6.0 ANALYSIS OF AMERICAN INDIAN COMPONENTS

The following report section details the results of site evaluation (Phase II) and data recovery (Phase III) investigations of the pre-Contact American Indian presence conducted at the Frederick Lodge Site Complex. The site evaluation (Phase II) findings and recommendations are summarized in this section, followed by detailed descriptions of the data recovery (Phase III) excavations that focused on the American Indian components at the site.

Historical artifacts were recovered in small quantities at Frederick Lodge during site evaluation (Phase II) and data recovery (Phase III). The site evaluation (Phase II) of the historical component determined that it was not eligible for inclusion in the NRHP. The additional historical artifacts recovered during mitigation did not change this assessment. After consultation with DelDOT and DESHPO, agreement was reached that description and analysis of the historical data from the Frederick Lodge Site Complex would be documented in an appendix to this report (Appendix C).

6.1 Summary of Site Evaluation (Phase II) Investigations

The principle goal of the site evaluation (Phase II) investigations was to evaluate the prehistoric and historical components of the Frederick Lodge Site Complex in terms of eligibility for listing in the NRHP, in accordance with prehistoric and historical research priorities established for Delaware (Custer 1986a, 1994; Custer and De Santis 1986; De Cunzo and Catts 1990a, 1990b). The site evaluation (Phase II) study was undertaken as a consequence of a reassessment by the CR Division (Parsons 1999b) of recommendations made by LBA in 1997, following their survey of the site complex (Bedell and Jacoby 1998). Site evaluation (Phase II) fieldwork was conducted by the CR Division in April and June of 1999. As noted in Section 5.0 (Methods), the work consisted of controlled surface collection, employing 10-x-10-m surface collection units (SCUs) to relocate the site, refine horizontal boundaries, and locate artifact concentrations. In addition, 1-m^2 test units were used to investigate details of stratigraphy and examine areas of artifact concentration.

6.1.1 Controlled Surface Collection

Site evaluation (Phase II) investigations began with a controlled surface collection that consisted of a total of 731 10-x-10-m SCUs covering 18 acres of the proposed Wetlands Mitigation Area and highway right-of-way. In total, 1,614 prehistoric and historic artifacts were recovered from 499 SCUs. Prehistoric artifacts (n=874) were recovered from 325 SCUs. Figures 6-1 and 6-2 show the results of spatial analyses of the surface collection data, detailing the distributions of chipped stone and thermally altered stone fragments across the landform. In general, the densest concentrations of prehistoric artifacts were located on the high ground, or ridge, adjacent to the two bay/basins that were located in or south of the project area. The greatest concentrations of flaking debris occurred on the northeast side of the larger bay/basin, while the greatest concentrations of thermally altered stone occurred on the east side of the smaller bay/basin.

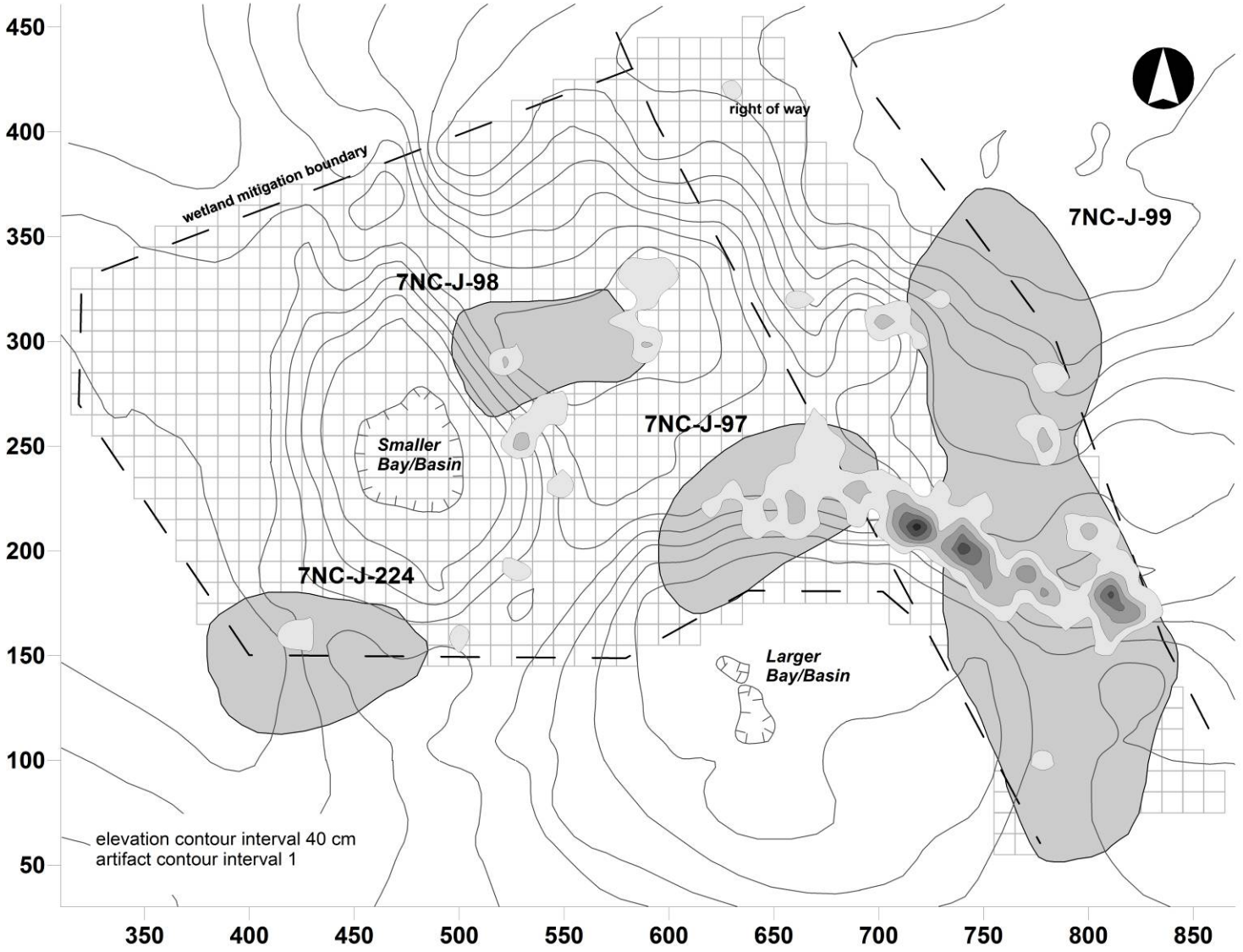


Figure 6-1. Distribution of Chipped Stone Artifacts from Controlled Surface Collection.

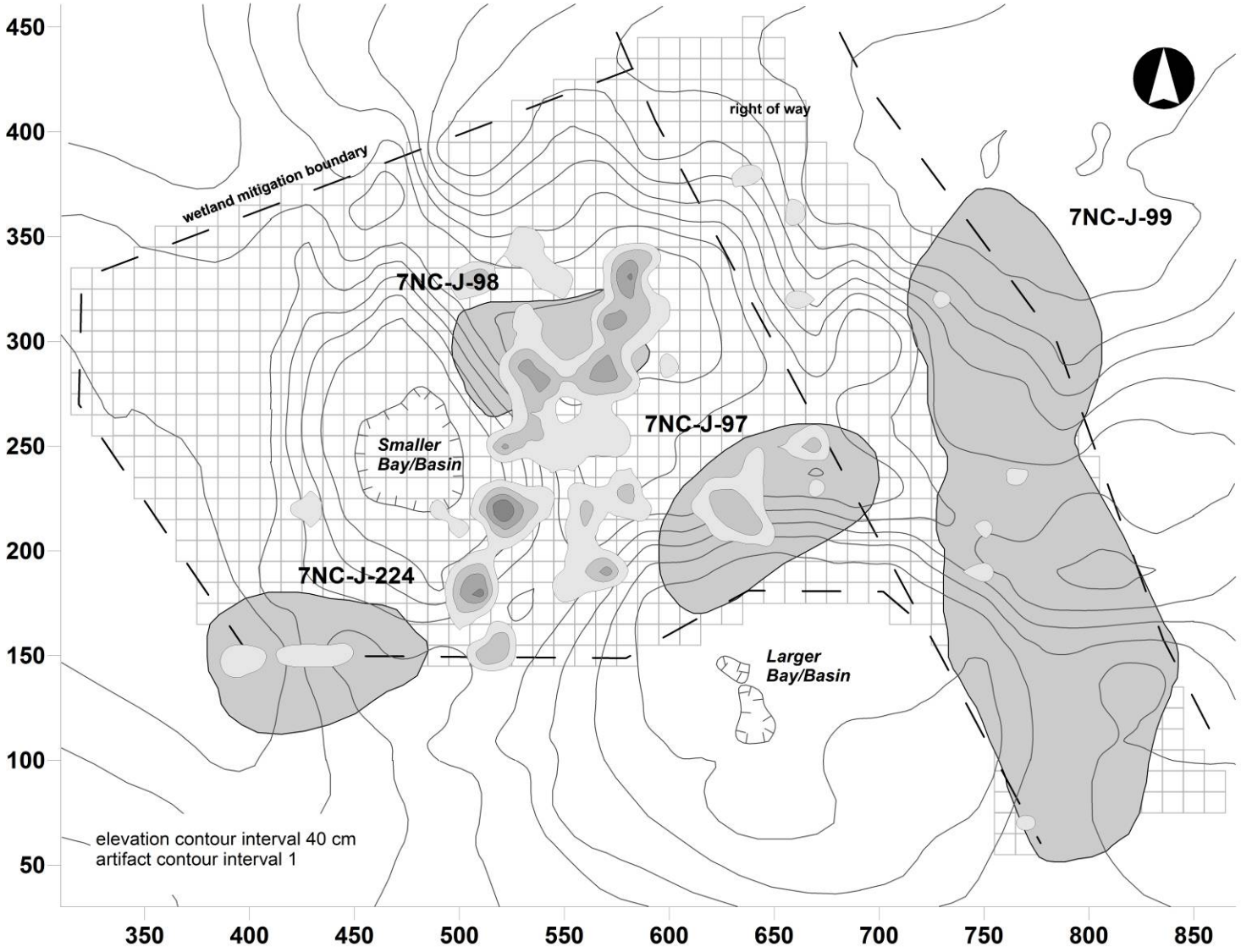


Figure 6-2. Distribution of Thermally Altered Stone Artifacts from Controlled Surface Collection.

6.1.2 Test Units

Stratigraphy

Based on the results of the controlled surface collection, 97 test units, each measuring 1-m^2, were excavated together to sample the area (Figure 6-2). The units were located at 10-m intervals on transects chosen to cover specific landforms on which concentrations of American Indian artifacts had been recorded during the surface collection, and which were associated with sites initially recorded by UDCAR in 1984: Site 7NC-J-97, 7NC-J-98, and 7NC-J-99. An historic artifact component, Site 7-NC-J-224, was subject to site evaluation and is discussed in a separate report (Bupp et al. 2003).

Site 7NC-J-97 was centered on the central terrace along the northern rim of the larger bay/basin. This area was tested by a transect extending east/west along the N235 gridline across the high point of the terrace. A second transect, oriented north/south, was placed to cross the first on the E645 gridline near the center of the artifact distribution defined by surface collection. The line crossed the rim of the bay/basin and extended to the toe of its slope.

Site 7NC-J-98 was situated on the northern crest, a broad knoll on the east side of the smaller bay/basin. A transect of test units extended north/south along the E535 gridline, from the northern slope of the knoll, across its crest and along the eastern slope of the smaller bay/basin to the limits of the proposed wetlands replacement area. A second, parallel transect extended along the E575 gridline to the western rim of the larger bay/basin.

The two parallel transects were joined by an east/west line of units placed across the crest of the knoll. At Site 7NC-J-99, an L-shaped set of unit transects was oriented north/south along southern crest on the E745 gridline, with the dogleg located east/west on the N185 line through the saddle and following the crest of a low, ridge-like knoll on which an artifact concentration was centered.

The test unit soil profiles revealed a plow zone approximately 20-30 cm in thickness. This plow zone was present across the entire site complex. The plow zone was underlain by a B horizon measuring 20-30 cm in thickness. The basal deposit in most areas was a C horizon, representing the top of the Pleistocene age Columbia Formation sands and gravels. Test Unit N315/E575 typified this sequence:

Test Unit N315/E575

0-26 cm	10YR4/3	Loamy sand (Stratum A)
26-49cm	10YR 5/6	Loamy sand (Stratum B)
49-70 cm +	10YR 6/8	Loamy sand with gravels (Stratum C)

Prehistoric and historical artifacts, detailed below, were found in both plow zone and sub-plow zone contexts. In addition, four prehistoric features were recorded.

6.1.3 Features

Prehistoric features included two thermally altered stone clusters (Features 1 and 2) and two large pits (Features 5 and 6). The thermally altered stone clusters were relatively small, each

measuring about 30 cm in diameter, and consisted of 5 to 7 thermally altered stones. The locations of these features corresponded with the concentration of thermally altered stone identified in the distributions of surface collected artifacts. The two large pit features extended beyond the boundaries of the test units in which they occurred, and only a portion of each feature was uncovered. The first, Feature 5 (7NC-J-98), was identified in Stratum B with the top of the feature initially recognized 10 cm below the base of the plow zone. The feature was at least 45 cm deep. Two pieces of thermally altered stone and several small charcoal bits were recovered from within Feature 5. Evidence of rodent disturbance was noted in several areas of the feature. The second pit, Feature 6 (7NC-J-98), was first encountered at a depth of approximately 5 cm below the base of the plow zone. The feature had sloping walls and was at least 65 cm deep. No artifacts were recovered from within the feature, but charcoal flecking was observed throughout the fill.

6.1.4 Artifacts

Completion of Phase II investigations resulted in the recovery of 2,077 historical and prehistoric artifacts (Table 6-1). Details regarding the prehistoric artifacts are included in the full artifact inventory for the prehistoric component at Frederick Lodge (Appendix E). The historical artifacts are detailed in Appendix H, which reports the historical findings from the site.

Table 6-1. Artifact Frequency Totals from Phase II Testing.

group	count
prehistoric	1,213
historical	864
total	2,077

The test units confirmed the artifact concentrations identified as a result of the controlled surface collection. In total, 1,213 prehistoric artifacts were recovered during the Phase II testing program (Table 6-2). Artifact types included lithic debitage, early and late stage bifaces, cobble tools, and thermally altered stone. In addition, 20 points or point fragments and 1 ceramic sherd were recovered. Five of the points, including four bifurcates and a probable bifurcate point fragment were representative of the Middle Archaic. Lithic materials represented in these points included chert, jasper, and rhyolite. The Late Archaic through Middle Woodland periods were represented by ten points, including an Orient Fishtail, a Piscataway-like, and eight small, straight-stemmed or contracting-stemmed points. These points were made of a variety of materials consisting of chert, chalcedony, jasper, argillite, quartz, and ironstone. Five points or point fragments were unidentifiable and were not typed. Flaking debris recovered from the excavations consisted primarily of cryptocrystalline materials (63 percent) and quartz (33 percent). Overall, the majority of the flaking debris was small (less than 2 mm, size grades 1 and 2), and exhibited remnant cortex at frequency of 27 percent.

Table 6-2. Prehistoric Artifact Frequency Totals from Phase II Testing.

type	count
point	20
chipped stone tool	10
debitage	634
cobble tool	12
ceramic	1
thermally altered stone	536
total	1,213

6.1.5 Geoarchaeological Investigations

Geoarchaeological investigations were also conducted as part of the site evaluation (Phase II) study. Field work, consisting of systematic core transects and examinations of section profiles of archaeological excavation units, was performed in July 1999, by Geoarchaeology Research Associates (Schuldenrein 1999). Core borings were taken with a 4-inch, hand-powered Oakfield bit-core. Two transects were established across the study area: a north/south transect along gridline E535, and an east/west transect paralleling gridline N235 (Figure 6-3). The north/south transect was designed to examine the slope and subsurface stratigraphic changes, from the crest of the ridge overlooking the large bay/basin into the bay/basin itself. The east/west transect was located along the northern margins of the large bay/basin and was placed to assess stratigraphic changes along the rim of the large bay/basin and in the sediments associated with the smaller bay/basin on the west edge of the site. In addition to the transect work, 11 archaeological test units were selected for study. Units were chosen that aligned with transects containing relatively rich artifact concentrations and that preserved the generic chrono-stratigraphic units associated with key landform segments. Borings were placed below the level at which the archaeological excavations ceased. Initial geoarchaeological investigations resulted in the identification of numerous intact Holocene surfaces, including several that appeared to have been sealed by aeolian depositional processes. Further details of the geoarchaeological investigations are incorporated into the data recovery (Phase III) results presented later in this section.

6.1.6 Summary of Site Evaluation (Phase II) and NRHP Recommendations

Following the completion of site evaluation (Phase II) field work and analysis of the data collected during the investigation, recommendations were made with regard to the eligibility of the sites for inclusion in the NRHP.

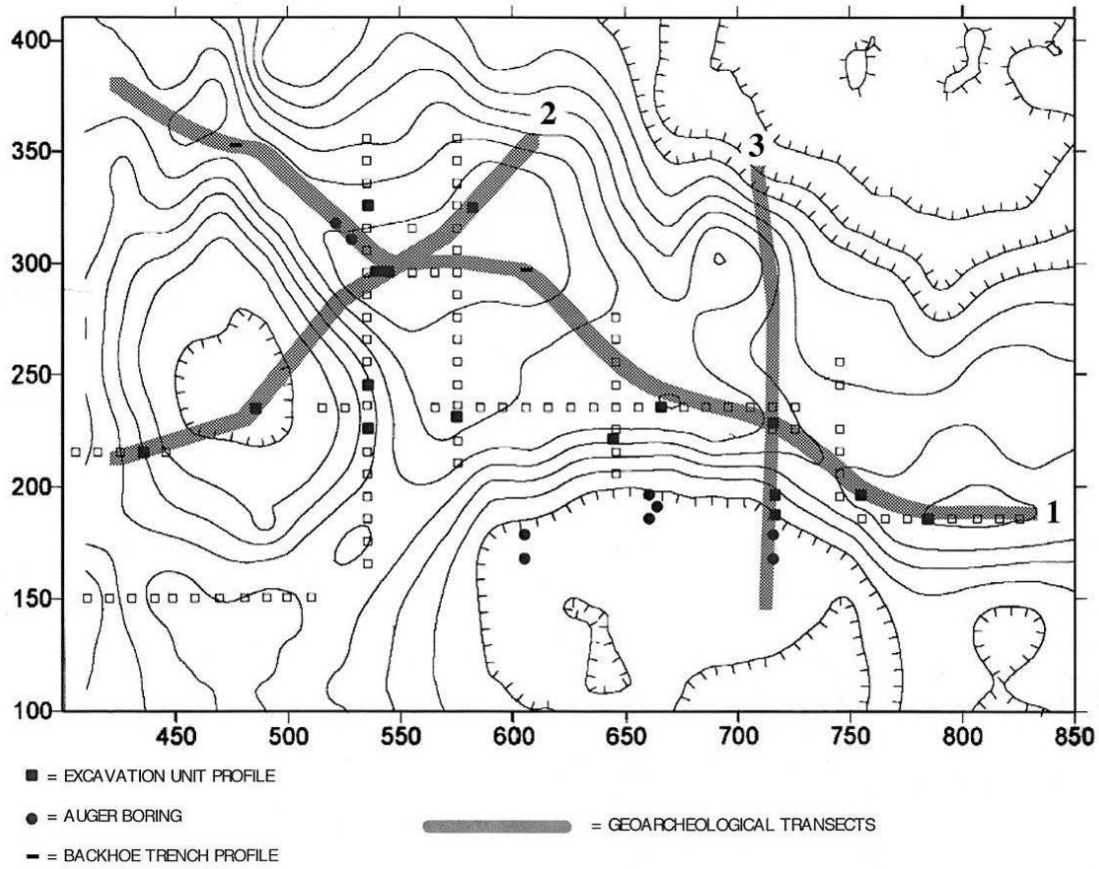


Figure 6-3. Locations of Geoarchaeological Transects.

The American Indian component at the Frederick Lodge Site Complex was characterized by a low-density distribution of prehistoric artifacts, within which distinct concentrations of flaking debris and thermally altered stone were present. Geoarchaeological investigations defined a well-preserved Pleistocene-Holocene succession that was exposed across the landform on which the sites occurred. Sub-plow zone cultural deposits were documented, along with point types representing the Middle Archaic through Middle Woodland.

Based on the results of the site evaluation (Phase II) evaluation, CR Division personnel concluded that the prehistoric component of the Frederick Lodge Site Complex retained sufficient integrity and research potential to meet eligibility Criterion D for listing in the NRHP. The Frederick Lodge Site Complex showed the potential to address research topics concerning the chronology of the Middle Archaic through Middle Woodland periods, intra-site patterning (e.g., delineation of activity areas indicated by thermally altered stone clusters, concentrations of flaking debris, and large pits), archaeological site formation processes, and paleoenvironmental studies, including the formation of bay/basins and associated dune/ridge landforms. All three sites at Frederick Lodge (7NC-J-97, 7NC-J-98, 7NC-J-99) with predominately American Indian components were thus recommended eligible for nomination to the NRHP together as a single group, or complex. It was further recommended that, in accordance with the MOA of 1987, data recovery (Phase III) be undertaken to mitigate the adverse effects to the Frederick Lodge Site Complex resulting from construction of the Smyrna-to-Pine Tree Corners segment of SR1. Data recovery would contribute to the

prehistoric research priorities established for Delaware and additional research questions delineated in Section 2. Concurrence was granted by DESHPO in November 1999 (Appendix B) on these recommendations, and data recovery excavations were initiated.

The historical component of the Frederick Lodge Site Complex was comprised primarily of a diffuse scatter of domestic and architectural materials. However, one discrete concentration of historical artifacts and features was located in the south central portion of the site, north of the large bay/basin. The concentration occurred along the N235 grid line and included five historical postholes and a square feature corner (Feature 13). Based on the artifact types and densities, and the linear distribution of the historical postholes, this concentration was determined to represent a fence line.

The historical component at the Frederick Lodge Site Complex was determined not eligible for listing in the NRHP under Criteria A, B, C, or D. The component was not associated with specific events, and was not behaviorally or culturally indicative of broad patterns of history in Delaware (Criterion A), nor was it associated with locally or regionally prominent individuals (Criterion B). The limitations of the historical component at the Frederick Site Lodge Complex suggested low potential for contributing substantive information to an understanding of the historical development of Delaware (Criterion D). No further archaeological investigations of the historical component were recommended.

The recovery of additional historical artifacts during mitigation of the prehistoric site was anticipated. However, the frequency and type of artifacts were not expected to provide new information about the historical component, and thus they were not expected to alter the original eligibility determination for this component. A strategy for the treatment of the historical material was agreed on prior to initiation of data recovery (Phase III) in consultation with DelDOT and DESHPO; historical artifacts were analyzed and reported in an appendix to the current report (Appendix C).

6.2 Results of Data Recovery (Phase III) Investigations

Following DESHPO concurrence with recommendations for archaeological site mitigation, data recovery investigations were conducted. Field work entailed excavation of individual 1-m^2 units on 10-m grid nodes to further investigate areas identified in site evaluation (Phase II) test unit transects (Figure 6-3). Subsequently, blocks of contiguous excavation units were employed to recover data from specific parts of the site, as described in Section 5 (Figure 5-4 (p. 58)).

6.2.1 Sediment Stratigraphy

Geomorphological data indicated that the environment in which the Frederick Lodge Site Complex was situated had begun to stabilize by the Early Holocene when, as elsewhere in North America, hydrographic balances adjusted to post-glacial atmospheric moisture and circulation regimes. A major threshold for stable environments occurred around 6000 years BP, when stream networks in the Middle Atlantic assumed their contemporary morphologies (Schuldenrein 1999). For Delaware in general, and the Frederick Lodge Site Complex location in particular, these environmental chronologies are best registered in the bay/basin depressions that are common regionally, and which will be considered in Section 7.

Analyses were conducted to address site formation issues from the perspective of stratigraphy. The general aim of stratigraphic analysis is to determine whether distinct cultural strata might be recognized within the common distribution of artifacts in the various parts of the site. The following report sections will assess the relationship between the soil strata and cultural deposits at the Frederick Lodge Site Complex. Sediment stratigraphy and cultural stratigraphy do not necessarily coincide, particularly in the shallow soil profiles that are often found in the Middle Atlantic region. Yet sedimentary strata are typically the first form of vertical data that are recognized at an archaeological site, and as such, they are the first guides used in separating the archaeological remains temporally. A detailed analysis of sediment stratification thus formed the initial stage in assessing chronological components at Frederick Lodge. The results of the study are contained in this section, and they draw extensively on the geoarchaeological analysis reported in Appendix H. Evidence for cultural stratification is examined in Section 6.3.

Quaternary sediments at the site, the upper portion of which contained Holocene age archaeological deposits, were shallow, typically extending 1.0-1.5 m in depth below ground surface. Beneath that level, gravelly sands of the Pleistocene Columbia Formation were encountered. The only exceptions were the bay/basin features, which preserved soft sediment accumulations to depths in excess of 3 m. The composition and sedimentary histories of these features are discussed separately.

With localized variations, the lateral distribution of sediment complexes across the Frederick Lodge landform mirrored the general surface contours, described as a gently rolling, upland plain. Soil formation, in the formal pedological sense of the transformation of sediment through the accumulation of minerals and clays, was relatively distinct. Cambic profiles, or weakly altered Bw horizons, represented the most extensive weathering in the sediment column. Since these soils formed primarily on sands, the degree of clay translocation was more subdued than would have been seen on finer parent materials, and rates of organic decomposition were similarly reduced. Wind-borne or aeolian deposits were evident in the northwestern portion of the site, in the vicinity of blocks A, B, D, and E. These aeolian sands included a silt component that allowed deeper, clay-enriched profiles to form. Colluviation was more prominent along the south and southeast slopes, near Blocks G, H, and L. These locations featured a finer sandy parent material. The variation in grain size between the two ends of the Frederick Lodge Site Complex was also expressed in patterns of sediment weathering: clay-enriched horizons were evident in the higher elevations to the west, while the lower-lying, eastern locations preserved weathering profiles that produced lamellar substrates.

Chronologically diagnostic artifact assemblages indicated that evidence of up to 8,000 years of human occupation was preserved at the site. Sedimentation rates appeared to have been low, so clear separation of temporal components within the soil column was generally challenging to discern stratigraphically. Nevertheless, vertical stratification of cultural deposits was present in several locations (e.g., Block D), while horizontal isolation of components was demonstrated in other locations (e.g., Block I). The lateral and vertical dispositions of all these data—the sediment complexes, soil horizons, and archaeological

assemblages—served as the basis for the overall stratigraphic framework developed for the Frederick Lodge Site Complex in the geoarchaeological analysis.

To accommodate the subtleties observed in the cultural and natural horizonation, the geoarchaeological analysis used an *allostratigraphic* system as its organizing framework. Geologists typically map sedimentary rocks on the basis of lithology or the physical characteristics of the rock such as color and texture. Allostratigraphy maps rock layers by the processes and timing of their deposition, recognizing old erosion surfaces as boundaries, for example. The boundaries are often referred to as bounding discontinuities (NACSN 1983:865; Birkeland 1984:328), referring to limits or borders that are marked by changes in how the rock accumulated. Allostratigraphy tends to describe a stratigraphic sequence at finer resolution than does lithostratigraphy, and thus it defines more detail in the sedimentary classification that is relevant to archaeological interpretation. It is especially appropriate for linking sets of grouped archaeological, soil, and depositional units, and is particularly flexible for situations in which breaks in deposition are inconsistent across a site and across segments of landforms, such as slopes. Since the allostratigraphic units are defined by boundaries rather than by their contents, they allow explanation of the mechanisms that forced changes in stratigraphic ordering (Ferring 2001).

A transect extending northwest to southeast across the landform illustrated the key stratigraphic breaks at Frederick Lodge (Figure 6-4). The major allostratigraphic units identified as a result of the transect analysis were as follows, numbered and described in order of age, oldest to youngest:

- **AU-1:** Unweathered gravels and sands (with lag deposits) of the Columbia Formation [2C horizon].
- **AU-2:** Dominantly aeolian and colluvial sediments of Holocene age; bracketed by Early Holocene (base) and Late Holocene (top) Cambic (Bw) soil horizons; the composite Unit was present on the highest portion of the landform exclusively, and it contained archaeological materials of Middle Archaic through Late Woodland age.

  On most slope locations, two sub-units were recognized:

  - **AU-2a:** Thin, Early Holocene soil formed directly over Columbia Formation gravels; it contained Middle Archaic artifacts, either *in situ* or deflated [2AB horizon].
  - **AU-2b:** Late Holocene soil and/or sediment developed over and/or underlain by aeolian silts, sands or colluvium; it contained deflated and redeposited Archaic artifacts and Woodland materials [A-Bw or AB-BC horizons].
- **AU-3:** Historic soil chiefly represented by a plow zone underlain by a thin accumulation of aeolian sediment or colluvium; sometimes weakly weathered [Ap/AB sola].

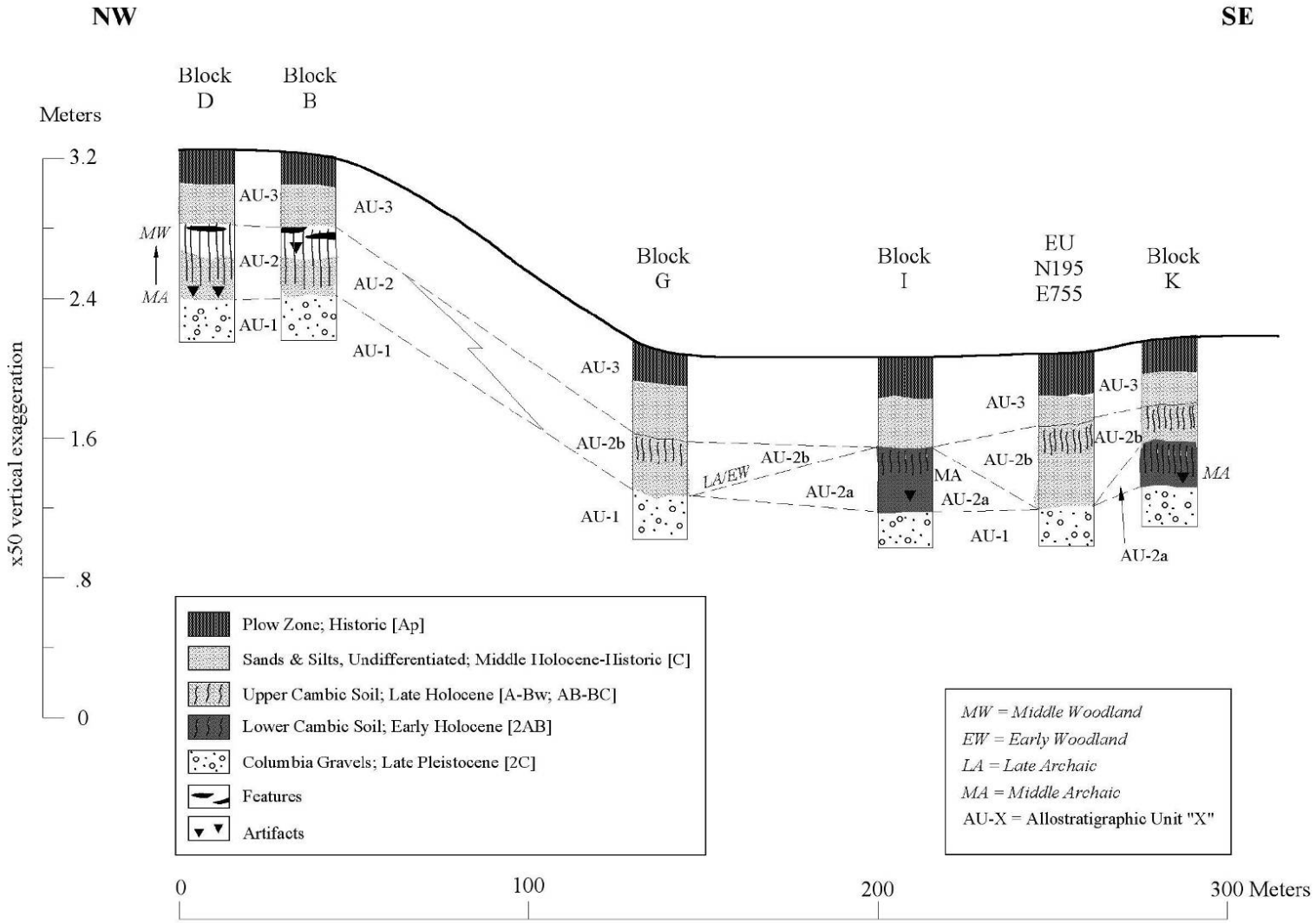


Figure 6-4. Generalized Section Across the Frederick Lodge Site Complex Reconstructed from Block Profiles.

In general, these subdivisions corresponded with archaeological field designations: Stratum A conformed with AU-3; Stratum B with AU-2; and Stratum C with AU-1. In several instances, particularly in the eastern part of the site, Stratum A did not include an upper horizon of unaltered aeolian sands and silts that post-dated the AU-2 unit, but otherwise the associations were consistent.

The AU-1 unit consisted of the unweathered Columbia gravels that were typically capped by well-rounded, pebbly sands and pockets of gravel lag. The Early Holocene soil, AU-2, formed on these gravels. The contact (or the Pleistocene/Holocene interface) was unconformable in nearly all locations across the site, indicating a substantial break in deposition that was probably associated with contemporary episodes of landscape instability, such as erosion.

On the highest part of the site, in the area of Blocks A, B, D, and E, the AU-2 unit appeared as a single, deeply weathered Holocene soil. Clay enrichment was pronounced within the unit (8 percent), attesting to long-term soil development, and the Archaic and Woodland temporal components contained within it were separable. Yet, the AU-2 unit was discontinuous across the landform, and was split analytically into two sub-units along the mid-slope, near Blocks G and H and further east. The oldest sub-unit, AU-2a, was a moderately weathered, rubefied (reddened) soil that exhibited subangular blocky structure. It housed Middle Archaic archaeological assemblages that generally occurred above the depths of peak soil formation. Blocks I and K exemplified these contexts; both contained high concentrations of illuviated clays at depths of 60 cm, typically up to 20 cm below the peak artifact levels but within the same soil horizon (2AB). Thus, the early artifact assemblages occupied a stable surface that weathered into a Cambic soil.

The second or younger sub-unit, AU-2b, comprised unstructured silts and fine sands that were clearly associated with later Holocene colluviation and deflation. The sediment matrix was heterogeneous with a loose, often friable consistency. The AU-2b sub-unit was preserved in all locations, from the mid-slope of the smaller bay/basin eastward, with the exception of Block I. Whether or not its absence in this particular location was due to localized erosion, or gullying, was unclear.

Capping the sequence, the AU-3 unit comprised the historical period plow zone (the Ap horizon) extending 20-40 cm in depth into weakly weathered sediments that were also historical in age. The horizon conformably overlay the uppermost prehistoric deposits in all parts of the landform, irrespective of location. The boundary between AU-3 and AU-2 was represented by a transition from brownish-colored fine sands to reddish-colored sandy loams (somewhat sharper, or more reddish, along the mid-slope and toe-slope), with structures moving from granular to weak-subangular blocky. The transition was marked by the occurrence of Woodland period archaeological features in the AU-2 unit that were documented in excavations at the crest of the landform (Blocks A, B, D, and E).

