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December 12, 2018

Via Electronic Mail and First Class Mail

Melanie A. Bachman, Esq.
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: ***Petition No. 1352*** – Nutmeg Solar, LLC, petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 19.6-megawatt AC solar photovoltaic electric generating facility on approximately 162 acres comprised of 9 separate parcels located generally south of Bailey Road and east of Route 191 (Broad Brook Road), and associated electrical interconnection to Eversource Energy's Scitico Substation at 20 Bailey Road in Enfield, Connecticut.

Dear Ms. Bachman:

I am writing on behalf of the petitioner, Nutmeg Solar, LLC (“Nutmeg Solar”) in connection with the above-referenced proceeding pending before the Connecticut Siting Council (the “Council”).

In its October 15, 2018 subject Petition, Nutmeg Solar indicated it was preparing an application for a Construction General Permit for the Discharge of Stormwater and Dewatering Wastewater for Construction Activities (“Stormwater General Permit”), as required by the Department of Energy and Environmental Protection (“DEEP”). DEEP accepted Nutmeg Solar’s application for a Stormwater General Permit on November 28, 2018. DEEP has indicated the request (#47461) is in process.

Nutmeg Solar also indicated that the Phase 1B Cultural Resources Reconnaissance Survey was in progress and would be submitted to the Connecticut State Historic Preservation Office and to the Council once complete. Enclosed please find the completed Phase 1B Report for the Council’s consideration in this proceeding.

Please feel free to contact me or David Bogan of this office (860-541-7711) if you have any questions or require additional information.

Sincerely,



Kathryn E. Boucher

Enclosures

cc: Service List

DECEMBER 2018

PHASE IB CULTURAL RESOURCES
RECONNAISSANCE SURVEY OF THE PROPOSED
NUTMEG SOLAR FACILITY IN ENFIELD,
CONNECTICUT

PREPARED FOR:

Tighe&Bond
Engineers | Environmental Specialists
53 SOUTHAMPTON ROAD
WESTFIELD, MASSACHUSETTS 01085



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ABSTRACT

This report presents the results of a Phase IB cultural resources reconnaissance survey for the proposed Nutmeg Solar Project in Enfield, Connecticut. Nextera Energy, through its contractor Tighe & Bond, requested that Heritage Consultants, LLC complete the reconnaissance survey as part of the planning process for a proposed 19.6 MWac solar energy facility to be located on the east side of Broad Brook Road in Enfield, Connecticut. This area will be the site of a utility-scale solar power generating facility consisting of: photovoltaic (PV) solar panels, racking, access roads, DC/AC inverters, and transformers. The current Phase IB cultural resources reconnaissance survey was completed utilizing pedestrian survey, systematic shovel testing along survey transects, detailed mapping, and photo-documentation of all moderate/high sensitivity areas. During survey, a total of 419 of 433 (96 percent) planned shovel tests were excavated throughout two moderate/high sensitivity areas identified within the Western and Eastern Array area of the Petition Project Site. This included 100 of 100 (100 percent) planned shovel tests in the Western Array area and 329 of 333 (96 percent) planned shovel tests throughout the Eastern Array area. The 14 planned but unexcavated shovel tests in Area 2 fell within zones characterized by steep slopes. Despite this fieldwork effort, no cultural material or evidence of cultural deposits was identified during Phase IB cultural resources reconnaissance survey of either area. Thus, no archaeological resources will be impacted by the proposed Nutmeg Solar Facility and no additional archaeological examination of Western or Eastern Array areas is recommended prior to construction.

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CHAPTER I

INTRODUCTION

This report presents the results of a Phase IB cultural resources reconnaissance survey for the proposed Nutmeg Solar Project. Nextera Energy (Nextera), through its contractor Tighe & Bond, requested that Heritage Consultants, LLC (Heritage) complete the reconnaissance survey as part of the planning process for a proposed 19.6 MWac solar energy facility to be located on the east side of Broad Brook Road in Enfield, Connecticut (Figure 1). Heritage previously completed a Phase IA assessment survey of the proposed Petition Project Site and determined that 4.11 acres land in the Western Array area possessed a moderate sensitivity for producing historic era archaeological resources, while 51.24 acres within the Eastern Array area retained a moderate/high potential for producing prehistoric period archaeological resources (Heritage Consultants, LLC 2017). As seen in Figure 2, the Limit of Work (LOW) for the proposed Nutmeg Solar project is bordered to the west by Broad Brook Road, to the north by an existing Eversource Energy (Eversource) Substation to along Bailey Road, and to the south by forested areas. Heritage completed this investigation on behalf of Tighe & Bond in August and September of 2018. All work was conducted in accordance with stipulations and guidelines presented in the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987). The remainder of this document presents a description of the proposed project, information used as project context, the methods by which the current Phase IB cultural resources reconnaissance survey was completed, results of the investigation, and management recommendations for the project.

Project Description and Methods Overview

As mentioned above, the Petition Project Site is located Enfield, Connecticut. It will be the site of a utility-scale solar power generating facility consisting of: photovoltaic (PV) solar panels, racking, access roads, DC/AC inverters, and transformers. It will be divided into two array locations, Western and Eastern Array Areas. The Western Array will be situated within existing tobacco fields to the east of Broad Brook Road, while the Eastern Array will be encompassed within what is currently a large forested area further to the east of Broad Brook Road and adjacent to and Eversource electrical transmission line. The LOW within these areas consists of a flat to steeply sloping terrain that currently contains a combination of agricultural fields and forested areas (Figure 1). The topography throughout the Petition Project Site ranges in elevation from approximately 51.8 to 97.5 m (170 to 320 ft) NGVD. In addition, soils situated throughout the Western and Eastern Array areas can be characterized primarily as sandy to gravelly loams. The nearest freshwater sources are Buckhorn Brook, Spring Brook, Terry Brook, and the Scantic River. As seen in Figure 3 (2016 aerial), the Western Array area is located within a large agricultural field, while the Eastern Array area is situated in a forested area to the east of Western Array area.

As mentioned above, Heritage previously completed a Phase IA cultural resources assessment survey for this project (Heritage Consultants, LLC 2017). The assessment survey revealed that the archaeological potential of the majority of the LOW was considered to be low based on previous disturbances and being situated at significant distances from a fresh water source. Based on their landscape characteristics and current state, no additional archaeological examination of these areas was recommended. The remainder of the LOW, which was characterized as possessing a moderate or moderate/high potential to yield archaeological deposits and situated within relative proximity to the Scantic River, was characterized by a large drumlin feature in the east and a portion of an existing tobacco field in the west. The proposed probability recommendations and proposed field methodology was found consistent with the standards set forth on the Environmental Review Primer for Connecticut's Archaeological Resources (see letter attached).

The current Phase IB cultural resources reconnaissance survey was completed utilizing pedestrian survey, systematic shovel testing along survey transects, detailed mapping, and photo-documentation of all moderate/high sensitivity areas. During survey, Heritage conducted the systematic excavation of shovel tests along parallel survey transects. Depending upon the size and the natural characteristics of the landform that was tested (slope, soil types, vegetation, etc.), the interval between shovel tests varied between 15 and 30 m (45.9 and 98.4 ft), while the space between transects was set at 15 m (49.2). Each shovel test measured 50 x 50 cm (19.7 x 19.7 in) in size and each was excavated to the glacially derived C-Horizon or until immovable objects (e.g., tree roots, boulders, etc.) was encountered. Each shovel test was excavated in 10 cm (3.9 in) arbitrary levels within natural strata, and the fill from each level was screened separately. All shovel test fill was screened through 0.635 cm (0.25 in) hardware cloth and examined visually for cultural material. Soil characteristics were recorded using Munsell Soil Color Charts and standard soils nomenclature. Each shovel test was backfilled immediately upon completion of the archeological recordation process.

Project Results and Management Recommendations Overview

During survey, a total of 419 of 433 (97 percent) planned shovel tests were excavated throughout the moderate/high sensitivity areas in the Western and Eastern Array areas. This included 100 of 100 (100 percent) planned shovel tests in the northern portion of the Western Array area and 329 of 333 (96 percent) planned shovel tests throughout the central and northern parts of the Eastern Array area. The 14 planned but unexcavated shovel tests in the Eastern Array area fell within zones characterized by steep slopes. Despite this fieldwork effort, no cultural material or evidence of cultural deposits was identified during Phase IB cultural resources reconnaissance survey of either area. Thus, no archaeological resources will be impacted by the proposed Nutmeg Solar Facility and no additional archaeological examination of Areas 1 or 2 are recommended prior to construction.

Project Personnel

Key personnel for this project included Mr. David R. George, M.A., R.P.A, who managed the project and compiled this report. He was assisted by Mr. Cory Atkinson, M.A., and Mr. Antonio Medina, B.A., who supervised the fieldwork portion of the project, as well as Mr. Stephen Anderson, B.A., who provided Geographic Information System services. Mr. William Keegan, B.A., who provided GIS support services and project mapping. Finally, Ms. Kristen Keegan completed this historic background research of the project and contributed to the final report. The key personnel were assisted by Heritage support staff, both in the field and while compiling the report.

Organization of the Report

The natural setting of the region encompassing the Petition Project Site and the LOW is presented in Chapter II; it includes a brief overview of the geology, hydrology, and soils of the region. The prehistory of the project region is outlined briefly in Chapter III. The history of the region encompassing the project region and Petition Project Site is discussed in Chapter IV, while an overview of previous archaeological investigations and previously identified archaeological sites in the region is presented in Chapter V. The methods used to complete this investigation are discussed in Chapter VI. Finally, the results of this investigation are presented in Chapter VII, while management recommendations are contained in Chapter VIII.

CHAPTER II

NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the proposed Nutmeg Solar Facility. Previous archaeological research has documented that a few specific environmental factors can be associated with both prehistoric and historic period site selection. These include general ecological conditions, as well as types of fresh water sources and soils present. The remainder of this section provides a brief overview of the ecology, hydrological resources, and soils present within the Petition Project Site 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 very different natural characteristics than the coastline. Recognizing this fact, Dowhan and Craig (1976), as part of their study of the distribution of rare and endangered species in Connecticut, subdivided the state into various ecoregions. Dowhan and Craig (1976:27) defined an ecoregion as:

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

Dowhan and Craig defined nine major ecoregions for the State of Connecticut. They are based on regional diversity in plant and animal indicator species (Dowhan and Craig 1976). Only one of the ecoregions is germane to the current investigation: North-Central Lowlands. A brief summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found in and adjacent to the Petition Project Site.

North Central Lowlands Ecoregion

The North-Central Lowlands region consists of a broad valley located between approximately 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. Elevations in the North-Central Lowlands range from 15.2 to 76.2 m (50 to 250 ft) NGVD, reaching a maximum of nearly 274 m (900 ft) above sea level along the trap rock ridges that surround the central valley on the east and west. 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.

Hydrology of the Project Region

The proposed Nutmeg Solar Facility is situated in proximity to several sources of freshwater, including Buckhorn Brook, Spring Brook, Terry Brook, and the Scantic River, as well as several unnamed wetlands. The brooks, ponds, rivers, and wetlands of the region may have served as resource extraction areas for Native American and historic populations alike. Previously completed archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were focal points for prehistoric occupations because they provided access to transportation routes, sources of freshwater, and abundant faunal and floral resources.

Soils Comprising the Petition Project Site

Soil formation is the direct result of the interaction of a number of variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to a number of 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 in within the current Petition Project Site. In contrast, acidic soils enhance the preservation of charred plant remains.

A review of the soils within the Nutmeg Solar Facility, with an emphasis on the Western and Eastern Array areas, is presented below. These areas are characterized by three major soil types, all of which have good drainage characteristics. Soil types present within Western and Eastern Array areas include Enfield, Manchester, and Narragansett soils. These three soil types, when found on low slopes in proximity to fresh water and in an undisturbed state are well correlated with both historic and prehistoric archaeological site locations. Descriptive profiles for each are presented below; they were accessed via the National Resources Conservation Service.

Enfield Soils:

Ap--0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine granular structure; friable; many very fine and fine roots; 5 percent fine gravel; strongly acid; abrupt smooth boundary; **Bw1**--7 to 16 inches; strong brown (7.5YR 5/6) silt loam; weak medium subangular blocky structure; friable; common very fine and many fine roots; 5 percent fine gravel; strongly acid; clear wavy boundary; **Bw2**--16 to 25 inches; light olive brown (2.5Y 5/4) silt loam; weak medium subangular blocky structure; friable, few very fine and common fine roots; 5 percent fine gravel; strongly acid; abrupt wavy boundary; and **2C**--25 to 60 inches; brown (10YR 5/3) very gravelly sand; single grain; loose; stratified; 45 percent gravel and 5 percent cobbles; strongly acid.

Manchester Soils:

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.

Narraganset Soils:

Ap--0 to 6 inches; dark brown (10YR 3/3) silt loam; weak medium granular structure; very friable; common medium roots; very strongly acid; clear wavy boundary; **Bw1**--6 to 15 inches; dark yellowish brown (10YR 4/6) silt loam; weak medium subangular blocky structure; very friable; common medium roots; very strongly acid; gradual wavy boundary; **Bw2**--15 to 24 inches; yellowish brown (10YR 5/6) silt

loam; weak medium subangular blocky structure; very friable; common medium roots; strongly acid; clear wavy boundary; **Bw3**--24 to 28 inches; yellowish brown (10YR 5/6) gravelly silt loam; weak medium subangular blocky structure; very friable; few fine roots; 15 percent gravel; strongly acid; clear wavy boundary; and **2C**--28 to 60 inches; light olive brown (2.5Y 5/4) very gravelly loamy coarse sand; single grain; loose; 45 percent gravel and cobbles; strongly acid.

CHAPTER III

PREHISTORIC 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 prehistory of the region was studied at the site level. Sites chosen for excavation were highly visible and they were in such as areas as the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the prehistory 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 prehistoric Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, were the focus of settlements and exploitation in the prehistoric era. This interpretation remained unchallenged until the 1970s and 1980s when several town-wide and regional archaeological studies were completed. These investigations led to the creation of several archaeological phases that subsequently were applied to understand the prehistory of Connecticut. The remainder of this chapter provides an overview of the prehistoric setting of the region.

