EXHIBIT G

ENVIRONMENTAL ASSESSMENT

PROPOSED

TORRINGTON SOLAR ONE, LLC

SOLAR PROJECT

EAST PEARL ROAD

TORRINGTON, CONNECTICUT

LITCHFIELD COUNTY

Prepared for:

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1 Introduction

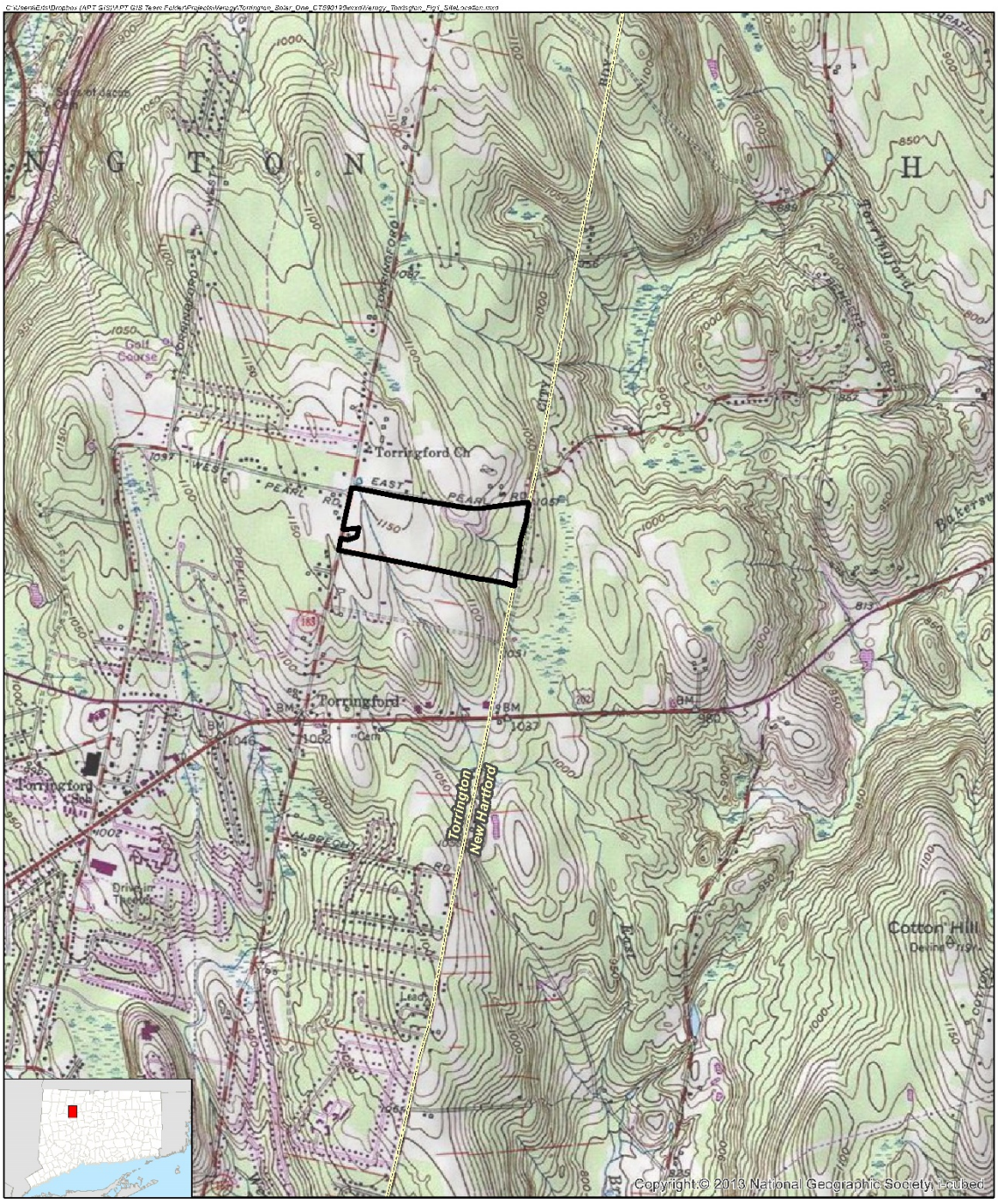
All-Points Technology Corporation, P.C. ("APT") prepared this Environmental Assessment ("EA") on behalf of Torrington Solar One, LLC (hereinafter referred to as the "Petitioner") for the proposed installation of a solar-based electric generating facility having an output of ±1.975 megawatts[1] ("Project") located in the City of Torrington, Connecticut ("City"). 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.

The Project will be located south of East Pearl Road, Torrington, Connecticut ("Site"). The Site is a roughly rectangularly shaped parcel of approximately 66.4 acres. The east-central portion of the Site is partially developed as a cemetery, with the far eastern extent undeveloped woodland with the exception of a small pockets of development in the southeastern corners of the Site and a field in the northeastern corner. The western portion is primarily open agricultural land, with woodland in the northwest corner and athletic fields and an associated parking lot immediately to the east along East Pearl Road. The privately-owned Site is located in both the Residential – Water Protection (R-WP) and the Residential Single Family (R-15S) zoning districts.

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

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



Legend

Site

Municipal Boundary

Figure 1
Site Location Map

Proposed Solar Facility - Torrington Solar One
East Pearl Road
Torrington, Connecticut

Torrington Solar One, LLC

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps: Torrington (1984), CT
Map Scale: 1:24,000
Map Date: April 2020

2,000 1,000 0 2,000 Feet

ALL-POINTS TECHNOLOGY CORPORATION

2 Proposed Project

2.1 Project Setting

The Project will be located within an existing agricultural field. The Site contains two (2) wetlands in the western and southwestern portions of the Site. Additionally, two (2) intermittent water courses ("IWC") are within the Site, one within the western wetland and one centrally located immediately south of East Pearl Road.

Topography in the western portion of the Site gradually grades down from north to south; the eastern portion of the Site slopes down from its center farther to the east. Ground elevations range from approximately 1040 feet AMSL to 1155 feet AMSL.

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

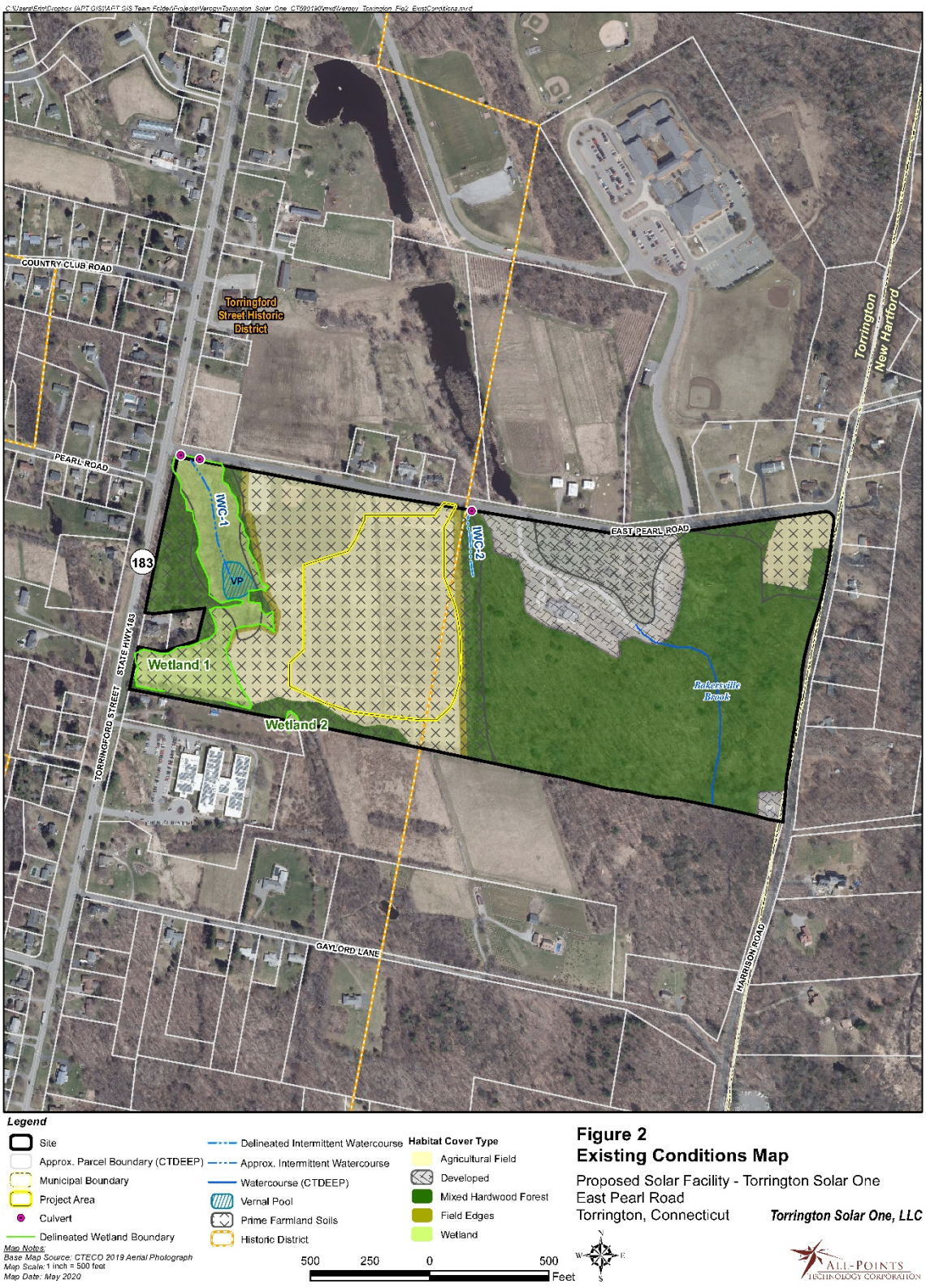


Figure 2
Existing Conditions Map

Proposed Solar Facility - Torrington Solar One
East Pearl Road
Torrington, Connecticut

Torrington Solar One, LLC

ALL-POINTS TECHNOLOGY CORPORATION

The Site is located at the corner of East Pearl Road and State Route 183 (Torringford Street). Surrounding land use is largely residential, with fields intermixed to the north and south. The New Hartford municipal boundary is at the eastern end of the Site. To the west, the Torringford Street Historic District extends along Route 183 and encompasses the western part of the Site.

2.2 Project Development and Operation

Upon its completion, the solar energy generating facility ("Facility") will consist of approximately 7,150 photovoltaic modules ("panels"), 5,876 Trina 390W and 1,274 Risen 380W models; 15 Solectria Solar's XGI 1500-125/125 inverters and one Chint CPS SCH100KTL-DO/US-600 inverter; two (2) pad mounted switchgears; two (2) transformers; and one (1) service interconnection line. A ground-mounted racking system will be used to secure the panel arrays. The Facility will be surrounded by a chain link security fence, 8 feet tall (with privacy slats) at the north and northwest sides of the Facility abutting East Pearl Road and the athletic fields, and 6 feet tall around the remainder of the Facility. The proposed electrical interconnection will originate from Torringford Street and extend east across the Site approximately 720 feet to the southwest corner of the Facility. A gravel access drive will extend south from East Pearl Road through the entire Facility, with a spur heading west to the equipment pads. The Facility will occupy approximately 9.00 acres of the Site, with an additional 2.15 acres of disturbance beyond the fenced Facility limits, for a total of 11.15 acres ("Project Area").

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 grading to incorporate stormwater best management practices, installing erosion and sedimentation (E&S") control measures; racking and module installation; installation of utility poles; electrical trenching; and new access road development. Existing grades will generally be maintained throughout the Project Area except in areas of the stormwater management/E&S features, which will require some manipulation (cuts/fills) and regrading.

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 East Pearl Road via a new gravel drive at the eastern end of the Project. The drive will extend south approximately 75 feet to the Facility's gated fence, and will extend ±1320 feet within the Facility, including a spur to the west, to provide access for construction, service and maintenance vehicles. The new access drive will require minimal grading. See Appendix A, Project Plans.

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 system will be remotely monitored and will have the ability to remotely de-energize in the case of an emergency.

The Facility will be enclosed by a chain link fence, 8 feet and 6 feet tall. The entrance to the Facility will be gated, limiting access to authorized personnel only. All City emergency response personnel will be provided access via a Knox Pad lock.

2.2.3 Federal, State, and Local 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 City's land use regulations, to the extent feasible. The Site is located within the City's Residential R-WP and R-15S Zones.

The City's 2019 Plan of Conservation and Development ("POCD"), Chapter 13 – Sustainability Objectives identifies "principles of sustainability" that include reducing dependence upon fossil fuels and reducing encroachment upon nature by planning and designing development that

minimizes encroachment on undeveloped land, woods, and wildlife habitat, and protects the quality of water. The Project's design is consistent with these principles.

The POCD Chapter 6 – Community Character addresses preservation of farmland and promotion of farming. The Site is within one (1) of five (5) potential Agriculture Clusters identified as part of a strategy for farmland preservation. The Project is designed to minimize long-term impact on the Site; at the end of its useful life, the Site infrastructure can be removed.

The Project will benefit the local community by improving electrical service for existing and future development in the City through the availability of enhanced local generating capacity that does not rely on the congested regional electrical transmission networks.

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 compatibility with the Site resources discussed herein.

Figure 3
Proposed Conditions Map

Proposed Solar Facility - Torrington Solar One
East Pearl Road
Torrington, Connecticut

Torrington Solar One, LLC

3.1 Habitat and Wildlife

Five (5) habitat types (vegetative communities) have been identified on the Site, with two (2) located within and proximate to the Project Area. Transitional ecotones separate these distinct habitat types while interior wetland habitats are also located in proximity to the Project Area. These varied habitats have the ability to support several species and are as follows.

- Agricultural Field;
- Developed;
- Mixed Hardwood Forest;
- Field Edges;
- Wetlands.

Please see Figure 2, *Existing Conditions Map*, for a depiction of each habitat's location on the Site.

3.1.1 Habitat Types

Agricultural Field

Agricultural Field habitat type dominates the western portion of the Site and the Project Area. The western half of the field consists of cool-season grasses that are routinely mowed and/or hayed. Clover (*Trifolium sp.*) and rushes (*Juncus sp.*) are common within the cool-season grass turf. The northwest portion of this habitat, beyond the Project Area, is routinely maintained for recreational athletics (including baseball diamond and soccer field). The eastern half of the field has been cultivated, with the 2019 crop consisting of gourds and corn.

The majority of the Project Area lies within Agricultural Field habitat that is composed of complexes of cool season grasses maintained through routine mowing/haying and cultivated fields. The Project development should not result in a significant alteration to the ground underlying the Facility components. Those areas disturbed during construction will be reseeded with similar, semi-shade tolerant grasses and forbs. Minor modifications to existing conditions will result from shading beneath the panel arrays; however, post-construction vegetation maintenance will mimic or improve the current management activities within this habitat. Potential impacts resulting from the installation of the Facility include changes in density and/or species composition of cool season grasses and clovers.

Developed Areas

The Project would have no substantive adverse impacts to developed areas of the Site, which consist of one (1) existing building, paved and maintained areas within the cemetery located east of the Project, and a garage at the southeast corner of the Site.

Mixed Hardwood Forest

The eastern half of the Site is largely forested and consists of mature second growth mixed hardwoods with scattered coniferous trees. The tree canopy is dominated by black birch (*Betula lenta*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), black oak (*Quercus velutina*), white oak (*Quercus alba*), black cherry (*Prunus serotina*), gray birch (*Betula populifolia*), American beech (*Fagus grandifolia*), green ash (*Fraxinus pennsylvanica*) and scattered white pine (*Pinus strobus*). The invasive non-native Japanese barberry (*Berberis thunbergii*) dominates the shrub layer, with spicebush (*Lindera benzoin*) and sapling trees common. The herb layer includes Christmas fern (*Polystichum acrostichoides*), and Pennsylvania sedge (*Carex pennsylvanica*). The forest floor includes areas of dense stones/boulders.

A second Mixed Hardwood Forest habitat occurs west of the recreational fields and the Project Area. This forest block has a central wetland inclusion and is described in detail in Section 3.3.1 of this document.

A third, smaller Mixed Hardwood Forest habitat extends into the southwest portion of the Site. This forest block has an embedded wetland and is described in detail in Section 3.3.1 of this document.

The Project will not encroach within Mixed Hardwood Forest habitat areas on the Site. As a result, the Project is not expected to have any effect on forested habitat.

Field Edges

A broad transitional shrub/sapling ecotone is located between the Agricultural Field and the forest habitats east of the Project Area. This ecotone consists of sapling eastern cottonwood (*Populus deltoides*), multiflora rose (***Rosa multiflora***), grape (*Vitis sp.*), Queen Anne's lace (*Daucus carota*), willow (*Salix sp.*), milkweeds (*Asclepias sp.*), autumn olive (***Elaeagnus umbellata***), mugwort (*Artemesia vulgaris*), sensitive fern (***Onoclea sensibilis***), morrow's honeysuckle (*Lonicera morrowii*), broadleaf meadowsweet (*Spirea latifolia*) and goldenrod (***Solidago sp.***).

A second occurrence of this habitat type occurs along the narrow, forested buffer bordering the west edge of the recreational fields at the interface of the western-most Mixed Hardwood Forest and Agricultural Field habitat. Vegetation consists of dense invasive, non-native multiflora rose and autumn olive in the shrub layer, with young second-growth red maple, willow, sugar maple, hickory (*Carya sp.*), black cherry and tulip tree (*Liriodendron tulipifera*) in the tree layer. The herbaceous layer includes sensitive fern along with goldenrod.

Although the Project Area is in close proximity to both blocks of this habitat, minimal direct impacts are anticipated. The Field Edges habitat has been created by maintenance of a cleared edge along the Agricultural Field, and therefore minor disturbance from vegetation removal adjacent to this habitat will not result in a significant negative impact. At the northeastern corner of the Project Area, development associated with the access drive and fencing will result in very minor impacts to this habitat. As this habitat is already dominated by invasive, non-native shrub species, any resulting introduction or colonization of these non-desirable species is not a concern.

Wetlands

Two wetlands are located on the Site, as discussed in detail in Section 3.3.1 of this report.

Table 1, *Habitat Assessment and Effects Table* provides calculations of the total on-Site areas for each of the referenced habitat types and the area proposed to be impacted by the Project.

Table 1: Habitat Assessment and Effects Table

Table 1: Habitat Assessment and Effects Table		
Habitat Type	Total Area On-Site (+/- ac.)	Area Affected by Project (+/- ac.)
Agricultural Field	19.1	11.1
Developed	9.1	0
Mixed Hardwood Forest	31.8	0
Field Edges	1.3	0.08
Wetlands	5.47	28 square feet

3.1.2 Wildlife Habitat

A majority of the proposed Facility will be located within the Agricultural Field habitat. While the Agricultural Field patch size is sufficient to potentially support important grassland species, the characteristics and routine management of this area significantly diminish the wildlife value of

this habitat block. This area experiences regular disturbances associated with cultivation and mowing and, beyond the Project Area, the presence of the large athletic field in the northwest corner. As a result, this habitat feature does not appear to maintain characteristics to support important grassland wildlife habitat. Generalist wildlife species that are tolerant of human disturbance, including several song birds and small 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 these areas of the Site.

Minor impacts are proposed within the Field Edges habitat. As this habitat generally supports generalist wildlife species that are tolerant of disturbance activities, the Project will not result in a significant impact to those wildlife populations utilizing the Field Edges habitat.

Development activities associated with the Project will occur in close proximity to the Mixed Hardwood and Wetland habitats, but no direct impacts are proposed except as a result of utility pole placement in Wetland 1. Potential indirect impacts associated with construction activities will be minimized through the proper installation and maintenance of E&S controls. In addition, a Wetland and Vernal Pool Protection Program (see *Exhibit B)*, aimed at protecting the resources interior to forested habitat, will mitigate potential indirect impacts associated with construction of the Project. Finally, the Petitioner has proposed establishing a Habitat Enhancement Area, discussed in Section 3.1.3, that will enhance areas adjacent to the Project Area by promoting a more natural ecotone transitional zone to benefit habitat utilization and ecosystem functions.

3.1.3 Habitat Enhancement Area

Once the perimeter fence has been installed, a strip of land between the fence and the existing forest edge south and west of the Facility will need to remain clear of mature trees to prevent shading of the solar arrays. This Habitat Enhancement Area can be managed for wildlife use by restricting mowing on a rotation basis every four (4) to seven (7) years. This mowing plan will allow the area to revert to late old field habitat and create a soft ecotone that can provide cover and a suitable environment for forest-dwelling wildlife and edge nesting birds. In addition, this area will provide important connectivity between wetland resources and larger forested areas. Should soils become disturbed during construction activities, a pollinator-friendly seed mix will be used to revegetate those areas.

3.1.4 Core Forest Determination

APT evaluated the size and extent of the contiguous interior forest block (or "core forest") 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 first dataset, the Department's *Forestland Habitat Impact Mapping* [2], depicts one small extension of core forest into the Project Area. Field observations confirm that the area is no longer forested. The second dataset, UConn's Center for Land Use Education and Research's ("CLEAR") Forest Fragmentation Analysis ("FFA")[3] 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 ("edge effect"). 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 Project Area does not contain any forested habitats identified as "core" forest. In addition, no tree clearing is anticipated to facilitate Project development.

As the proposed Facility is under 2 MW, the Petitioner is not required to obtain a written response from DEEP under Connecticut General Statutes §16-50k(a).

3.2 Rare Species

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 applicants determine if there is the potential for project-related impact to state-listed species.

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[2] 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.

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

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) areas 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.

APT reviewed the most recent DEEP NDDB mapping (December 2019) to determine if any such species or habitats occur on or within 0.25-mile of the Site. Based on the NDDB mapping, neither condition exists with respect to the Site.

3.2.2 USFWS Consultation

The northern long-eared bat ("NLEB"; *Myotis septentrionalis*) is a federally-listed[4] threatened species also known to occur in the vicinity of the Site. 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 *Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance map* (February 1, 2016) was reviewed 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 Winchester, approximately 5.89 miles to the northwest.

The Project requires no tree clearing. Therefore, there is no potential impact on NLEB habitat.

Please see Appendix C, *USFSW/NDDB Compliance Statement*.

[4] Listing under the federal Endangered Species Act

3.3 Water Resources

3.3.1 Wetlands and Watercourses

An APT Professional Soil Scientist identified two (2) wetlands and two (2) watercourses on the Site during a field inspection[5] and wetland delineation completed on November 15, 2019. Cumulatively, these wetlands comprise approximately 5.47 acres on the Site. The results of the field delineation are summarized below. The locations of these resources are depicted on Figure 2, *Existing Conditions Map*.

Wetland 1 is located west of the Project Area, embedded within the Mixed Hardwood Forest and extending south into the Agricultural Field. It consists of a complex of forested and agricultural wet meadow habitats that have been significantly disturbed by historic agricultural use and residential development. The wetland corridor is dominated by forested habitat, with the southwestern portion comprised of a wet meadow used as a hayfield. Fringes of scrub/shrub habitat are found along the northern and southern edges of the hayfield. Extensive grading and filling have historically been undertaken within the open field in the southern extents of Wetland 1. An unnamed interior intermittent watercourse, identified on Figure 2 as IWC-1, drains north to south. Historic wetland alteration has disconnected this watercourse from its former association with the East Branch of Leadmine Brook, which is located farther south off the Site.

Wetland 2 is located to the southwest of the Project Area along the Site's southern boundary. It currently consists primarily of forested habitat that has been significantly disturbed by historic agricultural activities. The wetland boundary is defined by the toe of fill slope that drops ±6 feet from the hayfield to the north. Wetland 2 was formerly connected to Wetland 1. However, extensive grading and filling has historically taken place within the hayfield that now separates these two (2) wetlands. Seepage from Wetland 2 now forms the headwaters to the East Branch of Leadmine Brook via an intermittent watercourse located entirely off-Site (and not shown on Figure 2).

Intermittent watercourse 2 ("IWC-2") is located along the western edge of the Mixed Hardwood Forest habitat area, northeast of the Project Area. It is a man-made channel, ranging from 1 to 2 feet in width. It appears to convey seasonal surface and shallow groundwater

[5] A third watercourse (Bakersville Brook) is located in the eastern, forested portion of the Site, approximately 800 feet from the Project Area. This resource was not inspected because of its remoteness to the planned development.

discharges that continue to flow beyond storm events and, as such, meets the definition of "intermittent watercourse" under Connecticut Inland Wetlands and Watercourses Act regulations.

Bakersville Brook is located in the eastern, heavily forested portion of the Site, approximately 800 feet east of the Project Area. This stream extends generally southeastward before flowing off the Site. Based on its distance and physical separation from the Project Area, this stream was neither field-delineated nor inspected.

3.3.2 Wetland Impacts

There will be no direct impacts from the Project to Wetland 2 or the watercourses. However, the proposed electrical interconnection route will result in direct permanent and temporary impacts to the southern portion of Wetland 1. The interconnection will extend overhead from the Facility west to Torringford Street. In order to minimize disruption to the wetland, no underground lines will be utilized; rather, a series of utility poles will be installed to support the interconnection line. Four (4) of the poles will be placed within the wetland. For details of the interconnection design, please see Sheet SP-1 of Appendix A – Project Plans.

Permanent impacts associated with this interconnection work include the installation of distribution poles and associated excavation/backfill work. Temporary direct impacts are primarily due to the access required to install the poles. Specifically, minor clearing of vegetation will be required to facilitate the installation of construction matting. Temporary impacts will be minimized by limiting clearing to vegetation that prevents the placement of construction mats. Stumps from cleared vegetation will remain in place as a further means of limiting disturbance. In addition, the Petitioner is providing for restoration of any disturbed soils within the wetland areas created by the placement of construction matting.

Portions of the Project Area will require minimal grading proximate to these resources to facilitate installation of stormwater features, solar arrays access drive, and permanent chain link fencing. Clearing and grading limits for the Facility's infrastructure (solar arrays, associated equipment and fencing) would maintain a minimum setback of approximately ±100 feet to wetlands and watercourses, with the exception of the electrical interconnection work (Wetland 1), the drainage basin at the southern extent of the project (Wetland 2), and the access drive at the northeastern corner of the Project. Table 2, *Wetlands Impacts Table* below details all direct impacts to wetlands and distances to wetland resources.

Table 2: Wetland Impacts Table

Table 2: Wetland Impacts		
Permanent Impacts to Wetland 1 (s.f.)	28	
Permanent Impacts to Wetland 2 (s.f.)	0	
Total Permanent Impacts to Wetlands (s.f.)	28	
Project Proximity to Wetlands (from limit of disturbance)	Distance (ft.)	Direction (of wetland from LOD)
Project Proximity to Wetland 1	122	West
Interconnect Poles Proximity to Wetland 1	0	n/a
Project Proximity to Wetland 2	92	South
Project Proximity to IWC-1	305	West
Project Proximity to IWC-2	65	East

To promote protection of wetlands and watercourses during construction, safeguards have been developed to avoid unintentional impacts to these resources, including a Project-specific wetland protection plan (see Appendix B, *Wetland and Vernal Pool Protection Plan)* and the installation and maintenance of E&S controls in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. By implementing these management techniques throughout the duration of construction, potential adverse impacts to wetland resources will be mitigated.

Potential long-term secondary impacts to wetland resources associated with the operation of this Facility are minimized by several factors. The development will be unstaffed (generating negligible traffic), utilize a gravel/dirt access drive (to avoid creation of impervious surfaces), and treat the majority of the ground beneath the solar arrays with native grass/vegetation (providing ample opportunity for surface water to infiltrate or slow prior to discharge to surrounding resources). As such, the Project will not have a likely adverse impact to wetland resources.

3.3.3 Vernal Pools

A single vernal pool is present on the Site, embedded within the northern portion of Wetland 1. Vernal pool surveys were conducted on March 18, April 7 and April 14, 2020. 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.

Two vernal pool indicator species were confirmed on the Site, the wood frog (*Lithobates sylvaticus*) and the spotted salamander (*Ambystoma maculatum*). Approximately 34 wood frog egg masses and four (4) spotted salamander egg masses were observed in the vernal pool. An additional two (2) spotted salamander egg masses were observed in two (2) flooded areas immediately south of the vernal pool. From the initial observation of these small satellite pools on March 18th to the final observation on April 14th, the pools had drawn down significantly, with only a few inches of water remaining. These areas are not expected to retain standing water long enough for successful larval development and metamorphosis in most years, and are essentially decoy breeding pools.

The limits of the vernal pool were field located using a Trimble GPS unit and plotted using ESRI ArcMap software. Indicator species observed, including egg mass tallies for each pool, are summarized in Table 3 below.

Table 3: Vernal Pool Indicator Species and Egg Mass Totals

Indicator Species	Egg Masses/Larvae
Vernal Pool (Wetland 1)	
Wood Frog	~34 masses
Spotted Salamander	4 masses
(~) indicates approximate wood frog egg masses within a large communal egg mass raft	

During the initial site inspection on March 18th, wood frogs were chorusing. Cold weather occurring over the previous night left a thin sheet of ice across the pool, and adult wood frogs were observed moving through the water under the ice. Complete egg mass deposition was not observed until the second site visit on April 7th.

Two additional non-indicator amphibians were also observed within the vernal pool - the spring peeper (*Pseudacris crucifer*) and green frog (*Rana clamitans*).

This pool is anticipated to have a semi-permanently flooded hydrology, with standing water present throughout the growing season, but a period of significant drawdown and drying is likely during the warm summer months.

The area immediately south of the vernal pool shows signs of historic use associated with farming. There is a small building foundation at the edge of the wetland, along with an abandoned car and an area of piled stones that were apparently removed from the agricultural field to the east.

Construction and operation of the Facility would not result in direct physical impact to the vernal pool. It is widely documented that vernal pool dependent amphibians are not solely reliant upon the actual vernal pool habitat for breeding (i.e., egg and larval development) but do 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.[6]

In order to evaluate potential impacts to this vernal pool and its surrounding upland habitat, the resource was assessed using methodology developed by Calhoun and Klemens[7] (2002). This methodology assesses vernal pool ecological significance based on two parameters: 1) biological value of the vernal pool; and 2) conditions of the critical terrestrial habitat. The biological rating is based on the presence of state-listed species and abundance and diversity of vernal pool indicator species. The terrestrial habitat is assessed based on the integrity of the vernal pool envelope (within 100 feet of the pool's edge; "VPE") and the critical terrestrial habitat (within 100-750 feet of the pool's edge; "CTH").

The landscape condition of the vernal pool was then evaluated to determine the existing and proposed quality of the terrestrial (non-breeding) habitat. Pools with 25% or less developed areas in the CTH are identified as having high priority for maintaining this development percentage (including site clearing, grading and construction). Based on the results of the landscape analysis, the existing area of development within the CTH exceeds the 25% threshold.

The Project will not impact the VPE but will increase development within the CTH. The vernal pool lies within a wetland corridor between managed fields to the east and urban features (roads and developed lots) to the west. Areas proposed to be converted from Agricultural Field to Developed within the CTH are suboptimal for herpetofauna using the vernal pool, and provide no substantive cover. The bordering Field Edge to the east will not be impacted by the Project and

[6] 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.
[7] Ibid

the managed Agricultural Field habitat will experience minimal change, remaining largely dominated by similar grassland/open field species. The Project will not significantly alter important vernal pool habitat, as the Facility will occupy land that is now frequently manipulated. The Petitioner proposes to establish a Habitat Enhancement Area that will improve the quality of the habitat peripheral to the Facility and the vernal pool. In addition, it will improve the connectivity of habitats associated with the vernal pool and Wetland 2 to the south and the larger forested habitat east of the Project Area. As such, it is APT's opinion that the proposed increase in development within the CTH may be considered de minimis and that the Project will not result in a likely adverse impact to the on-Site vernal pool.

Results of the vernal pool impact analysis are graphically depicted in *Figure 4, Vernal Pool Analysis Map*. This figure also includes a table summarizing the impact analysis, comparing existing conditions and proposed impact calculations within the CTH.

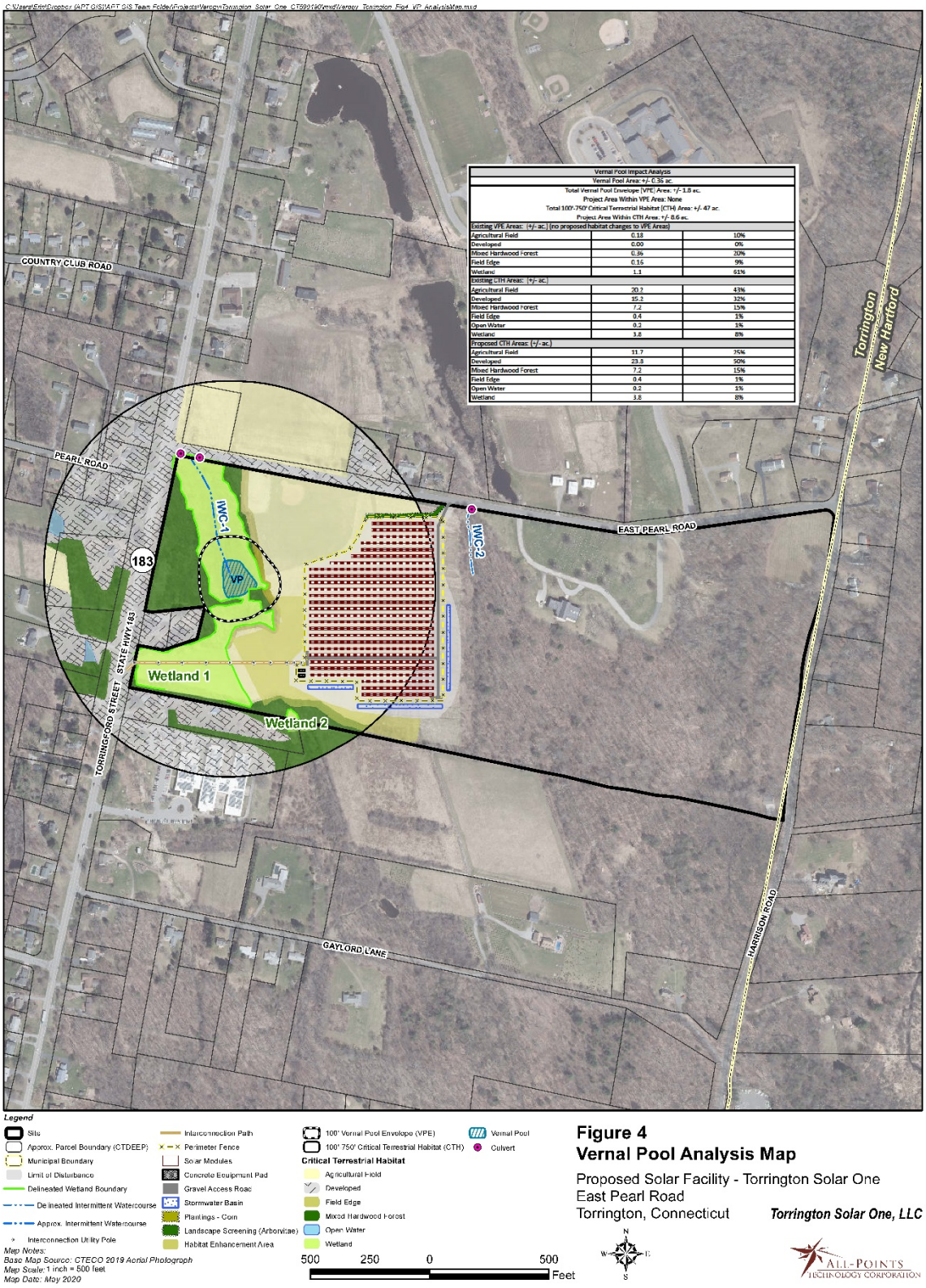


Figure 4
Vernal Pool Analysis Map

Proposed Solar Facility - Torrington Solar One
East Pearl Road
Torrington, Connecticut

Torrington Solar One, LLC

ALL-POINTS TECHNOLOGY CORPORATION

Potential short-term impacts to herpetofauna associated with nearby vernal pool habitat are possible should migrating individuals enter the Project Area during construction. Any short-term impacts associated with the proposed development within vernal pool CTH's would be minimized/avoided by proper installation and maintenance of erosion and sedimentation controls in accordance with *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* combined with implementation of the proposed Wetland and Vernal Pool Protection Plan.

3.3.4 Floodplain Areas

APT reviewed the United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Maps ("FIRM") for 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 Site is mapped on FIRM PANEL #0950810012B, dated May 19, 1972. Based upon the reviewed mapping, the Site is classified as an area of minimal flooding, typically above the 500-year flood level.

The Project is outside the influence of 100- and 500-year floodplains and will have no effect on these resources. No special considerations or precautions relative to flooding are required for the Project.

3.4 Water Quality

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. Once operative, the stormwater generated by the proposed development will be properly handled and treated in accordance with the 2004 *Connecticut Stormwater Quality Manual*.

3.4.1 Groundwater

Groundwater underlying the Site is classified by DEEP as "GAA". This classification indicates groundwater within the area is presumed to be suitable for human consumption without treatment.[8] Based upon a review of available DEEP mapping, the Site is not located within a mapped preliminary or final Aquifer Protection Area.

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

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

3.4.2 Surface Water

Based upon a review of DEEP mapping, the Site is located in both Major Drainage Basins 4 (Connecticut River) and 6 (Housatonic); Regional Basins 43 (Farmington River) and 69 (Naugatuck River), Sub Regional Drainage Basins 4310 and 6908, and Local Drainage Basins 4310-01 and 6908-03. For each of these categories, the line between the designations bisects the Project Area from northwest to southeast.

Based upon publicly available mapping and field observations, three (3) surface waterbodies are found on the Site. Bakersville Brook is located in the eastern portion of the Site, and flows in a generally northwest to southeast direction. It is classified by the DEEP as Class AA.[9] The two intermittent streams discussed above are not identified on DEEP mapping, but are also assumed to be classified as Class AA.

This surface waterbody will not be directly or indirectly impacted by the Project. Therefore, the Project will have no adverse environmental effect on surface water quality.

