PHASE I CULTURAL RESOURCE SURVEY

FOR A PROPOSED CANOE ACCESS SITE

UPPER DAM, UPPER IOWA RIVER, WINNESHIEK COUNTY, IOWA

BCA #12

Prepared by
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Prepared for
Iowa Department of Natural Resources
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ACKNOWLEDGMENTS

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INTRODUCTION

The project described in this report consisted of a Phase I Cultural Resource Reconnaissance Survey (BCA #12) of the proposed Upper Dam canoe access site. The survey was undertaken by Bear Creek Archeology, Inc., for the Iowa Department of Natural Resources on April 3, 1989. The field work and data compilation was conducted by G. Clark Rogers, BCA Staff Archeologist. Graphics were prepared by Art Hoppin, BCA Staff Archeologist. Historic research was conducted by the author.

PHYSIOGRAPHIC REGION

The proposed canoe access site is situated within the physiographic region commonly known as the Paleozoic Plateau (Prior 1976). The surface form of the Paleozoic Plateau is dominated by bedrock and is characterized by rugged relief and a heavily dissected landscape. This area was formerly designated as the "Driftless Area" in the belief that the area was never glaciated; however, isolated glacial till patches have been located in this region. Curtis Hudak (Green 1988:39) has recently noted that "development of the present northeastern Iowa landscape has been influenced little by loess and glacial drift, but rather has been controlled by differential resistance to erosion of Paleozoic bedrock."

Following the final breakup of the Wisconsinan Laurentide ice-sheet, the rivers of northeast Iowa began to downcut and migrate laterally. A complex sequence of lower and younger terraces were produced by several minor cut and fill episodes during the Holocene. Historic sedimentation, or post-settlement alluvium (PSA), has buried many of the lower terraces. In the Turkey River Basin area of Clayton County it was found that the late Wisconsinan and Holocene alluvial deposits within the small valleys can be delineated into four major stratigraphic groups. Of these, the project area can be categorized under "Unit D" which is described as follows:

> Unit D is found on benches and terraces which are loess-mantled and usually consist of silt loam, or sandy loam grading to gravel. The burial of Unit D by loess indicates that it accumulated prior to 12,000 RCYBP. In some areas these deposits grade upward into the overlying loess, suggesting that the alluvium was accumulating during loess deposition (Stanley and Stanley 1986:10 after Bettis 1984).

The project area is specifically situated along the Upper Iowa River which drains to the east through Allamakee County before emptying into the Mississippi River. The legal location of the access site is the W1/2 SE1/4 NE1/4 of Section 8, T98N, R7W, Glenwood Township (Figure 1). The proposed access site consists of two parking areas and an access lane near the former

power generating Upper Dam (Figure 2).

HISTORICAL BACKGROUND

The upper dam on the Oneota (now called the Upper Iowa) River was constructed by the Upper Iowa Power Company in the early 1900s. It was eventually operated by the Interstate Power Company. The dam powered a small hydroelectric plant which provided electricity for the town of Decorah and other nearby communities.

Decorah was an early forerunner in the provision of electrical services. It had a generating plant as early as 1883, just four months after Thomas Edison's first plant began operating in New York City. The power produced from this first plant lit approximately 30 lamps. It is likely that this plant represented one of "the first generating plants in the Midwest" (Knudson 1971:50). Knudson (1971:50) noted that

> Local citizens involved in this first light company and its successors raised money and made plans for a power dam at a point downstream recommended by a local engineer. However some of the money was provided by eastern financiers who sent out their own engineer who insisted that the dam be built closer to Decorah. Built in 1906, its generators sent power over what was probably the first overland transmission line in Iowa. A year later, on March 24, 1907, a flood undermined its sand footings and it was almost completely washed away, with a loss of $50,000. However the project succeeded when another dam was built, as directed by the local engineer, two years later and four miles downstream. The present dam was built in 1912, with a height of 24 feet. It boasted of having steam heating equipment to prevent the steel gates from freezing shut in the winter, and operated until 1958, when use of electricity had risen to such an extent that the amount generated by this plant was sufficient for only a tiny fraction of the needs of Decorah.

