

II. ENVIRONMENTAL SETTING AND CULTURAL CONTEXT

ENVIRONMENTAL SETTING

The project area lies in the Piedmont physiographic province of northern New Castle County, Delaware. This zone is one of relatively high relief underlain by crystalline bedrock. Narrow stream valleys dissect this region and surface attributes are typified by hilly terrain. The segment of SR 82 under consideration is located at the eastern edge of the Red Clay Creek Valley. It runs along the west flank of a steep valley wall (Figure 1). Adjacent to the eastern side of SR 82, the hill slope exhibits a grade of 25 percent or greater. SR 82 extends along a fill apron at the foot of this slope. The project area lies at an elevation of 55 meters (180 feet) above mean sea level (amsl).

The principal drainage in the project area is Red Clay Creek, a major tributary of the Christina River. Located west of the project area, Red Clay Creek is fed by several mid-order streams, such as Bucktoe Creek, South Brook, and Broad Run. These streams are located more than one kilometer (0.6 miles) north, upstream of the project area and across the Pennsylvania state line.

Soils in the project vicinity belong to the Glenelg-Manor-Chester Association consisting of nearly-level to steep, well-drained soils that formed over micaceous crystalline rocks (Figure 2). Glenelg and Hatboro Series soils are mapped along SR 82 and the banks of Red Clay Creek, respectively. Glenelg soils are deep, well drained, and occur on Piedmont uplands. Because Glenelg soils are residual, cultural deposits would likely be at or near the surface.

Deep, wet, Hatboro soils occur on floodplains and uplands along the head of drainageways and at footslopes. Hatboro soils formed in colluvium (Matthews and Lavoie 1970:2, 22, 24), and therefore may contain buried archeological deposits at the bases of slopes. Otherwise, cultural deposits should occur at or near the ground surface.

With respect to modern land use, the survey area is generally undeveloped. Slopes east of SR 82 are wooded. To the west, the Red Clay Creek floodplain is not utilized and is covered with secondary succession forest and dense understory.

CULTURAL CONTEXT

Prehistoric Context

Custer (1984, 1989) and Dent (1995) recently presented general prehistoric overviews of Delaware and the Delmarva region. The prehistoric period of Delaware is divided into four principal periods by Custer (1984, 1989) that correspond to specific environmental and sociocultural developments: Paleoindian (12,000-6500 BC), Archaic (6500-3000 BC), Woodland I (3000 BC-AD 1000), and Woodland II (AD 1000-1600). The Woodland I and Woodland II periods are further subdivided into temporal/spatial complexes characterized by specific adaptations (Custer 1984:28).

Paleoindian

The Paleoindian period refers to the earliest recognized human populations in Delaware. Custer (1984, 1989) correlates this period with late Glacial, Pre-Boreal, and Boreal climatic episodes, and asserts that early cultures in the region reflected adaptations to the distinct circumstances associated with these environments. In the Delmarva region, these societies have been characterized as mobile hunter-collectors organized into band-level social groups.

Paleoindian sites are distinguished by fluted and lanceolate projectile point types associated with lithic tool kits that appear to be oriented around the acquisition and processing of large game animals. Recent evidence indicates the use of plant foods by Paleoindian period groups as well. The relative percentages of the Paleoindian diet composed by hunted as compared to collected foods is not clear, however (Dent 1991, 1995; Kauffman and Dent 1982; Lee Decker et al. 1996). Researchers in the Middle Atlantic region have suggested that the Paleoindian settlement system was focused on sources of high-quality lithic materials (Custer 1984; Custer et al. 1983; Gardner 1974; Lowery 1989:161). This focus would have been less apt in Coastal Plain zones where sources of high quality materials do not occur in discrete locations, but are found as secondary deposits along with materials of lesser quality (Custer et al. 1983). It is probable, as well, that lithic source quality has been overemphasized as a principal determinant of Paleoindian settlement in the region (Childress and Vogt 1994; Dent 1995). Therefore, Paleoindian settlement in Delaware more likely reflects a "serial" settlement model in which sites are located near locations that offer a variety of food resources, such as interior wetlands, swamps, and bogs (Custer 1984, 1990; Custer et al. 1983). In this model, procurement of toolstone from dispersed lithic sources was embedded in the seasonal travels of Paleoindian groups that were dictated by the availability of food resources. Site types expected to reflect Paleoindian occupations include large and small base camps, situated in locations of maximum resource overlap, hunting sites, and isolated point sites (Custer 1984:52-53; 1989:99-100).