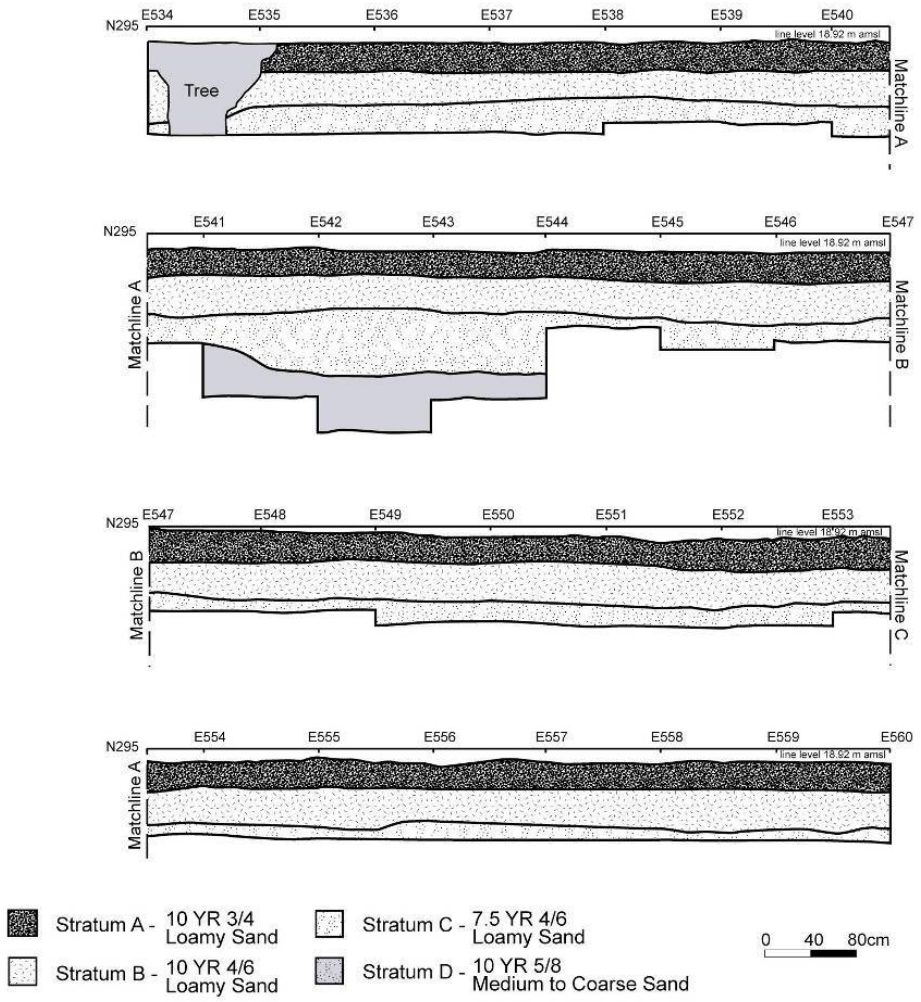
The crest locations all displayed similar profiles and indicated paleosol evolution and slope stability throughout the Holocene. Block D was the most extensive block excavation in terms of area and served as the baseline profile for this part of the Frederick Lodge Site

Complex (Figure 6-5). In this location, the AU-3 allostratum consisted of a plow zone 20-40-cm thick over a shallow accumulation of moderately well-sorted sands and silts (75 percent sand, 20 percent silt). The unit was largely of aeolian origin. The underlying AU-2 consisted of a 50-cm-thick paleosol characterized by an increase in clay content (the clay-silt ratio varying from 1:4 in AU-1 to 1:1 in AU-2). Increased concentrations of magnesium (Mg), potassium (K), and iron (Fe) correlated with the higher proportion of clay in a process of accumulation that signals long-term soil formation in a weathering sediment horizon. Radiocarbon dates of 3700±40 years BP (cal 2 σ BC 2202 to 1966; Beta-149971) and 9890±50 years BP (cal 2 σ BC 9647 to 9254: Beta-149972) were returned on free carbon recovered from the AU-2 allostratum, which bolstered arguments for the longevity of the weathering profile in this part of the site. While the temporal range of the dates was wide, their general age was consistent with the time span suggested by the amount of weathering that was present. The AU-1 allostratum, the unweathered component of the Columbia gravels, lay at the base of the profile. Sands increased to 87 percent of the sediment population in this stratigraphic unit, and no indicators for clay or mineral translocation were observed.

Archaeological assemblages on the landform crest appeared to have maintained vertical separation to some extent, particularly in Block D. Chronologically diagnostic artifacts implied occupations ranging from the early portions of the Archaic to the early portion of the Woodland period, and the artifacts were present in rough stratigraphic order. However, the weathering profile in this part of Frederick Lodge was thin and had developed on a sandy substrate. The soil remained coarse-grained, rather than developing in a classic weathering sequence, with clays translocated uniformly through the profile resulting in a progressive increase of fines with depth.

Stratigraphic profiles on the mid-slope and toe-slopes did not contain all of the elements present in the western part of the site. Slope processes in this area had produced a more dynamic sedimentary environment in which materials were subject to mobilization either by colluvial or deflationary activity. The deep soil, referred to as AU-2, was not preserved on the slopes in the same manner as in the western part of the site. In the transect profile illustrated in Figure 6-4 (p. 6-11), the AU-2a sub-unit is shown in Blocks I and K. In Block I (Figure 6-6), a paleosol (2AB horizon) was present over the AU-1 allostratum, displaying a gradual but clear increase with depth in clay and mineral content, the latter including Fe, Mg, organic material (OM), and calcium (Ca). These characteristics indicated pronounced weathering. Artifact concentrations were greatest 10-20 cm above the most weathered portion of the profile, suggesting a broad association between the cultural material and the period of landscape stability implied by the soil formation. Since the Ap and underlying AB/BC horizons were clearly associated with the same parent material, it was evident that the weathering profile had formed on the eroded Columbia gravels. This, coupled with the exclusive presence of earlier Holocene archaeological diagnostics in the form of bifurcate points, suggested that only the older paleosol was preserved in this part of the site, and that the stratigraphic succession proceeded from AU-1 to AU-2a to AU-3. At the base of the slope, in Block H, a series of coarse sediments were noted that implied the removal of fines by shoreline wave action, suggesting that the artifacts recovered there had been situated along the wetland margins of an open pond.

Archaeological Section



Geoarchaeological Data

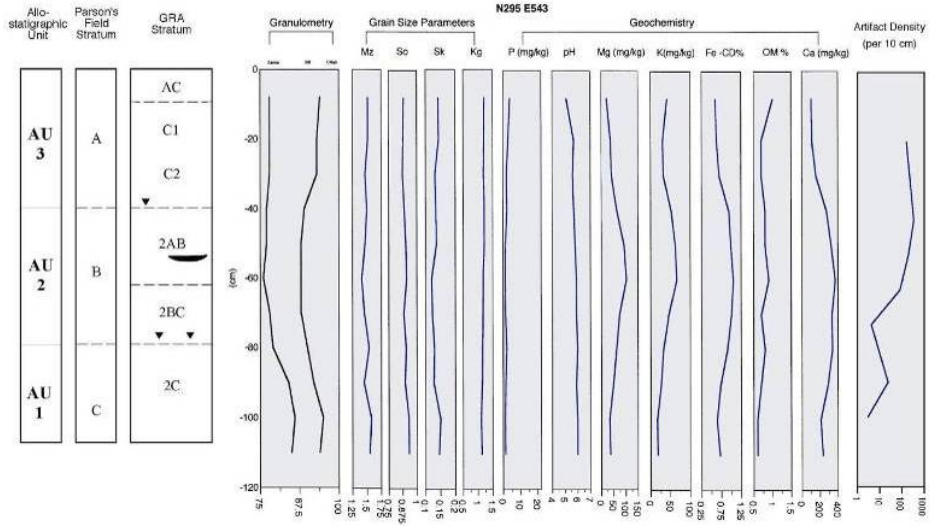
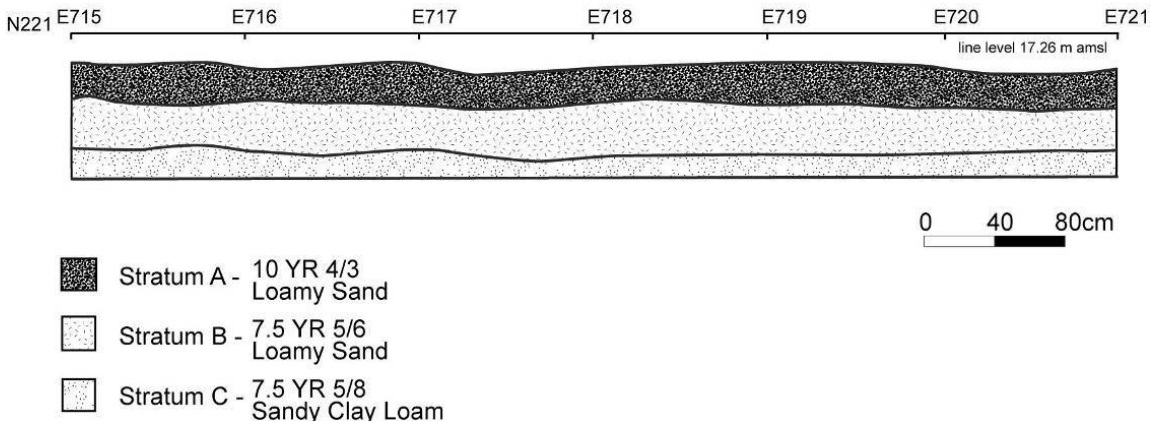


Figure 6-5. Section Profile, Block D.

Archaeological Section



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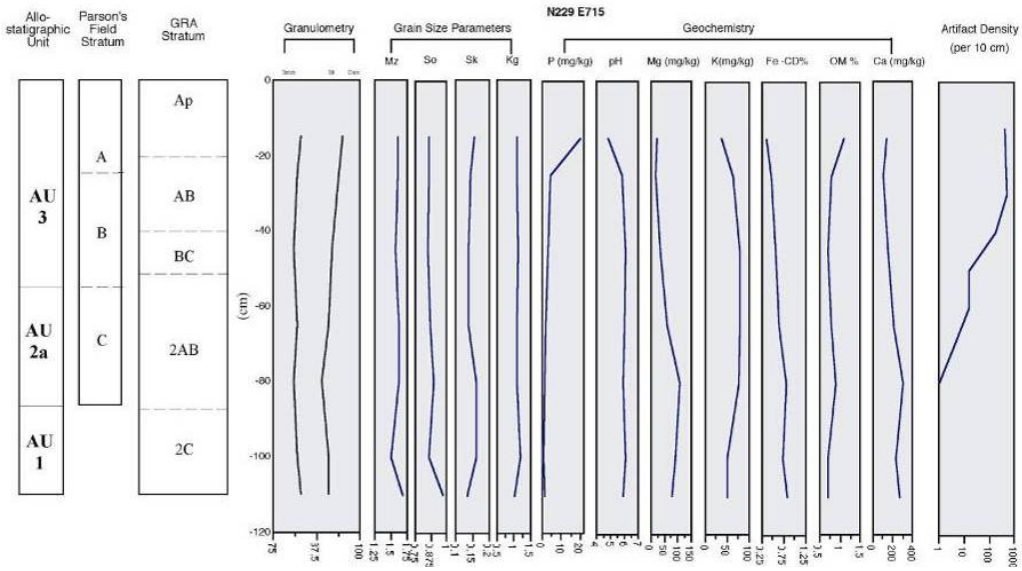
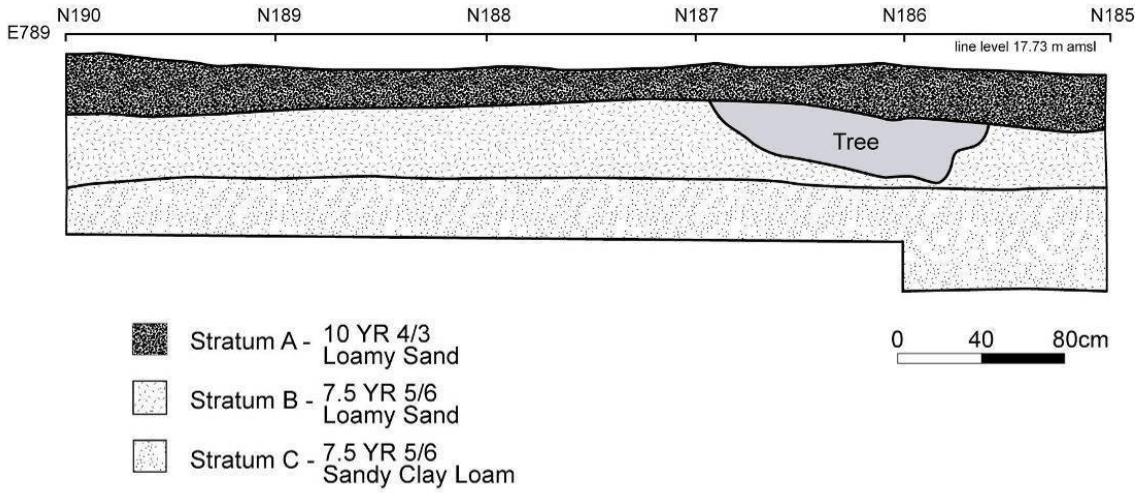


Figure 6-6. Section Profile, Block I.

As in Block I, a clear 2AB soil horizon was present in Block K (Figure 6-7) representing the early, AU-2a sub-unit, with high clay concentrations paralleled by a rise in OM (other geochemical tests were not performed). However, in contrast with Block I, an abrupt transition from the paleosol to poorly sorted cover sediments containing Woodland artifacts was documented. The upper sediments comprised the AU-2b sub-unit at this location. A radiocarbon date of 1200±40 years BP (cal 2 σ AD 689 to 1023; Beta-150338) was obtained from a bulk sediment sample within the 2AB. The date was too young for the sediment in which it occurred. Block K, therefore, appeared to have contained both sub-units of the AU-2 allostratum, effectively registering a compressed version of the composite Holocene sequence preserved to the west.

Archaeological Section



Geoarchaeological Data

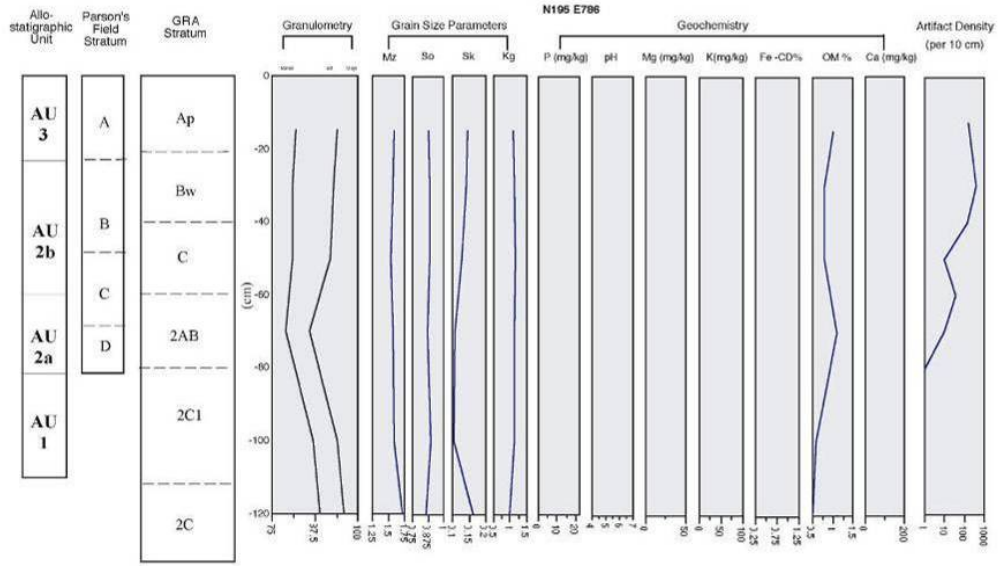
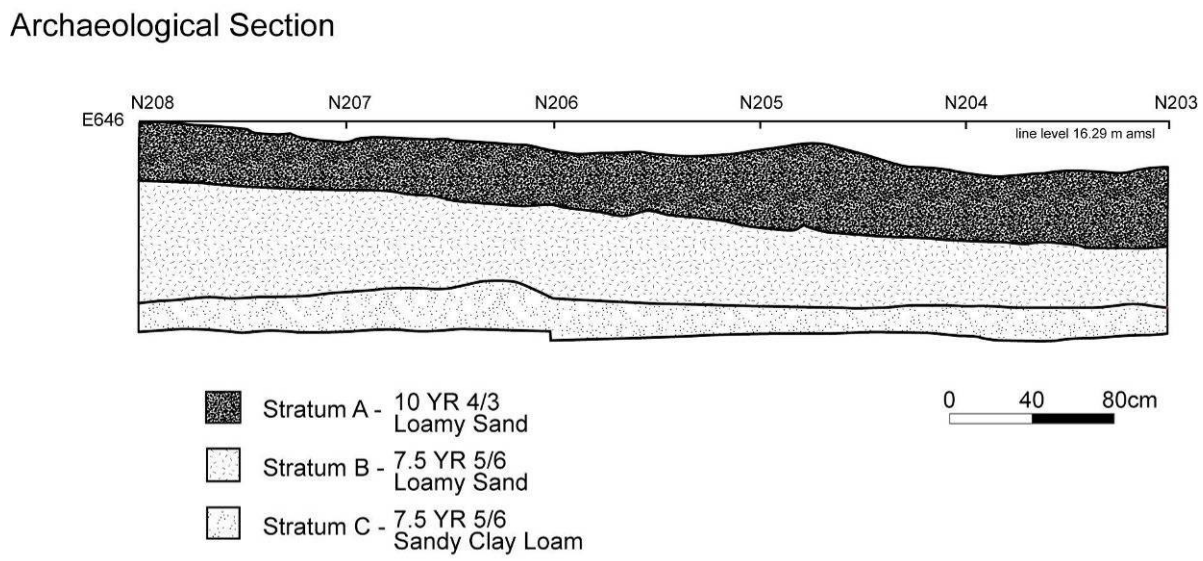


Figure 6-7. Section Profile, Block K.

And finally, in Block G (Figure 6-8), the AU-2b sub-unit was thickened and directly overlay the coarse, Pleistocene sediments of the AU-1 allostratum. Organic matter results showed a progressive decrease in concentration within the AU-2b sub-unit, suggesting a distinct lack of stabilization or sustained soil formation. Artifacts were encountered at uniform frequencies throughout almost the entire depth of the sub-unit. Together with the sloping landform contours at the toe of the basin slope, the data suggested accretion of the AU-2b sub-unit through a mechanism such as colluviation.



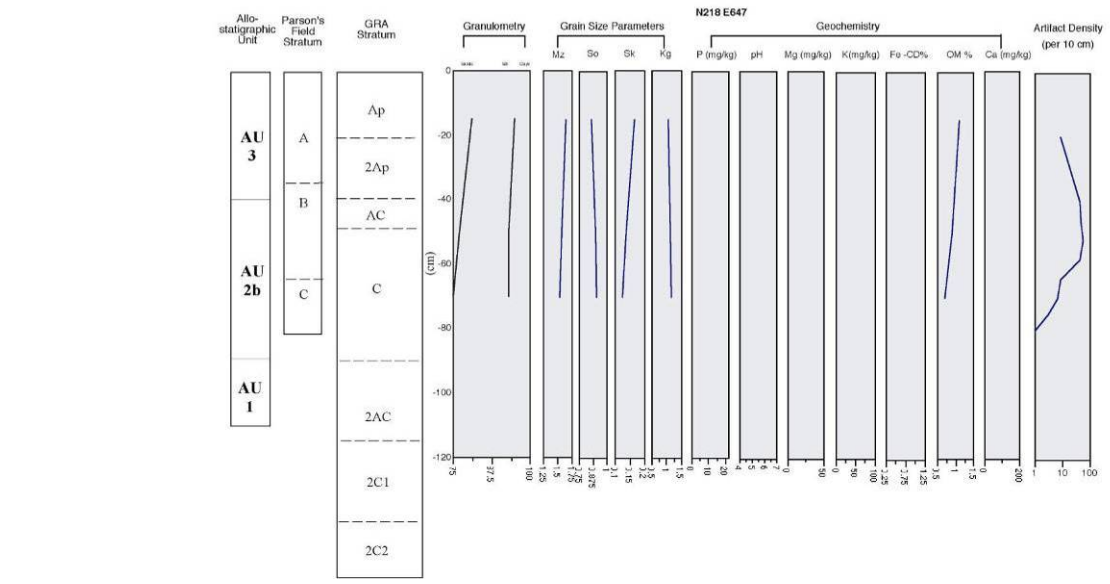


Figure 6-8. Section Profile, Block G.

6.2.2 Cultural Deposits

Temporally diagnostic artifacts that spanned at least 8,000 years of prehistory, from bifurcate points attributed to the Middle Archaic to triangle points characteristic of the Late Woodland, were present across most of Frederick Lodge area. In some parts of the site, separation of temporal components could be demonstrated, while in other areas, stratigraphic integrity of the cultural deposits did not appear to have been well maintained. Several markers or indicators were employed to analyze depositional integrity, including the preservation and depth of cultural features, the vertical and horizontal distributions of artifacts, and the analysis of pedological and geochemical data.

Features

Most features were located on the crest above the western or smaller bay/basin. Their presence indicated a degree of stratigraphic integrity in the deposits in which they were found. For example, two thermally altered stone features were recorded in Block D, lying at the same elevation in the upper part of Stratum B (Figure 6-9). A distinct concentration of thermally altered stone fragments in the plow zone above one of the features, Feature 60, suggested that plowing had dispersed some of the stone in the original cluster. Nonetheless, most of the feature remained evident near the top of Stratum B. Feature 30, lying 3 m to the east and slightly downslope from Feature 60, appeared to have been less directly affected by plowing. Three thermally altered stone features were identified in Block B, southeast of Block D (Figure 6-10), also at a consistent depth below base of the plow zone. Two of these features, Features 2 and 31, were small clusters located in the eastern half of the block. The third, Feature 49, consisted of a widespread scatter covering most of the western part of the block. As in Block D, the distributions of thermally altered stone fragments in the plow zone in Block B corresponded with the feature locations, suggesting that the upper parts of the features had been disrupted somewhat by plowing. A final thermally altered stone feature in this part of the site, Feature 1, lay in Block A, 10 m north and east of Blocks B and D (Figure 6-11). While distant from the other features, Feature 1 showed a similar pattern of vertical and horizontal distribution, with a discrete cluster of stone at the base of the plow zone and a corresponding, although more widespread, scatter overlying the feature in the plow zone. The locations of each of these features implied a common depositional level at a consistent elevation near the base of the plow zone.

An additional thermally altered stone feature, Feature 23, was documented at the site, located on the mid-slope of the larger bay/basin, in Block H. Feature 23 (Figure 6-12) consisted of a concentration of thermally altered stone similar to the features documented in Blocks A, B, and D. The feature occurred in the upper levels of Stratum B, approximately 10 cm below the plow line. Vertical and horizontal artifact distributions indicated relatively little disturbance to the feature or the surrounding artifact deposits in this part of the site.

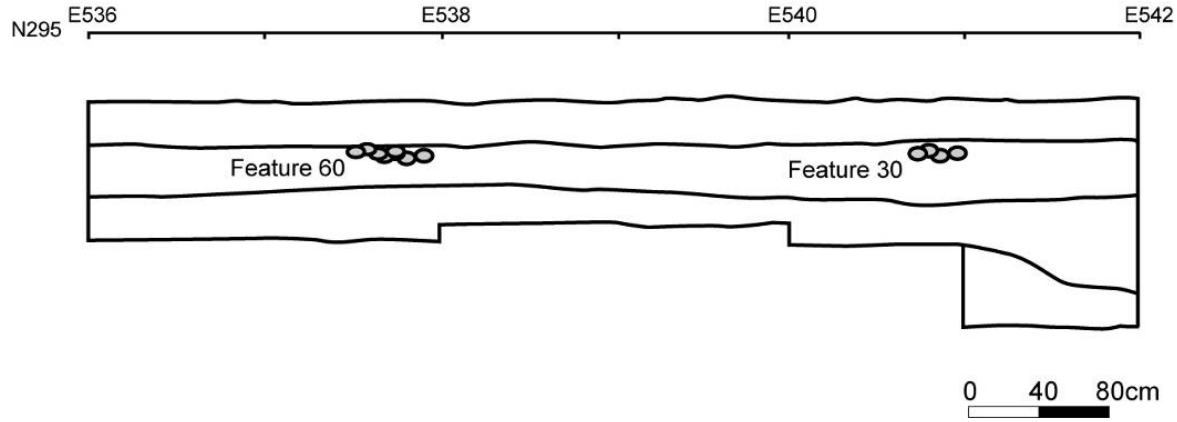


Figure 6-9. Vertical Locations of Features 30 and 60 in Block D.

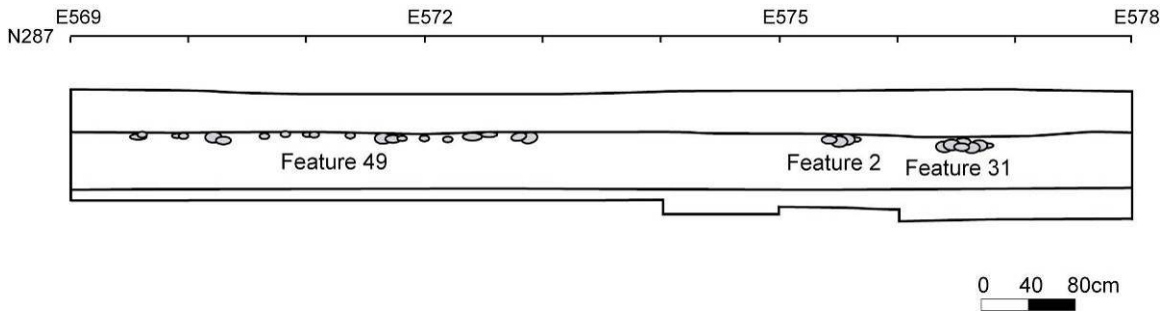


Figure 6-10. Vertical Locations of Features 2, 31, and 49 in Block B.

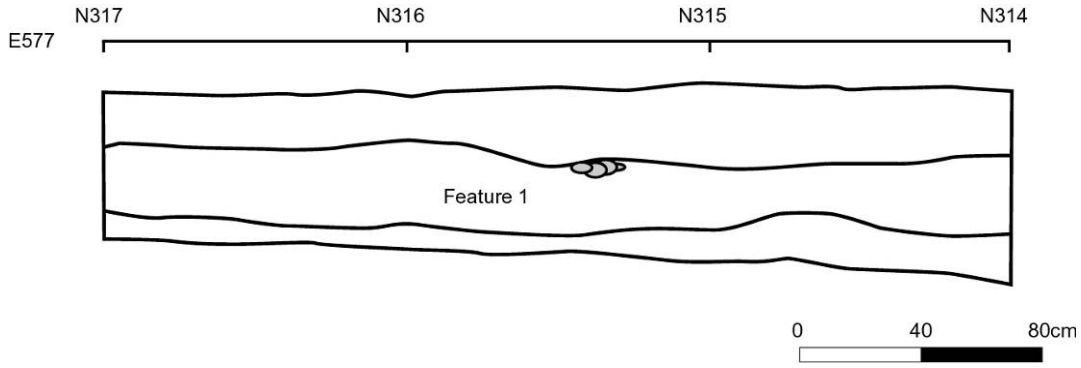


Figure 6-11. Vertical Location of Feature 1 in Block A.

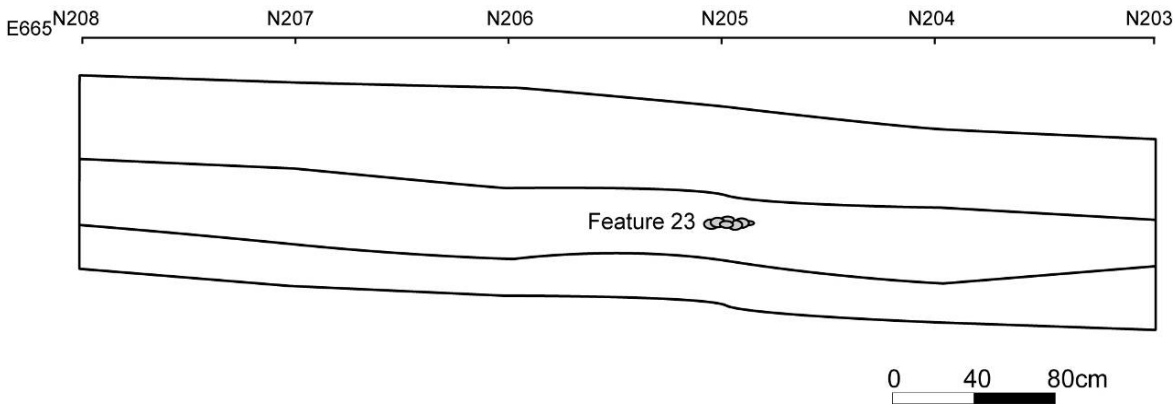


Figure 6-12. Vertical Location of Feature 23 in Block H.

Two large pit features were documented in the western part of the site, Feature 10, in Block E, on the crest northeast of Block D, and Feature 6, in Block C, on the ridge between the two bay/basins. The evidence they provided regarding depositional integrity was ambiguous. Little evidence of post-depositional deformation of the walls of either feature was observed during excavation, implying the absence of substantial burrowing or root disturbance Both features appeared to have been truncated by plowing, and thus to have originated above the level of Stratum B.

Vertical and Horizontal Artifact Distributions

Artifact distributions in the vertical and horizontal planes provided evidence of temporally significant separation of cultural deposits in some areas. Vertical frequency distributions

were analyzed for peaks, or statistical modes, that might suggest the presence of distinct depositional planes. Horizontal distributions were examined for patterns in artifact clustering within stratigraphic contexts that could further distinguish chronologically distinct deposits. In several locations, in Blocks A and E, for example, artifact frequencies were low and did not represent samples large enough for detailed analysis. Areas with larger samples provided varying evidence of potential for component separation. Looking at the excavations from west to east, Blocks D and B, on the crest above the smaller bay/basin, contained some of the best evidence of discrete components. Block I, on the bay/basin rim to the southeast, and Block H, on the toe-slope, also provided evidence of component isolation. In the remaining excavations—Blocks G and K—the data were unclear.

According to the work plan developed for the project, the plow zone in each block was excavated as a single level, regardless of thickness. In contrast, strata below the plow zone were excavated in 10-cm arbitrary levels. The purpose of excavating in arbitrary levels was to allow finer analysis of vertical artifact distributions than would be provided by the observed changes in soil strata alone. Since the plow zone varied in depth from 20-40 cm across the site, it represented a different scale in comparison with sub-plow zone levels when the artifacts it contained were plotted in vertical frequency distribution charts. To resolve this situation, artifact frequencies in the plow zone were by convention evenly distributed throughout the levels. As a result, the proportion of artifacts in the first level below the plow line, in Stratum B, was probably over-emphasized in the charts drawn for most of the blocks (i.e., the change in artifact frequency from Stratum A to Stratum B typically appeared greater than it was due to the attenuation of the plow zone distribution). Also, the lowest level of Stratum B in many of the excavation blocks was incomplete, often measuring less than 10 cm in depth, and usually occurring in only a small number of units. Because the level typically contained very few artifacts, the material was included in the totals for the overlying level of Stratum B.

Those excavation blocks with sufficient artifact quantities for detailed analyses are examined here. They are considered from the westernmost block—on the landform crest—to the easternmost block—at the bay/basin slopes.

Block D

Block D consisted of 124 units arranged in an irregular rectangle that spanned a distance of 22 m east-to-west (Plate 6-1). Vertically, the distribution of prehistoric artifacts peaked in the first level of Stratum B, after which it decreased gradually (Figure 6-13). The relative frequencies of chipped stone and thermally altered stone fragments were different in Stratum A and Stratum B, with considerably more thermally altered stone fragments occurring in the combined levels of Stratum A and more chipped stone in Stratum B (Table 6-3), suggesting different patterns of deposition in the two layers. As noted earlier, the amount of thermally altered stone in Stratum A indicated that the existing rock features recorded in Stratum B may have comprised only part of the original concentrations, and that the upper portions had been disturbed by plowing.

Plate 6-1. Block D, on the Western Crest.

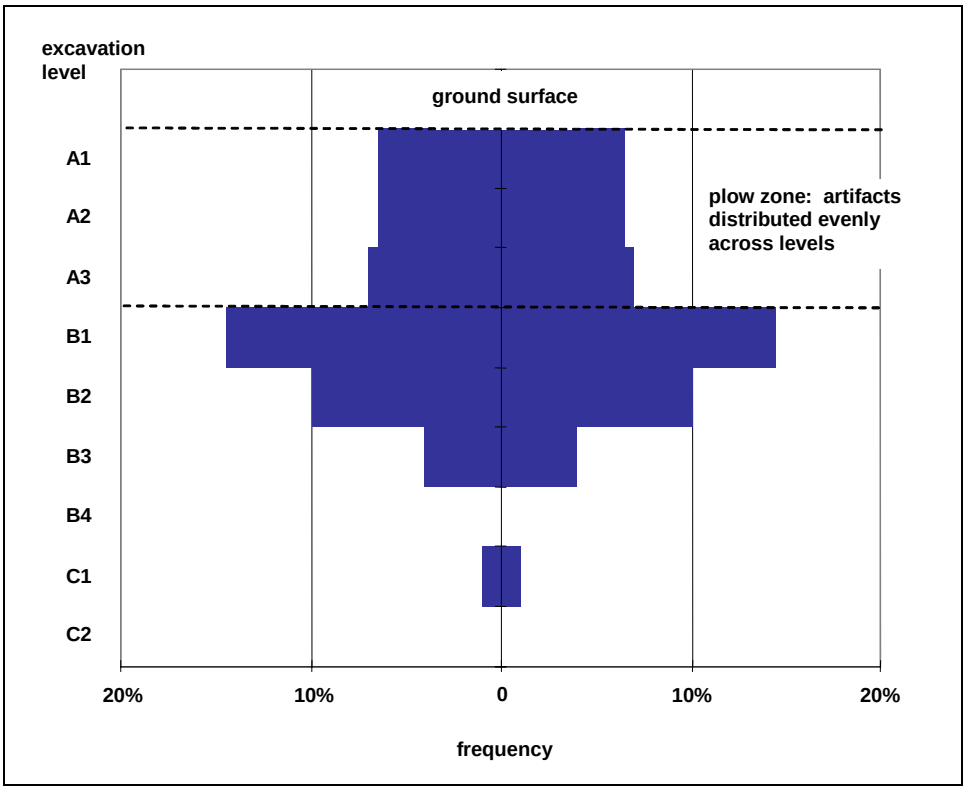


Figure 6-13. Vertical Distribution of Prehistoric Artifacts, Block D.

Table 6-3. Relative Frequencies of Chipped Stone and Thermally Altered Stone in Block D.

	chipped stone		thermally altered stone	
Stratum A	194	27%	202	77%
Stratum B*	527	73%	62	23%
total	721		264	

*artifacts in Stratum C (n=27) were combined with Stratum B for this analysis

Analysis of block-wide artifact distributions over large areas such as that represented by Block D averaged variation in the data. Field observations suggested that chronologically distinct cultural stratigraphy might be preserved in the eastern part the excavation block. Thus, the artifact distributions were broken down for further analysis by east and west block segments: east comprising the units between E546 and E556; and west, the units between E534 and E545. The artifact samples in the two sections were similar in size: east, n=513; west, n=472. Vertically, artifact types were dispersed proportionally (Figure 6-14), with most of the thermally altered stone fragments in both areas occurring in Stratum A (71 percent of the east half artifact total, 78 percent of the west total). The similarity between the two halves of the block suggested that Stratum A, although disturbed by plowing, contained material representing a single original level of deposition. In contrast, chipped stone distributions in both parts of the block peaked in separate levels below the plow zone—in the first level of Stratum B in the west, and in the second level of Stratum B in the east—indicated chronologically distinct depositional episodes.

