State Historic Preservation Office
Department of Economic and Community Development

CONNECTICUT

May 30, 2025

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

Subject: Archaeological Reconnaissance Survey of a Proposed Solar Development
83 & 93 Lake Street
Manchester, Connecticut

Dear David George,

The State Historic Preservation Office (SHPO) has reviewed the technical report titled *Phase IB Cultural Resources Reconnaissance Survey of a Solar Project at 83 & 93 Lake Street in Manchester, Connecticut* prepared by Heritage Consultants, LLC (Heritage), dated May 2025. 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 will consist of the construction of 0.996 MW and 0.825 MW solar arrays with associated infrastructure at the referenced addresses. The project parcel includes a residential structure constructed in 1913 and associated outbuildings. Because the project will require approval from the Connecticut Siting Council, it is subject to review by this office.

A cultural resources reconnaissance survey of the Area of Potential Effect (APE) for the project was completed by Heritage in May of 2025. 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 survey did locate six previously recorded archaeological sites (Sites 12-41, 12-42, 77-9, 77-12, 77-20, and 77-21 within a mile of the APE. The report concluded that there will be no impact to previously identified cultural resources by the proposed project.

The reconnaissance survey examined five areas within the APE determined to retain archaeological sensitivity (SA-1 through SA-5) through a previously completed archaeological assessment survey. During survey, 144 of 147 planned shovel tests were excavated at 20-meter intervals along transects placed 20 meters apart throughout the APE. The field effort resulted in the recovery 19 artifacts from 12 shovel tests across two sensitivity areas (SA-1 and SA-2). Identified Precontact Period cultural material consisted of a single utilized quartz flake. Postcontact Period artifacts consisted of a porcelain sherd, whiteware sherds, a brick fragment, a quahog shell fragment, a wire nail, window glass shards, and bottle glass shards. Heritage determined that the identified archaeological deposits lack research potential and are not eligible for listing on the NRHP. Heritage also assessed the residential structure and associated outbuildings located on the property that are scheduled for demolition. The assessment concluded that these structures were not eligible for listing on the NRHP and recommended no further examination prior to construction. SHPO concurs with the results of the investigation and is of the opinion that no historic properties will be affected by the proposed solar facility and no additional archaeological investigation is warranted.

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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

MAY 2025

PHASE IB CULTURAL RESOURCES RECONNAISSANCE SURVEY OF A SOLAR PROJECT AT 83 & 93 LAKE STREET IN MANCHESTER, CONNECTICUT

PREPARED FOR:

SLR

67 HUNT STREET
SUITE 203
AGAWAM, MASSACHUSETTS 01001

PREPARED BY:

HERITAGE CONSULTANTS

830 BERLIN TURNPIKE
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ABSTRACT

This report presents the results of a Phase IB cultural resources reconnaissance survey for a proposed solar facility at 83 and 93 Lake Street in Manchester, Connecticut. Heritage Consultants, LLC completed a previous Phase IA cultural resources assessment survey of the area and identified five archaeological sensitivity areas (SA-1 through SA-5) that retained moderate/high potential to yield intact archaeological deposits. The Phase IB reconnaissance survey was completed in May of 2025. The excavation of shovel tests throughout Sensitivity Areas SA-1 and SA-2 resulted in the recovery of 18 post-European Contact period artifacts that consisted of ceramic sherds, glass shards, a steel wire nail, and one quahog shell fragment. The artifacts were recovered in low densities from soils that lack depositional integrity and were not associated with any below or above-ground features; thus, they were classified as unassociated field scatter. The field scatter does not retain research potential or the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). A single precontact era quartz utilized flake was also recovered from Sensitivity Area SA-2. Despite careful delineation around the original shovel test, no additional precontact era cultural material or evidence of cultural features was identified. As a result, the single utilized flake artifact was classified as an isolated find spot (ISO-1) and determined to lack research potential. It does not meet the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). Despite careful and thorough investigation of Sensitivity Areas SA-1 through SA-5, cultural material was only recovered from excavations within Sensitivity Areas SA-1 and SA-2. No additional archaeological examination of the project area is recommended.

Pedestrian survey also revealed that there are stonewalls (Stonewalls SW-1 through SW-6) present throughout the project area. The stonewalls are dry-laid and mostly in good condition. Heritage recommends that to the extent practicable, the stonewalls be left in place, their locations be noted on construction maps, and that they be marked with high visibility fencing in the field so they may be avoided during construction. Finally, two standing structures were identified within the northern potion the project area. While being at least 50 years of age, they were assessed not eligible for listing on the National Register of Historic Places, as they are typical examples of their type and they are not associated with any persons or historical event of transcending importance. No further recordation of the structures is recommended. They will be left in place and not impacted by the proposed solar project.

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CHAPTER I
INTRODUCTION

This report presents the results of a Phase IB cultural resources reconnaissance a proposed solar facility (the Facility) at 83 and 93 Lake Street in Manchester, Connecticut. Development of the area will include the construction of a solar array and associated infrastructure located within two parcels of land located on the northwestern side of Lake Street in Manchester, Connecticut (Figure 1). The northern parcel encompasses approximately 24.9 acres of land and the southern parcel measures 4.94 acres in area. SLR requested that Heritage Consultants, LLC (Heritage) complete a Phase IB cultural resources reconnaissance survey of the project area as part of the planning process for the Facility. Heritage completed this investigation in May of 2025. All work associated with this survey was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office (CT-SHPO).

Project Description and Methods Overview

The proposed Facility will consist of a solar array and associated infrastructure (Figure 2). As mentioned above, the Facility will be situated on two parcels of land that total to 29.84 acres of land in size. The Facility area is situated at elevations ranging from 128 to 164 meters (419.9 to 538.1 feet) NGVD. It is situated on the northwestern side of Lake Street and directly to the east of Eastland Drive in Manchester, Connecticut. The parcels area bounded by forested land to the north, east, and west, as well as residential development to the south and west.

A previously conducted Phase IA cultural resources assessment survey of the Facility area identified five archaeological sensitivity areas (Sensitivity Areas SA-1 through SA-5) that retained moderate/high potential to yield intact archaeological deposits. As a result, these sensitivity areas were subjected to Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, photo-documentation, GPS recordation, and systematic shovel testing. The pedestrian survey included visual reconnaissance of all areas scheduled for impacts. The subsurface examination was completed through the excavation of shovel tests at 20 meter (65.6 foot) intervals along survey transects positioned 20 meters (65.6 feet) apart. Each shovel test measured 50 x 50 centimeter (19.7 x 19.7 inch) in size, and each was excavated until glacially derived C-Horizon or immovable object (e.g., boulders, large tree roots) were encountered. Each shovel test was excavated in 10 centimeter (3.9 inch) arbitrary levels within natural strata, and the fill from each level was screened separately. All shovel test fill was screened through 0.635-centimeter (0.25 inch) hardware cloth. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Each shovel test was backfilled after it was fully documented.

Phase IB Survey results and Management Recommendations

During the Phase IB subsurface testing, 144 of 147 (98 percent) of planned survey shovel tests were excavated throughout Sensitivity Areas SA-1 through SA-5. The three planned but unexcavated shovel tests fell into areas characterized by wetland and standing water located within Sensitivity Area SA-3. In addition to the planned shovel tests, four delineation shovel tests were excavated to further explore precontact era cultural material identified within Sensitivity Area SA-2. Despite careful investigation of Sensitivity Areas SA-1 through SA-5, cultural material was only recovered from shovel tests within Sensitivity Areas SA-1 and SA-2; they are discussed below.

The excavation of shovel tests throughout Sensitivity Areas SA-1 and SA-2 resulted in the recovery of 18 post-European Contact period artifacts that consisted of ceramic sherds, glass shards, a steel wire nail, and one quahog shell fragment. The artifacts were recovered in low densities from soils that lack depositional integrity and were not associated with any below or above-ground features; thus, they were classified as unassociated field scatter. The field scatter does not retain research potential or the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). A single precontact era quartz utilized flake was also recovered from Sensitivity Area SA-2. Despite careful delineation around the original shovel test, no additional precontact era cultural material or evidence of cultural features was identified. As a result, the single utilized flake artifact was classified as an isolated find spot (ISO-1) and determined to lack research potential. It does not meet the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). Despite careful and thorough investigation of Sensitivity Areas SA-1 through SA-5, cultural material was only recovered from excavations within Sensitivity Areas SA-1 and SA-2. No additional archaeological examination of the project area is recommended.

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Project Personnel

Key personnel who worked on this project included David R. George, M.A., RPA, (Principal Investigator); Brenna Pisanelli, M.A. (Senior Project Manager); Samuel Spitzschuh, B.A. (Project Archaeologist); Marina Nadeau, M.A. (Field Director) Billy Yerxa, M.A. (Historian); Susy Goeters, B.A. (Laboratory Specialist); and Jeffery Brown, 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 Manchester, 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 the 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). The Facility area exists on the border of two ecoregions: the North-Central Lowlands Ecoregion and the Northeast Hills Ecoregion. A summary of these ecoregions is presented below. It is followed by a discussion of the hydrology and soils found in and adjacent to the Facility.

North-Central Lowlands Ecoregion

The North-Central Lowlands ecoregion consists of a broad valley located between 40.2 and 80.5 km (25 and 50 mi) to the north of Long Island Sound (Dowhan and Craig 1976). It is characterized by extensive floodplains, backwater swamps, and lowland areas situated near large rivers and tributaries. Physiography in this region is composed of a series of north-trending ridge systems, the easternmost of which is referred to as the Bolton Range (Bell 1985:45). These ridge systems comprise portions of the terraces that overlook the larger rivers such as the Connecticut and Farmington Rivers. The bedrock of the region is composed of Triassic sandstone, interspersed with very durable basalt or "traprock" (Bell 1985). Soils found in the upland portion of this ecoregion are developed on red, sandy to clayey glacial till, while those soils situated nearest to the rivers are situated on widespread deposits of stratified sand, gravel, silt, and alluvium resulting from the impoundment of glacial Lake Hitchcock.

Northeast Hills Ecoregion

The Northeast Hills ecoregion consists of a hilly upland terrain located between approximately 40.2 and 88.5 km (25 and 55 mi) to the north of Long Island Sound (Dowhan and Craig 1976). It is characterized by

streamlined hills bordered on either side by local ridge systems, as well as broad lowland areas situated near large rivers and tributaries. Physiography in this region is composed of a series of north-trending ridge systems, the western-most of which is referred to as the Bolton Range and the eastern-most as the Mohegan Range (Bell 1985:45). Elevations in the Northeast Hills range from 121.9 to 243.8 m (400 to 800 ft) above sea level, reaching a maximum of nearly 304.8 m (1,000 ft) above sea level near the Massachusetts border (Bell 1985). The bedrock of the region is composed of schist and gneiss created during the Paleozoic as well as gneiss and granite created during the Precambrian period (Bell 1985). Soils in upland areas have been deposited on top of glacial till, and in the valley they consist of stratified deposits of sand, gravel, and silt (Dowhan and Craig 1976).

Hydrology of the Study Region

The Facility is located within close proximity of several streams, ponds and wetlands. The major fresh water sources in this area include Lydall Brook, Wilson Brook, and several unnamed small streams and associated wetlands. 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

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. In contrast, acidic soils enhance the preservation of charred plant remains.

A total of five soil types were identified within the Facility (Figure 2). Cheshire soils dominate the majority of both the northern and southern parcel. Watchaug soils are present in the northern portion of the northern parcel, with Manchester soils in the northeastern corner of that area. Meanwhile, Cheshire-Holyoke complex is present in the west of the northern parcel. The southern parcel consists mostly of Cheshire soils, with the southwestern corner containing Cheshire-Holyoke complex and the southeastern corner containing Hinckley soils. When well drained soils such as Hinckley, Watchaug, Manchester, Cheshire, and Cheshire-Holyoke Complex remain undisturbed and on less than eight percent slope, they are generally well correlated with precontact era and post-European Contact period site locations and are considered to have higher archaeological sensitivity. Below is a summary of each specific soil type identified within the Facility.

