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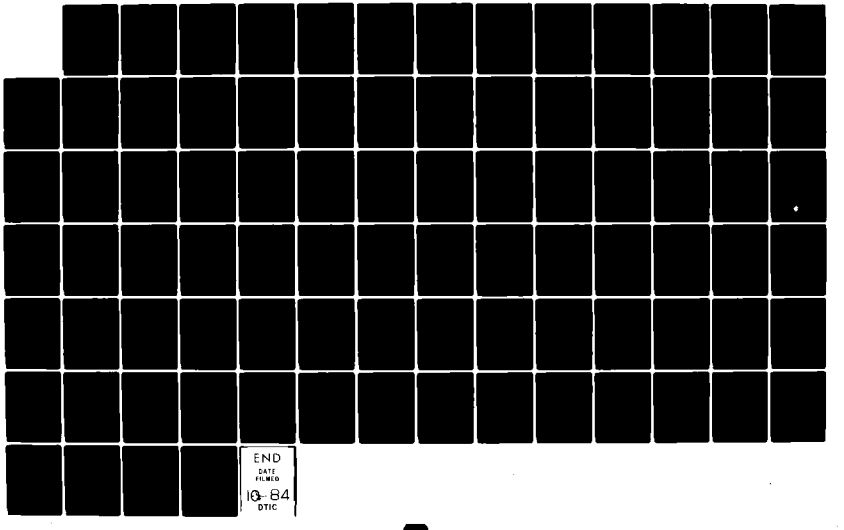

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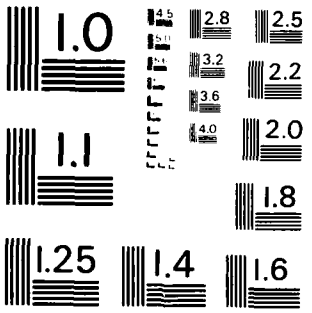

Report No. 8

May 7, 1984

An Archeological Overview and Management Plan for the Savanna Army Depot Activity, Jo Daviess and Carroll Counties, Illinois

Under Contract CX-5000-3-0771
with the

National Park Service
U.S. Department of Interior
Atlanta, Georgia 30303

for the
U.S. Army Materiel Development and
Readiness Command

by

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16. Abstract (Limit: 200 words)

As part of a general program in the Savanna Army Depot Activity's historic preservation planning, this report has been prepared documenting both the known and potential archeological resources which exist within the facility boundaries. Five prehistoric sites are known and reported, and 43 potential historic sites have been identified. No systematic survey has been conducted on the facility. In compliance with draft Army regulations AR 420, it is recommended that preliminary archival and field research be initiated for the historic sites which possess physical integrity, and that survey be conducted on those areas not currently impacted by construction. Cultural resources should be located, recorded, evaluated, and assessment of eligibility for the National Register of Historic Places be made for appropriate and significant sites. Archeological inventory data, together with historic architectural information, would then serve to help develop a facility historic preservation plan.

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MANAGEMENT SUMMARY

The Savanna Army Depot Activity (SADA) is a facility of the U. S. Department of the Army DARCOM (Materiel Development and Readiness Command), with responsibilities for the management of the prehistoric and historic archeological resources that are retained within installation lands. This report is a summary of the archeological resources presently identified on the installation. Five prehistoric sites and 43 potential historic sites are presently known on the facility. The culture history and geomorphology of the facility indicate that other cultural resources are likely to occur within the facility.

Compliance with the National Historic Preservation Act, the Archeological and Historic Preservation Act, 36 CFR 800, and draft Army regulations AR 420 requires the identification, evaluation, and where feasible, affirmative management of significant archeological resources. These also require that federal undertakings (e.g., new construction, new leases, or lease renewals of the public lands) take into consideration the effects of their proposed activities on these significant materials.

The management recommendation developed here includes archeological inventory and evaluation of all Depot lands not known to have heavy modern ground disturbance, and a field check of the five prehistoric sites. All archeological resources evident there should be located, recorded, and evaluated and, where appropriate, significant sites should be recommended for nomination to the National Register of Historic Places. When integrated with historic architectural information, these inventory data would be the basis for developing a facility historic preservation plan. In addition to survey, preliminary archival work, field check of potential historic sites, and location of artifactual collections are recommended.

PREPARERS AND QUALIFICATIONS

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ACKNOWLEDGEMENTS

A number of people have been extremely generous with their time and effort in the preparation of this management report. Charles Primm at the Savanna Army Depot provided information regarding the facility and ground disturbance areas; Michael Thant and Bonnie Styles at the Illinois State Museum provided information regarding the prehistoric sites on Savanna, while Charles Bareis at the Illinois Archaeological Survey provided access to site survey files. James Batura and Marjorie Schroeder of the Center for American Archeology were responsible for the accumulation of data necessary for the interpretation of the prehistoric resources. Frieda Vereckeen-Odell of the Center for American Archeology prepared the figures. Marjorie Schroeder, Beverly Sexauer and Ruth Sperry typed the manuscript.

Additional thanks go to Dr. Mark R. Barnes, NPS, SERO; Ms. Mary Lee Jefferson, NPS, WASO; Mr. David Kenney, Illinois SHPO, and his staff, who reviewed the draft Savanna document; and Ms. Zandra Dillion, Contracting Officer, NPS.

Final report production, including graphics, has been completed by Woodward-Clyde Consultants, with editorial review (particularly of management recommendations) and text preparation completed by Dr. Ruthann Knudson and Ms. Betty Schmucker.

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FOREWORD

As a federal agency with large public land holdings, the U. S. Army is responsible for the stewardship of a variety of natural and cultural resources that are part of its installations' landscapes. The Army's Materiel Development and Readiness Command (DARCOM) presently manages a nationwide network of 65 installations and 101 subinstallations and separate units, which range in size from 1 acre to over 1 million acres. As part of its programs of environmental and property management, DARCOM has requested that the U. S. Department of the Interior's National Park Service (NPS) provide technical guidance to develop programs for managing installation cultural resources.

NPS is thus conducting the DARCOM Historical/Archeological Survey (DHAS), which has two major disciplinary elements. The architectural review and planning function is being directed by the Service's Historic American Buildings Survey (HABS), while the prehistoric and historic archeological resource assessment and planning function is the responsibility of the Service's Interagency Resource Division (IRD). IRD has contracted with Woodward-Clyde Consultants (WCC) for the development of guidelines for the DARCOM archeological management planning effort, and for the completion of over 40 overviews and plans throughout the central United States. WCC has in turn subcontracted the technical studies to several regional subcontractors, with final editorial review of reports and preparation of text and illustrations handled by WCC.

This overview and recommended management plan for the archeological resources of the Savanna Army Depot Activity was prepared by the Center for American Archeology, Kampsville, Illinois, under subcontract to WCC. It follows the guidance of "A Work Plan for the Development of Archeological Overviews and Management Plans for Selected U. S. Department of the Army DARCOM Facilities," prepared by Ruthann Knudson, David J. Fee, and Steven E. James as Report No. 1 under the WCC DARCOM contract. A complete list of DHAS project reports is available from the National Park Service, Washington, DC.

The DHAS program marks a significant threshhold in American cultural resource management. It provides guidance that is nationally applicable, is appropriately directed to meeting DARCOM resource management needs within the context of the Army's military mission, and is developed in complement to state and regional preservation protection planning (the RP3

process, through State Historic Preservation Offices). All of us participating in this effort, particularly in the development of this report, are pleased to have had this opportunity. Woodward-Clyde Consultants appreciates the technical and contractual guidance provided by the National Park Service in this effort, from the Atlanta and Washington, DC, offices and also from other specialists in NPS regional offices in Philadelphia, Denver, and San Francisco.

Woodward-Clyde Consultants — Ruthann Knudson

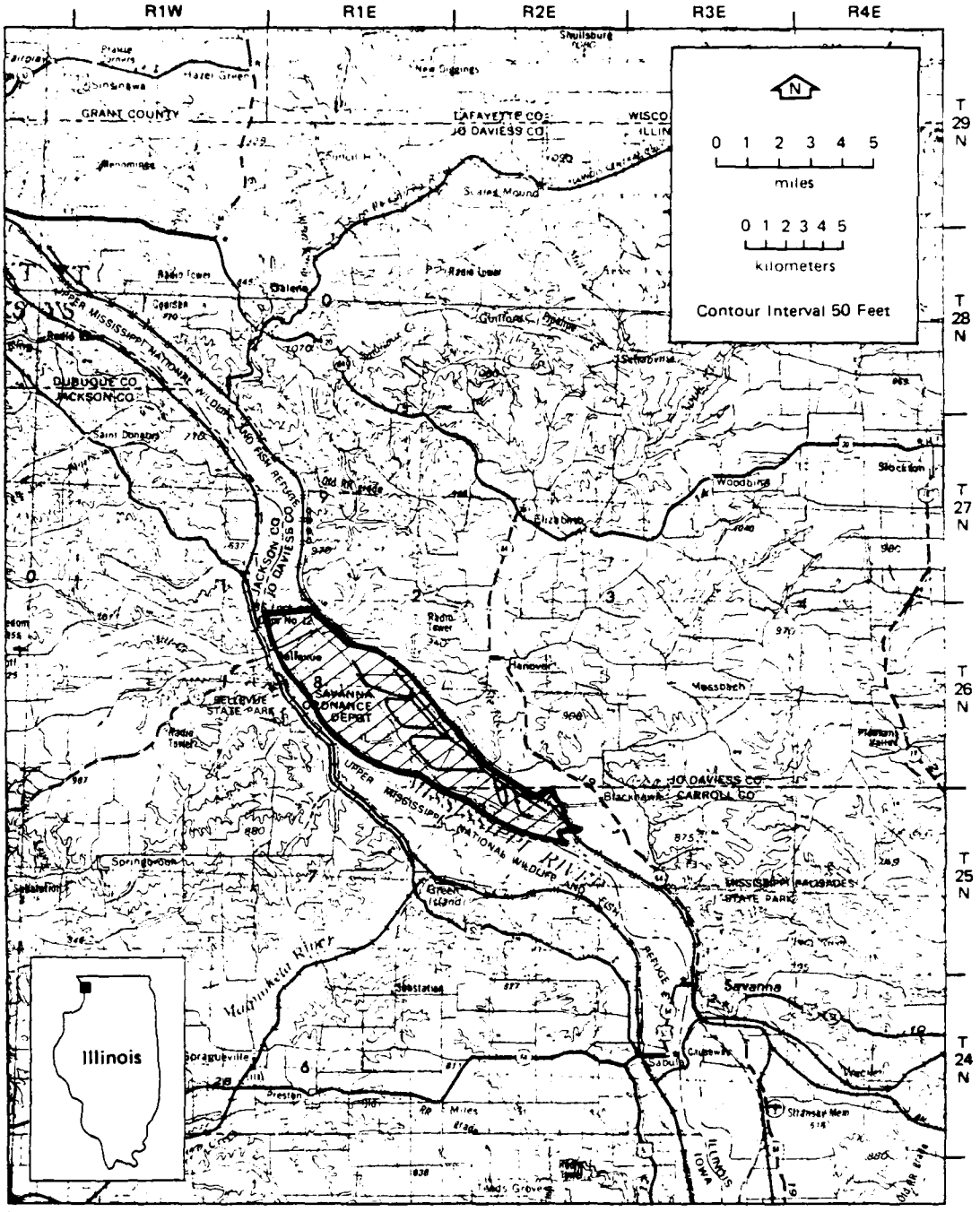
1.0 INTRODUCTION

The following report is an overview of and recommended management plan for the prehistoric and historic archeological resources that are presently known or likely to occur on the Savanna Army Depot Activity in Jo Daviess and Carroll counties, Illinois (Figure 1-1). This facility is an installation of the U. S. Department of the Army DARCOM (Materiel Development and Readiness Command), which as a reservation of public land has responsibilities for the stewardship of the cultural resources that are located on it. The assessments and recommendations reported here are part of a larger command-wide cultural resource management program (the DARCOM Historical/Archeological Survey, or DHAS), which is being conducted for DARCOM by the U. S. Department of the Interior's National Park Service. The following is that portion of the facility-specific survey that is focused on the prehistoric and historic resource base of the Savanna Army Depot Activity, and was developed in accordance with the Level B requirements as set forth in the DARCOM work plan (Knudson, Fee, and James 1983). A companion historic architectural study is in preparation by NPS's Historic American Building Survey (HABS), but it is not yet available (William Brenner, personal communication 1983).

1.1 PURPOSE AND NEED

A corpus of Federal laws and regulations mandate cultural resources management on DARCOM facilities. Briefly these are:

- The National Historic Preservation Act of 1966 as amended (80 Stat. 915, 94 Stat. 2987; 16 USC 470), with requirements to,
  - inventory, evaluate, and where appropriate nominate to the National Register of Historic Places all archeological properties under agency ownership or control (Sec. 110(a)(2))
  - prior to the approval of any ground-disturbing undertaking, take into account the project's effect on any National Register-listed or eligible property; afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed project (Sec. 106)
  - complete an appropriate data recovery program on an eligible or listed National Register archeological site prior to its



Note: Base map is the USGS Dubuque, Iowa, Wisconsin, Illinois, 1: 250,000 (1959) sheet, revised 1981.

Figure 1-1. MAP OF THE GENERAL VICINITY OF THE SAVANNA ARMY DEPOT ACTIVITY

being heavily damaged or destroyed (Sec. 110(b), as reported by the House Committee on Interior and Insular Affairs [96th Congress, 2nd Session, House Report No. 96-1457, p. 36-37])

- Executive Order 11593 (36 FR 8921), whose requirements for inventory, evaluation, and nomination, and for the recovery of property information before site demolition, are codified in the 1980 amended National Historic Preservation Act

- The Archeological and Historic Preservation Act of 1974 (88 Stat. 174, 16 USC 469), which requires that notice of an agency project that will destroy a significant archeological site be provided to the Secretary of the Interior; either the Secretary or the notifying agency may support survey or data recovery programs to preserve the resource's information values

- The Archeological Resources Protection Act of 1979 (93 Stat. 721, 16 USC 470aa; this supersedes the Antiquities Act of 1906 [93 Stat. 225, 16 USC 432-43]), with provisions that effectively mean that

  -The Secretary of the Army may issue excavation permits for archeological resources on DARCOM lands (Sec. 4)

  -No one can damage an archeological resource on DARCOM lands without a permit, or suffer criminal (Sec. 6) or civil (Sec. 7) penalties

- 36 CFR 800, "Protection of Historic and Cultural Properties" (44 FR 6068, as amended in May 1982); these regulations from the Advisory Council on Historic Preservation set forth procedures for compliance with Section 106 of the National Historic Preservation Act

- Regulations from the Department of the Interior setting forth procedures for determining site eligibility for the National Register of Historic Places (36 CFR 60, 36 CFR 63), standards for data recovery (proposed 36 CFR 66), and procedures for implementing the Archaeological Resources Protection Act (proposed 36 CFR 69)

- Guidance from the U.S. Department of the Army as to procedures and standards for the preservation of historic properties (32 CFR 650.181-650.193; Technical Manual 5-801-1; Technical Note 78-17; Army Regulation 420).

These procedures should be integrated with planning and management to insure continuous compliance during operations and management at each facility. This can best be achieved by an understanding of the procedures implied by the regulations and an awareness of the cultural resources potential at each facility.

1.2 THE SAVANNA ARMY DEPOT ACTIVITY

The 13,063 acre (5,286 ha) Savanna Army Depot Activity is located in Jo Daviess and Carroll counties, Illinois, eight miles (12.9 km) northwest of Savanna, Illinois (Figures 1-1, 1-2). Originally commissioned as part of the Sundry Civil Act of June 12, 1917, construction at the Depot began in May 1918. The facility was first used as a proof firing range, but in 1918 the facility also began to function as a storage area. Construction for storage was undertaken between 1919 and 1921. During that time the Savanna installation was known as the Savanna Proving Ground and the Savanna Ordnance Reserve Depot. The Proving Ground had originally been operated by the Rock Island Arsenal. In 1921, it became an independent depot. Construction at the facility continued with major phases of construction occurring in 1929, 1931-1935, 1938-1942, 1942-1945, 1946-1950, and during the early 1960's. A detailed history of the facility can be found in the Facilities Data volume on file at Savanna (Anonymous 1961). At present the Depot's activities include supply and maintenance, as well as such tasks as handling returned materiel, functional packing of small arms ammunition, training, demilitarization, surveillance, manufacturing, and other miscellaneous activities (Anonymous 1961). Except for the northwestern portion of the facility which is in slough, approximately 65 percent of the Depot has been impacted by some sort of modern construction. The major functions of these construction and use areas include administration, training, warehousing, storage areas, load lines, disposal areas, ammunition consolidation and shipping, burning grounds, disassembly plants, and washout facilities.

1.3 SUMMARY OF PREVIOUS ARCHEOLOGICAL WORK

No archeological surveys or excavations have been conducted on the Savanna Army Depot Activity since before World War II; however, five archeological sites have been reported on the facility. The current integrity or condition of these sites is unknown. Little information in this regard was originally recorded. One site, Jd-9, has been revisited, but assessments of integrity were not made. Sometime before 1900, W. B. Nickerson excavated an unknown portion of a site with 14 conical mounds on the Savanna facility (site Jd-9, Nickerson n.d.). According to the Illinois Archaeological Survey records (n.d.), this site was revisited in 1926, 1945, and 1957, but no further work was reported. In addition, three sites were located on the facility in Carroll County (Ca-1, Ca-2, and Ca-3). Ca-1, a Middle Mississippian habitation area, was test excavated. Ca-2 consisted of a Mississippian habitation reported by pottery fragments eroding out of a stream bank and a mound overlooking the Mississippi River. Ca-3 has not been assigned to a specific time period. Finally, the Spensley Mound, Jd-119, reported by the Illinois State Museum, was located on the sandy prairie overlooking the Mississippi River. Artifactual remains consisted of several fragments from a single small bowl probably related to the Mississippian Period. No further information regarding this site was recorded.

