State Historic Preservation Office
Department of Economic and Community Development

CONNECTICUT

December 19, 2024

David George
Heritage Consultants, LLC
830 Berlin Turnpike
Berlin, CT 06037
(sent only via email to dgeorge@heritage-consultants.com)

Subject: Archaeological Reconnaissance Survey
Racebrook Road Solar
Woodbridge, Connecticut

Dear David George,

The State Historic Preservation Office (SHPO) has reviewed the technical report titled *Phase IB Cultural Resources Reconnaissance Survey of the Racebrook Road Solar Project in Woodbridge, Connecticut* prepared by Heritage Consultants, LLC (Heritage), dated November 2024. The submitted technical report meets the standards set forth in the *Environmental Review Primer for Connecticut's Archaeological Resources*. SHPO understands that the proposed project entails the construction of a ground-mounted solar voltaic facility with access road, equipment pad, and associated infrastructure in a 38.26-acre project area within a larger 52.7-acre parcel along Racebrook Road. The project will require a stormwater discharge permit from the Connecticut Department of Energy and Environmental Protection through the authority of the Environmental Protection Agency; it is subject to review by this office pursuant to Section 106 of the National Historic Preservation Act, as amended.

A cultural resources reconnaissance survey of the Area of Potential Effect (APE) for the project was completed by Heritage in November of 2024. The investigation included comprehensive background research that examined historic maps and aerial imagery as well as previously identified cultural resources located in proximity to the APE. The review failed to identify any properties listed on the National Register of Historic Places (NRHP) in the vicinity of the APE. The report did locate four previously reported archaeological sites, a property listed on the State Register of Historic Places, and 66 inventoried historic standing structures within a mile of the APE. Heritage concluded that the proposed activities will not impact any previously identified cultural resource.

During survey, 13 of 14 planned shovel tests were excavated at 15-meter intervals along transects placed 15 meters apart throughout a single identified area of archaeological sensitivity. The effort failed to identify evidence of cultural material or features. Therefore, based on the information submitted to this office, it is the opinion of SHPO that no historic properties will be affected by the proposed solar facility and no additional archaeological investigation is warranted. Comments are conditional upon the submittal of two copies of the final report for permanent archiving and public accessibility.

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This office appreciates the opportunity to review and comment upon this project. Do not hesitate to contact Cory Atkinson, Staff Archaeologist and Environmental Reviewer, for additional information at (860) 500-2458 or cory.atkinson@ct.gov.

Sincerely,

Jonathan Kinney
State Historic Preservation Officer

450 Columbus Boulevard, Suite 5
Hartford, CT 06103
860-500-2300

JULY 2024

PHASE IA CULTURAL RESOURCES RECONNAISSANCE SURVEY OF THE RACEBROOK ROAD SOLAR PROJECT IN WOODBRIDGE, CONNECTICUT

PREPARED FOR:

100 GREAT MEADOW ROAD, #200
WETHERSFIELD, CONNECTICUT 06109

PREPARED BY:

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ABSTRACT

This report presents the results of a Phase IA cultural resources assessment survey for a proposed solar center at 1010 Racebrook Road in Woodbridge, Connecticut. The project will include the construction of a solar array, access road, equipment pad, and associated infrastructure on approximately 38.26 acres of a larger 51.7 acre parcel of land. Heritage Consultants, LLC completed the Phase IA cultural resources assessment survey on behalf of Vanasse Hangen Brustlin, Inc (VHB) in July of 2024. The Phase IA survey revealed that the proposed project parcel is largely characterized by an existing golf course with small sections of wooded land on gently sloping topography. Pedestrian survey of the project parcel revealed that 30.52 acres of the project area were characterized by previous disturbances, an existing golf course, and an in-place gravel driveway. No additional archaeological investigation of these areas is recommended prior to Project development. The remaining 7.74 acres of land 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 eighteenth century residences, one early-twentieth century residence with an associated barn and outbuilding, a twentieth century garage, and a mid-twentieth century residence and barn within sight the project parcel. These structures were documented through photography and mapping. Due to the lack of vegetation throughout the area, as well as the flat topography, the viewshed of these eight structures may be impacted by development. Heritage recommends that vegetation screening be implemented around the solar center to shield its view from the historic buildings. Finally, a single dry-laid stonewall was identified within the project area. Heritage recommends that, to the extent practicable, the stonewall be left in place, included on construction maps, and marked with high visibility fencing in the field so that it is not impacted 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 1010 Racebrook Road in Woodbridge, Connecticut. The proposed area of impact associated with the Facility encompasses approximately 38.26 acres of land within a larger 51.7 acre parcel; it is located to the west of Racebrook Road and to the north of the Wilbur Cross Parkway in Woodbridge, Connecticut (Figure 1). Vanasse Hangen Brustlin, Inc., (VHB), 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 July 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, equipment pad, and associated infrastructure (Figure 2). The project parcel is situated at elevations ranging between 59 to 91 meters (193.6 to 298.6 feet) NGVD. It is situated on the western side of Racebrook Road and the northern side of the Wilbur Cross Parkway in Woodbridge, Connecticut. The parcel is bounded by residential development to the north and east, forested land to the west, and a highway to the south. The Phase IA cultural resources assessment survey of the Facility area 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 four precontact era archaeological sites located within 1.6 kilometers (1 mile) of the Facility area (167-24, 107-21, 107-22, and 107-23). In addition, 66 structures previously identified in Historic Resources Inventory forms, were noted within 1.6 kilometers (1 mile) of the Facility. Of these, four previously recorded structures are situated directly adjacent, or across the street from the proposed Facility area. During the desktop survey, an additional four structures that are not listed in Historic Resources Inventory forms but are over 50 years in age were identified by Heritage. These eight resources include residences and agricultural buildings that date from the turn of the nineteenth through mid-twentieth centuries. The presences of these historical buildings, as well as the gently sloping nature of the Facility and its proximity to fresh water 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. The portions of the project parcel that will not be impacted by construction were not included in the pedestrian survey. This review revealed that 30.52 acres of the Facility consist of an existing golf course and gravel driveway, as well as previous disturbances. No additional archaeological investigation

of these areas is recommended prior to Facility construction. The remaining 7.74 acres of the Facility 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 Phase IB cultural reconnaissance survey prior to construction.

The pedestrian survey also led to the identification of two eighteenth century residences, one early-twentieth century residence with an associated barn and outbuilding, a twentieth century garage, and a mid-twentieth century residence and barn in sight of the Project parcel. These structures were documented through photography and mapping. Due to the lack of thick vegetation throughout the area and the flat topography, the viewshed of these eight structures may be indirectly impacted by Facility development. Heritage recommends that vegetation screening be implemented around the Facility area to avoid indirect adverse effect to the historic building. Finally, a single dry-laid stonewall was identified within the Facility area. Heritage recommends that, to the extent practicable, the stonewall be left in place, included on construction maps, and marked with high visibility fencing in the field so that it is not impacted 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); Nita Vitaliano, M.A. (Historian); and Cole Peterson, 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 Western Coastal 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>Western Coastal Ecoregion</u>

The Western Coastal ecoregion consists of a hilly terrain that extends from Connecticut's coastline to approximately 5 to 7 miles to the north of Long Island Sound (Dowhan and Craig 1976). It is characterized by "coastlands, including extensive tidal marshes, sand beaches, and estuaries, by relatively level but rolling near-shore lands, and by locally rugged and rocky protrusions of upland extending to the shoreline" (Dowhan and Craig 1976:38). Elevations in the Western Coastal ecoregion range from sea level to 152 m (500 ft) NGVD (Bell 1985). The bedrock of the area is primarily metamorphic in origin, and it composed of schists and gneisses deposited during the Paleozoic (Bell 1985). Soils in the region have developed on top of glacial till in upland locales and on top of stratified deposits of silts and sands in the valleys. Soils along the coast are developed upon coastal and tidal deposits (Dowhan and Craig 1976). This ecoregion is also characterized by numerous ponds, rivers, streams, brooks, and wetland areas.

Hydrology of the Study Region

The Facility area is located within close proximity of several streams, ponds and wetlands. The major fresh water sources in this area include the Wepawaug River, Race Brook, and Twomile Brook. 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 10 soil types were identified within the Facility area (Figure 3). Canton and Charlton soils dominate the northeastern portion of the Facility, whereas Agawam soils appear in the center and southeastern sections of the Facility. The southeastern edges are shared with Udorthents soils, while the southwest of the Facility contains Ninigret and Tisbury soils. The northwestern portion of the Facility area is dominated by Leicester, Ridgebury, and Whitman soils. These soil types fall into two categories of well-to-excessively drained and poorly drained soil types. When well drained soils such as Canton, Charlton, Ninigret, Tisbury, and Agawam 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. In contrast, Ridgebury, Leicester, and Whitman Soils are characterized as poorly drained soils and are not likely to contain archaeological deposits. In addition, the Udorthents series is considered highly disturbed and is also not likely to contain archaeological deposits. Below is a summary of each specific soil type 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.

Ninigret and Tisbury Soils

The Ninigret series consists of very deep, moderately well drained soils formed in loamy over sandy and gravelly glacial outwash. They are nearly level to strongly sloping soils on glaciofluvial landforms, typically in slight depressions and broad drainage ways. Slope ranges from 0 through 15 percent. A typical soil profile is as follows: **Ap**--0 to 8 inches; very dark grayish brown (10YR 3/2) fine sandy loam; pale brown (10YR 6/3) dry; weak medium granular structure; very friable; many fine roots; strongly acid; **Bw1**--8 to 16 inches; yellowish brown (10YR 5/6) fine sandy loam; weak coarse granular structure; very friable; few fine roots; strongly acid; **Bw2**--16 to 26 inches; yellowish brown (10YR 5/4) fine sandy loam; very weak coarse granular structure; very friable; very few fine roots; common medium distinct light brownish gray (10YR 6/2) and brownish yellow (10YR 6/6) redoximorphic features; strongly acid; and **2C**--26 to 65 inches; pale brown (10YR 6/3) loamy sand and few lenses of loamy fine sand; single grain; loose; many medium distinct light olive gray (5Y 6/2) and many prominent yellowish brown (10YR 5/8) redoximorphic features; strongly acid.

The Tisbury series consists of very deep, moderately well drained loamy soils formed in silty eolian deposits overlying outwash. They are nearly level and gently sloping soils on outwash plains and terraces, typically in slight depressions and broad drainageways. Slope ranges from 0 to 3 percent. A typical soil profile is as follows: **Ap**--0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; weak coarse granular structure; friable; many very fine and fine roots; few scattered pebbles; strongly acid; abrupt smooth boundary; **Bw1**--8 to 18 inches; yellowish brown (10YR 5/6) silt loam; weak medium and coarse subangular blocky structure; very friable; common very fine and fine roots; few scattered pebbles; strongly acid; clear wavy boundary; **Bw2**--18 to 26 inches; brownish yellow (10YR 6/6) silt loam; massive; very friable; few fine roots; few scattered pebbles; common medium prominent grayish brown (2.5Y 5/2) iron depletions and common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary; and **2C**--26 to 60 inches; grayish brown (10YR 5/2) extremely gravelly sand; single grain; loose; 60 percent gravel; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and common medium faint light brownish gray (10YR 6/2) iron depletions; strongly acid.

Agawam Soils

The Agawam series consists of very deep, well drained soils formed in sandy, water deposited materials. They are level to steep soils on outwash plains and high stream terraces. Slope ranges from 0 to 15 percent. A typical profile associated with Agawam soils is as follows: **Ap**--0 to 11 inches; dark grayish

brown (10YR 4/2) fine sandy loam; light brownish gray (10YR 6/2) dry; weak medium and coarse subangular blocky structure; very friable; common fine and medium roots; strongly acid; abrupt smooth boundary; **Bw1**--11 to 16 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium and coarse subangular blocky structure; very friable; common fine and medium roots; strongly acid; abrupt smooth boundary; **Bw2**--16 to 26 inches; light olive brown (2.5Y 5/4) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; strongly acid; clear smooth boundary; **C1**--26 to 45 inches; olive (5Y 5/3) loamy fine sand; massive; very friable; few fine roots; strongly acid; clear smooth boundary; **2C2**--45 to 55 inches; olive brown (2.5Y 4/4) loamy fine sand; massive; very friable; strongly acid; abrupt smooth boundary; and **2C3**--55 to 65 inches; olive (5Y 5/3) loamy sand; single grain; loose; strongly acid.

Ridgebury, Leicester, and Whitman Series

The Ridgebury series consists of very deep, somewhat poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Slope ranges from 0 to 15 percent. A typical profile associated with Ridgebury soils is as follows: **A**--0 to 13 cm; black (N 2/0) fine sandy loam; weak medium and coarse granular structure; friable; many very fine, fine and medium tree roots; 5 percent gravel and 5 percent cobbles; very strongly acid; abrupt smooth boundary; **Bw**--13 to 23 cm; brown (10YR 4/3) sandy loam; weak medium subangular blocky structure; friable; few fine tree roots; 5 percent gravel and 5 percent cobbles; very strongly acid; abrupt wavy boundary; **Bg**--23 to 46 cm; dark gray (10YR 4/1) gravelly sandy loam; massive; friable; 10 percent gravel and 5 percent cobbles; common fine prominent yellowish brown (10YR 5/6) and common medium distinct reddish brown (5YR 4/4) masses of iron accumulation; very strongly acid; gradual wavy boundary; and **Cd**--46 to 165 cm; gray (5Y 5/1) gravelly sandy loam; massive; firm; 10 percent gravel and 5 percent cobbles; common fine prominent reddish yellow (7.5YR 6/8) masses of iron accumulation; very strongly acid.

The Leicester series consists of very deep, poorly drained soils formed in coarse-loamy till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. Slope ranges from 0 to 8 percent. A typical profile associated with Leicester soils is as follows: **Oe**--0 to 3 cm; black (10YR 2/1) moderately decomposed plant material; **A**--3 to 18 cm; black (10YR 2/1) fine sandy loam; moderate medium granular structure; friable; common fine and medium roots; 10 percent gravel and cobbles; strongly acid; clear wavy boundary; **Bg1**--18 to 25 cm; grayish brown (2.5Y 5/2) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 10 percent gravel and cobbles; common medium prominent yellowish red (5YR 5/6) masses of iron accumulation; strongly acid; gradual wavy boundary; **Bg2**--25 to 46 cm; light brownish gray (2.5Y 6/2) fine sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; 10 percent gravel and cobbles; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; gradual wavy boundary; **BC**--46 to 61 cm; pale brown (10YR 6/3) fine sandy loam; massive; friable; few fine roots; 10 percent gravel and cobbles; many medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 4/6) masses of iron accumulation; strongly acid; clear wavy boundary; **C1**--61 to 84 cm; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; massive; friable; 15 percent gravel and cobbles; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and prominent pinkish gray (7.5YR 6/2) iron depletions; strongly acid; gradual wavy boundary; and **C2**--84 to 155 cm; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; massive; friable; 15 percent gravel and cobbles; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid.

The Whitman series consists of very deep, very poorly drained soils formed in lodgment till derived mainly from granite, gneiss, and schist. They are shallow to a densic contact. These soils are nearly level or gently sloping soils in depressions and drainageways on uplands. A typical profile associated with Whitman soils is as follows: **Ap**--0 to 25 cm; black (10YR 2/1) loam, dark gray (10YR 4/1) dry; weak medium granular structure; friable; 10 percent rock fragments; common medium distinct red (2.5YR 4/8) masses of iron accumulation lining pores; moderately acid; abrupt wavy boundary; **Bg**--25 to 46 cm; gray (5Y 5/1) fine sandy loam; massive; friable; 10 percent rock fragments, few medium distinct pale olive (5Y 6/4) and light olive brown (2.5Y 5/4) masses of iron accumulation; strongly acid; abrupt wavy boundary; **Cdg**--46 to 79 cm; gray (5Y 6/1) fine sandy loam; moderate medium plates; firm; 10 percent rock fragments; many medium distinct light olive brown (2.5Y 5/4) masses of iron accumulation; moderately acid; clear wavy boundary; **Cd1**--79 to 122 cm; olive (5Y 4/3) fine sandy loam; massive; firm; 10 percent rock fragments; few medium prominent dark reddish brown (2.5YR 3/4) masses of iron accumulation; moderately acid; gradual wavy boundary; and **Cd2**--122 to 165 cm; olive (5Y 5/3) fine sandy loam; massive; firm; 10 percent rock fragments; moderately acid.

Udorthents, Smoothed

Udorthents, smoothed soils are a well-drained to moderately well drained, disturbed soil area that has had two or more feet of the original soil surface altered by filling, excavation or grading activities. Udorthents, smoothed soils commonly occur on leveled land and fill landforms.

Udorthents-Urban Land

The Udorthents-Urban Land Complex consists of moderately well drained to excessively drained soils that have been disturbed by cuffing or filling, and areas that are covered by buildings and pavement. The areas are mostly larger than 5 acres. Udorthents are in areas that have been cut to a depth of 2 feet or more or are on areas with more than 2 feet of fill. Udorthents consist primarily of moderately coarse textured soil material and a few small areas of medium textured material. In some areas fill has been used to build up recreational areas and highways.

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).

The 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 is located in Woodbridge, Connecticut. Most Connecticut towns, including Woodbridge, originated as Native American settlements and later became English colonial villages. Through the nineteenth and twentieth centuries, Woodbridge functioned as an agricultural hub which 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. This chapter provides a brief history of New Haven County followed by an overview of the Town of Woodbridge and data related to the Facility area.

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. Located in the southwestern corner of Connecticut, it is bounded to the south by Long Island Sound, to the east by Middlesex County, to the north by Hartford and Litchfield Counties, and to the 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, Wepawaug, and Rivers (Rockey 1892). The shoreline 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. The Town of Woodbridge is located in the western bounds of New Haven County, and abuts the Town of Orange to the south, the Towns of Ansonia, Derby, and Seymour to the west, the Town of Bethany to the north, the Town of Hamden and the City of New Haven to the east (Connecticut 2023).

Woodland Period to Seventeenth Century

During the Woodland Period of northeastern North American history (ca., 3000 to 500 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, Bethany as well as parts of Prospect and Cheshire (DeForest 1852; Lavin 2013).

Seventeenth Century through Eighteenth Century

As Native communities maintained 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 and 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 on 1634 and 1636 which were blamed on the Pequot. In retaliation Massachusetts Bay soldiers destroyed Pequot villages in August 1636 which began the Pequot War. 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 and 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 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 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 bounds of New Haven, which would later become Woodbridge, was known as Amity at the time. 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 although over 400 African Americans resided in the towns of Milford and New Haven, most of which 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 from 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. (Lambert 1838; Van Dusen 1961) before reembarking. No other 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 the State 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 (USCB 1800). By 1830, that population figure had increased to 2,052 which reflects the rural nature of Woodbridge as opposed to the neighboring industrial areas of New Haven, Bridgeport, and Waterbury (USCB 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. The Diamond Match Company traces its roots to 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 as well (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 (Connecticut 2024b).

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 did Woodbridge. As the twentieth century progressed, the trend toward suburban living brought many more permanent residents to Woodbridge, further boosting the population (Herzan 1997; Connecticut 2024d). 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 1960s (DeLuca 2020). Throughout the twentieth century, industrialization subsided, and suburbanization increased. Populations shifted as people moved from cities to towns when the automobile and the establishment of highways facilitated movement. In the twenty-first century, Woodbridge remains an important suburban landscape, with some commercial development, yet it retains aspects of its rural characteristics. 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 US Census Bureau enumerated 8,990 people living in the Town of Woodbridge and by 2020 the population of Woodbridge had increased to 9,087 people (USCB 2021; Table 1). In 2023, top industries in town included healthcare and social assistance, and local government. Key employers include Plastic Forming Company, Inc. and Northern Pipeline (AdvanceCT 2024). According to the Town's 2015 Plan of Conservation and Development, strategic growth is anticipated in Woodbridge. The town plans to "reduce its environmental impacts by pursuing sustainable patterns of development" (Woodbridge 2015:130).

Table 1: Population of Woodbridge, Connecticut 1790-2020 (Connecticut 2024a-d; USCB 2021)

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	5,128	7,673	7,761	7,924	8,983	8,990	9,087

History of the Facility Area

According to Smith's 1856 map, the proposed Facility is located in southern Woodbridge, near the border with Orange (Figure 4). An unlabeled river was present to the west of the Facility area at that time. In addition, the property of N. Camp was directly to the north and the property of E. Clarke was directly to the east of the Facility. These individuals were likely Nathaniel Camp and Elioenai Clarke, both of whom were listed as farmers in the 1850 census (UCSB 1850a-b). The 1868 F.W. Beers Atlas of New Haven County shows the above-referenced river as the "Wopowaug," and that property ownership had changed. The property belonging to N. Camp had changed hands to W.M. Crofton and the property of E. Clarke belonged to I.W. Baldwin as of 1868 (Figure 5). These individuals were likely William M. Crofton, who did not have an occupation listed in the census. Ira Baldwin was a Civil War veteran and farmer (USCB 1860; USCB 1880; Records of the Civil War 1865). The documentary record suggests that the land near the Facility area was utilized largely for agricultural purposes in the nineteenth century.

Aerial photography taken in 1934, the first year in which such photography was available, indicates that the proposed Facility was then located to the west of Racebrook Road on a parcel that was wooded in the western portion and open east (Figure 6). The Wepawaug River was visible to the west of the Facility area. By 1951, an aerial image depicted the Facility area as unchanged; however, the recently constructed Route 15/Wilbur Cross Parkway was visible directly to the south of the Facility area (Figure 7). Suburban development had taken place by 1970, and directly to the east and to the south of the Facility area was a series of single-family homes, along with accompanying streets and infrastructure (Figure 8). While the eastern portion of the Facility area remained open land and the western portion was still wooded as of 1970, a house was visible at the eastern boundary of the Facility area and a detention pond was present in the north. A golf course appeared under construction further east of the Facility area. By 1990, aerial photograph of the Facility area shows the construction of a large church immediately to the south of the project parcel (Figure 9). In addition, much of the forested land within

the Facility area had been cleared, leaving only a small area of wooded land in the southern portion of the parcel. In 2004, the cleared land within the Facility area appeared to have undergone modifications to make it part of the nearby golf course (Figure 10). Additional suburban development in the form of single-family homes and neighborhoods was evident to the north and to the east of the Facility area. Few further changes were evident in the photography from 2019 (Figure 11).

Conclusions

The documentary review indicates that the proposed Facility has potential to be associated with cultural resources. In the portions that were agricultural fields, there is the possibility of encountering evidence of post-European Contact period farming activities or stone walls that may be important as a component of a rural historic landscape (*sensu* McClelland et al. 1999). In addition, the nearby presence of the Wepawaug River suggests the possibility of encountering cultural resources related to post-European Contact period riverine activity, including milling operations.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previously identified cultural resources in the vicinity of the Facility area 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 1.6 kilometers (1 mile) 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 four precontact era archaeological sites within 1.6 kilometers (1 mile) of the proposed Facility (Figure 12). In addition, a single State Register of Historic Places property and 66 previously identified standing structures in excess or 50 years in age were identified within 1.6 kilometers (1 mile) of the Facility area (Figure 13). No National Register of Historic Places properties were identified within 1.6 kilometers (1 mile) of the Facility area (Figure 13). These resources are reviewed below and they provide context with which to assess the Facility area for containing additional intact cultural resources.

