I. INTRODUCTION AND PROJECT SUMMARY

This report presents the results of Phase III data-recovery excavations at the Beech Ridge Site (7K-C-422), located in Dover, Delaware. URS Corporation (URS) carried out this work for the Delaware Department of Transportation (DelDOT) to mitigate adverse impacts to this unique archaeological site stemming from improvements related to the Scarborough Access/Service Road, Crawford Carroll Avenue Project. The Beech Ridge Site is located on a narrow peninsula of land overlooking the swampy terrain associated with the confluence of Fork Branch and Penrose Branch, headwater tributary streams of the St. Jones River. A small drainage, White Marsh Branch, borders the site area to the southeast. The general location of this site is depicted in Figure 1.1. Heite Consulting, Incorporated (HCI) identified this site during Phase I investigations conducted in December 2000. Their initial identification studies were followed by Phase II investigations to evaluate its National Register eligibility, work that exposed several Late Woodland features and what appeared at the time to be shallow, subplowzone artifact-bearing horizons. Given such intact archaeological contexts, the site was determined to be eligible for the National Register of Historic Places. URS developed a work plan to mitigate the site and initiated data-recovery work in June 2003.

This introductory chapter will review the data-recovery project in brief, outlining the fieldwork as it progressed and presenting the basic results of the investigations, as well as the major research topics addressed during the analysis and interpretation of the site. It should be noted at the outset that the Beech Ridge Site, while not characterized by large quantities of material cultural remains, did preserve a remarkable stratigraphic sequence of classic late Paleoindian through Late Archaic point types. These points are thought to be discards left during the course of a series of small short-term hunting camps or “monitoring stations” situated along the scarp overlooking the adjacent swamp. Interpretations of this site focused on behavioral patterns that could be noted as typical of hunting-gathering-foraging groups documented by numerous investigators worldwide. The various occupations contained within the Beech Ridge deposits, situated on the Beech Ridge landform, are just a small part of a more extensive pattern of sites that would have characterized the entire settlement system at any one time in the long prehistoric continuum known for the area. In the interpretive sections presented in the final chapter, models developed from both the lowland tropics of South America and other parts of the world are presented as possible analogues or probable scenarios for understanding the small, well-separated components documented in stratigraphic contexts at the Beech Ridge Site.

PREVIOUS INVESTIGATIONS BY HEITE CONSULTING

HCI’s Phase II investigations revealed a site composed of several small components dating from the Late Archaic to Early Woodland, Middle Woodland, and Late Woodland periods. Such components probably represented occupations focused on extracting various kinds of resources from the low-lying marsh environment that borders the present site to the south and southeast. The Early Woodland component is of interest, given the presence of a crushed vessel

identified herein as an Accokeek cognate (Wolf Neck). This vessel may point to the location of a small hamlet dating to the Early Woodland period. Additionally, two pit features with Late Woodland Townsend Ware ceramics also suggest the presence of a small hamlet occupation.

The potential for structural remains associated with these features cannot be overlooked, though no evidence of such remains was uncovered in the Phase II or III work. The hearth documented in HCI's Unit 29 cannot be affiliated with any of the chronologically identified components as yet; whether it belongs to the Woodland or Archaic periods is unknown at this juncture. The nature of the Late Archaic component, indicated in the recovery of several Bare Island points, is thought to be similar to those of the earlier periods, marking a short-term hunting station.

The Phase I and II investigations HCI conducted did not sample the deeper deposits that contained the earlier components at the site. The initial work plan URS developed therefore focused on the later Woodland components present. However, while the first stage of the data-recovery excavation was underway, it became clear that earlier components were present and the work plan had to be rewritten to accommodate recovery of materials from these components. How the field efforts evolved to accommodate the earlier components present is discussed below.

URS PHASE III FIELD EFFORTS

As a result of consultation between URS, DelDOT, and the Delaware State Historic Preservation Office (DelSHPO), field efforts were developed in a staged manner to further elaborate on the nature of the archaeological components present as revealed in HCI's earlier investigations. This collaborative approach was extraordinarily constructive and fostered the development of an appropriate mitigation strategy for sampling the sealed archaeological components present in the site. Initially, URS agreed to excavate up to 25 square meters placed to sample areas around the Woodland stage components documented in the Phase I and II investigations. At the conclusion of this effort, termed Stage I, additional consultations were scheduled to determine what direction the field effort should take. As noted below, changes were sought based on the recovery of novel archaeological remains that were quite unexpected. Such novel remains included both Early and Middle Archaic components in stratified contexts. Excavations revealed a relatively uniform profile comprised of an A1-A2 horizon that capped a variably thick C horizon of eolian origin. In turn, this horizon had been emplaced over a late Pleistocene paleosol. This profile was found across the entire site area, with variations in the thickness of the various horizons.

