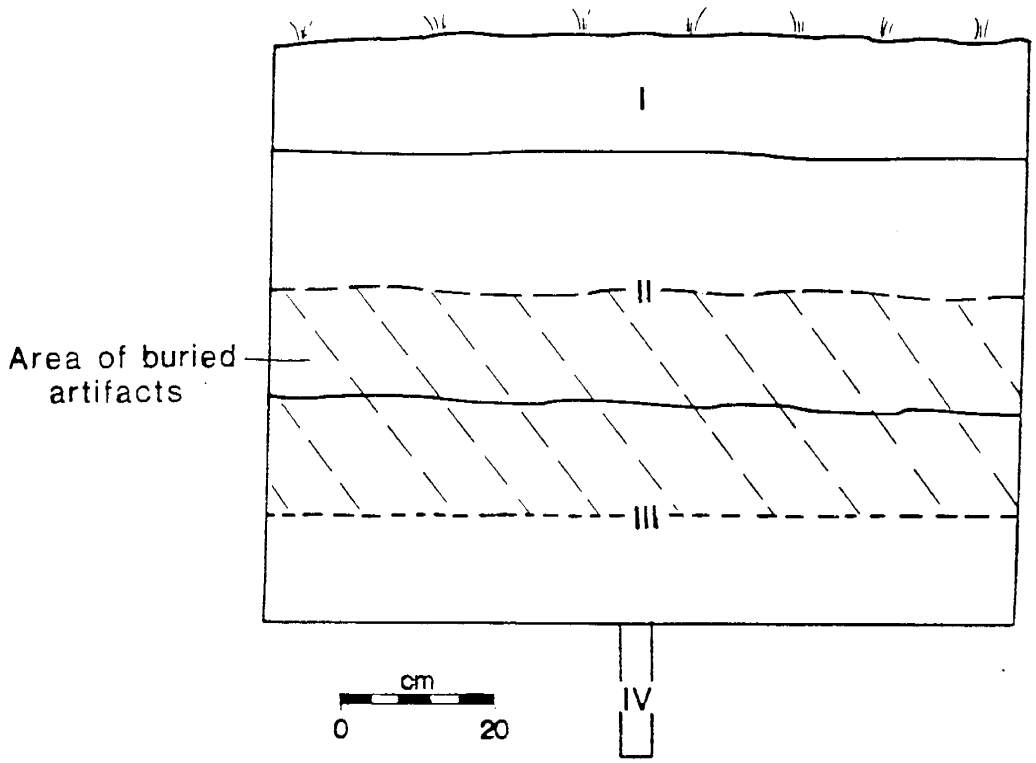
300' to the northeast of the historic component located on the Newark-Ogletown Road (Figures 22, 36, and Plate 2). Surrounding the site on the north, south, and east are poorly drained woodlands. The site is located within an agricultural field which has been fallow for approximately the last ten years. The survey by Thomas (1980) identified the site on the basis of informant information and a surface survey of the site's alleged location recovered only a few artifacts. Limited subsurface testing by Thomas conducted within the site area also did not locate any additional prehistoric material.

The prehistoric component of the Thomas Ogle site was discovered during the excavation of Phase I 1m test units on a 20m transect interval east of Route 273. The excavation of six 1m test units yielded prehistoric artifacts in three of these (0N40E, 0N60E, and 0N81E). One of the units (0N40E) produced 18 quartz and jasper flakes from beneath the plowzone within colluvial soils 30-80cm below ground surface (Figure 36). An adjacent unit (0N50E) produced two jasper flakes from 0-10cm beneath the plowzone.

Phase II study of the Thomas Ogle site was intended to define occupation limits, determine its stratigraphic context, and derive a larger excavated sample of prehistoric material. Thirty-two additional 1m test units were excavated at systematic 10m intervals (Figure 37), and these produced additional jasper and quartz debitage and broken quartz and jasper bifaces (Plate 10) distributed over an area of approximately 70 x 50 meters. This testing indicated that all of the units except for unit (0N40E) contained both historic and prehistoric artifacts only in

FIGURE 36

Ogle Site (Prehistoric Component), (N-215, N-5309, 7NC-D-69), Test Unit 0N 40E, North Wall Profile



Soil Descriptions

I -Gray brown sandy loam (pz).

II -Yellow brown sandy loam with gray brown sandy loam mottling

III -Yellow orange sandy loam

IV -Yellow orange sandy clay

FIGURE 37

Ogle Site (Prehistoric Component), N-5309, N-215, 7NC-D-69

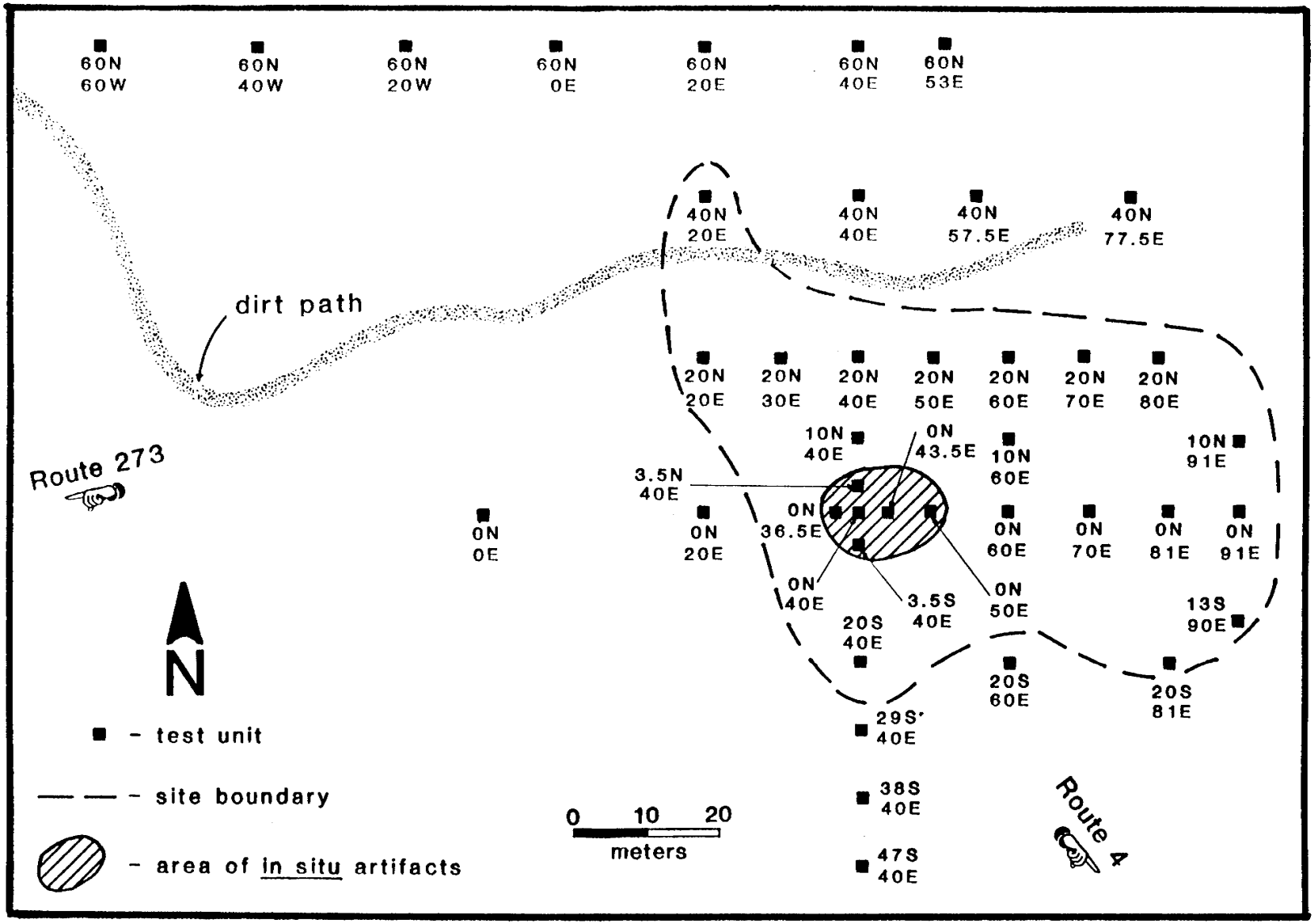
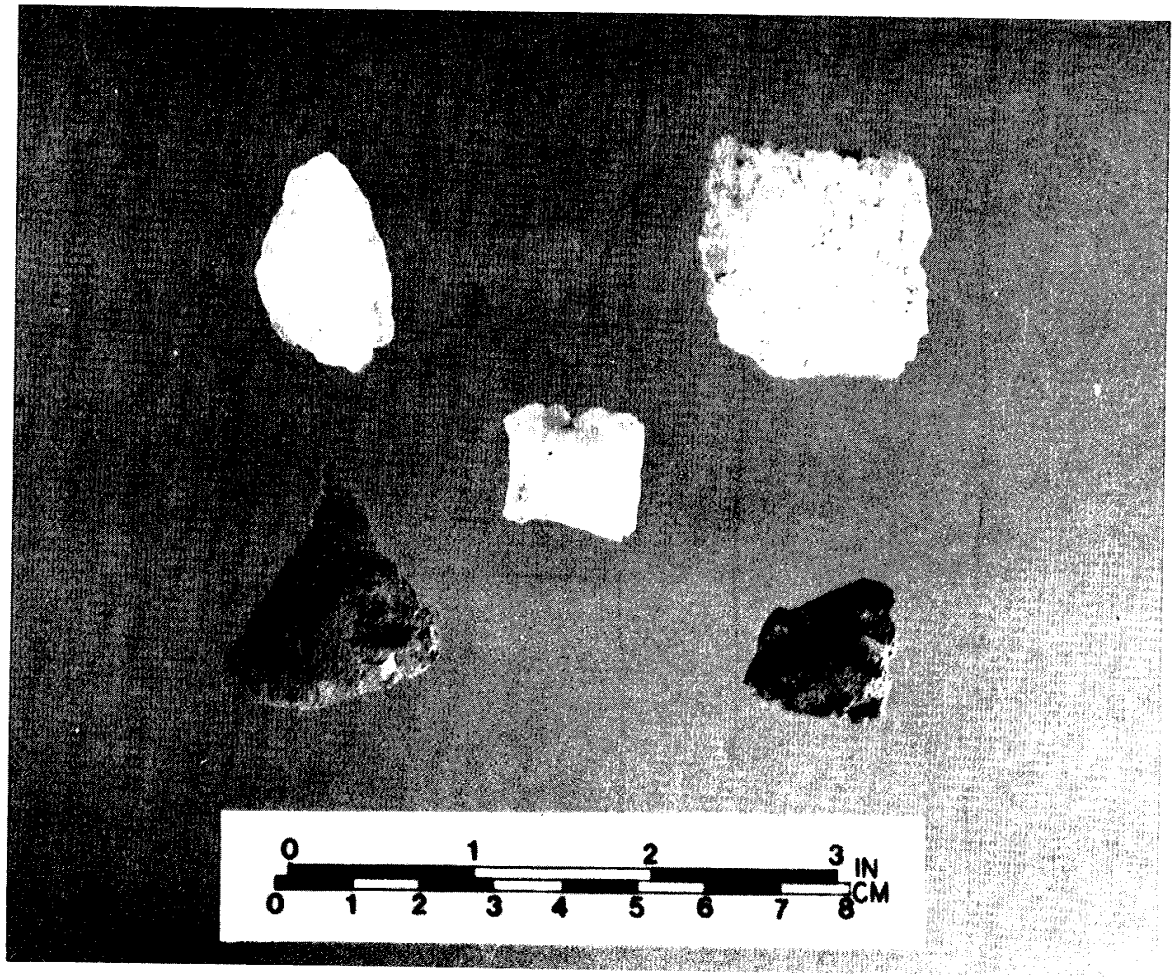