Archaic

The succeeding Archaic period corresponds to the Atlantic climatic episode, characterized by warmer average temperatures and essentially modern floral and faunal communities (Custer 1984, 1989). Social groups of this period have been characterized as mobile, adapting to an emerging and diverse resource base. Subsistence strategies were unspecialized and emphasized the use of a wide range of food resources (Custer 1984, 1989, 1990). Settlement patterns reflect this postulated subsistence strategy. Sites occur in association with newly appearing environmental zones, such as developing swamps and marshes (Custer 1984). Three site types are suggested for this period. The largest type is the macroband base camp, occupied seasonally by multiple families in settings at the junctures of environmental zones. Such locations maximized resource overlap. Found in similar settings, microband base camps are somewhat smaller. They are also occupied seasonally by individual or small numbers of families. Finally, procurement sites that were occupied to obtain and process resources occur as well. These camps were established briefly during forays from one of the other site types (Custer 1984:67, 1989:129-130). Archaic sites are distinguished by particular bifurcated projectile point forms, as well as a wider array of tool types than is evident for the preceding period. Also, Stewart (1989) noted an increased use of local lithic raw materials, particularly rhyolite, during this period.

Woodland

The Woodland I period encompasses an era of increasing social complexity and a greater degree of sedentary settlement. In a summary of this period, Custer (1984:77) asserts that it is marked by intensified use of estuarine and riverine environments that permitted the establishment of large macroband base camps; the appearance of foraging and collecting subsistence strategies in zones away from estuarine and riverine environments; broad exchange networks; and population growth. Also characteristic of this period are the recognition of distinctive culture complexes that have temporal and regional affinities. Diagnostic artifacts of the period, as defined by Custer (1984), include narrow bladed stemmed points, broad-bladed points, triangular points, and others. In addition, container technologies appear during the Woodland I period. The earliest of these are carved steatite bowls, which appear as early as 1900 BC. In about 1200 BC they are superseded by ceramic technology. Settlement systems of the Woodland I era, according to Custer (1984:96), reflect reduced mobility and higher numbers of large macroband base camps. Such sites were used more intensively and for longer periods

than those of the Archaic period. During the Woodland I period, macroband base camps are situated to take advantage of specific and predictable resources, such as annual fish runs. Microband base camps of this period also occur, along with procurement sites. Greater social complexity is suggested by the need to coordinate the procurement, processing, and distribution of the food resources obtained at the macroband camps. The exchange networks evident during this period also suggest that some form of social hierarchy had begun to develop.

The Woodland II period is distinguished primarily by increased sedentism and the introduction of horticulture. In addition, exchange networks that flourished during the Woodland I disintegrate. The period is also marked by triangular projectile point varieties in combination with distinct pottery types (Minguannan and Townsend ceramics). In the southern Delmarva region, settlement systems are marked by semi-sedentary villages that exhibit evidence of increased food storage facilities (Custer 1984, 1988a; Thomas et al. 1975). The macroband base camps are larger than in preceding eras. Also, they are more often situated along the floodplains of major rivers, which provided suitable soils for horticulture (Custer 1984:148; Custer and Griffith 1986:36; Rountree and Davidson 1997:23). In the northern Delmarva peninsula, sites identified as macroband base camps do not typically exhibit evidence for structures, storage features, or middens. Locations of these sites often relate to environmental settings that are rich in subsistence resources, such as brackish water marshes, floodplains, and sink hole complexes (Stewart et al. 1986:59, 63). Seasonal base camps and procurement sites also occur within the Woodland II settlement system, indicating, first, that seasonal fissioning of larger social units persisted, and, second, that horticulture only formed a part of the subsistence base (Custer and Griffith 1986:45-46). Based chiefly on historical data, by the late Woodland II period, societies on the Delmarva peninsula may have been organized hierarchically (Rountree and Davidson 1997).

Contact Period

The Contact period encompasses the transition from the Woodland II period to the historic era. Europeans explored the region during the sixteenth century. By the 1620s, they began to trade with aboriginal societies of the eastern shore, and by the 1630s, the Swedish and Dutch established settlements on Delaware Bay (Davidson et al. 1985:43; Hoffecker 1977; Munroe 1978, 1993; Weslager 1988). This period is marked in the archeological record by the addition of European trade goods to otherwise characteristic Woodland II assemblages. Eventually, interaction with Europeans and subsequent colonization of the region led to the disruption of native societies and ultimately to the depopulation of the Delmarva peninsula by aboriginal inhabitants (Custer 1984, 1989; Rountree and Davidson 1997).

