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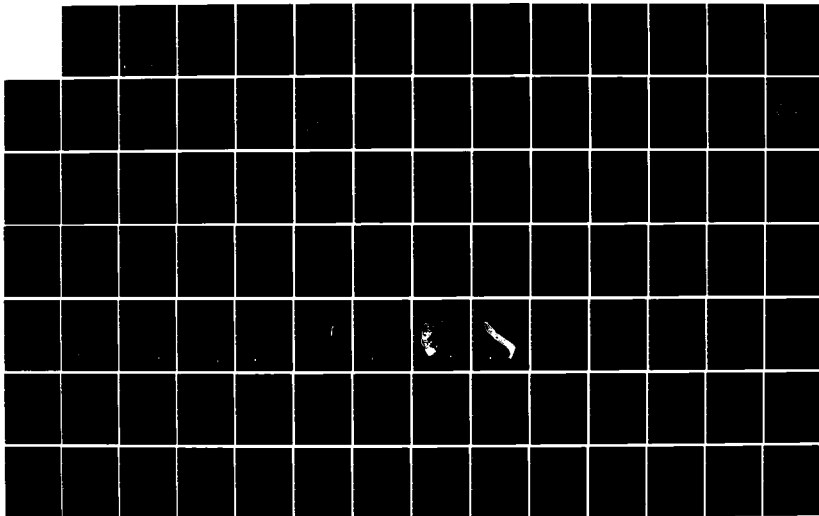
AN ARCHEOLOGICAL OVERVIEW AND MANAGEMENT PLAN FOR THE
LETTERKENNY ARMY DEPOT(U) ENVIROSPHERE CO NEW YORK
C A HAY ET AL. JAN 85 CX4000-3-0018

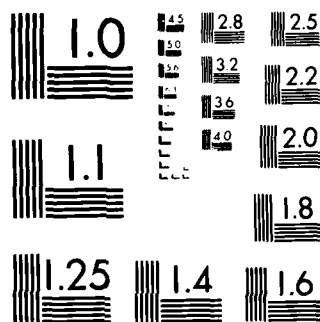
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**Final
Report No.11**
January 1985

AD-A151 387

**An Archeological Overview and Management Plan
for the Letterkenny Army Depot**

Under Contract CX4000-3-0018
with the

**National Park Service
U.S. Department of the Interior**
Philadelphia, Pennsylvania 19106

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

by

The Pennsylvania State University
University Park, Pennsylvania 16802

and

Envirosphere Company

2 World Trade Center
New York, New York 10048

Prepared under the Supervision of

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Joel I. Klein, Principal Investigator
Envirosphere Company

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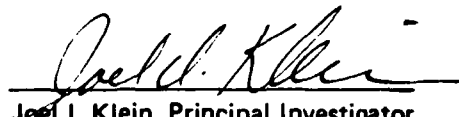
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16. Abstract (Limit: 200 words) This archeological overview and management plan provides a tool which can be used by DARCOM and decision-makers at Letterkenny Army Depot (LEAD) to assist in complying with regulations and procedures relating to historic preservation (Technical Manual 5-801-1; Technical Note No. 78-17; Resources Management 32 CFR 650.181-650.193, Army Regulation 420-40; 36 CFR 800). This document summarizes data relating to the area's environmental history; cultural chronology; historic and modern ground disturbances; previous archeological surveys; presently identified archeological resources; known artifact, ecofact, and/or documentary collections relating to archeological resources; potentially identifiable but not presently recorded archeological resources; significant archeological resources; locational data of known archeological resources; and locational data of potential archeological resources. Archeological field surveys on the LEAD facility recorded three prehistoric archeological sites and three historic period archeological sites. Documentary resources suggest that there are at least 345 potential historic period archeological sites. While large portions of the facility have been disturbed by development activities, there are intermittent areas which have not been disturbed or which have been disturbed only minimally. These areas may potentially yield significant archeological cultural resources which have not yet been recorded. The physical integrity of the potential sites is unknown. Recommendations for future archeological investigations on LEAD include surveys preceeding ground-disturbing development activities in areas near the locations of noted potential archeological sites and surveys designed to document the extent of disturbance near noted locations of potential archeological sites. Collection of more in-depth background data about pre-depot land use has also been recommended as has the collection of oral histories from local informants. All LEAD employees and civilians participating in LEAD programs should be informed of DARCOM's historic preservation responsibilities. LEAD should develop and implement procedures for handling unanticipated discoveries of previously unrecorded archeological remains.					
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MANAGEMENT SUMMARY

This archeological overview and management plan provides a tool which can be used by DARCOM and decision-makers at Letterkenny Army Depot to assist in complying with regulations and procedures relating to historic preservation (Technical Manual 5-801-1, Technical Note No. 78-17, Resources Management 32 CFR 650.181-650.193, Army Regulation 420-40; 36 CFR 800). This document summarizes data relating to the area's environmental history; cultural chronology; historic and modern ground disturbances; previous archeological surveys; presently identified archeological resources; known artifact ecofact, and/or documentary collections relating to archeological resources; potentially identifiable but not presently recorded archeological resources; significant archeological resources; locational data of known archeological resources; and locational data of potential archeological resources.

Archeological field surveys on the LEAD facility recorded three prehistoric archeological sites and three historic period archeological sites. Documentary resources suggest that there are at least 345 potential historic period archeological sites. While large portions of the facility have been disturbed by development activities, there are intermittent areas which have not been disturbed or which have been disturbed only minimally. These areas may potentially yield significant archeological cultural resources which have not yet been recorded. The physical integrity of the potential sites is unknown.

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PREPARERS AND QUALIFICATIONS

Conran A. Hay directed Pennsylvania State University's (PSU) data collection and analysis for the preparation of this overview. He is presently Research Associate at the PSU. He received his doctoral degree in Anthropology from PSU in 1978, and has directed numerous cultural resources surveys throughout Pennsylvania. Among Dr. Hay's numerous presented papers and publications dealing with Pennsylvania prehistory are "Predictive Models of Site Distribution within the Bald Eagle Creek Watershed" published in The Archaeology of Central Pennsylvania, and "Efficiency in Cultural Resource Management: the Role of Predictive Models" submitted to the Interagency Archeological Services division of NPS. Dr. Hay is a member of the Pennsylvania Archaeological Council and the Society for Pennsylvania Archaeology.

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Ira C. Beckerman participated in the data gathering and report preparation stages of this overview. He received his M.A. degree in Anthropology in 1978 from the PSU where he is working toward his Ph.D. degree also in Anthropology. He has worked on numerous archeological projects in Pennsylvania, Tennessee, and Mexico and is the author of several published and presented papers.

Christopher E. Hamilton also participated in the data collection and report preparation stages for this overview. He received an M.A. in Anthropology from the Florida State University in 1977 and is working toward a Ph.D. in Anthropology at the PSU. Hamilton's experience includes on-land excavation in Pennsylvania, cultural resources interpretation and protection in Arizona and Florida, and underwater archeological survey in the Caribbean. Hamilton has written numerous cultural resource management reports.

Joel I. Klein is Project Manager for the DARCOM project. He is a contributing author of this archeological overview and management plan. He holds a B.S. in Anthropology and Physics and M.A. and Ph.D. degrees in Anthropology, and is certified by the Society of Professional Archeologists in field research and cultural resource management. His 15 years of professional experience have been in anthropological and archeological research, and cultural resource management. He has participated in archeological investigations across the United States. He is presently a Principal Engineer with Envirosphere Company.

ACKNOWLEDGEMENTS

This archeological overview and management plan could not have been written without the cooperation of James A. Coccagna, Chief of Program Management and Administration Section, Facilities Engineering Division, Letterkenny Army Depot. He generously gave his time during an extensive site visit and provided essential data relating to the history of the installation's development. He also provided information about ongoing programs at the installation and future development plans.

Sandra Hay edited an early version of this overview draft.

Stephanie Rodeffer, National Park Service, provided guidance throughout the course of this project.

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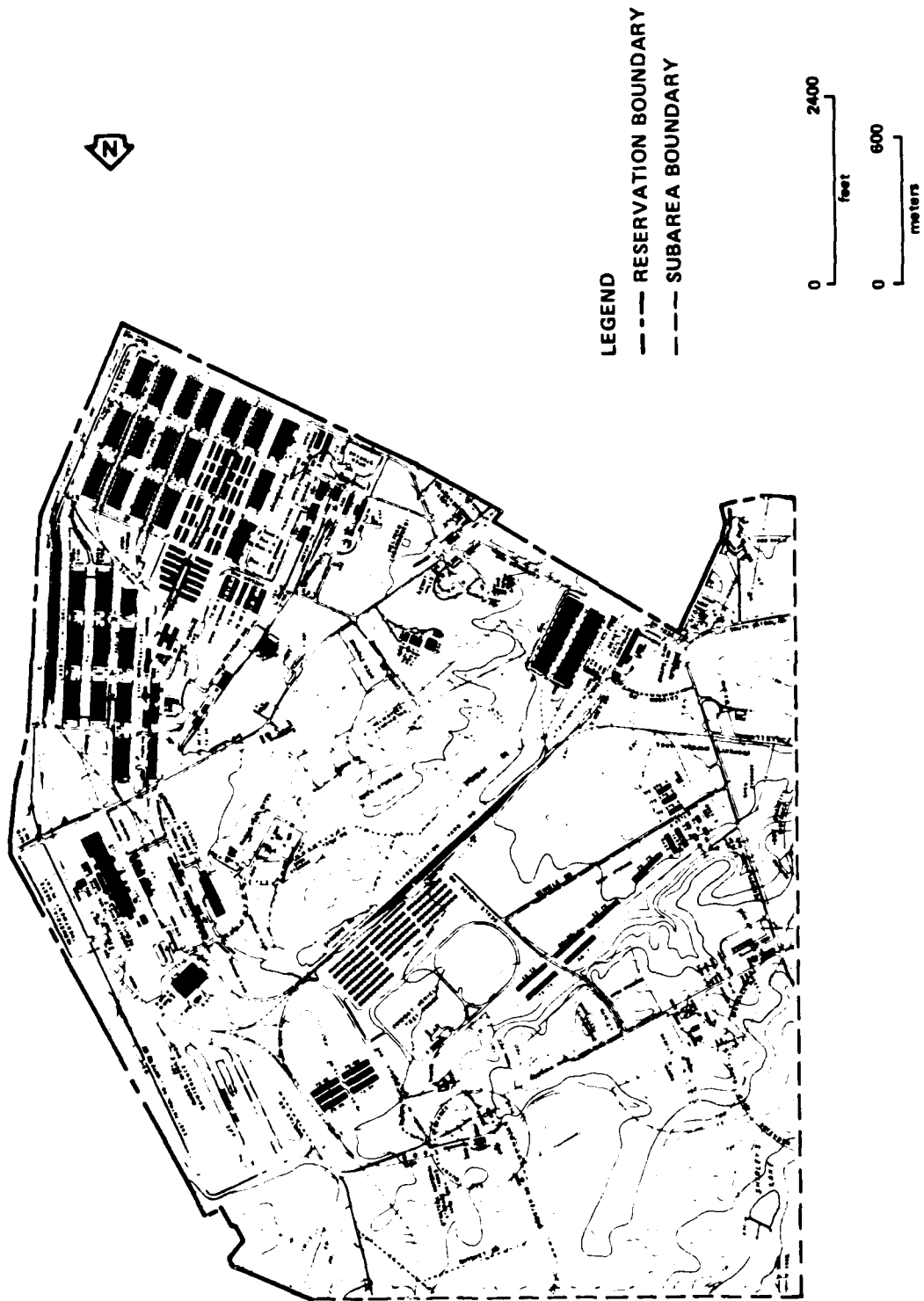


Figure 1-2g. DETAILED BASE MAP OF THE LETTERKENNY
ARMY DEPOT, SUBAREA G

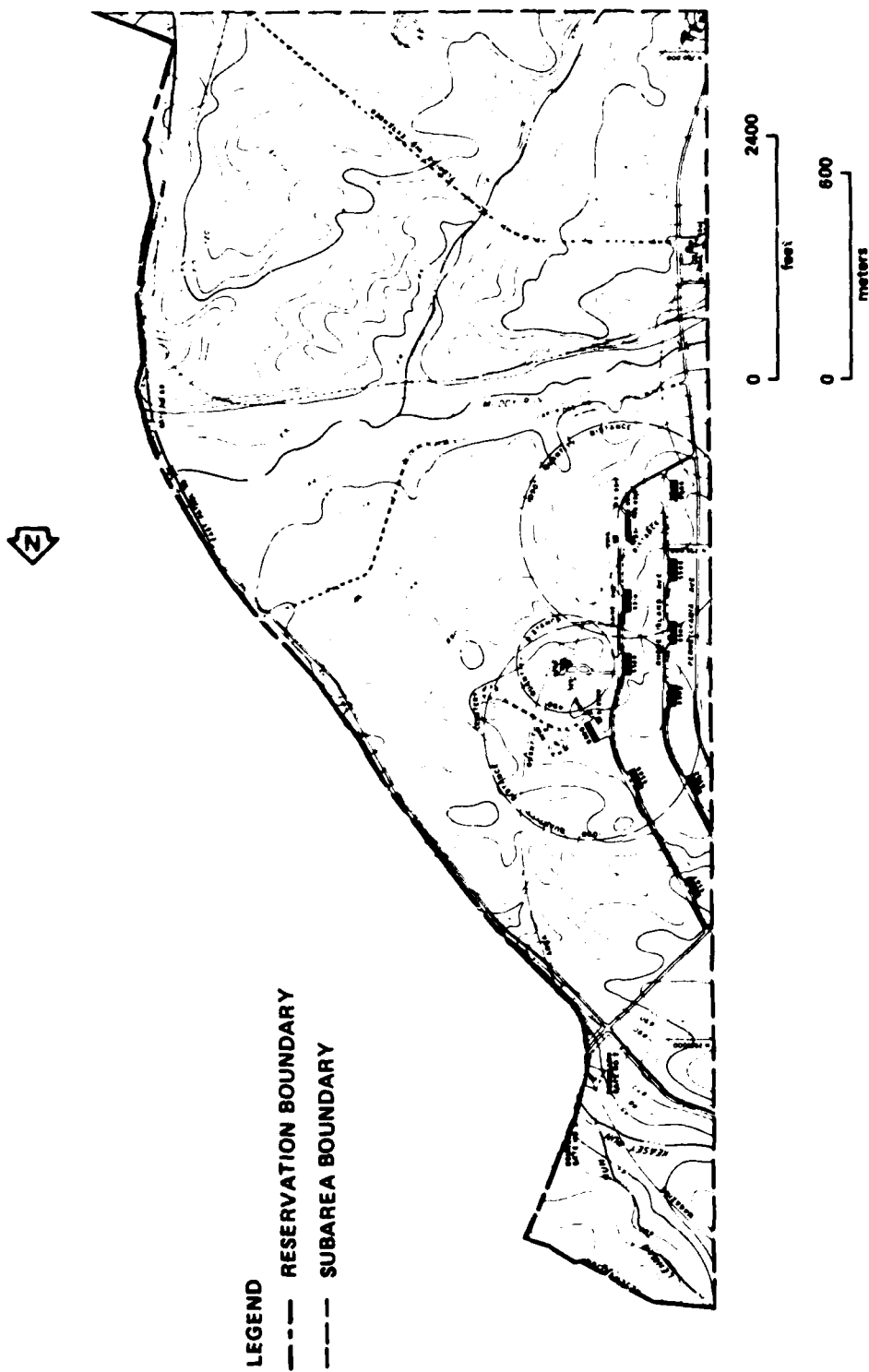


Figure 1-2f. DETAILED BASE MAP OF THE LETTERKENNY
ARMY DEPOT, SUBAREA F

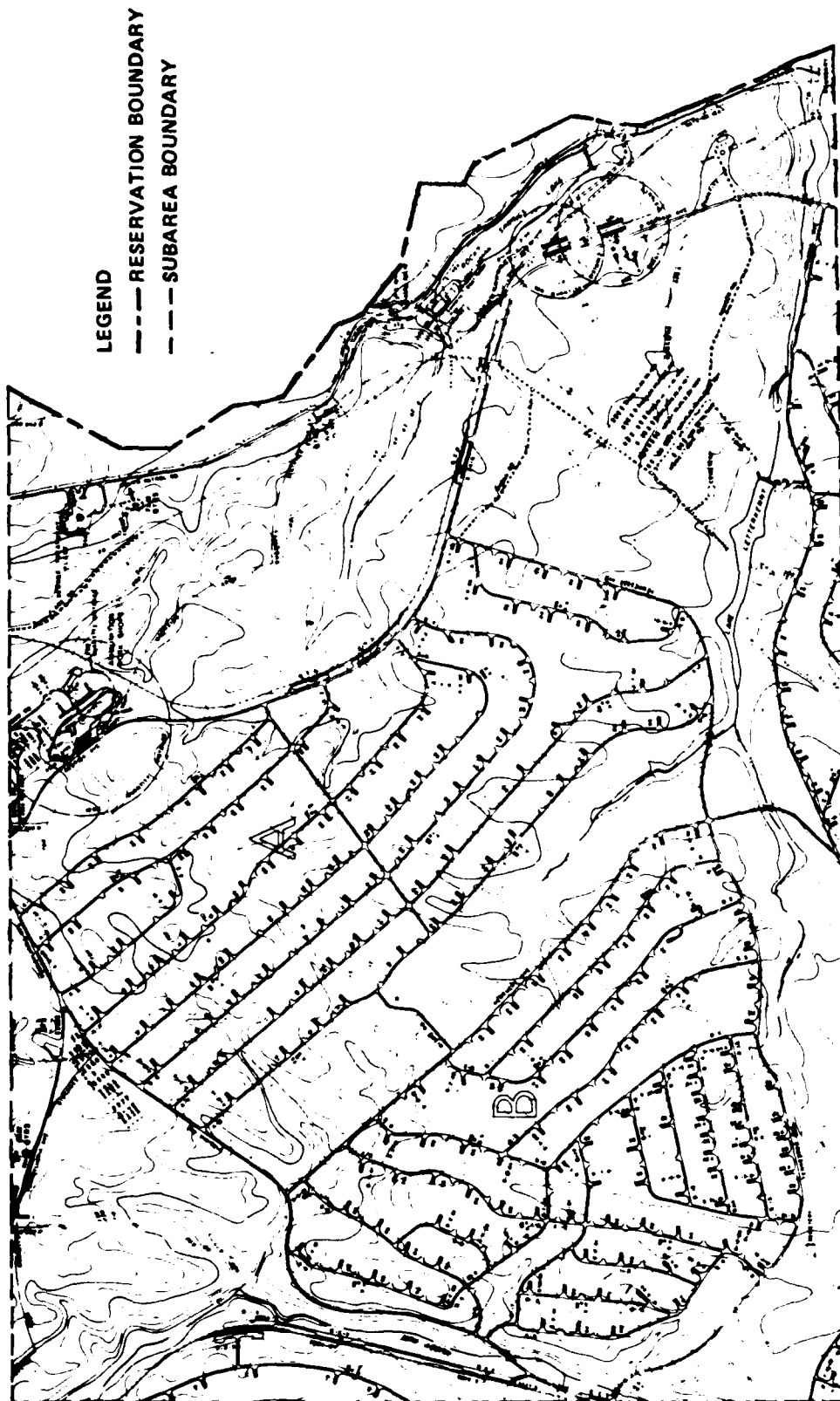


Figure 1-2e. DETAILED BASE MAP OF THE LETTERKENNY
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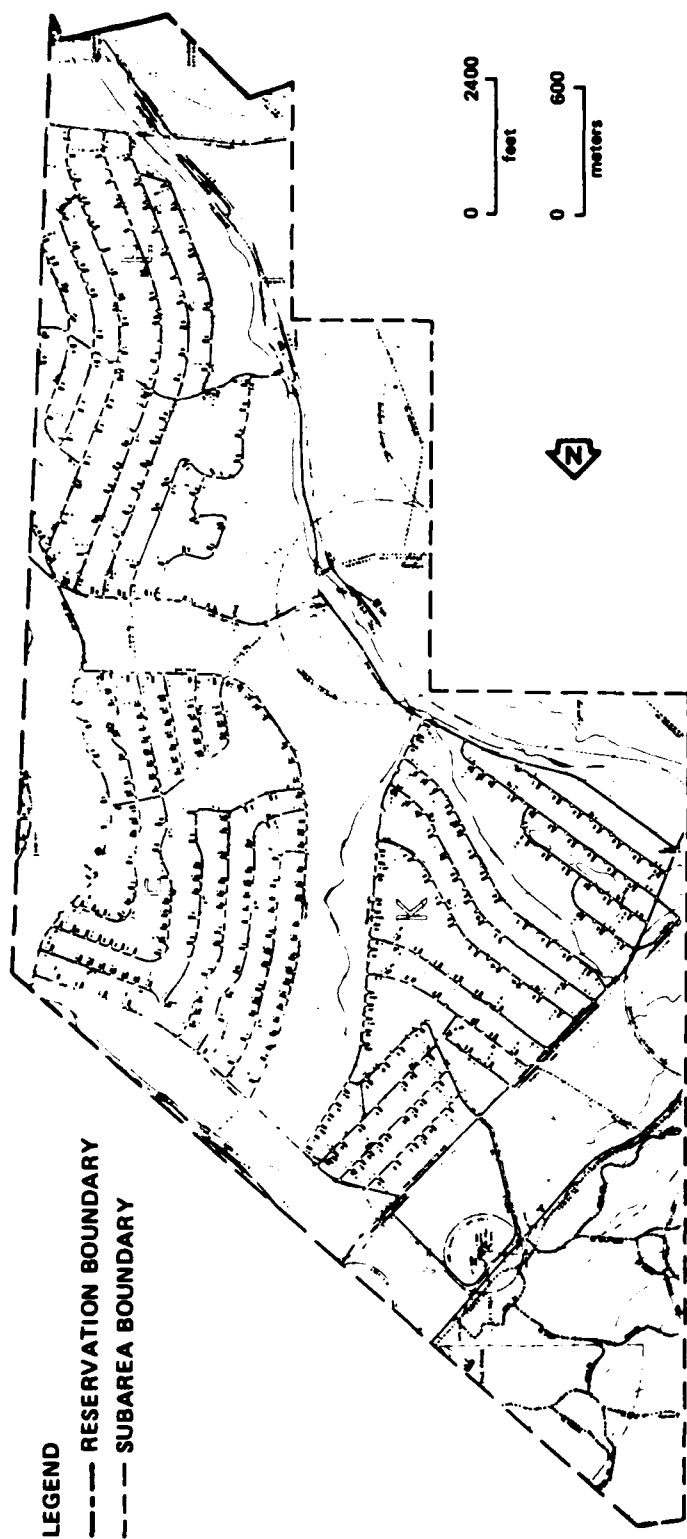


Figure 1-2d. DETAILED BASE MAP OF THE LETTERKENNY
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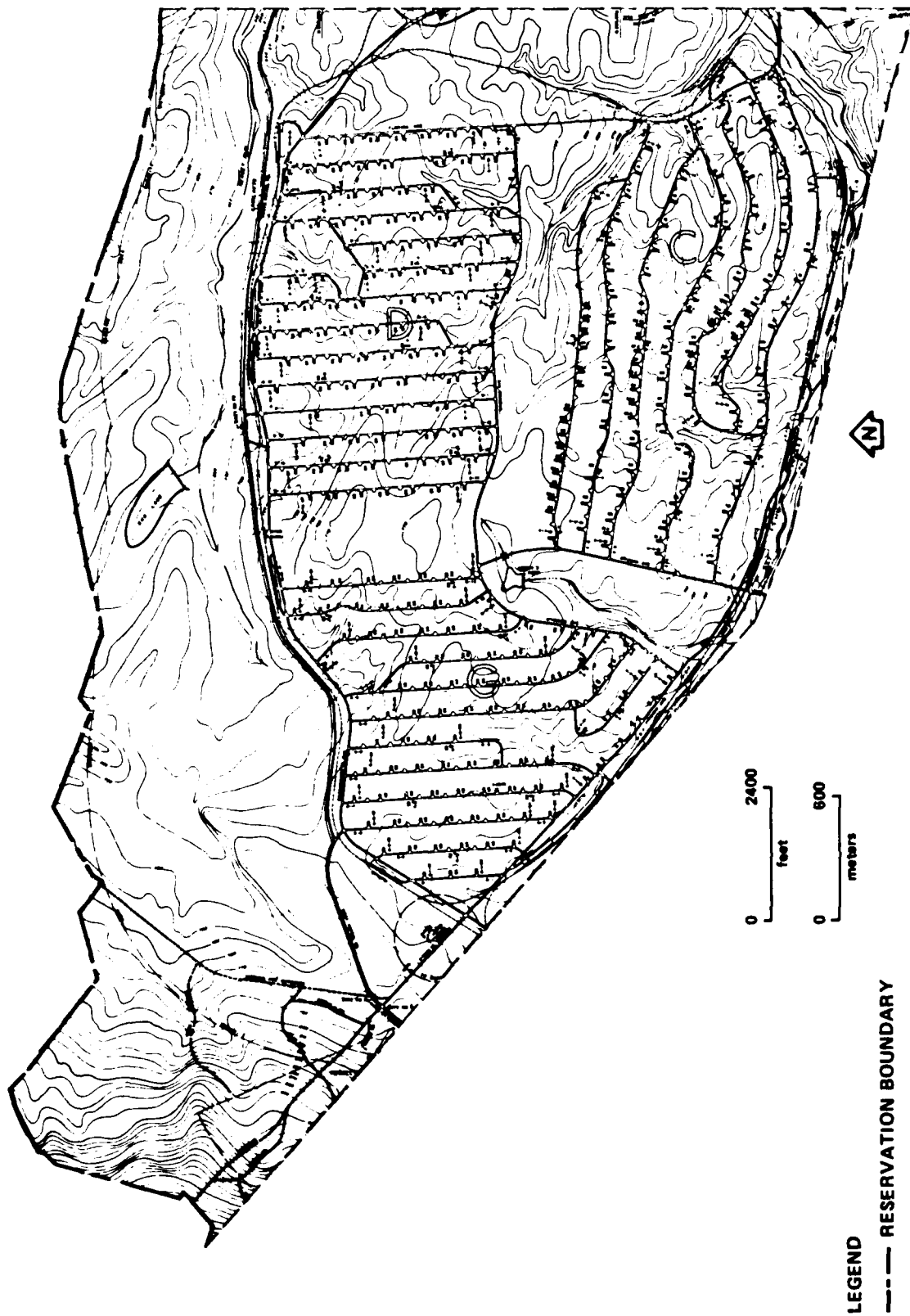
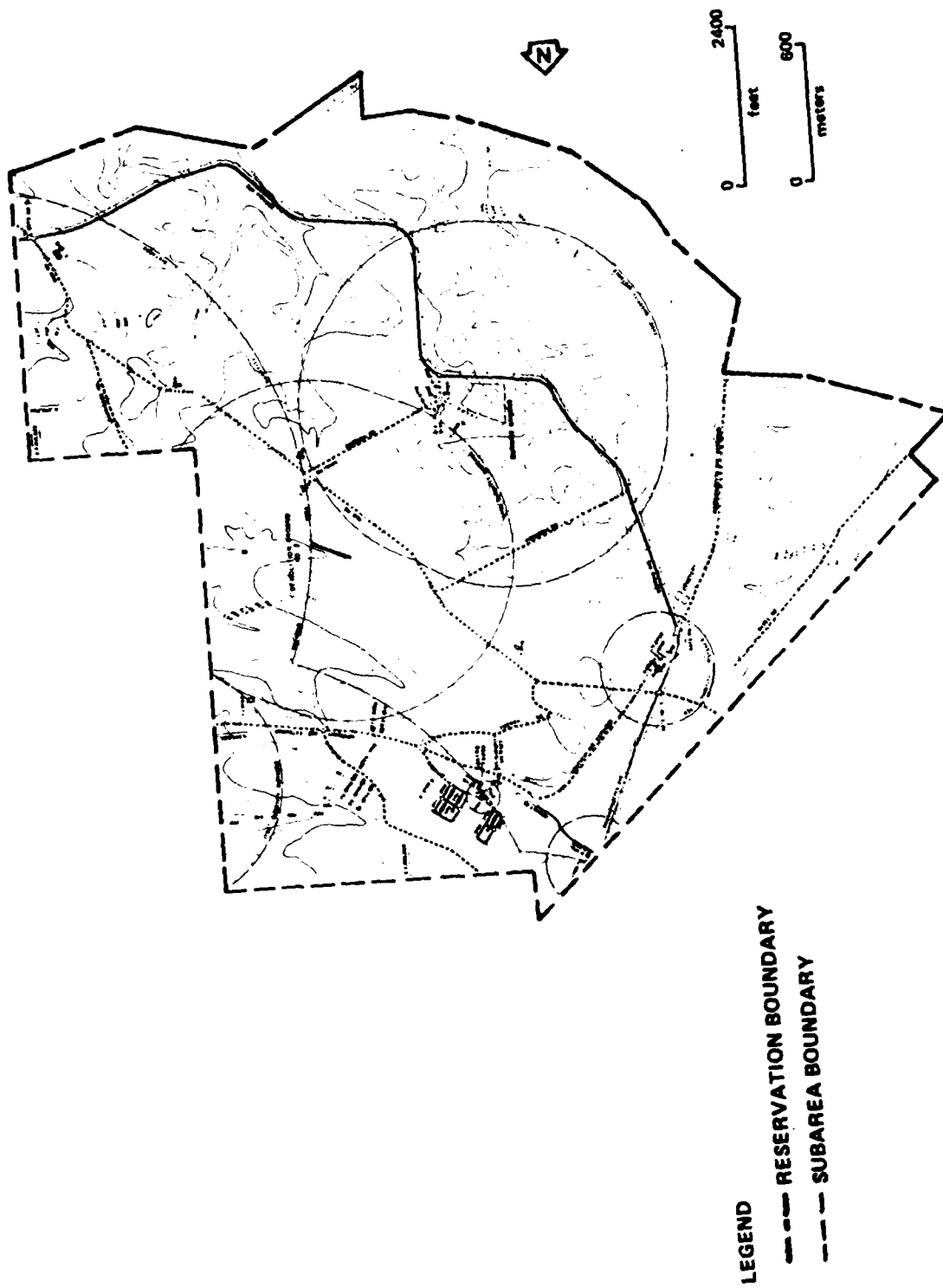


Figure 1-2c. DETAILED BASE MAP OF THE LETTERKENNY
ARMY DEPOT, SUBAREA C



LEGEND

--- RESERVATION BOUNDARY

--- SUBAREA BOUNDARY

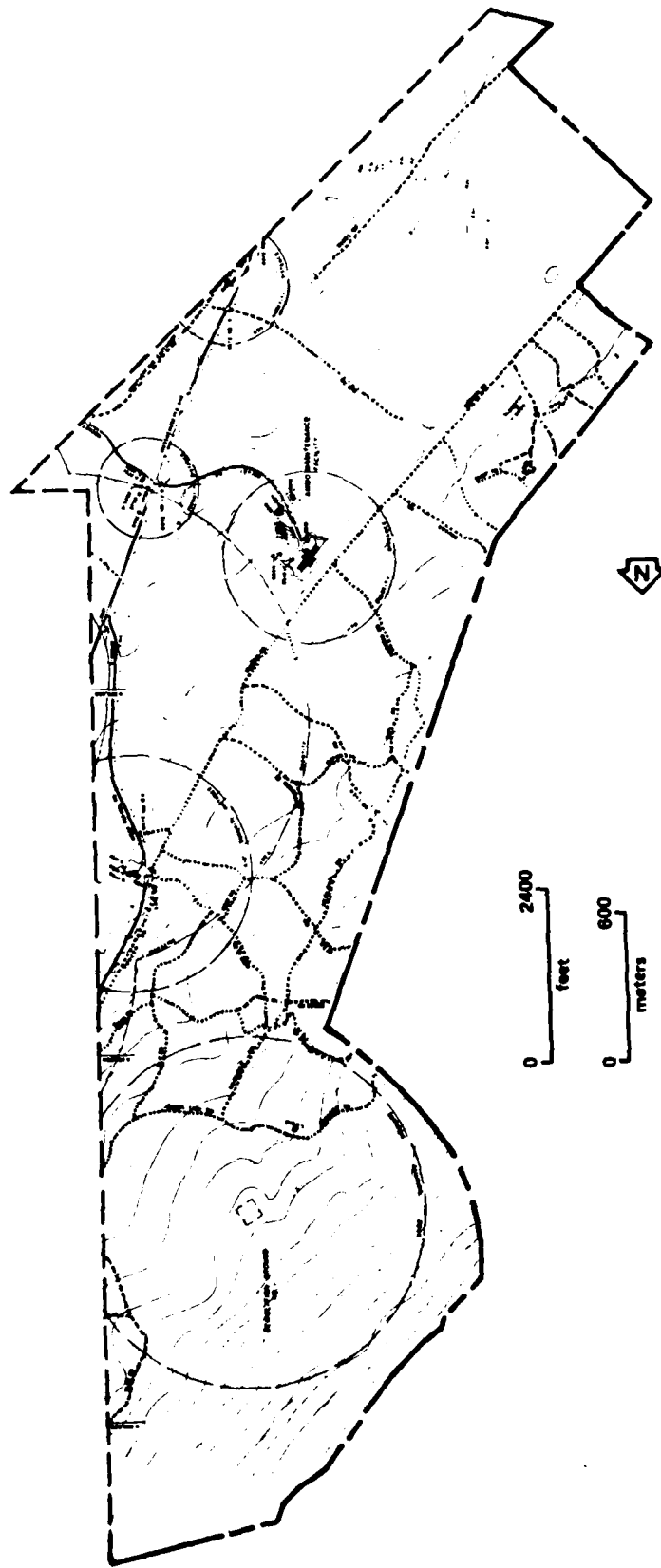
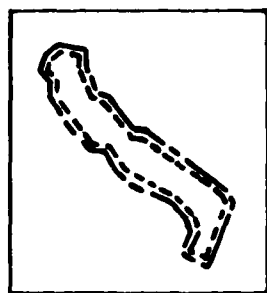


Figure 1-2a. DETAILED BASE MAP OF THE LETTERKENNY
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SUBAREA H
- SEE FIGURE 1-1 FOR LOCATION

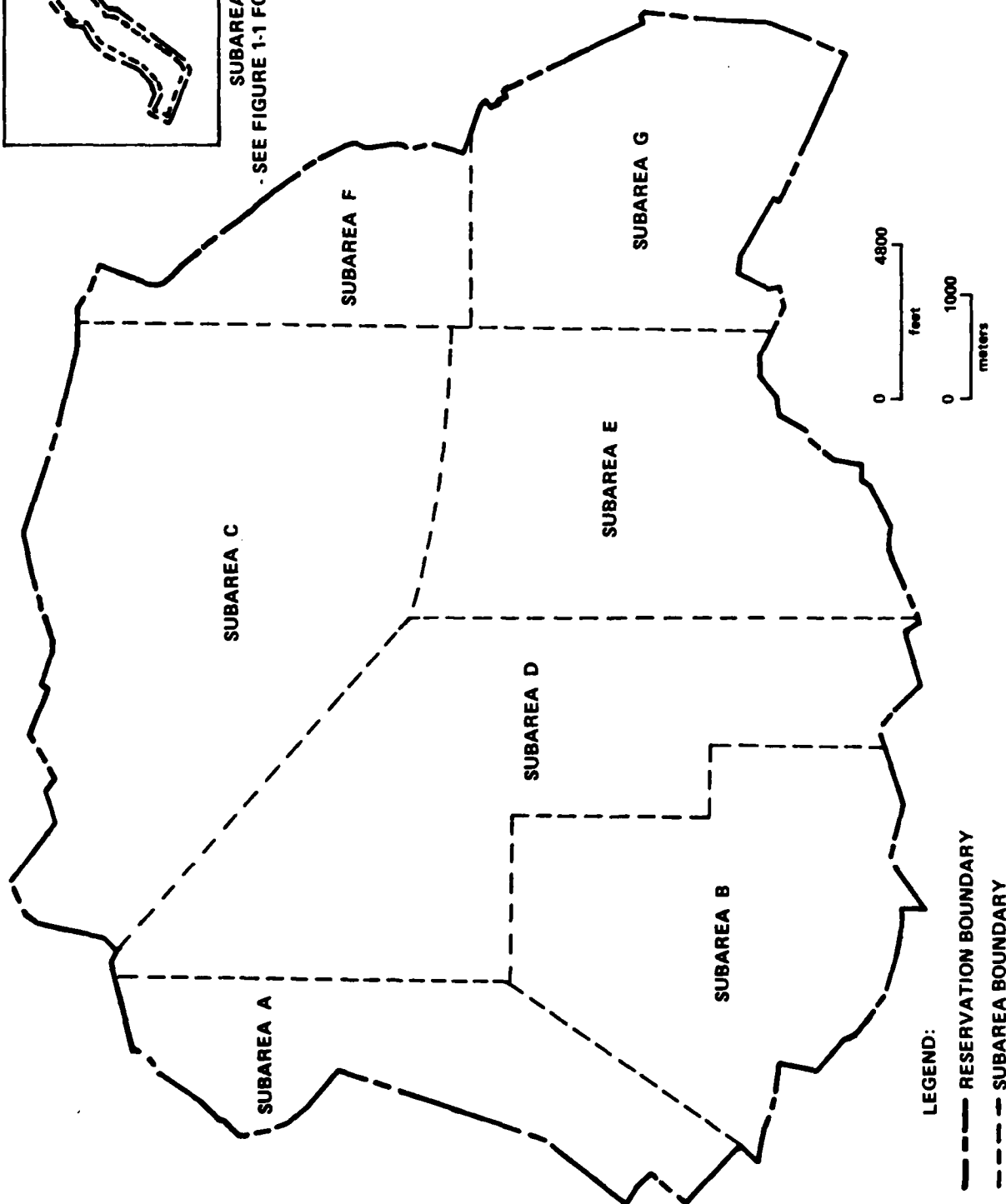


Figure 1-2. MASTER BASE MAP OF THE LETTERKENNY ARMY DEPOT

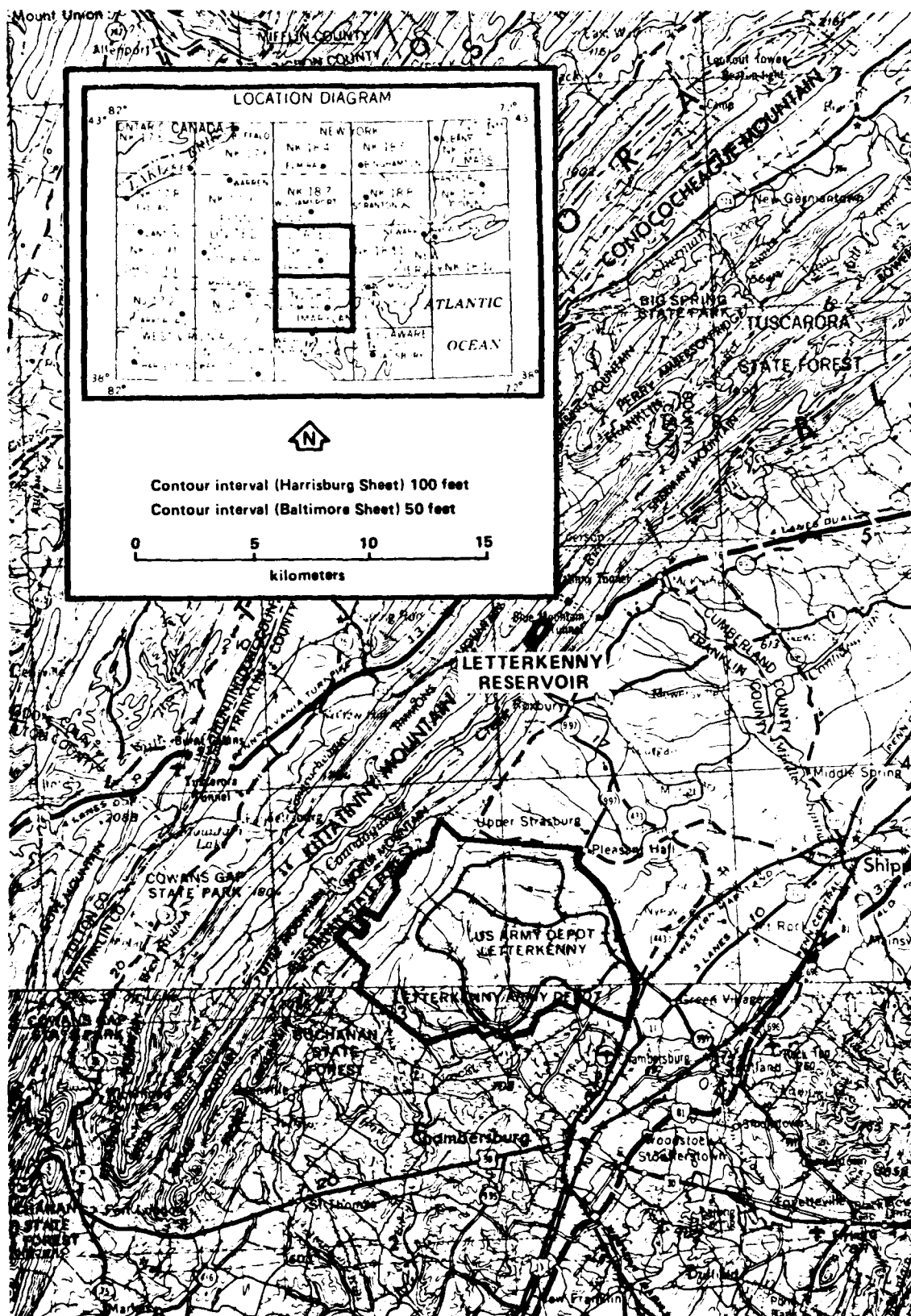


Figure 1-1. MAP OF THE GENERAL VICINITY OF THE
 LETTERKENNY ARMY DEPOT

229), and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716).

