PETERSON ROAD:

PHASE 1 CULTURAL RESOURCE SURVEYS IN CONNECTION WITH A PROPOSED RELOCATION OF A NATURAL-GAS PIPELINE ON PETERSON ROAD, ST. GEORGE'S HUNDRED, NEW CASTLE COUNTY, DELWARE

PREPARED FOR EASTERN SHORE NATURAL GAS

AND SUBMITTED TO

STATE OF DELAWARE, DIVISION OF HISTORICAL AND CULTURAL AFFAIRS
STATE HISTORIC PRESERVATION OFFICE

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ABSTRACT

This is a report of Phase I archæological and historical surveys on Peterson Road in St. Georges Hundred, New Castle County, Delaware. Eastern Shore Natural Gas proposes to relocate its natural-gas pipeline to accommodate a changed road alignment.

A 100% surface survey was conducted under excellent ground conditions. No resources were found.

1. INTRODUCTION

EASTERN SHORE NATURAL GAS proposes to relocate a natural gas pipeline in connection with the reconstruction of Peterson Road (U S 301) west of Middletown in St. George's Hundred, New Castle County. Peterson Road is a local street that runs north-south between North Broad Street at Frogtown Crossing and West Main Street just west of the Middletown depot area. Its entire length is parallel to, and just west of, the Conrail, formerly the Delaware Rail Road. Development along the road is almost nonexistent.

Because it carries U. S. Route 301, a major north-south artery, Peterson Road is heavily travelled. Delaware Department of Transportation therefore has undertaken to build a new cut-off, to connect Peterson Road more directly with 301 into Maryland with Delaware Route 896 on the north.

Between the cut-off and Frogtown Crossing, a small segment of Peterson Road will be widened.

Eastern Shore Natural Gas owns a six-inch main along the west edge of Peterson Road. About 1400 feet of this pipeline will be displaced by the widening.

The relocation requires a permit from the Federal Energy Regulatory Commission. Such permit applications, as federal undertakings, trigger procedures for compliance with the National Historic Preservation Act of 1966.

In order to comply with Section 106 of the National Historic Preservation Act of 1966 as amended, and other regulations, the utility engaged the author to conduct Phase I [reconnaissance or identification] cultural resources investigation. The project area was generally the proposed pipeline route and all parts of the right-of-way that might be impacted by pipeline construction.

Work on the present project was conducted during the last week of January 1993 by the author. Purpose of a Phase I survey is to identify all cultural resources potentially eligible for the National Register that might be affected by the project, but to investigate neither their extent nor their significance. All survey work was conducted by the author personally, working with one field assistant.

CONSTRAINTS

No survey method can conclusively demonstrate the absence of sites from a study area. Indeed, it is impossible by the scientific method to prove that anything does not exist. One can prove that something exists, but no methodology is rigorous enough to prove nonexistence.

Instead, negative conclusions must be couched in terms of the survey methodology. Predictive models, survey strategies, and personal experience can minimize the probability of missing cultural resources, but no strategy is 100% effective. It is possible only for the surveyor to state that the search strategy was sufficient to minimize the chance of overlooking sites significant enough for inclusion in the National Register of Historic Places.

Sampling strategies can ensure only the discovery of sites that conform to models and share characteristics of sites already discovered. Since undiscovered classes of sites cannot be predicted, it is folly to attempt to use predictive models in their detection, by definition. Therefore, any survey strategy must include a non-exclusive component and some truly random selection of test units in order to minimize the effect that results from each surveyor's peculiar mix of bias, expertise, and ignorance.

In this instance, it was possible to eliminate the uncertainties of sampling

altogether, since the entire site was available for 100% walkover survey.

APPROACH AND METHODS

Survey consisted of property history research and field reconnaissance. Because the project area has been intensively cultivated since the seventeenth century, the historic component of the survey could be expected to produce rich results.

The fields were cultivated to allow surface collection over the right-of-way. Since the site is virtually all open fields, cultivation provided functionally 100% coverage for walkover survey. The technique consists of walking the field after rain has weathered the newly-turned earth, cleaning and exposing any artifacts that might have been turned up.

JUSTIFICATION FOR FIELD METHOD

Shovel test pits are always advisable if there is a possibility that soils have accumulated since humans first occupied an area, or if parts of the site cannot be cultivated.

Cultivation as a method for Phase I testing has been enshrined in regulations and practice; as far as it is applicable, the field walk over cultivated ground is both cheap and effective. In some cases, mere field walking can be ineffective. Cultivated field survey cannot detect sites that are confined to woodlands bordering fields or the uncultivated yards of existing structures.

In lower New Castle County, for example, Custer has demonstrated that certain Woodland-period sites often are entirely confined to the wooded band around cultivated fields overlooking watercourses, and usually have been missed by field-walking site surveyors.

