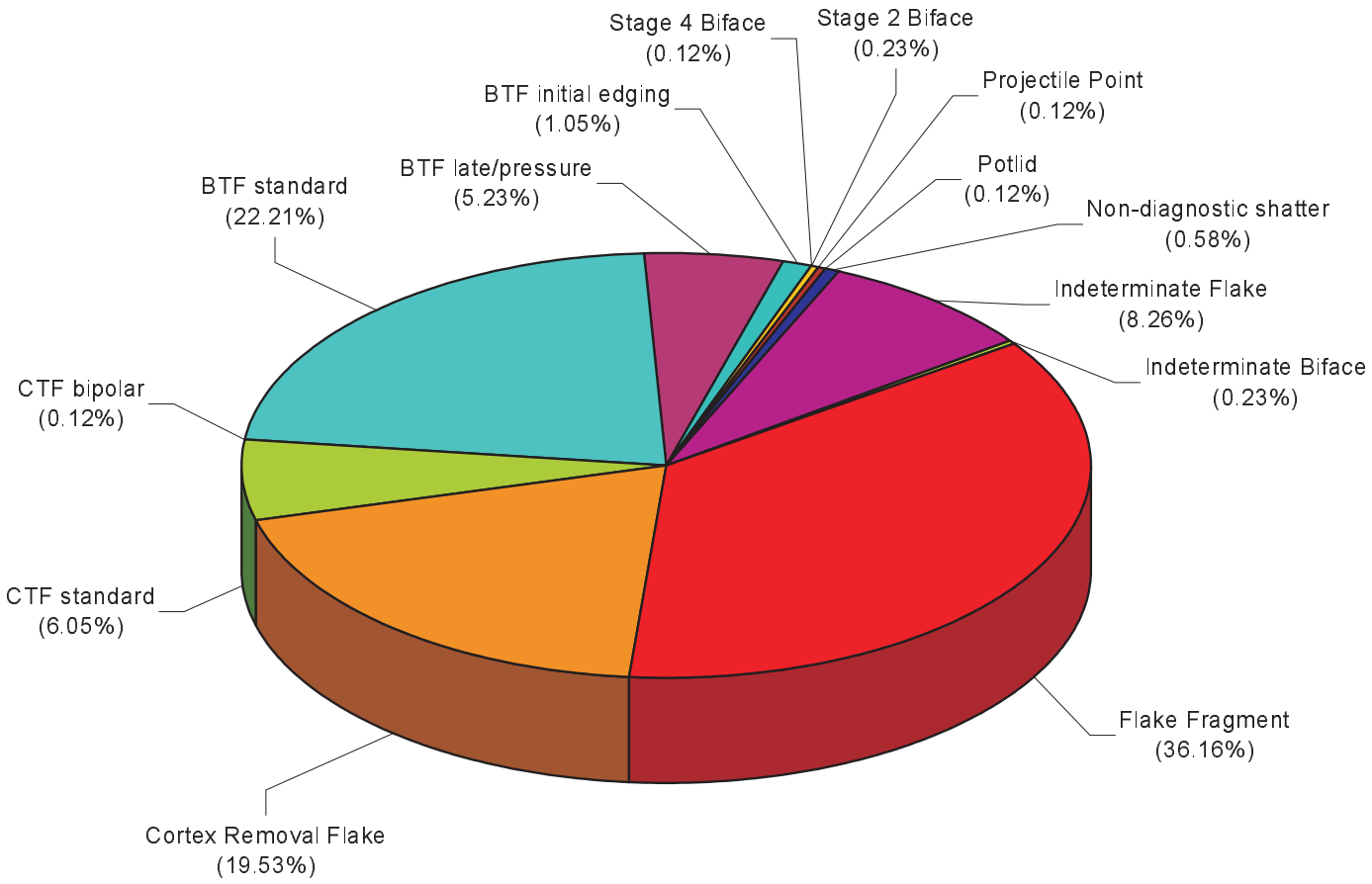
9.0 CLUSTER 6 ACTIVITY AREA

9.1 Spatial Parameters

The Cluster 6 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 at the archaeological site; however it contains the most artifacts. The artifact cluster measures a maximum of 3.0 m (9.8 ft) east to west and 3.0 m (9.8 ft) north to south. The artifact cluster is well defined by an extreme peak in artifact density centered on grid point N524.5 E445.5. The boundaries of this artifact cluster are marked by major differences in artifact counts between adjacent test units. Overall, the Cluster 6 Activity Area artifact counts per excavated test unit ranged from 11 to 356, with 66.16 percent of the artifacts recovered from the cluster being recovered from two contiguous test units. The average quantity of artifacts per square meter in the Cluster 6 Activity Area is 122.9, which is not only higher than the average number of artifacts per square meter in the other three artifact clusters, but higher than the total number of artifacts representative of each of the other three artifact clusters. Horizontally, the artifact cluster encompasses seven test units, including N523 E445, N523 E446, N524 E445, N524 E446, N524 E447, N525 E445, and N525 E446. Vertically, artifacts associated with the Cluster 6 Activity Area were found in Stratum 1 (OA horizon) and Stratum 2 (E horizon) at depths between the modern ground surface and 29.0 cm (11.4 in) below the modern ground surface. 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.

9.2 Lithic Raw Materials and Technology