Site 167-24

Site 167-24, which is also known as the Dzikas Site, is a precontact era Native American archaeological site located in Woodbridge, Connecticut (Figure 12). Unfortunately, no other information about this site is listed on the State of Connecticut archaeological site form. It is unclear if this site was assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The Dzikas Site is located approximately 0.98 kilometers (0.61 miles) to the northwest of the Facility area and will not be impacted by the proposed construction.

Site 107-21

Site 107-21 is a Terminal Archaic period site in Orange, Connecticut (Figure 12). The site was subjected to Phase I testing by Archaeological and Historical Services, Inc., (AHS) in 2017. The site is characterized as a low density lithic scatter that was likely occupied for temporary tool production. Recovered artifacts include 13 flakes of quartz, jasper, and red shale; 1 piece of shell; and 1 chert Broadspear projectile point. This site was assessed as potentially eligible for listing in the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]) due to the research potential the site holds for similar low density sites. It is located approximately 0.83 kilometers (0.52 miles) to the northwest of the Facility area and will not be impacted by the proposed construction.

Site 107-22

Site 107-22 is a precontact era Native American campsite dating to an unknown period; it is located in Orange, Connecticut (Figure 12). The site was subjected to Phase I and II testing by AHS in 2018 and 2019. Phase I testing resulted in the recovery of quartz flakes, and Phase II testing yielded tools such as a chopper and utilized flakes, as well as post-European contact period ceramic sherds and glass shards. While tool production likely took place at the site, no cultural features or temporally diagnostic precontact era artifacts were found. The site was been assessed as not eligible for listing on the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Site 107-22 is located approximately 1.4 km (0.87 mi) to the southwest of the Facility area and will not be impacted by the proposed construction.

Site 107-23

Site 107-23 is a precontact era campsite in Orange, Connecticut that dates from the Late Archaic and Late Woodland periods (Figure 12). The site was subjected to Phase I and II testing by AHS in 2018 and 2019. Phase I testing resulted in the collection of quartz and quartzite flakes. Phase II testing yielded 662 charred botanicals, 1,939 lithic artifacts, mostly of quartz, and various post-European contact period artifacts, including ceramic sherds. The lithic artifacts recovered from the site included four projectile points, 23 cores, and 12 bifaces. A total of two of the projectile points were of the Burwell type. In addition, four cultural features were identified and samples, including a hearth and a post. This site was assessed as eligible for listing on the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]) under Criterion D, as the presence of diagnostic artifacts and well preserved features could yield further information about the occupation. Site 107-23 is located approximately 1.5 kilometers (0.93 mile) to the southwest of the Facility area and will not be impacted by the proposed construction.

Ephraim Baldwin House

The Ephraim Baldwin House is a historic residence located at 131 Ansonia Road in Woodbridge, Connecticut (Figure 13). The house dates from ca., 1800 and was recorded in the State Register of Historic Places in 1968. The house is mainly in a central-chimney Colonial style, although it contains later Greek Revival modifications at the entrance. This house is significant for being one of the few houses of this age and integrity in the town. The Ephraim Baldwin House is located approximately 1.6 kilometers (1 mile) to the northeast of the Facility area. It will not be impacted by the proposed construction.

Previously Identified Standing Structures over 50 Years Old Near the Project Parcel

A total of 66 previously recorded standing structures over 50 years old have been identified within 1.6 kilometers (1 mile) of the proposed Facility (Figure 13; Table 2). These resources range in date from the mid-eighteenth century through the mid-twentieth century. In addition, these properties represent a variety of architectural styles. In the earliest examples, there are Colonial and Federal style houses among the inventoried structures in Woodbridge. In Orange, most of the historic houses within the search date from mid-twentieth century and a contained within residential developments. They include Colonial Revival, Ranch, and Cape style houses. Other historic structures within 1.6 kilometers (1 mile) of the proposed Facility include the Wepawaug Reservoir Dam, which dates from 1911, and Bridge No. 00948 over Derby Avenue in Orange. The latter has been assessed as potentially eligible for inclusion in the NRHP applying the criteria for evaluation (36 CFR 60.4 [a-d]). All of the inventoried resources are located between approximately 100 meters (328 feet) and 1.6 kilometers (1 mile) from the Facility. They will not be impacted by the proposed project.

Table 2. Previously Inventoried Historic Standing Structures within 1.6 km (1 mi) of the Facility Area

SRHP Number	Name	Address	Type	Year Built	Style	NR Eligibility
167-146	Nathaniel Camp House	1024 Racebrook Rd, Woodbridge	Residence	c. 1800	Vernacular	Not Assessed
167-145	Elias T. Clark House	999 Racebrook Rd, Woodbridge	Residence	c. 1848	Greek Revival	Not Assessed
167-132	J. Baldwin House	1 Overhill Rd, Woodbridge	Residence	1856	Vernacular	Not Assessed
167-147	Carl R. Welton House	1074 Racebrook Rd, Woodbridge	Residence	1937	Colonial Revival	Not Assessed
167-185	Henry Baldwin House	1 Wepawaug Rd, Woodbridge	Residence	c. 1757, 1938 addition	Colonial	Not Assessed
167-148	Howard C. Fulton House	1105 Racebrook Rd, Woodbridge	Residence	1936	Colonial Revival	Not Assessed
167-39	James Stowe House	193 Ansonia Rd, Woodbridge	Residence	c. 1820	Federal	Not Assessed
167-40	Baldwin-Woodruff House	197 Ansonia Rd, Woodbridge	Residence	c. 1820	Vernacular	Not Assessed
167-38	Deacon William Plumb House	175 Ansonia Rd, Woodbridge	Residence	c. 1820	Federal	Not Assessed
167-37	Walter A. Reynolds House	162 Ansonia Rd, Woodbridge	Residence	1938	Colonial Revival	Not Assessed
167-36	Hugh Beirne House	158 Ansonia Rd, Woodbridge	Residence	1940	Colonial Revival	Not Assessed
167-44	Baldwin Farm Worker's House	923 Baldwin Rd, Woodbridge	Residence	1740, 1825 addition	Vernacular	Not Assessed
167-43	Hezekiah Baldwin House	901 Baldwin Rd, Woodbridge	Residence	c. 1785	Colonial	Not Assessed
-	Deacon Edward Clark House	974 Race Brook Rd, Orange	Residence	1771	Saltbox	Not Assessed
-	Joseph Green House	1056 Orange Center Rd, Orange	Residence	c. 1925	Foursquare	Not Assessed
-	Stanley/Pauline Davis House	1091 Orange Center Rd, Orange	Residence	c. 1950	Ranch	Not Assessed
-	-	70 Center Road Cir, Orange	Residence	1951	Ranch	Not Assessed
-	-	95 Pine Crest Rd, Orange	Residence	1952	Ranch	Not Assessed
-	-	88 Pine Crest Rd, Orange	Residence	1935	Barn	Not Assessed
-	-	89 Pine Crest Rd, Orange	Residence	1952	Ranch	Not Assessed
-	Russell Homestead	1021 Orange Center Rd, Orange	Residence	c. 1900	Vernacular	Not Assessed
-	William Brown House	30 Race Brook Ter, Orange	Residence	c. 1932	Tudor	Not Assessed
-	Anna Wachuck House	24 Racebrook Ter, Orange	Residence	c. 1949	Suburban Colonial	Not Assessed
-	-	23 Center Road Cir, Orange	Residence	1948	Colonial Revival	Not Assessed
-	-	29 Center Road Cir,	Residence	1948	Cape	Not Assessed

SRHP Number	Name	Address	Type	Year Built	Style	NR Eligibility
		Orange				
-	-	30 Center Road Cir, Orange	Residence	1949	Cape	Not Assessed
-	-	43 Center Road Cir, Orange	Residence	1949	Colonial Revival	Not Assessed
-	-	51 Center Road Cir, Orange	Residence	1951	Cape	Not Assessed
-	Willis Wilkinson House	894 Race Brook Rd, Orange	Residence	c. 1937-1938	Cape Cod	Not Assessed
-	Frederick-Maitlda Wilkinson House	888 Race Brook Rd, Orange	Residence	1937	Cape Cod	Not Assessed
-	Wepawaug Reservoir Dam	-	Dam	1911	-	Not Assessed
-	Bridge No. 00948	Derby Ave, Orange	Bridge	1941	Concrete arch	Eligible
-	Samuel/Marian Batter House	880 Race Brook Rd, Orange	Residence	c. 1952	Ranch	Not Assessed
-	-	11 Green Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	14 Green Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	17 Green Hill Road, Orange	Residence	1949	Colonial Revival	Not Assessed
-	-	20 Green Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	23 Green Hill Road, Orange	Residence	1951	Cape	Not Assessed
-	-	26 Green Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	31 Green Hill, Orange Road	Residence	1951	Cape	Not Assessed
-	-	34 Green Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	35 Green Hill Road, Orange	Residence	1951	Cape	Not Assessed
-	-	43 Green Hill Road, Orange	Residence	1951	Cape	Not Assessed
-	-	45 Green Hill Rd, Orange	Residence	1951	Colonial Revival	Not Assessed
-	-	47 Green Hill Rd, Orange	Residence	1951	Ranch	Not Assessed
-	-	51 Green Hill Rd, Orange	Residence	1950	Cape	Not Assessed
-	-	54 Green Hill Rd, Orange	Residence	1950	Cape	Not Assessed
-	-	59 Green Hill Rd, Orange	Residence	1950	Cape	Not Assessed
-	-	60 Green Hill Rd, Orange	Residence	1950	Cape	Not Assessed
-	-	73 Green Hill Rd, Orange	Residence	1950	Cape	Not Assessed
-	-	79 Green Hill Rd,	Residence	1951	Cape	Not Assessed

SRHP Number	Name	Address	Type	Year Built	Style	NR Eligibility
		Orange				
-	-	84 Green Hill Rd, Orange	Residence	1951	Cape	Not Assessed
-	-	90 Green Hill Rd, Orange	Residence	1951	Cape	Not Assessed
-	-	96 Green Hill Rd, Orange	Residence	1951	Cape	Not Assessed
-	-	804 Walnut Hill Road, Orange	Residence	1951	Cape	Not Assessed
-	-	805 Walnut Hill Road, Orange	Residence	1951	Dutch Colonial Revival	Not Assessed
-	-	812 Walnut Hill Road, Orange	Residence	1945	Cape	Not Assessed
-	-	815 Walnut Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	820 Walnut Hill Road, Orange	Residence	1952	Cape	Not Assessed
-	-	823 Walnut Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	828 Walnut Hill Road, Orange	Residence	1951	Ranch	Not Assessed
-	-	831 Walnut Hill Road, Orange	Residence	1950	Dutch Colonial Revival	Not Assessed
-	O'Sullivan House	954 Orange Center Rd, Orange	Residence	c. 1948	Ranch	Not Assessed
-	William Shaughnessey House	952 Orange Center Rd, Orange	Residence	c. 1923-1926	Georgian Revival	Not Assessed
-	Frederick Moule House	950 Orange Center Rd, Orange	Residence	c. 1933	Tudor Revival	Not Assessed
-	Dwight Clark House	946 Orange Center Rd, Orange	Residence	c. 1925-1930	Colonial Revival	Not Assessed

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 Facility in Woodbridge, Connecticut. The following tasks were completed during this investigation: 1) study of the region's precontact era Native American, 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 Facility in order to identify potential historical resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the 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 Facility area 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 Facility area. The methods used to complete this investigation were designed to provide coverage of all portions of the Facility area and considered 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 area; 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 proposed Facility. This information then was used to develop the archaeological context of the Facility area, and to assess its 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 Facility area, 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 and Facility area, as well as the surrounding parcel. During the pedestrian survey, Heritage staff members visually reconnoitered the Facility area, 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 project 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 Facility area. The photo-documentation portion of the survey was completed using color digital media. The pedestrian survey was useful to stratify the Facility area 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 Facility at 1010 Racebrook Road 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 area to identify potential post-European Contact period resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the Facility area to determine its 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 38.26 acres of land within a larger 51.70 acre parcel located to the west of Racebrook Road and to the north of the Wilbur Cross Parkway. The development parcel is positioned to the west of Race Brook and directly abuts the Wepawaug River on its western side. The Facility area is situated at elevations ranging between 59 to 91 meters (193.6 to 298.6 feet) NGVD. The desktop portion of the Phase IA survey revealed that four previously identified precontact era sites were located within 1.6 kilometers (1 mile) of the Project parcel. In addition, the desktop review revealed that there are 66 previously identified standing structures over 50 years in age within 1.6 kilometers (1 mile) of the Facility area. Of these, four previously recorded structures are situated directly adjacent to or immediately across the street from the proposed Facility area.

During the desktop survey, an additional four structures directly abutting the Facility area that are not listed in Historic Resources Inventory forms but are over 50 years in age were identified. These eight buildings include residences and agricultural buildings that date from the turn of the nineteenth through mid-twentieth centuries. In addition, they represent a variety of architectural styles, such as Agricultural Vernacular, Residential Vernacular, Colonial, and Greek Revival. The identification of these previously identified cultural resources 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 pedestrian survey of the Facility area in June of 2024. At that time, the Facility area was characterized by an existing golf course and gravel driveway surrounded by patches of deciduous shade trees and forested land (Photos 1 through 3). The Facility area is situated on gently sloping western facing topography (Photo 4). The northwestern corner of the Facility contains a manmade pond with associated underground electrical wires that connect to a windmill that is situated in the center of the area of impact (Photos 5 and 6). The southern portion of the Facility area was characterized by deciduous forested land and an unnamed tributary of the Wepawaug River (Photo 7). The southeastern corner of the Facility area is characterized by a large soil cut between the Wilbur Cross Parkway and the Area of impact (Photo 8). In addition, a small building was identified along the southern edge of the Facility area (Photos 9 through 11). This building is not visible in aerial photographs until 1990, and is modern in age (Figure 9). The pedestrian survey of the Facility area revealed that 30.52 acres of it were characterized by previous disturbances, the existing golf course, and a gravel driveway (Figure 14). No additional archaeological investigation of these areas is recommended prior to Facility development. The remaining 7.74 acres of land was characterized by well drained soils, gently sloping topography, and close proximity to the Wepawaug River. These areas, which were identified in the

northwestern, western, and southwestern portion of the Facility area, were designated as retaining a moderate/high archaeological sensitivity. It is recommended that the moderate/high sensitivity areas of the proposed Facility be subjected to a Phase IB cultural reconnaissance survey.

In addition, an analysis of the area was also conducted during the pedestrian survey to consider potential impacts that the Facility development may have on structures over 50 years old directly abutting or across the street from the proposed Facility. Pedestrian survey led to the identification of eight structures directly abutting and/or situated across the street from the Facility. They include two eighteenth century residences, one early-twentieth century residence with an associated barn and outbuilding, a twentieth century garage, as well as a mid-twentieth century residence and barn. These are shown in Table 3 below.

Table 3. List of structures over 50 years in age directly abutting or across the road from the Facility area.

Address	Listed on HRI	Type	Year Built	Style	NR Eligibility
999 Racebrook Rd	Yes	Residence	ca. 1848	Greek Revival	Not Assessed
999 Racebrook Rd	Yes	Barn	ca. 1951 - 1970	Tobacco Barn	Not Assessed
1015 Racebrook Rd	No	Outbuilding	Prior to 1934	Vernacular	Not Assessed
1015 Racebrook Rd	No	Barn	Prior to 1934	Vernacular	Not Assessed
1015 Racebrook Rd	No	Residence	Prior to 1934	Conventional	Not Assessed
1020 Racebrook Rd	No	Residence	ca. 1934 - 1951	-	Not Assessed
1024 Racebrook Rd	Yes	Residence	ca. 1800	Vernacular	Not Assessed
1024 Racebrook Rd	Yes	Garage	Prior to 1934	-	Not Assessed

The structures located at 999 Racebrook Road consist of a nineteenth-century residence and a mid-twentieth century tobacco barn, both of which are previously listed as historic resources (Figure 14; Photos 12 through 14). They are situated directly across the street from the proposed Facility (Figure 7). The three structures located at 1015 Racebrook Road are situated on the eastern side of Racebrook Road and facing directly toward the proposed Facility (Figure 14; Photos 15 and 16). Although they have not previously been listed in historic resource inventories, aerial images show these structures in place as early as 1934 (Figure 6). The structure at 1020 Racebrook Road directly abuts the northern edge of the Project area and consists of a mid-twentieth century residence (Figure 14). Finally, the buildings located at 1024 Racebrook Road consist of a nineteenth century vernacular residence and a twentieth century garage (Figure 14; Photo 17). All of these structures appear in the 1934 aerial of the Project region (Figure 6). All of these structures are located in areas with limited vegetative cover and their viewshed may be impacted by the development of the Facility area (Photo 18). Heritage recommends the implementation of vegetative screening around the Facility area to mitigate potential impacts to the viewsheds of these structures.

Pedestrian survey also led to the identification of a dry-laid stonewall within the Facility area. It was designated as Stonewall SW-1 (Figure 14; Photo 19). The stonewall was in excellent condition and extends approximately 25 meters (82 feet) on an east-west axis along the northern edge of the existing gravel driveway. It is recommended that to the extent practicable, Stonewall SW-1 be left in place and that they be included on construction maps and marked with visibility fencing in the field so that they are not impacted during construction.

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APPENDIX A

FIGURES

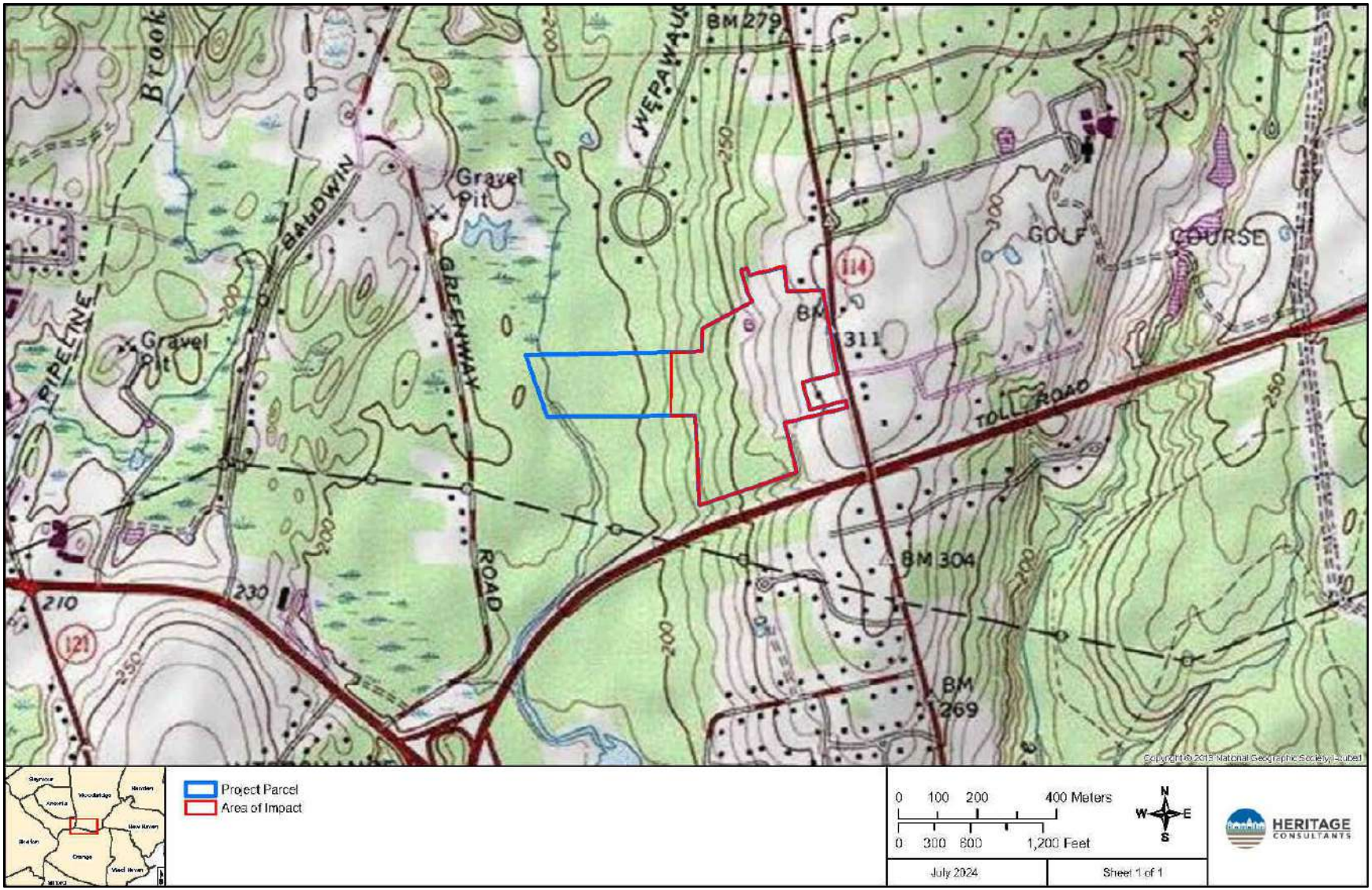

Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the project parcel in Woodbridge, Connecticut.

