Exhibit G

Environmental Assessment

ENVIRONMENTAL ASSESSMENT

PROPOSED TRITEC AMERICAS, LLC

AMARAL SOLAR PROJECT

254 PUTNAM ROAD

POMFRET CENTER, CONNECTICUT

WINDHAM COUNTY

Prepared for:

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Table of Contents

Figures

Figure No. **Title**

Tables

Appendices

1 Introduction

All-Points Technology Corporation, P.C. ("APT") prepared this Environmental Assessment ("EA") on behalf of TRITEC Americas, LLC (hereinafter referred to as the "Petitioner") for the proposed installation and utility interconnection of a solar-based electric generating facility, with output of approximately 1.97 megawatts[1] ("MW") (the "Project") located in the Town of Pomfret, Connecticut ("Town"). This EA has been completed to support the Petitioner's submission to the Connecticut Siting Council ("Council") of a petition for declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of the electric generating facility.

The results of this assessment demonstrate that the proposed development will comply with the Connecticut Department of Energy and Environmental Protection's ("DEEP") air and water quality standards and will not have an undue adverse effect on the existing environment and ecology. Further, a review of Connecticut General Statutes § 22a-20a indicates that the proposed Project is neither defined as an "affecting facility"[2] nor located within an "environmental justice community."[3]

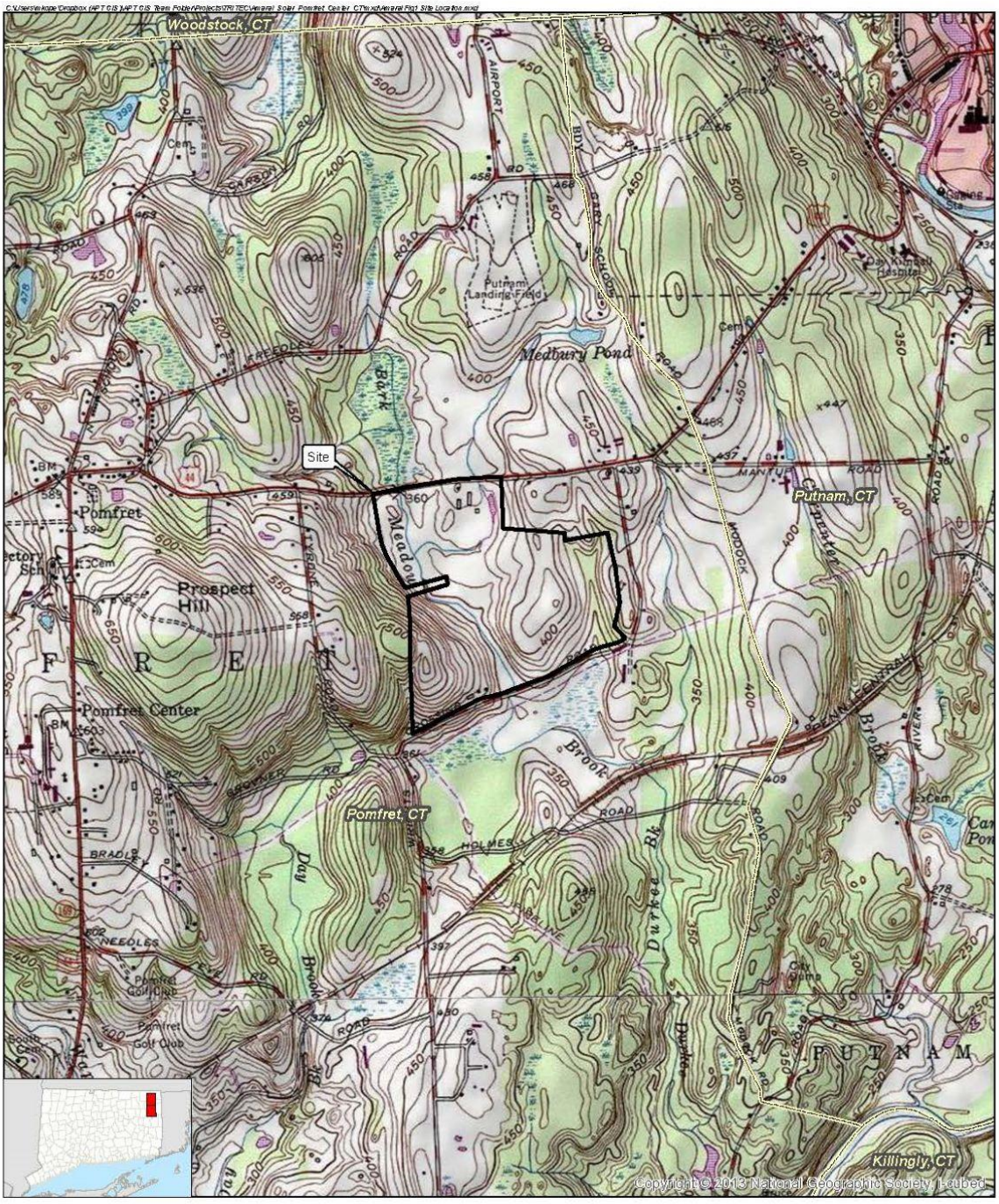
The Project will be located at 254 Putnam Road in the Pomfret Center section of Pomfret, Connecticut, ("Site"). The Site is a privately owned, 215.6-acre parcel south of Route 44/Putnam Road and north of Wrights Crossing Road. The Site is mostly undeveloped active agricultural land; the southeastern extent of the Site is wooded. Bark Meadow Brook flows generally north to south in the western portion of the Site. A residence and multiple farm buildings are located on the northern portion of the Site along Putnam Road; a residence is also located off of Wrights Crossing Road in the southwestern portion of the Site. The Site is zoned Rural Residential.

Figure 1, *Site Location Map*, depicts the location of the Site and the immediate surrounding area.

[1] The output referenced is Alternating Current (AC).

[2] "Affecting facility" is defined, in part, as any electric generating facility with a capacity of more than ten megawatts.

[3] "Environmental justice community" means (A) a United States census block group, as determined in accordance with the most recent United States census, for which thirty per cent or more of the population consists of low income persons who are not institutionalized and have an income below two hundred per cent of the federal poverty level, or (B) a distressed municipality, as defined in subsection (b) of § 32-9p.



Legend

- Site
- Municipal Boundary

Figure 1
Site Location Map

Amaral Solar Facility
254 Putnam Road
Pomfret Center, Connecticut

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Danielson, CT (1970) and Putnam , CT (1970)
Map Scale: 1 inch = 2,000 feet
Map Date: May 2021

2,000 1,000 0 2,000 Feet

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2 Proposed Project

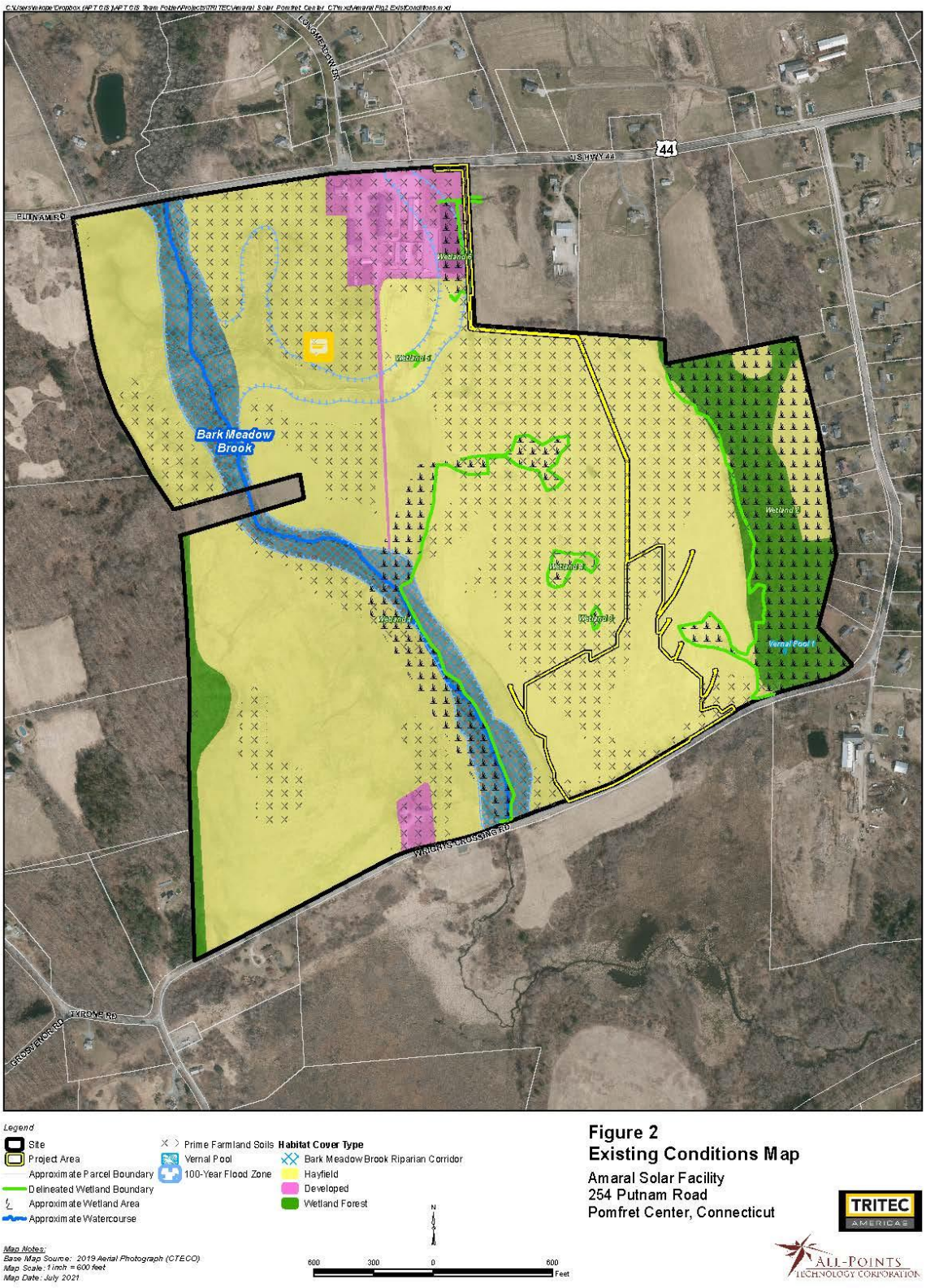
2.1 Project Setting

The Site is located between Putnam Road (US-44) to the north and Wrights Crossing Road to the south in the northeastern section of Pomfret. The Project will occupy ±14.2 acres, the majority of which will lie in the southeastern portion of the Site within a cleared field; the electrical service interconnection line will extend northward through the Site to Putnam Road; collectively, the "Project Area".

The Site's existing topography varies, ranging from approximately 338 feet above mean sea level ("AMSL") to 504 feet AMSL. In general, elevations decrease from the western Site boundary to Bark Meadow Brook, and rise again to the east. Grades within the Project Area supporting the Facility slope gently from north to south/southeast, with ground elevations ranging from approximately 405 feet AMSL in the northwest to approximately 355 feet AMSL in the southeast.

Figure 2, *Existing Conditions Map*, depicts current conditions on the Site.

The immediately surrounding land use is a mix of residential development, agriculture fields and undeveloped woodlands. The Wyndham Land Trust's Duck Pond Marsh Preserve is located across Wrights Crossing Road south of the Site.



Legend

- Site
- Project Area
- Approximate Parcel Boundary
- Delineated Wetland Boundary
- Approximate Wetland Area
- Approximate Watercourse
- Prime Farmland Soils
- Vernal Pool
- 100-Year Flood Zone

Habitat Cover Type

- Bark Meadow Brook Riparian Corridor
- Hayfield
- Developed
- Wetland Forest

Map Notes:
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Scale: 1 inch = 600 feet
Map Date: July 2021

600 300 0 600 Feet

Figure 2
Existing Conditions Map
Amaral Solar Facility
254 Putnam Road
Pomfret Center, Connecticut

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2.2 Project Development and Operation

Upon its completion, the solar electric energy generating facility (the "Facility") will consist of a total of 5,472 photovoltaic modules ("panels"), 2,592 400W and 2,880 570W models; 40 inverters; two (2) pad mounted switchgears; and two (2) 300 kVA transformers. A ground-mounted racking system will be used to secure the panel arrays. The perimeter of the Facility will be surrounded by a seven (7)-foot tall chain link fence. The Project will also require one (1) electrical service interconnection line that will extend underground to the fenced Facility from the existing Eversource distribution system along Putnam Road. An access drive will extend from Wrights Crossing Road around the southwestern corner and through the Facility. Once complete, the fenced Facility will occupy approximately 11.0 acres of the Site with an additional ±3.2 acres of improvements beyond the fenced limits, for a total Project Area of ±14.2 acres.

Proposed development drawings are provided in Appendix A, *Project Plans*.

The leading edge of the panels will be approximately thirty-six (36) inches above the existing ground surface, which will provide adequate room for any accumulating snow to "sheet" off. Any production degradation due to snow build-up has already been modeled into the annual system output and performance calculations. The Petitioner does not envision requiring any "snow removal" operations; rather, the snow will be allowed to melt or slide off.

Construction activities within the Project Area will include limited tree clearing along Wrights Crossing Road; grading; installing erosion and sedimentation ("E&S") control measures; creating two (2) water quality swales; installing racking and modules; electrical trenching; and installing new overhead utility poles for interconnection to the existing electrical distribution system along Putnam Road.

Earthwork is required to create the access drive, and some regrading (cuts/fills) is necessary within other portions of the Project Area for Project development and construction of the water quality swales. These activities will allow the Project to comply with DEEP's *Appendix I, Stormwater Management at Solar Array Construction Projects*. ("Appendix I").

The Facility is unstaffed; after construction is complete and the Facility is operable, traffic at the Site will be minimal. It is anticipated that the Facility will require mowing and routine maintenance of the electrical equipment one (1) time per year. Annual maintenance will typically involve two (2) technicians for a day. Repairs will be made on an as-needed basis.

2.2.1 Access

The Facility will be accessed from Wrights Crossing Road. A 16-foot wide gravel drive will extend from Wrights Crossing Road around the southwestern corner of the Facility fence. A 20-foot wide gate will be located near the southwestern corner of the Facility.

2.2.2 Public Health and Safety

The Project will meet or exceed applicable local, state, national and industry health and safety standards and requirements related to electric power generation. The Facility will not consume any raw materials, will not produce any by-products and will be unstaffed during normal operating conditions.

The Facility will be enclosed by a seven (7)-foot tall chain link fence. The entrance to the Facility will be gated, limiting access to authorized personnel only. All Town emergency response personnel will be provided access via a Knox padlock. The Facility will be remotely monitored and will have the ability to remotely de-energize in the case of an emergency.

2.2.3 Land Use Plans

The Project is consistent with state and federal policies and will support the state's energy goals by developing a renewable energy resource while not having a substantial adverse environmental effect.

Although local land use requirements do not apply to this Project, it has been designed to meet the intent of the Town's land use regulations, to the extent feasible. The Zoning Regulations, dated September 5, 2019, list among their purposes "to encourage energy efficient patterns of development, the use of solar and other renewable forms of energy, and energy conservation." (Section 1.3, Zoning Regulations, Town of Pomfret) The Site is located in the Town's Rural Residential (RR) zone.

The Town's 2016 Plan of Conservation and Development ("POCD") does not address energy sources or infrastructure. A primary focus of the POCD is to maintain the rural character of Pomfret, including preserving farmland and controlling the intensity of residential development. The proposed use of the Site will support continued farming by the Site owner and minimize the likelihood of residential subdivision development.

The Petitioner believes the Project will benefit the local community by improving electrical service for existing and future development through the availability of enhanced local, renewable generating capacity.

3 Environmental Conditions

This section provides an overview of the current environmental conditions at the Site and an evaluation of the Project's potential impacts on the environment. The results of this assessment demonstrate that the Project will comply with the DEEP air and water quality standards and will not have an undue adverse effect on the existing environment and ecology.

Please refer to Figure 3, Proposed Conditions Map for a depiction of the Project and its relationship with the resources discussed herein.

3.1 Habitat and Wildlife

Four (4) habitat types (vegetative communities) are located on the Site, with two (2) identified within the Project Area. Transitional ecotones separate these distinct habitat types, and interior wetland habitats are also located in proximity to the Project Area. These habitats were assessed using remote sensing and publicly available datasets and physically inspected during an initial March 24 and 25, 2021 field evaluation.

The habitats occupying the Site are as follows.

- Hayfield;
- Wetland Forest;
- Bark Meadow Brook Riparian Corridor; and
- Developed.

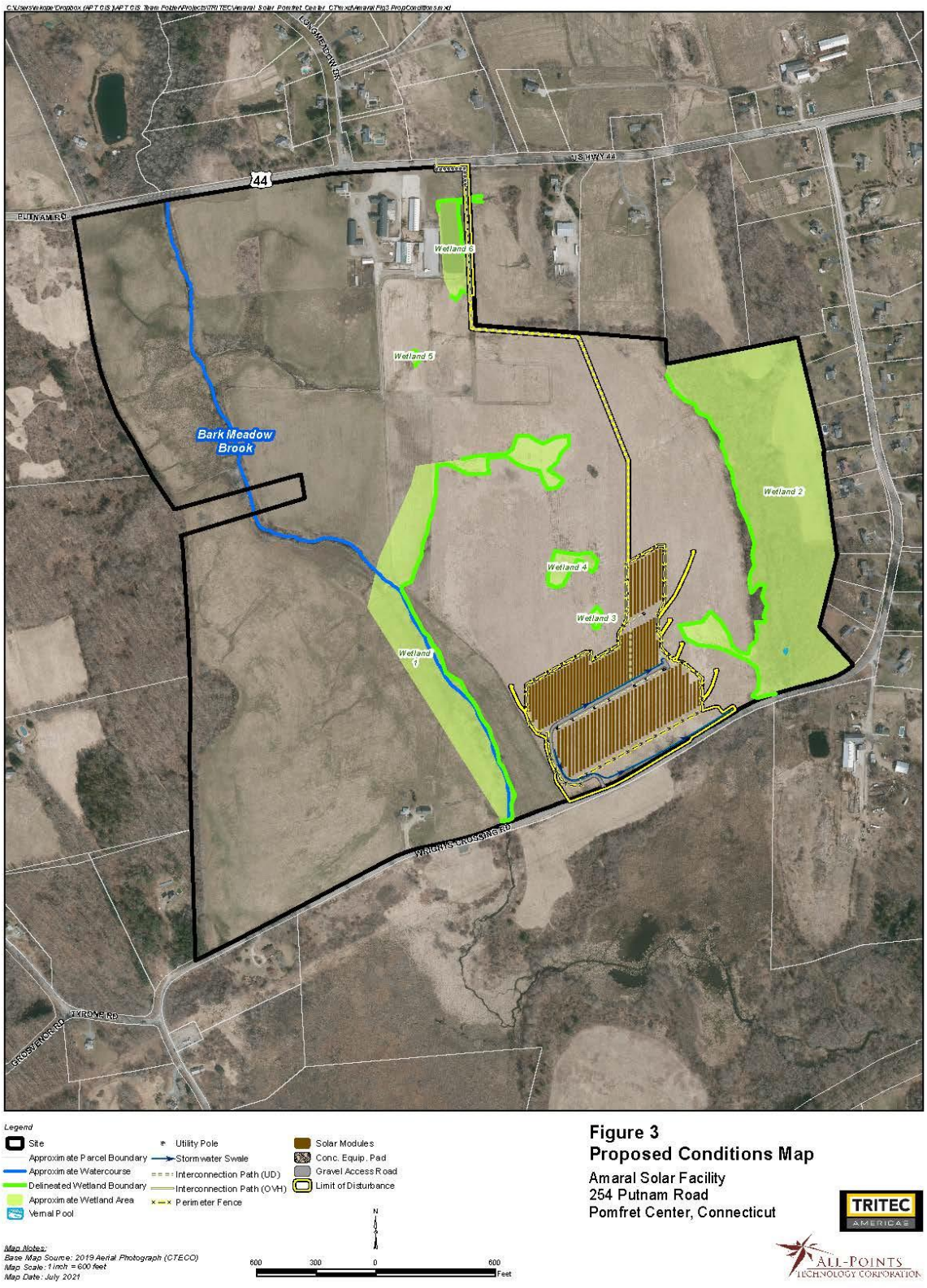

Figure 3
Proposed Conditions Map
Amaral Solar Facility
254 Putnam Road
Pomfret Center, Connecticut

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3.1.1 Habitat Types

Hayfield

Hayfields encompass nearly 80% of the Site and a majority of the Project Area. This habitat consists of agricultural hayfields that are mowed on a bi-annual basis. The routine maintenance of these hayfields has maintained this habitat type by suppressing other herbaceous and shrub species. This habitat type is dominated by cool season grasses and typical forbs like red clover. Several hillside seeps and isolated wet meadow wetlands are located within this habitat type. These areas, consisting of reed canary grass dominant wetlands, have been grouped within the Hayfield habitat type, as they generally support similar habitat functions and values as their adjacent upland counterparts because they do not contain any additional vegetative structure and lack species diversity. The Project Area does not encroach upon these wetlands. With the exception of Wetland 2, where the nearest edge of Project activity is 26 feet, the Project Area maintains distances of greater than 100 feet to these wetlands.

The Project development should not result in a significant alteration to the ground underlying the Facility components. Those areas disturbed during construction will be seeded with an appropriate seed mix with a focus on native grasses and forbs that is suited to the Project Area conditions. The existing Hayfield area will be reseeded as necessary in areas where construction activities result in exposed soils. Minor modifications to existing conditions will result from shading beneath the panel arrays; however, post-construction vegetation maintenance will mimic current management activities within this habitat.

Wetland Forest

Wetland Forest habitat occurs in the far eastern and western extents of the Site. The eastern habitat area, most proximate to the Project Area[4], is generally associated with a broad forested hillside seep wetland system with an interior intermittent, discontinuous watercourse. The dominant vegetation class within this area is mature hardwood forest characterized by a closed canopy and sparse understory. Dominant overstory species include red maple (*Acer rubrum*) with understory components of multiflora rose (*Rosa multiflora*), Japanese barberry (*Berberis thunbergii*), speckled alder (*Alnus incana*), silky dogwood (*Cornus amomum*), common reed

[4] The western Wetland Forest habitat is remote from the Project Area and not discussed herein.

(Phragmites australis), and soft rush (*Juncus effesus*). Due to the surrounding land uses (an open field and residential development farther to the east beyond the forest; and active agricultural practices to the west), this habitat experiences a high degree of edge effects. However, despite this fragmentation, it generally retains a high wildlife value due to the presence of an interior vernal pool. In addition, this Wetland Forest is characterized by useful vegetative structure with scrub/shrub transitional zones along its western boundaries, moderate amounts of standing snags, and downed coarse woody debris.

The Wetland Forest is located approximately 287 feet east of the Project Area. As a result, no direct Project impacts would occur within this habitat type. Potential secondary impacts (i.e., construction-generated stormwater runoff) will be minimized through the installation and maintenance of robust erosion and sediment control measures and implementation of a Resource Protection Plan. Therefore, the Project is not expected to result in a negative impact to this Wetland Forest.

Additional details regarding this wetland system (Wetland 2) and the Resource Protection Plan are discussed in Section 3.3.1 of this report.

Bark Meadow Brook Riparian Corridor

The Bark Meadow Brook Riparian Corridor is a unique feature of the Site. This habitat is characterized by a perennial watercourse draining north to south in the western portion of the Site. Dominant vegetation includes red maple, multiflora rose, and speckled alder located along the stream bank edges. In general, vegetation beyond the banks is routinely managed in association with the adjacent agricultural hayfields, thus diminishing the ecological benefits of a broader forested buffer. Bark Meadow Brook has a cobble/sandy bottom lacking riffle/pool structure due to historic channelization. This watercourse generally lacks bordering vegetated wetlands and has been subject to channelization due to agricultural practices and point and non-point discharges from agricultural practices (e.g., runoff from fertilized fields, discharges from dairy barn cleaning, manure storage). However, limited hillside seep wetland areas northwest of the Project Area drain into the Bark Meadow Brook Riparian Corridor, providing some base flow inputs.

The Project Area is located approximately 87 feet east of the edge of this habitat. No direct Project impacts are proposed within the Bark Meadow Brook Riparian Corridor or within 100 feet of Bark Meadow Brook and associated wetlands. Potential secondary impacts to this habitat type will be minimized through the installation and maintenance of robust erosion and sediment control measures and implementation of a Resource Protection Plan. Therefore, the Project is not expected to result in a negative impact to this habitat type.

Additional details regarding these wetland systems (Wetlands 1 and 5) and the Resource Protection Plan are discussed in Section 3.3.1 of this report.

Developed

Developed areas are found in two locations on the Site. A house, several farm structures and related infrastructure are located in the northern portion of the Site along Putnam Road. The system interconnection line will cross the easternmost portion of the northern Developed area. Neither the underground trenching nor placement of new utility poles will result in a substantial adverse impact. Another residence is located off of Wrights Crossing Road in the southern portion of the Site, west of the Bark Meadow Brook Riparian Corridor and remote from the Project Area.

Table 1, *Habitat Areas* provides the total acreages of each habitat type located on the Site and within the Project Area.

Table 1: Habitat Areas

Habitat Areas		
Habitat Type	Total Area On-Site (+/- ac.)	Area Occupied by Project (+/- ac.)
Hayfield	171.3	13.8
Wetland Forest	18.2	0.0
Bark Meadow Brook Riparian Corridor	15.9	0.0
Developed	10.2	0.4

3.1.2 Core Forest Determination

APT evaluated the size and extent of the contiguous interior forest block present within and adjacent to the Site using two (2) publicly available GIS-based datasets designed to assess impacts to core forest habitat. In addition, an independent evaluation was performed (based on GIS analysis of 2016 leaf-off aerial photography, field observations and professional experience). The results of these analyses demonstrate no core forest exists on the Site.

The first dataset, the DEEP's *Forestland Habitat Impact Mapping*[5], does not depict an area mapped as core forest on the Site.

The second dataset, UConn's Center for Land Use Education and Research's ("CLEAR") Forest Fragmentation Analysis ("FFA")[6] study, designates "core forest" as greater than 300 feet from non-forested habitat. This 300-foot zone is referred to as the "edge width" and represents sub-optimal breeding habitat for forest-interior birds due to decreased forest quality, increased levels of disturbance, and increased rates of nest predation and brood parasitism within this transitional forest edge. The FFA study identifies three categories of core forest: small (< 250 acres); medium (250-500 acres); and large (>500 acres). Based on the FFA criteria, the Site only contains edge forested habitat and no core forest as a result of the surrounding agricultural fields and residential development. This is consistent with APT's independent analysis, which indicates that no core forest is located on Site.

The Facility would be located within an existing agricultural field and a small portion of the Project Area (interconnection route) extends through an existing developed area. The only tree clearing required for the Project is limited to a short row of trees bordering Wrights Crossing Road for installation of the access drive entrance. As a result, no impacts to core forested resources will occur.

[5] Source: http://ctdeep.maps.arcgis.com/apps/webappviewer/index.html?id=7b81844bab634281b544c20bf2d7bfb8: This spatial screening layer identifies prime contiguous and connected core forestland blocks. If the project intersects with the Forestland Habitat Impact Map there is a potential for material effects to core forest.

[6] CLEAR's FFA: http://clear.uconn.edu/projects/landscape/forestfrag/forestfrag_public%20summary.pdf

3.1.3 Wildlife

Development of the proposed Facility will occur within two (2) of the four (4) habitat types located on Site, Hayfield and Developed. Project-related activities proposed within the Developed area are not anticipated to adversely affect wildlife since this area currently provides limited value from a wildlife utilization standpoint as a result of its location adjacent to Route 44, human habitation, frequent farm management activities and related disturbances.

The Hayfield habitat consists of an approximately 171-acre cool-season grassland habitat. Due to the size, structure, and geometry of this habitat block and its proximity to known occurrences of grassland birds[7], the potential for grassland bird breeding/utilization at the Site is considered high. Please see Section 3.2 for additional information.

The edge forest present in the eastern portion of the Site provides higher quality habitat for species that are more tolerant of human disturbance, habitat fragmentation and resultant "edge" effects. Generalist wildlife species, including several song birds and mammals such as raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), grey squirrel (*Sciurus carolinensis*), Virginia opossum (*Didelphus virginiana*), and eastern chipmunk (*Tamias striatus*) could be expected to use this area.

The Project Area will not encroach into the Bark Meadow Brook Riparian Corridor or Wetland Forest habitats, so wildlife utilization is expected to continue relatively uninterrupted within these portions of the Site. Noise and associated human activities during construction may result in limited, temporary disruption to wildlife using these nearby habitats. However, ongoing operation of the Facility will not result in a likely adverse effect to wildlife using these nearby habitats as the Facility is unoccupied.

[7] Wyndham Land Trust, Inc.'s Duck Pond Marsh Preserve is located along the south side of Wrights Crossing Road adjacent to the Site.

3.2 Rare Species

APT reviewed publicly available information to determine the potential presence of state/federally listed species and critical habitat on or proximate to the Site.

3.2.1 Natural Diversity Data Base

The DEEP Natural Diversity Data Base ("NDDB") program performs hundreds of environmental reviews each year to determine the impact of proposed development projects on state listed species and to help landowners conserve the state's biodiversity. In furtherance of this endeavor, the DEEP also developed maps to serve as a pre-screening tool to help Petitioners determine if there is the potential for project-related impact to state-listed species.

The NDDB maps represent approximate locations of (i) endangered, threatened and special concern species and, (ii) significant natural communities in Connecticut. The locations of species and natural communities depicted on the maps are based on data collected over the years by DEEP staff, scientists, conservation groups, and landowners. In some cases, an occurrence represents a location derived from literature, museum records and/or specimens. These data are compiled and maintained in the NDDB. The general locations of species and communities are symbolized as shaded (or cross-hatched) polygons on the maps. Exact locations have been masked to protect sensitive species from collection and disturbance and to protect landowner's rights whenever species occur on private property.

At the onset of this Project, APT reviewed available DEEP NDDB mapping (December 2020), which revealed that a NDDB polygon encompasses the entire Site. Because state-listed species or communities are documented on the Site, consultation with NDDB was initiated and a preliminary assessment review request was submitted on March 9, 2021. The agency responded with the results of its preliminary review in a letter dated June 22, 2021 (NDDB Preliminary Assessment No.: 202103657, see Appendix B). NDDB staff identified one (1) animal assemblage (owl roost) and 18 State-listed species (including grassland birds) that occur within or close to the Site boundaries.

The listed species include:

- Corylus dagger moth *(Acronicta falcula)*
- Slender clearwing *(Hemaris gracilis)*
- Barrens buck moth *(Hemileuca maia maia)*
- Barrens Metarranthis moth *(Metarranthis apiciaria)*
- Short-eared owl *(Asio flammeus)*
- Long-eared owl *(Asio otus)*
- American bittern *(Botaurus lentiginosus)*
- Sedge wren *(Cistothorus platensis)*
- Spotted turtle *(Clemmys guttata)*
- Bobolink *(Dolichonyx oryzivorus)*
- American kestrel *(Falco sparverius)*
- Wood turtle *(Glyptemys insculpta)*
- Silver-haired bat *(Lasionycteris noctivagans)*
- Red bat *(Lasiurus borealis)*
- Savannah sparrow *(Passerculus sandwichensis)*
- Pied-billed grebe *(Podilymbus Podiceps)*
- Purple martin *(Progne subis)*
- Eastern spadefoot *(Scaphiopus holbrokii)*

To prevent impacts to State-listed species, DEEP NDDB recommended that field surveys be performed at the Site. The Petitioner conducted surveys by qualified personnel in May and August 2021 to evaluate the potential presence of these species and develop protective/conservation/mitigation measures, as needed.

3.2.2 Field Surveys

At the request of APT, Davison Environmental, LLC ("Davison") performed in-field habitat assessments to evaluate Site conditions and determine the presence of State-listed bird species, State-listed amphibians and reptiles, and State-listed invertebrates, including host plant species.

State-Listed Invertebrate Host Plant Surveys

Davison personnel performed a field survey on August 18, 2021 at the Site for the presence of State-listed invertebrates, focusing on host plant species as summarized below.

- **Corylus dagger moth:** The larval host plant species for the Corylus dagger moth are species in the genus *Corylus*. American hazelnut (*Corylus americana*) and beaked hazelnut (*Corylus cornuta*) are the only two (2) members of this genus found in Connecticut.
- **Slender clearwing moth:** The slender clearwing uses members of the Ericaceous genera *Kalmia* and *Vaccinium* as larval host plants. Three (3) members of the genus *Kalmia* can be found in Connecticut: mountain laurel (*Kalmia latifolia*), sheep laurel

(*Kalmia angustifolia*), and bog laurel (*Kalmia polifolia*). There are nine (9) members of the genus *Vaccinium* found in Connecticut, of which five (5) are considered blueberries.

- **Barrens buck moth:** The barrens buck moth is restricted to scrub oak-pine sand barrens and dry oak woods. The two (2) larval host plants are the oak species scrub oak (*Quercus ilicifolia*) and the dwarf chestnut oak (*Quercus prinoides*).
- **Barrens Metarranthis moth:** Similar to the barrens buck moth, the barrens Metarranthis is restricted to pitch pine-scrub oak sand barrens. However, its larval host plants are unknown.

During the survey, Davison personnel identified a shrub layer within the eastern woods canopy with a high concentration of beaked hazelnut (*Corylus cornuta*) and Blue Ridge blueberry (*Vaccinium pallidum*). Mountain laurel (*Kalmia Latifolia*) was also identified in this area. The host plant species were mainly found along the upland slope to the east of the nearby wetland. Highbush blueberries (*Vaccinium corymbosum*) were also identified within and around the wetland. The host plant species occupy approximately 0.66 acres in an area well outside of the proposed Project area.

Adverse impacts to the State-listed species are not anticipated due to the separating distance of the Project's limits of disturbance from the host plant species that were identified. As such, plant protection measures are not recommended or considered necessary.

See Appendix C, *State-listed Invertebrate Host Plant Survey Results* report for additional details regarding these surveys.

State-listed Bird Species Assessment

Davison completed a primarily habitat-based assessment for State-listed bird species, including baseline point-count surveys for grassland birds. The NDDB letter indicated the potential presence of the following nine (9) State-listed bird species within or surrounding the Site, as identified above.

A habitat assessment survey was conducted in May and August 2021 to determine the suitability of the varying habitats on the Site for the State-listed bird species. While features exist throughout the Site that could lead to a suitable habitat for some of these species, the Project Area would likely be sub-optimal for most of these species when compared to the neighboring Wyndham Land Trust's Duck Pond Marsh Preserve. However, the hayfield does provide high quality habitat

for the two grassland bird species identified in the NDDB letter, the Savannah sparrow and the bobolink. Additional details regarding the survey and State-listed species can be found in Appendix D, *State-listed Bird Species Assessment*.

Grassland Birds

In addition to the field visit in August, Davison performed a baseline point-count survey to determine the presence of the bobolink and Savannah sparrow in May 2021. The field work entailed a systematic survey methodology consisting of documenting bird species using a transect line point-count survey method using 50-meter wide by 300-meter long transects covering the entire Project Area. The first transect survey occurred on May 19, 2021 and confirmed the presence of multiple male bobolinks. While the Savannah sparrow was not observed during the May 19th visit, Davison did observe a single individual male during the initial site visit on May 12, 2021 while setting up the transect lines.

Although the areas within the Site that support the highest density of grassland birds are hayfield areas located outside of the Project limits, a Site-wide comprehensive protection plan would be necessary to adequately protect nesting grassland birds. As the Site historically and currently is used for agricultural purposes, the fields have been cut for hay a few times per year, primarily during the breeding season for these grassland species. The future agricultural practices beyond the Project limits would need to be altered in order to properly manage the Site for grassland birds.

Landscape-scale management practices that would aid in the conservation of grassland birds include:

- Avoiding all haying and mowing during the breeding season (May 15 to August 15);
- Discouraging the growth of forbs and woody vegetation;
- Avoiding disturbances including foot traffic, farm equipment travel, dog walking, and other disturbing activities through the grassland; and,
- Maximizing the field size (visual "openness" is an important aspect of how grassland birds assess habitat size; some management techniques include reclaiming field edges, removing hedgerows, and removing tree lines in between fields).

Because the overall Site is a working farm, and the temporary presence of two State-listed grassland birds within the hayfield is simply incidental (from the farmer's perspective) to this land use, it is unrealistic to believe that Site-wide conservation measures will be implemented beyond the Project limits, which is the only area under control by the Petitioner.

Recognizing that implementation of a comprehensive protection plan is not feasible, given the Petitioner's limited control of the Site, the following Project-specific recommendations for protection of grassland birds during construction and post-construction vegetation management have been developed.

Construction-phase Protection Measures

Ideally, construction should be performed outside of the sensitive breeding season (April 1 through August 30). However, if construction activities are planned during the active peak breeding season for grassland bird species (May 20 to August 20), these birds should be deterred from nesting within the Project limits by implementing the following measures:

- The Project area should be mowed continuously twice per week starting on May 1st and continuing until construction begins;
- Vegetation should not be allowed to exceed three inches in height during this period;
- The twice per week mowing schedule should be maintained regardless of vegetation height (i.e., even if vegetation height remains below three inches), to serve as an additional deterrent to nest establishment; and,
- Field surveys by qualified biologists should occur during this mowing period and through the month of May until construction begins to ensure that the measures are effectively deterring nest establishment. If this proves unsuccessful, remedial measures will be recommended.

Project-phase Protection Measures (Mowing)

The following measures are intended for implementation within the fenced Facility. The likelihood of nesting occurring within the fenced compound, and amongst the arrays themselves, is low. However, these birds may breed in the contiguous grassland habitat adjacent to the Facility and therefore would be subject to secondary impacts such as noise or visual disturbance that may affect nesting. Additionally, there is the potential for adults and fledglings to feed within the fenced compound.

- Mowing should be avoided from May 15th through August 15th, during the bird's nesting and fledgling period, to minimize impacts to nesting birds. For the benefit of birds as well as terrestrial wildlife, mowing conducted once per season is optimal, after October 15th when most species have entered fall/winter dormancy.

- Mower Speed: Mowing at slow speeds will allow animals to react and move out of the field.
- Mowing style: Avoid flail mower heads with guide bars that ride along the ground. Sickle bar mowers will have the least impact if mowing every 1-5 years.
- Mowing height: If mowing during the breeding season, retention of mowing stubble at a minimum height of 7 inches will reduce mortality and will leave important cover for wildlife.
- Directionality: If mowing during the breeding season is necessary, start mowing closest to the arrays and move outward toward the edge of the array field.
- Pre-Mowing Nest Surveys: If mowing outside of the nesting season is not possible, a pre-mowing inspection by an ornithologist is recommended to confirm that no nests are present within the mowing limits. That survey should occur no more than one week prior to the start of mowing. Any activity by target species should be field flagged and/or conveyed to the contractor. If a nest site is observed within the mowing limits, no mowing should occur within 100 feet of the nest site until it is inactive and the fledglings are fully mobile.

See Appendix D, *State-listed Bird Species Assessment* for additional details.

State-listed Herpetological Species Assessment

At the request of APT, Quinn Ecological, LLC conducted a habitat assessment at the Site on August 4th, 2021 to survey and evaluate if suitable habitats exist for State-listed amphibians and reptiles identified by DEEP.

- **Eastern spadefoot (*Scaphiopus holbrookii*)**: The Eastern spadefoot is one of the rarest amphibians in the northeastern United States. They are typically found in lower elevation river valleys with sandy, well-drained soils. They prefer open sandy habitats with patches of mixed herbaceous/shrub cover and forested edges.
- **Wood turtle (*Glyptemys insculpta*)**: The wood turtle is known to be found at both higher and lower elevations in Connecticut, with the core distribution of their population falling within the eastern and western uplands near high quality rivers and streams, and their associated riparian and upland habitats.
- **Spotted turtle (*Clemmys guttata*)**: The spotted turtle moves among a mosaic of wetland and upland habitats that fulfill its varying ecological requirements. In Connecticut,

the populations are concentrated in the central lowlands, along the coast, and in the eastern and southeastern portions of the state.

The in-field habitat assessment determined that there is no suitable habitat for the Eastern spadefoot. As such, no additional surveys or mitigation measures are recommended for the Eastern spadefoot.

During the in-field survey, no wood or spotted turtles were observed. Although the habitats identified at the Site for both species are marginal, protection measures are recommended during construction to ensure the continued conservation of these species and avoid incidental mortality, including:

- Installing isolation measures (exclusionary fencing) and ensuring that no equipment, vehicles or construction materials are stored outside of the exclusionary fencing;
- Conducting a pre-construction Contractor educational session with a qualified herpetologist and the posting of educational poster materials that will be displayed at all times throughout the duration of construction activities; and,
- Reporting any observations of the species directly to DEEP and providing a final report to the agency upon completion of construction.

Additional details regarding State-listed amphibians and reptiles can be found in Appendix E, *State-listed Herpetological Habitat Assessment*.

3.2.3 USFWS Consultation

Federal consultation was completed in accordance with Section 7 of the Endangered Species Act through the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC"). Based on the results of the IPaC review, one federally-listed[8] threatened species is known to occur in the vicinity of the Site: the northern long-eared bat ("NLEB"; *Myotis septentrionalis*). The NLEB's range encompasses the entire State of Connecticut and suitable NLEB roost habitat includes trees (live, dying, dead, or snag) with a diameter at breast height ("DBH") of three (3) inches or greater.

The proposed Facility would be located in an open agricultural hay field and would require limited tree clearing; trees potentially provide NLEB habitat. APT reviewed the DEEP's publicly available *Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered*

[8] Listing under the federal Endangered Species Act

Species Act Compliance map (February 1, 2016) to determine the locations of any known maternity roost trees or hibernaculum in the state. This map reveals that there are currently no known NLEB maternity roost trees in Connecticut. The nearest NLEB habitat resource to the Site is located in East Granby, approximately 40.4 miles to the northwest.

In compliance with the USFWS criteria for assessing NLEB, the Project will not likely result in an adverse effect or incidental take[9] of NLEB and does not require a permit from USFWS. A USFWS letter dated April 30, 2021 confirmed compliance; thus, no further consultation with USFWS is required for the proposed activity.

A full review of the *Endangered Species Act (ESA) Compliance Determination* and USFWS's Response Letter is provided in Appendix F, *USFWS Compliance Statement*.

3.3 Water Resources

3.3.1 Wetlands and Watercourses

APT Registered Soil Scientists identified portions of six (6) wetlands on or proximate to the Site during field inspections and wetland delineations completed on March 24 and 25, 2021. The results of the field delineation are summarized below. The locations of these resources are depicted on Figures 2 and 3.

Wetlands 1 and 5 consist of two hillside seep systems that both drain southwest into Bark Meadow Brook. These headwater seep areas occur in the northern extents of the Site, consist of seasonally saturated surfaces, and are dominated by wet meadow grasses. Bark Meadow Brook, a perennial watercourse interior to Wetland 1, is a well incised perennial watercourse historically channelized by farming activities. Its banks are steeply sloping with narrow bordering vegetated wetlands consisting of scrub shrub and narrow mature forest adjacent to agricultural hayfields. As these areas drain into the interior perennial watercourse, the dominant vegetation transitions to edge forest and scrub/shrub. These areas consist of intermittently flooded margins. This system drains south into a culvert inlet under Wrights Crossing Road.

Wetland 2 consists of a broad forested wetland system with an interior intermittent watercourse located on the eastern edge of the Site. This 3- to 5-foot-wide watercourse is characterized by a

[9] "Incidental take" is defined by the Endangered Species Act as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." For example, harvesting trees can kill bats that are roosting in the trees, but the purpose of the activity is not to kill bats.

braided channel with areas of riffle/pool structure, sandy/organic bottom, and numerous low and high flow channels. This system generally drains south into a culvert under Wrights Crossing Road. Interior depressional pockets within this wetland contain seasonal flooding; a deeper depression contained obligate vernal pool breeding activity at the time of the inspection (see Section 3.3.2 for additional details). Dominant vegetation within this wetland consists of mature hardwood forest with a closed canopy. The western boundaries of Wetland 2 are characterized by historically altered and filled edges. The southern portion of Wetland 2 extends westward. This area is characterized as a hillside seep system formed within the adjacent Hayfield which drains east into the forested portions of the resource.

Wetlands 3 and 4 consist of isolated wetland depressions located at a topographic high point of the Site within the routinely mowed Hayfields. Generally, these features are characterized by seasonally saturated perched hydrology, and occur within localized shallow topographic depressions that experience seasonal surface saturation. Due to routine and historic disturbances, soil profiles within these wetlands generally consist of deep plow horizons with depleted matrix subsoil and high amounts of redoximorphic features typical of wetlands located within farm fields. Dominant vegetation within Wetlands 3 and 4 consists of cool season grasses/reed canary grass associated with routinely mowed agricultural hayfields.

Wetland 6 consists of a historically constructed farm pond with permanent flooding and depths exceeding 3 feet. This feature generally drains west/southwest, eventually discharging into Wetland 1. Eastern boundaries of this feature have some supporting bordering seep wetlands. These seep areas have been historically altered by farming activities resulting in disturbed soil profiles and surface hydrology. Vegetation along the banks of Wetland 6 consists of well-maintained grasses/emergents.

3.3.2 Vernal Pool Analysis

A single vernal pool is present on the Site, embedded within the southern portion of Wetland 2. A limited vernal pool survey was conducted on March 24 and 25, 2021. Survey methods included audial surveys to record chorusing frogs, visual surveys to search for adults, egg masses and larvae, and dip-netting to identify species within the water column and benthic material. Egg mass searches were conducted by slowly and methodically wading through the open water in a parallel transect-like pattern using polarized sunglasses under bright sunny skies.

The vernal pool supports a single indicator species, the wood frog (*Lithobates sylvaticus*). The wood frog occurs statewide across all ecoregions and is one of the most common vernal pool indicator species. A total of eight (8) wood frog egg masses were identified. The egg masses were located on coarse woody debris attachment sites and the bottom of the pool. The maximum observed water depth was approximately 6 to 8 inches.

The limits of the vernal pool were field located using a Trimble GPS unit and plotted using ESRI ArcMap software.

No direct physical impact to the vernal pool will occur as a result of construction and operation of the Facility. Vernal pool dependent amphibians are not solely reliant upon the actual vernal pool habitat for breeding (i.e., egg and larval development); they also require surrounding upland forest habitat for most of their adult lives. Accepted studies recommend protection of adjacent habitat up to 750 feet from the vernal pool edge for obligate pool-breeding amphibians.[10] The Project will not have any impacts in areas within 100 feet of the vernal pool. The closest point of the Facility to this vernal pool is 435 feet to the west. In addition, the entirety of the Facility is to be located in sub-optimal upland habitat consisting of cool season grass hayfields that are routinely managed through seasonal cuttings. These types of open habitats that experience regular disturbances are not commonly utilized by obligate vernal pool breeding species. Due to the significant distance separating the Facility from the vernal pool, and the entirety of the Facility being located within suboptimal upland hayfield habitat, the Project will not have a significant negative impact on this vernal pool resource.

3.3.3 Wetland Impacts

Direct impacts to wetlands associated with developing the Project are limited to temporary impacts associated with the crossing of Wetland 6 by the proposed underground utility route. These temporary impacts include trenching of isolated areas within Wetland 6, stockpiling of exhumed earthen material adjacent to the excavation pit, installing conduit and backfill, and restoring the wetland surface. Due to these activities, a Resource Protection Plan is proposed, which, in addition to construction-related protection measures, details proper restoration and

[10] Calhoun, A.J.K. and M.W. Klemens. 2002. Best Development Practices (BDPs): Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. WCS/MCA Technical Paper No. 5.

monitoring required to mitigate any long-term impacts. See sheet EN-1 in Appendix A for the Resource Protection Plan.

No direct impacts to wetlands are associated with the fenced Facility.[11] The nearest construction activity to wetlands would consist of E&S controls associated with the discharge point of the eastern stormwater drainage swale, approximately 26 feet west of Wetland 2. In order to facilitate the stormwater management system design, intrusion into the 100-foot buffer was necessary. However, the location of the discharge point of the eastern drainage swale occurs entirely within, and drains to, existing maintained agricultural field areas associated with Wetland 2. In this manner, the existing hydrological patterns have been maintained, minimizing the potential effects to the nearby wetland resource. The fenced Facility otherwise maintains a minimum 100-foot buffer to the remaining on-Site wetland resources. Based on the Project location and design, the wetland buffers being afforded, and limited clearing of mature vegetation required, construction activities would not result in a likely adverse impact to the Site's wetland resources. Any potential indirect impacts associated with the Project's construction activities will be minimized by the proper installation and maintenance of proposed E&S controls, in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*, and the Resource Protection Plan.

[11] The nearest fenced limit is approximately 106 feet southeast of Wetland 3.

Table 2, *Wetland Impacts*, provides a summary of the Project's direct wetland impacts and distances to wetland resources.

Table 2: Wetland Impacts

Total Direct Wetland Impacts – Electrical Interconnection Line Wetland 6 (+/- sq.ft.)	4,181	
Project Proximity to Wetlands (from limits of disturbance)	Distance (+/- ft.)	Direction (of wetland from LOD)
Project LOD to Wetland 1	197	SW
Interconnect Poles to Wetland 1	1,290	SE
Project LOD to Wetland 2	26	NE
Interconnect Poles to Wetland 2	1,357	SE
Project LOD to Wetland 3	106	NW
Interconnect Poles to Wetland 3	2,223	SE
Project LOD to Wetland 4	148	W
Interconnect Poles to Wetland 4	1,894	SE
Project LOD to Wetland 5	291	SW
Interconnect Poles to Wetland 5	871	SW
Project LOD to Wetland 6	n/a	n/a
Interconnect Poles to Wetland 6	71	S

3.3.4 Floodplain Areas

The Facility will not be located within a 100- or 500-year flood zone. APT reviewed the United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") covering the Site. A FIRM is the official map of a community on which FEMA has delineated both the special hazard areas and risk premium zones applicable to the community. The area inclusive of the Site is mapped on FIRM PANEL #0901630010B, dated April 17, 1985. Based upon the reviewed FIRM Map, the majority of the Project Area is located in an area designated as unshaded Zone C, which is defined as areas of minimal flooding, typically above the 100- and 500-year

flood levels. Bark Meadow Brook, the farm pond and its drainage area are located within Zone A (100-year flood zone).

No special design considerations or precautions relative to flooding are required for the Facility. A portion of the electrical interconnection line (in proximity to the farm pond) does encroach into the 100-year flood zone. However, with the electrical interconnection line being underground, there will be no adverse effect to this flood hazard zone as no changes to the existing ground elevation or placement of fill or above-ground structures would occur.

3.4 Water Quality

As discussed in this section, the Project will comply with DEEP's water quality standards. Once operative, the Facility will be unstaffed, and no potable water uses or sanitary discharges are planned. No liquid fuels are associated with the operation of the Facility. Stormwater generated by the proposed development will be properly handled and treated in accordance with the 2004 *Connecticut Stormwater Quality Manual* and Appendix I.

3.4.1 Groundwater

Groundwater underlying the Site is classified by publicly available DEEP mapping as "GA".[12] This classification indicates groundwater within the area is presumed to be suitable for human consumption without treatment. Based upon a review of available DEEP mapping, the Site is not located within a mapped (preliminary or final) DEEP Aquifer Protection Area.

The Project will have no adverse environmental effect on ground water quality.

3.4.2 Surface Water

The Project will have no adverse environmental effect on surface water quality. Based upon DEEP mapping, the Site is located in Major Drainage Basin 3 (Thames River), Regional Drainage Basin 37 (Quinebaug River), Sub Regional Drainage Basin 4605 (Quinebaug River), and Local Drainage Basin 3700-18 (Bark Meadow Brook). Bark Meadow Brook traverses the western portion of the Site, generally flowing in a north-south direction to the west of the Project Area. Bark Meadow

[12] Designated uses in GA classified areas include existing private and potential public or private supplies of drinking water and base flow or hydraulically connected surface water bodies.

Brook is classified by DEEP as a Class A surface waterbody.[13] The Project will have no effect on this surface waterbody.

Based upon the reviewed DEEP mapping, the Site is not located within a mapped Public Drinking Supply Watershed or an Aquifer Protection Area ("APA"). The nearest Public Drinking Supply Watershed is located approximately 1.4 miles to the northwest. There are no APAs within the town of Pomfret.

During construction, E&S controls will be installed and maintained in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. Once operative, stormwater will be managed in accordance with the 2004 *Connecticut Stormwater Quality Manual*.

3.4.3 Stormwater Management

In addition to the 2004 Connecticut Stormwater Quality Manual and 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, the Project has been designed to meet Appendix I. Combined, these address three (3) main concerns: stormwater runoff peak attenuation, water quality volume treatment, and erosion and sediment control during construction. Technical details, mapping, and HydroCAD modeling results are provided in the Stormwater Management Report submitted under separate cover. A summary of these results is provided below.

Stormwater Runoff Peak Attenuation

The potential for changes in runoff from the Site as a result of Project construction has been evaluated and addressed. For this Site it involves the disturbances associated with the Project Area, including Facility appurtenances and the electrical interconnection line. Clearing of trees along the northern side of Wrights Crossing Road is required for installation of the access drive entrance. The Project will maintain existing hydrological conditions, as only limited grading is required for the installation of the access drive, equipment pads and water quality swales. Upon completion of construction, the Site will be stabilized using a mix of native flowering grasses and plants selected specifically for solar installations (Ernst Solar Farm Seed Mix), which will create a meadow condition. Appendix I requires that the hydrologic soil group be reduced by a half-drop in those areas subject to heavy machinery traffic (i.e., the solar field and access), which typically

[13] Designated uses for A classified waterbodies include potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply and other legitimate uses including navigation.

results in a higher curve number. However, the Project's change from the existing condition of Hayfield ground cover to proposed meadow ground cover results in a reduced curve number, even accounting for the half-drop in hydrologic soil group.

In order to appropriately manage Site drainage, the Petitioner proposes two (2) swales to capture and treat the runoff from the access drive. The primary purpose of these two swales is to direct surface runoff beyond the limits of disturbance and avoid the active construction area. The redirected runoff will still experience sheet flow across undeveloped areas of the Site, as it does currently.

The stormwater calculations for the Project predict that the post-development peak discharges to the waters of the State of Connecticut for the 2-, 25-, 50- and 100- year storm events are less than the pre-development peak discharges. Therefore, the Project is not anticipated to result in any adverse conditions to the surrounding areas and properties.

Water Quality Volume Treatment

The Project design also provides for adequate treatment of water quality volume associated with effective impervious cover, which includes the proposed gravel access drive and concrete equipment pads. As noted above, two (2) water quality swales are proposed to provide the requisite treatment volumes associated with these features. Technical details, mapping, and HydroCAD modeling results are provided in the Stormwater Management Report submitted under separate cover.

Erosion and Sediment Control During Construction

To safeguard water resources from potential impacts during construction, the Petitioner is committed to implementing protective measures in the form of a Stormwater Pollution Control Plan ("SWPCP"), to be finalized and submitted to the Council, subject to approval by DEEP Stormwater Management. The SWPCP will include monitoring of established E&S controls that are to be installed and maintained in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. The Petitioner will also apply for a *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* from DEEP.

Development of the Project requires minimal grading and ground disturbance. Nonetheless, the Petitioner proposes a phased erosion control plan utilizing a series of perimeter compost filter

socks to manage drainage areas less than one (1) acre, and temporary sediment traps to manage drainage areas that are greater than one (1) acre but less than five (5) acres. The temporary sediment traps will be installed on grade, utilizing stacked compost filter socks and conforming to existing topography to provide the requisite sediment treatment while minimizing ground disturbances. Upon completion of construction, the Site will be seeded with the permanent Ernst Solar Farm Seed Mix. The phased erosion control plan and details are provided in Appendix A, *Project Plans*.

With the incorporation of these protective measures, stormwater runoff from Project development will not result in an adverse impact to water quality associated with nearby surface water bodies.

3.5 Air Quality

The Site is currently undeveloped agricultural land. Due to the nature of a solar energy generating facility, no air emissions will be generated during operations and, therefore, the operation of the Facility will have no adverse effects on air quality and no permit is required.

Temporary, potential, construction-related mobile source emissions will include those associated with construction vehicles and equipment. Any potential air quality impacts related to construction activities can be considered de minimis. Such emissions will, nonetheless, be mitigated using available measures, including, inter alia, limiting idling times of equipment; proper maintenance of all vehicles and equipment; and watering/spraying to minimize dust and particulate releases. In addition, all on-site and off-road equipment will meet the latest standards for diesel emissions, as prescribed by the United States Environmental Protection Agency.

3.6 Soils and Geology

The construction of the water quality swales and grading within the Project Area will generate some excess material that will be redistributed on Site. Topsoil will be segregated from underlying soil, stockpiled, and spread over disturbed areas being seeded. See Appendix A*, Project Plans.*

All exposed soils resulting from construction activities will be properly and promptly treated in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.

Surficial materials within the Project Area are well drained sandy loams and are characterized by two major soil types; the Woodbridge series and the Paxton and Montauk series. Bedrock geology

beneath the Site is mapped as Hebron Gneiss. Hebron Gneiss is described as an interlayered dark-gray schist and greenish-gray, fine- to medium-grained calc-silicate gneiss.[14]

The Petitioner does not anticipate encountering bedrock during Project development.

3.6.1 Prime Farmland Soils

In accordance with the Code of Federal Regulations, CFR Title 7, part 657, farmland soils include land that is defined as prime, unique, or farmlands of statewide or local importance based on soil type. They represent the most suitable land for producing food, feed, fiber, forage, and oilseed crops.

According to the Connecticut Environmental Conditions Online Resource Guide,[15] several portions of the Site contain Prime Farmland Soils, accounting for a total of approximately 90 acres (See Figure 2, *Existing Conditions Map).*

The Project Area will occupy approximately 7.2 acres of Prime Farmland Soils (±8% of such soils on the Site). Recognizing that the Project has a useful life and could be considered temporary in nature, the Petitioner has proposed using minimally intrusive methods for construction of the Project. The use of a ground-mounted racking system for the installation of the solar panels and associated equipment minimizes the need for substantial grading and soil disturbances.

Some excavation and regrading activities are necessary within areas mapped as Prime Farmland Soils to facilitate Project development. The water quality basins allow the Project to comply with Appendix I. Topsoil removed from these areas will be segregated from underlying horizons, temporarily stockpiled and used as top dressing for reestablishing vegetation. No topsoil will leave the Site.

After its useful life, the Facility will be decommissioned and all of the disturbed areas will be reseeded with the same (or approved equivalent) blend as established within the rest of the Project Area. Implementation of these proposed design strategies demonstrates that the Project will not materially affect Prime Farmland Soils.

[14] Connecticut Natural Resources Atlas Series: Bedrock Geological map, cteco.uconn.edu/maps/state/Bedrock_Geologic_Map_of_Connecticut.pdf

[15] Connecticut Environmental Conditions Online (CTECO) Resource Guide, www.cteco.uconn.edu.

3.7 Historic and Archaeological Resources

At the request of APT, and on behalf of the Petitioner, Heritage Consultants LLC ("Heritage") reviewed relevant historic and archaeological information to determine whether the Site holds potential cultural resource significance. Their review of historic maps and aerial images of the Site, examination of files maintained by the Connecticut State Historic Preservation Office ("SHPO"), and a pedestrian survey of the Site revealed no National Register of Historic Places ("NRHP") properties are located within one (1) mile of the Site. One (1) property listed on the State Register of Historic Places was identified approximately 0.90 mile from the Site. This resource is not proximate to the Project Area and due to its distance from the Site, no direct or indirect effects from the Project are anticipated.

In terms of archaeological potential, it was determined that the Project Area retains a moderate to high potential to contain intact archaeological deposits in the subsoil. At the request of the Petitioner, Heritage performed a Phase 1B Professional Cultural Resources Assessment and Reconnaissance Survey in July 2021. The Phase 1B field activities consisted of performing 137 shovel tests and 24 delineation shovel tests throughout the Project Area. A single prehistoric locus was identified during the shovel tests. However, due to the disturbed soil context, low density of cultural material, and lack of intact cultural features, no additional archaeological examinations of the Project Area are recommended prior to construction.

Both the Phase 1A and Phase 1B reports have been submitted to the SHPO for review. The SHPO response to the report will be provided upon receipt. The Phase 1A and Phase 1B reports are included in Appendix G, *Cultural Resources Reconnaissance Surveys.*

3.8 Scenic and Recreational Areas

No state or local designated scenic roads or scenic areas are located near the Site and therefore none will be physically or visually impacted by development of the Project. The nearest scenic road is a portion of State Route 169 in Pomfret Center, designated as a state scenic highway, located approximately 1.3 miles west of the Project Area. The Pomfret Street Historic District surrounds a portion of the Route 169 scenic highway. There are no CT Blue Blaze Hiking Trails located proximate to the Site.

The Airline State Park Trail (Northern Section) is approximately 0.38 mile southeast of the Project Area. No impacts, physical or visual, are anticipated from the Airline State Park Trail. The nearest public open space is the Wyndham Land Trust's Duck Pond Marsh Preserve. The northernmost portion of the Wyndham Land Trust property is located directly across from the Project Area to the south of Wrights Crossing Road. See Figure 4, *Surrounding Features Map,* for these and other resources located within one mile of the Site.

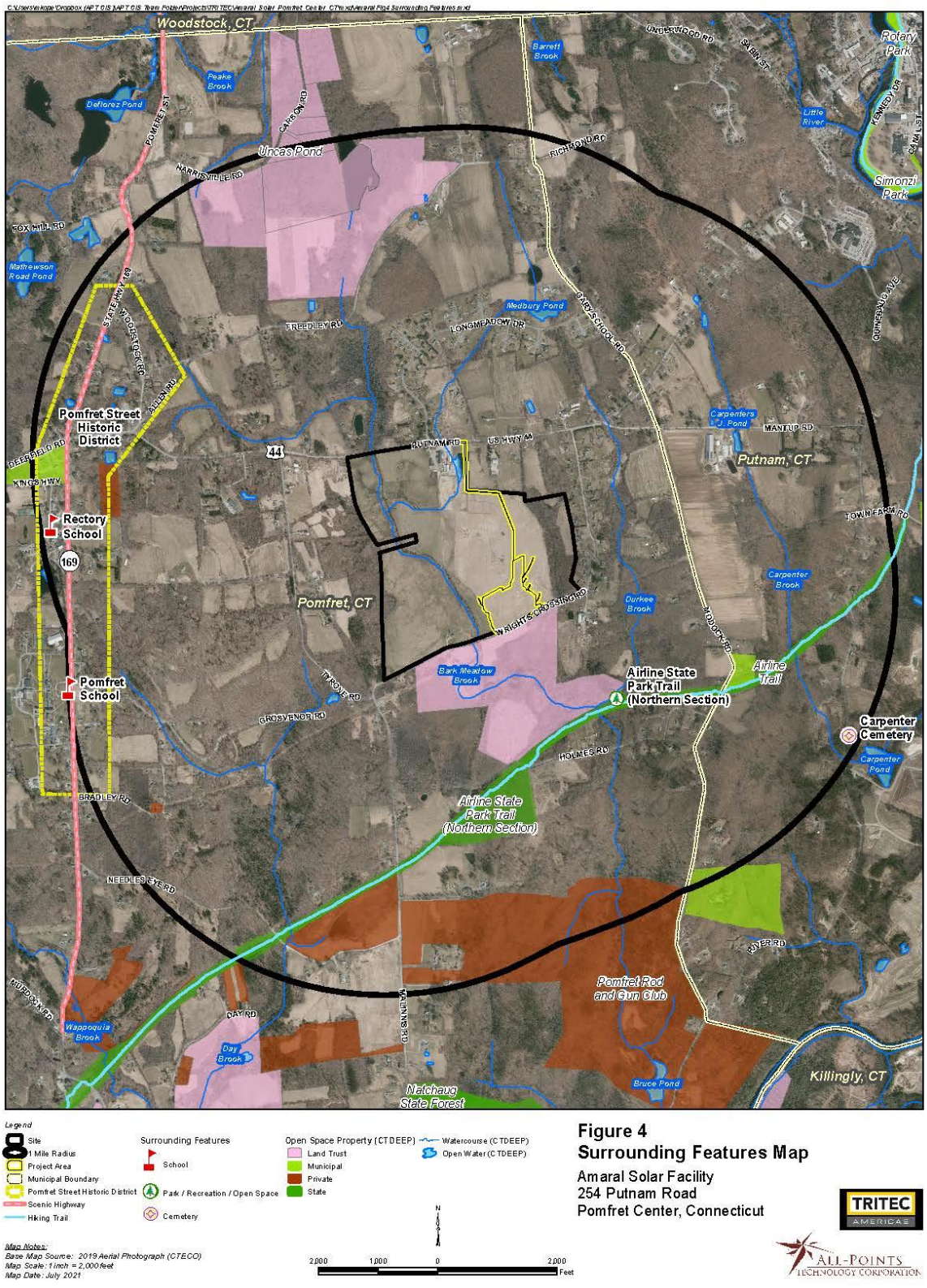


Figure 4
Surrounding Features Map
Amaral Solar Facility
254 Putnam Road
Pomfret Center, Connecticut

TRITEC AMERICAS

ALL-POINTS TECHNOLOGY CORPORATION

3.9 Noise

The majority of the Site is undeveloped, agriculture land. With the exception of residential activity and transient farm equipment, little or no noise is currently generated on the Site.

Construction noise is exempted under State of Connecticut regulations for the control of noise, RCSA 22a-69-1.8(h)[16]. During construction of the Facility, the temporary increase in noise would likely raise localized ambient sound levels immediately surrounding the Project Area. Standard types of construction equipment would be used for the Project. In general, the highest noise level from this type of equipment (e.g., backhoe, bulldozer, crane, trucks, etc.) is approximately 88 dBA at the source.

