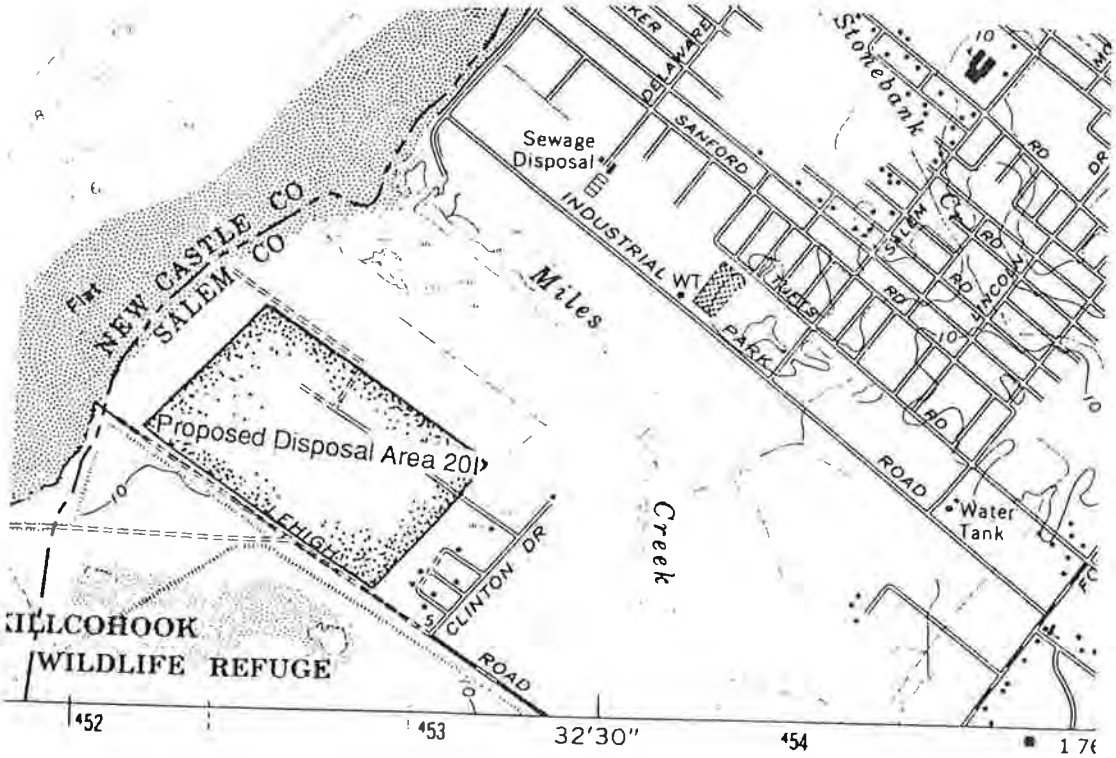
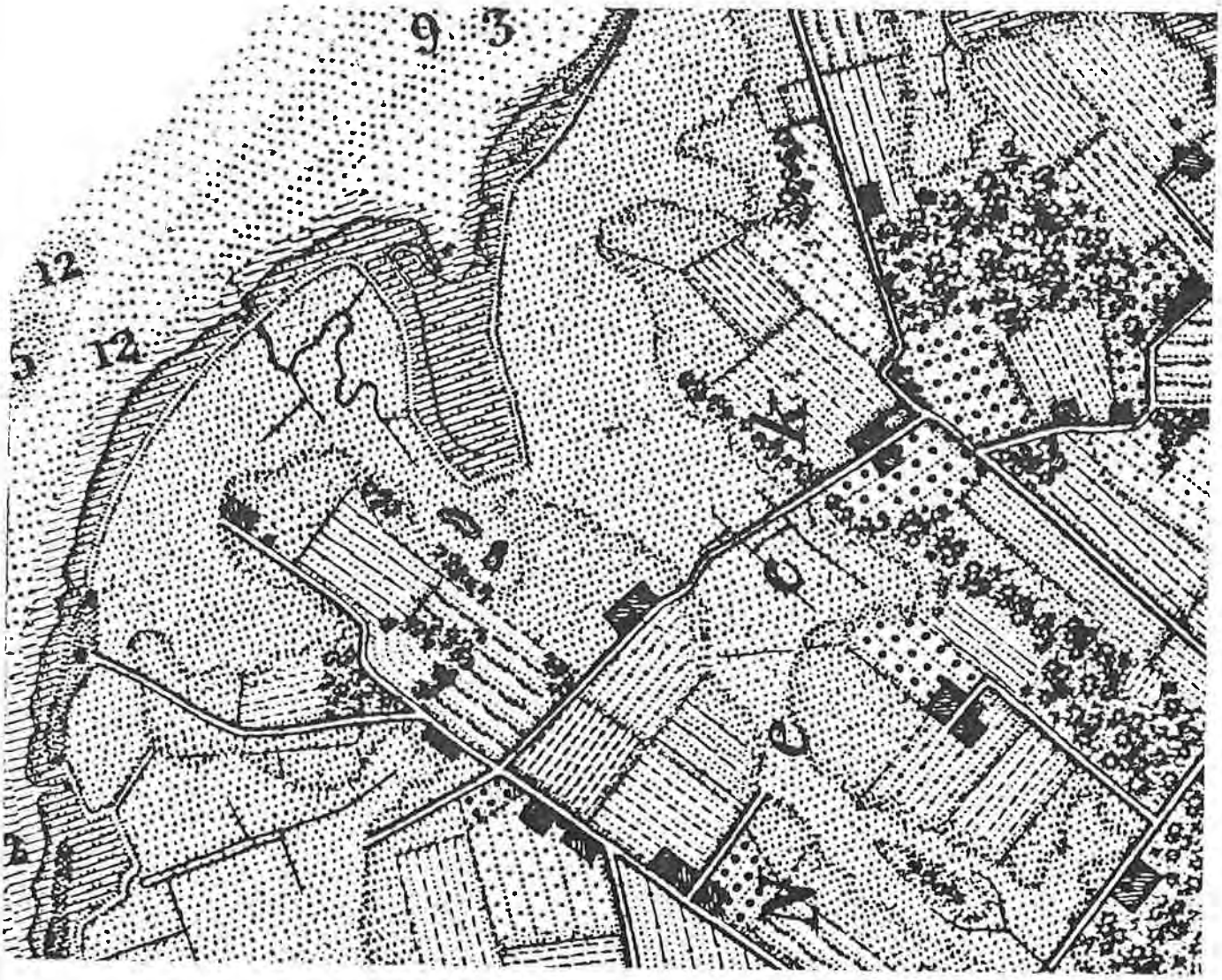


FIGURE 14: Enlarged detail of the 1848 Coast and Geodetic Survey map, showing approximately the area covered by figure 13. The toft at the end of Lehigh Road is in a small wooded area in proposed disposal area 20I. The road crossing the middle of this detail is approximately the route of Clinton Drive, now the lane into the Paul Wood house. Miles Creek and a smaller tributary to the left have been altered by drainage works erected after this map was made.



Site 24T: Supawna Road
Pennsville Township, Salem County, New Jersey

The proposed disposal area on the west side of Supawna Road contains three known archæological sites, 28-Sa-27, 28-Sa-28, and 28-Sa-29. These sites have not been recently reconfirmed. One of the landowners, Robert C. Butcher, stated to the authors that there is no lore of extensive prehistoric materials being found on the property.

Two historic houses adjacent to this disposal area have been identified in the county historic site survey; the proposed disposal area consists of farmland associated with these Federal-period houses. The Isaac Johnson House, inventory number 1708-7, is a large frame, two-story farmhouse with finely detailed trim. The brick, two-story, William Johnson House, inventory number 1708-5, is separated from the Isaac Johnson House by one field. Across Supawna Road are the Freas House of 1813, inventory number 1708-6-A, and the Joseph Tindall House built in 1775, inventory number 1708-8.

Soils are almost entirely Mattapex silt loam, a moderately well drained soil that is favored for agriculture in the region. In the study area there are few wet places where drainage is a problem. During the nineteenth century, the present marshlands of Mill Creek and Baldridge Creek were cultivated farmland, protected by meadow banks. A Phase II survey certainly should be conducted if this site is chosen, to more precisely locate the sites that have been reported here.

Site 24CC: Finn Town Vicinity
Pennsville Township, Salem County, New Jersey

Disposal area 24CC is located on Mill Creek north of Salem Cove in Pennsville Township. Two historic buildings stand next to the disposal area. A cemetery from the early nineteenth century is found just outside the area near Lighthouse Road. From historic maps, one house site is known in the disposal area and several are known between this area and Salem Cove.

Historically, this is near the seventeenth-century Finn Town tract, where survivors of the New Sweden settlement received land grants from the English. The seventeenth-century homesites probably lie closer to the water, between this disposal area and the Cove. The intervening meadows have been under marsh since the banks washed out about fifty years ago.

The farmhouse to this tract is a large nineteenth-century double-pile two and a half story frame structure. It is not listed in the county historic-site survey, which is fragmentary. Immediately adjacent is the old Bilderback farmhouse, a three-story brick house that is listed in the county survey. Alpheus Bilderback built the house about 1840, incorporating an eighteenth-century structure that still may be seen in part of the back wing. His great-grandson, Thomas Bowen of Salem, recalled that virtually the entire farm was drained meadow, now all drowned.

The authors visited the area on March 24 and identified at least six distinct archæological sites or concentrations:

A. A prehistoric site, containing a thin scattering of potsherds along the edge of the lowgrounds west of the farmstead complex;

FIGURE 15: A detail of the 1848 navigation chart, showing the area of disposal areas 24CC and 24T at the height of meadow bank drainage. At that time, two roads crossed Bolls' (Baldridge's) Creek and Mill Creek downstream from the proposed disposal areas.

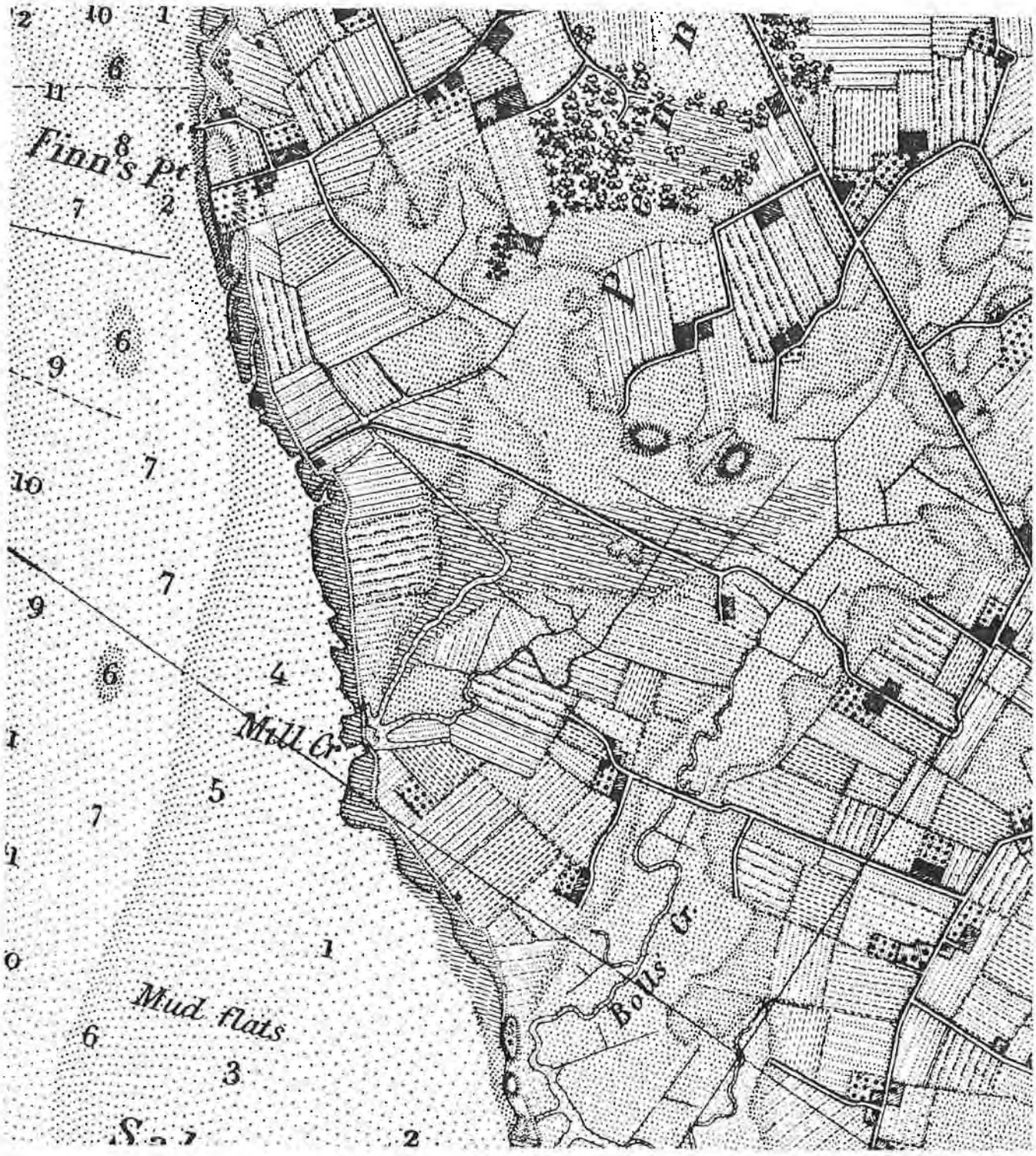
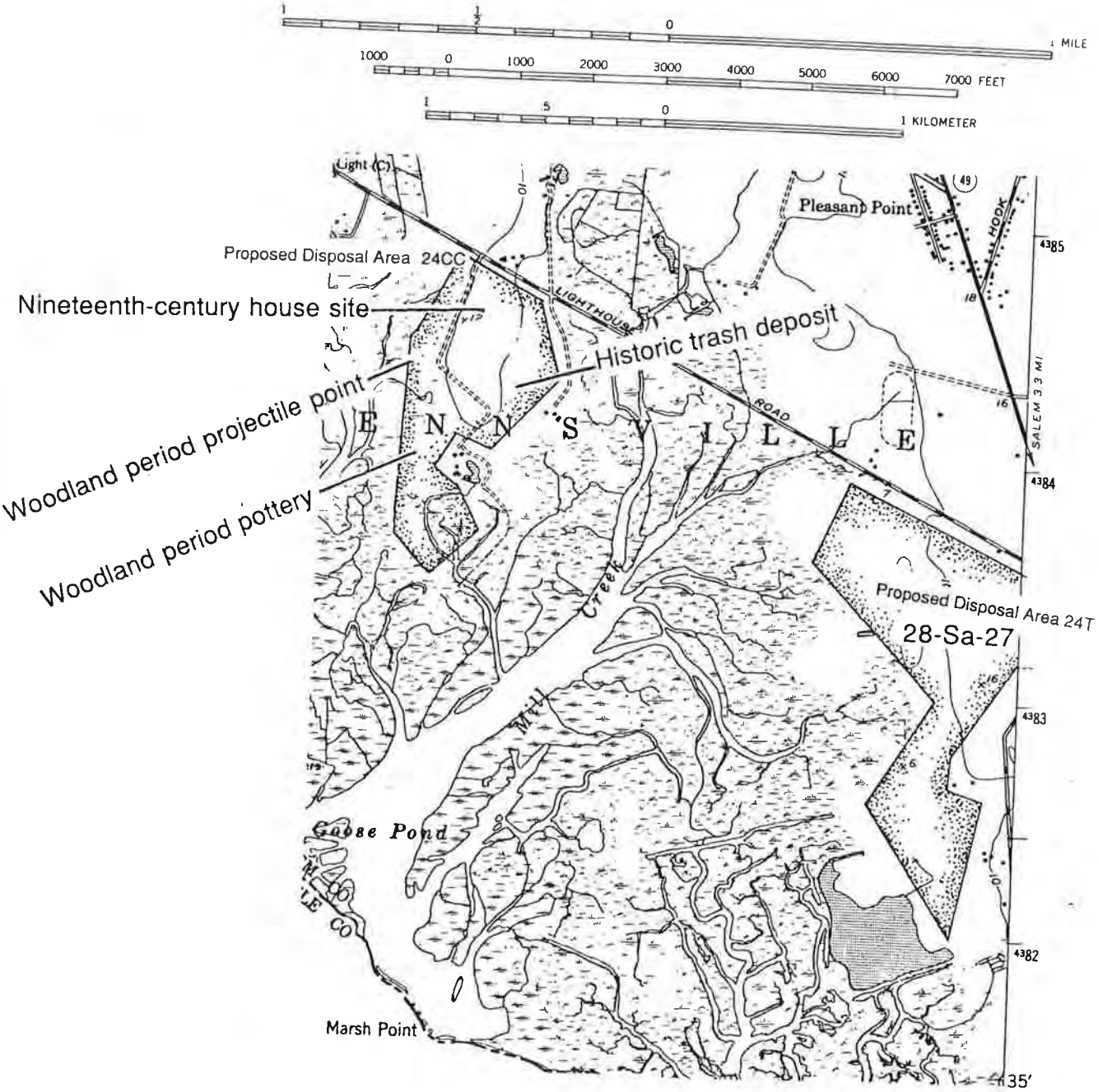


FIGURE 16: Detail of the current USGS 7.5' Delaware City quadrangle, showing disposal areas 24CC and 24T.

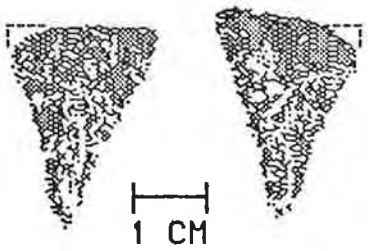


B. A scatter of trash north of the house and south of a small spring in the field, which included a piece of a fine eighteenth-century white saltglaze platter;

C. A second scatter of historic-period trash north of the spring in the field midway between the farmhouse and the Bilderback house;

D. A nineteenth-century house site, probably the house shown on nineteenth-century maps in this vicinity;

E. An isolated discovery (illustrated below) of a nearly complete prehistoric triangular point;



F. A scattering of prehistoric and historic pottery south of the house.

The soils are almost entirely Mattapex silt loam, a moderately well drained soil that is favored for agriculture in the region. Tidal marshes, actually drowned formerly productive meadows, surround the field In the study area there are few wet places where drainage is a problem, since it consists primarily of a silty ridge in the marsh. The current resident of the site reports that several house sites may be seen in the marsh, at least one with standing structural remains.

Any development of this proposed disposal area should be preceded by further archæological survey. Since known historic and prehistoric sites lie between this area and Salem Cove, any pipeline routes or other associated works should be tested archæologically.

FIGURE 17: Location of proposed disposal areas 20H and 23C in New Castle County, Delaware. The map is pieced together from four 7.5' USGS topographic quadrangles.

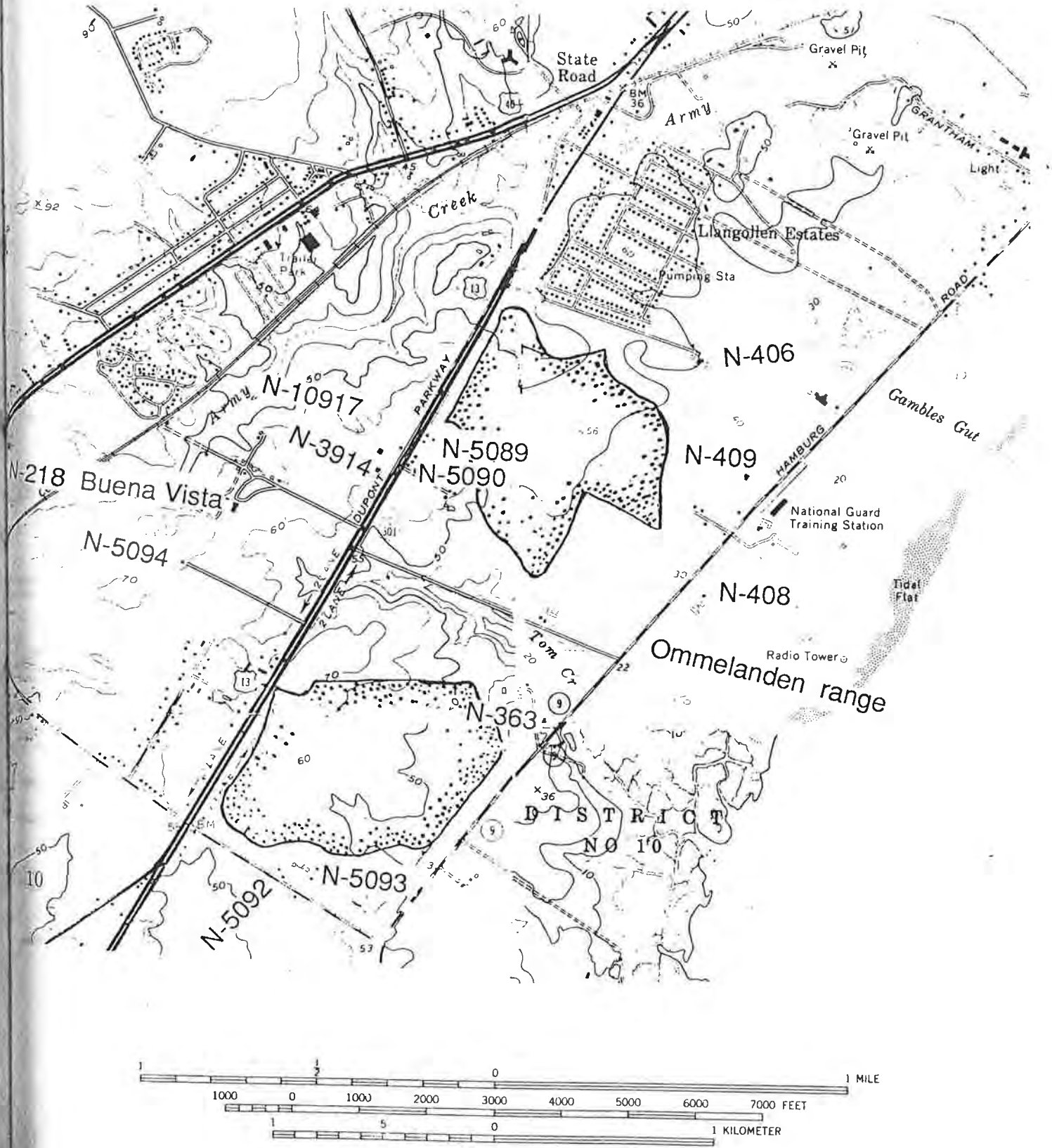


FIGURE 18: The lower part of New Castle Hundred, from D. G. Beers, *New Topographic Atlas of the State of Delaware,* 1868. Buena Vista is shown under the name of J. C. Douglass.

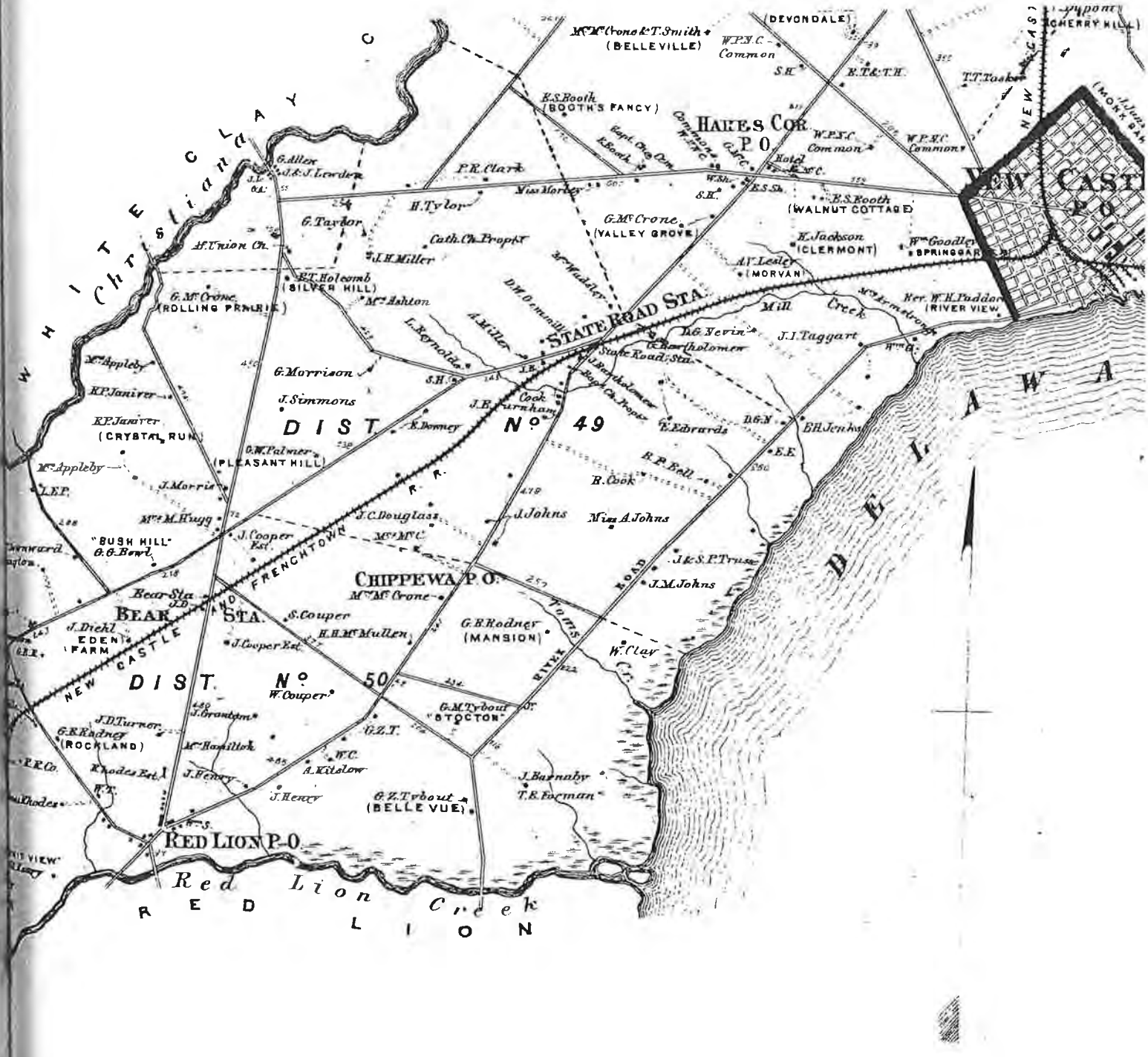


FIGURE 19: Detail of the 1906 USGS 15' quadrangle, showing the proposed disposal areas 20H and 23C. An electric passenger railroad followed the present course of Route 9 at the time; its roadbed can still be seen in the meadows of Army Creek where it diverges from the highway.

Contour interval 20 feet.
Datum is mean sea level.

Sites 20H and 23C: Route 13, near Buena Vista
New Castle Hundred, New Castle County, Delaware

These two open-field sites lie across U. S. Route 13 from Buena Vista (N-219), a property that possesses a national level of significance. The Buena Vista mansion, now a state conference center, was built between 1845 and 1857 by John Middleton Clayton, who was President Taylor's Secretary of State. The house was later the residence of Delaware Governor Clayton Douglass Buck. By his will, he gave the house and adjacent land to the State of Delaware, which operates it as a conference center and tourist attraction. It was entered in the National Register of Historic Places April 16, 1971.

An early owner of the proposed disposal areas was Peter Alrich of New Castle, who in 1683 took title to 1,473 acres along the river bounded on the southwest by Tom's Run and on the northwest by the King's Road. Alrich had, four years earlier, obtained previously-settled tracts a mile deep from river to back line. Alrich, Dutch by birth, was one of the first settlers in the neighborhood, owed not a little of his prosperity to the fact that his uncle Jacob was the Vice-Director of New Netherlands. After the English arrived, Peter suffered temporary political reverses and confiscations, but eventually returned to favor under the new regime. His estate, Ommelanden, included the tract now known as the Ommelanden shooting range. The creek is named for another early settler and magistrate, William Tom, whose lands extended to Red Lion Creek (Scharf 1888: I: 850).

Historic buildings surround the disposal area. A dozen or more are listed in the Delaware historic site survey. Immediately north of Buena Vista is the John Johns (N-3914) house, a Second-Empire house with a mansard roof and the distinctive Graham gable found on many Delaware houses of the period. In the woods to the north, on the head of Army Creek, is the ruined Gray house site (N-10917), with fragments of a surviving barn built early in the nineteenth century. To the south of Buena Vista is a large brick house of approximately the same age as Buena Vista with a roof balustrade and formal facade. Across Route 13, on the edge of the proposed disposal area, are two properties. One (N-5090) is a white shingled Victorian specimen with a cross gable. Nearby is a twentieth-century brick house (N-5089) with Rockford stone trim.

Along the road south of the proposed disposal areas are two historic buildings, part of a prosperous nineteenth-century farm complex known as the Stockton farm, The main house (N-5093) is a stone Italianate mansion of the type that was popular immediately before the Civil War. Nearby the state survey lists a green-shingled tenant house (N-5092) that is either gone or altered beyond recognition.

Facing the National Guard rifle range on Delaware 9 is the Asbestos Workers union hall, a masonry house at 198 River Road. The interior trim of this house reflects early twentieth century construction or reconstruction on a site that probably has been occupied since earliest settlements. Also near the proposed disposal area are three sites of demolished houses that are similarly situated in places that are likely to have been settled during the seventeenth century.

The northeast part of these proposed disposal areas has been developed as a shopping center, apartments, and single-family houses. The Old Schaefer Place (N-406) formerly stood in this vicinity. East of Route 9, facing the disposal area, once stood a clapboard house (N-408) that was listed in the state survey.

The Porter Mansion (N-363), on the south side of Tom Creek, was an eighteenth-century house on a probable seventeenth-century toft. It was destroyed in 1970. Because of its location, there is a high probability that the Porter Mansion stood on or near the farmhouse site of William Tom or one of his tenants during the seventeenth century. To the west of this site is a large borrow pit. Even though these three houses are gone, they should be considered potential archæological sites of considerable interest.

As for the disposal areas themselves, the higher parts are of soil types that are subject to severe sheet-erosion, which is likely to compromise the integrity of any archæological sites located there. These include Matapeake silt loam and Keyport silt loam. If well managed, the Matapeake is rated among the best agricultural land in the county. Keyport soils tend to be more sticky in texture and less easy to work (Matthews and Lavoie 1970).

Any proposed disposal activity should be preceded by archæological surveys in the vicinity of Tom Creek, with particular attention to sites where seventeenth-century tofts might have existed. Since borrow operations have stripped part of the Tom Creek valley, any remains might be fragmentary at best.

REFERENCES

Beers, D. G.
1868

New Topographic Atlas of the State of Delaware. Pomeroy and Beers, Philadelphia.

Burke, R. T. Avon and L. L. Lee
1926

Soil Survey of the Camden Area, New Jersey. USDA.

Chesler, Olga, *editor*
1982

New Jersey's Cultural Resources from the Paleo-Indian Period to the Present: A Review of Research Problems and Survey Priorities. Office of Cultural and Environmental Services, Trenton.

Cox, J. Lee
1986

A sensitivity level investigation for cultural resources in the vicinity of the main navigational channel, Delaware River, Wilmington to the sea, and a proposed deepwater port. Submitted to Philadelphia District, Corps of Engineers.

Custer, Jay F.
1984

Delaware Preshistoric Archæology: An Ecological Approach. University of Delaware Press, Newark.

Gudmundson, Ari, and Halldor Kjartansson
1984

Guide to the Geology of Iceland. Bokautgafan Orn Og Orlygur, Reykjavik.

Heite, Edward F., *editor*
1975

Delaware Preservation Checklist: Volume Two, Delaware State Plan for Historic Preservation. State of Delaware, Division of Historical and Cultural Affairs, Dover.

Hoelle, Edith
1982

Wonderful Washington Park. *Bulletin of the Gloucester County Historical Society* 18:65 (March).

Kardas, Susan, and Edward Larrabee
1982

Cultural Resource Reconnaissance of Oldman's No. 1 Disposal Area. Submitted to Phildelphia District, Corps of Engineers.

Kardas, Susan, and Edward Larrabee
1983

Cultural Resource Survey at Site 28-Sa-46, Oldman's Disposal Area No. 1 Oldman's Township Salem County, New Jersey. Submitted to Phildelphia District, Corps of Engineers.

Marley, Marco
1962

Soil Survey of Gloucester County, New Jersey. USDA.

Matthews, Earle D., and Oscar L. LaVoie
1970

Soil Survey of New Castle County, Delaware. Soil Conservation Service, USDA.

McHugh, William P.
1983

Delaware River Comprehensive Navigation Study (interim): Cultural Resources Sensitivity Reconnaissance. Submitted to Phildelphia District, Corps of Engineers.

Mickle, Isaac
1845

Reminiscences of Old Gloucester or Incidents in the history of the counties of Gloucester, Atlantic, and Camden New Jersey. Gloucester County Historical Society reprint 1968.

Myers, Albert Cook, *editor*
1912

Narratives of Early Pennsylvania, West New Jersey and Delaware 1630-1701. Scribners, New York.

Pancoast, R. M, surveyor
1877

Shore Front of the Delaware River, in the County of Gloucester, showing the Exterior Wharf Lines Established thereon by the Riparian Commissioners of the State of New Jersey.

Powley, Van R.
1969

Soil Survey of Salem County, New Jersey. Soil Conservation Service, USDA.

Richards, S. H.
1925

Early Settlements on or near the Raccoon. Gloucester County Historical Society reprint, 1976.

Sanderlin Mary F.
1965

Stories of Lower Penn's Neck.

Scharf, J. Thomas
1888
History of Delaware. 2 volumes. L. J. Richards, Philadelphia.

United States Coast and Geodetic Survey
1848
Map of Delaware Bay and River. Photocopied from an original at the Hagley Museum and Library, Greenville, Delaware.

Williams, David
1985
Iceland :the Visitor's Guide. Stacey International, London.

NEWSPAPERS

Clipping files at Gloucester County Historical Society, Woodbury:

Camden *Courier-Post*
Gloucester City News
Gloucester County Democrat
Woodbury *Daily Times*

MANUSCRIPTS AND OFFICIAL RECORDS

Salem County Clerk's Office:

Deed books
Banks and Roads books

Salem County Historical Society:

Deed files

Salem County Planning Commission:

Cultural Resources Survey compiled by John M. Dickey

New Jersey State Historic Preservation Officer

Delaware State Historic Preservation Officer

New Jersey State Museum

Heite Consulting
firm profile and qualifications

Heite Consulting is a two-person archæological and historical research firm. They specialize in historical background studies and in reconnaissance-level archæological surveys. During the past five years, the Heites have completed contracts in Delaware, New Jersey, Pennsylvania, Maryland, and Virginia.

Louise Heite, principal investigator for historical background studies, is both an historian and an archæologist, specializing in the social history of Delaware. Her doctoral dissertation, to be completed in 1986, is a study of neighborhood development in Wilmington, Delaware. Her MA thesis was a history of New Castle's formative period, 1651-1681.

Her previous historical studies include Wilmington Boulevard (1980-1982) and the Mary C. I. Williams School site (1984). Mrs. Heite recently completed an historical and archæological study of the duPont Station community at Denney's Road, Kent County, for the Delaware Department of Transportation.

Edward Heite has served as Historic Registrar and Chief of the Bureau of Archives and Records Management for the State of Delaware. He was previously archæological historian for the Virginia Historic Landmarks Commission. Recent clients include the United States Army Corps of Engineers, Delaware Department of Transportation, and the Borough of West Conshohocken, Pennsylvania.

Both are members of the Society of Professional Archæologists, certified in theoretical/archival research and historical archæology. Edward Heite is also certified by SOPA in field research and cultural resource management. They meet the professional standards for historians and archæologists set forth in the Secretary of the Interior's standards and guidelines for archæology and historic preservation (*Federal Register*, Vol. 48, No. 190, Thursday, September 29, 1983, pages 44716 - 44742).

State of New Jersey

NEW JERSEY STATE MUSEUM
DEPARTMENT OF STATE
205 WEST STATE STREET CN 530
TRENTON, N.J. 08625-0530

May 19, 1986

Mr. Edward F. Heite
Heite Consulting
Camden, Delaware 19934-0053

Dear Mr. Heite:

You will find the site information you requested below and on the attached maps.

17N, Philadelphia and Woodbury quadrangles, West Deptford.

There are no sites located within the boundaries of 17N. There are 16 sites within a one mile radius, 14 of which are indicated on the attached map. Four are located in Camden County, the rest are in Gloucester. Two, 28-Gl-25 and 28-Gl-26 are listed but could not be mapped. They are located to the Southwest of 28-Gl-107.

15M, Marcus Hook Quadrangle, Oldmans Township and 15E, 15D, 15G, Marcus Hook Quadrangle, Logan and Oldmans Townships:

15M: The boundaries of site 28-Sa-58 extends into 15M.

15D: Sites 28-Gl-1, 28-Gl-2, and 28-Gl-12 are located with 15D. 28-Gl-54 is partially located in 15D.

15G: The boundaries of sites 28-Sa-49 and 28-Sa-50 overlap the boundaries of 15G.

There are also a considerable number of sites within a one mile radius of all four areas. These sites have been mapped whenever possible. Below are a list of sites that are located to the east of the map.

28-Gl-6	28-Gl-55
28-Gl-49	28-Gl-56
28-Gl-50	28-Gl-63
28-Gl-51	28-Gl-64
28-Gl-52	28-Gl-66
28-Gl-53	28-Gl-109

New Jersey Is An Equal Opportunity Employer

21V and 21W, Penns Grove Quadrangle, Carney's Point:

There are no sites within these areas. 28-Sa-59 is located within a one mile radius.

20I, Wilmington South Quadrangle, Pennsville:

There are no registered sites within a one mile radius. We have no information on the two sites marked as "reported" on your map. Could you send us more information and a site registration form?

24C, Delaware City Quadrangle, Pennsville:

There are no sites reported for this area, including the ones indicated on your map. If you could send a registration form, I'll assign them numbers. Sites 28-Sa-27, 28-Sa-28, and 28-Sa-29 are within a one mile radius.

24T, Delaware City Quadrangle, Pennsville:

Sites 28-Sa-27, 28-Sa-28 and 28-Sa-29 may overlap this area, but it's difficult to be sure.

If you need any more information, please don't hesitate to contact the Bureau.

Sincerely,

Cater Webb
Research Assistant
Archaeology/Ethnology Bureau

CW:gg

Enclosures: 6

ID1150
SAL
A
118

GAI CONSULTANTS

FINAL REPORT

PHASE I CULTURAL RESOURCES INVESTIGATION
OF WETLAND MITIGATION AREAS
SALEM RIVER NAVIGATION PROJECT,
PENNSVILLE TOWNSHIP, SALEM COUNTY, NEW JERSEY

CONTRACT NUMBER DACW61-90-D-0019/0013

U.S. ARMY CORPS OF ENGINEERS, PHILADELPHIA DISTRICT
WANAMAKER BUILDING
100 PENN SQUARE EAST
PHILADELPHIA, PENNSYLVANIA 19107

GAI CONSULTANTS, INC.
570 BEATTY ROAD
MONROEVILLE, PENNSYLVANIA 15146

GAI PROJECT 90-300-20

APRIL 1993

ID 11150

SAL
A

PHASE I CULTURAL RESOURCES INVESTIGATION OF WETLAND MITIGATION AREAS SALEM RIVER NAVIGATION PROJECT, PENNSVILLE TOWNSHIP, SALEM COUNTY, NEW JERSEY

CONTRACT NUMBER DACW61-90-D-0019/0013

FINAL REPORT

by

BENJAMIN RESNICK
JOEL S. DZODIN

U.S. ARMY CORPS OF ENGINEERS, PHILADELPHIA DISTRICT
WANAMAKER BUILDING
100 PENN SQUARE EAST
PHILADELPHIA, PENNSYLVANIA 19107

GAI CONSULTANTS, INC.
570 BEATTY ROAD
MONROEVILLE, PENNSYLVANIA 15146

GAI PROJECT 90-300-20

APRIL 1993

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

LIST OF FIGURES

LIST OF TABLES

LIST OF PHOTOGRAPHS

ABSTRACT

GAI Consultants, Inc., of Monroeville, Pennsylvania, has recently completed a Phase I cultural resources investigation of three parcels located within the Supawna Meadows National Wildlife Refuge, Pennsville Township, Salem County, New Jersey. These investigations were conducted for the U.S. Army Corps of Engineers, Philadelphia District, and included a literature review, pedestrian reconnaissance, and field testing in connection with the Salem River Navigation project. The project area includes the proposed creation and restoration of wetlands involving approximately 15 acres of tidal and upland areas located at the headwaters of an unnamed creek; this drainage empties into the Delaware River one mile to the southwest. Investigated portions of the project area include three spatially segregated fallow fields (upland areas), measuring approximately 9 acres, in addition to an associated nineteenth-century farm complex situated to the south of the project area.

Initially the Phase I study involved documentary research, including a review of cartographic sources, cultural resource survey reports, and site record files, as well as an on-the-ground surface inspection and excavation of shovel test pits in order to determine the potential of the project area for containing archaeological and historical remains. Background investigations suggested that both historic and prehistoric sites were located within the immediate project vicinity. Geomorphological testing of existing wetlands determined that these areas are typical of an Estuarine Type marsh, and were formed as a result of recent accumulation of sediments in stream channels and estuarine meanders. Consequently, they do not represent potentially habitable surfaces for historic or prehistoric sites.

A total of 183 systematic shovel test pits was excavated throughout the project area, resulting in the identification of three prehistoric sites (28-Sa-121 through 123) and a diffuse scatter of historic/modern artifacts. The prehistoric sites represent low-density plowzone assemblages of ceramics, lithic debitage, and tools identified in each of three respective parcels (Areas A-C). Whereas the prehistoric sites identified in Areas A and C (28-Sa-121 and 123) occurred as small, isolated artifact scatters, in contrast, subsurface testing in Area B (28-Sa-122) revealed a larger, more spatially extensive artifact distribution. The recovery of a Levanna point from Area A and a cord-marked sherd from Area B, tentatively identified as Minguannan, both suggest a Late Woodland cultural affiliation for these sites. Except for a concentration of charcoal, burned organic material, and a possible ochre fragment, no potentially significant soil anomalies or cultural features were identified.

Based on the identification of three prehistoric sites during the Phase I survey and the scheduled impacts to these areas, GAI recommends that additional Phase II archaeological investigations be conducted. Although nearly all artifacts were recovered from plowzone contexts, this does not rule out the possibility of identifying intact subsurface features at the sites. Notwithstanding the need for conducting additional research to place these sites in their appropriate chronological and functional context, based on the artifacts recovered to date it is likely that they represent a series of Late Woodland procurement camps associated with the exploitation of wetland and wetland-related resources. Goals of Phase II fieldwork include defining the sites' overall size orientation, and chronology; identifying potential areas containing intact cultural deposits; and if possible, determining the temporal and spatial patterning of activities represented at the site. Providing answers to these questions will help determine the sites' potential for inclusion in the National Register of Historic Places.

Additionally, a nineteenth-century farm complex containing a farmhouse, well, barn/ cottage, large frame barn, garage, and privy is located at the end of the dirt road, adjacent to and south of the project area. Based on the architectural qualities of the farmhouse (Vernacular, five-bay, I-house) and large frame barn, in conjunction with its association with Samuel Urion, a prominent local public servant, the farm complex is considered potentially eligible for nomination to the National Register of Historic Places. If at a later date any of the farm buildings or associated grounds are to be impacted, a Phase I archaeological survey and additional architectural research is highly recommended.

INTRODUCTION

The following report summarizes a Phase I cultural resources investigation of three parcels located within the Supawna Meadows National Wildlife Refuge, Pennsville Township, Salem County, New Jersey (Figure 1). The study area measures approximately 15 acres and consists of tidal (6.4 acres) and upland (9 acres) areas, located south of Lighthouse Road and west of Fort Mott Road. This study was undertaken by GAI Consultants, Inc., of Monroeville, Pennsylvania for the U.S. Army Corps of Engineers, Philadelphia District, in connection with the Salem River Navigation project. The proposed project calls for the mitigation of shallow and wetland areas lost as a result of improvements to the Salem River channel. The study areas are located at the headwaters of an unnamed creek that empties into the Delaware River a little over one mile to the southwest. The subject of this study includes three fallow fields comprising upland areas, which are scheduled to be transformed into estuarine intertidal emergent wetlands, and an associated nineteenth-century farm complex situated to their south. Goals of the Phase I study were to identify all prehistoric, historic, and historic architectural remains within project areas, and to evaluate, if possible, their potential eligibility for nomination to the National Register of Historic Places.

In order to meet the above objectives, the Phase I study consisted of background research and field testing. The background study included a review of cartographic sources, cultural resource survey reports, and site record files at the Office of New Jersey Heritage, Department of Environmental Protection; the New Jersey State Museum; and New Jersey State Library, Trenton, New Jersey. In addition, all pertinent information including historical maps and county histories were reviewed at the Salem County Historical Society in Salem, New Jersey. Moreover, important information regarding the history of the farm complex was provided by Robert C. Butcher, Salem County Historian. Field investigations included a pedestrian reconnaissance of the entire project area and the excavation of shovel test pits throughout the three fallow fields.

Results of the background study indicate that both prehistoric and historic sites have been documented in the immediate project area vicinity. Moreover, the location of well-drained landforms adjacent to wetlands and in proximity to the Delaware River suggests that there is a high potential for locating prehistoric sites within the project area. Historically, this area was settled as early as the seventeenth century, and given the location of the farm complex, indicates the potential for identifying additional historic archaeological and architectural resources.

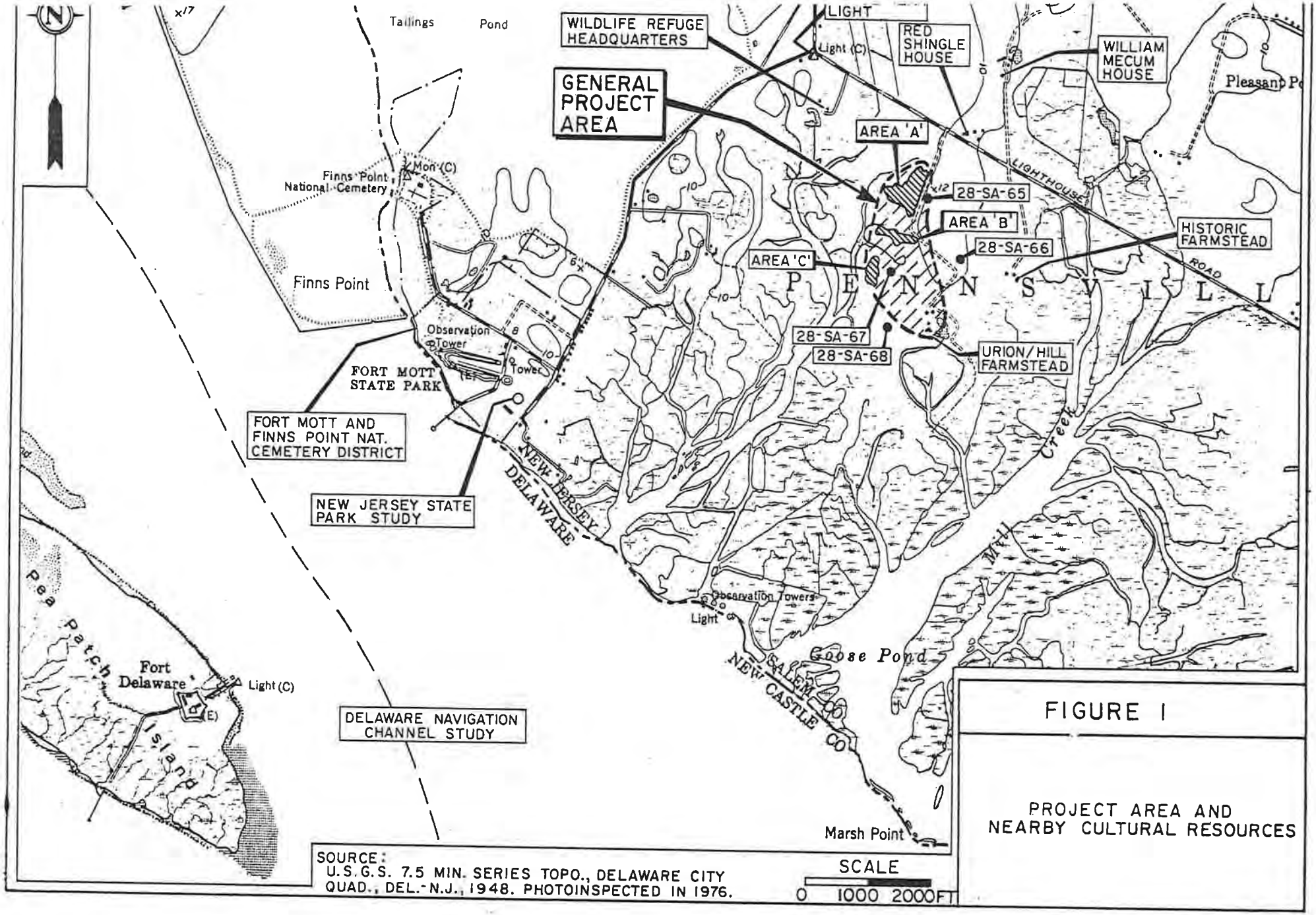


FIGURE 1

PROJECT AREA AND NEARBY CULTURAL RESOURCES

A total of 183 shovel test pits was excavated during Phase I fieldwork, which resulted in the identification of three prehistoric sites in as many parcels (28-Sa-121 through 123, i.e., Areas A-C). This includes the recovery of low-density scatters of ceramics, lithics, and tools from primarily plowzone contexts. Whereas Areas A and C (28-Sa-121 and 123) revealed a light scatter of prehistoric artifacts, Area B (28-Sa-122) yielded a larger, more concentrated artifact distribution. Diagnostic artifacts recovered from Areas A and B; i.e., a Levanna point, and a cord-marked sherd tentatively identified as Minguannan, respectively, indicate a Late Woodland affiliation. Although additional Phase II archaeological research is necessary to place the site in its appropriate chronological and functional context, based on the artifacts recovered to date, it is likely that these sites represent a series of procurement camps associated with the exploitation of wetland and wetland-related resources. Except for a concentration of charcoal, burned organic material, and a possible ochre fragment, no potentially significant soil anomalies or cultural features were identified. Additionally, a nineteenth-century farm complex, located at the southern end of the project area, was also documented during Phase I fieldwork; based on the architectural qualities of the farmhouse and barn and their association with a prominent local public servant, the farmstead is considered potentially eligible to the National Register of Historic Places.

