

1979

The Intensive Archeological Survey of a Potential Defense Waste Processing Facility Site, Savannah River Plant, Aiken and Barnwell Counties, South Carolina

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Keywords

Excavations, Indians of North America, Savannah River Plant, Defense Waste Processing Facility, Aiken County, Barnwell County, South Carolina, Archeology

Disciplines

Anthropology

Publisher

The South Carolina Institute of Archeology and Anthropology--University of South Carolina

Comments

In USC online Library catalog at: <http://www.sc.edu/library/>

Publication date is approximate.

THE INTENSIVE ARCHEOLOGICAL SURVEY
OF A
POTENTIAL DEFENSE WASTE PROCESSING FACILITY SITE,
SAVANNAH RIVER PLANT,
AIKEN AND BARNWELL COUNTIES,
SOUTH CAROLINA.

by
Richard D. Brooks and Glen T. Hanson
Research Manuscript Series 149

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The research reported herein was conducted under Department of Energy contract number EW-78-S-09-1072 with the Institute of Archeology and Anthropology, University of South Carolina.

Prepared by the

SAVANNAH RIVER ARCHEOLOGY LABORATORY
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INTRODUCTION

During the months of December and January, 1978 - 1979, members of the Institute of Archeology and Anthropology staff conducted an intensive archeological survey of the proposed Defense Waste Processing Facility on the Savannah River Plant, Aiken and Barnwell counties, South Carolina. The survey of this 400 acre parcel was made by Mr. Glen T. Hanson, Mr. Richard Brooks and Ms. Lyall Copley as a part of the general contract with the Savannah River Operations Office, United States Department of Energy (Number EW-78-S-09-1072). To meet requirements of the National Environmental Policy Act of 1969, Executive Order 11593, the National Historic Preservation Act of 1966, and the Archeological and Historic Preservation Act of 1974, the Department of Energy contracted in February 1977 with the Institute of Archeology and Anthropology to inventory and assess historic cultural resources within the project area and to develop a management plan to preserve and protect important data and resources. In accordance with this contract the purpose of this research was to locate, describe and assess the archeological resources within the proposed impact area and to provide the Department of Energy with the recommendations as to the significance of the resources.

Ten days were spent in the field, equalling 30 man days of labor. Field work was spaced over a one month period due to weather conditions and other contractual obligations. In the course of the survey approximately 80% of the 400 acre study area was inspected using various techniques. Laboratory processing of the artifacts was conducted in the U.S.C. Archeology Laboratory on the Savannah River Plant. The processes used are the same as those described for The Intensive Archeological Survey of a Proposed Independent Spent Fuel Storage Facility Site, Savannah River Plant, Aiken and Barnwell Counties, South Carolina, by Hanson and Brooks. These laboratory procedures and all other work leading to the completion of this report occupied a total of 4 weeks for a sum of 75 man days. Thus the entire survey project required approximately 105 man days of effort through all phases.

This report will present a summary of the background, methods, results and recommendations resulting from the DWPF intensive survey. The purpose of the report is to present the Department of Energy with a thorough presentation of all results and conclusions so that the proposed construction in the DWPF can be undertaken without adverse effect on the archeological resources. Based on the data gathered from both sites, assessments were made as to the significance of each resource using criteria for eligibility for nomination to the National Register of Historic Places. By eligible, we mean that the archeological resources are capable of yielding information important to understanding past human systems. Given our present knowledge of the Savannah River Plant and vicinity, the two sites in the DWPF were not considered as eligible as will be seen later in this report.

RESEARCH ORIENTATION

The research described in this report was undertaken with the central aim of determining the types and distribution of archeological resources in the DWPF. Although this goal does not pertain to any specific theoretical problem domain, the related research orientation does. In the process of determining the archeological content of the DWPF area an attempt will be made to relate the settlement distributions to the general problem of sandhill land utilization during prehistoric and historic times.

The research conducted during this study was aimed at gathering information which could further our understanding of land use patterns in the upland sandhills of the Aiken Plateau. Through such a research frame the evaluation of the cultural resources for historic preservation planning will be given direction. The sites will be assessed in terms of its ability to contribute information about the nature of human occupation in the sandhills.

ENVIRONMENTAL SETTING

The Defense Waste Processing Facility area lies within the Aiken Plateau sandhills of the upper Atlantic Coastal Plain physiographic province which is composed of unconsolidated sediments of Cretaceous age or younger (Langley and Marter 1973:17). This general area falls within the Oak-Hickory-Magnolia Forest Ecotone described by Shelford (1963:86-88), which is characterized by a pine to scrub oak succession in xeric areas and a more stable oak-hickory sere in hydric contexts. The general climate can best be described as mild with monthly temperature averages ranging from 48° F in January to 81° F in July and a mean annual humidity of 70% (Langley and Marter 1973:65). Precipitation extremes range from 28.8 inches to 73.5 inches per annum, with a mean annual precipitation of 47 inches.

Within the DWPF the maximum relief is 100 feet, ranging from 210 feet a.s.l. in an unnamed branch of Upper Three Runs Creek to 310 feet on a ridge between this drainage and another unnamed branch of Upper Three Runs Creek (Fig. 1). In terms of overall topography, the DWPF site can best be described as a ridge between two unnamed streams. A small (1 to 2 acre) natural wet land is situated in the northern portion of the study area.

Portions of the study area have been disturbed prior to this survey. The northern portion of the study area was clear cut and replanted about five years ago (1973). A small area of pines in the north-western part of the survey was thinned in the past five years. Two other areas have undergone extreme land modification due to both logging and waste disposal. Two buried radio active materials disposal areas were left unsurveyed because the surface of the ground had been altered by earth moving equipment and burial activity as to leave no opportunity for locating archeological resources. The burial activities pre-dated any archeological activities on the SRP.

The soils in the DWPF have been well described by Aydelott (n.d.) and will be only briefly summarized. The first soils group, Vaucluse and Blaney, makes up approximately 50% of the study area, and is characterized as well to excessively well drained. The second group consisting of about 40% of the study area is Fuquay and Wagram soils and is characterized by moderate to high productivity. The final soils group is Johnson and Okenee soils (10% of study area) a bottom land soil which is poorly drained but highly productive.

In summary, these soils can be seen as marginal in terms of vegetative productivity for animal and human consumption. This project area in the upland sandhills would be expected to be either a seasonal resource collection environment or an overall secondary ('back-up') resource zone. Because of the lack of prehistoric material recovered, this area can be considered as a back-up zone or less. The implications of this will be discussed in a later section of this report.

