

DRAFT

REPORT OF PHASE I INVESTIGATIONS
ON A PARCEL IN KENT COUNTY, DELAWARE
PROPOSED FOR THE
SCARBOROUGH ROAD
CONNECTOR

PREPARED BY EDWARD F. HEITE
HEITE CONSULTING
CAMDEN, DELAWARE

February 4, 2001

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ABSTRACT

This is a report of Phase I survey in connection with a new connector road to be built between Scarborough Road and the commercial area nearby. The test location is on the property of the college.

Testing identified a prehistoric site that is deeply stratified and probably has never been cultivated. Two potential post-contact cemetery locations were identified.

The prehistoric site is potentially eligible for the National Register of Historic Places. A Phase II survey is recommended, in order to provide the information necessary for a determination of eligibility.

ACKNOWLEDGMENTS

This project has been accomplished by a team. Cara Blume not only assisted with the fieldwork but prepared the excavation register and artifact description. Inez Reed Hoffman assisted with the fieldwork and analysis in December. In January, Judy Rosentel and Dawn Corbett joined the team, assisted by volunteer Dan McCoy.

Dennis Coker and Chick Curry were the volunteer dowsers who helped us analyze the putative cemetery. Matthew Spence provided backhoe service.

1. WHAT WE DID AND WHY WE DID IT

This is a report of Phase I archaeological and historical investigations along the proposed course of a new road to be built south of Scarborough Road in the City of Dover, Little Creek Hundred, Kent County, Delaware. This road will connect Scarborough Road with the mixed highway-commercial business complex along duPont Parkway (U. S. 13).

Delaware Department of Transportation engaged Heite Consulting of Camden, Delaware, to conduct the study in response to requirements of the Federal Highway Administration.

The project lies in the Delaware coastal plain, in the drainage of Fork Branch, head stream of St. Jones River. In the immediate project area is a small stream called White Marsh Branch, which was converted into a drainage ditch during the nineteenth century.

PLANNING TIME FRAMES

Time periods applied in Delaware preservation planning (Herman and Siders 1986) reflect only feebly the actual history of most parts of the state. The state's generalized chronology is:

Exploration and frontier settlement	1630-1730
Intensified and durable occupation	1730-1770
Early industrialization	1770-1830
Industrialization and urbanization	1830-1880
Urbanization and suburbanization	1880-1940

Only one area of the state, between Wilmington and Newark, actually experienced these historical periods in exactly this sequence. Cultural - resource investigations throughout the state are subdivided this way for the sake of uniformity, if not historical accuracy.

THEMATIC CONSIDERATIONS

Delaware's "framework of historic context elements" (Ames, Callahan, Herman and Siders 1989:21) is arranged according to a group of 18 themes, ten of which refer to occupations, such as forestry and manufacturing.

Most of the postcontact history of this property has been agricultural until the middle of the twentieth century. After the last farmer left, the project area has been consumed in urban sprawl. An agricultural theme is appropriate, but the largest part of the property has been mapped as forest since the earliest detailed property map, in 1805.

PREHISTORY

People arrived in the Delaware Valley near the end of the latest (Wisconsin) glaciation. Glaciers entrapped so much water that the ocean lay fifty miles east of the present Sandy Hook, New Jersey. As glaciers retreated and the ocean advanced, the project area's ecology changed. With changes in ecology and population came changes in land use, which are reflected in the cultural record. By the time people had arrived on Delmarva, the modern geography of streams and hills already existed. Since the end of the Pleistocene, wind and water have created dunes, gullies, and alluvial valleys. In many places, the unaltered Pleistocene deposits lie very close to the modern ground surface.

Mammoths, musk ox, horses, 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 quarry the best flinty materials from which they made exquisite spearpoints, knives, and small tools. A well-known source of such material existed at the north end of Pencader Hundred, about forty miles north of the project area.

During the Paleo period, most of the downstate human occupation appears to have been concentrated along the drainage divide of the peninsula.

Paleo - Indian hunting - gathering society lasted in the coastal plain until about 6,500 BCE, when the Atlantic climate episode and the Archaic period of prehistory began. Northern

hardwood forests had replaced the tundra, the ocean had risen, and the climate was warmer. Pleistocene megafauna were replaced 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 or feed. Even after the climate became wetter, people apparently continued to live on sand hills that formed near the basins. One such nearby sand hill site is Simon's Savannah, excavated during the Scarborough Road project with field assistance provided by the Kent County Archæological Society chapter of the Archæological Society of Delaware (Heite and

Blume 1992: 42, 63). Simon's Savannah is identified, in error, as a gravel pit on the present DelTech campus, in the geological map (Figure 8).

By the year 3,000 BCE, prehistoric society was decidedly different. The last prehistoric period, the Woodland, is characterized by larger groups of people living together in villages, using pottery and other heavy or fragile goods that would have been difficult to move from place to place.

Woodland people tended to concentrate in more or less permanent settlements at places with abundant multiple resources, such as sites adjacent

PREHISTORIC CHRONOLOGY (After Custer 1986)		
<i>Dates</i>	<i>Environmental Episode</i>	<i>Cultural Period</i>
8080 BCE	Late Glacial	Paleo-Indian /Early Archaic
6540 BCE	Pre-Boreal/Boreal	
	Atlantic	Middle Archaic
3110 BCE	Sub-Boreal	Late Archaic
810 BCE	Sub-Atlantic	Woodland I
CE 1000		Woodland II
CE 1600		Contact

to shellfish beds on the edges of salt marshes. These settlements, called "base camps," were generally occupied by one or a few extended families. They sent out hunting and gathering parties, but they seldom dispersed whole populations to live off the land in the manner of their hunter-gatherer ancestors.

POSTCONTACT HISTORY

Wherever Europeans have settled, they have first built highly-organized towns on the frontier, projecting all the trappings and institutions of the mother country onto the wilderness.

Pioneer farmers typically follow, after the soldiers have established an outpost. The first Dutch and Swedish settlements in the Delaware Valley conformed to the frontier model: they were populated mostly by males, compact and strictly regulated, and were supported largely by supply lines that brought necessities from Europe or from older colonies (Heite and Heite 1986). Once the farmers were established, the colonial towns were freed from dependence upon supply lines and a local supply network developed.