Cluster 6 contains the largest concentration of lithic materials identified at Site 7NC-B-54 (Ronald McDonald House). The Cluster 6 Activity Area is comprised of 860 lithic artifacts, including 311 (36.16%) flake fragments; 191 (22.21%) biface thinning flakes, standard; 168 (19.53%) cortex removal flakes; 71 (8.26%) indeterminate flakes; 52 (6.05%) cortex trimming flakes, standard; 45 (5.23%) biface thinning flakes, late/pressure; nine (1.05%) biface thinning flakes, initial edging; five (0.58%) non-diagnostic shatter; two (0.23%) Stage 2 bifaces; two (0.23%) indeterminate bifaces; one (0.12%) Stage 4 biface; one (0.12%) projectile point; one (0.12%) cortex trimming flake, bipolar; and one (0.12%) potlid (Figure 37; Appendix C).



860 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 6, TECHNOTYPES	
FIGURE - 37	SKELLY and LOY Inc. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

9.2.1 Raw Materials

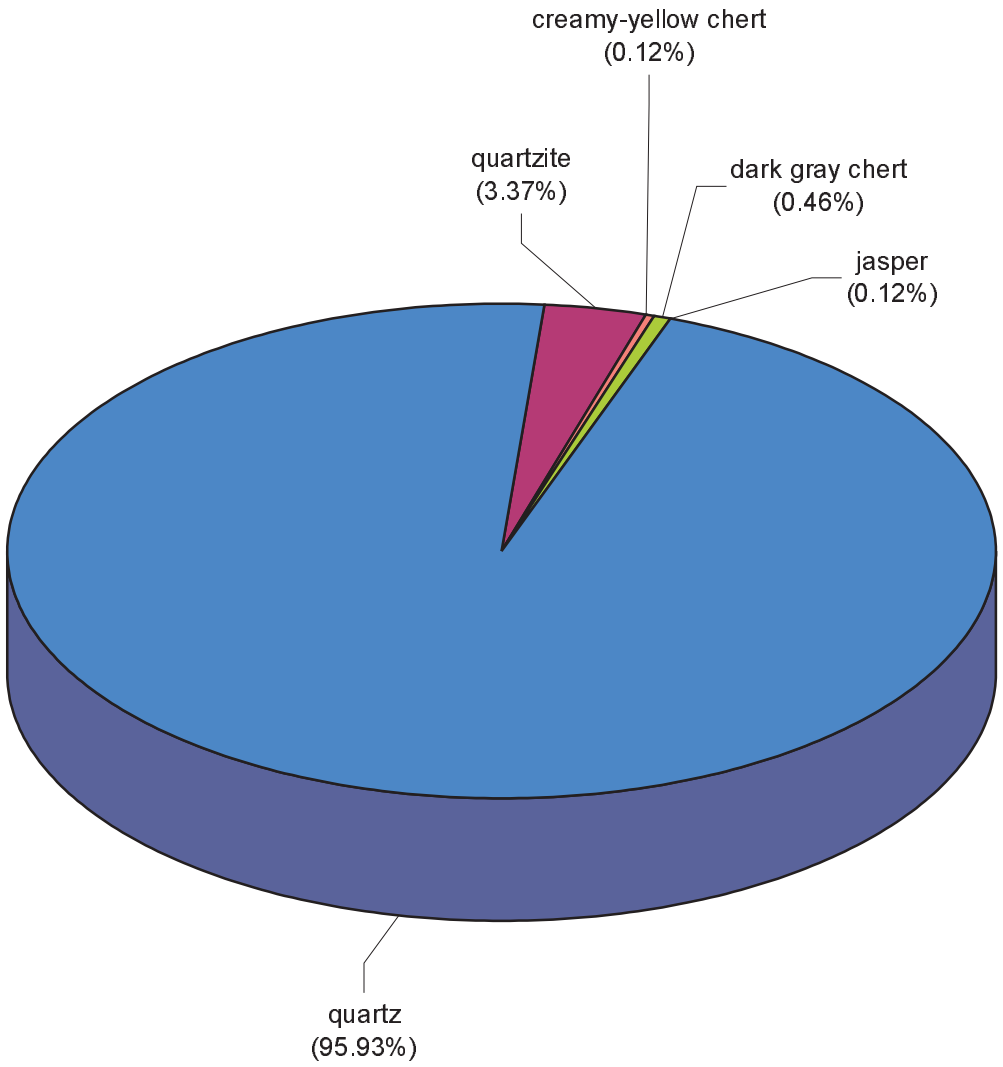
Quartz dominates the raw material types associated with the Cluster 6 assemblage, accounting for 95.93 percent of all of the raw materials (Figure 38). Quartzite (n=29), chert (n=5), and jasper (n=1) comprise the remainder of the lithic raw materials. Clearly, the focus of lithic reduction in this cluster was on the use of quartz. An examination of cortical surfaces on the dorsal surface of flakes and tools identified 221 incidences (25.70%) of cobble cortex. The 221 incidences of cortex occurred on 219 the quartz artifacts, one of the chert artifacts, and one of the quartzite artifacts. The quantity of cobble cortex suggests that most, if not all, stone associated with this cluster was acquired from nearby secondary cobble sources. Clearly, raw material from cobble deposits was integral to the lithic reduction activities evidenced at the Cluster 6 location. Cortex was absent on the single jasper flake.