Based on in-field meetings between URS, DelDOT, and the DelSHPO, additional block excavations were planned and executed to sample the earlier components present within the site. This level of field effort, termed Stage II for purposes of project management, added 76 additional square meters to the site area, thus bringing the total area excavated from 23 meters up to 99 square meters. This second stage of fieldwork uncovered additional material relevant to the Early and Middle Archaic components within the site, as well as material related to the Late Woodland component at the site identified in the Phase I and II work. A final field effort, termed

Stage III, focused on the placement of nine additional square meters surrounding the location of a Dalton-Hardaway point found during the final days of the Stage II excavations. This work brought the total area excavated at Beech Ridge to 108 meters. Although not all units were excavated to a meter in depth, the total volume was close to—though not equal to—108 cubic meters of site deposit.

A REVIEW OF THE BEECH RIDGE ARCHAIC COMPONENTS

During Stage I investigations, the initial indications of the early components present within the Beech Ridge Site arose in the excavation of a 2-x-2-meter block unit (N75E118), which yielded the base of a LeCroy bifurcate point manufactured from yellowish brown jasper. This artifact came out of Level 3 in the unit, at a depth of about 27 centimeters below surface. This depth placed the point roughly midway through the eolian C-horizon package noted above. In Level 6 of the same unit—at a depth of approximately 46 to 48 centimeters below surface and immediately above the contact with the paleosol B horizon—a completed corner-notched Palmer point manufactured from jasper was recovered. A second Palmer specimen was recovered from an identical stratigraphic context in Level 6 of Unit N83E122, at a depth of 48 centimeters below surface. Both of the Palmer points were recovered from close to the base of the eolian C horizon, where it contacted the underlying B horizon. Indeed, one was literally on the contact between the C horizon and the underlying paleosol.

As work progressed, other Middle Archaic diagnostic points in addition to the LeCroy specimen were recovered in contexts stratified above the level of the Palmer points. For instance, in the 1-x-2-meter unit N75E113, eventually incorporated into a trench placed along the N75 line, a contracting-stem Middle Archaic Morrow Mountain point was recovered from Level 3, at a depth of 20 centimeters below surface, a placement that corresponds to the upper eolian C horizon. This context is stratigraphically above the bifurcate point previously noted. Two additional Morrow Mountain points were also recovered, one from Level 7 of N91E122 (in the lower part of the C horizon in the north-south trench along the E123 line) and a second from Level 7 (in the lower C horizon of N80E116, albeit in a stain interpreted as a tree-root cast). Small biface retouch flakes were recovered from soil contexts associated with all of these points, marking the locations of short-term curation or resharpening activities. The Brewerton side-notched point recovered in the block placed around the Dalton-Hardaway specimen was recovered from the top of the C horizon. This Brewerton (or Big Sandy II specimen) dates to the close of the Middle Archaic period and completes a rather significant roster of Archaic points recovered from the site. Although recovered in the upper part of the C horizon, this point may reflect *in situ* contexts, given the stratigraphic "compression" in that area due to the thinning of the horizon away from the scarp overlooking the swamp bordering the site area.

Of great interest is the earliest specimen recovered from the site. Excavation in the small block unit at N95E112, placed south of HCI's Early Woodland vessel location, produced a late Paleoindian Dalton-Hardaway point manufactured from rhyolite. This point, a complete specimen, was recovered from B-horizon contexts in the lowest level in the unit (Level 7). A tree-root stain, situated in the north half of the unit, marked the floor of this square. This root

stain likely “wrapped around” the point; despite its presence within the penumbra of the feature, it is in proper stratigraphic context relative to the Palmer specimens taken from the base of the eolian C horizon. Additionally, the recovery of this late Paleoindian point from the B horizon corroborates the recovery of flakes from similar contexts in the N72E120 block. Flakes in that block came from B-horizon contexts below the Palmer points that were, as noted above, recovered from immediately above the contact between the eolian C horizon and paleosol B horizon.