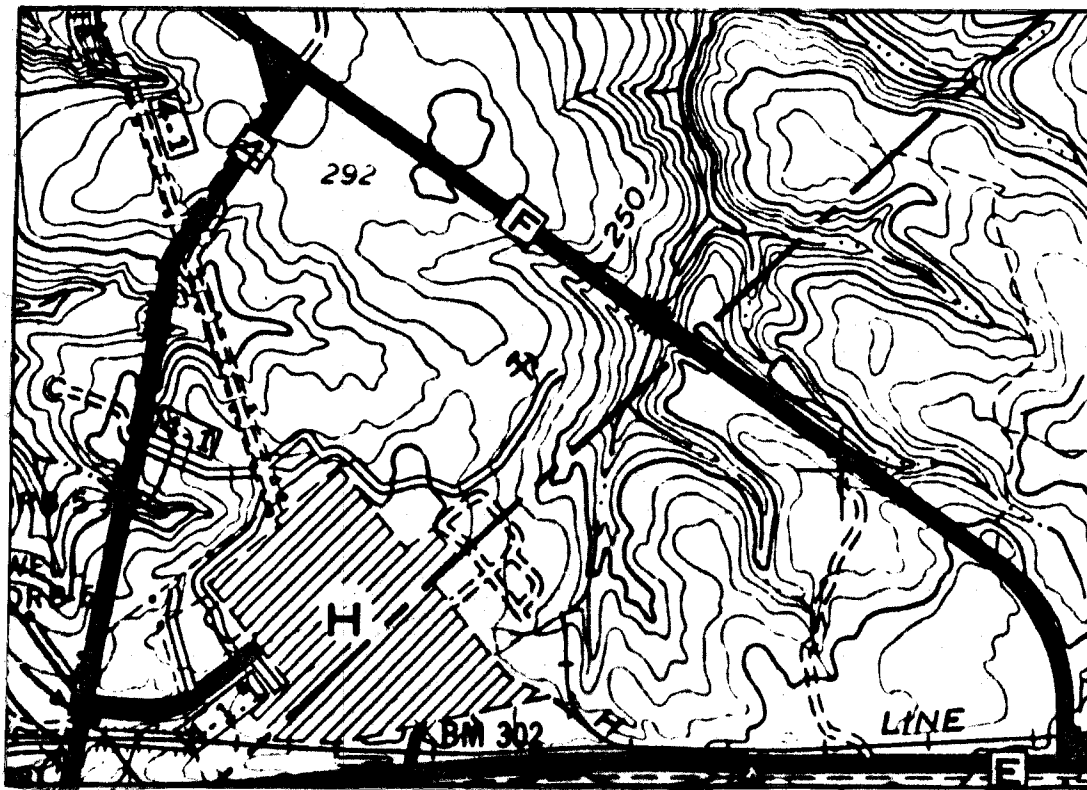


FIGURE 1: Topographic map of the DWPF survey area.

ARCHEOLOGICAL BACKGROUND

The Prehistoric Occupation of the Savannah River Valley

Within the drainage of the Savannah River below the Fall Line, investigations of culutral heritage from an archeological perspective have been focused on selected areas. For this reason an overview of the prehistory of the area must rely on information selectively investigated without regard for general archeological pattern. This general discussion of the occupational history within the study area and immediate environs will be an attempt to characterize the general prehistory of the Savannah River drainage within the Coastal Plain.

Archeological undertakings of a controlled nature were begun in the latter half of the last century by Thomas (1894) and Moore (1899) in their studies on prehistoric mound sites within river valleys of the eastern United States. These efforts resulted in the location and collection of selected large sites within the Savannah River area; however, these pioneer studies were of value only in documenting the presence of sites within the drainage. They have little value for modern studies beyond that mentioned, but these were the pioneering efforts in the study of the region's archeological resources.

The advent of more scientific archeological research within the area began with the efforts of William Claflin in the vicinity of the Fall Line at Stalling's Island. Claflin excavated a large shellmound on the island within the Savannah River during the 1920's and documented an assemblage of archeological materials indicative of the earliest ceramic complex in the eastern United States (Claflin 1931; Sears and Griffin 1950; Bullen and Green 1970). For this reason the Stalling's Island site has become one of the most important cultural resources known from the Southeast and has been subjected to intermittent investigations since Claflin's first study (Fairbanks 1942; Sears and Griffin 1950; Bullen and Green 1970).

In the delta region of the Savannah River, Antonio Waring was instrumental in the initial understanding of the prehistoric archeological record. During his brief life, Waring, through cooperation with various archeologists, recorded, collected and/or excavated almost all of the key archeological sites which would form the foundation of all future archeological research in the Savannah, Georgia area. Waring and others were responsible for the description of the basic ceramic types and general ceramic complexes such as the Deptford ceramic complex (Waring and Holder 1968), Woodland and Mississippian ceramic types (Caldwell and Waring 1939), and early Woodland ceramic types and assemblages (Williams 1968:152-215). The summary of Waring's work provided by Williams (1968) stands as a major contribution to the study of Savannah River prehistory.

Other research in the Savannah, Georgia area was conducted during the W.P.A. period on the Irene Mound site, a Mississippian period site. Conducted over the course of several years, the excavations revealed the presence of a long-term occupation associated with a ceremonial center (Caldwell and McCann 1941). The excavations yielded the first thorough

plan of such a ceremonial complex within the Atlantic Coastal area and extended the known archeological record into protohistoric times.

Subsequent research was delayed for almost two decades, until the 1960's when renewed interest in the initial ceramic period prompted the work of James Stoltman at Groton Plantation (Stoltman 1974). This research project involved the survey and test excavation of sites within the plantation for purposes of exploring the development of Late Archaic and Woodland cultures in the riverine area of the Coastal Plain. The major outcome of this research was the excavation of two sand mounts, Rabbit Mount and Clear Mount. These contained shell middens associated with some of the earliest ceramics known for North America. In addition, sites representative of Archaic, Woodland and Mississippian occupations were located in the survey, and the distribution of these sites suggested to Stoltman (1974:229-244) radical differences in subsistence and settlement practices at various times.

Following Stoltman's research, Drexel Peterson (1971) intensified the survey of the Groton Plantation area in order to refine specific hypotheses regarding ceramic chronology and cultural development. The general result of the study was the discovery that changes in subsistence strategies were not appreciable during the Woodland period, as was thought by Stoltman (1974). Another result was a ceramic chronology which included several additional "phases" during the Early Woodland period and later times. These latter results have yet to be substantiated from other research in the general area.

Concomitant with the latter research was the expansion of study in other areas of the Savannah drainage. This research includes survey and excavation at White's Mound (Phelps and Burgess 1964; Phelps 1968), Hollywood Mound (DeBaillou 1965), the Theriault site (Brockington 1971), Mississippian sites along the Savannah River (Ferguson, personal communication), the Augusta area (Ferguson and Widmer 1976), and recent work at Stalling's Island (Bullen and Green 1970). The combined results of these research efforts and those of individuals working earlier form the basis for the present understanding of prehistoric development within the Savannah River valley below the Fall Line. Although a synthetic overview of the prehistory of the area is as yet unwritten, the initial foundation exists for general chronological framework (see Table 1).

(2) Paleo-Indian (9,500 - 8,000 B.C.)

The Paleo-Indian period is represented throughout North America by an archeological assemblage indicative of a hunting and gathering economy based on the exploitation of large, now extinct fauna. Due to geological conditions following this Pleistocene adaptation, the recognition of Paleo-Indian sites is difficult. Holocene changes in stream hydrology have resulted in the deposition of recent sediments on many localities believed to be favored by these early hunter-gatherers (Michie 1977). Evidence for Paleo-Indian occupation has, however, been recovered from surface contexts throughout the associated Coastal Plain of Georgia and South Carolina (Michie 1977) and from the Theriault site on Brier Creek in Georgia (Brockington 1971). Although complete assemblages have yet to be found in association with the diagnostic fluted

TABLE 1

A GENERAL OCCUPATIONAL SEQUENCE FOR THE SAVANNAH RIVER BELOW THE FALL LINE

CULTURAL PERIOD	TIME SCALE	DIAGNOSTIC ARTIFACTS
Historic	present	Non-native materials products (e.g. mass-produced ceramics, glass, metal, brick)
	1700 A.D.	
	Irene	Irene filfot stamped, incised & plain ceramics, small triangular projectile points & Southern Cult objects
Mississippian	1200 A.D.	
	Savannah I	Savannah complicated stamped, plain & burnished ceramics, and small triangular projectile points
	1000 A.D.	
Late Woodland		Savannah fine cordmarked and burnished ceramics and small triangular projectile points
	700 A.D.	
Middle Woodland		Wilmington coarse cordmarked ceramics, large triangular projectile points
	1 A.D.	
	Deptford	Deptford linear check stamped, simple stamped and check stamped ceramics
Early Woodland	500 B.C.	
	Refuge Thom's Creek	Simple stamped, linear punctate, punctate and incised ceramics with sand temper
	1000 B.C.?	
	Stalling's III	Decorated fiber tempered ceramics & Savannah River projectile points
Late Archaic		
	Stalling's II	Plain fiber tempered ceramics and Savannah River projectile points
	Stalling's I	Savannah River projectile points
	3000 B.C.	
Middle Archaic		Guilford projectile points Morrow Mountain projectile points Stanly projectile points
	5500 B.C.	Kirk projectile points
Early Archaic		Palmer projectile points Dalton projectile points
	8000 B.C.	
Paleo - Indian		Quad projectile points Suwanee projectile points Clovis projectile points
	10,000 B.C.	

