Brooks River Cutbank:
An Archeological Data Recovery Project
in Katmai National Park

by
Barbara E. Bundy
Dale M. Vinson
Don E. Dumond

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2005
A PROJECT CONDUCTED BY
LAKE CLARK - KATMAI STUDIES CENTER
ALASKA REGION, NATIONAL PARK SERVICE

The Lake Clark-Katmai Studies Center is a research and curatorial facility for museum collections from Katmai National Park and Preserve, Lake Clark National Park and Preserve, Aniakchak National Monument and Preserve, and the Alagnak Wild River. The Center's mission is to identify, evaluate and preserve the cultural resources of these Alaskan park areas and to bring an understanding of the resources to the public.
Ceramics .................................................................................................................. 64
Labrets ....................................................................................................................... 65
Worked Bone and Antler Items .............................................................................. 65
Faunal Remains ....................................................................................................... 66

IV. DISCUSSION ........................................................................................................ 69
Subsistence and Settlement .................................................................................. 69
Use of Space Inside and Outside Houses ............................................................. 69
The Development of the Brooks River Bluff Phase: Identifying Regional and
Local Factors ........................................................................................................... 73
  Late Prehistoric Cultural Transitions: Possible Explanations and
    Archaeological Expectations .............................................................................. 73
  Evidence from the Cutbank Site ...................................................................... 75
Management of the Cutbank Site ......................................................................... 77
  The Significance of the Cutbank Site ................................................................. 77
  A Framework for Monitoring the Cutbank Site ................................................ 78

Appendix 1: Descriptions of Lithic Types ............................................................... 81
Appendix 2: Stratigraphic Descriptions and Volumes .......................................... 83
Appendix 3: Artifact Distribution by Stratigraphic Level ..................................... 85
BIBLIOGRAPHY ............................................................................................................ 89

Members of the Council of Katmai Descendants visit the Cutbank Site in 2002.
Illustrations

**Figure**

1. Katmai National Park & Preserve and the Brooks River National Historic Landmark ................................................................. 2
2. Brooks River National Historic Landmark and the Cutbank site .................................................. 3
3. The Cutbank site showing the locations of excavations ................................................................. 4
4. Brooks River Tephras and Naknek Drainage cultural phases .......................................................... 10
5. Lithic types found at the Cutbank site .................................................................................. 14
6. The Cutbank site showing locations of shovel tests of 2003 ...................................................... 17
7. Stratigraphic notation used for the current project .................................................. 18
8. Typical profile from the Cutbank site .................................................................................. 19
10. Profile of the burial location ......................................................................................... 24
11. Plan drawing of the burial as recovered ........................................................................... 24
12. House 1 plan view, possible floor plan, and cross-section ................................................... 26
13. Clay-lined hearth with rock slab cover, Room F ............................................................... 27
14. House 3 plan view and cross-section ............................................................................... 29
15. Construction features within the excavated area .................................................................. 30
16. Three possible floor plans for House 3 ........................................................................... 32
17. Entrance 1 during and after excavation ............................................................................ 34
18. Plan locations of features in the mixed fill zone .................................................................. 37
19. The red surface feature in profile .................................................................................. 39
20. The red surface feature between two distinctive fill episodes ............................................ 38
21. Chipped stone artifacts .................................................................................................. 48
22. Adze blades, adze blade fragments, and preforms .............................................................. 19
23. Cores and raw materials ................................................................................................. 50
24. Ulus ............................................................................................................................... 51
25. Ground slate projectile points and double-edged knives .................................................... 52
26. Abraders and whetstones ................................................................................................. 55
27. Major design elements from the Cutbank incised pebbles .................................................. 56
28. Incised pebbles (4 pp.) .................................................................................................. 58-61
29. Graver on a slate flake ....................................................................................................... 63
30. Decorative items ............................................................................................................. 64
31. Ceramic rim sherds ............................................................................................................. 64
32. Bone and antler items.................................................................65
33. Artifact distribution at the top of the mixed fill zone..................85
34. Artifact distribution in fill features .......................................86
35. Artifact distribution in the mixed fill zone..............................87
36. Artifact distribution on house floors ....................................88

Tables

1. Results of the Cutbank testing program.........................................16
2. Radiocarbon dates from the Cutbank project..............................22
3. Radiocarbon ages grouped by initially apparent associations........42
4. Contemporaneity of radiocarbon-dated samples.........................43
5. Calibration of weighted mean radiocarbon dates........................45
6. Lithic debitage by type and material......................................46
7. Lithic tools and objects vs. debitage by material type................47
8. Flakes per cubic meter excavated, by feature.........................47
9. Ground stone tools and fragments........................................53
10. Faunal remains from the Cutbank excavation..........................67
11. Sediment descriptions..........................................................83
12. Volumes excavated by stratigraphic level and feature...............84

Archeologist Brian Davis working at the Cutbank Site.
Foreword

In the early 1950s a pair of archeologists from the University of Oregon recognized and placed on record a site on the banks of the Brooks River in Katmai National Monument — a site that was then, as now, under erosive attack by the stream. In 1960 two other archeologists from the same institution made the first excavation at the site, results of which were reported in the present monograph series (Dumond 1971, 1981), and more than a decade later a major excavation by National Park Service archeologists at the same site led to an Oregon doctoral dissertation that saw publication in the same series of papers (Harritt 1983). It is appropriate that a second significant excavation by the National Park Service is reported here as well.

As befits a Park Service project, the present report includes certain matters of management interest to personnel of what is now Katmai National Park and Preserve. These do not, of course, detract from the more purely research results, which with undeniable logic follow the salient results of the earlier work. All of this is despite certain changes in the Brooks River ambience that constitute a hindrance to unfettered research.

I refer especially to the growth of the population of Alaska brown bears that gather at Brooks River during the height of the summer salmon run, providing a spectacle for increasing numbers of Park visitors, while imposing severe restrictions on archeologists who would dig along the river banks. In 1960 there were no more than three bears seen during the summer excavation season. In the early 1980s these had increased to well over a dozen, certain of which spent their days patrolling the river banks amid shouts and clapping aimed to discourage them from blundering across open excavations. In the early 2000s this number had increased to more than fifty, crowding the edges of a river less than 3 km in length overall, with most of the bears along (and in) the lower half of the stream below the waterfall that delays the salmon and forms the backdrop for so many widely distributed photographs of bruin fishing.

The result is perforce an abbreviated excavation season, one in which the month of July is impossible because of the bears and almost as difficult because of Park housing conditions crowded under a swollen number of personnel brought into the Park as temporary “managers” of interactions between visitors and bears. This explains certain limits in the scope of the project here reported.

Among the three people appearing as authors here, the project in both field and laboratory was under the overall direction of Vinson. Bundy, who served as field assistant, also had primary responsibility for artifact description and analysis, and for authorship of the report. The field and laboratory role of the undersigned was limited to consultation regarding research design, some preliminary mapping, a brief program of testing of outlying surface depressions, and miscellaneous editorial functions necessary in getting the report through the press.

Don E. Dumond
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Thanks to Cultural Resources Program Director Jeanne Schaaf and former Katmai National Park and Preserve Superintendent Deb Liggett, who were instrumental in securing funding through the Cultural Resources Preservation Program of the National Park Service. In the field and laboratory, assistance was provided by many people, including the Brooks Camp and King Salmon staff of the National Park Service and the staff of Brooks Lodge. The field crews (Melissa Baird, Linda Chisholm, Brian Davis, Max Hensley, Sarah Kessick, Shayna Rohwer, Michele Martz, and John Mitchell) and volunteers (Emma Alto, Derek Dalrymple, Karen Gaul, Jennifer McDonald, Patrick Nelligan, Emily Sykes and others) provided hard work and insight. We thank the Council of Katmai Descendants for patiently listening and responding to us, as well as facilitating efficient communication between archeologists and local communities. Special thanks to Stephan Bergbauer and Stephanie Prejean for help with lithic identifications, to Patrick Saltonstall for productive discussions of artifacts and raw materials, to Christina Jensen and Diane Hanson for identifying the faunal remains, and to Melissa Baird for information about incised pebbles. Jeanne M. Schaaf and James R. Riehle read whole or partial drafts of this report and suggested many improvements. The present report was design-formatted by Denise Martin. All errors and omissions are, of course, our own.

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I. INTRODUCTION

The Brooks River Archeological District National Historic Landmark (Brooks River NHL, hereafter), located in Katmai National Park & Preserve, consists of a series of archeological deposits on terraces and fossil beach ridges along the Brooks River and adjacent shores of the two lakes between which the river flows. The lakes and the short river form an upper portion of the Naknek drainage system — a complex of lakes and rivers that drain through Naknek Lake into the Naknek River and thence to Bristol Bay of the southern Bering Sea (Figure 1).¹

The deposits at Brooks River NHL are now registered in Alaska State files as 20 different archeological sites (Figure 2), which as a whole represent occupations during most of the past 4,500 radiocarbon years. Of these, XMK-016 is a large site that extends about 500 meters along an ancient terrace south of Brooks River, a stream that is actively undercutting the eastern 240 meters of the terrace: the area known locally as the Cutbank. At least 15 large, multi-room, semi-subterranean house depressions and numerous smaller surface features along the top of the terrace edge make up the Cutbank site. The western end of the terrace, on the other hand, diverges well away from the river and was designated a different sub-site in 1960, when archeological testing indicated that this portion was occupied earlier than the terrace segment bank being attacked by the river (Dumond 1981: Table 3.1, 33). Although the “Cutbank” refers to the east half of XMK-016, the Brooks River is also eroding XMK-034, an archeological site that occupies a contiguous lower terrace downstream from XMK-016.

The Cutbank site was first recorded in 1953 by University of Oregon archeologists working on the Katmai Project (Davis 1954). In 1960, with support of a National Science Foundation grant archeologists from the same institution first excavated at this eroding terrace segment which they called Brooks River 3 (BR-3) (Cressman and Dumond 1962:13). Following the 1960 excavation, the major occupation at the Cutbank site was assigned to the Brooks River Bluffs phase, initially dated to about AD 1450 - 1800 (e.g., Dumond 1971:16; 1981), and later expanded to AD 1350 - 1800 (Dumond 2003:63). The Cutbank, or eastern portion of site XMK-016 where the severe erosion is occurring, is shown in Figure 3. In 2002, archeologists recognized remaining survey markers from the 1960 excavations, a discovery indicating that the river had removed approximately 6 meters of the terrace occupied by the Cutbank site in the intervening years (an average rate of about 14 cm per year).

In June of 1999 National Park Service (NPS) archeologist Dale Vinson discovered a human cranium eroding from the Cutbank site at a place where brown bear activity was destabilizing the bank and accelerating erosion. NPS archeologists were aware that human remains might be exposed along the Cutbank, for one small cranial fragment had been found along the eroding bluff in 1960, and an NPS excavation in the early 1980s had uncovered three burials [Dumond 1981:34, Harritt 1988:44-46]. Directly below the area where the cranium was exposed in 1999 Vinson also found a large pecked-stone oil lamp lying at the waterline on the talus slope.

¹ The massive volcanic eruption of 1912 in the vicinity of Mt. Katmai led in 1918 to the setting aside of almost a million acres as Katmai National Monument, the area conforming to lands most affected by the cataclysm. In 1931 the size was more than doubled by the incorporation of wildlife habitat, with the Brooks River vicinity included. By congressional action in 1980 the Monument became Katmai National Park, its area almost doubled again and with more than 400,000 acres attached along the northern boundary of the Park proper as a separable Preserve, a zone in which permissible activities (e.g., hunting, mining) are those allowed on most U.S. public lands.
Figure 1. Katmai National Park and Preserve and the Brooks River National Historic Landmark. Naknek Lake empties from its western terminus into the Naknek River (outside the Park and not shown here), which flows into Bristol Bay.
Figure 2. The Brooks River National Historic Landmark and site XMK-016. The Cutbank site is approximately the eastern one-half of XMK-016.
Figure 3. The Cutbank site, showing the general locations of excavations of the 1960s, the 1980s, and the work reported here.
In compliance with federal law and NPS policy, archeologists contacted culturally affiliated Alaska Native groups through the Council of Katmai Descendants (CKD). Erosion exposed more remains from the same individual the following year at the same location. NPS and the CKD agreed on a plan for the disposition of the human remains and an excavation at the site that might add further information about the individual whose remains were discovered, as well as the relationship of the remains to adjacent depressions thought to represent prehistoric houses. In addition, NPS managers hoped to use knowledge gained in the project to develop guidelines for managing the eroding site.

Pursuant to agreements with the State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the CKD, NPS contracted with Dumond to develop a research plan designed to address questions concerning the site. Before delivery of the plan, and with concurrence of the CKD, a small-scale controlled removal of remains took place in June 2001. When submitted and adopted, the data recovery plan set out the following objectives for the investigation:

1. Determine the distribution of surface indications of (presumed) habitation remains at the site by surface mapping;

2. Assess the relationships of (presumed) habitations one to another by detailed study of the archeological strata exposed in the length of the erosion bluff;

3. Determine the modal house form at the Cutbank site, and presumably in the Bluffs phase at the Brooks River, by excavation in habitation depressions; and

4. Assess the cultural affiliation and function of the fairly plentiful isolated depressions through a sampling program devoted to those simpler depressions.

NPS archeologists and the CKD added another research goal: learning more about the individual buried in the eroding grave. This report presents results of the project.

Previous Research at the Cutbank Site

The 1960 University of Oregon archeological crew, led by Dumond, had excavated a 4 x 6 meter area to a depth of about 1.25 meters, the longer dimension lying along the eroding bank of the site (Cressman and Dumond 1962:13). Although the excavation was positioned with regard to the greatest depth of cultural material visible in the exposed bank profile, rather than to any particular surface depression inland of the bluff, excavators discovered and cleared portions of a dwelling. This was assigned to the late prehistoric Brooks River Bluffs phase, as well as were features that lay over and postdated the occupation of the dwelling. Materials of two earlier phases were recovered beneath the dwelling and the Bluffs phase components. Although archeologists visited the site several times in the 1960s and 1970s, only minor testing occurred before 1982. In 1976 an examination revealed that the 1960 excavation area had been “substantially eliminated” by stream erosion (Dumond 1981:34). That is, the river had eliminated some 4 meters of the terrace in 16 years.

Concern about this rapid erosion led to the next major archeological project at the Cutbank site. In 1977 Dumond submitted a report to the superintendent of what was then Katmai
National Monument detailing erosion at the site, and subsequently NPS archeologist Harvey Shields was instructed to prepare a research design for salvage operations at the Cutbank (and the adjacent site immediately downstream and on a lower terrace, XMK-034). Shields carried out testing at the Cutbank in 1979 and 1981 and led excavations in 1982, 1983, and 1984 that were reported by Harritt (1988), who had served as Shields’s assistant. Beginning in 1982 the crews cleared an 8 x 12 meter area in the center of the site that had been selected with the intention of exposing an entire Bluffs phase house. In 1983, two additional trenches were placed in surface depressions farther west in order to compare assemblages found there with artifacts from the larger block excavation.

The block excavation revealed what Shields, Harritt, and the other excavators interpreted as multiple Bluffs phase houses, but which may in fact be one multi-room house – this possibility is discussed below in more detail. Beneath the Bluffs phase occupation in the block were two earlier components, while the trenches revealed portions of two superimposed Bluffs phase dwellings as well as three burials. After the 1984 excavations, erosion continued to affect the Cutbank site and NPS archeologists periodically expressed concerns. In the 1990s NPS archeologists conducted limited testing in portions of XMK-016 as part of Section 106 compliance for construction of a new bear-viewing platform and boardwalk. These tests were inland from the Cutbank site and no major finds or excavations resulted.

The Brooks River Cutbank Archeological Data Recovery Project

In December 1999 park archaeologists requested NPS funding to excavate at the area of the eroded grave in order to investigate the archeological and cultural contexts of the individual buried there, receiving an allocation for a four-year project that would involve some limited excavation. In 2000, and before the project could get underway, erosion exposed more human remains at the grave site, an event that concerned both park archaeologists and the Council of Kalmia Descendants. In June 2001, cultural resources program chief Jeanne Schaaf and archaeologist Dale Vinson excavated a partial 1 x 1 meter unit that included the exposed remains. In consultation with Dumond, Vinson and Schaaf made plans to investigate the area south of the grave between two Bluffs phase houses.

The research design was delivered to the NPS by Dumond in September 2001, and with modifications to incorporate research centered on the eroded burial was adapted by NPS archaeologists to fit a proposed four-season schedule, the first of which had already been completed with the 2001 removal of the human remains. Excavation was scheduled for the second and third seasons, and analysis and write-up for the fourth season.

In May and June of 2002, Vinson returned to the Cutbank site to examine and draw profile sections adjacent to the grave and begin establishing a site grid. Dumond arrived later and began mapping cultural features visible on the surface. Vinson and Dumond together laid out four connected trenches designed insofar as possible to link the burial to two adjacent large houses (House 1 and House 2), the outlines of which were visible at the ground surface. After Dumond departed in early June, Bundy arrived to help remove sod from the trenches in preparation for excavation. Archeologists left in mid-June to avoid the peak of bear activity on the Brooks River. In late July, Vinson returned with a full crew of six, which included Bundy, a Youth Conservation Corps [YCC] student, an Alaska Department of Fish & Game employee on a cooperative agreement with NPS, and three seasonal workers. Over the six-week course of the
excavation, other park and concession staff frequently visited and occasionally volunteered to help with tasks such as photographing and mapping. Excavation revealed what was interpreted as a probable third house (tentatively called House 3) between the two visible on the surface. Except for areas beneath an undisturbed layer of volcanic ash that had been designated Ash C in earlier work (e.g., Dumond 1981; see present Figure 4), the four trenches were excavated to sterile gravels by early September. The crew lined the excavated area with plastic and partially back-filled the trenches in order to stabilize the excavated area and maintain a safe environment for humans and wildlife until the trenches could be reopened in 2003.

In the fall and winter, crew members catalogued and repackaged artifacts, developed a project database, and entered artifacts and samples into the database. Vinson selected and ran several radiocarbon dates and formulated a strategy for the next season’s excavation: extending two of the trenches and excavating a block in the central area of the newly-discovered House 3. In June 2003, Vinson and Bundy returned to the site for a few days to inspect and prepare for the coming field season. At the beginning of August, Vinson and a full crew of five (including a volunteer, the YCC student, three seasonal hires, and Bundy) arrived at the site for the final excavation season. Two other volunteers assisted in the excavation for short periods of time, and again park and concessions staff volunteered on occasion. Dumond and contractor James Jordan (a geologist studying the post-glacial alluvial history of the Brooks River) each spent time at the site collecting data for their portions of the project. By mid-September, the excavation was completed. Crew members back-filled and re-landscaped the excavation area. Fall 2003 and winter, spring, and early fall 2004 were dedicated to selecting and submitting a new set of radiocarbon dates, cataloging and repackaging artifacts and samples, entering information into the database, and preparing this report.

The Cutbank data recovery project proved to be a touchstone for interpreting cultural resources at Brooks Camp, the location of the Brooks River Ranger Station and Brooks Lodge, a commercially operated facility for visitors. The on-going excavation was a popular destination for these visitors. During the 2002 and 2003 excavation seasons, there were 294 visits to the site (some were repeat visits) for an average of about four visitors per working day. Rangers typically led visitors to the site as part of the daily “cultural walk” tour, and some tourists found their own way to the site. Archeological crew members treated visitors to a site tour that included orientation to the excavation units, the Cutbank site, the importance of the archeological record preserved within the Brooks River National Historic Landmark, and the cultural history of the Katmai region.

The project also produced a substantial body of archeological and geoarcheological data. More than 11,000 artifacts were collected (mostly lithic debitage), along with 125 radiocarbon samples and 20 soil samples. Bluffs phase multi-room houses were excavated as such for the first time at the Brooks River. Artifacts and architecture indicate links between the Cutbank settlement and Kodiak to the east and the lower Naknek drainage to the west. Certain features provided general information about the life of the individual whose remains eroded from the bank. The project was a success on several levels: the objectives of the research design were in general addressed; all parties involved in NAGPRA consultation reached an agreement; and park visitors and staff gained knowledge about cultural resources in the area.
white in color; and Ash C, which fell about 600 years ago (Dumond 2003:153), runs 6 to 10 cm in thickness, and is yellowish-green in color. Archeologists have also often identified the lower Ash G, a yellowish stratum 2-3 cm thick that may correlate with the caldera-forming eruption of Aniakchak volcano about 3500 years ago. More recently, Richle et al. (2000) identified more than 15 mid-to-late Holocene tephras and attempted to differentiate them with microprobe analysis of volcanic glass composition. Their results suggest that some of the tephras identified by Nowak are in fact composed of multiple layers that are indistinguishable macroscopically. Neither Nowak nor Richle and his coauthors were able to clearly define, distinguish, or source all tephra deposits.

Even if tephra deposits cannot be distinguished and sourced, their abundance is evidence that prehistoric communities in the Brooks River area at least occasionally contended with volcanic events. Archeologists and volcanologists have tried to gauge the effects these events may have had on nearby communities. Dumond (1979) concluded that periods of (apparent) abandonment of the Brooks River area did not correspond with tephra fall events visible in

Figure 4. Brooks River Tephra and Naknek Drainage cultural phases.
the stratigraphy. Richle et al. (2000:264) noted that for the 1912 Novarupta eruption, “in general . . . recovery was rapid in areas that had less than 10cm of ash fall,” so that even events with relatively large ash falls may have produced mostly short-term effects. The only tephra consistently thicker than 10 cm is the 1912 Ash A, which today (ninety years after the eruption) is covered by a layer of vegetation about 6-8 cm thick on average.

However, there is evidence in the archeological record that the fall of Ash C was more disruptive than its thickness would suggest. Ash C lies above Brooks River Camp phase deposits and below Bluffs phase deposits. While both Camp and Bluffs phase materials are part of the Thule tradition (as Dumond [1977] has defined it), the Bluffs phase has several distinctive features. These include multi-room houses and increased use of certain artifact types. Incised pebbles also appear during this phase. These aspects of the Bluffs phase are very similar to the Koniag phase materials from the Kodiak archipelago (cultural links with the Kodiak area are discussed further below). Dumond (e.g., 2003) interprets these links as evidence of a possible abandonment of the Brooks River area following the volcanic event that led to the deposition of Ash C, and later resettlement of the area from the Kodiak region.

