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Pomme de Terre Lake Missouri

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Fischer-Stein Associates, Inc.
Carbondale, Illinois

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An Archaeological Survey of The Shoreline at Public Use Areas Pomme de Terre Lake, Hickory and Polk Counties, Missouri



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Michael J. McNerney

DACW41-79-M-0890

1988

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FINAL REPORT

AN ARCHAEOLOGICAL SURVEY
OF THE SHORELINE AT
PUBLIC USE AREAS
POMME DE TERRE LAKE
HICKORY AND POLK COUNTIES, MISSOURI

Prepared For
Kansas City District
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By
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Carbondale, Illinois

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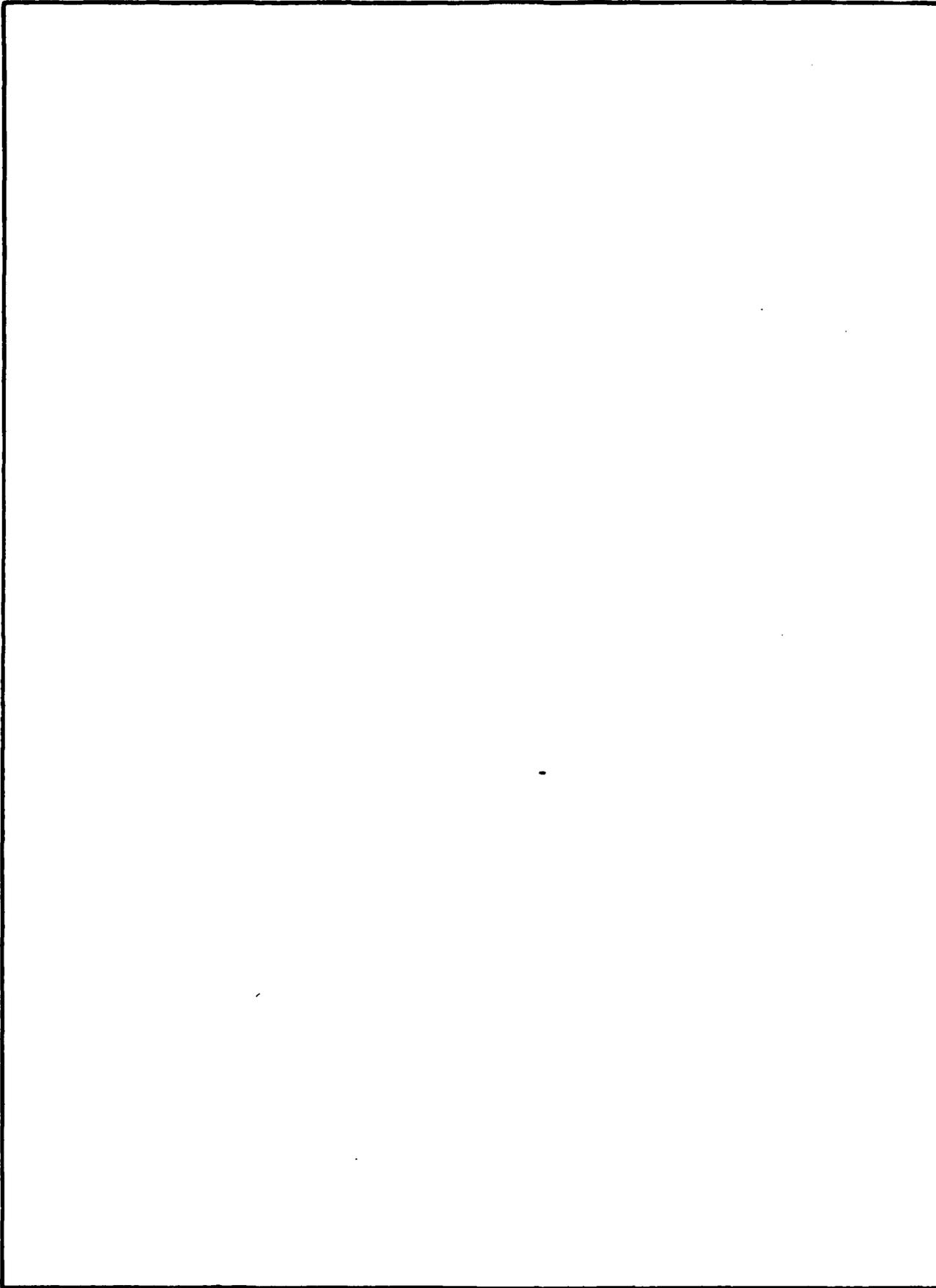
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ABSTRACT

An archaeological survey of approximately 400 acres of shoreline at nine Corps of Engineer Public Use Areas at Pomme de Terre Lake, Hickory and Polk counties, Missouri, is presented.

Previous archaeological surveys had recorded 202 prehistoric archaeological sites. The records and literature pertaining to these sites and earlier investigations were recently summarized in a cultural research management plan for the lake. The management plan recommended the shoreline survey.

Three light scatters of waste flakes were located, but no "site" definition or limits was possible. Three isolated finds consisting of bifacially flaked blade fragments were also noted. It is felt that no significant archaeological sites or cultural resources are endangered by adverse impacts along the shoreline of the Corps' public use areas.

TABLE OF CONTENTS

Abstract	i
Introduction	1
Setting	1
Method	5
Previous Archaeological Investigations	6
Prehistory and History in the Pomme de Terre Lake Area	7
Settlement Patterns	9
Description of Survey Areas and Results of Survey	9
Bolivar Area	9
Lightfoot Area	13
Wheatland Area	13
Quarry Point Area	15
Outlet Area	16
Dam Site	18
Pomme de Terre State Park	18
Nemo Area	22
Pittsburg Landing Area	24
Summary and Recommendations	24
Bibliography & References Cited	27
Appendix A, Map of Areas Surveyed	31

LIST OF MAPS

1. Pomme de Terre Lake Public Use Areas	2
2. Physiographic Divisions of Missouri	3
3. Bolivar Public Use Area	12
4. Lightfoot and Wheatland Public Use Areas	14
5. Dam Site and Quarry Point Public Use Areas	17
6. Pomme de Terre State Park	20
7. Nemo and Pittsburg Landing Public Use Areas	23

LIST OF FIGURES

1. Bifacial Blade Fragment	11
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INTRODUCTION

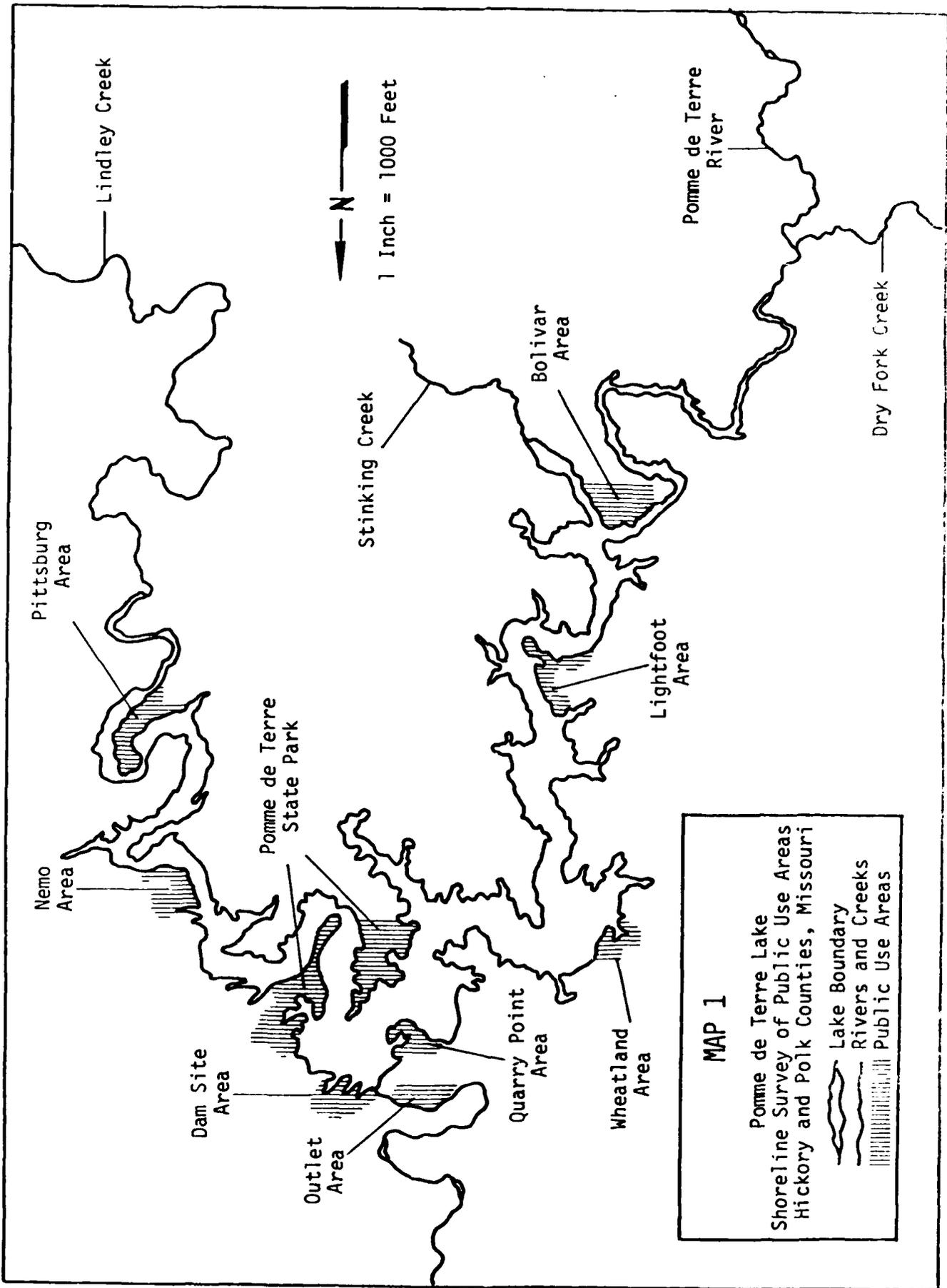
The following report represents the results of an archaeological survey conducted for the U. S. Army Corps of Engineers, Kansas City District, by Fischer-Stein Associates, Inc., under Purchase Order No. DACW 41-79-M-0890. Such surveys are called for in the National Historic Preservation Act of 1966 (PL 89-665) and are authorized for funding under Public Law 86-523 as amended by Public Law 93-291. Also, this survey provides documentation evidencing compliance with Executive Order 11593.