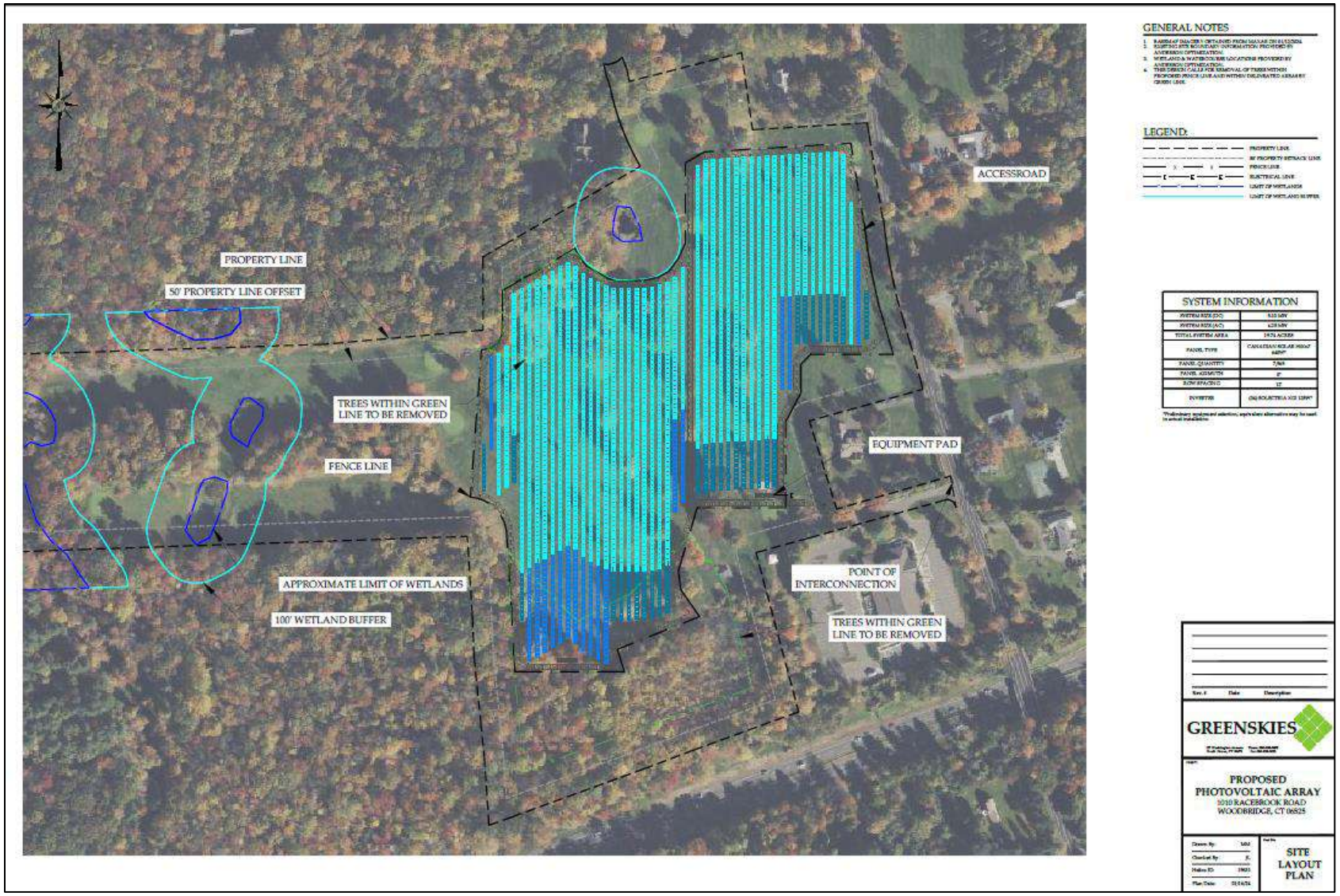

Figure 2. Digital map depicting the client's project plans for the solar facility in Woodbridge, Connecticut.

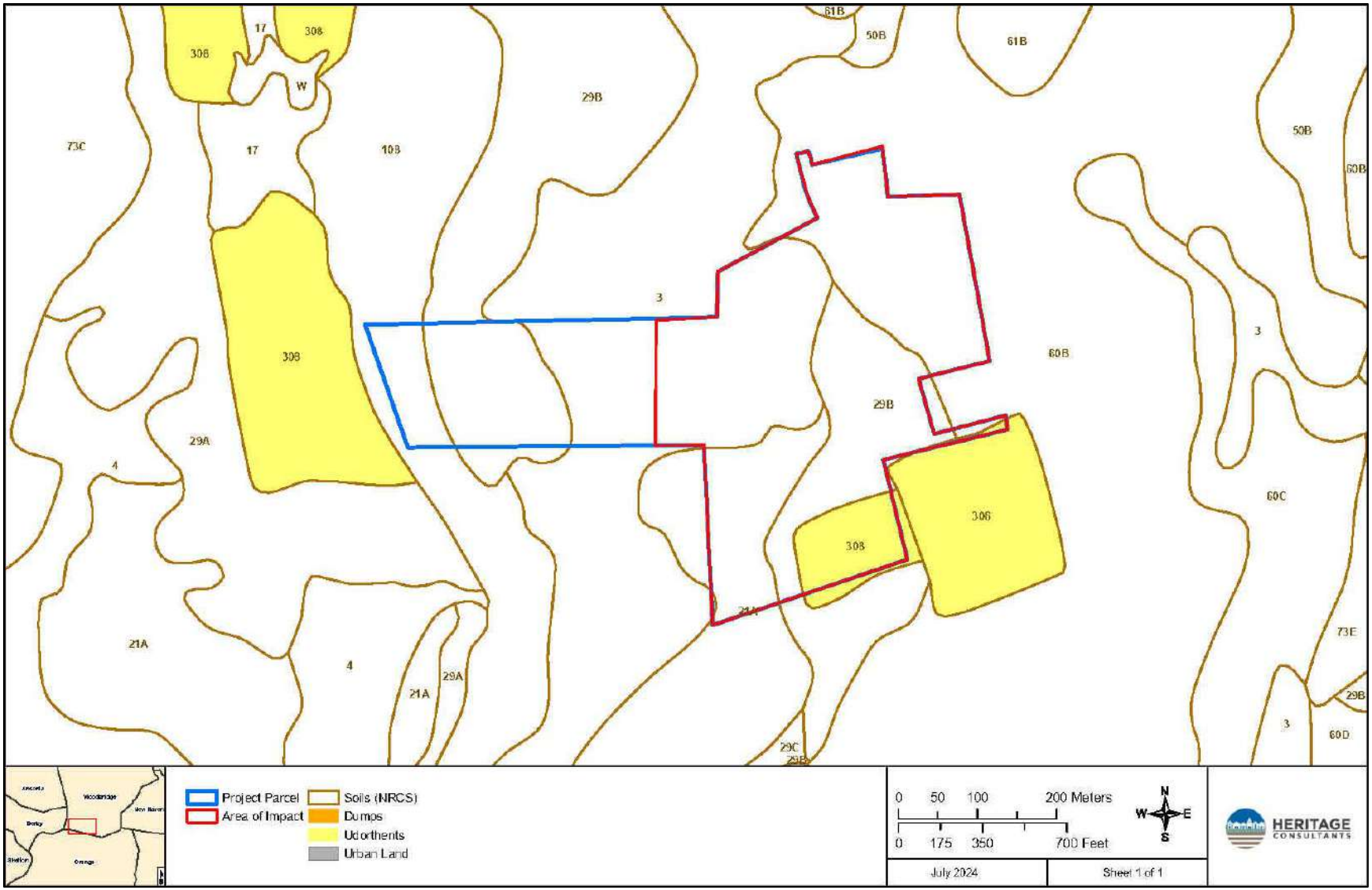

Figure 3. Digital map depicting the soil types present in the vicinity of the project parcel in Woodbridge, Connecticut.

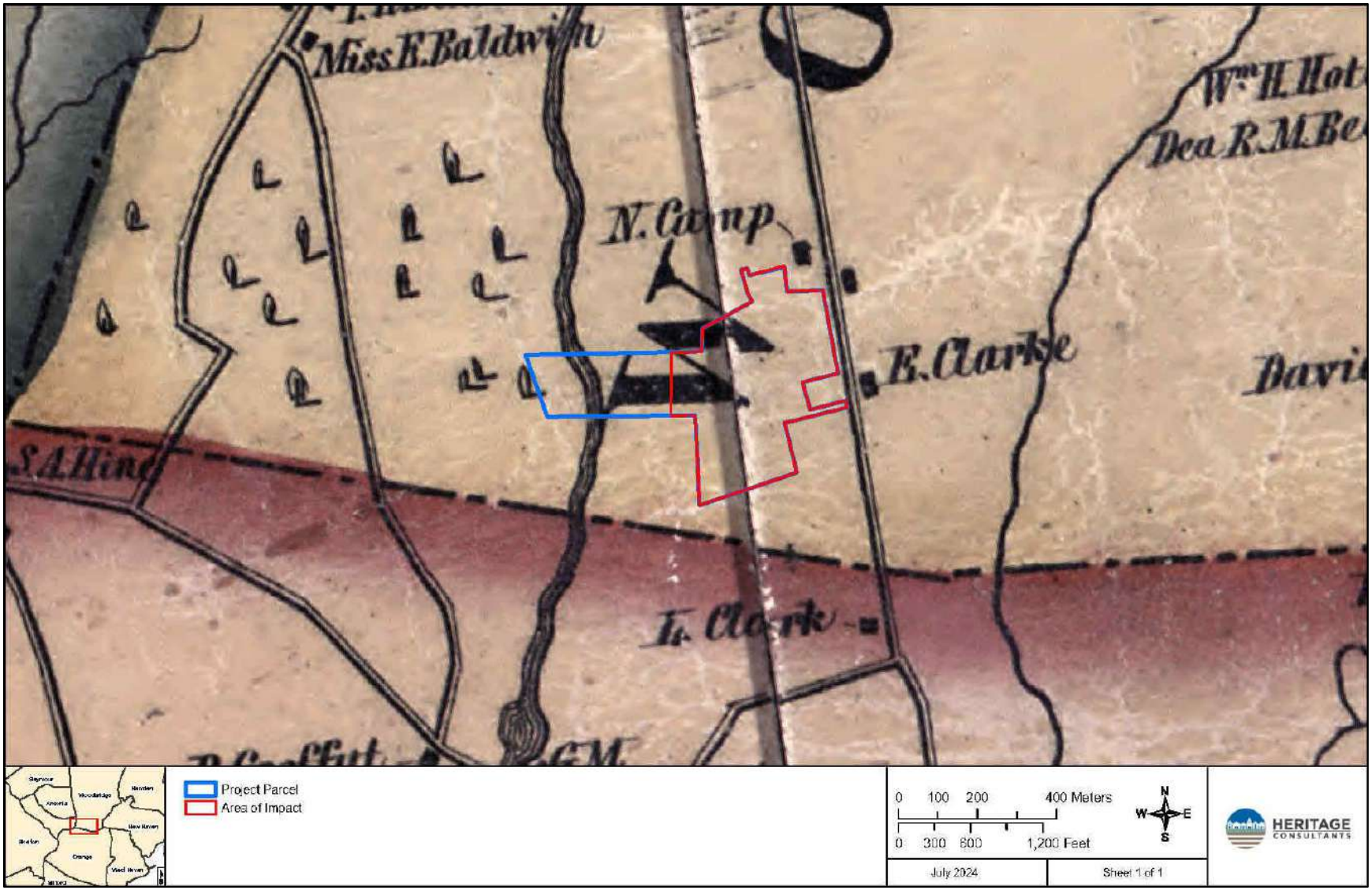

Figure 4. Excerpt from an 1856 map showing the location of the project parcel in Woodbridge, Connecticut.

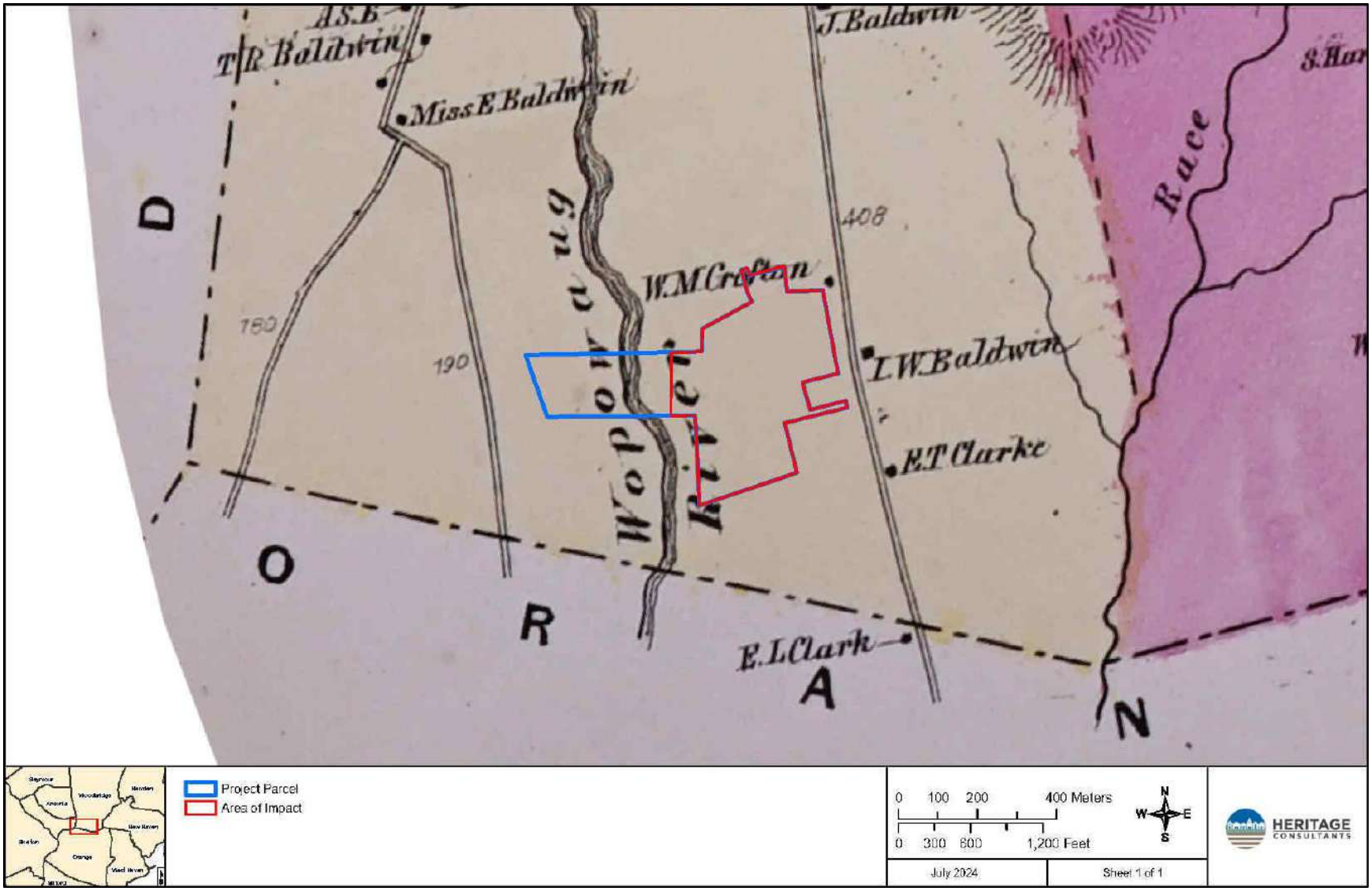

Figure 5. Excerpt from an 1868 map showing the location of the project parcel in Woodbridge, Connecticut.

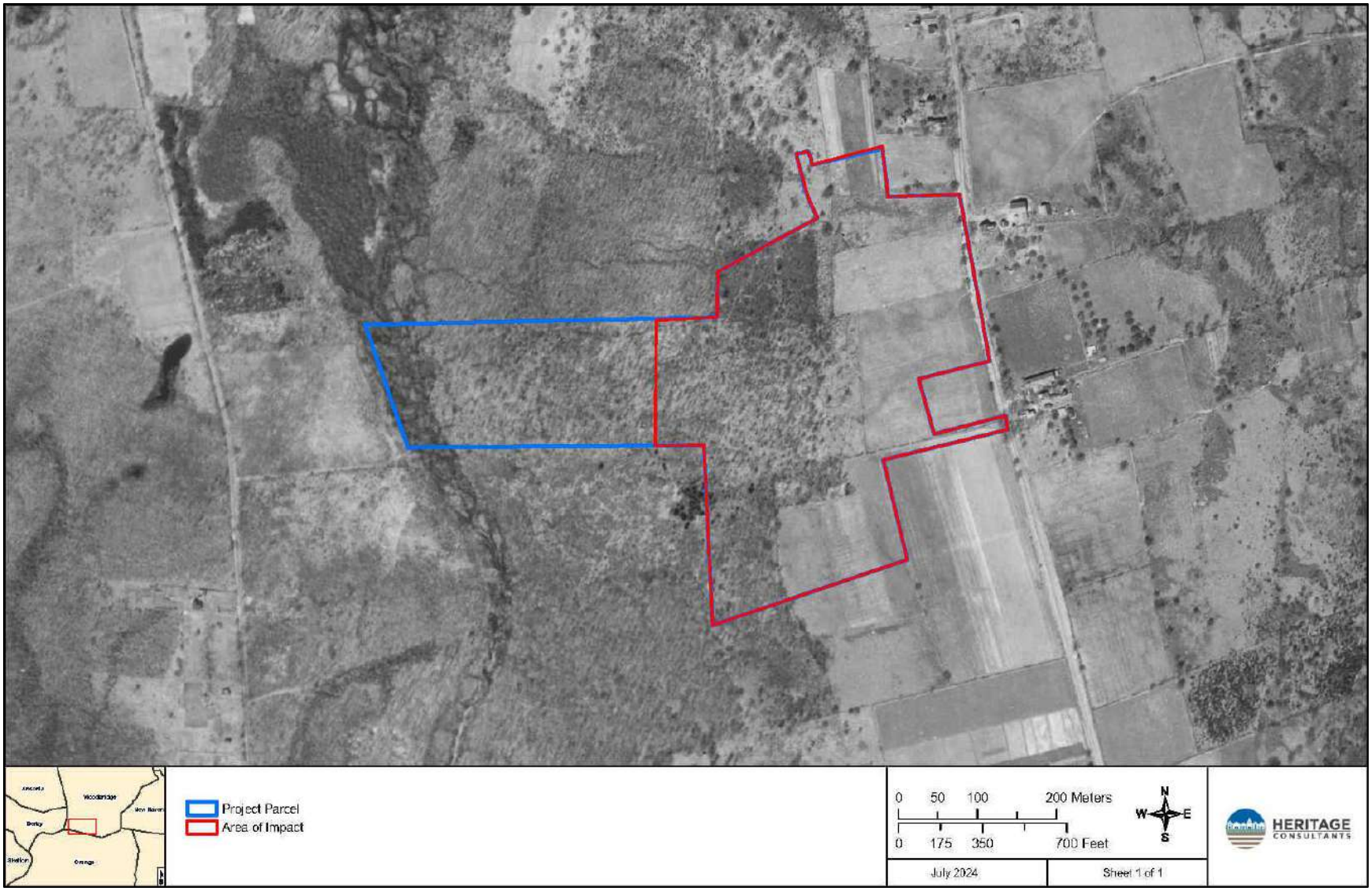

Figure 6. Excerpt from a 1934 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

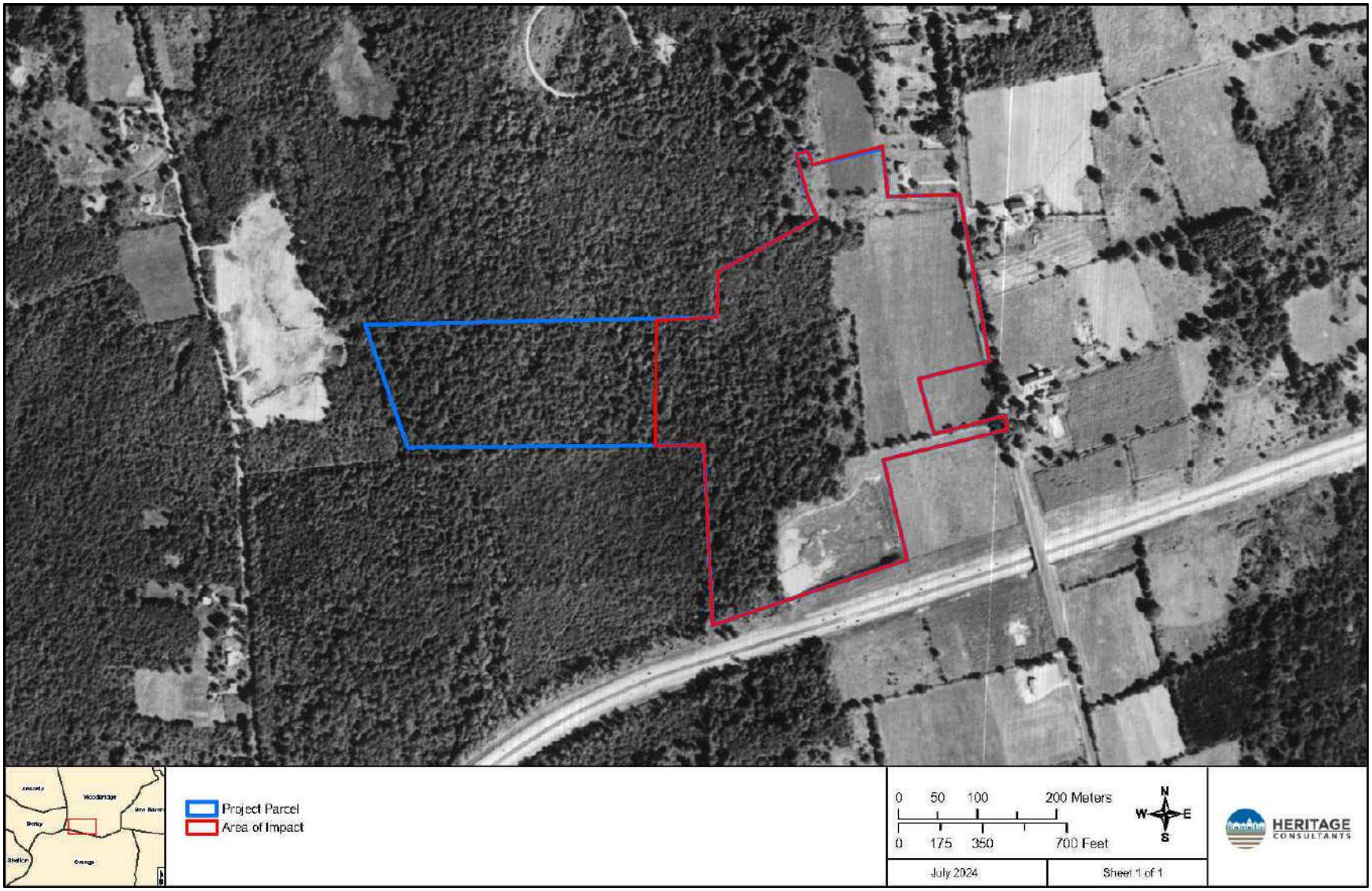

Figure 7. Excerpt from a 1951 aerial photography showing the location of the project parcel in Woodbridge, Connecticut.