The effects of the Ash C event need not have been catastrophic in order to create a short abandonment of the area, but a more lengthy period of disuse is difficult to imagine if one judges only by the quick recovery from the 1912 eruption (which deposited a greater amount of tephra in the Brooks area). However, there are factors other than thickness of ash fall that might determine how quickly people return to visiting and briefly using an area, or to living in it. Whereas people could return for temporary use or to resettle permanently more quickly if they had not retreated far from the area — and had suffered few losses of life in the event — a more widespread catastrophe might push people farther from the area, and a truly lethal event might result in greater reluctance to return. According to Richle (2003, Appendix B), tephras that are likely correlatives of Ash C appear at Aniakchak, Grosvenor Lake and the Katmai coast, indicating a large event with widespread effects that may have originated with Aniakchak Volcano. Furthermore, the region around present Port Heiden, a short distance west of Aniakchak, is the area in which the present Alaska Peninsula caribou herd gathers to calve in the spring; a massive eruption there during that season could decimate or even essentially eliminate the herd and the important subsistence resource it formed. Thus, it is possible that Ash C represents a major regional disruption, although the depth of the tephra at Brooks River alone would be less than sufficient to cause major human displacement.

Natural Resources

Fauna

The Brooks River area today is home to a wide variety of animals (see, for instance, Cahalane [1959]). Terrestrial mammals include brown bear, moose, caribou, porcupine, beaver, mink, fox, ground squirrel, spruce squirrel, river otter, wolverine, wolf, lynx, hare and marten in addition to various small rodents. Dozens of bird species inhabit the area. Ptarmigan, eagles, ravens, owls, and various hawks are year-round occupants and ducks and geese are migrants. Many smaller bird species feed on the numerous insects — swarms of mosquitoes, gnats, and black flies (“white socks”) as well as the occasional horse fly are constant pests in all but the coldest winter months. On the Gulf of Alaska and Bering Sea coasts, accessible from Brooks via the Naknek River and mountain passes, marine fish and birds, intertidal species, and sea mammals are available.
Freshwater fish, including trout, char, grayling, pike, whitefish, suckers, sculpin, and sticklebacks are present in the Brooks area year-round (Harrit 1988:9). Salmon, though, are the most plentiful fish during their summer runs. Red and silver salmon run in large quantities in the Brooks River, and chum salmon are occasionally present. Nearby waterways in the Naknek drainage also host king and pink salmon. Salmon runs begin in late June and continue in reduced numbers through August and into September, attracting brown bears, eagles, and other predators to the area.

Poor preservation limits analysis of prehistoric fauna in the Brooks River area. Due to acidic soil conditions, faunal remains are rarely preserved for more than a few hundred years. Dumond (1981) discussed fauna found at excavations from the 1960s and 1970s in the area, and his findings are summarized here. The earliest faunal remains, a few charred bone fragments thought to be caribou, date to the Beachridge and Strand phases (4500 to 3900 years ago). A few fragments of fauna were found in sites dating to the succeeding Grave’s phase (3600-3100 years ago), although most were unidentifiable — with the exception of a wolverine skull (likely intrusive), numerous salmonid teeth, and a few trout vertebrae. No more faunal material is found in Brooks River sites until the Camp phase, which dates from about 900 years ago to 600 years ago. The most abundant remains from this phase were salmon, caribou, beaver, and porcupine. Numerous other mammal and bird remains were also present, including bear, wolf, hair seal, gull, and ground squirrel. The hair seal and gull remains are interesting indicators of links to coastal areas. Artifacts made of bone and antler appear for the first time in this period, although they were almost certainly used in earlier periods but have not preserved.

Bluffs phase excavations have produced few bone, shell, ivory, and antler specimens, although fauna is somewhat more plentiful than in any other Brooks River phase. Bluffs phase deposits at XMK-011, west of the Cutbank site, contained large numbers of beaver, porcupine, and many other terrestrial species, plus salmon bones. No marine species were present at the site save for a single small slab of whale bone that may once have been a club. The 1960 Cutbank site excavation produced 28 identifiable elements, including salmon, caribou, beaver, porcupine, hare, goose, and gull. Shields’s 1982 - 1983 excavations at the Cutbank yielded almost 400 faunal elements (Harrit 1988:209-211). A large number, 167 elements, were not identifiable to species. Caribou, bear, freshwater gastropod, porcupine, and beaver comprised a large number of the identifiable species. Salmon, dog, pike, and a few marine mollusks were also present. (The relative paucity of salmon bones and prevalence of caribou is interesting given the link between late prehistoric economies in Southwest Alaska and intensive salmon harvesting and storage. However, this may be an artifact of poor preservation, as small, light fish bones are less likely to preserve than dense mammal bone and antler.) The species represented in Bluffs phase assemblages are not unexpected, given the modern fauna. All species found in the archaeological record are present within 100 km of the Brooks River.

Vegetation
Cahalane (1959:12-13) distinguished two general vegetation zones found in the Katmai area: a high-altitude “Arctic” zone and a lower-altitude “Hudsonian” zone. These might be informally called tundra and forest. Tundra hosts mosses, lichens, and sparse small trees. Edible plants include blueberries, nagoon berries, and crowberries. Forests come in many varieties: mixed spruce and hardwood forest, black spruce bogs, birch and cottonwood stands, and willow and alder thickets are all found in the Brooks area, punctuated by occasional grassy wetlands. In fact, southwest Alaska is “characterized by prominent vegetation and climatic gradients” (Brubaker et al. 2001:175), both on the regional scale and as changes between “micro-
environments.” In the modern environment, edible plants include many kinds of berries, wild celery, fireweed, and ferns. Edible starchy plants are nearly absent. Other flora, such as yarrow and devil’s club, have medicinal uses.

The most recent analysis of prehistoric flora in the Brooks River area is by Heusser (1963), summarized to some extent by Dumond (1981:9-10). Soil samples were taken from archaeological sites and nearby bogs in 1960 and 1961. The samples from archaeological sites were too dominated by grass pollen to be useful in examining climate changes, but the bog samples were more helpful. In the earliest zone, the culmination of which dates to about 5600 years ago, alder and ferns are prominent. The next two zones show increases in birch and heath — interpreted as a cooling trend — and come to an end around 2,500 years ago. The last 2,500 years show increasing alder and sphagnum moss and decreasing birch as well as the appearance of spruce. According to Heusser (1963), this indicates warming temperatures and rising humidity. It is unclear exactly when spruce appeared in the last zone, especially in quantity and quality sufficient for house construction (although birch appears early, its earliest form is likely a dwarf species [Brubaker et al. 2001]).

A more recent study has been done outside of the Brooks River area (but within the general region) in which Brubaker et al. (2001) cored lakes in the upper Alaska Peninsula area for pollen records. Although only one, Idavain Lake, is in the Naknek drainage itself, together the results indicate regional vegetation patterns. The study shows a north-south trending vegetation gradient in which spruce appeared earliest in the north and spread southward at the expense of poplar and birch shrubs. Although spruce appeared at Idavain Lake by 4200 years ago, it never became very common there (although the authors suggested that nearby areas with better drainage may have hosted stands of white spruce). Judging by this trend, the Brooks area — about 20 miles southeast of Idavain Lake — probably had few spruce until relatively late in the Holocene. It is possible that the Bluffs phase was the first in which Brooks River residents had construction-quality spruce trees readily available, although the size of some house posts indicated in Camp phase sites suggests that some very large trees were present at that time (e.g., Dumond 1981:Fig. 6.18, 6.19). Neither the Brubaker et al. (2001) nor Heusser (1963) pollen studies have sufficient temporal resolution to confirm or refute this possibility.

**Lithic Sources**

Katmai’s volcanic peaks are nearby sources of raw materials for making stone tools. A recent geological map of the Mt. Katmai quadrangle (which includes the majority of Katmai National Park) describes the major rock formations and their components (Riehle et al. 1993). All of the lithic types found at the Cutbank site are listed on the geological map (with one exception). It is currently unknown whether the Mt. Katmai area deposits are of suitable quality for tool use — archaeologists have not examined or inventoried sources in the area. However, their presence means that a local origin for these lithic types cannot be ruled out.

The single important lithic type that may be unavailable in the Katmai area is slate. Slate appears in a geological dictionary as “a compact, fine-grained, metamorphic rock formed from such rocks as shale and volcanic ash which possesses the quality of fissility along planes independent of the original bedding . . . whereby they can be parted into plates which are lithologically indistinguishable” (Gary et al. 1972:664). According to Riehle (pers. comm. 2003), the nearest slate sources to Katmai are in the Kodiak archipelago. If so, the prevalence of slate tools in Bluffs phase houses (discussed below) would indicate frequent trade with Kodiak or elsewhere. However, an NPS survey crew working along the Katmai coast in 1994 brought back a sample from an outcrop in Sukoi Bay that appears to be a durable, high-quality slate. Some “slate” may
also actually be shale, softer than real slate and possibly available locally. Until lithic sources are
investigated further, theories about trade and travel networks based on the presence or absence of
specific lithic material types are speculative.

Archaeologists in southwest Alaska have identified lithic types with varying terminology.
Previous identifications of lithic types in the Brooks River area focused on tracing the changing
proportions of chipped stone and ground stone tools (e.g., Dumond 1981). Dumond (1981) identified
chalcedony, slate, and shale in the Brooks River area, as well as the more general "igneous" and
"metamorphic" categories. Harritt (1988) used much the same typology. More detailed identification
of lithic types has surely been hampered by the fact that geologic data were not available prior to the
1993 publication of the Mt. Katmai geologic map (Richele et al. 1993). The terminology used in this
report is organized by genesis and composition in Figure 5 and described in Appendix 1.

\[\text{Figure 5. Lithic types found at the Cutbank site.}\]
III. PROJECT RESULTS

Defining Features and Stratigraphy at the Cutbank Site

The research design called for an assessment of depressions at the Cutbank site and an examination of their relation to each other. The first was to be accomplished through a mapping and testing program, and the second through a detailed examination of the erosion face.

During the 2002 and 2003 field season, based on a set of compass-oriented baselines along the bluff edge a detailed plot was made of surface features visible within 20 meters of the bank edge. In 2004, the bank edge with adjacent features and existing rebar mapping points was mapped by laser transit; this both tied the map to the tape-and-compass plot, and facilitated recording of the morphology of the bluff (i.e., areas that were relatively vertical in the erosion face and those that were decidedly overhanging). Figure 3 is the combined result.

Some of the mapped features appeared to be multi-room houses, while others — especially those farther from the bank edge — appeared as single, isolated depressions. The multi-room depressions were believed to be uniformly associated with the Bluffs phase, but the affiliation of the single-depression features was not certain: they appeared essentially identical in surface form to depressions sampled fairly heavily in Brooks River localities in the 1960s and 1970s, and which had consistently yielded cultural material pre-dating the Bluffs phase. In 2003 eleven of the features thought most closely to resemble such remains of single-room habitations were shovel-tested, a sample representing about 15% of the more isolated single depressions (Table 1, Figure 6). In brief, none of the tested depressions appeared to represent a pre-Bluffs phase house. Only one showed rather tenuous evidence of pre-Bluffs phase activity, a small piece of charcoal above Ash G in test #10 — which was also the only indication of Ash G encountered at the site during the current project. In eight of the tests rocks or backdirt lay above Ash C (tests #1-8), and in three of those Ash C was cut or removed (tests #1-3). Two tests showed no evidence of prehistoric human activity at all (tests #9 and #11), one of which had been tested and backfilled previously (#9). Although excavations in previous years had located material from the Brooks River Beachridge, Gravels, and Weir phases, the 2003 testing program seems to indicate that intensive occupation from these or other pre-Bluffs phases is absent on the inland portions of the Cutbank site. Pre-Bluffs occupations would likely have been located closer to the present bluff edge and probably north of today's bluff in areas long since eroded by Brooks River.

One approach for understanding the Bluffs phase community would be to investigate the stratigraphic relationships among the Bluffs phase houses. By tracing continuous stratigraphy from house to house, studying the relationships of house floors to back dirt lenses and cultural fill layers and collecting and analyzing \(^{14}\text{C}\) samples archaeologists would be able to assess construction and abandonment sequences among the houses, begin to understand how the community developed, and make population estimates. However, the current project did not clean and document the exposed strata in the Cutbank face because much of the river bank is obscured by overhanging vegetation mats. In addition, the cut areas with visible stratigraphy are sometimes undercut to produce overhangs of as much as two meters. Of just under 240 meters of river bank, about 115 meters are covered by vegetation mats, most on the downstream edge of the site near the 2002-2003 excavation units. The mats often extend several meters down the talus slope, and some are sturdy enough to support living trees. To remove all of the overhanging vegetation mats would involve extensive clearing of both dead and living vegetation along with
<table>
<thead>
<tr>
<th>Depression (in m)</th>
<th>Test Unit (in cm)</th>
<th>Diameter</th>
<th>Depth</th>
<th>Dimension</th>
<th>Depth</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test #1</td>
<td></td>
<td>3.45</td>
<td>0.35</td>
<td>40 x 80</td>
<td>65</td>
<td>Below Ash B, cut through Ashes C-F. <em>Bluffs phase cut.</em></td>
</tr>
<tr>
<td>Test #2</td>
<td></td>
<td>3.25</td>
<td>0.40</td>
<td>40 x 80</td>
<td>80</td>
<td>No cut through Ashes B-F. Manuport cobble embedded in Ash B base. <em>Bluffs phase activity.</em></td>
</tr>
<tr>
<td>Test #3</td>
<td></td>
<td>3.5</td>
<td>0.23</td>
<td>40 x 75</td>
<td>50</td>
<td>Below Ash B; Ash C mixed with basal gravel. One fire-cracked rock in or below Ash B. <em>Bluffs phase activity.</em></td>
</tr>
<tr>
<td>Test #4</td>
<td></td>
<td>3.6 x 2.5</td>
<td>0.35</td>
<td>40 x 70</td>
<td>52</td>
<td>Ash B on basal gravel; no Ash C. Fire-cracked rocks at base of Ash B. <em>Bluffs phase activity.</em></td>
</tr>
<tr>
<td>Test #5</td>
<td></td>
<td>2.6</td>
<td>0.20</td>
<td>40 x 70</td>
<td>70</td>
<td>Ash C undisturbed. Fire-cracked rocks at base of Ash B. <em>Bluffs phase activity in vicinity.</em></td>
</tr>
<tr>
<td>Test #6</td>
<td></td>
<td>3.0</td>
<td>0.20</td>
<td>40 x 70</td>
<td>67</td>
<td>Ashes A-F undisturbed. Fire-cracked rocks, ulu fragment, flat incised pebble at top of Ash B. <em>Bluffs phase activity.</em></td>
</tr>
<tr>
<td>Test #7</td>
<td></td>
<td>3.2 x 2.2</td>
<td>0.22</td>
<td>47 x 70</td>
<td>60</td>
<td>Ash C possibly disturbed. Fire-cracked rock at level of Ash B. <em>Bluffs phase activity in vicinity?</em></td>
</tr>
<tr>
<td>Test #8</td>
<td></td>
<td>3.7</td>
<td>0.30</td>
<td>45 x 70</td>
<td>85</td>
<td>Mixed backfill between Ashes B and C. <em>Bluffs phase activity in vicinity.</em></td>
</tr>
<tr>
<td>Test #9</td>
<td></td>
<td>4.8</td>
<td>0.45</td>
<td>40 x 90</td>
<td>60</td>
<td>Mixed fill in one edge from previous modern test. Otherwise, no stratigraphic disturbance. <em>No prehistoric activity.</em></td>
</tr>
<tr>
<td>Test #10</td>
<td></td>
<td>4.0</td>
<td>0.28</td>
<td>45 x 75</td>
<td>70</td>
<td>Undisturbed Ashes A-F. Solid charcoal above Ash G. <em>Gravels phase activity?</em></td>
</tr>
<tr>
<td>Test #11</td>
<td></td>
<td>6.0</td>
<td>0.65</td>
<td>40 x 75</td>
<td>60</td>
<td>Ash B undisturbed, Ash C absent in portion of test, with some ash C on basal gravel. <em>Activity absent?</em></td>
</tr>
</tbody>
</table>
Figure 6. Locations of single depressions tested in 2003.
considerable sediment. This operation would have the potential to destabilize the riverbank and dump significant amounts of sediment into the river. The risk of adversely affecting salmon and trout habitat and degrading the experience of fishermen along this reach of Brooks River might require mitigation to remain in compliance with the National Environmental Policy Act stipulations included in the project research permit. In addition, severely undercut sections of the river bank appeared to pose a danger to archeologists working under them especially if involved in clearing and facing the section. A further danger is the possibility of surprise, close-range bear encounters along the river.

It was decided, therefore, that the time was better spent in excavation, with attention to profiling the cut edge nearest the burial and in a few other cut and vertical areas that showed clear features in section. Under the management plan (discussed below) archeologists will continue to profile newly exposed areas. Relating all such profiles to the single detailed map produced in this project will allow information recovered in future years to remain comparable.

At the beginning of the 2002 field season, an NPS team had mapped 11.5 linear meters of the eroding bank, most of it adjacent to the burial area. Figure 7 is a schematic of the stratigraphy developed from these profiles, and Figure 8 is a generalized typical profile section. These figures illustrate the zonation system used in the block excavation, in which strata were excavated following natural contours. Appendix 2 contains descriptions of the strata and the volumes excavated. Zone 5 (Bluffs phase cultural deposits), which was thicker than 90 cm in some places, was further divided into 10-cm levels to maintain vertical control. All excavated matrix was screened through one-quarter-inch mesh.

In most portions of the bank, the modern ground surface, the 1912 Mt. Katmai or Novarupta tephra layer, and the pre-eruption 1912 ground surface are undisturbed, although in a few limited areas tree and grass root growth, animal burrows, and other intrusions have almost obliterated the tephra and underlying organics. The 1912 ground surface consists of an upper layer of peat-like organic materials (between 0.5 and 2 cm in thickness) and a lower layer of dark grey-brown silty sediments of similar thickness. Below the 1912 ground surface in some areas is a fine, silty, light

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**Figure 7.** Stratigraphic notation used for the current project.
grey sediment that is presumably the tephra called Ash B. This stratum was usually found only
in depressions, where it presumably drifted after its deposition.

Below Ash B are the major Bluffs phase materials. Repeated prehistoric construction
activities produced extensive deposits of “mixed fill” across much of the site. This stratum
generally consists of medium-brown sandy silt mottled with charcoal and redeposited pockets of
Ash C. Blocks of the multi-layered Ash C (with an organic layer at what would have been the
top) are sometimes intact but upside-down or sideways. These may be collapsed roof or outer
wall sod blocks. Features may be present within this mixed fill, and are presumably activity areas
outside nearby houses (these features are discussed further below). Artifacts are present in the
mixed fill, but in low density compared to artifacts on house floors. In the fill lithic debitage was
collected by unit and level lots. Formal tools, lithic scatters, and anything else deemed important
by the excavator was point-provenienced by laser transit.

In many areas along the cutbank, distinctive house floors are visible below the mixed fill.
Clay-lined pits and hearths are associated with some floors. Within House 3, a significant amount
of mixed fill obscures indications of the underlying floor, suggesting that the house was not the
last structure occupied in the immediate area. House 1, on the other hand, has little or no mixed
fill above the floor, suggesting that it is more recent than adjacent features — or at least that later
construction activities failed to deposit fill within it or on it.

The original excavation strategy had called for point-proveniencing the entire floor
assemblage (including lithic debitage), with only non-debitage artifacts similarly provenienced
in the fill. This worked well in the 2002 season, when only the edges of floors were encountered.
In 2003, however, the central portion of a room in House 3 was found to be covered by lithic
debitage, making point-proveniencing impractical. In portions of the floor where lithics were
very numerous, excavators collected flakes in 25-cm-square subunits, and if microdebitage was
present the entire floor matrix was collected and hand-sorted in the lab. Artifacts other than
debitage were point-provenienced.

![Figure 8. Typical profile from the Cutbank site.](image)
Figure 9. Excavation area of 2002-2003. The small squared cut in the river bank marks the area around the burial. House 1 is cut by the east-west trench on the north (Rooms E and F). House 3 is cut by the southern trench and the excavated block (Rooms A, B, and D at a minimum). House 2 is unexcavated, its southeastern edge indicated by the surface berms west of Room A.
The distinctive Ash C layer lies under Bluffs phase materials stratigraphically, although prehistoric house excavation removed the Ash C layer. Thus, whereas Bluffs phase materials are often below Ash C in absolute terms, they are nevertheless younger. Ash C itself is distinctive, with four recognizable strata. At the top of the ash in most areas is a layer of organics much like the buried 1912 ground surface. In most cases the ash itself has three distinct bands: at the top is a gray layer around 2 cm thick, below it is a darker olive-gray layer at least 1 cm thick, and at the bottom is a bright yellowish-gray layer also at least 1 cm thick. This distinctive zonation is present almost invariably in undisturbed areas outside of the excavation itself, and when appearing upside-down or sideways in isolated chunks within the mixed fill of the excavated area has suggested to us that the ash in those cases was undisturbed and represented blocks of sod used in construction, despite the fact that the cause of the colored zonation is unknown.

The project conventions for recording stratigraphic zones were designed to allow for the presence of pre-Bluffs phase materials below Ash C, but no unambiguous evidence of pre-Bluffs phase occupation was found. Two quartz flakes were recovered from sand underlying Bluffs phase house floors, one in 2002 and one in 2003. These were isolated finds, however, and no other artifacts or associated features were encountered below the houses, although as will be noted there were a very few implements of chipped chert that were recovered in mixed fill. Ash G, distinctive elsewhere along Brooks River, also could not be identified in the excavation area. Excavated Bluffs phase house floors were found to be directly above either sterile sand or gravel.

