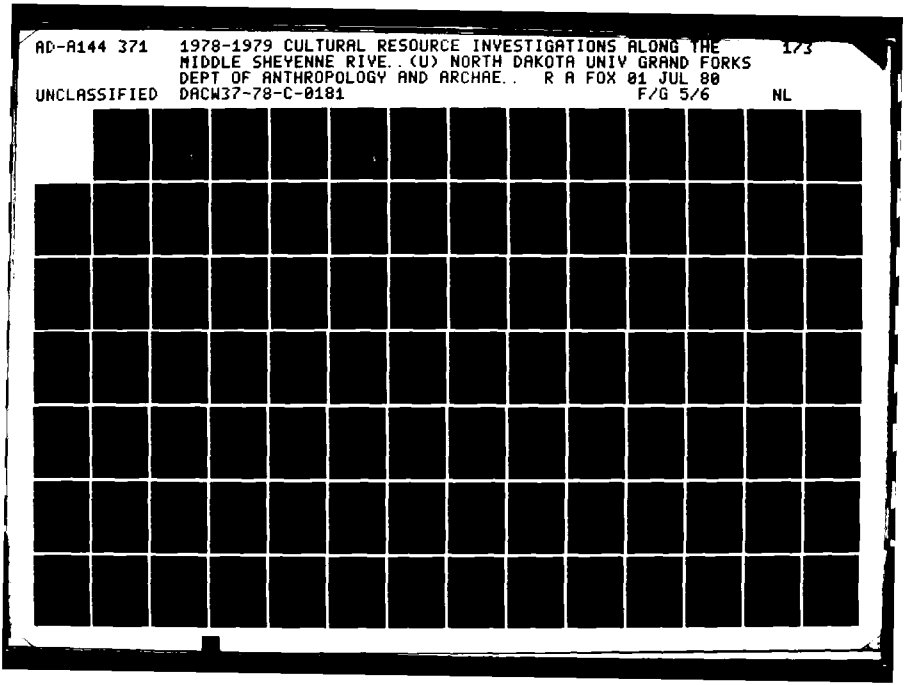
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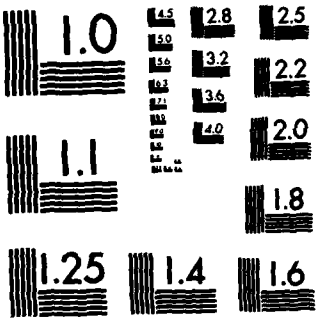

1978-1979 CULTURAL RESOURCE INVESTIGATIONS ALONG THE MIDDLE SHEYENNE RIVER VALLEY INCLUDING LAKE ASHTABULA AND A PORTION OF THE SHEYENNE RIVER

Volume 1 of 2

by

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July 1, 1980

Prepared in fulfillment of Department of the Army.
Corps of Engineers, St. Paul District
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The Lake Ashtabula cultural resource project consisted of a literature research, an intensive pedestrian survey and a nonsystemic testing program to identify prehistoric, historic/architectural and paleontological research in the survey area. The survey area included lands adjacent to the shoreline of Lake Ashtabula and lands adjacent to the free flowing portion of the Sheyenne River north from the lake to U.S. Highway 200 to North Dakota.

The total of non-totally inundated sites within the survey area is 46.

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Thirty-seven are exclusively prehistoric, six are historic or architectural and one is paleontological in nature.

The program was designed to identify and locate the cultural resources in the entire survey area and to provide data on the extent and content of the sites surrounding Lake Ashtabula. The purpose was to provide significant evaluations for each resource based upon National Register of Historic Places criteria, to identify impacts to the resources and provide recommendations for management of the resources.

Two are evaluated as eligible for the National Register of Historic Places and 28 are determined to be potentially eligible. Fifteen are not eligible and one could not be evaluated.

Volume I includes Appendix I and II. Volume II (Appendix III) is comprised of base data forms and auger test forms.

1978-1979 CULTURAL RESOURCE INVESTIGATIONS ALONG THE MIDDLE SHEYENNE RIVER VALLEY INCLUDING LAKE ASHTABULA AND A PORTION OF THE SHEYENNE RIVER

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ABSTRACT

The Lake Ashtabula cultural resource project consisted of a literature research, an intensive pedestrian survey and a non-systemic testing program to identify prehistoric, historic/architectural and paleontological resources in the survey area. The survey area included lands adjacent to the shoreline of Lake Ashtabula and lands adjacent to the free flowing portion of the Sheyenne River north from the lake to U.S. Highway 200 in North Dakota.

Forty-one sites were discovered. The project also included a resurvey of 5 prehistoric sites discovered within the survey area by Vehik (1978). This brought the total of non-totally inundated sites within the survey area to 46. Of these, 37 are exclusively prehistoric, 6 are historic or architectural and 1 is paleontological in nature. One prehistoric site contains a paleontological component; another exhibits a historic component. Several other sites were recorded prior to construction of the dam but are now inundated.

The program was designed to identify and locate the cultural resources in the entire survey area and to provide data on the extent and content of the sites surrounding Lake Ashtabula. The purpose was to provide significance evaluations for each resource based upon National Register of Historic Places criteria, to identify impacts to the resources and provide recommendations for management of the resources.

At 30 sites, any or all of 9 potential adverse impacts could threaten the extant resources. Of these, 2 are evaluated as eligible for the National Register of Historic Places and 28 are determined to be potentially eligible. It is recommended that these sites be tested and /or mitigated prior to adverse impacts. Fifteen are not eligible and no further work is required. At 1 site (32BA419), the significance could not be evaluated.

The survey area is situated in the Sheyenne River valley on the Drift Plains physiographic province. Archaeologically, the survey area lies in the Northeastern Periphery subarea. There was no evidence of Paleo-Indian or Plains Archaic utilization of the survey area. Based upon the occurrence of burial mounds, the lithic and ceramic assemblages and related literature resources, it is suggested that the heaviest utilization of the area was by Middle Woodland components, in particular the Sonota Complex. Late Woodland components are probably also represented in the prehistoric record but the evidence is, as of yet, not overwhelming.

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INTRODUCTION

Under the conditions of United States Army Corps of Engineers, St. Paul District Contract Number DAC37-78-C-0181, the University of North Dakota Archaeological Research (UNDAR) organization, Department of Anthropology and Archaeology, University of North Dakota entered into agreement with the Corps of Engineers to conduct a literature and records search, and intensive pedestrian visual survey and a non-systematic testing program of cultural resources at Lake Ashtabula, North Dakota, and evaluate the significance of sites and provide recommendations.

The project was commissioned in partial fulfillment of the Corps obligations regarding cultural resources set forth in the Historic Preservation Act of 1966 (P. L. 89-665), the National Environmental Policy Act of 1969 (P. L. 91-190), Executive Order 11593 (May 13, 1971, 36XFR8921), the Archaeological Conservation Act of 1974 (P. L. 93-291), the Advisory Council on Historic Preservation's "Procedures for the Protections of Historic and Cultural Properties" (36CFR, Part 800), the Department of Interior's guidelines (36CFR, Part 60, and Interim Regulations Parts 32, 60, 61, 62, 63, 64, 65, and 66) and the Corps of Engineers Regulations (ER 1105-2-460) contained in the Federal Register of April 3, 1978.

It is impractical herein to present a detailed description of the survey area through the use of standard legal locations. To circumvent this impracticality, a map of the area that was surveyed is included in the report jacket (Figure 1). Site locations are depicted on this map as well as isolated find locations and test areas. Natural and man-made features are also included. Those areas of wetland and steep slopes which, on the basis of professional archaeological judgement, were determined to have insignificant potential for containing prehistoric or historic resources were not surveyed. The intensive surface examination was conducted on the following areas.

1) stockpile areas designated for the riprap bank stabilization project.
2) Corps owned land
3) all lands adjacent to the existing Lake Ashtabula to elevation 390.14 m MSL with the following considerations:
   a) when an elevation of 390.14 m is attained, the investigation should proceed 50 m inland if there are level surfaces suitable for occupation.
   b) in those areas of the shoreline where there is evidence of erosion, the investigation will include all lands 50 m inland from the top of the eroding bank regardless of elevation.
4) Baldhill Creek within Section 1 and 12, T142N - R58W to elevation 390.14 m using the same considerations as 3 above.
5) upstream of the existing Lake Ashtabula north to the Wells bridge crossing to elevation 390.14 m using the same considerations as 3 above.

1287.46 ft

These lands are hereinafter referred to as the survey area. (Figures 1 and 2).

The fieldwork was conducted during a split field season. Survey activities were performed in October and November, 1978 and during June, 1979. The testing program was initiated in June and completed in early July of 1979.

The Lake Ashtabula reservoir includes approximately 124.8 km of shoreline at normal pool elevation of 385.88 m N NMSL. The Corps owns 3163.04 ha of which 956.6 ha are above normal pool elevation. The lands above the existing Lake Ashtabula are privately owned but the Corps maintains easements along much of the Sheyenne River. During the 1978 portion of the split field season, the pool elevation of the reservoir was at 1156.12 m MSL. The elevation fluctuated near 1157.58 m MSL during the 1979 portion of the project.

The purpose of the survey was to identify and evaluate, if possible, the prehistoric, historic/architectural and paleontological resources potentially threatened by a variety of adverse impacts. The priority was to assess the impact of the Corps' ongoing bank stabilization program. Currently, lacustrine erosion is of sufficient magnitude to require a bank stabilization program involving the placement of riprap along the shoreline to check erosion processes. This undertaking is occuring along selected reaches of shoreline between Katie Olson's Landing and Keyes Crossing.

An additional purpose of the cultural resource program was to assess the impacts of existing and proposed public use areas on cultural resources, including impacts from vandalism and the potential of the resources for public interpretation.

Nearly 625 ha of Corps owned land are leased for fish and wildlife management, for recreational areas and for commercial concessions. Another purpose of the project was to assess the impacts of ongoing leasee activities of sites within these areas.

Finally, the Corps is studying the feasibility of raising Baldhill Dam to provide a 1.52 m to 4.56 m higher pool capacity for flood storage. A purpose of the survey was to investigate upstream (from Lake Ashtabula to the Wells bridge) areas for resources in addition to the extant known sites.

A total of 41 sites were discovered in the survey area. Of these, 34 are prehistoric sites, 4 are historic/architectural and 1 is paleontological in nature. There is one prehistoric site with a paleontological component and one prehistoric/historic component site. Twenty-one isolated finds were also recorded. Vehik located an additional 5 sites.

Records generated during the field and laboratory phases of this project remain on file at the Department of Anthropology and Archaeology, University of North Dakota library-records room. These records include color slides and black and white negatives of sites and features, field

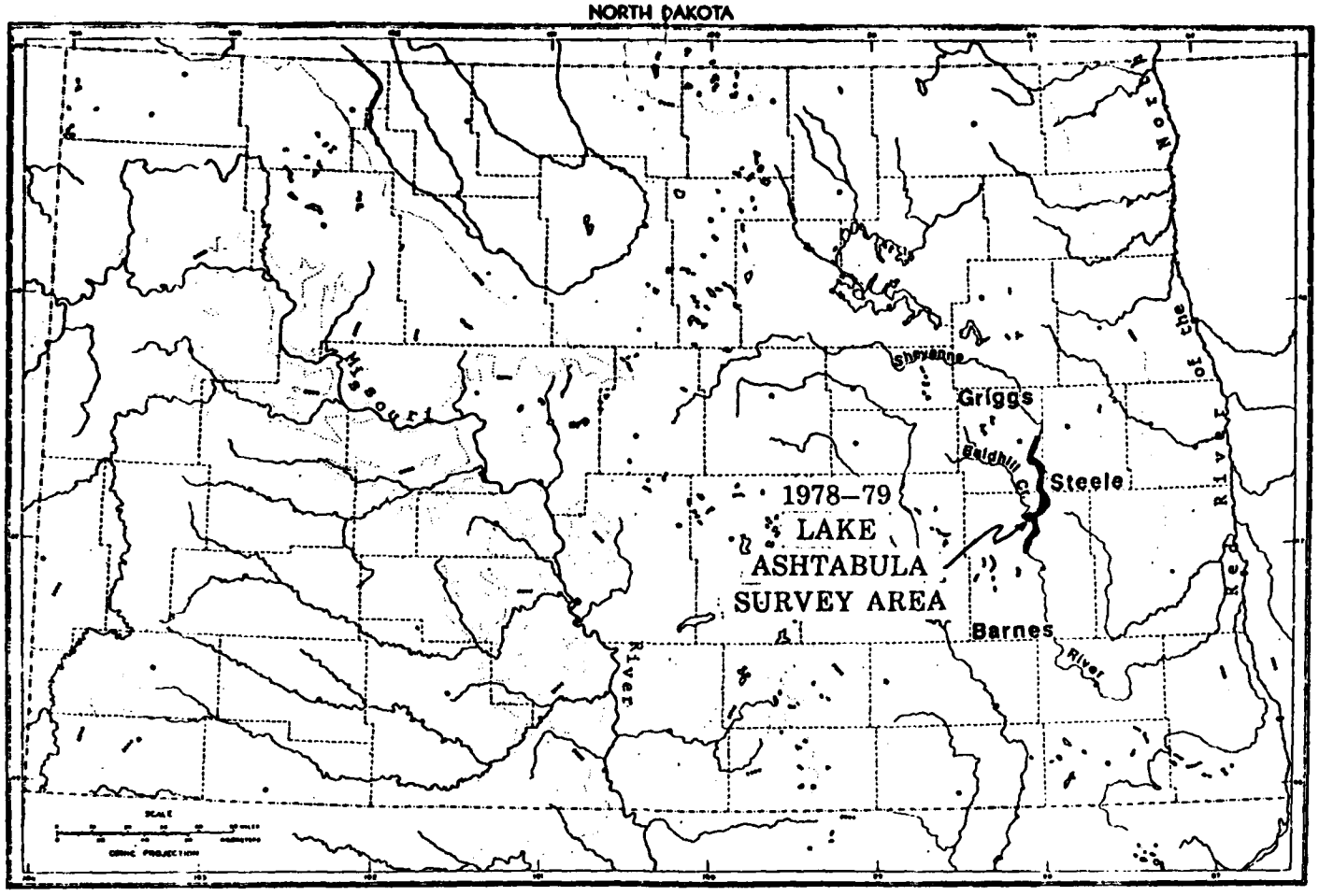


Figure 2. Map of North Dakota depicting the survey area.

maps, sketches, plates, original copies, site and testing forms and specimen collections. Site forms and a copy of this report are also on file at the Archaeology and Historic Preservation Office at the State Historical Society of North Dakota, Bismarck and the Corps of Engineers, St. Paul District offices in St. Paul, MN.

PHYSICAL SETTING

REGION DESCRIBED

Geography and Geology

The survey area is situated in portions of Barnes, Steele and Griggs counties. It is located in the Drift Plains District of the Central Lowlands physiographic province (Figure 3). Nearly the entire area of the Drift Plains surrounding the survey area is mantled with glacial drift. The uplands are covered with till and associated glaciofluvial deposits. Bedrock is exposed in the valleys of the Sheyenne River and Baldhill Creek. The floodplains of these streams are blanketed by alluvium (Kelly and Block 1967:5).

The dominant physiographic features in the three counties are the elongated belts of end moraine and the deep valley occupied by the Sheyenne River. These features are separated by broad, undulating plains of ground moraine (Kelly and Block 1967:5). The upland topography is strongly rolling to nearly flat (Cooper 1947:2). In general, the land surface slopes toward the Sheyenne River (Kelly and Block 1967:5). Total relief does not exceed approximately 150 m.

A continental divide separating the Hudson Bay and Gulf of Mexico Drainage systems crosses the western part of Barnes County near the survey area (Kelly and Block 1967:5), yet the region lacks an integrated drainage system and is poorly drained. The drainage is mostly subsurface due to soil permeability and underlying deposits. Surficial drainage usually occurs in short, deep gullies that feed the Sheyenne River (Klausing 1968:7).

Presently the Sheyenne River Valley is approximately 3.2 km wide and as much as 45.7 m deep at its upper extremes in the survey area. The ancestral river channeled meltwaters from glaciers into various glacial lakes. The latest galcial lake to receive meltwaters from the Sheyenne was Lake Agassiz. The lake existed for sufficient time to allow the river to erode a narrow floodplain. When Lake Agassiz drained, the Sheyenne emptied into the Red River of the North and established the drainage as it exists today. Since the lake was drained, the river incised its channel (Kelly and Block 1967:47). This began after about 10,500 years before the present (B.P.)(Vehik 1978:6). Baldhill Creek was formed as an ice-marginal meltwater channel (Kelly and Block 1967:46).

Soils

The Sheyenne River valley contains the youngest sediments of the region. They were deposited during the Recent Epoch. The alluvium consists of fine grained silts and clays. Thin lenses of fine to coarse sand are also present. Lignite fragments are dispersed throughout the alluvium. Fossils are abundant. Gastropods are most common, but numerous small pelecypods are present (Kelly and Block 1967:41).

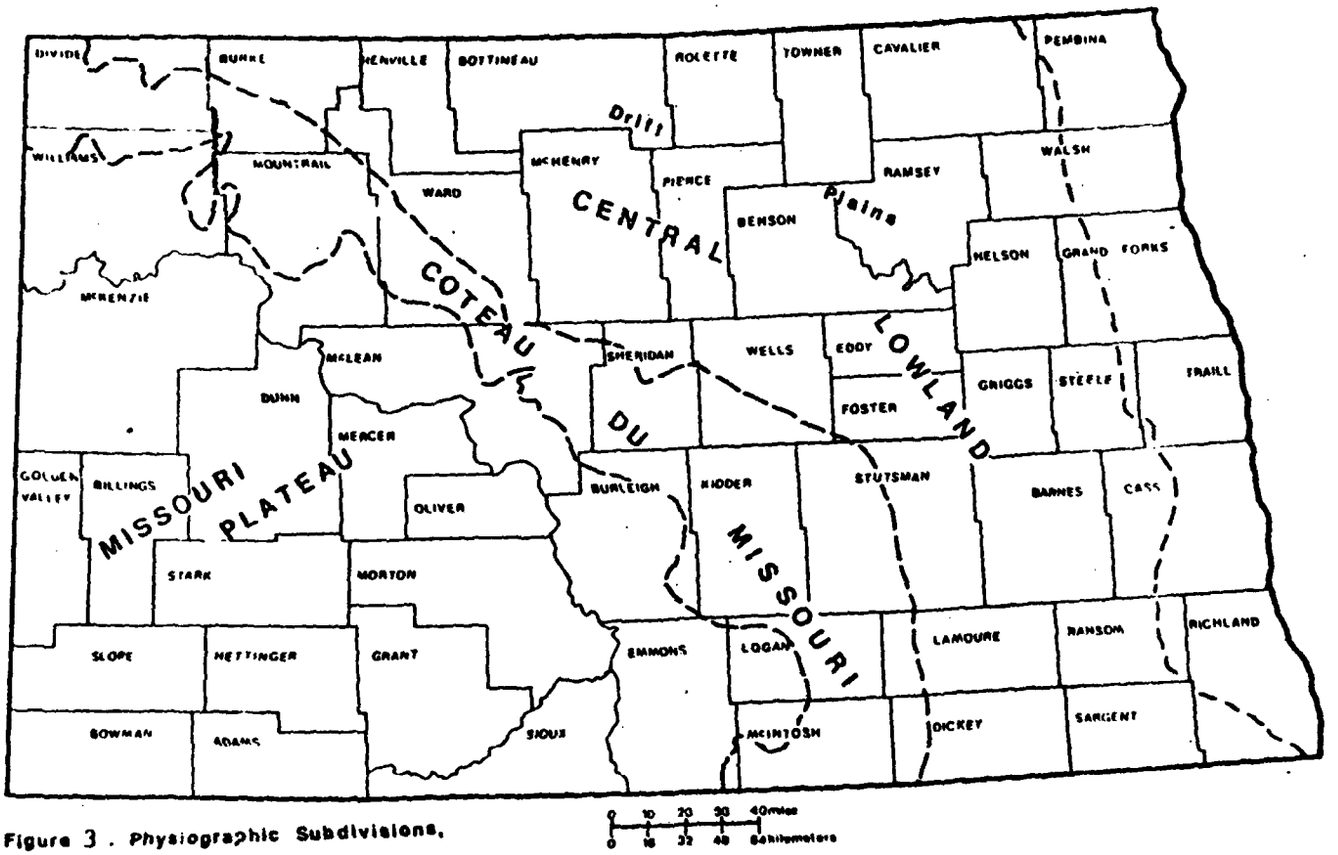


Figure 3. *Physiographic Subdivisions, North Dakota*

Alluvium was deposited in the Sheyenne valley as valley fill and was subsequently dissected by the river. Consequently, the only landforms associated with the alluvial deposits are poorly developed terraces. The thickness of the alluvial depsits ranges from 0 to 15 m (Kelly and Block 1967:41-42).

The Buse and Renshaw soil series characterize the area around Lake Ashtabula. The Buse soils lay on the steep slopes and ravines bordering the Sheyenne River Valley. The Renshaw series lays along the floodplain and is distributed nearly level. Another series, Sioux soils, occupies the terraces and benches adjacent to the floodplain, and occurs primarily at the crest of knolls and ridges (Johnson et. al. 1974:15).

Flora and Fauna

Prior to Euro-american influxes, the Transition Grassland vegetation characterized the Drift Plains surrounding the survey area (Figure 4). The chief dominants were the needlegrasses (Stipa spp.) and slender wheatgrass (Agropyion trachycaulum) (Anonymous 1979:7). Grasslands interspersed with the gallery forest occupied the Sheyenne River valley. Remnants of these communities exist today. The gallery forest species consist mainly of bur oak (Quercus macrocarpa), green ash (Fraxinus pennsylvanica), box elder (Acer negundo), American elm (Ulmus americana) and others. These species were particularly prominent along the oxbows and meanders of the river (Johnson et. al.1974:20). Today, much of the vegetation is in cultivated crops, hay and pastureland.

Faunal types are varied throughout the region. Prior to non-native influences, species that are now absent such as moose (Alces americanus), antelope (Antilocapra americana), elk (Cervus canadensis), bear (Ursus spp.), deer (Odecoileus spp.) and bison (Bison bison) inhabited the area (Thompson and Joos 1975:86-90, Bailey 1926). Of these, only white-tail deer (Odecoileus virginianus) remain today (Johnson et. al. 1974:38). Johnson et. al. (1974:31-38) present in detail the numerous amphibians, reptiles, birds and small mammals that are frequently encountered within the region. According to Wiehe and Cassel (1977), there are 9 species of amphibians, 8 species of reptiles, 262 species of birds and 52 species of mammals that occur in the Sheyenne River valley.

Vehik (1978:10) has noted that many species of plants and animals that occur in the region were utilized by prehistoric inhabitants in other portions of eastern North Dakota and the Northern Plains. Excellent detailed accounts of such utilization can be found in Yanorsky (1936), Yarnell (1964), Densmore (1928), Gilmore (1911 and 1912) and Grinell (1923).

Climate

The present day climate of the region is classified as cool-temperate, dry and sub-humid with long winters and cool summers. The average annual precipitation is 45.9 cm. The mean annual termerature is 5.6° C.

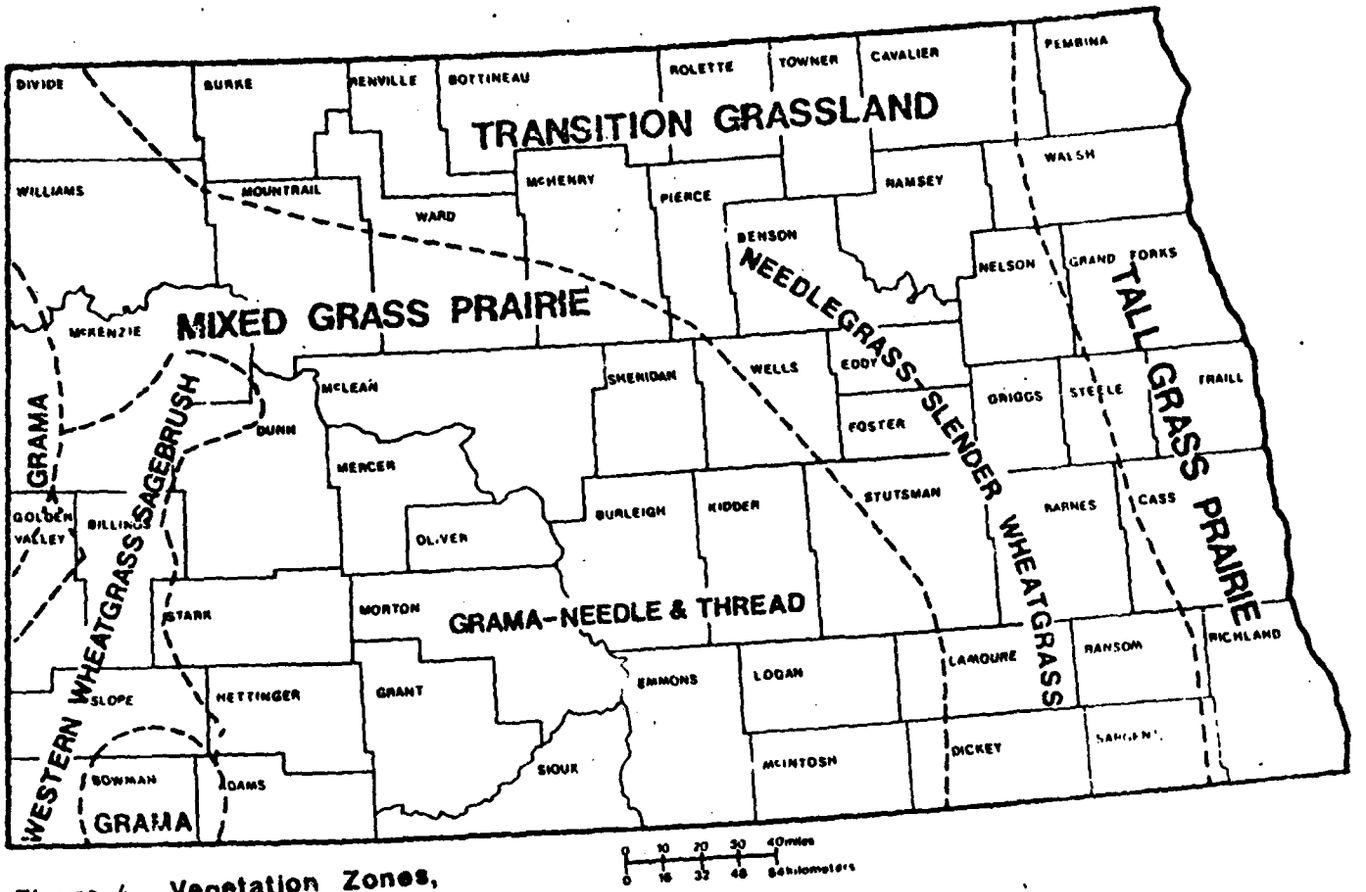


Figure 4. Vegetation Zones, North Dakota

Vehik (1978:7-8) has postulated a paleoenvironmental model derived from paleoecology studies conducted elsewhere on the Northern Plains. The sequence is presented below.

The climate of eastern North Dakota between 12,000 B.P. to 10,000 B.P. was cool and moist with cool summers and warm winters (Bluemle 1977:53). This may have allowed the growth of boreal forests dominated by spruce-aspen, and is commonly referred to as the Late Glacial climatic episode (Wendland and Bryson 1974). At the end of the Pleistocene around 10,000 B.P. the climate became warmer and the black soils typical of prairie grasslands began to develop (Bluemle 1977:53). This period ended around 9000/8500 B.P., and was characterized by pine and/or deciduous forests (Vehik and Vehik 1977:10). Two climatic episodes, the pre-Boreal and Boreal are recognized during this period (Wendland and Bryson 1974:Table 7). The period between 8500 B.P. and 5000 B.P. to 4000 B.P. has an even drier and warmer climate which reached a maximum around 8000 B.P. to 7000 B.P. Dominant trees were oak, but prairie grasses replaced most woodlands. This is the Atlantic climatic episode (Wendland and Bryson 1974:Table 7), and is characterized by recurrent summer droughts, extensive soil erosion, wind caused dunes, and lowered lake levels (Bluemle 1977:53).

The climate became cool and moist again, similar to today's, around 5000 B.P. to 4000 B.P. and allowed the development of woodlands dominated by herbs, pine, and deciduous trees. Basically, the climate fluctuated between cool humid conditions similar to the climate during most of the 1960's and slightly warmer periods like the 1930's (Bluemle 1977:53). Wendland and Bryson (1974:Table 7) recognize five climatic episodes: the sub-Boreal (5000 B.P. to 2700 B.P.), the sub-Atlantic (2700 B.P. to 1680 B.P. or A.D. 270) during which cool, wet conditions prevailed with heavy winter snowfalls (Bluemle 1977:53), the Scandic episode (1680 B.P. to 1260 B.P.), the neo-Atlantic (1260 B.P. to 850 B.P.), and the Pacific episode between 850 B.P. to 400 B.P. (Vehik and Vehik 1977:10-11).

The final climatic episode, the neo-Boreal (400 B.P. to 100 B.P.), was not discussed by Wendland and Bryson. However, other researchers have noted colder and wetter climatic conditions with one period of alpine glaciation. Since A.D. 1850 alpine glaciation declined as the climate became warmer and somewhat less wet (Vehik and Vehik 1977:11).

SURVEY AREA DESCRIBED

The survey area is mostly confined to the Sheyenne River Valley between Baldhill Dam and the Wells bridge approximately 45 km to the north. The area is comprised of two distinctly different regions, the man-made reservoir impounded by Lake Ashtabula and a free flowing portion of the Sheyenne River. The reservoir extends north from Baldhill Dam and consists of nearly 125 km of shoreline. The second portion extends along the meandering Sheyenne River from the North Dakota Highway 200 south to the northern extent of the reservoir. Four small riprap stockpile areas and several larger areas are the only portions of the survey area that exist outside of the river valley. They are on the upland bluffs adjacent to and overlooking the valley (Figure 1).

There are approximately 966 ha of survey area surrounding Lake Ashtabula. Most of this acreage is along the shoreline. The landscape varies from steep slopes that extend from the uplands down to the lake to small flat areas situated between the lake waters and the valley walls. Numerous small drainages begin in the uplands and have cut draws and gullies into the bluffs where they feed the reservoir.

At many areas along the lake, numerous summer cabins have been constructed. They are usually found along the tree lined portions of the shoreline. The gullies and draws are almost always heavily vegetated with brush and trees. The slopes and flats are covered chiefly with mixed grasses that are common to the uplands. Very often marshlands exist along the lower elevations and at the heads of the gullies. Many areas have been developed with boat ramps, recreation areas, commercial structures and parks. The survey area adjacent to and below the dam contains a fishery and a portion of the few cultivated lands along the lake. Additional cultivated fields exist sporadically along the northern reaches of the lake's shoreline.

Baldhill Creek is the major tributary that feeds the reservoir and a portion of this creek is included in the survey area. It is not unlike the area along the lake. There are a few cultivated fields near the mouth of the creek but most of the acreage consists of grassy flats, marshes and brushy areas.

The upper portion of the survey area is along the Sheyenne River. The river is in the old age stage and is characterized by well defined and numerous meanders. There are also many oxbow lakes and marshes that have formed as the meanders were cutoff. The survey area here is exclusively flat and is confined to the first terrace of the floodplain. The flats are situated within the meanders and oxbows. All are either cultivated or in pasturage. During the survey, the cultivated fields either lay fallow or were in crops in the early stage of development. Eighty to 90% of the surface of the crop fields was exposed because of the early development of the crops.

Much of the surface of the upper survey area was obscured by heavy stands of the gallery forest and associated understory. Usually these forests were within the oxbows between the cultivated areas and the river. The pasture and haylands sported heavy, dense growths of grasses.

There are occasional farmsteads within the survey area along the Sheyenne River. Numerous roads and trails also crisscross this acreage. The single large developed area is the Cooperstown Bible Camp that is located adjacent to the river.

The small portions of the survey area that exist outside of the valley are on the uplands adjacent to the reservoir. These are the riprap stockpile areas that are situated on flat, grass covered lands. Additional areas extend from the upland cuestas overlooking the valley down the steep valley walls to the shoreline. These areas are grassy and/or covered with brush.

CULTURAL RESOURCE BACKGROUND

LITERATURE AND RECORDS REVIEW

Twenty-eight cultural resource sites had been identified within or adjacent to the 1978-1979 survey area prior to implementation of this project. These sites are listed below; the site forms are contained in Volume 2 of this report and are depicted on Figure 1.

32BA1 through 32BA7, 32BA11, 32BA409
32GG1, 32GG2, 32GG3, 32GG221 through 32GG236

Prehistory

The previous investigations through 1974 are adapted from Vehik and Vekik's (1977) and Vehik's (1978) excellent reviews.

References to early work in the middle Sheyenne basin are not numerous. Smith (1906: 87, citing Thomas 1891) notes that there were some mounds to be found along the Sheyenne River in Griggs County. Todd (1886: 3) described a rock alignment site northwest of Valley City, North Dakota. This site was ultimately designated 32BA11 by Wheeler in 1952 and discussed by Nelson (1973: 58) and Johnson et. al. (1974: 49-51).

Additional references to the middle Sheyenne basin appear in conjunction with the construction of Baldhill dam in the late 1940's. Kivett (1948) surveyed the Baldhill reservoir area for a week in 1947 locating ten archaeological sites consisting of six occupational or camp sites, three mound sites, and one site of an undetermined nature. Most of the occupational areas were on low terraces along abandoned stream channels while the mounds were on uplands overlooking the river valley (Kivett 1948: 7-8).

Test excavations were conducted at 32BA5, 32BA6, and 32GG2 and Kivett (1948: 8) speculated that these may have been permanent villages. On the other hand, 32BA2 and 32BA3 were postulated to be temporary camps (Kivett 1948: 8). Pottery from some of these sites consisted of simple-stamped, smoothed, and cord-roughened body sherds and tempering was either grit or shell (Kivett 1948: 7). Kivett (1948: 7) suggests that sites associated with simple-stamped pottery are more recent than those associated with cord-roughened ceramics.

A test excavation was also made into a mound, 32GG1 (Kivett 1948: 8-9). The disarticulated remains of eight individuals with no associated artifacts were recovered (Kivett 1948: 8-9). The distribution of the remains within the mound suggested that mound construction may have been an accumulative process over a considerable period of time.

Additional reports of the survey results, more generalized in form, may be found in Wedel (1948: 24-27) and Kivett (1949: 25).

Hewes (1949) excavated two mounds at 32BA1 in 1948. Both mounds had central burial chambers with oak logs in which there were several disarticulated burials, in addition some intrusive extended burial occurred in one of the mounds (Hewes 1949: 324-327). A number of individuals in the central burial chambers had been covered with red ocher. Artifacts associated with these mounds consisted of a possible clay bead, a stone digging implement, bone tools, several brown chalcedony points, a river mussel shell disk ornament, two bird bone tubes one of which was covered with red ocher, four partly worked carnivore teeth, three human teeth with ground off roots, a human maxilla or mandible which had been ground flat, and a dental arch and palate (Hewes 1949: 325-327). Neuman (1975: 92) reports the presence of a copper bead from Mound B. Also a scraper, flakes, and unutilized animal bones were recovered (Hewes 1949: 325-327).

Subsequent references to 32BA1 may be found in several papers. Neuman (1967) reported a date of A.D. 90 $\pm$ 150 (1910 B.P.) for one of the mounds. Ossenberg (1974) utilized the cranial data from the site, lumped with that from the Devils Lake area, to study the origins and relationships of Woodland peoples. Basically, according to her results, this skeletal group has its closest affinities with material from the Arvilla culture along the Red River, northern Balckduck culture (northern Minnesota-southern Manitoba), the Manitoba phase, and modern Cheyenne and Assiniboine (Ossenberg 1974: 35). However, there are problems with her interpretations as she ignores Neuman's (1967) date and assigns the group a date of A.D. 1200 to 1700. Neuman (1975) includes the material from 32BA1 in his Sonota complex which he dates from 0 to A.D. 600. He also suggests that these mounds were built by hunters and gatherers whose cultural development took place on the northern Great Plains (with close relationships to Besant occupations in Montana, Saskatchewan, and Alberta) and that this group received some stimulus from Hopewellian groups (Neuman 1975: 93). Vehik and Vehik (1976) included the material from 32BA1 in an analysis of northern Plains Woodland social variation.

Johnson et. al. (1974) provide a review of archaeological sites in the vicinity of Baldhill dam and Lake Ashtabula. Eleven of the thirteen sites discussed were reported on by Kivett (1948) and Hewes (1949) and the 1974 work simply reassessed their status. One of the other two sites was the rock alignment site (32BA11) northwest of Valley City. The thirteenth, 32BA401, was a mound located during a brief resurvey of the area (Johnson et. al. 1974: 40-51). Nothing of diagnostic importance was recovered during resurvey, however.

The 19th Century investigations are not particularly useful in modern day investigations. The surveys of the late 1940's are also of little utility for the modern day investigator. They are important, however, inasmuch as they identified site distribution patterns within the Sheyenne Valley and their work subsequently led to some testing. Kivett's testing at the Barnes County sites has provided a heuristic model on which Woodland interpretations have been based for the last 30 years. However, these survey efforts, when compared with later,

more rigorous surveys, should be considered inadequate because it is becoming apparent that much has been lost. In defense of these archaeologists, though, it should be noted that the state of and the emphasis on archaeology was much different than that existing today. Also, Rivett (1948) recognized the inadequacies and recommended an intensive survey of the Baldhill Reservoir area before inundation. His advice was never heeded.

In 1976, archaeologists from the University of North Dakota responded to a call, apparently from Baldhill Dam Corps personnel, to investigate a burial eroding form a cutbank above Lake Ashtabula. Although not assigned a Smithsonian Trinomial System number at the time, it is now referred to as 32BA403. A description and interpretation is presented in the Inventory Results Section of this report. A report of these investigations was never prepared, apparently because the Corps did not require one or provide the necessary funding. This is the major shortcoming of the project. The osteological material was described by Gary Johnson and reposes at the Department of Anthropology and Archaeology, University of North Dakota.

R. A. Strachan and K. A. Roetzel (n.d.) conducted a remote sensing aerial survey of portions of the Lake Ashtabula shoreline on the eastern side. A photographic record of infrared and color slides of the shoreline was compiled. The photos were taken from approximately 304 m above ground level and each covered a ground area of 122 m to 183 m. The purpose of the survey was to identify areas of high, moderate and low probability for prehistoric sites. The authors concluded that field verification would be necessary to evaluate the utility of the method presented.

It was not clear in the report as to what areas were actually recorded by infrared photography. Figure 3 did not adequately locate the slides along the shoreline. A subsequent detailed comparison of the infrared slides with 7.5' USGS topographic quadrangle maps resulted in our identification and placement of each slide along the shoreline. The following (Table 1) is a tabulation of Strachan and Roetzel's infrared slides by number and corresponding probability prediction. The Site Present column indicates whether or not a known site has been discovered within that frame.

There is some confusion regarding the proper location of the slide frames in relation to the topography. For example, Strachan and Roetzel (nd: 13) identify slide numbers 34,35 and 36 with site 32BA7. When we compared the slides with the topographic maps, we found that slide number 26 corresponded with the location of 32BA7. The same is true for 32BA1. Strachan and Roetzel (nd: 14) equate slide numbers 51, 52 and 53 with 32BA1; we found that slide number 70 was a photo of the 32BA1 area. Either Strachan and Roetzel have mislocated 32BA1 and 32BA7 or they have mislocated the slides themselves. If the latter is true, the data in Table 1 is erroneous because our field check would not correspond to mislocated slides and their probability assessments. Of course, it is possible that our location of the slides is in error.

Infrared Slide #	Site Probability	Site Present	Infrared Slide #	Site Probability	Site Present	Infrared Slide #	Site Probability	Site Present
1	L	No	41	L	No	81	L	No
2	M	No	42	L	32BA412	82	L	No
3	M	No	43	M	32BA405	83	L	No
4	M	No	44	L	No	84	L	No
5	L	No	45	L	No	85	L	No
6	L	No	46	L	No	86	L	No
7	L	No	47	L	No	87	L	32BA413
8	M	No	48	L	32BA418	88	L	32BA413
9	L	32GG2	49	L	32BA418	89	L	No
10	M	No	50	L	32BA418	90	L	No
11	M	No	51	H	No	91	L	32BA414
12	L	No	52	H	32BA417	92	L	No
13	L	No	53	M	No	93	L	No
14	L	No	54	L	32BA428	94	L	No
15	M	No	55	L	No	95	L	No
16	M	No	56	M	No	96	L	No
17	M	No	57	L	No	97	L	No
18	M	No	58	L	No	98	L	No
19	M	No	59	L	No	99	L	No
20	M	No	60	L	32BA420	100	L	No
21	L	No	61	L	No	101	L	No
22	L	No	62	L	32BA421	102	M	No
23	L	No	63	L	32BA11	103	L	No
24	L	No	64	L	32BA425	104	L	No
25	L	No	65	L	32BA409	105	L	No
26	L	32BA7	66	L	32BA15	106	L	No
27	L	No	67	L	No	107	L	No
28	L	No	68	L	32BA403	108	L	No
29	L	No			32BA408	109	L	No
30	M	No			32BA410	110	L	No
31	M	No	69	L	32BA410	111	L	No
32	M	32BA407	70	L	32BA1	112	M	No
33	L	32BA407	71	L	No	113	L	No
34	H	No	72	L	No	114	M	No
35	H	No	73	L	No	115	L	No
36	H	No	74	L	No	116	L	No
37	M	No	75	M	No	117	L	No
38	L	No	76	L	No	118	H	No
39	L	No	77	L	No	119	L	No
40	L	No	78	L	No	120	L	No
			79	L	No			
			80	M	No			

Table 1. Comparison of known sites to Strachan and Roetzel's (nil) probability predictions based upon infrared aerial photography.

Regardless, this discrepancy should be checked and until it is done, an assessment of the success of the remote sensing program is withheld.

In April of 1977, Schneider (1977) conducted a brief survey of the Eggerts Beach Landing. The purpose was to identify prehistoric resources in the area. Several hours were spent inspecting the Eggerts' Beach area but no cultural resources were discovered. Schneider concluded that, although much of the area was obscured by grasses, the area was not a likely location for prehistoric occupation.

A resurvey of the Eggerts Beach area was conducted during the 1978 field season. One site was discovered here (32BA414). After testing in 1979, it was subsequently determined that there was a high probability that the cultural materials present at the site had washed up from now inundated deposits. These findings tend to confirm Schneider's assessment.

Vehik and Vehik (1977) were commissioned by the Corps of Engineers, St. Paul District (Contract #DACW37 77M-1015) to conduct a literature review of the Sheyenne River Basin in North Dakota, including the survey area. The result was an excellent compilation of the paleo- and modern environmental setting and previous paleontological, historic and prehistoric work in the area.

The Vehiks concluded that the existing archaeological data are not of sufficient detail to have much predictive value. Paleo-Indian and Archaic evidence has either been eroded away and/or are lying deeply buried on higher river terraces. The extent and nature of Woodland occupations is largely unknown. The report also points out the general historical framework and the meager paleontological research.

Vehik's (1978) report on an archaeological survey along the Lower and Middle Sheyenne River was conducted in accordance with the Corps of Engineers, St. Paul District Contract # DACW37-77-C-0135. Part of the Middle Sheyenne investigations were conducted within and near the upper portion of the 1978-1979 survey along the free flowing portion of the river. Vehik identified 16 sites here (32GG221 through 32GG236). The site forms for these sites are included in Volume II of the present report. Of these, 5 are within the proposed 390 m pool elevation raise of Lake Ashtabula (32GG221, 32GG223, 32GG225, 32GG229, and 32GG236). Vehik concludes that not enough information is presently available to determine site significance. He proposes a proposition that he feels should be tested in future work in the area. These are addressed in the Research Goals section of the present report.

During the winter of 1978, Fox (1978) investigated a selected reach of shoreline below Keyes Crossing. The purpose of the survey was to determine if cultural reosurces existed along the shoreline where riprap was to be placed and to determine if the bank stabilization pilot project would adversely impact those resources, if present.

No cultural resources were discovered but several potential adverse impacts were pointed out. These impact types were considered minor. In fact, it was proposed that the riprap program would have beneficial impacts on any sites existing along the shoreline. This was because many of the shoreline sites were seriously threatened by lacustrine erosion. It was recognized that the riprap could effectively prevent destruction of sites by this type of erosion.

In 1978, the selected reach of shoreline below Keyes Crossing was reexamined without the hindrance of snow. The reexamination confirmed the earlier finding of no cultural resources.

Finally, the Lake Ashtabula Environmental Impact Assessment (Anonymous 1979:18-19) notes that the previous investigations at Lake Ashtabula have provided insufficient information to assess the impacts of recreational developments on cultural resources. The report also notes that the 1978-1979 inventory is in progress.

To conclude, previous archaeological research surrounding the survey area has been sporadic and unstructured. The research points out a lack of knowledge regarding basic archaeological concerns such as chronology, culture history, cultural adaptations, site functions and types. Simply stated, our current grasp of the archaeology of the survey area and surrounding area is based almost entirely on surface data and in general is extremely limited.

History/Architecture

Vehik and Vehik (1977) present an excellent overview of the historical background of the fur trade, military and settlement periods of the survey and surrounding area.

In consultations with Schweigert (personal communication 1978), now of the State Historical Society of North Dakota, it was noted that archival sources indicate there may have been an American Fur Company wintering post near the mouth of Baldhill Creek in 1828. Data on this site are very sketchy, but the site was listed among the posts of that company for that date. The post was likely built to trade with the Yanktonai. According to Schweigert, local legend speaks of a Hudson Bay Company post here also, but the legend has no basis in archival sources. This area was checked thoroughly during the 1978-1979 survey but we found no evidence of such posts. It should be noted that this area is now either heavily vegetated and/or inundated.

Schweigert also indicated that an 1884 school was located in the NE¼ of Section 3, T142N - R58W but apparently it is either now inundated or outside of the survey area because the structure or the remnants were not detected.

Apparently pioneer log buildings are also common to northern Barnes County and Griggs County but none were detected in the survey area.

Local residents were often queried about these but none knew of any.

Two historic crossings were located in Section 34, T143N - R58W (Schweigert, personal communication 1978). Presumably they went through the survey area. These were the crossings by General Sibley during the 1863 military campaign and the 1870-73 mail route from Ft. Totten, ND to Fort Abercrombie, ND. These trails and crossings were not evident during the 1978-1979 inventory.

Since history was a minor work item, archival research at State libraries/archives and county historical societies was not conducted. It is felt that the adequacy of the extant historical research data for the survey area is not yet sufficient to identify all National Register of Historic Places eligible properties that might exist.

Paleontology

Gill and Cobban (1965) have conducted stratigraphic studies of the Pierre Shale in the Valley City area. One locality they studied included the survey area. Ammonites, baculites and didymoceras specimens are common in this formation as are foraminifera. The authors present lists of fossil specimens contained in the Pembina, Gregory, DeGrey and Odanah members of the Pierre Shale. Gill and Cobban (1973) also discuss the fossil record of the Montana Group in North Dakota. Some of their principal control points were located north and south of Valley City, ND near the survey area. Kelly and Block (1967:41) discuss the presence of gastropods and pelecypods in the alluvial deposits of Barnes County stream channels. Holland, a University of North Dakota paleontologist, indicates that there are about 40 known paleontological sites along the Sheyenne River (Vehik and Vehik 1977:15).

Cooper (1947:7) noted that no fossil remains were observed in the reservoir (proposed) during his 5 day survey in 1946. He was aware, though, of the fossil bearing Fort Pierre shales and pointed out that they would be encountered if a search were made for them. Kivett (1948:9) wrote that a reservoir in this area would not cause a serious loss to paleontology.

The possibility of encountering paleontological sites was known before entering the field. This knowledge, gathered from the literature search, enabled us to search for and find 2 fossil sites (32BA418 and 32BA419).