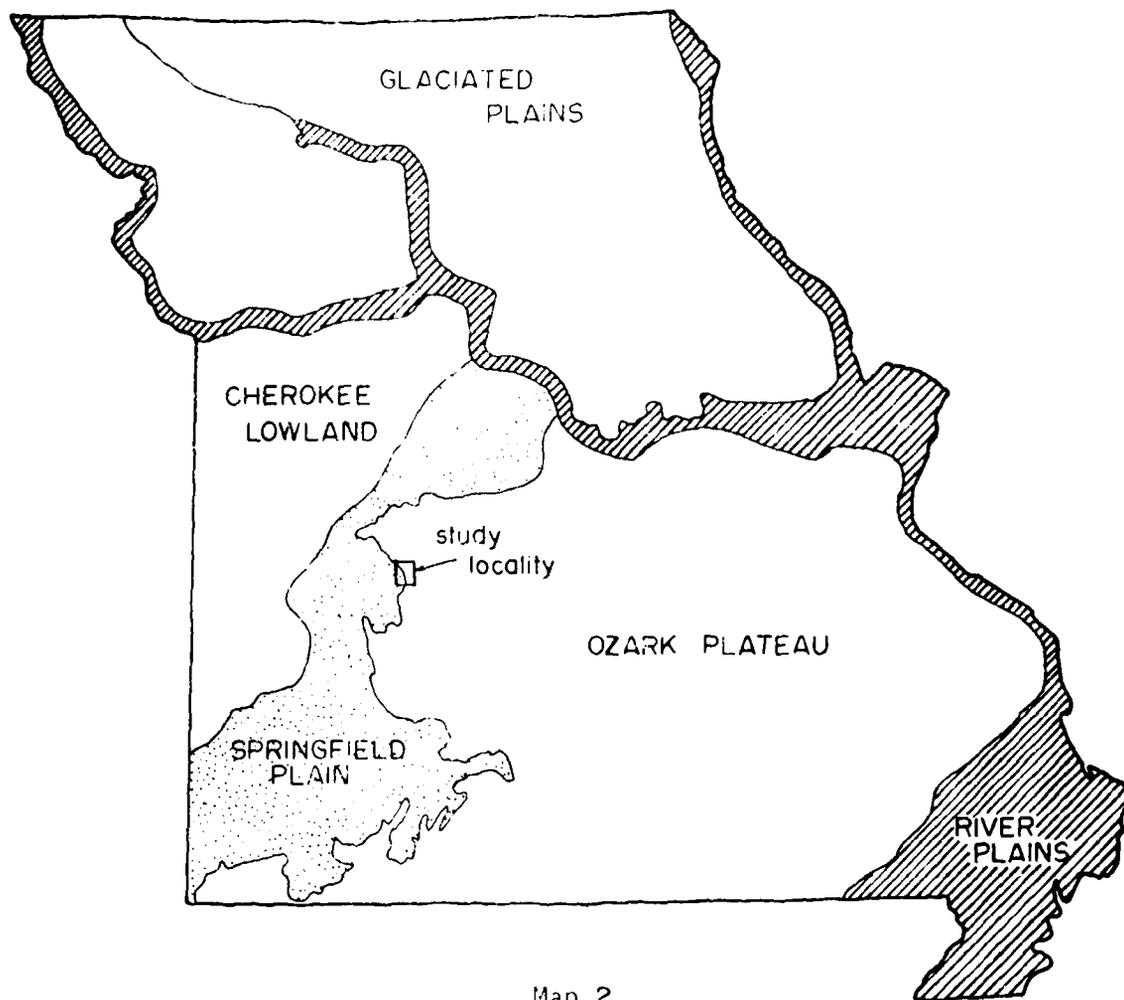
This work encompasses a shoreline survey between elevations 838 m.s.l. and 851 m.s.l. at the Nemo, Pittsburg Landing, Bolivar, Lightfoot, Wheatland, Quarry Point, Outlet, Damsite, and Pomme de Terre State Park Public Use Areas (Map 1). A previous cultural resources management plan (McNerney 1978) recommended a shoreline survey to identify cultural resources which may be affected by shoreline erosion and project operations. Field investigations were conducted from July 29 to August 3, 1979. Richard C. Fischer and David Austin carried out the survey under the supervision of Michael J. McNerney, Principal Investigator.

Pomme de Terre Lake is located in Hickory and Polk counties, Missouri, about 45 miles north of Springfield and approximately 130 miles southeast of Kansas City. The damsite is 2 miles north of Hermitage, Missouri. A reservoir covering 7,820 acres with 113 miles of shoreline was created by the dam. Pool elevation ranges from approximately 838 to 850 m.s.l. The project is operated by the Kansas City District, United States Army Corps of Engineers, and was placed in flood control operation in 1961. All construction and the development of public use areas was completed by 1964. Flood control, recreation, fish and wildlife management, and the conservation of scenic and esthetic values are prime operational concepts.

SETTING

The Pomme de Terre River and its tributaries drain an area which lies within the "Central Plateau" of the Ozark Highland physiographic region. Over the years, this stream system has cut the northwestern section of the "Central Plateau" into numerous small plateaus or prairies. Directly to the west of this area lies the northern extension of the "Springfield Plain" while to the east is an extension of the "Central Plateau" which is, by comparison, relatively undissected (Sauer 1920:66-70; Fenneman 1938:642-652) (Map 2). The river itself flows generally due north through a narrow valley, which rarely exceeds 2,000 feet in width. During its development, the river followed this course, creating a narrow, flat valley floor. Differences in elevations between the surrounding prairie or hilltops





Map 2

Physiographic divisions of Missouri; locating study area on transition zone between the Ozark Plateau and the Springfield Plain. (adapted from Fenneman 1938:p1.6)

and the valley floor itself seldom exceeds 250 feet, with river bluffs reaching a maximum of only 110 feet in height. There are several terraces associated with the river. Remnants of the oldest terrace form a considerable portion of the shoreline of Pomme de Terre Lake.

Limestone of Mississippian age is the major geologic outcropping in the area along with exposures of Lower Ordovician Jefferson City dolomite. Abundant deposits of chert are associated with both of the systems (McMillen 1950:14). Sandstone of Pennsylvanian age also occurs in various parts of the area (Branson 1944). Both chert and sandstone deposits provided raw materials which were utilized for tool manufacture by the aboriginal inhabitants of the area.

Soils on the valley floor consist generally of a thinly deposited alluvium with cherty, gravelly, clayey soils appearing where any depositional depth is attained. Topsoils in the area are derived from the underlying rock. For the most part, the soils are shallow with a compact clay subsoil being encountered at a depth of usually less than 2 feet. The ridges are blanketed by a thin deposit of humus-laden soil which is underlain by a cherty, gravelly soil that covers the bedrock. Soils derived from cherty limestone are the most common with virtually no soil development on steep slopes; a heavy surface scatter of rock and chert dominates.

Prairie was probably the dominant vegetation encountered by the first settlers to reach the area, with timbered zones occupying primarily the stream and river valleys. Some of the tree species present at the time included walnut, hickory, paw paw, hackberry, and post oak. These would have provided early inhabitants with a readily exploitable food source. After the 1840s, with the settling of the Pomme de Terre valley, the bottomland forests were cut and areas which were suitable were cultivated. Many of the original tree species are present today along the valley slopes, the dominants being oak and cedar. With the expansion of agriculture, the upland areas adjacent to the valleys were also placed under cultivation.

The Pomme de Terre River supplied an excellent protein source. Catfish, bass, drum, sucker, and other smaller species were present. Deer and less frequently American elk or wapiti were hunted. Smaller game and fur-bearing animals included mink, cottontail rabbits, beaver, porcupine, raccoons, opossum, skunk, and squirrels. This wildlife supplied the early inhabitants with a great portion of their diet as well as some economic benefits from the furs.

