

## CHAPTER 8

### HICKORY BLUFF PREHISTORIC SITE [7K-C-411]

#### **A. Introduction**

The Hickory Bluff Prehistoric Site [7K-C-411] is located on the wooded bluff flanking the east side of the St. Jones River (Figure 8.1a-b). The local physiography comprises an aeolian sand plain overlooking a channel cut-off, or ox-bow, formed during an earlier -- probably mid-Holocene -- phase of channel migration. The regional landform on which the site rests has been mapped as a late Pleistocene terrace and ranges between seven and eight meters (23 and 26 feet) above the mean water level of the channel. The site, as defined by archaeological field testing and current land use constraints, is bounded on the west by the St. Jones River, on the north by a wetland swale, on the south by the Capitol Park housing development, and on the east by a line running parallel to the bluff edge passing through station 403+50 (Plate 8.1).

#### **B. Archaeological Field Survey**

Initially, the ground surface was thoroughly inspected along the entire length of Area C (between the St. Jones River and U.S. Route 113). A controlled surface collection was not feasible as more than half of the area in question was occupied by an overgrown apple orchard and the section along the St. Jones River was heavily wooded. Within this latter wooded area a series of adjoining sand borrow pits had been excavated sometime within the present century. The steeply-sloping side walls of these pits have been subject to erosion over the years. As a result, several pieces of debitage and fragments of thermally-fractured rocks were exposed. These artifacts were mapped *in situ* and then removed for study.

The Phase I field investigation involved the excavation of 66 shovel tests (ST#s 1-14, 17-29, 49-61, 102-114, 153-159 and 165-170) which produced 114 artifacts. Initially, shovel tests were placed at 30-meter intervals along five main transects spaced 30 meters apart. The testing interval was narrowed to 7.5 meters to the west of station 400+25 in anticipation of a greater density of prehistoric finds along the bluff rim. Prehistoric artifacts were recovered from 41% of the shovel tests, the majority of which were located in a band running parallel to and within 300 meters of the St. Jones River. This zone was seen as representing the heart of the Hickory Bluff Prehistoric Site.

In the Phase II field investigations, supplementary testing was also conducted to define the site boundaries with greater precision. This activity involved limited excavation outside the project boundaries (ST#s 400-429) and recovered 125 prehistoric artifacts from 73% of the shovel tests. As a result of this work, the boundaries of the Hickory Bluff Prehistoric Site were extended both north and south beyond the project corridor. Following completion of the shovel testing, split-

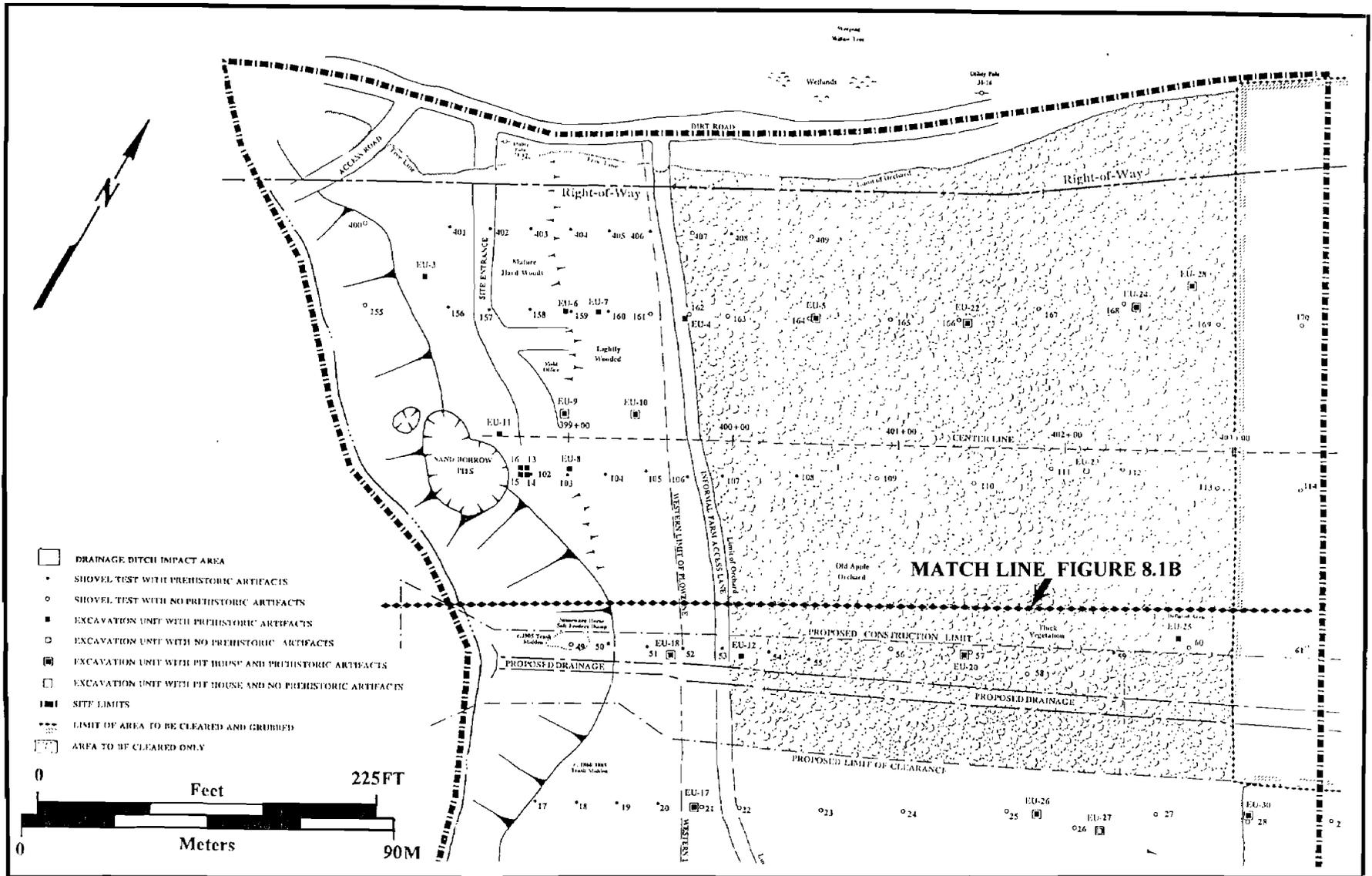


Figure 8.1a. Hickory Bluff Prehistoric Site - Site Plan Showing Locations of Subsurface Tests.



spoon augering was conducted at two-meter intervals along the five main transects to search for soil anomalies which might indicate the presence of subsoil features. Finally, 28 one-meter-square excavation units (EU#s 3-30) were placed to sample areas of both high and low artifact density across the site and to examine areas where subsoil features were suspected. A total of 2,265 artifacts were recovered from these units and are discussed below.

