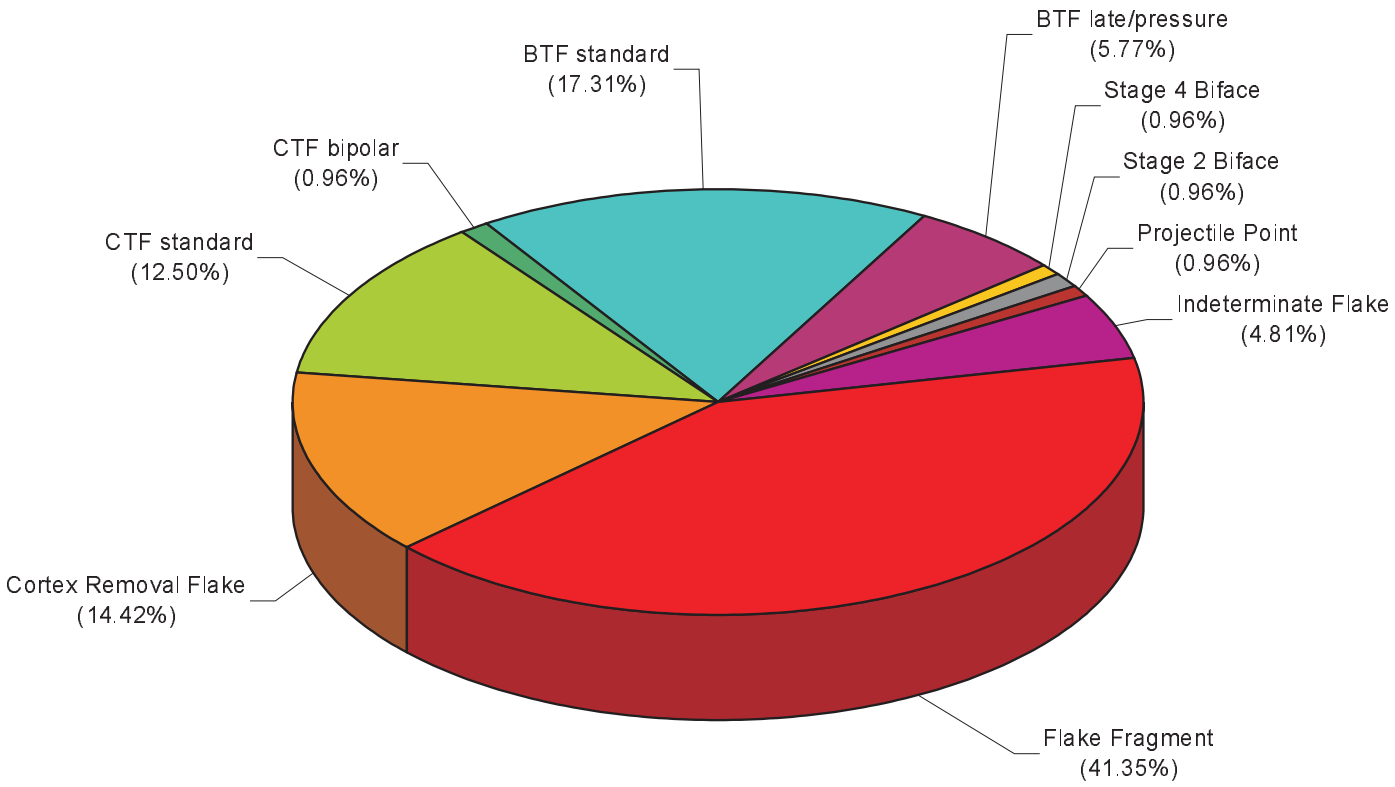
8.0 CLUSTER 5 ACTIVITY AREA

8.1 Spatial Parameters

The Cluster 5 Activity Area was identified in the Block 3 excavations during the Phase III data recovery at Site 7NC-B-54 (Ronald McDonald House) (see Figure 30). It is one of the two smallest artifact clusters identified and excavated at the site, measuring a maximum of 3.0 m (9.8 ft) east to west and 3.0 m (9.8 ft) north to south. The Cluster 5 Activity Area is not as well defined as the other three artifact clusters, with its northwestern extent somewhat clouded by overlap with the Cluster 4 Activity Area and the northeastern extent clouded by overlap with the high-density artifact Cluster 6 Activity Area. However, the artifact distribution peaks in the Cluster 5 Activity Area are as strong and spatially discrete as those seen in the Cluster 4 Activity Area. Overall, the Cluster 5 Activity Area artifact counts per excavated test unit ranged from 7 to 36. The average quantity of artifacts per square meter in the Cluster 5 Activity Area is 14.9. Horizontally, the artifact cluster encompasses seven test units, including N521 E443, N521 E444, N522 E443, N522 E444, N522 E445, N523 E443, and N523 E444. Vertically, artifacts associated with the Cluster 5 Activity Area were found in Stratum 1 (OA horizon) and Stratum 2 (E horizon) at depths between the modern ground surface and 31.0 cm (12.2 in) below the modern ground surface. Twelve, or 11.54 percent, of the artifacts recovered from the Cluster 5 Activity Area were recovered from Stratum 1 (OA horizon), while 92, or 88.46 percent, were recovered from Stratum 2 (E horizon). Despite the minor differences in morphological characteristics of Stratum 1 (OA horizon) and Stratum 2 (E horizon), they are depositionally the same, having formed in place.