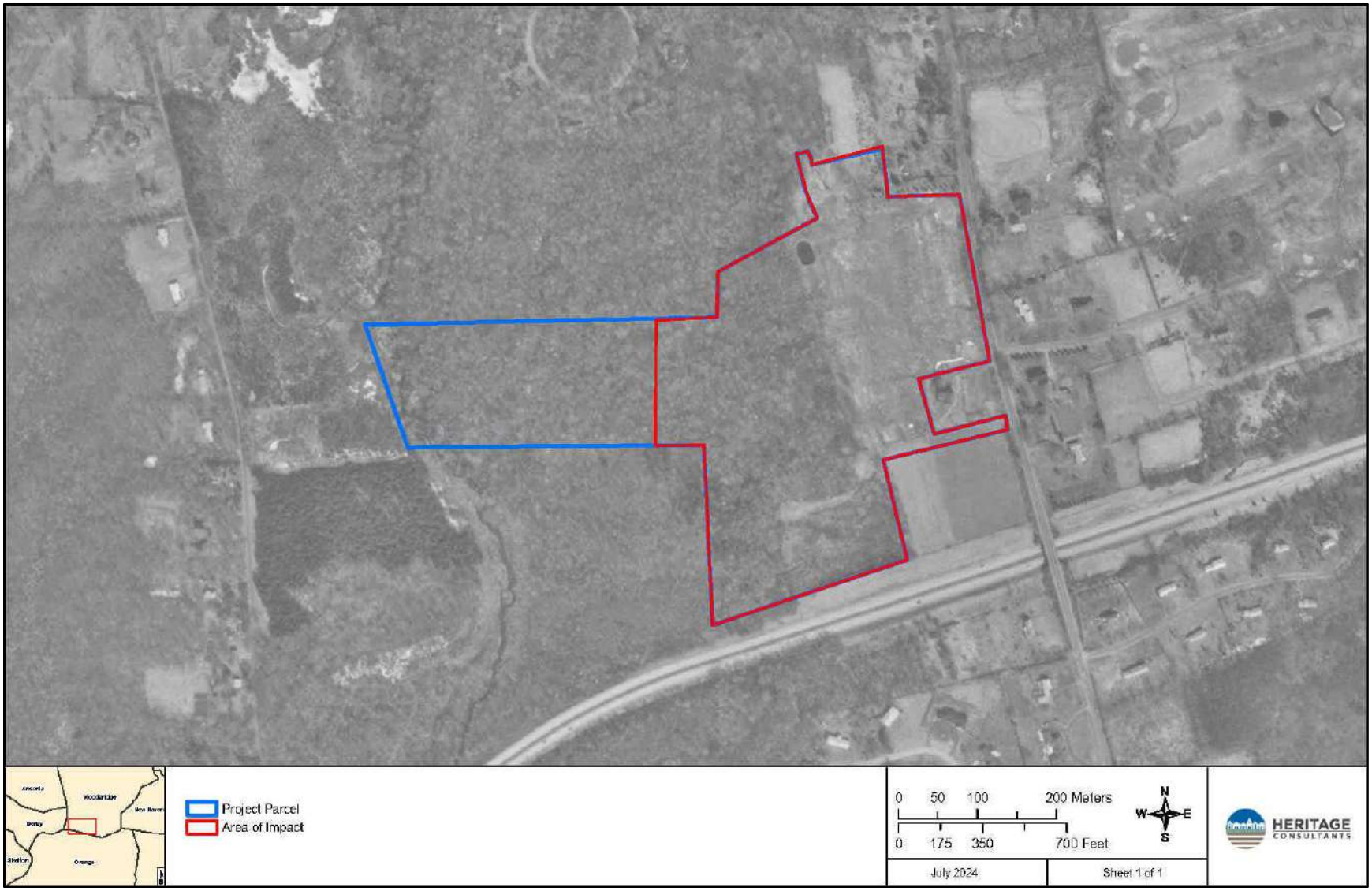

Figure 8. Excerpt of a 1970 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

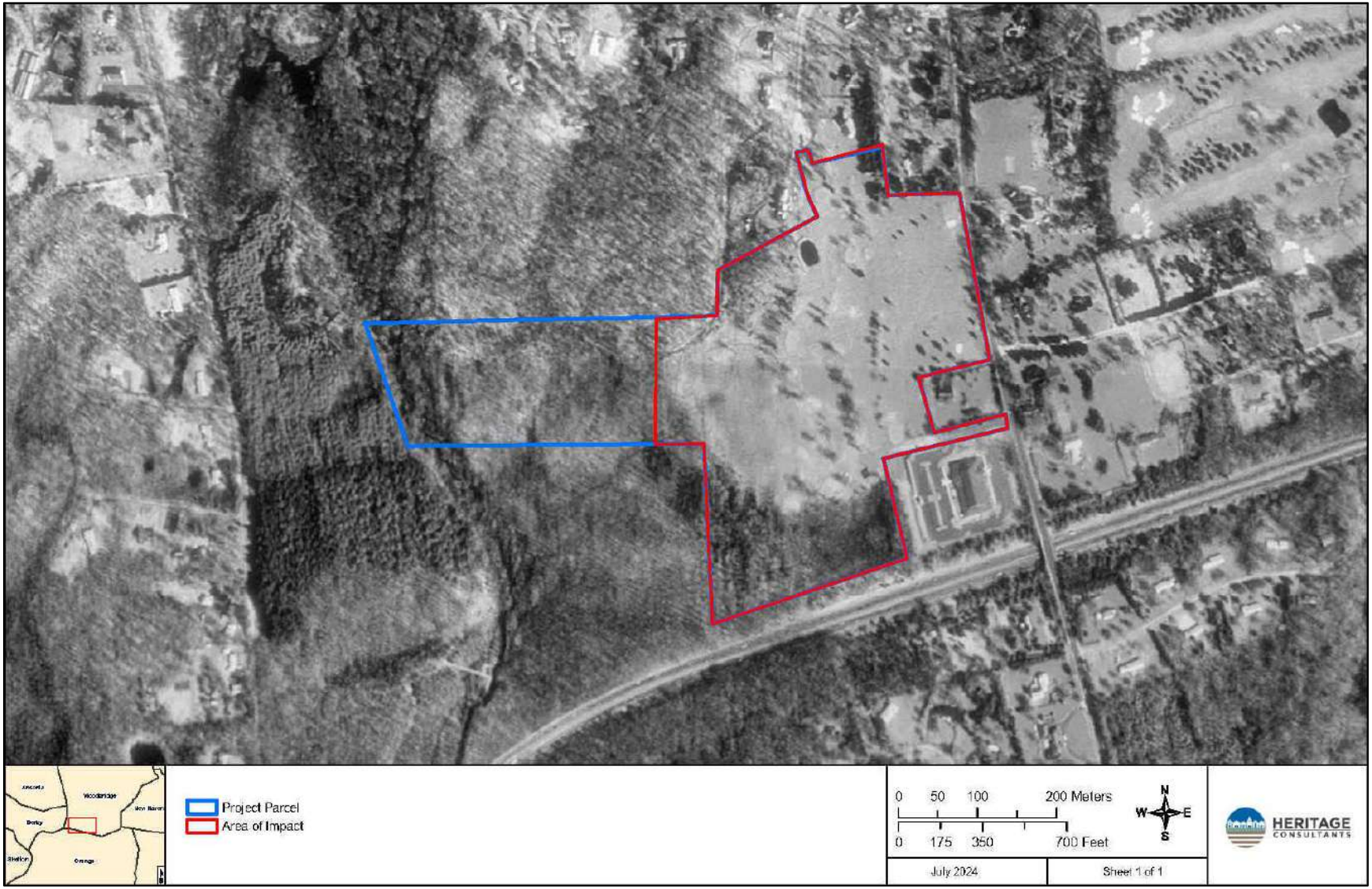

Figure 9. Excerpt of a 1990 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

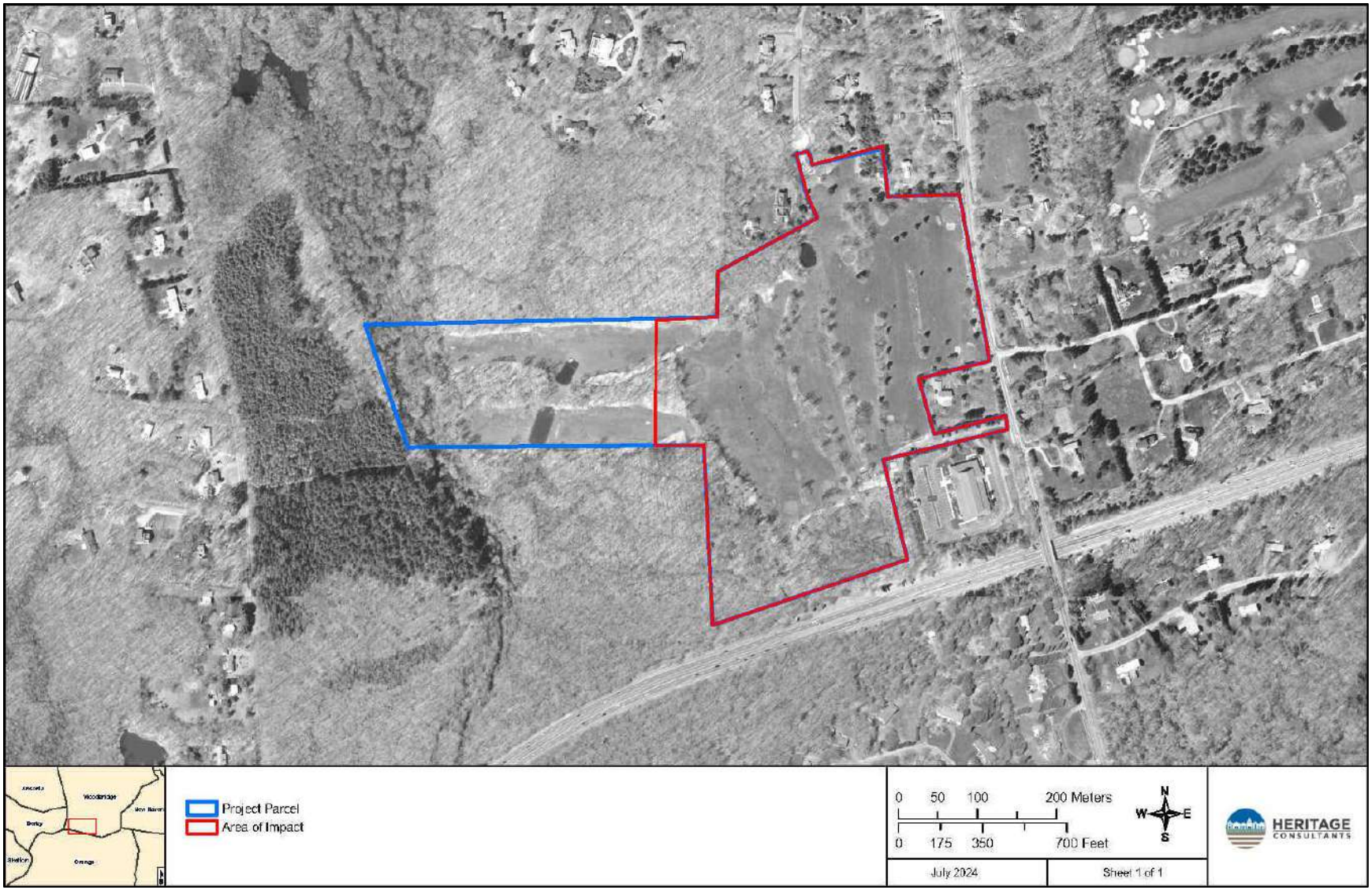

Figure 10. Excerpt of a 2004 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

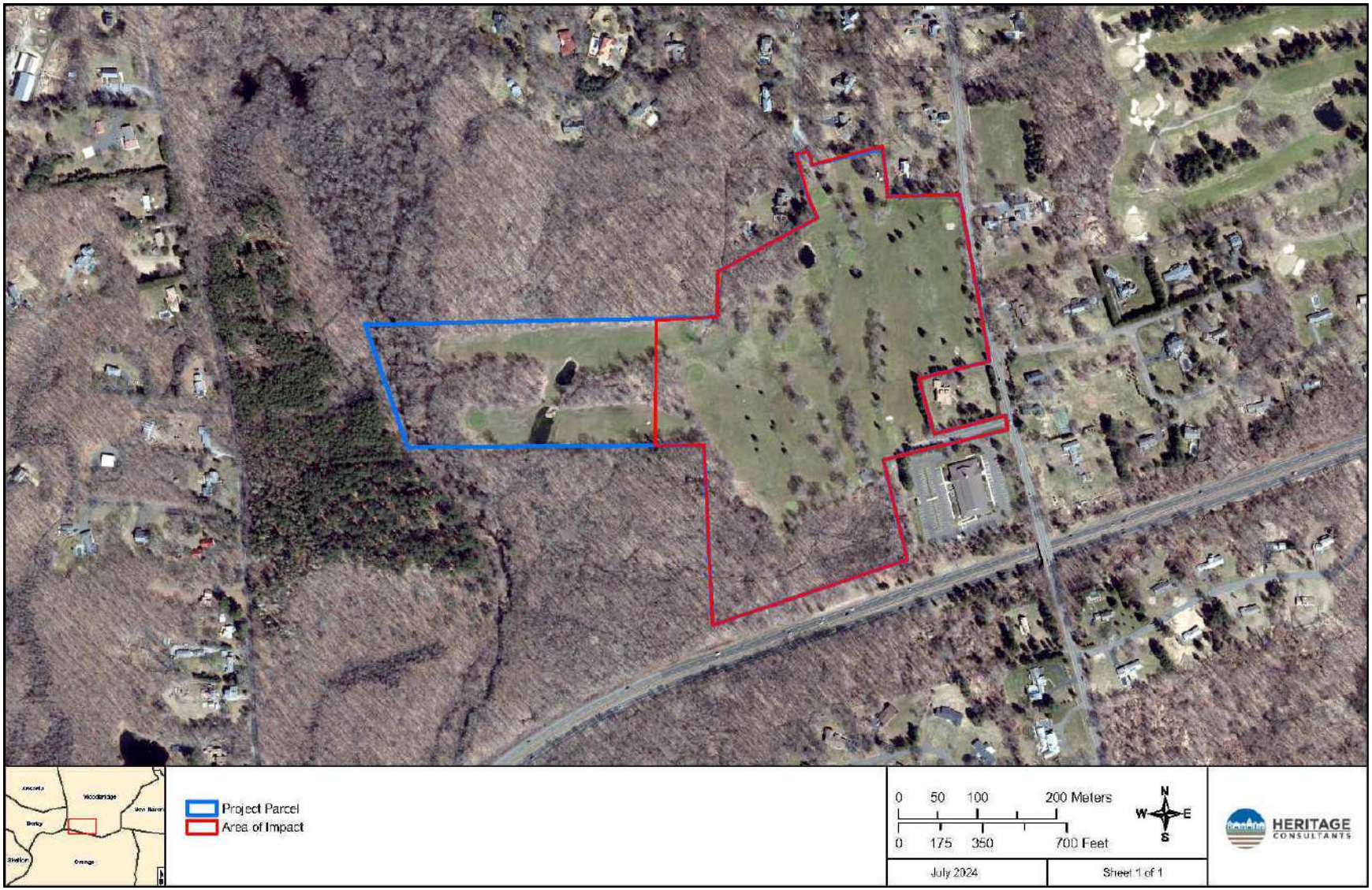

Figure 11. Excerpt of a 2019 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut.

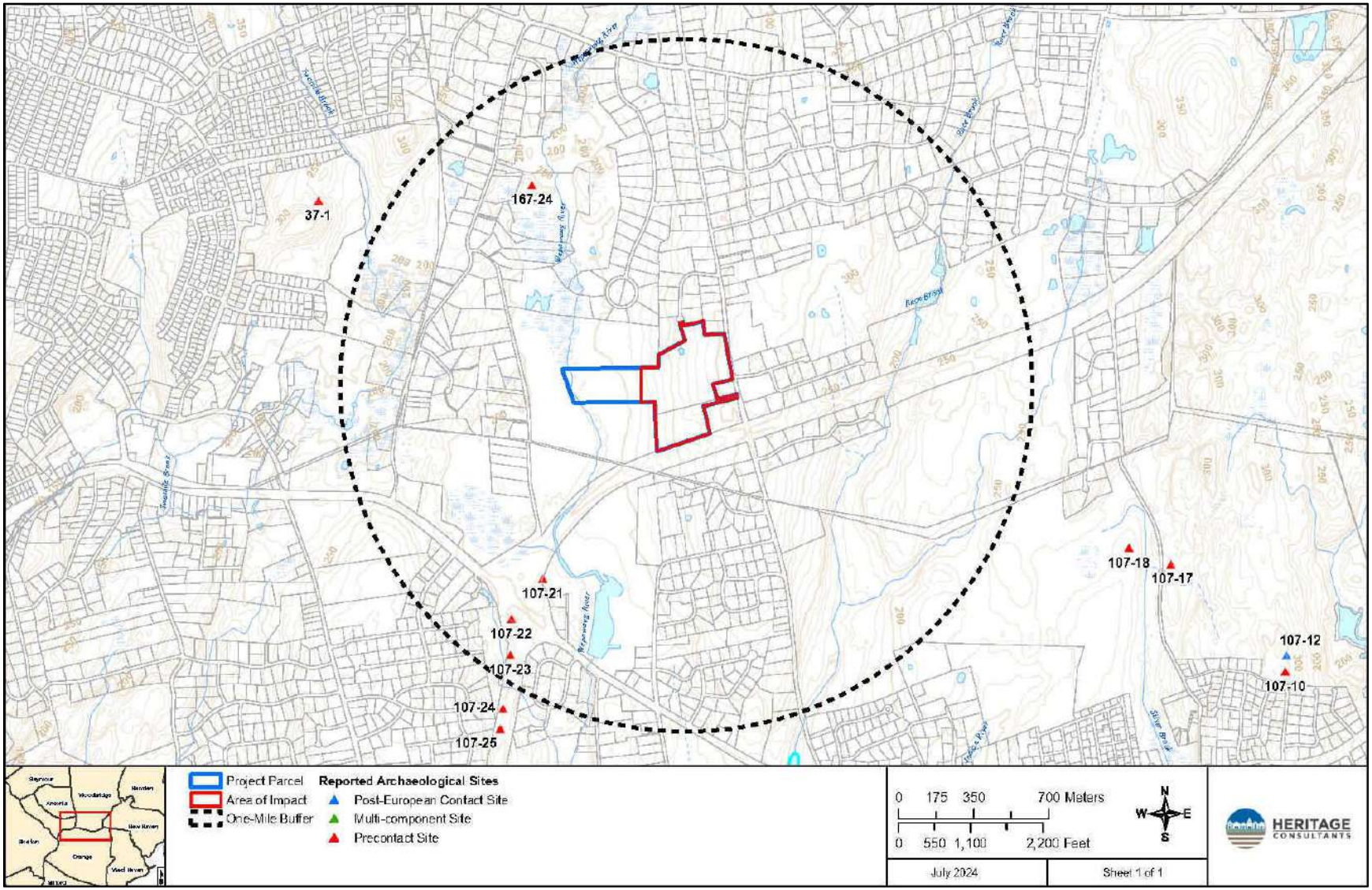

Figure 12. Digital map depicting the locations of the previously identified archaeological sites in the vicinity of the project parcel in Woodbridge, Connecticut.

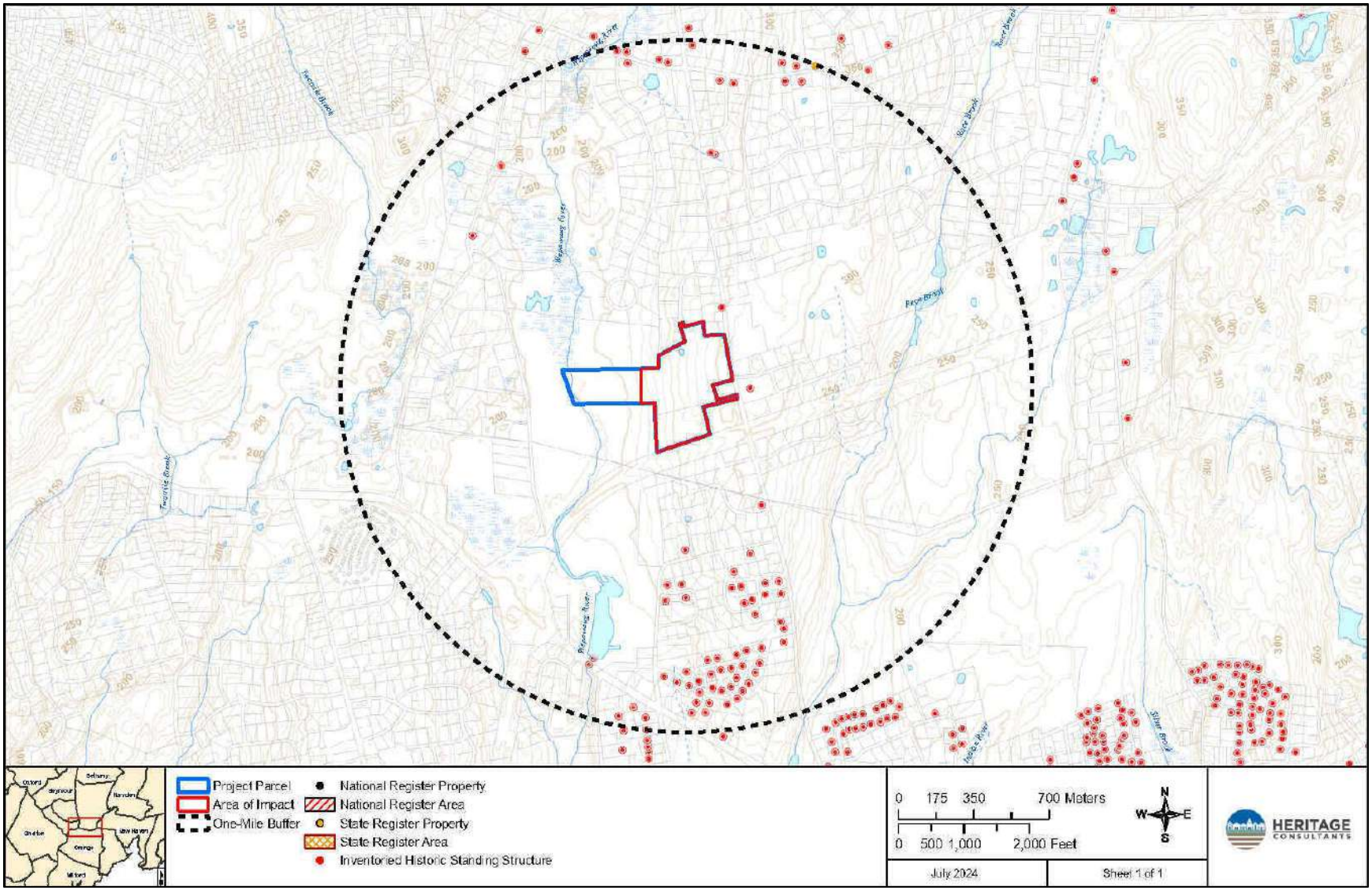

Figure 13. Digital map depicting the locations of the previously identified National Register of Historic Places and State Register of Historic Places properties in the vicinity of the project parcel in Woodbridge, Connecticut.