Historic Context

The following overview is abstracted largely from histories prepared by Hoffecker (1977) and Munroe (1954, 1978, 1993), and the summary presented in De Cunzo and Catts (1990). In their management plan for Delaware historic archeological resources, De Cunzo and Catts (1990) divide Delaware's history into five chronological periods: (1) 1630-1730; (2) 1730-1770; (3) 1770-1830; (4) 1830-1880; and (5) 1880-1940.

European settlement of Delaware began in the 1630s and involved Swedish and Dutch efforts to colonize locations along the Delaware River. Fort Christina, located at the junction of Brandywine and Christiana Creeks, became the focus of a small population of farmers and traders. Early Dutch activity in this area consisted of establishing military settlements in response to Swedish and English land claims. Fort Casimir (present-day New Castle) was developed in an attempt to blockade Fort Christina. When the English obtained control in the 1660s, the region contained a small population of settlers of Swedish, Finnish, Dutch, English, and African descent (De Cunzo and Catts 1990:9-10; Munroe 1978, 1993; Weslager 1988). Settlement at this time consisted of dispersed farmsteads, focused on subsistence agriculture, distributed along the Delaware River and its tributaries. Later, as area farmers were incorporated into Philadelphia's

hinterland, they shifted to the production of market crops, such as wheat, for export to Philadelphia and the West Indies. Animal husbandry and forest products constituted other important aspects of the economy. Small rural hamlets, which developed at this time, provided services such as mills, smiths, taverns, and stores (De Cunzo and Catts 1990:10).

De Cunzo and Catts (1990:11) characterize the 1730 to 1770 period as one of population growth and agricultural and commercial expansion as reflected in the development of towns, regional transportation systems, and industry. Increased immigration from England and Ireland occurred prior to the middle of the eighteenth century affecting the ethnographic character of the region. Towns were located along major waterways serving as principal routes of transportation and communication. Roads were poorly maintained and served as a secondary means of transportation during this period. Villages continued to develop as centers for local economic and social exchange providing a diverse array of services for regional inhabitants. The economy of this period was dominated by agriculture, with farms in northern present-day Delaware involved in market production, while the southern region focused chiefly on subsistence farming and the exploitation of local forest products. The latter region also relied on the success of local shell and fin fisheries (De Cunzo and Catts 1990:11; Munroe 1978:198, 200).

Agriculture remained dominant between 1770 and 1830, although soil erosion led to an out migration of a large portion of the population during the 1820s and 1830s. Unproductive and vacated properties were incorporated into larger landholdings, contributing to an increase in average farm size at this time. In the north, wheat and dairy became the chief agricultural products whereas in the south, corn was dominant, while cattle and swine were important subsidiary products. Commerce and manufacturing grew in the state during this period. This included the development of textile, snuff, and fulling mills along with existing gristmill and sawmills in the northern part of the state. Economic activities in the south included distilling and iron manufacture, home production of linen and wool, and the manufacture of forest products. Towns continued to serve as important centers for local and regional economic and social exchange. Although water remained the principal means of transport, the development of turnpikes and canals at this time revolutionized transportation. These produced impacts to the landscape and settlement patterns, particularly in the northern part of Delaware (De Cunzo and Catts 1990:17-18; Hoffecker 1977:42-43; Munroe 1954).

De Cunzo and Catts (1990:21) note that industrialization, urbanization, and transportation had significant impacts on the region between 1830 to 1880. In the north, agriculture underwent a revival with the application of soil conservation practices, new farming techniques, and crop diversification. In the south, corn and livestock persisted as the main and secondary crops, respectively. While roads and waterways continued to serve as major transportation links, the creation of railroad lines had positive economic consequences for the success of agriculture and industry in the region. Industry flourished during this period, taking advantage of improved and less expensive modes of transportation, a large labor supply, and the greater availability of raw materials (De Cunzo and Catts 1990:21-22).

From 1880 to 1940, manufacturing increased in relative importance to agriculture, while the latter was marked by shifts in the types of products cultivated. More diverse and perishable crops were developed for urban markets along with dairy and poultry production. Industry was tied more closely to northern Delaware, with an emphasis on light manufacturing and food processing (e.g., canning). Urbanization proceeded in the north, and transportation continued to improve, enhancing links within, and beyond the region. In southern Delaware, forest products continued to provide important sources of income (De Cunzo and Catts 1990:27-28).