The horizontal organization of the excavated area proved more difficult to interpret. There are three lines of evidence that bear on the delineation of houses, their rooms, and other apparently associated features: surface topography, archeologically defined features (house floors, Ash C cuts, entryways, etc.), and radiocarbon determinations. The archeological evidence seems in many ways the most reliable, although limited by the relatively restricted area of the excavated units. Figure 9 shows the entire excavated area, with what are designated House 1 (visible on the surface, with rooms E and F trenched), House 2 (visible on the surface and unexcavated), and a provisional House 3 (rooms A-D in the excavated area). Other features, such as cache pits outside the house, were not present in the excavation area although some pit-like surface depressions are found in other areas of the site. Possible house forms and construction methods are discussed further below.

Radiocarbon Dates

Seventeen wood, charcoal, and bark samples from the floors of House 1 and what we provisionally called House 3, as well as three fill features, were dated by radiocarbon (Table 2). At the 2-sigma (95% confidence) range, the earliest end of the earliest calibrated range is AD 1300, and the latest end of the latest calibrated range is AD 1810. The calibrated radiocarbon curve intercepts range from AD 1410 to AD 1650, which places these features in the first half of the Bluffs phase (AD 1350-1800). The majority of the calibrated radiocarbon intercepts are also within the range of the Bluffs phase.

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1 This range discards the intercept in date #17 that gives a span of AD 1920-1950, as we know from historical evidence that the site was not occupied at that time.
<table>
<thead>
<tr>
<th>#</th>
<th>Location</th>
<th>Material</th>
<th>Conventional Radiocarbon Age</th>
<th>Calibration Curve Intercept</th>
<th>2-Sigma Calibrated Range</th>
<th>Lab Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fill Feature: Incised Pebble Feature</td>
<td>charcoal</td>
<td>550 ± 60 BP</td>
<td>AD 1410</td>
<td>AD 1300 to 1450</td>
<td>Beta-186902</td>
</tr>
<tr>
<td>2</td>
<td>Fill Feature: Banya Feature</td>
<td>charcoal</td>
<td>490 ± 70 BP</td>
<td>AD 1430</td>
<td>AD 1310 to 1370 and AD 1380 to 1510 and AD 1600 to 1620</td>
<td>Beta-176796</td>
</tr>
<tr>
<td>3</td>
<td>Entrance 3 Floor</td>
<td>charcoal</td>
<td>480 ± 60 BP</td>
<td>AD 1430</td>
<td>AD 1400 to 1510 and AD 1550 to 1620</td>
<td>Beta 186905</td>
</tr>
<tr>
<td>4</td>
<td>Entrance 5 Floor</td>
<td>charcoal</td>
<td>430 ± 60 BP</td>
<td>AD 1450</td>
<td>AD 1410 to 1530 and AD 1550 to 1630</td>
<td>Beta 186908</td>
</tr>
<tr>
<td>5</td>
<td>Room C Floor</td>
<td>charcoal</td>
<td>460 ± 30 BP</td>
<td>AD 1440</td>
<td>AD 1420 to 1460</td>
<td>Beta 176798</td>
</tr>
<tr>
<td>6</td>
<td>Entrance 6 Floor</td>
<td>bark</td>
<td>450 ± 40 BP</td>
<td>AD 1440</td>
<td>AD 1430 to 1460</td>
<td>Beta-186907</td>
</tr>
<tr>
<td>7</td>
<td>Entrance 4 Floor</td>
<td>charcoal</td>
<td>400 ± 50 BP</td>
<td>AD 1460</td>
<td>AD 1420-1640</td>
<td>Beta-186906</td>
</tr>
<tr>
<td>8</td>
<td>Room B Floor</td>
<td>charcoal</td>
<td>390 ± 50 BP</td>
<td>AD 1490</td>
<td>AD 1430 to 1650</td>
<td>Beta-186910</td>
</tr>
<tr>
<td>9</td>
<td>Room A Floor</td>
<td>charcoal</td>
<td>390 ± 40 BP</td>
<td>AD 1470</td>
<td>AD 1430 to 1530 and AD 1550 to 1630</td>
<td>Beta-176800</td>
</tr>
<tr>
<td>10</td>
<td>Fill Feature: Incised Pebble Feature</td>
<td>charcoal</td>
<td>380 ± 40 BP</td>
<td>AD 1480</td>
<td>AD 1440 to 1640</td>
<td>Beta-176794</td>
</tr>
<tr>
<td>11</td>
<td>Burial</td>
<td>wood</td>
<td>320 ± 50 BP</td>
<td>AD 1530</td>
<td>AD 1450 to 1660</td>
<td>Beta-176793</td>
</tr>
<tr>
<td>12</td>
<td>Room A Floor</td>
<td>bark</td>
<td>330 ± 40 BP</td>
<td>AD 1520</td>
<td>AD 1460 to 1650</td>
<td>Beta-176799</td>
</tr>
<tr>
<td>13</td>
<td>Room A Floor</td>
<td>wood</td>
<td>320 ± 50 BP</td>
<td>AD 1530</td>
<td>AD 1460 to 1660</td>
<td>Beta-186909</td>
</tr>
<tr>
<td>14</td>
<td>Entrance 2 Floor</td>
<td>wood</td>
<td>320 ± 40 BP</td>
<td>AD 1530</td>
<td>AD 1460 to 1660</td>
<td>Beta-186904</td>
</tr>
<tr>
<td>15</td>
<td>Fill Feature: Red Surface Feature</td>
<td>wood</td>
<td>310 ± 40 BP</td>
<td>AD 1530</td>
<td>AD 1470 to 1660</td>
<td>Beta-186903</td>
</tr>
<tr>
<td>16</td>
<td>Entrance 1 Floor</td>
<td>charcoal</td>
<td>310 ± 30 BP</td>
<td>AD 1530</td>
<td>AD 1490 to 1650</td>
<td>Beta-176797</td>
</tr>
<tr>
<td>17</td>
<td>Room A Floor</td>
<td>charcoal</td>
<td>250 ± 60 BP</td>
<td>AD 1650</td>
<td>AD 1490 to 1690 and AD 1730 to 1810 and AD 1920 to 1950</td>
<td>Beta-176795</td>
</tr>
</tbody>
</table>

*Calibration by dating laboratory using calibration file Intcal98 (Stuiver et al. 1998).
Initially, placing the features in chronological order using the radiocarbon dates appears problematic. The two oldest determinations are from features in the fill of House 3 that were nearly a meter above the house floor. And although House 3 dates seem to overlap significantly with House 1 dates, House 1 is in places apparently superimposed over House 3, so that the two could not have been contemporaneous. A discussion more closely focused on patterns displayed by the radiocarbon determinations, which will provide information helpful in this regard, will be deferred until after the stratigraphic relationships of the various features have been described.

The Burial

One of the primary objectives of the project was to learn as much as possible about the individual whose remains eroded from the site in 1999 and 2000. The trenches excavated in 2002 were arranged so that stratigraphic units could be followed from the burial to one or both of the houses visible on the surface. Excavation revealed that the individual was buried outside the boundaries of House 1 and House 2, as well as the newly-discovered (and provisional) House 3 (the surface indication of which was obscured). However, stratigraphy and dating, as well as interment details, provide some information about the remains.

The burial (Figure 10) was within a mixed fill layer, which was fairly thin in this area, and directly above a sand and silt layer (zone 9 in the project stratigraphic notation). No house floor was discernible in the burial excavation unit (although house floors at the edges of rooms were almost invisibly thin and easily missed). However, the remains were north of a cut in Ash C, and there was no Ash C to the east or west of the burial (Figure 11). If the ash layer was cut for the interment, the grave would have been very wide. Alternatively, the ash layer may have been cut earlier during the construction of a house that has since eroded almost entirely into the river; in this case, all that remains of the house is less than 50 cm at the very edge of a room.

Although the remains were incomplete — much of the skeleton had probably already eroded into the river — the portion that was in situ suggests that the individual was interred in a flexed position facing west. There was a thick (2-5 cm) layer of wood on top of the remains, and one fairly intact plank running east-west just south of them. The only in situ artifact, a single quartz flake, was found a few centimeters east of the remains. Quartz flakes were present in all areas of the excavation, although in small quantities. A large pecked stone lamp rested at the river's edge on the talus slope below the burial. There is no evidence of the lamp's original location, but because of its size it is unlikely to have been washed down from farther upstream. Whether it was associated with the burial or other now-eroded features was impossible to determine.

There is little direct evidence of the relationship between the burial and other features at the site. Radiocarbon dates and stratigraphy confirm that the burial relates to the Bluffs phase, but the site is large and theoretically the person buried at the eroding area of the bank could have lived anywhere on the site, or for that matter could have been a visitor. In the absence of evidence to the contrary, however, we assume that the individual whose remains eroded from the bank was related to the occupants of the Cutbank site during the Bluffs phase.

The burial is not within the boundaries of any of the rooms that we can suppose pertain to House 3. Because it is within a mixed fill layer indistinguishable from that within House 3, we
Figure 10. Profile of the burial location.

Figure 11. Plan drawing of the burial as recovered.
presume it to be later than the rooms we assign to that house, although there is a good chance that
the mixed fill containing the burial is from some episode different from that which filled House 3.
The question is confounded further in that a small area was left unexcavated between the burial
and the main excavation to prevent erosion of the unconsolidated backfill after completion of the
project. Even though the unexcavated area is narrow and the mixed fill layers on the two sides of
it appear to be analogous if not continuous, different episodes of fill deposition may be difficult
to distinguish. In any event, radiocarbon dates support the interpretation that the burial is more
recent than the floor of provisional House 3 (Table 2).

Otherwise, the association of the burial is most unclear. If the cut in Ash C near the
burial (Figures 10, 11) does mark the construction of a house now eroded away, the position of
the burial in the upper fill of that house indicates it to be later than the house occupation. The
presence of features in a comparable position within the fill of rooms thought to pertain to House
3 might suggest a relationship to whatever occupations they represent, although presumably
pertinent radiocarbon determinations do not indisputably support any single age for those
features, as will be seen. The available dates do, however, indicate the burial and House 1 to
have been essentially contemporaneous. At the same time, the ambiguity of the situation is such
that the burial could as easily be related to any other features about which nothing is known,
including the unexcavated House 2 in the near vicinity. Nevertheless, based on stratigraphic
position, radiocarbon evidence, and Ash C cuts, we presume the burial was from some later
Bluffs phase occupation, dating from after the abandonment of provisional House 3 and possibly
even after the abandonment of House 1.

Bluffs Phase Multi-Room Architecture

Another project goal was to document the form of Bluffs phase houses at the Cutbank
as well as to investigate outside activity areas between houses. Surface topography suggests
that the houses were constructed with multiple rooms, much like contemporaneous dwellings
elsewhere in southwest Alaska. Dumond (2003:32-33) excavated multi-room houses at the
Leader Creek site at the mouth of the Naknek River, and hypothesized that Brooks River houses
were of the same construction. He noted that the multi-room layout went unrecognized in earlier
excavations\(^1\) (his own studies as well as those of Shields and Harritt [Harritt 1988]) for several
reasons: first, excavators were unaware of similar multi-room houses from the same time period
in Kodiak (these had been described in the 1980s in the interval between Shields’s fieldwork
and Harritt’s publication of the monograph [Knecht and Jordan 1985; Jordan and Knecht 1988]);
second, deep cold-trap entrances were erroneously thought to lead only to the outside of houses;
and third, prehistoric disturbances and the subsequent stratigraphic disruption made discerning
relations between features difficult (Dumond 2003:33). The houses described in Harritt’s
(1988:60, Figure 14) report, in retrospect, particularly resemble the classic “nucleus-satellite”
multi-room houses found in the Kodiak area (Jordan and Knecht 1988) and on the lower Alaska
Peninsula\(^2\) (Hoffman 1999, Maschner et al. 1997). Although Dumond’s (1994) reinterpretation of
Brooks River Bluffs phase houses fits well with maps and descriptions from earlier excavations,

\(^1\) Although Dumond’s 1960s project initially expected a multi-room house (based on surface features), the disturbed
stratigraphy led to the rejection of this hypothesis as excavation progressed (Dumond 2003:32).
Figure 12. House 1 excavation plan view, possible floor plan, and cross-section.
the hypothesis had not been confirmed through any excavation at Brooks River. Excavation for
the current project revealed several rooms connected by deep, cold-trap-like entrance tunnels
— definite evidence of multi-room houses — but the limited horizontal extent of the excavation
area, prehistoric disturbance, and the unexpected complexity of the house architecture made it
difficult to distinguish the outlines of the individual houses.

House 1

Of the three houses identified near the eroding burial, only Houses 1 and 3 were
excavated to any extent. Of these, the situation of House 1 appears much the simpler, so that its
description seems to provide a better introduction to the houses. Because so little was excavated,
the house layout must be deduced in large part from surface berms. Fortunately, at least part of
the house appears to contain little mixed fill above the floor, making the house outline produced
by surface berms more clear. The floor of Room F was directly under the 1912 organic surface
(or Ash B where it was present). However, Room E was under somewhat more fill. Figure 12
shows surface berms and excavated features attributed to House 1, as well as a possible floor
plan. Although the floor plan is close to the expected typical nucleus-satellite house, it also has
characteristics similar to the apparent plan of House 3, to be discussed next. There were very few
timbers above the House 1 floor, and little indication of roof sods. The superstructure was likely
salvaged, and the structure may have even been roofed with grass. There are too few post holes
and other construction features exposed to merit speculation on house construction, however.
The main entrance to House 1 appears to be to the southwest, judging from surface berms, but
there may also be an entry to the north which is obscured on the surface.

Figure 13. Clay-lined pit with rock slab cover, Room F.

4 The lower Alaska Peninsula houses described by Hoffman (1999) are much larger than Kodiak or Leader Creek houses, but
have a similar shape in which rooms are clustered around a central space.
Room F was presumably the central room, containing a hearth dug into gravels as well as three clay-lined pits. One pit (farthest to the east and only partially exposed) contained fire-cracked rock and burnt wood, and appeared to have been covered with rock slabs (Figure 13). The two post holes found in the room were dug into the edge of one of the clay pits after the pit had been filled in. This suggests that these were supporting posts added later in the life of the house. No faunal remains were found in any of the pit features or the hearth. A single basalt flake was found in the mixed fill inside the clay-lined pit with post holes. The floor of the room was a fairly thick (3-6 cm), laminated, charcoal-rich silty sand with small gravels, thickest toward the center of the room and thinning to almost nothing at the edges.

Entrance 6 connects Room E and Room F. The entrance construction is similar in some ways to a pattern seen also in House 3. The overlying timbers — although few remain — seem to be oriented in a "ladder-like" arrangement. The tunnel floor is about 70 cm below the floors of Rooms E and F, with no remaining vertical support posts. There was no distinct floor to the tunnel, only a thick layer of burnt cobbles, charcoal, and fragments of grass above sterile gravels. Despite these differences from typical entryways revealed in the more fully exposed but provisional House 3, this was clearly a tunnel connecting what seem to be two contemporary rooms. If the cobbles were deposited by a late- or post-occupational use, they may have obscured the floor.

The floor of Room E contained one clay-lined pit and two post holes. In the mixed fill of the pit there were two basalt flakes, and a densely packed layer of decayed organics, perhaps a lining, contacted the clay wall of the pit over the entire extent that was exposed in the trench. There was no evidence of faunal remains. The post holes, one of which is adjacent to the clay-lined pit, were near the house walls. The floor in Room E was extremely thin, especially near the walls where it was imperceptible. Only two artifacts, both slate flakes, were found in association with the floor. The ephemeral and artifact-poor floor might indicate that this was not in fact a room, but other evidence suggests that it was. First, the area is dug well through Ash C, a significant undertaking not likely to be done outside a house. Second, the clay-lined pit and post-holes argue that this is a room. This room must have been little-used, briefly used, or used for purposes that created minimal traffic and artifact deposition. The mixed fill deposit above the Room E floor is thicker than above the Room F floor. The fill is thickest near the western wall and thins rapidly to the east.

House 3

Figure 14 shows plan and cross-section views of presumed House 3 with two large connected rooms (A and B) exposed, a small portion of a third connected room (D), and a fourth room (C) that is thought likely to have been connected to the others based on the direction of the entrance (2) leading out of it. A fifth entrance (5) that may be associated with the house is shown in the northernmost trench.
The relatively early dates on the house floor indicate that Ash C was probably not deeply buried at the time of construction. Figure 15 shows the construction-related features — post holes and timbers — exposed in Room A. There are large post holes surrounded by many smaller post holes in the two excavated corners, and a few smaller post holes near the other two corners. The roof of this room was probably largely supported by four large corner posts. Excavators found no evidence of plank trenches at the edges of the floor. No hearths, clay-lined pits, or other features were found in any part of provisional House 3. However, a dark charcoal stain in Room B thickens to the north into the unexcavated area, and it is possible that a hearth (or hearths) was located in the central portion of that room.

Large timbers extending into the mixed fill layer were recorded with the expectation that they might reveal details about the construction of the house. Some timbers extended 30 cm or more upward into the fill. This may indicate that the house was at least partially standing — a vegetation mat had not yet grown over the ruins — when it was filled with backfill from the

Figure 14. House 3 excavation plan view and cross-section.
excavation of a nearby new dwelling. Intact sod blocks with distinctive stratified Ash C below a thick organic layer were present throughout the fill, suggesting that the room was roofed with sod. The blocks may also indicate exterior sod walls that collapsed into the house, but the blocks were evenly spaced throughout the fill rather than clumped close to the walls. Nevertheless, sod blocks may be from both roof and walls. Timbers shown in Figure 15 are thick and “log-like,” but numerous small, thin “planks” were found throughout the mixed fill and especially just above the floor. This may indicate that thinner planks incorporated into the walls and roof were braced by larger timbers. Most timbers were found above Room A, and almost none above Rooms B and C. Yet the fact that these rooms are cut into Ash C indicates that they were roofed living areas rather than outdoor space. The lack of timbers from these rooms may indicate that they were salvaged after the abandonment of the house, although why Room A supports would be left is of course unknown.

Large post holes in the northeast and northwest corners of Room A suggest that the main roof-support beams were in the corners. The large post holes are immediately at the base of the wall traces, with no evident living space between the main posts and the walls. Smaller postholes surround the larger ones in the corners, and the original posts likely propped up joists around the main supports. This suggests that the house required repair of sagging beams during its use life. Four small post holes were found in the central portion of Room A, suggesting that subsidiary posts may also have propped up center roof joists. Five more small post holes were located on either side of Entrance 3 (on the south) marking former posts that probably formed part of the support structure for the tunnel. Likewise, one post hole was found in Room B (the presumed center room) immediately adjacent to Entrance 4 (on its east). Room C (to the north) contained one clear posthole at the north corner and several shallow depressions that may have held posts in the east corner.

Taken together, the fallen timbers, sods, and post holes suggest that provisional House 3 was made up of sub-rectangular rooms cut 30-40 cm below the ground surface and interconnected by sunken entryways. Each room had four generally straight walls with the roof mainly supported at the corners by thick timbers, with secondary support around the corner posts and around the central floor provided by smaller timbers. Entrances were roofed with ladder-like frames made mostly of thick timbers. Spaces between the main supports — roof and entry — were filled in with planks and covered with sod, although grass covering is also a possibility. Dumond (2003:55) noted that ethnographic accounts of roofing material differ, and further suggested that a single dwelling may even have had more than one type of roofing. The present reconstruction is speculative, and there may have been other architectural details not revealed in the excavated area, such as posts set into the ground surface outside the excavated depression.

Three possible floor plans for House 3 are shown in Figure 16, based on excavated features and to a lesser extent on nearby surface berms. The most conservative plan includes only those rooms that are linked in excavated portions. Rooms A, B, and D are clearly all part of the same dwelling. The speculative portion of the most conservative plan is the identification of the outside entrance tunnel. Entrance 3 is presumed to be the main entrance because there is no surface indication of a room to the south of it, although it does not face the river, which is counter to what we expected of an outside entry. Also, Entrance 3 leads into Room A, which may be a side room (see discussion of Rooms A and B below) rather than into Room B, which we presume to have been the central room of the house. Entrance 5 could also be a main entrance — it does face the river and presumably it connects to the central room. It is not included in the most conservative plan because although it appears to connect to Room B, it has not been linked in an excavated area to our provisional House 3 and might be related to another feature entirely.
Figure 16. Three possible floor plans for House 3.
Also, there is a surface indication of a room to the north of it into which it could lead. However, the construction of House 1 has obscured the surface topography in that area and berms visible now may not be related to House 3. A third possibility is that both Entrance 3 and Entrance 5 led to side rooms, and that the main entrance was to the east or west and has been obliterated by the construction of House 1 or House 2, respectively. We here show Entrance 3 as the outside entrance tunnel because it connects to House 3 and does not appear to lead into a side room to the south. The shape of Room B in the most conservative plan is determined by the two entrances (1 and 4) that lead into it, the walls visible in the excavation, and the assumption that the room is probably generally rectangular, like Room A. The shape of Room D is determined by the wall to the north of Entrance 4 and a distinct surface berm.

The moderate plan includes the three rooms shown in the first plan with several additions based on assumptions. First, we assume that Entrance 2 connects Room C to Room B. Second, we assume that Entrance 5 leads into Room B from a side room, the outlines of which are suggested by a surface berm. Both of these entrances were well constructed (although Entrance 2 is shallower and more lightly built) and had distinct floors on which artifacts were found. Both are aligned toward Room B, although what would be the connecting portions was not excavated. As mentioned above, Entrance 5 may in fact be the main entrance tunnel into the house via Room B, in which case the surface berm suggesting a side room either delineates an entrance shed (of the type reported by Harriott [1988:35] from the Cutbank site, and found by Dumond [2003:49,75-76] at Leader Creek) or is related to something else entirely. However, if the main entrance is Entrance 3, it is reasonable that Entrance 5 connected to a side room. The moderate plan also presumes that Room B extended into the excavated northern trench. We assume that the wall and floor deposit delineating the edge of this room was obliterated by the later construction of House 1, and that the entrance (5) remained partially intact due to its depth.