No wooded fringe areas were included in the project area.

Another class of site usually missed by walking plowed fields is the deeply-buried site, which typically occurs on floodplains, a terrain type absent from the project area. In mountainous states, notably Pennsylvania, Phase I research designs must include deep testing into alluvial sites. Since there are no alluvial soils on the project area, this is not a concern.

Small upland sites are more susceptible to detection by field-walking than are small alluvial sites. This environmental difference will skew the data by filling survey inventories with relatively more small sites on uplands than in deep alluvial valleys, disproportionate to the actual distribution of the sites.

In addition to alluvial sites, æolian deposits can obscure buried soil layers that might artifacts. Æolian soils are not present in the project area, according to the Soil Conservation Service (1970).

Instead, the project area is Matapeake soil, a relatively old and stable type. Such soils seldom, if ever, harbor buried cultural layers that are not readily apparent. Disturbances and fill are very easy to see on Matapeake soils because the fields tend to exhibit a smooth, even, color and texture that accentuate the differences that would herald the existence of fill.

Most of the right-of-way is Matapeake silt loam, 0 to 2 percent slope (MeA), the most-prized agricultural soil in the county. The north end of the right-of-way is the moderately-eroded (MeB2) member of the type, which "has lost a significant amount of its original surface layer through erosion."

Therefore, there is no reason to suspect that naturally-buried sites would occur on the project-area's soil. On the contrary, one should expect that any buried site elements, such as burials or foundations, would be found eroded out of the soil matrix.

DEFINITION OF PROJECT AREA

The project area consisted of the area to be impacted by the proposed pipeline. Surface impact would consist of a swath about ten feet wide, in which heavy machinery would operate on the surface of the ground, possibly disturbing any plowzone deposits. Subsurface impact would consist of a trench about two feet wide in which the pipe would be laid.

This corridor consists entirely of level ground, and does not include the low hill overlooking the swampy headwaters of Drawyers Creek at Frogtown. This low hill would be a high-probability area for suspected prehistoric sites. .

LOCATION OF RECORDS

No artifacts were collected for curation, and no records, other than this report, were generated. No file was created at Island Field, and all notes are preserved by the contractor.

2. PROJECT AREA ENVIRONMENT

THE PROJECT AREA LIES ON THE headwaters of Drawyers Creek, near the peninsular divide in St. Georges Hundred, New Castle County.

SOILS AND MAN

The project area lies in the Sassafras-Fallsington-Matapeake soil association, "level to gently sloping, well-drained and poorly drained, moderately coarse textured and medium-textured soils on uplands" The soil on the site is Matapeake (USDA SCS 1970).

The mid-peninsular drainage divide, to which the project area belongs, has been occupied since the Paleo period, at the end of the last Ice Age. Many artifacts from the Paleo period have been found along the divide.

In lower New Castle County, the flat peninsular divide is called the "Levels" because of its topography. Since the first European settlement, the Levels has been a prized agricultural district, supporting small grain agriculture through much of its history.

Man-made site modifications include plowed fields, houses, and the busy Peterson Road.

PREHISTORIC SETTLEMENT

Soil type analysis is an important tool for archæologists working in the prehistoric period. Prehistoric people did not classify soils, but they were drawn to places with certain cover and drainage conditions that today's soil scientists have quantified. Archæologists can use these scientifically-described soil types to identify those places that would have had suitable ground cover for prehistoric people.

Custer (1984:52) has stated that Paleo-Indian people and their successors located hunting stands on terraces at junctions of large and small streams and near game-attractive areas such as bogs and swamps in the peninsular divide area. Such a location lies north of the project area.

As larger and more permanent settlements began to develop, later in the prehistoric period, base camps were located downstream, near the edge of the tidal marshes and the saltwater fisheries. Inland sites, like the project area, were used primarily for procurement during later prehistoric times.

In a recent Virginia study, Craig Lukezic (1990:13) has shown a positive correlation between well-drained sandy soils and site occurrence.

HISTORIC LAND USE

Historic land use of the project area has included small-grain farming since the late seventeenth century. During the middle years of the nineteenth century, the area was devoted to peach cultivation.

The dominant feature of the adjacent landscape is the Delaware Rail Road, completed in 1856, which transformed the economy of the area. The village of Middletown became a central place and industry flourished.

The Middletown area is becoming a suburb. In response to development, several new shopping centers are under construction or proposed in or near the project area.