The late Paleoindian and Early to Middle Archaic period point sequence documented at the Beech Ridge Site from stratified contexts is quite important, as it correlates with well-dated projectile point sequences in the greater Middle Atlantic region, the Southeast, and the Upper Ohio River Valley region. The introduction of corner-notched points—such as Palmer and Kirk varieties in the immediate post-Paleoindian era—is a pan-Eastern phenomenon. What technological and adaptive significance this shift conveys will be discussed in the summary chapter of this report. As detailed in the management summary URS prepared, the Beech Ridge Site has important implications for relating climatic events (as marked by depositional packages) with diagnostic point types and landform use on the Delmarva Peninsula. It is generally accepted that the Dalton-Hardaway point pre-dates a 10,000 B.P. timeline and would correspond well with an occupation situated on (or *within*) the upper part of the paleosol B horizon. The Palmer corner-notched examples, well dated at many sites to about 9500–10,000 years B.P., were both recovered from soil contexts that essentially reflect deposition close to the Pleistocene-Holocene boundary. These points show excellent convergence of classic artifact typology and climatic events as recognized in soil-deposition sequences. In many respects, both points, as well as a third specimen lacking the stem element, suggest that an intact Early Archaic surface was present on the paleosol, the organics of which are long leached away.

Some of the materials recovered from the additional work at Beech Ridge relate to later occupations. For instance, two lobate-based points, possibly Late Archaic or Early Woodland types (related to Piscataway perhaps) were recovered from the contact between the A2 horizon and upper C horizon in N82E116 and N77E118. Both points were manufactured from jasper. Additionally, a Fox Creek stemmed (or Selby Bay stemmed, in deference to Tom Mayr) manufactured from purple argillite was recovered from the A2 horizon of N77E118. And, finally, sherds from a shell-tempered Rappahannock Fabric-Impressed vessel were recovered from the A horizon of N95E112, the same unit that produced the Dalton-Hardaway point from its basal levels.

The archaeological record from the Beech Ridge Site is suitable for addressing a variety of topics relevant to Delmarva archaeology. These topics include issues of basic chronology, relations to climatic events, structure and composition of small task/hunting stations, and how it all relates to the regional landscape use at several points in time. Additionally, this material can be synthesized to provide a model for locating additional sites within the area that might contain comparable archaeological records. These issues are reviewed below, providing an introduction both to the main body of the report, as well as giving a prelude to the summary and interpretive sections presented in Chapter V.

Chronology

From the above passages, it is clear that a main contribution the Beech Ridge Site offers is the documentation of a solid, stratigraphy-based point sequence: Paleoindian Dalton-Hardaway, Early Archaic Palmer/Kirk Corner Notched, Middle Archaic LeCroy bifurcate period, Middle Archaic Morrow Mountain period, capped by a late Middle Archaic side-notched Brewerton-like horizon. Savannah River or Bear Island cognate points were recovered during the Phase I/II investigations in the upper C horizon, as well, more or less completing a late Paleo through Late Archaic sequence. Lobate form points in the upper C horizon and lower A2 horizon may be Late Archaic or Early Woodland in age. These latter points are similar to the Teardrop point category Mounier described in southern New Jersey. They are somewhat different than Piscataway examples known from the Potomac Valley. The A horizon also contained Early, Middle, and Late Woodland diagnostics, including both points (Selby Bay/Fox Creek) and pottery (Accokeek, Mockley, Townsend, and Rappahannock wares). The Delmarva region to date has not produced a comparable sequence, at least one that has been published. The fact that the point sequence validates the chronology from other areas is significant and suggests patterns of widespread stylistic similarities with narrow chronological boundaries.

Chronology and Its Relation to Climate and Depositional Events

Models that describe a change in vegetation from cold-adapted species (spruce and other coniferous trees) to one characterized by mixed conifer and deciduous species—marking changes from the terminal Pleistocene to the Mid-Holocene Xerothermic period—are well known and supported by many pollen sequences from the eastern United States (see summary in Petraglia 2003 for Frederick Lodge Site complex). In light of this, one question to be asked is: What implications did past changes in vegetation have for depositional events and landform evolution on the Delmarva Peninsula? The paleosol at Beech Ridge that yielded the Dalton-Hardaway material marks a stable surface, reflecting years of weathering. It was a stable, non-aggrading surface present during the close of the Pleistocene. As a surface, it represents a landform that likely supported closed-canopy vegetation. It was the surface present for occupation during the Paleoindian period, and certainly would have supported Clovis as well as the later Dalton-Hardaway components. However, with the onset of the Holocene, climate changes in vegetation occurred that had implications for depositional events. When conditions during the Holocene got drier, areas opened up, exposing surface sediment to erosion from wind, rain, and slope wash. This period of changing climatic events, well documented from many sites throughout the world (excellent examples have been documented by the author in Venezuela—Barse 2003), resulted in massive depositional events that coincide with the Middle to Late Archaic periods. The thick C horizon that caps the Dalton-Hardaway paleosol was gradually deposited during this drier climatic episode, known as the mid-Holocene Xerothermic era.