PLATE 10

Artifacts from Phase I/II Investigations at the Ogle Site (Prehistoric Component)



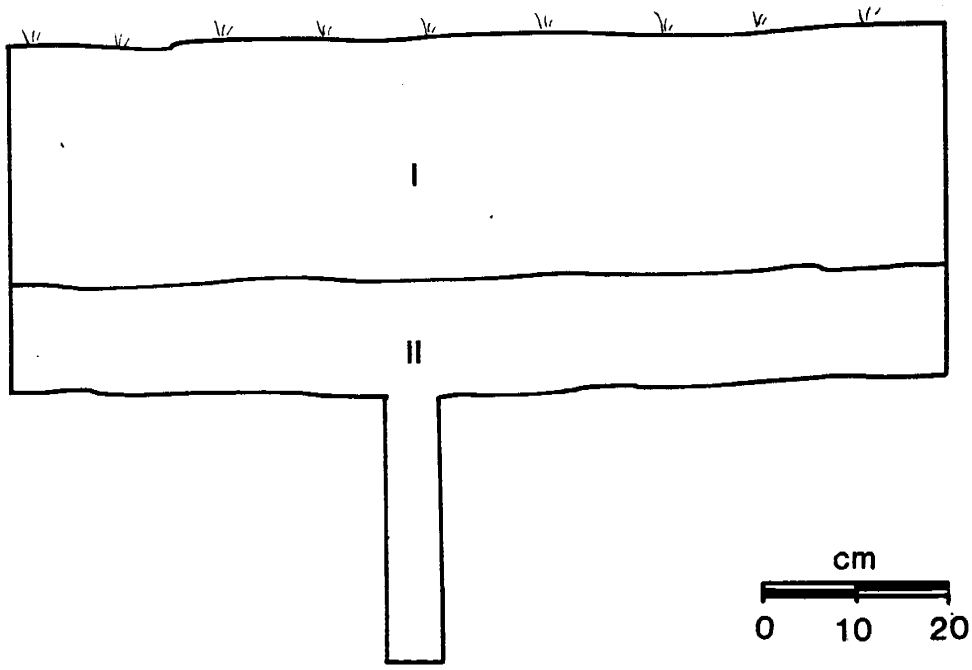
Top Row: (left to right) quartz early stage biface reject (ESBR), quartz ESBR

Center Row: quartz ESBR

Bottom Row: (left to right) jasper utilized flake, jasper flake tool with cortex

FIGURE 38

Ogle Site (Prehistoric Component), (N-215, N-5309, 7NC-D-69), Test Unit 20N 60E, North Wall Profile



Soil Descriptions

I -Brown sandy loam, plowzone, with historic artifacts

II -Orange brown sandy clay, very compacted and no cultural material

plowzone contexts and no artifacts were recovered from buried contexts beneath the plowzone horizon (Figure 38). Additional testing, designed to bracket unit 0N40E in the cardinal directions at a 3.5m interval yielded single prehistoric artifacts beneath the plowzone in three of the units. The low numbers of artifacts in soils beneath the plowzone indicate that almost all of the site's archaeological deposits have been disturbed and no further testing was undertaken. The assemblage of limited debitage and limited tool types dispersed over a relatively large area indicates that the prehistoric component of the Thomas Ogle site represents a sporadically reoccupied procurement site. A single stemmed biface recovered from the testing indicates the site was occupied during the Woodland I Period (3,000 B.C. - A.D. 1,000). The presence of early stage bifaces of quartz and the presence of cobble cortex on much of the debitage suggests that reduction of local cobble resources was an important activity at the site along with exploitation of floral and faunal resources of the nearby poorly drained woodlands.

Although interior procurement sites have not been extensively studied in the Fall Line Zone (Custer 1986:106; Custer and Wallace 1982), plowing and erosion have destroyed the context of this site and it is not considered to be eligible for listing on in the National Register. No further work is recommended.

SEGMENT 2 - SURVEY RESULTS

Segment 2 consists of that portion of the proposed ROW which splits to the west from the present Salem Church Road at the Salem Industrial Park, passes to the west of the present Route 4/273 intersection at Ogle's Corner and runs northeast to intersect Red Mill Road, north of the intersection of Red Mill Road and Paradise Lane (Figure 2 and Plate 2). The southern terminus is within a fallow agricultural field. The alignment then passes approximately through 250' of heavily commercialized land. The middle section of this segment includes a mature woodland containing poorly drained settings to the south with well-drained areas near the southern terminus of Paradise Lane. The northern terminus of the segment is within a scattered residential development. Due to lack of exposed ground surfaces, test pits were excavated to complete the Phase I field survey.

Segment 2 has a high potential for containing prehistoric resources in well-drained areas adjacent to a springhead and a largeswampylowland (Figure 12). Based on settlement pattern models presented in Custer (1983) and Custer and DeSantis (1986), micro-band base camps and procurement sites would be expected in these environmental settings. The potential for historic site location is moderate within this segment because the alignment crosses a major 18th - 20th century road bed along which numerous late 18th, 19th and 20th century houses were built (Figures 8, 9, 11, and 20).

Phase I field survey in Segment 2 resulted in the discovery of four archaeological sites. Three of these yielded both prehistoric and historic materials (Dairy Queen, Norman Tyndall,

Paradise Lane) while one untested site (Robert Ogle) is known to contain a historic component (Figure 22, Table 1, and Plate 2).

Dairy Queen Site, (7NC-D-129, N-10895)

Beginning at the southern portion of the segment, the Dairy Queen site is located on a knoll and adjacent slopes, approximately 300' south of Route 4 and 300' west of Salem Church Road (Figures 22, 39, and Plate 2). To the north and downslope of the site is a small ephemeral stream draining a natural wetland/spring now developed into an artificial pond. The site area, formerly plowed, is now fallow and contains a combination of small brush and long grasses.

The site was identified by Thomas (1980) through information supplied to him by local informants. A limited testing program which employed five shovel test excavations provided no indication of prehistoric occupation. The 1985 Phase I excavation of 11 1m test units at 10m intervals on an east-west transect across the previously identified site area (Figure 39) produced a substantial collection of both historic and prehistoric artifacts from the plowzone horizon. Two of the test units (nos. 5 and 7) produced prehistoric artifacts from sub-plow zone soils (Table 6, Figure 40) including a yellow-brown sandy loam (22-36cm below ground surface [bgs]) and an orange-brown sandy loam with orange sandy clay pockets (36-46cm bgs). No features were encountered below the plowzone. The lithic artifacts included quartz, quartzite, chert, and jasper debitage and a limited amount of fire-cracked rock.