3. RESEARCH PLAN

RESEARCH OBJECTIVES in the project area can be divided into several distinct thematic categories, which roughly correspond to emphases outlined in the state plan for historic preservation:

- Prehistoric site locations
- Evidence of commercial links with metropolitan trading centers
- Historic settlement patterns, notably toft siting
- Cemetery locations
- Agricultural history

Previous archæological research in the region has provided valuable insights into the locations of human activities through time. In some cases the settlement models are so well developed that sites can be predicted with uncanny accuracy, but there is yet much to be learned about human utilization of New Castle County.

THE STATE PLAN

The Division of Historical and Cultural Affairs, Bureau of Archæology and Historic Preservation, is charged with historic preservation planning in Delaware. This agency has recently commissioned a statewide historic preservation plan, a management plan for historical archæological sites, and context studies that are applicable to the project area.

As outlined in the state plan, the planning process involves three steps: identification, assessment of significance, and protection of significant resources in accordance with pre-determined categories of significance. Because the real authority and responsibility for protecting resources is a site-specific matter, the statewide plan is but an overview and an advisory framework.

The present project belongs to the first step, called Phase I, identification. At this level, the surveyor must be a generalist, ready to recognize a broad variety of resources, without prejudice in favor of any particular approach.

Through the state plan, the National Register program has created a system for orderly identification and relatively objective assessment of significance. While the Register provides a measure of protection of resources from federal activities, many losses occur because of activities that are not subject to federal or state laws and regulations. Indeed, local land-use regulations are recognized by the state plan as a key to effective preservation planning.

Nominations to the National Register in Delaware can be divided into ten functional categories:

- Historic structures
- Historical archæology
- Prehistoric archæology
- Historic structure and historical archæology
- Historic structure and prehistoric archæology
- Historical archæology and prehistoric archæology
- Submerged historic site
- Submerged prehistoric site
- Submerged both prehistoric and historic
- Multiple resource

About 95% of Delaware's National Register entries are grouped in the first category, historic structures, even though a significantly large percentage of the identified cultural resources in the state are archæological sites belonging to the second and third categories.

Near the project area, two such standing structures have been identified. Both are on the same property as the proposed pipeline, but they are not near the work area. One (N-105) is the farmhouse associated with the project area, but it is more than a hundred yards away from the proposed pipeline. The other identified historic house (N-5127) may not exist; nothing matching the

description is within sight of the project area. These may be the houses identified in Beers' 1868 map (Figure 3, page 14) in the name of the Fields heirs.

Industrial archæology and technological landmarks are not identified as a separate site category, even though Delaware's history for the past two centuries has been intimately intertwined with the industrial revolution. No industrial sites are known to exist in or near the project area.

The Delaware prehistoric cultural resources management plan identifies the project area as sensitivity zone 1, "High/medium signficant site potential with development pressure," the highest priority for investigation (Custer 1986:206). The more recent surveys by the same authorities identifies the project area as possessing moderate possibility of containing prehistoric resources.

One area of high probability, the hill overlooking the freshwater marshland at Frogtown, is not in the project area, since the new pipe does not extend that far north.

The management plan for standing structures and historic contexts (Ames, Callahan, Herman and Siders 1989) identifies agriculture as the first-ranked historic theme, and the "early industrialization" period of 1770-1830 as the highest-priority chronological period for study and preservation. The upper peninsula geographic zone, which includes the project area, was assigned the second priority for both above-ground and below-ground resources among the six zones in the state.

NATIONAL REGISTER IN DELAWARE

The National Register considers four criteria against which the significance of each surveyed property must be evaluated. All four criteria must be considered before a site can be determined to be eligible or ineligible for the Register:

The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, *and*:

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have yielded, or may be likely to yield, information important in prehistory or history.

Archæological sites, or sites with purely historical and associational significance, criteria A, B, and D, are not as readily evaluated as distinctive-looking buildings. Cursory "windshield" surveys are effective only for applying criterion C, but virtually useless for the other three criteria. Because of its simplicity, criterion C is the most heavily represented in the National Register list.

To correct this imbalance in favor of the easily-distinguished criterion C, quantitative and statistical planning regimes have been imposed upon the survey activity. Unfortunately, the quality of "historical significance" remains anecdotal in most surveys, even though it should be readily quantifiable.

Historic themes, or contexts, are important in evaluating historic properties as candidates for preservation or recordation in lieu of preservation.

To this end, the state plan develops historic contexts and property types. Historic movements, geographical context, and chronological periods, are used to classify historic sites in a "matrix" that could be employed as a first step in the process of quantifying the quality of significance.

A rigorously statistical matrix would ideally eliminate much of the long-standing imbalance in the system and create a National Register that is truly representative of the national

patrimony, rather than the collective distillate of the subjective judgments of surveyors. To date, however, this ideal has not been achieved and the survey remains largely anecdotal and highly subjective in several important categories of coverage.