### **C. Geomorphological Assessment**

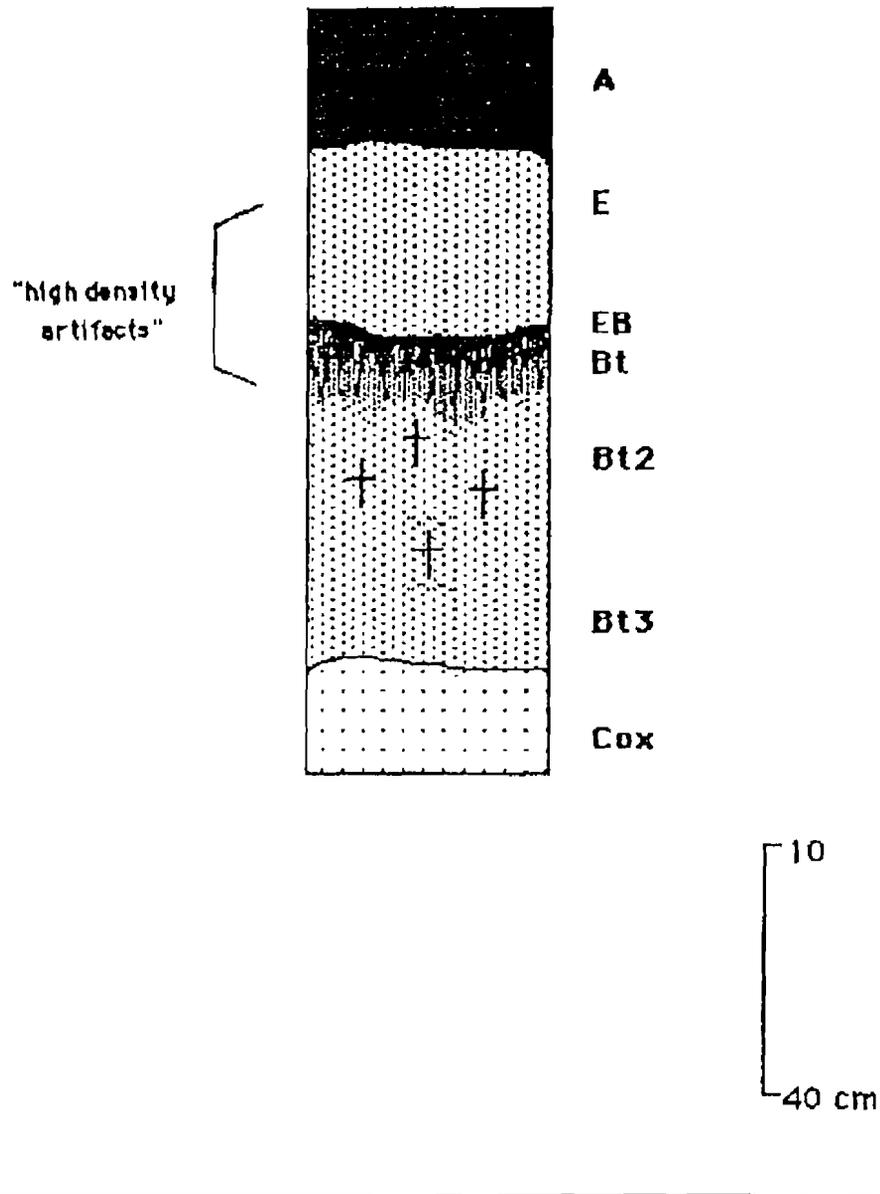
A field visit by the project geomorphologist (Dr. Joseph Schuldenrein, Geoarcheology Research Associates) involved examination of a series of exposed archaeological excavation units and the excavation of a series of cores in the Pleistocene terrace along a transect running perpendicular to the channel axis. Subsurface units were generally open to depths of 1.0 to 1.5 m and a total of eight were inspected in detail. Inspected excavation units were confined exclusively to the northern end of the site.

Field relations suggest that the uppermost one to two meters of sediment blanketing the terrace are aeolian in origin. These observations were confirmed by inspection of the well-sorted fine sands and the unconsolidated structures of the unweathered fractions of sediment associated with the capping sediment and immediate substrate. Stratigraphic variability between units was considerable and reflects the subtle sedimentation of wind-laid sediment and the degree of weathering in the substrate. It was clear that minor episodes of deflation had differentially stripped the surface and alternately exposed and concealed the occupations.

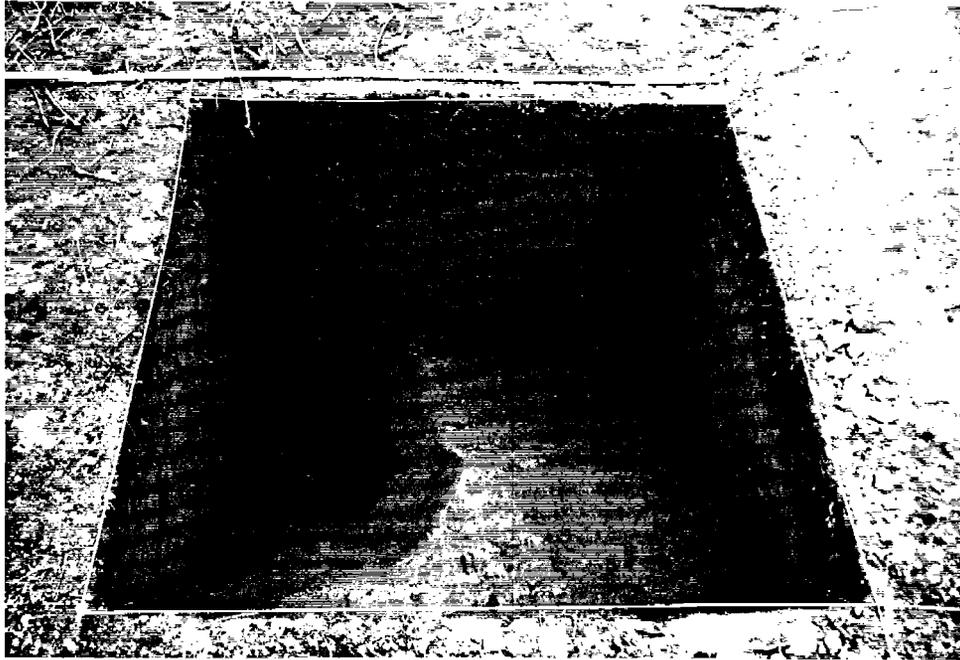
A baseline stratigraphy was reconstructed from more detailed inspection of Excavation Unit 9 near the northern limit of the test excavation grid (Figure 8.2). The profile disclosed a classic podsol weathering regime; regional soils have been mapped as Ultisols (Matthews and Ireland 1971). The profile preserves a classic "A-E-EB-Bt1-Bt2-Bt3-Cox" solum. The degree of weathering in the substrate, isolating a firm argillic horizon (the "Bt"), is evidence of protracted surface stability prior to the periods of deflation. This profile is representative of the broad pattern of soil formation on the terrace. It suggests intensive weathering dating to the mid-Holocene, a pattern not widely recognized along coastal reaches of the Mid-Atlantic uplands.