3.4.3 Stormwater Management

The Project has been designed to meet the current draft of DEEP's *Appendix I, Stormwater Management at Solar Array Construction Projects*. Preparation for the Project development does not require any tree cutting and the Project Area has been under cultivation. As a result, the increase in stormwater runoff within the Project Area will be minimal. To mitigate the slight increase, grass-lined water quality basins with overflow weirs are proposed at three locations along the southern and eastern edges of the Project Area.

For more detail regarding stormwater management, please refer to the Stormwater Management Report submitted under separate cover.

The eastern portion of the Project Area will be cleared of residual agricultural plant material during construction and stabilized with a low growth seed mix, New England semi-shade grass and forbs

[9] Designated uses for Class AA surface waterbodies include existing or proposed drinking water supply, fish and wildlife habitat, recreation use (perhaps restricted), and water supply for industry and agriculture.

mix (or equal). Ground cover in the hay fields that constitute the remainder of the Project Area will be preserved to the extent possible.

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, pending approval by DEEP Stormwater Management. The SWPCP will include monitoring of established E&S controls that will 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.

The incorporation of these measures into Project development activities will protect water quality associated with the Site's surface waterbodies.

3.5 Air Quality

The Site is currently undeveloped and as such, no air emissions are generated.

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

Surficial materials on and within the vicinity of the Site are comprised of glacial ice laid deposits (late Wisconsinan and Illinoian) as well as glacial till (thick till in the western portion of the Site and till in the eastern portion of the Site). Soils located on and within the vicinity of the Site are identified as Woodbridge fine sandy loam, Paxton and Montauk fine sandy loams, and Ridgebury,

Leicester, and Whitman stony soils. Woodbridge fine sandy loam is a moderately well drained coarse-loamy lodgment till derived soil from gneiss, granite, and/or schist parent material. Paxton and Montauk fine sandy loams are well drained coarse-loamy lodgment till derived soils from gneiss, granite, and/or schist parent material. Ridgebury, Leicester, and Whitman soils are poorly drained coarse-loamy lodgment till derived soils from gneiss, granite, and/or schist parent material.

Bedrock geology beneath the Site is identified as Hoosac Schist. Hoosac Schist is described as a gray, rusty-weathering fine- to medium-grained schist. The Petitioner does not anticipate encountering bedrock during Project development.

Once vegetative clearing activities are completed, grading for the proposed stormwater basins will occur.

After stormwater best management features are installed, minimal grading is required for construction of the remainder of the Project. Some minor grading may be required in connection with installation of the gravel access drive and concrete equipment pads.

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*.

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,[10] the Site contains Prime Farmland Soils that encompass the Project Area. (See Figure 2, *Existing Conditions Map).*

The Project Area has been in agricultural use for much of its recorded history. The eastern portion of the Project Area has been cultivated, most recently with corn and gourds; the western portion has been used as a hayfield.

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

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 Facility. The use of pile-driven mounts for installation of the solar panels and associated equipment minimizes the need for substantial grading. Beyond the Facility's southern and southeastern fence lines, installation of three (3) stormwater basins for stormwater management will require movement of soil. Any excavated material will either be spread as top dressing for reestablishing vegetation or removed from the Site. No topsoil will leave the Site. Implementation of these proposed design strategies demonstrates that the Project will not materially affect Prime Farmland Soils.

As the proposed Facility is under 2 MW, the Petitioner is not required to obtain a written response from the Connecticut Department of Agriculture ("DOA") under Connecticut General Statutes §16-50k(a).

Table 4: Farmland Soils Assessment and Impacts Table

Table 4: Farmland Soils Assessment and Impacts Table		
Farmland Soil Classification	Total Area On-Site (+/- ac.)	Area within Project Limits (+/- ac.)
Prime Farmland Soil Area	33.0	11.1
Unique Farmland Soil Area	n/a	n/a
Statewide Important Farmland Soils Area	n/a	n/a

3.7 Historic and Archaeological Resources

Heritage Consultants LLC ("Heritage Consultants") of Newington, Connecticut, reviewed relevant historic and archaeological information and conducted a pedestrian survey 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") revealed that the Project Area is within the Torringford Street Historic District, an area that runs along Torringford Street from its intersection with East Main Street north to 4040 Torringford Street. The Torringford Street Historic District was nominated to the National Register of Historic Places in 1991. In addition, two State Register of Historic Places are within one (1) mile of the Project Area, including a farmhouse located at the northeast corner of Gaylord

Lane and Torringford Street, and another farmhouse located at 1280 Torringford Street. No direct impact on either structure will result from development of the Project.

Because the Project Area contains relatively level ground and, based on the region's prehistoric Native American occupation and historic residential and agricultural use, it was determined that the Project Area has the potential to contain intact archaeological deposits in the subsoil. At the request of the Petitioner, Heritage Consultants performed a Phase 1B Professional Cultural Resources Assessment and Reconnaissance Survey in April, 2020.

Fieldwork for the Phase 1B assessment included a pedestrian survey, photo-documentation, and the excavation of 136 shovel tests across the Project Area, none of which yielded any cultural materials, cultural features, or soil anomalies. No additional testing prior to construction of the proposed Project is deemed necessary.

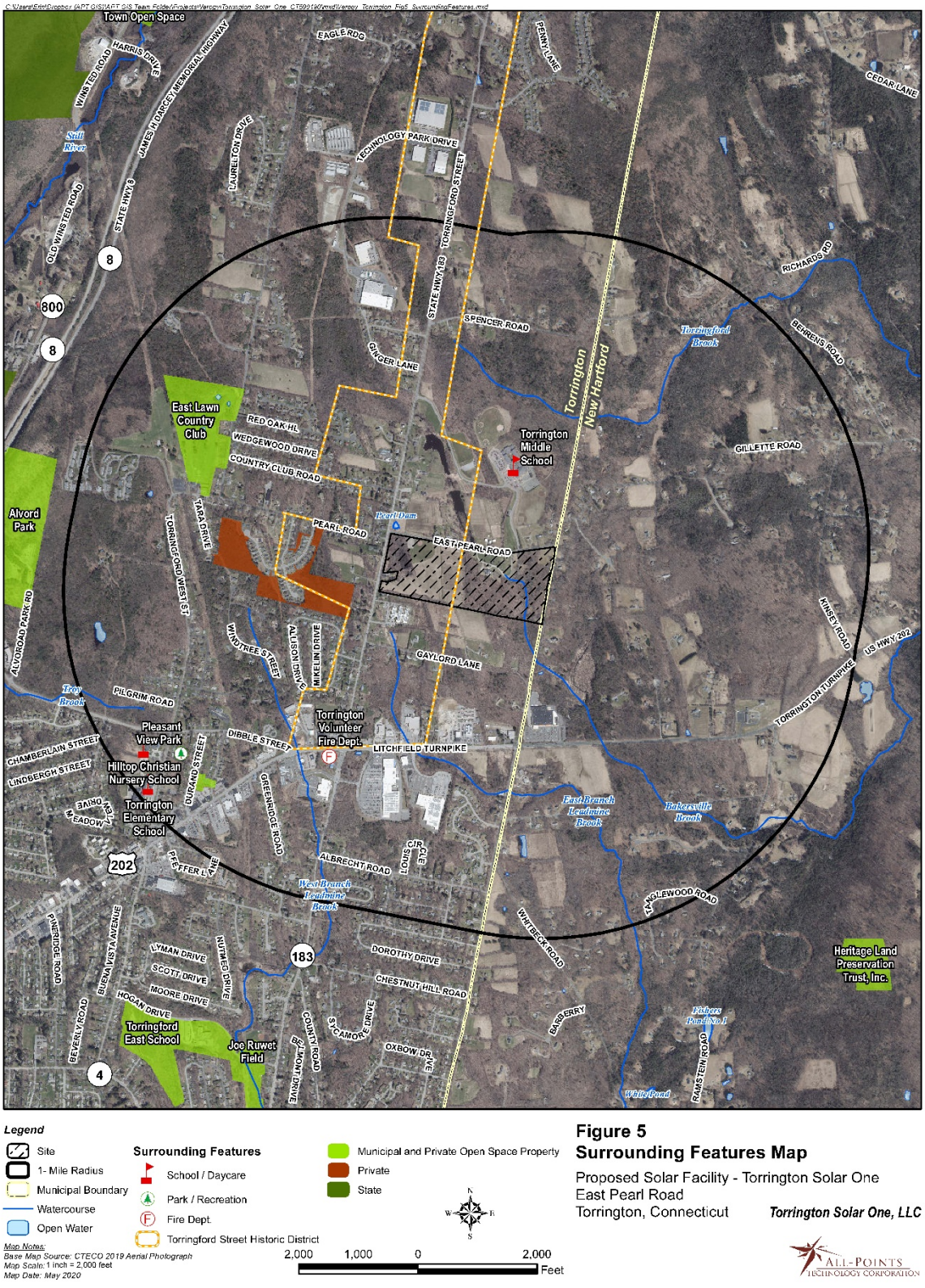
On behalf of APT, Heritage Consultants submitted Project and Site historic/cultural information, as well as copies of the Phase 1A and 1B Cultural Resources Assessment and Reconnaissance Surveys, to the SHPO for agency review and comment on April 30, 2020. A response from SHPO is pending.

Copies of the Phase 1A and Phase 1B Cultural Resources Reconnaissance Survey Reports are included in Appendix D, *Phase 1A/1B Cultural Resources Reconnaissance Survey Report.*

3.8 Scenic and Recreational Areas

No state designated scenic roads or scenic areas are located near the Site. The nearest off-Site recreational area is Pleasant View Park located approximately 0.8 mile to the southwest. See Figure 5, *Surrounding Features Map,* for other resources located within one mile of the Site.

No state designated scenic roads or recreational areas will be physically or visually impacted by development of the Project.



Legend

- Site
- 1- Mile Radius
- Municipal Boundary
- Watercourse
- Open Water

Surrounding Features

- School / Daycare
- Park / Recreation
- Fire Dept.
- Torringford Street Historic District

- Municipal and Private Open Space Property
- Private
- State

Map Notes:
Base Map Source: CTECO 2019 Aerial Photograph
Map Scale: 1 inch = 2,000 feet
Map Date: May 2020

2,000 1,000 0 2,000 Feet

Figure 5
Surrounding Features Map
Proposed Solar Facility - Torrington Solar One
East Pearl Road
Torrington, Connecticut

Torrington Solar One, LLC

ALL-POINTS TECHNOLOGY CORPORATION

3.9 Noise

With the exception of the cemetery, a garage and ballfields, the Site is undeveloped; no unusual noise sources presently exist.

The Torrington Area Health Department has jurisdiction over noise control in the City of Torrington. No noise regulations are in effect. 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 Project will be minimal and meet applicable State noise standards.[11] The Site is located within Residential Zones R-WP and R-15S and is abutted by residential, farm and institutional/health care uses. Conservatively, the Facility would be considered an Industrial noise emitter to Residential receptors. As such, it is subject to noise standards of 55 dBA during the daytime and 45 dBA at night at property lines.

The only noise generating equipment planned at the Facility are the inverters and transformers. Based on the most conservative information provided by equipment manufacturers, the loudest piece of equipment could be a 2,000 kVA transformer that will generate a maximum sound level of approximately 68 dBA.

Sound reduces with distance and the inverters and transformers are inactive at night. The closest property line to the Project Area is the Site's northern boundary with East Pearl Road, approximately 62 feet to the north. The nearest residentially developed parcel is at 153 East Pearl Road, located approximately 107 feet to the north of the Facility.

APT applied the Inverse Square Law[12] to evaluate the relative sound level of the largest transformer at the nearest property lines. Based on these calculations, nearby receptors are of

[11] Conn. Agencies Regs. Sec. 22a-69-3.5. Noise zone standards

[12] 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.

sufficient distances from the proposed Project-related equipment and noise levels during Facility operation will be below 55 dBA at surrounding property lines.

Please refer to the inverter specification sheet provided in Appendix E, *Product Information Sheets*.

3.10 Lighting

The Site is undeveloped; no light sources currently exist.

No exterior lighting is planned for the Facility. There will be some small, non-intrusive lighting fixtures within the equipment to aid in maintenance.

3.11 FAA Determination

APT submitted relevant Project information to the Federal Aviation Administration ("FAA") for an aeronautical study to evaluate potential hazards to air navigation based on the several points to define the extent of the Project. The FAA provided Determinations of No Hazard to Air Navigation on April 22, 2020. See Appendix F, *FAA Determination*. Based on this determination, there is no need to conduct a glare analysis.

3.12 Visibility

The Facility will consist of 7,150 non-reflective solar panels measuring approximately 10 feet above final grade surrounded by a chain link security fence. The proposed electrical interconnection will consist of one overhead utility line with poles spaced at approximately 100-foot intervals.

Year-round visibility of the proposed Facility will be confined to areas within the immediate vicinity of the Facility, primarily from residential properties on East Pearl Road north of the Site. Predicted year-round visibility will also be experienced from open fields north of East Pearl Road and to the south of the Site. In order to minimize the visual impact from East Pearl Road, the Petitioner will install an 8-foot tall chain link fence with black vinyl covering and black privacy slats along the north and northwest fence lines, including the fence opposite the athletic field. In addition, vegetative screening consisting of arborvitae will be installed along the north fence line and the west side of the access drive between East Pearl Road and the fence. Limited seasonal views,

when the leaves are off of the deciduous trees, could extend beyond the Site approximately 0.25 mile to the south and west and between 0.25 and 0.50 mile to the north. Potential views from nearby locations to the west within the Torringford Street Historic District will be limited by existing mature vegetation and existing development. In general, views beyond the immediate area would be minimized by a combination of the Facility's low height and the presence of intervening vegetation.

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.

Please see Appendix G *Viewshed Maps and Photo-simulations* for visual simulations and a viewshed analysis of the proposed Project.

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. Once operative, the Facility will be unstaffed and generate minimal traffic.

No tree clearing is required, and no core forest will be affected by the Project. The Project is not expected to result in a significant negative impact to existing habitats or wildlife use of the Site.

The Project Area is located within mapped prime farmland soils. The Petitioner has designed the Project to minimize disturbances to these soils by proposing minimally intrusive methods for construction and installation of Facility components and limiting the amounts of cuts/fills and grading to the extent feasible. Once the Facility has reached the end of its projected useful life, the panels and equipment can be removed and the Project Area restored.

No wetlands or watercourses will be directly impacted by the Facility's fenced area. Installation of the interconnection route from the Facility to Torringford Street will result in both temporary and permanent direct impacts. Temporary impacts will be minimized by limiting clearing, construction matting and reseeding after construction is complete. To further promote protection of nearby wetlands and watercourses during construction, a project-specific Wetland and Vernal Pool Protection Plan will be implemented. In addition, E&S controls will be installed and maintained throughout construction in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. Implementing these management techniques will mitigate the potential for adverse impacts to wetland resources.

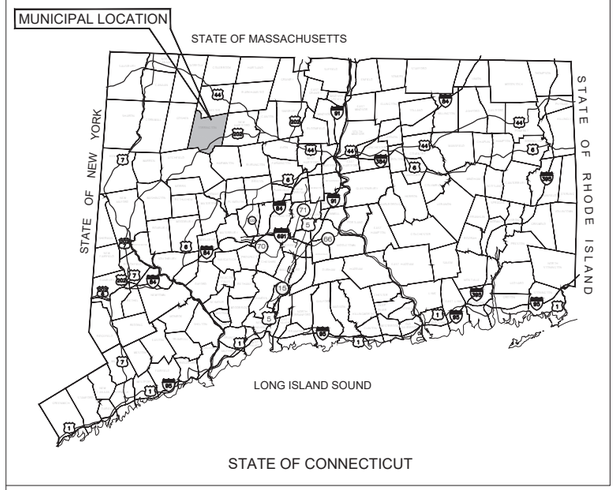
No State-listed species have been identified as potentially occurring within the vicinity of the Site. Northern long-eared bat was identified as potentially occurring within the vicinity of the Site. As no tree clearing is involved in development of the Facility, no adverse impact to any federal or state threatened, endangered or special concern species is anticipated.

Portions of the Facility will be seen from surrounding areas, primarily to the north, including residential properties and nearby public roadways. Screening along the north and northwest fence lines will soften views from the north.

Overall, the Project's design minimizes the creation of impervious surfaces. The Project has been designed to adequately handle stormwater runoff and mitigate any impacts to water quality through the creation of several stormwater basins. Some Site manipulation (cuts/fills) and regrading will be required to allow for installation of the stormwater basins and construction of the access drive, but the majority of the Project Area will maintain existing grades for the installation of the solar arrays. The Project has been designed in accordance with the DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities*. 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



TORRINGTON SOLAR ONE, LLC

"TORRINGTON SOLAR ONE, LLC"

EAST PEARL ROAD
TORRINGTON, CT

PERMIT APPLICATION DRAWINGS
MAY 28, 2020

LIST OF DRAWINGS

SITE INFORMATION

SITE NAME: "TORRINGTON SOLAR ONE, LLC"

LOCATION: EAST PEARL ROAD
TORRINGTON, CT

SITE TYPE/DESCRIPTION: ADD (1) GROUND MOUNTED SOLAR PANEL ARRAY W/ ASSOCIATED EQUIPMENT.

PROPERTY OWNER: CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
700 MIDDLETOWN AVENUE
NORTH HAVEN, CT 06473

APPLICANT: TORRINGTON SOLAR ONE, LLC
150 TRUMBULL STREET, 4TH FLOOR
HARTFORD, CT 06103

ENGINEER CONTACT: BRADLEY J. PARSONS, P.E.
(860) 663-1697 x208

LATITUDE: 41° 49' 49" N
LONGITUDE: 73° 4' 24" W
ELEVATION: 1145'± AMSL

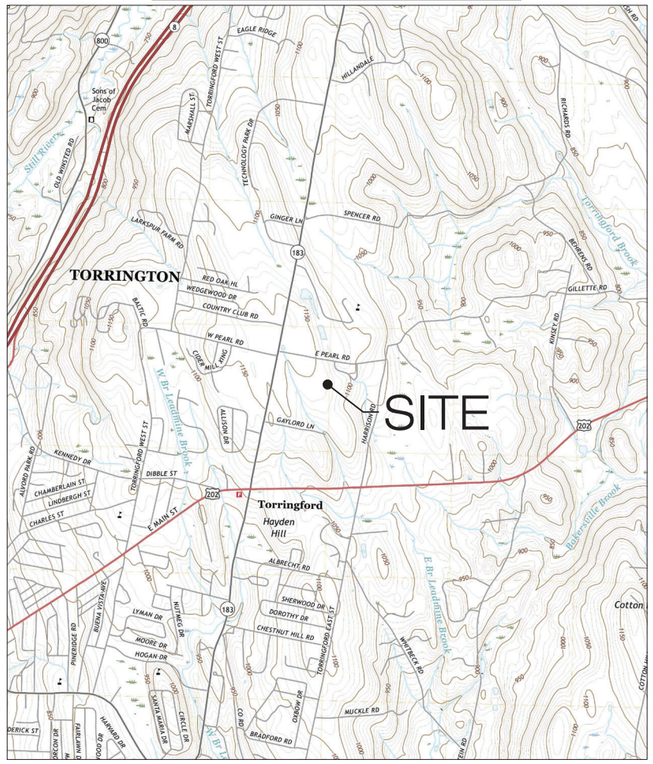
MBLU: 246/003/003/2
ZONE: R-15S/R-WP
EXISTING LAND USE: AGRICULTURAL
PROPOSED LAND USE: 20.00 UTILITY COMPANIES AND ENERGY PRODUCTION

TOTAL SITE ACERAGE: 66.45± AC.
TOTAL DISTURBED AREA: 11.15± AC.

APPROX. VOLUME OF CUT: 905± CY
APPROX. VOLUME OF FILL: 0 ± CY
APPROX. NET VOLUME: 905 ± CY OF CUT

PROP. GRAVEL ACCESS ROAD: 1,385± LINEAR FEET
PROP. SILT FENCE: 2,740± LINEAR FEET
TREE CLEARING AREA: 0 ACRE
EFFECTIVE IMPERVIOUS AREA: 17,500± SQUARE FEET

USGS TOPOGRAPHIC MAP



SCALE : 1-IN = 2000-FT SOURCE: USGS TORRINGTON QUADRANGLE 2018 (TOPOZONE)

TORRINGTON
SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

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
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4		
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6		

NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: BRADLEY J. PARSONS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHALL ST EXT - STE 311
WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES OF ARCHDIOCESE OF HARTFORD
ADDRESS: 700 MIDDLETOWN AVENUE
NORTH HAVEN, CT 06473

TORRINGTON SOLAR ONE, LLC

SITE ADDRESS: EAST PEARL ROAD
TORRINGTON, CT

APT FILING NUMBER: CT590190

DRAWN BY: KAM

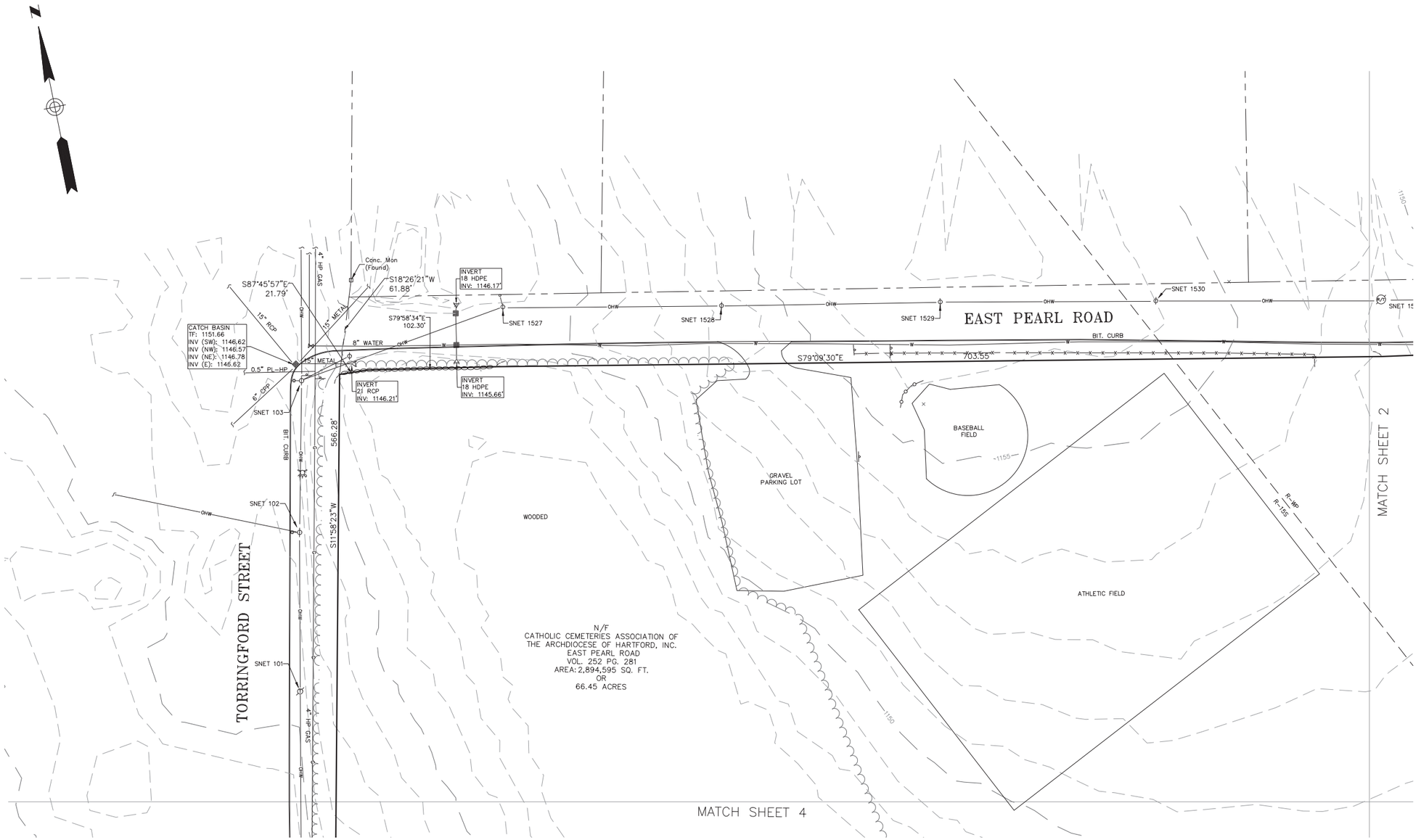
DATE: 05/28/2020 CHECKED BY: BJP

SHEET TITLE:

TITLE SHEET & INDEX

SHEET NUMBER:

T-1



LOCUS MAP
(N.T.S.)

GENERAL NOTES

1. A) THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE REGULATIONS OF CONNECTICUT STATE AGENCIES, SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS.

   B) THIS PLAN CONFORMS TO HORIZONTAL ACCURACY CLASS A-2, AND TOPOGRAPHIC ACCURACY CLASS T-2.

   C) BOUNDARY DETERMINATION IS BASED UPON A RESURVEY WITH RESPECT TO TORRINGFORD STREET AND THE EASTERN AND SOUTHERN MOST PROPERTY LINES. BOUNDARY DETERMINATIONS OF THE NORTHERN LINE OF EAST PEARL ROAD AND THE WESTERN LINE OF HARRISON STREET ARE BASED UPON AN ORIGINAL SURVEY AND SHOULD BE CONSIDERED ASSUMED, NO LAYOUTS OF EITHER STREET OR PREVIOUS SURVEYS WERE FOUND DEPICTING ROADWAY GEOMETRY.

   D) THE TYPE OF SURVEY PERFORMED IS A PROPERTY AND TOPOGRAPHIC SURVEY AND IS INTENDED TO DEPICT LAND NOW OR FORMERLY CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC. LOCATED SOUTH OF EAST PEARL ROAD.
2. NORTH ARROW AND BEARINGS REFER TO THE CONNECTICUT STATE PLANE COORDINATE SYSTEM (NAD83 EPOCH2011) AND ARE BASED ON GPS OBSERVATIONS PREFORMED BY WSP USA.
3. ELEVATIONS REFER TO NAVD 88 AND ARE BASED ON GPS OBSERVATIONS PREFORMED BY WSP USA.
4. UNDERGROUND UTILITIES DEPICTED HAVE BEEN PLOTTED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES DEPICTED COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES DEPICTED ARE IN THE EXACT LOCATION INDICATED, THE SURVEYOR HAS NOT PHYSICALLY EXPOSED THE UNDERGROUND UTILITIES. PER CONNECTICUT STATE LAW THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF EXCAVATION.
5. SUBJECT PARCEL IS LOCATED IN ZONE C: "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN" AS DEPICTED ON FIRM MAP NUMBER 09004800118, PANEL NUMBER 11 OF 20, EFFECTIVE DATE; FEBRUARY 3, 1982.
6. SUBJECT PARCEL IS LOCATED PARTIALLY IN R-15S (RESIDENTIAL 15,000 SF LOT SIZE, SINGLE FAMILY, AND PARTIALLY IN RWP (WATERSHED PROTECTION ZONE).
7. PARCEL IS SUBJECT TO A LICENSE AGREEMENT BETWEEN CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC. AND THE CITY OF TORRINGTON.

MAP REFERENCES

A. "MAP SHOWING REVISED PROPERTY LINE", SCALE: 1"=10'; DATE: AUGUST 1994; PREPARED BY NERIANI SURVEYING, AND RECORDED AS MAP NUMBER 4108 WITH THE TORRINGTON LAND RECORDS.

B. "PLAN PREPARED FOR JOYCE C. WEINGART, PHILIP DONALD WEINGART, JR. & WILLIAM WEINGART", SCALE: 1"=100'; DATE: SEPTEMBER 2010; PREPARED BY DAVID J. LITTLE, AND RECORDED AS MAP NUMBER 5360 WITH THE TORRINGTON LAND RECORDS.

C. "LOT LINE REVISION", SCALE: 1"=30'; DATE: OCTOBER, 2001; PREPARED BY STERLING LAND SURVEYING AND RECORDED AS MAP NUMBER 4650 WITH THE TORRINGTON LAND RECORDS.

D. "PEARLWOOD A SUBDIVISION OF PROPERTY", SCALE: 1"=50'; DATE: SEPTEMBER 1966; PREPARED BY G.A. HANSON, AND RECORDED AS MAP NUMBER 794 WITH THE TORRINGTON LAND RECORDS.

E. "PROPERTY SURVEY", SCALE: 1"=60'; DATE: SEPTEMBER 9, 2011; PREPARED BY HRICA ASSOCIATES LLC AND RECORDED AS MAP NUMBER 5419 WITH THE TORRINGTON LAND RECORDS.

F. "PROPERTY LINE REVISION & MERGER MAP", SCALE: 1"=100'; DATE: OCTOBER 20, 2016; PREPARED BY ARTHUR HOWLAND & ASSOCIATES AND RECORDED AS MAP NUMBER 5566 WITH THE TORRINGTON LAND RECORDS.

G. "IMPROVEMENT LOCATION SURVEY, PROPERTY OF LAURIE A. ZUCCA, 1440 TORRINGFORD STREET, TORRINGTON, CONNECTICUT" SCALE: 1"=20'; DATE: MAY, 2009; PREPARED BY GM2 ASSOCIATES.

H. CTDOT BASE MAP SHEETS 1 AND 2 FOR PROJECT NUMBER 143-15.

REVISION	
DATE	DESCRIPTION
--/--/--	---

PROPERTY AND TOPOGRAPHIC SURVEY
EAST PEARL ROAD
TORRINGTON, CONNECTICUT
PREPARED FOR
TORRINGTON ONE SOLAR, LLC.

LEGEND

CB	CONCRETE BOUND		UTILITY POLE WITH RISER
IPF	IRON PIPE FOUND		UTILITY POLE
IRF	IRON ROD FOUND		UTILITY POLE WITH LIGHT
SB	STONE BOUND		UTILITY POLE WITH LIGHT AND RISER
	CATCH BASIN		UTILITY POLE WITH LIGHT AND TRANSFORMER
	CULVERT		UTILITY POLE WITH LIGHT, RISER AND TRANSFORMER
	DRAIN MANHOLE		UTILITY POLE WITH TRANSFORMER
	ELECTRIC BOX		UTILITY POLE WITH RISER AND TRANSFORMER
	ELECTRIC METER		FIRE HYDRANT
	WATER GATE		

	DECIDUOUS TREE
	CONIFER TREE
	SHRUB
	SIGN (SINGLE POSTED)
	SIGN (DOUBLE POSTED)
	POST
	MAILBOX
	LIGHT POLE
	BOLLARD
	VALVE

	ABUTTERS LOT LINE
	PROPERTY LINE
	CHAIN LINK FENCE
	WOOD FENCE
	METAL/WIRE FENCE
D	DRAIN LINE
	WATER LINE
E	UNDERGROUND ELECTRIC
C	UNDERGROUND CABLE
T	TELEPHONE LINE
	OVERHEAD WIRES
	STONE WALL
	TREE LINE
52	INTERMEDIATE CONTOURS
50	INDEX CONTOURS

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

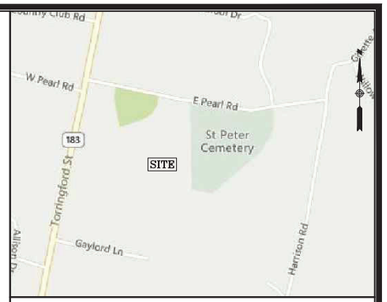
TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

MICHAEL J. GARON L.S. #70366

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS MAP BEARS THE ORIGINAL SIGNATURE AND EMBOSSED SEAL OF THE ABOVE NAMED LAND SURVEYOR.

WSP USA Inc.
500 Winding Brook Drive,1st Floor
Glastonbury, CT 06033
860-659-0444

Drawn By MG/JWG	Date APRIL 1, 2020	Job No. 190379B
Surveyed By JWG/ZJM		
Checked By MG	Scale 1" = 40'	Sheet No. 1 OF 6
Book No. –		



LOCUS MAP
(N.T.S.)

LEGEND

CB ⊡	CONCRETE BOUND
IPF ◎	IRON PIPE FOUND
IRF ◎	IRON ROD FOUND
SB ⊡	STONE BOUND
■	CATCH BASIN
◁	CULVERT
◎	DRAIN MANHOLE
⊠	ELECTRIC BOX
◍	ELECTRIC METER
⋈	WATER GATE
⌀	UTILITY POLE WITH RISER
⌀	UTILITY POLE
⌀	UTILITY POLE WITH LIGHT
⌀	UTILITY POLE W/ LIGHT/TRANSFORMER
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(IN FEET)
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REVISION	
DATE	DESCRIPTION
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PROPERTY AND TOPOGRAPHIC SURVEY
EAST PEARL ROAD
TORRINGTON, CONNECTICUT
PREPARED FOR
TORRINGTON ONE SOLAR, LLC.

WSP USA Inc.
500 Winding Brook Drive,1st Floor
Glastonbury, CT 06033
860-659-0444

Drawn By MG/JWG	Date APRIL 1, 2020	Job No. 190379B
Surveyed By JWG/ZJM		
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EAST PEARL ROAD

HARRISON ROAD

MATCH SHEET 2

MATCH SHEET 6

N/F
CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
EAST PEARL ROAD
VOL. 252 PG. 281
AREA: 2,894,595 SQ. FT.
OR
66.45 ACRES

CEMETERY

FIELD

CATCH BASIN
TF E: 1052.51
INV (E): 1049.00
INV (W): 1049.27

CATCH BASIN
TF: 1057.70
INV (E): 1054.62
INV (N): 1055.67

INVERT
INV 1047.60

INVERT
15 RCP
INV: 1088.09'

CATCH BASIN
TF: 1087.30
INV (S): 1083.91

CATCH BASIN
TF: 1086.03
INV (NW): 1079.81
INV (SE): 1079.72
INV (N): 1079.93

CATCH BASIN
TF: 1087.00
INV (S): 1082.90
INV (NW): 1083.30

SNET 1538
SNET 1539
SNET 1540
SNET 1542
SNET 1543
SNET 1967
SNET 1968
SNET 1969
ATT 1969

Iron Pipe (Found)
Iron Pin (Found)
FRONTIER 1966
Nail in Drill Hole (Found)
Townline Mon (Found)

L=270.81'
R=900.00'
Chd=269.79'
S89°20'03"E
Δ=017°14'26"

N82°05'33"E
651.03'

L=64.42'
R=35.00'
Chd=55.70'
N45°10'42"W
105°27'29"

S07°33'03"W
166.47'

L=204.97'
R=1200.00'
Chd=204.72'
N12°26'39"E
009°47'12"

S17°20'15"W
123.28'

S13°42'10"W
93.33'

S10°14'55"W
51.62'

8" WATER

12" RCP

15" RCP

24" RCP

BIT. CURB

BIT. DRIVEWAY

OHW

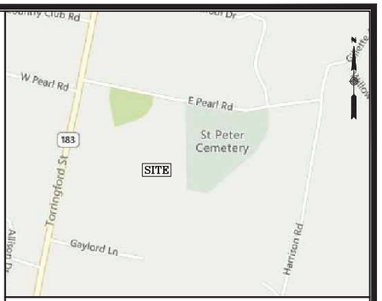
20" OAK W/WIRE

14" OAK W/WIRE

12" OAK W/WIRE

6" OAK W/WIRE

8" OAK W/WIRE



LOCUS MAP
(N.T.S.)

LEGEND

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IPF ◎	IRON PIPE FOUND
IRF ◎	IRON ROD FOUND
SB ⊡	STONE BOUND
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Ⓜ	DRAIN MANHOLE
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Ⓔ	ELECTRIC METER
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	UTILITY POLE WITH RISER
	UTILITY POLE
	UTILITY POLE WITH LIGHT
	UTILITY POLE W/ LIGHT/TRANSFORMER
	UTILITY POLE WITH TRANSFORMER
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GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

REVISION	
DATE	DESCRIPTION
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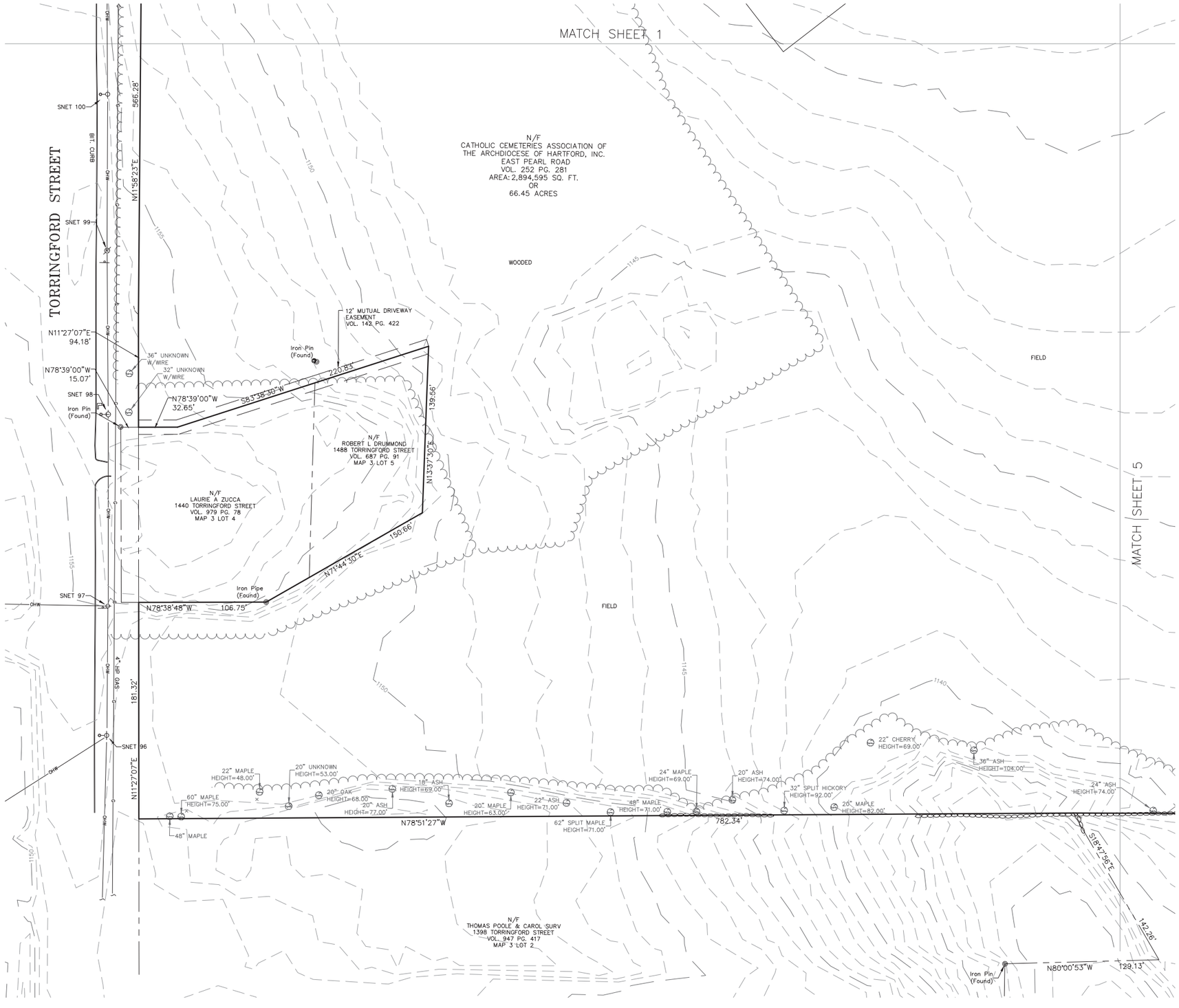
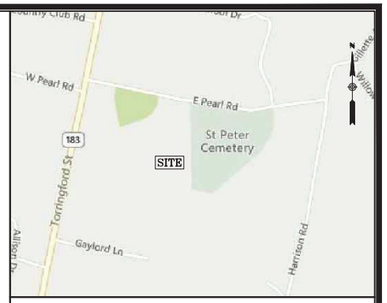
PROPERTY AND TOPOGRAPHIC SURVEY
EAST PEARL ROAD
TORRINGTON, CONNECTICUT
PREPARED FOR
TORRINGTON ONE SOLAR, LLC.