In summary, the Pomme de Terre Lake occupies a transitional zone where prairies merge with the Ozark forests. Steeply dissected stream valleys support forest zones while upland zones support grasslands.

Of specific interest for this survey is topography of the shoreline in the various public use areas. The shoreline of Pomme

de Terre Lake is varied and ranges from vertical (limestone bed-rock) to slightly sloping terrain with grades from 5-10 percent. Every conceivable degree slope exists between these two extremes. In addition, the abundance of chert gravel and bed-rock exposures along the shoreline are important to this study.

METHOD

Survey and assessment methods employed in this study were based on and guided by the specific and predetermined locations (public use areas) which were to be examined; topographic, geologic, and hydrologic factors encountered; and contract requirements as outlined in the scope of work (Appendix A).

As previously indicated, the survey was limited to the shorelines between 838 and 851 m.s.l. at each of the nine public use areas. The area involved constitutes approximately 400 acres. At the time of the survey, the pool level at Pomme de Terre stood at 839.3 m.s.l., thus slightly reducing the area examined.

A two person field party conducted the on-site survey of the project areas. The survey coverage was selective by necessity. Many shoreline situations exhibited steep rock slopes which were impossible to negotiate on foot. However, these zones are of low potential for previous human use or occupation. The remaining shoreline within the project areas which was not so steeply sloped was traversed on foot by the survey crew. Many of these zones had been developed into public-camping areas, boat ramps, marinas, etc., and had undergone considerable disturbances. A wave cut occurred often in the slightly sloping areas which gave an excellent view of the subsurface makeup of the soil. Jerry Stadler, Project Ranger at Lake Pomme de Terre, indicated that water levels in the lake had been as much as thirteen feet higher than the present pool level; and consequently conditions for subsurface observation at many locations were ideal. Surface vegetation had been removed by the high water, which gave the crew an 80-100 percent surface visibility at many locations. Where soil conditions permitted, subsurface shovel tests were conducted at approximately 20 meter intervals. If cultural material was encountered during the survey, this interval was reduced to 10 meters in an attempt to delimit site size. Locating archaeological resources in rugged, woodland terrain is difficult. Most investigators utilize a 1 x 1 foot shovel test ranging from 1 to 1.5 feet in depth (Second Annual Conference on Surveying in Woodland Environments 1976). Suggested distance between shovel tests has ranged from 20 to 100 meters depending on the terrain and objectives of the study (Lovis 1976:41).

Although exposure of the surface was excellent, in many locations it was extremely difficult to differentiate culturally modified chert flakes from the chert gravels which blanketed the

shorelines. Often, flakes suspected of being artifacts have been affected by water action. As Neal and Mayo (1974:11) state, flaking present on artifacts has been worn and smoothed away by the same form of abrasion, and previously unmodified flakes take on a superficial appearance of modification. Also, this abundance of chert gravels throughout the Pomme de Terre area made raw material available everywhere to prehistoric peoples. If one examines the beaches of the lake, it is possible to find a waste flake almost anywhere. However, in most cases these finds do not constitute significant cultural resources.

For the purposes of this study, a "site" is defined as something more than a "findspot" (a single artifact) but less than a site with identifiable horizontal and vertical limits. During this survey, only very limited quantities of waste flakes were observed; and among the abundant, naturally occurring chert gravel, a well defined site was not identified.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

The first archaeological investigations were conducted in the Pomme de Terra area from 1950 to 1952 (Chapman 1954). A survey and further excavations in the project area and in the greater Pomme de Terre basin were carried out in 1957 and 1958 (Wood 1961). Many sites were located on level terraces just above the floodplain of the Pomme de Terre River and Lindley Creek; others were situated on the high ridge tops overlooking these drainages. Three types of sites were identified: campsites, villages, and burial mounds or cairns.

Chapman's investigations were conducted in 1952 and followed two previous partial surveys of the region. The first of these was carried out by the University of Missouri Summer Field Session in Midwestern Archaeology during the summer of 1950 while the second survey was conducted the same summer by the Ozark Chapter members of the Missouri Archaeological Society. In addition to the completion of these surveys, Chapman tested six sites (23H133, 23H135, 23H136, 23H141, 23H142, and 23H143) in an attempt to determine the prehistory of the area.

The six sites to be excavated were selected on the basis of surface material collected on them for the primary purpose of establishing and learning more about the sequence of cultures in the Pomme de Terre Area. Sites 23H136, 23H142, and 23H143 were picked as probable stratified sites, since evidence accumulated during surface collection indicated more than one cultural complex. Sites 23H133 and 23H135 were selected as probable late habitation sites while site 23H141 was selected as a probable Archaic site. Testing of the sites was accomplished by excavating a three foot wide trench and removing deposits by six inch arbitrary levels.

Test excavations at all locations indicated a very thin occupation zone with depths seldom reaching beyond 8 to 10 inches. Plow disturbance was evident at a number of locations along with evidence of erosion disturbance. The relatively shallow depth of cultural material and the absence of clearly diagnostic cultural features indicates a short transient occupation.

Wood's investigations of the Pomme de Terre Lake area began in 1957 when work on the proposed lake moved into the construction phase. Construction activity prompted a resurvey of the area to be affected along with the subsequent excavation of a number of selected sites during the summers of 1957 and 1958.

More than 140 new sites were located during the course of this survey. The sites consisted primarily of terrace sites, with others being located on hilltops. In addition, some mounds, cairns, and shelter caves were also encountered. The primary objective of the continued investigation in the Pomme de Terre Lake area was the subsurface testing of sites that would aid in developing the cultural sequence for the region.

Although the project was a direct result of lake construction, Wood also investigated sites which were not within the actual impact area to be affected (i.e., Blackwell Cave 23H1172, Vista Shelter 23SP20). The majority of sites within the impact area that were tested by Wood consisted of open terrace sites (23H141, 23H147, 23H143, and 23H19A). A mechanical ditch digger was employed which was capable of digging an 18 inch wide trench to depths of 6 feet. It was used to test selected terrace sites for subsurface features of any significance; with site 23H141 alone, enough artifacts and features were revealed to justify extended excavations. These features consisted of a number of charcoal filled pits, averaging 11 inches in diameter and 6 to 8 inches in depth, and fire areas, containing burned limestone, which were thought to be hearths. The remaining sites that were tested exhibited no subsurface features. Cultural material was limited to a thin occupation zone ranging in depth from 8 to 10 inches below the ground surface. Again, the small number of features and artifacts found during the testing of selected sites indicates either occupation of the site for short periods of time or the seasonal use of such sites by early inhabitants of the area.

PREHISTORY AND HISTORY IN THE POMME DE TERRE LAKE AREA

This early research indicates that man was living in the Pomme de Terre basin during the Middle Archaic Period, or approximately 5000 years ago. Recent work at the Rogers Shelter (23BE125), located approximately 14 miles below the Pomme de Terre dam, now

firmly places man in the area as early as 10,000 years ago (McMillan 1971). The majority of the archaeological sites, and thus our knowledge of the project area proper, is restricted to the later ceramic periods. Six of the sites which were excavated by Chapman and Wood are from the Late Woodland (Lindley Complex) and Mississippian (Nemo Complex) Periods (McNerney 1978:12). Of special interest are two mortuary complexes which date to these cultural time periods (Wood 1961, 1967).

The Nemo Complex is represented at the Lytle Cairn (23H118) and the Mount India Cairn (23H130). This cultural unit is characterized by: rock burial structures, both smoothed and cord-roughened shell-tempered pottery with strap handles and incised shoulders, small triangular corner and side notched projectile points, scrapers, and oval knives. Both of the cairns had been looted before the archaeologists arrived, so the mode of burial is unknown; however, fragments of human bone were recovered.

The Fristoe Burial Complex (Wood 1961, 1967) is represented by the Murelle Mound Group (23H130) located in Pomme de Terre State Park. Low rock and earth filled structures characterized the Fristoe Complex. These mounds often contain a wide variety of burial forms including: extended, cremation, bundle, and broadcast (scattered fragments). Artifacts include both smooth and cord-roughened shell-tempered sherds, limestone and grog tempered sherds, small triangular side and corner notched projectile points, large dart points, shell ornaments, and some bone and antler artifacts.

Four open sites, now under the waters of the lake, were also tested. Cultural traits at these sites include: sand, grog (clay or sherd fragments), and limestone tempered sherds, both smooth and cord-roughened; small triangular corner and side notched projectile points; and oval scrapers. Structural features included small charcoal-filled pits and rock-lined hearths. Wood (1961:114-115) has designated these open sites as components of the Lindley Focus and feels that they are related to the Fristoe Burial Complex.

The cultural patterns which emerge from this limited research suggest that the Pomme de Terre Reservoir area was occupied repeatedly, but sporadically, by small groups of hunters and gatherers for several thousand years. The two mortuary complexes are more difficult to interpret, but they suggest local adaptations and some contacts with cultures outside of the Pomme de Terre basin.