Paleo-Indian Period (12,000-10,000 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., 12,000 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 numerous surface finds of Paleo-Indian projectile points throughout the State of Connecticut, only two sites, the Templeton Site (6-LF-21) in Washington, Connecticut and the Hidden Creek Site (72-163) in Ledyard, Connecticut, have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980). The Templeton Site (6-LF-21) is in Washington, Connecticut and was occupied between 10,490 and 9,890 years ago (Moeller 1980). In addition to a single large and two small fluted points, the Templeton Site produced a stone tool assemblage consisting of gravers, drills, core fragments, scrapers, and channel flakes, which indicates that the full range of stone tool production and maintenance took place at the site (Moeller 1980). Moreover, the use of both local and non-local raw materials was documented in the recovered tool assemblage, suggesting that not only did the site's occupants spend some time in the area, but they also had access to distant stone sources, the use of which likely occurred during movement from region to region.

The only other Paleo-Indian site studied in detail in Connecticut is the Hidden Creek Site (72-163) (Jones 1997). The Hidden Creek Site is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut. 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.

While archaeological evidence for Paleo-Indian occupation is scarce in Connecticut, it, combined with data from the West Athens Road and King's Road Site in the Hudson drainage and the Davis and Potts Sites in northern New York, supports the hypothesis that there was human occupation of the area not long after ca. 12,000 B.P. (Snow 1980). Further, site types currently known suggest that the Paleo-Indian settlement pattern was characterized by a high degree of mobility, with groups moving from region to region in search of seasonally abundant food resources, as well as for the procurement of high quality raw materials from which to fashion stone tools.

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

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

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

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

Like their Paleo-Indian predecessors, Early Archaic sites tend to be very small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions 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 recognized based on 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, an area 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.

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

By the onset of the Middle Archaic Period, essentially modern deciduous forests had developed in the region (Davis 1969). It is during the Middle Archaic Period that increased numbers and types of sites are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site, which is in Manchester, New Hampshire and studied by Dincauze (1976). Careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between ca., 7,700 and 6,000 years ago. In fact, Dincauze (1976) obtained several radiocarbon dates from the Middle Archaic component of the Neville Site. The dates, associated with the then-newly named Neville type projectile point, ranged 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 m² (5,383 ft²). These base camps reflect frequent movements by small groups of people in search of seasonally abundant resources. The overall settlement pattern of the Laurentian Tradition was dispersed in nature, with base camps located in a wide range of microenvironments, including riverine as well as upland zones (McBride 1978, 1984:252). Finally, subsistence strategies of Laurentian Tradition focused on hunting and gathering of wild plants and animals from multiple ecozones.

The second Late Archaic tradition, known as the Narrow-Stemmed Tradition, is unlike the Laurentian Tradition, and it likely represents a different cultural adaptation. The Narrow-Stemmed tradition is recognized by the presence of quartz and quartzite narrow stemmed projectile points, triangular quartz Squibnocket projectile points, and a bipolar lithic reduction strategy (McBride 1984). Other tools found in Narrow-Stemmed Tradition artifact assemblages include choppers, adzes, pestles, antler and bone projectile points, harpoons, awls, and notched atlatl weights. Many of these tools, notably the projectile points and pestles, indicate a subsistence pattern dominated by hunting and fishing, as well the collection of a wide range of plant foods (McBride 1984; Snow 1980:228; Wiegand 1978, 1980).

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

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

The Susquehanna Tradition is based on the classification of several Broadspear projectile point types and associated artifacts. There are several local sequences within the tradition, and they are based on projectile point type chronology. Temporally diagnostic projectile points of these sequences include the

Snook Kill, Susquehanna Broadspear, Mansion Inn, and Orient Fishtail types (Lavin 1984; McBride 1984; Pfeiffer 1984). The initial portion of the Terminal Archaic Period (ca., 3,700-3,200 BP) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points, while the latter Terminal Archaic (3,200-2,700 BP) is distinguished by the use Orient Fishtail projectile points (McBride 1984:119; Ritchie 1971).

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

Finally, while settlement patterns appeared to have changed, Terminal Archaic subsistence patterns were analogous to earlier patterns. The subsistence pattern still was 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 (Papoulias 1988:81). Such diversity in food remains suggests at least minimal use of a wide range of microenvironments for subsistence purposes.

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

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

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

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

Careful archaeological investigations of Early Woodland sites in southern New England have 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 (Lizée 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 indicative of the Middle Woodland Period includes Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizee 1994a:200).

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

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

The Late Woodland Period in southern New England dates from ca., 1,200 to 350 B.P., and it is characterized by the earliest evidence for the use of corn in the lower Connecticut River Valley (Bendremer 1993; Bendremer and Dewar 1993; Bendremer et al. 1991; George 1997; McBride 1984); an increase in the frequency of exchange of non-local lithics (Feder 1984; George and Tryon 1996; McBride 1984; Lavin 1984); increased variability in ceramic form, function, surface treatment, and decoration (Lavin 1980, 1986, 1987; Lizee 1994a, 1994b); and a continuation of a trend towards larger, more permanent settlements in riverine, estuarine, and coastal ecozones (Dincauze 1974; McBride 1984; Snow 1980; Wiegand 1983).

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 diverse stylistically than their predecessors, with incision, shell stamping, punctuation, single point, linear dentate, rocker dentate stamping, and stamp and drag impressions common (Lizee 1994a:216).

Summary of Connecticut Prehistory

In sum, the prehistory of Connecticut spans from ca., 12,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. For most of the prehistoric era, local Native American groups practiced a subsistence pattern based on a mixed economy of hunting and gathering wild plant and animal resources. It is not until the Late Woodland Period that incontrovertible evidence for the use of domesticated species is available. Further, settlement patterns throughout the prehistoric era 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 containing the proposed Petition Project Site, a variety of prehistoric site types may be expected. These range from seasonal camps utilized by Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV

HISTORIC OVERVIEW

Introduction

The Nutmeg Solar Facility is located in the western part of Enfield, at least 0.25 miles to the south of the Scantic River, the villages of Scitico and Hazardville, and the extensive network of Hazardville Power Company factories and other industrial firms situated along the Scantic River. This chapter presents an overview history of the project region, as well as a review of the ownership of the parcels of land containing Western and Eastern Array areas.

Native American History

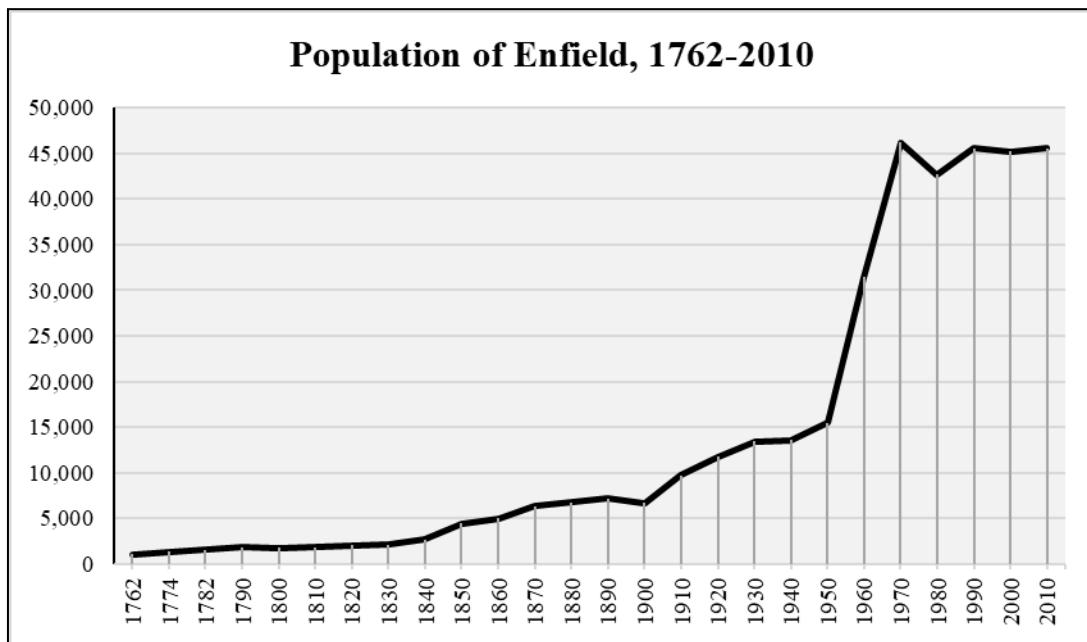
The historic Native American occupation of Enfield is poorly documented. Analysis of land purchases and other documents indicates that it was part of the territory of the tribe known as the Agawam, who occupied and used land on both sides of the Connecticut River around what are now Springfield and Agawam, Massachusetts. They also occupied areas to the south near the southern boundary of Enfield and other towns in its tier (Spiess 1934). In 1678, a trio of Native Americans named Wequagun (formerly named Wrutherna), Wawapaw (formerly named Naiapompolan), and Waquompo confirmed a 1675 sale of the part of Enfield lying north of Freshwater River (a.k.a. Connecticut River), which had not been recorded because of King Philip's War. In 1680, the Indian Tawtaps (alias Nottatuck) sold the land to the south of the Freshwater River to the falls on the Connecticut River in what is now East Windsor, reserving hunting and fishing rights on the common lands. This deed was witnessed by Momando, Cogoranasset, and Nessataquakis, as well as some Englishmen (Wright 1905:89-96).

The Agawam was one of several native groups that occupied both sides of the Connecticut River in what are now Massachusetts, northern Connecticut, and southern New Hampshire, and southern Vermont. The native groups of this region were decimated by war and disease in 1620s and 1630s, and again by additional wars with colonists and other Native Americans in the later seventeenth and early eighteenth centuries. Very little was recorded about any of them in colonial records, so it can only be assumed that they were typical of New England region Native Americans who lived in small kin groups that cultivated corn and other crops in summer and moved to hunting camps in winter (Grumet 1995).

Colonial and Revolutionary Era History

The future Town of Enfield was thought for many years to be situated within the colony of Massachusetts Bay based on the results of a 1642 survey of the boundary line between the two colonies. In 1679, Springfield established a committee to form a new town at or around Freshwater River; the 1680 purchase from Native Americans was designed to aid in this plan and the first colonists arrived there in 1681, settling to the south of the river. The Town of Enfield was formally established by the Massachusetts legislature in 1683. The area around Scitico and East Wallop (the region containing the proposed Nutmeg Solar Facility) was first colonized in ca., 1713. In 1703, Connecticut began asserting ownership of Enfield and other parts of Massachusetts-settled land because of the errors in the above-referenced 1642 survey. After lengthy legal battles and political maneuvering, Connecticut succeeded in acquiring Enfield and other towns in 1749.

In addition, because the southern boundary of the town was originally thought to be the colony line from 1642, a two-mile strip of land was claimed by both Enfield and the Town of Windsor. In 1713, the matter was finally settled and Windsor relinquished its claim in exchange for other land elsewhere. But Enfield and other towns along the border soon concluded that they would prefer to be part of Connecticut, though it was not until 1747 that they petitioned the legislatures of both colonies to be transferred. Connecticut agreed but Massachusetts objected. In 1749, the British monarchy decided in Connecticut's favor, although Enfield had already begun sending representatives to the Connecticut legislature (Winch 1886). In 1762, the town was reported to have 1,082 residents, and by 1782 there were 1,562 people there (see population chart below). The inhabitants supported organization in response to the British closure of Boston's port in 1774, and in support of the families of those who joined the Continental Army, at least 14 of whom died in service during the Revolutionary War (Winch 1886).



Early National and Nineteenth Century History (1790-1900)

In terms of early industry in the project region, the manufacture of carpeting began at what became the village of Thompsonville near the Connecticut River. This began by ca., 1830, and by 1837 the factories boasted 120 looms and employed 300 adults. The town of Enfield also was home to a village of adherents to the Shaker religion, which started in England in 1770 and moved to New England in 1774. The shaker community in Enfield was established in 1780 and was still alive and well in the 1830s (Barber 1837). A second industrial village, eventually called Hazardville, which is located to the northwest of the proposed Nutmeg Solar Facility, began developed and expanded around the manufacture of gunpowder. By the 1880s, multiple companies were clustered along the Scantic River and they employed 150 men (Winch 1886). As a result of this industrial activity, Enfield witnessed steady population growth through most of the nineteenth century, with its 1830 population of 2,129 residents rising to 7,199 in 1890 before falling slightly to 6,699 citizens in 1900 (see population chart above). Despite the population fluctuations, agricultural also remained important in this area, with attention to fruit trees, grains, dairying, and especially tobacco (Winch 1889).

Transportation in the United States changed dramatically during this period. Initially, states attempted to encourage road improvements by chartering corporations to build and run turnpike roads in exchange for tolls. These enterprises met with varying success; however, no company or individual tried to build a turnpike through Enfield (Wood 1919). Perhaps this was simply because Enfield had the Connecticut

River available to it, and after 1829, the Windsor Locks canal made the rapids below Enfield passable (Crofut 1937). Railroads followed in the mid nineteenth century, also in the form of private corporations, quickly putting any competing turnpikes out of business.

In 1844, the Hartford & Springfield Railroad was constructed along the western bank of the Connecticut River; it crossed over to the eastern bank in East Windsor and passed through Thompsonville on its way to the Connecticut/Massachusetts border. The Connecticut Central Railroad, which passes along the western edge of Broad Brook Road and immediately opposite the proposed Nutmeg Solar Facility, was not opened until 1876, and it was quickly thereafter leased by the Hartford & Connecticut Valley Railroad (Turner and Jacobus 1989). The advent of electrical power in the late nineteenth century encouraged the development of light rail passenger transport or trolleys, one of which was built between Springfield, Massachusetts and East Windsor, with branch lines serving Scitico, among other places. This lasted from 1895 into the 1920s, when automobile competition ended its service (DeBell 1977).

Modern Period (1930-Present)

Various efforts were made to improve roads for the use of cars and trucks before the 1950s, and then the limited-access highway system came into being. Interstate 91 reached the Enfield area in 1949 (Oglesby 2014). By 1920, the new technique of growing “shade tobacco” under tents had taken over the long lived tobacco business, and it was more profitable though more expensive to grow than the open-field variety. As a result, large corporations began buying up small farmers’ land; however, tobacco production eventually declined, so that by the 1970s there was less tobacco grown in Enfield than in the early nineteenth century (Alcorn 1970; see also “Tobacco Farming in Connecticut” below).