WSP USA Inc.
500 Winding Brook Drive,1st Floor
Glastonbury, CT 06033
860-659-0444

Drawn By MG/JWG	Date APRIL 1, 2020	Job No. 190379B
Surveyed By JWG/ZJM		
Checked By MG	Scale 1" = 40'	Sheet No. 3 OF 6
Book No. –		





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MATCH SHEET 2

MATCH SHEET 4

MATCH SHEET 6

N/F
CATHOLIC CEMETERIES ASSOCIATION OF
THE ARCHDIOCESE OF HARTFORD, INC.
EAST PEARL ROAD
VOL. 252 PG. 281
AREA: 2,894,595 SQ. FT.
OR
66.45 ACRES

FIELD

R-WP
R-12S

CONC

1,000 GALLON
SEPTIC TANK

4" PVC

48" SPLIT MAPLE
HEIGHT=72.00'

22" MAPLE
HEIGHT=59.00'

30" MAPLE
HEIGHT=60.00'

20" MAPLE
HEIGHT=49.00'

36" MAPLE
HEIGHT=82.00'

N78°20'03"W
498.66'

30" SPLIT MAPLE
HEIGHT=44.00'

20" MAPLE
HEIGHT=52.00'

18" MAPLE
HEIGHT=56.00'

N77°58'38"W
469.65'

N79°40'26"W
106.31'

26" OAK
W/WIRE

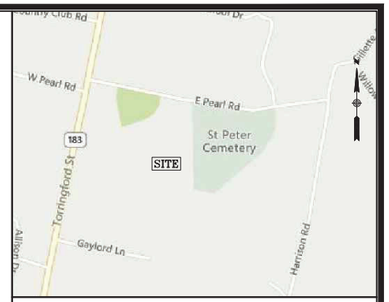
4"
W

N/F
MAD INVESTMENTS LLC & TIC
GAYLORD LANE
VOL. 1247 PG. 213
MAP 3 LOT 7

N/F
PHILIP & LINDA WEINGARD
341 GAYLORD LANE
VOL. 558 PG. 783
MAP 1 LOT 6

142.26'

129.13'



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TORRINGTON, CONNECTICUT
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Drawn By	MG/JWG	Date	Job No.
Surveyed By	JWG/ZJM	APRIL 1, 2020	190379B
Checked By	MG	Scale	Sheet No.
Book No.	–	1" = 40'	5 OF 6

MATCH SHEET 3

MATCH SHEET 5

CATCH BASIN
TF: 1087.00
INV (S): 1082.90
INV (NW): 1083.30

15" RCP

24" RCP

4" PVC

LEACHING FIELD

N/F
CATHOLIC CEMETERIES ASSOCIATION OF THE ARCHDIOCESE OF HARTFORD, INC.
EAST PEARL ROAD
VOL. 252 PG. 281
AREA: 2,894,595 SQ. FT.
OR
66.45 ACRES

N/F
PHILIP & LINDA WEINGARD
341 GAYLORD LANE
VOL. 558 PG. 783
MAP 1 LOT 6

12" OAK W/WIRE
S10°14'55"W 51.62'
8" OAK W/WIRE
BIT. CURB
Iron Pin (Found)
S4°29'49"W 109.63'
36" OAK W/WIRE
Iron Pin (Found)
SVC 1970
S10°29'01"W 84.56'
12" OAK W/WIRE
S8°40'56"W 264.10'
SNET 2147
S4°48'22"W 180.63'
SNET 2148
36" SPLIT OAK W/WIRE
ONE STORY BRICK BUILDING
BIT.
14" OAK W/WIRE
Iron Pin (Found)
12" BEECH W/WIRE
12" OAK W/WIRE
30" OAK W/WIRE
30" OAK W/WIRE

HARRISON ROAD

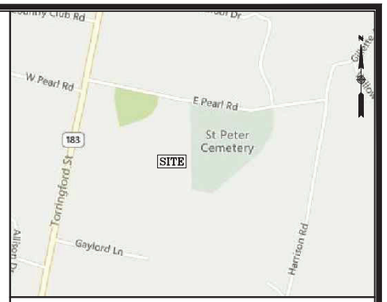
INVERT
INV 24 RCP
ELEV: 1044.07'

INVERT
INV 24 RCP
ELEV: 1044.48'

INVERT
INV 24 RCP
ELEV: 1044.06'

INVERT
INV 24 RCP
ELEV: 1043.89'

4" ASH W/WIRE
N76°09'11"W 104.00'
22" HICKORY W/WIRE
20" BEECH W/WIRE
N76°01'03"W 91.83'
12" HICKORY W/WIRE
N82°59'51"W 88.40'
14" HICKORY W/WIRE
8" OAK W/WIRE
N78°00'57"W 109.56'
12" BEECH W/WIRE
22" MAPLE W/WIRE
20" BEECH W/WIRE
12" BIRCH W/WIRE
4" UNKNOWN W/WIRE
N84°24'59"W 86.53'
30" UNKNOWN W/WIRE
8" OAK W/WIRE
N78°34'46"W 216.14'
6" OAK W/WIRE
10" HICKORY W/WIRE
12" OAK W/WIRE
8" HICKORY W/WIRE
4" HICKORY W/WIRE
4" IRONWOOD W/WIRE
N77°10'52"W 114.62'
N75°09'57"W 69.55'
N79°41'02"W 59.39'



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(N.T.S.)

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(IN FEET)
1 inch = 40 ft.

REVISION	
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TORRINGTON, CONNECTICUT
PREPARED FOR
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Drawn By MG/JWG	Date APRIL 1, 2020	Job No. 190379B
Surveyed By JWG/ZJM		
Checked By MG	Scale 1" = 40'	Sheet No. 6 OF 6
Book No. –		

GENERAL NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH PROJECT DEVELOPER STANDARDS, CITY OF TORRINGTON 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, CITY OF TORRINGTON, 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 CITY OF TORRINGTON 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 CITY OF TORRINGTON.
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 INC. DATED APRIL 1, 2020.
2. THERE ARE WETLANDS AND WATERWAYS LOCATED ON THE SITE AS INDICATED ON THE PLANS. BOUNDARIES WERE FLAGGED AND LOCATED VIA GPS BY APT, IN NOVEMBER 2019 AND APRIL 2020.
3. THERE WILL BE MINIMAL GRADING ON SITE IN THE AREAS OF THE MINOR CLEARING, TO ENSURE THAT PROPER DRAINAGE IS MAINTAINED.
4. 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.
5. PROPER CONSTRUCTION PROCEDURES SHALL BE FOLLOWED ON ALL IMPROVEMENTS WITHIN THIS PARCEL SO AS TO PREVENT THE SILTING OF ANY WATERCOURSE OR BVWS 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.
6. 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.
7. 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 CITY OF TORRINGTON AND STATE OF CONNECTICUT.
8. 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 CITY OF TORRINGTON 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 CONTRACTORS INFORMATION AND SHALL BE VERIFIED WITH THE ELECTRICAL ENGINEER AND THE PROJECT DEVELOPERS 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 CITY OF TORRINGTON.
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 CITY OF TORRINGTON.
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, CITY OF TORRINGTON, 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

TORRINGTON SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

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
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NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: BRADLEY J. PARSONS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHALL ST EXT - STE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES OF ARCHDIOCESE OF HARTFORD
ADDRESS: 700 MIDDLETOWN AVENUE NORTH HAVEN, CT 06473

STATE OF CONNECTICUT
BRADLEY J. PARSONS
No. 26025
LICENSED
PROFESSIONAL ENGINEER

TORRINGTON SOLAR ONE, LLC

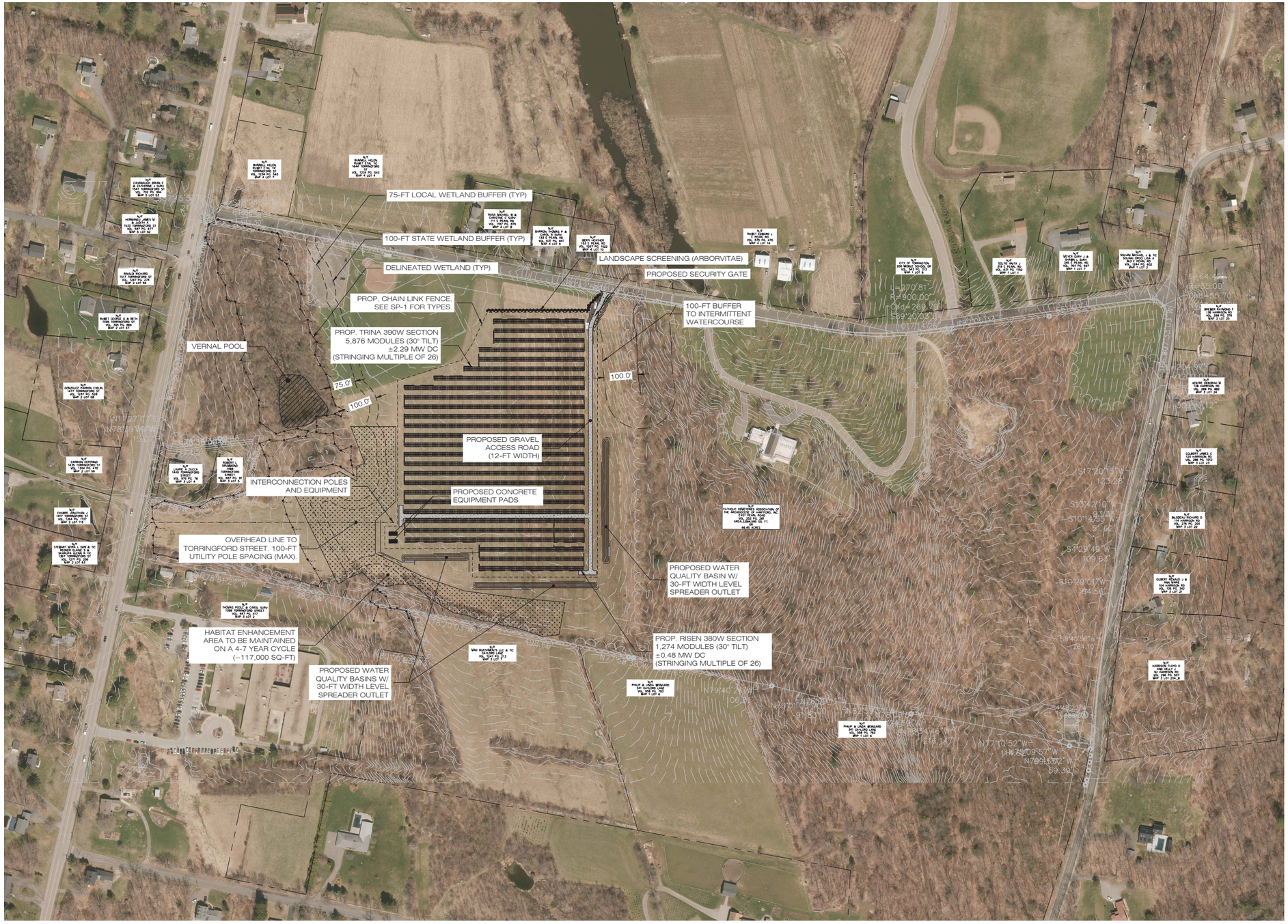
SITE ADDRESS: EAST PEARL ROAD TORRINGTON, CT

APT FILING NUMBER: CT590190

DRAWN BY: KAM
DATE: 05/28/2020
CHECKED BY: BJP

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-1



DESIGN TABLE:

MODULE MODEL - TRINA TSM-DE15MC (390W) & RISEN RSM144-6 (380W)

PROP. TILT - 30 DEGREES

INTER-ROW SPACING - 16.0 FEET

PROP. AZIMUTH - ±0 DEGREES

(IN FEET) 1 inch = 150 ft.

1 / OP-1 **OVERALL SITE PLAN**

SCALE : 1-IN = 150-FT

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STATE OF CONNECTICUT
BRADLEY J. PARSONS
No. 28025
LICENSED PROFESSIONAL ENGINEER

TORRINGTON SOLAR ONE, LLC

SITE ADDRESS: EAST PEARL ROAD TORRINGTON, CT

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SHEET TITLE:

OVERALL SITE PLAN

SHEET NUMBER:

OP-1

INGFORD ST
7 PG. 274
LOT 56

75-FT LOCAL WETLAND BUFFER (TYP)

100-FT STATE WETLAND BUFFER (TYP)

DELINEATED WETLAND (TYP)

VERNAL POOL

100.0

75.0

PROP. SILT FENCE WINGS (12 LOCATIONS, TYP.) LOCATIONS SHALL BE STAKED BY A SURVEYOR AND SHALL NOT BE CHANGED WITHOUT APPROVAL FROM ENGINEER (5 / EC-3)

4 / EC-3 PLACE TEMPORARY CONSTRUCTION MATTING FOR UTILITY WORK WITHIN WETLANDS. SEE SHEET DN-2. ENVIRONMENTAL NOTES

BLANKET, SEED, & MULCH CUT SLOPE (3H:1V)

INSTALL STABILIZED CONSTRUCTION ENTRANCE (2 / EC-3)

INSTALL ROCK CHECK DAMS IN DITCHLINE (6 / EC-3)

SF AREA 0.96 AC

SILT FENCE DRAINAGE AREA BOUNDARY (TYP.)

1 / EC-3 PERIMETER SILT FENCE TO BE INSTALLED PRIOR TO SITE WORK. TO BE STAKED BY SURVEYOR.

SF AREA 0.95 AC

100-FT BUFFER TO INTERMITTENT WATERCOURSE

SF AREA 0.99 AC

PROP. SITE PREPARATION WITHIN THE LIMITS OF DISTURBANCE (±11.15 AC.) TO INCLUDE THE REMOVAL OF RESIDUAL AGRICULTURAL PLANT MATERIAL ON EASTERN PORTION OF SITE FOLLOWED BY GRADING TO UNIFORM SLOPE. PRESERVE EXISTING GROUND COVER IN HAY FIELDS TO PROVIDE STABILITY. CROSS-HATCHED AREA TO BE SCARIFIED AND SEEDED WITH NEW ENGLAND SEMI-SHADE GRASS AND FORBS MIX FOLLOWING SITE PREPARATION.

SF AREA 0.94 AC

PROP. SILT FENCE WINGS (12 LOCATIONS, TYP.) LOCATIONS SHALL BE STAKED BY A SURVEYOR AND SHALL NOT BE CHANGED WITHOUT APPROVAL FROM ENGINEER (5 / EC-3)

3 / EC-3 PROP. STOCK PILE AREA WITH DOUBLE ROW SILT FENCE (TYP.) (IF REQUIRED)

SF AREA 0.96 AC

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

SF AREA 0.72 AC

SF AREA 0.75 AC

SF AREA 0.91 AC

SF AREA 0.93 AC

SF AREA 0.94 AC

SF AREA 0.84 AC

4 / DN-1 (2) PROP. CONCRETE EQUIPMENT PADS. 24-FT X 10-FT EA.

SF AREA 0.63 AC

(IN FEET) 1 inch = 50 ft.

1 / EC-1 **SEDIMENTATION & EROSION CONTROL PLAN**
SCALE : 1-IN = 50-FT

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STATE OF CONNECTICUT · BRADLEY J. PARSONS · No. 25025 · LICENSED PROFESSIONAL ENGINEER

TORRINGTON SOLAR ONE, LLC

SITE ADDRESS: EAST PEARL ROAD TORRINGTON, CT

APT FILING NUMBER: CT590190

DRAWN BY: KAM

DATE: 05/28/2020 CHECKED BY: BJP

SHEET TITLE:

SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:

EC-1

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 TORRINGTON, 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.

SEDIMENT & EROSION CONTROL NARRATIVE

1. THE PROJECT INVOLVES THE CONSTRUCTION OF A GROUND MOUNTED SOLAR PANEL FACILITY WITH ASSOCIATED EQUIPMENT, INCLUDING THE CLEARING, GRUBBING AND GRADING OF APPROXIMATELY 11.55± ACRES OF EXISTING LOT.

THE PROPOSED PROJECT INVOLVES THE FOLLOWING CONSTRUCTION:

A. INSTALLATION OF WATER QUALITY BASINS AND ACCESS DRIVE.
B. CONSTRUCTION OF 7,150 GROUND MOUNTED SOLAR PANELS AND ASSOCIATED EQUIPMENT.
B. THE STABILIZATION OF DISTURBED AREAS WITH PERMANENT VEGETATIVE TREATMENTS.

2. FOR THIS PROJECT, THERE ARE APPROXIMATELY 11.55± ACRES 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.

THE PROJECT SITE, AS MAPPED IN THE SOIL SURVEY OF STATE OF CONNECTICUT (NRCS, VERSION 18, DEC 6, 2018), CONTAINS:

Map Unit #3 - Ridgebury, Leicester, and Whitman soils, 0-8%, ex. stony [HSG D]
Map Unit #45A - Woodbridge fine sandy loam, 0-3% [HSG C/D]
Map Unit #45B - Woodbridge fine sandy loam, 3-8% [HSG C/D]
Map Unit #84B - Paxton and Montauk fine sandy loams, 3-8% [HSG C]

3. 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 CITY OF TORRINGTON 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 MEMO FOR EXISTING AND PROPOSED PEAK FLOWS DATED MAY 2020.
   B. SWPCP DATED MAY 2020

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 REPRESENTATIVE(S), THE MUNICIPALITY, 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 CITY OF TORRINGTON AGENT AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION OR REGULATED ACTIVITY ON THIS PROJECT.

4. NOTIFY CALL BEFORE YOU DIG AT 811, AS REQUIRED, PRIOR TO THE START OF CONSTRUCTION.

5. REMOVE EXISTING IMPEDIMENTS AS NECESSARY AND PROVIDE GRADING TO INSTALL THE REQUIRED CONSTRUCTION/SITE ENTRANCE.

6. ALL WETLAND AREAS SHALL BE PROTECTED BEFORE MAJOR CONSTRUCTION BEGINS.

7. INSTALL PERIMETER EROSION CONTROL. THIS INCLUDES THE SILT FENCE WINGS. SILT FENCE WINGS SHALL BE LOCATED IN THE FIELD BY SURVEY AND SHALL NOT BE MOVED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.

8. PERFORM THE ARRAY AREA PREPARATION AS NECESSARY. REMOVE RESIDUAL AGRICULTURAL PLANT MATERIAL AND STOCKPILE FOR FUTURE USE OR REMOVE OFF-SITE. REMOVE AND DISPOSE OF ANY ENCOUNTERED DEMOLITION DEBRIS OFF-SITE IN ACCORDANCE WITH APPLICABLE LAWS.

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

10. INSTALL ELECTRICAL CONDUIT AND CONCRETE PADS.

11. INSTALL RACKING POSTS FOR GROUND MOUNTED SOLAR PANELS

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

13. AFTER SUBSTANTIAL COMPLETION OF THE INSTALLATION OF THE SOLAR PANELS, COMPLETE REMAINING SITE WORK, INCLUDING ANY REQUIRED LANDSCAPE SCREENING, AND STABILIZE ALL DISTURBED AREAS. CONSTRUCT WATER QUALITY BASINS AS SHOWN ON THE PLANS.

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

15. AFTER THE SITE IS STABILIZED AND WITH THE APPROVAL OF THE PERMITTEE AND CITY OF TORRINGTON AGENT, REMOVE PERIMETER EROSION AND SEDIMENTATION CONTROLS.

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.

TORRINGTON SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

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		
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NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: BRADLEY J. PARSONS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHALL ST EXT - STE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES OF ARCHDIOCESE OF HARTFORD
ADDRESS: 700 MIDDLETOWN AVENUE NORTH HAVEN, CT 06473

STATE OF CONNECTICUT
BRADLEY J. PARSONS
No. 25025
LICENSED
PROFESSIONAL ENGINEER

TORRINGTON SOLAR ONE, LLC

SITE ADDRESS: EAST PEARL ROAD TORRINGTON, CT

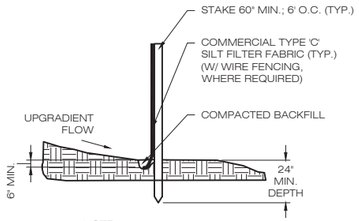
APT FILING NUMBER: CT590190

DRAWN BY: KAM

DATE: 05/28/2020 CHECKED BY: BJP

SHEET TITLE:
SEDIMENTATION & EROSION CONTROL NOTES

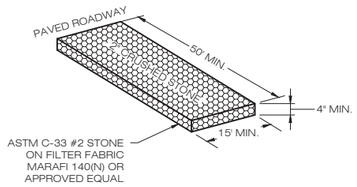
SHEET NUMBER:
EC-2



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

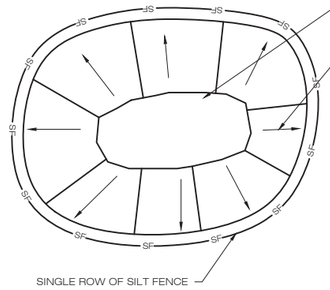
1 EC-3 SILT FENCE DETAIL

SCALE : N.T.S.



2 EC-3 CONSTRUCTION ENTRANCE DETAIL

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.

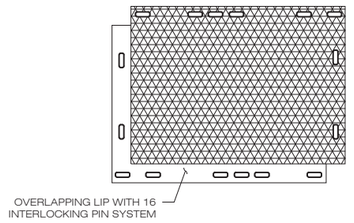
2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.

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.

3 EC-3 MATERIALS STOCKPILE DETAIL

SCALE : N.T.S.



NOTES:

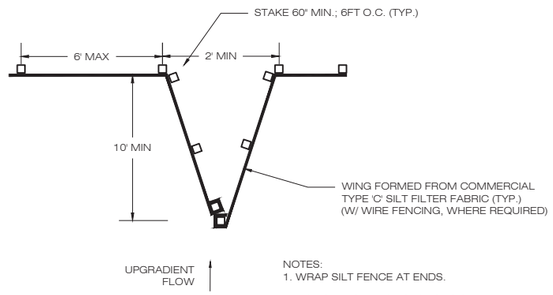
1. DURA-BASE COMPOSITE MAT SYSTEM (OR EQUAL). SEE SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FROM MANUFACTURER.

2. OVERALL DIMENSIONS: 8'X14'X4"

3. SURFACE DIMENSIONS: 7'X13'

4 EC-3 TEMPORARY CONSTRUCTION MATTING

SCALE : N.T.S.

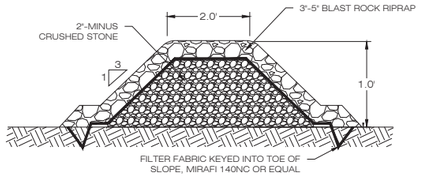


NOTES:
1. WRAP SILT FENCE AT ENDS.

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

5 EC-3 SILT FENCE WING DETAIL

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.

6 EC-3 STONE CHECK DAM

SCALE : N.T.S.

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WATERFORD, CT 06385 PHONE: (860)-663-1697
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CSC PERMIT SET

NO	DATE	REVISION
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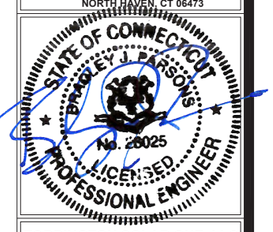
NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: BRADLEY J. PARSONS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHALL ST EXT - STE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES OF ARCHDIOCESE OF HARTFORD
ADDRESS: 700 MIDDLETOWN AVENUE NORTH HAVEN, CT 06473



TORRINGTON SOLAR ONE, LLC

SITE ADDRESS: EAST PEARL ROAD TORRINGTON, CT

APT FILING NUMBER: CT590190

DRAWN BY: KAM

DATE: 05/28/2020 CHECKED BY: BJP

SHEET TITLE:
SEDIMENTATION & EROSION CONTROL DETAILS

SHEET NUMBER:
EC-3

INGFORD ST
7 PG. 274
LOT 56

TH

SNET 101

SNET 100

SNET 99

SNET 98

SNET 97

SNET 96

SNET 15

N11°58'23"E 566.28'

N11°27'07"E 94.18'

N11°27'07"E 106.27'

N13°37'30"E 139.56'

N78°39'00"W 32.65'

S83°38'30"W 220.83'

N78°39'00"W 150.66'

N11°27'07"E 782.34'

S80°42'50"E

36" UNKNOWN W/WIRE

32" UNKNOWN W/WIRE

Iron Pin (Found)

Iron Pin (Found)

75-FT LOCAL WETLAND BUFFER (TYP)

100-FT STATE WETLAND BUFFER (TYP)

DELINEATED WETLAND (TYP)

VERNAL POOL

100.0'

75.0'

20.00'

OVERHEAD ELECTRIC LINE WITH 10 UTILITY POLES TO TORRINGFORD STREET. (100-FT POLE SPACING)

4 UTILITY POLES PROPOSED INSIDE WETLAND BOUNDARY

679.1'

PROP. UTILITY INTERCONNECTION LOCATION

HABITAT ENHANCEMENT AREA TO BE MAINTAINED ON A 4-7 YEAR CYCLE (~117,000 SQ-FT) SEE SHEET OP-1 FOR FULL EXTENT.

PROP. LANDSCAPE SCREENING (ARBORVITAE) 72 EA AT 10-FT OC 2.5-FT ROW SPACING — 7 DN-1

PROP. TRINA 390W SECTION 5,876 MODULES (30° TILT) ±2.29 MW DC (STRINGING MULTIPLE OF 26) — 2 DN-1

START/END 8-FT HEIGHT CHAIN LINK FENCE

PROP. CHAIN LINK GATE W/SITE IDENTIFICATION SIGN AND KNOX PADLOCK MODEL 3770 — 5,6 DN-1

START/END 8-FT HEIGHT CHAIN LINK FENCE

PROP. CHAIN LINK SECURITY FENCE. NORTHERN FACING SECTIONS TO BE 8-FT HEIGHT, VINYL COATED WITH PRIVACY SLATS (BLACK) — 5 DN-1

100-FT BUFFER TO INTERMITTENT WATERCOURSE

PROP. CHAIN LINK SECURITY FENCE. WEST, SOUTH, AND EAST SECTIONS TO BE 6-FT HEIGHT, VINYL COATED. — 5 DN-1

PROP. UNDERGROUND ELECTRIC LINE — 1 DN-1

PROP. 12-FT WIDTH GRAVEL ACCESS DRIVE. — 3 DN-1

11.54'

16.00'

PROP. GRASS LINED WATER QUALITY BASIN. 4-FT BOTTOM WIDTH, 2-FT DEPTH. — 8 DN-1

(2) PROP. CONCRETE EQUIPMENT PADS. 24-FT X 10-FT EA. — 4 DN-1

PROP. GRASS LINED WATER QUALITY BASINS. 4-FT BOTTOM WIDTH, 2-FT DEPTH. — 8 DN-1

PROP. OVERFLOW WEIR INVERT EL. = 1142.25' LENGTH = 30-FT — 9 DN-1

11.49'

16.00'

PROP. OVERFLOW WEIR INVERT EL. = 1141.25' LENGTH = 30-FT — 9 DN-1

PROP. OVERFLOW WEIR INVERT EL. = 1141.25' LENGTH = 30-FT — 9 DN-1

PROP. RISEN 380W SECTION 1,274 MODULES (30° TILT) ±0.48 MW DC (STRINGING MULTIPLE OF 26) — 2 DN-1

20" UNKNOWN HEIGHT=53.00'

22" MAPLE HEIGHT=48.00'

20" OAK HEIGHT=68.00'

18" ASH HEIGHT=69.00'

48" MAPLE

24" MAPLE HEIGHT=69.00'

8" MAPLE HT=71.00'

32" SPLIT HIGH HEIGHT=92.00'

36" ASH HEIGHT=104.00'

24" ASH HEIGHT=74.00'

50 0 25 50 100

(IN FEET) 1 inch = 50 ft.

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

SCALE : 1-IN = 50-FT

TORRINGTON SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
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WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
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NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: BRADLEY J. PARSONS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
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STATE OF CONNECTICUT
BRADLEY J. PARSONS
No. 28025
LICENSED PROFESSIONAL ENGINEER

TORRINGTON SOLAR ONE, LLC

SITE ADDRESS: EAST PEARL ROAD TORRINGTON, CT

APT FILING NUMBER: CT590190

DRAWN BY: KAM

DATE: 05/28/2020 CHECKED BY: BJP

SHEET TITLE:

SITE & UTILITY PLAN

SHEET NUMBER:

SP-1

INGFORD ST
7 PG. 274
LOT 56

75-FT LOCAL WETLAND BUFFER (TYP)

100-FT STATE WETLAND BUFFER (TYP)

DELINEATED WETLAND (TYP)

VERNAL POOL

100.0

75.0

PROP. LANDSCAPE SCREENING (ARBORVITAE) 72 EA AT 10-FT OC, 2.5-FT ROW SPACING (7 / DN-1)

MAINTAIN EXISTING DRAINAGE PATTERNS

PROP. UNDERGROUND ELECTRIC LINE (1 / DN-1)

100-FT BUFFER TO INTERMITTENT WATERCOURSE

PROP. 12-FT WIDTH GRAVEL ACCESS DRIVE (3 / DN-1)

CONTRACTOR SHALL SEED AND MULCH OR HYDROSEED ALL DISTURBED AREAS

MAINTAIN EXISTING DRAINAGE PATTERNS

MAINTAIN EXISTING DRAINAGE PATTERNS

PROP. GRASS LINED WATER QUALITY BASIN. 4-FT BOTTOM WIDTH, 2-FT DEPTH. (8 / DN-1)

PROP. OVERFLOW WEIR INVERT EL. = 1142.25 LENGTH = 30-FT (9 / DN-1)

PROP. GRASS LINED WATER QUALITY BASINS. 4-FT BOTTOM WIDTH, 2-FT DEPTH. (8 / DN-1)

OVERHEAD LINE TO TORRINGFORD STREET.

RESTORE TEMPORARY CONSTRUCTION MATTING FOOTPRINT (SEE DN-2: ENVIRONMENTAL NOTES)

PROP. OVERFLOW WEIR INVERT EL. = 1141.25 LENGTH = 30-FT (9 / DN-1)

PROP. OVERFLOW WEIR INVERT EL. = 1141.25 LENGTH = 30-FT (9 / DN-1)

(IN FEET) 1 inch = 50 ft.

1 / GP-1 **GRADING AND DRAINAGE PLAN**
SCALE : 1-IN = 50-FT

TORRINGTON SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
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CSC PERMIT SET

NO	DATE	REVISION
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NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: BRADLEY J. PARSONS P.E.
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STATE OF CONNECTICUT
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TORRINGTON SOLAR ONE, LLC

SITE ADDRESS: EAST PEARL ROAD TORRINGTON, CT

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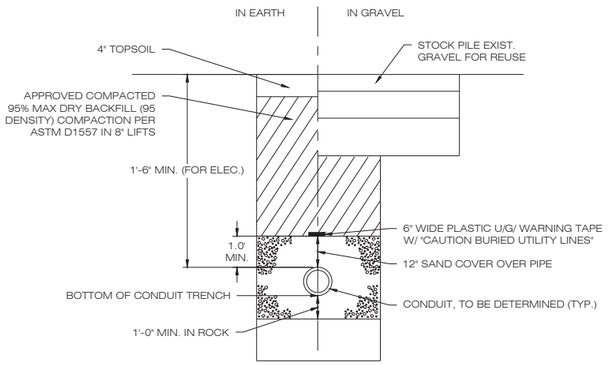
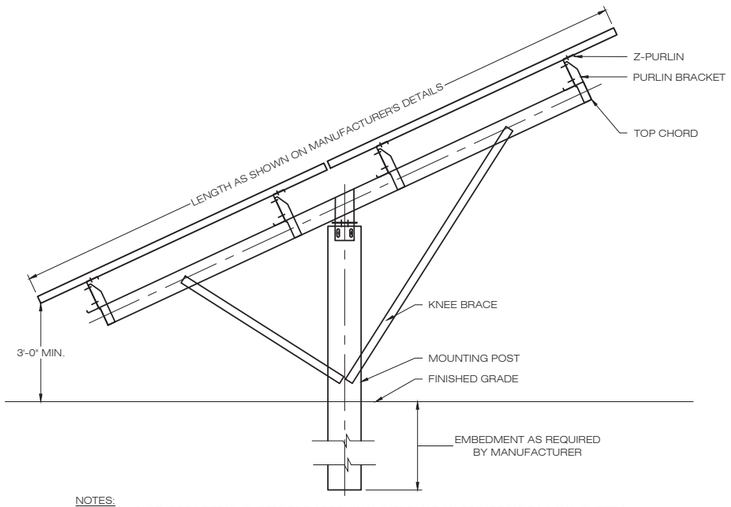
SHEET TITLE:
GRADING & DRAINAGE PLAN

SHEET NUMBER:
GP-1

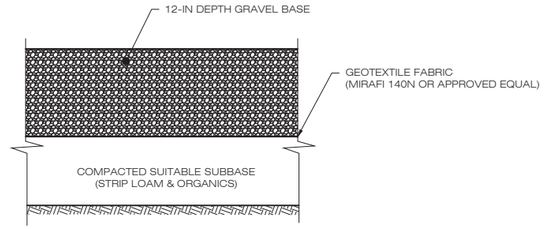


1 DN-1 **ELECTRICAL TRENCH DETAIL**
SCALE : N.T.S.



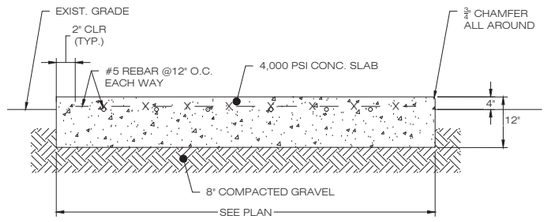
NOTES:
SEE MANUFACTURER'S DETAIL SHEETS FOR ADDITIONAL INFORMATION REGARDING RACKING SYSTEM REQUIREMENTS AND INSTALLATION PROCEDURES. RACKING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

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

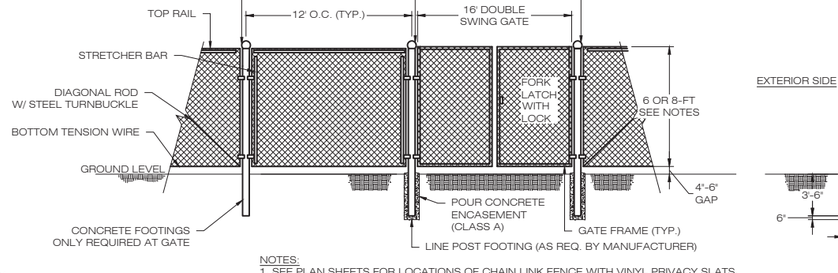


NOTES:
1. SUBBASE MAY CONSIST OF NATIVE MATERIALS IF FOUND ACCEPTABLE BY THE ENGINEER. SUBBASE TO BE COMPACTED TO 95% MAX DRY DENSITY.
2. SUBBASE IS TO BE FREE FROM DEBRIS AND UNSUITABLE MATERIALS.

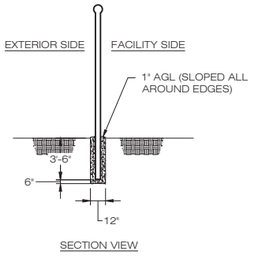
3 DN-1 **GRAVEL ACCESS DRIVE SECTION**
SCALE : N.T.S.



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



NOTES:
1. SEE PLAN SHEETS FOR LOCATIONS OF CHAIN LINK FENCE WITH VINYL PRIVACY SLATS.
2. VINYL COATED AND PRIVACY SLAT SECTIONS TO BE 8-FT ABOVE GRADE.
3. VINYL COATED ONLY SECTIONS TO BE 6-FT ABOVE GRADE.
4. DEVELOPER AND ENGINEER SHALL APPROVE PRIVACY SLAT AND COATING COLOR PRIOR TO ORDERING.