Of all the classes of survey within the National Register program, prehistoric archæological inventories are the most intellectually rigorous and statistically dependable. When dealing with other classes of site, significance still is largely a value judgment limited by the experience and imagination of the evaluator.

PREVIOUS STUDIES IN THE VICINITY

Louise Heite in 1972 reconstructed landholdings along the Appoquinimink during the seventeenth century and developed a settlement history of the area up the Appoquinimink to the present Middletown. This paper and others were prepared as background studies for student use during an educational program involving the Henry Francis duPont Winterthur Museum and the University of Delaware. In connection with a winter session program based at the Corbit-Sharp House in Odessa, students from the University of Delaware conducted specialized studies in the vicinity, including some that touched various aspects of the project area's history.

Delaware Department of Transportation, in connection with the proposed new north-south road, has conducted extensive archæological investigations in the vicinity, some of the findings from which are directly applicable to the present project (Custer and Bachman 1986).

In connection with the same project, the historic preservation group of the firm of Killinger Kise Franks Straw conducted architectural studies of signficant architectural remains along Route 13 (Benenson and Bower 1987).

The present author investigated an agricultural property on Vance Neck Road, on which there was considerable evidence for agricultural change (Heite 1990).

PREHISTORIC SETTLEMENT SENSITIVITY

The mid-peninsular divide area is known for the large number of procurement sites from the Paleo period forward. These sites are found in game-attractive areas, such as ridges overlooking streams. No such locations lie in the project area.

In the southern New Castle County part of the Route 13 corridor, nearly all the Woodland II sites were found in the fringe of forest land around the edges of plowed fields along bluffs adjacent to major drainages. Sites of this period were found to be small and tightly organized against he edge of the bluff, which may explain why they were consistently missed during surface surveys of the adjacent cultivated fields (Custer and Cunningham 1986:25). The project area does not contain such locations.

Elevation was evidently a serious concern among prehistoric people when they were choosing sites. Even the very slightest difference in elevation can have a dramatic effect on the artifact content of the ground (Heite and Heite 1985). Such distinctions probably would not apply to the project area, since it has little relief.

COMMERCIAL ORIENTATION

From the establishment of Philadelphia in 1682, most of downstate Delaware was part of the Philadelphia commercial sphere. The only convenient way for a Delawarean to reach a market was by water to the metropolis. The project area provides a good example of this interplay between Philadelphia and its hinterland.

Even after Delaware broke away from Pennsylvania politically in 1776, the Bay's local commerce flowed through Philadelphia into the Pennsylvania economy. Western Kent County and western Sussex were part of the Baltimore trade region for many of the same reasons. This dependence upon the shallop trade to Philadelphia

focussed lower New Castle County's development at landings, where the high ground came down to the tidal rivers.

Inland from the landings, farmers depended upon roads that ran along the spine of the peninsulas between the tidal creeks; the present Odessa-Middletown road is such a thoroughfare along a ridge. In fact, during the seventeenth century, it was an extremely important portage road between the Delaware and the Chesapeake.

These roads served as arteries for local traffic within each community. Where the east-west landing roads met the north-south King's road to Philadelphia, towns would eventually be established; Odessa and Middletown are such towns. Middletown was in existence as early as the third quarter of the seventeenth century, soon after the region was settled.

When steam navigation and railroads were introduced during the nineteenth century, Delaware's farmers were afforded better access to Philadelphia and the markets beyond. As the Pennsylvania Railroad opened Chicago and the West, Delaware farmers enjoyed prosperity they had never known before.

During the twentieth century, automobiles, trucks, and paved highways changed the commercial patterns in Delaware. With the building of the DuPont highway, Wilmington began to loosen Philadelphia's grip on the business life of lower Delaware, only to sink again from prominence with the introduction of the Interstate highway system.

Artifact material from isolated farmsteads is particularly sensitive to commercial orientation, since such restricted assemblies allow a researcher to examine one family's consumption behavior. During the nineteenth century, as embossed bottles came into use, domestic trash deposits became more eloquent witnesses to retail commercial channels. As each merchant, packer, canner, druggist, brewer and bottler distributed his products in distinctive glass packaging during the latter nineteenth century, domestic trash dumps filled with a precise audit trail for commercial activity more accurate than any document could provide.

Trade in the other direction can be inferred from evidence for products shipped, as illustrated in the form of structural remains, equipment, and waste by-products. Each farm contains durable evidence of its past production in the form of structures such as milking parlors, boat landings, charcoal pits, silo foundations, and packing sheds, all of which are specific to certain products, and provide evidence of commercial activities.

HISTORIC TOFT SITING

Environmental factors have been paramount influences on the location of historic-period house sites in rural Delaware. Assuming that a settler had a choice of building at any place on his land, he followed certain rules of preference.