FIGURE 39

Dairy Queen Site (N-10895, 7NC-D-129)

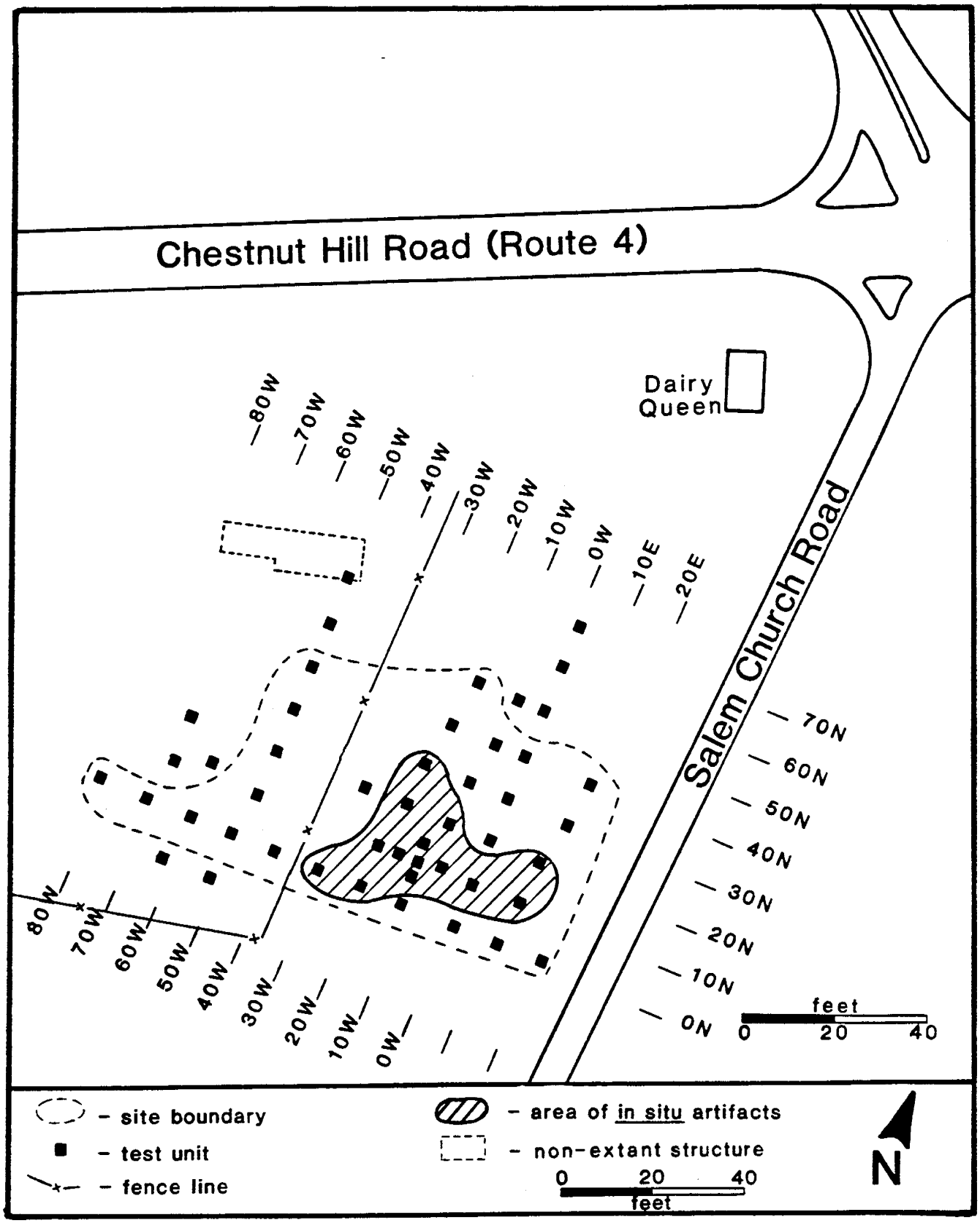
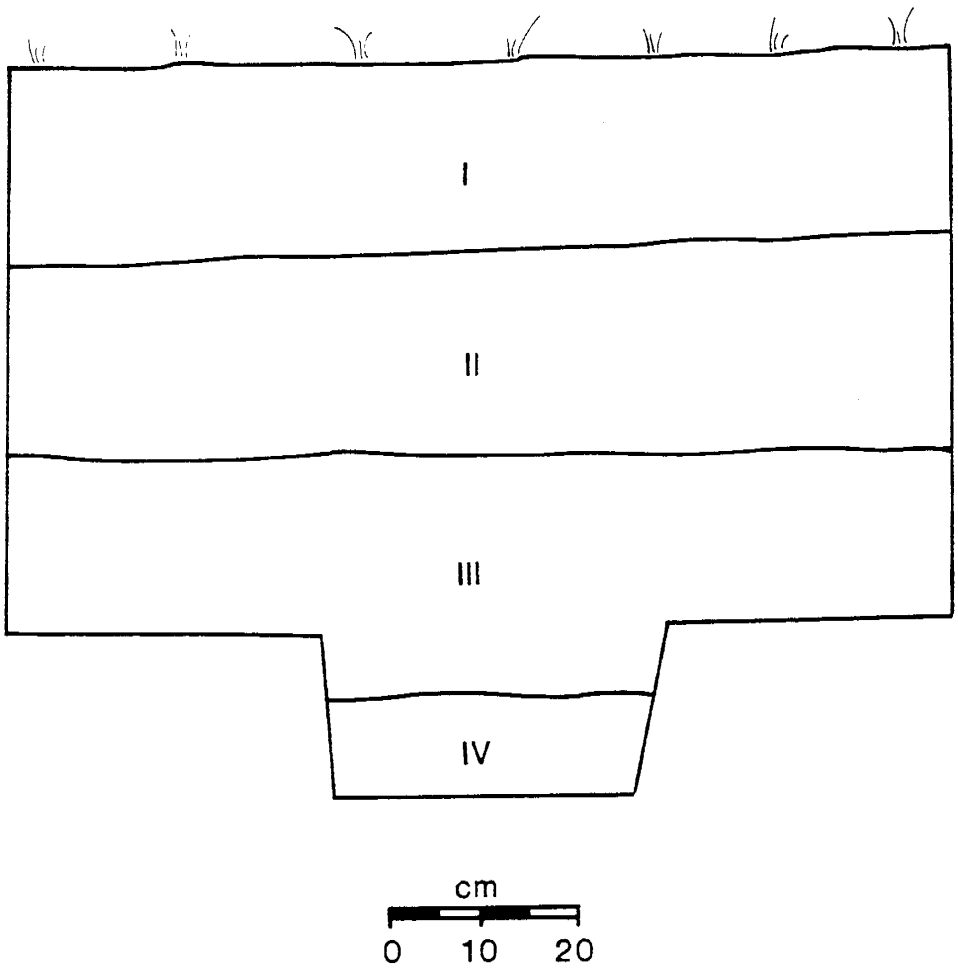