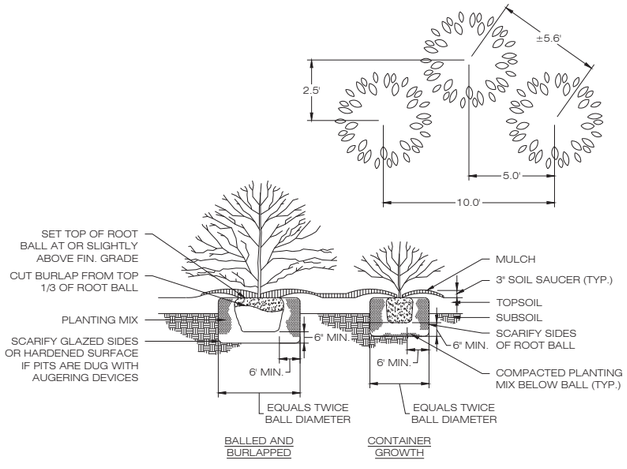
5 DN-1 **CHAIN-LINK FENCE & GATE DETAIL**
SCALE : N.T.S.

TORRINGTON SOLAR ONE, LLC

IN CASE OF EMERGENCY CALL T.B.D.

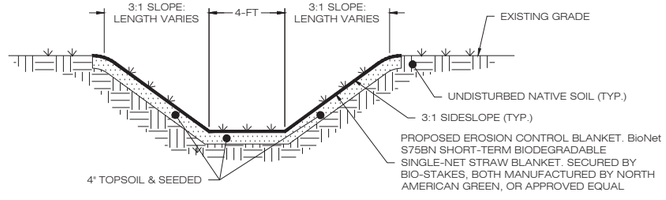
NOTES:
EMERGENCY CALL NUMBER TO BE PROVIDED ONCE DETERMINED.

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



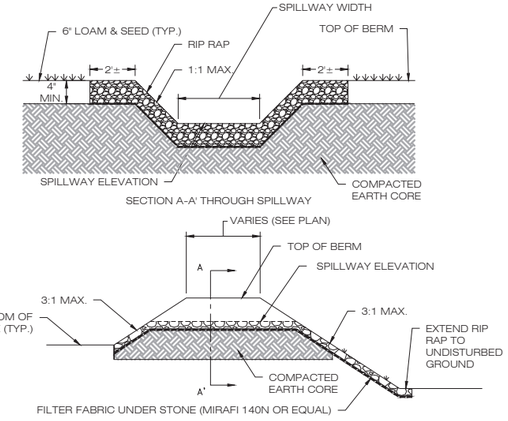
NOTES:
IN AREAS OF MASS PLANTINGS, CONTINUOUSLY EXCAVATE AND MULCH ENTIRE BED..

7 DN-1 **TYPICAL PLANTING DETAIL**
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.

8 DN-1 **GRASS LINED WATER QUALITY BASIN**
SCALE : N.T.S.



9 DN-1 **OVERFLOW WEIR DETAIL**
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TORRINGTON SOLAR ONE, LLC
150 TRUMBULL STREET
4TH FLOOR
HARTFORD, CT, 06103

ALL-POINTS TECHNOLOGY CORPORATION
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CSC PERMIT SET

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NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: BRADLEY J. PARSONS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHALL ST EXT - STE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES OF ARCHDIOCESE OF HARTFORD
ADDRESS: 700 MIDDLETOWN AVENUE NORTH HAVEN, CT 06473

TORRINGTON SOLAR ONE, LLC

SITE ADDRESS: EAST PEARL ROAD TORRINGTON, CT

APT FILING NUMBER: CT590190

DRAWN BY: KAM
DATE: 05/28/2020 CHECKED BY: BJP

SHEET TITLE:
SITE DETAILS

SHEET NUMBER:
DN-1

ENVIRONMENTAL NOTES

WETLAND AND VERNAL POOL PROTECTION PLAN

AS A RESULT OF THE PROPOSED DEVELOPMENT'S LOCATION IN THE VICINITY OF WETLANDS AND VERNAL POOL HABITATS, THE FOLLOWING BEST MANAGEMENT PRACTICES ("BMPS") ARE RECOMMENDED TO AVOID UNINTENTIONAL IMPACT TO WETLAND HABITATS OR MORTALITY TO VERNAL POOL HERPETOFAUNA (I.E., SPOTTED SALAMANDER, WOOD FROG, TURTLES, ETC.) DURING CONSTRUCTION ACTIVITIES. THIS PLAN INCLUDES ELEMENTS THAT WILL PROTECT HERPETOFAUNA SHOULD CONSTRUCTION ACTIVITIES OCCUR DURING PEAK AMPHIBIAN MOVEMENT PERIODS (EARLY SPRING BREEDING [MARCH 1ST TO MAY 15TH] AND LATE SUMMER DISPERSAL [JULY 15TH TO SEPTEMBER 15TH]) AS WELL AS WETLANDS REGARDLESS OF THE TIME OF YEAR. COMPLETE DETAILS OF THE RECOMMENDED BMPS ARE PROVIDED BELOW, WHICH WILL BE INCORPORATED INTO THE CONSTRUCTION DRAWINGS TO ENSURE THE CONTRACTOR IS FULLY AWARE OF THE PROJECT'S ENVIRONMENTALLY SENSITIVE SETTING.

IN ADDITION, A PORTION OF THE PROPOSED SOLAR FACILITY UTILITY INTERCONNECTION IS LOCATED WITHIN WETLANDS THAT WERE PREVIOUSLY DISTURBED BY AGRICULTURAL ACTIVITIES. AS A RESULT, MINOR PERMANENT WETLAND IMPACTS ARE ASSOCIATED WITH DISTRIBUTION POLE INSTALLATION WORK AND TEMPORARY DISTURBANCE TO WETLANDS WILL RESULT FROM SWAMP MAT INSTALLATION TO ACCESS THE DISTRIBUTION POLE WORK AREAS. THE FOLLOWING PROTECTIVE MEASURES AND RESTORATION ACTIVITIES SHALL BE FOLLOWED TO HELP AVOID DEGRADATION OF AND PROPERLY RESTORE THESE WETLANDS.

A WETLAND SCIENTIST FROM ALL-POINTS TECHNOLOGY CORP. ("APT") EXPERIENCED IN COMPLIANCE MONITORING OF CONSTRUCTION ACTIVITIES WILL SERVE AS THE ENVIRONMENTAL MONITOR FOR THIS PROJECT TO ENSURE THAT THE FOLLOWING BMPS ARE IMPLEMENTED PROPERLY. THE PROPOSED WETLAND AND VERNAL POOL PROTECTION PROGRAM CONSISTS OF SEVERAL COMPONENTS INCLUDING: ISOLATION OF THE TOWER/COMPOUND PERIMETER; PERIODIC INSPECTION AND MAINTENANCE OF EROSION CONTROLS AND ISOLATION STRUCTURES; HERPETOFAUNA SWEEPS; EDUCATION OF ALL CONTRACTORS AND SUB-CONTRACTORS PRIOR TO INITIATION OF WORK ON THE SITE; PROTECTIVE MEASURES; AND, REPORTING.

1. EROSION AND SEDIMENTATION CONTROLS

   a. PLASTIC NETTING WITH LARGE MESH OPENINGS (> ¼") 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 THAT WILL BE EXPOSED AT THE GROUND SURFACE REPRESENT A POTENTIAL FOR WILDLIFE ENTANGLEMENT WILL USE EITHER EROSION CONTROL BLANKETS AND FIBER ROLLS COMPOSED OF PROCESSED FIBERS MECHANICALLY BOUND TOGETHER TO FORM A CONTINUOUS MATRIX (NETLESS) OR NETTING WITH A MESH SIZE <¼" SUCH AS THAT TYPICALLY USED IN COMPOST FILTER SOCKS TO AVOID/MINIMIZE WILDLIFE ENTANGLEMENT.

   b. INSTALLATION OF EROSION AND SEDIMENTATION CONTROLS, REQUIRED FOR EROSION CONTROL COMPLIANCE AND CREATION OF A BARRIER TO POSSIBLE MIGRATING/DISPERSING HERPETOFAUNA, SHALL BE PERFORMED BY THE CONTRACTOR FOLLOWING CLEARING ACTIVITIES AND PRIOR TO ANY EARTHWORK. THE ENVIRONMENTAL MONITOR WILL INSPECT THE WORK ZONE AREA PRIOR TO AND FOLLOWING EROSION CONTROL BARRIER INSTALLATION TO ENSURE THE AREA IS FREE OF HERPETOFAUNA AND SATISFACTORILY INSTALLED. THE INTENT OF THE BARRIER IS TO SEGREGATE THE MAJORITY OF THE WORK ZONE FROM MIGRATING/DISPERSING HERPETOFAUNA. OFTENTIMES COMPLETE ISOLATION OF A WORK ZONE IS NOT FEASIBLE DUE TO ACCESSIBILITY NEEDS AND LOCATIONS OF STAGING/MATERIAL STORAGE AREAS, ETC. IN THOSE CIRCUMSTANCES, THE BARRIERS WILL BE POSITIONED TO DEFLECT MIGRATING/DISPERSAL ROUTES AWAY FROM THE WORK ZONE TO MINIMIZE POTENTIAL ENCOUNTERS WITH HERPETOFAUNA.

   c. IF A STAGING AREA FOR EQUIPMENT, VEHICLES OR CONSTRUCTION MATERIALS IS REQUIRED FOR THIS PROJECT, SUCH AREA(S) SHALL BE LOCATED OUTSIDE OF ANY WETLAND RESOURCE BUFFER ZONE AND SURROUNDED BY SILT FENCE TO ISOLATE THE AREA FROM POSSIBLE MIGRATING HERPETOFAUNA.

   d. ALL EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS OF COMPLETION OF WORK AND PERMANENT STABILIZATION OF SITE SOILS SO THAT HERPETOFAUNA MOVEMENTS BETWEEN UPLANDS AND WETLANDS ARE NOT RESTRICTED.

2. WETLAND RESTORATION MEASURES

   a. SWAMP MATS, TRUCK MATS OR SIMILAR DEVICES SHALL BE USED DURING THE INSTALLATION OF THE UTILITY INTERCONNECTION LINE WITHIN WETLAND AREAS. THESE DEVICES SHALL BE KEPT FREE OF TRACKED SEDIMENTS.

   b. VEGETATION CLEARED TO FACILITATE THE INSTALLATION OF SWAMP MATS/TUCK MATS ETC. SHALL HAVE THE STUMPS LEFT IN PLACE TO MINIMIZE SOIL DISTURBANCE AND ALLOW FOR NATURAL REVEGETATION POST REMOVAL OF THE MATTING.

   c. SOIL EXCAVATED FROM THE UTILITY POLE PITS SHALL BE REMOVED FROM WETLAND AREAS AND SPREAD/STABILIZED WITHIN UPLAND AREAS OR REMOVED OFF-SITE.

   d. MATTING USED TO ACCESS THE UTILITY INTERCONNECTION WORK SHALL BE REMOVED IMMEDIATELY AFTER COMPLETION. ANY EXPOSED SOILS/DISTURBED AREAS RESULTING FROM THESE MATTING ACTIVITIES SHALL BE SEEDED 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 2 TO 3 INCHES OF CLEAN STRAW MULCH.

3. CONTRACTOR EDUCATION:

   a. PRIOR TO WORK ON SITE AND INITIAL DEPLOYMENT/MOBILIZATION OF EQUIPMENT AND MATERIALS, THE CONTRACTOR SHALL ATTEND AN EDUCATIONAL SESSION AT THE PRE-CONSTRUCTION MEETING WITH THE ENVIRONMENTAL MONITOR. THIS ORIENTATION AND EDUCATIONAL SESSION WILL CONSIST OF INFORMATION SUCH AS, BUT NOT LIMITED TO: REPRESENTATIVE PHOTOGRAPHS OF TYPICAL HERPETOFAUNA THAT MAY BE ENCOUNTERED, RARE THAT COULD BE ENCOUNTERED (IF POSSIBLE), TYPICAL SPECIES BEHAVIOR, AND PROPER PROCEDURES TO PROTECT SUCH SPECIES IF THEY ARE ENCOUNTERED. THE MEETING WILL FURTHER EMPHASIZE THE NON-AGGRESSIVE NATURE OF THESE SPECIES, THE ABSENCE OF NEED TO DESTROY SUCH ANIMALS AND THE NEED TO FOLLOW PROTECTIVE MEASURES AS DESCRIBED IN SECTION 4 BELOW. THE CONTRACTOR WILL DESIGNATE ONE OF ITS WORKERS AS THE "PROJECT MONITOR", WHO WILL RECEIVE MORE INTENSE TRAINING ON THE IDENTIFICATION AND PROPER HANDLING OF HERPETOFAUNA.

   b. THE CONTRACTOR WILL DESIGNATE A MEMBER OF ITS CREW AS THE PROJECT MONITOR TO BE RESPONSIBLE FOR THE DAILY "SWEEPS" FOR HERPETOFAUNA WITHIN THE WORK ZONE EACH MORNING, DURING ANY AND ALL TRANSPORTATION OF VEHICLES ALONG THE ACCESS DRIVE, AND FOR ANY GROUND DISTURBANCE WORK. THIS INDIVIDUAL WILL RECEIVE MORE INTENSE TRAINING FROM THE ENVIRONMENTAL MONITOR ON THE IDENTIFICATION AND PROTECTION OF HERPETOFAUNA IN ORDER TO PERFORM SWEEPS. ANY HERPETOFAUNA DISCOVERED WILL BE REPORTED TO THE ENVIRONMENTAL MONITOR, PHOTOGRAPHED IF POSSIBLE, AND RELOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED.

   c. THE ENVIRONMENTAL MONITOR WILL ALSO POST CAUTION SIGNS THROUGHOUT THE PROJECT SITE AND MAINTAIN THEM FOR THE DURATION OF CONSTRUCTION TO PROVIDE NOTICE OF THE ENVIRONMENTALLY SENSITIVE NATURE OF THE WORK AREA, THE POTENTIAL FOR ENCOUNTERING VARIOUS AMPHIBIANS AND REPTILES AND PRECAUTIONS TO BE TAKEN TO AVOID INJURY TO OR MORTALITY OF THESE ANIMALS.

   d. THE CONTRACTOR WILL BE PROVIDED WITH THE ENVIRONMENTAL MONITOR'S CELL PHONE AND EMAIL CONTACT INFORMATION TO IMMEDIATELY REPORT ANY ENCOUNTERS WITH HERPETOFAUNA.

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 PROJECT'S LOCATION IN PROXIMITY TO SENSITIVE WETLAND RESOURCES.

   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.

      i. PETROLEUM AND HAZARDOUS MATERIALS STORAGE AND REFUELING

      1. REFUELING OF VEHICLES OR MACHINERY SHALL TAKE PLACE ON AN IMPERVIOUS PAD WITH SECONDARY CONTAINMENT DESIGNED TO CONTAIN FUELS.
      2. ANY REFUELING DRUMS/TANKS 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.

      ii. INITIAL SPILL RESPONSE PROCEDURES

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

      iii. SPILL CLEAN UP & CONTAINMENT

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

      iv. REPORTING

      1. COMPLETE AN INCIDENT REPORT.
      2. SUBMIT A COMPLETED INCIDENT REPORT TO LOCAL, STATE AND FEDERAL AGENCIES, AS REQUIRED.

5. PROTECTIVE MEASURES

   a. A THOROUGH COVER SEARCH OF THE CONSTRUCTION AREA WILL BE PERFORMED BY THE ENVIRONMENTAL MONITOR FOR HERPETOFAUNA PRIOR TO AND FOLLOWING INSTALLATION OF EROSION CONTROL MEASURES/SILT FENCING BARRIERS TO REMOVE ANY SPECIES FROM THE WORK ZONE PRIOR TO THE INITIATION OF CONSTRUCTION ACTIVITIES. ANY HERPETOFAUNA DISCOVERED WOULD BE RELOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED. PERIODIC INSPECTIONS WILL BE PERFORMED BY THE ENVIRONMENTAL MONITOR THROUGHOUT THE DURATION OF CONSTRUCTION.

   b. THE CONTRACTOR'S PROJECT MONITOR WILL INSPECT THE WORK AREA EACH MORNING AND ESCORT INITIAL VEHICLE ACCESS INTO THE SITE EACH MORNING ALONG THE ACCESS DRIVE TO VISUALLY INSPECT FOR ANY HERPETOFAUNA. ANY HERPETOFAUNA DISCOVERED WOULD BE RELOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED.

   c. ANY HERPETOFAUNA REQUIRING RELOCATION OUT OF THE WORK ZONE WILL BE CAPTURED WITH THE USE OF A NET OR CLEAN PLASTIC BAG THAT HAS BEEN MOISTENED WITH CLEAN WATER FOR CAREFUL HANDLING AND PLACEMENT OUT OF THE WORK ZONE IN THE GENERAL DIRECTION IT WAS OBSERVED HEADING.

   d. ANY STORMWATER MANAGEMENT FEATURES, RUTS OR ARTIFICIAL DEPRESSIONS THAT COULD HOLD WATER CREATED INTENTIONALLY OR UNINTENTIONALLY BY SITE CLEARING/CONSTRUCTION ACTIVITIES WILL BE PROPERLY FILLED IN AND PERMANENTLY STABILIZED WITH VEGETATION TO AVOID THE CREATION OF VERNAL POOL "DECOY POOLS" THAT COULD INTERCEPT AMPHIBIANS MOVING TOWARD THE VERNAL POOLS. STORMWATER MANAGEMENT FEATURES SUCH AS LEVEL SPREADERS WILL BE CAREFULLY REVIEWED IN THE FIELD TO ENSURE THAT STANDING WATER DOES NOT ENDURE FOR MORE THAN A 24 HOUR PERIOD TO AVOID CREATION OF DECOY POOLS AND MAY BE SUBJECT TO FIELD DESIGN CHANGES. ANY SUCH PROPOSED DESIGN CHANGES WILL BE REVIEWED BY THE DESIGN ENGINEER TO ENSURE STORMWATER MANAGEMENT FUNCTIONS ARE MAINTAINED.

REPORTING

   e. INSPECTION REPORTS (BRIEF NARRATIVE AND APPLICABLE PHOTOS) WILL BE PREPARED BY THE ENVIRONMENTAL MONITOR DOCUMENTING EACH INSPECTION AND SUBMITTED TO THE PERMITTEE FOR COMPLIANCE VERIFICATION. ANY NON-COMPLIANCE OBSERVATIONS OF EROSION CONTROL MEASURES OR EVIDENCE OF EROSION OR SEDIMENT RELEASE WILL BE IMMEDIATELY REPORTED TO THE PERMITTEE AND ITS CONTRACTOR AND INCLUDED IN THE REPORTS.

   f. ANY INCIDENTS OF RELEASE OF SEDIMENT OR OTHER MATERIALS INTO WETLAND RESOURCE AREAS SHALL BE REPORTED BY THE PERMITTEE WITHIN 24 HOURS TO THE PERMITTEE.

   g. ANY OBSERVATIONS OF RARE SPECIES WILL BE REPORTED TO THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION'S NATURAL DIVERSITY DATA BASE PROGRAM.

   h. FOLLOWING COMPLETION OF THE PROJECT, A SUMMARY REPORT WILL BE PREPARED BY THE ENVIRONMENTAL MONITOR DOCUMENTING COMPLIANCE WITH THE WETLAND AND VERNAL POOL PROTECTION PLAN AND SUBMITTED TO THE PERMITTEE, WHO SHALL SUBMIT A COPY TO THE CONNECTICUT SITING COUNCIL

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NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: BRADLEY J. PARSONS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHALL ST EXT - STE 311 WATERFORD, CT 06385

OWNER: CATHOLIC CEMETERIES OF ARCHDIOCESE OF HARTFORD
ADDRESS: 700 MIDDLETOWN AVENUE NORTH HAVEN, CT 06473

STATE OF CONNECTICUT
BRADLEY J. PARSONS
No. 26025
LICENSED PROFESSIONAL ENGINEER

TORRINGTON SOLAR ONE, LLC

SITE ADDRESS: EAST PEARL ROAD TORRINGTON, CT

APT FILING NUMBER: CT590190

DRAWN BY: KAM
DATE: 05/28/2020
CHECKED BY: BJP

SHEET TITLE:
ENVIRONMENTAL NOTES

SHEET NUMBER:
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APPENDIX B

WETLAND AND VERNAL POOL PROTECTION PLAN

ENVIRONMENTAL NOTES

Wetland and Vernal Pool Protection Plan

As a result of the proposed development's location in the vicinity of wetlands and vernal pool habitats, the following Best Management Practices ("BMPs") are recommended to avoid unintentional impact to wetland habitats or mortality to vernal pool herpetofauna (i.e., spotted salamander, wood frog, turtles, etc.) during construction activities. This plan includes elements that will protect herpetofauna should construction activities occur during peak amphibian movement periods (early spring breeding [March 1st to May 15th] and late summer dispersal [July 15th to September 15th]) as well as wetlands regardless of the time of year. Complete details of the recommended BMPs are provided below, which will be incorporated into the construction drawings to ensure the Contractor is fully aware of the project's environmentally sensitive setting.

A portion of the proposed solar facility utility interconnection is located within wetlands that were previously disturbed by agricultural activities. As a result, minor permanent wetland impacts are associated with distribution pole installation work and temporary disturbance to wetlands will result from swamp mat installation to access the distribution pole work areas. The following protective measures and restoration activities shall be followed to help avoid degradation of and properly restore these wetlands.

A wetland scientist from All-Points Technology Corp. ("APT") experienced in compliance monitoring of construction activities will serve as the Environmental Monitor for this project to ensure that the following BMPs are implemented properly. The proposed wetland and vernal pool protection program consists of several components including: isolation of the tower/compound perimeter; periodic inspection and maintenance of erosion controls and isolation structures; herpetofauna sweeps; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

1. **Erosion and Sedimentation Controls**

    a. Plastic netting with large mesh openings (> ¼") 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 that will be exposed at the ground surface represent a potential for wildlife entanglement will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (netless) or netting with a mesh size <¼" such as that typically used in compost filter socks to avoid/minimize wildlife entanglement.

    b. Installation of erosion and sedimentation controls, required for erosion control compliance and creation of a barrier to possible migrating/dispersing herpetofauna, shall be performed by the Contractor following clearing activities and prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following erosion control barrier installation to ensure the area is free of herpetofauna and satisfactorily installed. The intent of the barrier is to segregate the majority of the work zone from migrating/dispersing herpetofauna. Oftentimes complete isolation of a work zone is not feasible due to accessibility needs and locations of staging/material storage areas, etc. In those circumstances, the barriers will be positioned to deflect migrating/dispersal routes away from the work zone to minimize potential encounters with herpetofauna.

    c. If a staging area for equipment, vehicles or construction materials is required for this project, such area(s) shall be located outside of any wetland resource Buffer Zone and surrounded by

silt fence to isolate the area from possible migrating herpetofauna.

d. All erosion control measures shall be removed within 30 days of completion of work and permanent stabilization of site soils so that herpetofauna movements between uplands and wetlands are not restricted.

2. Wetland Restoration Measures

a. Swamp mats, truck mats or similar devices shall be used during the installation of the utility interconnection line within wetland areas. These devices shall be kept free of tracked sediments.

b. Vegetation cleared to facilitate the installation of swamp mats/tuck mats etc. shall have the stumps left in place to minimize soil disturbance and allow for natural revegetation post removal of the matting.

c. Soil excavated from the utility pole pits shall be removed from wetland areas and spread/stabilized within upland areas or removed off-Site.

d. Matting used to access the utility interconnection work shall be removed immediately after completion. Any exposed soils/disturbed areas resulting from these matting activities shall be seeded 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 2 to 3 inches of clean straw mulch.

3. Contractor Education:

a. Prior to work on site and initial deployment/mobilization of equipment and materials, the Contractor shall attend an educational session at the pre-construction meeting with the Environmental Monitor. This orientation and educational session will consist of information such as, but not limited to: representative photographs of typical herpetofauna that may be encountered, rare that could be encountered (if possible), typical species behavior, and proper procedures to protect such species if they are encountered. The meeting will further emphasize the non-aggressive nature of these species, the absence of need to destroy such animals and the need to follow Protective Measures as described in Section 4 below. The Contractor will designate one of its workers as the “Project Monitor”, who will receive more intense training on the identification and proper handling of herpetofauna.

b. The Contractor will designate a member of its crew as the Project Monitor to be responsible for the daily “sweeps” for herpetofauna within the work zone each morning, during any and all transportation of vehicles along the access drive, and for any ground disturbance work. This individual will receive more intense training from the Environmental Monitor on the identification and protection of herpetofauna in order to perform sweeps. Any herpetofauna discovered will be reported to the Environmental Monitor, photographed if possible, and relocated outside the work zone in the general direction the animal was oriented.

c. The Environmental Monitor will also post caution signs throughout the project site and maintain them for the duration of construction to provide notice of the environmentally sensitive nature of the work area, the potential for encountering various amphibians and reptiles and precautions to be taken to avoid injury to or mortality of these animals.

d. The Contractor will be provided with the Environmental Monitor’s cell phone and email contact information to immediately report any encounters with herpetofauna.

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 project's location in proximity to sensitive wetland resources.

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.

   i. Petroleum and Hazardous Materials Storage and Refueling
      1. Refueling of vehicles or machinery shall take place on an impervious pad with secondary containment designed to contain fuels.
      2. Any refueling drums/tanks 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.

   ii. Initial Spill Response Procedures
      1. Stop operations and shut off equipment.
      2. Remove any sources of spark or flame.
      3. Contain the source of the spill.
      4. Determine the approximate volume of the spill.
      5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
      6. Ensure that fellow workers are notified of the spill.

   iii. Spill Clean Up & Containment
      1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
      2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
      3. Isolate and eliminate the spill source.
      4. Contact the appropriate local, state and/or federal agencies, as necessary.
      5. Contact a disposal company to properly dispose of contaminated materials.

   iv. Reporting
      1. Complete an incident report.
      2. Submit a completed incident report to local, state and federal agencies, as required.

5. Protective Measures

a. A thorough cover search of the construction area will be performed by the Environmental Monitor for herpetofauna prior to and following installation of erosion control measures/silt fencing barriers to remove any species from the work zone prior to the initiation of

construction activities. Any herpetofauna discovered would be relocated outside the work zone in the general direction the animal was oriented. Periodic inspections will be performed by the Environmental Monitor throughout the duration of construction.

b. The Contractor's Project Monitor will inspect the work area each morning and escort initial vehicle access into the site each morning along the access drive to visually inspect for any herpetofauna. Any herpetofauna discovered would be relocated outside the work zone in the general direction the animal was oriented.

c. Any herpetofauna requiring relocation out of the work zone will be captured with the use of a net or clean plastic bag that has been moistened with clean water for careful handling and placement out of the work zone in the general direction it was observed heading.

d. Any stormwater management features, ruts or artificial depressions that could hold water created intentionally or unintentionally by site clearing/construction activities will be properly filled in and permanently stabilized with vegetation to avoid the creation of vernal pool "decoy pools" that could intercept amphibians moving toward the vernal pools. Stormwater management features such as level spreaders will be carefully reviewed in the field to ensure that standing water does not endure for more than a 24 hour period to avoid creation of decoy pools and may be subject to field design changes. Any such proposed design changes will be reviewed by the design engineer to ensure stormwater management functions are maintained.

Reporting

e. Inspection reports (brief narrative and applicable photos) will be prepared by the Environmental Monitor documenting each inspection and submitted to the Permittee for compliance verification. Any non-compliance observations of erosion control measures or evidence of erosion or sediment release will be immediately reported to the Permittee and its Contractor and included in the reports.

f. Any incidents of release of sediment or other materials into wetland resource areas shall be reported by the Permittee within 24 hours to the Permittee.

g. Any observations of rare species will be reported to the Connecticut Department of Energy and Environmental Protection's Natural Diversity Data Base Program.

h. Following completion of the project, a summary report will be prepared by the Environmental Monitor documenting compliance with the Wetland and Vernal Pool Protection Plan and submitted to the Permittee, who shall submit a copy to the Connecticut Siting Council

APPENDIX C

USFWS/NDDB COMPLIANCE STATEMENT

USFWS & NDDB Compliance Determination

May 6, 2020

Mr. Steven DeNino, COO
Verogy
150 Trumbull Street, 4th Floor
Hartford, CT 06103

Re: Torrington Solar One, East Pearl Road, Torrington, CT
APT Job No: CT590190

On behalf of Verogy, 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 Verogy proposes the construction of a solar energy generation facility in the western portion of a ±66.4-acre parcel located at the southeast intersection of East Pearl Road and Torringford Street (State Route 183) in Torrington, Connecticut ("Subject Property").

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 Subject Property 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 field located south and east of the Bishop Donnelly Sports Complex (ball and soccer fields) and west of the Saint Peter Catholic Cemetery of the Subject Property and will require no forest clearing and therefore no potential impact to habitat used by NLEB. A review of 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 ±5.9 miles to the northwest in Winchester.

[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.

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 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 February 10, 2020 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 (March 11, 2020), one may presume that the IPaC-assisted determination was correct and that the PBO satisfies and concludes Verogy's 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.

In addition, Verogy would consider the following additional recommended voluntary measures for NLEB conservation, as encouraged in the April 29, 2016 FCC Public Notice[3], as the project schedule allows.

- 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. *Not applicable: no tree removal required for the Facility.*
- 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. *Not applicable: no tree removal required for the Facility.*
- 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

No known areas of state-listed species are currently depicted on the most recent CTDEEP NDDB Maps in the location of the proposed Facility or within a 0.25 mile to the Subject Property. Please refer to the enclosed NDDB Map which depicts the nearest NDDB buffer ±1.8 miles southeast of the Subject Property. Since the Subject Property is not located within a NDDB buffer area, consultation with DEEP is not required in accordance with their review policy[4]. Also, since the NDDB buffer area is located more than a 0.25 mile away, consultation with DEEP is not require in accordance with the Connecticut Siting Council's NDDB review policy.

[3] Federal Communications Commission. *Tower Construction Guidance for Protection of Northern Long-Eared Bat Under the Endangered Species Act*. Public Notice DA 16-476. April 29, 2016.
[4] DEEP Requests for NDDB State Listed Species Reviews.
http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323466&deepNav_GID=1628%20

Therefore, the proposed Facility is not anticipated to adversely impact any federal or state threatened, endangered or special concern species.

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: 094-20203476 February 10, 2020

Subject: Consistency letter for the 'Verogy Torrington Solar One' 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 February 10, 2020 your effects determination for the 'Verogy Torrington Solar One' (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

Verogy Torrington Solar One

2. Description

The following description was provided for the project 'Verogy Torrington Solar One':

> All-Points Technology Corp., P.C. (“APT”) understands that a solar array is proposed on the western portion of a ±60-acre parcel owned by the Catholic Cemeteries Association located at the southeast intersection of East Pearl Road and Torringford Street (State Route 183) in Torrington, Connecticut. The proposed solar facility would be located in an open agricultural field located south and east of the Bishop Donnelly Sports Complex (ball and soccer fields) and west of the Saint Peter Catholic Cemetery.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.828865023883225N73.07304499172957W

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. 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?

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

0

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

0

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

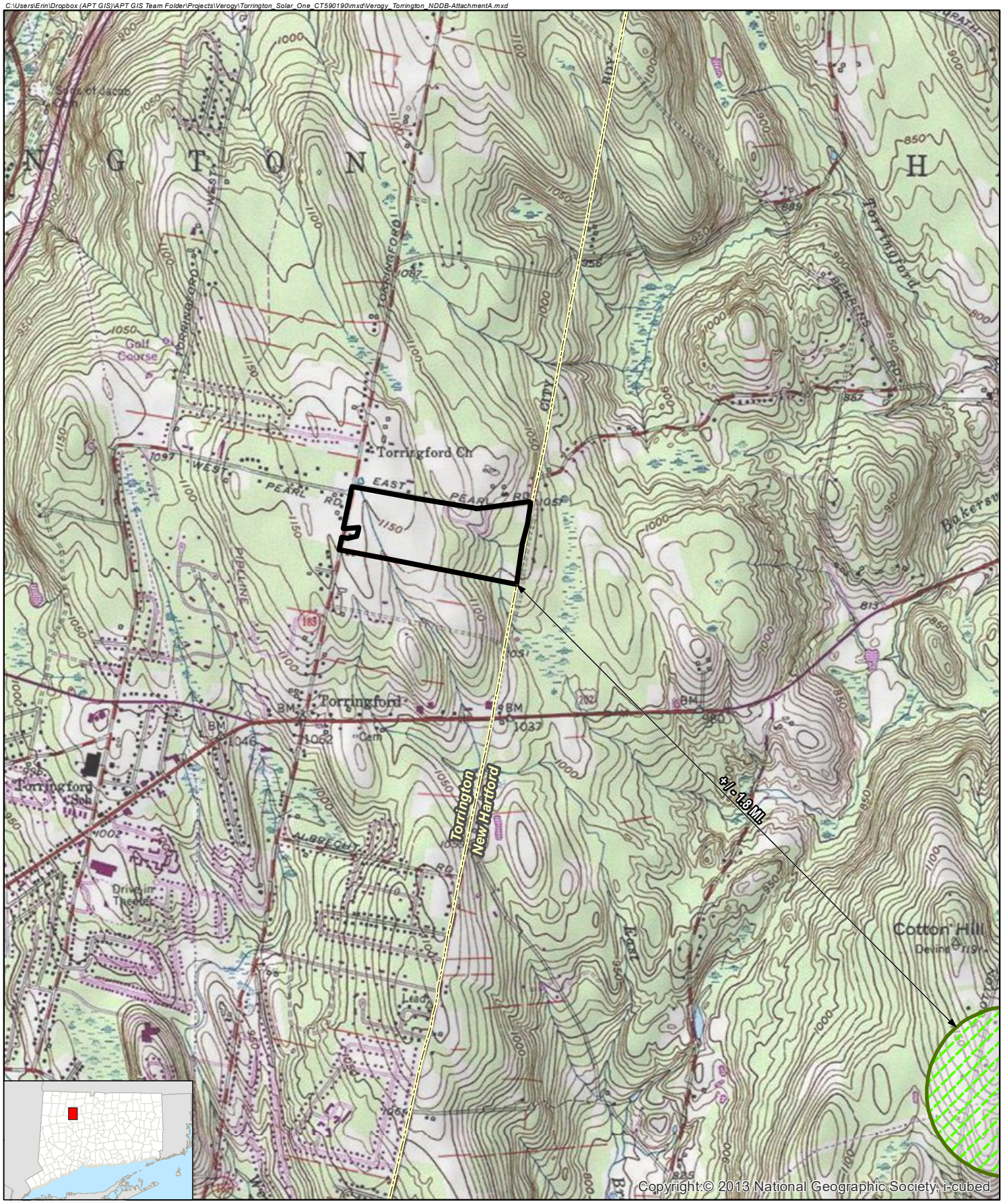
0

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\Erin\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Verogy\Torrington_Solar_One_CT590190\mxd\Verogy_Torrington_NDDB-AttachmentA.mxd



Legend

- Site
- Municipal Boundary
- Natural Diversity Database Area (Dec. 2019)

NDDB Attachment A
Overview Map

Proposed Solar Facility - Torrington Solar One
East Pearl Road
Torrington, Connecticut

VERO GY

ALL-POINTS TECHNOLOGY CORPORATION

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps: Torrington (1984), CT
Map Scale: 1:24,000
Map Date: January 2020

N W E S

2,000 1,000 0 2,000 Feet

APPENDIX D

PHASE 1A/1B CULTURAL RESOURCES RECONNAISSANCE SURVEY REPORTS

FEBRUARY 2020

PHASE IA CULTURAL RESOURCES ASSESSMENT SURVEY OF THE PROPOSED TORRINGTON SOLAR ONE, LLC PROJECT IN TORRINGTON, CONNECTICUT

PREPARED FOR:

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CONNECTICUT 06419

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 Torrington Solar One, LLC Project in Torrington, Connecticut. The project area associated with this solar center encompasses approximately 13.5 acres of land within a larger 66.4 acre parcel, and it will be accessed from East Pearl Road along the northern boundary of the project area. 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 historic maps and aerial imagery depicting the project area to identify potential historic resources and/or areas of past disturbance; 4) pedestrian survey and photo-documentation of the project area to determine their archaeological sensitivity; and 5) preparation of the current Phase IA cultural resources assessment survey report. The results of the survey indicate that all 13.5 acres of the project area retain moderate/high sensitivity for intact archaeological deposits. This effort also revealed that the proposed solar center is located within the confines of the Torringford Street Historic District, and the any proposed changes to the district as a result of this project should be handled in consultation with the Connecticut State Historic Preservation Office prior to the initiation of construction.

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LIST OF FIGURES

CHAPTER I
INTRODUCTION

This report presents the results of a Phase IA cultural resources assessment survey for the proposed Torrington Solar One, LLC Project in Torrington, 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 center, which will occupy approximately 13.5 acres of land. The proposed development area is hereafter referred to as the project area. The project area is situated in the central portion of a larger 66.4 acre parcel of land located south of East Pearl Road, between Torringford Street and Harrison Road. It is surrounded by forested areas to the east and there is a row of trees to the south separating the project area from other open fields; there is also an open field to the southwest and athletic fields to the northwest. Heritage completed this investigation on behalf of AllPoints in February of 2020. 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 will consist of a 7,290-module solar center that will include the installation of rows of solar panels spaced at 4.9 m (16 ft) intervals across the entirety of the above-referenced project area. 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 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) pedestrian survey and photo documentation of the project area in order to determine their archaeological sensitivity; and 5) preparation of the current Phase IA cultural resources assessment survey report.

Project Results and Management Recommendations Overview

The review of historic maps and aerial images of the project area, files maintained by the CT-SHPO, as well as pedestrian survey of the development area, failed to detect any previously identified archaeological sites in the vicinity of the project area. However, a single National Register of Historic Places district in the project regions that encompasses the project area (Torringford Street Historic District) and two State Register of Historic Places properties (144-6 and 144-7) were identified during the literature review portion of this project. These three properties are discussed in Chapter V.

In addition to the cultural resources discussed above, Heritage combined data from the historic map and aerial image analysis and pedestrian survey in an attempt to stratify the project area into zones of no/low and/or moderate/high archaeological sensitivity. Upon completion of the above-referenced analysis and pedestrian survey, it was determined that all 13.5 acres of the project area contain low slopes and well-drained soils that are situated in proximity to wetlands and the East Branch of the Leadmine Brook to the west. As a result, it was determined that the entire 13.5-ac project area has a moderate/high potential to contain intact archaeological deposits. Phase IB archaeological survey of the project area is recommended.