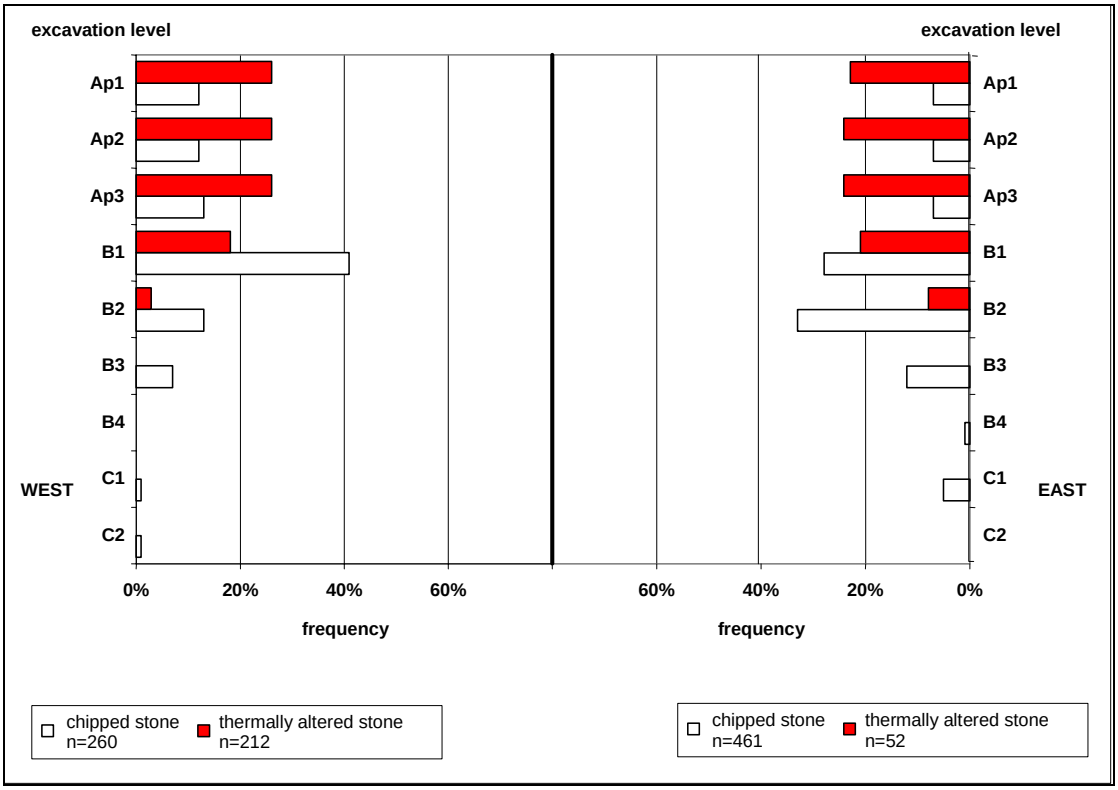
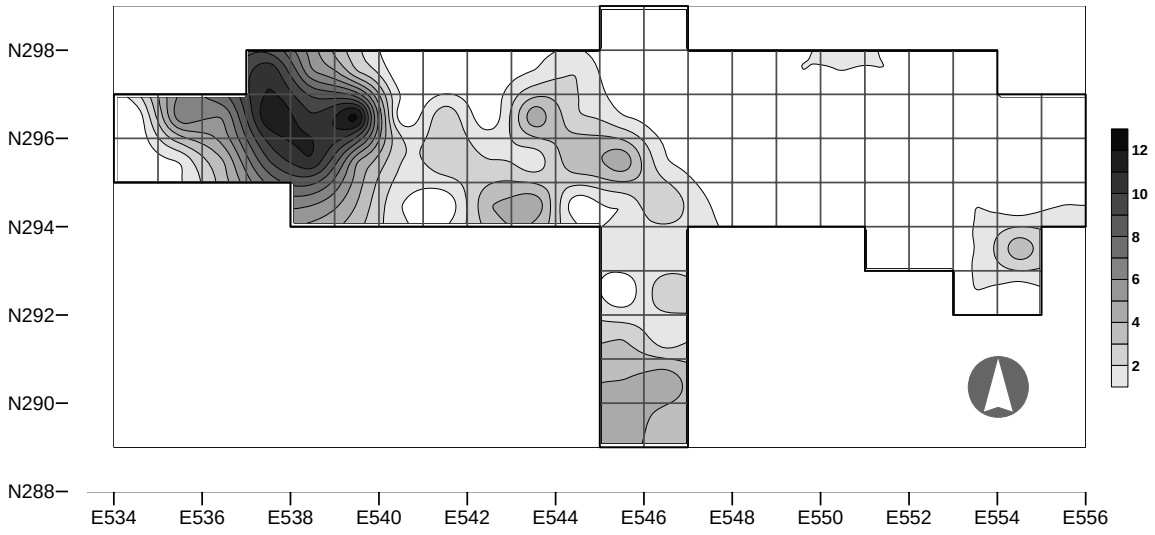
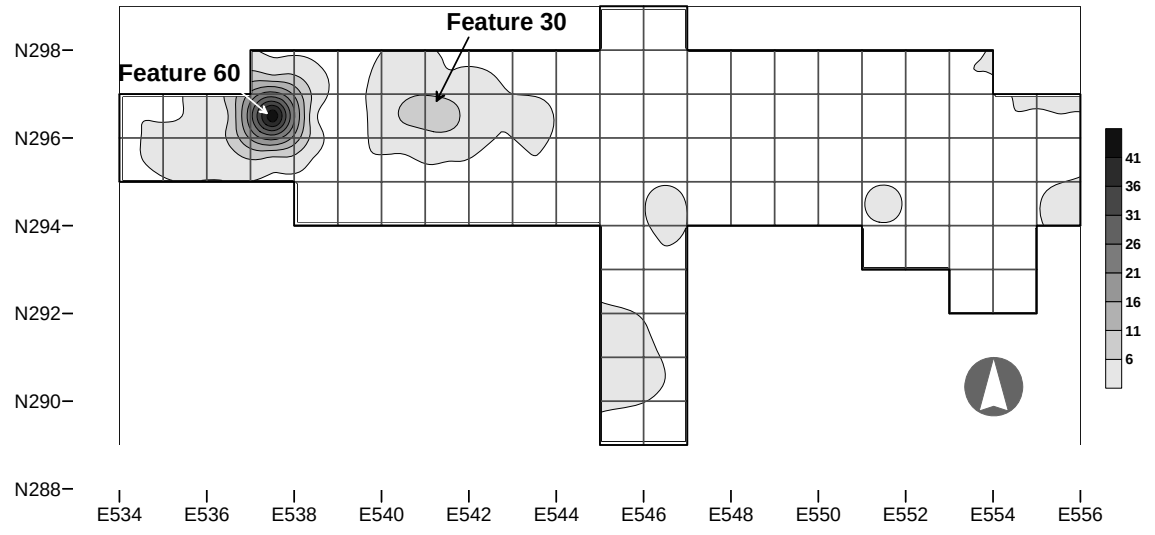


Figure 6-14. Vertical Distribution of Chipped Stone and Thermally Altered Stone Artifacts, East and West Halves of Block D.

Differences in depositional levels were also implied by horizontal artifact distributions recorded in Block D. The features documented in the first level of Stratum B were clearly visible in the thermally altered stone distribution exhibited in Stratum A (Figure 6-15). In contrast, the chipped stone distributions in Stratum A and Stratum B were dissimilar, particularly in the eastern half of the block. In Stratum A, a scattered distribution with several minor concentrations was present across the entire block (Figure 6-16a). In Stratum B, however, few artifacts occurred in the west half of the block, while a distinct concentration was apparent in the east half (Figure 6-16b). Chronological data also indicated separate depositional levels. In the west section, two Woodland I Stemmed points and a Lackawaxen point occurred in the first level of Stratum B, and a Morrow Mountain II point occurred in the third level of Stratum B. In the east section, a triangle point and two Woodland I stemmed points were located in Stratum A, and two bifurcate points in the second level of Stratum B (Figure 6-17).

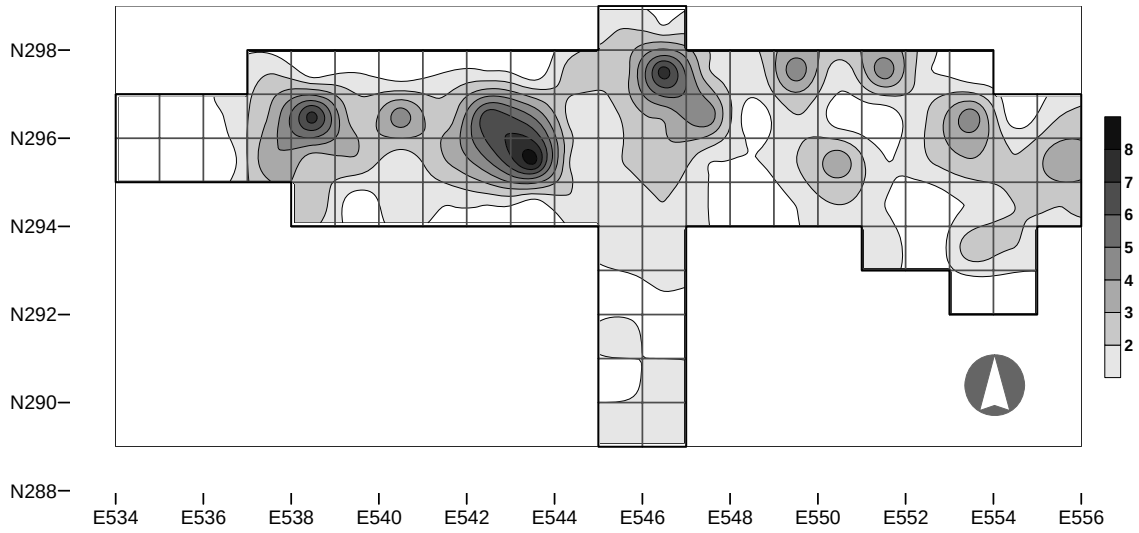


a) Stratum A (n=202)

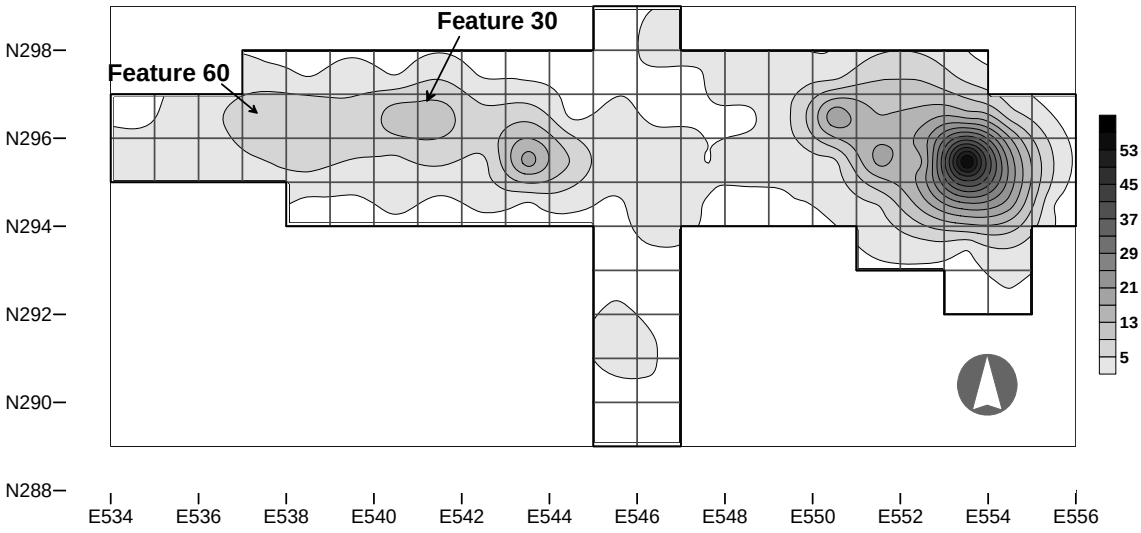


b) Stratum B (n=111)

Figure 6-15. Thermally Altered Stone Distribution, Stratum A and Stratum B, Block D.



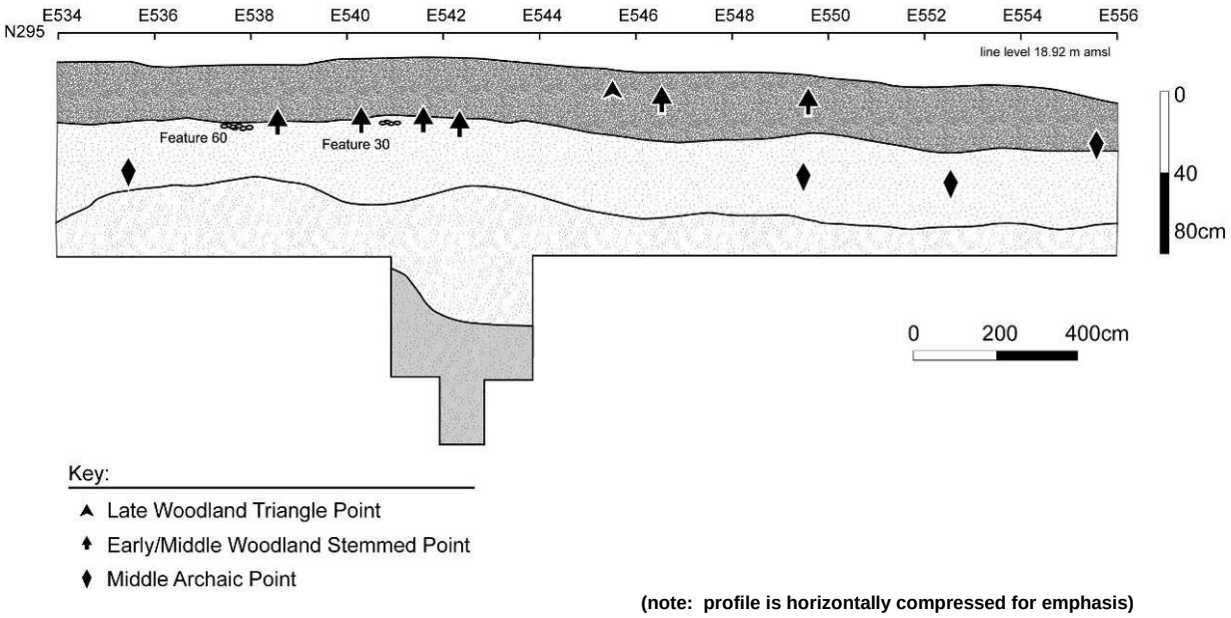
a) Stratum A (n=187)



b) Stratum B (n=498)

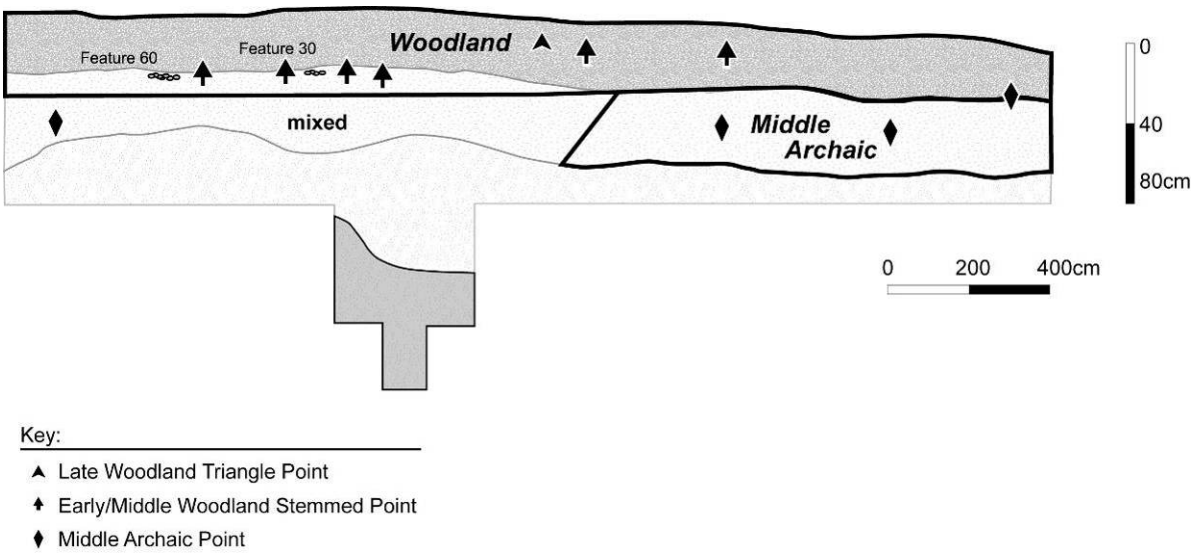
Figure 6-16. Chipped Stone Artifact Distribution, Stratum A and Stratum B, Block D.

Taken in their entirety, the vertical and horizontal artifact distributions in Block D showed the presence of two distinct temporal components (Figure 6-18). The earliest was associated with a Middle Archaic period occupation, and consisted of the artifact assemblage in the east half of the block in the upper levels of Stratum B. The upper levels of Stratum B comprised of a concentration of chipped stone artifacts, including bifurcate points, and a minor amount of thermally altered stone. The second and later component represented site use in the early portions of the Woodland period. Evidence consisted of the artifacts in Stratum A across the entire block, in which thermally altered stone frequencies were high, along with the thermally altered stone features and associated artifacts in the first level of Stratum B in the west half of the block.



(note: profile is horizontally compressed for emphasis)

Figure 6-17. Vertical Proveniences of Diagnostic Artifacts and Features Locations, Block D.



(note: profile is horizontally compressed for emphasis)

Figure 6-18. Analytically Defined Cultural Strata within Sediment Profile in Block D.

The temporal assignment was drawn from the Woodland I Stemmed points in both strata, and from a pattern in this part of Frederick Lodge in which similar points and thermally altered stone features were consistently associated at comparable elevations (see Block B below). The triangle point recovered from Stratum A was an isolated find, and suggested that site use during the Late Woodland was very limited. Likewise, the Lackawaxen point appeared to represent very limited site use which could not be distinguished from the more substantial Woodland occupation. The levels below the Woodland component in the west part of the block contained too few artifacts for temporal assignment.

The transition between the component levels was not congruent with the break between Stratum A and Stratum B (the base of the plow disturbance), but rose toward the east. That is, the original ground surface, which was part of the dune crest overlooking the bay/basin, appeared to have been higher in the eastern part of the block prior to historical period land clearing and agriculture. Given time and erosion, ground surfaces are subtly but persistently leveled by plowing. Thus, the plow disturbance reached the middle of the Woodland deposition in the western part of the block, spreading portions of the thermally altered stone features within Stratum A, but leaving the bases of the features intact. Plowing cut even further into the Woodland component toward the east, pulling all of the Woodland deposit into the plow zone, leaving only the Middle Archaic deposits intact in Stratum B.

Block B

Block B lay approximately 12-15 m southeast of Block D, also on the crest above the smaller bay/basin feature. The majority of the prehistoric artifacts in Block B lay below the plow zone, with almost 50 percent occurring in the first level of Stratum B (Figure 6-19). Few artifacts occurred below that level. The material in the second level of Stratum C consisted of a single, small flake fragment that was considered an isolated find, probably related to root or rodent disturbance, direct evidence of which was no longer evident.

Chronological data indicated that two prehistoric components were present, one from the early part of the Woodland period, and a second from the latter end of that period. While the components did not appear to have been well separated vertically, the late component was not substantial. The temporal data included three Woodland I stemmed points, recovered from Stratum A; and a Woodland I stemmed point and a triangle point, recovered from the first level of Stratum B. Additional temporal data consisted of an AMS date—150±40 years BP (cal 2 σ AD 1666 to 1953; Beta-149968)—returned on wood charcoal recovered from Feature 2, a thermally altered stone cluster located in the first level of Stratum B. This AMS assay is suspect because the range impinges on the end of the calibration data set (Stuiver and Reimer 1993). The feature was situated in a distinctly prehistoric level of the soil column, but near the boundary with the plow zone. Thus, this assay may represent charcoal introduced to lower levels by post-depositional processes.

Artifact distribution by depth in Block B was tabulated for chipped stone (flakes, chips, bifaces, cores) and thermally altered stone artifacts (Table 6-4). The frequency of heated stone in relation to chipped stone was high (more than 8:1), yet the artifacts were distributed in roughly the same proportions in each excavation level, suggesting uniform artifact content among the main layers. Statistical corroboration was provided by analysis of the count data from Stratum A and the combined levels of Stratum B (χ^2=1.88; *df*=2; *p*=0.17). Analysis of horizontal distributions showed a similar lack of variation. Several thermally altered stone features were identified at the top of Stratum B, and they were clearly visible in the general artifact distribution in Stratum A (Figure 6-20).

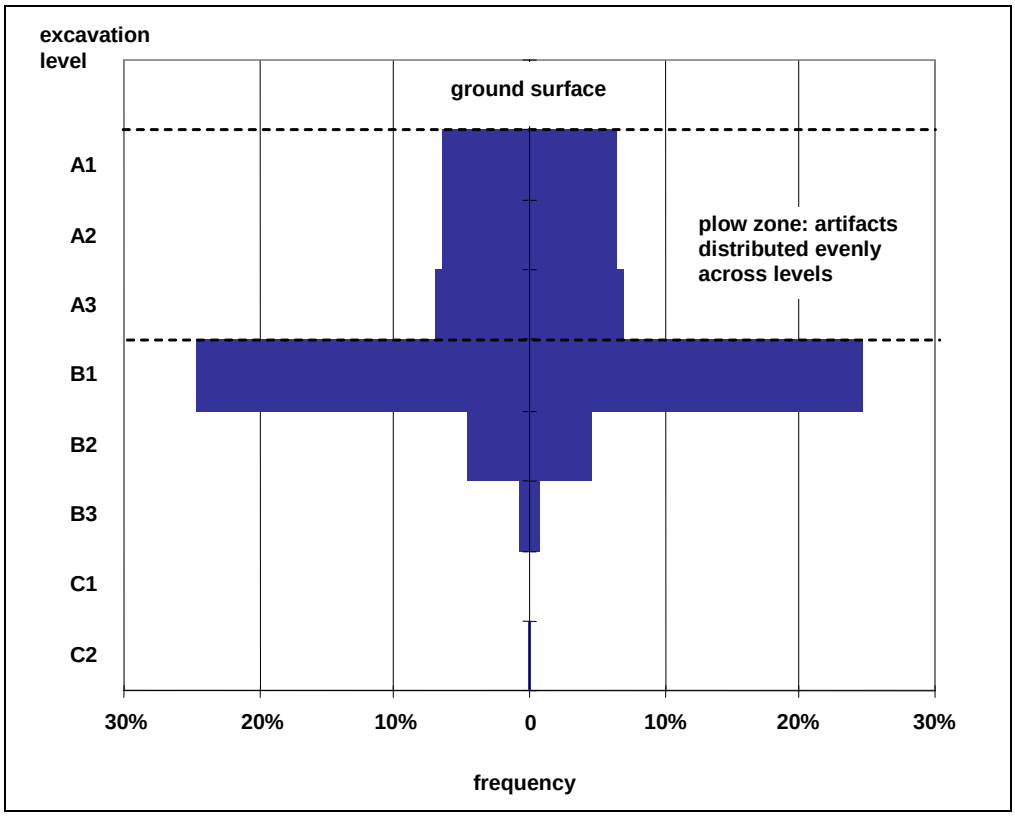


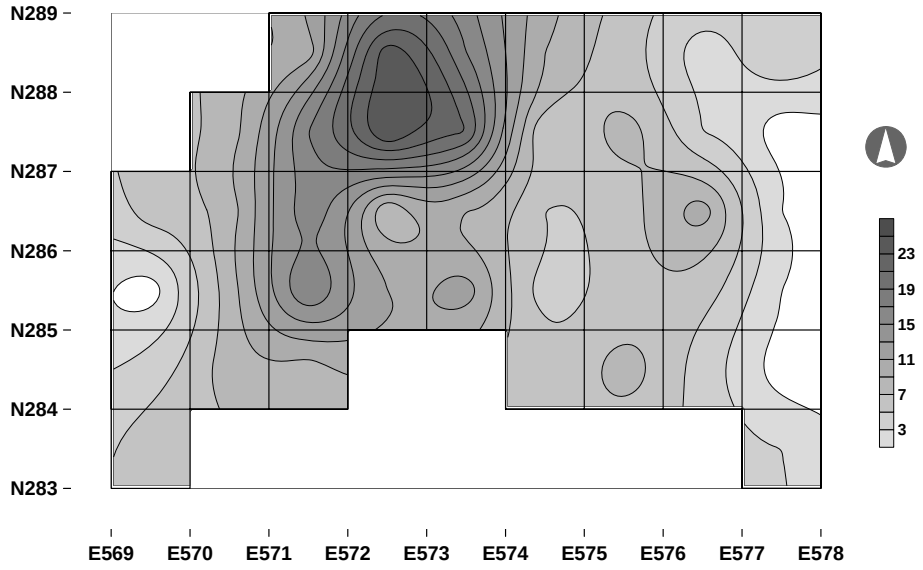
Figure 6-19. Vertical Distribution of Prehistoric Artifacts, Block B.

Table 6-4. Vertical Distribution of Chipped Stone and Thermally Altered Stone Artifacts, Block B.

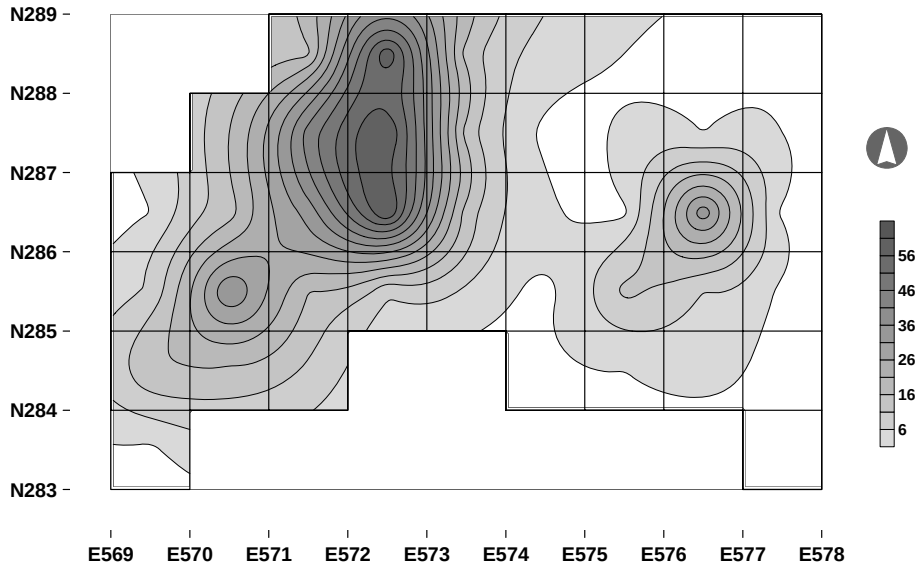
	chipped stone		thermally altered stone	
Stratum A*	49	46%	340	39%
Stratum B1	38	36%	38	36%
Stratum B2	14	13%	14	13%
Stratum B3	4	4%	4	4%
Stratum C1	0	0%	0	0%
Stratum C2	1	1%	1	1%
total	106		865	

*Stratum A consisted of three 10-cm levels combined

In sum, the majority of the prehistoric artifacts in Block B appeared to have been deposited in a vertically restricted zone near the base of the plow zone. The majority of the temporally diagnostic artifact evidence indicated occupation in the early part of the Woodland period. The single triangle point and the general absence of Late Woodland artifacts across the Frederick Lodge Site Complex suggested that use of the area during the Late Woodland was very limited, and that artifact remains from the period would be negligible in terms of component analysis. The lack of vertical and horizontal variation in artifact distributions and the proximity to Block D, where a substantial deposit from the early part of the Woodland was present in similar stratigraphic levels, suggested that the artifacts in Block B represented a single component from the early portions of the Woodland period.



a) Stratum A (n=339)



b) Stratum B (n=522)

Figure 6-20. Thermally Altered Stone Distribution, Stratum A and Stratum B, Block B.

Block G

Block G was located on the toe-slope of the larger bay/basin. The combined levels of Stratum A in this location contained 10 percent of the prehistoric artifacts in the block (Figure 6-21). In excavations across the remainder of the site, Stratum A typically contained a greater proportion of the prehistoric artifacts—40 percent or more. The unusual distribution in Block G may have been related to colluvial build-up at the base of the slope resulting from historical period land clearing and agriculture. Also unusual was an apparently uniform and deep distribution of prehistoric artifacts, with the peak frequency occurring in the third level of Stratum B. Four complete 10-cm levels were recorded in the stratum, and each contained artifacts in a relatively uniform vertical distribution. Over 90

percent of the artifacts consisted of chipped stone. A single projectile point, not temporally diagnostic, was recovered from the second level of Stratum B. In contrast to the uniformity of vertical distributions, spatial analysis indicated separate horizontal distributions in the upper and lower parts of the profile. Spatial analysis suggested that the distributions in the combined levels of Stratum A and the first level of Stratum B were similar, while the lower levels of Stratum B exhibited different concentrations (Figure 6-22).

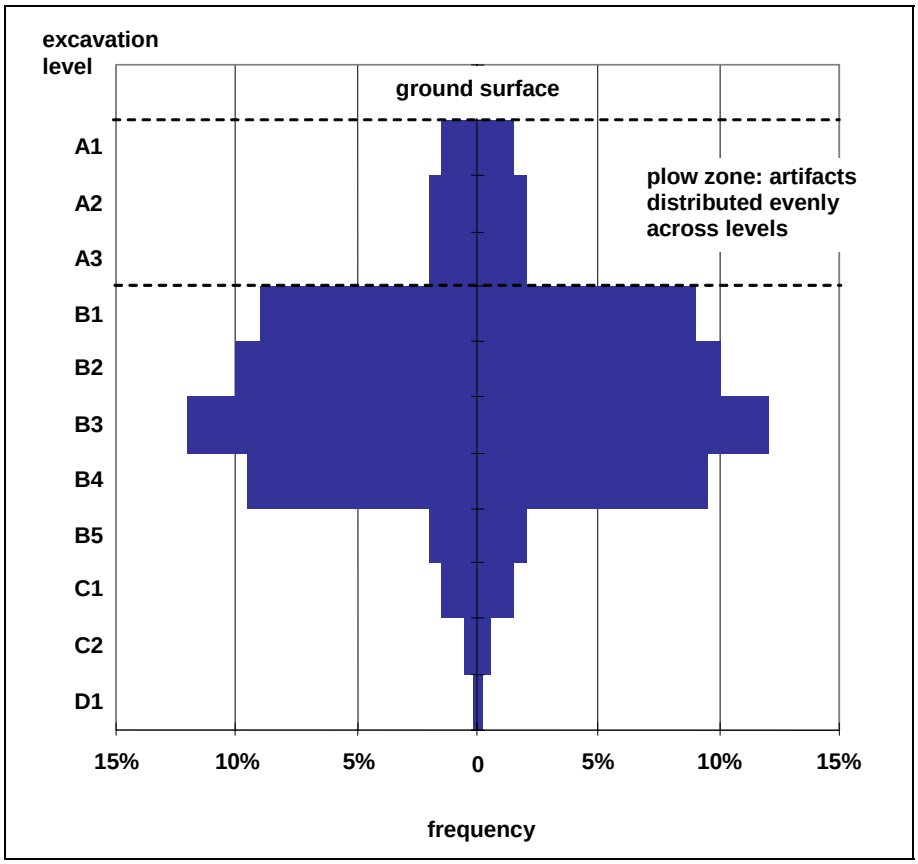


Figure 6-21. Vertical Distribution of Prehistoric Artifacts, Block G.

Horizontal distributions in Block B suggested the presence of more than one layer of cultural deposition in the excavation block, while vertical artifact distributions suggested that stratigraphic integrity had not been maintained in this location. This latter interpretation was corroborated by geoarchaeological investigations that noted a lack of sustained soil formation suggesting surface instability, and by the topographic setting near the foot of the bay/basin slope, in an area that would have been liable to erosion and colluviation. In addition, the absence of clear diagnostic artifact information indicated that separating non-diagnostic artifacts into temporal components for further analysis would not be practical.

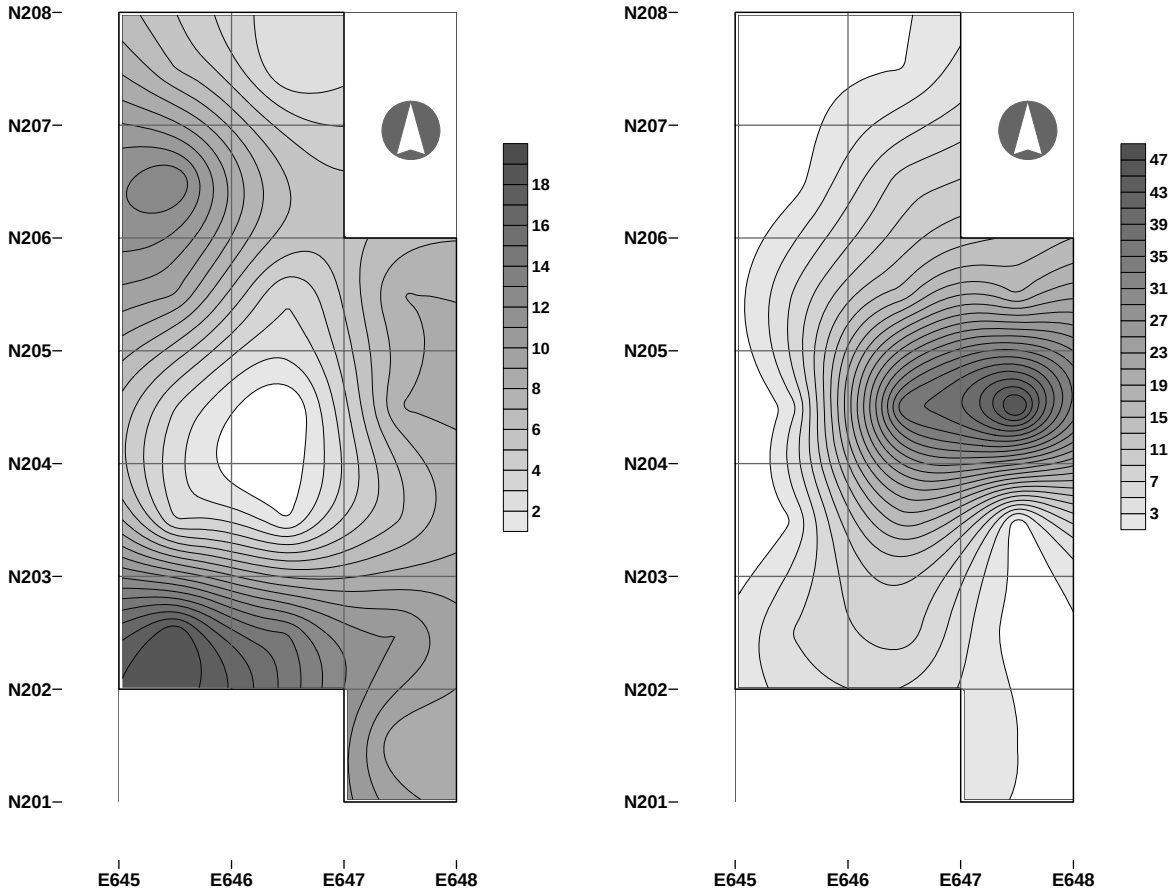


Figure 6-22. Horizontal Distribution of All Prehistoric Artifacts, Stratum A and Stratum B, Block G.

Block H

Block H was situated 12 m to the east of Block G, in a similar topographic situation near the base of the bay/basin slope. Beneath a deep plow zone layer (Stratum A), Stratum B in Block H was less extensive than in Block G, consisting of three 10-cm levels. The vertical distribution of prehistoric artifacts showed a peak in frequency in the second level of Stratum B, generally registering the thermally altered stone fragments in Feature 23 (Figure 6-23). When analyzed separately, the vertical distributions of chipped and thermally altered stone appeared to have been different. Overall, the majority of the chipped stone occurred in Stratum A, and the majority of the thermally altered stone was in Stratum B (Table 6-5). Whether the variation in the two distributions represented different levels of cultural deposition—one high in the profile in the now-disturbed Stratum A, and one still relatively intact in Stratum B, represented by the thermally altered stone feature—was unclear, largely due to the low artifact counts in the excavation as a whole.