All work conducted conforms to the letter and spirit of the National Historic Preservation Act of 1966, as amended, the regulations of the Advisory Council on Historic Preservation (36 CFR 800), the National Environmental Policy Act of 1969, as amended, and Corps of Engineers regulations pertaining to Section 106 compliance. In addition, all work complies with the *Guidelines for Archaeological Investigations* established by the Office of New Jersey Heritage (McCarthy 1984; amended by the Office of New Jersey Heritage 12/10/90), and the Department of Interior's Standards and Guidelines for Archaeology and Historic Preservation (1983).

The following sections present, successively, the environmental setting of the project area; a prehistoric and historical overview; results of background research; methods and results of archaeological testing; and conclusions and recommendations.

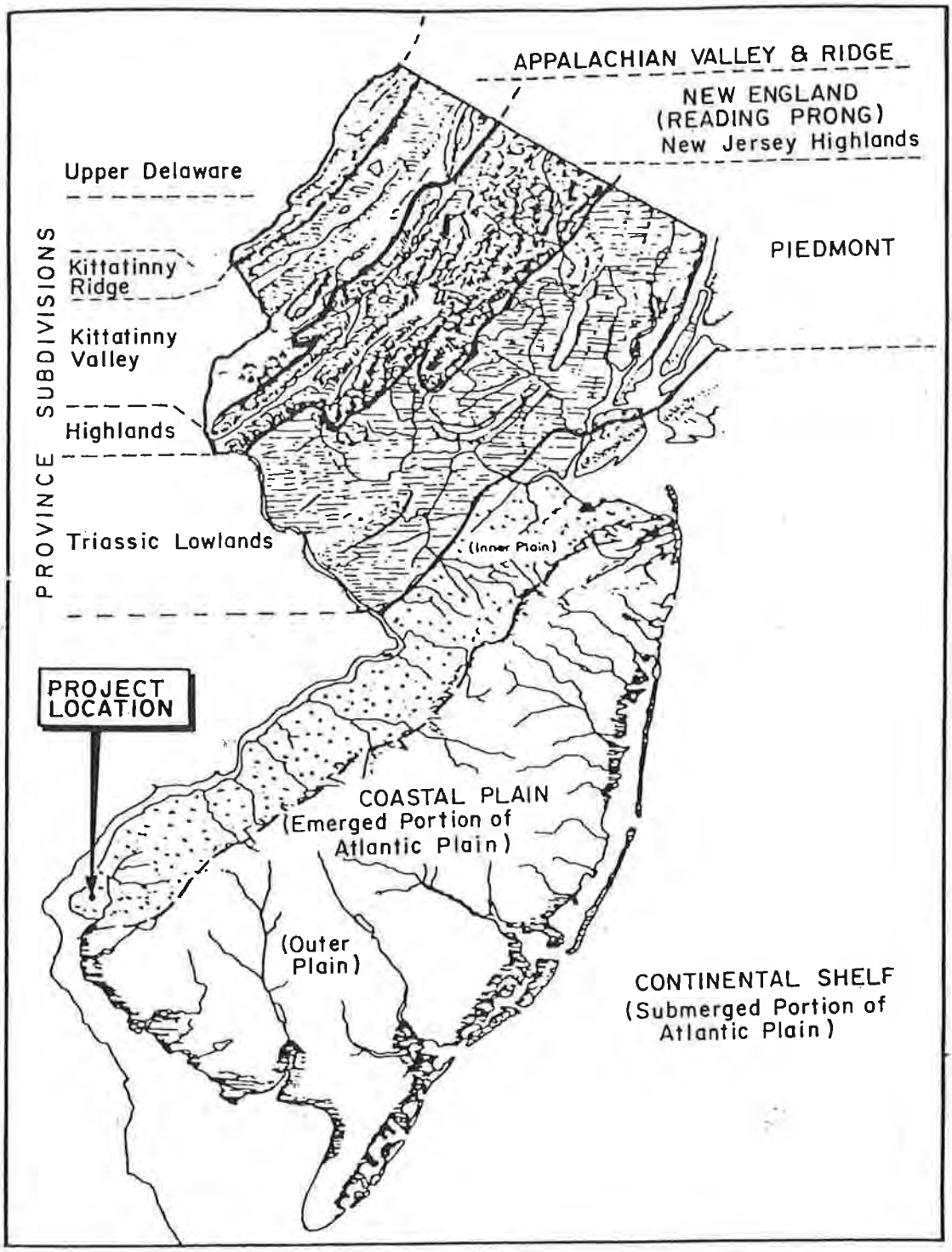
ENVIRONMENTAL SETTING

PHYSIOGRAPHY

The project area is situated in Salem County within the Inner Plain of the Coastal Plain Physiographic Province of New Jersey (Figure 2). The Coastal Plain, which extends from Cape Cod to Mexico, comprises approximately 60 percent of the total land area within the state and generally ranges from sea level to approximately 400 feet above sea level (Robichaud and Buell 1973). The Inner Coastal Plain contains sedimentary deposits composed of unconsolidated sands, clays, marls, and gravels several hundred feet in thickness which date to the Cretaceous Period (136 to 65 million years ago). These deposits contain overlying patches of sand and gravel that date to Pleistocene interglacial times.

The Inner Coastal Plain stretches from Long Island Sound to northeastern Virginia and forms the boundary between the Coastal Plain and Piedmont physiographic provinces (Thornbury 1965; Wolfe 1977). In New Jersey, it occupies a 15-mile wide area along the Delaware River that extends from Raritan Bay in the north to Salem County to the southwest. It is dissected to a much greater extent than the Outer Coastal Plain. Cuestas, or sloping uplands form the geological boundary between the state's Inner and Outer Coastal Plain, and as such create a division between the Atlantic and Delaware watersheds. Specifically, cuestas represent areas of more resistant sediments, as compared to the softer sediments of the Coastal Plain. The level to gently rolling topography of the Inner Coastal Plain is related to the erosion of unconsolidated sediments which trend toward the southeast. These sediments have their origin in both marine and nonmarine environments, and demonstrate a series of invasions and transgressions by the sea. The terrain within the Inner Coastal Plain varies in elevation from the tidewater to approximately 50 feet above mean sea level. Within the project area, elevation ranges from sea level to approximately 12 feet above mean sea level.

Although no portion of the project area was ever covered by Pleistocene ice sheets, it has been profoundly affected by the presence and subsequent movement of glacial ice in areas to the north. Pleistocene environments would have been significantly colder and wetter than the present Holocene environment (Carbone 1976; Custer 1984a:31). Lowering of the world sea levels approximately 40,000 years ago resulted in the exposure of the continental shelf for a distance of 75-100 kilometers from the present shoreline. Interglacial periods resulted in the deposition of Pleistocene "yellow gravels," which now cap older unconsolidated sediments throughout various areas of the Coastal Plain. A dramatic shift in climate occurred at the end of the Pleistocene as the Laurentide ice sheet retreated farther to the north. With the onset of the Holocene Epoch (10,000 years ago), the climate of the Middle Atlantic region became both warmer and drier. Rising ocean levels, and the encroachment of salt-water tolerant species and tidal marshes have restricted human settlement along the Delaware River and Bay shore. Estimates



Not to Scale

FIGURE 2

PHYSIOGRAPHIC PROVINCES OF NEW JERSEY

GAI CONSULTANTS, INC. DWN. REM APPROVED BR 11/13/92 DWG. NO. 90-300-A122

of changing sea level have been placed at two feet per year for the retreating of barrier islands toward the New Jersey mainland (Robichaud and Buell 1973:283; Wolfe 1977:277,287,306-309). In addition, erosion of coastal areas has to some extent been hastened by the construction of man-made jetties during the mid-twentieth century.

A number of broad estuaries have been formed by the drowning of the lower course of the Delaware River after the Pleistocene. Submergence has broken the Inner Plain into a number of peninsular tracks separated by broad estuaries (Thornbury 1965). The bedrock of the Inner Plain, close to the Piedmont, near the heads of the Potomac, Chesapeake, and Delaware estuaries, consists of the lower Cretaceous Raritan Formation and Potomac Group of clays, sands and gravels. (Thornbury 1965; Walker and Coleman 1987). During the late Pleistocene the Delaware, Susquehanna, and other northeastern streams were fed with glacial meltwater and sediments. These rivers also entrenched themselves as sea level lowered and developed glaciofluvial terraces (Walker and Coleman 1987). In addition, geologically ephemeral streams developed on the newly exposed surfaces. Substantial amounts of outwash added to the Delaware River and subsequent cycles of erosion have resulted in the formation of several Pleistocene terraces (Peltier 1959; Flint 1971). The Pennsauken Formation, thought by some to be of Cretaceous age (Jablonski 1972), has been described as being of Illinoian age by Flint (1971). At Philadelphia, the Illinoian terrace occurs at 18 m above mean sea level. A late Wisconsinan terrace occurs at 6 m above mean sea level and a Holocene terrace occurs at 3 m above mean sea level.

Loess deposits have been identified in the northeast United States adjacent to major rivers. Thin loess deposits in New Jersey were derived from glacial sediments carried by the Delaware River (Foss et al. 1978). Loess deposits occur along the eastern side of Chesapeake Bay into the lower Eastern Shore of Maryland, as evidenced by the extensive occurrences of Mattapex and other silty soils. During deposition of loess, local sands are apparently mixed into the silty materials by wind action and by faunal pedoturbation. Foss and others (1978) identified a buried A horizon beneath the loess (radio-carbon dated to 10520 + 240 YBP) approximately 37 miles (60 kilometers) southeast of the current study area. Thus, the loess deposition dates to the beginning of the Holocene.

HYDROLOGY

The study areas are located at the headwaters of an unnamed tidal creek which empties into the Delaware River, approximately one mile to the southwest. Extensive tidal marshes covered in phragmites are located adjacent to the project areas and between these locations and the Delaware River (Figure 1). Other prominent drainages include Mill Creek, which is located less than one mile to the southeast of the project area. Historically, significant portions of this region were in cultivation owing to banking and the construction of ditches, but through natural processes have since been reclaimed by marshland.

SOILS

According to the USDA soil survey for Salem County, soils mapped within the project area include Mattapex silt loam (MqA) and Tidal Marsh (Tm) (Figure 3) (Powley 1969). The upland Mattapex soils are formed in a silty loess mantle overlying partially weathered beds of coarse sediments. Tidal Marsh soils are mostly organic matter and alluvial silts over beds of sand, clay or gravel.

In order to characterize the soils within the project area, test borings were conducted by GAI Staff Soil Scientist David L. Cremeens, Ph.D., on September 16, 1992. Project area soils were observed to a depth of one meter below the surface using a stainless steel hand-held probe; representative soil profile descriptions for typical upland and Tidal Marsh soils in Area A are outlined in Appendix A.

GAI's pedological testing indicates that the upland soil profile of Area A resembles the Mattapex series described in the Salem County Soil Survey (Powley 1969). This profile consists of a 77-centimeter (cm) thick mantle of silty loess underlain by a loamy textured material. Low chroma mottles at 62 cm indicate that this soil is moderately well drained, similar to the Mattapex series. In downslope portions of Area A, loamy and sandier textured soils occur at shallower depths indicating that the loess mantle is thinner downslope, probably as a result of erosion due to cultivation. Alternatively, it may indicate thinner loess deposition than on the ridgetop. The mottles also occurred at shallower depths in these downslope locations, as the soils graded to somewhat poorly and poorly drained as exemplified by the Othello Series (Powley 1969).

A similar pattern of upland soils was observed in Areas B and C. In low-lying portions of Area B, the silty mantle of loess was over 100 cm thick. The drainage characteristics were of a moderately-well drained soil but silt loam textures occurred throughout the core sample; this is interpreted as indicating the presence of a gully or stream channel that developed prior to the loess deposition.

Tidal Marsh soils were identified in Area A and exhibited a thin layer of black peat or peaty silt overlying a poorly drained, weakly developed mineral soil. The mineral soil had a loam A horizon overlying a gray sandy loam to a sand Cg horizon, which extended to depths exceeding 100 cm. Water was encountered between 70 and 80 cm below the surface. The Tidal Marsh soils in Area C contained Oi and A horizons with occasional thin silt bands, probably resulting from upslope cultivation. The C horizon occasionally had thin bands of clay loam.

Based on the above descriptions, GAI concludes that the landscape at the project area is similar to the low salinity Estuarine Type marsh as described by Darmody and Foss (1979). Estuarine Type marshes were formed as a result of recent accumulation of sediments in stream channels and estuarine meanders. The uplands associated with the marsh consist of the

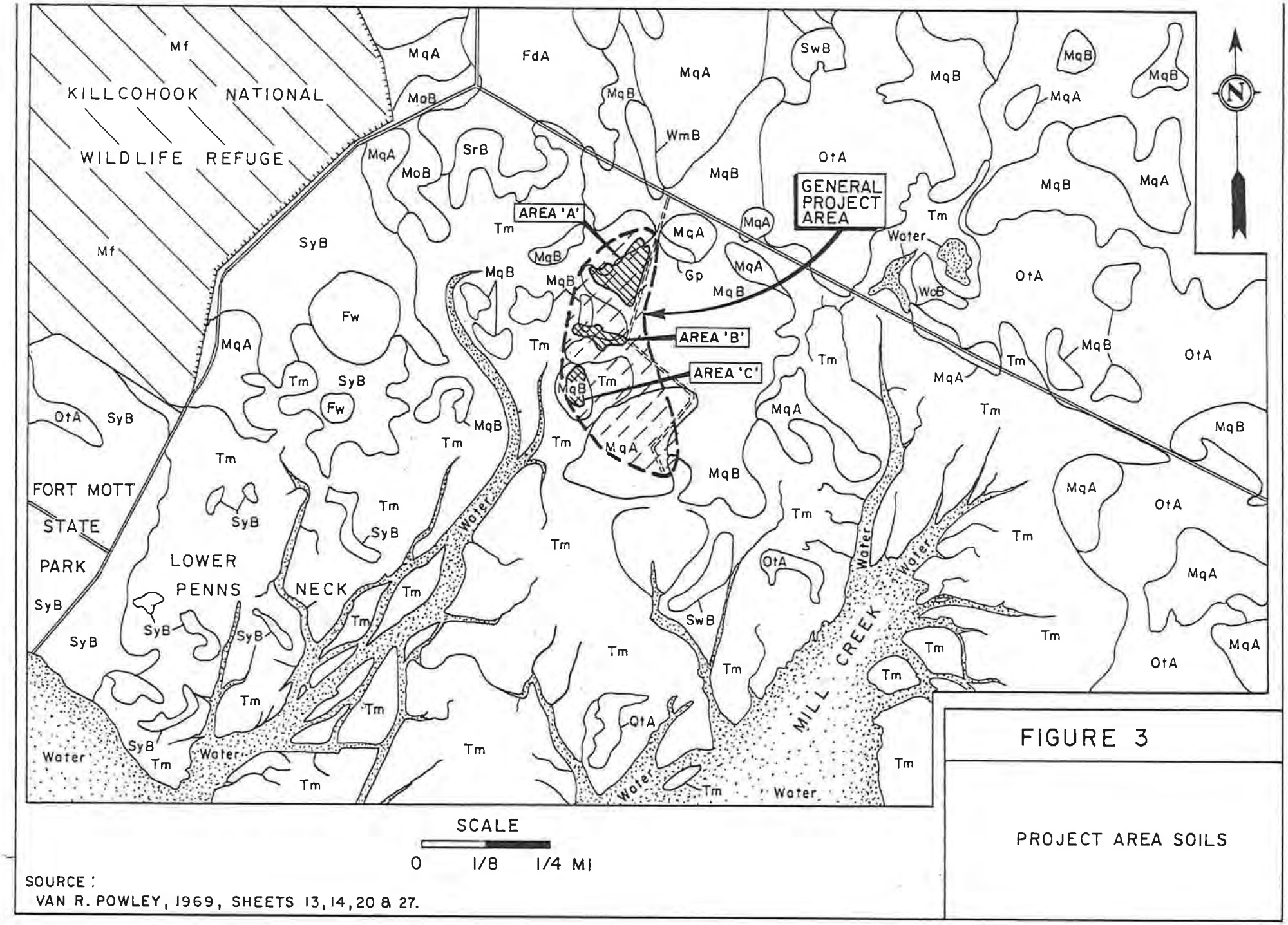


FIGURE 3

PROJECT AREA SOILS

SOURCE :
VAN R. POWLEY, 1969, SHEETS 13, 14, 20 & 27.

Mattapex soils with an oak-hickory forest cover. Cultivation of these silty soils accelerated the accumulation of sediments in the streams and estuarine meanders.

The upland landscape in the project area is a late Pleistocene/early Holocene geomorphic surface. Early Holocene loess was deposited on a late Wisconsinan terrace surface (Peltier 1959; Flint 1971; Foss et al. 1978). The materials comprising the late Wisconsinan terrace may be glacial outwash or the eroded and weathered Cretaceous sediments of the Inner Coastal Plain. According to Ciolkosz et al. (1989), Coastal Plain soils show a progressive profile development from the youngest (30 ka) to the oldest (>1Ma) soils. The sediments in the Tidal Marsh areas are probably younger than early Holocene and some of them may date to the historic period.

VEGETATION

Boreal forest communities typified the region during the Pleistocene Epoch (10,000 to 2 million years ago), but were gradually replaced by deciduous climax species during the early Holocene. Wolfe (1977:173) estimates that between about 9,500 and 5,750 years ago, oak, hemlock, and beech became the dominant tree species throughout New Jersey, replacing the earlier fir- and spruce-dominated parkland. During the prehistoric and early historic periods, the Inner Coastal Plain of New Jersey was typified by a mixed oak forest community containing chestnut, hickory, and pine. The region was abundant in highly diverse aquatic and terrestrial biota and biomass including, in part, deer, turkey, muskrats, beavers, waterfowl, snakes, and a variety of fish.

Originally, all of Salem County except for tidal marshes was covered in forests (Powley 1969:40). The present tree environment of Salem County, where loamy, fertile soils predominate, may include various hardwoods such as oaks, chestnut, yellow poplar, hickory, beech and red cedar. In other portions of the county where soils are sandier, drier, and less fertile, pitch pine mixed with oak, short-leaf pine, chestnut, and hickory are more common. The dominant trees in swampy areas include Atlantic white cedar, red maple, blackgum, and sweetbay magnolia. Wetland areas are presently dominated by monotypic stands of phragmites within the project vicinity. Wildlife include various types of birds and mammals that frequent wetlands, such as ducks, herons, shore birds, muskrats, and beavers, in addition to white-tailed deer, cottontail rabbits, red foxes, squirrels, and raccoons.

CLIMATE

The present climate of Salem County may be classified as humid and temperate (Powley 1969:82-84); it is strongly affected by coastal factors and the Appalachian Mountains situated to the west. Summer temperatures range into the low to mid- 80s (Fahrenheit). Winter temperatures do not often go into the single digits, and the snow in winter is usually thin; as a result, soils are seldom frozen for long periods. The average

temperature in January is 24 degrees. Precipitation is relatively well distributed throughout the year with the average being about 40 inches. Rainfall is heaviest during the summer months of July and August, and often comes in the form of thunderstorms. Coastal storms, together with abnormally high tides, are responsible for flooding low areas along the Delaware Bay, Delaware River, and its tributaries. Heavy rainfall, in conjunction with sandy soils in the area, accounts for periodic erosion and flooding. Wind erosion is at its worst in March, when the wind velocity can approach 15 to more than 25 miles per hour.

CULTURAL SETTING

CULTURE HISTORY

The following section provides an overview of the prehistory of southern New Jersey and the history of Salem County and the project area, and is intended to serve as background for the development of expectations for site locations within the project area. As such, this discussion focuses more on settlement/subsistence patterns for the various periods of New Jersey prehistory than on material culture.

Paleoindian Period (ca. 12,000 to 8,000 B.P.)

The Paleoindian period begins when humans first entered North America and ends with the shift from Pleistocene glacial conditions to the warmer Holocene climate. Radiocarbon dates recorded at Meadowcroft Rockshelter in western Pennsylvania have conservatively placed the site occupation between 10,600 to 12,000 years ago (Adovasio et al. 1990); the occupation of the Shawnee-Minisink site in eastern Pennsylvania has been placed between 10,000 to 11,000 years ago (McNett 1985). While the exact date of human entry into the New World remains obscure, it is generally agreed that people arrived from Asia via the Bering land bridge, exposed as a result of Pleistocene glaciation. The relative paucity of known sites from this period probably results from both a low Paleoindian population density and from the submergence of once-inhabited coastlines during the last 12,000 years (Kraft 1977).

Paleoindian populations subsisted in highly mobile bands of hunters and gatherers who inhabited major river valleys and utilized cryptocrystalline lithic materials for most of their stone tools. Cryptocrystallines are an extremely fine-grained material that provide a high degree of "plasticity" in tool manufacture, maintenance, and recycling (Goodyear 1979:5). As such, their use by Paleoindian hunters involved a strategy of recycling lithic resources in areas of limited availability (Goodyear 1979; Custer 1984a).

Paleoindians have traditionally been viewed as having subsisted on a mixed regimen of Pleistocene megafauna, such as mastodon, sloth, moose, and giant beaver, and on gathering. Most interpretations of the tool kits of the Paleoindians posit an orientation toward the procurement and processing of these faunal resources. Recent evaluations of the evidence for this type of subsistence base have suggested a more generalized hunting and gathering economy (e.g., Meltzer 1988). Investigations at the Shawnee-Minisink Site indicate the procurement and processing of seeds, berries and fish reflecting seasonally based procurement activities (McNett 1985). The Turkey Swamp site near Freehold, New Jersey is associated with various activities that included hunting, tool manufacturing, butchering, wood and/or bone working, and cooking (Cavallo 1981).

Although Paleoindian sites were first identified in the western plains area of the United States, greater quantities of fluted Paleoindian projectile points have been recovered from areas in the Midwest and Southeast (Jennings 1978:27; Hand et al. 1988). Numerous early Paleoindian Clovis points have been recovered below the glacial margin near the Ohio River, especially in Kentucky, Alabama, and Georgia (Dragoo 1976:9; Hand et al. 1988:12).

Gardner (1974, 1977) has defined a functional site typology for Paleoindian settlement in western Virginia; his categories include quarry sites, lithic reduction stations, base camps, base camp maintenance stations, outlying hunting sites, and isolated point finds. A high degree of seasonality would have been associated with hunting sites and base camps, due to the seasonal fluctuation of edible resources and the concomitant changes in carrying capacity of a given location throughout the year.

Over 200 fluted points have been recovered throughout New Jersey, 15 percent of which have been collected within the Inner Coastal Plain (Marshall 1982:31). As of 1982, 22 fluted points reported for the state were recovered in Salem County (>10%), several of which were recovered in proximity to the Salem River; the majority of these artifacts are surface finds (Barber 1979:234-235 and Kraft 1977:267, as cited in Marshall 1982:25-32). More than 70 percent of the total assemblage of New Jersey Paleoindian points are made of jasper, which is followed in frequency by black chert, gray chert, quartz, and quartzite.

Archaic Period (ca. 10,000 to 3,000 B.P.)

The Archaic period in eastern North America is generally associated with a series of adaptations to newly emerging Holocene conditions, which occurred at the end of the Pleistocene glaciation. It was marked by a rise in sea level with concomitant changes in flora and fauna. The rise in sea level resulted in the raising of the local water table, which in turn stimulated the creation of numerous large swamps in interior areas. The shift from relatively drier and colder conditions during Paleoindian times to a warmer and wetter climate during the Archaic period resulted in the reduction of open grassland areas and the florescence of mesic forests of oak and hemlock. These radically altered conditions led to extinction of many grassland fauna and to their replacement by browsing species, such as deer (Custer and Cunningham 1986:16). Cultural changes gradually occurred as groups began to adapt to the newly emerged Holocene environment. These adaptations included changes in the scheduling of seasonal resource extraction in response to the existence of a more diversified resource base.

The presence of a more generalized Archaic artifact assemblage is representative of a shift from the Paleoindian emphasis on the hunting of megafauna to a reliance on more diverse faunal and floral species. The recovery of grinding stones, mortars, and

pestles from Archaic sites all point to an increased emphasis on the exploitation of vegetal resources during this period.

Archaic period settlement probably involved a highly mobile lifestyle as bands moved across a wide range of environmental settings in pursuit of seasonally restricted resources. A functional typology for Archaic sites proposed by Gardner and Custer (1978) identifies three types of Archaic settlement: macroband base camps (representing habitations of multiple family units in areas of maximum overlap of adjacent microenvironments); microband base camps (representing smaller habitations of individual family units or a restricted number of families in areas near adjacent microenvironments possessing lower carrying capacities); and procurement sites (short-term habitations involved in the extraction of resources from source locations) (Gardner 1978; Custer 1979, 1980, 1984b). The size and temporal duration of these occupations are directly related to the range and abundance of exploitable resources in a given area. In general, New Jersey Archaic sites tend to be small, suggesting short-term and intermittent occupations (Mounier 1982:73).

Alan Mounier (1979) has recovered a variety of Archaic projectile points along the drainage divide to the north in nearby Gloucester County. In fact, many of the drainages in the general region of the project area contain evidence of Archaic period settlement (Kraft and Mounier 1982). The excavation of the Harry's Farm site, located north of Tocks Island in the Delaware River Valley, resulted in the recovery of charcoal and a Kirk Stemmed point from a hearth feature located in the subsoil (Kraft 1975, as cited in MAAR 1987:20). This and other similar sites in the region may represent the movement of small bands of hunter-gatherers from the southeastern United States.

Late Archaic sites are considerably more common than Early Archaic sites in the region. This is most likely a result of environmental changes which led to larger population aggregations and more permanent settlements, especially in association with wetlands and waterways. Overall, sites from this period tend to be small, suggesting short-term and intermittent occupations, and include those related to the procurement of local terrestrial and aquatic resources. The Late Archaic period is represented by a variety of stemmed projectile types, including narrow-bladed and broad-bladed forms. Late Archaic lithic technology is characterized by intense utilization of argillite, which was rarely used by earlier populations who preferred cryptocrystalline stone material. The end of the Archaic period, sometimes referred to as the Transitional period, is represented by the appearance of soapstone bowls and fishtail points. One of more prominent Late Archaic sites excavated in New Jersey is the Savich Farm site located near Marlton in Burlington County, northeast of the project area. This site represents a Late Archaic cemetery containing the remains of more than 50 cremated skeletons with associated grave goods, including Lehigh and Koens-Crispin points, atlatl weights, and adze-like

tools (Regensburg 1971; Pinelands Commission 1980:89). Radiocarbon dates place this site circa 4300 to 3900 B.P.

Woodland Period (ca. 3,000 B.P. to A.D. 1700)

The Woodland period is traditionally associated with the appearance of ceramics. The introduction of ceramics in the Early Woodland, circa 3,000-2,400 B.P., however, does not necessarily represent a break with the lifeway patterns established during the Archaic. Hunting, gathering, and fishing appear to have concentrated on high-yield species, such as deer, nuts, and anadromous fish, characteristic of subsistence specialization. Early Woodland groups similarly exploited riverine and coastal areas (e.g., bayside marshes), and may also have experimented with Native American cultigens. The Coastal Plain offered a variety of exploitable estuarine and marine resources. Although no burial mounds have been identified in New Jersey, an Early Woodland site, the Rosenkrans site in Sussex County, yielded the remains of 13 cremated and uncremated skeletal remains along with copper and shell artifacts (Kraft 1976;26, as cited in MAAR 1987:22).

Middle Woodland cultures, circa 2,500 B.P. to A.D. 700, are characterized by increasing sedentism and social complexity, reflected in long-distance trade, mortuary ceremonialism, and mound building. During this period, net-impressed pottery replaced the earlier cord-marked variety. Artifacts diagnostic of this period include processing tools such as hammerstones, anvilstones, and pestles, and netsinkers reflecting the exploitation of fish.

Archaeological evidence from the Early and Middle Woodland in New Jersey appears to support Kinsey's (1974) hypothesis that states that, during this period, subsistence patterns involved a spring-through-fall occupation of floodplains and shorelines by large groups, in addition to a winter occupation of inland rock shelters (Gimigliano et al. 1980: III-4). Many Woodland sites have been found along the tributaries of the Delaware River. Among the best examples are the Pedricktown Site situated in Salem County north of the project area; the Kimble site on Rancocas Creek and the Florence site, both of which are located in Burlington County to the northeast of the project area; and the Unami Camp sites on Pennsauken Creek, which are located along the boundary of Camden and Burlington Counties north of the project area (Gimigliano et al. 1980: III-5).

The Raccoon Point site, located along the Delaware River in adjacent Gloucester County, represents an intensive Early and Middle Woodland occupation. A number of activities were featured at the site, including fish procurement, and the production of pottery and stone tools (Kier and Calverly 1957; Williams and Thomas 1982:119-120). According to the site analysis, there was an early pottery tradition consisting of the manufacture of steatite-tempered ceramics. Other recovered artifacts include net sinkers,

hammerstones, gorges, drills, bolas, stones, pit features, and projectile points. The site was used as both a fishing station and for shellfish gathering and processing.

The Late Woodland period, circa A.D. 700 to A.D. 1700, is characterized by the appearance of large villages (some of which are fortified) and a greater emphasis on farming. The most prominent Late Woodland sites are situated along major waterways, and presumably represent base camps. The investment in larger, more permanent agricultural processing and storage facilities near the point of production and consumption resulted in a greater degree of sedentism than was required during earlier periods. Increasing population growth and density led to efforts to intensify agricultural production (Custer 1986). In addition to the above, sites of this period also tend to cluster along river systems and coastal areas, apparently functioning as temporary or seasonal extractive camps. Late Woodland populations in southern New Jersey probably comprised several relatively small bands composed of related families that occupied recognized territories (Mounier 1982:159). Although there are many similarities among Middle and Late Woodland tool kits, differences exist in several artifact classes (MAAR 1987:24). Projectile points dating to the Late Woodland period lack stems and are composed of either equilateral or isosceles triangular points made of chert, mainly for use with the bow and arrow. Moreover, ceramic vessel collars at this stage become more prominent and incised geometric designs more dominant.

Contact period settlement in the vicinity of the Delaware River area shows a preference for aquatic resources, with the greatest frequency of sites occurring in the Outer Coastal Plain (Kraft and Mounier 1982:168). At the time of European contact, the project area was inhabited by various Lenape groups (renamed Delaware) who were characterized linguistically as southern Unami or Algonquian speakers (Goddard 1978:214-215). In terms of their artifacts and settlement patterns, the Delaware were quite similar to the Iroquois. The Delaware consisted generally of loosely structured autonomous bands living in small, dispersed settlements (Kraft 1974:32; Goddard 1978:215). During the seventeenth century, a subgroup of the Delawares known as the Little Siconese were distributed in the area at the headwaters of Salem Creek, northeast of the project area. Moreover, a Minguannan community was located across the Delaware River less than 20 miles (32 kilometers) from the project area.

Archaeological evidence of the Contact period in New Jersey includes village sites such as the Abbott Farm National Landmark District located north of the project area near Trenton; and the National Register of Historic Places Salisbury site. Both of these sites have components dating between A.D. 1600-1700 (Williams and Kardas 1982). Historical records also indicate that additional villages were situated along the Delaware River and its tributaries. By the end of the Contact period, the Native American population was decimated as a result of European diseases and increased warfare. By 1758, the few remaining Delawares in the state, numbering several hundred,

were placed on the Brotherton Reservation at Indian Mills, located in Shamong Township in the Pinelands (Pinelands Commission 1980:103). Unfortunately, evidence of this site has yet to be identified.

HISTORICAL OVERVIEW

The proposed project is located in the over-2,000-acre Supawna Meadows National Wildlife Refuge, Pennsville Township, Salem County, New Jersey. Salem County is bordered by the Delaware River to the south and west, and Gloucester County and Cumberland County to the north and east. Swedish settlers, expanding their control of Delaware Bay from Wilmington (est. 1638), were among the first Europeans to inhabit the Salem area. Nearby Fort Elfsborg was established at present-day Elsinboro Point in 1648, several miles south of the project area. The region later came under the control of the Dutch in New Amsterdam in 1655. After the Dutch defeat in 1664, the area became part of the British colony of West Jersey (Thompson and Dickey 1984:6).

It is probable that the first European settlement in the immediate project vicinity was established by Finnish settlers who crossed to the New Jersey side of the Delaware River from New Sweden in circa 1660-1661 (Harper 1978:27). The Finns had previously arrived in Delaware (near present-day Wilmington) with Peter Minuit, founder of New Sweden, and were looking to escape Swedish persecution. Finnish settlers were attracted to the area's fertile farmlands and the transportation access afforded by creeks and the nearby Delaware River. Their success in establishing communities in the region is attested by such place names as Finns Point and the Finnish River located just west and northwest of the project area, respectively. During this time, landholdings acquired a characteristic pattern with long narrow tracts extending from riverbank to riverbank.

A small group of Englishman from New Haven, Connecticut, established a settlement, the New Haven Colony, as early as 1641 along the Salem River. The first permanent settlement in the county and the first permanent English speaking colony in the Delaware Valley, however, was established at Salem by Quakers headed by John Fenwick in 1675 (Cushing and Sheppard 1883:316-321). Fenwick was the first settler to negotiate a peace treaty with the local Indians, which was ratified in the shade of a giant oak tree known as the Salem Oak. The Salem Oak still stands in the Friends' Burial Ground, within the Broadway Historic District in downtown Salem.

Salem County was created in 1682 and became a legal port of entry for the colony of West Jersey; it was ranked in importance with Boston and New York. The colony grew slowly, however, in part due to competition from settlers among contemporary colonies in Pennsylvania, East Jersey, and the town of Burlington, which is located to Salem's north. Fenwick's poor relationship with other proprietors and his insistence on establishing manorial propriety in an age of popular opposition to feudalism may have contributed to the slow growth of the colony (Thompson and Dickey 1984: 8).

Furthermore, many of the original owners of the town lots had also purchased land in the country and moved to a number of dispersed rural settlements to raise families and practice farming.

Despite its slow growth, the town of Salem was incorporated in 1695 (Cushing and Sheppard 1883: 377). Its shipping industry, based on the wharves along Market Street, expanded throughout the next century. Shipments were received from Philadelphia, New York, Boston and the Caribbean. Merchants specialized in the sale of dry goods, groceries, provisions, household goods, and liquors, including New England rum, applejack, sherry wine, and aniseed cordial (Cushing and Sheppard 1883: 383). Shortly after the Revolutionary War, a ferry service was established between Market Street and the Delaware River shore. The City of Salem continued to serve as an important depot for imports as well as an outlet for the county's agricultural and manufactured products until the late nineteenth century.

In 1820, Col. Robert Johnson, a life-long resident of Market Street, introduced the growing of tomatoes, which became one of the county's staple crops. The success of the tomato crop was largely due to the sandy soils in the region. Johnson, who is considered the father of the tomato industry in the state, also began the county's first agricultural and horticultural society in 1826. By the late nineteenth century, Salem supported extensive factories devoted exclusively to the canning of tomatoes. One of these was the Fogg and Hires Canhouse, which operated in Pennsville from 1887-1925 (Blakely 1991:4).

Shipbuilding has been an important component of the Salem economy since the seventeenth century. Shipbuilding activities have been documented along the Delaware River by Swedish settlers in 1644 and by English settlers during the 1670s and 1680s. There were four commercial shipyards in operation along the Delaware River by 1700. Several family shipyards were responsible for producing the majority of vessels in the Delaware Valley during the early eighteenth century. In the nineteenth century Delaware River shipyards were prominent in the production of iron-hulled vessels. During the Civil War at least 36 naval vessels were constructed at Delaware Valley yards (Cox 1988: 6-7).

The earliest Euro-American shipping in the Delaware River/Bay was associated with the seventeenth-century fur trade. During the eighteenth century, trade became integrated into a more complex colonial and international system. With the rise of Philadelphia as the major commercial port by 1772, smaller ports along the Delaware River, like Salem, declined. As a result, Salem became almost exclusively engaged in ferrying goods between Philadelphia and other New Jersey ports. Regular steamboat service reached Salem during the nineteenth century. Most of Salem's waterborne trade was connected with Philadelphia and was associated with the Pennsylvania Railroad (Cox

1988: 7-8). The first railroad to reach Salem, the Woodstown-Salem Railroad, was laid in 1890 (Salem County Historical Society 1991: personal communication).

The project area is located in Lower Penns Neck, which along with Upper Penns Neck was originally part of the township known as West Fenwick (Everts and Stewart 1876:78-79). The name was changed circa 1721 to honor William Penn, one of the proprietary management members of Fenwick's Salem Colony. Historically, this area contained some of the finest marsh meadows and cattle in the county, and by the late nineteenth century contained over 100 farms. Lower Penns Neck is bounded on the north by Upper Penns Neck, on the west by the Delaware River, and on the east and south by the Salem River. In 1965 the name of Lower Penn's Neck was changed to Pennsville, following its principal town located several miles north of the project area.

Given its location, it is easy to see that water played an important part in the history of Pennsville Township. A ferry operated from the town of Pennsville to New Castle, Delaware, from the time of its founding until 1951, when the Delaware Memorial Bridge was constructed (Blakely 1991:3). Present-day Route 49 was in use by 1810 following the completion of the Penn's Neck Bridge. Until that time, it was necessary to take a ferry into downtown Salem. Although originally conceived in 1800, the Deepwater or Salem Canal, extending from the Salem River to Delaware River in the northern portion of the township, was not completed until 1872. Its original purpose was to provide farmers with an east-west route to transport their crops to such places as Wilmington, Delaware; Baltimore, Maryland; and Philadelphia, Pennsylvania. However, by the time of its completion, other more efficient modes of transportation were available, including the railroad; consequently, the canal was never used to its fullest extent. During the nineteenth and early twentieth century, fishing was an important part of the local economy. The predominant species were sturgeon and shad, with the latter providing caviar which was cured and packed for market.

As early as the late eighteenth century, farmers in the area of Pennsville Township cultivated the valuable meadows or marshlands located along the Delaware River. Marshlands were a valuable source of hay and pasture. Whereas the higher elevations provided freshwater marsh grasses for grazing cattle, salt hay was used for packing and bedding. The method of diking and draining lands for cultivation began following the enacting of legislation which permitted local farmers to incorporate "meadow companies" in order to reclaim area swamps. Each affected farmer was assessed a fee for the construction and maintenance of dikes (banks) and sluice gates (ditches). Over 70 "meadow bank companies" were eventually located in Salem County , the earliest established in 1794. These companies managed to reclaim thousands of acres of swampland. Meadow bank farming continued until the 1930s when the banks began to wash out owing to heavy rains and high tides. Due to the great expense of maintaining the banks and the lack of qualified laborers, bank companies went out of business and the

banks were never rebuilt. Consequently, wetlands eventually inundated the former fields and settlements as well as the roads which led to them (Widmer 1964:138-139; Heite and Heite 1986b; Butcher 1992).

In addition to the above, it should be mentioned that a U.S. government battery was planned at Finns Point as early as 1870, west of the project area. Although construction of the batteries began in 1875, it was not until 1896, during the Spanish-American War, that the construction of the existing gun emplacements and associated buildings was begun. The system of defensive earthworks came to be known as Fort Mott, and was part of a master planned defense of the Delaware River that included Fort Delaware, located on nearby Pea Patch Island, and Fort DuPont, located on the Delaware mainland. Fort Mott was decommissioned after World War II. It should be noted that Fort Delaware served as a prisoner of war camp for confederate soldiers during the Civil War. Over 2,000 Confederate soldiers are buried at Finns Point National Cemetery located just north of Fort Mott.

RESULTS OF BACKGROUND RESEARCH

ARCHAEOLOGICAL SITES

Although Skinner and Schrabisch (1913:58-59) and Spier (1915:94) do not make any specific reference to Mill Creek or the project area, they do note the location of several village sites bordering Salem Cove in Lower Penns Neck, situated several miles to the north and south of the study area. Additionally, it is noted generally that many artifacts were reported from the Salem vicinity and that "several hatchets" had been recovered from the bottom of Salem Creek. Cross (1941) corroborates this information as she depicts many sites located along Salem Creek several miles east/southeast of the project area.

As a result of a more recent cultural resources investigation (Heite & Heite 1986a), four archaeological sites were previously recorded on the grounds of the Supawna Meadows National Wildlife Refuge in the immediate vicinity of the project area (Figure 1). Site 28-Sa-67 consists of a scatter of historic trash, including a rim fragment of an eighteenth-century white saltglaze stoneware platter, a pearlware ceramic sherd, six redware ceramics, a mold-blown purplish glass bottle neck, and two green free-blown glass fragments. Site 28-Sa-65 represents the location of a demolished nineteenth-century house located adjacent and east of Area A, on the opposite side of the dirt farm road. Artifacts recovered in this area include nineteenth-century glass and pearlware, stoneware, and redware ceramics, a button, and a chert prehistoric core. Although this general area was resurveyed during Phase I fieldwork, the only evidence identifying the site was a small brick scatter. Another identified trash scatter, Site 28-SA-66, contains white earthenware, pearlware, and redware ceramics, glass fragments, and three prehistoric ceramics. Additionally, a probable Woodland camp site containing prehistoric ceramics and a red chert flake (Site 28-SA-68) was also identified to the project area's south. Historic/modern artifacts were also recovered at this location, including a pipestem fragment, a piece of pink dressed stone, and several redware and whiteware ceramics (Heite & Heite 1986a). Two additional cultural loci in this general vicinity include an isolated chert triangular projectile point and six prehistoric ceramics, a fragment of a retouched flake tool, six redware sherds, one modern flowerpot fragment, and one cream-colored earthenware sherd, located south of farmstead complex on the edge of the wetlands (Heite & Heite 1986a).

Based in part on the work of Stewart and Cavallo (1983), environmental settings which are associated with the location of Late Archaic through Late Woodland sites in the Inner Coastal Plain include: (1) river and marsh associations; (2) junctions of rivers with streams; (3) association of marsh with second or higher order streams; (4) junctions of first or higher order streams; (5) junctions of second or higher order streams with extinct or seasonal drainage patterns; (6) high quality lithic resources; (7) drainage

headwaters, including springheads; and (8) drainage divides associated with active or extinct drainage heads. The project area's proximity to wetlands, and the Delaware River and its tributaries indicate that this region would have provided an array of potentially exploitable resources to prehistoric groups, primarily those dating to the Archaic and Woodland periods. This is supported by the documentation of several prehistoric sites in the immediate project vicinity.

HISTORICAL

Examination of the files at the Office of New Jersey Heritage and New Jersey State Museum indicates that there are two sites listed on the National Register of Historic Places located within one mile of the project area (Figure 1): Fort Mott and Finn's Point National Cemetery Historic District and Finn's Point Rear Range Light (both listed in 1978).

Fort Mott is located on the Delaware River at Finn's Point, six miles from Salem and a little over one mile southwest of the project area. The federal government acquired the land on which Fort Mott is presently situated from John C. Mason in 1838. As early as 1870, a fort was planned at this location to complement the construction of Forts Dupont and Delaware for protecting the mouth of the Delaware River (Chidley 1977a).

Construction of a permanent battery at the site began in 1872 and was completed in 1878. As a result of the impending Spanish-American War, the fort was redesigned in 1896, attaining its present form. Fort Mott was named for Major General Gersham Mott, a Burlington, New Jersey native and veteran of the Mexican and Civil Wars. The fort had a regular garrison until 1922, and a caretaker contingent until 1943. The State of New Jersey acquired Fort Mott in 1947 and opened it as a state park four years later (Chidley 1977a).

Fort Mott represents a fine example of a period fortification complex exhibiting early poured concrete construction. The fort consists of a series of batteries laid out along a longitudinal axis. It is surrounded on two sides and along the front by an earthen rampart capped by a cement parapet under which are ammunition magazines and a power plant. Other features include a pill box southeast of the main battery, a calculating room, chief's battery station, observation stand, gun fire control towers, parados, moat, main ammunition magazine, headquarters building (a two-story, 1890 Greek Revival structure), ordinance building, and officers quarters.

In 1863 two acres of the Fort Mott property were set aside for use as a cemetery for confederate prisoners who had died while interned at nearby Fort Delaware. Presently, Finn's Point National Cemetery contains the graves of 2,436 Confederate, 165 Union, and 144 other soldiers. As such, it represents the largest Confederate cemetery in the North.

The cemetery complex contains a Confederate Monument, Union Monument, and a circa 1920 caretaker's house (Chidley 1977a).

Finn's Point Rear Range Light, erected in 1876-77 by the Kellogg Bridge Company, is composed of a wrought iron skeletal tower (115 feet high) resting on a masonry foundation. The tower consists of a platform reached by a cast iron spiral staircase enclosed by a wrought iron cylinder. A small, round room, which once served as the light apparatus, is situated on top of the cylinder and platform. This light, originally a fixed beacon kerosene-vapor light, was operated in conjunction with a shorter front range light 1.4 miles to the south. The lighthouse is unusual because of its wrought iron construction and its status as a rear range light. The lighthouse was restored in 1983 and is now part of the Supawna Meadows National Wildlife Refuge (Chidley 1977b; Taylor 1986).

In addition to the above, there is a total of 10 structures that were recorded as part of the New Jersey Historic Site Inventory within approximately one mile of the project area (Figure 1). The Isaac Johnson House, located southeast of the project area, is a frame, two-story Vernacular/Federal residence built in two stages during the early eighteenth and early nineteenth century. The William Mecum House, located north/northeast of the project area, is a brick, two-story, Vernacular Georgian style residence, originally constructed in 1737 as a one-story, gambrel-roofed structure. A second story and addition were added in the late eighteenth century. The Cornelius Copner House, located north/northeast of the project area, consists of a brick, two-story Vernacular residence, built in 1740. The Red Shingle House, located directly across Lighthouse Road, is a frame, two-story Vernacular house, originally constructed in 1780.

Additional unnamed historic structures in the vicinity of the project area include a frame, two-story Vernacular square plan house, constructed in the late nineteenth century; a frame, two-story, Vernacular L-plan house, built in the mid-nineteenth century; two adjacent frame, cross-gabeled, two-story Vernacular square plan double houses, constructed in the mid-nineteenth century; a frame, two-story, Vernacular L-plan turn-of-the-century house; a frame, two-story late nineteenth-century Vernacular L-plan house; and a brick, three-story, three bay, Vernacular Greek Revival I-house, constructed in the mid-nineteenth century.

Cartographic Data

Several historic maps were examined for information concerning the history of land use and potential for locating historical sites within the project area. The earliest identified map of the area was Stansbie and Keiley's 1849 A Map of the Counties of Salem and Gloucester, New Jersey (Figure 4). This rendition indicates that the two major roads in the project vicinity, Fort Mott Road to the west and Lighthouse Road to the north, were already present in their current alignment by this time. In addition, the

GAI CONSULTANTS, INC. DWN. REM APPROVED BR 11/13/92 DWG. NO. 90-300-A124

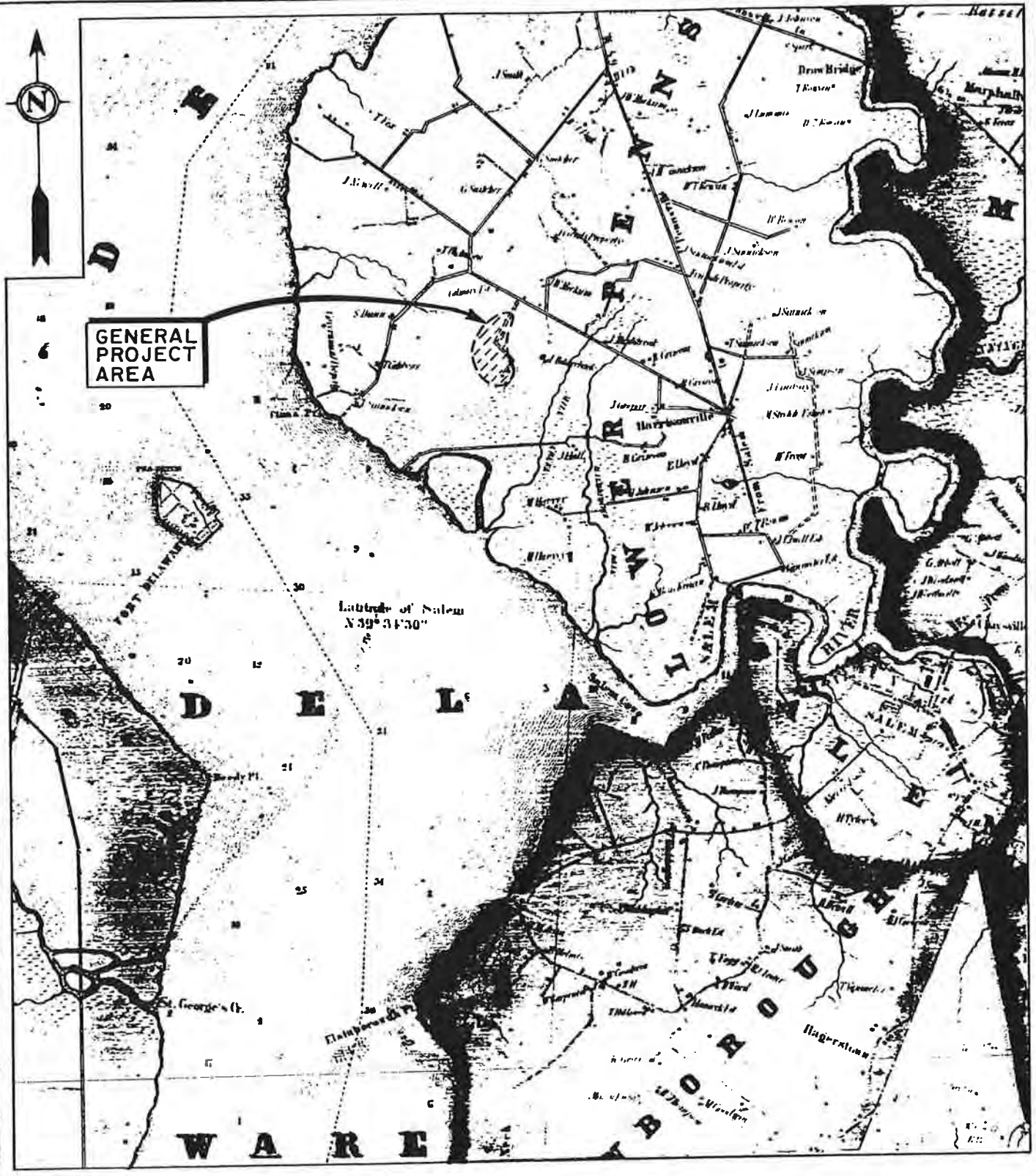


FIGURE 4

PROJECT AREA AND VICINITY, 1849

SOURCE:
STANSBIE, A.C., J. KEILEY & S.M. REA, A MAP OF THE COUNTIES OF SALEM AND GLOUCESTER, NEW JERSEY. SMITH & WISTER, 1849, PHILADELPHIA.

dirt farm access road extending south from Lighthouse Road and crossing through the project area had also achieved its present form by this period. Three unidentified structures are depicted along this road in proximity to the three tested parcels; one is located adjacent to the northeastern section of the project area, east of the road, and two are clustered adjacent to the project area's south, at the apparent terminus of the road. A road is depicted between the project area and the Delaware River shore, extending across Baldridge's and Mill Creeks, undoubtedly to exploit the rich meadows for the cultivation of salt hay.

