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PHASE IA CULTURAL RESOURCES ASSESSMENT SURVEY OF A PROPOSED SOLAR CENTER AT 16 SOUNDVIEW DRIVE IN WOODBRIDGE, CONNECTICUT

PREPARED FOR:

verdantas
PEOPLE FOCUSED FUTURE

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ABSTRACT

This report presents the results of a Phase IA cultural resources assessment survey for a proposed solar center at 16 Soundview Drive in Woodbridge, Connecticut. The project will include the construction of a solar array, access road, and associated infrastructure on approximately 7.82 acres of land. Heritage Consultants, LLC completed the Phase IA cultural resources assessment survey on behalf of Verdantas in August of 2024. The Phase IA survey revealed that the proposed project parcel is largely characterized by forested land and an overgrown field that contains gently sloping topography. Pedestrian survey of the project parcel revealed that the entirety of the project parcel was characterized by well drained soils, gently sloping topography, and close proximity to the Wepawaug River. These areas were designated as retaining a moderate/high archaeological sensitivity. It is recommended that the moderate/high sensitivity areas that will be subjected to development be subjected to a Phase IB cultural reconnaissance survey.

Pedestrian survey also led to the identification of two small agricultural structures, a barn and a chicken coop, near the edges of the project area. These structures were documented through photography and mapping. They are not eligible for listing on the National Register of Historic Places applying the criteria for evaluations (36 CFR 60.4 [a-d]). Removal of them would not represent an adverse effect to above ground resources. Finally, two dry-laid stonewalls were identified within the project area (SW-1 and SW-2). Heritage recommends that, to the extent practicable, the stonewalls be left in place, included on project maps, and marked with high visibility fencing so that impacts to them may be avoided during construction.

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CHAPTER I
INTRODUCTION

This report presents the results of a Phase IA cultural resources assessment survey of a proposed solar facility (the Facility) at 16 Soundview Drive in Woodbridge, Connecticut. The proposed Facility will encompass approximately 7.82 acres of land located at 16 Soundview Drive in Woodbridge, Connecticut (Figure 1). Verdantas requested that Heritage Consultants, LLC (Heritage) complete the Phase IA assessment survey as part of the planning process for the proposed Facility. Heritage completed this investigation in August of 2024. All work associated with this project was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office (CT-SHPO).

Project Description and Methods Overview

The proposed Facility will consist of a solar array, access road, and associated infrastructure (Figure 2). The project parcel is situated at elevations ranging between 134 to 146 meters (439.6 to 479 feet) NGVD. It is situated on the southern side of Soundview Drive in Woodbridge, Connecticut. The parcel is bounded by residential development on all sides, while the area itself is characterized by mostly forested land. The Phase IA cultural resources assessment survey of the project parcel and Facility consisted of the completion of the following tasks: 1) a contextual overview of the region's precontact era Native American, post-European Contact period, and natural settings (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously recorded cultural resources in the region encompassing the Facility; 3) a review of readily available maps and aerial imagery depicting the project parcel in order to identify potential post-European Contact period resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the project parcel and Facility area in order to assess their archaeological sensitivity.

Project Results and Management Recommendations Overview

The review of maps and aerial images, as well as files maintained by the CT-SHPO, resulted in the identification of a single precontact era archaeological site and one standing structure previously identified in Historic Resources Inventory within 0.8 kilometers (0.5 miles) of the Facility area. The presence of these historical buildings, as well as the gently sloping nature of the Facility and its proximity to freshwater sources indicate that portions of area may have been the location of precontact era and/or post-European Contact period settlement and use.

After completion of the above-mentioned desktop review, the Facility was subjected to pedestrian survey. This review revealed that all 7.82 acres of the Facility area were characterized by gently to moderately sloping topography, well drained soils, and close proximity to the Wepawaug River. It is recommended that the areas of moderate/high archaeological sensitivity be subjected a Phase IB cultural reconnaissance survey prior to construction.

Pedestrian survey also led to the identification of two small agricultural structures, a barn and a chicken coop, near the edges of the project area. These structures were documented through photography and mapping. They are not eligible for listing on the National Register of Historic Places applying the criteria for evaluations (36 CFR 60.4 [a-d]). Removal of them would not represent an adverse effect to above ground resources. Finally, two dry-laid stonewalls were identified within the project area (SW-1 and SW-2). Heritage recommends that, to the extent practicable, the stonewalls be left in place, included on

project maps, and marked with high visibility fencing so that impact to them may be avoided during construction.

Project Personnel

Key personnel who worked on this project included David R. George, M.A., RPA, (Principal Investigator); Linda Seminario, M.A. (Project Archaeologist and Field Supervisor); William Yerxa, M.A. (Junior Historian); Nita Vitaliano, M.A. (Historian); and Tevin Jourdain, B.A. (GIS Specialist).

CHAPTER II
NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the proposed Facility in Woodbridge, Connecticut. Previous archaeological research has documented that specific environmental factors can be associated with both precontact era and post-European Contact period site selection. These include general ecological conditions, as well as types of fresh water sources present, degree of slopes, and soils situated within a given study area. The remainder of this chapter provides a brief overview of the ecology, hydrological resources, and soils present within Facility area and the larger region in general.

Ecoregions of Connecticut

Throughout the Pleistocene and Holocene Periods, Connecticut has undergone numerous environmental changes. Variations in climate, geology, and physiography have led to the "regionalization" of Connecticut's modern environment. It is clear, for example, that the northwestern portion of the state has different natural characteristics than the coastline. Recognizing this fact, Dowhan and Craig (1976), as part of their study of the distribution of rare and endangered species in Connecticut, subdivided the state into various ecoregions. Dowhan and Craig (1976:27) defined an ecoregion as:

> "An area characterized by a distinctive pattern of landscapes and regional climate as expressed by the vegetation composition and pattern, and the presence or absence of certain indicator species and species groups. Each ecoregion has a similar interrelationship between landforms, local climate, soil profiles, and plant and animal communities. Furthermore, the pattern of development of plant communities (chronosequences and toposequences) and of soil profile is similar in similar physiographic sites. Ecoregions are thus natural divisions of land, climate, and biota."

Dowhan and Craig defined nine major ecoregions for the State of Connecticut. They are based on regional diversity in plant and animal indicator species (Dowhan and Craig 1976). Only the Southwest Hills Ecoregion is germane to the current investigation. A summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found within and adjacent to the Facility area.

<u>Southwest Hills Ecoregion</u>

The Southwest Hills ecoregion consists of a near coastal upland region located within 48.3 km (25 mi) of Long Island Sound (Dowhan and Craig 1976:35). It is characterized by "low, rolling to locally rugged hills of moderate elevation, broad areas of upland, and local areas of steep and rugged topography" (Dowhan and Craig 1976:35). Elevations in the Southwest Hills ecoregion range from 76.2 to 228.6 m (250 to 750 ft) above sea level (Bell 1985), with maximum elevations of just under 304.8 m (1,000 ft) NGVD in some places. The bedrock of the region is primarily metamorphic in origin, with north trending belts of Paleozoic gneisses and schists present (Bell 1985; Dowhan and Craig 1976). Soils in this ecoregion have developed on top of glacial till in upland locales, and on top of stratified deposits of sand, gravel, and silt in the local valleys (Dowhan and Craig 1976).

Hydrology of the Study Region

The Facility area is located within close proximity of several streams, ponds and wetlands. The major fresh water in proximity to the Facility area is the Wepawaug River and its various unnamed tributaries. Previously completed archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were focal points for precontact era occupations because they provided access to

transportation routes, sources of freshwater, and abundant faunal and floral resources. These water sources also provided the impetus for the construction of water powered mill facilities during the eighteenth and nineteenth centuries.

Soils Comprising the Facility Area

Soil formation is the direct result of the interaction of several variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to many diagenic processes. Different classes of artifacts may be preferentially protected, or unaffected by these processes, whereas others may deteriorate rapidly. Cyclical wetting and drying, freezing, and thawing, and compression can accelerate chemically and mechanically the decay processes for animal bones, shells, lithics, ceramics, and plant remains. Lithic and ceramic artifacts are largely unaffected by soil pH, whereas animal bones and shells decay more quickly in acidic soils such as those that are present within the Facility area. In contrast, acidic soils enhance the preservation of charred plant remains.

A total of two soil types were identified within the Facility area, Canton and Charlton soils, which cover the entire Facility area (Figure 3). When well drained soils such as Canton and Charlton soils remain undisturbed and on less than eight percent slope, they are generally well correlated with precontact era and post-European Contact period site locations and are considered to have higher archaeological sensitivity. Below is a summary of these soil types identified within the Facility area.

<u>Canton and Charlton Soils</u>

The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are found on nearly level to very steep moraines, hills, and ridges. Slope ranges from 0 to 45 percent. A typical profile associated with Canton soils is as follows: **Oi**--0 to 5 cm; slightly decomposed plant material; **A**--5 to 13 cm; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; friable; common fine roots; 5 percent gravel; very strongly acid (pH 4.6); abrupt smooth boundary; **Bw1**--13 to 30 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; very strongly acid (pH 4.6); clear smooth boundary; **Bw2**--30 to 41 cm; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; strongly acid (pH 5.1); clear smooth boundary; **Bw3**--41 to 56 cm; yellowish brown (10YR 5/4) gravelly fine sandy loam; weak medium subangular blocky; friable; common fine and medium roots; 15 percent gravel; strongly acid (pH 5.1); abrupt smooth boundary; and **2C**--56 to 170 cm; grayish brown (2.5Y 5/2) gravelly loamy sand; massive; friable; 25 percent gravel; moderately acid (pH 5.6).

The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. Slope ranges from 0 to 60 percent. A typical profile associated with Charlton soils is as follows: **Oe**--0 to 4 cm; black (10YR 2/1) moderately decomposed forest plant material; **A**--4 to 10 cm; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; 5 percent gravel; very strongly acid; abrupt smooth boundary; **Bw1**--10 to 18 cm; brown (7.5YR 4/4) fine sandy loam; weak coarse granular structure; very friable; many fine and medium roots; 5 percent gravel; very strongly acid; clear wavy boundary; **Bw2**--18 to 48 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; 10 percent gravel and cobbles; very strongly acid; clear wavy boundary; **Bw3**--48 to 69 cm; light olive brown (2.5Y 5/4) gravelly fine sandy loam; massive; very friable; few medium roots; 15 percent gravel and cobbles; very strongly acid; abrupt wavy boundary; and **C**--69

to 165 cm; grayish brown (2.5Y 5/2) gravelly fine sandy loam with thin lenses of loamy sand; massive; friable, some lenses firm; few medium roots; 25 percent gravel and cobbles; strongly acid.

Summary

A review of mapping, geological data, ecological conditions, soils, slopes, and proximity to freshwater suggests that portions of the Facility area appear to be amenable to both precontact era and post-European Contact period occupations. This includes areas of low to moderate slopes with well-drained soil located near freshwater sources. The types of precontact sites that may be contained in these areas include task specific, temporary, or seasonal base camps, which may include areas of lithic tool manufacturing, hearths, post-molds, and storage pits.

CHAPTER III
PRECONTACT ERA SETTING

Introduction

Prior to the late 1970s and early 1980s, very few systematic archaeological surveys of large portions of the State of Connecticut had been undertaken. Rather, the precontact period of the region was studied at the site level. Sites chosen for excavation were highly visible and they were in such areas as the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the precontact period of Connecticut was developed. It was suggested that the upland portions of the state, i.e., the northeastern and northwestern hills ecoregions, were little used and rarely occupied by precontact Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, were the focus of settlements and exploitation in the precontact era. This interpretation remained unchallenged until the 1970s and 1980s when several town-wide and regional archaeological studies were completed. These investigations led to the creation of several archaeological phases that subsequently were applied to understand the precontact period of Connecticut. The remainder of this chapter provides an overview of the precontact setting of the region encompassing the project parcel.

Paleo-Indian Period (12,000 to 10,000 Before Present [B.P.])

The earliest inhabitants of the area encompassing the State of Connecticut, who have been referred to as Paleo-Indians, arrived in the area by ca., 13,000 B.P. (Gramly and Funk 1990; Snow 1980). Due to the presence of large Pleistocene mammals at that time and the ubiquity of large fluted projectile points in archaeological deposits of this age, Paleo-Indians often have been described as big-game hunters (Ritchie and Funk 1973; Snow 1980); however, as discussed below, it is more likely that they hunted a broad spectrum of animals. While there have been over 50 surface finds of Paleo-Indian projectile points throughout the State of Connecticut (Bellantoni 1995), only three sites, the Templeton Site (6-LF-21) in Washington, Connecticut, the Hidden Creek Site (72-163) in Ledyard, Connecticut, and the Brian D. Jones Site (4-10B) in Avon, Connecticut have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980; Singer 2017a; Leslie et al. 2020).

The Templeton Site (6-LF-21) is in Washington, Connecticut and was occupied between 10,490 and 9,890 years ago (Moeller 1980). In addition to a single large and two small, fluted points, the Templeton Site produced a stone tool assemblage consisting of gravers, drills, core fragments, scrapers, and channel flakes, which indicates that the full range of stone tool production and maintenance took place at the site (Moeller 1980). Moreover, the use of both local and non-local raw materials was documented in the recovered tool assemblage, suggesting that not only did the site's occupants spend some time in the area, but they also had access to distant stone sources, the use of which likely occurred during movement from region to region. More recently, the site has undergone re-investigation by Singer (2017a and 2017b), who has determined that most tools and debitage are exotic and were quarried directly from the Hudson River Valley. Recent research has focused on task-specific loci at the Templeton Site, particularly the production of numerous Michaud-Neponset projectile points, as identified through remnant channel flakes.

The Hidden Creek Site (72-163) is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut (Jones 1997). While excavation of the Hidden Creek Site produced evidence of Terminal Archaic and Woodland Period components (see below) in the upper soil horizons, the lower levels of the site yielded artifacts dating from the Paleo-Indian era.

Recovered Paleo-Indian artifacts included broken bifaces, side-scrapers, a fluted preform, gravers, and end-scrapers. Based on the types and number of tools present, Jones (1997:77) has hypothesized that the Hidden Creek Site represented a short-term occupation, and that separate stone tool reduction and rejuvenation areas were present.

The Brian D. Jones Site (4-10B) was identified in a Pleistocene levee on the Farmington River in Avon, Connecticut; it was buried under 1.5 m (3.3 ft) of alluvium (Leslie et al. 2020). The Brian D. Jones Site was identified by Archaeological and Historical Services, Inc., in 2019 during a survey for the Connecticut Department of Transportation preceding a proposed bridge construction project. It is now the oldest known archaeological site in Connecticut at +12,500 years old. The site also provides a rare example of a Paleo-Indian site on a river rather than the more common upland areas or on the edges of wetlands. Ground-penetrating radar survey revealed overbank flooding and sedimentation that resulted in the creating of a stable ancient river levee with gentle, low-energy floods. Archaeological deposits on the levee were therefore protected.

Excavations at the Brian D. Jones Site revealed 44 soil anomalies, 27 of which were characterized as cultural features used as hearths and post holes, among other uses. One hearth has been dated thus far (10,520 ± 30 14C yr BP; charred Pinus; 2-sigma 12,568 to 12,410 CAL BP) (Leslie et al. 2020:4). Further radiocarbon testing will be completed in the future. Artifact concentrations surrounded these features and were separated in two stratigraphic layers represented at least two temporally discrete Paleo-Indian occupations. The recovered lithic artifacts are fashioned from Normanskill chert, Hardyston jasper, Jefferson/Mount Jasper rhyolite, chalcedony, siltstone, and quartz (Leslie 2023). They include examples of a fluted point base, preforms, channel flakes, pièces esquillées, end scrapers, side scrapers, grinding stones, bifaces, utilized flakes, gravers, and a drilled stone pendant fragment. Lithic tools numbered over 100, while toolmaking debris was in the thousands. The channel flakes represent the production of spear points used in hunting. Scrapers, perforators, and grinding stones indicate animal butchering, plant food grinding, the production of wood and bone tools, and the processing of animal skins for clothing and tents. Other collected cultural materials included charred botanicals and calcined bone. Botanicals recovered in hearth features included burned remains of cattail, pin cherry, strawberry, acorn, sumac, water lily, and dogwood (Leslie 2023). Approximately 15,000 artifacts were collected from the site.

The scarcity of identified Paleo-Indian sites suggests a low population density during this period. The small size of most Paleo-Indian sites, their likely inundation by rising sea levels, and the high degree of landscape disturbance over the past 10,000 years likely contribute to poor site visibility, although the presence of two deeply alluvially buried Paleo-Indian sites in Connecticut suggests that other sites may be located along stable rivers (Leslie et al. 2021).

Archaic Period (10,000 to 2,700 B.P.)

The Archaic Period, which succeeded the Paleo-Indian Period, began by ca., 10,000 B.P. (Ritchie and Funk 1973; Snow 1980), and it has been divided into three subperiods: Early Archaic (10,000 to 8,000 B.P.), Middle Archaic (8,000 to 6,000 B.P.), and Late Archaic (6,000 to 3,400 B.P.). These periods were devised to describe all non-farming, non-ceramic producing populations in the area. Regional archeologists recently have recognized a final “transitional” Archaic Period, the Terminal Archaic Period (3,400-2,700 B.P.), which was meant to describe those groups that existed just prior to the onset of the Woodland Period and the widespread adoption of ceramics into the toolkit (Snow 1980; McBride 1984; Pfeiffer 1984, 1990; Witthoft 1949, 1953).

Early Archaic Period (10,000 to 8,000 B.P.)

To date, very few Early Archaic sites have been identified in southern New England. As a result, researchers such as Fitting (1968) and Ritchie (1969), have suggested a lack of these sites likely is tied to cultural discontinuity between the Early Archaic and preceding Paleo-Indian Period, as well as a population decrease from earlier times; however, with continued identification of Early Archaic sites in the region, and the recognition of the problems of preservation, it is difficult to maintain the discontinuity hypothesis (Curran and Dincauze 1977; Snow 1980).

Like their Paleo-Indian predecessors, Early Archaic sites tend to be very small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions of the United States are represented by projectile points of the Kirk series (Ritchie and Funk 1973) and by Kanawha types (Coe 1964), sites of this age in southern New England are identified on the basis of a series of ill-defined bifurcate-based projectile points. These projectile points are identified by the presence of their characteristic bifurcated base, and they generally are made from high quality raw materials. Moreover, the recovery of these projectile points has rarely been in stratified contexts. Rather, they occur commonly either as surface expressions or intermixed with artifacts representative of later periods. Early Archaic occupations, such as the Dill Farm Site and Sites 6LF64 and 6LF70 in Litchfield County, are represented by camps that were relocated periodically to take advantage of seasonally available resources (McBride 1984; Pfeiffer 1986). In this sense, a foraging type of settlement pattern was employed during the Early Archaic Period.

Another localized cultural tradition, the Gulf of Maine Archaic, which lasted from ca. 9,500 to 6,000 14C BP, is beginning to be recognized in Southern New England (Petersen and Putnam 1992). It is distinguished by its microlithic industry, which may be associated with the production of compound tools (Robinson and Peterson 1993). Assemblages from Maine (Petersen et al. 1986; Petersen 1991; Sanger et al. 1992), Massachusetts (Strauss 2017; Leslie et al. 2022), and Connecticut (Forrest 1999) reflect the selection of local, coarse-grained stones. Large choppers and hoe-like forms from southeastern Connecticut's Sandy Hill Site likely functioned as digging implements. Woodworking tools, including adzes, celts, and gull-channeled gouges recovered at the Brigham and Sharrow sites in Maine (Robinson and Petersen 1993:68) may have been used for dugout canoe manufacture. The deeply stratified Sandy Hill (Forrest 1999; Jones and Forrest 2003) and Sharrow sites (Petersen 1991), with their overlapping lenses of "black sand" floor deposits, suggest intensive site re-occupations according to an adaptation that relied, in part, on seasonally available wetland resources. Thus far, sites from this tradition have only been identified within coastal and near-coastal territories along the Gulf of Maine, in southeastern Connecticut, and in Massachusetts.

Middle Archaic Period (8,000 to 6,000 B.P.)

By the onset of the Middle Archaic Period modern deciduous forests had developed in the region (Davis 1969). Increased numbers and types of sites associated with this period are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site in Manchester, New Hampshire studied by Dincauze (1976). Careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between 7,700 and 6,000 years ago. In fact, Dincauze obtained several radiocarbon dates from the Middle Archaic component of the Neville Site associated with the then-newly named Neville type projectile point, ranging from 7,740±280 and 7,015±160 B.P. (Dincauze 1976).

In addition to Neville points, Dincauze (1976) described two other projectile points styles that are attributed to the Middle Archaic Period: Stark and Merrimac projectile points. While no absolute dates

were recovered from deposits that yielded Stark points, the Merrimac type dated from 5,910±180 B.P. Dincauze argued that both the Neville and later Merrimac and Stark occupations were established to take advantage of the excellent fishing that the falls situated adjacent to the site area would have afforded Native American groups. Thus, based on the available archaeological evidence, the Middle Archaic Period is characterized by continued increases in diversification of tool types and resources exploited, as well as by sophisticated changes in the settlement pattern to include different site types, including both base camps and task-specific sites (McBride 1984:96).

Late Archaic Period (6,000 to 3,700 B.P.)

The Late Archaic Period in southern New England is divided into two major cultural traditions that appear to have coexisted. They include the Laurentian and Narrow-Stemmed Traditions (Funk 1976; McBride 1984; Ritchie 1969a and b). Artifacts assigned to the Laurentian Tradition include ground stone axes, adzes, gouges, ulus (semi-lunar knives), pestles, atlatl weights, and scrapers. The diagnostic projectile point forms of this time period in southern New England include the Brewerton Eared-Notched, Brewerton Eared and Brewerton Side-Notched varieties (McBride 1984; Ritchie 1969a; Thompson 1969). In general, the stone tool assemblage of the Laurentian Tradition is characterized by flint, felsite, rhyolite, and quartzite, while quartz was largely avoided for stone tool production.

In terms of settlement and subsistence patterns, archaeological evidence in southern New England suggests that Laurentian Tradition populations consisted of groups of mobile hunter-gatherers. While a few large Laurentian Tradition occupations have been studied, sites of this age generally encompass less than 500 m^2 (5,383 ft^2). These base camps reflect frequent movements by small groups of people in search of seasonally abundant resources. The overall settlement pattern of the Laurentian Tradition was dispersed in nature, with base camps located in a wide range of microenvironments, including riverine as well as upland zones (McBride 1978, 1984:252). Finally, subsistence strategies of Laurentian Tradition focused on hunting and gathering of wild plants and animals from multiple ecozones.

The second Late Archaic tradition, known as the Narrow-Stemmed Tradition, is unlike the Laurentian Tradition, and it likely represents a different cultural adaptation. The Narrow-Stemmed Tradition is recognized by the presence of quartz and quartzite narrow stemmed projectile points, triangular quartz Squibnocket projectile points, and a bipolar lithic reduction strategy (McBride 1984). Other tools found in Narrow-Stemmed Tradition artifact assemblages include choppers, adzes, pestles, antler and bone projectile points, harpoons, awls, and notched atlatl weights. Many of these tools, notably the projectile points and pestles, indicate a subsistence pattern dominated by hunting and fishing, as well the collection of a wide range of plant foods (McBride 1984; Snow 1980:228).

The Narrow-Stemmed Tradition also marks one of the most prevalent manifestations of the archaeological record in southern New England, narrow-stemmed projectile points, often untyped, or typed as Lamoka, Wading River, or Squibnocket Stemmed forms. These are generally attributed to a form of projectile technology, but some (Boudreau 2008), have suggested that these tool forms might not be related to projectile technology, and may instead relate to graver or drill functions. Boudreau (2008) also drew important connections to the forms of these narrow-stemmed points with later Woodland era forms, such as Rossville points, which are nearly identical. Others (Lavin 2013; Zoto 2019) have similarly suggested a continuation of the Narrow-Stemmed Tradition into the Woodland era, with most of this evidence originating at coastal sites in southern New England. The vast majority of Narrow-Stemmed projectile points that are associated with cultural features suitable for radiocarbon dating, particularly Lamoka style projectile points, are associated with Late Archaic date ranges (Lavin 2013).