The earliest settlers chose water-oriented sites, within a convenient distance from navigable waterways (Smolek, Pogue and Clark 1984) at low elevations. While water transportation remained a significant component of the tidewater culture, it was never a major consideration for the inland settlers along freshwater streams.

By the middle of the eighteenth century, houses built on new sites were not oriented toward river transportation. Houses built after this time generally face roads, even though the farm might also have access to a landing.

This shift did not herald the end of waterborne commerce, however. Waterborne transport continued to link the Delaware hinterland with Philadelphia, but the internal distribution system within each locality was land-based. Only the relatively recent advent of hard-surface highways finally extinguished river commerce in lower Delaware.

A general movement from water orientation to road orientation of farm tofts may be observed to take place gradually during two centuries. New and stylish houses for property owners were built to face the roads, while older waterfront properties became tenant houses and eventually fell to disuse. A convenient site, near the middle of the holding, on well-drained land, close to a source of potable water, continued to be the main criterion for toft placement. At a later period, new tenant houses were built close to the roads, while landowners continued to live in houses set back from the roads. There is, therefore, a class difference distinguishable in house placement.

One rule of toft placement was an unspoken prohibition against building in the middle of a good field, which was observed until the middle of the nineteenth century. The well-drained brown sandy loam of the Delaware coastal plain was too valuable to waste. Thrifty farmers built their houses on the edges of the best ground, which also frequently were the sites of natural springs for household and stock water. After windmill powered pumps became common, the incentive to locate near springs was diminished, releasing toft placement from its link with natural water sources.

While today's soil scientists grade soils in terms of suitability for cropland, woodland, and other uses, eighteenth-century settlers valued only the land that could be used for agriculture. While Dutch settlers had placed a high value on meadowlands and drainable marshlands, the English were interested only in arable cropland, known today as Class I soils.

Locational factors relating to rural tofts have been explored in southern New Castle County by Custer and Bachman (1986:152-192) in a study that considered distance from resources, soil types, and water sources.

Generally speaking, "mansion" houses (homes of landowners) are located near the centers of holdings, while tenant houses have traditionally been located near roads. The mansion house to the project property still stands, with its windmill still in place, at a distance from the road (N-105).

CEMETERIES

Delaware farmers tended to keep their dead nearby. No cemeteries are documented on the current project site, but a lack of evidence or markers does not exclude the possible existence of an unmarked cemetery. Delaware's recent legislation concerning unmarked human burials has heightened interest in locating burial sites before construction begins.

Bachman and Catts (1990) have attempted to formulate a predictive model that can be used to identify likely locations of family cemeteries. They found that the majority of family cemeteries are sited behind the mansion house, between 100 and 1300 feet away on a well-drained ridge or knoll.

Churchyard and community cemeteries were rare in pre-Revolutionary Delaware. In this respect, St. George's Hundred is unusual, since several of its marked church cemeteries date from the beginning of the eighteenth century. Nearby Forest cemetery has been active since the eighteenth century. Poor people did not have tombstones until relatively recent times. White or black, their monuments were likely to be field stones or wooden boards. Even wealthy people were unlikely to have tombstones if they were buried outside a churchyard.

As public cemeteries and churchyards proliferated, the custom of establishing new farm cemeteries apparently declined, although many old farm cemeteries continued to be used.

A documented "moved" burial ground should always be considered potentially remaining in situ until tested and proven otherwise. It seems from the evidence that unmarked or poorly marked family farm graveyards were the rule rather than the exception in most

parts of Delaware. Their identification has become a major thrust of cultural resource surveys.

Since Bachman and Catts suggest that graveyards are most likely to lie within the 180° arc from the house, away from the road, it is possible to eliminate the front half of the circle from the highest level of likelihood.

It is also possible to eliminate low-lying places, since burial grounds appear to have been sited on well-drained hills, and to eliminate tofts known to have been established after the family had begun to bury at another known site.

The project area has a low likelihood of containing graveyards.

AGRICULTURAL CHANGE

Scientific agriculture, as it is practiced today, was unknown during the first years of settlement. Only after large areas had been rendered infertile did American farmers begin to address the problems of conservation and fertilization. St. Georges Hundred was one of the first districts in the United States to use scientific soil fertilization.

Delaware soil productivity reached a nadir in the 1830s, when it was estimated that Delaware's farmland was within five years of total abandonment. Instead of collapse, the region rebounded during the next few years, thanks to aggressive young scientific farmers (Passmore 1978) who introduced the concept of fertilization.

Soil fertilization received a boost in Delaware when a marl deposit was found during the digging of the C&D Canal. Marl banks later were found even closer to the project site, on the upper reaches of Drawyers Creek.