FIGURE 40

Dairy Queen Site, (N-10895, 7NC-D-129), Test Unit 45, North Wall Profile



Soil Descriptions

I -Dark brown silty loam, with historic artifacts and flakes

II -Yellow brown silty loam, with jasper and quartz flakes

III -Orange brown silty clay, and no cultural material

IV -Orange and gray mottled clay

TABLE 6

DAIRY QUEEN SITE, N-10895, 7NC-D-129
TEST UNIT #7 - TOTAL ARTIFACTS BY LEVEL

Level 1 (PZ) - 8 jasper flakes, 1 quartz flake

Level 2 (0-10cm below PZ) - 13 jasper flakes, 7(1) quartz flakes

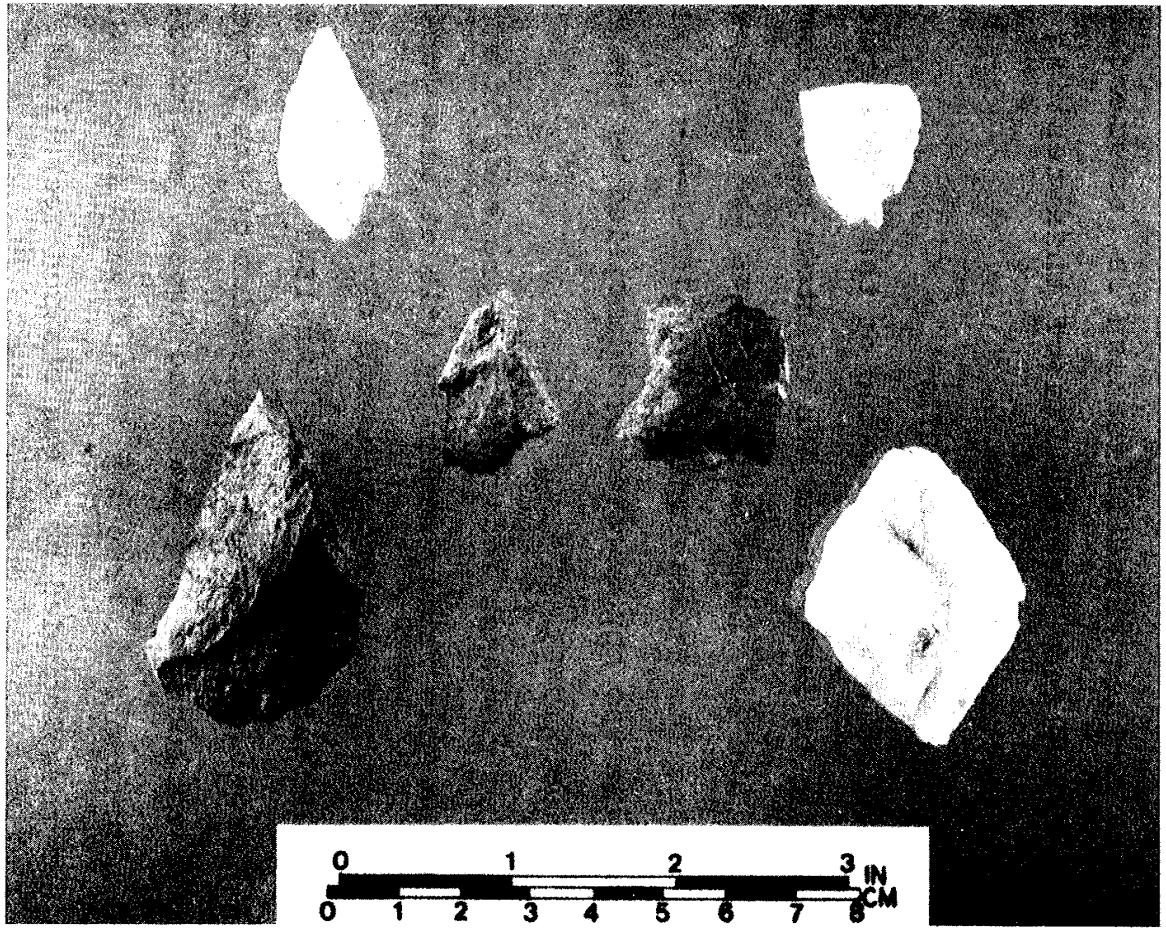
Level 3 (10-20cm below PZ) - 3 jasper flakes

In order to better define the site limits and to determine the limits of the buried deposits, an additional 37 1m test units were excavated employing a 10m interval grid system (Figure 39). Again a substantial collection of 18th, 19th, and 20th century historic materials and prehistoric lithic materials were derived from plowzone contexts. A single stemmed projectile point, probably dating to the Woodland I time period (3000 B.C.-A.D.1000) was recovered (Plate 11). While no subsurface features were encountered, 6 of these units recovered prehistoric materials from apparently undisturbed soils beneath the plowzone. Four of these units were located during testing at a five meter interval at the four cardinal directions from Unit 7. From these four units a total of 37 prehistoric artifacts were recovered from level 2 (0-10cm below plowzone), a yellow-brown sandy loam and 2 from level 3 (10-20cm below plowzone, 50-70 bgs), an orange-brown silty clay.

Preliminary testing at the Dairy Queen site indicates that the site is a small procurement site associated with an interior swamp. Its size and artifact assemblage are similar to the prehistoric component of the Thomas Ogle site; however, a larger proportion of the Dairy Queen assemblage is found in undisturbed context below the plowzone. Also, the Dairy Queen site

PLATE 11

Artifacts from the Phase I Investigations at the Dairy Queen Site



Top Row: (left to right) quartz Woodland I contracting stem point, quartz late stage biface reject

Middle Row: (left to right) utilized jasper flake, utilized jasper flake

Bottom Row: (left to right) jasper utilized early stage biface reject, quartz core

assemblage includes much jasper debitage (Table 6) compared to the Thomas Ogle site. Because much of this jasper debitage lacks cortex, it may be derived from jasper cores manufactured at the primary jasper outcrops of the Delaware Chalcedony Complex (Custer, Ward, and Watson 1986), which is located less than 7km to the west. Further Phase II testing is recommended for the Dairy Queen site and the results of this testing will be described in a forthcoming volume.

Robert Ogle Site (7NC-D-105, N-11071)

The Robert Ogle site is located on the northwest corner of the intersection of Route 4 and the Ogletown-Newark Road (Figure 22, 26, and Plate 2). Due east and across the Ogletown-Newark Road is located the Thomas Ogle site (7NC-D-69, N-215). The Robert Ogle site was not located or identified by the Phase I/II survey of Thomas (1980).

Background research indicated the presence of a residence belonging to an Ogle family member by 1810 at this location. In 1849 the site was still occupied and owned by a member of the Ogle family (Figure 8, Table 7). An 1841 Orphan's Court map (Figure 41) provides an excellent depiction of the property which at the time includes a log dwelling house, detached kitchen, frame barn, garden and various yard activity areas. Since 1956 the site has been occupied by a gas station operation.

No Phase I or II archaeological testing was conducted at this location due to access problems. It is very possible that subsurface remains survive intact beneath both the asphalt area in the southeastern site area and especially in the grass covered areas which comprises the remainder of the site. Because the

FIGURE 41

New Castle County Orphans Court Records (S-1-293)

Division of the Real Estate of Robert Ogle, 1843

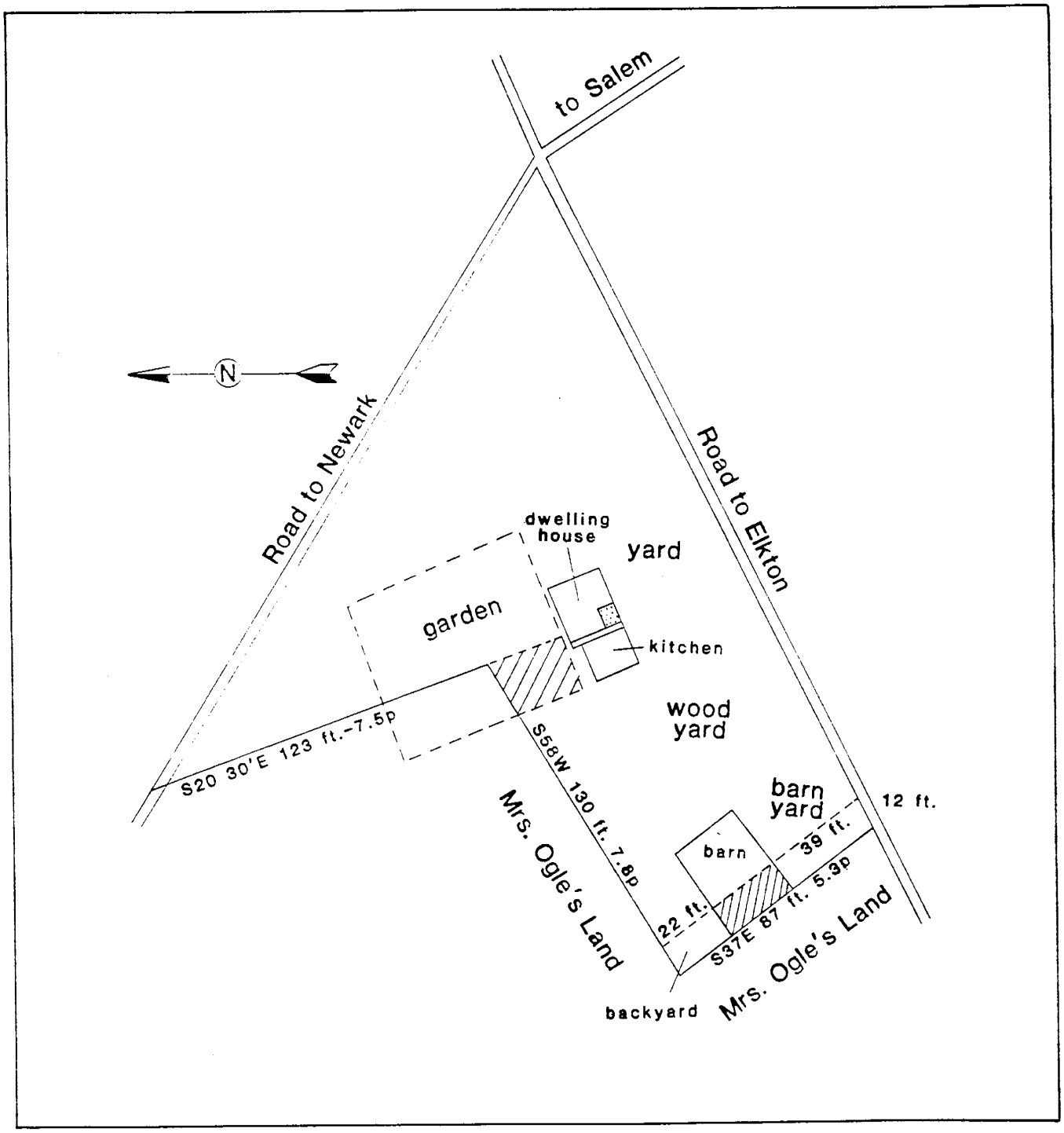


TABLE 7

SUMMARY OF DEED TRANSACTIONS FOR THE ROBERT OGLE SITE, 1774-1956

Transaction	Date	Deed Reference	Acres
Thomas Ogle II to James Ogle	1771	Will A-1	~60
James Ogle to Thomas Ogle III		Intestate Law of DE	~60
Thomas Ogle III to Robert Ogle	1811	L-3-77	~60
Amos Sanders, Adm to Elizabeth H. Ogle	1843	Orphans Ct. S-1-290	~20
Peter D. Griffith et al. to Frederick Currinder	1886		~20
William G. Currinder to Charles H. Currinder	1909	M-22-49	~20
Sara Greenwalt, Widow et al. to Robert G. Weber	1951	M-51-497	4.014
Robert G. Weber to Atlantic Refining Co.	1956	O-57-181	.846

~ = approximately

site is within the direct impact zone of the proposed alignment, the site will be completely destroyed by the proposed construction. It is recommended that Phase I and II testing be completed at this site after condemnation to complete the section 106 compliance process.