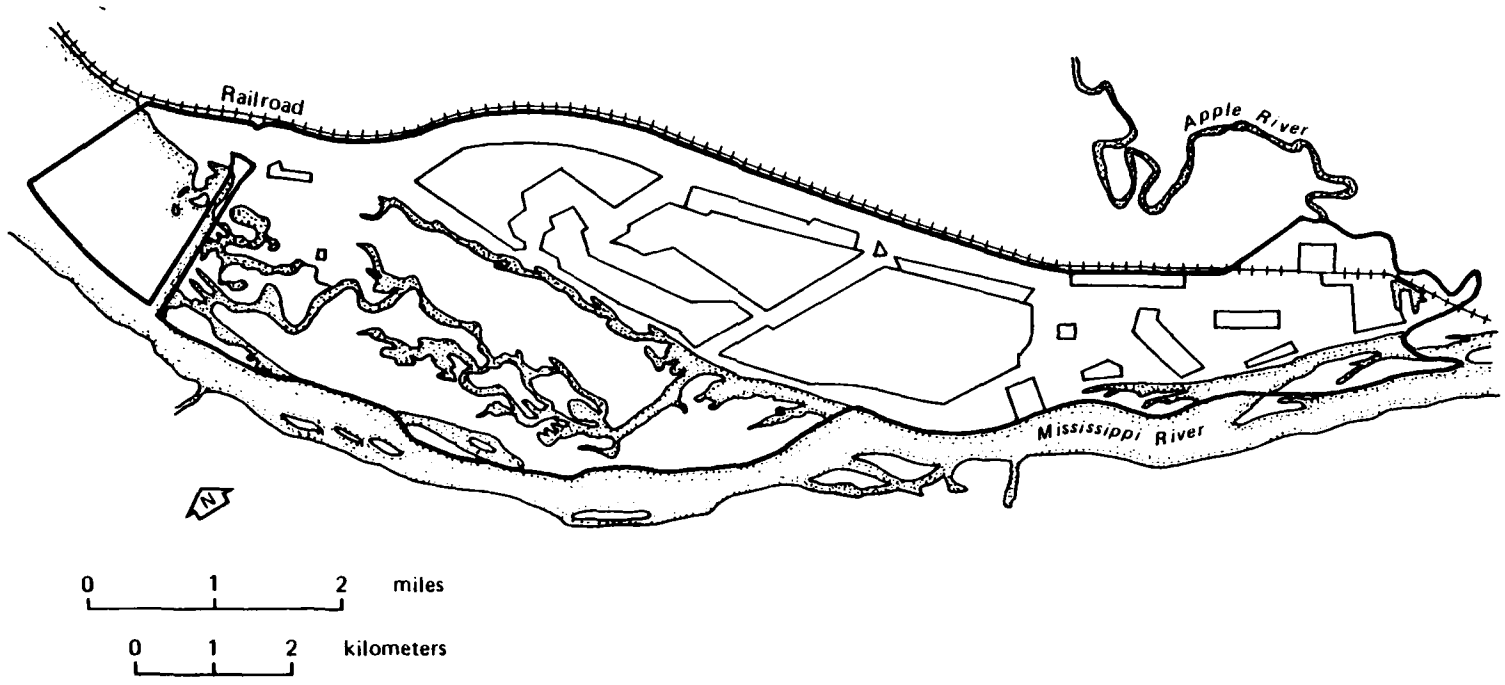


Figure 1-2. MASTER BASE MAP OF THE SAVANNA ARMY DEPOT ACTIVITY

1.4 THE SOCIOCULTURAL CONTEXT OF THE ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY

Five prehistoric sites have been located within the facility boundaries. One of these, Jd-9, contained prehistoric mounds and a human burial. The major value of these sites lies with scientific researchers. No known value exists for these areas relative to any indigenous Native American group, and any ties to modern groups would be remote. The burial policy in use in Illinois states that, since no cultural affinity between the human remains and a recognized living community can be shown, the sociocultural value lies with general cultural heritage (Illinois Archaeological Survey 1982). Historical data show no indication of archeological resources of historic age on the Savanna facility that could be of ethnic concern to the Native American community. Given the existence of historic Native American archeological remains with the area, it is possible that there are such remains on the Savanna Depot Activity property, but if so, additional fieldwork will be required to locate and identify them.

A new set of historic archeological resources has resulted from the construction of the Depot. Those buildings more than 50 years of age are old enough for protection under existing preservation statutes. Other Depot buildings may constitute an important cultural resource that may deserve future conservation management. The HABS/HAER investigation of the Savanna facility has addressed the question of significance or potential of military buildings. To date the survey has been completed, but the status of the report is unknown (William Brenner, personal communication 1983).

The nineteenth-century cultural resources are largely associated with people of general Euroamerican extraction who followed the westward frontier movement into northwestern Illinois, where they established a typical rural agricultural settlement pattern. The majority came from earlier settlements to the south and east. Consequently, the nineteenth-century cultural resources are most significant to descendants of such Euroamerican pioneers and to persons having a scholarly interest in the nineteenth-century settlement and development of the Midwest.

2.0

AN OVERVIEW OF THE CULTURAL AND RELEVANT NATURAL HISTORY OF THE SAVANNA ARMY DEPOT ACTIVITY

This chapter describes main features of the physical and cultural environment as a basis for incorporating known land uses, assessments of the cultural and natural environments, and archeological site information into an effective management plan for facility lands. In addition, pertinent regional archeological research directions are discussed.

2.1 THE PHYSICAL ENVIRONMENT

This section describes the modern earth, water, climatic, plant, and animal resources that were probably available for human use during the historic period. These data can be used as a baseline against which paleoenvironmental resources may be inferred.

2.1.1 Earth Resources

The Savanna facility is situated on the east side of the Mississippi River Valley in the southern part of the Wisconsin Driftless section of the Central Lowland Province (Fenneman 1938). It is primarily located on the Terminal Wisconsin Savanna Terrace and is capped by dune formations (Willman and Frye 1970), which exhibit a gently to moderately rolling topography. Facility elevation ranges from 580 to 650 feet with the Mississippi River at 580 feet elevation. Flock (n.d.) identified the Savanna Terrace and correlated it with the Deer Plain Terrace in the lower Illinois and Mississippi River valleys, based on morphological and sedimentological comparisons of the upper two meters. Hajic (Hajic and Flock 1983) has dated the formation of the Deer Plain Terrace in the lower Illinois River valley between 13,000 and 12,000 BP, which may be comparable to the formation of the Savanna Terrace. The presence of Parkland Sand dunes capping the Savanna Terrace would suggest that prehistoric cultural deposits could be buried on top of the terrace and below the sand dunes, as well as within the dunes themselves.

The bedrock underlying the adjacent uplands and outcropping along the bluffline consists primarily of Upper Ordovician shale and limestone, and chert-bearing Silurian dolomite (Willman et al. 1967). These cherts were used prehistorically. Ordovician limestone and dolomite underlie glacial outwash and alluvium in the valley.

The facility soils are classified within the Lamont-Bloomfield and Sparta-Ade soil associations (Ray, Rehner, and Fehrenbacher 1975), and

include mixed alluvial soils. The Sparta-Ade soils range from a fine sandy loam to a fine-textured sand, and occur on level to strongly sloping dune areas in the eastern portion of the facility. Most of these soils formed under a prairie vegetation and are excessively drained. The mixed alluvial soils are located in the low-lying western portion of the Depot.

2.1.2 Water Resources

The major water resource for the Savanna Army Depot Activity is the Mississippi River which runs to the southeast. Other potential water resources for the prehistoric inhabitants of the area include Apple River to the east, possible springs in bedrock outcrops along the bluffs, very small tributaries draining the uplands, and backwater lakes in abandoned channels. The lowlying western portion of the facility is situated on an active floodplain of the Mississippi River that is characterized by sloughs, marshes, and backwater lakes. Because of the construction of Lock and Dam numbers 12 and 13 in the area and also due to the absence of geomorphological investigations, it is unclear whether the present situation correlates with the prehistoric period.

2.1.3 Modern Climate

The climate of the Savanna area is continental, characterized by a wide seasonal temperature range and by irregularly distributed but relatively abundant rainfall (Ray, Rehner, and Fehrenbacher 1975; Wascher and Rehner 1966). The annual temperature range is an average of more than 110 degrees, from summer maxima ranging from mid-90°F. to 100°F. (32°C. to 38°C.) to winter record lows of about -15°F. to -26°F. (-26°C. to -32°C.). The average growing season is between 147 and 152 days.

The average annual precipitation is approximately 35 inches, ranging from 18 to 51 inches (46 to 130 cm.), with less than 28 inches (71 cm.) and more than 43 inches (109 cm.) recorded only about once in eight years. Two-thirds of the total yearly precipitation normally falls as rain from April through September. Major droughts are infrequent, but prolonged dry periods during the growing season are not unusual.

Some microclimates within the Savanna Depot Activity are very severe, characterized by high soil surface temperatures, low surface water supply, and lack of available plant nutrients (Curtis 1959:311). These areas support relict plant and animals more typical of the sand hills of Nebraska and Kansas, such as prickly pear, Plains pocket gopher, and prairie chicken (Hoffmeister and Mohr 1972; White 1978).

2.1.4 Plant Resources

The early nineteenth-century vegetation of the Savanna Depot Activity consisted of sand prairie (48 percent), xeric forest (8 percent), and floodplain forest (44 percent). These vegetation units were mapped by referring to the 1837 U. S. Government Land Surveys (n.d.). Boundaries within sections were drawn with the aid of topographic maps. Vegetation distribution is determined by edaphic factors, with sand prairie and

xeric forest occupying the high sandy terrace on the eastern part of the Mississippi River bottoms (Figure 2-1).

The sand prairie includes both xerophytic and swampy habitats, with the major plant community comprised of little bluestem and big bluestem, June grass, Indian grass, and porcupine grass (Schwegman 1973). "The most xerophytic prairies of the state occur in these sand areas, and . . .we have seen here the greatest representation of typically western plants" (Sampson 1921:548). Food resources here could include prickly pear cactus fruits, sumac berries, and ground cherries, but generally plant food resources would have been scarce in the sand prairie.

Along the eastern edge of the Depot there is an abrupt decrease in the depth of the sand, leaving a trough-like valley with a series of swamps interspersed with tracts of wet prairie at the base of the bluffs (Gleason 1910). Gleason's species list for this zone includes few edible plants.

At the time of initial Euroamerican settlement, the xeric forest consisted of widely spaced, well-grown white oak, black oak, bur oak, and some hickory, and was subject to degradation by burning. Hall and Ingall (1911:199) note that "the forest typical of this soil has a very light crown cover, and consists of small short trees of a generally scrubby appearance. . .where [the trees] have been. . .badly burned, the resulting sprouts from a dense stand of 'brush'." Plant succession following fires would have resulted in wide variability through time in the nut resources. Openings in the forest could have contained prairie resources.

The floodplain forest along the Mississippi River and on the islands consisted of silver maple, elm, pin oak, river birch, ash, and willow (Telford 1926; U. S. Government Land Surveys n.d.). In general, the floodplain forest would have been a poor source of plant foods.

Along the terrace margin adjacent to the floodplain, erosion by the river exposes bare sand which has blown into dunes. A thicket-type of vegetation had developed on the dune crests and down the lee side (Gleason 1910:139-145). Several economic species represented here include choke-cherry, plum, crabapple, sumac, hackberry, gooseberry, and grape. These species also could have occurred in blowouts on the terrace.

2.1.5 Animal Resources

A wide variety of animal resources would have been available on the Savanna Army Depot Activity, and the most economically important of these are listed in Table 2-1. These resources are likely to have been available there prehistorically as well. The sand prairie supported several animals with western affinities, including jackrabbit and Plains pocket gopher. In general, however, except for the late prehistoric bison, the fauna on the sandy terrace would have been of minimal economic significance (Griffin and Wray 1945).

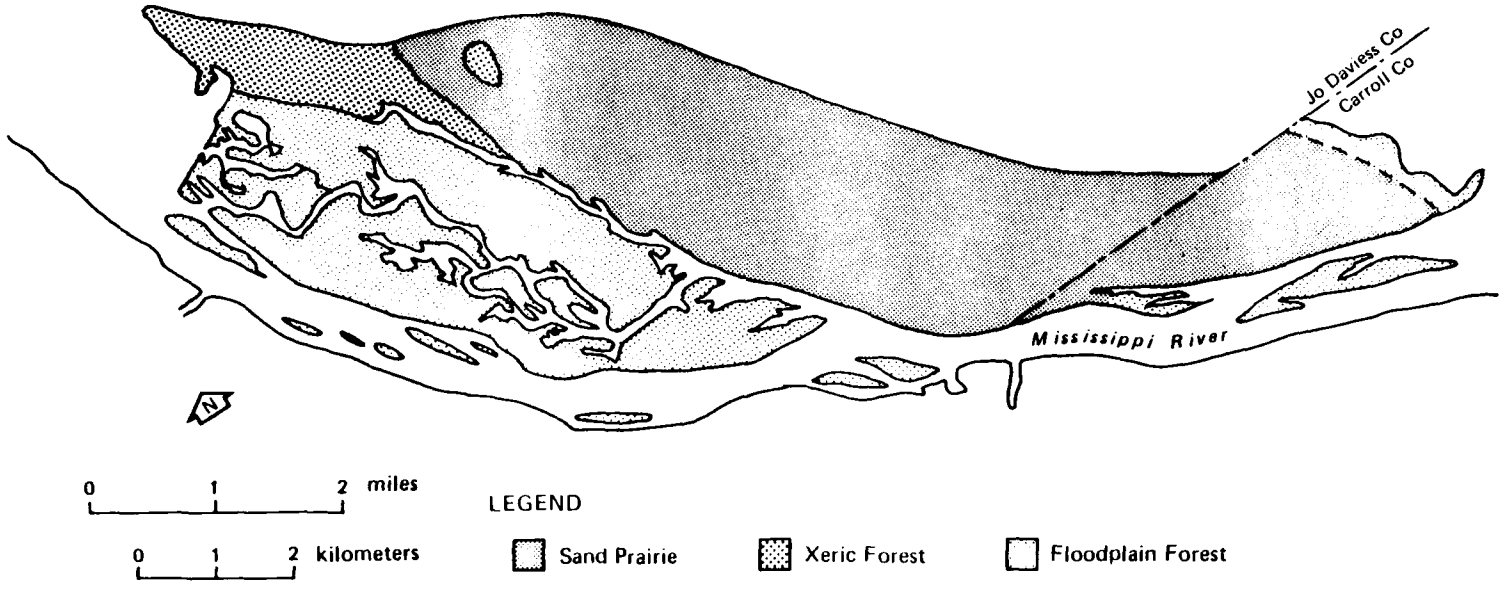


Figure 2-1. EARLY NINETEENTH CENTURY VEGETATION OF THE SAVANNA ARMY DEPOT ACTIVITY

Table 2-1. MODERN FAUNAL RESOURCES AVAILABLE ON THE SAVANNA ARMY DEPOT ACTIVITY

Habitat	Resource
Mississippi River and Sloughs	Fish (buffalo, catfish, bullheads, drum, shovelnose sturgeon, paddlefish, eel, northern pike, bass, crappie, walleye)
	Mussels
	Waterfowl (various)
	Turtles
	Beaver
	Muskrat
	Otter
Floodplain Forest and Forest Edge	Deer
	Elk
	Raccoon
	Turkey
	Bear
	Woodchuck
	Opossum
	Squirrel
	Eastern cottontail rabbit
Sand Prairie	Plains pocket gopher
	Prairie chicken
	White-tailed jackrabbit
	Reptiles (various)
	Bison (after AD 1000)

SOURCE: Barnickol and Starrett 1951; Bellrose 1968; Griffin and Wray 1945; Hoffmeister and Mohr 1972; Parmalee 1967; Smith 1961, 1979; Smith, Lopinot, and Pflieger 1971.

2.1.6 Paleoenvironment

Based on the investigation of pollen cores at the Woden Bog in north-central Iowa (Durkee 1971), Kirchner Marsh in southeastern Minnesota (Wright, Winter, and Patten 1963), and the Chatsworth Bog in east-central Illinois (King 1981), it is postulated that the spruce-dominated boreal forests of the Late Pleistocene began to be replaced about 13,000-15,000 BP by temperate deciduous forest (Table 2-2). With continued climatic warming, presumably with increased dryness, the mixed hardwood forest was replaced by oak-dominated forests and subsequently by prairie. The Savanna Terrace was above the level of the Mississippi River by about 13,000 to 12,000 BP (Flock n.d.; Hajic and Flock 1983). It is uncertain what plants would have colonized the raw sandy soil, but xeric forests in northern Wisconsin today provide an analog. There, pines may occur in nearly pure stands of a single species or in mixtures along with oaks, aspens, or maples. Once the sand prairie was established by 9000 to 8000 BP, the vegetation would have changed little in response to later climatic changes, as Bernabo (1981:156) observes that "The response of plant communities to changing climatic conditions can be greatly affected by local soil characteristics. . .the changes are less pronounced in the sandy regions."