<u>Hinckley Soils</u>

The Hinckley series consists of very deep, excessively drained soils formed in glaciofluvial materials. They are nearly level through very steep soils on outwash terraces, outwash plains, outwash deltas, kames, kame terraces, and eskers. Hinckley soils comprise a small fraction of the northern segment of the proposed work area. A typical profile associated with Hinckley soils is as follows: **Oe**--0 to 3 cm; moderately decomposed plant material derived from red pine needles and twigs; **Ap**--3 to 20 cm; very dark grayish brown (10YR 3/2) loamy sand; weak fine and medium granular structure; very friable; many

fine and medium roots; 5 percent fine gravel; very strongly acid; abrupt smooth boundary; **Bw1**--20 to 28 cm; strong brown (7.5YR 5/6) gravelly loamy sand; weak fine and medium granular structure; very friable; common fine and medium roots; 20 percent gravel; very strongly acid; clear smooth boundary; **Bw2**--28 to 41 cm; yellowish brown (10YR 5/4) gravelly loamy sand; weak fine and medium granular structure; very friable; common fine and medium roots; 25 percent gravel; very strongly acid; clear irregular boundary; **BC**--41 to 48 cm; yellowish brown (10YR 5/4) very gravelly sand; single grain; loose; common fine and medium roots; 40 percent gravel; strongly acid; clear smooth boundary; and **C--**48 to 165 cm; light olive brown (2.5Y 5/4) extremely gravelly sand consisting of stratified sand, gravel and cobbles; single grain; loose; common fine and medium roots in the upper 20 cm and very few below; 60 percent gravel and cobbles; moderately acid.

Watchaug Series

The Watchaug series consists of very deep, moderately well drained loamy soils formed in meltout till. They are nearly level to strongly sloping soils on till plains and hills, typically on lower slopes and in slight depressions. A typical profile associated with Watchaug soils is as follows: **Ap**--0 to 8 inches; dark reddish brown (5YR 3/3) fine sandy loam, light reddish brown (5YR 6/3) dry; weak medium and fine granular structure; friable; common fine and medium roots; 8 percent gravel; strongly acid; clear wavy boundary; **Bw1**--8 to 18 inches; reddish brown (5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 10 percent gravel; strongly acid; gradual wavy boundary; **Bw2**--18 to 24 inches; yellowish red (5YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; few fine and medium roots; 10 percent gravel; common fine and medium, faint strong brown (7.5YR 5/6) masses of iron concentration and common fine and medium prominent pinkish gray (5YR 6/2) iron depletions; strongly acid; gradual wavy boundary; and **C**--24 to 65 inches; reddish brown (5YR 4/3) gravelly sandy loam, streaks of pale red (2.5YR 6/2) and reddish brown (2.5YR 5/4); massive; friable; few fine roots above 48 inches; 25 percent gravel and cobbles; strongly acid.

Manchester Soils

The Manchester series consists of very deep, excessively drained soils formed in sandy and gravelly glacial outwash and stratified drift. They are nearly level to steep soils on outwash plains, terraces, kames, deltas and eskers. A typical soil profile is as follows: **Ap**--0 to 9 inches; dark brown (7.5YR 3/2) gravelly sandy loam; weak medium granular structure; very friable; many fine and common medium roots; 20 percent gravel; strongly acid; clear smooth boundary; **Bw**--9 to 18 inches; reddish brown (5YR 4/3) gravelly loamy sand; very weak fine and medium granular structure; very friable; few fine roots; 25 percent gravel; strongly acid; clear wavy boundary; and **C**--18 to 65 inches; reddish brown (5YR 4/4) very gravelly sand; single grain; loose; 50 percent gravel; very strongly acid.

Cheshire Soils

The Cheshire series consists of very deep, well drained loamy soils formed in supraglacial till on uplands. They are nearly level through very steep soils on till plains and hills. A typical soil profile is as follows: **Ap**--0 to 8 inches; dark brown (7.5YR 3/2) fine sandy loam, pinkish gray (7.5YR 6/2) dry; weak medium granular structure; friable; common fine roots; 5 percent gravel; strongly acid; **Bw1**--8 to 16 inches; reddish brown (5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 10 percent gravel; strongly acid; **Bw2**--16 to 26 inches; reddish brown (5YR 5/4) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; 10 percent gravel; strongly acid; and **C**-- 26 to 65 inches; reddish brown (2.5YR 4/4) gravelly sandy loam; massive; very friable with firm lenses; 20 percent gravel and cobbles; strongly acid.

Holyoke Soils

The Holyoke series consists of shallow, well drained and somewhat excessively drained soils formed in a thin mantle of till derived mainly from basalt and red sandstone, conglomerate, and shale. A typical soil profile is as follows: **Oe**--0 to 1 cm; black (10YR 2/1) moderately decomposed plant material; **A**--1 to 8 cm; dark brown (10YR 3/3) silt loam; weak medium granular structure; very friable; many fine roots; 10 percent angular gravel; very strongly acid; abrupt wavy boundary; **Bw1**--8 to 20 cm; brown (7.5YR 4/4) silt loam; weak coarse granular structure; very friable; many fine roots; 10 percent gravel; very strongly acid; clear wavy boundary; **Bw2**--20 to 46 cm; yellowish red (5YR 4/6) gravelly silt loam; weak medium subangular blocky structure; friable; common fine roots; 15 percent gravel; very strongly acid; abrupt wavy boundary; and **2R**--46 cm; basalt bedrock.

Summary

A review of mapping, geological data, ecological conditions, soils, slopes, and proximity to freshwater suggests that portions of the Facility 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 era occupation 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 era occupation 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 era Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, was the focus of settlements and exploitation. 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 era setting of the region encompassing the Facility.

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, 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 the overwhelming majority of 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 creation 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. Of these, one hearth has been dated thus far (10,520 ± 30 14C yr BP; charred Pinus; 2-sigma 12,568 to 12,410 CAL B.P.) (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 representing 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 fragments. 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. Botanical specimens recovered in hearth features included burned remains of cattail, pin cherry, strawberry, acorn, sumac, water lily, and dogwood. 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 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 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, finds of these projectile points have 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 B.P., 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 Petersen 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). A 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$\pm$280 and 7,015$\pm$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 as the collection of a wide range of plant foods (McBride 1984; Snow 1980:228).

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

The Terminal Archaic, which lasted from ca., 3,700 to 2,700 B.P., 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 B.P.) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points while the latter Terminal Archaic (3,200-2,700 B.P.) 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.

<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 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 indicates 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's Precontact Era

The precontact era 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 was not until the Late Woodland Period that incontrovertible evidence for the use of domesticated species was 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 project 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 OVERVIEW

Introduction

The proposed Facility is located at 83 and 93 Lake Street in the town of Manchester, which is situated in the eastern portion of Hartford County, Connecticut. Originally called Five Mile Track and later Orford or Charlotte, Manchester was settled in 1672 and was later incorporated from part of East Hartford in 1823. While the town experienced significant growth in the nineteenth and twentieth centuries, Manchester remains a combination of commercial, retail, and housing developments, as well as rural areas. This chapter presents an overview of Hartford County and the town of Manchester, as well as data specific to the Facility parcels.

Hartford County

Hartford was one of the four original counties established in 1666 following the merger of Connecticut Colony and Hartford Colony (Van Dusen 1961). Located in central-northern Connecticut, it is bounded north by the State of Massachusetts, east by Tolland County, south by Windham, Middlesex, and New Haven Counties and west by New Haven and Litchfield Counties. Bisected by the Connecticut River, the county is also the location of the City of Hartford, the capital of Connecticut. Although Hartford has the highest population in the county (an estimated 126,443 as of 2020), Glastonbury has the largest land area (52.3 sq. mi.) (Connecticut 2021). Hartford County is in the lower central Connecticut River Valley and the land rises in the western portion of the county on a low mountain range known as the Metacomet Range (Bell 1985). The landscape varies from densely populated urban areas in most of the county to rich farmland regions in its northern bounds and includes a long stretch of the Connecticut River as well as other significant freshwater rivers. Important waterways associated with Hartford County include the Connecticut, Farmington, Hockanum, Podunk, and Scantic Rivers (Trumbull 1886). The county's three largest cities are Hartford, New Britain, and West Hartford while other important population centers are located at Bristol, Manchester, East Hartford, and Glastonbury (Connecticut 2021).

Woodland Period to the Seventeenth Century

During the Woodland Period of northeastern North American history (about 3,000 to 500 years ago), the Indigenous peoples who resided along the shoreline in central Connecticut were part of the greater Algonquian culture of northeastern North America (Lavin 2013). They spoke local variations of Southern New England Algonquian (SNEA) languages and lived in extended kinship groups on lands they maintained for a variety of horticultural and resource extraction purposes (Goddard 1978). Indigenous 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. 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 habitation, known as a *weetu* or *wigwam,* was usually 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 commonly traded among their immediate neighbors and often maintained long-distance networks (Lavin 2013).

Seventeenth Century through Eighteenth Century

As Indigenous communities maintained oral traditions rather than a written record, most surviving information of the Indigenous people of present-day Connecticut was recorded by European observers (Lavin 2013). At the time of the arrival of Europeans, the Native people who resided at present-day Manchester were affiliated with Wangunk and Podunk tribes who were closely connected with other Native groups through kinship, culture, language, and trade (De Forest 1852; Lavin 2013; Trumbull 1886). The earliest Europeans known to have sailed along Long Island Sound and the Connecticut River were the Dutch in ca., 1614 (Love 1903). The Dutch developed trade relationships with local Indigenous communities. By the early 1620s, Dutch traders entered into an agreement with the Pequot of present-day southeastern Connecticut in which the Pequot supplied wampum (polished shells) and furs in return for European goods. In 1624, the Dutch West India Company formally established New Netherland Colony centered around Manhattan and the Hudson River with its eastern bounds extending as far as Cape Cod, including much of present-day Connecticut (Jacobs 2009). Through their relationship with the Dutch, the Pequot accessed a variety of trade goods they distributed to tributaries and traded with other groups in the region. The Pequot extended their dominance over the region, bringing all the Native nations in the area into a tributary relationship under their leadership (Hauptman and Wherry 2009; McBride 2013).

In 1633, the Pequot allowed the Dutch to build a fortified trading post, the *Huys de Hoop,* on the Connecticut River at the site of present-day Hartford to further cement both parties' domination over the flow of wampum, fur, and trade goods. To break from the Pequot, several Connecticut River sachems invited the English to the valley who then settled Windsor (1633), Wethersfield (1634), and Hartford (1635), as well as Saybrook Colony (1635) at the mouth of the river (Trumbull 1886; Van Dusen 1961). Increased European interaction resulted in exposure to diseases and epidemics Indigenous people had never encountered and to which they had no natural immunity. Illnesses such as smallpox, measles, tuberculosis, and cholera devastated Native communities. In 1633, an epidemic spread from Plimoth Colony to Connecticut, impacting the Pequot and the people of the Connecticut River Valley in 1634 (Trumbull 1886). Tensions between Native and European groups in the region resulted in the death of several English traders in 1634 and 1636, which were blamed on the Pequot. In retaliation, English forces from Massachusetts Bay destroyed Pequot and Niantic villages on the Pequot (Thames) River in August of 1636, which began the Pequot War. The Pequot laid siege to Saybrook Fort at the mouth of the Connecticut River during the winter of 1636-1637 and attacked Wethersfield in April of 1637. The Connecticut Colony declared war on the Pequot and was joined by Native warriors from the Connecticut River and Mohegans under the Sachem Uncas (Oberg 2006). In May of 1637, English allied forces destroyed the fortified Pequot village at Mistick and in July they pursued refugees west. The Pequot were defeated in present-day Fairfield and the war soon came to an end (Cave 1996). Afterwards, the English considered Pequot territory, including land in the Connecticut River Valley, to be conquered lands and they were claimed by Connecticut Colony (Trumbull 1886).

The area that later became Manchester was purchased from the Native Americans in 1672 when John Talcott of Hartford bought a five square mile tract from the Mohegan Chief Joshua. The post-European Contact record is not clear as to why it was a Mohegan leader and not a Podunk leader who sold this land, but by this time the Mohegans, who were closely allied with the white colonists, had become much more powerful than the Podunks. This purchase shortly became entangled in the matter of Joshua's will and estate, which spent years in the courts and the General Assembly. Finally, in 1681, the town of Hartford voted to pay off Talcott's claim, and in 1682 the estate's executors deeded the land to

the town. Aside from the payment, nothing was done with the land until 1731, when the town of Hartford began the process of dividing it for distribution among its inhabitants. According to reconstructions of the town's divisions, this was either within the "Five Mile" lands eventually distributed in 1733 and 1734, or in the east end of the "Three Mile Lots" that constituted the main division of East Hartford and were part of the earlier purchase of Hartford from the Native Americans (Spiess and Bidwell 1924). Even before the 1672 purchase, however, the General Court had made some grants to individuals that were laid out in the area that eventually became Manchester. As a result, one record indicates that a significant number of people had moved there by 1731, many of them with no legal claim to the land they had cultivated. These residents attempted to organize themselves as a separate town, but the government in Hartford opposed this plan (Spiess and Bidwell 1924).