Local Informants

Numerous local individuals were consulted regarding their knowledge of the prehistoric record within the survey area. They included, but were not limited to, individuals from the area identified on a single sheet (page 121 from an unreferenced report) provided by the Corps of Engineers. They are listed below:

1) Mrs. Eleanor Clark (not interviewed)
2) Emanuel Erickson (interviewed)
3) Steve Froiland (interviewed)
4) Lester Larson (interviewed)
5) Harlow Loge (interviewed)
6) David Lunde (interviewed)
7) Clemon R. Olson (not interviewed)
8) Oriville Tranby (interviewed)
9) Edward Vigesaa (interviewed)
10) Mrs. Carl Wittenberg (not interviewed)

Some were more knowledgeable than others. Not surprisingly, all of the sites or site leads derived from the rural residents living around Lake Ashtabula were located on the uplands outside of the survey area. Presumably this was because the valley has been inundated for the last 30 years. Individuals considered knowledgeable in the prehistory around the lake are:

1) Tony Heinze, Sibley, N.D. - Mr. Heinze led in to a stone alignment site just outside of the survey area. This site (32BA416) is located in the SE¼, Section 2, T143N - R58W.

2) Tony Heinze, - this is a mound lead with depressions located on an upland knoll outside of the survey area. This lead has not yet been field checked. It is in the NW¼ of the NE¼, Section 24, T143N R58W.

3) Howard Dittmer, rural Valley City (?) - this a a mound lead outside of the survey area in the SE¼ of the NE¼, Section 33, T142N R58W. It is on the upland overlooking the river valley. Mr. Dittmer indicated that these mounds (there are 2 here, conical) were excavated by a Yale or Harvard professor in the 1920's. This lead was verified but the site has not yet been recorded.

4) Mrs. Ledbetter, Luverne, N.D. (Peoples Store) - history behind 32GG8.

5) Jackie Anderson, rural Luverne - history behind 32GG8.

6) Edward Vigesaa, rural Cooperstown (?) - history behind 32GG8.

The knowledgeable contacts along the free-flowing portion of the Sheyenne are:

1) Myron Erickson, Cooperstown - Mr. Erickson led us to the discovery of 32GG12. He has been cultivating this land for years and has found several "stone hammers" here. Unfortunately, he no longer knew where they were.

2) M. Kermit Ueland, rural Cooperstown - Mr. Ueland had found (before the reservoir was built) a ground stone celt (we photographed it) and a bison skull in the survey area in the SE¼ of the SW¼ of Section 30, T145N - R57W. He located the area on a USGS quad map. This area was depicted on the map as marsh (resulting from the impoundment). We field checked this lead and confirmed that the area Mr. Ueland pointed out is now obscured by marsh.

3) Stephen Froiland, rural Cooperstown - Mr. Froiland was busy farming so he did not have time to accompany us. He said he knew of mounds in the E½ of the SE¼ of the SE¼ of Section 16, T145N - R58W and the W½ of the SW¼, of the SW¼ of Section 15, T145N - R58W. He also said there were fossils here. We field checked the lead (which is partially in the survey area) and found some high, eroded knolls in a miniature "badland" topography. Apparently these are what Mr. Froiland was talking about. We also checked for paleontological evidence but could not find any although the area is a likely spot for such specimens. There is an old depression at the latter legal location that may have been a barn foundation.

4) David Lunde, rural Cooperstown - Mr. Lunde is by far the most knowledgeable of the local informants. We viewed his collection, which is extensive. It consists of mostly Middle Woodland chipped stone specimens, ceramic and numerous ground and pecked stone hammers, celts etc. In general, Mr. Lunde's knowledge is of the floodplain sites identified by Vehik (1978).

CHRONOLOGY

There are several archaeological spatial divisions (subareas) that delimit the Great Plains of the United States and Canada. Of these, the survey area lies within the division known as the Northeastern Periphery. The survey area is peripheral to the Middle Missouri subarea to the west and the Central Plains to the south (Figure 5).

The prehistory of the survey area and surrounding region is poorly known. This is due, in large part, to the area's near total lack of modern, rigorous investigations. It is possible, however, to adapt culture history syntheses formulated from data found elsewhere on the Great Plains to the three subareas. Within these subareas, the prehistoric cultural milieu is divided into major categories called cultural periods. They are: Paleo-Indian (ca. 10,000 B.C. to 4000 B.C.), Plains Archaic (4000 B.C. to 500 B.C.), Plains Woodland (500 B.C. to A.D. 900) and Plains Village (A.D. 900 to A.D. 1750).

For the first 9.5 millennia, the Paleo-Indian and Plains Archaic ways of life persisted on the Central Plains, Northeastern Periphery and Middle Missouri subareas. By 500 B.C., populations began moving from the east into the river valleys of the Northeastern Periphery and Middle Missouri subareas. These people derived from and were closely related to the Woodland cultures that exploited the woodland environs of the eastern United States. The forested riverine environments of the plains closely approximated the woodland areas they came from. By the beginning of the Cristian era these people were probably well established in the Dakotas (Lehmer 1971:31). Finally, circa A.D. 900, the Plains Village cultures began to appear in the Middle Missouri subarea. Like the preceding Plains Woodland complexes, the Plains Villagers derived from the east (Lehmer 1971:32). They also may have marginally exploited the Northeastern Periphery east of the Missouri, including the survey area, but, as of yet there is no such evidence in the Sheyenne Valley.

Paleo-Indian Period

This period is characterized by a variety of lanceolate shaped projectile points, including the Clovis, Folsom and Plano specimens. The subsistence emphasis was on hunting of large game animals (mammoth and extinct forms of bison) with a lesser dependence on vegetal and small game resources. Independent, small bands formed the basic social structure. Known Paleo-Indian components exist west and south of the survey area in the Middle Missouri subarea. These include the Moe site (Schneider 1975) in North Dakota (on the Missouri River 32 km south of the survey area) and several sites in South Dakota (Ahler, Goulding and Weston 1979:5). Vehik (1978:17) reports that isolated finds of Folsom-like projectile points are common north and west of the survey area along the upper Sheyenne and James rivers.

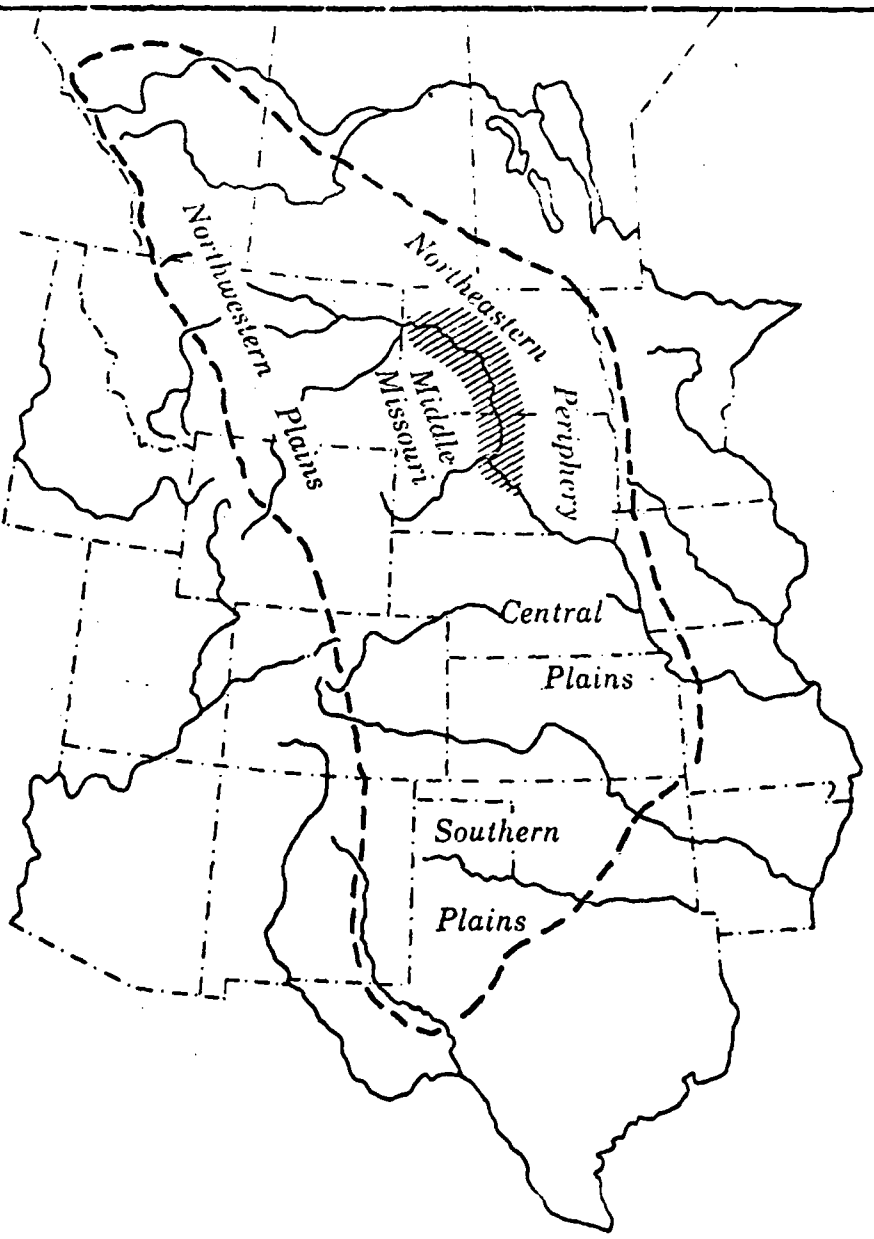


Figure 5 . Great Plains Archaeological Subareas (from Lehmer 1971).

Plains Archaic

A decline in big game dependence with a shift toward reliance on small game and vegetal food-stuffs is evident during this period. Social units probably remained small but with a growing interaction between them. There appears to have been a variety of implements made of wood, stone, bone and plant fibers. Early in this period stemmed projectile points were common; later, corner notch specimens were used. The Plains Archaic period is well documented on the Northeastern Periphery at the Long Creek site (Wettlaufer & Mayer-Oakes 1960). This site, near Estevan, Saskatchewan contained elements of the Archaeic Long Creek (ca. 3000 B.X.), Oxbow (ca. 2700 B.C. to 1850 B.C.) and Hanna (ca. 1400 B.C.) "Cultures." Other nearby Plains Archaic components exist at the Moe, the Mortlach (Wettlaufer 1956) and Oxbow sites (Nero and McCorquodale 1958) in southern Saskatchewan.

Vehik (1978:18) and Reeves (1973:1243) have noted that well defined Plains Archaic sites are lacking along river terraces and sediments. They conclude that this is a result of a lack of intensive investigations and, in particular, of the probability that these sites are deeply buried by alluvium. It is probable that the same holds true for Paleo-Indian sites. Certainly, the lack of sites from either of these periods in the survey area ought to be considered a result of these conditions until demonstrated otherwise.

Plains Woodland

The following discussion has been derived from Vehik (1978) with modification. The Woodland period, characterized by the presence of pottery and burial mounds, appears to follow the Archaic period. These cultures appear around the beginning of the Christian era. For the most part the Woodland occupation of the northern Plains and particularly the survey area, is poorly defined.

The Woodland Period has been apportioned into three stages that include Early Woodland, Middle Woodland, and Late Woodland. There is little evidence for Early Woodland occupations in the northern Plains (Syms 1977:129). One possible site is Morrison Mound 13 in western Minnesota with a radiocarbon date of 2640 B.P. (Wilford et. al. 1969: 24-25, 50).

Data becomes more frequent in the Northeastern Periphery with Middle Woodland occupations. The groups occupying central and eastern North Dakota and adjacent regions were of two general types, Sonota and Laurel. The Laurel Complex exists east of the survey area around the Great Lakes and is not discussed herein.

The Sonota Complex, as defined by Neuman (1975:96), is one complex characteristic of Middle Woodland cultures from the Northeastern Periphery. The Sonota Complex consists of a series of campsites and mounds found in the Dakotas from the Missouri River trench eastward

to western Minnesota (Neuman 1975:96). The survey area is included in this region.

The major difference between the Sonota Complex and groups further west, such as the Besant Culture, is the former's mound building activities (Neuman 1975:96). Otherwise, sites belonging to this tradition share in an emphasis on communal bison hunting and they also show a number of similarities in their chipped and ground stone artifacts (Neuman 1975:81).

Sonota Complex ceramics are not particularly abundant. Neuman (1975:93) recognized two gross classes, vessels with a cord roughened surface finish and plain vessels. These are usually grit and sand tempered from local materials. Some of the ceramic attributes (and tumuli) are thought to represent Hopewellian (eastern Woodland) influences.

Middle Woodland burial mounds are characteristically circular domed structures. The tumuli generally have a central, subfloor burial chamber with associated mortuary objects. Secondary interment was the most common burial mode (Neuman 1975:95-96).

Large corner-notched, side-notched and expanded stem specimens seem to be characteristic of the Middle Woodland projectile point industry. Small side-notched and un-notched triangular specimens tend to occur later in time, probably during Late Woodland times.

Sites near the survey area which may belong to the Sonota Complex are few. Site 32BA1 has already been included in the complex by Neuman (1975:79). Also Strong's (1940:385) Lisbon mound may belong to the Sonota Complex or one of the southern Minnesota groups. Several of the mounds at 32BA410 (this report) exhibit evidence of a subfloor burial chamber.

Late Woodland sites are not yet known in the survey area or east to the Red River of the North. They are, however, quite common in what is now Minnesota. These include the Arvilla Complex, the Blackduck Culture, the Kathio Focus and the Wanikan Culture.

Beginning around 1400 B.P. the Late Woodland Arvilla Complex appeared in the Northeastern Periphery. It has been suggested tha Arvilla was basically a mortuary complex associated with a series of foci or phases (Johnson 1973:65). Since no habitation sites have been associated with this Complex little can be said regarding settlement and subsistence patterns. Basically, all that can be said is that burials tended to be placed under both round and linear mounds with a burial assemblage reflecting northern origins with the addition of some marine shell trade goods from the south (Johnson 1973:66).

Within the Red River valley and northern Minnesota the Blackduck Culture may have developed from an Arvilla Complex base (Johnson 1973:66).

In central Minnesota, however, the Kathio Focus, which developed from the Malmo Focus, replaced Arvilla (Johnson 1973:66).

The presence of the Blackduck Culture in the southern Red River valley is not adequately documented. Nelson (1973:76) noted that such material was recovered from southeastern Sargent County, ND by the University of Minnesota expedition but little other data is available. However, in southern Canada the Blackduck Culture may have continued to historic times, and has been suggested to be prehistoric Assiniboine (Hlady 1970a:108-110).

The Kathio Focus dates from at least 1400 B.P. to 1000 B.P. (Wilford 1970:vii-viii and Wilford et. al. 1969:51). The Kathio Focus people practiced secondary burials in mounds which were sometimes accretional and they added very few, if any, grave goods (Johnson 1973: 66 and Wilford et. al. 1969:15). These people, as well as those of the Blackduck Culture, were primarily hunters and gatherers. Although no sites belonging to the Kathio Focus have been noted in the survey area it is possible that 32GG1 could belong here rather than to the Laurel Culture.

Another Late Woodland complex in northern Minnesota is characterized by Sandy Lake pottery (Cooper and Johnson 1964). Sites associated with Sandy Lake ceramics are included in the Wanikan Culture (Birk 1977:31). Overall, it is one of the most recent Late Woodland cultures in Minnesota and is dated between 950 B.P. and 250 B.P. (Birk 1977:31). Essentially, it is characterized by cord-roughened, shell-tempered Sandy Lake pottery, small triangular projectile points, fire hearths and pits, prepared ricing jigs or threshing pits, intrusive mound burials, exclusive circular conical mounds with shallow burial pits, primary flexed inhumations, seasonally occupied sites, and the inferred use of wild rice (Birk 1977:32).

Plains Village

People of the Plains Village Period exploited heavily the Middle Missouri subarea. Subsistence consisted of the cultivation of maize, beans and squash in the Missouri bottoms and bison hunting on the upland grasslands (Ahler, Goulding & Weston 1979:5). Plains Villagers, as the name implies, lived in earthlodge villages chiefly along the Missouri. They manufactured pottery and made tools from bone and stone. After protohistoric times the villagers were important middlemen in the lucrative Euro-American trade networks. Eventually, the pressure of Euro-American expansion nearly destroyed the traditional village cultures.

The extent of Plains Village influences on the Northeastern Periphery near the survey area is poorly known. Good, et. al. (1977) excavated a Plains Village site (32SN403) on the Lower James River not far from the survey area, but such sites are not yet known on the Middle Sheyenne River.

In summary, the chronology of the Northeastern Periphery surrounding the survey area is poorly known. The scant data now available suggest that this region may have been exploited as early as Paleo-Indian times. Certainly the Plains Archaic evidence at the Long Creek site supports the assumption that Archaic peoples utilized this part of the Northeastern Periphery subarea but the deposits are probably deeply buried. The same is true for the cultures of the Plains Woodland Period. Less certain is the nature, if any, of Plains Village Period cultural influences surrounding the survey area.

FIELDWORK

WORK EFFORT

The cultural resource investigations of the survey area did not commence until after the contract was signed on September 30, 1978. Since the field endeavors were scheduled to last for 10 weeks, only a portion of the survey could be completed in 1978. The remaining field work was completed during the summer of 1979.

UNDAR archaeologists began the intensive pedestrian visual survey of the survey area on October 11, 1978. The week previous was spent in preparing for the project, including assembling and briefing the crew, procuring equipment, securing facilities and setting up the field camp. The literature and records review was also conducted at this time. The 1978 field season came to a close on November 9 when a winter storm forced termination of activities.

The 1978 crew included Richard A. Fox, Jr. (Principal Investigator and Field Director), L. Lynn O'Brien (Assistant Field Director) and Richard Faflak and Sherry Lantz (Field Assistants). Time expended in the field investigations totaled 788 man-hours distributed through 25 working days. Ninety man-hours spent in pre- and post-field activities.

An UNDAR crew returned to complete the fieldwork on June 4, 1979. The field portion of the project was completed on July 9, 1979. The crew was the same as that employed in 1978 with one exception. Charles Adeniji replaced Richard Faflak as a Field Assistant. A total of 880 man-hours were devoted to actual fieldwork during the 1979 season. The hours were distributed through 28 working days. An additional 4 days (64 man-hours) were devoted to pre- and post-field operations (e. g., pitching and breaking camp, reorientation, etc.). The following lists in tabular form the work effort.

1978	project preparation/termination	90 man-hours
	field investigations	788 man-hours
1979	project preparation/termination	64 man-hours
	field investigations	880 man-hours
TOTAL (1978-79 project preparation/termination)		154 man-hours
TOTAL (field investigations)		1668 man-hours
GRAND TOTAL (field operations)		1822 man-hours

SURVEY STRATEGY

The overall survey priority was twofold. The initial priority during the 1978 field season was to locate cultural resources within the survey area between Katie Olson's Landing and Keyes Crossing (on both sides of the reservoir), assess their significance, if possible, and provide recommendations regarding adverse impacts caused by lacustrine erosion, Corps riprap, stockpiling and access road operations. This objective was successfully accomplished and reported in the archaeological field

report (Fox 1978). In addition, we were able to complete nearly all of the remaining portions of the Ashtabula shoreline from Baldhill Dam to the Griggs County-Barnes County county line (excluding Baldhill Creek).

During the 1979 season we completed the lesser priority portions of the survey area below the Griggs/Barnes county line earlier left unsurveyed, including the Baldhill Creek portion. We then concentrated our efforts on the remaining portion of Lake Ashtabula above the Griggs/Barnes county line and the Sheyenne River up to the Wells bridge which serves North Dakota Highway 200. The final two weeks were devoted to auger and shovel testing of extant and proposed Corps development areas, cultural resource high potential areas and known sites.

Survey

The survey strategy was designed to locate and record prehistoric and paleontological sites exposed in subsurface indicators (e. g., rodent backfill, cutbanks) and/or on the surface. Historic/architectural structures and remains were also located and recorded. The same procedure was implemented for the isolated finds that we encountered. The distinction between a site and an isolated find is presented in a paragraph below.

During the surface survey we also identified locations within the survey area that were considered to have a high potential for cultural resources even though surface indicators were sparse or non-existent. Later, we returned to these areas and conducted limited tests (auger or shovel) or carefully reinspected the location.

The procedure for surveying the shoreline of Lake Ashtabula differed from that employed above the lake on the Sheyenne River. While working on the lake, one or two segments of the survey area were selected daily. A survey crew of two was assigned the shoreline. One inspected the beach area while the other inspected all of the cutbanks exposed along the shoreline. The crew also inspected surfaces above the cutbanks up to an elevation of 390.14 m and then to a point 50 m beyond. This procedure was employed on the premise that these areas were constantly subjected to lacustrine erosion as evidenced by the cutbanks. In instances where it was necessary to proceed beyond the cutbanks and the 390.14 m elevation, parallel transects 8 m apart (as nearly as possible) were maintained by the surveyors.

Level or nearly level surfaces above elevation 390.14 m were surveyed to a point 50 m beyond regardless of the proclivity for lacustrine erosion. Larger tracts of land not associated with shoreline reaches but within the survey area were inspected by a minimum of two investigators by maintaining parallel transects 8 m apart. Wetlands within the survey area were not inspected because of the obvious futility. Steep slopes not conductive to human adaptations were inspected by walking a single transect over them, primarily with the intent of checking for paleontological remains. Riprap stockpile areas were

investigated by a minimum of two surveyors maintaining 8 m interval transects. Riprap access roads were not inspected because the locational information was never provided.

The procedure for inspecting the Sheyenne River between the Griggs/Steele county line and the Wells bridge differed. In all instances the inspection along this segment of the survey area was conducted to an elevation of 390.14 m MSL and 50 m beyond. The elevation of the river channel along this stretch increases from 388 m at the county line to approximately 390 m at the Wells bridge.

Penciled-in survey boundaries along the Sheyenne River on the USGS 7.5' quadrangle maps provided by the Corps were used to guide our investigations. These boundaries are approximated as closely as possible on Figure 1. Copies of these maps are on file at the Department of Anthropology and Archaeology, University of North Dakota.

Wetland and marsh areas were not inspected. The forested areas of the meanders and oxbows along the river were inspected by walking the periphery of the forest, usually at the line between the forest and a cultivated field. A single transect was then walked through the forest to the river channel and then back. The intent was to determine if sufficient exposed areas existed that would warrant a more intense inspection within the forested area. In all cases, the heavy understory and grasses effectively obscured the surface making additional inspection unwarranted.

All pasture areas and crop fields were inspected within the prescribed boundaries regardless of the grass or crop density. These areas were inspected by paying close attention to rodent backfill piles, if any, and the furrows between the crops. The procedure was to concentrate on detecting stone, bone and ceramic detritus.

Initially we began the inspection of the Sheyenne River segment by inspecting the river channel cutbanks from a boat. After two days, it was determined that this procedure was hopelessly futile. The numerous log jams (presumably left by the spring floods) made navigation extremely difficult and impossible in some places. At one time we were forced to portage the boat, motor and equipment four times in one day to negotiate a 2.3 km stretch from the Wells bridge south. Therefore, most of the channel cutbanks along the river segment were not inspected. When it was possible to inspect these types of cutbanks at the termination of the forest transects or while surveying the floodplains, we did so.

Most of the lands along the Sheyenne River segment of the survey area are privately owned. When obtaining permission to enter these lands we queried each landowner regarding his/her knowledge of cultural resources within the survey area. Landowners were either not knowledgeable on this subject or their knowledge was of resources outside of the survey area (this was the most common occurence). Occasionally an owner would know

something of the resources (prehistoric or historic) but was vague regarding type and location. Since it was during planting season, most were reluctant to take the time to show us locations. In two instances, landowners accompanied us to what they thought were burial mounds within the survey area. These leads, however, turned out to be nothing more than natural features. One exception was Mr. David Lunde who directed us to several sites that had been previously recorded by Vehik (1978).

Sites and Isolated Finds

For purposes of this report a site is arbitrarily defined as a minimum of six artifactual specimens and/or artifact byproduct specimens, either in or not in association with bone, within a 100 m^2 surface area or, less than six specimens found in situ in subsurface provenience through auger testing or cutbank inspection within the same area. An area that does not exhibit six or more surface specimens but contains at least one recognizable feature is also a site. This includes historic as well as prehistoric features. This definition does not apply to paleontological sites. A paleontological site is any area that produces at least one fossil specimen and includes the stratum (strata) in which it is/was contained.

An isolated find consists of one to five artifact byproduct specimens (or a lone artifact) on the surface within a 100 m^2 area or greater that is/are clearly not in association with a known site. Bone scatters that do not exhibit ceramic or lithic debris in association are also classified as an isolated find.

Site Recording

Each site discovered was recorded on a North Dakota Cultural Resource base data form and assigned a Smithsonian Trinomial System reference number. In some instances, sites were given common names. The primary objective during the recording process was to accurately locate the site and determine the areal extent and content of each site's surface manifestation. Additional data was recorded as necessary to complete the site form and provide information regarding adverse impacts to the site. When possible, sufficient information was recorded to facilitate decisions regarding National Register of Historic Places eligibility.

All prehistoric sites were classified according to their surface manifestations. These included lithic scatter sites, mound sites and ceramic sites or combinations thereof. Functional classification categories were generally avoided in the field to prevent premature judgements regarding the nature of the site. If a site type was uncertain, it was classified as unknown.

The sampling procedure at prehistoric sites was designed to collect surface material within lithic types (e. g., tools, bifaces, polar and bipolar cores, retouched and modified flakes and unmodified debris) for

laboratory analyses. Lithics were also sampled in regard to material types. All observed ceramic specimens were collected as were identifiable faunal specimens. Occasionally, unidentifiable bone fragments were also collected simply to document the presence of faunal remains at the site. The intent was to record the surface (horizontal) provenience of artifacts and distinct material concentrations prior to collection. Generally, a systematic collection procedure (e. g., using grid samples) was not employed. No attempt was made to record provenience of cultural material confined wholly to the beach area or in plowed fields on the premise that these materials were no longer in situ.

Prehistoric sites containing features were recorded by 1) determining the number of each feature type, 2) accurately measuring each feature, 3) sketching each feature and 4) sketching spatial relationships of the features within the site.

Remnants of historic structures were classified as features and accordingly assigned site status as were abandoned historic areas with standing structures. Remnants of structures were sketched and accurately measured. A sketch map showing the plan view relationships of the historic features at each site was prepared. Photographic documentation other than site overview was undertaken of standing structures.

Presently utilized farmsteads within the survey area were not recorded. There was no evidence to suggest that the many summer cabins that line Lake Ashtabula might qualify for nomination to the National Register of Historic Places (apparently none are over 50 years old). Qualification on architectural criteria was not pursued because the historical aspect was deemed a minor work item by the Scope of Work (Appendix II) and budgeted accordingly. These, then, were not recorded as sites. Farmer's rockpiles, abandoned machinery and cars, grain silos and corrals were also not recorded.

The survey area was inspected for paleontological remains. The strategy was to locate these site types and collect a representative sample for laboratory analysis by a professional paleontologist.

Black and white and color slide overview exposures of each site were taken. At prehistoric sites without visible features only the overview was recorded on film. Exposures of features within sites were taken.

Maps utilized in the field included United States Geological Survey 7.5' quadrangle maps Dazey NE, ND (1961), Baldhill Dam, ND (1961), Courtertown East, ND (1961), Karnak, ND (1961), Sibley, ND (1967) and Luverne, ND (1967). The boundaries for the survey area were depicted on copies of these maps provided by the contractor.

Testing

As directed in the Scope of Work, the testing program was not intended to be a systematic approach. This was interpreted as eliminating the need for strict spatial controls by using a grid system tied to a permanent datum point. The overall goal of the testing was to determine the spatial extent, condition, and nature of sites selected for testing and to provide sufficient data for making preliminary decisions regarding National Register of Historic Places eligibility. The non-systematic testing approach was generally successful in achieving these goals for many of the sites. In some instances, however, the testing technique (auger test coring), coupled with the non-systematic nature of the test, was insufficient. These matters are discussed on a site by site basis in the Site Resumé section.

Time was a determining factor in the level of intensity of testing at each of the areas selected for tests. Two weeks were available for testing operations (testing commenced after completing the surface inventory) at 20 areas designated for testing. This left an average of four hours to be apportioned for activities at each site, including access, setup, testing, screening, recording, and termination. At most sites this was sufficient time but at others (e.g., 32BA415), the lack of time available contributed to an inability to resolve at least some of the goals.

Two types of testing techniques were used. The most frequently employed was the power auger technique utilizing a General 330, 5 HP auger with a 25.4 cm diameter by 121.9 cm long screw bit (Plate 1). Auger units were spaced at intervals that varied from one site to another. Total depth of the units was most often determined by the ability of the auger to continue or the length limitation of the bit. These data are recorded on the auger test forms included in Volume II. The other testing technique was shovel testing. The size of the shovel test units was uniform (½ m^2) but the intervals varied from site to site. Pertinent data regarding shovel tests are also in Volume II. The backfill from auger or shovel test units was either processed through 6.35 mm hardware mesh (dry) or inspected visually by troweling.

Power auger or shovel tests were originally called for on sites and high potential areas (for cultural resources) located on private and Corps lands within the survey area. After completing the survey and assessing the inventory it was recognized that there was insufficient time and money remaining for field work to adequately investigate all sites or high potential areas in need of testing. There were simply too many such sites or areas in the inventory. This development was brought to the attention of a Corps staff archaeologist during a June 26, 1979 telephone conversation. The decision at that time was to disregard the sites and high potential areas that existed on Corps and private property above the proposed island development area (SE¼, Section 1, T143N - R58W) and concentrated on those that existed on Corps property from that point south to Baldhill Dam.

The testing program, then, was confined to two types of locations, all on Corps property. They were at 1) sites or high potential areas outside of existing or proposed development areas threatened by lacustrine erosion or the proposed pool elevation raise and 2) at sites or high potential areas within existing or proposed development areas leased or owned by the Corps.

A high potential area is a likely spot for a prehistoric site, the detection of which, if it exists, is not possible through normal survey techniques because of surface obscuration or a lack of subsurface indicators (e. g., gopher holes, cutbanks). The surface obscuration is usually caused by grasses and brush. High potential areas fit a pattern that corresponds with the distribution of sites or site remnants around the impounded waters of Lake Ashtabula. Generally, this pattern indicates that sites are found on flats or slightly sloping flats located between the lake and the valley wall and adjacent to or near an emphemeral drainage. With the exception of two high potential test areas on the upland flats, the tests were located at an area that fit this pattern. One site that otherwise would not have been located was identified with this procedure (32BA427).

The goal of the testing program was to determine the presence or absence of subsurface materials at high potential areas and to ascertain the spatial limits, the condition and the content of subsurface components at known sites from the 1978-1979 inventory, when possible. Data obtained from the pursuit of the latter endeavors were utilized to assess potential losses from adverse impacts (ongoing and future), site significance and National Register of Historic Places eligibility.

Testing at known sites on Corps property, including those within existing and proposed recreational development areas and those subject to erosion, underwent a more detailed level of testing than at high potential test areas. The approach remained non-systematic but usually included additional test units sufficient for making the spatial, condition and content determinations listed above.

The tested areas were, as nearly as possible, returned to their original condition by backfilling the auger units and shovel tests. This, however, was not always possible because the matrix was lost in the tall grasses during the screening process. In these instances, rocks were usually used to fill the units. Minimum damage to the vegetal cover was inflicted by the test program. Testing at sites and high potential areas was conducted on the grassy areas and among trees stands, when present. Tests were not placed in brush covered areas for two reasons. First, brush clearing would have required excessive amounts of time beyond the four hours available for testing at each area or site. Secondly, it was felt that testing in brushy areas within a site would have revealed data no more relavent than those derived from tests at more accessible areas nearby. As a consequence, when brush was encountered, tests were placed adjacent to the brushy areas rather than initiating clearing operations.

Effectiveness of the Tests

Shovel or auger testing is quite reliable for determining the presence or absence of subsurface cultural materials at sites and high potential areas. This proved to be the case at sites from the Lake Ashtabula inventory. The techniques were less reliable for ascertaining the content of sites. The volume of the subsurface area tested by a 25.4 cm bit or a ½ m^2 test unit is small when compared to the potential volume of a site's culture bearing strata. This, coupled with a non-systematic testing approach, reduced the probability of recovering material relevant for reliable assessments of site content.

The non-systematic testing techniques appear to be sufficient for assessing the subsurface horizontal limits at most of the sites in the inventory. Many of the sites (e. g., 32BA408) were identified during the survey phase on the basis of the presence of bone or flakes in the beachline cutbanks or above in rodent backfill piles. When the grass covered surfaces above the cutbank exposures were tested, very little or no cultural materials were recovered. This suggests that, although there clearly are some subsurface materials extant, they are so sparse that auger or shovel testing does not regularly expose them. The interpretation is that these sites are remnants of the extreme periphery of sites that once existed nearer the river but are now inundated. Regardless of the paucity of material it is important, at the least, to record these areas as sites before the archaeological record is completely obliterated. At well defined, high density sites (e. g., 32BA418) the technique was extremely successful for determining the horizontal extent of the subsurface remains.

Less certain is the reliability of the auger technique in assessing the vertical distribution of a site's cultural and natural stratigraphy. Attempts at augering in arbitrary levels proved unsuccessful because of the inability to maintain vertical control. This attempt was primarily hampered by the clumsiness of the auger and the tendency of the bit to shave deposits from the top of the core that would subsequently fall to the bottom. As a result, each auger unit was cored to the final depth in a single operation. The core matrix was then processed as a single unit. Only when cultural debris was retained in the wall of the core (e. g., at 32BA418) were observations regarding subsurface provenience possible. Also, the depth limitations of small test units and fixed length (including extensions) bits of a hand-held auger pose limits at deeply stratified sites. At many test areas the auger could not penetrate a compacted subsurface clay stratum that exists near the lake. These factors contributed to less than certain assessments regarding the vertical distribution of cultural materials at some augered sites. Shovel test units were excavated in arbitrary units to the final depth. Since the shovel tests were conducted only at the high potential areas, each of which yielded no evidence of cultural deposits, the provenience and stratigraphic concerns were moot. These matters are addressed in the individual site resumes and recorded on the test forms in Volume II.

Finally, no attempt was made to record the natural stratigraphy at sites that were auger tested. The core units did not provide a large enough surface to properly determine the depositional characteristics of the site matrix. Also, it was impossible to visualize the strata in the cores because of the confined space.

Despite the limitations of the auger in allowing vertical control, the testing technique was not abandoned. The primary reason for this was the technique was being evaluated by the investigators and Corps personel as a rapid and effective method of ascertaining subsurface data distribution. The conclusions reached are that the technique is a rapid, effective method for determining the presence/absence of subsurface materials and the horizontal extent of the subsurface remains. The technique is less reliable (but not always completely unreliable) for determining the cultural and natural stratigraphy (at least with a 25.4 cm diameter bit). Secondarily, the time available for testing would not have allowed a thorough examination of all sites targeted for testing. It is suggested that during further investigations of this type, the auger technique be used initially to determine the presence/absence of subsurface cultural materials. If they exist, the auger can then be used to trace the horizontal distribution. Sufficient time should then be alloted to excavate one or more large test units, maintaining vertical control to ascertain the vertical extent of the site. "Shovel tests" are not sufficient to accomplish this since shovel testing does not include maintaining vertical walls or screening.

PROJECT GOALS

RESOURCE MANAGEMENT GOALS

A cultural resource management plan ideally consists of five successive phases. Phase I is comprised of a literature and records search designed to identify previously known resources within a project area as well as provide a research basis through which succeeding phases can be implemented. Phase II consists of a reconnaissance level survey designed to provide a data base for Phase III planning. Phase III includes an intensive pedestrian visual survey, coupled with shovel or auger testing when necessary, designed to locate and identify cultural resources within a survey area. Phase IV is a testing phase. Data primarily from Phases III and IV provide a basis on which site significance evaluations can be made. Phase V is the implementation of a mitigation program designed to minimize the adverse impacts scheduled for significant sites.

The purpose of the 1978-79 investigations along Lake Ashtabula and a portion of the Sheyenne River was to implement and complete Phases I and III, including non-systematic auger and shovel testing. The reconnaissance level phase is not always necessary and was not employed in this project. The prime resource management objectives of the three phases were sixfold: 1) to satisfy the federal and state regulatory requirements, 2) to provide Corps planners and engineers with data by which cultural resources could be considered at the planning stage on a basis equal with all other considerations, 3) to establish research goals consistent with 36CFR800.10 criteria by which site significance assessments could be formulated, 4) to determine the significance of a given resource in accordance with the evaluation criteria, 5) to identify the impact(s), ongoing and potential, affecting the resource and 6) to provide recommendations regarding National Register of Historic Places eligibility and for management of the resource, when possible.

The project was commissioned in partial fulfillment of the Corps obligations regarding cultural resources set forth in the Historic Preservation Act of 1966 (P. L. 89-665). the National Environmental Policy Act of 1969 (P. L. 91-190), Executive Order 11593 (May 13, 1971, 36CFR8921), the Archaeological Conservation Act of 1974 (P. L. 93-291), the Advisory Council on Historic Preservation's "Procedures for the Protections of Historic and Cultural Properties" (36CFR, Part 800), the Department of Interior's guidelines (36 CFR, Part 60, and Interim Regulations Parts 32, 60, 61, 62, 63, 64, 65, and 66) and the Corps of Engineers Regulations (ER 1105-2-460) contained in the Federal Register of April 3, 1978. Essentially, these regulations and legislations require the responsible agency, in this instance the Corps of Engineers, to conduct a cultural resource inventory of project areas and, in consultation with the State authorities (the North Dakota State Historical Society), identify National Register of Historic Places properties or eligible properties in accordance with 36CFR800.10 reproduced below.

36CFR800.10 National Register criteria.

(a) "National Register Criteria" means the following criteria established by the Secretary of the Interior for use in evaluating and determining the eligibility of properties for listing in the National Register: The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association and;

(1) That are associated with events that have made a significant contribution to the broad patterns of our history; or

(2) That are associated with the lives of persons significant in our past; or

(3) That embody the distinctive characteristics of a type, period, or methods of construction, or that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(4) That have yielded, or may be likely to yeild information important in prehistory or history.

(b) Criteria considerations. Ordinarily cemetaries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

(1) A religious property deriving primary significance from architectural or artistic distinction or historical importance;

(2) A building or structure removed from its original location but which is the surviving structure most importantly associated with a historic person or event;

(3) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life;

(4) A cemetery which derives its primary significance from graves of persons of transcendent

importance, from age, from distinctive design features, or from association with historic events;

(5) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived;

(6) A property primarily commemorative in intent if design, age tradition, or symbolic value has invested it with its own historical significance; or

(7) A property achieving significance within the past 50 years if it is of exceptional importance.

For planning purposes, the Phase I and III goals were to provide an inventory of prehistoric, historic, architectural and paleontological resources within the survey area, to provide precise locational data for each resource and to delimit the surface extent and content of each site. The purpose of these goals was to allow planners to avoid as many of the cultural resources as possible when planning ongoing and future developments and to identify present or future adverse impacts.

The goals of the non-systematic testing program (Phase IV) were twofold. First, likely site areas within existing or proposed Corps recreational areas were tested to determine the presence or absence of obscured cultural remains. Secondly, testing operations were conducted at known sites within the survey area surrounding Lake Ashtabula presently in danger of adverse impacts and threatened by future impacts. Testing here was to determine the spatial limits, the condition and general nature of the site. The goal was to use these data to assess the significance of sites and their eligibility to the National Register of Historic Places. All sites tested were located on Corps property, including proposed recreation areas.

RESEARCH GOALS AND EVALUATION CRITERIA

Previous sections of this report have documented the poorly understood nature of human adaptations to the middle Sheyenne River valley. Lacking an established analytical basis, it is not possible to formulate narrow investigative frameworks or study orientations by which sound significance evaluations can be made. Given this void, apposite but general strategies should initially focus on resolving basic archaeological and historical issues. These basic issues revolve around a general understanding of the overall pattern of prehistoric and historic adaptations to the survey area. These include, but are not limited to:

1) the chronology and culture history of the middle Sheyenne River valley,
2) the recognition of site types and the spatial distribution thereof, and the
3) regional adaptive strategies of the human occupants of the survey area.

Each site in the inventory (excluding paleontological sites) is likely to contribute toward an understanding of the basic issues if it meets or has the potential to meet any one or a combination of the following evaluation criteria. Such a determination enhances the probability that a given site is significant and thereby eligible for nomination to the National Register of Historic Places. The evaluation criteria are listed below and are the basis for individual site significance evaluations presented in the Inventory Results section. A site may be considered significant or possibly significant on the basis of:

1) an actual occurrence or an indication of occurrence (e.g., subsurface indicators such as rodent backfill, cutbank exposure) of undisturbed materials below the ground surface.
2) an occurrence of temporally/culturally/functionally diagnostic artifacts (e.g., patterned stone tools, ceramics, faunal remains).
3) an actual or potential occurrence of absolute datable materials (e.g., materials for C_{14} analysis and/or ceramics amenable to thermoluscent analysis). A potential occurrence may be deduced from the presence of subsurface indicators in association with multiple classes of artifacts (from the surface or subsurface) that suggest a site type where datable materials might be expected.
4) occurrence of multiple classes of artifacts (chipped stone, ceramics, fire-cracked rock, faunal remains), the association of which enhances the potential for functional interpretation of the site.
5) occurrence of subsurface or surface features (hearths, pits, artifact or debris concentrations, etc.) which can con-

tribute to the understanding of the community pattern and site function.

6) occurrence of surface features (e.g., burial mounds, dugouts) where substantial interpretive data concerning idealogical of other phases of lifeways can be expected.

7) an occurrence of spatial variability of artifacts within sites or location of the site within the environmental setting that enhance the study of regional activity and settlement patterns.

A site may be considered not to be significant if it does not meet any of these evaluation criteria or if the bulk of the site's integrity has been destroyed and the subsurface remains appear, through non-systematic testing, to be minimal.

POTENTIAL IMPACTS: ADVERSE AND BENEFICIAL

ADVERSE IMPACTS

All sites from the 1978-1979 inventory are potentially threatened by one or more of a variety of adverse impacts. The impacts pertinent to a given site are identified on a site by site basis in the Inventory Results section. The potential adverse impacts are:

1) Impacts from riprap operations - The Corps is presently engaged in a bank stabilization program to prevent future lacustrine erosion at Lake Ashtabula. Selected reaches of shoreline between Katie Olson's Landing and Keyes Crossing are affected in the stabilization program.

Stabilization is accomplished by placing field stone (riprap)(Plate 2) along the shoreline cutbanks and areas that are susceptible to lacustrine erosion. Placement of riprap is designed to minimize shoreline erosion and slumping, therby reducing lake sedimentation.

The riprap operations took place during the winter of 1978-1979 and 1979-1980. The stone was placed along the shoreline using the frozen lake for access. Snow and other obstructions were cleared by front loaders and scrapers. Much of the vegetation was cleared during summer months by clearing crews.

Bank stabilization projects of any magnitude can have varying adverse effects on our non-renewable cultural resources. Specifically, at Lake Ashtabula the procurement and stockpiling of field stone without regard to archaeological concerns has the potential of damaging or destroying significant prehistoric resources. It can be argued that because bank stabilization operations are carried out during winter months when the ground is frozen, archaeological resources, if they are encountered, will not be disturbed. This may not be totally true for several reasons.

First, the seemingly innocuous task of procuring field stone from farmer's rock piles can adversely affect the integrity of burial mounds. Carmichael (Johnson et. al. 1974:48) recorded one burial mound that had boulders dumped on it during field clearing operations. Without an adequate intensive survey, we have no way of knowing how many other situations like this exist. Obviously, removal of field stone, some of which may be embedded into the frozen surface, could seriously damage a mound and the archaeological relationships.

Finally, the practice of clearing cutbanks with front loaders can jeopardize materials exposed along the vertical faces and shoreline. This problem does not seem too great, however, because only snow and snags are removed from the cutbanks. And, the ice tends to protect the shoreline surface from the heavy equipment. Also, most cultural remains along the shoreline have been previously disturbed or are no longer in their original context.

Neither of these two impact types appear to be too serious. The time and costs that would be required to insure that every riprap collection point was adequately investigated would far outweigh the archaeological benefits. Regarding the latter potential impact, the author visited the riprap operations during the winter of 1978-1979 specifically to observe the procedure. It was apparent that the impacts to the frozen cutbanks and shoreline were negligible if not non-existent. The procedure was designed to minimize the effects of the activities. The placement operations were also not harmful.

2) Riprap stockpiling impacts - The riprap is transported from the collection points to different stockpile areas along the lake. These areas are usually flat. The stone is then reloaded and taken to the riprap areas.

This segment of the operation could potentially impact sites that exist near the stockpile areas. The prolonged use of heavy equipment in and around the stockpile tends to alter the surface and subsurface, even during winter months when the ground is frozen. Also, the stockpile is usually built up during non-winter months when the procurement of the field stone from the collection points is possible.

Most of the stockpile areas were identified prior to the 1978-1979 survey and received adequate inspection. The exceptions were a stockpile near the East Ashtabula Crossing and one on the uplands above Sibley, ND. The former was stockpiled prior to the survey. The latter was identified while in the field after talking to the riprap crew. This was thoroughly inspected prior to stockpiling. Of the remaining stockpiles, only one was close to a site area (32BA412). It is probable that the stockpile will not affect the site.

3) Access roads to and from stockpiles - Access roads were not identified by the Corps so they could not be investigated for cultural resources. Consequently, there are no known sites threatened by this adverse impact. The 1978 field report (Appendix II) recommended that access roads be restricted to the lake and/or existing trails and roads.

4) Erosion - Lacustrine erosion is an adverse impact primarily confined to the Lake Ashtabula portions of the survey area. Above the lake, along the free flowing Sheyenne River, accelerated erosion such as is found along the shoreline, is not a problem. At many sites adjacent to the lake, riprap is presently checking this adverse impact (see Beneficial Impacts, this chapter). Other sites do not yet (as of the 1979 field season) have this protection. These are identified in the individual site resumes. The Corps should check to see if these sites are along scheduled riprap areas. If not, erosional impacts should be addressed through mitigation or prevention programs.

5) Future pool elevation raises - The normal pool elevation of Lake Ashtabula is presently 385 m MSL. This pool fluctuates above or below normal depending upon the time of year. There is a proposal

presently under consideration to raise the normal pool elevation to 390 m MSL. Should this proposal become reality, most sites would be threatened by inundation or increased lacustrine erosion.

6) Proposed construction of new recreation areas - These areas include the Island development area; the Baldhill Creek development area and the Sheyenne Campsite development area. Sites located in these areas could be subject to destruction by any construction activities here, as well as vandalism (see below). The specific impacts are not known but sites that might be impacted are identified with appropriate recommendations.

7) Vandalism - This adverse impact is most likely at sites within existing public use areas or at sites within proposed public use areas, should they be constructed. This impact is identified at sites within these areas and appropriate recommendations are offered.

8) On-going leasee impacts - 622.4 ha around Lake Ashtabula are leased to agencies and individuals for wildlife management, recreation and commercial concessions. Leasee impacts are identified when appropriate and recommendations are provided on a site by site basis.

9) Cultivation - Private lands within the survey area are often under cultivation. They occur most frequently upstream from Lake Ashtabula. Cultivation is a serious adverse impact to sites. When appropriate, this impact is identified although it is realized that the Corps is under no responsibility to initiate mitigation to salvage or preserve the archaeological record at such sites, unless the resources are to be impacted by a proposed Corps initiated project.

BENEFICIAL IMPACTS

The only beneficial impact identified is a direct result of the bank stabilization program. The placement of riprap along the shoreline at eroding sites should effectively check the adverse impact of erosion. For those sites that are protected by riprap, the mitigation measure of preservation through protection is effectively implemented. With one exception, no further work should be necessary at protected sites unless additional adverse impacts are present. The exception would require an annual check of these sites to insure that the riprap is adequately preventing lacustrine erosion.