Another source indicated that the electricity generated by both power plants (i.e., the Upper and Lower dams) was also sent to Waukon, Cresco, Postville, and Lansing (Bailey 1913:166).

In reality, the original Upper Dam was not actually washed out in a flood, although it was likely undermined by flooding. An article in the Decorah Public Opinion dated March 27, 1907, stated that:

> Like a clap of thunder from a cloudless sky, the news was flashed to Decorah Sunday morning at eleven o'clock that the immense concrete water power dam of the Upper

> Iowa Power Company seven miles east of Decorah on the Oneota river had gone out. As it went from mouth to mouth and from house to house practically everyone refused to believe it. It could not be true that the work of three or four years was all for naught. That the great pile of concrete, anchored fourteen feet below the bed of the river, has been washed out by the water at its usual stage, when a few weeks before a raging flood which filled the lake in a very short time and sent a torrent of ice, lumber, water, etc. over the dam, five feet higher than the top, when the concrete work had been scarcely finished and was still green, had made no impression whatever upon it (Decorah Public Opinion 1907a).

Following that flood, "competent engineers" had examined the structure and pronounced it sound. The article further noted that:

> The entire dam, which the Upper Iowa Power Company has been at work on for nearly a year, was just completed, the machinery had all been installed, and everything was in complete working order. The company was waiting for the transformers to come from the factory which were to be placed at the old steam plant in Decorah, before turning on the current (Decorah Public Opinion 1907a).

This would seem to contradict one of the above statements that the dam had been generating electricity prior to its destruction. The final moments of the dam were described as follows:

> Several times the gates had been shut off and the lake allowed to fill up for various purposes of testing, and each time the dam stood tests seemingly more severe than the fatal one. During the day Saturday the gates were closed and the lake filled up, and it was decided to leave it filled over Sunday, for the double purpose of a further test and to give an opportunity for the people who had never seen it to visit the place. At eleven o'clock Sunday morning one of the employees, Peter Jensen, was standing below the dam watching the water flow peaceably over the top, when suddenly a large beam came floating past where he stood. Then he noticed the water below rolled considerably and commence to surge and boil. Running out on the bridge on top of the dam he felt it waver, and rushed back to the top of the power house, which had also begun to tremble and fall. Rushing to the earthen dam on the west side he reached it just in time to jump when the whole structure settled and swung about, the dam breaking in two in the center and from its moorings on

each end and settling into a deep hole some thirty feet deep which the water had washed out.

About thirty feet of the east end of the dam, the part which contains the flood gates, is intact. The dam is out, and the power house a total wreck, the ground being washed from under it, allowing it to settle into the water. Its walls are cracked and moved out of place, and the north and east walls have partially fallen into the water, so that it may be said that the concrete work on the dam proper and the power house is a total loss (Decorah Public Opinion 1907a).

The blame for the dam's collapse was placed by some on the faulty construction of some of the flood gates and the foundation of the power house. Allegedly a leak started under the foundation of the power house, and once it began it "went with a rush" undermining the power house and dam. Tons of gravel "were carried from beneath the dam and power house a hundred yards and more down the river, making a pile which extends above the water four feet high, and digging a hole under the dam thirty feet deep" (Decorah Public Opinion 1907a). The loss of the dam was initially estimated at $25,000 to $30,000.

Another article from the Decorah Journal and dated March 26, 1907, gave a somewhat different reasoning for the dam's collapse.

From the evidence at hand we gather that our late lamented dam was not founded on bedrock, nor even cradled by it. Some of it at least was built directly upon a shifty, sandy substance that quickly eroded when the tremendous water pressure was brought to bear upon it. Also there is the old question of the reliability of concrete put in during the winter. Pieces picked up here and there crumbled in the hand and showed that the hardening process was seriously at fault. But of course no degree of excellence in concrete will save a dam once it is undermined. It was the undermining of the dam that caused its collapse. The insecure foundation, the excavations were made only seven or eight feet below the river bed, yielded quickly to the action of the water (Decorah Journal 1907a).