The process of division between Manchester and East Hartford had begun in 1758, when the residents of present-day Manchester received permission from the General Assembly to have what was called a "winter Parish," meaning a separate ecclesiastical society during the winter months when travel was difficult. The first such privilege was for five months, from December to the end of April. In 1763, the "Five Miles" inhabitants requested and received a seven months' privilege. In 1767 and 1770, they asked for a separate society but were denied. The third request was made in 1772 and was granted. The new society was given the name Orford (Spiess and Bidwell 1924). At this time, ecclesiastical societies were official governing entities and were empowered to lay taxes on all the inhabitants in their boundaries to support the church and ministry. Therefore, this ecclesiastical separation was an important sign that a distinct and self-supporting community was forming.

Slavery existed in the region since the seventeenth century, and by the eighteenth century it was primarily practiced by wealthy families, merchants, and ministers in larger towns. During the American Revolution (1775-1783), the state of Connecticut played an important role in the process of recruiting soldiers, supplying food stores, and providing a variety of military goods for the war effort. Throughout the war, Connecticut was a leader in sourcing provisions for American forces, due to a rationing system set up by individual towns, including what would become present-day Manchester (Van Dusen 1961). During the Revolutionary War, the East Hartford (and hence the Manchester) participants were still counted with those representing Hartford, as the towns were still one. In addition, in 1781 the army of Count Rochambeau, on its way to assist the Continental Army, passed through the area that would become Manchester, and encamped in East Hartford on Silver Lane. East Hartford, from which Manchester was later created, was finally incorporated as a separate town in 1783 after the Revolutionary War had ended. This came nearly 60 years after having made its first such petition in 1726. Following the war, in 1784 the State passed a gradual manumission law, but slavery was not fully abolished until 1848 (Normen 2013). Finally, on January 9, 1788, Connecticut ratified the U.S. Constitution to become the fifth state (Van Dusen 1961).

Early attempts at manufacturing in Manchester were small scale. Sawmills were first built in the Five Miles at Hilliardville, named for mill owner E.E. Hilliard, and at Hop Brook during the 1670s. In 1747 an iron slitting mill was built at Woodland, but shortly closed because of the English government's ban on iron manufactures in the colonies. In the late eighteenth century, snuff was manufactured in the area, and one of the first paper mills in the state was built before 1775 at Union Village. In the 1780s two more paper mills were constructed, whereas in 1783 a glass factory was built at Manchester Green. Hilliardville housed a cotton mill built in 1794, the first successful one in the state, while small shops for making cast iron plows, wooden clocks, and blinds and sashes were also present. These were only the earliest manufacturing operations in the town, however, and many of them did not survive long (Spiess and Bidwell 1924; Barlow 2022).

Nineteenth Century through the Twenty-First Century

Following the Revolutionary War, the portion of East Hartford comprising the present-day town of Manchester continued to grow, based in part on improvements in transportation. The incorporation of turnpikes encouraged companies to make road improvements by giving them the right to charge tolls on the roads they built or repaired. One of the earliest such roads was the Boston Turnpike. It was already an established route, though of poor quality, when the Boston Turnpike Company was formed in 1797. This road passed through the center of Manchester, taking an east-west route from Hartford to the Massachusetts line (Wood 1919). This toll road helped facilitate the growth that eventually lead toward Manchester's establishment as its own town. Beginning in 1813, the town's regular meetings were held alternately in the East Hartford and Orford meetinghouses. It took another decade for the goal to be achieved, but in 1823 the General Assembly incorporated the town of Manchester, which had the same boundaries as the parish of Orford (Spiess and Bidwell 1924). In 1830, the year of the first federal census after Manchester's creation, the town had 1,576 inhabitants (Connecticut 2022a).

Steady industrialization did not begin until after 1820. In 1819, the cotton mills at Union Village were restarted and became extremely productive, while a paper mill there was reopened around 1830. A new woolen mill at Buckland was built in 1824, and two additional paper mills were constructed in 1832. By 1845, the town had seven paper mills, two cotton mills, five woolen mills, and two silk mills, employing about 400 people. During the nineteenth century, however, the town's chief manufacturer was the Cheney silk mills. Sericulture, the raising of silkworms, began in Connecticut after the Revolutionary War, and once machinery for making silk thread was developed after 1820, factory production could begin. In 1835, the Cheney Brothers established the mulberry trees and silkworm populations necessary to support such manufacture and began to produce sewing silk on Hop Brook in 1838. In the 1830s, an episode of speculation in mulberry trees led to escalating prices and high profits, which crashed in 1840, and then in 1844 a blight destroyed surviving trees. Thereafter, raw silk had to be imported, but this did not prevent the Cheney Brothers operation from becoming the largest business in the town (Spiess and Bidwell 1924). The 1850 opening of the Hartford, Providence, and Fishkill Railroad through Manchester gave the town a further advantage in the manufacturing business, as rail transport of goods and raw materials was less expensive than road transport. The manufacturing of paper, which had been present in town for many years, increased after 1840 and became an even larger business after 1850, continuing to be important through the late nineteenth century (Spiess and Bidwell 1924). Thirty-four firms were listed in the 1850 Federal Census of Industry, of which nine were paper-makers and two were sewing silk makers, and there were seven additional firms making other textiles. Other enumerated businesses in town included blacksmiths, harness makers, grist mills and similar operations, two cigar makers, wagon and carriage makers, a maker of musical instruments, and a tin and sheet iron company (United States Census 1850). As industry continued to develop, the town of Manchester was well positioned during the Civil War to provide men and materials to the war effort. The production of silk at the Cheney Factory contributed to the textile production in Connecticut (Niven 1965). From Manchester, 236 men served in the Union army, of which 33 were killed and 39 were wounded (Hines 2002). In the post-war era, the industrial boom continued. As a result of this industrial activity, Manchester saw steady population growth through most of the nineteenth century and by 1890, the population had increased to 8,222 (Connecticut 2022a).

Through the early twentieth century, Manchester industries and silk production continued to grow. By 1913, the Cheney Brothers dominated the American market for silk. By the 1920s, the company recorded a profit of 23 million dollars, encompassed 175 acres, and employed 4,500 workers, which was roughly 25 percent of the town's population at the time (Skahill 2022). As of 1920, Manchester had 18,370 residents, and the town's principal industries included agriculture and manufacture of silk,

cotton and woolen goods, paper, electric appliances, and needles (Connecticut 1920, 2022b; Table 1). The stock market crash of 1929 and subsequent Great Depression hit Manchester and its industries particularly hard. By 1931, Cheney Brothers reported a 2.5 million dollar operating loss and applied for reorganization under federal bankruptcy law in 1935 (Skahill 2022). During the Second World War, Cheney production lines shifted away from silk and toward synthetic materials like nylon and rayon, and the company manufactured parachutes for the U.S. Army Air Force under its subsidiary Pioneer Parachute. Following the war, the industry once again contracted and by 1955 Cheney Brothers and its facilities were purchased by J. P. Stevens and Company of New York. In 1978, the 15-block neighborhood known as "Cheney Village" was deemed a National Historic District (Skahill 2022).

Table 1: Population of Manchester, Connecticut, Hartford County 1820-2020 (Connecticut 2022a-c; USCB 2023)

Town	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1900
Manchester, Hartford County, Connecticut	-	1,576	1,695	2,546	3,294	4,223	6,462	8,222	10,601	13,641	18,370	10,601
	1910	**1920**	**1930**	**1940**	**1950**	**1960**	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**
	13,641	18,370	21,973	23,799	34,116	42,102	47,944	49,761	51,618	57,740	58,241	36,379

By mid-century, suburbanization began to take hold in the state, which was bolstered by the construction of highways, including Interstates 84, 384, and 291 (Oglesby 2020). As more people chose to live in suburban areas, towns like Manchester grew. In 1950, Manchester had 34,116 inhabitants and by 1970 this number reached 47,944 (Table 1; Connecticut 2022b, 2022c). In the early twenty-first century, the economic base of the town had shifted away from industry and agriculture. As of 2021, most jobs were in tertiary-sector areas, namely retail, healthcare, and accommodations and food services. The population had fallen slightly from its peak to 57,805 residents (AdvanceCT and CTData Collaborative 2021). While manufacturing was not as prevalent as it once was, a variety of items were still produced in Manchester in recent years, including engineered fibers, steel metal fabrication, plastics, and medical devices. The Buckland Hills area contributes to the local economy with over three million square feet of retail and service space, 300 hotel rooms, and dining and entertainment venues (Connecticut 2021). Manchester's development plan states that it is focused on remaining a "full-service community" committed to sustainable economic growth (Town of Manchester 2022).

History of the Facility Area

According to Woodford's 1855 map, the Facility appears on what was mostly undeveloped land in a region near dense population centers throughout the town of Manchester (Figure 4). The Facility area is to the east of an area labeled as Manchester Green. Middle Turnpike Road and Lake Street both appeared on this map in the vicinity of the Facility area. The residence of "S. Lyman" is listed to the southwest of the Facility area and is situated next to a property labeled as "Lyman's Nursery." This likely refers to Salmon Lyman, and the property may have been an orchard or other type of plant nursery (U.S. Census Bureau 1860). A gristmill was labeled on this map to the north on Lydall Brook and on the south side of Brook Street. Baker and Tilden's 1869 map also shows S. Lyman to the southwest of the southern parcel, although the nursery is no longer labeled (Figure 5). The former gristmill on Lydall Brook is labeled as a cotton mill producing satinet warp in 1869. This reflects the growing industrial textile production in the Facility region in the nineteenth century.

During the twentieth and early twenty-first centuries, the Facility area remained a mix of rural and residential land. As seen in the 1934 aerial photograph, the Facility area was largely characterized by agricultural fields (Figure 6). A that time, the northern parcel contained fields in the middle and

southeastern portion, whereas the northern and western portions were forested. The northern parcel contained two residential buildings near its southern boundary as of 1934. The southern parcel was characterized by an open field in 1934, and a barn with a number of outbuildings was present near the parcel's center. By 1951, residential growth was evident on Middle Turnpike and on new roads constructed to the west such as Overlook Drive (Figure 7). Forest density increased in the vicinity of the were parcels by this time; however the land in the northern portion of the north parcel was cleared as of 1951.

Aerial photography from 1970 shows a large increase in residential construction on Lake Street (Figure 8). The northern part of the north parcel had been reforested by this time, and a powerline right-of-way is visible extending to the north from the parcel. In the southern parcel, three buildings were still present as of 1970, but the other outbuildings had been razed. A small reservoir also appeared by 1970 in the northeast of the north parcel. By 1986, a new building was present next to the two preexisting buildings in the northern parcel (Figure 9). Another new structure was present on the eastern side of the northern parcel boundaries.

Aerial photography from 2004 shows much of the same landscape as 1986, with the surrounding land being mostly forested (Figure 10). By 2019, aerial photography shows the Facility area in its essentially modern state (Figure 11). The newer building in the northern parcel has been cleared and remains as a foundation. A substation has also been constructed on the western side of the field in the northern parcel. The general composition of the landscape within the parcels has remained the same since 1934, with the north and west of the northern parcel remaining forested while the rest of both parcels is characterized by fields. Two buildings remain in the northern parcel, while the buildings in the southern parcel have been cleared. The location of the former buildings in the southern parcel is characterized by logs and refuse.

Conclusions

The documentary review indicates that the proposed development of the two project parcels located north of Lake Street in Manchester, Connecticut has the potential to be associated with post-European Contact periods cultural resources. In the portion that was agricultural fields, there is the possibility of encountering evidence of post-European Contact period farming activities that may be important as a component of a rural historic landscape (*sensu* McClelland et al. 1999). In addition, historic structures are present in the northern parcel, and both parcels may retain foundations representative of previous buildings.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previously identified cultural resources in the vicinity of the Facility area in Manchester, Connecticut. This discussion provides the comparative data necessary for assessing the results of the current 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 Facility are taken into consideration.

Specifically, this chapter reviews previously identified archaeological sites, and National/State Register of Historic Places properties/districts (NRHP/SRHP) within 1.6 kilometers (1.0 mile) of the Facility area. 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 six previously identified archaeological sites within 1.6 kilometers (1 mile) of the proposed Facility (Figure 12). However, the review revealed that there are no National/State Register of Historic Places properties/districts located within 1.6 kilometers (1 mile) of the Facility area (Figure 13). The archaeological resources are reviewed below and they provide context with which to assess the Facility area for containing additional intact cultural resources.

Site 77-9

Site 77-9, which is also known as the Kog's Hill site, is a precontact era archaeological site located in Manchester, Connecticut (Figure 12). The site is characterized as a special activity occupation with components dating from the Late Woodland and Contact periods. The site was recorded by the Connecticut Archaeological Survey (CAS) in 1979 as a Podunk nut gathering locale. It was subjected to testing in 1937 by M. Spiess, who identified 20 hearths and an unknown number of hammerstones and pitted stones. Site 77-9 has not been assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The site is located approximately 0.14 kilometers (0.09 miles) to the west of the Facility and will not be impacted by the proposed construction.