INVENTORY RESULTS

The individual site resumes follow. Each site is presented using the following format: Site Description, Cultural Material, Testing, Interpretations, Significance Assessment and finally Adverse Impacts/ Recommendations. The sites are presented by county in numerical order. Brief descriptions of the high potential test areas and associated test operations then follow.

The Site Description section briefly discusses the cultural content of the site in association with the terrain and biota. In most instances, the Cultural Material section refers to a Table that documents the subsurface and/or surface collection from the site. If testing was conducted at the site, the rationale behind the testing as well as a general description of the operations is presented. More detailed information is available from the test forms contained in Volume II of this report. This section also includes a general statement on the results.

The Interpretations section addresses the subjects of function, cultural affiliation, chronology and spatial limits whenever possible. A documentation of the site's significance in terms of National Register of Historic Places criteria, if appropriate, is presented in the Significance Assessment section. Known or potential adverse impacts and the recommendations to determine or mitigate the significant sites follow in the last section. Specific adverse impacts that are occurring or might occur at a given site are described in the Potential Impacts: Adverse and Beneficial section.

Those sites determined to be significant or potentially significant and that are targeted for possible future impacts and/or presently being adversely impacted are recommended for nomination to the National Register of Historic Places. A nomination should not, however, be misconstrued as a mandate for preservation but as a safeguard implemented to insure that proper mitigation procedures are conducted prior to impact. Of course, the ideal mitigation option is to preserve the site through avoidance and every effort should be made to do so. It is recognized that this is not always feasible, therefore specific impacts and recommendations to deal with them are proposed.

In addition to the many sites that were discovered during the survey, we also encountered more than 20 isolated finds. Isolated finds are defined in the Fieldwork section and are briefly described following the test area discussions. The description includes the legal location of each find along with an identification of the material discovered. These finds are also depicted on Figure 1 contained in the rear cover jacket.

Also included in this section are the descriptions and results of the testing at high potential areas. These follow a slightly different format. The format is: Description, Cultural Materials, Testing, and Conclusions.

Vehik (1978) discovered 16 sites in the Sheyenne Valley in his 1977 survey. Of these, 5 prehistoric sites are located within the survey area (elevation 390 m or below). Vehik was unable to develop significance assessments and recommendations for these site pending further investigations. We revisted each of these sites during the 1978-1979 survey to procure, if possible, data to facilitate the assessments and formulate recommendations. These are presented following capsulized revisions of Vehik's description for each of the 5 sites. A discussion of these 5 sites is presented after the High Potential Test Areas section.

32BA14 (public domain)

Site Description: This site was discovered along a 100 m stretch of shoreline adjacent to Lake Ashtabula. The cutbank here is approximately 40 cm high. Above the cutbank is a flat that is heavily covered with grasses which effectively obscure the surface. The flat slopes from the lake upward to the steep valley wall on the west. The site is at an elevation 387 m MSL.

The cutbank was thoroughly inspected for subsurface indications of cultural materials. None were observed. The lithic specimens collected came from the beachline. Subsurface indicators were not present on the flat above (e. g., rodent backfill).

Cultural Material: The material collected is documented in Table 2. This represents all that was observed here.

Testing: None

Interpretations: It is likely that the material on the beach has washed up from inundated deposits nearer the original river channel. The other alternative is this site represents a surface or subsurface manifestation that is slowly eroding away. If so, the sterile cutbank exposure indicates that the materials are sparsely distributed. Also, the slope is steep enough to regard the area as a low potential location for a site. Of course, functional, temporal or spatial statements derived from the material or its distribution cannot be made.

Significance Assessment: This site is either a result of beach wash deposits or a sparsely distributed locus that has nearly eroded away. In either event, it is doubtful that anything significant in the prehistory of the Sheyenne valley remains. The site, therefore, is judged not significant in terms of National Register of Historic Places.

Adverse Impacts/Recommendations: The site is potentially threatened by two types of adverse impacts, lacustrine erosion and future inundation from Lake Ashtabula pool raises. In either case, the impacts need not be addressed because the site appears to be insignificant. Nomination to the National Register of Historic Places is also not necessary.

Table 2. Surface collection, 32BA14.

CHIPPED STONE — Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes		5		3			
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present__ absent__ x	

OTHER	

32BA15 (public domain)

Site Description: The Wire Spool site is situated on a grassy, sloping flat between the shoreline and the steep valley wall. The mean elevation is 390 m MSL. The surface of the flat is obscured by grasses, willows and shrubs.

Lacustrine erosion has eroded a vertical cutbank into the flat. A few waste flakes were observed in situ in the cutbank at a depth of 41 cm. Unidentifiable bone fragments were also detected at the same depth. A rodent backfill pile just a few centimeters back from the cutbank contained a waste flake and some small bone fragments. Most of the collection of cultural material came from the beach, presumably a result of the erosive processes at the site.

Cultural Material: See Table 3 for a description and count of the materials collected from this site. This collection represents the totality of the materials that we observed at the site.

Testing: The decision to test at this site was made on the basis of the subsurface indicators. The purpose of the testing was to determine the vertical and horizontal extent and, if possible, the nature of the site's content. Twelve auger core test units were placed along the obscured surface above the cutbank. The extent of the testing is depicted on the test form contained in Volume II of this report. The depth of the test units ranged from 50 cm to 83 cm and in all instances were terminated at an impenetrable clay stratum. The matrix from each unit was processed through a 6.35 mm hardware mesh. There were no cultural materials recovered from any of the test units.

Interpretations: It is not possible to resolve problems of time, function or cultural affiliation on the basis of the materials recovered from this site. The in situ materials clearly indicate the presence of subsurface debris but the testing results suggest that the distribution is sparse, indeed. Given this situation, a likely interpretation is that this site area represents the extreme periphery of a site, the main body of which existed nearer the river but is now inundated. An alternative is that this is a highly localized, sparse concentration independent of any larger sites that once may have existed. On the basis of the extant prehistoric record along the free-flowing portion of the Sheyenne River, the former interpretation seems to indicate that the main parts of large sites were situated near the meanders and oxbows with the sparse peripheral remnants located some distance away toward the valley wall.

Significance Assessment: This site is judged insignificant and therefore not eligible for nomination to the National Register of Historic Places. The integrity of the site has apparently been seriously degraded by lacustrine erosion. The testing results indicate that, although subsurface materials do exist, the distribution is sparse and unlikely to contribute to our knowledge regarding the time of occupation, function or even cultural affiliation. It seems

sufficient to have verified the presence of the site before it was totally destroyed.

Adverse Impacts/Recommendations: The site is potentially threatened by two types of adverse impacts. These are erosion and future pool elevation raises. Riprap has already been placed along the shoreline and this should check the erosive processes. If the pool elevation is raised as much as 4.6 m, the site will probably be inundated. Further work should not be necessary here in the event of the occurrence of the latter impact.

Table 3 . Surface collection, 32BA15.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools	1						
	nonbipolar cores							
	bipolar cores							
	waste flakes		16		7			
	tested raw material							
	untested raw material							

CERAMICS (present__absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: 11 fragments (two burned) identifiable remains: distal metacarpal/metatarsal (Bison sp.)
present__x absent___	

OTHER	

32BA403 (public domain)

Site Description: This site was originally investigated in 1976 by Mr. Kent Good of the University of North Dakota. There has never been a published report on the 1976 investigations here nor was there a site form completed at the time. The site form was filled out after relocating the site during the 1978-1979 survey.

The site consisted of a burial eroding from and 8 m high cutbank above the shoreline of Lake Ashtabula. We detected the remnants of one of the 1976 test units in which the remains were recovered. The unit was located on a small knoll adjacent to the cutbank and at the base of a sloping, grass covered flat that emanated from the steep valley wall. The elevation of the site is 390 m.

The remains of one individual were recovered from the burial in 1976.* There were no grave goods associated with the individual. Some of the bones apparently were coated with red ochre. A description of the remains is included with the site form contained in Volume II of this report. The site is only a few meters distant from 32BA408.

Cultural Material: There were no cultural remains associated with the burial. A description of the remains is included with the site form.

Testing: None

Interpretations: The lack of burial goods precludes indentification of the cultural affiliation of the site as well as the temporal question. From a speculative standpoint, it is likely that the burial derives from the Woodland time period and cultural tradition. This is based on the preponderance of Woodland burial sites that exist in the area. The lack of grave goods, however, is not consistent with Woodland traits.

It may be that there exists a small mound here. The knoll is reminiscent of such a feature. Unfortunately, this possibility was not recognized until after termination of the field seasons so the cutbank was not inspected for evidence of mound construction (e. g., soil distinctions). It is likely that the vertical cutbank would have to be prepared and profiled before such indications, if they exist, would be evident.

Significance Assessment: We presently do not know if additional burials remain extant at this site. There is a possibility that the burial recovered earlier might have been in association with a small Woodland mound. Until these questions are resolved, significance assessments should be withheld.

Adverse Impact/Recommendations: There are two potential adverse impacts that threaten this site. They are erosion and future pool

elevation raises. Riprap has already been placed along the shoreline below the cutbank exposure. This procedure should check further extreme erosion. A pool raise would inundate the site and effectively destroy anything that might remain. Before the latter impact is implemented, it is recommended that the cutbank exposure be profiled in hopes of detecting the presence or absence of mound construction. In addition, a systematic testing program should be implemented in the vicinity of the original burial matrix to determine if additional skeletal and/or cultural materials might exist. It is felt that a non-systematic approach is not sufficient to accomplish this task. Finally, the site should be inspected on an annual basis (probably in early summer) to determine if the riprap is preventing further erosion.

* During the draft review of this document, it was learned that archaeologists from the University of Minnesota may have removed the remains of two additional individuals from this site in 1975. Persons who may have been involved in this operation were not available during final report preparation to confirm this.

32BA405 (public domain)

Site Description: The Woodcutter Site is located along a strongly sloping flat between the shoreline of Lake Ashtabula and the steep valley wall. The flat is covered with prairie grasses and heavily vegetated with deciduous trees and brush only a few meters back from the shore.

Lithic material was found scattered along the beach in this vicinity for 300 m to 400 m. The scatter was extremely sparse. Bone fragments were also found along the beach. There were a few bone fragments found in situ in the small cutbank at a depth of 40 cm. The elevation of the site is 384 m.

Cultural Materials: The cultural materials collected from this site are described and counted in Table 4. This represents the totality of the lithic materials observed. Additional bone remains scattered along the beach.

Testing: The decision to test at this site was made on the basis of the few bone fragments found eroding from the cutbank. The purpose of the testing was to determine the vertical and horizontal extent and, if possible, the nature of the cultural content at the site. Ten auger core tests were placed along the shoreline at varying intervals. Heavy vegetation just a few meters back from the cutbank prevented the placement of auger test units further away from shore. The extent of the testing is depicted on the auger test form contained in Volume II of this report. The depth of the test units ranged from 45 cm to 65 cm. Each was terminated at an impenetrable clay stratum or discontinued because of tree roots. The unit matrix was processed through a 6.35 mm hardware mesh to detect the presence of cultural materials. None were recovered.

Intrepretations: The extant cultural materials preclude resolution of temporal, functional and cultural problems. The bone fragments found in situ at the cutbank exposure seem to suggest that some materials might exist subsurface although the testing results indicate that the distribution is quite sparse. It may be that this site is a portion (the extreme periphery) of a site that once existed nearer the river but is now inundated. It is also possible that the bone and lithics along the cutbank have washed up from inundated deposits below and and somehow a few fragments were lodged in the cutbank. A third possibility is that the area represents what is left of a highly localized but sparse concentration that existed independent of larger sites nearer the river. In any event, it is probable that little or nothing remains of the already eroded site.

Significance Assessment: The site is deemed insignificant and therefore not eligible for nomination to the National Register of Historic Places. The assessment is based on the high probability that little or no cultural remains are extant through which solid contributions

to the knowledge of the region's prehistory could be made. The integrity of the site has already been seriously damaged by erosion.

Adverse Impact/Recommendations: The site is potentially threatened by three types of adverse impacts. They are vandalism because of the proximity of the site to summer cabins, erosion and/or future pool raises. If the assessment of insignificance is determined valid, there should be no need to take further measures to mitigate these impacts. Also, the riprap scheduled for this reach of shoreline should, as a side effect of the bank stabilization program, prevent further erosion here.

Table 4. Surface collection, 32BA405.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools			1				
	nonbipolar cores							
	bipolar cores							
	waste flakes		2					
	tested raw material							
	untested raw material							

CERAMICS (present__ absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present__ absent_x	
OTHER	

32BA406 (public domain)

Site Description: The Long Beach Site is located along the shoreline of Lake Ashtabula between the lake and the nearby steep valley wall. It is on a sloping flat that is covered by grasses and dense stands of bushes and deciduous trees. The slope terminates at a 1 m to 2 m high cutbank above the snady beach. The upper portion of the area is hummocky.

Nothing was found in situ along the cutbank exposure. All of the lithic materials were collected from directly below the cutbank along the beach. These materials were found along a 30 meter extent. The flat is probably between 384 m and 390 m.

Cultural Material: The material discovered is referenced in Tables 5 and 6. Artifacts are illustrated in Plate A1 along with accession numbers.

Testing: The decision to test here was made on the assumption that the materials found along the beach were eroding from subsurface deposits in the cutbank even though there was no evidence in the exposure. The purpose of the testing was to determine the horizontal and vertical extent of the site, and, if possible, the nature of the content. Nineteen auger test units were placed above the cutbank in the vicinity of cultural materials found on the beach. The extent of the testing is depicted on the test form contained in Volume II of this report. The depth of the units ranged from 10 cm to 75 cm. The very shallow units were terminated because of the presence of large stones. The other units were terminated at an impenetrable clay statum. The unit matrices were processed through a 6.35 mm hardware mesh to recover any cultural materials that might be present. Testing was not possible beyond the test unit furthest from the cutbank because of a heavy growth of bushes and trees.

A worked flake of Knife River flint and a waste flake of quartzite (Swan River chert?) were recovered from test units 12 and 14 respectively. The remaining units were culturally sterile. The results of the testing tentatively suggest that the horizontal extent of the remaining site matrix does not extend beyond approximately 15 m from the cutbank. The vertical distribution exists between the bottom of the topsoil and the clay stratum (probably from 20 cm to 68.5 cm). This should not be interpreted as a 48.5 cm thick cultural component. It is probable that the thickness of the component is smaller but contained between the two extremes.

Interpretations: It is not possible to derive conclusive statements regarding the nature of the content of the site from the extant data. A projectile point fragment recovered from the beach is side-notched (Plate A1) and is typical of Late Woodland specimens. The testing indicates that most of the site has already been destroyed by lacustrine erosion but as much as 450 square meters of site matrix may exist below the surface. The testing results also indicate that the distribution of cultural materials may or may not be sparse. Not knowing the exact thickness of the cultural matrix, it is not possible to calculate

a specimen frequency expectation per cubic unit of matrix. Based upon the average depth of the test units, however, an expectation of an additional 218 specimens seems reasonable if the entire 450 square meter area were excavated to the clay stratum.

The site probably represents the extreme periphery of a larger area of utilization that once existed nearer the river but is now inundated. It is also possible that it is a highly localized distribution not associated with a nearby larger site.

Significance Assessment: If an expectation of over 200 specimens remaining in the site matrix is valid it is reasonable to assume that perhaps some could provide data pertinent to the resolution of problems of site function. They might also help substantiate the hypothesis that the site is a Late Woodland manifestation. For these reasons the site should be considered potentially significant, even though it is apparent that erosion has destroyed much of the integrity of the site. It is, therefore, potentially eligible for nomination ot the National Register of Historic Places.

Adverse Impacts/Recommendations: There are two potential adverse impacts that threaten what remains of 32BA406. These are erosion and future pool elevation raises. Riprap has already been placed along the shoreline at the site. This should effectively prevent further erosion. For the present, then, the site is being preserved and no further work is necessary other than annually checking the site to make sure the riprap is effective. A pool raise would seriously threaten the site and this would require systematic testing to determine if indeed, the site is signigicant in terms of National Register of Historic Places criteria.

Table 5. Surface collection, 32BA406.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points		1					
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes		2		2			
	tested raw material							
	untested raw material							

CERAMICS (present__ absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present__ absent_x	

OTHER	

Table 6. Subsurface collection, test operations, 32BA406.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools	1						
	nonbipolar cores							
	bipolar cores							
	waste flakes						1	
	tested raw material							
	untested raw material							

CERAMICS (present__ absent_x_)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present__ absent_x_	

OTHER	

32BA407 (private domain)

Site Description: This rock cairn site is situated on a cuesta overlooking Lake Ashtabula. It is at elevation 396 m which is slightly above the 390 m survey area elevation. The lip of the cuesta remains in prairie grasses but just beyond, the flat terrain has been cultivated.

The site consists of two adjoining rock cairns; one is 30 cm high and the other is 20 cm high. The taller is 4.6 m long and 1.6 m wide. The other is smaller, measuring 1.5 m long and 80 cm wide. There are stone boat piles in the vicinity but in the opinion of the investigator, these two are of prehistoric origin. This is based primarily on the large amount of aeolian deposition in the cairns as compared to the little deposition in the stone boat piles.

Cultural Material: None

Testing: None

Interpretations: The function of rock cairns is varied and often cannot be determined by observation. Usually, more detailed investigations are necessary. With the extant data, such decisions cannot be made at this site.

Significance Assessment: The significance of these features based upon National Register of Historic Places criteria cannot be made at this time.

Adverse Impact/Recommendations: The site is not endangered by erosion from the present capacity pool elevation. If the pool elevation is raised, however, lacustrine erosive processes could begin to erode the bank on which the site is located. This erosion could eventually cause the bank to collapse and perhaps seriously impact the site. If the pool is to be raised, it would be wise to conduct test excavations here to determine the site's significance. Presently, however, the site is not threatened and no additional work needs to be done here.

32BA408 (public domain)

Site Description: This site is nearby and very similar to landform conditions that exist at 32BA15. It is situated at an average elevation of 390 m MSL between the lake and the steep valley wall. The site is on a sloping flat that termintates at a 1 m high cutbank above the shoreline. The flat is covered with dense grasses, bushes and willow.

Bone fragments and waste flakes were found exposed in situ in the cutbank (Plate 3). All in situ specimens reposed at a depth of 10 cm below the surface. There were approximately 4 flakes and a dozen bone fragments in the cutbank. Most of the material was found along the beach well below the eroded areas. Additional bone fragments were found directly beneath the base of the cutbank and appeared to have been recently exposed. The beach material was scattered for 30 m along the shoreline. The cutbank exposure was no more than 10 m in length.

Cultural Material: A description and count of the material here is presented in Table 7. This collection represents all that was observed during the survey.

Testing: The decision to test at this site was made on the basis of the subsurface indicators. The purpose of the testing was to determine the vertical and horizontal extent of the site and, if possible, the nature of the content. Ten auger test units were placed along and back from the cutbank exposure. The extent of the testing is depicted on the test form contained in Volume II of this report. The depth of the units ranged from 33 cm to 45 cm and in all instances were terminated at an impenetrable clay stratum. The soil above was also very clayey which prohibited dry processing of the matrix through a 6.35 mm hardware mesh. The matrix, therefore, was visually inspected by breaking the clay with a trowel. Cultural materials were not encountered in these tests. We also quickly excavated a profile face across the cutbank exposure to determine if a cultural level was present. There was no indication that such a level exists. Also, additional cultural materials were not exposed during this operation.

Interpretations: Concrete answers to problems concerning time and function cannot be presented based upon the extant material. It is also not possible to assign this site to a cultural tradition. The bone found along the beach may be washing up from a site concentration existing near the old river channel. If so, it is now inundated. It may be that 32BA408 represents the extreme periphery of such a site. This is suggested by the clear evidence of subsurface materials. The testing results, however, also clearly indicate that the distribution is quite sparse with ill-defined horizontal and spatial limits.

Significance Assessments: It is probable that most of the site's integrity has been destroyed by erosion. The testing results indicate that, although subsurface materials do exist, the distribution is sparse

and unlikely to contain data significant in the prehistory of the region. It is sufficient to have recorded the presence of the site before it was totally destroyed. Therefore the site is not significant and is not eligible for nomination to the National Register of Historic Places.

Adverse Impacts/Recommendations: The site is potentially threatened by two types of adverse impacts. They are erosion and future pool elevation raises. Riprap has already been placed along the shoreline and this should check future erosive processes. If the pool elevation is raised as much as 4.6 m, the site will probably be inundated. If the significance assessment is found reasonable, no further work should be necessary here in the event of a pool raise.

Table 7. Surface collection, 32BA408.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes	1	1		4			
	tested raw material							
	untested raw material							

CERAMICS (present__ absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: 60, large-mammal, long bone fragments; mussel shell frag. identifiable remains: probable, large bird.
present_x absent___	

OTHER	

32BA410 (public domain)

Site Description: This is a mound site that consists of 5 ciruclar mounds and one probable linear mound (Figure 6; Plate 4). It is situated on the upland flats above the Sheyenne River at the rim of the flat. The area is heavily covered with tall grasses. Nearer the cuesta, there are small deciduous trees and bushes. All of the mounds, with the exception of one, are contained within Corps property. The other mound is located approximately 600 m distant in a cultivated field. We did not trespass on this property so this feature was not accurately recorded. The elevation of the site is 420.6 m.

Mound #1 is 15 m in diameter and 90 cm high. Mound #2 is 21.5 m in diameter and 2 m high, #3 is 21 m in diameter and 1.5 m high. Mound #4 is approximately the same size as the first. The linear mound is ill-defined preventing meaningful measurements. Mounds #2 and #3 have well defined depressions atop them. Depressions are not so evident at #1 and #4. Mound #4 has several deeply embedded rocks near the center.

Cultural Material: One waste flake of red quartzite was recovered from a rodent backfill area atop mound #3. This specimen is not listed on a table similar to the other sites.

Testing: None

Interpretations: This is a typical Woodland mound site. The depressions in the center of two mounds may indicate the collapse of wooden burial vaults since there are no apparent surface indications of amateur digging(e.g. backfill piles). If so, it is possible that each or several mounds represent different cultural periods. The mounds with the well defined depressions suggesting the presence of collapsed burial vaults are indicative of a trait characteristic of the Sonota Complex of the Middle Woodland time period. Neuman (1975:88-96) has assigned a nearby mound site (32BA1) to the Sonota Complex. Regarding the possibility of a linear mound, the Arvilla complex of the Late Woodland period contains traits that include round and linear mounds, although the Arvilla complex is presently not known west of the Red River of the North, except for the Fordville mounds (Johnson 1975:65).

Significance Assessment: The site is highly significant.* There are several factors that support this assessment. First, little is known of burial mound sites in North Dakota as well as the middle Sheyenne region. Investigations at these sites have been limited (cf. Hewes 1949), unstructured and non-existent for the past 30 years. Trait lists and comparitive materials are not yet available let alone processual interpretations. Secondly, it is apparent that much of the archaeological record within the valley proper has been lost to inundation and erosion. This factor will, in the future, make it exceedingly difficult to interpret Woodland prehistory in the region. Thus,

relatively undisturbed mound sites represent the bulk of the data available, not only on mortuary practices which we know little of, but on the more profane aspects of Woodland prehistory. Thirdly, this site appears to be the only mound site in the region that is located on federal property and as such, is singularly important because is is the only one that can be protected or properly managed under existing law. Finally, if the site does contain a linear mound from Late Woodland time (Vehik (1978:47) recorded another site, 32GG228, that contained circular and linear mounds), it would be one of the few of this type known west of the Red River of the North.

Adverse Impacts/Recommendations: The site lies within the proposed Sheyenne Campsite development area. It could be adversely impacted by any development here, particularly as a recreation area. Such a development would also subject the site to vandalism. Because of its significance, the site qualifies for nomination to the National Register of Historic Places.* The best (and cheapest) course of action is to drop any plans to develop the area. If this is not possible, then an extensive excavation, analyses and report preparation program would be necessary to mitigate the site. It is possible that the information derived from mitigation could be used to create an archaeological interpetive program for public enjoyment within the recreation area. The site is not presently subject to lacustrine erosion and it is doubtful if any future pool raises would adversely impact the area.

*The site significance rating and recommendatins are preliminary in nature and represent the opinion of the author. The State Historic Preservation Officer, in conjunction with Corps of Engineer personnel, will make the final and binding assessments and recommendations consistent with National Register of Historic Places criteria.

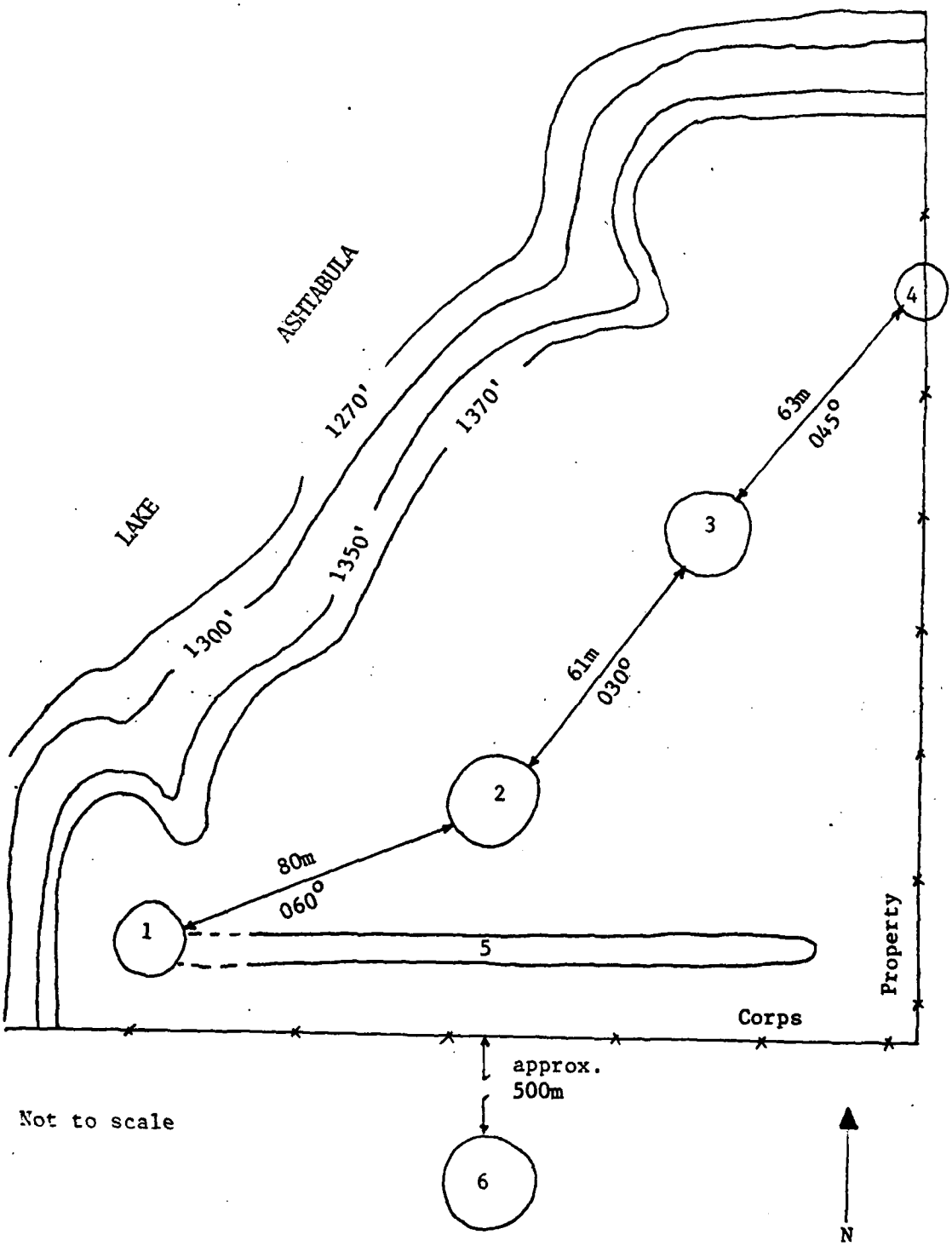


FIGURE 6. Sheyenne Mound Complex (32BA410).

32BA411 (private domain)

Site Description: This site is situated along the beachline on a heavily covered grassy flat between the lake and the valley walls to the southeast. The flat is gently to moderately sloping. The elevation is circa 390 m. There are a few shrubs and bushes scattered about. The flat terminates at a cutbank along the shoreline.

All of the cultural materials found here were discovered at the base of the cutbank on the beach. These include lithic debris and several bone fragments. There are numerous rodent backfill piles on the grassy covered flat. Each of these was inspected by troweling the backfill. There was no cultural material in the subsurface soils. The cutbank was also inspected.

Cultural Material: The materials collected here are documented in Table 8. This represents all of the materials that were observed.

Testing: The decision to test here was made on the assumption that the cultural material had recently eroded from the cutbank exposure. Seven auger test units were placed above the cutbank within the area of beach material. The units were confined to an area below a steep slope that was deemed unsuitable for prehistoric utilization. The units ranged from 44 cm to 70 cm deep and in all instances were terminated at an impenetrable clay stratum. The backfill was processed through a 6.35 mm hardware mesh to recover any materials that might be present. None were discovered.

Interpretations: The site may be a portion of the extreme periphery of a larger concentration that existed near the river but is now inundated. The testing results and inspection of the rodent backfill indicate that there are no buried deposits extant. This suggests the original assumption that the collected materials were eroding from the cutbank was erroneous. It is highly likely that these materials have washed up onto the beach from inundated deposits.

The collected materials offer little in the way of temporal statements. The scrapers and bone fragments might suggest a butchering or hide preparation area but this is highly speculative. It is apparent that most or all of the site has eroded away or that the collection is from elsewhere and that this area was never actually utilized.

Significance Assessment: All indications are that the site is not significant in terms of National Register of Historic Places criteria. It appears that the data here can add nothing to the resolution of temporal, cultural and functional aspects of prehistoric lifeways along the Sheyenne River. The integrity of the site has been effectively destroyed by lacustrine erosion (if, in fact, the area was originally a site area).

Adverse Impacts/Recommendations: Potential adverse impacts here

fall into two categories, impacts from erosion and impacts from future pool elevation raises. Even though it is probable that nothing remains at the site, a beneficial side effect of the bank stabilization riprap will be to prevent further erosion. Futher work need not be considered here if the pool elevation is raised. There is no need to nominate this site to the National Resgister of Historic Places.

Table 8. Surface collection, 32BA411.

CHIPPED STONE — Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers				2			
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes	2	6	1	7		1	
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: three, large-mammal, long bone fragments. identifiable remains:
present x absent___	

OTHER	

32BA412 (private domain)

Site Description: This lithic scatter site is situated on the upland flats above and overlooking the Sheyenne River valley. It was discovered in a plowed field that was laying fallow. Just to the northeast is a large emphemeral drainage that has disected the rim of the valley wall. This area is heavily covered with brush (elevation: 405 m).

A sparse scattering of lithics was discovered here along with a dozen unidentifiable bone fragments. They were discovered within a 1.2 ha area. The debris is confined to the flat; none extends along the slope into the valley. The original field determination that the area should be tested was scrapped when it was found that the riprap stockpile area was located just to the south of the site concentration.

Cultural Material: The material collected is documented in Table 9. This represents all that was observed at this site.

Testing: None

Interpretations: The extant material is not sufficient for determination of cultural, temporal and functional interpretations. It is probable that the site existed originally on the surface and there is no depth here. The Materials are now removed from their original provenience.

Significance Assessments: The site is not significant in terms of National Register of Historic Places criteria. The site's integrity has been disturbed by plowing and there exists little possibility that undisturbed subsurface materials remain.

Adverse Impacts/Recommendations: The only potential adverse impact here is the utilization of the area as a riprap stockpile area and even this is not certain. The site was recorded and reported in the field report of 1978 so it is assumed that the area was not impacted with a stockpile. The site is not threatened by erosion. It is not eligible for nomination to the National Register of Historic Places.

Table 9. Surface collection, 32BA412.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes		22	2	6			
	tested raw material							
	untested raw material							

CERAMICS (present__ absent_x_)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: 11 bone fragments, one tooth fragment. identifiable remains:
present_x absent___	

OTHER	

32BA413 (public domain)

Site Description: This site was first noticed along a sand and gravel beach below several summer cabins. The cabins are located just north of Eggert's Beach. There is a lengthy cutbank that extends along the beach here. It is about 1.2 m high. The bank has been protected from erosion by the placement of riprap. The riprap is about 80 cm high. The surface above the cutbank is sown in lawn grasses. Much of this area supports standing structures. (Elevation: 386 m)

The lithic collection came from a 175 m stretch along the beach in front of Mr. Kopp's cabin. Two waste flakes were collected from the cutbank at a depth of 15 cm. A rimsherd came from a cutbank slump about 40 cm from the surface. It is doubtful that the sherd can be considered as discovered in situ. About 600 square centimeters of the bank were profiled, but no additional cultural materials were discovered. Stratigraphically, it appears as if the topsoil is underlain by a sandy loam and the clay stratum common to the area.

Cultural Material: The collection is documented in Table 10. See also Plates A1 and A3 for artifact illustrations and accession numbers.

Testing: Testing was not conducted here because of the inconvenience to the inhabitants. The site is well protected from erosion , and vandalism does not seem to be a problem, so there appeared no immediate necessity for evaluation. Advance notice and cooordination seems best before tests are conducted here.

Interpretations: There appears to be some depth to the site as evidenced by the two waste flakes. The horizontal and vertical distribution is not yet determined. At this time, little can be said of the content at the site.

The projectile point specimen is quite crudely made. Because of this it can not be considered time diagnostic. The ceramic specimen is plain. The rim is too badly deteriorated to detect the presence or absence of decorative elements. This specimen does not appear to be water worn so it can be assumed that it came from the cutbank rather than beach wash. Plain ceramics are common to Middle Woodland complexes (e. g., Sonota).

Significance Assessment: Too little of this site is yet known so the significance can not adequately be assessed. The site does appear to have subsurface deposits and remaining integrity (undoubtedly some of the site has been destroyed by lacustrine erosion) and thus should be considered as potentially significant in terms of National Register of Historic Places criteria.

Adverse Impacts/Recommendations: The site area is potentially threatened by three types of adverse impacts. They are vandalism,

additional construction and future pool elevation raises. Erosion has been checked by the riprap. Vandalism does not seem imminent because the site is virtually undetectable to all but the trained eye. The most serious problems seem to be future development and/or pool raises. Should these impacts be planned, then testing to determine the extent and significance of the site should be conducted. If the site is, indeed, potentially significant on the basis of what we now know, it is potentially eligible for nomination to the National Register of Historic Places.

Table 10. Surface collection, 32BA413.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points		1					
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools	1						
	nonbipolar cores							
	bipolar cores							
	waste flakes	1	4				2	
	tested raw material							
	untested raw material							

CERAMICS (present x absent __)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd	1						
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present __ absent x	

OTHER	

32BA414 (public domain)

Site Description: The site is located in the Eggert's Beach picnic area between campsites number 21 and 22 along the beachline. This area is heavily wooded and contains several camping and picnic improvements. The flat terminates at a cutbank that extends along the shoreline. The exposure is only 30 cm to 40 cm high and is poorly exposed because of heavy semi-aquatic plant growth that obscures the vertical surface. There is a large ephemeral drainage just to the southeast of the site area. Elevation at the site is 387 m.

Most of the cultural material was found along the beach below the cutbank and at the waterline. The cutbank area was troweled periodically to provide a better exposure. We found two waste flakes in the cutbank using this procedure (about 10 cm deep). No material was found on the surface in the campsite areas. The lithic debris was found along a 150 m stretch of the beach. The site is about 600 m from a previously recorded but now inundated site, 32BA5.

Cultural Material: Table 11 documents the material found at this site. See Plate A1 for artifact illustrations and accession numbers.

Testing: Testing was initiated here on the basis of the in situ material found in the cutbank and the assumption that the beach material had eroded from the vertical exposure. The purpose of the testing was to determine the horizontal and vertical extent of any subsurface materials and the nature of the content at the site. Fifteen auger test units were placed in open areas along and back from the beach. The placement was determined wholly by the presence of bushes and trees. The extent of the testing is depicted on the test form contained in Volume II of this report. The units ranged from 30 cm to 1 m in depth and were usually terminated when impenetrable roots were encountered. The matrix was often very muddy or gravelly. Nevertheless, all unit matrices were processed through a 6.35 mm hardware mesh. No cultural materials were detected.

Interpretations: The cultural material at this site is probably the result of beach wash and exposure from the cutbank. The in situ flakes from the cutbank clearly indicate the presence of some subsurface materials, yet the testing results suggest that they are very sparsely distributed. The substantial amount of debris found along the beach, if it has eroded from the cutbank as originally assumed, does not corroborate this finding. It is probable that this is not the case. Rather it is probable that the beach detritus has washed up from the now inundated site 32BA5, including the projectile point specimens. It may also be that this material was originally from a portion of 32BA5 which has been eroded away.

The evidence suggests, then, that 32BA414 existed seperate from 32BA5 and that the bulk of 32BA414 has now been destroyed by lacustrine

erosion. The artifact specimens (projectile points) are indicative of a Late Woodland occupation that may be attributed to either of the sites. The bifaces suggest specific tasks such as butchering.

Significance Assessments: The testing results indicate that the integrity of the site has been nearly totally destroyed. Therefore, the recovery of undisturbed data is highly unlikely. This would negate any meaningful conclusions regarding the time and function aspects of the site beyond those already offered as speculation. On these bases, the site may be regarded as not significant in terms of National Register of Historic Places criteria.

Adverse Impacts/Recommendations: The site is potentially threatened by three adverse impacts, vandalism, erosion and future pool elevation raises. If the area is protected by riprap, erosion would be effectively checked. Vandalism and pool raises need not be considered if the significance assessment is judged adequate. No further work is necessary here nor is nomination of the site to the National Register of Historic Places.

Table 11. Surface collection, 32BA414.

CHIPPED STONE — Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points	1	1		1		1	
	scrapers							
	bifaces		1					
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes	5	34	3	5			
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present__ absent x	
OTHER	

32BA415 (public domain)

Site Description: This site is situated on a large (approximately 25 ha) flat that exists on a peninsula defined by Lake Ashtabula and Baldhill Creek. The flat is heavily covered with tall grasses, bushes and trees as is the higher terrain to the south. The lowest portion of the flat is at an elevation of 390 m MSL. From the shoreline (elevation 384 m) to the rim of the flat it is very steep. The heavy vegetation effectively obscures most of the surface.

The surface was thoroughly transected but the heavy vegetation prevented detecting surface evidence that might exist. We did, however, inspect the occasional rodent burrow backfill piles that occur nearer the lake. Eight of these were inspected. We found several bone fragments, a waste flake of Knife River flint and a side-notched basal fragment in the backfill. The rest of the collection came from infrequent bare spots. It should be noted that most of the material came from the lower part of the flat near the lake. The upper portion was grassy and did not have much in the way of subsurface indicators. It should not be assumed that this area is devoid of cultural debris. Inspection of cutbanks above the shoreline did not reveal additional materials.

Cultural Material: The cultural material collected from this site is documented in Tables 12 and 13. It represents all that was observed at this site. See Plate A1 for artifact illustration and accession number.

Testing: The decision to test at this site was based upon the presence of subsurface indicators. The intent was to determine the spatial limits of the site and the nature of the content, if possible. A total of 18 auger test units were spaced at regular intervals (see test form contained in Volume II) at and west of the area that produced the waste flake and basal fragment. The test units ranged from 18 cm to 61 cm in depth. Many were prevented from going deeper by a subsurface gravel lens that seems to exist at 30 cm to 35 cm. Clay was also a problem. Sometimes this material prevented augering further and it was not amenable to screening. Other matrices were processed through a 6.35 mm hardware mesh. All of the units were culturally sterile with the exception of one, unit #12. A phalanx and a bone fragment were collected from the wall of the unit at a depth of 17 cm to 22 cm.

Time restraints and the nature of the testing prevented a thorough testing program at this site. Only a small portion of the 25 ha was investigated. It is likely that much more exists below the surface beyond the area we were able to test.

Interpretations: Clearly there are subsurface materials present at this site. The testing program was not successful in determining the site's horizontal limits. Indeed, the area of the flat is large enough to contain to contain many sites independent of 32BA415. The

obscured surface conditions prevent an adequate surface inspection. The determination of the vertical distribution is about as vague. The material recovered from the rodent burrows is no longer in situ so it is useless in making stratigraphic statements. The bone from test unit #12 is a bit more useful. On this evidence, it is reasonable to say that some sort of component probably exists in the vicinity of the testing at around 20 cm deep. But we do not know if additional components exist.

The fragmented side-notched speciment is indicative of a Late Woodland occupation. The faunal remains offer little in the way of conclusive statements. Beyond this, not much can be saic at this point except that the location (formerly near the confluence of Baldhill Creek and the Sheyenne River) is predictively an excellent spot for a site.

Significance Assessment: It is doubtful that enough cultural data now exists to formulate an accurate assessment of the site's significance. On the basis of the subsurface evidence, site 32BA415 might be considered to be potentially significant in terms of National Register of Historic Places criteria. Also, the integrity of the site has not been damaged by erosion or development.

Adverse Impacts/Recommendations: The site is potentially threatened by two types of adverse impacts, future development and the attendant threats of vandalism brought on by development. The known site area is within the proposed Baldhill campsite development area so any improvements here must be preceeded by testing and/or mitigation. A systematic testing program must be initiated within the boundaries of the proposed development here. This must be accomplished to determine if the assessment of potential significance is correct. If the assessment proves to be valid, then the testing must be expanded to provide a base for planning the mitigation program. Mitigation of the resource would then be required. Should the systematic testing indicate that the subsurface materials are sparse and not significant, mitigation would not be necessary. The site recommendation for nomination to the National Register of Historic Places should await the results of the testing program. An additional alternative is to avoid the site and others that might exist by suspending development plans in this area.

Table 12. Surface collection, 32BA415.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points	1						
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes		1		3			
	tested raw material							
	untested raw material							

CERAMICS (present__ absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: eight fragments. identifiable remains:
present_x absent___	

OTHER	

Table 13. Subsurface collection, test operations, 32BA415.

CHIPPED STONE none Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes							
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: 1 fragment identifiable remains: one phalanx (bovine, probably Bison bison)
present x absent___	

OTHER	

32BA417 (public domain)

Site Description: The site is situated at the base of a moderate slope adjacent to the reservoir. It is just to the south of an ephemeral drainage that enters the lake. The slope terminates at a 1 m to 2.5 m high cutbank above the shoreline. The slope is covered with mixed grasses which effectively obscure the surface. There is a spring located about 100 m east of the site area. (Elevation: 386 m).

Most of the material collected was from the beach. None was observed above the cutbank although a few bone fragments were eroding from the cutbank just below the surface. The beach contained quite a few fragments of bone, most of which were not collected. The lithic collection also came from the beach along a 50 m stretch. Some were found in the water near the shoreline.

Cultural Material: The collection is documented in Table 14.

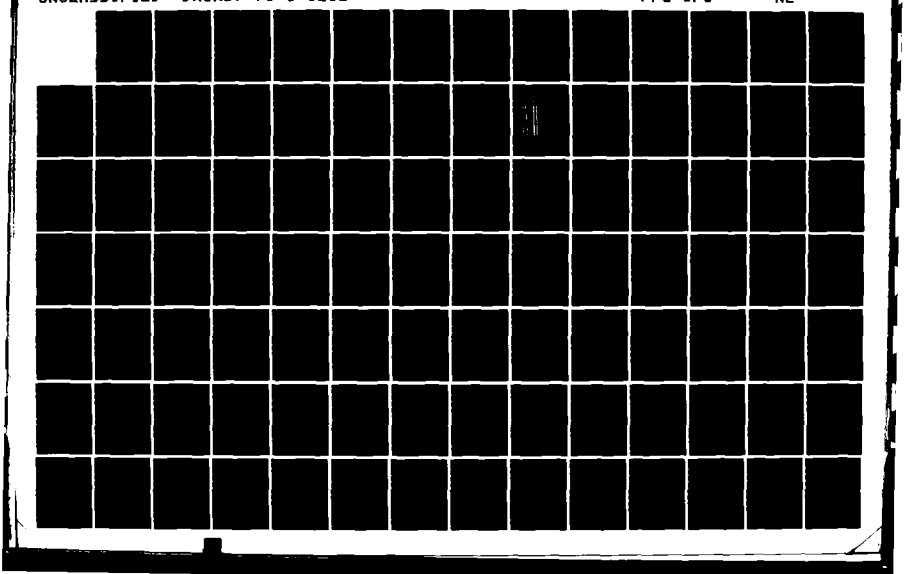
Testing: The decision to test here was made on the basis of the few bone fragments eroding from the cutbank and the assumption that the beach material had been eroded from subsurface deposits here. The purpose of the testing was to determine the spatial limits of what remained of the site and the nature and content, if possible. Five auger test units were located here that ranged in depth from 30 cm to 50 cm. The depths were well below the in situ bone recorded in 1978. The unit matrices were processed through a 6.35 mm hardware mesh to detect cultural materials. None were discovered.

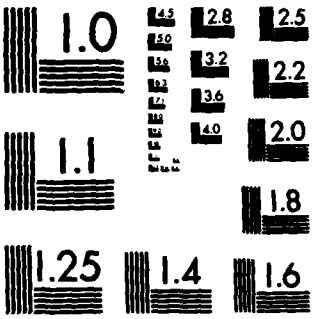
The decision to discontinue testing here after 5 units was based upon the negative results and the location of the tests. They were on a moderate slope that did not seem conducive to human utilization of any kind. In fact, it became apparent that the beach materials were washing up from inundated areas. Also, a reinspection of the cutbank during the 1979 testing did not reveal in situ materials. Apparently, the cutbank had slumped or eroded since the 1978 inspection.

Interpretations: The lack of cultural materials from the test operations and the absence of additional remains in the cutbank, coupled with the moderate slope, suggest that the artifactual evidence is derived from a site that is now inundated. It is probable that such a site existed nearer the Sheyenne along the ephemeral drainage that is fed by the nearby spring. It may also be that 32BA417 represents the extreme periphery of such a site. However, none was recorded prior to inundation. The pattern would fit the occurrence of sites that exist in the free flowing portions of the Sheyenne in the survey area.

The extant artifactual material is insufficient for determining the time the site was used. The bone fragments would suggest some sort of economic activity. Cultural affiliation is also not possible.

AD-A144 371 1978-1979 CULTURAL RESOURCE INVESTIGATIONS ALONG THE 2/3
MIDDLE SHEYENNE RIVE..(U) NORTH DAKOTA UNIV GRAND FORKS
DEPT OF ANTHROPOLOGY AND ARCHAE.. R A FOX 01 JUL 80
UNCLASSIFIED DACW37-78-C-0181 F/G 5/6 NL





Significance Assessment: The site is judged not significant in terms of National Register of Historic Places criteria on the basis of lack of subsurface deposits and the damaged integrity. Also, it is not even clear if this was, in fact, a utilized site area.

Adverse Impacts/Recommendations: The site is potentially threatened by two adverse impacts, erosion and future pool elevation raises. Although not necessary because of the significance assessment, a beneficial side effect of riprap here will prevent further erosion. No further work is necessary at this area if the pool is raised. The site is not recommended for nomination to the National Register of Historic Places.

Table 14. Surface collection, 32BA417.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes		4		1			
	tested raw material							
	untested raw material							

CERAMICS (present__ absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: one mussel shell (lacking hinge) identifiable remains: one molar (Bison sp. or Bos)
present_x absent__	
OTHER	

32BA418

Site Description: This site is situated on a slight slope between Lake Ashtabula and the steep valley wall above. The distance from the beach to the base of the valley wall is approximately 100 m. The sloping flat is heavily covered with grasses, bushes and a few trees. This situation effectively obscures the surface. Small ephemeral drainages flank the site. The elevation of the site is 385.9 m to 388.6 m MSL while the upland flats above are at an elevation of 396 m MSL. The difference in elevation is approximately 8 m and is very abrupt at the site. In effect, there exists a nearly vertical precipice around 8 m high.