Finally, since the project area lies within the Torringford Street Historic District, it is recommended that all construction plans be shared with the CT-SHPO in order to assess and minimize potential effects on the district.

Project Personnel

Key personnel for this project included Mr. David R. George, M.A., R.P.A, who served as Principal Investigator for this effort; he was assisted by Ms. Kelsey Tuller, M.A., and Mr. Dan Wilcox, B.A., who completed the field work portion of the project. Ms. Christina Volpe, B.A., completed this historic background research of the project and contributed to the final report, while Mr. Stephen Anderson, B.A., completed all GIS tasks associated with the project. Finally, Ms. Elizabeth Correia, M.A., helped to compile this report and the associated figures.

Organization of the Report

The natural setting of the region encompassing the project 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 in the vicinity of the project area is presented in Chapter V. The methods used to complete this investigation are discussed in Chapter VI. Finally, the results of this investigation and management recommendations for the project 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 project area. Previous archaeological research has documented that a few specific environmental factors can be associated with both prehistoric and historic period site selection. These include general ecological conditions, as well as types of fresh water sources and soils present. The remainder of this section provides a brief overview of the ecology, hydrological resources, and soils present within the project area, access roads, 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: Northwest Uplands ecoregion. A brief summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found in and adjacent to the project area.

<u>Northwest Uplands Ecoregion</u>

The Northwest Uplands ecoregion consists of "a variably hilly landscape of high average elevation with local areas of considerable topographic relief and rugged hills. Elevations are generally above 1,000 feet, reaching a maximum of almost 1,500 feet in a few local areas." The region's bedrock is metamorphic, consisting of Paleozoic gneisses and schists. Soils "developed on glacial till in the uplands and on local deposits of stratified sand, gravel, and silt in the valley areas."

Hydrology in the Vicinity of the Project area

The project area is situated within a region that contains several sources of freshwater, including the East and West Branch of the Leadmine Brook, Bakersville Brook, Torringford Brook, as well as unnamed streams and wetlands. These freshwater sources may have served as resource extraction areas for Native American and historic 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 a number of variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to a number of diagenic processes. Different classes of artifacts may be preferentially protected, or unaffected by these processes, whereas others may deteriorate rapidly. Cyclical wetting and drying, freezing and thawing, and compression can accelerate chemically and mechanically the decay processes for animal bones, shells, lithics, ceramics, and plant remains. Lithic and ceramic artifacts are largely unaffected by soil pH, whereas animal bones and shells decay more quickly in acidic soils such as those that are present 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 by the presence of two major soil types: Woodbridge and Paxton/Montauk soils (Figure 2). A review of these soils shows that they consist of well drained loam; they are the types of soils that are typically correlated with prehistoric and historic use and occupation. Descriptive profiles for each soil type are presented below; they were gathered from the National Resources Conservation Service.

<u>Woodbridge Soils:</u>

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; common fine prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid.

<u>Paxton/Montauk Soils:</u>

A typical profile for Paxton and Montauk soils is described 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.

Summary

The natural setting of the area containing the proposed Torrington Solar One, LLC Project is common throughout the Northwest Uplands ecoregion. Streams and rivers of this area empty into the Naugatuck River, which in turn, drains into the Housatonic River before emptying into the Long Island Sound. Further, the landscape in general is dominated by loamy soil types with some wetlands soils intermixed. While some areas of the region have steep slopes, the project area is characterized by more level ground. Thus, in general, the project region was well suited to Native American occupation throughout the prehistoric era. As a result, archaeological sites have been documented in the larger project region, and additional prehistoric cultural deposits may be expected within the undisturbed portions of the proposed project area. This portion of Torrington was also used throughout the historic era, as evidenced by the presence of numerous historic residences and agricultural fields throughout the region; thus, archaeological deposits dating from the last 350 years or so may also 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. Sites chosen for excavation were highly visible and they were located in such areas as the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the prehistory of Connecticut was developed. It was suggested that the upland portions of the state, i.e., the northeastern and northwestern hills ecoregions, were little used and rarely occupied by prehistoric Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, were the focus of settlements and exploitation in the prehistoric era. This interpretation remained unchallenged until the 1970s and 1980s when several town-wide and regional archaeological studies were completed. These investigations led to the creation of several archaeological phases that subsequently were applied to understand the prehistory of Connecticut. The remainder of this chapter provides an overview of the prehistoric setting of the region encompassing the project area.

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

The earliest inhabitants of the area encompassing the State of Connecticut, who have been referred to as Paleo-Indians, arrived in the area by ca., 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 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.

The only other Paleo-Indian site studied in detail in Connecticut is the Hidden Creek Site (72-163) (Jones 1997). The Hidden Creek Site is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut. While excavation of the Hidden Creek Site produced evidence of Terminal Archaic and Woodland Period components (see below) in the upper soil horizons, the lower levels of the site yielded artifacts dating from the Paleo-Indian era. Recovered Paleo-Indian artifacts included broken bifaces, side-scrapers, a fluted preform, gravers, and end-scrapers. Based

on the types and number of tools present, Jones (1997:77) has hypothesized that the Hidden Creek Site represented a short-term occupation, and that separate stone tool reduction and rejuvenation areas were present.

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

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

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

<u>Early Archaic Period (10,000 to 8,000 B.P.)</u>

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

Like their Paleo-Indian predecessors, Early Archaic sites tend to be very small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions of the United States are represented by projectile points of the Kirk series (Ritchie and Funk 1973) and by Kanawha types (Coe 1964), sites of this age in southern New England are 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). 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 points styles that are attributed to the Middle Archaic Period: Stark and Merrimac projectile points. While no absolute dates were recovered from deposits that yielded Stark points, the Merrimac type dated from 5,910±180 B.P. Dincauze argued that both the Neville and later Merrimac and Stark occupations were established to take advantage of the excellent fishing that the falls situated adjacent to the site area would have afforded Native American groups. Thus, based on the available archaeological evidence, the Middle Archaic Period is characterized by continued increases in diversification of tool types and resources exploited, as well as by sophisticated changes in the settlement pattern to include different site types, including both base camps and task-specific sites (McBride 1984:96)

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

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

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

The second Late Archaic tradition, known as the Narrow-Stemmed Tradition, is unlike the Laurentian Tradition, and it likely represents a different cultural adaptation. The Narrow-Stemmed tradition is recognized by the presence of quartz and quartzite narrow stemmed projectile points, triangular quartz Squibnocket projectile points, and a bipolar lithic reduction strategy (McBride 1984). Other tools found in Narrow-Stemmed Tradition artifact assemblages include choppers, adzes, pestles, antler and bone projectile points, harpoons, awls, and notched atlatl weights. Many of these tools, notably the projectile

points and pestles, indicate a subsistence pattern dominated by hunting and fishing, as well the collection of a wide range of plant foods (McBride 1984; Snow 1980:228).

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

The Terminal Archaic, which lasted from ca., 3,700 to 2,700 BP, is perhaps the most interesting, yet confusing of the Archaic Periods in southern New England 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).

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.

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

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

Careful archaeological investigations of Early Woodland sites in southern New England have resulted in the recovery of narrow stemmed projectile points in association with ceramic sherds and subsistence remains, including specimens of white-tailed deer, soft and hard-shell clams, and oyster shells (Lavin and Salwen: 1983; McBride 1984:296-297; Pope 1952). McBride (1984) has argued that the combination of the subsistence remains and the recognition of multiple superimposed cultural features at various sites indicates that Early Woodland Period settlement patterns were characterized by multiple re-use of the same sites on a seasonal basis by small co-residential groups.

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

The Middle Woodland Period is marked by an increase in the number of ceramic types and forms utilized (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 indicative of the Middle Woodland Period include Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizee 1994a:200).

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

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

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

Stone tool assemblages associated with Late Woodland occupations, especially village-sized sites, are functionally variable and they reflect plant and animal resource processing and consumption on a large scale. Finished stone tools recovered from Late Woodland sites include Levanna and Madison projectile points; drills; side-, end-, and thumbnail scrapers; mortars and pestles; nutting stones; netsinkers; and celts, adzes, axes, and digging tools. These tools were used in activities ranging from hide preparation to plant processing to the manufacture of canoes, bowls, and utensils, as well as other settlement and subsistence-related items (McBride 1984; Snow 1980). Finally, ceramic assemblages recovered from Late Woodland sites are as variable as the lithic assemblages. Ceramic types identified include Windsor Fabric Impressed, Windsor Brushed, Windsor Cord Marked, Windsor Plain, Clearview Stamped, Sebonac Stamped, Selden Island, Hollister Plain, Hollister Stamped, and Shantok Cove Incised (Lavin 1980, 1988a, 1988b; Lizee 1994a; Pope 1953; Rouse 1947; Salwen and Ottesen 1972; Smith 1947). These types are more 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 the majority 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
HISTORIC OVERVIEW

Introduction

As stated in Chapter I, the project area consists of a parcel of land along East Pearl Road in the town of Torrington, which is located in Litchfield County, Connecticut. The evidence reviewed indicates that the project area was part of the fields system of a farm or farms in the early twentieth century, and almost certainly for many years before that. This chapter provides an overview history of the region, as well as data specific to the project area.

Native American History

Torrington, or Torringford as it was originally called, is located within Litchfield County in northwestern Connecticut. The earliest known land sale in the region involved the Tunxis Indians in 1658 when they sold land in what would become Torrington to William Lewis and Samuel Steele. This sale was further confirmed in 1714 by a quit claim from another Native American group (identities unknown). In contrast, the greater part of the original town of Litchfield was sold in 1716 by Native Americans at Pootatuck, whose primary residence was in what was later known as Woodbury and Newtown (Crofut 1937, De Forest 1856).

Native American relations with the new settlers in the region were mixed. In 1722, for example, Jacob Griswold was kidnapped by a pair of Indians who took him a long way northward (away from either Tunxis or Pootatuck) before he escaped. In 1723, Joseph Harris was shot and scalped by unknown Indians at a place west of the Litchfield courthouse (which was built much later). These incidents were presumed to be part of the French, English, and Indian War that, in theory, was concentrated in upper New York and Massachusetts; in Connecticut, the colonists began standing watches and mustering the militia in case of more forceful Indian attacks. During these "alarms," all the Native Americans living in the western part of Connecticut were ordered to stay in their homes and submit to being accompanied by colonists if they went to the woods, or else be considered enemies; but the Connecticut government also hired Native American scouts and offered them bounties on enemy scalps. Such orders were given in 1725 and 1726. Despite these problems, the recollections of living colonial residents in the mid nineteenth century included Native Americans still walking the town's streets and camping in bands of up to 30 at Pine Island or Bantam Lake (De Forest 1856). The research of De Forest indicates that permanent Pootatuck residents of the region were mostly in Woodbury and Newtown; by 1761 their numbers were reduced to a handful, with no intact families. By 1774, only two Native Americans remained at Newtown; but he also noted that they had good relations with other Native American groups (De Forest 1856). It is likely that over the eighteenth century, most of the Litchfield-area Native Americans moved northward and westward, with other groups, only returning to the Litchfield area as part of seasonal migrations that eventually ceased as well.

Colonial History of Torrington

In 1686, the Connecticut Colonial General Court appropriated lands in the western region of Connecticut to the towns of Windsor and Hartford. In 1732, the Connecticut General Assembly granted Torrington the right to separate from its parent-town of Windsor. The parcel granted that would become Torrington was

comprised of “20,924 acres, and bounded, south, partly on Litchfield and partly on land belonging to said patentees in Windsor” (Orcutt 1878). A tax list recorded in 1732 indicated property ownership included 136 proprietors. Similar to the development of other colonial settlements during this period, Torrington was gridded north to south to accommodate land ownership, and in September 1732 names were written on pieces of paper and drawn from a hat for those wishing to secure acreage in the new settlement. Soon after, fearing contentious relations with neighboring Native Americans, early colonists constructed a fort (Orcutt 1878). The name Torrington translates its meaning to “hill encircled town,” which promoted an early timber industry in the area known as “Mast Swamp”, contemporarily surrounding the vicinity of the project area. “Mast Swamp” later became the borough of Wolcottville, and later Torringford, today’s center of Torrington. The name Mast Swamp is derived from the profitable timber industry carried out in the richly forested periphery of the town.

The earliest deed recorded to these lands belonged to Daniel Griswold who bequeathed the land to his son Nathan Griswold in 1728. From 1728 to 1735, 60 deeds were granted in Torrington to members from the Windsor Company. The first farm to cultivate in the town was in 1734 at the request of Litchfield resident Joseph Ellsworth who constructed a dwelling house on the approximate five acres of land granted to him bordering Torrington and Litchfield. The area was originally known as New Orleans Village or Mast Swamp due to the many pine trees on the surrounding hillsides used for shipbuilding; in 1739 residents requested of the Connecticut General Assembly the right to form their own ecclesiastical society requesting the “support of a gospel ministry” (Orcutt 1878). The town was granted this privilege and was officially incorporated as a town in October 1740. A year later the first church was organized: Church of Christ in Torrington; and five years later in 1746 the first meeting house was erected. In 1744 a vote amongst residents approved the construction of a fort near the homestead of Ebenezer Lyman near Klug Hill Road. The fort was used for resident protection from increasingly hostile relations with local Indians who had previously occupied much of the northwestern region in Connecticut as stated earlier in this chapter.

In 1752, a highway was laid from north to south through the center of Torrington; it was referred to then as West Street; today it is known as Main Street. The roads met in the center of town with the “old road” that came near the town from the eastern hills. In 1801, this became the Litchfield Turnpike, a road that ran from East Main Street to the river and over, where it intersected with the Waterbury Turnpike. This area became one of the central business districts in the latter-half of the nineteenth century (Pape 1918). Not long after the establishment of the roads, in 1757, a meeting of the original proprietors was held to decide on granting a privilege along the Naugatuck River “as shall be needful to accommodate the setting of a mill, to some suitable person that will engage to build a corn mill” (Orcutt 1878). The mill privilege was granted to Amos Wilson “for and during the full term of nine hundred ninety and nine years, from and after the date of these presents;” the total land for the mill was approximately 20 acres. Soon after, Amos Wilson formed a stock company and expanded his business.

In 1806, residents renamed the borough changing the name from Mast Swamp to New Orleans Village. However, this new name for the area was short-lived, when in 1813 then-governor Oliver Wolcott (1726-1797) purchased water privileges along the Naugatuck River prompting the name change to Wolcottville in his honor (Pape 1918). In 1814, a schoolhouse was built on Main Street, and soon after in 1820 the Congregational Church was also constructed on South Main Street. In 1836, meetings taking place throughout Torrington were consolidated and held within the borough of Wolcottville. Meetings were carried out and held between three churches until 1865 when the Methodist Church there was vacated

and renovated for the use of public meetings. In 1881, the establishment of the Post Office resulted in Wolcottville conceding its name to adopt the name of Torrington for the entire town and incorporate as a borough in 1887 (Pape 1918).

Nineteenth Century Industrial History of Torrington

The Naugatuck River's east and west branches meet in downtown Torrington, just north of East Albert Street near Feussenich Park. Proximity to the Naugatuck River is what prompted an early industrial effort in Torrington, one that initiated in timber and grist mill workings and later expanded to include textile, brass, and eventually medical needle manufacturing (Pape 1918). As early as 1790, there was a brickyard owned by the Hayden family of Torringford Street that provided building supplies to regional contractors. The Haydens also held privilege to an iron forge and mill known as Holdbrook's Mill along the Naugatuck River. Due to the proximity of the Naugatuck River in the early nineteenth century Wolcottville, as mentioned above, became the center business village within Torrington during this time.

The first industrialist to monopolize the waterpower of the Naugatuck River was Amos Wilson (17261816). In 1757, the town proprietors held a meeting to discuss their desire to host a mill within the town; Amos Wilson offered himself and paid 450 pounds for 20 acres along the Naugatuck River near where the Hotchkiss Brothers Company mill is still standing today on Water Street (Orcutt 1878). In 1776 Wilson hosted a grist mill at the site and expanded to include a second grist mill and a sawmill by 1794.

In 1834, Israel Coe (1794-1891) and Erastus Hodge (1782-1847) constructed two rival brass mills in Torrington. Israel Coe migrated from Waterbury to Wolcottville and purchased, with his partners Anson G. Phelps of New York and John Hungerford, the mill privileges formerly noted as belonging to Amos Wilson. The Coe Brass Manufacturing Company specialized in the production of brass kettles through the battery process, which is the earliest means of brass kettle production in the country (Pape 1918). In 1841, Coe's business was dissolved and a new joint stock company was formed under the name of the Wolcottville Brass Company. Between 1852 and 1863, the company continued to thrive utilizing the battery process for brass kettle production; until the panic of 1857 slowed down the business and Mr. Coe retired, removing to Waterbury. The business became reorganized once again in 1863 under Coe's ancestor L.W. Coe who purchased the entire company and renamed it the Coe Brass Company converting production operations to focus on silver and brass wire production (Pape 1918).

Charles Hotchkiss (1811-1897) moved to Torrington from Prospect in 1841, and operated a sawmill in the northwest section of Torrington. In 1857, he sold his business to start the C. Hotchkiss and Son Company, which is at the location of the present mill at the intersection of 199 Water Street and 200 Litchfield Street. Charles retired in 1880 and the company changed names to the Hotchkiss Brothers Company (Pape 1918). Production at this time included materials for carpentry, including wholesale lumber and window construction. The firm remained in operation, expanding in 1897 to include a parcel along Pearl Street with access to the New York, New Haven & Hartford Railroad line. In 1902 the Torrington Building Company took over much of the company's manufacturing, with the Hotchkiss brothers remaining important figures in daily operations until 1922.

As mentioned above, much of Torrington's early industrial success was due to the town's proximity to the Naugatuck River; this success can also be attributed to the efforts the town took to connect themselves to the rest of the state for the purposes of trade. In 1845 a charter was granted for a rail line to run from Bridgeport to Winsted through Torrington. By 1848, the Naugatuck Rail Company incorporated and a year

later in May 1849 the first fifteen miles of the railroad that went through Torrington were opened for business. In 1887, the Naugatuck Rail Company was absorbed and became part of the larger New York, New Haven & Hartford Railroad system (Donlan 1897). By 1890 the population in Torrington had exceeded 10,000 residents and with increased rapid industrialization taking place throughout Connecticut residents became anxious for additional means of travel to and from surrounding towns (Donlan 1897). In 1896, the Torrington & Winchester Street Railway was incorporated and constructed an electric railway between Torrington and Winsted, which was completed in 1897 (Pape 1918). At this time Torrington possessed its own newspaper, The Torrington Register which was established and first published in 1874. Ownership transferred to several men throughout the 1880s, until 1889 when a two-story building was erected on Water Street for the paper. The Torrington News, another publication, was established by the News Publishing Company Inc., in 1916 (Pape 1918).

Contemporary History of Torrington

In 1895, the town census recorded 8,995 people living in Torrington. Between 1880 and 1920, that number increased to nearly 22,000 people. Drawn to the prosperity provided by the many manufacturing enterprises, few of which are briefly mentioned above, Torrington acquired an active immigrant populous by the early twentieth century (Pape 1918). This increase prompted the State of Connecticut to charter Torrington as a city in 1923. In the 1930s, local architect William E. Hunt (18731935) designed several buildings for the downtown area including the Warner Theater and Allen Block (Torrington Historical Society). During WWII, Torrington played a vital role in the war effort by aiding in the manufacturing of goods such as “machine tools, bearings and shell castings” (Torrington Historical Society).

In 1955, along with the entirety of the Naugatuck Valley, Torrington suffered greatly from the flooding of the Naugatuck River brought on by back-to-back hurricanes that year. While certainly damaged by the overall decline of manufacturing following World War II and the Flood of 1955, Torrington retained a few of its oldest manufacturing enterprises, such as the Torrington Company now called the Timken Company (Torrington Historical Society). In the 1960s, the construction of the former Waterbury Turnpike to what is now Route 8 began from Bridgeport through Waterbury and up to Massachusetts passing through Torrington to meet with Route 115. According to the Torrington Historical Society “the construction of new Route 8 in the 1960s was a catalyst for industrial and commercial development to move outward from the traditional center” (Torrington Historical Society). Growing suburbanization throughout the 1970s and 1980s resulted in the decline of Torrington’s central commercialized district. Recently, however, a renewed sense of culture has come back to the community through investment into arts initiatives such as the Torrington Historical Society’s Hotchkiss-Flyer Museum and the Warner Theater which was saved from demolition in 1981 and remains a cultural treasure for community artistic expression (Torrington Historical Society).

History of the Project Area

Torrington is noted as the birthplace of abolitionist John Brown (1800-1859) and the former Brown homestead, indicated today by wayfinding signage; this property is included as part of the Connecticut Freedom Trail. In the 1830s, there was an active anti-slavery community developing in Torringford, led by Dr. Erasmus Hudson who was the secretary of the Connecticut Anti-Slavery Society and a contributor to the society’s abolitionist newspaper *The Charter Oak*. In addition, Hudson was the minister of the Congregational Church in town (Orcutt 1878). The Congregational Church in Wolcottville is located less than 1,000 m (3,280 ft) from the project area. Organized in June of 1832, the church house underwent a

renovation in 1844 and was reconstructed in 1864 to accommodate additional meeting space (Orcutt 1878).

In his autobiography *The Autobiography of James L. Smith*, Smith recounts his life story as a runaway slave from Virginia in 1838. Through his journey north along the Underground Railroad, Smith traveled through Maryland and Delaware arriving in Philadelphia after accepting work as a sailor on an eastern bound ship. While in Philadelphia, Smith encountered abolitionists, Quakers, and other free blacks who encouraged him to continue north to Massachusetts. During his journey north, Smith traveled through Connecticut stopping in several towns including Wolcottville, then referred to as Torringford. He wrote, "We had better success when we went to Torringford, for here the people had just passed through a terrible mob, on account of an antislavery lecturer. The mob broke the windows of the church, and the lecturer had to escape for his life" (Smith 1881). Smith goes on to recall the rest of his very brief stay during which he delivered a sermon to congregational churchgoers recounting his time as an enslaved man in the south, "Some of the men who were engaged in the mob a few months before came and took the front seats, and looked as though they could devour us…I took the stand, and before I had finished my talk, took all the fight out of them; some of them wept like children" (Smith 1881).

According to the 1859 historic map, the project parcel was occupied in 1859 by four individual homesteads (Figure 3). According to the 1850 United States Federal Census, J Gillett, indicated on the 1859 map was the homestead of John Gillett, a 74-year-old white farmer, with a real estate value of $6,600. Living with him in 1850 were his wife Mary age 64, their son John C. Gillett age 23, Lucious Johnson age 15, and Mary Woodruff age 13. According to *The History of Torrington, Connecticut* by Samuel Orcutt, John Gillett is described as a farmer living on Torringford Street, "he lived a very quiet life for one who had as much to do with public matters, and always seemed to prefer the company of his books, and newspaper" (Orcutt 1878). Born from parents who were amongst the second group of settlers in the early eighteenth century, during his time in Torrington Gillett served as a town clerk, treasurer, and represented Torrington in the Connecticut State Legislature. On the 1859 historic map, J. Gillett's property is visible on Torringford Street (Figure 3). In the 1874 historic map, Gillett is absent and where Gillett's house had been previously indicated, it was no longer visible on the map, likely having been demolished (Figure 4).

Living next to John Gillett as indicated in the 1859 historic map, is the homestead of L. Murray. According to the 1850 United States Federal Census, listed directly below Gillett, Lewis Murray in 1850 was a 54-year-old male farmer with real estate valued at $3,000. Living with Murray in 1850 were his wife, Mary age 50, their son Warren age 17, and Lucretia Murray age 54. Lewis Murray died in 1866 and is buried in the Torringford Cemetery next to his wife Mary, who died in 1859. However, their homestead passed on to their son Warren, who is represented as living on the property in the 1874 historic map (Figure 4). According to the 1860 United States Federal Census, Warren B. Murray was a 27year-old white male wagon maker living with his wife Aurelia age 24, their children Lewis age 4, Mary age 2, Eunice age 10 and one black servant is listed as living with the Murray family in 1850, Oline Mix age 21. According to the *History of Torrington* by Samuel Orcutt, Warren enlisted in 1861 during the American Civil War and served in the Union war efforts as a musician in the traveling wartime band (Orcutt 1878).

Next to Warren Murray in 1854 is the homestead of Lucius Burr (Figure 3). Listed in the 1860 United States Federal Census as a 33-year-old white male farmer living with his wife Sarah age 34, and their children George age 8, and Mary age 3. According to Beckwith's Almanac, Volumes 33-41, "Lucius Burr. Torrington has a pocketknife that has been in use over a century, and a pork barrel brought from Kensington, England,

in 1735" (Beckwith, 1880). However, Burr is removed from the 1874 historic map and in his place is the homestead of I.P. Waterman (Figure 4). Isaac Perkins Waterman was born in New Hampshire in 1815 and migrated to Windsor, Connecticut in 1840 where he married Lucy Ann Loomis (1815-1896) (Waterman 1939). On the 1880 United States Federal Census Isaac is listed as living within the Project Parcel occupying the former homestead of Burr. Waterman lists himself on the 1880 census as a 64-year-old white male farmer living with his wife Lucy age 63 and their daughter Jennie E. age 21.

Finally, in the rear, eastern portion of the project parcel there are two homesteads worth noting in detail; they appear in the 1859 historic map as two dwellings facing each other on either side of East Pearl Road (Figure 3). In the 1874 map, these dwellings are labeled as belonging to J. B. Johnson and L. Johnson (Figure 4). The latter being Levi Johnson, a former runaway slave born in 1793 to an enslaved father from Southington, Connecticut and a mother who was also a runaway slave from New York. According to a testimony given to Beckwith's Almanac in 1880:

> "Levi worked for his mother in Cheshire until he was sixteen years old, and then he ran away, not stopping until he reached Salisbury which is in the northwest corner of the state…In 1850 Levi married a slave owned by a New York farmer but her father bought her freedom…For many years Levi was secton of the church in Torrington, and in that capacity has buried all the generations who were young with him, and almost all of the succeeding generations. Levi has one son." (Beckwith 1880)

Levi Johnson first appears in Torrington in the 1830 United States Federal Census as living with four other "Free Colored Persons;" however no other details are provided. In the 1850 United States Federal Census, Levi appears once again and this time is listed as a 57-year-old black laborer with a real estate valued at $100 and living with his wife Maria age 62, John age 39, Mary age 14, and a child named Jane A. Sepion age 9. The group appears once again in Torrington in the 1860 United States Federal Census with Levi listed as a 67-year-old black farm laborer with a real estate valued at $600 and a personal estate valued at $100. Living with him are his wife Maria age 73 and a girl named Celia Maria Johnson age 10. Living in the homestead across from Levi, as indicated in the 1874 historic map, is Jarvis B. Johnson age 38. Jarvis, presumably related to Levi, is listed as a black male farm laborer living with his wife Elizabeth age 36, Sarah age 15, Emily age 13, Julia age 8, Daniel age 6, Fanny age 3, and Kate age 1. Remaining on the parcel, Jarvis and Levi Johnson appear once again on the 1870 United States Federal Census. Levi Johnson is listed as a 77-year-old black male living with his wife Maria age 84 and possessing real estate valued at $600. Across from Levi is once again, Jarvis Johnson listed as a 48-yearold black male farm laborer living with his wife Elizabeth age 45, Emily age 22, Julia age 18, Daniel 15, Katie 11, William 6, and Nellie age 2.

At the time of the 1934 aerial image, one house remains outside of the western boundary of the Project Parcel. East of the project area but within the larger project parcel on the former Levi Johnson homestead, there is evidence of a parcel boundary line with some reforestation visible and multiple cleared paths surrounding what appears to be a small structure (Figure 5). Many changes occurred between the 1934 and 1951 aerial images. Within a portion of the project area, the cleared farming parcel has been repurposed as a baseball field. Reforestation is evident throughout the large project parcel in both the western and eastern portions, with much of the previously cleared land surrounding the Levi Johnson homestead being reforested (Figure 6). By 2004, the baseball field is clearly refined, and the project area is cleared; there is one structure immediately outside of the western project parcel boundary. In the eastern portion of the project parcel on the former Levi Johnson plot, there remains reforestation with an additional structure and cemetery plots known at St. John's cemetery, within the same footprint of Johnson's farm parcel visibly on the previous aerial images (Figure 7). In 2018, little change appears within

the project parcel, with the project area remaining unchanged. Development surrounding the project parcel is evident, as new roads and suburban development appear in the western and north eastern areas (Figure 8). In 2019, little changes are visible within the project area and throughout the larger project parcel; the baseball field in the northwestern portion of the project parcel expanded to include additional parking (Figure 9). Suburban development and commercial development are visible outside of the project parcel but do not impact the project area.

Conclusion

The project area appears to have been used as an agricultural parcel for much of its recorded history However, the eastern part of the larger project parcel appears to have been the location of the homestead of former runaway-slave and well respected Torringford resident Levi Johnson. While the area encompassing his former farm-parcel has been transitioned for use as the St. John's cemetery, further historical resource reconnaissance would be required to determine the significance of the portions of the former homestead located closer to and possibly overlapping with the project area, as visible in the 1934 aerial image. This site may be significant due to the unusual self-agency Levi Johnson obtained during his lifetime living, working, and owning property in the Torringford section of Torrington.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous archaeological research completed within the vicinity of the project area in Torrington, Connecticut. This discussion provides the comparative data necessary for assessing the results of the current Phase IA cultural resources assessment survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the project area 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 in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage also were examined during the course of 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 Connecticut State Historic Preservation Office, as well as the electronic site files maintained by Heritage failed to detect any previously identified archaeological sites situated within 1.6 km (1 mi) of the project area (Figure 10). However, this review did reveal that one National Register of Historic Places district and two State Register of Historic Places properties are located within 1.6 km (1 mi) of the project area (Figure 11). They are the Torringford Street Historic District, State Register Property 144-6, and State Register Property 144-7 and they are described below.

Torringford Street Historic District

The Torringford Street Historic District was nominated to the National Register of Historic Places by Gregory E. Andrews of the Torrington Historic Preservation Trust on June 27, 1991. It runs along Torringford Street in Torrington, between its intersection with East Main Street and the northern property boundary of 4040 Torringford Street. Torringford Street was laid out in 1732 during the original subdivision of town land and the district contains buildings dating from the ca., 1760 to 1941. In total, there are 139 historic resources, one marker of the first Torringford meeting house, and two sites within the district. Buildings in the district represent the Colonial, Federal, Greek Revival, and Colonial Revival architectural styles. Local businesses are represented in the district include Shobael Griswold's Tavern, William Battell's Store, and the Hayden's Brickyard. Today, the area within the Torringford Street Historic District remains largely agrarian, with the large majority of local economic activities centering on farming historically. As seen in Figure 11, the proposed project area is located within the Torringford Street Historic District

State Register Property 144-6

State Register of Historic Places property 144-6 is a Federal farmhouse located at the northeast corner of Gaylord Lane and Torringford Street in Torrington. It was recorded by John Beringer and Henry Simon of the Connecticut Historical Commission on July 29, 1966. The house was built in ca., 1790 and has two stories, a central hall plan, and a fanlight above the doorway, which is surrounded by an Adamesque open

pediment and pilasters. Siding is now vinyl and the gable roof is covered in asphalt shingles; in addition, the original windows have been replaced and there is a rear addition. The main structure, however, remains intact. This building will not be impacted directly by the proposed solar center.

State Register Property 144-7

Structure 144-7 is a Colonial farmhouse that was built in 1771 for W.H. Gaylord. It is located at 1280 Torringford Street and contains two stories, a gable roof, and a central chimney. The main of the house façade is characterized by a five-bay façade that has a central doorway with simply encased double doors. Some of the original windows, which were 12 over 12 sash, still can be identified on the building, along with clapboard siding; however, the gable roof now contains asphalt shingles. There is a hewn overhang between the first and second story. The house was recorded by John Beringer and Henry Simon of the Connecticut Historical Commission on July 29, 1966; it will not be impacted directly by the proposed solar center.

Summary and Interpretations

The review of previously identified cultural resources in the vicinity of the proposed project area indicates that the larger project region contains historic structures from Torrington's first settlement to the present era, in an area that was agricultural for much of its history. Though no archaeological sites have been previously identified in the area, the natural setting discussed in Chapter II suggests Native Americans may have once inhabited the area, and sites may yet be discovered.

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 Torrington, 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 historic maps, topographic quadrangles, and aerial imagery depicting the project area in order to identify potential historic 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. 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 area, 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 (see below).

Archival Research & Literature Review

Background research for this project included a review of a variety of historic 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 historic 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 area.

Field Methodology and Data Synthesis

Heritage also performed fieldwork for the Phase IA cultural resources assessment survey of the project area associated with the solar project in Torrington, Connecticut. This included pedestrian survey, photo-documentation, and mapping of the areas containing the proposed development area. During the completion of the pedestrian survey, representatives from Heritage photo-documented all potential areas of impact using digital media.

CHAPTER VII
RESULTS OF THE INVESTIGATION & MANAGEMENT RECOMMENDATIONS

Introduction

This chapter presents the results of the Phase IA cultural resources assessment survey of the project area in Torrington, 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 historic maps and aerial imagery depicting the project area in order to identify potential historic resources and/or areas of past disturbance; 4) pedestrian survey and photo-documentation of the project items in order to determine their archaeological sensitivity; and 5) preparation of the current Phase IA cultural resources assessment survey report.

Results of Phase IA survey

The project area measures approximately 303 m (993 ft) in length from north to south by 192 m (628 ft) in width from east to west at its widest points. It abuts East Pearl Road along its northern boundary. At the time of survey, it was characterized by open farmland (Figures 9 and 12 through 22). This project area is situated at elevations ranging from approximately 347 m (1,140 ft) NGVD to 351 m (1,150 ft) NGVD in the west, and it contains a total of 13.5 acres of land. The predominant soil types located throughout the project area are Woodbridge and Paxton/Montauk loamy soils, which are found on slopes of 0 to 8 percent. As discussed in Chapter II of this report, this soil type is well-drained and contains small to medium sized stones throughout. Heritage personnel conducted a pedestrian survey of the project area on February 11, 2020. During the pedestrian survey, the project area was characterized by relatively flat, farm field (Figures 12 through 22). No visible disturbance besides agricultural use was identified.

Overall Sensitivity of the Proposed Project area

The field data associated with soils, slopes, aspect, distance to water, and the results of the pedestrian survey were used in conjunction with the analysis of historic maps, aerial images, and data regarding previously identified archaeological sites, and National and State Register of Historic Places properties in order to stratify the project area into zones of no/low and/or moderate/high archaeological sensitivity. In general, historic 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 historic period archaeological deposits is based not only the above-defined landscape features but also on the presence or absence of previously identified historic period archaeological resources as identified during previous archaeological surveys, recorded on historic 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 historic 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 historic period archaeological sensitivity.

The combined review of historic maps, aerial images, land deeds, and pedestrian survey indicates that the 13.5 acre project area contains low slopes and well drained soils situated in proximity to wetlands and the East Branch of the Leadmine Brook to the west. Soils found throughout the project area are mainly attributed to the Woodbridge and Paxton/Montauk series, which consists of loamy soils that generally extends to ca., 165 cm (65 in) below surface. In addition, this area has been relatively undisturbed over the years. Based on the landscape type, proximity to freshwater, and the presence of well-drained loamy soils, the entire project area appears to retain a moderate/high sensitivity for yielding archaeological deposits. Thus, a Phase IB survey of the area is recommended. Finally, since the proposed project area is located within the Torringford Street Historic District, construction of the solar center has the potential to impact the viewshed of built resources within the district. Thus, it is recommended that the project sponsor consult with the Connecticut State Historic Preservation Office to determine the level of impacts and, if necessary, draft a plan to avoid or minimize such impacts.

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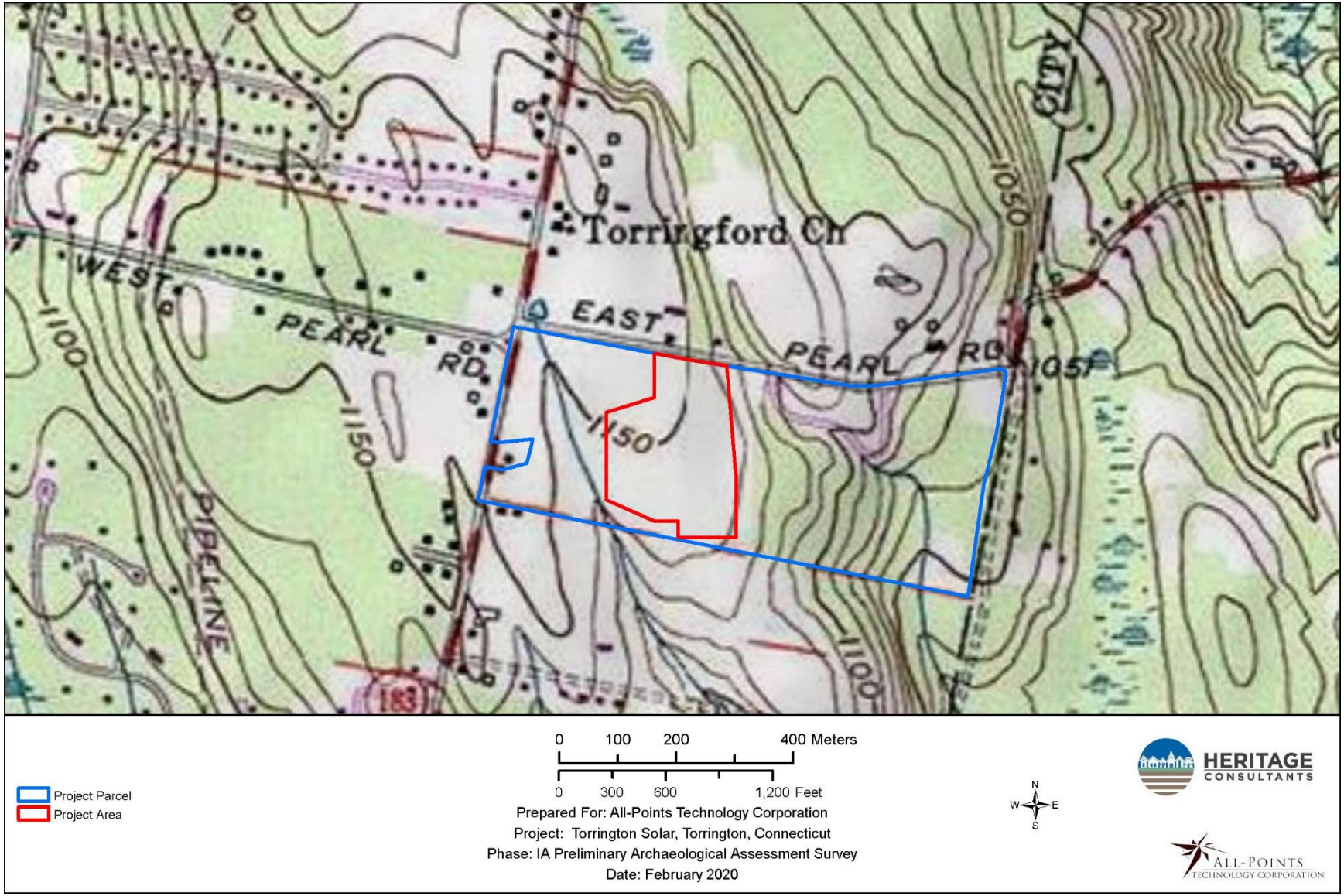


Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the project area in Torrington, Connecticut.