Norman Tyndall Site (7NC-D-132, N-10945)

The westward shift of the proposed Salem Church Road Industrial Park to Red Mill Road alignment (Segment 2) necessitated an additional Phase I/II cultural resource survey

during the 1986 field season. Phase I testing approximately 25m west of Units 26 and 27 located the Norman Tyndall site, 7NC-D-132 on a south-facing terrace, approximately 100 feet north of the Ogletown-Newark Road (Route 273) (Figures 22 and 42, and Plate 2). Phase I excavation of seven 1m test units produced a collection of quartz and jasper debitage in Units 1, 5, 6 and 7. For the most part, prehistoric and mid-19th century artifacts were recovered from the plowzone. Unit no. 1 soils; however, produced a total of 6 flakes from within an orange sandy clay buried 30-60cm below ground surface and 10-30cm below the plowzone-subsoil interface (Figure 43). No features were encountered beneath the plowzone.

Phase II study of the Norman Tyndall site was intended to define the extent and stratigraphic integrity of the buried material and derive a larger, excavated sample of prehistoric artifacts. Four additional 1m test units (Nos. 8-11) were excavated bracketing Test Unit 1 in the four cardinal directions at a 5m interval (Figure 42) and these yielded one quartzite flake and one quartz flake tool from the plowzone horizon of Unit no. 11.

The Norman Tyndall site prehistoric assemblage consists of 11 flakes and one tool and this assemblage indicates that the site is a limited occupation procurement site. Its age and cultural affiliation remain unknown. Only 6 flakes were recovered from buried contexts. Historic artifacts were recovered exclusively from the plowzone and no historic or prehistoric features were located. Plowing has extensively disturbed this site's integrity and, therefore, the site is not

FIGURE 42

Segment 1 and 2 Testing

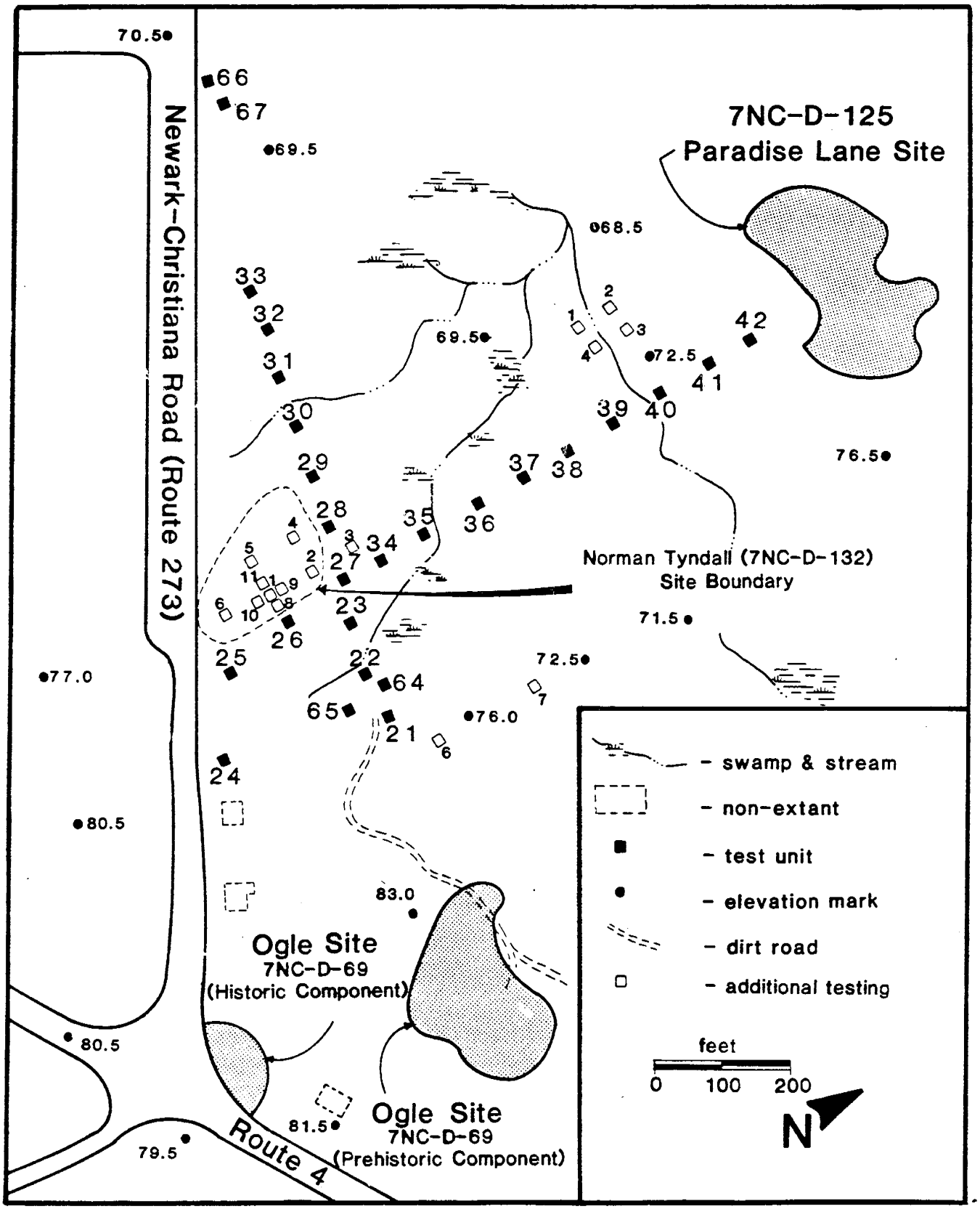
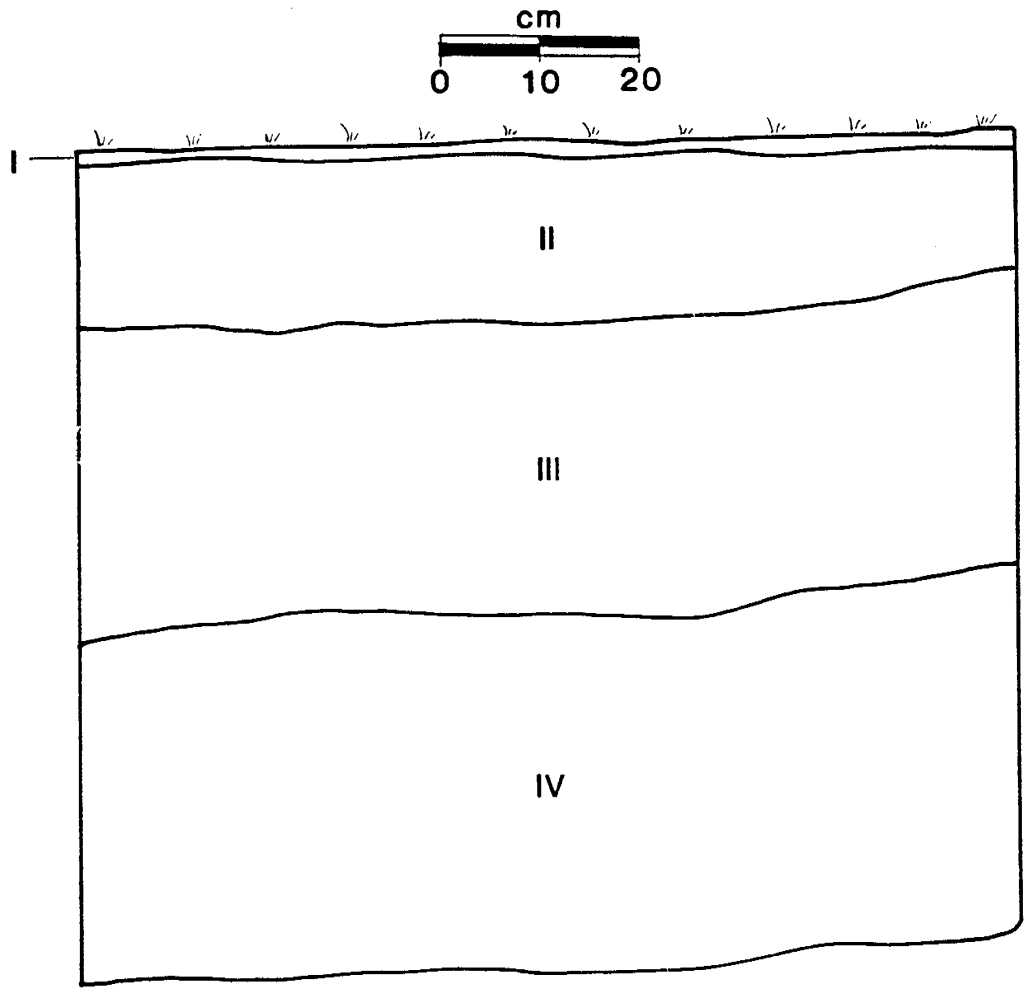


FIGURE 43

Norman Tyndall Site, [N-10945, 7NC-D132], Test Unit 1, West Wall Profile



Soil Descriptions

I -Dark brown humus, with historic and prehistoric artifacts

II -Medium brown sandy clay (plowzone), with prehistoric artifacts

III -Orange-yellow-brown sandy clay

IV -Orange sandy clay with higher concentration of sand

considered to be eligible for listing on the National Register and no further work is recommended.