Terminal Archaic Period (3,700 to 2,700 B.P.)

The Terminal Archaic, which lasted from ca., 3,700 to 2,700 BP, is perhaps the most interesting, yet confusing of the Archaic Periods in southern New England precontact periods. Originally termed the "Transitional Archaic" by Witthoft (1953) and recognized by the introduction of technological innovations, e.g., broadspear projectile points and soapstone bowls, the Terminal Archaic has long posed problems for regional archaeologists. While the Narrow-Stemmed Tradition persisted through the Terminal Archaic and into the Early Woodland Period, the Terminal Archaic is coeval with what appears to be a different technological adaptation, the Susquehanna Tradition (McBride 1984; Ritchie 1969b). The Susquehanna Tradition is recognized in southern New England by the presence of a new stone tool industry that was based on the use of high-quality raw materials for stone tool production and a settlement pattern different from the "coeval" Narrow-Stemmed Tradition.

The Susquehanna Tradition is based on the classification of several Broadspear projectile point types and associated artifacts. There are several local sequences within the tradition, and they are based on projectile point type chronology. Temporally diagnostic projectile points of these sequences include the Snook Kill, Susquehanna Broadspear, Mansion Inn, and Orient Fishtail types (Lavin 1984; McBride 1984; Pfeiffer 1984). The initial portion of the Terminal Archaic Period (ca., 3,700-3,200 BP) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points while the latter Terminal Archaic (3,200-2,700 BP) is distinguished by Orient Fishtail projectile points (McBride 1984:119; Ritchie 1971).

In addition, it was during the late Terminal Archaic that interior cord marked, grit tempered, thick-walled ceramics with conoidal (pointed) bases made their initial appearance in the Native American toolkit. These are the first ceramics in the region, and they are named Vinette I (Ritchie 1969a; Snow 1980:242); this type of ceramic vessel appears with much more frequency during the ensuing Early Woodland Period. In addition, the adoption and widespread use of soapstone bowls, as well as the implementation of subterranean storage, suggests that Terminal Archaic groups were characterized by reduced mobility and longer-term use of established occupation sites (Snow 1980:250).

Finally, while settlement patterns appeared to have changed, Terminal Archaic subsistence patterns were analogous to earlier patterns. The subsistence pattern was still diffuse in nature, and it was scheduled carefully. Typical food remains recovered from sites of this period consist of fragments of white-tailed deer, beaver, turtle, fish, and various small mammals. Botanical remains recovered from the site area consisted of *Chenopodium* sp., hickory, butternut, and walnut (Pagoulatos 1988:81). Such diversity in food remains suggests at least minimal use of a wide range of microenvironments for subsistence purposes.

Woodland Period (2,700 to 350 B.P.)

Traditionally, the advent of the Woodland Period in southern New England has been associated with the introduction of pottery; however, as mentioned above, early dates associated with pottery now suggest the presence of Vinette I ceramics appeared toward the end of the preceding Terminal Archaic Period (Ritchie 1969a; McBride 1984). Like the Archaic Period, the Woodland Period has been divided into three subperiods: Early, Middle, and Late Woodland. The various subperiods are discussed below.

Early Woodland Period (ca., 2,700 to 2,000 B.P.)

The Early Woodland Period of the northeastern United States dates from ca., 2,700 to 2,000 B.P., and was thought to have been characterized by the advent of farming, the initial use of ceramic vessels, and increasingly complex burial ceremonialism (Griffin 1967; Ritchie 1969a and 1969b; Snow 1980). In the

Northeast, the earliest ceramics of the Early Woodland Period are thick walled, cord marked on both the interior and exterior, and possess grit temper. Archaeological investigations of Early Woodland sites in southern New England resulted in the recovery of narrow stemmed projectile points in association with ceramic sherds and subsistence remains, including specimens of white-tailed deer, soft and hard-shell clams, and oyster shells (Lavin and Salwen: 1983; McBride 1984:296-297; Pope 1952). McBride (1984) has argued that the combination of the subsistence remains and the recognition of multiple superimposed cultural features at various sites indicate that Early Woodland Period settlement patterns were characterized by multiple re-use of the same sites on a seasonal basis by small co-residential groups.

Middle Woodland Period (2,000 to 1,200 B.P.)

The Middle Woodland Period is marked by an increase in the number of ceramic types and forms utilized (Lizee 1994a), as well as an increase in the amount of exotic lithic raw material used in stone tool manufacture (McBride 1984). The latter suggests that regional exchange networks were established, and that they were used to supply local populations with necessary raw materials (McBride 1984; Snow 1980). The Middle Woodland Period is represented archaeologically by narrow stemmed and Jack's Reef projectile points; increased amounts of exotic raw materials in recovered lithic assemblages, including chert, argillite, jasper, and hornfels; and conoidal ceramic vessels decorated with dentate stamping. Ceramic types that are indicative of the Middle Woodland Period include Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizee 1994a:200).

In terms of settlement patterns, the Middle Woodland Period is characterized by the occupation of village sites by large co-residential groups that utilized native plant and animal species for food and raw materials in tool making (George 1997). These sites were the principal place of occupation, and they were positioned close to major river valleys, tidal marshes, estuaries, and the coastline, all of which would have supplied an abundance of plant and animal resources (McBride 1984:309). In addition to villages, numerous temporary and task-specific sites were utilized in the surrounding upland areas, as well as in closer ecozones such as wetlands, estuaries, and floodplains. The use of temporary and task-specific sites to support large village populations indicates that the Middle Woodland Period was characterized by a resource acquisition strategy that can best be termed as logistical collection (McBride 1984:310).

Late Woodland Period (ca., 1,200 to 350 B.P.)

The Late Woodland Period in southern New England dates from ca., 1,200 to 350 B.P., and it is characterized by the earliest evidence for the use of corn in the lower Connecticut River Valley (Bendremer 1993; Bendremer and Dewar 1993; Bendremer et al. 1991; George 1997; McBride 1984); an increase in the frequency of exchange of non-local lithics (Feder 1984; George and Tryon 1996; McBride 1984; Lavin 1984); increased variability in ceramic form, function, surface treatment, and decoration (Lavin 1980, 1986, 1987; Lizee 1994a, 1994b); and a continuation of a trend towards larger, more permanent settlements in riverine, estuarine, and coastal ecozones (Dincauze 1974; McBride 1984; Snow 1980).

Stone tool assemblages associated with Late Woodland occupations, especially village-sized sites, are functionally variable and they reflect plant and animal resource processing and consumption on a large scale. Finished stone tools recovered from Late Woodland sites include Levanna and Madison projectile points; drills; side-, end-, and thumbnail scrapers; mortars and pestles; nutting stones; netsinkers; and celts, adzes, axes, and digging tools. These tools were used in activities ranging from hide preparation to

plant processing to the manufacture of canoes, bowls, and utensils, as well as other settlement and subsistence-related items (McBride 1984; Snow 1980). Finally, ceramic assemblages recovered from Late Woodland sites are as variable as the lithic assemblages. Ceramic types identified include Windsor Fabric Impressed, Windsor Brushed, Windsor Cord Marked, Windsor Plain, Clearview Stamped, Sebonac Stamped, Selden Island, Hollister Plain, Hollister Stamped, and Shantok Cove Incised (Lavin 1980, 1988a, 1988b; Lizee 1994a; Pope 1953; Rouse 1947; Salwen and Ottesen 1972; Smith 1947). These types are more stylistically diverse than their predecessors with incision, shell stamping, punctation, single point, linear dentate, rocker dentate stamping, and stamp and drag impressions common (Lizee 1994a:216).

Summary of Connecticut Precontact Period

The precontact period of Connecticut spans from ca. 13,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. Much of this era is characterized by local Native American groups who practiced a subsistence pattern based on a mixed economy of hunting and gathering plant and animal resources. It is not until the Late Woodland Period that incontrovertible evidence for the use of domesticated species is available. Further, settlement patterns throughout the precontact period shifted from seasonal occupations of small co-residential groups to large aggregations of people in riverine, estuarine, and coastal ecozones. In terms of the region that includes the proposed Facility area, a variety of precontact site types may be expected, ranging from seasonal camps utilized by Paleo-Indian and Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV
POST-EUROPEAN CONTACT PERIOD OVERVIEW

Introduction

The proposed Facility will be built on7.82 acres of land in the town of Woodbridge, Connecticut. This chapter provides an overview of the town of Woodbridge and New Haven Country, as well as details regarding the project parcel and Facility area. Most Connecticut towns, including Woodbridge, originated as areas of Native American settlement and later became English colonial villages. In the sixteenth and seventeenth centuries, English colonists from Massachusetts settled in the area known as Quinnipiac in April of 1638, where they negotiated with the Sachem of the area for land and soon after established New Haven Colony. By 1643, the colony consisted of the towns of New Haven, Milford, Guilford, Branford, and Stamford, and at that time, present-day Woodbridge fell within the bounds of both Milford and New Haven. Woodbridge, incorporated in 1784, developed around agriculture, with New Haven harbor serving as the link to maritime trade. Through the nineteenth and twentieth centuries, Woodbridge continued to function as an agricultural hub that supplied nearby urban areas and allowed townspeople to engage in substantial economic activities. In the twenty-first century, the town has become a residential community which has undergone significant suburbanization. Even so, some areas of Woodbridge retain elements of its natural landscape and rural past.

New Haven County

New Haven was one of the four original counties established in 1666 following the merger of Connecticut Colony and New Haven Colony (Van Dusen 1961). Located in the southwestern corner of Connecticut, it is bounded in the south by Long Island Sound, east by Middlesex County, north by Hartford and Litchfield Counties, and west by Fairfield County and is the second-largest county in Connecticut by total area. Its landscape includes rich farmland, upland regions to the north, significant freshwater rivers, and an extended shoreline on Long Island Sound. Important waterways associated with New Haven County include the Hammonasset, East, West, Farm, Quinnipiac, Mill, Oyster, Indian, and Wepawaug Rivers (Rockey 1892). The shoreline also has many smaller rivers, harbors, islands, and inlets. The county's three largest cities are New Haven, Waterbury, and Meriden. Other important population centers are located at West Haven, Milford, and Ansonia (Connecticut 2020).

Woodland Period to Seventeenth Century

During the Woodland Period of northeastern North American history (about 3000 to 2500 years ago) the indigenous peoples who resided in present-day Connecticut were part of the greater Algonquian culture of northeastern North America (Lavin 2013). They spoke local variations of Southern New England Algonquian languages and resided in extended kinship groups on lands they maintained for a variety of horticultural and resource extraction purposes (Goddard 1978). Native people in the region practiced subsistence activities including hunting, fowling, and fishing, along with the cultivation of various crops, the most important of which were maize, squash, and beans. They supplemented these foods seasonally by collecting shellfish, fruits, and plants during warmer periods, and gathering nuts, roots, and tubers during colder times (Lavin 2013).

In addition, these communities came together in large groups to hunt deer in the fall and winter. Indigenous peoples lived with their immediate or extended families in large settlements often concentrated along rivers and/or wetlands. Some villages were fortified by wooden palisades. Their habitations, known as a *weetu* or *wigwam,* were generally constructed of a tree sapling frame and

covered in reed matting during warm months and tree bark throughout the winter. These varied in size from a small, individual dwelling to an expansive "long house" which could accommodate several families. Native communities traded with their immediate neighbors and often maintained long-distance networks as well (Lavin 2013). At the time of the arrival of Europeans, the Native people who inhabited the present-day bounds of Woodbridge were associated with the Quinnipiac and Paugussett communities and the area was known as "Quinnipiac" (DeForest 1852; Lavin 2013). Their homeland included parts of the present-day towns of West Haven, New Haven, East Haven, Branford, North Branford, Guilford, and Madison but also included the towns of North Haven, Wallingford, Hamden, Woodbridge, and Bethany, as well as parts of Prospect and Cheshire (DeForest 1852; Lavin 2013).

Seventeenth Century through Eighteenth Century

As Native communities maintained an oral tradition rather than a written record, most surviving information of the Quinnipiac people of present-day New Haven County was recorded by European observers (Lavin 2013). The earliest Europeans known to have visited Long Island Sound were the Dutch around 1614. During that voyage, Captain Adrian Block created a figurative map of the region that depicted the present-day New Haven County shoreline, along with what appears to be the Quinnipiac and Housatonic Rivers. They referred to the area as "Rodenberg," or Red Mountains, due to the reddish appearance of East Rock that overlooked the harbor (Rockey 1892). They established trade relationships with Native people of the area by the early 1620s and entered an agreement with the Pequot of present-day southeastern Connecticut who would provide wampum and furs for European goods. By 1624, the Dutch West India Company established the colony of New Netherland centered around Manhattan and the Hudson River, but its eastern bounds extended as far as Cape Cod (Jacobs 2009). Through their relationship with the Dutch, the Pequot accessed a variety of trade goods they distributed to tributaries and/or traded with other regional groups. They extended their dominance over the Connecticut shoreline, eastern Long Island, and the lower Connecticut River Valley bringing groups there into a tributary relationship under their leadership, including the Quinnipiac (Hauptman & Wherry 2009; McBride 2013).

In 1633, the Pequot allowed the Dutch to build a trading post on the Connecticut River at the site of present-day Hartford to further their domination over wampum, fur, and trade goods. To break from the Pequot, several Connecticut River sachems invited the English to the valley who settled Windsor (1633), Wethersfield (1634), Hartford (1635) and Saybrook (1635) (Van Dusen 1961). Tensions grew on the Connecticut River following the death of several English traders in 1634 and 1636 which were blamed on the Pequot. In retaliation Massachusetts Bay soldiers destroyed Pequot villages in August of 1636 which began the Pequot War (1636-1638). It was fought largely along the Connecticut River until forces from Connecticut Colony destroyed a Pequot village at Mistick which proved the turning point of the war. The Pequot fled west, and English forces gave chase, making landfall at Quinnipiac and pursuing them to present-day Fairfield where the final battle of war was fought in July of 1637 (Cave 1996). Settlers from Massachusetts returned to Quinnipiac in April of 1638 where they negotiated with the Sachem of the area for land and soon after New Haven Colony was founded (Rockey 1892). By 1643, the colony consisted of the towns of New Haven, Milford, Guilford, Branford, and Stamford which developed around agriculture with New Haven harbor serving as the link to maritime trade. At the time, present-day Woodbridge fell within the bounds of both Milford and New Haven. In 1661, Governor John Winthrop, Jr., of Connecticut sailed for England to petition King Charles II for an official royal charter to legitimize the colony. He succeeded in 1662 and New Haven Colony merged with Connecticut Colony in May of 1665. Reserved lands for the Quinnipiac were maintained in the East Haven section of New Haven around 1638, and reserved lands for the Paugussett were established at Turkey Hill in present-day Derby in the 1650s (DeForest 1852). By the 1660s, water-powered industries including sawmills, gristmills and fulling mills took root along New Haven County's numerous waterways (Rockey 1892). In

the area that became the town of Woodbridge, this included water-powered mills along the Wepawaug River, Race Brook, and West River.

In 1701, New Haven became the co-capital of Connecticut Colony along with Hartford. Throughout the eighteenth century, New Haven County's population steadily increased, and the area developed into an important agricultural region with strong maritime connections to activities and industries such as fishing, shipbuilding, and international trade (Lambert 1838; Van Dusen 1961). English residents were primarily farmers and raised crops such as corn, rye, oats, barley, and tobacco. The western boundary of New Haven, which would later become Woodbridge, was known as Amity in the early eighteenth century. The farmers there turned to grazing and raised livestock including cattle, sheep, and pigs while benefiting from water-powdered industry in the form of gristmills, sawmills, and fulling mills (Van Dusen 1961). Slavery existed in New Haven County although it was uncommon in the seventeenth century, and by the eighteenth century it was primarily practiced by wealthy families, merchants, and ministers in large towns (Rockey 1892). It is unclear if any residents in the area that would become Woodbridge were slaveowners prior to the Revolutionary War as the town does not appear on the 1774 Connecticut Census. Over 400 African Americans resided in the towns of Milford and New Haven, and despite the 1774 Connecticut Census' lack of distinction between enslaved and free African Americans, many of those 400 residents were likely enslaved (Hoadly 1887).

During the American Revolution (1775-1783) New Haven County played an important role in recruiting soldiers, supplying food stores, and providing a variety of military goods for the war effort. Throughout the war, the New Haven County shoreline suffered raids from Long Island-based loyalists who would take cattle and sheep to sell to the British in New York. In 1779 New Haven was the first of several western Connecticut shoreline towns invaded in what was known as "Tryon's Raid." On July 5, British troops seized control of the town and destroyed military stores before reembarking (Lambert 1838; Van Dusen 1961). No other military attempt was made on New Haven during the war. After the Revolution, New Haven County recovered from wartime economic disruptions thanks to its robust agricultural production and maritime trade. In 1784, New Haven was incorporated as one of the first five cities in the state and that same year, the town of Woodbridge was formed out of land taken from western New Haven and northern Milford (Barry 1985). That same year, Connecticut passed a gradual manumission law, but slavery was not fully abolished until 1848 (Normen 2013). On January 9, 1788, Connecticut ratified the U.S. Constitution to become the fifth state (Van Dusen 1961).

Nineteenth Century through the Twenty-first Century

At the beginning of the nineteenth century, most New Haven County towns, including Woodbridge, had relatively small populations. In 1800 the town counted a total of 2,198 residents including at least 57 free people of color and 6 slaves (U.S. Census 1800). By 1830, that population figure had decreased to 2,052 which reflects the rural nature of Woodbridge as opposed to the neighboring industrial areas of New Haven, Bridgeport, and Waterbury (U.S. Census 1830). The town relied primarily on an agricultural economy which supplied nearby urban areas and port towns with fruits, vegetables, dairy products, and beef (Rockey 1892). Although industry and manufacturing did not take root in Woodbridge, many industrial workers from the nearby cities resided in Woodbridge. In 1839, the first railroad in the county was constructed between New Haven and Hartford. Rail service was significantly expanded in 1848 with the completion of the New York & New Haven railroad which benefited neighboring Woodbridge (Turner and Jacobus 1986). During the Civil War, Woodbridge produced food stores for the war effort and 60 men served with Union forces (Hines 2002). Throughout the nineteenth century Woodbridge remained a small agricultural and residential town with a modest population of 926 by the century's close in 1890 (Connecticut 2022c).

In the early twentieth century, the shoreline and river municipalities of New Haven County had a mix of urban and suburbanized landscapes while the interior towns remained primarily rural, as is the case with Woodbridge. As the twentieth century progressed, however, the trend toward suburban living brought many more permanent residents to Woodbridge, further boosting the population (Herzan 1997; Connecticut 2022d). This suburban trend was facilitated by the widespread adoption of the automobile by the American middleclass and new highway construction. The Federal Highway Acts of 1944 and 1956 funded the construction of Interstates 84, 91, and 95 through New Haven County which were completed in the late 1960's (Connecticut 2022b). Throughout the twentieth century, industrialization subsided and suburbanization increased. The automobile, together with the establishment of highways, facilitated population movement as people moved out of cities and into towns. In the twenty-first century, Woodbridge remains a suburban landscape with some commercial development, yet it retains aspects of its historically rural character. Overall, the population of the town has steadily increased in the past fifty years as a suburb of New Haven, Bridgeport, and even Waterbury. As of 2010, the federal census enumerated 8,990 people living in the town of Woodbridge, and by 2020 the population of Woodbridge had increased to 9,087 people (US Census 2021; Table 1).

Table 1: Population of Woodbridge, New Haven County, Connecticut 1790-2020 (Connecticut 2022a-d)

Town	1790	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900
Woodbridge, New Haven County	2,124	2,198	2,030	1,988	2,052	958	912	872	830	829	926	852
	1910	**1920**	**1930**	**1940**	**1950**	**1960**	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**
	878	1,170	1,630	2,262	2,822	5,182	7,673	7,761	7,924	8,983	8,990	9,087

History of the Project Area

The proposed Facility is located south of Soundview Drive in the town of Woodbridge, Connecticut. The earliest map available of the area dates from 1854 and shows that the Facility is located in the southeast region of a section of Woodbridge known then as "Milford Meadows." There were few residential or commercial structures near the Facility as of 1854, the closest being those owned by S. Merrin and J. Hemingway. They were situated approximately 300 m (984 ft) to the east of the proposed Facility (Figure 4). In addition, Newton Road and Burnt Swamp Road (carrying to Route 63) were in their approximate present-day alignment as of 1854 (Figure 4). The Facility area as pictured in Beers' 1868 county map remained largely consistent with the 1854 county map. Noticeable differences in Beers' map, however, include the relabeling of Milford Meadows to Prospect Hill, although Milford Meadows does still appear on the map further away near a wetland approximately 600 m (1968 ft) to the northwest of the Facility (Figure 5). As of 1868, a brook, not depicted in the 1854 county map, extended from the Milford Meadows wetland area south and through the Prospect Hill region. The 1868 map does not indicate that the number of residences has dramatically changed in the vicinity of the proposed project area, though S. Merrin has been relabeled as M.G. Perkins, but J. Hemingway remains the same (Figure 5).

J. Hemingway is likely John Hemingway, who was 31 years old at the time of the 1860 federal census. According to the federal census of that year, Hemingway was married and had a four-year-old daughter, Jesse H Hemingway. John Hemingway's real estate was valued at $1,000.00 and his personal estate was valued at $200.00 (United States Census Bureau [USCB] 1860). At the height of the Civil War in 1863 John Hemingway appears on a draft registration record that lists his occupation as "farmer" and his prior military service as "none" (Ancestry.com 2010). The military service record does not indicate that John Hemingway ultimately served in the Civil War. Though his occupation is listed as farmer in the draft

record of 1863, the federal census of 1870 lists his occupation as “carpenter” and both his personal and real estate value have increased to $500.00 and $3,000.00, respectively (United States Census Bureau [USCB] 1870). However, the census does not list his young daughter Jesse H., though a three-year-old son George appears, as well as John’s 45-year-old sister Nancy, who under occupation is listed as “invalid” (United States Census Bureau [USCB] 1870). A decade later, John Hemingway’s occupation has changed to “Painter” (United States Census Bureau [USCB] 1880). His then 13-year-old son George was listed under his household, as well as his sister Nancy, then 55 years old. The 1900 federal census, the last that John Hemingway participated in before his death in 1901, reveals yet more about John. A year before his death, John Hemingway was 74 years old, had been married to Mary Hemingway for 44 years, could both read and write, and owned his own home (United States Census Bureau [USCB] 1900). In many ways, John Hemingway’s life in the nineteenth century is reflective of the rapidly changing ways of life in that century. Hemingway’s proximity to New Haven likely allowed him to pursue more specialized occupations, and his change from farmer, to carpenter, and finally to painter speaks to his remarkable ability to adapt to the industrial and societal changes in the nineteenth century.

The earliest aerial photography of the land containing the Facility dates from 1934. Aerial photography from this year shows the area as largely cleared fields with forested areas directly to the south boundary of the Facility. The photograph shows one residence approximately 50 m (164 ft) to the east of the project area, and both Newton Road and Burnt Swamp Road are visible as well (Figure 6). Aerial photography from 1951 shows that the proposed Facility and the land in its immediate vicinity as mostly cleared fields with dense woodland directly to the south (Figure 7). The aerial photography from 1951 shows the residence previously mentioned approximately 50 m (164 ft) to the east of the project area (Figure 7). Aerial photography from 1970 shows the composition of the land in and around the project parcel as being largely consistent with aerial photography from 1951 (Figure 8). The previously cleared fields approximately 100 m (328 ft) to the northwest of the project parcel appear to have undergone reforestation, and at least two new residential structures were built approximately 100 m (328 ft) to the southeast of the project parcel (Figure 8). In addition, the outline of Forest Glen Drive appears 50 m (164 ft) to the north of the project area (Figure 8). The aerial photography from 1990 shows substantial residential growth in the area surrounding the proposed project parcel. Aerial photography from this year shows Forest Glen Drive and Prospect Road have been completed, and numerous new residential structures appear approximately 50 m (164 ft) to the northern boundary of the proposed project parcel. The eastern half of the project area remains cleared in the 1990 aerial photography; however, the western half of the project parcel had begun to be reforested in young, wooded vegetation (Figure 9).