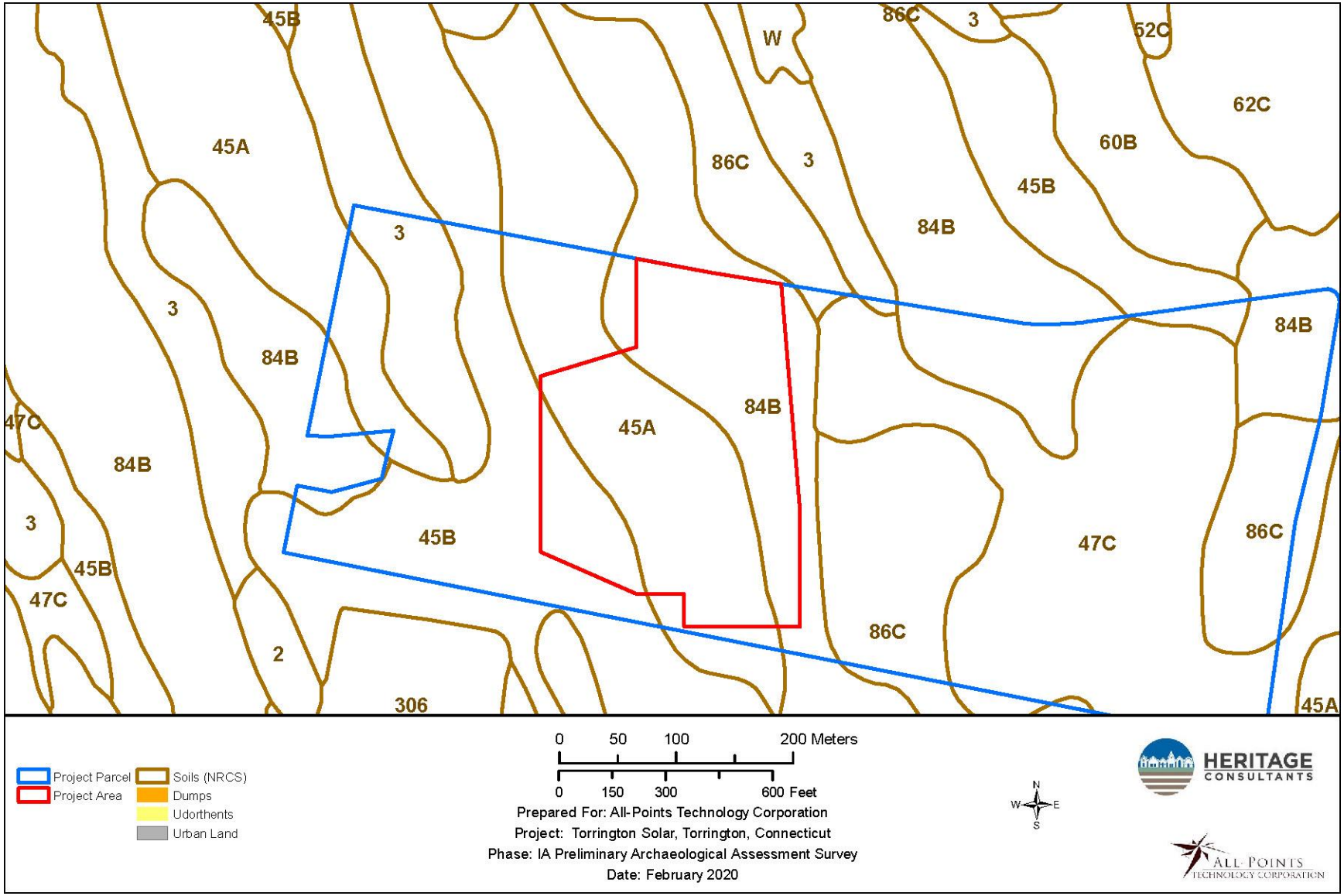


Figure 2. Map of soils located in the vicinity of the project area in Torrington, Connecticut.

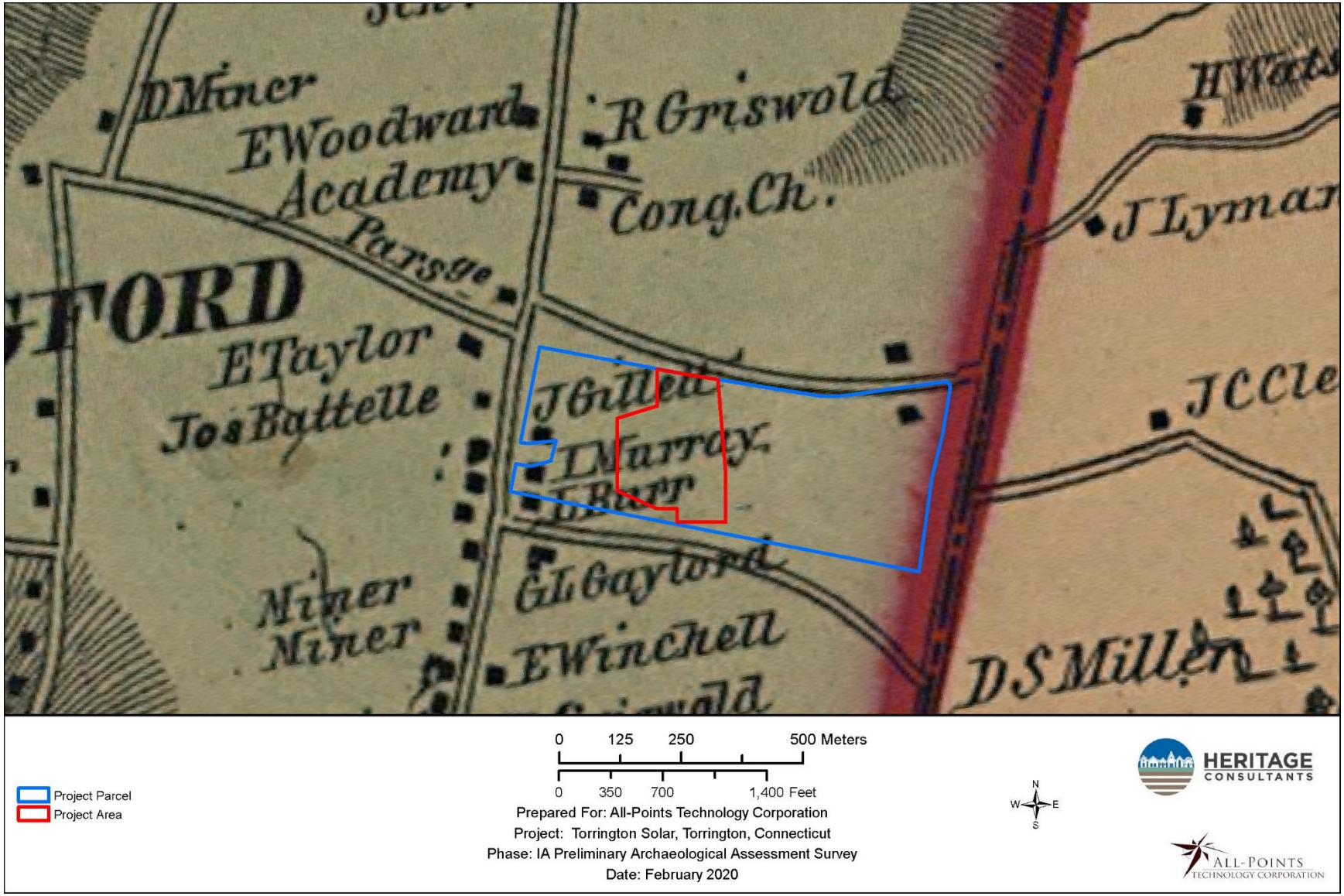


Figure 3. Excerpt from an 1859 historic map showing the location of the project area in Torrington, Connecticut.

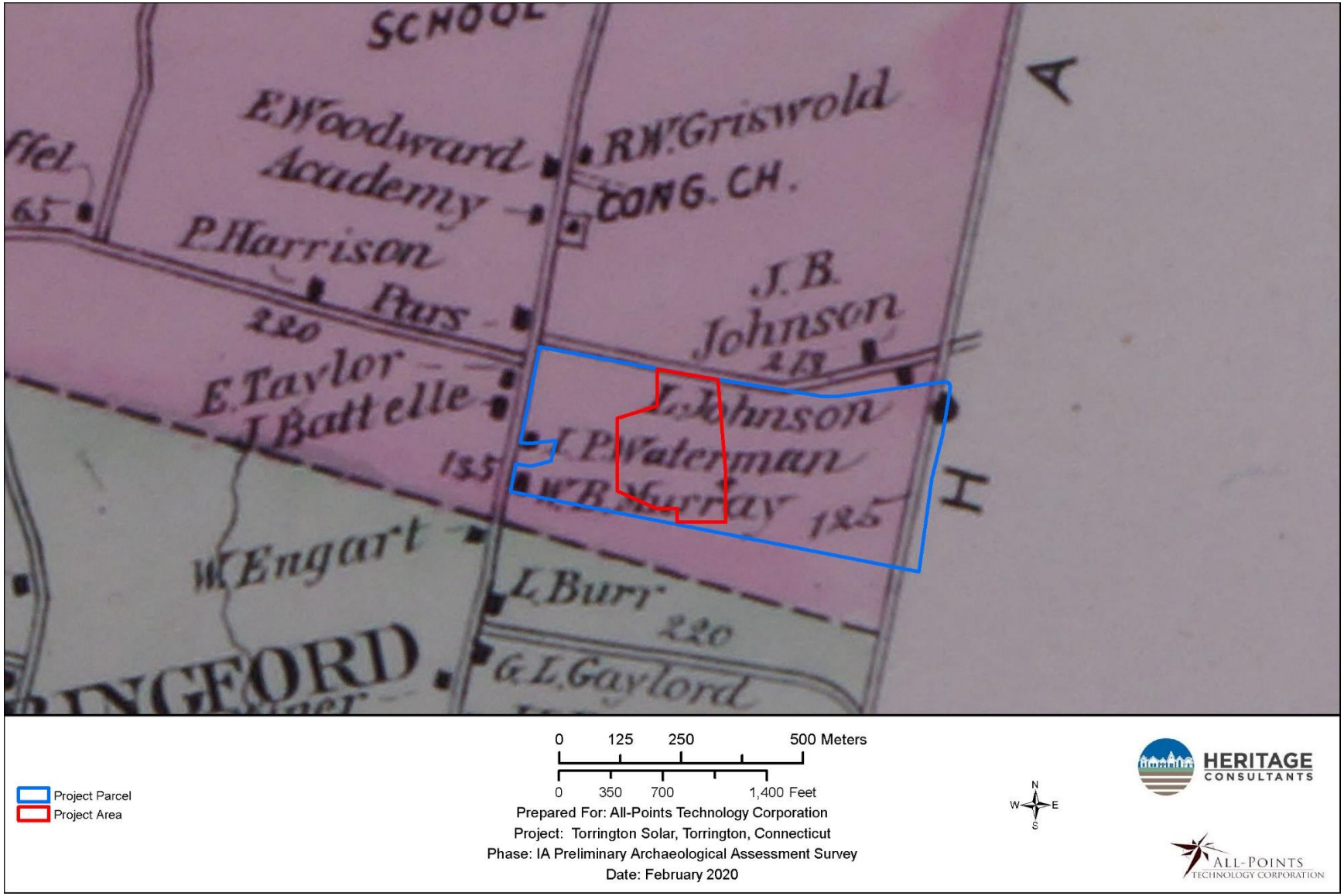


Figure 4. Excerpt from an 1874 historic map showing the location of the project area in Torrington, Connecticut.

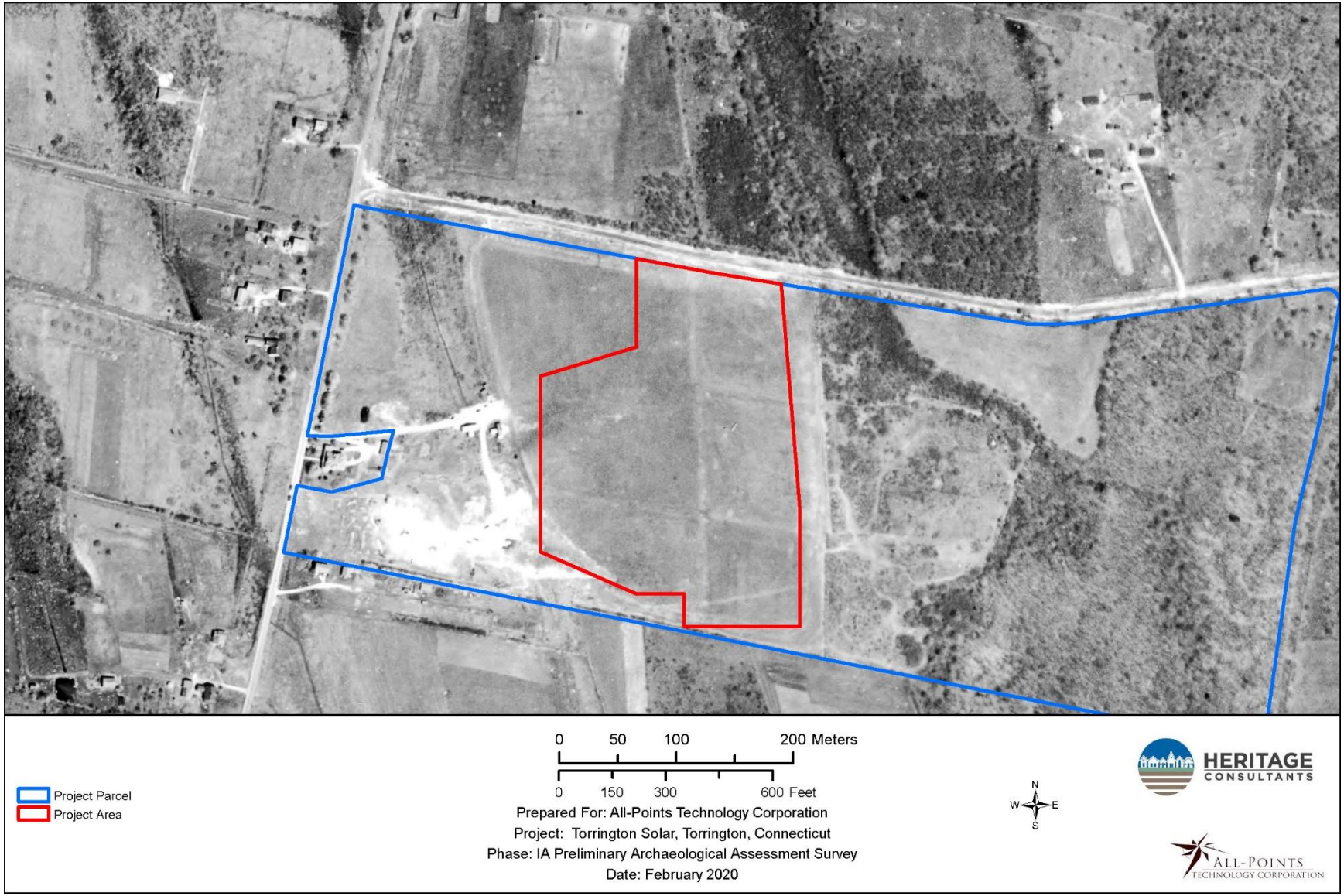


Figure 5. Excerpt from a 1934 aerial photograph showing the location of the project area in Torrington, Connecticut.

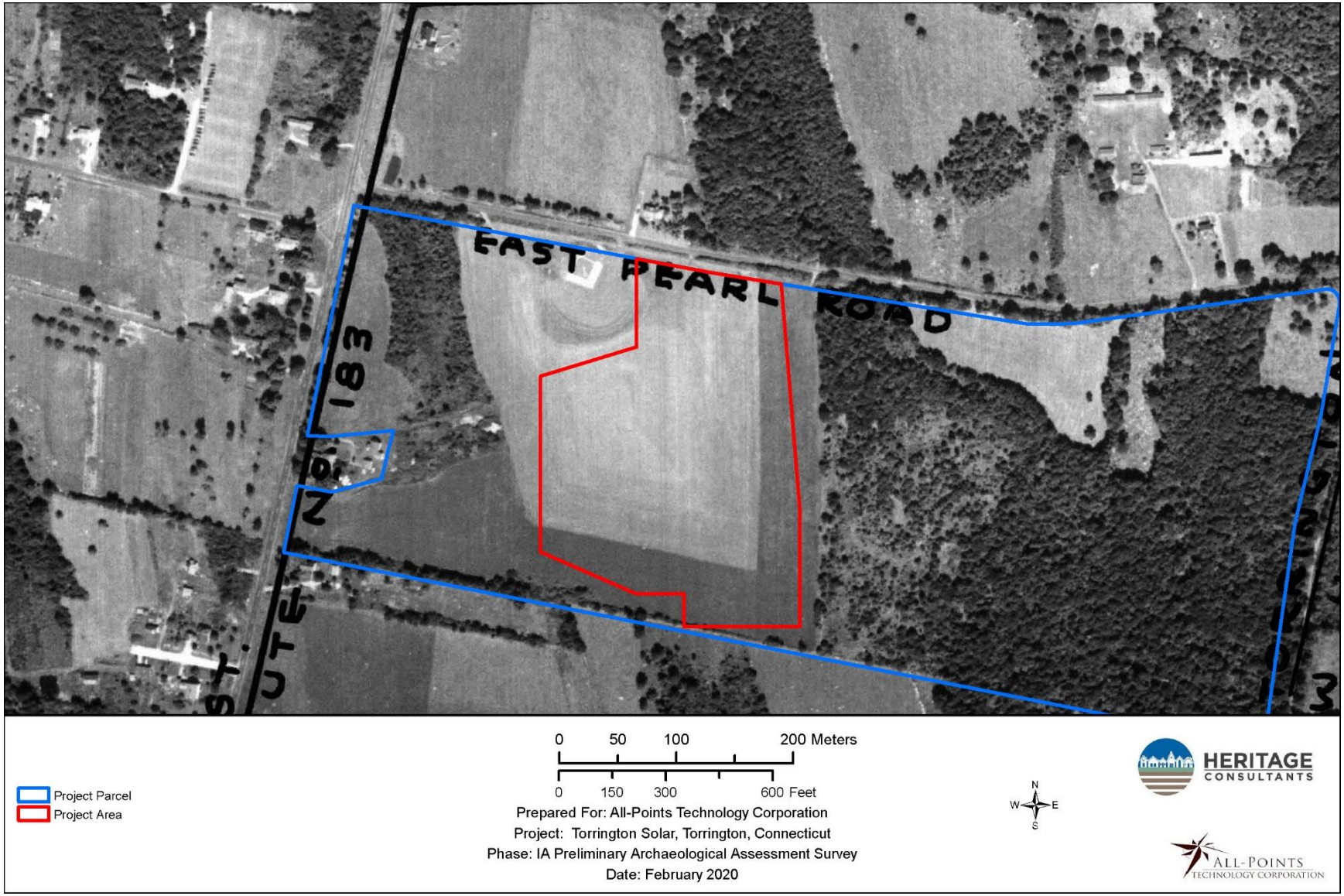


Figure 6. Excerpt from a 1951 aerial photograph showing the location of the project area in Torrington, Connecticut.

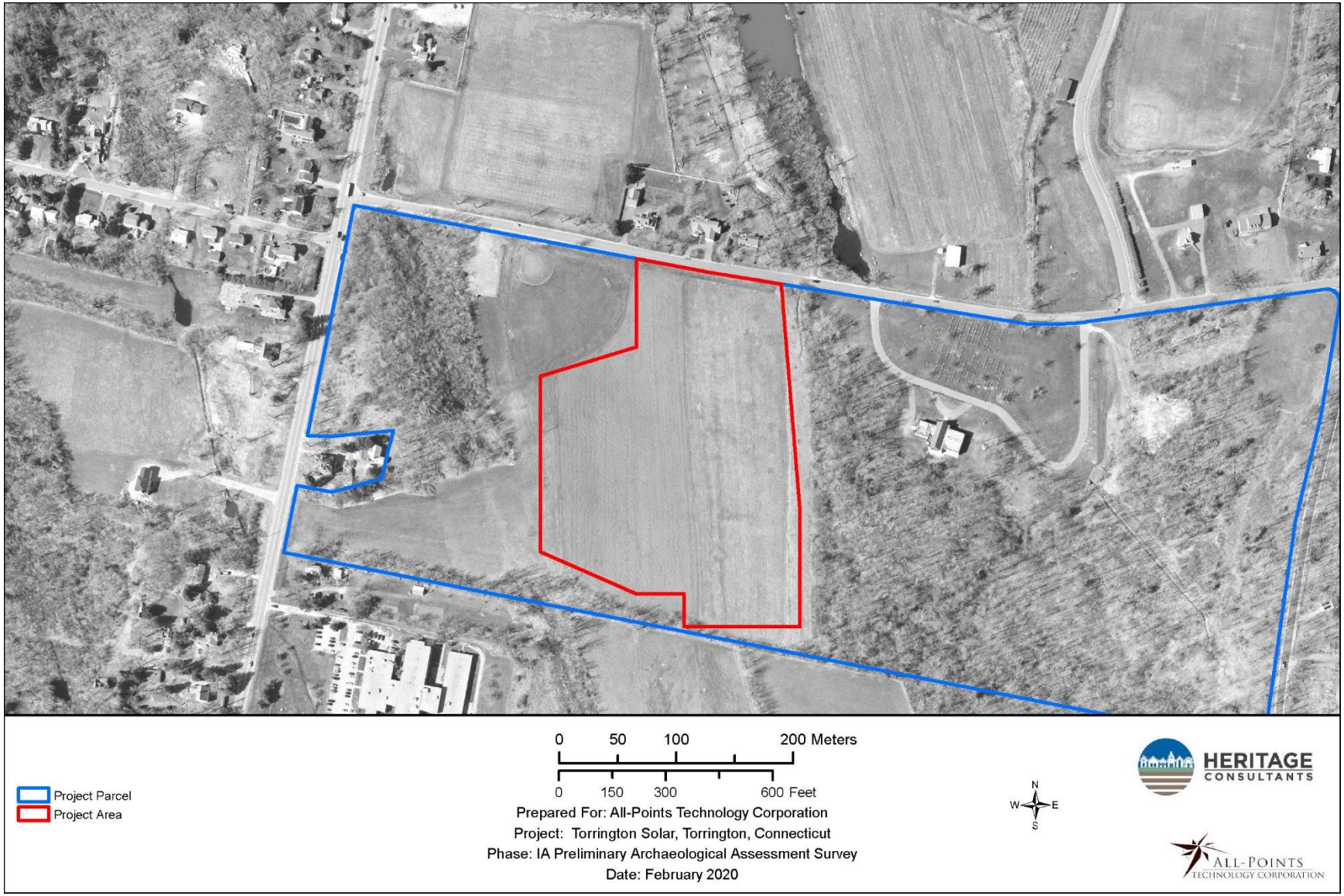


Figure 7. Excerpt from a 2004 aerial photograph showing the location of the project area in Torrington, Connecticut.

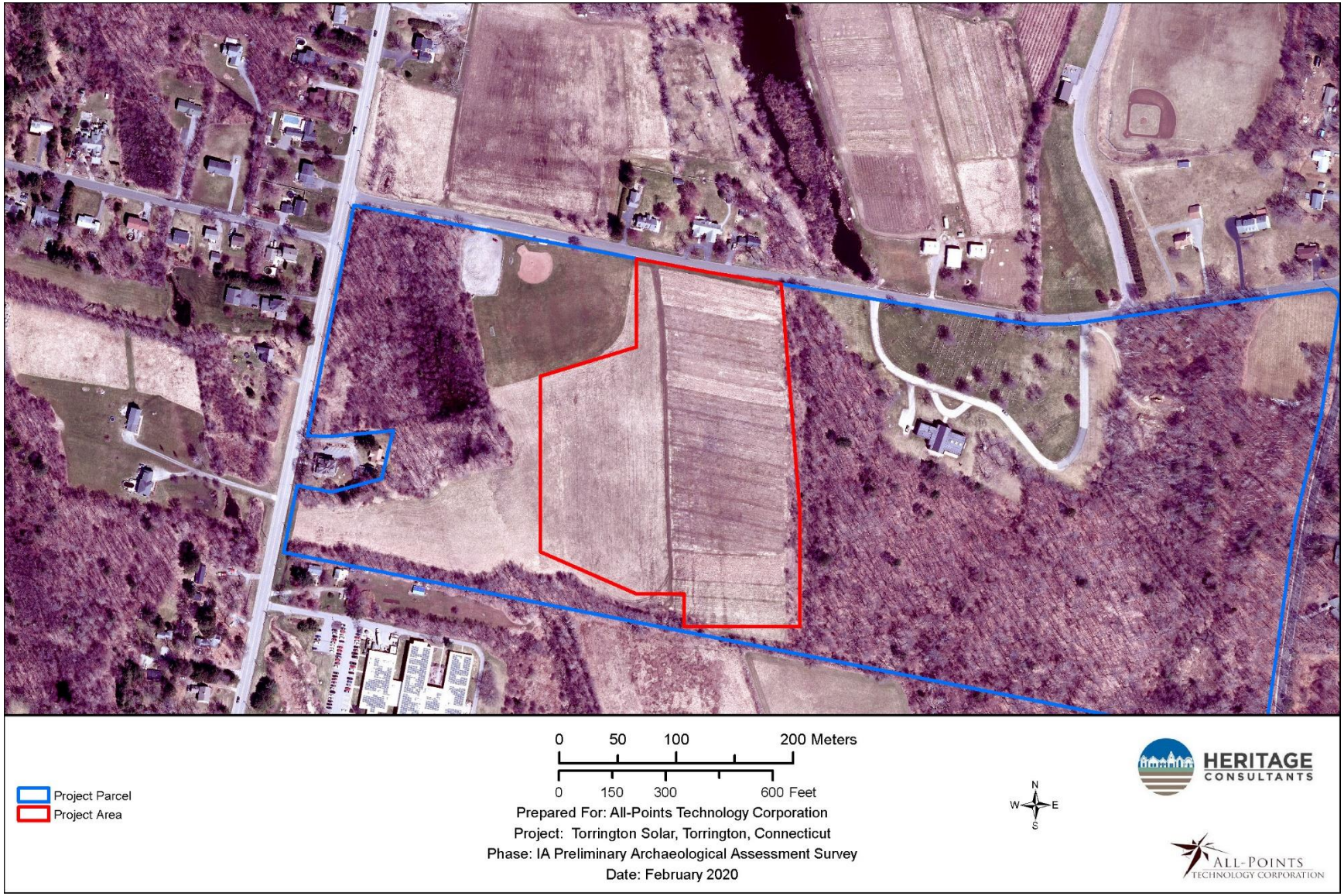


Figure 8. Excerpt from a 2019 aerial photograph showing the location of the project area in Torrington, Connecticut.

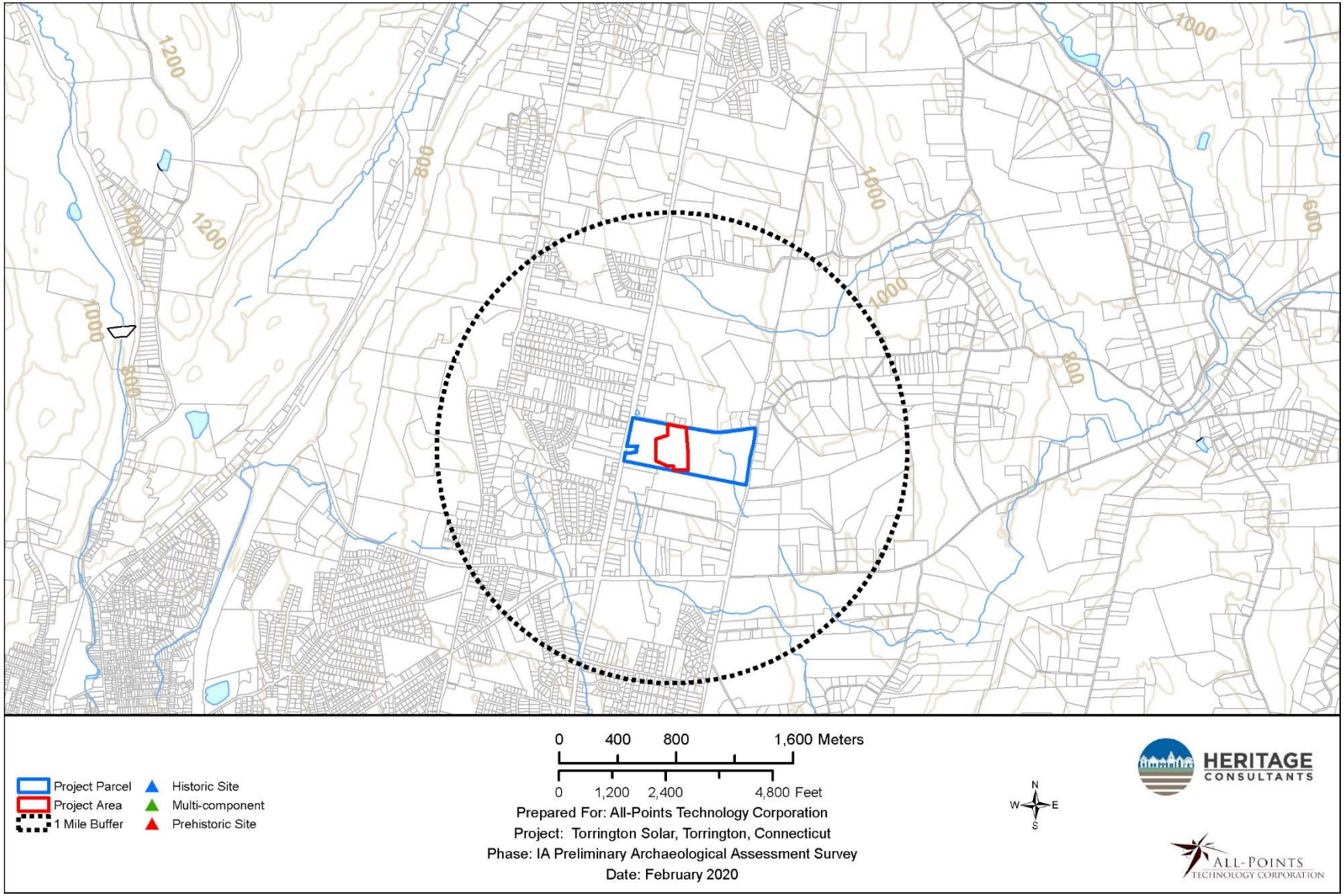
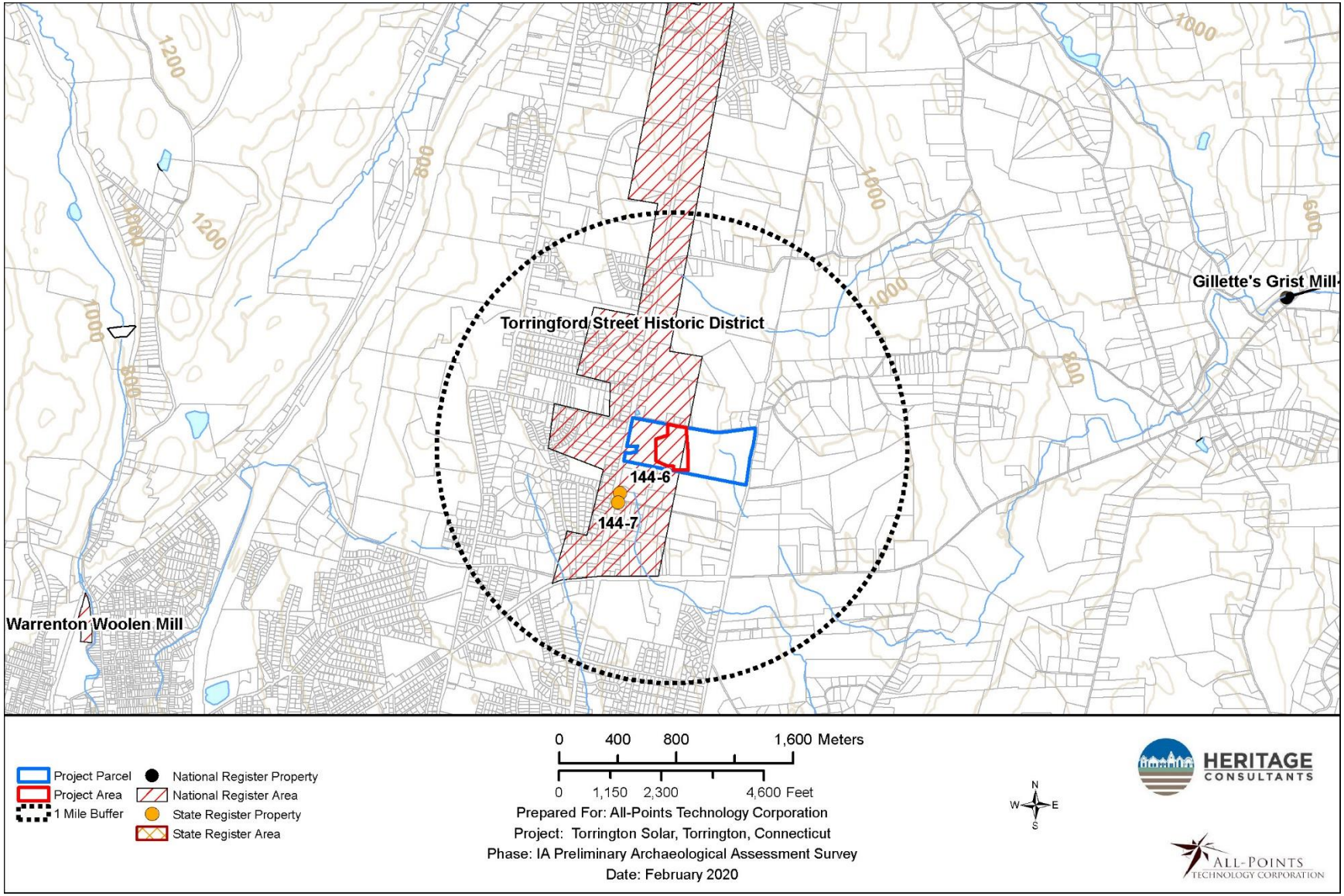


Figure 9. Digital map showing the location of previously identified archaeological sites in the vicinity of the project area in Torrington, Connecticut.



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Phase IB Cultural Resources Reconnaissance Survey of the Proposed Torrington Solar One Facility in Torrington, Connecticut

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ABSTRACT

This report presents the results of a Phase IB cultural resources reconnaissance survey for the proposed Torrington Solar One, LLC solar facility in Torrington, Connecticut. The project area associated with this solar facility encompasses approximately 13.5 ac of land within a larger 66.4-acre parcel; it will be accessed from East Pearl Road, which is located along the northern boundary of the project area. A previously completed Phase IA cultural resources reconnaissance survey determined that the 13.5 ac project area retained a moderate/high sensitivity for intact archaeological deposits. A total of 136 planned shovel tests were excavated along 11 survey transects across the project area. No cultural materials, cultural features, or soil anomalies were identified during the Phase IB reconnaissance survey. It was determined that no impacts to significant cultural resources are anticipated by construction of the proposed Torrington Solar One facility and therefore, no additional archaeological examination of the project parcel is recommended prior to construction.

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CHAPTER I
INTRODUCTION

This report presents the results of a Phase IB cultural resources reconnaissance survey of a proposed solar Torrington Solar One facility in Torrington, 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 development, which will occupy approximately 13.5 acres of land. The project area is situated in the central portion of a 66.4-acre parcel of land located to the south of East Pearl Road, between Torringford Street and Harrison Road. It is surrounded by forested areas to the east, a row of trees to the south separating the project area from other open fields, an open field to the southeast, a nursing home to the southwest, and athletic fields to the northwest. Heritage completed this investigation on behalf of All-Points in April of 2020. 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 plans consist of a 7,290-module solar facility with rows of solar panels spaced 4.9 meters (16 ft) apart across the 13.5 acre project area. An additional section in the southeast corner of the project area will contain 405 modules. The proposed project plans also will contain two stormwater basins along its southern boundary and one in the northeast corner of the development area. Access to the solar array will be along the northern boundary from East Pearl Road (Figure 2). At the time of survey, the project area consisted an agricultural field with low slopes that ranged in elevation from 319.4 m (1048 ft) NGVD to 352.3 m (1156 ft) NGVD. Field methods employed during the current investigation consisted of pedestrian survey, mapping, photo-documentation, and subsurface testing throughout the array area and stormwater basins. Field methods and results are discussed below.

Project Results and Management Recommendations Overview

A review of historic maps and aerial images of the project area, files maintained by the CT-SHPO, as well as pedestrian survey of the development area, failed to detect any previously identified archaeological sites in the vicinity of the project area. However, one National Register of Historic Places district overlapped the project area (the Torrington Street Historic District) and two State Register of Historic Places properties (144-6 and 144-7) were located nearby. These properties are discussed in Chapter V.