Based on Stoltman (1974), Ferguson and Widmer (1976) Michie (1977) and Coe (1964).

points typical of all of the above localities, the presence of the points would suggest some activity within the region during the latter portions of the Pleistocene.

Michie's (1977) study suggests a general model for the location of Paleo-Indian sites within the Coastal Plain based on the locations of 100 fluted points. He concludes that

The overall pattern of projectile point distribution seems to involve the larger river systems (of South Carolina) : such as the smaller Edisto Rivers. When these rivers are involved with point distributions and locations, the points usually occur at the intersection of creeks and the river's floodplains and on the highest portion of land near that intersection (Michie 1977:92).

Early Archaic (8,000 to 5,500 B.C.)

The Early Archaic represents the initial response of prehistoric inhabitants of the Coastal Plain and North America, in general, to the ameliorating climatic conditions of the Holocene. The changes in climate and associated vegetation patterns and faunal populations during the immediate post-Pleistocene provided a much more suitable environment for human population growth. Hunting and gathering resources were more plentiful due to this change from a cooler climate to a milder climate with increases in deciduous nut and seed-bearing vegetation. Although variation occurred in this Holocene climatic sequence, the general present-day character of the Coastal Plain was beginning to develop at this time.

Archeological evidence of the earliest Holocene hunter-gatherers is composed of the presence of Dalton-Hardaway (Goodyear 1974; Coe 1964) occupations throughout the eastern United States. Assemblages associated with the Dalton-Hardaway point type are generally diverse with functional specificity indicated in tool form. The locations of sites of Dalton-Hardaway association in the Coastal Plain of Georgia have been examined by Fish (1976:22-23), who suggests a strong association between large stream systems and these Early Archaic types.

Following the Dalton-Hardaway, the Palmer point represents the latter portion of the Early Archaic period. Palmer points have been recorded from throughout the state of South Carolina and adjoining states within the Coastal Plain and Piedmont physiographic provinces. Materials recovered from the nearby site of Cal Smoak in the Edisto drainage (Lee and Parler 1972; Anderson, Lee and Parler n.d.) suggest a clear stratigraphic priority of Palmer occupations relative to Kirk and other Middle Archaic forms. This and other Palmer components from the Fall Line and Coastal Plain (Michie 1971; Coe 1964) suggest strong associations with large stream systems, although in the Piedmont, House and Ballenger (1976) and Goodyear (1978) indicate an extensive upland, ridge top association for small Palmer components. These results may indicate a much more widespread occupation and diffuse land use pattern related to a broad spectrum subsistence base during the latter portions of the Early Archaic. However, this and any other inference for the period within South Carolina must await evaluation through excavation and more intensive analysis.

To generally characterize the Early Archaic period it must be mentioned that the evidence is indeed minimal, at best, for the Coastal Plain. Dalton-Hardaway and Palmer occupations are surely present based on the common occurrence of projectile points, but associated assemblages are as yet poorly understood. Distributional studies (Goodyear 1978; Goodyear, Ackerly and House n.d.) indicate a wide ranging land use pattern, which is suggested to relate to the exploitation of deer in the uplands and riverine resources in major drainages of the Piedmont. The general reconnaissance of the Savannah River Plant located 10 Early Archaic components, 3 Dalton and 7 Palmer, in geographical contexts ranging from high uplands to the river terraces of the Savannah (Hanson, Most and Anderson 1978).

Middle Archaic (5,500 to 3,000 B.C.)

This period is characterized by a continuance of generalized hunting and gathering subsistence pattern with differences being indicated by changes in projectile point morphology. Four point forms are typical of this period: The Kirk, Stanly, Morrow Mountain, and Guilford types (Coe 1964). The common distribution and density of these point forms throughout the Coastal Plain and Piedmont would suggest a greater population and extensive pattern of land use. With the exception of Lake Spring (Miller 1949), Theriault (Brockington 1971) and Cal Smoak (Lee and Parler 1972), a few sites in the general area of the Savannah River Plant have been excavated with evidence of the Middle Archaic. Little is known of the Middle Archaic assemblage for the Coastal Plain region aside from the ubiquitous hafted bifaces (projectile points).

Ten Middle Archaic components, eight Kirk and 2 Stanly - Morrow Mountain, were recorded during the general reconnaissance of the S.R.P. (Hanson, Most and Anderson 1978). As in the case of the Early Archaic sites, these were distributed in all major environments.

Late Archaic (3,000 to 1,000 B.C.)

Within the prehistoric sequence of the Savannah River valley, the Late Archaic is perhaps the best examined cultural period due to its importance in understanding the initial development of ceramic technology in North America. Stoltzman (1972, 1974) has synthesized the most recent information available on the Late Archaic in the Savannah drainage and has suggested a riverine adaptation focused on shellfish with some upland utilization. The period is most commonly recognized by the presence of the Savannah River projectile point type, which is a large, broadbladed stemmed point.

Data representing this period have been excavated from 24 sites along the Savannah River from the lower Piedmont to the Atlantic Ocean. These sites are discussed by Stoltzman (1972) in great detail, especially with reference to the presence of fiber tempered pottery. Among the more important of these sites, because of the availability of radiocarbon dates, are Stalling's Island (Claflin 1931; Fairbanks 1942; Bullen and Greene 1970), White's Mound (Phelps and Burgess 1964), Rabbit Mount (Stoltzman 1974), Bilbo (Williams 1968:152-197), Dulany (Williams 1968), and Sapelo Island (Williams 1968). Other sites include Refuge (Williams 1968:198-208), Lake Spring (Miller 1949), Chester Field (Williams 1968:

208), Daws Island (Hemmings 1972), Walthour (Caldwell 1952:314), Meldrim (Williams 1968:182-183), and Oemler (Williams 1968:182-183).

Associated with these sites is a variable lithic industry best represented at Stalling's Island, Rabbit Mount, Bilbo, and Lake Spring (Stoltman 1972:45). The raw materials range from slate to chert depending on the local availability of these materials. Savannah River points dominate the assemblage with numerous unifacial tools, cobble tools, large nonhafted bifaces, steatite "netsinkers," bannerstones, and steatite bowls (Stoltman 1972:46-47). This diverse assemblage of tool types is complemented by various antler, bone and shell tools found at Rabbit Mount and Stalling's Island (Stoltman 1972).

The presence of fiber tempered ceramics at sites of the Late Archaic is restricted to what Stoltman (1974:19) refers to as the Stallings II and Stallings III phases. Basically, these two phases are distinguished from each other by the presence of only plain fiber tempered ware in Stallings II times as opposed to the decorated ware of Stallings III. Stallings I has basically the same assemblage as the other two phases except that it lacks ceramics.

Based on the distribution of sites for the Late Archaic there does not appear to be a major distinction in settlement patterns between the three phases; indeed, the phases may be simply taxonomic distinctions based on ceramics without any relevance to settlement or subsistence patterns. As in the other Archaic periods, sites tend to focus on large drainages and are often found within the floodplains of rivers on alluvial rises or mounts. Shellfish were heavily utilized as were mammalian fauna (Stoltman 1974). Excavation of sites has focused on the large shell bearing locations which may be large riverine base camps, but little information is available for upland Late Archaic sites.