8.2 Lithic Raw Materials and Technology

The Cluster 5 Activity Area is comprised of 104 lithic artifacts, including 43 (41.35%) flake fragments; 18 (17.31%) biface thinning flakes, standard; 15 (14.42%) cortex removal flakes; 13 (12.50%) cortex trimming flakes, standard; six (5.77%) biface thinning flakes, late/pressure; five (4.81%) indeterminate flakes; one (0.96%) cortex thinning flake, bipolar; one (0.96%) projectile point; one (0.96%) Stage 2 biface; and one (0.96%) Stage 4 biface (Figure 35; Appendix C).



104 Total Artifacts

DELAWARE DEPARTMENT OF TRANSPORTATION	
BLUE BALL AREA TRANSPORTATION IMPROVEMENTS PHASE III SITE 7NC-B-54 (RONALD MCDONALD HOUSE) BRANDYWINE HUNDRED NEW CASTLE COUNTY	
CLUSTER 5, TECHNOTYPES	
FIGURE - 35	SKELLY and LOY Inc. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

8.2.1 Raw Materials

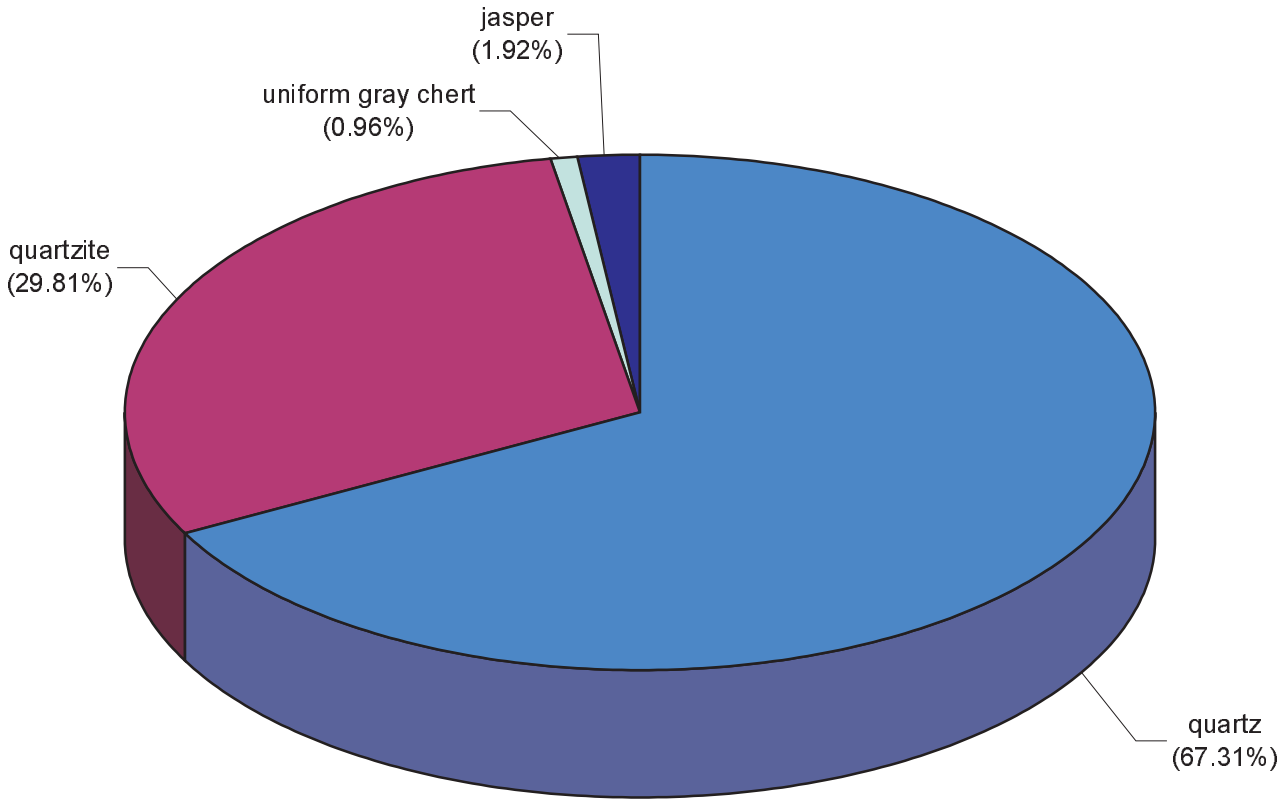
Quartz (67.3 percent) and quartzite (29.8 percent) dominate the raw material types in the Cluster 5 assemblage, accounting for over 97 percent of the identified raw materials (Figure 36). The remaining raw materials consist of two jasper artifacts, including one debitage flake and one projectile point, and one chert debitage flake, accounting for approximately three percent of the assemblage. In all, 20 of the 104 recovered Cluster 5 lithic specimens exhibit cortex, suggesting a nearby raw material source. Most of the cortex (17 of 20, or 85%) is cobble cortex, suggesting that the nearby sources exploited were secondary sources. The cortex present on the remaining three pieces is of an indeterminate type. As discussed previously, the classification of "indeterminate" cortex is used when the characteristics of the cortex are intermediate between "classic" cobble cortex (derived from secondary deposits) and block cortex (cortex found on materials from bedrock sources). Given the general abundance of lithic materials from secondary deposits found at this cluster and the site in general, it is likely that most, if not all, of the raw material for tool manufacture was derived from secondary cobble sources.