As of 1932, a summary of Enfield’s principal industries included agriculture along with manufacturing of carpets, paper, textiles, and hardware. By this time the old trolley line through town had been abandoned in favor of a bus line (Connecticut 1932). The town’s population more than doubled between 1900 and 1950, from 6,699 to 15,464 residents, due perhaps to a mix of industry and transport-encouraged residential development. There can be no question, however, that the growth between 1950 and 1970 – a near-tripling to 46,189 citizens in just 20 years – is attributable to the construction of Interstate 91 and the post-World War II baby boom. After a drop in 1980, the town has apparently reached a steady population of approximately 45,000, where it stands today (see population chart above).

A 2015 economic survey of the town of Enfield found that 7.1 percent of its jobs were in the manufacturing sector, a far cry from the heyday of industry; as in most places, the majority of jobs in Enfield are now in tertiary-sector areas such as retail (the largest single group), finance and insurance, health care, government, hotels, and restaurants. Enfield’s major employers in 2014 were reported as being Lego Systems Inc., and Hallmark Cards, both manufacturing enterprises, followed by an insurance company and a retail wholesaler (CERC 2016).

Petition Project Site Ownership History

This section provides an ownership history of the parcels of land that will house the proposed Nutmeg Solar Facility; Figure 4 references the parcel numbers discussed below. As is the case with any ownership history, this discussion proceeds from modern era backwards into the historical period. Starting with a 2016 aerial photograph, the land parcels within which the proposed Nutmeg Solar Facility will be located appear as a system of fields flanking the east side Broad Brook Road, as well as several wooded parcels to the east and abutting an Eversource Energy electrical transmission line. For reference, the parcel numbers starting with 102 and 108 refer to those containing the open fields and buildings associated with Jarmoc Farms, while those parcel numbers starting with the prefix 109 refer to the wooded parcels to the east. Currently, Parcel 102-48 contain barns and other buildings associated with Jarmoc Farms, as well as a pair of barns that are located at the border of 102-48 and 102-50. In addition, an Eversource substation is

located to the north of Parcel 109-12, with a cleared right-of-way crossing the corner of that parcel and then turning south from there (Figure 4).

An excerpt from a 2004 aerial image shown in Figure 5 reveals that not much has changed on the properties that will contain the proposed Nutmeg Solar Facility over the last 14 years. The 1991 aerial photography shows noticeably a very similar landscape to that of 2004, with the exception that some of the barns depicted on the west side of Broad Brook Road in the 2004 aerial image, which area outside of the LOW, were not there as of 1991 (Figure 6). The Eversource substation mentioned above first appears in the 1985 aerial photograph, which is also when one of the two barns near the boundary between Parcels 102-48 and 102-50 also appear to have been erected (Figure 7). According to the 1970 aerial photograph, housing developments first started to be built to the west of the Broad Brook Road around this time, and more structures had been erected along Bailey Road to the north, reflecting a continued in-filling of the region after World War II.

During the above-referenced period, with its extensive barn construction and ongoing tobacco farm work, the property belonged to members of the Jarmoc family. Edwin and Eleanor Jarmoc acquired the property in pieces between 1968 and 1973. Edwin was the son of Stephen and Mary Jarmoc, who according to the 1930 census returns were Polish immigrants who had arrived in the area in 1911 and 1907, respectively. They were recorded as farmers, and they owned their own home. Edwin, their son was listed in the census 4 years old in 1930, and his parents' ages were recorded as 40 and 37 years of at that time, respectively, indicating that they were young adults when they came to the United States (U.S. Census 1930). The 1940 census incorrectly recorded the family name as "Germos" and the father's name as "Stanley;" however, the ages and national origin of the parents match the 1930 census. As of 1940, they were listed as living on Abbe Road and farming, with their house valued at a modest \$2,000 (U.S. Census 1940). They purchased Lot 102-48 and other land in 1969 from Joseph W., Mary A., and Mary Zawistowski (Enfield Land Records Vol. 303, Pg. 519).

Joseph W. and Mary A. Zawistowski, who appear to have owned much of the area that will contain the proposed Nutmeg Solar Facility through the 1960s, were the second generation of Joseph's family to own this land. They purchased Joseph's mother's interest in the parcel in 1963, but left her the right to use the house, garden, and unspecified water rights (Enfield Land Records Vol. 231, Pg. 201). Mary Zawistowski had inherited the property in four separate lots from her husband, Joseph Sr., per his will in 1947 (Enfield Land Records Vol. 102, Pg. 4). Joseph Zawistowski, Sr., had purchased Lot 102-48 as part of several transactions in 1917, 1923, and 1932 (Enfield Land Records Vol. 58 Pg. 353, Vol. 52 Pg. 397, Vol. 62 Pg. 199, Vol. 72 Pg. 203). The elder Zawistowski couple also were Polish immigrants. They were recorded in the 1920 census as being named "Zowstokj" and operating a tobacco farm in Enfield. They were 37 and 32 years old, respectively, and had four sons and two daughters; Joseph, Jr., was the second oldest child, being nine years old in 1920. His parents arrived in the United States in 1903 and 1904 (U.S. Census 1920). By 1930, the family consisted of four boys and six girls; the father and the two younger sons worked on their general farm, while Joseph, Jr., worked as a weaver in a carpet mill, while his older brother Stephen worked in a bakery. The 1940 census recorded Joseph, Jr., and his wife Marie living on East Water Street (a short distance to the north of the family farm), and he was working as a farm hand. Joseph, Sr., Mary, and the three youngest daughters (ages 5 through 15) were living on their farm on Broad Brook Road (U.S. Census 1940). Their house is the residence currently located at 65 Broad Brook Road. There also was a smaller array of barns on Parcels 102-48. The house identified as the Zawistowskis' was present in the 1934 aerial photography, with a relatively small number of barns and other outbuildings adjacent to it, and a single barn across the road (Figure 9; Fairchild 1934).

Ownership of Parcel 102-48 before the Zawistowskis is not straightforward because the sizes of the lots in the family's transactions do not match the present acreage, indicating that at the time of the sale the boundary lines were different from the current ones. Based on the descriptions, it appears that the

northern end of Parcel 102-48 was part of a 14-acre piece, sold to Joseph Zawistowski, Sr., in 1932 by someone with the surname “Dobrezensky .“ Joseph Zawistowski, Sr., purchased the land for \$4,700. This sale included “all tobacco lath and poles in sheds” (Enfield Land Records, Vol. 72, Pg. 203). Dobrezensky had purchased this lot in 1928, via a deed that described the road as “the highway running from Forge Bridge to East Wallop,” from Amos D. Bridge’s Sons (Enfield Land Records Vol. 66, Pg. 327). This parcel comprised the western section of a 58-acre piece – apparently including parts of Lots 109-12 and 109-13 – that this company acquired from the estate of Amos D. Bridge in 1907, as the twenty-second of 42 pieces of land; the deed makes vague reference to four earlier transactions that lead into a thicket of further multiple transactions (Enfield Land Records Vol. 47, Pg. 43). The corporation was created in December of 1906 (State of Connecticut 1910). Apparently, the business began with supplying kegs to the Hazard Powder Company before the turn of the twentieth century but continued with other activities such as a lumber yard after the closure of the mills in 1913 (Ransom 1979). This explains its interest in timber lands such as those contained in the Eastern Array area.

Parcel 102-50 was acquired by Edwin and Eleanor Jarmoc in 1973, from the heirs of Victor Albertowicz (aka Albertovich, and his sons sometimes known as Albert), who had inherited both it and Parcel 108-6 in 1967 (Enfield Land Records Vol. 368, Pg. 315; Vol 284, Pg. 438). Victor and his wife Helena had purchased it in 1931 from Andrew Gonet, who had bought it from the estate of William Bailey in 1922 (Enfield Land Records Vol. 72, Pg. 145; Vol. 60, Pg. 386). The William Bailey connection is unsurprising, given that the house believed to be his was across the street from these parcels. In the 1934 aerial photograph, it must be noted, there was also a house or other structure on Parcel 102-50, but in the 1963 aerial photo it is absent, having been razed ca., 1960 (Figures 9 and 10).

Conclusions

In sum, the property ownership history research has revealed that in the early twentieth century, when other opportunities were drawing many Americans away from agriculture, most of the project region was purchased by immigrants or their children. Apparently, only two families have used this property to support themselves and their families for decades, and that farming has always been the primary use of the land. The documentary record indicates that Parcel 102-48 contains numerous barns and other structures related to the production of tobacco, some of which date from the early twentieth century. The records also indicate that Parcels with the 109 prefix appeared to have remained forested throughout much of the historic era and probably much earlier as well. If any of these areas were ever farmed, the aerially visible traces of that were gone by 1934. Nonetheless, given the proximity of the industrial villages on the Scantic River, the possibility of evidence of earlier farming cannot be discounted, or of past timbering or even charcoal production in this wooded area.

CHAPTER V

PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous archaeological research completed within the vicinity of the Petition Project Site in Enfield, Connecticut. This discussion enhances the historical and archaeological context of the Petition Project Site within the larger region, and it ensures that the potential impacts to all previously recorded archaeological sites located within the larger region are taken into consideration. The discussions presented below are based on information currently on file at the Connecticut State Historic Preservation Office in Hartford, Connecticut. The electronic site files maintained by Heritage also 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. No discussions of National/State Register of Historic places or previously identified historic standing structures are covered in this chapter since they were discussed at length in the previously submitted Phase IA cultural resources assessment survey, in which it was determined that none of them would be impacted either directly or indirectly as a result of the proposed construction.

Previously Conducted Cultural Resources Survey Located Within the Vicinity of the Petition Project Site

A review of files maintained by the Connecticut State Historic Preservation Office revealed that only a single professional cultural resources survey has been completed within 0.8 km (0.5 mi) of the Petition Project Site (CHPC 74; Figure 10). This investigation was completed in June of 1977 by Connecticut Archaeological Survey, Inc. This project was completed on behalf of the Town of Enfield and its engineering consultant, Metcalf and Eddy. The project area encompassed as sewer alignment that is located to the southwest of the proposed Petition Project Site. The then-proposed sewer alignment was surveyed for the presence of archaeological resources through shovel testing. Despite the field effort, no cultural material or evidence of cultural features was identified. As a result, no additional testing of the sewer alignment was recommended.

Previously Recorded Archaeological Sites in the Vicinity of the Petition Project Site

A review of data currently on file at the Connecticut State Historic Preservation Office, as well as the electronic site files maintained by Heritage resulted in the identification of three previously recorded archaeological sites (49-7, 49-8, and 49-10) in the larger project region (Figure 11). While none of these sites is located within 0.8 km (0.5 mi) of the Petition Project Site, they do provide contextual information regarding archaeological deposits in the region. Each of the three sites is reviewed briefly below.

Site 49-7

Site 19-2 was identified in 1978 by Public Archaeology Survey Team, Inc., (Figure 10). According to the submitted site form, Site 49-7 consists of a Late Archaic camp. Cultural material recovered from the site area included various types on unidentified Late/Terminal Archaic projectile points. These artifacts originated from an area that was disturbed during construction of a housing subdivision. Unfortunately, no professional excavations were undertaken at Site 49-7 and no cultural features were identified. According to the site form, this site was destroyed by the housing construction. Site 49-7 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]).

Site 49-8

Site 49-8 also, known as the Roberta Site, was recorded in 1982 by Connecticut Archaeology Survey, Inc., (Figure 10). According to the submitted site form, this site was identified by a local artifact collector who recovered a single triangular quartz projectile point and an unspecified number of quartz flakes from the site area. No professional survey of the Site 49-8 was undertaken at the time of identification, and according the submitted site form, most of the site has been destroyed. Site 49-8 has not been assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]), and what remains of it will not be impacted by the proposed solar project.

Site 49-10

Site 49-10 also, known as the Powder Hollow Site, was identified in 1979 by Connecticut Archaeology Survey, Inc., (Figure 10). According to the submitted site form, this Archaic/Woodland period camp yielded 176 Brewerton and Narrow Stemmed projectile points, 7 pitted stones, 1 hammerstone, 3 drills, 4 knives, 8 scrapers, 2 adzes, 2 axes, 2 gouges, 15 pottery sherds, 2 pendants, 12 blade caches and 10 hearth features. According to the site form, the Powder Hollow site “is a large site with an enormous amount of artifactual material. The site is of great importance on the basis of the quantity of material recovered as well as in the large number of different kinds of material representing various activities at the site.” Site 49-10 has not been assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]), and it has been destroyed by development.

Summary and Interpretations

The review of previously completed archaeological research in the vicinity of the Petition Project Site and the analysis archaeological sites recorded nearby, indicates that this portion of Enfield, Connecticut contains a relatively long history of prehistoric Native American occupation and use. Prehistoric archaeological sites recorded in the larger project region appear to date from the Late Archaic period (ca., 6,000 years ago) onward. Moreover, the data noted in the previously identified prehistoric sites indicate that the area was used for a variety of tasks and for variable amounts of time, ranging from task specific and temporary occupations to seasonal camps. This suggests that prehistoric sites may be expected in those undisturbed portions of the Western and Eastern Array areas that are in relative proximity to nearby freshwater sources, have level slopes, and that have not been heavily disturbed in the past.

CHAPTER VI

METHODS

Introduction

This chapter describes the research design and field methodology used to complete the current Phase IB cultural resources reconnaissance survey of the moderate/high sensitivity areas within the Petition Project Site in Enfield, 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 prehistoric and historic cultural resources located within the previously identified moderate/high sensitivity areas associated with the Petition Project Site. Fieldwork for the project was comprehensive in nature; planning considered the results of previously completed archaeological surveys within the larger project region, the distribution of previously recorded archaeological sites located near the Petition Project Site, and an assessment of the natural qualities of the Petition Project Site. The methods used to complete this investigation were designed to provide complete and thorough coverage of all portions of the moderate/high sensitivity areas within the Petition Project Site. This undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, and photo-documentation.

Field Methodology

Following the completion of all background research, the moderate/high sensitivity areas previously identified within the Western and Eastern Array areas were subjected to a Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, intensive photo-documentation, mapping, 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 moderate/high sensitivity areas scheduled for impacts by the proposed solar project, as well as photo-documentation of them. The field methodology also included subsurface testing of the moderate/high sensitivity areas within the Western and Eastern Array areas, during which shovel tests were excavated at intervals ranging from 15 to 30 m (49.2 to 98.4 ft) intervals depending upon the degree of slopes and the characteristics of the soils in the areas. The shovel tests were excavated along parallel survey transects spaced from 15 to 30 m (49.2 to 98.4 ft) depending upon location.