Most significantly, the archaeological deposits are preserved at the interface of the weathering zone (Plate 8.2). Artifact clusters and pit features are densest in the "E-EB-Bt" horizons. This context does not necessarily mean that the occupations were contemporaneous with the "Bt", but may suggest that the entire profile is "upbuilding" or rising as additional sediment is laid down by wind activity. The association of artifacts within the "Bt" may signify either post-depositional, ongoing, or discontinuous weathering after the site was abandoned by prehistoric inhabitants. Such contexts are widely encountered at archaeological sites in the Middle Atlantic. They offer unique possibilities for dating periods of soil formation and linking them to the environments of occupation, since they are indexed to specific periods of prehistoric habitation.

**SOIL STRATIGRAPHY: EU 9, SITE 7KC-411**



**Figure 8.2 The Hickory Bluff Prehistoric Site Excavation Unit 9 Semi-schematic Stratigraphy and Pedogenic Profile.**



**Plate 8.2. Area C - Hickory Bluff Prehistoric Site [7K-C-411],  
Excavation Unit 9: view of north wall profile showing a typical  
soil profile (Photographer: Frank Dunsmore, November 1994)  
[HRI Neg. 94015/11-14].**

Three bulk soil samples were taken from the finished profiles of two excavation units. Two soil samples were taken from Excavation Unit 5, one from the upper portion (55cm-62cm) and one from the lower portion (78cm-86cm) of Bt2. One soil sample from the lower portion (78cm-88cm) of the Bt2 in Excavation Unit 9. The samples contained small amounts of organic carbon too low for normal radiocarbon testing with any accuracy. Upon the recommendation of the testing laboratory, Beta Analytic, Inc., the Accelerator Mass Spectrometry (AMS) technique was conducted on isolated macrofossils. The calibrated results range from 1065 B.C. to 400 B.C., clearly within the time frame of the Woodland I period (Table 8.1). Since these samples were taken from a context over 30 centimeters in thickness, it would indicate that these soils built up quickly on this site during this period, potentially sealing evidence of individual activities shortly after they occurred.

**TABLE 8.1**  
**HICKORY BLUFF PREHISTORIC SITE**  
**ACCELERATOR MASS SPECTROMETER (AMS) DATES**

<b>Excavation Unit</b>	<b>Depth</b>	<b>Beta Sample Number</b>	<b>AMS Date</b>	<b>Correction Factor</b>	<b>Calibrated Date Range</b>
EU 5	55-62cm	79174	2790BP	+/- 60	BC 1065 to 815
EU 5	78-86cm	79173	2600BP	+/- 60	BC 835 to 755 BC 685 to 540
EU 9	78-88cm	79172	2480BP	+/- 60	BC 795 to 400

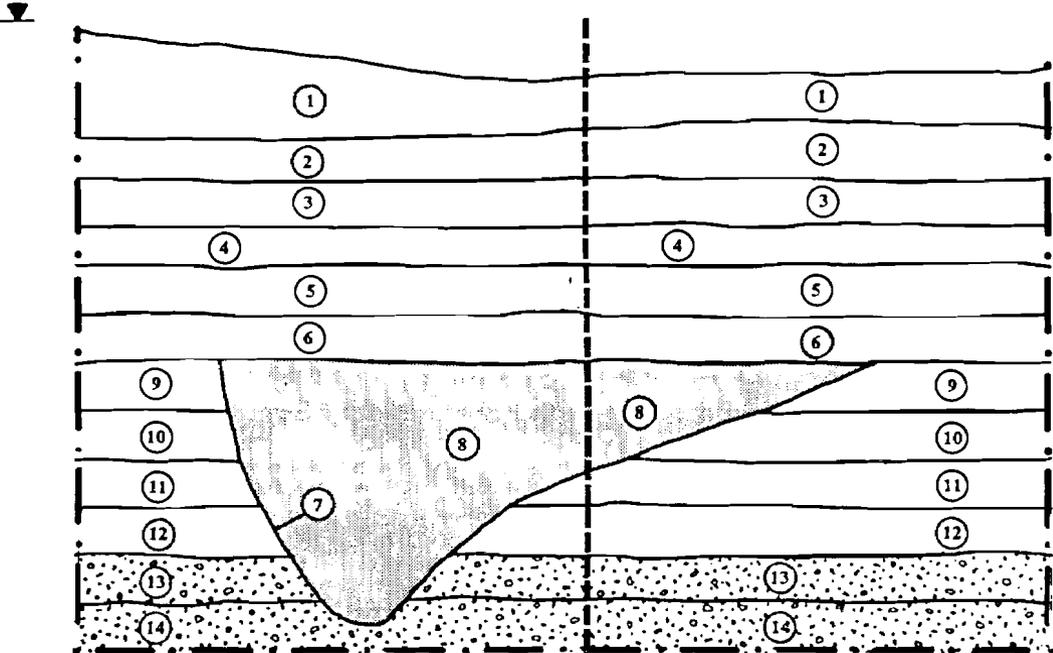
**D. Stratigraphic and Feature Analysis**

In addition to the well-preserved soil sequence, there is an abundance of archaeological features, especially in the form of multiple, sometimes stratigraphically related, pit-like features which are tentatively interpreted as "pit houses" (small, semi-subterranean dwellings). The considerable number of these features (there are possibly as many as several hundred) suggests that the Hickory Bluff Prehistoric Site may have been the scene of a seasonally-occupied macro-band base camp and/or multiple micro-band base camps. During the Phase II field investigations, one or more pit features were encountered in 14 excavation units (EU#s 5, 9, 10, 17-20, 22, 24, 26-28 and 30) (Figures 8.3-8.5; Plates 8.3-8.5). These are discussed in more detail in Chapter 9 below.