The known Late Archaic occupation of the S.R.P. is represented at 10 sites, the majority (6 sites) of which are situated on floodplains and terraces (Hanson, Most and Anderson 1978:121-122). These sites are generally large and high in artifact content. On the other hand, the four upland sites contain relatively fewer artifacts and tend to be smaller than the terrace-floodplain sites.

Early Woodland (1,000 B.C. to A.D. 1)

The woodland period has been defined by Willey (1966) as a general period during which ceramics, burial mounds and agriculture were common; however, this definition is primarily one based on artifactual traits, the most common of which is ceramics. As mentioned in the description of the Late Archaic, ceramics are known from the Savannah River area well before the 1,000 B.C. date given here. Stoltman (1974:20-21) simply states that the Early Woodland is defined on the basis of sand tempered ceramics for the region, in the absence of definitive proof of mounds or agriculture. For this reason, the use of the term Woodland is useful only as an heuristic device for relative chronological purposes. The discussion of the various Woodland phases which follows will provide a general understanding of the variation in ceramic style and settlement patterns associated with the ceramic time indices.

Determination of the exact starting dates for the Early Woodland period in the Coastal Plain area has been confused by similarities between many of the fiber tempered and sand tempered wares. The major problem arises with the Thom's Creek/Awendaw types, which are sand tempered, punctate design types similar to the fiber tempered Stallings III ceramics. Other designs common on these ceramics are simple stamping and incising (Phelps 1968). South (1973) has grouped these Thom's Creek ceramics and those of the later Refuge complex into a Formative ware group association with those of the Stallings II and III phases. This latter grouping may best characterize the general transition between the two groups of ceramics since the only real basis for separation is the fiber temper/sand temper attribute. Ceramics of both temper types occur within Rabbit and Clear Mounts at Groton Plantation in similar contexts furthering the contention that the sand tempered types are transitional (Stoltman 1974:215).

Within the Savannah drainage system the locations of Thom's Creek and Refuge sites appear to be similar to those of the Late Archaic. Stoltman (1974:215,216) has mentioned that the Early Woodland ceramics occur in both floodplain-terrace and upland associations. This general pattern would seem a reasonable expectation for the Savannah River Plant because of the approximately similar environmental contexts in the two localities.

Beyond the ceramic assemblages little is really known of the Thom's Creek and Refuge phases, especially in terms of lithic artifacts. This paucity of information makes any inferences concerning the first half of the Early Woodland weak at best. The overall similarity between Stallings sites and Thom's Creek/Refuge sites may be some evidence to support a functional similarity argument although this is only conjecture at this time.

Deptford phase evidence, in contrast to the preceding phases, has been recovered from sites on the Atlantic and Gulf Coastal Plains from North Carolina to Florida to Alabama. Milanich (1972) has provided the most comprehensive examination of the Deptford phase throughout its geographic range. This study views the Deptford phase as a non-agricultural based economy dependent on intensive hunting and gathering. It is most readily identified in the archeological record by sand tempered ceramics with linear check stamped, simple stamped, and check stamped designs (Milanich 1972; Caldwell and Waring 1939).

Within the Savannah River region, Deptford is well represented by evidence from the Bilbo Site (Williams 1968:152-197), the Deptford Site (Williams 1968:140-151), the Refuge Site (Williams 1968:198-208), White's Mound (Phelps and Burgess 1964), and the Groton Plantation sites (Stoltman 1974; Peterson 1971). The majority of information concerning the Deptford phase in the Savannah River region concerns ceramics with only minimal reference to the associated assemblages. The only general associations present at these sites are small triangular projectile points, small stemmed projectile points, shell and bone ornaments and tools, and assorted flake tools. This limitation in the information base for assemblages of Deptford can be traced to a rather single minded concentration of most investigators on the ceramic development of the

Deptford ware group with little attention to the other characteristics of the Assemblage. Milanich (1972) must be credited with one of the only efforts directed at the reconstruction of the entire lifeway associated with the Deptford ceramic pattern; however, much of his information and results are focused on the coastal region and the Gulf sub-region which are far removed from the Savannah River.

The spatial distribution of Deptford sites has been investigated at Groton Plantation with the conclusion that the Deptford ceramic sample is distributed equally between the floodplain and upland (Stoltman 1974:237). This pattern of increased use of the uplands is believed to correlate with an increasing dependence on the biotic resources of non-floodplain environments. Thus, one may expect to find Deptford ceramic sites in the areas of the plant removed from the swamp, such as the terraces and along the major streams.

In summary of the Early Woodland it can be stated that there is a stylistic change in ceramic design which is correlated with a general change in settlement pattern. This period is one of transition from the floodplain oriented subsistence base in the Late Archaic to the more diffuse subsistence base in the Woodland evenly distributed in most environmental contexts. The known settlement pattern present on the S.R.P. supports this conclusion in that sites of moderate and high artifact frequency and size occur on terrace and floodplains while those of smaller size and lower content occur in the uplands. This pattern suggests an increased use of the uplands indicative of a more diffuse subsistence base (Hanson, Most and Anderson 1978).

Middle Woodland (A.D. 1 to 700)

Most cordmarked ceramics with sand temper are included in the Wilmington Cord Marked (or Wilmington Heavy Cord Marked) type described Caldwell and Waring (1939) and Stoltman (1974). Although sherd temper is considered to be a major attribute of this type (Caldwell and Waring 1939), Stoltman (1974:25) argues that sand tempering can be considered within the range of temper variability for the type since all other characteristics of the ceramics found at Groton Plantation fit the description. Basically then, Wilmington is identified by a predominance of coarse cordmarked ceramics within the Savannah River area.

Sites which are reported to contain Middle Woodland ceramics within the Savannah drainage are known from the mouth of the river to the Fall Line. These include Oemler, Walthour, Meldrim, Cedar Grove, Deptford Bluff, Greenseed Field, King's New Ground Field, White's Mound, Rabbit Mount, Clear Mount, and several others in Groton Plantation (Stoltman 1974:24-27). Information from these sites concerns primarily ceramics with the notable addition of mound associations (Stoltman 1974) in several cases. Within the Groton Plantation survey the majority of the ceramic sites occurred within the upland province in contrast to the preceding periods.

Little is known of the assemblages associated with the ceramics of this phase, but data from the Groton study allow for some understanding of the general settlement pattern. Stoltman (1974:214-215, 236-241)

concludes that since almost 80% of the Wilmington ceramics recovered in the survey were found in the uplands, a concentration on upland resources was the base of the subsistence technology including some form of slash and burn agriculture. Although this is a conjecture based on minimal evidence, the strong association of these ceramics in the non-floodplain environment would indicate a shift in settlement and possibly subsistence patterns. If this is the case, then the Middle Woodland should be a well represented period within the plant because of the large area of upland composed of terraces and the Aiken Plateau.

Although a distinction could not be readily made between Middle and Late Woodland sites on the S.R.P. because of a lack of good diagnostic artifacts, the arrangement of these sites mirrors the pattern at Groton (Hanson, Most and Anderson 1978). Sites of these time periods are scattered throughout the S.R.P.

Late Woodland and Mississippian (A.D. 700 to 1,700)

These two general periods have been combined for purposes of this summary because of a general lack of distinction between the ceramics of the Savannah I and Savannah II phases in the area of the study. The diagnostic ceramic type of the Savannah I phase is Savannah Cordmarked (or Savannah Fine Cordmarked) defined by Caldwell and Waring (1939), while Savannah Complicated Stamped, Savannah Check Stamped and Savannah Burnished Plain are considered as diagnostic of the later Savannah II phase (Stoltman 1974:27-31). The problem arises from the lack of exclusiveness in the two ceramic distributions, i.e. Savannah Cordmarked occurs almost always with the latter types. Thus from about A.D. 700 to 1,200 the Savannah ceramic wares predominate without a great deal of distinction.