The 1861 Lake and Beers *Map of the Vicinity of Philadelphia and Camden* (Figure 5) depicts two of the aforementioned structures. It assigns the southernmost occupation, known as "Pleasant Hill," to "S. Urion." This structure is associated with the existing nineteenth-century farmstead located adjacent to the southern portion of the project area. "A.B", assigned to the structure to the project area's northeast, appears to be the location of Site 28-Sa-65, a demolished nineteenth-century house and trash scatter recorded by Heite and Heite (1986a), directly east of Area A. "A.B." may possibly represent another property belonging to "A. Bilderback" who is associated with a structure located a short distance east of the project tract. By this period, meadows or marshland occupies only a narrow strip directly along the Delaware River waterfront, which attests to the success of the many meadow bank companies in operation by this time.

Information provided by Robert Butcher, Salem County Historian, suggests that Samuel Urion ("S. Urion") (1818-1884) occupied the farmstead referred to as Pleasant Hill directly south of the project area. Urion was a single farmer in 1850 with land holdings of $14,000. He was later married to Elisha Wheaton and had an adopted daughter, Rebecca S. Dunham. Samuel Urion was very active in local politics serving several posts during the mid to late nineteenth century, including Freeholder (1854-55), Justice of the Peace (1869-1883), member of the Lower Penn's Neck Township Committee (1869-1877), and Commissioner of Appeal (1872-1877). Upon his death his farmstead passed to his wife, Sarah, who continued to manage the farm until sometime after 1900.

The 1876 Everts and Stewart *Combination Atlas Map of Salem and Gloucester Counties, New Jersey* (Figure 6) refers to Samuel Urion's property as "S. Drion" and is said to number 274 acres. Although the above referenced "A.B." structure is no longer present by this period, three additional structures are situated directly west of the project area. Similar to the 1861 Lake and Beers map, the 1876 rendition depicts marshland only along the Delaware River waterfront.

By 1904, the dirt farm road traversing the project area had joined a network of roads leading to the lighthouse, situated along the northern Delaware River shore to the

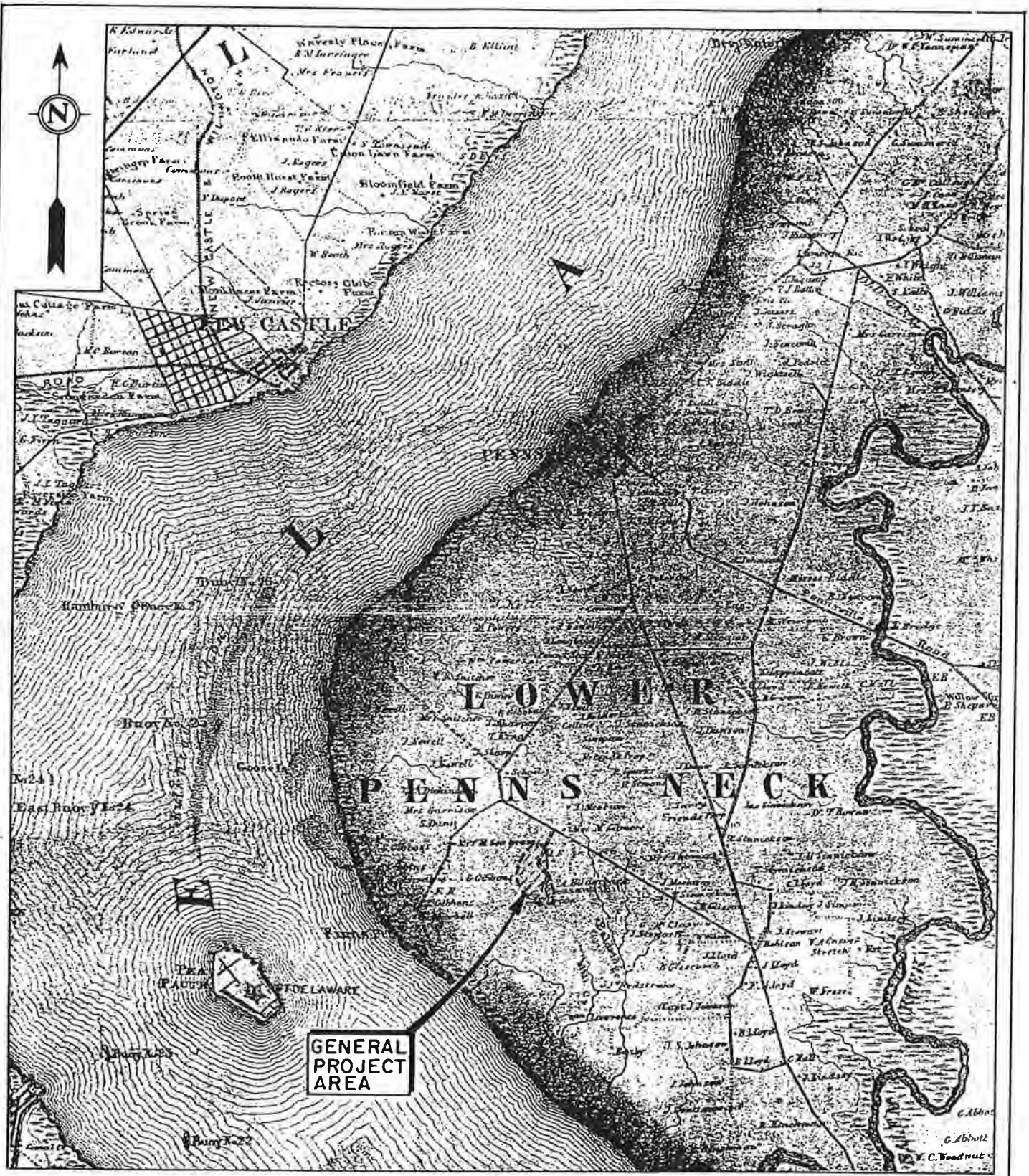


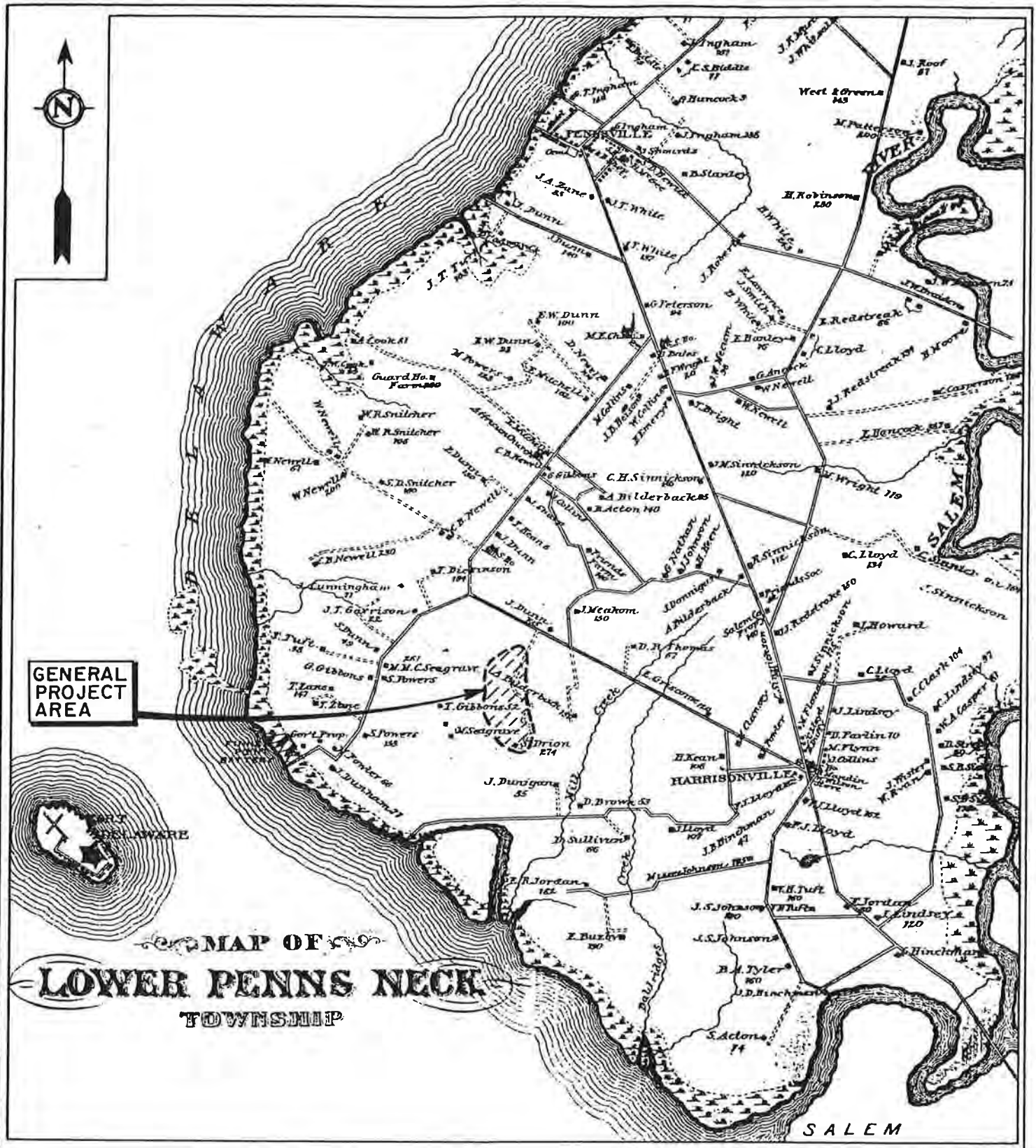
FIGURE 5

PROJECT AREA AND VICINITY, 1861

SOURCE :
D. J. LAKE AND S. N. BEERS, MAP OF THE VICINITY OF PHILADELPHIA AND CAMDEN, 1861.

GAI CONSULTANTS, INC. DWN. REM APPROVED BR 11/13/92 DWG. NO. 90-300-A125

GAI CONSULTANTS, INC. DWN. REM APPROVED BR 11/13/92 DWG. NO. 90-300-A126



SCALE
0 1/2 1 MI

FIGURE 6

PROJECT AREA AND VICINITY, 1876

SOURCE:
EVERTS & STEWART, COMBINATION ATLAS MAP OF SALEM AND GLOUCESTER COUNTIES, NEW JERSEY. EVERTS & STEWERT, 1876, PHILADELPHIA.

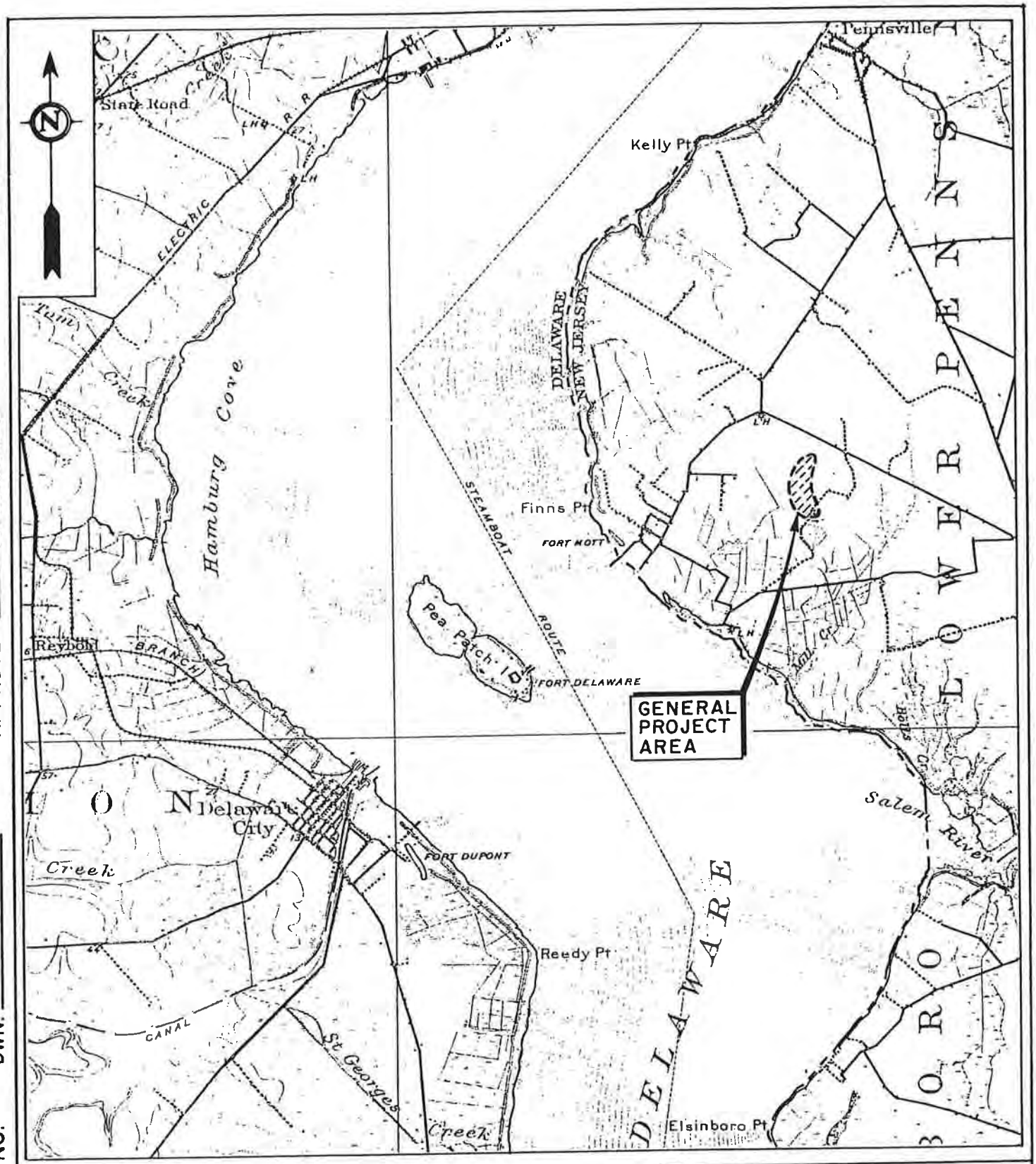
project area's south (Figure 7). This map also provides clues to the recession of the marshland as it depicts an extensive network of ditches and banks used to drain the area for cultivation. This system of "meadow banking" resulted in the eventual reclaiming of several thousands of acres of swampland for agricultural purposes.

A comparison of the 1904 and 1951 USGS quadrangles reveals the extensive areas south of the project tract that had been inundated by the mid-twentieth century, especially along Mill Creek (Figures 7 and 8). As noted earlier, this was a direct consequence of the "washing out" of the meadow banks during the 1930s and the subsequent flooding of former fields, roads, and settlements. A close inspection of the 1951 USGS quadrangle clearly indicates the remnants of the roads and ditches which once drained this general area. By 1970, the extent of the marshland had significantly been increased in this location owing, in part, to the growth of phragmites (Figure 1).

PREVIOUS ARCHAEOLOGICAL RESEARCH

Five previous archaeological surveys have been undertaken in proximity to the project area (Figure 1). These include the following: *Stage I Cultural Resource Survey for Proposed Sanitary Facilities in Seven New Jersey State Parks* (Rotsch & Morrell 1979); *Preliminary Cultural Resource Reconnaissance Investigation in connection with Comprehensive Navigation Study, Delaware River, Delaware and New Jersey* (Heite & Heite 1986a); *Cultural Resource Investigation at New Cut, Salem River, in Connection with Proposed Dredging of Salem River, City of Salem, Elsinsboro Township, and Pennsville Township, Salem County, New Jersey* (Heite & Heite 1986b); *Submerged Cultural Resources Investigations, Delaware River, Main Navigational Channel, Philadelphia, PA. to Artificial Island, NJ.* (Cox 1988); and *Phase II Underwater Archaeological Testing of Anomaly SR 01, Salem River, Salem County, New Jersey, Final Report* (Irion 1992). The limited examination of Fort Mott State Park involved a background study of site files, historic maps, and early histories of Salem County. Conclusions of the study are limited and suggest only that the area of Fort Mott was bordered by a wetland environment to its southeast and occupied a higher level in the past than at present.

As previously noted, the Delaware River navigation study (Heite & Heite 1986a) resulted in the identification of several archaeological sites located within the immediate vicinity of the project area, on the grounds of the Supawna Meadows National Wildlife Refuge. The project encompassed thirteen proposed disposal areas along the Delaware River, and generally involved pedestrian, windshield, and aerial surveys. The New Cut proposed dredge disposal project encompassed a boat and pedestrian reconnaissance, as well as shovel testing. Although no significant cultural resources were identified, the high ground of the island created by the New Cut was concluded to possess a high probability



SCALE

0 1/2 1 MI

SOURCE:
U.S.G.S. 15 MIN. SERIES TOPO., WILMINGTON, DEL.-N.J. QUADRANGLE, 1904.

FIGURE 7

PROJECT AREA AND VICINITY, 1904

GAI CONSULTANTS, INC. DWN. REM APPROVED BR 11/13/92 DWG. NO. 90-300-A127

GAI CONSULTANTS, INC. DWN. REM APPROVED BR 11/13/92 DWG. NO. 90-300-A128

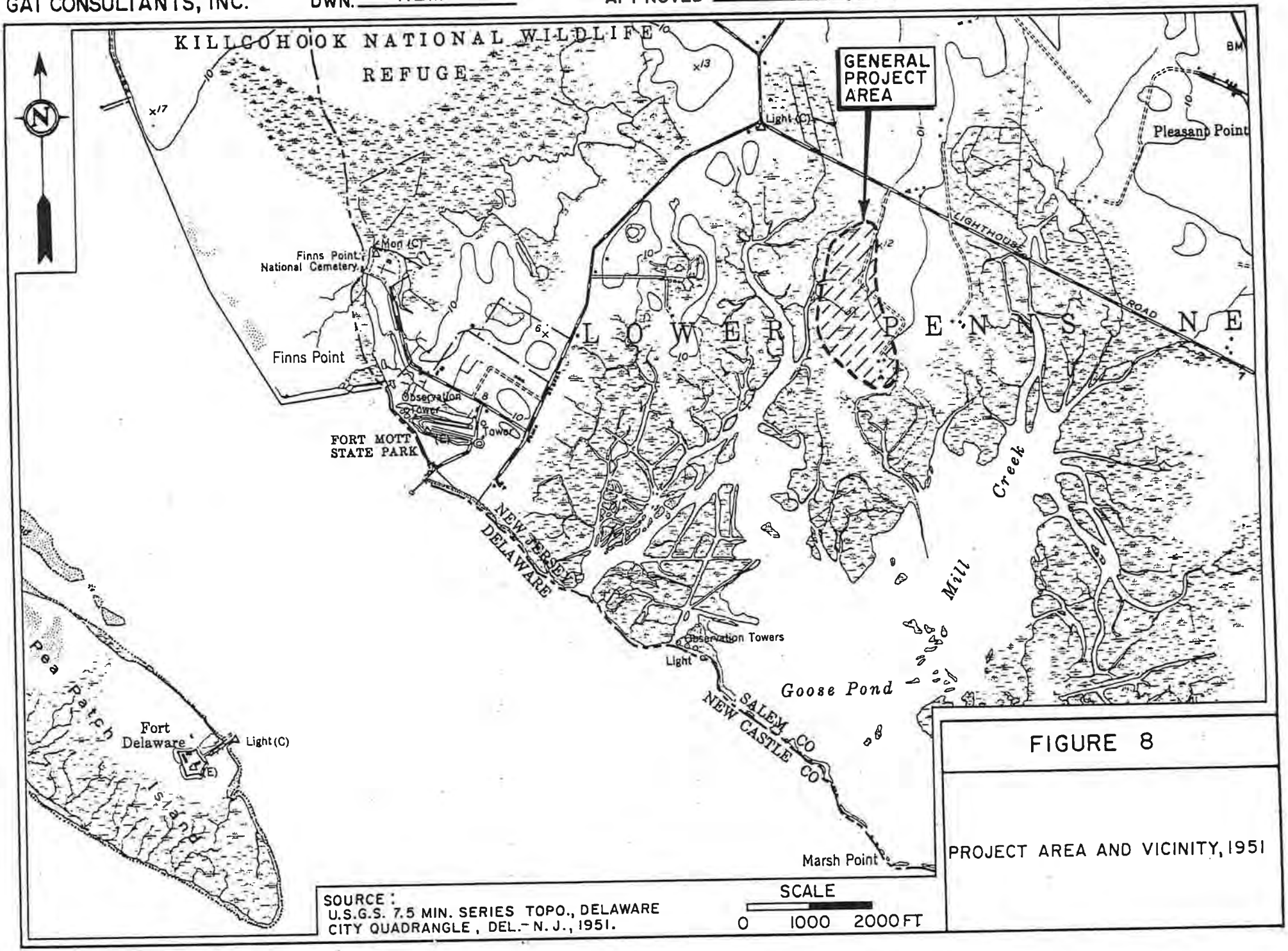


FIGURE 8

PROJECT AREA AND VICINITY, 1951

for containing the remains of early Euro-American settlements (Heite & Heite 1986b: D9-10).

Fourteen locations were considered during the submerged cultural resources study in the Delaware River channel, between Artificial Island and League Island (Cox 1988). The survey involved a magnetometer and side-scan sonar analysis of underwater targets. Sixty-four targets were identified in the project area, six of which produced a signature indicative of significant cultural remains. Phase II testing of anomaly SR 01 was undertaken to assess the nature of a previously identified magnetic target located in the Salem River (Irion 1992).The project involved a magnetometer survey for an area totalling over 300,000 square feet. The anomaly proved to be a low-intensity disturbance with two ridges of positive deflection separated by a low-intensity corridor. A Phase II underwater investigation revealed that the target was produced by a natural exposure of glacial-borne, iron-bearing cobbles. A modern steel anchor, which was considered to be insignificant, was the only cultural item found in the target area.

ARCHAEOLOGICAL FIELD INVESTIGATIONS

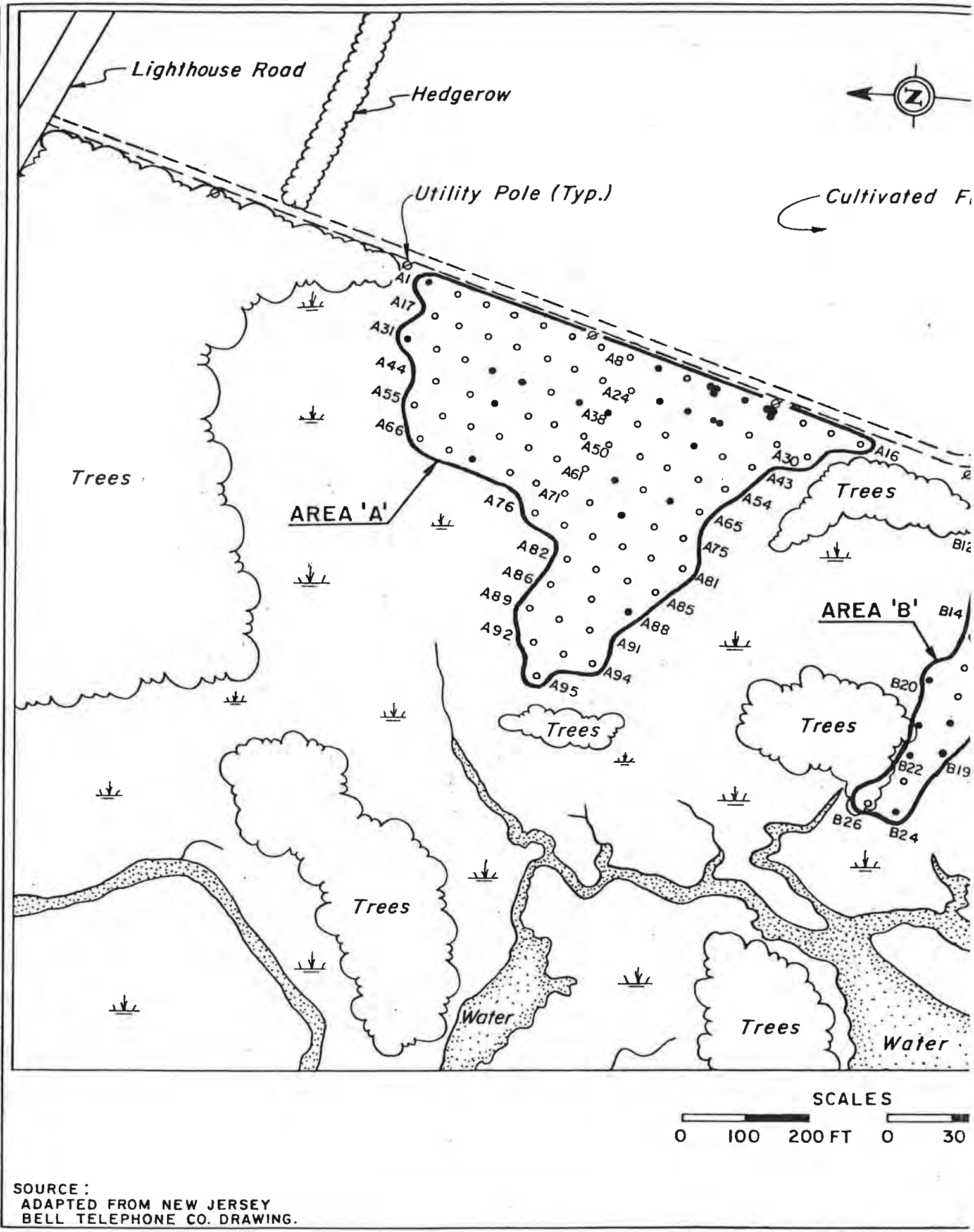
FIELD METHODOLOGY

GAI's Phase I archaeological investigation of the Salem River Navigation study area consisted of a pedestrian reconnaissance and the systematic excavation of 183 shovel test pits placed within three parcels located in the west-central portion of the Supawna Meadows National Wildlife Refuge (Areas A, B, and C) (Figures 1 and 9). Subsurface testing in each of the three upland areas consisted of the investigation of a staggered, 15-meter (50-foot) systematic shovel test pit grid (systematic unaligned) across open, recently mowed areas; two judgmental shovel probes were also excavated in the wooded margins of Area B. Excessively wet locations and areas covered by phragmites (i.e., wetlands) were excluded from subsurface testing. Of the total of 183 shovel test pits excavated during Phase I fieldwork, 101 were placed in Area A; 28 in Area B, and 54 in Area C (Figure 9).

Fieldwork was conducted from September 17 to September 21, 1992, in the three upland areas (ca. 9 acres) scheduled for wetland creation. The goal of Phase I fieldwork was to identify the presence, nature, and extent of all cultural resources and/or features within the project area that will be subject to impacts, and to evaluate, if possible, their potential eligibility for nomination to the National Register of Historic Places. Archaeological investigations followed procedures recommended by the Office of New Jersey Heritage Guidelines for Archaeological Investigations (McCarthy 1984; revised Office of New Jersey Heritage 12/10/90), and the Department of Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (1983).

Shovel test pits (STP) measured approximately 50 x 50 cm (ca. one foot in diameter) and were excavated by natural soil stratigraphy, as determined by soil color (Munsell) and texture. In all cases, STPs were dug to culturally sterile soils. In several locations, the base of shovel test pits were augured in order to penetrate the sandy C horizon, which was generally encountered at 80+ cm below ground surface. Pleistocene surfaces were observed generally at the interface of the B and C Horizons throughout the project areas.

All excavated soils were screened through 1/4-inch hardware mesh. Standardized shovel test pit forms containing provenience data, depth of soil horizons, soil descriptions, and a list of any recovered artifacts were completed for each excavation. All shovel test pits were backfilled at the completion of the excavations. All artifacts recovered from these excavations were placed in bags and labeled with appropriate provenience information. The locations of all excavations were referenced to available landmarks and noted on project area maps with the use of a compass and metric hand tapes. Field conditions



SOURCE:
ADAPTED FROM NEW JERSEY
BELL TELEPHONE CO. DRAWING.

GAI CONSULTANTS, INC. DWN. REM APPROVED BR 11/13/92 DWG. NO. 90-300-B11

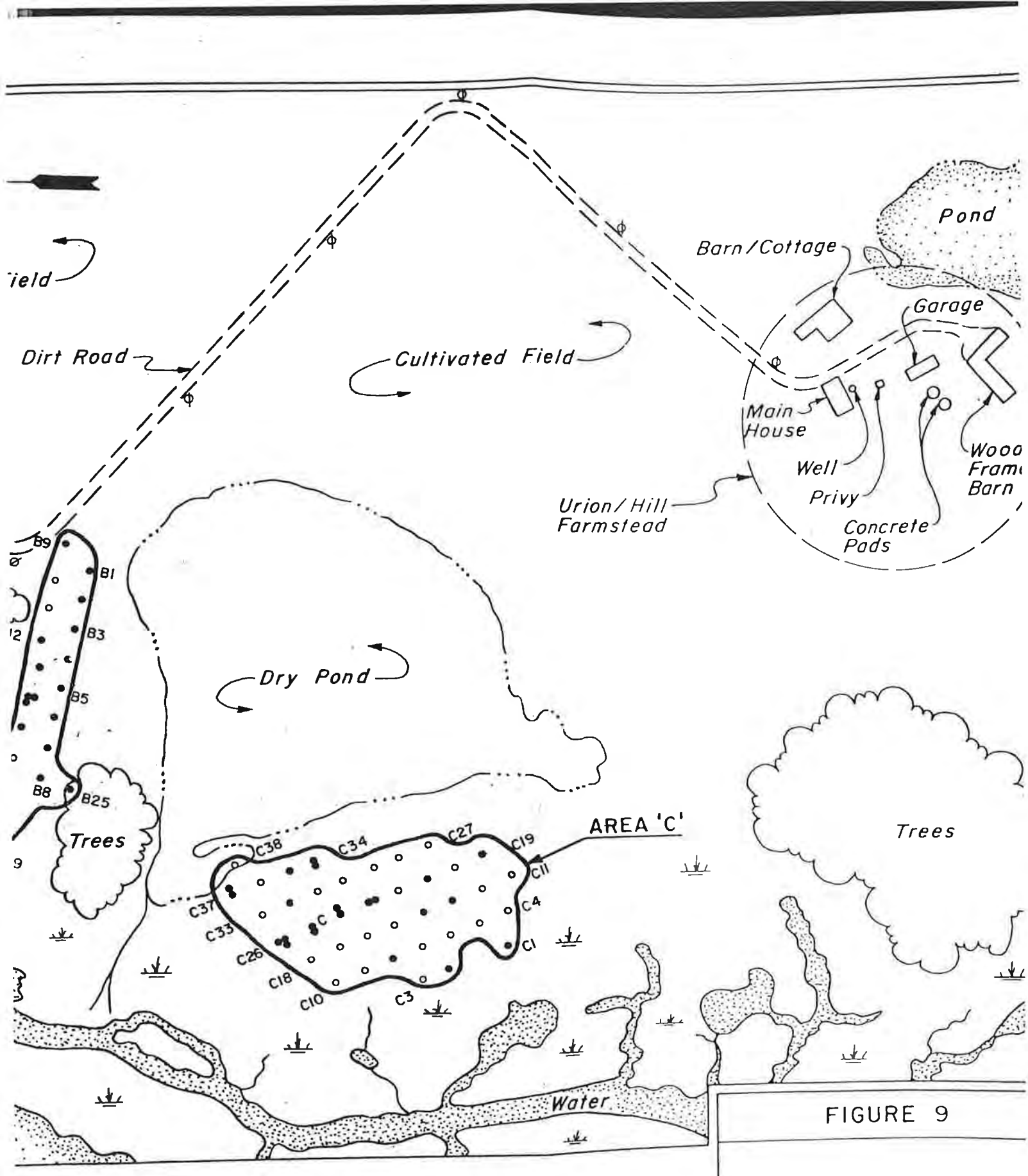


FIGURE 9

LOCATION OF SHOVEL TEST PITS
SALEM NAVIGATION PROJECT

and representative soil profiles were recorded with color slides and black-and-white prints.

In addition to the above, a nineteenth-century farm complex located adjacent to the southern end of the project area was recorded (Figure 9). This included general background research, photo-documentation, architectural description, completion of an Office of New Jersey Heritage architectural survey form, and a determination of its potential National Register eligibility. Since this area was not scheduled to be impacted as a result of the proposed wetland project, no subsurface testing was conducted in this location.

FINDINGS

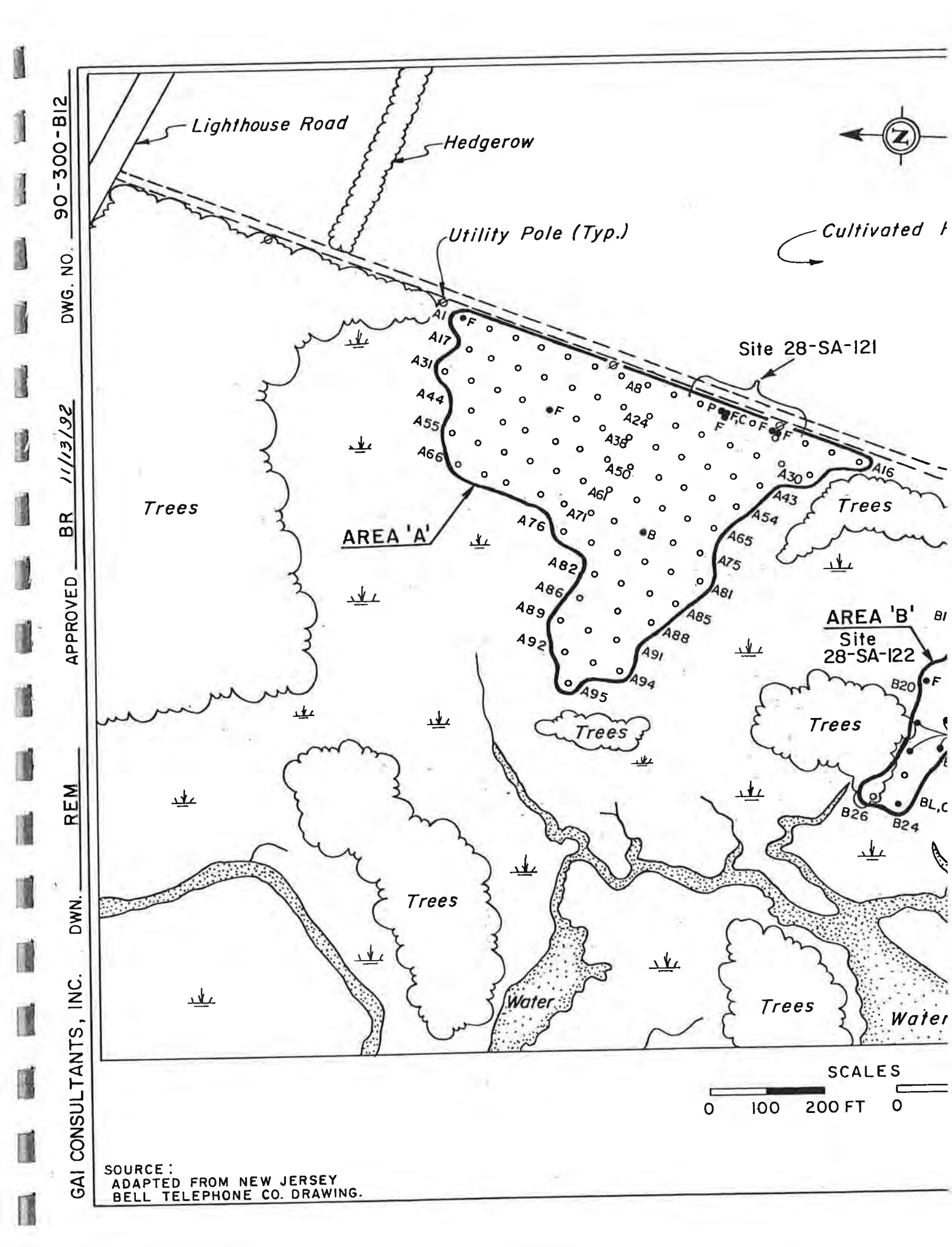
GAI's excavation of 183 shovel test pits resulted in the identification of three prehistoric sites (28-Sa-121 through 123) and the recovery of 92 prehistoric and 64 historic/modern artifacts (Appendices B and C) (Figure 10). Table 1, below, indicates that approximately 97 percent of all Phase I prehistoric artifacts were recovered from the plowzone; only one pottery sherd and two pieces of debitage were recovered from sub-plowzone contexts. As shown in Table 2, lithic debris included a variety of raw material types such as chert, jasper, silicified sandstone, quartz, quartzite, and chalcedony. The greatest concentration of prehistoric artifacts (55%) occurred in Area B (Site 28-Sa-122), the smallest of the three investigated parcels. This included 23 lithic debitage, one fire-cracked rock, and 27 pottery sherds. This was followed by Area C (Site 28-Sa-123) which contained one biface, 10 pieces of debitage, and 19 pottery sherds (33%). Although the largest of the three parcels, Area A (Site 28-Sa-121) yielded the lowest number of prehistoric artifacts (12%); these include one biface, one Levanna point (Late Woodland), eight lithic debitage, and one pottery sherd.

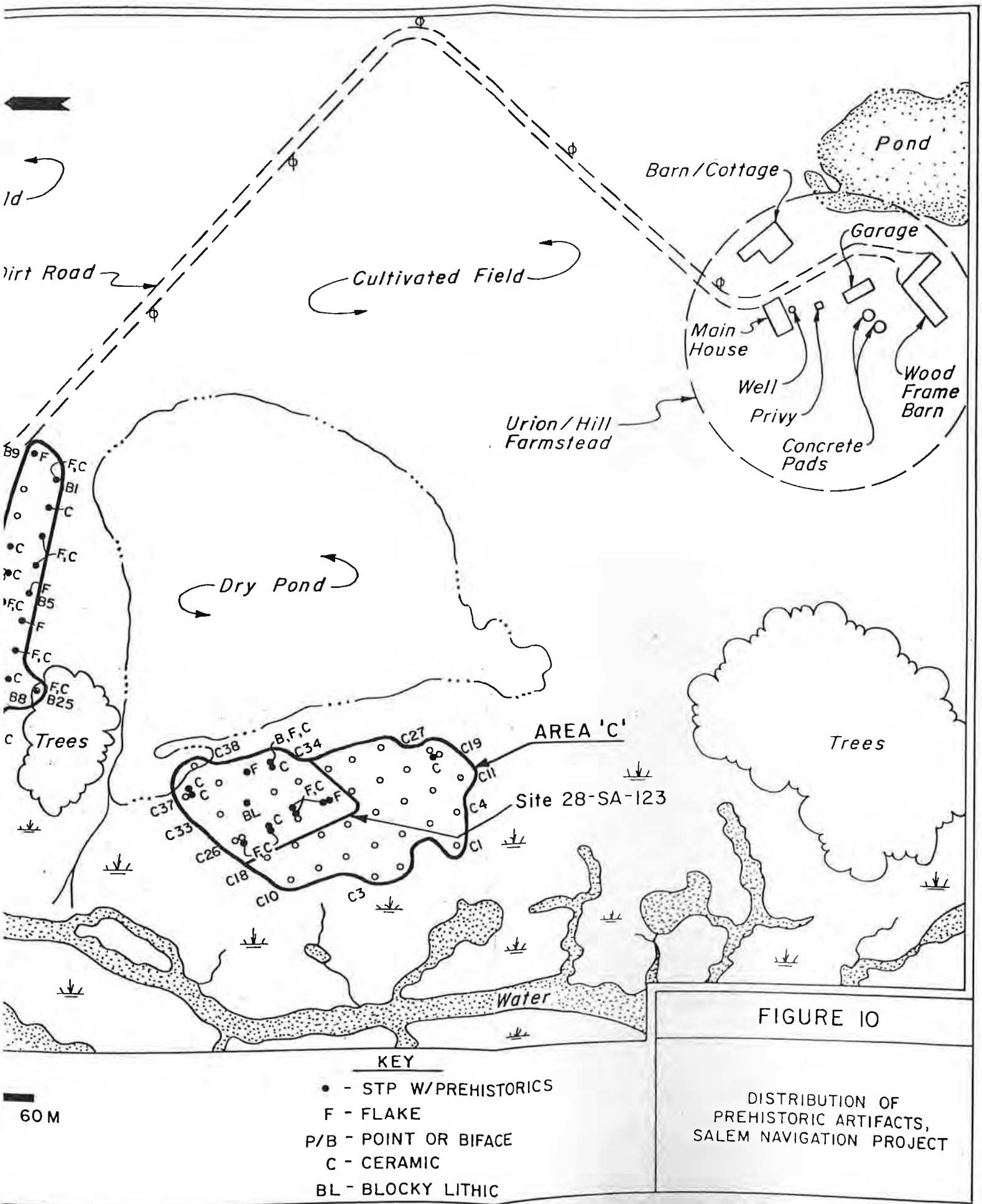
Table 1: Stratigraphic Distribution of Prehistoric Artifacts.

	Debris		Tools		Ceramics		Totals	
	n	%	n	%	n	%	n	%
Plowzone	39	95.12	3	100	46	97.87	88	96.7
Sub-Plowzone	2	4.88	0	0	1	2.13	3	3.3
Total	41	100	3	100	47	100	91	100

Table 2. Distribution of Raw Material Classes for Debris.

Debris	Dark/Gr Chert	Grey Chert	Light Chert	Chert	Yellow/ Caraml Jasper	Jasper	Red Jasper (heated)
#	5	1	1	2	6	4	1
Percent	15.4	2.4	2.4	4.9	14.6	9.8	2.4


Lighthouse Road
Hedgerow
Utility Pole (Typ.)
Cultivated
Site 28-SA-121
AREA 'A'
AREA 'B'
Site 28-SA-122
Trees
Water
A1
A16
A17
A24
A30
A31
A38
A43
A44
A50
A54
A55
A61
A65
A66
A71
A75
A76
A81
A82
A85
A86
A88
A89
A91
A92
A94
A95
B20
B24
B26
SCALES
0 100 200 FT 0
SOURCE:
ADAPTED FROM NEW JERSEY
BELL TELEPHONE CO. DRAWING.
GAI CONSULTANTS, INC.
DWN. REM
APPROVED BR 11/13/92
DWG. NO. 90-300-B12



KEY

- • - STP W/PREHISTORICS
- F - FLAKE
- P/B - POINT OR BIFACE
- C - CERAMIC
- BL - BLOCKY LITHIC

FIGURE 10

DISTRIBUTION OF PREHISTORIC ARTIFACTS, SALEM NAVIGATION PROJECT

Table 2. Distribution of Raw Material Classes for Debris. (Cont.)

Debris	Grainy Jasper	Smth Jasper	Black/ Grey Chalcny	Quart	Ortho-quartze	Silicified Sandstne	Total
#	1	1	3	8	2	4	39
Percent	2.4	2.4	7.3	20.5	5.1	9.8	99.4

Note: Tables do not include an obsidian-like flake from STP B9

A majority (55%) of the 64 historic/modern artifacts recovered during Phase I fieldwork consist of ceramic tablewares (n=15), cinders/slag (n=12), and small brick fragments (n=8). The remaining debris include small quantities of bottle, window, and miscellaneous glass, and miscellaneous metal. Fifty-five per cent of all historic/ modern artifacts were collected from Area A (n= 35); Areas B and C yielded 10 (15%) and 19 (30%) historic/modern artifacts, respectively. With one possible exception in Area B, no evidence of intact stratified deposits or potentially important historic or prehistoric archaeological features was identified. Representative soils identified in the three investigated areas are illustrated in Figure 11 and closely resemble the soil types mapped for the project area (Powley 1969). The artifact inventory is presented in Appendix B. Brief descriptions of the soils and artifacts encountered in the various testing segments are presented below.

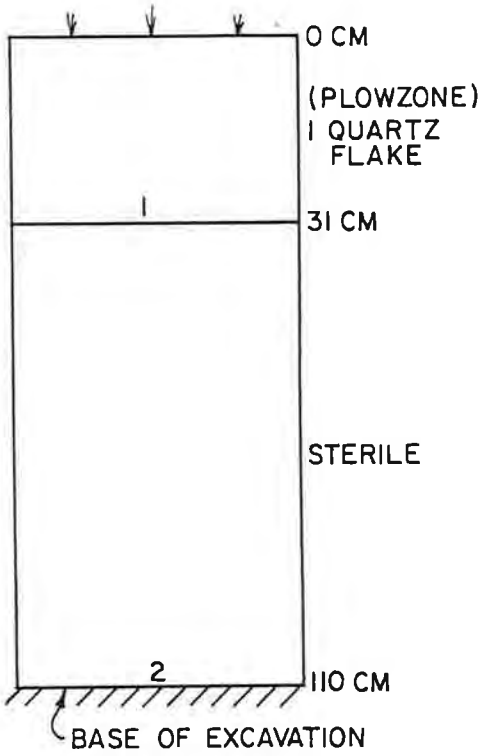
Testing in Area A

Area A consists of a relatively flat parcel of fallow land surrounded by a dirt farm road to the east, wooded areas to the north and south, and phragmites to the west (i.e., wetlands) (Photograph 1). As shown in Figure 9, a total of 90 staggered shovel test pits, placed at 50-foot intervals, and 11 ancillary STPs were excavated in this area. Soils encountered in Area A were generally consistent across the parcel and closely resemble the Mattapex silt loam (MqA) soils recorded by the USDA for the study area (Powley 1969:24). This included a plowzone which ranged from yellowish-brown (10YR5/4) to brown to dark brown (10YR4/3) silt loam (Figure 11), which generally extended to depths of 14 to 30 cm below ground surface (bgs); atypically deep plowzone strata were recorded in STPs A31 and A40, where it extended to depths of 35 and 40 cm bgs, respectively.

The plowzone stratum was underlain by a dark yellowish-brown (10YR4/6) or yellowish-brown (10YR5/4 - 5/6, 5/8) silt loam or clay loam B horizon that generally extended to depths of 55 to 65 cm bgs. In STP A73, this stratum extended to the base of

GAI CONSULTANTS, INC. DWN. REM APPROVED JSD 11/19/92 DWG. NO. 90-300-A129

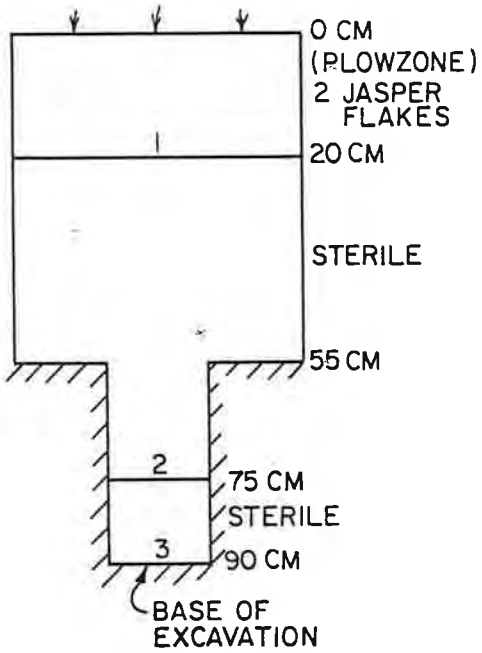
STP A73



1 - DARK YELLOW-BROWN (10 YR 4/4) SILT LOAM.

2 - DARK YELLOW-BROWN (10 YR 4/6) SILT LOAM.

STP B5

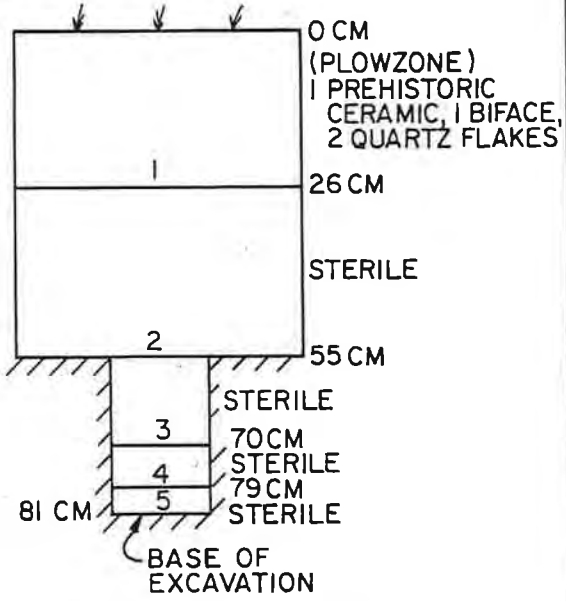


1 - BROWN (10 YR 5/3) SILT LOAM.

2 - STRONG BROWN (7.5 YR 4/6) SANDY SILT LOAM.

3 - STRONG BROWN (7.5 YR 4/6-5/6) SILTY SAND.

STP C34



1 - YELLOW-BROWN (10 YR 5/4) SILT LOAM.

2 - DARK YELLOW-BROWN (10 YR 4/6) SILT LOAM.

3 - DARK YELLOW-BROWN (10 YR 4/6) SILT LOAM.

4 - DARK YELLOW-BROWN (10 YR 4/6) CLAY LOAM.

5 - DARK YELLOW-BROWN (10 YR 4/6) SAND.

FIGURE 11

SALEM NAVIGATION PROJECT: REPRESENTATIVE PHASE I SHOVEL TEST PIT SOIL PROFILES

Photograph 1: General view of Area A, facing north. Photographed by Benjamin Resnick on September 17, 1992.

excavation at 110 cm bgs. Several shovel test pits (e.g. A7-9) contained a third stratum of yellowish-brown (10YR5/6) silty clay loam that extended from about 40 cm to the base of excavation at 65 cm bgs. This stratum was also observed in augur samples from STPs A69 and A39; in the latter unit it extended down to 98 cm bgs. The upper face of the sandy C horizon was also exposed in STPs A10-A12 at depths ranging from 76 to 121 cm bgs. Deep probing of STP A50 exposed the yellowish-red (5YR5/8) sandy C horizon at a depth of 135 cm bgs. In all cases, excavation extended an additional 25 to 35 cm below the deepest point of artifact recovery. As discussed below, all of the prehistoric artifacts from Area A were produced from plowzone contexts. As indicated in Appendix B, only one brick fragment and two cinders were found below the plowzone (STPs A9, A26, and A41).