Paradise Lane Site (7NC-D-125, N-10891)

The Paradise Lane site is located on a heavily wooded east-west trending rise of land, approximately 100' south of the terminus of Paradise Lane (Figures 22, 44, and Plate 2). The predictive model developed by Thomas (1980) identified this location to be a likely site of prehistoric occupation. Thomas's testing at the site, which consisted of the excavation of 4 shovel test pits produced no evidence of prehistoric occupation and no further work was recommended.

Phase I testing of the Paradise Lane site by UDCAR consisted of a series of five 1m test units at 20m intervals in a north-south transect within the proposed right-of-way alignment (Figure 44). Chert, quartz, and jasper debitage, and fire-cracked rock were recovered from undisturbed soils at depths of 5 to 30cm beneath an organic humus horizon (Figure 45 and Plate 12). A single Minguannan body sherd was also recovered from this unit (Plate 13). No features were encountered during this excavation.

Additional testing at the Paradise Lane site was intended to define occupation limits, determine stratigraphic context and derive a larger excavated sample of prehistoric artifacts. Due to the eastward shift of the alignment based on the late 1985 redesign of the segment, two separate Phase II investigations were undertaken. The 1985 Phase II survey included an additional 34 1m test units that were excavated at 10m intervals to extend the grid established by the Phase I testing (Figure 44). A

FIGURE 44

Paradise Lane Site, (N-10891, 7NC-D-125)

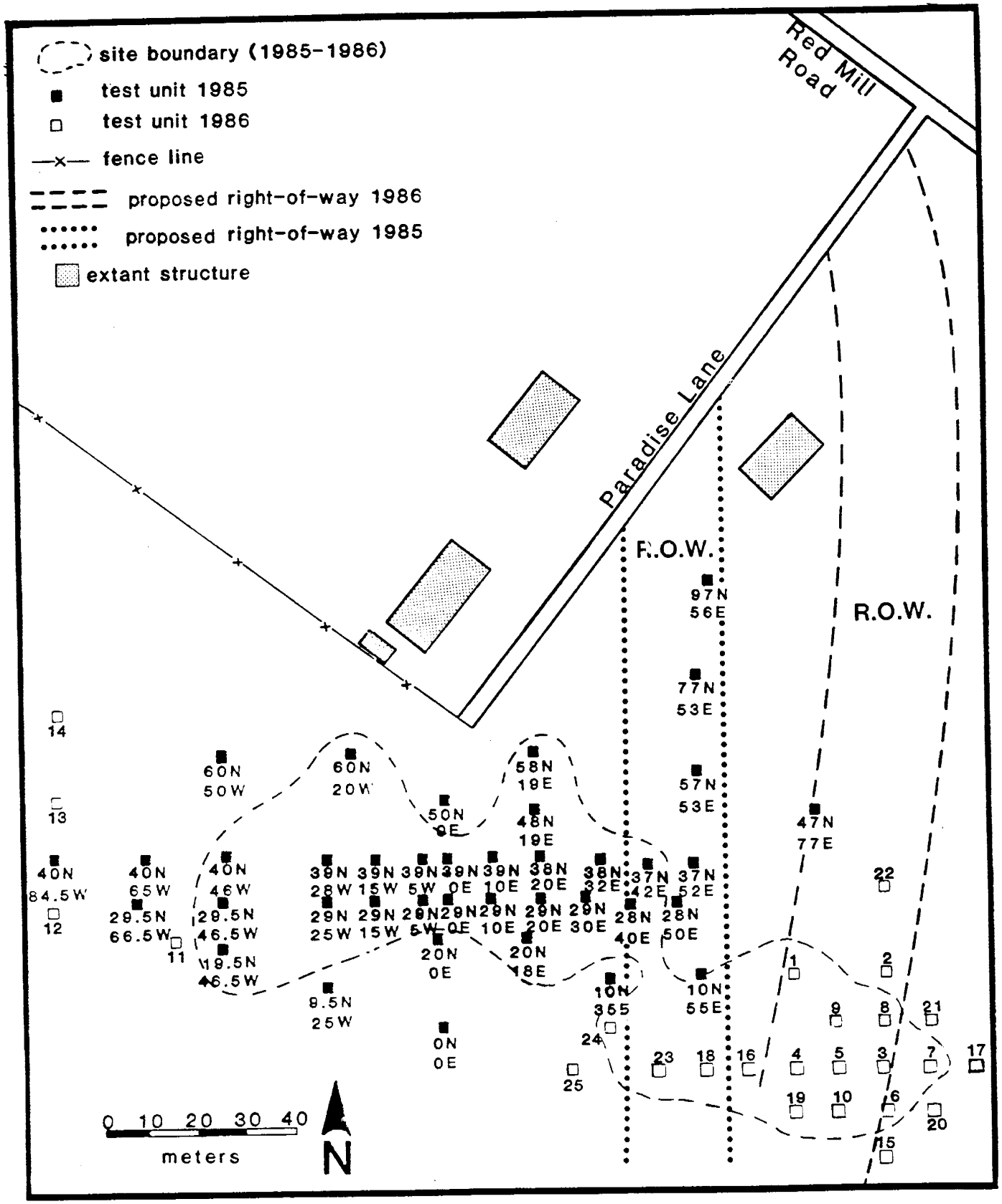
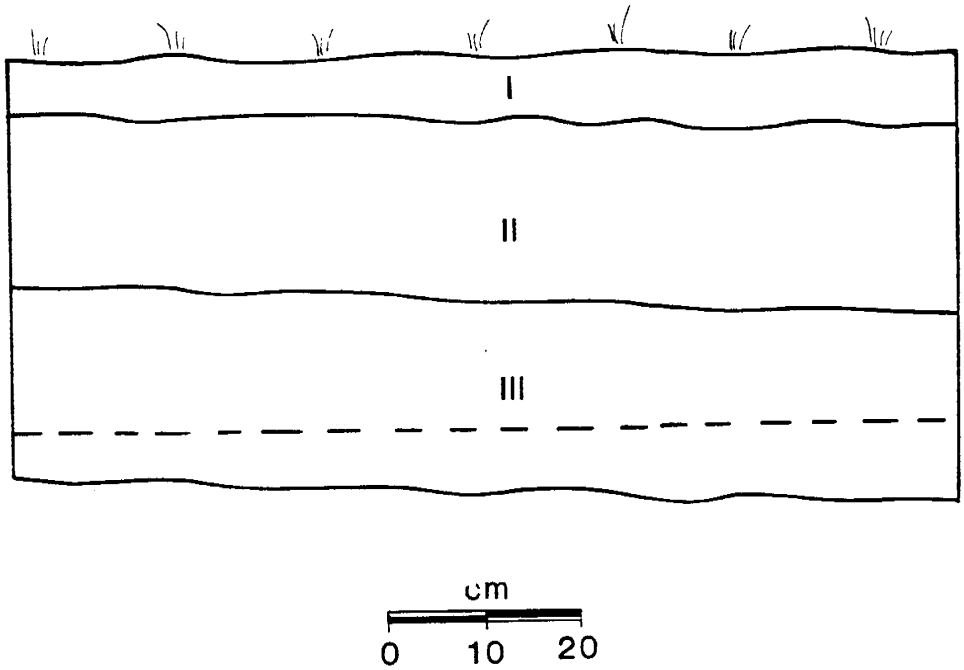


FIGURE 45

Paradise Lane Site, (N-10891, 7NC-D-125), Test Unit 29.5N 46.5W, North Wall Profile