A review of the site files and maps at the Missouri Archaeological Survey indicates that there are 202 prehistoric sites recorded within the project boundaries. A total of 114, or 56.4 percent, are now under the waters of the reservoir, and 88, or 43.6 percent, are located above the multipurpose pool elevation.

Archaeological investigations have been conducted at 13 sites. For site locations and a review of this previous work, the reader is referred to the Cultural Resource Management Plan for the Pomme de Terre Lake (McNerney 1978).

SETTLEMENT PATTERNS

Prehistoric settlement patterns in the Ozarks, like those of the Midwest, are best known from the major river valleys. Surveys of varying intensity have been conducted along the Gasconade (McMillan 1965), the Current and Eleven Point (Chapman 1960), and the Black (Price 1966) rivers. These surveys indicate prehistoric site locations occurring on second terraces above the floodplain, in rockshelters along sheer bluff lines, and occasionally on ridgetops above the stream valley. A similar settlement pattern has been reported from the Pomme de Terre basin (Chapman 1954; Wood 1961). However, some recent work has been done on the upland slopes along the Meramec River, under the auspices of the St. Louis District, Corps of Engineers. A total of approximately 9,000 acres was surveyed in the upland terrain without locating significant archaeological sites (David Ives, personal communication).

An important consideration for this study is the possible number of sites within the shoreline zone. Of the 202 previously recorded archaeological sites (McNerney 1978:17) within the project boundaries, 10 sites, or 5 percent, are located between 838 and 851 m.s.l. Only one site (23H151) was recorded at this elevation in a Corps Public Use area.

Euro-American settlement patterns in the Ozarks have not, as yet, been studied in detail. Frontiersmen settled along the major river valleys first, leaving the rugged Ozark hill regions until last. Agricultural activities were only feasible in the valleys while mining and lumbering attracted settlers to the interior regions (Sauer 1920:145-156).

These prehistoric and historic settlement patterns provide background information with which to view the study areas.

DESCRIPTION OF SURVEY AREAS AND RESULTS OF SURVEY

Bolivar Area (S½, Sec. 8, T35N, R22W)

This public use area is located in Polk County just south of the Hickory County line on the east side of the Pomme de Terre River. The area occupies a high upland ridge and several projecting ridge spurs which slope to the water's edge. There is very little soil development and every bare spot exhibits chert gravel. The ground surface along the shoreline zone included gravel beaches,

exposed vertical bedrock, and a 10 to 30 cm wave cut bank. Surface visibility ranged from 10-100 percent. Where vegetation was present, it consisted of sparse grass and forest.

Earlier archaeological surveys had recorded two sites within the use area, 23P050 and 23P0176. Survey records indicated that these sites were located at an elevation of 870 m.s.l. (McNerney 1978:33, 41, Map 2).

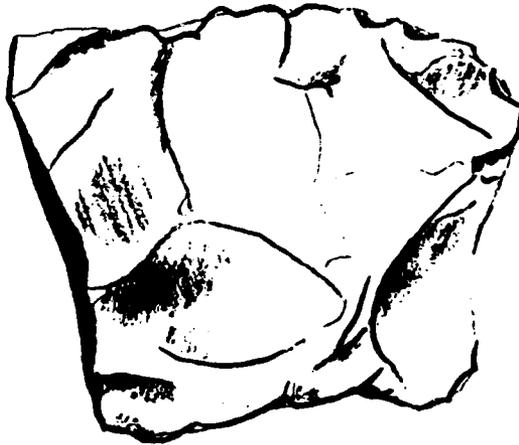
Examination of the shoreline of the lake was begun on the eastern side of the public use area near the boat ramp. Surface conditions exhibited a heavy scatter of local limestone and chert which precluded subsurface testing. One survey member traversed the shoreline near the water placing shovel tests when possible, and a second crew member was positioned approximately 5 to 10 meters in from the shore following the same procedure. When soil was present, it exhibited a light brown upper zone with an underlying layer of red clayey soil intermixed with gravel. Ground surface visibility was excellent due to recently reduced lake levels. A bifacial fragment (Figure 1b) of a white-pink local natural chert was located at the shoreline on the northwest side of the area (Map 3). Immediately, transection intervals were reduced, and the area above the "find spot" was criss-crossed in an attempt to locate additional associated cultural material and to delineate limits of a possible site. Shovel tests up the slope revealed a dark forest humus approximately 3-4 cm deep underlain by a cherty gravel layer. No additional cultural material was noted. Approximately half way down the northwestern shore of this area below the campgrounds the shoreline began to assume a steeper grade. This area exhibited an exposed bedrock shoreline which rose abruptly out of the water at a slope of 60 to 80 degrees. This shoreline area was deemed to be of low potential for previous human use or occupation. Vegetation within the right-of-way strip, in areas that were not so steep, consisted of willow, cedar, and a variety of early successional vegetation. At some locations, a wave cut from 10 to 30 cm was present and was carefully examined for cultural material and stratigraphic information. A small sample of waste flakes collected in the camping area near site 23P0176 included:

- 4 - Bifacial thinning flakes, gray and white chert
- 1 - Biface fragment, gray banded chert
- 3 - Flakes, large, gray-white
- 2 - Flakes, pink-white
- 1 - Secondary decortication flake

The single bifacial blade fragment is a medial section of white chert.

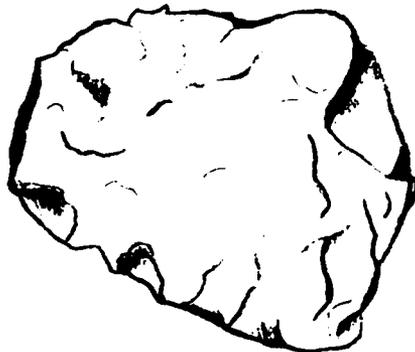
There are two perviously recorded sites in the Bolivar area. The present survey of approximately 46 acres revealed no significant archaeological sites within the shoreline zone.

Figure 1



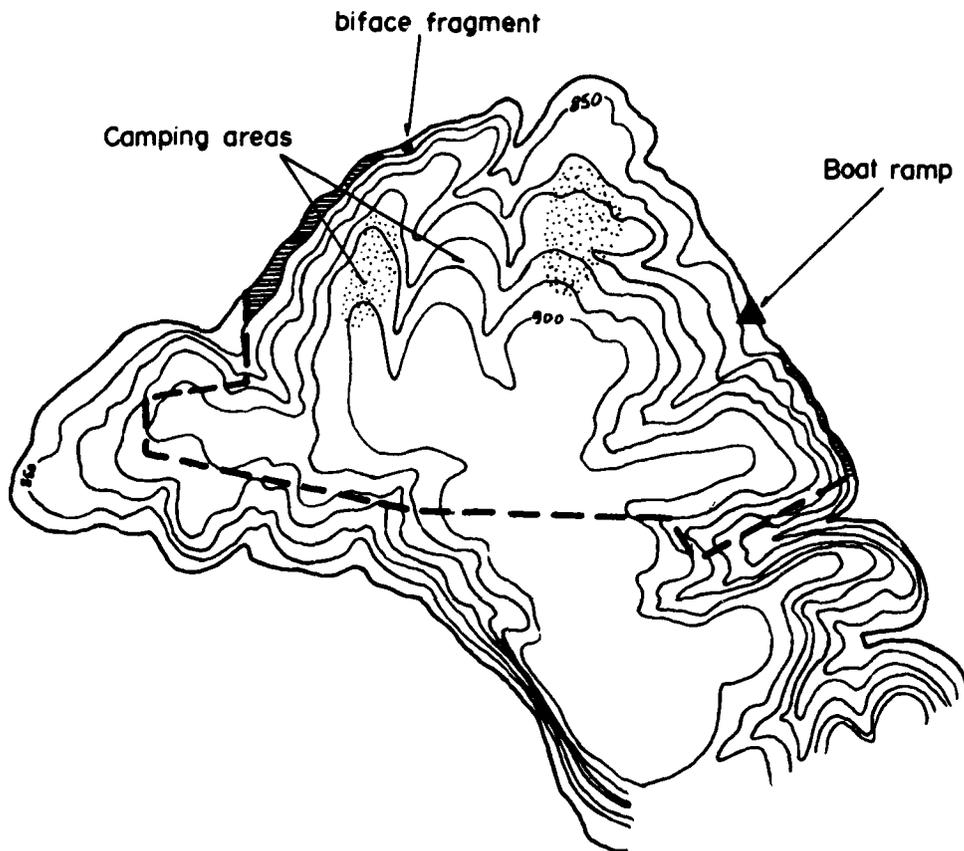
Biface, Medial Section
Pomme de Terre State Park

A



Biface, Medial Section
Bolivar Area

B



Map 3
 POMME DE TERRE LAKE :
 SHORELINE SURVEY
 Bolivar Public Use Area
 Polk County , Missouri

 lithic debitage
 steep shoreline /exposed bedrock
 use area boundary




approx. scale 1 : 1500

Lightfoot Area (E½, Sec. 33, T36, R22W)

This well developed public use area is located on the western arm of the lake southeast of Elkton. It is highly developed and facilities include: boat ramps, marina, picnic facilities, camping facilities, and a restaurant. The use area occupies a long narrow peninsula which projects into the lake and was formerly a hairpin turn in the river, the eastern side of which was known as Nigger Bend Bluff. Elevation in the use area ranges from 900 m.s.l. near the entrance to 850 m.s.l. near the lakeshore. There is very little soil development; bedrock and chert gravel are frequently exposed. Approximately 70 to 80 percent (Map 4) of the shoreline was composed of limestone bedrock. The only area suitable for human occupation near the shoreline was the long projecting peninsula, and this was heavily disturbed by previous development. There were no previously recorded sites within the use area (McNerney 1978).