Aerial photography from the twenty-first century shows an approximate plateau in residential growth in the area surrounding the proposed project parcel, which is consistent with population growth in Woodbridge in the twenty-first century (see Table 1). Aerial photography from 2004 shows residential growth along the newly constructed Penny Lane 200 m (656 ft) to the south of the project parcel. A new residential structure also appears 50 m (164 ft) to the western boundary of the project parcel (Figure 2004 Aerial). The composition of cleared field and secondary growth within the project parcel is consistent with aerial photography of the project area from 1990 (Figure 11). Aerial photography from 2019 shows that no new residential structures were constructed in the land around the project parcel since the aerial photography of 2004 (Figure 11). The eastern portion of the land within the project parcel shows that the cleared field has been let to regrow wooded vegetation while the western portion of the project area remains forested (Figure 11). One small path running from north to south within the newly forested eastern section can be seen from the aerial photography from 2019. The aerial photography from both the twentieth and twenty-first century shows that, while the land outside the

project parcel has undergone significant residential growth and development, the project parcel itself has remained undeveloped and free of residential or commercial structures (Figure 11).

Conclusions

The above-referenced maps and aerial images do not show the locations of any former buildings or above ground cultural resources. However, due to the landscape mainly consisting of forested land and agricultural fields, there is the possibility of encountering remains of outbuildings, stonewalls, or other evidence of post European Contact period farming.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previously identified cultural resources in the vicinity of the Facility in Woodbridge, Connecticut. This discussion provides the comparative data necessary for assessing the results of the Phase IA cultural resources assessment survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the proposed Facility are taken into consideration. Specifically, this chapter reviews previously identified archaeological sites, National/State Register of Historic Places properties (NRHP/SRHP), and previously identified standing structures over 50 years in age within 0.8 kilometers (0.5 miles) of the Facility. The discussions presented below are based on information currently on file at the Connecticut State Historic Preservation Office (CT-SHPO) in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage were examined during this investigation. Both the quantity and quality of the information contained in the original cultural resources survey reports and State of Connecticut archaeological site forms are reflected below.

Previously Recorded Archaeological Sites and National/State Register of Historic Places Districts/Properties in the Vicinity of the Facility Area

A review of data currently on file at the CT-SHPO, as well as the electronic files maintained by Heritage resulted in the identification of a single precontact era archaeological site (167-14) and one inventoried standing structure older than 50 years within 0.8 kilometers (0.5 miles) of the proposed Facility (Figures 12 and 13). No National or State Register of Historic Places properties were identified within 0.8 kilometers (0.5 miles) of the Facility area. The archaeological site and the standing structure are reviewed below and provide context with which to assess the Facility for containing additional intact cultural resources.

Site 167-14

Site 167-14, which is also known as the Newton Road Site, is a precontact era campsite dating from an unknown period in Woodbridge, Connecticut. The site was subjected to surface collection at an unknown time, and a number of unspecified projectile points were recovered. Site 167-14 was recorded by CAS in 1979; however, it was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The Newton Road Site is located approximately 0.28 kilometers (0.17 miles) to the northeast of the Facility and will not be impacted by the proposed construction.

Leonard & Marion Downey House

The Leonard & Marion Downey House is an inventoried historic residence located at 157 Newton Road in Woodbridge, Connecticut. It is a Colonial Revival style building that was constructed in 1932. The wood framed house is two-stories in height and has symmetrically placed windows across its façade and a centrally placed front door that below a pediment that is supported by flush columns on either side. This building, which is in excellent conditions, is located approximately 0.75 kilometers (0.47 miles) to the northeast of the Facility area and will not be impacted by the proposed construction.

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methods used to complete the Phase IA cultural resources assessment survey of the proposed project parcel and Facility in Woodbridge, Connecticut. The following tasks were completed during this investigation: 1) study of the region's precontact era, post-European Contact period, and natural settings, as presented in Chapters II through IV; 2) a literature search to identify and discuss previously recorded cultural resources in the region; 3) a review of historical maps, topographic quadrangles, and aerial imagery depicting the project parcel and Facility in order to identify potential historical resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the project parcel and Facility area in order to determine their archaeological sensitivity.

Research Design

The current Phase IA cultural resources reconnaissance survey was designed to identify all precontact era Native American and post-European Contact period cultural resources located within and near the project parcel and Facility in Woodbridge, Connecticut. The undertaking was comprehensive in nature and considered the distribution of previously recorded cultural resources located within the larger region, local soil conditions, and a visual assessment of the proposed project parcel and Facility. The methods used to complete this investigation were designed to provide coverage of all portions of the project parcel and Facility, including both below and above ground resources. The fieldwork portion of this undertaking entailed pedestrian survey, photo-documentation, and mapping.

Archival Research & Literature Review

Background research for this survey included a review of a variety of maps depicting the proposed preject parcel and Facility; an examination of USGS 7.5' series topographic quadrangles; an examination of aerial images dating from 1934 through 2019; and a review of all archaeological sites and NRHP/SHRP properties/districts, and previously identified standing structures over 50 years old on file with the CT-SHPO, as well as electronic cultural resources data maintained by Heritage. The intent of this review was to identify all previously recorded cultural resources situated within and immediately adjacent to the project parcel, and to provide a natural and cultural context for the project parcel and Facility. This information then was used to develop the archaeological context of the project parcel and Facility, and to assess their sensitivity with respect to the potential for producing intact cultural resources.

Background research materials, including maps, aerial imagery, and information related to previous archaeological investigations, were gathered from the CT-SHPO. Finally, electronic databases and Geographic Information System files maintained by Heritage were employed during the course of this survey, and they provided valuable data related to the project parcel and Facility, as well as data concerning previously identified archaeological sites, NRHP/SHRP properties/districts, and previously identified standing structures over 50 years old within the general vicinity of the development area.

Field Methodology and Data Synthesis

Heritage personnel performed pedestrian survey, photo-documentation, and mapping of the Facility, as well as the surrounding parcel. During the pedestrian survey, Heritage staff members visually reconnoitered the project parcel and Facility, and noted the locations of all above-ground cultural

features, standing structures over 50 years old, previous disturbances, wetlands, topographic relief, and locations of freshwater sources within and immediately adjacent it. These natural and cultural landscape features were recorded on a survey base map. Any identified cultural resources were recorded using a GPS unit so that their locations could be transferred into the project GIS.

In addition, during the pedestrian survey, the field crew photo-documented the proposed Facility location and the surrounding areas, including previously identified standing structures over 50 years old and any other historic buildings on the property. The locations from which all photos were taken, as well as directional indications, were recorded on a base map of the project parcel and Facility. The photo-documentation portion of the survey was completed using color digital media. The pedestrian survey was useful to stratify the project parcel and Facility into zones of no/low and moderate/high archaeological sensitivity.

CHAPTER VII
RESULTS OF THE INVESTIGATION & MANAGEMENT RECOMMENDATIONS

Introduction

This chapter presents the results of the Phase IA cultural resources assessment survey associated with the proposed project parcel and Facility at 16 Soundview Drive in Woodbridge, Connecticut (Figure 14 and Photos 1 through 19). As stated in the introductory section of this report, the goals of the investigation included completion of the following tasks: 1) a contextual overview of the region's precontact era Native American, post-European contact period, and natural settings (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously recorded cultural resources in the Project region; 3) a review of readily available maps and aerial imagery depicting the project parcel and Facility to identify potential post-European Contact period resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the project parcel and Facility to determine their depositional integrity, historical associations, and archaeological sensitivity.

Determining Archaeological Sensitivity

The field data associated with soils, slopes, aspect, distance to water, and previous disturbance collected during the pedestrian survey and presented above was used in conjunction with the analysis of maps, aerial images, and data regarding previously identified archaeological sites NRHP/SRHP properties/districts, and previously identified standing structures over 50 years old to stratify the project parcel into zones of no/low and/or moderate/high archaeological sensitivity. In general, post-European Contact period archaeological sites are relatively easy to identify on the current landscape because the features associated with them tend to be relatively permanent constructions that extend above the ground surface (i.e., stone foundations, pens, wells, privies, etc.). Archaeological sites dating from the precontact era, on the other hand, are less often identified during pedestrian survey because they are buried, and predicting their locations relies more on the analysis and interpretation of environmental factors that would have informed Native American site choices.

With respect to the potential for identifying precontact archaeological sites, the Facility area was divided into areas of no/low and/or moderate/high archaeological potential by analyzing the landform types, slope, aspect, soils contained within them, and their distance to water. In general, areas located less than 300 meters (1,000 feet) from a freshwater source and that contain slopes of less than 8 percent and well-drained soils possess a high potential for producing precontact archaeological deposits. Those areas located between 300 and 600 meters (1,000 and 2,000 feet) from a freshwater source and well drained soils are considered moderate probability areas. This is in keeping with broadly based interpretations of precontact settlement and subsistence models that are supported by decades of previous archaeological research throughout the region. It is also expected that there may be variability of precontact site types found in the moderate/high sensitivity zones. For example, large Woodland period village sites and Archaic period seasonal camps may be expected along large river floodplains and near stream/river confluences, while smaller temporary or task specific sites may be expected on level areas with well-drained soils that are situated more than 300 meters (1,000 feet) but less than 600 meters (2,000 feet) from a water source. Finally, steeply sloping areas, poorly drained soils, or areas of previous disturbance are generally deemed to retain a no/low archaeological sensitivity with respect to their potential to contain precontact archaeological sites.

In addition, the potential for a given area to yield evidence of post-European Contact period archaeological deposits is based not only on the above-defined landscape features but also on the presence or absence of previously identified post-European Contact period archaeological resources as identified during previous archaeological surveys, recorded on historical maps, or captured in aerial images of the region under study. In this case, portions of a proposed Facility area that are situated within 100 meters (328 feet) of a previously identified post-European Contact period archaeological site or a National or State Register of Historic Places district/individually listed property also may be deemed to retain a moderate/high archaeological sensitivity. In contrast, those areas situated over 100 meters (328 feet) from any of the above-referenced properties would be considered to retain a no/low post-European Contact period archaeological sensitivity.

Results of Phase IA Survey Desktop Research

As noted above, the Facility will encompass approximately 7.82 acres of land located to the south of Soundview Drive. The development parcel is positioned to the east of Wepawaug River. The Facility area is situated at elevations ranging between 134 to 146 meters (439.6 to 479 feet) NGVD. The desktop portion of the Phase IA survey revealed that one previously identified precontact era site was located within 0.8 kilometers (0.5 miles) of the Project parcel. In addition, the desktop review revealed that there is one previously identified standing structure over 50 years in age within 0.8 kilometers (0.5 miles) of the Facility area. During the desktop survey, an additional two structures directly next to the Facility were identified; they are not listed in any Historic Resources Inventory. These buildings include a barn near the southern boundary of the facility area and a chicken coop near the northern boundary.

The identification of the previously identified archaeological site as well as its close proximity to the Wepawaug River suggested that the Facility area may have had the potential to yield intact archaeological deposits from both the precontact era and post-European Contact period prior to completion of the pedestrian survey (see below for pedestrian survey results).

Results of Phase IA Pedestrian Survey

Heritage personnel conducted a pedestrian survey of the Facility area in August of 2024. At that time, the Facility area was characterized by an overgrown field with sparse trees in the eastern portion, and a secondary growth forest in the western portion with dense vegetation. (Photos 1 and 2). The Facility area is situated on gently sloping western facing topography. A manicured grass access road runs north to south between the wooded and field areas (Photo 3). A small barn is present on the southern boundary of the facility area, and a chicken coop is present just north of the north boundary and within the project parcel (Photos 4 and 5). The identified buildings are not eligible for listing on the National Register of Historic Places applying the criteria for evaluations (36 CFR 60.4 [a-d]). Removal of them would not represent an adverse effect to above ground resources.

The pedestrian survey completed during the Phase IA survey revealed that all 7.82 acres of land in the Facility area were characterized by well drained soils, gently sloping topography, and close proximity to the Wepawaug River. These areas were designated as retaining a moderate/high archaeological sensitivity (Figure 14). It is recommended that the moderate/high sensitivity areas of the proposed Facility be subjected to a Phase IB cultural reconnaissance survey.

Pedestrian survey also led to the identification of two dry-laid stonewall within the Facility area. These were designated as Stonewalls SW-1 and SW-2 (Figure 14; Photos 6 and 7). Stonewall SW-1 is a small north to south segment situated near the southern boundary of the project area. Stonewall SW-2 is perpendicular to Stonewall SW-1 and runs east and west along the southern boundary of the tree

clearing area. Both stonewalls were found to be in good condition. It is recommended that to the extent practicable, Stonewalls SW-1 and SW-2 be left in place and that they be included on project maps and marked with visibility fencing in the field so that impacts to them may be avoided during construction.

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APPENDIX A

FIGURES

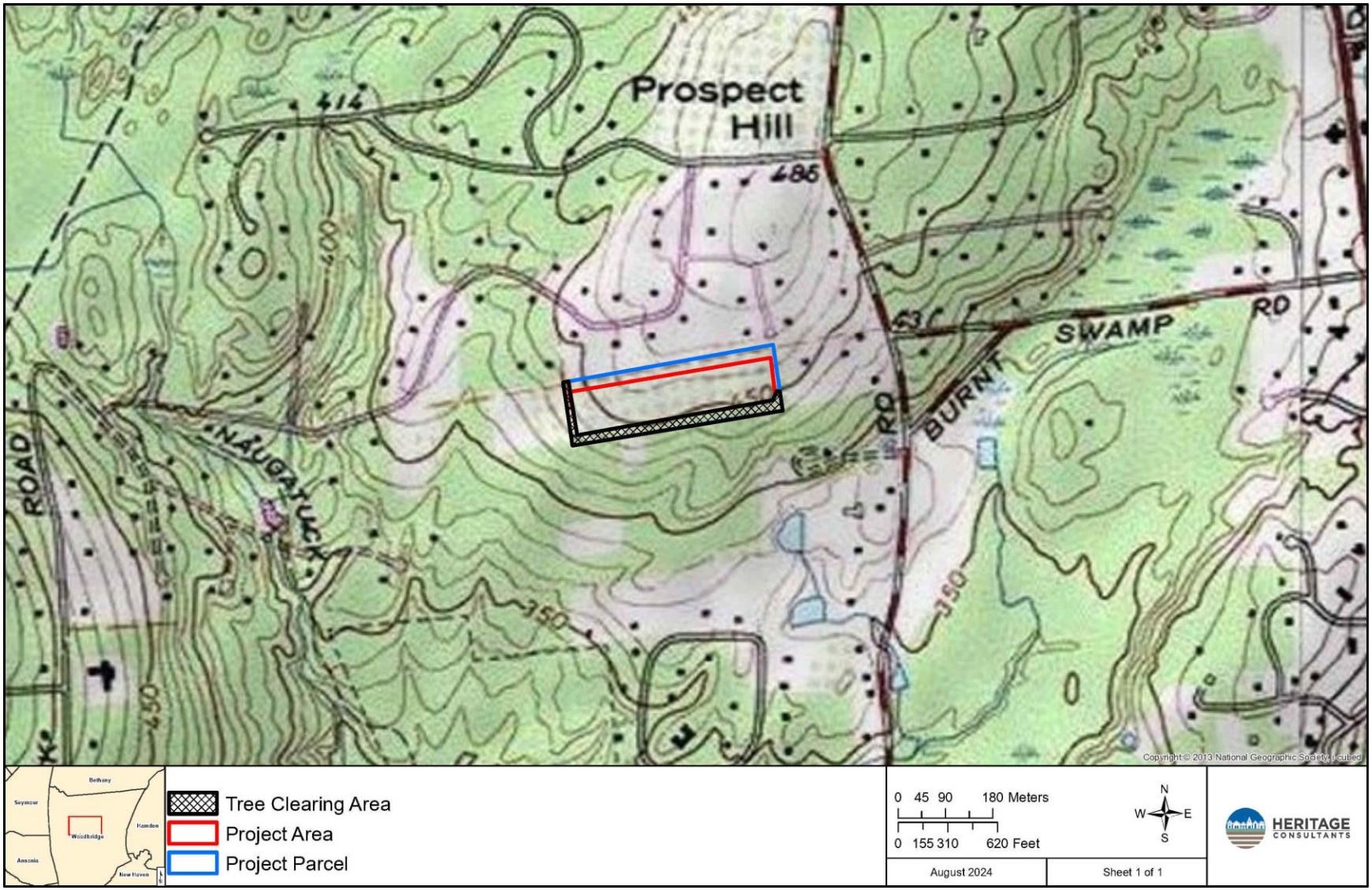

Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the project parcel in Woodbridge, Connecticut.

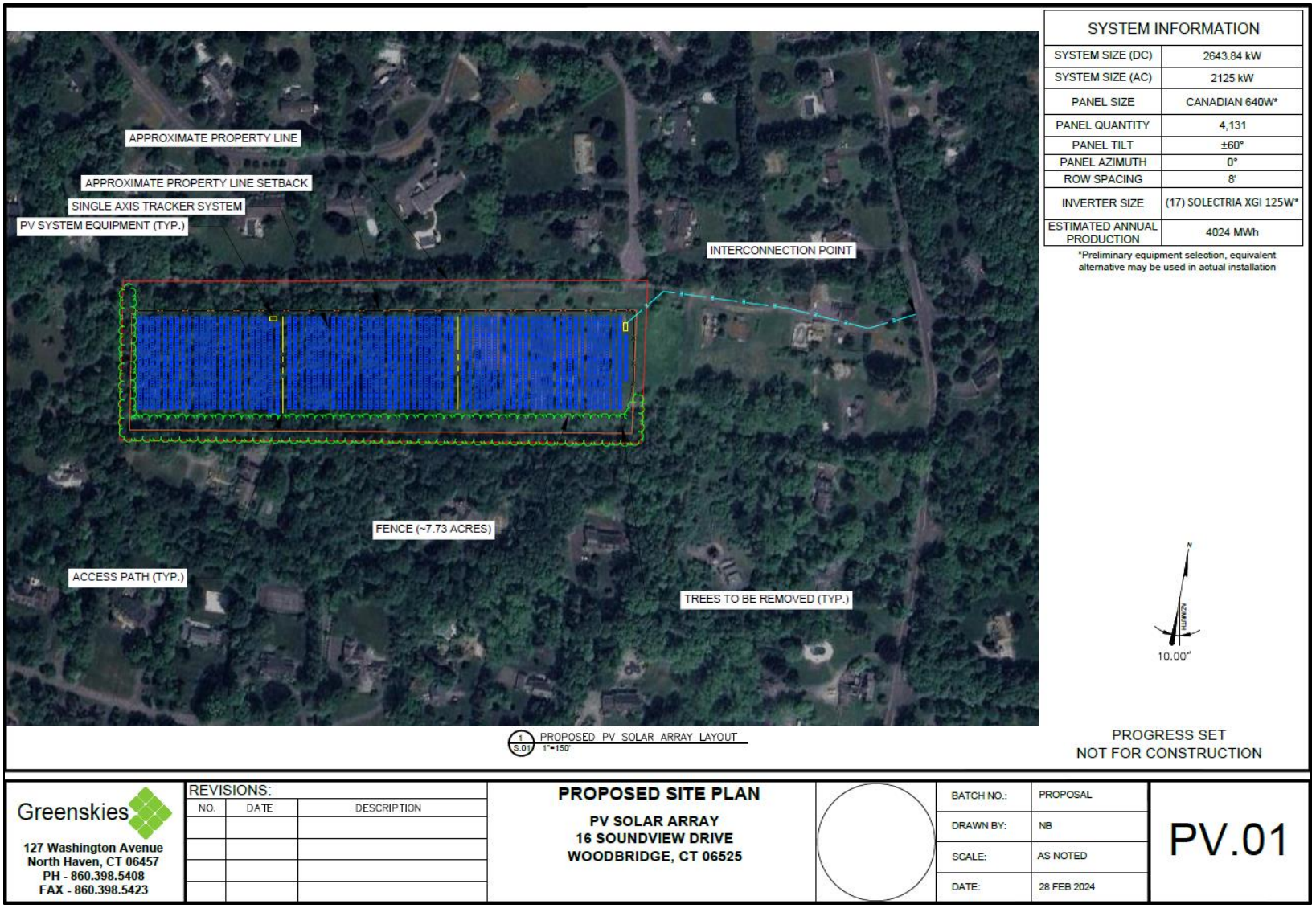

Figure 2. Digital map depicting the client's project plans for the solar facility in Woodbridge, Connecticut.

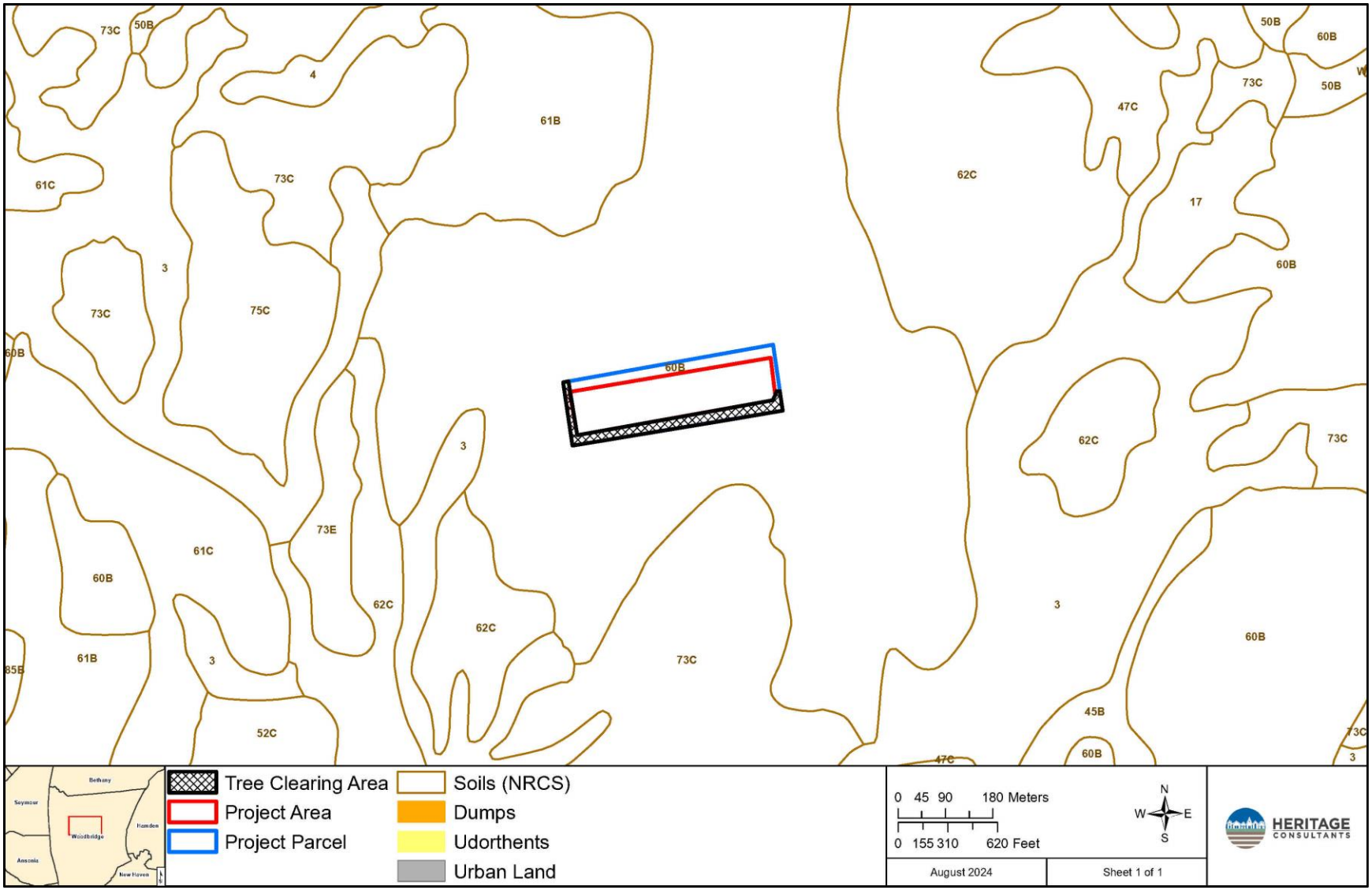

Figure 3. Digital map depicting the soil types present in the vicinity of the project parcel in Woodbridge, Connecticut.