The most speculative plan adds several more assumptions. Here we assume that a depression to the east of Entrance 5 in the north trench — a depression which in the field we referred to as the “deep feature” — is yet another entrance, but has been partially obliterated by the construction of Entrance 6 to connect Rooms E and F of House 1. The outline of a side room is suggested by a berm north of the possible entrance. The possible entrance also contained wood debris. However, several factors may argue against classifying this feature as an entrance. First, surface berms are suggestive rather than conclusive evidence. Second, the wood found in the entrance was not arranged in a classic “ladder” structure, as found in Entrances 1, 3 and 4 (as well as entrances described by Dumond [1981:168]). Further, unlike all of the other entrance tunnels the feature had no discernable floor. Finally, the direction of the entrance in relation to the central room makes an awkward addition onto House 3.

Therefore, based on the evidence from the excavated area, and supported by indications from the surface, we suggest that the moderate plan is the most likely to reflect the actual floor plan. However, the evidence supporting the other two alternatives suggests that Bluffs phase communities and houses were variable, constituting dynamic, changing entities. We now turn to a more detailed description of some of the features of House 3.

Room A was the only room excavated to virtual completeness at the site. It was nearly square in shape, approximately 4 meters north-south by 4 meters east-west. The floor was very flat, and approximately 30 centimeters below the top of Ash C. The floor was around 2 cm thick in the central part of the room and near Entrance 3, and almost imperceptibly thin near the walls.
The floor matrix was a silty sand, compact in areas. Under the floor was culturally sterile sand in some areas, and culturally sterile gravels in other areas. There were no storage pits, hearths, or other features in the floor. In the northeast corner of Room A, there was silty sand under the floor in which two small quartz flakes were found. These appear to predate the occupation of House 3 but were not associated with any discernable feature.

Entrances 1 and 3 lead into Room A. The floor of Entrance 1 is 73-75 cm below the floor of Room A. Part of the entrance was excavated in 2002, with the rest of the entrance outline revealed in 2003, although it was not excavated down to the floor due to time considerations. Where the entrance was completely excavated, extant planks and timbers were found to suggest its construction. Small round posts extending from the floor of the entrance to the floor of Room A were placed approximately every 20 cm along the entrance wall, presumably to hold back the gravels into which the entrance was dug. At either end of the entrance — at the level of the adjacent house floors — a plank was set into the floor. This may have functioned as a step, allowing people to descend into the deep tunnel without collapsing the gravel walls. The entrance was filled with dirty gravels (gravels containing tephra, sand and silt, as well as some cultural material) to about 58 cm above the tunnel floor, with mixed fill above the dirty gravels and below the 1912 tephra. Directly above the dirty gravels at the contact with the overlying mixed fill was a ladder-like structure, the orientation of which was still discernable although the timbers were quite decomposed. This “ladder” had formed the superstructure of the entrance tunnel. There was approximately 70 cm of mixed fill above the ladder structure. That the entrance superstructure was above the gravels suggests that the structure was still partly standing

![Figure 17. Entrance 1 during and after excavation.](image-url)
when the dirty gravels filled in the entrance. The tunnel floor was silty sand, about 2-4 cm thick, containing a few decayed thin planks, charcoal, pieces of bark, and artifacts.

Entrance 1 (Figure 17) proved to be typical of deep entrances at the site: dug into gravels, a fairly level floor about 74 cm deeper than the house floor, small upright posts along the entrance walls, stepping planks, and a ladder-like superstructure that apparently collapsed after the entrance was at least partially filled. Entrance 3 leading into Room A also fits the typical plan. The floor is 72-75 cm lower than the floor of Room A. The tunnel floor was a compact silty sand, about 2-4 cm thick, with multiple laminae that suggest either reflooring or episodes of heavy use. On the floor was a thin plank, pieces of bark, artifacts, and charcoal. There were vertical posts along the walls approximately every 20 cm in the east wall and every 5 cm in the west wall (suggesting that either the west wall was more prone to collapse, or that many of the posts in the east wall had completely decomposed). The entry was completely filled with mixed fill, with approximately 116 cm of it between the tunnel floor and the top of the mixed fill level. The ladder-like superstructure was within the mixed fill between 40-50 cm above the tunnel floor, indicating that the entrance was partially filled with mixed fill before it collapsed. However, there was no visible difference between the mixed fill above and below the superstructure.

Room B was partially excavated in the south trench of the excavation area. It appears to be the central room of the house, although (as discussed above) the main house entry may be the one leading into Room A. The room measures about 4.5 meters east-west, and the north-south dimension is unknown. The floor in Room B is a sandy silt, much darker than the fill and covered with a lens of charcoal. The floor is thickest — 4-5 cm — near the north wall of the south trench, in the area midway between the two entrances, and thins considerably toward the south wall. If we assume the floor is thickest in the middle and the entrance into the room is midway down the length of the shared wall with Room A, then Room B would be roughly square and about the same size as Room A. In the moderate plan, Entrances 2 and 5 both lead into Room B, which also suggests the square shape (assuming that both entrances are of similar lengths). Excavation in the north trench suggested that the northern portion of Room B could have been disturbed after its occupation. Either the north wall of Room B was obliterated by these activities or it is just south of the north trench excavation.

The dark charcoal lens in the northern part of the excavated area of the Room B floor may indicate that a hearth lies just north of the excavation. No other indications of a hearth were found in House 3. One large post hole was found in the room, adjacent to the Ash C cut near Entrance 4. No structural timbers remained in the mixed fill above the floor. As in Room C, these may have been scavenged or disintegrated. No other features were found on the floor of this room.

Entrance 4 connects Room B to Room D. The tunnel floor was somewhat more uneven than typical, varying between 72 and 61 cm below the floor of Room B. It contained artifacts, charcoal, and organic matter (likely decaying wood and bark) and was approximately 2 cm thick. There were small, decaying fragments of wood against the sterile gravels at the north end of the entrance that were likely the remains of upright posts. A stepping plank was present at the west end of the entrance, and the edge of a ladder-like superstructure extended into the south wall of the excavation trench. The superstructure was within the mixed fill layer (no dirty gravels were found in the entrance), approximately 30 cm above the tunnel floor and 70 cm below the top of the mixed fill layer.
Only a small corner of Room D was excavated, an area in which the floor was very thin. The outlines of the room are suggested by a surface berm (which may or may not reflect the actual dimensions of the room, given the large quantity of mixed fill above the floor in this area and subsequent disturbances). If the berm does reflect the room’s shape, it would be approximately 2.5 meters east-west and 2 meters north-south, much like Room C. No features were found in the small area excavated, and not enough floor was exposed to warrant speculation on the function of this room.

Room C — presumably a part of House 3, although a direct connection cannot be seen in the excavated area — was smaller and more rounded, measuring approximately 2 meters northwest-southeast and 1.25 meters northeast-southwest. As in Room A, the floor was flat and about 30 cm below Ash C. The floor matrix was extremely thin, especially near the walls; in the central portion of the room near the entrance, where it was thickest, the floor still measured less than 0.5 cm. There was a single post hole near the north corner of the room, and several small, shallow depressions near the wall at the west corner. These may indicate that the roof was supported by corner posts. Unlike Room A, very few structural timbers were found in the mixed fill above the floor. Structural wood may have been scavenged after the abandonment of the house, or may not have preserved.

Entrance 2 leads into Room C, presumably from Room B. It is the only entrance in House 3 to deviate from the typical entrance pattern (unless the feature adjacent to Entrance 6 is in fact a shallow entry to another room in House 3, as suggested in the most speculative plan for House 3). Entrance 2 was small and shallow, dug into sterile sands rather than gravels. The uneven floor ranged from 20 to 29 cm below the floor of the room. The floor was a sandy silt, 2-3 cm thick, containing wood, bark, and artifacts. The shallowness of the entrance tunnel, together with the thin, ephemeral floor in Room C, suggests a function different from those of Rooms A and D (discussed further below).

House 3 is clearly a multi-room house, but interpretations are restricted by the limited extent of the excavation and the effects of post-abandonment disturbance. The complete layout of the house and functions of the various rooms cannot be determined. However, judging by the walls, floors, and entrances visible in excavated areas (and in some cases surface berms), it appears that House 3 consisted of 2 or 3 smaller rooms and one larger room arranged around a second larger room containing the hearth. The main entrance was probably through the larger side room (Room A), which may have functioned concurrently as a large “entry shed.”

House 2

None of House 2 was excavated, but its layout is suggested by surface berms. Although these are not the most reliable indication of house shape (especially given the large amount of mixed fill that obscures the outlines of the adjacent House 3), the House 2 depression is particularly deep and distinct. It appears to represent a large central room surrounded by four side rooms. Another entrance leads to the north (toward the river) but is truncated by the eroding bank. It is unclear whether this was the outside entrance or led to another side room.
Fill Stratigraphy and Fill Features

There were three distinctive features within the mixed fill layer above the floor of House 3: the incised pebble feature, the banya feature, and the red surface feature (Figure 18). There was also a fairly extensive gravel lens above the floor in Room E, the west room of House 1. In addition, there were features such as lithic scatters or small burnt cobble groups within the fill that were of limited extent and not associated with a definable occupation surface. Figure 18 shows the locations of the three major features within the mixed fill.

The Red Surface Feature

This extensive feature within the mixed fill was identified in 2002 and further exposed in 2003. At its eastern extent it is a very red, silty, compact surface that forms the contact between two distinct fill episodes. In the northwestern area, it grades to a black, less compact lens within apparently homogeneous mixed fill. Figure 19 shows two profiles in which the feature appears. Twenty artifacts — not including lithic debitage — were recovered from the feature surface, a significant portion of the 253 non-debitage artifacts (8%, although the volume excavated of the red surface is only 0.2% of the total volume excavated). The feature is deeper within the mixed fill than is the incised pebble feature. It slopes downward to the east, from about 6 cm below the 1912 organic surface at the western end to almost 70 cm below it (in the deep fill above Entrance 4, the easternmost entry within House 3.). No post holes or other indications of structure were found associated with the red surface.

Figure 18. Plan locations of features in the mixed fill zone.
Figure 20. The red surface feature between two distinctive fill episodes (20 cm scale).
East of Entrance 1, which connects Room A and Room B, the red surface separates two distinctive mixed-fill deposits: the lower deposit is characterized by numerous large blocks of Ash C and is thickest in the west, thinning to the east; the upper deposit is characterized by much smaller flecks of Ash C in a matrix of reddish-brown sediment with flecks of charcoal (Figure 20). It is likely that the lower episode represents backfill from the construction of an early house, and that the red surface feature then formed as the surface of the first backfill pile lay exposed and was trampled and rained on. The artifacts on the surface in that case might represent exterior activities. Some time later, another house was excavated and a new layer of mixed fill deposited on top of the red surface. This fill sequence breaks down west of Entrance 1 where the fills above and below the surface are more homogenous. The lower fill deposit grades into a fill more like the upper deposit as it follows north and west, although the red surface feature between the two is still very clear. There are two possible explanations for this pattern. First, there may be a second early fill deposit represented below the red surface feature in the northwestern area, which differs from the other lower deposit because it came from a different source. It may even have been later than the lowest deposit. Second, the two may be from the same construction period, but the northwestern area excavated from a previously disturbed area, or one in which the Ash C layer had been scoured off by water, wind, or cultural activities. Linking these two (or three) fill deposits with any of the three multi-room houses thus far identified is difficult because the houses are close together, even superimposed. In addition, although we can assume that fill came from an adjacent house, there were likely nearby houses that have now eroded into the river and possibly others that we haven’t identified. The Ash C cut south of the burial suggests that there was a structure north of Houses 1, 2, and 3 that has now almost completely eroded. Judging by the slope and location of the fill episodes, though, it seems likely that the first fill episode was from House 1 because it seems to “mound up” away from the house against the west wall of the already-abandoned Room B. In that case, the red surface would also be associated with the

Figure 19. The red surface feature in profile.
House 1 occupation. The radiocarbon date from the feature (Table 2) supports this interpretation. The second fill episode might either be from House 2 or from what may have been a house that has eroded away, the last remnants of which were found stratigraphically below the burial. However, as mentioned above, some mixed fill — presumably from the second fill episode because it appears to be continuous with the fill layer above the red surface in the southern portion of the excavation — occurs above that possible now-eroded house, and therefore would postdate it. The second fill episode is unlikely to be from House 1 since some of that fill is inside House 1. The second fill, then, is most likely related to the construction of some other structure, such as House 2. In any event, we can suspect that the lower fill came from House 1. Different fill episodes may not be distinguishable, so the backfill history may be significantly more complex than indicated by the two distinct episodes separated by the red surface. Nonetheless, there is some evidence to suggest that the red surface reflects the outdoor activities of the occupants of House 1 and that House 1 construction predated some other nearby house, possibly House 2.

The Incised Pebble Feature

This feature was first discovered in the 2002 excavation and further exposed in 2003. It consisted of a surface characterized by the presence of large quantities of charcoal and decayed organic matter near the top of the mixed fill layer, only 2-4 cm below the 1912 organic surface and at a few places contacting it. At its south edge, the surface was reddish in color. Many of the artifacts and rocks were fire-cracked. All but one of the in situ incised pebbles recovered in the excavation came from this area (several others were found in erosional context or in the excavation backdirt). Numerous other artifacts, including lithic debitage, slate knives, hammerstones, and whetstones, were recovered from the incised pebble area. In fact, of the 253 artifacts from the excavation that were not lithic debitage, 59 were found in the incised pebble feature (23% of the total, although the volume excavated from the feature is only 0.4% of the volume excavated). If the incised pebbles are excluded, there are 25 non-debitage artifacts from the feature out of 218 from the entire excavation (11%). The feature was 5-10 cm thick, and extended into seven different recording units (of one square meter each). No post holes or other indications of an associated structure were found.

The pebble feature is located above the floor of House 3, but it yielded one radiocarbon date that is earlier than any of the House 3 dates — in fact, it is the earliest at the site. One other radiocarbon date from this feature is within the range of House 3 dates. This may indicate that the items were associated with an occupation early in the Bluffs phase, then disturbed and redeposited in the construction of subsequent houses (the presence of chipped stone projectile points, discussed further below, also indicates that at least some of the mixed fill came from earlier deposits). The other possibility is that the pebble feature may be an outdoor activity area, possibly related to the occupations of House 1 or House 2, and the charcoal that yielded the radiocarbon dates was compromised. Some evidence suggests that the feature may be in situ: artifacts and charcoal were found together across a limited area in a relatively flat surface, not mixed in with fill at various depths, as were the projectile points. If the feature is in situ and the upper layers of fill came from a nearby structure such as House 2, the pebble feature might be associated with the occupation of that house. The incised pebble feature and House 1 produced the only ceramics recovered from the excavation (all gravel-tempered ware), providing evidence that these two might possibly be linked. Like the burial, the incised pebble feature is near the top of the mixed fill layer. However, because the burial was apparently an interment and the incised pebble feature possibly represents earlier material that was disturbed and redeposited, the stratigraphic position does not necessarily suggest that the two features were contemporaneous.
The Banya Feature

This cluster of heat-altered cobbles was dubbed the banya feature (i.e., from the Russian word for the steam bath, widely used in Alaska) because of the historically and ethnographically reported practice of heating rocks in an outdoor fire and bringing them into a steam or sweat room (Clark 1984). The feature consisted of several dozen cobbles of roughly the same size and shape (ovoid, about 10 x 6 cm), all of which showed evidence of burning and cracking. The rock pile was roughly linear, oriented northwest-southeast. The long axis was in length about 1 m and the short axis about 60 cm. Very little charcoal was found with the cobbles, and the underlying sediments did not appear heat-altered. No faunal remains were found in direct association with the feature, although a few pieces of unmodified large mammal bone were found several centimeters above it. Several pieces of lithic debitage, including one tiny graver on a slate flake, were recovered from the feature. No post holes or other construction-related features were found in the immediate area.

In other areas, steam baths have been located in side rooms of multi-roomed or nucleus-satellite houses (Clark 1984), so the lack of structure and evidence of in situ burning here might indicate that this feature was an actively used discard area rather than a use area. There are two other possibilities. The first is that the feature could have been more inadvertently redeposited in the course of later construction activities, as noted for the incised pebble feature. The single radiocarbon date is the second-earliest at the site, predating all but one date from provisional House 3. But here again the fire-cracked rocks and artifacts are neatly clustered on a fairly level surface, rather than mixed in with fill as would be expected if they had been redeposited over a significant length of time. The second possibility is that a tent covered the feature, which was in the lower portion of the mixed fill just above Room C. At the time there would have been a considerable surface depression marking the room of the abandoned house. However, the lack of a floor surface in association with the feature makes the first two scenarios (a primary discard area or redeposition as a result of construction) more likely. The location in the lower portion of the fill might indicate association with the earlier fill-depositing episode (i.e., before or concurrent with the formation of the red surface), and therefore association with House 1, although the radiocarbon age does not suggest it. In any event, association with House 2 or some other now-eroded features certainly cannot be ruled out.

Although none of the fill features can be definitively linked to any of the houses, simple horizontal and vertical positions within the mixed fill zone suggest the following: if the incised pebble feature is not redeposited, it and the burial are more likely to have been associated with a structure of uncertain age such as House 2, whereas the red surface feature and the banya feature (if not redeposited) are more likely to have been associated with House 1. Additional investigation would be required to confirm or refute these hypotheses.

Further Consideration of Radiocarbon Dates

Based on the description of the apparent houses and other features that have preceded, it is now possible to look again at patterns displayed by the radiocarbon determinations. Table 3 lists the conventional ages of the 17 determinations, now separated according to major depositional units noted during the course of excavation. For Houses 1 and 3, these include the features that seemed most clearly relatable to each of them. Features that cannot be connected more confidently to House 1 or to House 3 (i.e., those left off the "most conservative" possible
floor plan of the latter), are listed as pertaining to a theorized but unidentified House X. The above-floor fill features from House 3, the red surface thought possibly to be an outside area related to House 1, and the burial eroded from the face of the bluff, are grouped as unaligned elements.

Table 4 presents a consideration of the groupings listed in Table 3 through analysis of sample variances by means of the F statistic (see Long and Rippeteau 1974). In conformance with frequent practice, probabilities of contemporaneity greater than 5% (i.e., within a 95% confidence range) can be deemed acceptable, although stronger probabilities may be favored; for comparison various estimates of probability are also listed.

With regard to House 1, the determination from Entrance 6 (determination #6) evidently cannot be dating the same entity as the determinations from the floors of Rooms E and F (#13, #17) (House 1 option A, Table 4), although the two floor determinations themselves can certainly

<table>
<thead>
<tr>
<th>Number (from Table 2)</th>
<th>Stated Location</th>
<th>Conventional Radiocarbon Age</th>
<th>Laboratory Number (Beta - #)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>House 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Entrance 6</td>
<td>450 ± 40</td>
<td>186907</td>
</tr>
<tr>
<td>13</td>
<td>Room E</td>
<td>320 ± 50</td>
<td>186909</td>
</tr>
<tr>
<td>17</td>
<td>Room F</td>
<td>250 ± 40</td>
<td>176795</td>
</tr>
<tr>
<td><strong>House 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Entrance 3</td>
<td>480 ± 60</td>
<td>186905</td>
</tr>
<tr>
<td>7</td>
<td>Entrance 4</td>
<td>400 ± 50</td>
<td>186906</td>
</tr>
<tr>
<td>8</td>
<td>Room B</td>
<td>390 ± 50</td>
<td>186910</td>
</tr>
<tr>
<td>9</td>
<td>Room A</td>
<td>390 ± 40</td>
<td>176800</td>
</tr>
<tr>
<td>12</td>
<td>Room A</td>
<td>330 ± 40</td>
<td>176799</td>
</tr>
<tr>
<td>16</td>
<td>Entrance 1</td>
<td>310 ± 30</td>
<td>176797</td>
</tr>
<tr>
<td><strong>House X</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Room C</td>
<td>460 ± 30</td>
<td>176798</td>
</tr>
<tr>
<td>4</td>
<td>Entrance 5</td>
<td>430 ± 60</td>
<td>186908</td>
</tr>
<tr>
<td>14</td>
<td>Entrance 2</td>
<td>320 ± 60</td>
<td>186904</td>
</tr>
<tr>
<td><strong>Non-House Features</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Incised pebbles</td>
<td>550 ± 50</td>
<td>186902</td>
</tr>
<tr>
<td>10</td>
<td>Incised pebbles</td>
<td>380 ± 40</td>
<td>176794</td>
</tr>
<tr>
<td>2</td>
<td>Banya rock cluster</td>
<td>490 ± 70</td>
<td>186905</td>
</tr>
<tr>
<td>11</td>
<td>Burial (vicinity)</td>
<td>320 ± 50</td>
<td>176793</td>
</tr>
<tr>
<td>15</td>
<td>Red surface</td>
<td>310 ± 40</td>
<td>186903</td>
</tr>
</tbody>
</table>

42
be thought contemporaneous (option B). But to these two can be added the red surface feature (#15), producing a probability of more than 50% that the presumed contemporaneity of the three is real (option C). This is evidently the most secure of the possible groupings. In addition, however, the tunnel recorded as Entrance 1 (#16) — the most recent date from the features assigned to House 3 — can also be accommodated within an acceptable range of determinations for House 1, as can that recorded as Entrance 2 (#14), which does not articulate with the more confidently accepted parts of House 3 (options D, E). In general, the mean age of 300 ± 20 or 300 ± 30 would seem acceptable for House 1.