During survey, each shovel test measured 50 x 50 cm (19.7 x 19.7 in) in size and each was excavated until the glacially derived C-Horizon was encountered or until large buried objects (e.g., boulders) prevented further excavation. Each shovel test was excavated in 10 cm (3.9 in) arbitrary levels within natural strata, and the fill from each level was screened separately. All shovel test fill was screened through 0.635 cm (0.25 in) hardware cloth and examined visually for cultural material. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Finally, each shovel test was backfilled immediately upon completion of the archaeological recordation process.

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:

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CHAPTER VII

RESULTS OF THE INVESTIGATION

Introduction

This chapter presents the results of a Phase IB cultural resources reconnaissance survey of the moderate/high sensitivity portions of the Western and Eastern Array areas located within the Petition Project Site in Enfield, Connecticut (Figure 2). The Phase IB investigation was completed on behalf of Tighe& Bond in August and September of 2018 by personnel representing Heritage. All fieldwork was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office. The Phase IB cultural resources reconnaissance survey results are presented below.

Results of the Phase IB Cultural Resources Reconnaissance Survey of the Moderate/High Sensitivity Areas Within the Western and Eastern Array Areas

As discussed in Chapter I of this document, there were two areas within the Petition Project Site that were recommended for Phase IB cultural resources reconnaissance survey. They were located in the northern portion of the Western Array area and the central portion of the Eastern Array area, respectively. The part of the Western Array area that was subjected to Phase IB testing is situated within the northeastern corner of a large agricultural field that is owned by Jarmoc Farms and is situated to the east of Broad Brook Road (Figures 2 and 12). The moderate/high sensitivity portion of the Eastern Array area, which is located in the eastern portion of the Petition Project Site, is situated within a forested area and is bounded to the south and west by steep slopes, to the east by an existing Eversource Energy electrical transmission line and to the north by a private residence and an Eversource Energy electrical substation (Figure 2 and Figure 13; Sheets 1 through 4). During the Phase IB cultural resources reconnaissance survey, 419 of 433 (97 percent) planned shovel tests were excavated successfully throughout the two moderate/high sensitive survey areas (Figure 12 and Figure 13; Sheets 1 through 4 and Table 1). The field effort undertaken throughout each sensitivity area is described in further detail below.

Table 1. List of moderate/high sensitivity areas and Phase IB testing results.

Array Area	Acreage Examined	No. of Shovel Tests Excavated	No. of Shovel Test Planned	Results
Western Array Area	4.11	100	100	No Cultural Resources Identified
Eastern Array Area	51.24	319	333	No Cultural Resources Identified
-		419	433	-

Western Array Area

The northern portion of the Western Array area, which was identified as a moderately sensitive area for archaeological deposits, is located in the northeastern corner of an agricultural field situated on the eastern side of Broad Brook Road. This area, which encompasses 4.11 acres of land, is used annually as a tobacco field by Jarmoc Farms, the owner (Figure 12). Elevations throughout this area ranged from approximately 51.8 to 57.9 m (170 to 190 ft) NGVD, with the area sloping gently from southeast to northwest. At the time of survey, tobacco had just been harvested from the field and the ground surface was devoid of vegetation (Figure 14 and 15). The northern portion of the Western Array area is characterized by a mixture of Enfield soil to the east and Manchester soils to the west; both soil types are silty to sandy loams, with the

Manchester series containing more gravel than the Enfield series. During survey, a total of 100 of 100 (100 percent) planned shovel tests were excavated along 13 survey transects placed throughout this area (Figure 12).

A typical shovel test profile in tested portion of the Western Array area exhibited three soil strata in profile and extended to a maximum depth of 70 cmbs (28 inbs). Stratum I, the Ap-Horizon (plowzone), extended from 0 to 25 cmbs (0 to 10 inbs) and was described as a plowzone deposit of dark grayish brown (10YR 4/2) silty loam. Underlying Stratum I was Stratum II, the B-Horizon, which reached from 25 to 55 cmbs (10 to 22 inbs) and consisted of a layer of strong brown (7.5YR 5/6) silty loam. Finally, Stratum III, which was represented by the glacially derived C-Horizon, was classified as a deposit of brown (10YR 5/3) very gravelly sand; it ranged in depth from 55 to 70 cmbs (22 to 28 inbs), where excavation was terminated. Despite the intensive field effort associated with the Phase IB cultural resources reconnaissance survey of northern portion of the Western Array area, no cultural material or evidence of cultural features were identified. As a result, the proposed construction will have no impacts on cultural resources within Western Array area.

Eastern Array Area

As mentioned above, the Eastern Array area is located within the eastern portion of the Petition Project Site associated with the Nutmeg Solar Project. Containing 51.24 acres of land, this area is located atop a drumlin that slopes steeply on the eastern, southern and western sides. Elevations throughout the Eastern Array area range from approximately 76.2 to 97.5 m (250 to 320 ft) NGVD and the area slopes generally from south to north at a low to moderate grade (Figure 13; Sheets 1 through 4). This area was covered in mixed deciduous forest at the time of survey and soils noted throughout the area belonged to the Narragansett series, which consist of silty loams (Figures 16 through 18) . During survey, a total of 319 of 333 (96 percent) planned shovel tests were excavated along 13 survey transects placed throughout this sensitive area (Figure 13; Sheets 1 through 4). The 14 planned but unexcavated shovel tests fell within steeply sloping areas.

A typical shovel test profile in the Eastern Array area exhibited three soil strata in profile and extended to a maximum depth of 60 cmbs (24 inbs). Stratum I, the A-Horizon, extended from 0 to 13 cmbs (0 to 5.2 inbs) and it was described as a deposit of dark brown (10YR 3/3) sandy loam. Underlying Stratum I was Stratum II, a B-Horizon deposit that reached from 13 to 47 cmbs (5.2 to 18.8 inbs) and was described as a layer of strong brown (10YR 4/6) loamy sand. Finally, Stratum III, the glacially derived C-Horizon, was classified as a deposit of light olive brown (2.5Y 5/4) fine sand with areas of oxidation throughout; it ranged in depth from 47 to 60 cmbs (18.8 to 24 inbs), where excavation was terminated. Despite the intensive field effort associated with the Phase IB cultural resources reconnaissance survey of the Eastern Array area, no cultural material or evidence of cultural features were identified. Thus, the proposed construction will have no impacts on cultural resources within the Eastern Array area.

CHAPTER VIII

SUMMARY & MANAGEMENT

RECOMMENDATIONS

Heritage completed Phase IB cultural resources reconnaissance survey of the Western and Eastern Array areas within the Petition Project Sites associated with the Nutmeg Solar Project in Enfield, Connecticut during August and September of 2018. The project was performed on behalf Tighe & Bond. The field effort resulted in the examination of 4.11 acres of land previously identified as a moderate sensitivity area for historic period cultural deposits in the northern portion of the Western Array area, as well as 51.24 acres of land thought to retain a moderate/high potential to prehistoric period archaeological resources in the Eastern Array area. These areas were examined through the excavation of 419 of 433 (96 percent) planned shovel tests. The 14 planned but unexcavated shovel tests were located within areas of steep slopes. Despite this field effort, no cultural material or cultural features dating from either the prehistoric or historic periods were identified within either northern portion of the Western Array area or the examined portion of the Eastern Array area; thus, it was determined that the planned construction associated with the proposed solar field will not impact any archaeological resources. No additional testing of these areas is recommended prior to construction.

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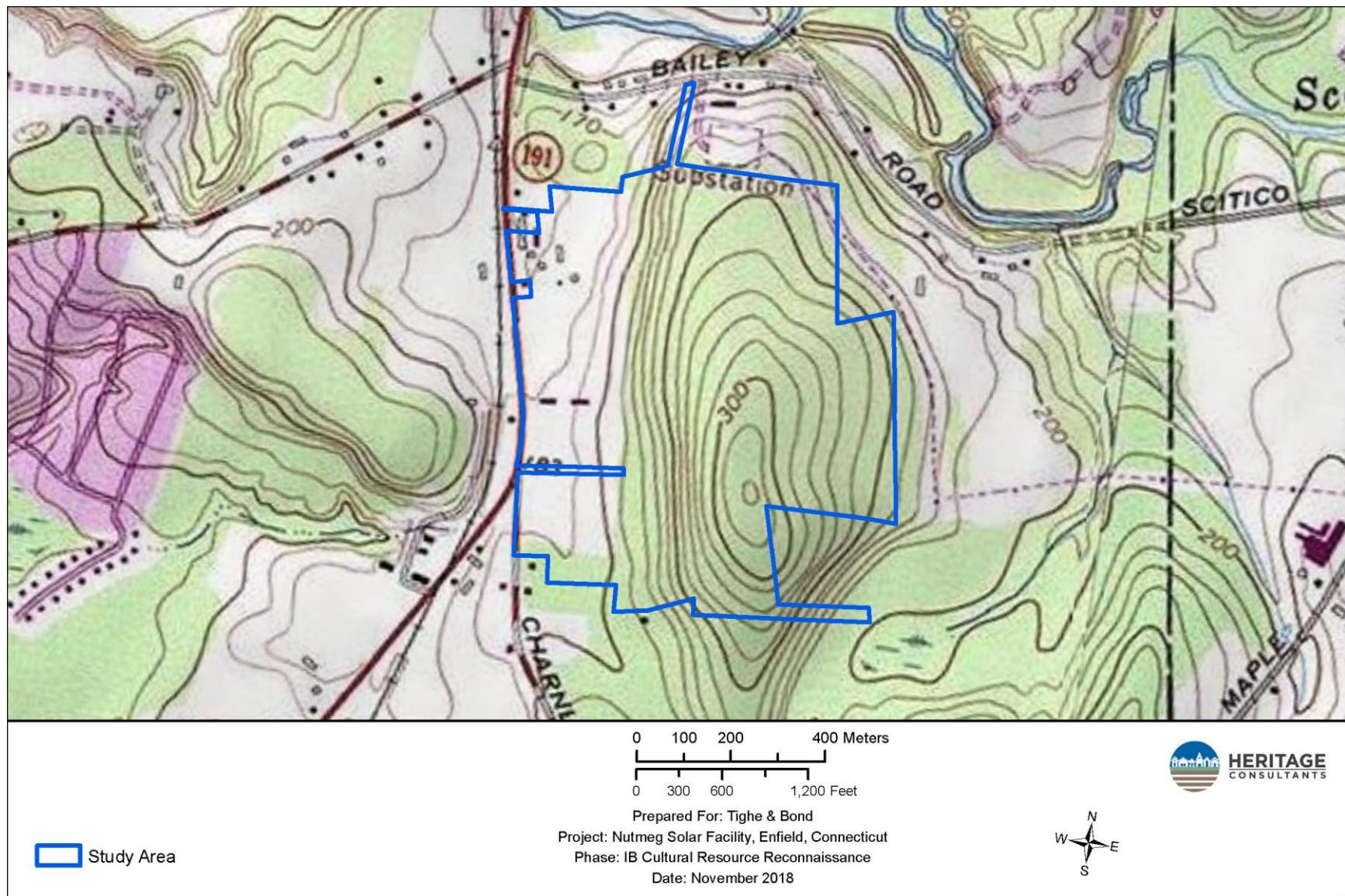


Figure 1 Excerpt from a USGS 7.5' series topographic quadrangle image showing the Petition Project Site in Enfield, Connecticut.

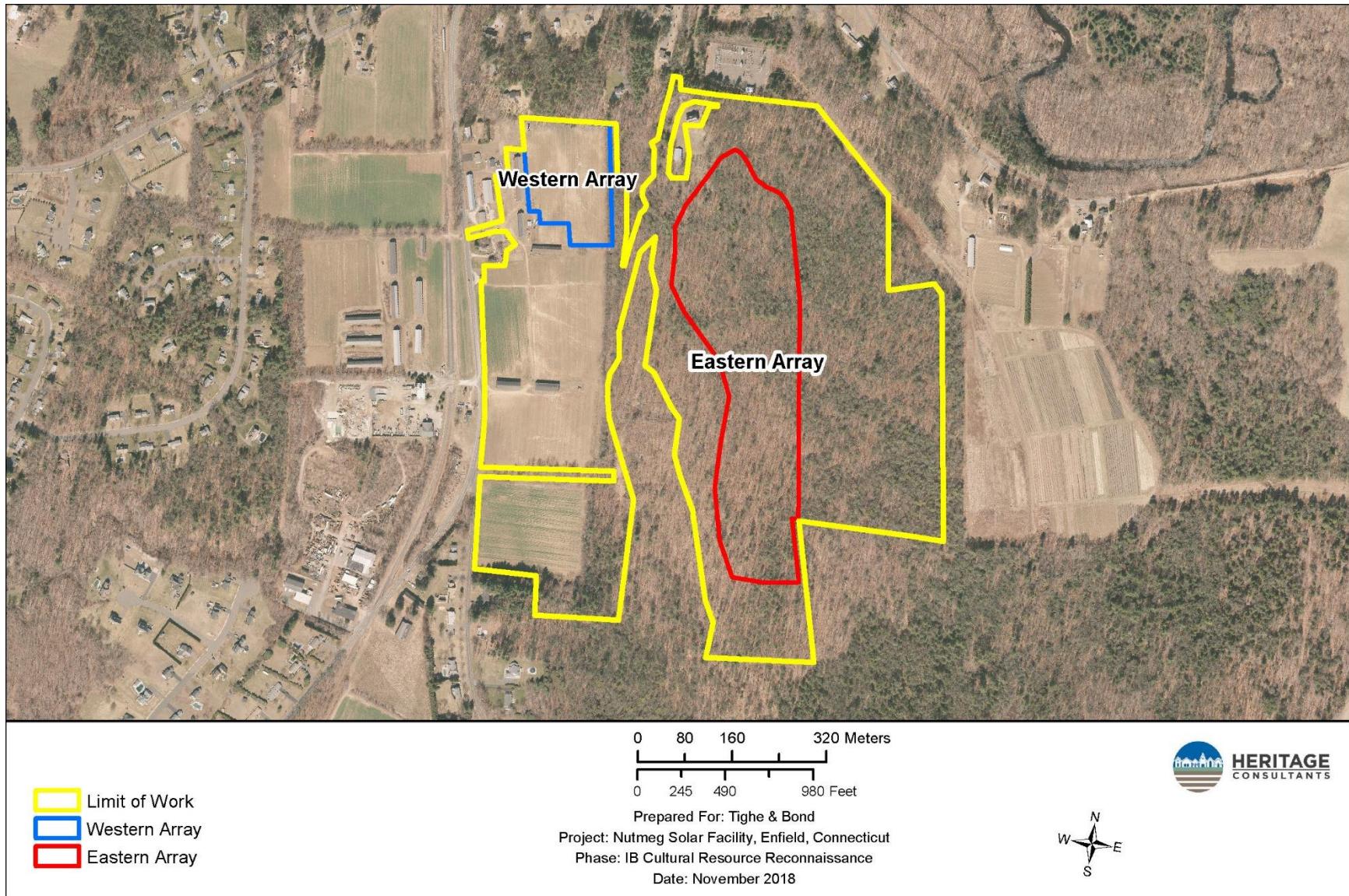


Figure 2. Excerpt from a USGS 7.5' series topographic quadrangle image showing the Limits of Work (LOW) and the Phase IB testing areas in Enfield, Connecticut.