Site 77-12

Site 77-12, which is also known as the Indian Drive Site, is a precontact era archaeological site located in Manchester, Connecticut (Figure 12). The site is characterized as an isolated find and potential rock shelter dating from an unspecified time period. The site is characterized by a large boulder with a dished spot that was used as a mortar, a possible hearth area, and a possible rock shelter. The site was recorded by CAS in 1975. Site 77-12 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The site is located approximately 0.1 kilometers (0.06 miles) to the west of the Facility area and will not be impacted by the proposed construction.

Site 77-20

Site 77-20 is a precontact era archaeological site located in Manchester, Connecticut (Figure 12). The site is of an unknown type and dates from an unspecified time period. It was subjected to testing by Archaeological and Historical Services, Inc., (AHS) in 2013. Cultural material recovered from the site area included 1 quartz flake, 1 quartz core fragment, and a gabbro preform. Site 77-20 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The site is located approximately 0.36 kilometers (0.22 miles) to the east of the Facility area and will not be impacted by the proposed construction.

Site 77-21

Site 77-21, which is also known as the T.F. Wilson Site, is a Post-European Contact period archaeological site located in Manchester, Connecticut (Figure 12). The site consists of a nineteenth and twentieth century artifact assemblage recovered on wooded land. The site was subjected to subsurface testing by AHS in 2013. Artifacts recovered during the survey included examples of redware, yellowware, whiteware, and ironstone ceramic sherds, bone and shell fragments, pieces of coal, asphalt, and brick, nails, and window and bottle glass shards. According to AHS, the artifacts may be associated with the nearby stone foundation of the nineteenth century T.F. Wilson House. Site 77-21 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The site is located approximately 0.34 kilometers (0.21 miles) to the east of the Facility area and will not be impacted by the proposed construction.

Site 12-41

Site 12-41, which is also known as the Wilson/Safrenek Site, is a Post-European Contact period archaeological site located in Bolton, Connecticut (Figure 12). The site consists of a nineteenth and twentieth century artifact assemblage recovered within close proximity to the Safrenek House and the demolished T.F. Wilson House. The assemblage includes example of early to mid-nineteenth century artifacts that were recovered by AHS during testing in 2013. They include examples of Jackfield type, redware, creamware, and pearlware ceramic sherds; sawn bone fragments; nails; piece s of wire; brick, fragments; and window and bottle glass shards. Site 12-41 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The site is located approximately 0.39 kilometers (0.24 miles) to the east of the Facility area and will not be impacted by the proposed construction.

Site 12-42

Site 12-42, which is also known as the S. Coleman Site, is a Post-European Contact period archaeological site located in Bolton, Connecticut (Figure 12). The site yielded a nineteenth and twentieth century artifact assemblage that was recovered within close proximity to a ca., 1725 house known as the S. Coleman House. The artifact assemblage was recovered during testing by AHS in 2013, and it included redware, creamware, whiteware, and ironstone ceramic sherds; bone fragments; nails, pieces of brick, and window and bottle glass shards. Site 12-42 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The site is located approximately 0.44 kilometers (0.28 miles) to the northeast of the Facility area and will not be impacted by the proposed construction.

CHAPTER VI
METHODS

Introduction

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

Research Design

The current Phase IB cultural resources reconnaissance survey was designed to identify all precontact era and post-European contact period cultural resources located within the previously identified moderate/high sensitivity areas associated with the Facility (Sensitivity Areas SA-1 through SA-5). Fieldwork for the Phase IB survey was comprehensive and planning considered the distribution of previously recorded archaeological sites located near the development area, as well as an assessment of the natural qualities of the Project parcel. The methods used to complete this investigation were designed to provide complete and thorough coverage of all portions of the development area. This undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, and photo-documentation.

Field Methods

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

Laboratory Analysis

Laboratory analysis of cultural material recovered during subsurface testing of the Project APE, which consisted of precontact era and post-European Contact period cultural material, followed established archeological protocols. To begin the laboratory analysis process, field specimen bag proveniences were first crosschecked against the field notes and the specimen inventories for accuracy and completeness. Following this quality-control process, all recovered material was washed by hand, air-dried, and sorted into basic material categories. The nature and structure of the laboratory analysis was determined by the goals of the project. The artifact analysis consisted of making and recording a series of observations for each recovered specimen. The observations were chosen to provide the most significant information about each specimen. A database was employed to store, organize, and manipulate the data generated by the analytical process. This database was designed specifically for the analysis of the recovered artifacts. The analytical protocols applied to the recovered artifacts are discussed in detail below.

Post-European Contact Period Cultural Material Analysis

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

Precontact Era Cultural Material Analysis

The lithic analysis protocol used during completion of the Phase II Intensive Archaeological Survey effort was a "technological" or "functional" one designed to identify precontact reduction trajectories and lithic industries. The protocol, therefore, focused on recording technological characteristics of the recovered lithic artifacts. The lithic artifact database was organized by lithic material group, type, and subtype. The first level described the raw material type of the artifact. Lithic materials were identified utilizing recognized geological descriptions and terminology and were placed into distinct categories based on three factors: texture, color, and translucence. The second analysis level, type, was used to define the general class (e.g., unmodified flake, core, or perform) of lithic artifact, while the last level, subtype, was employed to specify placement within the reduction sequence (e.g., bifacial thinning flake, unifacial reduction flake, bifacial retouch flake, etc.). These levels followed classifications outlined in standard texts.

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

Results of Phase IB Cultural Resources Reconnaissance Survey

As stated earlier in this report, the proposed Facility area encompasses approximately 29.84 acres of land across a northern parcel of 24.9 acres and a southern parcel of 4.94 acres. These areas are is situated on the northwestern side of Lake Street in Manchester, Connecticut. The Facility area is situated at elevations ranging from 128 to 164 meters (419.9 to 538.1 feet) NGVD. A previously conducted Phase IA cultural resources assessment survey resulted in the identification of five archaeological sensitivity areas (Sensitivity Areas SA-1 through SA-5) that retained moderate/high potential to yield intact archaeological deposits. The results of the Phase IB survey are discussed below.

Sensitivity areas SA-1 through SA-5 encompass approximately 15 acres of land across the two parcels. At the time of the survey, both areas were generally characterized by level topography with sparse mixed deciduous forest throughout (Photos 1 through 5). As seen in Table 2 below, 144 of 147 (98 percent) of planned survey shovel tests were excavated across Sensitivity Areas SA-1 through SA-5 (Figure 14 and 15; Sheet 1 and 2). The three planned but unexcavated shovel tests fell into areas characterized by field delineated wetlands and an area of standing water located within Sensitivity Area SA-3 (Photo 6). In addition to the planned shovel tests, four delineation test pits were excavated to further explore precontact era cultural material identified within Sensitivity Area SA-2. Despite careful investigation of Sensitivity Areas SA-1 through SA-5, cultural material was only recovered from shovel tests excavated within Sensitivity Areas SA-1 and SA-2.

Table 2. Overview of Phase IB results by Sensitivity Area.

SA area	Acreage	# of STPs planned	#STPs dug	Cultural Material Recovered	Recommendations
SA-1	1.98	17	17	Yes	No further Investigation
SA-2	5.74	59	63	Yes	No further Investigation
SA-3	6.62	65	62	None	No further Investigation
SA-4	0.13	1	1	None	No further Investigation
SA-5	0.53	5	5	None	No further Investigation

A typical shovel test excavated across the Facility area exhibited up to three soil horizons in profile and extended to an average depth of 82 centimeters below surface (cmbs) (34.6 inches below surface [inbs]). The uppermost soil horizon was classified as a Ap-Horizon (plowzone) that extended from the ground surface to 33 cmbs (12.9 inbs); it consisted of a deposit of dark brown (10YR 3/3) silty loam. The underlying B-Horizon (subsoil), which was defined as a layer of dark yellowish brown (10YR 3/6) sandy

loam, reached from 33 to 74 cmbs (12.9 to 29.1 inbs). Finally, the glacially derived C-Horizon was encountered at 74 cmbs (29.1 inbs) and extended to the base of the shovel test at 88 cmbs (34.6 inbs). It was comprised of a deposit of brown (7.5Y 4/4) coarse sandy loam. This stratigraphy is exemplified within the profile of Shovel Test 4 along Survey Transect 7 within Sensitivity Area SA-1 (Figure 16).

The subsurface investigation of Sensitivity Areas SA-1 and SA-2 resulted in the recovery of 18 Post-European Contact period artifacts collected from 11 test pits (Table 3; Figure 14 and 15; Sheet 1 and 2). A total of five artifacts were recovered from three shovel tests located within Sensitivity Area SA-1 and 13 artifacts were recovered from eight shovel tests located within Sensitivity Area SA-2. Collectively, the post-European Contact Period artifact assemblage was represented by ceramic sherds (n=10), glass shards (n=6), 1 wire nail, and a single quahog shell fragment (Photos 7 and 8). The ceramic artifacts included 7 plain whiteware sherds, 1 polychrome whiteware sherd, 1 plain porcelain sherd, and 1 piece brick. The glass assemblage was represented by indeterminate manufactured clear flat glass shards, a single shard of contact-molded amber bottle glass, and a contact-molded solarize bottle glass shard.

Laboratory analysis of the post-European Contact period artifacts suggests that they have a general date range of late nineteenth through twentieth centuries. All but a single artifact originated from the Ap-Horizon (plowzone). Due to the artifacts not being recovered in significant concentrations or in association with any above or below ground cultural features such as foundation, privies, etc., the post-European contact period materials were classified as unassociated, low density field scatter. As a result, they were determined to not retain research potential or the qualities of significance for listing to the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4[a-d]). No additional examination of the post-European contact period assemblage or the reminder of the Project area is recommended prior to construction.

Table 3. Post-European Contact period artifacts recovered from Project area.

Sensitivity Area	Soil Horizon	Artifact Class	Artifact Material	Description	Total
SA-1	Ap	Glass	Indeterminate manufacture	Colorless flat glass	1
		Ceramic	Porcelain	Undecorated indeterminate vessel	1
			Whiteware	Undecorated indeterminate vessel	2
	Ap Total				**4**
	B	Ceramic	Whiteware	Undecorated indeterminate vessel	1
	B Total				**1**
SA-1 Total					**5**
SA-2	Ap	Metal	Steel	Wire nail	1
		Glass	Contact-molded	Solarized indeterminate bottle	1
				Amber indeterminate bottle	1
			Indeterminate manufacture	Colorless flat glass	3
		Fauna	Bivalve	Quahog shell	1
		Ceramic	Brick	-	1
			Whiteware	Undecorated indeterminate vessel	4
				Polychrome plate	1
	Ap Total				**13**
SA-2 Total					**13**
Grand Total					**18**

Isolated Find 1 (ISO-1)

ISO-1 was identified within the northeastern portion of the Sensitivity Area SA-2 (Figure 15; Sheet 1). It was identified within Shovel Test 3 along Survey Transect 14. This shovel test was excavated to 58 cmbs (22.8 inbs) and exhibited three soil horizons in profile, which was consistent with the typical

stratigraphy observed throughout the Project area. ISO-1 yielded a single quartz utilized flake, which was recovered from the B-Horizon (Photos 9 and 10). As a result, four delineation shovel tests were excavated at 5 meter (16.4 foot) intervals in each cardinal direction around the original shovel test. Despite careful excavation, no additional cultural material or evidence of cultural features was recovered from this area. Therefore, the single utilized flake was classified as an isolated find spot and was determined to lack research potential. It is not eligible for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4[a-d]). No additional archaeological examination of the ISO-1 area is recommended prior to the construction of the proposed housing development Project.

As discussed in the previous Phase IA cultural resources assessment report, pedestrian survey of the Facility area revealed that there are several stonewalls (Stonewalls SW-1 through SW-6), throughout the northern and southern parcels. The stonewalls are dry-laid and mostly in good condition. Heritage recommends that to the extent practicable, the stonewalls be left in place, their locations be noted on construction maps, and that they be marked with high visibility fencing in the field so they may be avoided during construction.