Manure, shell lime, and other products were added to the soil during the early years of the nineteenth century, and by the time of the Civil War, the peninsula was dotted with fertilizer companies. Sources of nitrogen, including guano, fish, dried blood and king crabs, were spread across the landscape in attempts to recover lost fertility.

Early scientific farming practices can be seen in the soil in the form of ditches, drain tiles, calcined oyster shells, and tiny dispersed bits of brick, bone, pottery, and other domestic debris that would have been included with manure and compost.

STATE PLAN PROPERTY TYPES

The most likely property type to be found in the project area is the agricultural tenant house site. These typically are found adjacent to roads, near the driveways to mansion houses.

Agricultural industrial buildings sometimes are found along roads, but more commonly they will be found behind the mansion house. Some agricultural commercial structures, such as roadside stands or loading facilities, are encountered near roads.

The likelihood for encountering a prehistoric site is low, considering the fact that the most sensitive area in the vicinity is the crest of the hill, just outside the project area. The most likely find would be a stray projectile point or other artifact from dispersed procurement activities.

SUMMARY OF RESEARCH GOALS

At the identification level, the researcher should be receptive to any indications, on site or in the documentary records, that might reveal useful cultural evidence. The Phase I researcher must always be alert to new research possibilities, if only in the area of settlement pattern delineation.

4. HUMAN HISTORY IN THE PROJECT AREA

PEOPLE ARRIVED in the Delaware Valley near the end of the most recent (Wisconsin) glaciation (Kraft 1986:31). Glaciers entrapped so much water that the ocean's edge lay fifty miles east of the present Sandy Hook, New Jersey. As the glaciers retreated and the ocean advanced, the project area's ecology changed until the present temperate woodlands developed. Each change in the ecology has been matched by cultural changes.

PREHISTORY

The Wisconsin ice sheet never reached the Delmarva, but its southern tongues found their way south of the latitude of New York City. Life in the present Delmarva region was shaped by the nearness, just over the horizon, of the glaciers. Cold as it was, the periglacial environment was rich with food resources for man and beast.

At the end of the last Ice Age, mammoths, musk ox, caribou, and walrus provided food for dire wolf, short-faced bear, and other predators. Man was among the smaller competitors in the tundra food chain, but his skills compensated for his physical shortcomings. Nomadic people of this Paleo-Indian period were among the most skilled makers of stone tools in the world. They would travel great distances to obtain the best flinty materials from which they made exquisite spearpoints, knives, and small tools.

Paleo–Indian hunting–gathering society lasted in the coastal plain until about 6,500 BC, when the Atlantic climate episode and the Archaic period of prehistory began (Custer 1984:31).

Northern hardwood forests had replaced the tundra, the ocean had risen, and the climate was warmer. Pleistocene megafauna were supplanted by smaller game, which required different hunting techniques and tools. "Micro-band base camps" of this relatively arid period often are found on slight elevations above poorly-drained spots called bay/basins, where game might have come to drink. No such environments exist in the project area.

Archaic people fashioned an increasing proportion of their tools from quartz, a material less tractable than the flinty cryptocrystalline silicate materials that Paleo people had favored. Ground stone axes and other heavy tools appeared in the culture during this period.

By 3,000 BC, prehistoric society had developed into something decidedly different. Because people had stopped moving around so much, regional cultural differences began to be detectible in the artifact assemblages. Sedentary lifestyles ultimately led to horticulture, complex religious practices, and the accumulation of more, less portable, material goods. The last prehistoric period, the Woodland, is characterized by larger groups of people living together in larger settlements using pottery and other heavy or fragile goods that would have been difficult to carry from place to place. Woodland people tended to concentrate in more or less permanent settlements near abundant multiple resources, such as sites adjacent to shellfish beds on the edges of salt marshes. They sent out hunting parties, but they seldom dispersed whole populations to live off the land in the manner of their hunter-gatherer ancestors. Each group's range was circumscribed, and local cultures evolved.

When the first European settlers arrived during the seventeenth century, the Appoquinimink valley was occupied by sedentary people who lived along the streams and combined horticulture with hunting and gathering. Their cultural stage is known to archæologists as the

Woodland II period in Delaware, and sometimes is called the Late Woodland or Protohistoric. By whatever name, the people of this culture period were described in detail by the first explorers and left their mark on the historical record and in the popular concept of the first Americans. In fact, the culture that the first settlers found and described was only the most recent manifestation of a tradition as old as the civilization of Europe. Only archæology enables us to see back, beyond the first settlers' descriptions, into the formative stages of native American society.