- o 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 420-40; Army Regulation 200-1; Army Regulation 200-2).

The formulation of archeological plans for DARCOM installations is part of a developing national acceptance of the Resource Protection Planning Process (RP3) (HCRS 1980). RP3 presents an outline for the development of preservation plans, which, in turn, provide an analytical structure for preservation decision-making. This archeological overview and management plan has been prepared with those guidelines in mind.

This report is based on information made available by installation representatives as of August 1984.

1.2 THE LETTERKENNY ARMY DEPOT

The Letterkenny Army Depot (LEAD) is located in Letterkenny, Hamilton and Greene Townships, Franklin County, Pennsylvania, at the foot of Broad Mountain (Figures 1-1, 1-2, 1-2a - 1-2h). Situated five miles north of Chambersburg, it is bordered on the north and east by the hamlets of Upper Strasburg, Pleasant Hall, Nyesville, and Culbertson, and on the west by Broad Mountain.

As stated in the Analysis of Existing Facilities/Environmental Assessment Report,

"the general mission of Letterkenny Army Depot (LEAD) is to receive, store, maintain and issue general supplies in support of the Department of Defense activities worldwide. It also includes the storage, maintenance, and demilitarization of ammunition and overhaul, rebuilding and testing of wheeled and tracked combat vehicles and missiles with their associated control systems. Two major tenant activities, the US Army Depot System Command (DESCOM) and DARCOM Logistic Systems Support Activity (LSSA) are headquartered at LEAD. Other tenant agencies located on this depot are the US Army Audit Agency, Electronic Communications Liaison Office, 28th Ordnance Detachment, US Army Health Clinic, Defense Property Disposal Office, and the US Army Communications Command Detachment (LEAD 1981)."

The 19,511 a. of the LEAD are physically divided into three main areas: a complex of warehouse, maintenance, and administration facilities at the eastern edge of the Depot; a 12,000 a. ammunition storage area containing 902 igloos; and ammunition demolition and buffer areas. There are 1781 buildings and 54 mi. of railroad track in the LEAD. A 129 a. reservoir owned by the LEAD is located northwest of the main depot area. Approximately 3900 a. of land are currently leased to farmers.

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, 2d Session, House Report No. 96-1457, p. 36-37])

Since the passage of the National Historic Preservation Act Amendments of 1980, DARCOM has begun a more active commandwide program in historic resource management. DARCOM's management program involves several steps. The first step is a literature review and preliminary evaluation of known cultural resources on DARCOM facilities. This provides a basis for prediction of the overall resource base requiring management. The second step involves applying the understood parameters of the resource base in a plan which takes into consideration both short- and long-term command activities and goals.

Other compliance regulations taken into consideration by this archeological overview and management plan include:

- o 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.
- o 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 431-43]), with provisions that effectively mean that
 - The Secretary of the Army may issue excavation permits for archeological resources on DARCOM lands (Sec. 4)
 - Anyone damaging an archeological resource on DARCOM lands may incur criminal (Sec. 6) or civil penalties (Sec. 7).
- o 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.
- o 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), procedures implementing the Archeological Resources Protection Act (43 CFR 7) (also published as Department of Defense regulation 32 CFR

1.0
INTRODUCTION

1.1 PURPOSE AND NEED

This archeological overview and management plan will assist the U.S. Army Materiel Development and Readiness Command (DARCOM) in its efforts to comply with laws and regulations concerning the management of archeological resources at the Letterkenny Army Depot (LEAD).

The National Historic Preservation Act of 1966 as amended (94 Stat. 2988) affirmed the policy of the federal government (Sec. 2(3)) to "administer federally owned, administered or controlled prehistoric and historic resources in a spirit of stewardship for the inspiration and benefit of present and future generations." Section 110(a)(1) of that code specifies that each federal agency is responsible for the preservation of such resources on agency-owned or controlled lands. DARCOM is committed to the implementation of that policy, following the guidelines for historic resource management set forth in the 1966 Act and related laws, regulations, and technical guidance.

DARCOM has contracted with the U.S. Department of the Interior's National Park Service to provide technical guidance for the development of DARCOM installation cultural resource overviews and management plans. The program is entitled the DARCOM Historical/Archeological Survey (DHAS). The National Park Service has in turn separated this review and planning program into two major elements, architectural and archeological. The architectural review and planning function is being directed by the Service's Historic American Buildings Survey (HABS), while the archeological resource assessment and planning function is being handled through the Service's Interagency Resource Management Division (IRMD). The archeological function includes both prehistoric and historical archeology.

Under the requirements of the National Historic Preservation Act (NHPA) of 1966 as amended (80 Stat. 915, 94 Stat. 2987; 16 USC 470), DARCOM must:

- 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 -

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Plans for an ammunition storage depot, safe from potential enemy attack, were initiated in early 1941. Construction of the Letterkenny Ordnance Depot (LKOD) began in December, 1941 with the building of 802 underground igloos, 12 magazines, and 17 shed-type warehouses. The purchase of 20,692 acres for the LKOD resulted in the displacement of 955 people in 250 families. During WWII, the LKOD served as an ammunition supply dump for the European War Theatre, and in 1944, it became the site of an Italian POW camp. With the end of World War II, the LKOD acted as a vehicle storage area and motor rebuilding operation site. From 1948-1951, 169 petroleum storage tanks were converted to store vehicles, resulting in the "Tin-Can Farm." The LKOD provided supplies for the Korean War, and in 1959, expanded to provide initial supply and support of guided missile, ballistic missile, and rocket material. In 1963, the LKOD was reorganized under the U.S. Department of the Army Materiel Development and Readiness Command (DARCOM) and renamed the Letterkenny Army Depot. Between 1965 and 1969, 81 a. of the depot were sold as excess, and in 1973, 1100 a. were transferred to the Pennsylvania State Department of Forestry, bringing the total acreage to 19,511. Remnants of the original communities that settled the area are found in the 8 cemeteries on the LEAD, containing 568 graves. One stone building, the James Findley House (1770 A.D.), is listed on the National Register of Historic Places, and currently serves as the Commander's House.

1.3 SUMMARY OF PREVIOUS ARCHEOLOGICAL WORK CONDUCTED ON THE LETTERKENNY ARMY DEPOT

One systematic archeological survey has been conducted at the LEAD (Roberts 1981). Nineteen separate parcels of land, totalling 198 a., were inventoried by visual inspection and/or test pitting, resulting in the discovery of three prehistoric and three historic archeological sites.

1.4 THE SOCIOCULTURAL CONTEXT OF THE ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT

During the sixteenth and seventeenth centuries, the south central Pennsylvania region was occupied by the Susquehannock Indians. There are no living descendants of this group. Today, Franklin County has a population of 113,629 people and Letterkenny Township, in which the majority of LEAD property is located, has a population of 1960 individuals. Of the current population of Franklin County and Letterkenny Township, 97 percent and 99 percent respectively are of European ancestry (Pennsylvania Municipalities 1982a:48).

Historically, the initial Scotch-Irish and German heritage of Franklin County has been maintained. However, it has experienced slow but steady increases in the number of inhabitants over time. In contrast, Letterkenny Township saw a maximum population around 1880 with 2476 people. A smaller peak in population occurred during World War II but dropped immediately afterward. By the 1950 census, the population was 1166 people, the fewest number recorded for Letterkenny Township since before 1800 (U.S. Bureau of the Census 1801, 1811, 1821, 1832, 1841, 1853, 1864, 1883, 1901, 1931, 1961, 1982). Population levels have continued to rise in both Franklin County and Letterkenny Township since

1950. The rate of population increase since 1950 has been about 12.5 percent for the County and 19.7 percent for the Township. These figures compare favorably with the average rate of increase for the Commonwealth of Pennsylvania of 4.2 percent. Population densities are currently at 150.7 people sq. mi. for Franklin County and 28.5 people per sq. mi. for Letterkenny Township. The overall Commonwealth density is much higher at 264.3 people per sq. mi.

The economy of Franklin County is generally strong. In 1980 it displayed poverty and unemployment figures of 7.4 percent and 4.5 percent, respectively. These levels were substantially below the Commonwealth averages of 10.4 percent and 7.4 percent. The economy of Letterkenny Township exhibited even lower poverty and unemployment levels of 7.2 percent and 4.3 percent (Pennsylvania Municipalities 1982b:13).

The residents of Franklin County are basically non-farm rural; in 1970, only about 32 percent lived in urban settings, and in 1979, forest, crop, and pasture covered almost 75 percent of county acreage. Much of the county's farm production consists of apples, peaches, and livestock ranking second in the Commonwealth for these products. However, income for the county stems primarily from non-farm sources, particularly from manufacturing machinery and apparel. Manufacturing provides almost 75 percent of the county's income, while farming provides about 5 percent. The remaining income is provided by commerce and governmental employment (Bureau of Statistics, Planning, and Research 1981).

Educational levels for Franklin County and Letterkenny township are below those for the Commonwealth as a whole. Franklin County exhibits a population with 58.6 percent high school graduates and 10.2 percent college graduates. Letterkenny Township exhibits 55.4 percent high school graduates and 9.8 percent college graduates. These figures compare unfavorably with Commonwealth levels of 64.6 percent high school graduates and 13.5 percent college graduates (Pennsylvania Municipalities 1982b).

2.0

AN OVERVIEW OF THE

CULTURAL AND RELEVANT NATURAL HISTORY OF THE LETTERKENNY ARMY DEPOT

2.1 THE PHYSICAL ENVIRONMENT

2.1.1 Earth Resources

The Letterkenny Army Depot is located in the Susquehanna-Potomac Segment of the Middle Section of the Ridge and Valley Province (Fenneman 1938). The extreme western portion of the Depot crosscuts Broad Mountain, which rises to a crest elevation of 2320 ft. at Clark's Knob. The remainder of the LEAD is contained by the Cumberland Valley, where elevations vary between 700 ft. and 730 ft.

Three major soil associations are found in the LEAD (USDA 1975). The Laidig-Very Stony Land-Buchanan Association is found on Broad Mountain. Important soil types are Dekalb and Hazelton extremely stony loam. Dekalb series soils and Very Stony Land are underlain by acid sandstones, conglomerates, and quartzites, and are very droughty, with low soil fertility. Laidig and Buchanan series are developed from colluvial material and are well drained and moderately well drained to somewhat poorly drained. All of these series have a high percentage of coarse fragments. Agricultural potential for Buchanan and Laidig series is average and very poor for Dekalb and Very Stony Land.

On lower slopes, the Murrill-Laidig Association is found. Both Buchanan soil types and the Murrill extremely stony sandy loam type are found in this association at the LEAD. Murrill is a deep, well drained soil formed from colluvial material, with moderate permeability and a high available moisture content (AMC). The Murrill soil type has a high percentage of coarse fragments. Agricultural potential for soils in this association is low.

On the Valley floor, the Weikert-Berks-Bedington Association is found. Two soil series dominate the Association, Berks and Weikert. Berks is a moderately deep, well drained soil formed from shale, siltstone, and finegrained sandstone parent material. It is moderately to rapidly permeable and has a low AMC, with bedrock at a depth of only 36 in. Fertility is low. Weikert is a shallow, well drained soil formed from interbedded gray and brown acid shale, siltstone, and sandstone.

Depth to bedrock is only 12 in. - 18 in. and the soil is droughty. Fertility is very low. Along stream runs and washes, Atkins and Melvin silt loams are found. These soils are deep, poorly drained, and high in

AMC, but are constantly wet throughout the year, as the water table is at or near the surface. Agricultural potential is very low.

In general, the soils of the LEAD are poor to fair in agricultural potential. Site quality for tree species ranges from poor to good, with the Valley floor area being fair to good. Habitat quality for woodland and wetland species ranges from poor to fair. No areas in the LEAD are highly rated for either woodland or wildlife productivity.

2.1.2 Water Resources

The Letterkenny Army Depot straddles the divide between the two major streams in Franklin County--Conodoguinet Creek and Conococheague Creek. The northern half of the LEAD is drained by Muddy Run and Keasey Run, which drain into the Conodoguinet Creek. The southern half is drained by Rocky Spring Branch, which drains into Back Creek, eventually merging with the Conococheague Creek. Conodoguinet Creek belongs to the Susquehanna River drainage basin, while Conococheague Creek belongs to the Potomac River drainage. In addition to named streams, a number of small unnamed runs dissect the LEAD. Also present are several small natural ponds at the foot of Broad Mountain in the western part of the depot. Finally, six man-made lakes and ponds which range from 3 to 40 a. in size are located on the depot. A 129 a. resevoir is located 8 mi. to the north of the depot proper.

2.1.3 Modern Climate

The Letterkenny Army Depot has a humid continental climate with a mean annual temperature of 52.2 degrees (LEAD 1981:22). Summers are long, with prevailing winds from the southwest. The average July temperature is 74.8 degrees. A growing season of 160-170 days can be expected. Winters are cloudy and cold with prevailing winds from the west to northwest at ten mi. per hour (USDA 1975). Average annual snowfall is 28 in. Annual precipitation is 41.5 in. per year, which falls fairly evenly throughout the year. May through August are the wettest months.

2.1.4 Plant Resources

The Letterkenny Army Depot lies in the Ridge and Valley Section of the Oak-Chestnut Forest Region (Braun 1974). Prior to forest clearance, various climax forest types were found within this region. Three such types probably existed within the boundaries of the present LEAD. The northern two-thirds and the southern extremity of the depot were probably covered by an oak forest with white oak the most characteristic species. Associated species were tuliptree, hickory, red oak, and black oak. The understory consisted of younger trees of the same species and dogwood, wild cherry, haw, and serviceberry. The shrub layer consisted of dogwood, Ceanothus americanus, elderberry, raspberry, rose, grape, bittersweet, Virginia creeper, and poison ivy. In the herb zone, geranium, bellwort, Smilacina racemosa, Desmodium sp., Amphicarpa bractiata, Aster, and Solidago caesia were found. The better drained margins of the numerous runs support, white pine, white oak, red oak,

sourgum, black gum, black birch and pignut hickory. The poorly drained areas of these runs were probably covered by a sedge community, including bog shrubs such as Nemopanthus macronata and Chamaedaphne calyculata.

Prehistoric hunters and gatherers probably found the area moderately productive for gathered-plant foods. Acorn and hickory nuts were available most years. Berries, grapes, and wild cherries were also seasonally available. In addition, seed-bearing weeds such as Chenopodium sp., marsh elder, and sunflower may have been present. The LEAD was probably marginal for aboriginal agriculture, but may have served as a source for gathered foods.

2.1.5 Animal Resources

The Letterkenny Army Depot vicinity undoubtedly supported a wide variety of animal resources potentially useful to the prehistoric inhabitants of the area. Most important were deer, turkey, and bear. The estimated productivity of these species was probably moderate. Among the various runs, wetland wildlife exhibited moderate productivity (USDA 1975). Frogs, turtles, seasonally available migratory waterfowl, raccoon, and muskrat may have been among the more desirable of these wetlands resources.

2.1.6 Paleoenvironment

During the last 15,000 years southcentral Pennsylvania has undergone radical changes in environment. Although the area was unglaciated during the Wisconsin glacial episode, the Pleistocene climate was cold and dry. At approximately 15,200 BP a forest-tundra mosaic existed on the lower elevations of the area, and consisted of white spruce stands mingled with dwarf shrubs such as dwarf birch interspersed among wet meadows of tall herbs (Watts 1979). Around 13,200 BP the end of the Wisconsin episode brought an abruptly warmer climate. This change coincided with a series of migrations into the area of more temperate species. Fir first entered the forest mix, and was soon joined by jack pine and speckled alder. Red spruce replaced other spruce species shortly after 11,600 BP. Gray birch and paper birch were present between 13,000 and 11,000 BP. White pine became important as jack pine disappeared. Hemlock appeared between 10,000 and 9000 BP. These changes produced an early Holocene forest similar to the modern Hemlock-White Pine-Northern Hardwoods Forest of New York.

Subsequent to 9000 BP, the climate continued to become warmer and drier, culminating in the Hypsithermal interval of 8000-5500 BP. Chestnut, one of the last species to migrate into the area, arrived around that time. At 5500 BP, white and pitch pine again began to increase in importance, signifying a return to a cooler, wetter climate. Hemlock ceased to be an important part of the forest at 4600 BP, probably due to disease, but reemerged approximately 3000 years later. Since 1500 BP the climate and forest composition has remained essentially unchanged, with two exceptions. Burning and clearing of agricultural fields by Native Americans during the Woodland period opened large expanses for grasses, brush, and eventually colonizing pines. Secondly, chestnut blight resulted in the total loss of this species early in this century.

An alternate paleoenvironmental reconstruction for the LEAD region is based on worldwide climate patterns and is supported by data from Maryland and Virginia pollen sites (Carbone 1976; Stewart 1980). According to this latter reconstruction, the area was characterized by a mosaic of boreal deciduous and grassland communities reflecting a cool, wet climate between 12,450 BP and 10,030 BP. In the lowland areas, a coniferous-deciduous forest was present. Along the Susquehanna River a deciduous gallery forest existed. Between 10,030 BP and 8400 BP, grasslands diminished in extent due to the early Holocene warming trend. A closed coniferous-deciduous forest characterized lowlands, while a mixed hydrophytic association existed along the Susquehanna River. From 8400 BP to 6050 BP, a warm climatic pattern yielded mesic deciduous forests throughout the region. A warm dry Xerothermic interval between 4240 BP and 3000 BP resulted in an increase in oak and hickory at the expense of more mesic species. Increased moisture between 3000 BP and 2750 BP led to a diminished oak-hickory dominance. From 2750 BP until the present, both the climate and vegetation have changed little.

For the purposes of the present study, the first paleoenvironmental scenario is preferred because it relies on local sequences and is substantiated at several sites throughout southeastern and eastern Pennsylvania. A summary of the environmental history of the LEAD is presented in Table 2-1, and includes both paleoclimatic reconstructions.

2.2 THE CULTURAL ENVIRONMENT

An outline of the cultural chronology of the LEAD area is presented in Table 2-2.

2.2.1 Prehistory

Archeologists are in disagreement over the starting date of man's occupation of North America. Some argue for an early entry in the New World approximately 25,000-40,000 years ago, while others maintain that the earliest irrefutable evidence dates man's entry into this continent to only 14,000 years ago. The earliest arguable evidence of man in the northeastern U.S. comes from the Meadowcroft Rockshelter in western Pennsylvania. Located in the unglaciated portion of the Appalachian Plateau, the lowest levels of the occupation date to over 17,000 B.C. (Adovasio et al. 1978). The assemblage includes a lanceolate biface and a highly developed small blade industry reminiscent of the Arctic Small Tool Tradition of western Alaska. The blade industry is similar to that found at other Paleo-Indian sites in the northeast, such as the Shoop, Debert, and Williamson sites. Also in the lowest occupational levels at Meadowcroft were the remains of deer, wapiti, shells, and chenopod seeds, suggesting that these species were important food resources.

Paleo-Indian (10,000-8000 B.C.). The Paleo-Indian Period is the first firmly identified archeological period in North America. The beginning of the Paleo-Indian Period coincides with the initial retreat of the Wisconsin Period continental glaciers. The period ends at the end of the Pleistocene geologic period. During this last phase of the Pleistocene a spruce-parkland, environment probably existed in south central Pennsylvania which supported a wide variety of now-extinct megafauna, such as mastodon and giant ground sloth (Carbone 1976; Stewart 1980;

Table 2-1. A SUMMARY OF THE ENVIRONMENTAL HISTORY OF THE AREA OF THE LETTERKENNY ARMY DEPOT

Wette 1979 (Tannersville Bog Long Swamp Crider's Pond Panther Run Szabo Pond Helmetta Bog) Pollen			Carbone 1976 Stewart 1980 (Buckles Bog) Pollen		
Date	Inferred Climate	Date	Inferred Climate		
1500 BP - Present	Warming trend to present climate.	3800 BP - Present	Slightly wetter resulting in moderate climate.		
5500 - 1500 BP	Cooler, wetter climate. Hemlock becomes minor species after 4600 BP.	6050 - 3000 BP	Xerothermic with oak-hickory forest warm and dry.		
8000 - 5500 BP	Warm and dry, Hypsithermal. Oak-chestnut forest.	8400 - 6050 BP	Warm, humid climate with mesic deciduous forest.		
9000 - 8000 BP	Warming trend with deciduous forest elements.	10,030 - 8400 BP	Early Holocene warming with closed coniferous forest.		
11,600 - 9000 BP	Warmer climate with white pine replacing jack pine, red spruce replacing other spruce, hemlock immigration, like Northern Hardwoods Forest Type.	12,450 - 10,030 BP	Cool, wet climate, with mosaic of boreal, deciduous, and grassland communities.		
13,200 - 11,600 BP	Warmer climate with immigration of temperate species, fir, jack pine, speckled alder, gray birch and paper birch.				
15,200 - 13,200 BP	Cold and dry with forest tundra of white spruce stands and dwarf shrubs and wet meadow.				

Table 2-2. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE LETTERKENNY ARMY DEPOT

Cultural Unit		General Settlement Patterns		General Subsistence Systems		Kinds of Archeological Remains Representative of Period	
Tradition	Period or Phase	Date					
American	Rural Manufacturing	AD 1940 to Present	Settlement remains mostly rural but with substantial growth in largest central places. Most farmsteads remain active but suburban growth significant. Single family dwellings predominate but multifamily dwellings in urban and suburban sites increasing. Rapid transportation allows dispersed population residence with centralized occupation locations.	Farming remains important but majority of population subsists in market economy based on manufacturing machinery and apparel. Commercial and governmental employment significant.		Numerous single family and apartment dwellings. Factories and shops in or near central places. Well developed road, air, and rail facilities. Aluminum, plastic, steel, ceramic, and glass artifacts numerous. Standardized consumer products. Automobiles common.	
	Rural Agriculture	AD 1784 to 1940	Farmsteads decreasing in size but rural setting predominates. Towns grow in size and population. Improved roadways and rail systems. Single family dwellings most common.	Basically rural economy of agriculture and arboriculture. Manufacturing and iron production important. Retail services at central places becoming more important.		Farms of stone, brick and frame construction. A few urbanized areas, larger towns and villages. Metal, ceramic, glass items common. Mechanical devices increasing in number. Road and rail facilities become common.	
	Frontier Settlement	AD 1736 to 1784	Large farmsteads interconnected by modes: road network. Small villages and few larger settlements as central places. Several small fortifications throughout region.	Subsistence farming basic economy with some market orientation in later part of phase. Plow agriculture and water powered mills. Little retail service.		Log structures with frame, brick and stone in later part of period. Locally produced wood, ceramics, and textiles. Imports of manufactured items, higher ratio of individual weaponry.	
Native American	Conestoga	AD 1690 to 1763	Gathered into single town, Conestoga.	Subsistence agriculture, some hunting-gathering. Trade center for Indian groups in area.		Native crafts limited to decorative items: wampum; Catlinite beads; bone items. Utilitarian goods of all Western or European manufacturer.	
	Susquehannock	AD 1550 to 1675	Large palisaded villages located near good agricultural land. Seasonal hunting and gathering camps.	Swidden agriculture, relying on corn, beans, squash. Deer and other game supplementing diet. Fur trade provides trade goods, such as axes, beads, copper kettles.		Schultz, Washington Boro, and Strickler pottery, small triangles, trade material, including iron, brass, trade beads, pipes, firearms.	
	Late Woodland	AD 1000 to 1550	Large agricultural villages, some palisaded. On alluvial expanses. Seasonal hunting and gathering camps. Warfare present, high population density.	Corn swidden agriculture, with fishing hunting, some gathering. Acorns used in years of crop failure.		Madison and Levanna Points, Clemson Island and Shenks Ferry Pottery, clay elbow pipes.	

Table 2-2. A SUMMARY OF THE CULTURAL CHRONOLOGY OF THE AREA OF THE LETTERKENNY ARMY DEPOT (Continued)

Cultural Unit			General Settlement Patterns		General Subsistence Systems		Kinds of Archeological Remains Representative of Period	
Tradition	Period or Phase	Date						
Native American (Cont'd)	Middle Woodland	AD 200 to 1000	Small villages, non-palisaded on high ground above marshes and on the sides of hills.		Incipient agriculture. Encouraged wild foods, such as Chenopodium and Amaranth. Shellfish and fish used, with a wide range of gathered foodstuffs and game.		Polished stone pendants. Stone tubular pipes, thick cache blades, antler combs, Jacks Reef corner notched points, Jacks Reef pottery.	
	Early Woodland	1000 BC to AD 200	Small villages near and on floodplains. Seasonal camps for gathered foods. Hunting camps.		Broad spectrum hunting and gathering with Chenopodium and Amaranth used heavily. Fishing and shellfish gathering important.		Meadowood points, Vinette pottery, grit tapered, tubular pipes, bird-stones, native trade goods from Midwest: copper tools, slate gorgets, flint.	
	Transitional	1300 to 1000 BC	Riverine orientation, numerous small, scattered sites along banks of major streams, in high parts of floodplains, and on islands in rivers.		Broad spectrum hunting and gathering with Chenopodium and Amaranth used, net fishing important. Nut species important Fall resource. Wide range of animals hunted.		Broadspire points, Orient fish-tail points, steatite vessels.	
	Late Archaic	3500 to 2200 BC	Base camp, with seasonal camps on either bottomland terraces or along lakes. Decreased annual mobility. Central based foraging pattern.		Broad spectrum hunting and gathering with Chenopodium and Amaranth heavily used. Fishing important. Nut species are important Fall-Winter food. Wide range of animals hunted.		Bare Island, Poplar Island points; tapered and stemmed. Pitted stones, groundstone, net sinkers.	
	Middle Archaic	5500 to 3500 BC	Restricted foraging pattern. Seasonal camps along rivers and uplands.		Emphasis on deer, turkey, bear, with small game also utilized. Gathered foods emphasized nuts, some grasses, berries, selective diet.		Brewerton, Vosburg, and Otter Creek points. Stone mortars, pestles, grooved axe.	
	Early Archaic	8000 to 5500 BC	Small, mobile, seasonal base camps, sites commonly in low-lands.		Hunting of large game emphasized. Small game taken occasionally. Hickory and walnut important Fall food resources. Selective diet.		Bifurcate-base points, Palmer, Kirk points.	
	Paleo-Indian	10,000 to 8000 BC	Small, highly mobile bands. Sites located on high ground overlooking large expanses.		Hunting of large and small game, Pleistocene megafauna, some use of gathered foods.		Fluted projectile points, small end scrapers, heavily utilized, highly curated flakes, raw material from outside local area.	

Watt 1979). Modern species were also present including elk, deer and reindeer. Paleo-Indian peoples are thought to have hunted these and other species, supplementing their diet with available flora. Paleo-Indian peoples were probably organized into small, highly mobile groups that may have traveled hundreds of miles in an annual round.

Camps were often located at the top of knolls, overlooking valley expanses. Dutchess Quarry Cave (10,500 B.C.) in New York State and the Bull Brook Site (10,000 B.C.) in Massachusetts are two examples of this kind of adaptation.

Characteristic artifacts of this period are lanceolate and fluted Clovis projectile points and well-made, steeply sided end scrapers. The lithic raw materials used in the manufacture of these artifacts are generally of high quality, and often come from sources far removed from the sites where the artifacts were found.

Early Archaic (8000-5000 B.C.). The Archaic Period, beginning with the Early Archaic, was a period characterized by a warmer climate, more similar to that of today (Watts 1979). During the Early Archaic, small migratory bands hunted and gathered in the deciduous forest environment that had replaced the Pleistocene tundra. Annual movement probably declined significantly as the more mobile game animals moved north or became extinct. Deer, bear, and turkey were now the preferred game animals, and plant foods, particularly acorns and other nuts, provided an important part of the diet (Kent et. al. 1971; Ritchie 1969). Small corner-notched points are characteristic of the period. Examples include the Palmer and Kirk types. More crudely made end scrapers and side scrapers replaced the earlier variety. Local chert and jasper sources provided the bulk of the raw material for lithic tools. These sites are generally found on level areas along streams.

Middle Archaic (5000-2500 B.C.). Middle Archaic peoples continued the Early Archaic shift toward reliance on the resources of the deciduous forest. Plant foods, especially acorns and hickory nuts probably became increasingly important staples. In New York, this Middle Archaic period is divided into two contemporaneous adaptational strategies, Laurentian and Lamoka Lake. Laurentian, as exemplified by Brewerton, was basically a hunting adaptation, while Lamoka was characterized by a seasonally sedentary fishing and gathering complex. Socially, aboriginal groups were organized into small bands, aggregating periodically to exchange mates or organize collective hunts (Wobst 1978). Sites of this period are generally found in level areas along streams.

Late Archaic (2500-1300 B.C.). During the Late Archaic, a fundamental shift toward sedentism, horticulture, and more complex social organization began. Late Archaic sites are larger, probably representing year-round base camps. Social organization probably was that of the patrilocal band (Ritchie and Funk 1973). Population sizes were larger. Important phases in the Late Archaic are the River Phase (1800 B.C.) and Snook Kill Phase (1500 B.C.) (Funk 1976). Base camps tend to be at level areas along streams while special purpose camps are found in a variety of areas.

Transitional (1300-1000 B.C.). With the Transitional Period in southcentral Pennsylvania, evidence for social stratification emerges. The distribution of steatite may represent one example of exchanged high status items (Ford 1974). The two most important diagnostics of the Transitional Period are steatite and broad, weak-shouldered points (Susquehanna Broadspire, Orient Fishtail). Some have inferred a strong riverine orientation from the general location of the sites on floodplains. Beyond these traits, settlement and subsistence were similar to Late Archaic adaptations and virtually identical to Early Woodland adaptations. Socially what appears to have been important in the Transitional-Early Woodland phase of cultural evolution was the rise of trading networks in exotic goods, mound burials, and increased evidence of ranking, a phenomenon visible in ethnographically known chiefdoms. Adena is one such phenomenon, artifacts of which have been discovered in southcentral Pennsylvania.

Woodland (1000 B.C.-1550 A.D.). The Woodland Period in the northeast has been divided into a minimum of three phases, Early, Middle, and Late. During each, pottery was prevalent, large sedentary villages were the basic settlement type, and collected and horticulturally maintained vegetal foods, such as Chenopodium, Amaranthus, Helianthus, and Polygonum may have been important supplements to wild food resources. Early in the Late Woodland period, maize agriculture was introduced into southcentral Pennsylvania, and quickly became the dominant subsistence base.

The Middle Woodland period follows the trajectory set by the shift to sedentism during the Early Woodland. Villages and population sizes were larger. Phases within the Middle Woodland are the Canoe Point Phase (200 A.D.) and the Squawkie Hill Phase (500 A.D.). Later, Kipp Island (700 A.D.), Fox Creek, and the terminal Hunter's Home Phases represent the last manifestations of the pre-agricultural Woodland.

The introduction of maize agriculture during the Late Woodland into the northeast signaled several changes in social organization. Population size increased as productivity of the land was increased. Village sizes also increased, with some being palisaded. This has been interpreted as the result of increased warfare over critical resources such as prime agricultural land and/or hunting territories (Kinsey and Graybill 1971). Two important phases in the Late Woodland are Clemson's Island (1000-1300 A.D.) and Shenks Ferry (1300-1550 A.D.). Sites tend to be located on level areas along streams and near expanses of high quality agricultural soils.

2.2.2 Ethnohistory

Shortly after 1550 A.D., the Iroquoian-related Susquehannock Indians migrated from the upper reaches of the north branch of the Susquehanna River and settled in southcentral Pennsylvania (Kent n.d.). Whether or not there was any contact with indigenous inhabitants who have been associated with the Shenks Ferry culture is unclear. It is certain that remnants of Shenks Ferry culture had disappeared from the area by 1575. The Susquehannocks were a tribally organized agricultural society. From archeological evidence, settlement was constrained to one central village which may have included several thousands of people. The first recorded European contact with the Susquehannocks was by an expedition of John

Smith's up the Susquehanna River in 1608. Further north, the tribe may have been contacted by an emissary from Champlain, Etienne Brule, in 1615-1616.

Due to the geographic position along the Susquehanna River, the Susquehannocks controlled a major travel route to the Iroquois heartland and played an active role in the early seventeenth century fur trade. Both the Swedes and the Dutch were actively pursuing this trade in the 1620s-1640s. The English in Maryland and Virginia were eager to enter this market independently. Consequently, the Susquehannocks found themselves allied with the Swedes against the English in Maryland in the 1640s, and against the Mohawk, who were allied with the Dutch in the early 1600s. The Swedes had sent soldiers to the main Susquehannock town (at the Strickler Site) to teach them European methods of fighting. The British were unsuccessful in their attacks, but pressure from Dutch supported Mohawk incursions into the Susquehannock territory in 1651 forced an alliance between the Susquehannocks and Maryland 1652.

Ironically, despite unsuccessful raids by Mohawks and the Senecas in the 1650s and the 1660s, the effects of prolonged warfare had shattered the native Susquehannock culture. This is archeologically reflected at the Strickler Site (1645-1665), Lancaster County, which was stockaded and protected by European-style bastions. Trade goods had all but replaced native crafts. Disease and warfare further reduced the Susquehannock population in the 1670s, and in 1674 they were either militarily defeated by the Iroquois or accepted an invitation by Maryland to settle there (Kent n.d.; Jennings 1978). By 1675, the Susquehannocks moved to an abandoned Piscataway Indian fort on the Potomac River, but were attacked that Fall by disgruntled Marylanders.

Scattered to points southwest, the Susquehannocks soon returned to the central Pennsylvania area to a town at one or the other of two Leibhart sites in York County. By 1680, this town had been abandoned and nothing is known about the tribe until 1690 when both Susquehannocks and Senecas resettled on a tract of land in Manor Township, Lancaster County, founding Conestoga Town (Kent n.d.). In the first third of the eighteenth century, Conestoga Town was an important trading center for Senecas, Susquehannocks, and other Indian groups. By the 1740s however, the traders left and the town failed to prosper. The population shrank, and was ultimately wiped out in December 1773 by a local vigilante group called the Paxton Boys in an event known as the Conestoga Massacre.

2.2.3 History

Frontier Settlement Phase (1736-1784). While some settlement by Europeans occurred in the Franklin County area as early as about 1730, legal claims and disagreements between the Commonwealth of Pennsylvania and American Indian groups were not settled until 1736, when the land of the Cumberland Valley was purchased by the Penn family. Warrants for settlements in Letterkenny Township were issued at that time (Donehoo 1930:112, 423). The right to settle in the border area of Pennsylvania and Maryland was also in dispute between the Proprietor of Pennsylvania and Lord Baltimore of Maryland. Final determination of the exact border between these two colonies was not made until the Mason - Dixon Survey of 1760 (Rupp 1846:538).

Franklin County, known as the Conococheague settlement during most of this phase, fell within the domains of Lancaster County after 1736, York County in 1749, and then Cumberland County, Antrim Township in 1750. It was the most westerly of the legal settlements of Pennsylvania at that time, the Indian frontier being marked by Kittatinny Mountain just to the north and west (Donehoo 1930:79; Rupp 1846:449). For better or worse, however, illegal settlements beyond the frontier occurred, and increased tensions between the Colonial government in the east and the Indian groups, principally Delaware and Shawnee, who then resided in Western Pennsylvania and eastern Ohio. While the ridges and valleys of the Appalachians may have appeared relatively empty and open for settlement to the frontiersmen, they were in fact Indian hunting grounds and a buffer zone between the two cultures (Donehoo 1930:113-198; M'Cauley 1878:24-30).

The presence of the French in the Ohio region increased hostilities between the French and English colonial powers. The American French and Indian War erupted in 1753, and resulted in repeated Indian raids on frontier settlements. During the conflict, the frontier settlements of Virginia, Pennsylvania, and New York suffered greatly. It was not until 1764, after Pontiac's defeat, that these raids ceased.

After the abandonment of the frontier area by many Europeans during the holocaust of burning cabins, forts, and Indian villages, the settlers of Franklin County reasserted their claims. Notable individuals such as George Chambers, the founder of Chambersburg, carried on their basic agricultural life on large farmsteads. Along with the farms, mills for the production of lumber and flour were also constructed along the various streams.

During the American Revolution the seasoned Indian fighters from the Franklin County region led groups of volunteers to fight in the eastern battles, although no conflicts occurred in the area under investigation here. In one instance, Major James M'Calmont, born in Letterkenny in 1729, persuaded a group of Hessians captured in the battle of Trenton to settle near Upper Strasburg in Letterkenny Township (M'Cauley 1878:193).

Development of the area continued during the Revolution. Franklin County was officially established in 1784. While subsistence agriculture was the basic foundation of the economy of the region during the Frontier Phase, the various roads constructed within it and to outside areas opened the door to other developments. In particular, new markets for agricultural produce and the products of manufacturing enterprises were found (Donehoo 1930:229).

Rural Agricultural Phase (1784-1940). Numerous towns and villages sprang up immediately after the American Revolution. Mercersburg, Greencastle, Loudon, Concord, Roxbury, Upper Strasburg, and Fannetsburg were all established at that time. Chambersburg, founded in 1764, began its real growth (Donehoo 1930:282; Rupp 1846: 462-484).