Finally, the pedestrian survey resulted in the identification of two structures in the southern portion of the northern parcel (Figure 14; Photos 11 through 14). The southernmost of these structures, which is located at 93 Lake Street in Manchester, Connecticut, is a two-and-a-half story hip roofed house that first appears on aerial imagery in 1934. The construction date of the house is unknown. The house is three by three bays in size, with the principal façade being the south elevation. There appears to be an addition to the house on the east elevation, and a porch that has been enclosed on the west elevation. All cladding on the house is modern. The southern elevation has a hipped dormer window, two windows on the first and second floors, with the primary entrance in the central bay. The eastern elevation has three windows on the second story, and a cantilevered first floor addition with entrance at ground level under the cantilever. The northern elevation of the house has three windows on the first floor and two on the second. The chimney is located at the peak of the hipped roof on this elevation. The west elevation of the house appears to have had a two-story porch spanning the northern part of the elevation that has since been enclosed. There are two entrances on the first story, offset from the windows on the second story. The southern portion of the western elevation is recessed from the porch and has a single bay of windows on the first and second floors. The second structure is a modern barn that is located to the northwest of the house at 93 Lake Street. While the house appears on historical aerial imagery, an architectural assessment suggests that it has been heavily modified and updated with modern materials. As a result, both buildings were assessed as not eligible for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4[a-d]). They will be left in place and not impacted by the proposed solar project.

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APPENDIX A

FIGURES

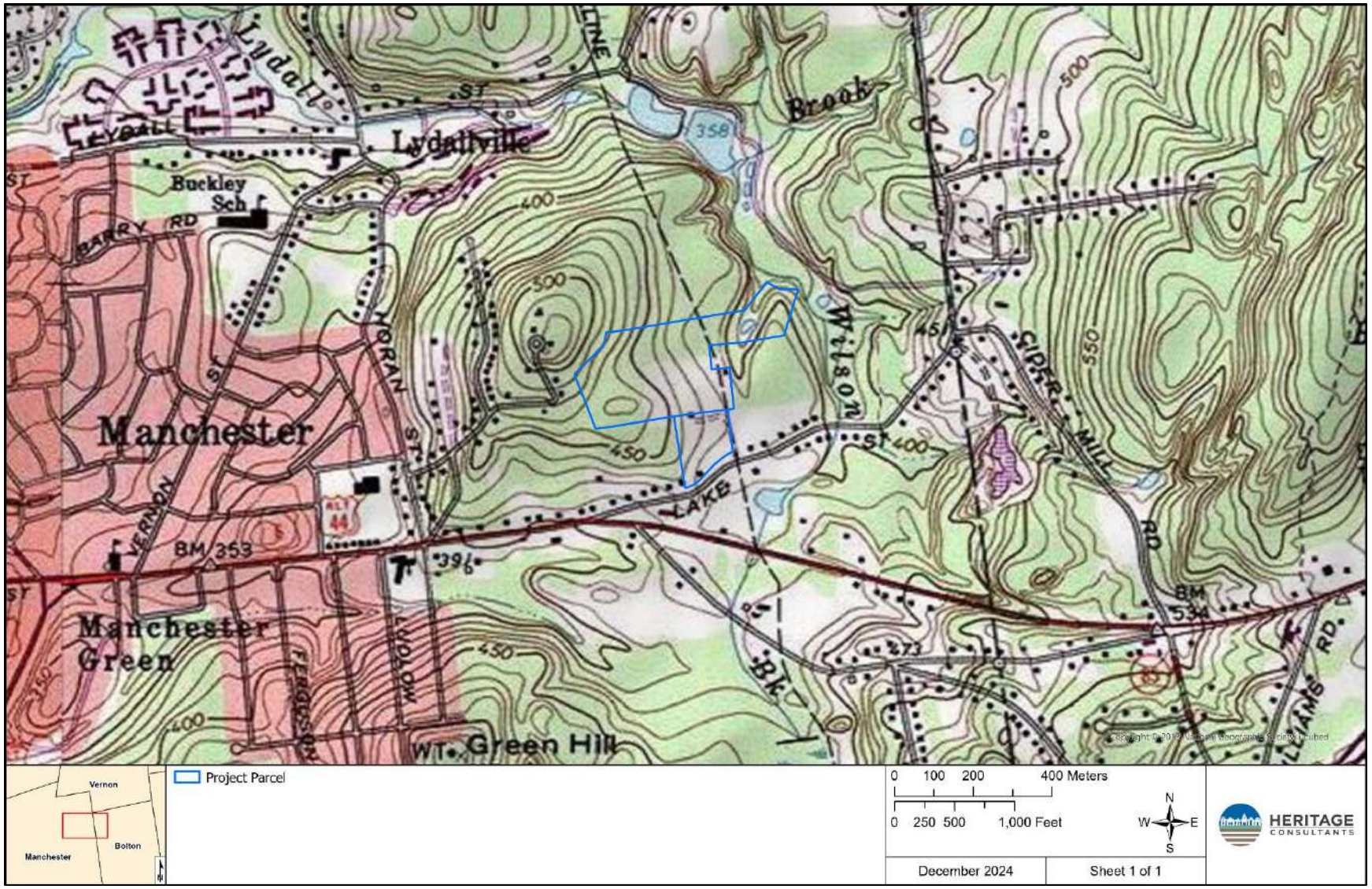

Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the Facility area in Manchester, Connecticut.

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

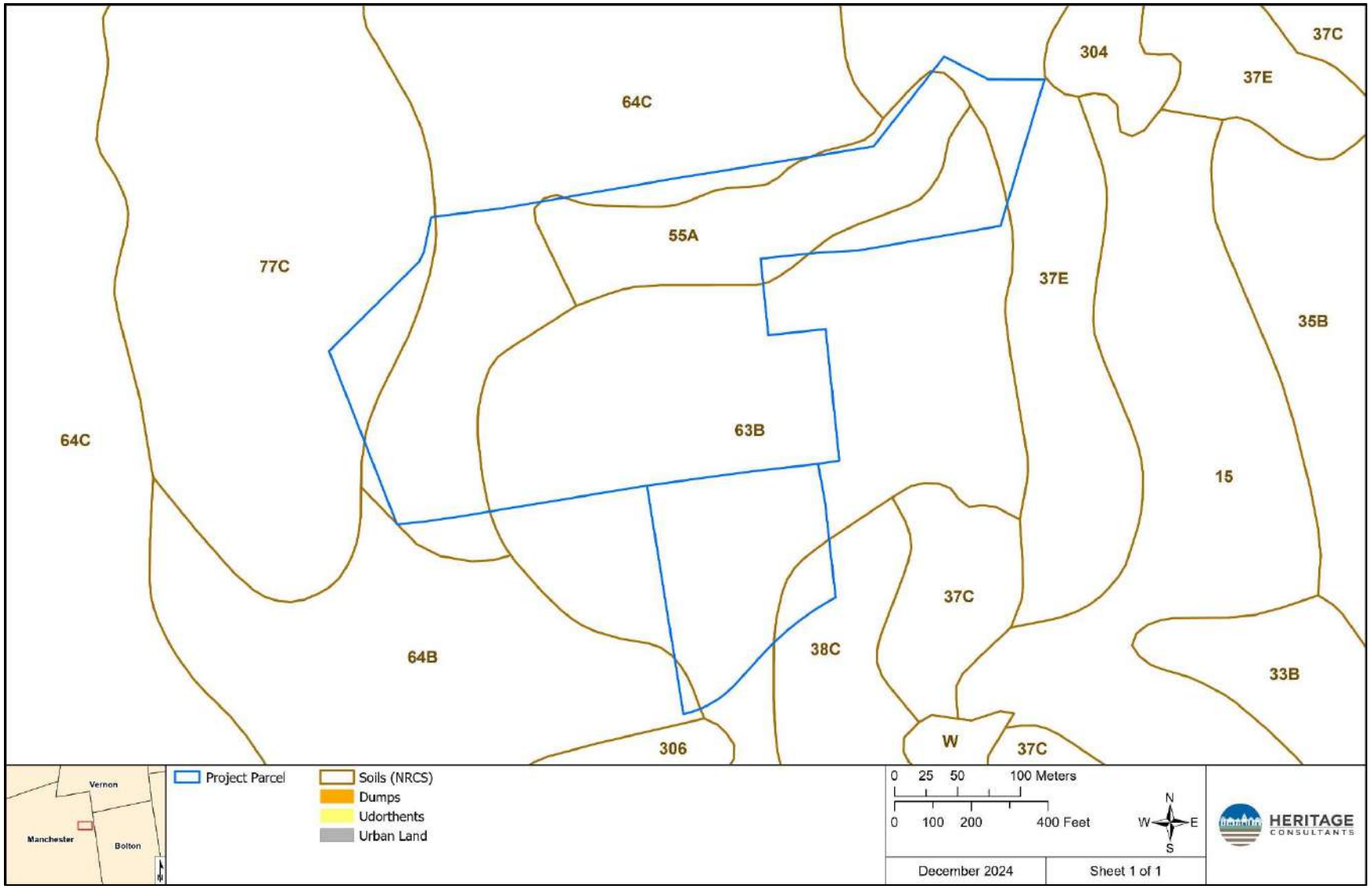

Figure 3. Digital map depicting the soil types present in the vicinity of the Facility area in Manchester, Connecticut.

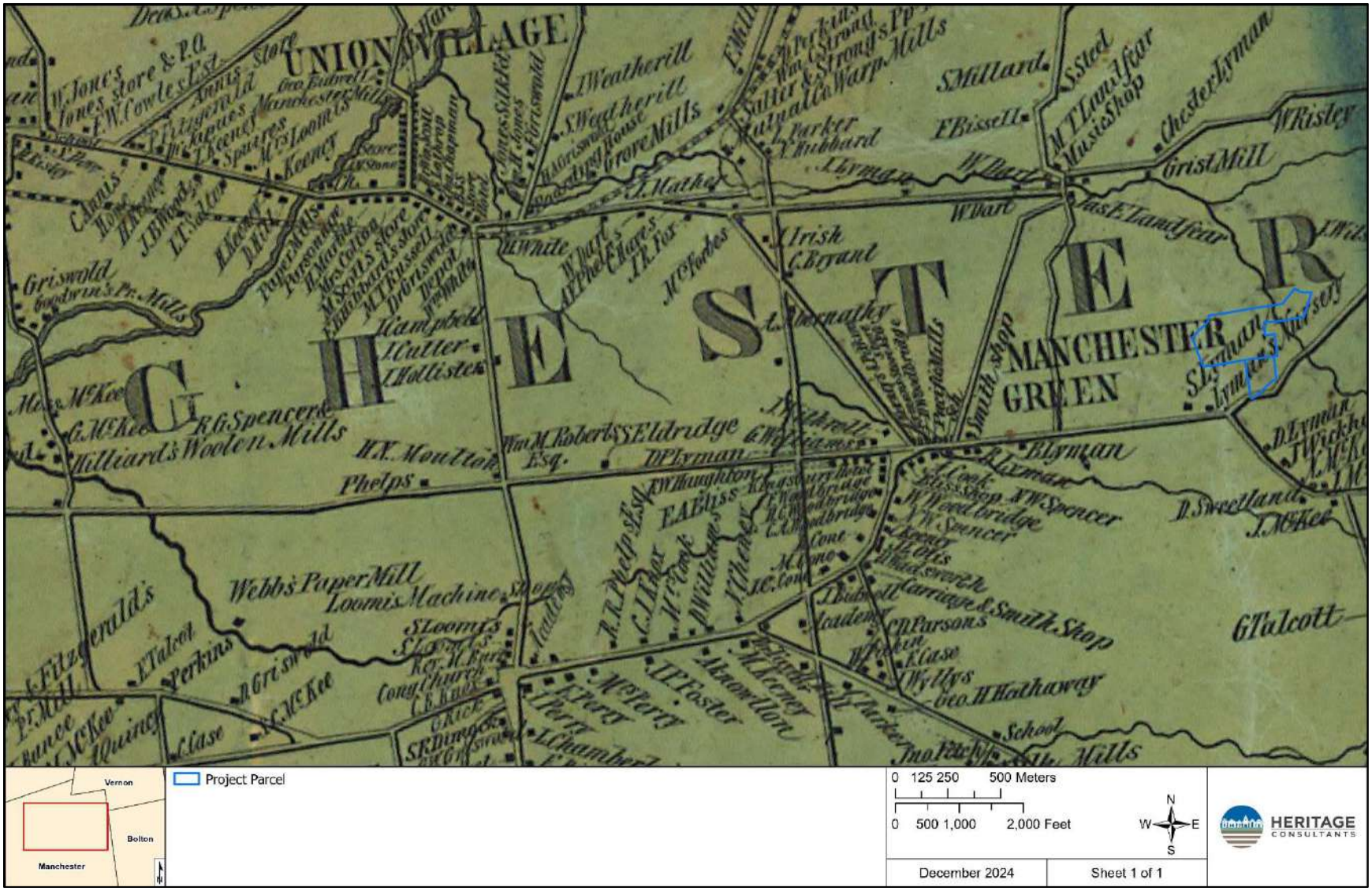

Figure 4. Excerpt from an 1855 map showing the location of the Facility area in Manchester, Connecticut.