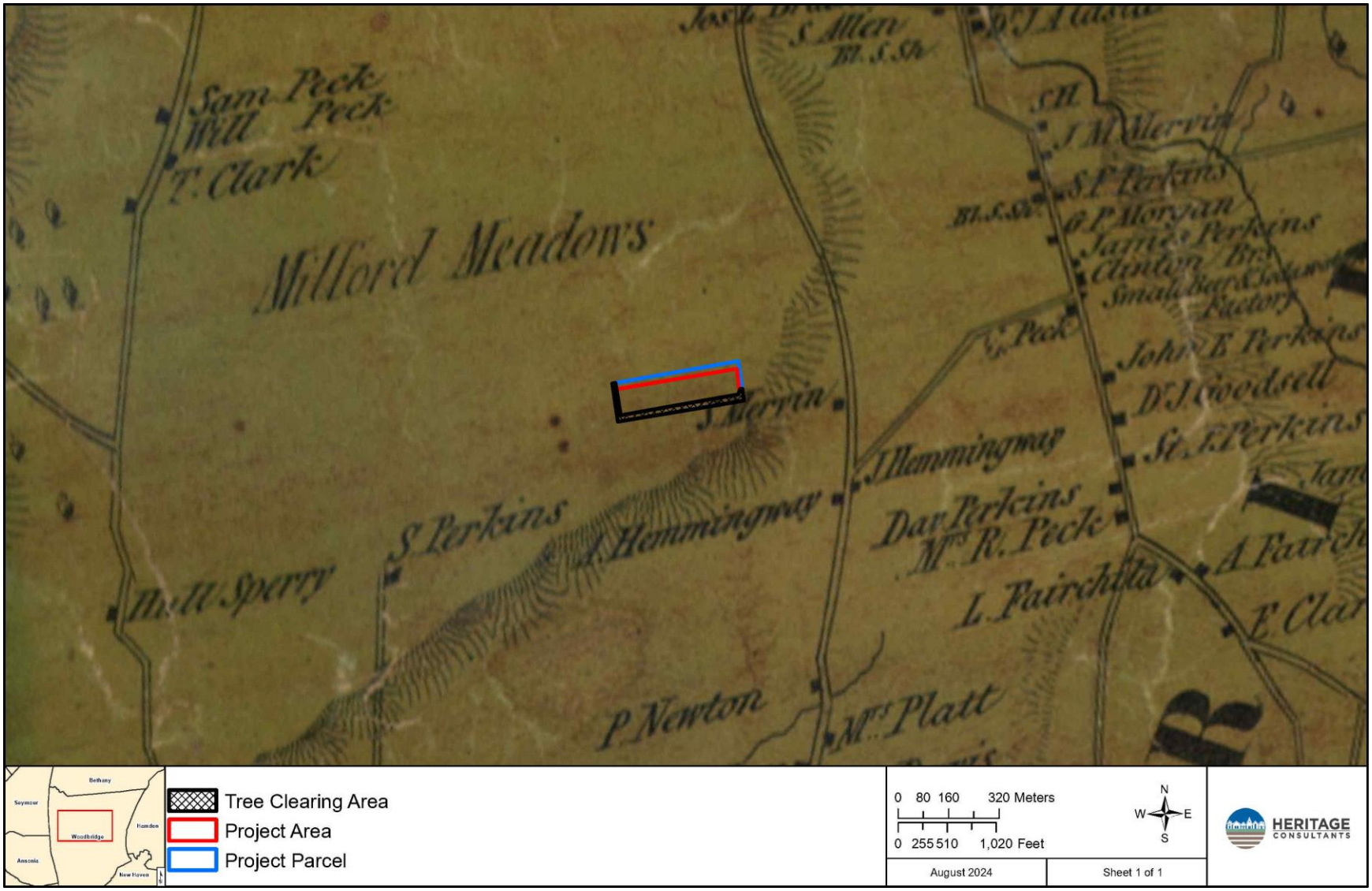

Figure 4. Excerpt from an 1854 map showing the location of the project parcel in Woodbridge, Connecticut.

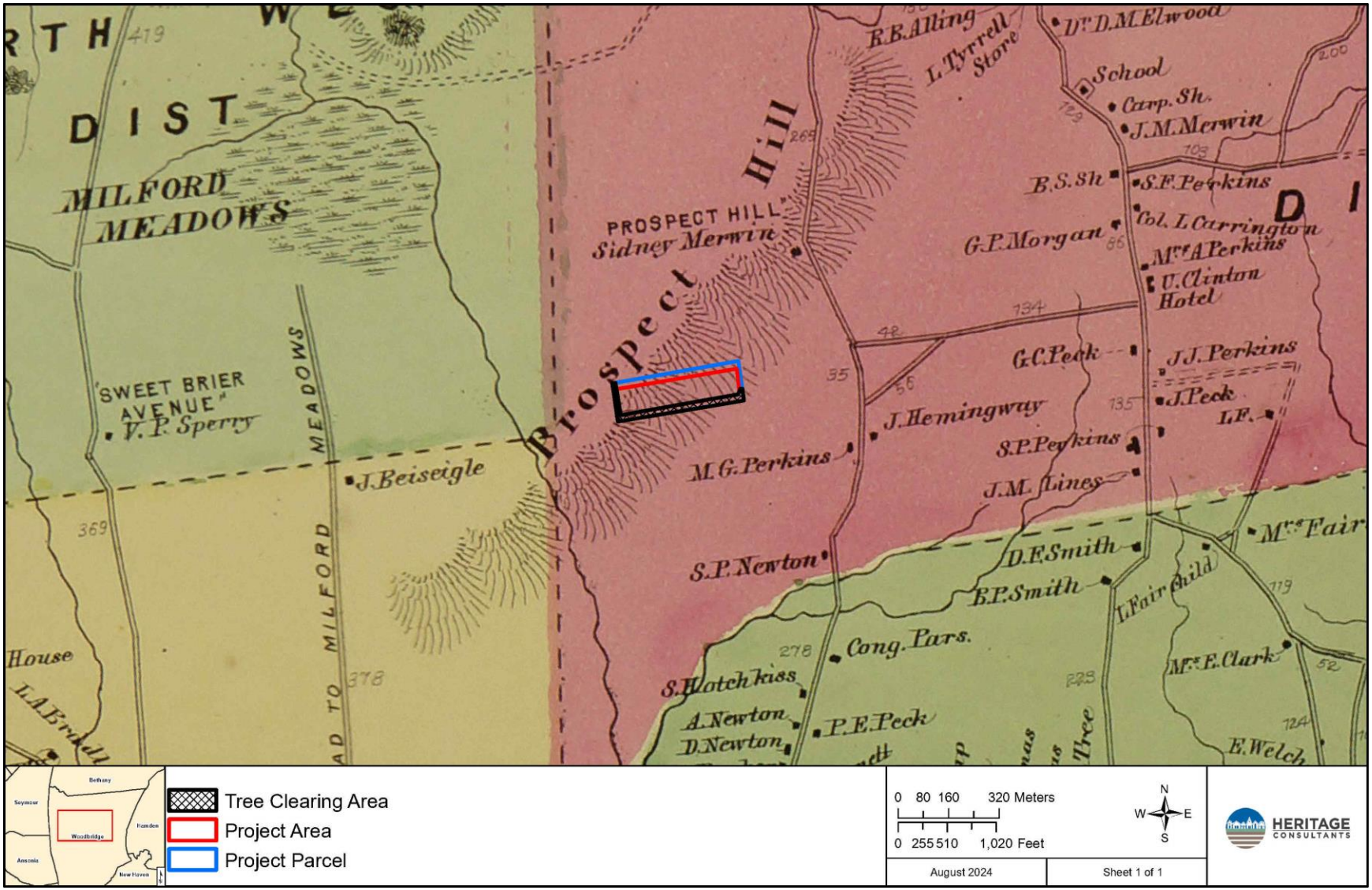

Figure 5. Excerpt from an 1868 map showing the location of the project parcel in Woodbridge, Connecticut.

Figure 6. Excerpt from a 1934 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

Figure 7. Excerpt from a 1951 aerial photography showing the location of the project parcel in Woodbridge, Connecticut.

Figure 8. Excerpt of a 1970 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

Figure 9. Excerpt of a 1990 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

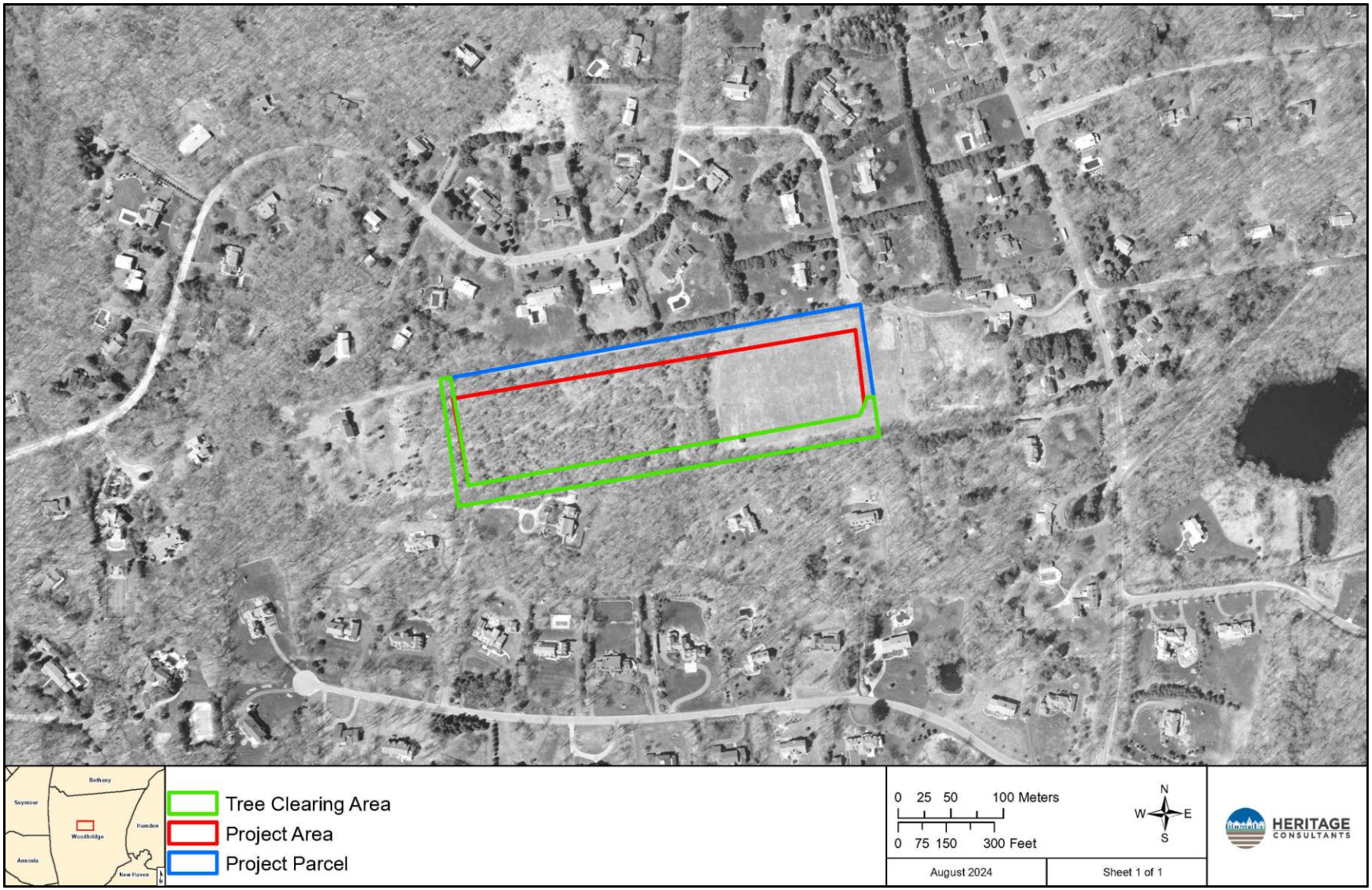

Figure 10. Excerpt of a 2004 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

Figure 11. Excerpt of a 2019 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

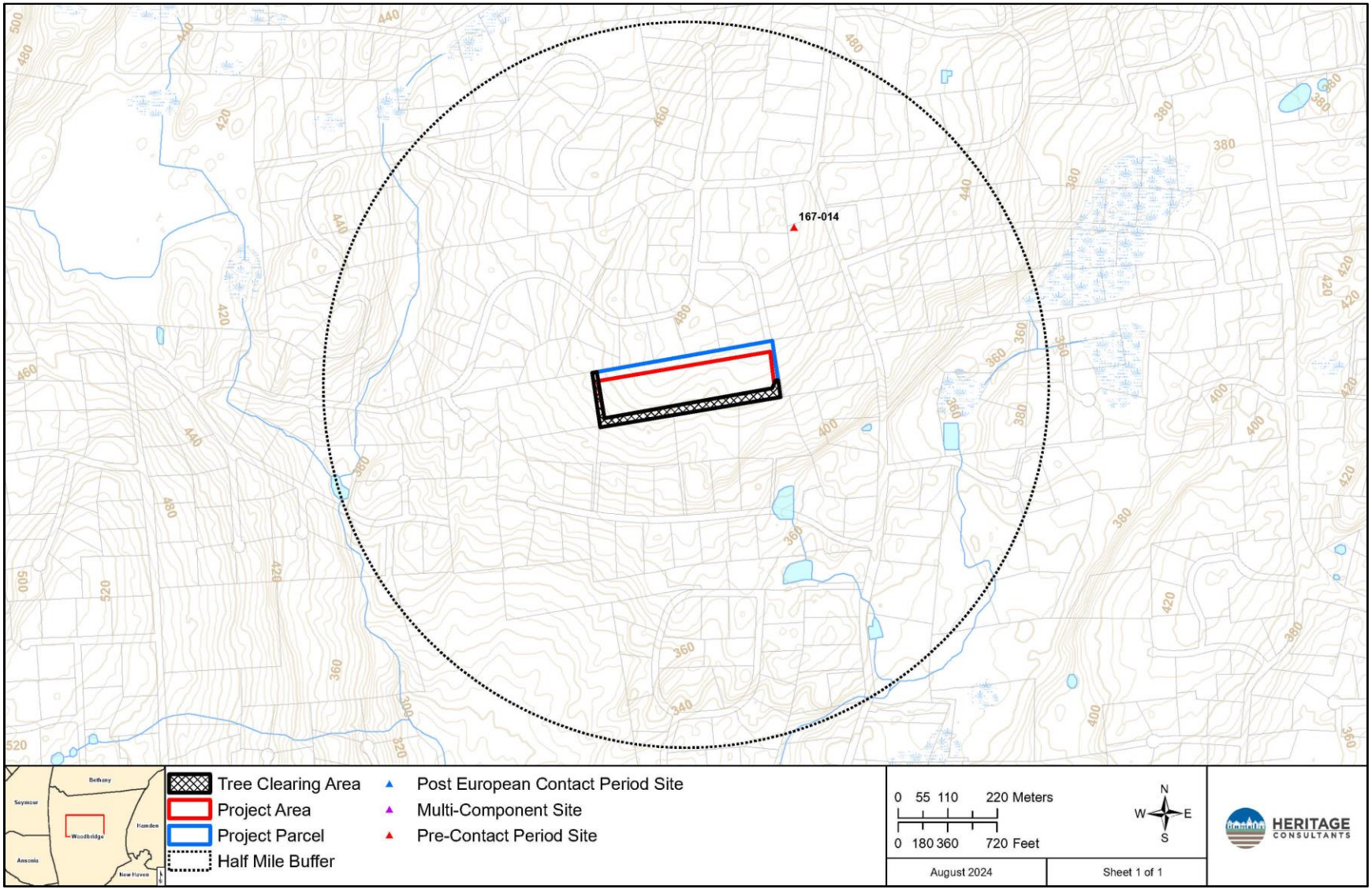

Figure 12. Digital map depicting the locations of the previously identified archaeological sites in the vicinity of the project parcel in Woodbridge, Connecticut.

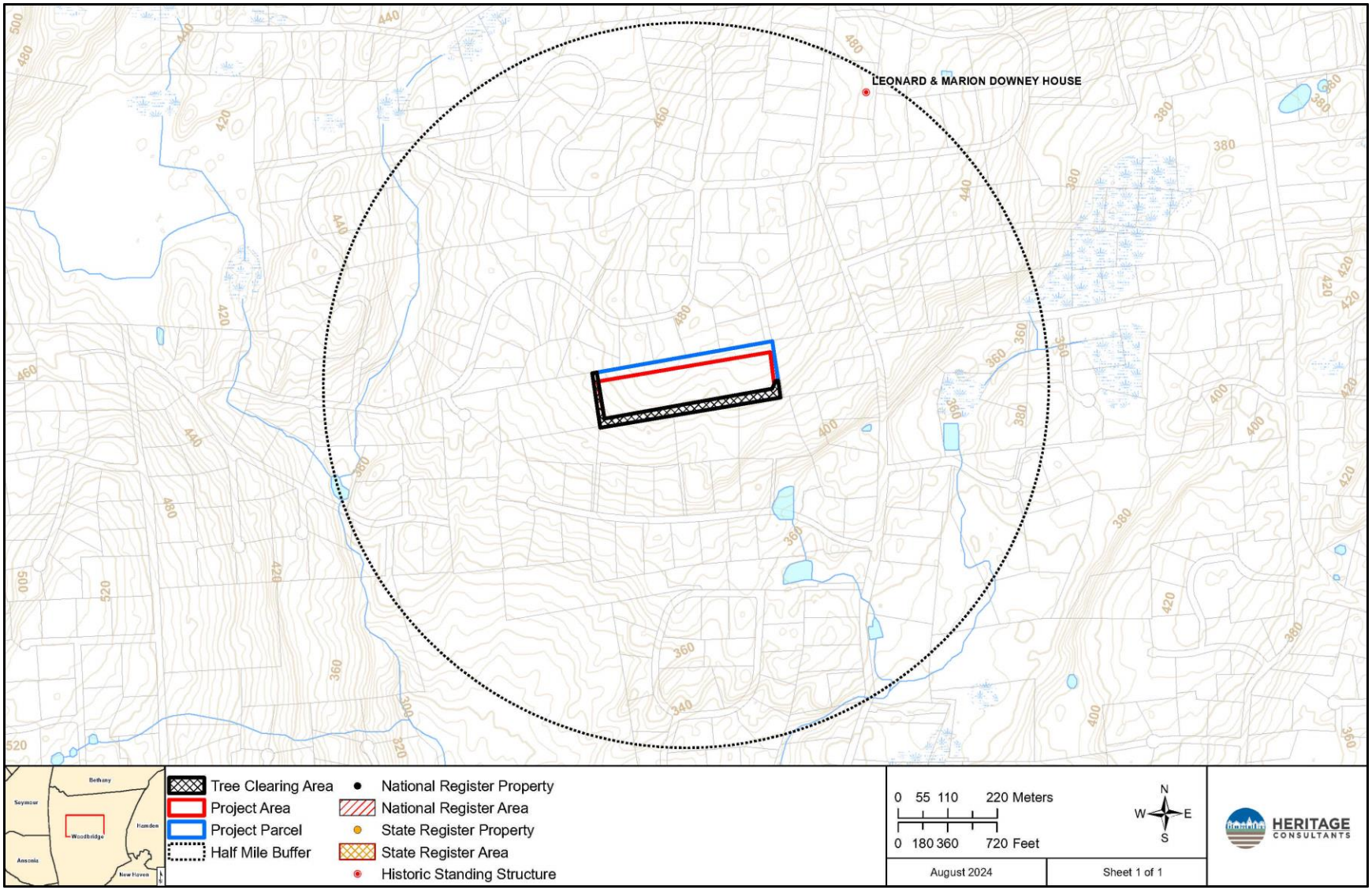

Figure 13. Digital map depicting the locations of the previously identified National Register of Historic Places and State Register of Historic Places properties in the vicinity of the project parcel in Woodbridge, Connecticut.

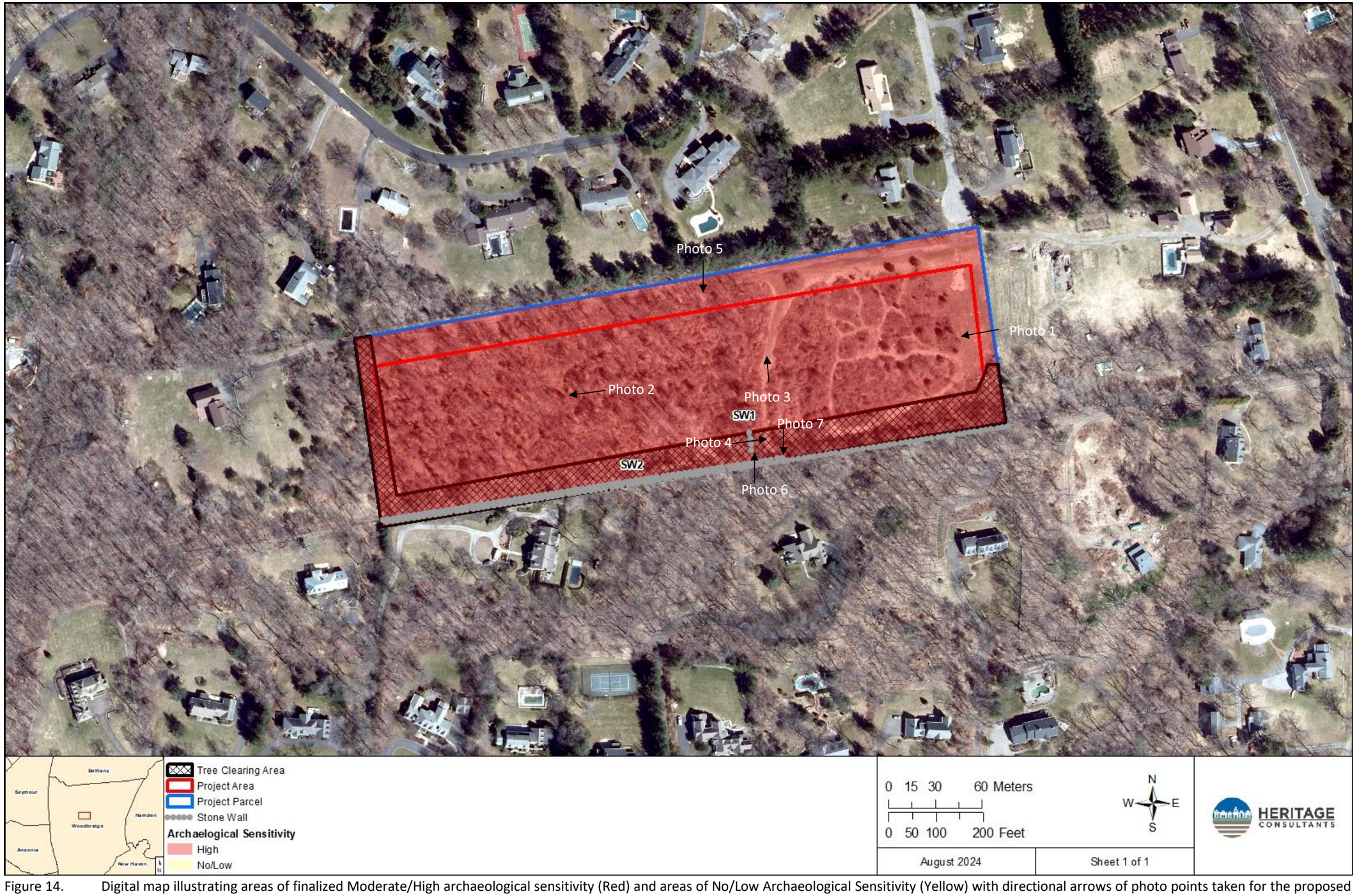

Figure 14. Digital map illustrating areas of finalized Moderate/High archaeological sensitivity (Red) and areas of No/Low Archaeological Sensitivity (Yellow) with directional arrows of photo points taken for the proposed development in Woodbridge, Connecticut.

