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AN ARCHEOLOGICAL OVERVIEW AND MANAGEMENT PLAN FOR THE
HAYS ARMY AMMUNITION. (U) WOODWARD-CLYDE CONSULTANTS
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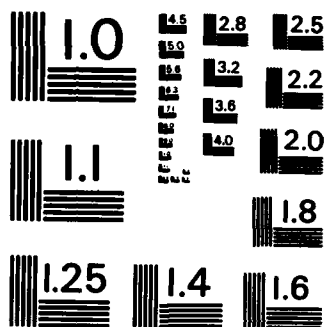
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Report No. 16

May 7, 1984

**An Archeological Overview and
Management Plan for the
Hays Army Ammunition Plant,
Allegheny County, Pennsylvania**

Under Contract CX-5000-3-0771
with the

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

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

by

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16. Abstract (Limit: 200 words) The Hays Army Ammunition Plant (AAP) is an eight-acre facility located within the city of Pittsburgh in Allegheny County, Pennsylvania. The entire facility has been impacted by modern construction in the form of parking areas and a manufacturing plant. No archeological sites, either prehistoric or historic, are known to exist on the AAP, and to date no archeological investigations have been conducted. Because of the nature of and depth of the installation's subsurface soils, there is the possible presence of intact subsurface archeological deposits. No construction is planned for the facility; however, if any construction were to occur and any archeological resources encountered, appropriate compliance procedures are recommended.				
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MANAGEMENT SUMMARY

The Hays Army Ammunition Plant (AAP) 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, the culture history of the area that provides a context for the interpretation and evaluation of those resources, an assessment of the total archeological resource base likely to be found on installation lands, and recommendations for the future management of those resources within the overall context of DARCOM missions and public responsibilities.

No archeological investigations have been conducted on the Hays AAP and no sites are known to exist within the facility boundaries. The entire surface of the facility has been impacted by modern construction. However, subsurface archeological deposits may exist beneath these areas in relatively undisturbed alluvial deposits. No construction is planned on the facility; if any were to occur, compliance procedures are recommended.



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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 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 Hays Army Ammunition Plant 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 threshold 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

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 Hays Army Ammunition Plant in Allegheny County, Pennsylvania (Figure 1-1). The facility is an installation of the U. S. Department of the Army DARCOM (Material Development and Readiness Command) unit, 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 commandwide 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 Hays Army Ammunition Plant (AAP), and was developed in accordance with the Level A requirements as set forth in the archeological project Work Plan (Knudson, Fee, and James 1983). Because there are no known, potential, or highly likely archeological sites on the Hays Facility, the required Sections 4.0 and 5.0 are minimal statements only in this report. A companion historic architectural study is in preparation under a contract with the National Park Service's Historic American Buildings Survey (HABS), but is not yet available (William Brenner, personal communication 1983).

This section introduces the Hays Army Ammunition Plant archeological overview and management planning effort. Federal regulations requiring such work and effort are briefly summarized. Also included are brief introductions to the Hays facility, the lack of previous archeological work there, and the sociocultural context of any potential archeological resources that might merit management consideration.

1.1 PURPOSE AND NEED

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

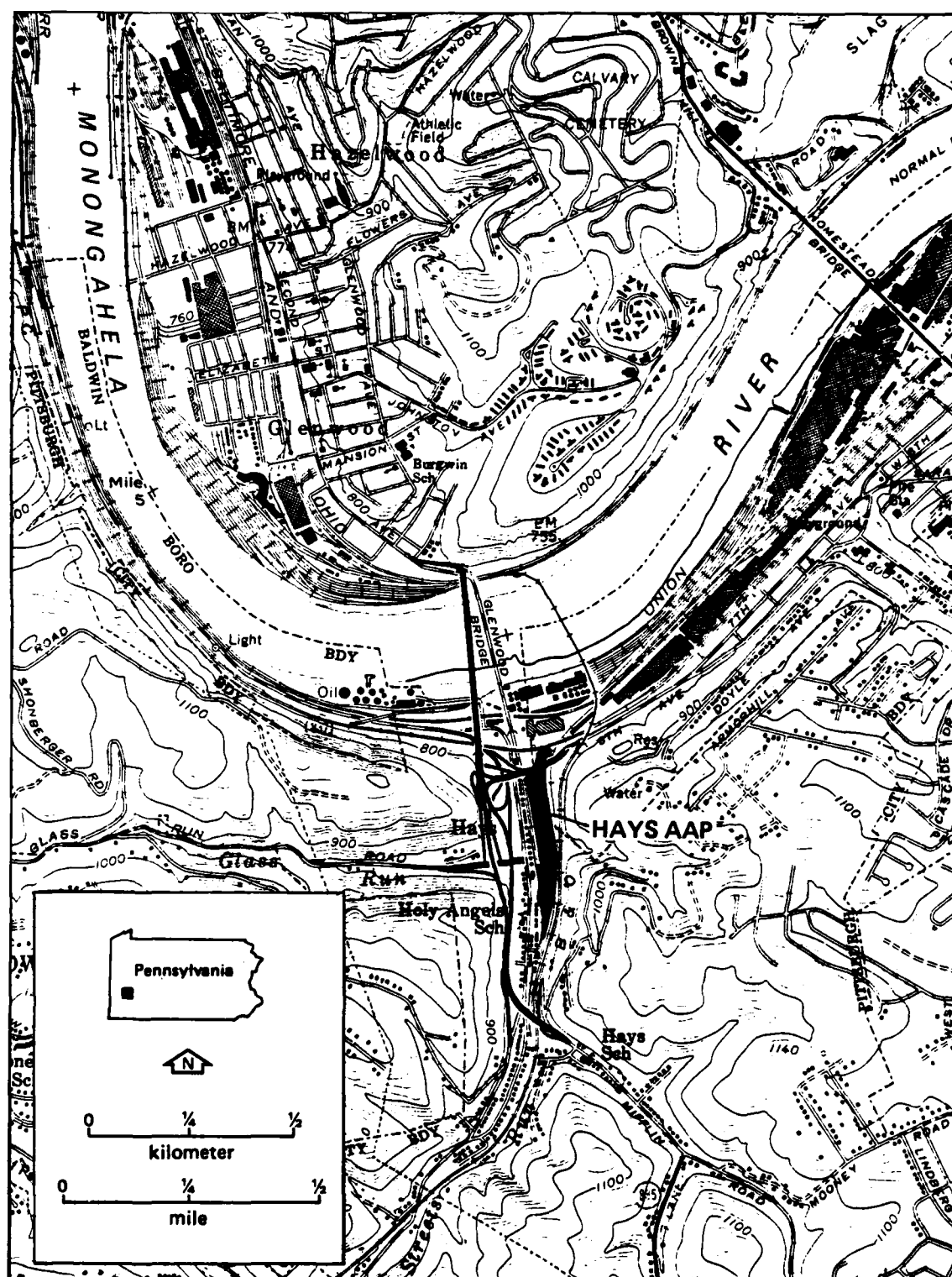


Figure 1-1. MAP OF THE GENERAL VICINITY OF THE HAYS AAP

- 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 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 penalties (Sec. 7)
- 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).