During survey, a total of 136 planned shovel tests were excavated along 11 survey transects across the project area. Despite this field effort, no cultural material, evidence of cultural features, or soil anomalies were identified during the Phase IB reconnaissance survey. As a result, it was determined that no impacts to significant cultural resources are anticipated by construction of the proposed Verogy Solar Facility. No additional archaeological examination of the project parcel is recommended prior to construction.

Project Personnel

Heritage Personnel who contributed to the project include Mr. David R. George, M.A., R.P.A., (Principal Investigator); Ms. Renée Petruzelli, M.A., R.P.A. (Project Archaeologist); Ms. Kelsey Tuller, M.A., (Field Director; Mr. Stephen Anderson, B.A., (Geographic Information Specialist), and Ms. Christina Volpe, B.A., (Historian).

Organization of the Report

The natural setting of the project region is discussed in Chapter II and includes a brief overview of the geology, hydrology, and soils of the area. The prehistory of the project region is outlined in Chapter III. The history of the region is chronicled in Chapter IV, and a discussion of previous archaeological investigations and identified cultural resources in the vicinity of the project area is presented in Chapter V. The methods used to complete this investigation are discussed in Chapter VI. Finally, the results of this investigation and management recommendations for the project area 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 project area. Previous archaeological research has documented that a few specific environmental factors can be associated with both prehistoric and historic period site selection. These include general ecological conditions, as well as types of fresh water sources and soils present. The remainder of this section provides a brief overview of the ecology, hydrological resources, and soils present within the project area, access roads, 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: Northwest Uplands ecoregion. A brief summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found in and adjacent to the project area.

<u>Northwest Uplands Ecoregion</u>

The Northwest Uplands ecoregion consists of "a variably hilly landscape of high average elevation with local areas of considerable topographic relief and rugged hills. Elevations are generally above 1,000 feet, reaching a maximum of almost 1,500 feet in a few local areas." The region's bedrock is metamorphic, consisting of Paleozoic gneisses and schists. Soils "developed on glacial till in the uplands and on local deposits of stratified sand, gravel, and silt in the valley areas."

Hydrology in the Vicinity of the Project area

The project area is situated within a region that contains several sources of freshwater, including the East and West Branch of the Leadmine Brook, Bakersville Brook, Torringford Brook, as well as unnamed streams and wetlands. These freshwater sources may have served as resource extraction areas for Native American and historic 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 project area is characterized by the presence of two major soil types: Woodbridge and Paxton/Montauk soils (Figure 3). A review of these soils shows that they consist of well drained loam; they are the types of soils that are typically correlated with prehistoric and historic use and occupation. Descriptive profiles for each soil type are presented below; they were gathered from the National Resources Conservation Service.

<u>Woodbridge Soils:</u>

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. **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.

<u>Paxton/Montauk Soils:</u>

A typical profile for Paxton and Montauk soils is described 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. **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.

Summary

The natural setting of the area containing the proposed Torrington Solar One facility in Torrington, Connecticut is common throughout the Northwest Uplands ecoregion. Streams and rivers of this area empty either into the Naugatuck River, which in turn, drains into the Housatonic River before emptying into the Long Island Sound. The landscape in general is dominated by loamy soil types with some wetland soils intermixed. While some areas of the region have steep slopes, the project area is characterized by more level ground. Thus, in general, the project region was well suited to Native American occupation throughout the prehistoric era. As a result, archaeological sites have been documented in the larger project region, and additional prehistoric cultural deposits may be expected within the undisturbed portions of the proposed project area. This portion of Torrington was also used throughout the historic era, as evidenced by the presence of numerous historic residences and agricultural fields throughout the region; thus, archaeological deposits dating from the last 350 years or so may also be expected near or within the proposed project area.

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. The remainder of 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 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 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.

The only other Paleo-Indian site studied in detail in Connecticut is the Hidden Creek Site (72-163) (Jones 1997). The Hidden Creek Site is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut. While excavation of the Hidden Creek Site produced evidence of Terminal Archaic and Woodland Period components (see below) in the upper soil horizons, the lower levels of the site yielded artifacts dating from the Paleo-Indian era. Recovered Paleo-Indian artifacts included broken bifaces, side-scrapers, a fluted preform, gravers, and end-scrapers. Based on the types and number of tools present, Jones (1997:77) has hypothesized that the Hidden Creek Site represented a short-term occupation, and that separate stone tool reduction and rejuvenation areas were present.

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

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

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

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

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

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

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

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

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

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

The Terminal Archaic, which lasted from ca., 3,700 to 2,700 BP, is perhaps the most interesting, yet confusing of the Archaic Periods in southern New England 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).

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 indicative of the Middle Woodland Period include Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizee 1994a:200).

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

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

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

Stone tool assemblages associated with Late Woodland occupations, especially village-sized sites, are functionally variable and they reflect plant and animal resource processing and consumption on a large scale. Finished stone tools recovered from Late Woodland sites include Levanna and Madison projectile points; drills; side-, end-, and thumbnail scrapers; mortars and pestles; nutting stones; netsinkers; and celts, adzes, axes, and digging tools. These tools were used in activities ranging from hide preparation to plant processing to the manufacture of canoes, bowls, and utensils, as well as other settlement and subsistence-related items (McBride 1984; Snow 1980). Finally, ceramic assemblages recovered from Late Woodland sites are as variable as the lithic assemblages. Ceramic types identified include Windsor Fabric Impressed, Windsor Brushed, Windsor Cord Marked, Windsor Plain, Clearview Stamped, Sebonac Stamped, Selden Island, Hollister Plain, Hollister Stamped, and Shantok Cove Incised (Lavin 1980, 1988a, 1988b; Lizee 1994a; Pope 1953; Rouse 1947; Salwen and Ottesen 1972; Smith 1947). These types are more 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 ca., 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 stated in Chapter I, the project area consists of a parcel of land along East Pearl Road in the city of Torrington, which is in Litchfield County, Connecticut. The historical record indicates that the project area was part of the fields system of a farm or farms in the early twentieth century and likely many years after that. This chapter provides an overview of the history of the region as well as data specific to the project area.

Native American History

Torrington, or Torringford as it was originally called, is located within Litchfield County in northwestern Connecticut. The earliest known sale in the region was of Litchfield land by the Tunxis group at what is now Farmington, in 1658, when they sold to William Lewis and Samuel Steele a tract called Mattatuck; in addition to the present Waterbury, part of what is now Litchfield County is thought to have been included in it. This sale was further confirmed in 1714 by a quit claim from some other Indians (identities unknown). In contrast, the greater part of the original town of Litchfield was sold in 1716 by Indians at Pootatuck, whose primary residence was in what were later known as Woodbury and Newtown (Crofut 1937, De Forest 1856).

Indian relations with the new settlers were mixed, although some of the trouble seems to have come from foreign Indians. In 1722, for example, Jacob Griswold was kidnapped by a pair of Indians who took him a long way northward (away from either Tunxis or Pootatuck) before he escaped. In 1723, Joseph Harris was shot and scalped by unknown Indians at a place west of the Litchfield courthouse (which was built much later). These incidents were presumed to be part the French, English, and Indian war that in theory was concentrated in upper New York and Massachusetts; in Connecticut, the colonists began standing watches and mustering the militia. All the Indians living in the western part of Connecticut were ordered to stay in their homes and submit to being accompanied by whites if they went to the woods, or else be considered enemies; but the Connecticut government also hired Indian scouts and offered them bounties on enemy scalps. Such orders were given in 1725 and 1726. Despite these problems, the recollections of living white residents in the mid-nineteenth century included Indians still walking the town's streets and camping in bands of up to thirty at Pine Island or Bantam Lake, into the late eighteenth century (De Forest 1856). The researches of De Forest indicate that permanent Pootatuck residents of the region were mostly in Woodbury and Newtown; by 1761 their numbers were reduced to a handful, with no intact families, and by 1774 only two remained at Newtown; but he also notes that they had good relations with other Indian groups (De Forest 1856). It is likely that over the eighteenth century, most of the Litchfield-area Indians moved northward and westward, with other groups, only returning to the Litchfield area as part of seasonal migrations that eventually ceased as well.

Colonial History of Torrington

In 1686, the Connecticut Colonial General Court appropriated lands in the western region of Connecticut to the towns of Windsor and Hartford. In 1732 the Connecticut General Assembly granted Torrington the right to separate from their parent-town of Windsor. The parcel they were granted that would become Torrington was comprised of "20,924 acres, and bounded, south, partly on Litchfield and partly on land belonging to said patentees in Windsor" (Orcutt 1878). A tax list recorded in 1732 indicated property

ownership included 136 proprietors. Similar to the development of other colonial settlements during this period, Torrington was gridded north to south to accommodate land ownership, and in September 1732 names were written on pieces of paper and drawn from a hat for those wishing to secure acreage in the new settlement. Soon after, fearing contentious relations with neighboring Indians, early colonists constructed a fort (Orcutt 1878). The name Torrington translates its meaning to "hill-encircled town", which promoted an early timber industry in the area known as "Mast Swamp", contemporarily surrounding the vicinity of the project area. "Mast Swamp" later became the borough of Wolcottville, and later Torringford, today's center of Torrington. The name Mast Swamp is derived from the profitable timber industry carried out in the richly forested periphery of the town.

The earliest deed recorded to these lands belonged to Daniel Griswold who bequeathed the land to his son Nathan Griswold in 1728. From 1728 to 1735, sixty deeds were granted in Torrington to members from the Windsor Company. The first farm to cultivate in the town was in 1734 at the request of Litchfield resident Joseph Ellsworth who constructed a dwelling house on the approximate five acres of land granted to him bordering Torrington and Litchfield. Originally known as New Orleans Village or Mast Swamp due to the many pine trees on the surrounding hillsides used for shipbuilding; in 1739 residents requested of the Connecticut General Assembly the right to form their own ecclesiastical society requesting the "support of a gospel ministry" (Orcutt 1878). The town was granted this privilege and was officially incorporated as a town in October 1740. A year later the first church was organized: Church of Christ in Torrington; and five years later in 1746 the first meeting house was erected. In 1744 a vote amongst residents approved the construction of a fort near the homestead of Ebenezer Lyman near Klug Hill Road. The fort was used for resident protection from increasingly hostile relations with local Indians who had previously occupied much of the northwestern region in Connecticut as stated earlier in this chapter.

In 1752 a highway was laid from north to south through the center of Torrington, referred to then as West Street, today it is known as Main Street. The roads met in the center of town with the "old road" that came near the town from the eastern hills. In 1801, this became the Litchfield Turnpike, a road that ran from East Main Street to the river and over, where it intersected with the Waterbury Turnpike. This area became one of the central business districts in the latter-half of the nineteenth century (Pape 1918). Not long after the establishment of the roads, in 1757 a meeting of the original proprietors was held to decide on granting a privilege along the Naugatuck River "as shell be needful to accommodate the setting of a mill, to some suitable person that will engage to build a corn mill" (Orcutt 1878). The mill privilege was granted to Amos Wilson "for and during the full term of nine hundred ninety and nine years, from and after the date of these presents"; the total land for the mill was approximately 20 acres. Soon after, Amos Wilson formed a stock company and expanded his business.

In 1806 residents renamed the borough changing the name from Mast Swamp to New Orleans Village. However, this new name for the area was short-lived when in 1813 then Governor Oliver Wolcott (1726-1797) purchased water privileges along the Naugatuck River prompting the name change to Wolcottville in his honor (Pape 1918). In 1814, a schoolhouse was built on Main Street, and soon after in 1820 the Congregational Church was also constructed on South Main Street. In 1836, meetings taking place throughout Torrington were consolidated and held within the borough of Wolcottville. Meetings were carried out and held between three churches until 1865 when the Methodist Church there was vacated and renovated for the use of public meetings. In 1881, the establishment of the Post Office resulted in Wolcottville conceding its name to adopt the name of Torrington for the entire town (Pape 1918).

Nineteenth Century Industrial History of Torrington

The Naugatuck River's east and west branches meet in downtown Torrington, just north of East Albert Street near Feussenich Park. Proximity to the Naugatuck River is what prompted an early industrial effort in Torrington, one that initiated in timber and grist mill workings and later expanded to include textile, brass and eventually medical needle manufacturing (Pape 1918). As early as 1790, there was a brickyard owned by the Hayden family of Torringford Street that provided building supplies to regional contractors. The Hayden family also held privilege to an iron forge and mill known as Holdbrook's Mill along the Naugatuck River. Due to the proximity of the Naugatuck River in the early nineteenth century Wolcottville, as mentioned above, became the center business village within Torrington during this time. The first industrialist to monopolize the waterpower of the Naugatuck River was Amos Wilson (1726-1816). In 1757 the town proprietors held a meeting to discuss their desire to host a mill within the town; Amos Wilson offered himself and paid 450 pounds for 20 acres along the Naugatuck River near where the Hotchkiss Brothers Company mill is still standing today on Water Street (Orcutt 1878). In 1776 Wilson hosted a grist mill at the site and expanded to include a second grist mill and a sawmill by 1794. In 1834 Israel Coe (1794-1891) and Erastus Hodge (1782-1847) constructed two rival brass mills in the town. Israel Coe migrated from Waterbury to Wolcottville and purchased, with his partners Anson G. Phelps of New York and John Hungerford, the mill privileges formerly noted as belonging to Amos Wilson. The Coe Brass Manufacturing Company specialized in the production of brass kettles through the battery process which is the earliest noted means of brass kettle production in the country (Pape 1918). In 1841, Coe's business was dissolved, and a new joint stock company was formed under the name of the Wolcottville Brass Company. Between 1852 and 1863, the company continued to thrive utilizing the battery process for brass kettle production; until the panic of 1857 slowed down the business and Mr. Coe retired, removing to Waterbury. The business became reorganized once again in 1863 under Coe's ancestor L.W. Coe who purchased the entire company and renamed it the Coe Brass Company converting production operations to focus on silver and brass wire production (Pape 1918).

Charles Hotchkiss (1811-1897) moved to Torrington from Prospect in 1841 and carried out a sawmill in the northwest section of Torrington. In 1857 he sold his business there to start the C. Hotchkiss and Son Company at the location of the present mill located at the intersection of 199 Water Street and 200 Litchfield Street. Charles retired in 1880 and the company changed names to the Hotchkiss Brothers Company (Pape 1918). Production at this time included materials for carpentry, including wholesale lumber and window construction. The firm remained in operation, expanding in 1897 to include a parcel along Pearl Street with access to the New York, New Haven & Hartford Railroad line. In 1902 the Torrington Building Company took over much of the company's manufacturing, with the Hotchkiss brothers remaining important figures in daily operations until 1922. Much of Torrington's early industrial success was due to the town's proximity to the Naugatuck River; this success can also be contributed to the agency by which the town took to connect themselves to the rest of the state for the purposes of trade. In 1845 a charter was granted for a rail line to run from Bridgeport to Winsted through Torrington. By 1848, the Naugatuck Rail Company incorporated and a year later in May 1849 the first fifteen miles of the railroad that went through Torrington were opened for business. In 1887, the Naugatuck Rail Company was absorbed and became part of the larger New York, New Haven & Hartford Railroad system (Donlan 1897). By 1890 the population in Torrington had exceeded 10,000 residents and with increased rapid industrialization taking place throughout Connecticut residents became anxious for additional means of travel to and from surrounding towns (Donlan 1897). In 1896, the Torrington & Winchester Street Railway was incorporated and constructed an electric railway between Torrington and Winsted, which was completed in 1897 (Pape 1918). At this time Torrington possessed its own newspaper, The Torrington Register which was established and first published in 1874. Ownership transferred to several men throughout the 1880s, until 1889 when a two-story building was erected on Water Street for the paper.

The Torrington News, another publication, was established by the News Publishing Company Inc., in 1916 (Pape 1918).

Contemporary History of Torrington

In 1895 the town census recorded 8,995 people living in Torrington. Between 1880 and 1920, that number increased to nearly 22,000 people. Drawn to the prosperity provided by the many manufacturing enterprises, few of which are briefly mentioned above, Torrington drew an active immigrant populous by the early twentieth century (Pape 1918). This increase prompted the State of Connecticut to charter Torrington as a city in 1923. In the 1930s, local architect William E. Hunt (1873-1935) designed several buildings for the downtown area including the Warner Theater and Allen Block (Torrington Historical Society). During WWII, Torrington played a vital role in the war effort by aiding in the manufacturing of goods such as "machine tools, bearings and shell castings" (Torrington Historical Society).

In 1955, along with the entirety of the Naugatuck Valley, Torrington suffered greatly from the flooding of the Naugatuck River brought on by back-to-back hurricanes that year. While certainly damaged by the overall decline of manufacturing following WWII and the flood of 1955, Torrington retained a few of their oldest manufacturing enterprises, such as the Torrington Company now called the Timken Company (Torrington Historical Society). In the 1960s the construction of the former Waterbury Turnpike to what is now Route 8 began from Bridgeport through Waterbury and up to Massachusetts passing through Torrington to meet with Route 115. According to the Torrington Historical Society "The construction of new Route 8 in the 1960s was a catalyst for industrial and commercial development to move outward from the traditional center" (Torrington Historical Society). Growing suburbanization throughout the 1970s and 1980s resulted in the decline of Torrington's central commercialized district. Recently however, a renewed sense of culture has come back to the community through investment into arts initiatives such as the Torrington Historical Society's Hotchkiss-Flyer Museum and the Warner Theater which was saved from demolition in 1981 and remains a cultural treasure for community artistic expression (Torrington Historical Society).

History of the Project Area

Torrington is noted as the birthplace of abolitionist John Brown (1800-1859) and the former Brown homestead, indicated today by wayfinding signage, is included as part of the Connecticut Freedom Trail. In the 1830s there was an active anti-slavery community developing in Torringford, led by Dr. Erasmus Hudson who was the secretary of the Connecticut Anti-Slavery Society and a contributor to the society's abolitionist newspaper *The Charter Oak*. Additionally, Hudson was the minister of the Congregational Church (Orcutt 1878). The Congregational Church in Wolcottville is located less than 1,000 meters from the Project Area. Organized in June 1832, the church house underwent a renovation in 1844 and was reconstructed in 1864 to accommodate additional meeting space (Orcutt 1878). In his autobiography *The Autobiography of James L. Smith*, Smith recounts his life story as a runaway slave from Virginia in 1838. Through his journey north along the Underground Railroad, Smith traveled through Maryland and Delaware arriving in Philadelphia after accepting work as a sailor on an eastern bound ship. While in Philadelphia, Smith encountered abolitionists, Quakers, and other free blacks who encouraged him to continue north to Massachusetts. During his journey north, Smith traveled through Connecticut stopping in several towns including Wolcottville, then referred to as Torringford: "We had better success when we went to Torringford, for here the people had just passed through a terrible mob, on account of an antislavery lecturer. The mob broke the windows of the church, and the lecturer had to escape for his life" (Smith 1881). Smith goes on to recall the rest of his very brief stay during which he delivered a sermon to congregational churchgoers recounting his time as an enslaved man in the south, "Some of the men who

were engaged in the mob a few months before came and took the front seats, and looked as though they could devour us…I took the stand, and before I had finished my talk, took all the fight out of them; some of them wept like children" (Smith 1881).

According to the 1859 historic map, the Project Parcel was occupied in 1859 by four individual homesteads. According to the 1850 United States Federal Census, J Gillett, indicated on the 1859 map was the homestead of John Gillett, a 74-year-old white male farmer with a real estate value of $6,600. Living with him in 1850 were his wife Mary age 64, their son John C. Gillett age 23, Lucious Johnson age 15, and Mary Woodruff age 13. According to *The History of Torrington, Connecticut* by Samuel Orcutt, John Gillett is described as a farmer living on Torringford Street, "he lived a very quiet life for one who had as much to do with public matters, and always seemed to prefer the company of his books, and newspaper" (Orcutt 1878). Born from parents who were amongst the second group of settlers in the early eighteenth century, during his time in Torrington Gillett served as a town clerk, treasurer, and represented Torrington in the Connecticut State Legislature. On the 1859 historic map, J. Gillett's property is visible on Torringford Street (Figure 4). In the 1874 historic map, Gillett is absent and where Gillett's house had been previously indicated, it is now removed and no longer visible on the map (Figure 5).

Living next to John Gillett as indicated in the 1859 historic map, is the homestead of L Murray. According to the 1850 United States Federal Census, listed directly below Gillett, Lewis Murray in 1850 was a 54-year-old white male farmer with a real estate valued at $3,000. Living with Murray in 1850 are his wife, Mary age 50, their son Warren age 17, and Lucretia Murray age 54. Lewis Murray died in 1866 and is buried in the Torringford Cemetery next to his wife Mary who died in 1859. However, their homestead passed on to their son Warren who is represented as living on the property in the 1874 historic map (Figure 5). According to the 1860 United States Federal Census, Warren B. Murray was a 27-year-old white male wagon maker living with his wife Aurelia age 24, their children Lewis age 4, Mary age 2, Eunice age 10 and one black servant is listed as living with the Murray family in 1850, Oline Mix age 21. According to the *History of Torrington* by Samuel Orcutt, Warren enlisted in 1861 during the American Civil War and served in the Union war efforts as a musician in the traveling wartime band (Orcutt 1878).

Next to Warren Murray in 1854 is the homestead of Lucius Burr, who was listed in the 1860 United States Federal Census as a 33-year-old white male farmer living with his wife Sarah age 34, and their children George age 8, and Mary age 3 (Figure 4). According to Beckwith's Almanac, Volumes 33-41, "Lucius Burr. Torrington has a pocketknife that has been in use over a century, and a pork barrel brought from Kensington, England, in 1735" (Beckwith, 1880). However, Burr is removed from the 1874 historic map and in his place is the homestead of I.P. Waterman (Figure 5). Isaac Perkins Waterman was born in New Hampshire in 1815 and migrated to Windsor, Connecticut in 1840 where he married Lucy Ann Loomis (1815-1896) (Waterman 1939). On the 1880 United States Federal Census Isaac is listed as living within the Project Parcel occupying the former homestead of Burr. Waterman lists himself on the 1880 census as a 64-year-old white male farmer living with his wife Lucy age 63 and their daughter Jennie E. age 21.

Lastly, in the rear, eastern portion of the Project Parcel there are two homesteads worth noting in detail, appearing in the 1859 historic map as two dwellings facing each other on either side of East Pearl Road. In the 1874 map these dwellings are labeled as belonging to J. B. Johnson and L. Johnson, the latter being Levi Johnson, a former runaway slave born in 1793 to an enslaved father from Southington, Connecticut and a mother who was also a runaway slave from New York (Figure 5). According to a testimony given to Beckwith's Almanac in 1880, Levi Johnson:

> "Levi worked for his mother in Cheshire until he was sixteen years old, and then he ran away, not stopping until he reached Salisbury which is in the northwest corner of the state…In 1850 Levi married a slave owned by a New York farmer but her father bought her freedom…For many years Levi was secton of the church in Torrington, and in that capacity has buried all the generations who were young with him, and almost all of the succeeding generations. Levi has one son" (Beckwith 1880).

Levi Johnson first appears in Torrington in the 1830 United States Federal Census as living with four other "Free Colored Persons", and no further detail is provided. In the 1850 United States Federal Census, Levi appears once again and this time is listed as a 57-year-old black laborer, with a real estate valued at $100 and living with his wife Maria age 62, and John age 39, Mary age 14, and a Jane A. Sepion age 9. The family appears once again in Torrington in the 1860 United States Federal Census with Levi listed as a 67-year-old black farm laborer with a real estate valued at $600 and a personal estate valued at $100. Living with him are his wife Maria age 73, and a girl named Celia Maria Johnson age 10. Living in the homestead across from Levi, as indicated in the 1874 historic map, is Jarvis B. Johnson age 38. Jarvis, presumably related to Levi, is listed as a black male farm laborer living with his wife Elizabeth age 36 and Sarah age 15, Emily age 13, Julia age 8, Daniel age 6, Fanny age 3, Kate age 1.

Remaining on the parcel, Jarvis and Levi Johnson appear once again on the 1870 United States Federal Census. Levi Johnson is listed as a 77-year-old black male living with his wife Maria age 84 and possessing real estate valued at $600. Across from Levi is once again, Jarvis Johnson listed as a 48-year-old black male farm laborer living with his wife Elizabeth age 45, Emily age 22, Julia age 18, Daniel 15, Katie 11, William 6, and Nellie age 2.

At the time of the 1934 aerial image of the Project Area, one house remains outside of the western boundary of the Project Parcel. East of the Project Area within the Project Parcel on the former Levi Johnson homestead, there is evidence of a parcel boundary line with some reforestation visible and multiple cleared paths surrounding what appears to be a small structure (Figure 6). Many changed occur between the 1934 and 1951 aerial images. Within a portion of the Project Area the cleared farming parcel has been repurposed as a baseball field. Reforestation is evident throughout the Project Parcel in both the western and eastern portions, with much of the previously cleared land surrounding the Levi Johnson homestead being reforested (Figure 7). By 2004, the baseball field is clearly refined, and the Project Area is cleared; the one structure immediately outside of the western Project Parcel boundary. In the eastern portion of the Project Parcel on the former Levi Johnson plot, there remains reforestation with an additional structure and cemetery plots known at St. Peter's cemetery, within the same footprint of Johnson's farm parcel visibly on the previous aerial images (Figure 8). In 2019, little changes are visible within the Project Area and throughout the Project Parcel; the baseball field in the northwestern portion of the Project Parcel expanded to include additional parking (Figure 9). Suburban development and commercial development are visible outside of the Project Parcel but do not impact the Project Area.

Conclusion

The Project Area appears to have been used as an agricultural parcel for much of the recorded history of the Project Parcel. However, the eastern area Project Parcel appears to have been the location of the homestead of former runaway-slave and well respected Torringford resident Levi Johnson, born in 1793. While the area encompassing his former farm-parcel has been transitioned for use as the St. Peter's Cemetery, further historical resource reconnaissance would be required to determine to determine the significance of the former homestead closer to the Project Area, as visible in the 1934 aerial image. This site is significant due to the unusual self-agency Levi Johnson obtained during his lifetime living, working, and owning property in the Torringford section of Torrington.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous cultural resources research completed within the vicinity of the project area in Torrington, Connecticut. This discussion provides the comparative data necessary for assessing the results of the current Phase IB cultural resources assessment survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the project area are taken into consideration. Specifically, this chapter reviews previously identified archaeological sites, National/State Register of Historic Places properties, and inventoried historic standing structures over 50 years old situated in the project region. The discussions presented below are based on information currently on file at the CT-SHPO in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage were examined. 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

A review of data currently on file at the Connecticut State Historic Preservation Office, as well as the electronic site files maintained by Heritage failed to detect any previously identified archaeological sites situated within 1.6 km (1 mi) of the project area (Figure 10). However, this review did reveal that one National Register of Historic Places district and two State Register of Historic Places properties are located within 1.6 km (1 mi) of the project area (Figure 11). They are the Torringford Street Historic District, State Register Property 144-6, and State Register Property 144-7 and they are described below.

Torringford Street Historic District

The Torringford Street Historic District was nominated to the National Register of Historic Places by Gregory E. Andrews of the Torrington Historic Preservation Trust on June 27, 1991. It runs along Torringford Street in Torrington, between its intersection with East Main Street and the northern property boundary of 4040 Torringford Street. Torringford Street was laid out in 1732 during the original subdivision of town land and the district contains buildings dating from the ca., 1760 to 1941. In total, there are 139 historic resources, one marker of the first Torringford meeting house, and two sites within the district. Buildings in the district represent the Colonial, Federal, Greek Revival, and Colonial Revival architectural styles. Local businesses are represented in the district include Shobael Griswold's Tavern, William Battell's Store, and the Hayden's Brickyard. Today, the area within the Torringford Street Historic District remains largely agrarian, with most local economic activities centering on farming historically. As seen in Figure 1, the proposed project area is located within the Torringford Street Historic District.

State Register Property 144-6

State Register of Historic Places property 144-6 is a Federal farmhouse located at the northeast corner of Gaylord Lane and Torringford Street in Torrington. It was recorded by John Beringer and Henry Simon of the Connecticut Historical Commission on July 29, 1966. The house was built in ca., 1790 and has two stories, a central hall plan, and a fanlight above the doorway, which is surrounded by an Adamesque open 20 pediment and pilasters. Siding is now vinyl and the gable roof is covered in asphalt shingles; in addition, the original windows have been replaced and there is a rear addition. The main structure, however, remains intact. This building will not be impacted directly by the proposed solar center.

State Register Property 144-7

Structure 144-7 is a Colonial farmhouse that was built in 1771 for W.H. Gaylord. It is located at 1280 Torringford Street and contains two stories, a gable roof, and a central chimney. The main of the house façade is characterized by a five-bay façade that has a central doorway with simply encased double doors. Some of the original windows, which were 12 over 12 sash type, still can be identified on the building, along with clapboard siding; however, the gable roof now contains asphalt shingles. There is a hewn overhang between the first and second story. The house was recorded by John Beringer and Henry Simon of the Connecticut Historical Commission on July 29, 1966; it will not be impacted directly by the proposed solar center.

Summary and Interpretations

The review of previously identified cultural resources in the vicinity of the proposed project area indicates that the larger project region contains historic structures from Torrington's first settlement to the present era, in an area that was agricultural for much of its history. Though no archaeological sites have been previously identified in the area, the natural setting discussed in Chapter II suggests Native Americans may have once inhabited the area, and sites may yet be discovered.

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methods used to complete the current Phase IB cultural resources reconnaissance survey of the moderate/high sensitivity areas associated with the proposed Torrington Solar One facility in Torrington, Connecticut. In addition, the location and point-of-contact for the facility at which all cultural material, drawings, maps, photographs, and field notes generated during survey will be curated is provided below.

Research Design

The current Phase IB cultural resources reconnaissance survey was designed to identify all prehistoric and historic cultural resources located within the proposed project area. Fieldwork for the project was comprehensive in nature and project planning considered the distribution of previously recorded archaeological sites in the region containing the project parcel, as well as an assessment of the natural qualities of the project area. The methods used to complete this investigation were designed to provide complete and thorough coverage of all portions of the moderate/high sensitivity areas within the project parcel. This undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, GPS recordation, and photo-documentation.

Field Methods

Following the completion of all background research, the moderate/high sensitivity areas which were identified during the completed Phase IA survey were subsequently subjected to a Phase IB cultural resources reconnaissance survey. The Phase IB survey consisted of pedestrian survey, systematic shovel testing, photo-documentation, mapping, and GPS recordation. The field strategy was designed so that the moderate/high sensitivity areas were examined visually and photographed. The pedestrian survey portion included visual reconnaissance of moderate/high sensitivity areas scheduled for impacts by the proposed solar project. The field methods included subsurface testing of the moderate/high sensitivity areas, during which shovel tests were excavated at 20 m (65.6 ft) intervals along parallel survey transects spaced 20 m (65.6 ft) apart.

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

Curation

Following the completion and acceptance of the Final Report of Investigations, all cultural material, drawings, maps, photographs, and field notes will be curated with:

Dr. Sarah Sportman
Connecticut State Archaeologist
Office of Connecticut State Archaeology

Box U-1023
University of Connecticut
Storrs, Connecticut 06269

CHAPTER VII
RESULTS OF THE INVESTIGATION & MANAGEMENT RECOMMENDATIONS

Introduction

This chapter presents the results of the Phase IB cultural resources reconnaissance survey of the moderate/high archaeologically sensitive areas associated with the proposed Torrington Solar One facility in Torrington, Connecticut. 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 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) pedestrian survey and photo-documentation of the project parcel; and 5) subsurface examination of the moderate/high archaeologically sensitive areas identified during the previously completed Phase IA cultural resources assessment survey (Heritage Consultants, LLC 2020).

The proposed project plans call for a 7,290-module solar facility with rows of solar panels spaced 4.9 meters (16 ft) apart across a 13.5 acre project area. An additional section of the array in the southeast corner of the project area will consist of 405 modules. The proposed project plans also call for the construction of two stormwater basins on the southern boundary of the project area and one in the northeast corner. Access to the solar array will be from East Pearl Road, which forms the northern boundary of the project area. At the time of survey, the project area consisted of an agricultural field. It contained generally low slopes and ranged in elevation from 319.4 to 352.3 m (1048 to 1,156 ft) NGVD (Figures 12 through 22). Field methods employed during the current investigation consisted of pedestrian survey, mapping, photo-documentation, and subsurface testing throughout the 13.5 acre project area. The results of the fieldwork are presented below.

Results of the Phase IB Cultural Resources Reconnaissance Survey & Management Recommendations

A total of 136 of 136 (100 percent)planned shovel tests were excavated along 11 survey transects across the project area (Figure 23). They were excavated at 20 m (65.6 ft) intervals along survey transects spaced 20 m (65. 6 ft) apart. At the time of the survey, it was noted that the eastern half of the project area had been extensively plowed and planted. Areas of standing water and muddy soft soils also were present throughout the project area. No cultural materials, features or anomalies were identified during the Phase IB reconnaissance survey.

A typical shovel test excavated within the project area exhibited three soil horizons in profile and reached to a depth of 55 cmbs (22 inbs). The uppermost soil horizon, the plow zone (Ap), extended from 0 to 28 cmbs (to 11.2 inbs) and was described as a deposit of dark brown (10YR 3/3) silty fine sand. It was underlain by a layer of subsoil (B-Horizon) that ranged in depth from 28 to 44 cmbs (11.2 to 17.6 inbs) and was described as a dark yellowish brown (10YR 5/6) silty medium sand. Finally, the glacially derived C-Horizon reached from 44 to 55 cmbs (17.6 to 28 inbs) and was classified as a layer of light olive brown (2.5Y 5/4) silty fine sand. Despite the field effort, no cultural material or evidence of cultural features was identified during the Phase IB survey. No impacts to cultural resources are expected by the construction of the solar facility, and no additional archaeological examination of the project area is recommended.

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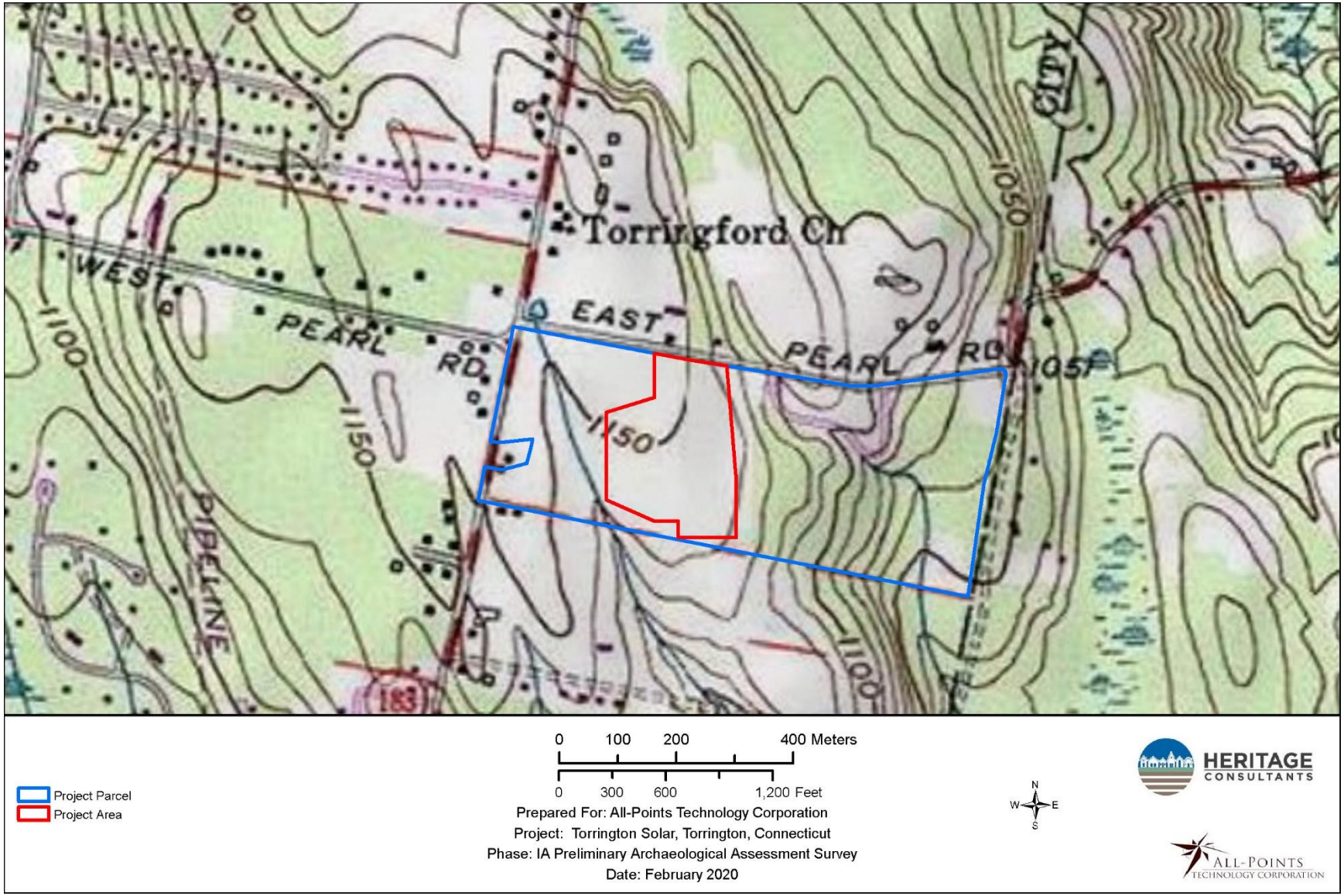

Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the project area in Torrington, Connecticut.