Whatever, the real reason for its collapse, there appeared to be little doubt among all concerned that the dam should be rebuilt (Decorah Journal 1907b; Decorah Public Opinion 1907b). As noted above, the concrete dam was rebuilt in 1912 and generated electricity into the late 1950s.

Plates 1a and b show the dam under construction in 1912 and in operation. These postcard photographs are in the possession of Mrs. Esther Houck of Freeport, Iowa. Her father, Orrie

Otteson, who is currently a resident of Lansing, Iowa, helped construct this dam as a young man. He continued to work for the Interstate Power Company for a number of years. She also noted that a family by the name of Musser operated both the Upper and Lower power houses, with the operations later run by Ray Hardy (Houck, personal communication 1989).

The dam survived little more than a decade past its abandonment. It was blown up by the Rock Island District of the U. S. Army Corps of Engineers in the early 1970s. Mrs. Houck noted the local excitement caused by the encampment of soldiers and their activities (Houck, personal communication 1989). The present remains of the dam are shown in Plate 1a.

While the remnant of the Upper Dam will not be impacted by the proposed canoe access facilities, it does represent a potentially significant historic archeological resource of the region. It has been designated as site 13WH114 by the present investigation and the site record filed with the Office of the State Archaeologist in Iowa City. This early power dam, in conjunction with the Lower Dam, constitute important historical sites related to the rather unique early history of electrical power generation in this region. Both sites may be eligible for nomination to the National Register of Historic Places (NRHP). The development and preservation of these potentially historically significant sites would substantially enhance the recreational and educational value of the canoe access area.

PROJECT AREA

The proposed canoe access facilities will utilize an existing access lane (which will be widened and extended) and two low-lying level areas north and southwest of the Upper Dam remnant structure. The impact area of the access lane measures approximately 121 m x 6.1 m (440 ft x 20 ft), with the parking areas impact zone comprising approximately 36.4 m x 21 m (120 ft x 70 ft) and 45.4 m x 21 m (150 ft x 21 ft), respectively (Figure 2).

The soil at the project location is mapped in the Soil Survey as Caneek silt loam in the vicinity of the northernmost parking area; as Burkhardt soils in the vicinity of the other parking area; and as Steep sandy land in between the parking areas and along the access lane (Kittleson and Dideriksen 1968). The Caneek silt loam (0 to 1% slopes) is a post-settlement alluvium deposit (PSA) characterized by a surface layer 18 to 40 inches thick and consisting of alluvial soil material low in sand content. Burkhardt soils (5 to 14% slopes) are Wisconsinan age deposits which have a a surface layer of dark grayish-brown sandy loam with sand and gravel at a depth of 15 to 24 inches. The Steep sandy land is also of Wisconsinan age in formation, is found on 14 to 30% slopes, and has a surface layer of sandy loam

more than 40 inches thick.

The vegetation at the location of the southernmost proposed parking area consists of grass-cover, with an existing dirt lane turn-around disturbing much of this area (Plate 2a and b). The northernmost parking area is partially wood-covered with the surface also grass-covered. The trees are all young growth with no underbrush. The majority of the proposed access lane is already disturbed by an existing dirt access road. A portion crosses over the berm created by the Upper Dam construction. Except for the actively used roadway, surface visibility was 0-10% in the proposed impact areas.

RECORDS REVIEW, FIELD METHODOLOGY, AND SURVEY RESULTS

The archeological site records at the Office of the State Archaeologist in Iowa City were examined and revealed no previously recorded archeological sites within the proposed project area, although there were several recorded sites within a one mile radius of the project location. These include sites 13WH12-15, 71, and 83. All are prehistoric sites situated along the Upper Iowa River. Site 13WH12, or the Gjetley site, is located just southwest of the proposed canoe access, but is outside of the impact area. Another site, 13WH13, is also in close proximity but on the east side of the river. Therefore, it was not unreasonable to expect archeological sites at the project location.

The field investigation consisted of pedestrian survey of the entire project area supplemented with the excavation of shovel tests within the proposed parking areas (Figure 2). The vertical impact zone of the canoe access facilities will be minimal, and shovel tests were excavated to a maximum depth of 55 cm below the present ground surface. All excavations were backfilled upon completion.

