3.0 RESEARCH DESIGN

3.1 OBJECTIVES

The goals of archaeological survey at the DelDOT Mid-County DMV location were to:

- Document the history of the project area through historical research;
- Determine the presence and extent, if any, of all archaeological resources at the site; and,
- Determine the nature of associated artifacts and any intact cultural features.

3.2 METHODS

3.2.1 Archival Research

A chain of title for the project area's land parcel was created from a review of New Castle County land records at the office of the Recorder of Deeds, and probate records at the office of the Register of Wills in Wilmington. Historic maps were gathered from the Geography and Maps Division of the Library of Congress plus online sources including websites of the Library of Congress American Memory Map Collection and the Maryland State Archives. Historic aerial photographs were obtained on the web-based mapping application Cultural and Historical Resource Information System (CHRIS) developed by the DE SHPO. An initial files search for the vicinity of the APE was conducted via CHRIS and site files were then downloaded at the DE SHPO office in Dover. Cultural research reports previously conducted in or near the project area were reviewed at the DE SHPO office, on the DelDOT website, and at Versar's Springfield, Virginia headquarters office. Census data was obtained from the Local History and Genealogy Reading Room at the Library of Congress.

3.2.2 Phase I Fieldwork

Prior to the commencement of fieldwork, Versar developed a health and safety plan and coordinated utility marking through Delmarva Miss Utility. Protocol for correctly handling the discovery of any unmarked human remains was established. Neon Class 3 safety vests were worn by crew while in the field at all times. Following *Guidelines for Architectural and Archaeological Surveys in Delaware* (1993) and in consultation with DelDOT, Versar applied the following survey strategy:

- pedestrian survey to determine on-the-ground conditions and possible surface features;
- systematic shovel testing on a grid across testable portions of the parcel at a 15-meter (m) interval;
- radial shovel tests at a 7.5-m interval around positive prehistoric shovel tests and around historical shovel tests as deemed appropriate in consultation with DelDOT archaeologists; and,
- close-interval testing at 7.5 m applied judgmentally to further refine horizontal limits of artifact concentrations.

The county-operated Mid-County Yard Waste Demonstration Site (see Figure 1-2; Figure 3-1) is located within the limits of the APE. Due to logistical challenges resulting from extensive yard waste dumping, it was determined in advance that this almost 4 acre facility would not be tested as part of this task. In addition, areas within an active drainage system and significant prior disturbance (e.g. utility installation along US 13) were not tested.

Figure 3-1: Mid-County Yard Waste Demonstration Site, New Castle County, Delaware.

A 15-m grid was superimposed on the project area to ensure systematic shovel testing. The datum (N1000/E2000) was positioned immediately south of the DART sign at 1423 South DuPont Highway/US 13 (Figure 3-2). The grid was aligned to true north, parallel to the highway. Due to the overgrown nature of the vegetation within the project area, ground surface visibility was commonly close to zero percent. In some areas where farm equipment has been run west of the Yard Waste Demonstration Site, however; ground surface visibility improved in patches to nearly 20 percent. These areas were subjected to walkover survey to ensure recordation and recovery of any potential surface artifacts.

Figure 3-2: Photograph of E2000 Baseline from Datum, View South.

Shovel test pits measured approximately 40 cm in diameter and were excavated by natural stratigraphic levels at least 10 cm into sterile subsoil. Details of each shovel test were recorded using a form to ensure standardization (e.g., depth, Munsell color designation, texture, transition, inclusions, presence of cultural material). All measurements were recorded in metric units. Soil was screened through one-quarter-inch mesh hardware cloth to standardize artifact recovery and recovered artifacts were provenienced by shovel test and stratigraphic level. Obviously modern debris was documented and discarded in the field.

Shovel test locations were mapped in the field and plotted using a Trimble Geo XM Global Positioning System (GPS) receiver. This data was ultimately projected in GIS. Archaeological sites discovered as a result of this work were thoroughly documented and mapped within the APE. Digital photography was used to photo document the fieldwork.

3.2.3 Laboratory and Curation

Artifacts were fully processed and cataloged in the Versar laboratory in Springfield, Virginia. Collections processing was performed following the Delaware Division of Historical and Cultural Affairs (DHCA) curation standards (1993). In general, the artifacts were washed in plain water and bagged by material and artifact type in 4-mil polyethylene, resealable bags. Provenience information and catalog numbers were

written in indelible ink on the exterior of the artifact bags and acid-free tags were placed within the bags. In addition, diagnostic artifacts were hand-labeled with the DHCA Provenience/Catalog Control number and the artifact number using acryloid B-72 sealant and black or white pigment ink. Artifacts were cataloged by count, raw material, function/morphological design, type name, segment, color, size grade (< 1 cm, ≥ 1 cm and < 2 cm, ≥ 2 cm and < 3 cm, ≥ 3 cm and < 4 cm; ≥ 4 cm and < 5 cm. ≥ 5 cm), presence/absence of cortex, and weight.

The collection, minus historical field scatter, was curated in 20" x 20" x 3" corrugated polypropylene flat boxes of the type required by DHCA. Labeled, internal partitions/trays were used for artifact protection and organization. Due to the small sample sizes, no artifacts were culled from the collection. Field records, including field notes and digital photographs, were organized and labeled. Photographs were printed on archival paper, stored in archival sleeves, and provided on CD. An unbound hard copy of the final report was submitted with the collection.

3.3 EXPECTED RESULTS

The current project area was expected to have a moderate-to-high potential for containing prehistoric archaeological resources due to its physical setting and proximity to NRHP significant Wrangle Hill Prehistoric (7NC-G-105). Wrangle Hill Prehistoric is situated above Silver Run at it confluence with another intermittent drainage approximately one tenth of a mile north of the project area's northern boundary. The site was first recorded during Phase I survey of the SR 1 corridor in 1988 (Hodney et al. 1989). Phase II evaluation determined the site to be eligible for inclusion in the NRHP due to the presence of substantial and intact sub plowzone deposits (Kellogg et al. 1994). Final, Phase III mitigation took place from 1991-1992. As a result it was determined that Wrangle Hill attracted human settlement for a period stretching 8,000 years and during that time was occupied intermittently by early hunters and gathers and then more intensively and for longer periods of time by small family groups who built semi-subterranean houses and dug storage and processing pits (Custer et al. 1995).

Based on the background research conducted for this project, no significant historical sites were anticipated in the project area. The location of farmsteads, tenant houses, mills, and other features associated with agricultural landscapes in this part of New Castle County are well-established from the late eighteenth through mid-twentieth centuries. This includes the Starl House (N01492), a brick farmhouse constructed circa 1810 located at the intersection of Wrangle Hill Road and US 13. The acreage comprising the current project area was included in deed transactions as part of this property and it is believed that this area has historically been in cultivation. Strengthening this is a deed dating from 1822 outlining a land exchange allowing Levi Clarke to connect his interiorly located farmstead (southwest of the current APE) to the State Road (DuPont Highway, US 13) through the adjacent plantation of Charles Vanhikle (NCCDB X(4):362). This road is visible, running east/west through the center of the current project area, in the 1868 Beers Atlas (see Figure 2-6).