International competition probably delayed the region's transition to the second phase of colonization, which was a less regimented period of agricultural development. Most other North American colonies moved to settle the countryside within a decade after initial settlement. The Delaware coastal settlements, in contrast, clustered around their fortified command posts for at least thirty years. Not until the fall of New Netherlands in 1664 was the Delaware Valley finally able to realize its

PRIORITY RANKING FOR BELOW-GROUND RESOURCES

(State Plan, June 1989, page 79)

Settlement patterns
and demographic change
Trapping and hunting
Mining and quarrying
Fishing and oystering
Forestry
Agriculture
Manufacturing
Other themes

potential as an open, self-supporting, agricultural colony under a single European colonial power.

The indigenous population of Kent County was affiliated with the Lenape people, and Algonkin - speaking population known today as the "Delaware" tribe. Much of northern Delaware, Pennsylvania, and New Jersey was occupied by related bands. In these three Quaker-dominated colonies, the settlers were required

by conscience and by law to "extinguish" native title through purchase. The project vicinity was called Mitsawokett by the native proprietor, who was known as Christian when he sold farms to settlers. Recorded Indian deeds to land in Mitsawokett account for only a small part of the area.

It appears from the historical record that some local native people adopted European ways and merged unnoticed into the larger population. During the nineteenth century, they asserted their Indian heritage, which now is locally recognized by their neighbors.

In order to maintain and nourish their Indian heritage, local Lenape descendants have organized a corporation, the Lenape Indian Tribe of Delaware.

EARLY NATIONAL PERIOD ECONOMY

First tobacco, and then grain and pork, exports sustained the colonial-era economy of central Delaware. These crops brought prosperity to the landowners, among whom were several wealthy families.

During the half century after the Revolution, Delaware farmland

declined. Neglect, ignorance, and the disinterest of absentee landlords conspired to reduce the prosperity of Delaware agriculture. Early in the nineteenth century, a few educated farmers began to introduce new methods that eventually had a lasting effect on the landscape.

Grafted peach trees and fertilizers would be the key to rebirth of Delaware agriculture.

PEACH BOOM AND FARM PROSPERITY

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 and budded fruit trees.

Scientific, fertilized, agriculture, as 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 soil fertilization.

Evidence of scientific farming practices can be seen in the soil in the

PRIORITY RANKING FOR ABOVE-GROUND RESOURCES

(State Plan, June 1989, page 79)

- Agriculture
- Settlement patterns and demographic change
- Manufacturing
- Retailing and wholesaling
- Transportation and communication
- Other themes

AGRICULTURAL PROPERTY TYPES

Property types that might be found in or near the project area, based in part on a list promulgated for Delaware historic properties by Herman, Siders, Ames and Callahan 1989.

- Agriculture (crops)
 - Products
 - Nursery / Orchard
 - Tobacco
 - Grain
 - Potatoes
 - Truck crops
 - Methods
 - Cultivation
 - Plowing
 - Plow Scars
 - Orchard planting holes
 - Enclosures
 - Field boundaries
 - Drainage ditches
 - Fertilization and improvement
 - Manuring Spread
 - Fertilizer Residues
- Forestry
 - Sawmills
- Mining and Quarrying
 - Borrow Pits
 - Brick Clay Pits

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. Manure, including human waste, was used extensively in the United States during the nineteenth century, when the word "manuring" referred to any soil improvement through modification of its contents.

When the Delaware Rail Road opened in 1856, Delaware producers gained access to national markets. Toward the coast, steamboat companies served communities that were not along the railroad. By the end of the nineteenth century, roads had been reduced to feeder status, and the railroads and steamboats dominated long-distance travel.

TRENDS IN LANDOWNING

There were periods when large estates accumulated, and periods when they were broken into smaller holdings.

Such broad trends in ownership patterns can be seen reflected in the vicinity of the project area.

The project area was originally part of Hiron Range, a speculative holding owned by speculators. A large portion was bought by a local wealthy farmer, whose heirs were absentee landowners. As the property was subdivided with each death and estate division, individual parcels became less valuable. Finally, the old manorial estate was divided into many parts, which were bought by local people who set about improving the property again.

Each real-estate transaction can influence the archaeological record. When a small farmer sold out to a larger landowner, his toft became a tenancy or was abandoned. Either way, the archaeological record was affected. When a well-off farmer married, he might build or remodel his house, also leaving a mark in the archaeological record.

Such events must be documented as precisely as possible before any fieldwork, because they can provide explanations for archaeological deposits.

A marriage, estate sale, or farm consolidation is the documentary expression of events represented in the field by features and artifact deposits. With these objectives in mind, documentary research for this project included probate, land grant, survey, and tax records at the state archives and the courthouse, in addition to secondary histories.

HISTORIC CONTEXTS

Agriculture, and particularly agricultural tenancy, stand out as the dominant theme in Kent County historic planning. A context study for tenancy was prepared by the University

of Delaware Center for Historic Architecture and Engineering (Siders, Herman, et al., 1991). A context for archaeology of agriculture and rural life in New Castle and Kent counties was prepared by the University of Delaware Center for Archaeological Research (De Cunzo and Garcia 1992). Transportation remains undefined among Delaware contexts.

PROPERTY TYPES

In terms employed by the Comprehensive Historic Preservation Plan (Ames, Callahan, Herman and Siders 1989:33), the project area is part of the upper peninsula geographic zone. The management plan for prehistoric resources (Custer 1986:13) classifies the project area in the mid-drainage physiographic zone of the low coastal plain.

The obvious historical archaeological context is agriculture, as defined by DeCunzo and Garcia (1992), which will be considered here.

A defining characteristic of recent Delaware agriculture is consolidation. Over the past half-century, farms have been combined; as a result, there are many abandoned toft sites among the broad fields.

In urban areas such as this, agriculture has been in decline, supplanted by urban sprawl. Among the casualties of urbanization are prehistoric sites, which survive only in small pockets of sprawling cities. The relatively undisturbed woodland behind the apartment complex is an example of the kind of urban pockets that might contain prehistoric remains. In this case, the setting is particularly likely to contain prehistoric sites.