Once operational, noise from the Facility will be minimal. The Site and all surrounding properties are located within the Rural Residential (RR) zone, and would be considered a Class A Noise Receptor Zone.[17] Conservatively, the Facility would be considered a Class C (Industrial) noise emitter to Class A (Residential) receptors. As such, it is subject to noise standards of 61 dBA during the daytime and 51 dBA at night. The Facility's only noise generating equipment are the inverters and transformers. Based on the most conservative information provided by specified equipment manufacturers, the loudest proposed equipment are the two (2) 300 kVA transformers that will generate a maximum sound level of approximately 55 dBA (measured at 1-foot away).

Sound reduces with distance, and the inverters and transformers are inactive at night. The closest property line to either transformer is approximately 132 feet to the south (Wrights Crossing Road). The nearest residential property line is approximately 379 feet to the southeast. APT applied the Inverse Square Law[18] to evaluate the relative sound level of the transformers at the nearest property line. Based on these calculations, nearby receptors are of sufficient distances from the proposed Project-related equipment and once operational, noise levels during Facility operation will meet applicable State noise standards for a Class A Noise Zone.

Please refer to the transformer and inverter specification sheets provided in Appendix H, *Product Information Sheets*.

[16] The Town of Pomfret does not have a noise ordinance.

[17] RCSA 22a-69-3.5. Noise Zone Standards

[18] Inverse Square Law states that *the intensity of a force is inversely proportional to the square of the distance from that force*. With respect to sound, this means that any a noise will have a drastic drop-off in volume as it moves away from the source and then shallows out.

3.10 Lighting

Lighting is currently limited to the residences and farm buildings in the northern and southwestern portions of the Site.

No exterior lighting is planned for the Project.

3.11 FAA Determination

The Petitioner submitted relevant Project information to the Federal Aviation Administration ("FAA") for an aeronautical study to evaluate potential hazards to air navigation. The nearest airport is the Danielson Airport (LZD) located approximately 4.5 miles to the south. The results of the FAA review determined that the Project, including the temporary use of cranes and equipment, would not exceed obstruction standards and would not be a hazard to air navigation. Please refer to the FAA Determination of No Hazard letters provided in Appendix I, *Federal Aviation Administration Determination*.

3.12 Visibility

The Facility will consist of 5,472 non-reflective solar panels measuring approximately 10 feet above grade. The proposed electrical interconnection will require the installation of approximately twelve (12) new utility poles at the northeastern corner of the Site.

The solar modules are designed to absorb incoming solar radiation and minimize reflectivity, such that only a small percentage of incidental light will be reflected off the panels. This incidental light is significantly less reflective than common building materials, such as steel, or the surface of smooth water. The panels will be tilted up toward the southern sky at a fixed angle of 30 degrees, thereby further reducing reflectivity.

The Site is primarily cleared. APT assessed the predicted visibility of the Facility with a Project-specific computer analysis of a one-mile radius around the Site. As depicted on the resulting viewshed maps, visibility of the proposed Facility will be limited primarily to areas on the Site, and extending south of portions of open fields south of Wrights Crossing Road. Pockets of year-round visibility may also extend off-Site to the north and northwest, south of Putnam Road. Seasonal visibility of the Facility and utility poles is predicted over open fields in the area of

Prospect Hill to the west. Table 3, *Predicted Visibility,* provided below details the acreage of predicted visibility in year-round and seasonal settings.

Table 3: Predicted Visibility

Predicted Visibility		
Equipment	Year-Round	Seasonal (leaf-off)
Proposed Modules and Utility Poles	±118 Acres	±155 Acres
Proposed Modules Only	±106 Acres	±40 Acres

Photo-simulations were produced to present a visual representation of what the Facility will look like from Putnam Road to the north and Wrights Crossing Road to the southeast and southwest.

Please see Appendix J for viewshed maps and photo-simulations.

4 Conclusion

As demonstrated in this Environmental Assessment, the Project will comply with the DEEP air and water quality standards. Further, it will not have an undue adverse effect on the existing environment and ecology; nor will it affect the scenic, historic and recreational resources in the vicinity of the Project. Visibility of the proposed Facility beyond the Site is primarily limited to open fields located to the north, northwest and south. Once operative, the Facility will be unstaffed and generate minimal traffic.

The Project Area is cleared and contains no core forest. A total of 19 State-listed birds, amphibians and reptiles, and invertebrates, including host plant species, were identified by the NDDB as potentially occurring within the vicinity of the Project Area. Two (2) State-listed grassland bird species could be impacted by the Project and appropriate construction and post-construction protection measures will be implemented by the Petitioner. The Northern long-eared bat was also identified as potentially occurring within the vicinity of the Site but the Project requires only limited tree removal and should not result in an adverse effect or an incidental take.

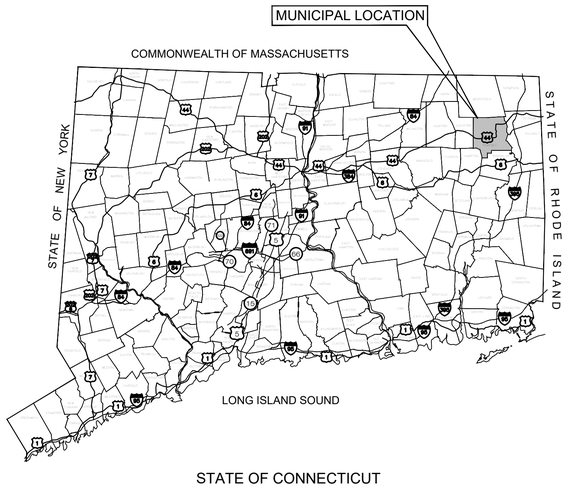
Portions of the Project Area are located within mapped Prime Farmland Soils. The Petitioner has designed the Project to minimize disturbance to these soils by proposing minimally intrusive methods for construction and installation of Facility components and limiting excessive grading and compaction. No soil will be exported from the Site. The Petitioner will seed all disturbed areas. Once the Facility has reached the end of its useful life, the panels and equipment can be removed and the Project Area restored.

Aside from temporary impacts to wetlands associated with the installation of the underground interconnect line, no other wetlands will be impacted by the Project. The nearest wetland boundary to permanent above-ground Project features is approximately 86 feet away and is limited to a drainage swale discharge point. To aid in the protection of wetland resources, E&S controls will be installed and maintained throughout construction in accordance with the Project's Resource Protection Plan. The distance from the main areas of disturbance within the fenced Facility to wetlands and implementation of protective management techniques will mitigate potential impacts to these resources during construction.

Overall, the Project's design minimizes the creation of impervious surfaces and generally maintains existing grades. Some minor regrading and excavation will be required for the development of the Facility and for the construction of the water quality swales. The Project has been designed to adequately handle water volume, in accordance with the DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* as well as Appendix I. The Petitioner will implement a SWPCP, in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*, that will include provisions for monitoring of development activities and the establishment of E&S controls to be installed and maintained throughout construction.

APPENDIX A

PROJECT PLANS



AMARAL SOLAR

TRITEC AMERICAS, LLC

254 PUTNAM ROAD
POMFRET CENTER, CT

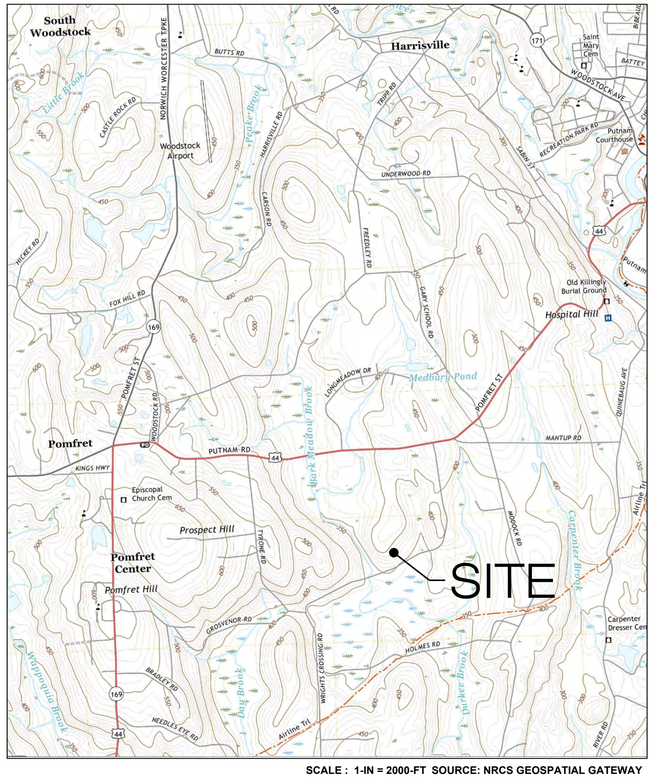
PERMIT APPLICATION DRAWINGS
DECEMBER 9, 2021

LIST OF DRAWINGS

SITE INFORMATION

SITE NAME:	AMARAL SOLAR
LOCATION:	254 PUTNAM ROAD POMFRET CENTER, CT
SITE TYPE/DESCRIPTION:	ADD (1) GROUND MOUNTED SOLAR PANEL ARRAY W/ ASSOCIATED EQUIPMENT.
PROPERTY OWNER:	ANTONIO & MARY AMARAL 254 PUTNAM ROAD POMFRET CENTER, CT 06259
APPLICANT:	TRITEC AMERICAS, LLC 888 PROSPECT STREET LA JOLLA, CA 92037
ENGINEER CONTACT:	KEVIN A. MCCAFFERY, PE (860) 663-1697 x228
LATITUDE:	41° 53' 20" N
LONGITUDE:	71° 56' 11" W
ELEVATION:	345-415'± AMSL
MAP-LOT:	10-1
ZONE:	RR
EXISTING LAND USE:	AGRICULTURAL
PROPOSED LAND USE:	ENERGY PRODUCTION
TOTAL SITE ACREAGE:	215.60± AC.
TOTAL DISTURBED AREA:	14.27± AC.
APPROX. VOLUME OF CUT:	930± CY
APPROX. VOLUME OF FILL:	745 ± CY
APPROX. NET VOLUME:	185 ± CY OF CUT (ASSUMES 615 CY ACCESS ROAD GRAVEL)
PROP. GRAVEL ACCESS ROAD:	1,185± LINEAR FEET
PROP. SILT FENCE:	4,590± LINEAR FEET
TREE CLEARING AREA:	LIMITED TO SELECTIVE TREELINE REMOVAL FOR ACCESS AND INTERCONNECTION
EFFECTIVE IMPERVIOUS AREA:	20,480± SQUARE FEET

USGS TOPOGRAPHIC MAP



SCALE : 1-IN = 2000-FT SOURCE: NRCS GEOSPATIAL GATEWAY

TRITEC AMERICAS
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567 VAUXHAUL STREET EXTENSION - SUITE 311
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CSC PERMIT SET

NO	DATE	REVISION
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NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL
ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM
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CHECKED BY: BG

SHEET TITLE:
TITLE SHEET & INDEX

SHEET NUMBER:
T-1

STATE OF CONNECTICUT · KEVIN A. MCCAFFERY · 25977 · LICENSED PROFESSIONAL ENGINEER

GENERAL NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH PROJECT DEVELOPER STANDARDS, TOWN OF POMFRET STANDARDS, CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS IN THE ABOVE REFERENCED INCREASING HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. IF NO PROJECT CONSTRUCTION SPECIFICATION PACKAGE IS PROVIDED BY THE PROJECT DEVELOPER OR THEIR REPRESENTATIVE, THE CONTRACTOR SHALL COMPLY WITH THE MANUFACTURE, TOWN OF POMFRET, OR CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, AND BE IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS.
3. THE PROJECT DEVELOPER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING AND STORMWATER PERMITS REQUIRED BY GOVERNMENT AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL TOWN OF POMFRET CONSTRUCTION PERMITS. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
4. REFER TO PLANS, DETAILS AND REPORTS PREPARED BY ALL-POINTS TECHNOLOGY CORPORATION FOR ADDITIONAL INFORMATION. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE PROJECT DEVELOPER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS SO THAT APPROPRIATE REVISIONS CAN BE MADE PRIOR TO BIDDING/CONSTRUCTION. ANY CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONFIRMED WITH THE PROJECT DEVELOPERS CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS, MATERIALS PER PLANS AND SPECIFICATIONS TO THE PROJECT DEVELOPER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.
6. SHOULD ANY UNKNOWN OR INCORRECTLY LOCATED EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE PROJECT DEVELOPER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.
7. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE PROJECT DEVELOPER OR OTHERS DURING OCCUPIED HOURS, EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE PROJECT DEVELOPER AND THE LOCAL MUNICIPALITY. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.
8. THE CONTRACT LIMIT IS THE PROPERTY LINE UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE CONTRACT DRAWINGS.
9. THE CONTRACTOR SHALL ABIDE BY ALL OSHA, FEDERAL, STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. ANY UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR.
10. THE CONTRACTOR SHALL COMPLY WITH OSHA CFR 29 PART 1926 FOR EXCAVATION TRENCHING AND TRENCH PROTECTION REQUIREMENTS.
11. THE ENGINEER IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ENGINEER HAS NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OF PERSONNEL OR TO SUPERVISE SAFETY AND DO NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.
12. THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, CONDUIT, PAVEMENT, CURBING, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE PROJECT DEVELOPER OR TOWN OF POMFRET.
13. THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE PROJECT DEVELOPER AT THE END OF CONSTRUCTION.
14. ALTERNATIVE METHODS AND PRODUCTS, OTHER THAN THOSE SPECIFIED, MAY BE USED IF REVIEWED AND APPROVED BY THE PROJECT DEVELOPER, ENGINEER, AND APPROPRIATE REGULATORY AGENCY PRIOR TO INSTALLATION DURING THE BIDDING/CONSTRUCTION PROCESS.
15. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "DIG SAFE" 72 HOURS BEFORE COMMENCEMENT OF WORK AT "811" AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
16. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.

SITE PLAN NOTES

1. THE SURVEY WAS PROVIDED BY WSP USA DATED MAY 17, 2021.
2. THERE ARE WETLANDS AND WATERWAYS LOCATED ON THE SITE AS INDICATED ON THE PLANS. BOUNDARIES WERE FLAGGED BY APT IN MARCH 2021 AND FIELD SURVEYED BY WSP.
3. THE CONTRACTOR SHALL FOLLOW THE RECOMMENDED SEQUENCE OF CONSTRUCTION NOTES PROVIDED ON THE EROSION CONTROL PLAN OR SUBMIT AN ALTERNATE PLAN FOR APPROVAL BY THE ENGINEER AND/OR PERMITTING AGENCIES PRIOR TO THE START CONSTRUCTION. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.
4. PROPER CONSTRUCTION PROCEDURES SHALL BE FOLLOWED ON ALL IMPROVEMENTS WITHIN THIS PARCEL SO AS TO PREVENT THE SILTING OF ANY WATERCOURSE OR WETLAND IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. IN ADDITION, THE CONTRACTOR SHALL ADHERE TO "EROSION CONTROL PLAN" CONTAINED HEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE TO POST ALL BONDS AS REQUIRED BY GOVERNMENT AGENCIES WHICH WOULD GUARANTEE THE PROPER IMPLEMENTATION OF THE PLAN.
5. ALL SITE WORK, MATERIALS OF CONSTRUCTION, AND CONSTRUCTION METHODS FOR EARTHWORK AND STORM DRAINAGE WORK, SHALL CONFORM TO THE SPECIFICATIONS AND DETAILS AND APPLICABLE SECTIONS OF THE PROJECT SPECIFICATIONS MANUAL. OTHERWISE THIS WORK SHALL CONFORM TO THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION AND PROJECT GEOTECHNICAL REPORT IF THERE IS NO PROJECT SPECIFICATIONS MANUAL. ALL FILL MATERIAL UNDER STRUCTURES AND PAVED AREAS SHALL BE PER THE ABOVE STATED APPLICABLE SPECIFICATIONS, AND/OR PROJECT GEOTECHNICAL REPORT, AND SHALL BE PLACED IN ACCORDANCE WITH THE APPLICABLE SPECIFICATIONS UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER. MATERIAL SHALL BE COMPACTED IN 8" LIFTS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 1557 AT 95% PERCENT OF OPTIMUM MOISTURE CONTENT.
6. ALL DISTURBANCE INCURRED TO PUBLIC, MUNICIPAL, COUNTY, STATE PROPERTY DUE TO CONSTRUCTION SHALL BE RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE TOWN OF POMFRET AND STATE OF CONNECTICUT.
7. IF IMPACTED OR CONTAMINATED SOIL IS ENCOUNTERED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUSPEND EXCAVATION WORK OF IMPACTED SOIL AND NOTIFY THE PROJECT DEVELOPER AND/OR PROJECT DEVELOPERS ENVIRONMENTAL CONSULTANT PRIOR TO PROCEEDING WITH FURTHER WORK IN THE IMPACTED SOIL LOCATION UNTIL FURTHER INSTRUCTED BY THE PROJECT DEVELOPER AND/OR PROJECT DEVELOPER'S ENVIRONMENTAL CONSULTANT.

UTILITY NOTES

1. CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE TOWN OF POMFRET TO SECURE CONSTRUCTION PERMITS AND FOR PAYMENT OF FEES FOR STREET CUTS AND CONNECTIONS TO EXISTING UTILITIES.
2. REFER TO DRAWINGS BY PROJECT DEVELOPER FOR THE ONSITE ELECTRICAL DRAWINGS AND INTERCONNECTION TO EXISTING ELECTRICAL GRID. SITE CONTRACTOR SHALL SUPPLY AND INSTALL PIPE ADAPTERS AS NECESSARY AT BUILDING CONNECTION POINT OR AT EXISTING UTILITY OR PIPE CONNECTION POINT. THESE DETAILS ARE NOT INCLUDED IN THESE PLANS.
3. UTILITY LOCATIONS AND PENETRATIONS ARE SHOWN FOR THE CONTRACTOR'S INFORMATION AND SHALL BE VERIFIED WITH THE ELECTRICAL ENGINEER AND THE PROJECT DEVELOPER'S CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE ELEVATION AND LOCATION OF ALL UTILITIES BY VARIOUS MEANS PRIOR TO BEGINNING ANY EXCAVATION. TEST PITS SHALL BE DUG AT ALL LOCATIONS WHERE PROP. SANITARY SEWERS AND WHERE PROP. STORM PIPING WILL CROSS EXISTING UTILITIES, AND THE HORIZONTAL AND VERTICAL LOCATIONS OF THE UTILITIES SHALL BE DETERMINED. THE CONTRACTOR SHALL CONTACT THE PROJECT DEVELOPER IN THE EVENT OF ANY DISCOVERED OR UNFORESEEN CONFLICTS BETWEEN EXISTING AND PROPOSED SANITARY SEWERS, STORM PIPING AND UTILITIES SO THAT AN APPROPRIATE MODIFICATION MAY BE MADE.
5. UTILITY CONNECTION DESIGN AS REFLECTED ON THE PLAN MAY CHANGE SUBJECT TO UTILITY PROVIDER AND GOVERNING AUTHORITY STAFF REVIEW.
6. THE CONTRACTOR SHALL ENSURE THAT ALL UTILITY PROVIDERS AND GOVERNING AUTHORITY STANDARDS FOR MATERIALS AND CONSTRUCTION METHODS ARE MET. THE CONTRACTOR SHALL PERFORM PROPER COORDINATION WITH THE RESPECTIVE UTILITY PROVIDER.
7. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE WITH THE RESPECTIVE UTILITY PROVIDERS FOR SERVICE INSTALLATIONS AND CONNECTIONS. THE CONTRACTOR SHALL COORDINATE WORK TO BE PERFORMED BY THE VARIOUS UTILITY PROVIDERS AND SHALL PAY ALL FEES FOR CONNECTIONS, DISCONNECTIONS, RELOCATIONS, INSPECTIONS, AND DEMOLITION UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATIONS MANUAL AND/OR GENERAL CONDITIONS OF THE CONTRACT.
8. ALL EXISTING PAVEMENT WHERE UTILITY PIPING IS TO BE INSTALLED SHALL BE SAW CUT. AFTER UTILITY INSTALLATION IS COMPLETED, THE CONTRACTOR SHALL INSTALL TEMPORARY AND/OR PERMANENT PAVEMENT REPAIR AS DETAILED ON THE DRAWINGS OR AS REQUIRED BY THE TOWN OF POMFRET.
9. ALL PIPES SHALL BE LAID ON STRAIGHT ALIGNMENTS AND EVEN GRADES USING A PIPE LASER OR OTHER ACCURATE METHOD.
10. RELOCATION OF UTILITY PROVIDER FACILITIES, SUCH AS POLES, SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY PROVIDER.
11. THE CONTRACTOR SHALL COMPACT PIPE BACKFILL IN 8" LIFTS ACCORDING TO THE PIPE BEDDING DETAILS. TRENCH BOTTOM SHALL BE STABLE IN HIGH GROUNDWATER AREAS. A PIPE FOUNDATION SHALL BE USED PER THE TRENCH DETAILS AND IN AREAS OF ROCK EXCAVATION.
12. CONTRACTOR TO PROVIDE STEEL SLEEVES AND ANNULAR SPACE SAND FILL FOR UTILITY PIPE AND CONDUIT CONNECTIONS UNDER FOOTINGS.
13. ALL UTILITY CONSTRUCTION IS SUBJECT TO INSPECTION FOR APPROVAL PRIOR TO BACKFILLING, IN ACCORDANCE WITH THE APPROPRIATE UTILITY PROVIDER REQUIREMENTS.
14. A ONE-FOOT MINIMUM VERTICAL CLEARANCE BETWEEN WATER, GAS, ELECTRICAL, AND TELEPHONE LINES AND STORM PIPING SHALL BE PROVIDED. A SIX-INCH MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN STORM PIPING AND SANITARY SEWER. A 6-INCH TO 18-INCH VERTICAL CLEARANCE BETWEEN SANITARY SEWER PIPING AND STORM PIPING SHALL REQUIRE CONCRETE ENCASEMENT OF THE PROP. SANITARY PIPING.
15. THE CONTRACTOR SHALL RESTORE ANY UTILITY STRUCTURE, PIPE, CONDUIT, PAVEMENT, CURBING, SIDEWALKS, DRAINAGE STRUCTURE, SWALE OR LANDSCAPED AREAS DISTURBED DURING CONSTRUCTION, TO THEIR ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE PROJECT DEVELOPER AND TOWN OF POMFRET.
16. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY, AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE INCLUDING SERVICES. CONTACT "DIG SAFE" AT 811 72 HOURS PRIOR TO CONSTRUCTION AND VERIFY ALL UNDERGROUND AND OVERHEAD UTILITY AND STORM DRAINAGE LOCATIONS. THE CONTRACTOR SHALL EMPLOY THE USE OF A UTILITY LOCATING COMPANY TO PROVIDE SUBSURFACE UTILITY ENGINEERING CONSISTING OF DESIGNATING UTILITIES AND STORM PIPING ON PRIVATE PROPERTY WITHIN THE CONTRACT LIMIT AND CONSISTING OF DESIGNATING AND LOCATING WHERE PROP. UTILITIES AND STORM PIPING CROSS EXISTING UTILITIES AND STORM PIPING WITHIN THE CONTRACT LIMITS.
17. THE CONTRACTOR SHALL ARRANGE AND COORDINATE WITH UTILITY PROVIDERS FOR WORK TO BE PERFORMED BY UTILITY PROVIDERS. THE CONTRACTOR SHALL PAY ALL UTILITY FEES UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATION MANUAL AND GENERAL CONDITIONS, AND REPAIR PAVEMENTS AS NECESSARY.
18. ELECTRIC DRAWINGS AND REQUIREMENTS ARE NOT INCLUDED AS PART OF THIS DRAWING SET AND SHOULD BE OBTAINED FROM THE PROJECT DEVELOPER.
19. ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE PROJECT DEVELOPER, ENGINEER, AND APPROPRIATE REGULATORY AGENCIES PRIOR TO INSTALLATION.
20. THE CONTRACTOR SHALL MAINTAIN ALL FLOWS AND UTILITY CONNECTIONS TO EXISTING BUILDINGS WITHOUT INTERRUPTION UNLESS/UNTIL AUTHORIZED TO DISCONNECT BY THE PROJECT DEVELOPER, TOWN OF POMFRET, UTILITY PROVIDERS AND GOVERNING AUTHORITIES.

GENERAL LEGEND

	EXISTING	PROPOSED
PROPERTY LINE		
BUILDING SETBACK		
SOLAR SETBACK		
EASEMENT		
TREE LINE		
WETLAND		
WETLAND BUFFER		
VERNAL POOL		
VERNAL POOL BUFFER		
WATERCOURSE		
WATERCOURSE BUFFER		
MAJOR CONTOUR		
MINOR CONTOUR		
UNDERGROUND ELECTRIC		E E
OVERHEAD ELECTRIC	OH OH	OH OH
GAS LINE		
WATER LINE	W W	W W
WATER QUALITY SWALE		
FENCE		X X X
LIMIT OF DISTURBANCE		LOD
SILT FENCE		SF SF

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PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL

ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

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GENERAL NOTES

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STATE OF CONNECTICUT KEVIN A. MCCAFFERY 25977 LICENSED PROFESSIONAL ENGINEER

ENVIRONMENTAL NOTES - RESOURCE PROTECTION MEASURES

RESOURCE PROTECTION PROGRAM

A PORTION OF THE PROPOSED UNDERGROUND UTILITY ROUTE IS LOCATED WITHIN WETLANDS THAT WERE PREVIOUSLY DISTURBED BY AGRICULTURAL ACTIVITIES AND CONSTRUCTION OF THE FARM POND. AS A RESULT, TEMPORARY DISTURBANCES TO WETLANDS WILL RESULT FROM INSTALLATION OF THE PROPOSED UNDERGROUND UTILITIES VIA TRENCHING. THE FOLLOWING PROTECTIVE MEASURES AND RESTORATION ACTIVITIES SHALL BE FOLLOWED TO HELP AVOID DEGRADATION, AND PROPER RESTORATION OF THESE WETLANDS.

IT IS OF THE UTMOST IMPORTANCE THAT THE CONTRACTOR COMPLIES WITH THE REQUIREMENTS FOR THE INSTALLATION OF PROTECTIVE MEASURES, RESTORATION OF AFFECTED WETLANDS AND THE EDUCATION OF ITS EMPLOYEES AND SUBCONTRACTORS PERFORMING WORK ON THE PROJECT SITE. ALL-POINTS TECHNOLOGY CORPORATION, P.C. ("APT") WILL SERVE AS THE ENVIRONMENTAL MONITOR FOR THIS PROJECT TO ENSURE THAT WETLAND PROTECTION AND RESTORATION MEASURES ARE IMPLEMENTED PROPERLY. THE CONTRACTOR SHALL CONTACT MATTHEW GUSTAFSON, WETLAND SCIENTIST AT APT AT LEAST 5 BUSINESS DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING. MR. GUSTAFSON CAN BE REACHED BY PHONE AT (860) 617-0613 OR VIA EMAIL AT MGUSTAFSON@ALLPOINTSTECH.COM.

THE RESOURCE PROTECTION PROGRAM CONSISTS OF SEVERAL COMPONENTS, INCLUDING: EDUCATION OF ALL CONTRACTORS AND SUB-CONTRACTORS PRIOR TO INITIATION OF WORK ON THE SITE; USE OF APPROPRIATE EROSION CONTROL MEASURES TO CONTROL AND CONTAIN EROSION WHILE AVOIDING/MINIMIZING WILDLIFE ENTANGLEMENT; PERIODIC INSPECTION AND MAINTENANCE OF ISOLATION STRUCTURES AND EROSION CONTROL MEASURES; WETLAND PROTECTIVE MEASURES; WETLAND RESTORATION MEASURES; SPILL PREVENTION; HERBICIDE/PESTICIDE RESTRICTIONS; AND, REPORTING.

1. CONTRACTOR EDUCATION

   a. PRIOR TO WORK ON SITE, THE CONTRACTOR SHALL ATTEND AN EDUCATIONAL SESSION AT THE PRE-CONSTRUCTION MEETING WITH APT. THIS ORIENTATION AND EDUCATIONAL SESSION WILL CONSIST OF AN INTRODUCTORY MEETING WITH APT TO UNDERSTAND THE ENVIRONMENTALLY SENSITIVE NATURE OF THE DEVELOPMENT SITE AND THE NEED TO FOLLOW PROTECTIVE MEASURES AND RESTORATION MEASURES AS DESCRIBED IN SECTION 3 BELOW.

2. EROSION AND SEDIMENTATION CONTROLS

   a. ALL EROSION AND SEDIMENTATION CONTROLS SHALL CONFORM TO THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, DEP BULLETIN 34.

   b. PLASTIC NETTING USED IN A VARIETY OF EROSION CONTROL PRODUCTS (I.E., EROSION CONTROL BLANKETS, FIBER ROLLS [WATTLES], REINFORCED SILT FENCE) HAS BEEN FOUND TO ENTANGLE WILDLIFE, INCLUDING REPTILES, AMPHIBIANS, BIRDS AND SMALL MAMMALS. NO PERMANENT EROSION CONTROL PRODUCTS OR REINFORCED SILT FENCE WILL BE USED ON THE PROJECT. TEMPORARY EROSION CONTROL PRODUCTS WILL USE EITHER EROSION CONTROL BLANKETS AND FIBER ROLLS COMPOSED OF PROCESSED FIBERS MECHANICALLY BOUND TOGETHER TO FORM A CONTINUOUS MATRIX (NET LESS) OR NETTING COMPOSED OF PLANAR WOVEN NATURAL BIODEGRADABLE FIBER TO AVOID/MINIMIZE WILDLIFE ENTANGLEMENT.

   c. INSTALLATION OF SILT FENCING AND/OR OTHER EROSION CONTROL DEVICES (I.E., STRAW WATTLES, COMPOST FILTER SOCKS, ETC.) SHALL BE PERFORMED BY THE CONTRACTOR PRIOR TO ANY EARTHWORK. APT WILL INSPECT THE WORK ZONE AREA PRIOR TO AND FOLLOWING EROSION CONTROL INSTALLATION TO ENSURE DEVICES ARE PROPERLY INSTALLED.

   d. SILT FENCING SHALL CONSIST OF NON-REINFORCED CONVENTIONAL EROSION CONTROL WOVEN FABRIC, INSTALLED APPROXIMATELY SIX INCHES BELOW SURFACE GRADE AND STAKED AT SEVEN TO TEN-FOOT INTERVALS USING FOUR-FOOT OAK STAKES OR APPROVED EQUIVALENT. THE CONTRACTOR IS RESPONSIBLE FOR DAILY INSPECTIONS OF THE SEDIMENTATION AND EROSION CONTROLS FOR TEARS OR BREECHES AND ACCUMULATION LEVELS OF SEDIMENT, PARTICULARLY FOLLOWING STORM EVENTS THAT GENERATE A DISCHARGE. THE ENVIRONMENTAL MONITOR WILL PROVIDE PERIODIC INSPECTIONS OF THE SEDIMENTATION AND EROSION CONTROLS THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES ONLY AS IT PERTAINS TO PROTECTION OF NEARBY WETLANDS.

   e. THE EXTENT OF EROSION CONTROLS WILL BE AS SHOWN ON THE SITE PLANS. THE CONTRACTOR SHALL HAVE ADDITIONAL SEDIMENTATION AND EROSION CONTROLS STOCKPILED ON SITE SHOULD FIELD OR CONSTRUCTION CONDITIONS WARRANT EXTENDING DEVICES. IN ADDITION TO THE CONTRACTOR MAKING THESE DETERMINATIONS, REQUESTS FOR ADDITIONAL CONTROLS WILL ALSO BE AT THE DISCRETION OF THE ENVIRONMENTAL MONITOR.

   f. NO EQUIPMENT, VEHICLES OR CONSTRUCTION MATERIALS SHALL BE STORED OUTSIDE OF THE EXCLUSIONARY FENCING OR WITHIN 50 FEET OF WETLANDS OR WATERCOURSES.

   g. ALL SILT FENCING AND OTHER EROSION CONTROL DEVICES SHALL BE REMOVED WITHIN 30 DAYS OF COMPLETION OF WORK AND PERMANENT STABILIZATION OF SITE SOILS SO THAT REPTILE AND AMPHIBIAN MOVEMENT BETWEEN UPLANDS AND WETLANDS IS NOT RESTRICTED. IF FIBER ROLLS/WATTLES, STRAW BALES, OR OTHER NATURAL MATERIAL EROSION CONTROL PRODUCTS ARE USED, SUCH DEVICES WILL NOT BE LEFT IN PLACE TO BIODEGRADE AND SHALL BE PROMPTLY REMOVED AFTER SOILS ARE STABLE SO AS NOT TO CREATE A BARRIER TO MIGRATING WILDLIFE. SEED FROM SEEDING OF SOILS SHOULD NOT SPREAD OVER FIBER ROLLS/WATTLES AS IT MAKES THEM HARDER TO REMOVE ONCE SOILS ARE STABILIZED BY VEGETATION.

3. WETLAND RESTORATION MEASURES

   a. FLAG OR FENCE PROJECT LIMITS OF DISTURBANCE WITHIN ALL WETLAND AREAS AND AREAS WITHIN 100 FEET OF WETLANDS PRIOR TO ANY WORK IN WETLAND AREAS.

   b. LOCATE STAGING AREAS AND ACCESS POINTS. STAGING AREAS SHOULD BE LOCATED AT LEAST 50 FEET FROM THE EDGE OF THE WETLAND. INSTALL SEDIMENT BARRIERS DOWN SLOPE OF ANY STAGING AREAS OR ACCESS POINTS.

   c. SWAMP MATS, TIMBER MATS, TRUCK MATS OR SIMILAR DEVICES SHALL BE USED DURING THE CROSSINGS OF WETLANDS. SUCH DEVICES SHALL BE INSTALLED PRIOR TO CLEARING, GRUBBING OR EXCAVATION ACTIVITIES.

   d. CLEARING, GRUBBING AND UTILITY TRENCHING ACTIVITIES MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE EROSION AND SEDIMENTATION CONTROLS SPECIFIED BY THIS PROTECTION PLAN AND AS DETAILED ON THE PROJECT SITE PLANS HAVE BEEN INSTALLED AND HAVE BEEN REVIEWED AND APPROVED BY THE ENVIRONMENTAL MONITOR TO ENSURE EROSION CONTROLS ARE PROPERLY INSTALLED.

   e. SOIL EXCAVATED FROM WETLAND AREAS SHALL BE CAREFULLY REMOVED WITH THE ROOTS INTACT. THIS SOIL SHOULD BE PLACED IN A SEPARATE STOCKPILE TO BE REUSED DURING THE WETLAND RESTORATION WORK. BOTH WETLAND TOPSOIL AND SUBSOIL SHALL BE SEGREGATED INTO SEPARATE STOCKPILES.

   f. SOIL EXCAVATED FROM THE UTILITIES TRENCH LOCATED WITHIN OR ADJACENT TO WETLANDS SHALL BE TEMPORARILY PLACED ON GEOTEXTILE FABRIC.

   g. DEWATERING OF THE UTILITY TRENCH EXCAVATION SHALL BE PUMPED TO A SEDIMENT FILTER BAG OR TEMPORARY SEDIMENT BASIN, FOLLOWING REQUIREMENTS AS NOTED IN SECTION 2.

   h. INSTALL PIPE AND TRENCH PLUGS IN WETLAND AREAS, AS NECESSARY, TO PREVENT THE TRENCH FROM DRAINING THE WETLAND OR CHANGING ITS HYDROLOGY, AS DETERMINED BY THE ENVIRONMENTAL MONITOR.

   i. BACKFILL PIPE TRENCH. BACKFILL FIRST WITH STOCKPILED WETLAND SUBSOIL, WITH THE TOP 12-INCHES OF THE EXCAVATED TRENCH FILLED WITH THE STOCKPILED WETLAND TOPSOIL TO MATCH ORIGINAL SURFACE GRADES.

   j. NO SOIL AMENDMENTS SUCH AS AGRICULTURAL LIME, FERTILIZER, ETC. WILL BE USED WITHIN WETLAND AREAS.

   k. COMPACT BACKFILL AND GRADE THE SURFACE OF THE TRENCH AREA TO ALLOW FOR POSITIVE DRAINAGE TO SOIL EROSION AND SEDIMENT CONTROLS AND TO PREPARE DISTURBED AREAS FOR PERMANENT TRENCH RESTORATION.

   l. ORIGINAL GRADES THROUGH WETLANDS MUST BE RESTORED AFTER TRENCHING AND BACKFILLING. ANY EXCESS FILL MATERIALS MUST BE REMOVED FROM THE WETLAND AND NOT SPREAD ON-SITE.

   m. SEED DISTURBED WETLAND AREAS WITH A NEW ENGLAND WET SEED MIX (NEW ENGLAND WETLAND PLANTS, INC., OR APPROVED EQUIVALENT) AT THE MANUFACTURERS RECOMMENDED SEED RATE. MULCH DISTURBED WETLAND AREAS WITH NON-WOVEN NATURAL FIBER EROSION CONTROL BLANKET OR 1 TO 2 INCHES OF CLEAN STRAW MULCH.

   n. SEED DISTURBED UPLAND AREAS WITH A NEW ENGLAND SEMI-SHADE GRASS AND FORBS MIX (NEW ENGLAND WETLAND PLANTS, INC., OR APPROVED EQUIVALENT) AT THE MANUFACTURERS RECOMMENDED SEED RATE. MULCH DISTURBED AREAS WITH NON-WOVEN NATURAL FIBER EROSION CONTROL BLANKET OR 1 TO 2 INCHES OF CLEAN STRAW MULCH.

   o. MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM ... PERENNIAL VEGETATIVE COVER IS ESTABLISHED AS CONFIRMED BY THE ENVIRONMENTAL MONITOR.

   p. REMOVE ALL SOIL AND EROSION SEDIMENT CONTROL MEASURES WITHIN 30 DAYS UPON ESTABLISHMENT OF A UNIFORM 70% VEGETATIVE COVER OVER THE DISTURBED AREA. RE-GRADE AND REVEGETATE AREAS DISTURBED DURING THE REMOVAL OF THE SOIL EROSION AND SEDIMENT CONTROLS.

4. PETROLEUM MATERIALS STORAGE AND SPILL PREVENTION

   a. CERTAIN PRECAUTIONS ARE NECESSARY TO STORE PETROLEUM MATERIALS, REFUEL AND CONTAIN AND PROPERLY CLEAN UP ANY INADVERTENT FUEL OR PETROLEUM (I.E., OIL, HYDRAULIC FLUID, ETC.) SPILL DUE TO THE PROJECTS LOCATION WITHIN AND PROXIMITY TO SENSITIVE WETLANDS.

   b. A SPILL CONTAINMENT KIT CONSISTING OF A SUFFICIENT SUPPLY OF ABSORBENT PADS AND ABSORBENT MATERIAL WILL BE MAINTAINED BY THE CONTRACTOR AT THE CONSTRUCTION SITE THROUGHOUT THE DURATION OF THE PROJECT. IN ADDITION, A WASTE DRUM WILL BE KEPT ON SITE TO CONTAIN ANY USED ABSORBENT PADS/MATERIAL FOR PROPER AND TIMELY DISPOSAL OFF SITE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL LAWS.

   c. THE FOLLOWING PETROLEUM AND HAZARDOUS MATERIALS STORAGE AND REFUELING RESTRICTIONS AND SPILL RESPONSE PROCEDURES WILL BE ADHERED TO BY THE CONTRACTOR.

   A. PETROLEUM AND HAZARDOUS MATERIALS STORAGE AND REFUELING

   - REFUELING OF VEHICLES OR MACHINERY SHALL OCCUR A MINIMUM OF 100 FEET FROM WETLANDS OR WATERCOURSES AND SHALL TAKE PLACE ON AN IMPERVIOUS PAD WITH SECONDARY CONTAINMENT DESIGNED TO CONTAIN FUELS.
   - ANY FUEL OR HAZARDOUS MATERIALS THAT MUST BE KEPT ON SITE SHALL BE STORED ON AN IMPERVIOUS SURFACE UTILIZING SECONDARY CONTAINMENT A MINIMUM OF 100 FEET FROM WETLANDS OR WATERCOURSES.

   B. INITIAL SPILL RESPONSE PROCEDURES

   - STOP OPERATIONS AND SHUT OFF EQUIPMENT.
   - REMOVE ANY SOURCES OF SPARK OR FLAME.
   - CONTAIN THE SOURCE OF THE SPILL.
   - DETERMINE THE APPROXIMATE VOLUME OF THE SPILL.
   - IDENTIFY THE LOCATION OF NATURAL FLOW PATHS TO PREVENT THE RELEASE OF THE SPILL TO SENSITIVE NEARBY WATERWAYS OR WETLANDS.
   - ENSURE THAT FELLOW WORKERS ARE NOTIFIED OF THE SPILL.

   C. SPILL CLEAN UP & CONTAINMENT

   - OBTAIN SPILL RESPONSE MATERIALS FROM THE ON-SITE SPILL RESPONSE KIT. PLACE ABSORBENT MATERIALS DIRECTLY ON THE RELEASE AREA.
   - LIMIT THE SPREAD OF THE SPILL BY PLACING ABSORBENT MATERIALS AROUND THE PERIMETER OF THE SPILL.
   - ISOLATE AND ELIMINATE THE SPILL SOURCE.
   - CONTACT THE CONNECTICUT SITING COUNCIL ALONG WITH OTHER APPROPRIATE LOCAL, STATE AND/OR FEDERAL AGENCIES, AS NECESSARY.
   - CONTACT A DISPOSAL COMPANY TO PROPERLY DISPOSE OF CONTAMINATED MATERIALS.

   D. REPORTING

   - COMPLETE AN INCIDENT REPORT.
   - SUBMIT A COMPLETED INCIDENT REPORT TO THE CONNECTICUT SITING COUNCIL. ALONG WITH OTHER APPROPRIATE LOCAL, STATE AND/OR FEDERAL AGENCIES, AS NECESSARY.

5. HERBICIDE AND PESTICIDE RESTRICTIONS

   a. THE USE OF HERBICIDES AND PESTICIDES AT THE PROPOSED FACILITY IS STRICTLY PROHIBITED.

6. REPORTING

   a. DAILY COMPLIANCE MONITORING REPORTS (BRIEF NARRATIVE AND APPLICABLE PHOTOS) WILL BE SUBMITTED BY THE ENVIRONMENTAL MONITOR TO TRITEC AMERICAS LLC FOR COMPLIANCE VERIFICATION FOR EACH INSPECTION PERFORMED.

   b. FOLLOWING COMPLETION OF THE CONSTRUCTION PROJECT, THE ENVIRONMENTAL MONITOR WILL PROVIDE A COMPLIANCE MONITORING SUMMARY REPORT TO TRITEC AMERICAS LLC DOCUMENTING IMPLEMENTATION OF THE WETLAND PROTECTION AND RESTORATION PROGRAM. TRITEC AMERICAS LLC WILL PROVIDE A COPY OF THE COMPLIANCE MONITORING SUMMARY REPORT TO THE CONNECTICUT SITING COUNCIL FOR COMPLIANCE VERIFICATION.

TRITEC AMERICAS
888 PROSPECT STREET
LA JOLLA, CA 92037
OFFICE: (619) 363-3080

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET		
NO	DATE	REVISION
0	12/09/21	SITING COUNCIL SUBMISSION
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5		
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NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL

ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM

DATE: 12/09/21

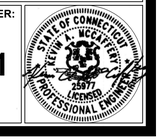
CHECKED BY: BG

SHEET TITLE:

ENVIRONMENTAL NOTES

SHEET NUMBER:

EN-1



1 CP-1 **OVERALL SITE PLAN**
SCALE : 1" = 80'-0"

80 0 40 80 160
(IN FEET) 1 inch = 80 ft.

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DATE: 12/09/21
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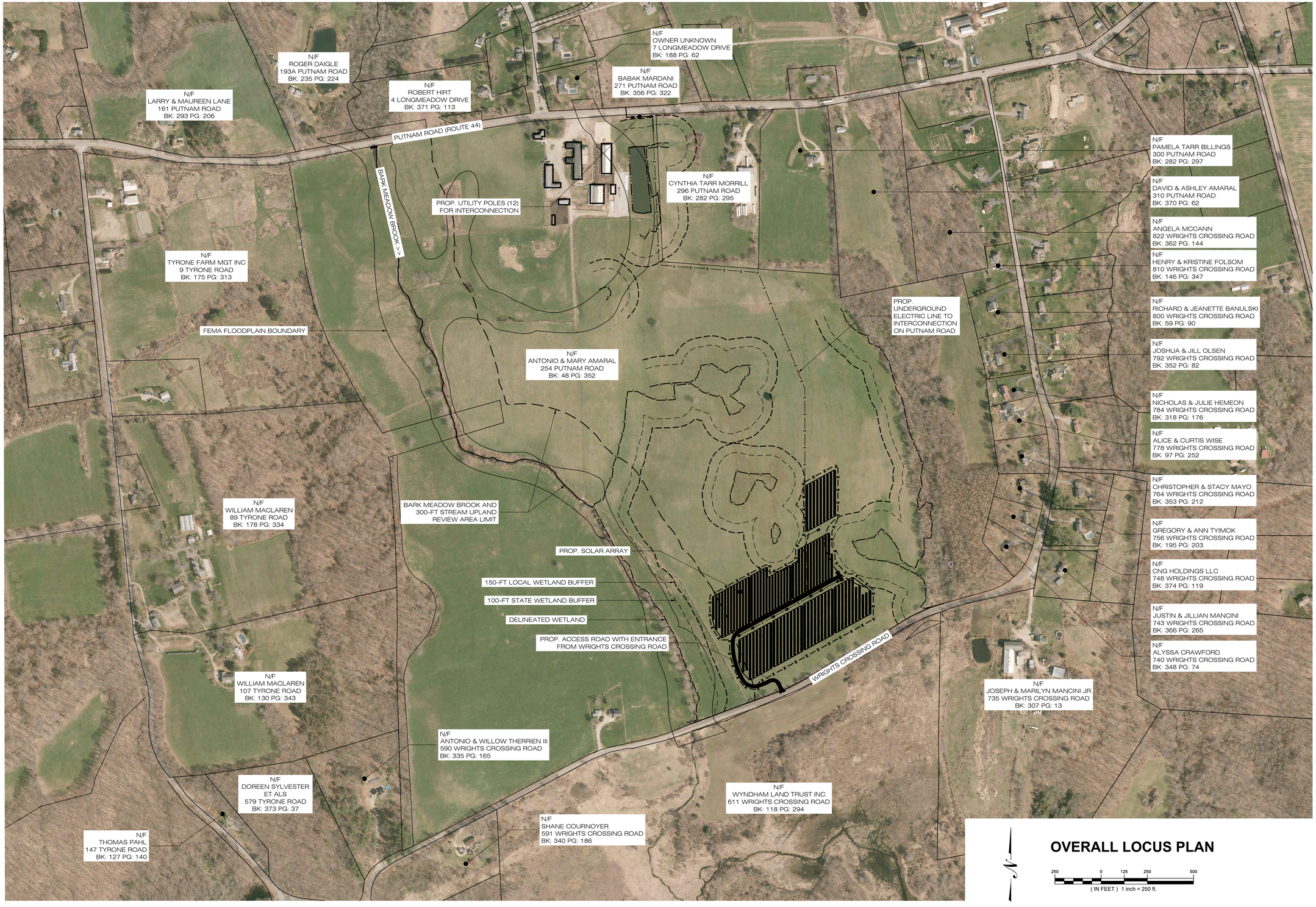
SHEET TITLE:
OVERALL SITE PLAN

SHEET NUMBER:
OP-1

STATE OF CONNECTICUT · KEVIN A. MCCAFFERY · 25977 · LICENSED PROFESSIONAL ENGINEER



OVERALL LOCUS PLAN

250 0 125 250 500

(IN FEET) 1 inch = 250 ft.

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POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM

DATE: 12/09/21

CHECKED BY: BG

SHEET TITLE:

OVERALL LOCUS PLAN

SHEET NUMBER:

OP-2

STATE OF CONNECTICUT
KEVIN A. MCCAFFERY
25977
LICENSED
PROFESSIONAL ENGINEER

EROSION CONTROL NOTES

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND AS DIRECTED BY THE CITY OF SOUTHINGTON, PERMITTEE, AND/OR SWPCP MONITOR. ALL PERIMETER SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CLEARING AND GRUBBING AND DEMOLITION OPERATIONS.

2. THESE DRAWINGS ARE ONLY INTENDED TO DESCRIBE THE SEDIMENT AND EROSION CONTROL MEASURES FOR THIS SITE. SEE CONSTRUCTION SEQUENCE FOR ADDITIONAL INFORMATION. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN ARE SHOWN AS REQUIRED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL EROSION CONTROL MEASURES ARE CONFIGURED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION OF SOILS AND PREVENT THE TRANSPORT OF SEDIMENTS AND OTHER POLLUTANTS TO STORM DRAINAGE SYSTEMS AND/OR WATERCOURSES. ACTUAL SITE CONDITIONS OR SEASONAL AND CLIMATIC CONDITIONS MAY WARRANT ADDITIONAL CONTROLS OR CONFIGURATIONS, AS REQUIRED, AND AS DIRECTED BY THE PERMITTEE AND/OR SWPCP MONITOR. REFER TO SITE PLAN FOR GENERAL INFORMATION AND OTHER CONTRACT PLANS FOR APPROPRIATE INFORMATION.

3. A BOND OR LETTER OF CREDIT MAY BE REQUIRED TO BE POSTED WITH THE GOVERNING AUTHORITY FOR THE EROSION CONTROL INSTALLATION AND MAINTENANCE.

4. THE CONTRACTOR SHALL APPLY THE MINIMUM EROSION & SEDIMENT CONTROL MEASURES SHOWN ON THE PLAN IN CONJUNCTION WITH CONSTRUCTION SEQUENCING, SUCH THAT ALL ACTIVE WORK ZONES ARE PROTECTED. ADDITIONAL AND/OR ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE CONTRACTOR, OWNER, SITE ENGINEER, MUNICIPAL OFFICIALS, OR ANY GOVERNING AGENCY. THE CONTRACTOR SHALL CONTACT THE OWNER AND APPROPRIATE GOVERNING AGENCIES FOR APPROVAL IF ALTERNATIVE CONTROLS OTHER THAN THOSE SHOWN ON THE PLANS ARE PROPOSED BY THE CONTRACTOR.

5. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING CONSTRUCTION SO AS NOT TO DISTURB UNPROTECTED WETLAND AREAS OR INSTALLED SEDIMENTATION AND EROSION CONTROL MEASURES. THE CONTRACTOR SHALL INSPECT ALL SEDIMENT AND EROSION CONTROLS WEEKLY AND WITHIN 24 HOURS OF A STORM WITH A RAINFALL AMOUNT OF 0.25 INCHES OR GREATER TO VERIFY THAT THE CONTROLS ARE OPERATING PROPERLY AND MAKE REPAIRS AS NECESSARY IN A TIMELY MANOR.

6. THE CONTRACTOR SHALL KEEP A SUPPLY OF EROSION CONTROL MATERIAL (SILT FENCE, COMPOST FILTER SOCK, EROSION CONTROL BLANKET, ETC.) ON-SITE FOR PERIODIC MAINTENANCE AND EMERGENCY REPAIRS.

7. ALL FILL MATERIAL PLACED ADJACENT TO ANY WETLAND AREA SHALL BE GOOD QUALITY, WITH LESS THAN 5% FINES PASSING THROUGH A #200 SIEVE (BANK RUN), SHALL BE PLACED IN MAXIMUM ONE FOOT LIFTS, AND SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR OR AS SPECIFIED IN THE CONTRACT SPECIFICATIONS.

8. PROTECT EXISTING TREES THAT ARE TO BE SAVED BY FENCING, ORANGE SAFETY FENCE, CONSTRUCTION TAPE, OR EQUIVALENT FENCING/TAPE. ANY LIMB TRIMMING SHOULD BE DONE AFTER CONSULTATION WITH AN ARBORIST AND BEFORE CONSTRUCTION BEGINS IN THAT AREA; FENCING SHALL BE MAINTAINED AND REPAIRED DURING CONSTRUCTION.

9. CONSTRUCTION ENTRANCES (ANTI-TRACKING PADS) SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR CONSTRUCTION ACTIVITY AND SHALL BE MAINTAINED THROUGHOUT THE DURATION OF ALL CONSTRUCTION IF REQUIRED. THE LOCATION OF THE TRACKING PADS MAY CHANGE AS VARIOUS PHASES OF CONSTRUCTION ARE COMPLETED. CONTRACTOR SHALL ENSURE THAT ALL VEHICLES EXITING THE SITE ARE PASSING OVER THE ANTI-TRACKING PADS PRIOR TO EXISTING.

10. ALL CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMIT OF DISTURBANCE, WHICH SHALL BE MARKED WITH SILT FENCE, SAFETY FENCE, HAY BALES, RIBBONS, OR OTHER MEANS PRIOR TO CLEARING. CONSTRUCTION ACTIVITY SHALL REMAIN ON THE UPHILL SIDE OF THE SEDIMENT BARRIER UNLESS WORK IS SPECIFICALLY CALLED FOR ON THE DOWNHILL SIDE OF THE BARRIER.

11. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS. ALL SLOPES SHALL BE SEEDED AND BANKS WILL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.

12. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE CONFORMING TO THE GUIDELINES WITHIN THE APPROVED LIMIT OF DISTURBANCE IF REQUIRED. DISCHARGE TO STORM DRAINS OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR AND APPROVED BY THE PERMITTEE OR MUNICIPALITY.

13. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS ON THE SITE. PROPER SANITARY DEVICES SHALL BE MAINTAINED ON-SITE AT ALL TIMES AND SECURED APPROPRIATELY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID THE SPILLAGE OF FUEL OR OTHER POLLUTANTS ON THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL APPLICABLE POLICIES AND REGULATIONS RELATED TO SPILL PREVENTION AND RESPONSE/CONTAINMENT.

14. MINIMIZE LAND DISTURBANCES. SEED AND MULCH DISTURBED AREAS WITH TEMPORARY MIX AS SOON AS PRACTICABLE (2 WEEK MAXIMUM UNSTABILIZED PERIOD) USING PERENNIAL RYEGRASS AT 40 LBS PER ACRE. MULCH ALL CUT AND FILL SLOPES AND SWALES WITH LOOSE HAY AT A RATE OF 2 TONS PER ACRE. IF NECESSARY, REPLACE LOOSE HAY ON SLOPES WITH EROSION CONTROL BLANKETS OR JUTE CLOTH. MODERATELY GRADED AREAS, ISLANDS, AND TEMPORARY CONSTRUCTION STAGING AREAS MAY BE HYDROSEEDED WITH TACKIFIER.

15. SWEEP AFFECTED PORTIONS OF OFF SITE ROADS ONE OR MORE TIMES A DAY (OR LESS FREQUENTLY IF TRACKING IS NOT A PROBLEM) DURING CONSTRUCTION. FOR DUST CONTROL, PERIODICALLY MOISTEN EXPOSED SOIL SURFACES WITH WATER ON UNPAVED TRAVELWAYS TO KEEP THE TRAVELWAYS DAMP. CALCIUM CHLORIDE MAY ALSO BE APPLIED TO ACCESS ROADS. DUMP TRUCK LOADS EXITING THE SITE SHALL BE COVERED.

16. VEGETATIVE ESTABLISHMENT SHALL OCCUR ON ALL DISTURBED SOIL, UNLESS THE AREA IS UNDER ACTIVE CONSTRUCTION, IT IS COVERED IN STONE OR SCHEDULED FOR PAVING WITHIN 30 DAYS. TEMPORARY SEEDING OR NON-LIVING SOIL PROTECTION OF ALL EXPOSED SOILS AND SLOPES SHALL BE INITIATED WITHIN THE FIRST 7 DAYS OF SUSPENDING WORK IN AREAS TO BE LEFT LONGER THAN 30 DAYS.

17. MAINTAIN ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK SWEEP CONCRETE PADS, CLEAN THE STORMWATER MANAGEMENT SYSTEMS AND REMOVE ALL TEMPORARY SEDIMENT CONTROLS ONCE THE SITE IS FULLY STABILIZED AND APPROVAL HAS BEEN RECEIVED FROM PERMITTEE OR THE MUNICIPALITY.

18. SEEDING MIXTURES SHALL BE NEW ENGLAND SEMI-SHADE GRASS AND FORBS MIX (SEE SITE DETAILS SHEET DN-1), OR APPROVED EQUAL BY OWNER.

CONSTRUCTION OPERATION AND MAINTENANCE PLAN - BY CONTRACTOR

E&S MEASURE	INSPECTION SCHEDULE	MAINTENANCE REQUIRED
CONSTRUCTION ENTRANCE	DAILY	PLACE ADDITIONAL STONE, EXTEND THE LENGTH OR REMOVE AND REPLACE THE STONE. CLEAN PAVED SURFACES OF TRACKED SEDIMENT.
COMPOST FILTER SOCK	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.25"	REPAIR/REPLACE WHEN FAILURE OR DETERIORATION IS OBSERVED.
SILT FENCE	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.25"	REPAIR/REPLACE WHEN FAILURE OR DETERIORATION IS OBSERVED. REMOVE SILT WHEN IT REACHES 1/2 THE HEIGHT OF THE FENCE.
TOPSOIL/BORROW STOCKPILES	DAILY	REPAIR/REPLACE SEDIMENT BARRIERS AS NECESSARY.
TEMPORARY SEDIMENT BASIN (W/ BAFFLES)	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.5"	REMOVE SEDIMENT ONCE IT HAS ACCUMULATED TO ONE HALF OF MINIMUM REQUIRED VOLUME OF THE WET STORAGE, DEWATERING AS NEEDED. RESTORE TRAP TO ORIGINAL DIMENSIONS. REPAIR/REPLACE BAFFLES WHEN FAILURE OR DETERIORATION IS OBSERVED.
TEMPORARY SEDIMENT TRAP (W/ BAFFLES)	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.5"	REMOVE SEDIMENT ONCE IT HAS ACCUMULATED TO ONE HALF OF MINIMUM REQUIRED VOLUME OF THE WET STORAGE, DEWATERING AS NEEDED. RESTORE TRAP TO ORIGINAL DIMENSIONS. REPAIR/REPLACE BAFFLES WHEN FAILURE OR DETERIORATION IS OBSERVED.
TEMPORARY SOIL PROTECTION	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.25"	REPAIR ERODED OR BARE AREAS IMMEDIATELY. RESEED AND MULCH.

SEDIMENT & EROSION CONTROL NARRATIVE

1. THE PROJECT INVOLVES THE CONSTRUCTION OF A GROUND MOUNTED SOLAR PANEL FACILITY WITH ASSOCIATED EQUIPMENT.

THE PROPOSED PROJECT INVOLVES THE FOLLOWING CONSTRUCTION:

A. GRADING FOR ACCESS ROAD AND DRAINAGE INSTALLATION PLUS TREELINE CLEARING ALONG WRIGHTS CROSSING ROAD.
B. CONSTRUCTION OF GROUND MOUNTED SOLAR PANELS AND ASSOCIATED EQUIPMENT.
B. THE STABILIZATION OF DISTURBED AREAS WITH PERMANENT VEGETATIVE TREATMENTS.

2. FOR THIS PROJECT, THERE ARE APPROXIMATELY 14.27± ACRE OF THE SITE BEING DISTURBED WITH NEGLIGIBLE INCREASE IN THE IMPERVIOUS AREA OF THE SITE, AS ALL ACCESS THOUGH THE SITE WILL BE GRAVEL. IMPERVIOUS AREAS ARE LIMITED TO THE CONCRETE PADS FOR ELECTRICAL EQUIPMENT.

3. THE PROJECT SITE, AS MAPPED IN THE SOIL SURVEY OF STATE OF CONNECTICUT (NRCS, VERSION 19, SEP 13, 2019), CONTAINS MAP UNITS 45 (HYDROLOGIC SOIL GROUP D) AND 84 (HYDROLOGIC SOIL GROUP C) SOILS. A GEOTECHNICAL ENGINEERING REPORT HAS NOT BEEN COMPLETED.

4. IT IS ANTICIPATED THAT CONSTRUCTION WILL BE COMPLETED IN APPROXIMATELY 3-4 MONTHS.

5. REFER TO THE CONSTRUCTION SEQUENCING AND EROSION AND SEDIMENTATION NOTES FOR INFORMATION REGARDING SEQUENCING OF MAJOR OPERATIONS IN THE ON-SITE CONSTRUCTION PHASES.

6. STORMWATER MANAGEMENT DESIGN CRITERIA UTILIZES THE APPLICABLE SECTIONS OF THE 2004 CONNECTICUT STORMWATER QUALITY MANUAL AND THE TOWN OF POMFRET STANDARDS, TO THE EXTENT POSSIBLE AND PRACTICABLE FOR THIS PROJECT ON THIS SITE. EROSION AND SEDIMENTATION MEASURES ARE BASED UPON ENGINEERING PRACTICE, JUDGEMENT AND THE APPLICABLE SECTIONS OF THE CONNECTICUT EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, LATEST EDITION.

7. DETAILS FOR THE TYPICAL STORMWATER MANAGEMENT AND EROSION AND SEDIMENTATION MEASURES ARE SHOWN ON THE PLAN SHEETS OR PROVIDED AS SEPARATE SUPPORT DOCUMENTATION FOR REVIEW IN THIS PLAN.

8. CONSERVATION PRACTICES TO BE USED DURING CONSTRUCTION:
   A. STAGED CONSTRUCTION;
   B. MINIMIZE THE DISTURBED AREAS TO THE EXTENT PRACTICABLE DURING CONSTRUCTION;
   C. STABILIZE DISTURBED AREAS WITH TEMPORARY OR PERMANENT MEASURES AS SOON AS POSSIBLE, BUT NO LATER THAN 7-DAYS FOLLOWING DISTURBANCE;
   D. MINIMIZE IMPERVIOUS AREAS;
   E. UTILIZE APPROPRIATE CONSTRUCTION EROSION AND SEDIMENTATION MEASURES.

9. THE FOLLOWING SEPARATE DOCUMENTS ARE TO BE CONSIDERED A PART OF THE EROSION AND SEDIMENTATION PLAN:
   A. STORMWATER MANAGEMENT REPORT DATED NOVEMBER 2021.
   B. SWPCP (TO BE ISSUED PRIOR TO CONSTRUCTION).

SUGGESTED CONSTRUCTION SEQUENCE:
THE FOLLOWING SUGGESTED SEQUENCE OF CONSTRUCTION ACTIVITIES IS PROJECTED BASED UPON ENGINEERING JUDGEMENT AND BEST MANAGEMENT PRACTICES. THE CONTRACTOR MAY ELECT TO ALTER THE SEQUENCING TO BEST MEET THE CONSTRUCTION SCHEDULE, THE EXISTING SITE ACTIVITIES AND WEATHER CONDITIONS. SHOULD THE CONTRACTOR ALTER THE CONSTRUCTION SEQUENCE OR ANY EROSION AND SEDIMENTATION CONTROL MEASURES THEY SHALL MODIFY THE STORMWATER POLLUTION CONTROL PLAN ("SWPCP") AS REQUIRED BY THE GENERAL PERMIT. MAJOR CHANGES IN SEQUENCING AND/OR METHODS MAY REQUIRE REGULATORY APPROVAL PRIOR TO IMPLEMENTATION.

1. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING. PHYSICALLY FLAG THE LIMITS OF DISTURBANCE IN THE FIELD AS NECESSARY TO FACILITATE THE PRE-CONSTRUCTION MEETING.

2. CONDUCT A PRE-CONSTRUCTION MEETING TO DISCUSS THE PROPOSED WORK AND EROSION AND SEDIMENTATION CONTROL MEASURES. THE MEETING SHOULD BE ATTENDED BY THE OWNER, THE OWNER'S REPRESENTATIVE(S), THE GENERAL CONTRACTOR, DESIGNATED SUB-CONTRACTORS AND THE PERSON, OR PERSONS, RESPONSIBLE FOR THE IMPLEMENTATION, OPERATION, MONITORING AND MAINTENANCE OF THE EROSION AND SEDIMENTATION MEASURES. THE CONSTRUCTION PROCEDURES FOR THE ENTIRE PROJECT SHALL BE REVIEWED AT THIS MEETING.

3. NOTIFY CALL BEFORE YOU DIG AT 1-800-922-4455, AS REQUIRED, PRIOR TO THE START OF CONSTRUCTION.

4. REMOVE EXISTING IMPEDIMENTS AS NECESSARY AND PROVIDE MINIMAL CLEARING AND GRUBBING TO INSTALL THE REQUIRED CONSTRUCTION ENTRANCE.

5. INSTALL THE PERIMETER EROSION AND SEDIMENTATION CONTROL MEASURES. ALL WETLAND AREAS SHALL BE PROTECTED BEFORE MAJOR CONSTRUCTION BEGINS.

6. CLEAR TREELINE ALONG WRIGHTS CROSSING ROAD.

7. COMPLETE GRADING OF ACCESS ROAD BASE AND ACCOMPANYING DITCHING.

8. PLACE ACCESS ROAD GRAVEL AND ROCK CHECK DAM AGGREGATE.

9. TEMPORARILY SEED DISTURBED AREAS NOT UNDER CONSTRUCTION FOR THIRTY (30) DAYS OR MORE.

10. INSTALL RACKING POSTS FOR GROUND MOUNTED SOLAR PANELS.

11. INSTALL GROUND MOUNTED SOLAR PANELS AND COMPLETE ELECTRICAL INSTALLATION.

12. AFTER SUBSTANTIAL COMPLETION OF THE INSTALLATION OF THE SOLAR PANELS, COMPLETE REMAINING SITE WORK, INCLUDING THE FENCING, EQUIPMENT PADS, AND INTERCONNECTION RUN. STABILIZE ALL DISTURBED AREAS.

13. FINE GRADE, RAKE, SEED, AND MULCH ALL REMAINING DISTURBED AREAS.

14. AFTER THE SITE IS STABILIZED AND WITH THE APPROVAL OF THE PERMITTEE AND TOWN OF POMFRET AGENT, REMOVE PERIMETER EROSION AND SEDIMENTATION CONTROLS.