Trade and industrial development were given new impetus with the completion of a railroad in 1837 through the Cumberland Valley to markets in Baltimore (Donehoo 1930:225, 285). Though still rural and agricultural, iron and other manufacturing firms were soon the heart of

GDA No	Type of Disturbance	Date Conducted (yr)	Reference ^a	Area Disturbed (acres)	Estimated Depth Below Surface (ft)	Ratio of Disturbed to Total Area	Location of Disturbed Area					USGS Quad Sheet ^c	Coincidental Site ^d
							UTMB		Legal Reference				
							Northing	Easting	Township	Range	Section		
GDA-35	Burning Ground	post-1942	LEAD Dwg. 18-04-06	6	.5-6	10:10	4430370	266210	Hamilton			C768	
GDA-36	Demolition Ground 2	post-1942	LEAD Dwg. 18-04-06	.18	.5-6	10:10	4430580	267680	Letter-kenny			C768	
GDA-37	Demolition Ground 1	post-1942	LEAD Dwg. 18-04-06	1	.5-6	10:10	4435430	265540	Letter-Kenny			K773	
GDA-38	Tank Farm	1946	Rankin, 1983, Personal Communication	37	.5-1	10:10	4431340 4431710 4431660 4431890	274090 274630 273570 274470	Greene			K773	
GDA-39	Gate 12B Structures	post-1942	LEAD Dwg. 18-04-06	3	3-6	5:10	4432530	266020	Letter-kenny			K773	
GDA-40	Ammo. Maint. Fac.	1969	Pardun 1982:32	11	3-6	5:10	4432950 4432460 4432800	265360 265420 265520	Letter-kenny			K773	
GDA-41	Burning Ground Structures	post-1942	LEAD Dwg. 18-04-06	4	3-6	5:10			Letter-kenny			C768	
GDA-42	Detonation Road Structures	post-1942	LEAD Dwg. 18-04-06	3	3-6	5:10	4432000	266970	Letter-kenny			K773	
GDA-43	Water Tower Structure	post-1942	LEAD Dwg. 18-04-06	9	3-6	5:10	4432370 4432090 4432190	266460 266400 266680	Letter-kenny			K773	
GDA-44	Gate 12 Structures	post-1942	LEAD Dwg. 18-04-06	1	3-6	5:10	4434120	266130	Letter-kenny			K773	
GDA-45	Tracer Rd. Structures	post-1942	LEAD Dwg. 18-04-06	2	3-6	5:10	4438480	267410	Letter-kenny			K773	
GDA-46	Virginia Rd. Structures	post-1942	LEAD Dwg. 18-04-06	2	3-6	5:10	4435720	268120	Letter-kenny			K773	112

GDA No	Type of Disturbance	Date Conducted (yr)	Reference ^a	Area Disturbed (acres)	Estimated Depth Below Surface (ft)	Ratio of Disturbed to Total Area	Location of Disturbed Area					USGS Quad Sheet ^c	Coincidental Sites
							U.Mb		Legal Reference				
							Northing	Easting	Township	Range	Section		
GDA-27	Warehouses and Industrial Shops	post-1942	LEAD Dwg. 7272-533 7272-1566 LEAD 1982	673	3-6	10:10	4432530 4432110 4429710 4429210	275060 274360 274230 275200	Greene		C768 K773	248 254	
GDA-28	Facilities Compound and NCO Club	post-1942	LEAD Dwg. 18-04-06 6227 107.1 LEAD 1982	73	6	6:10	4430610 4430010 4430540 4430240	272970 272900 273550 273730	Greene		C768	298 299 301 334	
GDA-29	Combat Vehicle Test Track	1967	LEAD Dwg. 18-04-06 Rankin, 1983, Personal Communication	60	3-6	2:10	4432030 4431890 4431660 4431470	274220 274470 273750 273930	Letter-kenny Greene		K773		
GDA-30	Swimming Area	1967	LEAD 1982	4	6	9:10	4429690	271050	Letter-kenny		C768		
GDA-31	Sewerage Treatment Plant	1972	LEAD n.d.:61 Pardun 1982:34	4	6	9:10	4430420	272350	Letter-kenny		C768		
GDA-32	Water Treatment Plant	1954	LEAD Dwg. 18-04-06 LEAD 1982	4	6	9:10	4430410	274140	Greene		C768		
GDA-33	Industrial Waste Treatment Plant	1955	LEAD Dwg. 18-04-06 LEAD n.d.:61	7	6	9:10	4431840 4431480 4431550	275370 275360 275490	Greene		K773		
GDA-34	Contaminated Waste Processor	post-1942	LEAD Dwg. 18-04-06	7	6	8:10	4429460	270500	Letter-kenny		C768		

GDA No	Type of Disturbance	Date Conducted (yr)	Reference ^a	Area Disturbed (acres)	Estimated Depth Below Surface (ft)	Ratio of Disturbed to Total Area	Location of Disturbed Area					USGS Quad Sheet ^c	Coincidental Sited
							UTM		Legal Reference				
							Northing	Eastings	Township	Range	Section		
GDA-17	(Cont'd)												348 350 355-359
GDA-18	Karper Cemetery	pre-1858	LEAD Dwg. 18-04-06 Davidson 1858	.5	.5	10:10	4431260	265360	Letter-kenny			K773	
GDA-19	Slyder Cemetery	post-1868	LEAD Dwg. 18-04-06 PA Dept. Hwys 1941	.22	.5-1	10:10	4434200	268790	Letter-kenny			K773	
GDA-20	Mennonite Cemetery	post-1858	LEAD Dwg. 18-04-06 Beers 1868	.40	.5-1	10:10	4433280	269830	Letter-kenny			K773	
GDA-21	Burkholder Cemetery	post-1868	LEAD Dwg. 18-04-06 PA Dept. Hwys 1941	.5	.5-1	10:10	4434140	273410	Letter-kenny			K773	
GDA-22	Pleasant Hill Brethren Cemetery	post-1868	LEAD Dwg. 18-04-06 PA Dept. Hwys 1941	.32	.5-1	10:10	4430480	270020	Letter-kenny			K773	
GDA-23	Boyer Cemetery	post-1868	LEAD Dwg. 18-04-06 PA Dept. Hwys 1941	.17	.5-1	10:10	4431080	272490	Letter-kenny			K773	
GDA-24	Cemetery	post-1868	LEAD Dwg. 18-04-06 PA Dept. Hwys 1941	.22	.5-1	10:10	4432520	272800	Letter-kenny			K773	
GDA-25	Projectile Range	post-1942	LEAD Dwg. 18-04-06 Rankin, 1983, Personal Communication	178	.5-1	2:10	4436000 4437050 4435980	267790 267040 266710	Letter-kenny			K773	93 95
GDA-26	Golf Course	1960	LEAD Dwg. 18-04-06 Pardon 1982:32	123	.5-3	5:10	4431250 4431230 4429710 4430320	274990 275140 274230 273770	Greene			C768	242 245

GDA No	Type of Disturbance	Date Con- duct- ed (yr)	Reference ^a	Area Dis- turbed (acres)	Esti- mated Depth Below Surface (ft)	Ratio of Dis- turbed to Total Area	Location of Disturbed Area				USGS Quad Sheet ^c	Coinci- dental Sites ^d
							UTM ^b	Northing	Easting	Town- ship	Range	Sect- tion
193-190												
198												
199												
201												
204-209												
211-214												
216												
217												
219												
220												
222												
223												
225-241												
244												
246												
247												
249-252												
255-258												
263-269												
272-280												
283												
284												
287												
288												
291-293												
295												
296												
300												
302												
303												
305												
307												
308												
310-324												
332												
333												
335												
336												
338												
340-343												
347												

GDA-

17

(Cont'd)

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

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						USGS Quad Sheet ^c	Coincidental Sited
							UTMB		Legal Reference					
							Northing	Easting	Township	Range	Section			
GDA-17	Pasture, Fields, Railroads, and Isolated Structures	NA	LEAD Dwg. 18-04-06 Pardun 1982:46	11,031	.5-3	6:10	4431400	262760	Hamilton,		F766	1		
							4436760	273530	Greene,		C768	2		
							4437940	267420	Letter-		R773	7		
							4434660	274520	kenny			13		
	Borrow Areas	1942	LEAD Dwgs. 16-06-01 (Sheets 3,4)											
	Barricaded Open Storage Areas		LEAD Dwg. 62.40 (Shelf 202)		1-3									
												14		
												18-32		
												35		
												43-51		
												53		
												74-81		
												89		
												90		
												94		
												96		
												97		
												100-101		
												107		
												110		
												111		
												113-121		
												124		
												127		
												128		
												131		
												134-136		
												140-143		
												146-153		
												156-158		
												164		
												165		
												170-172		
												176-178		
												180-184		
												189		
												190		

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

GDA No	Type of Disturbance	Date Conducted (yr)	Reference ^a	Area Disturbed (acres)	Estimated Depth Below Surface (ft)	Ratio of Disturbed to Total Area	Location of Disturbed Area				USGS Quad Sheet ^c	Coincidental Sites ^d
							UTM	Easting	Northing	Township	Range	Section
GDA-11	Shirleys Lake	?	LEAD Dwg. 18-04-06	6	.5-3	10:10	4432550	272870	4432550	Letter-kenny	R773	
GDA-12	Henrys Pond	?	LEAD Dwg. 18-04-06	6	.5-3	10:10	4435250	269920	4435250	Letter-kenny	R773	137
GDA-13	Bud Lake	?	LEAD Dwg. 18-04-06	30	.5-3	10:10	4437010 4437030 4437310 4436510	270590 270120 270210 270480	4437010 4437030 4437310 4436510	Letter-kenny	R773	179
GDA-14	Lake Letterkenny	?	LEAD Dwg. 18-04-06 LEAD nd:85	27	.5-6	10:10	4430350 4430300 4430860 4430850	269780 269900 269920 270010	4430350 4430300 4430860 4430850	Letter-kenny	C768	331
GDA-15	Letterkenny Reservoir	1956	LEAD Dwg. 71-13-01 Pardun 1982:29 LEAD Dwg. MAD-6 (Sheet 4) LEAD Dwg. 71-73-01 (Sheet 2)	140	.5-6	10:10	4442340 4442620 4443620 4443890	269930 269700 270930 270790	4442340 4442620 4443620 4443890	Letter-kenny	R773	344-346
GDA-16	Forested Areas and Isolated Structures	NA	LEAD Dwg. 18-04-06	2196	.5-1	7:10	4437480 4431720 4434900	267980 264100 262660	4437480 4431720 4434900	Letter-kenny, Hamilton	R773 F766	8-12 15-17 33 34 36-42 54-73 87 88 91 92 98 99 281 282 327 328

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

GDA No	Type of Disturbance	Date Conducted (yr)	Reference ^a	Area Disturbed (acres)	Estimated Depth Below Surface (ft)	Ratio of Disturbed to Total Area	Location of Disturbed Area					USGS Quad Sheet ^c	Coincidental Sites
							UTM		Legal Reference				
							Northing	Easting	Township	Range	Section		
GDA-5	Ammunition Igloos- Area E	1942	LEAD Dwgs. 33-15-06	574	6	4:10	4432050	268560	Letter-kenny		K773 C768	122-123 270-271 329-330	
			7572-315				4431800	269610					
			62.40				4429420	269140					
			Pardun 1982:26 LEAD 1982				4429340	269580					
GDA-6	Ammunition Igloos- Area F	1942	LEAD Dwgs. 33-15-06	553	6	4:10	4432340	268710	Letter-kenny		K773	106 108 125 126 129 132 133 304	
			7572-315				4432280	269490					
			62.40				4433900	269800					
			Pardun 1982:26 LEAD 1982				4434600	268660					
GDA-7	Ammunition Igloos- Area G	1942	LEAD Dwgs. 33-15-06	495	6	4:10	4434480	269440	Letter-kenny		K773	138 139 286	
			7572-315				4433470	269940					
			62.40				4436470	269930					
			Pardun 1982:26 LEAD 1982				4435850	268430					
GDA-8	Ammunition Igloos- Area K	1942	LEAD Dwgs. 33-15-06	656	6	4:10	4432600	267670	Letter-kenny		K773	52 82-86 109	
			7572-315				4433320	266340					
			62.40				4435150	267870					
			Pardun 1982:26 LEAD 1982				4434900	268380					
GDA-9	Ammunition Magazine	1942	LEAD Dwgs. 652-305 to 652-308	96	.5-3	4:10	4435090	273400	Letter-kenny		K773	215 218 314	
			Pardun 1982:26				4434920	273380					
							4435830	272900					
							4434370	272910					
GDA-10	Rocky Springs Lake	?	LEAD Dwgs. 18-04-06	45	.5-3	10:10	4429680	271160	Letter-kenny		C773	144 145 361	
							4429690	270900					
							4429170	270310					
							4429060	270380					

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

GDA No	Type of Disturbance	Date Conducted (yr)	Reference	Area Disturbed (acres)	Estimated Depth Below Surface (ft)	Ratio of Disturbed to Total Area	Location of Disturbed Area						USGS Quad Sheet	Coincidental Sites
							UTM		Legal Reference					
							Northing	Easting	Township	Range	Section			
GDA-1	Ammunition Igloos- Area A	1942	LEAD Dugs. 33-15-06 7572-315 62.40 Pardun 1982:26 LEAD 1982	632	5-10	4:10	4432760	272050	Letter-kenny			R773 C766	154 155 165 166 167 202 203 290 315 316 317 360	
							4431920	272700						
							4430900	270140						
							4430560	271040						
GDA-2	Ammunition Igloos- Area B	1942	LEAD Dugs. 33-15-06 7572-315 62.40 Pardun 1982:26 LEAD 1982	532	6	4:10	4431660	270120	Letter-kenny			R773	159-163 168 289 309 349 362	
							4433380	269960						
							4433550	270880						
							4433020	271730						
							4433460	271150						
GDA-3	Ammunition Igloos- Area C	1942	LEAD Dugs. 33-15-06 7572-315 62.40 Pardun 1982:26 LEAD 1982	594	6	4:10	4435060	270110	Letter-kenny			R773	166-169 210	
							4434270	269900						
							4433880	272490						
							4434330	272240						
GDA-4	Ammunition Igloos- Area D	1942	LEAD Dugs. 33-15-06 7572-315 62.40 Pardun 1982:26 LEAD 1982	559	6	4:10	4435430	270450	Letter-kenny			R773	173-175 191-192 265	
							4436510	270430						
							4436280	272220						
							4435220	272240						

second and continuing phase of construction. Large areas of land were used for the construction of igloos for ammunition storage, while areas of barracks, warehouses, and administrative buildings were generally confined to the southeastern corner of the LEAD property. Open areas, isolated structures, and small complexes of structures make up the remainder of the LEAD physical plant.

The various areas of modern or historic ground disturbance which may have impacted on potential archeological sites are presented in Table 3-1.

To facilitate the discussion of ground disturbance, the LEAD has been divided into 52 separate Ground Disturbance Areas (GDAs) (Figures 3-1a-h, Table 3-1). Two basic factors determine the likelihood of archeological resource preservation within each of the GDAs. First, the type of construction (whether temporary, semi-permanent, or permanent) and, second, the function of the building generally dictate the depth of the ground disturbance.

Second, the amount of demolition and rebuilding in an area increases the percentage of areal disturbance in GDAs. Each GDA was evaluated with regard to these factors.

GDAs- 1-8: Ammunition Igloo Areas A through G and K contain over 900 semi-subterranean earth-covered storage shelters. Coincidental potential archeological sites in these GDAs total 58 (Table 3-1). It is estimated that the ground is disturbed to a maximum depth exceeding 6 ft. in 30 to 60 percent of the area.

GDA-9: A set of 12 ammunition magazines and associated structures make up GDA-9. Three coincidental sites are located within this GDA (Table 3-1). It is estimated that the ground is disturbed to a maximum depth of 3 ft. with an areal disturbance of 30 to 60 percent.

GDAs- 10-15: Six reservoirs are located throughout the main property and in Horse Valley. Except for the location of the dams for each reservoir, it is estimated that the depth of disturbance is 1/2 ft. to 3 ft. over 90 percent of reservoir areas. Dam construction, particularly the large dam in Horse Valley, probably caused disturbance to depths of 6 ft. or more. Coincidental sites within these areas total nine (Table 3-1).

GDA-16: In the western portion of LEAD a large tract of forested land exists which contains only a few isolated structures. A small portion of this GDA, transected by Tracer Road, Cole Road, and Apple Road, comprises a portion of the Inert Projectile Impact Area (Jim Coccagna, 1984, Personal Communication). In general, GDA-16 is estimated to exhibit less than 1/2 ft. of disturbance over more than 90 percent of its area. There are 47 coincidental sites within GDA-16 (Table 3-1).

GDA-17: GDA-17 consists of open pasture, fields, drainage areas, railroad beds, and a few isolated structures. It includes the lands that surround the other GDAs, and encompasses over 60 percent of LEAD property. Sections of GDA-17 between clusters of ammunition igloos

3.0

AN ASSESSMENT OF ARCHEOLOGICAL RESOURCE PRESERVATION AND SURVEY ADEQUACY

3.1 ENVIRONMENTAL CONSTRAINTS TO SITE PRESERVATION

At the LEAD, all locations can be assigned to one of four possible site preservation contexts: rocky sandstone ridges; colluvial deposits; moderately deep to shallow valley upland shaley soils; and poorly drained stream bottoms. All of the upland contexts are relatively stable from erosional movement under current conditions. However, deforestation in the latter part of the nineteenth century probably led to widespread erosion of the steeply sided lower slopes of Broad Mountain. In situ organic preservation is poor in both ridge and valley upland soils, due to their high acidity. Preservation is even worse in the Buchanan soils, as these have a fragipan, which results in seasonally high water tables.

Soils along the stream bottoms are poorly drained and may exhibit good organic preservation. These areas may have also received much of the sediment eroded from the mountain sides during deforestation, capping any potential site strata.

3.2 HISTORIC AND RECENT LAND USE PATTERNS

Historic and recent land use patterns within the LEAD have occurred in two distinct phases. The first includes pre-LEAD agricultural activity; the second includes the erection and subsequent growth of the LEAD physical plant.

As indicated above, 700 structures existed on LEAD property before construction of depot buildings began; however, only 346 of these are shown on early maps of the area. In the reservoir area three cabins, probably seasonal dwellings constructed after World War II, were removed in 1955 (LEAD Dwg 71-13-01).

Pre-depot structures on the main property were identified by the year of the map on which they first appeared and by their function when given. While there was some ebb and flow in the number of buildings over time, most locations exhibited a remarkable stability in maintaining a structure once it had been built. Although most were farm houses, lime kilns, schools, churches, and shops were also shown.

After the purchase of the property by the U.S. government, the establishment of the LEAD facility rapidly took place, initiating the

integrated within the context of a market society. Such exploration should enlighten our view of the process of nation building and lend a better perspective on the roles and conditions of individuals during that process.

2.3.2 Installation Specific Archeological Research Directions

Productive prehistoric archeological investigations have taken place in and around the LEAD. Although only three prehistoric sites have been inventoried on the depot, even the most conservative estimates would place the likely number of extant prehistoric sites above 100.

Prehistoric sites that might be found within the LEAD boundaries could be expected to contribute to a number of research issues. Susquehannock material, especially if associated with a seasonal or temporary camp, would contribute to an understanding of Susquehannock settlement systems, especially in this peripheral area. Shenks Ferry material from the latter half of the sixteenth century might clarify the relationship between Shenks Ferry and Susquehannock cultures. At a more general level, upland settlement information from the LEAD would contribute to an understanding of the overall settlement pattern for the area, since upland sites are underrepresented in the presently available sample from Franklin County.

In addition to prehistoric sites, numerous historical archeological sites are located on LEAD property. Even though most of the pre-depot buildings were removed and much construction has taken place at LEAD, foundations of past structures in relatively undisturbed contexts undoubtedly still exist.

Historical archeological investigations at LEAD have been limited to a single investigation over a few small areas of the depot (Roberts 1981). During that investigation, three historical sites were located, and included the Isaac Myers house, an abandoned Franklin County roadway, and the Joseph W. Fagan Stone Quarry. Historical records indicate, however, that numerous other historic sites are undoubtedly present within LEAD boundaries.

A village (Maple Grove), a hamlet (Keepers), many farmsteads dating from before 1858, and many other sites with specialized functions existed on LEAD property. These sites may contain valuable information with regard to the previously mentioned cultural process of ethnic integration, the development of a national identity, and changes in the economic system of the area over time.

Witthoft and Kinsey 1959). This work has addressed many issues of Susquehannock culture, such as trade, settlement systems, economics, diet, chronology, and social organization. Still unresolved are the questions of the temporal and sociological relationships of the two Liebhart sites in York County, the presence of other yet undiscovered contemporary sites in the area, and the relationship between the Shenks Ferry culture and the Susquehannock culture (Witthoft 1959).

Late Woodland culture history has also been a key theme of prehistoric research in southcentral Pennsylvania. Both the Clemson's Island and Shenks Ferry phases of the Late Woodland have been documented (Jones 1931; Kinsey and Graybill 1971), but the relationships between these two cultures remain largely unresolved and a matter of continued interest (Hatch 1980).

A third area of prehistoric research has focused on the establishment of regional artifact chronologies. Stratified sequences dating to the Archaic Period have been found on islands in the Susquehanna River (Kinsey 1971). These sequences, along with chronologically diagnostic projectile points from surface sites in the area, have led to the establishment of a regional point chronology for the Middle and Late Archaic (Kent 1970).

A fourth prehistoric archeological research objective has been settlement/subsistence studies. The Hagerstown Valley in northern Maryland was the subject of a study of settlement and subsistence patterns (Stewart 1980). A major focus of this study was the prehistoric utilization of rhyolite as a lithic raw material through time, and how its location correlated with cultural distributions. Immediately west of the LEAD, a Pennsylvania Historical and Museum Commission regional survey was executed (Herbstritt 1982). A total of 81 sites in southeastern Fulton and western Franklin Counties were inventoried, with the intent to compare cultural differences within contiguous areas of the Ridge and Valley Province.

Historical archeological research foci are related to the conflict between colonizing Euroamericans and the displaced Indian Americans. Historical archeological research also focuses on the evolution of American culture from a pre-industrial agriculturally based society to an industrial market-oriented society.

The Cumberland Valley region offers excellent archeological examples of colonization and conflict between cultures. The numerous frontier fortifications such as Fort Loudon and others in and around Franklin County were focal points of the conflict which raged during the Frontier Phase. The numerous farmstead sites display the more mundane but no less important aspects of the adaptation to and exploitation of the region by family units of diverse ethnic backgrounds but with similar goals and technology.

The region also offers an opportunity to explore the evolution of American society from one of separate ethnic groups operating on subsistence farmsteads to one which was economically and ethnically more

quarters of the Commander of the U.S. Army Depot System (DESCOM), a subordinate Command of DARCOM co-located at LEAD (LEAD 1982:13; Pardun 1982:61). Another four extant structures (S507, S529, S539, and 3231) include a barn, the officers club (formerly a barn), a guest house, and an officer grade family house. The date of construction of the above buildings is listed as 1942 or 1943 in the LEAD Building Schedule, however, that date must be interpreted as the date of purchase or renovation and not construction (Lisa Rankin, 1983, Personal Communication; LEAD 1982:13, 14, 28). A sixth pre-depot building survived into the depot period. Building 10-A is described by Pardun (1982) as "...a farm house near the first above ground magazines..." which was used first as a field office for the dispatching of crews of ammunition handlers and subsequently as a meeting place and for lunches. However, this structure is not further identified in the available literature. Conversations with LEAD personnel failed to provide any further identification or location of this structure. It may no longer be standing.

During World War II the LEAD experienced continuing growth of its physical plant. In addition, a POW camp for the Italian Service Unit was constructed from existing civilian dormitories plus one new barracks. Today, these structures (with one exception) are part of the NCO Club Complex. The one exception appears to have been removed (LEAD Dwg. 62.27; LEAD Dwg. 18-04-06; LEAD Dwg. 62.27; LEAD Dwg. 107.1 Pardun 1982:17).

Over the years of size and shape of LEAD property has changed. In 1957 a reservoir and dam located on 148 a. of recently purchased land in Horse Valley were opened for use. In 1965 and 1969, 41 and 40 a., respectively, were sold as excess. In 1973, 1100 a. were transferred to the State of Pennsylvania for use as a State Forest, leaving 19,511 a. under federal control (LEAD n.d.a:2).

Construction since 1942 has moved apace with the needs of the military services. Today, a total of 1395 permanent and 386 semipermanent and temporary buildings are located on LEAD property (LEAD n.d.a:59).

2.3 ARCHAEOLOGICAL RESEARCH DIRECTIONS

2.3.1 Regional Concerns

Archeological data from southcentral Pennsylvania in which the LEAD is located can contribute to a number of research questions concerning the prehistory and history of the area.

Previous prehistoric archeological research has focused on several topics. One such topic has been the Susquehannock Indians. Serious archeological work at Susquehannock sites began in the early 1930s under the direction of Donald Cadzow, State Archaeologist, and led to the discovery of a number of sites in Lancaster County (Cadzow 1936). Archeological research continued intermittently on both the eastern and western shores of the Susquehanna River through the 1970s (Kent n.d.);

the economy in towns such as Chambersburg. As a harbinger of things to come, John Brown headquartered in Chambersburg in 1859, just prior to his raid on Harpers Ferry. During the Civil War, Chambersburg was occupied in 1863 and burned in 1864 (Donehoo 1930:289-293). However, the Civil War did not retard the fortunes of the Franklin County region. Growth was experienced in transportation facilities and in new industries and commerce. The larger communities saw continuing population increase as a result (Donehoo 1930:295).

These processes continued until 1940, and no radical shifts in economy or population occurred. Rather, a slow evolution toward an economy based on medium and light industries gradually supplemented the dependence on agriculture, particularly after 1880. Letterkenny Township, after reaching a population peak in 1880, entered a long period of population decline. Having only a few villages and hamlets within its boundaries, it remained reliant on agriculture and did not generally participate in the industrial transition.

Rural Manufacturing Phase (1940-present). World War II and the subsequent requirement for manufactured goods of both a military and non-military nature brought about an influx of people and industrial growth to the region in general, and to Letterkenny Township in particular, which experienced a sudden population increase. Immediately after the war, however, the population of Letterkenny Township fell drastically. The establishment of the LEAD was almost certainly the cause of both events since approximately one third of the Township was annexed by the Federal Government for military use. Initially, much labor was needed to operate the facility, but when the war ended, population levels could no longer be maintained in an environment reduced both in size and opportunity.

History of the LEAD Property. Prior to the purchase in 1942 of 20,544 a. in Letterkenny Township and in small portions of Hamilton and Greene Townships, the property of the LEAD had been the home of generations of farmers. Almost 1000 people comprising 250 families, 8 public schools and 9 cemeteries were located in over 380 tracts of land (LEAD n.d.a.: 2; Pardun 1982:6). Examination of nineteenth and early twentieth century maps for the property indicate the presence of 346 structures, 3 quarries, and 1 presently unmarked cemetery (Beers 1868; Davidson 1858; USGS 1902, 1923; Pennsylvania Department of Highways 1941). In addition there were smaller outbuildings. Approximately 700 structures were enumerated for public sale in April 1942, when the civilian buildings on LEAD property were removed or demolished to make way for depot construction (Pardun 1982:13).

The construction of the LEAD began in 1941 with 802 underground igloos, 12 above ground magazines for ammunition storage, and 17 shed-type warehouses for the storage of general supplies. Construction of administration buildings and living quarters was also initiated at that time. Only six structures built prior to 1942 were left standing after this initial construction phase. The most prominent is the James Finley home. Built prior to 1770, this structure (Building 505) is on the National Register of Historic Places and serves as the family

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

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					USGS Quad Sheet ^c	Coincidental Sites ^d
							UTM ^b		Legal Reference				
							Northing	Easting	Township	Range	Section		
GDA-47	Vehicle Rd. Structures	post-1942	LEAD Dwg. 18-04-06	41	3-6	5:10	4431320	272910	Letter-kenny		R773	197 337	
							4430960	273170					
							4431030	273320					
							4431880	273790					
GDA-48	Operations General Purpose Structures	post-1942	LEAD Dwg. 18-04-06	17	3-6	5:10	4431760	272800	Letter-kenny		R773	200 224	
							4431560	272860					
							4432040	273010					
							4431880	273280					
GDA-49	Strategic Material Storage	post-1942	LEAD Dwg. 18-04-06	12	3-6	5:10	4432140	273180	Letter-kenny		R773		
							4432410	273880					
							4432310	273920					
							4432440	274400					
GDA-50	Multiple Purpose Bldgs.	post-1942	LEAD Dwg. 18-04-06	19	3-6	5:10	4432560	274360	Letter-kenny		R773		
							4431040	272350					
							4431170	272260					
							4431280	272770					
GDA-51	Honeytown Rd. Structure	post-1942	LEAD Dwg. 18-04-06	13	.5-3	5:10	4431390	272530	Letter-kenny		C768		
							4429970	270430					
							4430110	270180					
							4430060	270500					
GDA-52	Administration and Officers Mess	1942	LEAD Dwg. 18-04-06 LEAD 1982	23	3-6	5:10	4430230	270360	Greene		C768	243 325 326	
							4430320	273770					
							4430240	274100					
							4430000	274150					
							4429910	274810					

NOTES:

a All drawing are on file with LEAD Facilities Engineers.

b UTM Zone 18.

c R773 = Roxbury 7.5 Minute Quadrangle, 1966 edition, photo revised 1973.
C768 = Chambersburg 7.5 Minute Quadrangle, 1944 edition, photorevised 1968 and 1973.
F764 = Fannetsburg 7.5 Minute Quadrangle, 1966 edition, photorevised 1973.

d Within the GDA.

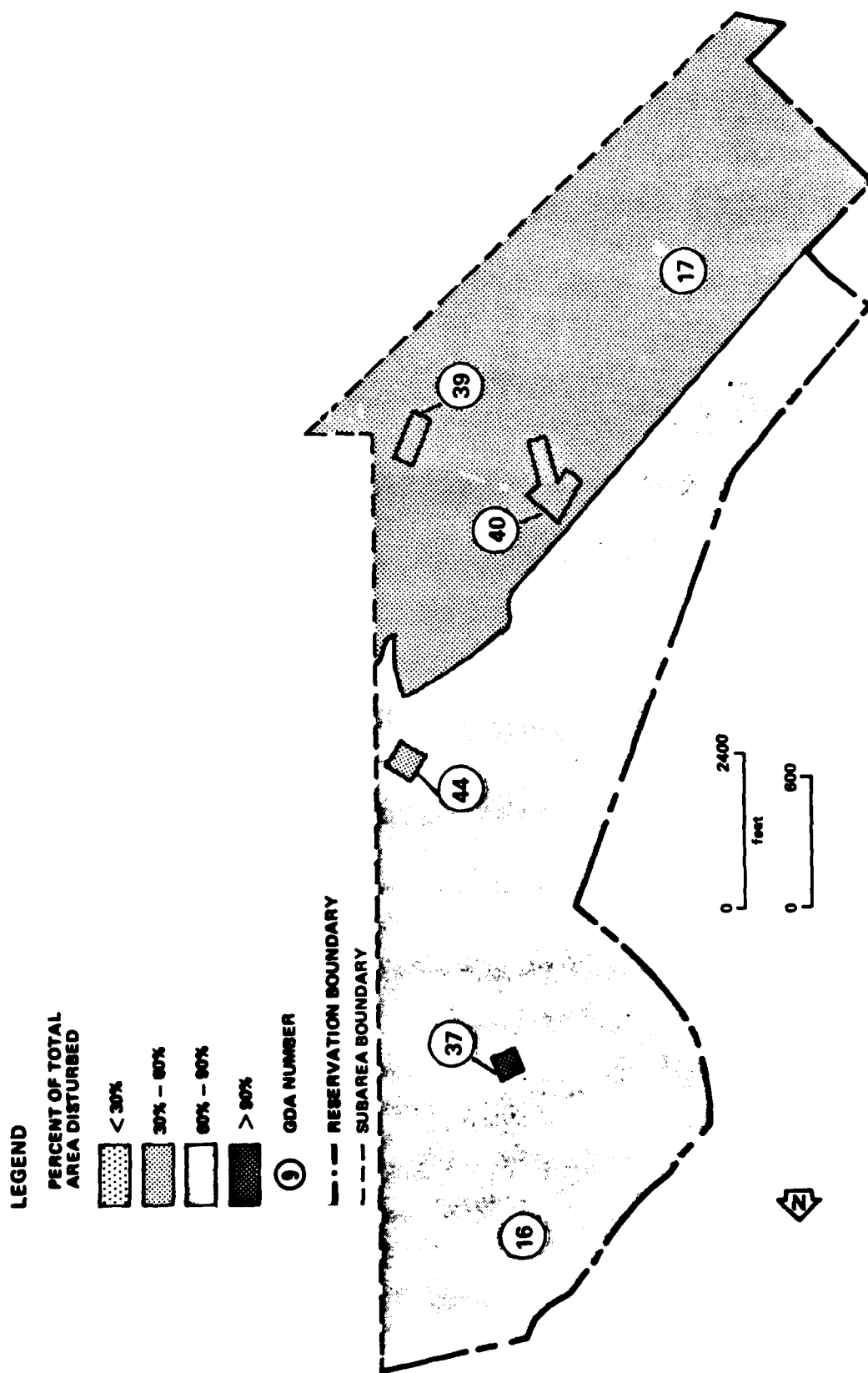


Figure 3-1a. A MAP OF AREAS OF HISTORICAL AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE LETTERKENNY ARMY DEPOT, SUBAREA A

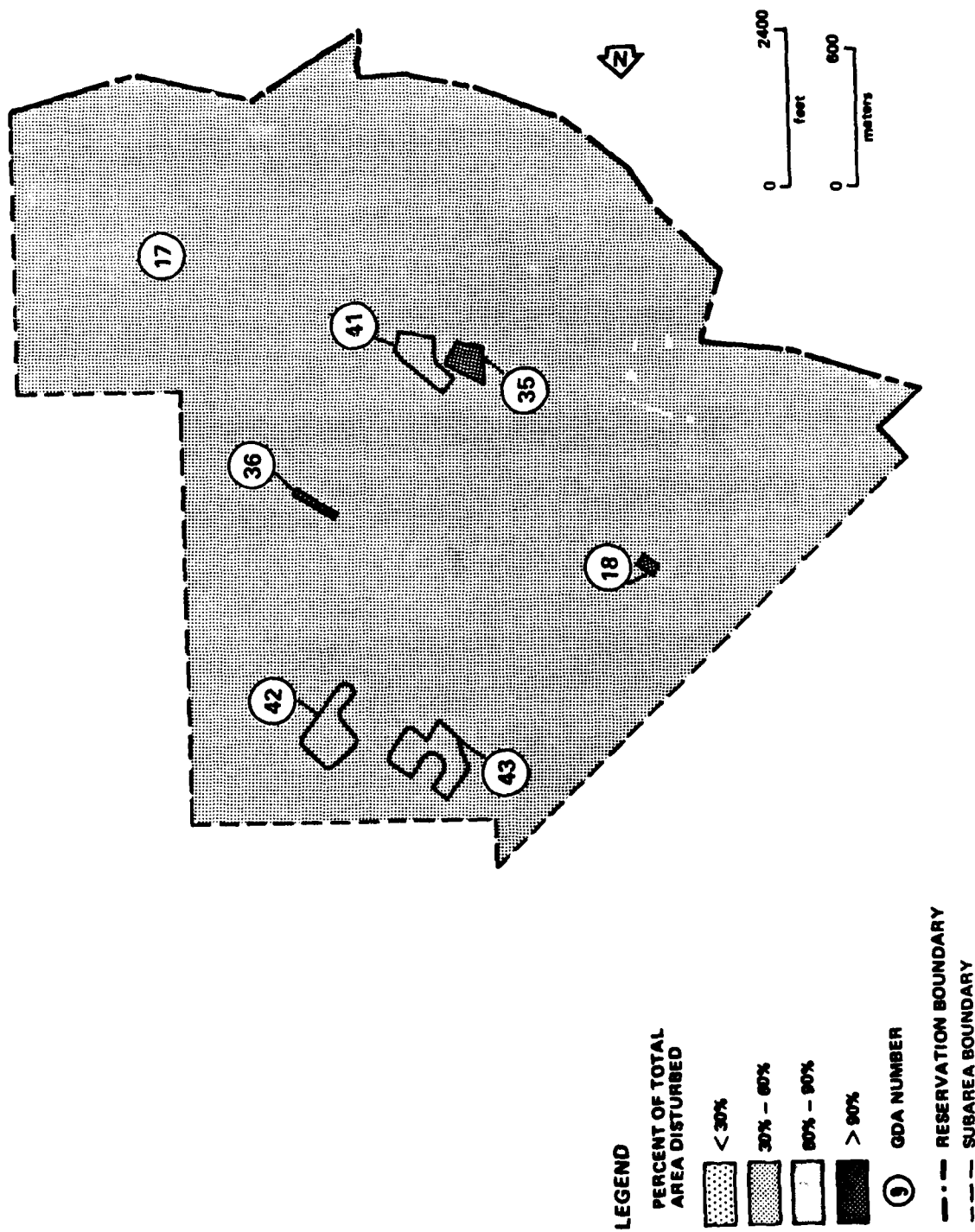


Figure 3-1b. A MAP OF AREAS OF HISTORICAL AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE LETTERKENNY ARMY DEPOT, SUBAREA B

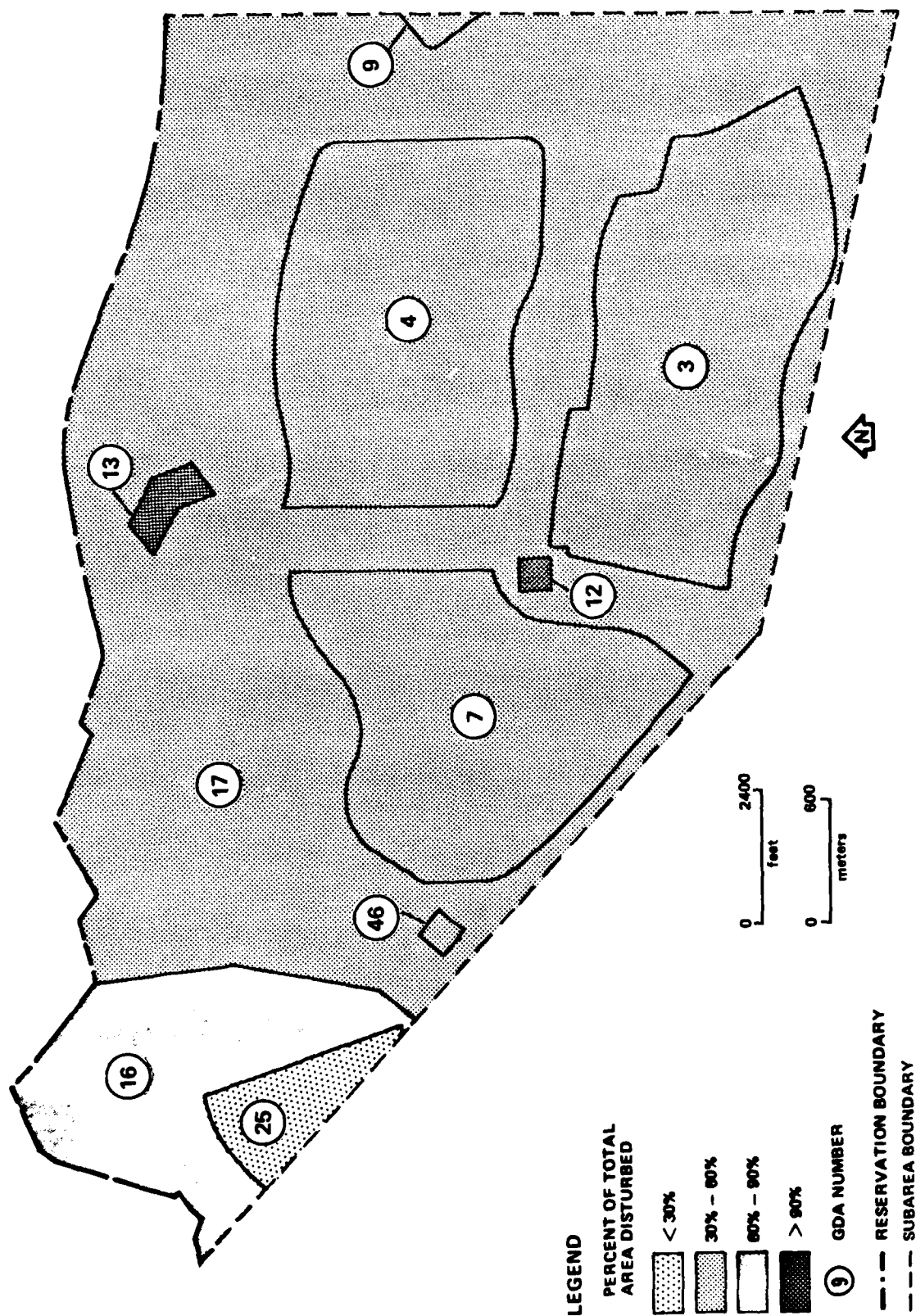


Figure 3-1c. A MAP OF AREAS OF HISTORICAL AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE LETTERKENNY ARMY DEPOT, SUBAREA C

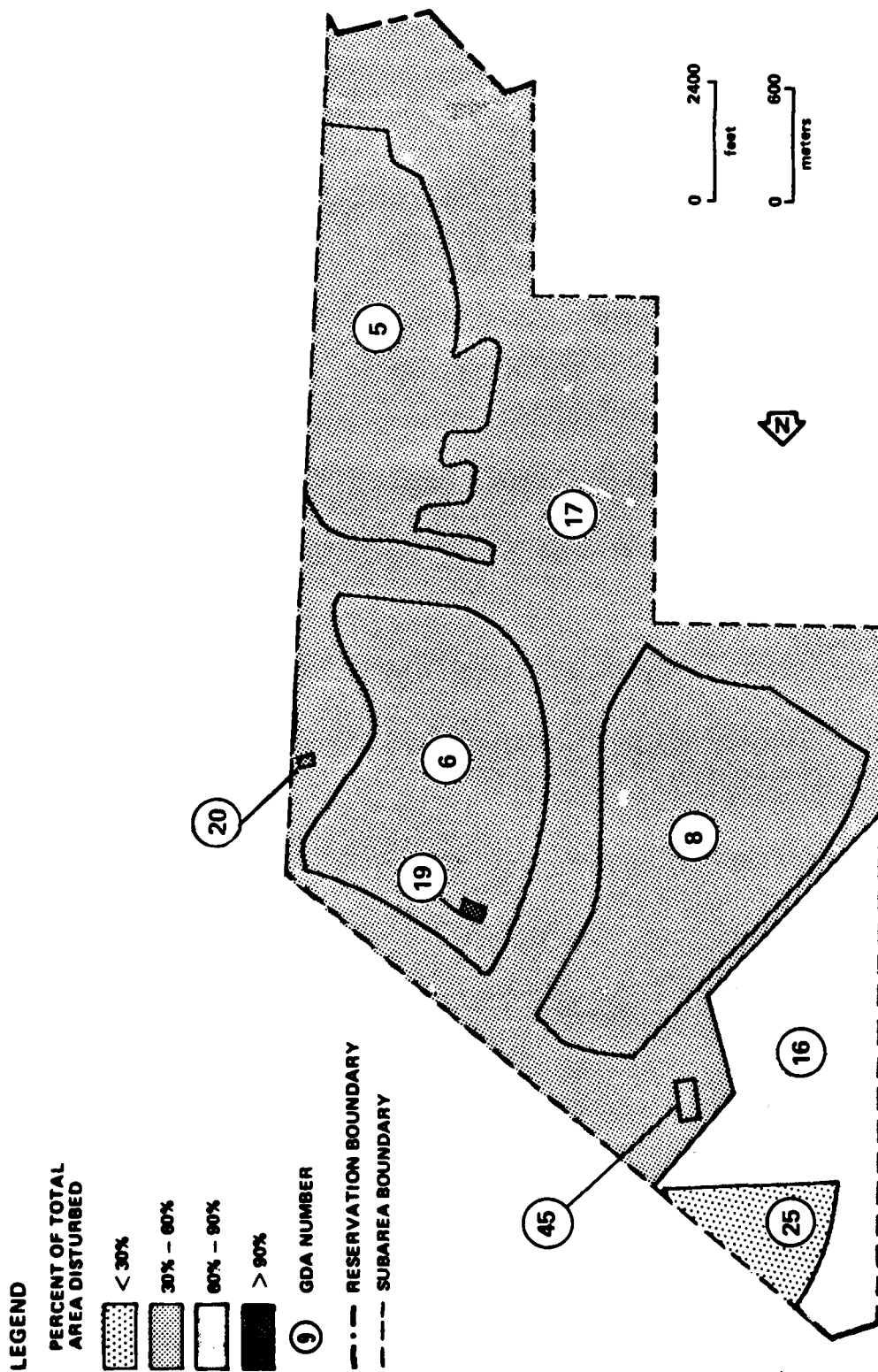


Figure 3-1d. A MAP OF AREAS OF HISTORICAL AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE LETTERKENNY ARMY DEPOT, SUBAREA D