Turning to House 3, the possibility that Entrance 1, at least, might relate to House 1 appears negated, in that determinations from Entrances 1, 3, and 4 (#16, #3, #7), and Rooms A (#9, #12) and B (#8) can all be acceptably associated together (Table 4, House 3 option A), providing support for the most conservative possible form for excavated portions of the house. This group, it should be noted, could also include Entrance 2 (#14), which as already mentioned could in terms of its radiocarbon age also join the features of House 1. In any event, a weighted mean age of 360 ± 20 appears acceptable for House 3. At the same time, it must be recognized that judging by their dates both Entrance 1 and Entrance 2 could be associated with House 1. Of these possibilities, however, because of the location of the rooms of House 1, that house seems

<table>
<thead>
<tr>
<th>Option</th>
<th>Determinations (Table 2 Nos.)</th>
<th>F Value</th>
<th>Degrees of Freedom</th>
<th>Probability of Contemporaneity</th>
<th>Weighted Mean*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>House 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>6, 13, 17</td>
<td>4.01</td>
<td>$2/\infty$</td>
<td>~2%</td>
<td>Reject</td>
</tr>
<tr>
<td>B.</td>
<td>13, 17</td>
<td>1.20</td>
<td>$1/\infty$</td>
<td>&gt;20%</td>
<td>315 ± 40</td>
</tr>
<tr>
<td>C.</td>
<td>13, 15, 17</td>
<td>1.79</td>
<td>$\infty/2$</td>
<td>&gt;50%</td>
<td>300 ± 30</td>
</tr>
<tr>
<td>D.</td>
<td>13, 15, 16, 17</td>
<td>1.61</td>
<td>$3/\infty$</td>
<td>&gt;20%</td>
<td>300 ± 20</td>
</tr>
<tr>
<td>E.</td>
<td>13, 14, 15, 16, 17</td>
<td>1.89</td>
<td>$\infty/4$</td>
<td>&gt;50%</td>
<td>300 ± 20</td>
</tr>
<tr>
<td><strong>House 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>3, 7, 8, 9, 12, 16</td>
<td>1.69</td>
<td>$5/\infty$</td>
<td>~20%</td>
<td>360 ± 20</td>
</tr>
<tr>
<td><strong>House X</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>4, 5, 14</td>
<td>3.55</td>
<td>$2/\infty$</td>
<td>~3%</td>
<td>Reject</td>
</tr>
<tr>
<td>B.</td>
<td>4, 5</td>
<td>10.00</td>
<td>$\infty/1$</td>
<td>~25%</td>
<td>455 ± 30</td>
</tr>
<tr>
<td>C.</td>
<td>4, 5, 6</td>
<td>8.71</td>
<td>$\infty/2$</td>
<td>&gt;10%</td>
<td>455 ± 25</td>
</tr>
<tr>
<td><strong>House 3 + House X</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>3, 4.5, 7, 8, 9, 12, 14, 16</td>
<td>1.77</td>
<td>$8/\infty$</td>
<td>~10%</td>
<td>380 ± 15</td>
</tr>
<tr>
<td>B.</td>
<td>3, 4, 5, 6, 7, 8, 9, 12, 14, 16</td>
<td>1.79</td>
<td>$9/\infty$</td>
<td>&gt;5%</td>
<td>390 ± 15</td>
</tr>
<tr>
<td><strong>Incised Pebble Feature</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>1, 10</td>
<td>6.31</td>
<td>$1/\infty$</td>
<td>&lt;1%</td>
<td>Reject</td>
</tr>
<tr>
<td><strong>Incised Pebble Feature and Banya Rock Feature</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>1, 2, 10</td>
<td>2.48</td>
<td>$2/\infty$</td>
<td>&gt;5%</td>
<td>455 ± 30</td>
</tr>
</tbody>
</table>

*Weighted inversely by sample variances ($s^2$), rounded to nearest -5, -0.
unlikely to have been related to Entrance 1; perhaps more likely, either or both of these entrance tunnels could have been contaminated with debris from the occupation of House 1.

The features less confidently relatable to Houses 1 or 3, those here grouped as House X, fall apart in their ages when that grouping includes Entrance 2 (#14) (Table 4, House X option A), which appears in terms of its position to relate to Room C (#5). The age of Entrance 2 (320 \pm 60) would certainly make it an appropriate fit for House 1, but again it may also be relatable elsewhere as will be seen. The small floor segment recorded as Room C (#5), yielding one of the earliest dates of the site, accords well with the determination from the apparent entrance that cross-cuts the trench through House 1 (Entrance 5, #4). Pairing these two ages (#4, #5) (Table 4, House X option B) it appears very possible that Room C relates to an episode earlier than the bulk of House 3. Finally, the determination recorded from Entrance 6 (#6), can be absorbed easily into the range of the two other closely similar ages for projected House X (#4 and #5) (see option C).

At this point, it is possible to hypothesize the existence of at least three structures based on the radiocarbon dates. Houses 1, 3, and X, of variant ages: House 1 at about 300 \pm 20 or \pm 30, House 3 at about 360 \pm 20, and House X at about 455 \pm 25. Furthermore, to turn to the dates apparently related to above-floor features from the fill of House 3, those of the incised pebbles together (#1, #10) appear not to be dating the same entity (Table 4, Incised Pebble Feature option A). Nevertheless and a little surprisingly, when the banya rock feature date is added to them, the three ages appear within at least a minimally acceptable probability range, providing a mean age precisely the same as the weighted mean given for projected House X (Table 4, Incised Pebble and Banya Feature option A). Thus, it appears not impossible that the source of the three above-floor dates from House 3 fill — as well as most of that fill itself — was an underlying House X into which excavations for both House 3 and House 1 intruded.

At least a part of this solution can be taken as tentative support for the most conservative conclusion regarding the morphology of House 3 plus that concerning House 1, both of which were penetrated by the archaeological tests: these two plus an additional earlier structure, with the lowest providing artifacts and fill for the overlying House 3 as a result of digging for the still later House 1. However, it is evident that combining all determinations for Houses 3 and X except for determination #6 (Entrance 6) — a total of nine — also produces an acceptable grouping of determinations, with a probability of about 10\% (House 3 and X option A). This, then, can serve as tentative support for the middle or moderate conclusion regarding the form of House 3 (Figure 16, above). Finally, if to these is added the determination from Entrance 6 (Houses C and X option B) the result is still at least a marginally acceptable grouping, one related to the most speculative of the conclusions regarding the form of House 3. Both of these options regarding a maximal House 3 imply a conclusion that the Park Service excavations tapped into two and only two structures — a somewhat ramified House 3, and a more restricted House 1.

Last of all, one can add that the date related to the burial (#11), like that for the red surface (#15), can easily be accommodated within the range of dates for House 1. Indeed, if it is reasonable to suppose that activities of the makers of House 1 provided most of the above-floor fill of House 3, it is also reasonable to accept a real possibility that it was people of House 1 who buried one of their own in portions of the same fill in a now-eroded house, although as indicated above there may be reasons to question this as a final conclusion.

Table 5 presents a calibration of selected weighted means from Table 4. Unfortunately, with calibration the overlap of House 3 and House 1 determinations becomes even more
confusing. By this, House 1 would seem to fall somewhere around AD 1600 to 1630. A restricted House 3 (6 determinations) might date as much as a century earlier, around AD 1500, but it might also fall after AD 1600, thus crowding a relationship with overlying House 1. House X, in this case, could date before 1450, which might make the three-way relationship possible. On the other hand, the expanded House 3 (including House X, with 10 determinations total) would fall somewhere around the middle of the 15th century. Unfortunately, the fill features of House 3 would appear to date almost exactly the same, and yet from their position in the fill it appears certain that they are not contemporaneous with House 3 (whether they date earlier and were redeposited during construction, or were found in situ and date later).

All together, despite the possibility of assigning all ten of the House X and House 3 determinations to a single house, the separation of House X as an earlier structure underlying both Houses 1 and 3 seems to have much to recommend it as hypothesis, if not as a final conclusion. That is, the notion of three houses, with the bottom-most intruded upon by the other two provides the neatest and most parsimonious of the explanations. Unfortunately, the ambiguity of the situation does not permit the fully confident adoption of it or of any other of the possibilities outlined. For at this point we have pushed somewhat past the interpretive limit that the data from this limited excavation impose on us.

Table 5. Calibration of Weighted Mean Ages

<table>
<thead>
<tr>
<th>Mean Age</th>
<th>Location</th>
<th>Intercept AD (BP)</th>
<th>1-sigma range AD (BP)</th>
<th>2-sigma range AD (BP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 ± 20</td>
<td>House 1 (4 dates)</td>
<td>1637(313)</td>
<td>1525-1642 (425-308)</td>
<td>1518-1649 (432-301)</td>
</tr>
<tr>
<td>360 ± 20</td>
<td>House 3 (6 dates)</td>
<td>1491 (459)</td>
<td>1479-1519 (471-431)</td>
<td>1455-1631 (495-319)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1603 (347)</td>
<td>1593-1622 (357-328)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1609 (341)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>455 ± 25</td>
<td>House X (3 dates)</td>
<td>1440 (510)</td>
<td>1432-1446 (518-504)</td>
<td>1419-1471 (531-479)</td>
</tr>
<tr>
<td>390 ± 15</td>
<td>Houses 3, X (10 dates)</td>
<td>1476 (474)</td>
<td>1453-1486 (497-464)</td>
<td>1444-1610 (348-340)</td>
</tr>
<tr>
<td>455 ± 30</td>
<td>Pebbles + Banya (3 dates)</td>
<td>1440 (510)</td>
<td>1430-1447 (520-503)</td>
<td>1415-1478 (510-472)</td>
</tr>
</tbody>
</table>


Artifacts

Harritt (1988:160) used a modification of Dumond's (1981) artifact classification system in his report of the 1982-1983 Cutbank excavations and Dumond updated the basic system in the later Leader Creek analysis (Dumond 2003:113). In the following discussion, the "Dumond classification" will refer to the Leader Creek system. Appendix 3 shows distribution of all artifacts in the different stratigraphic levels.
Lithic Debitage

Lithic debitage flakes were the most common artifact recovered from the Cutbank site. Of 11,508 artifacts, 11,142 were lithic debitage. Items in the lithic debitage category, sorted by material type, are shown in Table 6. Basalt flakes form the majority of lithic debitage, with slate a distant second. All other material types are comparatively rare. However, basalt is not the most common material for finished tools. Only 24 of 210 non-debitage stone tools and objects are made of basalt, whereas 84 are made of slate (Table 7). Andesite, another hard volcanic rock similar to basalt, shows similar distribution. This may indicate that basalt and andesite were worked on-site, while slate and other material types were worked down to preform or finished tool stage nearer the source and brought to the site. Most of the basalt flakes are tiny microflakes recovered from the house floor. However, basalt tools are generally large items such as hammerstones, cores, choppers, and adzes. Only one fragment of a basalt chipped stone point was found. Perhaps the microflakes came from adze manufacture or from the manufacture of tools not recovered in the excavation. It is also possible that periodic house cleaning removed larger flakes from the floor.

A large proportion of the slate flakes show evidence of grinding on one or more facets. This may be the result of tool use and resharpening, suggesting again that these materials were brought to the site in more finished form. Because slate items are generally ground into tool form, the prevalence of grinding on slate debitage must be only a product of manufacturing technique. Nevertheless, there is still relatively little slate and ground slate debitage in relation to the number of finished tools. Greenstone, chert, and quartz show the same pattern, possibly indicating that these materials were also worked nearer the sources. Indurated sedimentary lithic material is much more common in non-debitage form, but the majority of non-debitage indurated sedimentary items are incised pebbles. The material generally does not flake well and was probably collected locally.

Table 6. Lithic Debitage, by Type and Material

<table>
<thead>
<tr>
<th></th>
<th>Andesite</th>
<th>Basalt</th>
<th>Chert</th>
<th>Greenstone</th>
<th>Indurated Sedimentary</th>
<th>Quartz</th>
<th>Siltstone</th>
<th>Unidentified</th>
<th>Slate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flakes</td>
<td>194</td>
<td>4704</td>
<td>24</td>
<td>17</td>
<td>28</td>
<td>30</td>
<td>6</td>
<td>6</td>
<td>487</td>
<td>5497</td>
</tr>
<tr>
<td>Ground Flakes</td>
<td>5</td>
<td>38</td>
<td>0</td>
<td>14</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>65</td>
</tr>
<tr>
<td>Retouched Flakes</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Utilized Flakes</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Ground Stone Fragments – Not Flakes</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>311</td>
<td>315</td>
</tr>
<tr>
<td>Flakes from Scatters</td>
<td>3</td>
<td>4993</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>18</td>
<td>0</td>
<td>0</td>
<td>228</td>
<td>5248</td>
</tr>
<tr>
<td>Large Slate Fragments</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>202</td>
<td>9,745</td>
<td>25</td>
<td>38</td>
<td>36</td>
<td>48</td>
<td>6</td>
<td>7</td>
<td>1,034</td>
<td>11,142</td>
</tr>
</tbody>
</table>

¹ Nineteen stone tools or objects were made of materials, such as granite, for which there was no debitage.
Flake counts are likely artificially low in the fill features. In many cases, the features were not recognized at the time of excavation (or were recognized only after they had been partially excavated), and were reconstructed from maps and profiles. Because lithic flakes in the fill were collected in unit and level lots rather than point-provenienced, it is often impossible to separate flakes associated with features from flakes in the mixed fill above, below, or adjacent to features.

Table 7. Lithic Tools and Objects vs. Debitage, by Material Type

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Non-Debitage Stone Tools and Objects (number)</th>
<th>Non-Debitage Stone Tools and Objects (% of lithic type total)</th>
<th>Debitage (number)</th>
<th>Debitage (% of lithic type total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andesite</td>
<td>7</td>
<td>3%</td>
<td>202</td>
<td>97%</td>
</tr>
<tr>
<td>Basalt</td>
<td>24</td>
<td>0.2%</td>
<td>9745</td>
<td>99.8%</td>
</tr>
<tr>
<td>Chert</td>
<td>4</td>
<td>14%</td>
<td>25</td>
<td>86%</td>
</tr>
<tr>
<td>Greenstone</td>
<td>7</td>
<td>16%</td>
<td>38</td>
<td>84%</td>
</tr>
<tr>
<td>Indurated Sedimentary</td>
<td>56</td>
<td>61%</td>
<td>36</td>
<td>39%</td>
</tr>
<tr>
<td>Quartz</td>
<td>5</td>
<td>9%</td>
<td>48</td>
<td>91%</td>
</tr>
<tr>
<td>Siltstone</td>
<td>1</td>
<td>14%</td>
<td>6</td>
<td>86%</td>
</tr>
<tr>
<td>Slate</td>
<td>84</td>
<td>8%</td>
<td>1034</td>
<td>92%</td>
</tr>
<tr>
<td>Unidentified</td>
<td>3</td>
<td>30%</td>
<td>7</td>
<td>70%</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>191</strong></td>
<td></td>
<td><strong>Total: 11,142</strong></td>
<td></td>
</tr>
</tbody>
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Table 8. Flakes per Cubic Meter Excavated, by Feature

<table>
<thead>
<tr>
<th>Natural Stratum</th>
<th>Feature</th>
<th>Flakes per Cubic Meter Excavated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1912 organics and Ash B</td>
<td>no feature</td>
<td>24</td>
</tr>
<tr>
<td>mixed fill</td>
<td>no feature</td>
<td>42</td>
</tr>
<tr>
<td>mixed fill</td>
<td>incised pebble feature</td>
<td>418</td>
</tr>
<tr>
<td>mixed fill</td>
<td>banya feature</td>
<td>302</td>
</tr>
<tr>
<td>mixed fill</td>
<td>red surface feature</td>
<td>280</td>
</tr>
<tr>
<td>house floor</td>
<td>Room A</td>
<td>38,480</td>
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<tr>
<td>house floor</td>
<td>Room B</td>
<td>1,433</td>
</tr>
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<td>house floor</td>
<td>Room C</td>
<td>800</td>
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<tr>
<td>house floor</td>
<td>Room D</td>
<td>0</td>
</tr>
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<td>house floor</td>
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<td>83</td>
</tr>
<tr>
<td>house floor</td>
<td>Entrance 3</td>
<td>813</td>
</tr>
<tr>
<td>house floor</td>
<td>Entrance 4</td>
<td>105</td>
</tr>
<tr>
<td>house floor</td>
<td>Entrance 5</td>
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<td>house floor</td>
<td>Room F</td>
<td>22</td>
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<tr>
<td>house floor</td>
<td>Room E</td>
<td>0</td>
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<tr>
<td>house floor</td>
<td>Entrance 6</td>
<td>0</td>
</tr>
</tbody>
</table>
Bifacial Chipped Stone Artifacts

Chipped stone bifaces (Figure 21) were a rare find. Of the 210 non-debitage lithic artifacts, only 8 fall into that category. Five of the eight (Figure 21: 3-7) are projectile points — small, finely flaked, symmetrical or nearly symmetrical bifaces — but none are complete. Four arc made of chert and one is basalt, and all were recovered from the mixed fill layer. The only nearly complete specimen, a yellow chert point with a contracting base, is similar to Smelt Creek contracting stem points (200 BC — AD 100; Harritt 1988:165) or points reported from the Katmai Coast during the Takli Cottonwood phase (AD 200-500; Dumond 1971:33). None of the other projectile points are sufficiently complete to assess the shape.

The presence of chipped stone projectile points was somewhat unexpected. Dumond (2003:116) reported none from the Leader Creek site, and the only flaked projectile points from earlier Cutbank site excavations were recovered from earlier features below the Bluffs phase levels (Harritt 1988; Dumond 1971). While the mixed fill layer clearly contained Bluffs phase materials, some items may belong to an earlier occupation. There may have been earlier cultural remains below House 2, or the eroded area suspected of having once been a house extending north from the burial. The excavation of Bluffs phase features may have disturbed those features and deposited associated artifacts in the mixed fill above House 3. The chipped projectile points also may have been collected by Bluffs phase people, if not manufactured and used by them. However, none was associated with house floors or fill features. Dumond (1981:167) likewise reported numerous intrusive artifacts in the Bluffs phase deposits at the Cutbank site. Although manufacture, use, or collection during the Bluffs phase cannot be ruled out, it seems more likely that these small, broken items were associated with earlier components nearby that were disturbed by Bluffs phase activity.

Three other bifacial chipped stone artifacts were recovered: a bifacially flaked pebble (Figure 21: 2), a crude bifacial knife (Figure 21:8), and a pièce esquillée (Figure 21:1). The former, an elongated, almost triangular, indurated sedimentary pebble, has rough bifacial working on the long, curved edge and minor use wear. It was recovered from the mixed fill layer. The pièce esquillée, also found in the mixed fill, is made of agate (milky-white cryptocrystalline quartz with variegated opacity, see Appendix 1 for further description). It is a thick flake, thinned and reworked then utilized. The tool shows the characteristic battering at the proximal and distal ends that indicate use as a small woodworking tool. The knife is the only bifacially flaked tool found in feature context. Found in the incised pebble feature, it is made of indurated sedimentary material with extensive flaking on the dorsal side and minimal flaking on the ventral side. It appears to be utilized and

Figure 21. Chipped stone artifacts. 1) pièce esquillée, 2) bifacially flaked pebble, 3-7) small biface fragments, 8) large biface.
possibly even slightly waterworn but is not heat-altered like other artifacts from that feature.

**Adze Blades and Blade Fragments**

Four adze blades and four blade fragments were found (Figure 22). All four adze blades are of basalt, chipped or pecked and polished at the bit. The first blade is a “splitting adze,” or adze type I, that appears to have been roughly chipped (some flake scars remain at the distal end) then pecked into final form (Figure 22:1). It is ovoid in cross section with two transverse grooves for hafting, and polishing is restricted to the bit. The polished facet smoothly tapers into the bit (in other words, it is a curve rather than an angle), and the bit is heavily utilized. The splitting adze blade was found in the mixed fill zone. Two other adze blades also seem to fit this category, but are smaller and lighter, and lack hafting grooves. Both are lenticular in cross section, chipped and pecked, but are not as extensively pecked as the first splitting adze blade. Of the two, the larger (Figure 22:2) was found on the floor of Room B, near the entrance tunnel. The bit is heavily utilized, tapered smoothly, and a portion has broken off. The smaller of the two (Figure 22:4) was found on the floor of Entrance 2. The bit end is angled rather than tapered, although it is finely polished, and the distal end also has polished facets. Both ends show heavy usewear (battering and chipping). The fourth adze blade (Figure 22:5) was found on the red surface, and refits with a blade fragment also found on the red surface about a meter away. This adze blade fits Dumond’s adze type II because it is entirely flaked to shape (rather than pecked) and is polished only at the bit. The bit is smoothly tapered but heavily utilized.

Of the four adze blade fragments, three are of basalt (including the refit mentioned above) and one is of greenstone. All appear to be broken from larger adze blades, rather than made to haft into a multi-component artifact. One is a tiny fragment, and three are larger portions. All of the larger fragments are smoothly tapered at the tip, while the smaller bit is angled. All four are finely polished, and no pecking or flaking is visible. The refit was found on the red surface, and the other three blade fragments were found in the mixed fill. Of all the adze components (including the preforms

**Figure 22.** Adze blades, blade fragments, and preforms. 1) splitting adze blade, 2) adze blade, 3) adze preform, 4-5) adze blades, 6) partial adze blade, 7-8) adze blade fragments.
discussed below), three were found on the red surface, five in the mixed fill, and two on the floor of House 3. The greatest density of adze components was on the red surface.

**Cores, Choppers, and Chunky Preforms**

A number of cores were recovered, some of which had been used as crude scrapers or chopping tools (Figure 23). These items are cores by Andrefsky’s (1998:12) definition, “a mass of homogeneous lithic material that has had flakes removed from its surface.” However, none showed unambiguous evidence of platform preparation or systematic flake removal. Of the cores, six are large basalt cores and two are small quartz pebble cores. Two of the basalt cores appear to be broken hammerstones (the remaining cortical surfaces show battering), with flakes later removed. One was subsequently used as a scraper or plane. All of the cores were in the mixed fill layer — none found on the house floors or fill features. Another large core-like basalt item, recovered from the mixed fill, was used as a crude chopping tool. Also included in this category are large lithic chunks with numerous flakes removed that appear to be rough preforms for adzes or other large items. There are two of these preforms, both of basalt, one found in mixed fill context and one in the red surface feature. The preform found on the red surface feature has grinding on one side that further suggests an adze preform.