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LA JOLLA, CA 92037
OFFICE: (619) 363-3080

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

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0	12/09/21	SITING COUNCIL SUBMISSION
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DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL

ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM

DATE: 12/09/21

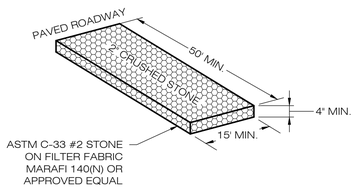
CHECKED BY: BG

SHEET TITLE:

SEDIMENTATION & EROSION CONTROL NOTES

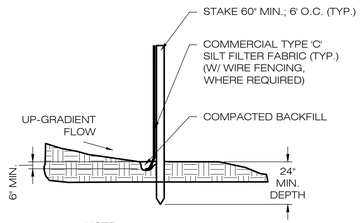
SHEET NUMBER:

EC-1



CONSTRUCTION ENTRANCE DETAIL

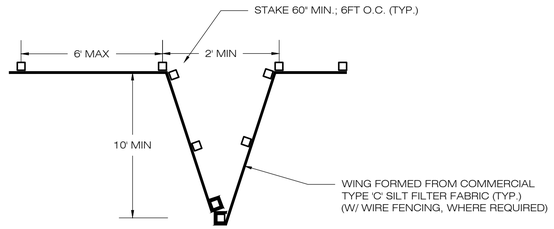
1 / EC-2 **SCALE : N.T.S.**



NOTE:
SILT FENCE SHALL BE LAPPED ONLY WHEN NECESSARY PER THE MANUFACTURER RECOMMENDATIONS.

SILT FENCE DETAIL

2 / EC-2 **SCALE : N.T.S.**

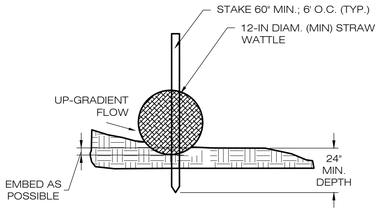


NOTES:
1. WRAP SILT FENCE AT ENDS.

2. NO JOINING FENCE SECTIONS SHALL BE INSTALLED WITHIN 30 FEET OF WING.

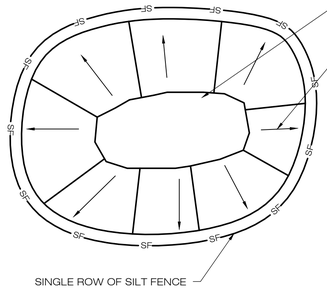
SILT FENCE WING DETAIL

3 / EC-2 **SCALE : N.T.S.**



STRAW WATTLE DETAIL

4 / EC-2 **SCALE : N.T.S.**



NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.

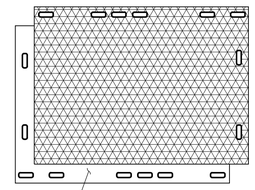
2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.

3. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.

4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

MATERIALS STOCKPILE DETAIL

5 / EC-2 **SCALE : N.T.S.**



NOTES:

1. DURA-BASE COMPOSITE MAT SYSTEM (OR EQUAL). SEE SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FROM MANUFACTURER.
2. OVERALL DIMENSIONS: 8'X14'X4"
3. SURFACE DIMENSIONS: 7'X13'

TEMPORARY CONSTRUCTION MATTING

6 / EC-2 **SCALE : N.T.S.**

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COMP: ALL-POINTS TECHNOLOGY CORPORATION
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ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM

DATE: 12/09/21 CHECKED BY: BG

SHEET TITLE:
SEDIMENTATION & EROSION CONTROL DETAILS

SHEET NUMBER:
EC-2

STATE OF CONNECTICUT · KEVIN A. MCCAFFERY · 25077 · LICENSED PROFESSIONAL ENGINEER

SHEET EC-4

300-FT STREAM UPLAND REVIEW AREA LIMIT

150-FT LOCAL WETLAND BUFFER

FEMA FLOODPLAIN BOUNDARY

100-FT STATE WETLAND BUFFER

DELINEATED WETLAND

WF 2–60

100-FT STATE WETLAND BUFFER

150-FT LOCAL WETLAND BUFFER

7 DN-1 PROP. SITE PREPARATION WITHIN THE LIMITS OF DISTURBANCE. PRESERVE EXISTING GROUND COVER TO PROVIDE STABILITY. SCARIFY AND SEED WITH ERNST SOLAR SEED MIX FOLLOWING SITE PREPARATION.

4 DN-1 PROP. CONCRETE EQUIPMENT PADS (TYP OF 8) 15-FT X 10-FT EA.

3 DN-1 PROP. GRAVEL ACCESS DRIVE. TO BE PLACED FOLLOWING INSTALLATION OF EROSION CONTROLS AND DRAINAGE MANAGEMENT.

SILT FENCE TO BE INSTALLED PRIOR TO SITE WORK. TO BE STAKED BY SURVEYOR. 2 EC-2

SILT FENCE WINGS TO BE INSTALLED WHERE SHOWN. TO BE STAKED BY SURVEYOR. 3 EC-2

5 EC-2 PROP. STOCKPILE AREA WITH DOUBLE ROW SILT FENCE (TYP.) (AS REQUIRED)

DELINEATED WETLAND

LIMITED TREELINE CLEARING ALONG WRIGHTS CROSSING ROAD FOR INSTALLATION OF ENTRANCE

12" CHERRY HEIGHT=45'

11" CHERRY HEIGHT=38'

INSTALL STABILIZED CONSTRUCTION ENTRANCE 1 EC-2

STRAW WATTLE 4 EC-2

CULVERT INV (1): 342.47' INV (2): 344.42'

20" OAK HEIGHT=61'

3" CPP

18" CPP

20" MAPLE HEIGHT=51'

24" CPP

CULVERT INV (1): 341.26'

DRIP EDGE

TRUNK LINE

8 DN-1 GRASS LINED SWALE

9 DN-1 ROCK CHECK DAM (TYP)

WRIGHTS CROSSING ROAD

SNET 190'

40 0 20 40 80

(IN FEET) 1 inch = 40 ft.

1 EC-3 **SEDIMENTATION & EROSION CONTROL PLAN 1**

SCALE : 1-IN = 40-FT

TRITEC AMERICAS

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DESIGN PROFESSIONAL OF RECORD

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COMP: ALL-POINTS TECHNOLOGY CORPORATION
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OWNER: ANTONIO & MARY AMARAL

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AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM

DATE: 12/09/21 CHECKED BY: BG

SHEET TITLE:

SEDIMENTATION & EROSION CONTROL PLAN (1 OF 3)

SHEET NUMBER:

EC-3

STATE OF CONNECTICUT KEVIN A. MCCAFFERY 25977 LICENSED PROFESSIONAL ENGINEER

SHEET EC-5

SHEET EC-3

414.00

410.00

WF 4–15
WF 4–17
WF 4–05
WF 4–01 / 4–19
WF 4–13
WF 4–09

100-FT STATE WETLAND BUFFER
150-FT LOCAL WETLAND BUFFER
DELINEATED WETLAND

WF 3–05
WF 3–04
WF 3–06
WF 3–07
WF 3–03
WF 3–02
WF 3–01 / 3–08

SILT FENCE TO BE INSTALLED PRIOR TO SITE WORK. TO BE STAKED BY SURVEYOR. (2 / EC-2)

SILT FENCE WINGS TO BE INSTALLED WHERE SHOWN. TO BE STAKED BY SURVEYOR. (3 / EC-2)

PROP. SITE PREPARATION WITHIN THE LIMITS OF DISTURBANCE. PRESERVE EXISTING GROUND COVER TO PROVIDE STABILITY. SCARIFY AND SEED WITH ERNST SOLAR SEED MIX FOLLOWING SITE PREPARATION. (7 / DN-1)

PROP. STOCKPILE AREA WITH DOUBLE ROW SILT FENCE (TYP.) (AS REQUIRED) (5 / EC-2)

ROCK CHECK DAM (TYP) (9 / DN-1)

ROCK CHECK DAM (TYP) (9 / DN-1)

GRASS LINED SWALE (8 / DN-1)

PROP. GRAVEL ACCESS DRIVE. TO BE PLACED FOLLOWING INSTALLATION OF EROSION CONTROLS AND DRAINAGE MANAGEMENT. (3 / DN-1)

150-FT LOCAL WETLAND BUFFER
100-FT STATE WETLAND BUFFER
DELINEATED WETLAND

14" HICKORY HEIGHT=68'
12" CHERRY HEIGHT=57'
18" CHERRY HEIGHT=74'
20" SPLIT MAPLE HEIGHT=80'

WF 2–41
WF 2–37
WF 2–33
WF 2–29
WF 2–25
WF 2–21
WF 2–17
WF 2–09

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

1 / EC-3 **SEDIMENTATION & EROSION CONTROL PLAN 2**
SCALE : 1-IN = 40-FT

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PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL

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AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

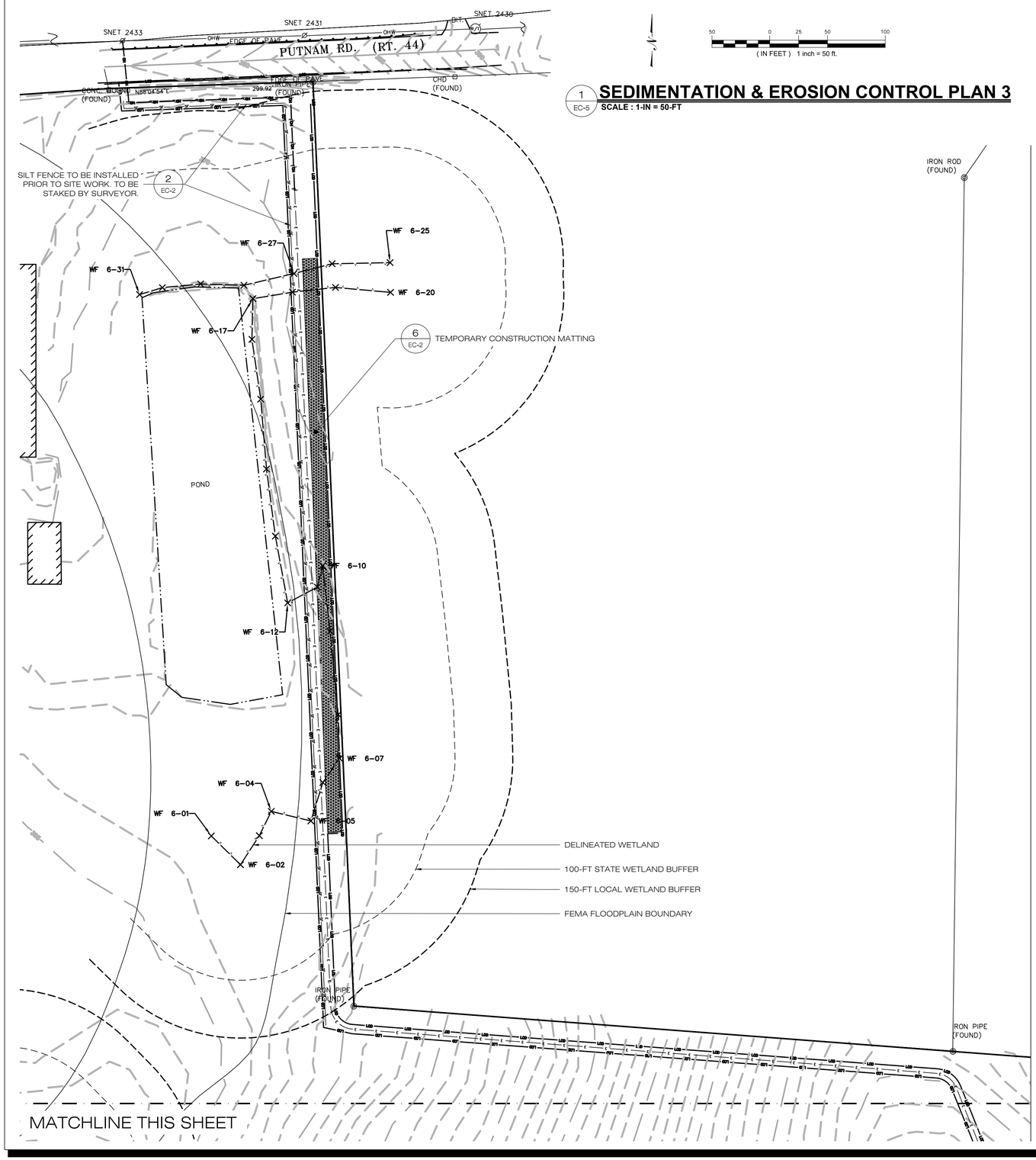
APT FILING NUMBER: CT657100

DRAWN BY: KAM
DATE: 12/09/21 CHECKED BY: BG

SHEET TITLE:
SEDIMENTATION & EROSION CONTROL PLAN (2 OF 3)

SHEET NUMBER:
EC-4

STATE OF CONNECTICUT KEVIN A. MCCAFFERY 25977 LICENSED PROFESSIONAL ENGINEER

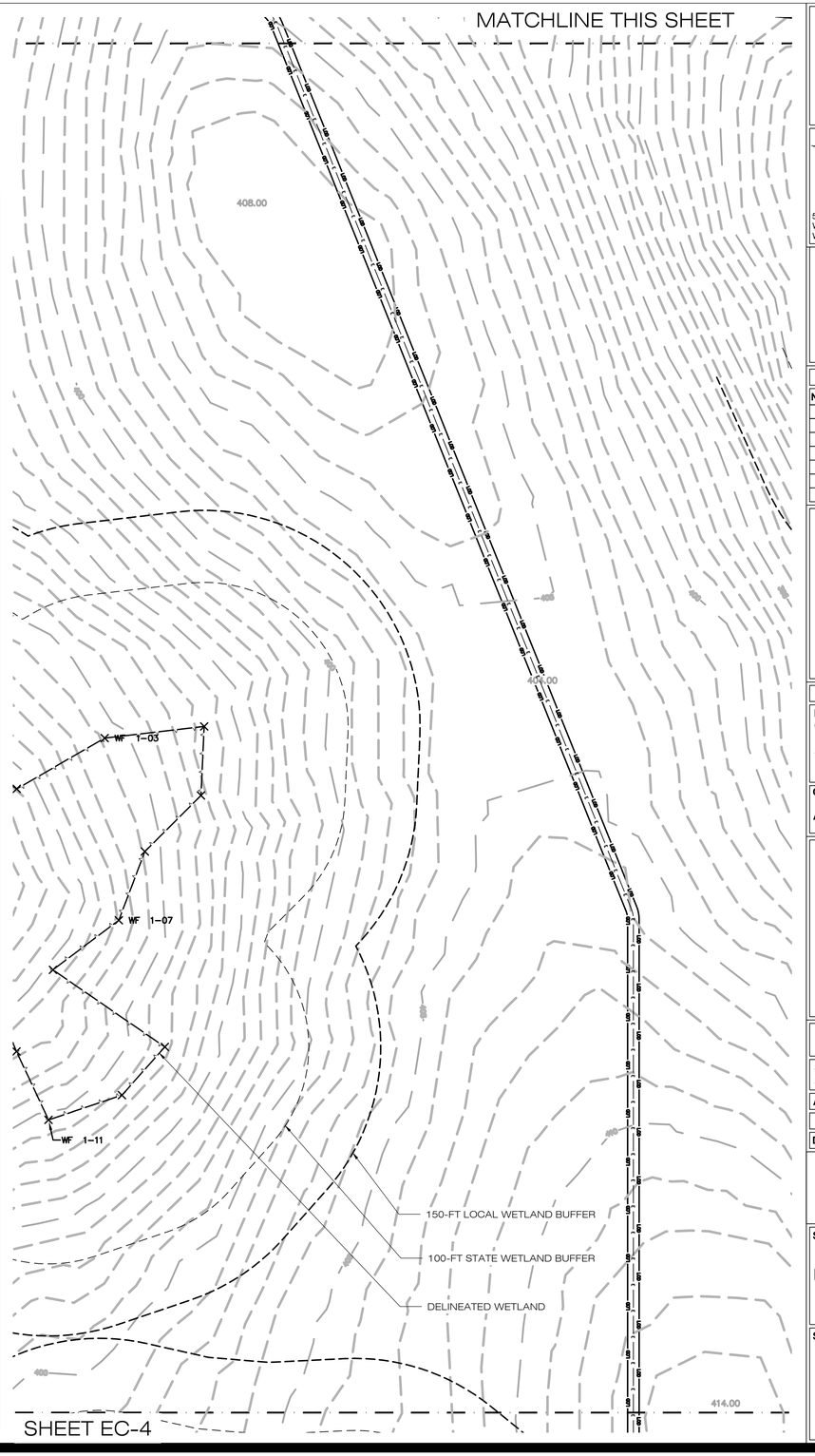


1 EC-5 **SEDIMENTATION & EROSION CONTROL PLAN 3**

SCALE : 1-IN = 50-FT

50 0 25 50 100

(IN FEET) 1 inch = 50 ft.



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COMP: ALL-POINTS TECHNOLOGY CORPORATION
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SHEET TITLE:
SEDIMENTATION & EROSION CONTROL PLAN (3 OF 3)

SHEET NUMBER:
EC-5

STATE OF CONNECTICUT KEVIN A. MCCAFFERY 25971 LICENSED PROFESSIONAL ENGINEER

SHEET GP-2

300-FT STREAM UPLAND REVIEW AREA LIMIT

150-FT LOCAL WETLAND BUFFER

FEMA FLOODPLAIN BOUNDARY

100-FT STATE WETLAND BUFFER

DELINEATED WETLAND

100-FT STATE WETLAND BUFFER

150-FT LOCAL WETLAND BUFFER

8 DN-1 GRASS LINED SWALE

CONTRACTOR SHALL SEED AND MULCH ANY DISTURBED AREAS WITH SOLAR SEED MIX

3 DN-1 PROP. 16-FT WIDTH GRAVEL ACCESS DRIVE

CULVERT
INV (1): 342.47'
INV (2): 344.42'

20" OAK HEIGHT=61'

DRIP EDGE

TRUNK LINE

3" CPP

18" CPP

24" CPP

8 DN-1 GRASS LINED SWALE

9 DN-1 ROCK CHECK DAM (TYP)

20" MAPLE HEIGHT=51'

CULVERT
INV (1): 341.26'

12" MAPLE HEIGHT=48'

11" CHERRY HEIGHT=38'

SNET 1901

WRIGHTS CROSSING ROAD

WF 1–60

WF 2–

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

1 GP-1 **GRADING AND DRAINAGE PLAN 1**
SCALE : 1-IN = 40-FT

TRITEC AMERICAS
888 PROSPECT STREET
LA JOLLA, CA 92037
OFFICE: (619) 363-3080

ALL-POINTS TECHNOLOGY CORPORATION
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DESIGN PROFESSIONAL OF RECORD

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ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

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DATE: 12/09/21

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SHEET TITLE:
GRADING AND DRAINAGE PLAN (1 OF 3)

SHEET NUMBER:
GP-1

STATE OF CONNECTICUT · KEVIN A. MCCAFFERY · 25977 · LICENSED PROFESSIONAL ENGINEER

SHEET GP-3

SHEET GP-1

414.00

410.00

WF 4–15
WF 4–17
WF 4–05
WF 4–01 / 4–19
WF 4–13
WF 4–09

WF 3–05
WF 3–04
WF 3–06
WF 3–07
WF 3–03
WF 3–02
WF 3–01 / 3–08

WF 2–41
WF 2–37
WF 2–33
WF 2–17
WF 2–29
WF 2–25
WF 2–21
WF 2–09

14" HICKORY HEIGHT=68'
12" CHERRY HEIGHT=57'
18" CHERRY HEIGHT=74'
20" SPLIT MAPLE HEIGHT=80'

150-FT LOCAL WETLAND BUFFER

100-FT STATE WETLAND BUFFER

DELINEATED WETLAND

CONTRACTOR SHALL SEED AND MULCH ANY DISTURBED AREAS WITH SOLAR SEED MIX

8 DN-1 GRASS LINED SWALE

9 DN-1 ROCK CHECK DAM (TYP)

3 DN-1 PROP. 16-FT WIDTH GRAVEL ACCESS DRIVE.

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

2 GP-2 **GRADING AND DRAINAGE PLAN 2**
SCALE : 1-IN = 40-FT

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LA JOLLA, CA 92037
OFFICE: (619) 363-3080

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APT FILING NUMBER: CT657100

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DATE: 12/09/21

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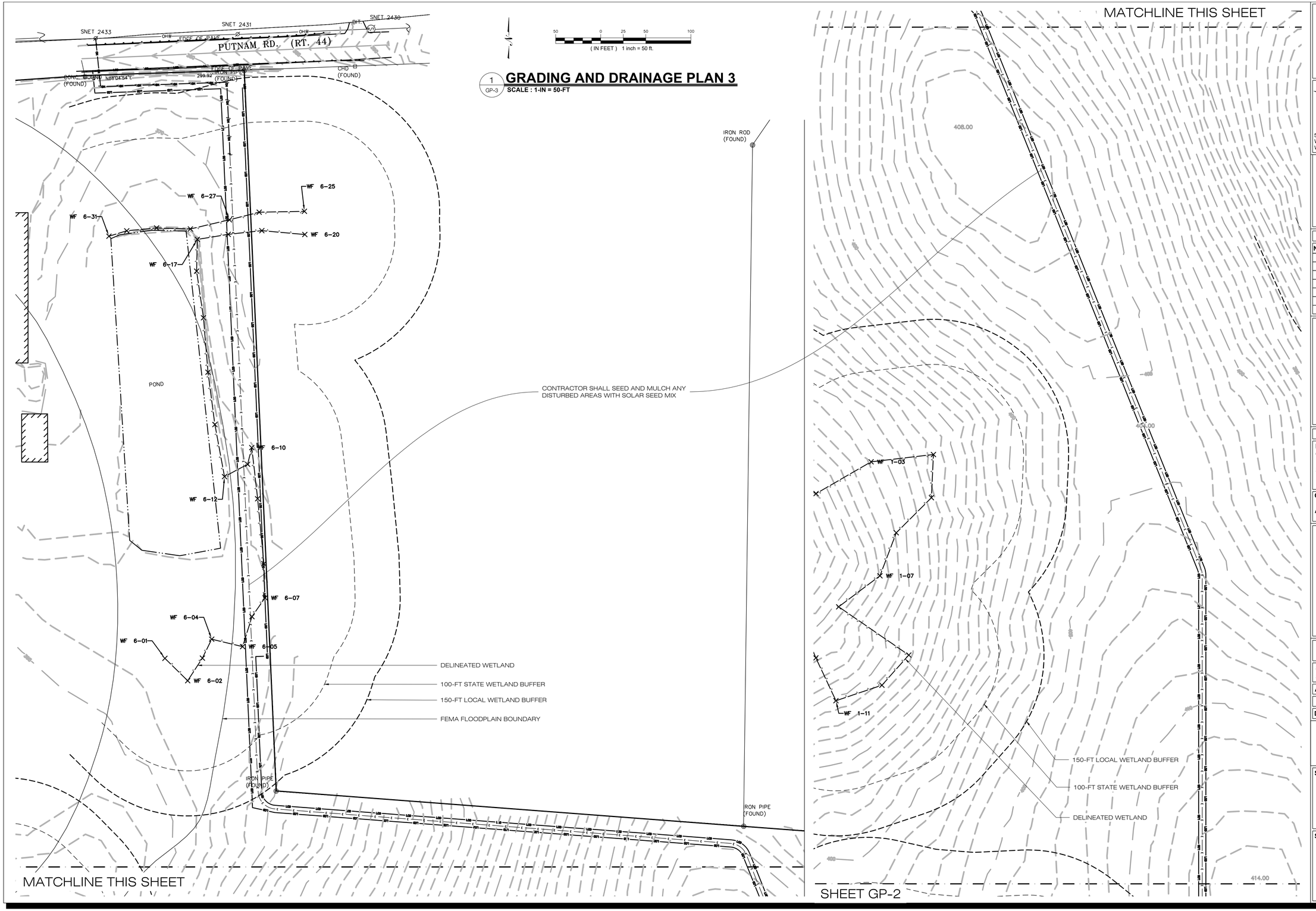
SHEET TITLE:
GRADING AND DRAINAGE PLAN (2 OF 3)

SHEET NUMBER:
GP-2

STATE OF CONNECTICUT KEVIN A. MCCAFFERY 25977 LICENSED PROFESSIONAL ENGINEER



50 0 25 50 100

(IN FEET) 1 inch = 50 ft.

1 / GP-3 **GRADING AND DRAINAGE PLAN 3**

SCALE : 1-IN = 50-FT

TRITEC AMERICAS

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SHEET TITLE:
GRADING AND DRAINAGE PLAN (3 OF 3)

SHEET NUMBER:
GP-3

STATE OF CONNECTICUT · KEVIN A. MCCAFFERY · 25077 · LICENSED PROFESSIONAL ENGINEER

SHEET SP-2

300-FT STREAM UPLAND REVIEW AREA LIMIT
150-FT LOCAL WETLAND BUFFER
FEMA FLOODPLAIN BOUNDARY
100-FT STATE WETLAND BUFFER

SYSTEM #1
TALESUN 400W
MODULES (864)
345.6 kW DC

SYSTEM #3
TALESUN 400W
MODULES (864)
345.6 kW DC

SYSTEM #2
HT-SAAE 570W
MODULES (576)
328.3 kW DC

SYSTEM #4
HT-SAAE 570W
MODULES (576)
328.3 kW DC

SYSTEM #7
HT-SAAE 570W
MODULES (576)
328.3 kW DC

SYSTEM #8
HT-SAAE 570W
MODULES (576)
328.3 kW DC

100-FT STATE WETLAND BUFFER
150-FT LOCAL WETLAND BUFFER

DELINEATED WETLAND

WF 2–(

WF 1–60

3 DN-1 PROP. 16-FT WIDTH GRAVEL ACCESS DRIVE.

4 DN-1 PROP. CONCRETE EQUIPMENT PADS (TYP OF 8) 15-FT X 10-FT EA.

1 DN-1 PROP. UNDERGROUND ELECTRIC LINES

8 DN-1 GRASS LINED SWALE

2 DN-1 PROP. SINGLE AXIS TRACKERS AND SYSTEM BOUNDARY

5 DN-1 PROP. CHAIN LINK FENCE ACCESS GATE

5 DN-1 PROP. CHAIN LINK FENCE

8 DN-1 GRASS LINED SWALE

9 DN-1 ROCK CHECK DAM (TYP)

CULVERT
INV (1): 342.47'
INV (2): 344.42'

CULVERT
INV (1): 341.26'

WRIGHTS CROSSING ROAD

DRIP EDGE
TRUNK LINE
20" OAK HEIGHT=61'
15" HICKORY HEIGHT=43'
20" MAPLE HEIGHT=51'
12" MAPLE HEIGHT=45'
10" CHERRY HEIGHT=38'
3" GPP
24" RCP
SNET 1961
SNET 1962
SNET 1963
SNET 1964
SNET 1965
SNET 1966
SNET 1967
SNET 1968
SNET 1969
SNET 1970
SNET 1971
SNET 1972
SNET 1973
SNET 1974
SNET 1975
SNET 1976
SNET 1977
SNET 1978
SNET 1979
SNET 1980
SNET

SHEET SP-3

SHEET SP-1

1 DN-1 PROP. UNDERGROUND ELECTRIC LINES

2 DN-1 PROP. SINGLE AXIS TRACKERS AND SYSTEM BOUNDARY

3 DN-1 PROP. 16-FT WIDTH GRAVEL ACCESS DRIVE.

4 DN-1 PROP. CONCRETE EQUIPMENT PAD (TYP OF 8) 15-FT X 10-FT EA.

5 DN-1 PROP. CHAIN LINK FENCE

8 DN-1 GRASS LINED SWALE

9 DN-1 ROCK CHECK DAM (TYP)

SYSTEM #5
HT-SAAE 570W
MODULES (576)
328.3 KW DC

SYSTEM #6
TALESUN 400W
MODULES (864)
345.6 kW DC

150-FT LOCAL WETLAND BUFFER

100-FT STATE WETLAND BUFFER

DELINEATED WETLAND

WF 4–15
WF 4–17
WF 4–05
WF 4–01 / 4–19
WF 4–13
WF 4–09

WF 3–05
WF 3–04
WF 3–06
WF 3–07
WF 3–03
WF 3–02
WF 3–01 / 3–08

WF 2–17
WF 2–41
WF 2–37
WF 2–33
WF 2–29
WF 2–25
WF 2–21
WF 2–09

14" HICKORY HEIGHT=68'
12" CHERRY HEIGHT=57'
18" CHERRY HEIGHT=74'
20" SPLIT MAPLE HEIGHT=80'

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

2 SP-2 SITE AND UTILITY PLAN 2
SCALE : 1-IN = 40-FT

TRITEC AMERICAS
888 PROSPECT STREET
LA JOLLA, CA 92037
OFFICE: (619) 363-3080

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
0	12/09/21	SITING COUNCIL SUBMISSION
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NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL

ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM

DATE: 12/09/21 CHECKED BY: BG

SHEET TITLE:

SITE AND UTILITY PLAN (2 OF 3)

SHEET NUMBER:

SP-2

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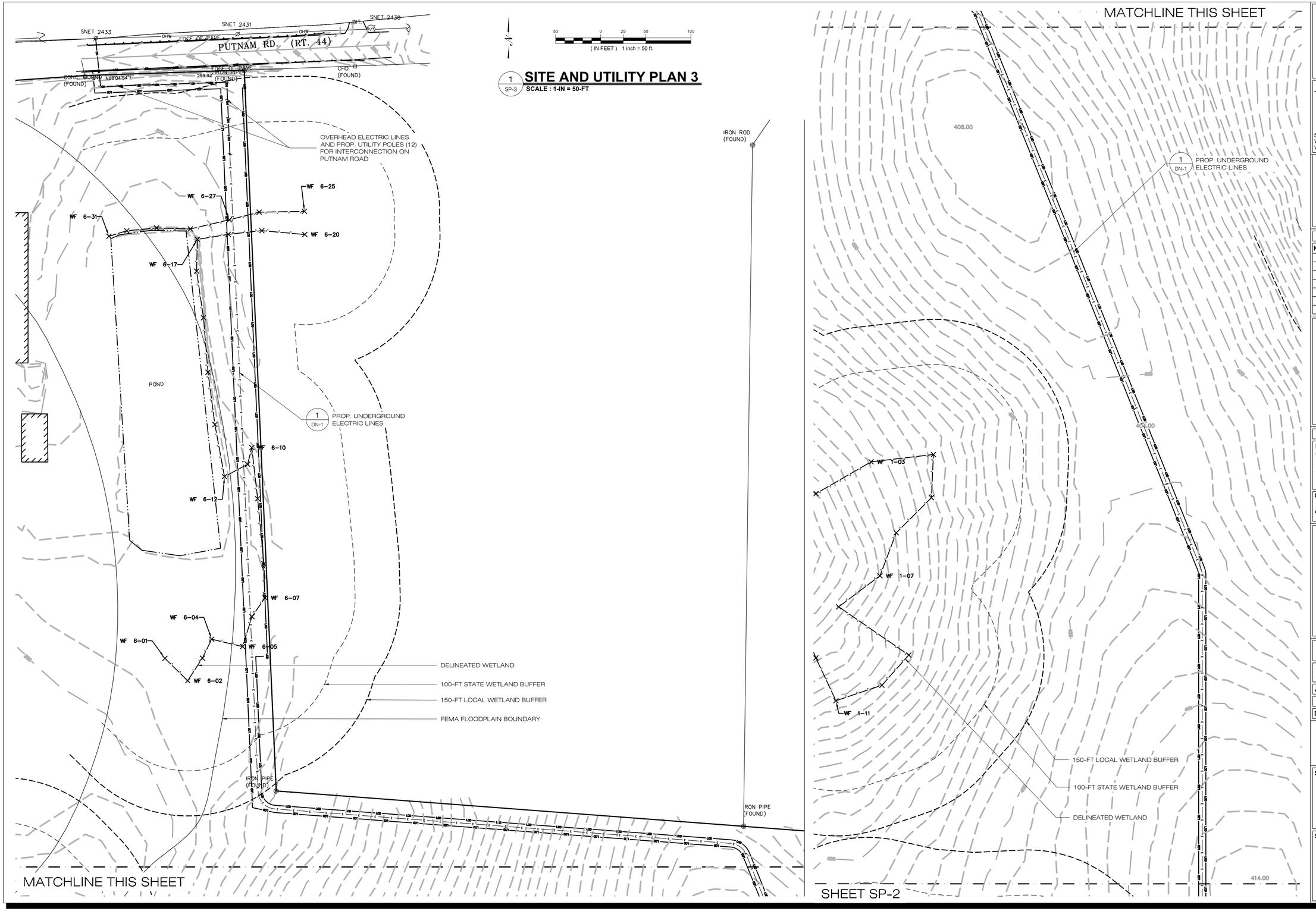

50 0 25 50 100

(IN FEET) 1 inch = 50 ft.

1 SP-3 **SITE AND UTILITY PLAN 3**

SCALE : 1-IN = 50-FT

TRITEC AMERICAS

888 PROSPECT STREET
LA JOLLA, CA 92037
OFFICE: (619) 363-3080

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ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL

ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM

DATE: 12/09/21 CHECKED BY: BG

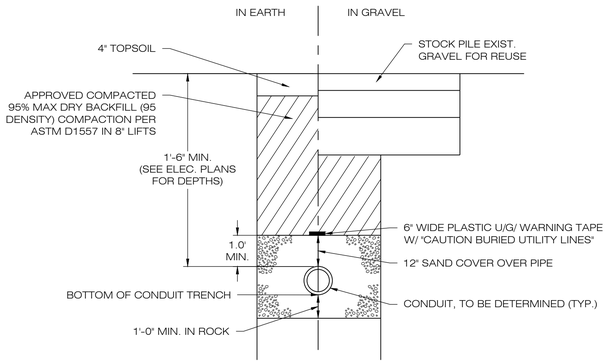
SHEET TITLE:

SITE AND UTILITY PLAN (3 OF 3)

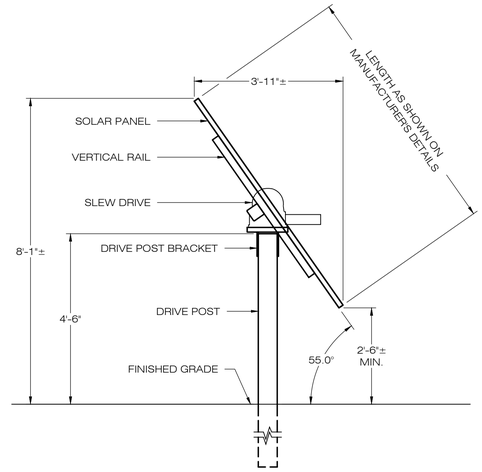
SHEET NUMBER:

SP-3

STATE OF CONNECTICUT · KEVIN A. MCCAFFERY · 25077 · LICENSED PROFESSIONAL ENGINEER

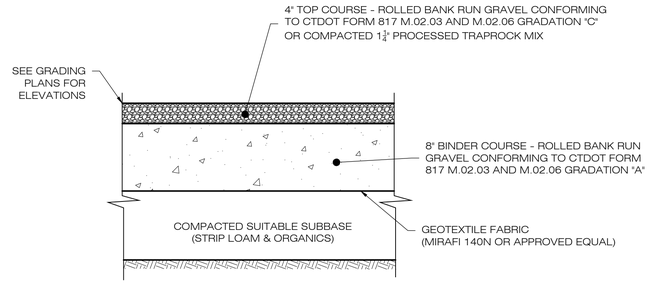


1 DN-1 **ELECTRICAL TRENCH DETAIL**
SCALE : N.T.S.



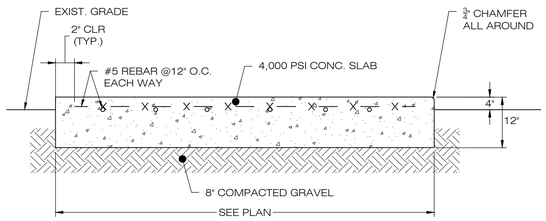
NOTES:
SEE MANUFACTURER'S DETAIL SHEETS FOR ADDITIONAL INFORMATION REGARDING RACKING SYSTEM REQUIREMENTS AND INSTALLATION PROCEDURES. RACKING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

2 DN-1 **TYPICAL TRACKER POST MOUNTED RACKING SYSTEM**
SCALE : N.T.S.

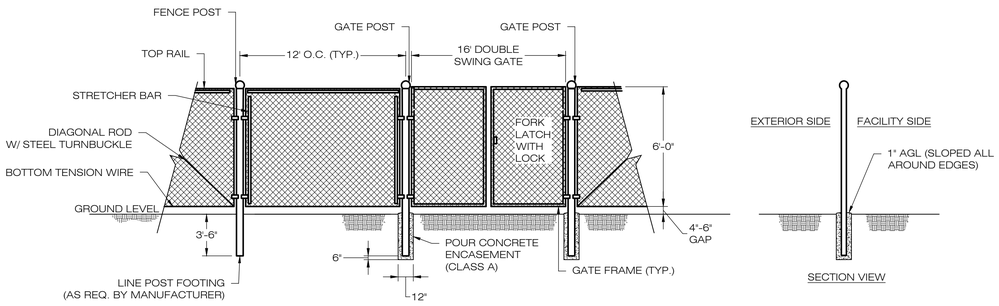


NOTES:
1. SUBBASE MAY CONSIST OF NATIVE MATERIALS IF FOUND ACCEPTABLE BY THE ENGINEER. SUBBASE TO BE COMPACTED TO 95% MAX DRY DENSITY.
2. SUBBASE IS TO BE FREE FROM DEBRIS AND UNSUITABLE MATERIALS.
3. CONTRACTOR SHALL INSTALL ACCESS ROAD FLUSH WITH EXISTING GRADE TO ENSURE DRAINAGE FLOW PATHS ARE MAINTAINED.
4. SEE PLAN VIEW SHEETS FOR ROAD WIDTH AND ELEVATIONS.

3 DN-1 **GRAVEL ACCESS DRIVE SECTION**
SCALE : N.T.S.



4 DN-1 **CONCRETE EQUIPMENT PAD**
SCALE : N.T.S.



5 DN-1 **CHAIN-LINK FENCE & GATE DETAIL**
SCALE : N.T.S.

AMARAL SOLAR

IN CASE OF EMERGENCY
CALL T.B.D.

NOTES:
EMERGENCY CALL NUMBER TO BE PROVIDED ONCE DETERMINED.

6 DN-1 **NOTIFICATION SIGN DETAIL**
SCALE : N.T.S.

Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Date: March 01, 2021

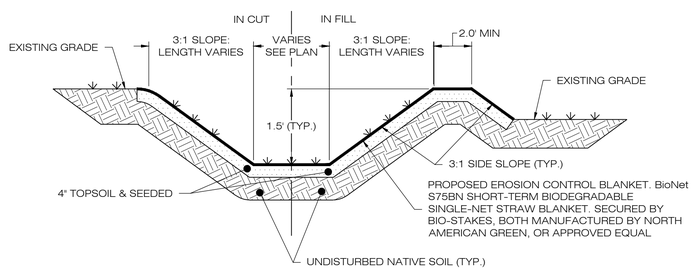
Ernst Solar Farm Seed Mix - ERNMX-186

	Botanical Name	Common Name	Price/lb
45.50 %	*Festuca rubra*	Creeping Red Fescue	2.20
15.00 %	*Festuca ovina var. duriuscula, 'Jetty'*	Hard Fescue, 'Jetty'	3.52
15.00 %	*Festuca ovina var. duriuscula, Gladiator*	Hard Fescue, Gladiator	3.52
10.00 %	*Festuca rubra ssp. commutata*	Chewings Fescue	2.70
5.00 %	*Poa pratensis, 'Selway'*	Kentucky Bluegrass, 'Selway'	3.08
5.00 %	*Poa pratensis, Appalachian*	Kentucky Bluegrass, Appalachian	3.08
4.50 %	*Trifolium repens, Dutch*	White Clover, Dutch	4.84
100.00 %		**Mix Price/lb Bulk:**	**$2.85**

Seeding Rate: 6 lb per 1,000 sq ft
Lawn & Turfgrass Sites; Solar Sites

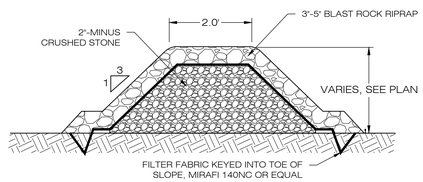
Provide a 2' clearance between the ground and the solar panels. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

7 DN-1 **SOLAR SEED MIX**
SCALE : N.T.S.



NOTES:
1. SEED MIX TO BE NEW ENGLAND EROSION CONTROL/ RESTORATION MIX FOR MOIST SITES ON THE BOTTOM OF THE BASIN AND NEW ENGLAND EROSION/RESTORATION MIX FOR DRY SITES ON THE SIDE SLOPES.
2. IF DEPTH VARIES FROM 1.5', SEE PLAN CALLOUTS.

8 DN-1 **GRASS LINED SWALE**
SCALE : N.T.S.



NOTES:
1. STONE SHALL BE PLACED MECHANICALLY OR BY HAND. STONE SHALL NOT BE DUMPED DIRECTLY INTO SWALE.
2. SEE GRADING AND DRAINAGE PLAN.

9 DN-1 **ROCK CHECK DAM**
SCALE : N.T.S.

TRITEC AMERICAS
888 PROSPECT STREET
LA JOLLA, CA 92037
OFFICE: (619) 363-3080

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
0	12/09/21	SITING COUNCIL SUBMISSION
1		
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DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL

ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM
DATE: 12/09/21 **CHECKED BY:** BG

SHEET TITLE:

SITE DETAILS

SHEET NUMBER:

DN-1

STATE OF CONNECTICUT · KEVIN A. MCCAFFERY · 25977 · LICENSED PROFESSIONAL ENGINEER

APPENDIX B

NDDB PRELIMINARY ASSESSMENT

Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

June 22, 2021

Mr. Dean Gustafson
All-Points Technology Corporation, P.C.
567 Vauxhall Street Extension, Suite 311
Waterford, CT 06385
dgustafson@allpointstech.com

Project: Preliminary Assessment for Installation of Amaral Solar PV Solar Facility Located on 215 Acres at 254 Putnam Road in Pomfret, Connecticut
NDDB Preliminary Assessment No.: 202103657

Dear Dean Gustafson,

I have reviewed Natural Diversity Database maps and files regarding the area delineated on the map provided for Installation of Amaral Solar PV Solar Facility Located on 215 Acres at 254 Putnam Road in Pomfret, Connecticut. According to our records there are known extant populations of State Listed Species that occur within or close to the boundaries of this property. I have attached a list of species known from this area.

Please be advised that this is a preliminary review and not a final determination. A more detailed review will be necessary to move forward with any environmental permit applications submitted to DEEP for the proposed project. **This preliminary assessment letter cannot be used or submitted with registrations permit applications at DEEP**. This letter is valid for one year.

To prevent impacts to State-listed species, field surveys of the site should be performed by a qualified biologist with the appropriate scientific collecting permits at a time when these target species are identifiable. A report summarizing the results of such surveys should include:

1. Survey date(s) and duration.
2. Site descriptions and photographs.
3. List of component vascular plant and animal species within the survey area (including scientific binomials).
4. Data regarding population numbers and/or area occupied by State-listed species. Include special plant and/or animal forms found at: https://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&deepNav_GID=1628
5. Detailed maps of the area surveyed including the survey route and locations of State listed species.
6. Conservation strategies or protection plans that indicate how impacts may be avoided for all state listed species present on the site.
7. Statement/résumé indicating the biologist's qualifications. Please be sure when you hire a consulting qualified biologist to help conduct this site survey that they have the

proper experience with target taxon and have a CT scientific collectors permit to work with state listed species for this specific project.

The site surveys report should be sent to our CT DEEP-NDDB Program (deep.nddbrequest@ct.gov) for further review by our program biologists **along with an updated request** for another NDDB review. Incomplete reports may not be accepted.

If you do not intend to do site surveys to determine the presence or absence of state-listed species, then you should presume species are present and let us know how you will protect the state-listed species from being impacted by this project. You may submit these best management practices or protection plans with your new request for an NDDB review. Please be sure these protection plans are developed by taxonomic experts (biologists) familiar with Connecticut plants, birds, invertebrates, reptiles and amphibians. After reviewing your new NDDB request form and the documents describing how you will protect these species from project impacts we will make a final determination and provide you with a letter from our program to use with DEEP-Permits.

Natural Diversity Database information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey, cooperating units of DEEP, landowners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substitutes for onsite surveys necessary for a thorough environmental impact assessment. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3592, or deep.nddbrequest@ct.gov Thank you for consulting the Natural Diversity Data Base.

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

Species List for NDDB Request

Scientific Name	Common Name	State Status
Animal Assemblage		
Owl Roost		
Invertebrate Animal		
Acronicta falcula	Corylus dagger moth	SC
Hemaris gracilis	Slender clearwing	T
Hemileuca maia maia	Barrens buck moth	E
Metarranthis apiciaria	Barrens metarranthis moth	SC
Vertebrate Animal		
Asio flammeus	Short-eared owl	T
Asio otus	Long-eared owl	E
Botaurus lentiginosus	American bittern	E
Cistothorus platensis	Sedge wren	E
Clemmys guttata	Spotted turtle	SC
Dolichonyx oryzivorus	Bobolink	SC
Falco sparverius	American kestrel	SC
Glyptemys insculpta	Wood turtle	SC
Lasionycteris noctivagans	Silver-haired bat	SC
Lasiurus borealis	Red bat	SC
Passerculus sandwichensis	Savannah sparrow	SC
Podilymbus podiceps	Pied-billed grebe	E
Progne subis	Purple martin	SC
Scaphiopus holbrokii	Eastern spadefoot	E

E = Endangered, T = Threatened, SC = Special Concern, * Extirpated

APPENDIX C

STATE-LISTED INVERTEBRATE HOST PLANT SURVEY RESULTS

State-Listed Invertebrate Host Plant Survey Results

Proposed Amaral Solar Facility
254 Putnam Road
Pomfret, CT

October 13th, 2021

Contents

Executive Summary

Project:	Amaral Solar Facility
Location:	254 Putnam Road, Pomfret, CT
Survey Target:	Hazelnuts (*Corylus* spp.), laurels and blueberries (*Kalmia* spp. and select *Vaccinium* spp.), bear oak (*Quercus ilicifolia*), dwarf chestnut oak (*Quercus prinoides*), and scrub oak habitat.
Survey Area:	215-acre parcel at 254 Putnam Road, Pomfret, CT
Dates/Duration:	August 18th, 2021. 11 Person hours
Survey Results:	0.66 acres of host plants complex identified (see Appendix B). Beaked hazelnut (*Corylus cornuta*), Mountain laurel (*Kalmia latifolia*), blue ridge blueberry (*Vaccinium pallidum*), and highbush blueberry (*Vaccinium corymbosum*).

General Site Characteristics

The survey area consisted of a 215-acre parcel at 254 Putnam Road in Pomfret, Connecticut (the "Site"). It is bound to the north by Putnam Road and to the south by Wrights Crossing Road. To the east it is bordered by forest, and to the west by private residences. It is located within the Southern New England Coastal Plains and Hills ecoregion.[1] It is within the Quinebaug River subregional basin of the Thames River. The Site is made up of portions of two drumlins, which create two large, north-south oriented hills in the eastern and central portions of the property. The eastern, and larger, drumlin includes the high point of the property, 502 feet above mean sea level (AMSL). From there the topography slopes greatly downward to Bark Meadow Brook reaching a low point of 339 feet msl at the southern end of Bark Meadow Brook near where it crosses under Wrights Crossing Road. From there the Site rises to another peak of 414 feet msl in the central hayfield before sloping downward to 338 feet msl, the lowest point on the property, in the southern terminus of a mesic forested area.[2] The Project area occupies

[1] https://www.plantmaps.com/interactive-connecticut-ecoregions-l4-map.php
[2] http://cteco.uconn.edu/viewer/index.html?viewer=simple

the southern approximate half of the central hayfield with an access from Putnam Road to the north.

The Site is primarily made up of operational pastures and hayfields. Approximately 5% of the Site is made up of developed farm and residential area, the remaining 205 acres were surveyed for State-listed species, host plants, and habitat. Bark Meadow Brook, and accompanying wetland areas, runs through the western portion of the Site and is vegetated by shrubs and small trees, in addition to a similar herbaceous flora as is found throughout. This wetland corridor is situated between two large hills which are in use as pastures and hayfields. To the west the Site is bordered by a forested area that extends into the pasture at the high point of the Site. To the east, beyond the two large hills is a low forested area comprised of a wetland corridor with a drier steep slope in the southern corner of the Site. Along the eastern border there is one small additional hayfield, as well as a small portion of hayfield on the northern side of the northeast corner.

Site soil types consist primarily of Woodbridge fine sandy loam, Paxton and Montauk fine sandy loam and Ninigret and Tisbury soils making up the toeslopes of the drumlins. Rippowam fine sandy loam makes up the Bark Meadow Brook corridor, with Hinckley and Walpole sandy loams and the Ridgebury, Leicester, and Whitman soil complex, along with Scarboro muck making up the remainder of wetland areas. The high hayfield and forested area on the eastern side of the Site are made up of Charlton and Chatfield soils. All of these soils except for the alluvially derived Rippowam fine sandy loam are derived from melt-out or lodgement glacial till material.[3]

Aerial photography of the Site from 1934 shows nearly the same use footprint as present, with two exceptions. The forested area in the eastern portion of the Site is larger than its current size, and an approximately 14.5-acre area of modern hayfield, southeast of the farmyard, is forested as well. These forested areas appear sparser in places, as if being logged or regrowing after agricultural use.[4] By 1970 the Site has the modern land use

[3] UCONN Center for Land Use Education and Research and CT DEEP “CT Environmental Conditions Online Simple Viewer” *CT Environmental Conditions Online*, UCONN. http://cteco.uconn.edu/viewer/index.html?viewer=simple
[4] University of Connecticut Library Map and Geographic Information Center - MAGIC. (2018).*Neighborhood Change in Connecticut, 1934 to Present*. Retrieved from http://magic.lib.uconn.edu/mash_up/1934.html.

footprint.[5] South of the property is the protected 146-acre Wyndham Land Trust's Duck Marsh Preserve.[6]

Survey Protocol

The survey area and target species were determined by an overview of Project mapping and NDDB Determination No. 202103657, dated June 22, 2021. The NDDB determination included four invertebrates, the Corylus dagger moth (*Acronicta falcula*), the slender clearwing (*Hemaris gracilis*), the barrens buck moth (*Hemileuca maia maia*), and the barrens Metarranthis moth (*Metarranthis apiciaria*).

Prior to field surveys, information about target invertebrates, including host plants, was reviewed, as were identification information and representative photographs of host plant species.

As its name suggests, the larval host plant of the State-listed species of special concern Corylus dagger moth are species in the genus *Corylus*.[7] There are two members of the genus *Corylus* found in Connecticut, American hazelnut (*Corylus americana*) and beaked hazelnut (*Corylus cornuta*). They can be identified by their growth form, doubly toothed leaves, and distinct fruit. The two species can most easily be distinguished by their fruit, with American hazelnut lacking the long beak which gives beaked hazelnut its name.[8]

The slender clearwing is a State-listed threatened moth which uses members of Ericaceous genera *Kalmia* and *Vaccinium*, particularly sheep laurel (*Kalmia angustifolia*), and blueberries, as larval host plants.[9] There are three members of the genus *Kalmia* in Connecticut, mountain laurel (*Kalmia latifolia*), sheep laurel (*Kalmia angustifolia*), and bog laurel (*Kalmia polifolia*). They can be recognized by their tough and waxy, simple, entire leaves and distinctive flowers.[10] There are nine members of the genus *Vaccinium* found in Connecticut, five of which are considered blueberries, and one of which is State-Listed

[5] UConn Air Photo Archive, 1934, 1951, 1970. https://connecticut.maps.arcgis.com/apps/View/index.html?appid=044e8e6266aa44dc8ccc9b6e2eecacb4&extent=-74.8197,40.6374,-70.2054,42.4665
[6] https://www.wyndhamlandtrust.org/pomfret/
[7] https://mnfi.anr.msu.edu/species/description/11945/Acronicta-falcula
[8] Haines, A., 2011. *Flora Novae Angliae*. New England Wildflower Society. Westford, MA. pg. 454.
[9] https://www.sphingidae.us/hemaris-gracilis.html
[10] Haines, A., 2011. *Flora Novae Angliae*. New England Wildflower Society. Westford, MA. pg. 454.

Endangered.[11] Blueberries are recognized by having alternate, simple leaves that are entire or nearly so and berries that are blue to black when ripe. Branchlet, bud scale, leaf, and flower characteristics can be used to distinguish between species.[12]

The barrens buck moth is a State-listed endangered species that is restricted to scrub oak-pine sand barrens and dry oak woods. The oak species scrub oak (*Quercus ilicifolia*) and dwarf chestnut oak (*Quercus prinoides*) are larval host plants for the barrens buck moth.[13] Likewise, the State-listed special concern barrens Metarranthis moth is restricted to pitch pine-scrub oak sand barrens. Its larval host plants are unknown.[14]

Survey Results

Field surveys were conducted by botanists James Cowen and Aubree Keurajian on August 18th, 2021. Survey efforts are listed in Table 1 below and survey routes are shown in Appendix C. A full species list can be found in Appendix D.

Table 1: Survey dates, weather, and effort

Survey Date	Weather	Survey Duration (Total Person Hours)
August 18th, 2021	Overcast, 79F	11 person hours

As described in the General Site Characteristics section above, most of the property is made up of hayfields and pastures (Appendix A: Photo 1, 2). The northern approximate half of the hayfield had been hayed too recently for plants to be identified at time of survey. It is contiguous with the rest of the large hayfield and appears to be made up of the same species (Appendix A: Photo 3). The hayfields, including the proposed Project area, are fairly uniform and low in diversity, with most of the species listed in Appendix D being restricted to the field edges (Appendix A: Photo 4, 5). These dominant species are primarily introduced species such as orchard grass (*Dactylis glomerata*), velvetgrass (*Holcus lanatus*), timothy (*Phleum pratense*), and meadow fescue (*Schedonorus*

[11] Dreyer G.D., C. Jones, et al. 2014. Native and Naturalized Vascular Plants of Connecticut Checklist. Connecticut Botanical Society. New Haven, CT.
[12] Haines, A., 2011. *Flora Novae Angliae*. New England Wildflower Society. Westford, MA. pg. 561-3
[13] https://www.butterfliesandmoths.org/species/Hemileuca-maia
[14] Nelson, M.W., 2015. *Barrens Metarranthis Fact Sheet*. Massachusetts Division of Fisheries and Wildlife Natural Heritage & Endangered Species Program.

pratensis), with chicory (*Cicorium intybus*), English plantain (*Plantago lanceolata*), and fleabane (*Erigeron* spp.). Wetland areas are dominated by reed canary grass (*Phalaris arundinaceae*).

The pastures, although dominated by the same species, are somewhat more diverse. Wet areas in the northern part of the pasture are dominated by sallow, tussock, and fox sedge (*Carex lurida, stricta,* and *vulpinoidea*), and American barnyard grass (*Echinochola muricata*), where not dominated by invasive reed canary grass and purple loosestrife (*Lythrum salicaria*) (Appendix A: Photo 6, 7). There are also a greater number of non-graminoid herbaceous species, including sensitive fern (*Onoclea sensibilis*), German chamomile (*Matricaria chamomila*), selfheal (*Prunella vulgaris*), blue vervain (*Verbena hastata*) and fall blooming American Asters (*Symphyotrichum* spp.).

The Bark Meadow Brook wetland corridor has the greatest species diversity on the property. It is vegetated primarily by a mix of native and introduced shrub and herbaceous species, with some trees, notably black cherry (*Prunus serotina*) and red oak (*Quercus rubra*). The shrubs are primarily dogwoods (*Swida amomum* and *racemosum*), elderberry (*Sambucus canadensis*), black raspberry (*Rubus allegheniensis*), and invasive multiflora rose (*Rosa multiflora*), and privet (*Ligistrum* sp.). The herb layer is made of many species, notably late goldenrod (*Solidago gigantea*), horse nettle (*Solanum carolinense*), catnip (*Nepeta cataria*), annual ragweed (*Ambrosia artemisiifolia*), devil's beggar-ticks (*Bidens frondosa*), rice cutgrass (*Leersia oryzoides*), true forget me not (*Myosotis scirpoides*), jewelweed (*Impatiens capensis*), boneset (*Eupatorium perfoliatum*), and numerous species of *Persicaria* including pinkweed (*P. pensylvanica*) and cespitose smartweed (*P. longiseta*). (Appendix A: Photo 8, 9)

Species growing just west of the western property line are included in the species list for the "Western Woods". A wooded area of approximately 1000 ft^2 extends into the pasture from this edge at the high point of the property (Appendix A: Photo 10). The canopy is almost entirely red maple (*Acer rubrum*), with a mix of native and introduced herbaceous species, including white wood aster (*Eurybia divaricata*), Indian tobacco (*Lobelia inflata*),

clearweed (*Pilea pumila*), rough-stemmed goldenrod (*Solidago rugosa*), and invasive Japanese stiltgrass (*Microstegium vimineum*) and garlic mustard (*Alliaria petiolata*).

The eastern woods canopy is primarily a low wetland, dominated by red maple, with some areas dominated by introduced European larch (*Larix decidua*). The understory, especially throughout the wetland areas, is dominated by invasive species, particularly barberry (*Beberis thunbergii*), multiflora rose and privet (Appendix A: Photo 11,12). To the southeast it rises sharply, and becomes dominated by sugar maple, shagbark and butternut hickory (*Carya ovata* and *cordiformis*), and red oak (*Quercus rubra*) (Appendix A: Photo 13). The shrub layer in this area is dominated by target host species beaked hazelnut (*Corylus cornuta*) and Blue Ridge blueberry (*Vaccinium pallidum*), with a few mountain laurel (*Kalmia latifolia*) individuals (Appendix A: Photo 14, 15, 16). This complex of host plants primarily occurs on the upland slope to the east of the wetland, however, in the wetland and along the mesic edge there are also highbush blueberries (*Vaccinium corymbosum*) (Appendix A: Photo 17). This area of host plants occupies 0.66 acres as illustrated on the *Host Plant Location Map* included in Appendix B.

Species Protection Measures

Host plants occur along the eastern portions of the Site, well outside of proposed Project area as noted on the *Host Plant Location Map* (Appendix B). Given the separation distance of the limits of disturbance from the plants, we do not anticipate any adverse impacts. Therefore, no plant protection measures are recommended.

Appendices

A: Site Photographs

B: Mapping

C: Survey Route Map

D: Species List

E: Summary of qualifications

APPENDIX A – Site Photographs

Photo 1: Vista from the highest point on the property, looking north. Farmyard, main developed area, seen in the back right.

Photo 2: Vista from the highest point on the property, looking east across pastures and hayfields.

Photo 3: Northernmost portion of hayfield, recently mown. Photo taken from west side of Bark Meadow Brook, looking southeast.

Photo 4: Proposed Project Area. Photo taken from eastern edge looking west. Area a hayfield.

Photo 5: Proposed Project Area. Photo taken from western edge looking east. Note hayfield edge with higher species diversity, including goldenrods, queen anne's lace, and invasive reed canary grass.

Photo 6: Wetlands in pasture, vegetated primarily by sedges, soft rush, and mild water pepper.

Photo 7: Seep in pasture, vegetated primarily by American barnyard grass and yellow nutsedge.

Photo 8: Shrub-herbaceous corridor of Bark Meadow Brook. Photo taken looking east.

Photo 9: Shrub-herbaceous corridor of Bark Meadow Brook. Photo taken looking north.

Photo 10: Wooded wetland area on western edge of property.

Photo 11: Herbaceous wetland area at edge of western woods.

Photo 12: Western wooded wetland with barberry dominated understory and red maple canopy. Photo taken looking south.

Photo 13: Mixed hardwood forest, note ground rising to the right of the photo. Photo taken looking north from southern part of host plant complex polygon, note highbush blueberry in center of photo.

Photo 14: Beaked hazelnut (*Corylus cornuta*)

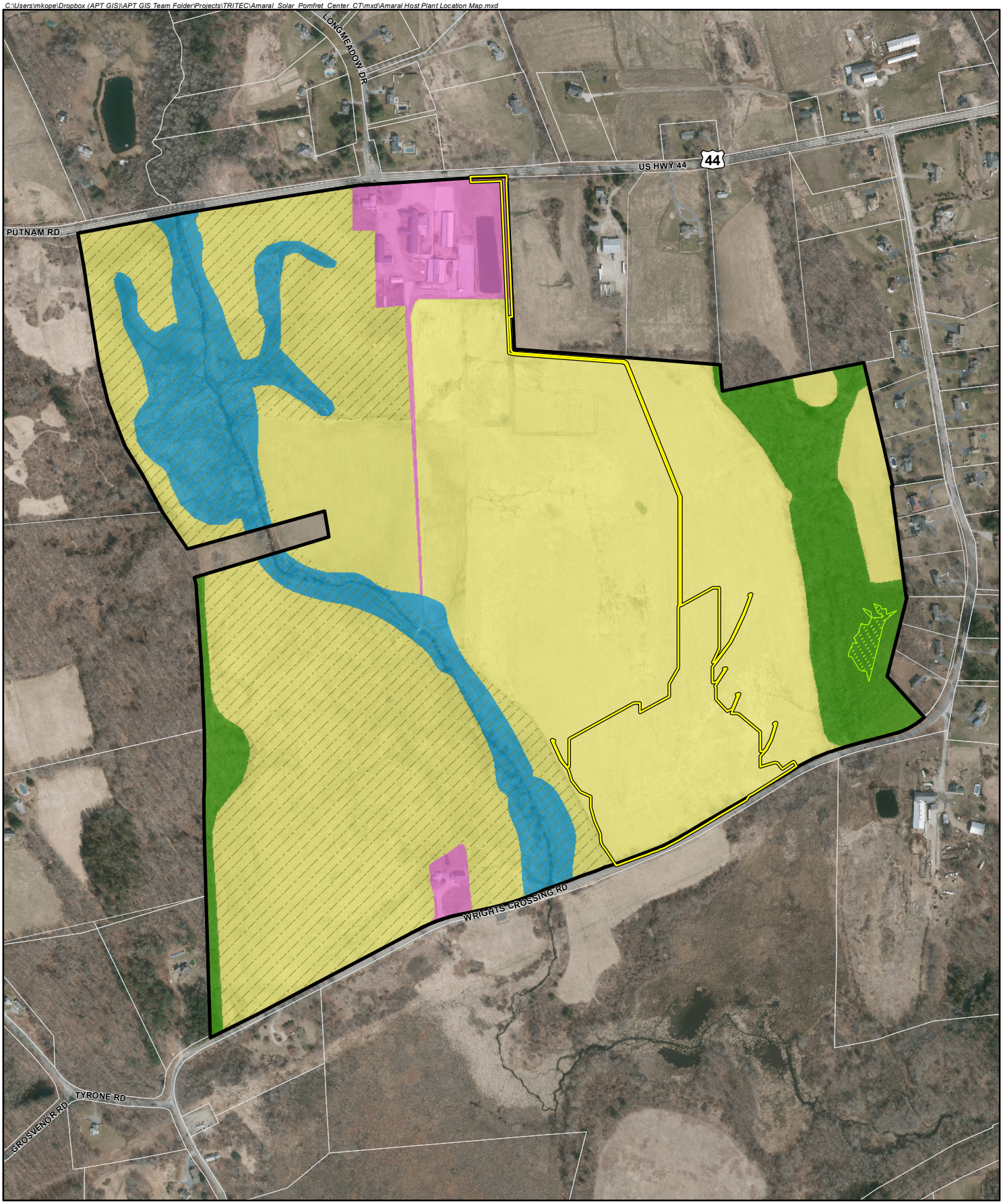
Photo 15: Dense patch of beaked hazelnut in northeastern part of host plant species complex.

Photo 16: Blue Ridge Blueberry (*Vaccinium pallidum*).

Photo 17: Highbush blueberry (*Vaccinium corymbosum*).