PROPERTY TYPES IN THE LOCALITY

Nearby historic property types include agricultural complexes, agricultural fields, and a railroad. Older agricultural complexes all occur on well-drained soil. Only more recent habitations, such as mobile homes, occur on soils that are not well drained. The project area is a sandy ridge, one of the favored geographical settings for agricultural complexes. The dominant agricultural soil type in this neighborhood is Sassafras, which occurs here.

STATE PLAN CONTEXTS

Because of the high priority assigned to agriculture and the archæology of agriculture by the state planning documents, there is a high likelihood that well-preserved agricultural remains would be candidates for the National Register.

In order for a property to be eligible, it must possess integrity and definable boundaries as well as a quality called "significance," which can be defined only in terms of each specific

context. The context may be spatial, temporal, or thematic, but it must exert a unifying effect (DeCunzo and Garcia 1992:311-317).

A concept of eligibility through "representativeness" takes on special importance when dealing with "ordinary" or "commonplace" properties. A property is "representative" if it contains all the elements of the "typical" property of that category. That is, integrity becomes the most important single determinant in evaluation.

PURPOSE OF THIS SURVEY

At the Phase I level, the purpose is to identify all cultural resources that might be present on the areas that are to be impacted by the proposed activity. In this case, the area of potential effect is a right-of-way for a road to connect Scarborough Road with the commercial complex that includes Wal-Mart, Lowe's, Sam's Club, and the Sheraton, among others. These businesses currently face

Route 13; giving them an outlet to Scarborough Road will relieve congestion on that major north-south artery.

A "cultural resource" can be anything that has been placed, built, or modified by humans at any time in the past. Very old Native artifacts are cultural resources, but so are tin cans. To determine their significance is the task of a Phase II, or evaluation, study. In the Phase II exercise, the criteria for evaluation are used to identify resources that are eligible for listing in the National Register of Historic Places.

While a Phase I survey might reveal evidence sufficient for evaluation, such findings are mere serendipity, not to be expected.

Because it is intended to review the entire project area, a Phase I strategy must be designed to find all the cultural resources that might exist in all the different parts of the project impact area.

2. PROJECT AREA HISTORICAL BACKGROUND

The project area includes part of the Loockerman plantation, owned for a century by a socially prominent and politically powerful family during the eighteenth century. Loockerman's Range was the home farm of the estate east of St. Jones Creek. The family mansion still is located in the portion that is the Delaware State University campus.

Loockerman's Range was not the whole original Range tract, which was patented by speculators and subdivided. One of the larger subdivisions became the Denney farm (Figure 4, below), separated from the Loockerman tract by White Marsh Branch and a dividing line.

White Marsh Branch no longer appears on maps, except as a bump in topographic contours. Early deed descriptions all refer to the branch as if it were a major feature. The proposed connector road will cross the branch near its head, at the point that divided the Denney and Loockerman plantations

The history of the Denney farm, now the campus of Delaware Technical and Community College, has been discussed at length in an earlier report for the Delaware Department of Transportation (Heite and Blume 1992). The Denney parcel was detached from the Range before 1741. A half-century later, the Learned farm was detached from the Loockerman estate during a division.

THE LEARNED FARM

In May 1794, an Orphans Court

commission set aside the widow's third for Mary Loockerman, widow of Vincent. Their son, Vincent Emerson Loockerman, received the 453-acre mansion plantation in the estate division, except fifty acres that were assigned to the widow's dower for her lifetime (Orphans Court book E-1, page 123).

Vincent E. Loockerman conveyed part of his inheritance to Nathaniel Boyer (Figure 3) and another part to Charles Harper. The largest part, including the mansion, he sold to Nathaniel Drew of Philadelphia in 1813 (Kent County Deed Book O-2, page 75).

Drew moved to St. Jones [now Dover] Hundred and took out a mortgage on the property in

1817 to John Reibsam of Philadelphia for \$4,000 (Kent County Deed Book R-2, page 182).

Drew defaulted on debts that totalled \$25,000. In August 1822, the

sheriff conveyed Drew's holdings to Frederick Frering of Philadelphia.

The 443 acres of the old Loockerman home place, including part of the present project area, was described as containing "a large brick dwelling-house, a small brick house and outhouses and saw mill and mill seat thereunto... ." It brought less than the stated debt.

The large brick house is now known as Loockerman Hall of Delaware State University. The smaller house is the former Jason Library, which had been the earlier Loockerman family home. The whereabouts of the sawmill and its dam cannot be immediately determined, but it may have been at or near the present College Road bridge. Its impoundment may have been on the location of the wetland visible at the bottom of Figure 8 (Kent County Deed Book W-2, page 32).

After a series of transactions involving investors, the property was

conveyed by a Philadelphia bank in 1834 to Caleb H. Sipple and Robert O. Penniwell, Dover merchants who did business as the firm of Sipple and Penniwell (Kent County Deed Book H-3, page 228).

Penniwell made his home at Loockerman Hall. In 1847, the firm of Sipple and Penniwell dissolved its partnership holding with a pair of deeds to one another (Kent County Deed Book U-2, page 221)

In 1854, Penniwell's son Caleb conveyed 205 acres to Isaac Baker. This tract, outlined by dashed lines in Figure 7, below, was said to contain a "messuage or tenement" that may have

been the house later standing at the head of White Marsh Branch (Kent County Deed Book G-4, page 45). Both parties to this sale were local residents for the first time in more than a century.

Just two years later, in 1856, Baker conveyed the same tract to Samuel and Henry Umstead of Montgomery County, Pennsylvania (Kent County Deed Book K-4, page 166).

Henry Umstead died in 1859, and in 1865 his executor and his brother conveyed the farm to Hervey D. Learned (1830-1916) of Dover (Kent County Deed Book Z-4, page 102).

In 1884, Hervey Learned and his wife Lydia (d. 1928) conveyed 83 acres, the southeast part of the property, to Robert D. Dawson, who had moved here from Pennsylvania (Kent County Deed Book P-6, page 170).