**Hammerstones**

Twenty-one hammerstones were recovered from the excavation. Of these, seven are of basalt, five of andesite, four of greenstone, one of granite, one of indurated sedimentary, one of volcanic tuff, and two of unidentified material. Two artifacts listed above as “cores” were also probably originally hammerstones. Thirteen of the hammerstones were in the mixed fill zone, three were on the floor of Room A, three were in the red surface feature, and two were in the incised pebble feature. The greatest density of hammerstones per cubic meter was on the red surface feature, followed by the floor of Room A and then the incised pebble feature.

**Ground Stone Knives**

Aside from a single double-edged cutting blade classed as a lancet (described with double-edged projectile blades in the following section), only one kind of knife was found: the ulu, a single edged transverse knife (Figure 24). No large double-edged knives (distinguished from projectile points by general asymmetry or with evidence of appropriate hafting) were definitively identified, although they are likely represented in

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**Figure 23.** Cores and raw materials. 1-2) rough choppers, 3) core fragment, 4-5) slate pieces, 6-7) quartz pebble cores.
many of the ground tool fragments that could not be assigned to a category. There are 15 tools that can be identified as ulu, partial ulu, or ulu preforms. All are of slate, with the exception of one ulu made of a coarser-grained and slightly softer indurated sedimentary material. Some fit Dumond’s categories while others are unique. A single partial ulu with a deeply convex cutting edge falls into the ulu I category (Figure 24:5). Two ulus, one found in two pieces that were later refit, have shallow cutting edges with a point on one end and a curve on the other (Dumond’s ulu II) (Figure 24:10, 13). According to Harriott (1988:161) these may have been hafted for use as a side blade rather than a traditional ulu. A single very small ulu fits Dumond’s ulu III category in that the sides meet the cutting edge at almost a 90° angle (Figure 24:2). The indurated sedimentary ulu (Figure 24:4) is unique in having a long tang, making it the only ulu that is longer than it is wide. Because it has a clear tang on the spine, it fits the ulu IV category. One specimen has a shallow cutting edge and a drilled hole for hafting (Dumond’s ulu V category; Figure 24:9).

Figure 24. Ulus. 1) untyped ulu, 2) type III, 3) untyped ulu, 4) type IV, 5) type I, 6-8) untyped ulus, 9) type V, 10) type II, 11-12) untyped ulu, 13) type II, 14-16) untyped ulus.
One other ulu blade is complete but in a form that does not match any of Dumond’s categories (Figure 24:1). It is the largest ulu recovered, 15.1 cm wide and 6.2 cm long. It has a straight spine that flares out at an angle of approximately 140° to a wide, slightly curved edge, and is made of a highly silicified slate that is almost chert-like. Three other artifacts are clearly partial ulus but not enough remains to classify them, and another three artifacts are most likely ulu fragments. One item appears to be a partial ulu preform, as it has been roughly flaked to shape, but not ground.

Eight of the ulus were found in the mixed fill (0.32 items per cubic meter), two were found in the incised pebble feature (17.9 items per cubic meter), three others were found in the red surface feature (55.2 items per cubic meter), and one was found in Room F (22 items per cubic meter). Again, the greatest density of artifacts is on the red surface, although absolute numbers of artifacts are small, which may skew the presumed proportions.

Figure 25. Ground slate projectile points and double-edged knives. 1-12) end blades and end blade fragments, 13) dart point, 14-16) projectile point not further identified, 17-18) projectile point preform, 19) projectile point not further identified, 20) lancet, 21-23) projectile point not further identified, 24-25) projectile point preform.

Including two refitting pieces counted as a single artifact.
Ground Slate Projectile Points and Double-edged Knives

Twenty-four whole or partial projectile points and the single lancet (mentioned previously) were found at the site (Figure 25). These include end blades and dart points (but no lances) in addition to the lancet. End blades are small, finely ground, symmetrical points with the base thinned for hafting. Two whole end blades were recovered (Figure 25:1, 2), as well as two largely complete specimens (Figure 25:3, 12) and eight base portions. All are of slate, except for one base segment of a fine-grained, light grey indurated sedimentary material (Figure 25:8), and in all the central facet of the basal portion is concave. All fit Dumond’s “triangular insert blade” category because they are not stemmed. Dart points are similar to end blades, but larger and with a thicker base (Harriss 1988:160). Only one partial dart blade, a small base made of slate, was found (Figure 25:13). Lancets are small, narrow and double-edged cutting or piercing blades, often with a roughly finished haft; one slate specimen was recovered (Figure 25:20). Eight other artifacts were recovered that can be identified as projectile points because of their symmetry, thickness, and general shape, but are incomplete and cannot be assigned to a category. Given the general shape of the fragments and the prevalence of end blades among the identifiable slate points and fragments, it seems likely that these are end blade fragments. Three slate projectile point preforms were also recovered. One appears to be a dart point (Figure 25:24) and the other two end blades (Figure 25:18, 25).

Of the 24 items, 11 were found in the mixed fill (0.51 items per cubic meter), 12 in the House 3 floors (26.8 items per cubic meter), and one small knife — the lancet — in the banya feature (23 items per cubic meter). One other projectile point was out of context in the erosion face adjacent to the excavation area. Four of the artifacts found in House 3 were on the floors of entry tunnels. Unlike flint-knapping tools, woodworking tools, and ulus, no identifiable projectile points or preforms were found in the fill features.

Table 9. Ground Stone Tools and Fragments

<table>
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<tr>
<th>Natural Stratum</th>
<th>Feature</th>
<th>Ground Slate Tools (whole and partial) per Cubic Meter Excavated</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>mixed fill</td>
<td>no feature</td>
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<td>mixed fill</td>
<td>incised pebble feature</td>
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<tr>
<td>mixed fill</td>
<td>banya feature</td>
<td>46.51</td>
</tr>
<tr>
<td>mixed fill</td>
<td>red surface feature</td>
<td>93.02</td>
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<td>house floor</td>
<td>Room A</td>
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<td>Room B</td>
<td>60.61</td>
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<td>house floor</td>
<td>Room C</td>
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<td>house floor</td>
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<td>Room F</td>
<td>22.22</td>
</tr>
<tr>
<td>house floor</td>
<td>Room E</td>
<td>0</td>
</tr>
<tr>
<td>house floor</td>
<td>Entrance 6</td>
<td>0</td>
</tr>
</tbody>
</table>
Ground Stone Tool Fragments

Many fragments of ground stone were clearly broken from formal tools, but too little remains to identify the tool function. These have finely ground, finished facets or edges, which distinguish them from flakes or fragments with some evidence of grinding (the latter items are included in the lithic debitage category). There are 41 of these tool fragments. Twenty-five came from the mixed fill (1.2 items per cubic meter excavated, ten from the floors of House 3 (22.3 items per cubic meter), one from the floor of House 1 (16.4 items per cubic meter), one from the banya feature (23.3 items per cubic meter), two from the incised pebble feature (17.9 items per cubic meter), and one from the red surface feature (18.41 items per cubic meter). One tool fragment is from the erosion face of the river bank and could not be assigned to a particular stratum. Ground slate tool fragments were most densely clustered on the floors of House 3 and in the banya feature, although again absolute numbers are small. Total ground slate artifacts per cubic meter – including knives, projectile points, and fragments – are given in Table 9.

Abraders, Whetstones, Stone Saws & Anvil Stones

These artifacts (Figure 26) fall into the category “unfabricated implements” in Dumond’s typology, in which sandstone items are labeled “whetstones” and pumice items “abraders.” Here we add volcanic tuff artifacts to the abrader category because the material is coarse-grained and rough, more likely to be used in the early stages of ground tool manufacture. There are three abraders, two of volcanic tuff and one of pumice. The pumice specimen, from the mixed fill layer, has a flat utilized surface (abrader type I) and is broken (Figure 26:5). A large, flat volcanic tuff specimen, from the incised pebble feature, also has several flat utilized surfaces. Like many other items from the incised pebble feature, it is fire-cracked. The third abrader (actually a fragment of an abrader) is chunky in shape and has several ground facets which give it a tapered appearance, much like Dumond’s whetstone type I (Figure 26:5). It was found in the mixed fill layer.

There are twelve whetstones: five of sandstone, one of siltstone, and six of indurated sedimentary material (probably indurated siltstone). Eleven are generally flat, Dumond’s whetstone type II. Three of these type II whetstones have multiple grinding facets that form a cross shape (Figure 26:6, 7, 10), three have parallel grooves on one or both flat side(s) (Figure 26:8), and four have several ground faces with no discernible pattern (Figure 26:11,12,13). One specimen has criss-crossing deep narrow grooves or scratches, and may have had a function other than sharpening (Figure 26:14). The remaining whetstone is a chunky, tapered piece (whetstone I) of almost the same shape as an adze preform (Figure 26:9). These different patterns likely represent various uses: different stages of tool manufacture; resharpening activity; or the manufacture of different kinds of tools. These uses are currently unknown, but experimental studies of ground tool manufacture and use might provide answers in the future.

The chunky whetstone, two flat specimens with cross pattern, one grooved specimen, and two non-patterned whetstones came from the mixed fill. One grooved whetstone came from the floor of Room B, near the splitting adze. The third flat cross-patterned whetstone and the specimen with deep grooves came from the incised pebble feature. The remaining three whetstones — one grooved and two with non-patterned facets — came from the red surface feature. Like hammerstones and adzes, the greatest density of whetstones was from the red surface feature.

Three stone saw fragments of coarse-grained indurated sedimentary material were recovered. All are flat and shaped much like the type II whetstones, but show no grinding on the flat surfaces — rather, the edges have been roughly flaked to a bifacial edge, then rounded
by use wear. Dumond has reported that these tools were used for scoring slate in preparation for snapping it into ground stone tool preforms. Two of the stone saw fragments were found on the floor of Entrance 5. Although they do not refit, they are likely part of the same tool that fractured into many pieces.

Two pecked stones, two grinding stones, and one grinding stone fragment were found in the excavation. One grinding stone, a flat volcanic tuff slab, has polished facets and traces of red pigment on both sides (Dumond's “paint anvil”). It was found in the mixed fill layer. The other grinding stone, also from the mixed fill layer, is a basalt cobble with a natural concave, dish-like surface on one side. Harritt (1988:131) reported several similar artifacts from the 1982-83 Cutbank excavations. The surface appears to be pecked and holds traces of red pigment. The opposite surface is also pecked, which may indicate use as an anvil. The grinding stone fragment, also from the mixed fill, is a small indurated sedimentary piece with heavy ochre staining on one side. The two pecked stones were likely used as anvils. The first is a large sub-angular cobble of banded indurated sedimentary material with pecking on one surface. On the opposite surface is a dark stain that may be from an oily liquid. This cobble was found in the mixed fill. The second pecked stone is a granite cobble from the incised pebble feature. It is roughly hemispheric in shape with battering and polishing on the rounded side.

Figure 26. Abraders and whetstones. 1-3) stone saws, 4) pumice abrader, 5) volcanic tuff abrader, 6-14) whetstones.
In sum, 13 of the 23 unfabricated implements came from the mixed fill layer (0.6 items per cubic meter), four from the incised pebble feature (35.7 per cubic meter), three from the red surface feature (55.2 per cubic meter) and three from the floor of House 3 (6.7 per cubic meter). The greatest density of these implements, like hammerstones and adze blades, was on the red surface.

**Incised Pebbles**

Of the 38 incised pebbles (Figure 28A through 28D) from the site, 34 are from the incised pebble feature. Three were found out of context — two in the backdirt and one in the erosion face. The remaining pebble was found in Shovel Test #6. The pebbles show a remarkable homogeneity of design elements. Listed below are thirteen major design elements that appear in various combinations on many pebbles (Figure 27). Other minor design elements may appear on only a few pebbles. The pebbles are not all alike; each has its own combination of the design elements. The overall impression of the repeated elements, however, is a certain likeness among all the artifacts — they are variations on a theme.

- **Double Arc**: This is the most common element, often thought to represent eyes or eyebrows. It often, but not always, has a short vertical line extending downward from the point where the two arcs meet. Most pebbles have only one double arc per side, but a few have many (Figure 28a, page 1, especially upper left). Donta (1993:233) interpreted this feature as eyebrows or orbital ridges.

- **Large Arc**: This is a single shallow arc that appears above the double arc. Donta (1993:233) felt that incised pebbles represent stylized human figures and some design elements (those not part of the "face") represent clothing and adornment. This element, then, might be a headdress or hat.

- **Interrupted Large Arc**: In this element multiple short lines, sometimes doubled, form the large arc shape above the double arc. This could be beaded headgear, or headgear made of multiple pieces joined together.

- **Cluster at End of Large Arc**: Often a cluster (a group of two or more parallel lines, often bounded at the top edge by one or more horizontal lines or a triangle shape) appears at one or both ends of the large arc or interrupted large arc. They may be directly below the terminus of the arc or slightly inward of it. If the large arc shows headgear, this would be part of it.

- **Short Lines/Dots Below Arcs**: Some pebbles additionally have short lines under each arc of the double arc, which could represent eyes (Donta 1993:233).

**Figure 27A.** Major design elements from the Cutbank incised pebbles.
- **Stacked Lines Below Arc**: This element is formed by two or more parallel horizontal lines stacked and sometimes bounded at the ends by short vertical or angled lines. It appears beneath the double arc and often above a cluster (defined below). Donta (1993:233) felt that these features represent mouths. Some of the more elaborate expressions could represent mouths with labrets.

- **Triangle**: On some of the pebbles this element appears in place of the stacked boxes. There may be several more lines paralleling the triangle sides outside the central figure, or the triangle may be doubled. Again, this could be a mouth or a mouth with labrets.

- **Cluster Below Stacked Lines**: Often one or two clusters appear below the stacked lines, or if no stacked lines are present, below the double arc. These might represent a pendent or decorative clothing item.

- **Jointed Arc**: On a few pebbles, a double or triple line appears below the “face” area of the design. The line is angled rather than curved and sometimes segmented with perpendicular lines. This element resembles a necklace or collar.

- **Long Bisecting Line**: A straight, horizontal line bisects many of the pebbles, dividing the upper “face” portion from the lower “clothing” portion.

- **Perpendicular Additions to Long Bisecting Line**: In some cases the bisecting line has perpendicular lines, short or long, extending downward along its length. These could be decorative embellishments to clothing, such as beads. They may also represent seams or joins, as in a squirrel- or bird-skin parka. If each pebble is a “bust” showing only the head and upper trunk, the necklace interpretation seems most likely. If, as Donta (1993:233) suggested, the pebbles represent figurines (where a pebble is selected to match the shape of the person it represents), then the parka explanation fits better.

- **Cluster Rows along Lower Portion**: Many of the pebbles have rows of clusters on the bottom portion of the design. Again, these could represent aspects of jewelry or clothing.

- **Diagonal and Vertical Combination Pattern**: A few pebbles have this “tree-like” pattern along the bottom portion of the design. Long vertical lines extend downward – often from the bisecting line – and diagonal lines extend to the right and left from various locations on the vertical lines. These might be sewn or painted decorations on clothing.

**Figure 27B.** Major design elements from the Cutbank incised pebbles.
Figure 28A. Incised pebbles
Figure 28B. Incised pebbles
Figure 28C. Incised pebbles
Figure 28D. Incised pebbles
The interpretation that the pebbles represent stylized human figures is compelling, but there are other possibilities. The pebbles could relate to some kind of counting or tallying system, with the different shapes representing various items or amounts. The designs could also be zoomorphs, or mythical or magical creatures.

Harritt (1988:110) reported seven incised pebbles from the Cutbank site, only two of which “have stylistic elements that are clearly related to those . . . from Kodiak Island.” Those two are pictured (Harritt 1988:Figure 22), along with one other. The other pictured pebble is an elongated, rounded fragment with rings etched around the circumference. The remaining four are not pictured or described. Incised pebbles were not found in earlier Brooks River excavations (i.e., those before the 1980s), or in excavations at Leader Creek, although their absence may be due to the fact that they are lightly etched and difficult to identify. Hundreds of these artifacts have been recovered from various sites on Kodiak Island dating from the Konig phase (900 BP to historic contact), usually in the period from 700 to 450 BP (Donata 1993:232-237). The distinctive design elements also occur on petroglyphs in the Kodiak area (Clark 1984). According to Donata (1993:232), at the date of his writing the two Kodiak-type pebbles described by Harritt formed two of the only three with that distinctive design motif that were known from outside the Kodiak archipelago. Figure 28 depicts others, and Ackerman (1965) has also reported pebbles with some similarities from southeast Alaska.

The function of the incised pebbles is impossible to determine. The ethnographic record is silent about the subject (Donata 1993: Table 5). The artifacts do not appear to be tools, and therefore are probably either items with ceremonial function or game pieces. (Donata [1993: 233] noted that they are essentially figurines). Knecht (1995:597) noted that incised pebbles are associated with tally sticks and are gradually replaced by gaming discs in the Karluk One site on Kodiak Island, and suggested that the pebbles may be an early form of the gaming disc. Ackerman suggested that incised pebbles from southeast Alaska are too lightly etched to be considered art, and may have been used

as scratching stone for adolescent girls, widows, and peace hostages (who would die if they used their fingers), ‘medicine’ when rubbed on the body, and counteractive magic (to prevent talk of war when rubbed on the lips or to keep a girl from being talkative) (Ackerman 1965:57).

The lightness of the etching — often designs are barely visible under oblique light in the lab — contrasts with the intricacy of the designs. Although the function of the incised pebbles remains uncertain, ritual or gaming use (or both) seem possible.

The dating of such artifacts in the Kodiak region is also somewhat unclear, although the greater incidence was apparently contemporary with the early part of the Bluffs phase. Jordan and Knecht (1988:271) concluded these artifacts to represent a narrow segment of time between about AD 1350 and 1500. Donata (1993), as noted, suggested they were most common in the period from about AD 1250 or 1300 to 1500, rare thereafter. Knecht (1995:592-597) placed the height of their popularity between about AD 1300 and 1400, although noting that a few specimens might appear as late as the sixteenth century.

The design similarities between the Kodiak and Cutbank artifacts would seem to suggest a similar function — whatever that function may have been. Like the Cutbank pebbles, Kodiak specimens use a limited set of design elements in various combinations (Donata [1993:237] called them “consistent and rule-bound”) and often appear incomplete. The elements themselves
are also very similar. Kodiak pebbles also commonly have the double arc element thought to represent the upper face, the diagonal and vertical combination pattern thought to represent clothing, and the clusters thought to represent beaded adornments.

There are other indications, however, that the Cutbank pebbles may have been used differently than were Kodiak examples. There are several design elements on the Kodiak artifacts not seen on Cutbank pebbles, including thick inverted v-shaped lines and small circles thought to represent beads (Donta 1993:233). If these elements do represent personal adornment, however, the differences might represent diversity of clothing rather than differences in pebble function. The pebbles are also of different materials: Kodiak artifacts are slate pieces while Cutbank specimens are local indurated sedimentary pebbles. The harder Cutbank pebbles are often so lightly etched as to be almost imperceptible. If nothing else, this indicates that the Cutbank artifacts were locally made rather than imported from Kodiak. More importantly, the pebbles from the Cutbank are often fire-cracked, scratched, or utilized as other tools. The Kodiak specimens are unmodified other than the incising (Donta 1993:231) and from drawings do not appear to be broken or fire-cracked. Burning, scratching, and use wear on the Cutbank pebbles apparently occurred after etching, as in the case of a pebble with a polished area that interrupts the design and several pebbles where fractures cross the design.

The similarities and differences between Kodiak and Cutbank incised pebbles thus lead to several possible interpretations. They could simply be a bit of evidence that the Bluffs phase inhabitants of the Brooks River area came from Kodiak. The Cutbank pebbles could also indicate some lesser degree of relationship between Kodiak and Brooks River people, an interpretation supported by the close similarity of design elements without outright identity. Any such relationship could have involved frequent contact or rare meetings, either cordial or strained. The poor condition of the Cutbank specimens may indicate that they were intentionally burned or broken, which might point symbolically to a strained relationship. Familiarity with Kodiak designs seems to indicate frequent contact, but the fact that the artifacts recovered in our excavations were plentiful in only a single feature may imply the opposite — infrequent contact — although, as mentioned above, the pebbles may well have been redeposited, leaving the original context unknown. The incised pebbles thus do suggest a relationship with Kodiak people, but of themselves are less than conclusive evidence that the Bluffs phase inhabitants of the Brooks River were originally from the Kodiak area.

Gravers and Quartz Crystals

One tiny graver and two quartz crystals were found in the excavation. The graver is a small slate flake with one corner ground into a fine point (Figure 29). It does not appear to be utilized, but may have been used to engrave on a soft material such as bone or hide (and the effects of time have obliterated any polish). Because the slate is a fairly soft material, the graver must have been used on organic items. It was found in the banya rock feature. Two quartz crystals were found, both with use wear at the point. One was found in the incised pebble feature, and the other in the mixed fill. These were likely used as engraving tools, and may even be the tools used to create the incised pebbles.

Figure 29. Graver on a slate flake.
Decorative Items

Two small items were found that appear to be decorative objects (Figure 30). Both are of indurated sedimentary material. The first item (upper), found in the mixed fill, is part of what appears to be a bead or pendant with a deeply serrated edge. The second (lower) is a flake with an edge that may have been ground into a serrated shape. It was found on the floor of Entrance 2.

Ceramics

No complete vessels were recovered. One hundred thirty-one sherds were found, all tempered with small gravels and coarse sand (Dundon's Naknek ware) (Figure 31). Only six were rim sherds, five of which were from a broken partial vessel in the incised pebble feature. The partial vessel appears to be the upper portion of a cylindrical container with straight sides, crushed into many pieces. It has a ridge about 3 cm below the rim, but the fragmentary condition makes it impossible to determine whether this is continuous or intermittent (Harriett 1988:175 reported intermittent ridged Naknek ware from the Cutbank). The sixth rim sherd is a large piece recovered from the erosion face. It is tempered with coarse sand and also appears to be a portion of a cylindrical vessel with straight sides. There is no further adornment. The body sherds are all small and deteriorated, and none appears to have adornment.