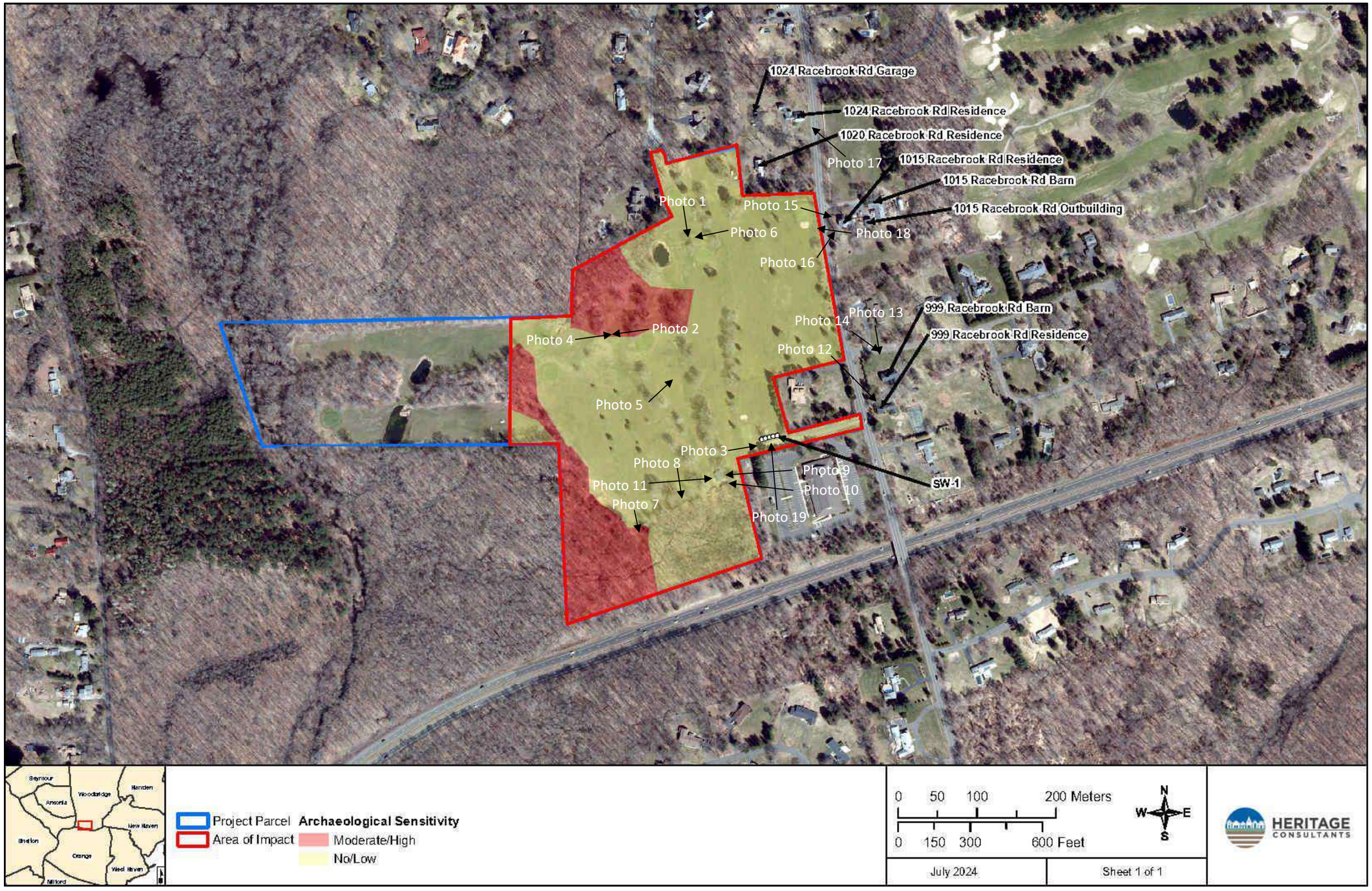

Figure 14. Digital map illustrating areas of finalized Moderate/High archaeological sensitivity (Red) and areas of No/Low Archaeological Sensitivity (Yellow) with directional arrows of photo points taken for the proposed development in Woodbridge, Connecticut.

APPENDIX B

PHOTOS

Photo 1. Overview of the golf course existing in the Facility area. Photo facing to the south.

Photo 2. Overview of the western portion of Facility area. Photo facing to the west.

Photo 3. Existing graveled driveway in the eastern portion of the Facility area. Photo facing to the east.

Photo 4. Overview of gently rolling topography within the project area. Photo facing to the east.

Photo 5. A windmill located in the center of the Facility area. Photo facing to the northeast.

Photo 6. Overview of manmade pond situated in the northwest corner of the Facility area. Photo facing to the west

Photo 7. Overview of deciduous forested area in the southern portion of the Facility area. Photo facing to the south.

Photo 8. Overview of large soil cut in the southeastern corner of the Facility area. Photo facing to the south.

Photo 9. Overview of eastern elevation of modern building within the Facility area. Photo facing to the west.

Photo 10. 3/4 view of the southern and eastern elevations of the modern building within the Facility area. Photo facing to the northwest.

Photo 11. Overview of western elevation of modern building within the Facility area. Photo facing to the east.

Photo 12. 3/4 view of western and northern elevations of residence at 999 Racebrook Road. Photo facing to the southeast.

Photo 13. Overview of northern elevation of the barn and residence at 999 Racebrook Road. Photo facing to the south.

Photo 14. 3/4 view of the northern and western elevations of the barn at 999 Racebrook Road. Photo facing to the southeast.

Photo 15. 3/4 view of northern and western elevations of residence at 1015 Racebrook Road with the associated outbuilding and barn in the background. Photo facing to the southeast.

Photo 16. 3/4 view of the western and southern elevations of the residence at 1015 Racebrook Road. Photo facing to the northeast.

Photo 17. 3/4 view of southern and eastern elevations of the residence at 1024 Racebrook Road. Photo facing to the northwest.

Photo 18. View of the Facility area from 1015 Racebrook Road. Photo facing to the west.

Photo 19. Overview of Stonewall SW-1. Photo facing to the north.

NOVEMBER 2024

PHASE IB CULTURAL RESOURCES RECONNAISSANCE SURVEY OF THE RACEBROOK ROAD SOLAR PROJECT IN WOODBRIDGE, CONNECTICUT

PREPARED FOR:

100 GREAT MEADOW ROAD, #200
WETHERSFIELD, CONNECTICUT 06109

PREPARED BY:

830 BERLIN TURNPIKE
BERLIN , CONNECTICUT 06037

ABSTRACT

This report presents the results of a Phase IB cultural resources reconnaissance survey of archaeologically sensitive areas within a proposed solar center at 1010 Racebrook Road in Woodbridge, Connecticut. The solar development will include the construction of a solar array, access road, equipment pad, and associated infrastructure on approximately 38.26 acres of a larger 51.7 acre parcel of land. A previous Phase IA cultural resources assessment survey conducted by Heritage Consultants, LLC (Heritage) determined that a small area in the north-central portion of the project area retained archaeological sensitivity. Heritage completed the Phase IB survey of the area on behalf of Vanasse Hangen Brustlin, Inc. (VHB) in November of 2024. During the Phase IB survey, 14 shovel tests were excavated throughout the archaeologically sensitive portion of the Facility area. Of these, one shovel test fell in an area characterized by steep slope and a wetland; it was not excavated. Despite careful investigation, no cultural material, subsurface soil anomalies, or surface features were identified during the Phase IB survey. As a result, no additional archaeological examination of the area is recommended prior to construction.

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CHAPTER I
INTRODUCTION

This report presents the results of a Phase IB cultural resources reconnaissance survey of an archaeologically sensitive area associated with a proposed solar facility (the Facility) at 1010 Racebrook Road in Woodbridge, Connecticut (Figure 1). The proposed area of impact associated with the Facility encompasses approximately 38.26 acres of land within a larger 51.7 acre parcel. A previous Phase IA cultural resources assessment survey conducted by Heritage Consultants, LLC (Heritage) determined that a small areas in the north central portion of the proposed Facility retained archaeological sensitivity and Phase IB survey was recommended. Heritage completed the Phase IB survey on behalf of Vanasse Hangen Brustlin, Inc., (VHB) in November 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).

Summary of Project Methods

The Phase IB cultural resources reconnaissance survey of the archaeologically sensitive area consisted of the completion of the following tasks: 1) a contextual overview of the region's 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 Facility area; 3) a review of readily available maps and aerial imagery depicting the Facility area in order to identify potential post-European Contact resources and/or areas of past disturbance; 4) pedestrian survey and photo-documentation of the archaeologically sensitive area; and 5) subsurface examination of the archaeologically sensitive area for evidence of intact cultural deposits.

Phase IB reconnaissance survey effort utilized systematic shovel testing, GPS recordation, and photo-documentation throughout the sensitive area. Each shovel test measured 50 x 50 centimeters (cm) (19.7 x 19.7 inches [in]) in size and was excavated to a depth of one m (3.28 ft) below surface until the glacially derived C-Horizon was encountered, or until water or immovable objects (e.g., tree roots, boulders, etc.) hindered further excavation. Each shovel test was excavated in 10 cm (3.9 in) levels within natural soil horizons, and the fill from each level was screened separately. All shovel test fill was screened through 0.635 cm (0.25 in) hardware cloth and examined visually for cultural material. Soil characteristics were recorded using Munsell Soil Color Charts and standard soils nomenclature. Shovel tests were backfilled after being recorded.

Summary of Project Results

During Phase IB survey, 13 of 14 (93 percent) shovel tests were excavated throughout the archaeologically sensitive area. A single planned but unexcavated test pit fell in an area characterized by steep slope and a wetland; it was not excavated. The shovel tests exhibited disturbed soil profiles with various fill soils resulting from the construction of a golf course on the property. Despite careful investigation of the, no cultural material, subsurface soil anomalies, or surface features were identified during the Phase IB survey. As a result, no additional archaeological examination of the area is recommended prior to construction.

Project Personnel

Heritage Personnel who contributed to the project include David George, M.A., RPA, (Principal Investigator); Brenna Pisanelli, M.A. (Project Manager); Stephanie Scialo, M.A., (Project Archaeologist); Samuel Spitzschuh, B.A., (Field Director); Jeffery Brown, B.A., (Geographic Information Specialist); Tevin

Jourdain, B.A. (Geographic Information Specialist); Erica A. Lang, B.A. (Laboratory Specialist); Nita Vitaliano, M.A., (Historian).

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 Western Coastal 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.

Western Coastal Ecoregion

The Western Coastal ecoregion consists of a hilly terrain that extends from Connecticut's coastline to approximately 5 to 7 miles to the north of Long Island Sound (Dowhan and Craig 1976). It is characterized by "coastlands, including extensive tidal marshes, sand beaches, and estuaries, by relatively level but rolling near-shore lands, and by locally rugged and rocky protrusions of upland extending to the shoreline" (Dowhan and Craig 1976:38). Elevations in the Western Coastal ecoregion range from sea level to 152 m (500 ft) NGVD (Bell 1985). The bedrock of the area is primarily metamorphic in origin, and it composed of schists and gneisses deposited during the Paleozoic (Bell 1985). Soils in the region have developed on top of glacial till in upland locales and on top of stratified deposits of silts and sands in the valleys. Soils along the coast are developed upon coastal and tidal deposits (Dowhan and Craig 1976). This ecoregion is also characterized by numerous ponds, rivers, streams, brooks, and wetland areas.

Hydrology of the Study Region

The Facility area is located within close proximity of several streams, ponds and wetlands. The major fresh water sources in this area include the Wepawaug River, Race Brook, and Twomile Brook. 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 6 soil types were identified within the Facility area including Agawam, Canton and Charlton series, Leicester, Ridgebury, and Whitman soils, Ninigret and Tisbury series, Saco, and Udorthents (Figure 2). Natural soil types fall into two categories with the first, Agawam, Canton and Charlton, and Ninigret and Tisbury series, generally level and well-drained soils that are often well correlated with precontact and post-European contact site locations. In contrast, Leicester, Ridgebury, and Whitman and Saco soils generally level and poorly drained soils that can be attributed to areas that are constantly or periodically wet, indicating that these locations are not well correlated with archaeological sites. The sixth represented soil, Udorthents-Smoothed, is associated with areas that have been subjected to modern disturbance and thus are not known to retain intact archaeological deposits. A brief description of the soil series identified within the Facility area are described below.

Agawam Soils (29B)

The Agawam series consists of very deep, well drained soils formed in sandy, water deposited materials. They are level to steep soils on outwash plains and high stream terraces. Slope ranges from 0 to 15 percent. A typical profile associated with Agawam soils is as follows: **Ap**--0 to 11 inches; dark grayish brown (10YR 4/2) fine sandy loam; light brownish gray (10YR 6/2) dry; weak medium and coarse subangular blocky structure; very friable; common fine and medium roots; strongly acid; abrupt smooth boundary; **Bw1**--11 to 16 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium and coarse subangular blocky structure; very friable; common fine and medium roots; strongly acid; abrupt smooth boundary; **Bw2**--16 to 26 inches; light olive brown (2.5Y 5/4) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; strongly acid; clear smooth boundary; **C1**--26 to 45 inches; olive (5Y 5/3) loamy fine sand; massive; very friable; few fine roots; strongly acid; clear smooth boundary; **2C2**--45 to 55 inches; olive brown (2.5Y 4/4) loamy fine sand; massive; very friable; strongly acid; abrupt smooth boundary; and **2C3**--55 to 65 inches; olive (5Y 5/3) loamy sand; single grain; loose; strongly acid.

Canton and Charlton Soils (60B)

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.

<u>Ridgebury, Leicester, and Whitman Series (3)</u>

The Ridgebury series consists of very deep, somewhat poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Slope ranges from 0 to 15 percent. A typical profile associated with Ridgebury soils is as follows: **A**--0 to 13 cm; black (N 2/0) fine sandy loam; weak medium and coarse granular structure; friable; many very fine, fine and medium tree roots; 5 percent gravel and 5 percent cobbles; very strongly acid; abrupt smooth boundary; **Bw**--13 to 23 cm; brown (10YR 4/3) sandy loam; weak medium subangular blocky structure; friable; few fine tree roots; 5 percent gravel and 5 percent cobbles; very strongly acid; abrupt wavy boundary; **Bg**--23 to 46 cm; dark gray (10YR 4/1) gravelly sandy loam; massive; friable; 10 percent gravel and 5 percent cobbles; common fine prominent yellowish brown (10YR 5/6) and common medium distinct reddish brown (5YR 4/4) masses of iron accumulation; very strongly acid; gradual wavy boundary; and **Cd**--46 to 165 cm; gray (5Y 5/1) gravelly sandy loam; massive; firm; 10 percent gravel and 5 percent cobbles; common fine prominent reddish yellow (7.5YR 6/8) masses of iron accumulation; very strongly acid.

The Leicester series consists of very deep, poorly drained soils formed in coarse-loamy till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. Slope ranges from 0 to 8 percent. A typical profile associated with Leicester soils is as follows: **Oe**--0 to 3 cm; black (10YR 2/1) moderately decomposed plant material; **A**--3 to 18 cm; black (10YR 2/1) fine sandy loam; moderate medium granular structure; friable; common fine and medium roots; 10 percent gravel and cobbles; strongly acid; clear wavy boundary; **Bg1**--18 to 25 cm; grayish brown (2.5Y 5/2) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 10 percent gravel and cobbles; common medium prominent yellowish red (5YR 5/6) masses of iron accumulation; strongly acid; gradual wavy boundary; **Bg2**--25 to 46 cm; light brownish gray (2.5Y 6/2) fine sandy loam; weak medium

subangular blocky structure; friable; few fine and medium roots; 10 percent gravel and cobbles; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; gradual wavy boundary; **BC**--46 to 61 cm; pale brown (10YR 6/3) fine sandy loam; massive; friable; few fine roots; 10 percent gravel and cobbles; many medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 4/6) masses of iron accumulation; strongly acid; clear wavy boundary; **C1**--61 to 84 cm; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; massive; friable; 15 percent gravel and cobbles; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and prominent pinkish gray (7.5YR 6/2) iron depletions; strongly acid; gradual wavy boundary; and **C2**--84 to 155 cm; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; massive; friable; 15 percent gravel and cobbles; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid.

The Whitman series consists of very deep, very poorly drained soils formed in lodgment till derived mainly from granite, gneiss, and schist. They are shallow to a densic contact. These soils are nearly level or gently sloping soils in depressions and drainageways on uplands. A typical profile associated with Whitman soils is as follows: **Ap**--0 to 25 cm; black (10YR 2/1) loam, dark gray (10YR 4/1) dry; weak medium granular structure; friable; 10 percent rock fragments; common medium distinct red (2.5YR 4/8) masses of iron accumulation lining pores; moderately acid; abrupt wavy boundary; **Bg**--25 to 46 cm; gray (5Y 5/1) fine sandy loam; massive; friable; 10 percent rock fragments, few medium distinct pale olive (5Y 6/4) and light olive brown (2.5Y 5/4) masses of iron accumulation; strongly acid; abrupt wavy boundary; **Cdg**--46 to 79 cm; gray (5Y 6/1) fine sandy loam; moderate medium plates; firm; 10 percent rock fragments; many medium distinct light olive brown (2.5Y 5/4) masses of iron accumulation; moderately acid; clear wavy boundary; **Cd1**--79 to 122 cm; olive (5Y 4/3) fine sandy loam; massive; firm; 10 percent rock fragments; few medium prominent dark reddish brown (2.5YR 3/4) masses of iron accumulation; moderately acid; gradual wavy boundary; and **Cd2**--122 to 165 cm; olive (5Y 5/3) fine sandy loam; massive; firm; 10 percent rock fragments; moderately acid.

Ninigret and Tisbury Soils (21A)

The Ninigret series consists of very deep, moderately well drained soils formed in loamy over sandy and gravelly glacial outwash. They are nearly level to strongly sloping soils on glaciofluvial landforms, typically in slight depressions and broad drainage ways. Slope ranges from 0 through 15 percent. A typical soil profile is as follows: **Ap**--0 to 8 inches; very dark grayish brown (10YR 3/2) fine sandy loam; pale brown (10YR 6/3) dry; weak medium granular structure; very friable; many fine roots; strongly acid; **Bw1**--8 to 16 inches; yellowish brown (10YR 5/6) fine sandy loam; weak coarse granular structure; very friable; few fine roots; strongly acid; **Bw2**--16 to 26 inches; yellowish brown (10YR 5/4) fine sandy loam; very weak coarse granular structure; very friable; very few fine roots; common medium distinct light brownish gray (10YR 6/2) and brownish yellow (10YR 6/6) redoximorphic features; strongly acid; and **2C**--26 to 65 inches; pale brown (10YR 6/3) loamy sand and few lenses of loamy fine sand; single grain; loose; many medium distinct light olive gray (5Y 6/2) and many prominent yellowish brown (10YR 5/8) redoximorphic features; strongly acid.

The Tisbury series consists of very deep, moderately well drained loamy soils formed in silty eolian deposits overlying outwash. They are nearly level and gently sloping soils on outwash plains and terraces, typically in slight depressions and broad drainageways. Slope ranges from 0 to 3 percent. A typical soil profile is as follows: **Ap**--0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; weak coarse granular structure; friable; many very fine and fine roots; few scattered pebbles; strongly acid; abrupt smooth boundary; **Bw1**--8 to 18 inches; yellowish brown (10YR 5/6) silt loam; weak medium and coarse subangular blocky structure; very friable; common very fine and fine roots; few scattered pebbles; strongly acid; clear wavy boundary; **Bw2**--18 to 26 inches; brownish yellow (10YR 6/6) silt loam; massive;

very friable; few fine roots; few scattered pebbles; common medium prominent grayish brown (2.5Y 5/2) iron depletions and common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary; and **2C**--26 to 60 inches; grayish brown (10YR 5/2) extremely gravelly sand; single grain; loose; 60 percent gravel; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and common medium faint light brownish gray (10YR 6/2) iron depletions; strongly acid.

Saco Series (108)

The Saco series consists of very deep, very poorly drained soils formed in silty alluvial deposits. They are nearly level soils on flood plains, subject to frequent flooding. Slope ranges from 0 to 2 percent. Permeability is moderate in the silty layers and rapid or very rapid in the underlying sandy materials. Mean annual temperature is about 50 degrees F. and mean annual precipitation is about 47 inches. Typical sequence, depth, and composition of this soil is as follows: **A**--0 to 12 inches; very dark gray (10YR 3/1) silt loam; gray (10YR 5/1) dry; weak coarse granular structure; very friable; many fine roots; moderately acid; clear wavy boundary. **Cg1**--12 to 32 inches; gray (10YR 5/1) silt loam; massive; friable; few fine roots; common medium faint light brownish gray (10YR 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid; clear wavy boundary. **Cg2**--32 to 48 inches; gray (5Y 5/1) silt loam with thin strata of very dark gray (10YR 3/1) silt loam; massive; friable; moderately acid; clear wavy boundary. **2Cg3**--48 to 60 inches; gray (10YR 6/1 and 5/1) stratified coarse sand and medium sand; single grain; loose; moderately acid.

Udorthents, Smoothed (308)

Udorthents, smoothed soils are a well-drained to moderately well drained, disturbed soil area that has had two or more feet of the original soil surface altered by filling, excavation or grading activities. Udorthents, smoothed soils commonly occur on leveled land and fill landforms.

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.

Paleoindian 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) in Washington, Connecticut 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. They include examples of a fluted point base, preforms, channel flakes, pièces esquillées, end scrapers, side scrapers, grinding stones, bifaces, utilized flakes, gravers, and 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 et al. 2020). Approximately 15,000 artifacts were collected in total.

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 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 period. 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 archeologists. 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 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.

<u>Early Woodland Period (ca., 2,700 to 2,000 B.P.)</u>

The Early Woodland Period of the northeastern United States dates from ca., 2,700 to 2,000 B.P., and it has 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.

<u>Middle Woodland Period (2,000 to 1,200 B.P.)</u>

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 includes 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 Paleoindian and Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV
POST-EUROPEAN
CONTACT PERIOD OVERVIEW

Introduction

The proposed Facility is located in Woodbridge, Connecticut. Most Connecticut towns, including Woodbridge, originated as Native American settlements and later became English colonial villages. Through the nineteenth and twentieth centuries, Woodbridge functioned as an agricultural hub which 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. This chapter provides a brief history of New Haven County followed by an overview of the Town of Woodbridge and data related to the Facility area.

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. Located in the southwestern corner of Connecticut, it is bounded to the south by Long Island Sound, to the east by Middlesex County, to the north by Hartford and Litchfield Counties, and to the 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, Wepawaug, and Rivers (Rockey 1892). The shoreline 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. The Town of Woodbridge is located in the western bounds of New Haven County, and abuts the Town of Orange to the south, the Towns of Ansonia, Derby, and Seymour to the west, the Town of Bethany to the north, the Town of Hamden and the City of New Haven to the east (Connecticut 2023).

Woodland Period to Seventeenth Century

During the Woodland Period of northeastern North American history (ca., 3000 to 500 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, Bethany as well as parts of Prospect and Cheshire (DeForest 1852; Lavin 2013).

Seventeenth Century through Eighteenth Century

As Native communities maintained 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 in ca., 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 and 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 on 1634 and 1636 which were blamed on the Pequot. In retaliation Massachusetts Bay soldiers destroyed Pequot villages in August 1636 which began the Pequot War. 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 and 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 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 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 bounds of New Haven, which would later become Woodbridge, was known as Amity at the time. 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 although over 400 African Americans resided in the towns of Milford and New Haven, most of which 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 from 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. (Lambert 1838; Van Dusen 1961) before reembarking. No other 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 the State 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 (USCB 1800). By 1830, that population figure had increased to 2,052 which reflects the rural nature of Woodbridge as opposed to the neighboring industrial areas of New Haven, Bridgeport, and Waterbury (USCB 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. The Diamond Match Company traces its roots to 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 as well (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 (Connecticut 2024b).