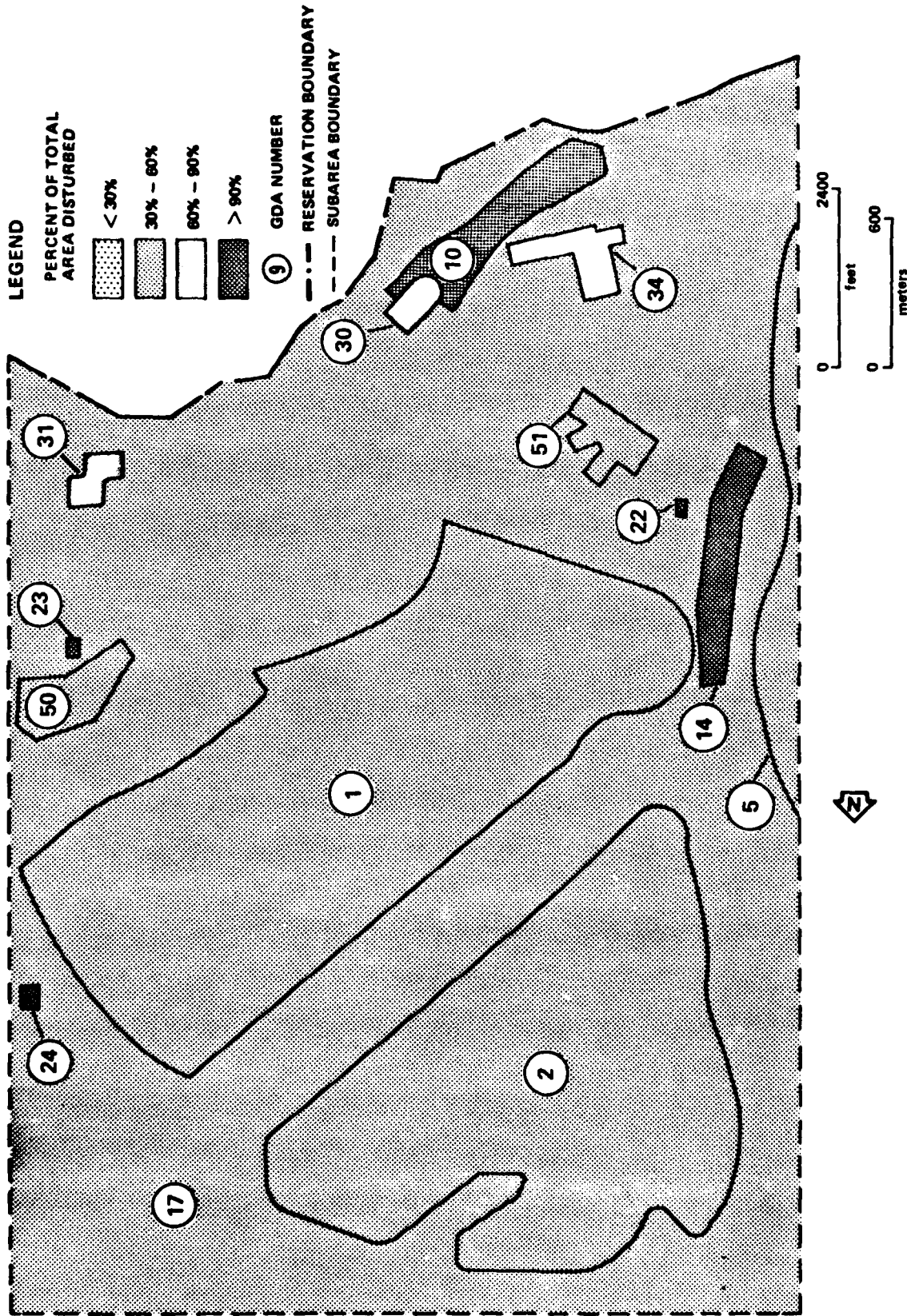


Figure 3-1a. A MAP OF AREAS OF HISTORICAL AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE LETTERKENNY ARMY DEPOT, SUBAREA E

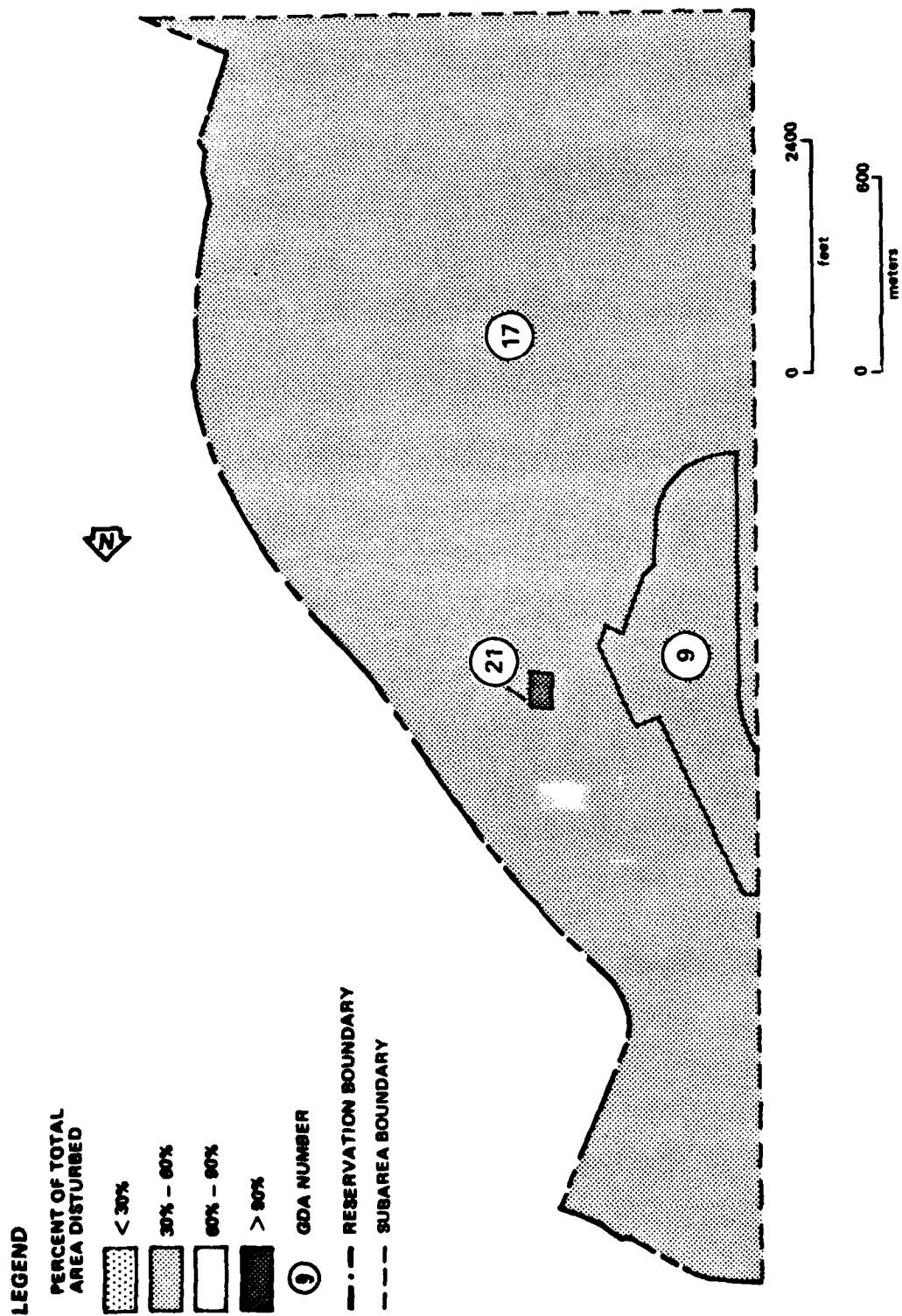


Figure 3-1f. A MAP OF AREAS OF HISTORICAL AND /OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE LETTERKENNY ARMY DEPOT, SUBAREA F

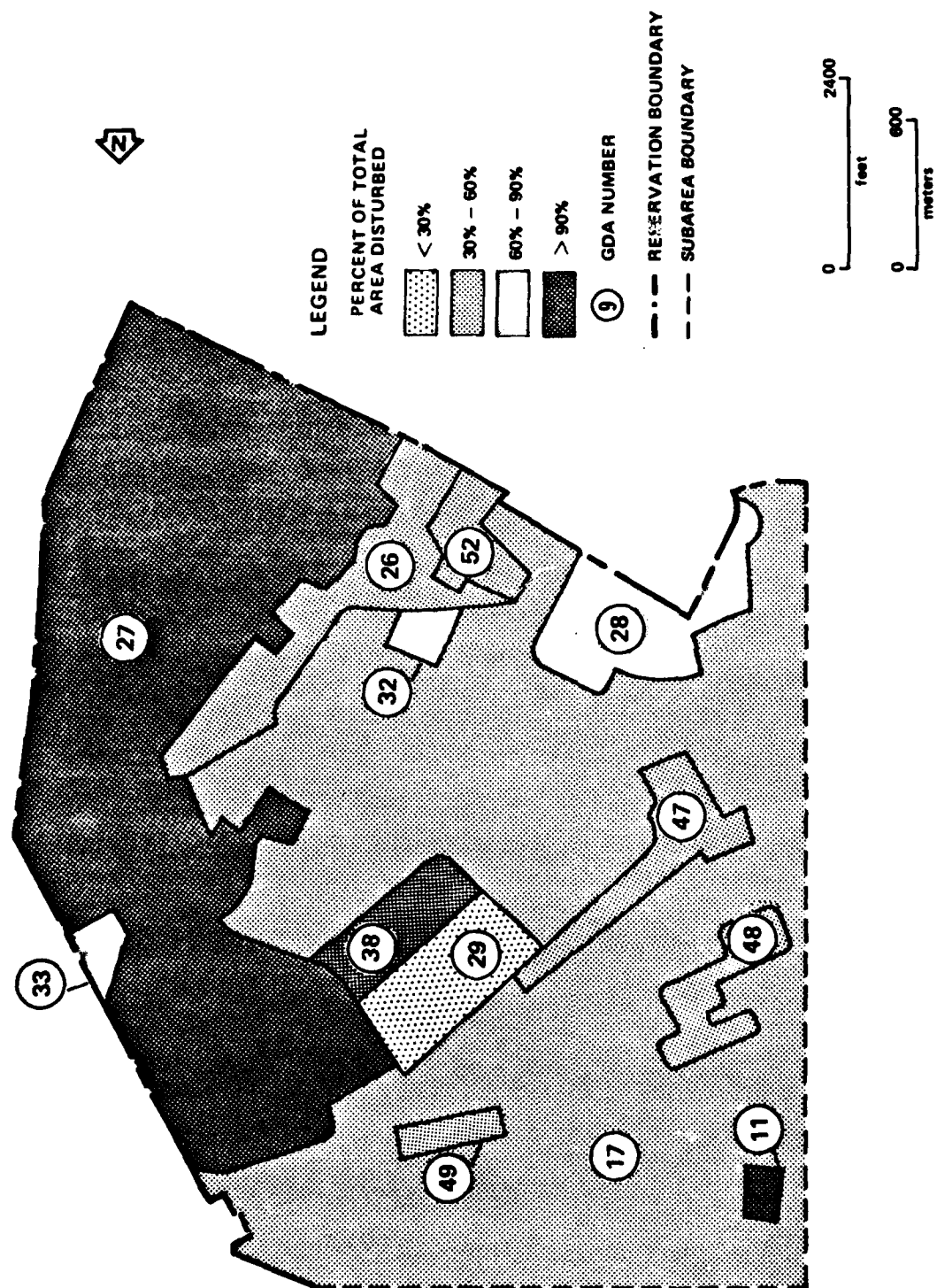


Figure 3-1g. A MAP OF AREAS OF HISTORICAL AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE LETTERKENNY ARMY DEPOT, SUBAREA G

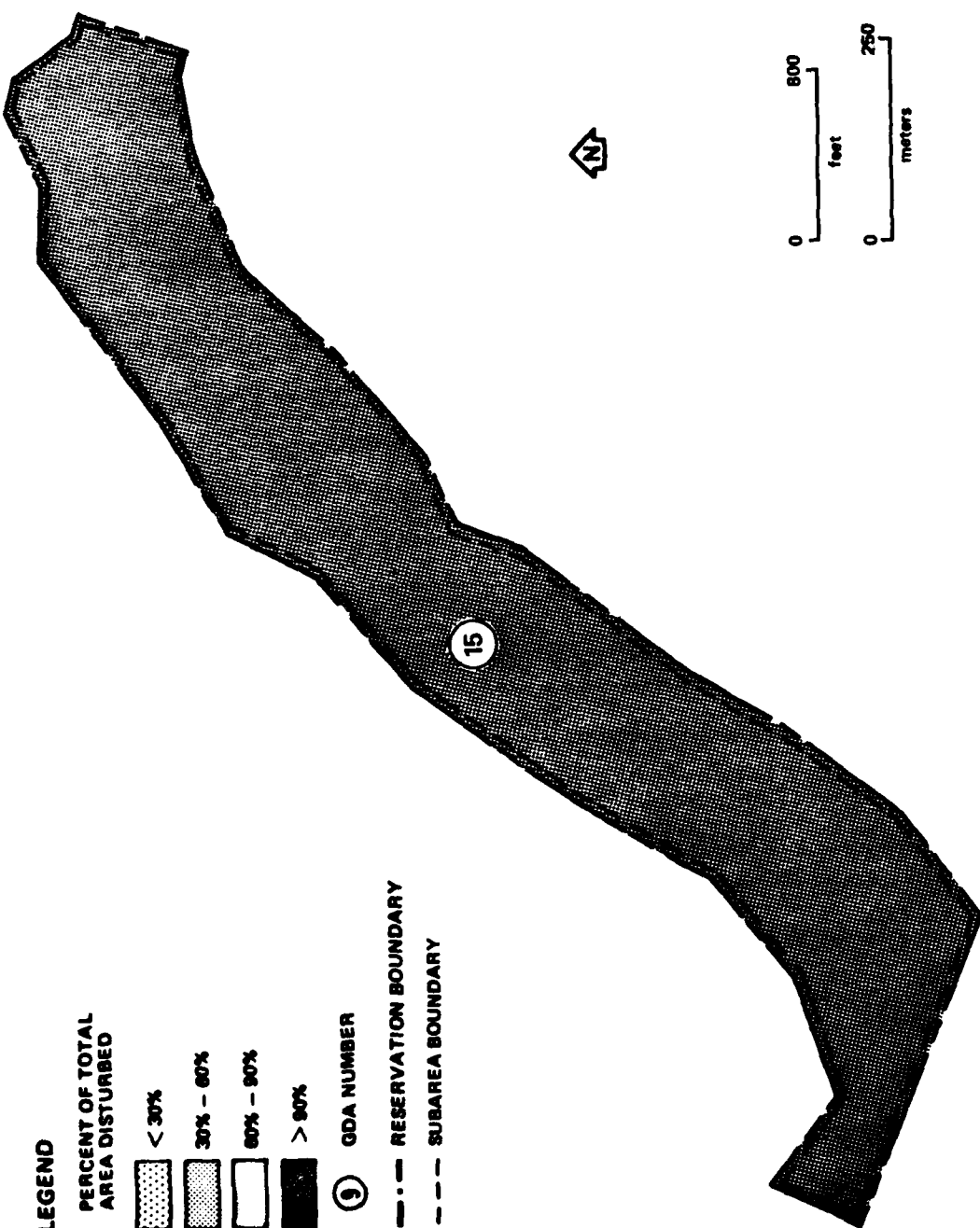


Figure 3-1h. A MAP OF AREAS OF HISTORICAL AND/OR MODERN GROUND DISTURBANCE THAT MIGHT LIMIT THE PRESENT ARCHEOLOGICAL RESOURCE BASE ON THE LETTERKENNY ARMY DEPOT, SUBAREA H

served as borrow areas during the construction of the igloos in 1942 (LEAD Dwgs. 16-06-01, Sheets 3, 4). The portion of GDA-17 immediately surrounding GDA-36 has been utilized as an Explosive Demilitarization Area (Jim Coccagna, 1984, Personal Communication). The portion of GDA-17 southwest of GDA-38, adjacent to the classification yard and north of Sandbag Road, serves as a construction debris landfill area (Jim Coccagna, 1984, Personal Communication). A former landfill area in GDA-17 lies north of GDA-27 and west of Gate No. 1. It is estimated that 30 to 60 percent of the area is disturbed to depths of 1/2 ft. to 3 ft. The major exceptions to this generalization are the railroad beds and borrow areas which may exhibit disturbance of 3 ft. to 6 ft. below grade. Two hundred seven coincidental sites are located within GDA-17 (Table 3-1).

GDA-18-24: There are seven marked cemeteries within LEAD property. Each has been maintained by LEAD. It is estimated that there has been less than 1/2 ft. of disturbance over greater than 90 percent of these areas. There are no coincidental sites within these areas.

GDA-25: Surrounded by the forested area of GDA-16, this fan-shaped GDA consists of a projectile range used to test artillery pieces utilizing non-explosive shells. Its eastern portion comprises part of the Inert Projectile Impact Area (Jim Coccagna, 1984, Personal Communication). It is estimated that only 1/2 ft. to 3 ft. of disturbance has occurred over less than 30 percent of its area. There are three coincidental sites within this GDA (Table 3-1).

GDA-26: A nine hole golf course and some adjoining land make up GDA-26. Grading for the course has probably disturbed the ground to depths of 1/2 ft. to 3 ft. over 30 to 60 percent of its area. There are two coincidental sites within GDA-26 (Table 3-1).

GDA-27: Numerous warehouses and the industrial shop area of the LEAD panhandle form GDA-27. Also included is a trichlorethylene contaminated area comprising the northernmost portion of this GDA bounded by a fence line (Jim Coccagna, 1984, Personal Communication). It is estimated that maximum disturbance in this area is greater than 6 ft. and that ground disturbance occurs in over 90 percent of the area. There are nine coincidental sites within this GDA (Table 3-1).

GDA-28: The structures around the facilities compound, the NCO Club, and Kenny Gardens compose GDA-28. The depth of ground disturbance is estimated to be greater than 6 ft. where deep footings or basements exist. Areal disturbance is estimated to be 60 to 90 percent. A total of four coincidental sites are located within GDA-28 (Table 3-1).

GDA-29: GDA-29 consists of the Combat Vehicle Test Track. The western portion of this GDA was a former sludge disposal area (Jim Coccagna, 1984, Personal Communication). The estimated depth of disturbance is 3 ft. to 6 ft. Areal disturbance is less than 30 percent. There are no potential archeological sites in GDA-29.

GDA-30-34: Various water containment, processing, and treatment facilities are included in this group of GDAs. The depth of maximum ground disturbance is over 6 ft. and areal disturbance is 60 to 90 percent. There are no potential archeological sites within any of these GDAs.

GDA-35-37: A Burning Ground and two demolition grounds (explosive demilitarization areas) account for these GDAs. The depth of disturbance for these areas is estimated at greater than 6 ft. over more than 90 percent of their areas. No coincidental potential archeological sites are found within these GDAs.

GDA-38: Known as the Tank Farm, the Long Term Vehicle Storage Area consists of 169 metal liquid storage tanks converted to hold a number of vehicles in each tank. Located adjacent to the Combat Vehicle Test Track, it is estimated that less than 15 ft. of ground disturbance characterizes more than 90 percent of the area. No coincidental potential archeological sites are located within this area.

GDA-39-50: Each of these GDAs is composed of a set of permanent or semipermanent buildings and occasional temporary structures. In general, the semipermanent and permanent structures, when not built to special specifications for holding heavy items, have concrete footings which may be between 3 ft. and 6 ft. in depth. The temporary structures are generally set on wooden pilings which are estimated to extend between 1/2 ft. to 3 ft. into the ground. The depth of disturbance is therefore estimated to be between 3 ft. and 6 ft. Areal disturbance is estimated to be 30 to 60 percent. There are five potential archeological sites located in these GDAs (Table 3-1).

GDA-51: On the southeast corner of the intersection of Lake Road and Honeytown Road are 44 temporary structures. It is estimated that the depth of disturbance is 1/2 ft. to 3 ft. over an area of 30 to 60 percent disturbance. There are no potential archeological sites in this GDA.

GDA-52: The LEAD post headquarters, Kenny Hills housing, DESCOM headquarters, and the Officers Open Mess are found within this GDA. With the exception of a swimming pool located within the area, depth of disturbance is 3 ft. to 6 ft. over 30 to 60 percent of the area. There are three coincidental potential archeological sites in GDA-52 (Table 3-1).

3.3 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS: COVERAGE AND INTENSITY

One archeological survey was conducted on the LEAD which identified three prehistoric sites and three historic sites (Roberts 1981) (Table 3-2, Figures 3-2a-e). Nineteen parcels of land, ranging from 1 to 70 a. in size and totalling 198 a. were surveyed by visual surface inspection and subsurface testing. The circular areas indicated on Figures 3-2 a-e are schematic. Each parcel was classified as either high or low priority. Low priority areas (Nos. 4, 7, 9, 11, 14, 15, 16, 17, 18 in Roberts 1981) were visually examined. High priority areas (Nos. 1, 2, 3,

Survey Administration			Survey Location		Survey Characteristics										Identified Archeological Resources				
			UTM		Legal Description														
SHIP Survey No.	Survey Institution	Survey Date	Survey Record	Bibliographic Reference	North-ing	East-ing	Town-ship	Sec-tion	USGS Quad Map	Col-lection	Curatorial Repository	Survey Type	Area	Temporal Coverage	Transect Type, (a./ Inter-val (m.)	Rate (a./ per-son day)	Sub-surface	Tested Sites	Notes

17) 4431650 272950
18) 4429750 274650
19) 4430500 270300

NOTES:

- JMA - John Milner Associates
- PHMC - Archaeology Section, Bureau for Historic Preservation, Pennsylvania Historical and Museum Commission
- SG - Collect surface "grab" sample without mapping
- LEAD - Facility Engineer's Office, Letterkenny Army Depot
- IS - An intensive survey assumed to have identified at least 90 percent of the surface-evident archeological resources in the survey area
- PH - Prehistoric and historic period covered by survey
- TP - Two ft. by two ft. shovel excavated test pits
- Three of six sites listed with PHMC

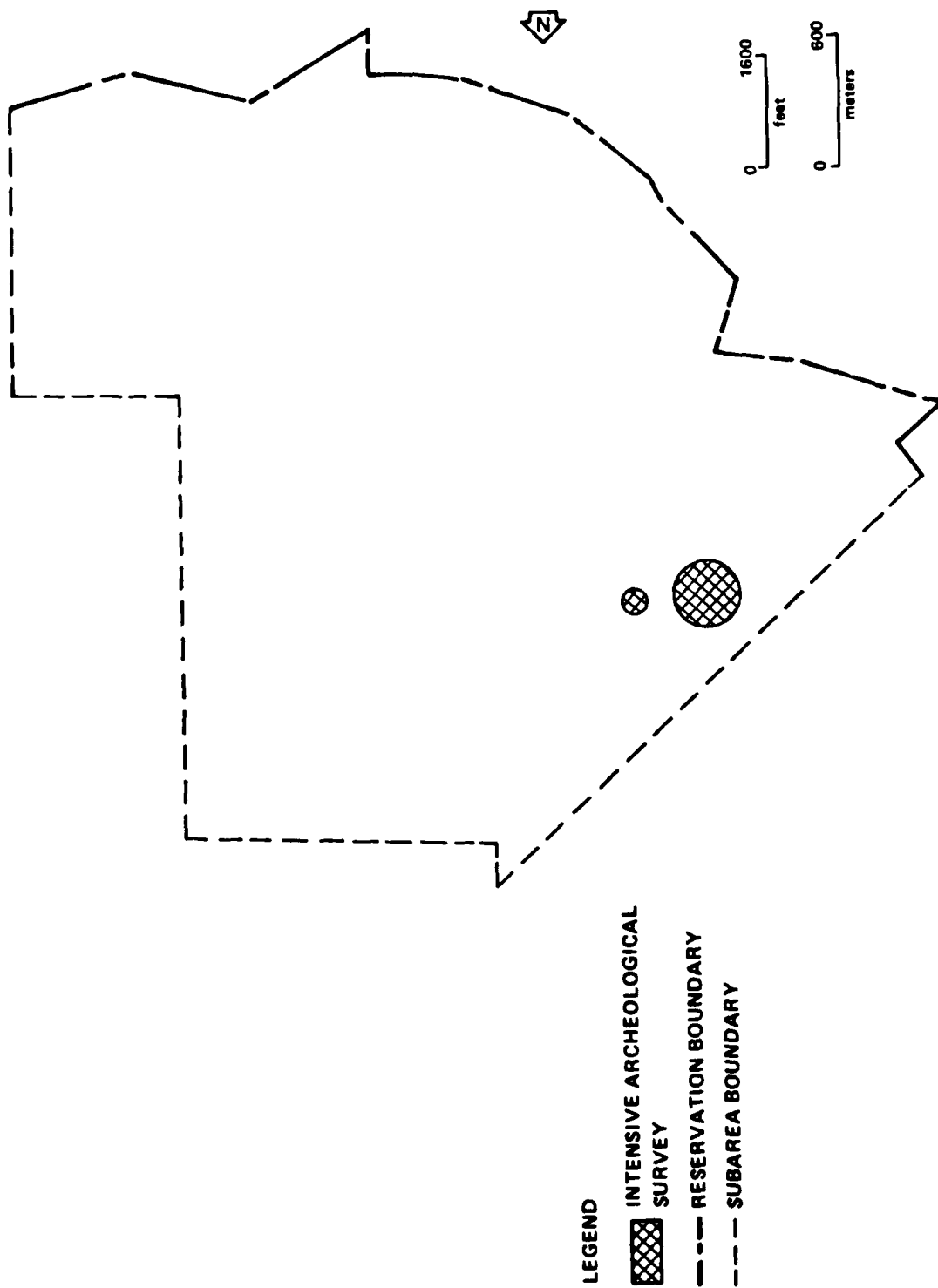


Figure 3-2a. A MAP OF ARCHEOLOGICAL SURVEYS CONDUCTED ON THE LETTERKENNY ARMY DEPOT, SUBAREA B

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 36	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 37	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 38	PA Dept. Hwys. 1941	Farm	1
LEAD - 39	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 40	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 41	PA Dept. Hwys. 1941	Seasonal Residence	1
LEAD - 42	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 43	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 44	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 45	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 46	Davidson 1858 PA Dept. Hwys. 1941	Dwelling	2
LEAD - 47	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 48	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 49	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 50	Davidson 1858 PA Dept. Hwys. 1941	Farm	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 20	Beers 1868 PA Dept. Hwys. 1941	Cemetery	2
LEAD - 21	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 22	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 23	Davidson 1858 Beers 1868 USGS 1923 PA Dept. Hwys. 1941	Church	2
LEAD - 24	Beers 1868 PA Dept. Hwys. 1941	Store	2
LEAD - 25	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 27	Beers 1868 PA Dept. Hwys. 1941	Dwelling	2
LEAD - 28	Beers 1868 PA Dept. Hwys. 1941	Store	2
LEAD - 29	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 30	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 31	PA Dept. Hwys. 1941	Air Beacon	1
LEAD - 32	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 33	PA Dept. Hwys. 1941	Dwelling	1
LEAD - 34	PA Dept. Hwys. 1941	Quarry	1
LEAD - 35	Davidson 1858 PA Dept. Hwys. 1941	Farm	2

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

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 1	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 2	PA Dept. Hwys. 1941	Farm	
LEAD - 7	PA Dept. Hwys. 1941	Quarry	1
LEAD - 8	PA Dept. Hwys. 1941	Farm	1
LEAD - 9	Davidson 1858 Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 10	Davidson 1858 Beers 1868 PA Dept. Hwys. 1941	Dwelling	2
LEAD - 11	Davidson 1858 Beers 1868 PA Dept. Hwys. 1941	Limekiln	2
LEAD - 12	Davidson 1858 Beers 1868 PA Dept. Hwys. 1941	Dwelling	2
LEAD - 13	Davidson 1858 Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 14	Davidson 1858 Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 15	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 16	PA Dept. Hwys. 1941	Farm	1
LEAD - 17	PA Dept. Hwys. 1941	Farm	1
LEAD - 18	PA Dept. Hwys. 1941	Farm	1
LEAD - 19	USGS 1902 PA Dept. Hwys. 1941	Farm	1

Potential historic archeological sites are numerous. Three hundred and forty-five proposed sites were documented during the present research (Table 4-4; Figures A-2 a-g).

Collection Characteristics

Site Number, Name	Collection Location		Artifact		Ecofact		Documentary	
	Curatorial Repository	Accession Number(s)	Brief Description	Size/No.	Brief Description	Size/No.	Brief Description	Size/No.
36FRL12	LEAD	None	Flaked lithics Trade bead	Approx. 40 pieces	None		Field notes; Final report; Site and artifact photographs	Approx. 20
36FRL13	LEAD	None	Flakes lithics	Approx. 10 pieces	None		Field notes; Final report; Site and artifact photographs	Approx. 20
36FRL14	LEAD	None	Flaked lithics	Approx. 50 pieces	None		Field notes; Final report; Site and artifact photographs	Approx. 20

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

Site Number	Unit Age		Unit Description							Evaluation					
	Date		Temporal Unit		Dimension					Per- cent In- tact	Value Inter- grity ^d	RV	CR ^e		
	DA ^a	Years BC/AD	Tradition	Phase (Period)	Artifacts ^b	Features	Deposi- tional Context	Landform ^c	Area (m ²)					Depth (m)	Ascribed Function
36PR112	REL	5000BC- AD 1600	NA	NA	FL, HB	None noted	Surface only	VARU	6000	.28	Lithic workshop	0	LMWA	NA	1
36PR113	REL	Unknown	Native American	Late Archaic Period, Bare Island Phase	FL	None noted	Surface only	VAGRK	6500	?	Unknown	?	?	NA	1
36PR114	REL	2000 BC	Native American	Late Archaic Period, Poplar Island Phase	FL	None noted	Surface only	Unknown	9000	?	Transitory camp	?	?	NA	1
Isaac Myers House	Dated map	19th Century	American	Rural Agricul- tural Period	None	Founda- tions	NA	NA	Un- known	?	Farm house	90	?	NA	3
Franklin County	Dated Map	20th Century	American	Rural Agricul- tural Period	None	Roadbed	NA	NA	Un- known	?	Road	90	?	NA	3
Joseph W. Fegan Stone Quarry	Dated Map	20th Century	American	Rural Manufac- turing Period	None	NA	NA	NA	Un- known	?	Quarry	90	?	NA	2

Notes:

a REL = relative dating based on artifact attributes

b FL = Flakes lithics; HB = Historic tradebead

c VARU = Valley Upland, Rolling Undulating; VAGRK = Valley Upland, Gently Rolling Knoll

d LMWA = Location, materials, workmanship, and association

e 1 = the judgment is more guess than science.

2 = the judgment is moderately reliable

3 = the judgment is most likely reliable.

Table 4-1. PRESENTLY IDENTIFIED ARCHAEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT: ADMINISTRATIVE DATA

Site Number	Site Recorder ^a	Date of Site Record	SHPO Survey Number ^f	Site Record Repository ^{b,f}	Survey Collection Policy ^c	Current Status of Investigation ^d	NMHP Status ^e	State, Local Status ^f	Architectural Association ^f	Bibliographic Reference
36FRL12	JMA	4/10/80	36FRL12	PHMC	CSW	RE, CL, T	REP	NA	NA	Roberts 1981
36FRL13	JMA	4/10/80	36FRL13	PHMC	CSW	RE, CL	RIP	NA	NA	Roberts 1981
36FRL14	JMA	4/10/80	36FRL14	PHMC	CSW	KC, CL, T	RIP	NA	NA	Roberts 1981
Lesac Myers House	JMA	4/10/80	None	NA	None	T	None	NA	NA	Roberts 1981
Franklin County Roadway	JMA	4/10/80	None	NA	None	None	RIP	NA	NA	Roberts 1981
Joseph W. Fagan Stone Quarry	JMA	4/10/80	None	NA	None	None	RIP	NA	NA	Roberts 1981

NOTES:

a JMA = John Milner Associates

b PHMC = Archaeology Section, Pennsylvania Historical and Museum Commission

c CSW = Collecting a surface "grab" sample without mapping

d RE = Site record filed

CL = Surface artifact collection

T = Tested

e REP = Recommended as eligible by qualified professionals with no formal agency or SHPO recommendation

RIP = Recommended as ineligible by qualified professionals with no formal agency or SHPO recommendation

f NA = Not applicable

KNOWN ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT

4.1 KNOWN ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT

Three prehistoric archeological sites are known within the boundaries of the LEAD (Tables 4-1, 4-2, 4-3) (Roberts 1981). Site 36FR112 is an 800 ft. by 100 ft. multicomponent site located on gently rolling uplands overlooking Dennis Creek. The site contains much cobble shatter and was interpreted as a primary lithic workshop. On the basis of a Late Archaic point and a glass trade bead, two components were identified: Late Woodland-Historic and Late Archaic. No surface features were found and the site appears to have been disturbed by plowing.

Site 36FR113 is 300 ft. in diameter and is located on a gently sloping knoll overlooking an unnamed stream. One Late Archaic point and several waste flakes were recovered, plus six to eight possible fire cracked rocks. Interpretation of the site was limited because it was covered by tall grass, which obscured surface visibility.

Site 36FR114 is 500 ft. by 200 ft. and is located on level upland terrain overlooking an unnamed stream. Several Poplar Island Late Archaic points were recovered plus chipping detritus. It was tentatively interpreted as a single component Late Archaic campsite.

Three historical archeological sites are known to exist within LEAD boundaries (Figures A-1 a-d; Tables 4-1, 5-2) (Roberts 1981). The Isaac Myers house was located during the Roberts (1981) survey. The structure appears on an 1868 map of the Township but not on an 1858 Township map (Beers 1968; Davidson 1858). The Franklin County Roadway may be a nineteenth century farm road or an improved early twentieth century road. In either case it is not considered an important archeological resource (Roberts 1981:35). The Joseph W. Fegan Stone Quarry does not appear on maps before 1939. It is not considered an important archeological resource.

4.2 POTENTIAL ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT

There are no known potential prehistoric archeological resources located on LEAD property. However, LEAD's geographic features suggest that there is a strong possibility that as yet undiscovered prehistoric sites exist on the facility.

TABLE 3-3. ARCHEOLOGICALLY RELEVANT RESEARCH INVESTIGATION, EXCLUSIVE OF ARCHEOLOGICAL SURVEYS, CONDUCTED ON THE LETTERKENNY ARMY DEPOT

Study No.	Study Type	Study Date	Institution Agency, Firm	Principal Investigator	Bibliographic Reference	Location					USGS Quad Map	Associated Archeological Resources
						UTM		Township	Legal			
						Northing	Easting		Range	Section		

NONE

5, 6, 8, 10, 12, 13, 19 in Roberts 1981) were inspected by cultivated field survey, erosional area checks, or subsurface testing. No other relevant cultural resource investigations have been conducted (Table 3-3).

3.4 SUMMARY ASSESSMENT OF DATA ADEQUACY, GAPS

Although three prehistoric sites have been recorded on LEAD, only one percent of the depot area has been inventoried. The sheer size of the installation suggests that many undiscovered sites exist. The lack of an extensive survey makes it difficult to estimate the number of sites present, but at the rate of discovery from Robert's (1981) survey, 293 additional prehistoric sites can be expected. The steep slopes of the Broad Mountain, which may contain rock shelters, and the narrow floodplains of the major streams were not sampled in the survey. Much of the survey was also assigned to areas which had been heavily disturbed, further diminishing sample adequacy.

Better site location data are available for the Historic period. The locations of 346 potential historic archeological sites are known from early maps. This sample may approach a complete inventory of pre-depot farmhouses and other major structures. Outbuildings and minor structures were clearly under-represented, however. The current condition of these potential sites is unknown, but many are probably sufficiently intact to yield significant data. An additional 354 structures were indicated by public sale records prior to depot construction (Pardun 1982:13). A survey of LEAD property with the goal of pinpointing potential and unknown historic archeological sites and determining site extent and integrity would be necessary.