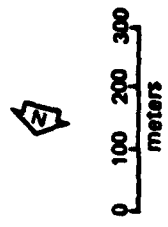
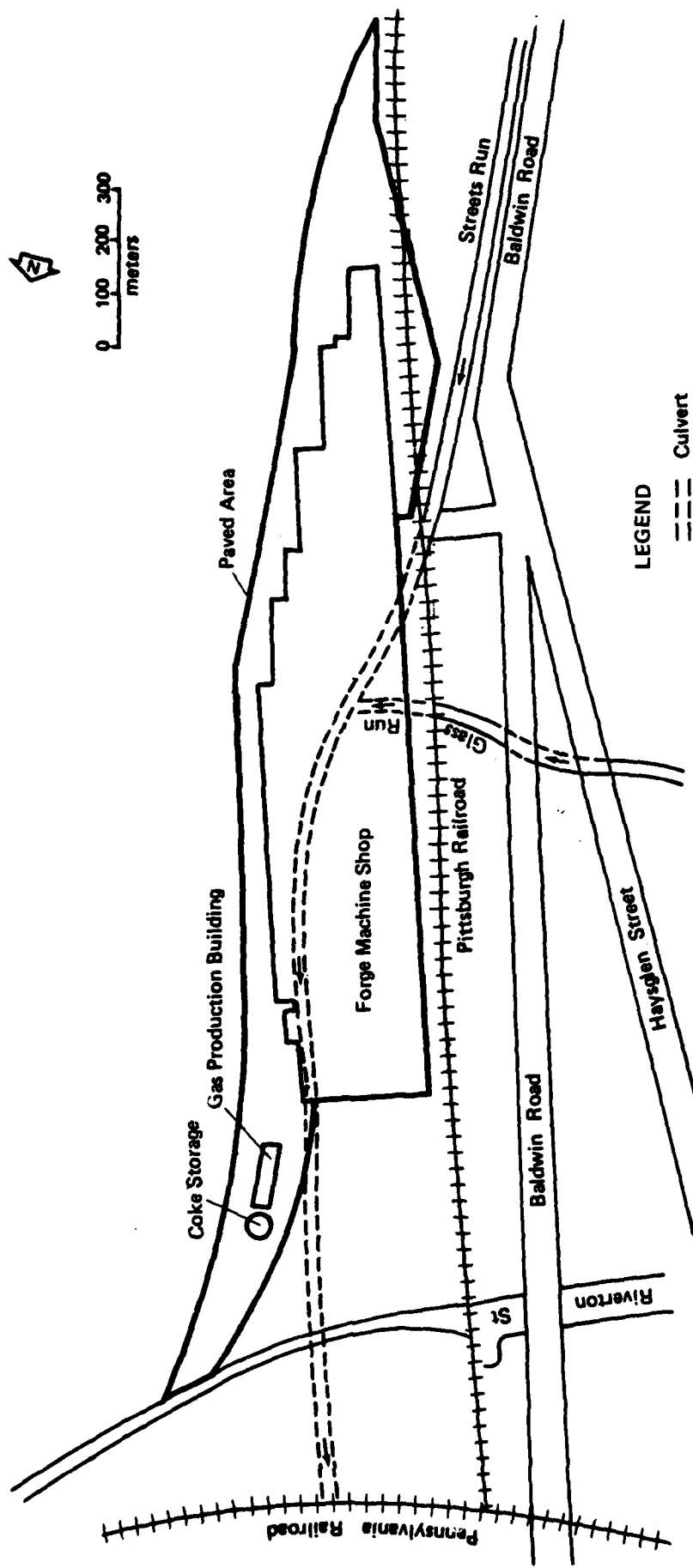
When applied to public lands that have been set aside for some purpose other than cultural resource preservation (e.g., for support of America's military capabilities), compliance with these laws and regulations is carried out within a context of multiple objectives and management options. This report is directed toward such multi-choice management of an archeological resource base within a military context.

1.2 THE HAYS ARMY AMMUNITION PLANT

The 8 acre (3.2 ha) Hays Army Ammunition Plant is located in Pittsburgh, Pennsylvania. The facility was originally built for the U. S. Navy in 1942 and was operated by the Mesa Machine Company. After the Korean conflict, the facility was deactivated and held as a Naval Reserve Plant. On December 23, 1966, the facility was transferred to the U. S. Army Ammunition Procurement and Supply Agency. The current operating contractor is Plant Facilities and Engineering, Inc., St. Louis, Missouri, with the following mission responsibilities: operation and maintenance of active facilities in support of current operations and maintenance and/or layaway of standby facilities; receipt, surveillance, storage, salvage, maintenance, renovation, demilitarization, physical inventory, and issuance of field service stocks, industrial stock and international logistics requirements; handling of necessary supplies, equipment, etc.; industrial readiness planning and emergency mobilization planning; product assurance functions; performance of production and process engineering; and performance of custodial maintenance and administrative functions. To date, the entire facility has been impacted by modern construction or paving (Figure 1-2).

1.3 SUMMARY OF PREVIOUS ARCHEOLOGICAL WORK CONDUCTED ON THE HAYS AAP

No archeological work has been conducted on the Hays AAP; no archeological sites are known to exist within the facility boundaries (Kurt Carr, personal communication 1983).



LEGEND
 --- Culvert

Source: Plat of the Navy Plant, Mess Machine Co. Drawing N-130.

Figure 1-2. MASTER BASE MAP OF THE HAYS AAP

1.4 THE SOCIOCULTURAL CONTEXT OF THE ARCHEOLOGICAL RESOURCES ON THE HAYS AAP

The documentary evidence suggests that the Hays AAP is located in an area that was developed industrially early in the historic period. Had there been archeological remains of interest to the Native American community, they may have been destroyed by nineteenth- and early twentieth-century Euroamerican activities. Historic Euroamerican cultural resources probably were obliterated by the construction of the present facility. The possibility that subsurface remains may still be intact could be verified only by testing beneath the plant buildings and asphalt-covered grounds. If any archeological resources were to remain on the Hays facility, their major value would lie in their scientific research significance.