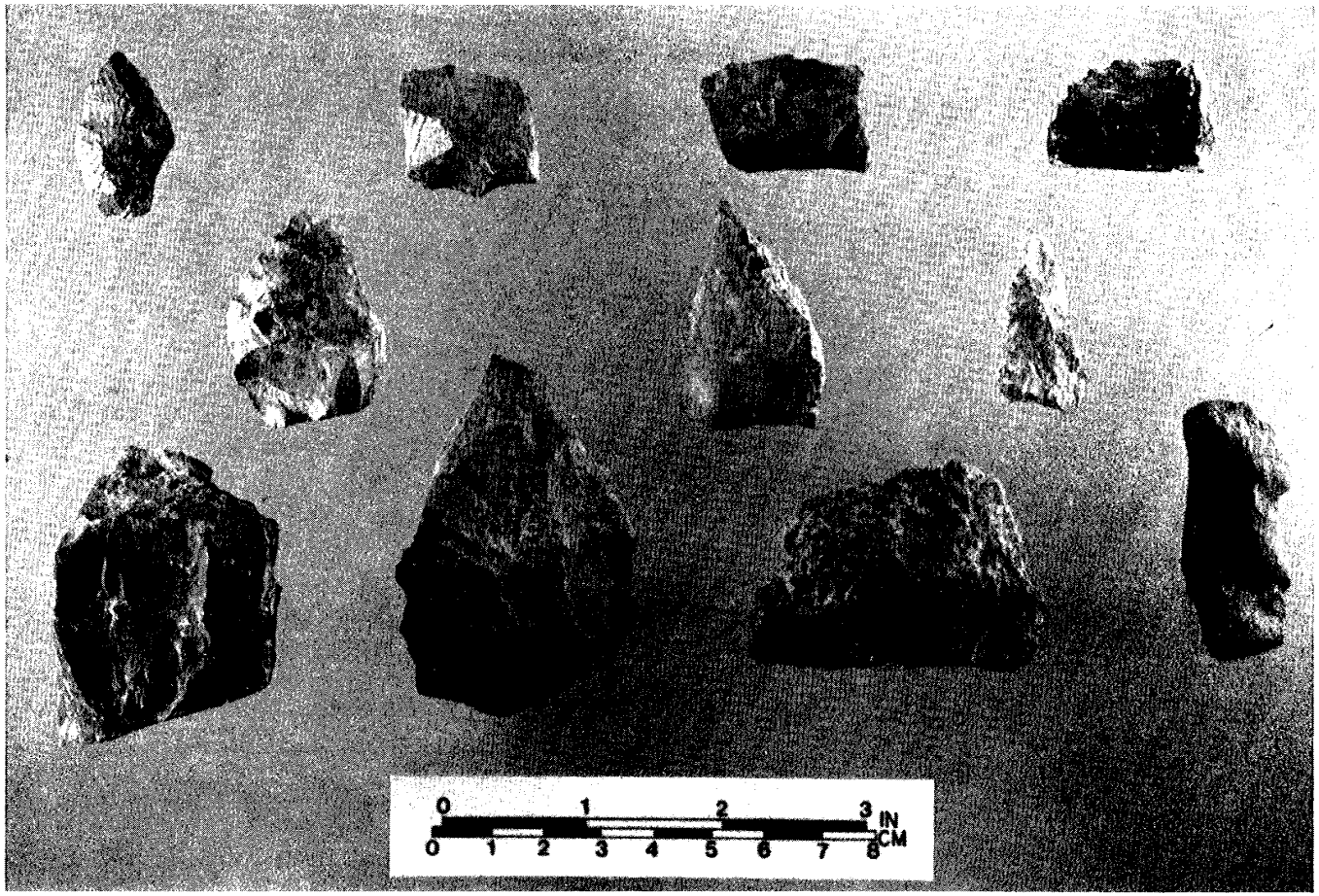
I-Dark brown silty loam (humus) with flakes and pottery

II-Yellow brown silty loam with flake and pottery

III-Orange brown silty clay with flakes and pottery in the uppermost section and no cultural material in the lower level

PLATE 12

Artifacts from Phase I/II Investigations at the Paradise Lane Site



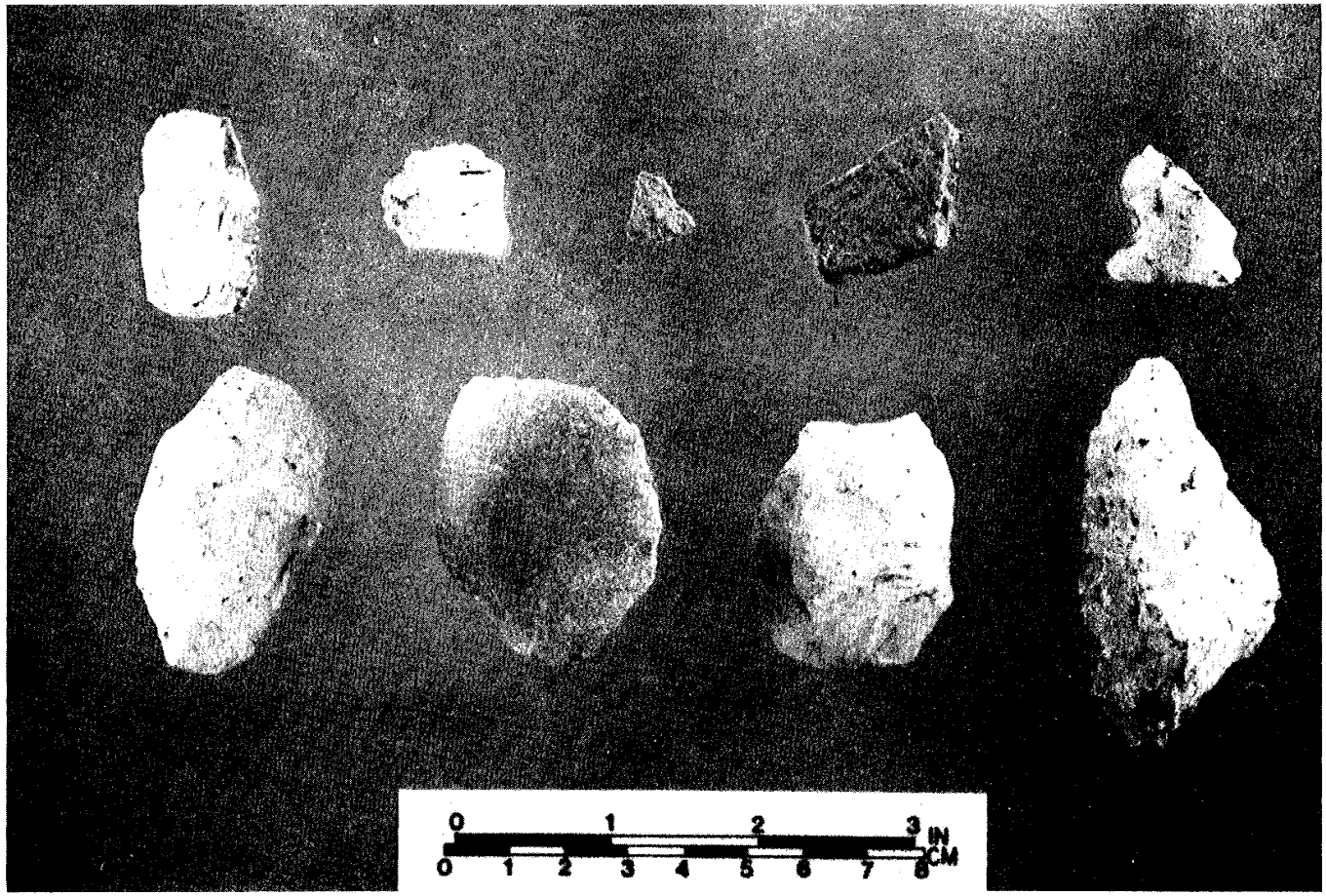
Top Row: (left to right) jasper Woodland I contracting stem point, jasper utilized late stage biface reject, jasper early stage biface reject (ESBR), jasper flake

Middle Row: (left to right) jasper ESBR with cortex, jasper flake tool, distal portion of a jasper biface

Bottom Row: (left to right) chert core, jasper flake with cortex, jasper ESBR, jasper flake with cortex

PLATE 13

Artifacts from Phase I/II Investigations at the Paradise Lane Site



Top Row: (left to right) quartz late stage biface reject (LSBR), quartz flake tool, argillite flake, minguannan ceramic, quartz Woodland I side notched biface

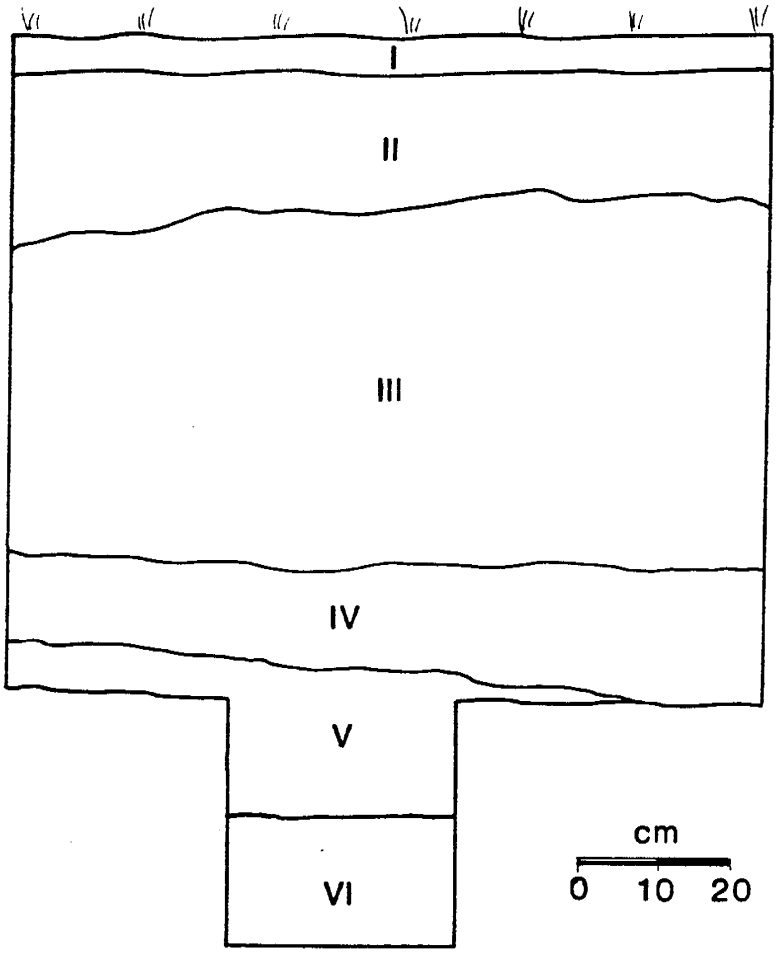
Bottom Row: (left to right) quartz early stage biface reject (ESBR) with cortex, quartz flake with cortex, quartz LSBR, quartz ESBR