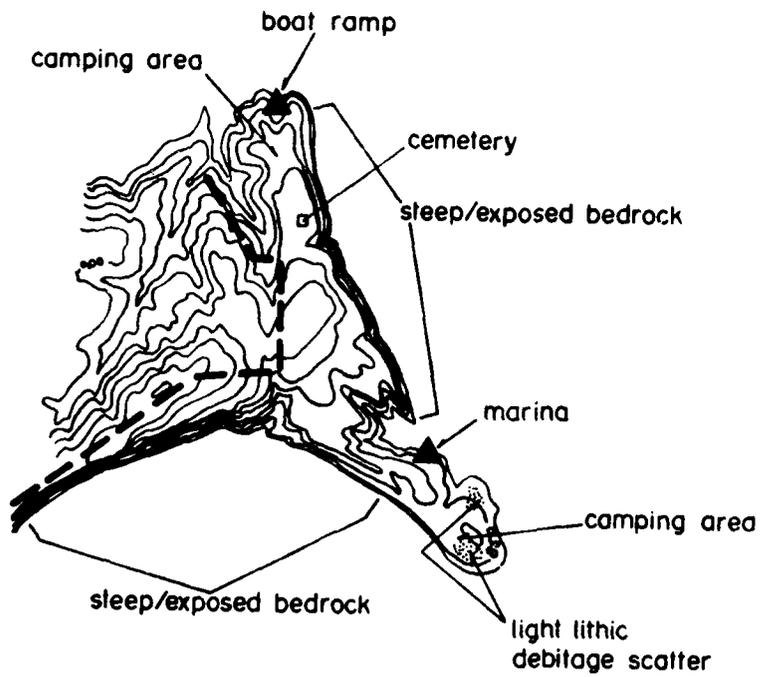
A survey along the steep bedrock portions of the area did not reveal archaeological sites or cultural resources. Around the tip of the peninsula surface, visibility ranged from 60 to 100 percent on the gravel beaches. Careful examination of these gravels revealed a few waste flakes; however, the scatter was so thin that no definite site limits could be established. Shovel testing in this gravel proved impractical. However, six waste flakes of gray-white chert were collected. Continued examination of the shoreline and exposed areas 30 to 50 meters back from the shoreline failed to locate a concentration of flakes or any limits which could be defined as a "site".

The northern tip of the Lightfoot area is occupied by a boat ramp and camping site. As in other parts of this use area, the soil was rocky and the terrain was sloped steeply to the water's edge. Subsurface shovel tests were conducted where possible. However, in most cases, penetration was limited by the rocky soils.

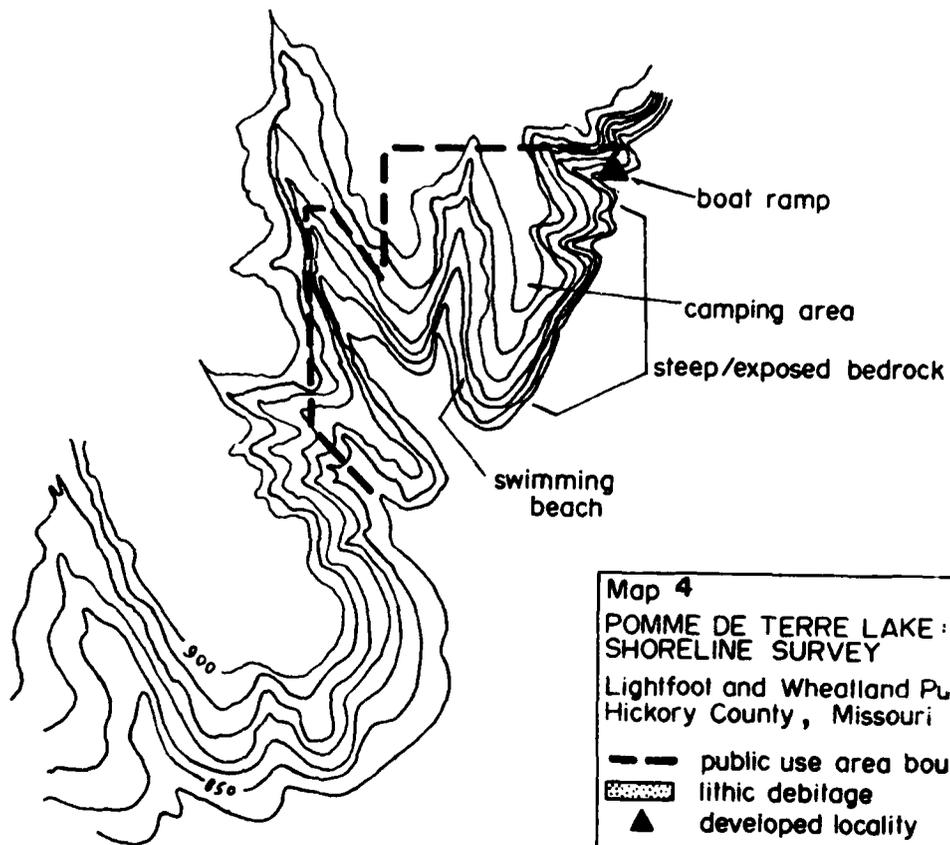
Approximately 30 acres of shoreline were examined at this location. With the exception of the few waste flakes collected from the chert gravels of the southeastern tip of the use area, no other artifacts or cultural resources were discovered. The few waste flakes recovered at this location do not, in our opinion, constitute a significant cultural resource.

Wheatland Area (NW¼, Sec. 11, T36N, R22W)

The Wheatland area is located approximately 4 miles southwest of the dam on the west side of the lake and was formerly on the outside of a river bend. All of the terrain slopes rather steeply to the lake shore with elevations ranging from 920 m.s.l. to 840 m.s.l. at the shoreline. Much of the area is



Lightfoot Area
scale 1:24000



Wheatland Area
scale 1:1500

developed for public camping, complete with boat ramps and swimming beach. There were no previously recorded archaeological sites in the area. Approximately 10 acres of shoreline were surveyed.

The survey began at the northern boundary of the public use area near the boat ramp (Map 4). Directly south of the boat ramp, the shoreline consisted of exposed bedrock, and the shoreline slope increased to about 50 percent. Near the end of the easternmost point of the Wheatland area, the slope of the shoreline became less steep, and the bedrock which was present to the north gave way to the gravel shorelines, so often encountered in this region.

Shovel testing was resumed approximately 20 meters upslope from the waterline whenever the rocky ground surface permitted penetration. The shoreline near the water was visually examined also in an attempt to discern any cultural material that might have been exposed through wave action or rising and falling water levels. A swimming beach occupies approximately 100 meters of shoreline along the western side of this peninsula (Map 4). Beyond the limits of the beach, a drainageway intersected the shoreline. Shovel tests were placed at 20-30 meter intervals and revealed a rich, dark soil free of gravel. This soil development is unusual and represents alluvial deposition from upland erosion. Willow trees were plentiful in this low, wet area. Beyond this drainageway, the shoreline consisted of sloping terrain covered with loose gravel. These dense gravel deposits precluded effective shovel testing. There was no evidence of prehistoric, historic cultural activity or material along the shoreline of the Wheatland area.

Quarry Point Area (SW $\frac{1}{4}$, Sec. 2, T36N, R22W and
NW $\frac{1}{4}$, Sec. 11, T36N, R22W)

This public use area is located at the south end of the dam and is one of the highly developed areas supporting a marina, restaurant, large camping area, and boat ramp. The inlet and associated marina are located in a former stone quarry. Rock for the dam construction was obtained from the quarry. Before the construction of the lake and the quarrying operations, the river flowed at the base of a steep limestone bluff on the south side of the use area. Above this bluff, a high ridge top (900 feet m.s.l.) sloped into a ravine on the north. Approximately 33 acres of shoreline were examined at this location. Previous archaeological surveys had recorded a campsite (23H15) high on the ridgetop at an elevation of 680 feet m.s.l. (Chapman 1954: 10).

The shoreline adjacent to the dam was examined first with crew members maintaining a transect interval of 20-30 meters.

Shovel testing was conducted where ground surface conditions were permitted. A small camping area occupies the upper reaches of the shoreline zone at this location, and a gravel road parallels the shoreline at approximately the 850 foot m.s.l. level. Proceeding along the shore, the marina and boat ramp were encountered. It was apparent that a considerable amount of disturbance had occurred during the construction of the marina. These developments made shoreline observations difficult or impossible. However, the possibility that there remains a significant prehistoric or historic occupation at this location is remote due to the intensive development.