# Excavation Unit 9

South Wall Profile

West Wall Profile

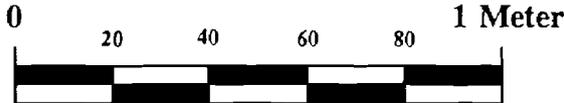


Context	Description/Interpretation	Munsell Color
1	Humus	10YR 3/2
2	Sandy Loam	10YR 3.5/4
3	Clayey Sand	10YR 4.5/4
4	Clayey Sand	10YR 5/4
5	Clayey Sand	10YR 5/3
6	Clayey Sand	10YR 4.5/6
7	Cut for Pit House	-
8	Clayey Sand/Pit House Fill	10YR 4.5/4
9	Clayey Sand	10YR 4.5/7
10	Clayey Sand/Arbitrary Level	10YR 4.5/7
11	Sand/Arbitrary Level	10YR 4.5/7
12	Sand/Arbitrary Level	10YR 4.5/7
13	Sand	7.5YR 4.5/6
14	Sand/Arbitrary Level	7.5YR 4.5/6

 C HORIZON

 PIT HOUSE

 LIMIT OF EXCAVATION



8-8

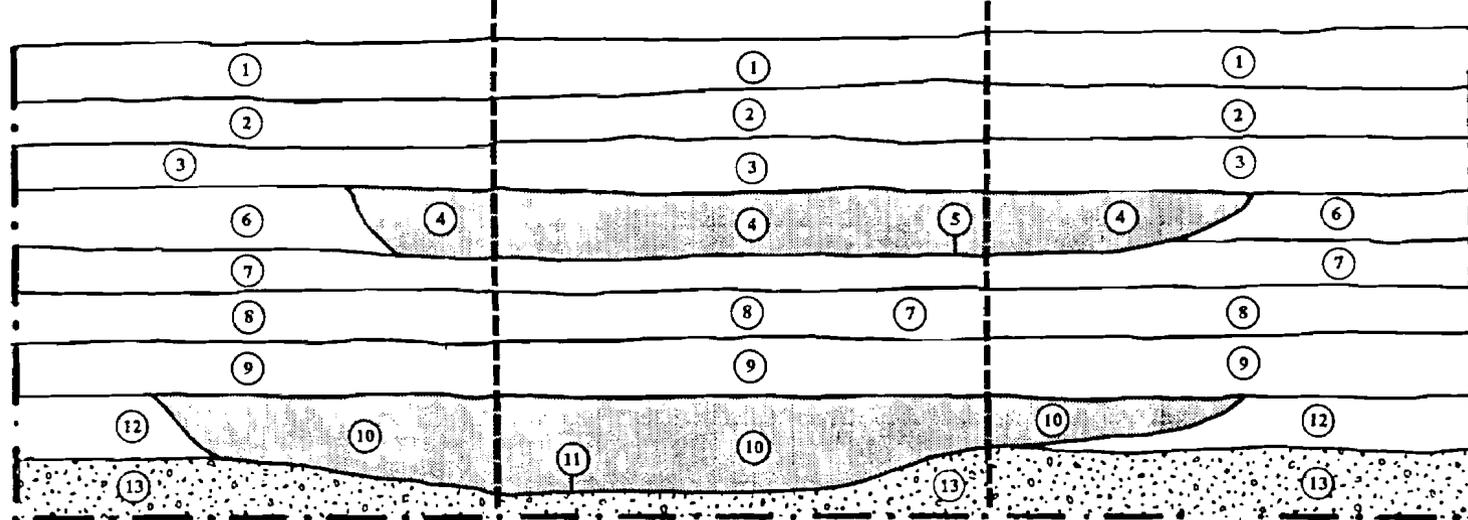
Figure 8.3 The Hickory Bluff Prehistoric Site Excavation Unit 9, South and West Profiles, Showing a Partial Pit Feature.

# Excavation Unit 22

East Wall Profile

South Wall Profile

West Wall Profile



Context	Description/Interpretation	Munsell Color
1	Clayey Sandy Loam/Humus	10YR 3/2
2	Clayey Sand	10YR 4/2
3	Clayey Sand	10YR 5/3
4	Clayey Sand/Pit House Fill	10YR 5/3 10YR 5/2
5	Cut	-
6	Sandy Clay	10YR 5/4
7	Sandy Clay	10YR 5/4
8	Sandy Clay	10YR 5/5
9	Sandy Clay	10YR 5/4
10	Mottled Sandy Clay/ Pit House Fill	10YR 5/6
11	Cut	-
12	Clayey Sand	10YR 5/5
13	Clayey Sand	10YR 5/6