Most of the ceramics — 91 sherds — are from the remains of the crushed vessel in the incised pebble feature. Of the remaining 40 sherds, 17 are from the floor of Entrance 6, and 16 are from the fill above that entrance. Four sherds were from the floor of Room F. The only ceramic piece securely from House 3 is a single sherd from the floor of Entrance 1. One sherd was found in the mixed fill above the House 3 floor, and the final sherd was found out of context in the erosion face. If the incised pebble feature represents a relatively late activity at the site, this distribution would suggest that ceramic use became more common in the middle to late Bluffs phase. This may be in line with the evidence from the late Bluffs site at Leader Creek, where pottery remains were relatively plentiful. On the other hand, if the incised pebbles of the feature follow the temporal incidence of their
analognes on Kodiak Island, where they are rare after about AD 1500, their presence with the pottery tends to contradict a late increase in pottery use in the Bluffs phase.

Labrets
One whole labret and one possible labret fragment were found at the site. The whole labret, found in the mixed fill, is made of bone with a central inset in an elongated lenticular shape (Figure 32-5). It measures about 6 cm in length, 1.75 cm in width, and .75 cm in thickness at the thickest part, is “pulley-shaped” (to resort to attributes set out by Steffan and Saltonstall [2001]), and the inward surface (that which would contact the interior of the mouth) is curved. The diamond-shaped inset appears to be made of burnt bone, although it may also be deteriorated wood or other vegetal matter. There are six small (~ 2 mm diameter) circular holes; one above the center of the inset, one below it, and two each on either side of the inset along the horizontal center line. Items such as sea mammal whiskers may have been inserted into the holes. The possible labret fragment, made of jet, was found in the incised pebble feature. The shape of the fragment strongly suggests a portion of a pulley-shaped labret but is not conclusive.

Worked Bone and Antler Items
Because organic preservation was very poor, few identifiable bone or antler tools were found. There are 21 bone or antler items that are definitely modified (including the labret described above) and another eight that may be modified (judging by general shape and appearance) but are too deteriorated to be certain. Of the definitely modified items (Figure 32),

![Figure 32. Bone and antler items. 1) bone scoop or scraper, 2) bone handle preform (?), 3) bone non-toggling harpoon base, 4) bone handle preform (?), 5) bone labret, 6-10) cut antler pieces.](image-url)
sixteen have only cut marks or other minimal working (eight of antler, eight of bone). There are eight whole or partial formal tools. The largest is a scoop or scraper made of a very large mammal limb bone, possibly bear, moose, or caribou. Projectile points are represented by the tip of a highly polished bone point made from a tooth portion, triangular in cross-section, with evidence of burning, and the proximal end of a non-toggling harpoon fragment with a line hole. Two other items have drilled holes that do not penetrate through the material; one is a large dense bone and the other an antler piece. Each has three holes, two on one side and one on the opposing side (although the bone is somewhat triangular in cross-section so that the sides are not directly opposite). These may be handle preforms or crude bow drill bearings. One other item was identified as an “ulu handle” by the excavator but is now too deteriorated to identify. One curved splinter of bone, probably a beaver rib, is smoothed with a small notch on one end, but seems too large to be a needle.

The harpoon fragment and a caribou antler base with cut marks were found on the floor of House 3 (4.5 per cubic meter). Two large antler pieces and two pieces of bone with cut marks came from the incised pebble feature (3.57 per cubic meter). The remaining worked bone and antler, including the labret, scraper, and point tip, came from the mixed fill (.8 per cubic meter). The highest density of worked bone and antler items, in contrast to unworked faunal remains, was in the incised pebble feature.

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**Faunal Remains**

Although large amounts of faunal material were recovered in the 1963 and 1982-83 excavations, very little was recovered in the current project. Table 10 shows the faunal remains, identified by Christina Jensen and Diane Hanson of the University of Alaska Anchorage. The collection is dominated by antler and unidentifiable mammal bone, with a few small mammals represented, as well as scant bird and intertidal shell.

The three bird elements include: a fragmented unidentifiable piece from the mixed fill; an axial bone from a large bird from the mixed fill; and a long-bone diaphyseal fragment from the floor of Room A. Much of the mammal bone is unidentifiable. Of the seventeen pieces too fragmented to estimate the size of the animal, fourteen were from the mixed fill, one was from the banya rock feature (this bone was originally designated an “ulu handle” by the excavator but is now very fragmented and unidentifiable), one from the red surface feature, and one from the floor of Entrance 4. None of these was identifiable to the element. Two elements — a scapula not identified to species and a rib fragment possibly from a beaver — belonged to medium-sized mammals. Both came from the mixed fill. Fifteen elements could be identified as only bones of large mammals, of which seven were too fragmentary to identify the element (six from the mixed fill and one from the floor of Entrance 5). The remaining eight large mammal bones included: three rib fragments, a tooth (from a carnivore, possibly a bear) and a tooth fragment, and three long-bone fragments. All were from the mixed fill. Two elements from the mixed fill, an antler fragment and a portion of a long bone, were identifiable only as ungulate. Twelve other antler pieces could be identified as cervid. Of these, ten were from the mixed fill, one was from the floor of Entrance 5, and one was found in the erosion face. A single antler base from the floor of Room D could be identified as caribou. A distal tibia and mandible fragment with teeth were beaver, while a second mandible fragment with teeth was porcupine (all three were found in the mixed fill). The only two fish bones recovered — two salmonid vertebral centra — were also
from the mixed fill, as were five shell fragments from intertidal species. Of the shell fragments, four could be identified as tellins. Six other faunal specimens were unidentifiable. One of the unidentifiable specimens is a claw or talon found in the mixed fill that is possibly from a lynx or a large raptor. Of the other five unidentified specimens, four are from Room A and the fifth is from the mixed fill.

Some of the elements showed varying degrees of modification (all from the mixed fill unless otherwise noted). An incisor in the beaver mandible showed possible evidence of use wear. Two unidentified mammal bones had possible working, and a large mammal long bone had a spiral fracture that might be taken as evidence of human activity. Another unidentified mammal bone showed a clean crosswise cut. The axial bone from a large bird had possible cutmarks. Eight of the antler pieces showed working or cut marks, including the caribou antler from Room D. Another antler piece was worked and had three polished pits (Figure 32:2). The possible beaver rib fragment showed working on the ends, while an ungulate long-bone fragment was worked and pitted in a similar fashion to the antler piece (Figure 32:4). Finally, some elements were worked into finished artifacts (discussed above with the artifacts). One mammal bone fragment was worked into a labret (Figure 32:5), one into a scraper (Figure 32:1) and another into a harpoon head (Figure 32:3). A partial tooth was worked into a point tip and showed burning and green staining on the tip.

Table 10. Faunal Remains from the Cutbank Excavation

<table>
<thead>
<tr>
<th>Identification</th>
<th>Number of Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bird, Unidentified, Size Unknown</td>
<td>2</td>
</tr>
<tr>
<td>Large Bird, Unidentified</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Bird</strong></td>
<td><strong>3</strong></td>
</tr>
<tr>
<td>Mammal, Unidentified, Size Unknown</td>
<td>17</td>
</tr>
<tr>
<td>Medium Mammal, Unidentified</td>
<td>2</td>
</tr>
<tr>
<td>Large Mammal, Unidentified</td>
<td>15</td>
</tr>
<tr>
<td>Ungulate, Not Further Identified</td>
<td>2</td>
</tr>
<tr>
<td>Cervid, Not Further Identified</td>
<td>12</td>
</tr>
<tr>
<td>Caribou (<em>Rangifer tarandus</em>)</td>
<td>1</td>
</tr>
<tr>
<td>Beaver (<em>Castor canadensis</em>)</td>
<td>2</td>
</tr>
<tr>
<td>Porcupine (<em>Erethizon dorsatum</em>)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Mammal</strong></td>
<td><strong>51</strong></td>
</tr>
<tr>
<td>Salmonid</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Fish</strong></td>
<td><strong>2</strong></td>
</tr>
<tr>
<td>Shell, Unidentified</td>
<td>1</td>
</tr>
<tr>
<td>Tellin (<em>Tellina spp.</em>)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Shell</strong></td>
<td><strong>5</strong></td>
</tr>
<tr>
<td>Other Unidentified Faunal Elements</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL ELEMENTS</strong></td>
<td><strong>68</strong></td>
</tr>
</tbody>
</table>
Very little can be said about Bluff's phase subsistence and settlement based on the current collection because poor preservation has certainly affected the number and variety of elements. Antler is predominant, but probably only because it tends to be harder and denser than bone. The paucity of fish bones, which tend to be thin and small, is not unexpected in this preservation environment. Nevertheless, the presence of many large and medium-sized mammal bones indicates that fishing was not the only subsistence activity that took place at the site. The relatively large amount of antler shows that caribou hunting was not uncommon, but whether this took place in the Brooks River area or at another place in the seasonal round is unknown. The presence of marine shell indicates links to the coast, either Bristol Bay or the Gulf of Alaska.
IV. DISCUSSION

The Bluffs Phase at the Cutbank Site

Subsistence and Settlement

Harritt’s (1988) analysis of the 1982-1983 work at the Cutbank site concluded that the Bluffs phase residents of the Brooks River area were a seasonally mobile group with an inland subsistence focus who returned annually to permanent winter and summer villages. At the Cutbank site, three lines of evidence led Harritt to conclude that the houses were occupied nearly year-round (in other words, the site served as both summer and winter village). The first of these was the archaeological features; the presence of sunken entrances might indicate winter use, while clay-lined storage pits are presumably linked with summer and fall salmon harvesting. The second was faunal data; salmon, caribou, and bird remains argue for use in multiple seasons. The third line of evidence was ethnohistorical. Dumond (1981:172) had concluded that historical sources supported a year-round occupation of the site with seasonal movements to camps, and Harritt (1988) presented a somewhat similar argument regarding residence along the Brooks River.

Results of the current project support these earlier researchers’ conclusions. Although their precise function is uncertain, deep (cold-trap?) entrances within the houses (as opposed to those leading in from outside) may indicate a significant investment of energy in controlling the flow of air and staying warm. Both winter and summer species are represented in the scanty faunal remains. Artifacts are another indication of activities at the site. The presence of ground slate ulus suggests large-scale fish processing (Fitzhugh 2001; Frink et al. 2003), as does the site location. Ground slate endblades have been associated with coastal subsistence. Nelson (1983[1899]:146, 151) indicated that among more northerly groups, ground slate projectile points were used for hunting sea mammals. However, these artifacts were also used in hunting terrestrial mammals and do not necessarily indicate maritime hunting.

Use of Space Inside and Outside Houses

The discovery of three fill features in the mixed fill layer allows us to address a previously unexplored topic: the differential use of interior and exterior spaces at the Cutbank site. Investigating spatial patterning at archaeological sites is a difficult but potentially informative endeavor. Hoffman (1999) investigated the uses of multi-room houses on Unimak Island, just west of the western end of the Alaska Peninsula. He argued that the distribution of features and artifacts within the main rooms of the large multi-room houses indicated community organization. Unimak villages, he concluded, were organized by corporate groups and within those groups by nuclear families. Unfortunately, the relatively small excavated areas of the presumed central rooms of House 1 and House 3 (Rooms F and B, respectively) prevent us from seeking a Unimak-like pattern in the (smaller) Cutbank houses. However, we examine the Cutbank artifacts and features in an attempt to discern the functions of different rooms and the differential use of indoor and outdoor space.

With regard to the features, we have concluded, albeit tentatively, that the red surface feature was an exterior surface created at the same time as the occupation of House 1, and that the burial represents relatively late activity at the site; it could conceivably relate to the occupation of House 1, but at least as easily could relate to other late but unexcavated features such as we presume House 2 to represent. The dating and position of the banya feature suggest most strongly a redeposition from some earlier location, one such as might be represented.
by hypothesized House X of the radiocarbon analysis. It is the incised pebble feature that is particularly ambiguous. The radiocarbon determinations from nearby are conflicting. The position in the mixed fill is suggestive of redeposition, as for that matter are the dates assigned to the most common period for comparable artifacts on Kodiak Island, whereas the fact that the pebbles did seem to lie on a surface, rather than being distributed through fill, may suggest an in situ event that would postdate the occupation of House 3. We are forced to simply accept the ambiguity of its temporal position.

**House 3.** With regard to House 3, the habitation unit subjected to most excavation, it appears that rooms had different functions, although it is difficult to draw conclusions with some portions of the house unexcavated and other portions apparently obliterated by post-occupational activity. Of the parts, Room A is notable for copious microdebitage. Items from the room are:

- 10,062 pieces of lithic debitage
- 3 ground slate end blade portions
- 3 ground slate projectile point portions, not further identified
- 2 ground slate projectile point preforms
- 2 hammerstones
- 4 unidentifiable bones
- 1 bird bone

Judging by the artifact assemblage, Room A appears to have been a location of chipped and ground stone tool manufacture. The presence of Entrance 3, the most obvious candidate for the main entrance to the house, may mean that this room was a very large “entry shed.” However, the sturdy construction (multiple deep post holes and large timbers) seem to say that this would have been an anomalous entry shed.

The entrances leading into Room A also contained artifacts. The floor of Entrance 3 yielded 13 pieces of lithic debitage, a ground slate tool fragment (not further identified) and a ground projectile point preform. The floor of Entrance 1 held 15 pieces of lithic debitage, a ground projectile point tip, a ground projectile point midsection, and a ground slate tool fragment (not further identifiable). The entrances contain a greater ratio of finished tools to debitage than Room A, perhaps indicating that tools were stored there.

In the portion of Room B that was excavated, the black floor thickening toward the center of the room may indicate that it was a central room with its hearth. This is not unambiguous evidence: both houses excavated at the Lecher Creek site had side rooms with hearths or charcoal scatters (Dumond 2003: Figure 5.1). However, the apparent location of the room relative to the rest of the house further suggests the central-room function. Artifacts found in Room B are:

- 44 pieces of lithic debitage
- 1 adze
- 1 whetstone
- 1 hammerstone

An area of less than 5 square meters of Room B was excavated. The few artifacts found are fairly common and do not give much information about room function. The lack of ground slate tools, however, is interesting given the number of ground slate projectile points in Room A and the prevalence of ulus in the mixed fill.
Room C, as discussed above, had a very thin floor and a shallow entrance with a thicker floor. The only artifacts found were seventeen pieces of lithic debitage in the room and one adze blade and two flakes on the tunnel floor. The scanty artifact assemblage is insufficient to determine room function. The paucity of artifacts and thin floor may indicate that the room had a storage function (traffic would come and go more from the entrance, but activities were not often conducted in the room) or was a sleeping room, or the floor of the room may have had an organic covering during use.

Very little of Room D was excavated. Only one artifact was recovered from the room floor, an antler base with probable cut marks. Two lithic flakes were found on the floor of the adjacent Entrance 4. If the size of the room is correctly indicated by the surface berm, it would have been a small room, and may have served for storage or sleeping. However, it is not unlikely that its function was different from that of Room C because it has a deeply sunken entry rather than a small, shallow one.

In sum, even from our small sample one can conclude that the rooms in House 3 had different functions. The two completely excavated rooms — A and C — exhibit very different artifact assemblages and construction. The portion of Room B excavated suggests that this room also differs from the other two. The distribution of lithic debitage differs significantly among the three rooms. However, as mentioned above, the house was not completely excavated, and parts were likely obliterated by the construction of House 1. What remains is insufficient to support further speculation about specific room function.

House 1. Even less of House 1 was excavated, but a small number of artifacts and features were discovered. Room F contained three clay-lined pits (one of which contained fire-cracked rock and was covered with a large rock slab), a hearth, and two post holes. Items recovered from the floor included:

- 26 pieces of lithic debitage
- 4 ceramic body sherds
- 1 partial ulu of indeterminate type
- 1 projectile point midsection, not further identified
- 1 piece of unmodified bone

The floor of Entrance 6 contained 17 ceramic sherds and one piece of unmodified bone. The artifacts do not seem to point to a particular or exclusive use of this room. The presence of the hearth and the clay-lined pits, as well as the room’s apparent central location in the floor plan (judging by the excavated area and surface berms), argue that this was the central room of House 1.

More of Room E was excavated than Room F, but fewer artifacts were recovered. The floor was so thin as to be imperceptible in some areas. The only artifact that can be definitely attributed to the floor is a ground slate tool fragment that cannot be further identified. There was one clay-lined pit and one large post hole in the room. This was the thinnest, most artifact-barren floor in the excavation. The room may have had a particular purpose, such as sleeping or storage, that required little traffic. It may also have been built late in the occupation of the house and used only for a short time.

Features. The red surface feature is presumed to be an exterior area of House 1, as has been explained previously. The surface is stained red across most of its extent, turning black and charcoal-laden at its northeastern portion. The feature had a very high percentage of identifiable tools. Items
found included:

- 1 adze blade, 1 adze blade preform, and 1 adze blade bit fragment
- 4 ulus (1 type I, 2 type II, 1 type III)
- 3 hammerstones
- 3 whetstones
- 14 pieces of lithic debitage (9 of which were flakes found clustered together
- 4 pieces of unmodified bone

The red surface clearly has the highest number of finished tools per cubic meter excavated. The artifacts strongly suggest that fish processing, wood-working, and tool resharpening were activities carried out outside the house. Nearly equal volumes were excavated from the red surface and Rooms A and B of House 1 (about .05 cubic meters), yet many more artifacts were found on the red surface. Although the house does not appear to be suddenly abandoned, and therefore useful items were likely removed, the difference between the indoor and outdoor spaces may be important.

The banya feature is more difficult to interpret. It consisted of about 85 softball-sized cobbles, most of them fire-altered. Items recovered included:

- 14 pieces of lithic debitage
- 1 graver
- 1 lanceet
- 1 possible ulu handle

Unlike the red surface feature, the banya rock feature may not be the location of repeated activities. It may be the result of a single cleaning episode. It may also be the location of a banya outside of a house, covered by a temporary or lightly built shelter structure. However, no postholes or other evidence of structure were found, and the artifacts found in the feature point toward a cleaning episode rather than use in situ. If this is the case, the artifacts in the banya feature are actually evidence of interior activities, including but probably not limited to steam bathing, at some unknown location.

*General comment.* No exterior areas related to the occupation of House 3 were located, and little of the interior of House 1 was excavated. It is tempting, although certainly speculative, to conflate the two and consider House 3 as representing the uses of house interiors, and House 1 as representing the uses of areas immediately outside. The two houses were clearly not occupied at the same time, and may even be hundreds of years apart. Further, the paucity of perishable artifacts found at the site is such as to skew any reconstruction of activities. Nonetheless, if we assume continuity within the Bluffs phase, these interior and exterior areas can be used to generate expectations about the use of space that are testable in future excavations. These might include the following:

**All Occupation Areas:**
- Activities were spatially patterned, with differentiation between and within interior and exterior space

**Inside the House:**
- Rooms had different functions, including:
  - Sleeping rooms
  - Storage rooms, perhaps with clay-lined pits
  - A central room with the hearth (or hearths) and possibly clay-lined pits

72
space devoted to (stone?) tool manufacture or maintenance

- The main activities performed in the house – as reflected by artifacts and features – were cooking, food storage, and tool manufacture and maintenance

**Outside the House:**

- The exterior areas immediately adjacent to the house were heavily used for a variety of purposes.
- Activities performed there included fish processing, tool resharpening, wood-working, and possibly tool manufacture
- Grave sites were located outside functional houses, but very likely within depressions representing houses that have been abandoned

Continuing erosion at the Cutbank site means that future data recovery projects are likely. Further investigating activity areas by evaluating the above expectations may be a productive direction for exploring Bluffs phase lifeways.

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**The Development of the Brooks River Bluffs Phase:**

**Identifying Regional and Local Factors**

The excavation of early Bluffs phase features at the Cutbank site presents at least the vestige of an opportunity to examine cultural changes that took place at the transition from the preceding Brooks River Camp phase. The subsistence adaptations of the Brooks River Camp and Bluffs phases appear to have been very similar (e.g., Dumond 1981:172). However, there are notable differences to be seen in house form as well as in a number of artifact types. As now recognized, house form contributes one of the salient distinguishing features. Camp phase houses, which apparently were consistently constructed with a single room entered by a sunken tunnel, are much different from the multi-room structures of the Bluffs phase (e.g., Dumond 1994, 2003). The artifact assemblages display both quantitative and qualitative differences. In general, the Bluffs phase was long ago noted to exhibit a “decline in the robustness of the material culture” (Dumond 1981:173), mainly reflected in the poor quality of Bluffs phase lithic raw materials and evidently some decline in the scale of ceramic production. Several hypothetical scenarios could explain cultural changes at the Camp phase-to-Bluffs phase transition. Archaeological expectatations derived from these hypotheses can be projected against data from the Cutbank site.

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**Late Prehistoric Cultural Transitions: Possible Explanations and Archeological Expectations**

Across the North Pacific coast of North America archeologists have documented late prehistoric transitions toward cultural patterns involving multi-room houses and novel artifact assemblages; these have been associated with the development of large, sedentary, culturally complex societies (e.g., Hoffman 1999; Matson and Coupland 1995:295-298; Thom 1998). In most of the region, archeologists have suggested that the new pattern developed seamlessly from earlier cultures (e.g., Matson and Coupland 1995:268). In the Brooks River area, however, the transition from the Camp phase to the Bluffs phase is still not entirely clear. The apparent short period of abandonment after the fall of Ash C and the rapid transition to multi-room houses suggests something other than (or in addition to) gradual cultural change. Several processes could have been involved in the transition from Camp to Bluffs phase:
1. settlement of the area by a new group of people who already use the new architectural/artifact forms;

2. cultural (i.e. diffusionary) influence from adjacent regions where the new forms were already in use;

3. independent development of the forms in response to changing socio-cultural or environmental conditions.