The recovery of prehistoric artifacts in Area A (Site 28-Sa-121) was mainly restricted to locations immediately adjacent to the existing farm access road (Figure 10) (Appendix B). Artifacts from this zone include one prehistoric ceramic, one dark gray chert flake, and one yellow jasper flake from STP A11 (plowzone), and one dark gray chert flake from STP A13 (plowzone). An ancillary shovel test pit excavated 16 feet (4.8 meters) north of STP A11 contained a Late Woodland period Levanna point, made of jasper (Figure 12), and two historic ceramics, both of which were produced from the plowzone. A second ancillary STP excavated 16 feet (4.8 meters) west of A11 yielded one dark gray cortical, chert flake and one jasper flake, also from the plowzone. Of two ancillary STPs excavated 16 feet (4.8 meters) north and west of A13, only one contained prehistoric artifacts, in the form of one caramel jasper flake and one mollusc shell fragment.

In addition to the recovery of prehistoric artifacts near STPs A11 and A13, two isolated flakes were recovered from the plowzone in STPs A1 and A35. Two ancillary STPs excavated 16 feet (4.8 meters) to the east and west of STP A35 were sterile. Finally, one heat-modified red chert biface was recovered from the plow-zone in STP A73 (Figure 12). Two ancillary STPs excavated to the north and south of the find-spot were sterile.

Comparatively few historic/modern artifacts (n=35) were recovered from Area A (Appendix B). These include a thin scatter of 14 ceramic tablewares, four cinder/slag fragments, and six small brick fragments. Of these 14 highly fragmented ceramics, seven were whiteware, five were redware, and two were yellowware, spanning the period from the early nineteenth century through the present. The remaining historic/modern debris includes small quantities of bottle, window, and miscellaneous glass, miscellaneous metal, and coal.

GAI CONSULTANTS, INC. DWN. REM APPROVED BR 11/13/92 DWG. NO. 90-300-A130

CORD-MARKED SHERD
(MINGUANNAN ?)
LATE WOODLAND
SITE 28-SA-122
STP B-3, LEVEL I

LEVANNA POINT
JASPER, LATE WOODLAND
SITE 28-SA-121
STP A11 16' NORTH, LEVEL I

IRONSTONE BIFACE
SITE 28-SA-123
STP 34, LEVEL I

RED CHERT BIFACE,
HEAT TREATED
SITE 28-SA-121
STP 73, LEVEL I

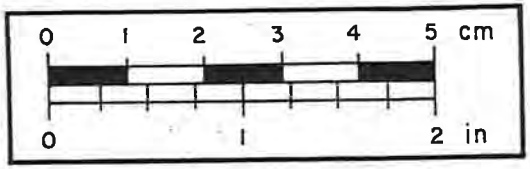


FIGURE 12

SELECTED PREHISTORIC ARTIFACTS
RECOVERED FROM
SALEM NAVIGATION PROJECT

Testing in Area B

Like Area A, Area B consists of a flat, open fallow parcel surrounded by dense stands of phragmites and deciduous trees (Photograph 2). As shown in Figure 9, 26 staggered shovel test pits, placed at 50-foot intervals, and two ancillary STPs were excavated in Area B. Soils were generally consistent across the parcel and closely resemble the Mattapex silt loam (MqA) soils recorded by the USDA for this area (Powley 1969:24). Most soil profiles in Area B consisted of a brown to dark brown (10YR4/3) or brown (10YR5/3) silt loam plowzone that generally extended to depths of 20 to 30 cm bgs; a relatively deep plowzone was recorded in STP B1, which extended to 36 cm bgs.(Figure 11).

In general, the plowzone was underlain by a yellowish-brown (10YR5/6 & 5/8) or strong brown (7.5YR4/6) sandy silt loam or silty clay loam B horizon that extended to depths of 55 to 68 cm bgs. Several shovel test pits (e.g. B10, B11 and B26) contained a third stratum of yellowish-brown (10YR5/8 & 5/6) silty clay loam that extended from about 44 cm to the base of excavation at 55-60+ cm bgs. Deep coring of STP B18 exposed the strong brown (7.5YR4/6) sandy C horizon from 81 cm to the base of excavation at 97 cm bgs. The upper face of the sandy C horizon was also exposed in STP B25 at 45 cm bgs to the base of excavation at 62 cm bgs. In all cases, excavation extended an additional 25 to 40 cm below the deepest point of artifact recovery. As discussed below, nearly all Area B artifacts were recovered from plowzone contexts (Appendix B). Only one window glass fragment (STP B12) was recovered below the plowzone.

Phase I shovel testing in Area B revealed a low-density, spatially extensive scatter of prehistoric artifacts from the plowzone (Site 28-Sa-122) (Appendix B). As shown in Figure 10, 19 of the 28 systematically staggered shovel test pits contained prehistoric material (68%). Although no artifact concentrations were identified in this area, there was a continuous horizontal distribution of lithics and ceramics across the testing zone. Of the 51 prehistoric artifacts recovered from Area B, 49 (96%) were collected from the plowzone or upper soil horizon contexts. STP B9 contained a small opaque, black "obsidian-like" flake from the plowzone, in addition to one quartz flake and one cortical jasper flake below the plowzone. Twenty-seven of the 51 prehistoric artifacts (53%) from the parcel consisted of pottery sherds, several of which were cord-marked or exhibited other surface treatments. Abrasion has reduced the visibility of decoration in most cases. Except for one small, grit-tempered broad-band, incised, cord-marked sherd from STP B3 (plowzone), tentatively identified as Minguannan (Late Woodland) (Figure 12), all Phase I prehistoric ceramics were undiagnostic (Griffith and Custer 1985:5-12; Custer 1987:13-27). Lithic debris (22 flakes and one block) constitute the second most frequent artifact type, comprising 47% of the prehistoric inventory. Additionally, a single fragment of fire-

Photograph 2: General view of Area B, facing west. Photographed by Benjamin Resnick on September 17, 1992.

cracked rock was recovered from the plowzone of STP B8, along with one grit-tempered pottery sherd.

Given the widespread distribution of artifacts across Area B, no systematic ancillary shovel testing was conducted around the original find spots. However, two ancillary STPs were excavated 16 feet (4.8 m) south and west of STP B14, which contained an anomalous concentration of charcoal, burned organic material, and a possible ochre fragment at the plowzone/B Horizon interface (Photograph 3). No artifacts were recovered from this soil stain. One of the ancillary STPs (B14-16 feet south) contained prehistoric artifacts, including one quartz flake and one grit-tempered pottery sherd; these artifacts were recovered from the plowzone along with two glass fragments. The other ancillary STP contained only one threaded glass finish. Following the documentation of the feature, the STP was backfilled.

A single STP (B25) was excavated in the wooded zone south of Area B, to determine whether an intact portion of the site extended into this area. It exhibited no evidence of a plowzone and contained an upper intact, but sterile humus which extended from the surface to 10 cm bgs. This stratum was underlain by a brown (10YR 5/3) silt loam (A Horizon, 10-35 bgs) which contained one gray chalcedony flake and two grit-tempered prehistoric ceramics. A sterile brown (10YR5/3) silt loam, containing strong brown (7.5YR4/6) silt loam mottles and sterile strong brown (7.5YR4/6) silty clay loam, was encountered below the A Horizon; it extended to the base of excavation at 62 cm bgs.

As with Area A, comparatively few historic/modern artifacts (n=10) were recovered from Area B (Appendix B). These include two miscellaneous glass fragments, three bottle and one window glass fragment, one lead-glazed redware body sherd, one small brick fragment, and one unidentified concretion. Except for a single window glass fragment collected from the B horizon in STP B12, all of these artifacts were produced from the plowzone.

Testing in Area C

Area C comprises a large, relatively open fallow field surrounded by deciduous trees and phragmites (Photograph 4). As shown in Figure 9, 38 staggered shovel test pits, placed at 50-foot intervals, and 16 ancillary STPs were excavated in Area C. Similar to Areas A and B, soils were generally consistent throughout the parcel and closely resemble the Mattapex silt loam (MqA+ MqB) soils recorded by the USDA for this area (Powley 1969:24). Most soil profiles in Area C contained an uppermost plowzone of yellowish-

Photograph 3: South wall profile of anomalous soil stain in STP B14 (plowzone-B horizon interface). Facing south. Photographed by Joel S. Dzodin on September 19, 1992.

Photograph 4: General view of Area C, facing west. Photographed by Joel S. Dzodin on September 19, 1992.

brown (10YR5/4), dark yellowish-brown (10YR4/4), or brown (10YR5/3) silt loam, which extended to depths of 21 to 26 cm bgs (Figure 11). A relatively deep plowzone stratum was observed in STPs C11 and C31, extending to 31 cm bgs.

The plowzone was generally underlain by a yellowish-brown (10YR5/6 & 5/8) or dark yellowish-brown (10YR4./6) silt loam or silty clay loam B horizon that extended to the base of shovel test pits at depths of 55 to 68 cm bgs. Hand-auguring of several STPs (i.e., C1, C9, C15, C19, C23, C30, C34) exposed two or more underlying soil horizons. This includes a light yellowish-brown (10YR6/4) or dark yellowish-brown (10YR4/6) silt loam or silty clay loam (70-110 cm bgs) superimposing a dark yellowish-brown (10YR4/4) to light brownish-gray (10YR6/2) sandy C horizon, the upper face of which was exposed at depths of 79 to 142 cm bgs. In all cases, excavation was extended an additional 25 to 40 cm below the deepest point of artifact recovery. As discussed below, artifacts in Area C were almost entirely restricted to the plow-zone, with the exception of a single prehistoric pottery sherd recovered in the B horizon (STP C24). In addition, prehistoric artifacts were recovered from the interface of the plowzone/B horizon in STPs C19, C25, C35, and C37.

A low-density artifact scatter (Site 28-Sa-123), almost exclusively limited to the plowzone (99%), was focused in the northern half of Area C (Appendix B) (Figure 10). Eight of the 38 staggered shovel test pits contained prehistoric material (i.e., 21%). An additional 16 ancillary STPs were excavated around find spots at STPs C23-C26, C34, and C37; an ironstone biface was recovered from the plowzone of STP C34 (Figure 12). Although a possible flake recovered from STP C23 was later identified as a slag fragment, an ancillary shovel test pit placed in the area (C23, 16 feet south) contained a prehistoric pottery sherd, one heat-altered chert flake, a cinder, and one miscellaneous metal fragment from the plowzone. Twenty of the 30 prehistoric artifacts from the parcel (66.6%) consisted of pottery sherds, none of which were diagnostic. Lithic debris (nine flakes and one block) represent the second most frequent artifact category and account for 33% of the Area C prehistoric artifact inventory.

Comparatively few historic/modern artifacts (n=19) were recovered from Area C; these include five pieces of slag, three cinders, one fragment each of bottle, window, and miscellaneous glass, and single specimens of bone, brick, a nail, and a concretion (Appendix B). All of this debris was recovered from the plowzone.

FARM COMPLEX

As noted earlier a farm complex, associated with Samuel Urion during the mid-nineteenth century, is located at the end of a dirt road adjacent to the southern portion of the project area. It was occupied by the "Hill Brothers" until the early 1960s, who operated a slaughter/meat business at this time (Butcher 1992: personal communication). The farmstead resembles a variation of a linear, bisected plan, and consists of a farmhouse, well, barn/cottage, large frame barn, garage, and privy (Appendix D; Figure 13).

The farmhouse is a 5x2-bay, two and one-half story, Vernacular, central hall, I-house with two internal end brick chimneys, dormers, and a kitchen lean-to addition, located along the east elevation (Photographs 5 and 6). The aluminum-sided dwelling contains an asphalt- shingled, gable roof, two-over-two sash, and cemented stone (granite) and brick foundation; the kitchen addition contains a concrete block foundation. Enclosed double doors with broken transom lights are located along the north facade of the dwelling indicating that it once served as the front of the building.

A close inspection of the dwelling's basement was conducted in order to help interpret the construction sequence of the building. Based on this cursory analysis, it appears that the dwelling may have been constructed in three stages. The identification of hand-hewn sills beneath two rooms, exclusively in association with a brick floor and cemented stone foundation in the dwelling's center, suggests that this is the original structure. This section of the building may conceivably date from as early as the eighteenth century. It is also important to note that the location of a bay window on the northern facade of the structure (Victorian addition) corresponds to a brick foundation and concrete floor identified in the basement. The kitchen addition is the only part of the house that contains a concrete foundation and probably dates to the early twentieth century.

Two stairways are located in the dwelling; one is situated in the center or original part of the structure and another (spiral-like) staircase is situated at the east end of the house, adjacent to the kitchen addition. Although most of the fireplaces are Victorian in character, it is worthwhile to note that a fireplace mantel in the attic exhibits punch-and-gouge work, popular during the mid-nineteenth century.

Photograph 5: North and east facades, farmhouse, facing south. Notice kitchen addition along east facade. Photographed by Benjamin Resnick on September 17, 1992.

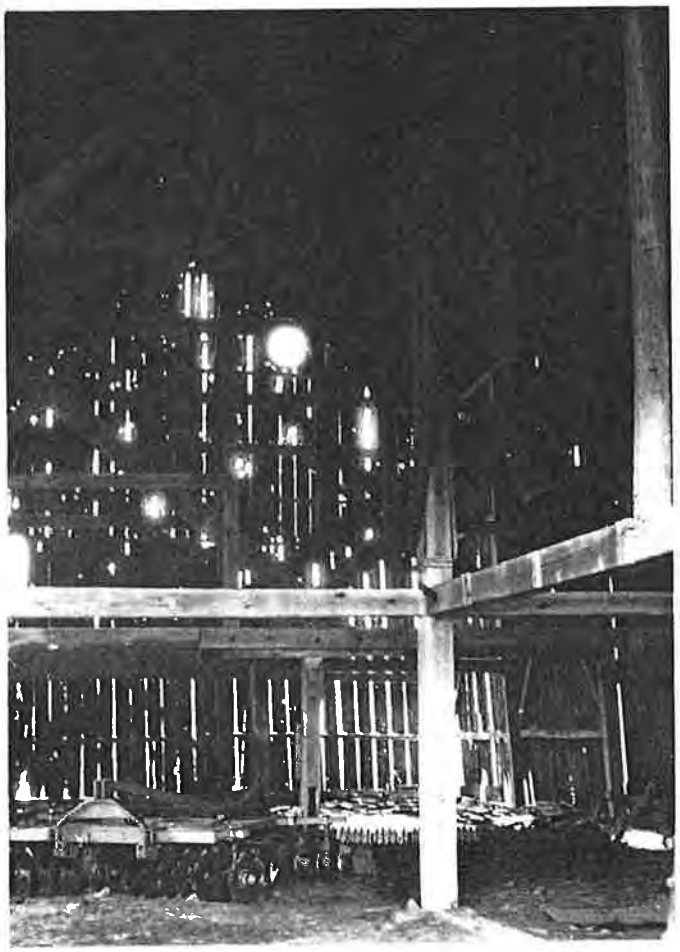
Photograph 6: South facade, farmhouse, facing north. Photographed by Benjamin Resnick on September 17, 1992.

The large frame barn is a transverse, 3x3-bay, vertical plank structure set on a concrete pier foundation with corrugated tin roof; in some places, the barn sills are set directly on the ground surface (Photographs 7 and 8). This structure appears to date to the mid-to-late nineteenth to early twentieth century, and is situated at the end of the dirt road which traverses the project area, a short distance to the south of the farmhouse. It appears that the northern elevation of the structure is original, as it contains sockets for floor joists and center posts set directly in the ground. Moreover, the northwest corner of the structure contains a pegged corner post and downbrace. An apparent addition, located to the south, contains center posts set into concrete piers and a concrete and cinderblock foundation, which also constitute a portion of the siding. Wooden pegs were observed in both the original barn section and its addition. Two large doors are located along the north and east facades of the structure, in addition to an embrasure in the upper gable end to accommodate the loft.

The barn/cottage is a gable-roofed structure that is located directly across from the farmhouse, on the opposite side of the dirt road (Photograph 9). The barn, which comprises the original structure, is situated in the central portion of the building. It is wooden-pegged in several locations and contains clapboard siding, an asphalt-shingled roof, and two large doors positioned along its west elevation. A portion of its interior was modified for use as a cooler for the Hill Brothers' meat business (chickens, hogs, turkey), sometime in the early twentieth century (Butcher 1992: personal communication). An apparent chicken pen is attached to the structure's northern elevation. The cottage is a modern residential, lean-to addition, located along the south facade of the structure; it contains a concrete foundation, aluminum siding, and a corrugated tin roof. This section was constructed to house seasonal employees of the Supawna Meadows National Wildlife Refuge. An earlier and smaller lean-to addition, containing a brick chimney at its northeast corner, is situated along the east facade of the structure.

In addition to the above, a covered well is situated directly behind or south of the farmhouse. Located a bit further to the south is a two-seater, cinderblock privy containing a concrete foundation and a sheet tin over plank roof (Photograph 10). The privy was apparently used well into the twentieth century; i.e., until the early 1950s (Butcher 1992: personal communication). Other structures/features located within the farmstead include a modern aluminum-sided garage, situated between the farmhouse and the large frame barn, and two circular concrete pads that ostensibly served as silo foundations.

Photograph 7: Overview, large frame barn and modern garage, pond in foreground, facing northwest. Photographed by Benjamin Resnick on September 17, 1992.



Photograph 8: Interior, large frame barn, facing southwest. Photographed by Benjamin Resnick on September 17, 1992.

Photograph 9: West elevation, barn/cottage, facing northeast. Cottage addition is to right of photograph. Photographed by Benjamin Resnick on September 17, 1992.

Photograph 10: East and south elevation, cinder-block privy, facing northwest. Photographed by Benjamin Resnick on September 17, 1992.

SUMMARY

GAI's Phase I archaeological survey of the Salem River Navigation Study area consisted of a pedestrian reconnaissance of three upland areas (i.e., fallow fields) and the systematic excavation of 183 shovel test pits. Based on the recovery of low-density plowzone assemblages containing ceramics and lithic debris, three prehistoric sites were identified (Sites 28-Sa-121 through 123), one in each field tested. Despite its small size, Area B (Site 28-Sa-122) contained the largest number of prehistoric artifacts recovered during Phase I fieldwork. This includes 23 pieces of lithic debitage, one fire-cracked rock, and 27 pottery sherds. The recovery of a Levanna point from Area A and cord-marked pottery from Area B both suggest a Late Woodland cultural affiliation for these sites. Except for a concentration of charcoal, burned organic material, and a possible ochre fragment at the plowzone/B horizon interface (STP B14), no potentially significant soil anomalies or cultural features were identified. It should be noted, however, that STPs placed in a wooded area near Area B suggest that an intact portion of the site may be present at this location.

CONCLUSIONS AND RECOMMENDATIONS

This report presents a Phase I cultural resources investigation of the Salem River Navigation Study Area located in the Supawna Meadows National Wildlife Refuge, Salem County, New Jersey. This study was undertaken by GAI Consultants, Inc. of Monroeville, Pennsylvania for the U.S. Army Corps of Engineers, Philadelphia District, in connection with a proposed wetland creation and restoration project. The proposed undertaking calls for the mitigation of shallow and wetland areas lost as a result of improvements to the Salem River channel. The mitigation site, located at the headwaters of an unnamed creek, includes approximately 15 acres, 9 acres of which are in uplands and are to be transformed into estuarine intertidal emergent wetlands. Three fallow fields constitute the uplands and it is these areas that were the subject of the archaeological study. Geomorphological testing of existing project area wetlands (ca. 6 acres) determined that these areas are typical of an Estuarine Type marsh and were formed as a result of recent accumulation of sediments in stream channels and estuarine meanders. Consequently, they do not represent potentially habitable surfaces for historic or prehistoric sites and were not tested. Goals of the Phase I study were to identify all prehistoric, historic, and historic architectural remains within the project area that will be subject to impacts, and to evaluate, if possible, their potential National Register of Historic Places eligibility.

Initially the Phase I study involved documentary research, including a review of cartographic sources, cultural resource survey reports, and site record files, in order to determine the potential of the project area for containing archaeological and historical remains. These background investigations suggested that the project area's proximity to wetlands, and the Delaware River and its tributaries would have provided an array of potentially exploitable resources to prehistoric groups, primarily those dating to the Archaic and Woodland periods. Although cultivation may have altered the integrity of sites, a high potential exists for locating potentially significant prehistoric archaeological resources. Additionally, the documentation of several nineteenth-century farmsteads within the immediate vicinity of the project area suggests the potential for locating historic architectural and/or historic archaeological remains.

The Phase I field testing strategy was implemented following consultations with Michael Swanda of the Philadelphia District, and included the examination of three spatially segregated fallow fields, measuring approximately 9 acres. These areas were investigated via a pedestrian reconnaissance and the excavation of 183 systematic shovel test pits. Additionally, a nineteenth-century farm complex located at the southern end of the project area was documented. This included general background research, photo-documentation, architectural description, completion of an Office of New Jersey Heritage architectural survey form, and a determination of its potential National Register

eligibility. Since this area was not scheduled to be impacted as a result of the proposed wetland project, no subsurface testing was conducted in this location.

Phase I fieldwork resulted in the identification of three prehistoric sites (one in each of the three testing parcels, Areas A, B, and C, Sites 28-Sa-121 through 123). These sites were identified on the basis of low-density plowzone assemblages containing lithic and ceramic debris. Despite its small size, Area B (Site 28-Sa-122) contained the largest number of prehistoric artifacts recovered during fieldwork and included 23 pieces of lithic debitage, one fire-cracked rock, and 27 pottery sherds. Diagnostic artifacts include one jasper Levanna point from Area A (Site 28-Sa-121) and one cord-marked pottery sherd from Area B, tentatively identified as Minguannan; these were recovered from plowzone contexts and suggest a Late Woodland period cultural affiliation. Although additional Phase II archaeological research is necessary to place these sites in their appropriate chronological and functional context, based on the artifacts recovered to date, it appears that they may represent a series of procurement camps dating to the Late Woodland period. It is likely that they were formerly associated with the exploitation of wetland and wetland-related resources such as deer and mast.

In general, few historic/modern artifacts were recovered during the course of fieldwork. These include a diffuse historic/modern assemblage containing small quantities of ceramics (i.e., whiteware, redware), cinder/slag, brick fragments, bottle, window and miscellaneous glass, miscellaneous metal, and coal, which date collectively from the early nineteenth century to the present. No historic period features or potentially significant historic cultural deposits were identified during the Phase I archaeological survey. These items are likely related to the manuring of the fields; as such, they do not represent a historic archaeological site per se. Therefore, no additional work is recommended for the historic/modern component identified within the project areas.

Except for a possible feature identified in STP B14, no potentially significant soil anomalies or cultural features were identified in the three study parcels. The soil anomaly consisted of an otherwise sterile concentration of charcoal, burned organic material, and a possible ochre fragment identified at the plowzone/B Horizon interface. One of two ancillary STPs placed in this area contained prehistoric artifacts from the plowzone, including one quartz flake, one pottery sherd, and two glass fragments. It is worthwhile to mention that STPs placed in a wooded area near Area B (Site 28-Sa-122) suggest that an intact portion of the site may be present at this location.

In addition to the above a nineteenth-century farmstead, known as "Pleasant Hill" was documented during the course of the Phase I survey. It consists of a farmhouse, well, barn/cottage, large frame barn, garage, and privy, and is located at the end of the dirt road, adjacent to and south of the project area. Based on the architectural qualities of the farmhouse (Vernacular, five-bay, I-house) and large frame barn, in conjunction with its

association with Samuel Urion, a prominent local public servant during the mid to late nineteenth century, the farm complex is considered potentially eligible for inclusion in the National Register of Historic Places. If at a later date any of the farm buildings or associated grounds are to be impacted, a Phase I archaeological survey and additional architectural research is highly recommended.

In conclusion, based on the identification of three prehistoric archaeological sites during Phase I fieldwork, GAI recommends that the U.S. Army Corps, Philadelphia District, avoid proposed impacts to these resources. If this is not feasible, Phase II investigations are recommended. Although nearly all artifacts were recovered from the plowzone, this does not rule out the possibility of identifying intact subsurface features at the site. The goals of the Phase II archaeological investigation include: (1) obtaining a larger sample to define the sites' overall size, orientation, and chronology; (2) identifying potential areas containing intact cultural deposits; and (3) if possible, determining the temporal and spatial patterning of activities represented at the sites. These goals will help determine the sites' potential for inclusion in the National Register of Historic Places. GAI recommends the use of several strategies in evaluating these sites involving a combination of surface collection, mechanical stripping of the plowzone, and subsurface testing including the sampling, profiling, and excavation of possible features. Particular attention should be paid to Area B, where a possible feature was identified at the plowzone/B horizon interface.

REFERENCES

Adovasio, J. M., J. Donahue and R. Stuckenrath
1990 The Meadowcroft Rockshelter Radiocarbon Chronology 1975-1990. *American Antiquity* 55(2):348-354.

Barber, R.
1979 Volume II--Archaeology and Paleontology. In *A Summary and Analysis of Cultural Resource Information on the Continental Shelf from the Bay of Fundy to Cape Hatteras,* edited by M. Roberts, prepared for the Bureau of Land Management, Contract No. AA 551-CT8-18.

Blakely, P.W.
1991 The Township of Pennsville. *Salem County Historical Society Newsletter* 36(3): 3-6.

Butcher, R.C.
1992 Personal communication.

Carbone, Victor A.
1976 *Environment and Prehistory in the Shenandoah Valley.* Doctoral Dissertation, Catholic University, University Microfilms.

Cavallo, J.A.
1981 Turkey Swamp: A Late Paleo-Indian Site in New Jersey's Coastal Plain. *Archaeology of Eastern North America* 9:1-18.

Chidley, George A. IV
1977a *National Register of Historic Places Inventory--Nomination Form for Fort Mott and Finn's Point National Cemetery Historic District..*

Ciolkosz, E.G., W.J. Waltman, T.W. Simpson, and R.R. Dobos
1989 Distribution and Genesis of Soils of the Northeastern United States. *Geomorphology* 2:285-302.

Cox, J. Lee, Jr.
1988 *Submerged Cultural Resources Investigations, Delaware River, Main Navigational Channel, Philadelphia, PA. to Artificial Island, New Jersey.* Philadelphia District Corps of Engineers Contract DACW61-87-D-0010 (RMC).

Cross, Dorothy
1941 *Archaeology of New Jersey.* Volume One. Trenton: The Archaeological Society of New Jersey and the New Jersey State Museum.

Cushing, T. and C. E. Sheppard
1883 *History of the Counties of Gloucester, Salem and Cumberland New Jersey.* Everts and Peck, Philadelphia.

Custer, J.F.
1978 Broadspears and Netsinkers: Late Archaic Adaptations Indicated by Depositional Sequences From Four Middle Atlantic Archaeological Sites. Paper presented at the 1978 Middle Atlantic Archaeological Conference, Rehoboth Beach, Delaware.

1979 Settlement-Subsistence Systems in the Blue Ridge and Great Valley Sections of Virginia: A Comparison. Paper presented at the 1979 Middle Atlantic Archaeological Conference, Rehoboth Beach, Delaware.

1980 Settlement-Subsistence Systems in Augusta County, Virginia. *Quarterly Bulletin of the Archaeological Society of Virginia* 35(1):1-27.

1984a An Analysis of Fluted Points and Paleo-Indian Site Locations from the Delmarva Peninsula. *Bulletin of the Archaeological Society of Delaware,* No. 16, NS.

1984b *Delaware Prehistoric Archaeology: An Ecological Approach.* University of Delaware Press, Newark.

1986 *A Management Plan for Delaware's Prehistoric Cultural Resources.* Prepared by the University of Delaware Department of Anthropology/ Center for Archaeological Research, Newark.

1987 Late Woodland Ceramics and Social Boundaries in Southeastern Pennsylvania and the Northern Delmarva Peninsula. *Archaeology of Eastern North America* 15:13-27.

Custer, Jay F. and Kevin W. Cunningham
1986 Prehistoric Archaeological Resources of the Proposed Route 13 Corridor: An Overview. In *Cultural Resources of the Proposed Route 13 Corridor: An Overview Prepared for the Draft Environmental Impact Statement,* edited by Jay Custer and Kevin W. Cunningham. *DELDOT Archaeology Series No. 40,* Dover.

Darmody, R.G., and J.E. Foss
1979. Soil-Landscape Relationships of the Tidal Marshes of Maryland. *Soil Science Society of America Journal* 43: 534-541.

Department of the Interior
1983 *Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines.* Department of the Interior, National Park Service.

Dragoo, D. W.
1976 Some Aspects of Eastern North American Prehistory: A Review 1975. *American Antiquity* 41(1):3-27.

Everts and Stewart
1876 *Combination Atlas Map of Salem and Gloucester Counties, New Jersey.* Everts and Stewart, Philadelphia.

Flint, R.F.
1971 *Glacial and Quaternary Geology.* John Wiley and Sons, Inc., New York.

Foss, J.E., D.S. Fanning, F.P. Miller, and D.P. Wagner
1978 Loess Deposits on the Eastern Shore of Maryland. *Soil Science Society of America Journal* 42:329-333.

Gardner, William M.
1974 The Flint Ridge Paleo-Indian Complex: Pattern and Process During the Paleo-Indian to Early Archaic. In The Flint Run Paleo-Indian Complex: A Preliminary Report, 1971-1973 Seasons.*Occasional Publication of the Catholic University Archaeology Laboratory No. 1*, edited by W. M. Gardner, pp. 5-47. Catholic University, Washington, D.C.

1977 Flint Run Paleo-Indian Complex and Its Implications for Eastern North American Prehistory. *Annals of the New York Academy of Sciences* 288:257-263.

1978 Comparison of Ridge and Valley, Blue Ridge, Piedmont, and Coastal Plain Archaic Period Site Distribution: An Idealized Transect (preliminary model). Paper presented at the 1978 Middle Atlantic Archaeological Conference, Rehoboth Beach, Delaware.

Gardner, William M. and J.F. Custer
1978 *A Preliminary Cultural Resources Reconnaissance of the Proposed Verona Lake Site No. 2*. Department of Anthropology, Catholic University of America. MS on File.

Gimigliano, Michael N., David E. Church and Liana Hoodes
1980 *Cultural Resources Survey Delaware Basin, District I, Camden County, New Jersey, Stage IA Update and Stage IB*. Report prepared by Historic Conservation and Interpretation, Inc., Newton, New Jersey for Camden County Municipal Utilities Authority.

Goddard, Ives
1978 Delaware, In *Handbook of North American Indians, Northeast*, Vol. 15, edited by Bruce Trigger, pp. 213-239. Washington, D.C.: Smithsonian Institution.

Goodyear, A.C.
1979 A Hypothesis for the Use of Cryptocrystalline Raw Materials among Paleo-Indian Groups of North America. *University of South Carolina Institute of Archaeology and Anthropology Research Manuscript Series No. 156.*

Griffith, D.R. and J.F. Custer
1985 Late Woodland Ceramics of Delaware: Implications for the Late Prehistoric Archaeology of Northeastern North America. *Pennsylvania Archaeologist* 55(3):5-20.

Hand, Robert B., Jonathan P. Kerr, Myra A. Hughes, and Charles M. Niquette.
1988 *A Phase One Survey and National Register Evaluation of 46PU4 and 46PU5A, Winfield Locks and Dam Replacement Project, Putnam County, West Virginia*. Prepared by Cultural Resource Analysts, Inc. for the Huntington (W. Va.) District, U.S. Army Corps of Engineers.

Harper, R.W.
1978 *John Fenwick and Salem County in the Province of West Jersey*. Salem County Cultural and Heritage Commission, Salem, New Jersey.

Heite, Edward F. and Louise B. Heite
1986a *Preliminary Cultural Resource Reconnaissance Investigation in connection with Comprehensive navigation Study, Delaware River, Delaware and New Jersey*. Philadelphia District Corps of Engineers Contract DACW61-86-M-0230.

1986b *Cultural Resource Investigation at New Cut, Salem River, in Connection with Proposed Dredging of Salem River, City of Salem, Elsinsboro Township, and Pennsville Township, Salem County, New Jersey*. Philadelphia District Corps of Engineers Contract DACW61 -86-M-0211, Task B.

Irion, Jack B.
1992 *Phase III Underwater Archaeological Testing of Anomaly SR 01, Salem River, Salem County, New Jersey*. Prepared by GAI Consultants, Inc. for U.S. Army Corps of Engineers, Philadelphia District, Philadelphia, Pennsylvania, Contract DACW61-90-D-0019/D.O. 0006.

Jablonski, C. F.
1972 *Soil Survey of Mercer County, New Jersey*. USDA Soil Conservation Service, Government Printing Office, Washington, D.C.

Jennings, J.D.
1978 Origins. In *Ancient Native Americans*, edited by J.D. Jennings, pp. 1-42. San Francisco: W.H. Freeman.

Kier, Charles F. and Fred Calverley
1957 The Raccoon Point Site, an Early Hunting and Fishing Station in the Lower Delaware Valley. *Pennsylvania Archaeologist* 27(2).

Kinsey, W.F.
1974 Early to Middle Woodland Cultures on the Piedmont and Coastal Plain. *Pennsylvania Archaeologist* 44(4):9-19.

Kraft, Herbert C.
1974 Indian Prehistory of New Jersey. In *Delaware Indian Symposium*, edited by Herbert C. Kraft. Anthropological Series No. 4, Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania.

1975 *The Archaeology of the Tochs Island Area*. South Orange, New Jersey: Seton Hall University Press.

1976 The Rosekrans Site, an Adena Related Mortuary Complex in the Upper Delaware Valley, New Jersey. *Archaeology of Eastern North America* 4:9-50.

1977 Paleoindians in New Jersey. In Amerinds and Their Paleoenvironments in Northeastern North America, edited by W. Newman and B. Salwen. *Annals of the New York Academy of Sciences* 288:264-281.

Kraft, Herbert C. and R. Alan Mounier
1982 The Late Woodland Period in New Jersey: ca. A.D. 1000 - 1600. In *New Jersey's Archeological Resources from the Paleo-Indian Period to the Present: A Review of Research Problems and Survey Priorities*, edited by Olga Chesler, pp. 139-184. Trenton, New Jersey Office of New Jersey Heritage.

Lake, D.J. and S.N. Beers
1861 *Map of the Vicinity of Philadelphia and Camden, New Jersey*. D.J. Lake and S.N. Beers, Philadelphia.

MAAR Associates, Inc.
1987 *Gloucester County Cultural Resource Survey*. Prepared by MAAR Associates, Inc., Newark, Delaware, for Robert L. Broughton, Deptford, New Jersey.

Marshall, Sydney
1982 Aboriginal Settlement in New Jersey during the Paleo-Indian Cultural Period: Ca. 10,000 B.C. -6,000 B.C. In *New Jersey's Archaeological Resources From the Paleo-Indian Period to the Present: A Review of Research Problems and Survey Priorities*, edited by Olga Chesler, pp. 10-51. Office of New Jersey Heritage, Trenton.

McCarthy, John
1984 *Guidelines for Archaeological Investigations in Cultural Resources Management* (Provisional Draft), prepared for Office of New Jersey Heritage, Department of Environmental Protection, Trenton, New Jersey.

McNett, Charles W. Jr.
1985 The Shawnee-Minisink Site: An Overview. In *Shawnee Minisink: A Stratified Paleoindian-Archaic Site in the Upper Delaware Valley in Pennsylvania*, edited by Charles W. Mcnett, Jr., pp. 321-325. New York: Academic Press.

Meltzer, David J.
1988 Late Pleistocene Human Adaptations in Eastern North America. *Journal of World Prehistory* 2:1-52.

Mounier, R. Alan
1979 *A Stage I Archaeological Survey of Portions of Northern Burlington County, New Jersey*. Submitted to Northern Burlington County Regional Sewerage Authority, Bordentown, New Jersey.

1982 The Late Woodland Period in Southern New Jersey. In The Late Woodland Period in New Jersey (ca. A.D. 1000-1600), Herbert C. Kraft and R. Alan Mounier. In *New Jersey's Archeological Resources: A Review of Research Problems and Survey Priorities The Paleo-Indian Period to the Present*, edited by Olga Chesler, pp. 158-167. Trenton: Office of New Jersey Heritage.

Office of New Jersey Heritage
1988 *New Jersey and National Registers of Historic Places*. Office of New Jersey Heritage, Division of Parks and Forestry, New Jersey Department of Environmental Protection, Trenton, New Jersey.

Peltier, L.C.
1959 Late Pleistocene Deposits of Bucks County, Pennsylvania. *Pennsylvania Geological Survey*, Series 4, Bull. C9, p.163-184.

Pinelands Commission
1980 *Comprehensive Management Plan of the Pinelands National Reserve and Pinelands Area.* State of New Jersey, Pinelands Commission, New Lisbon, New Jersey.

Powley, V.R.
1969 *Soil Survey of Salem County, New Jersey.* USDA Soil Conservation Service, Government Printing Office, Washington, D.C.

Regensburg, Richard
1971 The Savich Farm Site: A Preliminary Report. *Bulletin of the Massachusetts Archaeological Society* 32: 20-23.

Robichaud, Beryl, and Murray F. Buell
1973 *Vegetation of New Jersey: A Study in Landscape Diversity.* Rutgers University Press, New Brunswick.

Rotsch, Edward S. and Brian H. Morrell
1979 *Stage I Cultural Resource Survey for Proposed Sanitary Facilities in Seven New Jersey State Parks.* Prepared by Historic Conservation and Interpretation, Inc. for the State of New Jersey Department of Environmental Protection.

Salem County Historical Society
1991 Personal communication.

Skinner, Alanson, and Max Schrabisch
1913 Preliminary Report of the Archaeological Survey of the State of New Jersey. *Bulletin of the Geological Survey of New Jersey*, No. 9. Trenton, New Jersey: MacCrellish & Quigley, State Printers.

Spier, L.
1915 Indian Remains Near Plainfield, Union County, and along the Lower Delaware Valley. *Bulletin of the Geological Survey of New Jersey*, No. 13. Union Hill, New Jersey: Dispatch Printing Company.

Stansbie, A.C., J. Keily, and S.M. Rea
1849 *A Map of the Counties of Salem and Gloucester, New Jersey.* Smith and Wistar, Philadelphia.

Stewart, Michael and John Cavallo
1983 Cultural History. In *Abbott Farm National Landmark Phase II Cultural Resource Surveys and Mitigation Plans* (2 volumes). Report prepared by Louis Berger and Associates, Inc., for the New Jersey Department of Transportation and the Federal Highway Administration.

Taylor, Paul E.
1986 The View from Finn's Point. *New Jersey Outdoors*, 17.

Thompson, M. M., and J. M. Dickey
1984 *Salem County Cultural Resource Survey, Phase I.* Salem County Planning Board Office.

Thornbury, W.D.
1965 *Regional Geomorphology of the United States.* John Wiley and Sons, Inc., New York.

United States Geological Survey
1904 *Wilmington Delaware - New Jersey Quadrangle.* United States Geological Survey, Washington, D.C.

1951 *Delaware City, Delaware - New Jersey Quadrangle.* United States Geological Survey, Washington, D.C.

1976 *Delaware City, Delaware - New Jersey Quadrangle.* Edition of 1948, photoinspected 1976. United States Geological Survey, Washington, D.C.

Walker, H.J., and J.M. Coleman
1987 Atlantic and Gulf Coastal Provinces. In W.L. Graf (Ed) *Geomorphic Systems of North America.* Centennial Special Volume, pp 51-110. Geological Society of America, Boulder, CO.

Widmer, K.
1964 *The Geology and Geography of New Jersey.* Van Nostrand, Princeton, New Jersey.

Williams, Lorraine E. and Susan Kardas
1982 Contact Between Europeans and the Delaware Indians of New Jersey. In *New Jersey's Archeological Resources from the Paleo-Indian Period to the Present: A Review of Research Problems and Survey Priorities,* edited by Olga Chesler, pp. 185-198. Trenton, New Jersey: Office of New Jersey Heritage.

Williams, Lorraine E. and Ronald A. Thomas
1982 The Early Woodland Period in New Jersey: ca. 1000 B.C. - A.D. 1000. In *New Jersey's Archeological Resources from the Paleo-Indian Period to the Present: A Review of Research Problems and Survey Priorities*, edited by Olga Chesler, pp. 103-138. Trenton, New Jersey: Office of New Jersey Heritage.

Wolfe, Peter E.
1977 *Geology and Landscapes of New Jersey.* Crane Russak, New York.

APPENDIX A

REPRESENTATIVE SOIL PROFILES, GEOMORPHOLOGICAL TESTING, AREA A

TEST NUMBER Area A 1

Project 90-300-20

SOIL DESCRIPTION BY: D. L. Cremeens

DATE: 9/16/92

LOCATION: Salem Wetlands

HORIZON DEPTH (cm)	SOIL COVER MATRIX	SOIL COVER MOTTLING	TEXTURE	STRUCTURE	CONSISTENCE	BOUNDARY	COMMENTS
Ap 0-25	Brown (10YR 4/3)		Silt loam	Weak, medium granular	Very friable	Abrupt, wavy	
BE 25-40	Yellowish brown (10YR 5/4) and light yellowish brown (10YR 6/4)		Silt loam	Weak, medium platy	Friable	Clear	Very few, very faint brown (10YR 4/3) clay films
Bt1 40-62	Yellowish brown (10YR 5/6)		Silt loam	Moderate, medium subangular block	Friable	Clear	Common, distinct brown (7.5YR 4/4) clay films
Bt2 62-77	Yellowish brown (10YR 5/6) with few prominent grayish brown (2.5Y 5/2) and light brownish gray (2.5Y 6/2 mottles)		Silt loam	Moderate, medium subangular blocky	Friable	Gradual	Common, distinct dark yellowish brown (10YR 4/4) clay films
2BC 77-100	Strong brown (7.5YR 5/6) with few prominent light brownish gray (10YR 6/2) and few faint strong brown (7.5YR 5/8) mottles		Loam	Weak, medium subangular blocky	Very friable		

ADDITIONAL NOTES:

GAI CONSULTANTS, INC.
ENGINEERS, GEOLOGISTS, PLANNERS & ENVIRONMENTAL SPECIALISTS
570 BEATTY ROAD, MONROEVILLE, PA 15146

TEST NUMBER Area A 4 | Project 90-300-20

SOIL DESCRIPTION BY: D. L. Cremeens | DATE: 9/16/92 | LOCATION: Salem Wetlands

HORIZON DEPTH (cm)	SOIL COVER MATRIX	SOIL COVER MOTTLING	TEXTURE	STRUCTURE	CONSISTENCE	BOUNDARY	COMMENTS
Oi 0-10	Black (10YR 2/1)		Fibrous peat			Clear, smooth	
A 10-30	Dark gray (5Y 4/1)		Loam	Weak, fine granular	Friable	Clear, smooth	Many roots
Cg1 30-45	Gray (N6/ and 5Y 6/1)		Sand	Single grain	Non-sticky, non-plastic	Gradual	
Cg2 45-100	Gray (5Y 6/1) with common prominent light olive brown (2.5Y 5/4) mottles		Sand	Single grain	Non-sticky, non-plastic		Water at 75 cm

ADDITIONAL NOTES:

GAI CONSULTANTS, INC.
ENGINEERS, GEOLOGISTS, PLANNERS & ENVIRONMENTAL SPECIALISTS
570 BEATTY ROAD, MONROEVILLE, PA 15146

APPENDIX B

PHASE I ARTIFACT CATALOGUE - SALEM RIVER NAVIGATION STUDY

Appendix B: Phase I Artifact Catalogue-Salem River Navigation Study

FS#	STP	Strat	Lev	Elev (cm)	Artifacts
1	A1	PZ	1	0-14	1 dark chert flake
2	A9	B	3	45-65	1 cinder
3	A11	PZ	1	0-24	1 dark grey chert flake, cortex 1 yellow jasper flake 1 grit-tempered prehistoric ceramic 1 dk brown to black interior lead glazed redware body 1 brick fragment
4	A11, 16 feet north	PZ	1	0-24	1 jasper Levanna point 1 plain whiteware body 1 unglazed redware sherd
5	A11, 16 feet west	PZ	1	0-26	1 dark grey chert flake, cortex 1 jasper flake
6	A12	PZ	1	0-22	1 polychrome whiteware sherd 1 unglazed redware sherd 1 brick fragment 1 slag
7	A13	PZ	1	0-24	1 dark grey chert flake 1 plain whiteware sherd 1 brown to black interior lead glazed redware rim 1 brick fragment 1 cinder
8	A13, 16 feet north	PZ	1	0-21	1 caramel jasper flake 1 shell
9	A13, 16 feet west	PZ	1	0-26	1 reddish brown interior lead glazed redware body
10	A25	PZ	1	0-30	1 overglaze decal whiteware sherd
11	A26	B	2	24-55	1 brick fragment
12	A27	PZ	1	0-26	2 brick fragments 1 concretion
13	A27, 16 feet north	PZ	1	0-22	1 window glass
14	A31	PZ	1	0-35	1 plain whiteware base 1 clear curved miscellaneous glass body

FS#	STP	Strat	Lev	Elev (cm)	Artifacts
15	A34	PZ	1	0-32	1 coal
16	A35	PZ	1	0-34	1 black chalcedony flake
17	A35	PZ	1	0-34	charcoal sample
18	A37	PZ	1	0-38	1 Rockingham-like glazed yellowware sherd
19	A38	PZ	1	0-35	1 plain whiteware base
20	A41	B	2	30-57	1 cinder
21	A46	PZ	1	0-23	charcoal sample
22	A62	PZ	1	0-27	2 brown bottle glass bodies 1 chalk lump
23	A64	PZ	1	0-26	1 plain whiteware body 1 miscellaneous metal
24	A68	PZ	1	0-31	1 plain yellowware base
25	A73	PZ	1	0-31	1 red chert biface, heat treated
26	A88	PZ	1/2	interface at 24cm	1 clear curved miscellaneous glass body
27	B1	PZ	1	0-36	1 grey chalcedony flake, cortex 1 grit-tempered prehistoric ceramic
28	B2	PZ	1	0-26	2 grit-tempered prehistoric ceramics
29	B3	PZ	1	0-20	1 Late Woodland *Minguannan* cord-marked prehistoric ceramic
30	B4	PZ	1	0-23	1 grey chert flake, cortex 1 grainy jasper flake 1 smooth jasper flake 2 grit-tempered prehistoric ceramics
31	B5	PZ	1	0-20	2 caramel jasper flakes
32	B6	PZ	1	0-22	1 jasper flake
33	B7	PZ	1	0-28	1 red jasper flake 1 grit-tempered prehistoric ceramic

Appendix B (continued)

FS#	STP	Strat	Lev	Elev (cm)	Artifacts
34	B8	PZ	1	0-19	1 grit-tempered prehistoric ceramic 1 fire cracked rock
35	B9	PZ	1	0-20	1 black obsidian-like glass "flake"
36	B9	B	2	20-60	1 quartz flake 1 jasper flake, cortex
37	B12	PZ	1	0-25	1 reddish brown lead glazed redware body 1 brown to black lead glazed redware body
38	B12	B	2	25-55	1 bottle glass body
39	B13	PZ	1	0-28	1 grit-tempered prehistoric ceramic
40	B14	PZ/B	1/2	interface at 26cm	charcoal sample
41	B14, 16 feet south	PZ	1	0-27	1 quartz flake 1 grit-tempered prehistoric ceramic 1 window glass 1 miscellaneous melted glass
42	B14, 16 feet west	PZ	1	0-30	1 clear glass rim, threaded finish
43	B15	PZ	1	0-23	1 grit-tempered prehistoric ceramic 1 brick fragment
44	B18	PZ	1	0-20	1 quartzite flake 2 grit-tempered prehistoric ceramics
45	B19	PZ	1	0-23	1 caramel jasper flake 2 prehistoric ceramics
46	B20	PZ	1	0-21	1 silicified sandstone flake
47	B21	PZ	1	0-30	1 silicified sandstone flake 1 light chert flake 1 quartz flake 1 grit-tempered prehistoric ceramic
48	B22	PZ	1	0-27	2 quartz flakes 1 jasper flake, cortex 1 prehistoric ceramic 1 aqua bottle glass body

FS#	STP	Strat	Lev	Elev (cm)	Artifacts
49	B24	PZ	1	0-25	1 blocky chert lithic 8 prehistoric ceramics (incl. 3 grit tempered and 1 grog-tempered)
50	B25	A	2	10-35	1 grey chalcedony flake 2 grit-tempered prehistoric ceramics
51	C1	PZ	1	0-8	1 miscellaneous metal
52	C1	PZ	1	0-26	1 slag
53	C2	PZ	1	0-21	1 aqua bottle glass body
54	C8	PZ	1	0-23	1 clear curved miscellaneous glass body
55	C13	PZ	1	0-27	1 window glass
56	C14	PZ	1	0-23	1 cut nail
57	C19	PZ	1/2	interface at 24cm	2 grit-tempered prehistoric ceramics
58	C21	PZ	1	0-22	1 slag
59	C23	PZ	1	0-14	1 slag
60	C23, south	PZ	1	0-26	1 chert flake, heat treated 1 prehistoric ceramic 1 cinder 1 miscellaneous metal
61	C24	PZ	1	0-20	1 yellow jasper flake, cortex
		PZ	1	20-28	1 prehistoric ceramic
62	C24	B	2	29-43	1 grit-tempered prehistoric ceramic
64	C24, east	PZ	1	0-21	1 orthoquartzite flake 2 grit-tempered prehistoric ceramics 1 cinder 1 miscellaneous metal
65	C25	PZ	1	0-8	1 grit-tempered prehistoric ceramic
76	C25	PZ	1/2	interface at 26cm	1 coal

Appendix B (continued)

FS#	STP	Strat	Lev	Elev (cm)	Artifacts
66	C25, west	PZ	1	0-24	1 silicified sandstone flake 1 prehistoric ceramic 1 slag
67	C26	PZ	1	24-26	1 prehistoric ceramic 1 bone 1 slag
68	C26, west	PZ	1	0-19	1 dark chert flake, cortex 1 prehistoric ceramic 1 brick fragment 1 slag
69	C26, north	PZ	1	0-8	1 cinder
70	C32	PZ	1	0-29	1 silicified sandstone blocky
71	C34	PZ	1	0-26	1 ironstone biface, distal end 2 quartz flakes 1 prehistoric ceramic
72	C34, west	PZ	1	0-25	3 prehistoric ceramics
73	C35	PZ	1/2	interface at 27cm	1 quartz flake
74	C37	PZ	1/2	interface at 18cm	1 cord-marked prehistoric ceramic 1 charcoal
75	C37, east	PZ	1	0-22	3 prehistoric ceramics

APPENDIX C

ARCHAEOLOGICAL SITE FORMS

SITE REGISTRATION PROGRAM
NEW JERSEY STATE MUSEUM
Bureau of Archaeology
'05 West State Street
Trenton, N.J. 08625
(609) 292-8594

SITE NO.: 28- SA-121
Site Name: Salem Wetlands Site #1
Atlas Coordinates:
U.S.G.S. Coordinates: N4384490E454610
National Register Status:
State Register Status:
Date:
File:

County: Salem **Municipality:** Pennsville

Period of Site: Late Woodland

Location (descriptive):
Located in the Supawna Meadows National Wildlife Refuge, approx. 600 feet south of Lighthouse Road.