Beyond this disturbed area associated with the marina and boat ramp, a grassy area surrounding a small cove was examined. The soil was free of gravel at this location; and consequently subsurface testing was conducted at 15 meter intervals. The soil was dark brown-black with occasional intrusions of natural limestone and cherty gravel. No evidence of cultural resources were encountered by the surveyor.

The south shore of the cove is formed by the sheer walls of the old quarry and was inaccessible to survey. Extreme disturbance associated with the earlier quarrying activities no doubt heavily disturbed this stretch of shoreline. Beyond the quarry, the shoreline is gently sloping and is associated with a developed camping area located on an east-west oriented point (Map 5). Chert gravel was exposed along the shoreline around the tip of this point. An isolated biface fragment (medial section) of local white-gray chert was recovered on the eastern side of the point (Map 5). Transect intervals were reduced to 5 meter intervals in an attempt to locate additional cultural material or delineate a "site." Shovel testing was not effective due to the gravel. However, careful examination of the area failed to yield additional cultural material or evidence of any occupation.

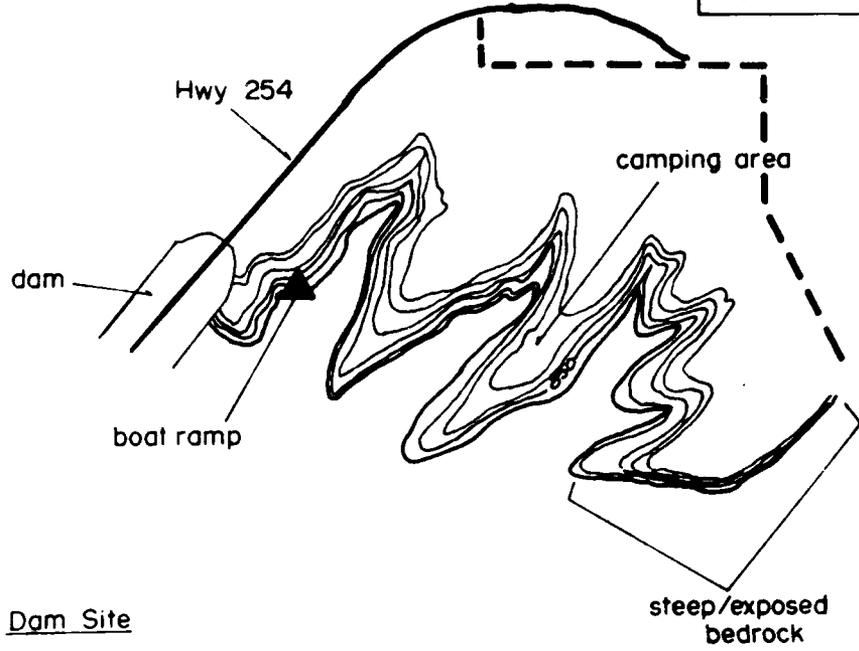
The shoreline became steeper to the south of the isolated biface find, and exposed limestone bedrock occupied the shoreline (Map 6).

The remaining shoreline to the south of this bedrock zone consisted of gently sloping gravel-covered shoreline. With the exception of the single blade fragment, there was no evidence of prehistoric or historic occupation in the Quarry Point area.

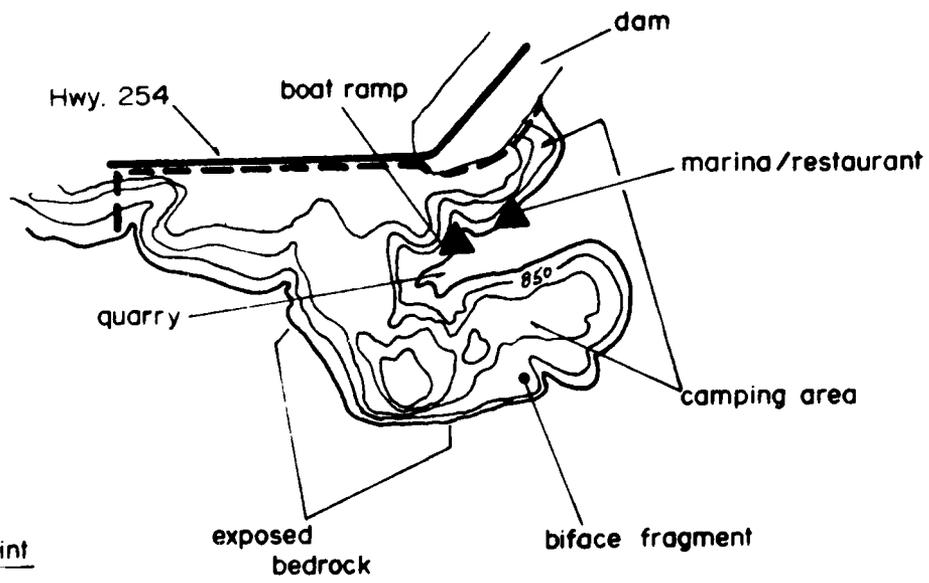
Outlet Area (NW¼, Sec. 2, T36N, R22W)

This area is located below the dam on the west bank of the Pomme de Terre River. Public facilities include a boat ramp, picnic grounds, and camping areas. The river shoreline and exposed banks were examined. However, it was obvious that this entire area had been subject to extensive disturbance. An

Map 5
 POMME DE TERRE LAKE :
 SHORELINE SURVEY
 Dam Site and Quarry Point Public Use Areas
 Hickory County , Missouri
 --- use area boundary
 ▲ developed locality
 approx. scale 1 : 1500



Dam Site



Quarry Point

interview with Pat Muller, maintenance man for the Corps of Engineers, confirmed this observation. He reported that most of the area had been leveled and that the levee-like ridge bordering the river had been constructed sometime in the past.

No evidence of prehistoric or historic use or occupation was observed at the Outlet area. Further, if there were sites in this area, it is likely that they have been destroyed by previous construction activity.

Dam Site (NE $\frac{1}{4}$, Sec. 2, T36N, R22W and
NW $\frac{1}{4}$, Sec. 1, T36N, R22W)

This area is adjacent to the dam and the Corps of Engineers project headquarters. Public facilities include a boat ramp, picnic, and camping accommodations. The Dam site use area is located on three former ridge spurs which are not individual peninsulas (Map 5). Maximum elevation on the nearby uplands is 960 feet. The terrain slopes to the southwest, and the elevation at the lake shore is approximately 850 feet. A site (23HI200) had been recorded on the higher ground in the camping area (McNerney 1978:7). However, it could not be located, and the development of the relocated use area may have obliterated the site.

The majority of the shoreline was gently sloping (10-15 percent). Surface visibility was good with most of the shoreline consisting of a low wave cut bank or gravel beaches. The cut bank ranged from 10-20 centimeters in height and afforded a natural profile. A light tan soil mixed with gravel was revealed. The east side of the most easterly peninsula consisted of exposed limestone bedrock (Map 5).

An intensive examination of approximately 110 acres of shoreline at this location failed to yield evidence of prehistoric or historic use or occupation.

Pomme de Terre State Park (NE $\frac{1}{4}$, Sec. 11, T36N, R22W and
NW $\frac{1}{4}$, Sec. 13, T36N, R22W)

Pomme de Terre State Park consists of two separate areas. One area is located between the two arms of the lake at the junction of Lindley Creek and the Pomme de Terre River. The Hermitage is directly east across the Lindley Creek branch of the lake (Map 1). Both areas are higher uplands which are now peninsulas surrounded by water.

The westernmost park occupies the north end of a north-south oriented ridge with elevations ranging from 920 to 840 m.s.l. Approximately 68 acres were examined along the shore-