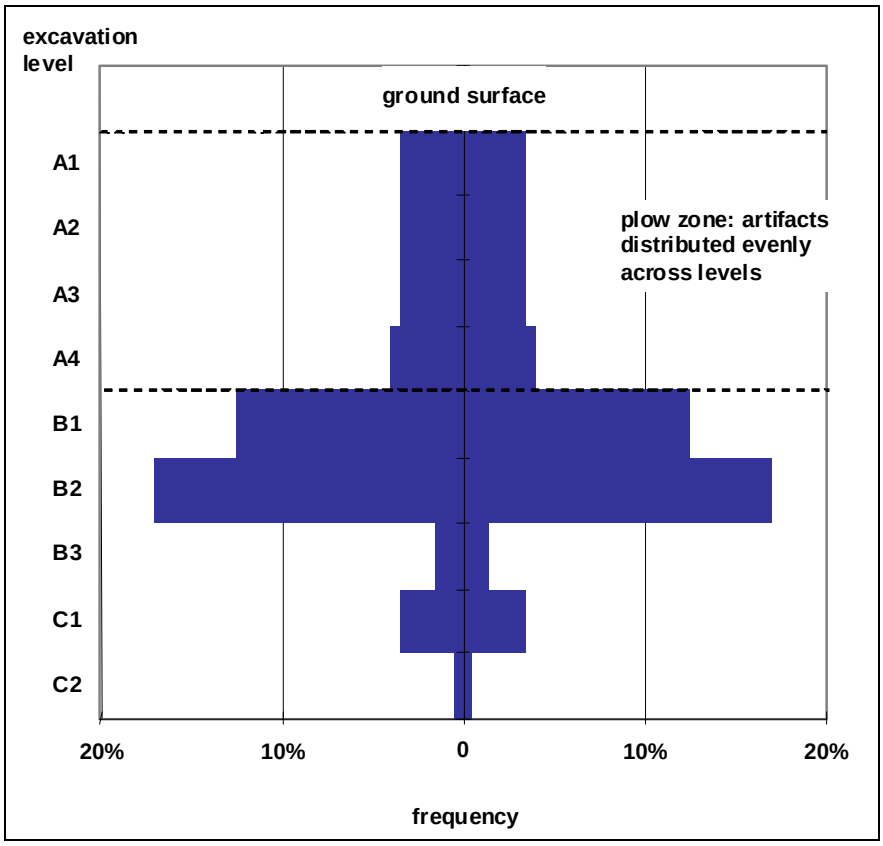


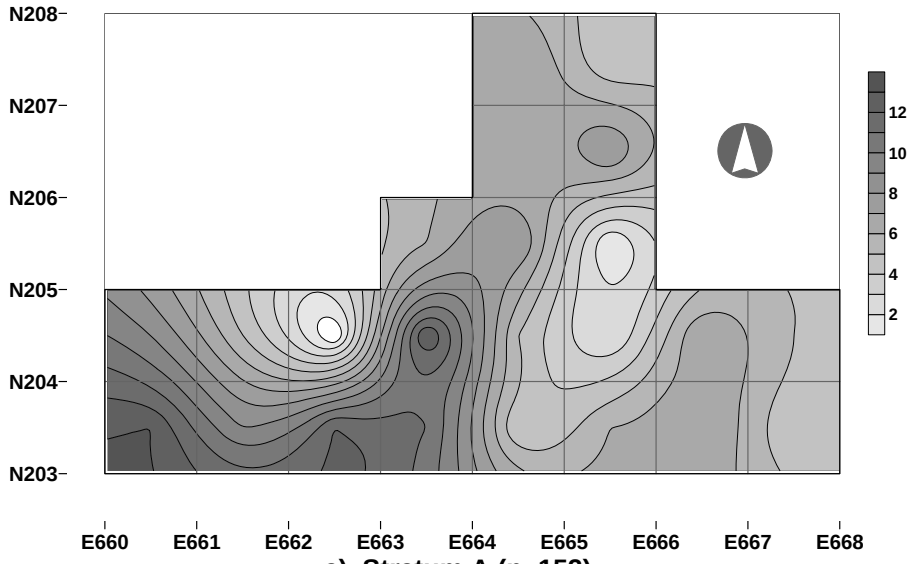
Figure 6-23. Vertical Distribution of Prehistoric Artifacts, Block H.

Table 6-5. Vertical Distribution of Chipped Stone and Thermally Altered Stone Artifacts, Block H.

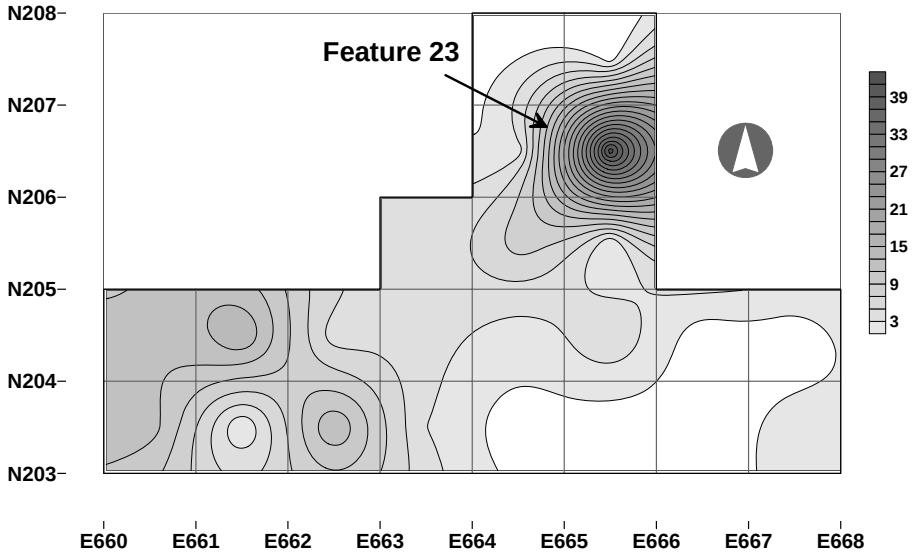
	chipped stone		thermally altered stone	
Stratum A*	49	44%	11	12%
Stratum B1	21	19%	31	33%
Stratum B2	27	24%	44	46%
Stratum B3	11	10%	6	6%
Stratum C1	3	3%	3	3%
total	111		95	

*Stratum A consists of four 10-cm levels combined

Horizontal distribution data added little clarification, since artifact clustering was similar in each level (Figure 6-24). Temporal information from Block H consisted of a Fishtail point recovered from Feature 23, and an AMS date of 2220±40 years BP (cal 2σ BC 387 to 197; Beta-149969), returned on charcoal flecks also recovered from Feature 23. Taken together, the data from Block H suggested the presence of a Late Archaic/Early Woodland assemblage in the sub-plow zone levels. Data from the plow zone could not be confidently included in the assemblage because chronological information was absent and, in most parts of the site, the plow zone contained mainly chronologically later material.



a) Stratum A (n=152)



b) Stratum B (n=130)

Figure 6-24. Horizontal Distribution of All Prehistoric Artifacts, Stratum A and Stratum B, Block H.

Block I

Block I lay on the rim of the larger bay/basin, to the northeast of Block H (Plate 6-2). Vertical artifact distribution differed in comparison with that in the nearby Blocks G and H in that more and apparently older artifacts occurred near the surface in Block I. Sixty percent of the prehistoric artifacts in Block I occurred in Stratum A, a substantially larger proportion than in other parts of Frederick Lodge (Figure 6-25). A marked drop in frequency occurred below that level. Over 99 percent of the artifacts were chipped stone tools or debitage.

Plate 6-2. Block I, on the Larger Bay/Basin Rim.

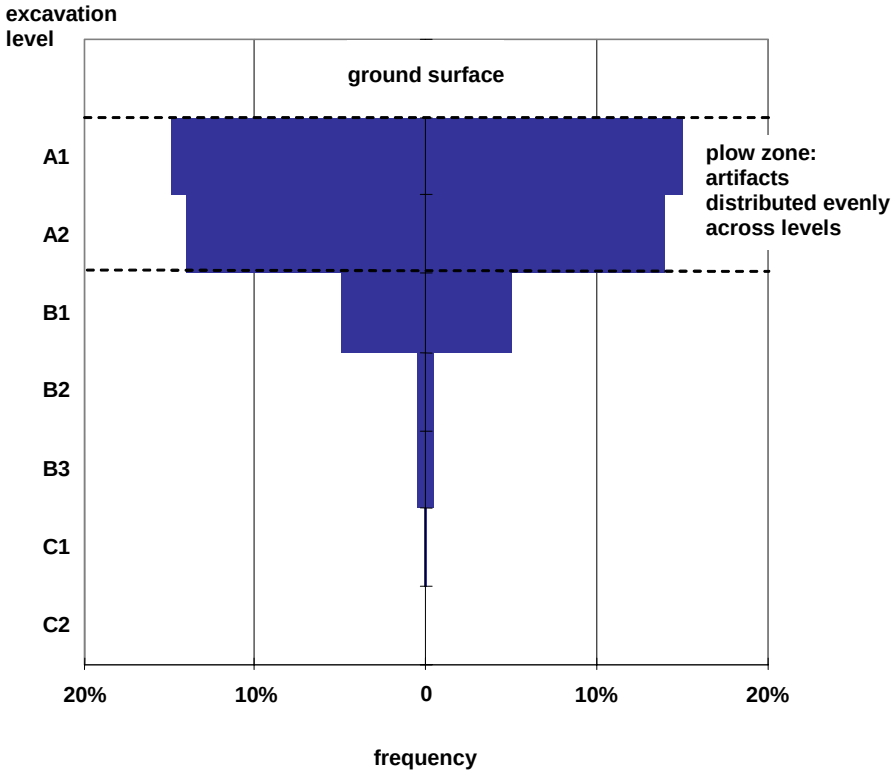
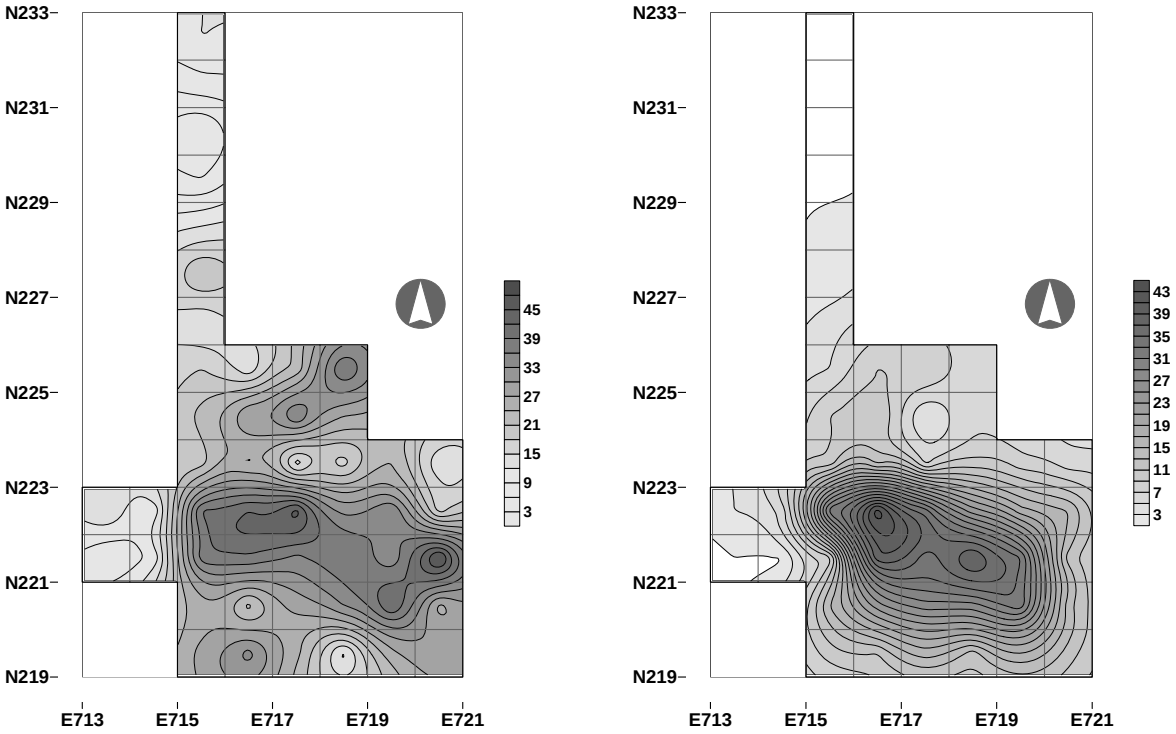


Figure 6-25. Vertical Distribution of Prehistoric Artifacts, Block I.

The horizontal distribution of artifacts did not vary substantially with depth. The main artifact concentrations observed in the first level below the plow disturbance were evident both in the plow zone as well as in the succeeding levels of Stratum B (Figure 6-26), suggesting that the artifacts had been deposited on a plane slightly above the level of the plow line. While plowing had disturbed the original level, horizontal movement of artifacts did not appear to have been significant. Geoarchaeological interpretation indicated that the sub-plow zone sediments in Block I were older than those in Block G—identified as AU-2a (Middle Archaic) in Block I; AU-2b (Late Archaic-Early Woodland) in Block G—with the implication that the upper portion of the profile in Block I had been truncated by erosional processes. And in fact, Block I was situated on the western edge of a wide saddle that represented a cut in the dune formation where runoff had resulted in gullying and other evidence of extensive reworking of surface deposits. Temporally diagnostic artifacts from Block I consisted of two bifurcate points. Given the well-contained nature of the horizontal distribution, the artifact assemblages appeared to have been the remnant of a single component occupation from the early portion of the Middle Archaic.

Block K

The easternmost excavation, Block K, contained data suggesting mixed deposition in portions of the Frederick Lodge Site Complex on the far northeastern rim of the large bay/basin (Plate 6-3). Prehistoric artifact frequencies were high, with over 970 artifacts recovered from the excavation. The vertical distribution of the material peaked in the uppermost level of Stratum B, and gradually decreased with depth (Figure 6-27). Mapping of horizontal artifact distributions indicated little variation in artifact clustering between the strata (Figure 6-28).



a) Stratum A (n=1,202) **b) Stratum B (n=682)**

Figure 6-26. Horizontal Distribution of All Prehistoric Artifacts, Stratum A and B, Block I.

Plate 6-3. Block K, on the Eastern Crest.

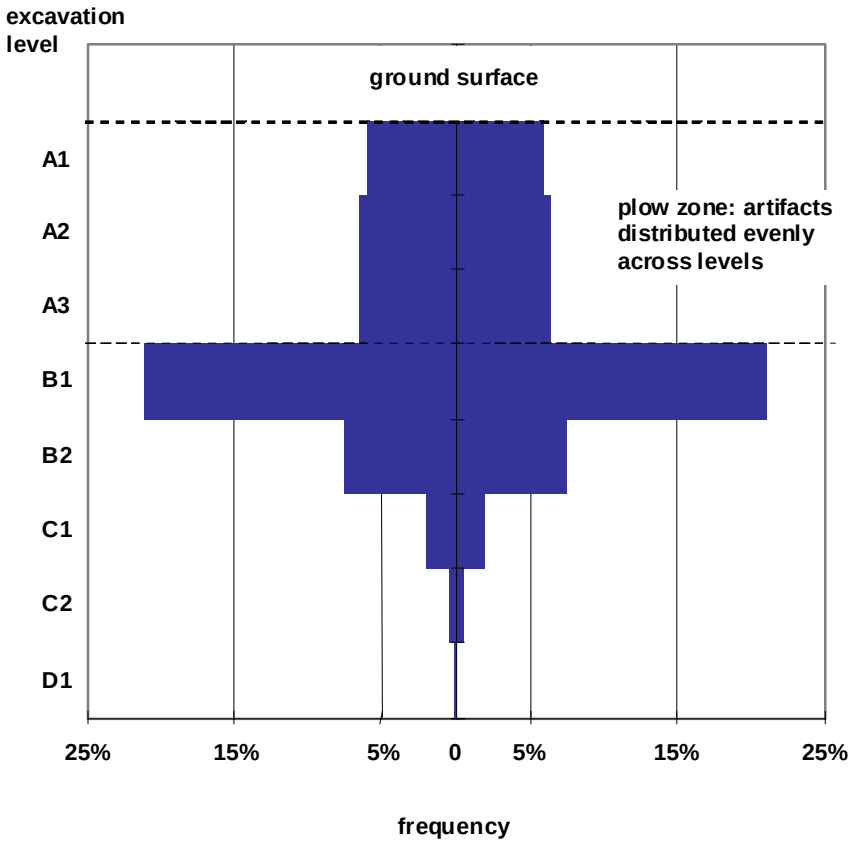


Figure 6-27. Vertical Distribution of Artifacts, Block K.

Seven points had morphological affiliations with chronologically diagnostic types, including: in Stratum A, Morrow Mountain II and Piscataway points, and a Late Archaic broadspear; and, in Stratum B: bifurcates and a Piscataway point. The time ranges associated with the points, the Middle Archaic through the early portions of the Woodland period, implied mixed artifact assemblages in both strata. An AMS date of 1200±40 years B.P. (cal 2 σ AD 689 to 948; Beta-150338) was returned on a bulk soil sample from the second level of Stratum B. The date appears to have been younger than the actual age of the sediment layer. In the final interpretation, non-diagnostic artifacts could not be separated into discrete temporal components because of mixing in the cultural stratigraphy in Block K.

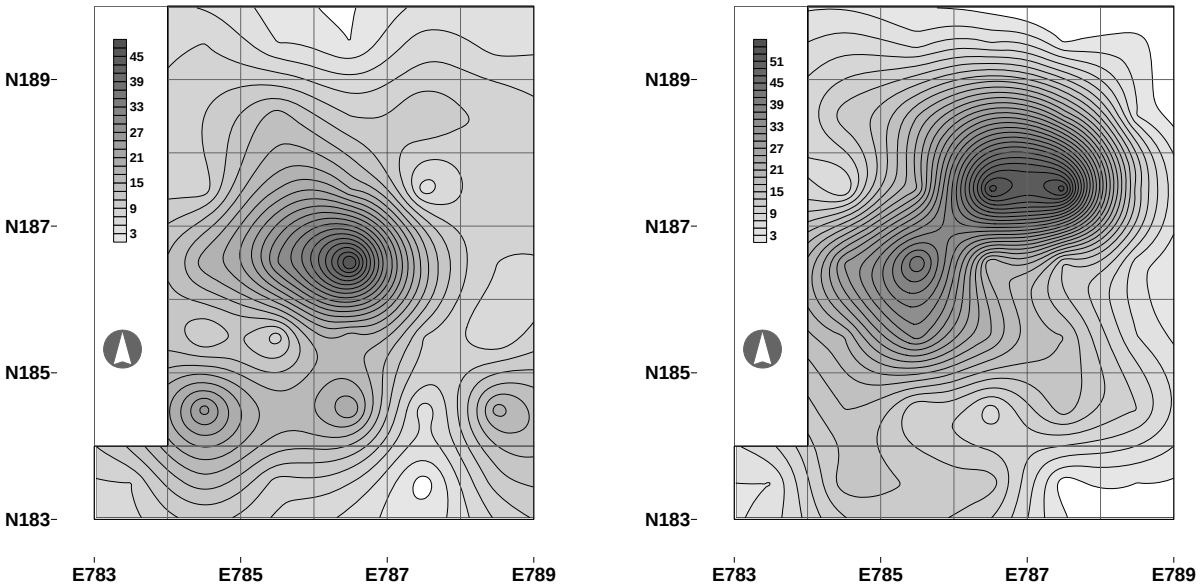


Figure 6-28. Horizontal Distribution of All Prehistoric Artifacts, Stratum A and B, Block K.

6.2.3 Temporal Components

At least four temporal components were identified at Frederick Lodge. Chronologically diagnostic artifacts indicated American Indian use of this landscape during: 1) the Middle Archaic, represented by bifurcate and Morrow Mountain II points; 2) the Late Archaic, represented by Bare Island, Lackawaxen, Fishtail, and untyped broadspear points; 3) the Early/Middle Woodland, represented by small, stemmed points referred to as Woodland I Stemmed, Piscataway points, and a Wolfe Neck ceramic sherd (from the Phase II surface collection); and 4) the Late Woodland, represented by triangle points. Only two of these components, the Middle Archaic and Early/Middle Woodland deposits, were extensive and exhibited sufficient stratigraphic separation in certain areas of the Frederick Lodge Site Complex to allow the isolation of non-diagnostic artifact assemblages for additional analysis. One cultural feature from Block H, Feature 23, also produced a radiocarbon assay (Beta-149969) that fell into the Early Woodland period (2220±40 BP; cal 2 σ BC 387 to 197).

The individual temporal components are described below on the basis of their constituent elements. The elements included diagnostic artifacts, identified on the basis of stylistic attributes and conventional type designations. The artifacts are illustrated and described

briefly in the following section. Detailed descriptive and comparative data for all point types can be found in Appendix F. Other elements comprised features and non-diagnostic artifacts, included on the basis of contextual associations. It is worth reiterating here the distinction between component and assemblage, particularly as these terms are used in the current study. *Component* refers to all of the artifacts and features from a particular time period considered as a whole; components resemble intra-site temporal horizons, although without a specific spatial dimension. In comparison, *assemblage* is a more limited term, referring to artifacts grouped both chronologically and spatially, i.e., of "the same age and from the same locality" (Binford 1983:5; Eddy 1984:83).

Middle Archaic

The Middle Archaic component consisted of two distinct artifact assemblages and 15 points conforming to conventional types associated with the time period. The points were distributed across the landform and were recovered from surface proveniences as well as from excavated contexts. The artifact assemblages, in contrast, were from contexts in two block excavations, one in Block D, the other in Block I. No features occurred in association with either of the artifact assemblages.

Middle Archaic: Points

Two points types characteristic of the Middle Archaic period were recovered: bifurcates (n=12); and Morrow Mountain II (n=3). Of these, seven bifurcates and the three Morrow Mountain II points were recovered from surface proveniences or other temporally mixed deposits. These points are described in the following paragraphs. The four remaining bifurcate points were from distinct artifact assemblages and will be described separately along with their related artifact groups.

Morphologically, the bifurcate points fit well within the range of variation noted in descriptions of the LeCroy bifurcate type (Appendix F). The points were generally small and thin in cross section (Plate 6-4). The blades, most of which were heavily resharpened, were triangular in form and exhibited serrated edges. Bifurcate points were recovered from all areas of the site complex except the bay/basin toe-slope. Five specimens (#16-3, #61-2, #539-6, #645-3, #630-7) were recovered from surface contexts isolated from the main artifact concentrations at the site, while two (#619-13, #1057-5) were from excavated contexts that were temporally mixed. With two exceptions, the points were made from cryptocrystalline material. Four of the cryptocrystalline examples were complete, although they displayed varying evidence of reworking that had reduced the lengths of most of the blades and often produced lop-sided shapes. The fifth cryptocrystalline point (#619-13) consisted of a blade segment with serrated edges. The base had snapped across the neck of the hafting element, leaving only part of the notching visible below both shoulders. The cross section of the blade and the flaking patterns in evidence were similar to those on other bifurcate points from the site. These parallels, together with the serrated blade edges, allowed the specimen to be included in the bifurcate type with reasonable confidence. Of the two non-cryptocrystalline points, #539-6 was a rhyolite example, and #1057-5 was made from argillite. In both cases, snap breaks had removed large portions of the blades.

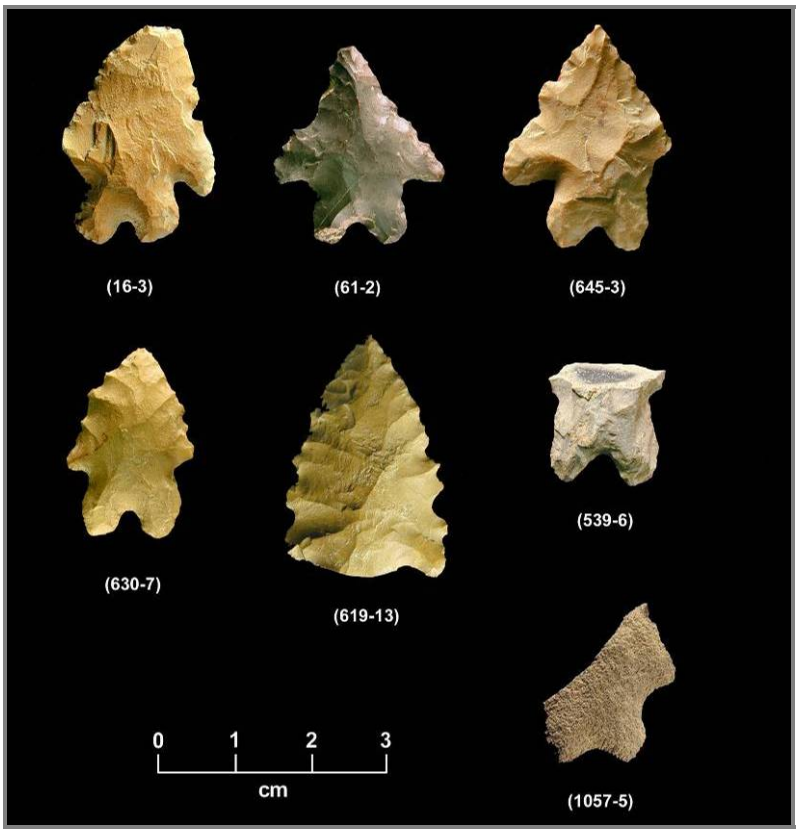


Plate 6-4. Bifurcate Points from Surface Proveniences or Mixed Contexts.

The Morrow Mountain II points were small, and exhibited characteristic resharpening that had rendered the blades only slightly longer than the stems (Plate 6-5). The points were recovered from separate parts of the site. Artifact #432-1 was recovered from a buried but temporally mixed context at the western end of Block D. A second specimen (#262-3) was found on the surface along the rim of the larger bay/basin. The third specimen (#1077-4) was recovered from temporally mixed contexts in Block K, at the eastern end of the site.

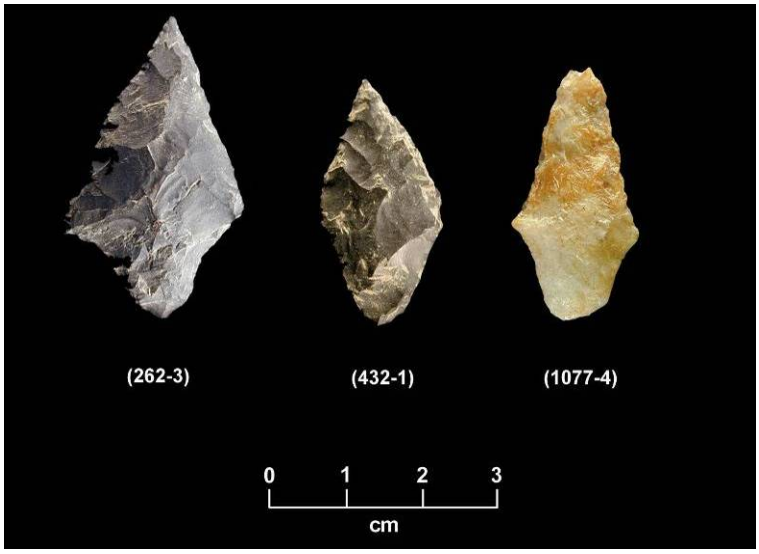


Plate 6-5. Morrow Mountain II Points from Surface Proveniences or Mixed Contexts.

Middle Archaic: Artifact Assemblages

Two distinct Middle Archaic artifact assemblages were identified at the Frederick Lodge Site Complex, one in Block D and the other in Block I. The two assemblages are detailed as follows.

Block D

Artifacts: Block D

The Middle Archaic artifact assemblage from Block D totaled of 391 items, comprised predominantly of flakes and chipped stone tools. The artifact types are summarized in Table 6-6. Representative artifacts are illustrated in Plate 6-6.

Table 6-6. Prehistoric Artifact Types in Middle Archaic Assemblage, Block D.

	count	frequency
point	3	<1 %
biface (late stage)	1	<1 %
flake tools	6	2 %
flaking debris	366	94 %
thermally altered stone	15	4 %

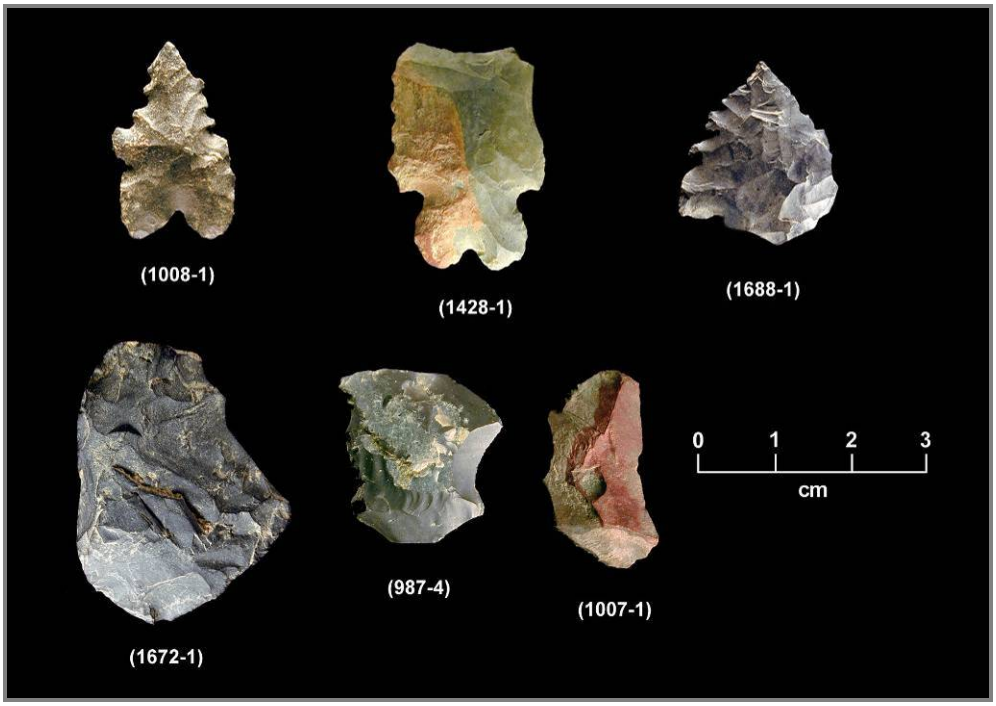


Plate 6-6. Middle Archaic Artifact Assemblage, Block D
(top row: bifurcate points; second row: late stage biface, flake tools).

Points. Three bifurcate points were included in the assemblage. Artifact #1008-1 was manufactured of gray chert. The blade had been resharpened to the extent that it was narrower than the base. Blade edges were distinctly serrated. The edges of the hafting element were dulled, as were the distal tip and the ends of the serrations. The second

specimen (#1428-1) was made on a jasper flake, and one face displayed little invasive flaking on the blade. The distal end and part of one of the blade edges had been removed at a perverse snap break, a twisting diagonal or spiral break (Purdy 1975). The hafting element and the ends of the surviving serrations were dulled. The third specimen (#1688-1) was also manufactured from gray chert. Both basal lobes of the base and one shoulder were missing at a perverse snap break. The blade had been extensively reworked, although the tip remained sharp and acute (the blade edges slightly concave at the extreme distal end), and the lower portion of the blade was serrated. The edges of both the tip and serrations were dulled.

Biface. A single chert biface (#1672-1) was present in the assemblage (#1672-1). It showed evidence of unpatterned percussion flaking and an extensive perverse fracture that had removed most of one lateral edge. The artifact measured 35.5 mm in length, and although width and thickness measurements were incomplete, a width/thickness ratio of 3.2 was calculated from existing dimensions. No usewear was detected on any of the bifacial edges or breaks. The biface was thought to represent a manufacturing reject, indicating bifaces production on the site.

Flake Tools. Four expedient flake tools, three of chert and one of jasper, were present in the assemblage. Two showed evidence of modification in the form of retouch along one edge, while two had been used without modification. Usewear consisted mainly of scalar flaking on the dorsal face of one or more edges. One tool (#1007-1) showed evidence of heat alteration in the form of reddening and minor potlidding. The wear patterns cross-cut several potlids, indicating that the flake had been used after it was heated. Since there was no evidence of systematic heat treatment of chipped stone in any components at the site, the heating was assumed to have been incidental. Both cortical and non-cortical flakes were utilized for flake tools.

Flaking Debris. With 366 items recovered, flaking debris accounted for 91 percent of the total number of artifacts in the Middle Archaic artifact assemblage in Block D. Chert was the dominant material, accounting for 52 percent of the total. Jasper comprised 39 percent, and quartz eight percent. A single piece of quartzite flaking debris was recovered.

The size-grade distribution of flakes (n=310) is illustrated in Figure 6-29, indicating that the distributions of cryptocrystalline types were similar, with slightly more small jasper flakes present than chert. While the curve for quartz flakes was based on a small sample (n=19), the distribution suggested larger flakes. Average weights per size grade in the Block D assemblage (Table 6-7) confirmed that smaller flakes of each material type (size-grades 1-3) were similar in overall size, while large quartz flakes appeared to have been thicker.

A marked difference in cortex percentage was observed between chert and jasper flakes. Only nine percent of chert flaking debris exhibited cortex, while over 40 percent of jasper flaking debris was cortical. The high frequency of cortex on jasper debris suggested the primary reduction of pebbles and small cobbles, probably collected locally from exposed gravel deposits. The lower frequency of cortex among chert flakes may indicate that some of the material was introduced to Frederick Lodge in already reduced form, whether from regional gravel sources or extra-regional primary outcrops was unclear. Few bifaces,

unfinished tools, or points occurred in the assemblage. The low proportion of these artifact types in relation to the frequency of flaking debris implied that the full range of biface manufacture was not represented. Thus, the primary reduction that was in evidence appeared to have been associated with flake tool manufacture.

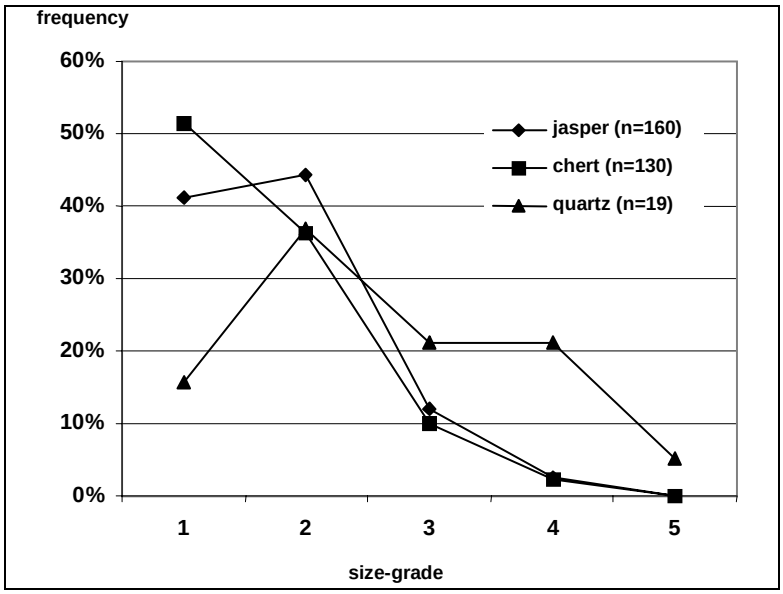


Figure 6-29. Flake Size Distribution, Middle Archaic Assemblage, Block D.

Table 6-7. Average Weight of Flakes by Size Grade, Middle Archaic Assemblage, Block D.

	average weight		
s-grade	chert	jasper	quartz
1	0.14	0.11	0.13
2	0.43	0.36	0.44
3	1.98	1.74	2.70
4	4.30	3.57	9.55
5	--	--	12.90

Thermally Altered Stone. A limited amount of thermally altered stone was present. Of the 15 items recovered, ten were quartzite and five were quartz. Fragment size was small, with quartzite fragments averaging 62 g, and quartz fragments averaging 15 g.