APPENDIX B

PHOTOS

Photo 1. Overview of the field in the east of the Facility area. Photo facing to the west.

Photo 2. Overview of the dense vegetation in the western portion of the Facility area. Photo facing to the east.

Photo 3. Access road through the center of the Facility area. Photo facing to the north.

Photo 4. Photo of barn near the southern boundary of the Facility area. Photo facing to the east.

Photo 5. Photo of the chicken coop near the north boundary of the project area. Photo facing to the south.

Photo 6. Photo of stonewall SW-1. Photo facing to the north.

Photo 7. Photo of stonewall SW-2. Photo facing to the south.

DECEMBER 2024

PHASE IB CULTURAL RESOURCES RECONNAISSANCE SURVEY OF A PROPOSED SOLAR CENTER AT 16 SOUNDVIEW DRIVE IN WOODBRIDGE, CONNECTICUT

PREPARED FOR:

verdantas
PEOPLE FOCUSED FUTURE

BROWNSBURG, VIRGINIA

PREPARED BY:

HERITAGE CONSULTANTS

830 BERLIN TURNPIKE
BERLIN, CONNECTICUT 06037

ABSTRACT

This report presents the results of a Phase IB cultural resources reconnaissance survey for a proposed solar center at 16 Soundview Drive in Woodbridge, Connecticut. Heritage Consultants, LLC completed a previous Phase IA cultural resources assessment survey of the area and determined that the proposed solar array area retained moderate/high archaeological sensitivity. The facility area was characterized by forested land and overgrown field that contains gently sloping topography. The Phase IB reconnaissance survey was completed in November of 2024. A total of 103 of 105 (98 percent) of planned shovel tests were excavated throughout the project area. The subsurface investigation resulted in the recovery of six post-European period contact artifacts collected from the project area. The post-European Contact period artifact assemblage included 2 clear glass shards, 1 creamware sherd, 1 whiteware sherd, and a single large mammal long bone fragment. The artifacts have a general date range of late nineteenth through twentieth centuries. The artifacts were recovered from disturbed plowzone soils. Since the artifacts were recovered in low densities from soils that lack depositional integrity and were not associated with any below or above-ground features, they were classified as unassociated field scatter. Therefore, they do not retain research potential or the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). Thus, no additional archaeological examination of the project area is recommended prior to construction. Finally, a single stonewall segment was identified in the southern portion of the project area. It is recommended that the wall be avoided to the extent practicable and demarcated with high visibility fencing so that construction contractors do not inadvertently impact it.

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CHAPTER I
INTRODUCTION

This report presents the results of a Phase IB cultural resources reconnaissance survey of a proposed solar project (the Project) at 16 Soundview Drive in Woodbridge, Connecticut. The proposed Project will encompass approximately 7.82 acres of land located at 16 Soundview Drive in Woodbridge, Connecticut (Figure 1). Verdantas requested that Heritage Consultants, LLC (Heritage) complete a Phase IB cultural resources reconnaissance survey prior to construction. Heritage completed this investigation in November of 2024. All work associated with this survey was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office (CT-SHPO).

Project Description and Methods Overview

The proposed Project will consist of a solar array situated at elevations ranging between 134 to 146 meters (439.6 to 479 feet) NGVD. It is situated on the southern side of Soundview Drive in Woodbridge, Connecticut (Figure 2). The parcel is bound by residential development on all sides, while the area itself is characterized by mostly forested land. The area was subjected to Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, photo-documentation, GPS recordation, and systematic shovel testing. The pedestrian survey included visual reconnaissance of all areas scheduled for impacts. The subsurface examination was completed through the excavation of shovel tests at 20 meter (65 foot) intervals along survey transects positioned 20 meters (65 feet) apart throughout Areas 1 through 3. Each shovel test measured 50 x 50 centimeter (19.7 x 19.7 inch) in size, and each was excavated until glacially derived C-Horizon or immovable object (e.g., boulders, large tree roots) were encountered. Each shovel test was excavated in 10 centimeter (3.9 inch) arbitrary levels within natural strata, and the fill from each level was screened separately. All shovel test fill was screened through 0.635-centimeter (0.25 inch) hardware cloth. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Each shovel test was backfilled after it was fully documented.

Phase IB Survey Result and Management Recommendations

A total of 103 of 105 (98 percent) of planned shovel tests were excavated throughout the Project area. The two planned but unexcavated shovel tests fell into an area defined by a previously identified and documented stone wall. The subsurface investigation resulted in the recovery of 6 post-European period contact artifacts collected from four positive shovel tests. The post-European Contact period artifact assemblage included 2 clear glass shards, 1 creamware sherd, 1 whiteware sherd, and a single large mammal long bone fragment. The artifacts have a general date range of late nineteenth through twentieth centuries. The artifacts were recovered from disturbed plowzone soils and in low densities. They were not found in association with any cultural features and lacked depositional integrity. As a result, they were classified as unassociated field scatter. The identified archaeological deposits do not retain research potential or the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4[a-d]). No additional archaeological examination of the Project area is recommended prior to construction. Finally, a single stonewall segment was identified in the southern portion of the project area. It is recommended that the wall be avoided to the extent practicable and demarcated with high visibility fencing so that contractors do not inadvertently impact it during construction.

Project Personnel

Key personnel who worked on this project included David R. George, M.A., RPA, (Principal Investigator); Brenna Pisanelli, M.A. (Senior Project Manager); Melissa Wales, B.A., (Field Director); William Yerxa, M.A. (Junior Historian); Nita Vitaliano, M.A. (Historian); and Tevin Jourdain, B.A. (GIS Specialist).

CHAPTER II
NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the proposed Facility in Woodbridge, Connecticut. Previous archaeological research has documented that specific environmental factors can be associated with both precontact era and post-European Contact period site selection. These include general ecological conditions, as well as types of freshwater sources present, degree of slopes, and soils situated within a given study area. The remainder of this chapter provides a brief overview of the ecology, hydrological resources, and soils present within Facility area and the larger region in general.

Ecoregions of Connecticut

Throughout the Pleistocene and Holocene Periods, Connecticut has undergone numerous environmental changes. Variations in climate, geology, and physiography have led to the "regionalization" of Connecticut's modern environment. It is clear, for example, that the northwestern portion of the state has different natural characteristics than the coastline. Recognizing this fact, Dowhan and Craig (1976), as part of their study of the distribution of rare and endangered species in Connecticut, subdivided the state into various ecoregions. Dowhan and Craig (1976:27) defined an ecoregion as:

> "An area characterized by a distinctive pattern of landscapes and regional climate as expressed by the vegetation composition and pattern, and the presence or absence of certain indicator species and species groups. Each ecoregion has a similar interrelationship between landforms, local climate, soil profiles, and plant and animal communities. Furthermore, the pattern of development of plant communities (chronosequences and toposequences) and of soil profile is similar in similar physiographic sites. Ecoregions are thus natural divisions of land, climate, and biota."

Dowhan and Craig defined nine major ecoregions for the State of Connecticut. They are based on regional diversity in plant and animal indicator species (Dowhan and Craig 1976). Only the Southwest Hills Ecoregion is germane to the current investigation. A summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found within and adjacent to the Facility area.

<u>Southwest Hills Ecoregion</u>

The Southwest Hills ecoregion consists of a near coastal upland region located within 48.3 km (25 mi) of Long Island Sound (Dowhan and Craig 1976:35). It is characterized by "low, rolling to locally rugged hills of moderate elevation, broad areas of upland, and local areas of steep and rugged topography" (Dowhan and Craig 1976:35). Elevations in the Southwest Hills ecoregion range from 76.2 to 228.6 m (250 to 750 ft) above sea level (Bell 1985), with maximum elevations of just under 304.8 m (1,000 ft) NGVD in some places. The bedrock of the region is primarily metamorphic in origin, with north trending belts of Paleozoic gneisses and schists present (Bell 1985; Dowhan and Craig 1976). Soils in this ecoregion have developed on top of glacial till in upland locales, and on top of stratified deposits of sand, gravel, and silt in the local valleys (Dowhan and Craig 1976).

Hydrology of the Study Region

The Facility area is located within close proximity of several streams, ponds and wetlands. The major fresh water in proximity to the Facility area is the Wepawaug River and its various unnamed tributaries. Previously completed archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were focal points for precontact era occupations because they provided access to

transportation routes, sources of freshwater, and abundant faunal and floral resources. These water sources also provided the impetus for the construction of water powered mill facilities during the eighteenth and nineteenth centuries.

Soils Comprising the Facility Area

Soil formation is the direct result of the interaction of several variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to many diagenic processes. Different classes of artifacts may be preferentially protected, or unaffected by these processes, whereas others may deteriorate rapidly. Cyclical wetting and drying, freezing, and thawing, and compression can accelerate chemically and mechanically the decay processes for animal bones, shells, lithics, ceramics, and plant remains. Lithic and ceramic artifacts are largely unaffected by soil pH, whereas animal bones and shells decay more quickly in acidic soils such as those that are present within the Facility area. In contrast, acidic soils enhance the preservation of charred plant remains.

A total of two soil types were identified within the Facility area, Canton and Charlton soils, which cover the entire Facility area (Figure 3). When well drained soils such as Canton and Charlton soils remain undisturbed and on less than eight percent slope, they are generally well correlated with precontact era and post-European Contact period site locations and are considered to have higher archaeological sensitivity. Below is a summary of these soil types identified within the Facility area.

<u>Canton and Charlton Soils</u>

The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are found on nearly level to very steep moraines, hills, and ridges. Slope ranges from 0 to 45 percent. A typical profile associated with Canton soils is as follows: **Oi**--0 to 5 cm; slightly decomposed plant material; **A**--5 to 13 cm; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; friable; common fine roots; 5 percent gravel; very strongly acid (pH 4.6); abrupt smooth boundary; **Bw1**--13 to 30 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; very strongly acid (pH 4.6); clear smooth boundary; **Bw2**--30 to 41 cm; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; strongly acid (pH 5.1); clear smooth boundary; **Bw3**--41 to 56 cm; yellowish brown (10YR 5/4) gravelly fine sandy loam; weak medium subangular blocky; friable; common fine and medium roots; 15 percent gravel; strongly acid (pH 5.1); abrupt smooth boundary; and **2C**--56 to 170 cm; grayish brown (2.5Y 5/2) gravelly loamy sand; massive; friable; 25 percent gravel; moderately acid (pH 5.6).

The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. Slope ranges from 0 to 60 percent. A typical profile associated with Charlton soils is as follows: **Oe**--0 to 4 cm; black (10YR 2/1) moderately decomposed forest plant material; **A**--4 to 10 cm; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; 5 percent gravel; very strongly acid; abrupt smooth boundary; **Bw1**--10 to 18 cm; brown (7.5YR 4/4) fine sandy loam; weak coarse granular structure; very friable; many fine and medium roots; 5 percent gravel; very strongly acid; clear wavy boundary; **Bw2**--18 to 48 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; 10 percent gravel and cobbles; very strongly acid; clear wavy boundary; **Bw3**--48 to 69 cm; light olive brown (2.5Y 5/4) gravelly fine sandy loam; massive; very friable; few medium roots; 15 percent gravel and cobbles; very strongly acid; abrupt wavy boundary; and **C**--69

to 165 cm; grayish brown (2.5Y 5/2) gravelly fine sandy loam with thin lenses of loamy sand; massive; friable, some lenses firm; few medium roots; 25 percent gravel and cobbles; strongly acid.

Summary

A review of mapping, geological data, ecological conditions, soils, slopes, and proximity to freshwater suggests that portions of the Facility area appear to be amenable to both precontact era and post-European Contact period occupations. This includes areas of low to moderate slopes with well-drained soil located near freshwater sources. The types of precontact sites that may be contained in these areas include task specific, temporary, or seasonal base camps, which may include areas of lithic tool manufacturing, hearths, post-molds, and storage pits.

CHAPTER III
PRECONTACT ERA SETTING

Introduction

Prior to the late 1970s and early 1980s, very few systematic archaeological surveys of large portions of the State of Connecticut had been undertaken. Rather, the precontact period of the region was studied at the site level. Sites chosen for excavation were highly visible and they were in such areas as the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the precontact period of Connecticut was developed. It was suggested that the upland portions of the state, i.e., the northeastern and northwestern hills ecoregions, were little used and rarely occupied by precontact Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, were the focus of settlements and exploitation in the precontact era. This interpretation remained unchallenged until the 1970s and 1980s when several town-wide and regional archaeological studies were completed. These investigations led to the creation of several archaeological phases that subsequently were applied to understand the precontact period of Connecticut. The remainder of this chapter provides an overview of the precontact setting of the region encompassing the project parcel.

Paleo-Indian Period (12,000 to 10,000 Before Present [B.P.])

The earliest inhabitants of the area encompassing the State of Connecticut, who have been referred to as Paleo-Indians, arrived in the area by ca., 13,000 B.P. (Gramly and Funk 1990; Snow 1980). Due to the presence of large Pleistocene mammals at that time and the ubiquity of large fluted projectile points in archaeological deposits of this age, Paleo-Indians often have been described as big-game hunters (Ritchie and Funk 1973; Snow 1980); however, as discussed below, it is more likely that they hunted a broad spectrum of animals. While there have been over 50 surface finds of Paleo-Indian projectile points throughout the State of Connecticut (Bellantoni 1995), only three sites, the Templeton Site (6-LF-21) in Washington, Connecticut, the Hidden Creek Site (72-163) in Ledyard, Connecticut, and the Brian D. Jones Site (4-10B) in Avon, Connecticut have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980; Singer 2017a; Leslie et al. 2020).

The Templeton Site (6-LF-21) is in Washington, Connecticut and was occupied between 10,490 and 9,890 years ago (Moeller 1980). In addition to a single large and two small, fluted points, the Templeton Site produced a stone tool assemblage consisting of gravers, drills, core fragments, scrapers, and channel flakes, which indicates that the full range of stone tool production and maintenance took place at the site (Moeller 1980). Moreover, the use of both local and non-local raw materials was documented in the recovered tool assemblage, suggesting that not only did the site's occupants spend some time in the area, but they also had access to distant stone sources, the use of which likely occurred during movement from region to region. More recently, the site has undergone re-investigation by Singer (2017a and 2017b), who has determined that most tools and debitage are exotic and were quarried directly from the Hudson River Valley. Recent research has focused on task-specific loci at the Templeton Site, particularly the production of numerous Michaud-Neponset projectile points, as identified through remnant channel flakes.

The Hidden Creek Site (72-163) is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut (Jones 1997). While excavation of the Hidden Creek Site produced evidence of Terminal Archaic and Woodland Period components (see below) in the

upper soil horizons, the lower levels of the site yielded artifacts dating from the Paleo-Indian era. Recovered Paleo-Indian artifacts included broken bifaces, side-scrapers, a fluted preform, gravers, and end-scrapers. Based on the types and number of tools present, Jones (1997:77) has hypothesized that the Hidden Creek Site represented a short-term occupation, and that separate stone tool reduction and rejuvenation areas were present.

The Brian D. Jones Site (4-10B) was identified in a Pleistocene levee on the Farmington River in Avon, Connecticut; it was buried under 1.5 m (3.3 ft) of alluvium (Leslie et al. 2020). The Brian D. Jones Site was identified by Archaeological and Historical Services, Inc., in 2019 during a survey for the Connecticut Department of Transportation preceding a proposed bridge construction project. It is now the oldest known archaeological site in Connecticut at +12,500 years old. The site also provides a rare example of a Paleo-Indian site on a river rather than the more common upland areas or on the edges of wetlands. Ground-penetrating radar survey revealed overbank flooding and sedimentation that resulted in the creating of a stable ancient river levee with gentle, low-energy floods. Archaeological deposits on the levee were therefore protected.

Excavations at the Brian D. Jones Site revealed 44 soil anomalies, 27 of which were characterized as cultural features used as hearths and post holes, among other uses. One hearth has been dated thus far (10,520 ± 30 14C yr BP; charred Pinus; 2-sigma 12,568 to 12,410 CAL BP) (Leslie et al. 2020:4). Further radiocarbon testing will be completed in the future. Artifact concentrations surrounded these features and were separated in two stratigraphic layers represented at least two temporally discrete Paleo-Indian occupations. The recovered lithic artifacts are fashioned from Normanskill chert, Hardyston jasper, Jefferson/Mount Jasper rhyolite, chalcedony, siltstone, and quartz (Leslie 2023). They include examples of a fluted point base, preforms, channel flakes, pièces esquillées, end scrapers, side scrapers, grinding stones, bifaces, utilized flakes, gravers, and a drilled stone pendant fragment. Lithic tools numbered over 100, while toolmaking debris was in the thousands. The channel flakes represent the production of spear points used in hunting. Scrapers, perforators, and grinding stones indicate animal butchering, plant food grinding, the production of wood and bone tools, and the processing of animal skins for clothing and tents. Other collected cultural materials included charred botanicals and calcined bone. Botanicals recovered in hearth features included burned remains of cattail, pin cherry, strawberry, acorn, sumac, water lily, and dogwood (Leslie 2023). Approximately 15,000 artifacts were collected from the site.

The scarcity of identified Paleo-Indian sites suggests a low population density during this period. The small size of most Paleo-Indian sites, their likely inundation by rising sea levels, and the high degree of landscape disturbance over the past 10,000 years likely contribute to poor site visibility, although the presence of two deeply alluvially buried Paleo-Indian sites in Connecticut suggests that other sites may be located along stable rivers (Leslie et al. 2021).

Archaic Period (10,000 to 2,700 B.P.)

The Archaic Period, which succeeded the Paleo-Indian Period, began by ca., 10,000 B.P. (Ritchie and Funk 1973; Snow 1980), and it has been divided into three subperiods: Early Archaic (10,000 to 8,000 B.P.), Middle Archaic (8,000 to 6,000 B.P.), and Late Archaic (6,000 to 3,400 B.P.). These periods were devised to describe all non-farming, non-ceramic producing populations in the area. Regional archeologists recently have recognized a final “transitional” Archaic Period, the Terminal Archaic Period (3,400-2,700 B.P.), which was meant to describe those groups that existed just prior to the onset of the Woodland Period and the widespread adoption of ceramics into the toolkit (Snow 1980; McBride 1984; Pfeiffer 1984, 1990; Witthoft 1949, 1953).

Early Archaic Period (10,000 to 8,000 B.P.)

To date, very few Early Archaic sites have been identified in southern New England. As a result, researchers such as Fitting (1968) and Ritchie (1969), have suggested a lack of these sites likely is tied to cultural discontinuity between the Early Archaic and preceding Paleo-Indian Period, as well as a population decrease from earlier times; however, with continued identification of Early Archaic sites in the region, and the recognition of the problems of preservation, it is difficult to maintain the discontinuity hypothesis (Curran and Dincauze 1977; Snow 1980).

Like their Paleo-Indian predecessors, Early Archaic sites tend to be very small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions of the United States are represented by projectile points of the Kirk series (Ritchie and Funk 1973) and by Kanawha types (Coe 1964), sites of this age in southern New England are identified on the basis of a series of ill-defined bifurcate-based projectile points. These projectile points are identified by the presence of their characteristic bifurcated base, and they generally are made from high quality raw materials. Moreover, the recovery of these projectile points has rarely been in stratified contexts. Rather, they occur commonly either as surface expressions or intermixed with artifacts representative of later periods. Early Archaic occupations, such as the Dill Farm Site and Sites 6LF64 and 6LF70 in Litchfield County, are represented by camps that were relocated periodically to take advantage of seasonally available resources (McBride 1984; Pfeiffer 1986). In this sense, a foraging type of settlement pattern was employed during the Early Archaic Period.

Another localized cultural tradition, the Gulf of Maine Archaic, which lasted from ca. 9,500 to 6,000 14C BP, is beginning to be recognized in Southern New England (Petersen and Putnam 1992). It is distinguished by its microlithic industry, which may be associated with the production of compound tools (Robinson and Peterson 1993). Assemblages from Maine (Petersen et al. 1986; Petersen 1991; Sanger et al. 1992), Massachusetts (Strauss 2017; Leslie et al. 2022), and Connecticut (Forrest 1999) reflect the selection of local, coarse-grained stones. Large choppers and hoe-like forms from southeastern Connecticut's Sandy Hill Site likely functioned as digging implements. Woodworking tools, including adzes, celts, and gull-channeled gouges recovered at the Brigham and Sharrow sites in Maine (Robinson and Petersen 1993:68) may have been used for dugout canoe manufacture. The deeply stratified Sandy Hill (Forrest 1999; Jones and Forrest 2003) and Sharrow sites (Petersen 1991), with their overlapping lenses of "black sand" floor deposits, suggest intensive site re-occupations according to an adaptation that relied, in part, on seasonally available wetland resources. Thus far, sites from this tradition have only been identified within coastal and near-coastal territories along the Gulf of Maine, in southeastern Connecticut, and in Massachusetts.

Middle Archaic Period (8,000 to 6,000 B.P.)

By the onset of the Middle Archaic Period modern deciduous forests had developed in the region (Davis 1969). Increased numbers and types of sites associated with this period are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site in Manchester, New Hampshire studied by Dincauze (1976). Careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between 7,700 and 6,000 years ago. In fact, Dincauze obtained several radiocarbon dates from the Middle Archaic component of the Neville Site associated with the then-newly named Neville type projectile point, ranging from 7,740±280 and 7,015±160 B.P. (Dincauze 1976).

In addition to Neville points, Dincauze (1976) described two other projectile points styles that are

attributed to the Middle Archaic Period: Stark and Merrimac projectile points. While no absolute dates were recovered from deposits that yielded Stark points, the Merrimac type dated from 5,910±180 B.P. Dincauze argued that both the Neville and later Merrimac and Stark occupations were established to take advantage of the excellent fishing that the falls situated adjacent to the site area would have afforded Native American groups. Thus, based on the available archaeological evidence, the Middle Archaic Period is characterized by continued increases in diversification of tool types and resources exploited, as well as by sophisticated changes in the settlement pattern to include different site types, including both base camps and task-specific sites (McBride 1984:96).

Late Archaic Period (6,000 to 3,700 B.P.)

The Late Archaic Period in southern New England is divided into two major cultural traditions that appear to have coexisted. They include the Laurentian and Narrow-Stemmed Traditions (Funk 1976; McBride 1984; Ritchie 1969a and b). Artifacts assigned to the Laurentian Tradition include ground stone axes, adzes, gouges, ulus (semi-lunar knives), pestles, atlatl weights, and scrapers. The diagnostic projectile point forms of this time period in southern New England include the Brewerton Eared-Notched, Brewerton Eared and Brewerton Side-Notched varieties (McBride 1984; Ritchie 1969a; Thompson 1969). In general, the stone tool assemblage of the Laurentian Tradition is characterized by flint, felsite, rhyolite, and quartzite, while quartz was largely avoided for stone tool production.