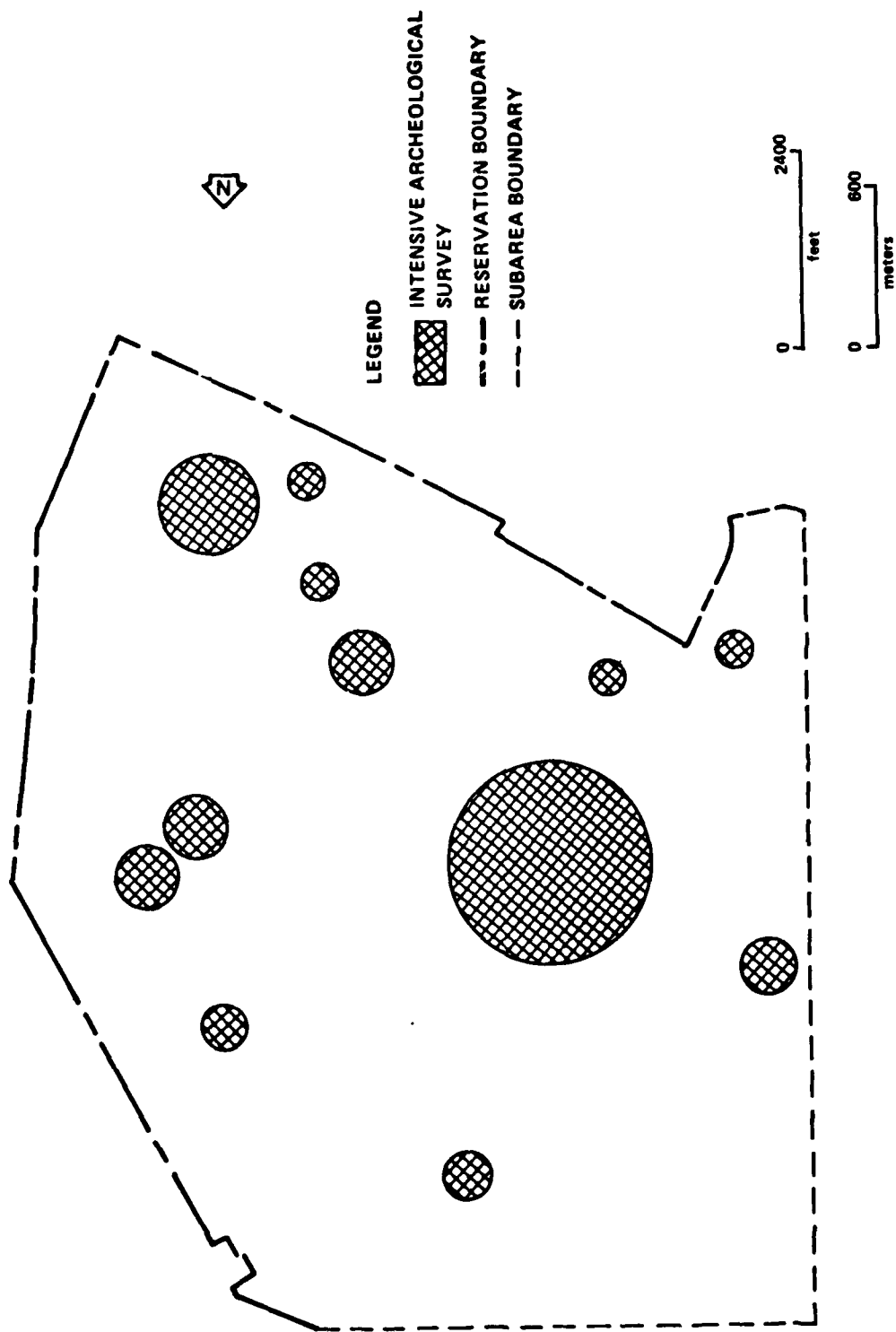


Figure 3-2e. A MAP OF ARCHEOLOGICAL SURVEYS CONDUCTED ON THE LETTERKENNY ARMY DEPOT, SUBAREA G

LEGEND

 INTENSIVE ARCHEOLOGICAL
SURVEY

 RESERVATION BOUNDARY

 SUBAREA BOUNDARY

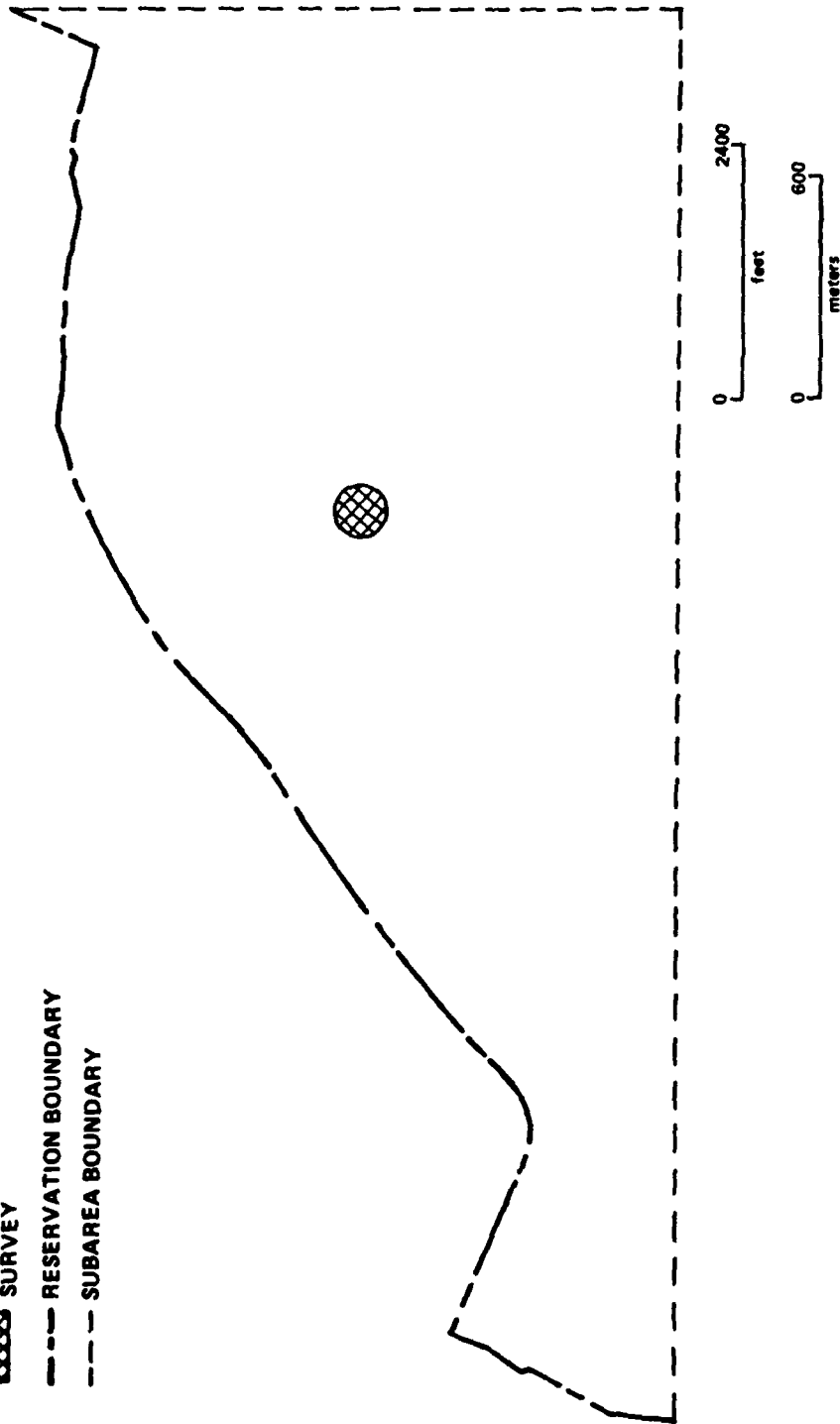


Figure 3-2d. A MAP OF ARCHEOLOGICAL SURVEYS CONDUCTED ON
THE LETTERKENNY ARMY DEPOT, SUBAREA F

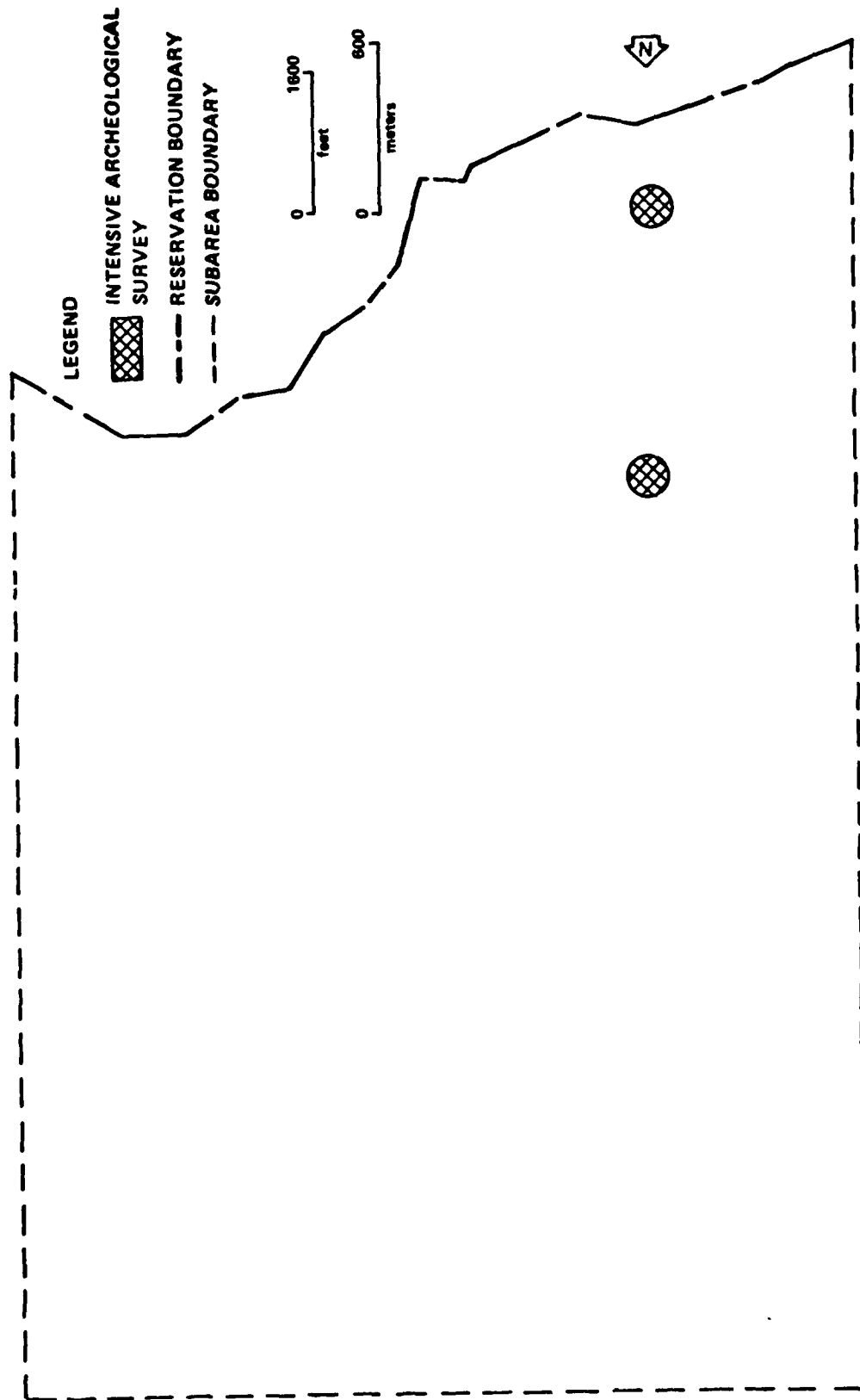


Figure 3-2c. A MAP OF ARCHEOLOGICAL SURVEYS CONDUCTED ON THE LETTERKENNY ARMY DEPOT, SUBAREA E

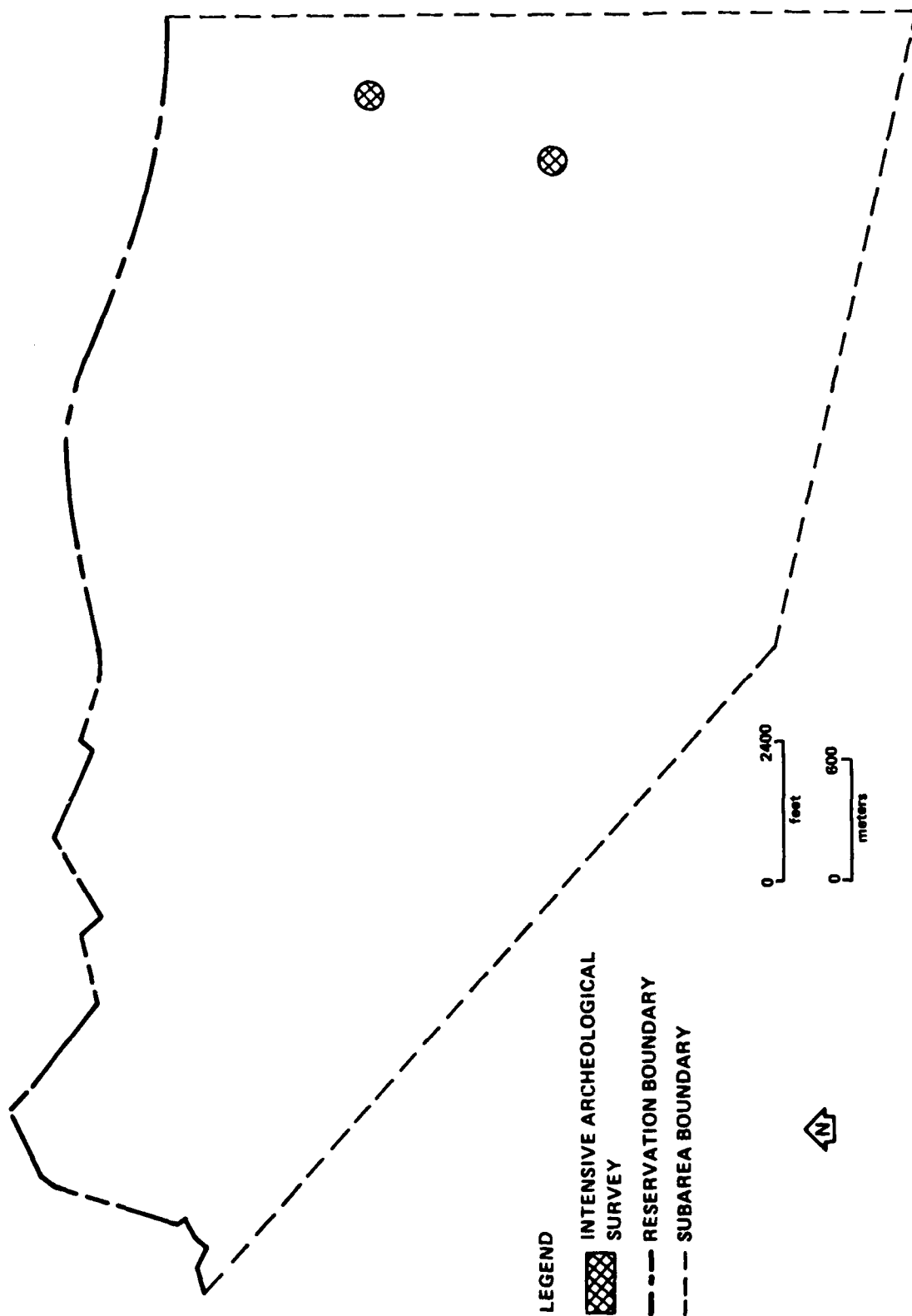


Figure 3-2b. A MAP OF ARCHEOLOGICAL SURVEYS CONDUCTED ON THE LETTERKENNY ARMY DEPOT, SUBAREA C

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 51	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 52	Davidson 1858 PA Dept. Hwys. 1941	Dwelling	2
LEAD - 53	Davidson 1858 PA Dept. Hwys. 1941	Dwelling	2
LEAD - 54	PA Dept. Hwys. 1941	Dwelling	1
LEAD - 55	USGS 1923 PA Dept. Hwys. 1941	Dwelling	1
LEAD - 56	USGS 1923 PA Dept. Hwys. 1941	Dwelling	1
LEAD - 57	PA Dept. Hwys. 1941	Dwelling	1
LEAD - 58	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 59	USGS 1923 PA Dept. Hwys. 1941	Dwelling	1
LEAD - 60	USGS 1923 PA Dept. Hwys. 1941	Dwelling	1
LEAD - 61	PA Dept. Hwys. 1941	Farm	1
LEAD - 62	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 63	USGS 1923 PA Dept. Hwys. 1941	Dwelling	1
LEAD - 64	USGS 1923 PA Dept. Hwys. 1941	Dwelling	1
LEAD - 65	USGS 1923 PA Dept. Hwys. 1941	Apartments	1

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 66	PA Dept. Hwys. 1941	Dwelling	1
LEAD - 67	USGS 1923 PA Dept. Hwys. 1941	Church	1
LEAD - 68	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 69	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 70	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 71	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 72	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 73	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 74	USGS 1923 PA Dept. Hwys. 1941	Sunny Point School	1
LEAD - 75	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 76	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 77	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 78	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 79	Davidson 1858 PA Dept. Hwys. 1941	Dwelling	2
LEAD - 80	Davidson 1858 PA Dept. Hwys. 1941	Farm	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 81	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 82	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 83	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 84	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 85	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 86	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 87	USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 88	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 89	PA Dept. Hwys. 1941	Farm	1
LEAD - 90	PA Dept. Hwys. 1941	Seasonal Residence	1
LEAD - 91	PA Dept. Hwys. 1941	Seasonal Residence (Summer Colony)	1
LEAD - 92	PA Dept. Hwys. 1941	Farm	1
LEAD - 93	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 94	Davidson 1858 PA Dept. Hwys. 1941	Dwelling	2
LEAD - 95	USGS 1923 PA Dept. Hwys. 1941	Farm	1

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 96	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 97	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 98	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 99	PA Dept. Hwys. 1941	Farm	1
LEAD - 100	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 101	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 102	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 103	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 104	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 105	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 106	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 107	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 108	PA Dept. Hwys. 1941	Farm	1
LEAD - 109	Davidson 1858 PA Dept. Hwys. 1941	School	2
LEAD - 110	Davidson 1858 PA Dept. Hwys. 1941	Farm	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 111	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 112	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 113	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 114	PA Dept. Hwys. 1941	Saw Mill	1
LEAD - 115	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 116	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 117	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 118	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 119	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 120	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 121	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 122	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 123	Davidson 1858 Beers 1868 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 124	Davidson 1858 PA Dept. Hwys. 1941	Farm	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 125	USGS 1923 PA Dept. Hwys. 1941	Church	1
LEAD - 126	USGS 1923 PA Dept. Hwys. 1941	Oak Grove School	1
LEAD - 127	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 128	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 129	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 130	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 131	Beers 1868 PA Dept. Hwys. 1941	Mennonite Church and Cemetery	2
LEAD - 132	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 133	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 134	PA Dept. Hwys. 1941	Farm	1
LEAD - 135	PA Dept. Hwys. 1941	Farm	1
LEAD - 136	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 137	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 138	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 139	USGS 1923 PA Dept. Hwys. 1941	Farm	1

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 140	PA Dept. Hwys. 1941	Farm	1
LEAD - 141	Davidson 1858 Beers 1868 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 142	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 143	PA Dept. Hwys. 1941	Farm	1
LEAD - 144	Beers 1868 PA Dept. Hwys. 1941	Grain Mill	2
LEAD - 145	Beers 1868 PA Dept. Hwys. 1941	Sawmill	2
LEAD - 146	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 147	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 148	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 149	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 150	USGS 1923 PA Dept. Hwys. 1941	Gipes School	1
LEAD - 151	PA Dept. Hwys. 1941	Farm	1
LEAD - 152	USGS 1923 PA Dept. Hwys. 1941	Pleasant Hill Bretheren Christian Church and Cemetery	1

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 153	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 154	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 155	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 156	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 157	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 158	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 159	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 160	PA Dept. Hwys. 1941	Farm	1
LEAD - 161	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 162	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 163	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 164	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 165	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 166	Davidson 1858 PA Dept. Hwys. 1941	Farm	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 167	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 168	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 169	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 170	USGS 1923 PA Dept. Hwys. 1941	Store	1
LEAD - 171	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 172	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 173	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 174	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 175	PA Dept. Hwys. 1941	Farm	1
LEAD - 176	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 177	Davidson 1858 PA Dept. Hwys. 1941	Elm Grove School	2
LEAD - 178	Davidson 1858 Beers 1868 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 179	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 180	Davidson 1858 PA Dept. Hwys. 1941	Farm	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 181	USGS 1923 PA Dept. Hwys. 1941	Store	1
LEAD - 182	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 183	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 184	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 185	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 186	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 187	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 188	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 189	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 190	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 191	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 192	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 193	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 194	PA Dept. Hwys. 1941	Farm	1

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 195	Beers 1868 USGS 1902 USGS 1923	Farm	2
LEAD - 196	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 197	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 198	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 199	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 200	PA Dept. Hwys. 1941	Farm	1
LEAD - 201	Davidson 1858 PA Dept. Hwys. 1941	Farm	1
LEAD - 202	Davidson 1858 PA Dept. Hwys. 1941	Gelvin School	2
LEAD - 203	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 204	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 205	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 206	PA Dept. Hwys. 1941	Farm	1
LEAD - 207	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 208	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 209	Davidson 1858 Beers 1868 PA Dept. Hwys. 1941	Farm	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 210	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 211	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 212	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 213	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 214	PA Dept. Hwys. 1941	Farm	1
LEAD - 215	PA Dept. Hwys. 1941	Farm	1
LEAD - 216	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 217	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 218	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 219	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 220	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 222	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 223	Beers 1868 USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 224	Davidson 1858 Beers 1868 USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 225	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 226	Davidson 1858 Beers 1868 USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 227	PA Dept. Hwys. 1941	Farm	1
LEAD - 228	Davidson 1858 Beers 1868 USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 229	Davidson 1858 Beers 1868 USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 230	Davidson 1858 Beers 1868 USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 231	Beers 1868 USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 232	Davidson 1858 Beers 1868 USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 233	USGS 1923 PA Dept. Hwys. 1941	Farm	1

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 234	PA Dept. Hwys. 1941	Farm	1
LEAD - 235	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 236	Davidson 1858 Beers 1868 USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 237	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 238	Davidson 1858 PA Dept. Hwys. 1941	Dwelling	2
LEAD - 239	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 240	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 241	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 242	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 243	PA Dept. Hwys. 1941	Farm	2
LEAD - 244	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 246	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 247	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 248	PA Dept. Hwys. 1941	Farm	1
LEAD - 249	USGS 1923 PA Dept. Hwys. 1941	Farm	1

AD-A151 387

AN ARCHEOLOGICAL OVERVIEW AND MANAGEMENT PLAN FOR THE
LETTERKENNY ARMY DEPOT(U) ENVIROSPHERE CO NEW YORK
C A MAY ET AL. JAN 85 CX4000-3-0018

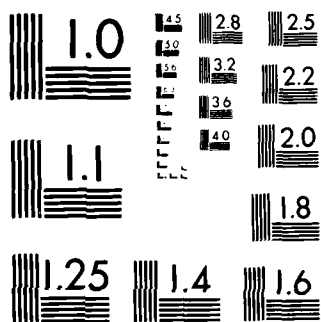
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Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 250	PA Dept. Hwys. 1941	Farm	1
LEAD - 251	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 252	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 254	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 255	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 256	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 257	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 258	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 259	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 260	Beers 1868 USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 261	USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 262	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 263	Davidson 1858 Beers 1868 USGS 1923	Store	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 264	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 265	Davidson 1858 Beers 1868	Store and Post Office	2
LEAD - 266	Davidson 1858 Beers 1868	Limekiln	2
LEAD - 267	Davidson 1858 Beers 1868	Dwelling	
LEAD - 268	Davidson 1858 Beers 1868 USGS 1923	Farm	2
LEAD - 269	Davidson 1858 Beers 1868 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 270	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 271	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 272	Davidson 1858 Beers 1868	Store and Blacksmith Shop	2
LEAD - 273	Davidson 1858 Beers 1868	Limekiln	2
LEAD - 274	Beers 1868	Limekiln	2
LEAD - 275	Davidson 1858 USGS 1902	Dwelling	2
LEAD - 276	Beers 1868	Dwelling	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 277	Beers 1868 USGS 1902 USGS 1923	Dwelling	1
LEAD - 278	USGS 1923	Dwelling	1
LEAD - 279	USGS 1923	Dwelling	1
LEAD - 280	USGS 1923	Dwelling	1
LEAD - 281	USGS 1923	Limekiln	1
LEAD - 282	USGS 1923	Limekiln	1
LEAD - 283	Davidson 1858 Beers 1868 USGS 1902 USGS 1923	Farm	2
LEAD - 284	Davidson 1858 Beers 1868	Farm	2
LEAD - 285	USGS 1923	Dwelling	1
LEAD - 286	Beers 1868 USGS 1923	Dwelling	2
LEAD - 287	USGS 1923	Dwelling	1
LEAD - 288	Beers 1868 USGS 1902 USGS 1923	Dwelling	2
LEAD - 289	USGS 1923	Dwelling	1
LEAD - 290	Beers 1868 USGS 1902 USGS 1923	Farm	2
LEAD - 291	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 292	Davidson 1858 Beers 1868	Dwelling	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Namea	Referencec	Description	Research Value CRb
LEAD - 293	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 295	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 296	Davidson 1858 Beers 1868 USGS 1923 PA Dept. Hwys. 1941	Farm	2
LEAD - 297	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 298	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 299	Beers 1868 USGS 1902 USGS 1923	Dwelling	2
LEAD - 300	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 301	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 302	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 303	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 304	Davidson 1858	Dwelling	2
LEAD - 305	Davidson 1858	Sawmill	2
LEAD - 307	Davidson 1858	Dwelling	2
LEAD - 308	Davidson 1858 USGS 1923	Dwelling	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 309	USGS 1923 PA Dept. Hwys. 1941	Dwelling	1
LEAD - 310	Davidson 1858	Dwelling	1
LEAD - 311	Davidson 1858	Dwelling	2
LEAD - 312	Davidson 1858	Dwelling	2
LEAD - 313	Davidson 1858	Dwelling	2
LEAD - 314	Davidson 1858 USGS 1923	Dwelling	2
LEAD - 315	Beers 1868 USGS 1902 USGS 1923	Dwelling	2
LEAD - 316	Beers 1868 USGS 1902 USGS 1923	Dwelling	2
LEAD - 317	Beers 1868 USGS 1902 USGS 1923	Dwelling	2
LEAD - 318	Beers 1868 USGS 1902 USGS 1923	Dwelling	2
LEAD - 319	USGS 1902 USGS 1923	Farm	1
LEAD - 320	PA Dept. Hwys. 1941	Willow Grove Shool	1
LEAD - 321	USGS 1923	Farm	1
LEAD - 322	USGS 1902 USGS 1923	Farm	1

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Namea	Referencec	Description	Research Value CRb
LEAD - 323	USGS 1902 USGS 1923 PA Dept. Hwys. 1941	Farm	1
LEAD - 324	Beers 1868	Farm	2
LEAD - 325	USGS 1923	Dwelling	1
LEAD - 327	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 328	Beers 1868 PA Dept. Hwys. 1941	Farm	2
LEAD - 329	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 330	PA Dept. Hwys. 1941	Farm	1
LEAD - 331	PA Dept. Hwys. 1941	Dwelling	1
LEAD - 332	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 334	PA Dept. Hwys. 1941	Farm	1
LEAD - 335	PA Dept. Hwys. 1941	Farm	1
LEAD - 336	PA Dept. Hwys. 1941	Farm	1
LEAD - 337	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 338	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 339	Davidson 1858 PA Dept. Hwys. 1941	Farm	2
LEAD - 340	Beers 1868 PA Dept. Hwys. 1941	Farm	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 341	Beers 1868	Farm	2
LEAD - 342	Beers 1868	Tailor's Shop	2
LEAD - 343	Beers 1868 USGS 1923	Dwelling	2
LEAD - 344	LEAD Dwg 17-13-01 (Sheet 2 of 9)	Cabin	1
LEAD - 345	LEAD Dwg 17-13-01 (Sheet 2 of 9)	Cabin	1
LEAD - 346	LEAD Dwg 17-13-01 (Sheet 2 of 9)	Cabin	1
LEAD - 347	Beers 1868 PA Dept. Hwys. 1941	Shoe shop	2
LEAD - 348	Davidson 1858 Beers 1868	Pleasant Hill School	2
LEAD - 349	Britton 1950	Old Letterkenny Post Office	1
LEAD - 355	Davidson 1858 Beers 1868	Farm	2
LEAD - 356	Davidson 1858 Beers 1868	Farm	2
LEAD - 357	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 358	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 359	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 360	Beers 1868	Dwelling	2

Table 4-4. POTENTIALLY IDENTIFIABLE BUT NOT PRESENTLY RECORDED
 ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT
 (Continued)

Site Number, Name ^a	Reference ^c	Description	Research Value CR ^b
LEAD - 361	Davidson 1858 Beers 1868	Dwelling	2
LEAD - 362	Davidson 1858 Beers 1868	Dwelling	2

NOTES:

- a Designations assigned for this study. The following site numbers were not assigned: LEAD - 3-6, 26, 221, 245, 253, 294, 306, 333, 350-354.
- b Confidence Rating (CR): 1= resource has little record value or the information about it is unreliable, 2= resource may have research value and the information about it is probably reliable, 3= resource may have research value and the information about it is reliable.
- c LEAD Dwg. numbers refer to drawings in LEAD files, Office of the Facilities Engineer.

5.0

AN ASSESSMENT OF THE SIGNIFICANCE OF THE
ARCHEOLOGICAL RESOURCE BASE ON THE LETTERKENNY ARMY DEPOT

5.1 THE SIGNIFICANT RESOURCE BASE

There are three recorded prehistoric archeological sites on the LEAD property: 36FR112, 36FR113, and 36FR114 (Table 5-1). Roberts (1981) concluded, based on his investigations of site 36FR112, that the site is possibly eligible for inclusion in the National Register due to its potential contribution to knowledge of primary quarrying and/or manufacturing activities in Late Woodland - Contact times. Surface visibility at 36FR113 was insufficient to evaluate its potential, and no test pits were excavated to check subsurface site integrity. Site 36FR114 is probably not eligible for inclusion on the National Register since it is unlikely to contribute significant information about the local prehistory (Roberts 1981).

There are three recorded historic archeological sites within LEAD boundaries: the Isaac Myers House, the Franklin County Roadway, and the Joseph W. Fagan Stone Quarry (Table 5-1). Of these, only the Isaac Myers House is considered a potentially significant resource. It may provide data concerning the socioeconomic conditions of the nineteenth century farming community that occupied LEAD and the degree to which that community was integrated into larger market networks.

Three hundred and forty-five potential historic archeological sites have been identified during the course of the present research (Table 4-4).

The number of sites which actually contain archeological remains is not presently known. Estimates can be derived from the descriptions of ground disturbance areas provide in Section 3.2.

Twenty-seven potential sites are located within areas which are considered highly disturbed including GDAs 10-15, 27, 28, 30-34, and 52. It is unlikely that undisturbed archeological remains occur in these areas. Sixty-eight potential sites are located in moderately disturbed areas. These GDAs exhibit moderately deep disturbance in at least 30 percent of the area, and include GDAs 1-9, 26, 29, and 39-50. Assuming a ratio of 4:10 disturbed to total sites, it is estimated that approximately 40 potential sites have remained intact in these areas. An additional 255 potential archeological sites are located in areas which are only lightly disturbed including those in GDAs 16, 17, 25, 38,

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

Temporal Unit	Thematic Unit	Resource Type	Type Occurrence			Socio-cultural Assn.	Landform Assn.	Physical Integrity	Research Value ^a	KV CK ^b	Socio-cultural Value ^c	SCV CK ^d
			Known Occurrences (no.)	Potential Occurrences (no.)	Other Likely Occurrences							
Late Archaic	Primary Lithic Workshop	Tool Manufacturing Station	0	0	+	Native American	Knoll	?	3	3	1	3
			1	0	+	Native American	Knoll	Plow Disturbed	3	3	1	3
Late Woodland/Historic	Primary Lithic Workshop	Tool Manufacturing Station										
						American	NA	?	3	3	1	3
Rural Agricultural Phase	Residential	Farmstead Building Foundations	0	233	-	American	NA	?	3	3	1	3
			0	+	+	American	NA	?	3	3	1	3
		Middens	0	+	+	American	NA	?	3	3	1	3
			0	+	+	American	NA	?	3	3	1	3
		Outbuildings	0	+	+	American	NA	?	3	3	1	3
			0	74	-	American	NA	?	3	3	1	3
		Non-farm Dwelling	0	9	-	American	NA	?	3	3	1	3
			0	9	-	American	NA	?	3	3	1	3
		Structure Store Foundations	0	+	+	American	NA	?	3	3	1	3
			0	+	+	American	NA	?	3	3	1	3
		Middens	0	+	+	American	NA	?	3	3	1	3
			0	+	+	American	NA	?	3	3	1	3
		Outbuilding	0	1	-	American	NA	?	3	3	1	3
			0	1	-	American	NA	?	3	3	1	3
		Post Office Structure Foundations	0	5	-	American	NA	?	3	3	3	3
			0	5	-	American	NA	?	3	3	3	3
		Church Foundations	0	+	+	American	NA	?	3	3	1	3
			0	+	+	American	NA	?	3	3	1	3
		Associated Outbuilding Foundations	0	+	+	American	NA	?	3	3	1	3
			0	+	+	American	NA	?	3	3	1	3

Table 5-1. SUMMARY OF SIGNIFICANT ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT (Continued)

Temporal Unit	Thematic Unit	Resource Type	Type Occurrence			Landform Assn.	Physical Integrity	Research Value ^a	RV CR ^b	Socio-cultural Value ^c	SCV CR ^b
			Known Occurrences (no.)	Potential Occurrences (no.)	Other Likely Occurrences						
		Cemetery - Marked and Unmarked Burials	8	0	-	American	?	3	3	3	3
	Educational	School Building Foundations	0	8	-	American	?	3	3	1	3
	Industrial	Quarry Tailings and Scars at Outcrop	0	2	-	American	?	2	3	1	3
		Air Beacon	0	1	-	American	?	3	3	1	3
		Limekiln Foundations	0	6	-	American	?	3	3	1	3
		Sawmill Foundations	0	3	-	American	?	3	3	1	3
		Grain Mill Foundations	0	1	-	American	?	3	3	1	3

NOTES:

^a 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 class under discussion is ranked from 0 (no value) to 5 (highest value), including "NA" if such an evaluation is believed to be impossible given the available information.

^b The Confidence Rating (CR) is a further evaluation of the perceived reliability of the research (RV) or sociocultural (SCV) values of the resource class. The following code records a judgement of that reliability, based on the available information: (1) the judgement is more guess than science, and likely not to be reliable; (2) the judgement is moderately reliable; (3) judgement is most likely reliable.

^c 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).

and 51. It is expected that most of these sites contain relatively undisturbed archeological remains.

These considerations suggest that more than 300 potential historic archeological sites on LEAD property contain undisturbed archeological remains. This sample includes a wide variety of structure types, including farm houses, apartments, businesses and shops, churches, schools, quarries, and lime kilns. Two settlement types are present: isolated farmsteads and rural hamlets. Farmsteads reflect the variability in settlement patterning that might be found in a rural community, as well as the social and economic interactions among households and between households and surrounding areas. This variability also represents 200 years of rural community development. Shops and mills may reflect the development of the non-agricultural economic base of the region. Churches and schools may indicate both ethnic diversity and social organization at the community level. Lime kilns, most likely used to manufacture field lime, may show geographic variation in agricultural facility and production across the region. Finally, quarries reflect building technology and changes therein. All of these structural types are potentially significant as thematic resources.

At least two hamlets were located within the LEAD: Keefer's Store and Maple Grove. Keefer's Store was present by 1858 and may have been relocated shortly thereafter. The earlier settlement includes sites LEAD-50 and 264-267. Sites LEAD- 23-31 and 263 are associated with the later settlement. Maple Grove was established between 1868 and 1921, and is represented by sites LEAD- 54-69. Both hamlet communities reflect low-order non-farm habitation and may provide information concerning the development of small communities. Both Keefer's Store and Maple Grove are potentially eligible as districts.

5.2 IDEAL GOALS AND OBJECTIVES

The suddenness and scale of land acquisition for LEAD has presented historic archeologists with a relatively intact archeological sample reflecting two centuries of rural southcentral Pennsylvania life. The quantity and probable integrity of these resources is unique, and provides a sample rarely available for study by social scientists. Limited testing of a sample of farmsteads and rural hamlets should be conducted to determine both site integrity and the extent of prior ground disturbance at LEAD.

Beyond these considerations, many former residents of land acquired by the LEAD may still be alive. Some could possibly provide oral histories reaching back 150 years, enriching the archeological and written historical record. Conversely, the archeological resources associated with these individuals might be used to verify oral information, thus becoming a powerful methodological tool for the study of oral history.

Community and Skill Development Center (Figure 6-1g, Number 23). This one-story building, 120 ft. by 125 ft., is proposed for an area in GDA-28, west of Pennsylvania Avenue. There are two potential sites in this project area, LEAD- 298 and 336, a farm and a dwelling. The integrity of these sites is as yet undetermined. Construction of this project may disturb extant archeological remains.

Contaminated Waste Processor (Figure 6-1e, Number 24). This one-story building, 40 ft. by 60 ft., is proposed for an area in GDA-34 north of Georgia Avenue. There are no known or potential archeological resources at this site.

Modernize Standard Magazines - 10 each (Figure 6-1f, Number 25). This project provides for interior lighting and exterior access improvements to ten standard magazines. Exterior improvements include the construction of fork lift access ramps and paving of the parking/loading area. These magazines are located in GDA-9 where six potential archeological resources have been identified on historic maps. These archeological resources, remnants of farms and dwellings, include LEAD 215, 216, 217 218, 237 and 314.

Multi-Purpose Building (Figure 6-1e, Number 26). This proposed one-story building, 40 ft. by 50 ft., will be located in GDA-50, east of Bomb Road. There are no known or potential archeological resources at this project location.

Post Restaurant (Figure 6-1g, Number 27). A new one-story building, 60 ft. by 150 ft., will be constructed in the area of extant Buildings 350 and 370 in GDA-27 north of Coffey Avenue, southeast of the radar test sites. This is scheduled as a long range project and has not been scheduled for a particular FY. It is unlikely that this will disturb any known or potential archeological sites.

U.S. Army Health Clinic (Figure 6-1g, Number 28). This structure, also a long range project, is planned for GDA-27 north of Coffey Avenue, south of the proposed post restaurant. This will be a one-story building of irregular shape. This project is not likely to disturb any known or potential archeological sites.

6.1.2 Ongoing Nonconstruction Activities

LEAD has established a number of programs which service both military and civilians in the area. These programs provide access to many areas of the installation, including some areas noted previously as having archeological potential. This accessibility to the LEAD facility could possibly result in damage, either intentional or unintentional, to extant archeological cultural resources. The following discussion will briefly describe the key programs which provide access to the LEAD facility. Recommendations for incorporating concerns about the management of potential archeological cultural resources will follow in Section 6.2.

Hunting Program LEAD has established an active hunting program for military assigned to LEAD and co-located activities, dependents,

Substation (Figure 6-1g, Number 5). This project will provide a replacement for an extant substation which does not have adequate capacity. There are no known potential archeological sites in this project area, located in GDA-27, west of California Avenue.

Industrial Waste Treatment Plant Expansion (Figure 6-1g, Number 6). This project will provide an additional 160,000 gpd treatment capacity for the depot's industrial waste treatment plant. The project is scheduled for FY 89 to be located in GDA-27, west of East Patrol Road and northwest of the extant Industrial Waste Treatment Plant. There are no known or potential archeological resources at this project site.

Addition to Buildings 3 and 10 (Figure 6-1g, Number 7). This project will connect two extant buildings in GDA-27 with a two-story addition. There are no potential or known archeological resources at this project site.

Hazardous Materials Warehouses (Figure 6-1g, Number 8). Two dock-level warehouses are planned for FY 90 in GDA-17, west of Seale House Road. There are no potential or known archeological sites in the project area.

LCL - LTL Building (Figure 6-1c, Number 9). This one-story dock-level building is planned in GDA-17, east of igloo area D and Florida Avenue. There are no potential or known archeological sites in the project area.

Major End Item Storage Facility, Phase III-V (Figure 6-1g, Number 10). This one-story building will provide storage for major end items. It is located in GDA-17, due west of Seale House Road and north of the classification yard. There are no known or potential archeological sites in the project area.

Modify Igloos (Figure 6-1d, Number 11). This project will involve the modification of extant 4 ft. wide doors to 8 ft. on 55 igloos in GDA-8. Access ramps will also be modified. Eight potential historic archeological sites have been documented in GDA-8: LEAD-51, 52, 82, 83, 84, 85, 86 and 109. These sites include farms, dwellings and a school. Archeological testing would indicate the degree of archeological site integrity. Judgements about potential significance would be premature at this time.

C and P Support Facility (Figure 6-1g, Number 12). Planned for FY 91, this 30 ft. high steel structure, 150 ft. by 1000 ft., will provide a staging and storage area for major end items awaiting shipment to ports and other destinations. Planned in GDA-38, there are no potential or known archeological resources at the project site.

Operations Building - General Purpose (Figure 6-1g, Number 13). This one-story building, 68 ft. by 80 ft., is planned for FY 92. Located in GDA-48, it will not disturb any known or potential archeological resources.