9.2.2 Tools and Tool Fragments

While Cluster 6 contains more artifacts than any of the other clusters discussed, the stone tool portion of the assemblage is quite small, limited to six total pieces, one projectile point and five bifaces. Eight hundred and fifty-four pieces of lithic debitage are also present in the Cluster 6 assemblage. The age of this cluster can not be determined, as there are no chronologically diagnostic lithic artifacts present in the assemblage.

9.2.2.1 Projectile Points

The single projectile point (Specimen 2000/21-308/K) is a medial fragment manufactured from quartz (Plate 21). The projectile point is truncated by flexion breaks that resulted in the removal of both the proximal and distal ends. The fragmentary nature of this piece precludes any attempt at assigning it to a projectile point type.



860 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 6, RAW MATERIALS	
FIGURE - 38	SKELLY and LOY Inc. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

2000/21-308/K

0 5 cm

Plate 21. Site 7NC-B-54 (Ronald McDonald House) Cluster 6 Projectile Point.

9.2.2.2 Bifaces

Analysis identified five quartz bifaces, all of which are fragmentary. Of these, three fragments contain enough diagnostic elements to place them within a stage category. Of these, one medial (Specimen 2000/21-305/A) and one proximal fragment (Specimen 2000/21-323/A) are classified as Stage 2 bifaces (representing the initial stages of reduction) (Plate 22). Both bifaces are truncated by flexion breaks and/or irregularities in the raw material, and both exhibit cobble cortex. The remaining biface fragment (Specimen 2000/21-323/B) is large enough for classification as a proximal fragment of a Stage 4 tool (Plate 23). Cortex is absent on this piece.