APPENDIX B – Mapping

C:\Users\mkope\Dropbox (APT GIS)\APT GIS Team Folder\Projects\TRITEC\Amaral_Solar_Pomfret_Center_CT\mxd\Amaral Host Plant Location Map.mxd



Legend

- Site
- Project Area
- Host Plant Location (Corylus Vaccinium Complex)
- Approximate Parcel Boundary

Habitat Cover Type

- Emergent/Scrub-Shrub Wetland
- Wetland Forest
- Hayfield
- Pasture
- Developed

N

600 300 0 600 Feet

Host Plant Location Map

Amaral Solar Facility
254 Putnam Road
Pomfret Center, Connecticut

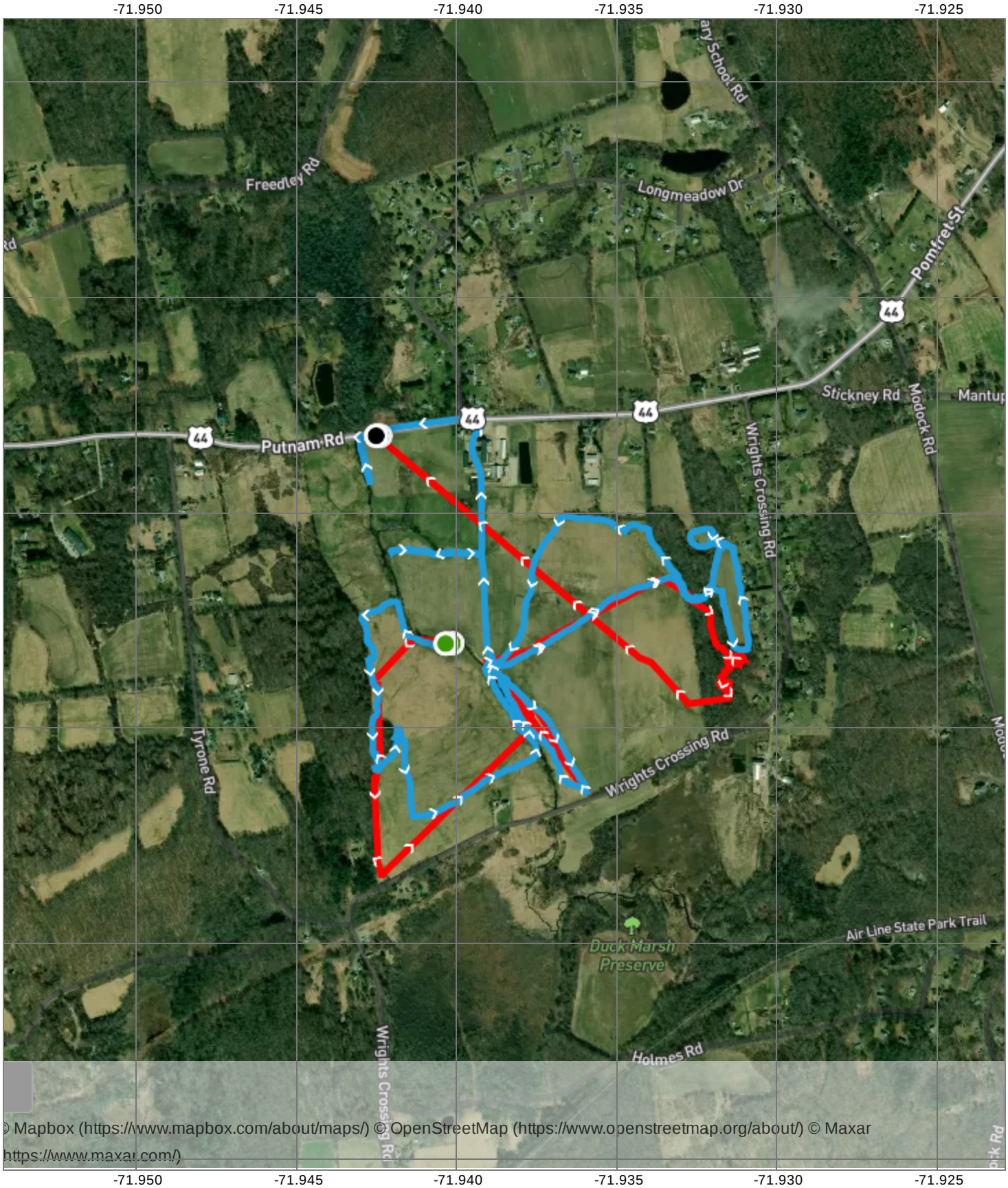
TRITEC AMERICAS

ALL-POINTS TECHNOLOGY CORPORATION

Map Notes:
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Scale: 1 inch = 600 feet
Map Date: October 2021

APPENDIX C – Survey Route Mapping

Amaral Host Plant Survey



MN 14°W 10/15/21

200 0 200 400 600 M 800

0.2 0 0.2 MI 0.4

501 ft

0 mi 2.0 mi 4.0 mi 6.0 mi

Scale 1:13441 Datum WGS84

APPENDIX D – Species List

SCIENTIFIC NAME	STRATUM	COMMON NAME	IND	STATUS	Hayfield and edge	Work area hayfield	Pasture	Bark Meadow Brook Wetland	Western woods	Eastern Woods	Eastern field
Abutilon theophrasti	Herbs	Velvetleaf	FAU	introduced		x					
Acalypha rhomboidea	Herbs	Common Copper-Leaf	FACU-	native			x		x		
Ageratina altissima	Herbs	White Snakeroot	FACU-	native					x		
Agrimonia striata	Herbs	Woodland Groovebur	FACU-	native			x	x			
Agrostis gigantea	Herbs	Redtop	FACW	native			x				
Alisma subcordatum	Herbs	Small Water-Plantain	OBL	native				x			
Alliaria petiolata	Herbs	Garlic Mustard	FACU-	invasive					x	x	
Amaranthus hybridus	Herbs	Green Amaranth	NC	introduced	x	x		x			
Ambrosia artemisifolia	Herbs	Annual Ragweed	FACU	native		x	x	x	x		
Ampelopsis glandulosa	Herbs	Porcelain Berry	NC	invasive		x		x			
Anthoxanthum odoratum	Herbs	Sweet Vernal Grass	FACU	introduced				x			
Apios americana	Herbs	Groundnut	FACW	native							x
Aralia nudicaulis	Herbs	Wild Sasparilla	FACU	native						x	
Arctaea sp.	Herbs	baneberry		native						x	
Arctium minus	Herbs	Common Burdock	FACU	introduced	x	x	x	x			
Arisaema triphyllum	Herbs	Jack-in-the-Pulpit	FACW-	native						x	
Artemisia vulgaris	Herbs	Common Mugwort	UPL	invasive							x
Asclepias syriaca	Herbs	Common Milkweed	UPL	native		x	x				
Athyrium sp.	Herbs	Lady-fern	FAC	native				x			
Bidens frondosa	Herbs	Devil's Beggar-ticks	FACW	native				x			
Boehmeria cylindrica	Herbs	False Nettle	FACW+	native						x	
Bromus inermis	Herbs	Smooth brome	UPL	introduced							x
Calystegia sepium	Herbs	Hedge Bindweed	FAC-	native	x	x		x			
Cardamine hirsuta	Herbs	Hairy bittercress	FACU	introduced						x	
Cardamine impatiens	Herbs	Narrowleaf Bittercress	FAC	invasive					x		
Carex (laxiflorae group)	Herbs	loose-flowered sedges		native					x	x	
Carex lurida	Herbs	Sallow Sedge	OBL	native			x			x	
Carex stricta	Herbs	Tussock Sedge	OBL	native						x	
Carex vulpinoidea	Herbs	Fox Sedge	OBL	native			x				
Cerastium fontanum	Herbs	Mouse-ear Chickweed	FACU	introduced		x					
Chelidonium majus	Herbs	Greater Celandine	UPL	introduced				x	x		
Chenopodium album	Herbs	Lamb's Quarters	FACU+	introduced		x		x			
Cichorium intybus	Herbs	Chickory	FACU	introduced	x	x	x	x			
Cicuta maculata	Herbs	Spotted Water Hemlock	OBL	native				x			
Cinna arundinacea	Herbs	Stout Wood-Reedgrass	FACW+	native							x
Circaea canadensis	Herbs	Enchanter's Nightshade	FACU	native					x	x	
Cirsium arvense	Herbs	Creeping Thistle	FACU	invasive			x	x		x	
Cirsium vulgare	Herbs	Bull Thistle	FACU-	introduced	x						
Clematis virginiana	Herbs	Virgin's Bower	FAC	native				x			
Clinopodium vulgare	Herbs	Wild Basil	NC	native					x		x
Cuscuta sp.	Herbs	dodder		native	x			x			
Cyperus esculentus	Herbs	Yellow nutsedge	FACW	invasive		x			x		
Dactylis glomerata	Herbs	Orchard Grass	FACU	introduced	x	x	x		x	x	
Daucus carota	Herbs	Queen Annes's Lace	NC	introduced		x	x				
Digitaria sanguinalis	Herbs	Hairy Crabgrass	FACU	introduced		x	x				
Dryopteris cristata	Herbs	Crested Shield-fern	FACW+	native						x	
Echinochloa crusgalli	Herbs	Barnyard Grass	FACU	introduced		x	x	x			
Echinocystis lobata	Herbs	Wild Cucumber	FAC	native				x			
Eleusine indica	Herbs	Goosegrass	FACU-	introduced				x			
Elymus repens	Herbs	Quackgrass	FACU	introduced	x	x	x				
Epilobium coloratum	Herbs	Purple-leaved Willowherb	OBL	native		x		x			
Erechtites hieracifolia	Herbs	Fireweed	FACU	native				x	x		
Erigeron annuus	Herbs	White-top Fleabane	FACU	native	x						
Erigeron canadensis	Herbs	Horseweed	FACU	native			x	x			
Erigeron philadelphicus	Herbs	Philadelphia Fleabane	FACU	native				x			

SCIENTIFIC NAME	STRATUM	COMMON NAME	IND	STATUS	Hayfield and edge	Work area hayfield	Pasture	Bark Meadow Brook Wetland	Western woods	Eastern Woods	Eastern field
Erigeron strigosus	Herbs	Prairie Fleabane	FACU+	native		x		x			
Eupatorium perfoliatum	Herbs	Boneset	FACW+	native				x			
Eurybia divaricata	Herbs	White Wood Aster	NC	native					x	x	
Euthamia graminifolia	Herbs	Flat-top Goldenrod	FAC	native						x	
Eutrochium dubium	Herbs	Coastal Plain Joe-Pye Weed	FACW	native				x			
Fallopia scandens	Herbs	Climbing Black Bindweed	FAC	native	x	x		x			
Galium mollugo	Herbs	Wild Madder	FACU	introduced	x	x	x				
Geum canadense	Herbs	White Avens	FACU	native					x		
Geum laciniatum	Herbs	Rough Avens	FAC+	native						x	
Glechoma hederacea	Herbs	Gill-over-the-Ground	FACU	invasive		x	x				
Holcus lanatus	Herbs	Velvet Grass	FACU	invasive	x	x	x		x		
Hypericum canadense	Herbs	Canadian St. John's Wort	FACW	native				x			
Hypericum mutilum	Herbs	Slender St. John's-wort	FACW	native		x					
Impatiens capensis	Herbs	Jewelweed	FACW	native	x			x		x	
Juncus effusus	Herbs	Soft Rush	FACW+	native			x	x		x	
Juncus tenuis	Herbs	Path Rush	FAC-	native			x	x		x	
Lactuca biennis	Herbs	Tall Blue Lettuce	FAC	native				x			
Lactuca serriola	Herbs	Prickly Lettuce	FACU	introduced		x					
Leersia oryzoides	Herbs	Rice Cutgrass	OBL	native				x			
Leersia virginica	Herbs	White Grass	FACW	native					x	x	
Lepedium virginicum	Herbs	Poor Man's Pepper-grass	FACU-	native			x	x			
Lindernia dubia	Herbs	Yellow-seeded false pimpernel	OBL	native				x			
Lobelia inflata	Herbs	Indian Tobacco	FACU	native					x		
Lycopus virginicus	Herbs	Virginia Bugleweed	OBL	native				x			
Lythrum salicaria	Herbs	Purple Loosestrife	FACW+	invasive			x	x			
Maianthemum canadense	Herbs	Canada Mayflower	FAC-	native						x	
Malva neglecta	Herbs	Common Mallow	NC	introduced			x				
Matricaria chamomila	Herbs	German chamomile	NC	introduced			x	x			
Medeola virginiana	Herbs	Indian Cucumber-root	FACU	native						x	
Microstegium vimineum	Herbs	Japanese Stiltgrass	FAC	invasive					x		
Mimulus ringens	Herbs	Allegheny Monkey-flower	OBL	native			x		x	x	
Myosotis scirpoides	Herbs	True Forget-Me-Not	OBL	invasive				x			
Nepeta cataria	Herbs	Catnip	FACU	introduced		x		x			
Nuttallanthus canadensis	Herbs	Oldfield Toadflax	NC	native			x				
Oclemena acuminata	Herbs	Whorled Aster	FACU	native						x	
Oenothera biennis	Herbs	Common Evening-primrose	FACU-	native				x			
Onoclea sensibilis	Herbs	Sensitive Fern	FACW	native				x		x	
Osmunda cinnamomea	Herbs	Cinnamon Fern	FACW	native						x	
Oxalis stricta	Herbs	Common Yellow Oxalis	FACU	native		x		x	x		
Persicaria hydropiper	Herbs	Mild Water-pepper	OBL	introduced		x	x	x	x		
Persicaria lapathifolia	Herbs	Dock-Leaf Smartweed	FACW	native				x			
Persicaria longiseta	Herbs	Cespitose Smartweed	FACU-	invasive		x		x	x	x	
Persicaria pensylvanica	Herbs	Pinkweed	FACW	native			x	x			
Persicaria sagittata	Herbs	Arrow-Leaf Tearthumb	OBL	native	x			x		x	
Phalaris arundinacea	Herbs	Reed Canary Grass	FACW+	invasive	x	x	x	x		x	
Phleum pratense	Herbs	Timothy	FACU	introduced	x	x	x	x	x		
Phlox divaricata	Herbs	Wild Blue Phlox	FACU	native				x			
Phragmites australis	Herbs	Common Reed	FACW	invasive				x			
Phytolacca americana	Herbs	Pokeweed	FACU+	native		x		x	x		
Pilea pumila	Herbs	Clearweed	FACW	native				x	x	x	
Plantago lanceolata	Herbs	English Plantain	FACU	introduced	x	x					x
Plantago major	Herbs	Common Plantain	FACU	introduced	x	x	x				
Potentilla recta	Herbs	Sulphur Cinquefoil	NC	introduced							x
Prunella vulgaris var. lanceolata	Herbs	Selfheal	FACU+	native			x		x	x	
Ranunculus bulbosus	Herbs	Bulbous Buttercup	FACW	introduced				x			

SCIENTIFIC NAME	STRATUM	COMMON NAME	IND	STATUS	Hayfield and edge	Work area hayfield	Pasture	Bark Meadow Brook Wetland	Western woods	Eastern Woods	Eastern field
Rumex crispus	Herbs	Curly Dock	FACU	introduced		x	x				
Rumex longifolius	Herbs	Yard Dock	FAC	introduced			x				
Rumex obtusifolius	Herbs	Bitter Dock	FACU-	introduced				x			
Schedonorus pratensis	Herbs	Meadow Fescue	FACU-	introduced	x	x	x				
Scirpus atrovirens	Herbs	Green Bulrush	OBL	native						x	
Scirpus hattorianus	Herbs	Mosquito Bulrush	OBL	native			x				
Setaria faberii	Herbs	Giant Foxtail	FACU	introduced		x					
Setaria pumila	Herbs	Yellow Bristle Grass	FAC	introduced	x	x			x		
Sicyos angulatus	Herbs	Oneseed Bur Cucumber	FACU	native		x		x			
Silene latifolia	Herbs	White Campion	NC	introduced	x	x		x			
Solanum carolinense	Herbs	Horse Nettle	FACU	introduced		x		x			
Solanum dulcamara	Herbs	European Bittersweet	FAC-	introduced				x	x		
Solanum emulans	Herbs	Eastern Black Nightshade	FACU-	native		x		x			
Solidago canadensis	Herbs	Canada Goldenrod	FACU	native	x	x	x			x	
Solidago gigantea	Herbs	Late Goldenrod	FACW	native				x		x	
Solidago rugosa	Herbs	Rough-stemmed Goldenrod	FAC	native		x		x	x		
Stellaria graminea	Herbs	Lesser Stichwort	FACU-	introduced			x				
Stellaria media	Herbs	Chickweed	FACU	introduced				x			
Symphyotrichum ericoides	Herbs	White Heath Aster	FACU	native			x				
Symphyotrichum novi-belgii	Herbs	New York Aster	FACW+	native				x			
Symphyotrichum racemosum	Herbs	White Old Field Aster	FAC	native			x				
Symplocarpus foetidus	Herbs	Skunk Cabbage	OBL	native						x	
Taraxacum officinale	Herbs	Common Dandelion	FACU-	introduced			x		x		
Thalictrum pubescens	Herbs	Tall Meadow-Rue	FACW+	native						x	
Thelypteris noveboracensis	Herbs	New York Fern	FAC	native						x	
Trifolium hybridum	Herbs	Alsike clover	FACU	introduced		x					
Trifolium pratense	Herbs	Red Clover	FACU-	introduced	x	x	x				
Trifolium repens	Herbs	White Clover	FACU-	introduced	x	x	x				
Typha angustifolia	Herbs	Narrow-leaf Cattail	OBL	native		x		x			
Typha latifolia	Herbs	Common Cattail	OBL	native	x			x			
Typha X glauca	Herbs	Narrow-leaf Cattail	OBL	aggressive hybrid				x			
Urtica dioica	Herbs	Stinging Nettle	FACU	introduced	x		x	x			
Verbascum thapsus	Herbs	Common Mullein	UPL	introduced		x	x	x			
Verbena hastata	Herbs	Blue Vervain	FACW+	native		x	x	x		x	
Verbena urticifolia	Herbs	White Verbena	FACU	native				x			
Viburnum dentatum	Shrubs	Smooth arrowwood	FACW-	native				x		x	
Vicia cracca	Herbs	Cow Vetch	NC	introduced				x			
Alnus incana	Shrubs	Speckled Alder	FACW+	native				x			
Berberis thunbergii	Shrubs	Japanese Barberry	FACU	invasive				x	x	x	
Corylus cornuta	Shrubs	Beaked Hazelnut	FACU-	native						x	
Elaeagnus umbellata	Shrubs	Autumn Olive	NC	invasive					x		
Ilex verticillata	Shrubs	Winterberry Holly	FACW+	native							
Kalmia latifolia	Shrubs	Mountain Laurel	FACU	native						x	
Ligustrum sp.	Shrubs	privet		invasive				x	x	x	
Lindera benzoin	Shrubs	Spicebush	FACW-	native				x	x		
Lonicera morrowii	Shrubs	Morrow's Honeysuckle	FACU	invasive					x	x	
Rhamnus cathartica	Shrubs	Common Buckthorn	FAC	invasive		x					
Rhus hirta	Shrubs	Staghorn Sumac	NC	native					x		
Rosa multiflora	Shrubs	Multiflora Rose	FACU	invasive			x	x	x	x	
Rubus allegheniensis	Shrubs	Allegheny Blackberry	FACU	native					x	x	
Rubus hispidus	Shrubs	Bristly Dewberry	FACW	native					x	x	
Rubus occidentalis	Shrubs	Black Raspberry	NC	native				x	x		
Sambucus canadensis	Shrubs	Common Elderberry	FACW-	native				x		x	x
Spiraea alba	Shrubs	White Meadowsweet	FAC+	native				x			
Swida amomum	Shrubs	Silky Dogwood	FACW	native				x			

SCIENTIFIC NAME	STRATUM	COMMON NAME	IND	STATUS	Hayfield and edge	Work area hayfield	Pasture	Bark Meadow Brook Wetland	Western woods	Eastern Woods	Eastern field
Swida racemosa	Shrubs	Gray Dogwood	FAC	native				x			
Vaccinium corymbosum	Shrubs	Highbush Blueberry	FACW-	native						x	
Vaccinium pallidum	Shrubs	Blue Ridge Blueberry	NC	native						x	
Viburnum acerifolium	Shrubs	Maple-leaved Viburnum	UPL	native						x	
Acer negundo	Trees	Box Elder	FAC+	native						x	
Acer platanoides	Trees	Norway Maple	UPL	invasive					x		
Acer rubrum	Trees	Red Maple	FAC	native				x	x	x	
Acer saccharinum	Trees	Silver Maple	FACW	native					x		
Acer saccharum	Trees	Sugar Maple	FACU	native						x	
Amelanchier arborea	Trees	Downy Serviceberry	FAC-	native				x			
Betula lenta	Trees	Black Birch	FACU	native					x		
Betula papyrifera	Trees	Paper Birch	FACU	native						x	
Betula populifolia	Trees	Gray Birch	FAC	native				x	x		
Carpinus caroliniana	Trees	Ironwood	FAC	native					x	x	
Carya cordiformis	Trees	Bitternut Hickory	FACU+	native						x	
Carya ovata	Trees	Shagbark Hickory	FACU-	native					x	x	
Fagus grandifolia	Trees	American Beech	FACU	native							
Fraxinus pensylvanica	Trees	Green Ash	FACW	native					x	x	
Larix decidua	Trees	European Larch	NC	introduced						x	
Malus sp.	Trees	crabapple		introduced				x			
Morus alba	Trees	White Mulberry	FACU	introduced				x			
Picea abies	Trees	Norway Spruce	NC	introduced						x	
Pinus strobus	Trees	Eastern White Pine	FACU	native		x			x	x	
Populus deltoides	Trees	Eastern Cottonwood	FAC	native							
Prunus serotina	Trees	Black Cherry	FACU	native			x	x	x	x	
Quercus alba	Trees	White Oak	FACU-	native	x				x		
Quercus rubra	Trees	Red Oak	FACU-	native				x		x	
Salix nigra	Trees	Black Willow	FACW+	native				x			
Sassafras albidum	Trees	Sassafras	FACU-	native						x	
Swida sp.	Trees	dogwood sapling								x	
Ulmus rubra	Trees	Slippery Elm	FAC	native				x		x	
Celastrus orbiculatus	Vines	Asiatic Bittersweet	UPL	invasive	x	x		x	x	x	
Parthenocissus quinquefolia	Vines	Virginia Creeper	FACU	native				x	x	x	
Toxicodendron radicans	Vines	Poison Ivy	FAC	native				x	x	x	
Vitis labrusca	Vines	Fox Grape	FACU	native					x		

APPENDIX E – Summary of Qualifications

Davison Environmental, LLC provides consulting services in the areas of biological, wetland, and soil sciences. In addition to identification, description, and classification of natural resources, the firm also provides functional evaluation of wetlands and other biological systems, guidelines for mitigation of potential adverse impacts, and permit support through expert testimony and public representation. Services provided revolve around the impact of human activities on terrestrial, wetland, aquatic, and marine resources. The firm specializes in biological and wetland surveys, impact assessment, and mitigation planning.

James Cowen

James Cowen has over 20 years of experience conducting botanical surveys in Connecticut. He is a Registered Soil Scientist, Certified Professional Wetland Scientist, and has previously served on the Board of Directors for the Connecticut Botanical Society. Mr. Cowen maintains a Connecticut Department of Energy and Environmental Protection Scientific Collector's Permit for the collection of plants. He holds a bachelor's degree in Biology and master's degree in Landscape Design.

Eric Davison

Eric Davison holds a bachelor's Degree in wildlife conservation from the University of Massachusetts. He is certified as both a Professional Wetland Scientist and Soil Scientist. Mr. Davison has experience conducting avian, amphibian and reptile surveys, evaluating and inventorying wetlands and conducting soil surveys in Connecticut. He has also experience conducted both Phase 1 and Phase 2 bog turtle assessments in Connecticut.

Aubree Keurajian

Aubree Keurajian has a bachelor's degree in the Science of Natural and Environmental Systems from Cornell University. She has worked as a Forest Ecology Field Technician at Duke and Indiana Universities, as well as a Seed Collection and Arid Land Restoration Technician at the Southern Nevada District Office of the Bureau of Land Management. Ms. Keurajian's experience includes botanical and faunal surveys and forest censuses, as well as insect identification and databasing from her time as a Collections Assistant at the Cornell University Insect Collection.

APPENDIX D

STATE-LISTED BIRD SPECIES ASSESSMENT

State-listed Bird Species Assessment

Proposed Amaral Solar Facility
254 Putnam Road
Pomfret Center, CT

Submitted To:
Dean Gustafson
All Points Technology, Corp.

Prepared By:
Eric Davison
Davison Environmental

and

Hunter Brawley
Brawley Consulting Group, LLC

1. INTRODUCTION

A habitat-based assessment for State-listed bird species was conducted at 254 Putnam Road (Route 44) in the Town of Pomfret ("the Site", hereinafter). While this work was primarily a habitat-based evaluation of suitability, our work also included baseline point-count surveys for grassland birds as described in Section 4.

Work was conducted by Eric Davison of Davison Environmental and Hunter Brawley of Brawley Consulting Group. Site visits were conducted in May and August. This work was conducted as part of an environmental impact review for the installation of a 1.97-megawatt ground-mounted solar array field ("the Project", hereinafter) proposed within the southeast portions of the property as noted on the *Overview Map* and *Existing Site Habitat Map* included in Appendix A.

Consultation with the Connecticut Natural Diversity Database (NDDB) was conducted and a Preliminary Assessment Letter (No.: 202103657) was issued on June 22, 2021. That letter indicated the potential presence of the following nine State-listed bird species within or adjacent to the Site:

- Short-eared owl (*Asio flammeus*)
- Long-eared owl (*Asio otus*)
- American bittern (*Botaurus lentiginosus*)
- Sedge wren (*Cistothorus platensis*)
- Bobolink (*Dolichonyx oryzivorus*)
- American kestrel (*Falco sparverius*)
- Savannah sparrow (*Passerculus sandwichensis*)
- Pied-billed grebe (*Podilymbus podiceps*)
- Purple martin (*Progne subis*)

Confirmation of the presence of two of these species within the project area, bobolink and Savannah sparrow, were made in May 2021 during grassland bird surveys. For the remaining seven species, potential bird habitats on the site were identified and mapped. For each habitat, abiotic and biotic habitat characteristics, including the soil type, hydrologic regime (of wetlands), cover type and dominant plant species were evaluated. These characteristics were compared to the known habitat preferences for these species in the region. This habitat-based evaluation was aided by local knowledge of the distribution of these species based on communications with Mr. Andy Rzeznikiewicz, the Manager of Connecticut Audubon's 700-acre Bafflin Sanctuary in Pomfret. Mr. Rzeznikiewicz has managed the extensive grassland habitats at the Pomfret

Audubon Center for over 25 years and is on the Board of Directors of the Wyndham Land Trust (https://www.wyndhamlandtrust.org/). A list of bird species that have been recorded on or near the project site was compiled based on field visits, citizen science records (*ebird*) for Wyndham Land Trust's (WLT) Duck Marsh Preserve, and personal communications with Mr. Rzeznikiewicz who helps lead WLT's land conservation initiatives and regularly monitors bird populations on the Duck Marsh Preserve and active farm properties in the area.

2. SITE DESCRIPTION

The project site is a dairy farm located at 254 Putnam Road (Route 44) in the town of Pomfret. The 215-acre farm contains a residence and a dairy barn, pastures, and an 85± acre hayfield. The hayfield extends to the south from the barn over a prominent knoll and down to Wright's Crossing Road. On the south side of Wright's Crossing Road is Wyndham Land Trust's 146-acre Duck Marsh Preserve which contains a large emergent marsh complex and post-agricultural fields. Bark Meadow Brook flows to the south through the farm and into the Duck Marsh Preserve. The southern limits of the Project will fall within approximately 150 feet of the Preserve's northern property boundary. This matrix of open fields, wetlands and woodlands provides high quality habitat for a number of notable bird species including grassland birds which were included on the list of species provided by the NDDB.

3. HABITAT SUITABILITY

The farm property contains several distinct habitats/land cover types that are shown on the *Existing Site Habitat Map* in Appendix A. These habitats are illustrated in the photographs included in Appendix B. The following sections describe the characteristics of each of the habitats/land cover types present on the Site. The Project area is proposed on the southern edge of the Farm's expansive hayfield bordering Wright's Crossing Road. The Project area will total 14.2-acres of disturbance, and upon full construction the array field will cover a total of 11-acres. To the west of the hayfield and the brook is mesic to wet meadow habitat which is presently (as well as historically) used as a pasture for dairy cattle. A large contiguous wetland system borders Bark Meadow Brook, including areas of wetland which fall within the active pastureland.

Hayfield

The dominant cover type on the site is hayfield dominated by non-native cool season grasses such as smooth brome grass, timothy, Kentucky bluegrass, tall fescue, and orchardgrass. This

site's 85± acre hayfield provides high quality habitat for the two grassland species that are confirmed breeders. However, the fields are cut for haylage several times during the growing season, including in 2021 in the end of May, which is well within the recognized breeding dates for bobolink and other grassland birds. The hayfield is large enough to support several other grassland bird species that occur in Northeast Connecticut which are area sensitive (e.g. only breed in larger fields) such as Eastern meadowlark and grasshopper sparrow, but to date these two state-listed species have not been recorded as nesting on the site.

Pasture

Pasture areas occur along the entire western boundary of the farm and extend into the riparian corridor along the brook. The cattle have had unrestricted access to the stream and riparian corridor which has caused significant soil compaction, minor related erosion from hoof action, and vegetation over browse and trampling. The disturbed pastures/open fields provide foraging habitat for passerines and raptors and owls but are not suitable habitat for the State-listed grassland breeding bird species identified by the NDDB due to the lack of tall grass and forb cover.

Emergent / Scrub-shrub wetland

Emergent/scrub-shrub wetlands occur along the riparian corridor. The more valuable habitat lies in the dendritic system on the north side of the site, on either side of the brook. At these locations, cattle activity is more limited or non-existing, and therefore the vegetation is relatively intact. Although well outside the Project area (approximately 2,000 feet away), these areas do provide suitable habitat for a variety of birds (and other wildlife). Sedge wren has historically been recorded breeding in the large wetland complex within Duck Marsh preserve but was not identified on this site during any of the field visits. Sedge Wrens nest in dense, tall growths of sedges and grasses in wet meadows, hayfields, retired croplands, upland margins of ponds and marshes, tallgrass prairie, coastal marshes, and sphagnum bogs—ideally all with some woody shrubs interspersed. It does not nest in tall reeds or deep-water marshes (generally habitat for Marsh Wren) and avoids sparsely vegetated wetlands that lack a shrub element. Migrants usually gravitate toward habitats that resemble nesting habitat, including agricultural fields, grasslands, saltmarshes, and overgrown weedy fields."

The other wetland dependent bird listed by the NDDB is American Bittern, which also was recorded as nesting in the Duck Marsh Preserve. "American Bitterns usually build their nests among thick stands of cattails, bulrushes, and sedges that grow out of shallow water. Less commonly, they nest on dry ground, in grassland areas dense with tall herbaceous plants." As with the sedge wren, the northern emergent/scrub-shrub wetland system represents suitable

habitat. However, this habitat is sub-optimal in comparison to Duck Marsh as the system is much smaller and less diverse (in species diversity and heterogeneity of vegetation), and is located relatively close to Putnam Road and the farm residence within the property off Wright's Crossing Road (and related human activities). Such conditions are generally less favorable to a highly secretive and disturbance sensitive species such as the American bittern.

Pied-billed grebe is an open water bird identified by the NDDB that was a confirmed nester in the Duck Marsh open water wetlands. According to the Cornell Lab of Ornithology, "Pied-billed Grebes live on bodies of flat or sluggish, fresh to slightly brackish water, at altitudes from sea level to about 8,000 feet. They forage in open water but construct their floating nests using materials and anchors of aquatic vegetation and/or dense stands of emergent vegetation—plants that root underwater with leaves and stems that extend into air. Habitat types include freshwater wetlands, wet fields, bays, sloughs, marshes, lakes, slow-moving rivers, and even sewage ponds. Pied-billed Grebes can nest in moderately to heavily populated areas. They occupy similar habitats during migration and winter." There is no suitable habitat for grebes within the subject property.

Wetland Forest

Bordering to the hayfield to the east is a forested wetland which contains vegetation which is typical of red maple-dominated swamps throughout Connecticut. Red maple and American elm dominate the tree stratum over a dense mix of spicebush, winterberry and multiflora rose over jewelweed, ferns, tussock sedge and skunk cabbage. Imbedded within the forested wetland is a small vernal pool. This forested area does not provide habitat for any of the bird species identified by the NDDB.

Bark Meadow Brook Riparian Corridor

This riparian habitat is also highly disturbed due to unlimited access by the cattle. The hedgerows along the stream do provide perches for cavity trees for woodpeckers and other passerines but is not suitable habitat for any of the State-listed birds.

Developed

The area surrounding the farmhouse was mapped as developed, and includes the residence, barns and other outbuildings and equipment storage areas. The groundcover in these areas includes pavement, gravel and mowed lawn. There is also an agricultural pond. This area contains no habitat for any of the birds identified by the NDDB. However, there is a record for purple martin in the area, but in Connecticut this species nests exclusively in constructed bird houses. According to the CT Department of Energy & Environmental Protection (CT DEEP) "the entire eastern race of purple martins (east of the Rocky Mountains) is totally dependent on

humans for supplying them with nesting sites in the form of specially-designed houses or hollow gourds. If humans were to stop supplying martins with homes, they would likely disappear as a breeding bird in eastern North America." We did not note any purple martin houses on the premises, although the habitat is suitable to support the species.

4. GRASSLAND BIRDS

The Project area is sighted entirely (except for the existing access road) within the existing hayfield. Therefore, grassland dependent and grassland associated species utilizing the Site's hayfield habitat are most at risk of impact from this Project. To document breeding season bird activity within the hayfield, a systematic grassland bird survey methodology was employed. This method consisted of documenting bird species using a transect line point-count survey method using 50m wide x 300m long transects that covered the entire Project area, including areas immediately adjacent (within approximately 300 feet) to the Project area within the contiguous hayfield. An initial site visit was conducted on May 12, 2021 to establish and field demarcate the transect locations using GPS and tall green garden stakes. The first transect survey was conducted on May 19th. Upon arrival for the second survey on May 24th, it was noted that the entire hayfield had been cut to a height of 6" (or less), interrupting the breeding activity of grassland nesting birds. Based on the May 19th Site visit, a maximum number of 10 individual bobolinks were recorded in a single transect, and bobolinks were recorded in similar numbers along all four transects. After the haying, between 12-15 male bobolinks were visible at one time within the Project area. The State-listed savannah sparrow (a single individual male) was observed during the initial site visit on May 12th but was not observed during the point count surveys on May 19th.

According to Mr. Rzeznikiewicz, both bobolink and Savannah sparrow nest annually in the Site's hayfield as well as within suitable habitats nearby suggesting there is a regional metapopulation of bobolink. Other potential nesting species on the site are northern harrier and American kestrel, both species that utilize large hayfields, or their ecotones. Long-eared and short-eared owls have been observed during winter, seen roosting and foraging in the Site's hayfield and on other open farm fields in the vicinity of the Site.

Population Sinks and Agricultural Land uses

Numerous factors may affect the density of nesting grassland birds on this Site, including current and historic farming practices and the size and location of the fields. Although forest edges provide important habitat for numerous wildlife species, studies have shown that breeding success for

ground-nesting birds can increase with distance from edge habitats (Renfrew et al. 2005). The subject hayfield has optimal vegetative consistency (homogenous grass cover, little tree and shrub cover) throughout, and has a large amount of interior habitat. The density of bobolinks within the survey area was highest away from the forest edge to the east and from Wright's Crossing Road to the south.

The principal issue with respect to the ability of this Site to effectively support grassland birds (e.g., bobolink) is the well-documented conflict between agricultural land use practices and the conservation of grassland birds. Haying is an intensive land use that typically occurs in the middle of the grassland-bird nesting season, which extends roughly from late May through July. Farmers typically try to get as many hay cuttings as possible during the summer months, resulting in the destruction of bird nest, adults, eggs and fledglings. The America Birding Association describes this conflict in New York State where bobolink are more abundant than in Connecticut: "Current agricultural practices allow farmers to grow more hay in one season through multiple harvests. While economically advantageous for farmers, the multiple harvests result in the destruction of bobolink nests during the breeding season. This is considered the main factor in the species' decline in New York." According to the *Best Management Practices for Grassland Birds* (Atwood et al. 2017), "Grassland birds have a high degree of nest-site fidelity, returning annually to the same site to attempt to breed…this loss caused by mowing affects more than just individual breeding pairs—it affects the entire population. Fields that are cut during June and July act as population sinks, in which mature birds waste their entire reproductive effort." While the premise haying cycle of this Site is not known, based on the site visits conducted, it appears that these fields are on a 2-3 cuttings/year management cycle. This represents a cutting cycle that is not conducive to successful grassland bird nesting. Therefore, at present, the Site likely serves as a population sink.

5. DUCK POND MARSH PRESERVE

On the south side of Wright's Crossing Road is Wyndham Land Trust's 146-acre Duck Marsh Preserve which contains a large emergent marsh complex and post-agricultural fields. A total of 148 species have been recorded at the Duck Pond Marsh Preserve according to the *Ebird* website (See Appendix C). The NDDB has records of nine State-listed bird species in the vicinity of the Site, six of which are typically associated with grassland habitats. The remaining three species occur in open water or wetland habitats. Although the NDDB does not have a record for northern harrier, this species was seen in the subject hayfield on one occasion and has been observed

foraging in the area for several years by Mr. Rzeznikiewicz. To date breeding by northern harrier has not been confirmed.

Table 1. State-listed bird species recorded on or near 254 Putnam Road.

Common Name	Scientific Name	NDDB Status	Status	Preferred Habitat	Recorded Location(s)
Short-eared Owl	*Asio flammeus*	T	Winter roost/forage	Grassland	Duck Marsh, 254 Putnam Rd
Long-eared Owl	*Asio otus*	E	Winter roost/forage	Grassland	Duck Marsh, 254 Putnam Rd
American Bittern	*Botaurus lentiginosus*	E	Confirmed Breeding	Wetlands	Duck Marsh
Northern Harrier	*Circus hudsonius*	E	Possible Breeding	Grassland	Duck Marsh, 254 Putnam Rd
Sedge Wren	*Cistothorus platensis*	E	Confirmed Breeding	Wetlands	Duck Marsh
Bobolink	*Dolichonyx oryzivorus*	SC	Confirmed Breeding	Grassland	Duck Marsh, 254 Putnam Rd
American Kestrel	*Falco sparverius*	SC	Confirmed Breeding	Grassland	Duck Marsh
Savannah Sparrow	*Passerculus sandwichensis*	SC	Confirmed Breeding	Grassland	Duck Marsh, 254 Putnam Rd
Pied-billed Grebe	*Podilymbus podiceps*	E	Confirmed Breeding	Open water	Duck Marsh
Purple Martin	*Progne subis*	SC	Unknown	Nets Boxes	Unknown
E = Endangered; T = Threatened; SC Special Concern. *Breeding Status based on eBird records and personal communications.*					

6. PROJECT IMPACTS

According to Massachusetts Audubon Society's publication *Best Management Practices for Grassland Birds* (Atwood et al. 2017), "grassland-nesting birds are among the most imperiled birds in the nation. Between 1966 and 2012, these species experienced steeper, more consistent, and more widespread population declines than any other group of birds in North America. These declines have been the direct result of three factors: the conversion of grassland habitat to other uses; the natural reversion of grassland to forest; and the intensification of agricultural practices on the grasslands that remain." Many grassland bird species are "area dependent" and require larger unfragmented fields for successful breeding.

The direct impact of construction would be the loss of 12.5 acres of grassland bird habitat where two State-listed species have been documented: bobolink and savannah sparrow. The loss of the 12.5 acres within the 85± acre hayfield represents a 15% reduction in available habitat. Additionally, the remaining hayfield immediately east of the Project area, although it will not be directly affected by construction, will likely be rendered unsuitable for bobolink (and other

grassland birds) as the remaining habitat will become narrow in width (less than 300 feet wide) as it would be situated between the solar arrays to the west, and the forest to the east.

With respect to indirect impacts, at present there are little peer reviewed studies documenting the effects of solar arrays on birds in the northeastern U.S. Provided in the following sections is a discussion on the potential for short-term construction related impacts, and long-term impacts that could occur post-construction.

1. Construction related impacts: impacts during construction have the potential to affect birds utilizing the habitats adjacent to the construction zone. Indirect impacts, primarily noise from construction, could alter bird activity (causing habitat avoidance) to up to 500 feet from construction. To avoid construction-related impacts to breeding birds, avoid construction during the primary breeding bird season (approximately April 1st through August 30th). It should be noted that for short-eared and long-eared owls that utilize the subject Site during the winter for roosting and feeding, such activity would be disrupted by a fall-winter construction schedule. However, most species, including non-avian species, would benefit from a fall-winter construction schedule outside of the growing season.

2. Noise disturbance (post-construction): the level of post-construction human activity at a solar array field is very low, particularly in comparison to land uses such as residential development which include vehicle traffic, house cats, lawn mowing, residential windows (resulting in glass strikes) and the presence of trash which attracts subsidized predators of songbirds.

3. Direct Mortality (post-construction): there is significant anecdotal and empirical evidence of bird mortality caused by solar array fields. The causes of such impact were summarized by Walston et. al. (2016), referring to the phenomenon as collision-related mortality. This is mortality resulting from the direct contact of the bird with a solar project structure(s). This type of mortality has been documented at solar projects of all technology types. This can occur for a variety of reason, including disorientation during flight from solar glare, misinterpretation of the solar panel surface as sky or water, or unintended impact with panels during feeding (e.g., by aerial insectivores).

   The authors surmised that the location of a solar energy project “relative to bird habitats, such as migration flyways, wetlands, and riparian vegetation could influence avian mortality risk”. surface disturbance and human activity. Projects with larger footprints may result in more

avian fatalities than projects with smaller footprints. In this case, the proposed Project is relatively small in scale (1.97 megawatts of production, covering 11.0 acres of land post-construction) in comparison to other solar array projects in the region. But the question of whether the Project's location relative to lands that support numerous rare species (i.e., Duck Marsh Preserve) could increase the likelihood or mortality, particularly to rare species of high conservation importance, is unknown. Unfortunately, the scientific community, and those at the regulatory level, currently lack the knowledge to evaluate this potential impact, as to date in Connecticut, we are unaware of any post-construction avian mortality monitoring of solar array fields that would inform our evaluation of risk at this Site. When the Connecticut Siting Council approved the construction of two commercial wind turbines in Colebrook in 2015, the concern over bird mortality led the Council to require post-construction bird-strike monitoring in order to evaluate the impact to birds. Similar monitoring in Connecticut for large-scale solar fields is desperately needed to better understand whether bird-strike mortality rates reach of level of concern, or how they can be mitigated.

7. CONSERVATION RECOMMENDATIONS

SITE-WIDE CONSERVATION MEASURES

The areas within the property that support the highest density of grassland birds include hayfield areas that are located outside of the Project limits. To adequately protect nesting grassland birds, a site-wide comprehensive protection plan would be needed. Altering the future agricultural practices beyond the Project limits would be necessary in order to properly manage the Site for grassland birds. The following are ways to help conserve grassland birds excerpted from Massachusetts Audubon Society's publication *Best Management Practices for Grassland Bird* (Atwood et al. 2017):

1. **Mow outside of the breeding season**. Avoid haying during the breeding season between May 15 and August 15. ***This is the most important management practice.*** When possible, do not mow in the early spring. Mowing just prior to breeding season leaves very little cover in fields, making them much less attractive for nesting. If mowing is required to generate an early crop or to control woody vegetation or forbs, ensure that all operations are completed by May 15. Early season mowing should occur no more frequently than every other year.

2. **Discourage the growth of forbs and woody vegetation.** Mow fields before September 15 each year to prevent the proliferation of forbs. Later mowing allows goldenrods, asters,

and a wide variety of other wildflowers to mature and set seed, leading to a decline in grass cover and ultimately a decline in habitat quality. Collect cut material at least every three years.

3. **Avoid disturbances.** Grassland birds will be stressed by disturbance. Eliminating foot traffic, farm equipment travel, dog walking, and other disturbing activities through the grassland is important.

4. **Maximize field size.** Atwood et al. (2017) describe the minimum optimal field size for breeding bobolinks is 10+ acres (4± hectares) Many grassland bird species will nest only in large fields. Visual openness is an important aspect of how such birds assess habitat size. Enlarge fields by reclaiming field edges. Mow encroaching woody growth during the off-season, taking care to control invasive species. Remove hedgerows and tree lines between fields to increase the functional size of available grassland habitat. Although row crops when grown next to a grassland contribute to the overall openness of a landscape, they do not provide habitat for grassland birds.

PROJECT AREA CONSTRUCTION PERIOD PROTECTION MEASURES

Because the overall Site is a working dairy farm, and the presence of two State-listed grassland birds within the hayfield is simply incidental (from the farmers perspective) to this land use, it is unrealistic to believe that the site-wide conservation measures will be implemented beyond the Project limits, which is the only area under control by the Project proponent. Therefore, the following *Rare Grassland Birds Protective Measures During Construction* should be followed to prevent incidental take of bobolink (*Dolichonyx oryzivorus*) and savannah sparrow (*Passerculus sandwichensis*) during construction.

Davison Environmental will serve as the Environmental Monitor for this project to ensure that protection measures during construction work are implemented properly. Davison Environmental will provide an education session for the Contractor prior to the start of construction activities on rare grassland bird species that may be encountered due to the project's location within and adjacent to potentially sensitive habitat. The Contractor shall contact Eric Davison, at least 5 business days prior to the start of any construction activities. Mr. Davison can be reached by phone at (860) 803-0938 or via email at eric@davisonenvironmental.com.

It is of the utmost importance that the Contractor comply with the requirement for implementation of these protective measures and the education of its employees and subcontractors performing construction and maintenance work at the Project site.

1. To avoid impact to these rare grassland bird species, it is recommended that construction be performed outside of the sensitive breeding season (April 1 through August 30). However, if this is not possible,
2. If construction activities are planned during the active peak breeding season for rare grassland bird species (May 20 to August 20), grassland birds should be deterred from nesting within the Project limits by implementing the following measures:
    a. the Project area should be mowed continuously twice per week starting on May 1st and continuing until construction begins.
    b. Vegetation should not be allowed to exceed three inches in height during this period.
    c. The twice per week mowing schedule should be maintained regardless of vegetation height (i.e., even if vegetation height remains below three inches), to serve as an additional deterrent to nest establishment.
    d. Field surveys by the lead biologists (Eric Davison and Hunter Brawley) should occur during this mowing period and through the month of May until construction begins, to ensure that the measures are effectively deterring nest establishment. If these measures prove unsuccessful, remedial measures will be recommended.

For maintenance of the Facility once construction has been completed, mowing activities should be restricted as outlined below in *Site Management Protection Measures (Mowing)*.

SITE MANAGEMENT PROTECTION MEASURES (MOWING)

a. The following measures are intended for implementation within the fenced solar-powered generation facility. The likelihood of nesting occurring within the fenced compound, and amongst the arrays themselves, is low. However, these birds may breed in the contiguous grassland habitat adjacent to the facility and therefore would be subject to secondary impacts such as noise or visual disturbance that may affect nesting. Additionally, there is the potential for adults and fledglings to feed within the fenced compound.

b. Breeding Period: Provided below are the typical breeding periods in the State.

CT Bird Atlas Safe Dates	
Common Name	Approximate breeding period*
Bobolink	6-1 to 8-1
Savannah Sparrow	5-10 to 8-1
*dates based on "safe dates" provided in the CT Bird Atlas. Due to seasonal variations based on weather and biogeographical region, a two-week buffer period should be considered at both the start and end of the breeding season to be conservative	

c. Breeding begins in early May, eggs incubate in June and July, and fledglings develop from July through August. Any mowing conducted during those periods has the potential to impact nests or developing nestlings or disturb nesting birds adjacent to the facility.

d. Timing of Mowing/Vegetation Maintenance: If possible, mowing should be avoided from May 15th through August 15th to minimize impacts to nesting birds. For the benefit of birds as well as terrestrial wildlife, mowing conducted once per season is optimal, after October 15th when most species have entered fall/winter dormancy.

e. Mowing Type/Method:

    1. Mower Speed: Mowing at slow speeds will allow animals to react and move out of the field.

    2. Mowing style: Avoid flail mower heads with guide bars that ride along the ground. Sickle bar mowers will have the least impact if mowing every 1-5 years.

    3. Mowing height: If mowing during the breeding season, retention of mowing stubble at a minimum height of 7 inches will reduce mortality and will leave important cover for wildlife.

    4. Directionality: If mowing during the breeding season is necessary, start mowing closest to the arrays and move outward toward the edge of the array field.

f. Pre-Mowing Nest Surveys: If mowing outside of the nesting season is not possible, a pre-mowing inspection by an ornithologist is recommended to confirm that no nests are present within the mowing limits. That survey should

occur no more than one week prior to the start of mowing. Any activity by target species should be field flagged and/or conveyed to the contractor. If a nest site is observed within the mowing limits, no mowing should occur within 100 feet of the nest site until it is inactive and the fledglings are fully mobile.

8. REFERENCES

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APPENDIX A: MAPPING

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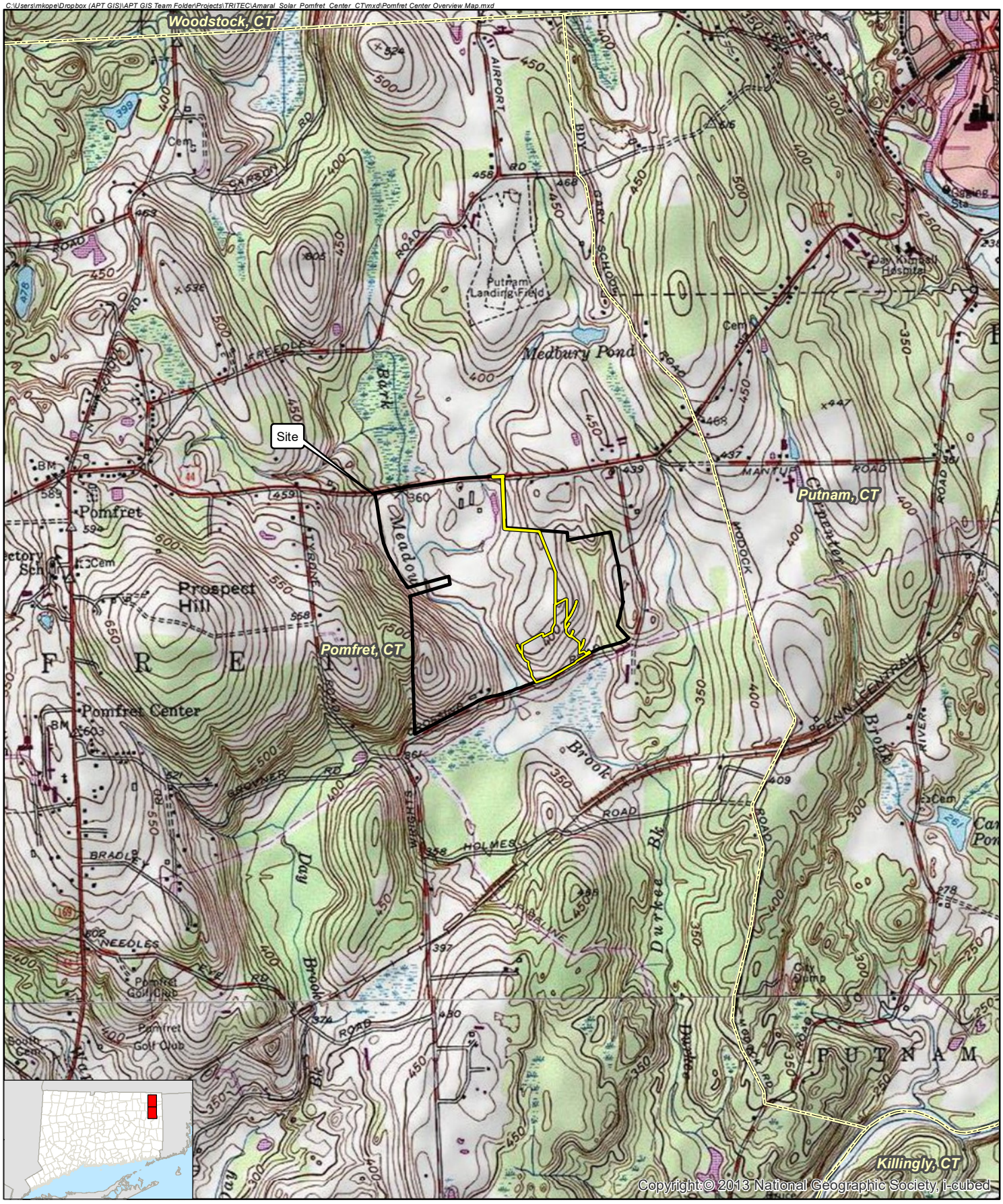


Overview Map

Proposed Solar Energy Facility
254 Putnam Road
Pomfret Center, Connecticut

Legend

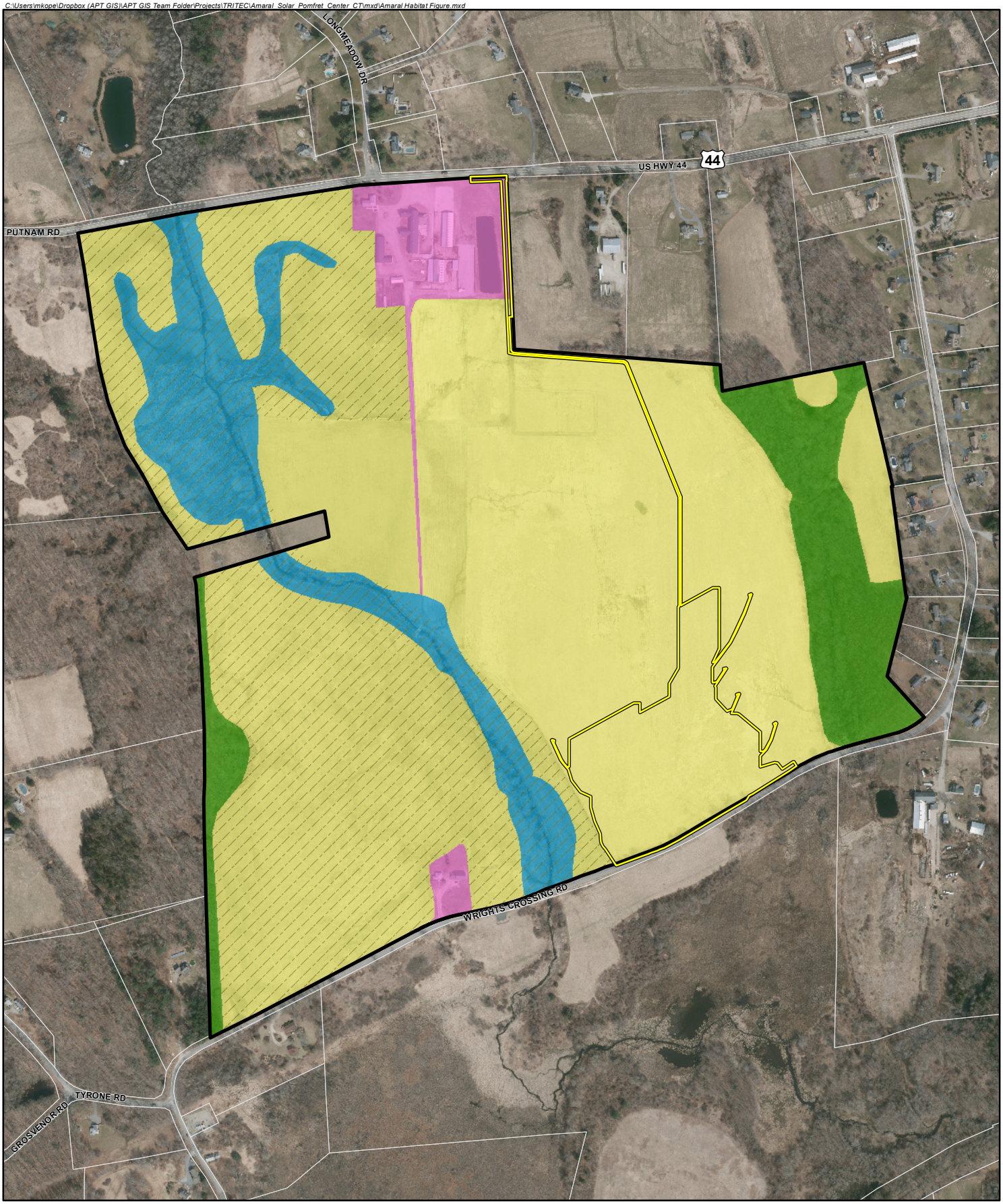
- Project Area
- Site
- Municipal Boundary

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Danielson, CT (1970) and Putnam, CT (1970)
Map Scale: 1:24,000
Map Date: October 2021

1,000 500 0 1,000 Feet

TRITEC AMERICAS

ALL-POINTS TECHNOLOGY CORPORATION



Legend

- Site
- Project Area
- Approximate Parcel Boundary

Habitat Cover Type

- Emergent/Scrub-Shrub Wetland
- Wetland Forest
- Hayfield
- Pasture
- Developed

N

600 300 0 600 Feet

Existing Site Habitat Map

Amaral Solar Facility
254 Putnam Road
Pomfret Center, Connecticut

TRITEC AMERICAS

ALL-POINTS TECHNOLOGY CORPORATION

Map Notes:
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Scale: 1 inch = 600 feet
Map Date: August 2021

APPENDIX B: SITE PHOTOGRAPHS

Photo 1: Vista from the highest point on the property, looking north. Farmyard, main developed area, seen in the back right.

Photo 2: Vista from the highest point on the property, looking east across pastures and hayfields.

Photo 3: Northernmost portion of hayfield, recently mown. Photo taken from west side of Bark Meadow Brook, looking southeast.

Photo 4: Proposed Project Area. Photo taken from eastern edge looking west. Area a hayfield.

Photo 5: Proposed Project Area. Photo taken from western edge looking east. Note hayfield edge with higher species diversity, including goldenrods, queen anne's lace, and invasive reed canary grass.

Photo 6: Wetlands in pasture.

Photo 7: Wetland seepage in pasture near Bark Meadow Brook.

Photo 8: Shrub-herbaceous corridor of Bark Meadow Brook. Photo taken looking east.

Photo 9: Shrub-herbaceous corridor of Bark Meadow Brook. Photo taken looking north.

Photo 10: Wooded wetland area on western edge of property.

Photo 11: Herbaceous wetland area at edge of western woods.

Photo 12: Western wooded wetland with barberry dominated understory and red maple canopy. Photo taken looking south.

APPENDIX C: SPECIES LIST, DUCK POND MARSH PRESERVE

eBird Field Checklist

Wyndham Land Trust--Duck Marsh Preserve

Windham, Connecticut, US

ebird.org/hotspot/L6812273

143 species (+12 other taxa) - Year-round, All years

Date:_____
Start time:_____
Duration:_____
Distance:_____
Party size:_____
Notes:

This checklist is generated with data from eBird (ebird.org), a global database of bird sightings from birders like you. If you enjoy this checklist, please consider contributing your sightings to eBird. It is 100% free to take part, and your observations will help support birders, researchers, and conservationists worldwide.

Go to ebird.org to learn more!

Waterfowl

___Snow Goose
___Canada Goose
___Cackling/Canada Goose
___Wood Duck
___Mallard
___American Black Duck
___Northern Pintail
___Green-winged Teal
___Hooded Merganser
___Common Merganser
___duck sp.

Grouse, Quail, and Allies

___Wild Turkey
___Ring-necked Pheasant

Pigeons and Doves

___Rock Pigeon
___Mourning Dove

Cuckoos

___Black-billed Cuckoo

Swifts

___Chimney Swift

Hummingbirds

___Ruby-throated Hummingbird

Rails, Gallinules, and Allies

___Virginia Rail
___Sora

Shorebirds

___Semipalmated Plover
___Killdeer
___Dunlin
___Least Sandpiper
___American Woodcock
___Wilson's Snipe
___Spotted Sandpiper
___Solitary Sandpiper
___Greater Yellowlegs
___Lesser Yellowlegs

Gulls, Terns, and Skimmers

___Ring-billed Gull
___Herring Gull
___gull sp.

Cormorants and Anhingas

___Double-crested Cormorant

Herons, Ibis, and Allies

___Great Blue Heron
___Green Heron
___Glossy Ibis

Vultures, Hawks, and Allies

___Black Vulture
___Turkey Vulture
___Osprey
___Northern Harrier
___Sharp-shinned Hawk
___Cooper's Hawk
___Bald Eagle
___Red-shouldered Hawk
___Broad-winged Hawk
___Red-tailed Hawk
___Rough-legged Hawk

Owls

___Great Horned Owl
___Barred Owl
___Long-eared Owl
___Short-eared Owl
___Long-eared/Short-eared Owl
___owl sp.

Kingfishers

___Belted Kingfisher

Woodpeckers

___Yellow-bellied Sapsucker
___Red-bellied Woodpecker
___Downy Woodpecker
___Hairy Woodpecker
___Pileated Woodpecker
___Northern Flicker
___woodpecker sp.

Falcons and Caracaras

___American Kestrel
___Peregrine Falcon

Tyrant Flycatchers: Pewees, Kingbirds, and Allies

___Eastern Wood-Pewee
___Alder Flycatcher
___Willow Flycatcher
___Least Flycatcher
___Empidonax sp.
___Eastern Phoebe
___Great Crested Flycatcher
___Eastern Kingbird

Vireos

___White-eyed Vireo
___Yellow-throated Vireo
___Warbling Vireo
___Red-eyed Vireo

Shrikes

___Northern Shrike

Jays, Magpies, Crows, and Ravens

___Blue Jay
___American Crow
___Common Raven

Tits, Chickadees, and Titmice

___Black-capped Chickadee
___Tufted Titmouse

Larks

___Horned Lark

Martins and Swallows

___Northern Rough-winged Swallow
___Tree Swallow
___Bank Swallow
___Barn Swallow
___swallow sp.

Kinglets

___Ruby-crowned Kinglet

Nuthatches

___White-breasted Nuthatch

Gnatcatchers

___Blue-gray Gnatcatcher

Wrens

___House Wren
___Winter Wren
___Sedge Wren
___Marsh Wren
___Carolina Wren

Starlings and Mynas

___European Starling

Catbirds, Mockingbirds, and Thrashers

___Gray Catbird
___Brown Thrasher
___Northern Mockingbird

Thrushes

___Eastern Bluebird
___Veery
___Hermit Thrush
___Wood Thrush
___American Robin

Waxwings

___Cedar Waxwing

Old World Sparrows

___House Sparrow

Wagtails and Pipits

___American Pipit

Finches, Euphonias, and Allies

___House Finch
___Purple Finch
___American Goldfinch

Longspurs and Snow Buntings

___Snow Bunting

New World Sparrows

___Grasshopper Sparrow

This field checklist was generated using eBird (ebird.org)

___Chipping Sparrow
___Field Sparrow
___American Tree Sparrow
___Dark-eyed Junco
___White-crowned Sparrow
___White-throated Sparrow
___Vesper Sparrow
___Savannah Sparrow
___Song Sparrow
___Lincoln's Sparrow
___Swamp Sparrow
___Eastern Towhee
___sparrow sp.

Blackbirds

___Bobolink
___Eastern Meadowlark
___Orchard Oriole
___Baltimore Oriole
___Red-winged Blackbird
___Brown-headed Cowbird
___Rusty Blackbird
___Common Grackle
___blackbird sp.

Wood-Warblers

___Ovenbird
___Louisiana Waterthrush
___Blue-winged Warbler
___Black-and-white Warbler
___Orange-crowned Warbler
___Common Yellowthroat
___American Redstart
___Yellow Warbler
___Chestnut-sided Warbler
___Blackpoll Warbler
___Palm Warbler
___Pine Warbler
___Yellow-rumped Warbler
___Prairie Warbler
___warbler sp. (Parulidae sp.)

Cardinals, Grosbeaks, and Allies

___Scarlet Tanager
___Northern Cardinal
___Rose-breasted Grosbeak
___Indigo Bunting

Others

___passerine sp.

This field checklist was generated using eBird (ebird.org)

APPENDIX E

STATE-LISTED HERPETOLOGICAL HABITAT ASSESSMENT

Report of Findings

Herpetological Habitat Assessment
Installation of the Amaral Solar PV Solar Facility

254 Putnam Road
Pomfret Center, Connecticut

NDDB Preliminary Assessment No.: 202103657

Prepared By:

Dennis P. Quinn
Owner/Herpetologist
Quinn Ecological, LLC

October 18, 2021

Dennis Quinn of Quinn Ecological, LLC conducted a one-day habitat assessment at the subject property located at 254 Putnam Road in Pomfret Connecticut on August 4th, 2021. This assessment was focused on documenting habitats suitable to support populations of state listed amphibians and reptiles, including but not limited to, the eastern spadefoot (*Scaphiopus holbrookii*), wood turtle (*Glyptemys insculpta*) and spotted turtle (*Clemmys guttata*) as documented in NDDB Preliminary Assessment No.: 202103657. During this habitat assessment, no listed species of amphibian or reptile were encountered.

Results

Eastern Spadefoot (*Scaphiopus holbrookii*)

The Eastern Spadefoot, the only member of the spadefoot family (Scaphiopodidae) east of the Mississippi River, is among the rarest amphibians in the northeastern United States. It is listed as Endangered under Connecticut's Endangered Species Act and designated as Most Important in Connecticut's Wildlife Action Plan for Species of Greatest Conservation Need (CT DEEP 2015). New England populations are scattered and disjunct, and typically found in low elevation river valleys with sandy, well-drained soils. In eastern Connecticut spadefoot locations coincided with Hinckley Soils and elevations below 200 feet with two notable exceptions in the towns of Lisbon and Griswold where elevations are greater than 300 feet (Moran and Button 2011, Klemens 1993, D.

Quinn, observations, 2016). They prefer open sandy habitats with patches of mixed herbaceous/shrub cover and forested edges.

The footprint of the proposed solar facility falls within an 85-acre hayfield, with the post-construction array field covering 11-acres. The hayfield is cut 2-3 times per year. Current research conducted by Ryan *et al*. (*in prep)* and Jansen *et al*. (2001) suggests that eastern spadefoots avoid densely vegetated grassy habitats, such as hayfield areas, because the dense root systems prohibit burrow excavation. Spadefoots prefer to inhabit and burrow in open sandy areas that are sparsely vegetated with herbaceous grasses and low-growing clusters of shrubs and on forested habitat edges (Ryan *et al*. (*in prep)* and Jansen *et al*. 2001). Due to the absence of suitable upland habitat and breeding wetlands it is unlikely spadefoots occur on the subject property. No further surveys or mitigation are recommended for this species.

Wood Turtle (*Glyptemys insculpta*)

The wood turtle is widely distributed in Connecticut. It occurs at both higher and lower elevations in the State. The core distribution of the wood turtle falls within the eastern and western uplands, where sustainable populations are associated with high quality rivers and streams and their associated riparian and upland habitats (Klemens 1993 and Klemens et al, *in prep*).

Wood turtles have large home ranges centered around small rivers and larger-order streams and their riparian zones. Mosaics of habitats are utilized seasonally, including floodplain forests, agricultural lands and early successional habitats. Urbanization surrounding streams supporting wood turtle populations often lead to declines in population numbers and overall population viability, because they fragment habitats used seasonally which leads to increases in turtle mortality. The wood turtle is listed as Special Concern under Connecticut's Endangered Species Act and designated as Very Important in Connecticut's Wildlife Action Plan for Species of Greatest Conservation Need (CT DEEP 2015).