AN OVERVIEW OF THE CULTURAL AND RELEVANT NATURAL HISTORY OF THE HAYS AAP

A discussion of the physical and cultural environment of the Hays AAP is presented; because the facility and the surrounding area is in an intensely urban environment with considerable modern disturbance, this discussion is brief. These considerations are important to provide baseline data for the incorporation of known land use, assessments of the cultural and natural environments, and archeological site information to produce effective management of facility lands. Thus, integration of all these types of data enable the management of archeological resources within the facility boundaries. In addition, the archeological research directions pertinent to the region 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 Hays AAP lies within the unglaciated Allegheny Plateau section of the Appalachian Plateau Province (Fenneman 1938), approximately 0.6 mile (1 km) south of the Monongahela River and 3 miles (5 km) east of the juncture of the Ohio, Allegheny, and Monongahela rivers. It is characterized by an undulating surface, with valleys several hundred meters deep separated by broad ridges. The AAP is located on filled land of an alluvial fan at a mean elevation of 745 feet (227 m) above sea level; the Monongahela River is approximately 122 feet (37 m) above sea level. The fill consists of a mixture of cinders, ash, clay, and shale overlying clay; bedrock is at least 36 feet (11 m) below the modern surface (U. S. Army Toxic and Hazardous Agency 1979:9). Even though modern construction has impacted the surface to a depth of 14 feet (4.3 m), it is possible that intact archeological resources exist in the undisturbed sediments in the lower 22 feet (6.1 m) of alluvium above bedrock. The underlying bedrock consists of sandstone, shale, and thin limestone and coal. Soils on the facility belong to the Urban Land-Philo-Rainsboro association (Newbury, Belz, and Grubb 1981:6). The urban lands consist of modern fill material placed over floodplains; the other soils are deep, moderately well-drained soils on floodplains and terraces.

2.1.2 Water Resources

The Hays AAP is well-drained by Street Run and Glass Run that are currently contained beneath the facility within concrete culverts. Both discharge into the Monongahela River which is located approximately 0.6 mile (1 km) north of the facility (Figure 1-1). The Monongahela in turn joins the Allegheny six miles downriver from Hays to form the Ohio River.

2.1.3 Modern Climate

Allegheny County has a continental climate with four well-defined seasons. Normal precipitation per year is 36.2 inches (92 cm) with relatively high humidity, while normal daily temperatures range from 45°F. to 63°F. (7.2°C to 17.2°C); annual snowfall is 33.3 inches (84.6 cm) (U. S. Army Toxic and Hazardous Materials Agency 1979).

2.1.4 Plant Resources

The vegetation of southwest Pennsylvania prior to urbanization was a mixed forest complex. Important vegetation components bordering the Hays facility included the white oak-hickory-tulip tree association on the uplands and the beech-sugar maple forest along the river terrace (Jennings 1939). The floodplain in which the Hays AAP is situated would have been forested by trees of the silver maple-elm-sycamore association (Lang 1968). These areas provided major food resources such as acorns, nuts, and maple sap.

The current vegetation of the facility itself can be expected to be composed solely of invading weedy species of herbaceous plants on disturbed ground and between pavement cracks or other such urban microhabitats.

2.1.5 Animal Resources

A wide variety of animal resources would have been available in the region of the Hays facility prior to Euroamerican contact. Table 2-1 lists the fauna recovered at the McKees Rocks site, a fifteenth-century settlement approximately seven air miles northwest of the Hays AAP (Lang 1968). A similar assemblage could be expected to have occurred on the facility or in adjoining habitats.

Historically, a 1760s "circle drive" hunt, covering roughly 250 square miles (648 km²) in central Pennsylvania, secured 98 deer, 111 bison, and 2 elk for the 200 participating hunters. Also killed at that time were 109 wolves, 41 mountain lions, 114 bobcats and 8 bears (Shelford 1963:28-29).

Few of these native animal species are present in the area today. Small rodents, including mice and rats, and a few introduced bird species could be expected. Rabbits, raccoons, and squirrels may be present.

2.1.6 Paleoenvironment

Paleoenvironmental reconstruction of the Hays AAP vicinity is not available. The closest regionally applicable information is derived from

**Table 2-1. ANIMAL RESOURCES LIKELY TO HAVE BEEN AVAILABLE
PREHISTORICALLY ON THE HAYS AAP**

Habitat	Resource
Monongahela River and Sloughs	Fish (gar, sucker, buffalo, catfish, drum, bass, sturgeon, walleye) Mussels Waterfowl (swan, goose, duck, merganser) Turtles Otter Mink Beaver Muskrat
Floodplain Forest and Forest Edge	Deer Elk Raccoon Turkey Bear Woodchuck Squirrel Bobcat Fox Woodcock Porcupine Cottontail rabbit Grey wolf Mountain lion

SOURCE: Lang 1968.

pollen cores from east-central Indiana (Whitehead et al. 1982) and from western Ohio (Shane 1980), which indicate that the north-central to northeast part of the United States was covered by a spruce-dominated vegetation prior to 13,000 BP. In western Ohio, spruce shows a sharp decline with a concomitant increase of ash, oak, and other hardwoods at about 13,000 BP, followed by a second maximum of spruce and decline of hardwood around 11,000 BP (Shane 1980). Spruce rapidly moved northward thereafter (Whitehead et al. 1982:254) and was replaced by pine (Schwert and Morgan 1980:95) and hickory by 10,000 BP (Ogden 1966). Pine and hickory remain major components in Pennsylvanian vegetation today.

Elsewhere on the east coast, Brugam (1978:358) has documented a decrease in hemlock and beech with Euroamerican settlement in the 1700s. He also notes the decrease in chestnut pollen around 1910; the same could be expected for Pennsylvania as the chestnut blight moved westward during the early to mid-1900s.

2.2 THE CULTURAL ENVIRONMENT

An overview of the cultural chronology of the Hays AAP and surrounding region within a radius of approximately 100 miles (160 km) is presented in Table 2-2. This discussion is brief because modern disturbance has eliminated the possibility of any surface archeological remains still present on the AAP. However, subsurface cultural deposits may be preserved in the deep, alluvial sediments on the facility. Within this portion of Pennsylvania, sites dating from the Paleo-Indian to protohistoric and historic Indian groups have been recorded. Prehistoric site types are varied and range from single activity loci to large village sites to mortuary areas.

2.2.1 Prehistory

The area surrounding the Hays AAP is on the western boundary of the archeological region of the Middle Atlantic states (Schmitt 1952). This boundary zone has evidence of broad regional cultural interactions throughout the prehistoric Paleo-Indian, Archaic, and Woodland traditions. As discussed in 2.1.1, archeological deposits may be preserved beneath the construction areas on the facility.