When the Orphans Court settled Hervey D. Learned's 130-acre estate in 1918, the widow's dower was set aside to include the house and a small parcel. The residue was kept in the family (Figure 6). In 1929, Lewis D. Learned (1873-1963), their son, obtained clear title to the whole farm (Kent County Deed Book S-13, page 52).

In 1944, Jacob Zimmerman bought the old Denney farm, now the DelTech campus (Kent County Deed Book X-19, page 158; Book N-16, page 219). In 1954 he conveyed a quarter-acre patch of woodland behind the Learned home place to Lewis D. Learned, Sr. (Kent County Deed Book K-20, page 170).

Over the ensuing years, the neighborhood moved from a largely agricultural and residential district into a commercial district, including two hotels and several large retail stores as well as apartments. In the course of all this development, it became necessary to terminate deed restrictions that restricted the former Learned farm to residential uses, required a uniform setback, and forbade the sale of alcohol. These restrictions had been imposed by the Learneds.

A series of deeds dated May 15, 1987 extinguished the deed restrictions and realigned all the property holdings in the area, in preparation for further development. Current property lines in the project area are a result of those transactions.

The ensuing years were marked by development, on the former Learned farm, of a hotel, restaurants, and the Cedar Chase apartment complex. White Marsh Branch, or ditch, is the southeast boundary of the apartment property, which includes the quarter acre Louis Learned obtained in 1954 from Jacob Zimmerman.

At the back end of the apartment property, an old fence line marks the former boundary of the DelTech property. Beyond the groomed landscape of the apartments is a wooded site that bears few marks of

human intrusion. Framed by White Marsh branch on the south and a smaller ditch on the north, a finger of sandy high ground points toward St. Jones River.

The proposed connector road will follow the old fence line, running from Scarborough Road to the shopping complex on the south. The connector will follow the north bank of White Marsh Branch, now the north boundary of the Sam's Club property. In spite of these nearby modern intrusions, the branch remains virtually unchanged.

3. FIELDWORK NARRATIVE

Fieldwork began December 12, 2000, with a field reconnaissance, and excavations beginning the following day. The assessment was conducted by Edward Heite, Cara Blume, and Inez Reed Hoffman.

Generally it was decided that the most likely site locations are around the west perimeter of the Cedar Chase Apartments complex, in a currently wooded area. Within this wooded area, one might expect prehistoric sites on the high sandy bluffs overlooking White Marsh Branch. An apparent old fence line (Figure 16), with a parallel line of very large trees, marks the boundary of

an old agricultural field. This fence line appears to be the west boundary of the Heatherwood tract conveyed to DelTech in 1987 (Figure 12). Beyond the fence line, in the woods, the ground falls off toward wetlands of White Marsh Branch.

The proposed right-of-way crosses the landscaped grounds of the apartment complex, but the most likely resource locations were identified beyond the old fence line, which appeared to be relatively undisturbed by agricultural activities. Large trees throughout the area testified to a long interval since the last cultivation, if indeed the site has ever been cultivated.

The first line of tests was laid off between a swing set and a volleyball court, along which four test pits were sunk. A fifth test was attempted, but the effort was abandoned when it became evident that the landscaped part of the site has been heavily disturbed.

The first test, between 10.5 and 11.5 meters from the corner of the volleyball court, revealed a plowsoil buried under a recent fill layer that contains plastic trash. This was interpreted as an old ground surface on which landscapers for the apartment project had added a layer of fill.

The second test, a half-meter unit at 20 meters from the court, revealed an old feature, that evidently had existed

Layer of recent fill
10 yr 5/3 to 3/3

10 to 13 cm

A plowzone, sandy loam mottled with clods

7.5 yr 7/6

33 cm

Coarse sand with clay subsoil

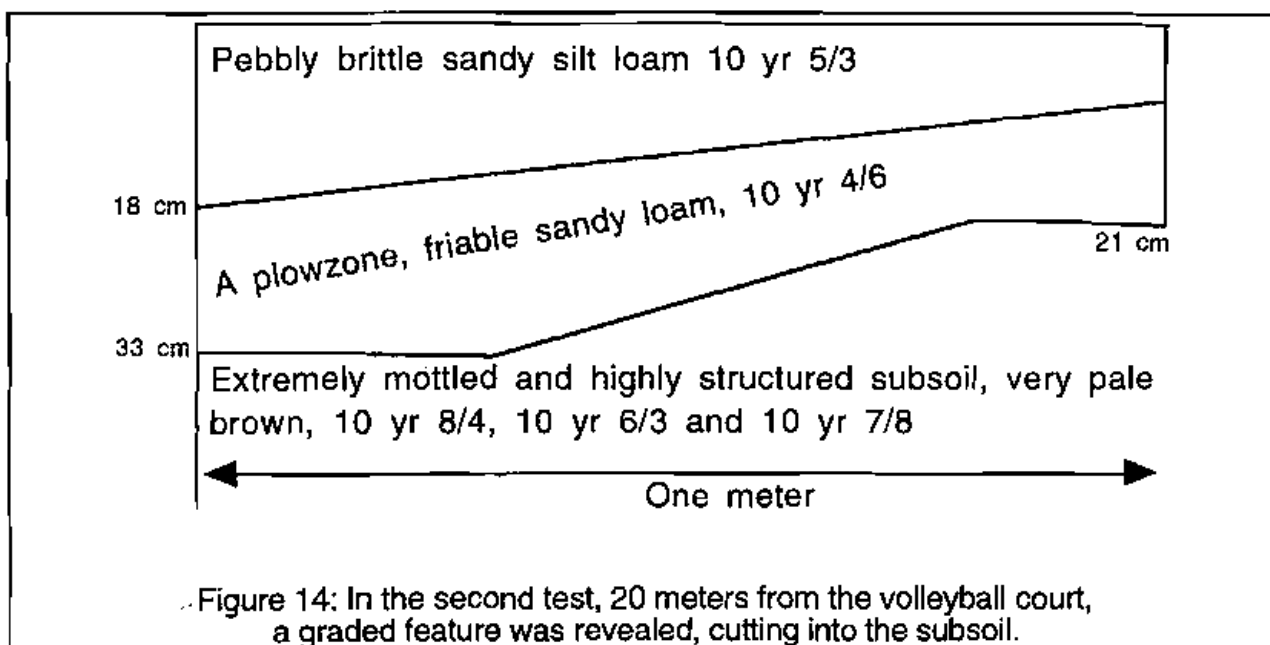
7.5 yr 7/8 and 5/8

Figure 15: The first test, a meter square near the volleyball court, revealed considerable alteration of the surface.

before the apartment complex was built. The silt loam that overlay the old plowzone appeared to have been washed into a depression.