The Savannah phases are documented at sites from the Fall Line to the Atlantic coast. Hollywood Mound, which was excavated partially by DeBaillou (1965) and Thomas (1894), is located near Augusta, Georgia on the Savannah floodplain. The site contains all types of Savannah ware ceramics associated with a large, multi-staged temple mound (DeBaillou 1965:6-10). Although other sites with Savannah ceramics are known from the middle Savannah River, only Lawton Field (Moore 1899) has any published documentation. In the vicinity of the city of Savannah, Georgia the work of Waring (Williams 1968) and subsequent research during the W.P.A. period (Caldwell and McCann 1939) has yielded several sites of this Late Woodland-Early Mississippian period.

Deptford, Haven Home ("Indian King's Tomb"), and Irene are the best documented of these estuary region sites. Due to the rich cultural deposits contained within these sites, (e.g. burials, grave goods, whole vessels, mounds, beads, and other exotic material culture), the information base is much better than for earlier periods. The first two sites mentioned, Deptford and Haven Home contain a limited series of Savannah ceramics and are used by Stoltman (1974:27-29) to characterize the Savannah I phase. Both sites contain burials and large accumulations of artifactual debris. Only the Savannah cordmarked and burnished types occur at these sites, in association with earlier Wilmington ceramics. Unlike most earlier sites Haven Home and Deptford contain numerous burials

indicating a more concentrated mortuary practice than was previously known for the Savannah area. This development appears to be continued and elaborated in the following phases.

Research by Moore (1899) and Caldwell and McCann (1941) has revealed the nature of development in the Mississippian culture at the Irene site. This complex mound center documents the ceramic chronology from Savannah phases through the Irene phase. Within the eight construction episodes at the Irene temple mound ceramics of the Savannah phases are present in all levels, being gradually replaced by Irene ceramics in the final stages of the occupation (Caldwell and Waring 1939; Caldwell and McCann 1941:43-46). Associated artifact assemblages for the Savannah phase occupation at Irene are unclear because of the pre-excavation disturbance at the site. Thus, one is faced with only a ceramic type description of the Late Woodland-Early Mississippian time period consisting of the Savannah ware of complicated stamped, check stamped and burnished sherds. Since only ceremonial sites have been excavated, and distributional inference would be misleading except to note Stoltman's comment that there was a "trend toward population nucleation (near floodplains)" (1974:243). One may add to this the increased occupation of the estuarine area surrounding the mouth of the Savannah.

The Irene phase has received greater attention in recent times along the coastal area of Georgia (Pearson 1977; Caldwell 1971). This phase has until most recently been defined by ceramics and mound complexes (Caldwell and McCann 1941; Caldwell and Waring 1939). Diagnostic ceramic indicators of this final Mississippian phase in the Savannah region are Irene filfot stamped, Irene plain and Irene incised (Caldwell and Waring 1939). Associated with these ceramics are mounds, flexed burials, shell ornaments, and some artifacts typical of the Southern Cult, a pan-Southeastern ceremonial complex of late Mississippian times. Irene evidence of subsistence reflects a reliance on corn, large mammals, fish, shellfish, and avifauna (Caldwell and McCann 1941).

Pearson's study of the coastal Irene settlement-subsistence pattern offers insight into the diverse subsistence base during the late Mississippian on Ossabaw Island (1977). The general results of the study indicate a structured settlement hierarchy composed of four site classes which correlate strongly with access to diverse environmental-resource zones. Smaller sites were associated with areas of less environmental variability while the large sites were located to provide maximal access to multiple resources (Pearson 1977:96-98). Although this study examines an island-estuary situation, the value of the results is that the nature of late Mississippian settlement is more complex than the situation suggested by earlier results. In the context of the Savannah River drainage, Irene phase sites must be examined with respect to diverse settlement structure and complex subsistence strategies. Previous work on the S.R.P. (Hanson, Most and Anderson 1978) located only 5 sites of the Mississippian period. Four of these occurred on the terraces of the Savannah River while only a single site was recorded in the uplands.

PREHISTORIC BACKGROUND SUMMARY

Archeological evidence for prehistoric populations within the Savannah River drainage and the Savannah River Plant has been well documented for a period in excess of 12,000 years. From the earliest times this occupation has been most commonly recognized along the main channel of the Savannah River and in association with larger tributaries. The results of archeological research on the Savannah River Plant (Hanson, Most and Anderson, 1978) clearly indicate the high association existing between larger streams and prehistoric occupation sites. In contrast with sites situated in proximity to large streams, prehistoric settlement distributions within the upland sandhills of the Aiken Plateau (Siple 1967) are less patterned.

Known archeological sites in the well drained sandhill ridge system tend to be small in size and low in artifact variability. They also tend not to contain sufficient artifact information to permit chronological placement. Based on these data it has been suggested that prehistoric utilization of these upland settings was restricted to seasonal periods for purposes of specific resource procurement (Hanson, Most and Anderson, 1978:125-126). With this pattern in mind, we would expect the prehistoric archeological record within the proposed DWPF to be limited to small, lithic and/or ceramic scatters indicative of brief occupational span and limited activity diversity.

This general set of expectations would seem reasonable for all time periods since the environment of upland sandhills is so low in resource potential. As discussed in the environmental section of this report, the soils and associated vegetation in the uplands are dry and xeric, respectively. Such environments in the upper Coastal Plain would never have been too productive in terms of resources for human consumption or use. They are primarily regions of mixed longleaf pine and small hardwoods which support relatively low populations of key fauna resources (whitetail deer, opossum, raccoon and small game). Floral resources within the zone are limited to bitter red oak acorns and small hickory nuts. Such resources are known to have been used in historic times but only as supplemental resources (Canouts, 1971). Thus in contrast to the rich resource zones along streams, the upland sandhills were comparatively poor. This further supports the expectation that prehistoric land use within the survey area was minimal.

In summary, prior to conducting the intensive archeological survey of the proposed DWPF site, an expected pattern of site occurrence was generated. We expected a very low site density within the upper ridge zones of the area and a slightly greater probability of site occurrence near the intermittent drainages on the periphery. All prehistoric sites were expected to be small in size and low in artifact diversity, indicative of limited activity structure within the area. Further, the probability of finding chronologically meaningful data was expected to be nil. Although these patterns were expected, the research design and survey methodology were not in any way biased, instead survey was planned to be extremely intensive in order to locate any evidence of prehistoric activity.

HISTORIC BACKGROUND

Although the Savannah River valley has been settled by Europeans since the early 1700's the upland sandhills have not. Settlement of this area probably did not begin until the second quarter of the 19th century, perhaps even later. Until advanced agricultural methods could be employed to handle the sandy and unproductive nature of the sandhills, they were left alone by early farmers. Not until the mid to late 19th century were fertilizing methods employed on the land. By the late 19th century it was realized that timber resources were more valuable than the crops, and a number of farmers began leasing their land to timber companies for as long as they needed to clear the land of trees, sometimes up to twenty years. Saw mills were set up and trees cut and processed. This land was then turned into agricultural land, and, if productive, it was cultivated for years. If not it was let back to trees for future harvesting.

During and after World War I there was a large scale migration of southern blacks from the rural south to the urban north (Kellogg 1977:310). This migration was caused in part by the fact that land farmed in the South could no longer support them and the northern cities offered a promise of industrial employment. This migration left many southern tenant farms empty and fields fallow. Timber harvesting became an even greater viable alternative to cash crops on land that was not very productive and expensive to farm. After the lumber company leases ran out the land apparently went back to cultivation in the late 1930's and 1940's.