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 did Woodbridge. As the twentieth century progressed, the trend toward suburban living brought many more permanent residents to Woodbridge, further boosting the population (Herzan 1997; Connecticut 2024d). 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

1960s (DeLuca 2020). Throughout the twentieth century, industrialization subsided, and suburbanization increased. Populations shifted as people moved from cities to towns when the automobile and the establishment of highways facilitated movement. In the twenty-first century, Woodbridge remains an important suburban landscape, with some commercial development, yet it retains aspects of its rural characteristics. 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 US Census Bureau enumerated 8,990 people living in the Town of Woodbridge and by 2020 the population of Woodbridge had increased to 9,087 people (USCB 2021; Table 1). In 2023, top industries in town included healthcare and social assistance, and local government. Key employers include Plastic Forming Company, Inc. and Northern Pipeline (AdvanceCT 2024). According to the Town's 2015 Plan of Conservation and Development, strategic growth is anticipated in Woodbridge. The town plans to "reduce its environmental impacts by pursuing sustainable patterns of development" (Woodbridge 2015:130).

Table 1: Population of Woodbridge, Connecticut 1790-2020 (Connecticut 2024a-d; USCB 2021)

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	5,128	7,673	7,761	7,924	8,983	8,990	9,087

History of the Facility Area

According to Smith's 1856 map, the proposed Facility is located in southern Woodbridge, near the border with Orange (Figure 3). An unlabeled river was present to the west of the Facility area at that time. In addition, the property of N. Camp was directly to the north and the property of E. Clarke was directly to the east of the Facility. These individuals were likely Nathaniel Camp and Elioenai Clarke, both of whom were listed as farmers in the 1850 census (UCSB 1850a-b). The 1868 F.W. Beers Atlas of New Haven County shows the above-referenced river as the "Wopowaug," and that property ownership had changed. The property belonging to N. Camp had changed hands to W.M. Crofton and the property of E. Clarke belonged to I.W. Baldwin as of 1868 (Figure 4). These individuals were likely William M. Crofton, who did not have an occupation listed in the census. Ira Baldwin was a Civil War veteran and farmer (USCB 1860; USCB 1880; Records of the Civil War 1865). The documentary record suggests that the land near the Facility area was utilized largely for agricultural purposes in the nineteenth century.

Aerial photography taken in 1934, the first year in which such photography was available, indicates that the proposed Facility was then located to the west of Racebrook Road on a parcel that was wooded in the western portion and open in the east (Figure 5). The Wepawaug River was visible to the west of the Facility area. By 1951, an aerial image depicted the Facility area as unchanged; however, the recently constructed Route 15/Wilbur Cross Parkway was visible directly to the south of the Facility area (Figure 6). Suburban development had taken place by 1970, and directly to the east and to the south of the Facility area was a series of single-family homes, along with accompanying streets and infrastructure (Figure 7). While the eastern portion of the Facility area remained open land and the western portion was still wooded as of 1970, a house was visible at the eastern boundary of the Facility area and a detention pond was present in the north. A golf course appeared under construction further east of the Facility area. By 1990, aerial photograph of the Facility area shows the construction of a large church immediately to the south of the project parcel (Figure 8). In addition, much of the forested land within the Facility area had been cleared, leaving only a small area of wooded land in the southern portion of the parcel. In 2004, the cleared land within the Facility area appeared to have undergone modifications to make it part of the nearby golf course (Figure 9). Additional suburban development in the form of single-family homes and

neighborhoods was evident to the north and to the east of the Facility area. Few further changes were evident in the photography from 2019 (Figure 10).

Conclusions

The documentary review indicates that the proposed Facility has potential to be associated with cultural resources. In the portions that were agricultural fields, there is the possibility of encountering evidence of post-European Contact period farming activities or stone walls that may be important as a component of a rural historic landscape (*sensu* McClelland et al. 1999). In addition, the nearby presence of the Wepawaug River suggests the possibility of encountering cultural resources related to post-European Contact period riverine activity, including milling operations.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previously identified cultural resources in the vicinity of the Facility area 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 1.6 kilometers (1 mile) 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 four precontact era archaeological sites within 1.6 kilometers (1 mile) of the proposed Facility (Figure 12). In addition, a single State Register of Historic Places property and 66 previously identified standing structures in excess or 50 years in age were identified within 1.6 kilometers (1 mile) of the Facility area (Figure 13). No National Register of Historic Places properties were identified within 1.6 kilometers (1 mile) of the Facility area (Figure 13). These resources are reviewed below and they provide context with which to assess the Facility area for containing additional intact cultural resources.

Site 167-24

Site 167-24, which is also known as the Dzikas Site, is a precontact era Native American archaeological site located in Woodbridge, Connecticut (Figure 12). Unfortunately, no other information about this site is listed on the State of Connecticut archaeological site form. It is unclear if this site was assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The Dzikas Site is located approximately 0.98 kilometers (0.61 miles) to the northwest of the Facility area and will not be impacted by the proposed construction.

Site 107-21

Site 107-21 is a Terminal Archaic period site in Orange, Connecticut (Figure 12). The site was subjected to Phase I testing by Archaeological and Historical Services, Inc., (AHS) in 2017. The site is characterized as a low density lithic scatter that was likely occupied for temporary tool production. Recovered artifacts include 13 flakes of quartz, jasper, and red shale; 1 piece of shell; and 1 chert Broadspear projectile point. This site was assessed as potentially eligible for listing in the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]) due to the research potential the site holds for similar low density sites. It is located approximately 0.83 kilometers (0.52 miles) to the northwest of the Facility area and will not be impacted by the proposed construction.

Site 107-22

Site 107-22 is a precontact era Native American campsite dating to an unknown period; it is located in Orange, Connecticut (Figure 12). The site was subjected to Phase I and II testing by AHS in 2018 and 2019. Phase I testing resulted in the recovery of quartz flakes, and Phase II testing yielded tools such as a chopper and utilized flakes, as well as post-European contact period ceramic sherds and glass shards. While tool production likely took place at the site, no cultural features or temporally diagnostic precontact era artifacts were found. The site was been assessed as not eligible for listing on the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Site 107-22 is located approximately 1.4 km (0.87 mi) to the southwest of the Facility area and will not be impacted by the proposed construction.

Site 107-23

Site 107-23 is a precontact era campsite in Orange, Connecticut that dates from the Late Archaic and Late Woodland periods (Figure 12). The site was subjected to Phase I and II testing by AHS in 2018 and 2019. Phase I testing resulted in the collection of quartz and quartzite flakes. Phase II testing yielded 662 charred botanicals, 1,939 lithic artifacts, mostly of quartz, and various post-European contact period artifacts, including ceramic sherds. The lithic artifacts recovered from the site included four projectile points, 23 cores, and 12 bifaces. A total of two of the projectile points were of the Burwell type. In addition, four cultural features were identified and samples, including a hearth and a post. This site was assessed as eligible for listing on the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]) under Criterion D, as the presence of diagnostic artifacts and well preserved features could yield further information about the occupation. Site 107-23 is located approximately 1.5 kilometers (0.93 mile) to the southwest of the Facility area and will not be impacted by the proposed construction.

Ephraim Baldwin House

The Ephraim Baldwin House is a historic residence located at 131 Ansonia Road in Woodbridge, Connecticut (Figure 13). The house dates from ca., 1800 and was recorded in the State Register of Historic Places in 1968. The house is mainly in a central-chimney Colonial style, although it contains later Greek Revival modifications at the entrance. This house is significant for being one of the few houses of this age and integrity in the town. The Ephraim Baldwin House is located approximately 1.6 kilometers (1 mile) to the northeast of the Facility area. It will not be impacted by the proposed construction.

Previously Identified Standing Structures over 50 Years Old Near the Project Parcel

A total of 66 previously recorded standing structures over 50 years old have been identified within 1.6 kilometers (1 mile) of the proposed Facility (Figure 13; Table 2). These resources range in date from the mid-eighteenth century through the mid-twentieth century. In addition, these properties represent a variety of architectural styles. In the earliest examples, there are Colonial and Federal style houses among the inventoried structures in Woodbridge. In Orange, most of the historic houses within the search date from mid-twentieth century and a contained within residential developments. They include Colonial Revival, Ranch, and Cape style houses. Other historic structures within 1.6 kilometers (1 mile) of the proposed Facility include the Wepawaug Reservoir Dam, which dates from 1911, and Bridge No. 00948 over Derby Avenue in Orange. The latter has been assessed as potentially eligible for inclusion in the NRHP applying the criteria for evaluation (36 CFR 60.4 [a-d]). All of the inventoried resources are located between approximately 100 meters (328 feet) and 1.6 kilometers (1 mile) from the Facility. They will not be impacted by the proposed project.

Table 2. Previously Inventoried Historic Standing Structures within 1.6 km (1 mi) of the Facility Area

SRHP Number	Name	Address	Type	Year Built	Style	NR Eligibility
167-146	Nathaniel Camp House	1024 Racebrook Rd, Woodbridge	Residence	c. 1800	Vernacular	Not Assessed
167-145	Elias T. Clark House	999 Racebrook Rd, Woodbridge	Residence	c. 1848	Greek Revival	Not Assessed
167-132	J. Baldwin House	1 Overhill Rd, Woodbridge	Residence	1856	Vernacular	Not Assessed
167-147	Carl R. Welton House	1074 Racebrook Rd, Woodbridge	Residence	1937	Colonial Revival	Not Assessed
167-185	Henry Baldwin House	1 Wepawaug Rd, Woodbridge	Residence	c. 1757, 1938 addition	Colonial	Not Assessed
167-148	Howard C. Fulton House	1105 Racebrook Rd, Woodbridge	Residence	1936	Colonial Revival	Not Assessed
167-39	James Stowe House	193 Ansonia Rd, Woodbridge	Residence	c. 1820	Federal	Not Assessed
167-40	Baldwin-Woodruff House	197 Ansonia Rd, Woodbridge	Residence	c. 1820	Vernacular	Not Assessed
167-38	Deacon William Plumb House	175 Ansonia Rd, Woodbridge	Residence	c. 1820	Federal	Not Assessed
167-37	Walter A. Reynolds House	162 Ansonia Rd, Woodbridge	Residence	1938	Colonial Revival	Not Assessed
167-36	Hugh Beirne House	158 Ansonia Rd, Woodbridge	Residence	1940	Colonial Revival	Not Assessed
167-44	Baldwin Farm Worker's House	923 Baldwin Rd, Woodbridge	Residence	1740, 1825 addition	Vernacular	Not Assessed
167-43	Hezekiah Baldwin House	901 Baldwin Rd, Woodbridge	Residence	c. 1785	Colonial	Not Assessed
-	Deacon Edward Clark House	974 Race Brook Rd, Orange	Residence	1771	Saltbox	Not Assessed
-	Joseph Green House	1056 Orange Center Rd, Orange	Residence	c. 1925	Foursquare	Not Assessed
-	Stanley/Pauline Davis House	1091 Orange Center Rd, Orange	Residence	c. 1950	Ranch	Not Assessed
-	-	70 Center Road Cir, Orange	Residence	1951	Ranch	Not Assessed
-	-	95 Pine Crest Rd, Orange	Residence	1952	Ranch	Not Assessed
-	-	88 Pine Crest Rd, Orange	Residence	1935	Barn	Not Assessed
-	-	89 Pine Crest Rd, Orange	Residence	1952	Ranch	Not Assessed
-	Russell Homestead	1021 Orange Center Rd, Orange	Residence	c. 1900	Vernacular	Not Assessed
-	William Brown House	30 Race Brook Ter, Orange	Residence	c. 1932	Tudor	Not Assessed
-	Anna Wachuck House	24 Racebrook Ter, Orange	Residence	c. 1949	Suburban Colonial	Not Assessed
-	-	23 Center Road Cir, Orange	Residence	1948	Colonial Revival	Not Assessed

SRHP Number	Name	Address	Type	Year Built	Style	NR Eligibility
-	-	29 Center Road Cir, Orange	Residence	1948	Cape	Not Assessed
-	-	30 Center Road Cir, Orange	Residence	1949	Cape	Not Assessed
-	-	43 Center Road Cir, Orange	Residence	1949	Colonial Revival	Not Assessed
-	-	51 Center Road Cir, Orange	Residence	1951	Cape	Not Assessed
-	Willis Wilkinson House	894 Race Brook Rd, Orange	Residence	c. 1937-1938	Cape Cod	Not Assessed
-	Frederick-Maitlda Wilkinson House	888 Race Brook Rd, Orange	Residence	1937	Cape Cod	Not Assessed
-	Wepawaug Reservoir Dam	-	Dam	1911	-	Not Assessed
-	Bridge No. 00948	Derby Ave, Orange	Bridge	1941	Concrete arch	Eligible
-	Samuel/Marian Batter House	880 Race Brook Rd, Orange	Residence	c. 1952	Ranch	Not Assessed
-	-	11 Green Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	14 Green Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	17 Green Hill Road, Orange	Residence	1949	Colonial Revival	Not Assessed
-	-	20 Green Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	23 Green Hill Road, Orange	Residence	1951	Cape	Not Assessed
-	-	26 Green Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	31 Green Hill, Orange Road	Residence	1951	Cape	Not Assessed
-	-	34 Green Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	35 Green Hill Road, Orange	Residence	1951	Cape	Not Assessed
-	-	43 Green Hill Road, Orange	Residence	1951	Cape	Not Assessed
-	-	45 Green Hill Rd, Orange	Residence	1951	Colonial Revival	Not Assessed
-	-	47 Green Hill Rd, Orange	Residence	1951	Ranch	Not Assessed
-	-	51 Green Hill Rd, Orange	Residence	1950	Cape	Not Assessed
-	-	54 Green Hill Rd, Orange	Residence	1950	Cape	Not Assessed
-	-	59 Green Hill Rd, Orange	Residence	1950	Cape	Not Assessed
-	-	60 Green Hill Rd, Orange	Residence	1950	Cape	Not Assessed
-	-	73 Green Hill Rd, Orange	Residence	1950	Cape	Not Assessed

SRHP Number	Name	Address	Type	Year Built	Style	NR Eligibility
-	-	79 Green Hill Rd, Orange	Residence	1951	Cape	Not Assessed
-	-	84 Green Hill Rd, Orange	Residence	1951	Cape	Not Assessed
-	-	90 Green Hill Rd, Orange	Residence	1951	Cape	Not Assessed
-	-	96 Green Hill Rd, Orange	Residence	1951	Cape	Not Assessed
-	-	804 Walnut Hill Road, Orange	Residence	1951	Cape	Not Assessed
-	-	805 Walnut Hill Road, Orange	Residence	1951	Dutch Colonial Revival	Not Assessed
-	-	812 Walnut Hill Road, Orange	Residence	1945	Cape	Not Assessed
-	-	815 Walnut Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	820 Walnut Hill Road, Orange	Residence	1952	Cape	Not Assessed
-	-	823 Walnut Hill Road, Orange	Residence	1950	Cape	Not Assessed
-	-	828 Walnut Hill Road, Orange	Residence	1951	Ranch	Not Assessed
-	-	831 Walnut Hill Road, Orange	Residence	1950	Dutch Colonial Revival	Not Assessed
-	O'Sullivan House	954 Orange Center Rd, Orange	Residence	c. 1948	Ranch	Not Assessed
-	William Shaughnessey House	952 Orange Center Rd, Orange	Residence	c. 1923-1926	Georgian Revival	Not Assessed
-	Frederick Moule House	950 Orange Center Rd, Orange	Residence	c. 1933	Tudor Revival	Not Assessed
-	Dwight Clark House	946 Orange Center Rd, Orange	Residence	c. 1925-1930	Colonial Revival	Not Assessed

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methods used to complete the Phase IB cultural survey of the proposed Project 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 the survey will be curated and 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 previously identified archaeologically sensitive area. Fieldwork for the survey was comprehensive in nature and project planning considered the distribution of previously recorded archaeological sites located near the Facility area, as well as an assessment of the natural qualities of the archaeologically sensitive area. The methods used to complete this investigation were designed to provide complete and thorough coverage of all portions of the archaeologically sensitive area. This undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, and photo-documentation.

Field Methods

Following the completion of all background research, the previously identified moderate/high archaeological sensitivity area was subjected to a Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, photo-documentation, GPS recordation, and shovel testing. The subsurface surface effort consisted of the excavation of 50 x 50 cm (19.7 x 19.7 in) shovel tests. Each shovel test was excavated until glacially derived C-Horizon or immovable objects (e.g., boulders, large tree roots) were encountered. Each shovel test was excavated in 10 cm (3.9 in) 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 in) 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.

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 & 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 Facility area; 3) a review of readily available maps and aerial imagery depicting the Facility 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

During Phase IB survey, 13 of 14 (93 percent) planned shovel tests were excavated throughout the previously archaeologically sensitive area (Figure 13). A single planned but unexcavated test pit fell in an area characterized by steep slope and a wetland; it was not excavated. The tested area consisted of small zones of deciduous trees located within a large golf course area (Photos 1 and 2). The excavated shovel tests all exhibited disturbed soil profiles. They contained various fill soils most likely associated with the construction of the nearby golf course falls. A typical shovel test excavated in the Facility area exhibited four soil horizons in profile, including an upper manicured A horizon, upper Fill (Fill 1), lower Fill (Fill 2), and glacially derived C-Horizon. The uppermost manicured A horizon consisted of a deposit of dark brown (10YR 3/3) fine sandy loam that extended from 0 to 6 cmbs (2.4 inbs). This was underlain by the first Fill horizon (Fill 1), which extended from 6 to 15 cmbs (5.9 inbs) and was described as a layer of grayish brown (2.5Y 5/2) medium to coarse sand. The underlying second Fill horizon (Fill 2) extended from 15 to 30 cmbs (11.8 inbs) and was characterized as a deposit of very dark gray (2.5Y 3/1) fine sandy silt. Finally, the glacially derived C-Horizon extended from 30 to 52 cmbs (20.8 inbs) and consisted of a layer of dark grayish brown (2.5Y 4/2) moist silty medium sand with gravel, cobbles, and oxidation. This soil profile was exemplified in shovel test T2-3 from the Project area (Figure 14).

Despite careful investigation, no cultural material, subsurface soil anomalies, or surface features were identified during the Phase IB survey of the archaeologically sensitive portion of the Facility area. As a result, no additional archaeological examination of the archaeologically sensitive area of the remainder of the proposed Facility is recommended prior to the start of construction.

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APPENDIX A

FIGURES

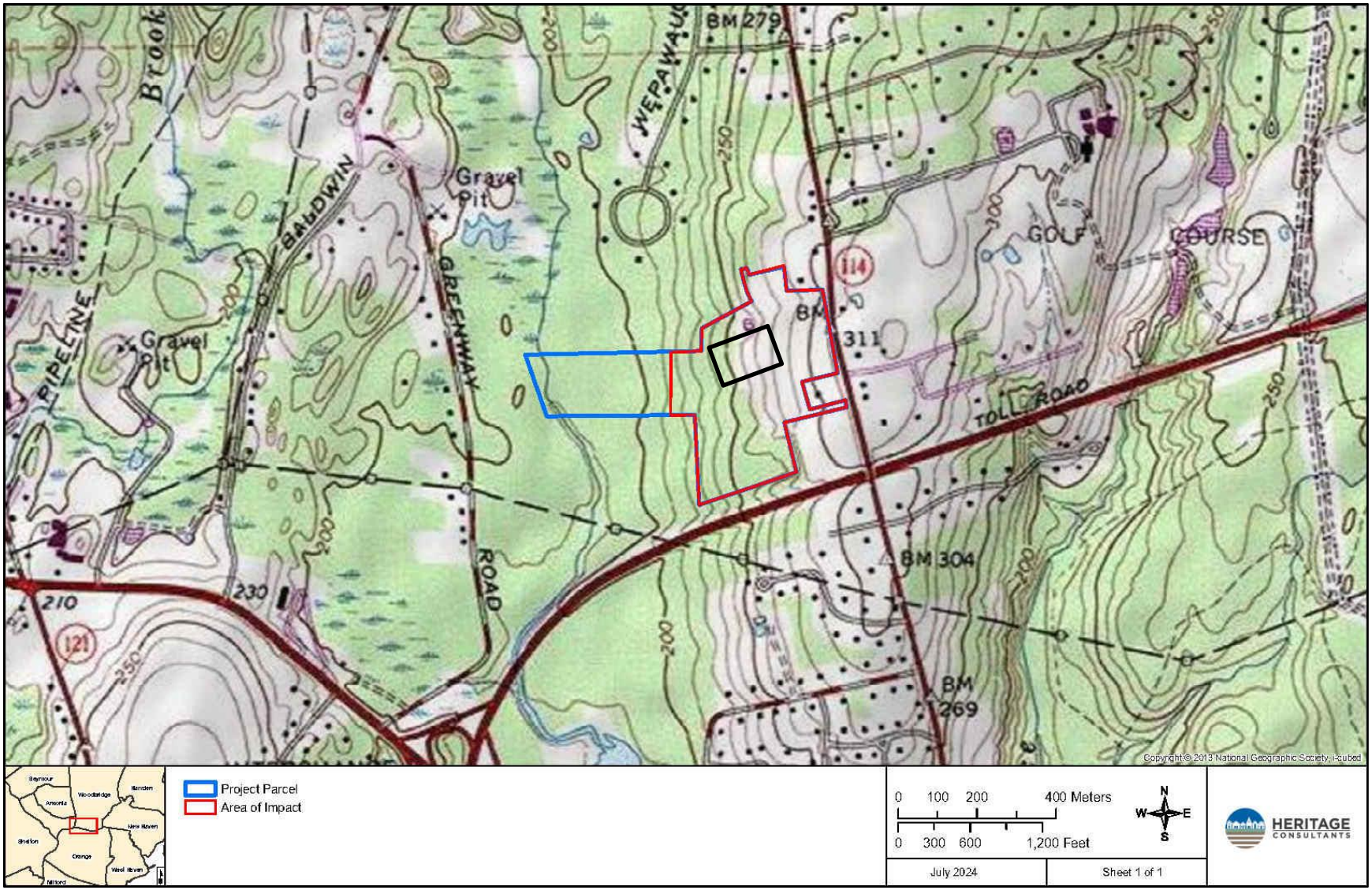

Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the project parcel in Woodbridge, Connecticut. Location of Phase IB shovel testing denoted by black box.