The third unit was a shovel test pit at 30.5 meters along the line. Again, the fill was evident. The top 11 centimeters was a silt loam with fine sand. Under this layer was a yellow sand layer 10 centimeters thick. Below this layer was a stratum of hard-packed black soil that appeared to be oiled and full of trash, like a place where machinery has dripped oil persistently.

Test location 4 revealed a gravelly and trashy deposit at 40.5 meters from the volleyball court. We attempted to dig another test at 46.5 meters, but the soil was too hard and appeared to be rolled gravel.



After these five tests, it was apparent that there was no intact site on the flat landscaped area here, even though we had found a few chunks of rock that could have been fire-cracked or intentionally broken.

We then resolved to move into the woods, closer to the edges of the wetlands.

Before we could make this move, weather closed in. For a month, field work was suspended.

JANUARY IN THE WOODS

Just across the fence line from the modern apartment complex, the woodlands owned by Delaware Technical and Community College are best characterized as an unspoiled wilderness. Probably never cultivated and not logged for generations, the site is covered by mature forest trees and very open understory.

Instead of testing only in the prescribed right-of-way, we chose to look at the project vicinity as a probable site or sites in need of definition. We therefore located our tests according to the likely disposition of prehistoric cultural features. Test units were therefore positioned on high ground likely to contain sites. We considered this broader survey area more prudent because there were still some unresolved questions

that might cause changes in the alignment.

Sandy hills in the neighborhood have proved to contain deeply stratified archaeological deposits. The Simon's Savannah (Heite and Blume 1992: 42) and Blueberry Hill (Heite and Blume 1995) sites were excavated in connection with the Scarborough Road project over the years (Figure 17).

On January 13, we resumed work. The first step in this operation was to create a set of triangulation

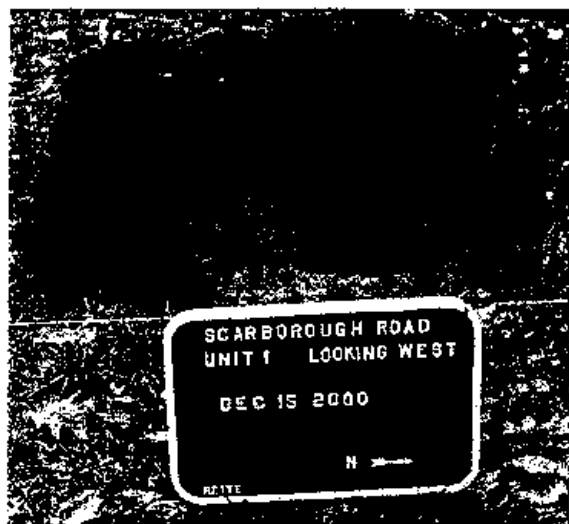


Figure 18: The first test pit, on the grassed surface near the volleyball court, yielded little material evidence of previous site occupants.

points to control testing in the woods (Figure 16). Lines between these points would be used to locate tests.

There are many ways to lay out horizontal control points in an archaeological survey. Each investigator has a repertoire of favorite field control methods, which vary according to site conditions.

The most common survey layout planning techniques are the grid or the centerline interval survey. In flat, open, ground, they are relatively easy and effective.

Under certain field circumstances, triangulation is preferable to the traditional rectilinear grid. To lay off a wooded site according to a rigid grid requires considerable survey work, to set arbitrary points that may fall at inconvenient locations. With triangulation, it is relatively easy to establish recoverable lines of sight through the woods at the crew's convenience.

At this site, the ground is broken, with relatively few areas evaluated as likely to contain cultural resources. Between the high and well drained sandy ridges were steep ravines and wetlands unlikely to contain sites. Triangulation allowed us to quickly establish lines in the likely areas.

A lattice of interconnected triangles was laid across the wooded part of the site, marked by points lettered from A through K. The web was anchored on fixed points known from the survey:

	<i>From</i>	<i>To</i>	<i>Distance</i>
C, NW corner volleyball ct	D		19.5 m
	D	K	37.85 m
	K	J	54.3 m
	J	E	26 m
	K	E	55 m
DelDOT survey point TP 4	F		22.4 m
	F	J	36.8 m
	G	F	25 m
NE corner volleyball ct	G		17 m
NE corner volleyball ct	F		39.75
	F	E	15.3 m
SE corner unit 6 on line C-D	E		36.15 m
SW corner unit 9	H		21.10 m
	H	J	12.1 m
	E	H	15 m

The first line, C-D, followed the ridge of a spur of high ground 19.05 meters from the volleyball court into the woods. To the south of this ridge is White Marsh Branch. To the north is a small pit, probably a borrow pit, at the head of a drain.

Two units were opened along this line on January 13.

The first layer of Unit 6, at 13 meters along the line, was interpreted as possibly a former plowzone 20 centimeters thick. This contained three fire-cracked rocks. More fire-cracked rocks were found in the next ten



Figure 19: Cara Blume discusses the pottery-rich unit 10 with visitors and workers during the January test campaign

centimeters, together with a quartz flake and a chunk of quartz.

At 18.3 meters from the volleyball court was Unit 7, with a former plowzone 28 centimeters thick. A jasper stemmed point and a fire-cracked rock were found in this level. If this was a cultivated area at some time in the past, it could not have been very large, since it lies between White Marsh Branch and a gully. Cultural materials were found at the EB horizon, a half-meter down.

Units 8 and 9 were opened on a line northward from Unit 6, near point E, 35 and 21 meters away. These two tests encountered considerably more gravel, but only two jasper spalls.