After the Savanna Terrace formed, the lowlands between the terrace and the river may have been occupied by a northern boreal forest streamside community which Shelford (1963:120) describes as tamarack, willow, birch, alder, and poplar. A temperate deciduous floodplain forest similar to that present today would have been in place by 11,000 to 9000 BP (Table 2-2).

2.2 THE CULTURAL ENVIRONMENT

Table 2-3 presents an overview of the cultural chronology of the Savanna Army Depot Activity and surrounding region within a radius of approximately 100 miles (160 km). Approximately 2000 archeological sites are documented in northwestern Illinois; site types range from single activity loci to large village sites to mortuary areas. As five sites have been recorded within the southeastern portion of the facility, the potential is high for further archeological resources within the installation boundaries.

2.2.1 Prehistory

The area of the Savanna Depot Activity is generally included within the Northern Mississippi Valley archeological province (Bennett 1952). Its position at the southern margins of this area heightens the significance of the archeological material in understanding cultural distributions.

Four prehistoric traditions are recognized within northwestern Illinois: Paleo-Indian, Archaic, Woodland, and Mississippian. The Paleo-Indian Tradition (12,000 to 8000 BC) was characterized by low population density and dispersion into small, presumably seasonal or base camps.

Table 2-2. A SUMMARY OF POLLEN CORES REFERRED TO IN RECONSTRUCTING THE ENVIRONMENTAL HISTORY OF THE AREA OF THE SAVANNA ARMY DEPOT ACTIVITY

Durkee 1971 Woden Bog, north-central Iowa 315 km W		Wright, Winter, and Patten 1963 Kirchner Marsh, southeastern Minn. 400 km NW		King 1981 Chatsworth Bog, eastcentral Ill. 230 km SE	
Date[a]	Inferred Climate and vegetation	Date[a]	Inferred Climate and vegetation	Date[a]	Inferred climate and vegetation
7,500 BP-Present	Maximum dryness; prairie flora.	5,100 BP-Present	Moister climate; mixed oak forest.	8,300 BP-Present	Climate relatively stable; expansion of prairie onto dry uplands; forest cover in lowlands and river valleys.
9,000 7,500 BP	Warmer, drier climate; prairie gradually replaces deciduous forest.	7,100-5,100 BP	Maximum warmth and dryness; prairie and oak savanna or groves.		
10,500-9,000 BP	Maximum in warm, moist conditions; deciduous forest of oak-elm-hickory-basswood.	9,300 BP	Progressive drying. Mesic elm-ironwood-maple-basswood changes to oak.	10,600-8,300 BP	Increasing warmth and dryness; culmination of transition to oak-dominated deciduous forest; elm and ironwood reach a maximum while oak and hickory increase.
12,000-10,500 BP	Warming climate; spruce-fir, then pine, then birch and alder.	10,230-9,300 BP	Warmer climate. Birch and alder maximum, followed by pine maximum, ash and fir high.	11,600-10,600 BP	Increasing temperature; development of cool temperate deciduous forest with oak, hickory, maple uplands; birch, alder, elm, and ash on low wet areas. Some spruce and fir are still present as ash decreases, alder peaks, elm and oak increase.
		12,050 BP	Relatively dry & temperate climate followed by slight cooling; closed spruce forest with ash, larch, oak, birch, & other deciduous trees.	13,800-11,600 BP	Slowly increasing temperature; tundra on uplands, black ash expanded onto wet lowlands. Spruce pollen decreases dramatically.
		13,270 BP	Cool continental climate; open spruce woodland.		
				Before 13,800 BP	Late glacial climate; open spruce woodland and tundra.

[a] BP - years before present, with a present baseline of AD 1950.

Table 2-3. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF SAVANNA ARMY DEPOT ACTIVITY

Cultural Unit					
Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
American	Industrial	AD 1860 to present	Civil War era marks beginning of economic decline in region as miners depart for military service, southern ports are blocked, Illinois Central main line crosses Mississippi River at Dubuque, and many businesses are attracted to Chicago; agriculture dominates regional economy as farm production increases owing to technological/scientific advances; farm population decreases as individual farmholdings expand	Foundries, machine shops, monument works, factories, sawmills, lumberyards, flourmills, meat packing in earlier portion of this period; agribusiness and localized trade and services dominate at present; tourism in Galena since 1970s	English white ironstone ceramics, semiautomatic mold-blown bottles at beginning of period; Second Empire and Queen Anne architectural styles are dominant in 1880s; canning jars with metal rims and glass liners; dominance of American manufactured good after 1920; automatic machine-made bottles; decal-decorated ceramics; plastic disposable packaging
American	Homestead	AD 1824 to AD 1860	Keelboats and steamboats open region to settlers and commerce; Galena surveyed in 1826; Jo Daviess County organized in 1827; Savanna settled in 1828 (county seat until 1843); Carroll County, situated on southern edge of lead basin, organized in 1839; all properties in lead mining district leased from government; population of area burgeons as Native Americans are removed after Black Hawk War of 1832; newcomers mainly from New England and Middle Atlantic states after 1825 opening of Erie Canal; Savanna and Galena prosperous transportation and trading centers until advent of railroad; lead mining/smelting and steamboat industry dominate economy; government ends leasing policy and sells mineral lands in 1847	Lead mines and smelteries; steamboat industry; agriculture; gun and tin smithies; brickyards; sawmills; harness makers; breweries; meat packers; lumber and planing mills; flourmills; watchmakers; cigar factories; retail shops; hostelries	Log/post-and-beam structures during early part of period; balloon frame structures later; brick construction dominant in Galena after 1837 (Greek Revival, Gothic Revival, and Italianate are main architectural influences during this period); English ceramics - -pearlware followed by whiteware, blue and green shell edge, hand-painted, slipbanded; English flatware; hand-forged (early) to machine-cut (late) nails; hand-blown glass containers
American	Frontier	AD 1783 to AD 1824	Julien Dubuque establishes mining operation (ca. 1788) on both sides of Mississippi River at present-day Dubuque; Col. George Davenport, agent for American Fur Company, briefly operates trading post on Fever River ca. 1816; by Treaty of	Hunting, gathering, mining, trading, agriculture	Dugout shelters in hillsides; rude log structures; lead diggings and smelteries; metal knives, hoes, shovels, crowbars; sledgehammers; hand wrought nails; hand blown glass containers; kettle brass

Table 2-3. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF SAVANNA ARMY DEPOT ACTIVITY (continued)

Cultural Unit: Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
American (cont'd)	*Frontier*	AD 1783 to AD 1824	1816 all lands north of line drawn due west of southern extremity of Lake Michigan to Mississippi River, except lead mining district, granted to Ottawa, Chippewa, and Potawatomi; Illinois enters Union in 1818; in 1822 Col. James Johnson begins systematic exploitation of lead mines; semiannual migration of southern Illinoisans who labor in mines during summer; region occupied by fur traders, miners, (including black slaves), and Native Americans		
			Sauk induced in 1804 to exchange Illinois, Wisconsin and Missouri lands for goods/annuity but retain use of ceded lands until their sale by government; Winnebago and Menominee villages as well as Sauk and Fox communities in region	Agriculture, hunting, trading, mining and smelting	Villages with house remains; pit features; middens, European trade goods such as hoes, axes, shovels, crowbars, guns, brass kettles, knives, silver ornaments, glass beads
Colonial	European Competition	AD 1740s to AD 1783	Traders from Montreal and Albany, French voyageurs, and emissaries of Pennsylvanian trader, George Croghan, compete for Native American trade; interior trade diverted to Spanish posts of St. Genevieve, St. Louis, and New Orleans; Treaty of Paris (1763) cedes territory east of Mississippi River to British; following British abandonment of wester posts, traders pour into region and peltry again moves toward Montreal; lead becomes second most valuable export serves as currency; intercolonial competition for western land accelerates; George Rogers Clark's expedition (1778) overwhelms British posts in Illinois; Treaty of 1783 cedes country east of Mississippi River to United States	Hunting, gathering, mining, trading, subsistence agriculture	Small temporary log structures; cache pits; lead diggings; gunflints; metal knives; hand-blown glass containers; hand-forged nails; kettle brass; faience earthenware; English salt-glazed and creamware ceramics (early); English creamware and pearlware (late)

Table 2-3. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF SAVANNA ARMY DEPOT ACTIVITY (continued)

Cultural Unit					
Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
Colonial (cont'd)	European Competition	AD 1740s to AD 1783	Fox and Sauk permanent summer villages and winter hunting campsites; Winnebago traders' temporary campsites	Hunting, gathering, agriculture, trading, mining	Villages with house remains; pit features; middens; stone and buckhorn tools; European trade goods such as guns, brass kettles, metal knives and axes, silver ornaments, glass beads
Colonial	Early Exploration	AD 1673 to AD 1740s	Jolliet/Marquette descent of Mississippi River (1673) passes mouth of Fever (Galena) River and bluffs of present-day Savanna; successive French explorers and traders learn of lead deposits from Native Americans; Hennepin's map of 1687 depicts lead mine in Galena area; LeSueur (1700) may be first European to visit Fever River; limited mining by French and Native Americans.	Hunting, fishing, gathering, trading, mining	Temporary campsites; cache pits; mining activity sites; hand-blown glass containers; faience ceramics; glass beads; kettle brass; iron knives; gun parts and flints
			Miami of the Maramek along the east bank of Mississippi River until ca. 1700; Fox and Sauk occupy both sides of Mississippi River; permanent summer settlements in river bottoms with gardens nearby and graveyards on adjacent higher ground; winter hunting camps	Hunting, fishing, gathering, agriculture	Permanent summer villages; special activity camp; stone and buckhorn tools; European trade goods such as brass kettles, guns, metal knives and axes, glass beads, and silver ornaments
Mississippian[a]	Apple River focus[b]	AD 700 to contact	Increased population and sedentism	Aquatic and riparian food sources exploited; corn, beans and squash cultivated	Increased ceramic complexity with shell temper and diverse decorative styles; columnella shell pendants, Trippet Red Filmed Incised pottery, snub-nosed scrapers and unnotched triangular points common; material culture indicates ties to both Upper and Middle Mississippi sites
Woodland[a]	Late Chapman focus[c] -Effigy Mounds culture	AD 400 to AD 700	Dispersed settlement patterns; effigy and burial mounds common	Broad spectrum of wild foodstuffs utilized; corn, beans and squash play a minor role	Diverse ceramic styles, small triangular points; sharp decrease in Hopewell Interaction Sphere items

Table 2-3. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF SAVANNA ARMY DEPOT ACTIVITY (continued)

Cultural Unit					
Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
Woodland[a] (cont'd)	Middle -Nickerson focus[b]	200 BC to AD 400	Population increase with small seasonal or base camps, habitation sites, earthwork, and mortuary-related sites located in full spectrum of ecological zones	Dependence on cultivated plants (starchy and oily seeded species: squash, bottle gourd); hunting (particularly deer); gathering of wild plants; trade in exotic items	Habitation sites with variable number of structures and pit features, large mortuary related sites including mounds, charnel houses, habitation areas; small seasonally occupied sites dependent on available plant and animal resources; Hopewell Interaction Sphere items, Havana and Hopewell ceramics; Baehr, Weaver ceramics, corner notched and stemmed projectile points
	Early	1000 BC to 200 BC	Small seasonal or base camps with possibly increased sedentism; villages; mortuary sites and burial mounds	Hunting and gathering; increased reliance on plant resources	First evidence for ceramic technology; stemmed and side notched points; increased evidence for mortuary behavior
Archaic	Late	2000 BC to 1000 BC	Small seasonal or base camps with increased exploitation of locally occurring resources, particularly aquatics; shell mounds; sites located throughout uplands, terraces and levees; mortuary related sites possible in mound on bluffs bordering river valleys	Hunting and gathering of small game animals; utilization of nut and aquatic resources in a cooler, moister environment	Lithic scatters with a variety of projectile points; ground stone; general purpose tool kits; heavy concentrations of artifacts possible in some locations
	Middle	6000 BC to 2000 BC	Slightly greater population located in small seasonal or base camps in riverine and forest areas; decreasing mobility	Hunting and gathering of small game animals; increased utilization of aquatic and nut resources in a warmer, dryer environment	Lithic scatters with side-notched points common; ground stone common
	Early	8000 BC to 6000 BC	Small seasonal or base camps in riverine and forest areas; probably semi-permanent or repeatedly-occupied special activity sites and utilization of rock-shelters increased; isolated burials and open campsites are found in addition to Paleo Indian site types	Hunting and gathering of smaller game animals, i.e., deer, elk; more diversified economy; increased use of vegetal foods; exploitation of more local resources during Hypsithermal	Lithic scatters with ground stone, side-notched and stemmed points, side-notched scrapers; utilization of local cherts

Table 2-3. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF SAVANNA ARMY DEPOT ACTIVITY (concluded)

Cultural Unit					
Tradition	Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
Paleo-Indian	--	12000 BC to 8000 BC	Low population density located in small seasonal encampments or base camps	Utilization of megafauna (mastodon, mammoth, bison, muskox, giant beaver) and smaller animals; gathering	Diagnostic projectile points include large fluted points and large, unfluted lanceolate points; points may occur as isolated finds

[a] Dates from Berres (n.d.)

[b] Bennett 1945, 1952.

[c] Bennett 1952.

Economic pursuits included hunting of Pleistocene megafauna; however, use of smaller game animals and gathering of wild plant foods were also important. Isolated Paleo-Indian projectile points have been found on the surface throughout southern Wisconsin and northern Illinois (e.g., Stoltman and Workman 1969). The presence of the Savanna Terrace which formed between 13,000 and 12,000 BP suggests that cultural remains dating as early as Paleo-Indian could be buried within these deposits.

The Archaic Tradition dating to between 8000 and 1000 BC is divided into three phases or periods: Early, Middle, and Late. All are characterized by population increases, with site types consisting of small seasonal or base camps and semi-permanent or repeatedly occupied special activity sites. During the Late Archaic (2000 to 1000 BC), mortuary sites occurred on bluffs bordering river valleys. Hunting of small animals and gathering of wild plant continued with an increased use of vegetal foods, especially nuts, and aquatic resources. Archaic sites are not well-documented in the study region, but could occur in stable buried deposits such as the Savanna Terrace.

The Woodland Tradition (1000 BC to AD 700) is characterized by the first evidence of ceramic technology within Illinois. Its Middle and Late manifestations are well-represented in the Depot study region. Little still is known about the Early Woodland (1000 to 200 BC) in this area. These people were apparently hunting and gathering populations living in seasonal or base camps and villages, and mortuary-related behavior appears to have increased elsewhere during this period. Because of the rarity of these early sites and because of the increased technological advances evident during this time period, any Early Woodland sites found in the Depot area would be important. Even though the economic importance of wild plants and animals continued throughout the Woodland period, cultivated species such as starchy and oily seeded species, squash, and bottle gourd were introduced during the Middle Woodland period, and maize, beans, and squash played a minor economic role during the Late Woodland. In addition, the Woodland Tradition is characterized by increased trade (including galena), ceremonialism and mound building, particularly during the Middle Woodland. This period is characterized as the Hopewell tradition of burial mounds and distinctive pottery, and in the Savanna area this period has been classified as the Nickerson Focus (Bennett 1952). The Jd-9 site on the Savanna facility (see Section 4.0) dates to Middle Woodland, and any site of this time period on the facility is very important because it affords investigation into the apparent increase of social, economic, and religious complexity. Increased population and sedentism characterize the Mississippian Tradition (AD 700 to contact), and aquatic and riparian food resources were used along with cultivated maize, beans, and squash. Increased social complexity is evidence in the artifactual assemblages and village and mortuary plans. This period is represented on the Depot by Ca-1, the Savanna site, an important site whose materials have been used to define a regional Apple River Focus (Bennett 1945). This complex is critical to

the scientific understanding of the relationship between the Middle Mississippian Cahokia complex some 200 air miles south of Savanna (modern East St. Louis) and the Aztalan complex of southern Wisconsin (100 air miles northeast of Savanna) or, more broadly, to the general prehistoric sequence of the Northern vs. Central Mississippi Valley materials.

In sum, any sites of the Woodland-Mississippian traditions remnant on the Savanna Terrace would be important, and several are now known to exist there and thus require further evaluation (Section 4.0).

2.2.2 Ethnohistory

The tribal territories of the northern portion of Illinois were not constant through time because of tribal dislocation due to inter-tribal hostilities (Fowler and Hall 1978:568). The Savanna facility is located immediately north of the area occupied by the Illinois Indians. In the 1600s the Indian in northwestern Illinois were the Algonquin-speaking Miamis of Maramek (Bauxar 1978; Goddard 1978). Continually harassed by the Sioux to the north, after 1700 the Miamis moved to the east side of the Wabash River.

Sites of this period consist of summer agricultural villages and winter hunting camps. Permanent summer villages probably were situated in river bottoms with gardens nearby and burial areas on adjacent higher ground (Callender 1978a:637). Specialized activity sites include small hunting/trapping camps, kill and butchering stations, and lead digging areas.

There is no known specific documentation of any village or other historic Native American site in the project area or its immediate vicinity. There is the possibility that archeological remains of such sites exist, but if so they have yet to be discovered and recorded.

2.2.3 History

The Colonial and American traditions comprise the historic period. The Colonial Tradition is divided into two periods: Early Exploration and European Competition. French explorers, notably Jolliet and Marquette, visited the northwestern corner of Illinois during the Early Exploration Period (AD 1673-1740s) and came into contact with various Indian tribes. In 1673 Marquette and Jolliet passed the mouth of the Galena River and the bluffs of present-day Savanna. Remains left by early explorers would be minimal, such as deposits of trash accumulated around briefly-occupied campsites, and the likelihood is low of finding and identifying any such campsite. However, Euroamerican materials of this period might remain in seventeenth-century Native American camps on the Savanna Terrace (Billington 1960:105).