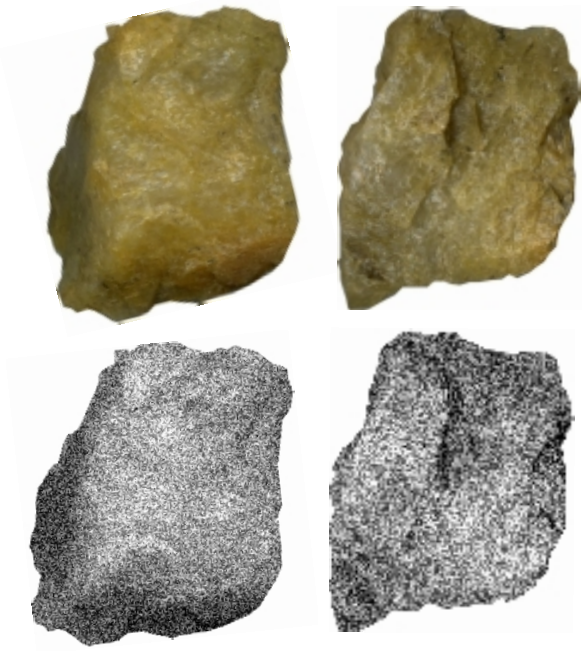
The remaining two bifaces (Specimens 2000/21-310/A and 2000/21-310/B) are too fragmentary to be classified as to stage, and therefore, are quantified as "indeterminate biface fragments" (Plate 24).

9.2.3 Debitage

Analysis of the debitage associated with Cluster 6 evidences a broad range of lithic reduction activities, including the production of bifaces, as well as the reduction of both freehand and bipolar cores. Because quartz so thoroughly dominates the assemblage, this discussion will concentrate on the quartz assemblage, with brief discussions on the other raw material types. Regarding quartz biface reduction, nine initial edging flakes, associated with the earliest stages of biface reduction, were identified. This evidence suggests that the pre-contact period knappers either transported minimally modified quartz blanks to Cluster 6, or produced flakes (likely from cores) at Cluster 6, then turned those items into bifaces. In addition to initial edging flakes, analysis identified 176 "standard" and 43 "late/pressure" quartz biface thinning flakes, suggesting that the mid-to-later stages of biface thinning are also associated with Cluster 6 activities.

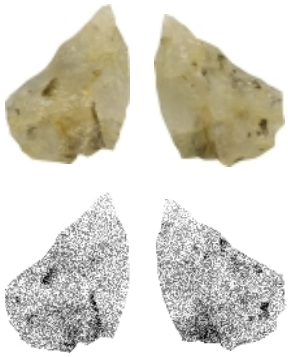
Biface reduction is also associated with other raw material types. In the quartzite assemblage, 15 of 29 flakes are classified into biface reduction categories, while two of five total chert flakes are associated with biface reduction. Unlike the quartz assemblage, however, the entire range of biface reduction is not represented in these raw material types. All of the biface thinning flakes associated with these minor raw material types are either classed as "standard" or late/pressure.

2000/21-305/A



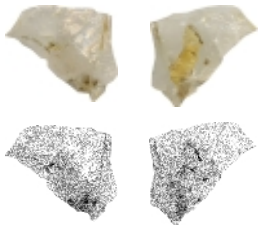
2000/21-323/A

Plate 22. Site 7NC-B-54 (Ronald McDonald House) Cluster 6 Stage 2 Bifaces.

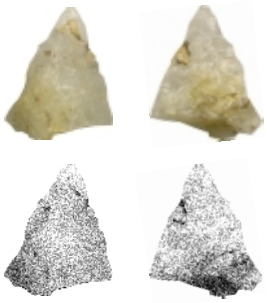


2000/21-323/B

Plate 23. Site 7NC-B-54 (Ronald McDonald House) Cluster 6 Stage 4 Biface.



2000/21-310/A



2000/21-310/B

0 5 cm

Plate 24. Site 7NC-B-54 (Ronald McDonald House) Cluster 6 Indeterminate Bifaces.

Core trimming debitage consists of 53 flakes, including 52 associated with the quartz assemblage and one associated with the quartzite assemblage. Of these, 52 (51 quartz, one quartzite) were classified as “standard” core reduction flakes and were likely produced during the reduction of cobble cores, perhaps for the generation of flake blanks for further tool manufacture or for use as simple handheld tools. A final quartz flakes exhibits characteristics strongly suggestive of bipolar core reduction.

In addition to flakes classified into reduction type, analysis identified 168 flakes (167 quartz, one chert) as “cortex removal flakes.” These flakes are technologically indeterminate and cannot be confidently associated with either core or biface reduction. Nevertheless, they are important, as the presence of cortex on their surfaces indicates the importance of cobble quartz in the assemblage, and strongly suggests that the initial stages of lithic reduction (biface and/or core) were very important at Cluster 6.