8.2.2 Tools and Tool Fragments

Two bifaces and one projectile point are the tools present in the Cluster 5 assemblage. The projectile point is a Brewerton Ear-Notched projectile point, suggesting an Archaic age affiliation for this cluster. The bifaces are not chronologically diagnostic.

8.2.2.1 Projectile Points

Analysis identified a single Brewerton Ear-Notched projectile point manufactured from jasper (Specimen 2000/21-236/A) (Plate 18). This projectile point type is generally associated with the Late Archaic period (Justice 1987). This tool exhibits an asymmetric blade with a large number of hinge/step terminations, suggesting that the projectile point was used and resharpened on one or more occasions before loss or discard within the confines of Cluster 5. The most likely scenario is that the projectile point was intentionally discarded when it became too small and asymmetric to



104 Total Artifacts

DELAWARE DEPARTMENT OF TRANSPORTATION	
BLUE BALL AREA TRANSPORTATION IMPROVEMENTS PHASE III SITE 7NC-B-54 (RONALD MCDONALD HOUSE) BRANDYWINE HUNDRED NEW CASTLE COUNTY	
CLUSTER 5, RAW MATERIALS	
FIGURE - 36	SKELLY and LOY Inc. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

2000/21-236/A

0 5 cm

Plate 18. Site 7NC-B-54 (Ronald McDonald House) Cluster 5 Projectile Point.

easily resharpen. Given that lithic raw materials were available from secondary sources nearby, it may have been easier to manufacture a new projectile point. The two bifaces discussed below may represent failed attempts to manufacture a replacement for the projectile point.

8.2.2.2 Bifaces

Two quartz bifaces are present in the Cluster 5 assemblage. Specimen 2000/21-235/A is a Stage 2 biface (early stage) that is truncated by a flexion break (Plate 19). Cobble cortex appears on one surface. The piece was likely discarded because of this fracture. Specimen 2000/21-252/A is a Stage 4 (later stage) biface broken by an irregular fracture (Plate 20). The overall morphology of this piece suggests that it was manufactured from a large flake (perhaps a core reduction flake) rather than from a nodule of unmodified raw material. The piece was almost certainly discarded because the fracture resulted in the truncation of a large portion of the biface.

8.2.3 Debitage

The Cluster 5 lithic debitage exhibits evidence for the reduction of bifaces, as well as both freehand and bipolar cores. No specific initial edging flakes were identified, though a number of the flakes classified as “cortex removal flakes” could well represent the earlier stages of biface or core reduction. Unfortunately, cortex removal flakes are technologically indeterminate. The mid-to-later stages of biface reduction are evidenced by the presence of 18 standard and six late stage/pressure biface thinning flakes.

Regarding individual raw material types, quartz, the most abundant stone type in the assemblage, exhibits a mix of mid- and late-reduction techniques, as suggested by the presence of eight standard and five late/pressure biface reduction flakes. In contrast, the quartzite assemblage shows more emphasis on the middle stages of reduction, as represented by 10 standard flakes and only one late/pressure biface reduction flake.

Core trimming debitage consists of 14 debitage flakes, likely produced during the reduction of cobble cores, perhaps for the generation of flake blanks for further tool manufacture or the production of flakes for simple handheld tools. Thirteen of these flakes were classified as “standard,” suggesting removal from freehand cores, while

2000/21-235/A

0 5 cm

Plate 19. Site 7NC-B-54 (Ronald McDonald House) Cluster 5 Stage 2 Biface.