French hegemony in the North American interior was challenged by the British during the European Competition Period (AD 1740s-1783). As a

result of the Treaty of Paris (1763), France ceded virtually all territory east of the Mississippi River to Great Britain, thus opening the Mississippi Valley to Euroamerican settlement (Billington 1974). At the conclusion of the Revolutionary War (1783), the territory east of the Mississippi River passed into American control. The increasing numbers of traders in the Mississippi Valley may be reflected in the remains of short-term campsites and semi-permanent trading centers, as well as in the lead mines and the veins of galena that stripe the rocky outcroppings of present-day Jo Daviess and northern Carroll counties around the Depot. Native Americans probably were in the vicinity and were increasingly engaged in mining lead, which rivaled pelts as an article of trade (Johnson 1977; Thwaites 1895:271, 280). There is no extensive documentation of Illinois or Kickapoo Indian residence around the Savanna area in the late 1700s but they were likely there. Summer agricultural villages, temporary hunting campsites, and lead mining activities would comprise the archeological evidence which may remain on or near the Depot.

The early part of the American Tradition is referred to as the Frontier Period (AD 1783-1824). This period began with the post-Revolutionary war settlement of the Illinois lands, and included the enactment of a federal leasing policy governing mineral lands (1807) and the beginning of systematic exploitation of mineral wealth in northwestern Illinois (Billington 1974; Johnson 1977; Thwaites 1895). Each year southern Illinois farmers migrated to the minefields following spring planting, and remained there until the harvest season (Johnson 1977:6). Their shelters were crude, often dug out of the hillsides. There may be manifestations of mining and trading campsites in the study area from the Frontier Period, though it is unlikely that they retain depositional integrity.

During the Homestead Period (1824-1860), the Erie Canal opened and additional settlers moved west to Illinois, the threat of Indian hostilities lessened, and technological advances were made in mining and smelting. These resulted in an increased number of settlers in the area (Johnson 1977:13, 21). The first settlement in what is now Carroll County began with the 1828 establishment of the town of Savanna in its present location, and Savanna grew to become a prosperous river trading center. The general area should manifest archeological evidence of mining operations, individual farmsteads, cemeteries, and clusters of residences, retail and craft shops, mills, schools, and churches.

During the Industrial Period (AD 1860-Present), communities in the northwestern corner of Illinois had already passed the zenith of their commercial-industrial development (Johnson 1977:72, 77). During the Civil War era, miners filled the military ranks and southern ports closed to river commerce (Johnson 1977:124-126). Railroads supplanted rivers as the major transportation network. Advances in the mechanization of agriculture led to the consolidation of small farms into larger ones with a concomitant reduction in farm population. Agribusiness began to dominate the regional economy, which should be evidenced in the archeological record. The Savanna Ordnance Depot was established in 1917 on lands

previously used for farming or stock raising. No towns or villages existed on the property now within Depot boundaries; however, 43 farmsteads were located on the facility. Farms at this time averaged around 150 acres and raised corn and other grains, beans, and livestock (Ray, Rehner, and Fehrenbacher 1975:8). All but three early nineteenth-century dwellings have been razed. The remaining buildings are the "Old Stone House," sited at its original location, and two farm dwellings relocated to the lower post area and maintained as family housing quarters, Buildings #6 and #7 (Charles Primm, personal communication 1983). However, a new set of historic archeological resources have been created through the construction of the Depot facilities. Those more than fifty years of age are old enough to be eligible for protection under existing preservation statutes, while the others constitute an important cultural resource that will deserve conservation management in the future. Savanna personnel should also consult the Illinois SHPO for current RP3 prehistoric and historic study areas that may be applicable to their facility.

2.3 ARCHEOLOGICAL RESEARCH DESIGNS

The Illinois Department of Conservation, Division of Historic Sites, has completed an interim archeological preservation plan for the state of Illinois (Downer et al. n.d.). As of March 1979, both Jo Daviess and Carroll counties lands were essentially unsurveyed for archeological resources. Both counties were ranked in the top 52 percent of counties needing survey, as based on projected population growth and lack of existing data. A regional summary of previous cultural resources investigations was prepared by Billeck and Benchley (1982).

Even though archeological work within northern Illinois has been ongoing since the late 1800s, the data base is generally inaccessible due to limited publication distribution or inclusion in state or organization files with no further detail. Also, surveys conducted within this area have tended to investigate major river valleys and to locate large sites or mounds; thus, a representative sample of site types and locations is not known (Billeck and Benchley 1982:4).

A predictive model for site location in the Rock River area to the east of the Savanna facility concluded that dissected upland settings such as the Savanna Army Depot Activity and adjacent areas have an extremely high probability of possessing prehistoric sites (Benchley et al. 1981; see also Billeck and Benchley 1977; Fowler and Birmingham 1975, 1976).

Archeological sites dating to all prehistoric and historic time periods have been recorded in this portion of northern Illinois. These include Paleo-Indian, Archaic, Woodland, Mississippian, ethnohistoric, and historic sites (Billeck and Benchley 1982).

Paleo-Indian research in the area has been sporadic because of the

isolated nature of the archeological remains. The occurrence of isolated Paleo-Indian artifacts in southern Wisconsin and northern Illinois and the presence of the Savanna Terrace deposits on the Depot suggest that Paleo-Indian remains may yet be found on the facility.

During the Archaic period, it appears that the distribution of grasslands expanded in northwestern Illinois. Archaic hunters and gatherers may have responded by abandoning upland regions and locating sites in floodplain areas; evidence of such adaptations may be retained in archeological sites on the Savanna facility. In addition to changes in settlement location, resource exploitation, and mobility, later Archaic peoples participated in more visible mortuary behavior and trade, particularly as it involved copper. These patterns were elaborated and intensified during the post-Archaic Woodland and Mississippian traditions. Investigations of regional Archaic sites can provide a baseline against which to analyze later changes in prehistoric patterns of resource exploitation and in other religious, economic, and social behavior.

One of the major research questions relating to Early Woodland sites is the development and effect of ceramic production on other prehistoric cultural systems. In addition, cultural-ecological adaptations and social and religious patterns previously evident during the Archaic seem to be intensified. It has been postulated that Early Woodland people lived in semi-permanent villages or hamlets and used the natural resources according to a wide, seasonal round of exploitation, possibly as far south as central Illinois (Munson 1982). Middle Woodland sites located in Illinois were related to a larger socio-religious-political unit known as Hopewell. Northern Illinois is between the major Hopewell heartland in Ohio and the periphery of Hopewell occupation in Wisconsin, Minnesota, and Iowa, and may be critical in understanding interactions between these two major areas. In addition, there was an apparent increase in mortuary-related behavior (i.e., burial mounds) during the Middle Woodland. This is manifest on the Savanna Army Depot Activity by site Jd-9, which is reported to have included 14 mounds (see Section 4.0). Further, corn, squash, amaranth, and chenopod horticulture occurred during the Middle Woodland in surrounding areas, and its effects on the sites of this region is an important research consideration that might be able to be addressed on the Depot.

During the Late Woodland period economic and social changes are apparent in the present archeological record. These consist of the increased use of aquatic resources and seeds, and a decrease in artifactual and social complexity. Investigations of any such sites present in this region may be critical in understanding the transition between Middle Woodland cultural complexity and succeeding Mississippian developments.

The height of prehistoric complexity in the central Midwest was reached in the Mississippian period. Permanent Mississippian towns are known from southern Wisconsin and east-central Illinois, and the known

artifact collections indicate that there was interaction between these areas. Again, the intermediate position of the facility and the presence of Mississippian sites on the Depot (see Section 4.0) may be critical in understanding the relationship between Aztalan and Cahokia, major Mississippian towns to the north and south respectively.

Contact with early traders and trappers produced a profound change in the social, political, and economic adaptations of Native Americans in the region in the seventeenth and eighteenth centuries. As a result of these early explorations and later settlements, disease, trade goods, and different economic pursuits were introduced. In addition, inter-tribal hostilities may have been accentuated. The relationship between early Euroamericans and Native Americans may be examined within the Savanna area. Proto-historic or early historic Native American sites are as yet undocumented in the Depot vicinity, but may be present.

Historic archeological research can be extremely varied. Major questions for regional investigation may include the following: the impact of early trapping and trading on Native American populations and on European political rivalries; the use of rivers and later of railroads for transport, and its effect on surrounding industry and populations; the early settlement of the area and subsequent economic changes resulting from technological advances in agriculture and mining; and the effect of decreased mining activity on the area and the development of Savanna as a modern commerce center.

3.0
AN ASSESSMENT OF ARCHEOLOGICAL RESOURCE PRESERVATION AND SURVEY ADEQUACY

In any region, environmental and historic constraints may limit the preservation of archeological sites. These are considered in this chapter, along with previous cultural resource investigations, assessment of the adequacy of data collection, and documentation of gaps in data.

3.1 ENVIRONMENTAL CONSTRAINTS TO SITE PRESERVATION

The floodplain forest in the western portion of the facility consists of a myriad of sloughs and is subject to periodic innundation, so burial of archeological sites would probably have occurred in this area. Also, re-working of materials along old abandoned river channels of the Mississippi would have occurred as the channel moved. Finally, reworking of low-lying flood basin sediments would have occurred as secondary flood basin channels moved. In short, the potential for past and continual natural impact on the physical integrity of archeological resources in the floodplain is high.

The sand prairie portion of the Savanna Depot Activity is subject to cycles of active dune formation, resulting in both burial and exposure of archeological resources. Few preservation constraints are likely to exist in the eastern portion of the Depot.

3.2 HISTORIC AND RECENT LAND USE PATTERNS

Nearly 75 percent of the Savanna Army Depot Activity (excluding the sloughs) has been impacted by modern construction of some sort. Table 3-1 presents a summary of the major areas of ground disturbance, along with their associated area, ratio of disturbed to total area, and location. Figure 3-1 depicts these ground disturbance areas. Approximately 4500 acres are covered with buildings; additional areas have been disturbed by landscaping and other surficial modifications. The ratios of disturbed to undisturbed area are based on the type of disturbance, the concentration of building activity within the ground disturbance area, and the function of the areas. Building complexes related to laboratories, liquid propellant storage, smokeless powder storage, igloo storage E and F, ammunition magazine 1000s, high explosives, and burning grounds were coded as having 0-25 percent disturbance. The administrative complex, storage area and load lines, inert warehouse (5), powder

Table 3-1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE SAVANNA ARMY DEPOT ACTIVITY

GDA No.	Type of Disturbance	Date Conducted (yr)[a]	Reference[b]	Area Disturbed (acres)	Estimated Depth Below Surface (ft)[c]	Ratio of Disturbed to Total Area[d]	Location of Disturbed Area						
							UTM[e]		Legal Reference			USGS Quad Map[f]	Coincidental Sites[g]
							Northing	Easting	Township	Range	Section		
1	100s: Administration, maintenance	1918 to 1957	FM	134	1-10	2:3	4673300 4673040 4673580	726980 727560 727750	25N	2E	2	B753 G753	Ca-3 (P)
2	400s - 200s: Warehouses and Troop Facilities	1918 to 1942	FM	119	1-12	9:10	4674620 4673600 4674120	727020 727800 727950	25N	2E	2	B753 G753	
3	600s: Storage area, load lines	1940 to 1952	FM	61	1-8	2:3	4674000 4674200 4674460	726320 725460 725600	25N	2E	2	G753	
4	700s: Load lines	1941 to 1954	FM	132	1-3	2:3	4673840 4673960 4674920	725100 724580 724700	26N 25N	2E 2E	33 4	G753	
5	500s and 900s: Inert Material warehouses, storage, disposal	1941 to 1956	FM	23	1-10	2:3	4673300 4673550 4673700	726640 726280 725460	25N	2E	3	G753	
6	900: Inert Material Warehouse	1941	FM	56	1-3	1:1	4674940 4675740 4675820	725400 724100 724160	26N 26N	2E 2E	33 34	G753	
7	800: Change house, storage and maintenance buildings	1957	FM	28	3	1:3	4674300 4674600 4674680	724120 724020 723600	26N	2E	33	G753	
8	932, 933: Ammunition consolidation and shipping	1956	FM	2	0-10	9:10	4675300	723680	26N	2E	33	G753	
9	J300s: Storage	1957	FM	9	3	1:3	4674920	722860	26N	2E	32	G753	36 (H)
10	D100s and D200s: Smokeless Powder Magazine	1941	FM	79	3	1:3	4676000 4677000 4677280	723440 722220 722200	26N 26N	2E 2E	32 29	G753	

Table 3-1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE SAVANNA ARMY DEPOT ACTIVITY (continued)

GDA No.	Type of Disturbance	Date Conducted (yr)[a]	Reference[b]	Area Disturbed (acres)	Estimated Depth Below Surface (ft)[c]	Ratio of Disturbed to Total Area[d]	Location of Disturbed Area						
							UTM[e]		Legal Reference			USGS Quad Map[f]	Coincidental Sites[g]
							Northing	Easting	Township	Range	Section		
11	D301-2: Powder Magazine	1939	FM	2	3	2:3	4677500	722100	26N	2E	29	G753	
12	E: Igloo Storage	1939 to 1941	FM	1190	3	1:3	4675240 4677280 4677360	723260 721980 719400	26N 26N	2E 1E	29-32 251	G753	Jd-9 (P) Jd-119, (P) 24,31,32,33 (H)
13	A: Ammunition Magazine	1941	FM	170	3	2:3	4677700 4677780 4679460	721800 721900 720300	26N	2E	19,29, 30	G753	
14	A 1000s: Ammunition Magazine	1940 to	FM	500	3	1:3	4677440 4679480	720380 718880	26N 26N	2E 1E	19, 30 24	G753	27, 28, 29, 30, (H)
15	B-C: High explosive and Standard magazines, burning grounds	1921 to 1930	FM	415	6	1:3	4677500 4680120 4680160	719400 718700 718200	26N 26N	1E 1E	13, 14 23-26	G753	13, 14, 16, 17, 19, 20 (H)
16	F: Igloo storage	1942	FM	612	1-3	1:3	4679850 4681320 4681780	719900 718340 716680	26N	1E	11, 13,	G753 H768	7,8 25 (H)
17	2200s: Ammunition Disassembly Plant	1941 to 1956	FM	.7	1-10	2:3	4681440	715350	26N	1E	10	B768	
18	2200s: Ammunition washout facility	1941 to 1956	FM	6	10	2:3	4682420	715680	26N	1E	10	B768	
19	Pool 12	post-1937	FM	940	10	1:1			26N	1E		B768	

[a] Range of dates presented

[b] Facility Map (FM); Master Plan Basic Information Maps, Drawing No. MPB-5003, Sheets A-H (on file at Savanna Army Depot Activity)

Table 3-1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE SAVANNA ARMY DEPOT ACTIVITY (concluded)

[c] Minimum and maximum depth presented. In all cases with range of values, the majority of the depth of disturbance is toward the minimum value

[d] Ranges of values were recorded; however, only the maximum value is presented

[e] UTM = Universal Transverse Mercator coordinates, Zone 15. If the area is less than 10 acres in extent, the coordinates record the approximate center of the site. If it is larger, they record the corners of a 3-or-more sided figure than encloses the site. Coordinates have been calculated specifically for this study by CAA.