9.2.4 Utilization

Eight quartz and quartzite lithic debitage flakes exhibit edge damage suggestive of intentional utilization. The edge damage likely resulted from use of these flakes as expedient cutting or scraping implements. The identified utilized flakes consist of five biface thinning flakes, one cortex removal flake, and two flake fragments. The presence of these used flakes strongly suggests that a variety of tasks, in addition to flintknapping, were performed at the Cluster 6 location.

9.2.5 Thermal Alteration

Of the 860 lithics recovered from Cluster 6, only one, a jasper flake, exhibited evidence of thermal alteration. This flake is classified as a “potlid,” a flake that results from the uncontrolled heating of a piece of stone. Given that no other jasper flakes or tools are associated with Cluster 6, how can the presence of this item be accounted for here? While it is possible that the tool, core, or flake that produced this potlid was removed from Cluster 6 by the pre-contact period occupants, it is also possible that this potlid originated from the uncontrolled heating of a tool, core, or flake in another cluster. In this scenario, the jasper potlid “exploded” off its parent piece of jasper and simply flew through the air until landing at the Cluster 6 location. Based on experimental heating of

lithic materials, this scenario is as likely as the first and would explain why no other pieces of jasper (whether tools, cores, flakes, or potlids) are associated with Cluster 6.

9.2.6 Summary

Cluster 6 contains the largest concentration of lithic materials identified at Site 7NC-B-54 (Ronald McDonald House) and includes six lithic tools and 854 pieces of lithic debitage. Unfortunately, the age of Cluster 6 can not be determined from the lithic artifact assemblage, as none of the artifacts is chronologically diagnostic. During the occupation/use of the Cluster 6 location, pre-contact period knappers used quartz almost exclusively for their lithic reduction activities. Quartzite, chert, and jasper comprise the remainder of the raw material types used at the location. An analysis of the cortical surfaces on the lithic artifacts suggests that most, if not all, of the raw materials associated with this cluster were acquired from nearby secondary cobble sources.

While the lithic tools recovered consist entirely of bifaces in various stages of reduction, an analysis of these tools, complimented by the debitage analysis, suggests an even broader array of lithic reduction activities. Regarding biface thinning, debitage analysis identified initial edging flakes, “standard,” and “late/pressure” flakes, suggesting that quartz artifacts in all stages of reduction were knapped here. In addition to biface production, debitage analysis identified both standard and bipolar core reduction flakes, suggesting that these items were also knapped here, perhaps for the production of flakes that could be used for the manufacture of bifaces.

Evidence of intentional utilization on several artifacts suggests that activities other than lithic tool manufacture and maintenance were being conducted at the Cluster 6 location. These activities may have involved cutting or scraping. Unlike the preceding discussions of the Clusters 1, 4, and 5 assemblages, the higher artifact count associated with Cluster 6 suggests more intensive knapping episodes, though the tool assemblage is rather limited. Perhaps the occupants of Cluster 6 successfully produced more tools for export than the knappers associated with the other clusters. The presence of utilized flakes, indicating a variety of domestic activities, may suggest that the pre-contact period occupation/use of the Cluster 6 location was relatively longer than those represented at the other cluster locations.

9.3 Presumptive Blood Residue Testing

Four, or less than one percent, of the lithic artifacts recovered from Cluster 6, including one projectile point, two Stage 2 bifaces, 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, all of them 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 is the only raw material in the tested Cluster 6 artifacts. 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 artifact when it was processed. The lack of blood residue on the tested Cluster 6 artifacts supports the idea that the tasks accomplished in this portion of the site were limited to lithic reduction, and non-hunting or -butchering activities, and no inadvertent bleeding of the knappers themselves took place as accidental cuts during knapping.

9.4 Chronology

No materials suitable for radiometric assay were recovered from excavations in the Cluster 6 Activity Area; therefore, no direct absolute dates are available for the activity area. The single fragmentary projectile point recovered from the artifact cluster is not identifiable to a type or associated temporal period.

9.5 Interpretations

Based on the morphology and material culture characteristics of the Cluster 6 Activity Area, it appears that the location was used once, for a short time, by one or more individuals who participated in a broad array of stone knapping meant to produce smaller packages of raw material for transport, and to produce new tools mainly of quartz. They collected the raw materials locally, brought them to the location, and reduced them there. The people using the Cluster 6 location were also conducting other types of generalized domestic activities, such as cutting, chopping, and/or scraping, but no activities requiring specialized tools. The time period associated with the use of the location is not known.