Spatial Analysis: Block D

Spatial distribution of the Middle Archaic artifact assemblage in Block D was characterized by a distinct concentration of flaking debris in the eastern end of the block (Figure 6-30). The distribution was clearly recognized during field work, and excavation strategies were developed to fully document the boundaries of the distribution. The artifact concentration was centered in the unit at N295/E554, where counts exceeding 60 artifacts per square meter were recorded. The concentration was comprised largely of chert flakes. A second concentration, mainly of jasper flakes, occurred to the northwest, centered at N296/E550. Quartz flakes were scattered across both concentrations. Artifact frequencies decreased

dramatically beyond these two main artifact clusters. Tools were recovered in areas generally south and southwest of the two concentrations, not overlapping them. Of the flake tools in the assemblage, the three chert tools occurred in association with the main chert flake concentration, while the jasper tool occurred with the jasper concentration to the northwest. Whether the coincidence of flaking debris and flake tools was fortuitous or indicated *de facto* linkage of manufacturing and processing activities could not be determined with certainty. It is possible, for example, that flakes of sizes and shapes appropriate to specific tasks were selected from the debris in each area, used on the spot, and were discarded in the same location. The activities in this part of the site did not appear to have been fire-related: only a limited amount of thermally altered stone was present in the area, occurring as one or two fragments per square meter in no discernable spatial pattern.

The discrete, well-bounded distribution of lithic debris and tools in the assemblage implied that the original depositional pattern of the Middle Archaic artifact distribution had been largely maintained. This observation was supported by the apparent separation of chert and jasper flakes, suggesting the presence of distinct, if closely related, knapping areas. The areas with low artifact density near the main artifact concentrations probably represented domestic or living space, while the concentrations themselves represented either work areas or secondary disposal locations.

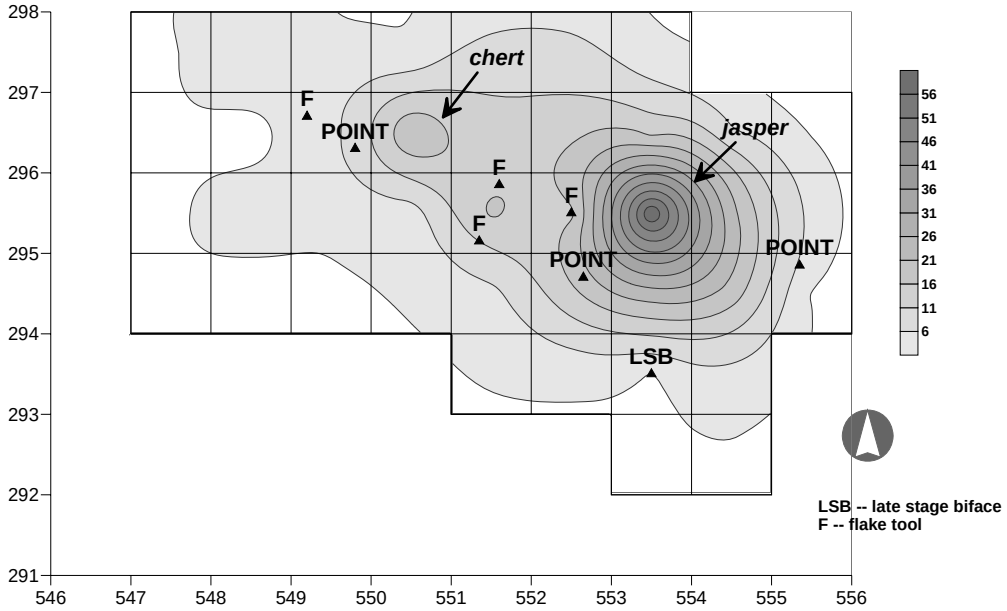


Figure 6-30. Middle Archaic Assemblage Distribution, Block D.

Block I

Artifacts: Block I

The second Middle Archaic assemblage was recovered in Block I, located along the rim of the larger bay/basin. Artifact types are summarized in Table 6-8, and representative artifacts are illustrated in Plates 6-7 and 6-8. Like the Middle Archaic assemblage in Block D, the artifacts consisted mainly of chipped stone, heavily dominated by flaking debris. Very little thermally altered stone was present.

Table 6-8. Prehistoric Artifact Types in Middle Archaic Assemblage, Block I.

	count	frequency
points	2	<1%
biface (late stage)	3	<1%
biface (early stage)	3	<1%
flake tools	28	2%
uniface	2	<1%
hammerstone	1	<1%
pestle	1	<1%
flaking debris	1,729	97%
core	1	<1%
thermally altered stone	13	1%
total	1,783	

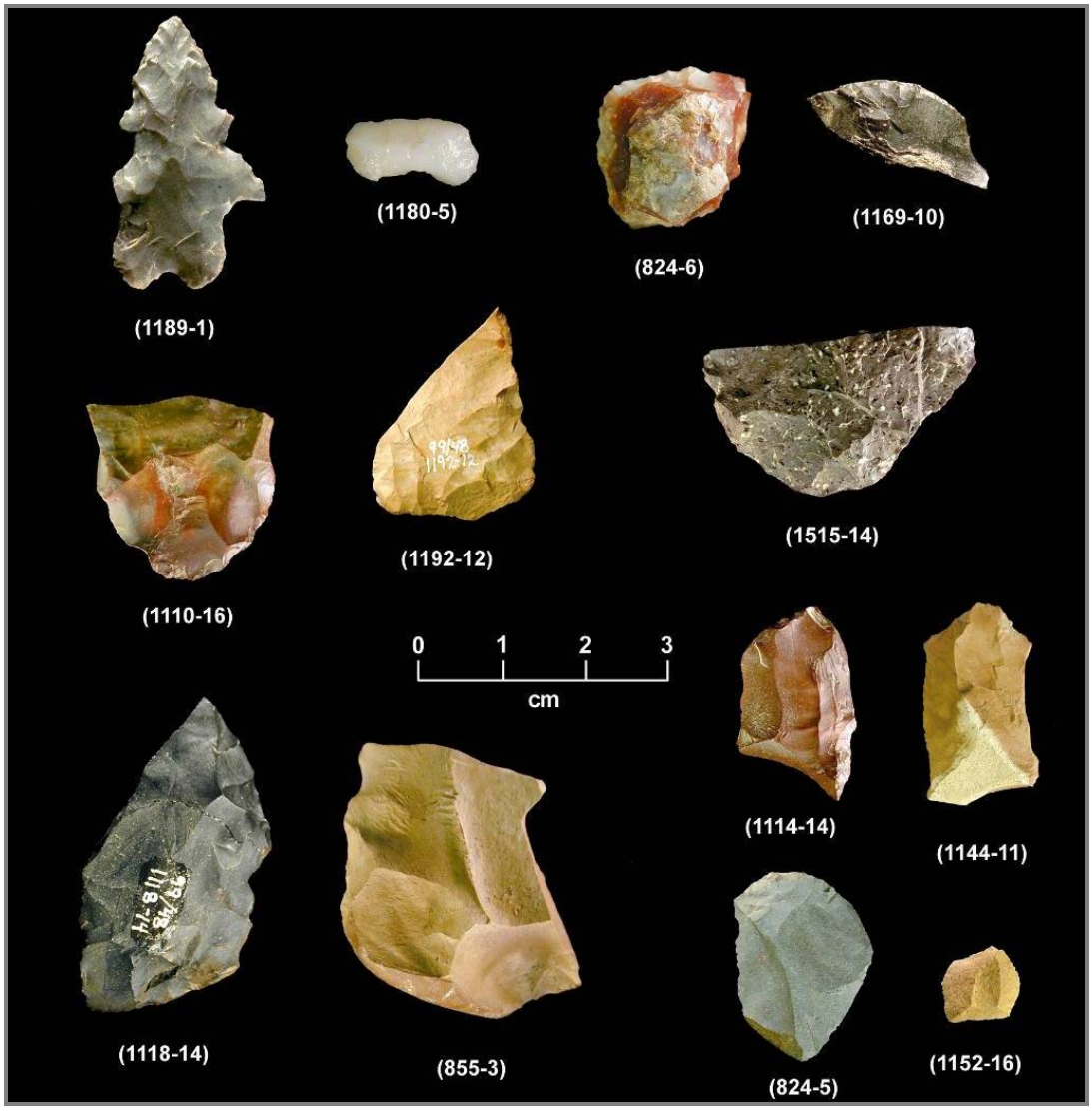


Plate 6-7. Middle Archaic Artifact Assemblage, Block I
(top row: bifurcate points, unifaces; second row: late stage bifaces; third row: early stage bifaces, flake tools).

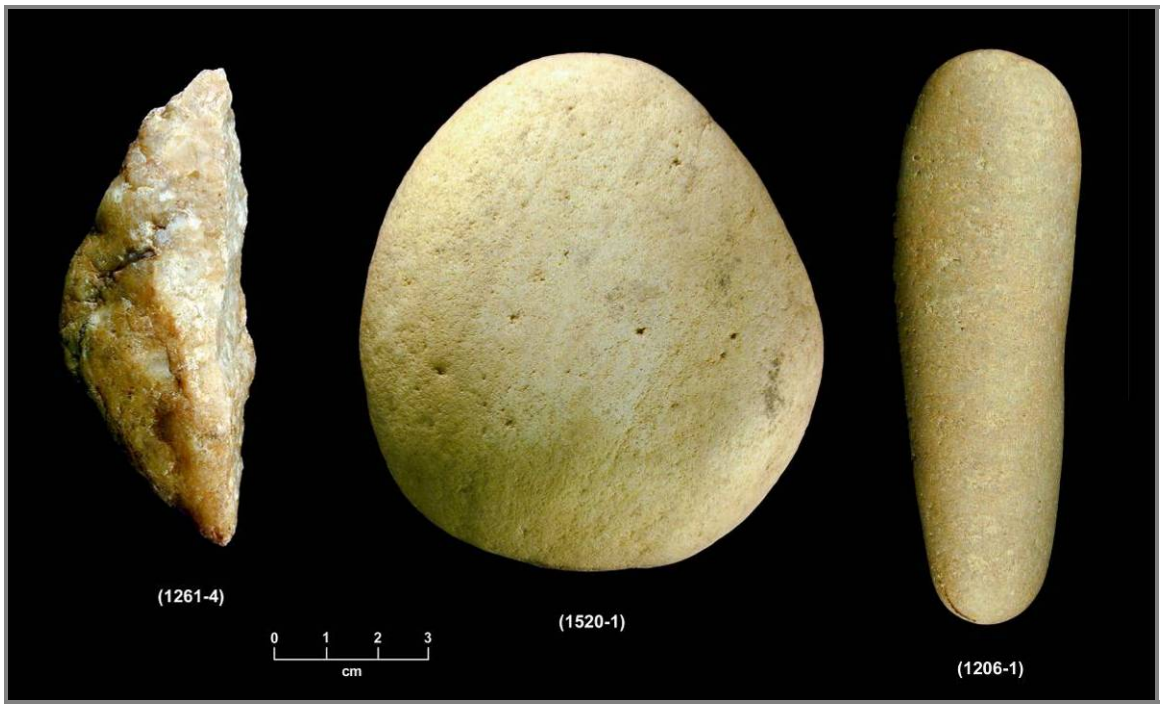


Plate 6-8. Middle Archaic Artifact Assemblage, Block I.
(core, hammerstone, pestle)

Points. Two points were recovered as part of the Middle Archaic assemblage in Block I. One (#1189-1) was manufactured of gray chert. The specimen had been extensively resharpened: one shoulder was missing and the blade edge extended parallel to the long axis of the point. No evidence of dulling or other wear was noted on the blade edges, although the edges of the hafting element were dulled, probably as a result of haft wear. The second specimen (#539-6) consisted of the base of a point made from milky quartz. The distal end of the artifact was missing at a snap break that had occurred at the neck. Minor abrasion was noted on the base.

Bifaces. Six bifaces occurred in the assemblage. Three (#855-3, #1118-14, #1172) were classified as early stage bifaces; the remaining three (#1110-16, #1192-12, #1515-14) were classified as late stage bifaces. All of the artifacts were fragmentary and appeared to have been from small bifaces. The early stage bifaces were broken along perverse fractures that in each case had removed one end and most of one lateral edge. One (#855-3) retained extensive pebble cortex on the surviving end and side. Edge angles ranged from 45 to 76 degrees. The late stage bifaces each had broken transversely along snap breaks or long bending breaks. Edge angles ranged from 36 to 56 degrees. All of the bifaces appeared to have been manufacturing rejects. None showed evidence of usewear with the exception of one early stage biface (#1118-14), on which a small, protruding spur bore a rounded edge, suggesting use in a graver-like function.

Uniface. Two unifacial tools were recovered (#824-6, #1169-10). One (#824-6) was a small bipolar flake or core fragment on which several steep bit edges had been formed. Minor scalar flaking and step-fracturing was observed along several parts of the edge that may have been the result of retouch that formed the bit. Little other evidence of use was noted. The

second specimen (#1169-10) consisted of a chert flake fragment with minor retouch along one edge. Unifacial scalar flaking, minor step-fracturing, and edge rounding implied use as a scraping tool, probably against a soft substance, such as hide or vegetal material. The proximal end of the artifact was missing at a transverse snap break, which coincided with a material flaw. *Core*. The assemblage included a single core fragment (#1216-4), a tabular cobble of grainy quartz that had been split using bipolar percussion. Crushed platforms were noted on opposing surfaces of the artifact. No additional systematic flaking had been attempted, suggesting that the cobble had been tested and rejected, probably due to the poor knapping quality of the stone. This is one of the clearest examples of an individual's actions—agency as it were—from the Frederick Lodge Site Complex.

Flake Tools. Expedient tools in the assemblage consisted of 28 utilized flakes. Of these, five showed evidence of modification in the form of retouch along one edge, while the remaining 23 had been used without modification. Usewear consisted mainly of scalar flaking on the dorsal face of one or more edges. Edge angles ranged from 39 degrees to 77 degrees (mean value 60 degrees). Eight of the flake tools showed evidence of edge rounding. Among these tools, edge angles were generally higher than those measured on tools with unrounded edges, averaging 68 degrees (discounting statistical outliers of 39 and 50 degrees). Raw material frequencies among the flake tools roughly paralleled the overall frequency among flakes—17 jasper, 10 chert, and one quartz—implying no selection for specific materials.

Flaking Debris. Flaking debris accounted for 97 percent of the artifacts in the assemblage. Jasper and chert dominated the assemblage in terms of raw material frequency, representing 49 percent and 40 percent of the 1,729 artifacts respectively. Quartz comprised nine percent of the total, while a variety of other lithic types, including argillite, chalcedony, greenstone, ironstone, quartzite, and rhyolite, made up the remainder.

The size-grade distribution of flakes (n=1,573) was similar to that among flakes in the Middle Archaic assemblage in Block D: the majority of the artifacts occurred in the first two size grades, while quartz flakes appeared slightly larger on average (Figure 6-31). Calculation of the mean weight of flakes per size grade (Table 6-9) indicated that quartz flakes were consistently heavier, particularly in the smaller grades, implying that they were generally thicker than cryptocrystalline flakes.

Differences in cortical frequencies among the material types were not as pronounced as in the assemblage in Block D. Jasper flakes again showed the highest frequency of occurrence of remnant cortex, at 38 percent, while 22 percent of chert flakes and 15 percent of quartz flakes retained cortex. Together, the data suggested that primary reduction of locally available pebbles and cobbles was common among all three materials. The small number of complete or unfinished bifacial tools implied little biface manufacture, suggesting that the reduction was aimed at flake tool production. More detailed analysis was conducted on a sample of flakes from the assemblage: the results are included in Section 7.4.

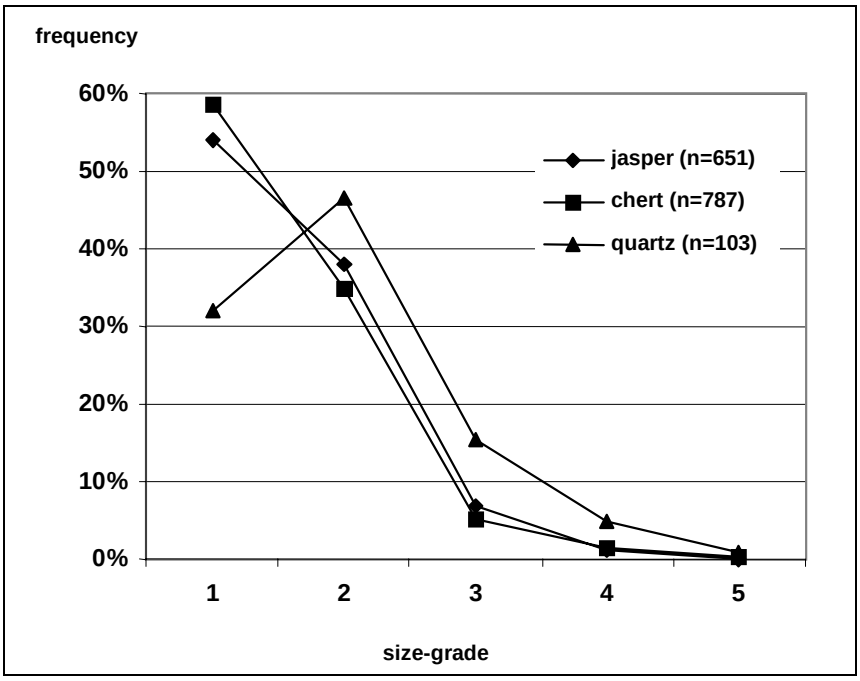


Figure 6-31. Flake Size Distribution, Middle Archaic Assemblage, Block I.

Table 6-9. Average Weight of Flakes by Size Grade, Middle Archaic Assemblage, Block I.

	average weight		
s-grade	chert	jasper	quartz
1	0.11	0.11	0.23
2	0.43	0.44	0.98
3	1.54	1.45	3.39
4	5.32	6.64	7.28
5	11.3	--	19.90

Ground or Pecked Stone. Two additional lithic tools from the assemblage included a hammerstone (#1520-1)) and a pestle (#1206-1). The hammerstone (#1520-1) consisted of a large quartzite cobble (length 105 mm; width 93 mm; thickness 49 mm; weight 672 g) with battering on two edges. The pestle consisted of a small, elongated quartzite cobble (length 114 mm; width 39 mm; thickness 25 mm; weight 165 g) that was slightly wider at one end. Battering was noted at the wider end.

Thermally Altered Stone. A limited amount of thermally altered stone was recovered. Of the 13 specimens recovered, seven were quartzite and six were quartz. The fragments were small, the quartzite averaging 56 g, and the quartz averaging 27 g.

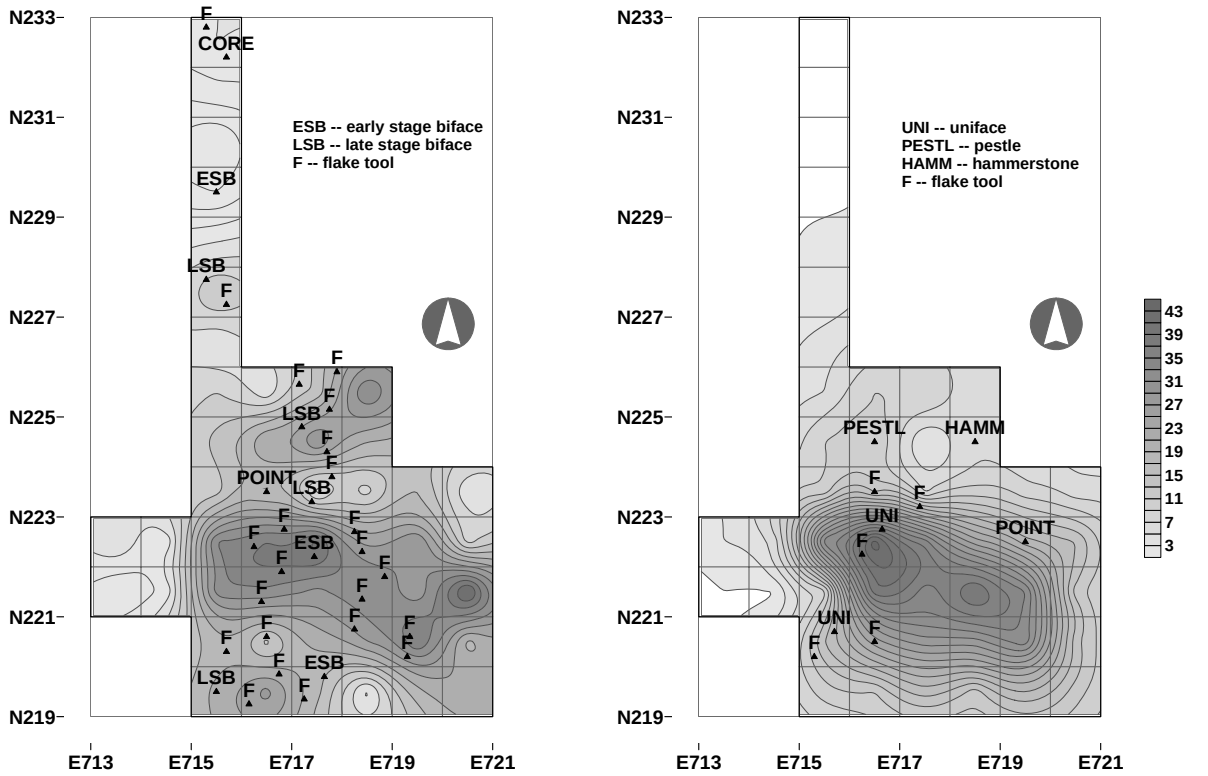
Spatial Analysis: Block I

The dominant spatial characteristic of the Block I Middle Archaic assemblage was a concentration of flaking debris in the center of the excavation area. The pattern was recognized during excavation, and strategies were developed to determine the boundaries of the concentration. Unlike the Middle Archaic assemblage in Block D, which lay below the

plow disturbance, the deposits in Block I had been split by plowing. Figures 6-32a and 6-32b show the plow zone and sub-plow zone artifact distributions in Block I.

Focusing first on the unplowed portion of the distribution, contained in Stratum B (Figure 6-32b), the main concentration of flaking debris was centered in two units: N222/E716 and N221/E718. The flakes were comprised equally of chert and jasper, and the individual distributions of the materials were roughly the same, showing no indication of work areas separated by lithic material type. Tools in the deposit included unifaces, flake tools, a point, a hammerstone, and a pestle. All of the tools were situated either north or southwest of the flake concentration. Patterned variation in the distribution of flake sizes or in the frequency of cortical flakes, such as might signal an area of primary cobble or pebble reduction in association with the hammerstones, for example, could not be demonstrated.

In comparison, artifact distributions in the plow zone were more scattered (Figure 6-32a), although similarities were noted with the less disturbed Stratum B distribution. The central concentration of flaking debris was more diffuse in Stratum A, and it appeared to have been spread farther to the east and north by the agricultural disturbance. But with the exception of several flake tools, most of the tools recovered from Stratum A were north and south of the main concentration, in the same general orientation as in Stratum B. As in the Middle Archaic assemblage in Block D, activities in this part of Frederick Lodge did not appear to have been associated with fire: the limited amount of thermally altered stone present in the assemblage was scattered across the excavation block in no discernable pattern.



a) Flaking Debris and Tools in Stratum A **b) Flaking Debris and Tools in Stratum B**

Figure 6-32. Middle Archaic Assemblage Distribution, Block I.

Summary: Middle Archaic

The two Middle Archaic assemblages at the Frederick Lodge Site Complex were very similar in terms of artifact types and spatial patterning. Both assemblages consisted of high relative frequencies of flaking debris, limited numbers of projectile points, and very little thermally altered stone. The dominant spatial attribute of both assemblages was a single, discrete concentration of flaking debris. Flake analyses indicated that a range of knapping activities occurred in each location. The manufacture of formal tools such as bifaces did not appear to have been a significant activity, while flake tool production and tool maintenance were common.

Bifurcate points were recovered from both assemblages. The points were either broken, heavily resharpened, or both. Usewear was observed on points in Block D, but not in Block I, in one of the few variations in the characteristics of the two artifact assemblages. Cutting/scraping tools in the assemblages were expedient in form and consisted predominantly of simple modified and unmodified flakes. Minor wear on one of the broken bifaces further indicated the expedient nature of tool use. The low frequency of thermally altered stone fragments in both locations was noticeable. Thus in general, evidence suggested that activities conducted in the two areas were similar. Considerably more artifacts occurred in Block I, yet the number of tools present in that assemblage, especially the frequency of flake tools relative to the amount of flaking debris, was the same as in Block D. This finding may indicate similar intensity of site use in both parts of the site, but longer-term or more repetitive use of the area in Block I.

Late Archaic

The Late Archaic component included six points characteristic of the period and one distinct artifact assemblage. The points occurred in a variety of locations across the landform, recovered mostly from isolated surface proveniences or excavated contexts that were chronologically mixed. The intact artifact assemblage occurred in Block H, and included a thermally altered stone feature, a diagnostic point, and a cluster of chipped stone artifacts.

Late Archaic: Points

Included in the Late Archaic component were four points that were recovered from proveniences lacking discrete contexts. The points fit artifact descriptions for Lackawaxen, Bare Island, and Fishtail types (Plate 6-9). A fifth point was damaged and weathered, and while it could not be typed confidently, it was included in the group the basis of overall appearance.

Lackawaxen points were recovered from two contexts: one (#917-1), from an Early-Middle Woodland context in the west part of Block D; and the second (#1235-1) from a surface context on the mid-slope above the larger bay/basin. A Bare Island point (#1236-1) and a Fishtail point (#614-1) were also recovered from surface contexts, the Bare Island from the area between the two bay/basins, the Fishtail from a provenience isolated in the northeast part of the project area. The final point (#732-15) consisted of most of the blade segment of a broad-bladed point made from argillite. It was recovered from a mixed provenience in Block K, at the eastern end of the site. Both faces of the blade were spalled; one of the

fragments was recovered and refitted. The proximal end of the artifact was missing at a snap break across the neck of the hafting element. Without the base, the point could not be typed with confidence, but judging from the width of the blade and the prominent but sloping shoulders, it appeared to have been related to the Susquehanna type.

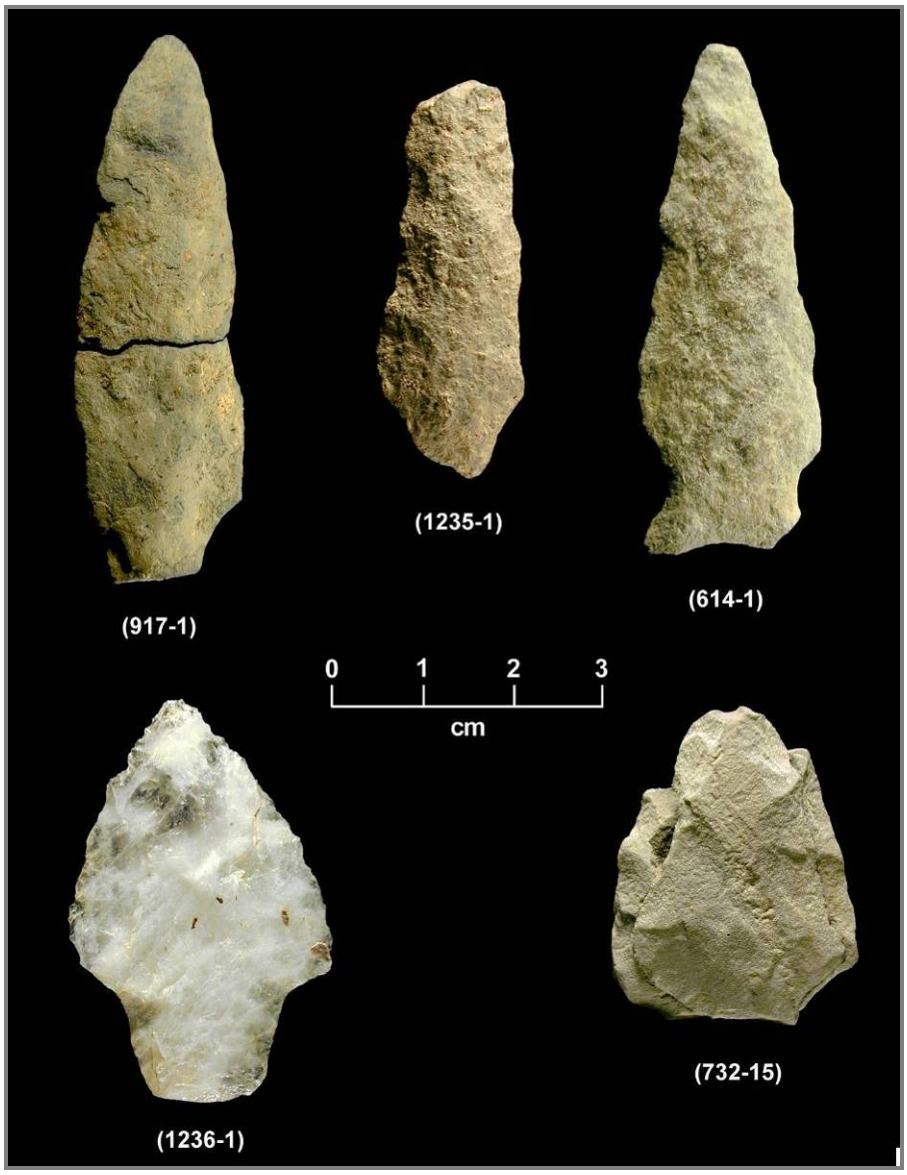


Plate 6-9. Late Archaic Points from Surface Proveniences or Mixed Contexts
(top, left to right: Lackawaxen, Lackawaxen, Fishtail, bottom, left to right: Bare Island, untyped blade fragment)

Several of the diagnostic points, including Lackawaxen and Fishtails, have accepted date ranges that overlap the initial portions of the Early Woodland subperiod, and both types have been documented in association with early ceramic assemblages. At Clyde Farm, for example, Lackawaxen points were reported in association with Fishtails as well as Marcey Creek and Dames Quarter ceramics (Custer 1989:153). No absolute dates were linked to the points from the Frederick Lodge Site Complex, and thus any of the artifacts could have been part of an Early Woodland artifact assemblage. Yet their discrete spatial distribution and

lack of co-occurrence with artifacts from demonstrably Early/Middle Woodland contexts indicated that the occupations these points represented were distinct from those represented by the smaller Woodland I Stemmed points.

Late Archaic: Artifact Assemblages

A single Late Archaic artifact assemblage was identified, consisting of the artifacts lying below the plow zone in Block H. Near-surface contexts were challenging to interpret in Block H because of the block's location near the foot of the bay/basin slope, and because these contexts contained more recent Woodland-aged material. Colluvial deposition and reworking of the upper part of the sediment column were likely site formation mechanisms, and thus, separating Archaic and Woodland period non-diagnostic artifacts into temporally discrete components was not possible.

Block H

Artifacts: Block H

The Late Archaic artifact assemblage from Block H consisted of a total of 146 items, including chipped and thermally altered stone. The artifact types are summarized in Table 6-10. Representative artifacts are illustrated in Plate 6-10.

Table 6-10. Prehistoric Artifact Types in Late Archaic Assemblage, Block H.

	count	frequency
flaking debris	57	39%
biface (early stage)	1	1%
point	2	1%
uniface	1	1%
thermally altered stone	85	58%
total	146	

Points. Two points occurred in the assemblage. One (#1277-1) was a nearly complete Fishtail made on a chert flake. The point had been shaped by percussion flaking. A portion of the distal end of the point was missing at an oblique snap break. Several protruding parts, including the basal tangs and one of the shoulders, were rounded, suggesting haft wear and implying that the point had been broken during use. The second point (#1289-1, not illustrated) was a small distal fragment (point tip) also made from jasper. It was broken at a slightly oblique snap break.

Biface. The assemblage contained one early stage biface (#1543-1) (#1543-1). Made from quartz, it was percussion flaked and exhibited a large stack on one face at a material flaw that had not been removed.

Uniface. The only formal chipped stone tool was a small uniface (#1599-1) (#1599-1). It consisted of an oval-shaped tool made from a small quartz pebble that had split along an internal plane. Dorsal retouch was noted along parts of the edge. Retouch and minor scalar flaking, such as is associated with use, occurred at one end, which appeared to have been the bit.

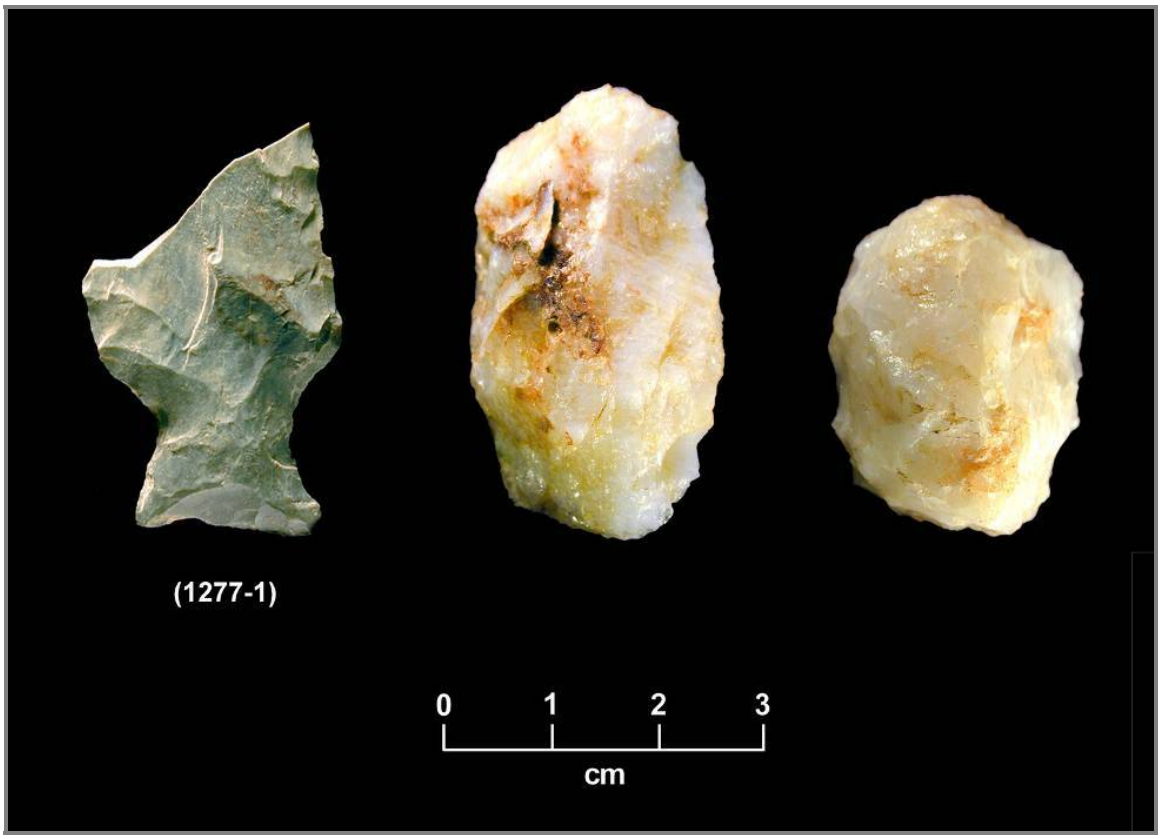


Plate 6-10. Late Archaic Artifact Assemblage, Block H
(left to right: Fishtail point, late stage biface, uniface)

Flaking Debris. Flaking debris accounted for 39 percent of the artifacts in the assemblage. Quartz was the dominant raw material, comprising 68 percent of a total of 41 flakes. Most of the quartz flakes were small, with almost 90 percent occurring in size-grades 1 and 2 (less than 2 mm), and only one of the flakes retained remnant cortex. Jasper flakes were slightly larger and most bore remnant cortex, but the sample size (n=8) was too small for statistical interpretation. The character of the flaking debris generally suggested late stage reduction or tool maintenance.

Feature: Block H

Also included in the Late Archaic component in Block H was a cluster of thermally altered stone fragments, designated Feature 23. Based on the vertical position of the feature, with all of the stone recovered from the same plane approximately 10 cm below the plow disturbance, horizontal spatial associations were considered good in these levels. A Fishtail point from the deposit and all of the surrounding non-diagnostic artifacts were therefore assumed to have been part of the same Late Archaic assemblage.

Feature 23 (Plate 6-11, Figure 6-33)

Location (center point)
N205.9/E664.8
Block H

Dimensions
Length: 80 cm
Width: 60 cm

Type
Thermally Altered Stone Cluster

Soil
n/a

Morphology
Plan: Irregular Oval
Profile: Single Tier, Planar

Artifacts
1 Point, Fishtail (#1277-1)
36 (6.1 kg) Thermally Altered Stones

Elevation
15.52 m amsl
(Base of Stratum B, Level 1)

AMS Date
2220±40 years BP

Plate 6-11. Feature 23, Block H.