COLONIAL APPOQUINIMINK VALLEY

The Appoquinimink valley was one of the first areas to be settled in New Castle County outside the fortified perimeters of New Castle and Wilmington. St. George's Hundred, which the Appoquinimink drains, today contains four population centers: Port Penn, St. George's, Middletown, and Odessa, which were inhabited during the seventeenth century. Some of the earliest Dutch settlers on the Delaware were attracted to the Appoquinimink valley by its rich soil, broad treeless meadows, and convenient water transport.

A Dutch settlement called Appoquinimink was the first legally incorporated town in the present state of Delaware outside New Castle (Figure 2, page 5). By 1664, when the English took the colony from the Dutch, the valley was settled and fortified; it was prosperous enough that there was talk of building a stone fort in Appoquinimink, where a militia garrison existed.

The incorporated town lands extended roughly from the mouth Drawyers Creek westward to the present Silver Lake along the north bank of the Appoquinimink southeast of Middletown. It obtained legal municipal status in 1672, when Governor Lovelace nominated Walter Wharton to be Justice of the Peace for Appoquinimink, with a constable and two overseers to constitute a municipal court.

The first English land grants in the Appoquinimink town, issued in 1671, were confirmations to Dutch settlers, who probably had been there ten years or more earlier. These first grants were largely confined to the town lands; surrounding territories remained unclaimed. Around 1675, settlers on the town land filed claims to tracts around its perimeter. Adam Peterson's claim to the 1,024 acres including the project area, was reconfirmed in 1707.

A militia company was mentioned in Appoquinimink records of 1675. The court was abolished in 1676, but the town government evidently was not. In 1677, a road order referred to the "Towne People of Oppoquenemen which dwell betweene the Drayers Creek and the Old Landing." Jasper Danckaerts, in 1679, described visiting the Dutch settlement, after which he crossed "a long wooden bridge or dam over a meadow and creek," now known as the Drawyers Causeway, which carries Route 13. A drawbridge was ordered to be built in the causeway in 1681

The grant of Delaware to William Penn, and the Proprietor's concentration of power and commerce at Philadelphia, spelled the end of the Appoquinimink town and other incipient towns in the Penn colony. Home rule below the county level was withheld for another half century. Under the Dutch and the Duke of York, local courts had taken charge of parcelling out the unclaimed land, but the new Proprietor soon concentrated authority in his own land office at Philadelphia. The ensuing period was marked by large grants to Philadelphia merchants and speculators, including members of the Penn family, with access to the land office.

PEACH PROSPERITY

During the early years of the nineteenth century, St. George's Hundred was a land of old houses, worn out fields, and emigrating populations. Absentee landlords and commercial stagnation drove young people to the west. Among those who stayed behind

were a few ambitious folk, who began to bank the meadows, build canals, and improve the land. By mid-century the scene had changed dramatically.

Exploitation of marl for fertilizer, introduction of budded peaches, the railroad, steamboats, and vegetable canning followed in quick succession, pouring new wealth into St. Georges Hundred. This period has been called a "rebuilding" of the hundred in a thematic nomination to the National Register of Historic Places. Members of the Townsend, Cochran, Shallcross, Brady, Vandegrift, and Williams families, to name but a few, prospered and built fine new houses. Civic projects, beginning with the imposing brick Middletown Academy of 1828, complemented the private domestic construction. The conscious setting-aside of the redundant edifices of Drawyers and St. Anne's churches during the same period was the beginning of conscious public attempts at historic preservation in Delaware.

The mid-century rebuilding was much more than a physical renewal of housing stock; it marked a stage in the development of civilization, when schools, civic institutions, and historic monuments were accorded special status.

After the Civil War, the economy of St. Georges Hundred shifted away from peaches into vegetable crops for canning. The same railroad that encouraged the fruit and vegetable crops brought the cheaper western grain to market, causing decline of grain agriculture. During the present century, small grains as well as soybeans have regained popularity over the more labor-intensive fruits and vegetables. The most recent phase is suburbanization; currently the cropland is being developed for broad residential tracts, of which the project area is to be one.

HISTORY OF THE PROJECT PROPERTY

Adam Peterson, founder of Middletown, acquired more than a thousand acres on the heads of the Appoquinimink and its tributary, Drawyers Creek. Peterson's land lay ieast of Bohemia Manor, which had been granted to Augustine Herrman. The present Main Street in Middletown is the old cart road Herrman built to connect his Bohemia Manor with the Appoquinimink.

Peterson's descendants divided the parental lands among themselves, establishing the current town. By 1799 the crossroads had become a village, still occupied by Peterson heirs (Heite 1973:31). The town was incorporated in 1861, after it became a railroad depot town.