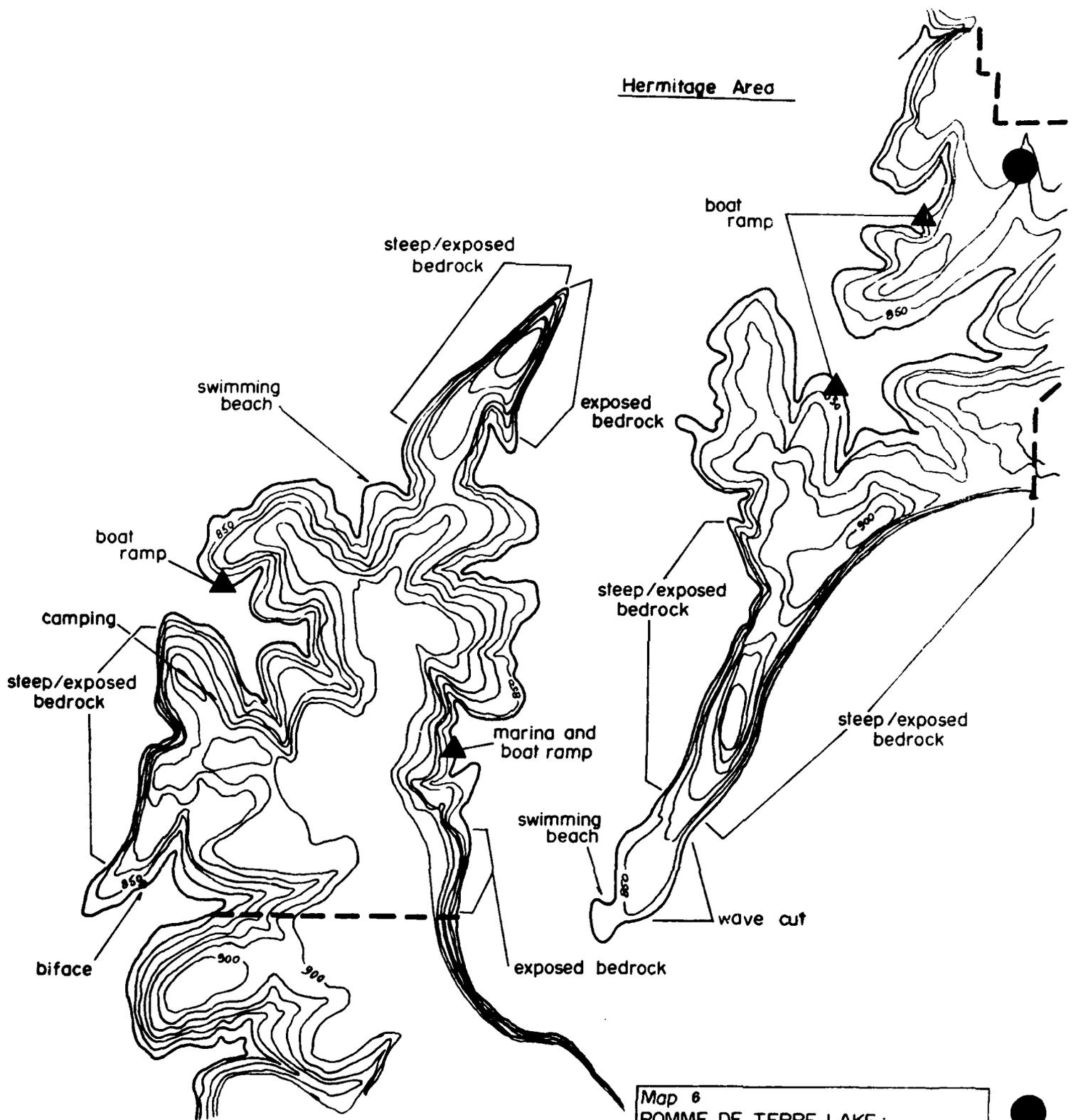
line. Archaeological site densities were high in this area and most are not inundated. The Murelle Mound Group (23H130), previously mentioned, is located on the crest of the main ridge in the park. The site consists of a stone cairn and two stone and earth mounds. The mound was partially excavated (Wood 1961), but the remaining cairn and mound have not been tested. The site has been recommended for nomination to the National Register (McNerney 1978:36).

The survey was initiated at the southernmost point of the shoreline on the western side of the ridge south of the public camping area (Map 6) in Pomme de Terre State Park. The shoreline at this point was gently sloping and was covered with large amounts of chert gravel. Shovel tests were conducted inland from the shore whenever soil conditions allowed penetration. On the northern shore of the inlet, an isolated biface was recovered (Map 5). Vegetation at this location consisted of cedar trees inland with little or no ground cover. Transects were walked by the survey crew radiating from the find spot in an attempt to locate additional cultural material. Another biface fragment was located to the south and inland from above the 850 m.s.l. and consequently out of the study area. In any case, shovel tests were conducted around this find spot, and the surface was carefully examined for additional material. No further evidence of cultural material or activity was noted.

The shoreline to the north of this peninsula exhibited a very steep grade consisting of exposed limestone bedrock. Survey was resumed to the north of this rocky area. A large inlet has been developed into a public camping area. The nature of the shoreline here was gently sloping and gravel covered. Shovel testing was attempted; however, dense gravel deposits precluded effective use of this technique. Ground cover was thin or non-existent, so the crew concentrated on an intensive visual surface survey of the shoreline. Public use has taken its toll in this area as was evidenced by the presence of numerous old tires along the shore which were used as boat mooring locations. No cultural material was encountered along the shoreline at this location.

Beyond the boat ramp (Map 6), the shoreline resumes its gently sloping nature and was once more covered with a layer of chert gravel which prohibited effective subsurface shovel testing. A swimming beach was encountered which had disturbed the shore for approximately 40 meters. A short stretch of shoreline examined immediately north of the swimming beach had no evidence of prehistoric or historic activity at this location.

Shoreline examination was resumed immediately to the south of this zone, where again the gently sloping gravel covered shores were present. Shovel testing was not conducted due to the dense gravel deposits. Immature willow and cedar trees populated the shoreline intermittently along this stretch. Minimum ground



Map 6
 POMME DE TERRE LAKE :
 SHORELINE SURVEY
 Pomme de Terre State Park
 Hickory County, Missouri

- - - park boundary
 ▲ developed locality
 approx. scale 1:1500

cover offered excellent surface visibility. No cultural material or evidence of past human activity was noted along this portion of shoreline.

A marina and boat ramp were encountered occupying a cove immediately to the south of this area. The construction of a large parking lot, access road, and marina facilities had greatly altered the shoreline at this location. A small point was examined beyond this cover to the south, with subsurface shovel tests again attempted by the survey crew. Soil conditions here also exhibited rocky characteristics which precluded effective testing. No cultural material was noted at this shoreline location. The remainder of the shoreline in this portion of the state park consisted of steep, exposed, bedrock and was impassable on foot. Examination from the boat failed to reveal evidence of prehistoric or historic activity at this location.

The Hermitage section of Pomme de Terre State Park is located directly across the lake of the area previously described (Map 1). Most of this portion of the park consists of a long narrow peninsula surrounded by water. Approximately 73 acres of shoreline was examined in this area. The shoreline along both the east and west sides of the peninsula consists of exposed limestone bedrock. However, the southernmost tip of the peninsula slopes gently to the lake shore. There is little soil development in this area and chert gravel forms the ground surface. A wave cut was also apparent approximately 5-10 meters from the existing waterline at the tip of peninsula. This cut, at times, reached a height of from 30 cm to 50 cm and exhibited an excellent view of the subsurface stratigraphy. Examination of this wave cut failed to reveal evidence of prehistoric or historic activity. The western side of this peninsula had been disturbed by construction of a swimming beach and parking area. Examination of a short stretch of shoreline immediately north of the beach failed to yield evidence of cultural material.

From the beach, exposed bedrock extended northward to a small cove (Map 6). Extremely rocky surface conditions again prohibited effective subsurface shovel testing. Surface visibility was excellent. High water levels recently receded from the shoreline survey area. After rounding a point extending into the lake in a northerly direction, a boat ramp and access area were encountered. A large inlet consisting of several small coves and smaller inlets was examined. Surface visibility along this section was excellent, and the ground surface consisted of chert gravel and limestone. From the second boat ramp to the end of the tract, the shoreline was gently sloping, rocky, and devoid of vegetation.

The shoreline survey of the Hermitage area failed to yield evidence of prehistoric or historic human occupation.