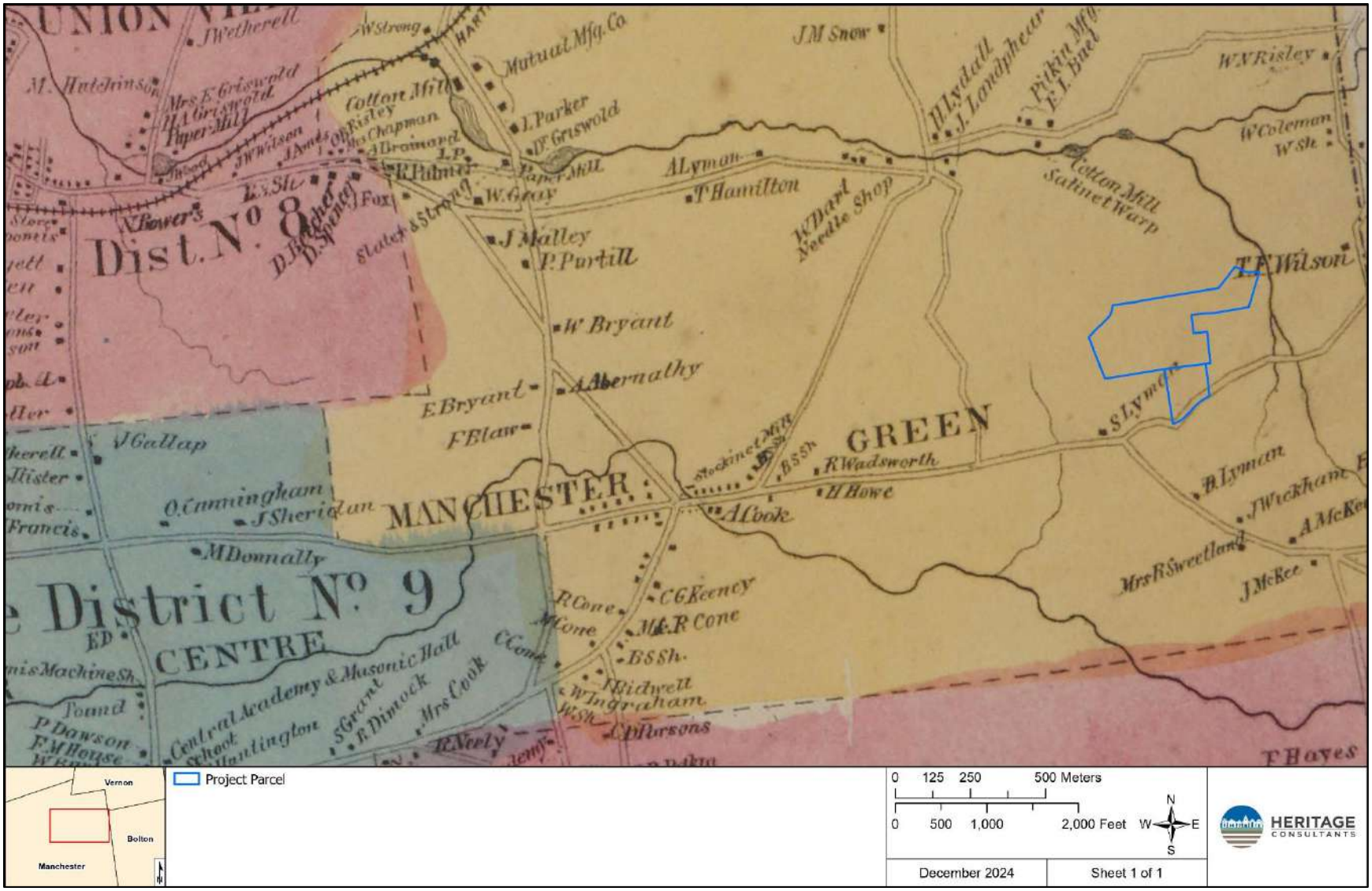

Figure 5. Excerpt from an 1869 map showing the location of the Facility area in Manchester, Connecticut.

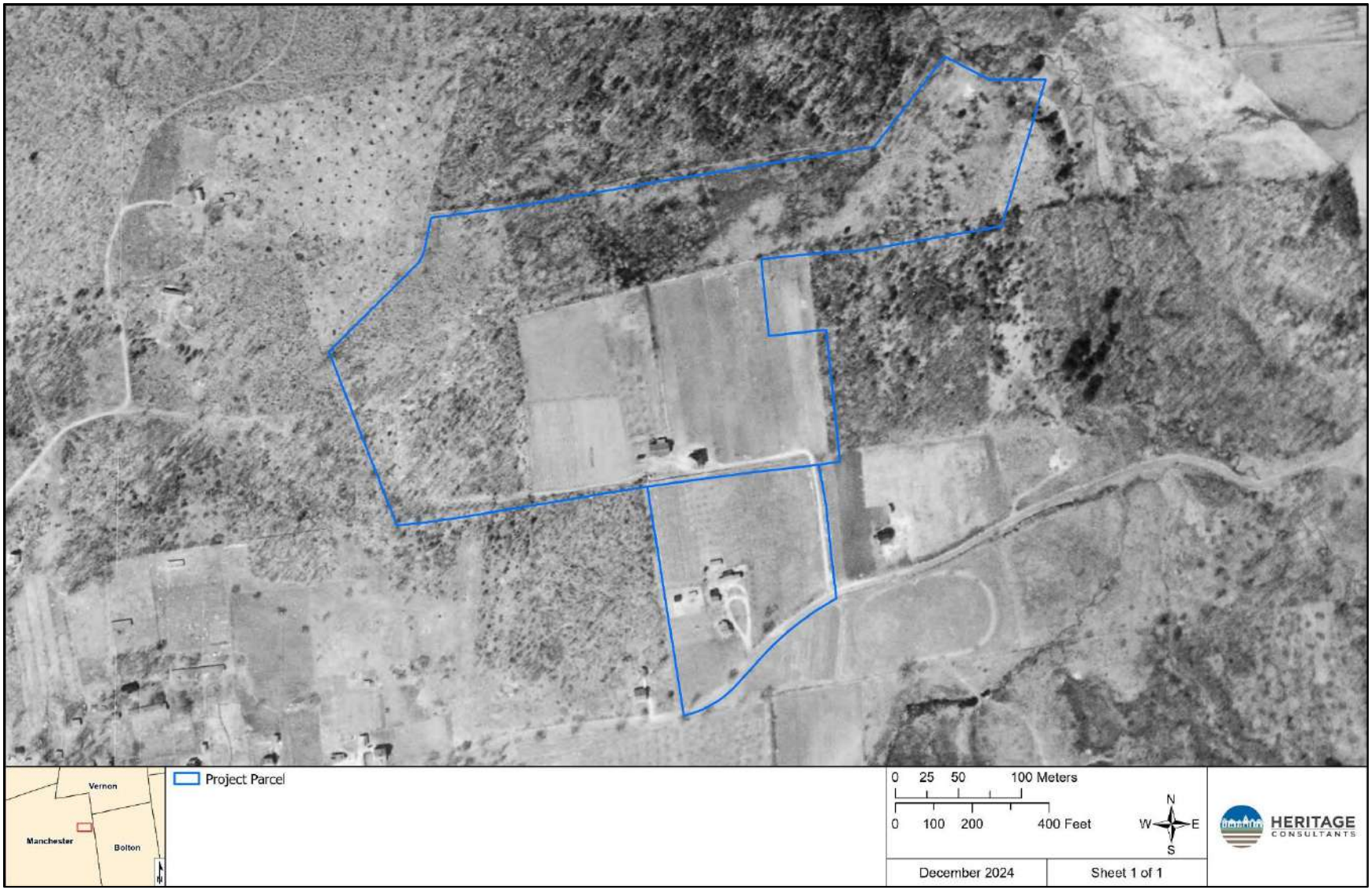

Figure 6. Excerpt from a 1934 aerial photograph showing the location of the Facility area in Manchester, Connecticut.

Figure 7. Excerpt from a 1951 aerial photography showing the location of the Facility area in Manchester, Connecticut.

Figure 8. Excerpt of a 1970 aerial photograph showing the location of the Facility area in Manchester, Connecticut.

Figure 9. Excerpt of a 1986 aerial photograph showing the location of the Facility area in Manchester, Connecticut.

Figure 10. Excerpt of a 2004 aerial photograph showing the location of the Facility area in Manchester, Connecticut.

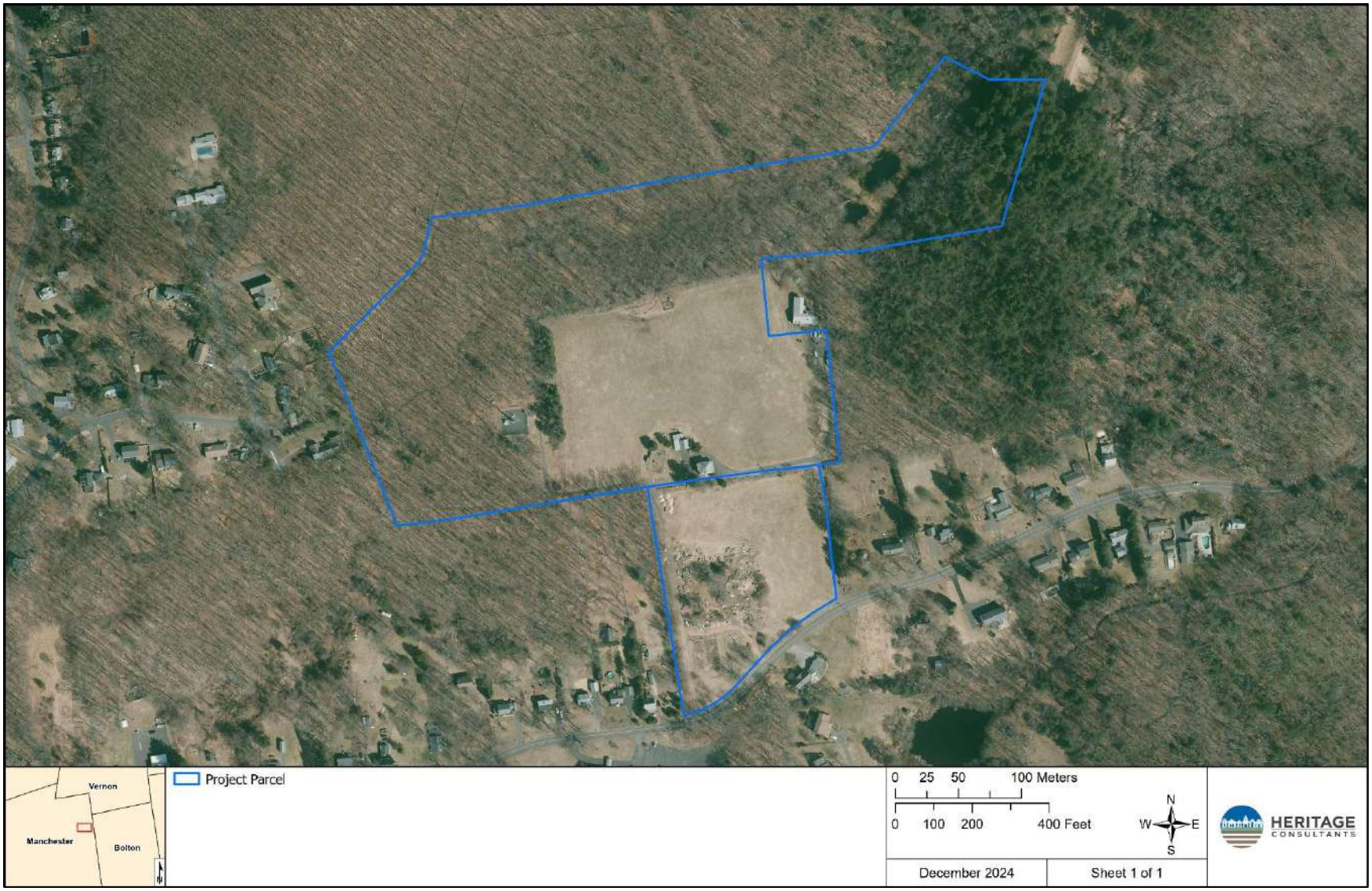

Figure 11. Excerpt of a 2019 aerial photograph showing the location of the Facility area in Manchester, Connecticut.