During the 1978 survey, bone was noticed eroding from the cutbank above the shoreline. The in situ bone seemed to be distributed from near the surface to a depth of approximately 30 cm. The bone (Plates 5 and 6) was exposed in an area of the cutbank. The surface above was inspected but nothing was found, possibly because of the obscured surface.

Upon returning in 1979, we again inspected the vertical cutbank which had apparently slumped somewhat. Additional bone was collected from this area at approximately the same depth as before. Riprap had been placed along the shoreline the previous winter.

Cultural Material: Tables 15 and 16 document the cultural material and the bone speimens associated with the material found at the site. See Plate A1 for artifact illustration and accession number.

Testing: The decision to test here was made on the basis of the eroding bone. The purpose of the testing was to determine the horizontal and vertical limits of the site and the nature of the content, if possible. A total of 25 auger test units were placed at the site beginning near and above the material in the cutbank and extending southerly to one of the ephemeral drainages. The depth of the units ranged from 25 cm to 75 cm. In nearly all instances, the units were discontinued at the top of an impenetrable clay stratum. All of the unit matrices were processed through a 6.35 mm hardware mesh in order to recover any cultural materials present. We recovered waste flakes (2 of Knife River flint and 1 of chalcedony), 7 Swan River chert flakes and numerous bone fragments. The results at each test unit are recorded on the test form contained in Volume II.

Interpretations: The extant materials do not allow determination of temporal questions at the site. The faunal remains are of *Bison bison* and many exhibit butchering evidence. The lithic specimens, particularly the bifacial specimen, and the butchered bone are conclusive evidence of meat preparation activities.

Bone was discovered in situ in many of the walls of the test units at depths ranging from 5 cm to 43 cm. The bone eroding from the vertical

cutbank corroborates this finding (near the surface to 30 cm). The maximum depth of the clay stratum in any of the test units was 75 cm. This suggests that the component tested extends from near the surface to at least 43 cm and possibly to the top of the clay.

It is apparent that the site is confined within the two ephemeral drainages that flank it and between the shoreline and the base of the vertical precipice. The latter fact is of particular note. The precipice would be ideal for bison jumping activities and the great amount of bone suggests this. Bison jumps are presently not known to exist in this area and the presence of such a kill site would be unique to the area and to Woodland components in this region. This is not to suggest that we can regard 32BA418 as a Woodland site but the preponderance of the prehistoric record along the Sheyenne seems to be of Woodland derivation. Conversely, bison jumps are a common trait of Plains Nomadic cultures, including Archaic manifestations. If this area turns out to be either an Archaic or Plains Nomadic manifestation, the site would be equally unique because the Archaic record has not yet been identified in the Sheyenne Valley and because Plains Nomadic peoples are not thought to have ventured this far east.

Most of the identifiable bone specimens appear to be from fore or hind legs of bison. Furthermore, they appear to be from the lower portion of the limbs. These are the types of faunal remains that could be expected at a kill site where only the primary stages of butchering took place with the intent of discarding the unwanted portions of the animal before transporting the desirable portions to a distant location. On the basis of the evidence at 32BA418, and with a recognition of the limitations of the auger core testing technique, it is proposed that kill sites found at the base of the valley wall will exhibit primary butchering patterns in the form of the remains of the undesirable portions of the animal. It is further proposed that the later stages of the butchering process occurred at areas removed from the kill site, probably at the occupation sites along the river.

The paucity of artifactual materials when compared to the bone recovered might be due either to testing inadequacies or the location of the remaining site area. The base of the precipice, if the site is in fact a bison jump, would have been where the animals were maimed and dispatched. It is probable that a minimal amount of butchering would have occurred here with the secondary butchering tasks carried out at a place distant from the actual jump area. If so, we could expect the secondary butchering component of the site to be located apart from 32BA418, probably nearer the river. Unfortunately this area has been inundated by the lake. This speculation may account for the minimal artifactual evidence.

Finally, a pelecypod was recovered from test unit #3. Pelecypods, as noted in the Soils section, are common to the Sheyenne River valley. Because of this, the site may also be interpreted as containing a paleontological component of unknown extent. It is doubtful that the specimen can be attributed to prehistoric explanations, although some prehistoric peoples in North America are known to have held fossils in special regard.

Significance Assessment: Based on the discussion presented in the Interpretations section, the site is judged significant and therefore eligible for nomination to the National Register of Historic Places.*

Adverse Impacts/Recommendations: The site is potentially threatened by two types of adverse impacts, erosion and future pool elevation raises. Riprap has already been placed along the shoreline at the site. A beneficial side effect of this program should be the prevention of further erosion. If and when the pool elevation is raised, the site must be mitigated through excavation, analysis and report preparation. An alternative would be to construct a retaining wall to prevent inundation or simply to preserve the site by abandoning plans to raise the pool. It is recommended that the site be nominated to the National Register of Historic Places.* Annual checks on the site should be accomplished to insure that the riprap is preventing further erosion.

* The site significance rating and recommendations are preliminary in nature and represent the opinion of the author. The State Historic Preservation Officer, in conjunction with Corps of Engineers personnel, will make the final and binding assessments and recommendations consistent with National Register of Historic Places eligibility criteria.

Table 15. Surface collection, 32BA418.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces				1			
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes	1						
	tested raw material							
	untested raw material							

CERAMICS (present__ absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains: two, left, distal humeri, probably Bison, + total of 700 g of other identifiable bone, all probably Bison.
present__x absent__	
OTHER	

Table 16. Subsurface collection, test operations, 32BA418.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes	2	7			1		
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	
present x absent___	unidentifiable remains: numerous unidentifiable bone fragments identifiable remains: 2 metacarpal (?) fragments, fused central and 4th tarsal, fibular tarsal, fused tarsal fragment (central and 4th ?), numerous rib fragments, 3 tooth fragments, all of Bison bison. 1537 grams of bone, total.
OTHER	1 pelecypod specimen (paleontological)

32BA419 (public domain)

Site Description: This paleontological site lays exposed for approximately 500 m along the shoreline of Lake Ashtabula. Much of the shoreline in this area is characterized by high cutbanks with bentonite exposures. The fossil specimens were recovered from the base of the cutbanks and the water just beyond the beachline. None were found in the bentonite. Elevation at the site is 387 m.

The fossil specimens are Cretaceous in age and have been identified as straight shelled pyritized cephalopods (Baculites sp.) and coiled shelled cephalopods (Didymoceras sp.). About 30 of the former and 2 of the latter types were submitted to a University of North Dakota paleontologist for identification. Numerous others were observed along the beach in this area.

Collected Specimens: The specimens are enumerated above. They are not documented in tabular form. See Plate A6 for representative fossils.

Testing: None

Interpretations: See Site Description

Significance Assessment: The significance of this site can only be judged by a professional paleontologist. Since there was no provision in the contract for paleontological field work, the assessment must await further investigation.

Adverse Impacts/Recommendations: The site is potentially threatened by two types of impacts, erosion and future pool elevation raises. The site has not been protected by riprap as of the date of this report. It was recommended that riprap not be placed here until a paleontologist had a chance to inspect it (Fox 1978). The recommendation is still valid. Pending such action the eligibility of the site for Nomination to the National Register of Historic Places or any further action can not be made.

32BA420 (public domain)

Site Description: This site is situated on an approximate 10% slope between the shoreline of Lake Ashtabula and the moderately sloping walls of the valley. The site lies on a point of land that is flanked by small runoff drainages on the north and south. The slope is covered with short prairie grasses, brush and a few green ash. The grasses effectively obsure the surface. The elevation of the site is 387 m.

The materials from this site are sparse. A plain body sherd was collected from the base of a 50 cm to 75 cm high cutbank along the shoreline. The few lithic specimens were collected from the beach. The slope did not exhibit subsurface indicators such as rodent backfill piles.

Cultural Materials: These are documented in Table 17. See also Plate A3 for an illustration of the potsherd and accession number.

Testing: The decision to test here was based on the assumption that the sherd had slumped from subsurface deposits contained in the cutbank. Testing was accomplished to determine the spatial limits of the site as well as the content, if possible. Eleven auger test units were placed on the slope above the cutbank exposure where the sherd was discovered. The depths of the units ranged from 42 cm to 64 cm deep. Each was terminated at the top of a hard compacted clay stratum. The unit matrices were inspected by troweling the backfill and visually inspecting it. Additional cultural materials were not discovered. Heavy brush prevented testing beyond unit #11. Details regarding the tests can be found on the test form in Volume 2 of this report.

Interpretations: Concrete statements regarding the temporal and cultural aspects at the site can not be made. The plain body sherd is, however, a common trait found in the Middle Woodland Sonota complex. The content and function of the site remains problematical.

Because of the negative testing results, there remains doubt as to whether or not the provenience of the sherd implies the existence of subsurface deposits as originally assummed. If such deposits do exist they are undoubtedly sparsely distributed. If so, the spatial limits would be, in all probability, ill-defined and not easily determined by the non-systematic, non-intensive testing program.

A speculative interpretation suggests that this may be the extreme periphery of a main body site that once existed nearer the river but is now inundated. The site could also be a highly localized, sparsely distributed manifestation.

The sherd specimen was probably not washed onto the beach from inundated deposits because it does not appear to be water-worn. The origin of the lithics from the beach is problematical.

Significance Assessment: It is probable that this site is not significant in terms of National Register of Historic Places critirea. The

site's integrity has undoubtedly been nearly destroyed by lacustrine erosion. The extant data and the probability that little else exists here adds to this assessment.

Adverse Impacts/Recommendations: The site is potentially affected by two types of adverse impacts. They are lacustrine erosion and future pool elevation raises. If the site is eventually determined to be insignificant then such impacts need not be mitigated in the future. The area is presently not protected from erosion by riprap. As is it stands now, the site need not be nominated for inclusion on the National Register of Historic Places.

Table 17. Surface collection, 32BA420.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes		2					
	tested raw material							
	untested raw material							

CERAMICS (present x absent)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd	1						

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present	
absent x	

OTHER	

32BA421 (public domain)

Site Description: This site is located within the East Ashtabula Picnic Area. This area has developments such as a boat ramp, roads, picnic and campsite areas. It is situated on a sloping flat between the shoreline of Lake Ashtabula and the steep valley walls above. The area is in short grasses with thick stands of bushes, shrubs and trees.

The few cultural specimens recovered from 32BA421 were discovered in areas that had been disturbed by human activity. These included the disturbed areas directly below a swing set and another around a picnic table. In some areas, lacustrine erosion has eroded cutbanks. These were inspected but no materials were noticed.

While conducting tests at this site, we noticed that a construction crew was excavating a deep hole at a proposed privy location. The profiles provided by this large excavation (approximately 2m deep) were inspected without detection subsurface materials. The construction area is shown in relation to the test units on the test form in Volume II. The elevation at the site is 387 m.

Cultural Material: See Table 18 for a documentation of these materials. See Plate A3 for the artifact illustration and accession number.

Testing: Testing was initiated here on the assumption that the original provenience of the cultural materials was subsurface. The purpose of the testing was to delimit the site horizontally and vertically and determine the nature of the content. Thirteen test units were placed in and near the areas where the specimens were recovered. Most were very hard to auger because of the presence of a compacted clay beginning at the surface. Units were either stopped in this clay or at the top of an impenatrable clay layer. Unit depts ranged from 25 cm to 80 cm deep. All backfill was processed through a 6.35 mm hardware mesh to facilitate detection of cultural materials. None were discovered.

Interpretations: It is not clear if the materials originally thought to be from the subsurface even came from this vicinity. An old fisherman told us (after we had completed the auger tests) that the area we were testing had been built up with fill. If this is true, then it is entirely possible that the cultural materials were brought in with the fill. Also, we no doubt conducted our testing in the fill areas. The test program here, then, should be regarded as insufficient.

Because of the doubt regarding the original provenience of the body sherd found here, cultural interpretation (and temporal) is rather meaningless. The sherd, however, is cord roughened which is a common trait of the Middle Woodland Sonota complex. Other functional interpretations are not necessary or possible. The square nail indicates some sort of an early historic structure was extant

at one time.

Significance Assessment: An adequate assessment can not be made until the uncertainty surrounding this is cleared up.

Adverse Impacts/Recommendations: The uncertainty of the site notwithstanding, potential impacts include continued construction, vandalism and future pool elevation raises. Riprap is presently protecting the shoreline from erosion. It is recommended that a systematic testing program be initiated in all parts of the developed area that have not been filled in. This should resolve the uncertainties regarding the occurence of the cultural materials here. If there are, in fact, undisturbed buried deposits, the testing program should provide data sufficient for making assessments of significance and subsequent mitigation programs, if necessary.

Commencement of the privy construction was begun with prior knowledge of the site area and without the required cultural resource management measures. Luckily, the construction did not destroy any of the prehistoric record that might exist here. Measures should be taken to prevent this type of potential destruction from again occurring.

Table 18. Surface collection, 32BA421.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes		1				1	
	tested raw material							
	untested raw material							

CERAMICS (present x absent)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd		1					

FAUNAL REMAINS	unidentifiable remains: one, bird, long bone fragment. identifiable remains: turtle shell.
present x absent	

OTHER	Square, cut nail.

32BA422 (public domain)

Site Description: The site is exposed along a cutbank on a small flat between the lake and the valley wall. The surface of the flat is obscured by short grasses. Cultural debris was recovered only from a 10 m extent of the cutbank at a depth of 5 cm to 15 cm below the surface. It is probable that much has been lost to erosion. (Elevation: 387 m).

All of the collection was either recovered from the cutbank in situ or at the base of the vertical exposure. None was observed on the beach. These materials included lithics and a few bone specimens.

Cultural Material: These materials are documented in Tables 19 and 20.

Testing: The decision to test here was based upon the presence of material in the cutbank. The purpose of the test was to determine the spatial limits and the content of the site, if possible. Eleven auger test units were located above the cutbank on the flat surface in the vicinity of the eroding specimens. The depths of the units ranged from 42 cm to 78 cm deep. The backfill from the units was inspected by processing all but one through a 6.35 mm hardware mesh. The only materials discovered were 5 small, unidentifiable bone slivers. Brush prevented extending the tests beyond the southeasternmost unit.

Interpretations: There is clear evidence of subsurface material here but the testing results suggest that it is very sparsely distributed. It is possible that this represents the extreme periphery of a site that once existed nearer the river but is now inundated. An alternative is the suggestion that the site represents a highly localized but sparse lithic scatter in association with bone that is presently nearly destroyed by lacustrine erosion. In either case, the horizontal and vertical limits appear so ill-defined that auger testing can not detect them.

The extant cultural material does not allow conclusions regarding the temporal and functional aspects of the site.

Significance Assessment: The site is judged not significant in terms of National Register of Historic Places criteria because of the apparent paucity of subsurface remains. The erosion has probably destroyed the bulk of the site's integrity. It seems sufficient to have recorded its presence before it was totally destroyed.

Adverse Impacts/Recommendations: Two types of adverse impacts potentially threaten this site. They are erosion and future pool elevation raises. Since the site does not appear to be significant, steps to prevent these impacts do not seem necessary, although riprap would induce beneficial side effects by preventing erosion. There is no need to nominate the site for inclusion on the National Register of Historic Places.

Table 19. Surface collection, 32BA422.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores		2					
	bipolar cores				1			
	waste flakes		15		3	1	3	
	tested raw material							
	untested raw material							

CERAMICS (present__absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: large-mammal, long bone and rib fragments. identifiable remains:
present_x absent___	

OTHER	granite cobble, ungrooved maul.

Table 20. Subsurface observations, test operations, 32BA422.

CHIPPED STONE None / Material	KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED: projectile points							
PATTERNED: scrapers							
PATTERNED: bifaces							
UNPATTERNED: bifacially worked fragments							
UNPATTERNED: flake tools							
UNPATTERNED: nonbipolar cores							
UNPATTERNED: bipolar cores							
UNPATTERNED: waste flakes							
UNPATTERNED: tested raw material							
UNPATTERNED: untested raw material							

CERAMICS (present__ absentx_)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: 5 bone fragments (not collected) identifiable remains: small slivers,
present x absent___	

OTHER	

32BA423 (public domain)

Site Description: This site was evident only along the beach. Above the beach is a sloping flat that is heavily covered with grasses. This area was inspected for subsurface indicators but none were found. The detritus found along the beach is near what used to be an emphemeral drainage that fed the Sheyenne River. Elevation at the site is 390 m.

All of the lithic material was discovered in the pea gravel deposits between the sandy beach and the waterline. The cutbank above the sandy beach was also inspected and no cultural materials were found.

Cultural Material: The material is documented in Table 21. See Plate A1 for artifact illustration and accession number.

Testing: None

Interpretations: The fact that all of the lithic debris was found on the beach in pea gravel wash deposits suggest that this material is washing up from deposits that are now inundated. The absence of material in the cutbank along 50 m of beach substantiates this theory. This interpretation also negated the necessity for testing here.

Since the cultural materials are obviously washed up and no longer in their original provenience it is not necessary to offer conclusions or speculation regarding the temporal, spatial and functional aspects of the site.

Significance Assessment: The site represents materials washed from inundated deposits and as such is not significant in terms of National Register of Historic Places criteria.

Adverse Impacts/Recommendations: Discussions of adverse impacts are irrelevant here. The site is not significant, therefore no further work is necessary. The site does not qualify for nomination to the National Register of Historic Places.

Table 21. Surface collection, 32BA423.

CHIPPED STONE — Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces		1					
UNPATTERNED	bifacially worked fragments		2					
	flake tools	2	1					
	nonbipolar cores							
	bipolar cores							
	waste flakes	2	29		5		5	
	tested raw material							
	untested raw material							

CERAMICS (present__absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: two, large-mammal, long bone fragments. identifiable remains:
present_x absent___	

OTHER	

32BA424 (public domain)

Site Description: The site is apparently an abandoned farmstead that consists of the remnants of two building foundations, one a domicile and the other an outbuilding (Plates 7 and 8, Figure 7). It is situated on a small flat at the base of a steep slope that defines the valley wall. The site is located right at the edge of Lake Ashtabula. In fact, part of the outbuilding has been destroyed by lacustrine erosion. There appears to have been an old county road (cut and filled) that passes adjacent to the site. Elevation at the site is 390 m.

We also collected a two hole shell button from the site. There were several prehistoric waste flakes discovered along the beach but none were detected in the cutbank exposures. It is probable that these have washed up from inundated deposits. A worked flake of quartzite was collected from the water's edge.

Cultural Materials: These are documented in Table 22. See Plate A1 for artifact illustration, and accession number.

Interpretations: The foundations of the buildings are made of concrete so they may be rather recent, perhaps abandoned after the Corps secured shoreline property. As mentioned earlier, they probably represent a domicile and outbuilding. An old creamery can in the vicinity may suggest that the outbuilding was a dairy barn. The prehistoric debris has probably washed up from inundated deposits since none was discovered in the extensive cutbank exposures.

Significance Assessment: The significance of this site should probably be determined by an historian. This was not accomplished because history was considered a minor work item.

Adverse Impacts/Recommendations: An historic structure (outbuilding) is presently being actively eroded by lacustrine erosion. If the shoreline here is to be riprapped, the erosion should be checked. Another potential impact is future pool elevation raises. If this should occur, the site would be inundated. The site should be field checked by an historian to determine significance. After this, determinations of National Register of Historic Places eligibility and further work, if any, can be made.

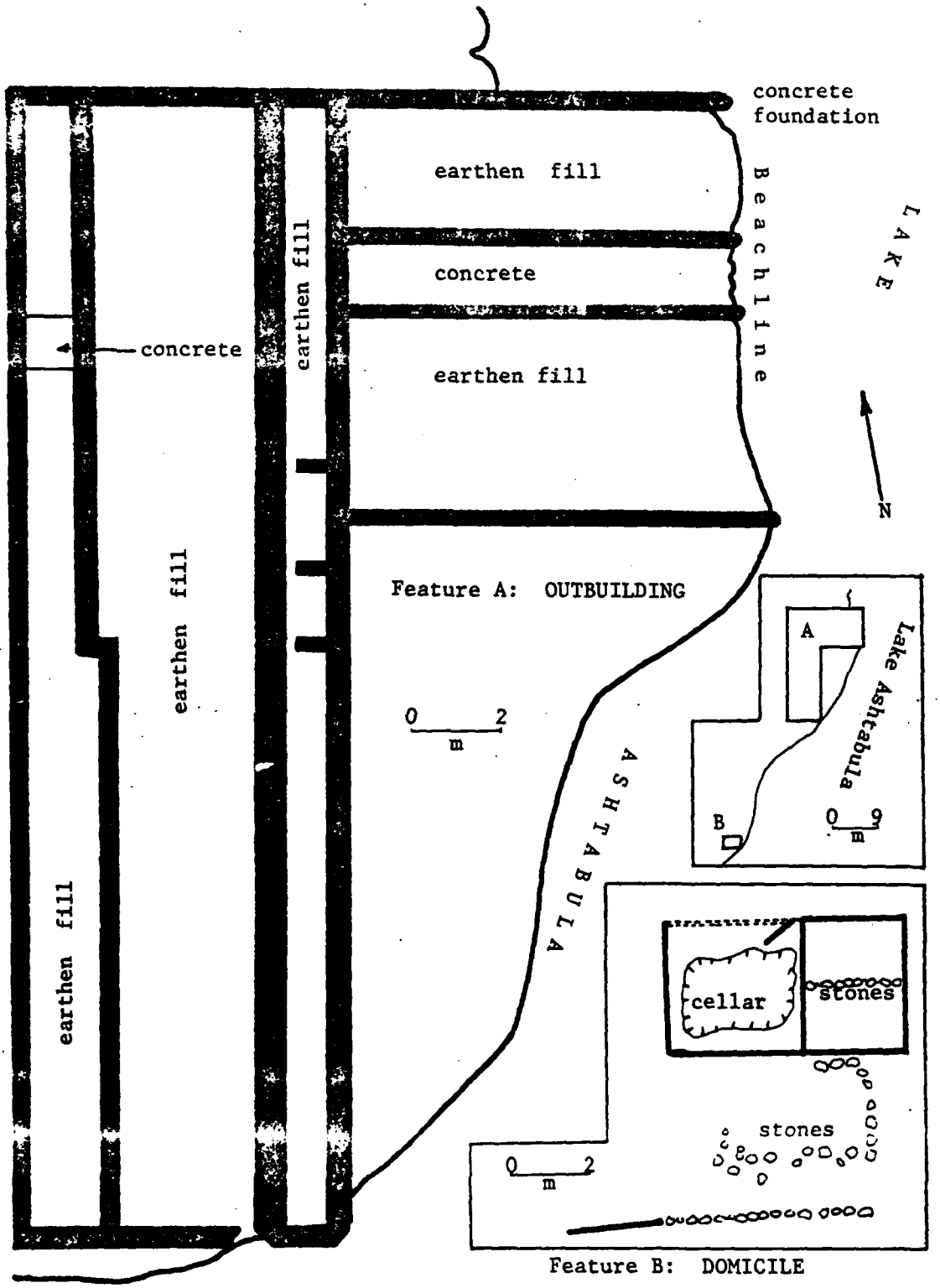


FIGURE 7. Plan view, 32BA424.

Table 22. Surface collection, 32BA424.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces				1			
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes		2		1			
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present__ absent x	

OTHER	One, two-hole, shell button.

32BA425 (public domain)

Site Description: This site is situated on a terrace above the shoreline at an elevation of approximately 387 m MSL. There is a small ephemeral drainage that passes just to the south. The terrace is covered with shrubs and trees where the land begins to grade into the steep valley wall. The area where the lithics were found is dotted with sparse stands of prairie grasses that leave as much as 80% of the surface exposed.

Just to the north of the lithic scatter was a large riprap stockpile that existed as early as the fall of 1978. Apparently the riprap had been placed here before the area was surveyed for cultural resources in 1978. The site is just south of the East Ashtabula concession and summer cabins.

Cultural Material: The cultural material collected here is documented in Tables 23 and 24. This represents all that was observed at the site.

Testing: The area was tested in 1979 because it is in the East Ashtabula Crossing Corps development area and because it had been disturbed by riprap stockpiling and an access road prior to an adequate survey. The testing was conducted to determine if there were subsurface deposits present. Eight auger test units were placed in and around the area where the lithics were collected. The surface was very rocky and this influenced the location of the tests. The adjacent area to the north where the stockpile had been (it had been depleted during the 1978-79 winter riprap operations) was a likely spot for prehistoric utilization but it could not be tested because many large stones remained.

The test units ranged from 26 cm to 39 cm deep. The units were terminated at an impenetrable clay stratum. The backfill from each unit was inspected by going through the soil with a trowel. No cultural materials were found. Two unidentifiable bone slivers were found in the matrix from Unit #4.

Interpretations: The material from the collection is not amenable to analyses regarding temporal and functional aspects of the site. Discounting the two bone fragments, there does not appear to be any subsurface distribution at the site. On the basis of the extant material about all that can be said is that this is a sparse lithic scatter confined to the surface. The stockpile area could possibly have cultural materials on or below the surface but it would take heavy equipment to prepare the area for inspection.

Significance Assessment: The site, as we know it, represents a surface component that probably can not add to our knowledge of the prehistory of the area. However, until further survey and testing are conducted under the stockpile area, it seems premature to offer statements of significance.

Adverse Impacts/Recommendations: The site is potentially threatened by two types of adverse impacts, vandalism from leasee activity and future pool elevation raises. If it is eventually judged insignificant, then there is no need to protect against these impacts. The placement of a stockpile here prior to survey is alarming although the results do not appear to be destructive at this site. The potential for disturbance of significant sites remains, however, should this situation occur again. An eligibility evaluation must await further survey and testing.

Table 23. Surface collection, 32BA425.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools						1	
	nonbipolar cores							
	bipolar cores							
	waste flakes		1				1	
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: two fragments (includes one, possible bone tool fragment) identifiable remains:
present x absent___	

OTHER	

Table 24. Subsurface observations, test operations, 32BA425.

CHIPPED STONE None / Material	KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED: projectile points							
PATTERNED: scrapers							
PATTERNED: bifaces							
UNPATTERNED: bifacially worked fragments							
UNPATTERNED: flake tools							
UNPATTERNED: nonbipolar cores							
UNPATTERNED: bipolar cores							
UNPATTERNED: waste flakes							
UNPATTERNED: tested raw material							
UNPATTERNED: untested raw material							

CERAMICS (present__ absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: 2 bone fragments, small slivers, (Not Collected). identifiable remains:
present_X	
absent___	

OTHER	

32BA426 (private domain)

Site Description: The site is an historic junk pile located on a slope along an emphemeral drainage. It is adjacent to the Old Highway 26 boat ramp and picnic area. There was no evidence of structures within the survey area. Elevation at the site is 390 m.

The debris here consisted of wood, brick, an old gas cook stove, a 1957 North Dakota license plate, glass, wire, bedsprings and other junk.

Cultural Material: A general description is given above.

Testing: None

Interpretations: This is probably a trash area that is typically found at farmsteads. There was no evidence of structures nearby. It is probable that the farmstead was located in what is now the Old Highway 26 development area and has since been destroyed. The 1957 car registration plate suggests the dump was active as late as that year. The bedsprings and stove are indicative of a residence.

Significance Assessment: The site is probably not significant in terms of National Register of Historic Places criteria.

Adverse Impacts/Recommendations: The only potential impact here is inundation by future pool elevation raises. Since the site is not significant, this impact need not be addressed. It is not recommended that the site be nominated to the National Register of Historic Places.

32BA427 (public domain)

Site Description: The decision to designate this area as a site was made on the basis of the results of the auger testing here. The site is situated on a sloping flat at the base of the valley wall. The slope terminates at a lengthy cutbank along the beachline. The cutbank varies from 1 m to 2 m high. The surface of the flat above is nearly obscured by pasture. There are, however, a few cowpaths that traverse the area. The southern extent of the flat is defined by an ephemeral drainage. The elevation at the site is 387 m.

During the 1978 survey of this area, we discovered two waste flakes in situ in the cutbank over a 50 m stretch. These were at a depth of about 15 cm. No other material was found along the beach or in the cowpaths on the flat above. The area was designated as a high potential test area (test area #7) and plans were made to test here during the 1979 season.

Cultural Material: The material is documented in tabular form in Table 25. This represents all that was observed or extracted from test units here.

Testing: The decision to test here was made on the basis of the waste flakes embedded in the cutbank and the obscuration of the surface above. The purpose of the testing was to determine the presence or absence of subsurface cultural materials. Twelve test units were placed on the flat above the cutbank areas that contained the flakes. The depths of the units ranged from 30 cm to 50 cm. Each was arbitrarily terminated with the exception of two where we encountered rocks. The unit matrices were processed through a 6.35 mm hardware mesh to recover any cultural materials that might be present. We discovered 1 waste flake of Knife River flint in unit #3, 1 in unit #10 and 2 in unit #12. It is not known exactly what exactly what depth the specimens came from. The remaining units were culturally sterile.

Interpretations: Obviously the extant collection offers little in the way of temporal, spatial and functional interpretations. Undoubtedly much of the site has eroded away from lacustrine erosion. Quite clearly there are subsurface materials remaining but the extent is not known. It may be that the area represents the extreme periphery of a site that once existed nearer the river or ephemeral drainage but is now inundated. An alternative is that the site is a localized scatter of materials independent of a site near the river. The cowpaths in the area are worn to a depth of 10 cm on the average. Nothing was discovered in these numerous paths so it is probable that the subsurface component is extant below 10 cm. This is corroborated by the specimens found in the cutbank. The total depth or the number of components, if more than one exists, is not known.

Significance Assessments: The significance of this site can not be determined with the data we now have.

Adverse Impacts/Recommendations: This site is potentially threatened by lacustrine erosional and pool elevation raise adverse impacts. The placement of riprap should check erosion here. If riprap is not scheduled for this area then the site should be tested systematically to determine its significance. The testing also would provide data sufficient for determining the impacts of inundation by pool raises. Recommendations regarding nomination to the National Register of Historic Place can not be made until the significance is determined.

Table 25. Subsurface collection, test operations, 32BA427 (test area 7).

CHIPPED STONE Material	KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED projectile points							
scrapers							
bifaces							
UNPATTERNED bifacially worked fragments							
flake tools							
nonbipolar cores							
bipolar cores							
waste flakes	4						
tested raw material							
untested raw material							

CERAMICS (present__ absent_x_)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present__ absent_x_	

OTHER	

32BA428 (public domain)

Site Description: The site is situated on an alluvial fan terrace formed by a small ephemeral drainage that empties into Lake Ashtabula. The site area as determined by the surface detritus exists on the fan from the lake to the base of the steep valley wall and between the higher ridges on either side of the drainage. There are numerous bushes here and a few deciduous trees. Much of the area is covered with prairie grasses but a nearly equal amount has been exposed by cattle using the rub and salt lick that are stationed here. Elevation at the site is 390 m.

The exposures made by cattle are approximately 10 cm deep in most areas. We found all of the lithics in these exposed areas. The cutbank created by lacustrine erosion contained bone in situ at a depth of 28 cm and 34 cm. This discovery, along with the surface material presumably derived from the subsurface, contributed to the decision not to test in this area. The extant data allowed determinations of the horizontal extent of one subsurface component. It was felt that testing would probably add little to the resolution of the content as experience at many other tested areas had shown.

Cultural Materials: The materials are documented in Table 26. This represents all that we found here.

Testing: Although this was originally designated as a test area we did not test here. See discussion in the above section.

Interpretations: The vertical extent of the site probably extends from about 10 cm below the surface to a depth of 34 cm. This is evidenced by the materials from the cattle disturbed areas and the cutbank exposure. The horizontal extent is discussed above.

The identifiable bone fragments are from Bison bison. The olecranon process and another bone found in the stream bed approximately 100 m from the mouth of the drainage exhibit butchering marks. These two bones may have washed down from further above but we were unable to detect any more because of the heavy bush cover. The drainage could have been used as an impoundment but the sides are not exceptionally steep.

Significance Assessment: The integrity of the site has apparently not been completely destroyed by lacustrine erosion. There are subsurface materials extant but the nature of these are not fully understood. On these bases, the site should be considered potentially significant in terms of National Register of Historic Places criteria. Temporal statements can not be made at this time but the site does have potential for resolving this problem as well as refining an understanding of site function.

Adverse Impacts/Recommendations: The site is potentially threatened by erosion and inundation from future pool raises. Should riprap be placed along the shoreline here, the erosion impact would probably be checked. If not, the site should be tested. Such testing would satisfactorily resolve the assessment appotential significance. The site is potentially eligible for nomination to the National Register of Historic Places.

Table 26. Surface collection, 32BA428.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes		3					
	tested raw material							
	untested raw material							

CERAMICS (present__ absent X)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: 4 fragments from cutbank, 1 fragment from drainage. identifiable remains: large fragment of olecranon process.
present X	
absent___	

OTHER	1 large basalt flake, probably a chopping tool.

32ST2 (private domain)

Site Description: This is an historic site consisting of a foundation remnant and a dilapidated wooden shed. The foundation excavation is or has been used as a waste dump. There is much debris scattered about. The foundation was of cobbles and cement. See Figure 8. The elevation at the site is 408.4 m.

The structure is located on the first terrace and adjacent to the Sheyenne River. It is at the base of the steep valley wall. There are heavy stands of gallery forest as well as bushes in the vicinity. The terrace is grassy.

Cultural Material: None were collected here but a large amount of trash exists.

Testing: None

Interpretations: The site is an historic farmstead that was constructed in 1918 by M. Kermit Ueland's parents. The house was later moved to Cooperstown, ND by Mrs. Ueland (date and new address unknown).

Significance Assessment: The integrity of the site has been destroyed by mvoing the original structure. It is doubtful if it is significant in terms of National Register of Historic Places criteria, unless the Uelands were noted individuals important in the local history.

Adverse Impacts/Recommendations: The site is potentially threatened by periodic flooding and inundation brought on by future pool elevation raises. Since 32ST2 is probably insignificant, additional measures to alleviate these impacts are not required. The site need not be nominated for inclusion on the National Register of Historic Places.

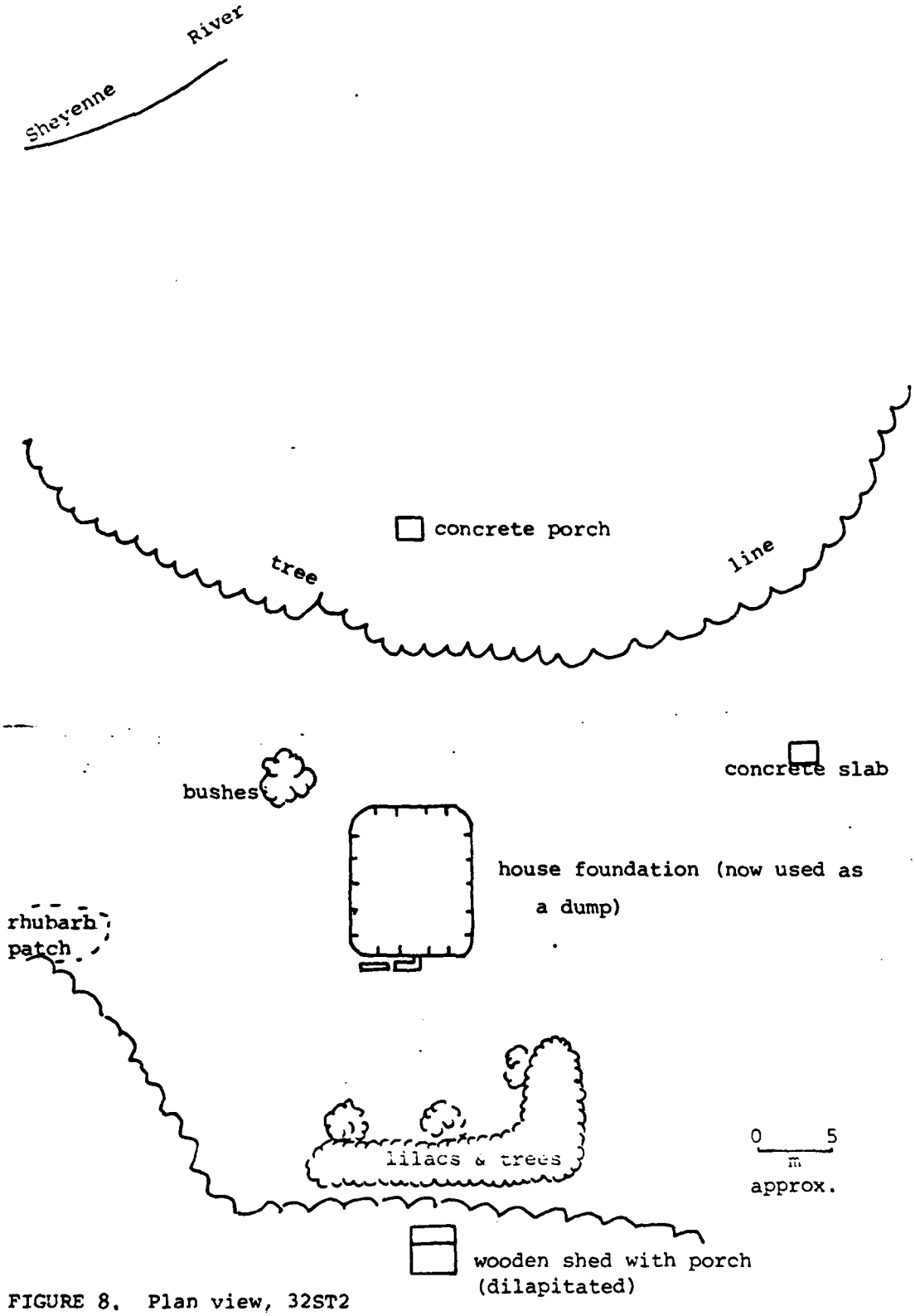


FIGURE 8. Plan view, 32ST2

32GG4 (public domain)

Site Description: This consists of the remnants of a single dugout constructed into the side of the valley slope (Figure 9). Dimensions of the depression that remains are approximately 3 m by 4 m. The door opened toward the Sheyenne River. The elevation of the structure is about 393 m MSL.

The depression contains stones that may have been part of the foundation or floor. They also may be field stones cleared from nearby fields. The cobbles ranged from 15 cm to 30 cm in diameter (roughly). The rectangular depression is surrounded by borrow soil.

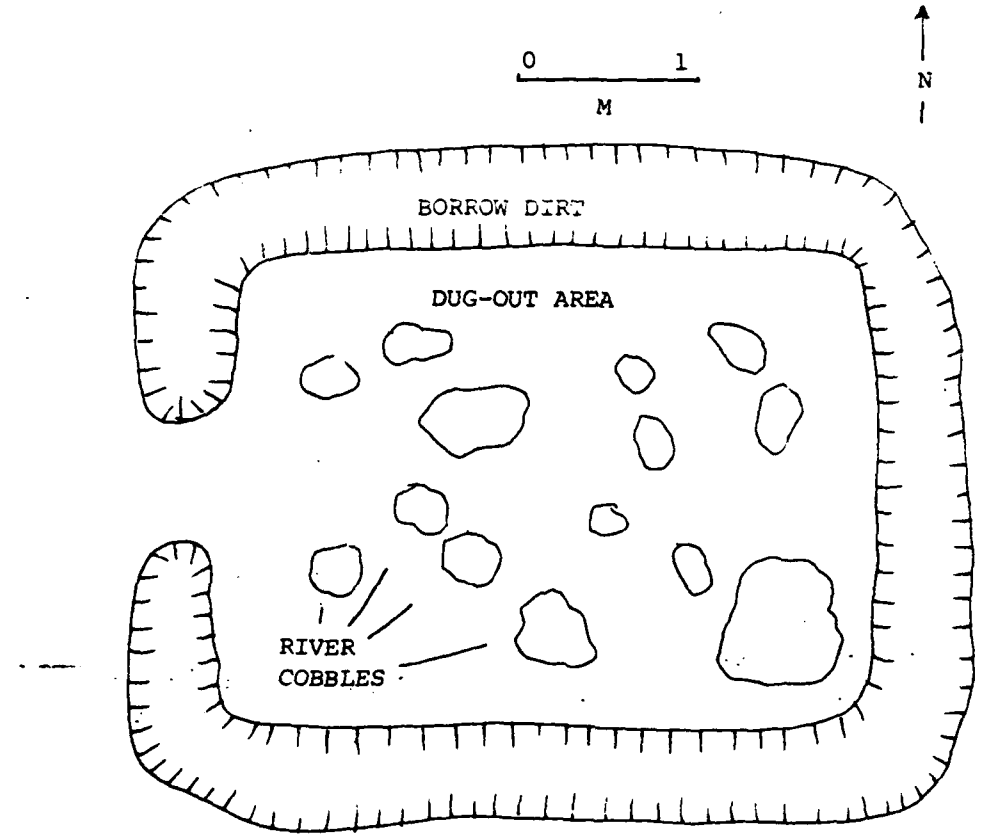
Cultural Material: None was observed at the site.

Testing: None

Interpretations: The site probably represents an early domicile cosntructed during the early 1900 homestead era. Usually these types of structures were utilized before the homestead acreage was proved up and a permanent dwelling was constructed. No attempt was made to investigate the county records regarding this site because history was only a minor work item.

Significance Assessment: Dugouts appear to be an early and important part of the homestead history of the Sheyenne River valley. However, data sufficient for determining significance is presently not available. Such determinations must await implementation of the recommendations below.

Adverse Impacts/Recommendations: The dugout is potentially threatened by future raises in pool elevation. If and when this impact is realized, a qualified historian should be allowed to conduct a records search (as a minimum) into the history of the site. The investigation should determine if the individual(s) associated with the site were significant in the development of the local homesteading history. Recommendations regarding National Register of Historic Places can not be made until this is accomplished.



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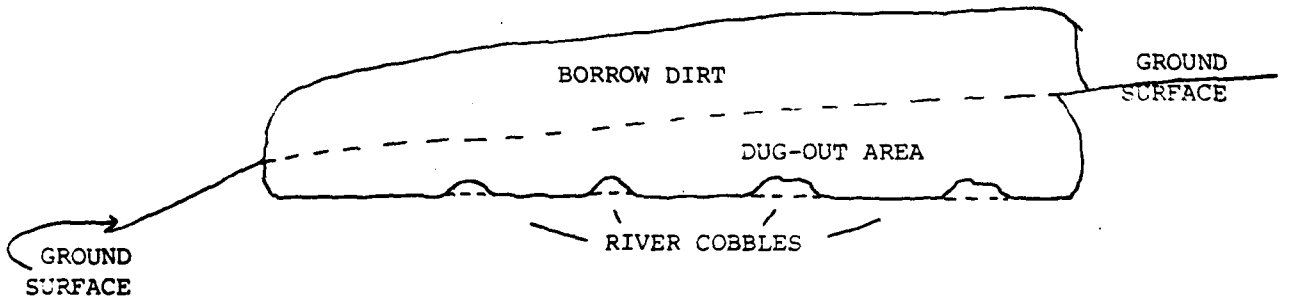


FIGURE 9. Plan view, 32GG4

32GG5

Site Description: The site is situated on a long narrow flat between Lake Ashtabula and the steep valley wall. The heavy grass cover effectively obscures the surface. A two-track dirt trail traverses the flat. The trail has exposed the subsurface in some places to a depth of 25 cm. There are a few bushes and trees near the lake. The elevation at the site is 395 m.

A fire hearth is exposed in the two-track road (Plate 9). Lithic debris was collected from the ruts. The road is about 600 m long. The cutbank was inspected but no cultural materials were observed. Riprap has been placed along the shoreline. The road is as much as 50 m distant from the shoreline.

Cultural Material: The collection is documented in Table 27. This represents all that was observed here. The fire hearth consists of fist-sized (and slightly larger) stones that have been disturbed by traffic. Some of the stones are obviously fire-cracked. All remain embedded in the rut. Artifact specimens are illustrated in Plate A1 with accession numbers.

Testing: None

Interpretations: The extant material does not allow temporal evaluations. The provenience of the lithic debris and the partially exposed hearth indicate that subsurface deposits exist at the site. The spatial extent of the site is not precisely known but it could extend from the lake to the valley wall.

The presence of bone fragments and the hearth suggest an occupation area where butchering activity may have taken place. It is possible that some of the site has eroded away but the riprap should check this.

Significance Assessment: All indications point toward an assessment of potentially significance in terms of National Register of Historic Places criteria. The distance of the hearth from the shoreline indicates that much of the site's integrity remains. The implication that subsurface materials are extant bolsters the assessment.

Adverse Impacts/Recommendations: The site is potentially threatened by vehicular traffic and future raises in pool elevation. Erosion is presently being checked by the riprap. The hearth and the immediate vicinity should be excavated, analyzed and reported to mitigate the ongoing vehicular impacts. Should a pool elevation raise threaten inundation of the site, systematic testing operations should be carried out to determine the extent and nature of the site. These investigations should provide data sufficient for verifying the significance assessment and planning mitigation actions. The site should be considered as potentially eligible for the National Register of Historic Places.

Table 27. Surface collection, 32GG5.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces	1						
UNPATTERNED	bifacially worked fragments							
	flake tools	1						
	nonbipolar cores							
	bipolar cores	1						
	waste flakes		34		9			
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: four, long bone fragments. identifiable remains: one, large-mammal bone
present x absent___	

OTHER	Ground-stone: cobble chopping/cutting tool fragment, basaltic.

32GG6 (private domain)

Site Description: The site is comprised of a barn that is constructed of planking for siding and unsawed logs (small trees) for studs and rafters (Plate 10). It is located in a grove of trees near an ephemeral drainage. There are several summer cabins just to the north. There was no evidence of other structures in the immediate vicinity.

The barn contains sawn lumber and numerous wooden shingles. They appear to have been there for a lengthy period of time. In other words, the structure is apparently not actively used. The site form in Volume II of this report contains the barn's dimensions. A hole in an outside wall is patched with a 1932 North Dakota vehicle license plate. The elevation is 393 m MSL.

Cultural Material: None was collected here.

Testing: None

Interpretations: The structure was probably part of an early farmstead although the other structures are not evident. They may have been located where the summer cottages now stand. The license plate suggests the structure was utilized in the 1930's or later.

Significance Assessment: An assessment of significance should not be made until the items recommended below are initiated.

Adverse Impacts/Recommendations: The barn would probably be destroyed by inundation or erosion if the Lake Ashtabula pool were raised. Prior to this impact, a records and title search should be carried out to enable a determination of significance. The structure should also be evaluated by an historical architect to determine if it is of a unique architectural style. Pending these actions, an eligibility determination can not be made.

32GG7 (private domain)

Site Description: The site is located in a plowed field on the floodplain of the Sheyenne River. The river is adjacent to and east of the site. The area is surrounded by gallery forest to the north and northeast. West of 32GG7 is a road and oxbow lake. The cultural debris seems sparse nearer the river and more heavily concentrated along the oxbow lake. It is probable that the oxbow was the main river channel during the period of occupation. Across the road the floodplain continues but it is covered with tall grasses. It is possible that the site extends into this area but any surface indications are obscured by the grasses. The elevation at the site is 390 m.

The cultural material was collected from the plowed field. The collection includes lithic debris, potsherds, and tooth fragments.

Cultural Material: The collection is documented in Table 28. See Plates A2, A3 and A4 for artifact illustrations and accession numbers.

Interpretations: The horizontal extent of the site is concentrated in the U-shaped area of the oxbow lake. The vertical extent is not known other than it is sufficiently shallow for a portion to be disturbed by cultivation. The variety of artifact classes suggest an occupation area of extended utilization. Flint knapping was carried out here as evidenced by the bipolar core and anvil stone. The ceramics indicate domestic activities performed by females were a common occurence. The chipped stone artifacts indicate a further refinement in the division of labor. The paucity of faunal remains is surprising in view of the intrepretation of the site as an occupation area.

The plain and cord roughened pottery are characteristic traits of Middle Woodland complexes but are not unknown in Late Woodland times. The brushed specimens seem aberrant. The unnotched, triangular projectile points (or blanks) occur later in time and are more characteristic of the Late Woodland period. This opens the possibility of two components at the site or a single Late Woodland occupation that used pottery making techniques similar to their predecessors.