METHODS

The implementation of this study involved the planning of appropriate field methods, the intensive inspection of all areas and detailed analysis of artifactual matter. The discussions that follow provide a thorough discussion of the methods employed.

Survey Methods

Preliminary Research

Prior to undertaking any intensive field work, certain preliminary views of the study area were gained by background research. To obtain a basic understanding of field conditions such as vegetation density accessibility and modern landmarks, preliminary inspection of recent color aerial photographs were made. This showed that the DWPF area was predominately covered with pine plantation in areas corresponding roughly with the Vaucluse-Blaney and Fuquay-Wagram soil groups. The riverine zone, perimeter of the Carolina Bay and the ridgetops showed dense mixed hardwood stands. The only clear ground surfaces within the entire project area were dirt roads and portions of the clear cut area. From these observations we were able to conclude that a survey strategy was needed that would involve the removal of dense forest litter (i.e. pine straw and leaves) in order to gain ground surface visibility. Access to certain portions of the survey area would be difficult.

Since the S.R.P. was abandoned by private land owners in the early 1950's, no standing structures were encountered. Therefore, inspection of the study area according to 1951 aerial photographs was necessary. This showed that there were no structures located in the study area. In addition to this information, these photographs provided important information pertaining to late historic land use. Most significant was the fact that 80% of the modern pine plantation corresponds to previous agricultural fields in the DWPF suggesting that any sites found in this area would be somewhat disturbed.

Using the land plat records dating from the S.R.P. acquisition by the Corps of Engineers, a search for land owner history was initiated at the Aiken County Courthouse. Unfortunately, the property records were less complete than originally believed and no useful information was obtained.

Finally, a records check at the Institute of Archeology and Anthropology showed that only one site (38AK169) was previously located near the project area. The site designations are the standard Smithsonian Institution system, i.e. 38 = S.C., AK = Aiken County and 169 = site. 38AK169 was located in the powerline roadway 4-1 on the western outer edge of the study area outside of the construction area by approximately 600 feet. The cultural material previously recovered was 3 flakes of bifacial retouch, and was classed as a prehistoric nondiagnostic lithic scatter.

Based on this information and that obtained during the general S.R.P. reconnaissance, an expected pattern of site type and distribution was generated. Any prehistoric sites would be either small lithic scatters or small lithic and ceramic scatters. A review of Mill's Atlas of the Barnwell District and the Stoeber map of 1873 indicated no historic sites within the study area. This led us to believe the probability of locating any prehistoric or historic periods would be low.

A brief two day field reconnaissance was conducted prior to the intensive field survey in order to verify the aerial photographic observations. At this time the seismic lines within the area were determined to be an excellent set of baselines for survey. No sites were found during this time. In general, the Reconnaissance consisted of an unsystematic walk and drive through the area to become familiarized with the survey area.

An additional two days were spent doing a reconnaissance survey of the two proposed alternate areas. The reconnaissance consisted of an unsystematic drive and walk through both areas. At that time no archeological sites were discovered within the proposed alternate areas. However, if in the event the main proposed construction area is found unsuitable we recommend that the chosen alternate areas be intensively surveyed.

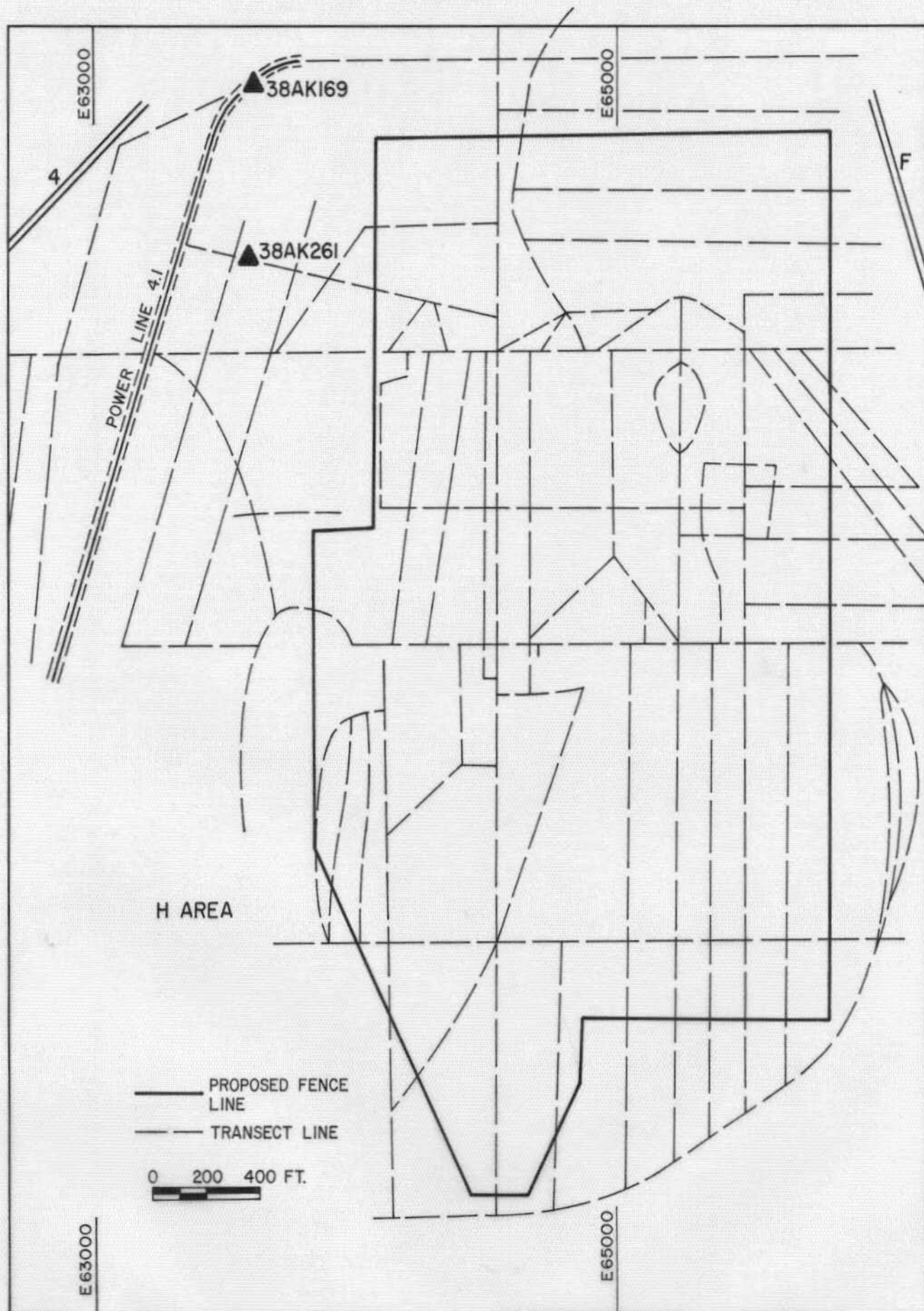


FIGURE 2: Map of Intensive Survey Transect Lines.

INTENSIVE SURVEY

The primary goal of the intensive survey was the thorough examination of the study area using methods to assure adequate and reliable coverage. Because of the dense ground cover in the off road areas, a technique had to be used that would greatly enhance the chances of finding sites. The technique consisted of using a stiff tined rake to remove the ground cover for inspection of the ground surface. Generally a 2 by 2 meter area was exposed every twenty meters in the off road portion of the survey. This method of discovering sites has proved useful in the past (Hanson and Brooks 1978); however, it did not locate any sites during the DWPF survey. Since sites in this area of the Plant were not expected to be buried under varying sediments, it was felt that the use of the rakes would be the most appropriate method of site discovery.