On the 1868 Beers map and the 1893 Baist map, no buildings are indicated in the project area. The five-bay two-story Georgian-style mansion house still standing on the farm (N-105) may be one of the houses marked for the Fields heirs, but the map is not accurate enough for precise attribution Peterson Road postdates the 1893 map.

5. FIELD INVESTIGATIONS

THE CHOSEN FIELD METHOD was the 100% walkover survey, which covered the entire area to be disturbed by the relocated pipeline. In January 1993 a swath about ten feet wide, centered on the proposed pipeline, was plowed and harrowed for a length of about 1400 feet.

Since the soil type is unlikely to contain buried horizons, the option of subsurface testing was not exercised.

This cultivated swath roughly coincides with the entire area of project impact, both surface and subsurface.

After rain, on January 26, the right-of-way was walked by the author and one technician. At about the midpoint of the project area, the right-of-way intersects the lane that leads to the farmhouse (N-105). South of the lane, the surrounding field was clear of crop debris. North of the lane, crop debris and weeds obscured the surface. The author took advantage of good surface conditions south of the lane to expand the search area somewhat. North of the lane, searching was confined to the plowed right-of-way.

A few brickbats and one sherd of red earthenware were the only recognizable cultural materials encountered in the entire swath. No artifacts were saved.

After traversing the pipeline route twice, the investigators concluded that no sites, potentially eligible for the National Register, would be impacted by the project.

Since no cultural resources were identified in the project area, no eligible properties will be affected by the project.

6. Interpretations, Conclusions, and Recommendations

THE SURVEY FAILED to identify any sites within the project impact area that are potentially eligible for listing in the National Register of Historic Places. No further work is recommended.

No evidence of soil disturbance or fill was detected, except the lane to the mansion house. This lane may pre-date the railroad, and evidently extended all the way to Broad Street (later Route 896) in the area now occupied by commercial establishments.

If in fact the entrance to the farm was originally east of the railroad, it follows that early tenant houses probably would have been found in the area now occupied by Southern States and the Schagrin Gas Company.

The two tofts identifed in the 1868 map probably did not lie in or near the project area. If one is the existing farmhouse, which is likely, the other may have stood similarly far back in the field. It is not possible to rely any more precisely upon Beers locations of houses located away from roads.

PROPERTY TYPES

None of the potential property types was found. This is not surprising, since, in each case the probability was low.

Areas of high prehistoric archæological potential were not included in the project boundaries. These areas include the hill overlooking the swamp, which has a high potential for containing prehistoric sites.

Tenant houses, which frequently are found along the roads near entrances to mansion houses, were not found.

Agricultural industrial sites were not found.

The site predictions developed in the research design were confirmed during the survey.

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QUALIFICATIONS OF THE INVESTIGATORS

Heite Consulting, a firm consisting of Dr. Louise Heite and Edward F. Heite, specializes almost exclusively in reconnaissance-level and phase I cultural resource management studies. Rather than attempt large projects, the principals concentrate upon projects that they can execute themselves, without assistants. Project sponsors are therefore assured that each investigation receives the full attention of a qualified senior researcher.

Edward Heite served as Historic Registrar and Chief of the Bureau of Archives and Records Management for the State of Delaware. His assignments with the state included the statewide survey of historic sites and the restoration of the Old State House at Dover. He was previously archæological historian for the Virginia Historic Landmarks Commission, for whom he directed the excavation of eighteenth-century Fredericksville Furnace and the seventeenth-century Hallowes site in Virginia. He recently completed the salvage excavation of a nineteenth-century cannery site for the Delaware Department of Transportation. He is currently principal investigator for the Department's excavation of a deeply-stratified Paleo-Indian site in Kent County.

During the summer of 1989, both worked as archæologists and artifact analysts for the City of Reykjavík, Iceland. Dr. Louise Heite is currently working in Iceland, where she has completed a study of medieval wool textiles.

Ms. Cara Lee Blume, a doctoral candidate at the Catholic University with more than twenty years' experience in Delaware prehistory, is consultant to the firm.

Since 1980, the firm has completed reconnaissance-level studies and phase I studies for the Philadelphia District, United States Army Corps of Engineers, National Park Service, United States Navy, Waste Management of North America, BCM Eastern, Inc., the Trustees of the New Castle Common, and the Delaware Department of Transportation. A list of projects and clients is available upon request.

CERTIFICATIONS

Both principals of the firm are members of the Society of Professional Archæologists, certified in theoretical/archival research, document research, and historical archæology. Edward Heite is also certified by SOPA in field research and cultural resource management. They meet the professional standards for both historians and archæologists set forth in 36 CFR Part 61 and 43 CFR Part 7 (1984) and in the Secretary of the Interior's standards and guidelines for archæology and historic preservation (*Federal Register* Thursday, September 29, 1983, pages 44738-44740).