To help guide conservation and management decisions in Connecticut a focus on “management zones” as recommended by the Northeast Wood Turtle Working Group in Status and Conservation of the Wood Turtle in the Northeastern United States (Jones and Willey 2015) has been adopted. Management Zones include – (Zone 1)” Riverine (instream); (Zone 2):300 feet from the edges of the river primarily encompassing the floodplain habitat; and (Zone 3): 1,000 feet extending beyond the boundary of Zone 2 primarily encompassing upland habitats. To ensure survivorship of wood turtle populations reducing impacts, such as fragmentation and road mortality, and maintaining ecological connectivity in conservation zones is critical.

Although Bark Meadow Brook may support wood turtles, the brook itself does not contain prime in-stream habitat or upland habitat to support a large populations of wood turtles. The brook is relatively shallow, contains few undercut banks and root tangles for hibernating turtles and is surrounded by hayfields on both sides, not the preferred mosaic of open and closed canopy floodplain habitats. Although wood turtles do use hayfields adjacent to streams as habitat, these areas often are in conflict resulting in severe injury or death to turtles during harvesting activities

(Erb and Jones, 2011). Although the proposed solar field will avoid impacts to the stream (Zone 1) itself, there will be an impact of 100-ft within the Zone 2 – 300-foot conservation buffer. These impacts, however, will be similar to the current impacts wood turtles may be experiencing at this site as a result of harvesting hay. Impacts from the solar installation within the Zone 2 – 300-foot conservation buffer can be partially mitigated with mowing maintenance schedules and methodologies. No nesting habitat for wood turtles was observed in or around the proposed solar facility. Although no wood turtles were observed during the habitat assessment and habitats identified were marginal, species protection measures during construction activities are recommended for the wood turtle.

Spotted Turtle (*Clemmys guttata*)

The core distribution of the spotted turtle falls within lowland (below 500') areas of the state with concentrations in the central CT lowlands (including the traprock ridges), along the coast, and in eastern and southeastern CT. Individual turtles in sustainable populations seasonally move among a mosaic of wetland and upland habitats to fulfill ecological requirements. Due to a reliance on multiple habitat types and risk of mortality associated with movement among these habitats, populations are highly vulnerable to the impacts of development and fragmentation. Spotted turtles are listed as Special Concern under Connecticut's Endangered Species Act and designated as Very Important in Connecticut's Wildlife Action Plan for Species of Greatest Conservation Need (CT DEEP 2015).

Although some marginal habitat occurs for the spotted turtle in the northeastern portion of the subject property, no wetland, upland, or nesting habitats for this species occurs within the footprint of the proposed solar facility. No impacts to spotted turtles or their habitats are anticipated from the construction of the proposed solar facility. To air on the side of caution, species protection measures should be implemented for the spotted turtle during construction.

Construction Species Protection Measures

To reduce impacts to turtles during the construction phase of the proposed solar facility the following species protection measures are recommended.

1. Isolation Measures

a. Installation of exclusionary fencing (i.e., contractor grade silt fencing), should be installed as a barrier to migrating/dispersing herpetofauna.

b. The intent of the barrier is to isolate the majority of the work zone from foraging/migrating/dispersing herpetofauna. Oftentimes complete isolation of a work zone is not feasible due to accessibility needs. In these circumstances all openings in the isolation barrier, used during the workday for accessibility, should be closed with temporary silt fencing backed with hay bales at the completion of each day.

c. The fencing should consist of non-reinforced conventional erosion control woven fabric, installed approximately six inches below surface grade and staked at seven to ten-foot intervals using four-foot oak stakes or an approved equivalent. In areas where the silt fence cannot be buried, the fencing should be placed with the unburied flap facing away from the construction area and covered with six inches of crushed stone. The Contractor is responsible for daily inspections of the fencing for tears or breaches in the fabric and accumulation levels of sediment, particularly following storm events of 0.25 inch or greater. All compromised areas of silt fence must immediately be repaired. The Environmental monitor should follow-up with these daily inspections on a weekly basis. The extent of the barrier fencing should be as shown on the site plans. The Contractor should have available additional barrier fencing should field conditions warrant extending the fencing as directed by the environmental monitor.

d. No equipment, vehicles or construction materials should be stored outside of the exclusionary barrier fencing.

e. All silt fencing should be removed after the permanent site barrier is constructed.

2. Contractor Education

a. Prior to work on site, the Contractor shall attend an educational session at the preconstruction meeting with a qualified herpetologist. This orientation and educational session will consist of an introductory meeting providing photos of herpetofauna that may be encountered during construction activities, including wood and spotted turtles.

b. The education session will also focus on means to discriminate between the species of concern and other native species to avoid unnecessary "false alarms". Encounters with all species will be documented by the environmental monitor.

c. The Contractor will be provided with cell phone and email contacts for the herpetologist to immediately report any encounters with listed species, or other herpetofauna species. Educational poster materials will be provided and must be displayed on the job site to maintain worker awareness as the project progresses.

3. Reporting

a. Following completion of the construction project, a summary report to the CTDEEP documenting the monitoring and maintenance of the barrier fence and erosion control measures should be completed by the herpetologist.

b. Any observations of state listed species will be reported to CTDEEP by the qualified herpetologist with photo-documentation (if possible) and with specific information on the location and disposition of the animal.

Literature Cited

CT DEEP 2015. Connecticut Species of Greatest Conservation Need: Wildlife Action Plan. State of Connecticut Department of Environmental Protection, Bureau of Natural Resources.

Erb, L. and M.T. Jones. 2011. Can Turtle Mortality be Reduced in Managed Fields? *Northeastern Naturalist* 18(4):489-496.

Jansen, K. P., A. P. Summers, and P. R. Delis. 2001. Spadefoot toads (*Scaphiopus holbrookii holbrookii*) in an urban landscape: effects of nonnatural substrates on burrowing in adults and juveniles. *Journal of Herpetology* 35:141–145.

Jones, M.T. and L.L. Willey. 2015. *Status and Conservation of the Wood Turtle in the Northeastern United States.* Northeast Wood Turtle Working Group.

Klemens, M. W. 1993. Amphibians and reptiles of Connecticut and adjacent regions. State Geological and Natural History Survey of Connecticut, Bulletin No. 112. Connecticut Department of Environmental Protection, USA.

Klemens, M.W., H.J. Gruner, D.P. Quinn and E. R. Davison. *In prep. Conservation of Amphibians and Reptiles in Connecticut.* State Geological and Natural History Survey of Connecticut Bulletin.

Moran, M., and C. E. Button. (2011). A GIS model for identifying eastern spadefoot toad (*Scaphiopus holbrookii*) habitat in eastern Connecticut. *Applied Geography* 31 (2011) 980-989.

Ryan, K. J., D. P. Quinn, and A. J. K. Calhoun. (In Prep.) Movement Patterns and Terrestrial Habitat Selection of Eastern Spadefoots (*Scaphiopus holbrookii*) at the Northern Limit of Their Range.

Timm, B. C., K. McGarigal, and R. P. Cook. (2014). Upland movement patterns and habitat selection of adult Eastern Spadefoots (*Scaphiopus holbrookii*) at Cape Cod National Seashore. *Journal of Herpetology* 48:84–97.

APPENDIX F

USFWS COMPLIANCE STATEMENT

USFWS & NDDB COMPLIANCE STATUS

July 15, 2021

Mr. David Trepeck
TRITEC Americas, LLC
888 Prospect Street, Suite 200
La Jolla, California 92037

Re: Amaral Solar Facility, 254 Putnam Road, Pomfret Center, Connecticut
APT Job No: CT657100

On behalf of TRITEC Americas, LLC, All-Points Technology Corporation, P.C. ("APT") performed an evaluation with respect to possible federally- and state-listed, threatened, endangered or special concern species in order to determine if the proposed referenced solar energy generation facility ("Facility") would result in a potential adverse effect to listed species.

APT understands that TRITEC Americas, LLC proposes the construction of a solar energy generation facility on the southern portion of the ±215-acre Amaral farm property with access provided from Wrights Crossing Road and utility interconnection from Putnam Road (State Route 44) in Pomfret Center, Connecticut (the "Site").

USFWS

The federal consultation was completed in accordance with Section 7 of the Endangered Species Act through the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC"). Based on the results of the IPaC review, one federally-listed[1] threatened species is known to occur in the vicinity of the Site documented as the northern long-eared bat ("NLEB"; *Myotis septentrionalis*). As a result of this preliminary finding, APT performed an evaluation to determine if the proposed referenced Facility would result in a likely adverse effect to NLEB.

The proposed Facility would be located in an open agricultural hay field and would require limited tree clearing; trees potentially provide NLEB habitat. Consultation with the Connecticut Department of Energy & Environmental Protection ("CTDEEP") Wildlife Division Natural Diversity Data Base ("NDDB") NLEB habitat map[2] revealed that the proposed Facility is not within 150 feet of a known occupied NLEB maternity roost tree and is not within 0.25 mile of a known NLEB hibernaculum. The nearest NLEB habitat resource to the proposed Facility is located ±40.4 miles to the west in East Granby.

APT submitted the effects determination using the NLEB key within the IPaC system for the proposed Facility (the "Action"). This IPaC key assists users in determining whether a Federal action is consistent

[1] Listing under the federal Endangered Species Act

[2] *Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance* map. February 1, 2016.

with the activities analyzed in the USFWS's January 5, 2016, intra-Service Programmatic Biological Opinion ("PBO") on the Final 4(d) Rule for the NLEB for Section 7(a)(2) compliance.

Based upon the IPaC submission, the Action is consistent with activities analyzed in the PBO; please refer to the enclosed April 30, 2021 USFWS letter. The Action may affect NLEB; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). If the USFWS does not respond within 30 days from the date of the letter (May 30, 2021), one may presume that the IPaC-assisted determination was correct and that the PBO satisfies and concludes TRITEC Americas' responsibilities for this Action under ESA Section 7(a)(2) with respect to NLEB. No response was received from USFWS; therefore, the Action complies with ESA Section 7(a)(2) with respect to NLEB for this Facility.

In addition, TRITEC Americas, LLC would consider the following USFWS voluntary conservation measures, where appropriate and as the project schedule allows, to reduce the potential for impact to NLEB.

- Conduct tree removal activities outside of the NLEB pup season (June 1-July 31) and active season (April 1-October 31) to minimize impacts to pups at roosts not yet identified.
- Avoid clearing suitable spring staging and fall swarming habitat within a five-mile radius of known or assumed NLEB hibernacula during the staging and swarming seasons (April 1-May 15 and August 15-November 14, respectively). *Not applicable: site is located > 5 miles from the nearest hibernacula.*
- Maintain dead trees (snags) and large trees when possible.
- Use herbicides and pesticides only if unavoidable. If necessary, spot treatment is preferred over aerial application.
- Minimize exterior lighting, opting for down-shielded, motion-sensor security lights instead of constant illumination.

NDDB

APT reviewed the most recent DEEP NDDB mapping (June 2021), which revealed that a NDDB polygon encompasses the entire Site; please refer to the attached NDDB map. Because state-listed species or communities are documented on the Site, consultation with NDDB is required and a preliminary assessment review request was submitted on March 9, 2021. A NDDB preliminary assessment letter was received on June 22, 2021 (NDDB Preliminary Assessment No. 202103657; please see attached), which identified several State-listed species either on or proximate to the Site.

TRITEC Americas, LLC is currently in the process of scheduling required surveys and will be consulting with NDDB on the results of such surveys. Recommendations for possible protection/conservation measures associated with these species, as necessary, will be included with this consultation to address potential impacts associated with the Project. The findings of these surveys and NDDB consultation will be provided to the Council under separate cover upon completion of the surveys and consultation.

Therefore, the proposed TRITEC Americas, LLC Facility is not anticipated to adversely impact any federal threatened or endangered species. Consultation with NDDB with respect to the Facility's potential impact to State-listed threatened, endangered, or species of special concern and what protection/conservation measures will be necessary to avoid impacts to State-listed species is currently ongoing.

Sincerely,
All-Points Technology Corporation, P.C.

Dean Gustafson
Senior Biologist

Enclosures

USFWS NLEB Letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

IPaC Record Locator: 772-101697291 April 30, 2021

Subject: Consistency letter for the 'TRITEC Amaral' project indicating that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Dear Deborah Gustafson:

The U.S. Fish and Wildlife Service (Service) received on April 30, 2021 your effects determination for the 'TRITEC Amaral' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. You indicated that no Federal agencies are involved in funding or authorizing this Action. This IPaC key assists users in determining whether a non-Federal action may cause "take"[1] of the northern long-eared bat that is prohibited under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Please report to our office any changes to the information about the Action that you entered into IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation.

If your Action proceeds as described and no additional information about the Action's effects on species protected under the ESA becomes available, no further coordination with the Service is required with respect to the northern long-eared bat.

---

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

TRITEC Amaral

2. Description

The following description was provided for the project 'TRITEC Amaral':

> TRITEC Americas, LLC intends to lease a portion of the +/-215.32-acre property located at 254 Putnam Road, Pomfret Center, Connecticut for development of a +/- 1.9 (AC) megawatt solar photovoltaic electric generating facility.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.8917642,-71.93684431841533,14z

Determination Key Result

This non-Federal Action may affect the northern long-eared bat; however, any take of this species that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o).

Determination Key Description: Northern Long-eared Bat 4(d) Rule
This key was last updated in IPaC on **May 15, 2017**. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for non-Federal actions is to assist determinations as to whether proposed actions are excepted from take prohibitions under the northern long-eared bat 4(d) rule.

If a non-Federal action may cause prohibited take of northern long-eared bats or other ESA-listed animal species, we recommend that you coordinate with the Service.

Determination Key Result

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   No

2. Will your activity purposefully **Take** northern long-eared bats?

   No

3. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered
   No

4. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

   Yes

5. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

6. Will the action involve Tree Removal?

   Yes

7. Will the action only remove hazardous trees for the protection of human life or property?

   No

8. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

   No

9. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

   No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

0.2

2. If known, estimated acres of forest conversion from April 1 to October 31

0.2

3. If known, estimated acres of forest conversion from June 1 to July 31

0.2

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

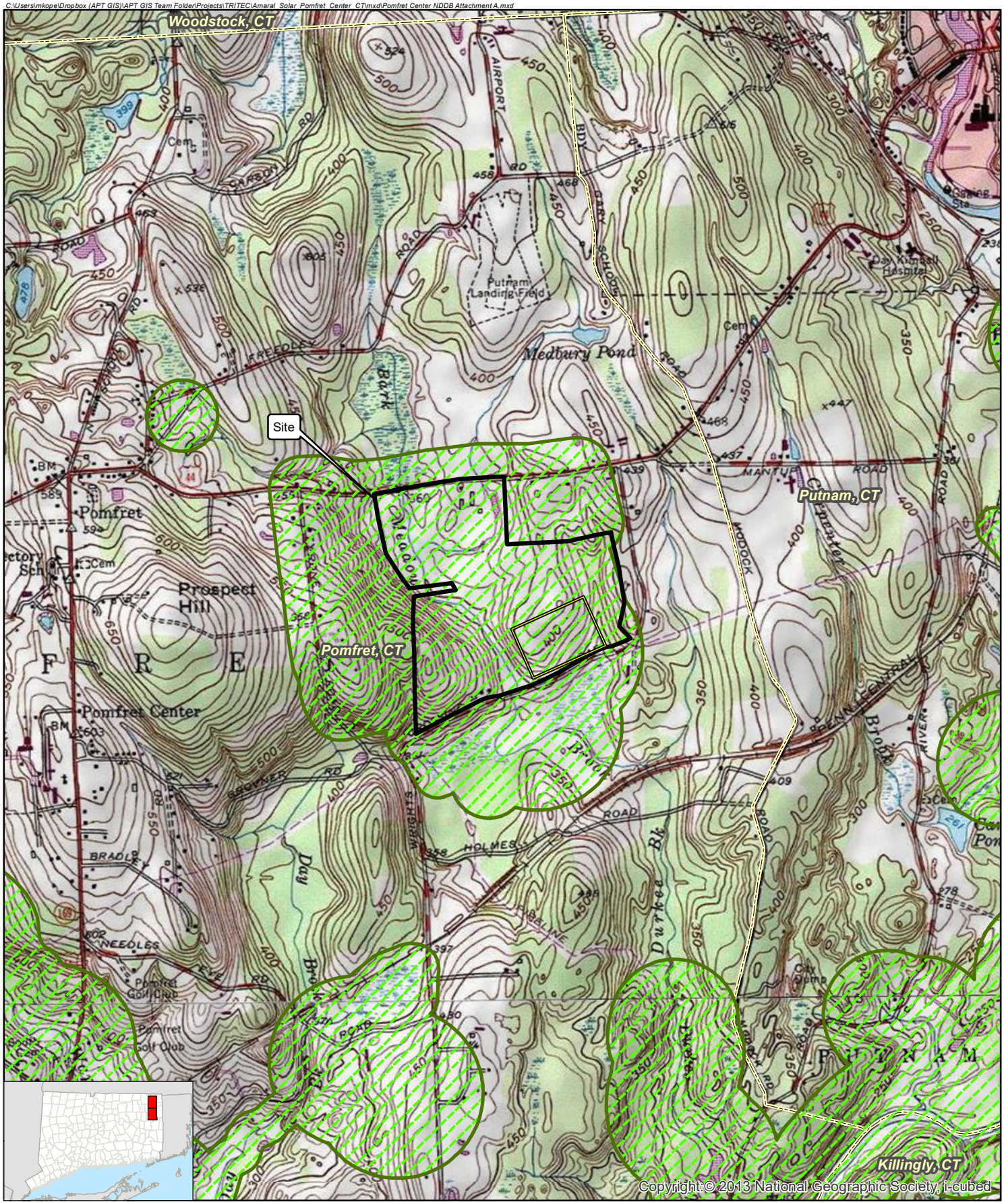
If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

NDDB Map

C:\Users\mkope\Dropbox (APT GIS)\APT GIS Team Folder\Projects\TRITEC\Amaral_Solar_Pomfret_Center_CT\mxd\Pomfret Center NDDB Attachment A.mxd



Legend

- Site
- Approximate Project Area
- Natural Diversity Database (updated June 2021)
- Municipal Boundary

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Danielson, CT (1970) and Putnam, CT (1970)
Map Scale: 1:24,000
Map Date: February 2021

1,000 500 0 1,000 Feet

Attachment A: Overview Map

Proposed Solar Energy Facility
254 Putnam Road
Pomfret Center, Connecticut

ALL-POINTS TECHNOLOGY CORPORATION

NDDB Preliminary Assessment Letter

Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

June 22, 2021

Mr. Dean Gustafson
All-Points Technology Corporation, P.C.
567 Vauxhall Street Extension, Suite 311
Waterford, CT 06385
dgustafson@allpointstech.com

Project: Preliminary Assessment for Installation of Amaral Solar PV Solar Facility Located on 215 Acres at 254 Putnam Road in Pomfret, Connecticut
NDDB Preliminary Assessment No.: 202103657

Dear Dean Gustafson,

I have reviewed Natural Diversity Database maps and files regarding the area delineated on the map provided for Installation of Amaral Solar PV Solar Facility Located on 215 Acres at 254 Putnam Road in Pomfret, Connecticut. According to our records there are known extant populations of State Listed Species that occur within or close to the boundaries of this property. I have attached a list of species known from this area.

Please be advised that this is a preliminary review and not a final determination. A more detailed review will be necessary to move forward with any environmental permit applications submitted to DEEP for the proposed project. **This preliminary assessment letter cannot be used or submitted with registrations permit applications at DEEP**. This letter is valid for one year.

To prevent impacts to State-listed species, field surveys of the site should be performed by a qualified biologist with the appropriate scientific collecting permits at a time when these target species are identifiable. A report summarizing the results of such surveys should include:

1. Survey date(s) and duration.
2. Site descriptions and photographs.
3. List of component vascular plant and animal species within the survey area (including scientific binomials).
4. Data regarding population numbers and/or area occupied by State-listed species. Include special plant and/or animal forms found at: https://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&deepNav_GID=1628
5. Detailed maps of the area surveyed including the survey route and locations of State listed species.
6. Conservation strategies or protection plans that indicate how impacts may be avoided for all state listed species present on the site.
7. Statement/résumé indicating the biologist's qualifications. Please be sure when you hire a consulting qualified biologist to help conduct this site survey that they have the

proper experience with target taxon and have a CT scientific collectors permit to work with state listed species for this specific project.

The site surveys report should be sent to our CT DEEP-NDDB Program (deep.nddbrequest@ct.gov) for further review by our program biologists **along with an updated request** for another NDDB review. Incomplete reports may not be accepted.

If you do not intend to do site surveys to determine the presence or absence of state-listed species, then you should presume species are present and let us know how you will protect the state-listed species from being impacted by this project. You may submit these best management practices or protection plans with your new request for an NDDB review. Please be sure these protection plans are developed by taxonomic experts (biologists) familiar with Connecticut plants, birds, invertebrates, reptiles and amphibians. After reviewing your new NDDB request form and the documents describing how you will protect these species from project impacts we will make a final determination and provide you with a letter from our program to use with DEEP-Permits.

Natural Diversity Database information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey, cooperating units of DEEP, landowners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substitutes for onsite surveys necessary for a thorough environmental impact assessment. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3592, or deep.nddbrequest@ct.gov Thank you for consulting the Natural Diversity Data Base.

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

Species List for NDDB Request

Scientific Name	Common Name	State Status
Animal Assemblage		
Owl Roost		
Invertebrate Animal		
Acronicta falcula	Corylus dagger moth	SC
Hemaris gracilis	Slender clearwing	T
Hemileuca maia maia	Barrens buck moth	E
Metarranthis apiciaria	Barrens metarranthis moth	SC
Vertebrate Animal		
Asio flammeus	Short-eared owl	T
Asio otus	Long-eared owl	E
Botaurus lentiginosus	American bittern	E
Cistothorus platensis	Sedge wren	E
Clemmys guttata	Spotted turtle	SC
Dolichonyx oryzivorus	Bobolink	SC
Falco sparverius	American kestrel	SC
Glyptemys insculpta	Wood turtle	SC
Lasionycteris noctivagans	Silver-haired bat	SC
Lasiurus borealis	Red bat	SC
Passerculus sandwichensis	Savannah sparrow	SC
Podilymbus podiceps	Pied-billed grebe	E
Progne subis	Purple martin	SC
Scaphiopus holbrokii	Eastern spadefoot	E

E = Endangered, T = Threatened, SC = Special Concern, * Extirpated

APPENDIX G

CULTURAL RESOURCES

RECONNAISSANCE SURVEYS

MAY 2021

PHASE IA CULTURAL RECONNAISSANCE SURVEY OF A PROPOSED SOLAR CENTER ALONG WRIGHTS CROSSING ROAD IN POMFRET, CONNECTICUT

PREPARED FOR:

ALL-POINTS TECHNOLOGY CORPORATION

567 VAUXHALL STREET EXTENSION, SUITE 311
WATERFORD, CT 06385

PREPARED BY:

HERITAGE CONSULTANTS

55 EAST CEDAR STREET
NEWINGTON, CONNECTICUT 06111

ABSTRACT

This report presents the results of a Phase IA cultural resources assessment survey for the proposed Amaral Solar Project in Pomfret, Connecticut. The proposed facility encompasses approximately 13.9 acres of land that will be accessed from the southwest from Wrights Crossing Road. The current investigation consisted of: 1) preparation of an overview of the region's prehistory, history, and natural setting; 2) a literature search to identify and discuss previously recorded cultural resources in the region; 3) a review of readily available historical maps and aerial imagery depicting the project area to identify potential historical resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the project area to determine its archaeological sensitivity. The results of the Phase IA survey indicate that the 13.9 acre project area is characterized by moderate/high archaeologically sensitive areas.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF PHOTOS

CHAPTER I
INTRODUCTION

This report presents the results of a Phase IA cultural resources assessment survey of the proposed Amaral Solar Project in Pomfret, Connecticut (Figure 1). All-Points Technology Corporation (All-Points) requested that Heritage Consultants, LLC (Heritage) complete the assessment survey as part of the planning process for the proposed solar facility, which will encompass approximately 13.9 acres of land within a larger agricultural hayfield parcel. The facility will include a solar area, two proposed storm basins, and two stormwater drainage swales. It will be accessed from Wrights Crossing Road in the southern portion of the project parcel. The project area is bordered to the south by Wrights Crossing Road, to the north and east by additional hayfield acreage, and to the west by a steep slope down to Bark Meadow Brook. Heritage completed this investigation on behalf of All-Points in May of 2021. All work associated with this project was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office (CT-SHPO).

Project Description and Methods Overview

The proposed project parcel, which is a large open field, is situated at elevations ranging from approximately 105 to 120 m (344 to 394 ft) NGVD. This Phase IA cultural resources assessment survey consisted of the completion of the following tasks: 1) a contextual overview of the region's prehistory, history, and natural setting (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously completed cultural resources surveys and previously recorded cultural resources in the region encompassing the project parcel; 3) a review of readily available historical maps and aerial imagery depicting the project parcel in order to identify potential historical resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the project parcel in order to determine its archaeological sensitivity.

Project Results and Management Recommendations Overview

The review of historical maps and aerial images depicting the project parcel, files maintained by the CT-SHPO, as well as pedestrian survey of the development area, resulted in the identification of nine previously recorded archaeological sites and a single State Register of Historic Places listed property within 1.6 km (1 mi) mile of the project area. They are discussed in detail in Chapter V. No National Register of Historic Places properties were identified within 1.6 km (1 mi) mile of the project parcel. In addition to the cultural resources discussed above, Heritage combined data from historical map and aerial image analyses, as well as pedestrian survey, to stratify the project parcel into zones of no/low and/or moderate/high archaeological sensitivity. The pedestrian survey determined that the 13.9 acre project parcel is characterized by moderate/high archaeologically sensitive areas.

Project Personnel

Key personnel for this project included Mr. David R. George, M.A., R.P.A, (Principal Investigator), Mr. Antonio Medina, B.A., (Field Operations Supervisor), Ms. Renée Petruzelli M.A., R.P.A., (Project Archaeologist), Mr. Cory Atkinson, M.A., R.P.A., (Field Supervisor), Mr. Stephen Anderson, B.A., (GIS Specialist) and Dr. Kristen Keegan (Historian).

CHAPTER II
NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the project solar facility in Pomfret, Connecticut. Previous archaeological research has documented that specific environmental factors can be associated with both prehistoric and historical 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 project area. The remainder of this chapter provides a brief overview of the ecology, hydrological resources, and soils present within the project area and the larger region in general.

Ecoregions of Connecticut

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

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

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

<u>Northeast Hills Ecoregion</u>

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 uplands 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 in the Vicinity of the Project Area

The project parcel is situated within a region that contains several sources of freshwater, including Day Brook, Carpenter Brook, Bark Meadow Brook, Durkee Brook, the Quinebaug River, as well as unnamed streams, ponds, and wetlands. These freshwater sources may have served as resource extraction areas for Native American and historical populations. 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 Project Area

Soil formation is the direct result of the interaction of many variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to various diagenic and taphonomic 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. In contrast, acidic soils enhance the preservation of charred plant remains.

A review of the soils within the project area is presented below. The study area is characterized by the presence of two major soil types: the Woodbridge series (45A, 45B, and 45C) and Paxton and Montauk series (85C) (Figure 2). A review of the Woodbridge and Paxton and Montauk soils show that they are deep to very deep well drained sandy loams and are the types of soils that are typically correlated with prehistoric and historical use and occupation. Descriptive profiles for each soil type are presented below; they were gathered from the National Resources Conservation Service.

<u>Woodbridge Series:</u>

The Woodbridge series consists of moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils on hills, drumlins, till plains, and ground moraines. Slope ranges from 0 to 25 percent. A typical profile associated with Woodbridge soils is as follows: **Ap**--0 to 18 cm; very dark grayish brown (10YR 3/2) fine sandy loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine and medium roots; few very dark brown (10YR 2/2) earthworm casts; 5 percent gravel; moderately acid; abrupt wavy boundary; **Bw1**--18 to 46 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; few very dark brown (10YR 2/2) earthworm casts; 10 percent gravel; moderately acid; gradual wavy boundary; **Bw2**--46 to 66 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; few very dark brown (10YR 2/2) earthworm casts; 10 percent gravel; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) areas of iron depletion; moderately acid; gradual wavy boundary; **Bw3**--66 to 76 cm; light olive brown (2.5Y 5/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 10 percent gravel; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) areas of iron depletion; moderately acid; clear wavy boundary; **Cd1**--76 to 109 cm; light olive brown (2.5Y 5/4) gravelly fine sandy loam; weak thick plates of geogenic origin; very firm, brittle; 20 percent gravel; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation and light brownish gray (10YR 6/2) areas of iron depletion; moderately acid; gradual wavy boundary; and **Cd2**--109 to 165 cm; light olive brown (2.5Y 5/4) gravelly fine sandy

loam; weak thick plates of geogenic origin; very firm, brittle; few fine prominent very dark brown (10YR 2/2) coatings on plates; 25 percent gravel; fine prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid (https://soilseries.sc.egov.usda.gov/OSD_Docs/W/WOODBRIDGE.html).

Paxton and Montauk Series:

The Paxton series consists of well drained loamy soils formed in lodgment till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level to steep soils on hills, drumlins, till plains, and ground moraines. Slope ranges from 0 to 45 percent. A typical profile associated with Paxton soils is as follows: **Ap** -- 0 to 20 cm; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; 5 percent gravel; strongly acid; abrupt smooth boundary; **Bw1** -- 20 to 38 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; 5 percent gravel; few earthworm casts; strongly acid; gradual wavy boundary; **Bw2** -- 38 to 66 cm; olive brown (2.5Y 4/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 10 percent gravel; strongly acid; clear wavy boundary; and **Cd** -- 66 to 165 cm; olive (5Y 5/3) gravelly fine sandy loam; medium plate-like divisions; massive; very firm, brittle; 25 percent gravel; many dark coatings on plates; strongly acid.

The Montauk series consists of well drained soils formed in lodgment or flow till derived primarily from granitic materials with lesser amounts of gneiss and schist. The soils are very deep to bedrock and moderately deep to a densic contact. These soils are on upland hills and moraines. Slope ranges from 0 to 35 percent. A typical profile associated with Montauk soils is as follows: **Ap**-- 0 to 10 cm; very dark gray (10YR 3/1) loam; moderate fine granular structure; very friable; many very fine, fine, medium, and coarse roots; 2 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid (pH 4.1); clear smooth boundary; **BA**-- 10 to 34 cm; brown (10YR 4/3) loam; moderate medium and coarse subangular blocky structure; friable; many fine, medium, and coarse roots; many fine and medium pores; 4 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid (pH 4.3); clear wavy boundary; **Bw1**-- 34 to 65 cm; dark yellowish brown (10YR 4/6) loam; moderate coarse subangular blocky structure; friable; many fine, medium, and coarse roots; many fine and medium pores; 6 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid (pH 4.3); clear wavy boundary; **Bw2**-- 65 to 87 cm; yellowish brown (10YR 5/6) sandy loam; moderate medium and coarse subangular blocky structure; friable; many very fine, fine, and coarse roots; many fine and medium pores; 5 percent gravel and 1 percent cobbles; extremely acid (pH 4.3); clear smooth boundary; **2Cd1**-- 87 to 101 cm; strong brown (7.5YR 5/6) gravelly loamy sand; moderate medium plates; firm; few fine roots; many fine pores; 10 percent gravel, 5 percent cobbles, and 1 percent stones; very strongly acid (pH 4.7); clear wavy boundary; and **2Cd2**-- 101 to 184 cm; dark yellowish brown (10YR 4/6) gravelly loamy sand; moderate medium plates; firm; many fine pores; 10 percent gravel, 5 percent cobbles, and 1 percent stones; strongly acid (pH 5.1) (https://soilseries.sc.egov.usda.gov/OSD_Docs/M/MONTAUK.html).

Summary

The natural setting of the area containing the proposed solar facility is common throughout the Northeast Hills ecoregion. The major river within this ecoregion is the Quinebaug River, with numerous smaller rivers and streams. Rolling hills dominate the region, and the soils range from very poorly drained to well drained sandy loams. In general, however, the project region was well suited to Native American occupation throughout the prehistoric era. This portion of Pomfret was also used throughout the historical era, as evidenced by the presence of numerous historical residences and agricultural fields throughout the region; thus, archaeological deposits dating from the prehistoric and historical era may be expected near or within the proposed project area.

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. 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 was 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 encompassing the current project area.

Paleo-Indian Period (12,000 to 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, Jones (1997:77) hypothesized that the Hidden Creek Site represented a short-term occupation, and 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 archaeologists 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, and 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.

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 at this time 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±280 and 7,015±160 B.P. (Dincauze 1976).

In addition to Neville points, Dincauze (1976) described two other projectile point styles that are attributed to the Middle Archaic Period: Stark and Merrimac projectile points. While no absolute dates were recovered from deposits that yielded Stark points, the Merrimac type dated from 5,910±180 B.P. Dincauze argued that both the Neville and later Merrimac and Stark occupations were established to take advantage of the excellent fishing that the falls situated adjacent to the site area would have afforded Native American groups. Thus, based on the available archaeological evidence, the Middle Archaic Period is characterized by continued increases in diversification of tool types and resources exploited, as well as by sophisticated changes in the settlement pattern to include different site types, including both base camps and task-specific sites (McBride 1984:96)

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

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

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

The second Late Archaic tradition, known as the Narrow-Stemmed Tradition, is unlike the Laurentian Tradition, and it likely represents a different cultural adaptation. The Narrow-Stemmed tradition is recognized by the presence of quartz and quartzite narrow stemmed projectile points, triangular quartz Squibnocket projectile points, and a bipolar lithic reduction strategy (McBride 1984). Other tools found in Narrow-Stemmed Tradition artifact assemblages include choppers, adzes, pestles, antler and bone projectile points, harpoons, awls, and notched atlatl weights. Many of these tools, notably the projectile points and pestles, indicate a subsistence pattern dominated by hunting and fishing, as well the collection of a wide range of plant foods (McBride 1984; Snow 1980:228; 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 archaeologists. While the Narrow-Stemmed Tradition persisted through the Terminal Archaic and into the Early Woodland Period, the Terminal Archaic is coeval with what appears to be a different technological adaptation, the Susquehanna Tradition (McBride 1984; Ritchie 1969b). The Susquehanna Tradition is recognized in southern New England by the presence of a new stone tool industry that was based on the use of high quality raw materials for stone tool production and a settlement pattern

different from the “coeval” Narrow-Stemmed Tradition.

The Susquehanna Tradition is based on the classification of several Broadspear projectile point types and associated artifacts. There are several local sequences within the tradition, and they are based on projectile point type chronology. Temporally diagnostic projectile points of these sequences include the Snook Kill, Susquehanna Broadspear, Mansion Inn, and Orient Fishtail types (Lavin 1984; McBride 1984; Pfeiffer 1984). The initial portion of the Terminal Archaic Period (ca., 3,700-3,200 BP) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points, while the latter Terminal Archaic (3,200-2,700 BP) is distinguished by the of 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 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 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 (Pagoulatos 1988:81). Such diversity in food remains suggests at least minimal use of a wide range of microenvironments for subsistence purposes.

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

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

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

The Early Woodland Period of the northeastern United States dates from ca. 2,700 to 2,000 B.P. and it has thought to have been characterized by the advent of farming, the initial use of ceramic vessels, and increasingly complex burial ceremonialism (Griffin 1967; Ritchie 1969a and 1969b; Snow 1980). In the Northeast, the earliest ceramics of the Early Woodland Period are thick walled, cord marked on both the interior and exterior, and possess grit temper.

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

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

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

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

As discussed in Chapter 1, the project area measures 13.9 acres in size and is situated in the town of Pomfret, which is located in Windham County. This parcel is located in the northeastern section of Pomfret, on the north side of Wrights Crossing Road. This chapter provides an overview history of Pomfret and additional details associated with the project area.

Native American History

At the time of contact, the northeastern corner of Connecticut was inhabited by the Wabbaquassett community of Native Americans, which was part of a loosely aligned group of communities that is often referred to as the Nipmucks. Nipmuck communities occupied a wide area, mainly in Massachusetts but in parts of northeastern Connecticut; they consisted of small villages typical of the shifting cultivation lifestyle of the Native Americans of this time period. Prior to the 1650s, the Native American residents of this upland region were largely undisturbed by colonial incursions. During the 1660s and early 1670s, various sales of land were made to English colonists. By 1675, however, it appears that the Native Americans of the region understood that the land sales were permanent and that the Massachusetts Bay government intended to dispossess them of the territory entirely. As a result, many of the Nipmuck groups' members joined in King Philip's War against the English (Connole 2001). After King Philip's War, the General Court of Massachusetts Bay appointed a committee to investigate English land claims in the Nipmuck Country. They bought up any claims to ownership by Native Americans and fully opened the territory to colonization (Bowen 1886).

In addition to this sequence of events, Connecticut historical traditions claim that the Wabbaquassetts, as well as other neighboring groups, were "entirely under the domination of the Mohegans," who sold away all their lands to the English (DeForest 1852:376; Bowen 1886). The two traditions about the Wabbaquassets' actions in King Philip's War (1675-1676) are that some of them "deserted their homes and threw themselves at the feet of Uncas at Mohegan" to help fight King Philip, while others joined his King Philip (Bowen 1926:14-15). Within the boundaries of Connecticut, a large part of northeastern Connecticut area was also claimed by the Mohegan tribe of Native Americans, as territory conquered from the Pequot tribe in the 1636-1637 war against them. The wartime Mohegan Sachem Uncas willed the eastern half of this land to his son Owaneco (and the western half to his son Joshua). Owaneco sold a large part of this legacy to Captain James Fitch in 1684, in a deed that described it as part of the Nipmuck and Wabbaquasset country; moreover, this deed was accompanied by a quit-claim deed from several members of those communities (Connole 2001).

These land transactions by politically powerful strangers did not immediately convince the actual inhabitants to move away. Many of the Wabbaquassets returned to their traditional territory and, during the 1690s, became a source of serious security concern to the colonists. In the early decades of the eighteenth century, Native Americans continued to reside in and make use of this territory, and only gradually moved away, were displaced, or ceased to live in distinct communities (Larned 1874). Because of the history of war, conquest, and land title shenanigans, exactly where Native Americans lived in Pomfret and Killingly during the colonial period, and what their communities were called, is difficult or impossible to determine.

History of the Town of Pomfret

Throughout its history, Pomfret has remained a relatively small town in terms of population. While other towns in Windham County developed substantial industrial villages during the nineteenth century, Pomfret remained rural into the modern era. As is discussed below, as of the early twenty-first century, farming was no longer the mainstay of its economy, and in contrast to previous eras, the town had a certain amount of modern industrial employment.

Colonial Era

Pomfret avoided the significant title controversies caused by James Fitch's many land transactions in northeastern Connecticut simply because the General Assembly, absent any other claims they were willing to acknowledge, confirmed the relevant sale by him (Bushman 1967). This took place in 1686, and the buyers were a group of 12 men from Roxbury, Massachusetts. Initially known as Maschamoquet or Massamugget, the town was named and incorporated by the colonial legislature in 1713 (Crofut 1937). The deed specified that the area included 15,100 acres (6,111 ha) of "wilderness." The owners applied for, and received, a township patent from the Connecticut General Assembly, also in 1686. The proprietors' initial efforts to subdivide the land, in 1687, were frustrated by the British Crown's imposition on the colonies of a governmental reorganization, specifically its appointment of Governor Andros and the creation of the Dominion of New England. Although this period of political conflict was short, the proprietors did not meet again until 1693, at which time they granted each of them 540 acres (218.5 ha). They had previously given James Fitch 1,080 acres (437 ha) on the tract's east side, and left a large amount to be divided later. The first settler, Captain John Sabin, arrived there earlier, however; he bought 100 acres (40.5 ha) of the north end of Fitch's land and settled there between 1691 and 1696, despite the intermittent conflict between the Native Americans and settlers in nearby Woodstock (Larned 1874).

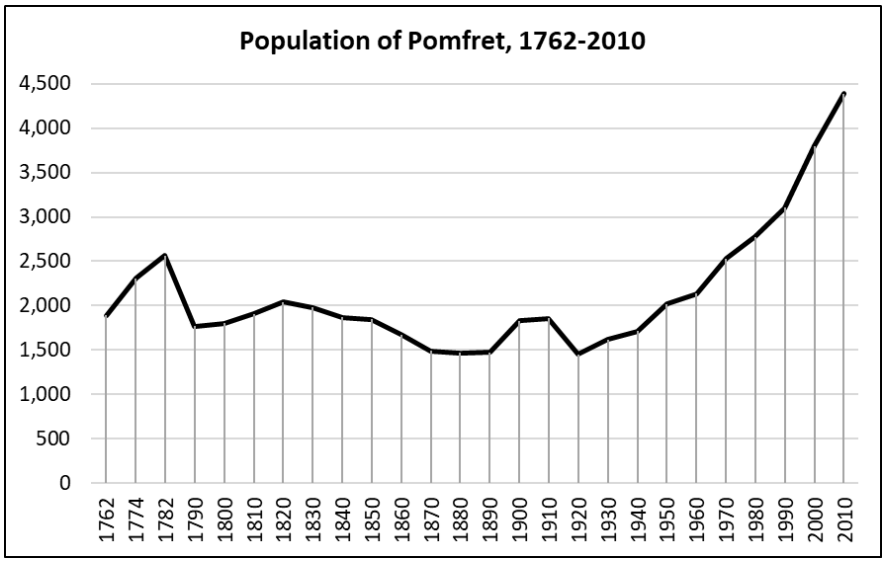
In 1703, the inhabitants of Maschamoquet joined with Woodstock and Killingly in a petition for a road to Providence to be built. A militia company was organized in 1710, at which time there were about 50 males over the age of 16 living in town. In 1713, the community petitioned the General Assembly to give the town official status and privileges, renaming it Pomfret in the process. The town acquired the services of a minister, as their grant required, and in 1714 built a meeting house at White's Plain. In 1716, another proprietors' meeting was held to lay out highways and survey more land; difficulties caused the matter to be delayed however, and John Chandler Jr., was hired to survey the town in 1718. More inhabitants arrived after these signs of prosperity and organization, and a schoolhouse was built there in 1723. In 1729, the Congregational church had 50 male members; in 1731, there were over 100 landowners. Most of their residences were still on the eastern side of the town at that time. In 1740, Pomfret and neighboring town residents organized a subscription library, which continued in existence (with changes) for generations (Larned 1874).

By 1749, there were at least 29 heads of families on the west side of the town. They petitioned the General Assembly to allow them to form a new church society, against the wishes of the main part of the town. The General Assembly granted the petition, establishing the area as the parish of Abington. That same year, 47 men attended a meeting that voted to build a meeting house there, which was not constructed until 1751 because of the first society's continuing opposition. The first colonial census, taken in 1756, recorded 1,677 white and 50 black residents living in Pomfret. During the French and Indian War (1755-1760), a company from Pomfret was led by Capt. John Grosvenor, First Lt. Nehemiah Tyler, and Second Lieutenant Israel Putnam. The latter of these men became famous for his exploits with Rogers' Rangers, was made a captain, and continued an increasingly illustrious career that brought him to the rank of lieutenant colonel in 1759 (Larned 1874).

Between 1686 and 1752, Pomfret's affairs were complicated by the existence of a large (5,740-acre (2,323-ha) allegedly autonomous area within its official borders; it was known as Mortlake. A Captain John Blackwell of England had purchased from Major John Fitch a piece of land containing 5,750 acres (2,327 ha), which abutted the southeast corner of Maschamoquet (the later Pomfret). In 1687, he secured permission from the General Court to settle and organize this parcel as a separate township. Political developments in both the colonies and England then caused him to abandon the project. In 1713, the still-uncolonized tract was bought by Jonathan Belcher, later governor of Massachusetts, who had it surveyed and sold it off to various parties. None of the buyers, however, ever organized a proper town government, which caused Pomfret and other neighboring towns considerable trouble. The General Assembly finally merged the tract with Pomfret by an act of 1752 (Larned 1874).

Revolutionary and Early Industrial Period (1774 to 1850)

In 1774, Pomfret's population had reached 2,306 residents, a respectable size for a town in this time period (see the population chart below; Keegan 2012). In that same year, the town meeting voted to support the General Congress and try to avoid imported British goods. According to one source, 150 men enlisted after the Lexington Alarm; the company, led by Capt. Stephen Brown and Lieutenant. Thomas Grosvenor, served under Colonel Knowlton at the Battle of Bunker Hill. Pomfret was also the site of the April 1775 Windham County muster, at which more than 1,000 men assembled (Crofut 1937). In 1786, the new towns of Brooklyn and Hampton were formed, partly from the southernmost part of Pomfret (Larned 1880). This explains why the population of Pomfret fell from 2,566 residents (the highest it would be for another 188 years) to 1,769 residents (see the population chart below; Keegan 2012). After 1790, the state legislature began creating corporations to build turnpike roads, in order to improve transportation infrastructure and encourage economic development. One of the earliest was the Boston Turnpike Company, incorporated in 1797, which built a road from Hartford to the Massachusetts line in Thompson. It crossed the north end of Pomfret, and a toll gate was to be in the town near Mashamoquet Brook. Pomfret opposed the project intensely, but their efforts to have it re-routed failed. The Boston Turnpike, also known as the Middle Turnpike, remained a toll road in Pomfret until 1845; other sections became free over time, until by 1879 all of it was. The other turnpike in the town, known as the Connecticut and Rhode Island Turnpike, was chartered in 1802 and 1806, and ran from the Boston Turnpike in Pomfret to the Rhode Island line in Killingly. Pomfret resisted this turnpike as well, and again lost the battle. This road became public in 1851 (Wood 1919).



As of 1800, the Quinebaug River supported a gristmill, sawmill, and fulling mill near the northern boundary; there was also a mostly-abandoned quarry once used for gravestones. A few Native Americans reportedly still lived in Pomfret at this time. The town's colonial inhabitants mostly raised corn, rye, and flax, and some wheat and hemp. A substantial number of families had moved away from the town, to be partly replaced by Baptists and Quakers, but not enough to help with the resulting labor shortage (Putnam 1800). A number of commercial stores opened in the town before 1807, in addition to various agricultural mills, blacksmith shops, and a potash works. In the 1830s, Pomfret was described as having "rich and productive" soils that were "deep, strong, and fertile, and admirably adapted to grazing" (Barber 1837:437). The town produced mostly agricultural products, especially butter, cheese, and pork, but a small village called Pomfretville had sprung up at the northeastern corner, on the Quinebaug River, where a cotton factory had been built. In addition to the two Congregational societies, the town also had a Baptist, and Episcopal, and a Quaker house of worship. It also had three post offices (Barber 1837). An 1833 map of the county shows clusters of dense population at the villages of Abington, Williamsville, Prospect Hill, and Pomfretville. This map's many inaccuracies make it difficult to properly geo-register. The project area parcel appears, however, to have no mapped cultural resources other than the road within 152 m (500 ft) of it. Approximately 2.4 km (1.5 miles) to its west were the unlabeled villages that are now known as Prospect and Prospect Center, and between the project area and Prospect Hill the map indicates that there was a sawmill on the small brook to its west (Figure 3; Lester 1833).

As can be seen from the population chart above, Pomfret's population continued to decline after 1830, to just under 1,500 residents in 1870 (Keegan 2012). Nonetheless, the 1850 federal census of industry found thirteen manufacturing enterprises that made $500 or more of products in the prior year. These included sawmills, a gristmill, and a plaster mill that each employed only one man. Only one of these businesses made as much as $1,000 in goods. There were also a carriagemaker and two blacksmiths, who each employed two or three men. A single large cotton mill employed 60 men and 45 women; the next largest were two shoe-assembly businesses, one that employed 30 men and 20 women, and another that employed 20 men and five women. Overall, only about 200 people were employed in an industrial capacity in Pomfret at that time (U.S. Census 1850). This is not an impressive number compared with many other towns, and as the population figures indicate, not enough to raise the town's population in any significant way.

Later Industrial Period (1850-1930)

In 1855, Pomfret lost the northeastern corner of its territory, where the cotton textile mill was located, to the new town of Putnam (Larned 1880). An 1856 county map reflects this change, and identified the remaining population clusters as Abington Four Corners, Pomfret Street (instead of Prospect Hill) and Pomfret Landing (instead of Williamsville). This map's higher level of detail, with many labeled buildings, also indicated that none of these villages were focused on industrial production; they contained churches, stores, and schools. At the project area, no cultural features – not even Wrights Crossing Road – were located within 152 m (500 ft) of the parcel. The nearest building was labeled with the name O. Dennis (Figure 4; Woodford 1856). A lack of industrial development was still visible in the 1869 map of the town, on which the villages of Abington, Pomfret Landing, and Pomfret Street still had no reported industry, even though the railroad passed through the town. In this map, the project area was located on the north side of a road, with no other cultural features definitely within 152 m (500 ft) of it. Buildings shortly beyond that distance were labeled "T.H.," "T. Pettis," and "P. Towbridge." The initials "T.H." appeared multiple times on this map and likely refer to "Toll House," but it is not clear defined on the map (Figure 5; Gray 1869). These names have not been certainly identified in the census. The

scattered nature of the buildings in this area of the town is, however, a clear sign of a rural agricultural landscape.

In 1872, a railroad link between Willimantic and Putnam opened; it also crossed the width of Pomfret. Although this line was shown on the 1869 map, and it was started by the Boston, Hartford & Erie Railroad sometime after 1863, that company went bankrupt in 1870 with this link incomplete. The rights were bought up by the New York & New England Railroad, which finished the line. This line started the famous "New England Limited" train, also known as the "White Train" for its cars' color – special express trains that took only six hours to make the 213 mile trip between Boston and New York. Operating between 1885 and at least 1895, it had a stop in Pomfret (Turner and Jacobus 1989).

Larned credited the train with helping revive Pomfret's fortunes after the loss of the factory village; in 1880, she wrote that the town was "becoming a favorite and fashionable resort. Families from many cities enjoy the coolness and comforts of these airy homes" (Larned 1880:475). According to Larned, this local demand helped to stimulate the town's agricultural efforts, so that a Farmer's Club and a turn to dairying improved the economic situation. Some residents built mansions, and Pomfret Hall was erected as a location for various entertainments. Also as of 1880, the separate Baptist congregation had closed and the Quakers were gone, but the Episcopal, the two Congregational, and a new Second Advent church remained in place (Larned 1880). Writing in 1919, a historian of turnpikes remarked of Pomfret, which had intensely resisted turnpike construction efforts, "What a change a century has brought! Now Pomfret is the summer home of millionaires with palatial estates" (Wood 1919:376). In contrast to these optimistic statements, however, Pomfret's population slowly declined after 1850, and reached a low of 1,470 residents and 1,471 residents in 1880 and 1890. It did not show consistent growth until after 1920, and even that was very slow; in 1930 the population was still only 1,671 residents (see the population chart above; Keegan 2012).

Without an industrial base, the town was left with a largely agricultural permanent population spread thinly over the better agricultural land. Despite Larned's encouraging remarks about agriculture in Pomfret, during the mid to late nineteenth century farming became an increasingly specialized and concentrated activity in Connecticut. Most farmers switched from meat and grains, which could be purchased more cheaply from the Midwest, to butter and cheese, which did not travel well and could be sold locally. In the 1880s, refrigerated railroad cars were developed, which allowed the production of fresh milk to become important as well. Overall, the farming population declined and marginal lands were abandoned. Towns with industrial activity managed to keep their populations stable, while wholly agricultural places lost population through the 1930s (Rossano 1997). The popularity of Pomfret as a resort area may be what kept its population from declining even further than it did.

Modern Era (1930-present)

A 1932 summary of town information reported its principal industry simply as agriculture, then added, "Is noted as a summer resort" (Connecticut 1932:296). Consistent with this description, the 1934 aerial photograph shows the project area in an agricultural landscape that probably would have seemed generally familiar to nineteenth-century residents of the town. Even the two historic farmsteads were still present, to the west and east of the project area parcel. The parcel itself occupied a mix of cleared, reforesting, and reforested fields, which was very similar to the surrounding landscape (Figure 6; Fairchild 1934). A 1935 guide to Connecticut remarked on how scenic the town was, and how attractive as a summer home; it also noted the existence of the Pomfret School for boys, founded in 1894 (Heermance 1935). The number of farms in Connecticut continued to decline through the twentieth

century, but because of suburbanization, a result of the rise of the automobile, the population of many towns began to grow again (Rossano 1997).

After 1920, the population of Pomfret grew slowly but steadily through the twentieth century, with the pace picking up a little after 1960, and stood at 4,386 residents in 2010. This was three times the population at the start of this period. Pomfret ranked 135th out of 169 towns in that year (see the population chart above; Keegan 2012). The 1951 aerial photograph shows how small the impact of this population growth had been in the vicinity of the project area, which seemed largely identical to the landscape of 1934, aside from some small advances in reforestation of some fields (Figure 7; USDA 1951). The 1996 aerial photograph, however, shows a number of significant changes in the area. The section of Wrights Crossing Road to the west of the project area was lined with houses on moderate-sized lots. The section of the road to the south of the project area, however, was relatively undeveloped, with only the two historic farmsteads and a swampy area visible. The project area itself had become part of a single large field, with the old field outlines erased (Figure 8; CT DEP 1996). As of 2019, the area remained almost completely unchanged (Figure 9; CT ECO 2019).

According to an official town web site, at a recent point Pomfret had only 14 farms, five of them dairy and the rest including orchards and other products. The large amount of open space in the town was due to the presence of Mashamoquet Brook State Park, as well as preservation efforts by other private and public organizations (Pomfret n.d.). Interestingly, the town's small population (4,376 residents as of 2009) displayed some unusual characteristics: in 2005, while 2.1 percent of its workers were in agriculture, a full 42 percent were in manufacturing, a very unusual proportion for the modern time period. On the other hand, in 2008 there were only 2,273 workers in town, another 42 percent of whom were working in trade or services. The five largest employers in Pomfret in 2006 were the Steak-UMM Co., which made mass-produced sandwiches; Fiberoptics Technology Inc.; Loos and Company, a wire and cable producer; the Pomfret Preparatory School; and the Town of Pomfret Board of Education. In a small town, a small number of companies can have a substantial impact on its economic structure (CERC 2010). With its small population and large areas of preserved open space, it appears that Pomfret will nonetheless remain substantially rural into the future.

Conclusions

The documentary record indicates that this project area was used only for agriculture during the historical period, and it is unlikely that any significant historical resources are present there or in its immediate vicinity. Even the majority fence and wall lines from earlier eras of farming have been removed for the convenience of modern machinery. Surviving traces of such activity are unlikely to be considered historically significant.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous archaeological research completed within the vicinity of the project area in Pomfret, Connecticut. This discussion provides the comparative data necessary for considering 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 project parcel are taken into consideration. Specifically, this chapter reviews previously identified archaeological sites and National/State Register of Historic Places properties situated in the project region (Figures 10 and 11). 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 Properties/Districts in the Vicinity of the Project Area

A review of data currently on file at the CT-SHPO, as well as the electronic site files maintained by Heritage resulted in the detection of nine previously recorded archaeological sites and a single State Register of Historic Places listed property situated within 1.6 km (1 mi) of the project parcel (Figures 8 and 9). They are discussed below. No National Register of Historic Places properties/districts were nearby.

Archaeological Site: 112-1

Site 112-1 is described as a prehistoric camp site, possibly from the Woodland Period. It is located to the south of Holmes Road and on the east side of Durkee Brook in Pomfret, Connecticut (Figure 11). Mary G. Soulsby of the Public Archaeology Survey Team, Inc., (PAST) recorded the site in July of 1990. PAST archaeologists tested the site area in July of that year preceding construction of the Rainbow Creek Development. They recovered 8 quartz flakes, 13 flint flakes, 34 argillite flakes, 50 bone fragments, nine charred botanical fragments, one quartzite knife, and one quartzite Narrow-Stemmed projectile point. A possible feature was also identified, which consisted of a dark soil stain and fire-reddened soil 40 cmbs (16 inbs). Site 112-1 has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted directly or indirectly by the proposed solar project.

Archaeological Site: 112-2

Site 112-2 is situated at the southwest corner of the Holmes Road and Modock Road intersection in Pomfret, Connecticut (Figure 11). It also was recorded by Mary G. Soulsby of the Public Archaeology Survey Team, Inc., (PAST) in July 1990 when PAST tested the area for the proposed Rainbow Creek housing subdivision. The site was described as a prehistoric camp site dating from an unknown prehistory time period. PAST archaeologists recovered 2 quartz flakes, 5 quartzite flakes, and a single flint flake from the site area. Site 112-2 has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted directly or indirectly by the proposed solar project.

Archaeological Site: 112-3

Site 112-3 is an unnamed prehistoric camp site recorded by Mary G. Soulsby of the Public Archaeology Survey Team, Inc., (PAST) in July 1990. It is located at the southwest corner of the Holmes Road and Modock Road intersection in Pomfret, Connecticut (Figure 11). PAST archaeologists tested the area preceding construction of the proposed Rainbow Creek subdivision and recovered 84 quartzite flakes, 3 quartz flakes, and a single quartzite Neville-like projectile point base. The Neville-like point indicated a Middle Archaic Period occupation. Site 112-3 has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted directly or indirectly by the proposed solar project.

Archaeological Site: 112-4

Site 112-4 is located 30 m (98.4 ft) to the south of Holmes Road in Pomfret, Connecticut (Figure 11). It was recorded by Mary G. Soulsby of the Public Archaeology Survey Team, Inc., (PAST) in July 1990 after PAST tested the area preceding construction of the Rainbow Creek subdivision. Archaeologists recovered a single quartz flake and 8 rhyolite flakes. According to the site form, the proposed Rainbow Creek subdivision would impact Site 112-4 and therefore PAST recommended Phase II survey to determine the site's boundaries and significance. At the time the site was recorded it had not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted directly or indirectly by the current proposed solar project.

Archaeological Site: 112-5

Site 112-5 also was recorded by Mary G. Soulsby of the Public Archaeology Survey Team, Inc., (PAST) in July 1990 preceding the construction of the Rainbow Creek subdivision. Survey of the site area resulted in the identification of Site 112-5, a prehistoric camp site from an unknown time period. PAST archaeologists recovered 193 quartzite flakes and 4 quartz flakes from the Site 112-5 area. The site was not assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]) at the time it was recorded, though PAST recommended further excavation before subdivision construction. It would have been impacted by the Rainbow Creek subdivision project, but it will not be further impacted by the current proposed solar facility. It is located southwest of the intersection of Holmes Road and Modock Road in Pomfret, Connecticut (Figure 11).

Archaeological Site: 112-6

Site 112-6 is located to the southwest of the intersection of Holmes Road and Modock Road in Pomfret, Connecticut (Figure 11). It was recorded by Mary G. Soulsby of the Public Archaeology Survey Team, Inc., (PAST) in July 1990 as a prehistoric site from an unknown time period. PAST discovered the site during testing in July 1990 preceding construction of the Rainbow Creek subdivision. Archaeologists recovered a single quartzite flake from the site in an area that would be impacted by the Rainbow Creek Subdivision. PAST recommended further survey to determine the boundaries and significance of Site 112-6. Site 112-6 has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted directly or indirectly by the proposed solar project.

Archaeological Site 112-25

Site 112-25 was identified by John Kelly of the Public Archaeology Laboratory, Inc (PAL) in February of 2017. The site was identified during a 2015 Phase IB survey of a natural gas pipeline in an area approximately 340 ft (140 m) east of Grosvenor Road in Pomfret, Connecticut. Site 112-25 was interpreted as a nineteenth to twentieth century refuse disposal area. Artifacts recovered from the site

included untyped flat glass, a bottle base, transfer print ceramic sherds, decal-printed ceramic sherds, porcelain sherds, and window glass. No historic architectural remains were identified during background research or archaeological investigation. Site 112-25 has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted directly or indirectly by the proposed solar project.

Archaeological Site: 112-26

Site 112-26 also was recorded in 2017 by John Kelly of the Public Archaeology Laboratory, Inc., (PAL). It is located at the intersection of a natural gas pipeline and Wrights Crossing Road in Pomfret, Connecticut. PAL tested Site 112-26 in 2015, which consists of a dry-laid stone foundation. The foundation was likely an outbuilding associated with the adjacent Horace Clapp house, which was constructed in 1869. A total of 21 historic artifacts dating to the twentieth century were recovered from the site; they included complete and fragmented soda bottles, a porcelain sherd, iron nails, hooks, and spikes. Site 112-26 was assessed as not significant applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted directly or indirectly by the proposed solar project.

Archaeological Site: 112-27

Site 112-27 was documented by John Kelly of the Public Archaeology Laboratory, Inc (PAL) in February of 2017. The site was identified during a 2015 Phase IB survey of a natural gas pipeline in an area approximately 240 ft (73 m) east of Wrights Crossing Road in Pomfret, Connecticut. Site 112-27 was a prehistoric archaeological site of an unknown temporal affiliation. Recovered cultural material consisted of 52 prehistoric artifacts, including 33 quartz, chert, and rhyolite flakes; 2 utilized quartz flakes; 12 pieces of quartz quartzite and unidentified shatter; a single untyped chert projectile point preform; a piece of calcined bone; 2 pieces of fire-cracked rock; and a single piece of uncharacterized schist. The site was assessed as potentially significant applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted directly or indirectly by the proposed solar project.

State Register of Historic Places: 112-12

State Register of Historic Places property 112-12 is the Tyrone Farm and it located at 89 Tyrone Road in Pomfret, Connecticut (Figure 12). It was recorded by H.C. Darbee of the Connecticut Historical Commission on December 7, 1967 as a distinguished Federal-style residence. The main building was built in 1742 and is characterized by two-and-a-half stories with pilasters at its front corners supporting a plain frieze above the second story. Window caps mimic the frieze pattern, and the windows have six-over-six sash. The main door has decorative pilasters to its sides and a prominent pediment above it. Exterior walls are clad in clapboards and the gable roof now has asphalt shingles. This main block is surrounded by later additions to both sides. Furthermore, there is an associated barn and caretaker's lodge on the property. This historic house is now used as a wedding venue. Despite some modern alterations, the structure's architectural features and setting remains intact. The proposed solar project will have no direct or indirect impact on property 112-12.

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methodology used to complete the Phase IA cultural resources assessment survey of the project area in Pomfret, Connecticut. The following tasks were completed during this investigation: 1) study of the region's prehistory, history, and natural setting, as presented in Chapters II through IV; 2) a literature search to identify and discuss previously recorded cultural resources in project region; 3) a review of historical maps, topographic quadrangles, and aerial imagery depicting the project parcel in order to identify potential historical resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the project are in order to determine their archaeological sensitivity. These methods are in keeping with those required by the Connecticut State Historic Preservation Office in the document entitled: *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987).

Research Framework

The current Phase IA cultural resources assessment survey was designed to assess the archaeological sensitivity of the project parcel, as well as to visually examine the development area for any previously unidentified cultural resources during pedestrian survey. The undertaking was comprehensive in nature, and project planning considered the distribution of previously recorded cultural resources located within the project region, as well as a visual assessment of the project area. The methods used to complete this investigation were designed to provide coverage of all portions of the project area. The fieldwork portion of this undertaking entailed pedestrian survey, photo-documentation, and mapping.

Archival Research & Literature Review

Background research for this project included a review of a variety of historical maps depicting the proposed project area; an examination of USGS 7.5' series topographic quadrangles; an examination of aerial images dating from 1934 through 2019; and a review of all archaeological sites and National and State Register of Historic Places on file with the CT-SHPO, as well as electronic cultural resources data maintained by Heritage. The intent of this review was to identify all previously recorded cultural resources situated within and immediately adjacent to the project area, and to provide a natural and cultural context for the project region. This information then was used to develop the archaeological context of the project area, and to assess its sensitivity with respect to the potential for producing intact cultural resources.

Background research materials, including historical maps, aerial imagery, and information related to previous archaeological investigations, were gathered from the CT-SHPO. Finally, electronic databases and Geographic Information System files maintained by Heritage were employed during the course of this project, and they provided valuable data related to the project region, as well as data concerning previously identified archaeological sites and National and State Register of Historic Places properties within the general vicinity of the project parcel.

Field Methodology and Data Synthesis

Heritage also performed fieldwork for the Phase IA cultural resources assessment survey of the project area associated with the proposed solar project in Pomfret, Connecticut. This included visual reconnaissance, photo-documentation, and mapping of the proposed development area.

CHAPTER VII
RESULTS OF THE INVESTIGATION & MANAGEMENT RECOMMENDATIONS

Introduction

This chapter presents the results of the Phase IA cultural resources assessment survey of the proposed solar facility in Pomfret, Connecticut. As stated in the introductory section of this report, the goals of the investigation included completion of the following tasks: 1) a contextual overview of the region's prehistory, history, and natural setting (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously completed cultural resources surveys and previously recorded cultural resources in the project region; 3) a review of readily available historical maps and aerial imagery depicting the project area in order to identify potential historical resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the project area in order to determine their archaeological sensitivity.

Results of Phase IA survey

At the time of the survey, the project area was characterized by a large open agricultural field that was in use as a hayfield along the north side of Wrights Crossing Road. Access to the project area was from Wrights Crossing Road to the southwest (Photos 1 through 6). The project area is situated at elevations ranging from approximately 105 to 120 m (344 to 394 ft) NGVD. As discussed in Chapter II, the predominant soil types located throughout most of the area are Woodbridge and Paxton and Montauk soils, which are very deep well drained sandy loams.