In terms of settlement and subsistence patterns, archaeological evidence in southern New England suggests that Laurentian Tradition populations consisted of groups of mobile hunter-gatherers. While a few large Laurentian Tradition occupations have been studied, sites of this age generally encompass less than 500 m^2 (5,383 ft^2). These base camps reflect frequent movements by small groups of people in search of seasonally abundant resources. The overall settlement pattern of the Laurentian Tradition was dispersed in nature, with base camps located in a wide range of microenvironments, including riverine as well as upland zones (McBride 1978, 1984:252). Finally, subsistence strategies of Laurentian Tradition focused on hunting and gathering of wild plants and animals from multiple ecozones.

The second Late Archaic tradition, known as the Narrow-Stemmed Tradition, is unlike the Laurentian Tradition, and it likely represents a different cultural adaptation. The Narrow-Stemmed Tradition is recognized by the presence of quartz and quartzite narrow stemmed projectile points, triangular quartz Squibnocket projectile points, and a bipolar lithic reduction strategy (McBride 1984). Other tools found in Narrow-Stemmed Tradition artifact assemblages include choppers, adzes, pestles, antler and bone projectile points, harpoons, awls, and notched atlatl weights. Many of these tools, notably the projectile points and pestles, indicate a subsistence pattern dominated by hunting and fishing, as well the collection of a wide range of plant foods (McBride 1984; Snow 1980:228).

The Narrow-Stemmed Tradition also marks one of the most prevalent manifestations of the archaeological record in southern New England, narrow-stemmed projectile points, often untyped, or typed as Lamoka, Wading River, or Squibnocket Stemmed forms. These are generally attributed to a form of projectile technology, but some (Boudreau 2008), have suggested that these tool forms might not be related to projectile technology, and may instead relate to graver or drill functions. Boudreau (2008) also drew important connections to the forms of these narrow-stemmed points with later Woodland era forms, such as Rossville points, which are nearly identical. Others (Lavin 2013; Zoto 2019) have similarly suggested a continuation of the Narrow-Stemmed Tradition into the Woodland era, with most of this evidence originating at coastal sites in southern New England. The vast majority of Narrow-Stemmed projectile points that are associated with cultural features suitable for radiocarbon dating, particularly Lamoka style projectile points, are associated with Late Archaic date ranges (Lavin 2013).

Terminal Archaic Period (3,700 to 2,700 B.P.)

The Terminal Archaic, which lasted from ca., 3,700 to 2,700 BP, is perhaps the most interesting, yet confusing of the Archaic Periods in southern New England precontact periods. Originally termed the "Transitional Archaic" by Witthoft (1953) and recognized by the introduction of technological innovations, e.g., broadspear projectile points and soapstone bowls, the Terminal Archaic has long posed problems for regional archaeologists. While the Narrow-Stemmed Tradition persisted through the Terminal Archaic and into the Early Woodland Period, the Terminal Archaic is coeval with what appears to be a different technological adaptation, the Susquehanna Tradition (McBride 1984; Ritchie 1969b). The Susquehanna Tradition is recognized in southern New England by the presence of a new stone tool industry that was based on the use of high-quality raw materials for stone tool production and a settlement pattern different from the "coeval" Narrow-Stemmed Tradition.

The Susquehanna Tradition is based on the classification of several Broadspear projectile point types and associated artifacts. There are several local sequences within the tradition, and they are based on projectile point type chronology. Temporally diagnostic projectile points of these sequences include the Snook Kill, Susquehanna Broadspear, Mansion Inn, and Orient Fishtail types (Lavin 1984; McBride 1984; Pfeiffer 1984). The initial portion of the Terminal Archaic Period (ca., 3,700-3,200 BP) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points while the latter Terminal Archaic (3,200-2,700 BP) is distinguished by Orient Fishtail projectile points (McBride 1984:119; Ritchie 1971).

In addition, it was during the late Terminal Archaic that interior cord marked, grit tempered, thick-walled ceramics with conoidal (pointed) bases made their initial appearance in the Native American toolkit. These are the first ceramics in the region, and they are named Vinette I (Ritchie 1969a; Snow 1980:242); this type of ceramic vessel appears with much more frequency during the ensuing Early Woodland Period. In addition, the adoption and widespread use of soapstone bowls, as well as the implementation of subterranean storage, suggests that Terminal Archaic groups were characterized by reduced mobility and longer-term use of established occupation sites (Snow 1980:250).

Finally, while settlement patterns appeared to have changed, Terminal Archaic subsistence patterns were analogous to earlier patterns. The subsistence pattern was still diffuse in nature, and it was scheduled carefully. Typical food remains recovered from sites of this period consist of fragments of white-tailed deer, beaver, turtle, fish, and various small mammals. Botanical remains recovered from the site area consisted of *Chenopodium* sp., hickory, butternut, and walnut (Pagoulatos 1988:81). Such diversity in food remains suggests at least minimal use of a wide range of microenvironments for subsistence purposes.

Woodland Period (2,700 to 350 B.P.)

Traditionally, the advent of the Woodland Period in southern New England has been associated with the introduction of pottery; however, as mentioned above, early dates associated with pottery now suggest the presence of Vinette I ceramics appeared toward the end of the preceding Terminal Archaic Period (Ritchie 1969a; McBride 1984). Like the Archaic Period, the Woodland Period has been divided into three subperiods: Early, Middle, and Late Woodland. The various subperiods are discussed below.

Early Woodland Period (ca., 2,700 to 2,000 B.P.)

The Early Woodland Period of the northeastern United States dates from ca., 2,700 to 2,000 B.P., and was thought to have been characterized by the advent of farming, the initial use of ceramic vessels, and

increasingly complex burial ceremonialism (Griffin 1967; Ritchie 1969a and 1969b; Snow 1980). In the Northeast, the earliest ceramics of the Early Woodland Period are thick walled, cord marked on both the interior and exterior, and possess grit temper. Archaeological investigations of Early Woodland sites in southern New England resulted in the recovery of narrow stemmed projectile points in association with ceramic sherds and subsistence remains, including specimens of white-tailed deer, soft and hard-shell clams, and oyster shells (Lavin and Salwen: 1983; McBride 1984:296-297; Pope 1952). McBride (1984) has argued that the combination of the subsistence remains and the recognition of multiple superimposed cultural features at various sites indicate that Early Woodland Period settlement patterns were characterized by multiple re-use of the same sites on a seasonal basis by small co-residential groups.

Middle Woodland Period (2,000 to 1,200 B.P.)

The Middle Woodland Period is marked by an increase in the number of ceramic types and forms utilized (Lizee 1994a), as well as an increase in the amount of exotic lithic raw material used in stone tool manufacture (McBride 1984). The latter suggests that regional exchange networks were established, and that they were used to supply local populations with necessary raw materials (McBride 1984; Snow 1980). The Middle Woodland Period is represented archaeologically by narrow stemmed and Jack's Reef projectile points; increased amounts of exotic raw materials in recovered lithic assemblages, including chert, argillite, jasper, and hornfels; and conoidal ceramic vessels decorated with dentate stamping. Ceramic types that are indicative of the Middle Woodland Period include Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizee 1994a:200).

In terms of settlement patterns, the Middle Woodland Period is characterized by the occupation of village sites by large co-residential groups that utilized native plant and animal species for food and raw materials in tool making (George 1997). These sites were the principal place of occupation, and they were positioned close to major river valleys, tidal marshes, estuaries, and the coastline, all of which would have supplied an abundance of plant and animal resources (McBride 1984:309). In addition to villages, numerous temporary and task-specific sites were utilized in the surrounding upland areas, as well as in closer ecozones such as wetlands, estuaries, and floodplains. The use of temporary and task-specific sites to support large village populations indicates that the Middle Woodland Period was characterized by a resource acquisition strategy that can best be termed as logistical collection (McBride 1984:310).

Late Woodland Period (ca., 1,200 to 350 B.P.)

The Late Woodland Period in southern New England dates from ca., 1,200 to 350 B.P., and it is characterized by the earliest evidence for the use of corn in the lower Connecticut River Valley (Bendremer 1993; Bendremer and Dewar 1993; Bendremer et al. 1991; George 1997; McBride 1984); an increase in the frequency of exchange of non-local lithics (Feder 1984; George and Tryon 1996; McBride 1984; Lavin 1984); increased variability in ceramic form, function, surface treatment, and decoration (Lavin 1980, 1986, 1987; Lizee 1994a, 1994b); and a continuation of a trend towards larger, more permanent settlements in riverine, estuarine, and coastal ecozones (Dincauze 1974; McBride 1984; Snow 1980).

Stone tool assemblages associated with Late Woodland occupations, especially village-sized sites, are functionally variable and they reflect plant and animal resource processing and consumption on a large scale. Finished stone tools recovered from Late Woodland sites include Levanna and Madison projectile points; drills; side-, end-, and thumbnail scrapers; mortars and pestles; nutting stones; netsinkers; and

celts, adzes, axes, and digging tools. These tools were used in activities ranging from hide preparation to plant processing to the manufacture of canoes, bowls, and utensils, as well as other settlement and subsistence-related items (McBride 1984; Snow 1980). Finally, ceramic assemblages recovered from Late Woodland sites are as variable as the lithic assemblages. Ceramic types identified include Windsor Fabric Impressed, Windsor Brushed, Windsor Cord Marked, Windsor Plain, Clearview Stamped, Sebonac Stamped, Selden Island, Hollister Plain, Hollister Stamped, and Shantok Cove Incised (Lavin 1980, 1988a, 1988b; Lizee 1994a; Pope 1953; Rouse 1947; Salwen and Ottesen 1972; Smith 1947). These types are more stylistically diverse than their predecessors with incision, shell stamping, punctation, single point, linear dentate, rocker dentate stamping, and stamp and drag impressions common (Lizee 1994a:216).

Summary of Connecticut Precontact Period

The precontact period of Connecticut spans from ca. 13,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. Much of this era is characterized by local Native American groups who practiced a subsistence pattern based on a mixed economy of hunting and gathering plant and animal resources. It is not until the Late Woodland Period that incontrovertible evidence for the use of domesticated species is available. Further, settlement patterns throughout the precontact period shifted from seasonal occupations of small co-residential groups to large aggregations of people in riverine, estuarine, and coastal ecozones. In terms of the region that includes the proposed Facility area, a variety of precontact site types may be expected, ranging from seasonal camps utilized by Paleo-Indian and Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV
POST-EUROPEAN CONTACT PERIOD OVERVIEW

Introduction

The proposed Facility will be built on 7.82 acres of land located in the town of Woodbridge, Connecticut. This chapter provides an overview of the town of Woodbridge and New Haven Country, as well as details regarding the project parcel and Facility area. Most Connecticut towns, including Woodbridge, originated as areas of Native American settlement and later became English colonial villages. In the sixteenth and seventeenth centuries, English colonists from Massachusetts settled in the area known as Quinnipiac in April of 1638, where they negotiated with the Sachem of the area for land and soon after established New Haven Colony. By 1643, the colony consisted of the towns of New Haven, Milford, Guilford, Branford, and Stamford, and at that time, present-day Woodbridge fell within the bounds of both Milford and New Haven. Woodbridge, incorporated in 1784, developed around agriculture, with New Haven harbor serving as the link to maritime trade. Through the nineteenth and twentieth centuries, Woodbridge continued to function as an agricultural hub that supplied nearby urban areas and allowed townspeople to engage in substantial economic activities. In the twenty-first century, the town has become a residential community which has undergone significant suburbanization. Even so, some areas of Woodbridge retain elements of its natural landscape and rural past.

New Haven County

New Haven was one of the four original counties established in 1666 following the merger of Connecticut Colony and New Haven Colony (Van Dusen 1961). Located in the southwestern corner of Connecticut, it is bounded in the south by Long Island Sound, east by Middlesex County, north by Hartford and Litchfield Counties, and west by Fairfield County and is the second-largest county in Connecticut by total area. Its landscape includes rich farmland, upland regions to the north, significant freshwater rivers, and an extended shoreline on Long Island Sound. Important waterways associated with New Haven County include the Hammonasset, East, West, Farm, Quinnipiac, Mill, Oyster, Indian, and Wepawaug Rivers (Rockey 1892). The shoreline also has many smaller rivers, harbors, islands, and inlets. The county's three largest cities are New Haven, Waterbury, and Meriden. Other important population centers are located at West Haven, Milford, and Ansonia (Connecticut 2020).

Woodland Period to Seventeenth Century

During the Woodland Period of northeastern North American history (about 3000 to 2500 years ago) the indigenous peoples who resided in present-day Connecticut were part of the greater Algonquian culture of northeastern North America (Lavin 2013). They spoke local variations of Southern New England Algonquian languages and resided in extended kinship groups on lands they maintained for a variety of horticultural and resource extraction purposes (Goddard 1978). Native people in the region practiced subsistence activities including hunting, fowling, and fishing, along with the cultivation of various crops, the most important of which were maize, squash, and beans. They supplemented these foods seasonally by collecting shellfish, fruits, and plants during warmer periods, and gathering nuts, roots, and tubers during colder times (Lavin 2013).

In addition, these communities came together in large groups to hunt deer in the fall and winter. Indigenous peoples lived with their immediate or extended families in large settlements often concentrated along rivers and/or wetlands. Some villages were fortified by wooden palisades. Their

habitations, known as a *weetu* or *wigwam,* were generally constructed of a tree sapling frame and covered in reed matting during warm months and tree bark throughout the winter. These varied in size from a small, individual dwelling to an expansive "long house" which could accommodate several families. Native communities traded with their immediate neighbors and often maintained long-distance networks as well (Lavin 2013). At the time of the arrival of Europeans, the Native people who inhabited the present-day bounds of Woodbridge were associated with the Quinnipiac and Paugussett communities and the area was known as "Quinnipiac" (DeForest 1852; Lavin 2013). Their homeland included parts of the present-day towns of West Haven, New Haven, East Haven, Branford, North Branford, Guilford, and Madison but also included the towns of North Haven, Wallingford, Hamden, Woodbridge, and Bethany, as well as parts of Prospect and Cheshire (DeForest 1852; Lavin 2013).

Seventeenth Century through Eighteenth Century

As Native communities maintained an oral tradition rather than a written record, most surviving information of the Quinnipiac people of present-day New Haven County was recorded by European observers (Lavin 2013). The earliest Europeans known to have visited Long Island Sound were the Dutch around 1614. During that voyage, Captain Adrian Block created a figurative map of the region that depicted the present-day New Haven County shoreline, along with what appears to be the Quinnipiac and Housatonic Rivers. They referred to the area as "Rodenberg," or Red Mountains, due to the reddish appearance of East Rock that overlooked the harbor (Rockey 1892). They established trade relationships with Native people of the area by the early 1620s and entered an agreement with the Pequot of present-day southeastern Connecticut who would provide wampum and furs for European goods. By 1624, the Dutch West India Company established the colony of New Netherland centered around Manhattan and the Hudson River, but its eastern bounds extended as far as Cape Cod (Jacobs 2009). Through their relationship with the Dutch, the Pequot accessed a variety of trade goods they distributed to tributaries and/or traded with other regional groups. They extended their dominance over the Connecticut shoreline, eastern Long Island, and the lower Connecticut River Valley bringing groups there into a tributary relationship under their leadership, including the Quinnipiac (Hauptman & Wherry 2009; McBride 2013).

In 1633, the Pequot allowed the Dutch to build a trading post on the Connecticut River at the site of present-day Hartford to further their domination over wampum, fur, and trade goods. To break from the Pequot, several Connecticut River sachems invited the English to the valley who settled Windsor (1633), Wethersfield (1634), Hartford (1635) and Saybrook (1635) (Van Dusen 1961). Tensions grew on the Connecticut River following the death of several English traders in 1634 and 1636 which were blamed on the Pequot. In retaliation Massachusetts Bay soldiers destroyed Pequot villages in August of 1636 which began the Pequot War (1636-1638). It was fought largely along the Connecticut River until forces from Connecticut Colony destroyed a Pequot village at Mistick which proved the turning point of the war. The Pequot fled west, and English forces gave chase, making landfall at Quinnipiac and pursuing them to present-day Fairfield where the final battle of war was fought in July of 1637 (Cave 1996). Settlers from Massachusetts returned to Quinnipiac in April of 1638 where they negotiated with the Sachem of the area for land and soon after New Haven Colony was founded (Rockey 1892). By 1643, the colony consisted of the towns of New Haven, Milford, Guilford, Branford, and Stamford which developed around agriculture with New Haven harbor serving as the link to maritime trade. At the time, present-day Woodbridge fell within the bounds of both Milford and New Haven. In 1661, Governor John Winthrop, Jr., of Connecticut sailed for England to petition King Charles II for an official royal charter to legitimize the colony. He succeeded in 1662 and New Haven Colony merged with Connecticut Colony in May of 1665. Reserved lands for the Quinnipiac were maintained in the East Haven section of New Haven around 1638, and reserved lands for the Paugussett were established at Turkey Hill in present-day Derby in the 1650s (DeForest 1852). By the 1660s, water-powered industries including sawmills,

gristmills and fulling mills took root along New Haven County's numerous waterways (Rockey 1892). In the area that became the town of Woodbridge, this included water-powered mills along the Wepawaug River, Race Brook, and West River.

In 1701, New Haven became the co-capital of Connecticut Colony along with Hartford. Throughout the eighteenth century, New Haven County's population steadily increased, and the area developed into an important agricultural region with strong maritime connections to activities and industries such as fishing, shipbuilding, and international trade (Lambert 1838; Van Dusen 1961). English residents were primarily farmers and raised crops such as corn, rye, oats, barley, and tobacco. The western boundary of New Haven, which would later become Woodbridge, was known as Amity in the early eighteenth century. The farmers there turned to grazing and raised livestock including cattle, sheep, and pigs while benefiting from water-powdered industry in the form of gristmills, sawmills, and fulling mills (Van Dusen 1961). Slavery existed in New Haven County although it was uncommon in the seventeenth century, and by the eighteenth century it was primarily practiced by wealthy families, merchants, and ministers in large towns (Rockey 1892). It is unclear if any residents in the area that would become Woodbridge were slaveowners prior to the Revolutionary War as the town does not appear on the 1774 Connecticut Census. Over 400 African Americans resided in the towns of Milford and New Haven, and despite the 1774 Connecticut Census' lack of distinction between enslaved and free African Americans, many of those 400 residents were likely enslaved (Hoadly 1887).

During the American Revolution (1775-1783) New Haven County played an important role in recruiting soldiers, supplying food stores, and providing a variety of military goods for the war effort. Throughout the war, the New Haven County shoreline suffered raids from Long Island-based loyalists who would take cattle and sheep to sell to the British in New York. In 1779 New Haven was the first of several western Connecticut shoreline towns invaded in what was known as "Tryon's Raid." On July 5, British troops seized control of the town and destroyed military stores before reembarking (Lambert 1838; Van Dusen 1961). No other military attempt was made on New Haven during the war. After the Revolution, New Haven County recovered from wartime economic disruptions thanks to its robust agricultural production and maritime trade. In 1784, New Haven was incorporated as one of the first five cities in the state and that same year, the town of Woodbridge was formed out of land taken from western New Haven and northern Milford (Barry 1985). That same year, Connecticut passed a gradual manumission law, but slavery was not fully abolished until 1848 (Normen 2013). On January 9, 1788, Connecticut ratified the U.S. Constitution to become the fifth state (Van Dusen 1961).

Nineteenth Century through the Twenty-first Century

At the beginning of the nineteenth century, most New Haven County towns, including Woodbridge, had relatively small populations. In 1800 the town counted a total of 2,198 residents including at least 57 free people of color and 6 slaves (U.S. Census 1800). By 1830, that population figure had decreased to 2,052 which reflects the rural nature of Woodbridge as opposed to the neighboring industrial areas of New Haven, Bridgeport, and Waterbury (U.S. Census 1830). The town relied primarily on an agricultural economy which supplied nearby urban areas and port towns with fruits, vegetables, dairy products, and beef (Rockey 1892). Although industry and manufacturing did not take root in Woodbridge, many industrial workers from the nearby cities resided in Woodbridge. In 1839, the first railroad in the county was constructed between New Haven and Hartford. Rail service was significantly expanded in 1848 with the completion of the New York & New Haven railroad which benefited neighboring Woodbridge (Turner and Jacobus 1986). During the Civil War, Woodbridge produced food stores for the war effort and 60 men served with Union forces (Hines 2002). Throughout the nineteenth century Woodbridge

remained a small agricultural and residential town with a modest population of 926 by the century's close in 1890 (Connecticut 2022c).

In the early twentieth century, the shoreline and river municipalities of New Haven County had a mix of urban and suburbanized landscapes while the interior towns remained primarily rural, as is the case with Woodbridge. As the twentieth century progressed, however, the trend toward suburban living brought many more permanent residents to Woodbridge, further boosting the population (Herzan 1997; Connecticut 2022d). This suburban trend was facilitated by the widespread adoption of the automobile by the American middleclass and new highway construction. The Federal Highway Acts of 1944 and 1956 funded the construction of Interstates 84, 91, and 95 through New Haven County which were completed in the late 1960's (Connecticut 2022b). Throughout the twentieth century, industrialization subsided and suburbanization increased. The automobile, together with the establishment of highways, facilitated population movement as people moved out of cities and into towns. In the twenty-first century, Woodbridge remains a suburban landscape with some commercial development, yet it retains aspects of its historically rural character. Overall, the population of the town has steadily increased in the past fifty years as a suburb of New Haven, Bridgeport, and even Waterbury. As of 2010, the federal census enumerated 8,990 people living in the town of Woodbridge, and by 2020 the population of Woodbridge had increased to 9,087 people (US Census 2021; Table 1).

Table 1: Population of Woodbridge, New Haven County, Connecticut 1790-2020 (Connecticut 2022a-d)

Town	1790	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900
Woodbridge, New Haven County	2,124	2,198	2,030	1,988	2,052	958	912	872	830	829	926	852
	1910	**1920**	**1930**	**1940**	**1950**	**1960**	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**
	878	1,170	1,630	2,262	2,822	5,182	7,673	7,761	7,924	8,983	8,990	9,087

History of the Project Area

The proposed Facility is located south of Soundview Drive in the town of Woodbridge, Connecticut. The earliest map available of the area dates from 1854 and shows that the Facility is located in the southeast region of a section of Woodbridge known then as "Milford Meadows." There were few residential or commercial structures near the Facility as of 1854, the closest being those owned by S. Merrin and J. Hemingway. They were situated approximately 300 m (984 ft) to the east of the proposed Facility (Figure 4). In addition, Newton Road and Burnt Swamp Road (carrying to Route 63) were in their approximate present-day alignment as of 1854 (Figure 4). The Facility area as pictured in Beers' 1868 county map remained largely consistent with the 1854 county map. Noticeable differences in Beers' map, however, include the relabeling of Milford Meadows to Prospect Hill, although Milford Meadows does still appear on the map further away near a wetland approximately 600 m (1968 ft) to the northwest of the Facility (Figure 5). As of 1868, a brook, not depicted in the 1854 county map, extended from the Milford Meadows wetland area south and through the Prospect Hill region. The 1868 map does not indicate that the number of residences has dramatically changed in the vicinity of the proposed project area, though S. Merrin has been relabeled as M.G. Perkins, but J. Hemingway remains the same (Figure 5).

J. Hemingway is likely John Hemingway, who was 31 years old at the time of the 1860 federal census. According to the federal census of that year, Hemingway was married and had a four-year-old daughter, Jesse H Hemingway. John Hemingway's real estate was valued at $1,000.00 and his personal estate was valued at $200.00 (United States Census Bureau [USCB] 1860). At the height of the Civil War in 1863 John Hemingway appears on a draft registration record that lists his occupation as "farmer" and his prior

military service as “none” (Ancestry.com 2010). The military service record does not indicate that John Hemingway ultimately served in the Civil War. Though his occupation is listed as farmer in the draft record of 1863, the federal census of 1870 lists his occupation as “carpenter” and both his personal and real estate value have increased to $500.00 and $3,000.00, respectively (United States Census Bureau [USCB] 1870). However, the census does not list his young daughter Jesse H., though a three-year-old son George appears, as well as John’s 45-year-old sister Nancy, who under occupation is listed as “invalid” (United States Census Bureau [USCB] 1870). A decade later, John Hemingway’s occupation has changed to “Painter” (United States Census Bureau [USCB] 1880). His then 13-year-old son George was listed under his household, as well as his sister Nancy, then 55 years old. The 1900 federal census, the last that John Hemingway participated in before his death in 1901, reveals yet more about John. A year before his death, John Hemingway was 74 years old, had been married to Mary Hemingway for 44 years, could both read and write, and owned his own home (United States Census Bureau [USCB] 1900). In many ways, John Hemingway’s life in the nineteenth century is reflective of the rapidly changing ways of life in that century. Hemingway’s proximity to New Haven likely allowed him to pursue more specialized occupations, and his change from farmer, to carpenter, and finally to painter speaks to his remarkable ability to adapt to the industrial and societal changes in the nineteenth century.