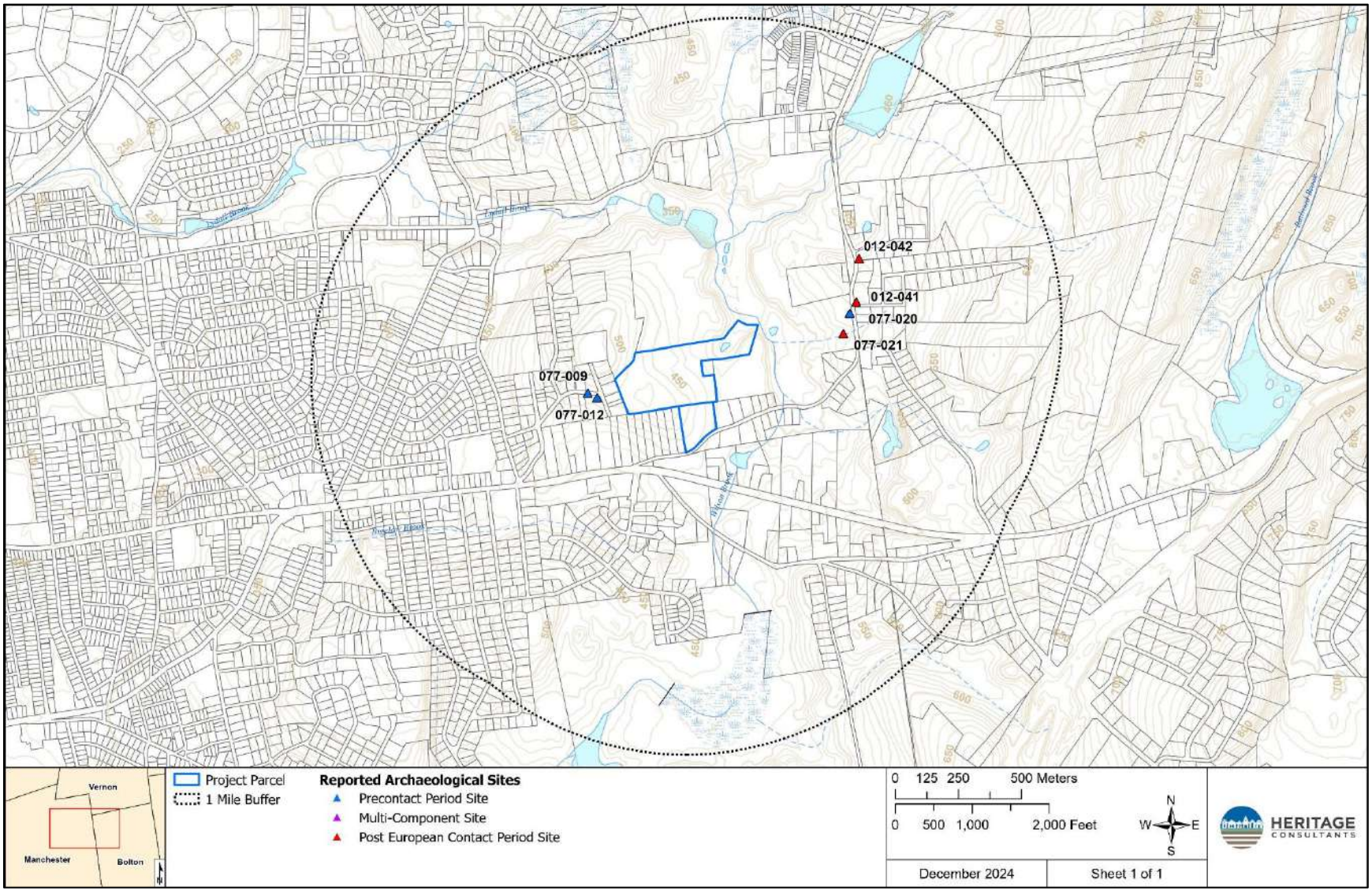

Figure 12. Digital map depicting the locations of the previously identified archaeological sites in the vicinity of the Facility area in Manchester, Connecticut.

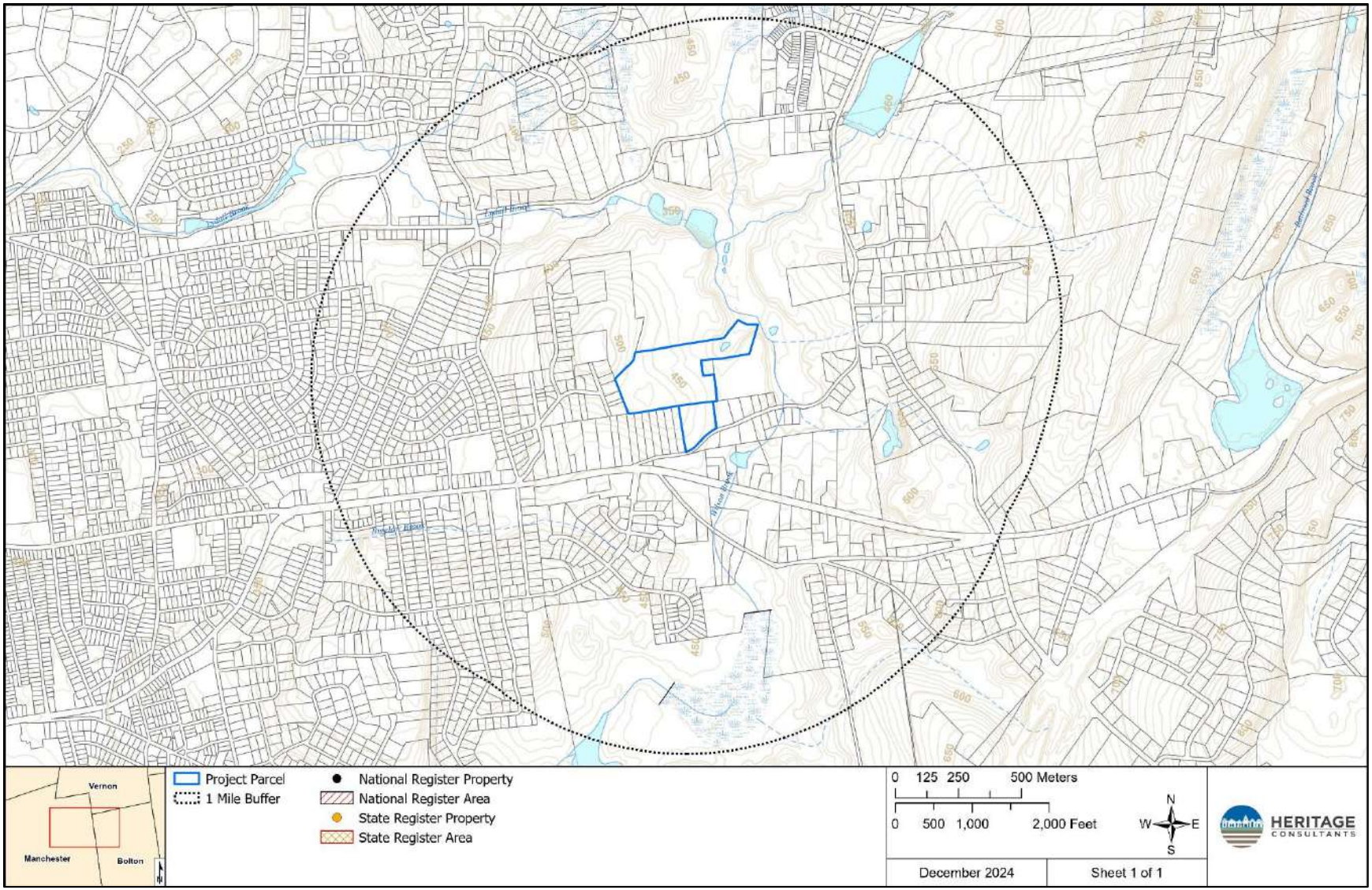

Figure 13. Digital map depicting the locations of the previously identified National Register of Historic Places and State Register of Historic Places properties in the vicinity of the Facility area in Manchester, Connecticut.

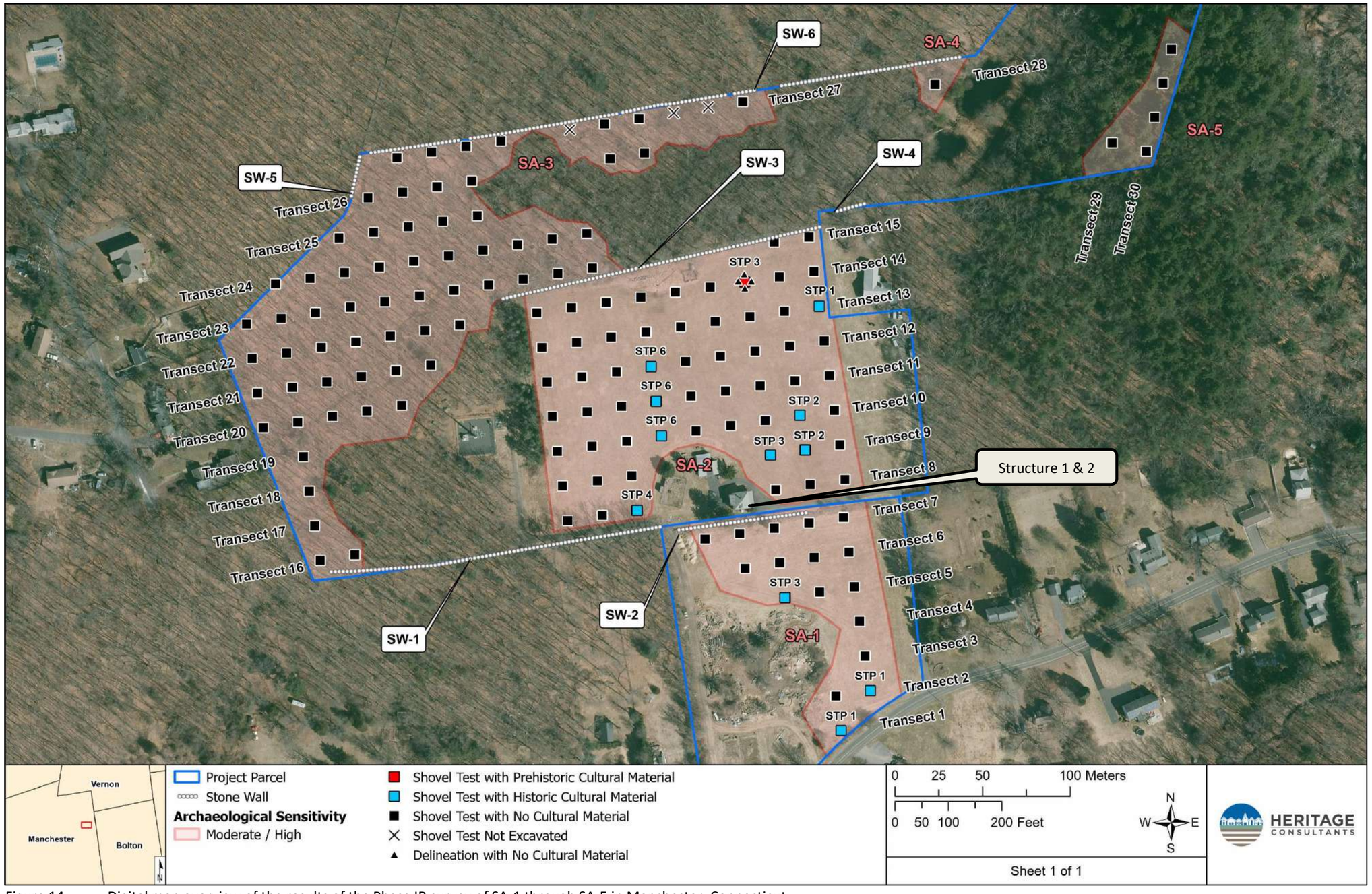

Figure 14. Digital map overview of the results of the Phase IB survey of SA-1 through SA-5 in Manchester, Connecticut.