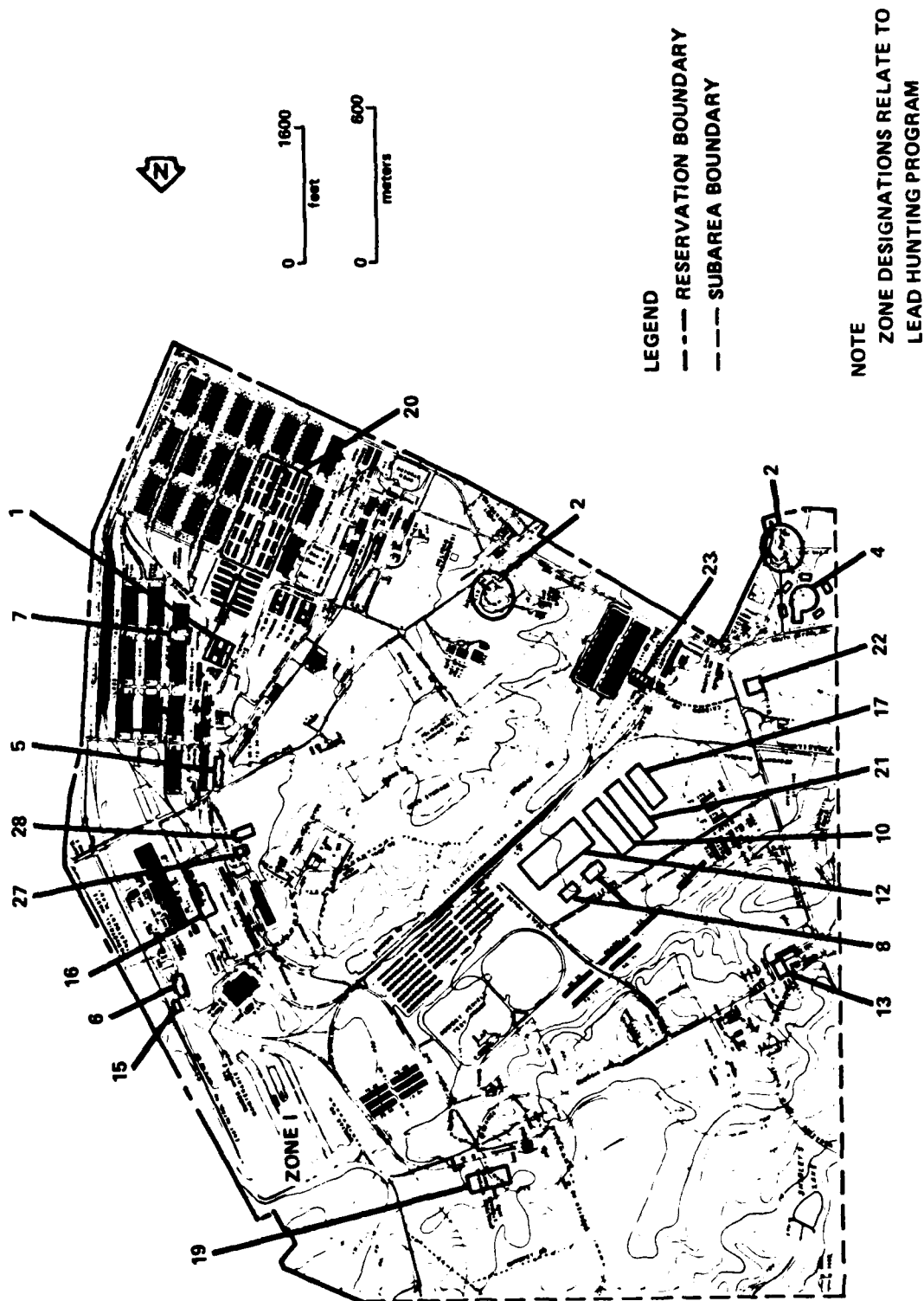
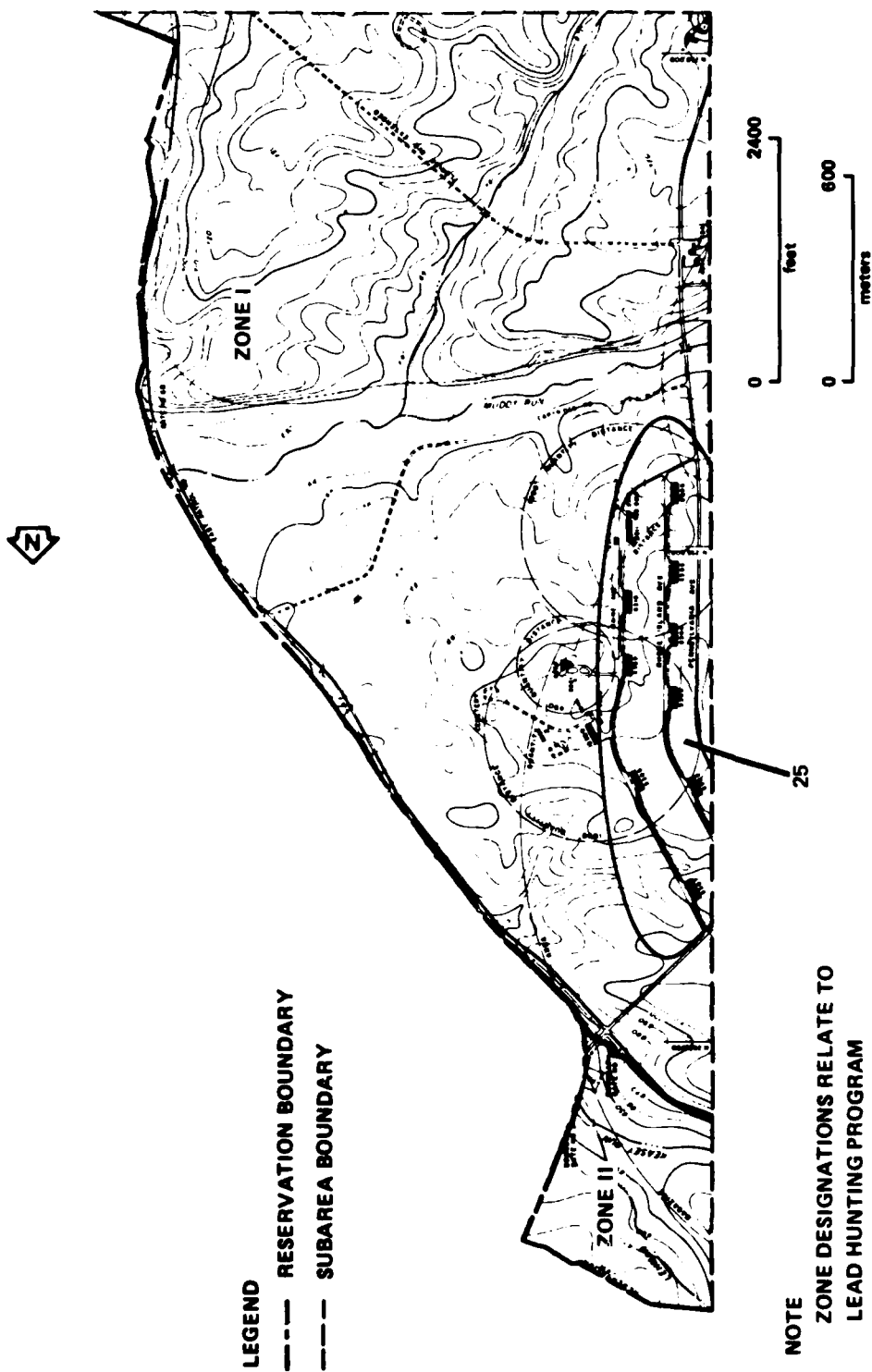


Figure 6-1g. A MAP OF AREAS OF ONGOING OR PLANNED ACTIVITIES ON THE LETTERKENNY ARMY DEPOT THAT COULD AFFECT ARCHEOLOGICAL RESOURCES, SUBAREA G



NOTE
ZONE DESIGNATIONS RELATE TO
LEAD HUNTING PROGRAM

Figure 6-1f. A MAP OF AREAS OF ONGOING OR PLANNED ACTIVITIES ON THE LETTERKENNY ARMY DEPOT THAT COULD AFFECT ARCHEOLOGICAL RESOURCES, SUBAREA F

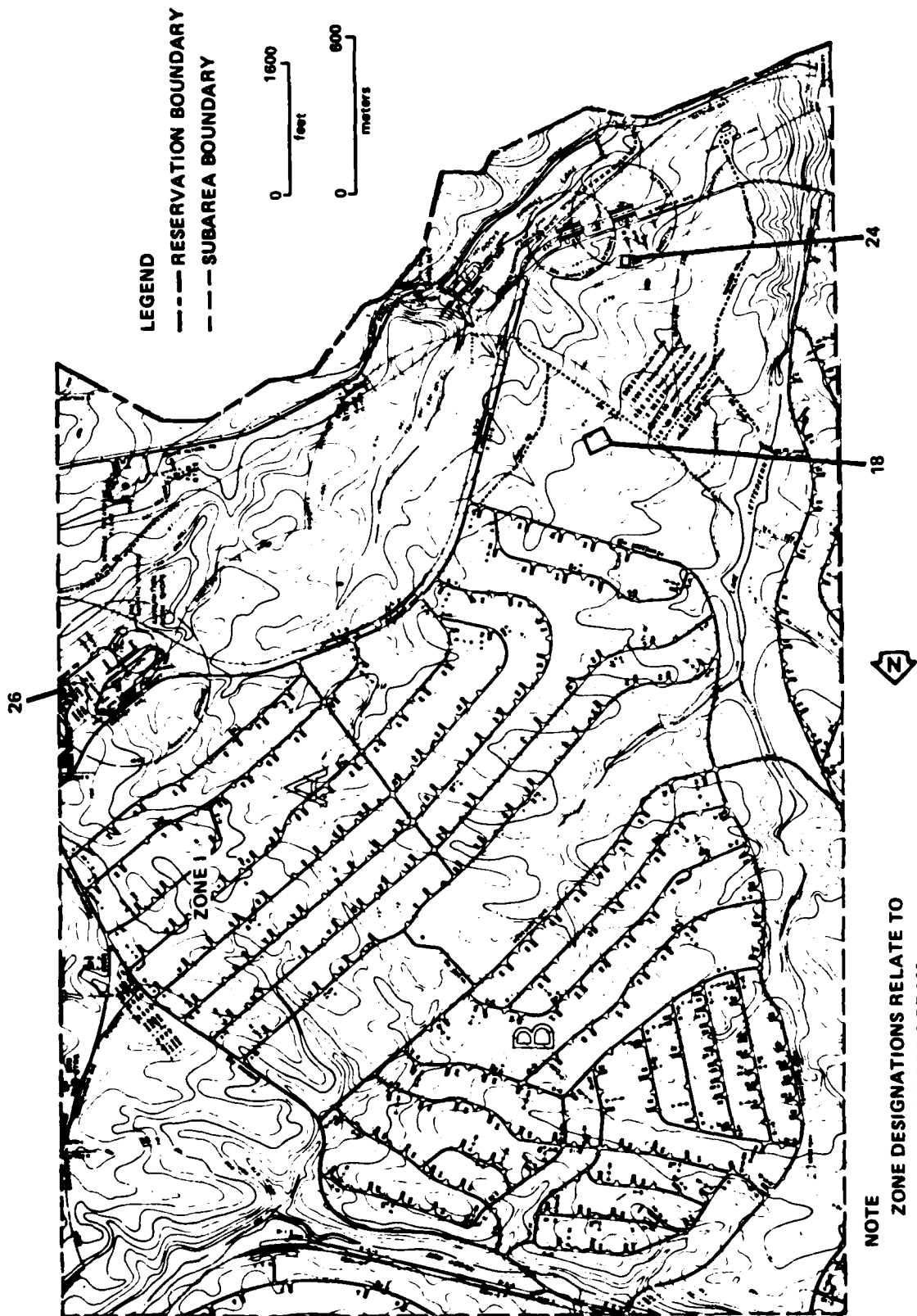


Figure 6-1e. A MAP OF AREAS OF ONGOING OR PLANNED ACTIVITIES ON THE LETTERKENNY ARMY DEPOT THAT COULD AFFECT ARCHEOLOGICAL RESOURCES, SUBAREA E

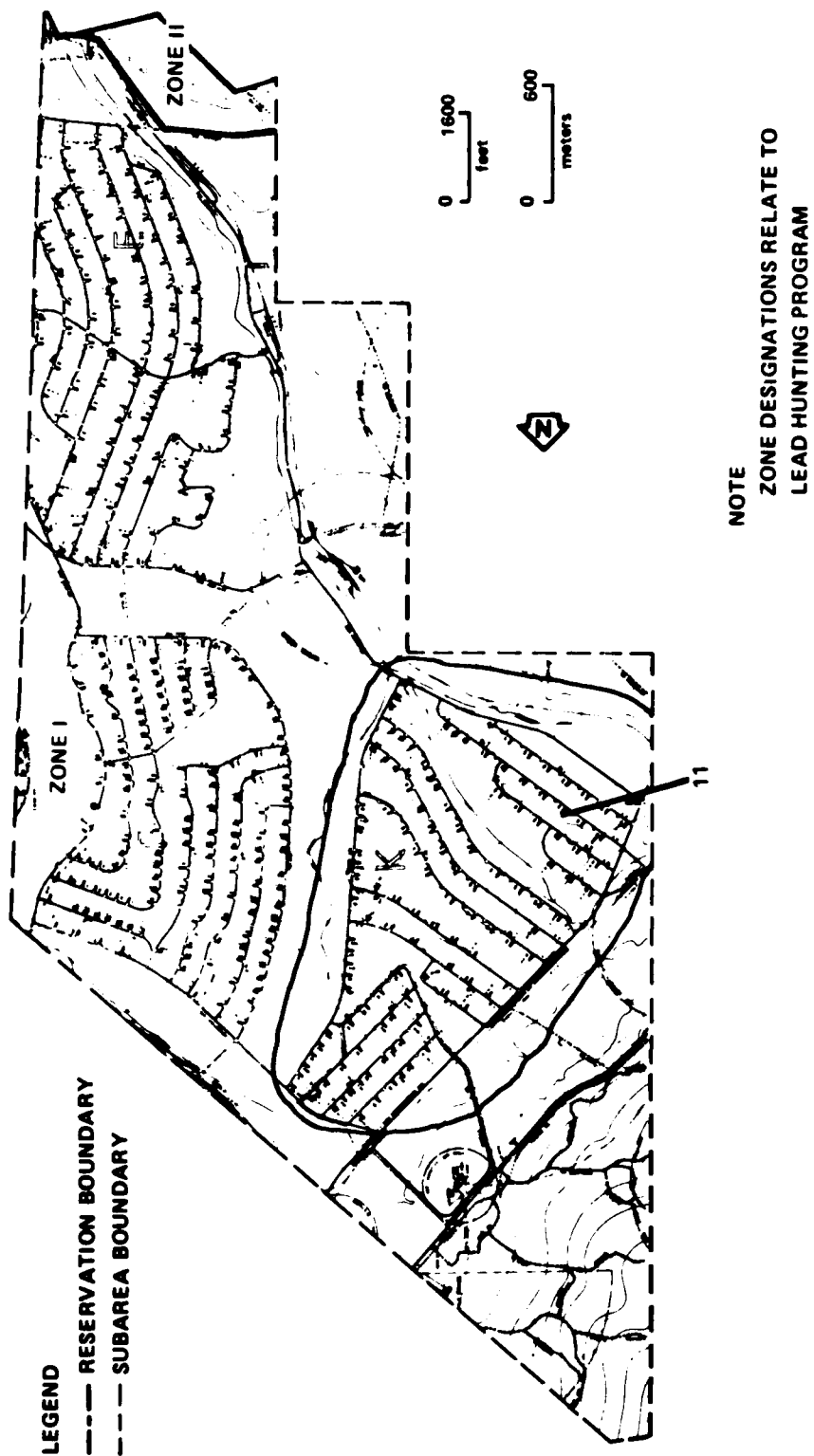


Figure 6-1d. A MAP OF AREAS OF ONGOING OR PLANNED ACTIVITIES ON THE LETTERKENNY ARMY DEPOT THAT COULD AFFECT ARCHEOLOGICAL RESOURCES, SUBAREA D

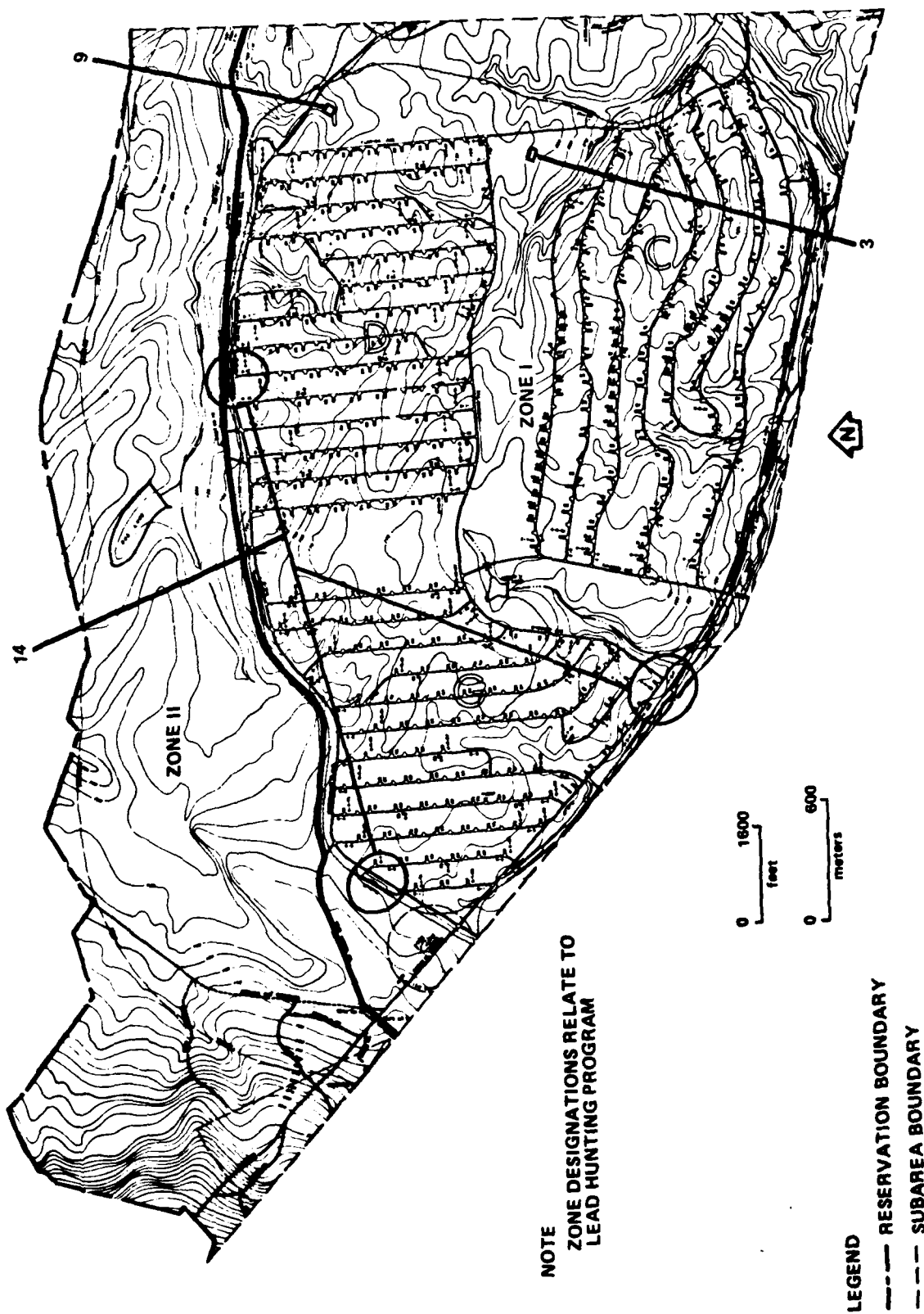


Figure 6-1c A MAP OF AREAS OF ONGOING OR PLANNED ACTIVITIES ON THE LETTERKENNY ARMY DEPOT THAT COULD AFFECT ARCHEOLOGICAL RESOURCES, SUBAREA C.

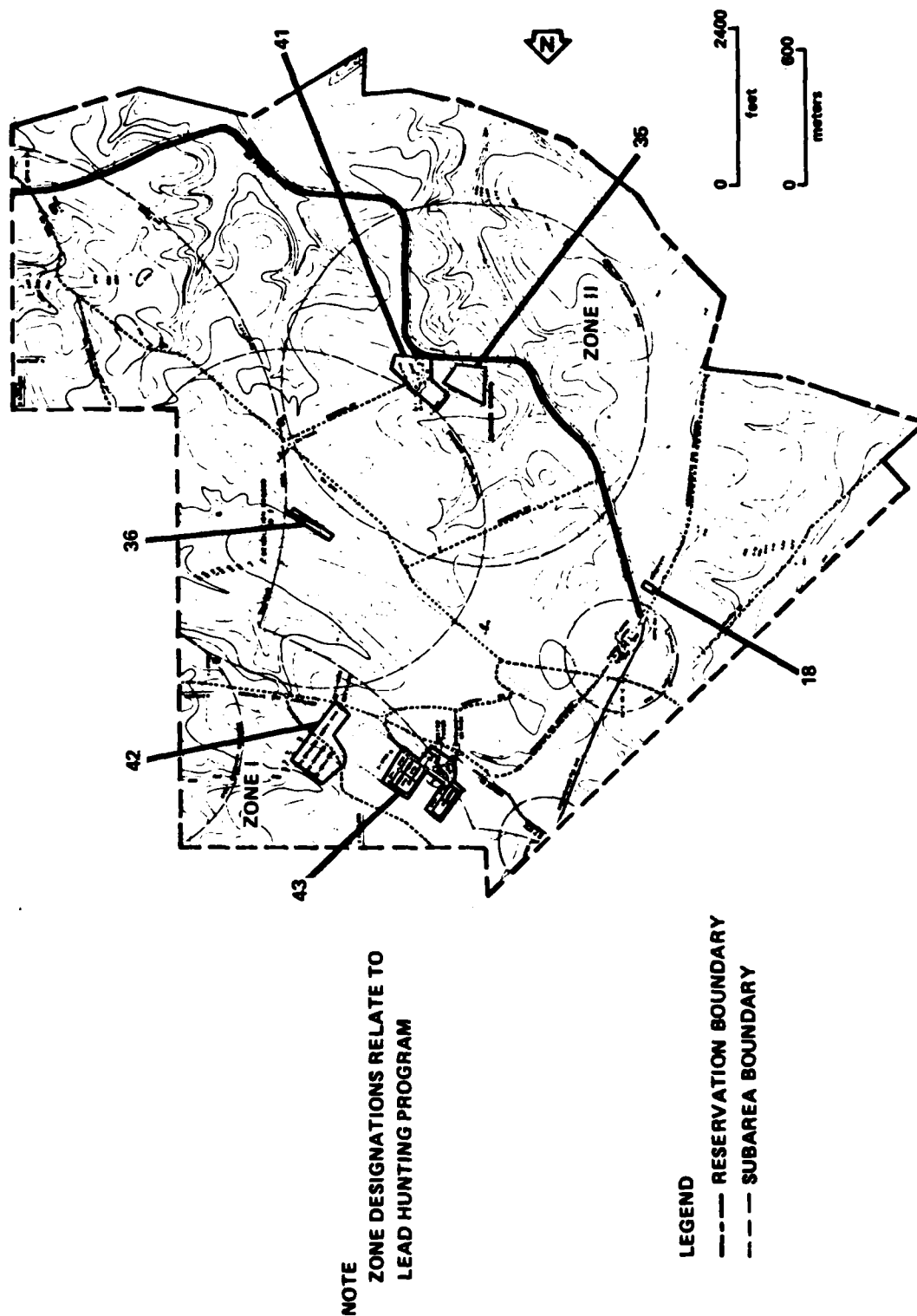
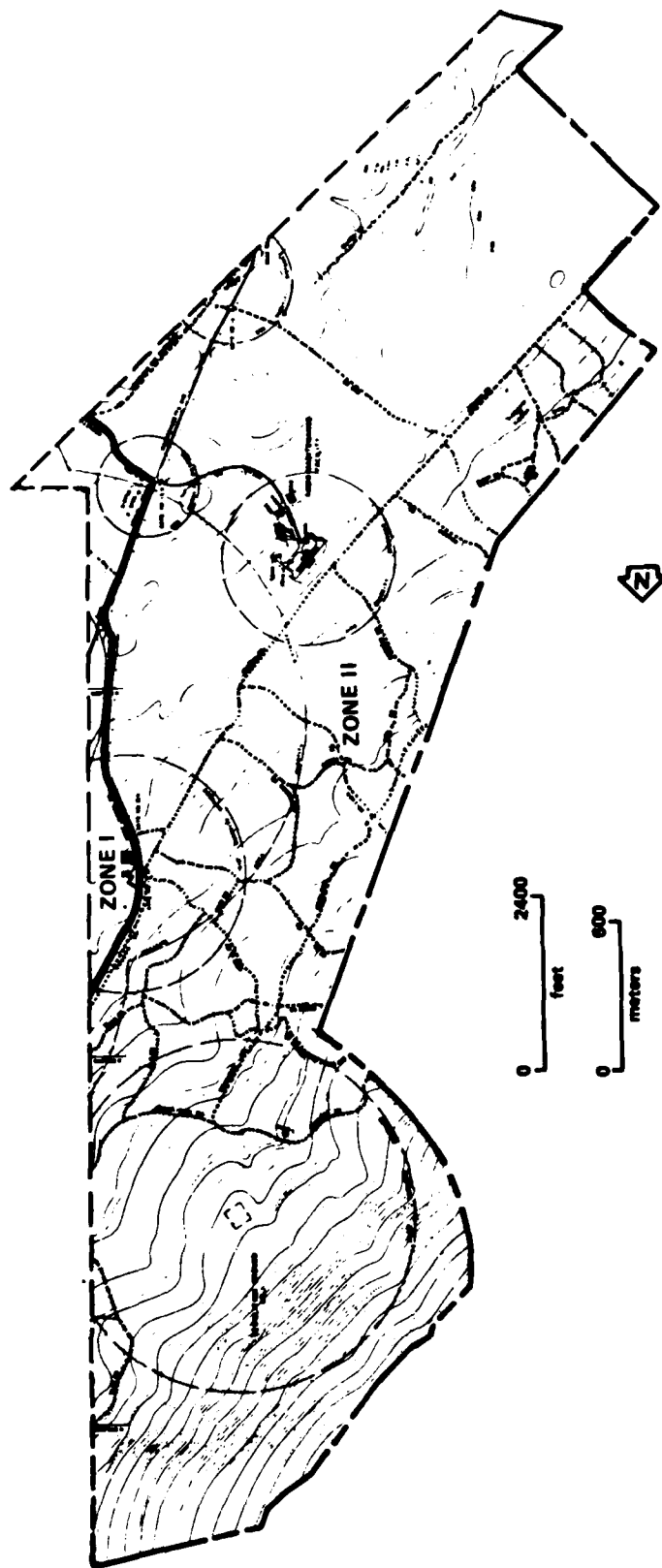


Figure 6-1b. A MAP OF AREAS OF ONGOING OR PLANNED ACTIVITIES ON THE LETTERKENNY ARMY DEPOT THAT COULD AFFECT ARCHEOLOGICAL RESOURCES, SUBAREA B

LEGEND

- RESERVATION BOUNDARY
- SUBAREA BOUNDARY



NOTE
 ZONE DESIGNATIONS RELATE TO
 LEAD HUNTING PROGRAM

Figure 6-1a. A MAP OF AREAS OF ONGOING OR PLANNED ACTIVITIES ON THE LETTERKENNY ARMY DEPOT THAT COULD AFFECT ARCHEOLOGICAL RESOURCES, SUBAREA A

Table 6-1. A SUMMARY OF ON-GOING AND PLANNED ACTIVITIES ON THE LETTERKENNY ARMY DEPOT THAT COULD AFFECT ARCHEOLOGICAL RESOURCES (Continued)

Activities			Associated Resources					Impacts			
Description	Date	Area ^a	Size (a.)	Esti- mated Depth Below Surface (ft.)	Ratio of Dis- turbed to Total Area	Resource	Resources	Other Value	Direct	Indirect	Mitigation Options ^c
						Class	Known or Predicted ^b				
Construction of US Army Health Clinic	NA	27	.18			Prehistoric	-	NA	NA	NA	NA

NOTES:

^a Ground Disturbance Area

Table 6-1. A SUMMARY OF ON-GOING AND PLANNED ACTIVITIES ON THE LETTERKENNY ARMY DEPOT THAT COULD AFFECT ARCHEOLOGICAL RESOURCES (Continued)

Activities				Associated Resources					Impacts			
Description	Date	Area ^a	Size (a.)	Esti- mated Depth Below Surface (ft.)	Ratio of Dis- turbed to Total Area	Resource Class	Resources Known or Predicted ^b	NKHP Sta- tus	Other Value	Direct	Indirect	Mitigation Option ^c
Construction of CAP Building, Conv. Ammo. & GH	NA	17	.54	NA		School Farm Prehistoric Church	-	NA	NA	NA	NA	NA
Construction of Small Arms Storage Pac	NA	49	1.52	NA		Farm	-	NA	NA	NA	NA	NA
Construction of Two C/H Warehouses	NA	27	11			Dwelling Farm	2P	NA	NA	NA	NA	NA
Construction of Major End Item Storage Facility, Phase II	NA	17	7.35			Farm	-	NA	NA	NA	NA	NA
Construction of FE Storehouse	NA	28	.46			NA	-	NA	NA	NA	NA	NA
Construction of Community & Skill Development Center	NA	28	.34			Dwelling Farm	-	NA	NA	NA	NA	NA
Construction of Contaminated Waste Processor	NA	34	NA			Prehistoric	6P	NA	NA	NA	NA	NA
Modernize Stan- dard Magazines (10 each)	NA	9	NA			Prehistoric Farm Dwelling	-	NA	NA	NA	NA	NA
Construction of Multi-Purpose Bldg.	NA	17	.05			NA	-	NA	NA	NA	NA	NA
Construction of Post Restaurant	NA	27	.21			Prehistoric	-	NA	NA	NA	NA	NA

Table 6-1. A SUMMARY OF ON-GOING AND PLANNED ACTIVITIES ON THE LETTERKENNY ARMY DEPOT THAT COULD AFFECT ANCHEOLOGICAL RESOURCES (Continued)

Activities				Associated Resources					Impacts			
Description	Date	Area ^a	Size (a.)	Esti- mated Depth Below Surface (ft.)	Ratio of Dis- turbed to Total Area	Resource Class	Resources Known or Predicted ^b	NRHP Sta- tus	Other Value	Direct	Indirect	Mitigation Options ^c
Construction of Major End Item Storage Facility, Phase III-V	1990	17	6.88			Prehistoric	NA	NA	NA	NA	NA	NA
Modify Igloos (Access Ramp Paving and In- stallation of wider doors)	1991	8	NA			School Farm Dwelling	8P	NA	NA	NA	NA	NA
Construction of C&P Support Facility	1991	38	3.44			Prehistory	-	NA	NA	NA	NA	NA
Construction of Operations Bldg. General Purpose	1992	48	.12			Farm	-	NA	NA	NA	NA	NA
Construction of Water Distribu- tion System Improvements	1992	7	.64			Farm Dwelling	8P	NA	NA	NA	NA	NA
Construction of Heat Recovery Incinerator - ECIP	NA	27				Prehistoric	-	NA	NA	NA	NA	NA
Modify Igloos (200)	NA	NA										
Construction of Maintenance Facility	NA	27	2.87			Prehistoric	-	NA	NA	NA	NA	NA
Construction of Major End Item Storage Facility, Phase I	NA	17	5.5			Prehistoric	-	NA	NA	NA	NA	NA

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

Activities			Associated Resources				Impacts					
Description	Date	Area ^a	Size (a.)	Esti- mated Depth Below Surface (ft.)	Ratio of Dis- turbed Total Area	Resource Class	Resources Known or Predicted ^b	NRHP Sta- tus	Other Value	Direct	Indirect	Mitigation Options ^c
Construction of Two Non-Conven- tional Storage Facilities	1985	27	1.8			Farm	-	NA	NA	NA	NA	NA
Interior Modifi- cations and Struc- tural Additions to Family Housing (Kenny Gardens and Kenny Hills)	1986	28	NA	NA		Farm	-	NA	NA	NA	NA	NA
Construct Ammo Truck Blocking and Shipping Center	1986	17	.15			Farm	P2	NA	No	Destroy Potential Farm Complex Features	NA	Oral historical and historic archeological data recovery
Construct Military Family Housing	1988	17	.39			Farm Prehistoric	-	NA	NA	NA	NA	NA
Construction of Substation and Enclosed Switching Station	1988	27	NA			Farm Prehistoric	-	NA	NA	NA	NA	NA
Industrial Waste Treatment Plant Expansion	1989	27	NA			Farm Prehistoric	-	NA	NA	NA	NA	NA
Construction of Addition to Bldgs. 3 and 10	1989	27	2.12			Farm Prehistoric	-	NA	NA	NA	NA	NA
Construction of Two Hazardous Materials Ware- houses	1990	29	1.19			Farm	-	NA	NA	NA	NA	NA
Construct LCL-LTL Bldg.	1990	17	.28			Farm	-	NA	NA	NA	NA	NA

6.0

A RECOMMENDED ARCHEOLOGICAL MANAGEMENT PLAN FOR THE
LETTERKENNY ARMY DEPOT

6.1 FACILITY MASTER PLANS AND PROPOSED IMPACTS

6.1.1 Proposed Construction

The Master Plan for the Letterkenny Army Depot includes numerous projects proposed for future development (Jim Coccagna, 1984, Personal Communication). The projects which will result in ground disturbance and therefore possible disturbance to archeological cultural resources are listed in Table 6-1, shown on Figures 6-1a-6-1g, and described below.

Non-Conventional Storage Facilities (Figure 6-1g, Number 1). This project will involve the construction of two buildings, 340 ft. by 120 ft. each and 30 ft. high in GDA-27, west of Crane Ave. These warehouses will be used for storage of materials being returned by U.S. Army - Europe. This project is scheduled for FY 85. It will not disturb any known potential archeological sites.

Family Housing Improvements, Kenny Gardens and Kenny Hills (Figure 6-1g, Number 2). Planned for FY 86, this project will provide for the interior renovation of 37 units of Wherry housing in GDAs 28 and 52. Structural additions to many of these units will increase the available area. This project will not disturb any known or potential archeological sites.

Ammo Truck Blocking and Shipping Center (Figure 6-1c, Number 3). This one-story dock level building will replace present inadequate facilities on extant Dock N-3-C. This is planned for FY 86 in GDA-17, west of Florida Avenue and south of Wyoming Avenue. Construction of this project may disturb two potential sites, LEAD-190 and LEAD-212, both nineteenth century farms. Prior to construction limited archeological testing should be conducted to determine potential archeological site integrity. Decisions about mitigation will depend on the results of these tests.

Military Family Housing - 33 Units (Figure 6-1g, Number 4). This construction project, scheduled for FY 88, will produce seven two-story apartment and townhouse buildings in GDA-17, south of South Patrol Road, north of Kenny Gardens. There are no potential archeological sites in this project area though it is possible that prehistoric resources may exist in the project area. Limited archeological testing should precede construction at this site.

Water Distribution System Improvements (Figure 6-1c, Number 14). This project will provide an additional 5.5 mi. of water distribution mains in the Ammunition Area to complete a loop surrounding the area. The area, GDA-7, includes eight potential archeological sites: LEAD-110, 135, 136, 137, 138, 139, 286 and 287. The integrity of these sites has not been determined.

Heat Recovery Incinerator - ECIP (Figure 6-1g, Number 15). This project will result in a one-story building approximately 40 ft. by 80 ft. The project is not scheduled at this time. Located in GDA-27, there are no known or potential archeological sites in the area of the proposed project site.

Modify Igloos (200) (Not shown on Figure 6-1). This long range project will involve modifying 4 ft. wide doors to 8 ft. The igloos are scattered throughout the facility.

Consolidated Maintenance Facility (Figure 6-1g, Number 16). This proposed building, 625 ft. by 200 ft., will be built in GDA-27. The area does not have potential or known archeological cultural resources.

Major End Item Storage Facility, Phase I (Figure 6-1g, Number 17). Proposed as a long range project, this construction project will produce a one-story building, 200 ft. by 1200 ft., with controlled humidity. Planned in GDA-17, northwest of the classification yard, there are no potential or known archeological resources at the project site.

C and P Building, Conv. Ammo. and GM (Figure 6-1e, Number 18). This one-story building, 120 ft. by 200 ft., will house the missions of ammunition maintenance, renovation, and preservation and packaging. Planned for GDA-17, south of Tennessee Avenue and east of Lake Letterkenny, there are no known or potential archeological resources at the project site.

Small Arms Storage Fac (Figure 6-1g, Number 19). This project is proposed in GDA-49, north of Georgia Avenue and east of Booster Road. The project proposes a one-story warehouse, 175 ft. by 375 ft., in an area lacking potential and known archeological resources.

C/H Warehouses (Figure 6-1g, Number 20). This project proposes two one-story warehouses in GDA-27 southeast of Oregon Avenue. There are no potential or known archeological resources at this project site.

Major End Item Storage Facility, Phase II (Figure 6-1g, Number 21). This project, planned in GDA-17, due south of Vehicle Road and north of the classification yard, will result in a one-story warehouse, 200 ft. by 1600 ft. There are no known or potential archeological resources at this proposed project site.

FE Storehouse (Figure 6-1g, Number 22). This one-story warehouse, 100 ft. by 200 ft., will provide facilities for the storage of supplies and materials used by the Facilities Engineering Division. Proposed in GDA-28, southeast of Caisson Road, there are no known or potential archeological resources at this project site.

sponsored hunters, family members of service members, depot employees, restricted archers, retired civilian personnel of LEAD, co-located activities residing in the local area, and agricultural licensees (LEAD 1984). All who hunt at LEAD must have in his/her possession applicable licenses and permits. All privately owned firearms must be registered. Seasons are differentiated for types of authorized weapons and target game. The LEAD Hunting Program is outlined in detail in LEAD Pamphlet No. 420-3 (LEAD 1984). LEAD has been divided into two zones which in turn are subdivided into smaller hunting areas. Hunters must register daily and go directly to the hunting area they have chosen. Zone I includes LEAD areas A-G, K, and MV. Zone II includes the outlying LEAD area surrounding Zone I (Figures 6-1a-g). Within these two zones, there are specified areas restricted to hunting, use of bows, or use of guns.

Fish Management. Currently five on-depot lakes and one pond are stocked with a variety of pan and game fish. The 54 a. depot reservoir is open to the public for fishing and is stocked annually by the Pennsylvania Fish Commission and the Fish and Wildlife Service (LEAD 1981).

Firewood/Forest Products Disposal. LEAD administers the sale of firewood and forest products as a conservation measure. Permits must be obtained and limitations are set as to the quantities of materials which participants may collect. The depot Natural Resources Manager designates the areas where forest materials may be obtained. The firewood program operates during July 1 through September 15 and January 15 through March 31, except on Sundays. Firewood operations are permitted in Zone I on Saturdays and in Zone II daily during specified hours (Figures 6-1a-g). Vehicles in Zone I are confined to paved roads unless otherwise authorized by the Natural Resources Manager in coordination with the Provost Marshal (LEAD n.d.b.).

Agricultural Leasing. LEAD makes 3440 a., in scattered plots of varying size, available for agricultural outleasing to local farms. Five year leases are issued to winning bidders. LEAD considers these farmers to be outside contractors. The farmers are essentially free to come and go on the LEAD property (Jim Coccagna, 1984, Personal Communication).

Hay and Mulch Leasing. This program was initiated by LEAD in 1984. LEAD allows selected areas to become overgrown. Locals may then bid to come into the LEAD property to cut the grassy vegetation and haul it away (Jim Coccagna, 1984, Personal Communication).

6.2 APPROPRIATE ARCHEOLOGICAL MANAGEMENT GOALS WITHIN THE LETTERKENNY ARMY DEPOT

6.2.1 General Facility Planning

While portions of the LEAD facility have been disturbed, there are areas which may contain historic and/or prehistoric archeological resources. A primary planning goal for LEAD, in accordance with Section 110(a)(2) of the National Historic Preservation Act, is to determine if any of these areas contains archeological resources requiring further management. Historic period sites are likely to occur in the areas

designated in Figure A-1. Unrecorded prehistoric sites are most likely to occur in areas where prior ground disturbance has been minimal and which are associated with factors conducive to aboriginal use or settlement (e.g., areas near bodies of water).

All military and civilian personnel should be required to report the discovery of any archeological remains. They should be advised that the removal or disturbance of such remains from installation property is prohibited. In connection with this, security personnel should be trained to enforce, as per AR 420-40, laws that protect historic and archeological properties and, as per AR 190-31, measures to be taken to reduce and eliminate illegal activities affecting such properties. In addition, procedures for handling unanticipated discoveries of archeological remains need to be developed and instituted.

6.2.2 Project Specific Resource Protection or Treatment Options

Many of LEAD's planned future development projects will result in ground disturbance in areas which have been previously disturbed. It would be advisable to institute a limited subsurface archeological testing program to document the interpreted ground disturbance.

Several of the projects slated for future development may disturb potential archeological sites. In these cases limited subsurface archeological testing should precede development activities to document site condition and evaluate site significance.

All new LEAD employees and individuals granted access to LEAD through participation in any of the ongoing nonconstruction activities (Section 6.1.2) should be advised of DARCOM's historic preservation responsibilities. They should be directed to report any archeological finds on LEAD to the Facilities Engineer (who in turn should notify DARCOM and the State Historic Preservation Officer). Any installation publication citing standards of conduct for LEAD employees should be revised to note that the removal or disturbance of archeological remains from LEAD property (including housing areas) is prohibited. Residents of housing areas should be advised to inform their families of this prohibition and the need to inform the Facilities Engineer of any chance finds of archeological remains.

Future facility plans which will result in ground-disturbing activities should include procedures for handling the eventuality of archeological site discovery. Procedures for handling unanticipated discoveries of previously unrecorded archeological remains should also be developed.

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

The following list represents archeological resource management tasks which should be undertaken at Letterkenny Army Depot:

- o Conduct archeological surveys at known future development project locations which might impact cultural resources.