Significance Assessment: Assuming the plow has dislodged the cultural debris from a subsurface provenience, it is possible that additional deposits exist. Since the extant material has allowed some speculation regarding time and function aspects, it is probable that the buried materials, if the deduction is correct, could further refine the preliminary interpretations. For these reasons, the site is judged potentially significant in terms of National Register of Historic Places criteria.

Adverse Impacts/Recommendations: The only potential threats to this site are cultivation and future pool elevation raises. Since the property is privately owned, the Corps is under no obligation to mitigate the former impact. If a pool raise is considered, however, the site should be tested to determine the assessment of potential significance. The site is potentially eligible for the National Register of Historic Places,

Table 28. Surface collection, 32GG7.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points		2					
	scrapers	1						
	bifaces							
UNPATTERNED	bifacially worked fragments		5					
	flake tools	1						
	nonbipolar cores		1					
	bipolar cores					1		
	waste flakes	1	19		5	1		
	tested raw material		2					
	untested raw material							

CERAMICS (present x absent __)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd	1		1				
body sherd	10	1	1				3 split sherds

FAUNAL REMAINS	unidentifiable remains: three, tooth fragments (Bison or Bos molars) identifiable remains:
present x absent ___	

OTHER	Five, granitic cobble tools, including pitted anvil-stone and choppers.

32GG8 (private domain)

Site Description: This is a dugout site (elevation 393 m MSL) with evidence of two former structures (Plate 11). The upper structure is dugout into the side of an old river terrace (it could also be just part of the valley wall). This feature has the remnants of a tin and wood superstructure utilizing poles, hewn lumber and sheet tin. One piece of tin has the following printed on it, "Trimbel (?), Winton Lbr. (or Lvr.) Col, Dazey, No. Dak." This could be either a lumber or livery company but it no longer exists in Dazey. The lower dugout exhibits no evidence of a superstructure.

At the upper structure, it appears the tin was secured beneath a rock and dirt fill foundation. The tin was then turned up and run along the pole and lumber frame to form the sidewall sheeting. Evidence of a roof is apparently destroyed.

We observed a bottle neck (blown glass), a metal hoop from a wooden spoke wheel, a firewall and windshield from a Model T vintage auto, numerous glass fragments, white porcelain fragments from zinc canning jar lids, round nails and one square nail in a rafter, a lock washer and leather fragments.

Informants (see site form) provide conflicting stories about the site and its occupant. Apparently the fellow who lived here was quite eccentric. His name was Martin Nelsen and he traveled around the farmsteads and repaired leather articles. He apparently went by several nicknames, "the Hermit," "Shoemaker," and, quite appropriately, "the Badger." The informants were vague regarding dates. A Peter (?) Jensen may have lived with Nelsen (or Nelson) in the dugout for awhile. The proprieter of the local repair shop said that Nelsen, in his later years, moved to Luverne where he built some shacks by the railroad and dealt in junk until his death.

Cultural Material: None was collected here. A general description is presented above.

Testing: None

Interpretation: The dugout was used as a permanent domicile, probably by Martin Nelsen, for a lengthy but unknown period of time. It does not seem to follow the pattern of temporary occupancy prior to proving up a homestead.

Significance Assessment: Nearly everyone that we talked to knew about this site and either knew or had heard of the occupant. The structures appear to be a unique part of the local historical and architectural legacy. The dilapidated state of the tin structure detracts from its integrity but the site may be significant in terms of its historical background and, perhaps, the historical personage associated with it. Until a historical investigation is conducted, it appears premature to assess the site's significance.

Adverse Impacts/Recommendations: The site would probably be seriously impacted by inundation caused by a pool raise or lacutstrine erosion associated with the raise. Presently, it is not threatened by adverse impacts other than exposure and weathering. Sufficient structural evidence remains for on site analyses by an architectural historian. The locals' knowledge of the site and its resident seems to be detailed. These factors combined represent a singular opportunity to record a unique way of life within the Sheyenne River valley and North Dakota. It is strongly recommended that professional historical and architectural investigations be carried out here while the opportunity still remains.

Table 32. Surface collection, 32GG12.

CHIPPED STONE Material	KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED projectile points							
PATTERNED scrapers							
PATTERNED bifaces							
bifacially worked fragments							
UNPATTERNED flake tools	1						
UNPATTERNED nonbipolar cores							
UNPATTERNED bipolar cores							
UNPATTERNED waste flakes	1	1					1
UNPATTERNED tested raw material							
UNPATTERNED untested raw material							

CERAMICS (present x absent)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd	2						

FAUNAL REMAINS	unidentifiable remains: two, large-mammal, long bone fragments. identifiable remains: two teeth (Bison or Bos).
present x absent	
OTHER	

32GG9 (private domain)

Site Description: This site is situated in a cultivated field along an old channel cutoff of the Sheyenne River. It is adjacent to and south of the county road leading to the Cooperstown Bible Camp. The uncultivated areas are in gallery forest and the associated understory. It is located on the terrace floodplain. (Site elevation: 388.6 m).

Body sherds, lithic debris and a substantial amount of small bone fragments are scattered about the field. Some bone exhibits evidence of charring. No stone artifacts were noticed. The lithic materials are predominantly Swan River chert with a few Knife River flint specimens. The debris was scattered about a 4 ha area (approximately).

Cultural Material: See Table 29 for a description of the material collected.

Testing: None

Interpretations: The large amount of bone and charring suggests that this area was utilized as an occupation site where meat and food preparations were carried out. The presence of ceramics support this speculation. Apparently flint knapping activities were carried out here. The single rim sherd discovered is different from any others in the inventory. It is thin walled with an incised surface treatment. The surface decoration technique in cross-hatch while the lip is tool impressed. This type does not appear to be affiliated with the Sonota Complex.

The depth of the site is not known but it is probable that it contains subsurface deposits, some of which have been disturbed by the plow. Apparently the site was occupied when the oxbow was part of the Sheyenne River proper.

Significance Assessment: The variety of material classes, the faunal remains and the deduction that subsurface materials may remain indicate that the site is potentially significant inasmuch as it may add to our knowledge of prehistoric utilization of the Sheyenne River. Careful analysis of ceramics present may resolve questions of cultural and temporal affiliations.

Adverse Impacts/ Recommendations: The site is presently subjected to impacts created by cultivation and potential impacts of inundation if the pool elevation of Lake Ashtabula is raised. The Corps is not responsible for the former impact, but if the pool is raised, additional investigations must be carried out here. These should include a testing program to evaluate the extent and content of the site and to provide data on which to base a mitigation program, if necessary. Because it is potentially significant, the site should be considered as potentially eligible for the National Register of Historic Places.

Table 29. Surface collection, 32GG9

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							1-TRSS
	nonbipolar cores		1					1granitic
	bipolar cores							
	waste flakes		5		1			1-TRSS
	tested raw material							
	untested raw material							

CERAMICS (present x absent)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							1-see text
body sherd	3	1					

FAUNAL REMAINS	unidentifiable remains: 3 fragments, 1 charred identifiable remains: 1 tooth fragment, Bos 1 tooth fragment, Canis sp. (?) 1 fibular tarsal fragment (?), Bos
present x absent	

OTHER	TRSS = Tongue River silicified sediment

32GG10 (public domain)

Site Description: The Deep Coulee site contains a prehistoric and historic component evident on the surface. The prehistoric component is exposed on the beach, at the base of a cutbank and in cowpaths along a flat adjacent to a large ephemeral drainage. The flat is covered with grass and situated between the lake and the steep valley wall. The elevation at the site is 390 m.

The historic evidence is above the prehistoric component and on the opposite side of the drainage. It consists of the remnants of 3 structures. One was probably a domicile and the others were outbuildings (Figure 10), including an outdoor privy. A galvanized bucket was noticed in the vicinity. There is also a boat dock nearby.

Two waste flakes were discovered in the cutbank that exists at the lake's edge. One was discovered at a depth of 15 cm and the other at 2 cm. Other material was discovered in a cowpath and along the beach.

Cultural Material: The prehistoric collection is documented in Table 29.

Testing: None

Interpretations: The extant data is not amenable to temporal, functional or cultural affiliation analyses of prehistoric utilization of the site. The historical component is probably an abandoned farmstead but the age is not known.

The prehistoric subsurface indicators suggest that there are subsurface deposits remaining here. Undoubtedly much of the site has been destroyed by lacustrine erosion. The old river channel was probably near this area at one time so what we are seeing is probably the remnants of the periphery of the site that was concentrated nearer the river. The wooded coulee and the river probably offered an ideal area for camping or semi-permanent occupation.

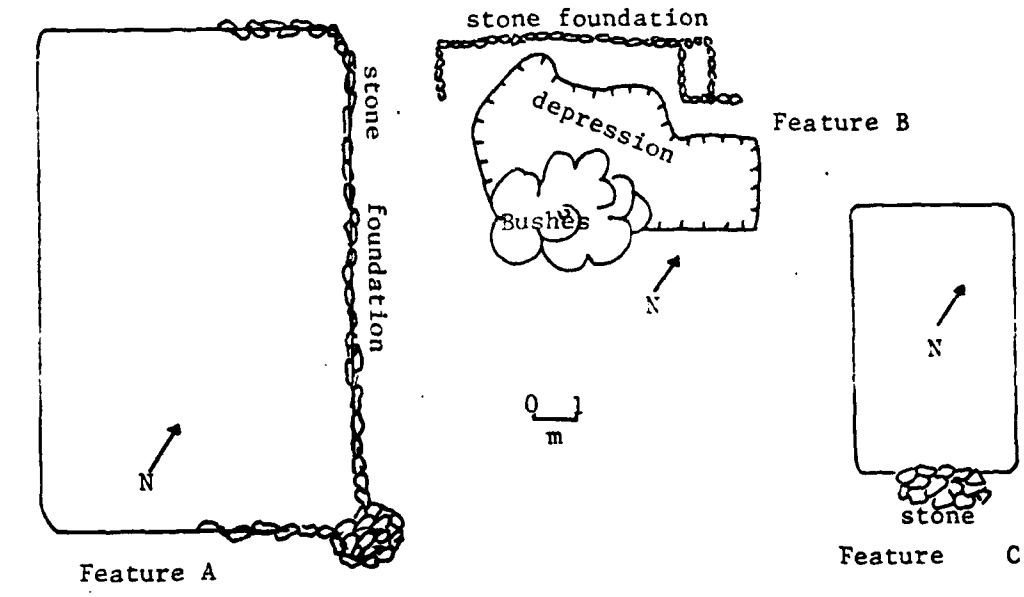
It is assumed that the boat dock was constructed after the lake came into being (post A.D. 1951). If it is associated with the historic remnants, it is likely that the structures were utilized as late as the 1950's. There is, however, no way to demonstrate such an association at this time.

The horizontal extent of the prehistoric component is presently not known. There is at least one component distributed vertically from near the surface to a depth of 15 cm and perhaps beyond.

Significance Assessments: The subsurface indicators suggest that a portion of the prehistoric component remains. On this basis, the site should be considered to be potentially significant in terms of National Register of Historic Places criteria. It is possible that

data pertinent to problems in time, function and cultural affiliation could be worked out. The significance of the historic component should await results from the investigations recommended below.

Adverse Impacts/Recommendations: Two types of adverse impacts threaten resources at this site. They are lacustrine erosion and inundation precipitated by future pool elevation raises. The prehistoric component is presently threatened by the former and potentially threatened by the latter. Riprap should be placed here to prevent the erosion. In lieu of such action, systematic test investigations should be initiated to determine the validity of the assessment of potential significance and to provide data on which a mitigation program can be worked out, if necessary. Investigations at the historic component should include a records and title search as a minimum. It probably would be best to delay National Register of Historic Places decisions until these actions are carried out.



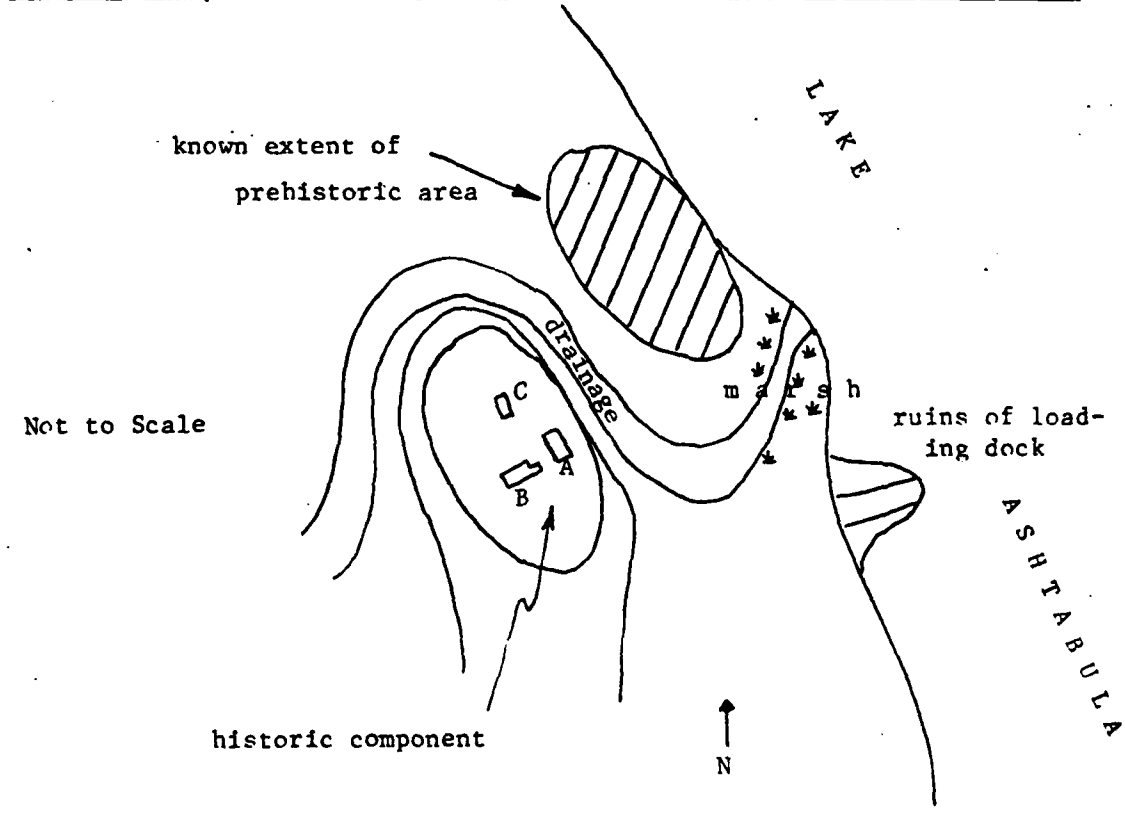


FIGURE 10. Plan view, 32GG10.

Table 30. Surface collection, 32GG10.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes	1	6					
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present__ absent x	

OTHER	

32GG11 (public domain)

Site Description: The site is located on a sloping flat between Lake Ashtabula and a steep valley wall. The extent of the flat between the lake and valley wall is only about 50 m. An ephemeral drainage bisects the flat before it enters the lake. Pasture grasses and marsh are the characteristic vegetation. They effectively obscure the surface here. It is at an elevation of from 384 m to 390 m MSL.

A two-track trail traverses the length of the flat. All of the lithic debris was found either in the trail ruts or the drainage channel. An unidentifiable bone fragment, a tooth fragment and a turtle shell were also discovered.

Cultural Material: The material is documented in Table 30. See Plate A2 for artifact illustration and accession number.

Testing: None

Interpretations: The site is considered to contain subsurface deposits on the basis of the material found exposed in the trail ruts and the drainage. The surface is obscured by the marsh and grasses. These materials are not sufficient for preliminary determinations of function, time or cultural affiliation. It is apparent that some of the site has been inundated, rendered inaccessible by the marshes and destroyed by lacustrine erosion.

The depth of the deposits are not known. The ruts are on the average 10 cm to 15 cm deep so it may be that the cultural stratum that is being disturbed begins near the surface. The horizontal limits are 50 m either side of the ephemeral drainage as evidenced by the distribution of the collected materials.

Significance Assessment: On the basis of the subsurface indicators, the site is considered to be potentially significant in solving problems regarding adaptations to the Sheyenne River valley.

Adverse Impacts/Recommendations: The site is presently being eroded and is potentially threatened by inundation if the pool elevation is raised. Riprap should be placed along the shoreline to prevent erosion. If such plans are not immediate, then a systematic testing program should be initiated to resolve the assessment of potential significance. The results of the testing should provide data, if it exists, by which a program of mitigation can be agreed upon. These recommendations are also valid for the impact of inundation. A minor impact is the disturbance caused by infrequent vehicular traffic.

Table 31. Surface collection, 32GG11.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools	1						
	nonbipolar cores							
	bipolar cores							
	waste flakes	2	7					
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: ungulate tooth fragment. identifiable remains: turtle shell.
present__x absent___	
OTHER	

32GG12 (private domain)

Site Description: This site is located in a planted field on the river terrace along a straight stretch of the Sheyenne River. A county gravel road flanks the site on the side opposite the river. The site probably terminates at higher terrain to the south and at a forested area to the north. The gallery forest lines the river. It is at an elevation of 395 m MSL.

We found a sparse lithic scatter here accompanied by two body sherds and a few unidentifiable bone fragments. The ceramics were found adjacent to the road and north of the lithic debris. Mr. Erickson, the landowner, said that he had found several "stone hammers" in this field. See Plate A2 and A5 for artifact illustrations and accession number.

Cultural Material: The material collected is documented in Table 31. Additional bone fragments were observed but not collected.

Testing: None

Interpretations: The vertical extent of the site is not known but the disturbed component is sufficiently shallow to be at least partially destroyed by plowing. The ceramic, lithics and ground stone evidence might suggest a semi-permanent occupation area where specific tasks such as food preparation were carried out. The plain body sherds are traits characteristic of Middle Woodland components but the evidence is too sparse to make firm temporal and cultural statements.

Significance Assessment: If the plow has not completely destroyed the upper component, then there is a possibility that additional materials pertinent to the resolution of problems in prehistoric adaptations to the valley remain. There is really no way to know until the recommendations below are initiated. The site, therefore, should be considered as potentially significant in terms of National Register of Historic Places criteria until demonstrated otherwise.

Adverse Impacts/Recommendations: The site is potentially threatened by inundation if the pool elevation of Lake Ashtabula is raised. Another potential impact is lacustrine erosion if the pool does not actually inundate the area. If, in the future, this measure becomes reality, then the site should be systematically tested to determine if the significance assessment is correct. As it stands now, the site is potentially eligible for nomination to the National Register of Historic Places on the basis of its potential.

Table 32. Surface collection, 32GG12.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools	1						
	nonbipolar cores							
	bipolar cores							
	waste flakes	1	1					1
	tested raw material							
	untested raw material							

CERAMICS (present x absent ·)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd	2						

FAUNAL REMAINS	unidentifiable remains: two, large-mammal, long bone fragments. identifiable remains: two teeth (Bison or Bos)
present x absent ___	

OTHER	

32GG13 (public domain)

Site Description: Site 32GG13 is nearby and similar to 32GG11. It is located on a flat that extends from the river (above normal pool elevation the river is part of the lake) meander to the steep valley wall. The north-south extent is not evident on the basis of the visual inspection. A two-track trail traverses the flat. The ruts have exposed the subsurface to a depth of approximately 10 cm. The rest of the surface is obscured by grasses and marsh. Much of the site's periphery has been eroded by the river. Consequently, there is a lengthy cutbank here. The elevation at the site is 396 m.

Normally, the paucity of flakes here would not be sufficient for justifying this area as a site. The fact that they were found in the ruts, however, indicates that they are being dislodged from subsurface deposits although none were discovered in the cutbank.

Cultural Material: This material is documented in Table 32. It represents all that was discovered here.

Testing: None

Interpretations: See those discussed for 32GG11.

Significance Assessment: See the assessment for 32GG11.

Adverse Impacts/Recommendations: See those presented for 32GG11.

Table 33. Surface collection, 32GG13.

CHIPPED STONE — Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes	1	3				2	
	tested raw material							
	untested raw material							

CERAMICS (present__ absentx)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present__ absent x	
OTHER	

32GG14 (private domain)

Site Description: Prehistoric and historic debris was discovered in a plowed field. The terrain is gently rolling and sloping from the valley wall to the Sheyenne River floodplain. Near the river, the vegetation consists of marsh grasses, cattails, buckbrush, willows and cottonwood. The elevation is 387 m MSL.

The cultural debris was discovered over a 275 m stretch along the river. It consisted of lithics, bone fragments, 2 clam shell fragments, a crock fragment and the blade of a butcher knife. Although the field was in crops, the survey conditions were quite good because recent rains had exposed a fresh surface.

Cultural Material: The prehistoric material is documented in Table 33. The historical evidence is described above.

Testing: None

Interpretations: Not much can be deduced from the materials on hand. Either the cultural debris is spase here or the plow is catching only portions of the top of a buried prehistoric component. The vertical and horizontal distribution is not known. Any evidence of historic structures or an old dump has been obliterated by the plowing, if, in fact, they existed here.

Significance Assessment: It is difficult to determine the significance of this site based upon the extant evidence. Such an evaluation should await completion of the recommendation below.

Adverse Impacts/Recommendations: The site is potentially threatened by inundation caused by future pool elevation raises of Lake Ashtabula. Prior to inundation, the area should be tested to see if subsurface deposits exist. The testing program need not be intensive initially. Auger or shovel testing would probably suffice. If buried deposits were encountered then, an extensive testing program to determine the content and spatial limits of the site would be necessary. Recommendations concerning the National Register of Historic Places are not presently feasible.

Table 34. Surface collection, 32GG14.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes		3		2			
	tested raw material							1 pink granite
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: 6 fragments identifiable remains:
present x absent__	

OTHER	2 fragments clam shell

32GG15 (private domain)

Site Description: The Fallow site is situated on a flat at the base of rolling hills that form the valley wall. The flat runs along the Sheyenne River and much of it has been tilled. In some areas, cultivation has not occurred and numerous blowouts exist. The elevation is 391.6 m MSL.

Lithic debris was discovered in the plowed areas surrounding the untilled blowout areas. The blowouts also exhibited numerous waste flakes of Knife River flint and Swan River chert. This vicinity had the greatest concentration of lithics, but for 400 m to 500 m north and south occasional waste flakes were discovered in the plowed areas. No ceramics or bone were observed. The cultural material was found near the river. None was detected on the grassy slopes beneath the valley wall.

Cultural Material: The collection from this site includes primarily Swan River chert and is documented in Table 34. This represents all that was observed here.

Testing: None

Interpretations: There are apparently undisturbed buried deposits extant, particularly surrounding the blowout areas. It is assumed that the materials collected there have been exposed by aeolian erosion. Another possibility is that they are remnants of a deflated surface component. The tall grasses nearby hindered an adequate surface inspection that might have facilitated a decision as to which situation exists.

Presently, little can be said of the vertical and horizontal limits at the site. The material collected did not appear to contain diagnostic specimens by which preliminary statements on time and function could be advanced.

Significance Assessment: Until it is determined if subsurface deposits exist a determination of significance using National Register of Historic Places criteria can not be made.

Adverse Impacts/Recommendations: A portion of the site is presently being impacted by plowing activity. Another potential impact is inundation caused by any future raises in pool elelvation. Since the site is situtated on private property, the Corps is under no obligation to mitigate the impacts caused by cultivation. If, however, a pool elevation raise is contemplated, testing should be carried out in the uncultivated portions of the site to determine the vertical distribution and content of the buried deposits, if they exist. This should provide data by which a determination of significance can be made.

Table 35. Surface collection, 32GG15.

CHIPPED STONE Material	KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED projectile points							
PATTERNED scrapers							
PATTERNED bifaces							
UNPATTERNED bifacially worked fragments		1					
UNPATTERNED flake tools		2					
UNPATTERNED nonbipolar cores							
UNPATTERNED bipolar cores							
UNPATTERNED waste flakes		22				1	1 (quartz)
UNPATTERNED tested raw material							
UNPATTERNED untested raw material							

CERAMICS (present__ absent_x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: one, mussel shell fragment; bone fragment. identifiable remains:
present_x absent___	

OTHER	Twelve, granitic rock fragments, some probably thermally-fractured.

32GG17 (private domain)

Site Description: During the 1979 survey, the site area was seeded in a small grain crop. The developmental stage was early and the crops did not obscure the plowed surface. The field is on the river terrace adjacent to a bend in the river. A small forested area (gallery forest) lines the river. The elevation at the site is 390 m.

Chipped stone and bone fragments are abundant. This concentration is of sufficient distance from a site (32GG221) discovered by Vehik (1978) to warrant a separate designation. There are, however, occasional waste flakes and bone fragments along the river between the two sites. All of the material is exposed in the plowed areas.

Cultural Material: This material is documented in Table 35. Numerous other bone fragments and stone detritus were observed but not collected. See Plate A2 for artifact illustrations and accession numbers.

Testing: None

Interpretations: The specimens from the collection are not diagnostic in terms of time or function. Probably the plowing has tended to relocate the material which has increased the real area of the site. The vertical distribution is not known but it may be that the plow has disturbed only a portion of an upper component.

Significance Assessment: It is not possible to assess the site's significance until a determination of the vertical remnants is obtained.

Adverse Impacts/Recommendations: The site is presently being impacted by plowing. Another potential impact is inundation caused by any future raises in the pool elevation of Lake Ashtabula. Since the site is situated on private property, the Corps is under no obligation to mitigate the adverse impacts of cultivation. If, however, a pool raise is considered than testing should be initiated to determine if there are subsurface portions that remain undisturbed. This should provide data by which a determination of significance can be made.

Table 36. Surface collection, 32GG17.

CHIPPED STONE — Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments				1			
	flake tools							
	nonbipolar cores							
	bipolar cores							
	waste flakes	2	10		5		7	2 (TRSS)
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: three, small fragments; one mussel shell fragment. identifiable remains:
present x absent__	

OTHER	Edge-ground, granite slab; one piece fire-cracked rock.

32GG18 (private domain)

Site Description: This is another of the sites exposed in a cultivated field on the Sheyenne River floodplain. It is between an oxbow lake and a meander of the Sheyenne River. A county gravel road passes through the site near the oxbow lake. Between the road and the oxbow, the surface is undisturbed and obscured by a heavy growth of grasses and some shrubs. The elevation is 387 m MSL.

The cultural materials seemed to be confined to the plowed area adjacent to the road and nearer the oxbow than the river. These included waste flakes, a scraper, a projectile point, bone and tooth fragments. The bones are probably from bison although the identification is not certain.

Cultural Material: The material is documented in Table 36. See Plate A5 for illustration and accession number.

Testing: None

Interpretations: It is probable that this area was occupied when the oxbow lake was a portion of the main river channel. The variety of material types suggest some sort of semi-permanent occupation where food preparation may have occurred. Plowing has undoubtedly disturbed a portion of the site but the untilled area between the road and oxbow remains undisturbed. It is highly likely that in situ materials exist here because the evidence indicates the site is associated with the oxbow rather than the present river channel. The horizontal and spatial limits are not known. It could be that cultivation is exposing only a portion or all of an upper component.

Significance Assessment: The site is judged potentially significant in terms of National Register of Historic Places criteria on the basis of inferred subsurface deposits and the variety of artifact and material classes. It is probable that data here can aid in regional interpretations regarding the prehistoric adaptations to the Sheyenne River valley.

Adverse Impacts/Recommendations: The site is presently adversely impacted by cultivation and potentially threatened by future raises in the pool elevation of Lake Ashtabula. Since the site is on private land, the Corps is under no obligation to mitigate the impacts of cultivation. If, however, the pool is raised the site would have to be tested to determine if the assessment of potential significance is correct. Site 32GG18 is potentially eligible for nomination to the National Register of Historic Places.

Table 37. Surface collection, 32GG18.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chal-cedony	Quart-zite	Other
PATTERNED	projectile points		1					
	scrapers	1						
	bifaces				1 drill frag.			
UNPATTERNED	bifacially worked fragments							
	flake tools	1						
	nonbipolar cores						1	
	bipolar cores							
	waste flakes		1				3	
	tested raw material							
	untested raw material							

CERAMICS (present x absent)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							1: eroded surface

FAUNAL REMAINS	unidentifiable remains: two, large-mammal, long bone fragments. identifiable remains: two, tooth fragments (Bison or Bos)
present x absent	
OTHER	

32GG19 (private domain)

Site Description: This site is situated on a low terrace in a cultivated field above the Sheyenne River. It is at an elevation of 390 m MSL. It is within a large meander. Toward the river, the floodplain is covered with gallery forest. The field was in wheat in an early stage of development. Perhaps 50% of the surface was visible.

Only a few waste flakes were discovered here. The predominant material was Swan River chert with a few flakes of Knife River flint.

Cultural Material: This material is documented in Table 37. This represents all that was discovered here.

Testing: None

Interpretations: The material was gathered from a wide area so the evidence is sparse, indeed. It is not known if the plow is just picking up portions of a subsurface component or if the materials were originally on the surface. The extant evidence is too meager to interpret questions of time and function.

Significance Assessment: An assessment cannot be made at this time.

Adverse Impacts/Recommendations: The site is presently being disturbed by plowing. It is potentially threatened by pool elevation raises of Lake Ashtabula. In order to determine the significance of the site, it should be resurveyed when the field is laying fallow so that a greater portion of the surface is visible. Only then can decisions regarding testing and/or eligibility for the National Register of Historic Places be made.

Table 38. Surface Collection, 32GG19

CHIPPED STONE — Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points							
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores				1			
	bipolar cores							
	waste flakes	2	6			1		
	tested raw material							
	untested raw material							

CERAMICS (present__ absent x)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd							
body sherd							

FAUNAL REMAINS	unidentifiable remains: identifiable remains:
present__ absent x	

OTHER	

Isolated Finds

IF1 - SW¼, NE¼, SW¼, NE¼, Sec. 18, T141N - R58W: several fragments of bone at base of cutbank.

IF2 - Center of SE¼, SE¼, Sec. 7, T141N - R58W: 2 waste flakes of quartzite at waterline.

IF3 - Center of SW¼, SW¼, Sec. 33, T142N - R58W: 1 waste flake of quartzite at waterline.

IF4 - NE¼, NE¼, NE¼, Sec. 33, T142N - R58W: 2 waste flakes of Knife River flint at waterline.

IF5 - NW¼, SW¼, NW¼, Sec. 22, T142N - R58W: 1 waste flake of Knife River flint at waterline.

IF6 - W½, SE¼, SW¼, SW¼, Sec. 5, T142N - R58W: bone (Bison?), several waste flakes of Knife River flint on beach, possibly washed up from nearby 32BA2 (now inundated).

IF7 - SE¼, SW¼, NW¼, Sec. 24, T145N - R58W: endscraper of Knife River flint in crop field; no other material noticed.

IF8 - SE¼, SE¼, SW¼, Sec. 15, T145N - R58W: numerous unidentifiable bone fragments in plowed field; no cultural debris in association.

IF9 - NW¼, NW¼, NW¼, Sec. 15, T145N - R58W: sparse, unidentifiable bone fragments in crop field.

IF10 - SW¼, SW¼, Sec. 34, T146N - R58W: unidentifiable bone fragments in open spots; nothing else noted.

IF11 - SE¼, NW¼, Sec. 27, T144N - R58W: 5 waste flakes of chert, Swan River chert and chalcedony found on sloping area adjacent to lake that is disturbed by cattle.

IF12 - SE¼, NW¼, Sec. 27, T144N - R58W: 5 waste flakes of Knife River flint, chert and Swan River chert found on alluvial fan of ephemeral drainage.

IF13 - NE¼, NE¼, SE¼, Sec. 34, T144N - R58W: waste flake of Swan River chert in cutbank (appx. 15 cm below surface); heavy grasses obscured surface above.

IF14 - Center of SW¼, NW¼, Sec. 1, T143N - R58W: worked flake of Knife River flint on beach.

IF15 - NW¼, NE¼, SW¼, Sec. 1, T143N - R58W: waste flake of Knife River flint, metacarpal (Bison?) found on beach, bison skull found on beach also. Nothing in cutbank.

IF16 - NE¼, NE¼, SW¼, NW¼, Sec. 16, T142N - R58W: broken knife and core of Swan River chert found in water right at waterline.

IF17 - NE¼, NE¼, NE¼, Sec. 28, T142N - R58W: long bones (Bison?) found in sloping side of valley bluff; 2 waste flakes (basalt and chert) found on beach.

IF18 - NW¼, NE¼, Sec. 25, T143N - R58W: fragment of Swan River chert found in cutbank at depth of 52 cm; heavy grasses above on flat obscured surface.

IF19 - NW¼, SW¼, NE¼, Sec. 6, T142N - R58W: 2 waste flakes (Swan River chert & chert) found on old road bed next to impounded water on Baldhill Creek.

IF20 - NW¼, NE¼, NE¼, NE¼, Sec. 4, T142N - R58W: tooth fragment, petrified bone fragment (unidentifiable), 2 waste flakes of quartzite, 3 of Swan River chert all found on alluvial fan deposits of ephemeral drainage.

IF21 - NW¼, Sec. 35, T143N - R58W: waste fragment (Knife River flint), 5 waste flakes (chert) and 2 of quartzite all found at waterline along a 200 m stretch.

High Potential Test Areas

The following are the areas thought likely to contain prehistoric remains that were tested. They were selected primarily because of their ideal locations and their conformance to an implicit site distribution pattern found throughout the sites from the 1978-1979 inventory. There are many other high potential areas such as these in the survey area, but only those within or near present or future recreation or development areas were selected for testing. The high potential testing program concentrated on these areas because the recreation areas were scheduled as high priority items. It was not possible to test at most other high potential areas because of time and budget constraints.

The program identified one site (32BA427) that would have otherwise been missed by the pedestrian survey.

Test Area #1:

Description: This test area is located at the Sundstrom's Landing Recreation area. The location of the tests was along a small flat adjacent to an ephemeral drainage that feeds Lake Ashtabula. The drainage is covered by brush and bushes; the flat is obscured by grass. The valley wall is quite steep here and is not far from the shoreline.

Cultural Material: None discovered

Testing: The area was selected for tests because of its ideal location (a flat near drainage) as a likely site area, because it was located in a Corps recreation area and because its surface was obscured. Few other locations at Sundstrom's Landing were amenable to testing because of the presence of structures, roads, boat ramps, parking lots and brush.

Five auger test units were placed along the flat near a covered picnic table. These were nearly parallel to the drainage. Each unit was taken to a depth not exceeding 40 cm where a gravel layer was encountered. The backfill was processed through a 6.35 mm hardware mesh. No cultural material was discovered.

It was apparent from the gravel layer that some of Sundstrom's Landing along the beach had been built up with fill from elsewhere. This is why the test operations were discontinued here after 5 units were augered.

Conclusions: Since cultural resource sites do not exist in this area, impacts here will have no adverse effects.

Test Area #2:

Description: Also located at Sundstrom's Landing, this test area

is situated on an upland flat above the Sheyenne River valley. The flat was heavily covered with grass that obscured the surface. There is a large ephemeral drainage that defines the south rim of the flat.

Cultural Material: None

Testing: This area was selected for tests because of its ideal location (an upland flat adjacent to an ephemeral drainage), that fact that it was in a Corps development area and because the surface was obscured by tall grass.

Eleven units were placed here using the two man auger. Depths ranged from 62 cm to 85 cm. Each was arbitrarily terminated. Each unit matrix was processed through a 6.35 mm hardware mesh. Cultural materials were not encountered.

Conclusions: Cultural resources do not exist here, therefore, future impacts will not have adverse effects to these resource types.

Test Area #3:

Description: These tests were located on a flat adjacent to the lake and a large ephemeral drainage. The surface of the flat was obscured by tall grasses. The cutbank along here was inspected but nothing was discovered. Just to the northeast are several summer cabins.

Cultural Material: None

Testing: Testing was initiated here because it was a likely site area and we could not make a determination based on a visual inspection alone. Also, the area was near and similar to the conditions that existed at 32BA420. It was felt that if a site did exist, it could be threatened by vandalism from the nearby leasees, as well as erosion.

Fifteen auger test units were spaced irregularily within a 300 m by 500 m area. The units were terminated at a depth of approximately 30 cm where a compact clay stratum was encountered. All of the unit matrices were processed through a 6.35 mm hardware mesh. No cultural materials were discovered.

Conclusions: Cultural resources do not exist here, therefore, future impacts will not have adverse effects to these resource types.

Test Area #4: See 32BA428

Test Area #5:

Description: This is an island situated in Lake Ashtabula. It is apparently scheduled to be developed as a recreation area. The vegetation consists of tall grasses and brush which totally obscures the surface.

Cultural Material: None

Testing: The testing here was initiated because of the inability to determine, by survey, if cultural materials were extant and because of its scheduled development. Shovel test units were excavated to varying depths (28 cm to 62 cm) and were ½ m^2. The units were placed across the entire island along a NW - SE axis. The fill from each unit was inspected for cultural material after processing it through a 6.35 mm hardwasre mesh. Cultural debris was not encountered.

Conclusions: Cultural resources do not exist here, therefore, future impacts will not have adverse effects to these resource types.

Test Area #6:

Description: This test area is located on Corps property just north of the Old Highwasy 26 Campgrounds. Tests were placed along a flat terrace remnant. This area was heavily covered with tall grasses and bushes that obscured the surface. Just across the fence, on private property, the grass has been cropped by grazing cattle. This has exposed a large scattering of stones, some which looked as if they had been arranged to form a stone circle. Testing was initiated on the possibility that this was, indeed, a stone circle site that might be obscured by the vegetation. It was subsequently determined that the "circle" was fortuitous and without a cultural origin.

Cultural Material: None

Testing: Five shovel tests were placed to the south of the rock scatter at approximately 75 m intervals. Each was terminated at a depth of 50 cm. The units were ½ m^2. The backfill was processed through a 6.35 mm hardware mesh, but no cultural materials were recovered.

Conclusions: Cultural resources do not exist here, therefore, future impacts will not have adverse effects to these resource types.

Test Area #7: See 32BA427

Test Area #8:

Description: This area was first identified in the fall of 1978 when bone was noticed eroding from a cutbank in the valley wall, well away from the lake's edge (Isolated Find #17). The exposure was in the Katie Olson's Landing recreation area.

The slope is rather steep and not conducive to human occupation. It was thought that the bone might indicate the presence of a jump or other type of kill site. The area immediately below the exposure, however, was well exposed in a series of large blowouts. These were carefully inspected but no other faunal or cultural evidence was

encountered. It was decided to test here anyway, to determine the nature of the deposits.

Cultural Material: None

Testing: Four shovel tests (½ m^2) were excavated at flat spots surrounding the exposed bone (35 cm deep). Each was arbitrarily terminated at a depth of 75 cm. The backfill was examined without screening for cultural debris and/or additional bone. None was found. The exposed bone was then excavated from the vertical face. All that remained were several long bone fragments and a mandible portion later identified as Bison bison. It is probable that this represents a lone individual that has been buried by slope wash. Additional remains had either eroded out recently or were transported away from the area by slope wash after death. The testing results show conclusively that the area was not a prehisotric kill site.

Conclusions: Future impacts here will not adversely affect cultural resources.

Vehik's (1978) Sites Within the 1978-1979 Survey Area

32GG221 (private domain)

Site Description: This is a large site on the west side of a straight portion of the Sheyenne River. A small intermittent stream divides the site, and most of the cultural material was found south of this. The northend is terminated by what appears to be an old river channel. The area is characterized by gently rolling terrain (elevation 387 m) and consists of dark brown clayet silt. (Vehik 1978:36).

Testing: None

Cultural Material: See Appendix I, Section C for a description of Vehik's (1978:36, 38) collection; see Table 38 for a documentation of the collection made in 1979. Plates A3 and A5 depict the 1979 artifact collection.

Interpretations: At least two components may be present at the site. The earlier component represented by cord-roughened, grit-tempered pottery may be Woodland. The later component is suggested by the simple-stamped and fabric-impressed pottery. Simple stamping was introduced by 1200 B.P. (A.D. 800) and by 500 B.P. (A.D. 1500) had replaced cord paddeling (Neuman 1963:17). Fabric-impressed pottery is associated with the Selkirk Focus in southeast Manitoba (MacNeish 1958:59). This has been dated between 1000 B.P. - 200 B.P. (Hlady 1970b:280). Thus, it appears that the later component probably postdates 1000 B.P. (Vehik 1978:38).

The large corner notched and stemmed projectile points discovered during the 1979 survey support Vehik's contention that at least one component here is Middle Woodland. It is also probable that plowing is

Table 39. 1979 surface collection, 32GG221.

CHIPPED STONE Material		KRF	Swan River Chert	Basalt	Chert	Chalcedony	Quartzite	Other
PATTERNED	projectile points		1		1		1	
	scrapers							
	bifaces							
UNPATTERNED	bifacially worked fragments							
	flake tools							
	nonbipolar cores		1		1			
	bipolar cores							
	waste flakes	2	5				6	
	tested raw material		3		1			
	untested raw material							

CERAMICS (present x absent __)	Plain	Cord Roughened	Brushed	Incised	Simple Stamped	Check Stamped	Other
rim sherd		1					
body sherd							

FAUNAL REMAINS	unidentifiable remains: 8 fragments identifiable remains:
present x absent ___	

OTHER	3 large basaltic choppers

disturbing only a portion of the subsurface distribution site, leaving some undisturbed. The true extent (vertical and horizontal) can not be determined without testing the site. No doubt the surface evidence of the horizontal extent is distorted because of the previous plowing activity.

Significance Assessment: This site has already yielded data pertinent to cultural and temporal problems in the Sheyenne Valley, albiet out of context. It is probable that in situ material remains. For this reason, the site is judged potentially significant in terms of National Register of Historic Places criteria.

Adverse Impacts/Recommendations: The site is presently being adversely impacted by cultivation. Since the land is privately owned, the Corps is under no obligation to mitigate this impact. A future impact is inundation caused by a pool elevation raise of Lake Ashtabula. Should this adverse impact become reality, the site would have to be tested through excavation, analyses and report preparation. The site is potentially eligible for nomination to the National Register of Historic Places.

32GG223 (private domain)

Site Description: This site is north of 32GG221 and south of 32GG225. It is along a broad, long bend of the Sheyenne River and north of an old river channel. This area consists of flat to gently rolling terrain about 390 m above sea level. It was recently cultivated and the soil is a dark brown clayey silt. Cultural materials occur along both sides of a section of road, and probably a portion of the site was destroyed when the road was constructed. (Vehik 1978:40).

Cultural Material: See Appendix I, Section C for a description of Vehik's (1978:40-41) collection. In 1979, a collection was not made here because materials that might add to Vehik's interpetation basis were not observed.

Testing: None

Interpretations: The presence of plain and cord-roughened, grit-tempered pottery suggest a Woodland component at the site. However, due to soil conditions the site needs to be resurveyed and tested in order to determine its extent and assist in assessing its significance (Vehik 1978:41).

The horizontal extent (as indicated by the surface manifestation) has probably been distorted. The true extent (vertical also) is not presently known and could probably only be determined by testing. It is probable, however, that the plow has extracted the materials from the subsurface and, no doubt, additional undisturbed materials remain extant.

Significance Assessment: The site is potentially significant based on National Register of Historic Places criteria. The assessment is based upon the probability that the plow is exposing subsurface materials some of which remain intact and the fact that ceramics (indiactors of time and cultural affinity) are present.

Adverse Impacts/Recommendations: Cultivation is presently disturbing the site but the Corps is under no obligation to mitigate the impact because the site is on private land. A potential impact is inundation if the pool elevation of Lake Ashtabula is raised. If and when this occurs, the site should be systematically tested to determine if the assessment of potential significance is correct. If it is, then a mitigation plan would be necessary. Based on potential, the site maybe eligible for nomination to the National Register of Historic Places.

32GG225 (private domain)

Site Description: This is a large site extending into four sections. The site is about 390 m above sea level and west of the present channel of the Sheyenne River. However, the site appears to be associated with an old river channel and is bounded on the north by this channel and on the south by a pond. The terrain is gently rolling and the soil is composed of a dark brown sandy and clayey silt. (Vehik 1978:42).

Cultural Material: See Appendix I, Section C for a description of Vehik's (1978:42-43) collection. We did not observe (1979) materials that could refine Vehik's observations.

Testing: None

Interpretations: Exterior bossing appears to be a Woodland characteristic and dates between the birth of Christ and 1400 B.P. (A.D. 600) in Minnesota (Wilford, et. al. 1969:17-19; 25-27) and in south Dakota (Neuman 1975:3-37). Therefore, at least one component of this site is tentatively identified as Woodland (Vehik 1978:43).

The surface horizontal extent has been distorted by cultivation. It is most probable that the plowing is extracting some subsurface deposits but leaving others undisturbed. The vertical extent of these, if they exist, is not known at this time.

Significance Assessment: Without additional knowledge, we must assume that the surface materials have been exposed by the plow. This, and the fact that temporal and cultural indicators are known to exist here, are valid reasons for assessing the site as potentially significant in terms of National Register of Historic Places criteria.

Adverse Impacts/Recommendations: Plowing is presently adversely impacting the site. Since it is located on private land, the Corps is not reponsible for mitigation of this impact. A potential adverse

impact is inundation caused by a planned pool raise of Lake Ashtabula. Should this occur, the site must be tested to determine the site's significance. The site is potentially eligible for nomination to the National Register of Historic Places.

32GG229 (private domain)

Site Description: The site is about 175 m east of a sharp bend in the Sheyenne River. The terrain is flat to gently rolling and has an elevation of 390 m. The site appears to be concentrated along the east side of an old river channel (Vehik 1978:47).

Cultural Material: See Appendix I, Section C for a description of Vehik's (1978:47) collection. No additional evidence was discovered at this location.

Testing: None

Interpretations: The cultural affiliation of this site is undetermined. The site should be resurveyed under better conditions in order to assess its extent, cultural affiliation, and signficance (Vehik 1978:47).

No additional materials were observed. If buried deposits exist here, they are just barely being disturbed by the plow (as evidenced by the sparse distribution reported by Vehik). The other possibility is that this site is a localized, sparse surface distribution.

Significance Assessment: On the basis of the extant evidence, the site is apparently not significant in terms of National Register of Historic Places criteria.

Adverse Impacts/Recommendations: Two types of adverse impacts or potential impacts are present here. They are cultivation and inundation due to a proposed pool raise of Lake Ashtabula. The former is not the responsibility of the Corps because the site is on private land. The latter need not be addressed because the site does not appear to be significant. An alternate recommendation would be the initiation of a test program at 32GG229 to determine the reliability of the assessment. On the basis of the extant evidence, the site is not eligible for nomination to the National Register of Historic Places.

32GG236 (private domain)

Site Description: This site is in a gently rolling cultivated field about 387 m above sea level. It is south of a large natural depression and about 400 m north of the Sheyenne River. The depression may have been a pond, and probably contains water during periods of heavy precipitation. At the time of the survey this area had been recently plowed and the soil was dry and consisted of dark brown sandy and clayey silt (Vehik 1978:51).

Cultural Material: See Appendix I, Section C for a description of Vehik's (1978:52) collection. No additional materials were discovered here because of obscuration by marsh and grasses.

Testing: None

Interpretations: None

Significance Assessment: The site is judged not significant because of the small amount of undiagnostic material here.

Adverse Impacts/Recommendations: Plowing is presently occuring here. A potential impact is inundation by Lake Ashtabula if and when the pool is raised. No further work is necessary because of the significance assessment, including National Register of Historic Places considerations.

LABORATORY, ANALYTIC AND PROCESSING TECHNIQUES

Upon return from the field, all specimens were carefully washed and labelled. Most specimens were individually labelled with the appropriated Smithsonian Trinomial System site designation. Specimens too small or with irregular surfaces not amenable to labelling were included in vials or bags with the pertinent information. The specimens were then sorted according to type. These types included lithic materials, ceramics, faunal remains, historic debris and paleontological remains.