Type of Site: Lithic scatter of debitage and tools.

Cultural affiliation(s) (if known):

Owner's Name: U.S. Fish and Wildlife Service
Address: Supawna Meadows National Wildlife Refuge, RD3, Box 540, Salem, NJ 08079
Phone: (609) 935-1487
Attitude toward preservation:
Tenant's Name:
Address:
Phone:

Surface Features: None **Prominent Landmarks:** None

Vegetation Cover: Low scrub and brush

Nearest Water Source: wetlands **Distance:** circa 100 feet north and west of site

Soil Type: Mattapex (MqA) **Erosion:** No

Stratified (if known):

THREAT OF DESTRUCTION (if known): Scheduled for wetlands creation by Philadelphia District United States Army Corps of Engineers.

PREVIOUS WORK (list below):

By whom	Date	Collection Stored	Previous Designation
Heite & Heite (Preliminary Cultural Resource Reconnaissance in Conjunction with Comprehensive Navigation Study, Delaware River, Delaware and New Jersey). (Prehistoric & Historic loci identified during Heite & Heite survey in close proximity of 28-SA121 includes 28-SA-65, 28-SA-66, 28-SA-67 & 28-SA-68)	1986		

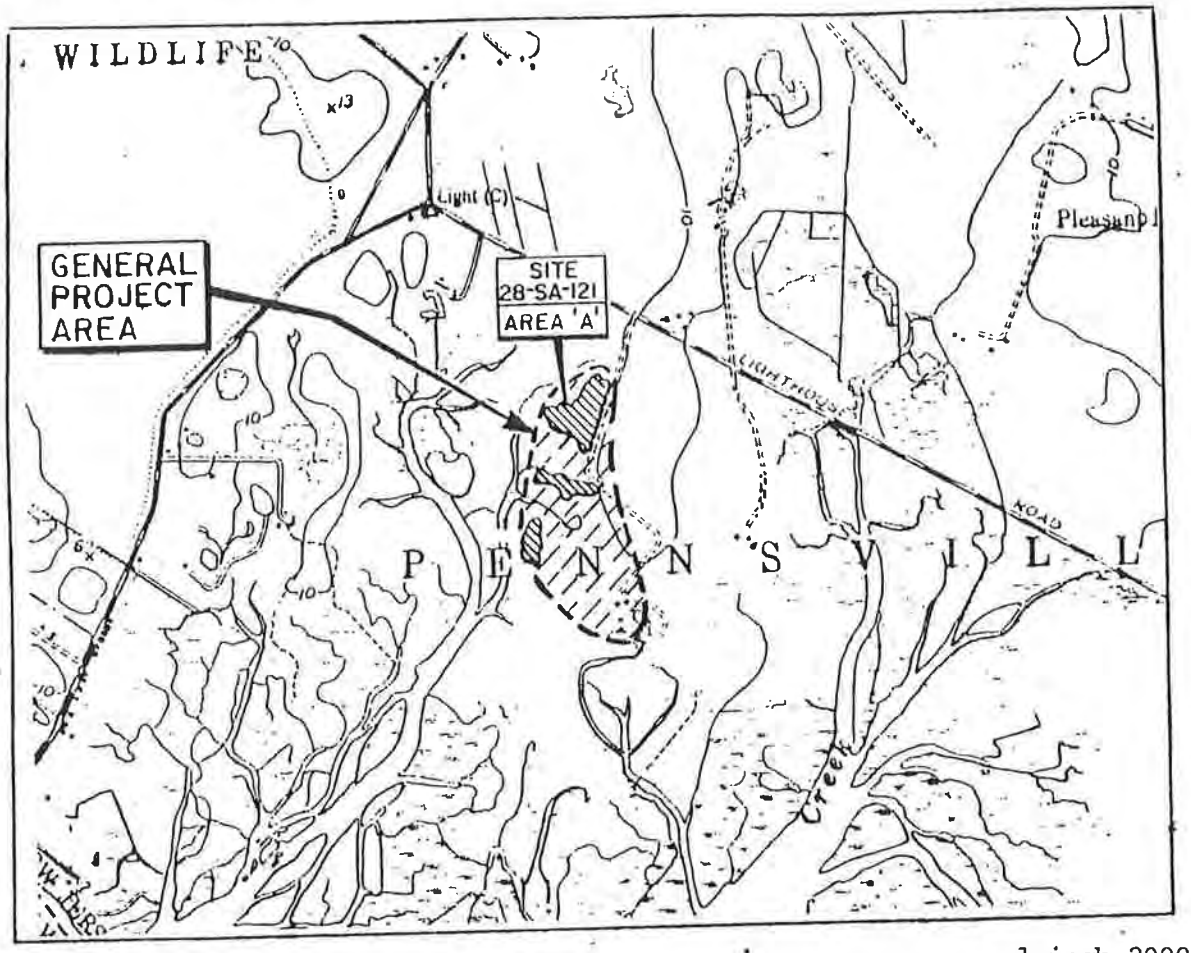
Recorders Name: Joel S. Dzodin / GAI Consultants, Inc.
Address: 570 Beatty Rd., Monroeville, PA 15146
Phone: (412) 856-6400
Collection stored: NJ State Museum, Trenton
Date recorder at site: September 19, 1992

(Please complete reverse side)

Sketch Map of the Site:

Indicate the chief topological features, such as streams, swamps, shorelines, and elevations (approx). Also show buildings and roads. Indicate the site location by enclosing the site area with a dotted line. Use a scale (approx) to indicate distance and dimensions.

North



Scale: 1 inch=2000 feet

Observations, Remarks, or Recommendations:

Diagnostics include one Levanna Point from STP A11, 16 feet north (Plowzone) Other artifacts include one prehistoric ceramic sherd, and several jasper and chert flakes. Artifacts occurred as a low-density scatter.

References: Unpublished Approx Date Published Date

SITE REGISTRATION PROGRAM
NEW JERSEY STATE MUSEUM
Bureau of Archaeology
205 West State Street
Trenton, N.J. 08625
(609) 292-8594

SITE NO.: 28-SA-122
Site Name: Salem Wetlands Site #2
Atlas Coordinates:
U.S.G.S. Coordinates: N4384360E454540
National Register Status:
State Register Status:
Date:
File:

County: Salem **Municipality:** Pennsville

Location (descriptive):
Located in the Supawna Meadows National Wildlife Refuge, approx. 1800 feet south of Lighthouse Road.

Period of Site: Late Woodland

Type of Site:

Cultural affiliation(s) (if known): Minguannan (tentative)

Owner's Name: U.S. Fish and Wildlife Service
Address: Supawna Meadows National Wildlife Refuge, RD3, Box 540, Salem, NJ 08079
Phone: (609) 935-1487
Attitude toward preservation:

Tenant's Name:
Address:
Phone:

Surface Features: None **Prominent Landmarks:** None

Vegetation Cover: Low scrub and brush

Nearest Water Source: Wetlands **Distance:** circa 100 feet

Soil Type: Mattapex (MqA) **Erosion:** No

Stratified (if known):

THREAT OF DESTRUCTION (if known): Scheduled for wetlands creation by Philadelphia District, United States Army Corps of Engineers.

PREVIOUS WORK (list below):

By whom	Date	Collection Stored	Previous Designation
Heite & Heite (Preliminary Cultural Resource Reconnaissance in Conjunction with Comprehensive Navigation Study, Delaware River, Delaware and New Jersey) (Prehistoric & Historic loci identified during Heite & Heite survey in close proximity to 28-SA-122 includes 28-SA-65, 28-SA-66, 28-SA-67 & 28-SA-68)	1986		

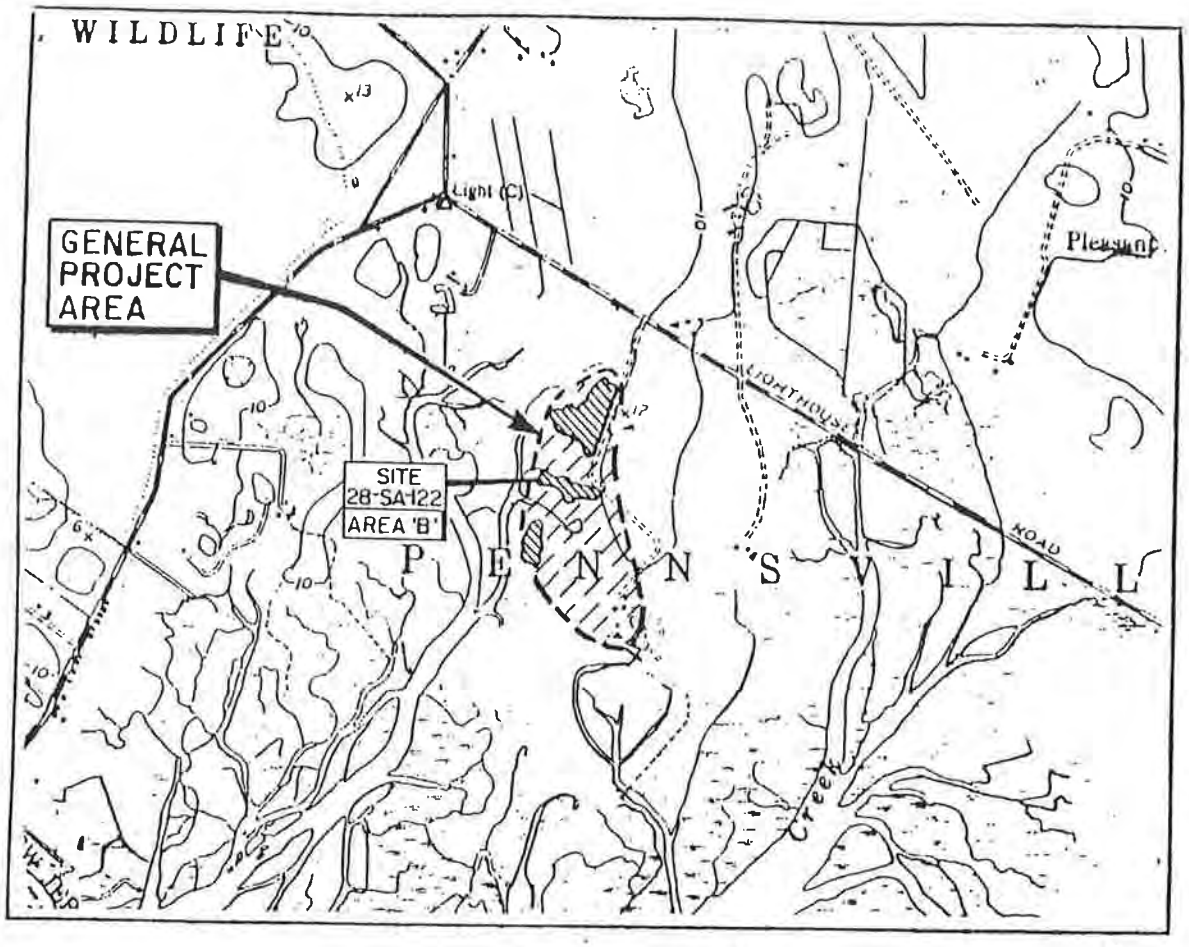
Recorders Name: Joel S. Dzodin
Address: 570 Beatty Rd., Monroeville, PA 15146
Phone: (412) 856-6400
Collection stored: NJ State Museum, Trenton
Date recorder at site: September, 1992

(Please complete reverse side)

Sketch Map of the Site:

Indicate the chief topological features, such as streams, swamps, shorelines, and elevations (approx). Also show buildings and roads. Indicate the site location by enclosing the site area with a dotted line. Use a scale (approx) to indicate distance and dimensions.

North



Observations, Remarks, or Recommendations:

Scale: 1 inch=2000 feet

Diagnostics include one Late Woodland Cord-marked ceramic (tentatively identified as Minguannan). Also recovered were 23 lithic debitage, 26 pottery sherds, and one fire-cracked rock. The Minguannan sherd came from the plowzone of STP B3. Artifact recovery was mainly restricted to the plowzone.

References: Unpublished Approx Date Published Date

TE REGISTRATION PROGRAM
W JERSEY STATE MUSEUM
reau of Archaeology
5 West State Street
enton, N.J. 08625
09) 292-8594

SITE NO.: 28-SA- 123
Site Name: Salem Wetlands Site #3
Atlas Coordinates:
U.S.G.S. Coordinates: N4384140E454460
National Register Status:
State Register Status:
Date:
File:

unty: Salem **Municipality:** Pennsville

cation (descriptive):
cated in the Supawna Meadows National
ldlife Refuge, approx. 2200 feet south
Lighthouse Road.

Period of Site: Late Woodland
(Based on diagnostics
from nearby sites
28-SA-121 & 122)

pe of Site:

ltural affiliation(s) (if known):

ner's Name: U.S. Fish and Wildlife Service
Address: Supawna Meadows National Wildlife Refuge, RD3, Box 540, Salem, NJ 08079
Phone: (609) 935-1487
Attitude toward preservation:
nant's Name:
Address:
Phone:

rface Features: None **Prominent Landmarks:** None

getation Cover: Low scrub and brush

arest Water Source: Wetlands **Distance:** circa 100 feet

il Type: Mattanex (MqA) **Erosion:** No

ratified (if known):

REAT OF DESTRUCTION (if known): Scheduled for wetlands creation by Philadelphia District, United States Army Corps of Engineers.

EVIOUS WORK (list below):

whom	Date	Collection Stored	Previous Designation
ite & Heite	1986		

Preliminary Cultural Resource
connaissance in Conjunction with
mprehensive Navigation Study,
laware River, Delaware and New Jersey)
rehistoric & Historic loci identified during Heite & Heite survey
n close proximity to 28-SA-123 includes 28-SA-65, 28-SA-66, 28-SA-67, & 28-SA-68)

corders Name: Joel S. Dzodin / GAI Consultants, Inc.
570 Beatty Rd., Monroeville, PA 15146
Address:
Phone: (412) 856-6400
Collection stored: NJ State Museum
Date recorder at site: September, 1992

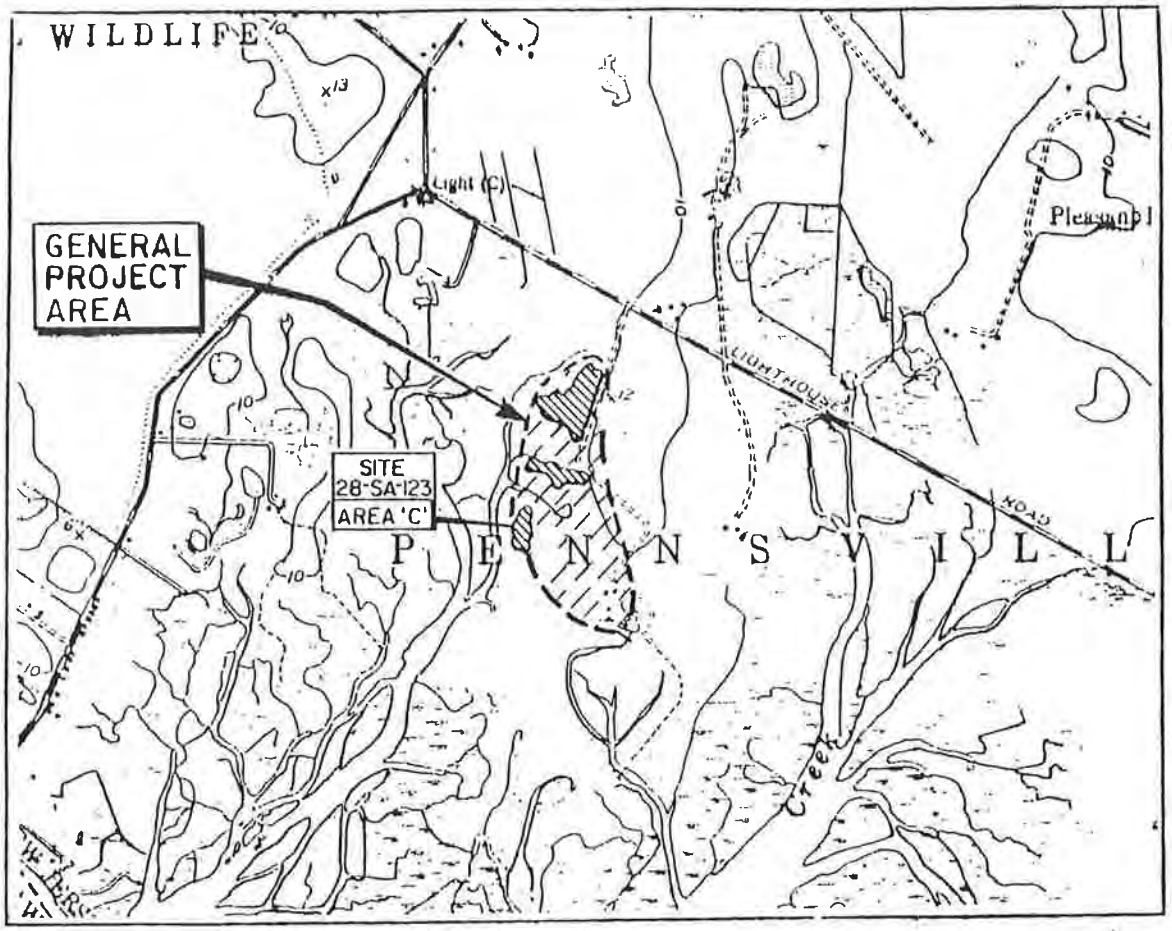
(Please complete reverse side)

APPENDIX D
APPENDIX E
APPENDIX F

Sketch Map of the Site:

Indicate the chief topological features, such as streams, swamps, shorelines, and elevations (approx). Also show buildings and roads. Indicate the site location by enclosing the site area with a dotted line. Use a scale (approx) to indicate distance and dimensions.

North



Observations, Remarks, or Recommendations: Scale:

Artifacts from 28-SA-123 include 20 non-diagnostic prehistoric pottery sherds, an ironstone biface, nine flakes, and one biface. Artifact recovery was almost entirely restricted to the plowzone. Artifacts occurred as a low-density scatter.

References: Unpublished Approx Date Published Date

APPENDIX D

ARCHITECTURAL SURVEY FORM

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF NEW JERSEY HERITAGE
INDIVIDUAL STRUCTURE SURVEY FORM

HISTORIC SITES INVENTORY NO.

HISTORIC NAME: Urion/Hill Farm; "Pleasant Hill"
COMMON NAME: Yerkes Farm
LOCATION: Along dirt road, ca.3200 ft. S. of Lighthouse Rd., ca.5300 ft. E. of Fort Mott Rd.
BLOCK/LOT
MUNICIPALITY: Pennsville Township
COUNTY: Salem
USGS QUAD: Delaware City, Del.-N.J.
UTM REFERENCES: Zone/Easting/Northing
OWNER/ADDRESS: U.S. Fish and Wildlife Supawna Meadows National Wildlife Refuge, RD 3 Box 540, Salem, N.J.

DESCRIPTION

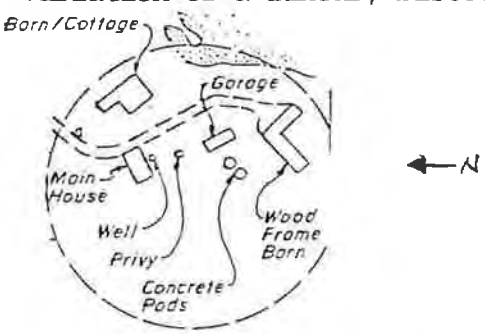
Construction Date: Pre-1849
Source of Date: 1849, 1861, 1876 maps

Architect: Unknown
Builder: Unknown

Style: Vernacular

Number of Stories: 2½

Form/Plan Type:
House: Central hall, I-house with kitchen lean-to addition along east elevation.
Farmstead: Variation of a linear, bisected plan.



Foundation: Cemented stone-original; brick. Kitchen addition: concrete block.

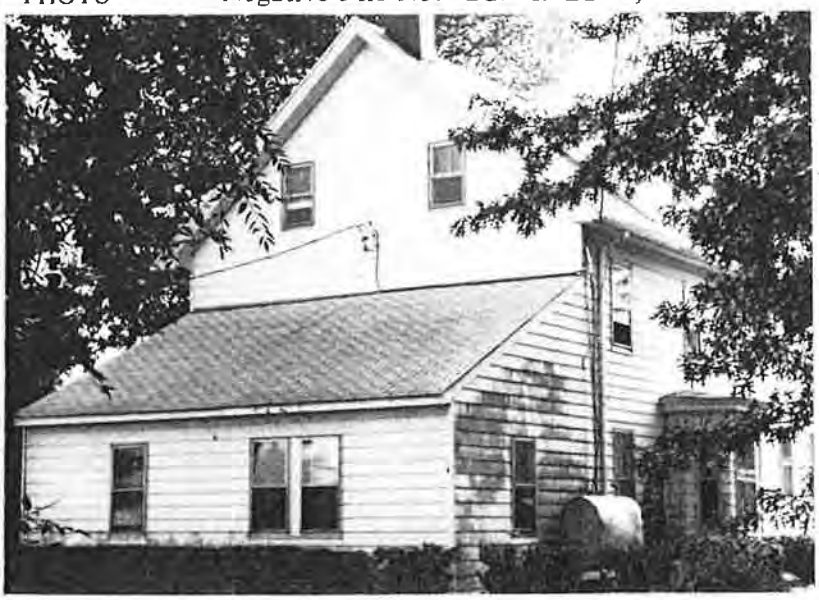
Exterior Wall Fabric: Aluminum-siding.

Fenestration: 5 x 2 bays; 2/2 sash.

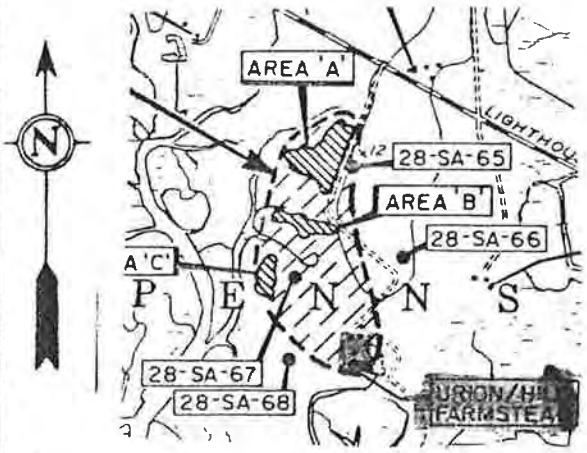
Roof/Chimneys: Asphalt-shingled, gable roof/ two internal end brick chimneys. Dormers.

Additional Architectural Description:
Three building phases:
Hand-hewn sills beneath two rooms associated with brick basement floor and cemented granite foundation, apparently original, may date as early as eighteenth century
Bay window on northern facade associated with concrete basement floor and brick foundation, Victorian date
Kitchen addition with concrete block foundation, early twentieth century
One staircase located in original central part of structure; another, spiral, located adjacent to kitchen addition
Fireplaces mostly Victorian; one fireplace mantel in attic exhibits punch-and-gouge technique popular in mid-nineteenth century

PHOTO Negative File No. B&W Roll 1, Frame



Map (Indicate North)
U.S.G.S. Delaware City, Del.-N.J. Quad



CN 404, TRENTON, NEW JERSEY 08625 (609) 292-2023

SITING, BOUNDARY DESCRIPTION, AND RELATED STRUCTURES:

In addition to farmhouse, there is a well and several outbuildings, including a barn/cottage, large frame barn, garage, and privy (see attached sheets for further description).

SURROUNDING ENVIRONMENT: Urban ☐ Suburban ☐ Scattered Buildings ☐
Open Space ☐ Woodland ☐ Residential ☐ Agricultural ☒ Village ☐
Industrial ☐ Downtown Commerical ☐ Highway Commercial ☐ Other ☐

SIGNIFICANCE:

The farmstead was associated with a prominent local public servant, Samuel Urion, during the mid to late nineteenth century. Structure's location is depicted on the 1849 map, and is identified on the 1861 map as "S. Urion" and "Pleasant Hill". Architectural details (e.g., hand-hewn sills) suggest that the farmhouse may date as early as the eighteenth century.

ORIGINAL USE: Residential/Agricultural PRESENT USE: House abandoned/Sunawna Mead NWR
PHYSICAL CONDITION: Excellent ☐ Good ☒ Fair ☐ Poor ☐
REGISTER ELIGIBILITY: Yes ☐ Possible ☒ No ☐ Part of District ☐
THREATS TO SITE: Roads ☐ Development ☐ Zoning ☐ Deterioration ☐
No Threat ☒ Other ☐

COMMENTS:

Area to north is proposed for wetland creation and restoration by the Philadelphia District Army Corps of Engineers.

REFERENCES:

Butcher, Robert, Salem County Historian, 1992 Personal Communication.
Everts & Stewart, 1876, Combination Atlas of Salem and Gloucester Counties, New Jersey.
Lake & Beers, 1861, Map of the Vicinity of Philadelphia and Camden.
Stansbie & Keiley, 1849, Map of Salem and Gloucester Counties, New Jersey.

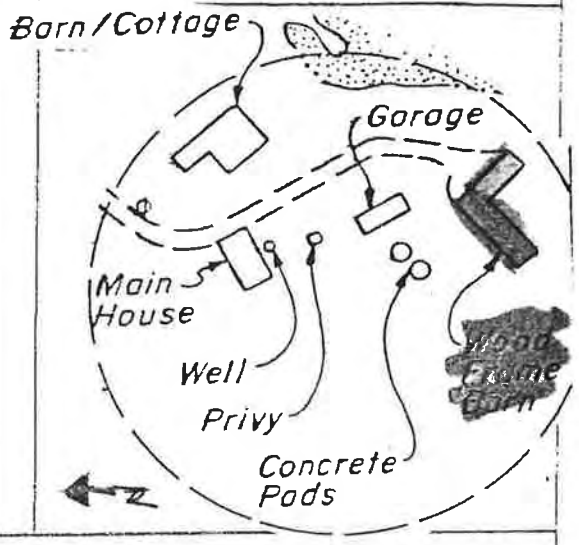
RECORDED BY: Ben Resnick DATE: 11/92
ORGANIZATION: GAI Consultants, Inc.
Monroeville, PA

PHOTO B&W Roll 2, Frame 5

INVENTORY #

NEG. FILE #

DPF 5/84



DESCRIPTION:

ENVIRONMENTAL

Residential/Agricultural

BUILDINGS

Large frame barn:
Transverse, 3 x 3 bay, verical plank, on concrete pier foundation, with corrugated tin roof
Some barn sills set directly on the ground surface
Northern elevation appears original; contains sockets for floor joists and center posts set directly in ground. Northwest coner contains pegged corner post and downbrace.
Apparent addition, located to the south, contains center posts set into concrete piers and a concrete and cinderblock foundation
Wooden pegs observed in both original and addition sections
Two large doors are located along north and esat facades
Embrasure in the upper gable end to accomodate the loft
Appears to date from mid-to-late nineteenth to early twentieth century

SECONDARY BUILDINGS SURVEY FORM

SURVEY: GAI Consultants, Inc.

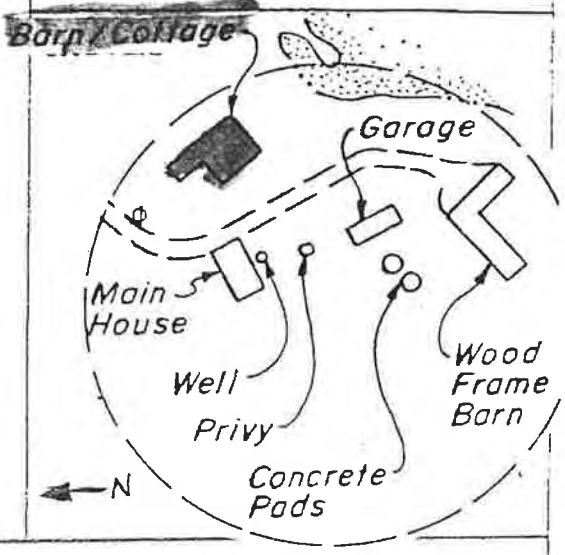
DATE: 11/92

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION - OFFICE OF NEW JERSEY HERITAGE
CN 404, TRENTON, NEW JERSEY - (609) 292 2028

PHOTO B&W Roll 2, Frame 9

INVENTORY #

NEG. FILE #



DESCRIPTION:

ENVIRONMENTAL

Residential/Agricultural

BUILDINGS

Barn/Cottage:
Barn is original structure, situated in central portion of building
Barn is wooden-pegged in several locations, contains clapboard siding, an asphalt shingled gable roof, and two large doors along its west elevation
Barn was modified in the interior to serve as a cooler for Hill Brothers' meat business in early twentieth century
Apparent chicken pen attached to northern elevation
Cottage is a modern residential, lean-to addition, located along the south facade
Cottage contains a concrete foundation, aluminum siding, and a corrugated tin roof
An earlier lean-to addition, containing a brick chimney at its northeast corner, is situated along the east facade

SECONDARY BUILDINGS SURVEY FORM

SURVEY: GAI Consultants, Inc.

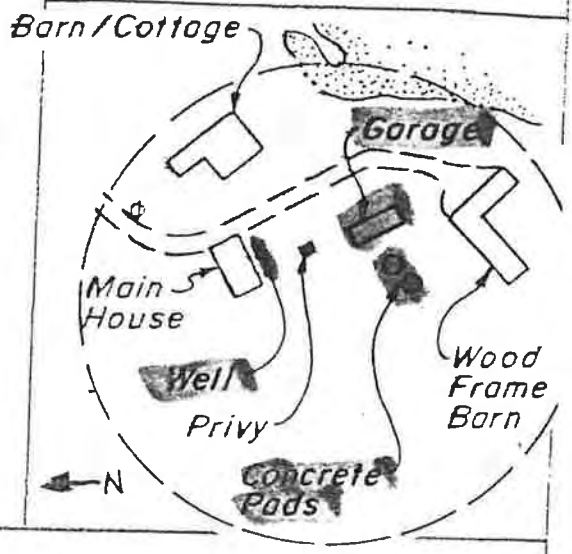
DATE: 11/92

CN 404, TRENTON, NEW JERSEY - (609) 292-2028

PHOTO B&W Roll 1, Frame 9

INVENTORY #

NEG. FILE #



DESCRIPTION:

ENVIRONMENTAL

Residential/Agricultural

BUILDINGS

Other structures include a well, modern aluminum garage, two circular concrete pads that ostensibly served as silo foundations.

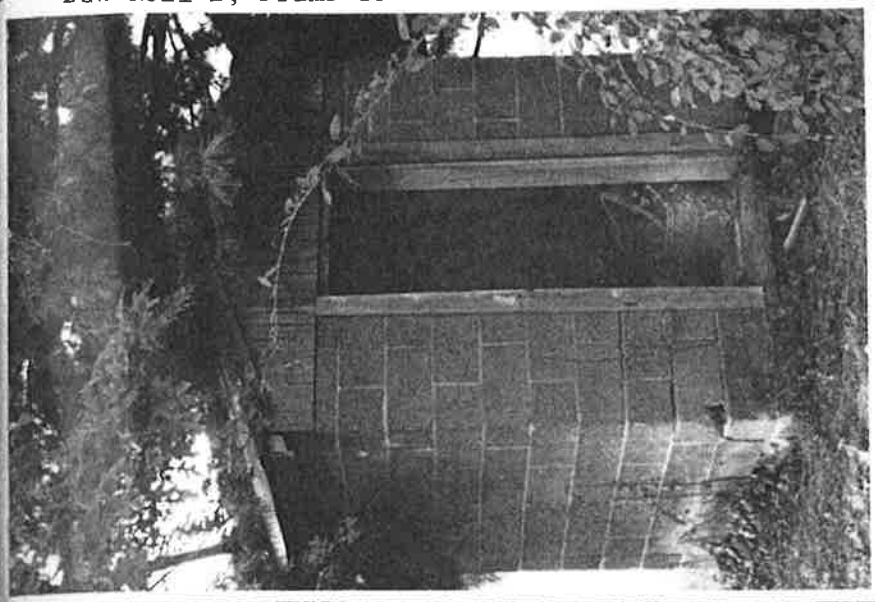
SECONDARY BUILDINGS SURVEY FORM

SURVEY: GAI Consultants, Inc.

DATE: 11/92

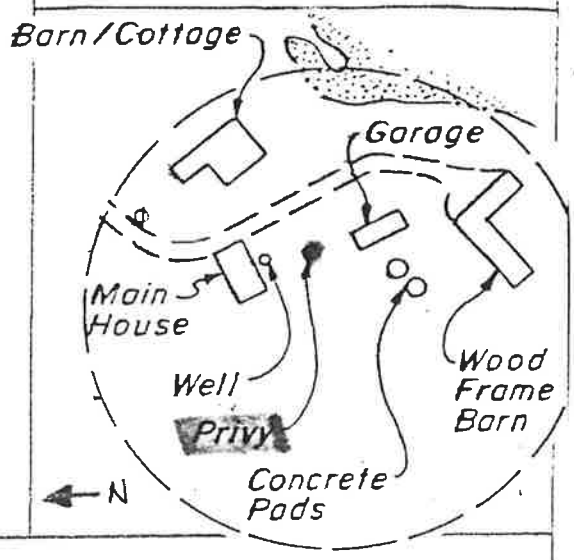
CN 404, TRENTON, NEW JERSEY - (609) 292-2028 - OFFICE OF NEW JERSEY HERITAGE

OTO B&W Roll 2, Frame 10



INVENTORY #

NEG. FILE #



SCRIPTION:

ENVIRONMENTAL

Residential/Agricultural

BUILDINGS

Privy:
Cinderblock, concrete foundation, sheet tin over plank roof
Apparently used until early 1950s

SECONDARY BUILDINGS SURVEY FORM

SURVEY: GAI Consultants, Inc.

DATE: 11/92

CN 404, TRENTON, NEW JERSEY -- (609) 292-2028

State of New Jersey
Department of Environmental Protection and Energy
Division of Parks and Forestry
Historic Preservation Office
CN 404
Trenton, NJ 08625-0404
Tel. # 609-292-2023
Fax. # 609-292-8115

Robert C. Shinn, Jr.
Commissioner

Nancy Zerbe
Administrator

February 9, 1994
HPO-B94-57

Mr. Lee A. Wright
Acting Assistant Regional Director
Refuges and Wildlife
United States Department of the Interior
Fish and Wildlife Service
300 Westgate Center Drive
Hadley, MA 01035-9589

Dear Mr. Wright:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register 2 September 1986 (51, 169, 31115-31125), I am providing **Consultation Comments** for the following project:

Salem County, New Jersey
Pennsville Township
Supawna National Wildlife Refuge
Samuel Urion/Yerkes Farmstead
United States Department of the Interior

800.4 Identifying Historic Properties

It is my opinion, as Deputy State Historic Preservation Officer, that the Samuel Urion/Yerkes Farmstead located off Lighthouse Road is eligible for listing on the National Register of Historic Places. The Samuel Urion/Yerkes Farmstead is eligible under Criteria B for its association with Samuel Urion and Criterion C as an example of architecture in Salem County during the latter half of the nineteenth century, particularly as a rural expression of the Italianate style. Its integrity from that period is high, and its owner/occupant during that period, Samuel Urion, was a significant local figure. Samuel Urion served at different times as county freeholder, justice of the peace, and township commissioner of appeals.

Additional Comments

Based on the site visit Robert Craig of my staff made to the "acquisition area" of the Supawna National Wildlife Refuge in

1991, it is clear that the Yerkes house is by no means the only, or the most important, historic structure in the refuge. At least two important examples of patterned-brick architecture are present there, the Mecum house (1735) and the Copner house (c.1740). In addition, there is a brick house known as the James Johnson house (c.1815), another brick house that includes both patterned-brick components and a Federal-style main block of considerable distinction, a frame house known as the John Johnson house (c.1800), and a large frame house along the Salem River which is currently occupied by a barge company. All of these buildings are clearly eligible, but they are not currently listed on either the New Jersey or National Registers, nor are there any DOEs or SHPO opinions on record for them.

Should you have any questions, please contact Dan Saunders of my staff at (609) 984-0140.

Sincerely,

Nancy L. Zerbe
Deputy State Historic
Preservation Officer

NLZ/ds93yerkes

c: Richard S. Kanaski
Martha Rogers
Phillip Correll

A:\checklist
01/98

✓ Mapped on main USGS DELAWARE CITY #5

SHPO Opinion Checklist

Property Name: SAMUEL URION / YERKES FARMSTEAD

Location/Address: SUPAWNA NATIONAL WILDLIFE REFUGE

County/Municipality: SALEM, PENNSVILLE TOWNSHIP

SHPO Opinion date: 02/09/94 Chrono # B94-57 Log File # DS93 YERKES

Information in this file includes:
(checkmark or fill in data where applicable)

✓ SHPO Opinion letter

NA Accessioned report title page and report #

NA Property information from accessioned report or historic sites inventory (indicate HSI#)

✓ Photograph(s)

✓ Map(s) (USGS map with property located, labelled & showing quad name; tax map; site plan)

Additional information available in report or HSI: ✓ yes ___ no

Other Materials (check if applicable):

___ HABS/HAER documentation

___ Preservation Plan

___ Conditions Assesment

___ Historic Structure Report

___ Alternative Analysis Report

✓ Project file ProjectName: SUPAWNA NATIONAL WILDLIFE REFUGE SAMUEL URION / YERKS

___ Other

Prepared by: S.E. HARDEGEN Date: 03/08/00

PENNSVILLE TOWNSHIP HISTORICAL SOCIETY
86 Church Landing Road
Pennsville, NJ 08070

RECEIVED
JAN 21 1994
HISTORIC PRESERVATION OFFICE

January 17, 1994

(91-447)

The Honorable William J. Hughes
Congressman, Second District
P. O. Box 248
Pennsville, NJ 08070

Dear Mr. Hughes:

The Fish and Wildlife Division, U. S. Department of Interior, recently purchased land from Mrs. Elizabeth Yerkes located on Lighthouse Road in the Township of Pennsville. On this land is one of our early farmhouses, circa 1820, built by the Urion family.

The Pennsville Township Historical Society is interested in the future of this farmhouse. It appears on maps of our township as early as 1865. It had been a productive farm until the early fifties, not only raising vegetables but housing a fair size herd of cows.

A short time after the purchase of this land, I believe it was in the fall of 1991, I was privileged to attend a gathering of local historians, a representative from the State of New Jersey, Bob Craig, a representative from the Federal Government and the caretaker of the Supawna Fish and Wildlife Refuge when it was determined by Mr. Craig that the farmhouse was of significant value to the history of the Township of Pennsville and should be restored. The farmhouse since that time has not had any attention and we are fearful of its future.

The former owner, Mrs. Elizabeth Yerkes, has given to our Society a copy of an archaeological study done on this property in 1986 by Edward F. and Louise B. Heite. Not only did Mrs. Yerkes give the Society the report but also all the artifacts found on the property. A copy of the study is enclosed herewith for your review. You will note that it is designated as a site of historical interest because it is in or near the Finn Town Community. This area is called Finn's Point because it is the area settled in 1643 by the Finns who had migrated across the Delaware River from their original settlement at Cranhook (Wilmington) Delaware. The Swedes settled in the Churchtown area and the Finns at Finn's Point.

Our letter to you is with the hope that you, or someone on your staff, would be in a position to evaluate this farmhouse before any final decisions are made. It would be a loss to the history of our township should the decision of demolition be made.

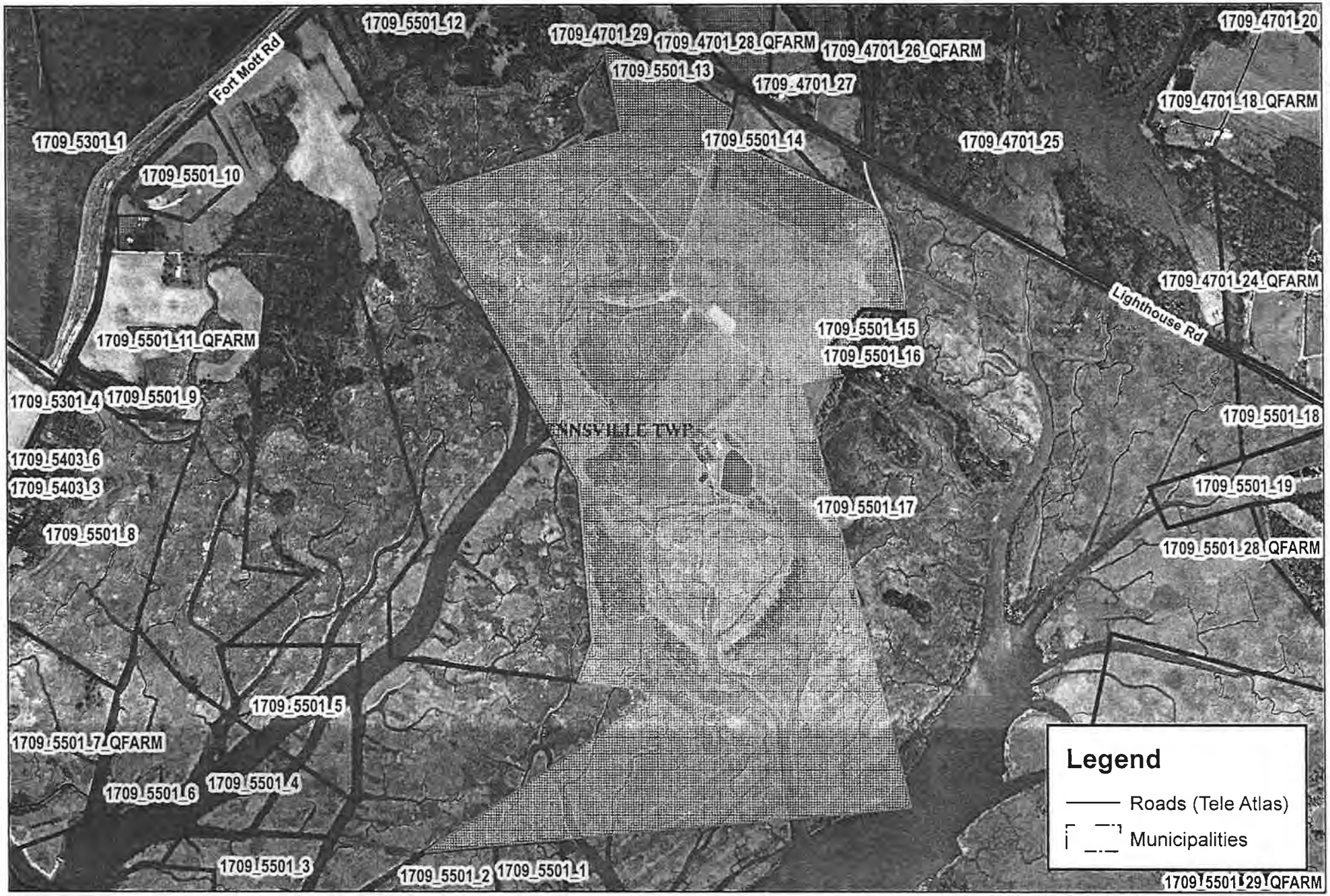
Sincerely,

Mrs. Martha B. Rogers
Trustee, Pennsville Township Historical Society
Curator, Church Landing Farm Museum

/r

cc: Bob Craig
Dan Saunders

Samuel Urion / Yerkes Farmstead



Boundaries approximate based on blue-line map of tracts acquired c1991 for the Suppawanna National Wildlife Refuge.

MEMORANDUM

To: TK, R/C Section, File

From: BC

Date: April 11, 1991

Subject: Field trip on April 10, 1991 to Supawna National Wildlife Refuge, Pennsville Township, Salem County

Yesterday I met with officials of the National Fish & Wildlife Service and local historical society people to view the "Yerkes" house and other properties within the "acquisition area" of the Supawna National Wildlife Refuge, for the purpose of gaining insight relative to their Register eligibility.

Attending: Rich Guadagno (Supawna NWS superintendent), John Wilson, Rich Kanaski, NFWS (Region)
Robert Butcher, Salem County Historian
Ed and Martha Rogers, Pennsville Township Historical Society

Yerkes House and outbuildings

The primary object of my visit was to view and photograph this house and its associated outbuildings. Of the three outbuildings (two barns and a shed), none possess the required level of physical integrity or architectural significance to be eligible for registration. The largest of the barns (an "English" barn probably contemporary with the 19th-C. modifications to the house) has had portions of its internal structure and nearly all of its flooring removed by a previous owner.

The house itself is a large Italianate house of the third-quarter of the 19th-C., and it possesses a high degree of integrity from that period. It was remodeled from an eighteenth-century block & wing house, probably within ten years of either side of the Civil War. The house was further extended with a leanto on the east end during the early twentieth century. Aluminum siding and storm doors added in the 1960s have given the house a superficial boxy appearance which does not really characterize its construction.

The evolution of this house is evident in several respects. Its overall form, including its steep roofline, are the product of its 18thC beginnings, and can be seen on the exterior in the west end elevation and in the masonry of the foundation. The block was a three-bay side-hall house probably of the third quarter 18thC. Fireplace arches in the

basement reveal that it was built with a single chimney stack along the west end wall, and that the interior of the first floor was divided into front and rear parlors with a corner fireplace in each, back-to-back. At least one original first-floor joist remains in the basement with beaded edge, which together with the brick floor indicate that the cellar space was semi-finished. A bulkhead (apparently original) in the southeast corner of this section provided access. An original transverse partition wall in the basement also remains. The attic includes a Federal style punch-and-gouge carved mantel; the chimney cap above the roof appears to be original.

On the first and second floors, however, the house was thoroughly modified during the third quarter of the ninetenth century, and the new material installed was of high quality and consistent in style. Its orientation was changed from south to north, and a new staircase was installed. New Italianate entrances on north and south were installed, with handsome doors, sidelights and transoms. New doors, door frames, and other Italianate interior trim were installed throughout, the two parlors of the old house were combined into a single double parlor by the removal of the transverse partition wall, and an Italianate mantel was installed to replace the corner fireplaces. These features all remain in the house. Remnants of early linoleum (now crumbling) in a checkerboard pattern also remain on the stairhall floor. The stairhall and parlor downstairs, the bedrooms upstairs, and the finishes in the attic are all of consistent trim and the 2/2 windows throughout the house continue the consistently Italianate effect. In the east end of the house, the original wing, which may have been a kitchen, apparently was of only a single story with a loft above. It is possible that this section was completely razed and rebuilt when the main block was remodeled, but if so, the original, low floor level relative to the main block was kept, with the result that a large room was created with a ten-foot ceiling. Two dormers in the north and two in the south slope of the roof are centered well between the chimneys at either end. These probably date from the Federal era, but they, too, were subjected to the Italianizing hand.

The leanto added to the east end is an unimportant accretion (but see below).

Some material concerning the history of this property was submitted, either by NFWS or by locals. Since the house possesses integrity from the third quarter of the nineteenth century, information about the historic associations of the property from that date should be considered. According to records interpreted to me by Robert Butcher, Salem County historian, and furnished by John Wilson, NFWS, the house was the residence from 1850 forward of Samuel Urion, a man who was evidently a significant local figure in Pennsville

Township during the second half of the 19th century. He evidently had a lengthy career of public service to Salem County, serving at different times as county freeholder, justice of the peace, and township commissioner of appeals. The architectural character of the house is further testament to Urion's prominence.

Recommendations

The Yerkes house, in my opinion, is eligible under Criterion B for its association with Urion, and under Criterion C as an example of architecture in Salem County during the latter half of the nineteenth century, particularly as a rural expression of the Italianate style. Its integrity from that period is high, and its owner/occupant during that period was a significant local figure.

However, it was clear from my visits to other houses in the acquisition area, properties which have the status of "inholdings," that the Yerkes house is by no means the most important historic structure in the refuge. At least two important examples of patterned-brick architecture are present there (the Mecum house [1735] and the Copner house [c.1740]), plus a brick house known as the James Johnson house [ca.1815], another brick house that includes both patterned-brick components and a Federal-style main block of considerable distinction, a frame house known as the John Johnson house [ca.1800], and a large frame house along the Salem River currently occupied by a barge company. All of these buildings are clearly eligible, but none are currently listed on either the New Jersey or National Registers, nor are there DOEs or SHPO opinions on record for them.

(Another eighteenth-century house within the acquisition area is of questionable eligibility, and several other nineteenth-century houses are not eligible.)

Other Considerations

Of the eligible properties that lie within the wildlife refuge's acquisition area (see map) only the Yerkes house and the lighthouse are currently owned by FWS. The other properties are inholders, typically on small lots surrounded by FWS-owned land. These remaining parcels, therefore, represent high-cost property to the FWS realty people, who are accordingly disinclined to recommend purchase (so I am told).

In informal discussions with Wilson and Guadagno, I was apprised of several policy attitudes that might adversely affect the reaching of a solution congenial to ONJH.

1. Great difficulty of selling a historic house once acquired. Was told FWS needs Congressional approval to

dispose of land acquired for refuges.
2. Policy discouraging (in most cases) FWS personnel from living within the refuge. Personnel are usually asked to find housing offsite.
3. Lack of an active leasing program such as that in some NPS units

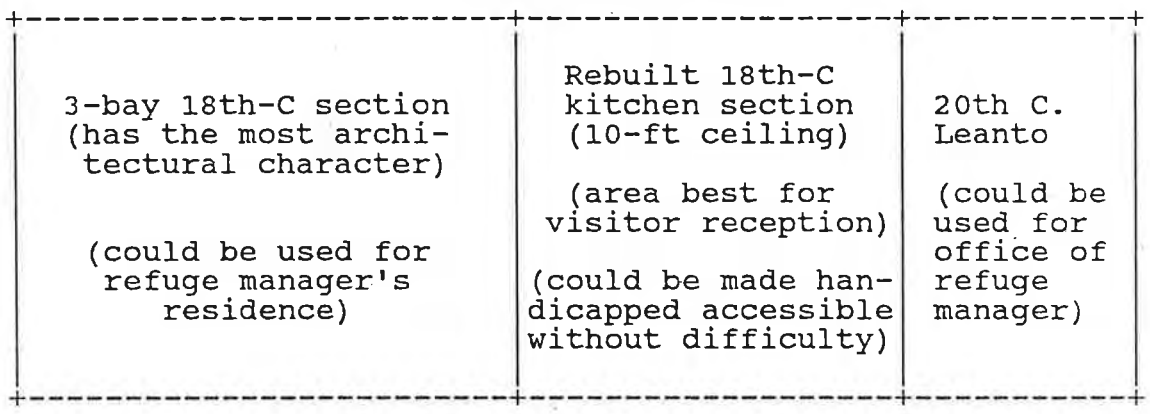
Other policy attitudes that might affect negotiations with FWS (either in the present instance or in the future):

1. above-cited reluctance of FWS to buy high-cost (per acre) parcels of land
2. apparent policy of excluding parcels with houses located along public roads
3. FWS willingness (sometimes) to use existing buildings in refuges for
   a: personnel residence
   b: refuge administration office
   c: visitor reception

Possible Preservation Outcome for the Yerkes House

Although it was clear to me that the FWS personnel I spoke to yesterday would prefer an outcome in which we find that the house is not eligible, clearing the way for them to dispose of it, it is not difficult to imagine how FWS could, if pressed to do so, make good use of the house as it exists, to satisfy all three purposes under item #3 above.