significant quantity of jasper, chert, and quartz debitage, several quartz biface fragments and a large quantity of fire-cracked rock were recovered from even more deeply buried soils (20-70cm below ground surface) consisting of a yellow-brown sandy clay (Figure 46, Table 8). Seven of the units contained a mixture of historic and prehistoric artifacts in a shallow plowzone horizon. These units also contained prehistoric artifacts in intact sub-plowzone soils. Outside of the area from which prehistoric artifacts were recovered, more clayey and gleyed soils were encountered indicating that poorly drained swamps existed close to the site (Figure 47). The Phase II testing also recovered several stemmed and notched projectile points dating to the Woodland I time period. Based on the 1985 and 1986 Phase II testing the limits of the site were preliminarily determined to be 160m X 155m, encompassing an area of approximately 8,800 square meters or .37 hectares.

The Paradise Lane site is much larger (8,800 meters squared) than the other prehistoric sites discovered during the survey and seems to have been occupied repeatedly. The presence of notched and stemmed points suggests a Woodland I occupation, however, more precise dating is not possible. The Paradise Lane site probably represents a larger base camp site, or staging site, which was periodically reoccupied during the Woodland I Period. The density of artifacts clearly represents something more than a procurement site. As was the case at the Dairy Queen site, much of the debitage from the Paradise Lane site seems to be derived from primary jasper cores of Delaware Chalcedony Complex jaspers (Table 9).

FIGURE 46

Paradise Lane Site, (N-10891, 7NC-D-125), Test Unit 3, West Wall Profile



I-Dark brown silty loam (humus)

II-Medium brown sandy loam

III-Yellow brown sandy clay

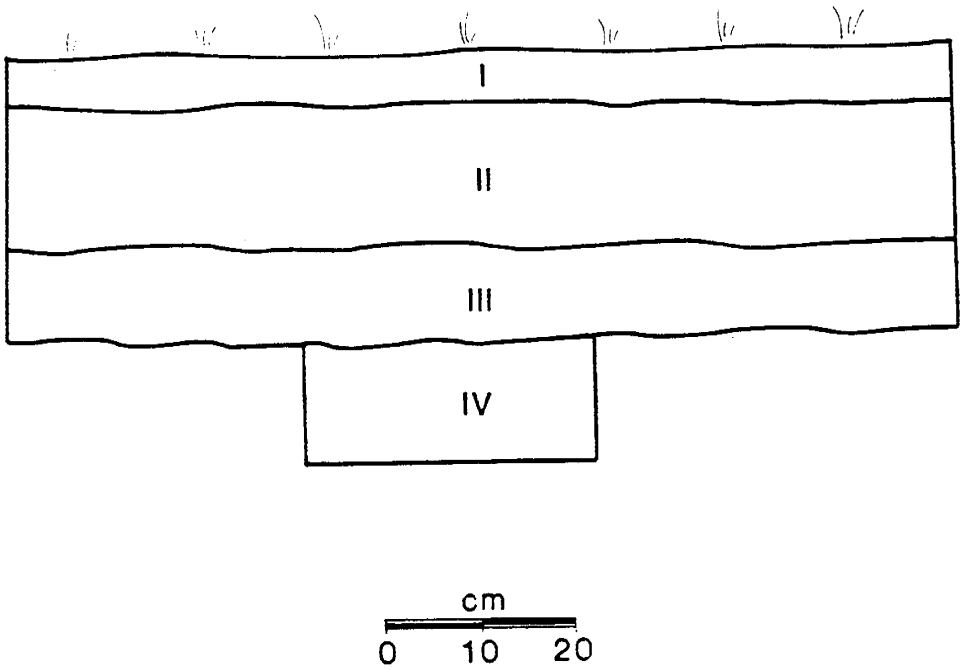
IV-Iron acretions and orange brown sandy clay with gravels

V-Orange brown clay with gravels

VI-White brown clay

FIGURE 47

Paradise Lane Site, (N-10891, 7NC-D-125), Test Unit 24, North Wall Profile



I-Dark brown silty loam (humus), with flakes
II-Medium brown silty clay loam, with flakes
III-Yellow silty clay, no cultural material
IV-Orange and gray mottled clay, no cultural material

TABLE 8

DISTRIBUTION OF PREHISTORIC ARTIFACTS WITH DEPTH, PARADISE LANE EXTENSION, 7NC-D-125

Test Unit #	Level 1	2	3	4	5	6	7	8
1	0	2	0	0	X	X	X	X
2	1*	0*	0	0	0	X	X	X
3	23*	50*	69	12	8	2	7	X
4	0*	1*	0	0	X	X	X	X
5	0*	20*	17	7	3	1	0	0
6	1	1	0	0	X	X	X	X
7	3*	1*	1	1	0	0	X	X
8	0	9	4	1	0	0	X	X
9	2	1	0	1	0	0	X	X
10	4	6	1	0	0	X	X	X
11	0	0	X	X	X	X	X	X
12	0	0	X	X	X	X	X	X
13	0	0	0	X	X	X	X	X
14	0	0	X	X	X	X	X	X
15	0	0	X	X	X	X	X	X
16	4	8	4	0	0	X	X	X
17	0	0	X	X	X	X	X	X
18	5	10	14	9	1	1	0	X
19	0	3	5	0	0	X	X	X
20	0	0	1	X	X	X	X	X
21	0	6	0	0	X	X	X	X
22	0*	0*	0	0	X	X	X	X
23	6	24	24	11	3	1	0	X
24	0	0	0	X	X	X	X	X
25	0	0	0	X	X	X	X	X

X = unexcavated
* = plowzone

Although it is clear that prehistoric artifacts are found in undisturbed soils at the Paradise Lane site, the depositional context of the soils and the artifacts, is not clear (Appendix III, Table 8). In some areas of the site the soils have a very fine silty texture somewhat similar to that of aeolian loess soils. However, in other areas of the site small pebbles are found within the fine silty soils and the presence of these

TABLE 9

SUMMARY CATALOGUE - PARADISE LANE SITE, 7NC-D-125

	Jasper	Quartz	Chert	Quartzite
Flakes	359(8)	110(17)	33(9)	24(9)
Flake Tools	1(1)	1(1)	---	---
ESBR	6	1(1)	1(1)	---
LSBR	2	2	---	---
Biface Fragment	2	---	---	---
Core	---	---	1	---

ESBR = early stage biface reject
LSBR = late stage biface reject

pebbles would seem to preclude wind-blown deposition. It is possible that very little soil deposition took place at the site over the past 10,000 years, and that the modern surface soils are derived from weathered Pleistocene deposits. However, the deeply buried artifacts, which are less than 5000 years old, would seem to contradict this scenario unless the artifacts were moved vertically through the soil profile. Such artifact movement has been observed at other sites in the Middle Atlantic Coastal Plain (McNamara 1981, 1982; Custer 1986). On the other hand, it has been shown that living surfaces, features, and small artifacts can be preserved in Coastal Plain soils of possible aeolian origin with little or no vertical disturbance (Custer and Watson 1985; Custer 1982; Custer and Bachman 1984). More work is needed at the Paradise Lane site to determine the extent of vertical

artifact movement at the site. A larger artifact sample is needed so that individual refitted flakes and cores can be identified and their vertical distribution analyzed as has been done in other studies (Custer 1986; Custer and Watson 1985).

More intensive and additional Phase II archaeological research is needed at the Paradise Lane site. Additional excavations should focus on identifying specific activity areas and occupations across the portion of the site within the ROW. Also, further excavations should seek to obtain a sufficiently large sample of artifacts so as to allow the study of vertical displacement of buried artifacts at the site. The results of additional excavations at the site will be described in a separate forthcoming report.

SEGMENT 3 - SURVEY RESULTS

Segment 3 consists of the area of reconstruction and widening of Route 4 and Route 4/273 from the western terminus of the project area west of the A. Temple site to the eastern terminus in the vicinity of the Putt-Putt golf course (Figure 2, and Plate 2). Current land use in this segment of the Project Area include a fallow field and overgrown parcel at the western terminus with the central section and unoccupied open lands at the eastern terminus. Disturbance from construction and development is very severe in the central and eastern portions of the segment. None of the segment contained exposed ground surfaces amenable to Phase I surface reconnaissance and as a result, 1m excavation units were exclusively employed.