Lithic materials were classified as patterned or unpatterned specimens. Patterned specimens included projectile points, scrapers and bifaces. Unpatterned materials included bifacially worked fragments, flake tools, nonbipolar cores, bipolar cores, waste flakes, tested raw material and untested raw material. The raw material type of each specimen was then ascertained and recorded. The specimens were counted, weighed and measured on the basis of raw material types. The counts were tabulated and recorded on the tables included with the individual site resumés. Lithic specimens that did not conform to the patterned/unpatterned classification were recorded as "other." These included ground stone and edge ground implements.

The ceramics at each individual site were grouped on the basis of a rim or body sherd classification. These, then, were identified according to surface finish and/or decoration of the rim or body sherd. They were recorded and tabulated on the same table that contained the lithic information.

Faunal remains were recorded as either identifiable or unidentifiable. Identifiable specimens were analyzed to determine the genus and element identification, when possible, and for the presence/absence of butchering evidence. Unidentifiable specimens were also recorded. The occurrence of both at a given site was tabulated on the tables that follow the individual site resumés. It is often difficult to distinguish between Bison and Bos genera. In these instances the remains were usually concluded to be Bison on the basis of their archaeological context. Faunal remains were not submitted to anatomists for identification; rather they were analyzed by archaeologists.

Historical items were identified by description and included with the site resumé tables under the category "other." Paleontological remains were submittted to a professional paleontologist for identification.

All surface provenience specimens were labelled with the appropriate site number. Patterned and selected unpatterned (e.g., bifacially worked fragments, flake tools and cores) were assigned accession numbers on a site by site basis, beginning with S-1. The label "S-1" indicates that the specimen is the first surface (S) provenience specimen in the accession. Ceramic specimens were included

in the same accession sequence as were faunal remains (identifiable only) and historic items.

From the auger tests, all unpatterned (no patterned artifacts were discovered in subsurface provenience) lithic materials and all faunal remains (identifiable and unidentifiable) were labelled with the appropriate site number and the test unit from whence they came. The test unit accession numbers were assigned in sequential order (e.g., AU1 and up) for each unit. Since subsurface materials were only found in auger tests, AU (auger unit) precedes each accession number.

Isolated finds (IF) were identified according to type (e.g., artifact type and material, or bone) and identified by labelling the container. These specimens are described, including legal locations, in another section of this report. They are cataloged by sequential numbers (e.g., IF1).

All specimens are curated by site or isolated find number in individual bags. The bags are labelled with the site or IF number, the legal location, the project, the date and the surveyor(s).

The ceramic specimens were examined microscopically to determine temper content. The results of these analyses are included in the Ceramic section. Faunal remains and lithic debitage were analyzed and classified on the basis of macroscopic examination.

Patterned and selected unpatterned lithic specimens were illustrated and are included in an appendix of this report. All ceramic specimens were also illustrated. The illustrations represent the actual size of the artifacts. The ceramic illustrations also indicate the thickness and profile of individual specimens. Selected fossil specimens from 32BA419 are also illustrated.

RESEARCH RESULTS

This discussion examines the temporal parameters and cultural identities, albiet at a rather general level, of the middle Sheyenne River valley. It draws from the data gathered from the 1978-79 surface survey and other pertinent sources extant. The discussion first examines the lithic raw material evidence as a contextual whole and is used to draw temporal and cultural inferences. The ceramics are examined in a similar manner. A brief review of the faunal remains is then presented.

Vehik (1978) advanced several propositions derived from his earlier investigations in the middle Sheyenne River valley. These are also examined on a support/refute basis. Several are modified on the basis of the data from the 1978-79 investigations. Finally, a cultural summary is presented that deals with the probability of certain cultural influences within the survey area.

LITHIC DEBITAGE

Nine types of lithic raw materials comprise the collection from the 1978-79 survey. These include Knife River flint, Swan River chert, basaltic materials, cherts, chalcedony, quartz, quartzite, Tongue River silicified sediment and granitic stones. The following tabulation (Table 39) lists the materials by frequency of occurrence. The computations have been figured by grouping all patterned and unpatterned specimens from the collection.

Swan River chert	292 specimens	58%
cherts	90 specimens	18%
Knife River flint	40 specimens	10%
quartzite	37 specimens	7%
granitic	20 specimens	4%
basaltic	12 specimens	2.5%
chalcedony	5 specimens	1%
Tongue River silicified sediment	2 specimens	<1%
quartz	1 specimen	<1%
	505 specimens	

Table 40. Frequency of occurrence of raw material types.

Ahler (1977:134,138) has made the distinction between local and non-local raw material types when evaluating lithic debitage from an archaeological assemblage. Local raw materials are types that occur naturally in upland glacial till deposits, in Pleistocene age glacial outwash deposits and/or Pleistocene and Holocene age alluvial terraces. These materials must be in close proximity to the area being investigated. Conversely, non-local raw materials are those

that are not found locally but exist in geologic deposits or formations distant from the area of investigation.

In the middle Sheyenne River valley, local raw materials types include basalts, cherts, chalcedony, quartz and quartzite and granitic stones. It is presumed that these materials are primarily available in the upland tills, although this could not be field checked. The author has observed materials of this type in the surrounding tills while conducting non-related projects. It is most probable that the Holocene alluvial terraces in the Sheyenne Valley contain little of these materials. The alluvium consists of fine grained silts and clays (see Soils section). Only occasionally were exposed gravels detected during the survey in the alluvial deposits.

The non-local materials detected in the debitage collection consist of Knife River flint and Tongue River silicified sediment. The distinction between a non-local or local material type for Swan River chert is less than certain. Ahler (1977:139), when dealing with archaeological assemblages along the Middle Missouri in South Dakota, detected the material in the upland glacial tills. Swan River chert also derives from Saskatchewan along the Swan River, a location that can be considered non-local.

Local Raw Materials

Cherts consist of cryptocrystalline quartz or fibrous chalcedony. In the survey area they range through a variety of pastel colors. They are often banded with a variety of colors within the same stone. Cherts are opaque and exhibit a waxy luster. Granitic materials from the survey area are loosely cemented and consist of various crystalline and cryptocrystalline minerals. They range through a variety of colors. Basalts are dark gray, dense to fine-grained igneous rocks. The chalcedony includes all fine-grained or cryptocrystalline transluscent materials. Quartz is made up of silicone dioxide, is colorless and transparent and occurs in crystalline masses. Quartzite is composed of quartz and is derived from sandstone through metamorphism.

Basalts and granitic material were apparently preferred for unpatterned chopping and cutting tools and edge ground implements. This is not surprising considering the poor or non-existent flaking qualities of these materials. When cherts were used, the evidence from the collection suggests they were selected for fashioning patterned tools such as projectile points or bifaces. There are 5 such specimens from the collection. The paucity of chalcedony (only 1% of the collection) and the lack of patterned implements made of the material was not preferred and hence not selected for flint knapping or it is a relatively scarce locally occurring material. Both patterned and unpatterned implements were fashioned

from quartzite. The paucity of quartz from the collection precludes definitive selections regarding its selection other than it may not have been a preferred local material or it occurs infrequently.

Non-local Raw Materials

Knife River flint is a cryptocrystalline, dark brown translucent, non-porous flint that has excellent flaking qualities. It occurs as a secondary lag deposit over a wide area in western North Dakota (Figure 11). Extensive aboriginal quarries for Knife River flint were excavated in secondary alluvial or glacial lag deposits in Dunn and Mercer counties, North Dakota. It is thought to have originally formed as silicified plant material within the Eocene age Golden Valley formation (Ahler 1977:138).

The excellent flaking qualities of Knife River flint are well known archaeologically. This quality no doubt was a factor for selection among prehistoric inhabitants of the middle Sheyenne River valley. The Knife River flint implements from the collection are both patterned (projectile points, scrapers and bifaces) and unpatterned (numerous flake tools). There is no evidence of crude choppers or other poorly made tools. No doubt Knife River flint was selected for the patterned implements and used for unpatterned specimens on an opportunistic basis. The relative paucity of the material (only 10% of the total collection) can be easily explained by the fact that it is a non-local raw material.

Tongue River silicified sediment occurs in 2 varieties. The variety discovered in the project collection is known as smooth gray Tongue River silicified sediment. The stone is composed of medium to fine-grained sand cemented by silica. It is consistently gray in color, is opaque and often mottled, has a dull luster, has a moderately to well defined conchoidal fracture and has few fossil plant inclusions. The material is consistently found at the contact between the Paleocene age Slope formation and the overlying Bullion Creek formation. It is thought to represent a paleosol. Tongue River silicified sediment occurs across Slope, Bowman, Adams, Grant and Morton counties, North Dakota and in South Dakota in several counties (Figure 11).

Only 2 waste flake specimens of Tongue River silicified sediment were discovered. From these it is not possible to make clear cut judgements regarding the selection preferences of this material. The paucity of the material could be because it is a non-local stone not readily available, it was not a preferred raw material or the 1978-79 collection is not a representative sample.

Swan River chert displays a wide variation in texture and color, sometimes within the same specimen. It is not uncommon to find 3 or 4 colored bands within a specimen. The usual color is cream white through a medium gray, pink to deep rust, pale yellow

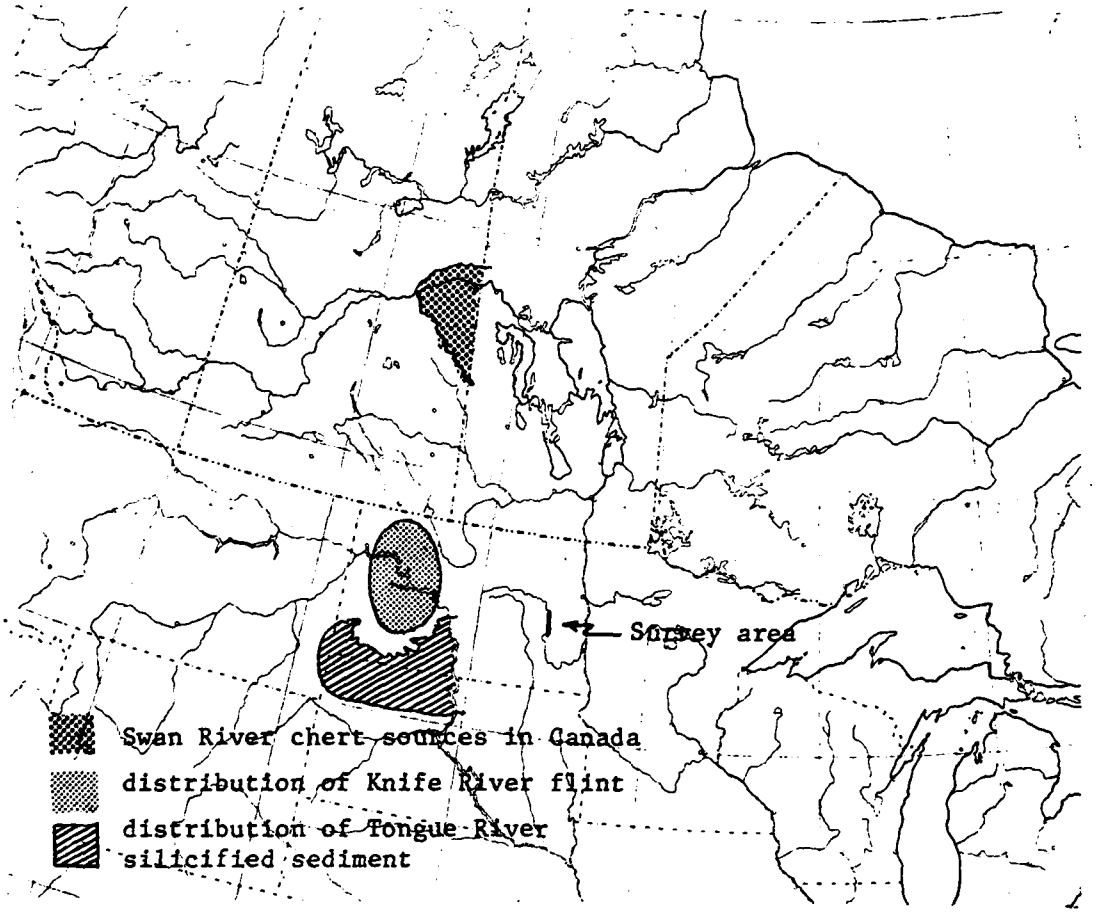


Figure 11. Sources of non-local Knife River flint and Tongue River silicified sediment and Swan River chert sources in Canada.

to deep orange. The stone has a regular conchoidal fracture. Luster ranges from glossy to waxy to dull. It varies in composition from coarse crystalline to cryptocrystalline, sometimes within the same specimen. In thin section, Swan River chert is a quartz with a chalcedony cementing medium (Leonoff 1970:12). Ahler (1977:139) recognizes the same material in archaeological context and calls it porous quartzite.

Swan River chert is found in great quantity in the Swan River valley in Saskatchewan, Canada. The greatest concentration seems to lie in the valley between the Porcupine Hills and the Duck Mountains (Figure 11). Ahler (1977:139) contends that the stone is a common raw material in the glacial deposits around the Missouri Valley. Glaciation is thought to be its major means of transport from the north (probably from around the Swan River).

There was no opportunity to pursue the question of whether or not Swan River chert occurs naturally in the upland glacial tills surrounding the middle Sheyenne Valley. Ahler's evidence that the material does occur in the glacial tills aound the middle Missouri would suggest that the material is, indeed, a locally available resource simply because the middle Sheyenne uplands are also glaciated. I would suspect this to be the case.

The large amount of unpatterned debris from Swan River chert when compared to the few patterned specimens seems disparate. Only 9 patterned specimens were distinguished from the 292 items of the material. Although the disparity could not be non-representative of the actual conditions, it could also reflect a usage pattern for other than construction of patterned tools. Two of these possibilities include the use of Swan River chert for coarse temper in ceramics or its use for unpatterned as well as patterned implements.

The ceramic specimens from the collection were examined microscopically to determine if Swan River chert was, indeed, preferred and selected as a tempering agent. The hypothesis proved to be incorrect and is discussed in detail in the Ceramics section.

It seems more likely that Swan River chert was utilized for fashioning tools and that this would account for the preponderance of debitage from the stone type. Given the fact that this material has such a wide range of quality, it might be reasonable to state that the finer grade stone was used to fashion patterned tools and the lesser grade material was utilized for unpatterned choppers, cutting implements and large, crude bifaces. This type of selection pattern within the variable quality range of other stone types is a common observation elsewhere in North Dakota. Furthermore, a close analysis of the Swan River chert debitage indicates that the debitage does, indeed, represent waste flake products of tool making. Common waste flake attributes are exterior cortices, con-

cave surfaces and bulbs of percussion. This type of debitage would be expected from fashioning or sharpening unpatterned cutting or chopping implements. The only problem with this hypothesis is the paucity of unpatterned tools from the collection. There are only a few flake tools and cores. It may be that the hypothesis is in need of modification or that the survey results are not representative of the archaeological record. Certainly this avenue of investigation would be worthwhile in future investigations revolving around the selection preferences of raw materials.

Regarding the resolution of locality, the preponderance of Swan River chert in the collection would indicate that the stone is a common raw material type that is found in the upland tills surrounding the middle Sheyenne Valley. It is difficult to conceive of such a frequently occurring material as non-local. If the tendency were to select non-local materials, it would seem that Knife River flint would be preferred not only because of its superior knapping qualities but because of its proximity (compared to the proliferation of Swan River chert to the north) to the middle Sheyenne. This assumption assumes that Swan River chert was, in fact, selected primarily for fashioning implements. But there remains a possibility that the stone may have been obtained through other means from Woodland peoples inhabiting areas of Saskatchewan and Manitoba. This speculation is discussed further in the Cultural Implications of Non-local Material Types section.

CULTURAL IMPLICATIONS OF NON-LOCAL RAW MATERIAL TYPES

Some implications can be derived from the presence of non-local Tongue River silicified sediment and Knife River flint raw material types in archaeological context from the middle Sheyenne River valley. Essentially, the presence of these materials implies the existence of cultural processes such as trade, migration, shifting residence patterns and/or procurement expeditions to obtain these materials. Although the presence of pre-ceramic cultures cannot be dismissed a priori, it is apparent that the bulk of the archaeological record in the middle Sheyenne Valley derives from Woodland times and represents Woodland culture bearers. For this reason, the discussions derived from the presence of non-local materials will be confined to this time period and cultural milieu.

There is some evidence of Woodland occupation within the distributional area of Tongue River silicified sediment. Along the Cannonball River (situated along the northern extent of the distribution) are several sites that may be assigned to Woodland cultures. These include 32HT101 (there may be 8 Woodland burial mounds here) and 32HT403, where Woodland-like ceramics have been recovered. The Woodland evidence here is not overwhelming but it is suspected that this may be due to the lack of modern investigations in the area. The point is, with Woodland evidence here it is not difficult to infer some sorts of cultural processes between the 2 areas (the distributional area of Tongue River

silicified sediment and the middle Sheyenne area).

The evidence of Woodland occupation is somewhat more concrete along the Missouri in the Middle Missouri subarea. Lehmer (1971:62) indicates that Woodland site radiocarbon dates from the Middle Missouri range from around 430 B.C. to A.D. 750. The area of occupation was adjacent to the distribution of Knife River flint to the west and also coincidental with the Tongue River silicified sediment source area further south along the Missouri River. The Woodland occupation of the Middle Missouri seem to have persisted throughout Middle Woodland times and declined with the influx of Plains Village peoples circa A.D.900.

Given the distribution of Woodland culture bearers throughout an area that includes non-local (non-local in the middle Sheyenne Valley) lithic raw materials, several alternative hypotheses can be advanced. First, the presence of non-local Knife River flint and Tongue River silicified sediment can be attributed to trade. Secondly, it is possible that the materials are evidence of planned procurement expeditions into the source areas. Thirdly, there exists the possibility that these materials were brought into the middle Sheyenne Valley during eastward migrations from near the source areas. Fourthly, the material may have been procured during a phase of the seasonal round. Finally, it is possible that any combination of these possibilities could exist.

It is not the purpose here to exhaust all of the avenues of research regarding these hypotheses. It does seem probable, however, that trade is the likely explanation for the presence of the non-local material types. Trade would not be unlikely between bearers of similar cultures, at least through Middle Woodland times when Woodland peoples lived in or near the source areas. Later, trade could have been continued with the Plains Village newcomers who quickly developed into trading entrepreneaurs.

Procurement expeditions also cannot be ruled out. There is evidence that the Knife River flint quarries in Dunn and Mercer counties were not controlled by any single cultural entity through time (Loendorf, et al 1976). If this is true, the proximity of the quarries to the Middle Sheyenne could have encouraged regular expeditions. This practice would also have tended to insure a regular, albiet small, supply as needed.

It seems unlikely that the presence of Knife River flint and Tongue River silicified sediment alone can be taken as conclusive evidence of eastward migrations of Woodland peoples from the non-local source areas into the Middle Sheyenne area. First, the raw material supplies would have been quickly depleted and Knife River flint, at least, can be expected to occur regularly in this area throughout time. Also, subsequent to any migrations, the highly desirable non-local materials such as Knife River flint could be expected to be replenished by trade or other means.

There is increasing evidence that the Plains Woodland people were highly nomadic although the cyclical nature of their nomadism is not yet understood. If the Knife River flint quarries or Tongue River silicified sediment desposits were included in a seasonal round, it seems the distance involved would be quite great. Lacking even a partial understanding of the cyclical nature of these rounds, it seems best to identify this hypothesis and refrain from further speculation until a better understanding is available.

Syms (1977:90-91) feels that at least Sonota peoples living in southwestern Manitoba did not trade for Knife River flint. He contends that the lithic material (the percentage of Knife River flint used for tools is more than 80%) is so prolific at all sites in the region that trade could not account for its proclivity. He feels instead, that the frequency of this material implies regularly scheduled events to procure the stone and that this probably occurred during a phase of the seasonal round. The percentage of Knife River flint from the middle Sheyenne is only 10%. This disparity cannot presently be rectified but it might reflect local cultural variations or the surface collection from Vehik's 1978 collection and the 1978-79 collection is not representative of the actual conditions. There is also a possibility that Syms' estimate is too high.

As mentioned earlier, it is probable that Swan River chert occurs locally but the probability has not yet been confirmed. It is also possible that Swan River chert (perhaps the finer quality material used for patterned artifacts) was obtained from what appears to be a primary source in Saskatchewan. This speculation is offered on the basis of the extensive Middle and Late Woodland record extant in Manitoba and Saskatchewan area. Syms (1977) has documented this record quite well. If, as proposed for non-local raw materials, extensive trade patterns (or other cultural mechanisms) were utilized for procurement, then it would be acceptable to anticipate trading patterns to extend from the middle Sheyenne northward into this region.

Syms (1977:91) feels that Sonota bison hunters included southwestern Manitoba as part of their core area in their seasonal round. If this is true of the Sonota occupants of the middle Sheyenne, it would have provided an excellent opportunity to procure Swan River chert, considering the proximity of the stone sources.

Other data from the surface collections (both from the 1978-79 survey and Vehik's 1978 report) is not yet sufficient to lend support or enhance refutation of any of the hypotheses. The comparative ceramic data is minimal and, of course, the surface provenience of the specimens is less than ideal for engaging in problems of time and space. Much more investigation needs to be done before we can resolve these ideas.

CERAMICS

The ceramic collection from the 1978-79 survey consists of 25 specimens; 4 are rim sherds, the remainder are body sherds. The size range of the sherds is depicted in the Plates A3 through A5. The collection includes cord roughened, brushed and plain specimens. The appearance of the sherds suggests that the potters used the paddle and anvil technique for construction.

The specimens were examined microscopically, primarily to determine the tempering characteristics. The working hypothesis was that Swan River chert in crushed form was the primary coarse tempering agent and that the stone was selectively utilized for tempering ceramics. The hypothesis was formulated on the basis of several observations. First, the preponderance of lithic material recovered during the survey was Swan River chert. Secondly, the small number of patterned tools shaped from the material compared with the large amount of detritus from the same stone suggested a usage for other than tool manufacture. Finally, it appeared that Swan River chert could be easily crushed, although such experiments were not undertaken, and that the resulting grain sizes would be uniform and ideal for tempering.

The microscopic analysis proved the hypothesis to be incorrect. The analysis showed that the grain size of the tempering agent varied considerably throughout the entire collection and within individual specimens. The grain size variation was easily discernible but the actual range of variation was not measured. Vehik (1978), however, did measure grain sizes of temper from ceramic specimens found in and near the survey area during his survey. These ranged, within the same specimen, from 1 mm to 4 mm in diameter with some exceeding 5 mm in diameter. It also appears that the coarse temper is composed of several types of mineral crystals, including quartz. Swan River chert when examined microscopically, is characteristically composed of crystalline and/or micro-crystalline grains of silicone dioxide, each of relatively uniform size. These size and composition qualities do not conform to the observations described above. It is, therefore, most probable that Swan River chert was not selectively utilized as a tempering agent in the ceramics from the middle Sheyenne River valley.

A stone that exhibits a comparable (to the ceramic tempering) range of grain sizes in its composition is granitic in nature. This type of stone is also composed of various mineral crystals, including quartz, and is common to the upland glacial tills surrounding the survey area. Small fragments of this type of stone were found in archaeological context during the 1978-79 survey. When examined microscopically, these fragments appeared to be of various minerals and grain sizes not unlike those found in the ceramic tempering.

It is possible, then, that the granitic stones common to the area were selectively utilized for coarse ceramic tempering.

The findings left unanswered the questions raised by the original observations regarding the preponderance of Swan River chert in the archaeological record and the disparity between the preponderance and the paucity of patterned tools. This matter is addressed in the Lithic Debitage section.

Sand was also used for fine tempering in the ceramics. With the exception of 1 specimen (from 32BA420), all of the sherds consisted of a very fine grained sand. These sherds also exhibited regular use of the granitic tempering. The sherd from 32BA420 was distinctly different in macro and microscopic appearance. This specimen consisted of a coarse grain sand tempering interspersed with a few, uniformly sized, large fragments of granitic temper. Macroscopically, the specimen was quite dark (resembling a charcoal color) while the remainder of the collection varied from a buff orange to gray. Conversely, the remaining ceramic specimens were constructed from a fine grain sand that was augmented with variable size range granitic tempering. It is not known if this reflects selection of different sand types to mix with the clay or if it merely represents the use of clays with differing sand content.

Other observations include the practice of brushing at least portions of the exterior and interior. Three specimens from 32GG7 (S-10, S-18 and S-21) exhibit this characteristic. If brushing was a technique used to smooth the surface, it would be reasonable to expect brushing on the interior surface near the rim where a smooth surface might also be desirable.

Another observation is the predominance of thin walled ceramics. This is true with all of the specimens except specimen #10 from 32GG7 (Plate A3, G). This sherd is quite thick compared to the remainder from the site and the inventory.

The use of ceramics as relative time indicators and for determining cultural affinities in the middle Sheyenne Valley is in a formulative stage. Consequently, few firm statements can be made regarding these matters. Neuman (1975:92) notes that Sonota Complex (Middle Woodland) pottery was made of grit and sand temper, along with paste, that was obtained from local materials. He divides the ceramics into 2 general classes, plain and cord roughened.

Cord roughened specimens may exhibit marks that cover the exterior surface and extend into the area of the rim interior, they may cover just the vessel's exterior or they may mantle only the upper portion of the vessel's exterior. The cord marks are most often parallel to each other and vary in size. They are either oriented vertically on the vessel wall (most common), form a crisscross pattern or arranged horizontally and/or diagonally (rarest). Plain surface vessels either do or do not show luster.

According to Neuman, plain vessels are a minority type in the Sonota Complex.

Vessel exteriors may range from orange to gray, from dull buff to gray, from dull buff to black or from dark brown to black. Decorative techniques included rim punctiation (interior and exterior) and dentate stamping.

The ceramics from the 1978-79 survey exhibit similarities to some of these criteria. Cord roughened and plain specimens are present. Neuman makes no mention of brushing as a trait in Sonota ceramics but cord roughening and plain sherds are characteristic. Cord roughening on the body sherds is, without exception, generally parallel in nature, but the orientation cannot be determined. One rim sherd specimen has diagonal cord marks along the rim but not on the body portion. It appears as if the ceramics are constructed of locally available paste, sand and temper. Colors generally conform to Neuman's observations.

FAUNAL REMAINS

The identifiable mammailian faunal remains from archaeological context within the middle Sheyenne River valley appear to be exclusively Bison bison. The 1978-79 survey faunal collection contains numerous bison bone specimens. Vehik (1978) reports the existence of bison bone at many of the sites that he discovered. An earlier survey by Kivett in 1952 located several sites in the valley prior to inundation. He notes the presence of "animal bone" at the sites he identified as occupation sites along the river, but does not clarify the faunal types. It is suspected, based upon the 2 survey results, that these were also exclusively bison remains. Site 32BA418 is interpreted as a bison jump site. The surface evidence from many of these sites and the interpretation from the subsurface evidence at 32BA418 would seem to indicate that the primary subsistence base at one time or another in the Sheyenne Valley was focused on the bison procurement.

Syms (1977:90) contends that the subsistence emphasis of Sonota peoples was clearly bison. He also feels that bison were important spiritually on the basis of the occurrence of bison remains in Sonota mounds. Secondary faunal resources were elk and canids although these have yet to be identified in the middle Sheyenne archaeological record.

The only other faunal remains collected during the 1978-79 survey were from turtles and humans. Turtle shell fragments were present at several sites. The significance of this occurrence is not yet known but these creatures could have been used to supplement the diet. It is also possible that they are natural occurrences not related to the archaeological assemblage because their surface provenience is less than ideal for determining associations.

The human faunal remains came from site 32BA409, a single burial mound located just outside of the survey area. This mound is quite low and nearly indistinguishable but the evidence (a phalange) quite clearly indicates that the feature is, indeed, a burial mound. Excavations at 32BA403 in 1976 (this site is in the survey area) produced human remains in a burial context.

ANALYSIS OF EXISTING RESEARCH PROPOSITIONS

Vehik (1978:93-97) presented 8 research propositions derived from his investigations in the Sheyenne River valley and other areas. Of these, 5 are pertinent to and testable with the data recovered from the survey area in 1978-79.

> Proposition 1: Paleo-Indian and Archaic occupations have been eroded away and/or are lying deeply buried on higher terraces or they also may be on other areas of high ground which are either not subject to survey or else are covered with vegetation.

Vehik (1978:93) concluded that pre-ceramic sites tend to be found on higher ground away from the Sheyenne River valley. The question of whether this type of site has been eroded away and/or is lying deeply buried on higher terraces remains to be tested.

Because of inundation, it is no longer possible to determine if early sites existed along the poorly developed terraces of portions of the Sheyenne River. North of Lake Ashtabula the river remains free flowing. In this area there was no evidence of Archaic or Paleo-Indian occupation. The few local collections observed did not contain temporally diagnostic specimens that could definitely be assigned to the middle Sheyenne Valley.

The contention that pre-ceramic sites tended to be found on the uplands surrounding the survey area could not be tested. Only a very minimal area was surveyed on the uplands although one site was discovered (32BA412). This site, however, did not yield temporally diagnostic materials. About all that can be said is that sites apparently do exist on the uplands and it remains to be seen if early components are represented.

The idea that early sites, if they exist, may be deeply buried on higher terraces seems unlikely. This is because of the poorly developed terrace system in the Sheyenne River valley (see Soils section). In most instances along the free flowing portion of the river, terraces are not evident at all. The terrain grades upward nearly imperceptibly to the valley walls and often the relief does not exceed 3 mm. Alluvium deposits do reach as much as 15 m, however, so it is possible that the early sites could be buried but they would not be expected to follow any patterned distribution

based upon terrace location. The proposition should be changed to state that Paleo-Indian and/or Archaic sites, if they exist within the Sheyenne River valley, can be expected to be deeply buried in the non-terraced alluvium or have been eroded away.

> Proposition 2: Mounds, especially those associated with the Woodland Period, are almost invariably located on uplands overlooking the river valleys.

With the exception of 1 mound (located on a hill slope in the valley), Vehik (1978:96) found this proposition to be valid. The findings from the 1978-79 survey also tend to confirm the validity of the proposition. Only 1 mound site was discovered in the survey area (32BA410), but it was located on the cuesta of an upland bluff overlooking the valley. While gaining access to the survey area, we also discovered another mound site (32BA409) on the upland bluffs. This site is not dealt with in the report because it is outside of the survey area, but the site form is included in Volume II. Other mounds previously known to exist on hills or upland flats above the valley include 32BA1, 32BA4 and 32BA11. Site forms for these sites are contained in Volume II. The status of 32BA403 is presently not yet clear, but if it is a burial mound it would not conform to the proposition.

A further refinement of Vehik's second proposition is that upland burial mound sites can be expected to occur occasionally in clusters. Along a less than 2 km stretch of upland flat opposite the mouth of Baldhill Creek there are 4 known burial mound sites (see Figure 1). These include 32BA1, 32BA11, 32BA409 and 32BA410. There is a total of at least 18 mounds extant at these sites. Distinct differences in the size and shape of the mounds at 32BA11 and 32BA409 when compared to those at 32BA1 and 32BA410 are evident. The mounds at the former sites are small, low circular features while those at the latter are relatively high conical mounds. Site 32BA403 lies within the same 2 km stretch. If it turns out to be a mound site (a human burial was excavated here in 1976), then a fifth mound site could be added to the cluster. Finally, given the piecemeal exploration over the years of the uplands surrounding the Sheyenne River, one could reasonably expect other mound sites to exist in the concentration.

The reason for this clustering is not yet known. The proximity of Baldhill Creek (the only permanent tributary in the Middle Sheyenne area) may or may not have been an influential factor. What is clear, however, is that there is substantial evidence of human occupation in the valley along the corresponding 2 km stretch of river. Despite the inundation of most of the valley here, we were able to salvage evidence of this occupation. Sites 32BA15, 32BA408, 32BA411 and 32BA420 (see Figure 1) are all quite probably peripheral remnants of larger, more concentrated sites that have now been inundated by

Lake Ashtabula. There is additional but less conclusive evidence at sites 32BA421 and 32BA425. Prior to inundation, Kivett (1948:8) recorded 32BA2 which is also an occupation site.

It is quite possible, even probable, that the mound sites are the product of the mortuary practices of the peoples that occupied the river valley below. It may be that the morphological differences in mounds reflects successive occupations by cultures through time or near contemporary utilization of the area by separate cultural entities.

> Proposition 3: More recent open sites tend to be on river bottomlands, sometimes along abandoned stream channels.

Vehik (1978:96) thought this proposition to be valid but his survey could not statistically validate the assumption because the uplands, for the most part, were not investigated. The statistical argument holds true for the results of the 1978-79 survey. When assessing the inventory from the river bottomlands, however, the proposition is probably invalid. Although there is no hard temporal evidence, the indication is that both Late and Middle Woodland time periods are represented in the prehistoric record.

This statement is based upon the presence of corner notched, side notched and possibly stemmed projectile point specimens from the inventory. The stemmed and corner notched variety are thought to occur earlier in time than the side notched types. If eventually pre-ceramic components are found in the valley, their presence would further refute the general proposition.

The argument that sites are sometimes found along abandoned stream channels (oxbow lakes and oxbow remnants) is valid. Sites 32GG7, 32GG19 and possibly 32GG18 appear to be associated with oxbow remnants or oxbow lakes. The implication of this association is not clear. I don't think that, taken alone, the association can be seen as a relative time indicator (e.g., a site along an oxbow is not necessarily older than a site situated along the present river channel). The only exception to this might be if a site is located along the cutoff channel. Then it (the cutoff site) might be considered to be younger than a site in association with the oxbow that has been cutoff by the channel. Even this situation would not be certain evidence for the cutoff site may have existed earlier (than the oxbow site) in an open area away from the river.

> Proposition 4: Tipi rings may occur either in upland areas overlooking river valleys or on river bottoms.

Vehik (1978:96) could not adequately test this proposition because he found only 1 such site on the uplands. None were found

during the 1978-79 inventory and this factor also precludes testing the proposition.

> Proposition 5: Bison kill sites may be found in certain coulee/gully areas.

The data from 32BA418 clearly indicates that the proposition should be modified to read "in certain coulee/gully areas and at the base of the valley walls." Site 32BA418 appears to be the remnants of a bison jump where animals were dispatched after being driven from the upland flats over the valley wall precipice. Testing (auger core testing) here produced ample evidence of bone specimens, some of which exhibit butcher marks. The bone reposes in the subsurface and extends from the shoreline of Lake Ashtabula along a sloping flat to the base of the valley wall. Stone waste flakes were also discovered.

Most of the identifiable bone specimens appear to be from fore or hind legs of bison. Furthermore, they appear to be from the lower portion of the limbs. These are the types of faunal remains that could be expected at a kill site where only the primary stages of butchering took place with the intent of discarding the unwanted portions of the animal before transporting the desirable portions to a distant location. On the basis of the evidence at 32BA418, and with a recognition of the limitations of the auger core testing technique, it is proposed that kill sites found at the base of the valley wall will exhibit primary butchering patterns in the form of the remains of the undesirable portions of the animal. It is further proposed that the later stages of the butchering process occurred at areas removed from the kill site, probably at the occupation sites along the river.

There is some suggestion that side coulees may have occasionally been used as impoundment kill sites. At 32BA428 there is some evidence of bone in a nearby coulee. These specimens exhibit butchering marks and it could be that they derive from a kill site further up the coulee. This area is effectively obscured by vegetation so a firm conclusion regarding this matter could not be drawn. It seems best, at this point, to consider the proposal that coulees were used as impoundment kill sites as a working hypothesis subject to revision.

CULTURAL SUMMARY

There is no evidence of Paleo-Indian or Archaic utilization of the middle Sheyenne River valley to date. An early exploitation of this region can only be inferred from nearby sites dating to these periods and/or from hypotheses that account for their apparent absence. These have been covered elsewhere in this report and the discussion is not replicated here. For these, the reader is referred to the Chronology section and the discussion of Proposition 1 in Research Results section.

This discussion is confined to the Woodland times and includes the Early, Middle and Late Periods.

Early Woodland

Dates for Early Woodland on the Northeastern Periphery are varied but generally range from 1000 B.C. to 200-100 B.C. The most recent evidence (Figure 12) indicates that the Early Woodland culture bearers ranged no farther west on the Northeastern Periphery than extreme western Minnesota (Syms 1977:75). Acceptance of this areal interpretation would rule out any Early Woodland influences along the middle Sheyenne River valley and, indeed, there presently exists no evidence of such utilization. One thing to keep in mind, however, is that the Early Woodland temporal range is contemporary with the Late Archaic. If the hypothesis (e.g. Proposition 1, this section) that Archaic components do or did exist but are deeply buried or eroded away is eventually found acceptable it might also be reasonable to explain the absence of Early Woodland components in the same manner. This, of course, is speculation but the idea should be entertained in future, more complete studies in the middle Sheyenne.

Middle Woodland

Syms (1977:80) has compiled a distributional map of Middle Woodland sites and cultural entities (Figure 13). His synthesis indicates that the Sonota Complex was the only cultural entity to inhabit the middle Sheyenne Valley during Middle Woodland times. Whether or not this singular cultural occurrence throughout a great deal of time is, indeed, factual remains to be seen. His implication that the Sonota culture bearers were the major groups in the region does, however, seem to bear up under scrutiny.

Ceramics are perhaps the key indicators of Sonota influences in the middle Sheyenne Valley. As cautioned earlier, ceramic typologies for the valley and even comparative classification elsewhere are in the formulative state. It does appear, however, that plain and cord roughened specimens found as a majority can be regarded as indicative of the Sonota Complex. The tempering characteristics of these ceramic types also conforms to Neuman's (1975) Sonota traits. These types of ceramic specimens dominate, both in Vehik's (1978) collection and the collection from the 1978-79 survey.

Non-local lithic raw materials are seen, at the least, as corroborating indicators of some sort of Woodland affiliation. It has been demonstrated that the source area of Tongue River silicified sediment is coincidental with areas of Woodland occupation. Syms (1977:90) believes that the Knife River flint quarries were visited regularly in the seasonal round of Sonota hunters. These two materials, then, could be expected to be found in association with other Sonota

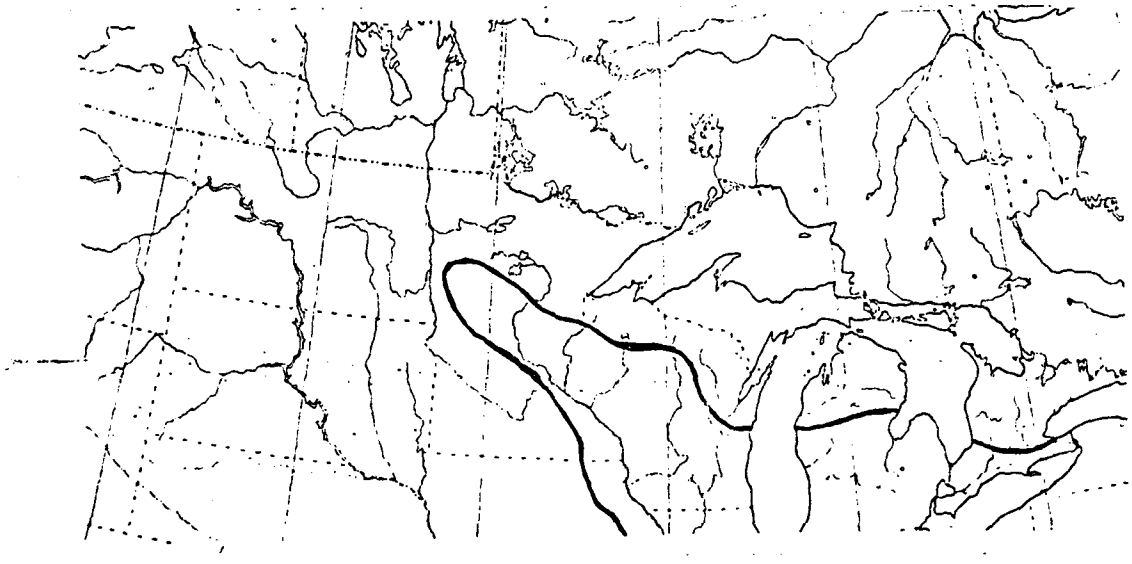


Figure 12. Early Woodland areal distribution (after Syms 1977).

AD-A144 371 1978-1979 CULTURAL RESOURCE INVESTIGATIONS ALONG THE 3/3
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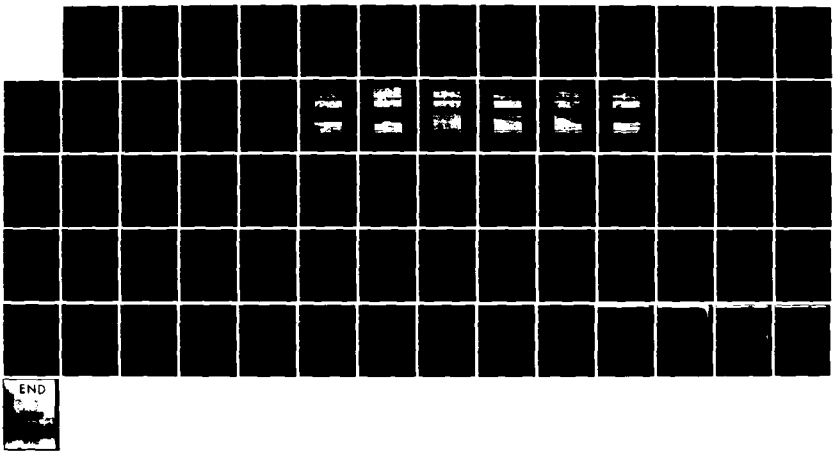

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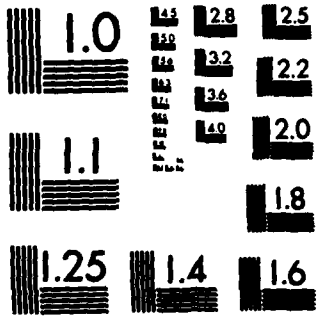

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

traits. One problem with this contention is that Knife River flint makes up only 10% of the 1978-79 raw material inventory and only 9%. of the Vehik (1978) collection. Syms has predicted that the percentage of this material at Sonota sites should exceed 80%. It is not known if Sym's prediction is too high or if the surface indications of the preponderance of Knife River flint in the middle Sheyenne Valley are misleadingly low and unrepresentative.

Syms (1977:91) also believes that southwestern Manitoba was included in the Sonota Complex core area and exploited regularly for bison by the Sonota hunters. This area, of course, is near the primary sources of Swan River chert. This material could have been obtained during these excursions which, along with the apparent local sources, might account for the high frequency of occurrence in the middle Sheyenne Valley. The presence of this material is seen as corroborating data when viewed with the total picture of Sonota evidence.

There is increasing evidence that the subsistence emphasis of Sonota hunters was clearly bison (Syms 1977:90). To date (this report and Vehik's 1978 report) the only mammalian remains found in archaeological context in the middle Sheyenne Valley have been Bison bison. No doubt other types will be found if and when intensive investigations are conducted at Woodland sites in the valley. But the evidence is beginning to indicate that the dominant subsistence base will be bison. The surface finds and, of course, 32BA418 (possibly a bison jump) seem to reflect this speculation. This type of subsistence base can be seen as corroborating evidence of Sonota occupation in the valley. Taken alone, as is the case with Knife River flint, bison remains cannot be interpreted as evidence of the Sonota Complex simply because precursor and subsequent cultures on the Northeastern Periphery also depended upon bison and extensively used Knife River flint.

The clearest evidence of the Sonota Complex in the middle Sheyenne Valley comes from the presence of burial mounds. Site 32BA1 is in the middle Sheyenne Valley area. Radiocarbon dates from here indicate that the Sonota peoples were active in the area as early as A.D. 90 (Neuman 1967). Several of the mounds at 32BA410 exhibit what are apparently depressions left by collapsed burial chambers. Burial chambers are traits characteristic of the Sonota mounds.

Other mounds in the area are not morphologically similar to typical Sonota mounds. The implication of this is not clear, but it could represent another cultural entity contemporary with or subsequent to Sonota. They could also represent Sonota mound varieties or evolutionary styles within the Sonota Complex.

Other indicators of the presence of Middle Woodland Sonota peoples are the corner notched and stemmed varieties of projectile

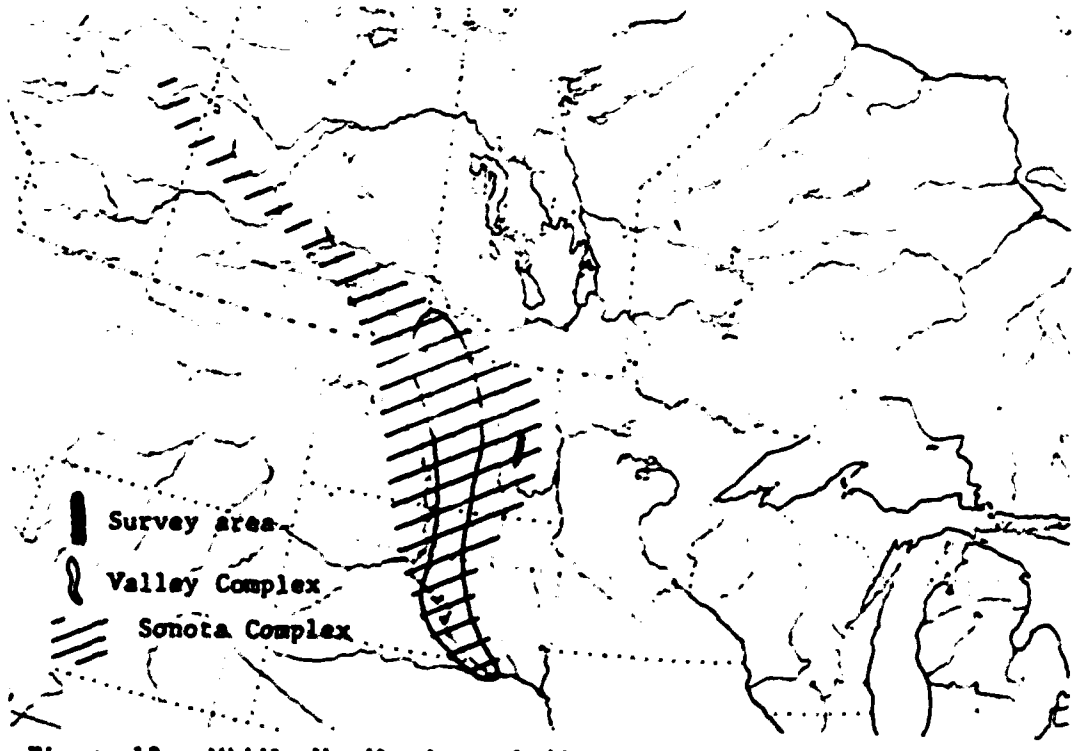

Figure 13. Middle Woodland areal distribution in and near the survey area (after Syms 1977).