The shovel tests at the northernmost area consisted of approximately 30 cm of silt loam over a mottled silt loam still present at a depth of 50 cm below surface and hard-packed from remnant frost. The shovel tests at the other parking area revealed 12-37 cm of sandy loam over a mottled sandy loam still present at over 50 cm below surface. The four tests along the western edge of the parking area showed a disturbed gravel and sand deposit. These tests and the overall configuration of the landscape indicate that the original surface of both areas has been removed and was likely utilized in the construction of the berm for the power dam.

No evidence of cultural resources were observed during this investigation. It appears that the construction and destruction activities associated with the Upper Dam had already highly impacted the project area. This coupled with the lack of

observed cultural resources indicates that the proposed project will have no foreseeable impact to the cultural resources of the area.

CONCLUSION AND RECOMMENDATIONS

In view of the negative results of this investigation it is recommended that the Iowa Department of Natural Resources be granted clearance to proceed with the proposed canoe access on the Upper Iowa River. The remnant of the Upper Dam was recorded as an historic site, and it may be eligible for nomination to the NRHP. However, it is located outside of the project area and will not be impacted by the proposed canoe access. It is suggested that its historic significance be explored, particularly for its tourism and educational potential.

It should be noted that no archeological investigative technique is completely adequate to locate all archeological deposits within a given area. Should any cultural resources not located during this survey be encountered during the implementation of the proposed construction activities, the Bureau of Historic Preservation should be notified immediately. It is the responsibility of the developer to protect the resources from disturbance until a professional examination can be made or until some other form of clearance to proceed is authorized by the State Historic Preservation Officer (SHPO) or his designated representative.

REFERENCES CITED

Bailey, Edwin C.
1913 Past and Present of Winneshiek County, Iowa. S. J. Clarke Publishing Company, Chicago.

Bettis, E. Arthur III
1984 Preliminary Investigations of the Stratigraphy and Chronology of Northeastern Iowa Alluvium and its Archeological Significance with Special Reference to the Turkey River Basin. Prepared for the Office of Historic Preservation. On file, Office of Historic Preservation, Des Moines, Iowa.

Decorah Journal
1907a New Dam Goes Out. Decorah Journal, March 26, 1907. Decorah, Iowa.

1907b Shall We Rebuild the Dam? Decorah Journal, April 2, 1907. Decorah, Iowa.

Decorah Public Opinion
1907a Big Concrete Dam is Washed Out. Decorah Public Opinion, March 27, 1907. Decorah, Iowa.

1907b To Rebuild Power Dam. Decorah Public Opinion, April 3, 1907. Decorah, Iowa.

Green, William (editor)
1988 Archaeological and Paleoenvironmental Studies in the Turkey River Valley, Northeastern Iowa. Research Papers Series 13(1), Office of the State Archaeologist, Iowa City.

Houck, Mrs. Esther
1989 Personal communication, January 26, 1989.

Kittleson, Kenneth K., and Raymond I. Dideriksen
1968 Soil Survey Winneshiek County, Iowa. United States Department of Agriculture, Soil Conservation Service, Iowa Agricultural Experiment Station.

Knudson, George E.
1971 A Guide to The Upper Iowa River. Luther College Press, Decorah, Iowa.

Prior, Jean C.
1976 Quaternary Landscapes in Iowa. Iowa State University Press, Ames.

Stanley, Lori, and David Stanley
1986 The Archeology of Allamakee County, Iowa: An Overview and Research Guide, Volume I. HCRC #92, Highland Cultural Research Center, Highlandville, Iowa.