SCHEMATIC PLAN



At the beginning of my visit, we gathered at the present residence/office of the refuge manager. It is nothing more than a shabby little bungalow in a poor setting in a corner of the refuge, a tawdry dwelling that no superintendent of any stature would be satisfied in inhabiting. In short, it is not suitable for the future needs of the refuge, should it grow in the typical fashion of refuges of this sort.

The Yerkes house is centrally located within the refuge, commands a view of hundreds of acres of the refuge's land, and is set among buildings that the refuge apparently intends to use for storage purposes. For purposes of security alone, it would seem to make more sense to place the residence/office there.

HEITE CONSULTING
EDWARD F. HEITE
LOUISE B. HEITE
ARCHÆOLOGISTS AND HISTORIANS
P. O. BOX 53, CAMDEN, DELAWARE 19934-0053
302-697-1789

June 16, 1986

Mrs. Elizabeth H. Yerkes
P. O. Box 49
Salem, New Jersey 08079

Dear Mrs. Yerkes:

Enclosed herewith are the artifacts that we collected from your property on Lighthouse Road, together with the appropriate pages from our report, the artifact inventory, and the State Museum inventory form. Each bag is identified with a locus letter, which is reflected in the inventory.

Thank you very much for permitting us to conduct this survey on your property. If you have any questions, please give me a call.

Sincrely,

Edward F. Heite

SITE REGISTRATION PROGRAM
NEW JERSEY STATE MUSEUM
Bureau of Archæology
205 West State Street
Trenton, N.J. 08625
(609) 292-8594

SITE NO: 28-
Site Name:
Atlas Coordinates:
U.S.G.S. Coordinates:
State Register Status:
Date:
File:

County: Salem Municipality: Pennsville

Location (descriptive): Period of Site: Woodland
This is a series of small loci on the farm of Mrs. Elizabeth Yerkes, off Lighthouse Road in Pennsville. The site is of historical interest because it is in or near the Finn Town community.

Type of Site: Shallow surface site, no known stratification

Cultural affiliation(s) (if known): Pottery and a triangular point indicate that Woodland affiliation.
A house site, known to have been demolished in mid - nineteenth century, was identified.
A trash deposit containing eighteenth-century materials was identified.
Owner's Name: Mrs. Elizabeth S. Yerkes
Address: P. O. Box 49, Salem, New Jersey 08079
Phone:
Attitude toward preservation: She is amenable to preservation.

Tenant's Name:
Address:
Phone:

Surface Features: 19th century farmstead Prominent Landmarks: drowned meadows

Vegetation Cover: cropland

Nearest Water Source: adjacent springs Distance:

Soil Type:
Mattapex Silt Loam
Erosion: minor

Stratified (if known): unlikely

THREAT OF DESTRUCTION (if known):

PREVIOUS WORK (list below):

By whom	Date	Collection Stored	Previous Designation

none reported

Recorder's Name: Edward F. Heite
Address: P. O. Box 53, Camden, Delaware 19934
Phone: 302-697-1789
Collection stored: returned to owner (inventory attached)
Date recorder at site: Spring 1986

Site report:

Heite, Edward F. and Louise B. Heite

Preliminary Cultural Resource Reconnaissance Investigation in connection with Comprehensive Navigation Study, Delaware River, Delaware and New Jersey. Philadelphia District Corps of Engineers contract DACW61-86-M-0230, May 1986.

Artifact inventory:

Locus A: A prehistoric site, containing a thin scatttering of potsherds along the edge of the lowgrounds west of the farmstead complex

1. Dressed stone: a piece of polished stone, possibly a marble countertop or other architectural element, pink stone.

2. White earthenware: One piece of refined "flow blue" nineteenth-century white refined earthenware contains the remains of a maker's mark. Of the four pieces, only this one is decorated.

3. Red earthenware: Three sherds of red earthenware all appear to be characteristic of the nineteenth century material in this area.

4. Pipe stem fragment: A piece of a white (often miscalled "kaolin") pipe stem has a relatively small bore diameter, indicating a relatively late date, probably nineteenth century.

5. Worked stone: A piece of a red chert flake.

6. Prehistoric pottery: This was the largest category of artifacts, in which five or six vessels are represented. Surface treatments include fabric impressed and smooth; the paste is gravel tempered throughout.

Interpretation:

The historic artifacts in this collection could be attributed to manuring spread or random scattering from the existing nineteenth-century toft. The prehistoric artifacts, on the other hand, probably indicate the location of a small Woodland-period camp.

Locus B: A scatter of trash north of the house and south of a small spring in the field, which included a piece of a fine eighteenth-century white saltglaze platter.

1. White saltglaze stoneware: A part of the rim of a well-made white saltglaze stoneware platter of the type fashionable during the third quarter of the eighteenth century.

2. Bottle neck: Neck of a purplish clear bottle of the type used for medicines during the nineteenth century. The stringrim has been applied by hand to this mould-blown vessel.

3. Green bottle glass: Two pieces of a free-blown "wine" bottle, probably late eighteenth or early nineteenth century. Basal wear indicates that the vessel was used for a time as a container, and not merely to convey liquids.

4. Red earthenware: At least four vessels are represented by the six sherds of this common ware.

5. Pearlware: A sherd of well-made pearl-bodied white earthenware probably was made late in the eighteenth century, soon after the ware was introduced.

Locus C: A second scatter of historic-period dtrash north of the spring in the field midway between the farmhouse and the Bilderback house.

1. White earthenware: Three sherds of plain white refined earthenware, typical of the nineteenth century.

2. Pearlware: One sherd of pearlware, not decorated.

3. Prehistoric pottery: Three sherds, possibly representing two vessels

4. Glass: Two nondescript pieces of clear vessel glass, one tinted greenish

5. Red earthenware: Sherds from one or two vessels of glazed red earthenware.

Interpretation:

Loci B and C are probably associated with the spring (now nearly dried up) in the middle of the field. This spring may have been a water source for the two nearby houses and for prehistoric people. The trash is not dense enough to have been a dump area, but there are enough remains to indicate considerable human activity.

Locus D: A nineteenth-century house site. A large quantity of artifacts were recovered on the house site in a very brief interval. The inventory below is not quantified.

1. Button: A four-hole white glass shirt button.

2. Vessel glass: Clear glass vessel fragments, including one ornamented piece.

3. Green vessel glass: Two pieces of olive-green "wine" bottle glass

4. Window glass: Fragments of windowpane, incldiuing some green tinted.

5. Red earthenware

6. Pearlware: Underglaze hand painted pearlware

7. Pearlware: Underglaze transfer printed pearlware

8. Pearlware: Plain undecorated and shell-edged pearlware

9. Stone: Spent core of prehistoric toolmaking chert.

10. Stoneware: One sherd of alkaline-glazed gray stoneware

Interpretation: This is the site of a documented house that was demolished sometime in the middle nineteenth century. Since no demonstrably eighteenth-century materials were found, this probably is a nineteenth-century house site.

Locus E: An isolated find of a triangular chert projectile point.

Interpretation: The Woodland-period triangular point is consistent with the other materials of the period found elsewhere on the property.

Locus F: A scattering of historic and prehistoric materials south of the house, on the edge of the wetlands.

1. Stone: A small piece of a white calcined cryptocrystalline silicate ("flint") artifact, originally a retouched flake tool.

2. Prehistoric pottery: Six pieces of prehistoric pottery, three thick and three thin, all gravel tempered. Remnants of fabric impressions remain on some of the weathered sherds.

3. Red earthenware: Six sherds of glazed red earthenware

4. Red earthenware: A single sherd of unglazed modern flowerpot

5. Cream-coloured earthenware: One rimsherd of cream-coloured earthenware, nineteenth century

FIGURE 15: A detail of the 1848 navigation chart, showing the area of disposal areas 24CC and 24T at the height of meadow bank drainage. At that time, two roads crossed Bolls' (Baldridge's) Creek and Mill Creek downstream from the proposed disposal areas.

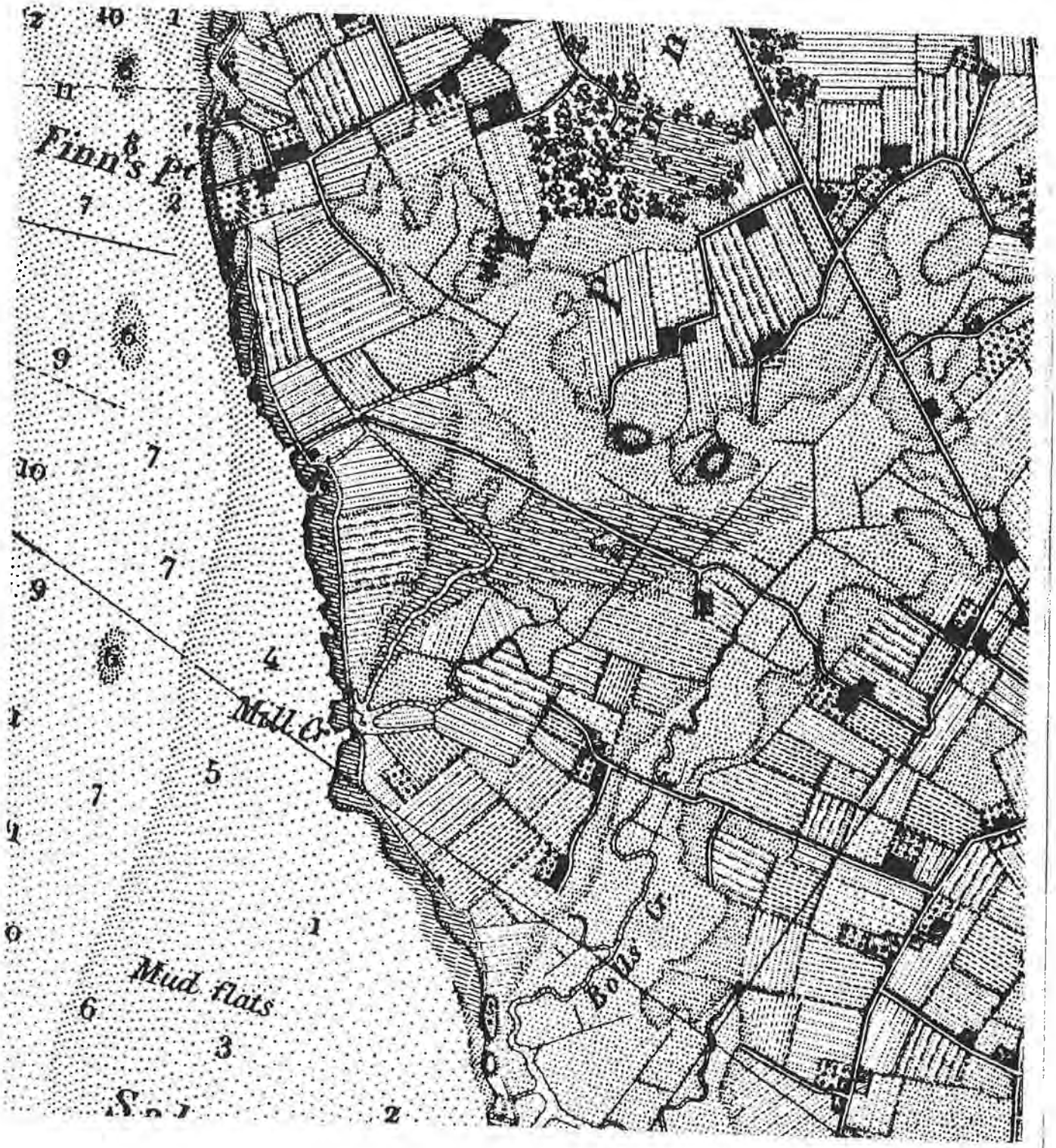
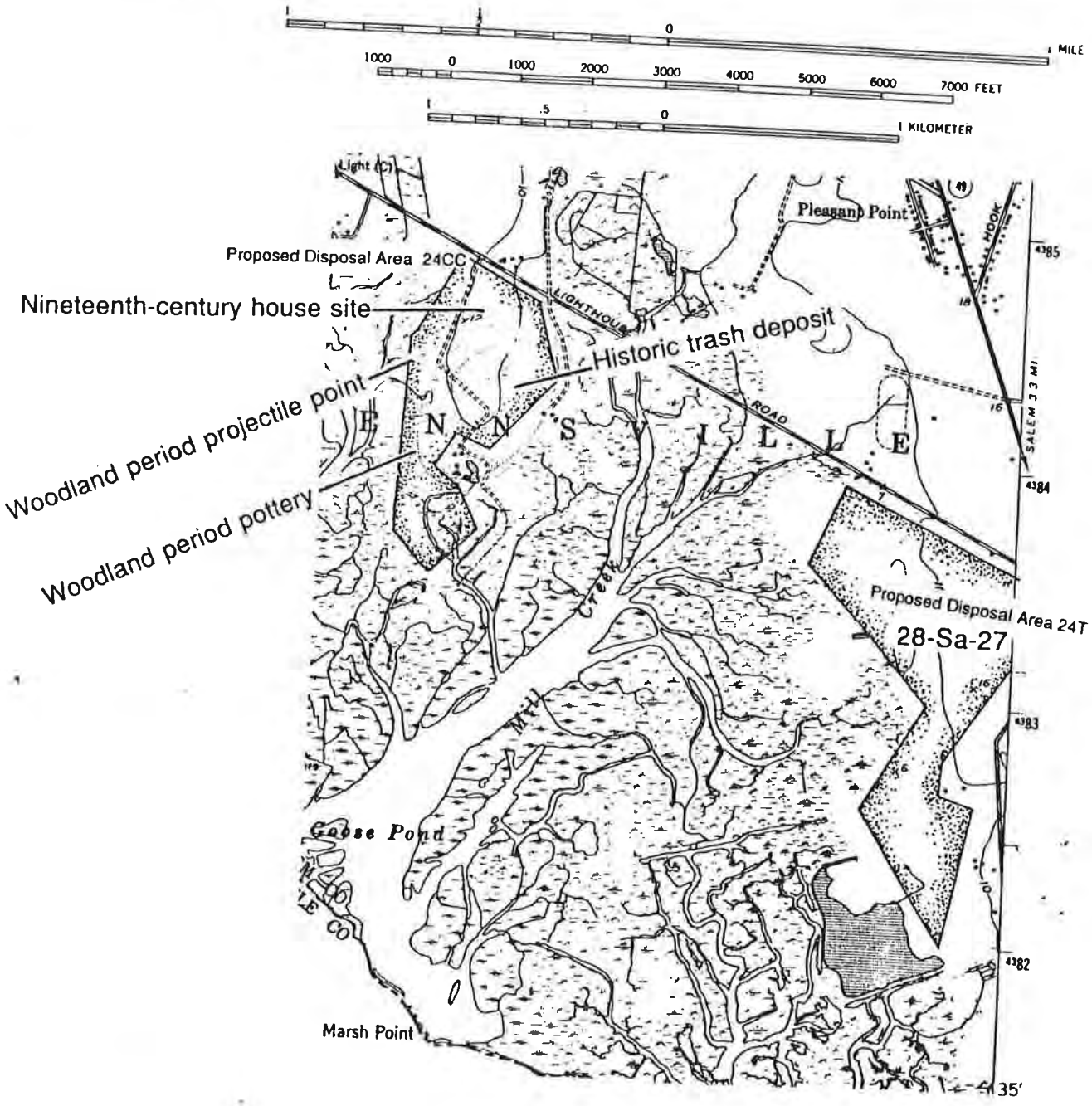


FIGURE 16: Detail of the current USGS 7.5' Delaware City quadrangle, showing disposal areas 24CC and 24T.

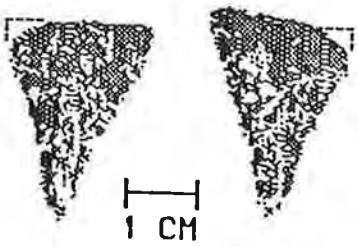


B. A scatter of trash north of the house and south of a small spring in the field, which included a piece of a fine eighteenth-century white saltglaze platter;

C. A second scatter of historic-period trash north of the spring in the field midway between the farmhouse and the Bilderback house;

D. A nineteenth-century house site, probably the house shown on nineteenth-century maps in this vicinity;

E. An isolated discovery (illustrated below) of a nearly complete prehistoric triangular point;



F. A scattering of prehistoric and historic pottery south of the house.

The soils are almost entirely Mattapex silt loam, a moderately well drained soil that is favored for agriculture in the region. Tidal marshes, actually drowned formerly productive meadows, surround the field In the study area there are few wet places where drainage is a problem, since it consists primarily of a silty ridge in the marsh. The current resident of the site reports that several house sites may be seen in the marsh, at least one with standing structural remains.

Any development of this proposed disposal area should be preceded by further archæological survey. Since known historic and prehistoric sites lie between this area and Salem Cove, any pipeline routes or other associated works should be tested archæologically.

91-447

SUPAWNA MEADOWS NWR, TRACT 18: HISTORICAL DATA FROM REALTY FILES (12/1990)

TITLE DATA (There may be more information in deeds and probate at courthouse.)

n.d.: Ann Mecum & Hannah Wright to James W. Mecum, 274 acres.
10/14/1848: James W. Mecum to Samuel Urion & William B. Brown, 274 acres.
4/6/1850: William B. Brown to Samuel Urion, full ownership of 274 acres.
1865 "Map of Lower Pennsville Township": "S. Urion" house, road to it, 274 A.
n.d.: Samuel Urion died owning the property, heirs not listed in our records.
11/30/1942: Howard B. Keasbey to Thomas G. Hilliard, 274 acres.
12/13/1950: T. G. Hilliard & H. B. Keasbey to Thomas G. Hilliard, Jr., 274 A.
1/2/1973: T. G. Hilliard, Jr. (d.2/24/73) to wife Elizabeth C., 480.68 acres.
1/10/1990: Elizabeth H. Yerkes & 2nd husband Eugene H. Yerkes to U.S., 339 A.

DESCRIPTION OF IMPROVEMENTS

HOUSE
Main portion: ca. 200 years old, 45' x 27', center hall with front & rear doors, brick chimney at each end of pitch roof, two dormers on each facade.

Ground floor = 8' wide stair hall, living room, den with fireplace, early 20th century double door & bay window in the front facade, and concrete-floored porch inset in the rear facade.
2nd floor = stair hall, five bedrooms, bath.
3rd floor = two rooms, one having a fireplace.
Attic = crawl space.
Wing: one floor, 14' x 27', shed roof, early 20th century, contains kitchen.

Full stone cellar, frame with aluminum siding and asphalt roofs. Windows all 4-pane early 20th century: balanced spacing on front facade and unbalanced rear facade spacing & heights indicates multiple building episodes.

SUMMER COTTAGE/GARAGE
Originally a 33' x 72' barn or carriage house, probably early 20th century, remodeled in early 1970s as a summer cottage/garage. Frame, slab foundation, asphalt roof. A 12' x 52' addition was made to the east elevation and a 3' x 3' covered entry on the west elevation at the south corner in the early 1970s.

Garage portion: two bays and a loft, clapboard siding.

Cottage portion: aluminum siding, south wall of sliding glass doors facing concrete patio. Bedroom, bath, living-dining room, kitchen, laundry room adjoining garage portion, den in the addition. Chain-link dog pen on N. end.

BARN
Uncertain original date, major repairs in the early 1970s, frame, 72' x 32' with 57' x 30' ell, 3 level, stone foundation, board siding, metal roofing.

GARAGE
One bay, probably built in the 1970s, partial concrete slab foundation, frame with aluminum siding, 40' x 20', metal roof, metal overhead door.

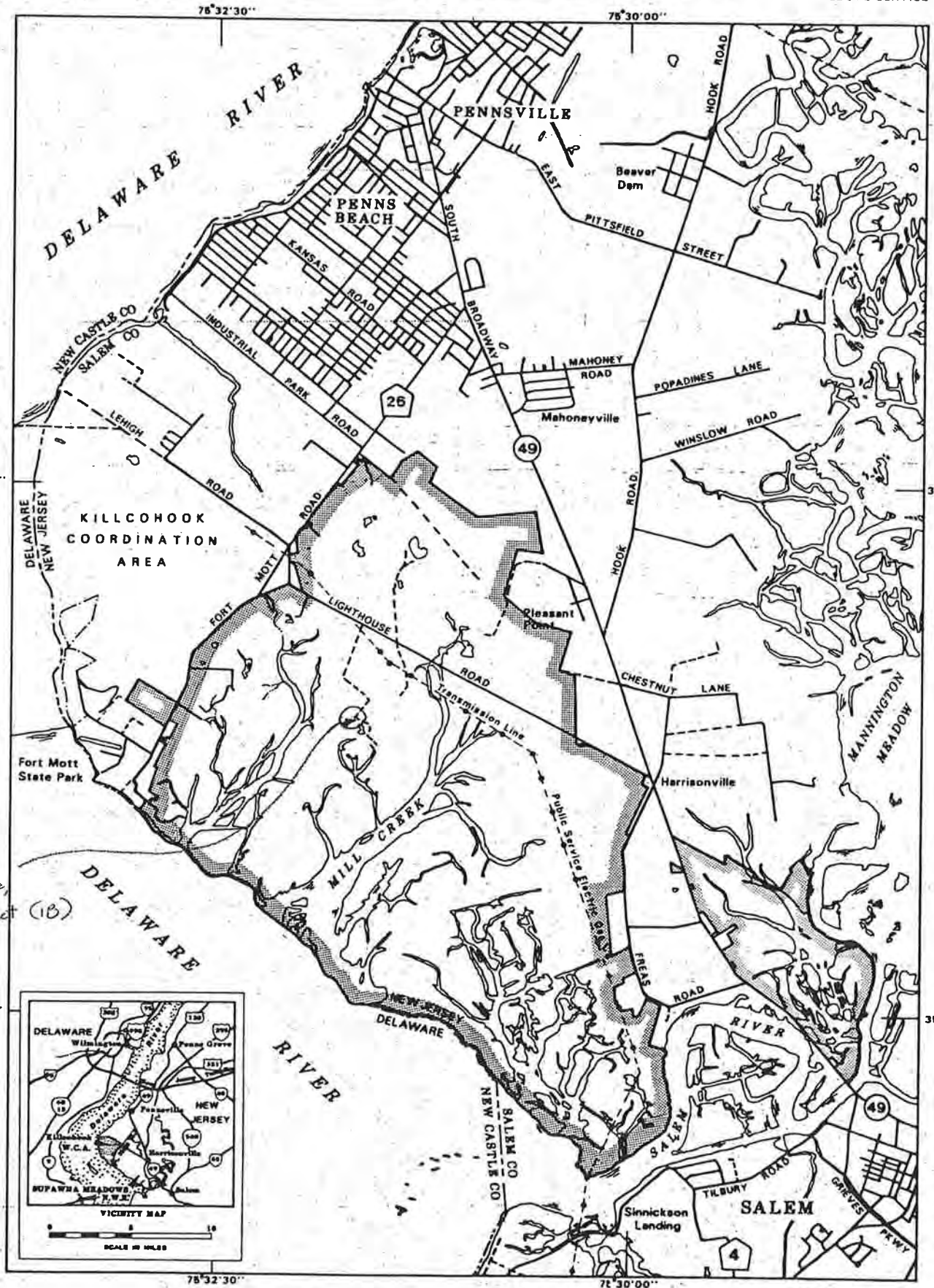
GRAVEYARD
Early 19th century private graveyard, stones record at least 1 smallpox death.

SUPAWNA MEADOWS NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

SALEM COUNTY, NEW JERSEY

UNITED STATES
FISH AND WILDLIFE SERVICE



Location: Farmhouse, Parker Tract (1B)

COMPILED IN THE DIVISION OF REALTY
FROM SURVEYS BY U S G S AND U S F & W S

SCALE 0 2,000 4,000 8,000 8,000 FEET
0 0.5 1 1.5 2 KILOMETERS

10° MAG. NORTH True North
MEAN DECLINATION 1972

NEWTON CORNER MASSACHUSETTS
POSTED: AUGUST 1990

5R NJ 833

Pennsville Township Historical Society

90 North Broadway
Pennsville, New Jersey 08070

RECEIVED
DEC 0-5 1990
TINICUM N.E.C.

December 3, 1990

OFFICERS & TRUSTEES

President . .
Martha Rogers
Vice-President . .
Fran Johnson
Recording Secretary . . .
Eleanor Zane
Corresponding Secretary . .
Grace Alliegro
Financial Secretary . . .
Douglas Litvin
Treasurer . . .
Arlene Buehler

Trustees:
Al Lemcke
Edward Rogers
J. Stuart Belcher
James Gallagher
James Drago
Robert Buskirk

Mr. Richard Nugent
Tinicum National Environmental Center
Scott Plaza II
Suite 104
Philadelphia, PA 19113

Dear Mr. Nugent:

The Trustees of the Pennsville Township Historical Society learned of the acquisition of the Yerkes' property located off of Lighthouse Road, by the Department of Interior and to be administered by the Supawna Meadow Fish and Wildlife Agency.

On this property is the only remaining family burial lot containing the graves of three former residents of our township, one male adult and two female children, who died in 1880 from the flu. With Mrs. Yerkes' permission, volunteers from the Society have maintained this burial lot. The Society would like to know what the plans are for this burial lot. Do you want the Society to continue with the care of the area. If so, please send something in writing giving the Society the authorization to do so.

An early farmhouse is also located on this property. The Society is hopeful that restoration of this home would be included in the plans for the useage of this property by the Department of Interior. I personally have not documented the construction date or the original owner of the farmhouse. If the Society can be of assistance in the research of the home, please do not hesitate to contact us.

The Society is currently in the very early process of restoring an early farmhouse, circa 1850, within the township located on the banks of the Delaware River. Should the decision be made not to restore the home recently acquired by the Department of Interior, we would be interested in any architecture that could be used in our restoration project. However, we would prefer to see restoration rather than demolition.

___ MANAGER
___ ASST. MGR.
___ ASST. MGR. (TRAINEE)
___ OUT. REC. PLAN. #1
___ OUT. REC. PLAN. #2
___ BIO. TECH.
___ MAINT. #1
___ MAINT. #2
___ CLERK
___ FILE

609 678-5994 - Martha Rogers

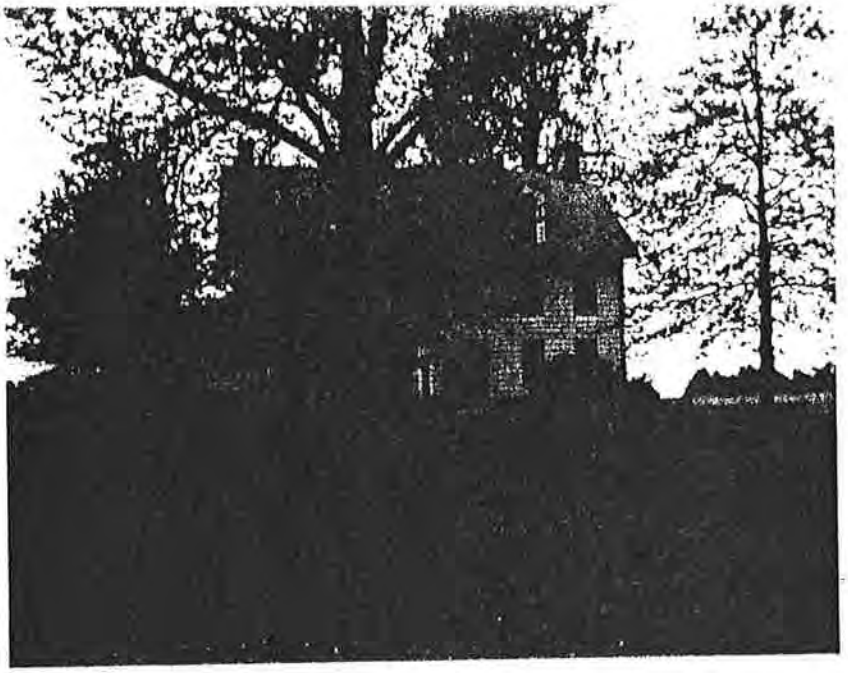
Again, please do not hesitate to contact the Society if we can be of any assistance. We are interested in preserving the history of our township.

Sincerely,

Martha Rogers

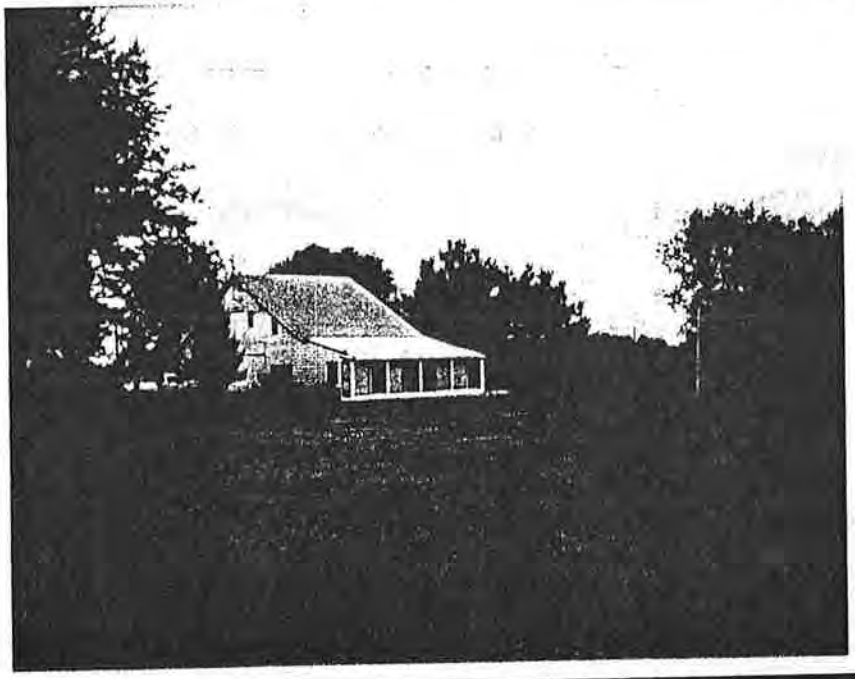
(Mrs) Martha Rogers, President
Pennsville Township Historical Society

/r

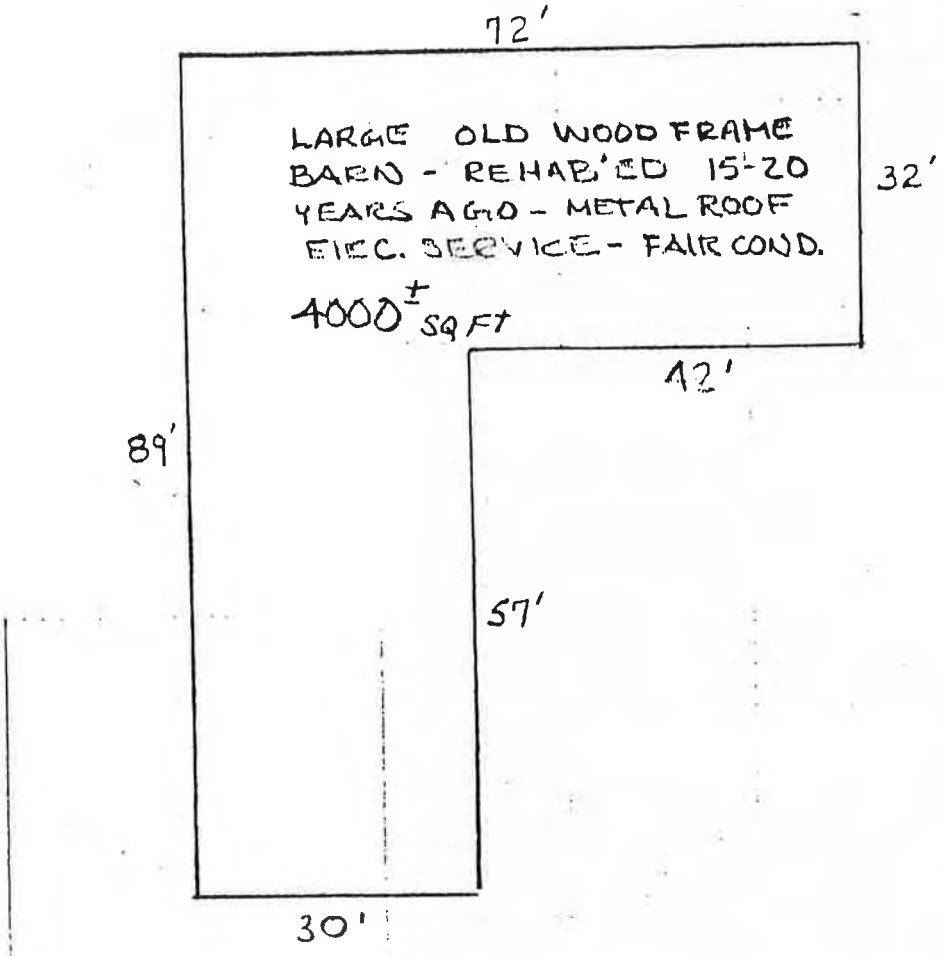


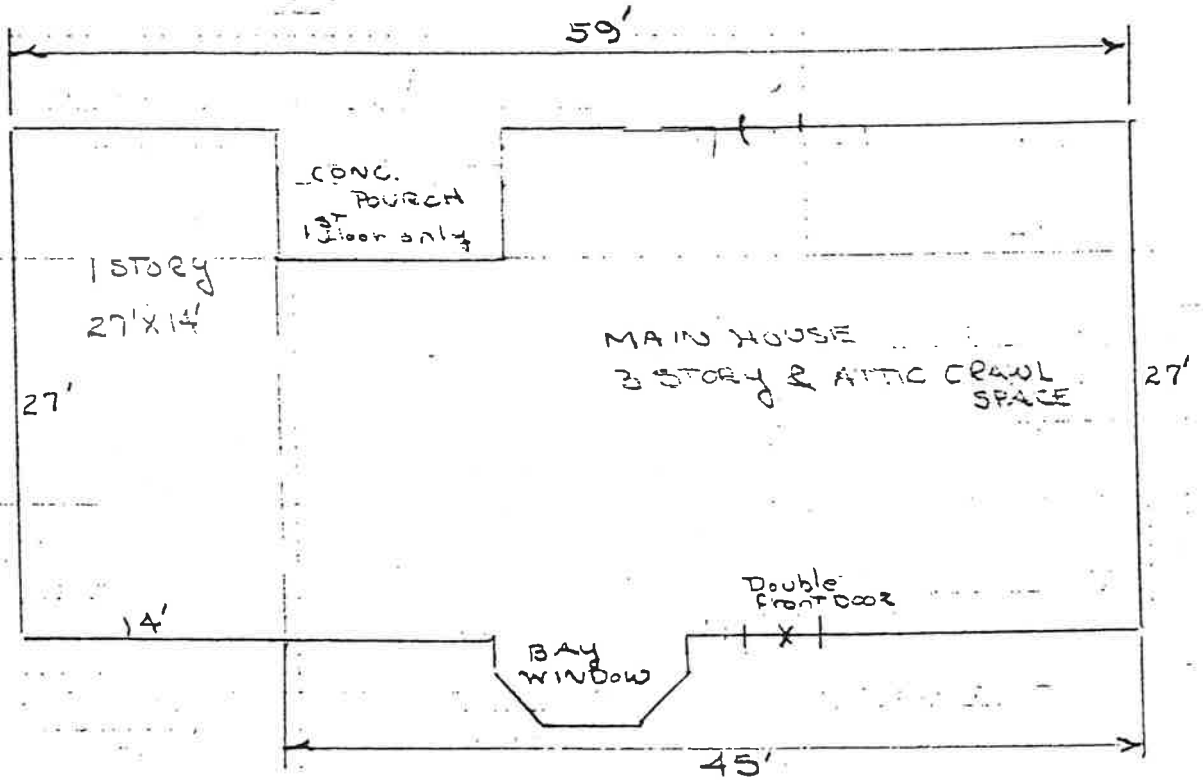
MAIN HOUSE
(FRONT)

MAIN HOUSE
(REAR)



COTTAGE / GARAGE
(COTTAGE END)


72'
LARGE OLD WOOD FRAME
BARN - REHAB'ED 15-20
YEARS AGO - METAL ROOF
ELEC. SERVICE - FAIR COND.
4000± SQ FT
32'
42'
89'
57'
30'



1ST FLOOR K, DEN, LR (2 HALL)

2ND FLOOR 5 BR & 1 BATH

3RD FLOOR 2 Lg. ROOMS

10 ROOMS - 1 BATH

FULL CELLAR - ½ WET

WOOD FRAME, STN AND ALUM SIDE

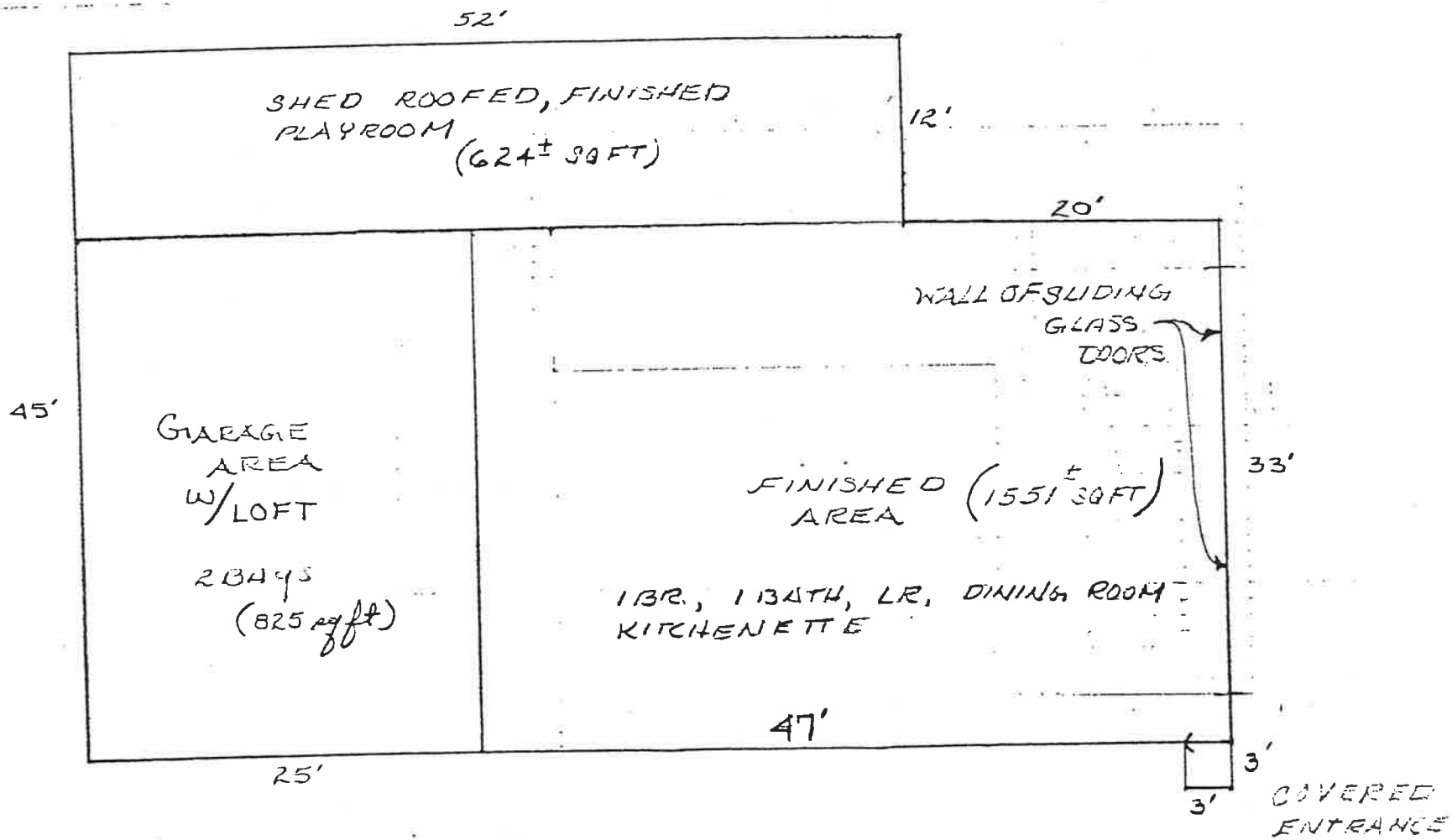
*NO CENTRAL HEAT

60 AMP ELEC. SER APPROX AGE = 200 YRS.

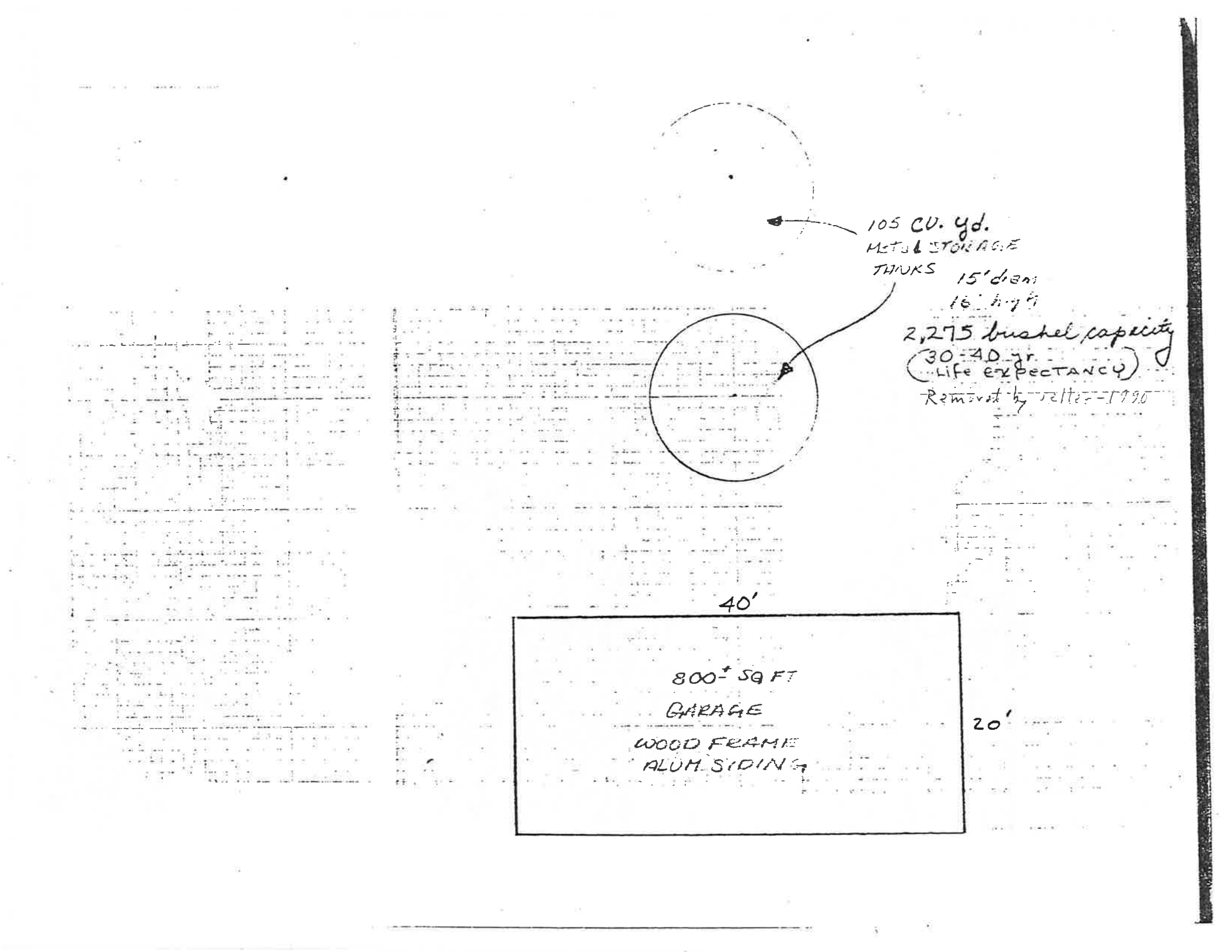
45 X 27 X 3 = 3645 sq ft

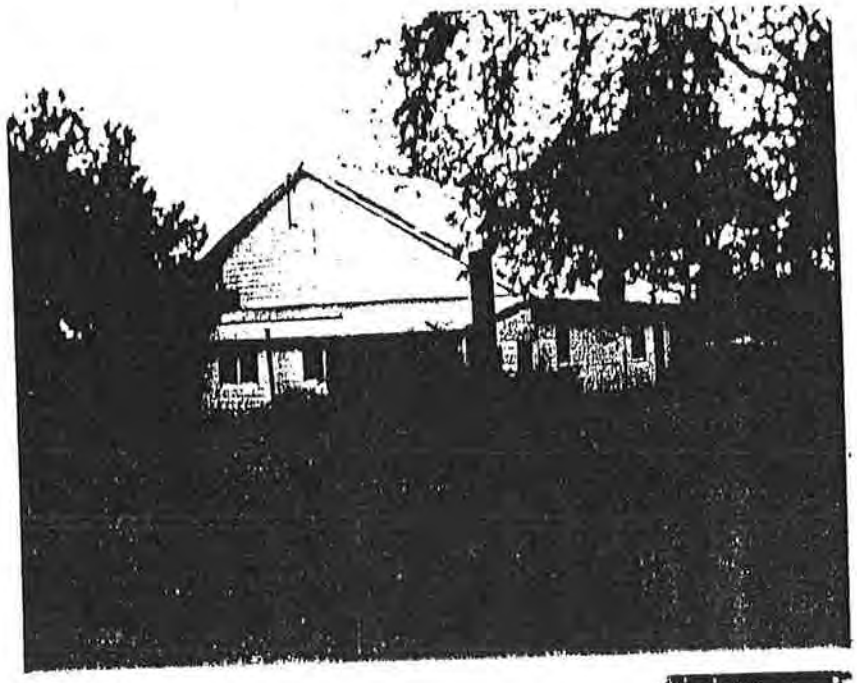
14 X 27 = 378

4023 sq ft

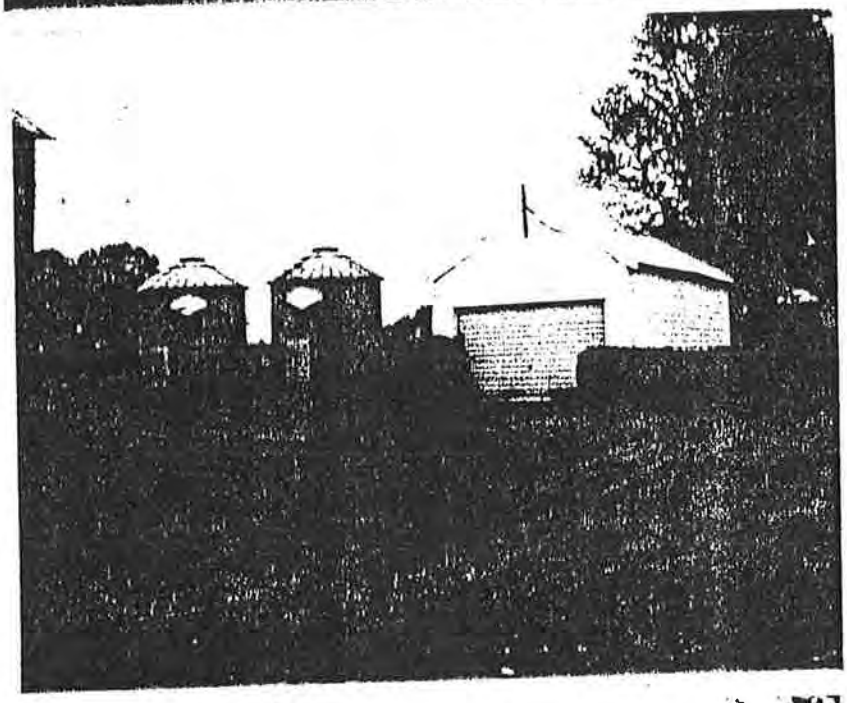


WOOD FRAME
GARAGE / COTTAGE
ALUM & WOOD SIDING
PROPANE GAS HEAT
60 AMP ELEC.

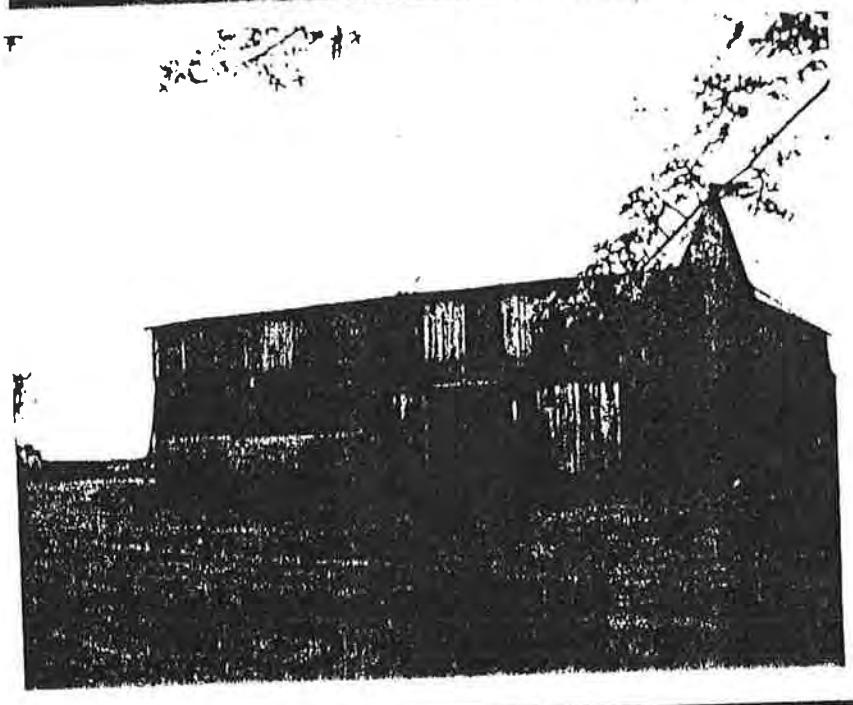

105 CU. yd.
METAL STORAGE
THUKS
15' diam
16' high
2,275 bushel capacity
(30-40 yr.
Life expectancy)
Removed by Keltec-1990
40'
800± SQ FT
GARAGE
WOOD FRAME
ALUM SIDING
20'



COTTAGE / GARAGE
(UNFINISHED END)



GARAGE & TANKS



LARGE BARN

PENNSVILLE TOWNSHIP HISTORICAL SOCIETY
86 Church Landing Road
Pennsville, NJ 08070

RECEIVED
MAR 09 1994
HISTORIC PRESERVATION OFFICE

March 7, 1994

State of New Jersey
Department of Environmental
Protection and Energy
Historic Preservation Office
CN 404
Trenton, New Jersey 08625-0404

Attention: Nancy L. Zerbe
Deputy State Historic Preservation Officer

Dear Ms. Zerbe:

Thank you for forwarding to me a copy of your letter to Mr. Lee A. Wright dated February 9, 1994 concerning the Samuel Urion/Yerkes Farmstead.