[f] B753 = Blackhawk, IL-IA, 7.5 min. quad (1953, photorevised 1975); G753 = Green Island, IA-IL, 7.5 min. quad (1953, photorevised 1975); H768 = Hanover, IL, 7.5 min. quad (1968, photorevised 1975); B768 = Bellevue, IL-IA, 7.5 min. quad (1968, photorevised 1975)

[g] Prehistoric site (P); historic site (H)

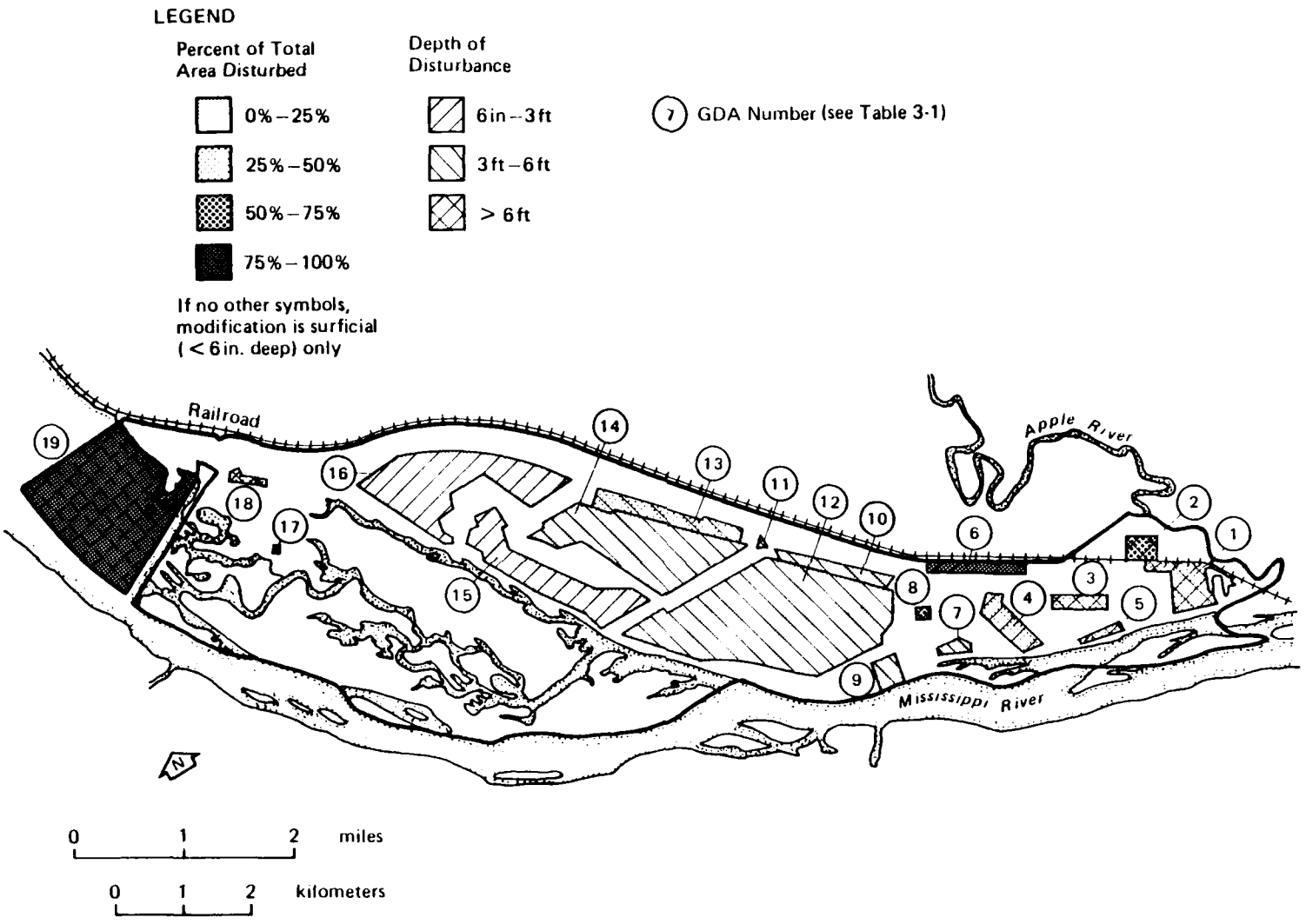


Figure 3-1. A MAP OF AREAS OF HISTORIC AND/OR GROUND DISTURBANCE THAT MIGHT LIMIT PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE SAVANNA ARMY DEPOT ACTIVITY

magazine, ammunition magazine, and ammunition disassembly and washout were coded as 25-50 percent disturbed. Warehouses and the ammunition consolidation and shipping complex were coded as 50-75 percent disturbed, while the inert material warehouse (6) and Lock and Dam pool number 12 were coded with the maximum amount of disturbance, 75-100 percent.

As Table 3-1 shows, the depth of ground disturbance varies across the facility. Most of the ground disturbance on the Savanna Army Depot Activity is surficial or very shallow (less than three feet), although depths of disturbance up to 12 feet are recorded in GDAS 1, 2, 5, 8, 17, 18, and 19, and GDA 15 has six feet of fill.

3.3 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS: COVERAGE AND INTENSITY

Work in the immediate vicinity of the Depot consists of early investigations by W. B. Nickerson (n.d.; Bennett 1945) and the University of Chicago (Bennett 1945). These early investigations placed primary emphasis on mound groups and on large village sites. More recent work in the area consists of the Illinois Archaeological Survey's Historic Sites Survey (Fowler and Birmingham 1975, 1976) on the Rock River approximately 40 air miles to the southeast of the Depot, and preliminary testing of the Apple River site, a Mississippian site (Edging, Meinholz, and Berres 1982) approximately 5 air miles to the northeast.

Work conducted on the facility has also been biased toward specific types of sites and consequently specific time periods. The five sites known to exist on the facility were located through survey with at best sporadic coverage. No information is available as to the exact location of lands surveyed. Three of these sites have been tested. Adams (1932) excavated ten test pits in Ca-1 and recovered three lithic pieces and 521 ceramic sherds. Based on the artifactual assemblage, Adams (1932) assigned the site to the Mississippian tradition. Nickerson (n.d.; Bennett 1945) tested Jd-9 prior to 1900. Lithics, ceramics, ground stone, and a human burial were uncovered. Finally, Adams -- and possibly also Nickerson -- tested a portion of Jd-119 by extensive trenching. Ceramics dating to the Mississippian period were recovered. However, no further information regarding this site is available. The current condition of all five of these sites is unknown; however, Ca-3, Jd-9 and Jd-119 do overlap with areas of modern ground disturbance (see Table 3-1). In addition, the location of Nickerson's early collections is currently unknown. Attempts at locating the Nickerson collections for purposes of this report have been unsuccessful. They are not curated at the Illinois State Museum or the University of Chicago, but may be located at the Peabody or Milwaukee Public Museums, or the Minnesota Historical Society. However, copies of Nickerson's field notes are available at the Illinois State Museum. No information is available as to the current repository or condition of the human burial.

In sum, the amount of archeological investigation conducted on the facility is extremely small, with previous investigations being spotty and undocumented.

3.4 SUMMARY ASSESSMENT OF DATA ADEQUACY, GAPS

No formal archeological investigations have been conducted on the Depot. Five sites are known to exist; however, little or no information about these is available because of the lack of systematic survey, excavation, and documentation. Given the number and kinds of sites recorded within the area, it is expected that archeological resources exist within the facility borders. However, these resources may have been impacted by natural forces. Thus, little or no information regarding the sites is available for the number and kind of archeological sites and the integrity, extent, depositional context, and function of the five known prehistoric sites. Additionally, no detailed assessment of the paleoenvironment and the potential for buried cultural deposits has been initiated. Finally, no known historic sites are documented on the facility, yet 43 potential historic sites exist. A HABS/HAER survey to assess the historic military potential of the facility has been completed, but the status of the report is unknown (William Brenner, personal communication 1983).

4.0

KNOWN ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY

Five known prehistoric archeological sites exist on the Savanna facility (Tables 4-1, 4-2 and 4-3). Potential historic resources on the facility are summarized in Table 4-4. Locational data for known and potential sites are in Appendix A.

The most appropriate classificatory scheme for the Savanna facility prehistoric sites is chronological, and places sites into traditions and phases, based on inferred time period associations. A tradition is a cultural class which "...displays an extensive distribution in time and a limited distribution in space"; a phase is "a paradigmatic class of occupations defined by types and/or modes" (Dunnell 1971:202).

All five prehistoric sites recorded on the installation appear to date from middle to late prehistoric times. Three sites (Ca-1, Ca-2, and Jd-119) are probably associated with the Mississippian Period (AD 700 to contact); one (Jd-9) is associated with the Woodland Period in general and possibly Hopewell (200 BC to AD 400); and the last recorded site (Ca-3) cannot be assigned to a specific time period. Sites Jd-9 and Jd-119 contain burial mounds; sites Ca-1 and Ca-2 seem to be camp sites or small habitation areas, but little is known about Ca-3. The research value for four of the sites is high because of the potential for containing further information.

During the Mississippian period the degree of social, religious and economic complexity increased. The Savanna Mississippian sites may provide information in this regard. In addition, the single Middle Woodland site is rated with a high research value because of the potential investigation of domestication of plants, trade, and socio-religious patterns. As stated in 3.4, the lack of systematic survey, excavation, and documentation mean that there is little information regarding these sites, so the confidence rating associated with them is only moderately reliable.

No historic archeological sites have been recorded on the Savanna Depot property. Sites shown on the nineteenth and twentieth-century platbooks are listed as potential resources; most -- possibly all -- of these sites date to the American Tradition (AD 1783 to Present). This tradition encompasses the establishment and development of Euroamerican culture during the Frontier, Homestead, and Industrial periods. No towns, stores or public buildings are present, but 43 potential historic

Table 4-1. PRESENTLY IDENTIFIED ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY: ADMINISTRATIVE DATA

Site Number[a]	Site Recorder[b]	Date of Site Record[c]	SHPO Survey Number	Site Record Repository[d]	Survey Collection Policy[e]	Current Status of Investigation[f]	NRHP Status[g]	State, Local Status	Architectural Association	Bibliographic Reference
Ca-1	ISM	1932	None	ISM	CD	REF, T	INSF	None	None	Adams 1932 Bennett 1945: 150-152 IAS n.d.
Ca-2	ISM	1932	None	ISM	NR	REF	INSF	None	None	IAS n.d.
Ca-3	ISM	NR	None	ISM	NR	REF	INSF	None	None	IAS n.d.
Jd-9	Nickerson; Bennett; Bluhm	1898-99; 1945; 1957	None	ISM	CD	REF, T	INSF	None	None	Nickerson n.d. Bennett 1945 IAS n.d.
Jd-119	ISM	NR	None	ISM	CD	REF, T	INSF	None	None	IAS n.d.

[a] Site numbers are from *Illiinois Archaeological Survey n.d.* (IAS n.d.) files; the Savanna site, $Ca^{V}1$, $Jd^{V}3$, and $Ca^{V}226$ (Adams 1932), are all synonyms for Ca-1; Jd431-444 are ISM mound sites collectively known as site Jd-9 (IAS n.d.); Jd486-488 are ISM sites collectively known as site Jd-119 (IAS n.d.).

[b] (ISM) Illinois State Museum; Nickerson, see Nickerson n.d.; Bennett, see Bennett 1945; Bluhm (Elaine Bluhm), see IAS n.d.

[c] Not recorded (NR)

[d] Illinois State Museum (ISM)

[e] Survey collection policies vary widely, toth on a site-to-site basis within a single survey project as well as among different surveys. Collection policies of the surveys identified here were to collect diagnostics without mapping (CD); or were not recorded (NR).

[f] Levels of archeological site investigation to date, and current site status, include filing of an inventory record (REF), and testing (T).

[g] INSF = insufficient information available by which to make a judgement as to the site's National Register of Historic Places (NRHP) status.

Table 4-2. PRESENTLY IDENTIFIED ARCHEOLOGICAL COMPONENTS ON THE SAVANNA ARMY DEPOT ACTIVITY: DESCRIPTION AND EVALUATION

	Unit Age				Unit Description							Evaluation			
	Date[b]		Temporal Unit						Dimension[e]						
Site Number[a]	DM	Years BC/AD	Tradition	Phase (Period)	Artifacts[c]	Features[d]	Depositional Context	Landform	Area (m^2)	Depth (m)	Ascribed Function	Percent Intact[e]	Value Integrity[i]	RV[j]	CR[k]
Ca-1	REL	AD 700 to Contact	Mississippian	Middle	FL,PC	None	Levels D-F (to 2 ft)	Sandbar	UN	.61	Camp	UN	LMA	4	2
Ca-2	REL	AD 700 to Contact	Mississippian	Middle	PC	None	UN	River Bank	UN	UN	Habitation Site	UN	LMA	4	2
Ca-3	UN	UN	UN	-	None	None	UN	Terrace	89.4	.3 to .45[g]	UN	UN	UN	NA	2
Jd-9	REL	200 BC to AD 700	Woodland/ Hopewell	-	FL, PC, GS, HR, PM	HB	UN	River Terrace	UN	UN	Burial Mounds	UN[h]	LMA	4	2
Jd-119	REL	AD 700 to Contact	Mississippian	-	PC	None	Surface	Prairie & River Terrace	1.82[f]	1.2 to 1.5	Habitation & Mound	UN	LMA	4	2

[a] Site numbers are taken from Illinois Archaeological Survey files; see Table 4-1, footnote (a), for site number synonyms.

[b] Dating methods (DM) include radiocarbon (RC), thermoluminescence (TL), geochronology (GEO), dendronchronology (DEN), fluorescence (FL), hydration (HY), and/or relative (REL) based on artifact attributes or a combination of these; unknown (UN).

[c] FL = flaked lithics, which may or may not be accompanied by hammerstones or other flaking stone tools; GS = ground or grinding stones, which may or may not be accompanied by polished stone artifacts; PC = prehistoric ceramics; PM = prehistoric metal [copper implement(s) were reportedly found during excavation for a cellar for a house adjacent to the mound]; HR = human remains.

[d] Formal human burial (HB).

[e] Unknown (UN).

[f] 1.82 m is the area of the mound; there are no measurements for the habitation portions of the site (Illinois Archaeological Survey, n.d.).

[g] Mound height.

[h] One mound was excavated by W. B. Nickerson in 1898-99 (Illinois Archaeological Survey, n.d.).

Table 4-2. PRESENTLY IDENTIFIED ARCHEOLOGICAL COMPONENTS ON THE SAVANNA ARMY DEPOT ACTIVITY: DESCRIPTION AND EVALUATION (concluded)

[i] National Register of Historic Places evaluation criteria; L = location, D = design, M = materials, W = workmanship, A = association; unknown (UN).

[j] This is a subjective summary assessment of the overall research value (RV) of the identified components. It is an evaluation of the resources quality of preservation, representation of activity diversity or uniqueness, and temporal distinctiveness or reflection of diachronic relationships. It incorporates the need to avoid triviality, but to acquire what may be redundant data so as to discern patterns among those data. Research values are ranked from 0 (no value) to 5 (highest value); not applicable (NA).

[k] This is a rating of the confidence (CR) the authors have in the previously assigned research values (RVs). 1 = judgement is more guess than science, and likely not to be reliable; 2 = judgement is moderately reliable; 3 = judgement is most likely to be reliable.

Table 4-3. PRESENTLY KNOWN ARTIFACT, ECOFACT, OR DOCUMENTARY COLLECTIONS FROM ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY

Site Number, Name[a]	Collection Location[b]		Collection Characteristics					
			Artifact[c]		Ecofact[d]		Documentary[e]	
	Curatorial Repository	Accession Number(s)	Brief Description	Size/No.	Brief Description	Size/No.	Brief Description	Size/No.
Ca-1	ISM	UN	PC,FL	UN	BF,SH	UN	Adams 1932 Bennett 1945:150-152 IAS n.d.	--
Ca-2	ISM	UN	PC	UN	Unknown	-	IAS n.d.	--
Ca-3	ISM	None	None Reported	-	Unknown	-	IAS n.d.	--
Jd-9	ISM	UN	PC,GS,HR	UN	AF	UN	IAS n.d.	--
Jd-119	ISM	UN	PC	UN	Unknown	-	IAS n.d.	--

[a] Site numbers are taken from Illinois Archaeological Survey files; see Table 4-1, footnote (a), for site number synonyms.

[b] ISM = Illinois State Museum, Springfield, Illinois. The location and quantity of collections is unknown: they are not at the Illinois State Museum nor at the University of Chicago; they may be at the Minnesota Historical Society, or the Peabody or Milwaukee Public Museums.

[c] FL = flaked lithics, which may or may not be accompanied by hammerstones or other flaking stone tools; GS = ground or grinding stones, which may or may not be accompanied by polished stone artifacts; PC = prehistoric ceramics; HR = human remains; UN = unknown.

[d] (BF) bone fragment, (AF) antler fragments, (SH) shell fragments; noted in field notes, presumably not collected.

[e] Illinois Archaeological Survey, n.d. (IAS n.d.); compiled from survey forms and field notes.

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY

Site Number, Name[a]	Reference[b]	Description	Research Value CR[c]
S1	NPC 1893:36	Farmstead	2
S2	NPC 1893:36	Farmstead	2
S3	NPC 1893:36	Farmstead	2
S4	NPC 1893:36	Farmstead	2
S5	NPC 1893:36	Farmstead	2
S6	NPC 1893:36	Farmstead	2
S7	NPC 1893:36	Farmstead	1
S8	NPC 1893:36	Farmstead	1
S9	NPC 1893:36	Farmstead	2
S10	NPC 1893:36	Farmstead	2
S11	NPC 1893:36	Farmstead	2
S12	NPC 1893:36	Farmstead	2
S13	NPC 1893:36	Farmstead	1
S14	NPC 1893:36	Farmstead	1
S15	NPC 1893:36	Farmstead	2
S16	NPC 1893:36	Farmstead	1
S17	NPC 1893:36	Farmstead	1
S18	NPC 1893:36	Farmstead	2
S19	NPC 1893:36	Farmstead	1
S20	NPC 1893:36	Farmstead	1
S21	NPC 1893:36	Farmstead	2
S22	NPC 1893:36	Farmstead	2
S23	NPC 1893:36	Farmstead	2
S24	NPC 1893:36	Farmstead	1
S25	NPC 1893:36	Farmstead	1
S26	NPC 1893:36	Farmstead	2
S27	NPC 1893:36	Farmstead	1
S28	NPC 1893:36	Farmstead	1
S29	NPC 1893:36	Farmstead	1
S30	NPC 1893:36	Farmstead	1
S31	NPC 1893:36	Farmstead	1
S32	NPC 1893:36	Farmstead	1
S33	NPC 1893:36	Farmstead	1
S34	NPC 1893:36	Farmstead	2
S35	NPC 1893:36	Farmstead	2
S36	NPC 1893:36	Farmstead	1
S37	NPC 1893:36	Farmstead	2
S38	NPC 1893:36	Farmstead	2
S39	Ogle 1908:27	Farmstead	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY (concluded)

Site Number, Name[a]	Reference[b]	Description	Research Value CR[c]
S40	NPC 1893:36	Farmstead	2
S41	Ogle 1908:27	Farmstead	2
S42	Ogle 1908:27	Farmstead	2
S43	Ogle 1908:27	Farmstead	2

[a] Sites have been given "potential site register numbers" only within the context of this overview and planning effort, and are numbered sequentially across the facility.

[b] NPC = Northwest Publishing Company.