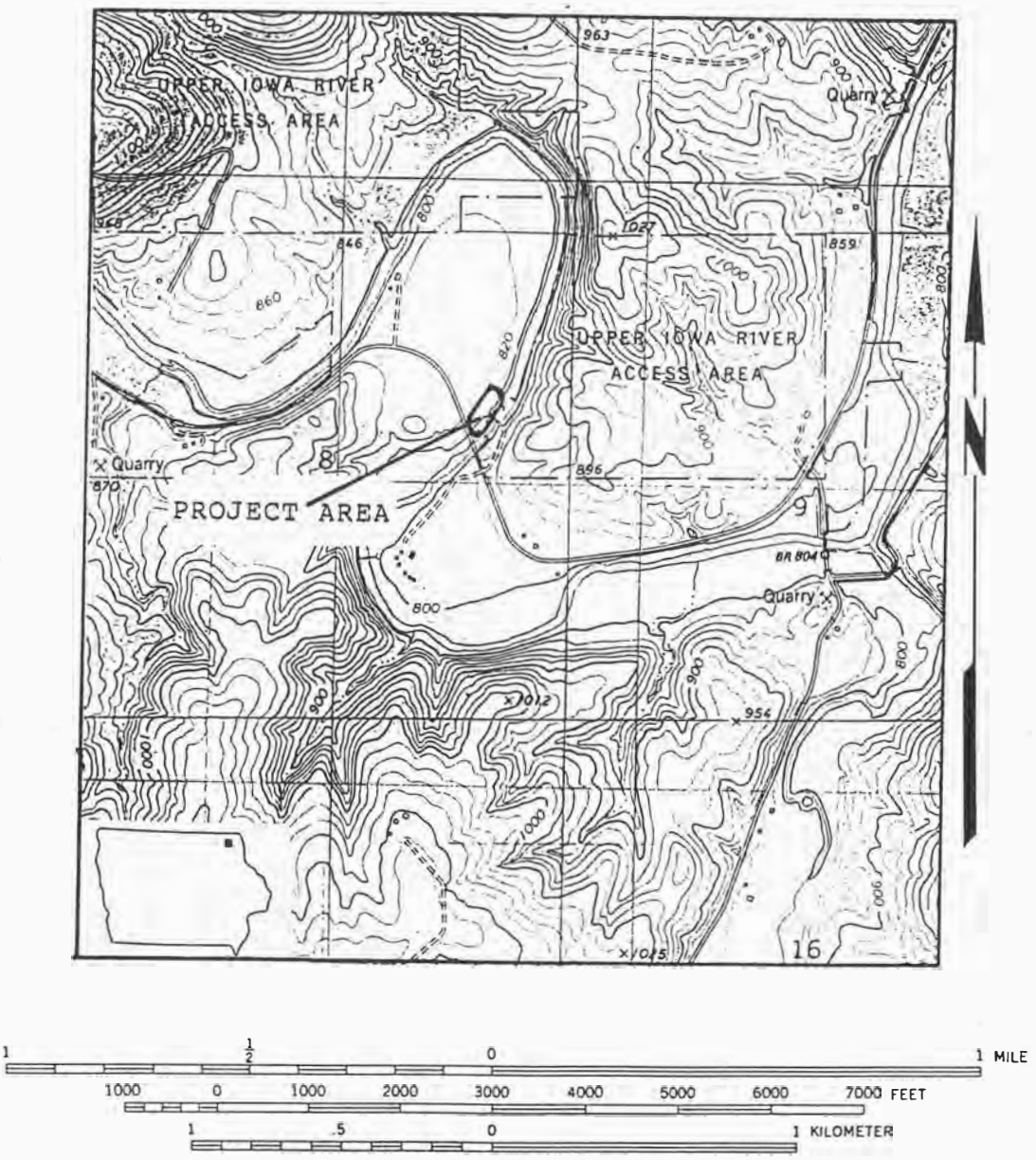
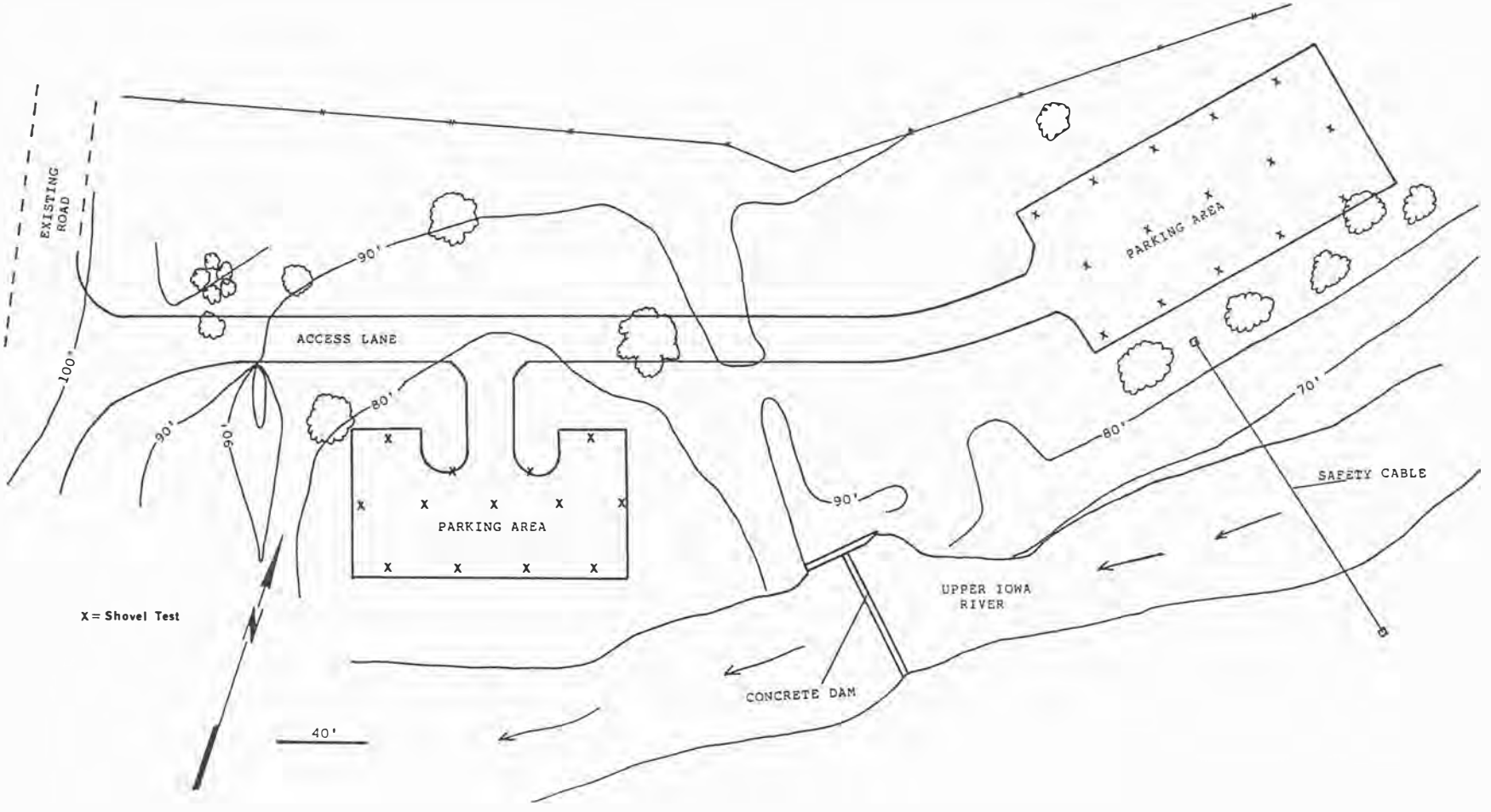