I am a little concerned about the paragraph on page two in which you state that "the Yerkes house is by no means the only, or the most important, historic structure in the refuge, etc." Perhaps I have misunderstood but the other houses you refer to are not in the refuge but are privately owned. The Mecum house (1735) is currently owned by James Mecum, the Copner house (c.1740) by Dorothy Fowser, the James Johnson house (c.1815) by Robert Butcher, the John Johnson house (c.1800) by John Hassler and the Supawna House on the Salem River (c.1726) by Mr. Loveland. They all border the refuge but are not in the refuge. The Samuel Urion/Yerkes Farmstead and the home of the refuge caretaker are the only houses in the refuge.

It is true that these houses, and several others in our township, qualify for listing on the New Jersey and National Registers. However, the owners have chosen not to do this for whatever reason I do not know. The Pennsville Historical Society is working to change this and are compiling a listing of all early homes presently standing in our township.

My apologies to you if I have misunderstood your intent in the paragraph on page two. However I felt it important enough to clarify.

Sincerely,

Martha Rogers

Martha Rogers, Trustee
Pennsville Township Historical Society

THE PENNSVILLE TOWNSHIP HISTORICAL SOCIETY
86 Church Landing Road
Pennsville, NJ 08070

October 11, 1993

Mr. Dan Saunders
New Jersey Historic Preservation Office
CN 404
Trenton, NJ 08625-0404

Dear Mr. Saunders:

You were referred to me by Bob Craig for information concerning the future of the Urion home located on Lighthouse Road in the Township of Pennsville.

The land where this home is located was purchased over a year ago from Mrs. Yerkes by the Fish and Wildlife Division, U. S. Department of Interior.

I have been a resident of this township since we built our home in 1952. Over the years I have learned quite a bit about the history of our township. I am also active in our historical society and recently oversaw the restoration of an 1860 typical farmhouse located in our township on the banks of the Delaware River on Church Landing Road. The Church Landing Farm Museum houses our artifacts and is also the headquarters of our Society.

I am sincerely interested in the future of the Union home as it definitely is a part of our history. It appears on the early maps of our township and some of the architecture appears to be very early and other appears to be circa 1820.

The Township of Pennsville developed as farmland as early as 1640 by Swedes and Finns. Several of our early farmhouses have been destroyed for shopping centers, housing developments and roads. Others because of neglect. I sincerely feel that the Urion home could become useful again if restored.

I am sorry that I couldn't reach you by telephone but I seemed to call at an inconvenient time. Should you want to contact me by telephone, my number is (609) 678-5994.

Sincerely,

Martha Rogers
Trustee - Pennsville Township Historical Society
Curator - Church Landing Farm Museum

NEW JERSEY STATE MUSEUM
ARCHAEOLOGICAL SITE REGISTRATION PROGRAM
BUREAU OF ARCHAEOLOGY & ETHNOLOGY
PO BOX 530, TRENTON, N.J. 08625-0530
Ph.(609) 292-8594; Fx.(609) 292-7636

SITE NAME: Supawana Meadowlands D SITE NO.: 28- Sa-65

NJ State Atlas Coordinates: 30-32-7-4-8

USGS 7.5 Minute Series Quad. Name Delaware City

UTM Coordinates (required) 454714E 4384982N

County: Salem Township:

Location (descriptive):

Lat. 39 36 4T

Long. 75 31 40

Period of Site:
Type of Site: (historic/prehistoric)

19th Century house site

Cultural affiliation(s) (if known):

Owner's (Tenant's) Name:
Address:
Phone:
Attitude toward preservation:

Surface Features: Prominent Landmarks:

Vegetation Cover:

Nearest Water Source: Distance:

Soil Type: Erosion:

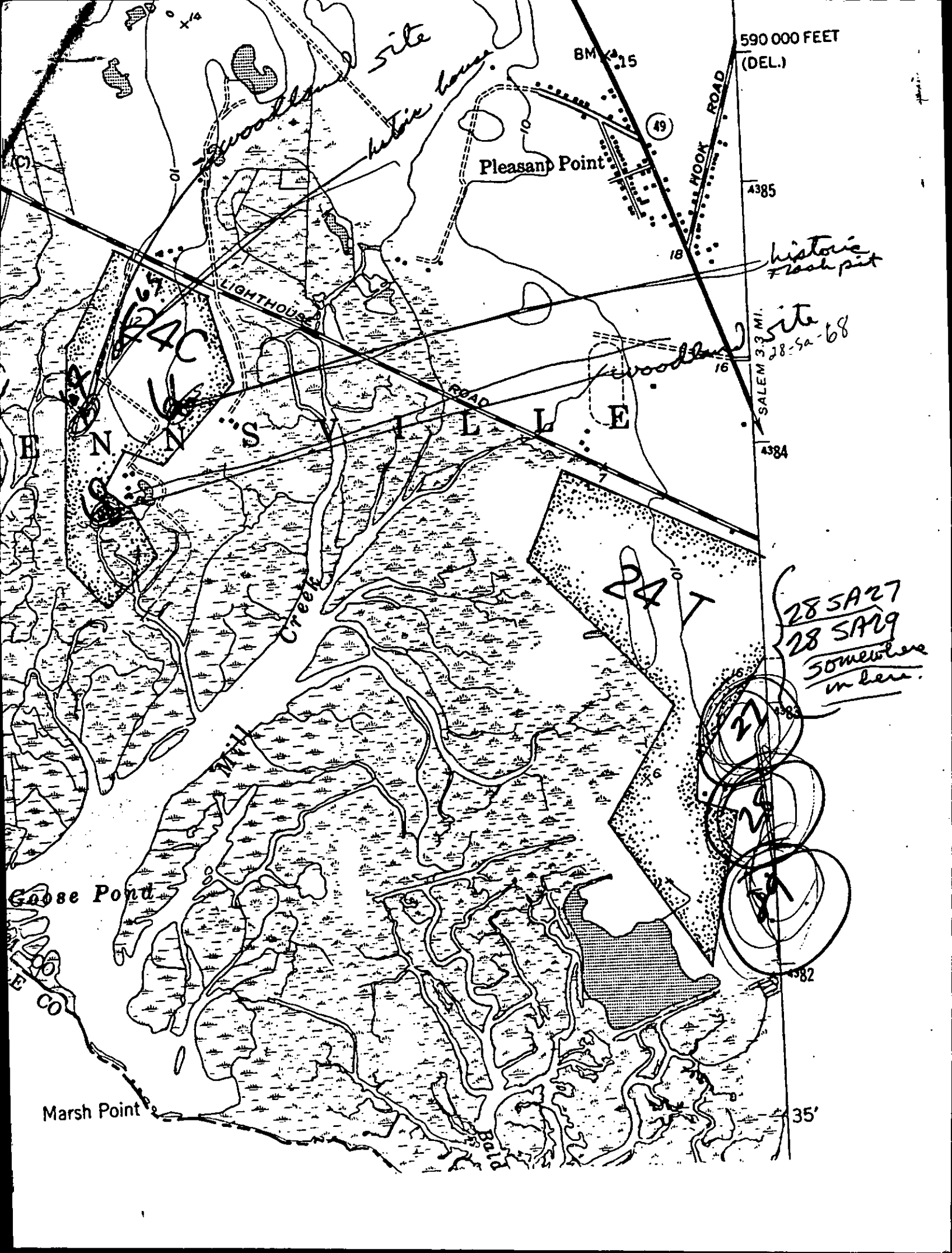
Stratified (if known):

Threat of Destruction (if known):

PREVIOUS WORK (list below):

By Whom	Date	Collection Stored	Previous Designation
Edward F. Heite			

Recorders Name:
Address:
Phone:
Collection stored:
Date recorder at site:


590 000 FEET
(DEL.)
BM 15
Woodland site
historic house
Pleasant Point
HOOK ROAD
49
4385
historic trash pit
LIGHTHOUSE ROAD
Woodland site
28-Sa-68
SALEM 3.3 MI.
4384
28SA27
28SA29
somewhere in here.
Mill Creek
Goose Pond
Marsh Point
Bald
35'

PHASE I CULTURAL RESOURCE INVESTIGATION, PROPOSED DISPOSAL AREA AT SUPAWNA, PENNSVILLE TOWNSHIP, SALEM COUNTY, NEW JERSEY

IN CONNECTION WITH

COMPREHENSIVE NAVIGATION STUDY DELAWARE RIVER

PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CONTRACT DACW 61-86-M-0211

BY
EDWARD F. HEITE AND LOUISE B. HEITE
SOPA

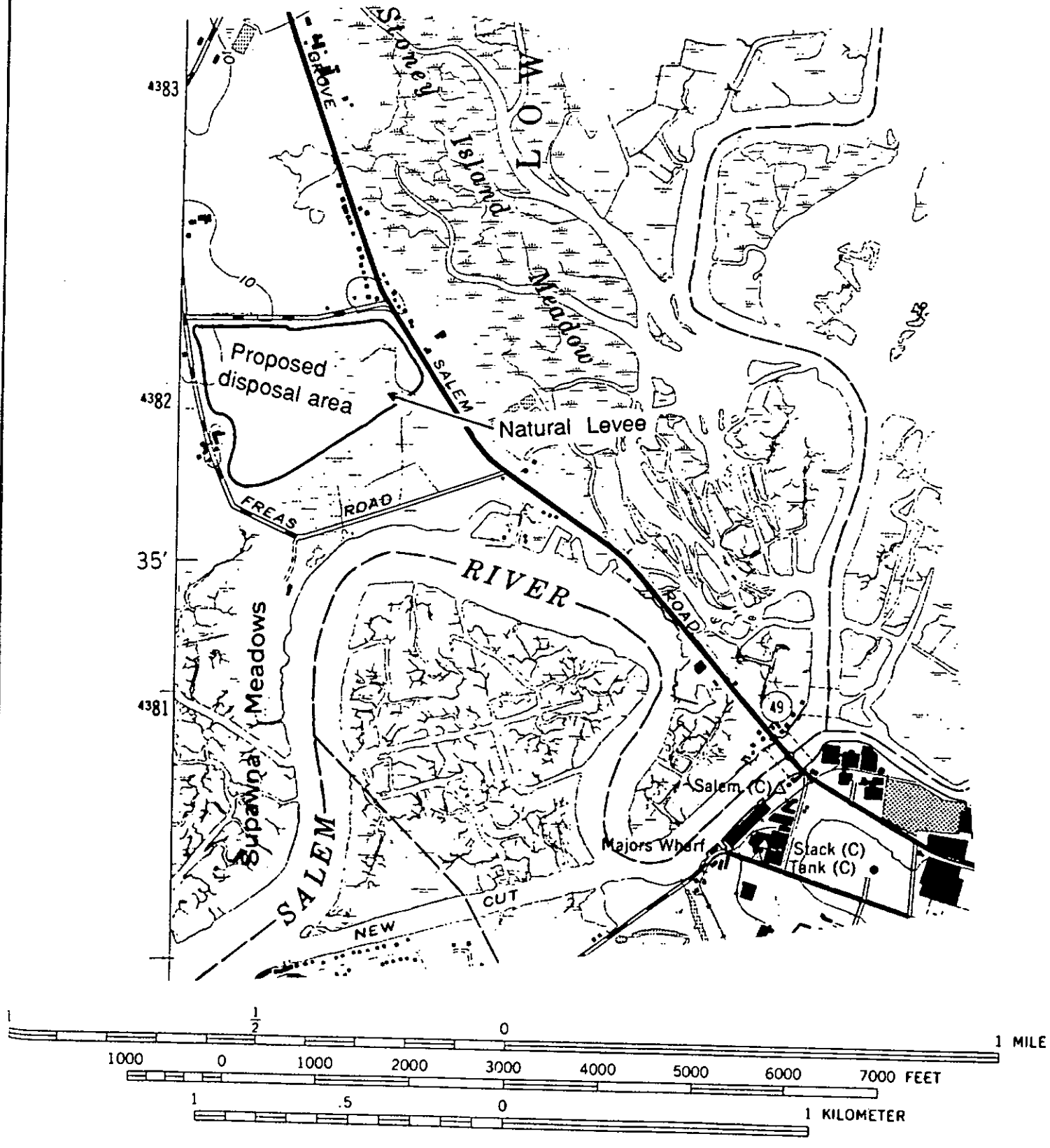
P. O. BOX 53
CAMDEN, DELAWARE 19934

JUNE 1986

28-SA 69
Form, Inventory
& sketch map
Within.
Thanks

Figure 1
General location map

Detail of U. S. Geological Survey Salem quadrangle, 7.5' series, 1948, photorevised 1970, showing the project area outlined.



Background

THE CORPS OF ENGINEERS proposes to deposit dredged material from the Salem River on a cultivated field north of Salem River in Pennsville Township, Salem County, New Jersey. In order to comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and the Environmental Policy Act, the Corps has undertaken archæological and historical investigations. During 1985, the present authors conducted a reconnaissance-level study of several proposed disposal areas along Salem River (Heite and Heite 1985). This area, numbered 8 in that survey, was identified for further investigation. Since it is surrounded by prehistoric and historic sites, it was deemed to possess a high likelihood of containing significant cultural remains.

West of the proposed disposal area are previously identified prehistoric sites. On all sides of the site are historic buildings and historic archæological sites (Heite and Heite 1985:9).

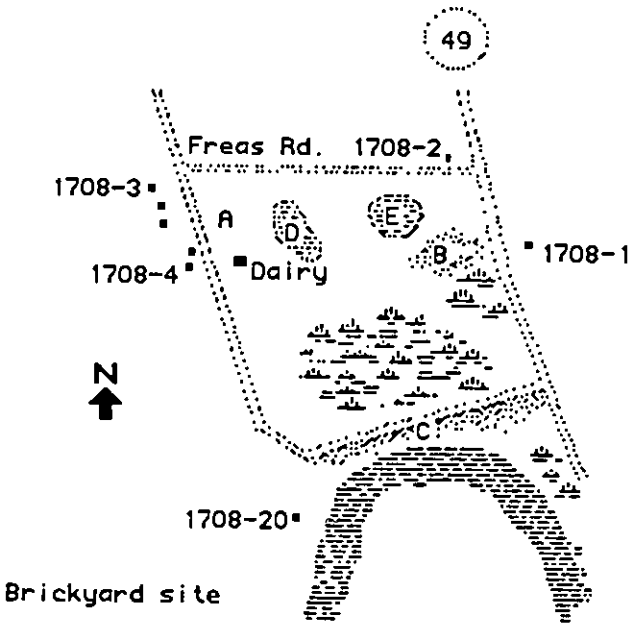


Figure 2
Sketch map of the project area

This sketch map, which is not to scale, illustrates the relationships between the major features of the project area. The authors sank a line of test holes along the ridge between the dairy and Freas Road, **A.** There are two drained depressions in the project area, **D** and **E.** Prehistoric artifacts were found on a natural sandy dike, **B.** Much of the field was abandoned when the Supawna Road meadow bank, **C**, broke and inundated it. Historic house inventory numbers are found in the text. Three modern houses, not elsewhere described, stand on Supawna Road between 1708-3 and 1708-4.

Site Reg
Salem
NEW sites

State of New Jersey
NEW JERSEY STATE MUSEUM
DEPARTMENT OF STATE
205 WEST STATE STREET CN 530
TRENTON, N.J. 08625-0530

June 28, 1986

Mr. Edward Heite
Heite Consulting
Archaeologists and Historians
P.O. Box 53
Camden, Delaware 19934-0053

Dear Mr. Heite:

Listed below are the site numbers and atlas coordinates for the Supwana Meadow site reports you filed with us. I have enclosed a map of the four small sites on Mrs. Yerkes farm so you'll be clear on which is which. If you could send a map with the Supwana Meadow Road site location marked on it, I'd appreciate it. I didn't want to map it without a more exact idea of its location.

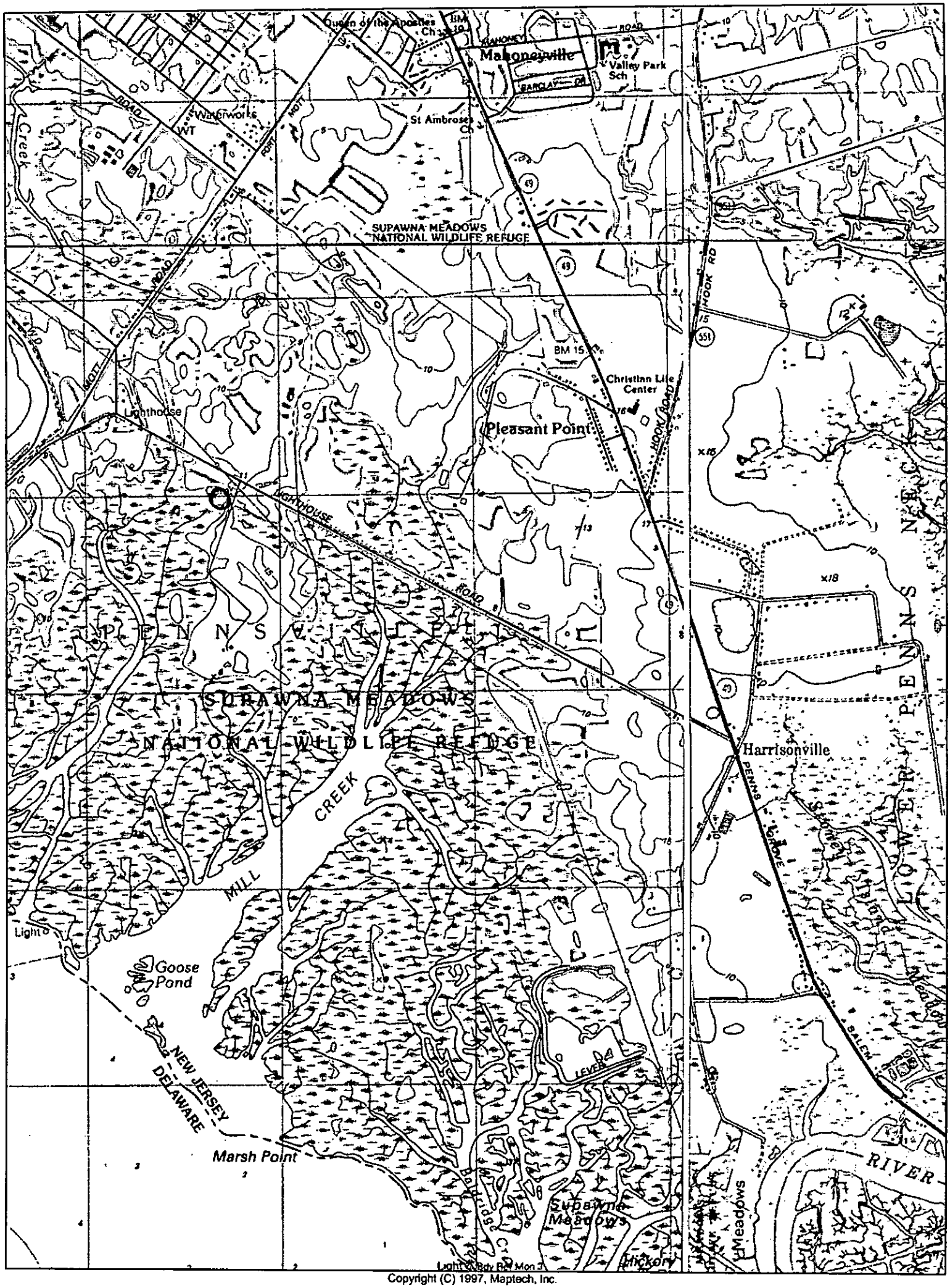
Site Number	Location Name/Atlas Co.
28-Sa-65	Farm House 30-31-7-7-2
28-Sa-66	Trash pit - Historic 30-31-7-7-2
28-Sa-67	Woodland site 30-31-7-7-1
28-Sa-68	Woodland site 30-31-7-7-4,5
28-Sa-69	Supawna Meadows - not yet mapped

If you need other information, please let me know.

Sincerely,

Cater Webb

Cater Webb
Research Assistant
Archaeology/Ethnology
CW:cw
Encl: 1



Copyright (C) 1997, Maptech, Inc.

Locus "D" - 28-Sa-65 30-32-7-4-8
Locus "B" + "E" - 28-Sa-66 30-32-7-7-2
Locus "C" - 28-Sa-67 30-32-7-7-1
Locus "A" & "F" - 28-Sa-68 30-32-7-7-4,5

SITE REGISTRATION PROGRAM
NEW JERSEY STATE MUSEUM
Bureau of Archæology
205 West State Street
Trenton, N.J. 08625
(609) 292-8594

SITE NO: 28-
Site Name:
Atlas Coordinates:
U.S.G.S. Coordinates:
State Register Status:
Date:
File:

County: Salem

Municipality: Pennsville

Location (descriptive):

Period of Site: Woodland

This is a series of small loci on the farm of Mrs. Elizabeth Yerkes, off Lighthouse Road in Pennsville. The site is of historical interest because it is in or near the Finn Town community.

Type of Site: Shallow surface site, no known stratification

Cultural affiliation(s) (if known): Pottery and a triangular point indicate that Woodland affiliation.
A house site, known to have been demolished in mid - nineteenth century, was identified.
A trash deposit containing eighteenth-century materials was identified.

Owner's Name: Mrs. Elizabeth S. Yerkes
Address: P. O. Box 49, Salem, New Jersey 08079
Phone:
Attitude toward preservation: She is amenable to preservation.

Tenant's Name:
Address:
Phone:

Surface Features: 19th century farmstead

Prominent Landmarks: drowned meadows

Vegetation Cover: cropland

Nearest Water Source: adjacent springs

Distance:

Soil Type:
Mattapex Silt Loam

Erosion: minor

Stratified (if known): unlikely

THREAT OF DESTRUCTION (if known):

PREVIOUS WORK (list below):

By whom	Date	Collection Stored	Previous Designation
none reported			

Recorder's Name: Edward F. Heite
Address: P. O. Box 53, Camden, Delaware 19934
Phone: 302-697-1789
Collection stored: returned to owner (inventory attached)
Date recorder at site: Spring 1986

Site report:

Heite, Edward F. and Louise B. Heite

Preliminary Cultural Resource Reconnaissance Investigation in connection with Comprehensive Navigation Study, Delaware River, Delaware and New Jersey. Philadelphia District Corps of Engineers contract DACW61-86-M-0230, May 1986.

28-Sq-68 **Artifact inventory:**

Locus A: A prehistoric site, containing a thin scatttering of potsherds along the edge of the lowgrounds west of the farmstead complex

1. Dressed stone: a piece of polished stone, possibly a marble countertop or other architectural element, pink stone.

2. White earthenware: One piece of refined "flow blue" nineteenth-century white refined earthenware contains the remains of a maker's mark. Of the four pieces, only this one is decorated.

3. Red earthenware: Three sherds of red earthenware all appear to be characteristic of the nineteenth century material in this area.

4. Pipe stem fragment: A piece of a white (often miscalled "kaolin") pipe stem has a relatively small bore diameter, indicating a relatively late date, probably nineteenth century.

5. Worked stone: A piece of a red chert flake.

6. Prehistoric pottery: This was the largest category of artifacts, in which five or six vessels are represented. Surface treatments include fabric impressed and smooth; the paste is gravel tempered throughout.

Interpretation:

The historic artifacts in this collection could be attributed to manuring spread or random scattering from the existing nineteenth-century toft. The prehistoric artifacts, on the other hand, probably indicate the location of a small Woodland-period camp.

28-Sq-66 Locus B: A scatter of trash north of the house and south of a small spring in the field, which included a piece of a fine eighteenth-century white saltglaze platter.

1. White saltglaze stoneware: A part of the rim of a well-made white saltglaze stoneware platter of the type fashionable during the third quarter of the eighteenth century.

2. Bottle neck: Neck of a purplish clear bottle of the type used for medicines during the nineteenth century. The stringrim has been applied by hand to this mould-blown vessel.

3. Green bottle glass: Two pieces of a free-blown "wine" bottle, probably late eighteenth or early nineteenth century. Basal wear indicates that the vessel was used for a time as a container, and not merely to convey liquids.

4. Red earthenware: At least four vessels are represented by the six sherds of this common ware.

5. Pearlware: A sherd of well-made pearl-bodied white earthenware probably was made late in the eighteenth century, soon after the ware was introduced.

28-Sa-66 Locus C: A second scatter of historic-period dtrash north of the spring in the field midway between the farmhouse and the Bilderback house.

1. White earthenware: Three sherds of plain white refined earthenware, typical of the nineteenth century.

2. Pearlware: One sherd of pearlware, not decorated.

3. Prehistoric pottery: Three sherds, possibly representing two vessels

4. Glass: Two nondescript pieces of clear vessel glass, one tinted greenish

5. Red earthenware: Sherds from one or two vessels of glazed red earthenware.

Interpretation:

Loci B and C are probably associated with the spring (now nearly dried up) in the middle of the field. This spring may have been a water source for the two nearby houses and for prehistoric people. The trash is not dense enough to have been a dump area, but there are enough remains to indicate considerable human activity.

28-Sa-65 Locus D: A nineteenth-century house site. A large quantity of artifacts were recovered on the house site in a very brief interval. The inventory below is not quantified.

1. Button: A four-hole white glass shirt button.

2. Vessel glass: Clear glass vessel fragments, including one ornamented piece.

3. Green vessel glass: Two pieces of olive-green "wine" bottle glass

4. Window glass: Fragments of windowpane, incldiing some green tinted.

5. Red earthenware

6. Pearlware: Underglaze hand painted pearlware

7. Pearlware: Underglaze transfer printed pearlware

8. Pearlware: Plain undecorated and shell-edged pearlware

9. Stone: Spent core of prehistoric toolmaking chert.

10. Stoneware: One sherd of alkaline-glazed gray stoneware

Interpretation: This is the site of a documented house that was demolished sometime in the middle nineteenth century. Since no demonstrably eighteenth-century materials were found, this probably is a nineteenth-century house site.

28-Sa-67 Locus E: An isolated find of a triangular chert projectile point.

Interpretation: The Woodland-period triangular point is consistent with the other materials of the period found elsewhere on the property.

Locus F: A scattering of historic and prehistoric materials south of the house, on the edge of the wetlands.

1. Stone: A small piece of a white calcined cryptocrystalline silicate ("flint") artifact, originally a retouched flake tool.

2. Prehistoric pottery: Six pieces of prehistoric pottery, three thick and three thin, all gravel tempered. Remnants of fabric impressions remain on some of the weathered sherds.

3. Red earthenware: Six sherds of glazed red earthenware

4. Red earthenware: A single sherd of unglazed modern flowerpot

5. Cream-coloured earthenware: One rimsherd of cream-coloured earthenware, nineteenth century

HEITE CONSULTING
EDWARD F. HEITE
LOUISE B. HEITE
ARCHÆOLOGISTS AND HISTORIANS
P. O. BOX 53, CAMDEN, DELAWARE 19934-0053
302-697-1789

June 16, 1986

Ms. Cater Webb
Research Assistant
Bureau of Archæology
New Jersey State Museum
205 West State Street
Trenton, New Jersey 08625

Dear Ms. Webb:

Enclosed herewith is a completed site survey form and artifact inventory for a group of sites on the property of Mrs. Elizabeth H. Yerkes. Also enclosed is a copy of our report to the Corps of Engineers. The artifacts from this site have been returned to Mrs. Yerkes.

Also enclosed is a site form for a site at Supawna Meadows, on Salem River opposite the city of Salem. Please assign a number that I can use in my report, which will be forwarded to you shortly. *
The site location is between the causeway, Supawna Road, and Freas Road, and Salem River. It is on the Salem USGS quadrangle.

Sincerely,

Edward F. Heite

* Enclosed!

28-Sa-65-68 - 2nd page

Figure 6
State Inventory Form

SITE REGISTRATION PROGRAM
NEW JERSEY STATE MUSEUM
Bureau of Archæology
205 West State Street
Trenton, N.J. 08625
(609) 292-8594

SITE NO: 28- Sa = 69 JUNE '86 AREA B
Site Name: Supawna Meadow
Atlas Coordinates: 30-42-24-3
U.S.G.S. Coordinates: Salem Quad
State Register Status:
Date:
File:

County: *Salem* Municipality: *Pennsville*

Location (descriptive): *A small natural levee near the causeway leading to the Route 49 bridge in Salem, on the west side of the road* Period of Site: *Woodland*

Type of Site: *Possibly a river-related Woodland period seasonal procurement site*

Cultural affiliation(s) (if known): *Woodland period*

Owner's Name: *S. C. Loveland III*
Address: *Supawna Meadows, 520 South Front Street, Philadelphia, Pa. 19147*
Phone: *215-922-2244*
Attitude toward preservation: *agreeable*

Tenant's Name:
Address:
Phone:

Surface Features: *natural levee*

Prominent Landmarks: *Italianate house directly opposite, county CR inventory (1708-1)*

Vegetation Cover: *No-till cultuivation*

Nearest Water Source: *Salem River and a small spring nearby now drained*

Distance: *100 yards to river, spring adjacent*

Soil Type: *Mattapex*

Erosion: *some*

Stratified (if known): *not available*

THREAT OF DESTRUCTION (if known): *none; proposed disposal area adjacent*

PREVIOUS WORK (list below):

By whom	Date	Collection Stored	Previous Designation

Recorder's Name: *Edward F. Heite*
Address: *P. O. Box 53, Camden, Delaware 19934*
Phone: *302-697-1789*
Collection stored: *returned to owner*
Date recorder at site: *spring 1986*

6/20/80
asked for a map of exact location

NEW JERSEY STATE MUSEUM
ARCHAEOLOGICAL SITE REGISTRATION PROGRAM
BUREAU OF ARCHAEOLOGY & ETHNOLOGY
PO BOX 530, TRENTON, N.J. 08625-0530
Ph.(609) 292-8594; Fx.(609) 292-7636

SITE NAME: Supawana Meadow - Locus B+C SITE NO.: 28-Sa-66

NJ State Atlas Coordinates: 30-32-7-7-2

USGS 7.5 Minute Series Quad. Name Delaware City

UTM Coordinates (required) 484720 E 4384550 N

County: Salem Township:

Lat 39 36 33
Long 75 31 40

Location (descriptive): Locus C is between a farmhouse and the Bilderback house. Locus B northof the house and south of a small spring.

Period of Site:
Type of Site: (historic) prehistoric)

Cultural affiliation(s) (if known): Locus B+C associated w/ the spring in middle of field. Spring is water source for two nearby houses + prehistoric people. Not a dump area; considerable human activity at spring.

Owner's (Tenant's) Name:
Address:
Phone:
Attitude toward preservation:

Surface Features: Prominent Landmarks:

Vegetation Cover:

Nearest Water Source: Distance:

Soil Type: Erosion:

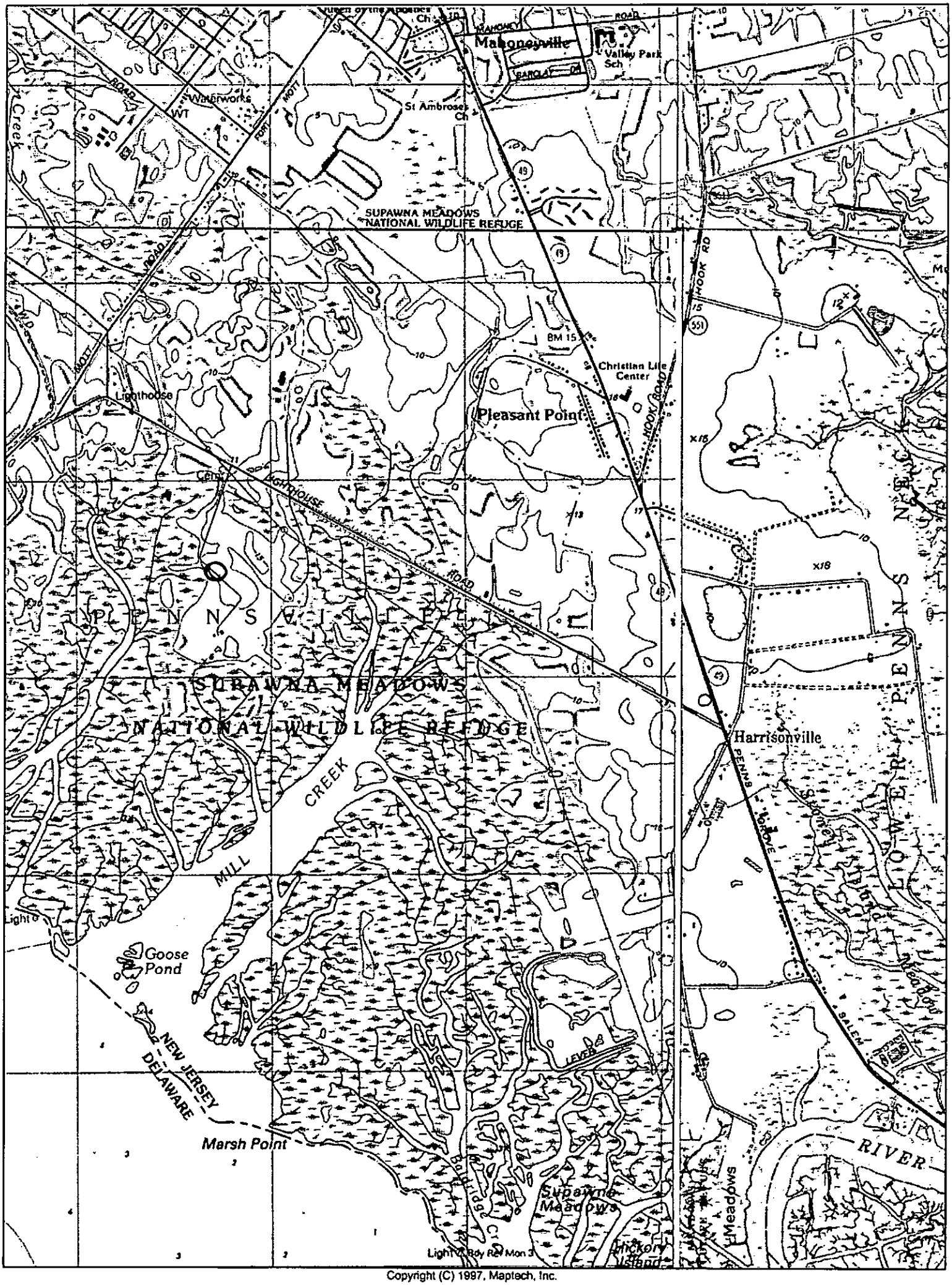
Stratified (if known):

Threat of Destruction (if known):

PREVIOUS WORK (list below):

By Whom	Date	Collection Stored	Previous Designation
Edward F. Heite			

Recorders Name:
Address:
Phone:
Collection stored:
Date recorder at site:



Copyright (C) 1997, Maptech, Inc.

NEW JERSEY STATE MUSEUM
ARCHAEOLOGICAL SITE REGISTRATION PROGRAM
BUREAU OF ARCHAEOLOGY & ETHNOLOGY
PO BOX 530, TRENTON, N.J. 08625-0530
Ph.(609) 292-8594; Fx.(609) 292-7636

SITE NAME: Supawana Meadow-Locus E SITE NO.: 28-Sa-67

NJ State Atlas Coordinates: [redacted] 30-32-7-7-1

USGS 7.5 Minute Series Quad. Name Delaware

UTM Coordinates (required) 454400E 4384544N

County: Salem Township:

Location (descriptive): Lat. 39 36 33
Long. 75 31 53

Period of Site: Woodland
Type of Site: (historic/prehistoric)
a isolated find of a triangular chert projectile point

Cultural affiliation(s) (if known):
projectile point is consist w/ other materials of the Woodland period found property

Owner's (Tenant's) Name:
Address:
Phone:
Attitude toward preservation:

Surface Features: Prominent Landmarks:

Vegetation Cover:

Nearest Water Source: Distance:

Soil Type: Erosion:

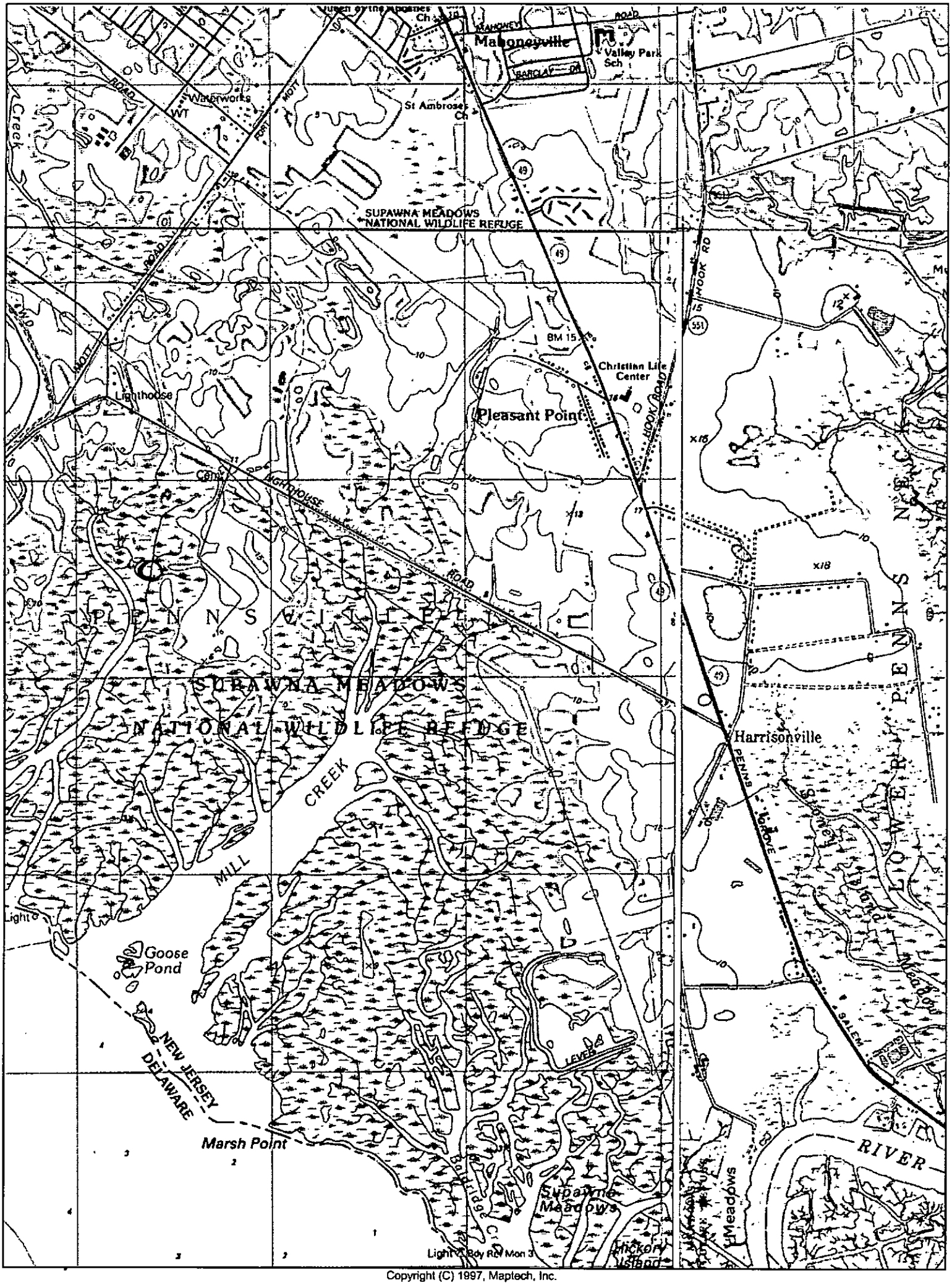
Stratified (if known):

Threat of Destruction (if known):

PREVIOUS WORK (list below):

By Whom	Date	Collection Stored	Previous Designation
Edward F. Heite			

Recorders Name:
Address:
Phone:
Collection stored:
Date recorder at site:



Copyright (C) 1997, Maptech, Inc.

NEW JERSEY STATE MUSEUM
ARCHAEOLOGICAL SITE REGISTRATION PROGRAM
BUREAU OF ARCHAEOLOGY & ETHNOLOGY
PO BOX 530, TRENTON, N.J. 08625-0530
Ph.(609) 292-8594; Fx.(609) 292-7636

SITE NAME: Supawana Meadow - Locus A+F SITE NO.: 28-Sa-68

NJ State Atlas Coordinates: 30-32-7-7-4,5

USGS 7.5 Minute Series Quad. Name Delaware

UTM Coordinates (required) 1.) (454397 E 4384135N) 2.) 454710 E 4384133N

County: Salem Township:

Location (descriptive):

1.) Lat 39 36 20 Long. 75 31 53

2.) Lat. 39 36 20 Long. 75 31 40

Period of Site: Woodland
Type of Site: (historic/prehistoric)

Cultural affiliation(s) (if known):
Locus A: prehistoric artifacts indicate the location of a small Woodland camp
Locus F: small scattering of historic + prehistoric materials south of house, on edge of wetlands

Owner's (Tenant's) Name:
Address:
Phone:
Attitude toward preservation:

Surface Features: Prominent Landmarks:

Vegetation Cover:

Nearest Water Source: Distance:

Soil Type: Erosion:

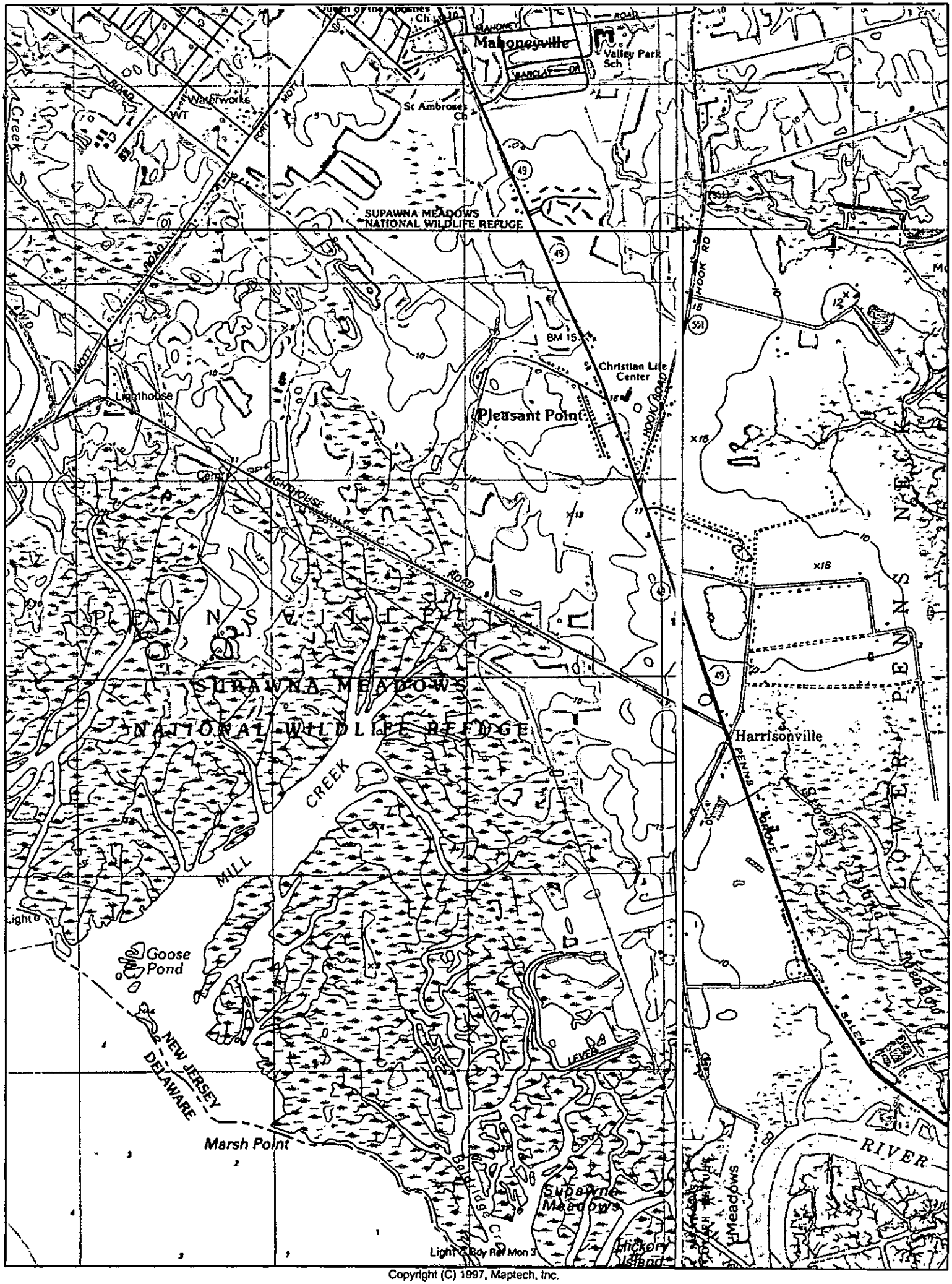
Stratified (if known):

Threat of Destruction (if known):

PREVIOUS WORK (list below):

By Whom	Date	Collection Stored	Previous Designation
Edward T. Heite			

Recorders Name:
Address:
Phone:
Collection stored:
Date recorder at site:



Copyright (C) 1997, Maptech, Inc.