2000/21-252/A

0 5 cm

Plate 20. Site 7NC-B-54 (Ronald McDonald House) Cluster 5 Stage 4 Biface.

one was classified as “bipolar,” resulting from the reduction of a bipolar core. Core reduction debitage was identified in both the quartz (n=12) and quartzite (n=2) assemblages.

8.2.4 Utilization

No utilized flakes were identified during the examination of the debitage recovered from the Cluster 3 Activity Area.

8.2.5 Thermal Alteration

Two jasper artifacts evidence thermal alteration in the form of color change. This color change suggests intentional controlled exposure to heat for the purpose of improving the workability of the stone. No indications of uncontrolled exposure to heat, such as potlids, crazing, and other technological markers, are present in the Cluster 5 assemblage.

8.2.6 Summary

Based on the presence of one Brewerton Ear-Notched projectile point within the Cluster 5 artifact assemblage, the cluster appears to date to the early portion of the Woodland I period.

During the occupation/use of Cluster 5, pre-contact period knappers concentrated their lithic reduction efforts on quartz and quartzite, despite the presence of small amounts of jasper and chert. As a whole, cobble cortex dominates the specimens in the assemblage when cortex is present. Like Clusters 1 and 4 discussed above, the abundance of cobble cortex suggests a virtually exclusive reliance on locally available raw material from secondary sources.

Based on lithic tool and debitage analysis, both core and biface reduction activities were taking place at the Cluster 5 location. Direct evidence of core and biface reduction is limited to the quartz and quartzite assemblages. While the jasper projectile point suggests that at least this one tool was transported to Cluster 5 as a finished object, there is no evidence that it was resharpened or further reduced at the Cluster 5 location before its discard. A range of reduction is associated with the quartz

assemblage, as both early- and late-stage bifaces and mid-to-later stage debitage is present. Biface reduction activities in the quartzite assemblage are limited to mid- to later-stages, as evidenced by debitage.

Like the preceding discussion of the Cluster 1 and 4 assemblages, low artifact counts (n=104) in the Cluster 5 assemblage suggests a lack of extensive knapping episodes at this location. Nevertheless, both core and biface reduction is indicated for two of the raw materials present. Most of the evidence for knapping at Cluster 5 appears to be associated with attempts to knap new tools to replace the worn jasper projectile point, which was discarded at the location. The absence of evidence for utilization on any of the Cluster 5 lithic tools or debitage suggests that the pre-contact period knappers occupied/used the site very briefly to work on several different items, and then departed.

8.3 Presumptive Blood Residue Testing

Three, or nearly three percent, of the lithic artifacts recovered from Cluster 5, including one projectile point, one Stage 2 biface, and one Stage 4 biface, were submitted to presumptive blood residue testing. All of the tested specimens proved negative for the presence of blood residue; however, two of the three had been washed during their processing prior to the presumptive blood residue testing. The effect of the washing on the presence of blood is not known. Quartz and jasper comprise the raw material in the artifacts tested. The lack of blood residue on the tested artifacts may reflect that the artifacts were never used for tasks that would have exposed them to blood, or may be due to the removal of any blood during washing of the artifacts when they were processed. The lack of blood residue on the tested Cluster 5 artifacts supports the idea that the tasks accomplished in this portion of the site were limited to lithic reduction and did not include hunting or butchering activities, or inadvertent bleeding of the knappers themselves by accidental cuts during knapping.

8.4 Chronology

No materials suitable for radiometric assay were recovered from excavations in the Cluster 5 Activity Area; therefore, no direct absolute dates are available for the activity area. One projectile point recovered from the artifact cluster is identified as a Brewerton Ear-Notched type. The temporal association of these projectile points in the Delaware Valley is 4,500 B.C. to

at least 3,000 B.C. (Custer 1996:144). Based on the presence of a single temporally diagnostic lithic artifact, the associated age of the Cluster 5 Activity Area is the Late Archaic/Woodland I period.

8.5 Interpretations

Based on the morphology and material culture characteristics of the Cluster 5 Activity Area, it appears that the location was used once, for a short time, by one or at most a few individuals who were manufacturing new tools to replace worn ones. They collected the raw materials locally, most likely from Alapocas Run, brought them to the location, and knapped new tools to replace the worn projectile point that they brought with them. Once they had a replacement, the worn projectile point was discarded. Based on the presence of one chronologically diagnostic projectile point, the person who brought the worn projectile point to the location most likely did it after 4,500 B.C. Indications of other domestic activities, such as cutting, chopping, scraping, cooking, gathering, butchering, or trapping, are absent at the Cluster 5 location.