Unit 10, only 11 meters from point E, contained a large amount of pottery. The twelve-centimeter loamy sand top layer overlay a sandy loam. The unit was excavated to 27 centimeters deep. A total of 49 sherds of sand-tempered ceramic were recovered, mostly from the southwest quadrant, and mostly from between 12 and 22 centimeters.

Unit 11 was sited on the bluff overlooking White Marsh Branch, near point K, and 53 meters from point E. This unit contained artifacts from the top down to the last arbitrary level, 55 centimeters deep. One piece of prehistoric pottery was found in the twenty-centimeter topsoil.

From the six tests in the woods, we were able to identify at least three loci where prehistoric remains have survived, apparently with a very high level of integrity. The significance of these remains is obvious in terms of the state management plan, which assigns a very high value to stratified and uncultivated sites.

Some, at least, of the prehistoric site lies in the currently planned right of way, but only more testing will define its actual extent.

4. A POSSIBILITY OF A CEMETERY

Human burials are a serious planning concern for construction projects. If a burial is identified during construction, it can cause serious delays. Delaware law requires for time-consuming procedures to be followed when unmarked burials are disturbed, even if it means delaying a project. Prudence, therefore, demands that any possibility of a cemetery should be investigated as early as possible during the planning process.

In this project area, two places were identified as possible cemetery locations. One is in the middle of the proposed roadway, on DelTech property, and the other is near the apartment project pool, on the edge of the proposed right of way.

MODELS OF CEMETERY SITES

Private cemetery locations in Delaware follow a fairly well defined pattern, described very well by Bachman and Catts (1990: 81-100).

Their study included an assessment of cemetery location relative to farmhouses. Of 21 sites assessed, cemeteries were located from 100 feet to 1600 feet from the houses, for an average of 678.5 feet. A group of 34 cemeteries in Sussex studied by others yielded an average house-to-cemetery distance of 832 feet.

Unmarked burials were the rule, rather than the exception, in Delaware. The Loockerman family burial ground elsewhere on the Range property was unmarked during the eighteenth century, but eventually stones were set on later burials. The Rodney and Brown/Graham cemeteries in Jones Neck probably never had markers except the boundary ditch. Poor people

probably did not regularly have permanent inscribed markers until after the Civil War, when the government began providing markers for Union veterans.

Bachman and Catts concluded: "Thus, the number of gravestones present on the Delaware landscape of today may be drastically under-representative of the number of actual interments in rural areas."

SITE ON THE DELTECH PROPERTY

Between the volleyball court and the fence line was an overgrown area, with a thick ground cover of vinca minor, commonly known as periwinkle. This plant is typically associated with cemeteries, where it is traditionally planted to provide low-maintenance ground cover.

Because of its association with cemeteries, periwinkle has tended to be shunned as a domestic planting. It is therefore a relatively reliable marker for burial sites in the absence of other indications.

Its situation, at the highest point on a sandy ridge, further reinforced the supposition that this might be a cemetery site. An old field boundary line, marked by a fence, lies due west of the location. This fence line is shown on

Figure 16, page 19, in relation to the vinca bed. It was the boundary of the four-acre Heatherwood tract, shown on Figure 11, page 15. Jacob Zimmerman had sold off this parcel, and it had later been absorbed into the Trailer Village property that occupied most of the land now containing the apartments, Bob Evans and Comfort Suites buildings. Before the apartments were built, there were two houses on the four acres, according to informants. These houses are indicated on the USGS map, Figure 7, page 11.

There is a pronounced grade change along the fence line, suggesting periods of different land use on either side.

THE LEARNED QUARTER-ACRE

A second location attracted the author's attention because of its ownership history, and not merely its particular situation, even though it is within the appropriate range of distance behind the Learned farmhouse site.

In 1954, Jacob Zimmerman, owner of the tract that is now the DelTech campus, conveyed a quarter acre to Lewis Learned, Sr. It was called a "lot or tract of woodland" along the back line of the Learned farm (Kent County Deed Book K-20, page 170). The parcel began at the fieldstone that had been a corner to the two parcels at least since 1805.

At the time of the transaction, Learned was 81 years old. He had been selling off the family farm in several parcels along the highway. One must ask why he acquired a quarter-acre of relatively worthless land on the back end of his home place, for which he exchanged a valuable segment of road frontage.

Learned, in turn, conveyed to Zimmerman a strip, eighty feet wide, from the highway back to the woods,

now the southern eighty feet of the apartment, restaurant, and hotel parcels (Kent County Deed Book K-20, page 172).

Among the deeds dated May 15, 1987, is a conveyance from Learned's remarried widow, Louise B. Learned Brown to Robert L. Ash, representing the eventual developer (Kent County Deed Book N-43, page 116). Lewis Learned, Sr., had died in 1963, and his son Lewis Learned, Jr. died in 1978; both are buried at Bethel, north of Cheswold.

Even though a cemetery is not mentioned in these deeds, the quarter-acre exchange is unusual enough to raise suspicions. The quarter-acre is now occupied by the premises of the apartment office. The proposed road will cross a corner of the tract, well below its highest elevation.

APPROACHES TO CEMETERIES

There are many approaches to investigating putative cemetery sites. Generally speaking, the methods fall into two categories: excavation or remote sensing, which typically are used in tandem.

Remote sensing techniques include ground-penetrating radar, probe-rod testing, electrical resistivity, thermal imaging, and dowsing. One of these methods will typically be employed before any subsurface testing.

Dowsing is the most controversial of these. Although it frequently is dismissed as magical mumbo-jumbo, there are those who swear by it. First introduced into the serious literature by Ivor Noël Hume, it is cheap enough to try, if only to test its reliability (Noël Hume 1969:39). Certainly, Noël Hume's stature as one of the preeminent figures in historical archaeology confers some degree of legitimacy.

A dowser bends two pieces of wire to form a pair of hand-held pivoting wands that are carried in front of the dowser. Commonly they pivot in bottles, which the dowser carries upright. As he or she walks across the site, it is alleged that the wires will cross as the dowser walks across a grave or other major ground disturbance. Utility companies, electricians, and plumbers typically use dowsing to identify buried pipes.