Description
Feature 23 consisted of a small cluster of thermally altered stone. No discernible soil discoloration or concentration of charcoal was observed in association with the feature, although scattered charcoal flecks were noted and served as the basis for the AMS date. The stones lay on a single plane, approximately 10 cm below the base of the plow zone. Lithic types consisted of quartzite (76 percent of the fragments and 2 cobbles) and quartz (24 percent of the fragments and 9 cobbles). The Fishtail point was recovered at the edge of the feature on the same plane as stone that comprised the cluster.

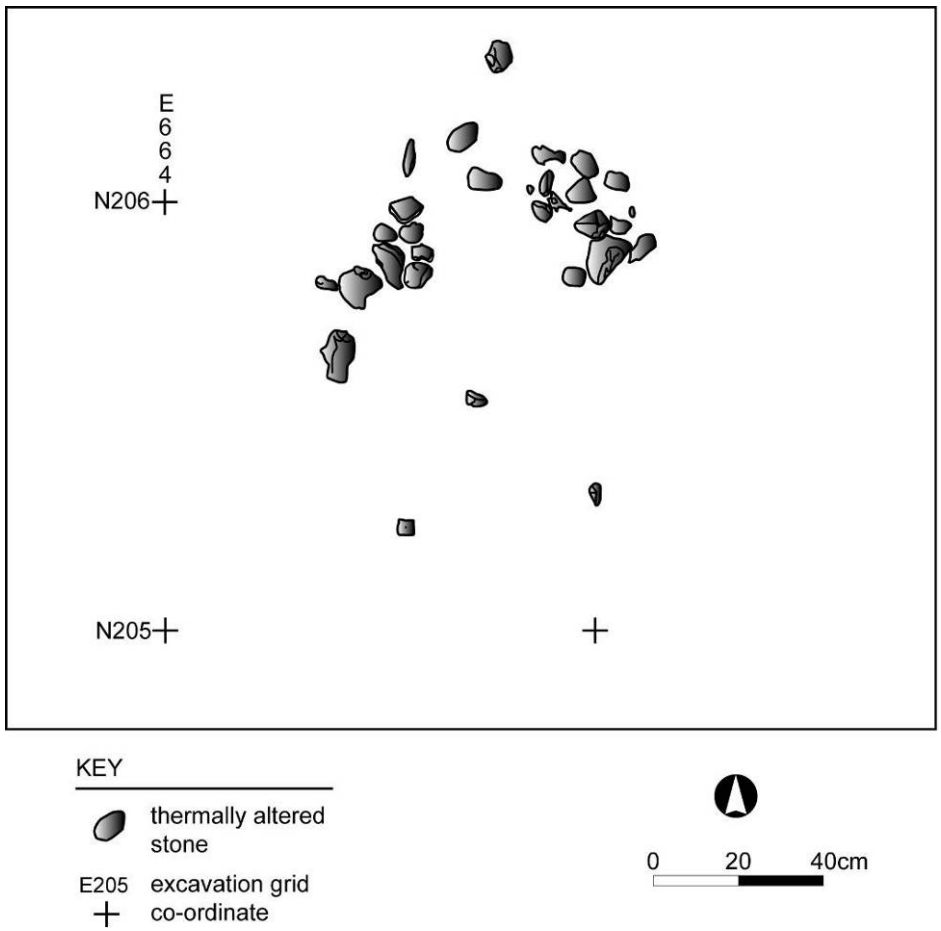


Figure 6-33. Feature 23, Plan View, Block H.

Spatial Analysis: Block H

Spatial analyses conducted on various artifact types in the assemblage from Block H indicated that distinct distributions of thermally altered stone and flaking debris occurred in the Late Archaic levels in this part of the site. Thermally altered stone was concentrated in the northern part of the block, highlighted by Feature 23 (Figure 6-34). In contrast, flaking debris were concentrated in the western part of the excavation. Few tools were present, but several, including both point fragments and the uniface, were situated next to the feature, possibly part of an activity area associated with the use of the thermally altered stone.

The biface lay in the western part of the block, along with the majority of the flaking debris. Together, these chipped stone artifacts may have comprised part of a different activity area. The characteristics of the flaking debris suggested that little, if any, primary tool manufacture was in evidence. The reduction debris appeared to represent a support activity, such as tool refurbishing or maintenance. The distributions of quartz and cryptocrystalline artifacts were slightly different, but, given the sample sizes, the significance of the variation was unclear.

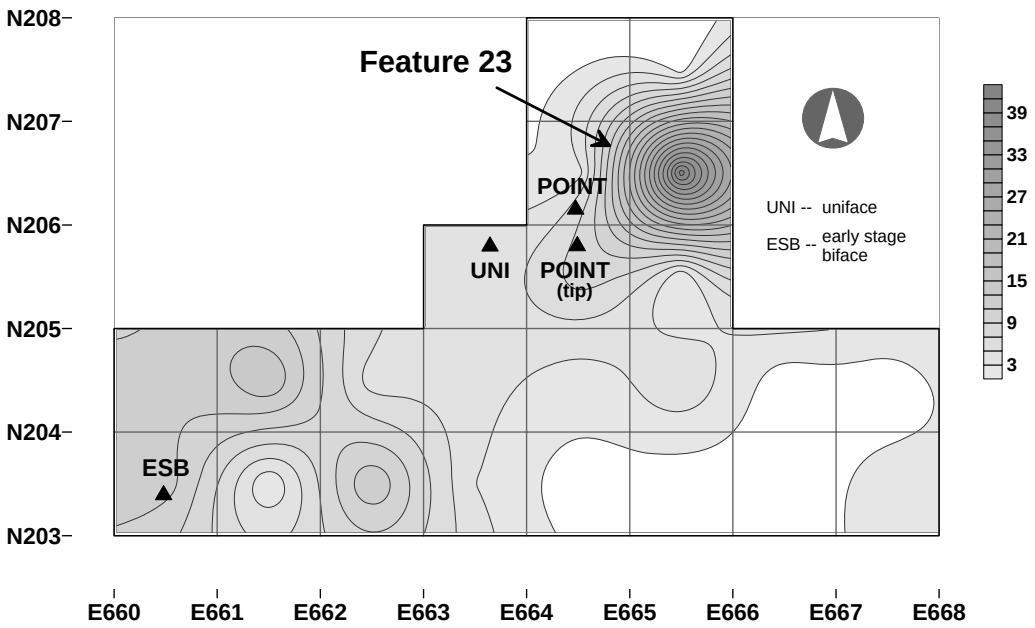


Figure 6-34. Late Archaic Assemblage Distribution, Block H.

Summary: Late Archaic

The Late Archaic component at the Frederick Lodge Site Complex was widespread, occurring in most parts of the Frederick Lodge Site Complex and represented on all landforms. Based on the frequency of occurrence of diagnostic artifacts and the intensity of artifact distributions in the single identified artifact assemblage attributable to the period, Late Archaic use of Frederick Lodge was not intensive. Scattered artifacts were recovered on the ridge above the bay/basins and in the area between these two depressions. A minor occurrence of Late Archaic material was noted in Block D, but the assemblage appeared to have been limited in extent and could not be distinguished from the more substantial Middle Archaic and Woodland period assemblages there. A more distinct Late Archaic component assemblage, consisting of artifacts and a thermally altered stone feature, was situated in Block H, at the toe of the slope leading to the larger bay/basin. As in Block D, the evidence was limited, suggesting that the occupation had not been intensive. The artifacts, both tools and flaking debris, were mostly quartz. Analysis suggested little primary or bipolar reduction (few large flakes and few cortical flakes were present). Preservation of the artifact assemblage in Block H may have been in part associated with burial of the material by colluvial processes that were not active on the crest of the landform at Block D.

Early/Middle Woodland

The Early/Middle Woodland component included 18 points characteristic of this general time span, one ceramic sherd, and an extensive artifact assemblage and associated features that occurred at the western end of the site. Temporally, the component was defined by the presence of chronologically diagnostic artifacts, including Piscataway points, a distinctive variety of small, stemmed points referred to as Woodland I Stemmed, and a ceramic sherd conforming to the Wolfe Neck type.

The Early/Middle Woodland assemblages were recovered from four blocks on the western crest above the smaller bay/basin. Block D contained both Woodland and Middle Archaic deposits. However, the deposits were vertically and horizontally separate, allowing the assemblages to be isolated and analyzed individually. Block B contained Early/Middle Woodland material only. In Block E, artifact totals were limited, but included a Woodland I Stemmed point recovered from a large pit feature, and lead to inclusion of the feature with the Early/Middle Woodland component. Block A did not include diagnostic artifacts, but did contain a single feature that, based on its location, elevation, and configuration, was associated with the Early/Middle Woodland component.

Early/Middle Woodland: Points

Two point types characteristic of the Early/Middle Woodland were recovered: Piscataway (n=4); and Woodland I Stemmed (n=14). Of these, the Piscataway points and four of the Woodland I Stemmed points were recovered from surface proveniences or other temporally mixed deposits. These points are described in the following paragraphs. The remaining Woodland I Stemmed points were part of the Early/Middle Woodland artifact assemblage and are described separately along with other artifacts from the assemblage.

The Woodland I Stemmed points from mixed contexts were small, made from jasper or chert, and had short, straight stems (Plate 6-12). All were narrow bladed. One specimen (#413-1) retained cortex—it had been manufactured on a cortical flake, with the cortical face exhibiting only minimal invasive flaking. No edgewear was observed on the edges of the blades or hafting elements of the points, but the extreme distal end of one (#442-1) was slightly rounded. The four Piscataway points were small, quartz examples that varied from lozenge-shaped to stemmed (Plate 6-13). Three of the points retained a small patch of cortex on their bases. No systematic edgewear was observed on any of the artifacts, although direct evidence of use was seen in a possible impact fracture on one of the lozenge-shaped specimens (#1081-5), and extensive reworking of a contracting stemmed example (#1062-1). On the latter specimen, the blade was shorter than the stem and it was inset from the shoulder, in a manner typical of resharpening while hafted.

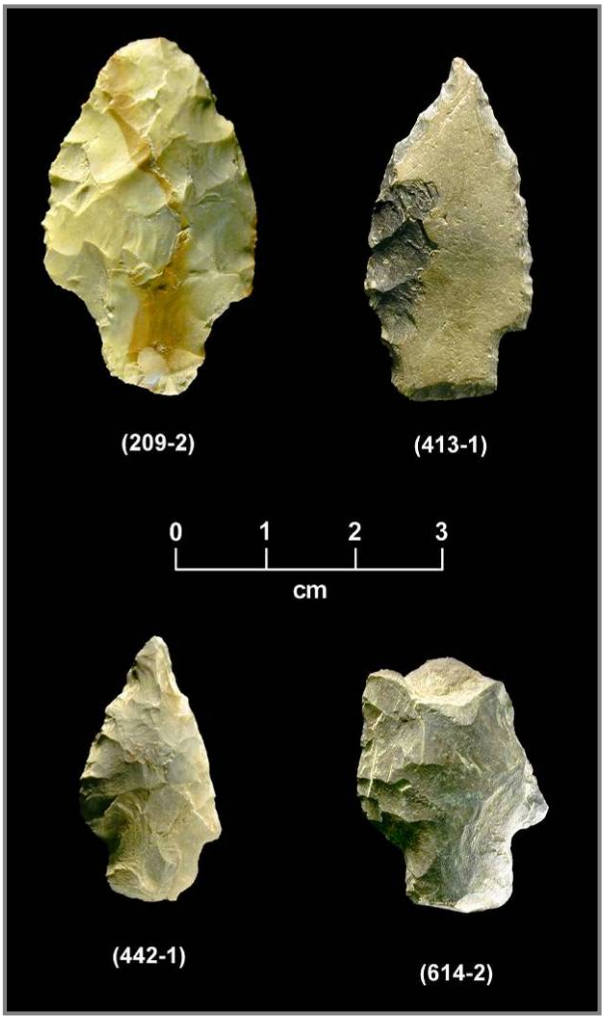


Plate 6-13. Woodland I Stemmed Points from Surface Proveniences or Mixed Contexts.

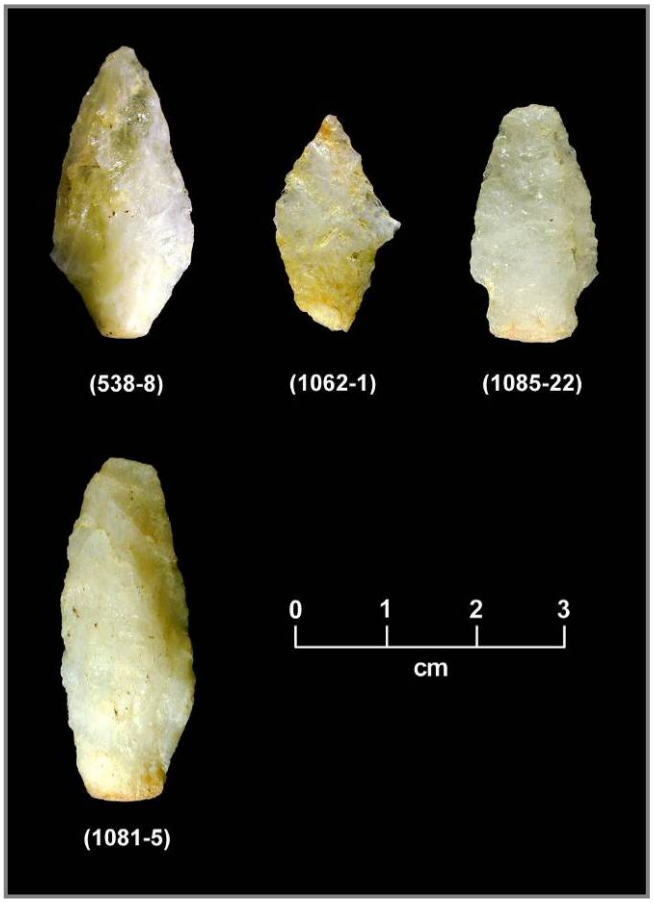


Plate 6-12. Piscataway Points from Surface Proveniences or Mixed Contexts.

Early/Middle Woodland: Ceramic

The ceramic sherd (#723-1), recovered from a surface provenience, was tempered with crushed quartz, comprising approximately 10 percent of the paste (Plate 6-14; Appendix K). The size of the temper fragments ranged from less than 1 mm to 5 mm, with the majority measuring 2 mm or less. A large amount of fine sand and grit was also present, comprising an additional 15-20 percent of the paste. The exterior surface was cord-marked, and the cordage formed a final Z-twist. The cord marks were irregularly spaced and cross-hatched. The interior surface of the sherd was smoothed. The sherd was 10 mm thick, and had broken along coil lines. The artifact conformed to temper, surface treatment, and thickness attributes defined for Early Woodland Wolfe Neck ware (Artusy 1976; Griffith and Artusy 1977; Griffith 1982).

Plate 6-14. Wolfe Neck Ceramic Sherd, from Surface Provenience.

Early/Middle Woodland: Artifact Assemblages

Earl/Middle Woodland artifact assemblages were identified in Blocks D, B, E, and A. The assemblages are detailed as follows.

Block D

Artifacts: Block D

Artifact types from the Early/Middle Woodland assemblage from Block D are summarized in Table 6-11. The artifacts consisted of chipped stone, including six projectile points, and a large proportion of thermally altered stone, the latter comprising almost half of the artifacts by count. Representative artifacts are illustrated in Plate 6-15.

Table 6-11. Total Prehistoric Artifact Types in Early/Middle Woodland Assemblage Block D.

artifact type	count	frequency
point	6	1%
biface (late stage)	2	<1%
flake tools	5	<1%
flaking debris	297	49%
cores	5	<1%
thermally altered stone	292	48%
total	607	

Points. Four Woodland I Stemmed points were recovered from the Early/Middle Woodland levels of Block D. Three were manufactured from cryptocrystalline material (jasper or chert), and one each from quartzite and argillite. The points exhibited short, straight-to-slightly contracting stems, and narrow blades in proportion to stem width. One specimen (#972-1) was made on a flake, with the original ventral surface only partially removed by non-invasive

flaking. Most of the points were unbroken and showed few obvious signs of use or resharpening, although the distal tip of one (#1661-1) was rounded.

Also occurring in the assemblage were two point fragments. Both were small, point tips that had broken at transverse or slightly oblique snaps. Minor impact fractures extended down both faces of one of the artifacts.

Biface. Two chert bifaces were present in the assemblage, both complete and both classified as late stage bifaces. One (#944-1) (#944-1) had an irregular teardrop shape and retained cortex on the proximal end. Edge angles ranged from 55 to 65 degrees. The second (#1037-7) (#1037-7) was oval in shape. It had been made from a small bipolar core fragment, and although the ventral surface of the split pebble had been fully flaked, the artifact was distinctly plano-convex in cross section, with a high ridge and patches of remnant cortex on its dorsal face. Neither specimen exhibited edgewear, suggesting that they represented manufacturing rejects rather than discarded tools.

Cores. Five cores were recovered in the assemblage, three jasper and two quartz. The jasper cores (#1405-2, #1468-6, #1468-7) and one of the quartz specimens (#1486-4) were small, bipolar pebble cores that retained large amounts of cortex on their dorsal surfaces. None had been worked further, exhibiting only flake scars propagated by bipolar percussion. The second quartz core (#1408-5) was a small, elongated pebble that had a single flake struck from one end. In all five cases, flaking had been carried out either to test the raw material or to produce small flakes that were removed for further use as expedient tools.

Flake Tools. All five flake tools recovered were manufactured from cryptocrystalline material. Two showed evidence of modification in the form of retouch along one edge; one of those did not appear to have been used. The remaining three flakes had been used without apparent intentional retouching. Usewear consisted mainly of scalar flaking on the dorsal face of one or more edges.

Flaking Debris. The 297 pieces of flaking debris (flakes and chips) from the Early/Middle Woodland levels of Block D accounted for approximately one-half of the artifact assemblage. Jasper was the dominant material type, accounting for 66 percent of the total. Quartz comprised 18 percent and chert 15 percent of the total.

The size-grade distribution of flakes (n=259) is illustrated in Figure 6-35. The distributions of cryptocrystalline flakes were similar, while quartz flakes appeared to be slightly larger. Average weights per size-grade in the assemblage (Table 6-12) indicated that quartz flakes were heavier and thus thicker, particularly in the larger grades.

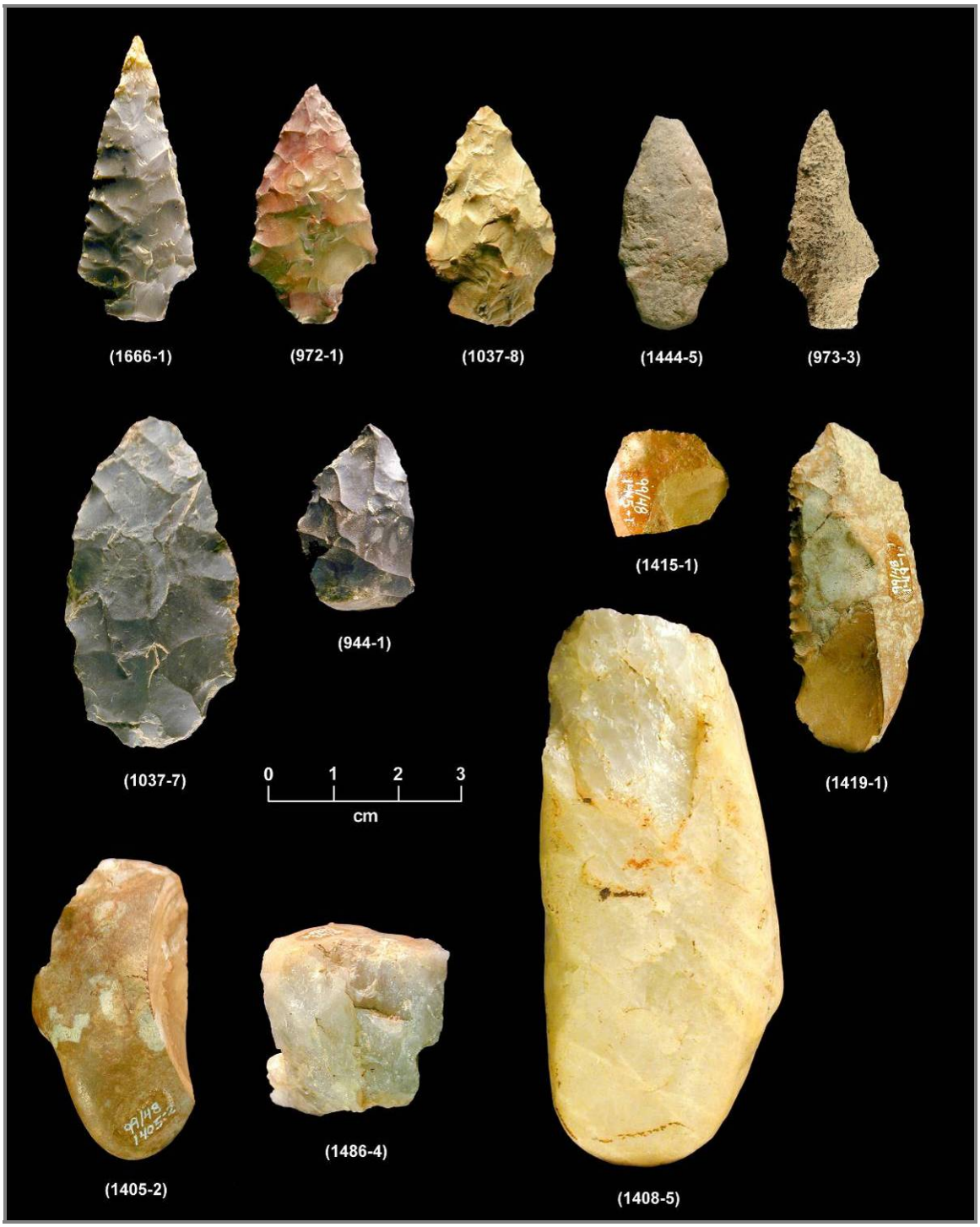


Plate 6-15. Early/Middle Woodland Artifact Assemblage, Block D
(top row: Woodland I Stemmed points; second row: late stage bifaces (left), flake tools (right); third row: cores)

A difference in the frequency of flakes with remnant cortex was observed between cryptocrystalline and quartz flakes, with approximately twice as many cortical flakes among cryptocrystalline materials (cryptocrystalline 42 percent, quartz 22 percent), suggesting different reduction trajectories for the materials.

Thermally Altered Stone. Thermally altered stone, which accounted for 48 percent of the artifact assemblage in Block D, was recovered from both feature and non-feature contexts. As summarized in Table 6-13, quartzite accounted for 77 percent of the stone by weight, and 71 percent by fragment count; quartz accounted for 21 percent by weight, 27 percent by count. The remainder consisted of sandstone and jasper.

Table 6-12. Average Weight of Flakes by Size Grade, Middle Archaic Assemblage, Block D.

	average weight (g)		
s-grade	chert	jasper	quartz
1	0.17	0.13	0.20
2	0.39	0.39	1.03
3	1.70	1.34	4.70
4	3.55	7.66	6.73
5	--	--	37.90
6	--	10.00	--

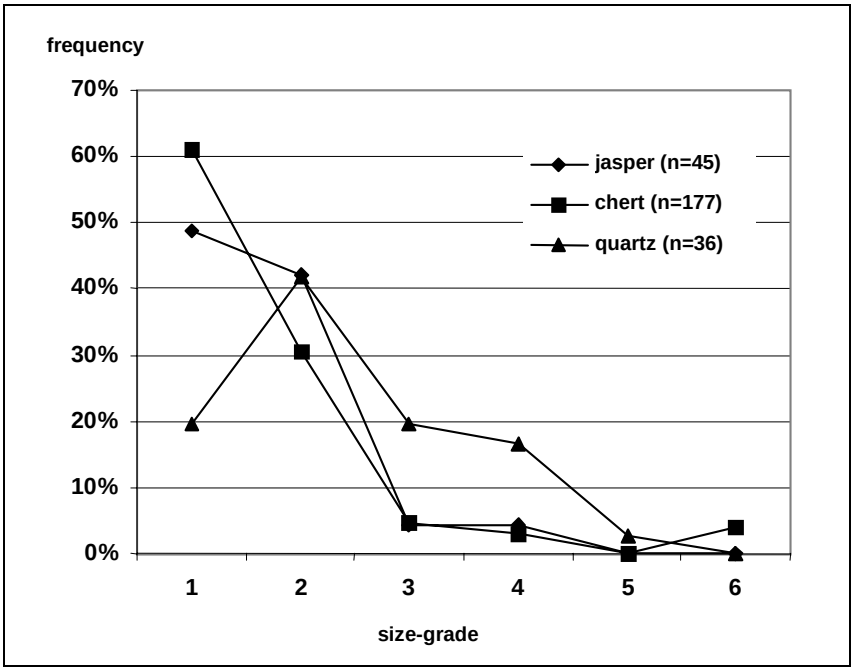


Figure 6-35. Flake Size Distribution, Early/Middle Woodland Assemblage, Block D.

Table 6-13. Thermally Altered Stone, Early/Middle Woodland Assemblage, Block D.

material	total weight	total count	average weight
quartzite	10,065.8 g	206	48.9 g
quartz	2,691.3 g	79	34.1 g
sandstone	326.6 g	4	81.7 g
jasper	8.0 g	1	8.0 g
totals	13,091.7 g	290	

Features: Block D

Two features were located in the Early/Middle Woodland levels in Block D, Feature 30 and Feature 60. Both were concentrations of thermally altered stone fragments that lay on the same plane approximately 10 cm below the level of plow disturbance. Based largely on the presence of these features and artifact refits among them (described below and in Appendix G), horizontal spatial associations were considered good in these levels.

Feature 30 (Plate 6-16, Figure 6-36)

Location (center point)
Block D
N296.64/E541.05

Dimensions
Length: 40 cm
Width: 35 cm

Type
Thermally Altered Stone Cluster

Soil
n/a

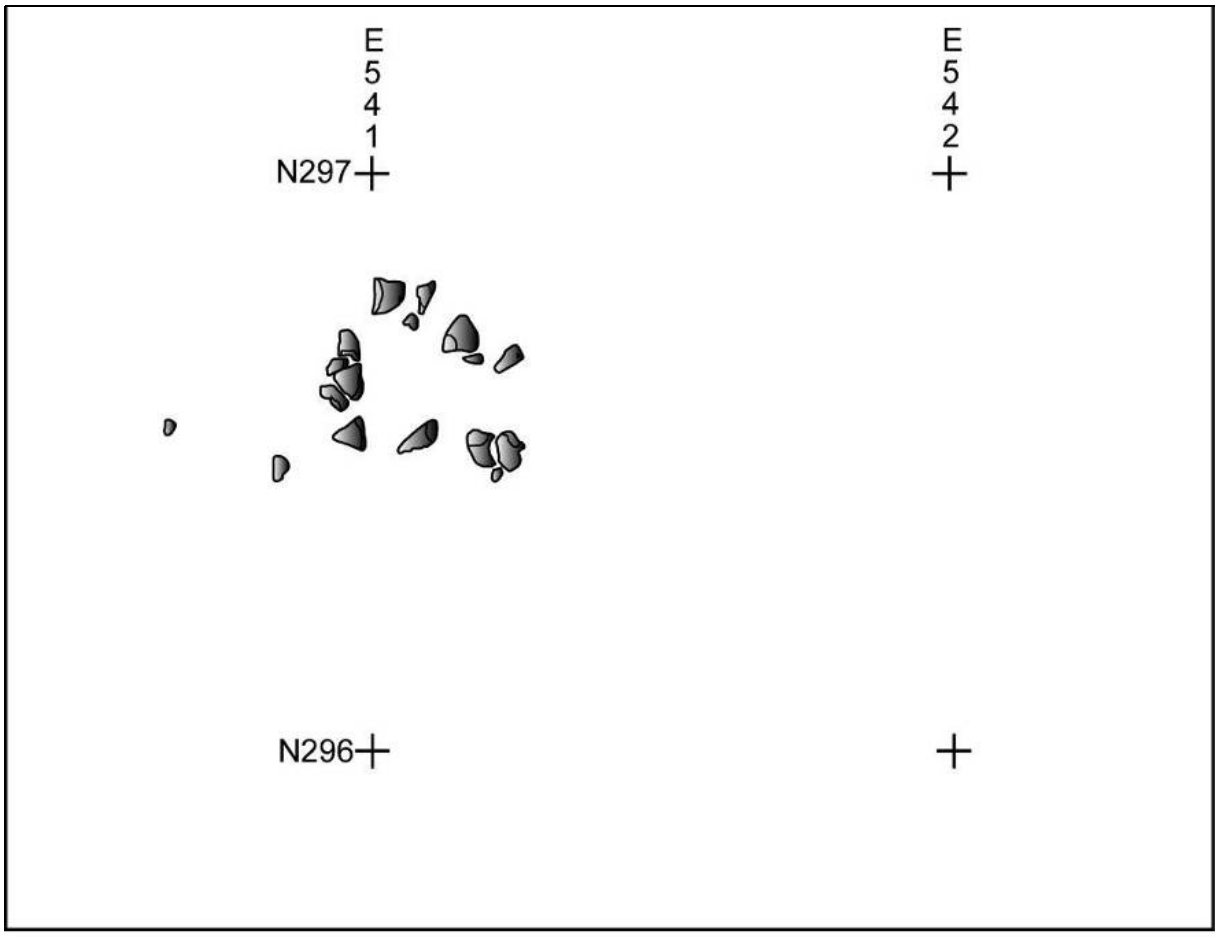
Morphology
Plan: Round
Profile: Single Tier; Planar

Artifacts
17 (2.4 kg) Thermally Altered Stones

Elevation
18.47 m amsl
(Stratum B, Level 1)

Description
Feature 30 consisted of a small cluster comprising 17 fragments of thermally altered stone. The stones were recorded in a recognizable ring-like configuration. Soil discoloration was not noted around the feature, nor was any increase in charcoal flecking observed. The stones consisted mainly of quartzite (81 percent), along with minor amounts of sandstone and quartz. No complete cobbles were present.

Plate 6-16. Feature 30, Block D.



KEY

thermally altered stone

E205 excavation grid co-ordinate

0 20 40cm

Figure 6-36. Feature 30, Plan View, Block D.

Feature 60 (Plate 6-17, Figure 6-37)

Location (center point)
Block D
N296.3/E537.8

Type
Thermally Altered Stone Cluster

Morphology
Plan: Sub-round
Profile: Single Tier; Planar

Elevation
18.52 m amsl
(Stratum B, Level 1)

Dimensions
Length: 90 cm
Width: 65 cm

Soil
n/a

Artifacts
32 (2.4 kg) Thermally Altered Stones
8 flakes

Description

Feature 60 consisted of a concentration of 32 thermally altered stones. The feature was generally circular in shape, although the stones appeared to be dispersed irregularly from a central area. A small amount of debitage was also recovered from within the scatter. No soil discoloration or charcoal flecking was noted. With the exception of one quartz cobble, all of the stone was fragmented.

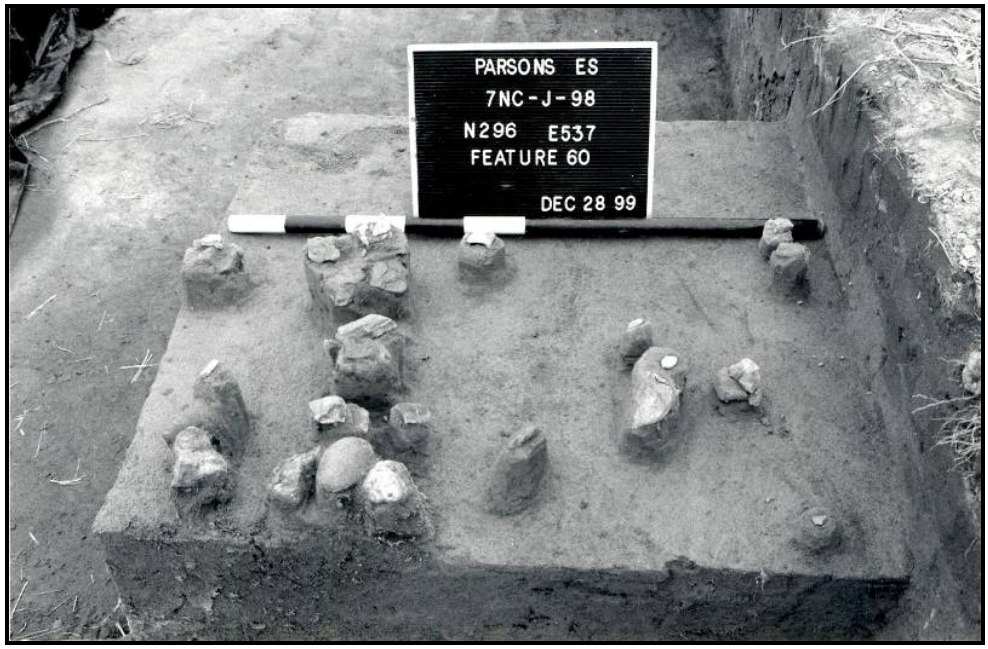


Plate 6-17. Feature 60, Block D.

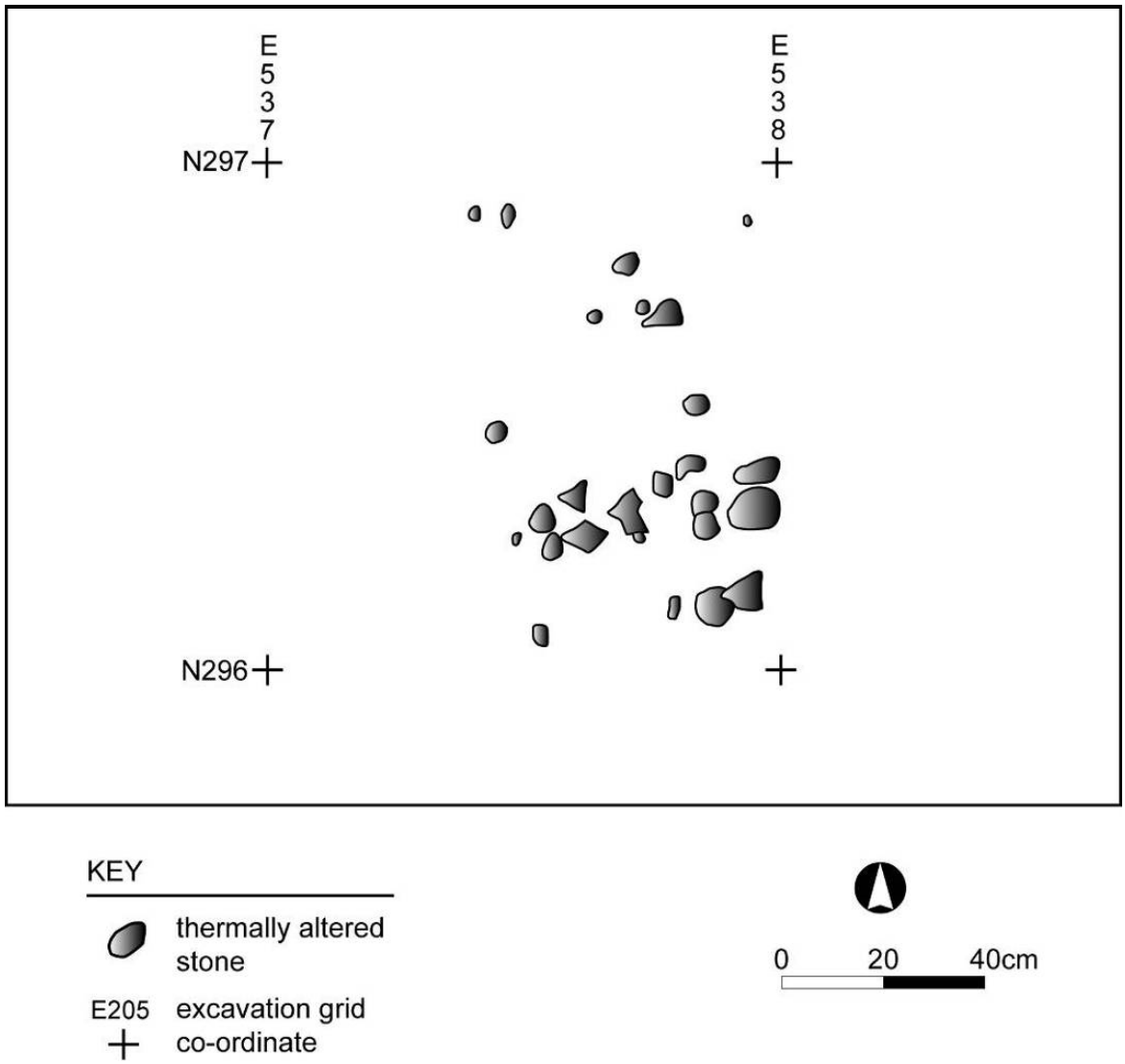


Figure 6-37. Feature 60, Plan View, Block D.