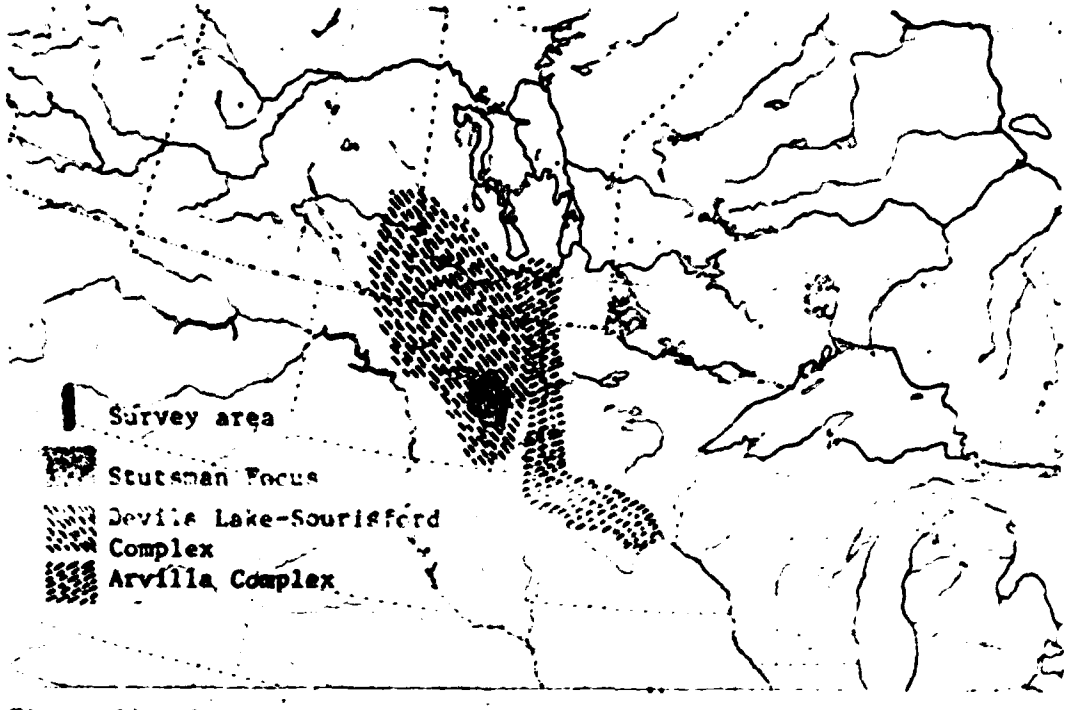

Figure 14. Late Woodland areal distribution in and near the survey area (after Syms 1977).

points. These specimen types were discovered in the 1978-79 survey and are described in Vehik (1978). These types are generally found earlier in time and, until evidence to the contrary surfaces, can be included in the list of Sonota traits.

To what extent other cultural groups may or may not have exploited the middle Sheyenne during the Middle Woodland times is speculative. The nearest contemporary culture appears to be what Syms (1977:80,88) has identified as the Valley Complex (Figure 13). Syms (1977:90-91) believes that these two complexes varied significantly. Vessel forms and surfaces were different, the Valley technology was based upon local cherts and quartzite and they relied upon a variety of game animals. Rather than range far to the north in economic pursuits as did the Sonota peoples, the Valley culture core area extended to the south into the Central Plains. These marked differences may be anticipated in the archaeological record of the middle Sheyenne, but as of yet, there is little evidence to substantiate a coeval distribution along the middle Sheyenne Valley.

Late Woodland

There is some evidence of Late Woodland cultures in the middle Sheyenne, although it is not overwhelming. It is based primarily on the distributional pattern of these later cultures, on projectile point typologies and on ceramic classifications.

The known distribtution of Late Woodland coincidental with or near the middle Sheyenne Valley is depicted in Figure 14. The distribution includes the Stutsman Focus (post A.D. 1675) and the Arvilla (ca. A.D. 600 to A.D. 900) and Devils Lake-Sourisford complexes.

The Late Woodland influences on the Northeastern Periphery appear to be derived primarily from the Mississippian cultures. As such, their material culture can be expected to differ significantly with that of their precursors, particularly the Sonota Complex.

It is expected that the ceramics would be unlike those identified for the Sonota Complex. Stutsman Focus ceramics are fine sand or grit tempered. Rims are undecorated or decorated with rectilinear or rarely curvilinear dentate stamped, incised-trailed, cord impressed, tool impressed, punctated, wrapped-stick impressed, check stamped, scored, or painted designs on the lip, exterior and/or interior rim surfaces, and shoulder areas. Bodies are simple stamped, cord-marked or smoothed (Wheeler 1963:228).

Ceramics from the Devils Lake-Sourisford Complex are known primarily from mortuary vessels (Syms 1979). Syms (1977:123) has inferred that utilitarian vessels from this complex might be expected to exhibit smooth surfaces and some with curvilinear incised decorations and

lip decoration consisting of straight line and zigzag lines.

The Arvilla Complex is known entirely from mortuary offerings in burial mounds. Occupation sites from the complex have yet to be identified and the range of variability in utilitarian ceramics is not yet known. Arvilla Complex sites are not known to exist west of the Red River of the North (Minnesota-North Dakota border).

There was no opportunity to conduct a comparative analysis of the ceramics from the 1978-79 survey with other collections. Based upon the description of Late Woodland ceramics, however, only the cord marked varieties might be expected to date from Woodland times. All in all, the comparison remains speculative at best. Vehik (1978: 38,46) did collect several specimens that were check stamped that may be attributed to a Mississippian derivation and hence date to Late Woodland times. It seems best at this point, to refrain from further speculation and leave open the hypothesis that certain Late Woodland cultures might be, on the basis of preliminary pottery analysis, represented in the middle Sheyenne Valley. No comparative data could be found for the brushed specimens from the 1978-79 inventory. These may ultimately be included in the Middle Woodland assemblage or found to be from Late Woodland cultures.

Small, triangular side notched and unnotched projectile points generally occur late in time than do corner notched and stemmed specimens. It has been postulated that the latter varieties are traits indicative of Middle Woodland times. If this is true, then the side notched and unnotched specimens probably date from Late Woodland times. On at least one occasion, Vehik (1978:40) uses this typological evidence to make the assumption that a Mississippian (Late Woodland) component exists at a middle Sheyenne Valley site. There are also specimens of this variety in the 1978-79 collection.

Linear mounds are associated with the Devils Lake-Sourisford Complex. There may be a linear mound at 32BA410 although the identification is not certain. If the feature is, in fact, such a mound type it could possibly date from Late Woodland times although its association with what are apparently Middle Woodland Sonota burial mounds would have to be rectified. To the author's knowledge, linear mounds are not found in the Sonota Complex.

SUMMARY OF EVALUATIONS, IMPACTS AND RECOMMENDATIONS

Significance evaluations, impacts, and recommendations are capsulized in Table 41. Significance evaluations are offered for each inventoried site with reference to the National Register (NR) eligibility criteria. Most inventoried sites are deposits of cultural material and are evaluated for eligibility with respect to their potential information content. Certain of the historic sites may qualify because of architectural significance or association with important personages.

Site significance evaluations are offered within three categories: 1) definitely NR eligible (n = 2), 2) possibly NR eligible (n = 28), and, 3) definitely not NR eligible (n = 15).* While the auger testing program was limited to a sample of the recorded sites, the information recovered through application of this technique was pivotal in making clearcut eligibility evaluations (i.e., category #1 and #3 evaluations).

The summary table itemizes nine types of impacts and whether these impacts have occurred in the past, are ongoing, or are projected for the forecasted future. The nine impact types are: 1) riprap laydown, 2) riprap stockpiling, 3) riprap stockpile access, 4) erosion, 5) future pool raises, 6) proposed Corps recreation area, 7) vandalism or future development (e.g., Corps-maintained public use area or cabin construction), 8) fish and wildlife management, recreational, and/or commercial concession lease area activity, and 9) cultivation. Riprapping has altered the natural configurations of six of the recorded sites. Riprap stockpiling and laydown activities have altered the configurations of two sites. Erosion has been a destructive force at 21 of the sites; however, riprap laydown should retard destructive, erosive forces at five of these 21 sites. Future pool raises could potentially impact 38 of the 41 recorded sites. Proposed Corps recreation areas would adversely effect two of the inventoried sites (one of which is possibly NR eligible and the other of which is definitely NR eligible). Lease area activities are presently affecting two sites (both evaluated as possibly NR eligible). Cultivation is presently affecting nine sites, most of which are not on public lands administered by the Corps; eight cultivated sites, however, would be affected by major, pool level raises.

Six broad categories of recommendations are offered: 1) no further work (13 sites), 2) further evaluative work if plans for a pool level increase are actuated or if another proposed development plan is implemented (16 sites), 3) annual inspection to document rate of site deterioration (five sites), 4) development of a mitigation plan (the ideal mitigation option is preservation through avoidance but it is recognized that the ideal is not always feasible) if site locus is developed or if a pool level raise is seriously considered (four sites), 5) further evaluative work as soon as possible (seven sites), and 6) consideration of development for public interpretive potential (one site).

* Individual site significance ratings assigned using the three significance categories are preliminary in nature and represent the opinion of the author. The State Historic Preservation Officer, in conjunction with Corps of Engineers personnel will make the final and binding assessments and recommendations consistent with National Register of Historic Places eligibility criteria.

Table 41 Significance evaluations, impacts, and recommendations (Page 1 of 3).

Site Number	Significance Evaluations			Impacts		Recommendations					
	NR Eligible	Possibly NR Eligible	Not NR Eligible	Past and/or Present	Future	No Further Work	Further Eval. if Pool is Increased or Other Proposed Development Plans are Implemented	Annual Inspection	Mitigate if Developed or Pool Raise is Planned	Further Evaluation as Soon as Possible	Consider Public Interpretive Potentials
32RA414			X	4	4,5	X					
[illegible]5			X	1,4	5	X					
32RA403		X		1,4	5			X		X	
32RA409			X	4,7	1,4,5,7	X					
32RA406		X		1,4	5			X			
32RA407		X			5		X				
32RA404			X	4	5	X					
32RA410					6,7				X		X
32RA411			X	4	5	X					
32RA412			X	2(?),3(?),9	9	X					
32RA413		X		1,4	5,7		X	X			
32RA414			X	4	4,5,7	X					
32RA415		X			6		X				
32RA417			X	4	1,5	X					
32RA418	X			1,4	5			X	X		

* Impact types: 1-riprap teardowns, 2-riprap stockpiling, 3-riprap stockpile access, 4-erosion, 5-future pool raise, 6-proposed recreation area, 7-vandalism or future development (e.g., Corps maintained public use area, cabin construction), 8-fish and wildlife management, recreational, and commercial concession lease area activity, 9-cultivation.

Table 41 Significance evaluations, impacts, and recommendations. (Page 2 of 3).

Site Number	Significance Evaluations			Impacts		Recommendations					
	NR Eligible	Possibly NR Eligible	Not NR Eligible	Past and/or Present	Future	No Further Work	Further Eval. if Pool is Increased or Other Proposed Development Plans are Implemented	Annual Inspection	Mitigate if Developed or Pool Raise is Planned	Further Evaluation as Soon as Possible	Consider Public Interpretive Potentials
[illegible]	VALLEY [illegible] HISTORICAL SITE			4	4,5					X	
32BA420			X	4	4,5	X					
32BA421		X		7,8	5,7,8					X	
32BA422			X	4	4,5	X					
32BA423			X	4	4,5	X					
32BA424		X		4	4,5					X	
32BA425		X		2,3	5,8		X				
32BA426			X		5	X					
32BA427		X		4	4,5					X	
32BA428		X		4	4,5		X				
32BA429			X		5	X					
32BA430		X			5		X				
32BA431		X		1	5,7			X		X	
32BA436		X			5		X				
32BA437		X		9	5,9				X		

* Impact types: 1-riprap laydowns, 2-riprap stockpiling, 3-riprap stockpile access, 4-erosion, 5-future pool raises, 6-proposed recreation area, 7-vandalism or future development (e.g., Corps maintained public use area, cabin construction), 8-fish and wildlife management, recreational, and commercial concession lease area activity, 9-cultivation.

Table 41 Significance evaluations, impacts, and recommendations (Page 3 of 3).

Site Number	Significance Evaluations: NR Eligible	Significance Evaluations: Possibly NR Eligible	Significance Evaluations: Not NR Eligible	Impacts: Past and/or Present	Impacts: Future	Recommendations: No Further Work	Recommendations: Further Eval. if Pool is Increased or Other Proposed Development Plans are Implemented	Recommendations: Annual Inspection	Recommendations: Mitigate if Development or Pool Raise is Planned	Recommendations: Further Evaluation as Funds are Possible	Recommendations: Consider Public Interpretive Potentials
32G.8		X			5		X				
32[illegible].9		X		9	5,9		X				
32[illegible].10		X		4	4,5					X	
32[illegible].11		X		4	4,5		X				
32G:12		X		9	5,9		X				
32G.13		X		4	4,5		X				
32G:14		X		9	5,9		X				
32G:15		X		4 additive 9	4 additive 5,9		X				
32G:17		X		9	5,9		X				
32[illegible].18		X		9	5,9				X		
32G.19		X		9	5,9		X				
32G:221		X		9	5,9				X		
32G:223		X		9	5,9		X				
32G:225		X		9	5,9				X		
32G:29 & 31			X	9	5,9	X					

* Impact types: 1-riprap laydowns, 2-riprap stockpiling, 3-riprap stockpile access, 4-erosion, 5-future pool raises, 6-proposed recreation area, 7-remodeling or future development (e.g., Corps maintained public use area, cabin construction), 8-fish and wildlife management, 9-recreational, and commercial concession lease area activity, 9-cultivation.

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APPENDIX I, SECTION A

Plate 1. General 330, 5HP, two-man power auger.

Plate 2. Example of riprap bank stabilization.

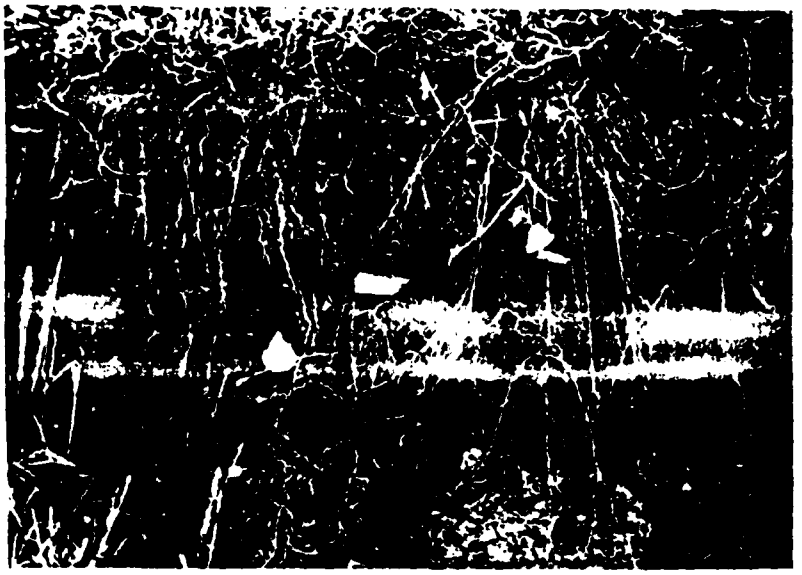


Plate 3. Eroding bone at 32BA408.

Plate 4. Mounds #1 and #2, 32BA410, looking toward Sheyenne River Valley.

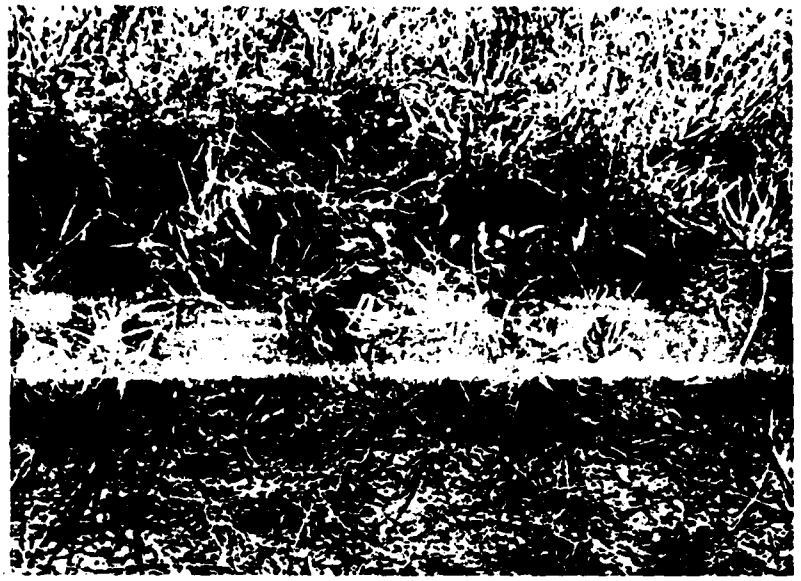


Plate 5. Eroding bone at 32BA418.

Plate 6. Eroding bone at 32BA418.

Plate 7. Outbuilding, 32BA424.

Plate 8. Domicile, 32BA424.

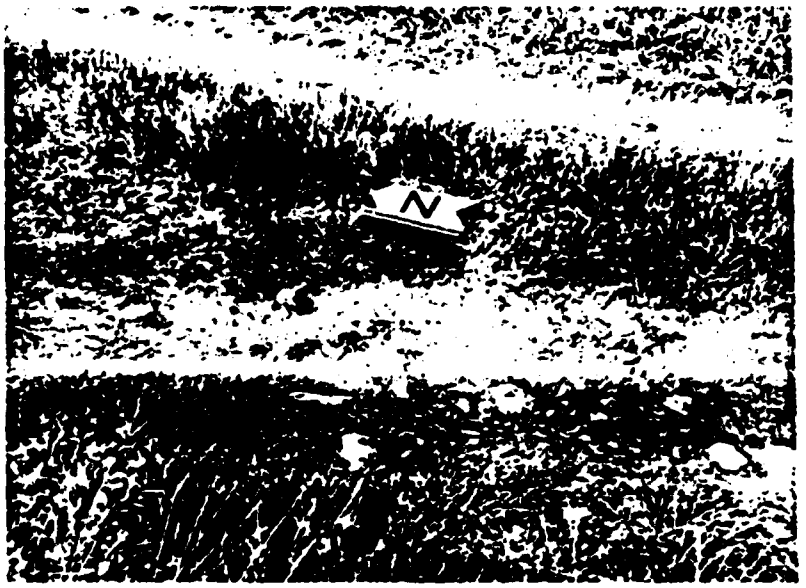


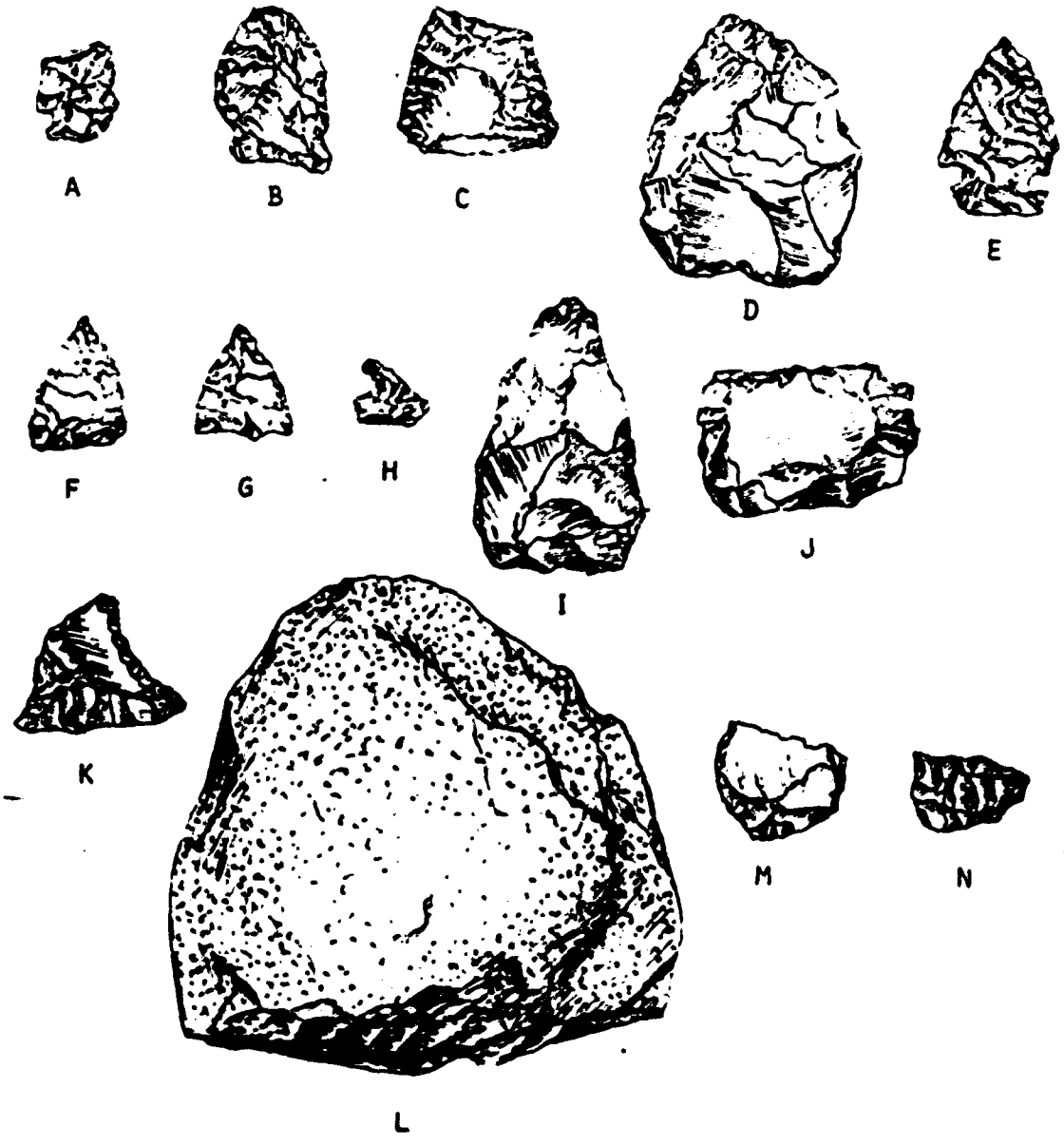
Plate 9. Disturbed fire hearth, 32GG5.

Plate 10. Barn structure, 32GG6.

Plate 11. Upper dugout, 32GG8.

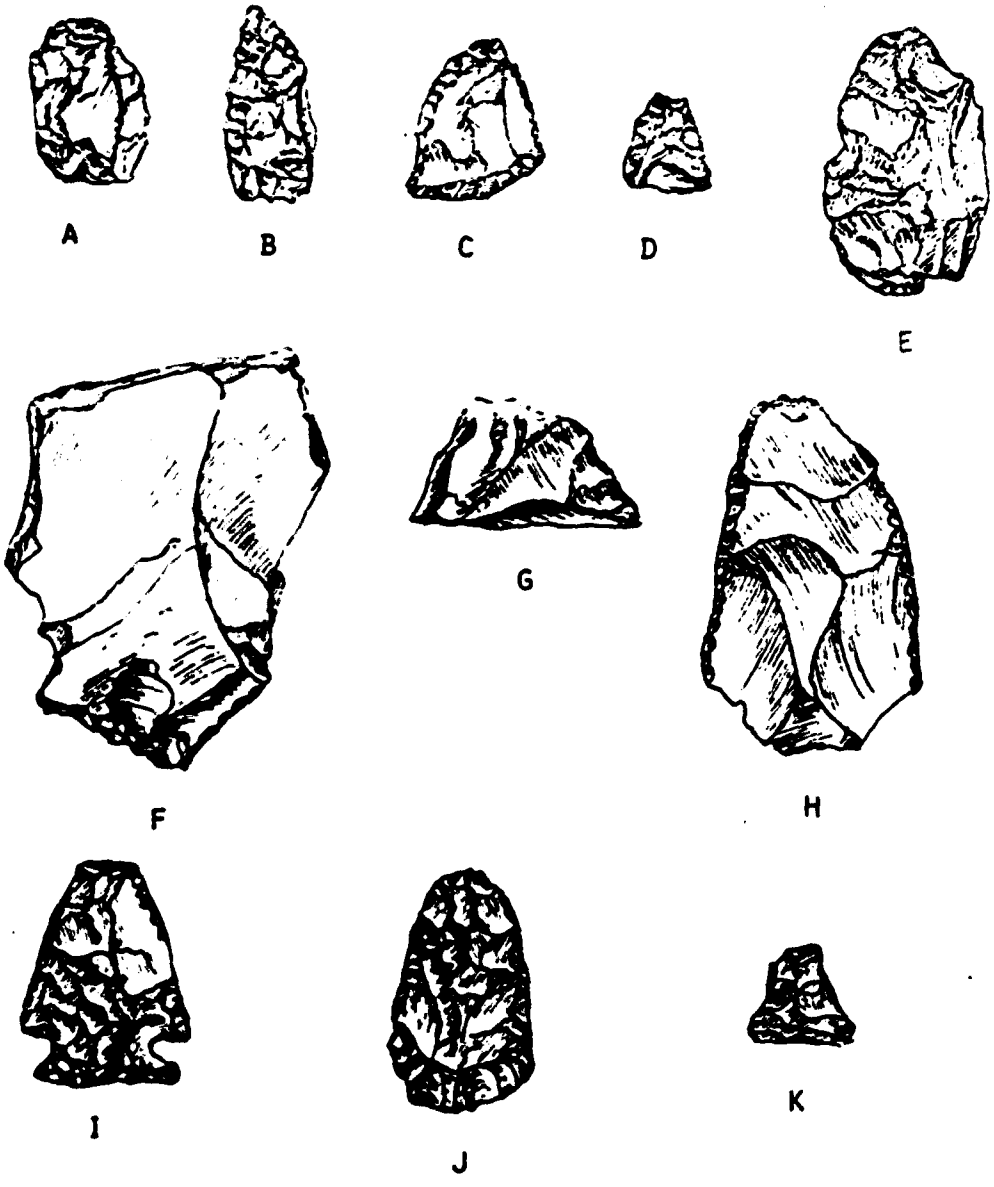
Plate 12. Typical site location on a Sheyenne floodplain meander.

APPENDIX I, SECTION B



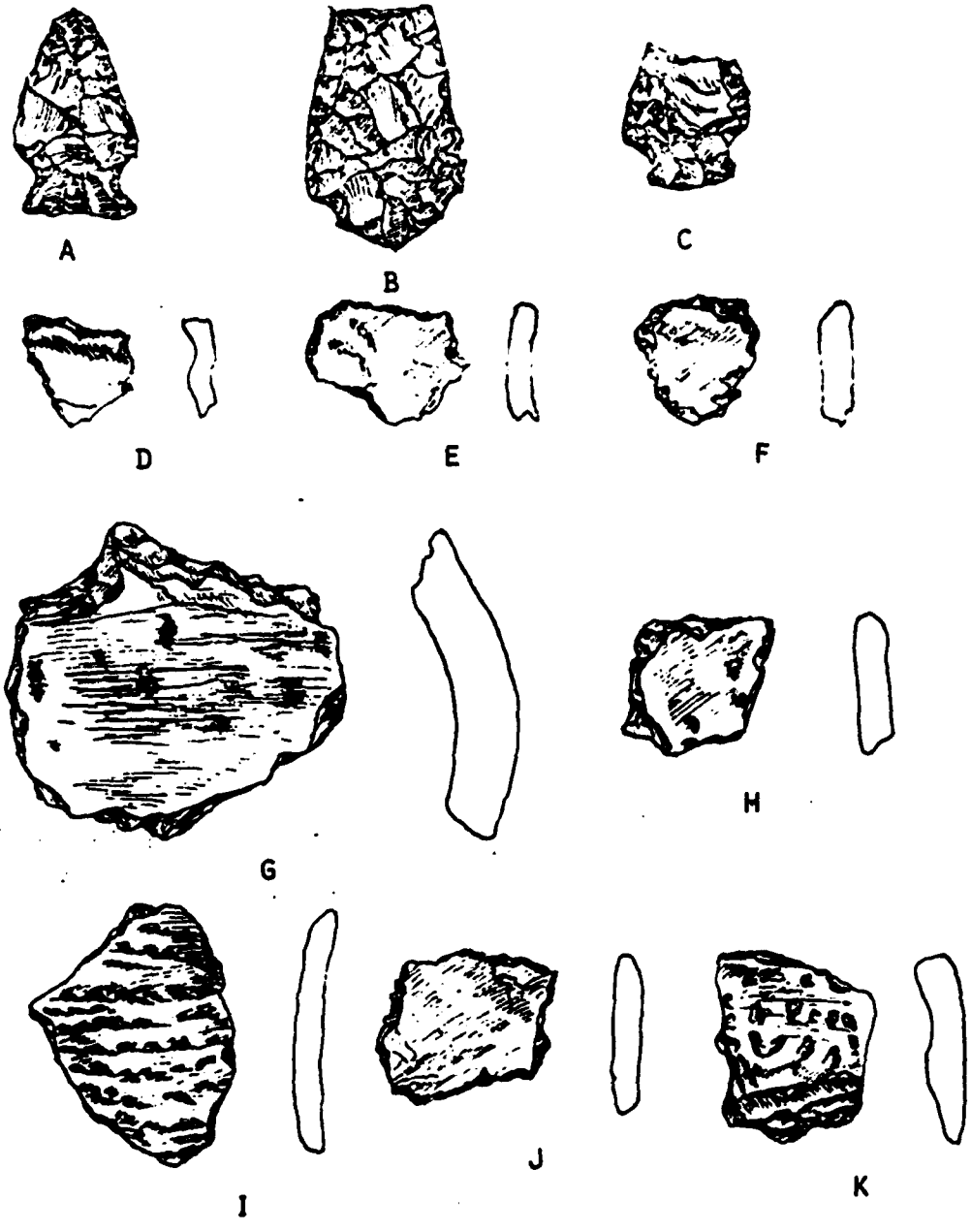
A. projectile point fragment, Swan River chert, 32BA406, S-1. B. projectile point, Swan River chert, 32BA413, S-2. C. projectile point, midsection, Swan River chert, 32BA414, S-1. D. biface, Swan River chert, 32BA414, S-2. E. projectile point, Knife River flint, 32BA414, S-3. F. projectile point, quartzite, 32BA414, S-4. G. projectile point, tip, chert, 32BA414, S-5. H. projectile point fragment, Knife River flint, 32BA415, S-1. I. biface, chert, 32BA418, S-3. J. biface fragment, Swan River chert, 32BA423, S-1. K. biface fragment, chert, 32BA424, S-1. L. chopper, basaltic, 32GG5, S-6. M. flake tool, Knife River flint, 32GG5, S-7. N. biface fragment, Knife River flint, 32GG5, S-8.

Plate A1. Artifact specimens, actual size.



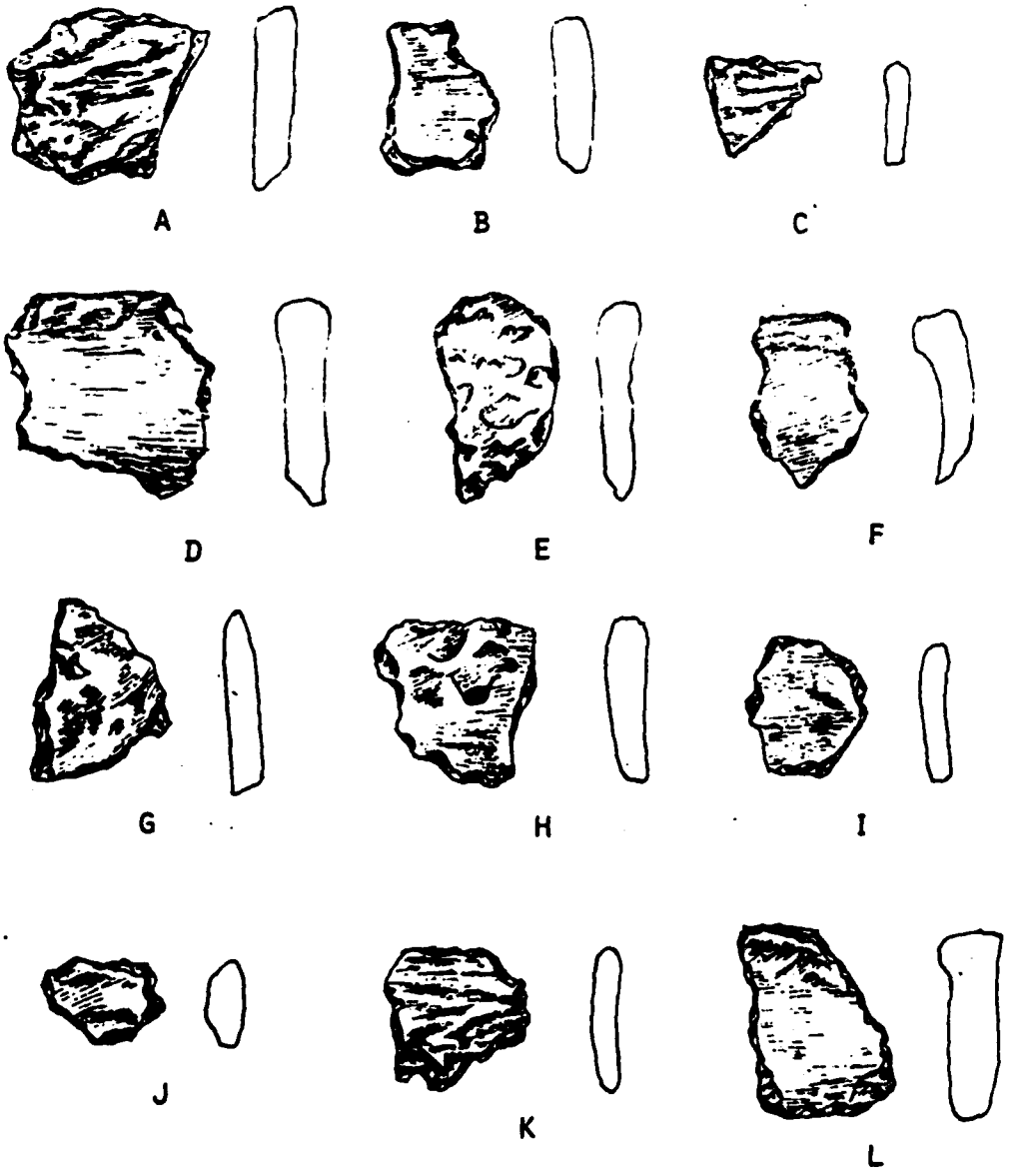
A. scraper, Knife River flint, 32GG7, S-2. B. bifacially worked fragment, Swan River chert, 32GG7, S-3. C. scraper, Knife River flint, 32GG7, S-4. D. projectile point, midsection, Swan River chert, 32GG7, S-5. E. flake tool, Knife River flint, 32GG11, S-1. F. flake tool, Knife River flint, 32GG12, S-1. G. bifacially worked fragment, Swan River chert, 32GG17, S-1. H. flake tool, Knife River flint, 32GG18, S-1. I. projectile point, midsection, Swan River chert, 32GG18, S-5. J. scraper, Knife River flint, 32GG18, S-6. K. drill fragment, chert, 32GG18, S-7.

Plate A2. Artifact specimens, actual size.



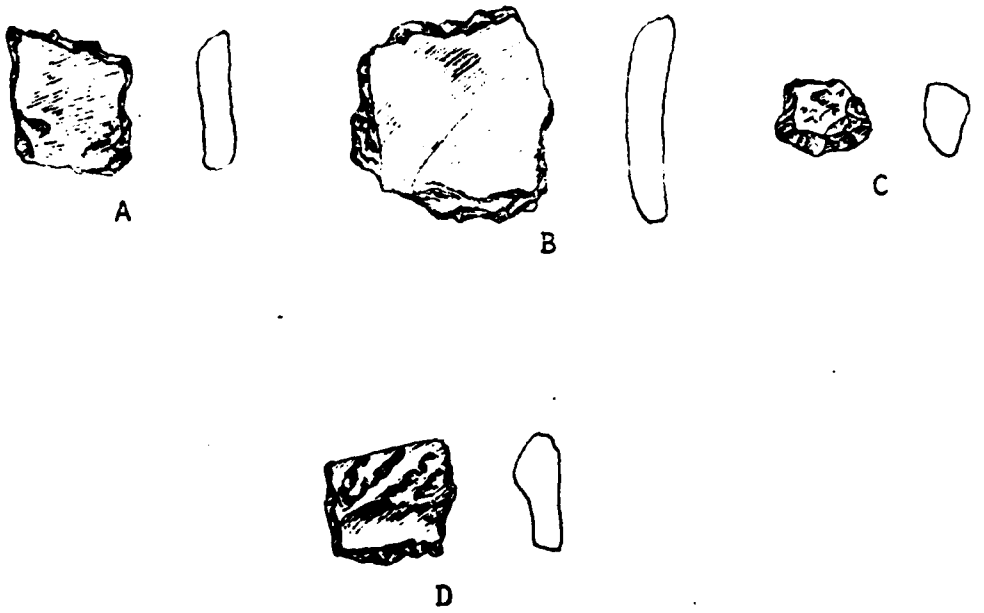
A. projectile point, Swan River chert, 32GG221, S-2. B. projectile point fragment, quartzite, 32GG221, S-4. C. projectile point fragment, chert, 32GG221, S-6. D. rim sherd, plain, 32BA413, S-1. E. body sherd, plain, 32BA420, S-1. F. body sherd, plain, 32BA421, S-3. G. body sherd, plain, 32GG7, S-10. H. body sherd, plain, 32GG7, S-11. I. body sherd, cord roughened, 32GG7, S-12. J. body sherd, plain, 32GG7, S-13. K. body sherd, brushed, 32GG7, S-14.

Plate A3. Artifact specimens, actual size.



A. body sherd, plain, 32GG7, S-15. B. body sherd, plain, 32GG7, S-16. C. body sherd, plain, 32GG7, S-17. D. rim sherd, brushed, 32GG7, S-18. E. body sherd, cord roughened, 32GG7, S-19. F. rim sherd, plain, 32GG7, S-21. G. body sherd, plain, 32GG7, S-22. H. body sherd, plain, 32GG7, S-23. I. body sherd, plain, 32GG7, S-24, J. body sherd, plain, 32GG7, S-25. K. body sherd, brushed, 32GG7, S-26. L. rim sherd, plain, 32GG7, S-27.

Plate A4. Artifact specimens, actual size.



A. body sherd, plain, 32GG12, S-3. B. body sherd, plain, 32GG12, S-4. C. body sherd, eroded surface, 32GG18, S-1. D. rim sherd, cord roughened, 32GG221, S-1.

Plate A5. Artifact specimens, actual size.

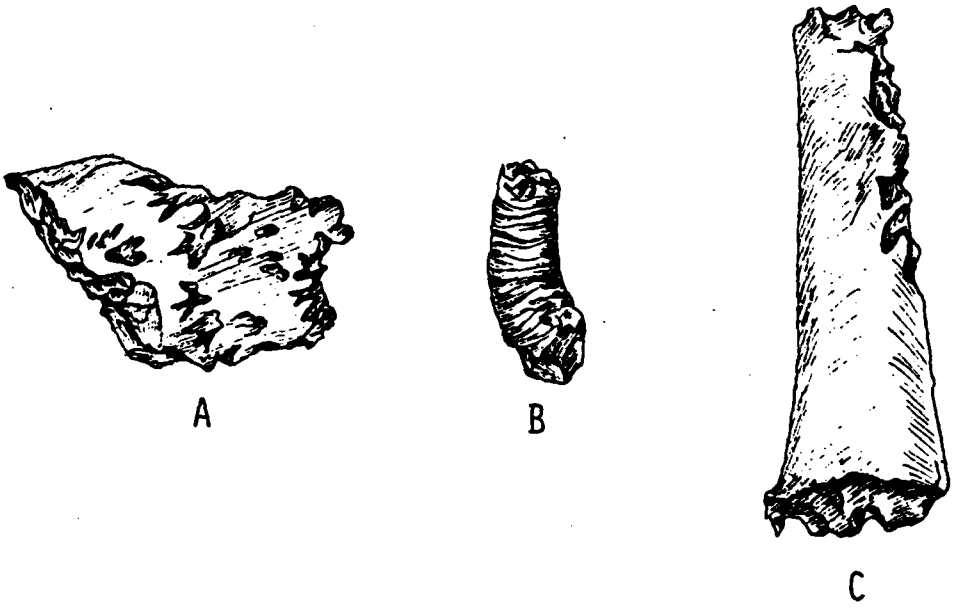


Plate A6. Some Fossil specimens from 32BA419.

A. Didymoceras sp.

B. Baculites sp.

C. Baculites sp.

APPENDIX I, SECTION C

VEHIK'S (1978) DESCRIPTION OF COLLECTIONS

32GG221

Associated material:

Faunal remains: This category consists of eight teeth or fragments thereof, one piece of burned bone, and six unburned bone fragments.

Ceramics: The sample consists of two rim sherds, 25 body sherds, and two split grit-tempered sherds.

Rim sherds:

One straight rim sherd has a very pale brown color (10YR 7/4). It is grit-tempered. The sherd is 5.8 mm thick, and the temper ranges up to 2.2 mm in diameter. The interior is smooth but the exterior is heavily cord-roughened with 2.2 mm wide impressions. The rim is 18.3 mm high. The lip is flattened and decorated by a series of tool impressions.. The lip is 7.4 mm thick and the tool impressions are 2.6 mm wide, 1.4 mm deep, and about 4.6 mm apart.

The other rim sherd is coarsely grit-tempered. The exterior and interior are very pale brown (10YR 7/4). The exterior appears to be simple-stamped. These impressions have a diameter of 3.2 mm, and the sherd is 6.9 mm thick. The lip is flattened and is 8.5 mm thick. It is decorated by sloping tool impressions. They appear to have been made by a round ended implement pused through wet clay from the interior toward the exterior, resulting in slight lumps in front of the tool impressions. These impressions are 5.0 mm wide, 3.5 mm deep, and 5.4 mm apart. The temper ranges up to 4.0 mm in diameter.

Body sherds:

One body sherd is fabric-impressed. It is 6.7 mm thick and grit-tempered. The temper ranges up to 1.8 mm in diameter. One sherd is simple-stamped. The impressions are 2.7 mm in diameter and the sherd is 6.8 mm thick. The predominant temper is grit which ranges in diameter up to 2.5 mm. Two sherds had plain surfaces and were grit-tempered which ranges up to 2.3 mm in diameter. They are 7.0 mm thick. The remainder, 21, are cord-roughened, grit-tempered sherds. The temper ranges up to 2.6 mm in diameter. Sherd thickness ranges from 3.9 to 8.0 mm.

Chipped stone:

Biface fragment:

Dimensions: Length-39.7 mm, width-29.2 mm, thickness-7.6 mm, and weight-11.4 g.

The distal end of this artifact is broken. The proximal end is rounded, and the edges are slightly excurvate. Primary flaking is conchoidal and expanding. Retouch is bilateral consisting of angular expanding and conchoidal flake scars. It is made from a light gray chert (5YR 7/1).

Utilized flakes: Two chert flakes, three Knife River flint flakes, and four quartzite flakes were utilized.

Unutilized flakes: This group consists of one jasper/chert flake, 34 chert flakes, and 44 quartzite flakes. A number of the larger fragments may be core flakes or fragments. There were also three rocks.

32GG223

Associated material:

Ceramics: Four grit-tempered body sherds have plain surfaces. These specimens range in thickness from 4.7 to 7.9 mm. The temper ranges in diameter from 1.0 to 1.7 mm.

Cord-roughened, grit-tempered pottery consists of five specimens which are between 4.5 and 5.4 mm thick. The diameter of the temper ranges between 0.6 and 1.4 mm. The average width of cord impressions is 1.6 mm.

Chipped stone:

Biface:

Dimensions: Length-63.8 mm, width-40.6 mm, thickness-13.8 mm, and weight 41.4 g.

This specimen is made from a reddish brown (5YR 5/4) quartzite. It has a rectangular outline, but is fairly crude in appearance resulting from the removal of massive conchoidal and expanding flakes. There is no secondary retouch, and it may be an unfinished biface blank.

Biface fragment:

Dimensions: Length-33.1 mm, width-25.6 mm, thickness-7.6 mm, and weight 8.1 g.

This proximal fragment is made from a pale red (10R 6/4) quartzite. Primary flaking is expanding and conchoidal while secondary retouch is discontinuous and angular expanding. The base is narrow and slightly rounded.

Utilized flakes: Two quartzite flakes and one chert flake had evidence of utilization along at least one edge.

Unutilized flakes: This group consists of two chert and seven quartzite flakes.

32GG225

Associated material:

Faunal remains: One unidentifiable tooth fragment is in this category.

Ceramics: The sample consists of four rim and 12 body sherds.

Rim sherds:

One specimen is cord-roughened and grit-tempered. It is 9.0 mm thick and the size of temper ranges from 2.1 to 5.0 mm. The rim is rounded and slightly pinched. Cord-roughening occurs on the neck, and the cord impressions are 2.0 mm wide. The rim has a height of 35.3 mm. The exterior color is light yellowish brown (10YR 6/4) and the interior is very dark gray (10YR 3/1).

One plain, grit-tempered rim has a slightly thickened lip (8.6 mm thick) which is the result of a horizontal tool impression in the top of the lip. This appears to have been made with a round ended stick and is 2.1 mm deep. The lip is flattened. The sherd is 5.6 mm thick. The temper has a diameter of 1.2 mm. The exterior and interior color is reddish yellow (7.5YR 7/6).

Another rim is characterized by having a boss below the lip and three horizontal lines of vertical incisions on the neck. The boss protrudes from the exterior surface and is 5.7 mm deep and 5.7 mm in diameter. The vertical incisions, made with a pointed implement, are 0.3 mm deep and 3.0 mm wide, and the horizontal lines are 6.3 mm apart. The sherd is 7.0 mm thick and the grit temper has a diameter between 1.3 and 2.0 mm. The exterior and interior surfaces have a dark gray color (10YR 4/1).

The final rim sherd has a rounded lip and no decoration. It has a light brownish gray color (10YR 6/2), and is tempered with grit which has a diameter of 1.4 mm. It is 6.4 mm thick.

Body sherds: Twelve cord-roughened, grit-tempered body sherds were also recovered. Two of these specimens are smoothed. They range in thickness between 4.0 and 4.3 mm and the temper ranges from 0.8 to 2.2 mm in diameter. The remainder are cord-roughened, and range from 4.1 to 7.1 mm in thickness. The size of temper varies between 0.9 and 4.1 mm. Also there are three grit-tempered split body sherds.

Chipped stone:

Chopper:

Dimensions: Length-78.3 mm, width-51.2 mm, thickness-17.4 mm, and weight-74.6 g.

This specimen made from a pale red (10R 6/2) quartzite appears to be a core fragment reworked into a chopping tool. approximately 25% of the dorsal surface has cortex. The ventral surface is irregular and has conchoidal flake scars. Discontinuous dorsal retouch is present along one edge.

Utilized flake: One secondary Kinfe River flint flake has been retouched along a lateral edge and may have been used as a side scraper.

Unutilized flakes: Three chert flakes and five quartzite flakes do not exhibit any evidence of use or retouch.

32GG229

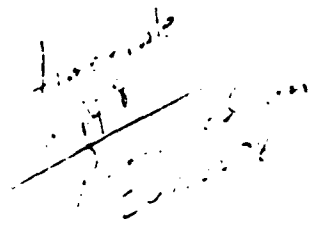
Associated material: One bison tooth, a vertebral fragment, and a bone fragment were the only faunal material recovered. Chipped stone remains consisted of one utilized Knife River flint flake and four unutilized flakes. Raw materials for the latter included one chert flake, one Knife River flint flake, and two quartzite flakes.

32GG236

Associated material: Three unutilized flakes were recovered. Two were quartzite and one was a Knife River flint flake.

APPENDIX II

SCOPE OF WORK FOR A CULTURAL
RESOURCES INVESTIGATION OF
LANDS ADJACENT TO LAKE ASHTABULA RESERVOIR
AND UPSTREAM AREAS



1. INTRODUCTION

1.01 The Contractor will conduct a cultural resources reconnaissance inventory of lands adjacent to Lake Ashtabula Reservoir and upstream areas that would be inundated by a pool raise. The St. Paul District Corps of Engineers operates and maintains the Baldhill Dam on the south end of Lake Ashtabula and owns approximately 2,286 acres of land around the reservoir above the normal pool level. This investigation will also include examination of privately owned property that is or would be affected by the present and proposed operation of Baldhill Dam. This cultural resources inventory is partially fulfillment of the obligations of the St. Paul District regarding cultural resources, set forth in the Historic Preservation Act of 1966 (P.L. 89-665), the National Environmental Policy Act of 1969 (P.L. 91-190), Executive Order 11593 for the Protection and Enhancement of the Cultural Environment (13 May 1971, 36 F. R. 8921), The Archaeological Conservation Act of 1974 (P.L. 93-291), the Advisory Council on Historic Preservation's "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R., Part 800), the Department of the Interior's guidelines concerning cultural resources (36 C.F.R., Part 60, and Interim Regulations Parts 32, 60, 61, 62, 63, 64, 65, 66) and the Corps of Engineers Regulations (ER 1105-2-460) "Identification and Administration of Cultural Resources" (Federal Register 3 April 1978).