[c] The Confidence Rating (CR) of the potential resource base's research value is a general assessment (based on available data) of the authors' confidence in the site's physical integrity and value (e.g., representation of activity diversity or uniqueness, temporal distinctiveness or reflection of diachronic relationships, representativeness). The CR is a ranked assessment: 1 = the site is likely to have little value or the information about it is too unreliable for making a value judgement; 2 = the resource may have research value and the authors are moderately confident that the information about it is reliable; 3 = the resource is likely to have high research value and the authors are quite confidence that the information about it is reliable. Given the lack of information and the field checks of these resources, no site was rated 3. Those sites located within Ground Disturbance Areas (Table 3-1, Figure 3-1) and having a greater likelihood of disturbance were rated 1 because the information on integrity and research potential was too unreliable to make a value judgement.

farmstead sites may exist on the Savanna facility. Each of these probably originally contained a house, a barn, one to two sheds, an outhouse, and a well. These have been rated with a moderate assessment of research value and integrity, except when located within ground disturbance areas (see Table 3-1). A higher rating is not used because of the lack of current data regarding these sites. The military structures and surrounding grounds may constitute a further historic archeological resource. The potentially historic military buildings on the facility are currently being studied by HABS/HAER (William Brenner, personal communication 1983). Savanna personnel are encouraged to develop close coordination on future facility projects with the Illinois SHPO.

5.0 AN ASSESSMENT OF THE SIGNIFICANCE OF THE ARCHEOLOGICAL RESOURCE BASE ON THE SAVANNA ARMY DEPOT ACTIVITY

This section presents the analytical criteria for the assignment of research values of the identified and predicted resource bases on the Savanna Army Depot Activity. The significance of these resources is discussed in Section 5.1, while ideal goals and objectives for implementation of future archeological research are presented in Section 5.2.

5.1 THE SIGNIFICANT RESOURCE BASE

A tabular summary of the projected archeological resources on the Savanna Army Depot Activity is presented in Table 5-1. Prehistoric resources dating to the latter portions of the prehistoric period have been identified on the facility. These consist of a Woodland (probably Hopewell or Middle Woodland) burial, three Mississippian habitation areas, one Mississippian burial mound, and one site of an unknown time period. One site (Jd-119) contains both a habitation and mound area.

Given the limited scope of the test excavations at sites Ca-1, Jd-9, and Jd-119 and the lack of published data, there is little information with which to evaluate National Register significance. Further archival and documentary research and/or artificial evaluations conducted at the Minnesota Historical Society or the Peabody or Milwaukee Museums.

To assess the research value of each identified site, it is necessary to consider the full range of archeological resources that could exist on the Savanna facility. Each major chronological period will be discussed in turn.

Potential Paleo-Indian archeological resources would represent large to small game exploitation and wild plant utilization within the area and probably would consist of isolated artifacts. Paleo-Indian remains would most likely be small, seasonally occupied camp sites, or more probably isolated occurrences of projectile points or point fragments. Given the scarcity of such remains in the region overall, their research value would be high.

During the Early Archaic Period, various resources were exploited according to a seasonal schedule of availability. During the Middle

Table 5-1. SUMMARY OF SIGNIFICANT ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY

Temporal Unit	Thematic Unit	Resource Type	Type Occurrence[a] Known Occurrences (no.)	Potential Occurrences (no.)	Other Likely Occurrences	Sociocultural Association	Landform Association	Physical Integrity[b]	Research Value[c]	RV CR[d]	Sociocultural Value[e]	SCV CR[d]
Middle Woodland	Small game, wild plant, and cultivated plant procurement and use	Probable camp and burial	1	0	+	Native American	Terrace	UN	4	2	1	3
Mississippian	Small game, wild and cultivated plant procurement and use	Habitation	3	0	+	Native American	Sandbar, river bank terrace	UN	4	2	1	3
Mississippian	Ceremonial activities	Burial Mound	1	0	+	Native American	Terrace	UN	4	2	1	3
American	Domestic/agricultural technology	Farmstead	0	43	++	Euro-American	Uplands/ Lowlands	UN	4	3	5	3

[a] The number of presently known or potential archeological resources of this type is specified here. In addition a judgement has been made as to the likelihood that other members of this resource occur within the facility, based on an analysis of the ethnohistoric or historic land use patterns and/or a review of the landform patterning of prehistoric materials. The probability of these additional occurrences has been noted as negative (-), positive (+), or highly positive (++). Mississippian (Jd 119) is coded twice, as it is both a habitation and mound site.

[b] No evaluation of physical integrity is possible because the sites were recorded between the early 1900s and 1930s. No further field assessments have been done.

[c] This is a subjective summary assessment of the overall research value (RV) of the resource class. It is an evaluation of the class' quality of preservation, representation of activity diversity or uniqueness, and temporal distinctiveness or reflection of diachronic relationships. It incorporates the need to avoid triviality, but to acquire what may be redundant data so as to discern patterns among those data. Based on these research values, the resource classes under discussion are ranked from 0 (no value) to 5 (highest value), including "NA" if such an evaluation is believed to be impossible given the available information.

[d] The Confidence Rating (CR) is a further evaluation of the perceived reliability of the research (RV) or sociocultural (SCV) values of the resource class. 1 = the judgement is more guess than science, and likely not to be reliable; 2 = the judgement is moderately reliable; 3 = the judgement is most likely reliable.

[e] This is a subjective summary assessment of the overall sociocultural value (SCV) of the resource class. It is an evaluation of the social, religious, or political importance of the resource to a contemporary community, from 0 (no value) to 5 (highest value).

Archaic period, people relied on more concentrated and less mobile resources, which resulted in an increase in storage facilities, decreased settlement mobility, and increased use of aquatic resources.

These changes in the archeological record coincide with environmental changes during the Hypsithermal (Wendland 1978). Increasing dryness and grassland expansion could be one reason why hunter-gatherer groups abandoned the uplands (Carmichael 1977; Hajic 1981; O'Brien, Warren and Lewarch 1982). Whatever the reason for the predominance of Early Archaic sites and the scarcity of Middle Archaic sites in the uplands, the reflection or variance from this pattern by the archeological resources on the Savanna Army Depot Activity (Carmichael 1977; Conrad 1981; Hassen et al. 1981; Klippel and Maddox 1977; Lewis 1977) is a significant scientific question. Consequently, in floodplain areas the prediction is that there may be a higher proportion of Middle Archaic sites; this also merits testing.

The research value of any Early and Middle Archaic sites with integrity located on the facility is likely to be high because they may contain information useful in:

(1) determining the degree and type of human mobility,

(2) determining type of subsistence base,

(3) determining the effects of the Hypsithermal in site location and resource exploitation,

(4) understanding the development of sedentism between the Early and Middle Archaic (Brown and Vierra 1983, Ford 1977).

Late Archaic sites within the region of the Savanna facility may represent more permanent settlements with increased population density and group stability. In addition, mortuary sites may occur. The research potential of Late Archaic sites also would be moderately high because they may allow the investigation of increased social and economic complexity which is manifest in later times on the facility.

Early Woodland sites appear to represent an intensification of Late Archaic cultural-ecological adaptations within the region. Occupation sites occur on bluffs, upper terraces, and hilltops and may be concentrated along rivers. Scattered semi-permanent villages or hamlets may occur where intensive hunting, plant collecting and fishing are the major economic pursuits of the occupants. The research potential for the Early Woodland sites on the Savanna facility is high because they are relatively scarce, and contain the first evidence for a ceramic technology.

Middle Woodland sites generally consist of large burial mounds, geometric earthworks, dispersed hamlets on floodplains and terraces of major

rivers, or small base camps or special use sites. Economic pursuits included hunting and gathering of amphibians, birds, fish, mammals, reptiles, shellfish, seeds and nuts. Horticulture of squash, corn, amaranth, and chenopod also occurred. Middle Woodland sites located in Illinois were related to a larger socio-religious-political unit known as Hopewell. The research potential of Middle Woodland sites is high because they contain evidence that relates to an apparent pattern of increased prehistoric social and economic complexity.

During the Late Woodland in general, and particularly in its latter stages, populations apparently increased as manifested by an increase in numbers of sites and types of sites, artifactual, and subsistence remains. At the same time, dependence on cultivated foods began, particularly, maize, beans, and squash. Any Late Woodland sites with integrity on the depot would have high research value because their examination may assist in the regional:

- delineation of terrestrial vs. aquatic resources used by Late Woodland peoples and the determination of the resource availability of each
- determination of the relative importance of fauna derived from major habitats and the examination of the localization of resource exploitation
- reconstruction of the diet of late Late Woodland people and documentation of the prehistoric subsistence change from the Middle Woodland time period.

Finally, the Mississippian Tradition in the vicinity of the Savanna facility consists of large sites with community buildings erected on mounds, surrounded by smaller towns, hamlets, and farmsteads. Even though hunting and gathering was still practiced, maize, beans, and squash were intensively cultivated along with seed crops and tobacco. The research potential of any Mississippian sites that have integrity is likely to be high because such sites can help describe the increased, social, religious, and economic complexity evident during the Mississippian, and regional interaction that took place.

No field assessments of these sites have been recorded since the 1930s or late 1950s. However, based on the Illinois Archaeological Survey forms (n.d.) of the mid-century, erosion had occurred at Ca-1 and Ca-2, plowing had impacted Ca-3, while excavation of a cellar had disturbed Jd-9. The forms do not include a more quantitative or qualitative description of the extent of such erosion or excavation, but plowing in this area in the early 1900s generally was only 4 to 6 in. deep (Harold Davis, personal communication 1983). No information about present condition was recorded for Jd-119.

The highest probability of site distributions on the depot relate to the Woodland and Mississippian traditions, particularly Middle and Late Woodland and Mississippian. Sites of these periods are known on the facility, and others are likely to occur. Archaic and Early Woodland sites are not as well documented in the area since most are small and dispersed, and previous regional archeology has emphasized large village or mound sites. The probability that these earlier sites are located in the Depot is lower than for the later time periods, but does exist; this is particularly true for Late Archaic and Early Woodland sites that may remain on the Savanna Terrace.

The potential historic cultural resources at the Savanna Depot all post-date AD 1783, and belong to the American Tradition. All 43 appear to be farmsteads, and all but three early nineteenth-century dwellings have been razed. The remaining buildings are the "Old Stone House," sited at its original location, and two farm dwellings relocated to the lower post area and maintained as family housing quarters, Building #6 and #7 (Charles Primm, personal communication 1983). The current condition of these sites is unknown because of a lack of field verification.

5.2 IDEAL GOALS AND OBJECTIVES

Given the assumption that significant (and presently unidentified) archeological resources appear to be located within the depot, the following is an outline of a desirable program to manage these resources for the best preservation or use of their research and sociocultural values. An ideal facility archeological resource management program would encompass identification, evaluation, conservation, excavation and analysis, and interpretation activities. It would emphasize the conservation of significant resources, and their excavation or "use" only to mitigate any unavoidable destruction or damaging activities or in search of important information that is being collected and studied within a well designed research project.

The first step in any ideal management program is the appropriate treatment of the archeological materials from the five prehistoric sites that are located on public lands. It is in the public interest for the U. S. Army to locate and complete the scientific analysis of those materials, supporting professional analysis and writing services to do so.

Since no systematic archeological resource surveys have occurred on the Savanna Army Depot Activity, the second step in developing a management program is field identification of the sites predicted to be there. Such an identification program should begin with a more intensive and extensive review of oral and archival historic information, and a field check of known and potential sites. The focus of this preliminary review would be to evaluate the historical information base presently available without recourse to any historical archeological investigations and, through consultation with professional historians and people with personal ties to the pre-1917 occupants, evaluate the historic significance

of any materials that might be left on the facility. This would complement the more extensive evaluations of natural resource distributions presented within this report as the basis of evaluating the distribution and potential significance of any prehistoric archeological resources there.

The third stage of the identification program would be the field inventory of the undisturbed portions of the facility to identify the surface evidence of any historic or prehistoric archeological sites. Such an identification project would include the pedestrian and boat surveys of the depot, with close-interval spacing of survey transects. Large-scale aerial photographs and detailed topographic maps should be used for field reference. Standard forms for recording the surface characteristics of identified prehistoric and historic resources should be completed as part of the inventory procedures and the area and methods of the survey should be well documented. The preferred survey policy for most contemporary projects is to make only minimal collections of artifacts off of site surfaces, retaining a representative sample including artifacts that are diagnostic of particular styles and/or technologies or are immediately vulnerable to non-professional collection or damage. Any collected materials should be fully described and appropriately curated.

In addition to a description of the surface evidence of these sites, the ideal inventory would include some kinds of subsurface investigation (e.g., augering, test excavation, remote sensing) to evaluate the contents, extent, and integrity of the identified resources. Finally, this stage should include an identification of the important research or other values inherent in the inventoried sites, both as a basis for the development of future research designs as well as for the evaluation of management options should the resource be threatened with damage or destruction by non-archeological-research activities. For purposes of future research development, the identification and evaluation of the resources needs to be well documented and available to the research community. For future resource management purposes, it needs to be appropriately stated within the U. S. Department of the Interior's terminology and concepts of resource significance.

The prevailing professional approach to archeological resources for the past decade has been one of conservation (Lipe 1977:21)--"Our goal...is to see that archaeological resources everywhere are identified, protected, and managed for maximum longevity." Thus, the ideal objective is to develop a "bank" of significant sites that may be investigated through a variety of techniques, including destructive excavation, only as part of well designed research projects that are scheduled within a regional research program that seeks to maintain the overall range of undisturbed sites for future use. A corollary to this is that the sites should be allowed to be investigated by scientists in a non-reactive situation (i.e., not threatened with immediate destruction of the resource). Such basic investigation of resources on the public lands should be conducted only within research designs that are appropriate to

the contemporary regional or broader study questions. It should also be conducted only within a program that includes long-term protection of the information collected from the resources, and a commitment to the public dissemination of that information.

If an archeological site evaluated as being of research or socio-cultural significance is going to be damaged or destroyed, the ideal objective would be to preserve its included materials and information values through a "salvage" or "data recovery" program. Such a program would be little different from the non-reactive investigations discussed above, but is likely to be conducted in emergency situations with requirements for immediate recovery. Again, an important element in such an emergency research program would be the adequate analysis, curation, and publication of the recovered information.

Thus, in summary the ideal goals for the management of the Savanna Army Depot Activity archeological resources are to:

- Inventory and evaluate all the resources on the facility
- Conserve the significant sites, allowing their research use only within a regional research design
- Recover the contents and information from any significant resources threatened by damage or destruction
- Provide the public with the substance of the information values that are inherent within or collected from the facility's archeological resource base.

6.0
A RECOMMENDED ARCHEOLOGICAL MANAGEMENT PLAN FOR THE SAVANNA ARMY DEPOT ACTIVITY

6.1 FACILITY MASTER PLANS AND PROPOSED IMPACTS

There is no long-range planning document available for the Savanna Army Depot; however, four construction projects are planned on the Savanna facility prior to 1986 (Charles Primm, personal communication 1983). No other projects are presently planned after 1986. The planned activities include: (1) a contaminated waste processor with a six-foot-depth located near building 2208 and GDA 18; (2) a function test facility area near Area G (GDA 6) which would have five foot disturbance; (3) a palletized automated loading system near GDA 16, the 200 and 300 building numbers with minimal subsurface disturbance; and 4) a landfill area currently under construction northeast of Area H (Table 6-1) (Figure 6-1). These construction activities would affect several potential historic sites but none of the presently known prehistoric sites. The future test site location is near site numbers 38 and 40, while the ammunition loading system is located near sites 12, 13, and 15. All of these sites could contain historic resources. Before any construction is initiated, these areas should be examined to either avoid or mitigate the effect on these or any other archeological resources. Limited timbering has occurred on the facility to remove dead or diseased trees and mature trees, with approximately 90 percent of the total acreage impacted to date. Only limited timber sales are planned, with selective cutting methods used. Additionally, the following recommendations are appropriate for the further investigation of any known or potential archeological resources on the Savanna Army Depot.

6.2 APPROPRIATE ARCHEOLOGICAL MANAGEMENT GOALS

This section discusses both the recommendations and objectives for general facility planning and management of specific archelolgical resources on the facility.

6.2.1 General Facility Planning

Army Regulations 420, drafted pursuant to the National Historic Preservation Act and 36 CFR 800 (Section 1.1), require that each DARCOM installation have a Historic Preservation Plan or have documentation on

Table 6-1. A SUMMARY OF ON-GOING AND PLANNED ACTIVITIES ON THE SAVANNA ARMY DEPOT ACTIVITY THAT COULD AFFECT ARCHEOLOGICAL RESOURCES

Activities						Associated Resources				Impacts		
Description	Date	Area	Size (a.)	Estimated Depth Below Surface (ft.)	Ratio of Disturbed to Total Area[a]	Resource Class	Resources Known or Predicted[b]	NRHP Status[c]	Other Value[c]	Direct[c]	Indirect[c]	Mitigation Options[d]
Proposed												
Contaminated Waste Processor	1983-1984	PL-1	3	6	4:100	None	None	None	None	None	None	NA
Function Test Facility Area	1985	PL-2	35	5	3:1000	American farmsteads	P2	INSF	INSF	INSF	INSF	Oral historical and historic archeological data recovery
Container Loading Yard	1986	PL-3	20	5	3:100	American farmsteads	P3	INSF	INSF	INSF	INSF	Oral historical and historic archeological data recovery
Landfill	On-going	PL-4	3	16	9:10	None	None	None	None	None	None	NA
Transportability Test Facility	1985	PL-5	.5	6	1:100	UN	UN	UN	UN	UN	UN	NA

[a] These ratios are very small because the structures themselves are small, but for safety reasons the surrounding areas must be large (Charles Primm, personal communication 1983).