Overall Sensitivity of the Proposed Project Area

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

With respect to the potential for identifying prehistoric archaeological sites, the project area was divided into areas of no/low and/or moderate/high archaeological potential by analyzing the landform types, slope, aspect, soils contained within them, and their distance to water. In general, areas located less than 300 m (1,000 ft) from a freshwater source and that contain slopes of less than 8 percent and well-drained soils possess a high potential for producing prehistoric archaeological deposits. Those areas located between 300 and 600 m (1,000 and 2,000 ft) from a freshwater source and well drained soils are considered moderate probability areas. This is in keeping with broadly based interpretations of prehistoric settlement and subsistence models that are supported by decades of previous archaeological research throughout the region. It is also expected that there may be variability of prehistoric site types found in the moderate/high sensitivity zones. For example, large Woodland period village sites and

Archaic period seasonal camps may be expected along large river floodplains and near stream/river confluences, while smaller temporary or task specific sites may be expected on level areas with well-drained soils that are situated more than 300 m (1,000 ft) but less than 600 m (2,000 ft) from a water source. Finally, steeply sloping areas, poorly drained soils, or areas of previous disturbance are generally deemed to retain a no/low archaeological sensitivity with respect to their potential to contain prehistoric archaeological sites.

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

Phase IA Results and Management Recommendations

The combined review of historical maps, aerial images, land deeds, and pedestrian survey indicates that the approximately 13.9 acre project area contains low slopes and well drained soils situated in proximity to Bark Meadow Brook to the west and large wetlands to the south. Soils found throughout the project parcel are mainly attributed to the Woodbridge and Paxton and Montauk series. The Woodbridge, Sutton, Paxton and Montauk soils are very deep well drained sandy loams. A review of soils in the area indicates that intact B-Horizons deposits are likely within the sandy well drained portions of the project parcel. Based on the totality of the information available, including landscape types, well-drained soil types, proximity to freshwater, and nearby previously identified archaeological sites, it is the professional opinion of Heritage that the entirety of the 13.9 acre project area retains a moderate/high sensitivity for yielding archaeological deposits.

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

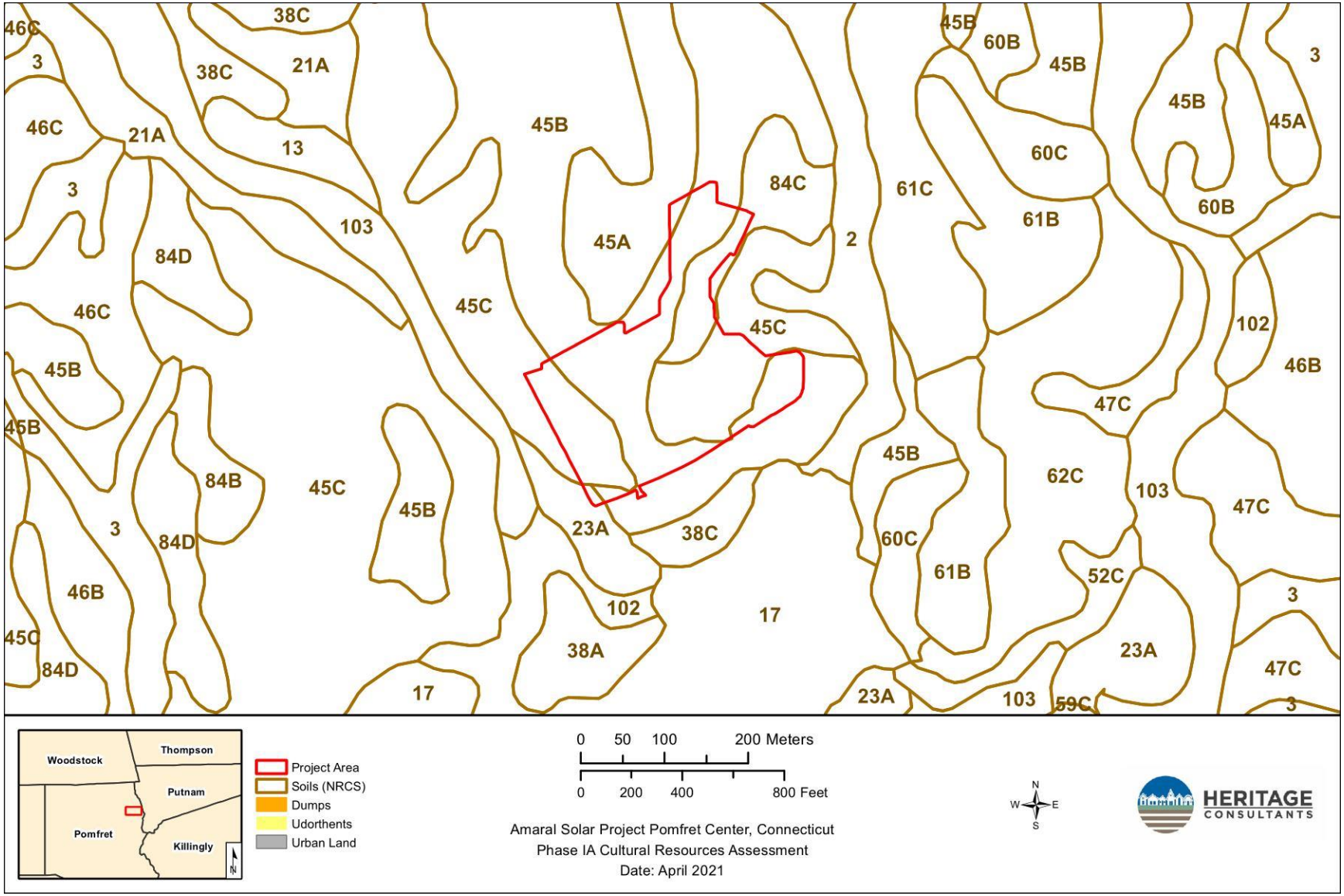

Figure 2. Map of soils located in the vicinity of the project area in Pomfret, Connecticut.

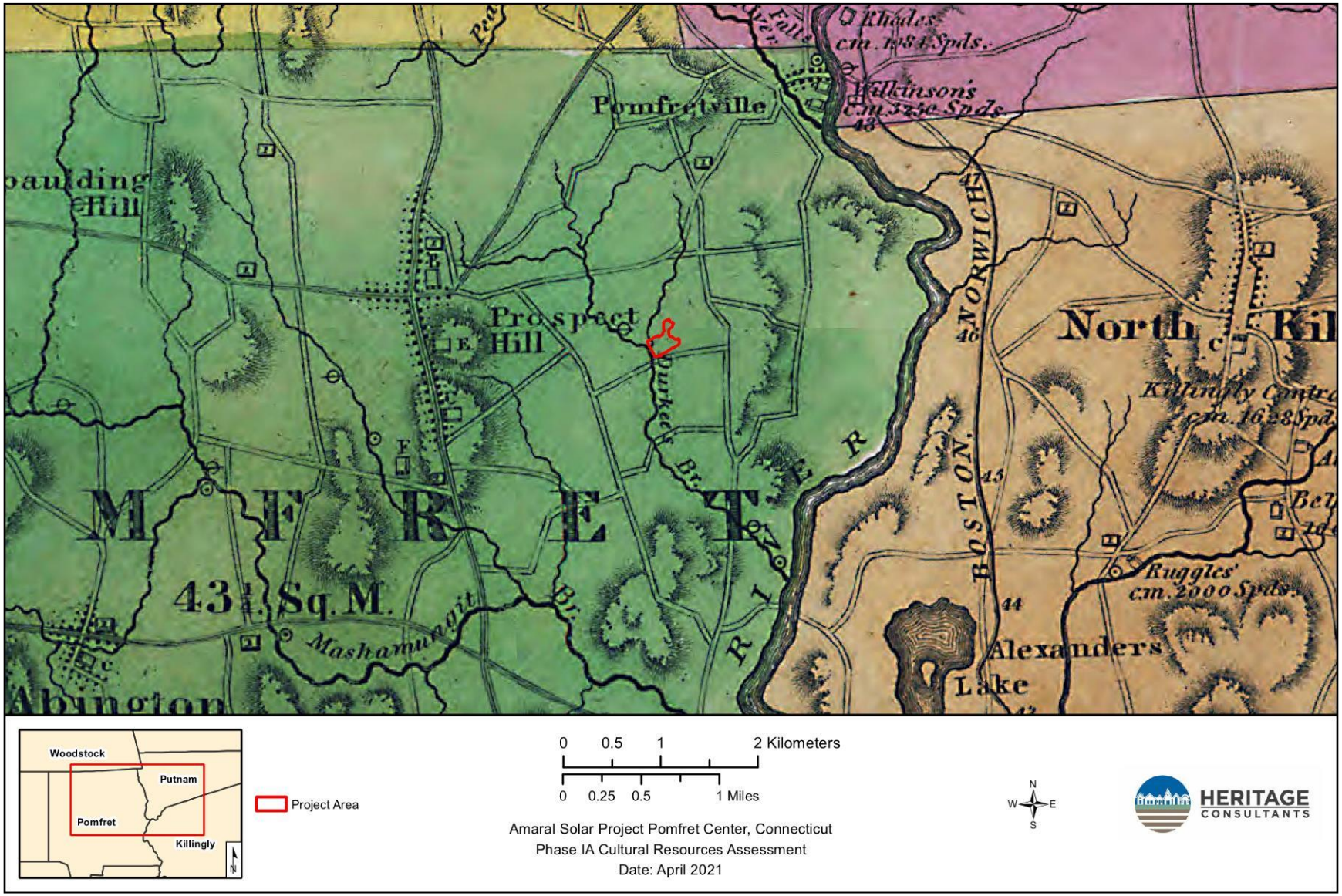

Figure 3. Excerpt from an 1833 historical map showing the location of the project area in Pomfret, Connecticut.

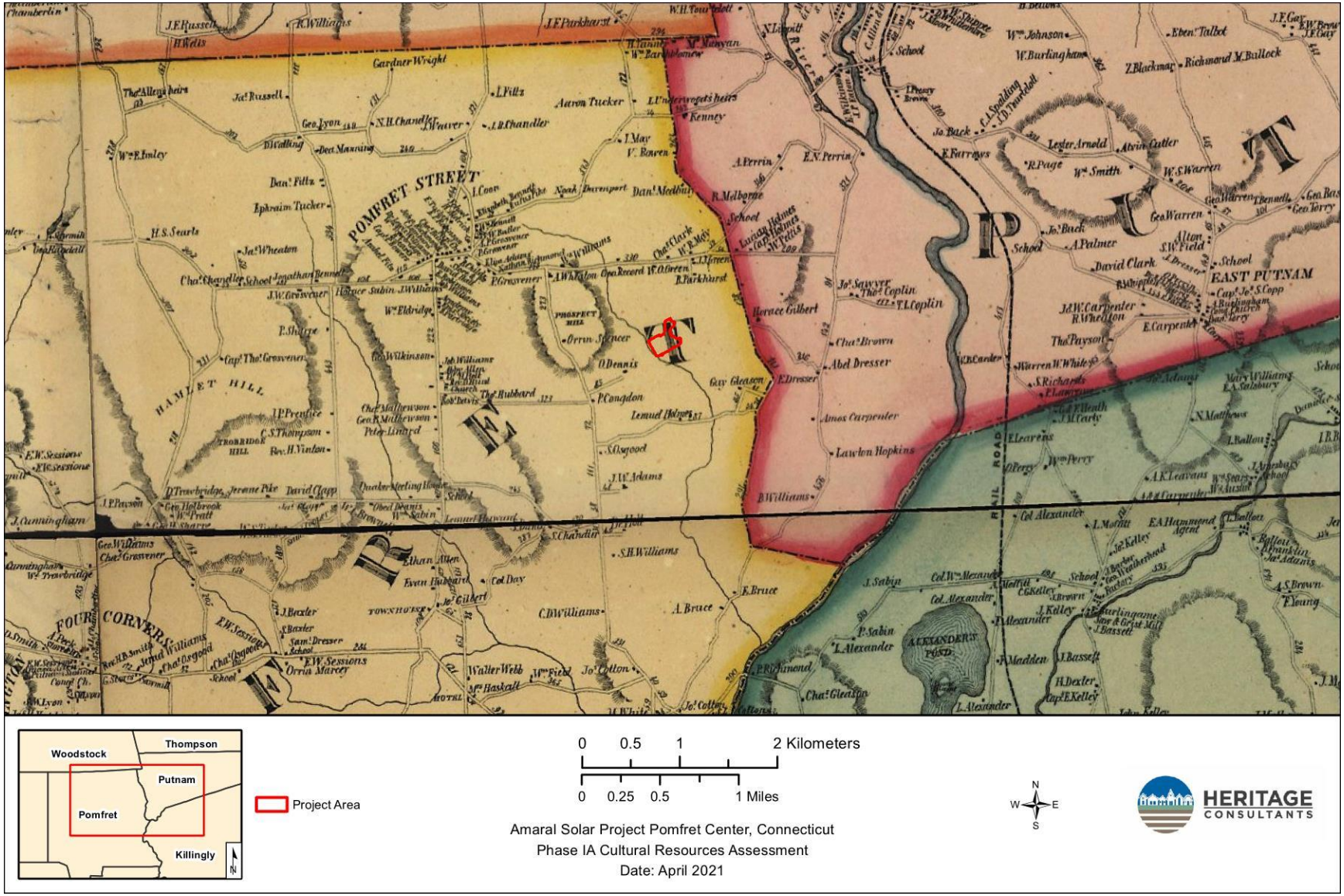

Figure 4. Excerpt from an 1856 historical map showing the location of the project area in Pomfret, Connecticut.

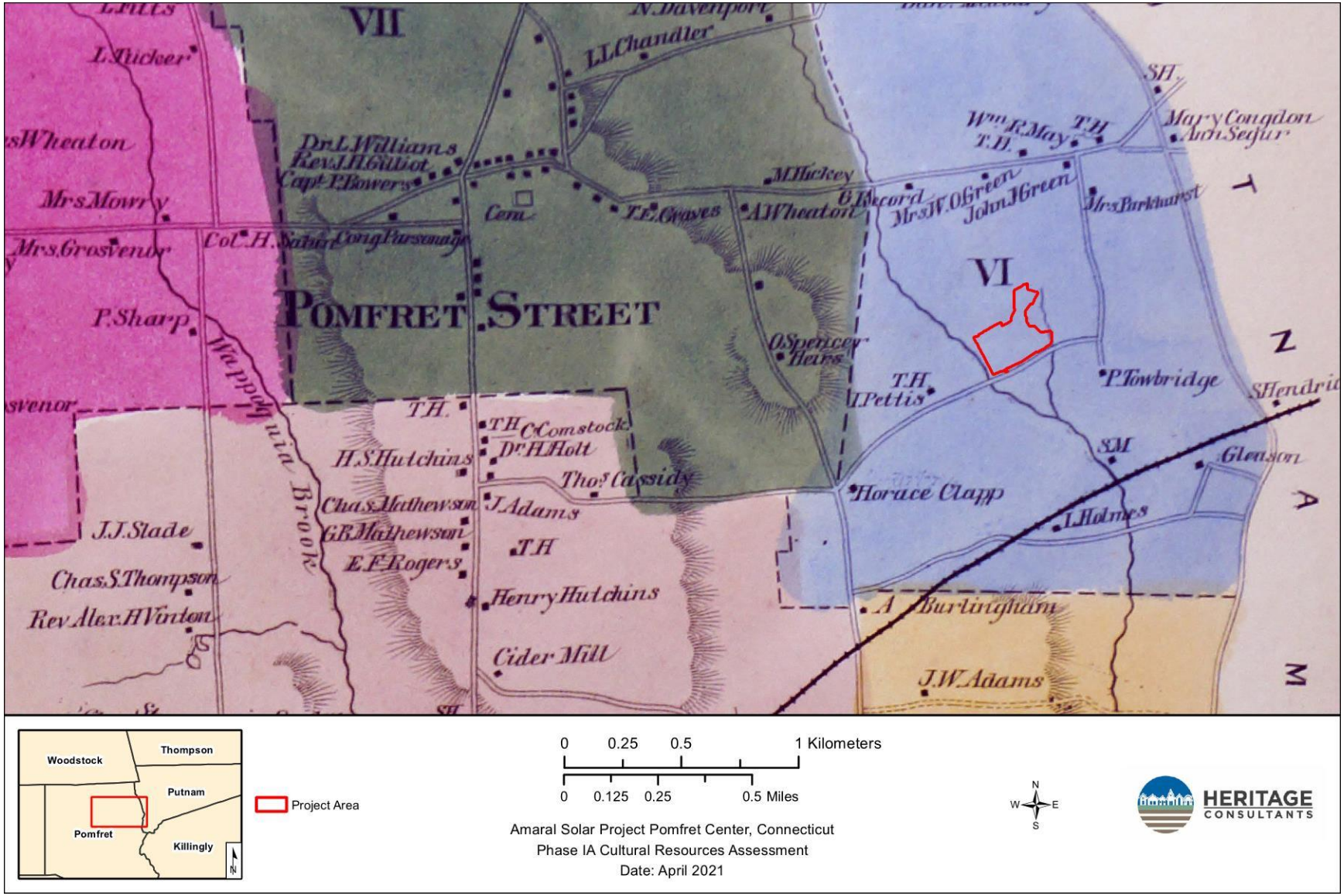

Figure 5. Excerpt from an 1869 historical map showing the location of the project area in Pomfret, Connecticut.

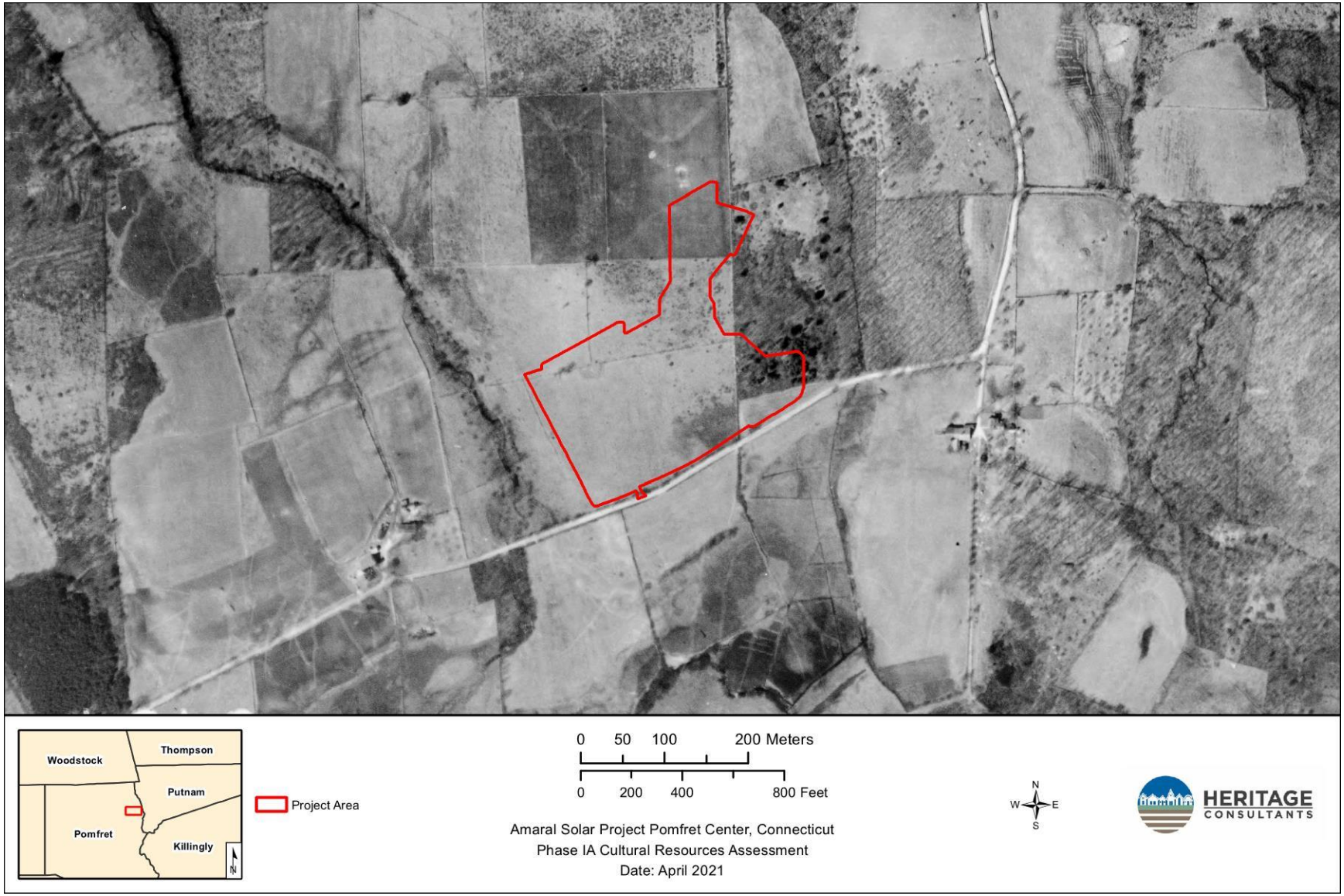

Figure 6. Excerpt from a 1934 aerial photograph showing the location of the project area in Pomfret, Connecticut.

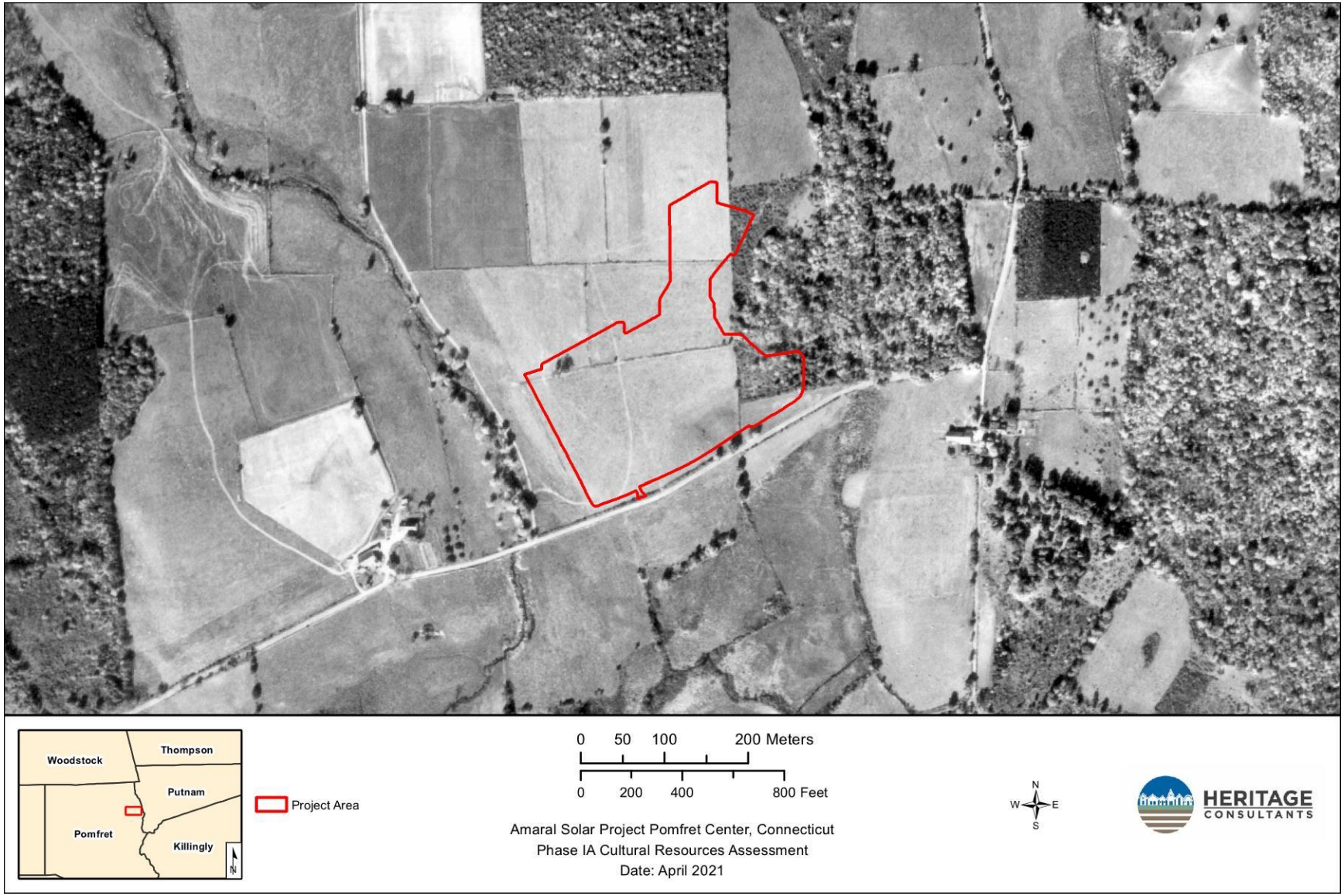

Figure 7. Excerpt from a 1951 aerial photograph showing the location of the project area in Pomfret, Connecticut.

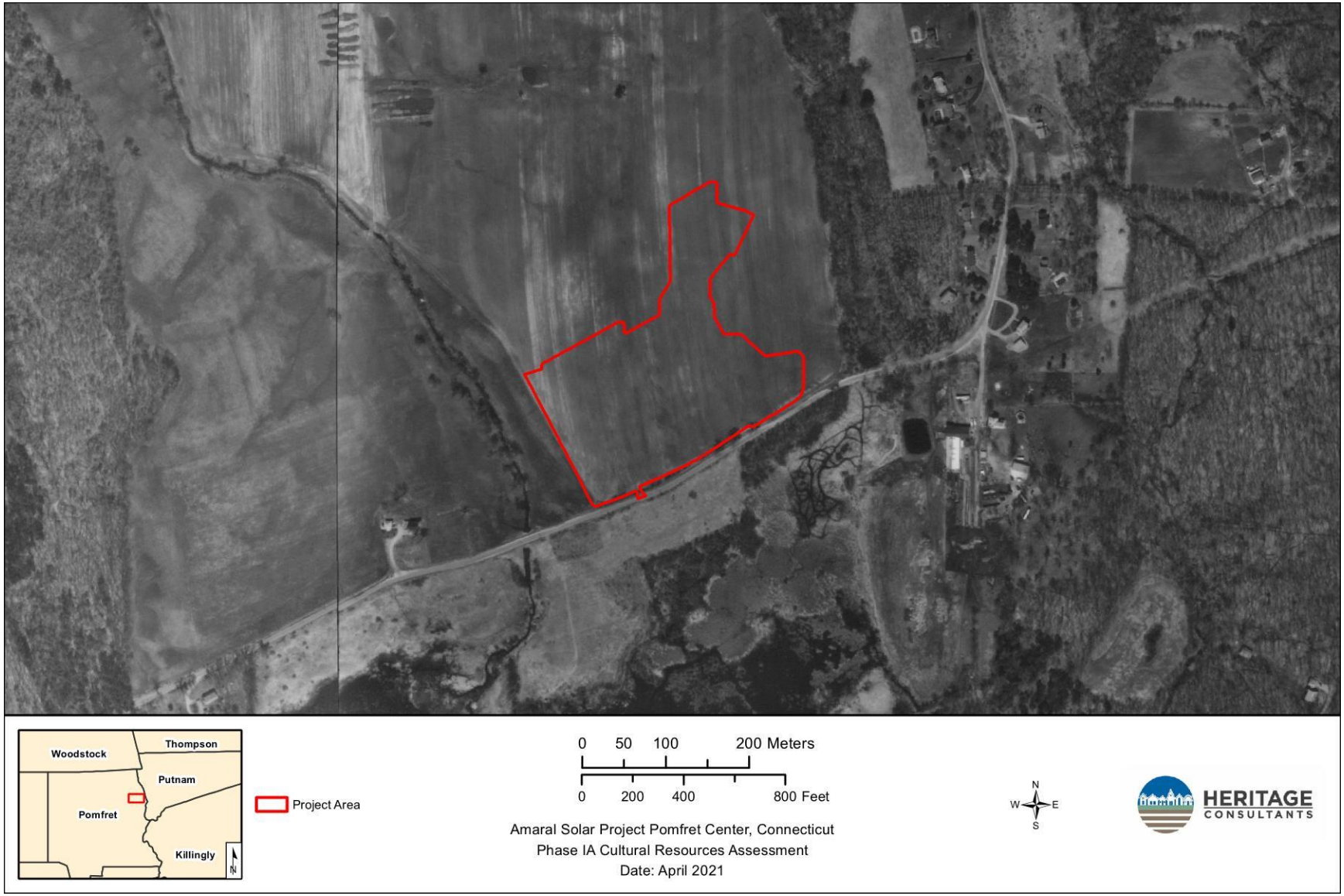

Figure 8. Excerpt from a 1996 aerial photograph showing the location of the project area in Pomfret, Connecticut.

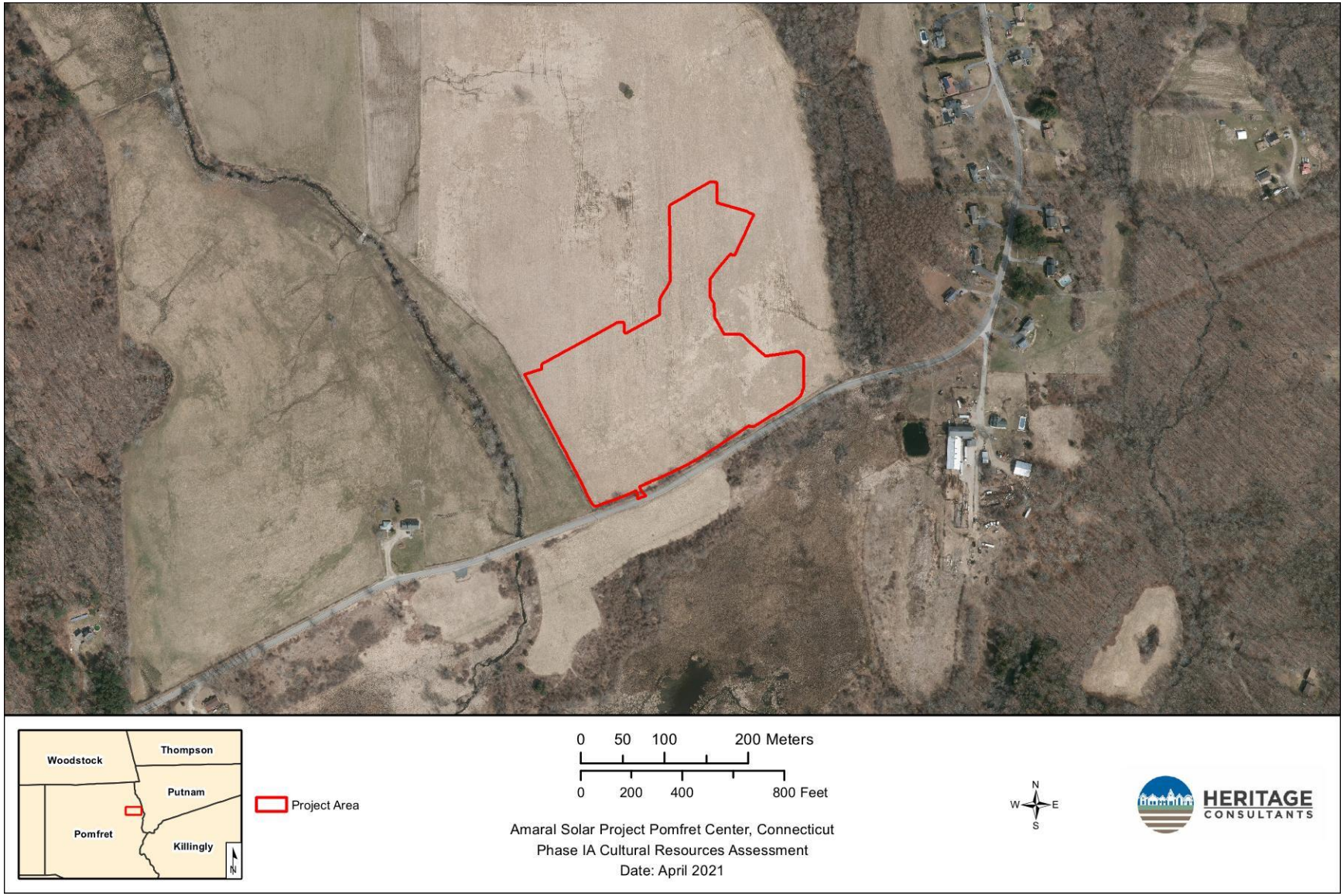

Figure 9. Excerpt from a 2019 aerial photograph showing the location of the project area in Pomfret, Connecticut.

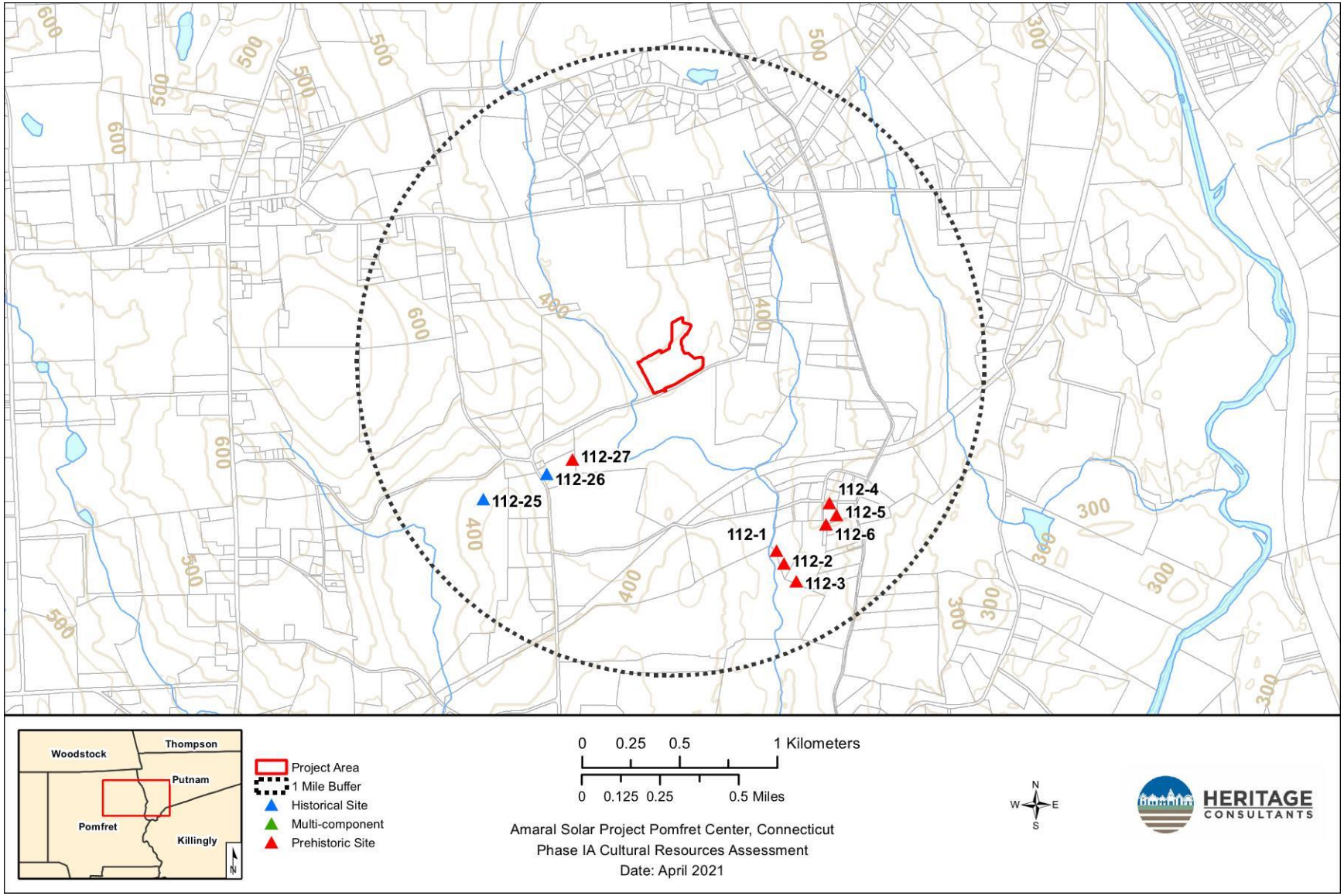

Figure 10. Digital map showing the location of previously identified archaeological sites in the vicinity of the project area in Pomfret, Connecticut.

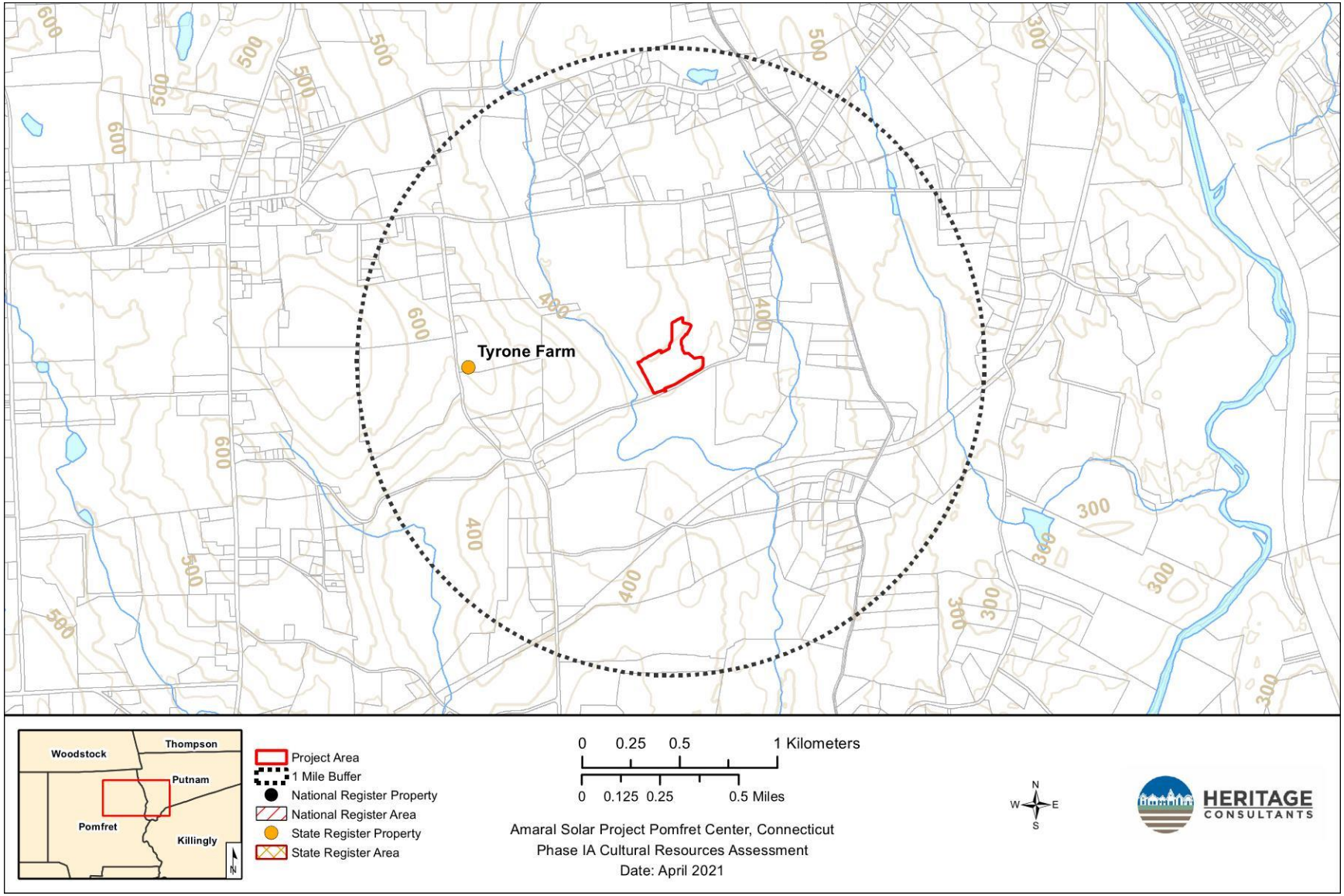

Figure 11. Digital map depicting the locations of previously identified National/State Register of Historic Places properties and inventoried Historic Standing Structures in the vicinity of the project area in Pomfret, Connecticut.

Photo 1. Overview photo from southeastern corner of project area in Pomfret, Connecticut. Photo taken facing southwest.

Photo 2. Overview photo from southwestern corner of project area in Pomfret, Connecticut. Photo taken facing northeast.

Photo 3. Overview photo from northern boundary of the project area in Pomfret, Connecticut. Photo taken facing southeast.

Photo 4. Overview photo from the northwest portion of the project area in Pomfret, Connecticut. Photo taken facing southeast.

Photo 5. Overview photo from center of the project area in Pomfret, Connecticut. Photo taken facing west.

Photo 6. Overview photo from center of the project area in Pomfret, Connecticut. Photo taken facing east.

JULY 2021

PHASE IB CULTURAL RESOURCES RECONNAISSANCE SURVEY OF THE PROPOSED TRITEC AMARAL SOLAR PROJECT IN POMFRET, CONNECTICUT

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ABSTRACT

This report presents the results of a Phase IB cultural resources survey of the proposed Tritec Amaral Solar Project, which will occupy approximately 13.9 ac of land along Wright's Crossing Road, in Pomfret, Connecticut. Heritage completed the current survey on behalf of All-Points in July of 2021. After completion of background research, total of 137 of 137 (100 percent) planned shovel tests and 24 of 24 (100 percent) delineation shovel tests were excavated throughout the areas containing the proposed solar panel locations. This effort resulted in the identification of a single prehistoric locus, Locus 1. Given the disturbed soil context, low density of cultural material, and lack of intact cultural features, Locus 1 was assessed as not significant applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Further, historic cultural material recovered during excavation was interpreted as a scatter of materials that lacks historical association, research potential, and the qualities of significance as defined by the National Register of Historic Places (NRHP) criteria for evaluation (36 CFR 60.4 [a-d]). No additional archaeological examination of the LOW is recommended prior to construction of the proposed solar facility.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER I
INTRODUCTION

This report presents the results of a Phase IB cultural resources survey for the Tritec Amaral Solar Project (the Project) in Pomfret, Connecticut (Figure 1). All-Points Technology Corporation (All-Points) requested that Heritage Consultants, LLC (Heritage) complete the current reconnaissance survey as part of the planning process for the facility development, which was completed in July of 2021. All work associated with this investigation was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987), which is promulgated by the Connecticut State Historic Preservation Office.

Project Description and Methods Overview

The proposed undertaking will involve construction the of a solar facility, associated driveways, and utilities. The proposed facility will occupy approximately 13.9 ac of land along Wright's Crossing Road. The proposed 13.9 ac development area is hereafter referred to as the Project area. The parcel of land within which the Project area is located occupies a forested area that is bordered by the open hayfields to the north, wooded areas to the east, Wright's Crossing Road to the south, and by a slope down to a Bark Meadow Brook to the west. Access to the Project area will be from Wright's Crossing Road. During this investigation, Heritage conducted a cultural resources review that consisted of the completion of the following tasks: 1) a contextual overview of the region's prehistory, history, and natural setting (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify previously completed cultural resources surveys and previously recorded cultural resources in the region encompassing the Project area; 3) a review of readily available historic maps and aerial imagery depicting the Project area in order to identify potential historic resources and/or areas of past disturbance; 4) Phase IB fieldwork, and 5) preparation of the current Phase IB cultural resources assessment survey report.

Based on the results of the background search, it was determined that the entirety of the 13.9 ac of land comprising the Project area contains low slopes, well drained soils, and is situated in proximity to Bark Meadow Brook to the west and Durkee Brook to the east. As a result, it was determined that this area may contain intact archaeological deposits in the subsoil, which according to the National Conservation Resources Service should extend to a depth of approximately 76 cmbs (29.9 inbs). Finally, in July 2021, Heritage conducted the Phase IB cultural survey of the Project area in order to assess current field conditions and soil integrity.

Project Results and Management Recommendations Overview

During the Phase IB cultural resources survey, 137 of 137 (100 percent) planned shovel tests and 24 of 24 (100 percent) delineation shovel tests were excavated throughout the Project area in Pomfret, Connecticut (Figure 2). This effort resulted in the identification of a single prehistoric locus, Locus 1. Given the disturbed soil context, low density of cultural material, and lack of intact cultural features, Locus 1 was assessed as not significant applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Further, historical cultural material recovered during excavation was interpreted as a scatter of materials that lacks historical association, research potential, and the qualities of significance as defined by the National Register of Historic Places (NRHP) criteria for evaluation (36 CFR 60.4 [a-d]). No additional archaeological examination of Locus 1 or the remainder of the Project area is recommended prior to construction of the proposed solar facility.

Project Personnel

Key personnel for this project included. David R. George, M.A., R.P.A., (Project Manager), Mr. Cory Atkinson, M.A., R.P.A. (Field Director); Mr. Stephen Anderson, B.A., (GIS Specialist); Dr. Kristen Keegan (Historian); and Ms. Elizabeth Correia, B.A., (Laboratory Specialist) completed the artifact analysis and curation for this project.

Organization of the Report

The natural setting of the region encompassing the study area is presented in Chapter II; it includes a brief overview of the geology, hydrology, and soils, of the project region. The prehistory of the project region is outlined briefly in Chapter III. The history of the region encompassing the project region and Project area is chronicled in Chapter IV, while a discussion of previous archaeological investigations near the Project area is presented in Chapter V. The methods used to complete this investigation are discussed in Chapter VI. The results of this investigation and management recommendations for the study area and the identified cultural resources are presented in Chapter VII.

CHAPTER II
NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the proposed Project area in Pomfret, Connecticut. Previous archaeological research has documented that a few specific environmental factors can be associated with both prehistoric and historical period site selection. These include general ecological conditions, as well as types of fresh water sources, soils, and slopes present in the area. The remainder of this section provides a brief overview of the ecology, hydrological resources, and soils present within the Project 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 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: Northeast Hills Ecoregion. A summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found in and adjacent to the project area.

<u>Northeast Hills Ecoregion</u>

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 uplands 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 Project parcel is located within close proximity to several streams, ponds, and wetlands. These fresh water sources include the Medbury Pond, Bark Meadow Brook, Durkee Brook, Dau Brook, and the Quinebaug River, as well as several unnamed ponds, streams, and associated wetlands. Both Bark Meadow Brook and Durkee Brook are located within 300 m (984.2 ft) of the Project parcel. 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. These water sources also provided the impetus for the construction of water powered mill facilities during the eighteenth and nineteenth centuries.

Soils Comprising the Project area

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

A review of the soils within the project area is presented below. The project area is characterized predominantly by Woodbridge soils occurring on low to moderate slopes, and to a lesser extent Paxton and Montauk soils that occur on moderate slopes (Figure 2).

<u>Woodbridge Soils:</u>

The Woodbridge series consists of moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils on hills, drumlins, till plains, and ground moraines. Slope ranges from 0 to 25 percent. Saturated hydraulic conductivity ranges from moderately to high in the surface layer and subsoil and low or moderately low in the dense substratum. A typical soil profile is as follows: **Ap**--0 to 18 cm; very dark grayish brown (10YR 3/2) fine sandy loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine and medium roots; few very dark brown (10YR 2/2) earthworm casts; 5 percent gravel; moderately acid; **Bw1**--18 to 46 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; few very dark brown (10YR 2/2) earthworm casts; 10 percent gravel; moderately acid; **Bw2**--46 to 66 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; few very dark brown (10YR 2/2) earthworm casts; 10 percent gravel; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) areas of iron depletion; moderately acid; **Bw3**--66 to 76 cm; light olive brown (2.5Y 5/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 10 percent gravel; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) areas of iron depletion; moderately acid; **Cd1**--76 to 109 cm; light olive brown (2.5Y 5/4) gravelly fine sandy loam; weak thick plates of geogenic origin; very firm, brittle; 20 percent gravel; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation and light brownish gray (10YR 6/2) areas of iron depletion; moderately acid; **Cd2**--109 to 165 cm; light olive brown (2.5Y 5/4) gravelly fine sandy loam; weak thick plates of geogenic origin; very firm, brittle; few fine prominent very dark brown

(10YR 2/2) coatings on plates; 25 percent gravel; common fine prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid.

Paxton Soils:
The Paxton series consists of well drained loamy soils formed in lodgment till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level to steep soils on hills, drumlins, till plains, and ground moraines. Slope ranges from 0 to 45 percent. Saturated hydraulic conductivity is moderately high or high in the surface layer and subsoil and low or moderately low in the substratum. A typical soil profile is as follows: **Ap** -- 0 to 20 cm; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; 5 percent gravel; strongly acid; **Bw1** -- 20 to 38 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; 5 percent gravel; few earthworm casts; strongly acid; **Bw2** -- 38 to 66 cm; olive brown (2.5Y 4/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 10 percent gravel; strongly acid; **Cd** -- 66 to 165 cm; olive (5Y 5/3) gravelly fine sandy loam; medium plate-like divisions; massive; very firm, brittle; 25 percent gravel; many dark coatings on plates; strongly acid

Montauk Soils:
The Montauk series consists of well drained soils formed in lodgment or flow till derived primarily from granitic materials with lesser amounts of gneiss and schist. The soils are very deep to bedrock and moderately deep to a densic contact. These soils are on upland hills and moraines. Slope ranges from 0 to 35 percent. Saturated hydraulic conductivity is moderately high or high in the mineral solum and low to moderately high in the substratum. A typical soil profile is as follows: **Ap**-- 0 to 10 cm; very dark gray (10YR 3/1) loam; moderate fine granular structure; very friable; many very fine, fine, medium, and coarse roots; 2 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid (pH 4.1); **BA**-- 10 to 34 cm; brown (10YR 4/3) loam; moderate medium and coarse subangular blocky structure; friable; many fine, medium, and coarse roots; many fine and medium pores; 4 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid; **Bw1**-- 34 to 65 cm; dark yellowish brown (10YR 4/6) loam; moderate coarse subangular blocky structure; friable; many fine, medium, and coarse roots; many fine and medium pores; 6 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid; **Bw2**-- 65 to 87 cm; yellowish brown (10YR 5/6) sandy loam; moderate medium and coarse subangular blocky structure; friable; many very fine, fine, and coarse roots; many fine and medium pores; 5 percent gravel and 1 percent cobbles; extremely acid; **2Cd1**-- 87 to 101 cm; strong brown (7.5YR 5/6) gravelly loamy sand; moderate medium plates; firm; few fine roots; many fine pores; 10 percent gravel, 5 percent cobbles, and 1 percent stones; very strongly acid; **2Cd2**-- 101 to 184 cm; dark yellowish brown (10YR 4/6) gravelly loamy sand; moderate medium plates; firm; many fine pores; 10 percent gravel, 5 percent cobbles, and 1 percent stones; strongly acid.

Summary
A review of mapping, geological data, ecological conditions, soils, slopes, and proximity to freshwater, suggests that the Project parcel appears to be favorable to both prehistoric and historic period occupations. This includes areas of low to moderate slopes with well drained soils located near freshwater sources. The types of Native American sites that may be contained in these areas include seasonal base camps and may include areas of lithic tool manufacturing, hearths, post-molds and storage pits. Based on the close proximity to streams, it is possible that the area may contain buried architectural/archae0logical remains related to domestic and agricultural occupations.

CHAPTER III
PREHISTORIC SETTING

Introduction

Prior to the late 1970s and early 1980s, 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 located in 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. This chapter provides an overview of the prehistoric setting of the region encompassing the project area.

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

The earliest inhabitants of the present-day 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). Paleo-Indians are often described as big-game hunters 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, (Ritchie and Funk 1973; Snow 1980). However, as discussed below, it is more likely they hunted a wide variety 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 located 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.

Another Connecticut Paleo-Indian site studied in detail is the Hidden Creek Site (72-163) 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.

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 around 10,000 B.P. (Ritchie and Funk 1973; Snow 1980) and 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, 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 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 recognized 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.

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 at this time 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 located in Manchester, New Hampshire and studied by Dincauze (1976). 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, ranged from 7,740±280 and 7,015±160 B.P. (Dincauze 1976).

In addition to Neville points, Dincauze (1976) described two other projectile points styles that are attributed to the Middle Archaic Period: Stark and Merrimac projectile points. While no absolute dates were recovered from deposits that yielded Stark points, the Merrimac type dated from 5,910±180 B.P. Dincauze argued that both the Neville and later Merrimac and Stark occupations were established to take advantage of the excellent fishing that the falls situated adjacent to the site area would have afforded Native American groups. Thus, based on the available archaeological evidence, the Middle Archaic Period is characterized by continued increases in diversification of tool types and resources exploited, as well as by sophisticated changes in the settlement pattern to include different site types, including both base camps and task-specific sites (McBride 1984:96)

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

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

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

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

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 of Orient Fishtail projectile points (McBride 1984:119; Ritchie 1971).

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 which were diffuse in nature and scheduled carefully. Typical food remains recovered from sites of this period consist of fragments of white-tailed deer, beaver, turtle, fish, and various small mammals. Botanical remains recovered from the site area consisted of *Chenopodium* sp., hickory, butternut, and walnut (Pagoulatos 1988:81). Such diversity in food remains suggests at least minimal use of a wide range of microenvironments for subsistence purposes.

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

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

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

The Early Woodland Period of the northeastern United States dates from ca., 2,700 to 2,000 B.P., and it has thought to have been characterized by the advent of farming, the initial use of ceramic vessels, and increasingly complex burial ceremonialism (Griffin 1967; Ritchie 1969a and 1969b; Snow 1980). In the Northeast, the earliest ceramics of the Early Woodland Period are thick walled, cord marked on both the interior and exterior, and possess grit temper.

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 increased ceramic vessel 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 as well as conoidal ceramic vessels decorated with dentate stamping. Ceramic types 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 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 best described 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 around 1,200 to 350 B.P. and 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), increased 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) along with a continued 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 diverse stylistically 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 Prehistory

The prehistory of Connecticut spans from around 12,000 to 350 B.P. and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. Much of the prehistoric era is

characterized by local Native American groups who 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 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 project area, 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

As discussed in Chapter 1, the Project area measures 13.9 acres in size and is situated in the town of Pomfret in Windham County. Throughout its history, Pomfret has remained a relatively small town in terms of population. While other towns in Windham County developed substantial industrial villages during the nineteenth century, Pomfret continued to be rural into the modern era. The Project area is located in the northeastern section of Pomfret and on the north side of Wrights Crossing Road. This chapter provides an overview history of Pomfret and additional details associated with the Project area.

Native American History

At the time of contact, the northeastern corner of Connecticut was inhabited by the Wabbaquassett community of Native Americans, which was part of a loosely aligned group of communities that is often referred to as the Nipmucks. Nipmuck communities consisted of small villages typical of the shifting cultivation lifestyle of the Native Americans of this time period. They occupied a wide area, mainly in Massachusetts and in parts of northeastern Connecticut. Prior to the 1650s, the Native American residents of this upland region were largely undisturbed by colonial incursions. During the 1660s and early 1670s, various sales of land were made to English colonists; however, Native Americans had different beliefs concerning land ownership than the colonists. By 1675, it appears that the Native Americans of the region understood that the land sales were permanent and that the Massachusetts Bay government intended to dispossess them of the territory entirely. As a result, many members of the Nipmuck group joined in King Philip's War against the English (Connole 2001). After the King Philip's War, the General Court of Massachusetts Bay appointed a committee to investigate English land claims in the territory of the Nipmucks. They bought up any claims to ownership by Native Americans and fully opened the territory to colonization (Bowen 1886).

Within the boundaries of Connecticut, a large part of the northeastern portion of the state was also claimed by the Mohegan tribe as territory conquered from the Pequots in the Pequot War of 1636 to 1637. The Mohegan sachem Uncas willed the eastern half of this land to his son Owaneco and the western half to his son Joshua. Owaneco sold a large part of this legacy to Captain James Fitch in 1684 in a deed that described it as part of the Nipmuck and Wabbaquasset country; moreover, this deed was accompanied by a quit-claim deed from several members of those native communities (Connole 2001).

These land transactions did not immediately convince the native inhabitants to move away. Many of the Wabbaquassets returned to their traditional territory and, during the 1690s, became a source of serious security concern to the colonists. In the early decades of the eighteenth century, Native Americans continued to reside in and make use of this territory, and only gradually moved away, were displaced, or ceased to live in distinct communities (Larned 1874). Because of the history of war, conquest, and questionable deeds, exactly where Native Americans lived in Pomfret during the colonial period, and what their communities were called, is difficult to determine.

Colonial Era

Pomfret (initially known as Maschamoquet or Massamugget) avoided the significant title controversies caused by James Fitch's many land transactions in northeastern Connecticut simply because the General Assembly, absent any other claims they were willing to acknowledge, confirmed the relevant sale by him (Crofut 1937; Bushman 1967). This occurred in 1686, and the purchasers were a group of 12 men from

Roxbury, Massachusetts. The deed specified that the area included 15,100 acres (6,111 ha) of "wilderness." In 1686, the new owners applied for, and received, a township patent from the Connecticut General Assembly. The proprietors' initial efforts to subdivide the land in 1687 were frustrated by the British Crown's imposition on the colonies of a governmental reorganization, specifically its appointment of Governor Andros and the creation of the Dominion of New England. Although this period of political conflict was short, the proprietors did not meet again until 1693, at which time they granted each of new owner 540 acres (218.5 ha) of land. The proprietors had previously given James Fitch 1,080 acres (437 ha) on the tract's east side, and left a large amount to be divided later. The first settler, Captain John Sabin, arrived there earlier, however; he bought 100 acres (40.5 ha) of the northern end of Fitch's land and settled there between 1691 and 1696, despite the intermittent conflict between the Native Americans and settlers to the north of Pomfret (Larned 1874).

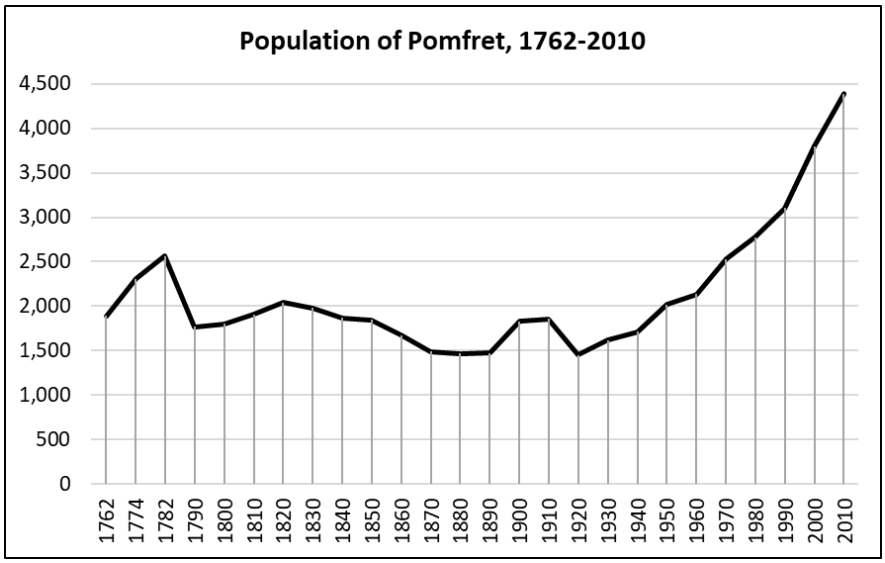
In 1713, the community petitioned the General Assembly to grant the town official status and privileges, renaming it Pomfret in the process. The town acquired the services of a minister, as their grant required, and in 1714 built a meeting house. In 1716, another proprietors' meeting was held to lay out roads and survey more land, which was not completed until 1718. More inhabitants arrived after these signs of prosperity and organization, and a schoolhouse was built in 1723. In 1729, the Congregational church had 50 male members and in 1731, there were over 100 landowners in the congregation. Most of their residences were still on the eastern side of the town at that time (Larned 1874). By 1749, there were at least 29 heads of families on the west side of the town. They petitioned the General Assembly to allow them to form a new church society, against the wishes of the main part of the town. The General Assembly granted the petition, establishing the area as the parish of Abington. That same year, 47 men attended a meeting that voted to build a meeting house there, which was not constructed until 1751 because of the first society's continuing opposition. The first colonial census, taken in 1756, recorded 1,677 white and 50 black residents living in Pomfret. During the French and Indian War (1755-1760), a company from Pomfret was led by Capt. John Grosvenor, First Lt. Nehemiah Tyler, and Second Lieutenant Israel Putnam. The latter of these men became famous for his exploits with Rogers' Rangers, was made a captain, and continued an increasingly illustrious career that brought him to the rank of lieutenant colonel in 1759 (Larned 1874).

Between 1686 and 1752, Pomfret's affairs were complicated by the existence of a 5,740 acre allegedly autonomous area within its official borders known as Mortlake. Captain John Blackwell of England had purchased from Major John Fitch a piece of land containing 5,750 acres (2,327 ha), which abutted the southeastern corner of what was Maschamoquet at the time. In 1687, he secured permission from the General Court to settle and organize this parcel as a separate township. Political developments in both the colonies and England then caused him to abandon the project. In 1713, the still-uncolonized tract was bought by Jonathan Belcher, later governor of Massachusetts, who had it surveyed and sold it off to various parties. None of the buyers, however, ever organized a proper town government, which caused Pomfret and other neighboring towns considerable trouble. The General Assembly finally merged the tract with Pomfret in 1752 (Larned 1874).

Revolutionary and Early Industrial Period (1774 to 1850)

In 1774, Pomfret's population had reached 2,306 residents (see the population chart below; Keegan 2012). In that same year, the town meeting voted to support the General Congress and try to avoid imported British goods. According to one source, 150 men enlisted after the Lexington Alarm; the company, led by Captain Stephen Brown and Lieutenant Thomas Grosvenor, served under Colonel Knowlton at the Battle of Bunker Hill. Pomfret was also the site of the April 1775 Windham County muster, at which more than 1,000 men assembled (Crofut 1937). In 1786, the new towns of Brooklyn

and Hampton were formed, partly from the southernmost part of Pomfret (Larned 1880). This is most likely the reason that the population of Pomfret fell from 2,566 residents in 1782 (the highest it would be for another 188 years) to 1,769 residents in 1790 (Keegan 2012). After 1790, the state legislature began creating corporations to build turnpike roads, in order to improve transportation infrastructure and encourage economic development. One of the earliest was the Boston Turnpike Company, incorporated in 1797, which built a road from Hartford to the Massachusetts line in Thompson. It crossed the north end of Pomfret, and a toll gate was to be built in the town near Mashamoquet Brook. Pomfret opposed the project intensely, but their efforts to have it re-routed failed. Several other companies built toll roads in town but by the mid-nineteenth century most roads had been made public (Wood 1919).



As of 1800, the Quinebaug River, which flowed along Pomfret's eastern town line, supported a gristmill, sawmill, and fulling mill near the northern boundary of the town; there was also a mostly-abandoned quarry once used for gravestones. A few Native Americans reportedly still lived in Pomfret at this time. The town's colonial inhabitants mostly raised corn, rye, and flax, as well as wheat and hemp (Putnam 1800). A number of commercial stores opened in the town before 1807, in addition to various agricultural mills, blacksmith shops, and a potash works. In the 1830s, Pomfret was described as having "rich and productive" soils that were "deep, strong, and fertile, and admirably adapted to grazing" (Barber 1837:437). The town produced mostly agricultural products, especially butter, cheese, and pork, but a small village called Pomfretville had been established at the northeastern corner, on the Quinebaug River, where a cotton factory had been built. In addition to the two Congregational societies, the town also had Baptist and Episcopal churches, and a Quaker house of worship (Barber 1837). An 1833 map of the county shows clusters of dense population at the villages of Abington, Williamsville, Prospect Hill, and Pomfretville. This map's many inaccuracies make it difficult to properly geo-register. The Project parcel appears, however, to have no mapped cultural resources other than a road within 152 m (500 ft) of it. Approximately 2.4 km (1.5 miles) to its west were unlabeled villages that are now known as Prospect and Prospect Center, and between the Project area and Prospect Hill the map indicates that there was a sawmill on the small brook to its west (Figure 3; Lester 1833).

Pomfret's population continued to decline after 1830, to just under 1,500 residents in 1870 (Keegan 2012). Nonetheless, the 1850 federal census of industry recorded 13 manufacturing enterprises that

made $500.00 or more of products in the prior year. These included sawmills, a gristmill, and a plaster mill that each employed only one man. Only one of these businesses made as much as $1,000.00 in goods. There was also a large cotton mill, two shoe-assembly businesses, two blacksmiths, and a carriagemaker. Overall, only approximately 200 people were employed in an industrial capacity in Pomfret at that time, which was not enough to raise the town's population in any significant way (United States Census Bureau 1850).

Later Industrial Period (1850-1930)

In 1855, Pomfret lost the northeastern corner of its territory, where the cotton textile mill was located, to the new town of Putnam (Larned 1880). An 1856 county map reflects this change, and identified the remaining population clusters as Abington Four Corners, Pomfret Street (instead of Prospect Hill) and Pomfret Landing (instead of Williamsville). This map's higher level of detail, with many labeled buildings, also indicated that none of these villages were focused on industrial production; they contained churches, stores, and schools. The 1856 map shows no cultural features – not even Wrights Crossing Road –within 152 m (500 ft) of the parcel. The nearest building was labeled with the name O. Dennis (Figure 4; Woodford 1856). A lack of industrial development was still visible in the 1869 map of the town, on which the villages of Abington, Pomfret Landing, and Pomfret Street still had no reported industry, even though the railroad passed through the town. The Project area was located on the northern side of a road, with no other cultural features within 152 m (500 ft) of it. Buildings shortly beyond that distance were labeled "T.H.," "T. Pettis," and "P. Towbridge." The initials "T.H." appeared multiple times on this map and likely refer to "Toll House," but it is not clearly defined on the map (Figure 5; Gray 1869). These names have not been positively identified in the census. The scattered nature of the buildings in this area of the town is, however, a clear sign of a rural agricultural landscape.