Paleo-Indian sites (10,000 to 7000 BC) in western Pennsylvania generally consist of isolated projectile points lost in hunting in both upland and valley locations, presumably representing hunting and even plant gathering activities. In addition, two sites in Pennsylvania are significant in the interpretation of Paleo-Indian (and possibly earlier) materials: Shoop and Meadowcroft. The Shoop site (Witthoff 1952) is located approximately 170 air miles east of the Hays AAP and contains evidence for a fluted spear point and blade stone tool industry using non-local chert materials. Meadowcroft, located approximately 45 air miles southwest of the Hays AAP, is a deeply stratified, multicomponent site reported to contain Late Pleistocene (more than 12,000 years) evidence of human occupation and evidence for an early New World bifacial lanceolate

Table 2-2. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE HAYS AAP

Cultural Unit			General Settlement Patterns		General Subsistence Systems		Kinds of Archeological Remains Representative of Period	
Tradition	Period or Phase	Date						
American	Late Industrial	AD 1920 to Present	Pittsburgh a major urban economic center		Heavy industry dominant; utilities; transportation; service and recreational/leisure industries		Dominance of American manufactured goods; automatic machine-made bottles; decal-decorated ceramics; plastic disposable packaging	
	Early Industrial	AD 1860 to 1920	Pittsburgh a major industrial urban area; maximum rate of increase in population in the industrial population in the Pittsburgh area during 1880s; mills and factories are family-owned/operated; housing is in short supply; later immigrants are primarily eastern and southern Europeans		Extractive and heavy industries; construction; retailing		Brick, stone, balloon frame construction; English white ironstone ceramics at beginning of period; American ceramics dominating at end of period; semiautomatic mold-blown bottles; canning jars with metal rims and glass liners; wire nails	
Homestead		AD 1815 to 1860	Pittsburgh, incorporated as a city in 1816, is the vital link between the coastal states and the South and the West, and its resources promote its economic growth; Pittsburgh's population growth (1830-1850) of 350 percent is unequalled among leading cities, and its only urban rival in the Ohio Valley is Cincinnati		Manufacturing (iron and glass predominant) and mining; commerce; retailing; trades		Brick, stone, and balloon frame construction; English ceramics: pearlware, whiteware, blue and green shell-edge, handpainted, slip-banded; English flatware; handforged (early) to machine-cut (late) nails; free-blown glass containers	
Frontier		AD 1783 to 1815	From 1774 until the end of the Revolution, western Pennsylvania had suffered continuously from Native American raids; following resolution of the interstate boundary (1784), the Penn land rights (1779), and the Native American threat (1795), there is a surge in migration and settlement; between 1790 and 1800, western Pennsylvania's population increases 85 percent, mostly in southwestern corner; the region		Agriculture (extensive mode); creameries; tanneries; cooperages; tailoring; carpentry and cabinet making; saddleries; distilleries and wineries; watch and clock making; smithies; quarrying; brickyards; masonry; printeries; ropewalks; retail shops; banks; sawmills; coal mines; copper, brass, and tin works; iron smelteries; shot factories; tobacco mills; carding and spinning factories; button factories;		Log and weatherboarded log structures (early); frame, brick, and stone structures (late); town houses (Pittsburgh) with common fire walls of brick continuing above roofs; English creamware and pearlware refined wares; hand-wrought nails; free-blown glass containers	

Table 2-2. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE HAYS AAP (continued)

Cultural Unit		Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
Tradition						
American (cont)	Frontier			is overwhelmingly rural, but villages and towns are increasing in number and population; Pittsburgh's position as regional metropolis is established between 1790 and 1800 when its population rises from 376 to 1565; by the end of the 18th century, the process of making farms is nearing completion, commerce is well established, and manufacturing and mining are being developed; boatbuilding and merchant milling are the first important manufacturing; early iron smelteries are organized as plantations; steam power provides the remedy to the lack of adequate and reliable power sources, the principal obstacle to development of large-scale manufacturing; the Industrial Revolution is underway in the region by the end of the period; settlers are mainly of English, Scotch-Irish, German, Scottish, Irish, and Welsh origin	chandleries; book binderies; playing card factory; white-lead and flaxseed oil mills; papermills; flourmills; glassworks; boatmaking; chemical manufacturing	
Colonial	European Competition	AD 1725 to 1783		Pennsylvania traders move into western Pennsylvania; most traders build cabins in or near Native American villages to serve as temporary residences, trading posts, storehouses, and blacksmith shops; control of the Ohio Valley passes to the English in 1763; the settlement at the Forks of the Ohio is named Pittsburgh; Fort Pitt is completed in 1761; Pittsburgh is essentially a garrison town and trading post; the first agricultural settlers in southwestern Pennsylvania are mainly from	Hunting; gathering; agriculture; trading; tavernkeeping; crafts; outfitting travelers; and supplying garrisons	Log structures; English salt-glazed and creamware ceramics; free-blown glass containers; kettle brass; gunflints; metal knives; hand-wrought nails

Table 2-2. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE HAYS AAP (continued)

Cultural Unit		Period or Phase	Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
Tradition						
Colonial (con't)	European Competition			Virginia; bottomlands along rivers are occupied first by settlers, then land up the creeks, and finally higher ground away from streams The Shawnee enter the Allegheny and Ohio valleys ca. 1730; the Mingo (an Iroquoian group) and later the Wyandot and others migrate into western Pennsylvania; the Native American population is mixed and relatively sparse; Logstown, 18 miles below the Forks of the Ohio, is the most important regional Native American village and trading center; the Shawnee leave Pennsylvania after the fall of Fort Duquesne (1758)	Hunting; gathering; trapping; agriculture; trading	Agricultural villages and temporary hunting camps; pit features and middens; European trade goods
Colonial	Early Exploration	AD 1692 to 1725		Arnout Vlele is the first European known to traverse western Pennsylvania (1692-1694); the Delaware, escaping Euroamerican advance and subservience to the Iroquois, enter the Allegheny Valley ca. 1724; James Le Fort among the first traders (ca. 1725) to follow the Native American migration Erie people are decimated by the Iroquois (1656); western Pennsylvania is largely uninhabited and serves as Iroquois hunting and war zone; Euroamerican advances from the seaboard push the Delaware into the Allegheny Valley ca. 1724	Hunting, trapping; gathering; and trading	Temporary campsites; cache pits; kettle brass; glass beads; iron knives and hatchets; gun parts and flints; English stoneware and delftware; Pennsylvania redware
Woodland	Late-Monongahela	1000 AD to contact		Seasonally sedentary habitation sites; fortified villages	Horticulture, hunting and gathering	Cordmarked, incised ceramics; triangular points; bow and arrow

Table 2-2. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE HAYS AAP (concluded)

Cultural Unit		Date	General Settlement Patterns	General Subsistence Systems	Kinds of Archeological Remains Representative of Period
Tradition	Period or Phase				
Woodland	Middle-Watson	500 BC to 1000 AD	Small seasonal or base camps, habitation sites and mortuary related sites	Horticulture, hunting and gathering	Diversification of ceramic and projectile point styles
Woodland	Early-Adena	1000 to 300 BC	Small seasonal or base camps, with possibly increased sedentism; villages; mortuary sites and burial mounds	Hunting and gathering; increased reliance on plant resources	Ceramic technology; cordmarked, plain, flat-bottomed vessels; side-notched and expanded stemmed points; tubular stone pipes; ground stone
Archaic (transitional)	Late-Ashtabula	1800 to 800 BC	Small base camps with possible increased population density and group stability	Heavy dependence on riverine resources; continued diversification of resource base	Lithic scatters with a variety of projectile points; ground stone; soapstone cooking vessels
Archaic	Proto-Laurentian Panhandle	7000 BC to 1000 BC	Small seasonal or base camps in riverine and forest areas; probably semi-permanent or repeatedly occupied special activity sites and utilization of rockshelters increased; in addition to site-types found in Paleo-Indian, isolated burials and open camp sites are found; in the latter portion there was a probable population increase, located in small, seasonal or base camps in riverine and forest areas	Hunting and gathering of smaller game animals, i.e., deer, elk; more diversified economy; increase in use of vegetal foods; exploitation of more local resources during Hypsithermal	Lithic scatters with ground stone, variety of projectile points; general purpose tool kits
Paleo-Indian		10,000 to 7000 BC	Hunting and gathering loci located in upland and valley locations; types of sites include isolated kill sites, communal kill sites, base camps, processing sites, quarries, chipping stations, and rock shelter sites.	Hunting of megafauna (mastodon, mammoth, muskox, giant beaver); utilization of smaller animals; gathering	Diagnostic projectile points include large fluted points and large, unfluted lanceolate points; points may occur as isolated finds