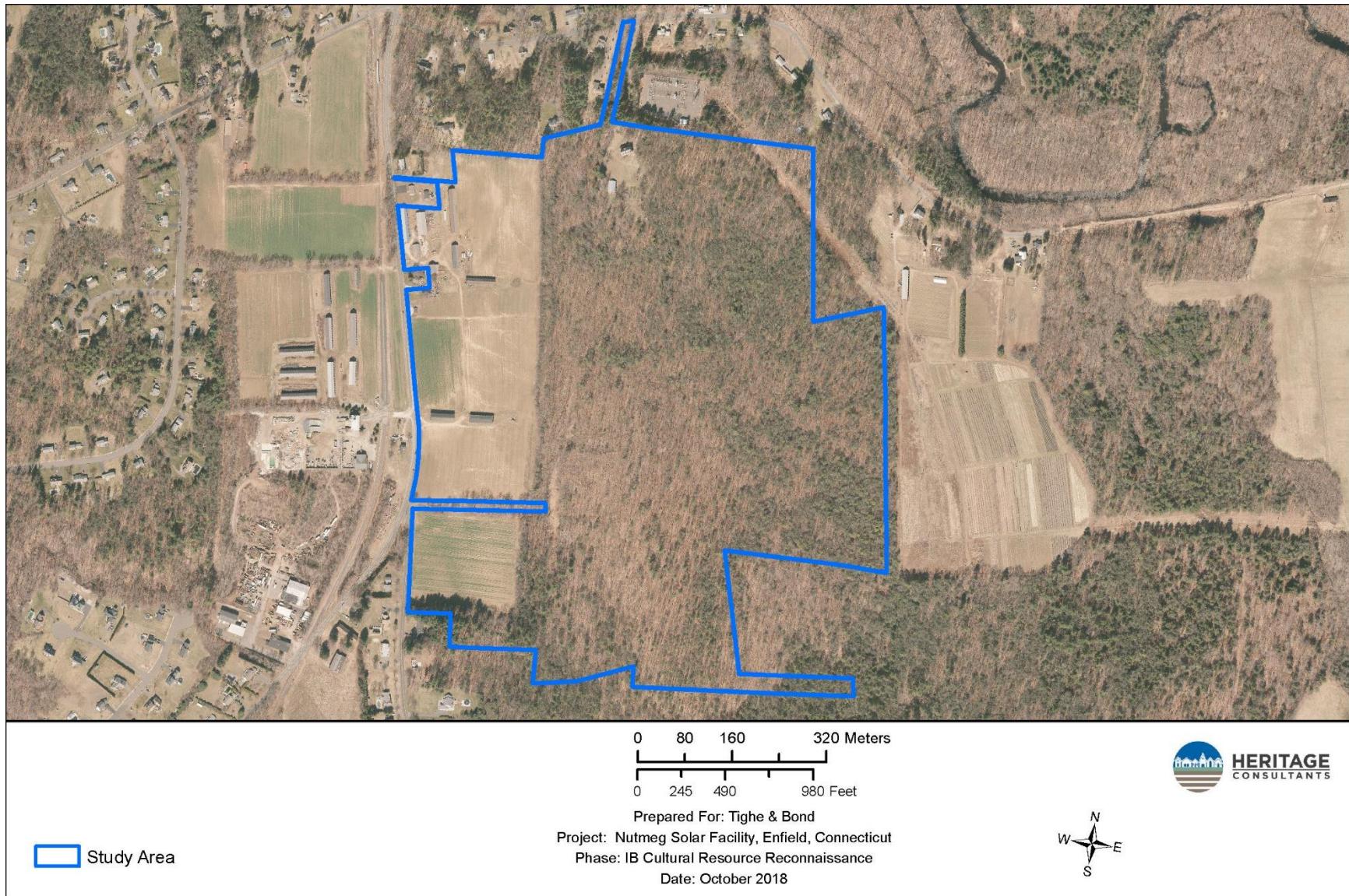


Figure 3. Excerpt from a 2016 aerial image showing the location of the Petition Project Site in Enfield, Connecticut.

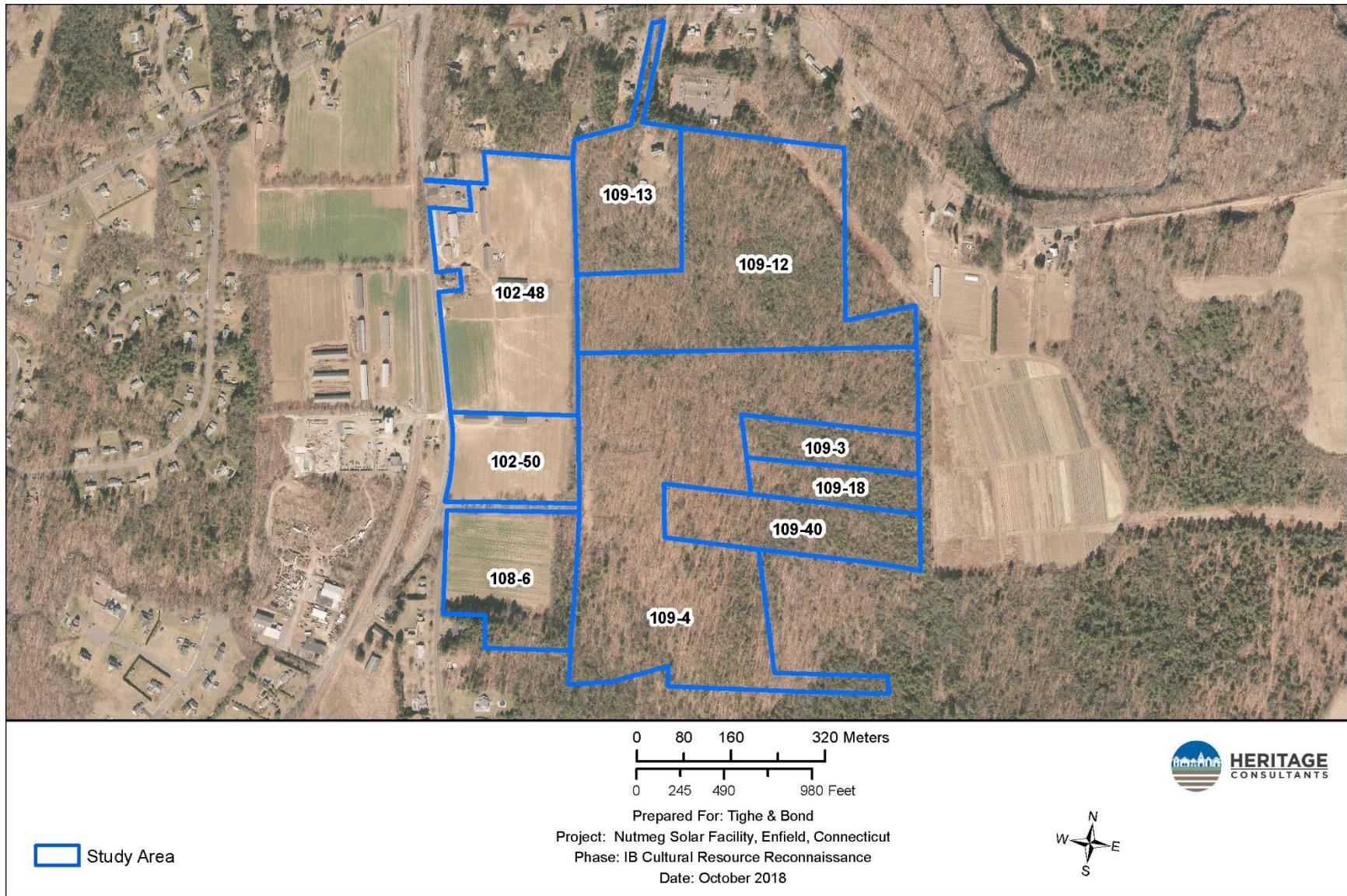


Figure 4. Excerpt from a 2016 aerial image depicting the parcel identifiers associated with the Nutmeg Solar Facility in Enfield, Connecticut.

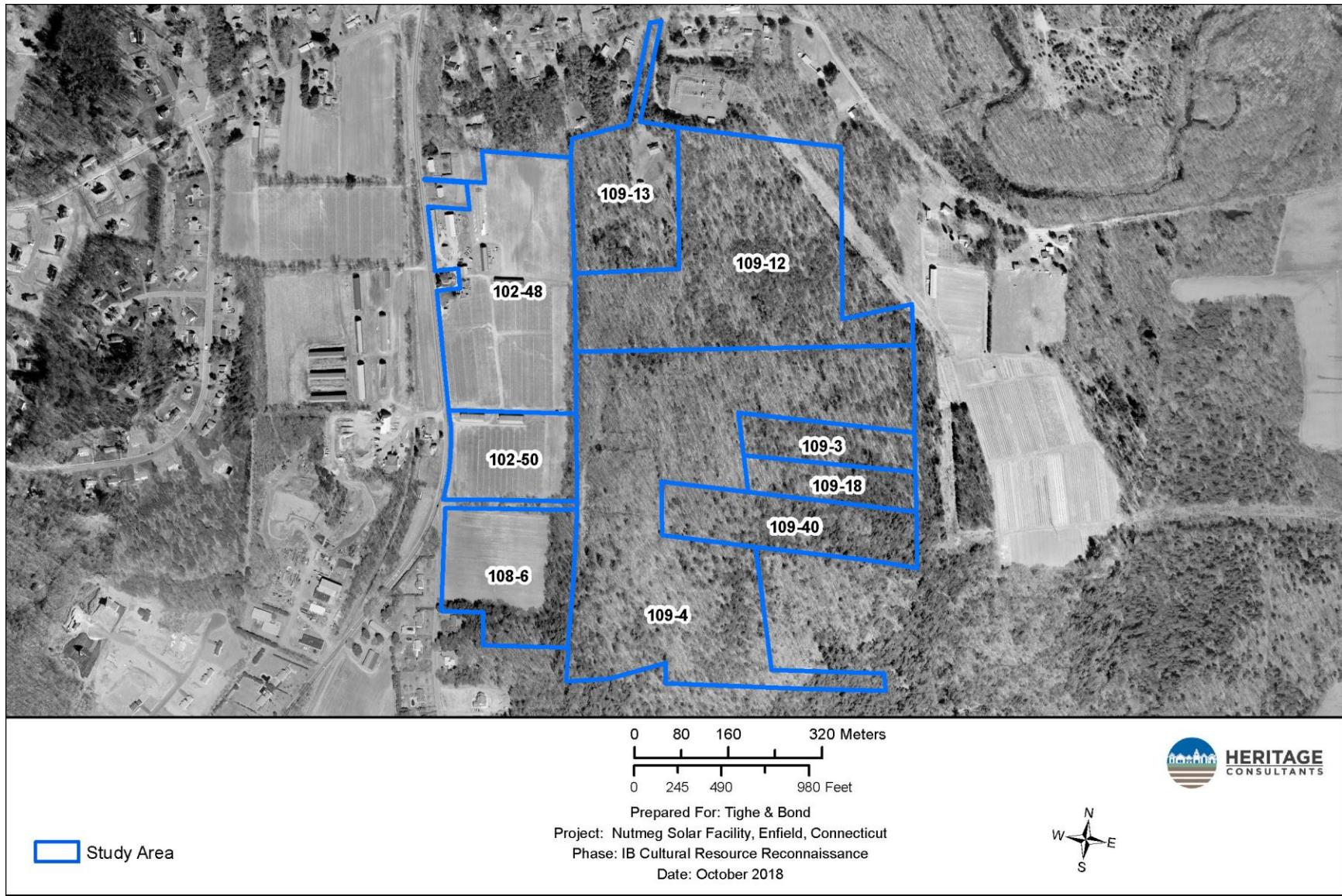


Figure 5. Excerpt from a 2004 aerial image depicting the parcel identifiers associated with the Nutmeg Solar Project in Enfield, Connecticut.