--- · --- LIMIT OF EXCAVATION

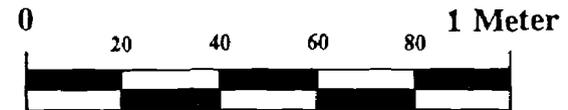
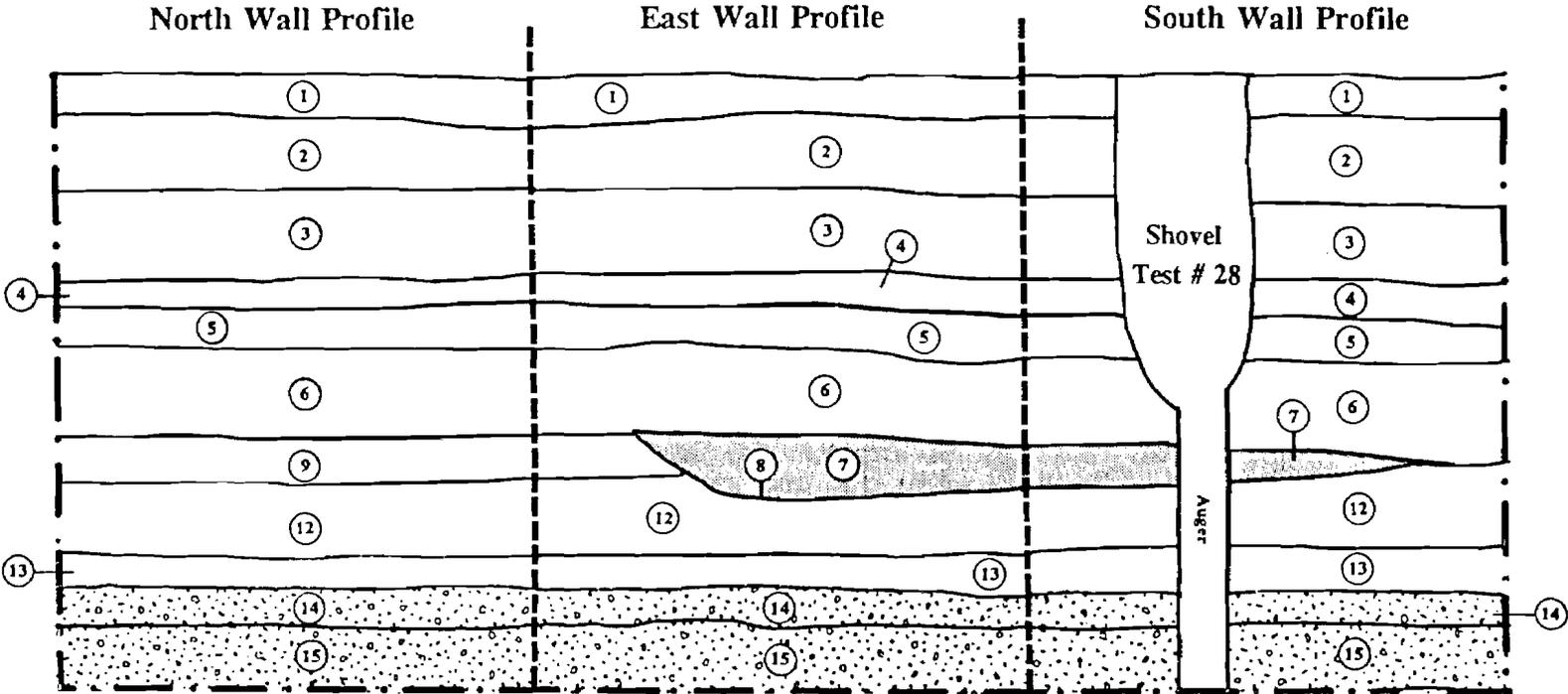
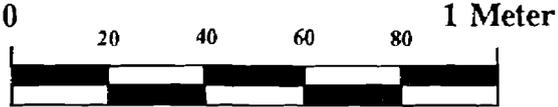


Figure 8.4 The Hickory Bluff Prehistoric Site Excavation Unit 22, East, South and West Profiles Showing Two Stratified Partial Pit Features.

# Excavation Unit 30

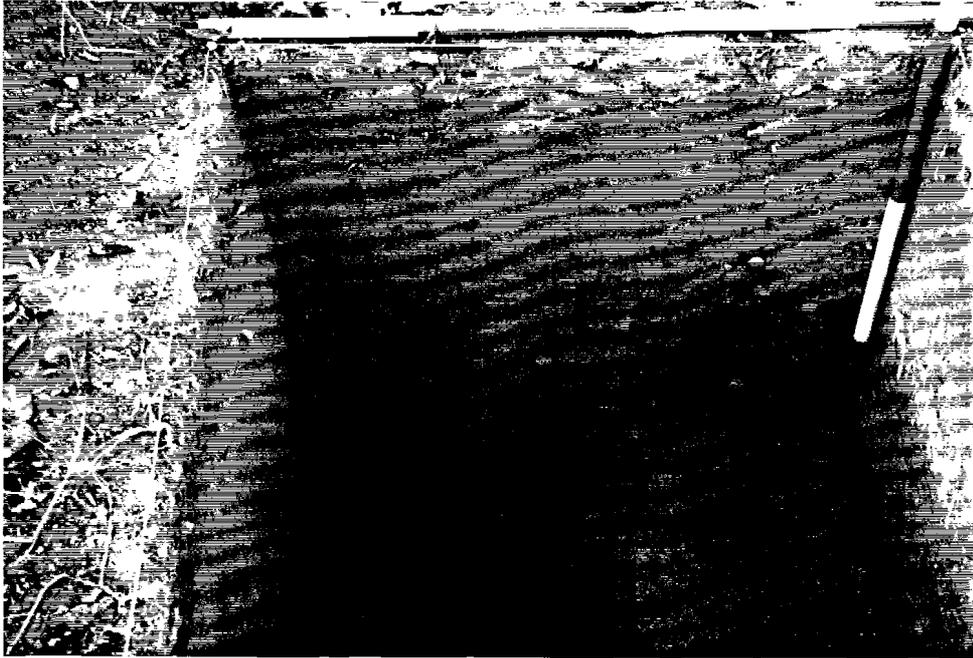


Context	Description/Interpretation	Munsell Color
1	Sandy Loam/Humus	10YR 4/2
2	Silty Loam	10YR 4/2
3	Clayey Sand	10YR 5/4
4	Clayey Sand	10YR 5/6
5	Clayey Sand	10YR 5/5
6	Clayey Sand	10YR 5/5
7	Clayey Sand/Pit House Fill	10YR 5/5
8	Cut	-
9	Clayey Sand	10YR 5/5
12	Clayey Sand With Gravel	10YR 5/5
13	Clayey Sand With Gravel	10YR 5/5
14	Sand	10YR 5/5
15	Sand	10YR 5/5
16	Sand	10YR 5/5