To insure adequate coverage of the survey area two specific survey strategies were employed. The first consisted of an intensive visual inspection of all roads and seismic lines. Originally there were only two roads in the survey area totaling about 7800 linear feet; however, since the seismic roads and bore hole roads were complete this greatly enlarged the amount of visible surface area that could be inspected. In aggregate we inspected 50,000 linear feet of road and cleared area (Fig.2).

The second phase of the intensive survey involved the extensive rake testing of off road areas in the study area. A total of 34,000 linear feet was walked and inspected using 718 rake tests of 2 by 2 meter areas. It was during this last portion of the survey that site 38AK261 was discovered in the northwest corner of the proposed construction area just outside the proposed fence line. This site was first discovered by the observation of safety markings around an old well.

The final phase of the intensive survey was the testing of site 38AK261 to determine the content, extent and depth of the cultural deposits. The testing at 38AK261 included four test pits, eleven post hole tests and fifty rake tests.

In summary, the intensive survey (Fig. 3) of the DWPF was accomplished through the use of several strategies. Given the dense forest litter and vegetation of the study area, the survey made an attempt to reduce bias by such factors and to provide thorough coverage. Approximately 80% of the total land area of the study area was examined for cultural resources resulting in the discovery of one previously unrecorded site. Testing at this site provided information about the assemblage.

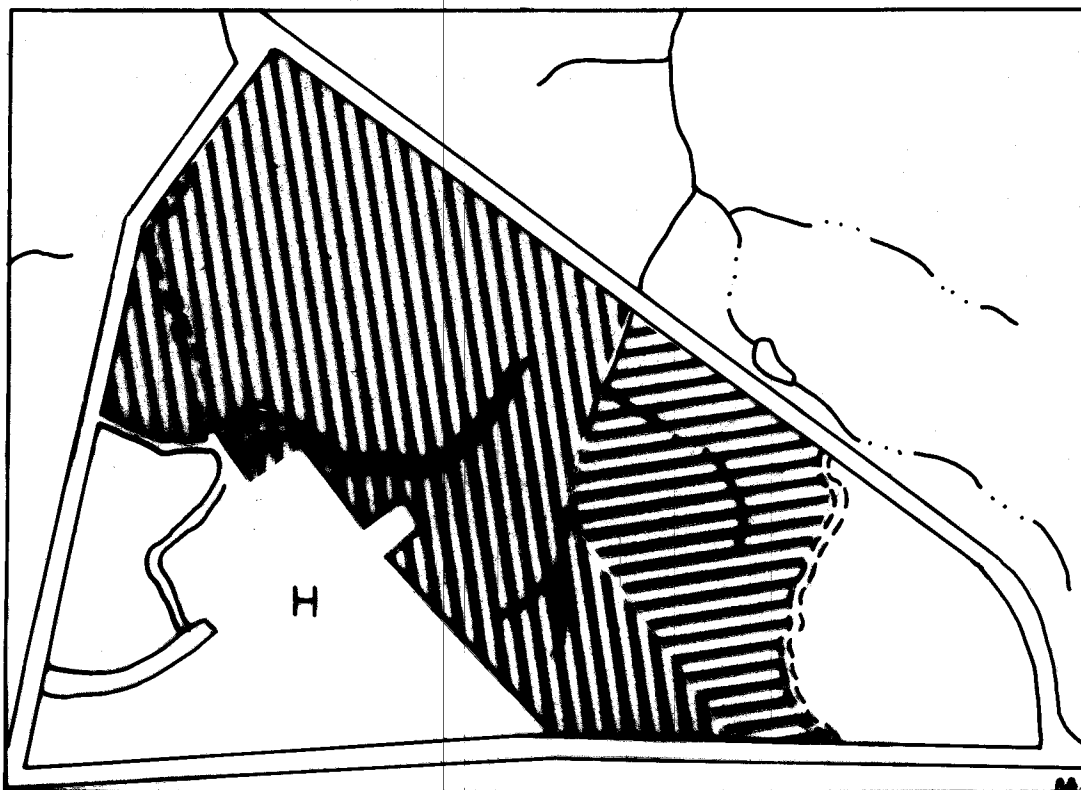


FIGURE 3: Map of the general DWPF survey area (vertical hatchure indicates intensive survey area; horizontal hatchure indicates reconnaissance survey area).

THE ARCHEOLOGICAL RESOURCES OF THE DWPF

38AK169

The prehistoric lithic scatter was located during previous archeological reconnaissance of the Savannah River Plant (Hanson, Most and Anderson 1978) within the right-of-way of a 115 KV (Road 4-1) electric line near its junction with S.R.P. road 4. This small site is situated at the extreme western boundary of the study area well outside of the major construction area. Its Universal Transverse Mercator coordinates are 3884275 meters North and 439800 meters East in Zone 17. Topographically, the site lies on a ridgeline overlooking a swampy tributary of Upper Three Runs Creek to the west. The soil type common to the general site is Vacluse-Blaney, a well to extremely well drained sandy soil class. Vegetation in the surrounding area is predominately mixed small hardwoods and naturally regenerated pine; however, no arboreal plant species occur on the site proper.

Since this site was previously recorded during earlier research, the field team revisited the area to determine whether or not the artifact collection was representative of the site. Intensive ground surface inspection indicated that the site was of an ephemeral nature with only one additional artifact, a chert chunk, being collected. Thus, the total sample of materials from 38AK169 consisted of 1 thinning flake, 1 broken thinning flake and 2 chunks; all were made from non-thermally altered chert. This collection of materials was made over a period of approximately 1 hour under conditions on good visibility within the powerline right-of-way, so we can conclude that the site had limited content.

In general, the site can be grouped with other non-diagnostic lithic scatters found throughout the upland-sandhills of the Aiken Plateau. Given the limited artifact content and lack of prehistoric lithic tools, we must conclude that the site was used for a brief time for some unrecognizable purpose. However, given the topographic location within an upland context far removed from rich bottomland resource zones it is likely that the site represents prehistoric activities associated with secondary resource procurement.

In terms of the site's potential for eligibility for nomination to the National Register of Historic Places, we must conclude that it is not worthy of consideration for two reasons. First, the site has been badly disturbed by the construction of S.R.P. Roads 4 and 4-1 and by the placement of the 115 KV powerline. Both of these activities have involved the movement of large quantities of soil from the site and the subsequent erosion of remaining portions of the site. This damage, in effect, destroyed the original context of the site over 25 years ago. Second, the materials recovered from the site indicate that it had a very limited artifact assemblage in the first place. Sites of this type have been shown to be very common throughout the Aiken Plateau sandhills of the Savannah River Plant (Hanson, Most and Anderson, 1978: 125-126). Thus, due to previous construction disturbance and the very small artifact content of the site, we conclude that the site has little, if any, potential for providing significant information pertinent to present or future archeological

research goals. We, therefore, recommend that the site be considered as not eligible for nomination to the National Register of Historic Places.

38AK261

This historic site is located on a west facing slope and ridgenose between two unnamed branches of Upper Three Runs Creek. This location is on the edge of the proposed site of the DWPF area at Universal Transverse Mercator (U.T.M.) coordinates 3684150 meters North and 440000 meters East in Zone 17. The land immediately to the northwest and south is pine plantation as is a portion of the site. The site and remaining area is in mixed pines and hardwoods indicating that it was left to grow naturally. No records of this site are in the files of the Institute of Archeology and Anthropology site files. It was first discovered during the intensive survey.