The earliest aerial photography of the land containing the Facility dates from 1934. Aerial photography from this year shows the area as largely cleared fields with forested areas directly to the south boundary of the Facility. The photograph shows one residence approximately 50 m (164 ft) to the east of the project area, and both Newton Road and Burnt Swamp Road are visible as well (Figure 6). Aerial photography from 1951 shows that the proposed Facility and the land in its immediate vicinity as mostly cleared fields with dense woodland directly to the south (Figure 7). The aerial photography from 1951 shows the residence previously mentioned approximately 50 m (164 ft) to the east of the project area (Figure 7). Aerial photography from 1970 shows the composition of the land in and around the project parcel as being largely consistent with aerial photography from 1951 (Figure 8). The previously cleared fields approximately 100 m (328 ft) to the northwest of the project parcel appear to have undergone reforestation, and at least two new residential structures were built approximately 100 m (328 ft) to the southeast of the project parcel (Figure 8). In addition, the outline of Forest Glen Drive appears 50 m (164 ft) to the north of the project area (Figure 8). The aerial photography from 1990 shows substantial residential growth in the area surrounding the proposed project parcel. Aerial photography from this year shows Forest Glen Drive and Prospect Road have been completed, and numerous new residential structures appear approximately 50 m (164 ft) to the northern boundary of the proposed project parcel. The eastern half of the project area remains cleared in the 1990 aerial photography; however, the western half of the project parcel had begun to be reforested in young, wooded vegetation (Figure 9).

Aerial photography from the twenty-first century shows an approximate plateau in residential growth in the area surrounding the proposed project parcel, which is consistent with population growth in Woodbridge in the twenty-first century (see Table 1). Aerial photography from 2004 shows residential growth along the newly constructed Penny Lane 200 m (656 ft) to the south of the project parcel. A new residential structure also appears 50 m (164 ft) to the western boundary of the project parcel (Figure 2004 Aerial). The composition of cleared field and secondary growth within the project parcel is consistent with aerial photography of the project area from 1990 (Figure 11). Aerial photography from 2019 shows that no new residential structures were constructed in the land around the project parcel since the aerial photography of 2004 (Figure 11). The eastern portion of the land within the project parcel shows that the cleared field has been let to regrow wooded vegetation while the western portion of the project area remains forested (Figure 11). One small path running from north to south within the newly forested eastern section can be seen from the aerial photography from 2019. The aerial

photography from both the twentieth and twenty-first century shows that, while the land outside the project parcel has undergone significant residential growth and development, the project parcel itself has remained undeveloped and free of residential or commercial structures (Figure 11).

Conclusions

The above-referenced maps and aerial images do not show the locations of any former buildings or above ground cultural resources. However, due to the landscape mainly consisting of forested land and agricultural fields, there is the possibility of encountering remains of outbuildings, stonewalls, or other evidence of post European Contact period farming.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previously identified cultural resources in the vicinity of the Project in Woodbridge, Connecticut. This discussion provides the comparative data necessary for assessing the results of the Phase IB cultural resources reconnaissance survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the proposed Facility are taken into consideration. Specifically, this chapter reviews previously identified archaeological sites, National/State Register of Historic Places properties (NRHP/SRHP), and previously identified standing structures over 50 years in age within 0.8 kilometers (0.5 miles) of the Facility. The discussions presented below are based on information currently on file at the Connecticut State Historic Preservation Office (CT-SHPO) in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage were examined during this investigation. Both the quantity and quality of the information contained in the original cultural resources survey reports and State of Connecticut archaeological site forms are reflected below.

Previously Recorded Archaeological Sites and National/State Register of Historic Places Districts/Properties in the Vicinity of the Facility Area

A review of data currently on file at the CT-SHPO, as well as the electronic files maintained by Heritage resulted in the identification of a single precontact era archaeological site (167-14) and one inventoried standing structure older than 50 years within 0.8 kilometers (0.5 miles) of the proposed Facility (Figures 12 and 13). No National or State Register of Historic Places properties were identified within 0.8 kilometers (0.5 miles) of the Project area. The archaeological site and the standing structure are reviewed below and provide context with which to assess the Project for containing additional intact cultural resources.

Site 167-14

Site 167-14, which is also known as the Newton Road Site, is a precontact era campsite dating from an unknown period in Woodbridge, Connecticut. The site was subjected to surface collection at an unknown time, and a number of unspecified projectile points were recovered. Site 167-14 was recorded by Connecticut Archaeology Survey (CAS) in 1979; however, it was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The Newton Road Site is located approximately 0.28 kilometers (0.17 miles) to the northeast of the Project area and will not be impacted by the proposed construction.

Leonard & Marion Downey House

The Leonard & Marion Downey House is an inventoried historic residence located at 157 Newton Road in Woodbridge, Connecticut. It is a Colonial Revival style building that was constructed in 1932. The wood framed house measures two-stories in height and has symmetrically placed windows across its façade. It also contains a centrally placed front door that below a pediment that is supported by flush columns on either side. This building, which is in excellent conditions, is located approximately 0.75 kilometers (0.47 miles) to the northeast of the Project area and will not be impacted by the proposed construction.

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methods used to complete the Phase IB cultural survey of the Project area in Woodbridge, Connecticut. In addition, the location and point-of-contact for the facility at which all cultural material, drawings, maps, photographs, and field notes generated during survey will be curated is provided below.

Research Design

The current Phase IB cultural resources reconnaissance survey was designed to identify all precontact era and post-European Contact period cultural resources located within the proposed development areas associated with the Project. Fieldwork for the survey was comprehensive in nature and planning considered the distribution of previously recorded archaeological sites located near the development area, as well as an assessment of the natural qualities of the Project parcel. The methods used to complete this investigation were designed to provide complete and thorough coverage of all portions of the development area. This undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, and photo-documentation.

Field Methods

Following the completion of all background research, the development area was subjected to a Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, photo-documentation, GPS recordation, and systematic shovel testing. The field strategy was designed such that the entirety of Areas 1 through 3 was examined visually and photographed. The pedestrian survey portion of this investigation included visual reconnaissance of all of the development locations. The subsurface examination was completed through the excavation of shovel tests at 20 meter (65.6 foot) intervals along survey transects positioned 20 meters (65.6 feet) apart throughout the proposed Project area. Each shovel test measured 50 x 50 centimeter (19.7 x 19.7 inch) in size, and each was excavated until glacially derived C-Horizon or immovable object (e.g., boulders, large tree roots) were encountered. Each shovel test was excavated in 10 centimeter (3.9 inch) arbitrary levels within natural strata, and the fill from each level was screened separately. All shovel test fill was screened through 0.64 centimeter (0.25 inch) hardware cloth. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Each shovel test was backfilled after it was fully documented.

Post-European Contact Period Cultural Material Analysis

The analysis of the post-European Contact period cultural material recovered during the Phase II Intensive Archaeological Survey was organized by class, functional group type, and subtype. The first level, class, represented the material category, e.g., ceramic, glass, metal. The second level, functional group, e.g., architecture, kitchen, or personal was based on standard classifications. The third and fourth levels, type and subtype, described the temporally and/or functionally diagnostic artifact attributes. The identification of artifacts was aided by consulting standard reference works.

Curation

Following the completion and acceptance of the Final Report of Investigations, all cultural material, drawings, maps, photographs, and field notes will be curated with: Dr. Sarah Sportman, Office of Connecticut State Archaeology, Box U-1023, University of Connecticut, Storrs, Connecticut 06269

CHAPTER VII
RESULTS OF THE INVESTIGATION & MANAGEMENT RECOMMENDATIONS

Introduction

As described above, the goals of the Phase IB investigation included completion of the following tasks: 1) preparation of a contextual overview of the regions' precontact era, post-European Contact period, and natural settings (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously recorded cultural resources in the region encompassing the Project area; 3) a review of readily available maps and aerial imagery depicting the Project and the archaeologically sensitive area; 4) pedestrian survey and photo-documentation of the archaeologically sensitive area; and 5) subsurface examination of archaeologically sensitive area for evidence of intact cultural deposits. The results of the investigation are presented below.

Results of the Phase IB Cultural Resources Reconnaissance Survey

As stated earlier in this report, the proposed Project will encompass a solar array that will be installed on approximately 7.82 acres of land in Woodbridge, Connecticut. The project area, which will be located at 16 Soundview Road is situated at elevations ranging between 134 to 146 meters (439.6 to 479 feet) NGVD. At the time of survey, the area was characterized by forested land and overgrown field that contained gently sloping topography and well drained soils (Photos 1 through 5).

During the Phase IB survey a total of 103 of 105 (98 percent) planned shovel tests were excavated throughout the Project area. The two planned but unexcavated shovel tests fell into an area characterized by a previously identified and documented stonewall (Photo 6). A typical shovel test excavated during the Phase IB investigation extended to an average depth of 50 to 75 centimeters below surface (cmbs) (19.6 to 29.5 inches below surface [inbs]) and exhibited up to four soil horizons in profile. The uppermost soil horizon was characterized by an Ap-Horizon (plowzone) that extended from the ground surface to 20 cmbs (0 to 7.8 inbs); it consisted of a layer of brown (10YR 4/3) sandy loam. The underlying B1-Horizon reached from 20 to 43 cmbs (7.8 to 16.9 inbs) and was defined by a deposit of yellowish brown (10YR 5/8) fine loamy sand. It was underlaid by a B2-Horizon that was described as a layer of yellowish brown (10YR 5/4) loamy sand mixed with gravel and cobble inclusions that extended from 43 to 59 cmbs (16.9 to 23.2 inbs). Finally, the glacially derived C-Horizon was defined by a deposit of light olive brown (2.5Y 5/4) medium to coarse sand mixed with gravel and cobble inclusions; it was encountered at 59 cmbs (23.2 inbs) and extended to the bottom of the shovel test at 74 cmbs (29.1 inbs). This stratigraphy can be seen within the digital profile of Transect 20; STP 2 in Figure 15.

Of the excavated shovel tests, four (four percent) yielded examples of cultural material, including six artifacts dating from the post-European Contact period. The assemblage included 2 clear glass shards, a single creamware sherd, 1 whiteware ceramic sherd, and a single large mammal long bone fragment. The artifacts have a general date range of late nineteenth through twentieth centuries (Photo 7). All of the artifacts were recovered from disturbed plowzone soils (Ap-Horizon). They were recovered in low densities in areas that lacked depositional integrity and any above or below ground cultural features. As a result, they were classified as unassociated field scatter. The post-European Contact period assemblage does not retain research potential or the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4[a-d]). Thus, no additional

archaeological examination of the artifact scatter of the remainder of the Project area is recommended prior to construction.

Finally, a single stonewall segment was identified in the southern portion of the project area. It is recommended that the wall be avoided to the extent practicable and demarcated with high visibility fencing so that contractors do not inadvertently impact it during construction.

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APPENDIX A

FIGURES

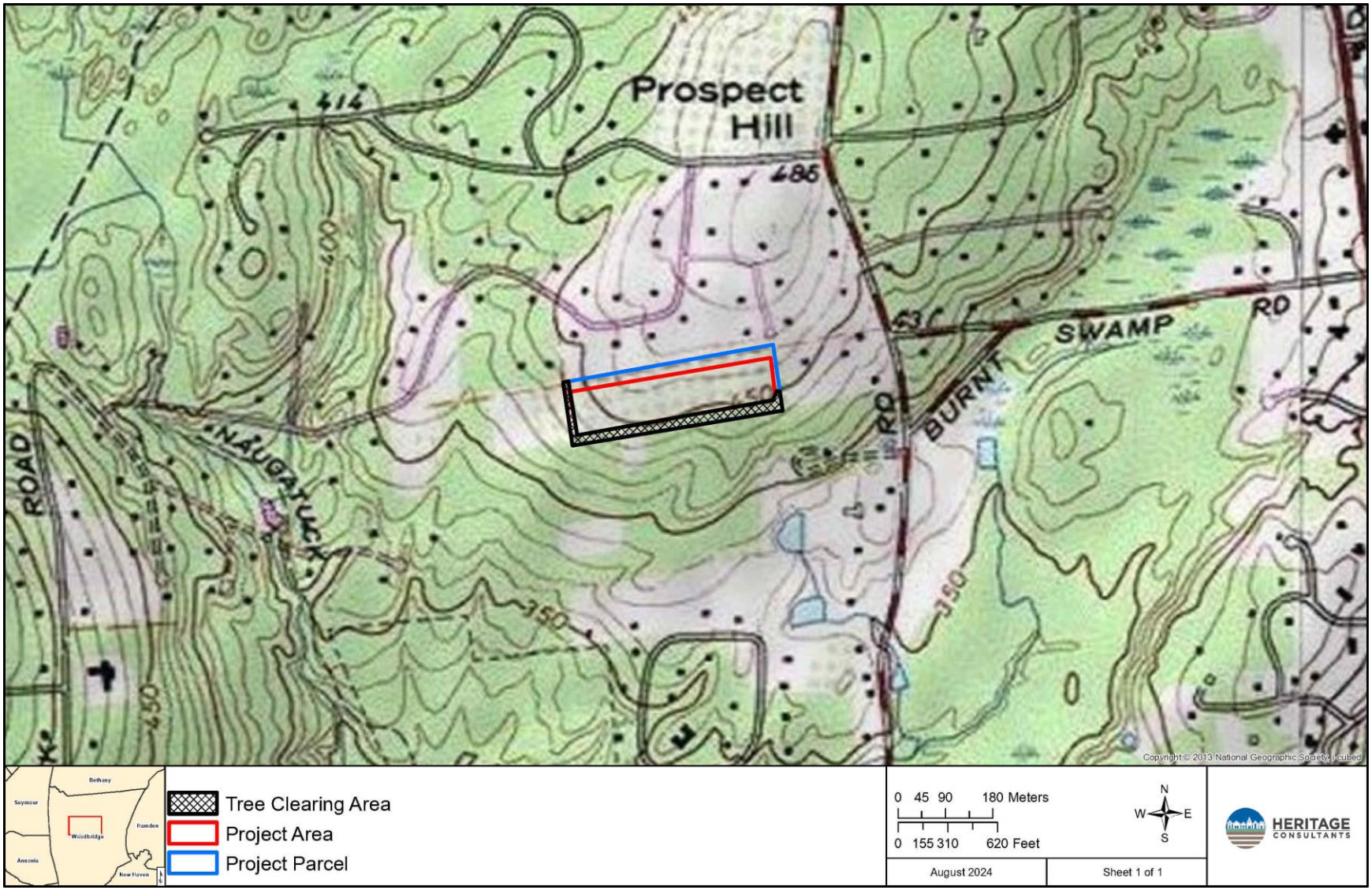

Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the project parcel in Woodbridge, Connecticut.

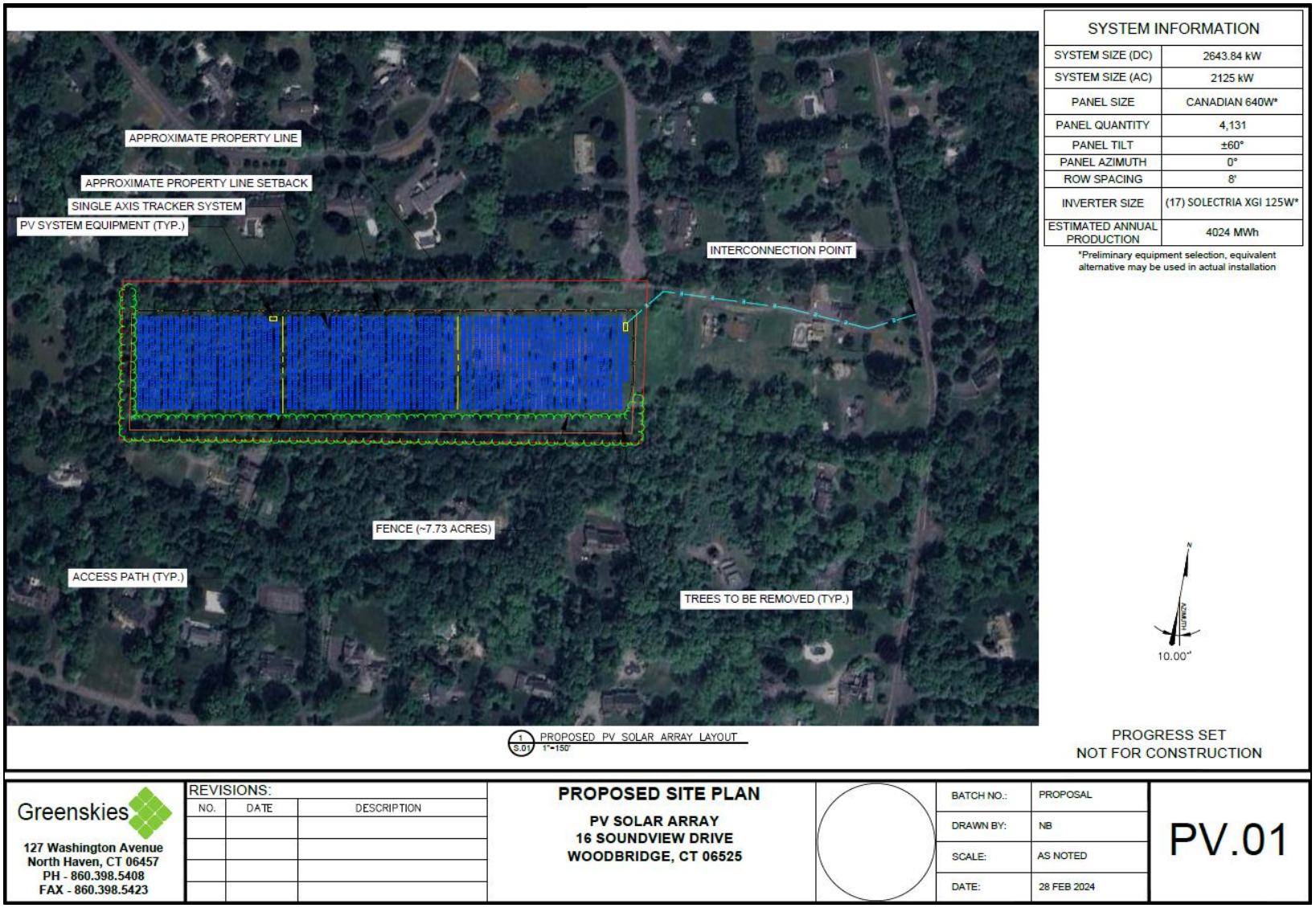

Figure 2. Digital map depicting the client's project plans for the solar facility in Woodbridge, Connecticut.

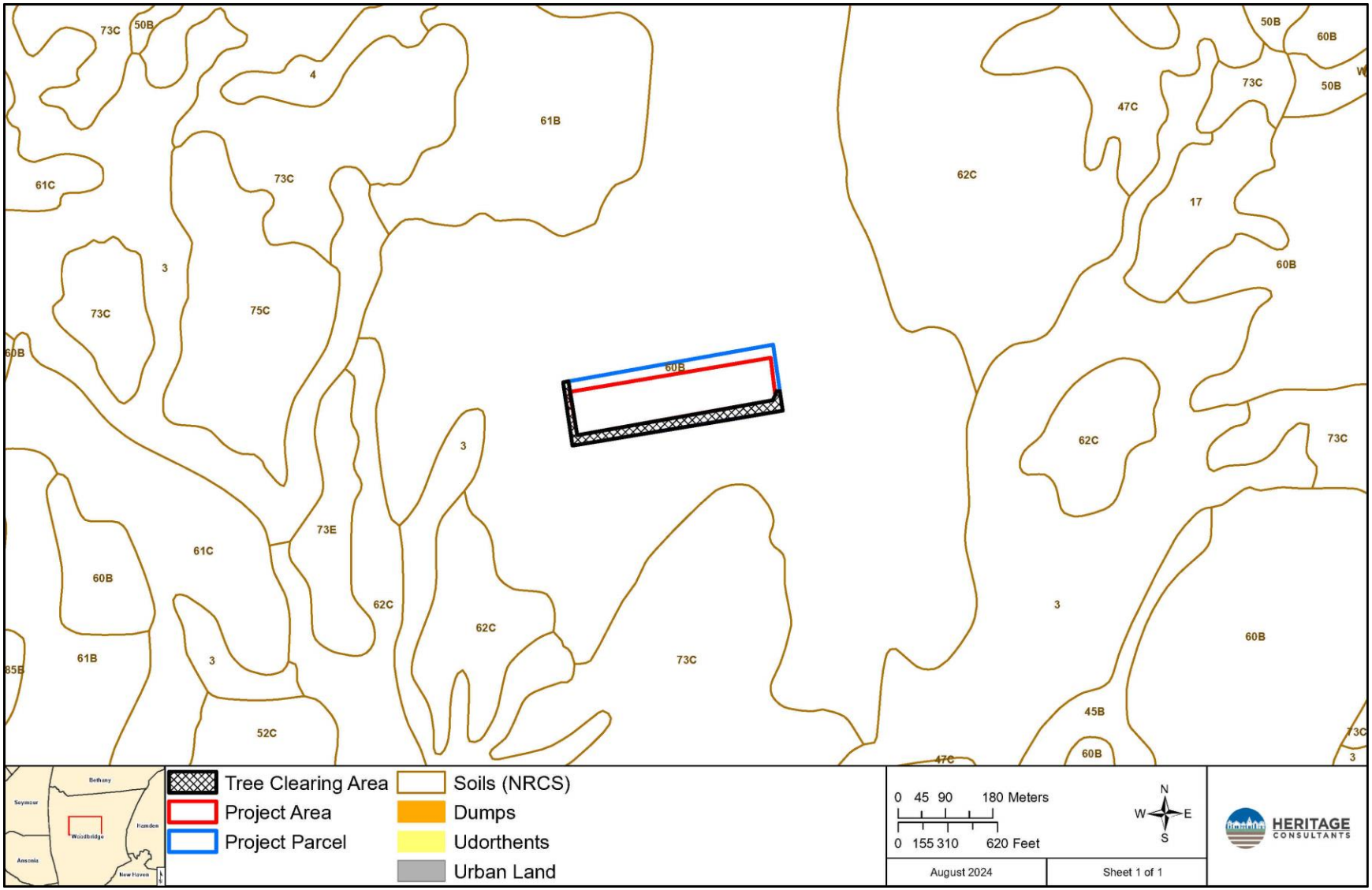

Figure 3. Digital map depicting the soil types present in the vicinity of the project parcel in Woodbridge, Connecticut.