Some people are supposed to have a special aptitude for dowsing, while others never get results. Among archaeologists, the mention of dowsing will excite animated debate. During the course of the present project, the author asked the HISTARCH on-line discussion group, with more than 800 members, to comment on the subject. Dozens of archaeologists expressed views on both sides, and no consensus evolved from the debate.

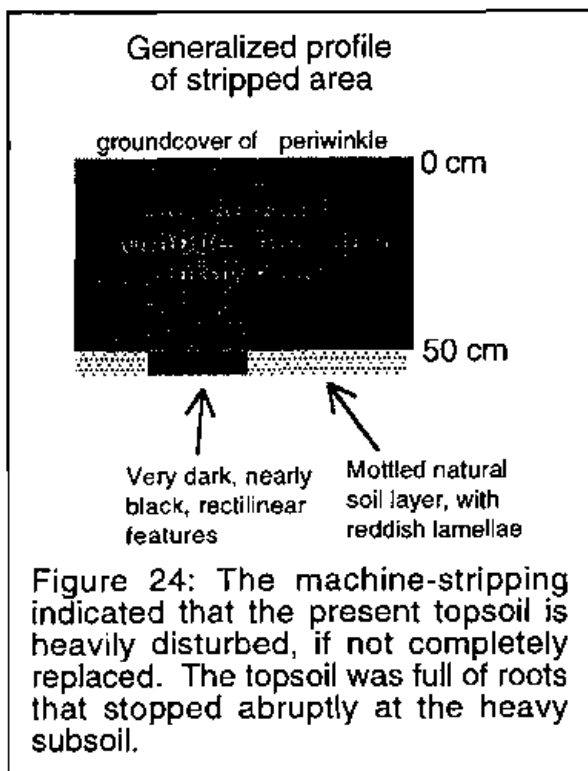
In spite of the fact that the whole business sounds like unscientific hokum, we decided that this was an opportunity to conduct a blind test. On the surface there were no obvious grave depressions, although the site is pocked with small irregular undulations. There were, therefore, no obvious graves to

confer the "Ouija Board" effect.

Critics of dowsing suggest that the presence of marked graves or obvious grave depressions will influence the dowser to jiggle the wands into a false "hit," just as Ouija Board users are sometimes believed to guide the probe to desired answers.

To minimize the possible effect by outside influences, it was decided to invite several dowsers to survey the site. Between surveys, markers from previous surveys were to be removed, so that each dowser would work without indication of others' work. Three individuals tried their skills, with interesting results.

One of the three volunteers proclaimed that he has no talent as a dowser, even though his grandfather had been an accomplished water witch. He found not a single hit. The second volunteer had never tried it before. The third subject, this author, had some successful experiences with dowsing.



The first-time dowser experienced a number of hits, marked by round dots on Figure 25. The square marks are the hits experienced by the author.

The results do not constitute a resounding endorsement of dowsing as a cemetery analysis tool. Maybe results depend on something that is not measurable, such as belief or some undiscovered "animal magnetism" or elusive aura. In order to definitively test dowsing it will be necessary to enlist a number of experimenters for a controlled experiment on a variety of sites. The first obstacle, as we discovered, may be the difficulty of finding people willing to be seen, and even photographed, walking repeatedly across a field concentrating on bent coathangers.

After the dowsing, the site was stripped. The topsoil was homogenous brown, sandy, root-filled and loose. At the bottom, this soil gave way to a

subsoil with more clay. This soil layer resembled that found in nearby unit 1, illustrated on Figure 14, page 18. The soil was marked with lamellae, which are generally identified as markers for very old soils.

This old soil layer was exposed for the full length of the trench. Several brown features could be seen clearly penetrating the lower level. These features were darker than any of the topsoils surviving in the area. Unfortunately, the small size of the trench did not afford a complete view of any of the disturbances.

These disturbances are clearly manmade. They could be burials, but they could just as easily be old planting holes or privy pits. The only way we will find out will be to dig them up.

5. CONCLUSIONS AND RECOMMENDATIONS

A Phase II investigation in the woods certainly is warranted in order to assess the eligibility of the identified prehistoric resources.

Based upon the initial testing, the site meets the criteria for significance established for Delaware sites (Heite and Blume 1995:24). Part, at least, of the site has not been plowed; stratified deposits were detected. If these conditions prove to be widely distributed in the project area, the site is eligible for the National Register.

The Area of Potential Effect needs to be defined in order to define the extent of Phase II work. Since the road will be built into the natural hillside, its impact will undoubtedly be considerably wider than the mere roadway.

Wherever the limits of impact are established, it is clear that everything west of the fence line is potentially part of the prehistoric site. A systematic test program, of 15 to 25 meter-square tests, will be sufficient to describe the various parts of the site and possibly to define its limits. Since the site certainly extends beyond the project impact, its ultimate

boundaries are not material to the present project.

We propose to use the existing "spiders" through the woods to control the Phase II project, laying out lines of meter-square tests along these lines, concentrating in the vicinity of the roadway as shown on the current drawings.

As for the area near the volleyball court, we recommend using a Gradall to clear away the topsoil from a large area including most of the volleyball court. Restoration of the court will be a cost issue that cannot be resolved by the consultant. But this matter must be resolved before a cost estimate can be completed.

Whatever they are, the features behind the volleyball court must be identified before we can determine if there is a graveyard there. After the whole area is stripped of its topsoil, the uncovered features will be hand excavated.

As for the quarter-acre on the back of the Learned property, if it is a graveyard, the burials are to be expected on the uphill side, not in the area slated for the roadway.