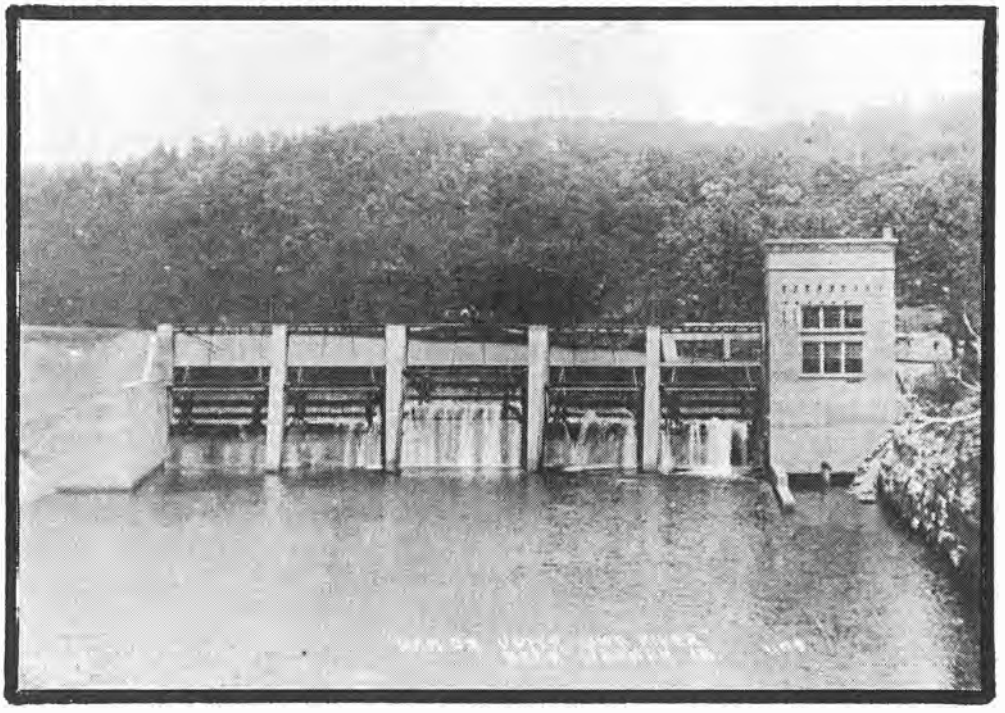