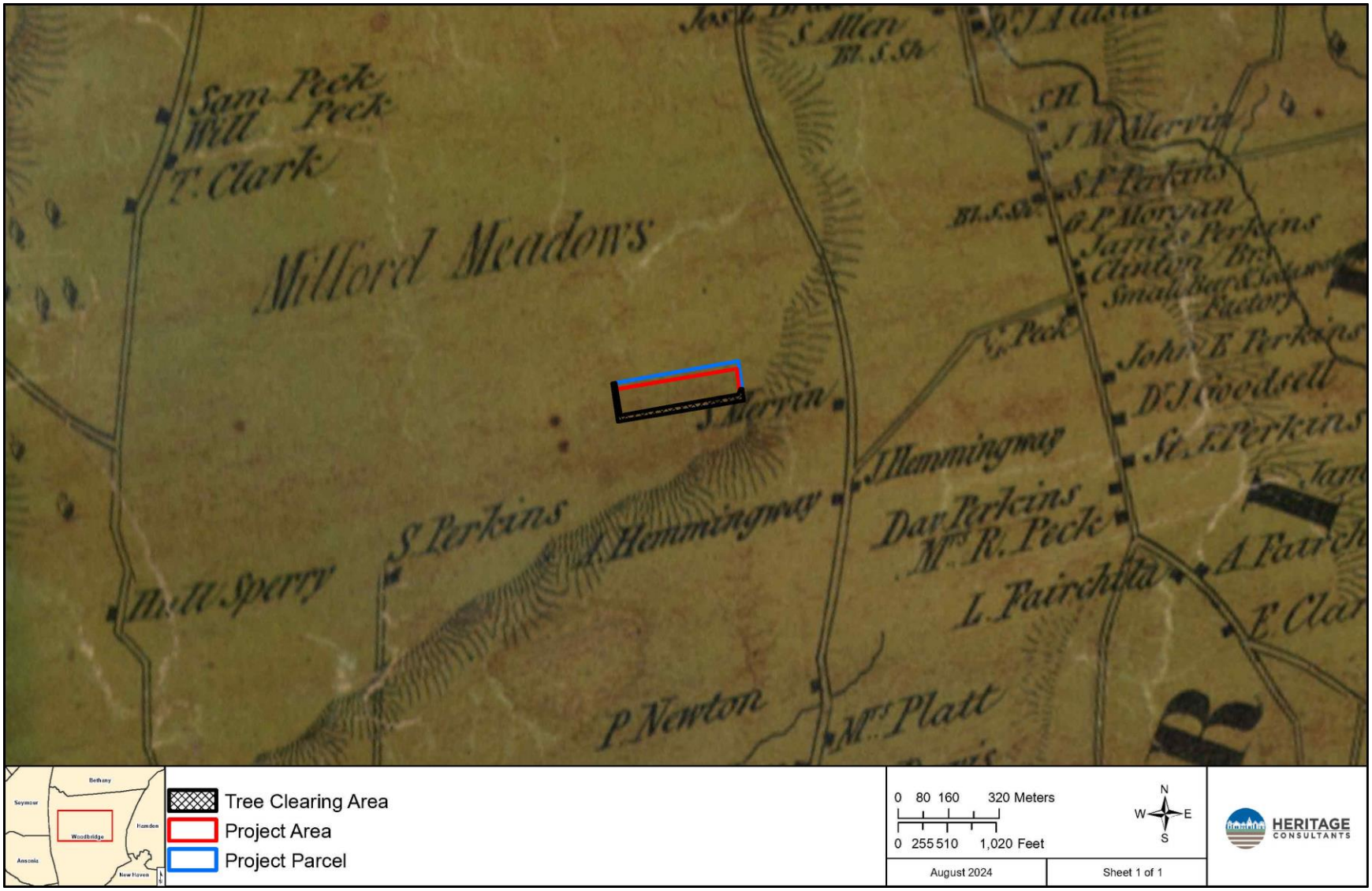

Figure 4. Excerpt from an 1854 map showing the location of the project parcel in Woodbridge, Connecticut.

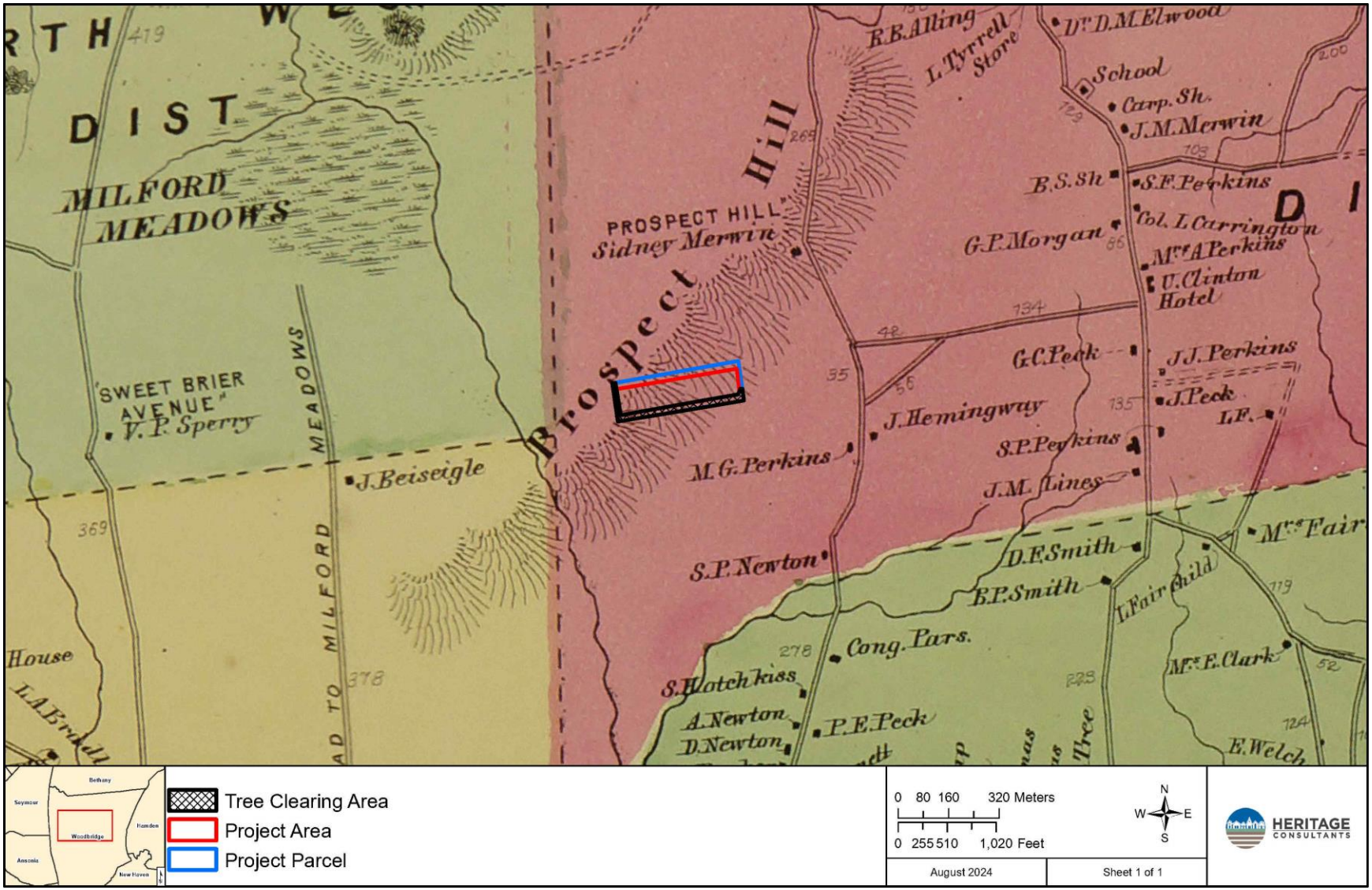

Figure 5. Excerpt from an 1868 map showing the location of the project parcel in Woodbridge, Connecticut.

Figure 6. Excerpt from a 1934 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

Figure 7. Excerpt from a 1951 aerial photography showing the location of the project parcel in Woodbridge, Connecticut.

Figure 8. Excerpt of a 1970 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

Figure 9. Excerpt of a 1990 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

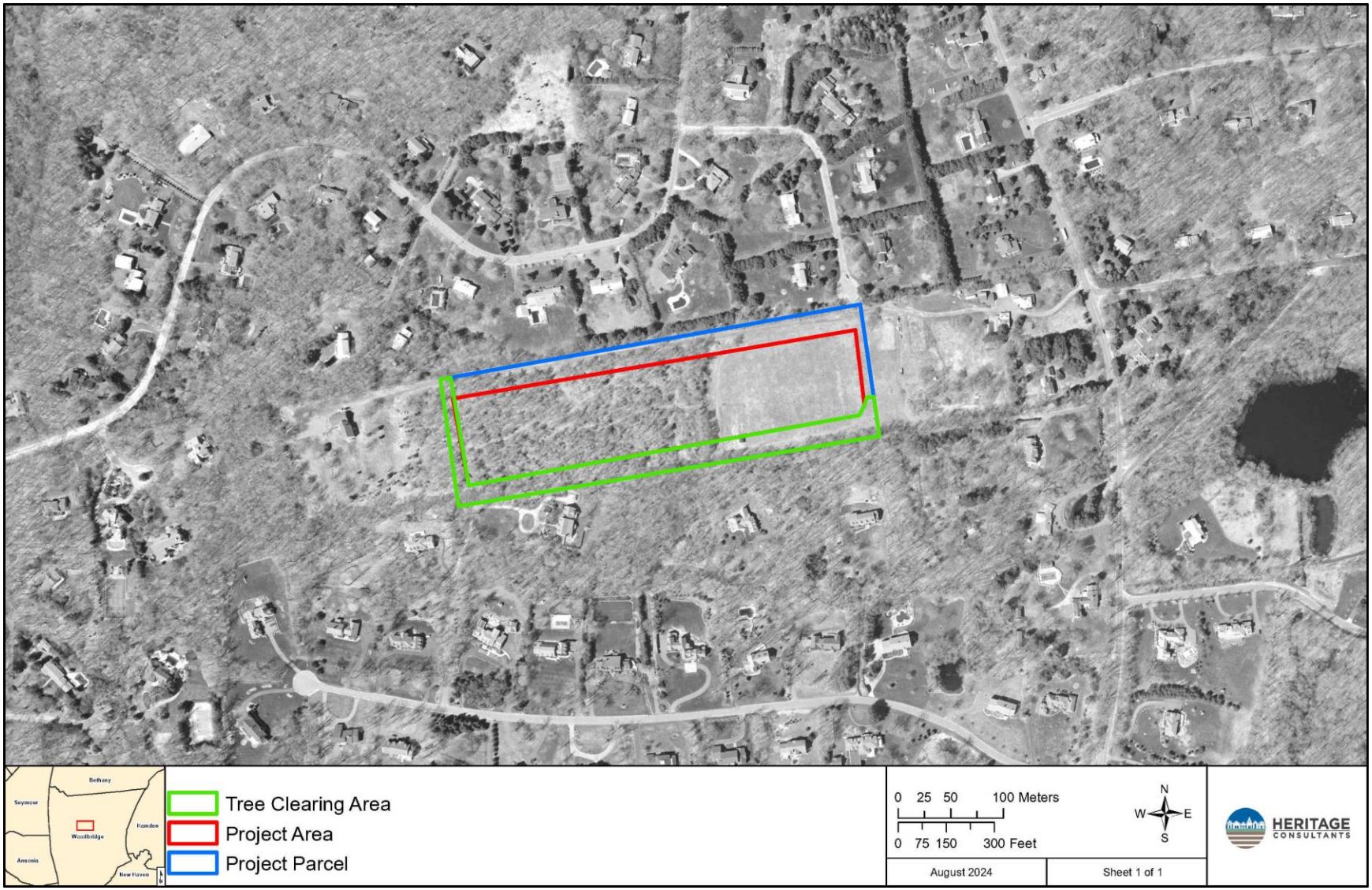

Figure 10. Excerpt of a 2004 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

Figure 11. Excerpt of a 2019 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

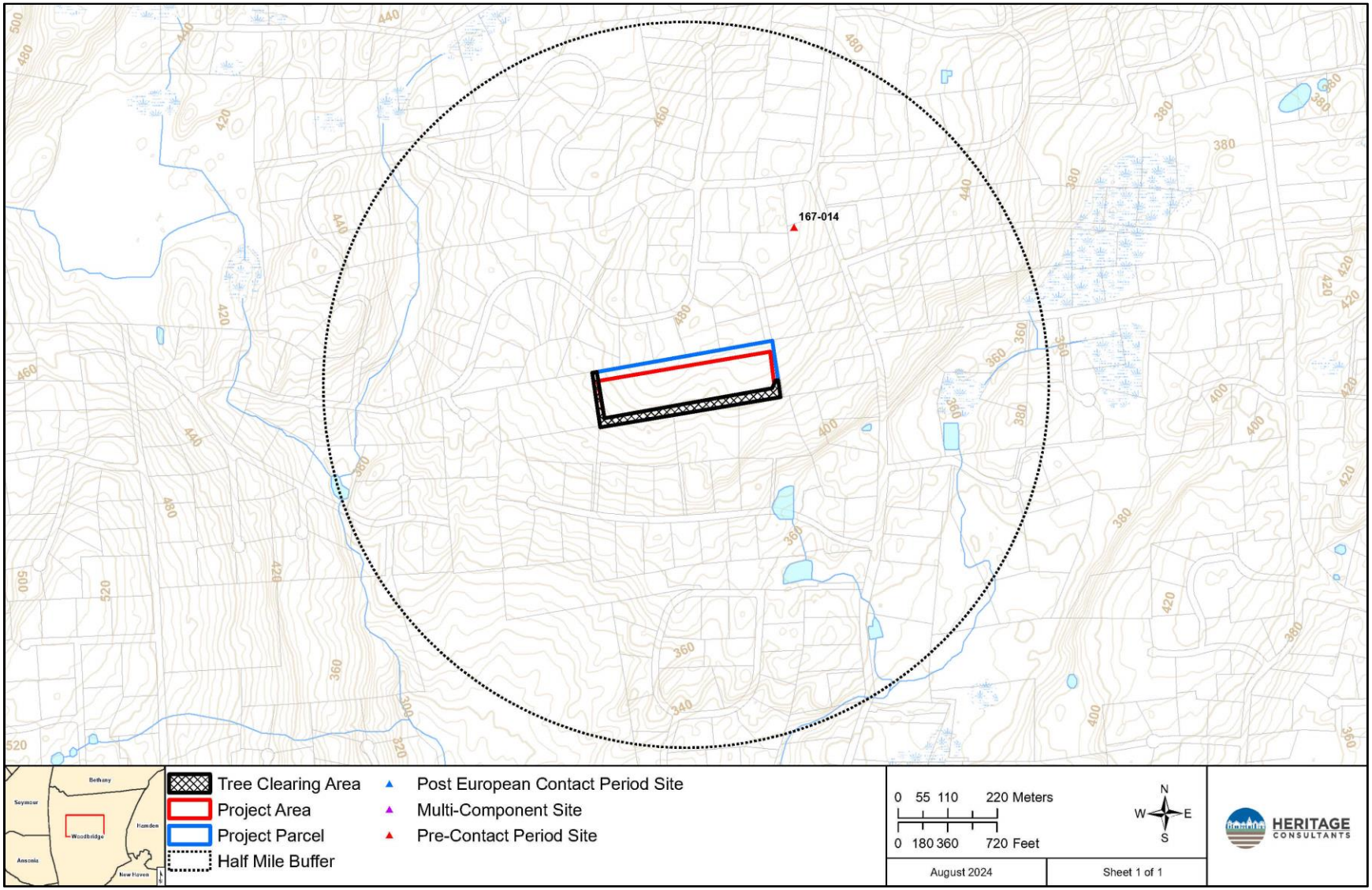

Figure 12. Digital map depicting the locations of the previously identified archaeological sites in the vicinity of the project parcel in Woodbridge, Connecticut.

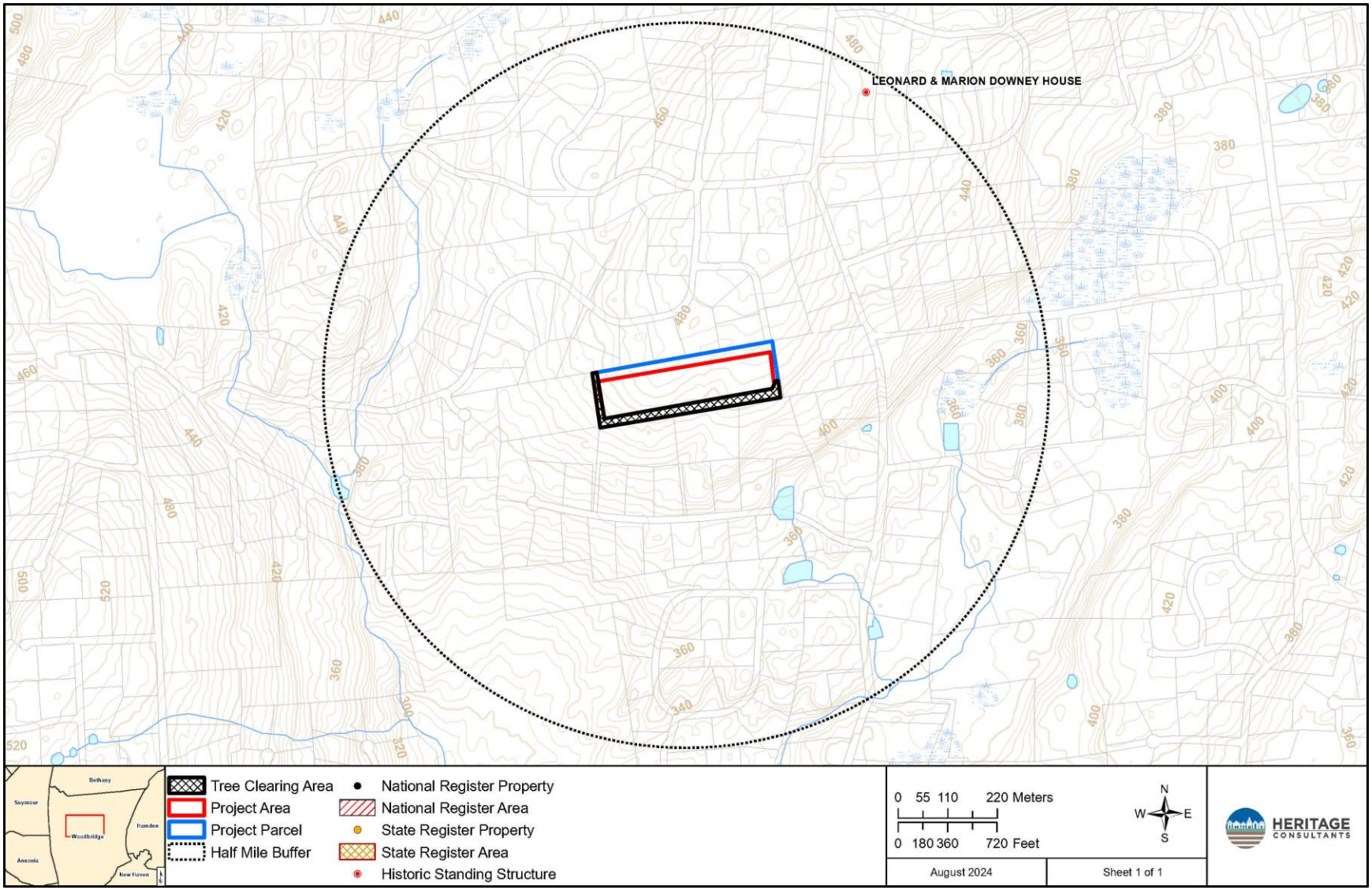

Figure 13. Digital map depicting the locations of the previously identified National Register of Historic Places and State Register of Historic Places properties in the vicinity of the project parcel in Woodbridge, Connecticut.

Figure 14. Digital map illustrating areas of finalized Moderate/High archaeological sensitivity (Red) and areas of No/Low Archaeological Sensitivity (Yellow) with directional arrows of photo points taken for the proposed development in Woodbridge, Connecticut.

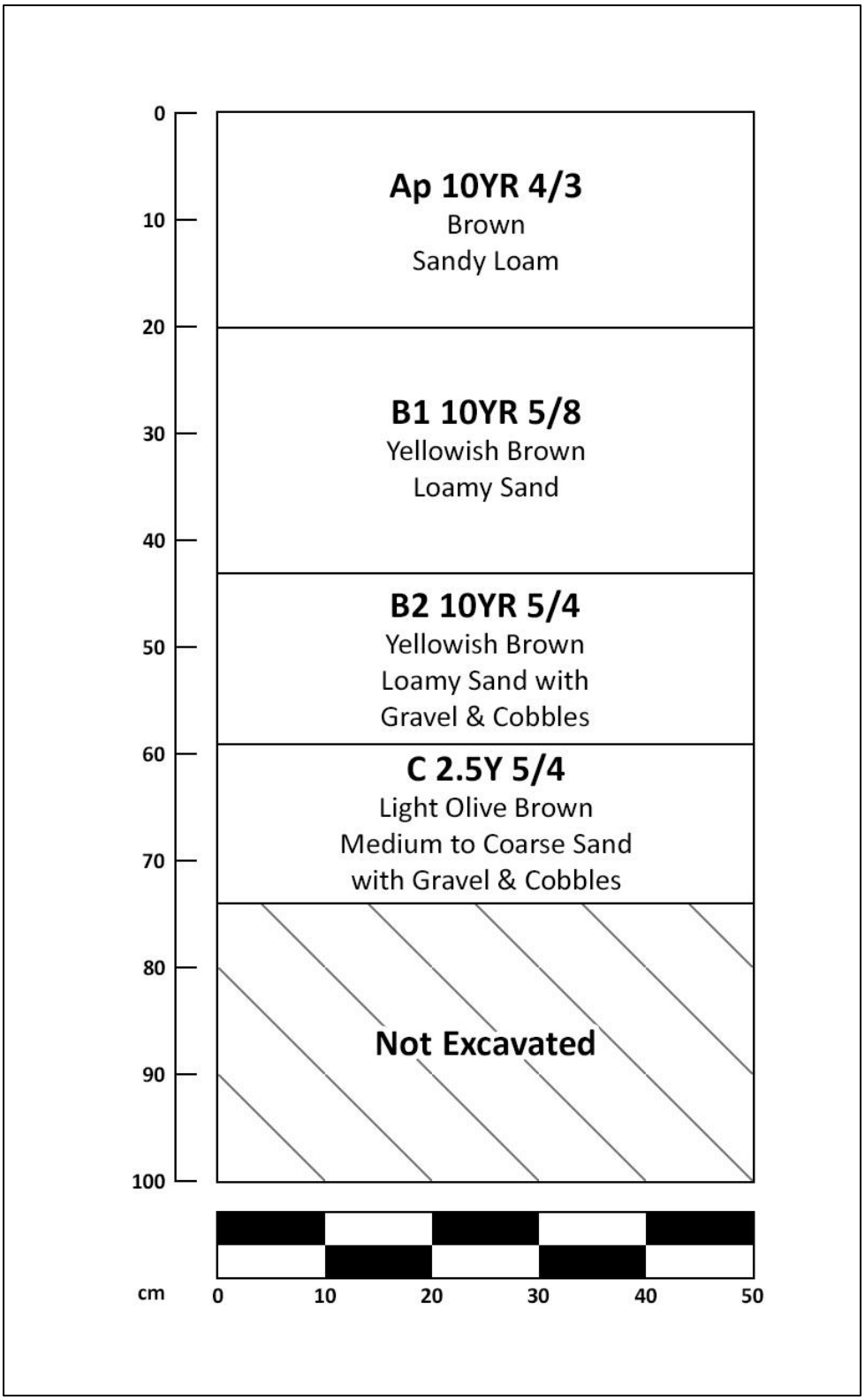

Figure 15. Digital drawing of Transect X; STP X.

APPENDIX B

PHOTOS

Photo 1. Overview of Project area taken from the northwestern corner. Photo facing to the southeast.

Photo 2. Overview of Project area taken from the northeastern corner. Photo facing to the southwest.

Photo 3. Overview of Project area taken from the southwestern corner. Photo facing to the northeast.

Photo 4. Overview of Project area taken from the center of area. Photo facing to the northwest.

Photo 5. Overview of Project area taken from the central southern boundary. Photo facing to the north.

Photo 6. Photo of stonewall SW-1. Photo facing to the north.

Photo 7. Sample of post-European Contact period artifacts recovered during the Phase IB. A) Colorless glass shard; B) colorless glass fragment; C) Large mammal long bone shaft fragment; D) Creamware sherd.