Initial location of this site came during the intensive off road phase of the survey. Careful investigation of the site and the immediate surrounding area indicated that the area had been recently (3 to 5 years) logged. This activity left a great deal of the site severely disturbed, therefore, losing its spatial integrity. The remaining unlogged portion of the site was disturbed by heavy equipment. The area immediately around the well, while not disturbed by vehicles was disturbed by other human activity. Testing of the site came after the survey was completed; it was then that the site limits were defined. A heavy accumulation of forest litter, 5 to 15 cm. thick made visual surface inspection almost impossible. To determine the extent of the site required eleven post hole tests and fifty rake tests, 2 by 2 meter squares. The results indicate a site size approximately 125 by 60 meters (7500 square meters). These post hole and rake tests recovered only 10 percent of the total artifacts. This testing program was carried out after inspection of the 1943 Corps of Engineers map of Talatha and the 1951 aerial photographs, indicating that there were no structures located in the site area. The rake tests uncovered a brick pile on a low mounded area about 25 meters from the well. It was determined that this was the probable location of the house and test pits were located here. Two test pits (1.1 by 1 meter, 2.1 by 0.5 meters) were excavated in this area. The brick piles disturbed nature - glass, ceramics, metals, brickbats and mortar all jumbled together - gave the appearance of the structure's having been purposely destroyed. The majority of the artifacts were recovered from this low mounded area (Fig. 4). The two remaining test pits (3 and 4.50 by 50 cm.) were placed south of the well (Fig. 4).

Artifacts recovered (see attached table) indicate a date range of occupation of 1880 to 1940's. This chronological information was determined on the basis of known ceramic and glass type dates. A majority of the artifacts indicate a median date range of 1900 to 1915. The types of artifacts recovered, 67% kitchen related and 16% architecturally related indicate that this was a dwelling rather than a barn or out buildings.

There are no plats available to indicate who and when people first occupied this land. The last and apparently only deed for this piece of land indicates that it was owned by W.H. Buford, who resided on an

adjoining piece of property when the land was bought by the government.

According to the DWPf project map this site is located approximately 250 feet outside the project's fence line (Fig. 2).

This site is of sufficient age to qualify for nomination to the National Register of Historic Places, however, the apparent lack of integrity of the site would exclude it from being eligible for nomination. Leading one to conclude that the significance of this site, because it is open to question, is of little value to present research. Hanson et. al. (1978) suggests that there are sites of unquestioned integrity in the Savannah River Plant, and that these other sites, with integrity are available to be studied.

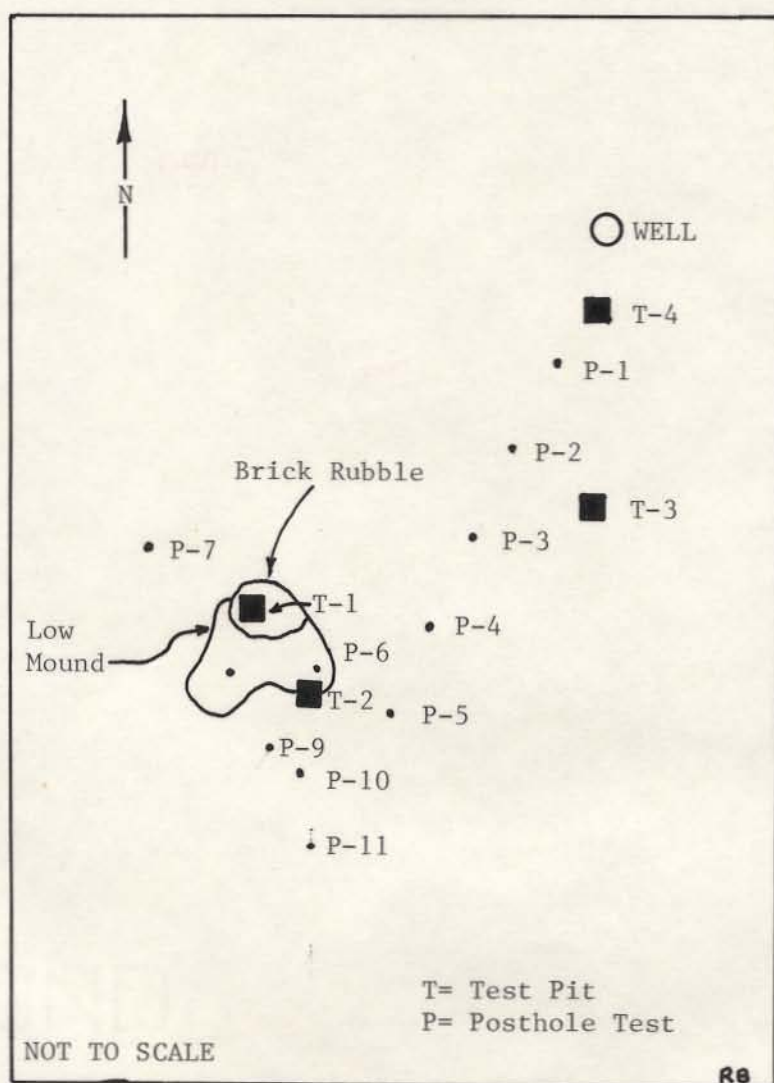


FIGURE 4: Sketch map of 38AK261 showing the location of test pits and posthole tests.

38AK261: Artifact Summary
(All Proveniences)

<u>ARTIFACT CLASS</u>	<u>FREQUENCY</u>	<u>WEIGHT*</u>
KITCHEN		
Ironstone	30	129.1
Alkaline Glaze	3	17.7
Opaque glass	1	28.8
Manganese glass	10	86.9
Amber glass	1	0.3
Green glass	3	4.2
Aqua tint glass	16	137.7
Clear glass	31	89.7
Milk glass	2	16.0
ARCHITECTURE		
Mirror	1	24.1
Brickbats	3	316.4
Wire nails	7	24.4
Cut nails	9	24.8
Screws	1	4.1
Wire staple	1	4.5
ACTIVITIES		
Bolt	3	379.4
Wire	1	4.1
PERSONAL		
Sunglass w/metal rim	1	3.0
ARMS		
Shell casing (38 caliber)	1	2.9
CLOTHING		
Ceramic buttons	3	2.0
Buckle	1	4.6
MISCELLANEOUS		
Unidentified Metal objects	7	30.8
Dog toe bone	1	0.7
Peach pit	2 (halves)	0.5

* Weights in Grams

CONCLUSIONS AND RECOMMENDATIONS

The results of the archeological survey of the proposed DWPF site were not too different than expected for the area, given the poor environment and distance from water sources. The two sites located and recorded during this work lack sufficient archeological integrity to permit the additional recovery of information important to prehistoric and historic research. Data already collected from the sites will be used for ongoing research into prehistoric and historic land use within the S.R.P. and will, therefore, have some value in understanding some aspect of the human occupation of the area. Beyond this level, however, the data from the sites are limited.

Based on the findings of this study several recommendations can be made regarding the preservation of archeological resources within the DWPF area. These recommendations are presented in order to provide the Department of Energy with information for alternate land use on the area.

- 1) Since no archeological remains were uncovered in the proposed DWPF construction area, it is recommended that the area be cleared for archeological purposes.
- 2) To assure preservation of any buried sites well beneath the present ground surface in the construction area, it is suggested that the Department of Energy arrange to have an archeologist monitor the excavation of the building sites for the DWPF. By monitoring we feel that to keep the construction progress unencumbered a process be devised by which an archeologist makes daily checks of the spoil piles for archeological material.
- 3) Regarding related construction on the periphery of the main construction area (e.g. roads, powerlines, waterlines), we recommend that the triangle formed by the roads F, 4 and E are cleared for construction of any type for archeological purposes. However, it is recommended that the Department of Energy notify the archeologists to monitor the construction for possible buried sites.
- 4) Although the site 38AK261 is not considered to be significant to present or future research, it is recommended that an archeologist be notified when construction in that area is to take place in order to monitor any archeological materials uncovered.

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