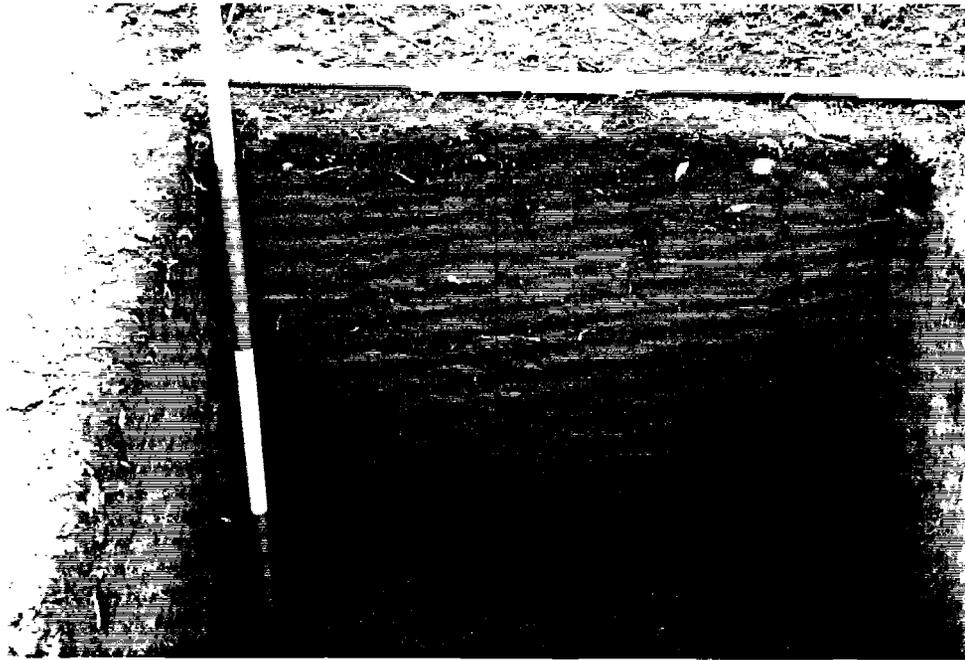


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Figure 8.5 The Hickory Bluff Prehistoric Site Excavation Unit 30, East and South Profiles, Showing a Partial Pit Feature.



**Plate 8.3. Area C - Hickory Bluff Prehistoric Site [7K-C-411],  
Excavation Unit 5: view of north wall profile showing part of  
a pit feature (Photographer: Frank Dunsmore, October 1994)  
[HRI Neg. 94015/9-14].**



**Plate 8.4. Area C - Hickory Bluff Prehistoric Site [7K-C-411],  
Excavation Unit 10: view of west wall profile showing part of  
a pit feature (Photographer: Frank Dunsmore, November 1994)  
[HRI Neg. 94015/10-16].**

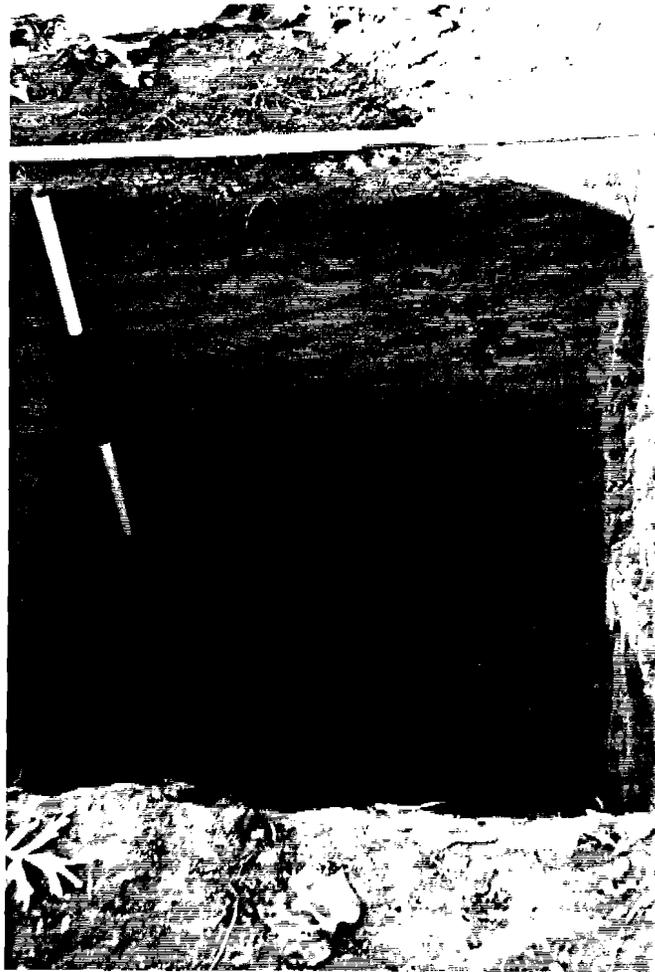


Plate 8.5. Area C - Hickory Bluff Prehistoric Site [7K-C-411], Excavation Unit 20: view of west wall profile showing part of a deeply-buried pit feature (Photographer: Frank Dunsmore, November 1994) [HRI Neg. 94015/15-19].

## E. Artifact Analysis

A total of 2,379 prehistoric artifacts were recovered during the Phase I and II field investigations (114 from the Phase I and 2,265 from the Phase II). The density of artifacts was greatest close to the rim of the bluff overlooking the St. Jones River and tapered off as one moved east away from the river.

The number of lithic artifacts recovered totaled 1,939 specimens and included projectile points, bifaces, a variety of scraping and cutting tools, cores and flakes (Figure 8.6; Table 8.2). The raw materials used in the manufacture of these tools are mainly of local origin, consisting chiefly of jasper, quartz and quartzite. Non-local lithics are represented by smaller quantities of rhyolite, argillite, Flint Ridge chert and cuesta quartzite. A full range of flake sizes and types (fully cortical to non-cortical) is evident among the locally-derived lithic materials suggesting on-site lithic reduction and production of tools (Table 8.3). The lack of fully cortical debitage and the small size of flakes of non-local materials suggest that these lithics were manufactured off-site and then curated on-site to rejuvenate the working edges. The presence of cuesta quartzite (from northern Delaware) and rhyolite (from northern Maryland) suggest extended procurement zones; the presence of Flint Ridge chert (from Ohio) and argillite found in outcrops in northeastern Pennsylvania and northern New Jersey suggests either long-distance lithic procurement, trade or, less likely, population migration. A total of 253 ceramic sherds from both flat-bottomed and conical vessels were also recovered from the site during the Phase I and II field investigations. Well-preserved floral remains, in the form of hulls of hickory nuts and possibly butternut, were also noted.

The diagnostic projectile points consist mainly of a variety of stemmed types, ranging in length from 26 to 76 millimeters. These specimens have been found within almost every stratigraphic level of the site. Other point types include so-called "teardrops" (datable to the period from 1480 B.C. to 220 B.C.), a Rossville point (*circa* 520 B.C. to 100 B.C.), an Adena corner-notched point (*circa* 500 B.C. to 1 A.D.) and a single late Woodland II triangle (*circa* 1000 A.D. - 1600 A.D.), the latter being recovered from the uppermost stratigraphic context. Among the non-diagnostic lithic artifacts recovered, chert and jasper debitage and pebble cores are noticeably dominant. The source of this material is presumably local and may in fact be the base of the nearby bluff along the St. Jones River, since the deeper excavation units have revealed several gravel layers in the C-horizon.