Note: Dates for prehistoric periods are from Kent, Smith, and McCann (1971:4).

point tradition (Adovasio et al. 1975, 1978; Adovasio et al. 1980). The area surrounding the Hays AAP may contain significant Paleo-Indian sites, but without better information about the age of the intact AAP alluvium and given the rarity of these early sites, it is unlikely that Paleo-Indian materials remain on the AAP. It is difficult to assess the possibility of Paleo-Indian material without information concerning the age of the underlying deposits.

The Archaic Tradition (7000 to 800 BC) is characterized by a more diversified economy in a post-glacial environment, including hunting of smaller game animals (deer, elk) and an increased use of vegetal foods. Surrounding Archaic sites have been documented (Dragoo 1961; Ritchie 1969; Webb 1946; Witthoff 1953). Again, without information concerning the age of the underlying deposits it is difficult to estimate the chance of encountering Archaic materials on the AAP. However, if prehistoric materials are retained in the buried alluvium they are more likely to be Archaic rather than from any more recent archeological tradition given the depth of modern disturbance.

The Woodland Tradition (1000 BC to contact) is divided into three periods: Early (1000 BC to 300 BC), Middle (500 BC to AD 1000), and Late (AD 1000 to contact). There is only a limited possibility that Woodland sites may be preserved in underlying intact sediments. During the Early Woodland period, hunting and gathering continued with an increased reliance on plant resources. The first evidence for a ceramic technology occurs during this period when cordmarked, plain, and flat-bottomed ceramic vessels gradually replaced the reliance on stone vessels. Mortuary-related behavior in the area also appears to have increased (Dragoo 1960). The McKees Rocks Mound, located approximately seven air miles northwest of the Hays AAP at the confluence of the Allegheny and Monongahela Rivers at Pittsburgh, was the largest mound up the Ohio River and east of Moundsville, West Virginia (Dragoo 1960).

During the Middle Woodland period, western Pennsylvania was on the eastern boundary of the Hopewell social, economic, and religious influence (Dragoo 1956), with ties to western peoples apparently decreasing (Kent, Smith, and McCann 1971:264). Hunting and gathering continued with a diversification in both ceramic and projectile point styles. Middle Woodland sites in the area would be significant in the investigation of Hopewell influences on indigenous populations, the comparison of these between Early and Middle Woodland times, and the delineation of differences between western and eastern Pennsylvania, where Hopewell influence was less apparent.

The primary evidence for the Late Woodland in western Pennsylvania comes from late prehistoric Monongahela village sites fortified by stockades where maize, beans, and pumpkins were cultivated. These Monongahela sites show influence from both the west (Butler 1939) and the north (Butler 1939; Mayer-Oakes 1955). No connections can yet be made between the Monongahela archeological remains and any historic Indian tribe

(Kent, Smith, and McCann 1971:336), but these sites may allow the investigation of the origins and demise of the Monongahela site occupants, intra- or inter-group rivalries as evidenced by stockades, and the consequences of a more stable economic base.

2.2.2 Ethnohistory

No specific Indian tribe can be associated with the Hays AAP and the immediate area during the ethnohistoric period; however, the Iroquois used the area for hunting (Hunter 1978). Native American sites of this period would likely to have been short-term hunting/trapping camps, but none is known on the facility or in the immediate area. During the mid-eighteenth century many Native American groups moved through or briefly lived in the Pittsburgh area as they were pushed west by Euroamericans advances from the seaboard: the Delaware Indians in about 1724 (Billington 1974:128; Buck and Buck 1939:48; Goddard 1978:221-222; Hunter 1978:592); the Shawnee in about 1730; the Mingo; and later the Wyandot (Buck and Buck 1939:27-28; Hunter 1978). As a result, the Native American population was mixed.

2.2.3 History

Trade brought the first Euroamericans into the Ohio Valley as they followed the migration of the Delaware and other Native American groups during the period AD 1692-1725 (Bellington 1974:128; Buck and Buck 1939:48; Goddard 1978:221-222; Hunter 1978:592), but there is no known explicit record of any early explorer or trader in the immediate Pittsburgh area during this period. Archeological remains left by the early explorers or traders would consist of very light trash deposits that accumulated around briefly-occupied riverine campsites. Given the area's history of rapid industrialization and the facility's modern ground disturbance, it is unlikely that any such campsites remain on the AAP.

As mentioned previously, the Shawnee, Mingo, Wyandot, and other Native American groups joined the Delaware in western Pennsylvania early in the eighteenth century (Buck and Buck 1939:27-28). Since river traffic converged at the Forks of the Ohio, and as Logstown (18 miles below the Forks) was the regional trading center (Buck and Buck 1939:29), Native American agricultural villages and temporary hunting camps may have existed in the project vicinity.

During this period the Forks of the Ohio was essentially a garrison, trading, and outfitting post (Buck and Buck 1939:140), as evidenced by successive forts situated at the confluence of the Allegheny and Monongahela Rivers. The settlement there was named Pittsburgh; Fort Pitt was completed in 1761. Migration and settlement increased in the late eighteenth century, resulting in the establishment of commerce, manufacturing, mining, and farming in the Pittsburgh area. Nineteenth century settlers were of mostly Celtic and German heritage (Klein and Hoogenboom 1980:44-45), and eventually the Scotch-Irish became the industrial entrepreneurs and dominated the socioeconomic structure of the city (Lubove 1976). The coincidence of geographical setting, resource abundance, and national expansion accelerated Pittsburgh's industrial growth

during the Early Industrial Period (AD 1860 to 1920) (Lubove 1976:113). During the Late Industrial Period (AD 1920 to present) urban renewal accelerated (Cochran 1978:186; Lubove 1976); today Pittsburgh remains a major urban economic center.