Figure 1. Topographic location of project area. USGS 7.5' Quad: Freeport 1981, W1/2 SE1/4 NE1/4, Section 8, T98N, R7W, Glenwood Township.
Field date: 4/3/89 Project: BCA #12

Figure 2. Plan map of Phase I Investigation of proposed canoe access.
Field date: 4/3/89 Project: BCA #12


EXISTING ROAD
100'
90'
ACCESS LANE
90'
90'
80'
PARKING AREA
PARKING AREA
80'
70'
90'
SAFETY CABLE
UPPER IOWA RIVER
CONCRETE DAM
X = Shovel Test
40'

a.



b.

Plate 1. Old photographs of Upper Dam.
a. Dam under construction.
b. Dam in operation.

a.

b.

Plate 2. Photographic coverage of project area.
a. Remnant of Upper Dam.
b. Proposed canoe access location.
Field date: 4/3/89 Project: BCA #12

APPENDIX A:
STATE SITE FORM

OFFICE OF STATE ARCHAEOLOGIST
EASTLAWN BUILDING
THE UNIVERSITY OF IOWA
IOWA CITY, IOWA 52242

IOWA SITE RECORD

OFFICIAL SITE NUMBER 13WH114

ACCESSION NUMBER

1. County Winneshiek Local site name Upper Dam

2. Range 7W Township 98N Section 8

3. On the NE ¼, SW ¼, SE ¼, NE ¼, ¼.
¼, ¼, ¼, ¼, ¼.

4. Type of site HISTORIC DAM STRUCTURE Maps used USGS 7.5' Quad: Freeport 1981

5. Tenant Address

6. Owner Address

7. Informant Address

8. General location of site in relation to streams, bluffs, river terraces, including modern landmarks such as roads and houses.
Located across Upper Iowa River northeast of an existing roadway and adjacent to a river access area.