[b] Two prehistoric sites (P2); three prehistoric sites (P3); unknown (UN)

[c] Insufficient information available for assessment (INSF); unknown (UN)

[d] Not applicable (NA)

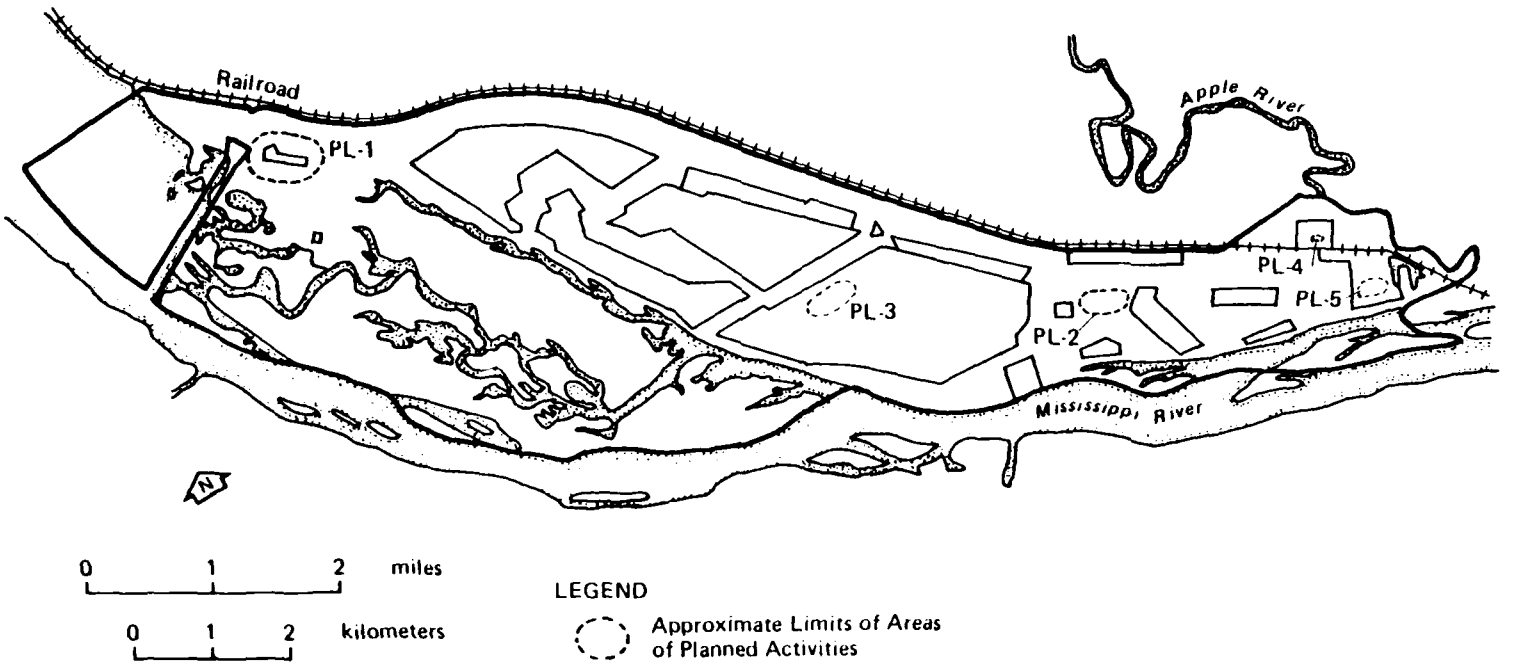


Figure 6-1. A MAP OF AREAS OF ONGOING OR PLANNED ACTIVITIES ON THE SAVANNA ARMY DEPOT ACTIVITY THAT COULD AFFECT ARCHEOLOGICAL RESOURCES

file indicating that there are no installation resources appropriate to such management planning. At present, there is no such negative declaration and at least five archeological sites are known to exist on the facility. Therefore, the present report is organized so as to provide a basis for such a plan to be developed and implemented on the facility.

The draft Department of the Army AR 420 regulations prescribed Army policy precedures and responsiblilities for compliance with the National Historic Preservation Act of 1966, as amended; for the maintenance of state-of-the-art standards for preservation, personnel and projects; and for accomplishment of the historic preservation program (Figure 6-2). The Historic Preservation Plan has the following objectives:

- Provision of historic and archeological data for the installation's information systems
- An outline of priorities for acquiring additional informaton to determine if there may be additional projects not yet located or identified
- Establishment of a procedure for the evaluation of historic properties
- Provision of guidelines for the management of historic properties
- Implementation of a legally acceptable compliance procedure with the Advisory Council for Historic Preservation (ACHP) and the State Historic Preservation Office (SHPO)
- Integration of historic preservation requirements with the planning and execution of military undertakings such as training, construction, and real property or land use desicions
- Ranking of facility projects by their potential damage to historic properties
- Identification of funding, staffing and milestones needed to implement the plan.

The identification and evaluation of historic and prehistoric resources on the Depot has been initiated by the completion of this overview and plan. This needs to be followed by a full identification and evaluation program as outlined in Section 5.2: more extensive oral and archival historic review; field surface and subsurface inventory of all undisturbed Depot lands as well as known and potential sites; and evaluations of resource significance in terms of U. S. Department of the Interior criteria. Some or all of this recommended work could be postponed until there is a specific ground-disturbing project that requires compliance with the National Historic Preservation Act (see Sections 1.1, 6.2.2), if development of a historic preservation plan more specific than

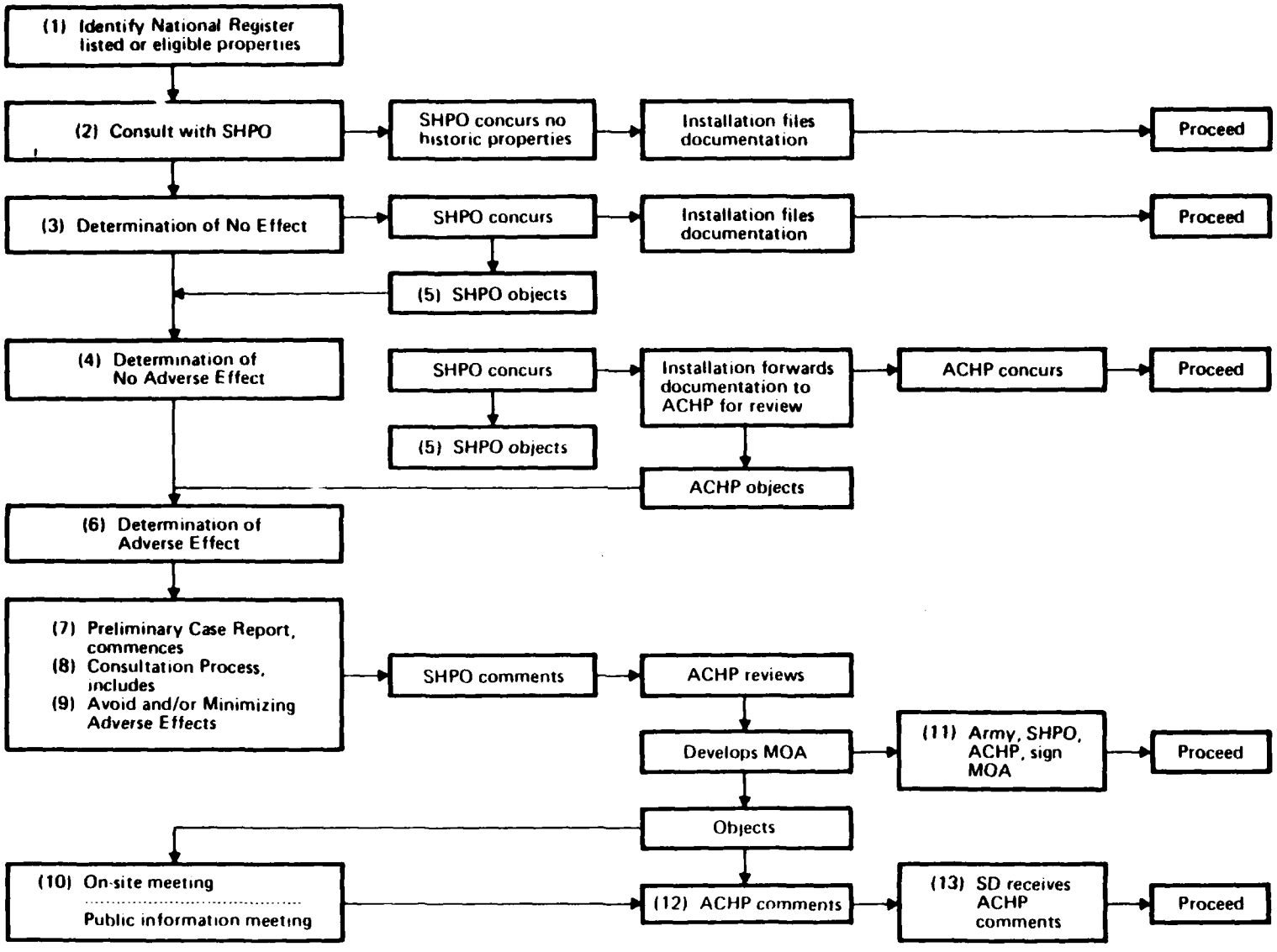


Figure 6-2. PROCEDURE FOR COMPLIANCE WITH REGULATIONS OF THE ADVISORY COUNCIL, IN ACCORDANCE WITH 36 CFR 800 (AR 420, Figure 1)

this document is also to be postponed and if such scheduling has been accepted by the Illinois State Historic Preservation Office (SHPO).

Under any schedule, until the determination has been made that identified prehistoric or historic sites are not significant they must be managed as if they were, for compliance with Section 110(a)(2) of the National Historic Preservation Act:

> (2) With the advice of the Secretary [of the Interior] and in cooperation with the State Historic Preservation Officer for the State involved, each Federal agency shall establish a program to locate, inventory, and nominate to the Secretary all properties under the agency's ownership or control by the agency, that appear to qualify for inclusion on the Natonal Register in accor- dance with the regulations promulgated under Section 101(a)(2)(A). Each Federal agency shall exercise caution to assure than any such property that might qualify for inclusion is not inadvertently transferred, sold, demolished, substantially altered, or allowed to deteriorate significantly [underlining added].

Under this guidance we recommend that the five identified prehistoric sites on the Savanna Depot, which has been professionally evaluated but not formally determined to be eligible for the National Register, be managed as if they were registered. We suggest that this management include avoidance of the sites by any authorized ground-disturbing activities, and monitoring of the area to restrict its being vandalized.

As outlined in the previous discussion of ideal archeological management goals (Section 5.2), a recommended next stage in the assessment of the importance of the facility's historic archeological resources is an intensive review of archival material and evaluation of regional historic research objectives. The archival review might focus on information stored in the National Archives and Records Service, as well as a more intensive review of Jo Daviess and Carroll Counties land records, wills, and other pertinent documents and interviews of pre-1910 residents of arsenal lands. This review and evaluation should include consultation with the Illinois SHPO to identify and prioritize regional historic research questions to which the historic archeological information from identified sites might contribute. The goal of this research would be to define the historic significance that any of the identified sites might have if it had contextual integrity and was to be archeologically investigated. In addition the integrity of the historic resources should be assessed by field inspection.

As discussed in Section 5.2 and required by the National Historic Preservation Act (NHPA), the next step in the identification stage of archeological resource management should be field investigation to located sites and determine their boundaries, contents, and integrity. NHPA Section 110(a)(2) requires that all federally owned or controlled lands

surveyed to identify all significant archeologial properties on them. A strict adherence to this would support the immediate intensive archeological inventory of all Savanna Depot lands not previously surveyed or not clearly documented as having deep and extensive modern ground disturbance. The current prevailing federal policy about the implementation of this requirement is that it should be a "reasonable" program consistent with the overall schedules, budget, and multiple objectives of the land-managing agency. Given the planned construction activities itemized in Section 5.1 and the likelihood that there are significant prehistoric and historic archeological materials on the Depot, it is recommended that it would be most cost-effective to complete the archeological inventory of all undisturbed lands on the facility as soon as it is fiscally possible.

To assess more accurately the natural resources available both to prehistoric and historic inhabitants of the Savanna facility, the early land survey records and available soil surveys should be examined with particular emphasis on the sand prairie areas of the facility that have been environmentally stable since the Hypsithermal. In addition, several survey strategies should be employed to provide an accurate assessment of the extant archeological resources. These include a reconnaissance level survey conducted from a boat along the shoreline and sloughs in the northwestern poriton of the facility and pedestrian surveys in the eastern half of the facility and along the northern and eastern boundaries and the river bank.

The slough area of the Depot presents a problem for the execution of pedestrian archeological survey because of heavy vegetation, swampy areas, and heavy alluviation. A survey conducted by boat can examine erosional features such as cutbacks and islands in which archeological material may be embedded. A pedestrian survey can be used on those portions of the facility which are not swampy, and have not been impacted by modern construction. These areas include the safety zone along the northern and eastern periphery and the extreme eastern portion of the facility (Figure 6-2). The river bank along the entire facility and the sand dunes should be intensively examined.

The eastern portion of the facility including the mouth of the Apple River, is recommended for intensive survey. This area has not been impacted by modern construction and is not subject to the environmental constraints of flooding or dune formation. Because the usual location of prehistoric sites are often found along higher ground overlooking major river courses, the potential for identifying additional prehistoric site in this area is high. Finally, the locations of the five known prehistoric sites should be checked to determine the amount and kinds of intact cultural remains, and the curatorial repository or location of Nickerson's early collections should be determined.

Based on the historic and field inventory information, the significance of all identified sites should be evaluated following criteria set forth in 36 CFR 60.6 and in accordance with guidelines from the Illinois

SHPO. If sites are judged to be significant, a plan for their long-term management should be developed in the context of overall property management. Such management activities might include resource conservation in place, biannual field review of site condition, public interpretation of resource values, scientific investigation of the sites, and/or planned site destruction by military activities. If significant sites are identified, it is recommended that the DARCOM officer responsible for the Savanna Depot operations provide the Illinois SHPO with the opportunity to review and comment on the proposed management plan. If the evaluation is made that none of the sites on the Depot is significant, filing of a report to that effect with the SHPO would complete the facility's compliance requirements for preservation planning.

6.2.2 Project-Specific Resource Protection or Treatment Options

Approximately 45 percent of the Savanna facility has been impacted by modern construction, and any future ground-disturbing activities in those areas is unlikely to need pre-construction review of their potential adverse impacts to significant archeological resources (the exception might be deep new excavation into previously undisturbed deposits beneath modern buildings or structures). However, new ground-disturbing construction on, or leasing of, depot land would be a federal undertaking requiring compliance with Section 106 of the National Historic Preservation Act. Section 106 requires that DARCOM consult with the Illinois SHPO and the federal Advisory Council on Historic Preservation about the effects of such an undertaking on significant archeological sites. Without a SHPO-accepted facility preservation plan, it is DARCOM's responsibility to either complete such an evaluation and consultation program for each new undertaking or to have on file documentation of the completion of adequate survey and evaluation so as to confirm the absence of or lack of significance of any archeological site that might be affected by the proposed activity.

Since the entire undisturbed portions of the Depot have not been subjected to intensive archeological survey, construction or ground disturbance in areas currently unsurveyed could impact archeological resources. Consequently, if such impacts were planned, survey, evaluation, and perhaps required mitigative data recovery (scientific archeological investigation of a significant site) could be necessary on a project-specific basis prior to initiating the ground-disturbing activity. Such evaluation and preservation programs require consultation with several federal agencies, and are frequently time-consuming and have the potential for causing construction delays. However, such a project-specific program can usually be expedited if the appropriate preservation planning has been completed and reviewed by the State Historic Preservation Officer.

The following project-specific management program is based on the planned ground-disturbing activities on the Savanna Depot and their potential effects on the cultural resources likely to be affected.

Three land-altering activities will not cover all portions of the ground surface (PL-1, PL-2, and PL-3, Figure 6-1; Table 6-1). All cultural resources (archeological, historic architectural) in the affected sections of the Savanna Depot must be documented, and their significance evaluated. If significant sites are found in these proposed areas, then two options exist: (1) recover all of the cultural resource information prior to the land altering activity; or (2) where appropriate, protect or conserve the cultural resource by posting signs, or by covering the cultural resources so that the activities cannot hurt the cultural resources.

One ground-disturbing action (PL-4, Figure 6-1) has already begun and is not presently in compliance with federal historic preservation requirements. This area should be monitored and/or examined as soon as possible to evaluate any possible impacts (direct or indirect) to cultural resources.

All of the project-specific management activities identified above should involve consultation with the State Historic Preservation Officer (SHPO) and with the federal Advisory Council of Historic Preservation (ACHP). If significant cultural resources are located in areas of projected disturbance and if these cultural resources are listed or are eligible to be listed on the National Register of Historic Places, then their significant values should be resources and/or protected before ground disturbance can begin.

6.2.3 A Summary of Recommended Management Directions and Priorities for Effective Compliance and Program Development

It is recommended that a professional archeological inventory and evaluation project be completed on all undisturbed portions of the Depot's property as soon as possible, that field assessments of the known and potential sites be completed, and that artifactual collections from early investigations be located. This is an appropriate response to the requirements of Section 110 of the National Historic Preservation Act, and is a cost-effective management activity considering the number of planned ground-disturbing projects on the arsenal.

In complement to this survey it is further recommended that the Savanna Depot have a professional archeologist monitor ground disturbing actions for the landfill project (Table 6-1 and Figure 6-1).

6.3 ESTIMATED SCOPE OF WORK AND COST LEVELS FOR PRESENTLY IDENTIFIABLE MANAGEMENT NEEDS

Each of the management recommendations is presented here as a scope of work and an associated cost. The scope of work contains appropriate research topics to address, and the costs are in FY84 dollars.