The Hays Army Ammunition Plant was constructed in 1942 in an industrial and residential area of Pittsburgh south of the Monongahela River; homes are known to have existed on the AAP lands in 1925, so subsurface cultural deposits may occur (Helen Wilson, personal communication 1983). Now inactive, the plant consists of one structure on grounds that are entirely paved with asphalt and cement. There are no known historic archeological remains at the project site. However, a new set of historic resources has been created through the construction of the Hays AAP and through the activities that have taken place there. Although these are too recent to currently fall under statutory protection, they may constitute an important cultural resource that deserves conservation management in the future. A HABS/HAER draft report on the Hays AAP historic buildings has been completed and was recently submitted to the National Park Service for review (William Brenner, personal communication 1983).

Since the Hays Army Ammunition Plant consists of one building and associated parking areas, with the entire land surface modified through some sort of construction, there is no possibility of remaining surficial archeological deposits. Subsurface cultural deposits may occur, however, because of the presence of deep alluvial soils. Hays AAP personnel should contact the Pennsylvania SHPO for additional prehistoric and historic study units relative to their RP3 state plan.

2.3 ARCHEOLOGICAL RESEARCH DIRECTIONS

2.3.1 Regional Concerns

The final state preservation plans or RP3 studies (Resource Protection Plans; Aten 1982) have been completed in draft for this area of Pennsylvania and are available in draft for consultation by Hays AAP facility personnel (Stephanie Rodeffer, personal communication 1983). In addition, the Carnegie Museum has been awarded a grant for an archeological resource assessment of the City of Pittsburgh (Stephanie Rodeffer, personal communication 1983). No archeological sites, however, are known to exist on the Hays AAP. Surficial modification has occurred across the entire facility, but intact sedimentary deposits may remain beneath the modern construction. Because there is only a limited possibility that buried archeological remains are preserved on the Hays facility, this discussion of archeological research directions is consequently brief.

Paleo-Indian research in the area has investigated both isolated artifactual finds and small encampments such as Shoop and Meadowcroft. These sites represent the eastern extension of a pan-American tradition, and provide an opportunity to compare eastern and western manifestations of this tradition. During the Archaic Tradition, natural resource

utilization appears to have changed with an increase in plant use, population density, and group stability. The western Pennsylvania Archaic sites are significant because they allow investigation of these changes and the interactions with other Archaic hunters and gatherers to the west, north, and south.

Ceramics were first introduced during the Early Woodland and began to replace stone vessels. Sedentism may have increased along with ceremonial or mortuary-related behavior. Early Woodland sites in the Pittsburgh area are on the eastern extension of the Adena influence and have research significance. In contrast, Middle Woodland sites do not seem to have been as closely tied to Hopewell ceremonial practices and are dissimilar even between western and eastern Pennsylvania. Thus, Middle Woodland sites in the Pittsburgh area may provide significant information about prehistoric cultural interactions from the seaboard to the Ohio Valley. Fortified Late Woodland sites may retain evidence of rebuilding sequences, the need for such fortification, and the results of these enclosed sites on inter-group relationships. Archeological sites of the ethnohistoric period could provide tribal identification of the Native Americans living in or using the area, and their economic dependence on Euroamerican goods. Historic archeological research in the Pittsburgh area generally focuses on early Euroamerican and Indian contacts, economic dependence of early Euroamericans on the markets and goods of the eastern seaboard, and the settlement and industrialization of the area.

2.3.2 Installation-Specific Archeological Research Directions

No prehistoric or historic sites are known to exist on the Hays AAP; if any are found their research values should reflect any of the regional concerns.

AN ASSESSMENT OF ARCHEOLOGICAL RESOURCE PRESERVATION AND SURVEY ADEQUACY

The environmental and historic constraints that may limit the amount and kind of archeological site preservation are considered in this chapter as they apply to the Hays AAP, along with an assessment of the coverage of previously conducted archeological surveys. An assessment is also made about the adequacy of data collection, and any gaps that may exist are documented.

3.1 ENVIRONMENTAL CONSTRAINTS TO SITE PRESERVATION

Historic and recent modification of the Hays AAP has removed or obliterated any intact surface archeological remains. Buried archeological deposits may exist beneath paved areas of the facility because modern fill and alluvial sediments deposits are at least 36 feet (11 m) thick over the bedrock, and 60 percent of those deposits are probably undisturbed.

3.2 HISTORIC AND RECENT LAND USE PATTERNS

Prior to the construction of the facility, urban dwellings were located on the Hays AAP in an industrialized area (Helen Wilson, personal communication 1983). Land acquisition for the facility resulted from condemnation of the pre-existing structures (U. S. Army Toxic and Hazardous Materials Agency 1979). Construction activities on the facility almost certainly have destroyed any historic archeological resources that may have existed before 1942.

The entire Hays facility has been impacted by some sort of ground disturbance (Table 3-1, Figure 3-1). GDA 1 is pavement associated with the manufacturing building and consists mainly of surficial disturbance. GDA 2 is a manufacturing plant with three basements, each 14 feet deep. Both ground disturbance areas have been coded as 100 percent impacted.

3.3 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS; COVERAGE AND INTENSITY

No archeological surveys were conducted on the Hays AAP prior to its construction in 1942 or to date, and no archeological sites are known to

0305D-1

Table 3-1. A SUMMARY OF HISTORIC AND MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE HAYS AAP

GDA No.	Type of Disturbance	Date Constructed (yr)	Reference ^a	Area Disturbed (acres)	Estimated Depth Below Surface (ft)	Ratio of Disturbed to Total Area	Location of Disturbed Area							Coincidental Sites
							UTMB	Legal Reference ^c				USGS Quad Map ^a		
								Northing	Easting	Township	Range		Section	
1	Paved parking area	1944-1954	Facility map	3.4	1-3	1:1	4471150 4471700	590650 590600	--	--	--	--	PE760	None
2	Building	1942	Facility map	4.5	14+	1:1	4471250 4471650	590625 590550	--	--	--	--	PE760	None

^a Plat of Navy Plant, Mess Machine Company Drawing, M-10030.

^b UTM Zone 17. UTM's calculated by the Center for American Archeology.

^c Township/range/section information does not exist for this portion of Pennsylvania.

^d PE760 - Pittsburgh East, PA, 7.5 minute quadrangle (1960, photorevised 1969).