NEW JERSEY STATE MUSEUM
ARCHAEOLOGICAL SITE REGISTRATION PROGRAM
BUREAU OF ARCHAEOLOGY & ETHNOLOGY
PO BOX 530, TRENTON, N.J. 08625-0530
Ph.(609) 292-8594; Fx.(609) 292-7636

SITE NAME: Lighthouse Road-A **SITE NO.:** 28-Sa-171

NJ State Atlas Coordinates: 30-32-7-4-7

USGS 7.5 Minute Series Quad. Name Delaware City

UTM Coordinates (required) 454410 E 4384966 N

County: Salem Township:

Location (descriptive):

Period of Site:
Type of Site: (historic/prehistoric)

Lat. 39 36 47
Long 75 31 53

Cultural affiliation(s) (if known):

Owner's (Tenant's) Name:
Address:
Phone:
Attitude toward preservation:

Surface Features: Prominent Landmarks:

Vegetation Cover:

Nearest Water Source: Distance:

Soil Type: Erosion:

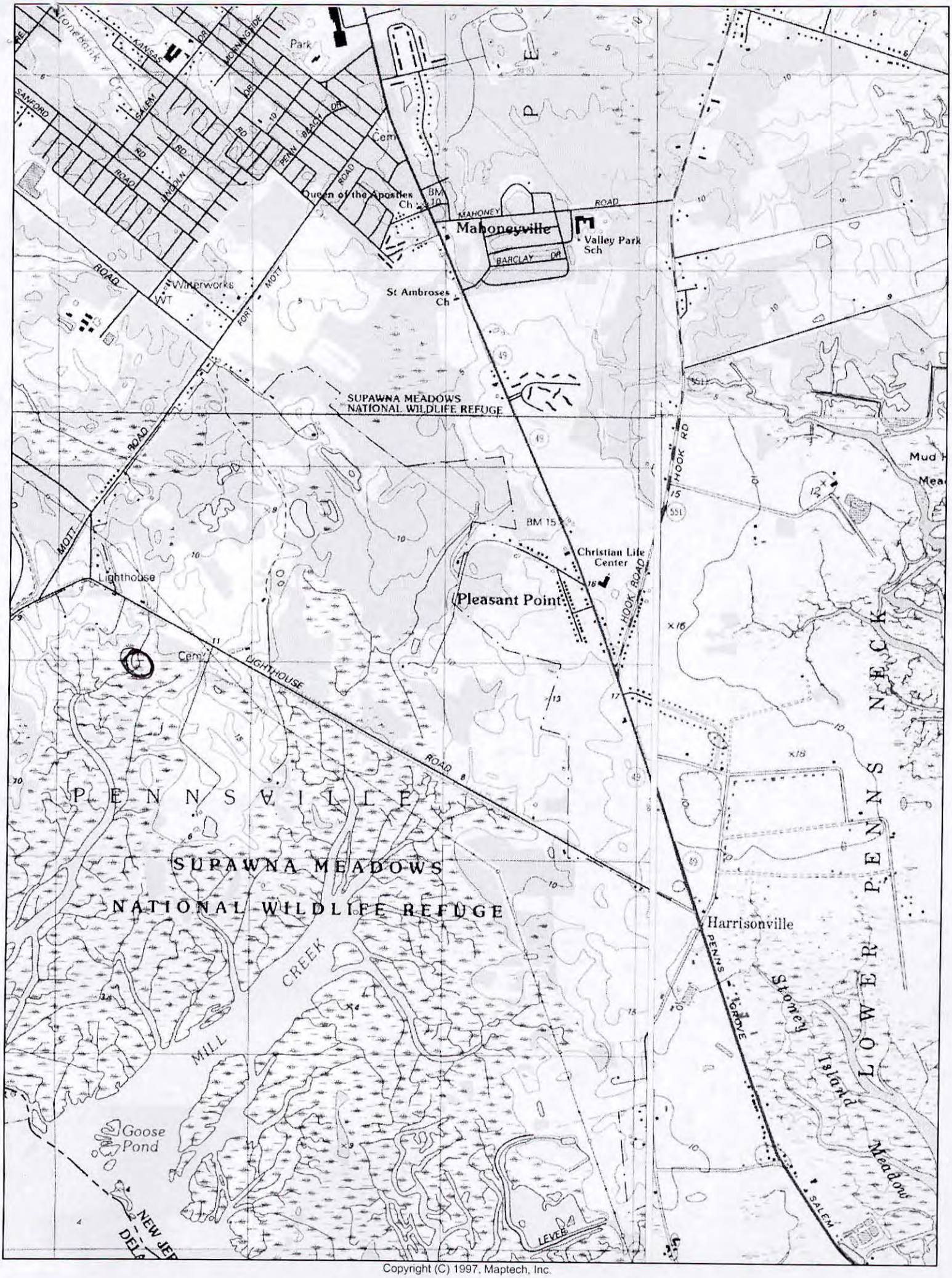
Stratified (if known):

Threat of Destruction (if known):

PREVIOUS WORK (list below):

By Whom	Date	Collection Stored	Previous Designation
GAI-B			

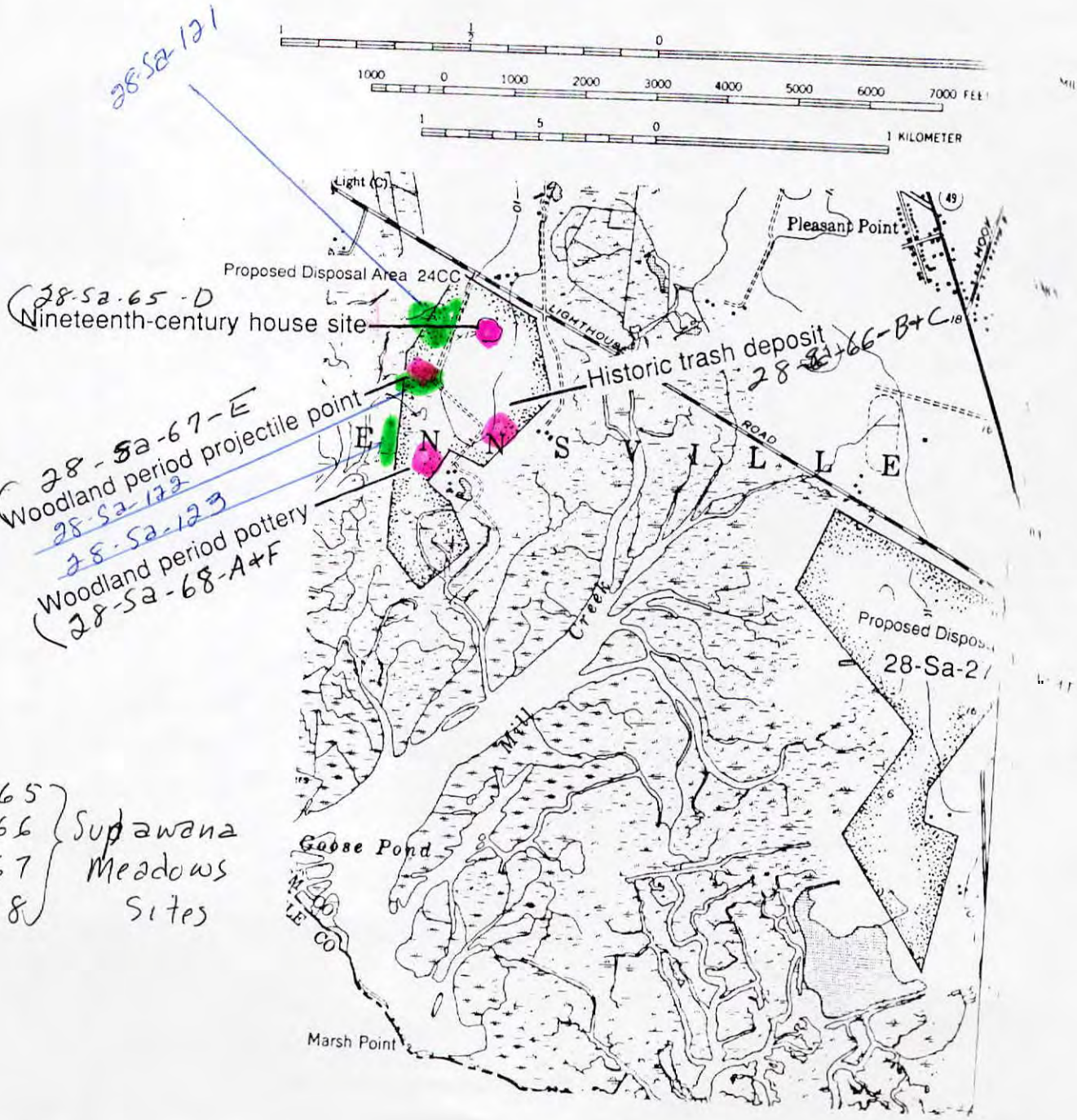
Recorders Name:
Address:
Phone:
Collection stored:
Date recorder at site:



Copyright (C) 1997, Maptech, Inc.

FIGURE 16: Detail of the current USGS 7.5' Delaware City quadrangle, showing disposal areas 24CC and 24T.

28-Sa-121 Lighthouse Rd-A GA 1
122 Light house Rd-B GA 1
123 Light house Rd-C GA 1



-65
-66
-67
-68
} Sup awana Meadows Sites

11/11/92

SAYS NOT SAME AS
Heute SITE —
will send FORMS

28-Sa-121 = GAI - A

28-Sa-122 = GAI - B

28-Sa-123 = GAI - C

Lighthouse Rd A -121
" B -122
" C. 123

Project Number 90-300-20

Time Sent

Verification Time

FAX TRANSMISSION COVER PAGE

GAI CONSULTANTS, INC.
570 BEATTY ROAD
MONROEVILLE, PENNSYLVANIA 15146

DATE: 11-9-92

MESSAGE TO: Ms. Karen Flynn

FIRM: N.J. State Museum

FIRM'S FAX NUMBER: (609) 599-4098

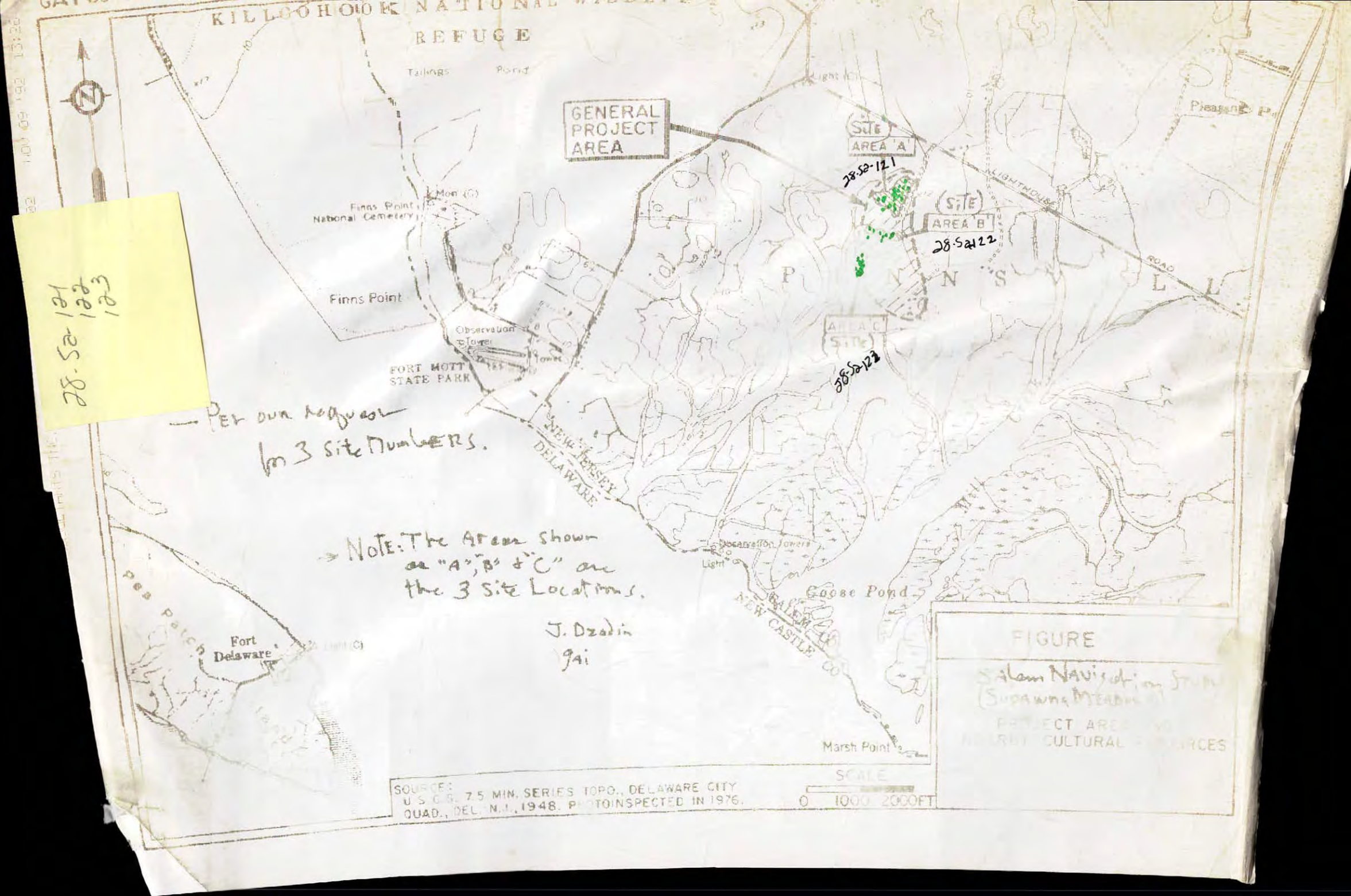
FIRM'S VERIFICATION NUMBER:

NUMBER OF PAGES 1 PLUS COVER PAGE

MESSAGE FROM: Joel S. Dzodin - Archaeology

GAI FAX NUMBER: (412) 856-4970

VERIFICATION NUMBER: (412) 856-6400 EXTENSION: 3162



28-Sa-121
122
123

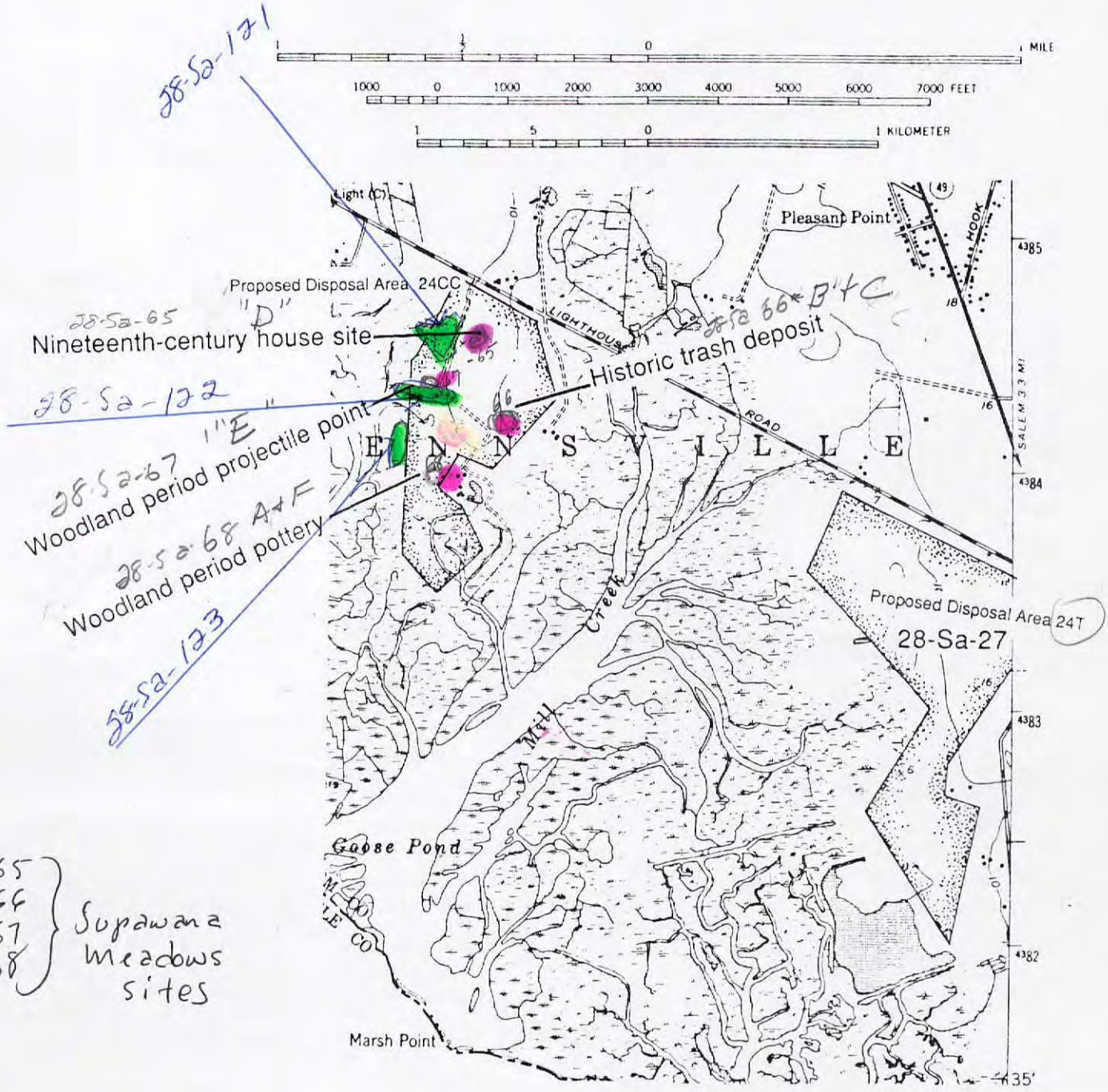
— Per our request
for 3 site Numbers.

→ Note: The Areas shown as "A", "B" & "C" are the 3 site Locations.

J. Dzadin
9/81

FIGURE 16: Detail of the current USGS 7.5' Delaware City quadrangle, showing disposal areas 24CC and 24T.

30-32-7-4-7 28Sa-121 Lighthouse Rd A
30-32-7-7-1 28-Sa-122 Lighthouse Rd B
30-32-7-7-1 28-Sa 123 Lighthouse Rd C



-65
-66
-67
-68
} Supawana Meadows sites

NEW JERSEY STATE MUSEUM
ARCHAEOLOGICAL SITE REGISTRATION PROGRAM
BUREAU OF ARCHAEOLOGY & ETHNOLOGY
PO BOX 530, TRENTON, N.J. 08625-0530
Ph.(609) 292-8594; Fx.(609) 292-7636

SITE NAME: Lighthouse Road - B **SITE NO.:** 28-Sa-122

NJ State Atlas Coordinates: 30-32-7-7-1

USGS 7.5 Minute Series Quad. Name Delaware City

UTM Coordinates (required) 454407 E 4384533 N

County: Salem Township:

Location (descriptive):

Period of Site:
Type of Site: (historic/prehistoric)

Lat. 39 36 33
Long. 753153

Cultural affiliation(s) (if known):

Owner's (Tenant's) Name:
Address:
Phone:
Attitude toward preservation:

Surface Features: Prominent Landmarks:

Vegetation Cover:

Nearest Water Source: Distance:

Soil Type: Erosion:

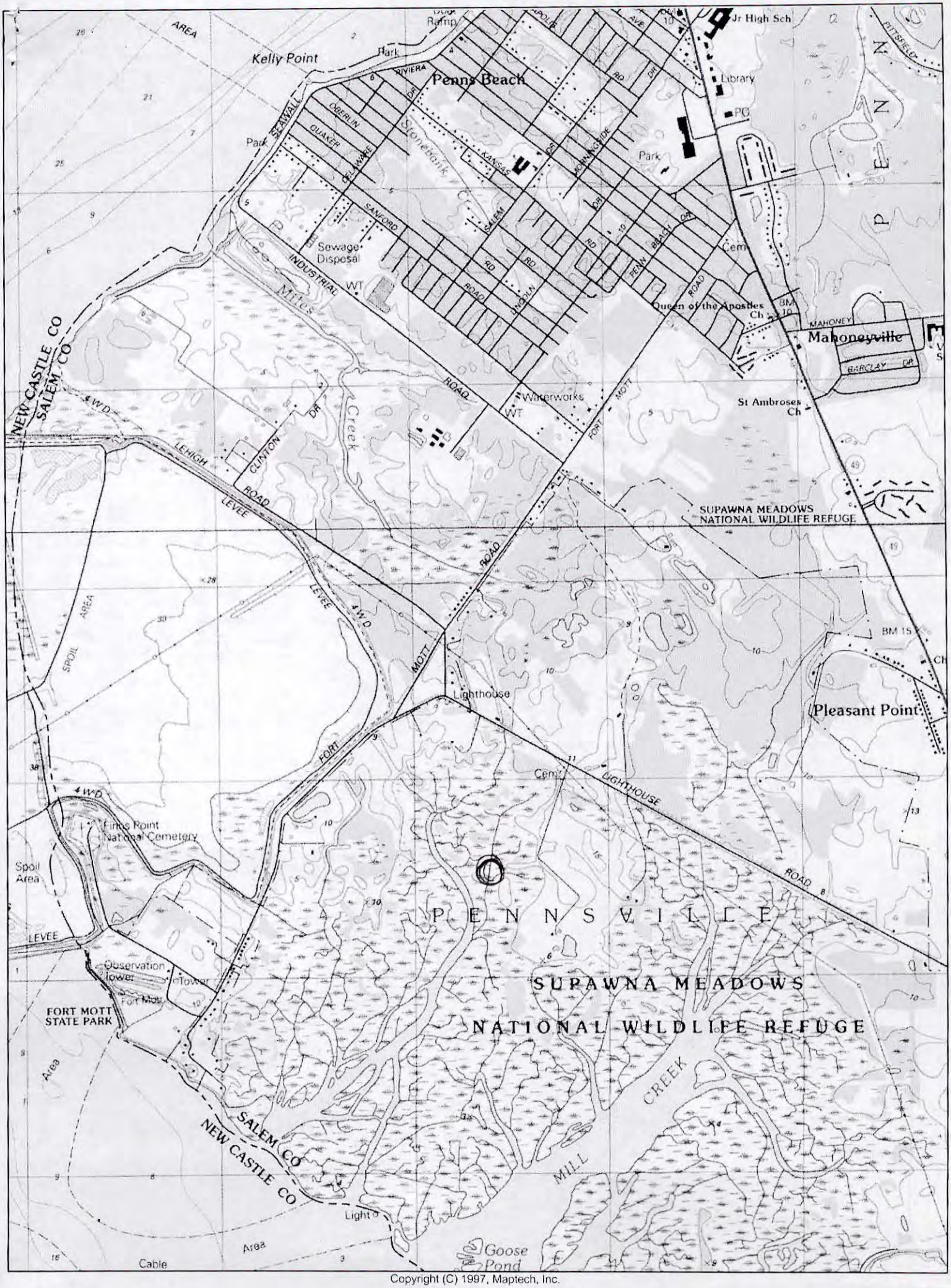
Stratified (if known):

Threat of Destruction (if known):

PREVIOUS WORK (list below):

By Whom	Date	Collection Stored	Previous Designation
GAI-B			

Recorders Name:
Address:
Phone:
Collection stored:
Date recorder at site:



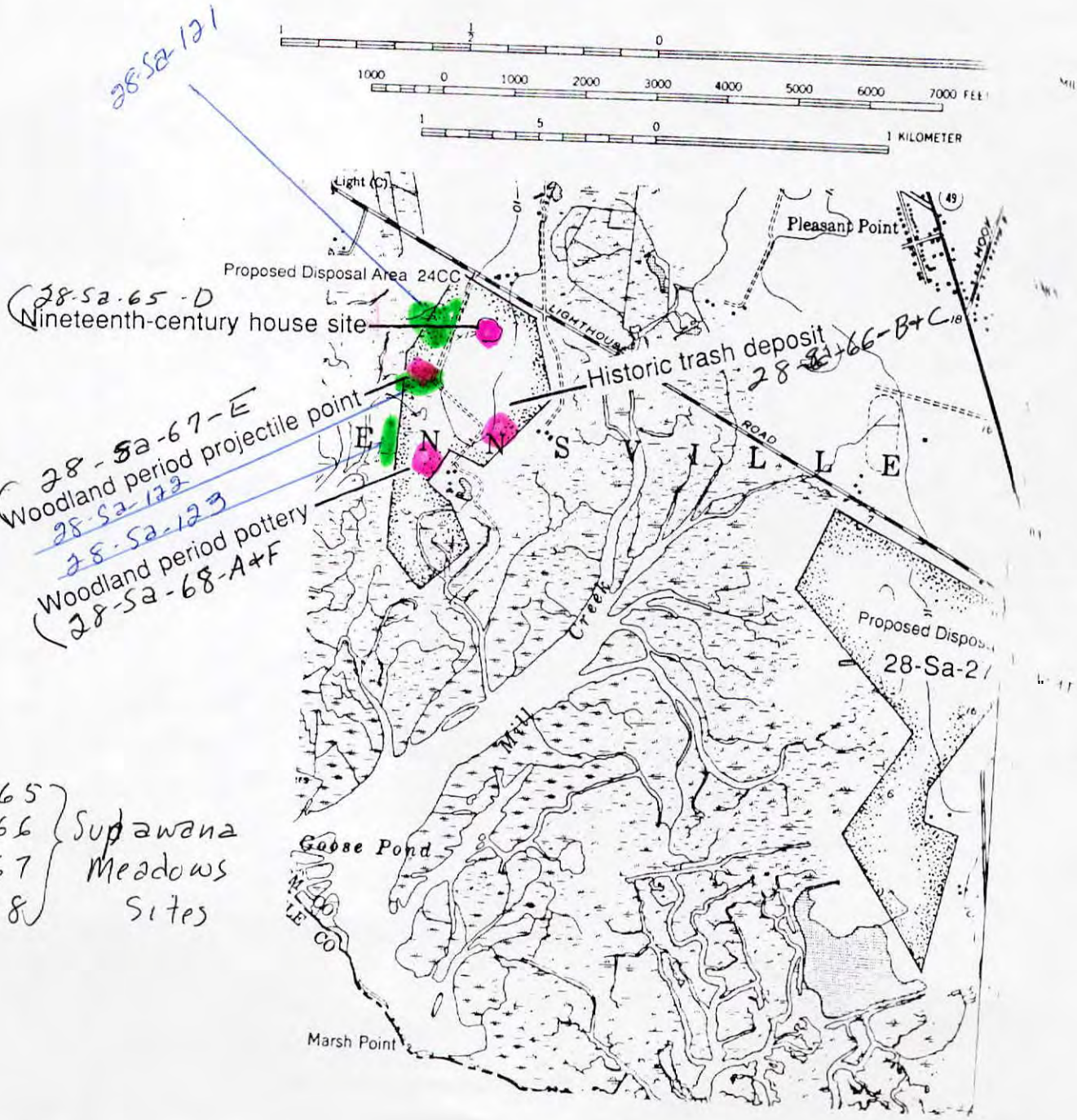
Copyright (C) 1997, Maptech, Inc.

98-50-121
98-50-122
98-50-123

GA1

FIGURE 16: Detail of the current USGS 7.5' Delaware City quadrangle, showing disposal areas 24CC and 24T.

28-Sa-121 Lighthouse Rd-A GA 1
122 Light house Rd-B GA 1
123 Light house Rd-C GA 1



-65
-66
-67
-68
} Sup awana Meadows Sites

11/11/92

SAYS NOT SAME AS
Heute SITE —
will send FORMS

28-Sa-121 = GAI - A

28-Sa-122 = GAI - B

28-Sa-123 = GAI - C

Lighthouse Rd A -121
" B -122
" C. 123

Project Number 90-300-20

Time Sent

Verification Time

FAX TRANSMISSION COVER PAGE

GAI CONSULTANTS, INC.
570 BEATTY ROAD
MONROEVILLE, PENNSYLVANIA 15146

DATE: 11-9-92

MESSAGE TO: Ms. Karen Flynn

FIRM: N.J. State Museum

FIRM'S FAX NUMBER: (609) 599-4098

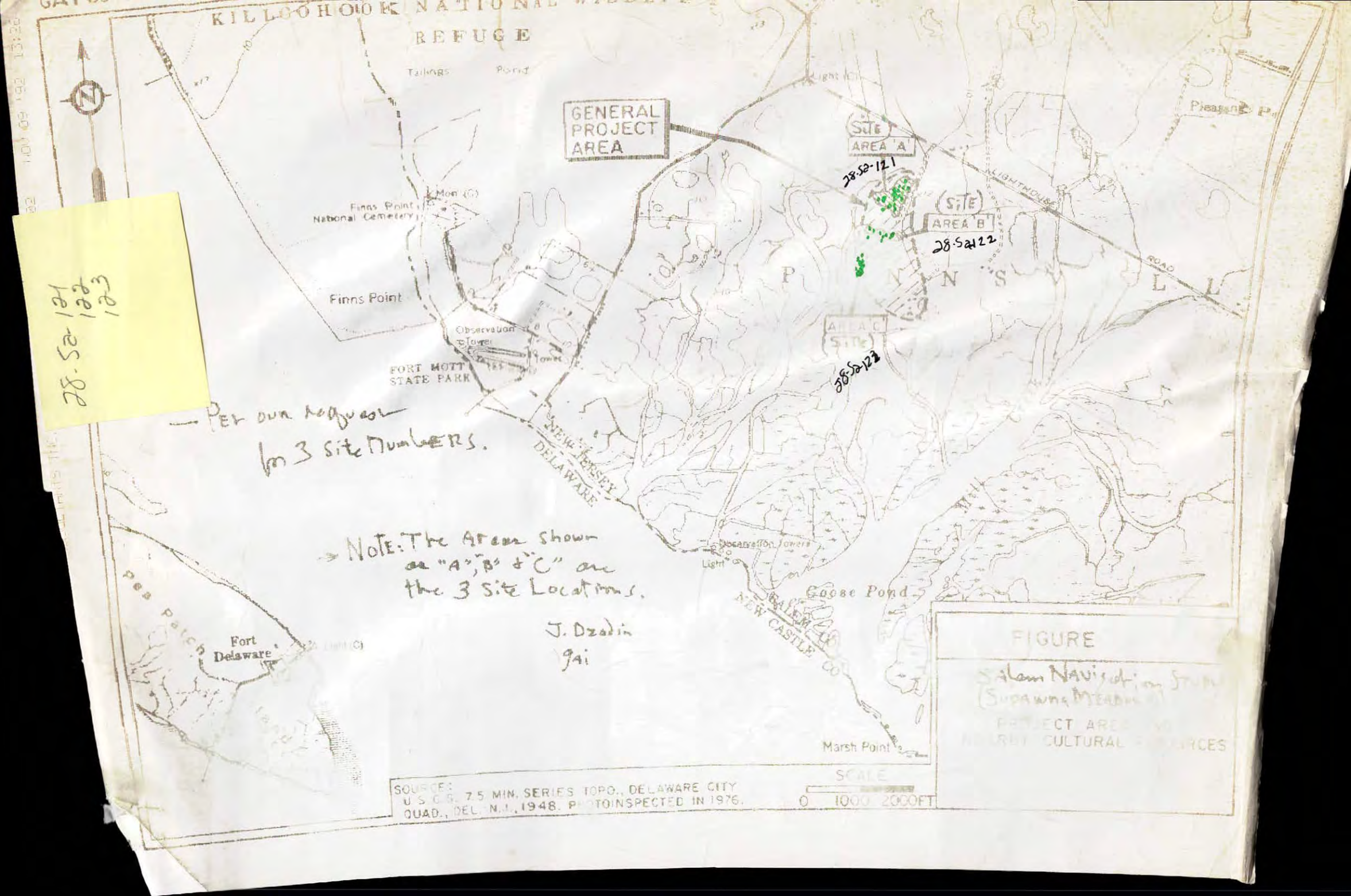
FIRM'S VERIFICATION NUMBER:

NUMBER OF PAGES 1 PLUS COVER PAGE

MESSAGE FROM: Joel S. Dzodin - Archaeology

GAI FAX NUMBER: (412) 856-4970

VERIFICATION NUMBER: (412) 856-6400 EXTENSION: 3162



28-Sa-121
122
123

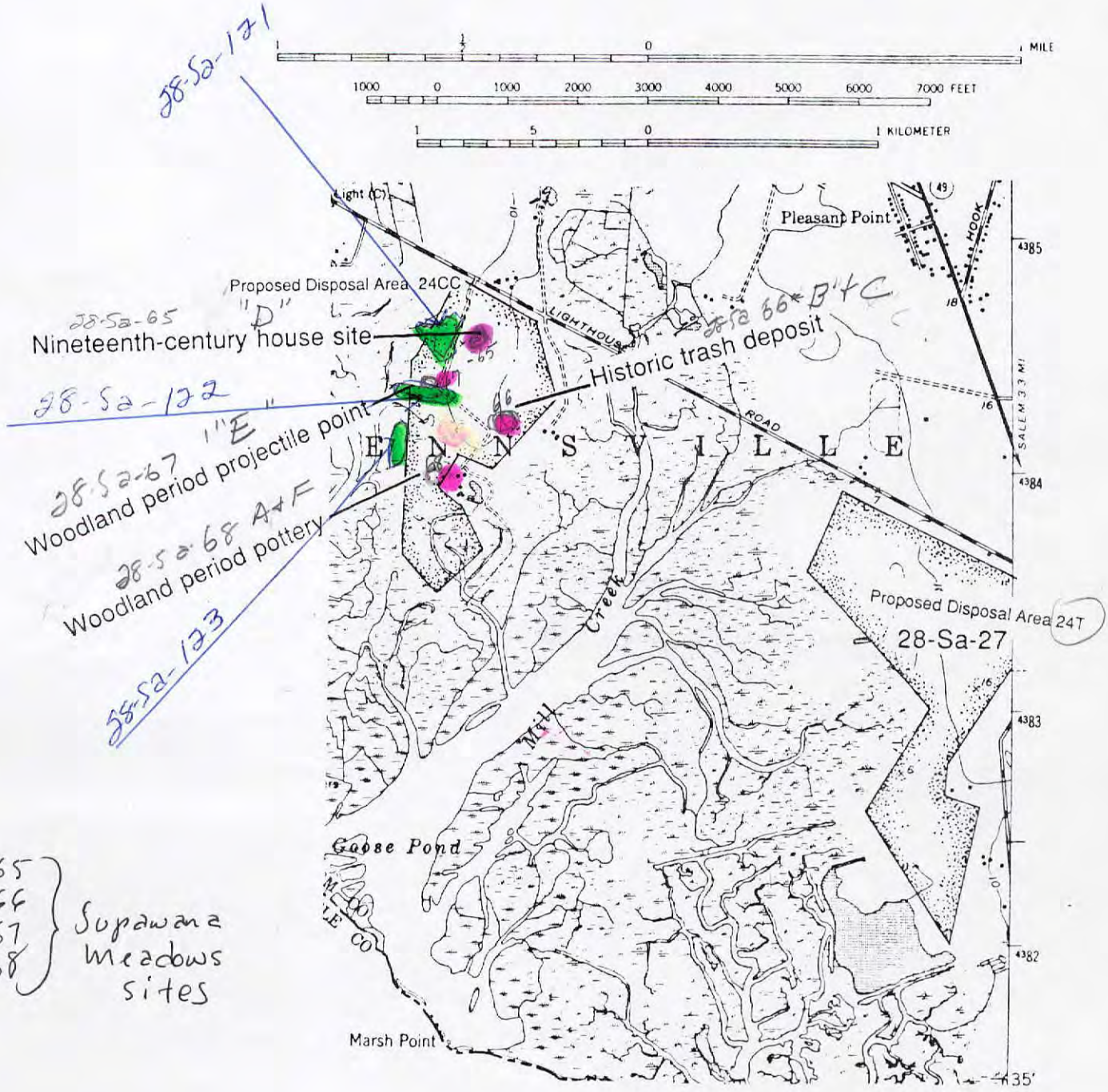
— Per our request
for 3 site Numbers.

→ Note: The Areas shown as "A", "B" & "C" are the 3 site Locations.

J. Dzadin
9/81

FIGURE 16: Detail of the current USGS 7.5' Delaware City quadrangle, showing disposal areas 24CC and 24T.

30-32-7-4-7 28Sa-121 Lighthouse Rd A
30-32-7-7-1 28-Sa-122 Lighthouse Rd B
30-32-7-7-1 28-Sa 123 Lighthouse Rd C



-65
-66
-67
-68
} Supawana Meadows sites

NEW JERSEY STATE MUSEUM
ARCHAEOLOGICAL SITE REGISTRATION PROGRAM
BUREAU OF ARCHAEOLOGY & ETHNOLOGY
PO BOX 530, TRENTON, N.J. 08625-0530
Ph.(609) 292-8594; Fx.(609) 292-7636

SITE NAME: Lighthouse Road - C **SITE NO.:** 28-Sa-123

NJ State Atlas Coordinates: 30-32-7-7-1

USGS 7.5 Minute Series Quad. Name Delaware City

UTM Coordinates (required) 454408E 4384536N

County: Salem Township:

Location (descriptive):

Period of Site:
Type of Site: (historic/prehistoric)

Lat. 39 36 33
Long 75 31 53

Cultural affiliation(s) (if known):

Owner's (Tenant's) Name:
Address:
Phone:
Attitude toward preservation:

Surface Features: Prominent Landmarks:

Vegetation Cover:

Nearest Water Source: Distance:

Soil Type: Erosion:

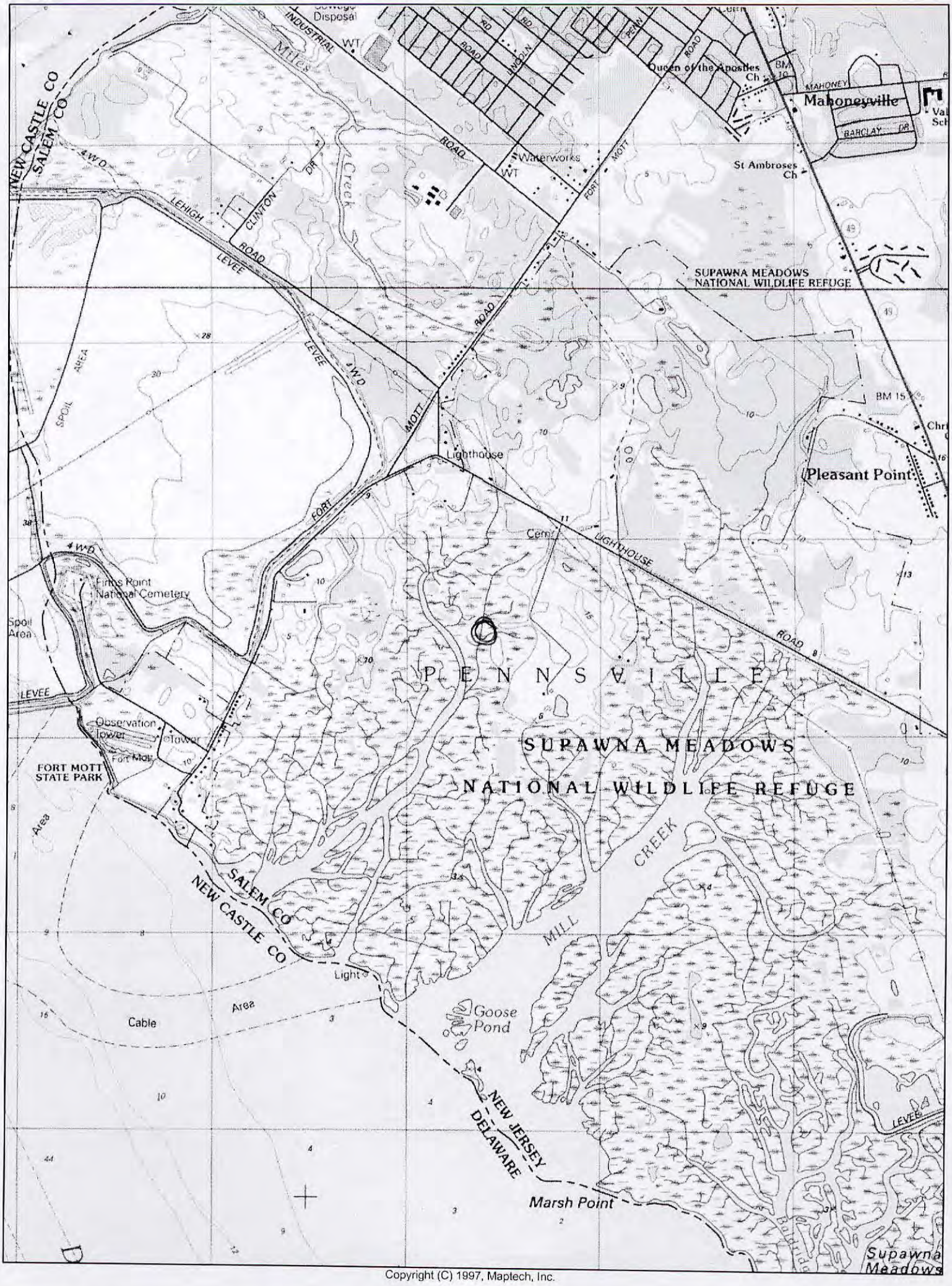
Stratified (if known):

Threat of Destruction (if known):

PREVIOUS WORK (list below):

By Whom	Date	Collection Stored	Previous Designation
GAI - C			

Recorders Name:
Address:
Phone:
Collection stored:
Date recorder at site:



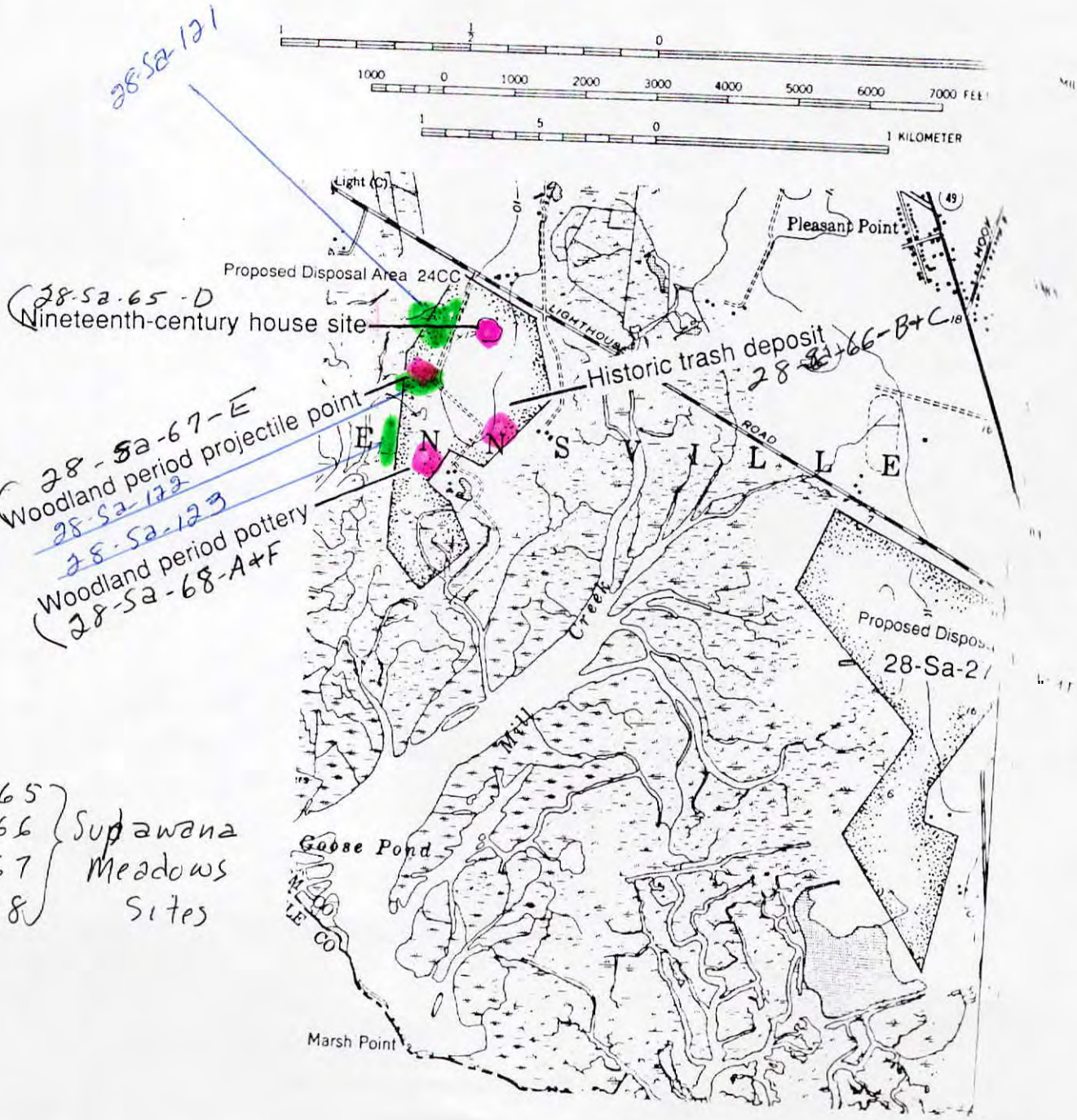
Copyright (C) 1997, Maptech, Inc.

98-50-121
98-50-122
98-50-123

GA1

FIGURE 16: Detail of the current USGS 7.5' Delaware City quadrangle, showing disposal areas 24CC and 24T.

28-Sa-121 Lighthouse Rd-A GA 1
122 Light house Rd-B GA 1
123 Light house Rd-C GA 1



-65
-66
-67
-68
} Sup awana Meadows Sites

11/11/92

SAYS NOT SAME AS
Heute SITE —
will send FORMS

28-Sa-121 = GAI - A

28-Sa-122 = GAI - B

28-Sa-123 = GAI - C

Lighthouse Rd A -121
" B -122
" C. 123

Project Number 90-300-20

Time Sent

Verification Time

FAX TRANSMISSION COVER PAGE

GAI CONSULTANTS, INC.
570 BEATTY ROAD
MONROEVILLE, PENNSYLVANIA 15146

DATE: 11-9-92

MESSAGE TO: Ms. Karen Flynn

FIRM: N.J. State Museum

FIRM'S FAX NUMBER: (609) 599-4098

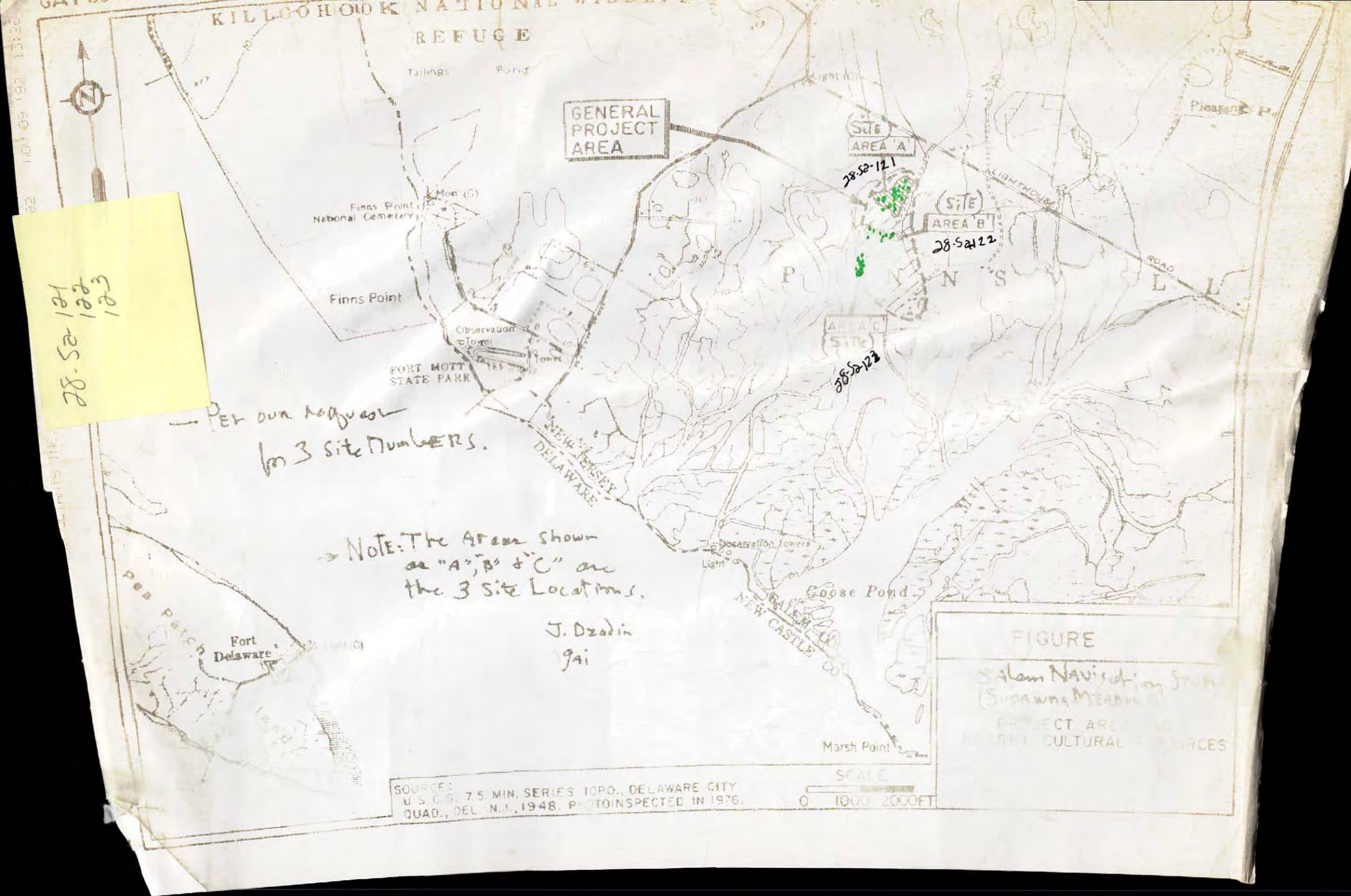
FIRM'S VERIFICATION NUMBER:

NUMBER OF PAGES 1 PLUS COVER PAGE

MESSAGE FROM: Joel S. Dzodin - Archaeology

GAI FAX NUMBER: (412) 856-4970

VERIFICATION NUMBER: (412) 856-6400 EXTENSION: 3162



28-Sa-121
122
123

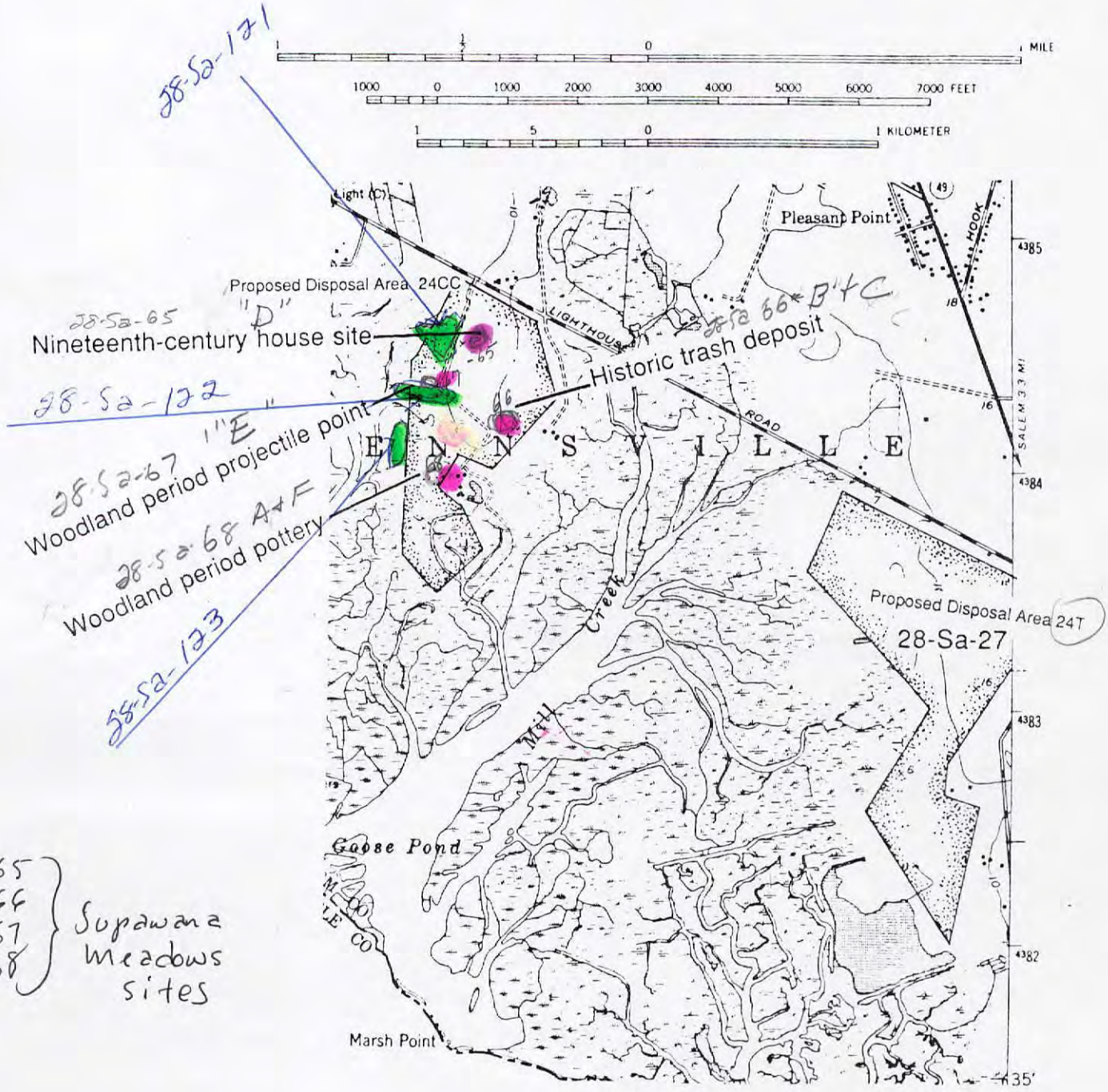
— Per our request
for 3 site Numbers.

→ Note: The Areas shown as "A", "B" & "C" are the 3 site Locations.

J. Dzadin
9/81

FIGURE 16: Detail of the current USGS 7.5' Delaware City quadrangle, showing disposal areas 24CC and 24T.

30-32-7-4-7 28Sa-121 Lighthouse Rd A
30-32-7-7-1 28-Sa-122 Lighthouse Rd B
30-32-7-7-1 28-Sa 123 Lighthouse Rd C



-65
-66
-67
-68
} Supawana Meadows sites