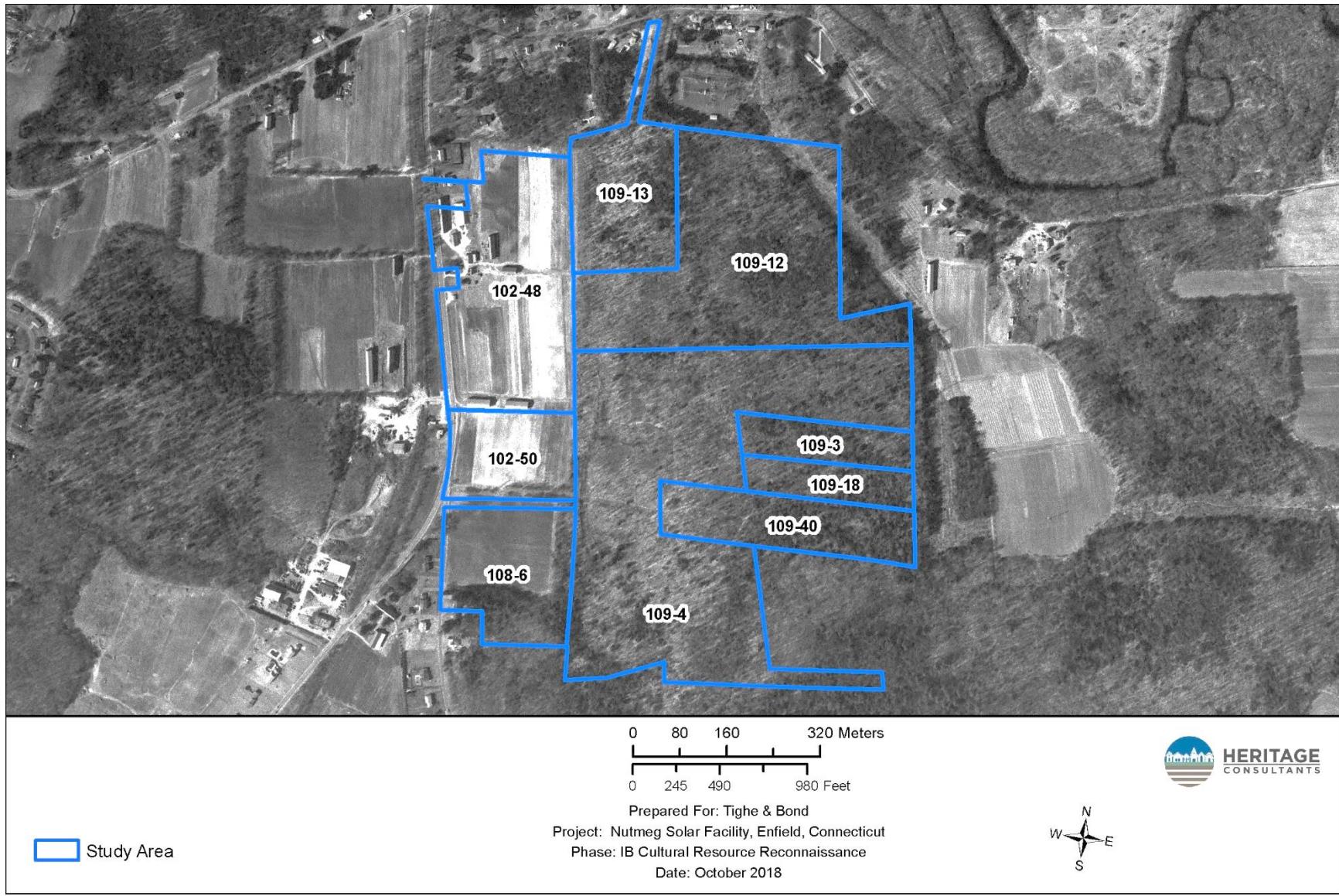


Figure 6. Excerpt from a 1991 aerial image depicting the parcel identifiers associated with the Nutmeg Solar Project in Enfield, Connecticut.

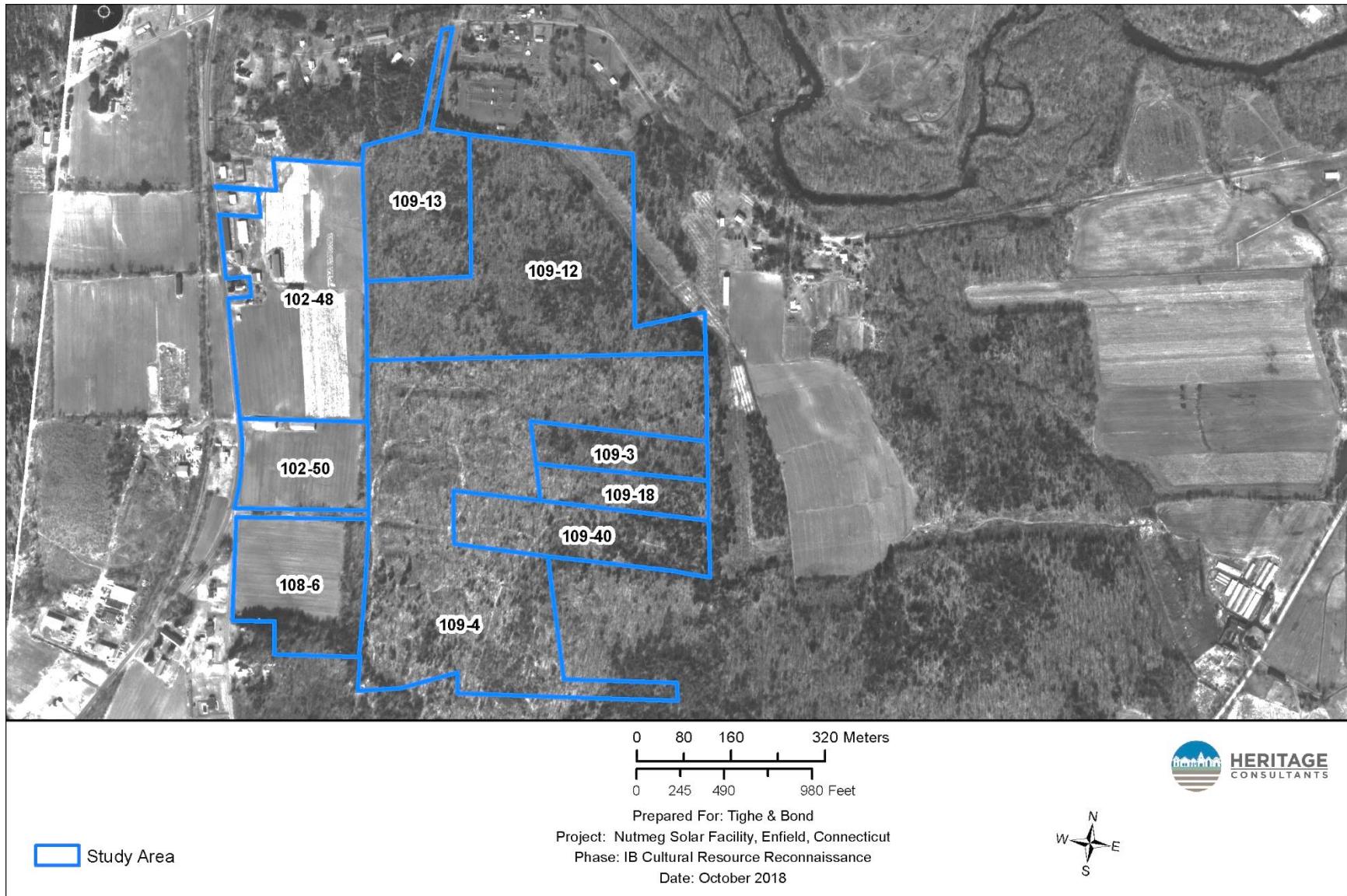


Figure 7. Excerpt from a 1985 aerial image depicting the parcel identifiers associated with the Nutmeg Solar Project in Enfield, Connecticut.

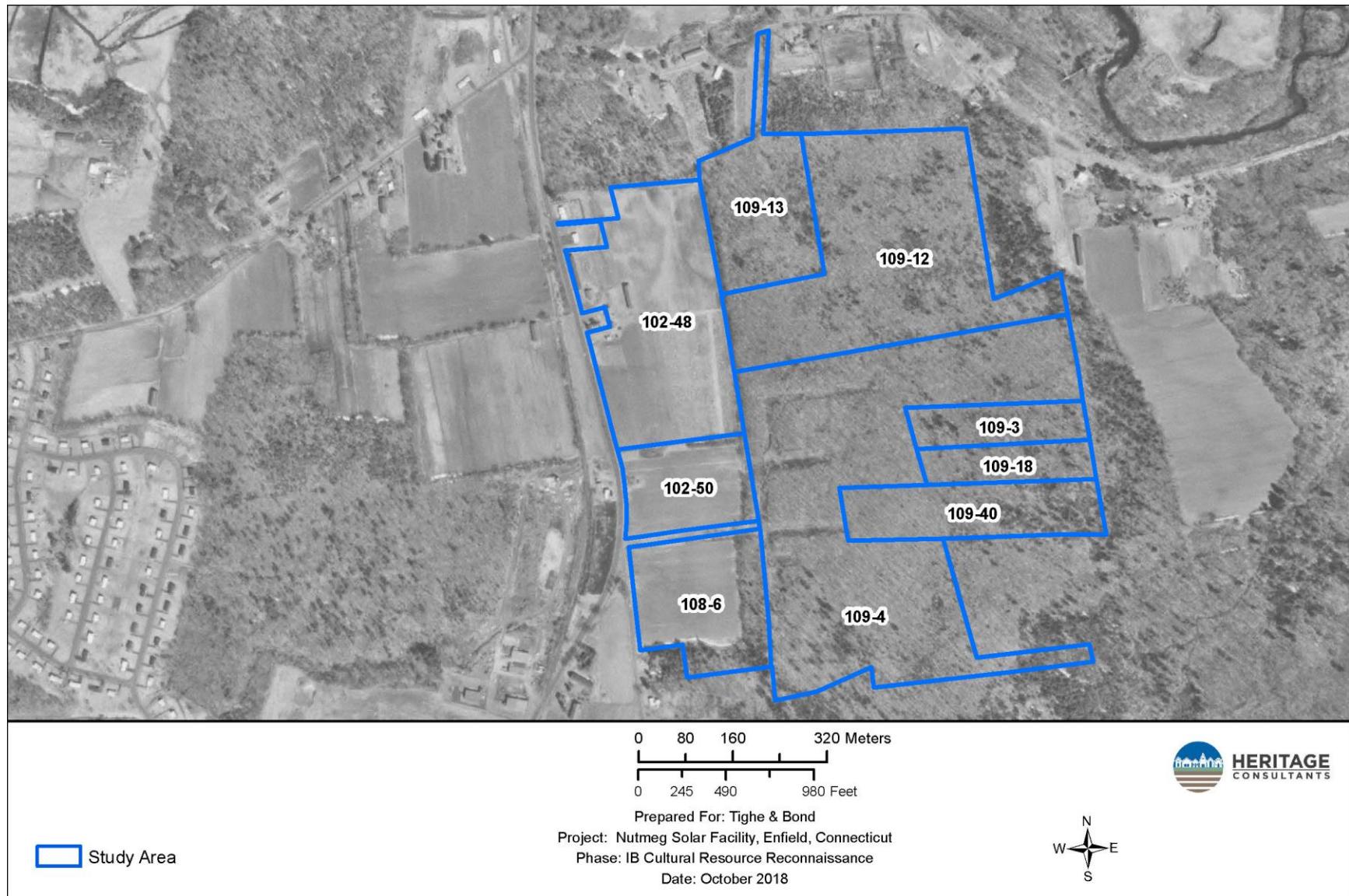


Figure 8. Excerpt from 1970 aerial image depicting the parcel identifiers associated with the Nutmeg Solar Project in Enfield, Connecticut.

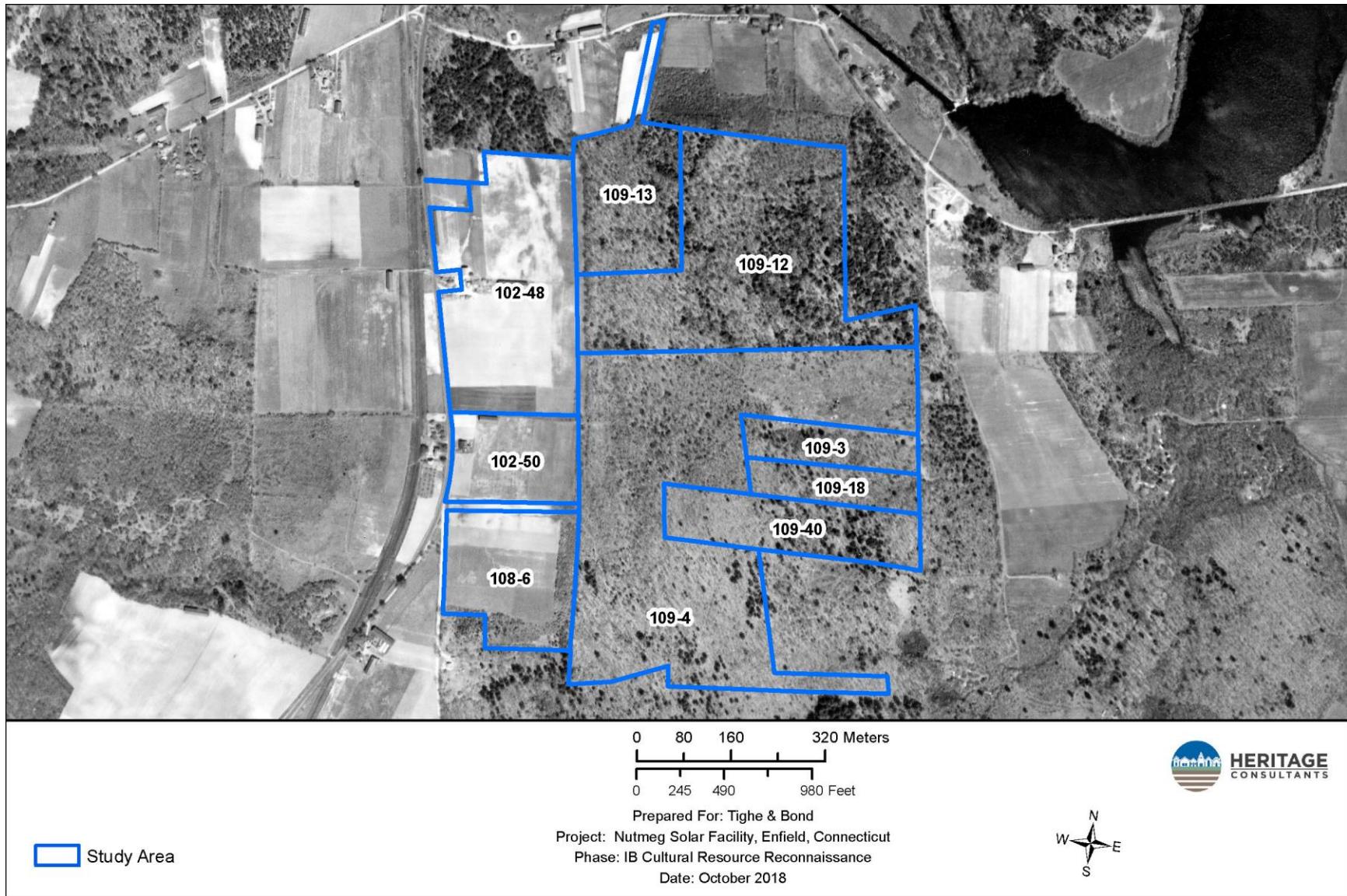


Figure 9. Excerpt from a 1934 aerial image depicting the parcel identifiers associated with the Nutmeg Solar Project in Enfield, Connecticut.