Spatial Analysis: Block D

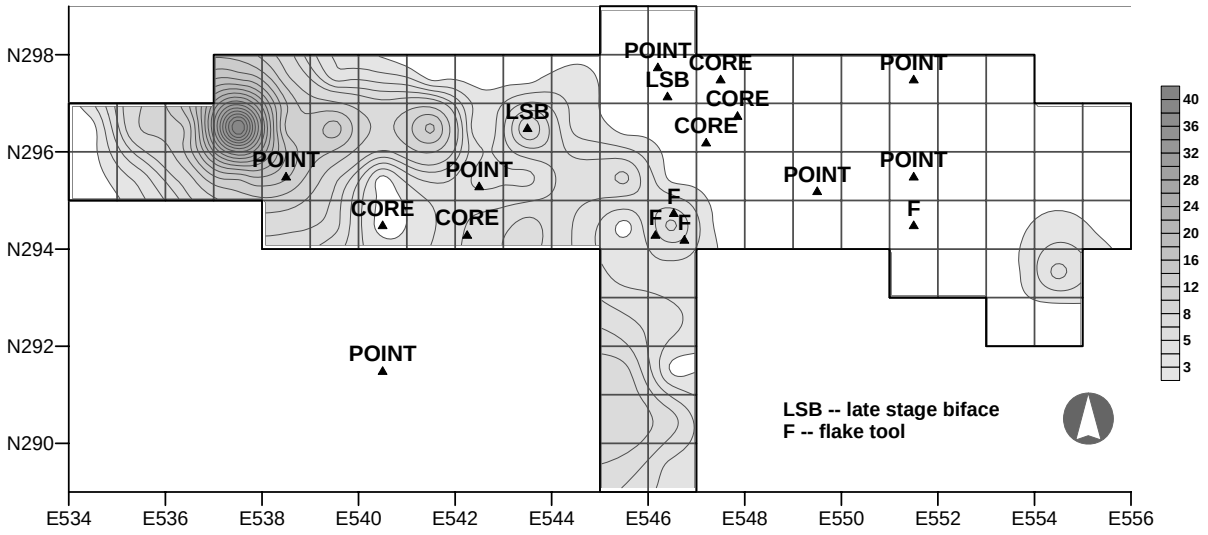
Spatial analysis of artifact distributions in the Early/Middle Woodland levels of Block D indicated areas of distinct artifact concentration. Artifact distributions in Stratum B, which had not been disturbed by plowing, were presumed to more closely represent original cultural deposition than those in Stratum A. Thermally altered stone features and clusters of flaking debris in Stratum B were distinct and well-bounded. Yet in general, similar concentrations occurred in Stratum A, implying that the same distributions were present in both levels. There appeared to have been relatively little horizontal dispersion of the artifact concentrations due to the agricultural disturbance, and no significant overlay of later artifacts masking the earlier distribution. Since the distributions in both strata appeared generally representative, they were combined to provide a larger analytical sample, on which the remaining analyses were conducted.

The majority of the thermally altered stone occurred in the west half of the block, most of it contained within the delineated boundaries of Features 30 and 60 (Figure 6-38a). That is, the fragments were not scattered across a broad area, as is often the case in heavily re-occupied locales where debris from various occupations may be overlaid, rearranged, and generally intermixed. The majority of the thermally altered stone in the Early/Middle Woodland levels of Block D were derived from the two features and had not moved substantially from the areas in which they were originally deposited.

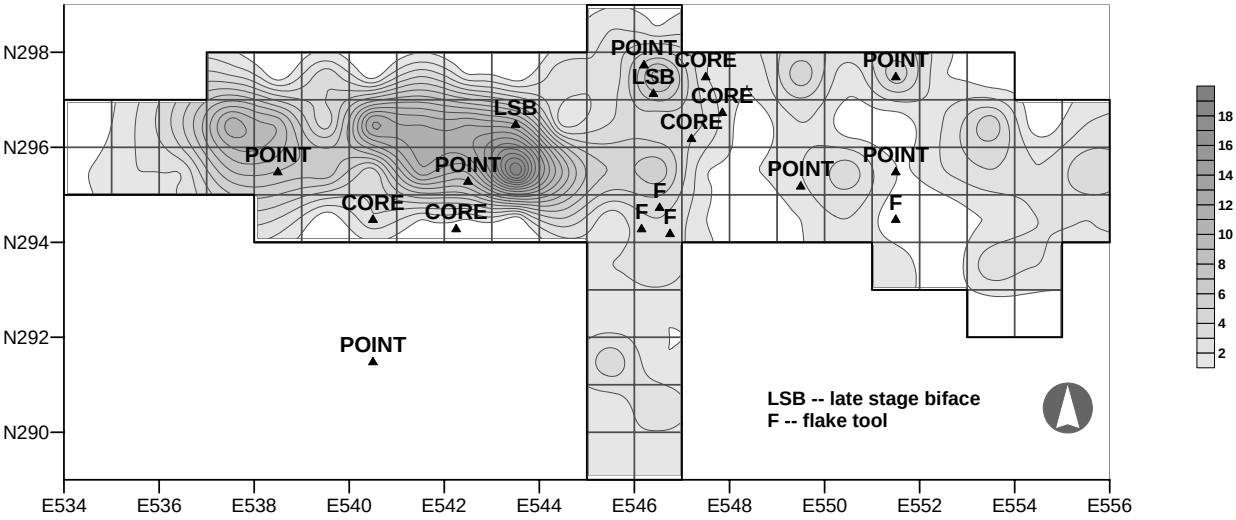
This finding was reinforced by data from a refit study conducted on thermally altered stone fragments from the excavation block. As shown in Figure 6-39, refitted stone from the block occurred in three categories: refits directly between Feature 30 and Feature 60; refits between Feature 60 and non-feature stone in the surrounding units; and refits between sets of non-feature stone. No refits were found between fragments from Feature 30 and the surrounding non-feature stone. The findings suggested that Feature 60 was more diffuse than originally recorded in the field, but that it was well-bounded. The study further indicated that Feature 30 was a small and compact cluster. Refits between the two features implied that they were contemporary and probably functionally related. Most of the stones in both features were highly fragmented. Those heated stones recovered from Feature 60 were consistently smaller and more widely distributed than the fragments in Feature 30. This finding suggested that Feature 60 contained the scattered remnants of a process such as stone boiling that had been conducted with material originating from Feature 30. Feature 30 would have served as the primary feature, in which the stones were heated, and Feature 60 was an area in which spent stone was discarded. Additional details are presented in Appendix G.

The distribution of chipped stone debris and tools was, for the most part, separate and distinct from that of heated stone (Figure 6-38b). Concentrations of flaking debris occurred near the center of the block, east of the main thermally altered stone clusters associated with the two features, along with cores, a point and a biface. The eastern portion of the block, in which almost no thermally altered stone fragments occurred, contained small clusters of flaking debris and groups of tools, including points, flake tools, bifaces, and cores.

The most important result of the spatial analysis lay in demonstrating relatively strong horizontal integrity in the Early/Middle Woodland deposit in this part of the site. Distinct artifact groups were present, some of which, like the thermally altered stone clusters, showed temporal and functional relationships. Given this finding, the artifact distributions were examined in more detail (Figure 6-38a, b). Working from west to east across the excavation block, the area corresponding with Feature 60 contained a small group of jasper, chert, and quartz flakes that overlay the horizontal distribution of the feature. The debris may have been incidental, unrelated to the feature, implying that the feature was part of a general disposal area within the site. A more extensive concentration of debris, consisting mostly of jasper flakes, occurred around and southeast of Feature 30, along with bipolar core fragments and a jasper point. This material may have been part of an activity area associated with Feature 30.

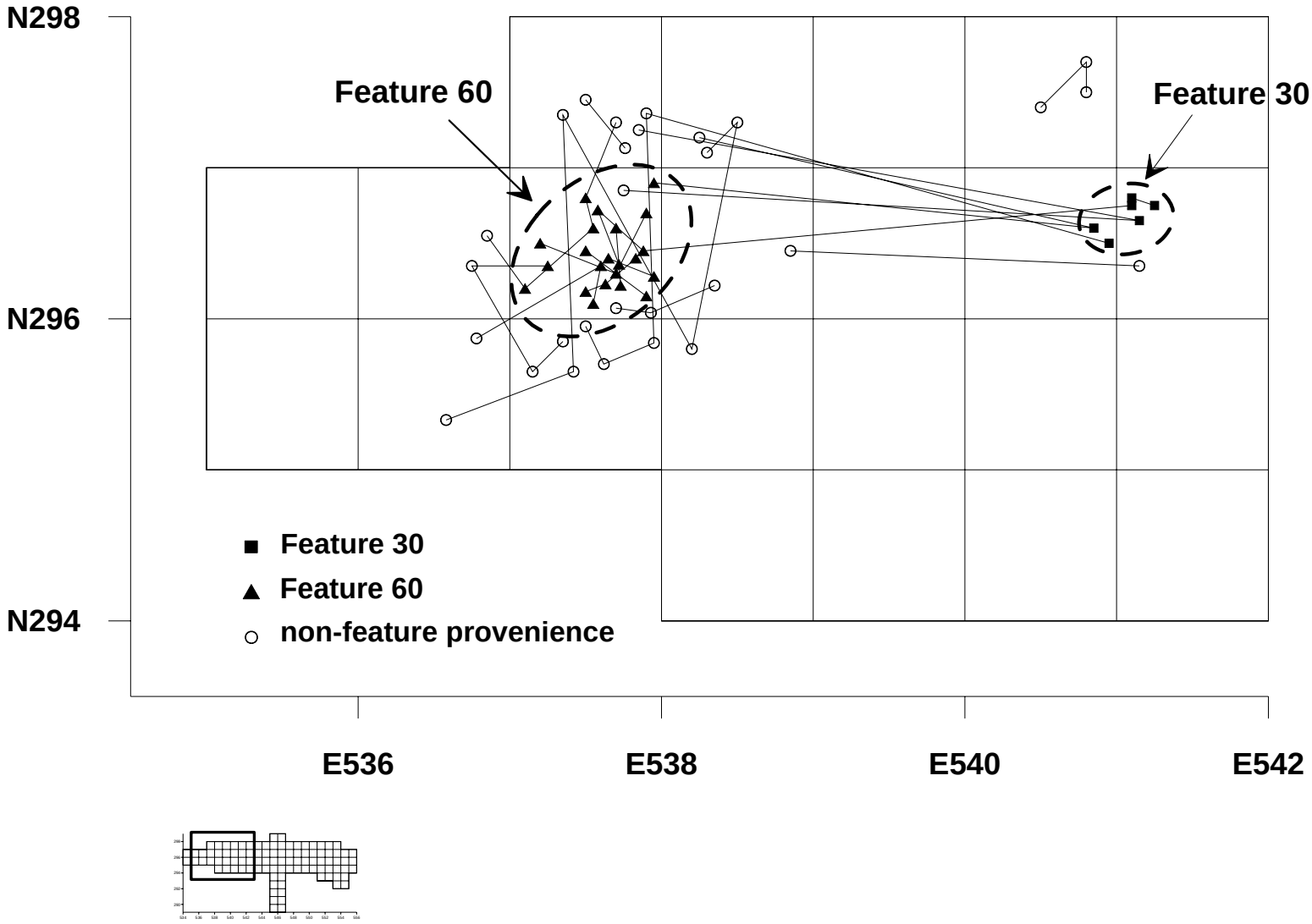


a) Thermally Altered Stone Distribution



b) Chipped Stone Distribution

Figure 6-38. Early/Middle Woodland Assemblage Distribution, Block D.



Location in Block D

Figure 6-39. Thermally Altered Stone Refits, Block D.

Block B

Artifacts: Block B

Artifact types in the portion of the Early/Middle Woodland assemblage in Block B are summarized in Table 6-14. Representative artifacts are illustrated in Plate 6-18. As in Block D, a prominent characteristic of the artifact assemblage was the low frequency of flaking debris in relation to both thermally altered stone and finished tools. The ratio of flaking debris to thermally altered stone fragments was 1:9, and the ratio of flaking debris to points was just over 20:1. The general implication was that the activities represented in Block B involved relatively little lithic reduction.

Points. Four points typed as Woodland I Stemmed were recovered from the assemblage in Block B. Three were manufactured from jasper, and one from quartz. The points exhibited characteristically short, straight-to-slightly contracting stems, and narrow blades in proportion to stem width. One specimen (#866-3) exhibited a small patch of cortex on its base, while a second (#958-1) had cortex on one face of the blade above the shoulder. Two specimens (#958-1 and #962-1) were made on flakes, with the original ventral surface only partially removed by non-invasive flaking. Two of the points were broken: one (#866-3) displayed a minor distal snap; and on a second point (#958-1), a transverse snap had removed the distal end of the blade. The distal segment (#957-1) bore a small, flute-like impact fracture at its tip, and was recovered and refitted to #958-1. On one final specimen (#962-1), the extreme distal tip was rounded, likely from use.

Table 6-14. Prehistoric Artifact Types in Early/Middle Woodland Assemblage Block B.

artifact type	number	frequency
point	4	<1%
biface (late stage)	2	<1%
flake tool	0	0
flaking debris	95	10%
core	2	<1%
thermally altered stone	864	89%
total	967	100%

Biface. Two chert bifaces, both categorized as late stage bifaces, were present in the assemblage. One (#960-1) (#960-1) was the proximal fragment of a small, oval biface with a transverse snap break. Existing edge angles averaged 45 degrees. The second (#1634-1) (#1634-1) consisted of a small, teardrop-shaped biface from which a small portion of the distal end was missing at an oblique bending snap break. Edge rounding was apparent on the base, where the edge angle was measured as 48 degrees.

Cores. Two quartz cores were recovered with the assemblage. In both cases, flaking had been carried out either to test the raw material or to produce small flakes for use as expedient tools. One core (#890-3) (#890-1) was a pebble from which a single flake had been struck. The second (#1387-1) (#1387-1) was a bipolar core fragment with cortex remaining on one surface; only flake scars resulting from bipolar percussion were noted, indicating that the core had not been worked further.

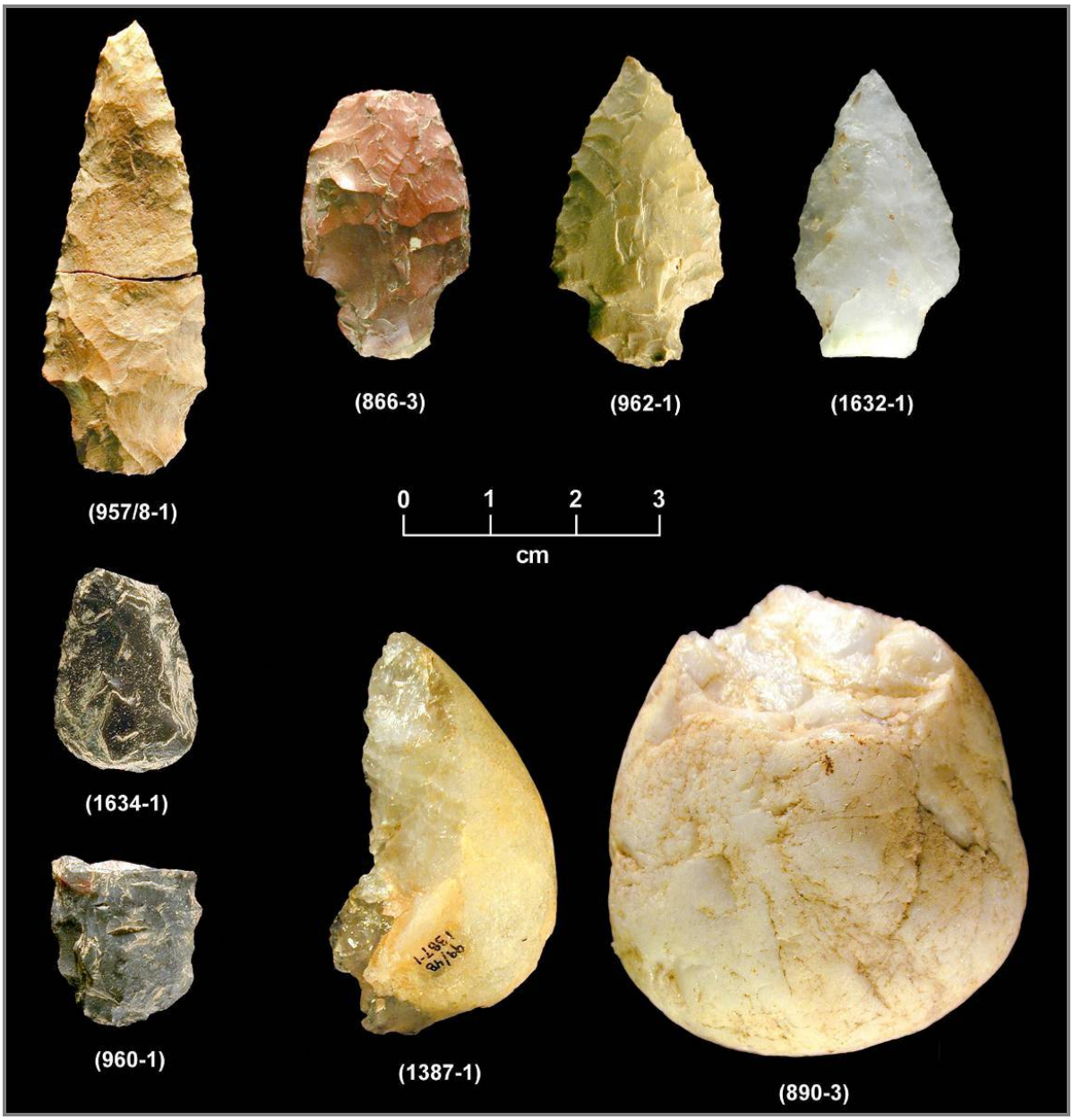


Plate 6-18. Early/Middle Woodland Artifact Assemblage, Block B.
(top row: Woodland I Stemmed points; second row: late stage bifaces, cores)

Flaking Debris. Relatively little flaking debris was present in the Early/Middle Woodland levels of Block B. A total of 95 flakes and chips were recovered, accounting for approximately 10 percent of the artifact assemblage. Almost three-quarters of the artifacts were cryptocrystalline, while just over 20 percent were quartz. Quartzite and argillite were present in minor amounts.

Given the small sample sizes present, statistics related to the size-grade distribution of flakes were subject to bias from non-representative elements. Nonetheless, the charted data suggested that most of the cryptocrystalline flakes occurred in the smallest grades (size-grades 1 and 2 (less than 2 mm), while quartz flakes were slightly larger, mirroring evidence

from other assemblages at the site. Average weights per size-grade were not calculated due to the sizes of the samples. Over 40 percent of the jasper flakes retained remnant cortex, in comparison to approximately 20 percent for both chert and quartz.

Thermally Altered Stone. Thermally altered stone accounted for almost 90 percent of the artifacts in Block B (Table 6-15). The stone was recovered from both feature and non-feature contexts. Quartzite comprised approximately 85 percent of the stone by weight and fragment count; while quartz accounted for 12 percent by weight and count. The remainder consisted of small amounts of sandstone, siltstone, ironstone, and jasper.

Table 6-15. Thermally Altered Stone, Early/Middle Woodland Assemblage, Block B.

material	total weight	total count	average weight
quartzite	17,685.8 g	732	24.2 g
quartz	2,596.7 g	104	25.0 g
sandstone	819.9 g	21	39.0 g
jasper	153.1 g	6	25.5 g
totals	21,255.5 g	863	

Features: Block B

Four features were located in the Early/Middle Woodland levels in Block B, Features 2, 31, 49, and 56. All were concentrations of thermally altered stone fragments that lay on the same plane at the base of the plow disturbance. Based largely on the presence of these features and artifact refits among them (described below and in Appendix G), horizontal spatial associations were considered strong in these levels.

Feature 2 (Plate 6-19, Figure 6-40)

Location (center point)
Block B
N285.2/E576.0

Type
Thermally Altered Stone Cluster

Morphology
Plan: Round
Profile: Planar

Elevation
18.23 m amsl
(Stratum B, Level 1)

Dimensions
Length: 40 cm
Width: 40 cm

Soil
n/a

Artifacts
11 (1.6 kg) Thermally Altered Stones

AMS Date
150±140 years BP

Description
Feature 2 was a small, single-tier cluster of 11 thermally altered stones located approximately 5 cm below the base of the plow zone. No soil discoloration was noted in association with the stones, although minor charcoal flecking was present, which served as the basis for the AMS date. Lithic materials consisted of quartzite (73 percent) and quartz. All but one stone was fragmentary.

Plate 6-19. Feature 2, Block B.

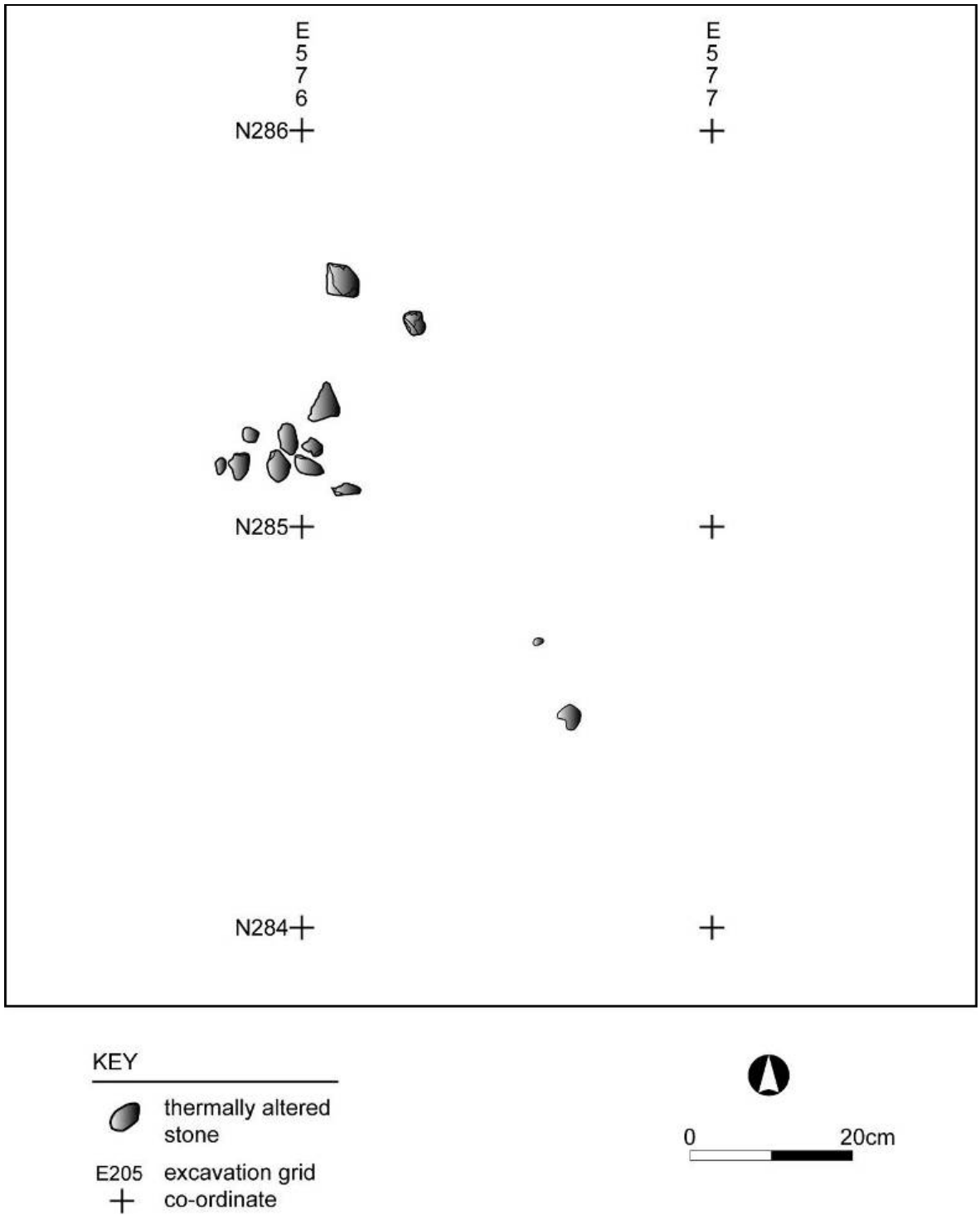


Figure 6-40. Feature 2, Plan View, Block B.

Feature 31 (Plate 6-20, Figure 6-41)

Location (center point)
Block B
N286.6/E576.75

Type
Thermally Altered Stone Cluster

Morphology
Plan: Round
Profile: Single Tier; Planar

Elevation
18.22 m amsl
(Stratum B, Level 1)

Dimensions
Length: 40 cm
Width: 25 cm

Soil
n/a

Artifacts
21 (2.6 kg) Thermally Altered Stones

Description

Feature 31 consisted of a small, single tier cluster of thermally altered stones. No soil discoloration was present around the feature, nor was charcoal flecking noted. A burrow cut through the center of the feature, separating the stones horizontally.

Plate 6-20. Feature 31, Block B.

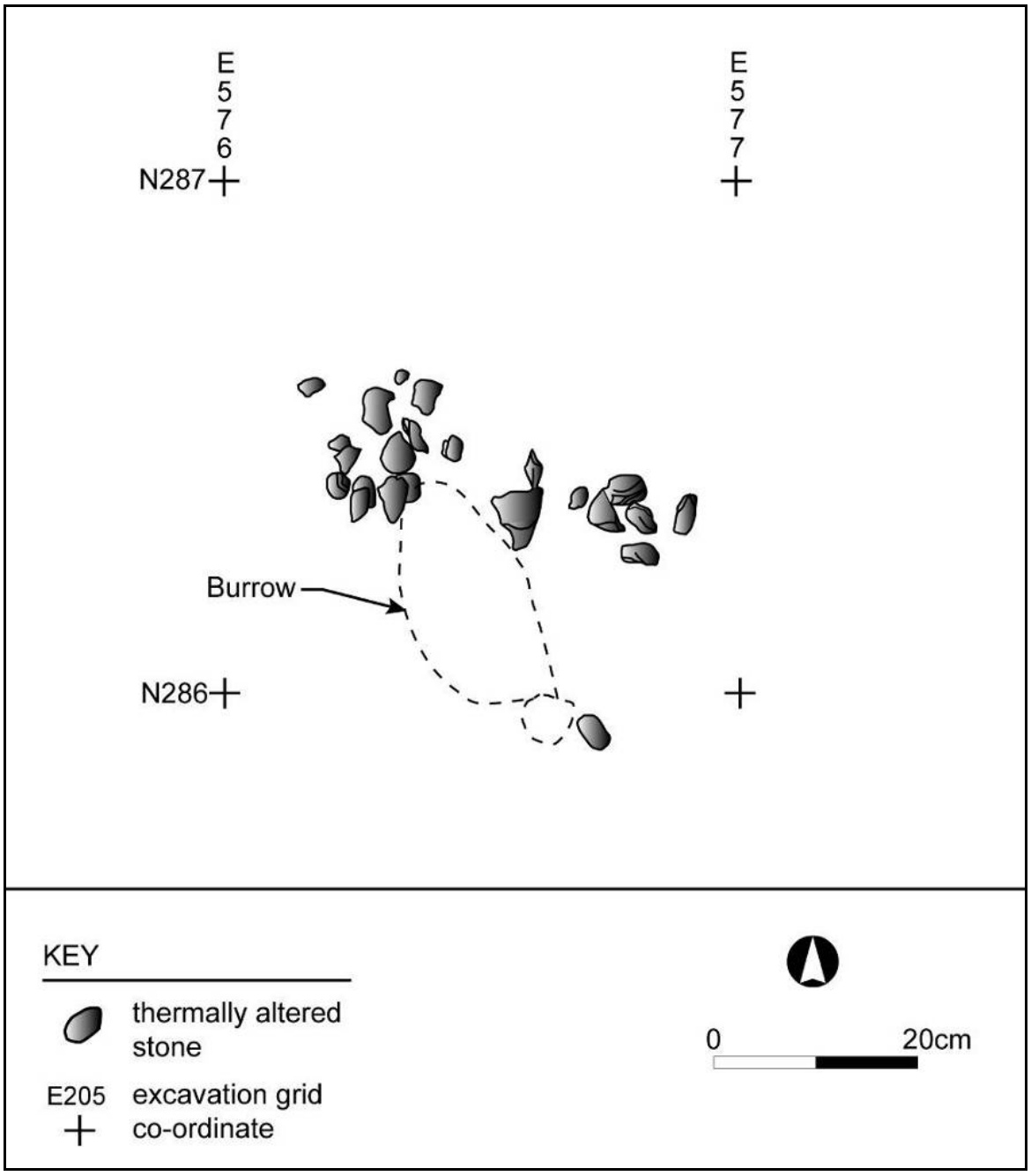


Figure 6-41. Feature 31, Plan View, Block B.

Feature 49 (Plates 6-21 and 6-22, Figure 6-42)

Location (center point)
Block B
N286.5/E572.0
(Stratum B, Level 1)

Type
Thermally Altered Stone Scatter

Morphology
Plan: Elliptical
Profile: Single Tier; Planar

Elevation
18.24 m amsl

Dimensions
Length: 600 cm
Width: 360 cm

Soil
n/a

Artifacts
155 (6.3 kg) Thermally Altered Stones

Description

Feature 49 consisted of a very large, somewhat diffuse scatter of thermally altered stones. Although distributed across a wide horizontal area, the majority of the stones were located on a single vertical plane approximately 5 cm below the base of the plow zone. As mapped, the major axis of the feature trended southwest-to-northeast across the excavation block. The thermally altered stones consisted mainly of fragmented quartzite (78 percent), with quartz, jasper, and sandstone present in lower percentages. Also present within Feature 49 was a discrete cluster of thermally altered stone that was considered a distinct feature and was given a separate number, Feature 56 (discussed below). No soil discoloration or charcoal flecking was noted in association with Feature 49.

Plate 6-21. Documentation of Feature 49, Block B.

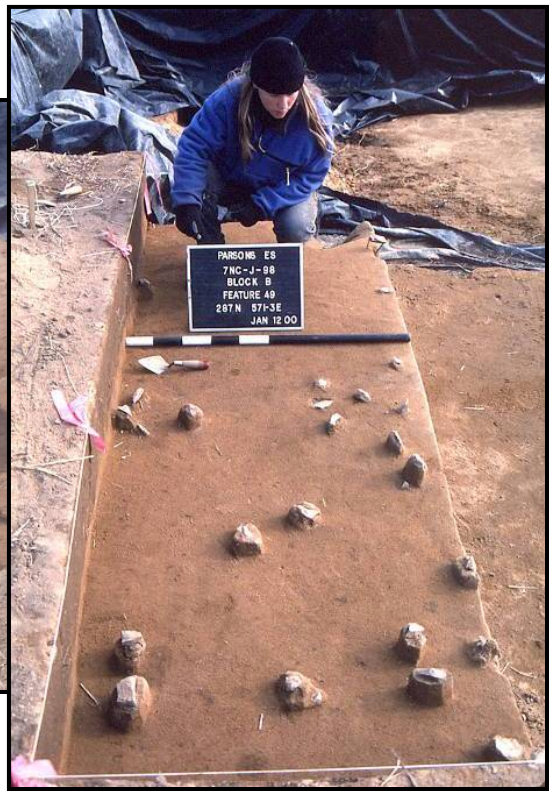


Plate 6-22. Feature 49, Block B.

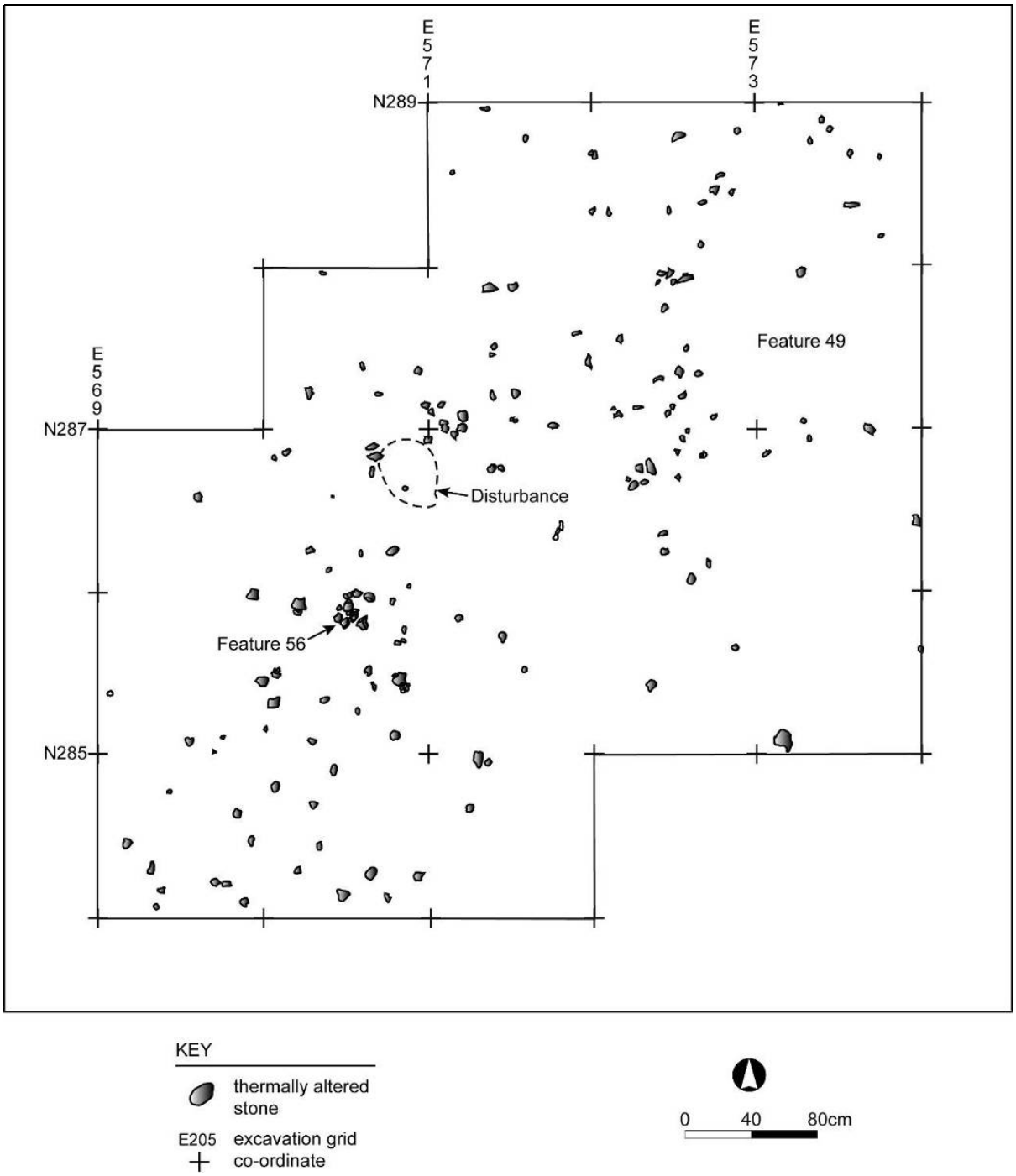


Figure 6-42. Feature 49, Plan View, Block B.