EXCAVATION REGISTER

SCARBOROUGH ROAD CONNECTOR ARCHAEOLOGICAL PROJECT

Unit No.	Level	Depth	Description of the soil matrix	Location and description	Artifact Catalogue
1	1	0-10 cm	A fill layer, blocky with some structure, sand with some pebbles 10YR 5/3	Meter-square test 10.5 m from B on base line A-B	none
1	1	10-20 cm			1 quartzite chunk
1	2		Apparently an old plowzone level, sandy loam 7.5YR 5/3 and 4/3		none
2	1	0 to 8 cm and 18 cm	Pebbly sandy loam fill with recent trash and some charcoal 10YR 5/3	Half-meter by meter unit 20 m from B on base line A-B	1 broken quartz cobble 1 quartz chunk 1 quartzite chunk 1 smoky quartz chunk
2	2	Extending to subsoil at 21 to 33 cm deep	Apparently an old plowzone level, friable sandy loam 10YR 8/4		none
3		0 to 20 cm	Burned black trashy material, excavated to subsoil	Shovel test pit 30.5 meters from B on base line A-B	none
4		Impossible to penetrate	Apparently an old driveway thoroughly compacted, mostly gravel.	Shovel test pit 40.5 meters from B on base line A-B	none
5		0 to 22 cm	Very trashy mixed contents, all apparently very recent	Shovel test pit 46.5 meters from B on base line A-B	none
6	1	0 to 20 cm	Slightly silty sand A horizon 10YR 3/3	Meter-square test 13 meters from C on base line C-D	3 fire-cracked rock fragments, 51.6 gm
6	2a	20-25 cm	Probable E horizon slightly loamy sand 2.5Y 5/4		1 unidentified metamorphic rock 1 quartz cortex flake,

Unit No.	Level	Depth	Description of the soil matrix	Location and description	Artifact Catalogue
6	2b	25-30 cm			1 quartz chunk 1 fire-cracked rock fragment, 8.4 gm
7	1	0 to 26 cm	Plowzone slightly silty sand 10YR3/3	Meter-square test 18 meters from C on base line C-D	1 fire cracked rock 1 heat-treated jasper stemmed point with ground base, tip and most of one side broken in impact fracture
7	2a	26 to 31 cm	Slightly loamy sand 2.5Y5/4		none
7	2b	31 to 36 cm	same		1 fire cracked rock fragment, 39.6 gm
7	3a	36 to 41 cm	same		none
7	3b	41 to 46 cm	same		none
7	4a	46 to 51 cm	same		none
7	4b	51 to 56 cm	EB horizon 2.5Y5/3		2 fire cracked rock fragments, 118.8 gm
8	1	0 to 17 cm	A horizon loamy sand 10YR3/3	Meter-square test 35 meters from line C-D at unit 6	none
8	2a	17 to 22 cm	E horizon loamy sand 2.5Y5/4		2 jasper spalls
8	2b	22 to 27 cm			none
8	3a	27 to 32 cm	Sandy loam with pea gravel 2.5Y5/4		none
8	3b	32 to 37 cm	same		none
9	1	0 to 20 cm	Gravelly loamy sand A horizon 10YR3/3	Meter-square test 21.1 meters from line C-D at unit 6	none
9	2a	20 to 25 cm	Loamy sand 10YR4/3		none
9	2b	25 to 30 cm	2.5Y5/6		none
10	1	0 to 12 cm	Loamy sand 10YR3/2	Meter-square test on line E-J, 11 meters from point E	1 sherd sand-tempered ceramic
10	2a	12 to 17 cm	Sandy loam 2.5Y 5/4		26 sherds sand-tempered ceramic
10	2b sw	17 to 22 cm	same	southwest quarter	14 sherds sand-tempered ceamic
10	2b se	17 to 22 cm	same	southeast quarter	3 sherds sand-tempered ceramic
10	2b nw	17 to 22 cm	same	northwest quarter	1 sherd sand-tempered ceramic
10	2b ne	17 to 22 cm	same	northeast quarter	none
10	3a sw	22 to 27 cm	same	southwest quarter	none

<i>Unit No.</i>	<i>Level</i>	<i>Depth</i>	<i>Description of the soil matrix</i>	<i>Location and description</i>	<i>Artifact Catalogue</i>
10	3a se	22 to 27 cm	same	southeast quarter	2 sherds sand-tempered ceramic
10	3a nw	22 to 27 cm	same	northwest quarter	2 sherds sand-tempered ceramic
10	3a ne	22 to 27 cm	same	northeast quarter	none
11	1	0-20 cm	Sandy loam A horizon 10YR3/3	Meter-square test on line E-K, 53 meters from point E	1 sherd sand-tempered ceramic 1 quartz chunk 1 jasper cortex flake
11	2a	20-25 cm	10YR5.5/4		2 fire-cracked rock fragments, 88.3 gm 1 heat-treated jasper chunk
11	2b	25-30 cm	10YR5.5/4		1 fire-damaged pitted stone 2 jasper non-cortex flakes 1 large quartz flake
11	3a	30-35 cm	10YR5.5/4		1 quartzite hammerstone, fire-cracked
11	3b	35-40 cm	10YR5.5/4		1 fire-cracked rock fragment, 13.6 gm
11	4a	40-45 cm	10YR 6/3 with lamellae 10YR6.5/4		1 quartzite chunk
11	4b	45-50 cm	same		1 fire-cracked rock fragment, 136.3 gm
11	5a	50-55 cm	same		1 fractured pebble fragment

FORMAL DESCRIPTION
SAND-TEMPERED CERAMICS

N= 49 (all but one sherd probably from the same vessel)

Paste

Temper: The temper of sherds in this group is a medium to coarse sand, well dispersed through the paste, and comprising perhaps 5% of the paste. Small particles of what appears to be red ochre are also found. Larger pebbles are occasionally found.

Texture: The paste is fairly smooth. Breaks are moderately even, but only occasionally follow coil lines. Surfaces are slightly gritty because of the sand included in the paste.

Color

Exterior: Munsell: 5YR 6/4 light reddish brown

Core: Munsell: 5YR 5/2 reddish grey

Interior: Munsell 5YR 6/4 light reddish brown

Surface Treatment

Exterior: Most of the sherds are cordmarked on the exterior. Cords are 2-ply 2 - 3 mm thick and moderately S-twisted.

Interior: Sherds are most frequently smoothed on the interior, but some cord-marking is present.

Form

Lip: No data.

Rim: No data.

Body: Vessel appears to be conoidal in shape. Body sherds are 7 - 10 mm thick

Base: No data.

Comments

These sherds resemble Ware Group I as defined for the Puncheon Run Site by Blume and Walls, where it is suggested that they may be related to Coulbourn Ware.