The management recommendation is an archeological inventory of all the undisturbed areas of the Savanna Army Depot, a field check of known and potential sites, and preliminary archival work. The survey would

cover 1880 acres, the areas not previously affected by modern ground-disturbing activities (see Figure 3-1). Of the 1880 acres, 480 are forest and 1400 are open land.

Such survey should be preceded by an archival and oral historical review project, which is estimated to require 200 hours at a rate of $25 to $30 per work hour, for an unloaded cost of between $5000 and $6000 (though this may be less if some of the information is available in the on-going Depot HABS report). Locations of artifactual collections could be conducted during archival investigations. The archeological field inventory should be conducted by archeological professionals who meet the qualifications and performance guidelines of the U. S. Department of the Interior (1983) and the Society of Professional Archaeologists (1983), and who hold a federal antiquities permit. The conduct of the inventory should generally incorporate methods as outlined in Section 5.2 -- survey at close intervals, recording of all cultural resource locations on standard field recording forms, and collection of only diagnostic items or items in danger of immediate loss. All cultural resources should be evaluated for their research and sociocultural significance, and recommendations should be made concerning their eligibility for the National Register of Historic Places and appropriate management.

Intensive survey within the slough area and along the river should be conducted by boat to examine erosional features wuch as cutbanks and islands. Other portions of the facility that should be examined by a pedestrian crew include the periphery of the northern and eastern safety zone and the extreme portion of the facility in the vicinity of Apple River, as well as those areas not currently impacted by construction. Field verification of the previously recorded sites would take place at this time.

At a rate of 10 acres per work-day (assuming 5 sites per square mile), field operations on forested lands are estimated to require at least 48 work-days to shovel-test 480 acres At a rate of 40 acres per work-day and at 15-meter-wide survey intervals, field survey operations on the 1400 acres of open land are estimated to require at least 35 work--days. These estimates are based on previously conducted surveys in the Mississippi Valley. If a higher density of cultural resources is encountered, additional field time may be required. The assumption does not include extensive subsurface investigations. These estimates include the analysis of recorded information, preparation of site forms, and the completion of the final report will take approximately 166 work-days. Total estimated field and lab effort is 249 work-days, or 1992 work-hours. Costs of this technical field review and evaluation program, including all necessary travel (using local expertise), reference telecommunications, data management, and report preparation costs (but no general and administrative or departmental costs or fee or profit) generally average between $20 and $25 per work-hour across the country. Because of relatively greater use of senior expertise, archival programs (with similar assumptions) average between $25 and $30 per work-hour. Thus, given

the potential cost of field activities, laboratory and special analyses costs, and the costs of report preparation, the unloaded cost of this management recommendation is between $39,840 and $49,800 in FY84 dollars. This cost is assumed to cover only routine involvement of the consultant with any state or federal review process. Field examination of the potential historic sites is estimated to require at least 40 hours at the cost estimates of $20 to $25 per hour, for total costs ranging between $800 and $1000.

7.0
SUMMARY

The Savanna Army Depot Activity is a 13,062-acre facility located in Jo Daviess and Carroll counties, Illinois, eight miles northwest of Savanna, Illinois. No archeological surveys or excavations have been conducted on the facility since prior to World War II; however, five prehistoric sites are known to exist on Depot property: a Woodland burial mound site with an associated human burial; two Mississippian habitation sites, one with a mound; a Mississippian camp site, and one unidentified as to age. As available information is poor regarding the integrity, extent, function, and depositional context of these five sites, the associated research value is high for each. Further, 43 potential historic sites have been reported on the depot; the military structures and surrounding grounds may constitute a further historic archeological resource. Little is presently known about the integrity of these historic resources. The potential for locating further archeological resources on the depot is considered to be high.

Compliance with the National Historic Preservation Act, the Archeological and Historic Preservation Act, 36 CFR 800, and draft Army regulations AR 420 requires the identification, evaluation, and where feasible, a firmative management of significant prehistoric and historic archeological resources. These also require that federal undertakings (e.g., new construction, new leases or lease renewals of public lands) take into consideration the effects of the proposed activities on significant archeological materials.

This report recommends that an archeological inventory and evaluation project be completed on all Savanna Army Depot Activity lands not known to have heavy modern ground disturbance (1880 acres), and that a field check be carried out on the five prehistoric sites. All archeological resources evident there should be located, recorded, and evaluated and, where appropriate, significant sites should be recommended for nomination to the National Register of Historic Places. These inventory data, when integrated with historic architectural information, would be the basis for developing a facility historic preservation plan. The unloaded cost of such an inventory and evaluation program involving survey, lab analysis, evaluation, and report preparation, is estimated to range between $39,840 and $49,800 in 1984 dollars.

In addition, preliminary archival work and field checks of the 43 potential historic sites are recommended. The estimated unloaded cost is between $5000 and $6000 for the archival work and between $800 and $1000 for the field check of the historic sites.

Finally, it is recommended that the location of artifactual collections from the five prehistoric sites be determined. The cost for this can be subsumed under the archival work.

8.0

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APPENDIX A

RESOURCE LOCATIONAL DATA

Table A-1. LOCATIONAL DATA, KNOWN ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY

Site Number	UTM[a]			Legal Reference			USGS Quad Map[b]	CR[c]
	Northing	Easting	Ref.	Township	Range	Section		
Ca-1	4673440	728290	CAA	25N	2E	2	B753	2
Ca-2	4673790	728040	CAA	25N	2E	2	B753	2
Ca-3	4673270	727150	CAA	25N	2E	2	B753	2
Jd-9	4675100	721440	CAA	26N	2E	31	GI753	2
Jd-119	4677350	719450	CAA	26N	1E	25	GI753	2

[a] UTM = Universal Transverse Mercator coordinates, Zone 17. If the area is less than 10 acres in extent, the coordinates record the approximate center of the site. If it is larger, they record the corners of a 3-or-more sided figure than encloses the site. The individual or institition that computed the UTM coordinates, listed here as "Ref.," include the Center for American Archeology, Kampsville, IL (CAA).

[b] (B753) = Blackhawk, IL-IA, 7.5 min. quad (1953, photorevised 1975). 1975.
(CGI753) = Green Island, IA-IL, 7.5 min. quad (1953, photo-revised 1975.

[c] The Confidence Rating (CR) is an evaluation of the perceived reliability of the site locational data. 1 = the information is more guess than science; 2 = the judgement is moderately reliable; 3 = the information is most likely reliable.

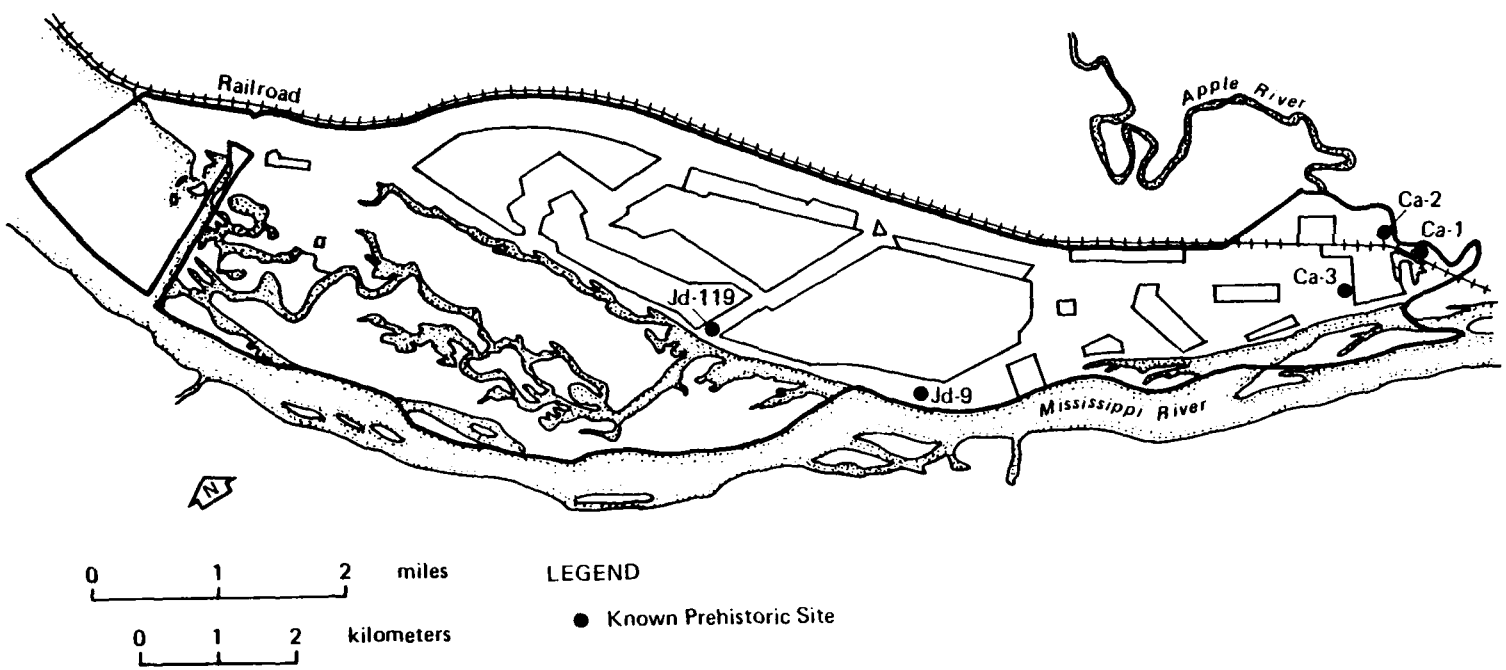

Figure A-1. A MAP OF KNOWN ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY

Site Number	UTM[a] Northing	UTM[a] Easting	UTM[a] Ref.	Legal Reference Township	Legal Reference Range	Legal Reference Section	USGS Quad Map[b]	CR[c]
HISTORIC RESOURCES:								
S 1	4683980	714380	MARC	26N	1E	4	B768	3
S 2	4683000	715600	MARC	26N	1E	3	B768	3
S 3	4685800	715840	MARC	26N	1E	10	B768	3
S 4	4682280	715840	MARC	26N	1E	10	B768	3
S 5	4681790	716300	MARC	26N	1E	10	B768	3
S 6	4681410	716710	MARC	26N	1E	11	H768	3
S 7	4681180	717100	MARC	26N	1E	14	H768	3
S 8	4680640	717460	MARC	26N	1E	14	GI753	3
S 9	4681380	718525	MARC	26N	1E	12	H768	3
S 10	4681120	718530	MARC	26N	1E	13	H768	3
S 11	4680200	716680	MARC	26N	1E	14	GI753	3
S 12	4679960	717840	MARC	26N	1E	14	GI753	3
S 13	4679785	718020	MARC	26N	1E	14	GI753	3
S 14	4679580	718420	MARC	26N	1E	13	GI753	3
S 15	4679980	718860	MARC	26N	1E	13	GI753	3
S 16	4679400	718240	MARC	26N	1E	24	GI753	3
S 17	4678960	718460	MARC	26N	1E	24	GI753	3
S 18	4678820	718360	MARC	26N	1E	24	GI753	3
S 19	4678560	718780	MARC	26N	1E	24	GI753	3
S 20	4678080	719620	MARC	26N	1E	24	GI753	3
S 21	4678320	718760	MARC	26N	1E	24	GI753	3
S 22	4677980	718920	MARC	26N	1E	24	GI753	3
S 23	4677760	719140	MARC	26N	1E	25	GI753	3
S 24	4677060	719600	MARC	26N	1E	25	GI753	3
S 25	4679860	719820	MARC	26N	1E	13	GI753	3
S 26	4679540	720480	MARC	26N	2E	19	GI753	3
S 27	4678990	720000	MARC	26N	1E	24	GI753	3
S 28	4678800	720080	MARC	26N	2E	19	GI753	3
S 29	4678300	720460	MARC	26N	2E	19	GI753	3
S 30	4677540	721660	MARC	26N	2E	30	GI753	3
S 31	4676565	720020	MARC	26N	1E	25	GI753	3
S 32	4676380	720260	MARC	26N	2E	30	GI753	3
S 33	4676360	720730	MARC	26N	2E	30	GI753	3
S 34	4675680	720860	MARC	26N	2E	31	GI753	3
S 35	4675160	721240	MARC	26N	2E	31	GI753	3
S 36	4674700	722500	MARC	26N	2E	32	GI753	3
S 37	4675850	723650	MARC	26N	2E	33	GI753	3
S 38	4675380	724440	MARC	26N	2E	33	GI753	3
S 39	4674280	724260	MARC	26N	2E	4	GI753	3

Table A-2. LOCATIONAL DATA, POTENTIAL ARCHEOLOGICAL RESOURCES ON THE SAVANNA ARMY DEPOT ACTIVITY (concluded)

Site Number	UTM[a] Northing	UTM[a] Easting	UTM[a] Ref.	Legal Reference Township	Legal Reference Range	Legal Reference Section	USGS Quad Map[b]	CR[c]
HISTORIC RESOURCES (concluded):								
S 40	4674400	725820	MARC	26N	2E	34	GI753	3
S 41	4674300	725620	MARC	26N	2E	3	GI753	3
S 42	4674460	726540	MARC	26N	2E	3	GI753	3
S 43	4674020	727310	MARC	26N	2E	2	B753	3

[a] UTM = Universal Transverse Mercator coordinates, Zone 17. If the area is less than 10 acres in extent, the coordinates record the approximate center of the site. If it is larger, they record the corners of a 3-or-more sided figure than encloses the site. The individual or institition that computed the UTM coordinates, listed here as "Ref.," include Midwestern Archeological Research Center (MARC).

[b] B768 = Bellevue, IL-IA, 7.5 min. quad (1968, photorevised 1975);
H768 = Hanover, IL, 7.5 min. quad (1968, photorevised 1975);
GI753 = Green Island, IA-IL, 7.5 min. quad (1953, photorevised 1975);
B753 = Blackhawk, IL-IA, 7.5 min. quad (1953, photorevised 1975).

[c] The Confidence Rating (CR) is an evaluation of the perceived reliability of the site locational data. 1 = the information is more guess than science; 2 = the judgement is moderately reliable; 3 = the information is most likely reliable.

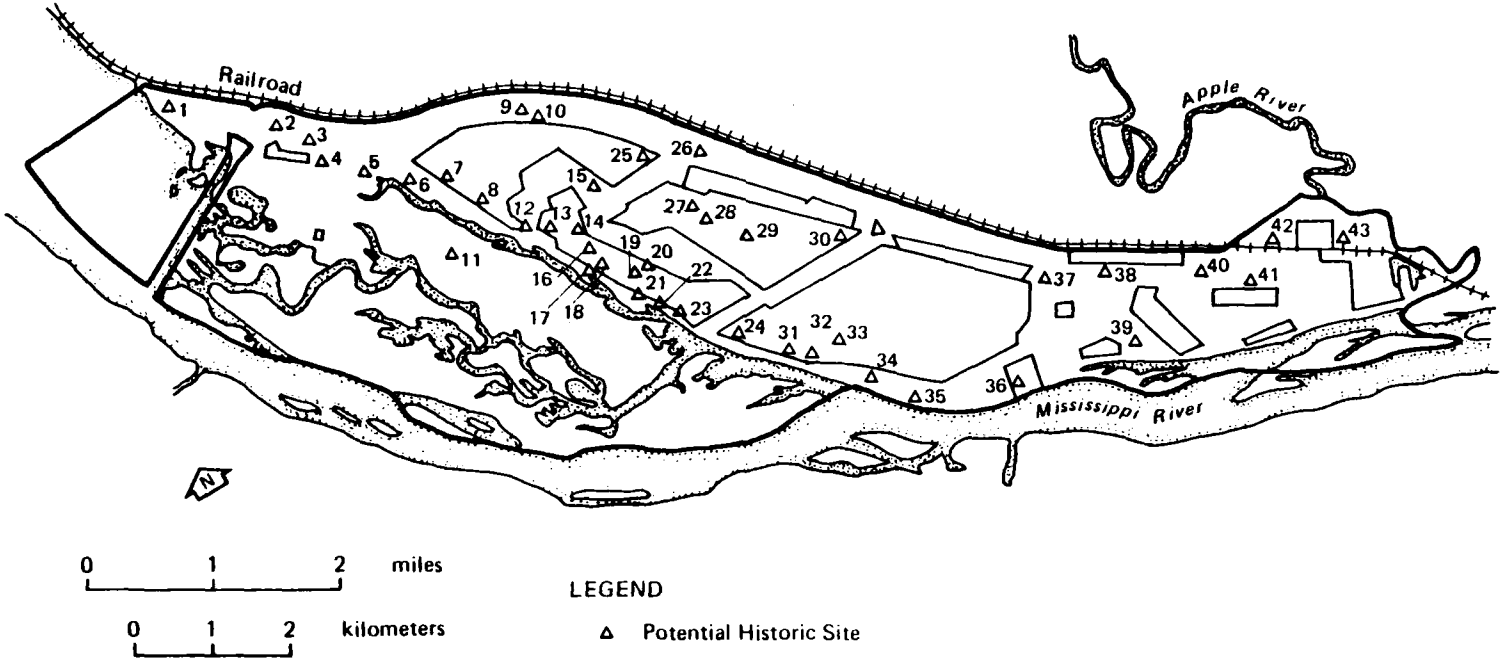

Figure A-2. A MAP OF POTENTIAL ARCHEOLOGICAL RESOURCE LOCATIONS ON THE SAVANNA ARMY DEPOT ACTIVITY


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