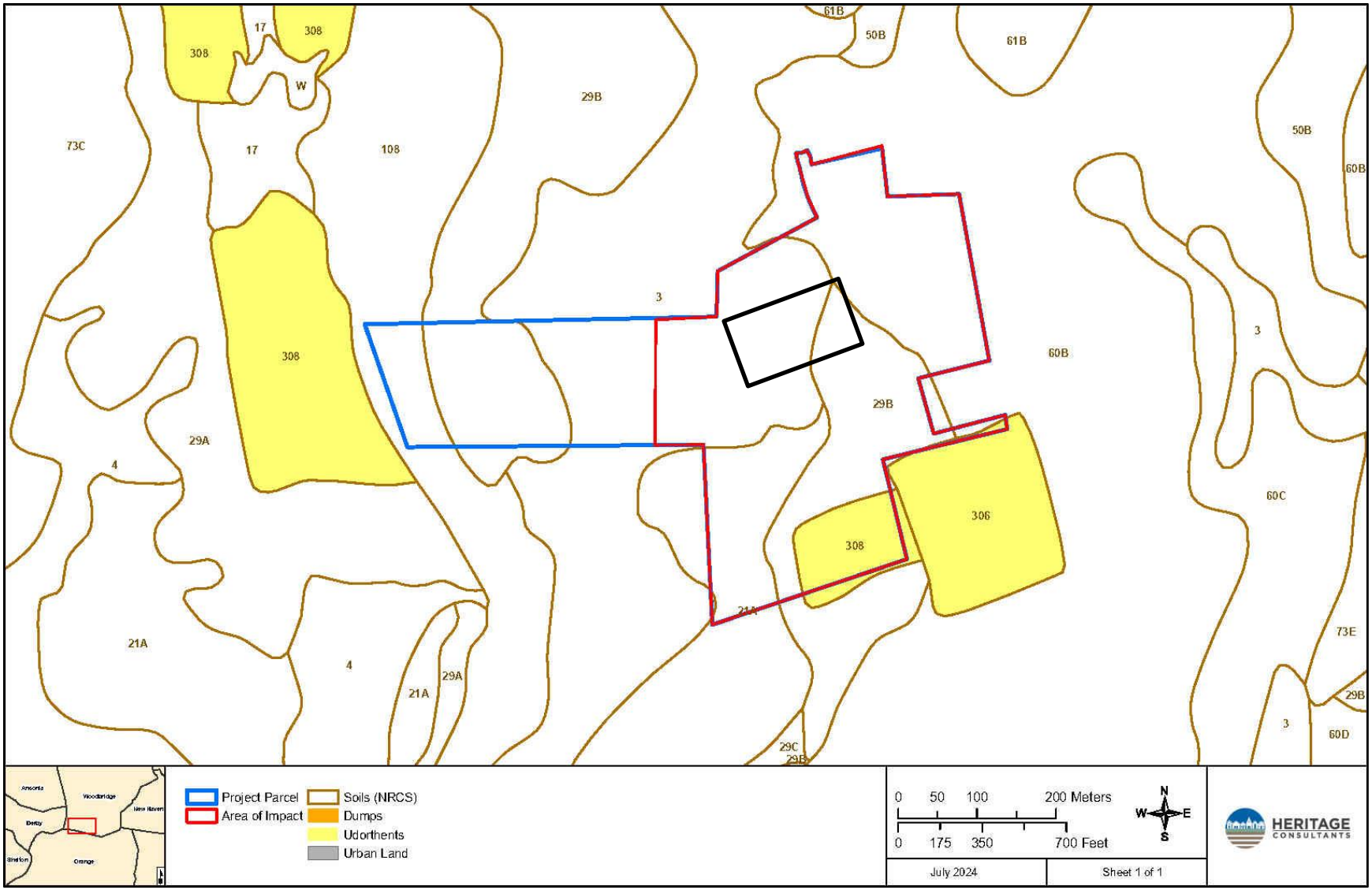

Figure 2. Digital map depicting the soil types present in the vicinity of the project parcel in Woodbridge, Connecticut. Location of Phase IB shovel testing denoted by black box.

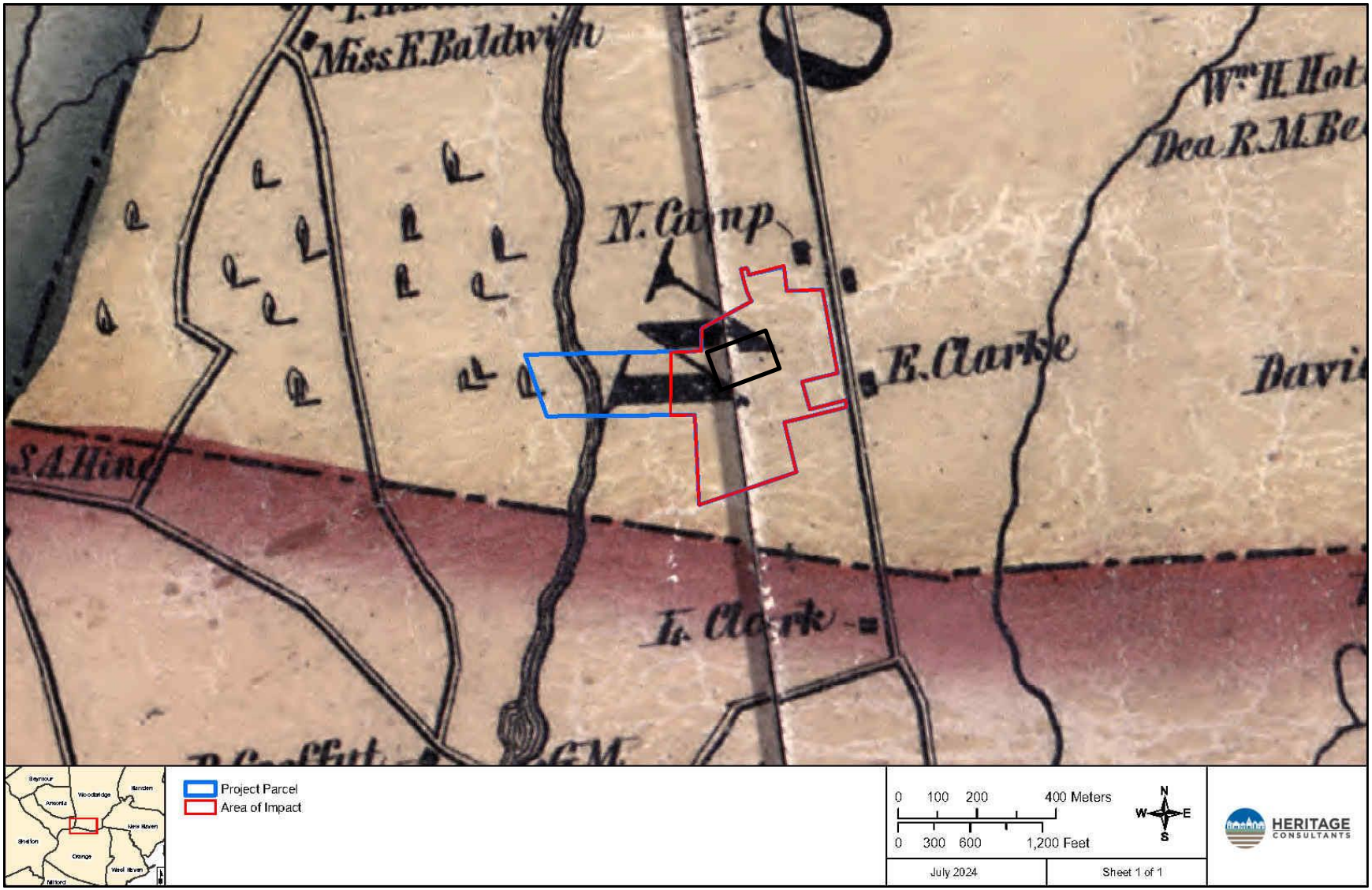

Figure 3. Excerpt from an 1856 map showing the location of the project parcel in Woodbridge, Connecticut. Location of Phase IB shovel testing denoted by black box.

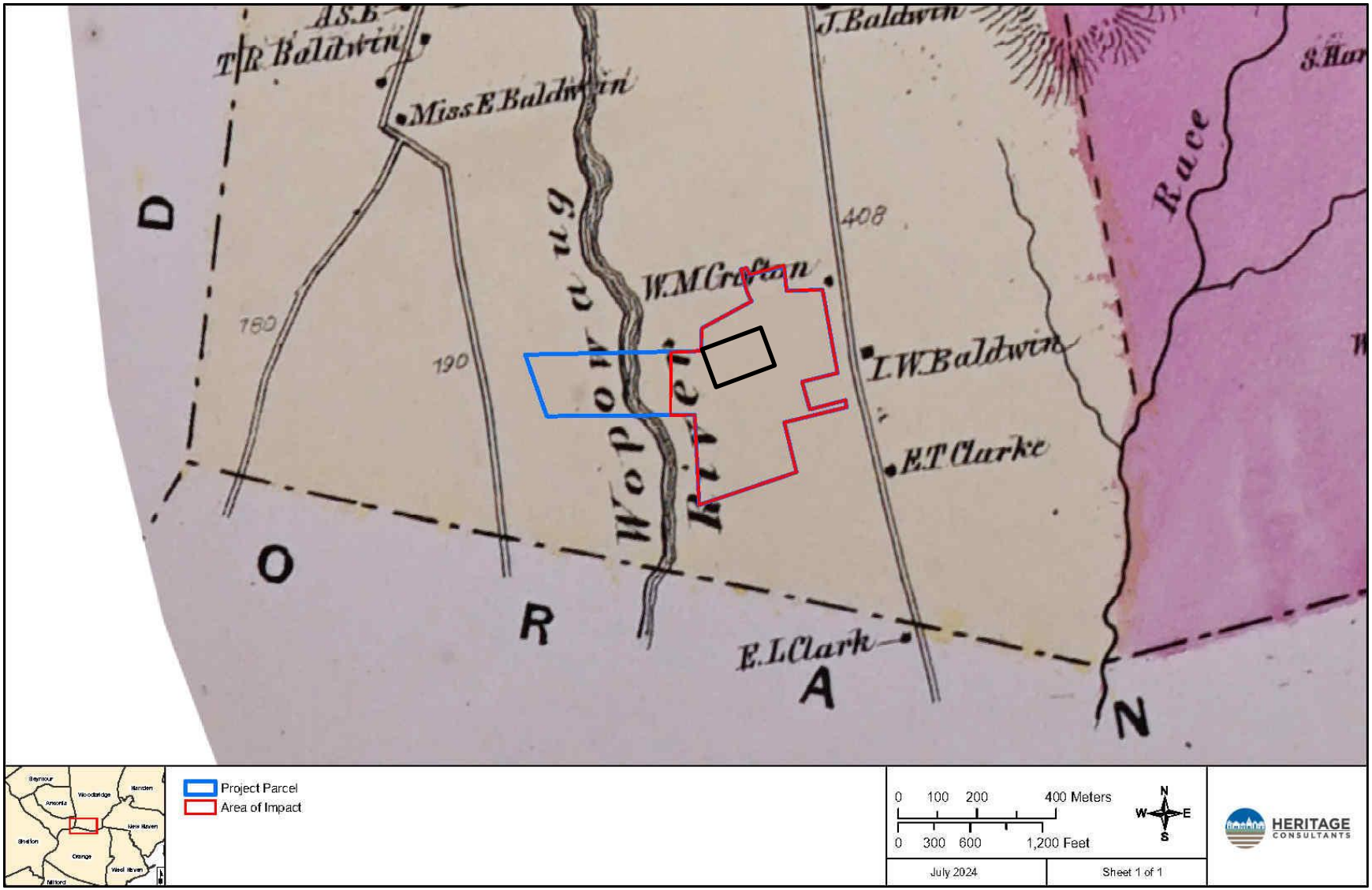

Figure 4. Excerpt from an 1868 map showing the location of the project parcel in Woodbridge, Connecticut. Location of Phase IB shovel testing denoted by black box.

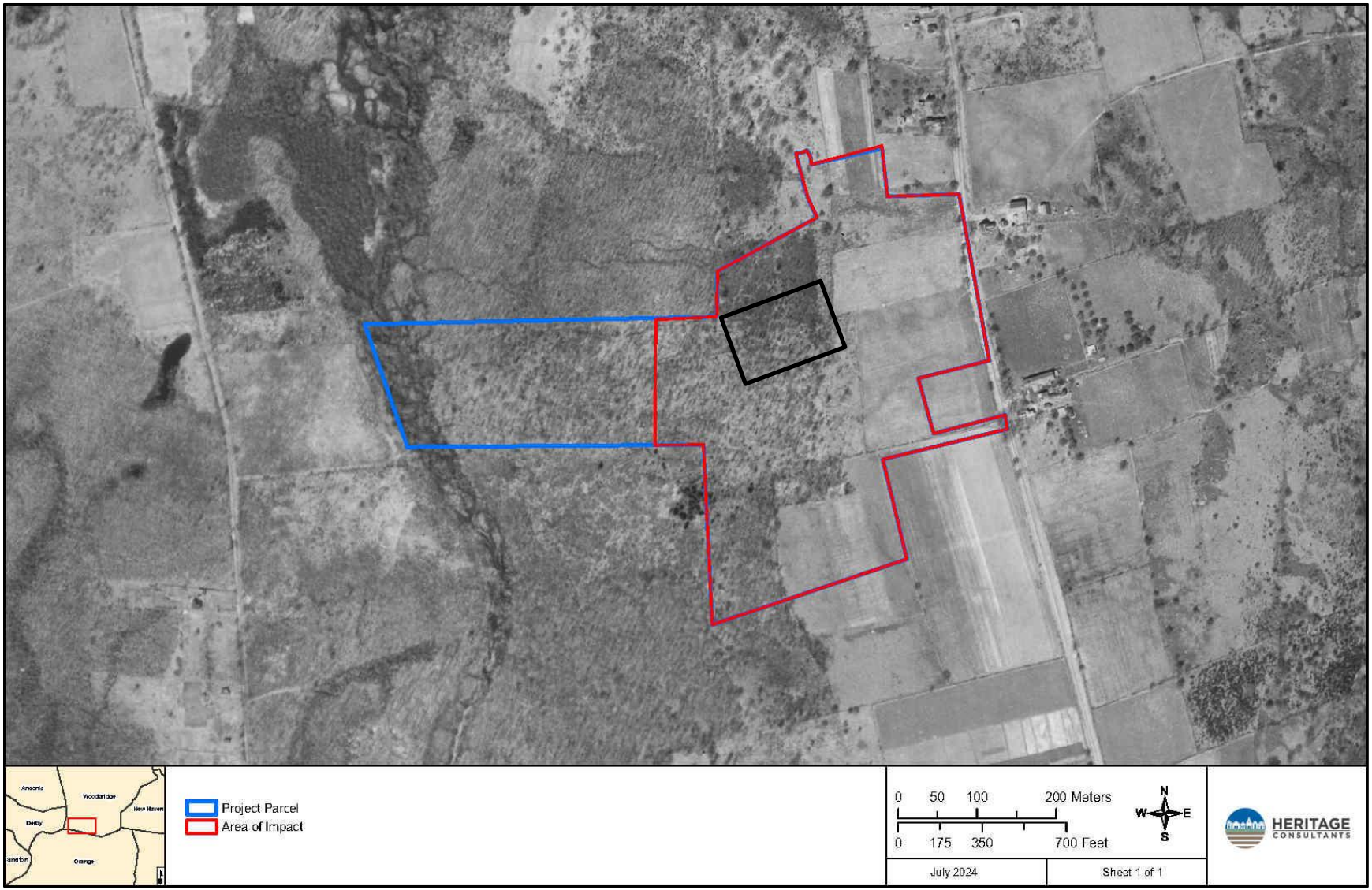

Figure 5. Excerpt from a 1934 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut. Location of Phase IB shovel testing denoted by black box.

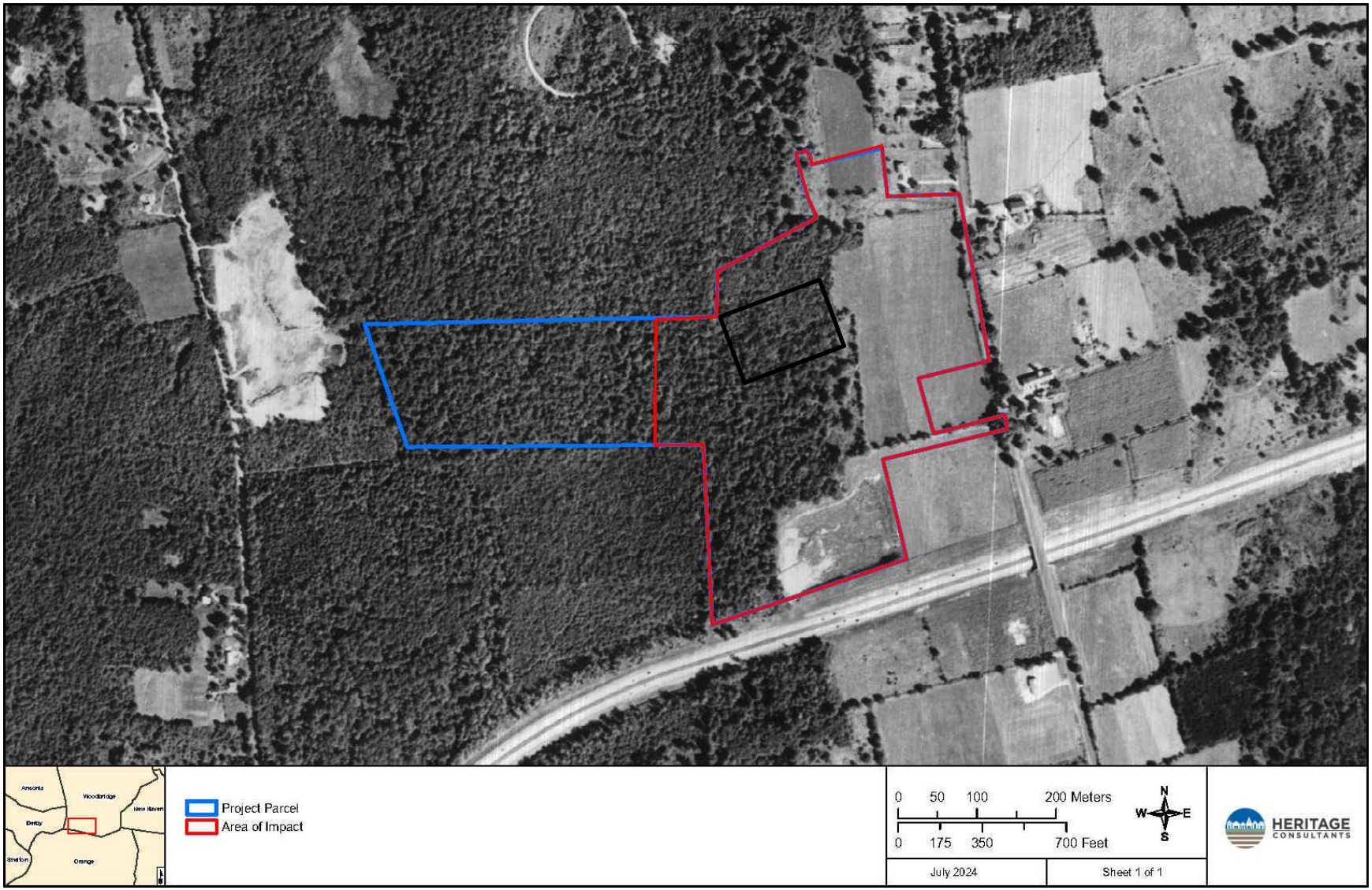

Figure 6. Excerpt from a 1951 aerial photography showing the location of the project parcel in Woodbridge, Connecticut. Location of Phase IB shovel testing denoted by black box.

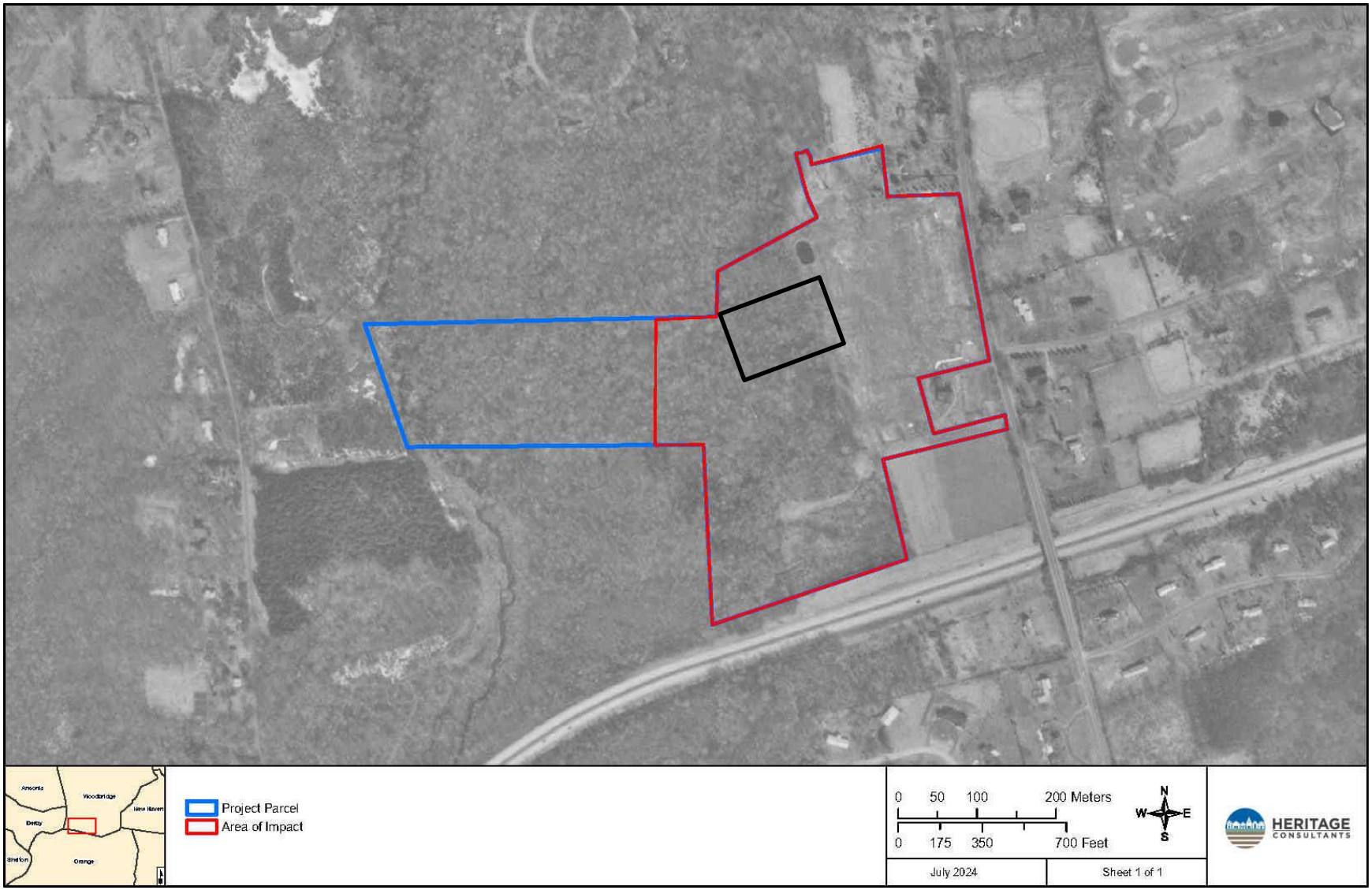

Figure 7. Excerpt of a 1970 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut. Location of Phase IB shovel testing denoted by black box.