Ceramic artifacts attributable to the Woodland I period are represented by 21 sherds of early flat-bottomed, steatite-tempered Marcey Creek Plain Ware and one sherd of Dames Quarter ware. Later Woodland I conical vessel types are represented by Coulbourn (3 sherds), Wilgus (72), Nassawango (21), Wolfe Neck (12) and Hell Island (2) wares. It should be noted that clay-tempered wares of the Delmarva Adena complex (Coulbourn, Wilgus and Nassawango) dominate the assemblage, accounting for 39% of the total number of sherds recovered. These wares have

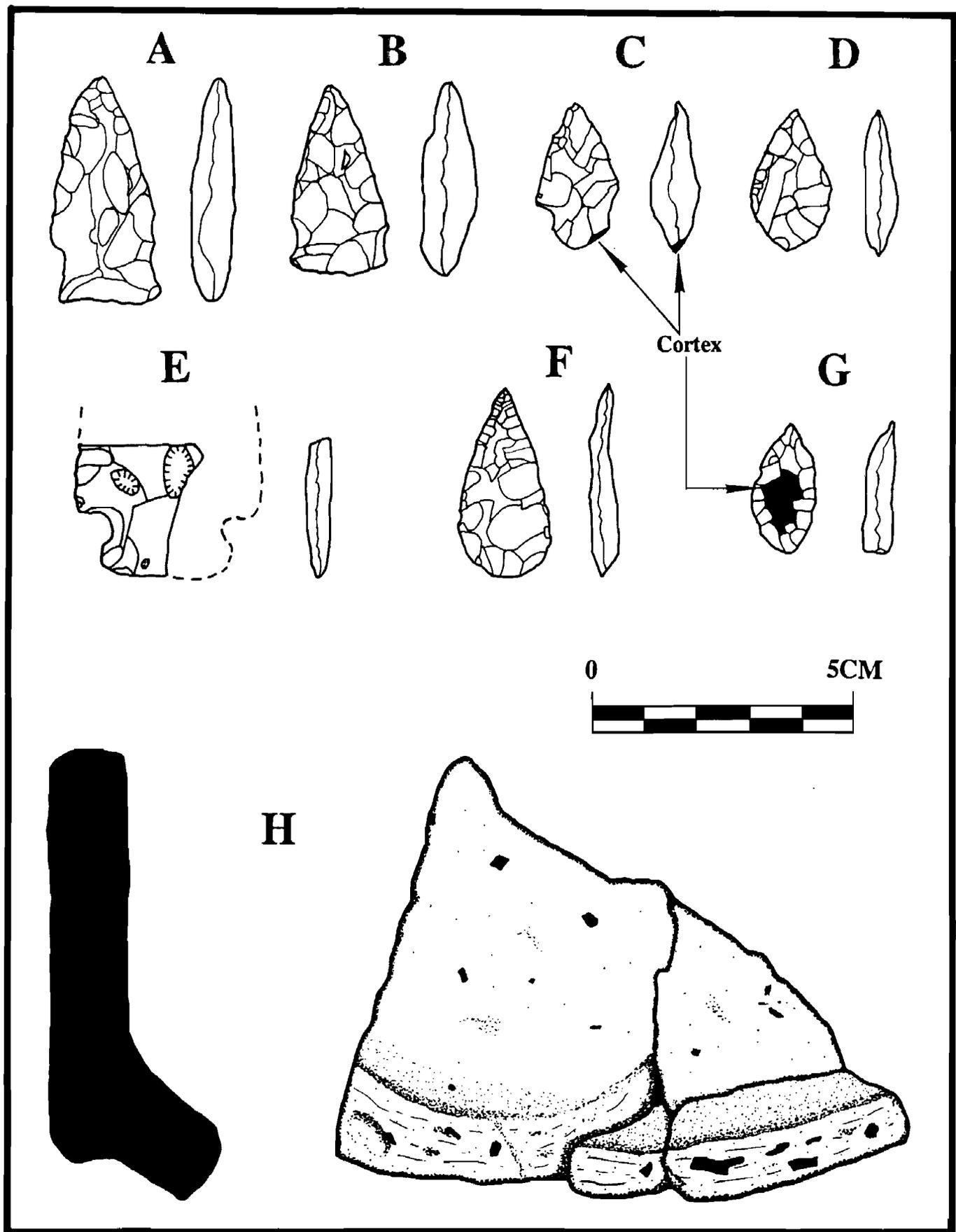


Figure 8.6 Selected Woodland I Diagnostics from the Hickory Bluff Prehistoric Site 7K-C-411, Phases I & II: A. translucent quartz expanding stem projectile point, EU 11 context 3; B. yellow-brown jasper expanding stem projectile point, EU 15 context 2; C. yellow-brown jasper small stemmed projectile point, EU 8 context 3; D. thermally reddened jasper teardrop projectile point, EU 10 context 1; E. Flint Ridge chert Adena corner notched projectile point, EU 8 context 5; F. exotic jasper teardrop projectile point EU 6 context 2; G. exotic jasper late stage biface, EU 7 context 4; H. Marcey Creek flat-bottomed ceramic sherds, EU 9 context 4. See Appendix B for more details.