In 1872, a railroad link between Willimantic and Putnam opened, which crossed the width of Pomfret. Although this line was shown on the 1869 map, and it was started by the Boston, Hartford & Erie Railroad sometime after 1863, that company went bankrupt in 1870 with this link incomplete. The rights were bought up by the New York & New England Railroad, which finished the construction. This line started the famous "New England Limited" train, which was a special express train that took only six hours to make the 213 mile trip between Boston and New York. It was also known as the "White Train" for the color of its cars. Operating between 1885 and at least 1895, the New England Limited had a stop in Pomfret (Turner and Jacobus 1989). The arrival of the railroad can be credited with helping revive Pomfret's fortunes after the loss of the factory village. By 1880, the town was "becoming a favorite and fashionable resort. Families from many cities enjoy the coolness and comforts of these airy homes" (Larned 1880:475). This local demand helped to stimulate the town's agricultural efforts, so that a Farmer's Club and a turn to dairy farming improved the economic situation. Some residents built mansions, and Pomfret Hall was erected as a location for various entertainments. Also as of 1880, the separate Baptist congregation had closed and the Quakers were gone, but the Episcopal, the two Congregational, and a new Second Advent church remained in place (Larned 1880). By 1919, a historian remarked, "What a change a century has brought! Now Pomfret is the summer home of millionaires with palatial estates" (Wood 1919:376). In contrast to these optimistic statements, however, Pomfret's population slowly declined after 1850, and reached a low of approximately 1,470 residents in 1880 and 1890 (Keegan 2012).

Without an industrial base, the town was left with a largely agricultural permanent population spread thinly over the better agricultural land. During the mid to late nineteenth century, farming became an increasingly specialized and concentrated activity in Connecticut. Most farmers switched from meat and grains, which could be purchased more cheaply from the Midwest, to butter and cheese, which did not

travel well and could be sold locally. In the 1880s, refrigerated railroad cars were developed, which facilitated the production and sale of fresh milk. Overall, the farming population declined and marginal lands were abandoned. Towns with industrial activity managed to keep their populations stable, while wholly agricultural places lost population through the 1930s (Rossano 1997). The popularity of Pomfret as a resort area may be what kept its population from declining even further than it did.

Modern Era (1930-present)

A 1932 summary of town information reported Pomfret's principal industry simply as agriculture, then added, "is noted as a summer resort" (Connecticut 1932:296). Consistent with this description, the 1934 aerial photograph shows the Project area in an agricultural landscape that probably would have seemed generally familiar to nineteenth-century residents of the town. Even the two historic farmsteads were still present, to the west and east of the Project parcel. The parcel itself was characterized by a mixture of cleared, reforesting, and reforested fields, which was very similar to the surrounding landscape (Figure 6; Fairchild 1934). A 1935 guide to Connecticut remarked on how scenic Pomfret was, and how attractive as a summer home; it also noted the existence of the Pomfret School for boys, which wasfounded in 1894 (Heermance 1935). The number of farms in Connecticut continued to decline through the twentieth century, but because of suburbanization, which was a result of the rise of the automobile, the population of many towns began to grow again. This was the case with Pomfret, but on a much smaller scale (Rossano 1997).

Throughout most of the twentieth century, Pomfret's population grew slowly but steadily, with the pace picking up a little after 1960; it stood at 4,536 residents in 2020 (Keegan 2012, AdvanceCT and CTData Collaborative 2020). This was three times the population at the start of this period. The 1951 aerial photograph shows how small the impact of this population growth had been in the vicinity of the Project area, which seemed largely identical to the landscape of 1934, aside from some small advances in reforestation of some fields (Figure 7; USDA 1951). The 1996 aerial photograph, however, shows a number of significant changes in the area. The section of Wrights Crossing Road to the west of the Project area was lined with houses on moderate-sized lots. The section of the road to the south of the Poject area, however, was relatively undeveloped, with only the two historic farmsteads and a swampy area visible. The Project area itself had become part of a single large field, with the old field outlines erased (Figure 8; CT DEP 1996). In 2019, the area remained almost completely unchanged (Figure 9; CT ECO 2019).

As of the early twenty-first century, Pomfret mostly consisted of residential housing, numerous farms, and undeveloped land. The large amount of open space in the town was due to the presence of Mashamoquet Brook State Park, as well as preservation efforts by other private and public organizations (Pomfret 2016). Interestingly, in 2018, three of the rural town's five largest employers were manufacturers, namely Loos and Company, a wire and cable producer; Hull Forest Products, a timber harvester; and Fiberoptics Technology Inc. In 2019, approximately 31 percent of Pomfret's workers were in manufacturing (AdvanceCT and CTData Collaborative 2020). With its small population and large areas of preserved open space, it appears that Pomfret will nonetheless remain substantially rural into the future.

Conclusions

The documentary record indicates that the Project area was used only for agriculture during the historical period, and it is unlikely that any significant historical resources are present there or in its immediate vicinity. Even the majority fence and wall lines from earlier eras of farming have been

removed for the convenience of modern machinery. Surviving traces of such activity are unlikely to be considered historically significant.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous archaeological research completed within the vicinity of the Project area in Pomfret, Connecticut. This discussion provides the comparative data necessary for considering the results of the current Phase IB cultural resources reconnaissance survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the Project parcel are taken into consideration. Specifically, this chapter reviews previously identified archaeological sites and National/State Register of Historic Places properties situated in the Project region (Figures 10 and 11). 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 Properties/Districts in the Vicinity of the Project Area

A review of data currently on file at the CT-SHPO, as well as the electronic site files maintained by Heritage resulted in the detection of nine previously recorded archaeological sites and a single State Register of Historic Places listed property situated within 1.6 km (1 mi) of the Project parcel (Figures 10 and 11). They are discussed below. No National Register of Historic Places properties/districts were nearby.

Site 112-1

Site 112-1 is described as a prehistoric camp site, possibly from the Woodland Period. It is located to the south of Holmes Road and on the eastern side of Durkee Brook in Pomfret, Connecticut (Figure 10). Mary G. Souls by of the Public Archaeology Survey Team, Inc., (PAST) recorded the site in July of 1990. PAST archaeologists tested the site area in July of that year preceding construction of the Rainbow Creek Development. They recovered 8 quartz flakes, 13 flint flakes, 34 argillite flakes, 50 bone fragments, nine charred botanical fragments, one quartzite knife, and one quartzite Narrow-Stemmed projectile point. A possible feature was also identified, which consisted of a dark soil stain and fire-reddened soil 40 cmbs (16 inbs). Site 112-1 has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted by the proposed Project.

Site 112-2

Site 112-2 is situated at the southwest corner of the Holmes Road and Modock Road intersection in Pomfret, Connecticut (Figure 10). It also was recorded by Mary G. Soulsby of PAST in July of 1990 when it was tested prior to the development of the proposed Rainbow Creek housing subdivision. The site was described as a prehistoric camp dating from an unknown prehistory time period. PAST archaeologists recovered 2 quartz flakes, 5 quartzite flakes, and a single flint flake from the site area. Site 112-2 also has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted by the proposed solar Project.

Site 112-3

Site 112-3 is an unnamed prehistoric camp site recorded by Mary G. Soulsby of PAST in July of 1990. It is located at the southwestern corner of the Holmes Road and Modock Road intersection in Pomfret, Connecticut (Figure 10). PAST archaeologists tested the area preceding construction of the proposed Rainbow Creek subdivision and recovered 84 quartzite flakes, 3 quartz flakes, and a single quartzite Neville-like projectile point base. The Neville-like point indicated a Middle Archaic Period occupation. Site 112-3 has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). This site will not be impacted by the proposed solar Project.

Site 112-4

Site 112-4 is located 30 m (98.4 ft) to the south of Holmes Road in Pomfret, Connecticut (Figure 10). It was recorded by Mary G. Soulsby of PAST in July of 1990 after PAST tested the area preceding construction of the Rainbow Creek subdivision. Archaeologists recovered a single quartz flake and 8 rhyolite flakes. According to the site form, the proposed Rainbow Creek subdivision would impact Site 112-4 and therefore PAST recommended Phase II NRHP testing and evaluation to determine the site's boundaries and significance. The results of the Phase II testing and evaluation, if performed, are not listed on the site form. This site will not be impacted by the proposed solar Project.

Site 112-5

Site 112-5 also was recorded by Mary G. Soulsby of PAST in July of 1990 preceding the construction of the Rainbow Creek subdivision. Survey of the site area resulted in the identification of a prehistoric camp site from an unknown time period. PAST archaeologists recovered 193 quartzite flakes and 4 quartz flakes from the Site 112-5 area. The site was not assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]) at the time it was recorded, though PAST recommended further excavation before subdivision construction. It would have been impacted by the Rainbow Creek subdivision project, but it will not be further impacted by the current proposed solar facility. It is located southwest of the intersection of Holmes Road and Modock Road in Pomfret, Connecticut (Figure 10).

Site 112-6

Site 112-6 is located to the southwest of the intersection of Holmes Road and Modock Road in Pomfret, Connecticut (Figure 10). It was recorded by Mary G. Soulsby of PAST in July of 1990 as a prehistoric site from an unknown time period. PAST discovered the site during testing in July 1990 preceding construction of the Rainbow Creek subdivision. Archaeologists recovered a single quartzite flake from the site in an area that would be impacted by the Rainbow Creek Subdivision. PAST recommended Phase II NRHP testing and evaluation of Site 112-6 determine its boundaries and significance. The results of the Phase II testing and evaluation, if preformed, are not listed on the site form. It will not be impacted directly or indirectly by the proposed solar project.

Site 112-25

Site 112-25 was identified by John Kelly of the Public Archaeology Laboratory, Inc., (PAL) in February of 2017. The site was identified during a 2015 Phase IB survey of a natural gas pipeline in an area situated approximately 340 ft (140 m) to the east of Grosvenor Road in Pomfret, Connecticut (Figure 10). Site 112-25 was interpreted as a nineteenth to twentieth century refuse disposal area. Artifacts recovered from the site included untyped flat glass, a bottle base, transfer print ceramic sherds, decal-printed ceramic sherds, porcelain sherds, and window glass. No historic architectural remains were identified during background research or archaeological investigation. Site 112-25 has not been assessed applying

the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It will not be impacted directly or indirectly by the proposed solar project.

Site 112-26

Site 112-26 also was recorded in 2017 by John Kelly of PAL. It is located at the intersection of a natural gas pipeline and Wrights Crossing Road in Pomfret, Connecticut (Figure 10). PAL tested Site 112-26 in 2015, which consists of a dry-laid stone foundation. The foundation was likely an outbuilding associated with the adjacent Horace Clapp house, which was constructed in 1869. A total of 21 historic artifacts dating to the twentieth century were recovered from the site; they included complete and fragmented soda bottles, a porcelain sherd, iron nails, hooks, and spikes. Site 112-26 was assessed as not significant applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). This site will not be impacted directly or indirectly by the proposed solar project.

Site 112-27

Site 112-27 was documented by John Kelly of PAL in February of 2017. The site was identified during a 2015 Phase IB survey of a natural gas pipeline in an area located approximately 240 ft (73 m) to the east of Wrights Crossing Road in Pomfret, Connecticut (Figure 10). Site 112-27 was described as a prehistoric site of an unknown temporal affiliation. Recovered cultural material consisted of 52 prehistoric artifacts, including 33 quartz, chert, and rhyolite flakes; 2 utilized quartz flakes; 12 pieces of quartz quartzite and unidentified shatter; a single untyped chert projectile point preform; 1 piece of calcined bone; 2 pieces of fire-cracked rock; and a single piece of uncharacterized schist. The site was assessed as potentially significant applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The results of the Phase II testing and evaluation, if preformed, are not listed on the site form. This site will not be impacted directly or indirectly by the proposed solar project.

State Register of Historic Places: 112-12

State Register of Historic Places property 112-12 is also known as the Tyrone Farm, and it is located at 89 Tyrone Road in Pomfret, Connecticut (Figure 11). It was recorded by H.C. Darbee of the Connecticut Historical Commission on December 7, 1967 as a distinguished Federal-style residence. The main building was built in 1742 and is characterized by two-and-a-half stories with pilasters at its front corners supporting a plain frieze above the second story. Window caps mimic the frieze pattern, and the windows have six-over-six sash. The main door had decorative pilasters to its sides and a prominent pediment above it. Exterior walls were clad in clapboards and the gable roof was covered with asphalt shingles. This main block was surrounded by later additions to both sides. Furthermore, as of 1967, there was an associated barn and caretaker's lodge on the property. This historic house is now used as a wedding venue. Despite some modern alterations, the structure's architectural features and setting remains intact. Due to the presence of intervening vegetation, local topography, and the low profile of the facility, proposed solar project will have no impact on the Tyrone Farm.

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methodology used to complete the current cultural resources survey of the Project area in Pomfret, Connecticut. It also includes a discussion of the laboratory methods and the procedures used to process and analyze the recovered cultural material. Finally, the location and point-of-contact for the final 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 cultural resources survey was designed to identify all prehistoric and historic cultural resources located within the Project area. Fieldwork for the project was comprehensive in nature; planning considered the distribution of previously recorded archaeological sites located and State/National Register of Historic Places near the proposed Project area, and a geological assessment of the Project area. The methods used to complete this investigation were designed to provide complete and thorough coverage of all portions of the Project area. This undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, and photo-documentation throughout the limits of the study area.

Field Methodology

Following the completion of all background research, the Project area was subjected to an archaeological reconnaissance survey utilizing pedestrian survey, photo-documentation, mapping, and systematic shovel testing. The field strategy was designed such that the entire Project area was examined visually and photographed. The pedestrian survey portion of this investigation included visual reconnaissance of all areas scheduled for impacts by the proposed development project. The field methodology also included subsurface testing of the Project area. Since the Project area was assessed as having only a moderate sensitivity for intact archaeological deposits, the area was surveyed by placing shovel tests at 20 m (65.6 ft) intervals along parallel survey transects spaced 20 m (65.6 ft) apart.

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, the water table was reached, 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.

Laboratory Analysis

Laboratory analysis of recovered cultural material, which consisted of only historic artifacts, followed established archaeological protocols. To begin the laboratory analysis process, field specimen bag proveniences first were 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. Separate databases, designed specifically for the analysis of the recovered historic and prehistoric artifacts, were employed to store, organize, and manipulate data gathered during the analytical process. A detailed discussion of the recovered artifacts is discussed in detail in the following chapter.

Prehistoric Lithic Analysis

The lithic analysis protocol used in this project was a "technological" or "functional" one designed to identify prehistoric reduction trajectories, lithic industries, and tool functions. The protocol 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 describes the raw material type of the artifact. Lithic materials were identified utilizing recognized geological descriptions and terminology, and with the use of type specimens of known source. Lithic raw materials were divided 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 preform, of lithic artifact, while the last level, subtype, was employed to specify morphological attributes, e.g., primary cortex, extensively reduced, or corner-notched. Typological identifications for temporally and regionally diagnostic tools were included in the analysis. Such identifications were made by reference to established lithic artifact typologies.

Historical Cultural Material Analysis

The analysis of the historical cultural material recovered during the current Phase I cultural resources reconnaissance survey was organized by class, functional group, type, and subtype. The first level, class, represented the material category, e.g., ceramic, glass, metal. The second level, functional group, e.g., architecture, kitchen, or personal, was based on standard classifications. The third and fourth levels, type and subtype, described the temporally and/or functionally diagnostic artifact attributes. The identification of artifacts was aided by consulting standard reference works.

Curation

Following the completion and acceptance of the Final Report of Investigations, all cultural material, drawings, maps, photographs, and field notes will be curated with:

Office of Connecticut State Archaeology
Box U-1023
University of Connecticut
Storrs, Connecticut 06269

CHAPTER VII
RESULTS OF THE INVESTIGATION

Introduction

This chapter presents the results of a cultural resources survey of the proposed solar facility in Pomfret, Connecticut (Figures 1 and 2). The investigation was completed on behalf of All-Points in July of 2021, 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 Project Area

As discussed in Chapter I, the Project area associated with the proposed solar facility measures approximately 13.9 ac in size. It occupies a forested area that is bordered by the open hayfields to the north, wooded areas to the east, Wright's Crossing Road to the south, and by a slope down to a Bark Meadow Brook to the west. Access to the Project area will be from Wright's Crossing Road. The area around the Project area is rural in character and contains large open spaces with sparse single-family homes.

The current effort consisted of pedestrian survey, subsurface testing, and mapping of the project parcel. The subsurface testing regime resulted in the excavation of 137 of 137 (100 percent) planned shovel tests and 24 of 24 (100 percent) delineation shovel tests, each measuring 50 x 50 cm (19.7 x 19.7 in) in size, throughout the area containing the proposed solar facility (Figures 12 through 18). The Phase IB effort resulted in the identification of a single prehistoric archaeological locus (Locus 1) and a scatter of historical period artifacts. The Locus 1 area and the historical artifact scatter are described below.

Locus 1

The Locus 1 area was identified in the western portion of the Project area. It contained prehistoric artifacts that were recovered from five shovel tests situated along Survey Transects 5, 7, and 8, respectively. A typical shovel test pit excavated in this area exhibited three soil horizons in profile. The Ap-Horizon (plow zone) extended from the surface to 26 cmbs (0 to 10.2 inbs) and was characterized as a layer of dark brown (10YR 3/3) fine sandy silt. The underlying B-Horizon subsoil reached from 26 to 62 cmbs (10.6 to 24.4 inbs); it was characterized as a deposit of yellowish brown (10YR 5/4) fine sandy silt. Finally, the glacially derived C-Horizon was identified at 62 cmbs (24 inbs) and was excavated to a maximum depth of 72 cmbs (28.3 inbs); it was characterized as light olive brown (2.5Y 5/4) coarse sand with gravel.

As seen in Table 1, Locus 1 yielded 2 quartz scrapers, 1 piece of quartz shatter, and 2 quartz secondary thinning flakes from the disturbed Ap-Horizon (plow zone) at depths ranging from between 0 and 20 centimeters (0 and 7.9 inches) below surface. No cultural features or soil anomalies were associated with the recovered lithic debris, and the recovered artifacts could not be assigned to particular prehistoric time period or cultural affiliation. Locus 1, which appears to represent a task-specific or very short term occupation, lacks research potential and the qualities of significance applying the NRHP criteria for evaluation (36 CFR 60.4 [a-d]). No additional archaeological examination of Locus 1 is recommended prior to construction of the proposed solar facility.

Table 1. Artifacts recovered from Locus 1.

Transect	Shovel Test	Horizon	Depth	Material	Type	Subtype	Count
5	3	Ap	10-20 cmbs	lithic	quartz	end scraper	1
	D5	Ap	10-20 cmbs	lithic	quartz	secondary thinning flake	1
7	5	Ap	0-10 cmbs	lithic	quartz	shatter	1
	D21	Ap	0-10 cmbs	lithic	quartz	shatter	1
8	1	Ap	10-20 cmbs	lithic	quartz	scraper	1
						secondary thinning flake	1
Total							**6**

Historical Artifacts Scatter

The Phase IB cultural resources reconnaissance survey also resulted in the collection of 10 historical period artifacts. They were found scattered throughout the Project area and consisted of 3 clear window glass fragments, 1 machine-cut nail (1790s to 1900s), 1 kaolin pipe stem fragment, 2 blue transfer printed pearlware body sherds (ca. 1780 to 1830), and 3 clear glazed whiteware body sherds (ca. 1820 to present). The historical materials were all recovered from the Ap-Horizon (plow zone) at depths ranging from between 0 and 20 centimeters below surface (0 and 7.9 inbs) (Table 2).

The historical period artifacts recovered from the Project area are domestic in nature. The Phase IB survey of the project area failed to identify any surficial or buried architectural features (e.g., foundations, wells, privies, etc.) that could be associated with the historical artifacts. Therefore, these artifacts are interpreted as a field scatter of materials that lack historical association, research potential, and the qualities of significance as defined by the National Register of Historic Places (NRHP) criteria for evaluation (36 CFR 60.4 [a-d]). No additional examination of historical artifact scatter is recommended.

Table 2. Historical artifacts recovered throughout the project area.

Transect	Shovel Test	Horizon	Depth	Material	Type	Subtype	Count
1	1	Ap	0-10 cmbs	glass	clear	flat glass	2
				ceramic	whiteware	clear glazed body	1
			10-20 cmbs	ceramic	clear	flat glass	1
	2	Ap	10-20 cmbs	ceramic	kaolin	pipe stem	1
	14	Ap	0-10 cmbs	ceramic	whiteware	clear glazed body	1
5	D5	Ap	10-20 cmbs	ceramic	whiteware	clear glazed body	1
7	D23	Ap	0-10 cmbs	ceramic	pearlware	blue transfer printed body	1
				metal	iron	machine-cut nail	1
8	D9	Ap	10-20 cmbs	ceramic	pearlware	blue transfer printed body	1
Total							**10**

CHAPTER VIII
SUMMARY & MANAGEMENT RECOMMENDATIONS

Heritage completed the current Phase IB cultural resources survey on behalf of All-Points in July of 2021. A total of 137 of 137 (100 percent) planned shovel tests and 24 of 24 (100 percent) delineation shovel tests were excavated throughout the area containing the proposed solar facility. This effort resulted in the identification of a single prehistoric locus, Locus 1. Given the disturbed soil context, low density of cultural material, and lack of intact cultural features, Locus 1 was assessed as not significant applying the NRHP criteria for evaluation (36 CFR 60.4 [a-d]). Further, historical cultural material recovered during excavation was interpreted as a scatter of materials that lacks historical association, research potential, and the qualities of significance as defined by the NRHP criteria for evaluation (36 CFR 60.4 [a-d]). No additional archaeological examination of Locus 1, the scatter of historical artifacts, and the Project area is recommended prior to construction of the proposed solar facility.

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

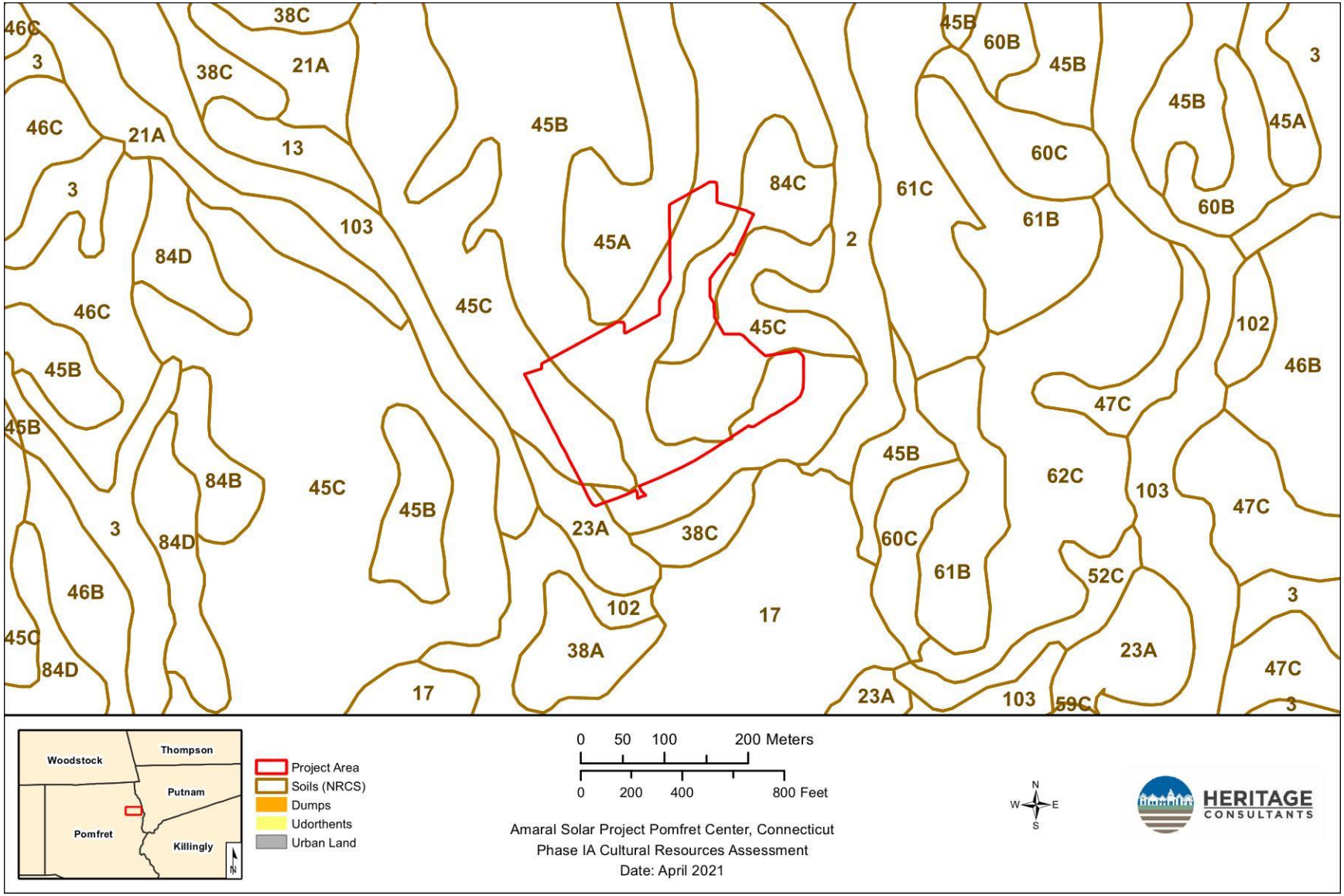


Figure 2. Map of soils located in the vicinity of the project area in Pomfret, Connecticut.

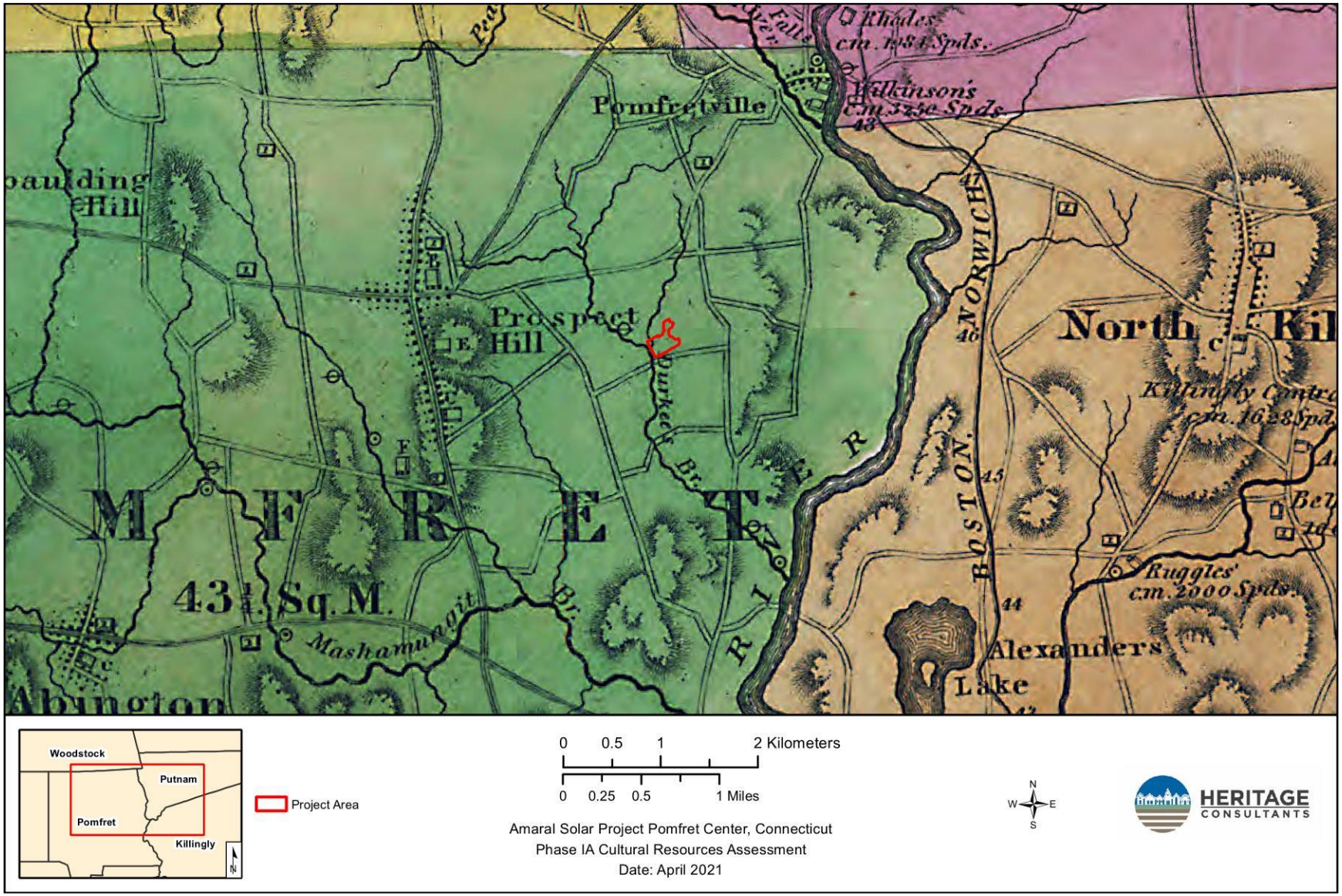


Figure 3. Excerpt from an 1833 historical map showing the location of the project area in Pomfret, Connecticut.

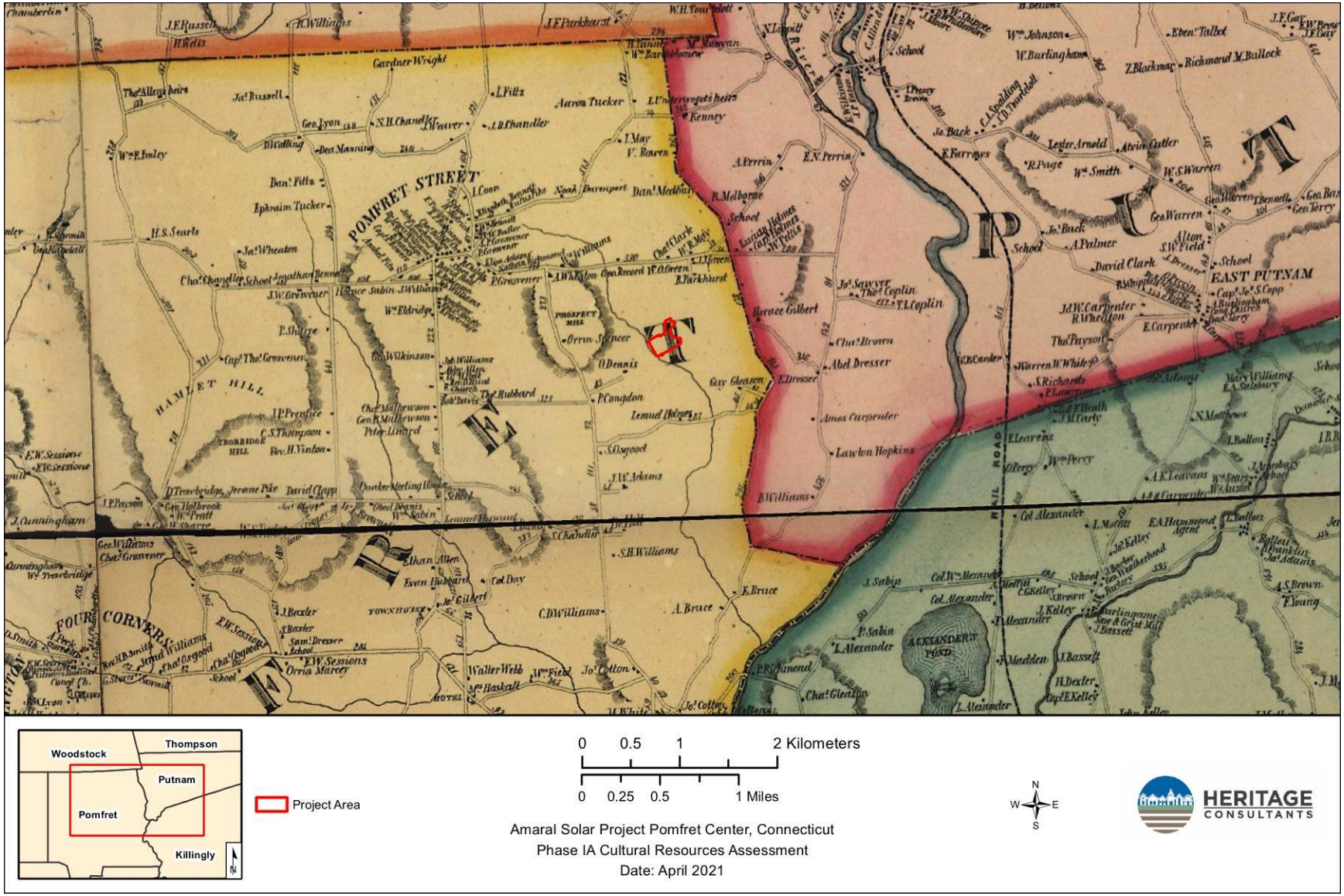


Figure 4. Excerpt from an 1856 historical map showing the location of the project area in Pomfret, Connecticut.

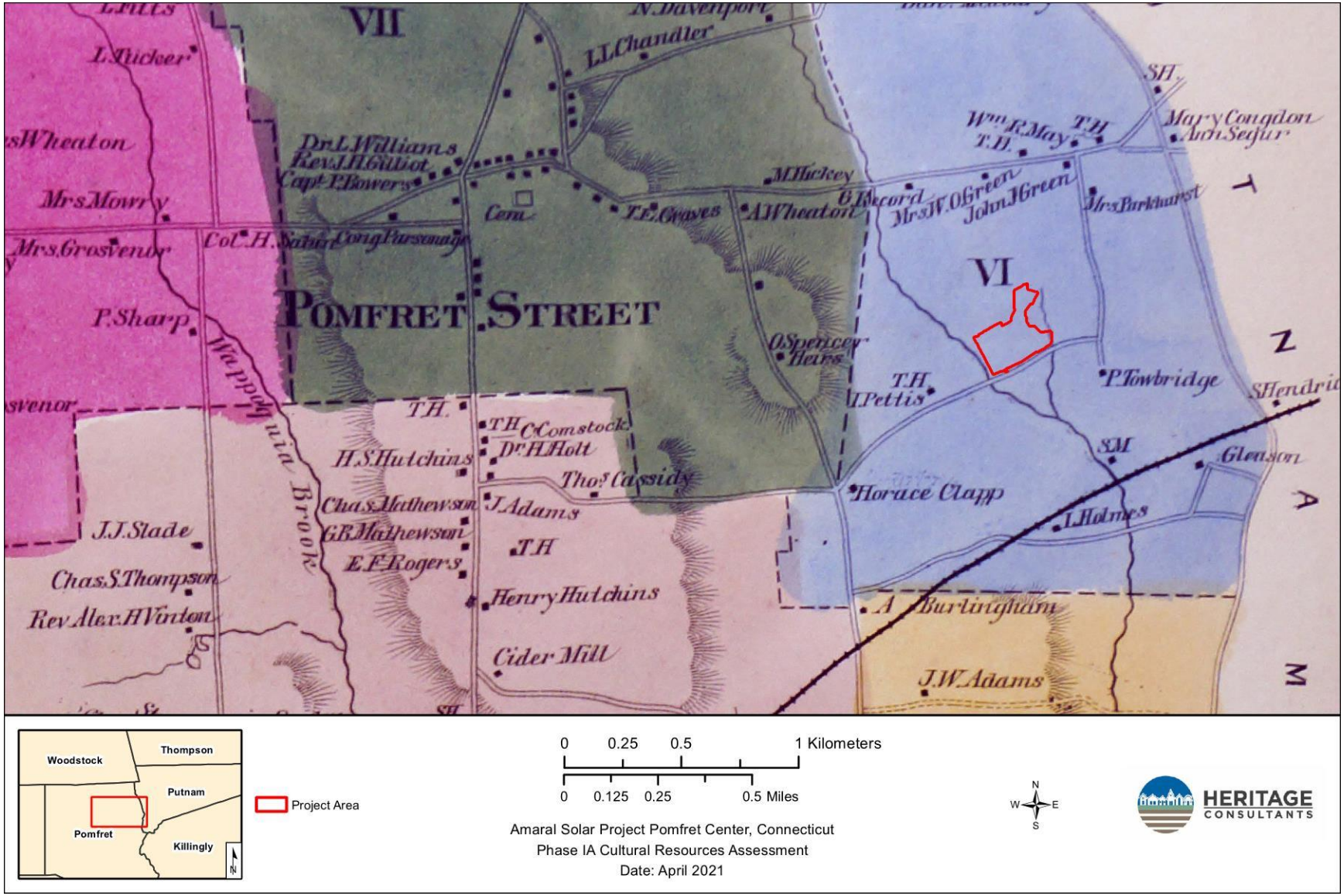


Figure 5. Excerpt from an 1869 historical map showing the location of the project area in Pomfret, Connecticut.

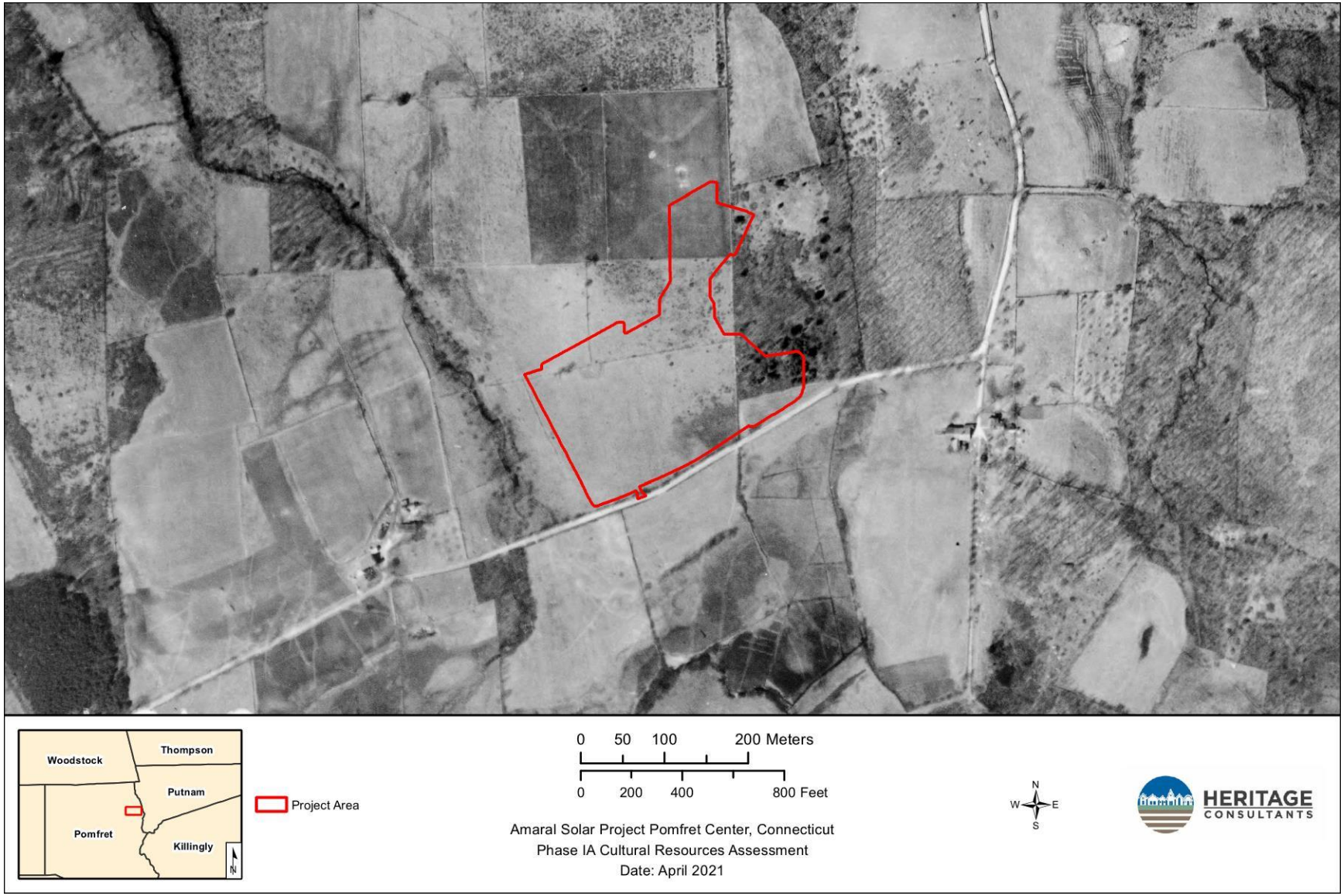


Figure 6. Excerpt from a 1934 aerial photograph showing the location of the project area in Pomfret, Connecticut.

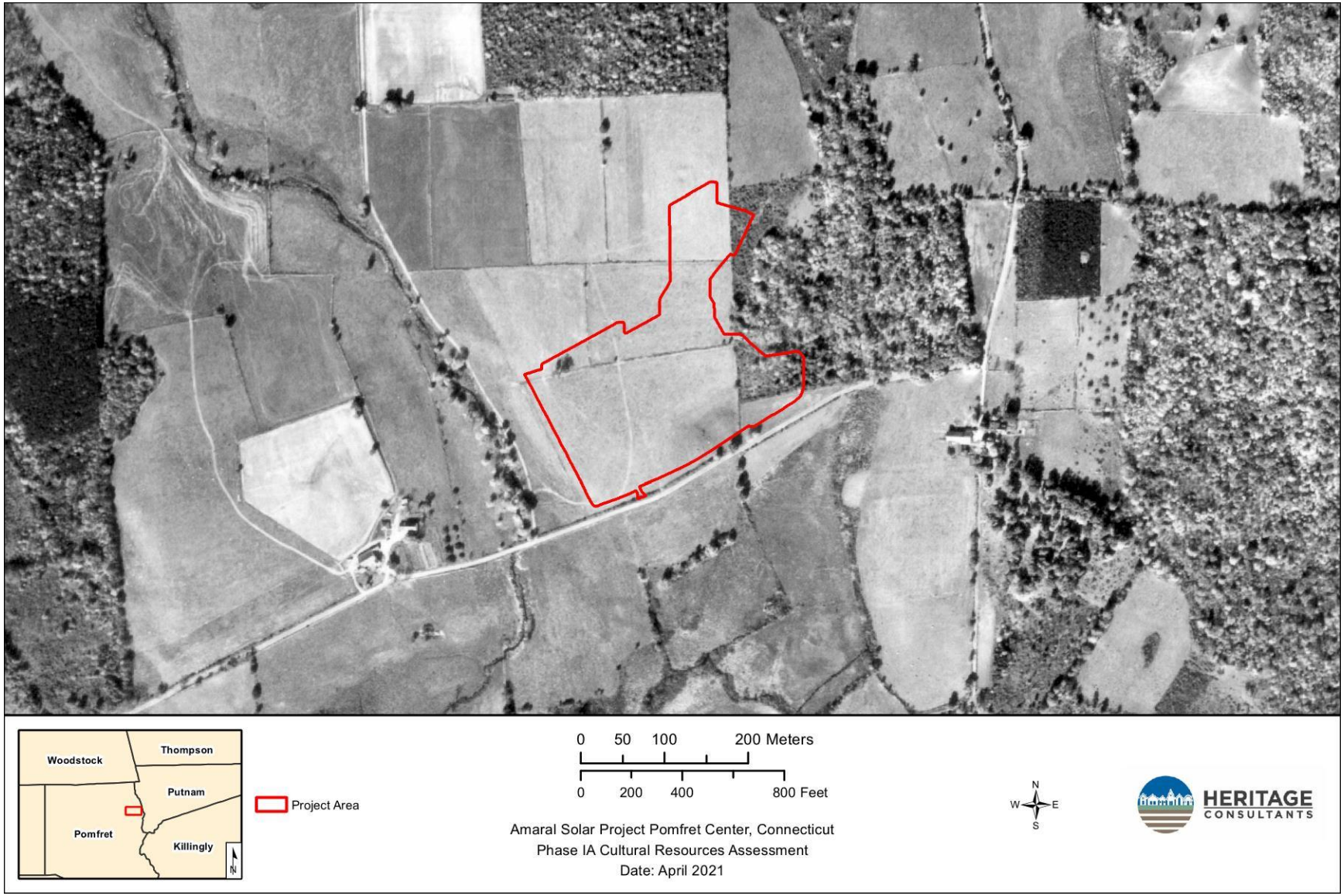


Figure 7. Excerpt from a 1951 aerial photograph showing the location of the project area in Pomfret, Connecticut.

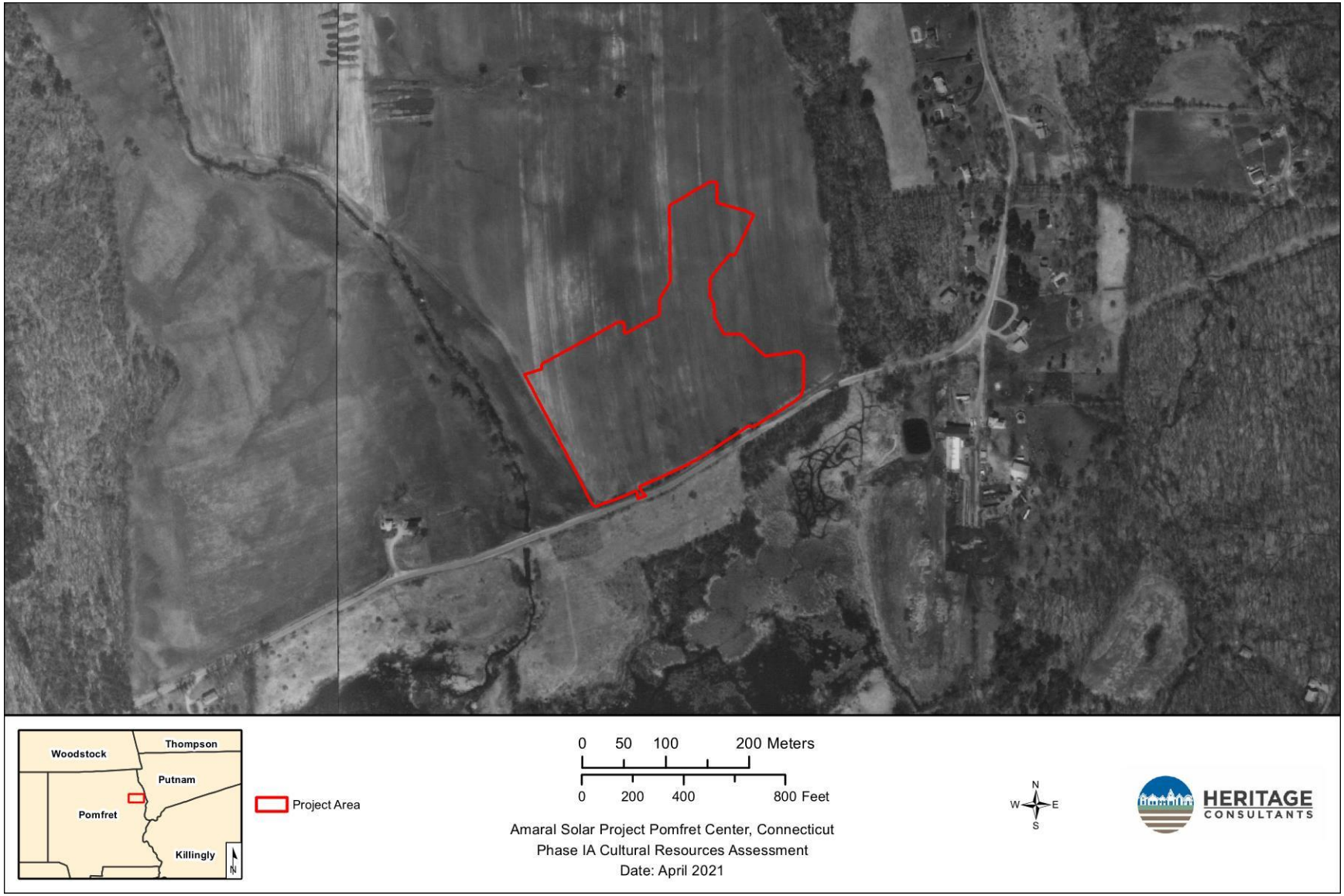


Figure 8. Excerpt from a 1996 aerial photograph showing the location of the project area in Pomfret, Connecticut.

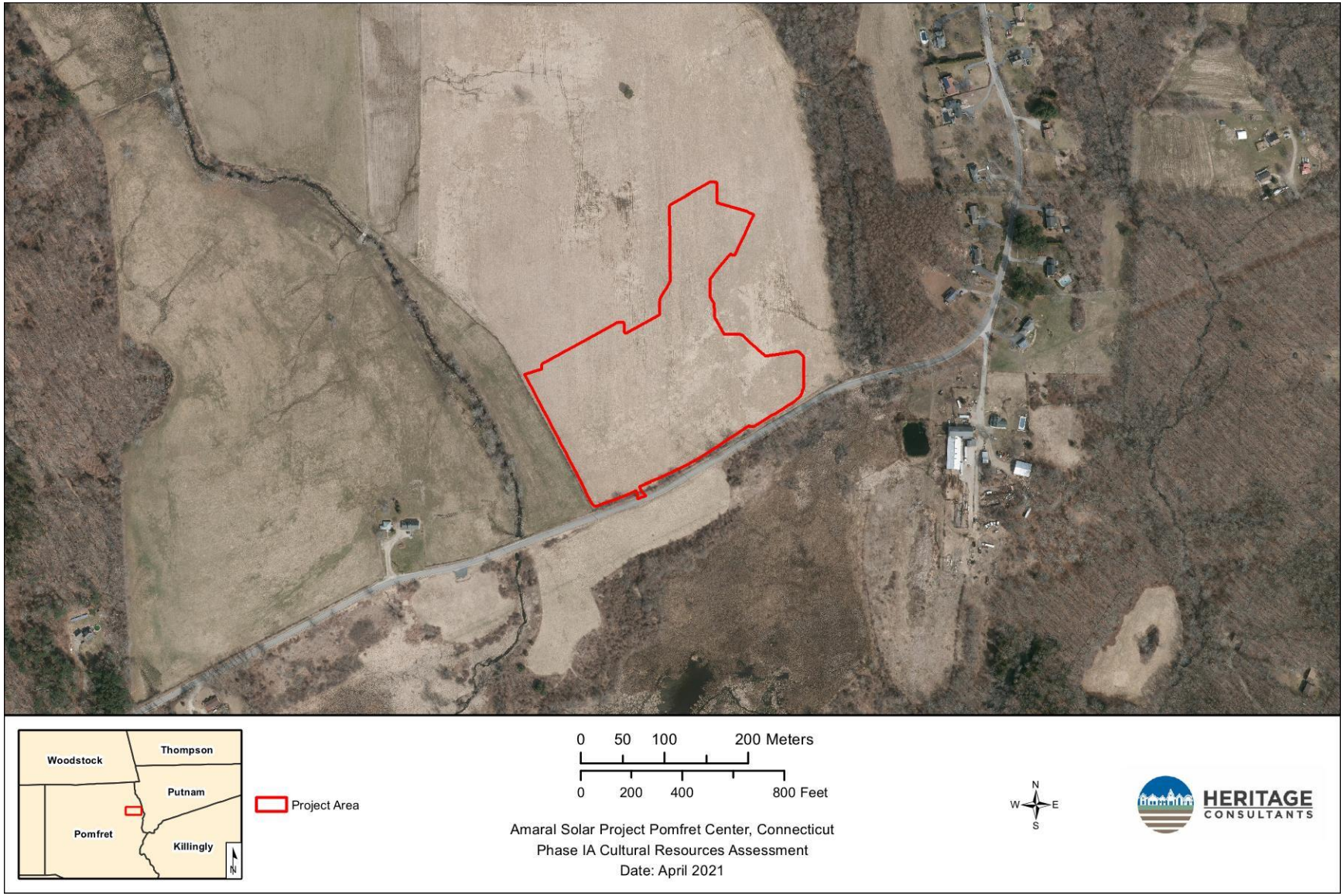


Figure 9. Excerpt from a 2019 aerial photograph showing the location of the project area in Pomfret, Connecticut.

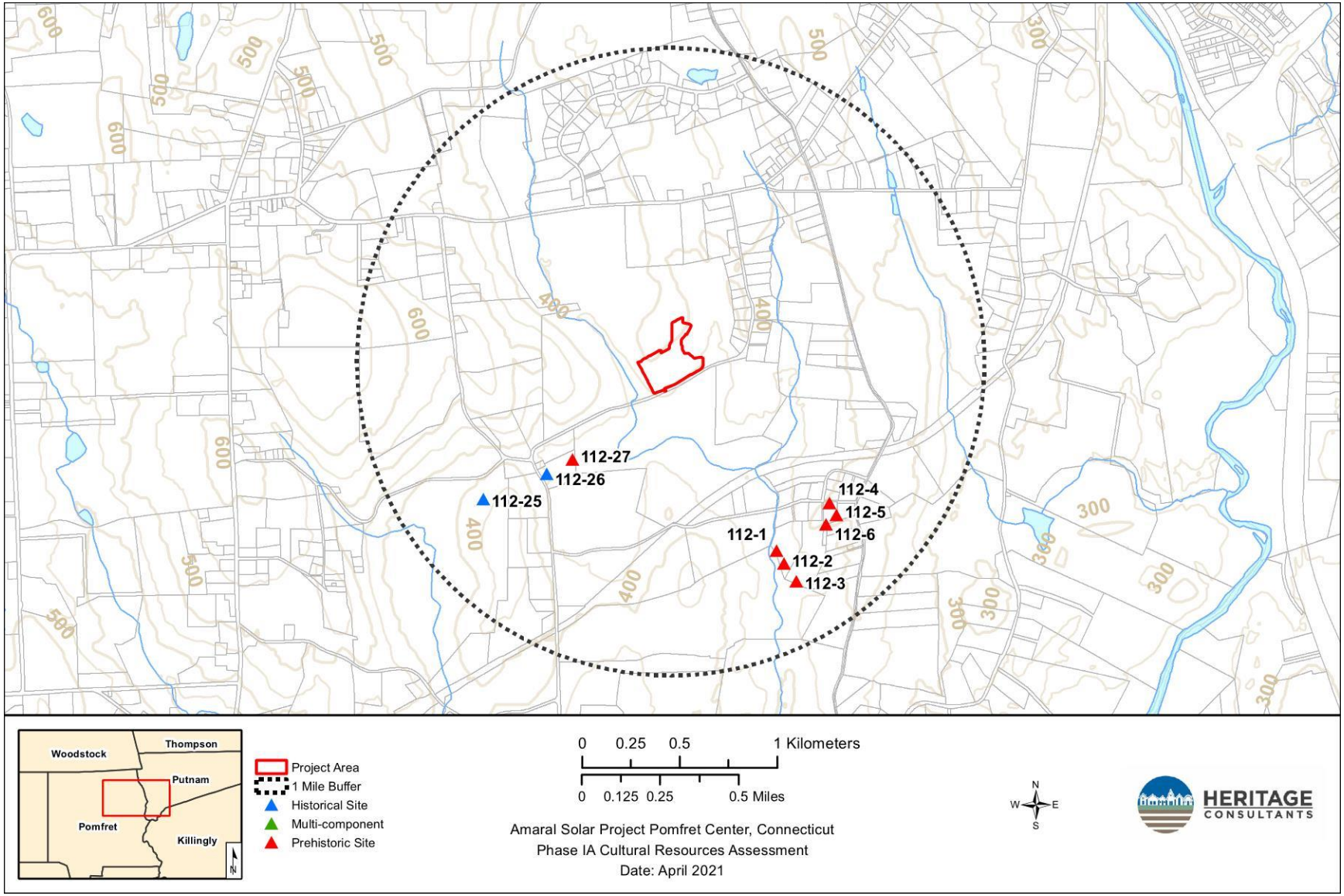


Figure 10. Digital map showing the location of previously identified archaeological sites in the vicinity of the project area in Pomfret, Connecticut.

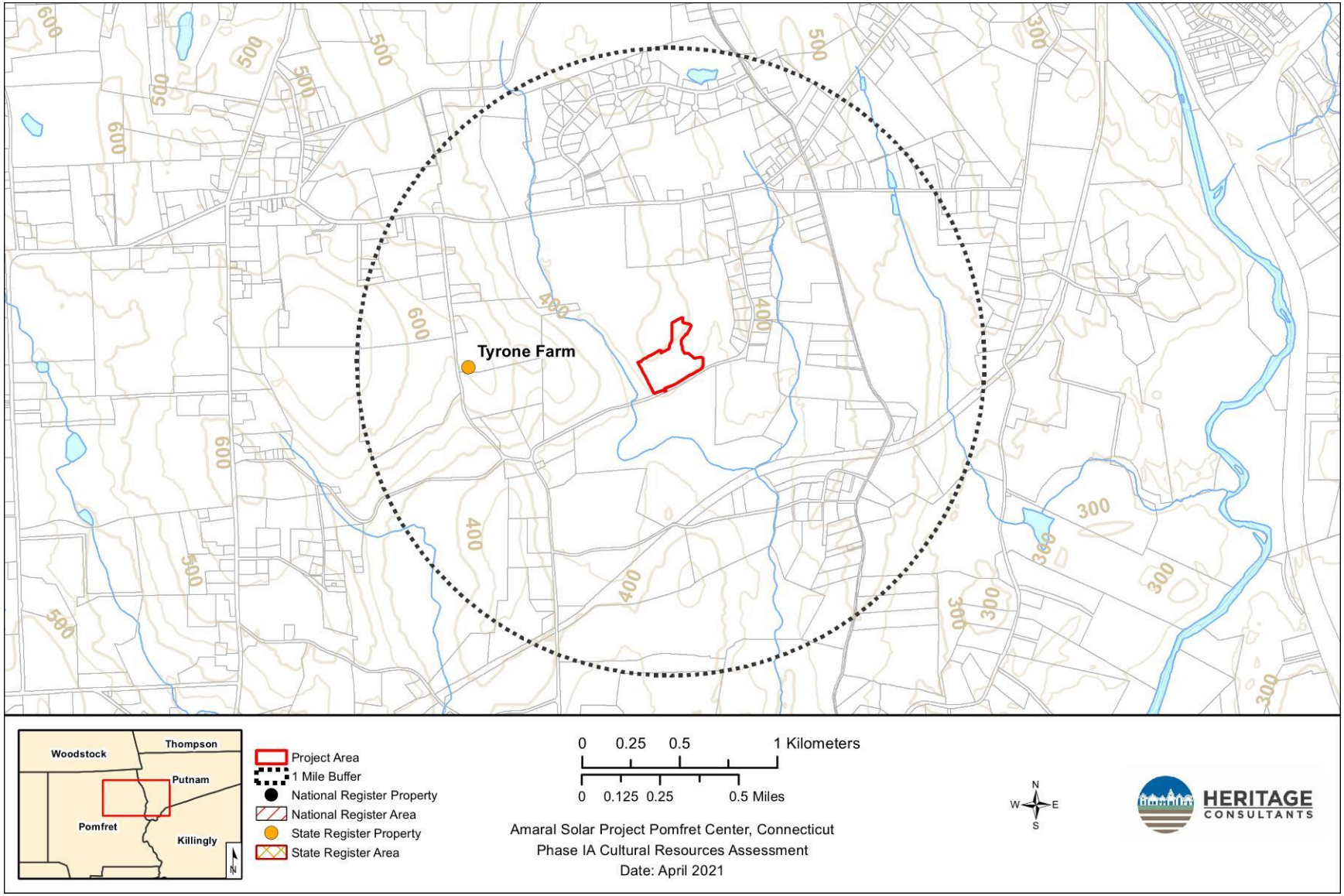


Figure 11. Digital map depicting the locations of previously identified National/State Register of Historic Places properties and inventoried Historic Standing Structures in the vicinity of the project area in Pomfret, Connecticut.

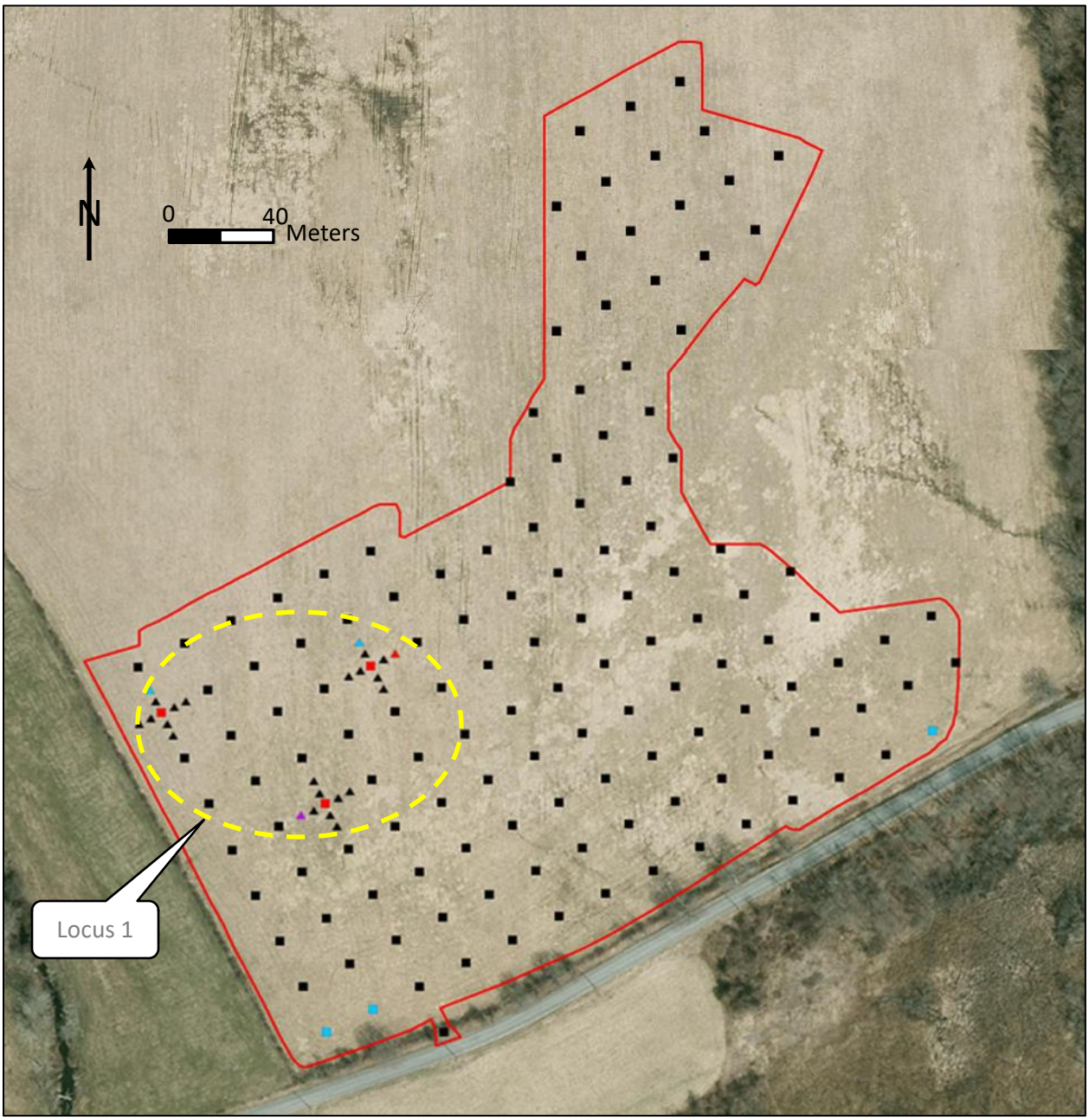


Figure 12. Plan view of the proposed Project area showing the locations of shovel tests, Locus 1, and the scatter of historical artifacts.

Figure 13. Overview photo from southeastern corner of project area in Pomfret, Connecticut. Photo taken facing southwest.

Figure 14. Overview photo from southwestern corner of project area in Pomfret, Connecticut. Photo taken facing northeast showing Locus 1.

Figure 15. Overview photo from northern boundary of the project area in Pomfret, Connecticut. Photo taken facing southeast.

Figure 16. Overview photo from the northwest portion of the project area in Pomfret, Connecticut. Photo taken facing southeast.

Figure 17. Overview photo from center of the project area in Pomfret, Connecticut. Photo taken facing west.

Figure 18. Overview photo from center of the project area in Pomfret, Connecticut. Photo taken facing east.