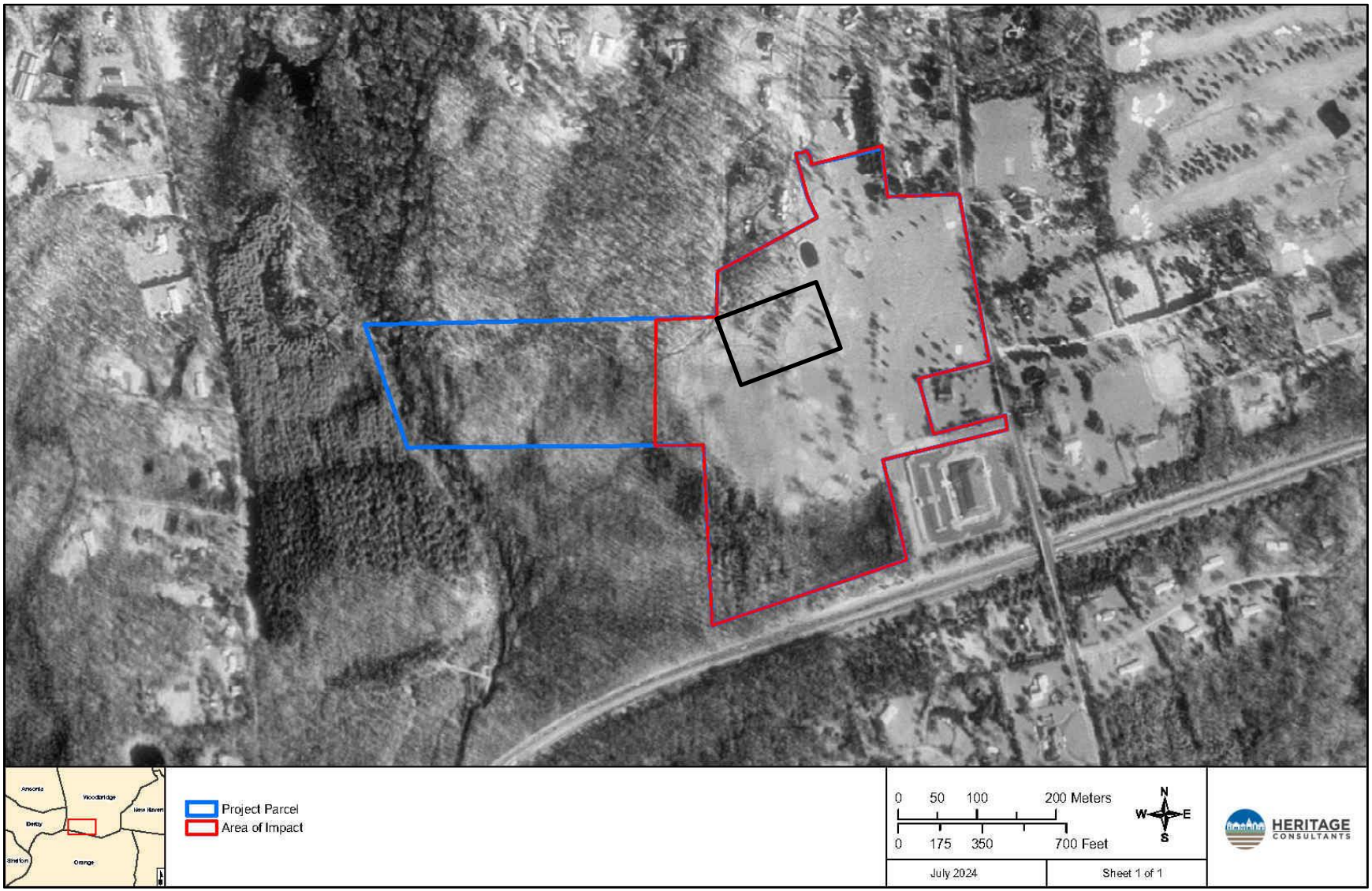

Figure 8. Excerpt of a 1990 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut. Location of Phase IB shovel testing denoted by black box.

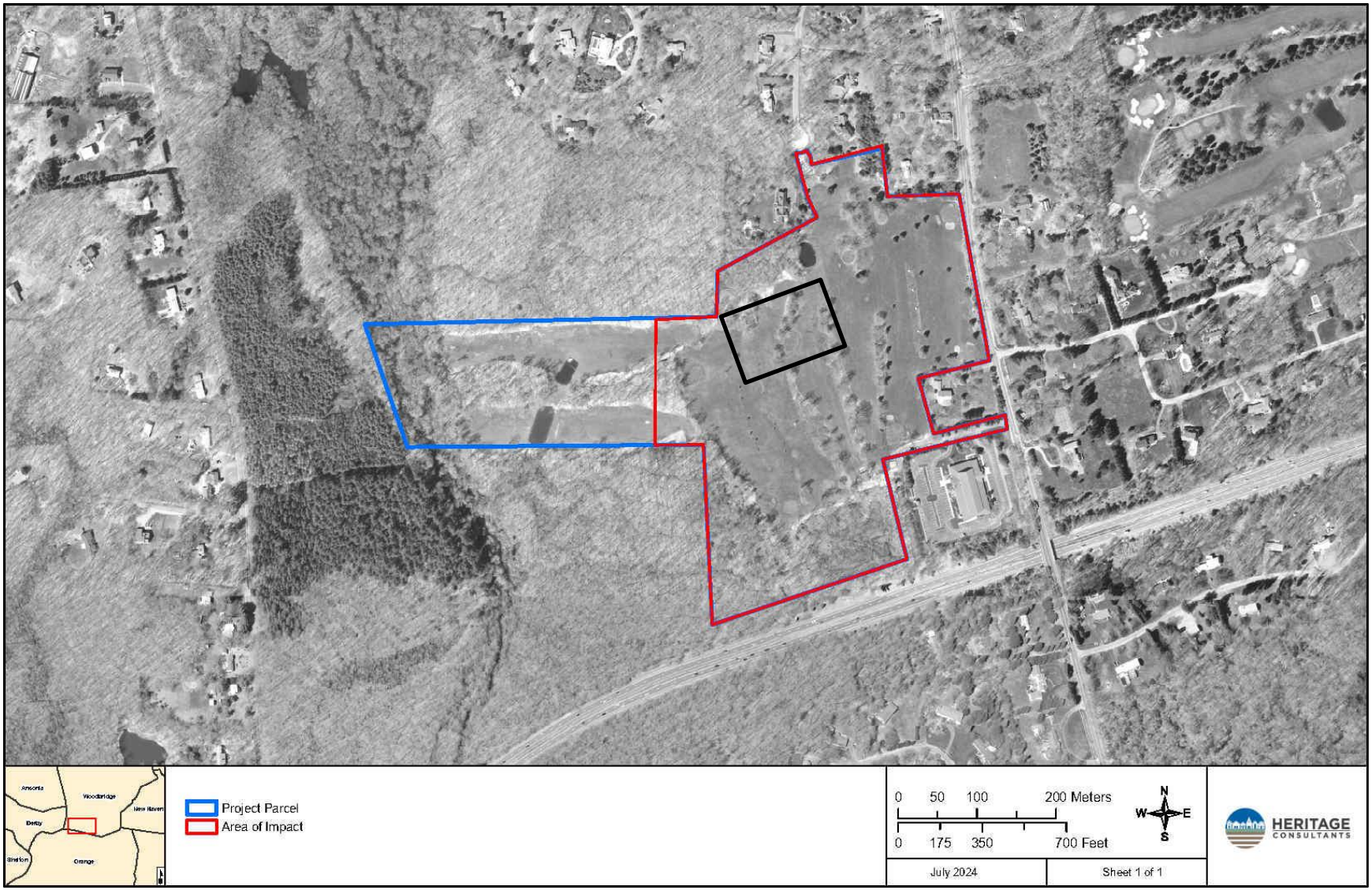

Figure 9. Excerpt of a 2004 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut. Location of Phase IB shovel testing denoted by black box.

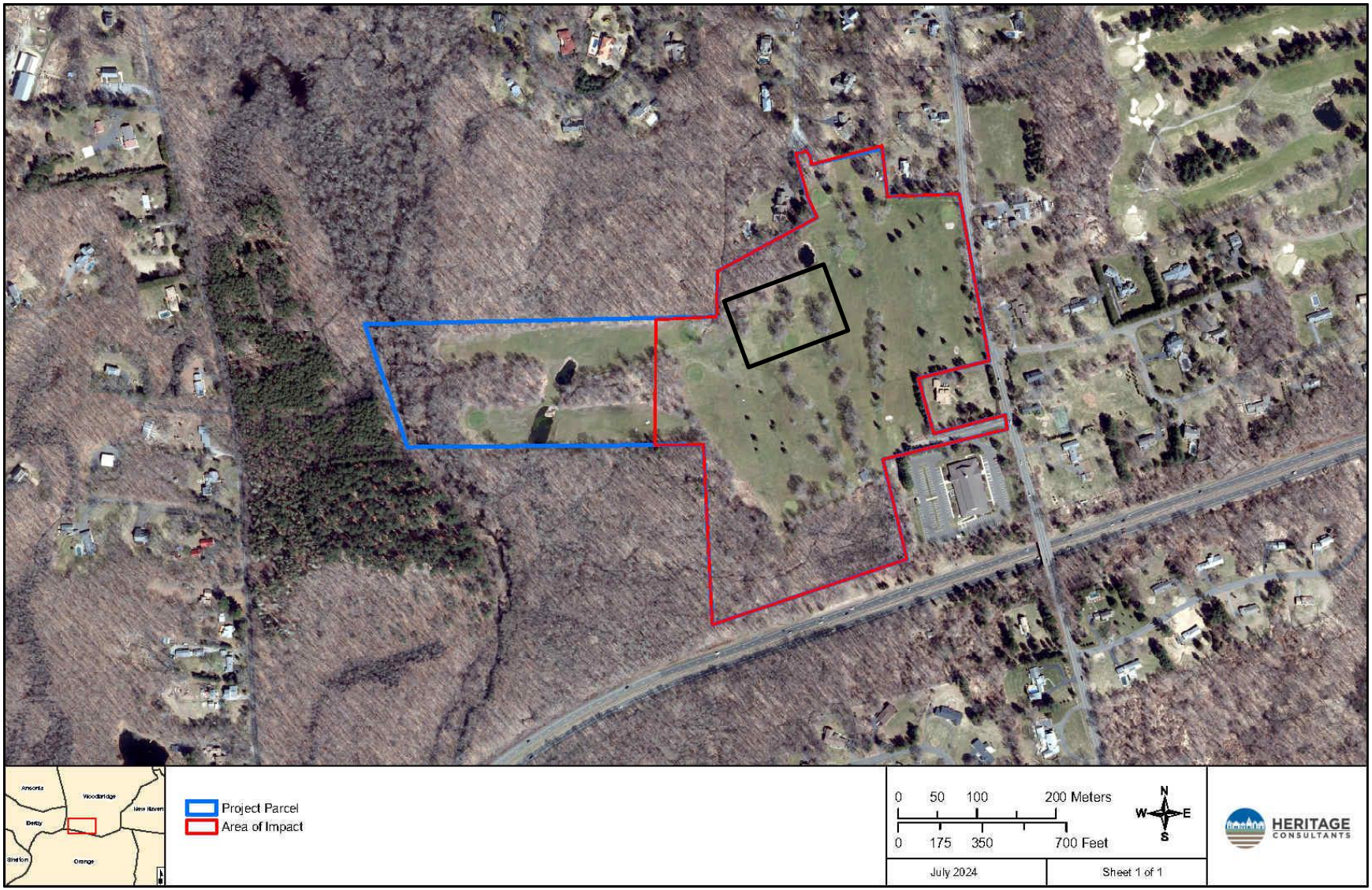

Figure 10. Excerpt of a 2019 aerial photograph showing the location of the project parcel in Woodbridge, Connecticut. Location of Phase IB shovel testing denoted by black box.

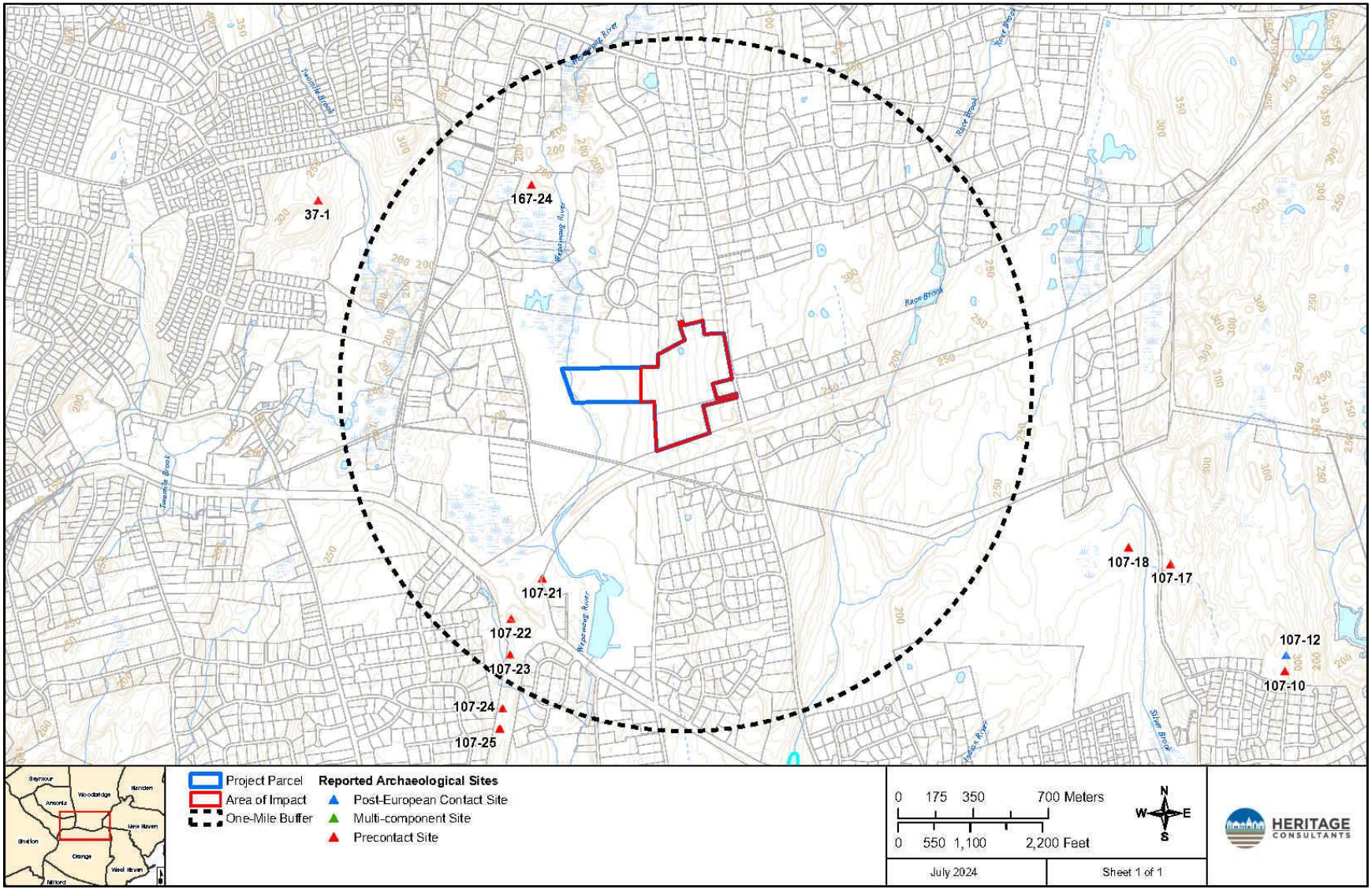

Figure 11. Digital map depicting the locations of the previously identified archaeological sites in the vicinity of the project parcel in Woodbridge, Connecticut.

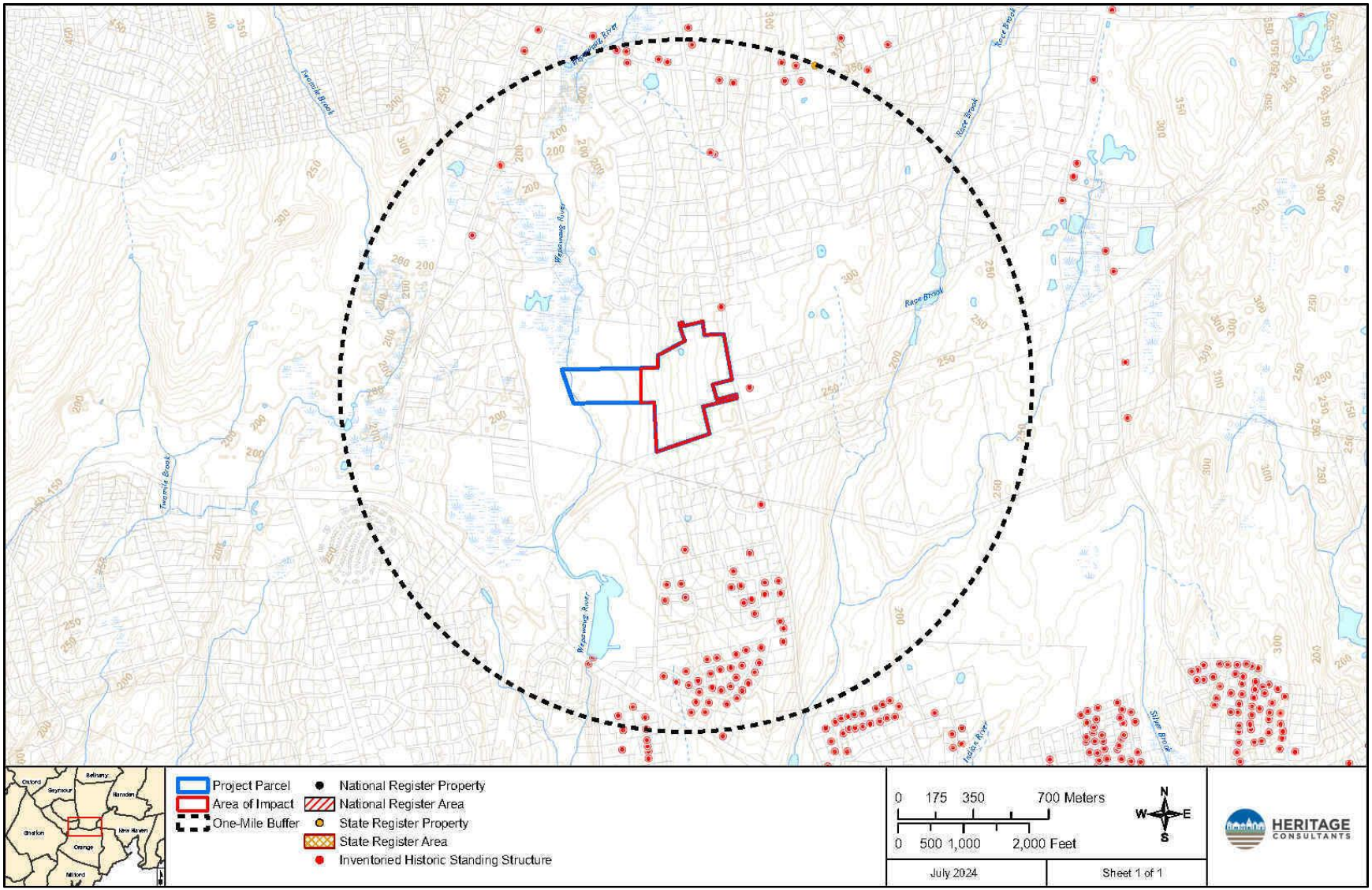

Figure 12. Digital map depicting the locations of the previously identified National Register of Historic Places and State Register of Historic Places properties in the vicinity of the project parcel in Woodbridge, Connecticut.

Figure 13. Excerpt from a 2021 aerial photograph showing the results of the Phase IB survey of the Facility area in Woodbridge, Connecticut.

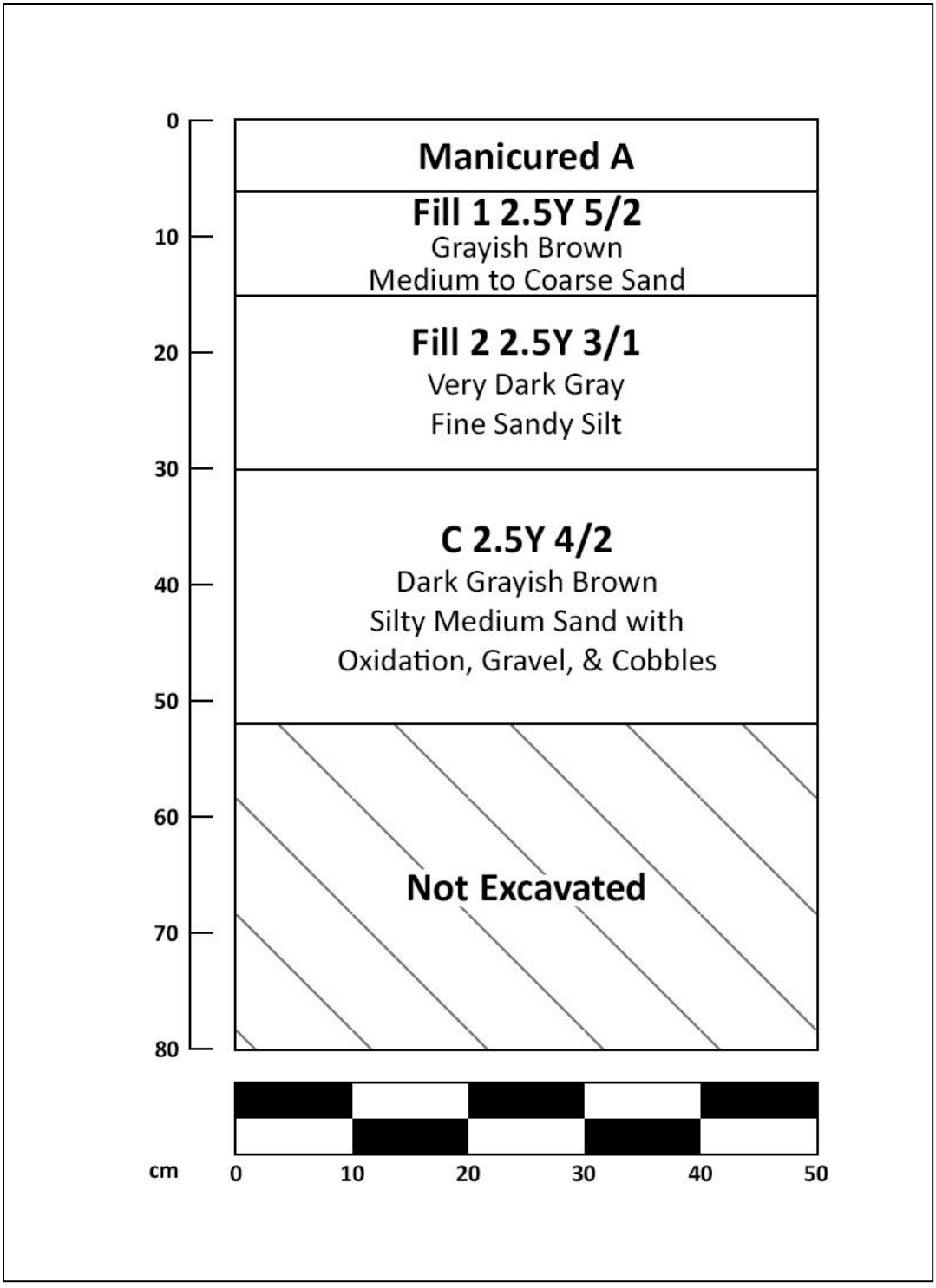

Figure 14. Digital rendition of the soil profile from shovel test T2-3.

APPENDIX B

PHOTOS

Photo 1. Overview of the survey area. Photo facing south.

Photo 2. Overview of the survey area. Photo facing west.