**TABLE 8.2**

**HICKORY BLUFF PREHISTORIC SITE  
PHASE I AND II ARTIFACT SUMMARY**

RAW MATERIAL	ARTIFACT TYPE														TOTAL
	Projectile Point	Biface	Knife	Drill	Bifacial Tool	Perforator	Utilized Flake	Debitage/ Edge Damage	Cobble Tool	Anvil, Bipolar	Core	Raw Material	Debitage	Thermally Altered Rock	
Local material															
Jasper	7	2	1	-	-	1	4	30	-	-	14	-	528	120	707
Chert	1	1	1	-	1	-	2	4	-	-	8	-	168	16	202
Chalcedony	1	-	-	-	-	-	-	-	-	-	-	-	11	-	12
Quartz	-	2	-	1	-	-	2	3	1	-	5	-	142	358	514
Quartzite	1	-	-	-	-	-	-	-	2	2	-	-	40	405	450
Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Gneiss	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Ironstone	-	-	-	-	-	-	-	-	-	-	-	-	1	144	145
Non-local material															
Chert, Flint Ridge	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Argillite	2	-	2	-	-	-	-	-	-	-	-	1	41	-	46
Rhyolite	-	-	-	-	-	-	-	-	-	-	-	4	32	-	36
Quartzite, Cuesta	-	-	-	-	-	-	-	-	-	-	-	2	7	-	9
<b>TOTAL</b>	<b>13</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>8</b>	<b>37</b>	<b>3</b>	<b>2</b>	<b>27</b>	<b>7</b>	<b>970</b>	<b>1046</b>	<b>2125</b>

**TABLE 8.3**

**HICKORY BLUFF PREHISTORIC SITE PHASE I AND II  
RAW MATERIAL AND CORTEX ON LITHIC DEBITAGE**

RAW MATERIAL	CORTEX			SIZE CLASS					TOTAL
	Fully cortical	Partially cortical	Non-cortical	1 cm	2 cm	3 cm	4 cm	5 cm	
Local material									
Jasper	70	260	228	257	262	33	4	2	558
Chert	12	57	103	88	70	14	-	-	172
Chalcedony	-	3	8	5	5	1	-	-	11
Quartz	13	37	95	59	70	14	2	-	145
Quartzite	9	12	19	13	23	2	2	-	40
Ironstone	-	1	-	-	-	1	-	-	1
Non-local material									
Argillite	2	1	38	20	18	3	-	-	41
Rhyolite		2	34	17	15	4	-	-	36
Quartzite, Cuesta	1	2	7	4	4	1	1	-	10
<b>TOTAL</b>	<b>107</b>	<b>375</b>	<b>532</b>	<b>463</b>	<b>467</b>	<b>73</b>	<b>9</b>	<b>2</b>	<b>1014</b>

been associated with the Delmarva Adena, a tradition which is generally characterized by a complex social structure and rich material culture. Ceramics attributable to the Woodland II period include 20 sherds of Killens ware. There were also 115 very small sherds which were in friable condition. Due to the poor condition and small size of these sherds, it is impossible to discern vessel tempers or ware types.

#### **F. Evaluation of Significance**

On the basis of the Phase I and II archaeological field investigations and the preliminary geomorphological analysis conducted to date, the Hickory Bluff Prehistoric Site [7K-C-411] is considered eligible for inclusion in the National Register of Historic Places under Criterion D as an archaeological resource that has the potential to yield information important in prehistory.

The site covers an area of approximately 5.6 acres and is characterized by a deep cultural stratigraphic sequence contained within an equally deep, well-preserved and potentially informative soil profile. The archaeological record has so far shown evidence of substantial, probably mostly seasonal, occupation as reflected in multiple pit features (provisionally interpreted as "pit houses"), an abundance of lithic and ceramic artifacts, and limited floral remains. This occupation appears to have occurred predominantly in the Woodland I period (*circa* 3,000 B.C. to 1000 A.D.), and is dominated by artifacts from the Barker's Landing (*circa* 3,000 B.C. to 500 B.C.) and Delmarva Adena (*circa* 500 B.C. to 1 A.D.) complexes. There are also traces of both earlier Archaic and later Woodland II period activity.

In the broader regional context, the Hickory Bluff Prehistoric Site is one of a series of expansive Woodland I sites ranged along the St. Jones River and adjoining drainages, a number of which -- the Island Farm Site, the Carey Farm Site, the Pollack Site and the Leipsic Site -- have been the subject of large-scale excavations. What distinguishes the Hickory Bluff Prehistoric Site from these neighboring sites, and gives it added significance, is its deep stratigraphy and its potential for integrated diachronic and spatial study of cultural and paleoenvironmental data. For example, archaeological examination of pit-house clusters (in both the horizontal and vertical sense) may produce valuable information on changes in the organization of households in both time and space. Detailed consideration of the soils and botanical evidence at the Hickory Bluff Site may also permit reconstruction of the environment within which ancient Native American communities lived in this part of Delaware.

The aeolian context of the Hickory Bluff Prehistoric Site and its overprinted weathering profile affords an exceptional opportunity for reconstructing processes of site formation on a type of resource that is usually found in more deflated form in the St. Jones drainage and wider region. Depositional contexts of artifact clusters may be expected to vary significantly across the site. It is cautioned, however, that the preservation contexts of the sites are complex and attest to aeolian, erosional, and weathering gradients of the site landscapes. To understand the chronology and pattern of events, site-specific observations must be tied to the paleoenvironmental sequence of

the region. The latter is best indexed through studies of the St. Jones alluvial and palustrine environments. Such intensive studies of site depositional loci across the Hickory Bluff landform are pivotal to synthetic archaeological interpretations.

### **G. Assessment of Impact**

Project plans show that construction of the current route of the Puncheon Run Connector and related drainage facilities will run directly through the core of the Hickory Bluff Prehistoric Site. This action will constitute an adverse effect on the greater part of this significant archaeological resource. The construction of the road will impact the northern half of the site, while a proposed water quality detention basin will impact the southern half of the site (although there is a possibility that the basin may be relocated in a less archaeologically sensitive location to the east of the site). Related construction activity (e.g., movement of equipment, deposition of fill) may also pose a threat to the parts of the Hickory Bluff Prehistoric Site adjoining the project corridor to the south.

### **H. Recommendations**

As is the case with the Puncheon Run Site, the Hickory Bluff Prehistoric Site lies directly within the path of the proposed highway, the planning of which is now at an advanced stage. Avoidance of this site through realignment of the highway is unlikely to be a practical option. The planned road alignment is strongly constrained by topography and existing land use; any alignment adjustments could only be minor and would in any case probably continue to affect the site. Engineering solutions, such as raising the elevation of the road on piers rather than building it at grade, could perhaps be considered, but are likely to considerably increase the cost of construction and would still have an effect on archaeological resources. As noted above, the relocation of the proposed water quality detention basin to a less archaeologically sensitive site would help to reduce the project's adverse effects on the Hickory Bluff Prehistoric Site. With regard to offsetting the effect of the actual highway alignment, a program of archaeological data recovery through excavation would appear to be the most appropriate means of mitigation. An advance phase of data recovery work, implemented in connection with pre-construction drainage improvements, is described in Chapter 9 below.