Estimated site size

9. Present condition Only lower portion and side supports intact.

10. Previous excavations

By whom Address

11. Material collected: a. Bone

b. Stone

c. Pottery

d. Other

Owner Address

12. Method of collection

13. Other material reported

Owner Address

14. Recommendations

15. References Contract report BCA#12

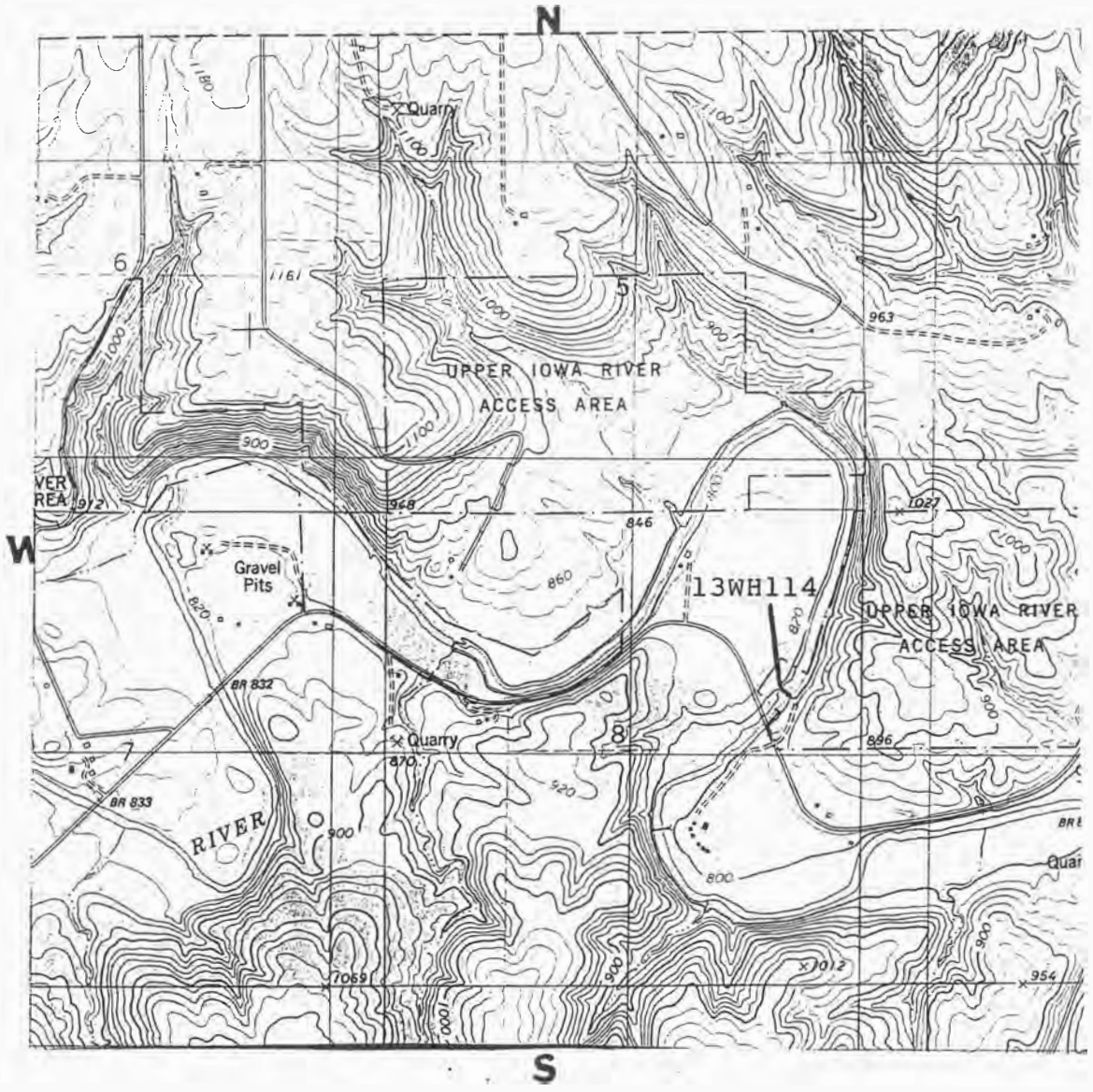
16. Recorded by Leah Rogers Address Bear Creek Archeology, Inc., Decorah, IA

17. Date recorded April 5, 1989 Contract Completion Report/ Research Paper BCA #12

Sketch map of location

Range 7W Township 98N Section 8

Indicate the chief topographical features, such as streams and elevations. Also indicate houses and roads. Indicate the site location by enclosing the site area with dotted line.



Notes: NE¼ SW¼ SE¼ NE¼, USGS Freeport 1981

Concrete power dam constructed by the Upper Iowa Power Company in 1907 and was rebuilt in 1912 after the original dam had collapsed. Generated electricity until the late 1950s. Was blown-up by RICOE in the early 1970s.