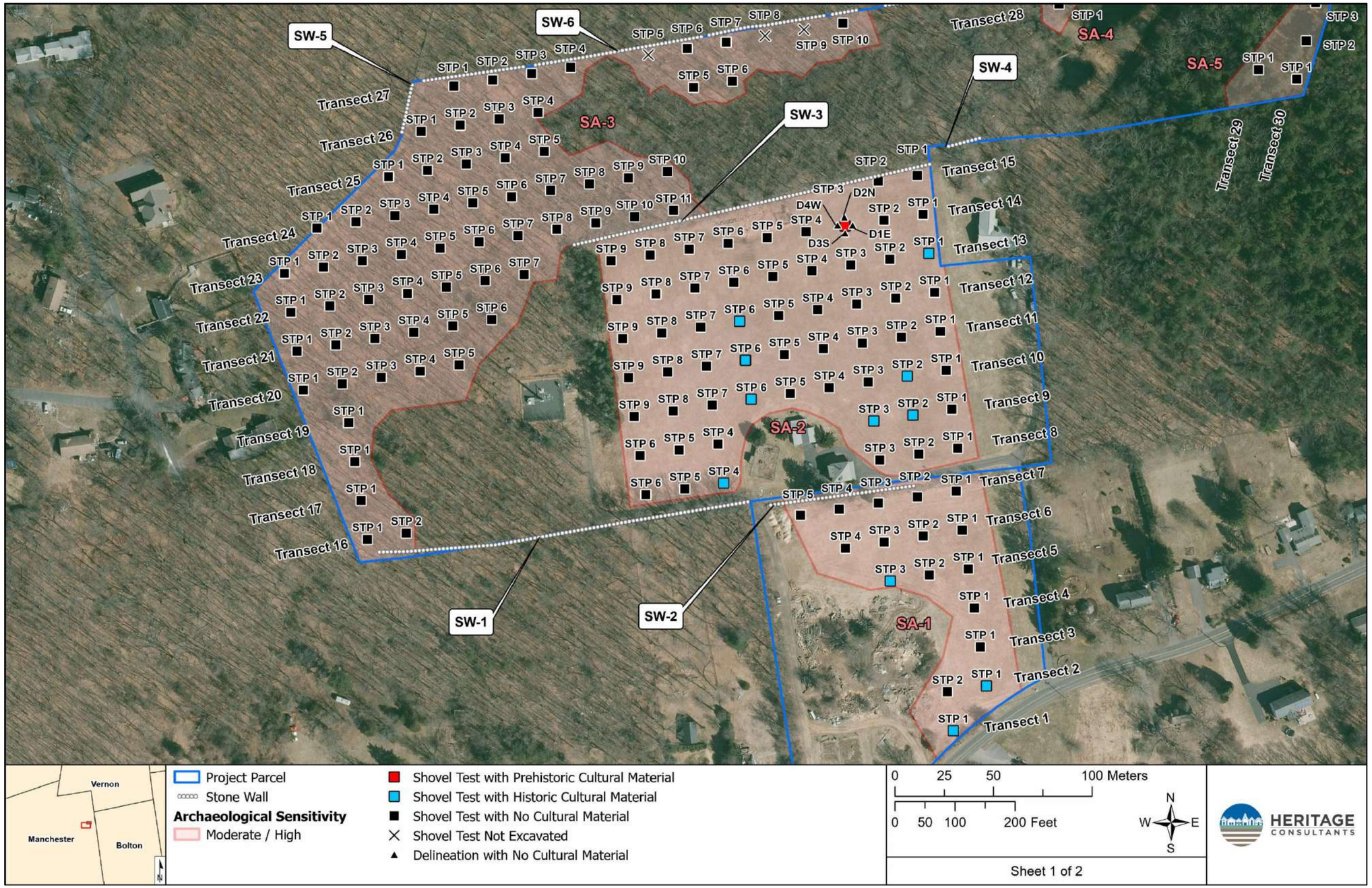

Figure 15; Sheet 1. Digital map of the results of the Phase IB survey of SA-1 through SA-5 in Manchester, Connecticut.

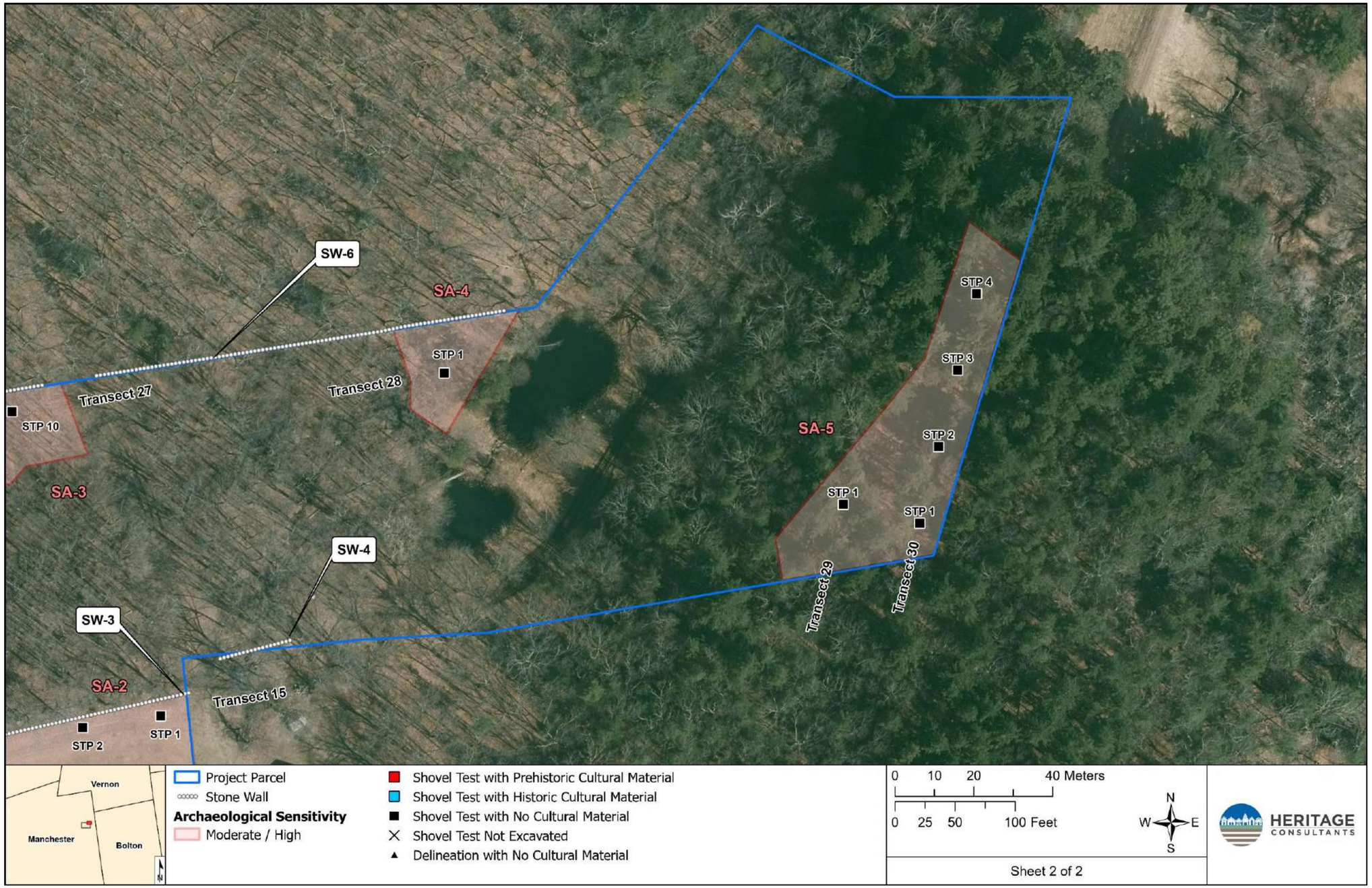

Figure 15; Sheet 2. Digital map of the results of the Phase IB survey of SA-1 through SA-5 in Manchester, Connecticut.

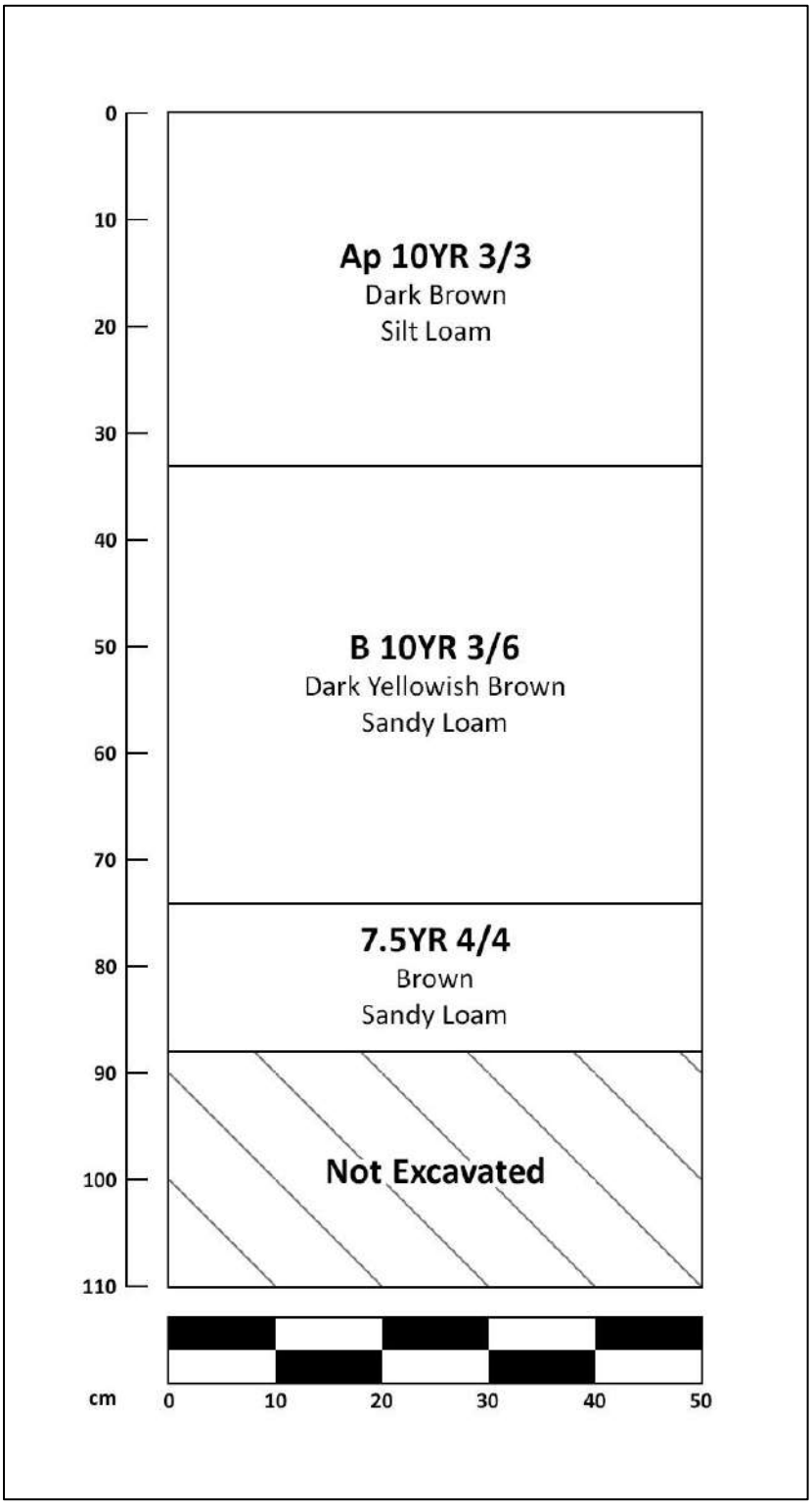

Figure 15. Digital soil profile of STP 4 along Transect 7 within SA-1.

APPENDIX B

PHOTOS

Photo 1. Overview photo of Project area. Taken from the northern portion of SA-3. Photo facing to the southwest.

Photo 2. Overview photo of Project area. Taken from the southern portion of SA-4. Photo facing to the north.

Photo 3. Overview photo of Project area. Taken from the eastern portion of SA-3. Photo facing to the west.

Photo 4. Overview photo of Project area. Taken from the central portion of SA-3. Photo facing to the north.

Photo 5. Overview photo of Project area. Taken from the western portion of SA-2. Photo facing to the east.

Photo 6. Overview photo of wetlands located within the northeastern portion of SA-3. Photo facing to the northwest.

Photo 7. Post-European Contact period artifacts recovered from SA-1 during the Phase IB survey. A through C) Undecorated whiteware; D) Undecorated porcelain; E) Colorless flat glass.

Photo 8. Sample of post-European Contact period artifacts recovered from SA-2 during the Phase IB survey. A) Quahog shell; B) Polychrome whiteware; C) Solarized indeterminate bottle glass; D) Steel wire nail.

Photo 9. Photo of ISO-1, quartz utilized flake. Side A.

Photo 10. Photo of ISO-1, quartz utilized flake. Side B.

Photo 11. 3/4th Photo view of residence located within northern parcel. Photo facing to the west.

Photo 12. Photo of eastern elevation of residence located within northern parcel. Photo facing to the west.

Photo 13. Overview of western elevation and modern barn located on the northern parcel. Photo facing to the east.

Photo 14. Overview photo of barn located within northern parcel. Photo facing to the south.