Much of this interpretive framework was developed in conjunction with Dr. Frank Vento, the consulting geomorphologist for the project. His visits to the site during the Stage I and II investigations provided an initial forum to discuss interpretive issues and a direction for understanding depositional packages in relation to climatic events. As noted above, Vento described the well-developed B-horizon paleosol as a stable surface dating to the end of the Pleistocene and early Holocene. The moderately thick C horizon capping it then reflects various

episodes of deposition via eolian processes throughout the Holocene. During the initial fieldwork, Vento's in-field observation of samples from this zone by a hand lens clearly showed frosted grains that would have resulted from processes of wind-blown deposition. The small pebbles that are ubiquitous in this zone are considered lag from the original parent material. Periods of deflation are also present, observable through grain size changes by depth. Vento's detailed summary of investigations at the site and his review of the regional literature is presented in Appendix C.

Thus, we have not only a classic point sequence at the site, but one that can be tied to specific climatic changes documented in the eastern United States and elsewhere. It can be argued that this sequence of soil horizons (or depositional events) at Beech Ridge would be useful for generating a chrono-stratigraphic model for examining other sites showing comparable profiles in the Delmarva region.

Chipping Clusters

Beech Ridge preserved excellent horizontal integrity of small chipping clusters—that is, areas where tools were resharpened. Such small lithic clusters may be interpreted as the locality of short-term visits to the site by small, task-specific groups and individuals engaged in one or more extractive activities falling within the realm of hunting, game monitoring, gathering, or foraging. Debitage is a casual marker of such activities, the remains of a task "embedded" within a larger suite of behavioral activities conducted during numerous site visits. Potentially, analysis can focus on each individual cluster from the Late Paleo through Early and Middle Archaic to evaluate how technology, raw material usage, etc., changed through time. Although not numerous in count, the debitage can provide a window on site structure and how lithic technology, or at least one facet of lithic technology, operated within the context of small site occupations. The scattered fire-cracked rocks (FCR) will tell us if and where small hearths were once present. The location of FCR was checked against the chipping clusters, along with the few specific flake tools and the projectile points to assess the patterning between and within these components.

At a comparative level beyond the site, these chipping clusters, workshop localities, or specific task areas can be related to models derived from the ethnographic record of overnight camps in the lowland tropics of South America, as well as the ethno-archaeological work conducted by researchers in Africa and Australia. At a final level of analysis, we offer interpretations that make basic statements discussing how Native-American groups used the Beech Ridge landform through time. In doing so, we also discuss how the small components present at Beech Ridge relate to the larger totality of sites in the region, via traditional settlement pattern studies.

Synthetic Model Building

The above are specific avenues of investigation pursued during the analysis of Beech Ridge and associated background materials. An attempt to provide a somewhat holistic model of Native-American Late Paleo through Archaic (Early, Middle, and Late) use of the area is offered in the final chapter. This not only relates group behavior to changing climatic conditions that controlled archaeological context as preserved in depositional events, but attempts to transcend the local

scene and make observations relevant to an anthropological approach to hunting, gathering, and foraging societies. It is *not* offered as a deterministic model, but simply an evaluation of varying sets of information and how they potentially relate to one another. This model not only describes these events in combination but also looks at how other sites can be predicted in the Delmarva area.

The remaining parts of the report are arranged as follows. Chapter II provides a brief description of the Beech Ridge Site and surrounding region. Chapter III discusses a local and regional cultural historical context that can serve as a guide to interpret some of the more important aspects of the Beech Ridge Site, in particular its reflection of a widespread chronological sequence of point types. Chapter IV is a presentation of the basic data, reviewing the excavations, site stratigraphy, materials recovered, and a discussion of the GIS maps that allow an interpretation of the chipping clusters found in the larger block unit. Chapter V is largely devoted to synthesis and discussion of a model for 1) analyzing Paleo to Archaic occupations and 2) locating additional early components. The appendices include an artifact inventory, Vento's contribution to the site and local region's geomorphology, and resumes of key personnel involved in this project. William P. Barse served as the principal author of this report, with key sections prepared by Jennifer Marston. Sharon Aho-Lauffer completed the GIS analysis, while W. P. Barse, Jennifer Marston, and Brian Seidel conducted lab work. Paul Elwork edited the text for style and consistency; Scott Hood and Lynda Bass produced graphics for the report.