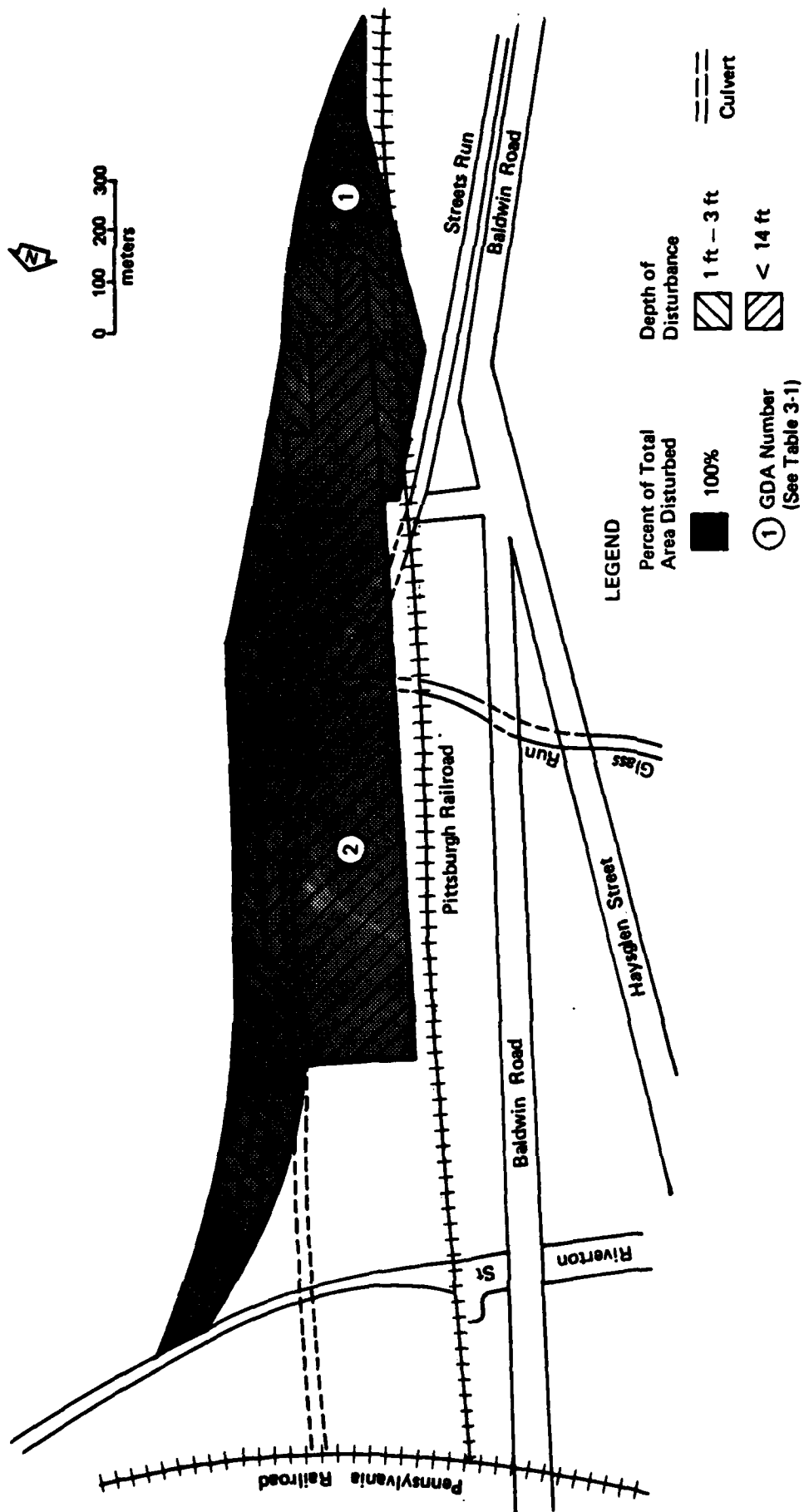


Figure 3-1. MAP OF AREAS OF HISTORIC AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE HAYS AAP

exist within the facility boundaries (Kurt Carr, personal communication 1983). A survey of the historic architectural resources on the AAP has been completed (William Brenner, personal communication 1983) but is not yet available for integration with the archeological evaluations.

3.4 SUMMARY ASSESSMENT OF ARCHEOLOGICAL DATA ADEQUACY AND GAPS

The lack of information on archeological resources on the Hays AAP is not due to a lack of survey, but rather to the all-encompassing nature of the ground disturbance on the facility such that surficial survey is not feasible.

4.0

**KNOWN ARCHEOLOGICAL RESOURCES
ON THE HAYS AAP**

There are no known or potential archeological sites on the Hays Army Ammunition Plant at present.

The facility is located on a modern surface of filled land on an alluvial fan with underlying bedrock at least 36 feet (11 m) below the modern surface (see 2.1.1). Construction and modification of the Hays AAP has removed any surface cultural remains to a depth of 14 feet (4.3 m). Subsurface cultural deposits may be preserved because of the presence of deep alluvial soils, and 60 percent (22 feet) of these subsurface deposits may be undisturbed.

5.0

**AN ASSESSMENT OF THE SIGNIFICANCE OF THE
ARCHEOLOGICAL RESOURCE BASE ON THE HAYS AAP**

No archeological sites are known on the Hays AAP, even though significant prehistoric and historic sites exist in the vicinity. The surface of the facility has been totally impacted by modern construction of paving, though intact sedimentary deposits appear to remain beneath. These deposits could still contain prehistoric or historic archeological materials.

It is recommended that the Hays AAP facility personnel develop a close coordination with the Pennsylvania SHPO in the event of any future development project at the facility.

A RECOMMENDED ARCHEOLOGICAL MANAGEMENT PLAN FOR THE HAYS AAP

6.1 FACILITY MASTER PLANS AND PROPOSED IMPACTS

No long-term planning document is available for the Hays AAP. Facility personnel state that no major modification is planned there and any minor modifications in the future would not further disturb surficial or subsurface deposits (Steve Cindric, personal communication 1983).