- o Document site extent, integrity, stratigraphy and subsurface features consistent with assessment for nomination to the National Register of Historic Places at known and potential archeological sites;
- o Conduct archeological testing prior to ground-disturbing activities in areas where ground disturbance cannot be documented or where it is indicated as minimal (less than 30 percent);
- o Document the extent of disturbance in areas where documentary sources and environmental context indicate potential site locations;
- o Collect more in-depth documentary background data about pre-depot land use including oral histories from local informants who have worked at the depot, lived in the surrounding community, and perhaps lived on the depot property prior to government ownership;
- o Develop procedures for handling unanticipated discoveries of previously unrecorded archeological remains;
- o Advise LEAD employees and civilians participating in LEAD programs of DARCOM's historic preservation responsibilities.

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

This section contains preliminary scopes-of-work for each of the various components of the archeological management program outlined in Section 6.2.3. Certain specifications are common to many of the recommended work scopes and unless specific mention is made in a particular scope for variations in these, it should be assumed that they apply in all cases.

- o All work should conform to the Secretary of the Interior Standards and Guidelines for Archeology and Historic Preservation.
- o All personnel must meet minimum qualifications established in AR-420-40c for the position they will hold.
- o All excavation units should be of a depth sufficient to reach sterile Pleistocene deposits or confirm prior disturbance.
- o All excavated material except that from excavation within clearly disturbed areas should be screened through 1/4 in. hardware cloth.

6.3.1 Archeological Surveys of Known Future Development Project Locations

Archeological Testing in Vicinity of the Proposed Ammo Truck Blocking and Shipping Center. Construction of this project may disturb potential archeological sites LEAD- 190 and 212. Both of these sites are nineteenth century farm complexes. Testing should be conducted to determine if remnants of these farming complexes are extant. Testing should also reveal the extent of ground disturbance in this area.

While the planned location of this project is known, detailed data on the actual size of the construction are not available. For this reason a best-guess estimate will be made based on available project description. The following cost estimate is for an identification survey only. It does not include work associated with gathering detailed data of the kind normally needed to support requests for formal determinations of National Register eligibility, or work associated with data recovery. The scope of such work is dependent upon the results of the identification survey recommended here. Estimated costs do not include costs for heavy equipment rental (e.g., backhoes) which may be required if the survey area, contrary to the assumption made here, is paved or covered with extensive overburden.

Construction of the proposed Ammo Truck Blocking and Shipping Center will probably disturb no more than 2 a. of land. Testing for archeological resources should be accomplished through a series of subsurface shovel tests placed at approximately 20 m intervals. These should be supplemented with excavation of several 1 m square test units in the portions of the area believed to include LEAD - 190 and 212.

Archeological testing of the area will require four person-days of field time and three person-days for analysis and report preparation. The estimated cost for conducting this work ranges between \$5,000-\$5500 including about \$3000 in out-of-pocket expenses.

Archeological Testing at the Site of Proposed Construction of Military Family Housing. Proposed construction of military family housing, seven two-story apartment and townhouse buildings, is assumed to require a maximum of 2 a. of land. The proposed project site seems to have been minimally disturbed and thus may have potential to yield prehistoric cultural resources. Documentary sources consulted did not indicate potential historic period sites at the project location.

Testing for archeological resources should be accomplished through a series of subsurface shovel tests placed at approximately 15 m intervals. This should ensure the discovery of small prehistoric sites. Archeological testing will require six person days for field time and four days for laboratory analysis and report preparation. Estimated cost will range between \$6100 to \$6500 including about \$3500 in out-of-pocket expenses.

Archeological Testing in GDA-8 in Areas of Igloo Modification. For this project, 55 igloos will be modified in GDA-8. Documentary sources suggest that eight potential historic sites may be extant in GDA-8.

Testing should be oriented toward documenting disturbance in the GDA and also toward determining the site integrity of LEAD- 51, 52, 80, 83, 84, 85, 86 and 109.

Judgemental placement of shovel tests in this area would offer the optimal strategy. One should take into account the specific igloos which will be modified when this information is available and the locations of the potential historic sites in this GDA.

A total of 12 person days for field time and 6 person days for laboratory and report preparation will be required. Estimated costs will range from \$8000 to \$8600 including about \$3900 in out-of-pocket expenses.

Archeological Survey of Project Water Distribution System Improvements. Survey of this project right-of-way will require a linear subsurface testing strategy along the route of the proposed five and one-half mi. of water distribution mains. Documentary sources indicate that eight potential historic period archeological sites may be encountered in the area.

It is estimated that 24 person days will be required to implement field testing. An additional 11 person days will be required for lab analysis and report preparation prior to development. Estimated costs for excavating shovel tests at intervals of 100 ft. range from \$13,200 to \$13,700 including about \$5000 in out-of-pocket expenses.

Archeological Survey of the Community and Skill Development Center. It is assumed that this project will not disturb more than 1 a. of land. The area in which it is proposed may yield remnants of two potential historic period sites (LEAD-298, 336).

Field time required to excavate shovel tests at 15 m. intervals is two person days. Lab analysis and report preparation will require an additional three person days. Estimate costs range from \$3500 to \$4000 including about \$2000 in out-of-pocket expenses.

Archeological Survey at Magazines to be Modernized in GDA-9. Ten standard magazines in GDA-9 will be modernized. Remnants of six potential historic period archeological sites may be extant in the vicinity of the proposed project.

Archeological testing should be conducted using a judgemental strategy for subsurface shovel tests. This will provide a basis for determining the extent of both ground disturbance in the area and the preservation of cultural resources.

It is expected that implementation of field work will require four person days and that laboratory analysis and report preparation will require three person days. Estimated costs range from \$3800 to \$4300 including about \$2000 in out-of-pocket expenses.

6.3.2 Documentation of Known Archeological Sites for National Register Assessment

Three prehistoric and three historic sites are recorded at LEAD. Of the prehistoric sites, Roberts (1981) stated that 36FR112 was potentially significant, while 36FR114 was probably not significant; 36FR113 could not be assessed. All three of these sites should be tested to document site extent, integrity, stratigraphy and subsurface features to establish whether they should be nominated to the National Register of Historic Places as per AR 420-40. These sites should be tested with at least 1 m² test squares at each site, with more to be added at the discretion of the field direction, supplemented by shovel tests.

Of the three historic sites, the Franklin County Roadway and the Joseph W. Fagan Stone Quarry are not considered significant resources (Roberts 1981). The Isaac Meyers House requires further testing to assess it for thematic nomination. This testing would require excavation to test for builders' trenches, construction associated artifacts, middens and outbuildings.

An estimated 26 person-days (including 16 field days) would be required to complete this testing and associated analyses and reports. Out-of-pocket expenses including travel, living expenses and report production are estimated at \$2800. Total cost should range from \$9,500 to \$11,000.

6.3.3 Archeological Surveys of Minimally Disturbed Areas

Analyses of prior land use at LEAD (as summarized in Section 3.0) have suggested that there are areas which have minimal prior ground disturbance. Because of this, these areas are among the most likely to contain archeological remains. GDA-25, the former projectile range, comprises 178 a. Since test shells without loads were used, disturbance is minimal and no special hazards are involved in surveying the area. Two potential historical archeological sites are located in this area (LEAD 93 and 95), which includes the lower slopes of North Mountain. GDA 29, the combat vehicle test track, includes some 60 a. No known or potential archeological sites exist in this relatively flat area.

Because of the large areas involved, and the relatively low probability of locating sites, sampling rather than complete survey coverage is suggested. In GDA 25, the average slope is on the order of 15 percent, making much of the area generally unsuitable for occupation. Still, approximately 20 percent of the area (35 a.) consists of relatively level land near intermittent streams. The potential historic sites are located in these areas. The latter should be located and tested with meter square test pits and shovel tests to establish extent and integrity of the sites. The remainder of the area should be covered with shovel tests at 30 m intervals. In GDA 29, 50 m interval shovel tests are recommended. The field director should have the discretion to modify the test interval in all areas if field conditions warrant. An estimated 44 person-days (including 31 field days) would be required to

complete the survey and associated analyses and reports. Out of pocket expenses including travel, living expenses, and report production are estimated at \$4700. Total cost should range from \$15,000 to \$17,000.

6.3.4 Documentation of Disturbance at Potential Site Locations

A total of 346 potential archeological sites and site complexes were identified in Section 4 (see Table 4-4). All represent nineteenth century farmsteads and associated infrastructure. Archeological investigations at these locations should initially focus on determining the exact locations and boundaries of these sites. To assess degree of prior disturbance, profiles should be excavated in or around a sample of these sites in each of the 24 GDAs where potential sites are suggested by documentary evidence. Of these, eight have only one or two sites within their areas. All of these sites (12 total) should be located and tested. Within areas having between three and nine sites (12 GDAs), at least two sites should be tested (24 total sites). For areas having 10 or more sites (four GDAs) a sample of at least four sites should be tested (16 total sites) to assess the general degree of disturbance. This would involve an estimated 52 test profiles, with more to be added at the discretion of the field director.

An estimated 50 person-days (including 40 field days) would be required to complete this testing and associated analysis and reports. Out of pocket expenses including travel, living expenses and report production are estimated at \$5800. Total costs should range from \$17,000 to \$20,000.

6.3.5 Collection of Documentary Data and Oral Histories

This project is designed to supply information on pre-depot material culture, structures, infrastructure, and economic and social networks for rural Pennsylvania during the nineteenth century. The document search aspect will entail the investigation of county and municipal records, such as real estate titles, tax and probate records for areas now encompassed by LEAD to locate sites, boundaries and structures. The oral history aspect involves locating and interviewing pre-depot residents, employees and other with traditional local knowledge concerning locations, lifestyles, folklore and folkways. Information on the former property owners is available to aid in locating individuals. It is estimated that this project will involve 30 person-days (including 20 field days) to complete searches, interviews, analysis and report preparation. Out of pocket expenses including travel, living expenses and report production are estimated at \$1450. Total costs should range from \$7500 to 8500.

6.3.6 Emergency Discovery Procedures

Procedures for dealing with the discovery of historic properties (including archeological sites) are detailed in AR 420-40-4.10. In the event of an emergency discovery the installation commander (or his designee) should notify the Department of the Interior Departmental Consulting Archeologist. DARCOM and the State Historic Preservation Officer should be notified at the same time.

To assist LEAD in conducting any archeological evaluations and/or necessary data recovery activities which may be required as a result of an emergency discovery in the shortest time possible, it is recommended that LEAD enter into an on-call services agreement with an institution or firm which can provide professional archeological consulting services. At the option of LEAD, a contract for these services could be issued on either a sole-source or competitive basis. In the case of the former, approximately three days of installation personnel time would be required. In the latter case, a greater but unknown amount of time would be required of installation personnel to prepare and issue a formal Request-for-Proposal and to evaluate responses.

6.3.7 Education Programs

During any orientations for newly assigned personnel or employees, mentioned should be made of DARCOM's historic preservation responsibilities. In addition, all contractors, Army personnel, dependents and visitors should be advised to immediately report the discovery of any archeological remains to the Director of Engineering and Housing and/or the Facilities Engineer (who should in turn notify DARCOM and the State Historic Preservation Officer). These same individuals should also be advised that, as per AR 420-40-1.4f(5), unauthorized collection of archeological and cultural materials is a felony and subject to prosecution. Any installation publications concerning rules and conduct on LEAD should be reviewed to include these requirements and warnings.

In addition, in accordance with AR 420-40-1.4e(11), military police and other security personnel should be trained to enforce laws protecting historic and archeological properties.

It is estimated that revision of installation publications will require one day of a professional archeologist time at an estimated cost of \$500. Unestimated expenses would include publication costs and time expended by installation personnel during briefings and orientation.

7.0
SUMMARY

All major information sources likely to have data relating to the archeology of the site occupied by the Letterkenny Army Depot were reviewed for this study. The review indicated that previous archeological field surveys on the LEAD facility recorded three prehistoric archeological sites and three historic period archeological sites (Table 4-2). Documentary resources suggest that there are at least 345 potential historic period archeological sites (Table 4-4). The number of potential prehistoric sites on the facility cannot be predicted.

While large portions of the facility have been disturbed by development activities (Section 3.0), there are numerous intermittent areas which have not been disturbed or which have been disturbed only minimally. These areas may potentially yield significant archeological cultural resources which have not yet been recorded. The physical integrity of the potential sites is unknown.

Among the institutions consulted as part of the basic data gathering for this overview were: the Letterkenny Army Depot; the Pennsylvania State Archives; the Chambersburg Public Library; the Pattee Library at Pennsylvania State University; the Pennsylvania Historical and Museum Commission Bureau of Historic Preservation, Division of Archeology; The American Museum of Natural History; The Museum of the American Indian - Heye Foundation; The New York Public Library (Map Division); and the Navy and Old Army, Still Photo and Modern Military History branches of the National Archives. In addition the "America: History and Life" data base of Lockheed's Dialog Information Retrieval Services which contains abstracts from more than 2000 history journals was also consulted.

One visit to Letterkenny Army Depot was made by the authors. In addition to a windshield tour of the facility, construction plans and drawings maintained by the Facilities Engineering Division were examined.

Recommendations for future archeological investigation on LEAD include surveys preceeding ground-disturbing development activities in areas near the locations of noted potential archeological sites and surveys designed to document the extent of disturbance near noted locations of potential archeological sites. Collection of more in-depth background data about pre-depot land use has also been recommended as has the collection of oral histories from local informants. All LEAD employees and civilians participating in LEAD programs should be informed of DARCOM's historic preservation responsibilities. LEAD should develop and implement procedures for handling unanticipated discoveries of previously unrecorded archeological remains.

8.0
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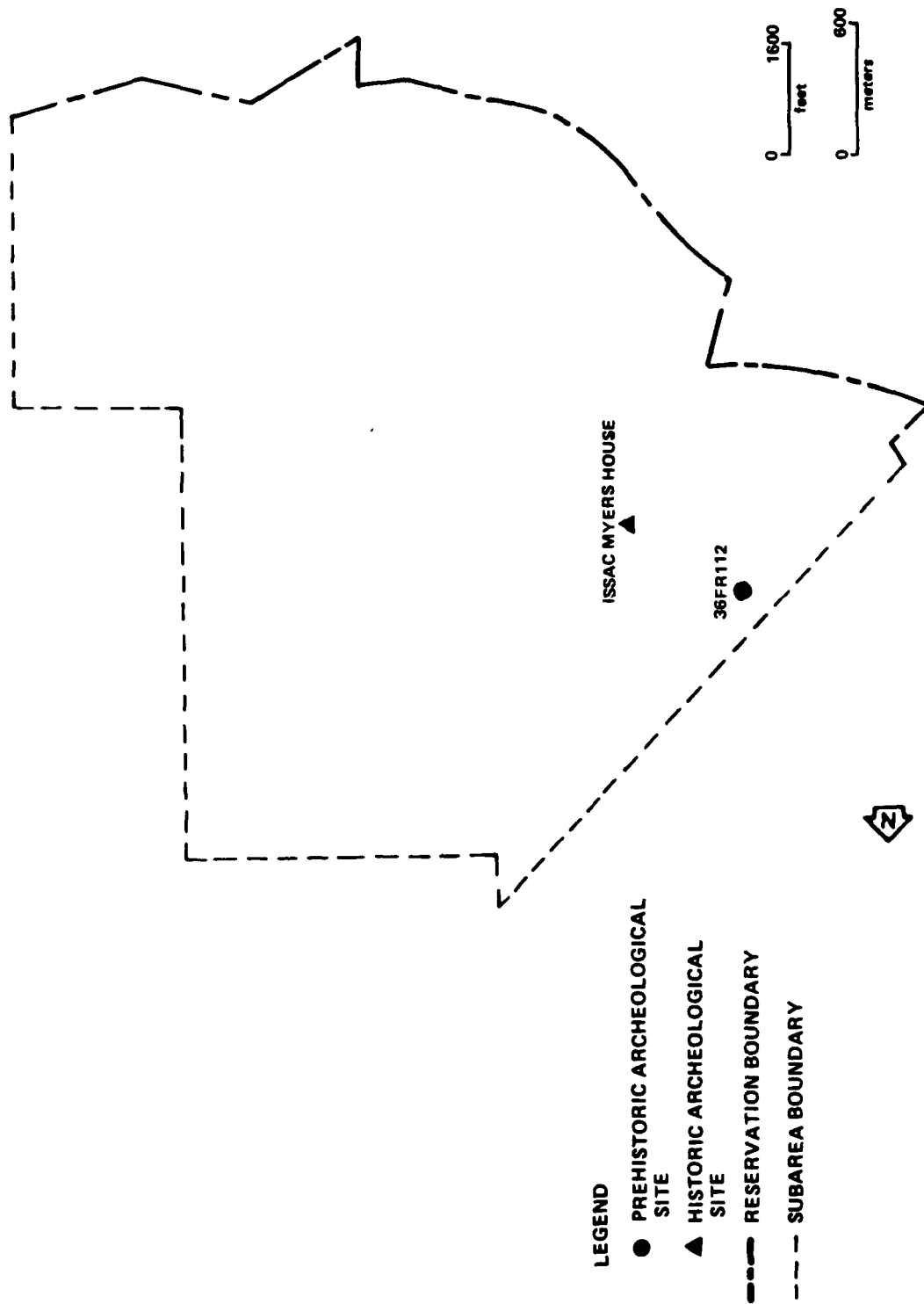


Figure A-1a A MAP OF KNOWN ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT, SUBAREA B

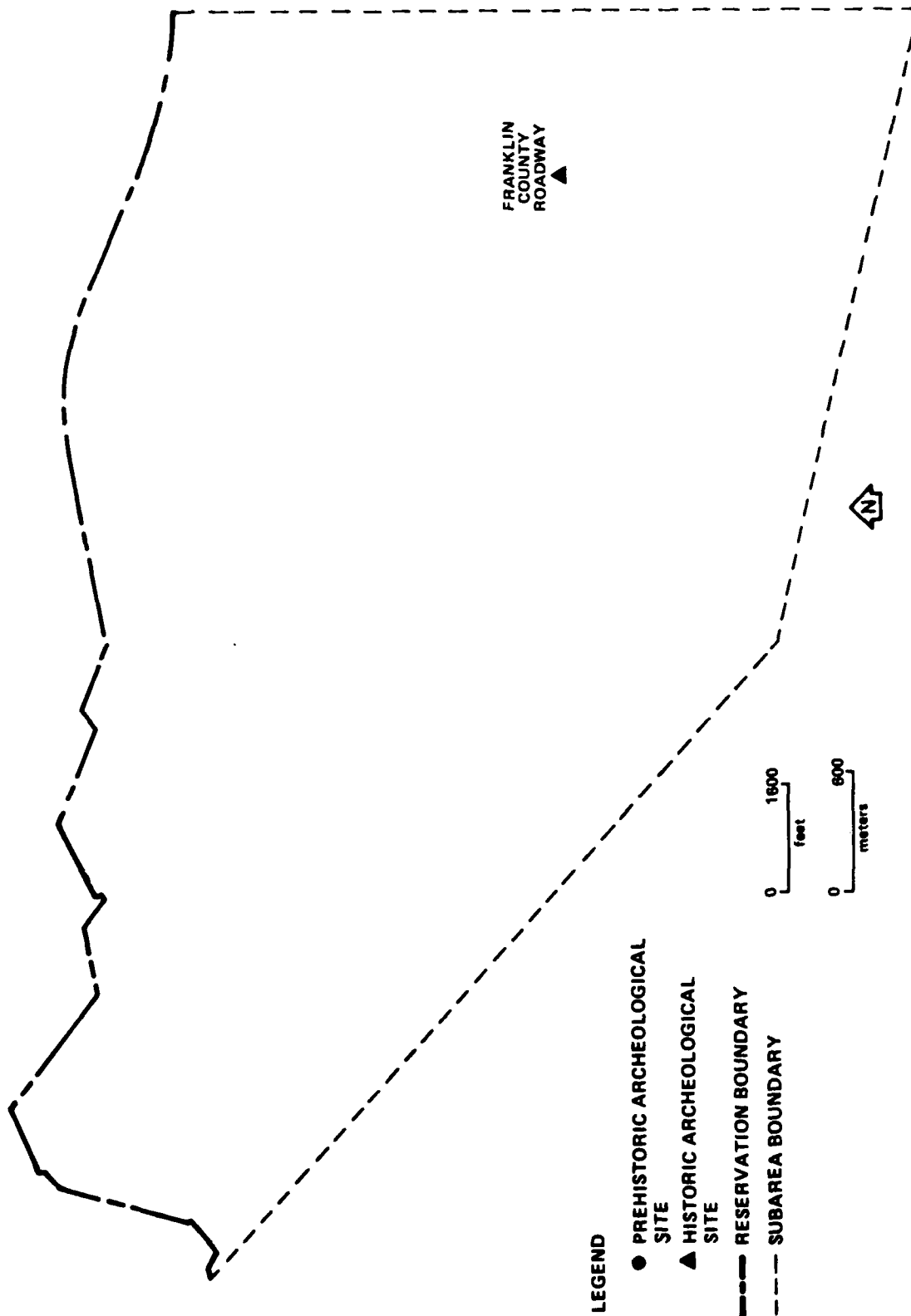


Figure A-1b. A MAP OF KNOWN ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT, SUBAREA C

Table A-1. LOCATIONAL DATA, KNOWN AND POTENTIAL ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT (Continued)

Site Number ^a	b UTM		Ref.	Legal Reference			USGS Quad Map ^c	CR ^d
	Northing	Easting		Township	Range	Section		
LEAD-360	4432060	271470	PSU	Letterkenny			R766	3
LEAD-361	4429250	270250	PSU	Letterkenny			C744	3
LEAD-362	4432350	270420	PSU	Letterkenny			R766	3

NOTES:

a Designations by LEAD were assigned for this study

b UTM Zone 18, ECO = Envirosphere Company, JMA = John Milner and Associates 1981, PSU = Pennsylvania State University

c F766 = Fannettsburg, PA 7.5 Minute Quadrangle, 1966;
C744 = Chambersburg, PA 7.5 Minute Quadrangle, 1944 edition, photo revised 1968;
R766 = Roxbury, PA 7.5 Minute Quadrangle, 1966 edition, photo revised 1973;
S744 = St. Thomas, PA 7.5 Minute Quadrangle, 1944 edition, photo revised 1968.

d 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 judgment is moderately reliable, or (3) the information is most likely reliable. All UTM measurements are believed to be accurate to within 10 m.

Table A-1. LOCATIONAL DATA, KNOWN AND POTENTIAL ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT (Continued)

Site Number ^a	^b UTM		Ref.	Legal Reference			USGS Quad Map ^c	CR ^d
	Northing	Easting		Township	Range	Section		
LEAD-315	4431400	271060	PSU	Letterkenny			R766	3
LEAD-316	4431720	272040	PSU	Letterkenny			R766	3
LEAD-317	4432150	271590	PSU	Letterkenny			R766	3
LEAD-318	4437040	268970	PSU	Letterkenny			R766	3
LEAD-319	4435220	267470	PSU	Letterkenny			R766	3
LEAD-320	4434990	271720	PSU	Letterkenny			R766	3
LEAD-321	4429260	270900	PSU	Letterkenny			C744	3
LEAD-322	4430740	271520	PSU	Letterkenny			C744	3
LEAD-323	4432350	272660	PSU	Letterkenny			R766	3
LEAD-324	4432260	273190	PSU	Letterkenny			R766	3
LEAD-325	4429950	274000	PSU	Letterkenny			C744	3
LEAD-327	4435400	265550	PSU	Letterkenny			R766	3
LEAD-328	4435450	267140	PSU	Letterkenny			R766	3
LEAD-329	4430920	269640	PSU	Letterkenny			C744	3
LEAD-330	4431020	269580	PSU	Letterkenny			C744	3
LEAD-331	4430520	269950	PSU	Letterkenny			C744	3
LEAD-332	4436800	270520	PSU	Letterkenny			R766	3
LEAD-334	4430600	273210	PSU	Greene			C744	3
LEAD-335	4430760	273150	PSU	Greene			C744	3
LEAD-336	4430750	273050	PSU	Greene			C744	3
LEAD-337	4431200	273220	PSU	Letterkenny			R766	3
LEAD-338	4436420	273320	PSU	Letterkenny			R766	3
LEAD-339	4431120	275620	PSU	Greene			R766	3
LEAD-340	4429450	267500	PSU	Greene			C744	3
LEAD-341	4429650	265050	PSU	Hamilton			C744	3
LEAD-342	4430750	265300	PSU	Hamilton			C744	3
LEAD-343	4430850	265300	PSU	Hamilton			C744	3
LEAD-344	4442940	270020	PSU	Letterkenny			R766	3
LEAD-345	4442950	270060	PSU	Letterkenny			R766	3
LEAD-346	4443480	270200	PSU	Letterkenny			R766	3
LEAD-347	4430550	267850	PSU	Letterkenny			C744	3
LEAD-348	4432340	266470	PSU	Letterkenny			R766	3
LEAD-349	4433010	270700	PSU	Letterkenny			R766	3
LEAD-351	4434200	268800	PSU	Letterkenny			R766	3
LEAD-352	4434140	273600	PSU	Letterkenny			R766	3
LEAD-353	4432460	272770	PSU	Letterkenny			R766	3
LEAD-354	4431080	272510	PSU	Letterkenny			C744	3
LEAD-355	4432520	266050	PSU	Letterkenny			R766	3
LEAD-356	4430840	274160	PSU	Greene			C744	3
LEAD-357	4433300	270080	PSU	Letterkenny			R766	3
LEAD-358	4433580	270080	PSU	Letterkenny			R766	3
LEAD-359	4433740	270180	PSU	Letterkenny			R766	3

Table A-1. LOCATIONAL DATA, KNOWN AND POTENTIAL ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT (Continued)

Site Number ^a	^b UTM		Ref.	Legal Reference			USGS Quad Map ^c	CR ^d
	Northing	Easting		Township	Range	Section		
LEAD-267	4431950	266000	PSU	Letterkenny			R766	3
LEAD-268	4431100	266550	PSU	Letterkenny			C744	3
LEAD-269	4429450	269870	PSU	Letterkenny			C744	3
LEAD-270	4430260	269700	PSU	Letterkenny			C744	3
LEAD-271	4430380	269700	PSU	Letterkenny			C744	3
LEAD-272	4431350	267600	PSU	Letterkenny			C744	3
LEAD-273	443440	268420	PSU	Letterkenny			R766	3
LEAD-274	4431050	267500	PSU	Letterkenny			R766	3
LEAD-275	4432250	267840	PSU	Letterkenny			R766	3
LEAD-276	4432450	267460	PSU	Letterkenny			R766	3
LEAD-277	4435580	268120	PSU	Letterkenny			R766	3
LEAD-278	4435700	267970	PSU	Letterkenny			R766	3
LEAD-279	4435860	267970	PSU	Letterkenny			R766	3
LEAD-280	4436440	268090	PSU	Letterkenny			R766	3
LEAD-281	4436800	267900	PSU	Letterkenny			R766	3
LEAD-282	4436890	267910	PSU	Letterkenny			R766	3
LEAD-283	4436740	270600	PSU	Letterkenny			R766	3
LEAD-284	4435140	271230	PSU	Letterkenny			R766	3
LEAD-285	4435680	270460	PSU	Letterkenny			R766	3
LEAD-286	4436020	269480	PSU	Letterkenny			R766	3
LEAD-287	4434440	269500	PSU	Letterkenny			R766	3
LEAD-288	4434280	269120	PSU	Letterkenny			R766	3
LEAD-289	4432140	270240	PSU	Letterkenny			R766	3
LEAD-290	4431750	271340	PSU	Letterkenny			R766	3
LEAD-291	4433940	273070	PSU	Letterkenny			R766	3
LEAD-292	4434290	273070	PSU	Letterkenny			R766	3
LEAD-293	4434800	271300	PSU	Letterkenny			R766	3
LEAD-295	4432480	273390	PSU	Letterkenny			R766	3
LEAD-296	4431440	274700	PSU	Greene			R766	3
LEAD-297	4431150	274760	PSU	Greene			R766	3
LEAD-298	4430600	273070	PSU	Greene			C744	3
LEAD-299	4430560	273750	PSU	Greene			C744	3
LEAD-300	4430400	273750	PSU	Greene			C744	3
LEAD-301	4430260	273600	PSU	Greene			C744	3
LEAD-302	4430300	273710	PSU	Greene			C744	3
LEAD-303	4430200	273680	PSU	Greene			C744	3
LEAD-304	4433950	268620	PSU	Letterkenny			R766	3
LEAD-305	4432150	268160	PSU	Letterkenny			R766	3
LEAD-307	4428870	269040	PSU	Letterkenny			C744	3
LEAD-308	4429440	268680	PSU	Hamilton			C744	3
LEAD-309	4433000	270240	PSU	Letterkenny			R766	3
LEAD-310	4434100	270000	PSU	Letterkenny			R766	3
LEAD-311	4435180	270320	PSU	Letterkenny			R766	3
LEAD-312	4435240	271260	PSU	Letterkenny			R766	3
LEAD-313	4429580	274680	PSU	Greene			C744	3
LEAD-314	4435080	273080	PSU	Letterkenny			R766	3

Table A-1. LOCATIONAL DATA, KNOWN AND POTENTIAL ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT (Continued)

Site Number ^a	b			Legal Reference			USGS Quad Map ^c	CR ^d
	Northing	Eastng	Ref.	Township	Range	Section		
LEAD-218	4435720	272910	PSU	Letterkenny			R766	3
LEAD-219	4436620	272200	PSU	Letterkenny			R766	3
LEAD-220	4436650	273010	PSU	Letterkenny			R766	3
LEAD-222	4431440	273230	PSU	Letterkenny			R766	3
LEAD-223	4431580	273390	PSU	Letterkenny			R766	3
LEAD-224	4431860	273140	PSU	Letterkenny			R766	3
LEAD-225	4432010	273780	PSU	Letterkenny			R766	3
LEAD-226	4432080	274000	PSU	Letterkenny			R766	3
LEAD-227	4432220	273940	PSU	Letterkenny			R766	3
LEAD-228	4432200	273660	PSU	Letterkenny			R766	3
LEAD-229	4432340	273360	PSU	Letterkenny			R766	3
LEAD-230	4433380	273120	PSU	Letterkenny			R766	3
LEAD-231	4433650	273550	PSU	Letterkenny			R766	3
LEAD-232	4433630	273170	PSU	Letterkenny			R766	3
LEAD-233	4433750	273320	PSU	Letterkenny			R766	3
LEAD-234	4433820	273040	PSU	Letterkenny			R766	3
LEAD-235	4434120	273100	PSU	Letterkenny			R766	3
LEAD-236	4434360	273580	PSU	Letterkenny			R766	3
LEAD-237	4435200	273280	PSU	Letterkenny			R766	3
LEAD-238	4436660	273480	PSU	Letterkenny			R766	3
LEAD-239	4436780	273360	PSU	Letterkenny			R766	3
LEAD-240	4436770	273440	PSU	Letterkenny			R766	3
LEAD-241	4436770	273520	PSU	Letterkenny			R766	3
LEAD-242	4429800	274280	PSU	Greene			C744	3
LEAD-243	4430300	274100	PSU	Letterkenny			C744	3
LEAD-244	4430460	274360	PSU	Letterkenny			C744	3
LEAD-246	4431020	274250	PSU	Letterkenny			R766	3
LEAD-247	4431130	275000	PSU	Letterkenny			R766	3
LEAD-248	4431760	274910	PSU	Letterkenny			R766	3
LEAD-249	4432360	274550	PSU	Letterkenny			R766	3
LEAD-250	4432520	274450	PSU	Letterkenny			R766	3
LEAD-251	4432400	274410	PSU	Letterkenny			R766	3
LEAD-252	4432780	274300	PSU	Letterkenny			R766	3
LEAD-254	4432420	275000	PSU	Greene			R766	3
LEAD-255	4433600	274490	PSU	Letterkenny			R766	3
LEAD-256	4434000	274510	PSU	Letterkenny			R766	3
LEAD-257	4435100	274100	PSU	Letterkenny			R766	3
LEAD-258	4435860	274170	PSU	Letterkenny			R766	3
LEAD-259	4430080	275060	PSU	Letterkenny			C744	3
LEAD-260	4430250	275620	PSU	Letterkenny			C744	3
LEAD-261	4430990	275600	PSU	Letterkenny			R766	3
LEAD-262	4431760	275200	PSU	Greene			R766	3
LEAD-263	4431600	265450	PSU	Letterkenny			R766	3
LEAD-264	4432150	266000	PSU	Letterkenny			R766	3
LEAD-265	4432100	266150	PSU	Letterkenny			R766	3
LEAD-266	4432050	266100	PSU	Letterkenny			R766	3

Table A-1. LOCATIONAL DATA, KNOWN AND POTENTIAL ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT (Continued)

Site Number ^a	b UTM		Ref.	Legal Reference			USGS Quad	CR ^d
	Northing	Easting		Township	Range	Section		
LEAD-172	4435260	270460	PSU	Letterkenny			R766	3
LEAD-173	4435840	270460	PSU	Letterkenny			R766	3
LEAD-174	4436120	270380	PSU	Letterkenny			R766	3
LEAD-175	4436220	270420	PSU	Letterkenny			R766	3
LEAD-176	4436800	270780	PSU	Letterkenny			R766	3
LEAD-177	4437000	270800	PSU	Letterkenny			R766	3
LEAD-178	4436900	270200	PSU	Letterkenny			R766	3
LEAD-179	4437100	270450	PSU	Letterkenny			R766	3
LEAD-180	4437480	270830	PSU	Letterkenny			R766	3
LEAD-181	4429500	271120	PSU	Letterkenny			C744	3
LEAD-182	4430120	271520	PSU	Letterkenny			C744	3
LEAD-183	4430180	271660	PSU	Letterkenny			C744	3
LEAD-184	4430440	271420	PSU	Letterkenny			C744	3
LEAD-185	4430940	271140	PSU	Letterkenny			C744	3
LEAD-186	4431540	271900	PSU	Letterkenny			R766	3
LEAD-187	4432150	271330	PSU	Letterkenny			R766	3
LEAD-188	4433040	271500	PSU	Letterkenny			R766	3
LEAD-189	4432920	271940	PSU	Letterkenny			R766	3
LEAD-190	4434990	271940	PSU	Letterkenny			R766	3
LEAD-191	4435340	271200	PSU	Letterkenny			R766	3
LEAD-192	4435480	271220	PSU	Letterkenny			R766	3
LEAD-193	4436680	271780	PSU	Letterkenny			R766	3
LEAD-194	4430000	272860	PSU	Letterkenny			C744	3
LEAD-195	4430240	272140	PSU	Letterkenny			C744	3
LEAD-196	4431210	272820	PSU	Letterkenny			R766	3
LEAD-197	4431220	273010	PSU	Letterkenny			R766	3
LEAD-198	4431350	272970	PSU	Letterkenny			R766	3
LEAD-199	4431250	272330	PSU	Letterkenny			R766	3
LEAD-200	4431750	272860	PSU	Letterkenny			R766	3
LEAD-201	4431840	272660	PSU	Letterkenny			R766	3
LEAD-202	4432080	272540	PSU	Letterkenny			R766	3
LEAD-203	4432200	272510	PSU	Letterkenny			R766	3
LEAD-204	4432100	272680	PSU	Letterkenny			R766	3
LEAD-205	4432250	272660	PSU	Letterkenny			R766	3
LEAD-206	4432980	272920	PSU	Letterkenny			R766	3
LEAD-207	4432000	272840	PSU	Letterkenny			R766	3
LEAD-208	4433140	272720	PSU	Letterkenny			R766	3
LEAD-209	4433660	272640	PSU	Letterkenny			R766	3
LEAD-210	4433800	272220	PSU	Letterkenny			R766	3
LEAD-211	4434720	272280	PSU	Letterkenny			R766	3
LEAD-212	4434760	272140	PSU	Letterkenny			R766	3
LEAD-213	4435240	272460	PSU	Letterkenny			R766	3
LEAD-214	4435280	272300	PSU	Letterkenny			R766	3
LEAD-215	4435420	272900	PSU	Letterkenny			R766	3
LEAD-216	4435500	272720	PSU	Letterkenny			R766	3
LEAD-217	4435700	272700	PSU	Letterkenny			R766	3

Table A-1. LOCATIONAL DATA, KNOWN AND POTENTIAL ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT (Continued)

Site Number ^a	^b UTM		Ref.	Legal Reference			USGS Quad Map ^c	CR ^d
	Northing	Easting		Township	Range	Section		
LEAD-126	4432600	269020	PSU	Letterkenny			R766	3
LEAD-127	4432620	269770	PSU	Letterkenny			R766	3
LEAD-128	4432900	2669430	PSU	Letterkenny			R766	3
LEAD-129	4432920	2669160	PSU	Letterkenny			R766	3
LEAD-130	4432960	269840	PSU	Letterkenny			R766	3
LEAD-131	4433200	269780	PSU	Letterkenny			R766	3
LEAD-132	4433030	269420	PSU	Letterkenny			R766	3
LEAD-133	4433660	269120	PSU	Letterkenny			R766	3
LEAD-134	4434100	269740	PSU	Letterkenny			R766	3
LEAD-135	4434560	269160	PSU	Letterkenny			R766	3
LEAD-136	4434860	269740	PSU	Letterkenny			R766	3
LEAD-137	4435260	269880	PSU	Letterkenny			R766	3
LEAD-138	4435820	269750	PSU	Letterkenny			R766	3
LEAD-139	4436080	269820	PSU	Letterkenny			R766	3
LEAD-140	4437200	269540	PSU	Letterkenny			R766	3
LEAD-141	4437320	269600	PSU	Letterkenny			R766	3
LEAD-142	4429080	270060	PSU	Letterkenny			C744	3
LEAD-143	4429080	270140	PSU	Letterkenny			C744	3
LEAD-144	4429540	270950	PSU	Letterkenny			C744	3
LEAD-145	4429660	270960	PSU	Letterkenny			C744	3
LEAD-146	4429500	270040	PSU	Letterkenny			C744	3
LEAD-147	4429360	270190	PSU	Letterkenny			C744	3
LEAD-148	4429880	270760	PSU	Letterkenny			C744	3
LEAD-149	4430060	270100	PSU	Letterkenny			C744	3
LEAD-150	4430120	270140	PSU	Letterkenny			C744	3
LEAD-151	4430240	270690	PSU	Letterkenny			C744	3
LEAD-152	4430460	270070	PSU	Letterkenny			C744	3
LEAD-153	4430560	270920	PSU	Letterkenny			C744	3
LEAD-154	4431100	270960	PSU	Letterkenny			R766	3
LEAD-155	4431300	270780	PSU	Letterkenny			R766	3
LEAD-156	4431380	270190	PSU	Letterkenny			R766	3
LEAD-157	4431860	270520	PSU	Letterkenny			R766	3
LEAD-158	4431760	270850	PSU	Letterkenny			R766	3
LEAD-159	4432640	270800	PSU	Letterkenny			R766	3
LEAD-160	4432640	271030	PSU	Letterkenny			R766	3
LEAD-161	4432800	270420	PSU	Letterkenny			R766	3
LEAD-162	4433180	270340	PSU	Letterkenny			R766	3
LEAD-163	4433240	270670	PSU	Letterkenny			R766	3
LEAD-164	4433720	270880	PSU	Letterkenny			R766	3
LEAD-165	4433960	270200	PSU	Letterkenny			R766	3
LEAD-166	4434280	270540	PSU	Letterkenny			R766	3
LEAD-167	4434860	270820	PSU	Letterkenny			R766	3
LEAD-168	4434900	270520	PSU	Letterkenny			R766	3
LEAD-169	4434880	270320	PSU	Letterkenny			R766	3
LEAD-170	4435100	270480	PSU	Letterkenny			R766	3
LEAD-171	4435180	270480	PSU	Letterkenny			R766	3

Table A-1. LOCATIONAL DATA, KNOWN AND POTENTIAL ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT (Continued)