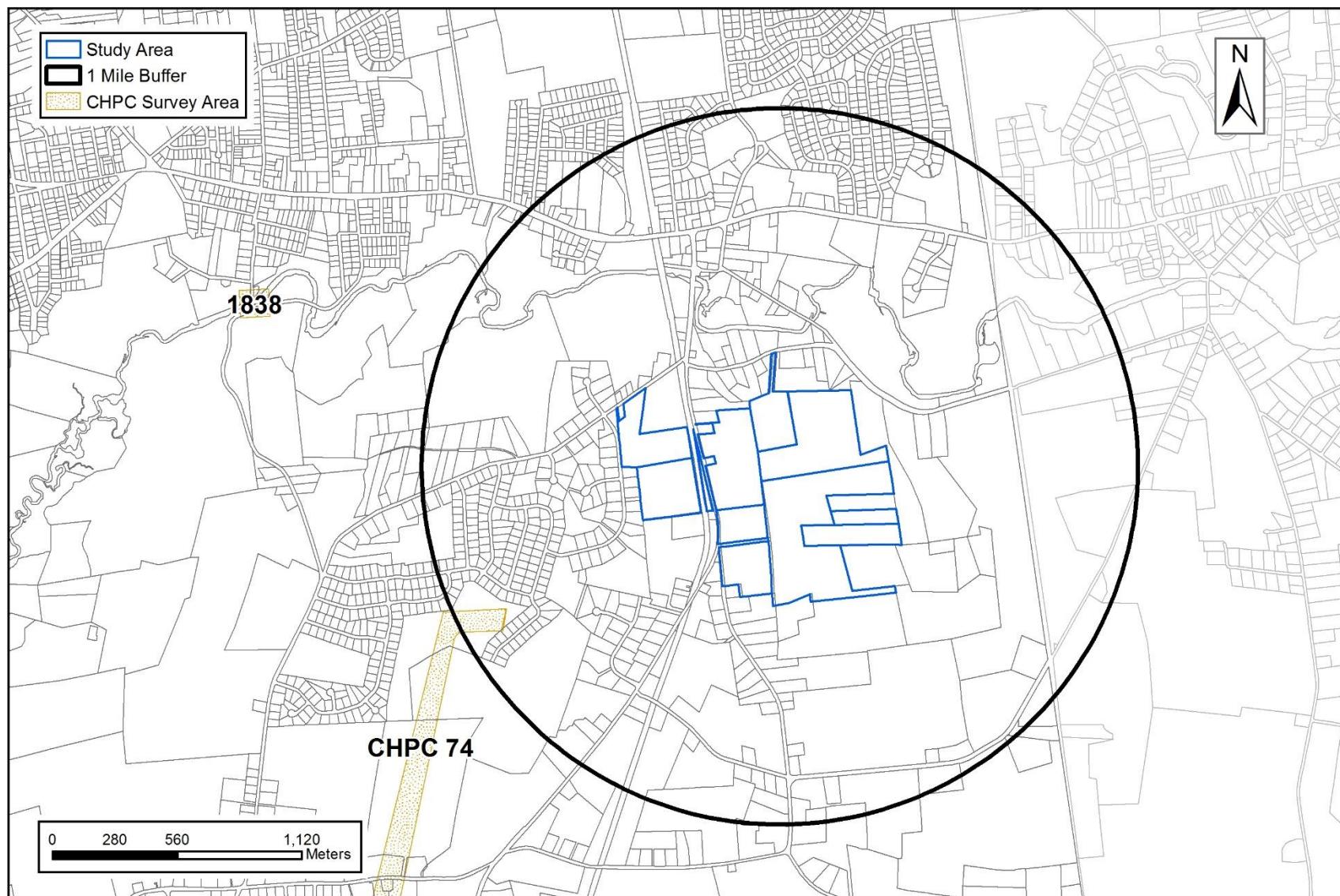


Figure 10. Digital map showing the locations of previously completed archaeological surveys in the vicinity of the Petition Project Site in Enfield, Connecticut.

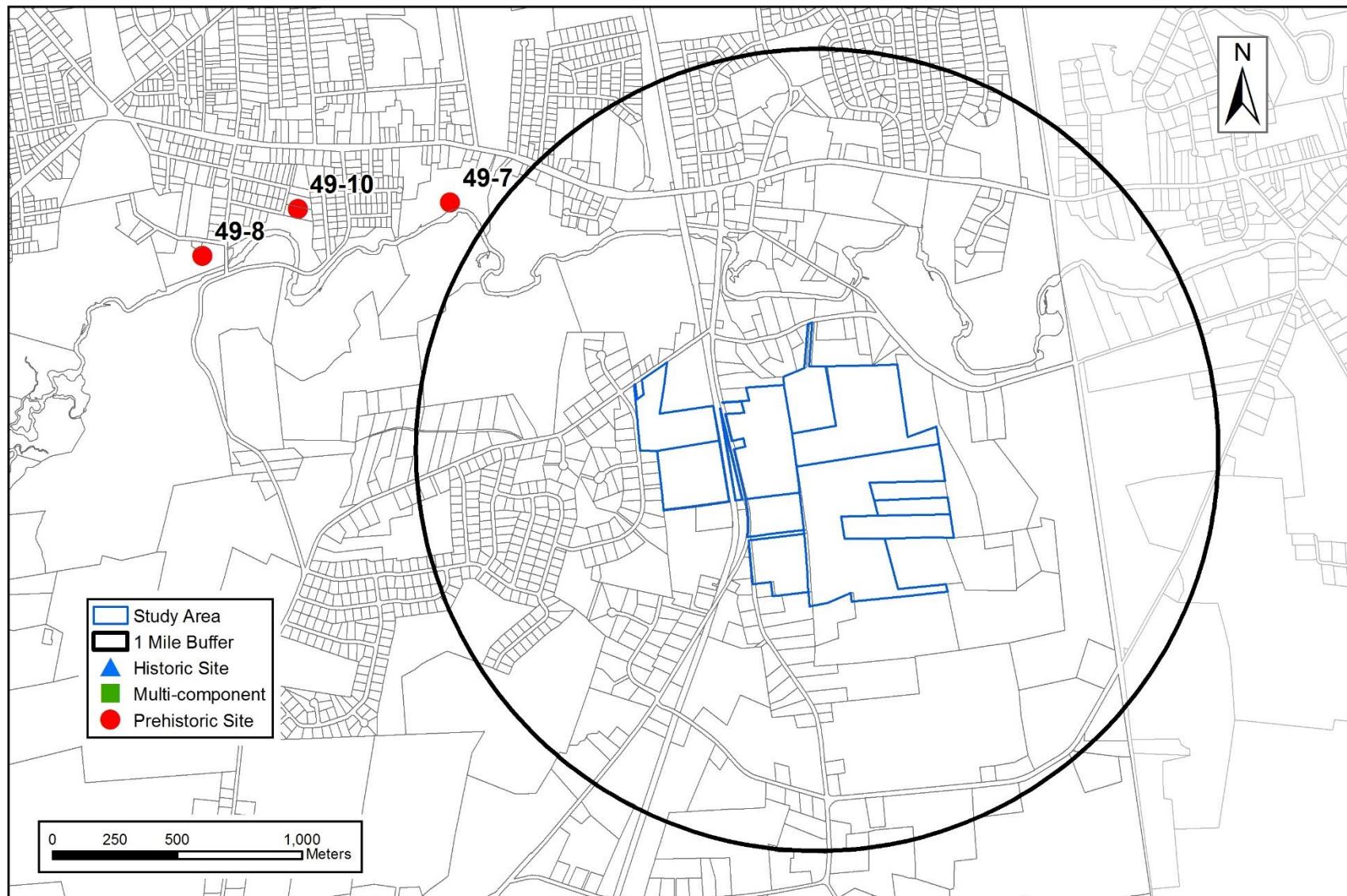


Figure 11. Digital map showing the locations of previously identified archaeological sites in the vicinity of the Petition Project Site in Enfield, Connecticut.

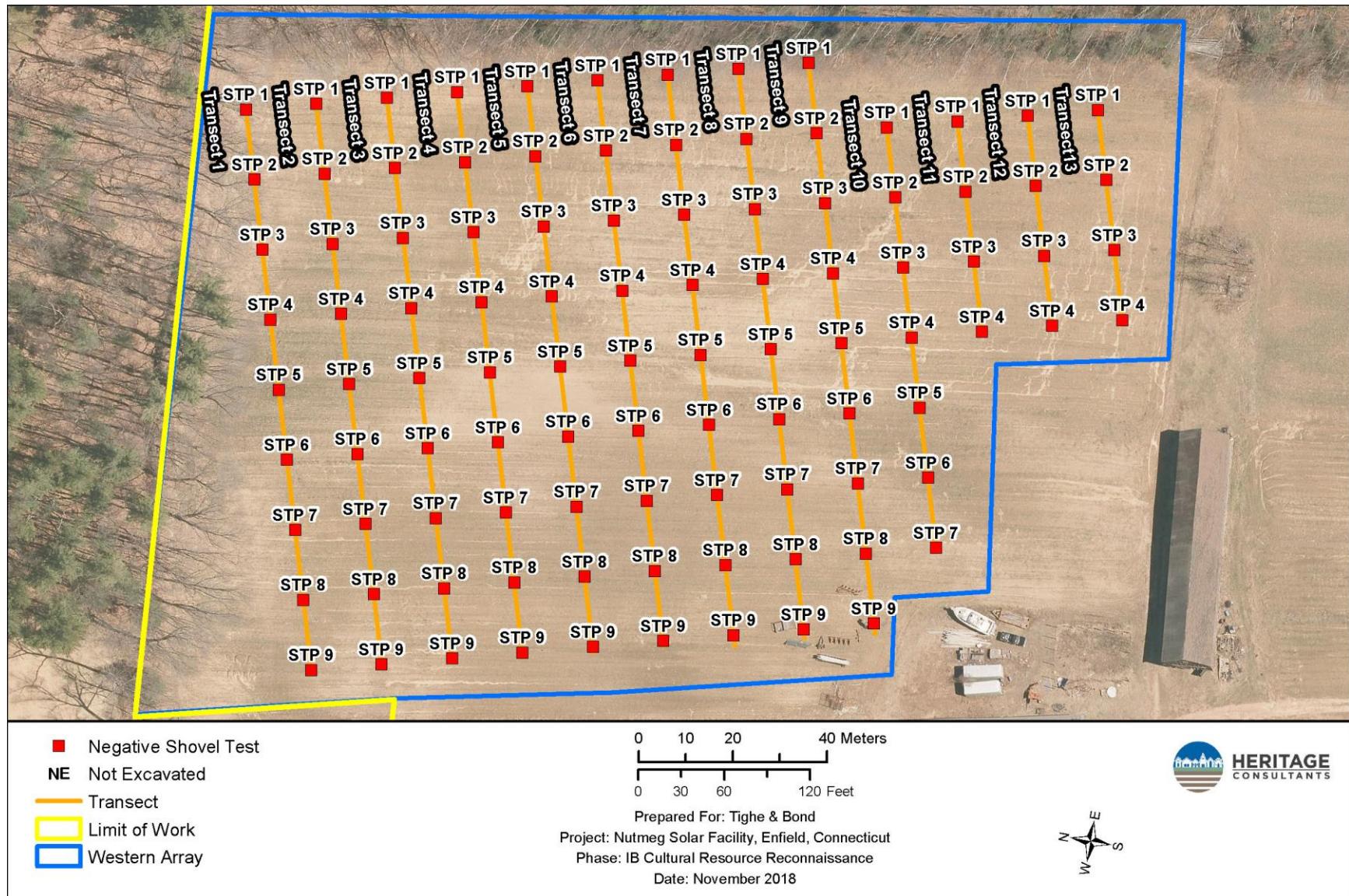


Figure 12. Excerpt from a 2016 aerial image showing the northwestern portion of the Western Array area and the locations of completed shovel tests along Survey Transects 1 through 8.

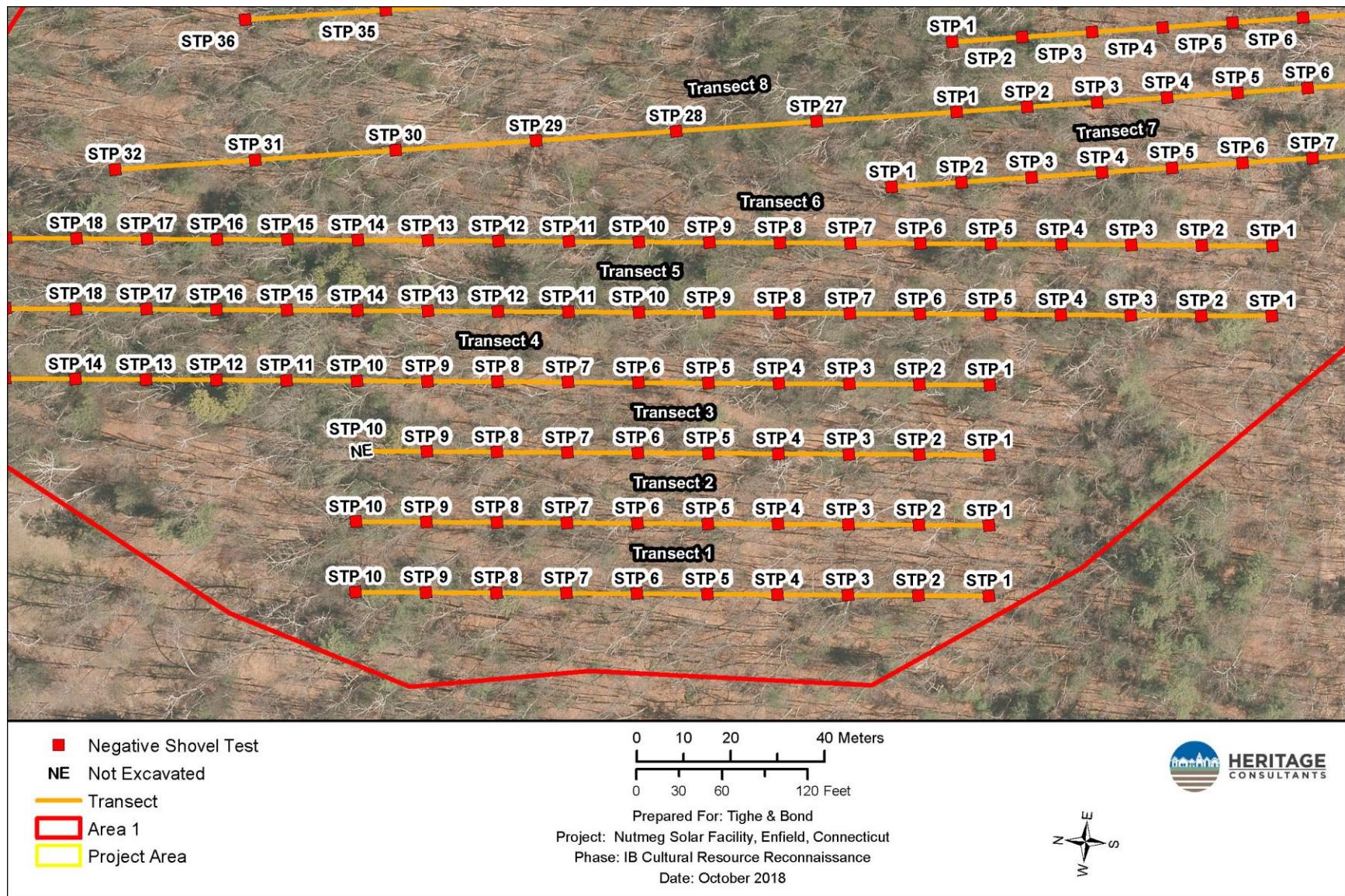


Figure 13; Sheet 1. Excerpt from a 2016 aerial image showing the northwestern portion of the Eastern Array area and the locations of completed shovel tests along Survey Transects 1 through 8.