6.2 APPROPRIATE ARCHEOLOGICAL MANAGEMENT GOALS WITHIN THE HAYS AAP's MASTER PLAN

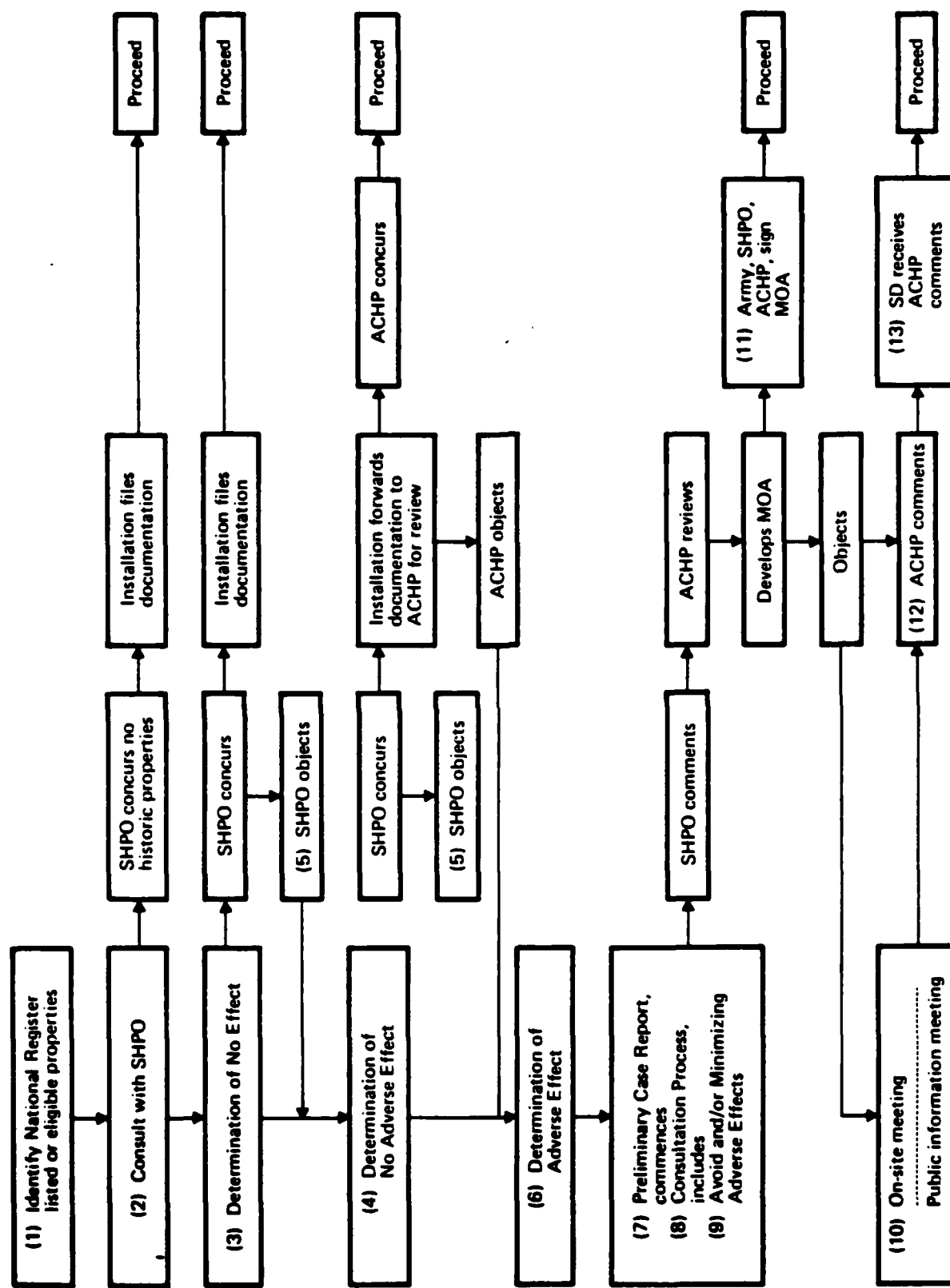
6.2.1 General Facility Planning

This report documents the lack of any archeological investigations of known or potential sites on the Hays AAP. This information can be utilized in the preparation of an Historic Preservation Plan (HPP) to be implemented on the facility if there are historic architectural resources that need management.

Army Regulation 420, drafted pursuant to the National Historic Preservation Act, and 36 CFR 800 (Section 1.1) require that each DARCOM installation have an Historic Preservation Plan (HPP) or have documentation on file indicating whether there are any known archeological resources appropriate to such management planning. At present, there is no such negative declaration, although no known or potential archeological sites exist on the facility. Therefore, the present report should provide a basis for such a negative declaration of the facility.

The draft Department of the Army AR 420 regulations prescribe Army policy procedures and responsibilities 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 (Fig. 6-1). This HPP has the following objectives:

- Integration of historic preservation requirements with the planning and execution of military undertakings such as training and construction and real property or land use decisions



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

- Implementation of a legally acceptable compliance procedure with the Advisory Council for Historic Preservation (ACHP) and the State Historic Preservation Office (SHPO).
- Outline priorities for acquiring additional information to determine if there may be additional projects not yet located or identified
- Establishment of a procedure for the evaluation of historic properties
- Ranking of facility projects by their potential to damage historic properties
- Provision of guidelines for the management of historic properties
- Provision of historic and archeological data for the installation's information systems
- Identification of funding, staffing, and milestones needed to implement the plan.

This document provides the necessary information for meeting these objectives for archeological resources on the Hays AAP. The information provided here can be used to determine if any activities of the on-going facility mission (or any special mission) will damage or have adverse effects on any "likely to occur" archeological resources; it thus can be used to develop alternatives for the mitigation of those effects. Consultation with the SHPO and ACHP about the preservation program as outlined in the HPP will ensure compliance with the historic preservation laws and regulations outlined in Section 1.0. Further, it will integrate preservation considerations into general facility and future project planning in a timely and cost-effective manner.

6.2.2 Project-Specific Resource Protection or Treatment Options

No archeological sites, either known or potential, have been documented on the Hays AAP. The possibility does exist for the preservation of intact archeological deposits beneath the parking lot and manufacturing plant. No major construction currently is planned for the facility. However, if any subsurface disturbance was to occur and archeological resources were encountered, the following are recommended in compliance with 36 CFR 800.7 and the National Preservation Act:

- Notification will be accomplished by the facility of the emergency discovery to the Departmental Consulting Archeologist (DCA), who is responsible for making an investigation within 48 hours, to determine the importance of the resource, and defining appropriate mitigation measures

- Consultation with the Pennsylvania State Historic Preservation Officer (SHPO), DARCOM, National Park Service (Mid-Atlantic Regional Office, Philadelphia), and the National Register, will be accomplished by the DCA or his designee
- If the site is evaluated as being important by the DCA or his designee, the Department of the Army is responsible for implementing the mitigation measures, including the cost

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

As discussed in 6.2.1, there is presently no documentation of known or potential cultural resources on the Hays AAP, nor is there a negative declaration to this effect on file. This report should serve as the basis for such a declaration.

There is the possibility of intact subsurface cultural resources. Presently, no construction is planned on the facility, but should archeological materials be encountered in any future ground-disturbing process, construction should halt until consultation and evaluation with the Departmental Consulting Archeologist (DCA) can determine the importance of the materials. If deemed important, the Army should then implement appropriate measures as recommended by the DCA.

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

Because no management work outside of DARCOM in-house activities should be required, the Section 6.2.2 resource protection options are recommended to incur no contractor costs.

SUMMARY

As a manager of public lands, the Hays AAP has responsibilities for the management of the natural and cultural resources held on those lands, for the general benefit of the American people. This report documents the lack of archeological resources on the facility and recommends compliance procedures if any archeological resources are identified that could be impacted by any future construction.

No construction is planned for the Hays AAP that would modify the current surface of the facility. To date the entire facility is covered by either the manufacturing plant or parking lots, and no natural vegetation remains. However, intact subsurface deposits possibly remain beneath the parking area and the manufacturing plant, and could contain archeological materials.

Consultation with the Pennsylvania State Historic Preservation Officer is recommended either for (1) the filing of (and written concurrence with) a negative declaration of preservation management needs, or for (2) completion of an Historic Preservation Plan. Such a plan should be in compliance with Army Regulation AR 420 and be based on information available from this report and from the historic architectural study presently being conducted by the Historic American Buildings Survey, to provide the basis for an affirmative cultural resource management program appropriate to a land-managing agency whose fundamental mission is support for America's military.

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