1.02 The above mentioned laws establish the importance of Federal leadership, by the various responsible agencies, in locating and preserving cultural resources within project areas. A part of that responsibility is to locate, inventory and nominate to the Secretary of the Interior all such sites in the project area that appear to qualify for listing on the National Register of Historic Places. Specific steps to comply with these laws, particularly as directed in P.L. 93-291 and E.O. 11593, are being taken by the Corps ". . . to assure that any federally owned property that might qualify for nomination is not inadvertently transferred, sold, demolished or substantially altered." In addition, the Corps is directed to administer its policies, plans and programs in such a way that federally and non-federally owned sites, structures, and objects of historical, architectural or archaeological significance are preserved and maintained for the inspiration and benefit of the people.

1.03 For the purpose of this study, the cultural resources investigation will include a literature search and records review and an on-the-ground investigation of the areas specified in the accompanying project description (Section 2). Although a considerable amount of cultural and environmental information of the area has been previously obtained under other cultural resource contracts with the St. Paul District, there is not sufficient information to fulfill a cultural resources management program for those Corps owned sites. Because the scopes for these earlier studies covered Lake Ashtabula on different levels of concern, additional record and literature review of local historic resources and further field investigation is required to supplement these reports.

1.04 The Contractor will utilize a systematic, interdisciplinary approach in conducting the study. The report will be a comprehensive, scholarly document that not only fulfills mandated, legal requirements but also serves as a scientific reference for future professional studies and provides summary information suitable for public distribution, to include expertise in the disciplines of archaeology, history, and natural sciences as required. Personnel involved with the work under this contract will meet the minimum professional qualifications outlined in Appendix A. Methods and techniques used for the study will be consistent with the current state of professional knowledge and development.

1.05 The extent and character of the work to be accomplished by the Contractor will be subject to the general supervision, direction, control and approval of the Contracting Officer.

2. PROJECT DESCRIPTION

2.01 The Lake Ashtabula Reservoir, completed in 1950, includes approximately 78 miles of shoreline at normal pool level (elevation 1,266). The St. Paul District owns 7,816 acres of land for operating the reservoir, of which approximately 2,386 are above the normal pool level. Erosion has resulted in the loss of Federally owned land to the extent that in certain areas there is private ownership down to the water's edge. The Corps is currently developing plans for a riprap shoreline protection program to prevent future erosion. The selected reaches of shoreline between Katie Olson's Landing and Keyes Crossing will have initial priority in the survey in addition to proposed stockpile areas, and access roads that will be required for this years protection work. The placement will be accomplished from the shoreline during the winter months, without any bank grading. A field report will be required after accomplishment of this portion of the survey in order that any identified sites can be avoided in the riprap placement operation.

2.02 The St. Paul District has developed and maintains six public use areas which include about 147 acres. The Lake Ashtabula Master Plan for Public Use Development and Resource Management outlines existing and proposed developments. These areas will have highest priority in the intensive testing of sites, and sufficient information will be obtained when possible to request determinations of eligibility to the National Register of Historic Places. The limits of sites located in these areas should be designated on maps 18-26 in the Master Plan. Appropriate recommendations should be included addressing preservation from vandalism and for public interpretation.

2.03 Of the 2,386 acres of Federal land, 1,538 are leased to various agencies and individuals for fish and wildlife management, for recreational areas, and for commercial concessions. The impacts of on-going leasee activities on any identified sites should be discussed and recommendations presented for protecting the resources.

2.04 The St. Paul District is also engaged in a Reformulation Study of Flood Control Alternatives for the Sheyenne River Basin. One measure under consideration would be raising Baldhill Dam to provide a 5 to 15 foot higher pool capacity for flood storage. Upstream areas should be investigated to identify additional sites and to assess the spatial extent, condition, and potential significance of the sites. Because of separate project authorizations, this will be considered as a separate work item requiring a separate cost breakdown.

3. GENERAL PERFORMANCE SPECIFICATIONS

LITERATURE RESEARCH

3.01 Information and data for the literature search will be obtained from, but not limited to, the following sources:

a. Previous cultural resources investigations completed under contract with the St. Paul District including:

- the Environmental Impact Assessment of Baldhill Dam and Lake Ashtabula, North Dakota by the University of North Dakota;

- the Report on the Archaeological Aerial Survey of Lake Ashtabula, North Dakota by Mankato State University;

- A Literature Review of Archaeological, Historical, and Paleontological Resources of the Sheyenne River Basin in North Dakota by the University of Wisconsin - LaCrosse;

- An Archaeological Survey of Selected Portions of the Lower and Middle Sheyenne River Basin in North Dakota by the University of Wisconsin - LaCrosse.

b. Published and unpublished reports and documents such as books, journals, theses, dessertations and manuscripts.

c. Site files and other information at the North Dakota Historical Society, the University of North Dakota, and local historical societies.

d. The Contractor will obtain from the State Historic Preservation Officer information regarding any cultural resources in the project area that have been recorded and/or are being considered for nomination to the National Register of Historic Places.

e. Consultation with other professionals familiar with cultural resources in the area.

f. Consultations with amateur archaeologists and individuals concerned with local history in order to locate sites and to identify and define local interests and resources perceived to be locally significant.

3.02 There are thirteen archaeological sites known to occur in the area surrounding Lake Ashtabula. Seven of these sites are believed to have been inundated by Lake Ashtabula. The other sites are on high ground adjacent to the reservoir, but do not all fall within the realm of this investigation. In addition, Vehik identified sixteen archaeological sites upstream of Lake Ashtabula. Five of these sites are within the 1280 pool raise presently under consideration.

3.03 The field work will involve an intensive surface examination of these areas: (as indicated on U.S.G.S. maps)

a. The stockpile areas and access roads designated for bank protection project.

b. Corps owned land.

c. All lands adjacent to the existing Lake Ashtabula to elevation 1280 with the following considerations:

(1) When an elevation of 1280 is attained, the investigation should proceed 50 meters inland if there are level surfaces suitable for occupation.

(2) In those areas of the shoreline where there is evidence of erosion, the investigation will include all lands 50 meters inland from the top of the eroding bank regardless of elevation.

(3) Those areas of wetlands and steep slopes which, on the basis of professional archaeological judgement, can be determined to have insignificant potential for containing prehistoric or historic resources.

d. Baldhill Creek within Sections 1 and 12, west of the existing Corps property line to elevation 1280 using the same considerations as c. above.

e. Upstream of the existing Lake Ashtabula north to the Wells County Bridge crossing to elevation 1280 using the same considerations as c. above and Vehik's report as a guide.

3.04 a. Reconnaissance level subsurface testing (coring, shovel tests) will be appropriate in Corps recreational areas or likely site areas in order to identify obscured cultural remains. This is not, however, intended to be a systematic testing program to identify subsurface resources. All areas of subsurface testing should be described in detail.

b. Subsurface testing of identified sites will at minimum assess the horizontal and vertical extent, condition, and general nature of the site in order to determine if any may be eliminated from further consideration due to plow zone disturbance. It is anticipated that not more than half a day will be spent per site for those located on private lands, unless additional time is available.

c. Sites located on Corps property, especially those within proposed recreational developments or those subject to erosion, will undergo a more detailed level of testing. If possible, sufficient data will be obtained so that a decision can be made concerning eligibility to the National Register of Historic Places. Estimated costs for future testing or mitigation and appropriate research strategies will be expected.

3.05 The historical requirements are based on the premise that the approximately 170 summer cabins adjacent to Lake Ashtabula were constructed following creation of the reservoir in 1951. Any evidence contrary to this for particular structures should be included. The historical information presented in Vehik's report should be reviewed and supplemented by contacts with local historical interests. The historical investigation is considered a minor work item.

3.06 The Contractor will keep standard field records, to include but not necessarily to be limited to field notebooks, site survey forms, field maps and photographs.

3.07 The Contractor will obtain written permission from the appropriate landowners to enter their property for the purpose of conducting the field work.

3.08 The disturbed areas will be returned as close as is practical to presurvey conditions.

3.09 The Contractor may be required to stake archaeologically sensitive areas in order to avoid construction impacts.

4. GENERAL REPORT REQUIREMENTS

4.01 The Contractor will prepare a report detailing the work done, the study rationale, the results of the entire investigation, and recommendations for additional work. The report will include, but will not necessarily be limited to, the following sections: an abstract, an introduction, a section placing the project area in a regional context, a section on the methodology employed, a brief evaluative discussion of previous work in the area, the inventory and evaluation of the resources, a discussion of the potential natural project related impacts to these resources, and recommendations for further Corps action, a concise definitive summary and references. The above items need not necessarily be discrete units but must be readily discernable to the reader.

4.02 The abstract will be a synopsis of the report, where the reader may find the general conclusions and recommendations resulting from the study. A cultural resource profile form will also be provided to the Contractor to complete for purposes of record keeping.

4.03 The introduction will include, but will not necessarily be limited to, the following: the purpose of the inventory survey, delineation of the study boundaries, and a general statement on the nature of the study conducted.

4.04 The theoretical orientation of the principal investigator and his/her research bias and assumptions will be explicitly stated as they pertain to this cultural resources reconnaissance.

4.05 The methodology used for data collection and analysis will be described in sufficient detail so that a reviewer may understand what was done and why. This should include an outline of the lands covered.

4.06 The body of the report will include:

a. A discussion of the regional environmental context in which cultural adaptions took place.

b. A discussion of regional cultural developments in their spatial and chronological dimensions.

c. A brief summary and evaluation of previous archaeological and historical studies of the region, including the date, extent and adequacy of the past work as it reflects on the interpretation of what has been found in the project area.

d. A discussion of the cultural resources located in the area with attention to present and future condition of the resources. Thus, the report will provide information on general physiographic features, vegetation cover, and the likely effects of erosion or inundation.

e. An evaluation of the eligibility of the sites for inclusion in the National Register of Historic Places with background information to request determinations of eligibility where there is adequate data.

f. A discussion of recommendations for protection or mitigation of adverse effects on particular sites..

g. A discussion of any sites or materials illustrating distinctive cultural processes which are potentially suitable for on-site interpretation or public display.

4.07 There will be a brief summary of the study findings and recommendations.

4.08 The report will include the vitae of the principal investigator and any consulting professionals.

4.09 The site forms will be included in a separate volume.

4.10 A separate report will be prepared which can be made available to the public. This booklet will briefly summarize the prehistory and history of Lake Ashtabula. The temporal and spatial scope of the information presented will be up to the discretion and creativeness of the Contractor.

5. FORMAT SPECIFICATIONS

5.01 Text materials will be typed on bond paper, 8.5 inches by 11.0 inches, with a 1.5-inch binding margin on the left side, 1-inch margins at the top and right and 1.5-inch margin at the bottom.

5.02 Information will be presented in textual, tabular, and graphic forms, whichever is most appropriate, effective and advantageous to communicate the necessary information.

5.03 The title page of the report will carry an appropriate inscription indicating the source of funds used to conduct the work, the contract number, the name of the principal investigator, and the date.

5.04 All references cited and/or utilized will be presented in standard American Anthropological Association format. Contacts with individuals will also be cited.

5.05 The report must include references to accession numbers used for all collections, photographs and field notes obtained during the course of the study.

5.06 The location of all sites and other features discussed in the text will be shown on an appropriate map, using U.S.G.S. 7.5 minute quadrangle maps as a base.

5.07 All figures must be readily reproducible by standard xerographic equipment. Negatives of all black and white photographs included in the final report must be included so that copies for distribution can be made.

6. MATERIALS PROVIDED AND CONTRACTOR SUBMITTALS

6.01 The Contractor will furnish the labor, supplies and equipment needed to complete the study and to produce the report on the investigation as outlinad in this Scope of Work.

6.02 The Contracting Officer will furnish the Contractor with the following materials:

a. A letter of introduction signed by the St. Paul District Engineer explaining the objectives of the work and requesting right-of-access from private landowners.

b. Topographic maps of the areas to be surveyed.

c. Copies of Corps of Engineers drawings covering areas to be surveyed, including historic drawings (as available) which show conditions prior to construction.

d. Copies of cultural resources reports which have been previously obtained under contracts from the St. Paul District Corps of Engineers will be provided for use, if not already available.

e. A copy of the Lake Ashtabula Master Plan for Public Use Development and Resource Management prepared under contract for the St. Paul District.

f. Aerial photographs of the reservoir will be made available to the Contractor for reference purposes. Copies of the photographs of selected areas will be provided if need is demonstrated.

6.03 The Contractor will submit a field report concerning areas investigated for the bank protection work scheduled this year.

6.04 The Contractor will submit two copies of a field report including site locations within 30 days of completion of the actual field work, but in no case later than 30 November 1978.

2 & 7 6 May 1979

6.05 The Contractor will submit 6 copies of a draft final report by ~~28 February 1979~~. The draft report will be reviewed by the Contracting Officer and the official review agencies for Corps contracts. All comments will be consolidated and transmitted to the Contractor by ~~20 April 1979~~.

E.D.7. July 1979

6.06 The Contractor will submit the original (including original photos and drawings) and 8 copies of the final report which will include appropriate revisions in response to the Contracting Officer's comments by ~~30 May 1979~~.

30 August 1979

E.&7.

6.07 The Contracting Officer will send copies of the draft report to the appropriate offices of the Heritage Conservation and Recreation Service and to the appropriate State Historic Preservation Officer and State Archaeologist for review. Copies of the revised final report will be provided to the above mentioned agencies and to the Library of Congress, Smithsonian Institution and, at the discretion of the Contracting Officer, to other State and local archaeological and historical societies, public interest groups, and any other State and Federal agencies, institutions, foundations or individuals with special interest or expertise in cultural resources.

6.08 Prior to completion of the contract, neither the Contractor nor his/her representatives will release or publish any sketch, photograph, report, or other material of any nature obtained or prepared under this contract without specific written approval of the Contracting Officer.

VITA

Richard Allan Fox, Jr.

Born: Detroit, Michigan; 11 September 1943

Education: Bachelor of Arts (Anthropology) 1966, University of Montana

Master of Arts (Anthropology) 1977, University of Montana

Professional Experience:

1975-1976 Graduate Teaching Assistant, Department of Anthropology, University of Montana

1976-1977 Graduate Teaching Assistant, Department of Anthropology, University of Montana

1977-1978 Instructor, Department of Anthropology/Archaeology, University of North Dakota, Grand Forks, (less than fulltime)

1977- Associate Research Archaeologist, Department of Anthropology and Archaeology, University of North Dakota, Grand Forks

Field Work; Projects:

1963 Archaeological Field Survey crew member, Blackfoot River Survey, Mt.

1973 Archaeological Field Survey crew member, Park River, ND

1975 Archaeological Field Survey crew member, Canyon Ferry Reservoir, Mt.

1975 Archaeological Excavation crew member, Fort Owen, Montana Historic Site

1975 Archaeological Excavation crew member, Cantonment Jordan Historic Site

1975 Party Supervisor, Natural Gas Pipeline survey of the archaeological resources near Dunn Center, North Dakota

1975 Field Supervisor, Pipeline survey near Beulah, North Dakota, to the Missouri River, Otter Tail Power Company

Field Work; Projects, continued:

1976 Field Supervisor on Shoshone Project, United States Bureau of Reclamation, near Powell, Wyoming

1976 Field Supervisor, Archaeological Survey of the Spring Creek Mine Area, Decker, Montana, VTN Architects, Engineers and Planners

1976 Field Supervisor, Archaeological test excavations in the Spring Creek Mine Area, Decker, Montana, VTN Architects, Engineers and Planners

1977 Field Supervisor, additional archeological survey of the Spring Creek Mine Area, Decker, Montana, VTN Architects, Engineers and Planners

1977 Field Supervisor, Burlington Dam Survey, Upper Souris River, North Dakota, U.S. Army Corps of Engineers.

1978 Field Supervisor, White Buffalo Robe Earthlodge Village (32ME7) excavation, Stanton, North Dakota, Otter Tail Power Company

1978 Principal Investigator, Pipestem Reservoir Ossuary Excavations (32SN102), U.S. Army Corps of Engineers, Omaha

1978 Principal Investigator, Archaeological Survey of the New Leipzig Mine Area, Knife River Coal Company, 15 Sections near New Leipzig, North Dakota

1978–1979 Principal Investigator, Lake Ashtabula, North Dakota Survey and Testing Phases, U.S. Army Corps of Engineers, St. Paul District

1979 Principal Investigator, Saskatchewan Intertie Project, Basin Electric Power Coop, Bismarck

1979 Principal Investigator, South Beulah Mine Extension, Knife River Coal Mining Co., Beulah, ND

1979 Principal Investigator, Glenharold Mine Extension, Consolidation Coal Co., Stanton, ND

Publications

Books:

1976 Grass, Tipis and Black Gold, Artcraft Printers, Billings, Montana co-author.

1979 Current Topics in Northern Plains - Midwest Archaeology, a selection of papers presented at the Joint Conference of Manitoba, Minnesota and North Dakota archaeologists, editor, in press.

Articles:

1976 The Development of Montana Archaeology: An Historical Perspective, Proceedings of the Montana Academy of Sciences, Vol. 36, pp. 181-185.

Professional Reports:

1976 Archaeological and Historical Studies in the Vicinity of the Proposed Coyote Station Electrical Generation Plant near Beulah, North Dakota, Institute for Regional Studies, Research Report No. 16, University of North Dakota, June 1976, co-author.

1976 The Shoshone Project: A Final Investigative Report on the Archaeological and Historical Resources, Department of Anthropology, University of Montana, Missoula.

1977 Archaeology of the Spring Creek Mine Area: Survey and Testing Phases, Department of Anthropology, University of Montana, Missoula.

1978 An Archaeological Survey: Shoreline of Lake Darling and Proposed Burlington Dam, Flood Control Project Area, Upper Souris River, North Dakota, Department of Anthropology and Archaeology, University of North Dakota, Grand Forks.

1978 Site 32SN102; Stutsman County, North Dakota: A Description and Analysis, Department of Anthropology/Archaeology, University of North Dakota, Grand Forks.

1979 Archaeological Investigations of the New Leipzig, ND Area, Department of Anthropology and Archaeology, University of North Dakota, Grand Forks.

1980 1978-1979 Cultural Resource Investigations along the Middle Sheyenne River Valley including Lake Ashtabula and a portion of the Sheyenne River, Department of Anthropology and Archaeology, University of North Dakota, Grand Forks.

1980 Cultural Resource Inventory of the Proposed Saskatchewan Intertie Transmission Line Right-of-Way, Northwestern North Dakota, Department of Anthropology and Archaeology, University of North Dakota, Grand Forks.

Professional Papers:

1976 The Development of Montana Archaeology: An Historical Perspective, presented at the Montana Academy of Sciences annual meeting, Havre, Montana.

1977 Contract Archaeology in Southeastern Montana, presented at the Montana Academy of Sciences annual meeting, Missoula, Montana.

1977 Butchering Practices in Southeastern Montana, presented at the Montana Archaeological Society annual meeting, Butte, Montana.

1978 Prehisteric Human Adaptations in the Upper Souris Basin, presented at the Association of Manitoba, Archaeologists Spring meetings, Winnipeg, Manitoba, Canada.

1978 Excavations and Preliminary Observations at White Buffalo Robe Village (32ME7), North Dakota, presented at the 36th Annual Plains Conference, Denver, CO.

1979 Winter Archaeology, paper presented at the Joint Conference of Association of Manitoba Archaeologists, Council for Minnesota Archaeology, Manitoba Archaeological Society, University of North Dakota Archaeological Research, Grand Forks, North Dakota.

Research Interests:

North American Archaeology, Plains Archaeolgoy with an emphasis on the Northern Plains, Human adaptations to the paleoenvironment, Cultural Resource Management, Historical Archaeology.

Professional Memberships:

Sigma Xi, Scientific Honorary
Plains Anthropological Association
Society for American Archaeology

Other Memberships:

Montana Historical Society
Montana Archaeological Society
Archaeological Society of Southwestern Manitoba

ARCHAEOLOGICAL FIELD REPORT:
1978 Fall Field Season and Rip Rap Operation Investigations

LAKE ASHTABULA, ND

November 28, 1978

Prepared by Richard A. Fox

Department of Anthropology and Archaeology
University of North Dakota
Grand Forks, North Dakota

U.S. Army Corps of Engineers
Contract # DACW37-78-C0181

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INTRODUCTION

Under the conditions set forth in Contract No. DACW37-78-C-0181, the Department of Anthropology/Archaeology, University of North Dakota contracted with the U.S. Army Corps of Engineers, St. Paul District, for cultural resource investigations at Lake Ashtabula, ND.

The Lake Ashtabula cultural resource survey project includes:

a) all Corps owned land not presently inundated
b) all lands adjacent to the pool but not exceeding elevation 1280 feet (except where higher elevations are subject to erosion and deemed conducive to human occupation).
c) Baldhill Creek (as indicated in the Scope of Work).
d) the Sheyenne River upstream from the lake to the Wells County bridge (up to elevation 1280').
e) rip rap stock pile areas and access roads.

The crew moved into the field camp at Sibley, ND on October 9-10, 1978. Actual field investigations began on October 11. Part of the work week prior to beginning field operations (October 2-6) was devoted to hiring field assistants, procuring field equipment and securing accommodations and a literature search. Field work came to a close at noon on November 9, when a winter storm forced us to terminate. Time spent in field investigations totaled 788 man hours (4 crew members) through twenty-five working days. Ninety man-hours were expended in pre- and post- field activities.

Weather conditions and snow cover terminated our field investigations prior to completion of the project as described in the Scope of Work. We did, however, complete all of the selected reaches of shoreline and other associated areas earmarked for rip rap operations. It is anticipated that an additional five weeks this spring (1979)

should be sufficient for completing the entire project. With some exceptions, this report deals primarily with the areas associated with rip rap operations.

AREA SURVEYED

To facilitate rip rap operations this winter, the project area was partitioned into priority areas, namely selected reaches of shoreline between Katie Olson's landing and Keyes Crossing, stock-pile areas and access roads. Those areas that were within the project areas as described in (a) through (d) above, but not slated for rip rap protection, received a lesser priority. As mentioned earlier, we were able to visually examine all of the priority areas and shovel or core test some of them. In addition, a few non-priority areas were also visually investigated. These included:

1) The penciled area (on our maps) northeast of the Old Highway 26 Crossing that includes portions of the SW¼ of Sec. 24 and the extreme SE corner of Sec. 23, both of T143NR58W.

2) The penciled area northwest along the shoreline from Eggert's Landing through Sections 22 and 21, T142N R58W.

3) The penciled area north of Katie Olson's Landing up to the middle of Section 21, T142N R58W.

LITERATURE SEARCH

Prior to our departure for the field, archaeological research included a refamiliarization with the existing literature of the project area. Much of this work had already been accomplished under UACE Purchase Requisition No. NCSED-ER-R-570. However, additional documents and supporting data were furnished by the Corps. We also consulted the Department of Anthropology/Archaeology site and site lead files.

The site lead file proved useful in locating and subsequently positively identifying several previously unrecorded sites.

RESEARCH STRATEGY

There was little time to develop a comprehensive formal research strategy between the contract award date and entering the field. Unfortunately, this is one of the drawbacks imposed by the tendency to fund cultural resource management projects, particularly in the northern plains, at the end of an October fiscal year. However, thanks to materials provided by the Corps we were able to enter the field with some relevant archaeological hypotheses to be tested. They were:

1) To what extent will the surface evidence corroborate the site probability predictions formulated through Strackan and Roetzel's (n.d.) aerial survey of Lake Ashtabula?

2) Do our data support or refute Vehik and Vehik's (1977; Vehik 1978:93ff) propositions 1 through 5?

From a management standpoint, the more practical field work goals included:

1) identifying and precisely locating archaeological sites that may be affected by rip rap operations, erosion and/or pool raises.

2) assessing site significance to facilitate mitigative recommendations.

Application of the purely scientific goals must await completion of the field work and detailed laboratory analyses. Management goals were completed for all those areas affected by rip rap operations.

SURVEY METHODOLOGY

The field survey crew consisted of four crew members, Richard A. Fox (Supervisor and PI), L. L. O'Brien (Ass't Supervisor), Sherry Lantz and Richard Faflak, Field Assistants. The survey strategy was to

concentrate our efforts on those areas designated for rip rap operations. Then, if weather conditions permitted, our intent was to continue on lesser priority areas. When convenient, some lesser priority acreage (as outlined earlier) was surveyed in conjunction with rip rap areas.

The survey method was designed to walk over and visually inspect all of the project area. Two crew members were placed on the shoreline. Each was assigned to either shoreline (beach) or cutbank inspection. The remaining two investigators inspected areas above the shoreline. In instances where larger tracts of land not associated with shoreline reaches were involved, crewmembers maintained regular intervals (appx. 8 meters) while walking transects across the affected acreage.

Each site discovered was visually inspected for artifactual remains and features by a minimum of two crewmembers. They then were accurately located and carefully recorded on location on North Dakota Cultural Resource Inventory forms. Each was assigned a common name and a Smithsonian Trinomial site number. Color slides and B/W photos were or will be taken of each site. In instances where features existed at a site, each feature was accurately measured and oriented. Artifactual provenience on open surface sites was recorded whenever possible as was depth provenience in exposed vertical faces. No attempt was made to record provenience on cultural material confined wholly to the beach area on the premise that these materials were no longer in situ. When possible, a representative sample of the cultural debris at each site was collected for laboratory analyses.

TESTING METHODOLOGY

The following sequential test strategy was devised prior to entering

the field.

1) As a minimum, identify and locate all of the sites within the rip rap acreage, prior to the onset of inclement weather.

2) Identify and locate rip rap areas of potential human occupation that exhibit little or no cultural remains, also prior to inclement weather.

3) Shovel and/or trowel test each of the identifiable sites recognized as potentially being affected by rip rap operations. This procedure is to be accomplished at the time of discovery to establish vertical depth and determine potential impact.

4) Investigate, by using a two man power auger, the spatial aspects of sites and potential sites where such data are not evident through visual inspection or shovel and trowel testing. This strategy includes placing 6" auger holes at regular intervals along perpendicular transects to determine spatial limits. Materials recovered from each auger hole are to be screened and cataloged separately for lab analyses.

We were able to accomplish steps 1 through 3 of the testing strategy on those sites affected by rip rap operations. Two man auger investigations began on November 8, only one day prior to the winter storm. As a consequence, we were able to systematically investigate only a portion of the subsurface at one site, namely 32BA420. Also, we have identified numerous potential site areas that we want to test with the two man auger. They are depicted in green on the USGS quad maps sent under separate cover. We anticipate commencing a full auger testing program this spring on the potential site areas and many of the known sites whose significance and spatial aspects cannot be otherwise determined.

THE SITES

To date we have located and recorded 19 archaeological sites, one historic site and one paleontological site (32BA419). In addition,

we have assigned a site number (32BA403) (formerly it was listed as a site lead) to a burial that was removed from a shoreline cutbank by UND archaeologists in 1976. We also reinvestigated a site (32BA11) reported by Carmichael (Johnson, et al. 1974:49-50). The Sheyenne Mound Complex was formerly listed as a site lead but is now a confirmed site (32BA410). Site 32BA3 was previously recorded by Carmichael (Johnson, et al. 1974:40,46) but we could not find it this fall. Additional attempts will be made in the spring.

Archaeological sites discovered so far fall into six types - burial, mound, rock cairn, rock alignment, occupation and lithic scatter sites. Lithic scatter sites predominate. Several of these (32BA413, 420 and 421) contained a few potsherds. Preliminary observations indicate the paleontological site might be quite unique to the area. Seldom are pre-Pleistocene strata exposed in glaciated portions of North Dakota. Further research should determine the significance of this site. The historic site consists of several stone foundations.

RECOMMENDATIONS

All of the sites discovered to date(excluding those that are inundated) are listed in Table 1 along with the site type and recommendation regarding this fall's rip rap. Since the bank stabiliation operations will not require any bank grading, it is felt that the rip rap will be beneficial in preserving what remains of many sites.

The following sites should be avoided when placing the rip rap stone.

32BA3 - since the site is downstream from Baldhill Dam it probably will not receive rip rap, although it is within the inked blue lines on our map.

TABLE 1: Summary of Sites, Lake Ashtabula
Fall 1978 Survey

Site #	Type	Recommendations	Site #	Type	Recommendations
32BA3	E	1	32BA413	E	2
32BA11	D/F	3	32BA414	E	2
32BA403	A	4	32BA415	C	2**
32BA404	C	3	32BA416	D/F	3
32BA405	C	2	32BA417	C	2
32BA406	C	2	32BA418	C	2
32BA407	B	2*	32BA419	G	1
32BA408	C	2	32BA420	C	2
32BA409	C/D	3	32BA421	C	3
32BA410	D	3	32BA422	C	2
32BA411	C	2	32BA423	C	2
32BA412	C	1	32BA424	H	2

KEY

Type

Burial	A	Occupation	E
Cairn	B	Rock Alignment	F
Lithic Scatter	C	Paleontology	G
Mound	D	Historic	H

* Stone should not be procured from this site.

** Apparently this shoreline already has rip rap.

RECOMMENDATIONS

1. Rip rap operations will adversely affect site. Site should be avoided.
2. Rip rap operation will not adversely affect site - such measures should protect remaining portions from erosion.
3. Site is located away from rip rap or associated areas. No action necessary at this time.
4. Site matrix has been removed. No action necessary.

32BA412 - this site area is designated for a stockpile area. This stock pile area should be moved to an alternate. Each of the alternate stockpile areas as designated on our USGS maps (furnished by the Corps) did not contain cultural material. They would be suitable for relocation.

32BA419 - to the best of our knowledge, the baculites at this paleontological site are eroding from the water's edge and along the beach. There are no fossils exposed in the bentonite and gypsum strata in the cutbank but they might be expected to be here also. The best course of action is to avoid this site until a professional paleontologist can examine it.

Portions of many of the sites (particularly those assigned a #2 status in Table 1) along the bank stabilization reaches no doubt remain extant along the flat areas above the shoreline. Of course, only subsurface coring next spring can accurately establish the boundaries. In the meantime, we recommend that construction crews resist the temptation to stockpile or otherwise operate above the known site areas. The best course of action is to remain along the shoreline and frozen areas of the lake.

Finally, we are unable to offer any mitigative options for the bank stabilization access roads, if there are any planned, since we did not receive locational information regarding these roads. In light of this, we recommend that all access roads be restricted, as much as possible, to existing roads or along the shoreline.

LABORATORY WORK

Some laboratory analyses of specimens collected this fall is now under way. It is expected that the bulk of the research for the final report can be accomplished this winter. However, a split field season complicates adherence to the timetable established in the Scope of Work. The reason for this is because we cannot spend the spring

and summer performing lab analyses and research - this is the only time that we can perform our field work and honor other obligations. Therefore, we should consider, as a minimum, renegotiating the time table portion of the contract.

We are presently preparing the site forms and will forward them as soon as the are done.

REFERENCES CITED

Johnson, Gary E., et al.
1974 Environmental Impact Assessment of Baldhill Dam and Lake Ashtabula, North Dakota. Institute for Ecological Studies, Research Report No. 8. University of North Dakota, Grand Forks.

Strachan, R. A. & Roetzel, K. A.
n.d. Report on the Archaeological Aerial Survey of Lake Ashtabula, North Dakota. Submitted to the Army Corps of Engineers, St. Paul District.

Vehik, S. C. and R. Vehik
1977 A Literature Review of Archaeological, Historical, and Paleontological Resources of the Sheyenne River Basin in North Dakota. Report to the St. Paul District, U.S. Army Corps of Engineers. St. Paul, Minn.

Vehik, R.
1978 An Archaeological Survey of Selected Portions of the Lower and Middle Sheyenne River Basin in North Dakota. Report to the St. Paul District, U.S. Army Corps of Engineers.

APPENDIX III
(contained in Volume 2)

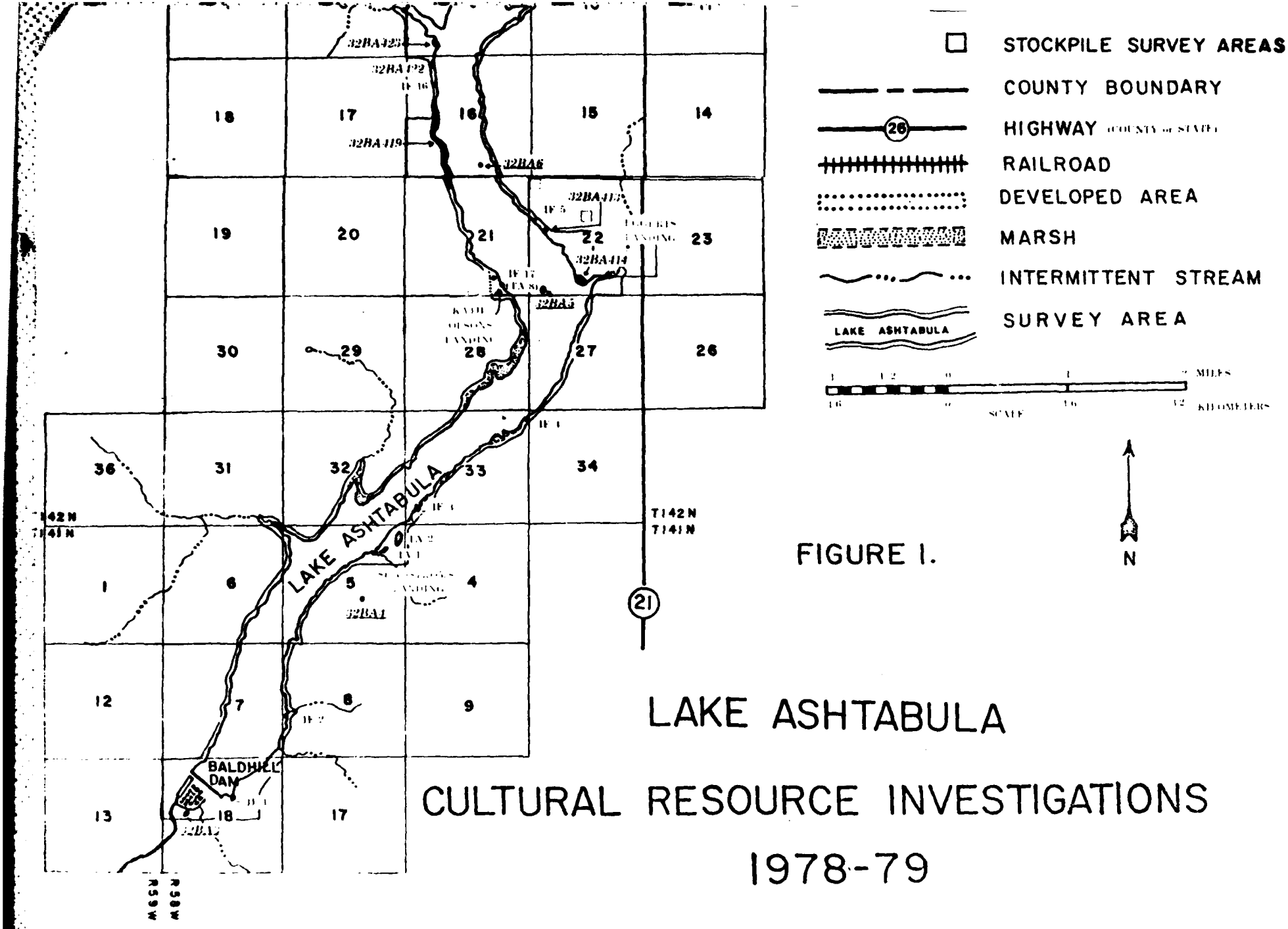
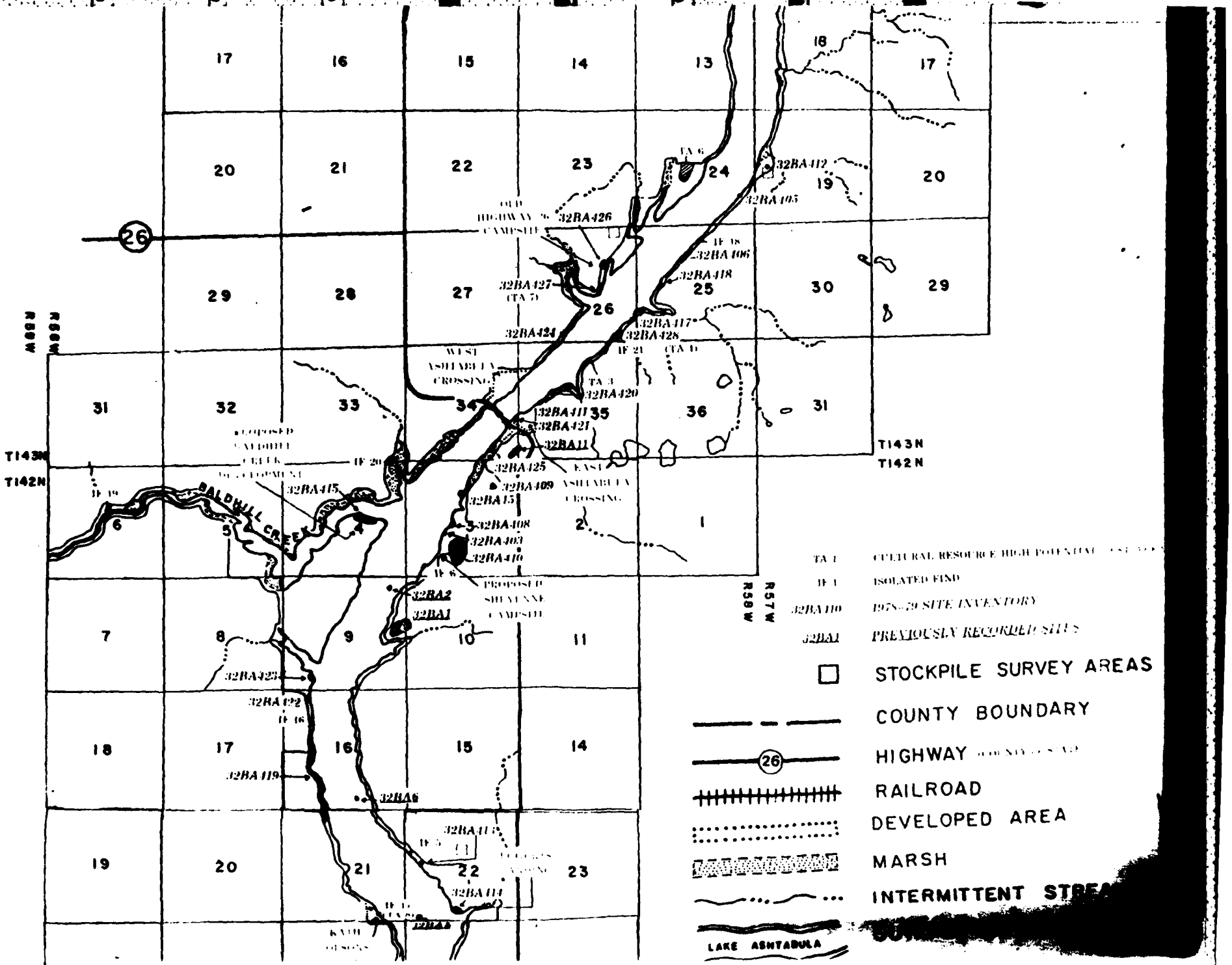


FIGURE 1.

LAKE ASHTABULA

CULTURAL RESOURCE INVESTIGATIONS

1978-79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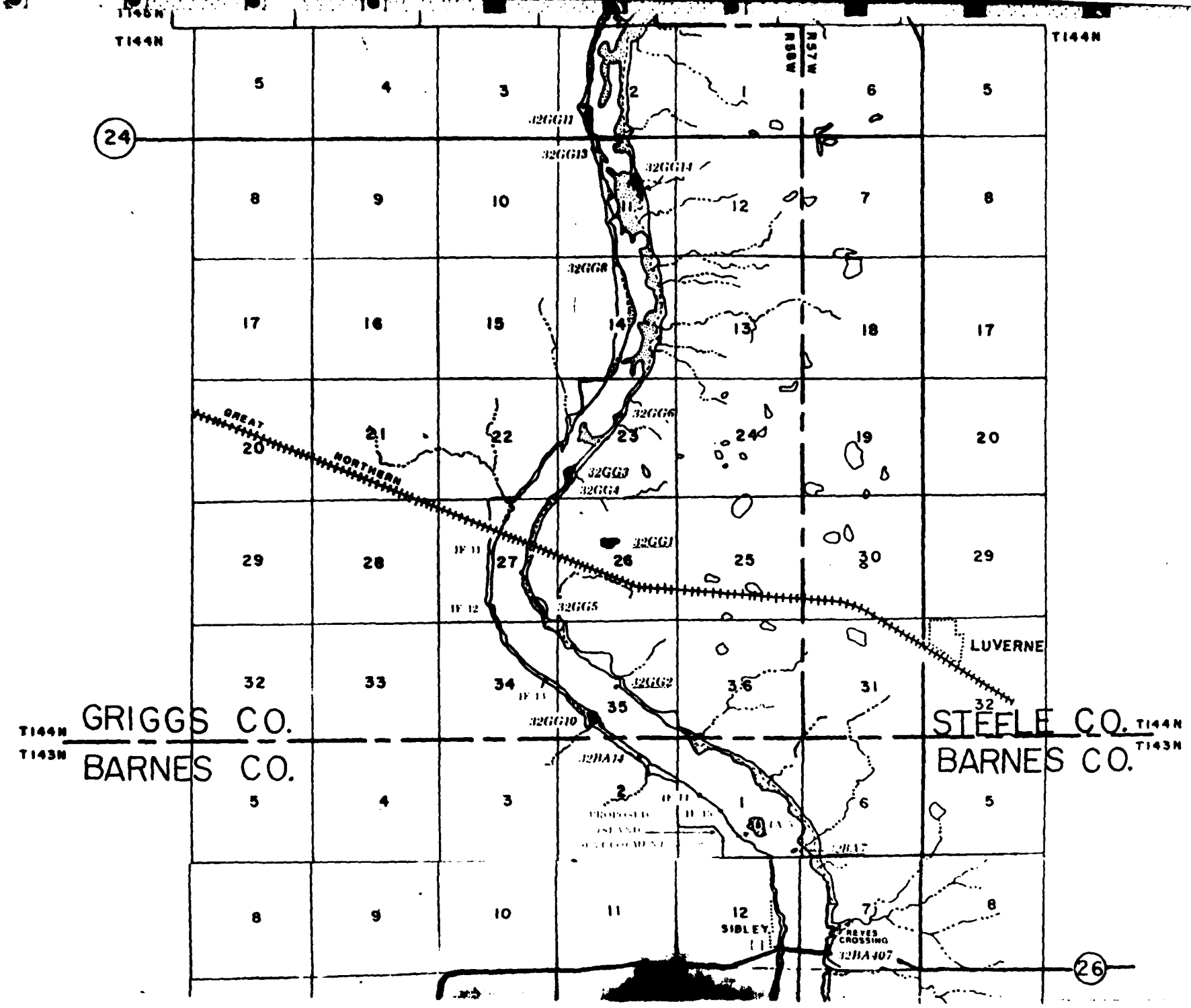
32BA11
32BA425
32BA409
32BA15
32BA408
32BA403
32BA410
32BA415
32BA2
32BA1
32BA423
32BA422
32BA419
32BA6
32BA414
32BA111
BALDWILL CREEK
WEST ASHTABULA CROSSING
EAST ASHTABULA CROSSING
PROPOSED SHEAFFER CAMPSITE
OLD HIGHWAY 26 CAMPSITE
LAKE ASHTABULA
STOCKPILE SURVEY AREAS
COUNTY BOUNDARY
HIGHWAY
RAILROAD
DEVELOPED AREA
MARSH
INTERMITTENT STREAM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32GG4
32GG1
32GG5
32GG2
32GG10
32BA14
32BA407
LUVERNE
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BARNES CO.
STEELE CO.
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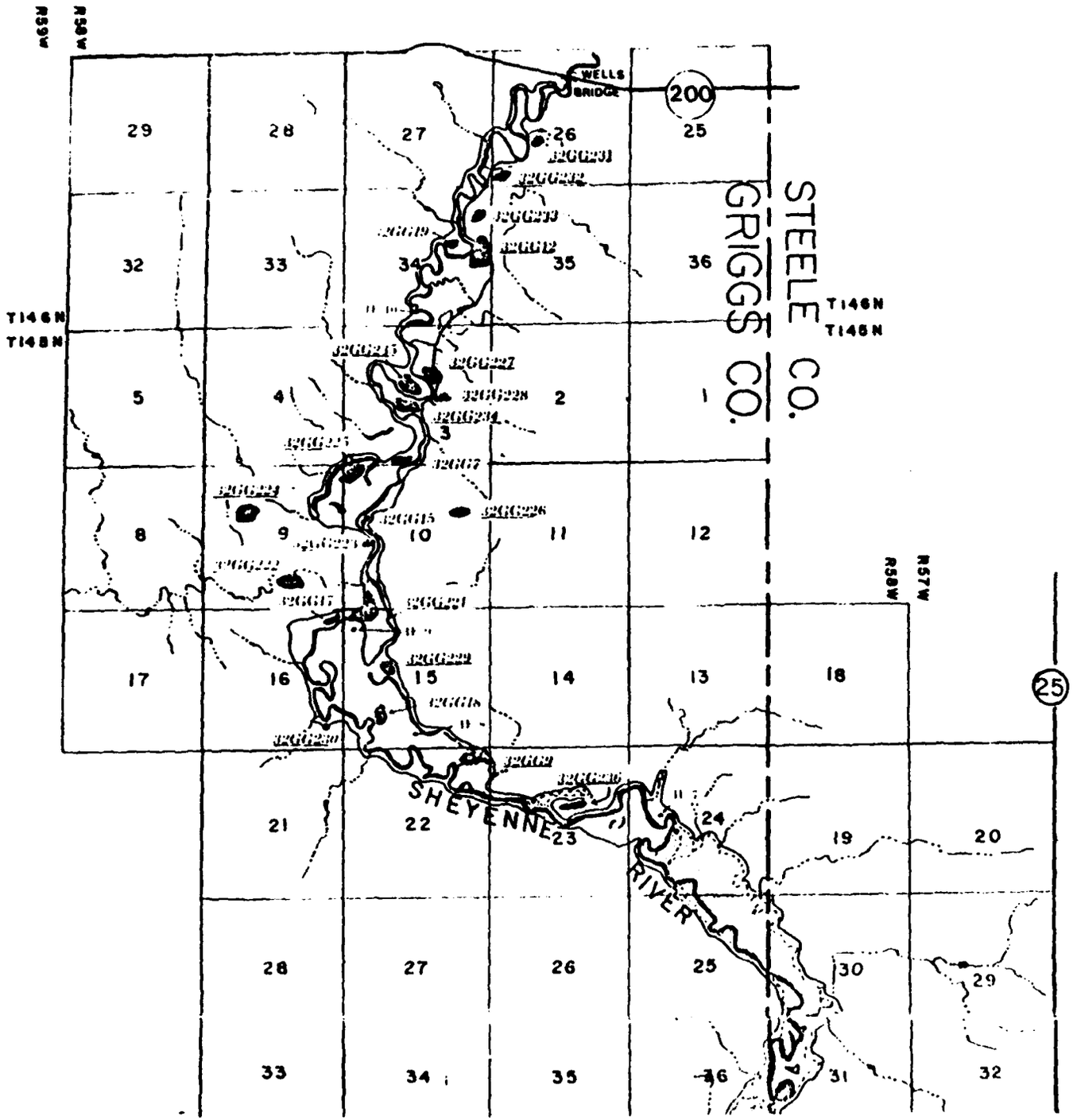
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BRIDGE
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STEELE CO.
GRIGGS CO.
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T145N
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R58W
R57W
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