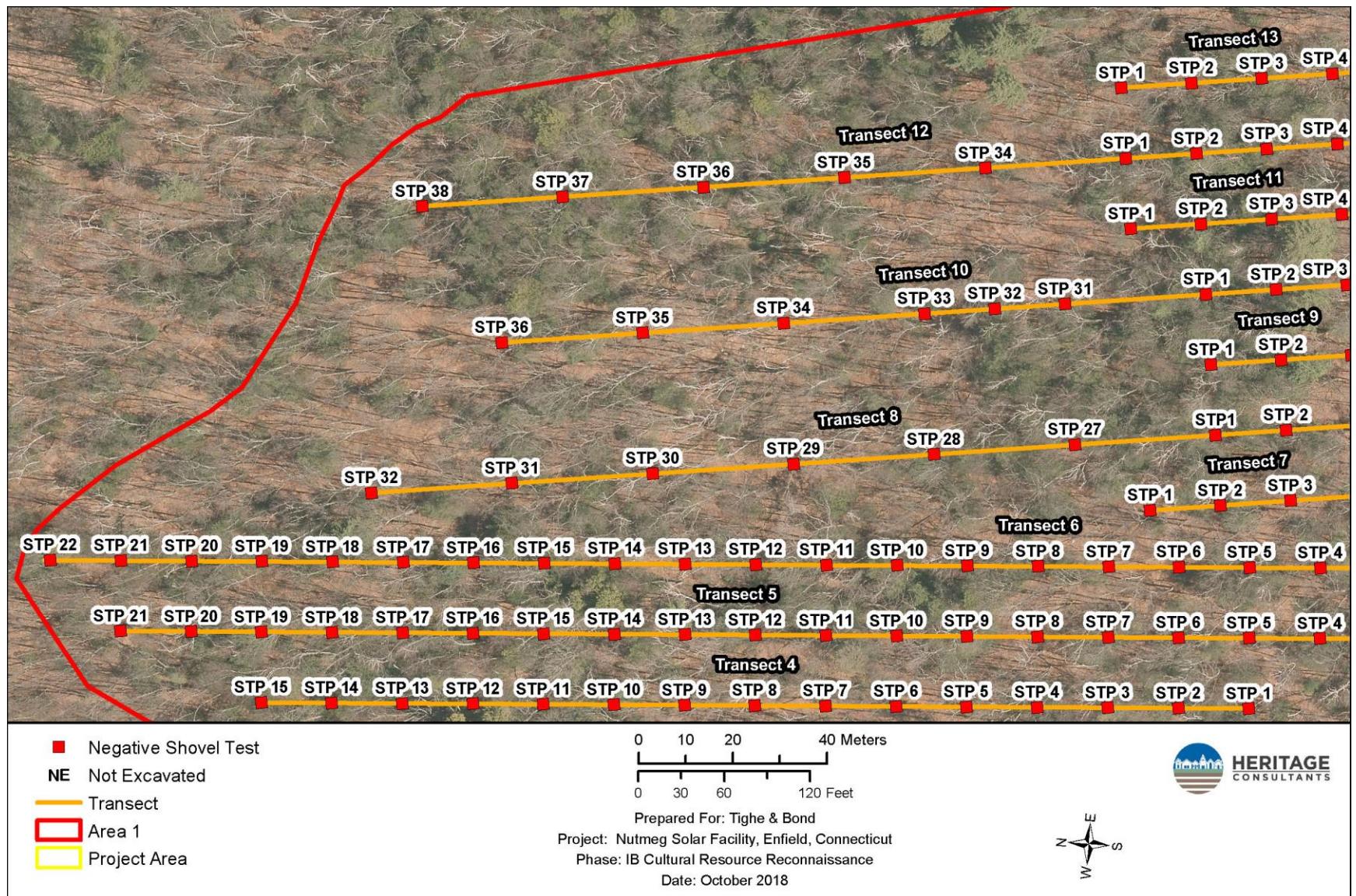


Figure 13; Sheet 2. Excerpt from a 2016 aerial image showing the northern portion of the Eastern Array area and the locations of completed shovel tests along Survey Transects 4 through 13.

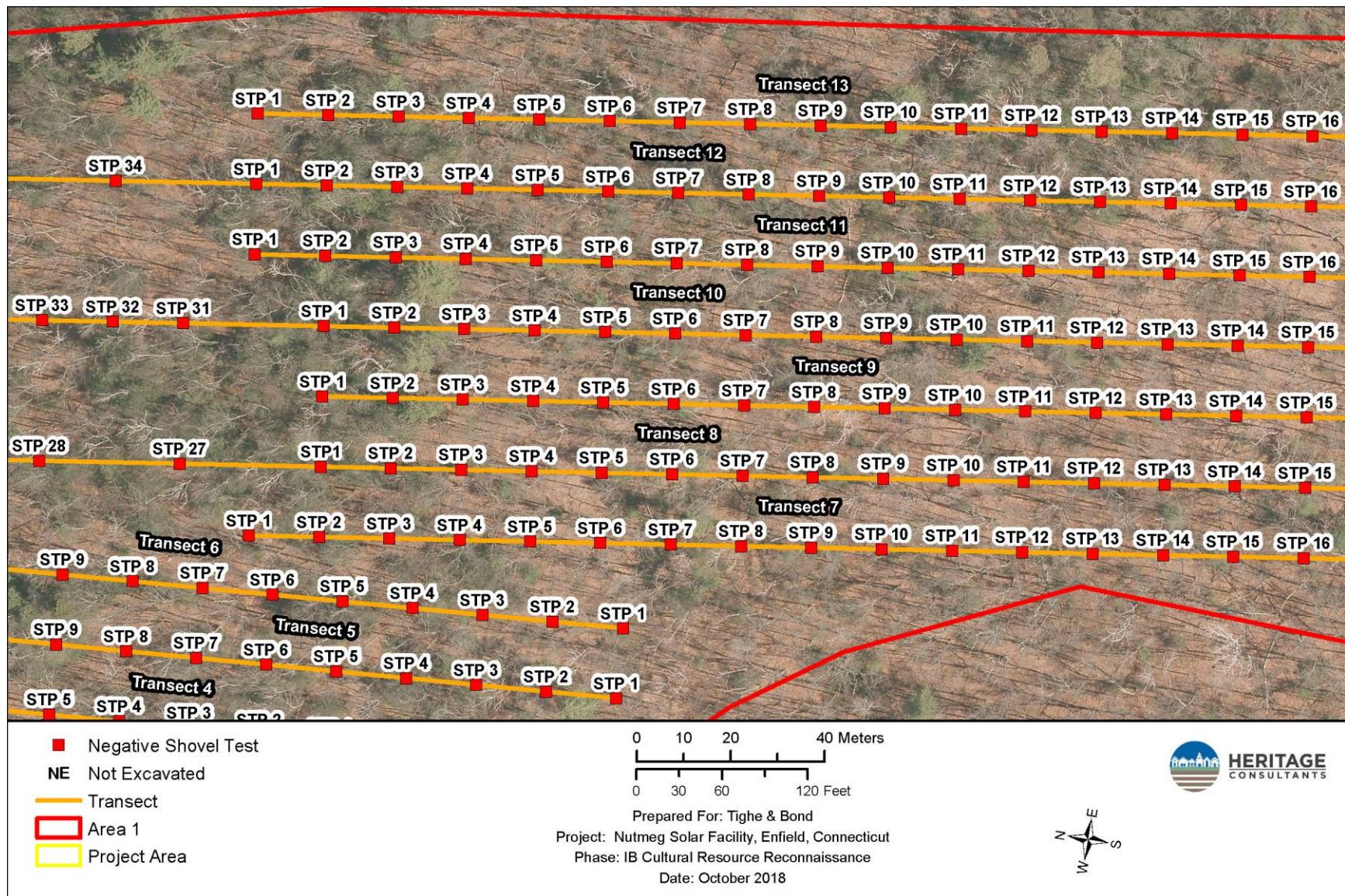


Figure 13; Sheet 3. Excerpt from a 2016 aerial image showing the central portion of the Eastern Array area and the locations of completed shovel tests along Survey Transects 4 through 13.

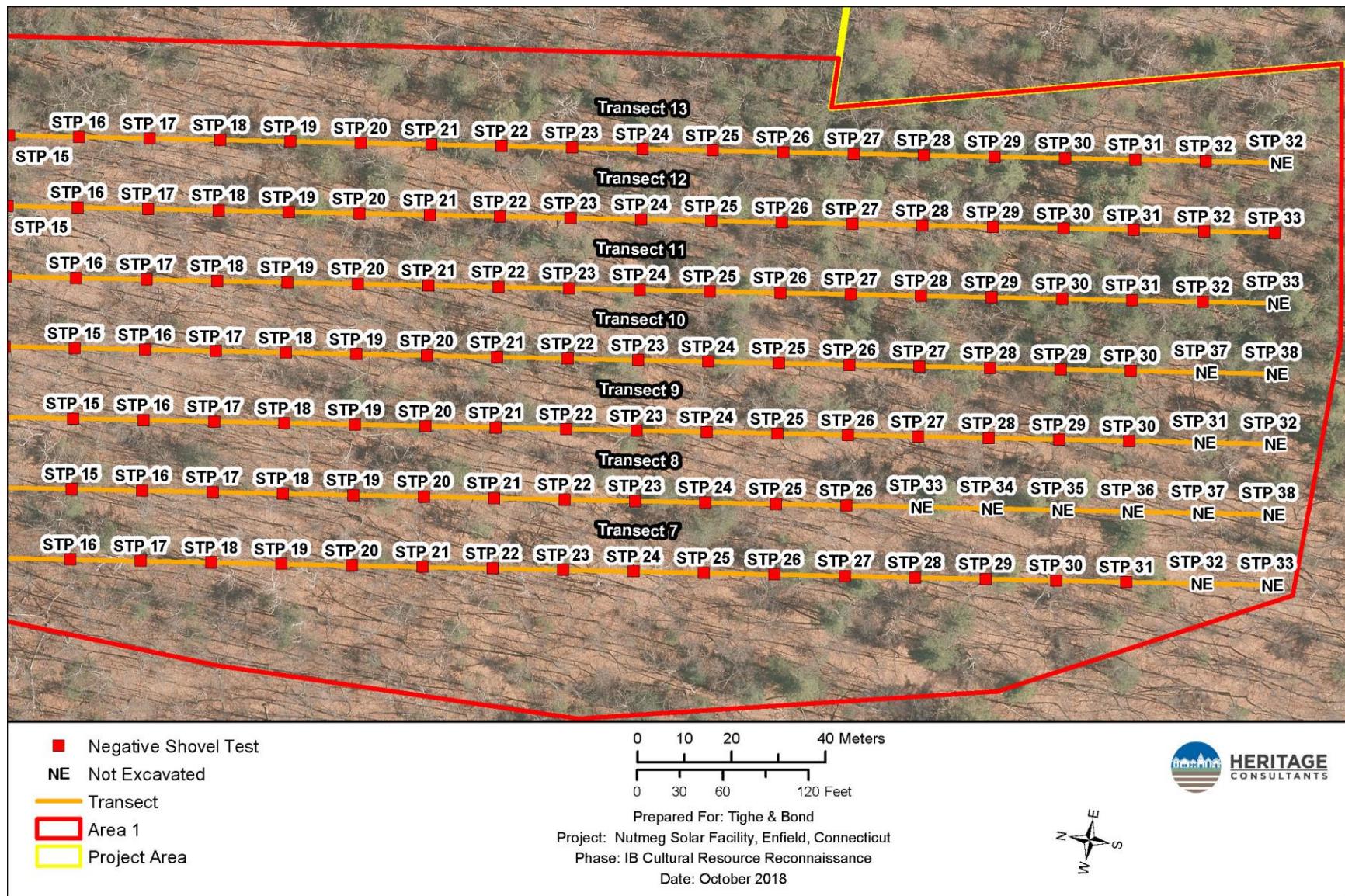


Figure 13; Sheet 4. Excerpt from a 2016 aerial image showing the southern portion of the Eastern Array area and the locations of completed shovel tests along Survey Transects 7 through 13.



Figure 14. Overview photo of the northern portion of the Western Array area facing northwest.



Figure 15. Overview photo of the northern portion of the Western Array area facing northeast.



Figure 25. Overview photo of Building 7 facing northwest.

Figure 16. Overview photo of the northern portion of the Eastern Array area facing north.



Figure 17. Overview photo of the central portion of the Eastern Array area facing southeast.



Figure 18. Overview photo of southern portion of the Eastern Array area facing southwest.