Defining archeological expectations for each of these conditions is challenging. As Workman and Workman (1988) pointed out for Kachemak Bay in the historic period, different ethnic groups living in the same area can share similar material culture. Differences in many cultural aspects, including language, are present but certainly are not specifically visible archeologically. Conversely, sometimes differences in material culture can be seen among members of the same ethnic group (e.g., at different points in a seasonal round or in a single socially interactive group that occupies different ecological zones). Further confusing the archeological record, the three processes are not mutually exclusive. Nevertheless, a close examination of archeological evidence may make it possible to assess the likelihood that any one of these processes was in involved in the transition from the Camp to Bluffs phases.

If the Brooks River area was abandoned at the end of the Camp phase and settled anew during the Bluffs phase, several types of archeological evidence could be expected. The Camp phase inhabitants must have fled (voluntarily) or have been expelled (involuntarily) from the area. In the first case, the reason may be evident: a natural disaster should leave some ecological evidence, in this case possibly the presence of a volcanic ash layer. In the second case, cultural conflict might be reflected in the archeological record. Archeologists in Alaska have suggested that the presence of forts and refuge rocks, certain artifact types thought to function as war weapons, and even large settled villages are evidence of ongoing warfare (Moss and Erlandson 1992; Maschner et al. 1997:89). Skeletal remains also may show evidence of violence. In the circumstance of forced abandonment and reoccupation, some continuity in material culture is explicable given that the main subsistence base remains the same and certain items are ubiquitous. Some differences, especially stylistic ones, can be expected and changes should be abrupt, with few intermediate stylistic or architectural forms.

If the second and third processes (cultural influence or independent invention) led to the development of Bluffs phase culture, then the Bluffs phase inhabitants are predominantly descendants of Camp phase forbears. In either case we could expect to see gradual changes in architecture and artifacts. At the site level, this might mean that in the early stages multi-room houses co-exist with the earlier single-room form. On archeological site maps showing surface features, the earliest multi-room houses in the lower Alaska Peninsula area appear to co-exist with single-room forms (Maschner et al. 1997:81-82). For Kodiak Island, Knecht (1995:715) reported a gradual development of Konig-phase multi-room houses from the preceding single-room Late Kachemak forms. Artifacts should also show a gradual transition to the new forms.

Independent invention of the multi-room house form in other areas of the North Pacific has been linked to the development of cultural complexity (Hoffman 1999; Jordan and Knecht 1988), with multi-room houses associated with “high population densities, residential stability, elaborate social structures, and complex economies” (Hoffman 1999:147). Archeological hallmarks of these complex societies include indoor storage facilities, large permanent houses,
the profusion of ceremonial and artistic items, and evidence for large-scale food processing. If socio-cultural developments were the driving force behind the development of the Bluffs phase, some or all of these telltale indications should be present in addition to the gradual transitions between artifact and architectural forms noted above.

Evidence from the Cutbank Site

Much of the evidence at the Cutbank site seems to fit the abandonment and repopulation scenario. Abandonment seems to have been linked to the volcanic event that produced Ash C rather than warfare or other socio-cultural disturbances. There is little evidence of cultural conflict in the materials from earlier excavations in Bluffs phase sites or from the present project. Although almost any hunting implement could be used as a weapon in warfare, no artifacts that appear specifically designed for use as weapons have been reported. Bluffs phase settlements certainly do not give any indication of having been fortified, whereas Maschner and co-authors (1997:89) argued that the development of large villages with multi-room houses and indoor storage features was in part a response to increasing warfare. Similarly, no evidence of violence is reported in relation to human remains recovered in any of the Brooks River excavations (Dumond 1981:94-95; Harritt 1988:215-219), although the sample is very small (six individuals), preservation poor, and analysis relatively limited. However, population movements could be indirect evidence of conflict, and in the last thousand years before historic contact, demographic changes were certainly taking place in Alaska. Still, Workman and Workman (1988) reported that historic-period Alutiq people in Kachemak Bay co-existed with newly arrived Dena’ina; the relationship involved both conflict and cooperation and shows that population movement does not necessarily bring overwhelming violence. All in all, if the Brooks River area was abandoned at the end of the Camp phase and repopulated at the beginning of the Bluffs phase, the volcanic event that created the Ash C layer is a likely reason for the abandonment.

The event may indeed have been sufficient to occasion abandonment for at least a brief time. In thickness, the Ash C deposit is second only to the deposit from the 1912 eruption that created the Valley of Ten Thousand Smokes, and which caused an abandonment that lasted for more than two decades in the upper Naknek River drainage region. The earliest dating evidence for the Bluffs phase has been reported from the Leader Creek site on the lower Naknek River, 80 km to the west of Brooks River, where the two earliest radiocarbon determinations provide a weighted mean of 566 ± 52 years (unrounded), calibrated at about AD 1350. The latest comparable determinations for the latest known Camp phase deposits are four determinations providing a weighted mean of 687 ± 37 years (unrounded), calibrated at about AD 1300 (Dumond 2003, Table 6.1). All in all, although it is reasonable to think that there was a period of abandonment of some decades at Brooks River at the time of the volcanic eruption that deposited Ash C, the time appears to have been short.

Architectural evidence could also support the abandonment-repopulation scenario. Currently in the Naknek drainage there are no known gradations in house form between the smaller single-room dwellings of the Camp phase and the large multi-room Bluffs phase houses. At the Cutbank site there is no evidence that single- and multi-room houses co-existed at any time. However, no excavation has completely exposed numerous adjacent houses, and ground disturbance caused by house construction in the later Bluffs phase may have disturbed the stratigraphy and obliterated early evidence. Ambiguities in radiocarbon dating at such a recent site make fine-scale temporal sequences difficult to discern. House 3, which dates to the earlier part of the Bluffs phase, appears to us to have had an unusual construction that might be interpreted as a transitional form of some kind. Under the most conservative of the three floor plans presented, it has only three connected rooms and is more linear than the classic nucleus-
satellite form. However, there is reason to believe that the house contained more than just the
three rooms linked in the excavated area (as discussed in pages above), and in any case the floor
plan was not determined with certainty.

The artifact assemblage also provides evidence about the development of the Bluffs
phase. Shifts in artifact type and style from the Camp to the Bluffs phase have been briefly
summarized elsewhere (Dumond 2003:96) as follows:

[The differences include in the Bluffs phase a much heavier use of [projectile] insert
blades; a total absence of . . . dart blades with diamond-shaped cross-section; a
decided preference for greenish slate or shale rather than the Camp-phase black; and
more carefully finished adze blades. With the insert blades, a further distinction lies
in the predominance in the Camp phase of those with a slight, thinned stem, with
only a minority of them of approximate triangular outline form; even the triangular
blades of the Camp phase tend to have had the butt facet thinned by polishing across
the piece rather than in the longitudinal direction, resulting in a flat facet, rather than
the slightly dished facet of the Bluffs phase. Beyond this, the Bluffs phase includes
no large flat sandstone grinding slabs, which were heavily favored in the Camp
phase for artifact grinding; no clay lamps, unbaked or otherwise; pottery that, while
gravel-tempered, is thinner and more bucket-shaped in comparison with the thick,
small-based and globular pots of the Camp phase. The Bluffs phase has many fewer
chipped lanceolate-form bifaces such as were evidently preforms for Camp phase
polished artifacts based on the original Brooks River collections (Dumond 1981):
Camp phase, 1 to 1. Bluffs phase, 1 to 2.5. Overall, the collections are sufficiently
different that there is only a minor chance of error in separating even small test
collections if for any reason [they are] found without the guiding Ash C.

Clearly, both Camp and Bluffs phases are in a general sense variations on a theme of
polished slate stone artifacts and gravel-tempered pottery, and there may be a significant degree
of ancestor-descendant relationship between them. Nevertheless, the contrast between them is
clear, and as evidence now exists there is no transitional stage to be found. Rather, the evidence
seems to say that the transition was abrupt.

Among the striking artifacts from the present excavations at the Cutbank site are the
incised pebbles with Kodiak-style designs. Incised pebbles in large numbers were not reported
in previous excavations of Bluffs phase sites, possibly because the pebbles are lightly etched
and difficult to discern from ordinary pebbles. The poor execution and condition of the Cutbank
pebbles raises the question of how important and widespread they were among Bluffs phase
people. Pebbles reported from the Kodiak Island group are rarely broken or fire-cracked,
which may imply that the Cutbank pebbles had a somewhat different function. Altogether, the
stylistic link to Kodiak is suggestive, but of itself is less than conclusive evidence that Bluffs
phase people actually came from the Kodiak area. Yet this, together with evidence of the house
form and of marked similarities in Bluffs and Koniag phase artifacts such as the triangular slate
projectile insert blades, grooved splitting adzes, perforated ulus, oil-burning lamps of stone, and
other items enumerated elsewhere (e.g., Dumond 2003:91-95), is at least sufficient to suggest that
during the time of the Bluffs phase the closest resemblances to its material culture are to be found
in the Koniag phase of Kodiak Island.

Cultural transmission from nearby regions is also a possibility, though less convincing
than the abandonment-repopulation scenario. Multi-room houses and clay-lined storage pits were
present before the Bluffs phase in both the Kodiak archipelago and the lower Alaska Peninsula. The adoption of traits is not unheard of ethnohistorically. Workman and Workman (1988) described the adoption of classic Alutiq traits by incoming Dena’ina in the Kachemak Bay area:

The [Dena’ina] were the only Athapaskans to use the Eskimo kayak (bidarka) and the uniaq. . . . They wore gut parkas while on the water . . . ., [and] employed the Eskimo-style line hole attachment on barbed bone arrow and spear points for sea mammal hunting and for fishing (Workman and Workman 1988:352).

However, Dena’ina were moving into an environment they had not previously exploited. If Bluffs phase people were descended from Camp phase ancestors with the addition of some borrowed traits, they had a long history in the area, making this kind of revolutionary adoption of new practices seem much less likely. We recognize, then, that intermediate forms of architecture and stylistic elements may be present at yet-undiscovered Bluffs phase sites on the northern Alaska Peninsula. In other words, it is possible that the Cutbank site was abandoned for some years between the Camp and Bluffs phases, whereas the entire region was not, with transitional sites still waiting to be identified.

The evidence now at hand, especially that from the relatively small collections from the current project, is not sufficient to finally establish the Kodiak Archipelago as the source of a reoccupation of the Brooks River region following abandonment in the face of a volcanic event. However, it is sufficient to point in that direction as the region of greatest relationship during the time of the Brooks River Bluffs phase. Finally, a conclusion of some significant degree of relationship with Kodiak fits nicely with the evidence provided by linguists, who align the historic Eskimoan people of most of the northern Alaska Peninsula with the Kodiak Archipelago as speakers of Alutiq (or Sugpiaq), the southernmost Yupik or Western Eskimo language. This is in contrast to people of the Bering Sea coast who are recorded as speakers of Central Yupik (e.g., Krauss 1982; Woodbury 1984).

Management of the Cutbank Site

Erosion is a chronic problem at the Cutbank site. The possibility that additional graves will be exposed along the river bank and the necessity to afford all human remains respect and dignity are concerns that the National Park Service shares with the Council of Katmai Descendants. The elevated status of the Brooks River area as a National Historic Landmark requires annual status reports to the Secretary of Interior. The Advisory Council on Historic Preservation has also taken notice of the Cutbank erosion problem. The interests of these diverse parties, as well as law and policy, require NPS archaeologists to articulate the significance of the Cutbank site and develop a plan for monitoring erosion and responding to future incidents.

The Significance of the Cutbank Site

All of the archeological sites in the Brooks River area are important for scientific and educational reasons, and are also meaningful to descendant communities. Among the 20 recorded sites, the Cutbank is especially significant because of its location, stratigraphy and preservation. Also, frequent visits to the site (encouraged by the two seasons of high-profile excavation) offer the opportunity to respond to visitor curiosity about the history of the Brooks River area. These issues are addressed in this section.
Archeologists in 1953 thought that the Cutbank site showed more evidence of past use than the two other Brooks River sites that they investigated due to the charcoal-impregnated, organic-saturated midden deposits visible in the eroding bank. They collected displaced archeological specimens from the edge of the river below the site and noted that the river had possibly already removed most of the site area (Davis 1954:74-75). These early reports highlight the ways in which the eroding bank facilitates the investigation of the Cutbank site archeological deposits in comparison with other sites within the Brooks River National Historic Landmark. No other site in the NHL is under active erosion at all, much less erosion that presents nearly 240 meters of exposed profile.

The Cutbank site is also noteworthy for its extent. It is likely that Bluffs phase houses and features at the Cutbank site survived in large numbers across significant horizontal space due to their relatively recent age and therefore shorter exposure to river meanderings. The survival of a large number of houses in this active erosional environment is an important aspect of the Cutbank site. Presently, even the archeological components that still remain at the Cutbank site (i.e., the eastern part of XMK-016) appear to represent a substantial Bluffs phase community.

Other Bluffs phase settlements exist at the Brooks NHL, notably XMK-011, XMK-032 and XMK-034 (Dumond 1981; Harritt 1988; both with references to BR-5, BR-6 and BR-10), but the Cutbank site may have the most research potential. XMK-011, a large site with multiple occupations south of Brooks Falls on the highest terrace on the river, features a Bluffs phase occupation. But the long occupation at XMK-011 resulted in the reuse of house depressions dug into older cultural strata. For these reasons defining house floors and accurately dating archeological components at XMK-011 is extremely complicated (Dumond 1981:38). XMK-032 occupies a massive terrace on the south side of Brooks River that was once the Naknek Lake beach. Dumond assigned houses on the northwest corner of the terrace to the Bluffs phase; however, investigation indicated that the Bluffs phase material was "extremely" mixed with Weir phase materials (Dumond 1981:45). This suggests, though sampling errors cannot be ruled out, that finding pure Bluffs phase components unaltered by displaced Weir phase material at XMK-032 is unlikely. XMK-034 has Bluffs phase material and little else, but is almost certainly related to the Cutbank occupation (e.g., Harritt 1988: Chapt. VII). As is discussed below, the Bluffs phase occupation at the Cutbank is not straightforward; but for the most part, post-occupational disturbances of houses there can be explained as internal Bluffs phase cultural processes. In contrast, the Bluffs phase cultural processes at XMK-011 and XMK-032 produced indefinable floors built on fill, charcoal from earlier occupations and intrusive artifacts. The Cutbank site preserves the most promising opportunities for investigating the people and structure of the Bluffs phase community.

The investigations discussed above leave the question of what remains to be learned about the Bluffs phase occupation at the Brooks River NHL. Early investigations resulted in the construction of a cultural history for the Naknek drainage and establishing regional connections. Questions remain concerning population size, community structure, outside use of space and evolution of architecture, and regional interaction.

The archeological values of XMK-016 contributed to the listing of the Brooks River Archeological District on the National Register of Historic Places, later elevated to the Brooks River National Historic Landmark. However, the site has importance beyond its ability to yield scientific information. The Cutbank site overlooks waters that support world-class rainbow trout fishing and a prolific run of sockeye salmon. Bears and fishermen frequent the Cutbank area.
of Brooks River along with bear viewers. Eroding features visible in the bank and bones and artifacts exposed on the talus slope alert visitors to the presence of an archeological site. Because of its location in the midst of visitor activity and the high-profile excavation in 2002 and 2003, the Cutbank site is one of the best-known archeological sites at Brooks Camp. The Katmai National Park Cultural Resources program strives to educate National Park Service staff so they are able to inform visitors about Brooks River archeology. Our goal is to protect archeological sites by developing an educated public who are concerned about the loss of archeological information, as exemplified at the Cutbank site.

A Framework for Monitoring the Cutbank Site

The Cutbank project provided baseline data on which to build a monitoring program. A detailed map accurate to within 5 centimeters (on file at the Lake Clark-Katmai Studies Center), has been prepared to show the location of pre-existing control points in relation to the river bank as of May 2004. Erosion from these points can be checked in the future with tape and compass or more sophisticated equipment. There are currently four of these reference points: the 2002-3 excavation datum, a meander corner set by BLM survey, and two mapping points from a 1995 map of the Brooks River area. The map also includes the dimensions of cultural features, several of which are distinctive and easily recognizable. As these features erode, their diminishing size can be compared to the map. Finally, the map contains information on bank morphology (see Figure 3 for a reduced copy). In some areas the erosion face is a steep cut, while in other areas there is a long overhanging vegetation mat that can extend well down the talus slope. Often new profiles are exposed when these mats tear off and slide downward, taking a portion of the bank along. In the future, archeologists can check the map to ascertain where bank slumping has occurred, rather than clearing large sections of the bank and trying to compare to previous profile drawings. In addition to the map, the standardized stratigraphic notation devised to guide the 2002 and 2003 excavations can be applied to future projects. The notation will standardize assessment of profile exposures and future shovel testing.

A monitoring program based on the data collected from 2000 to 2004 would include the following components:

- Visits to the Cutbank site by National Park Service archeologists at least annually, including:
  - Walking the entire erosion face,
  - Comparing bank morphology and feature position to the 2004 map (and its subsequent updates),
  - Measuring the rate of erosion from mapping points and features,
  - Clearing and drawing newly exposed profiles using the standardized notation, and
  - Adding new mapping points with rebar and caps if necessary.

- Coordinating future compliance projects and testing programs at the Cutbank site, including:
  - Locating projects on the 2004 map
  - Using the standardized notation

These guidelines will allow archeologists to accurately measure the rate of bank erosion, assess which features are most affected, and collect data from both monitoring and future projects that are comparable. Erosion will continue, but with a framework in place archeologists can proactively address the concerns of interested parties while also collecting data to address unanswered questions about the Bluffs phase at the Cutbank site.
through one or more chemical or physical processes.

a. **Lignite (Jet, Canel Coal):** This very light, soft material is formed from consolidated organics. It is black in color, arranged in discontinuous layers, and scratches easily with a fingernail.

II. **Minerals:** a single mineral, the form of which depends on the process by which it was formed.

A. **Mica:** A number of different minerals can form mica. The material is soft because if its relatively high water content; it can be scratched with a fingernail and easily delaminates into thin, translucent sheets.

B. **Quartz:** This is crystalline silica which can appear in a wide variety of colors, depending on impurities present. A more coarse-grained variety is sometimes called quartzite by archeologists. **Chalcedony** is a cryptocrystalline variety of quartz that comes in a wide range of colors (when archeologists use the term chalcedony they usually refer only to a semi-translucent blue-grey or blue-white color). **Agate** is milky-white chalcedony with variagated opacity.
### Table 11. Sediment Descriptions

<table>
<thead>
<tr>
<th>Stratigraphic Unit</th>
<th>Sediment Description</th>
<th>Color</th>
<th>Thickness</th>
<th>Cultural?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1 – Sod</td>
<td>n/a</td>
<td>n/a</td>
<td>4-8 cm</td>
<td>no</td>
</tr>
<tr>
<td>Zone 2 – 1912 Katmai/Novarupta Ash</td>
<td>volcanic tephra, particle size grades from very fine at the base of the layer to sand-sized at the top.</td>
<td>light yellowish-white</td>
<td>4-50cm, generally about 20 cm</td>
<td>no</td>
</tr>
<tr>
<td>Zone 3 – 1912 Organic Layer</td>
<td>n/a</td>
<td>dark brown to black</td>
<td>~ 1 cm</td>
<td>a few scattered artifacts were found in this layer</td>
</tr>
<tr>
<td>Zone 4 – Ash B</td>
<td>very fine particles</td>
<td>light pinkish grey</td>
<td>0.5 - 2 cm, usually less than 1 cm and often absent</td>
<td>no</td>
</tr>
<tr>
<td>Zone 5A – Bluffs Phase Mixed Fill</td>
<td>sandy silt with mottles of Ash C, charcoal, and organic matter</td>
<td>strong reddish brown</td>
<td>2-80 cm, generally about 65 cm</td>
<td>yes</td>
</tr>
<tr>
<td>Zone 5B – Bluffs Phase House Floors</td>
<td>silty sand with charcoal and organic matter</td>
<td>dark brown</td>
<td>1-2 cm</td>
<td>yes</td>
</tr>
<tr>
<td>Zone 6 – Ash C</td>
<td>volcanic tephra, fine particles</td>
<td>three colors, top stratum is light yellow, middle stratum is yellowish-grey, bottom stratum is greyish-green</td>
<td>~6 cm, very consistent across the site</td>
<td>no</td>
</tr>
<tr>
<td>Zone 9 – Culturally Sterile Sand</td>
<td>well-sorted, rounded sand particles</td>
<td>from strong red to reddish-yellow</td>
<td>2 – 20 cm</td>
<td>no</td>
</tr>
<tr>
<td>Zone 10 – Culturally Sterile Gravels</td>
<td>rounded, medium-sized (1-3 cm diameter) river gravels</td>
<td>some gravels were stained a dark reddish color, others were grey</td>
<td>this level: extended to the modern river bottom in the cut profile, and is likely several meters thick above bedrock</td>
<td>no</td>
</tr>
<tr>
<td>Natural Stratum</td>
<td>Feature</td>
<td>Cubic Meters Excavated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------</td>
<td>------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1912 organics and Ash B</td>
<td>no feature</td>
<td>1.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mixed fill</td>
<td>no feature</td>
<td>21.471</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mixed fill</td>
<td>incised pebble feature</td>
<td>0.112</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mixed fill</td>
<td>banya feature</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>mixed fill</td>
<td>red surface feature</td>
<td>0.0543</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Room A</td>
<td>0.2605</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Room B</td>
<td>0.033</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Room C</td>
<td>0.026</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Room D</td>
<td>0.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Entrance 1</td>
<td>0.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Entrance 2</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Entrance 3</td>
<td>0.016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Entrance 4</td>
<td>0.019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Entrance 5</td>
<td>0.016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Room F</td>
<td>0.045</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Room E</td>
<td>0.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>house floor</td>
<td>Entrance 6</td>
<td>0.012</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 3: Artifact Distribution By Stratigraphic Level

Figure 33. Artifact distribution at the top of the mixed fill zone.
*artifacts in fill features are probably under-reported because features were not always immediately distinguished from mixed fill during excavation.

Figure 34. Artifact distribution in fill features.
Figure 35. Artifact distribution in the mixed fill zone.
Figure 36: Artifact distribution on house floors.
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