Feature 56 (Figure 6-43)

Location (center point)
Block B
N285.9 E570.56/
(Stratum B, Level 1)

Type
Thermally Altered Stone Cluster

Morphology
Plan: Round
Profile: Single Tier; Planar

Elevation
18.25 m amsl

Dimensions
Length: 25 cm
Width: 20 cm

Soil
n/a

Artifacts
13 (1.3 kg) Thermally Altered Stones

Description

Feature 56 consisted of a small but distinct cluster of 13 thermally altered stones located within the much larger Feature 49 scatter. The stones lay on a single plane. No charcoal flecking or soil discoloration were noted in association with Feature 56.

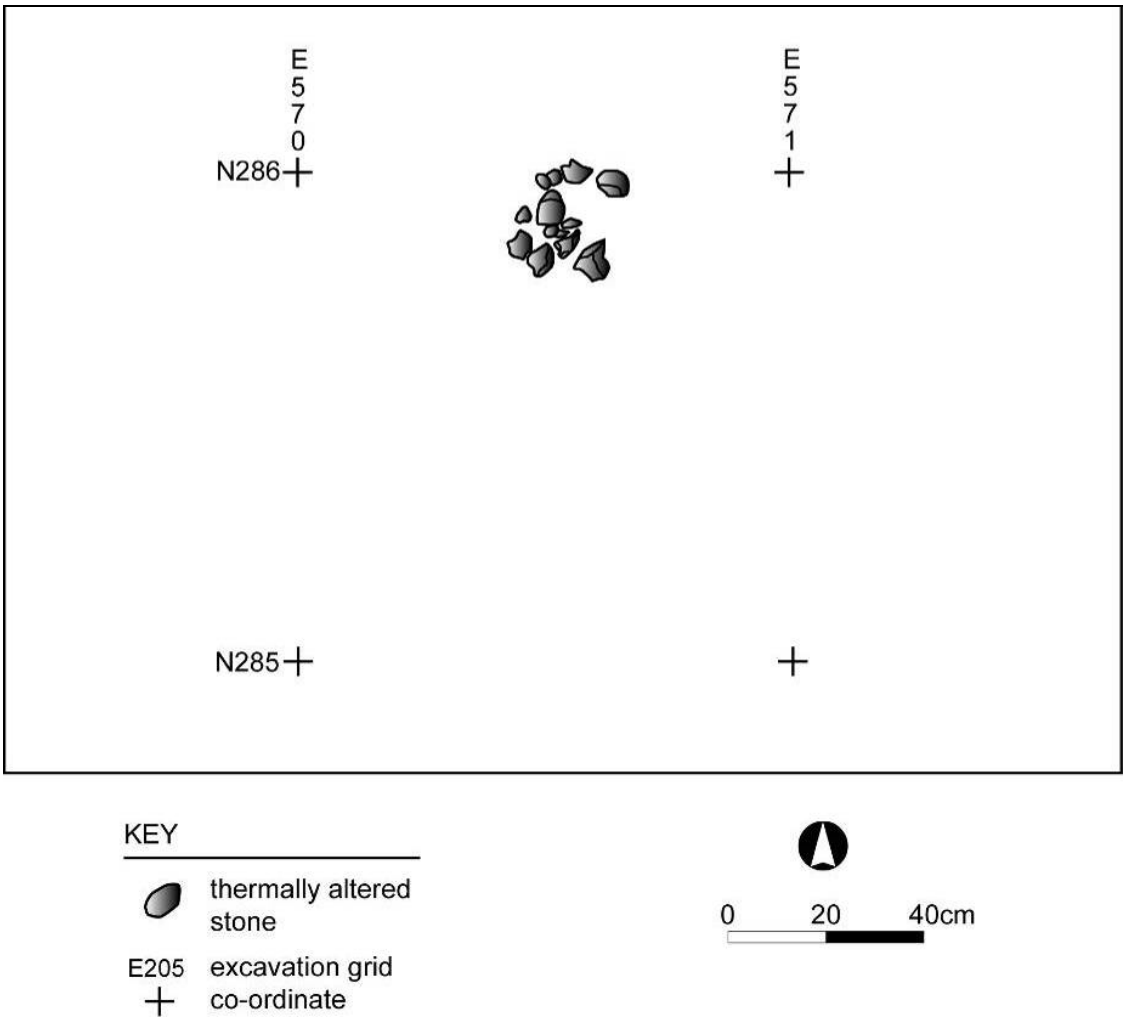


Figure 6-43. Feature 56, Plan View, Block B.

Spatial Analysis: Block B

Distinct and well-defined thermally altered stone features were documented in Stratum B. The preservation of these features implied that artifact distributions in the unplowed portion of the Early/Middle Woodland component in Block B likely represented the original arrangement of cultural material in that portion of the site. The integrity of the features was corroborated by the refit study conducted on the thermally altered stone fragments (Appendix G). In summary, refits occurred within each feature and between both of the small clusters in the east half of the block, Features 2 and 31, and the large distribution in the west half of the block, Feature 49. No refits occurred between Features 2 and 31 (Figure 6-44). The number and locations of the refits suggested that the three features were separate entities, but were temporally and functionally related. As in Block D, the features appeared to have comprised a functional unit. Given the degree of fragmentation exhibited by most of the heated stone, and the smaller sizes and more widespread distribution of the fragments in Feature 49, the artifacts were interpreted as the remains of a process of indirect heating, such as stone boiling. Features 2 and 31 would have served as primary features, in which the stones were heated, while Feature 49 served as an area in which spent stones were discarded. In addition to inter-feature refits, refits occurred between each of the features and surrounding fragments not included in the formal boundaries of the features. These extra-feature refits were for the most part either with small fragments of thermally altered stone that were not observed during excavation, or fragments that occurred outside the visible boundaries of the features, typically by less than 1 m, but occasionally by 5 m or more. In sum, the refit study indicated that the majority of the thermally altered stone in Block B was indeed derived from the features, and the material had not been redistributed extensively from the areas in which it was originally deposited.

To provide the largest practical sample for spatial analysis, the artifact distributions from the plowed and unplowed levels in Block B were combined. Justification for this procedure came from distinct similarities in the distributions of thermally altered stone in the two deposits. The horizontal distribution of thermally altered stone in the plow zone was similar to that recorded in Stratum B, particularly among the artifacts corresponding with the larger features, Features 31 and 49 (Figure 6-44). In addition, vertical refits were documented between each of the features in Stratum B and the plow zone deposits. Most of the refits occurred within contiguous units indicating that the artifacts were from the features and that relatively little horizontal movement had occurred. The general arrangement of the stone fragments was thus determined to be similar in both strata. The distributions of chipping debris were less well-aligned, although sample sizes were small and thus more challenging to interpret. In Stratum B, flaking debris surrounded Features 2 and 31, and occurred near the edges of Feature 49. The strength of the feature data justified integrating the artifacts from Stratum A and Stratum B for the purposes of spatial analysis.

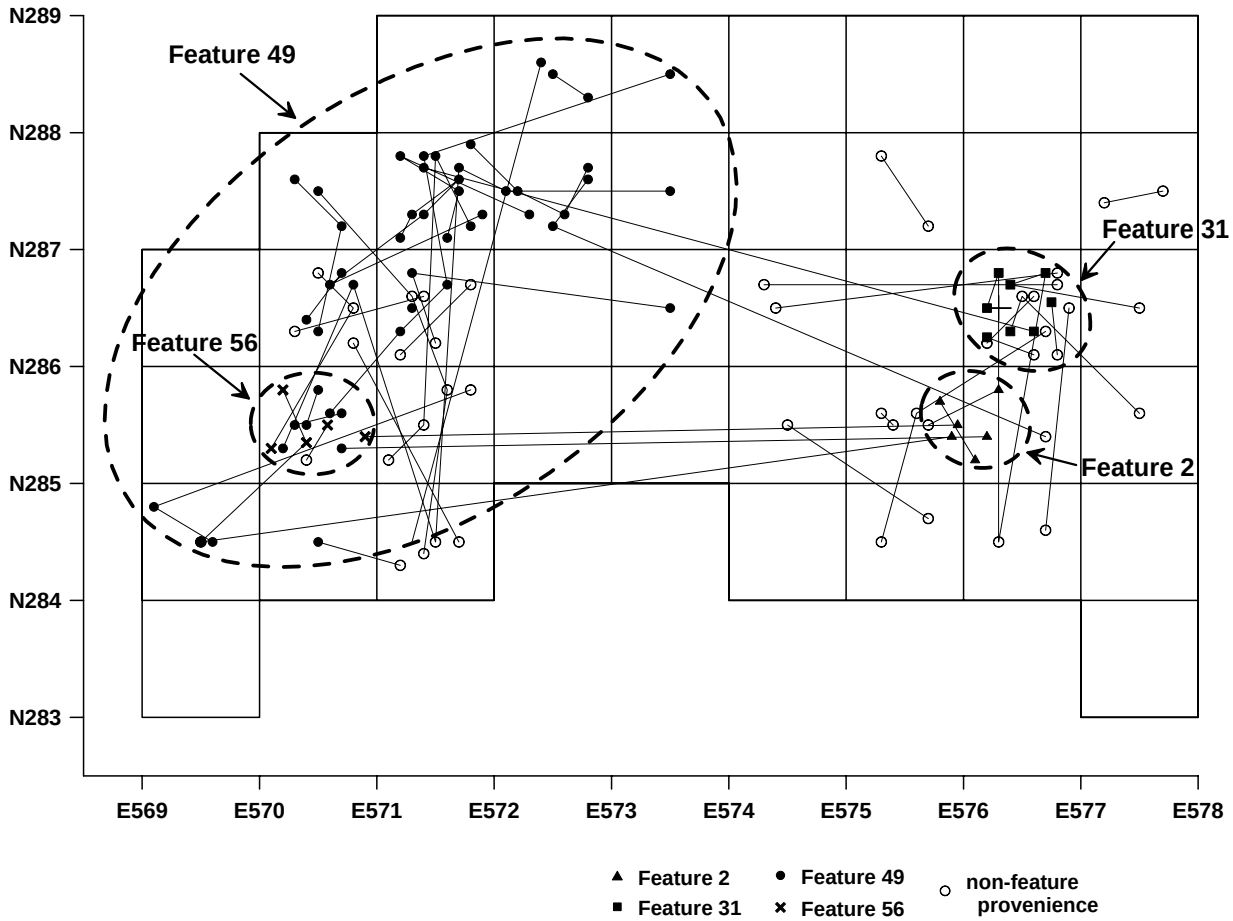


Figure 6-44. Thermally Altered Stone Refits, Block B.

The overall pattern of artifact distribution in the two stratigraphic layers was similar, but some lateral movement of artifacts had occurred. The main concentrations of thermally altered stone, representing the features recorded in Stratum B, were consistent in both strata. The distributions of flaking debris and more formal chipped stone artifacts, such as points, bifaces, and cores, were less spatially discrete, but generally indicated the locations of specific activity areas. Relatively little chipped stone occurred in the western half of the excavation block in association with Feature 49 (Figure 6-45a, b). Flaking debris was scattered near the edges of the feature in low frequencies, while a point, biface, and core was located near the northern end of the feature. Most of the chipped stone in the eastern half of the block occurred north of Feature 31, and included a small amount of flaking debris, two points, a biface, and a core, while a point occurred along with flaking debris between Features 2 and 31. No flake tools were present in the assemblage in any part of the block. The chipped stone associated with Feature 49 may have been incidental, part of a general discard area the low frequency of flaking debris implied little lithic reduction.

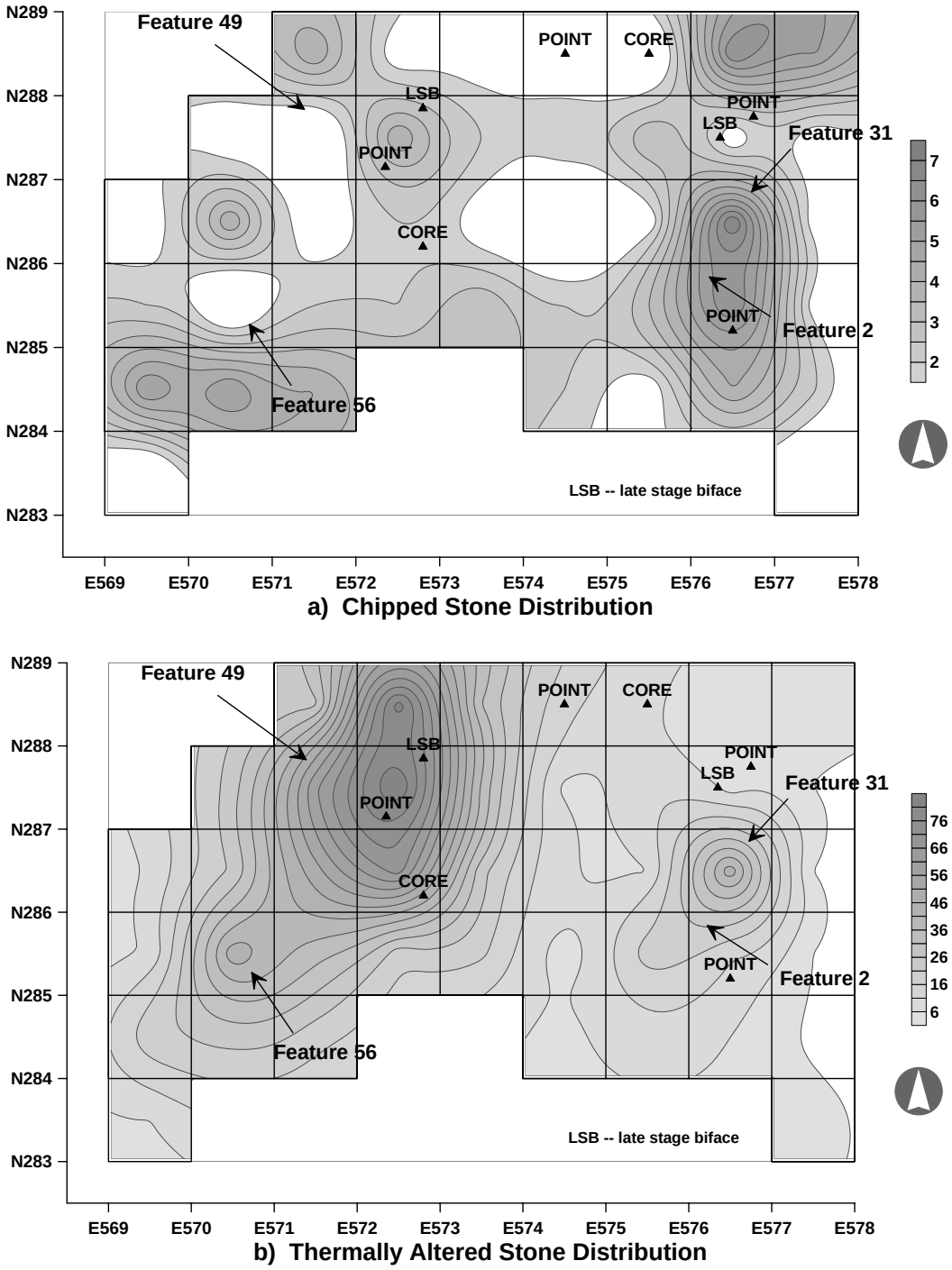


Figure 6-45. Early/Middle Woodland Assemblage Distribution, Block B, Stratum A and Stratum B Combined.

Block E

Artifacts: Block E

Relatively few artifacts were recovered from Block E. The artifact types are summarized in Table 6-16. Most of the material was contained in the fill of Feature 10, a large pit feature in the center of the excavation. Representative artifacts are illustrated in Plate 6-23.

Point. The point from Block E (#1726-1) was a small, stemmed point classified as Woodland I Stemmed. It had a short, straight-sided stem with a slightly rounded base that retained a small patch of cortex. The blade was narrow and triangular in shape, and somewhat asymmetrically aligned with the stem, suggesting that the blade had been resharpened along one edge. Bifacial scalar flaking was noted at the tip and along a short segment of one edge, suggesting use of the tip in a cutting motion.

Biface. The biface from Block E (#1727-1) was a small, early stage biface fragment of quartz (#1727-1). Flaking consisted of deep, unpatterned percussion flakes, one of which had removed most of one end of the artifact. No evidence of edgewear suggesting platform preparation or use was noted.

Flaking Debris. Flaking debris from Block E consisted of 7 chert flakes, 5 jasper flakes, 4 quartz flakes, and 2 quartz chips. Most of the flakes were small (less than 2 mm) and non-cortical, and were generated through resharpening activities.

Thermally Altered Stone. Eighty percent of the thermally altered stone fragments were quartzite. The size range of the fragments (0.7-381.0 g) was similar to that of the thermally altered stone fragments from other parts of the Early/Middle Woodland component, although the mean weight (68.9 g) was slightly higher.

Table 6-16. Total Prehistoric Artifact Types in Early/ Middle Woodland Assemblage Block E.

artifact type	count	frequency
point	1	3%
biface (early stage)	1	3%
flaking debris	18	51%
thermally altered stone	15	43%
total	35	

Plate 6-23. Early/Middle Woodland Artifact Assemblage, Block E
(Woodland I Stemmed point; early stage biface)

Feature: Block E

One feature was documented in Block E, a large pit feature located in the center of the excavation block, with little cultural material surrounding it.

Feature 10 (Figure 6-46, Plates 6-24 and 6-25)

Location (center point)
Block E
N305.0 E567.0

Type
Large Pit

Morphology
Plan: Pentagonal
Profile: Steep Walls, Flat-to-Variable Floor

Elevation
18.42 m amsl
(Base of Plow Zone)

Dimensions
Length: 420 cm
Width: 330 cm
Depth: 90 cm

Soil
10YR4/4 Dark Yellowish Brown and 10YR5/6 Yellowish Brown Loamy Sand

Artifacts
1 Point, Woodland I Stemmed (#1726-1)
1 Early Stage Biface (#1727-1)
10 Flakes; 2 Chips
8 (0.3 kg) Thermally Altered Stone

Description
Feature 10 was a large pit feature that was roughly pentagonal in plan. It had steep walls and a generally flat bottom. Two pronounced shelf-like configurations were present along opposing walls. One shelf was located along the square (northwest) end of the basin. The rim of the shelf was defined by a lip of very hard, compact soil. The second shelf was located within a rounded appendage on the opposite (southeast) end of the pit. Overall, feature fill was faintly mottled throughout, but was notably darker in the center of the feature. Three strata were recognized in the fill. In excavated profile, the interface between Stratum I and Stratum II roughly followed with the profile of the pit. The transition was indistinct and challenging to distinguish in the upper part of the fill. The limited number of artifacts recovered from the feature showed no discernible patterning in their vertical or horizontal distributions.

The third stratum (Stratum III) consisted of a thin band of pale, apparently leached soil that followed the basal contour of the pit. The configuration of Stratum I and Stratum II suggested that the feature had in-filled naturally. Geochemical analysis (detailed in Section 7.2 and Appendix H) indicated significantly elevated levels of available phosphorous (P) in the fill, compared with control samples, with the highest readings in the bottom level of the pit. Phosphorous is considered a prime indicator of human activity (Eidt 1985; Schuldenrein 1995). In combination with the presence of artifacts, the levels of P in Feature 10 implied that the pit was open at the time the Frederick Lodge Site Complex was occupied and was probably cultural in origin. One possible interpretation for this feature—based on its morphology and size—is that it represented the remains of a residential structure.

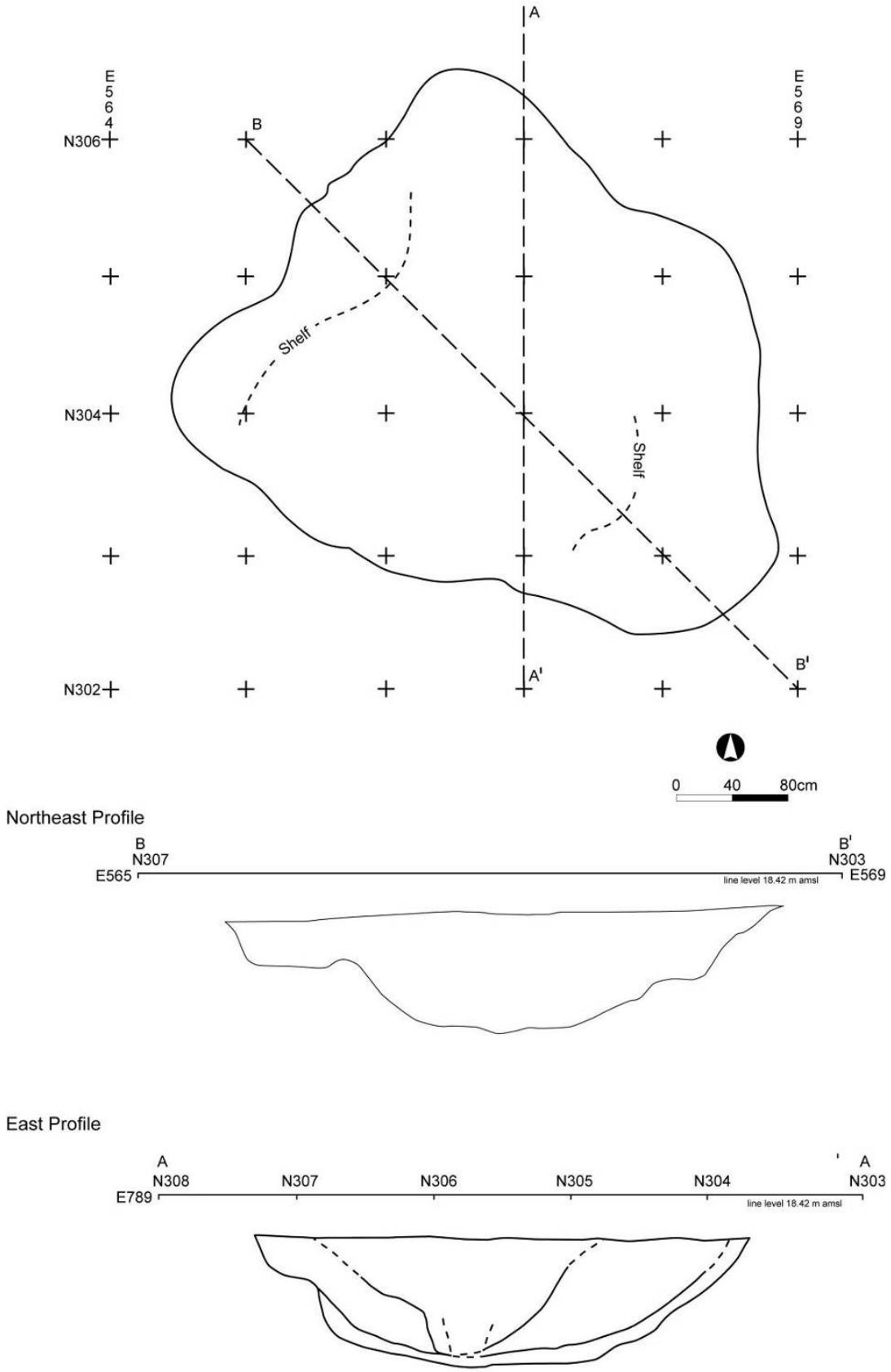


Figure 6-46. Feature 10, Plan View and Profile Sections, Block E.

Plate 6-24. Feature 10, Block E.

Plate 6-25. Excavation of Feature 10, Block E.

The formula for an ellipsoid was used to estimate the volume of Feature 10: v = 1/2*(0.67π (l*w*(h*2)), where v = volume, l = the length of the major axis of the opening, w = the width of the minor axis, and h = the depth. The volume of Feature 10 was calculated as almost 6,534 liters. The recorded volume was probably smaller than the original configuration due to truncation by plowing. Given the size of the feature, its primary function was unlikely to have been the storage of material. Substantial storage pits have been identified in similarly dated contexts in Delaware, such as Delaware Park (Thomas 1981), Lums Pond (Petraglia et al. 1998), and Puncheon Run (LeeDecker et al. 2005). At Delaware Park, the mean volumes of the four most common storage feature types (n=119) ranged between 233 and 1,813 liters;

at Lums Pond, the mean volume of 10 storage features was 503 liters; while at Puncheon Run, the mean volume of 13 large cylindrical storage features was 1,256 liters.

Alternatively, the shape and size of Feature 10 could support functional interpretation as a small, semi-subterranean shelter. Its basic morphology was similar to Thomas' (1981:IV-38) Feature Type B, at Delaware Park, a group interpreted as domiciles or shelters, and described as large, shallow pits with sloping sides and flat bottoms, hard-packed floor areas, possible entryways, and limited artifact inclusions. Elements of Feature 10 consistent with this interpretation included sloped walls, flat bottom, and shelf-like areas of markedly compact soils. Similar shelf features, possibly used for sitting, were common in pit houses in the Pacific Northwest (Keith Egloff, Virginia Department of Historic Resources: personal communication 2003). One such area was located along northwest wall of the pit. A second, smaller area of compacted soil was documented at the narrow (opposite) end of the pit, facing southeast where it would have captured early morning sunlight. This area may have served as an entrance. The central part of the feature was flat to shallowly concave and measured 2.0-x-2.2 m, appropriately sized and configured to have provided sleeping space for a small family. No evidence of post features was noted around the rim the pit. However, given that the feature was plow-truncated, posts sufficient to have supported a small superstructure may not have survived plowing.

Spatial Analysis: Block E

The majority of the artifacts in Block E were recovered from the fill contained in Feature 10. Artifacts not provenienced in the feature fill, including 6 flakes and 7 fragments of thermally altered stone, were recovered from Stratum A overlying the pit. The material types and sizes of the artifacts in Stratum A were similar to those in the fill. No artifacts were recovered from the units surrounding the pit. The implication drawn from these findings was that the pit had originally been excavated into a ground surface located above the elevation of the plow line, and that the upper portion of the feature had been truncated by plowing. The artifacts recovered from the plow zone appeared to have been derived from the disturbed portion of the feature fill.

Block A

Artifacts: Block A

Few artifacts were recovered from Block A, summarized as three fragments of flaking debris and 45 fragments of thermally altered stone.

Flaking Debris. Flaking debris from Block A was limited to one quartzite flake, one jasper flake, both non-cortical, and one quartzite chip with remnant cortex.

Thermally Altered Stone. Almost 75 percent of the thermally altered stone fragments were quartzite, the remainder quartz. The mean weight of the fragments (55.4 g) was slightly higher than in other parts of the Early/Middle Woodland component. Five of the thermally altered stone fragments, with a mean weight of 158 g), were contained in Feature 1.

Feature: Block A

Feature 1 (Figure 6-47)

Location (center point)
Block A
N315.5/E575.5

Type
Thermally Altered Stone Cluster

Morphology
Plan: Small Cluster
Profile: Single Tier, Planar

Elevation
18.25 m amsl(Stratum B Level 1)

Dimensions
Length: 30 cm
Width: 20 cm

Soil
n/a

Artifacts
5 (0.791 kg) Thermally Altered Stones

Radiocarbon Assay
Not Dated

Description
Feature 1 consisted of a small cluster of 5 thermally altered stone fragments located on a single plane just below the base of the plow zone. All of the stones were quartzite. No charcoal or soil discoloration was observed in association with the stone cluster.

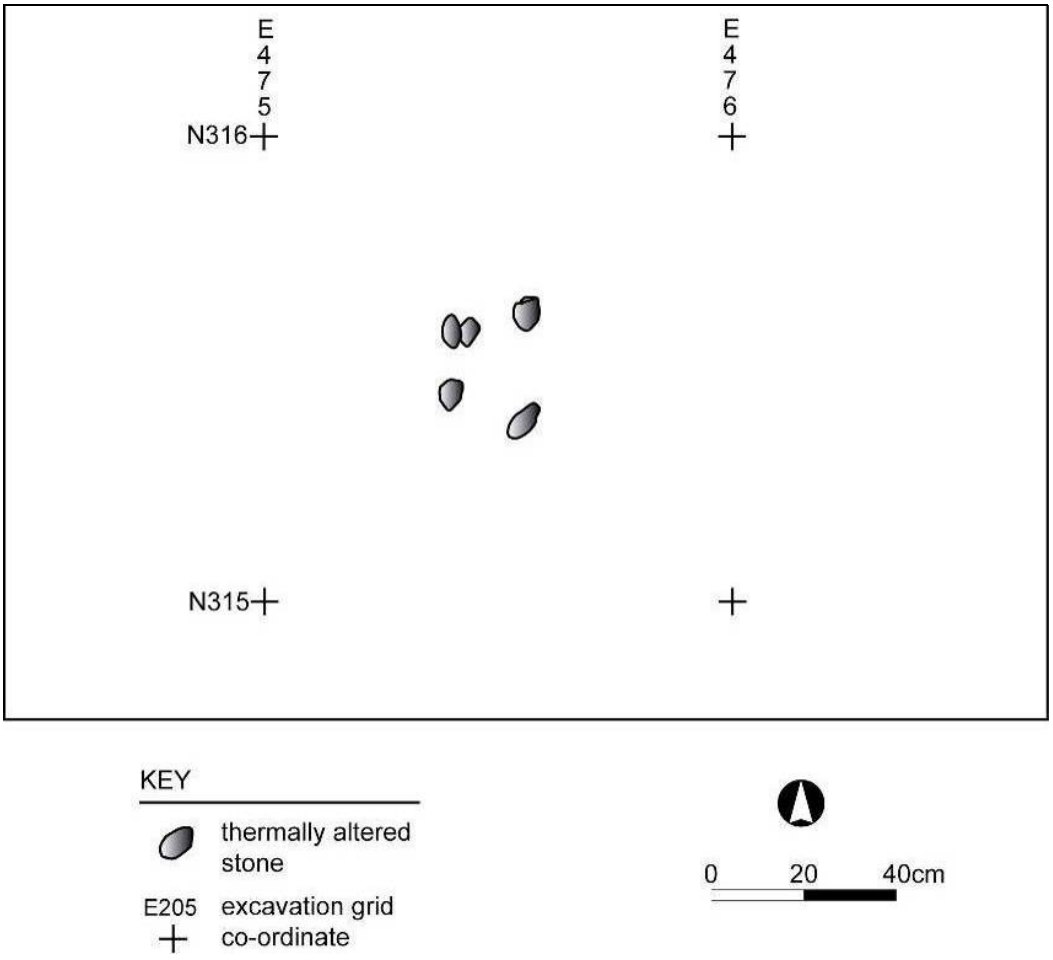


Figure 6-47. Feature 1, Plan View, Block A.

Summary: Early/Middle Woodland

The distinct Early/Middle Woodland component at Frederick Lodge was contained in four excavation blocks: Block B, Block D, Block E, and Block A. While each of these blocks differed in artifact content, artifact density, and feature type, common to most were small, stemmed points referred to as Woodland I Stemmed, that defined the assemblages and their temporal placement. Lithic reduction activity appeared to be limited in each location. Analysis of cores and flaking debris suggested that while primary reduction was conducted in these areas within the site, the activity was probably limited to flake tool production, using local pebble sources for raw material. Other debitage may have been derived from tool maintenance, but was limited in frequency.

Thermally altered stone accounted for almost 75 percent of the artifacts in the Early/Middle Woodland assemblage. Most of this material was contained in six features, ranging in size from small, compact clusters to widespread distributions. Detailed analyses suggested that the features had been used in an activity involving indirect heating, such as stone boiling. Spatial analysis indicated that lithic reduction had been conducted in discrete locations within each excavation block. A large pit was also identified northeast of the main artifact concentrations. Artifact content and geochemical data suggested that the feature was cultural in origin and dated to the Early/Middle Woodland period. This feature could have served as a storage feature. An alternative interpretation suggested that it represented the remains of a shelter or residential structure, which would imply relatively long-term occupation of the site complex during this period.

Late Woodland

The Late Woodland component consisted of two triangle points. The points were recovered from mixed or surface contexts in two block excavations, one in Block B, the other in Block D. No artifact assemblages could be confidently identified as associated with these points.

Late Woodland: Points

One Late Woodland point (#955-1) was made from jasper (Plate 6-26). The distal tip was missing at a transverse snap break, but the artifact appeared to have been roughly equilateral in shape. Length was estimated at 28 mm, while width measured 26 mm, and thickness 5 mm (width:thickness 5:2). The blade was alternately beveled, with the edges inset slightly near the distal end. Both characteristics suggested symmetrical resharpening of the artifact. No edgewear was detected. The base was slightly convex. The second point (#905-1) was the base of a small triangle made from argillite. Most of the blade was missing at a perverse snap break. The point measured 21 mm in width, while the existing portion, which appeared to have been characteristic of the whole artifact, was 5 mm thick. The base was concave, and the edges were heavily weathered.

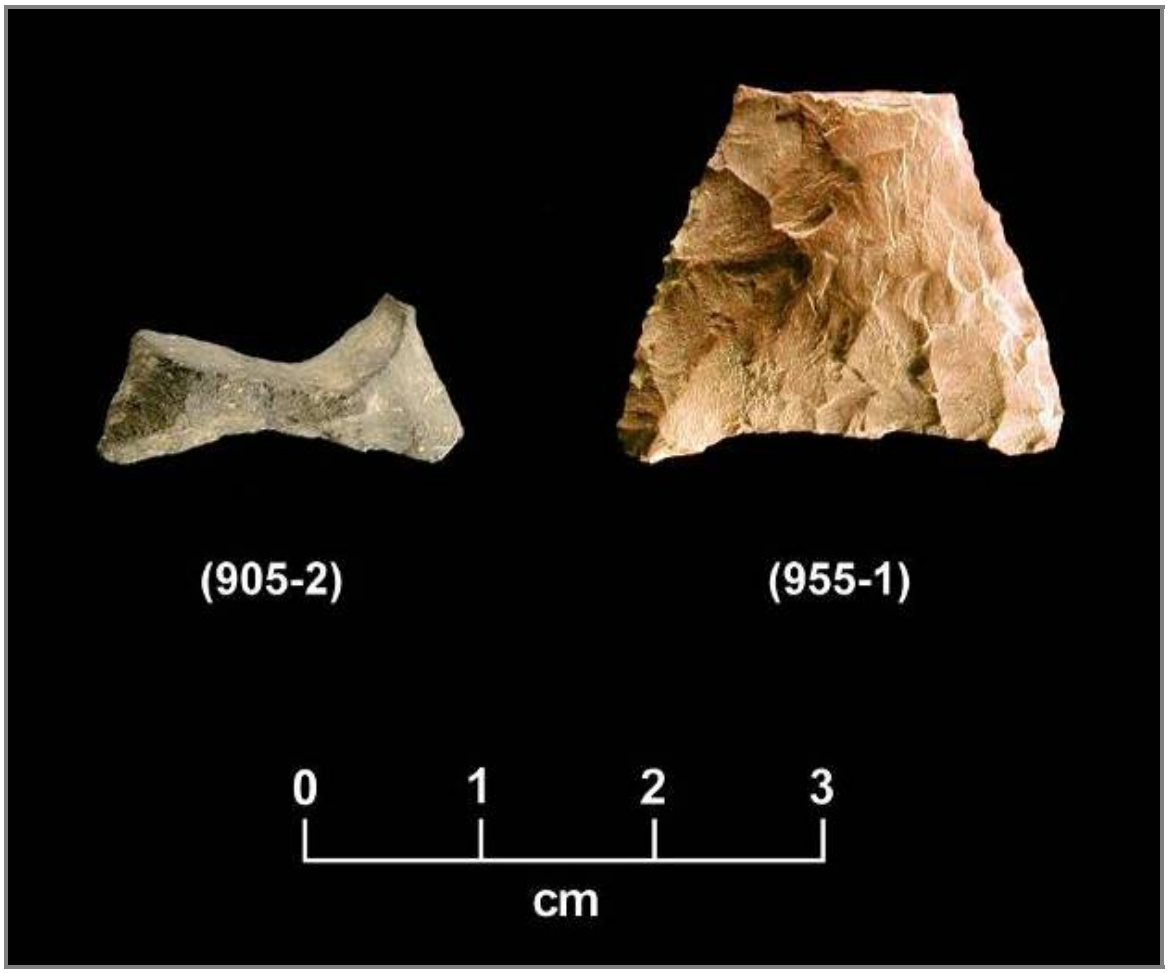


Plate 6-26. Late Woodland Triangle Points from Surface Proveniences or Mixed Contexts.