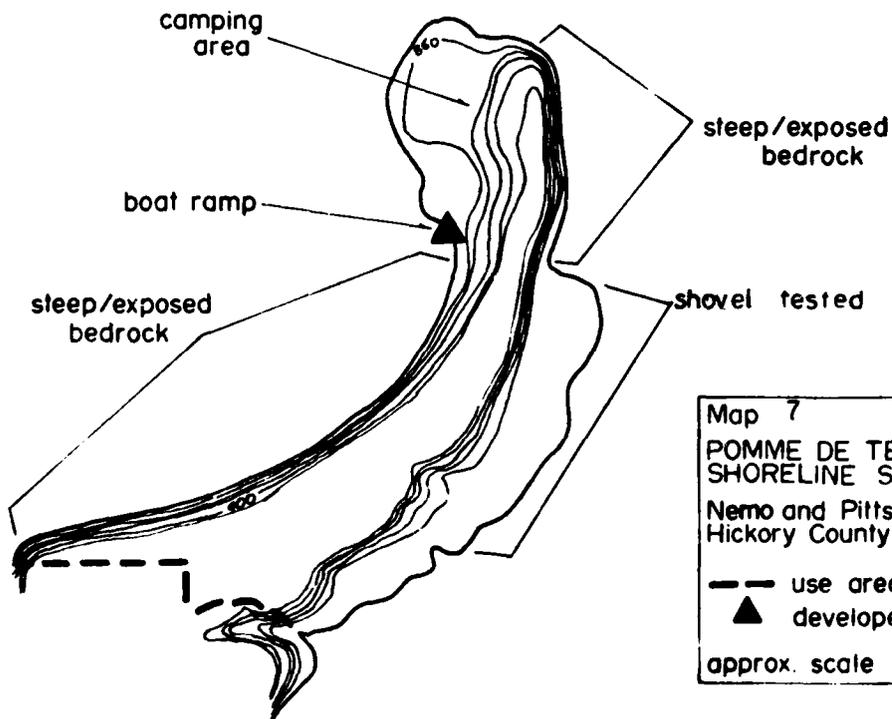
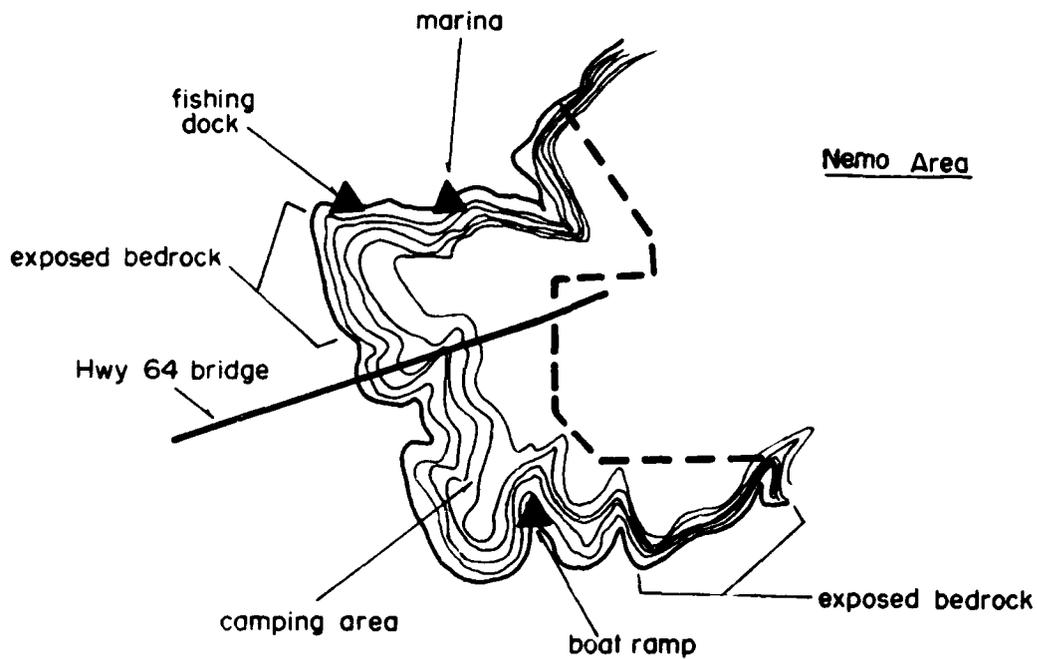
Nemo Area (SW $\frac{1}{4}$, Sec. 17, T36N, R21W and
NW $\frac{1}{4}$, Sec. 20, T36N, R21W)

The Nemo public use area is located on the eastern side of the Lindley Creek branch of Pomme de Terre Lake in Hickory County (Map 1). The area is bisected by state highway 64 which continues on over the lake by way of a bridge. Public facilities include a marina, picnic, camping, and swimming areas. The use area occupies several ridge spurs which slope in a westerly direction toward the lake shore. Elevation ranges from 850 to 950 feet m.s.l. Approximately 12 acres of shoreline were examined at this use area. There were no previously recorded sites at this location.

The survey began on the shoreline immediately below the bridge. Evidence of wave cutting action was noted by the presence of a 20-40 centimeters high wave cut approximately half way up the shore from the waterline. This wave cut which gave an excellent view of the subsurface stratigraphy was examined closely. No evidence of cultural activity was observed. Below this wave cut, the shore exhibited the typical characteristics encountered at numerous other locations during the project. Ground surface visibility was good due to recent high water levels which had receded prior to the survey. Natural limestone and chert gravel littered the surface and prohibited effective subsurface testing. Some recent man-made disturbance of the shore was noted near a boat mooring area and adjacent campground (Map 7). No evidence of significant cultural activity was noted along the shoreline at this locality. A boat ramp was encountered on the south side of the Nemo area, and the area was heavily disturbed by previous construction. Beyond the boat ramp, the shore began to assume a somewhat steeper gradient with exposed limestone bedrock making subsurface testing impossible. This zone was considered of low potential for past human use and occupation.

North of the highway 64 bridge, exposed bedrock stretched to the north and around the point to the fishing dock (Map 7). The survey crew traversed this zone adjacent to the shore above the limestone bedrock exposure in hopes of observing cultural material on the surface. Subsurface shovel tests were attempted but could not be used effectively due to the bedrock. No cultural material was encountered along this stretch of shoreline. A fishing dock and marina were situated on the north side of the Nemo area (Map 7). These areas were heavily disturbed by previous construction and development. A gravel covered shoreline offering good visibility extended to a small cove. The cove exhibited steep slopes and exposed bedrock at intermittent locations. This condition continued to the limits of the survey area.

There is no evidence of prehistoric or historic sites or features along the shoreline of the Nemo Landing Public Use Area.



Map 7
 POMME DE TERRE LAKE :
 SHORELINE SURVEY
 Nemo and Pittsburg Use Areas
 Hickory County, Missouri

--- use area boundary
 ▲ developed locality

approx. scale 1:1500

Pittsburg Area

Pittsburg Landing Area (NE $\frac{1}{4}$, Sec. 32, T36N, R21W and
SE $\frac{1}{4}$, Sec. 29, T36N, R21W)

The Pittsburg Landing Public Use Area is situated on a north-northeast projecting ridge spur on the west of the Lindley Creek branch of Lake Pomme de Terre. Elevation ranges 950 to 850 m.s.l. Much of the shoreline at this location consisted of steep exposed limestone bedrock outcrops extending vertically several meters above the lake (Map 7). These areas were too steep for pedestrian survey and were carefully examined by boat. The northernmost extension of the point was occupied by a developed camping area. It consisted of a gently sloping shoreline covered with chert gravel. Shovel testing was conducted intermittently upslope from the existing water line wherever possible, and the exposed shoreline was carefully examined. Soil conditions at this location consisted of a light brown sandy upper level underlain by a reddish-brown clayey layer. Gravel was scattered on the surface and mixed throughout the depth (10-15 centimeters) of the subsurface tests. A boat ramp occupied the northern shore of the use area (Map 7) adjacent to the camping area. Some disturbance was noted in this location from previous construction activity.

The northeastern tip of the peninsula and the associated shoreline consists of steep exposed bedrock. As the shoreline became less steep, a broad terrace was encountered along the southwestern edge of the use area. This zone supported a variety of wetland species dominated by willow and cottonwood. Adequate soil development in this zone allowed for shovel testing at 20 to 30 meter intervals (Map 7). The area was extremely low in topography, and the relatively clear ground surface indicated that the entire area had been inundated in the not too distant past.

At one point, long low ridges approximately 10-20 centimeters in height were observed running parallel to the shoreline. These low ridges were composed of a heavy gravel concentration and appeared to delineate old shoreline areas where gravel had been deposited. No evidence of cultural material was encountered at any point along this section of the shoreline. An examination of approximately 17 acres of shoreline at the Pittsburg Landing Public Use Area failed to yield evidence of past human use or occupation.

SUMMARY AND RECOMMENDATIONS

An archaeological survey of approximately 400 acres of shoreline at 9 Corps of Engineers public use areas identified three areas of light lithic scatter and resulted in the recovery of three bifacially flaked blade fragments. Light scatters of waste flakes from the maintenance or production of stone tools were located at the Bolivar and Lightfoot Public Use Areas. Three bifacial blades were recovered

as isolated finds at the Bolivar, Quarry Point, and Pomme de Terre State Park. Due to the paucity of cultural material, the large quantities of chert gravel, and the isolated nature of the bifacial blade find spots, no "site" limits were defined. The lithic scatter located at the Bolivar Public Use Area is probably associated with a part of a previously recorded site (23P0176). It is the only area which we might regard as a site. However, neither the earlier site survey record (McNerney 1978:33) nor the present investigations have identified site limits at this location.

Based on this survey, the previous records and literature search, and a study of settlement patterns in the area (McNerney 1978), it is the opinion that the areas of lithic scatter and isolated tool finds recorded in this survey do not constitute significant cultural resources. Further, it is the opinion that these artifact locations do not meet the criteria for nomination or listing on the National Register of Historic Places. These criteria are:

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

- (a) That are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) That are associated with the lives of persons significant in our past; or
- (c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent 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
- (d) That have yielded, or may be likely to yield, information important in prehistory or history.

(Federal Register 1976:1595)

Based on the shoreline survey and the previous management study, several observations regarding shoreline sites at Pomme Terre Lake are relevant to present and future management considerations.

1. Topographically, the fluctuating shoreline zone is a mid-slope location which is not an area of high archaeological site density (5 percent of recorded site sample).

2. The abundance of chert gravels throughout the project area has resulted in the distribution of waste flakes over a wide area. These artifacts are thinly deposited and are not easily seen by the casual observer.
3. Based on the limited nature of the cultural deposits and their obscurities among the local gravels, they are "naturally" protected from collecting by project visitors.
4. Due to the nature of the geological and pedological deposits along the lake shore and its narrow protected configuration, shoreline erosion is not a major threat to cultural resources in the public use areas.
5. Additional shoreline surveys are not recommended.

At the present time, there are no serious threats to significant cultural resources along the shoreline in the Corps of Engineers' public use areas at Pomme de Terre Lake. It is recommended that the Corps continue its regular policies of cultural resources management and the follow the recommendations of the previous management study (McNerney 1978).

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APPENDIX A
Map of Areas Surveyed