Site Number ^a	^b UTM		Ref.	Legal Reference			USGS Quad Map ^c	CR ^d
	Northing	Easting		Township	Range	Section		
LEAD-80	4431450	267660	PSU	Letterkenny			R766	3
LEAD-81	4432200	267680	PSU	Letterkenny			R766	3
LEAD-82	4432780	267380	PSU	Letterkenny			R766	3
LEAD-83	4433520	267180	PSU	Letterkenny			R766	3
LEAD-84	4433990	267640	PSU	Letterkenny			R766	3
LEAD-85	4434320	267990	PSU	Letterkenny			R766	3
LEAD-86	4434460	267480	PSU	Letterkenny			R766	3
LEAD-87	4435280	267080	PSU	Letterkenny			R766	3
LEAD-88	4435300	267180	PSU	Letterkenny			R766	3
LEAD-89	4435640	267500	PSU	Letterkenny			R766	3
LEAD-90	4435880	267740	PSU	Letterkenny			R766	3
LEAD-91	4435800	267460	PSU	Letterkenny			R766	3
LEAD-92	4435880	267520	PSU	Letterkenny			R766	3
LEAD-93	4436020	267500	PSU	Letterkenny			R766	3
LEAD-94	4436020	267860	PSU	Letterkenny			P766	3
LEAD-95	4436240	267440	PSU	Letterkenny			R766	3
LEAD-96	4436500	267120	PSU	Letterkenny			R766	3
LEAD-97	4436580	267960	PSU	Letterkenny			R766	3
LEAD-98	4437260	267360	PSU	Letterkenny			R766	3
LEAD-99	4437550	267720	PSU	Letterkenny			R766	3
LEAD-100	4429520	268220	PSU	Hamilton			C744	3
LEAD-101	4429460	268880	PSU	Hamilton			C744	3
LEAD-102	4430160	268265	PSU	Letterkenny			C744	3
LEAD-103	4430680	268240	PSU	Letterkenny			C744	3
LEAD-104	4431800	268060	PSU	Letterkenny			R766	3
LEAD-105	4432240	268570	PSU	Letterkenny			R766	3
LEAD-106	4433400	268320	PSU	Letterkenny			R766	3
LEAD-107	4433980	268320	PSU	Letterkenny			R766	3
LEAD-108	4433660	268820	PSU	Letterkenny			R766	3
LEAD-109	4434940	268320	PSU	Letterkenny			R766	3
LEAD-110	4435020	268750	PSU	Letterkenny			R766	3
LEAD-111	4435160	268220	PSU	Letterkenny			R766	3
LEAD-112	4435740	268100	PSU	Letterkenny			R766	3
LEAD-113	4437360	268660	PSU	Letterkenny			R766	3
LEAD-114	4437460	268620	PSU	Letterkenny			R766	3
LEAD-115	4428860	269640	PSU	Letterkenny			C744	3
LEAD-116	4428860	269300	PSU	Letterkenny			C744	3
LEAD-117	4429090	269880	PSU	Letterkenny			C744	3
LEAD-118	4429760	270020	PSU	Letterkenny			C744	3
LEAD-119	4429960	270020	PSU	Letterkenny			C744	3
LEAD-120	4430060	269840	PSU	Letterkenny			C744	3
LEAD-121	4430880	269820	PSU	Letterkenny			C744	3
LEAD-122	4431240	269100	PSU	Letterkenny			R766	3
LEAD-123	4431900	269140	PSU	Letterkenny			R766	3
LEAD-124	4432160	269020	PSU	Letterkenny			R766	3
LEAD-125	4432520	269020	PSU	Letterkenny			R766	3

Table A-1. LOCATIONAL DATA, KNOWN AND POTENTIAL ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT (Continued)

Site Number ^a	^b UTM		Ref.	Legal Reference			USGS Quad Map ^c	CR ^d
	Northing	Easting		Township	Range	Section		
LEAD-34	4433400	265500	PSU	Letterkenny			R766	3
LEAD-35	4433350	265750	PSU	Letterkenny			R766	3
LEAD-36	4434800	265350	PSU	Letterkenny			R766	3
LEAD-37	4434850	265500	PSU	Letterkenny			R766	3
LEAD-38	4434950	265850	PSU	Letterkenny			R766	3
LEAD-39	4435000	265600	PSU	Letterkenny			R766	3
LEAD-40	4435050	265750	PSU	Letterkenny			R766	3
LEAD-41	4435150	265800	PSU	Letterkenny			R766	3
LEAD-42	4435150	265650	PSU	Letterkenny			R766	3
LEAD-43	4430450	265550	PSU	Letterkenny			C744	3
LEAD-44	4430700	266850	PSU	Letterkenny			C744	3
LEAD-45	4431000	266300	PSU	Letterkenny			C744	3
LEAD-46	4431350	266550	PSU	Letterkenny			R766	3
LEAD-47	4431700	266050	PSU	Letterkenny			R766	3
LEAD-48	4438100	266800	PSU	Letterkenny			R766	3
LEAD-49	4432100	266900	PSU	Letterkenny			R766	3
LEAD-50	4432100	266300	PSU	Letterkenny			R766	3
LEAD-51	4432800	266750	PSU	Letterkenny			R766	3
LEAD-52	4432950	266900	PSU	Letterkenny			R766	3
LEAD-53	4433600	266150	PSU	Letterkenny			R766	3
LEAD-54	4434300	266000	PSU	Letterkenny			R766	3
LEAD-55	4434450	266100	PSU	Letterkenny			R766	3
LEAD-56	4434500	266250	PSU	Letterkenny			R766	3
LEAD-57	4434550	266300	PSU	Letterkenny			R766	3
LEAD-58	4434600	266400	PSU	Letterkenny			R766	3
LEAD-59	4434650	266450	PSU	Letterkenny			R766	3
LEAD-60	4434700	266500	PSU	Letterkenny			R766	3
LEAD-61	4434750	266550	PSU	Letterkenny			R766	3
LEAD-62	4434750	266750	PSU	Letterkenny			R766	3
LEAD-63	4434700	267000	PSU	Letterkenny			R766	3
LEAD-64	4434550	266200	PSU	Letterkenny			R766	3
LEAD-65	4434650	266250	PSU	Letterkenny			R766	3
LEAD-66	4434700	266200	PSU	Letterkenny			R766	3
LEAD-67	4434750	266300	PSU	Letterkenny			R766	3
LEAD-68	4434850	266400	PSU	Letterkenny			R766	3
LEAD-69	4434850	266500	PSU	Letterkenny			R766	3
LEAD-70	4435050	266800	PSU	Letterkenny			R766	3
LEAD-71	4435450	266350	PSU	Letterkenny			R766	3
LEAD-72	4435550	266200	PSU	Letterkenny			R766	3
LEAD-73	4436550	266600	PSU	Letterkenny			R766	3
LEAD-74	4430100	267900	PSU	Letterkenny			C744	3
LEAD-75	4430250	267350	PSU	Hamilton			C744	3
LEAD-76	4430500	267900	PSU	Letterkenny			C744	3
LEAD-77	4431150	267480	PSU	Letterkenny			R766	3
LEAD-78	4431100	267120	PSU	Letterkenny			R766	3
LEAD-79	4431480	267480	PSU	Letterkenny			R766	3

Table A-1. LOCATIONAL DATA, KNOWN AND POTENTIAL ARCHEOLOGICAL RESOURCES ON THE LETTERKENNY ARMY DEPOT

Site Number ^a	^b UTM			Legal Reference			USGS Quad	CR ^d
	Northing	Easting	Ref.	Township	Range	Section	Map ^c	
Known Archeological Resources:								
36FR112	4432100	264500	JMA	Letterkenny			F766	3
36FR113	4434250	273250	JMA	Letterkenny			R766	3
36FR114	4432500	274150	JMA	Letterkenny			R766	3
Issac Myers House	4431360	265460	JMA	Letterkenny			F766	3
Franklin County Road	4435100	272200	JMA	Letterkenny			R766	3
Joseph W. Fegan Quarry	4430420	273100	JMA	Letterkenny			C744	3
Potential Archeological Resources:								
LEAD-1	4430700	264400	PSU	Hamilton			S744	3
LEAD-2	4431100	264550	PSU	Hamilton			S744	3
LEAD-7	4431900	264200	PSU	Hamilton			F766	3
LEAD-8	4431900	264150	PSU	Hamilton			F766	3
LEAD-9	4432100	264350	PSU	Letterkenny			F766	3
LEAD-10	4432100	264450	PSU	Letterkenny			F766	3
LEAD 11	4432300	264600	PSU	Letterkenny			F766	3
LEAD-12	4432350	264700	PSU	Letterkenny			F766	3
LEAD-13	4432300	264850	PSU	Letterkenny			F766	3
LEAD-14	4432350	264900	PSU	Letterkenny			F766	3
LEAD-15	4432700	264900	PSU	Letterkenny			F766	3
LEAD-16	4432800	264850	PSU	Letterkenny			F766	3
LEAD-17	4433000	264700	PSU	Letterkenny			F766	3
LEAD-18	4429700	265400	PSU	Hamilton			C744	3
LEAD-19	4429900	265250	PSU	Hamilton			C744	3
LEAD-20	4430400	265300	PSU	Hamilton			C744	3
LEAD-21	4430650	265600	PSU	Hamilton			C744	3
LEAD-22	4431000	265800	PSU	Letterkenny			C744	3
LEAD-23	4431400	265340	PSU	Letterkenny			R766	3
LEAD-24	4431300	265250	PSU	Letterkenny			R766	3
LEAD-25	4431400	265300	PSU	Letterkenny			R766	3
LEAD-27	4431450	265350	PSU	Letterkenny			R766	3
LEAD-28	4431550	265400	PSU	Letterkenny			R766	
LEAD-29	4431600	265350	PSU	Letterkenny			R766	3
LEAD-30	4431650	265500	PSU	Letterkenny			R766	3
LEAD-31	4431800	265650	PSU	Letterkenny			R766	3
LEAD-32	4432300	265500	PSU	Letterkenny			F766	3
LEAD-33	4433050	265000	PSU	Letterkenny			R766	3

APPENDIX A

This appendix contains information on the location of potential archeological sites on the Letterkenny Army Depot. This information should be considered confidential and not for general public release.

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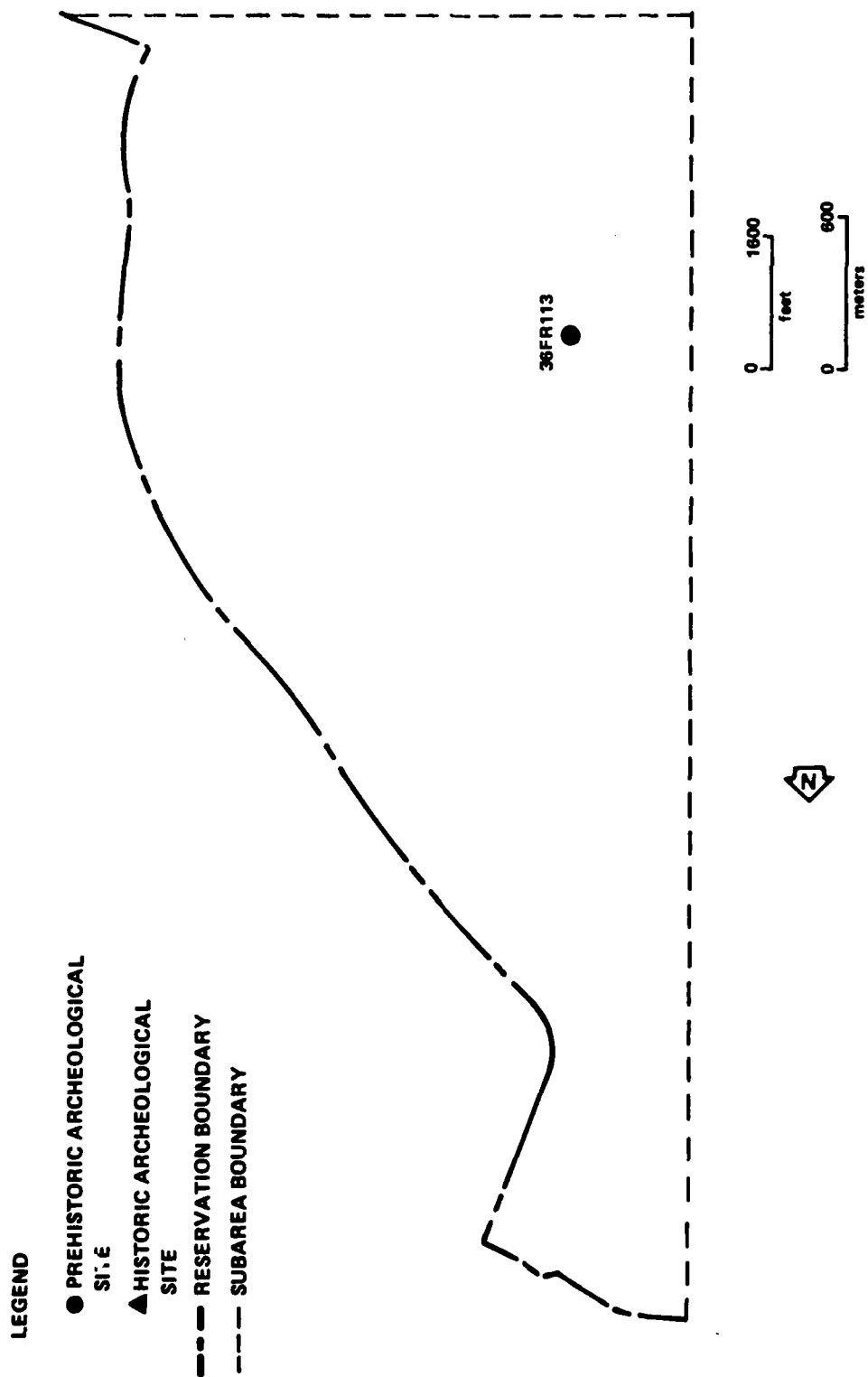


Figure A-1c. A MAP OF KNOWN ARCHEOLOGICAL RESOURCES ON THE
LETTERKENNY ARMY DEPOT, SUBAREA F

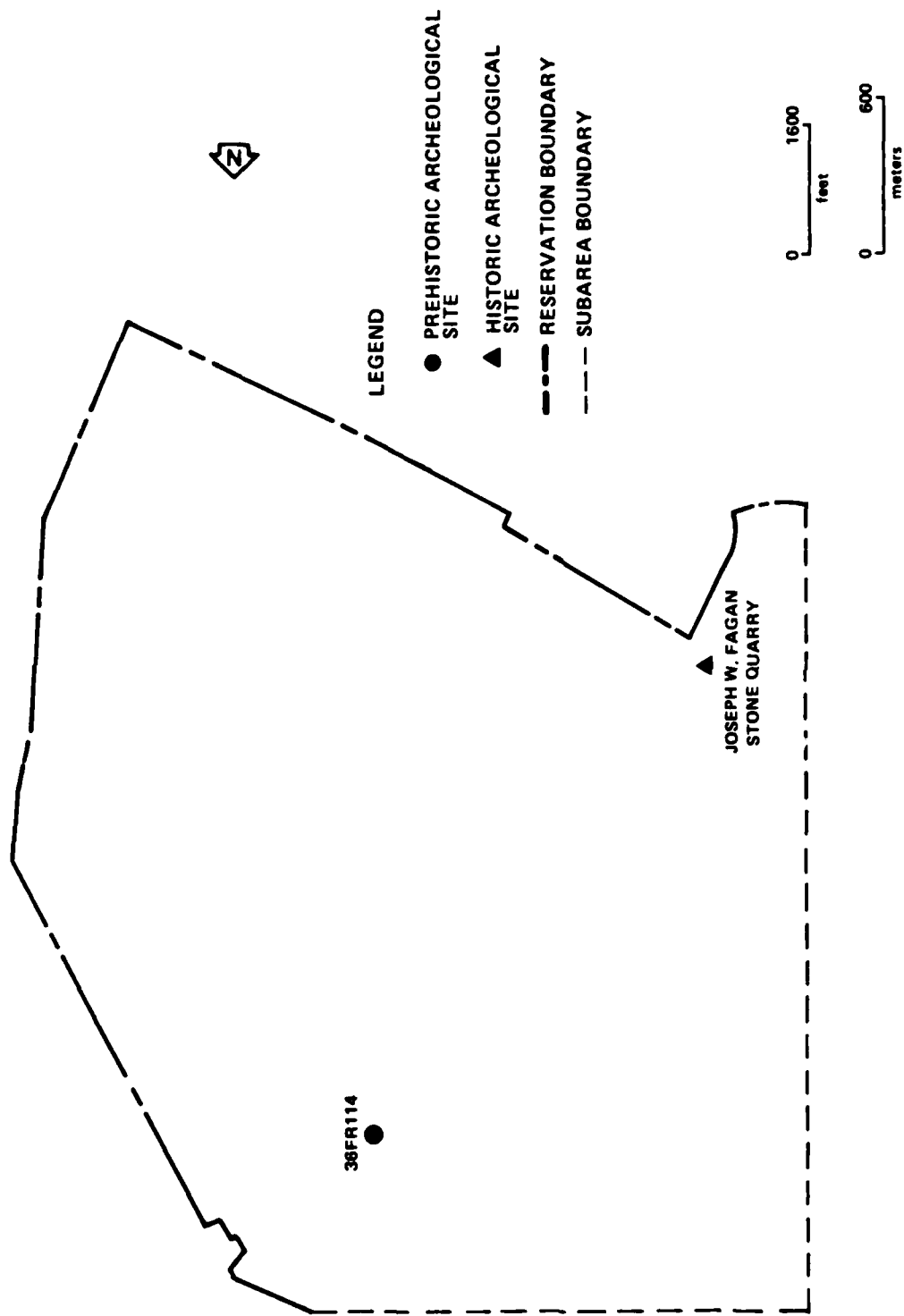


Figure A-1d. A MAP OF KNOWN ARCHEOLOGICAL RESOURCES ON THE
LETTERKENNY ARMY DEPOT, SUBAREA G

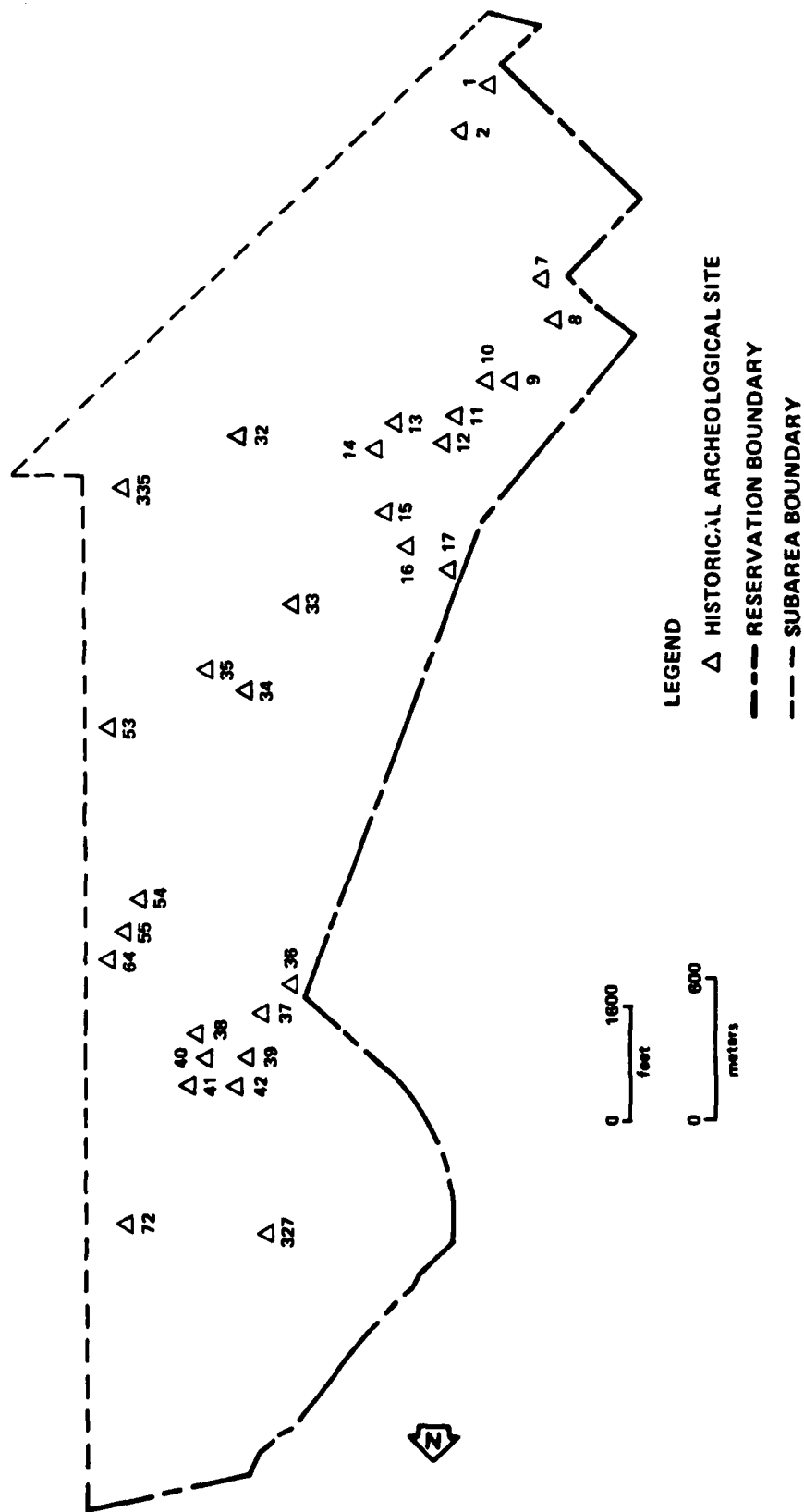


FIGURE A-2a. MAP OF POTENTIAL ARCHEOLOGICAL RESOURCE LOCATIONS ON THE LETTERKENNY ARMY DEPOT, SUBAREA A

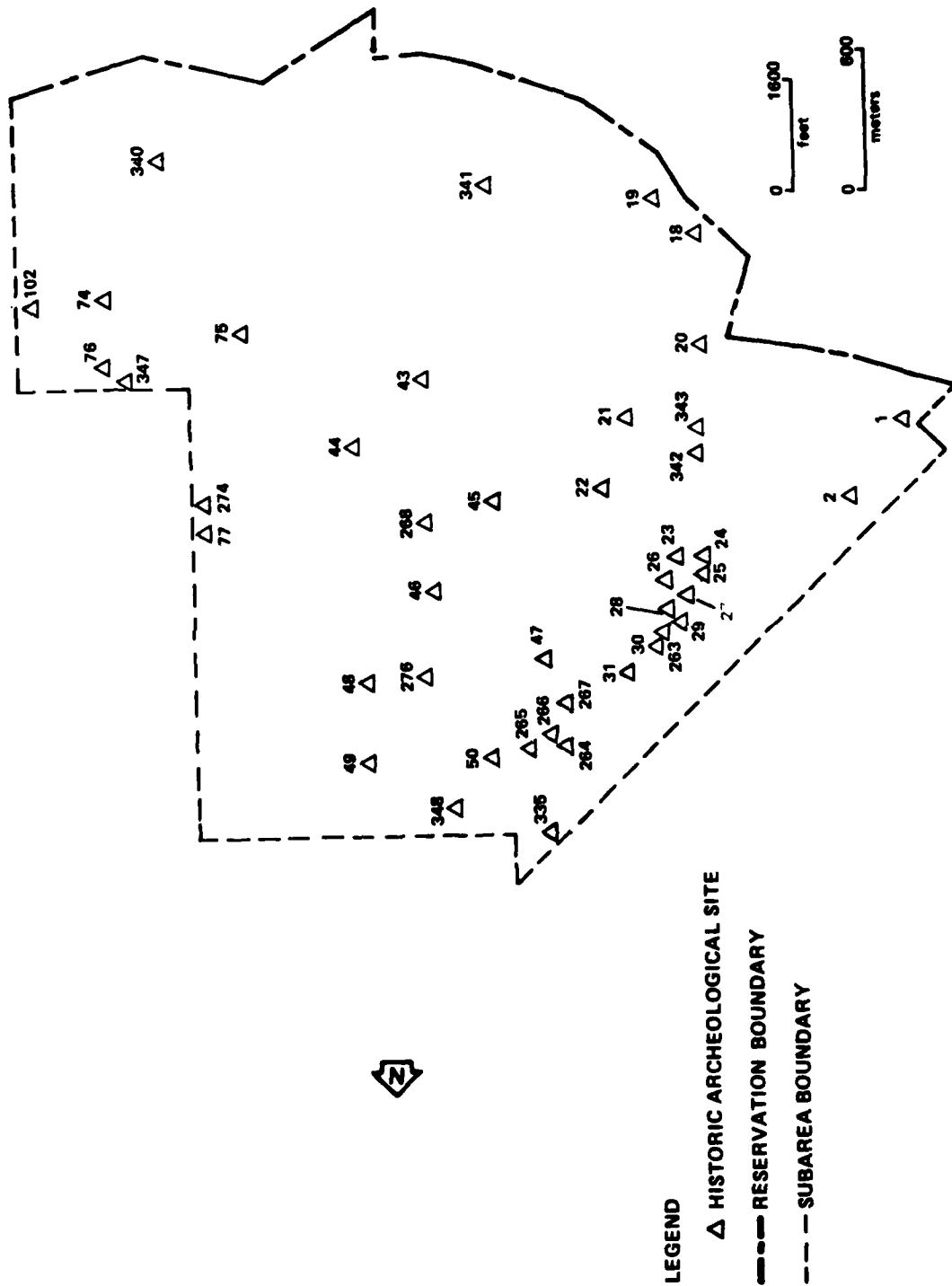


Figure A-2b. MAP OF POTENTIAL ARCHEOLOGICAL RESOURCE LOCATIONS ON THE LETTERKENNY ARMY DEPOT, SUBAREA B

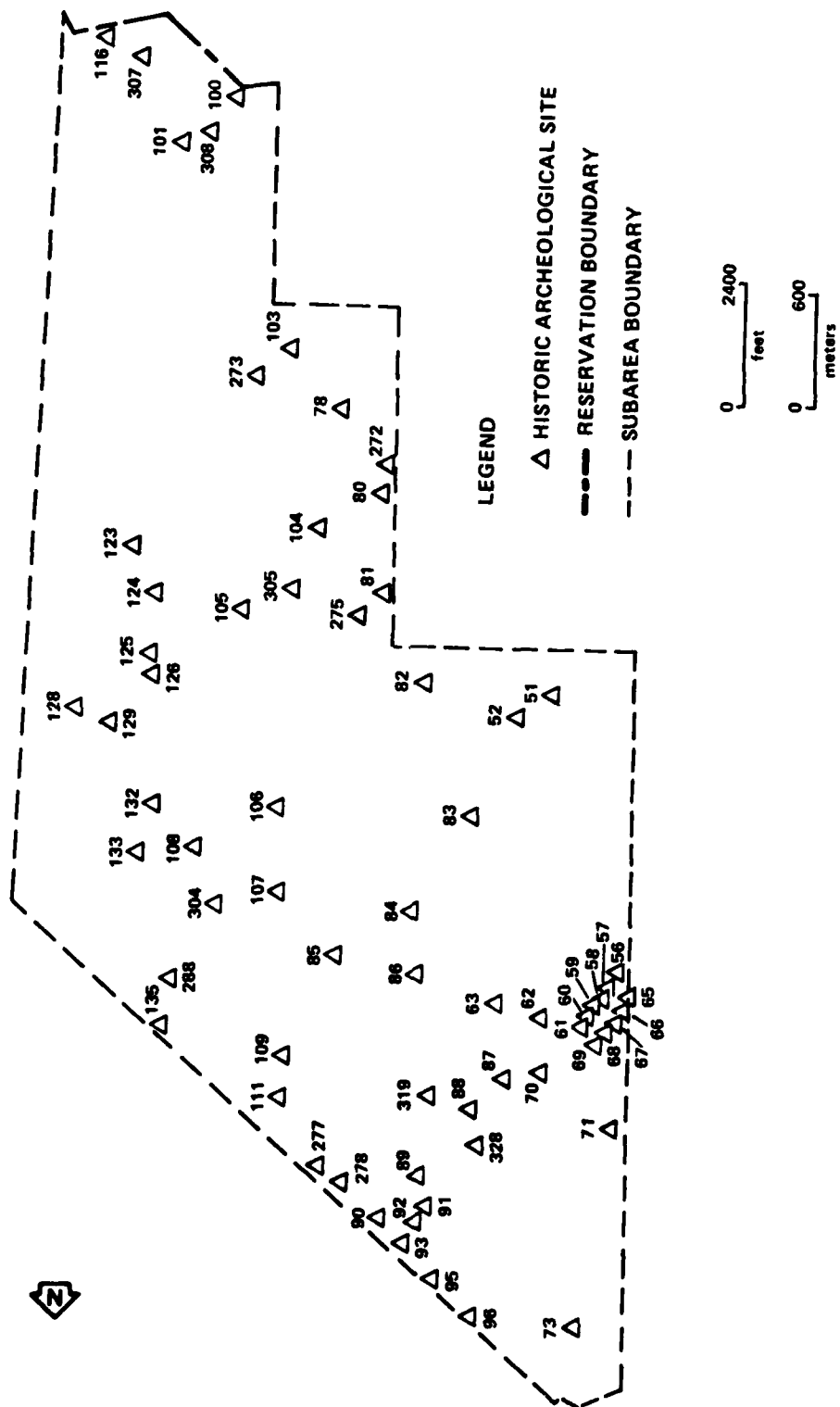


Figure A-2d. MAP OF POTENTIAL ARCHEOLOGICAL RESOURCE LOCATIONS
ON THE LETTERKENNY ARMY DEPOT, SUBAREA D

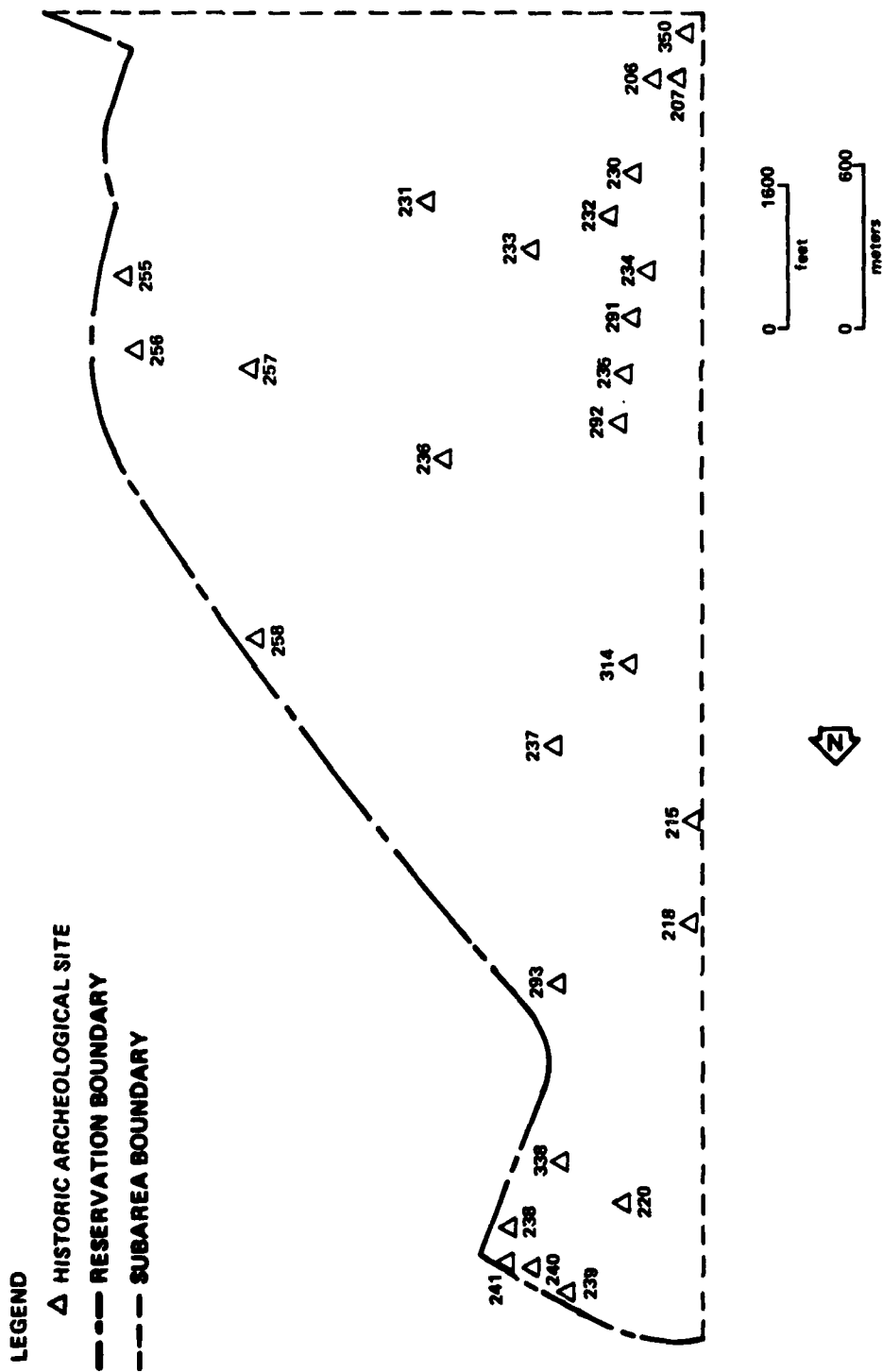


Figure A-2f. MAP OF POTENTIAL ARCHEOLOGICAL RESOURCE LOCATIONS ON THE LETTERKENNY ARMY DEPOT, SUBAREA F .

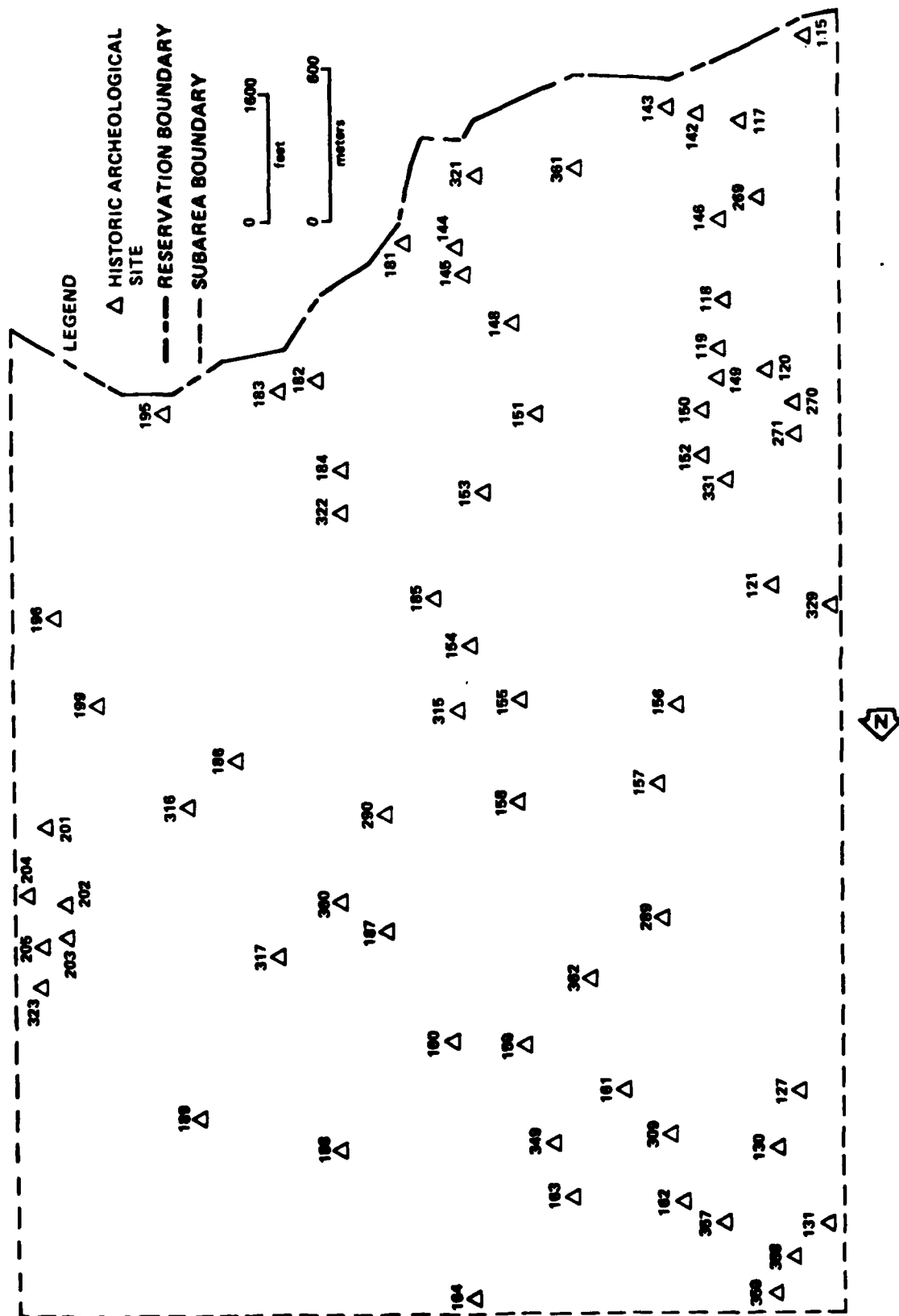


Figure A-2a. MAP OF POTENTIAL ARCHEOLOGICAL RESOURCE LOCATIONS
ON THE LETTERKENNY ARMY DEPOT, SUBAREA E

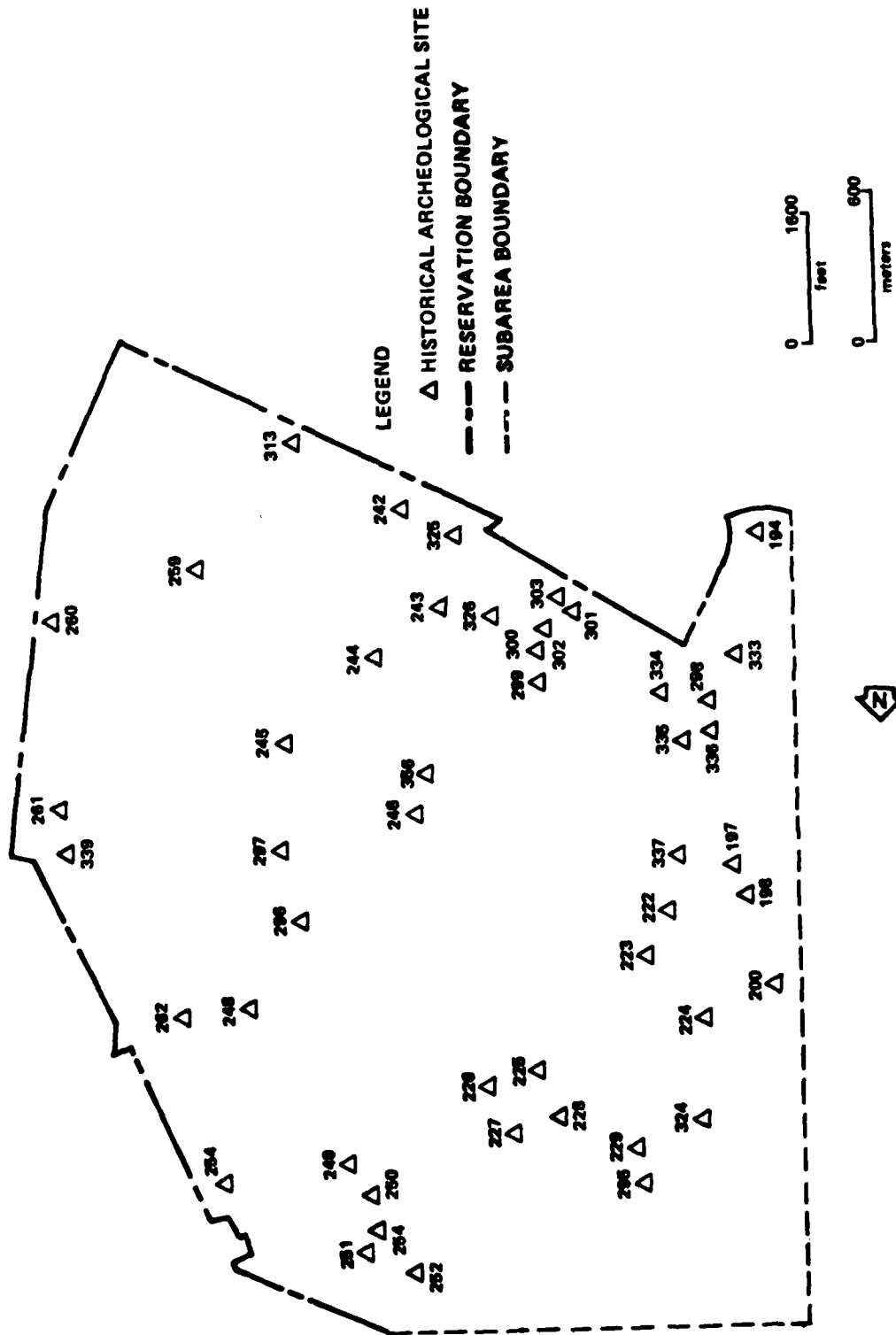


Figure A-2g. MAP OF POTENTIAL ARCHEOLOGICAL RESOURCE LOCATIONS ON THE LETTERKENNY ARMY DEPOT, SUBAREA G

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