APPENDIX H

PRODUCT INFORMATION SHEETS

TALESUN

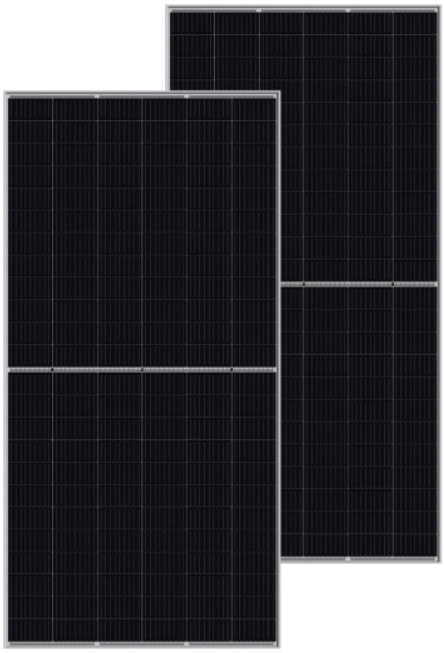
BIPRO

TP6G72M
TP6G72M(H)

144 half-cell

390 - 415W

bifacial transparent single glass
9BB half-cut mono perc



KEY FEATURES

9BB half-cut cell technology
New circuit design, lower internal current, lower Rs loss

Industry leading high yield
Bifacial PERC cell technology,
5%-25% more yield depends on different conditions

Excellent Anti-PID performance
2 times of industry standard Anti-PID test by TUV SUD

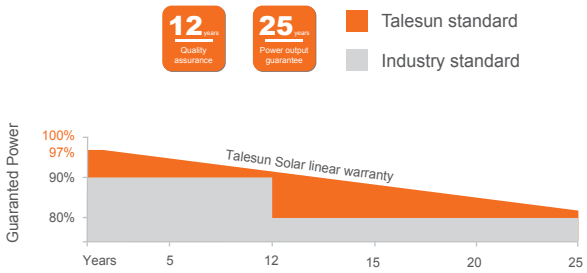
Wider application
No water-permeability and high wear-resistance,
can be widely used in high-humid, windy and dusty area

IP68 junction box
High waterproof level

SYSTEM & PRODUCT CERTIFICATES

- IEC 61215 / IEC 61730 / UL 1703
- ISO 9001: 2015 Quality Management System
- ISO 14001: 2015 Environment Management System
- ISO 45001: 2018 Occupational Health and Safety Management Systems

PERFORMANCE WARRANTY



marketing.hq@talesun.com

Annual Module Capacity Globally: 12GW
China: 10GW
Thailand: 2GW

TALESUN

ELECTRICAL PARAMETERS

Performance at STC (Power Tolerance 0 ~ +3%)

Maximum Power (Pmax/W)	390	395	400	405	410	415
Operating Voltage (Vmpp/V)	40.8	41.1	41.4	41.7	42.0	42.3
Operating Current (Impp/A)	9.56	9.61	9.67	9.72	9.77	9.82
Open-Circuit Voltage (Voc/V)	48.7	48.9	49.1	49.3	49.5	49.7
Short-Circuit Current (Isc/A)	10.08	10.14	10.20	10.26	10.32	10.38
Module Efficiency ηm(%)	19.06	19.3	19.55	19.79	20.04	20.28

Performance at NMOT

Maximum Power (Pmax/W)	291.5	295.1	298.8	302.4	306.1	309.8
Operating Voltage (Vmpp/V)	38.1	38.3	38.5	38.8	39.0	39.2
Operating Current (Impp/A)	7.65	7.70	7.75	7.80	7.86	7.91
Open-Circuit Voltage (Voc/V)	45.6	45.7	45.9	46.1	46.3	46.4
Short-Circuit Current (Isc/A)	8.13	8.18	8.23	8.27	8.32	8.37

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5 NMOT: Irradiance at 800W/m², Ambient Temperatue 20°C, Air Mass AM1.5, Wind Speed 1m/s

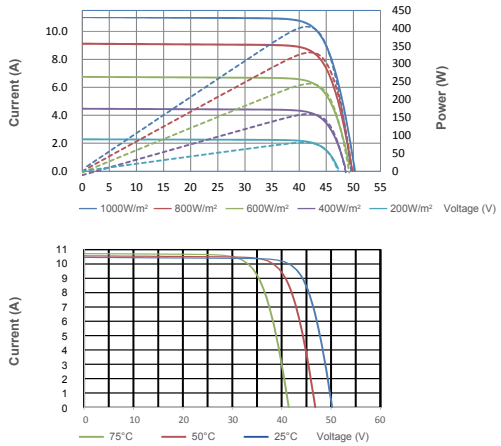
Electrical characteristics with different rear side power gain (refer to 400W front)

Pmax gain	Pmax/W	Vmpp/V	Impp/A	Voc/V	Isc/A
5%	420	41.4	10.14	49.1	10.71
10%	440	41.4	10.63	49.1	11.22
15%	460	41.4	11.11	49.1	11.73
20%	480	41.4	11.59	49.1	12.24
25%	500	41.4	12.08	49.1	12.75

MECHANICAL SPECIFICATION

Cell Type	Half-cell 9 busbar
Cell Dimensions	158.75*158.75mm (6inches)
Cell Arrangement	144 (6*24)
Weight	23.5kg (51.8lbs)
Module Dimensions	2030*1008*35mm (79.72*39.68*1.38inches)
Cable Length (Portrait)	(+)300mm (11.81inches) / (-)300mm (11.81inches)
Cable Length (Landscape)	(+)1200mm (47.24inches) / (-)1200mm (47.24inches)
Cable Cross Section Size	4mm² (0.006inches²)
Front Glass	3.2mm High Transmission, Tempered Glass
No. of Bypass Diodes	3/6
Packing Configuration(1)	31pcs/carton, 682pcs/40hq
Packing Configuration(2)	31+3pcs/carton, 715pcs/40hq
Frame	Anodized Aluminium Alloy
Junction Box	IP68

I-V CURVE



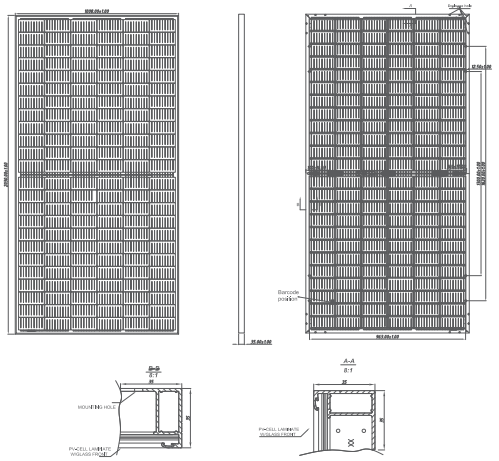
OPERATING CONDITIONS

Maximun System Voltage	1000V/1500V/DC(IEC)
Operating Temperature	-40°C ~ +85°C
Maximun Series Fuse	20A
Static Loading	5400pa
Conductivity at Ground	≤0.1Ω
Safety Class	II
Resistance	≥100MΩ
Connector	MC4 Compatible
Backside Output Ratio* *Under STC: Backside Output Ratio = $P_{max(rear)}$ /$P_{max(front)}$	60% - 80%

TEMPERATURE COEFFICIENT

Temperature Coefficient Pmax	-0.36%/°C
Temperature Coefficient Voc	-0.26%/°C
Temperature Coefficient Isc	+0.043%/°C
NMOT	42±2°C

TECHNICAL DRAWINGS



TALESUN

Industrial Solutions

Catalog No. 9T10A1008

Description AL 300KVA 480-208Y 150C K1 STD DOE2016

UPC No 783173904725

Products > Transformers > Dry Type Vented > General Purpose

GE Type QL transformers meet DOE 2016 efficiency standards. They are available with aluminum or copper windings and utilize a UL recognized 220°C insulation system.

-Quiet Performance
-Outward-facing mounting feet
-Lug kit included
-Ground bar kit included
-Core and coil assemblies are mounted on rubber isolation pads to reduce noise
-Bolted coil terminations
-Single-piece front/back is easily removable for service
-NEMA 2 drip-proof enclosure is standard; weathershield kits are available for conversion to NEMA 3R outdoor configuration
-Qualified to the seismic requirements of IEEE-693-2005 and IBC-2012 and CBC 2013
-Copper or aluminum windings
-Copper ground strap
-Robust packaging with top and side protection protects against shipping damage
-Accessible mounting flanges with front/back slotted mounting holes make installation easier
-100% factory tested for shorts and coil integrity, current and loss, voltage, impedance and noise.
-Clear, comprehensive documentation and labeling

Specifications

Descriptors

Category	General Purpose
GO Schedule	TY

Specifications

Phase	3
PriVoltage	480
SecVoltage	208Y/120
KVA	300.0 KVA
Coil Material	AL
TempRise	150.0 °C
Frequency	60 Hz
Impedance	5.3 %
AmbTemp	40.0 °C
EnergyEfficiency	DOE 2016
KFactor	K1
Enclosure Type	NEMA 2
Sound	Std
GSA Compliance	No

Classifications

CE	0

Publications

Title	Publication No.	Publication Type
UL Nameplate Drawing UL Nameplate Drawing 9T10A1008-LBL	9T10A1008-LBL	Connection Diagram

Additional Documentation: Visit our Publication Library to find technical documentation, time current curves, CSI Specifications and promotional literature.

MULTIWAY+

HT78-18X Transparent

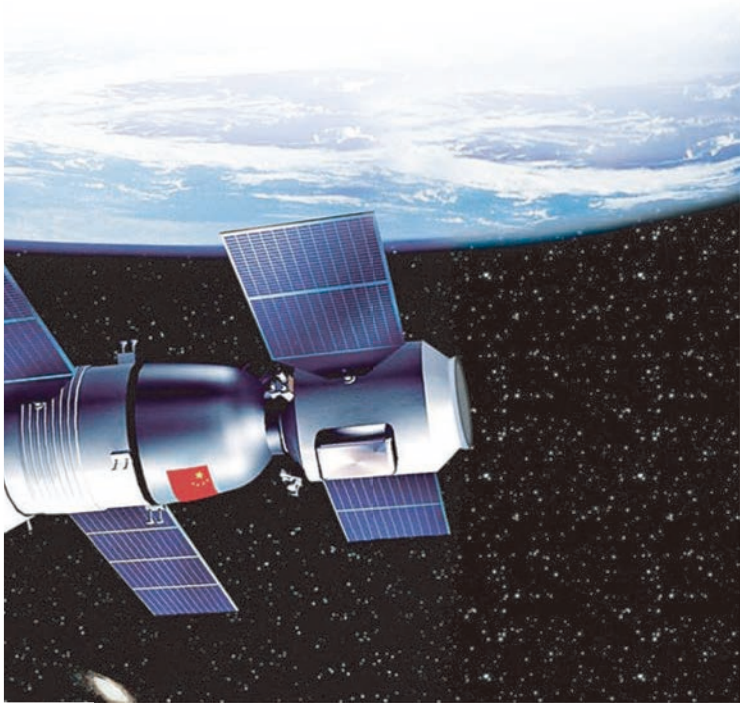
High Efficiency Low LID Bifacial PERC with Half-cut Technology

NEW

Big Size: Cell 182*91 Monocrystalline

570W / 575W
580W / 585W / 590W

- **Module Efficiency:** 21.1%
- **No.of Cells:** 156(6 × 26)
- **Weight:** 29.4kg
- **Dimensions:** 2470mm×1133mm×35mm



Shanghai Aerospace Automobile Electromechanical Co., Ltd. website: www.htsolar.com.tr

Factory :
Turkey HT Solar Energy Joint Stock Company
Lianyungang ShenZhou New Energy Co., Ltd.

Half cut cell technology can reduce the internal power loss and improve component overall power. Excellent heat dissipation avoids hot spot production.

10BB The optimized number and width of main gate lines, Maximize the light receiving area of components and Reduce component power consumption

12 Ys

Products Warranty

30 Ys

Warranty on power output

Designed for high voltage systems of up to 1500 VDC, increas-ing the string length of solar systems and saving on BOS costs

EL

Microcrack resistant high performance transparent backsheet structure enhance reliability, triple EL tested of high quality control.

2%

All the modules are sorted and packaged by amperage, reducing mismatch losses and maximizing system output.

Entire module certified to with stand extreme wind (2400 Pa) and snow loads (5400 Pa)

5W

Positive tolerance 0/+5W guaranteed

PID

PID Resistant

Comprehensive and first-rate certification system

IEC61215: 2016.IEC61730: 2016 Latest Standard

and UL 61730 Latest Standard, IS09001, IS014001 and ISO45001, meeting the highest international standards Strict quality control

C US

TÜVRheinland CERTIFIED
IEC 61215
IEC 61730
Regular Production Surveillance
www.tuv.com
ID 1419053360

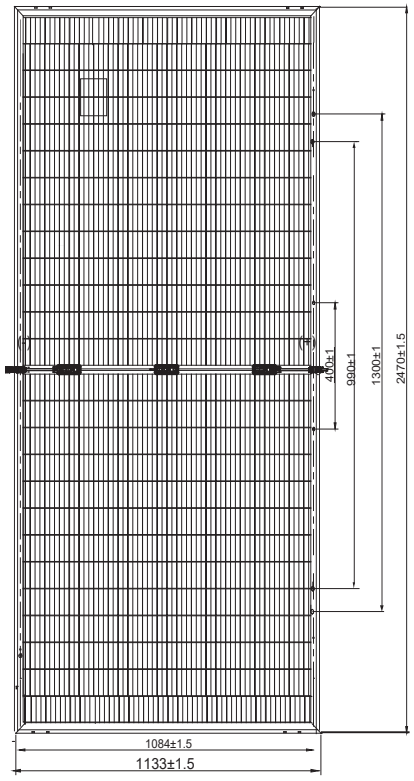
MULTIWAY+

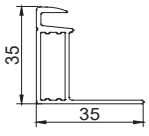
Better Choice For Higher Efficiency!

1500V module HT78-18X Transparent

570W/575W/580W/585W/590W

Engineering Drawing





Electrical Characteristics

Module	HT78-18X				
Maximum Power at STC(Pmax)	570W	575W	580W	585W	590W
Open-Circuit Voltage(Voc)	53.19V	53.34V	53.49V	53.77V	53.92V
Short-Circuit Current(Isc)	13.68A	13.75A	13.82A	13.89A	13.96A
Optimum Operating Voltage (Vmp)	44.68V	44.83V	44.98V	45.13V	45.28V
Optimum Operating Current(Imp)	12.76A	12.83A	12.90A	12.97A	13.04A
Module Efficiency	20.4%	20.5%	20.7%	20.9%	21.1%
Power Tolerance	0 ~ +5W				
Maximum System Voltage	1500V DC(UL/IEC)				
Maximum Series Fuse Rating	25A				
Operating Temperature	-40 ℃ to + 85℃				

*STC:Irradiance 1000W/m², module temperature 25, AM=1.5
Optional black frame or white frame module according to customer requirements

BIFACIAL REARSIDE POWER GAIN

Electrical characteristics with different rear side power gain for reference (reference to 590W front)

Module		HT78-18X Bifaciality：70±5%			
Maximum Power	Pmax Gain	Voc/V	Isc/A	Vmp/V	Imp/A
620W	5%	53.92	14.65	45.28	13.69
649W	10%	53.92	15.36	45.28	14.33
679W	15%	53.92	16.05	45.28	14.99
708W	20%	53.92	16.75	45.28	15.64
738W	25%	53.92	17.45	45.28	16.30

*bifacial gain:the additional gain from the rear side compared to the power of the front side at the standard test condition. It depends on mounting(structure,height,tilt angle etc.)and abledo of theground.

NMOT

Module	HT78-18X				
Maximum Power	426W	430W	434W	438W	442W
Open Circuit Voltage （Voc）	49.0V	49.15V	49.30V	49.45V	49.6V
Short Circuit Current (Isc)	11.10A	11.17A	11.24A	11.31A	11.38A
Maximum Power Voltage (Vmp)	40.6V	40.75V	40.90V	41.05V	41.20V
Maximum Circuit Current (Imp)	10.50A	10.56A	10.61A	10.67	10.73A
NMOT	45℃±2℃				

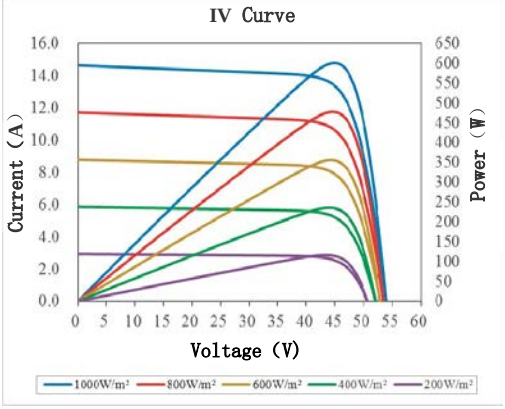
*NMOT：Irradiance 800W/m²，ambient temperature 20℃，wind speed 1 m/s

Mechanical Characteristics

Solar Cells	Monocrystalline 182 × 91 mm
No.of Cells	156 (6 × 26)
Dimensions	2470mm×1133mm×35mm
Weight	29.4kg
Front Glass	High transmission tempered glass
Frame	Anodized aluminium alloy
Junction Box	IP68
Cable	4mm²(UL/IEC) Length:（+）400mm （-）200mm/length can be customized
Connectors	MC4 / MC4 Compatible
Packaging Configuration	31pcs / box, 496pcs / 40'HQ Container

I-V Curves

Current-Voltage & Power-Voltage Curve

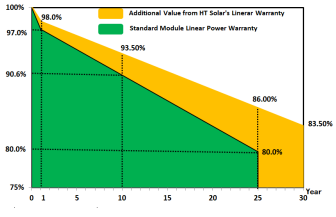


Temperature Characteristics

Temperature Coefficient of Pmax	γ (Pm)	-0.39%/℃
Temperature Coefficient of Voc	β (Voc)	-0.29%/℃
Temperature Coefficient of Isc	α (Isc)	0.049%/℃

Warranty

12-year product warranty
30-year warranty on power output
Specific information is referred to the product quality guarantee



MULTIWAY+

The module recycling should be carried out by the professional institutions at the the end of module life cycle

APPENDIX I

FEDERAL AVIATION ADMINISTRATION
DETERMINATION

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3190-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane Point 1
Location:	Pomfret, CT
Latitude:	41-53-30.95N NAD 83
Longitude:	71-56-02.90W
Heights:	409 feet site elevation (SE) 22 feet above ground level (AGL) 431 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3190-OE

Signature Control No: 481884258-482130975 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3190-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

Based on this aeronautical study, the structure would not constitute a substantial adverse effect on aeronautical operations or procedures because it will be temporary. The temporary structure would not be considered a hazard to air navigation provided all of the conditions specified in this determination are strictly met.

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, marked-Chapters 3(Marked),14(Temporary),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3190-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3191-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane Point 2
Location:	Pomfret, CT
Latitude:	41-53-26.27N NAD 83
Longitude:	71-56-03.16W
Heights:	386 feet site elevation (SE) 22 feet above ground level (AGL) 408 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3191-OE

Signature Control No: 481884262-482130977 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3191-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

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As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, marked-Chapters 3(Marked),14(Temporary),&15.

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This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3191-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3192-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane Point 3
Location:	Pomfret, CT
Latitude:	41-53-24.22N NAD 83
Longitude:	71-56-00.46W
Heights:	361 feet site elevation (SE) 22 feet above ground level (AGL) 383 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

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A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3192-OE

Signature Control No: 481884263-482130973 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3192-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

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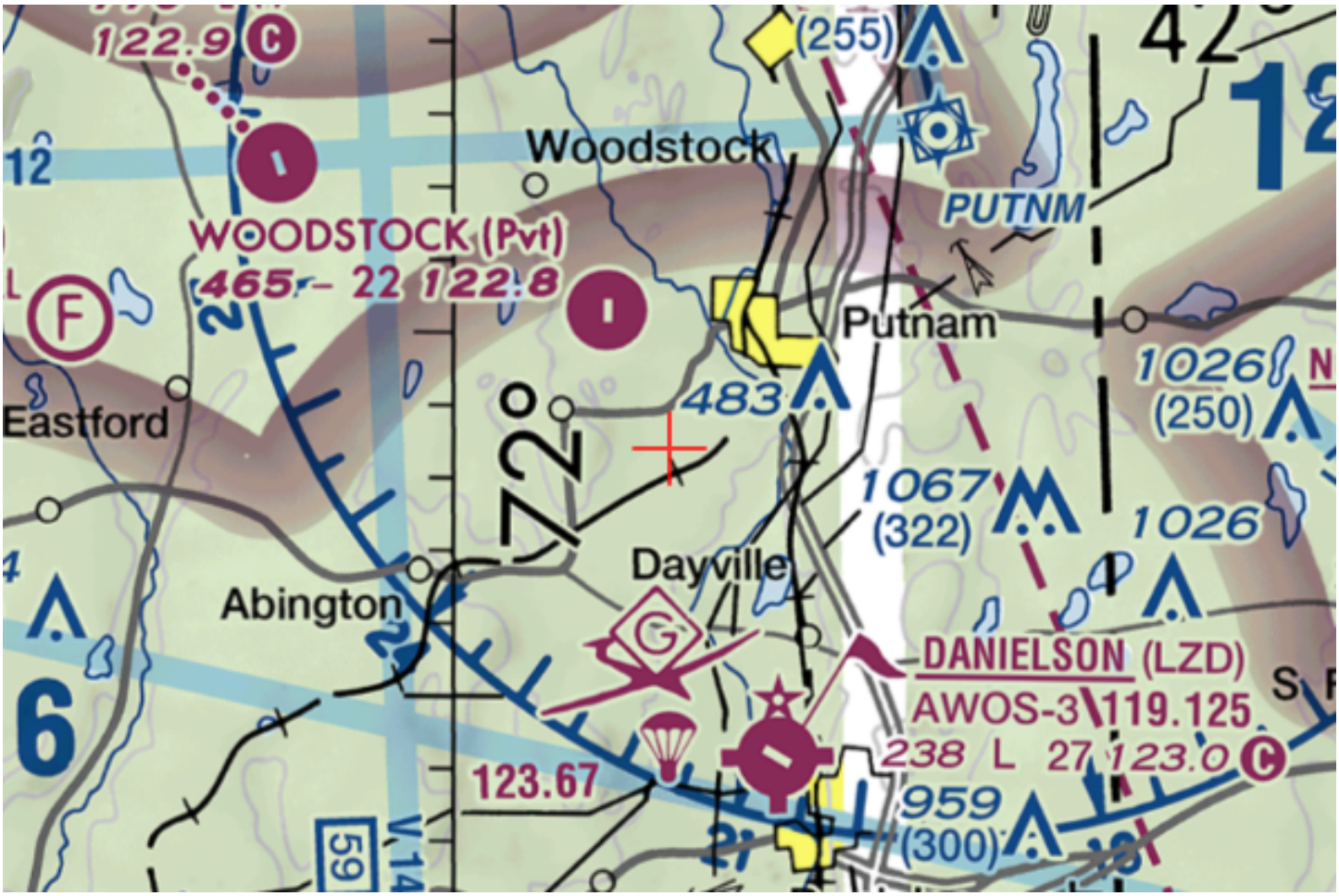
This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3192-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3193-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane Point 4
Location:	Pomfret, CT
Latitude:	41-53-22.85N NAD 83
Longitude:	71-56-00.46W
Heights:	354 feet site elevation (SE) 22 feet above ground level (AGL) 376 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3193-OE

Signature Control No: 481884266-482130978 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3193-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

Based on this aeronautical study, the structure would not constitute a substantial adverse effect on aeronautical operations or procedures because it will be temporary. The temporary structure would not be considered a hazard to air navigation provided all of the conditions specified in this determination are strictly met.

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, marked-Chapters 3(Marked),14(Temporary),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3193-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3194-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane Point 5
Location:	Pomfret, CT
Latitude:	41-53-19.42N NAD 83
Longitude:	71-56-09.17W
Heights:	362 feet site elevation (SE) 22 feet above ground level (AGL) 384 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3194-OE

Signature Control No: 481884268-482130969 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3194-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

Based on this aeronautical study, the structure would not constitute a substantial adverse effect on aeronautical operations or procedures because it will be temporary. The temporary structure would not be considered a hazard to air navigation provided all of the conditions specified in this determination are strictly met.

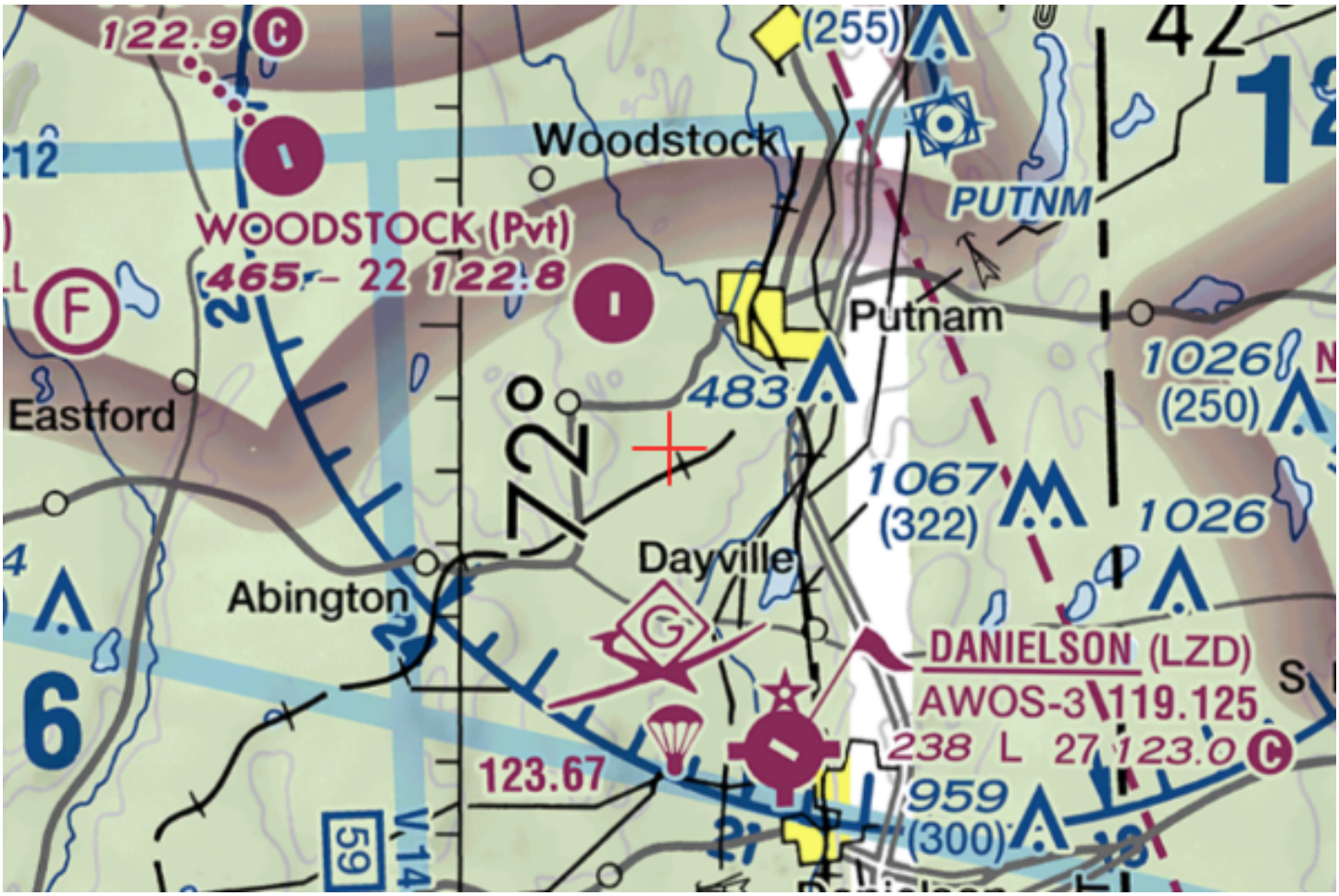
As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, marked-Chapters 3(Marked),14(Temporary),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3194-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3195-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane Point 6
Location:	Pomfret, CT
Latitude:	41-53-22.31N NAD 83
Longitude:	71-56-11.54W
Heights:	382 feet site elevation (SE) 22 feet above ground level (AGL) 404 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3195-OE

Signature Control No: 481884273-482130967 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3195-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

Based on this aeronautical study, the structure would not constitute a substantial adverse effect on aeronautical operations or procedures because it will be temporary. The temporary structure would not be considered a hazard to air navigation provided all of the conditions specified in this determination are strictly met.

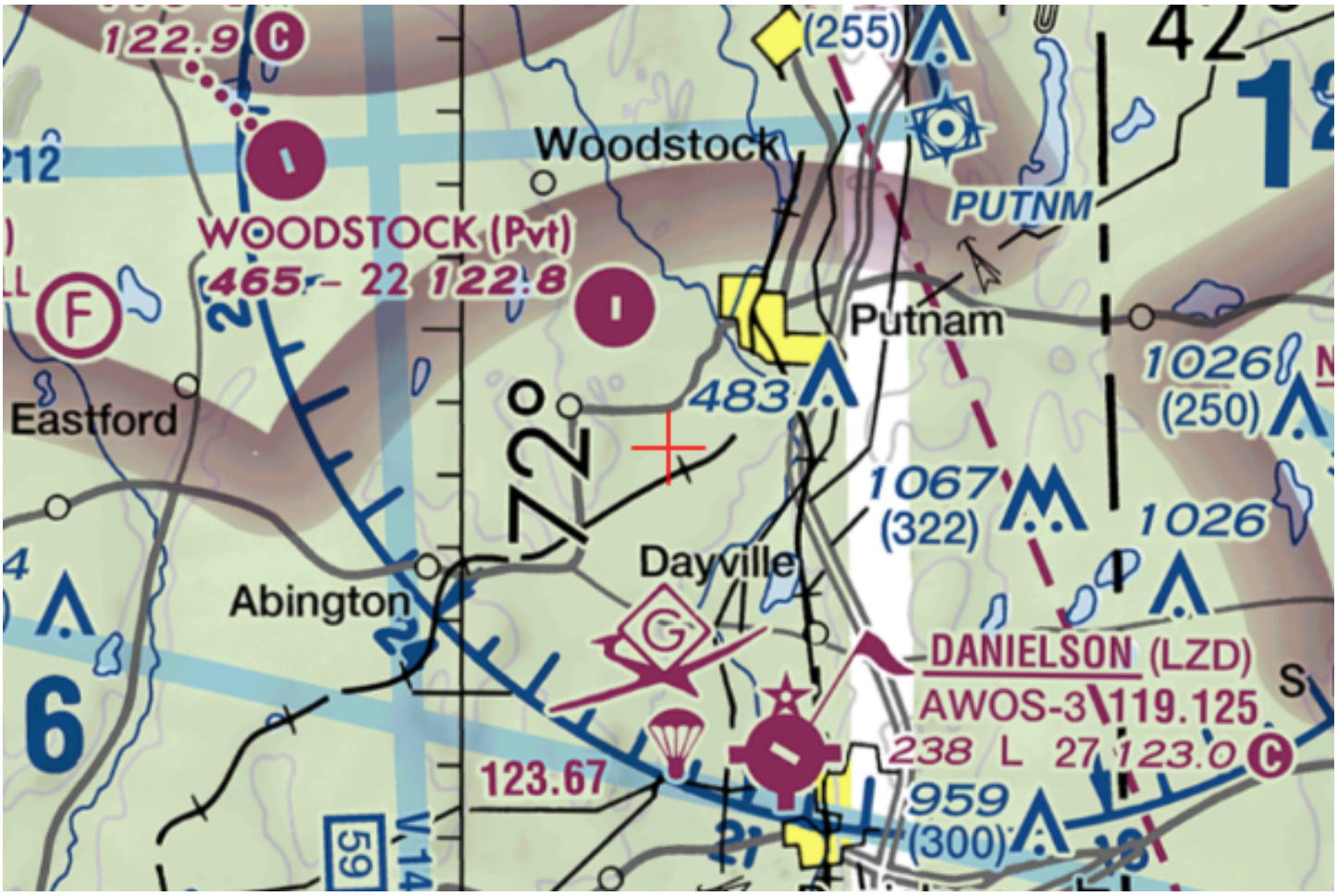
As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, marked-Chapters 3(Marked),14(Temporary),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3195-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3196-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane Point 7
Location:	Pomfret, CT
Latitude:	41-53-22.88N NAD 83
Longitude:	71-56-11.76W
Heights:	387 feet site elevation (SE) 22 feet above ground level (AGL) 409 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3196-OE

Signature Control No: 481884276-482130970 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3196-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

Based on this aeronautical study, the structure would not constitute a substantial adverse effect on aeronautical operations or procedures because it will be temporary. The temporary structure would not be considered a hazard to air navigation provided all of the conditions specified in this determination are strictly met.

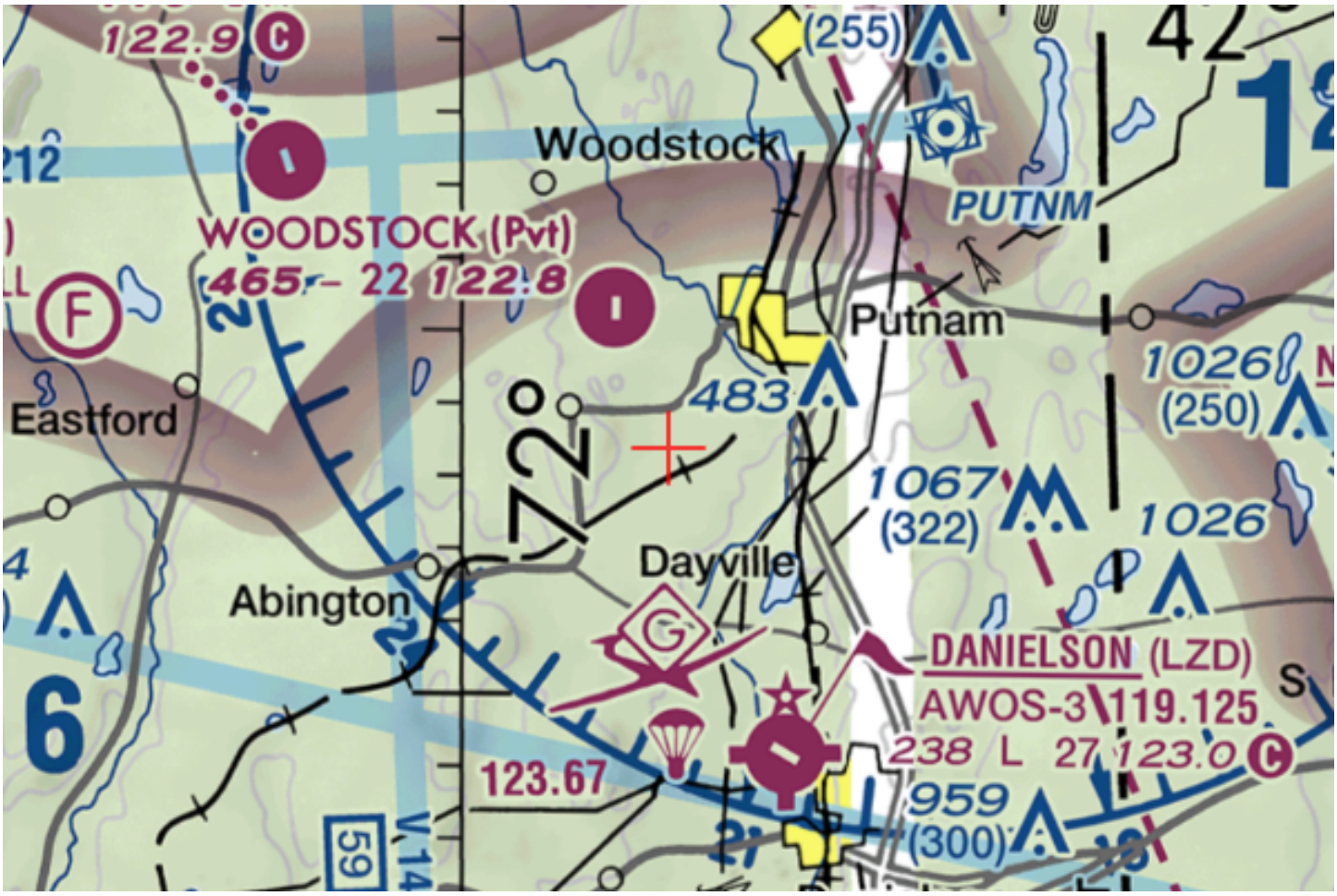
As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, marked-Chapters 3(Marked),14(Temporary),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3196-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3197-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane Point 8
Location:	Pomfret, CT
Latitude:	41-53-24.04N NAD 83
Longitude:	71-56-11.72W
Heights:	396 feet site elevation (SE) 22 feet above ground level (AGL) 418 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3197-OE

Signature Control No: 481884277-482130971 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3197-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

Based on this aeronautical study, the structure would not constitute a substantial adverse effect on aeronautical operations or procedures because it will be temporary. The temporary structure would not be considered a hazard to air navigation provided all of the conditions specified in this determination are strictly met.

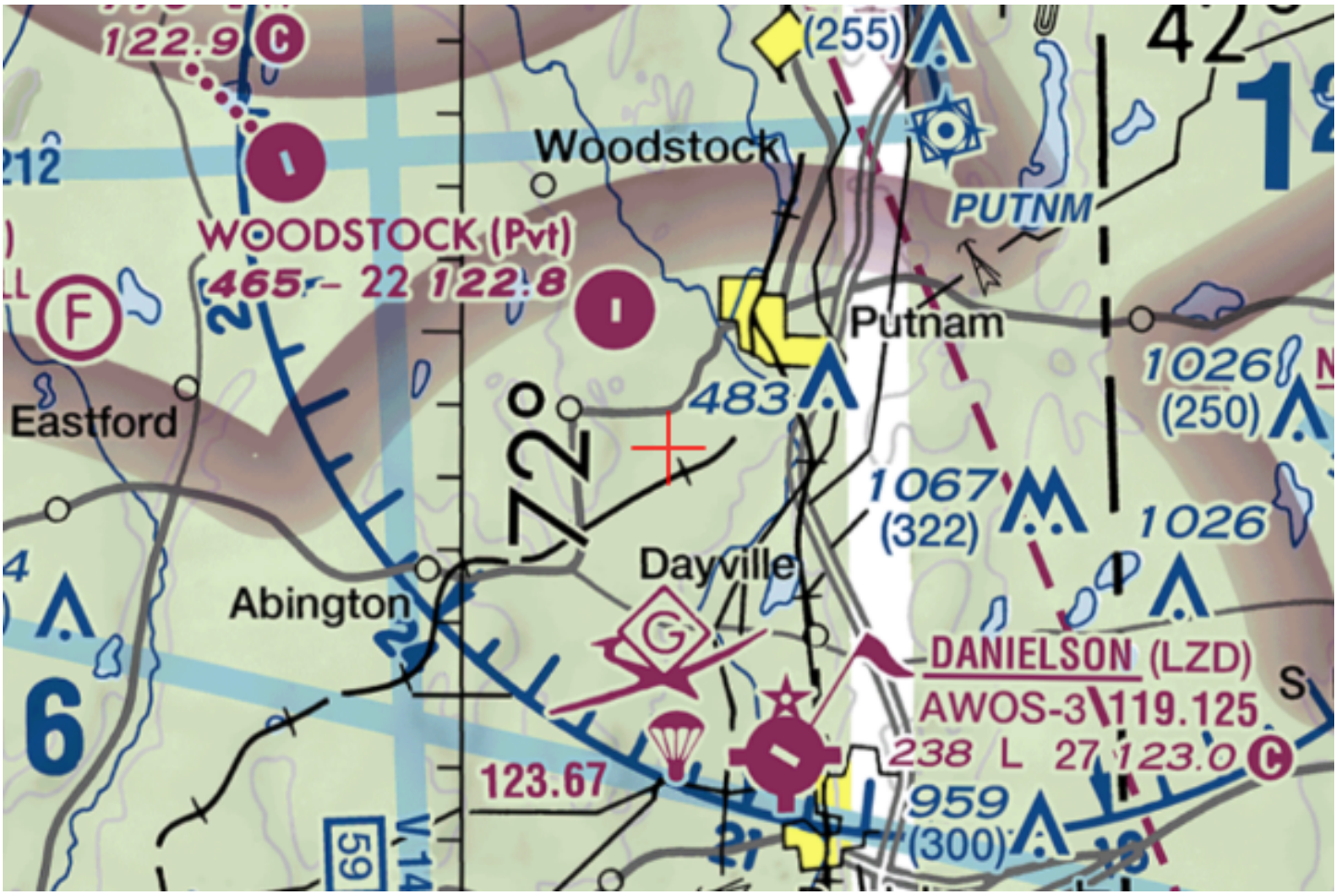
As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, marked-Chapters 3(Marked),14(Temporary),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3197-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3198-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane Point 9
Location:	Pomfret, CT
Latitude:	41-53-26.52N NAD 83
Longitude:	71-56-05.57W
Heights:	397 feet site elevation (SE) 22 feet above ground level (AGL) 419 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3198-OE

Signature Control No: 481884279-482130968 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3198-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

Based on this aeronautical study, the structure would not constitute a substantial adverse effect on aeronautical operations or procedures because it will be temporary. The temporary structure would not be considered a hazard to air navigation provided all of the conditions specified in this determination are strictly met.

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, marked-Chapters 3(Marked),14(Temporary),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3198-OE

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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3199-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane Point 10
Location:	Pomfret, CT
Latitude:	41-53-30.19N NAD 83
Longitude:	71-56-04.96W
Heights:	410 feet site elevation (SE) 22 feet above ground level (AGL) 432 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3199-OE

Signature Control No: 481884283-482130972 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3199-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

Based on this aeronautical study, the structure would not constitute a substantial adverse effect on aeronautical operations or procedures because it will be temporary. The temporary structure would not be considered a hazard to air navigation provided all of the conditions specified in this determination are strictly met.

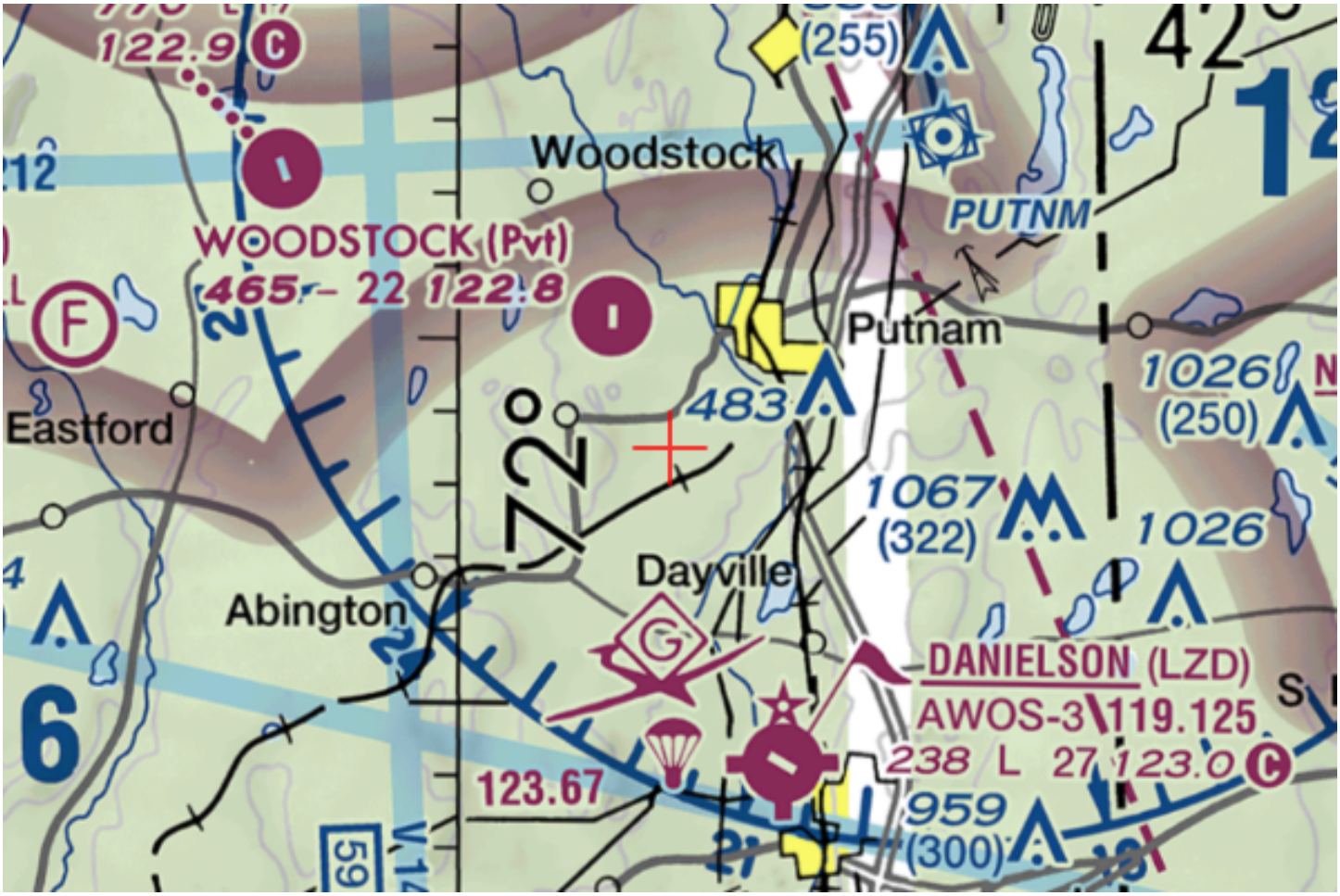
As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, marked-Chapters 3(Marked),14(Temporary),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3199-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3200-OE

Issued Date: 05/25/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Crane HP
Location:	Pomfret, CT
Latitude:	41-53-30.59N NAD 83
Longitude:	71-56-03.95W
Heights:	411 feet site elevation (SE)
	22 feet above ground level (AGL)
	433 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3200-OE

Signature Control No: 481884286-482130974 (TMP)
Stephanie Kimmel
Specialist

Additional Condition(s) or Information for ASN 2021-ANE-3200-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 431 feet above mean sea level.

Location: The structure will be located 4.58 nautical miles north of LZD Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

Based on this aeronautical study, the structure would not constitute a substantial adverse effect on aeronautical operations or procedures because it will be temporary. The temporary structure would not be considered a hazard to air navigation provided all of the conditions specified in this determination are strictly met.

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, marked-Chapters 3(Marked),14(Temporary),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 11/25/2022 unless extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Sectional Map for ASN 2021-ANE-3200-OE

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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3201-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Point 1
Location:	Pomfret, CT
Latitude:	41-53-30.95N NAD 83
Longitude:	71-56-02.90W
Heights:	409 feet site elevation (SE) 10 feet above ground level (AGL) 419 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3201-OE.

Signature Control No: 481890652-483485904 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)


Webster
1033
(283)
1548
(699)
UC
1085
302°
OUTANT (C44)
770 L 17
122.9 C
836
(255)
42°
Woodstock
PUTNM
WOODSTOCK (Pvt)
465 – 22 122.8
Putnam
1026
(250)
stford
483
072°
1067
(322)
1026
Dayville
Abington
DANIELSON (LZD)
AWOS-3 119.125
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123.67
959
(300)
Danielson
V14
59
Clarks Corner
Brooklyn
INDHAM (IJD)
SOS 133.675
L 43 122.975 C
VOR-DME
NORWICH
110.0 Ch 37 ORW
ONNECTICUT
RHODE
ISLAND

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Aeronautical Study No.
2021-ANE-3202-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Point 2
Location:	Pomfret, CT
Latitude:	41-53-26.27N NAD 83
Longitude:	71-56-03.16W
Heights:	386 feet site elevation (SE) 10 feet above ground level (AGL) 396 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

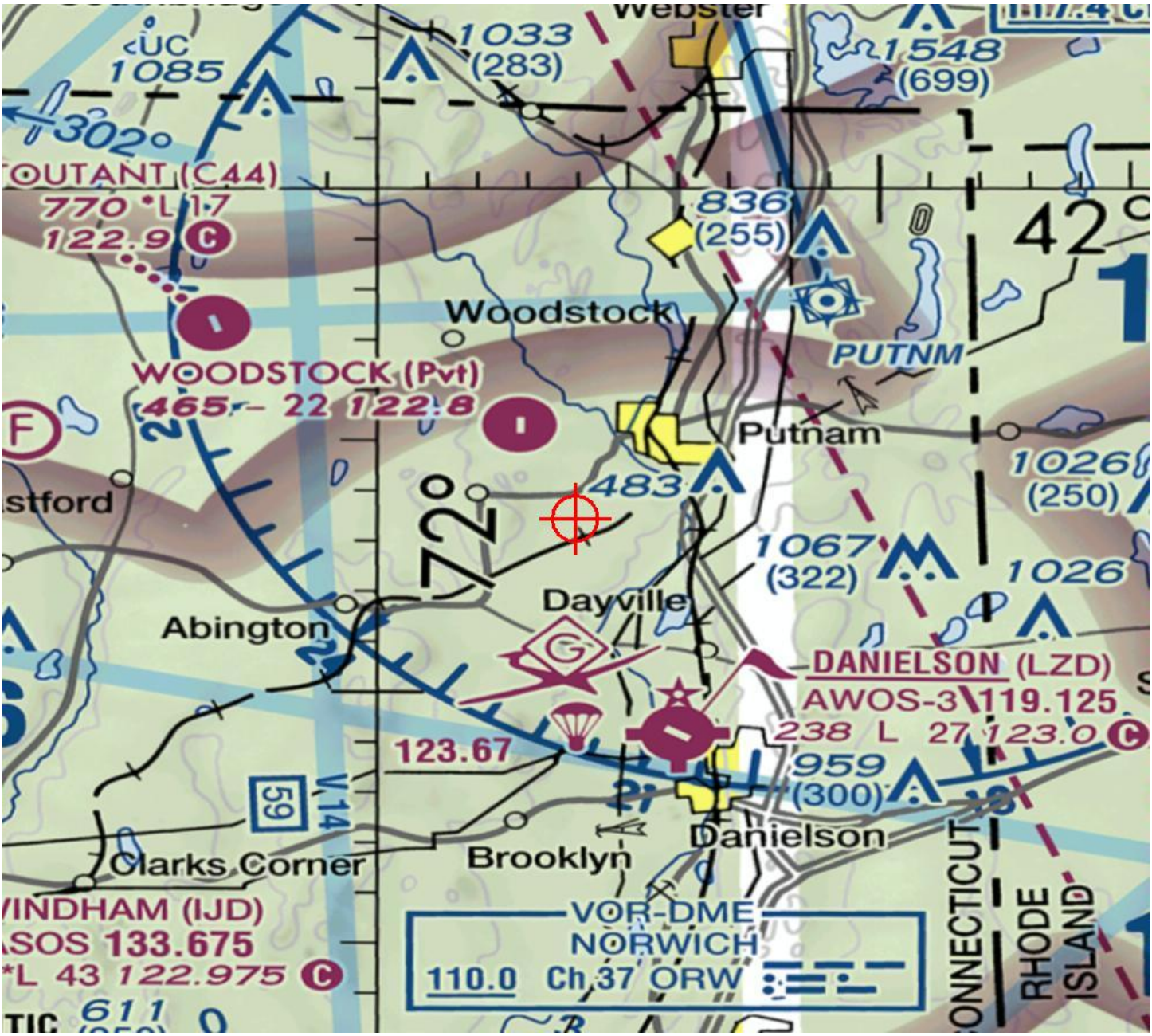
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3202-OE.

Signature Control No: 481890653-483485910 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-3202-OE



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10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3203-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Point 3
Location:	Pomfret, CT
Latitude:	41-53-24.22N NAD 83
Longitude:	71-56-00.46W
Heights:	361 feet site elevation (SE)
	10 feet above ground level (AGL)
	371 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3203-OE.

Signature Control No: 481890655-483485909 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-3203-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3204-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Point 4
Location:	Pomfret, CT
Latitude:	41-53-22.85N NAD 83
Longitude:	71-56-00.46W
Heights:	354 feet site elevation (SE) 10 feet above ground level (AGL) 364 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3204-OE.

Signature Control No: 481890657-483485906 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-3204-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3205-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
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Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Point 5
Location:	Pomfret, CT
Latitude:	41-53-19.42N NAD 83
Longitude:	71-56-09.17W
Heights:	362 feet site elevation (SE) 10 feet above ground level (AGL) 372 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

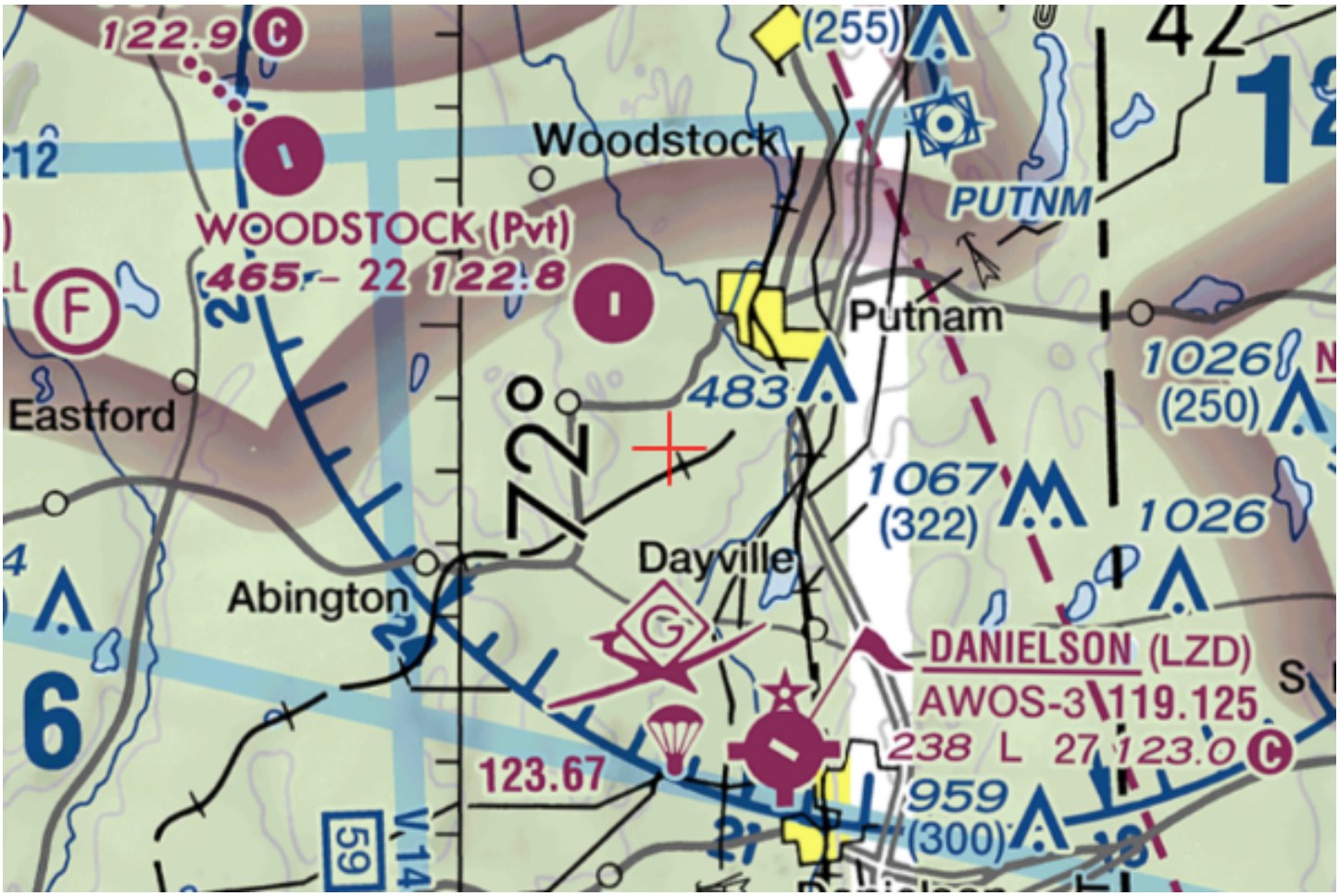
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3205-OE.

Signature Control No: 481890658-483485911 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-3205-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3206-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Point 6
Location:	Pomfret, CT
Latitude:	41-53-22.31N NAD 83
Longitude:	71-56-11.54W
Heights:	382 feet site elevation (SE) 10 feet above ground level (AGL) 392 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3206-OE.

Signature Control No: 481890661-483485907 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-3206-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3207-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Point 7
Location:	Pomfret, CT
Latitude:	41-53-22.88N NAD 83
Longitude:	71-56-11.76W
Heights:	387 feet site elevation (SE) 10 feet above ground level (AGL) 397 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3207-OE.

Signature Control No: 481890664-483485912 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-3207-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3208-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Point 8
Location:	Pomfret, CT
Latitude:	41-53-24.04N NAD 83
Longitude:	71-56-11.72W
Heights:	396 feet site elevation (SE) 10 feet above ground level (AGL) 406 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3208-OE.

Signature Control No: 481890665-483485908 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-3208-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3209-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Point 9
Location:	Pomfret, CT
Latitude:	41-53-26.52N NAD 83
Longitude:	71-56-05.57W
Heights:	397 feet site elevation (SE) 10 feet above ground level (AGL) 407 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3209-OE.

Signature Control No: 481890668-483485913 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-3209-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3210-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Point 10
Location:	Pomfret, CT
Latitude:	41-53-30.19N NAD 83
Longitude:	71-56-04.96W
Heights:	410 feet site elevation (SE) 10 feet above ground level (AGL) 420 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3210-OE.

Signature Control No: 481890669-483485905 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-3210-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-3211-OE

Issued Date: 06/02/2021

Kevin A. McCaffery, PE
All-Points Technology Corporation - Engineering
3 Saddlebrook Dr
Killingworth, CT 06419

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel HP
Location:	Pomfret, CT
Latitude:	41-53-30.59N NAD 83
Longitude:	71-56-03.95W
Heights:	411 feet site elevation (SE) 10 feet above ground level (AGL) 421 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 12/02/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-3211-OE.

Signature Control No: 481890670-483485903 (DNE)
Stephanie Kimmel
Specialist

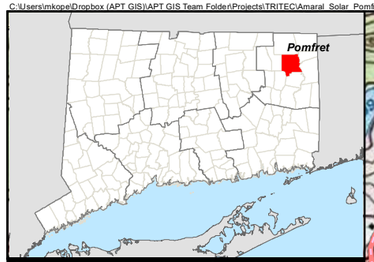
Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-3211-OE

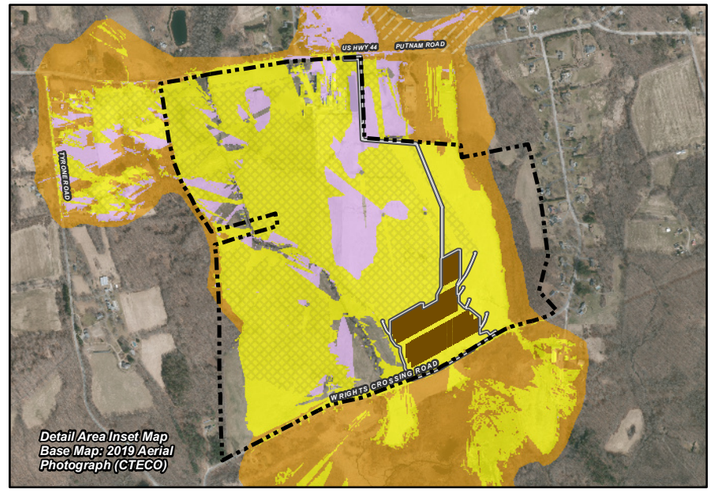
APPENDIX J

VIEWSHED MAPS AND PHOTO-SIMULATIONS

C:\Users\mkopel\Dropbox (APT GIS)\APT GIS Team Folder\Projects\TRITEC\Amaral_Solar_Pomfret_Center_CT\mxd\Amaral Viewshed USGS.mxd



Statewide and Regional Overview Map



Detail Area Inset Map
Base Map: 2019 Aerial Photograph (CTECO)

Viewshed Analysis Map

Proposed Amaral Solar Facility
254 Putnam Road
Pomfret Center, Connecticut

Proposed solar modules to be mounted on approximate 10' AGL support structures.
Proposed interconnect utility poles to be approximately 40' AGL.
Forest canopy height and topographic contours are derived from LiDAR data.
Study area encompasses a 1-mile radius and includes 3,820 acres.
Information provided on this map has not been field verified.
Base Map Source: USGS 7.5 Minute Topographic
Quadrangle Maps, Danielson, CT (1970) and Putnam, CT (1970)
Map Date: July 2021

Legend

- Site
- Limit of Distrurbance
- Solar Modules
- Study Area (1-Mile Radius)
- Municipal Boundary

Predicted Year-Round Visibility (281 Acres Total)

- Proposed Modules and Utility Poles (118 Acres)
- Proposed Modules Only (106 Acres)
- Proposed Utility Poles Only (57 Acres)

Areas of Potential Seasonal Visibility (195 Acres Total)

- Proposed Modules and Utility Poles (155 Acres)
- Proposed Utility Poles Only (40 Acres)
- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park

Protected Open Space Property

- Federal
- Land Trust
- Municipal
- Private
- State

Data Sources:

Physical Geography / Background Data

A digital surface model (DSM) was created from the State of Connecticut 2016 LiDAR LAS data points. The first return LiDAR LAS values, associated with the highest feature in the landscape (such as a treetop or top of building), were used to capture the natural and built features on the Earth's surface beyond the approximate limits of clearing associated with the proposed solar facility. The "bare-earth" return values were utilized to reflect proposed conditions where vegetative clearing associated with the proposed solar facility would occur.

Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP.
Scenic Roads: CTDOT State Scenic Highways (2015); Municipal Scenic Roads (compiled by APT)

Dedicated Open Space & Recreation Areas

Connecticut Department of Energy and Environmental Protection (DEEP): DEEP Property (May 2007; Federal Open Space (1997); Municipal and Private Open Space (1997); DEEP Boat Launches (1994)

Connecticut Forest & Parks Association, Connecticut Walk Books East & West

Other

CTDOT Scenic Strips (based on Department of Transportation data)

Notes

***Not all the sources listed above appear on the Viewshed Maps. Only those features within the scale of the graphic are shown.*

Limitations

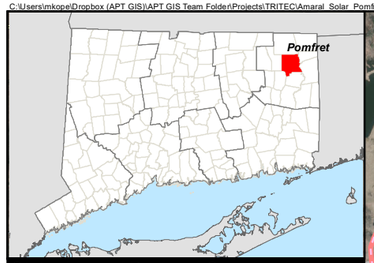
This map depicts areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of 5 feet above the ground and intervening topography, tree canopy and structures. This analysis may not account for all visible locations, as it is based on the combination of computer modeling, incorporating the DSM and 2019 digital aerial photographs only. No in-field verification has been completed. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

0.4 0.2 0 0.4 Miles

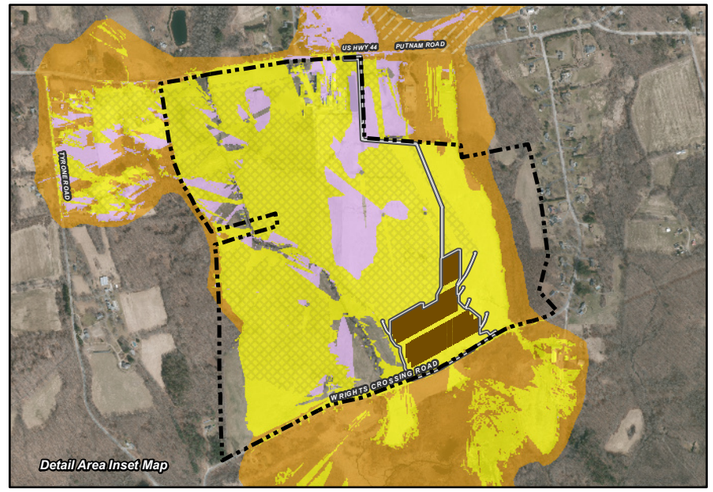
TRITEC AMERICAS

ALL-POINTS TECHNOLOGY CORPORATION

C:\Users\mkopel\Dropbox (APT GIS)\APT GIS Team Folder\Projects\TRITEC\Amaral_Solar_Pomfret_Center_CT\mxd\Amaral Viewshed Aerial.mxd



Statewide and Regional Overview Map



Detail Area Inset Map

Viewshed Analysis Map

Proposed Amaral Solar Facility
254 Putnam Road
Pomfret Center, Connecticut

Proposed solar modules to be mounted on approximate 10' AGL support structures.
Proposed interconnect utility poles to be approximately 40' AGL.
Forest canopy height and topographic contours are derived from LiDAR data.
Study area encompasses a 1-mile radius and includes 3,820 acres.
Information provided on this map has not been field verified.
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Date: July 2021

Legend

- Site
- Limit of Distrurbance
- Solar Modules
- Study Area (1-Mile Radius)
- Municipal Boundary

Predicted Year-Round Visibility (281 Acres Total)

- Proposed Modules and Utility Poles (118 Acres)
- Proposed Modules Only (106 Acres)
- Proposed Utility Poles Only (57 Acres)

Areas of Potential Seasonal Visibility (195 Acres Total)

- Proposed Modules and Utility Poles (155 Acres)
- Proposed Utility Poles Only (40 Acres)

- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park

Protected Open Space Property

- Federal
- Land Trust
- Municipal
- Private
- State

Data Sources:

Physical Geography / Background Data

A digital surface model (DSM) was created from the State of Connecticut 2016 LiDAR LAS data points. The first return LiDAR LAS values, associated with the highest feature in the landscape (such as a treetop or top of building), were used to capture the natural and built features on the Earth's surface beyond the approximate limits of clearing associated with the proposed solar facility. The "bare-earth" return values were utilized to reflect proposed conditions where vegetative clearing associated with the proposed solar facility would occur.

Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP.
Scenic Roads: CTDOT State Scenic Highways (2015); Municipal Scenic Roads (compiled by APT)

Dedicated Open Space & Recreation Areas

Connecticut Department of Energy and Environmental Protection (DEEP): DEEP Property (May 2007; Federal Open Space (1997); Municipal and Private Open Space (1997); DEEP Boat Launches (1994)

Connecticut Forest & Parks Association, Connecticut Walk Books East & West

Other

CTDOT Scenic Strips (based on Department of Transportation data)

Notes

***Not all the sources listed above appear on the Viewshed Maps. Only those features within the scale of the graphic are shown.*

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This map depicts areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of 5 feet above the ground and intervening topography, tree canopy and structures. This analysis may not account for all visible locations, as it is based on the combination of computer modeling, incorporating the DSM and 2019 digital aerial photographs only. No in-field verification has been completed. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

0.4 0.2 0 0.4 Miles

TRITEC AMERICAS

ALL-POINTS TECHNOLOGY CORPORATION

PHOTOGRAPHED ON 7/27&2/2021

EXISTING

PHOTO	LOCATION	ORIENTATION
1	**WRIGHTS CROSSING ROAD AT WYNDHAM LAND TRUST**	**NORTHEAST**

ALL-POINTS TECHNOLOGY CORPORATION

TRITEC

PROPOSED

PHOTO	LOCATION	ORIENTATION
1	**WRIGHTS CROSSING ROAD AT WYNDHAM LAND TRUST**	**NORTHEAST**

PHOTOGRAPHED ON 7/27/2021

EXISTING

PHOTO	LOCATION	ORIENTATION
2	**WRIGHTS CROSSING ROAD**	**WEST**

ALL-POINTS TECHNOLOGY CORPORATION

TRITEC

PROPOSED

PHOTO	LOCATION	ORIENTATION
2	**WRIGHTS CROSSING ROAD**	**WEST**

ALL-POINTS TECHNOLOGY CORPORATION

TRITEC

PHOTOGRAPHED ON 7/27/2021

EXISTING

PHOTO	LOCATION	ORIENTATION
3	**PUTNAM ROAD**	**SOUTHEAST**

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PROPOSED

PHOTO	LOCATION	ORIENTATION
3	**PUTNAM ROAD**	**SOUTHEAST**

ALL-POINTS TECHNOLOGY CORPORATION

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