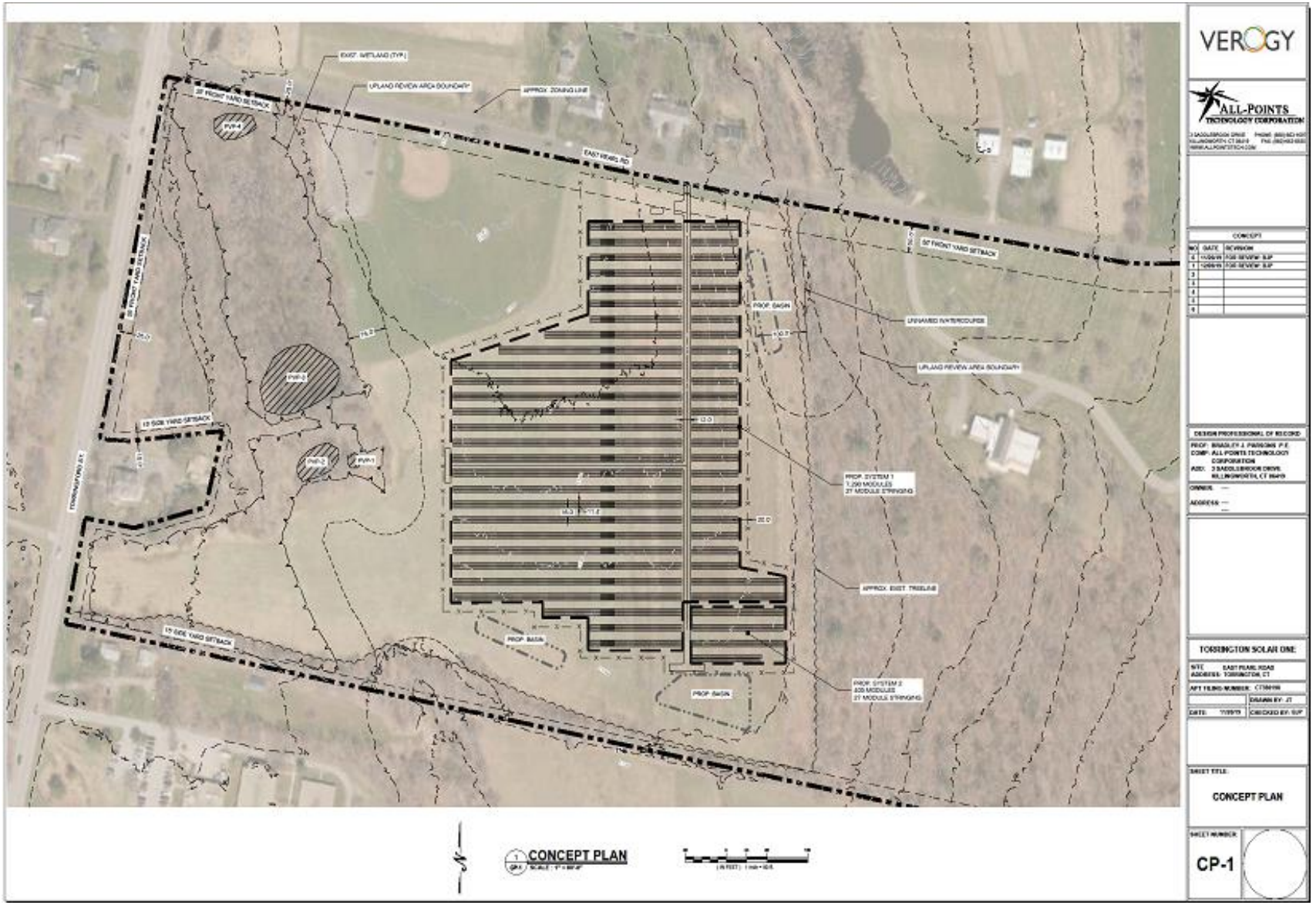

Figure 2. Proposed project plans for Torrington Solar One facility in Torrington, Connecticut.

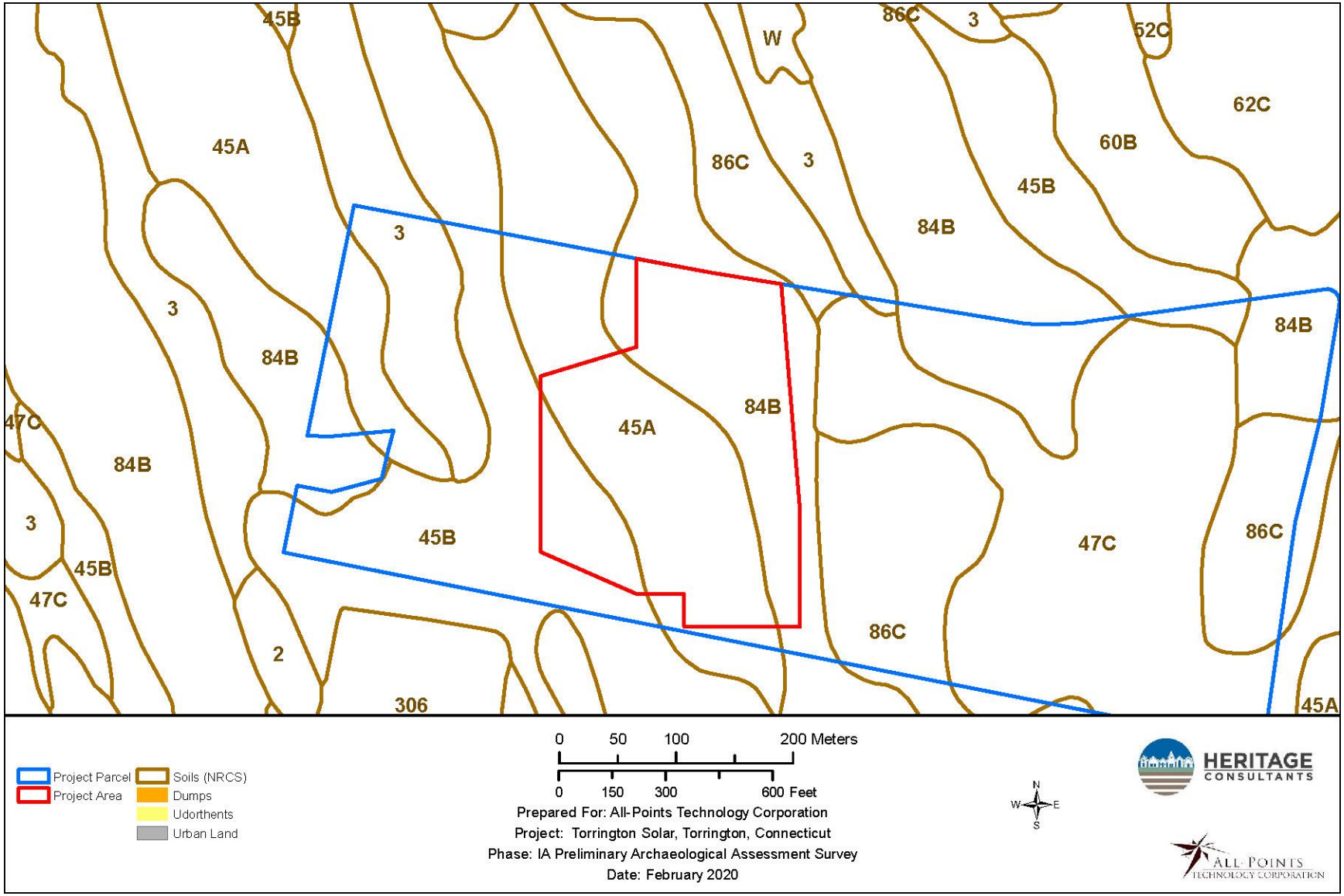

Figure 3. Map of soils located in the vicinity of the project area in Torrington, Connecticut.

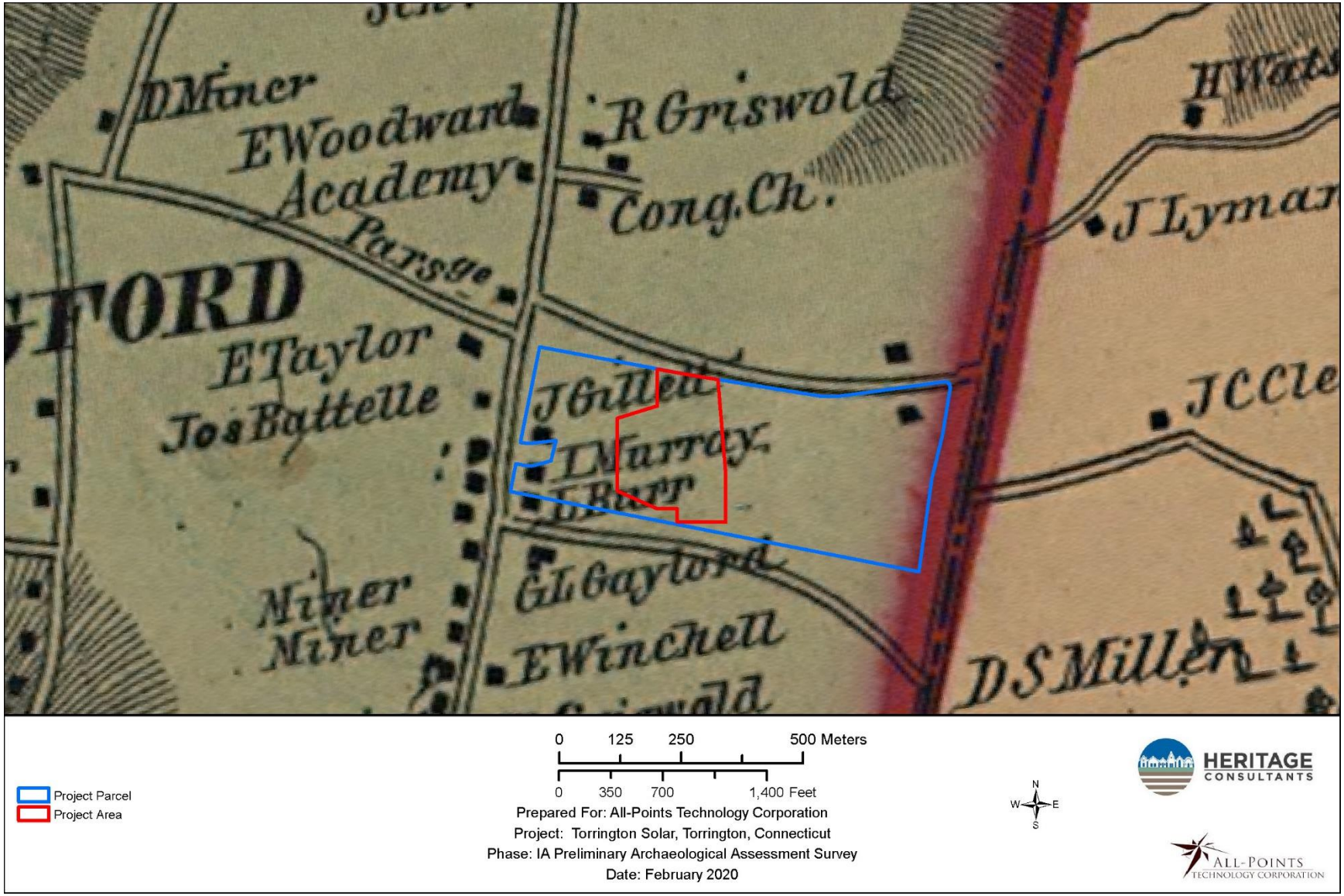

Figure 4. Excerpt from an 1859 historic map showing the location of the project area in Torrington, Connecticut.

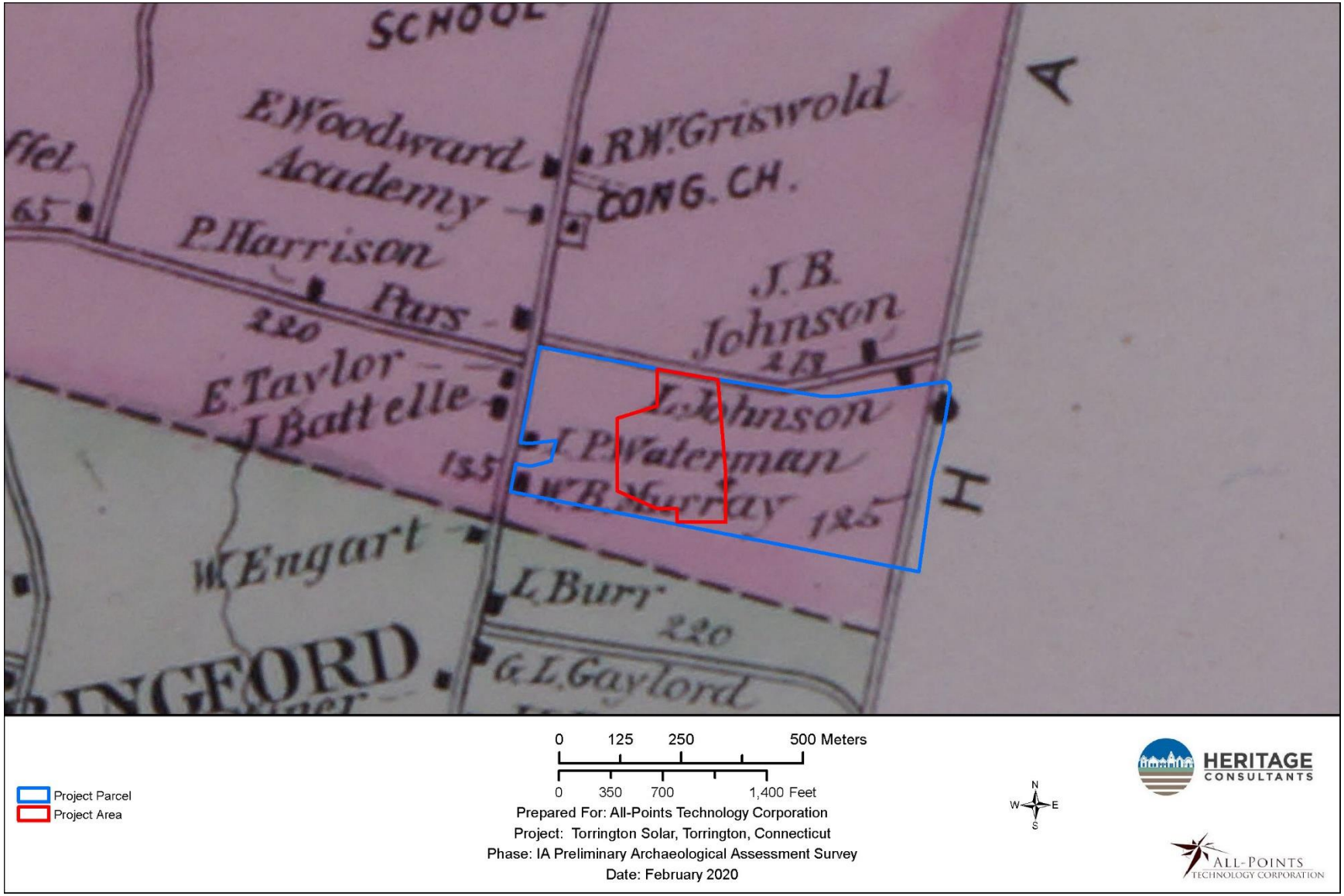

Figure 5. Excerpt from an 1874 historic map showing the location of the project area in Torrington, Connecticut.

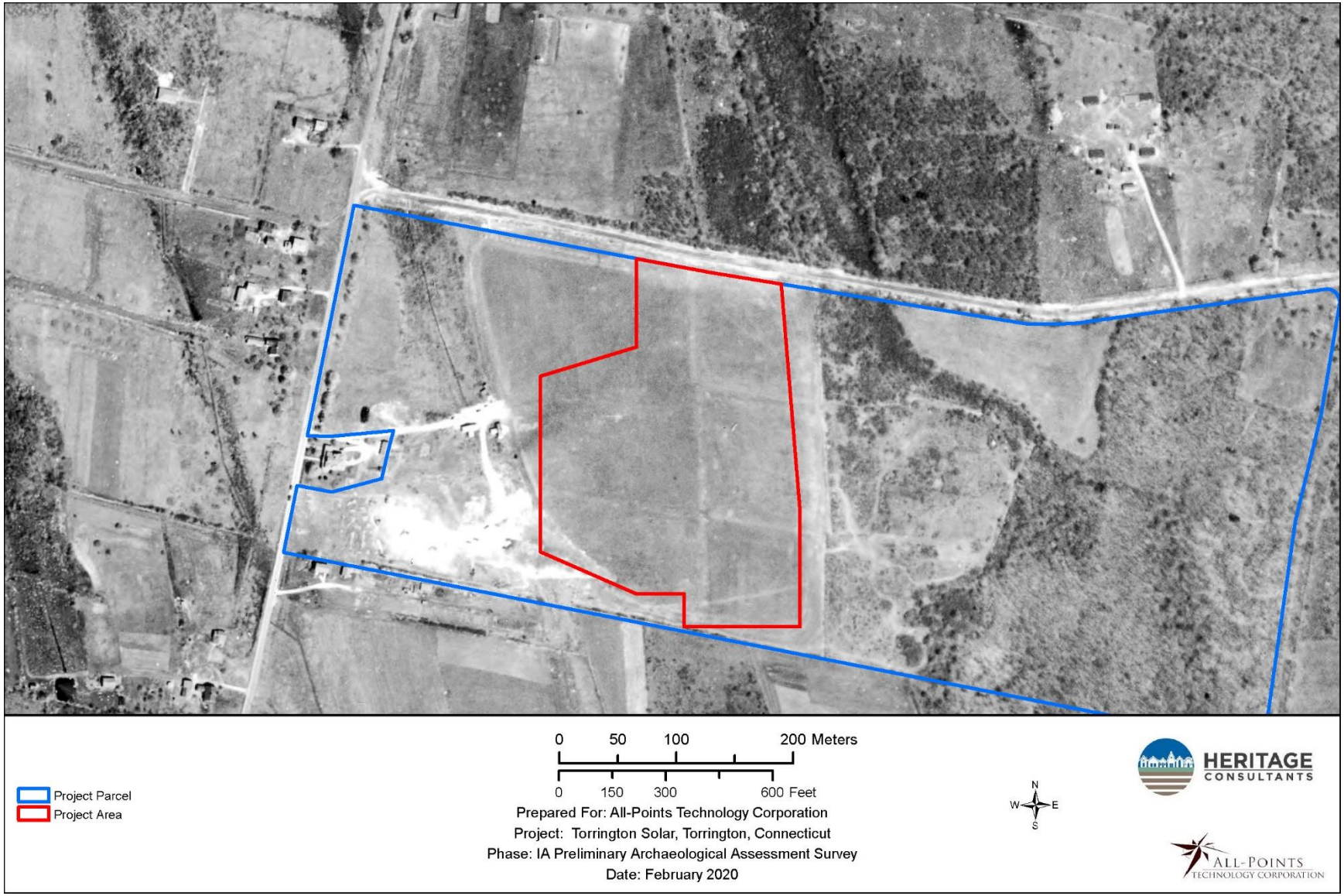

Figure 6. Excerpt from a 1934 aerial photograph showing the location of the project area in Torrington, Connecticut.

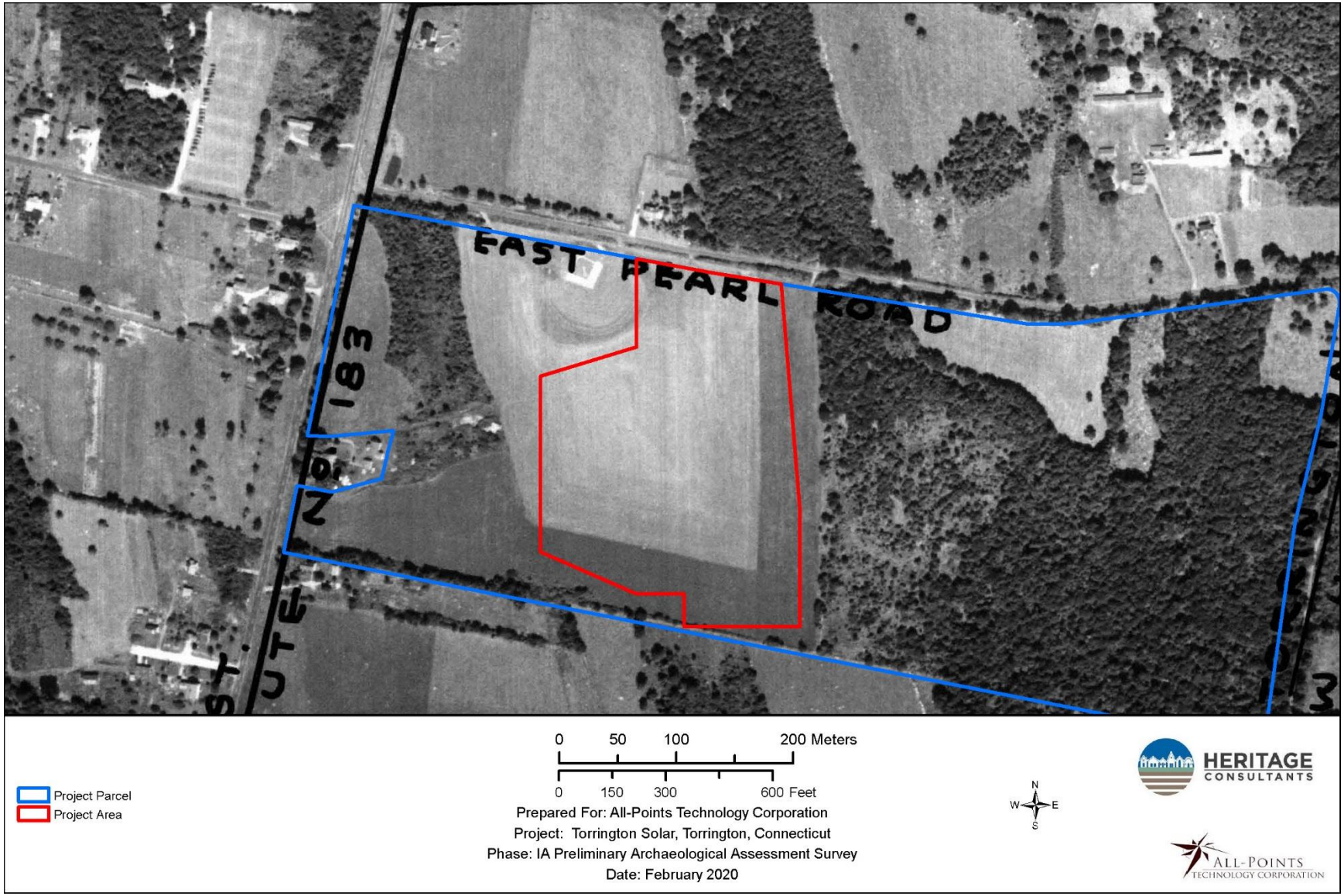

Figure 7. Excerpt from a 1951 aerial photograph showing the location of the project area in Torrington, Connecticut.

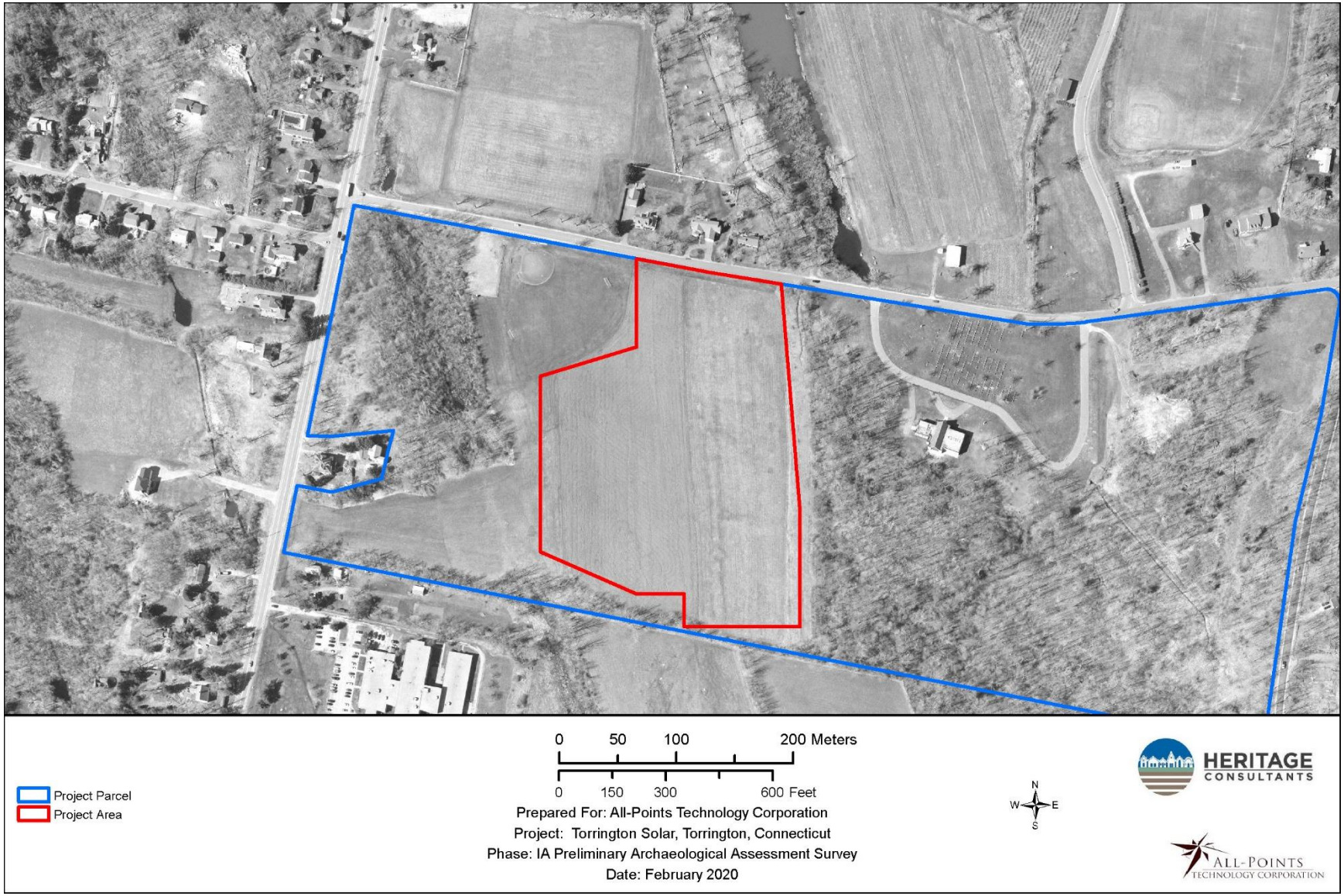

Figure 8. Excerpt from a 2004 aerial photograph showing the location of the project area in Torrington, Connecticut.

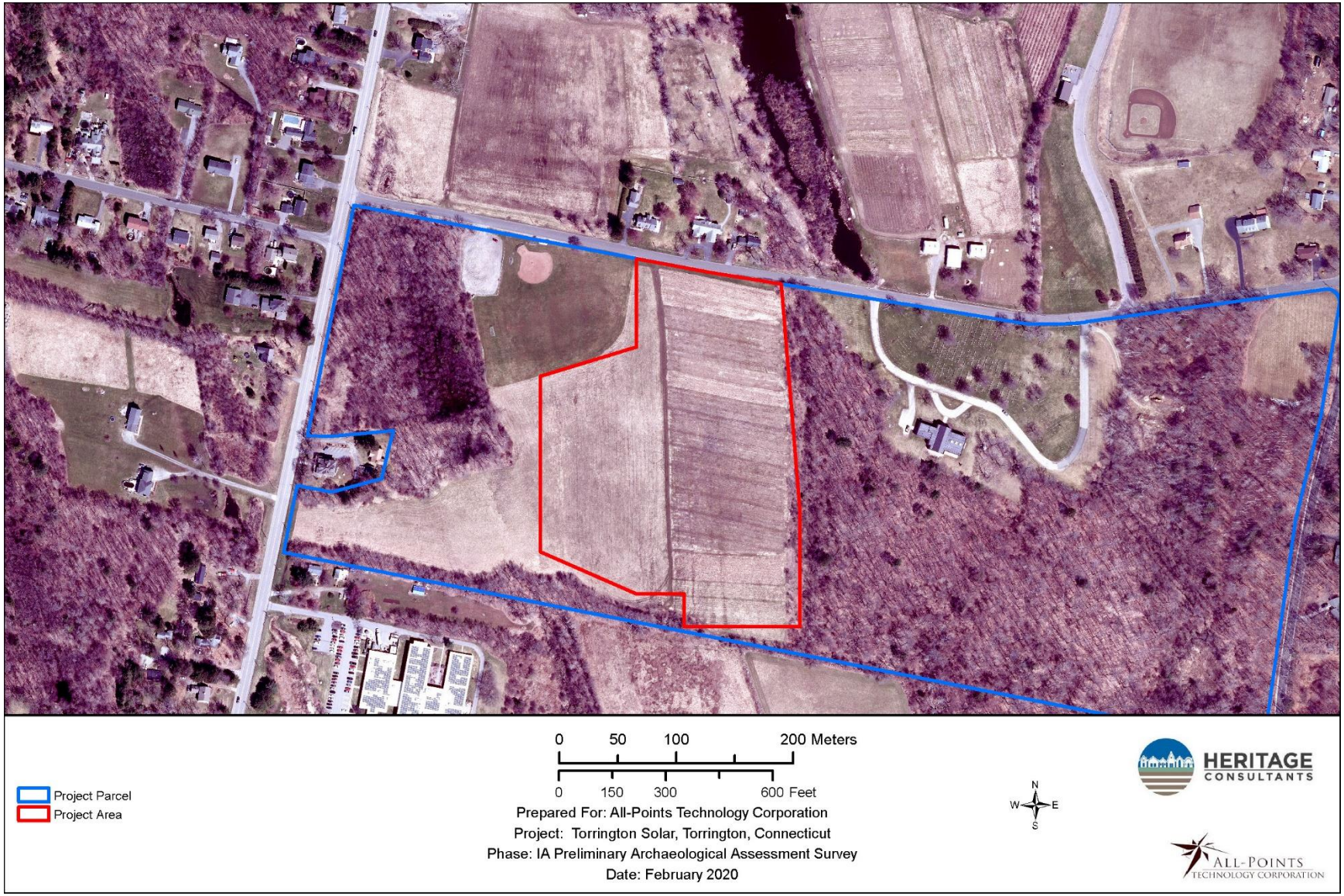

Figure 9. Excerpt from a 2019 aerial photograph showing the location of the project area in Torrington, Connecticut.

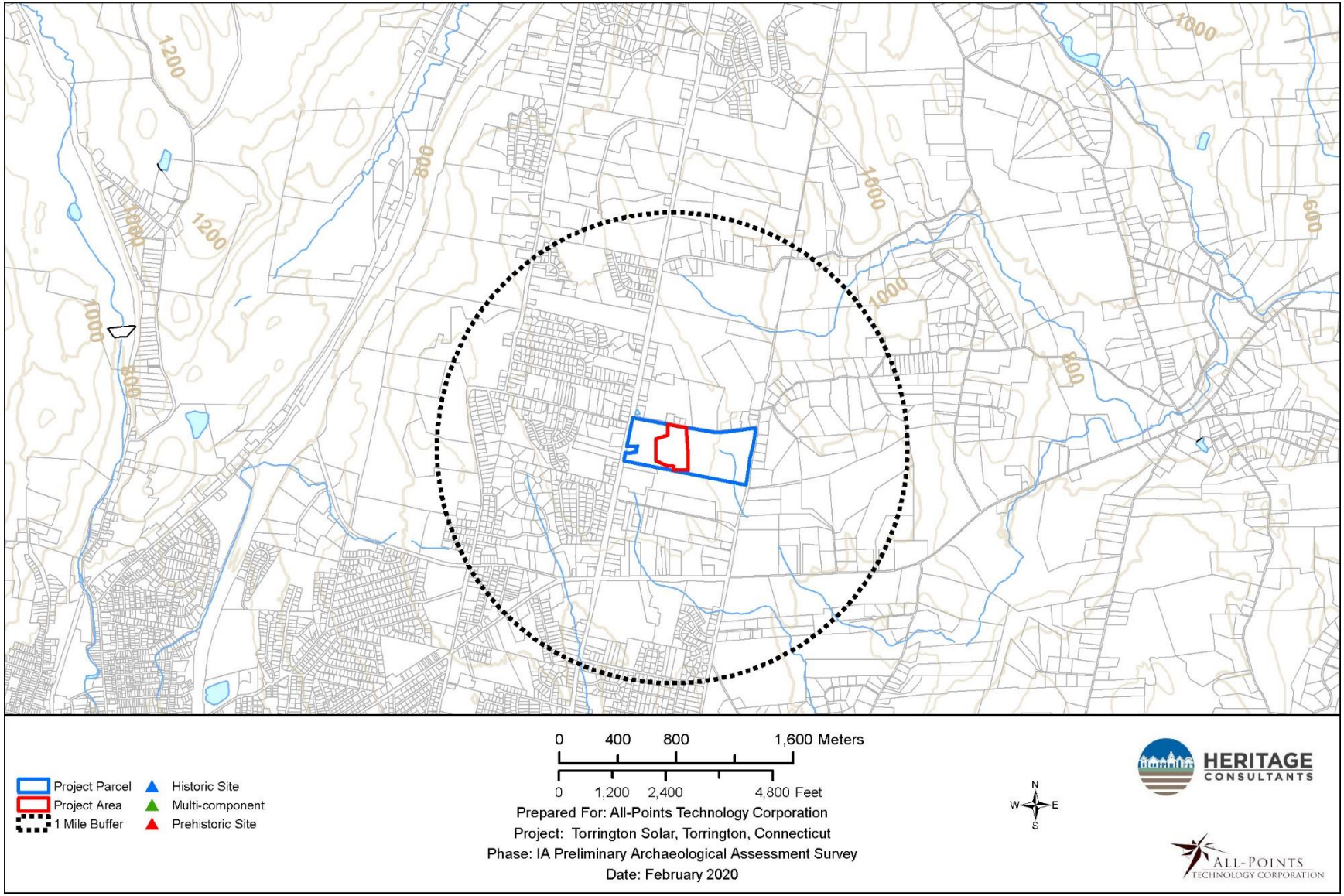

Figure 10. Digital map showing the location of previously identified archaeological sites in the vicinity of the project area in Torrington, Connecticut.

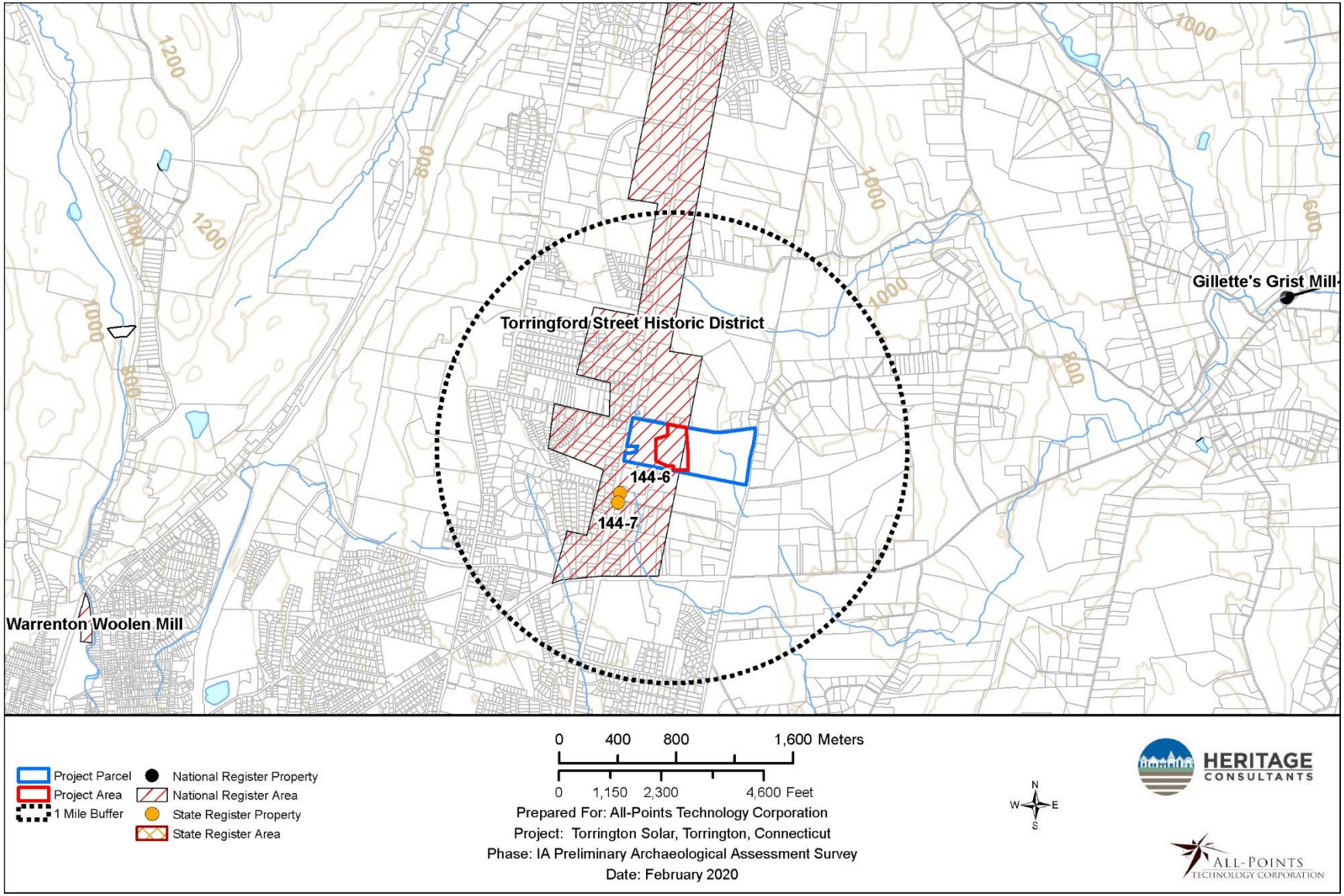

Figure 11. Digital map depicting the locations of previously identified National/State Register of Historic Places properties in the vicinity of the project area in Torrington, Connecticut.

Figure 12. Overview photo of the northwest corner of the project area facing south from East Pearl Road.

Figure 13. Overview photo of the northeast corner of the project area facing southwest from East Pearl Road.

Figure 14. Overview of the southeast corner of the project area facing northwest.

Figure 15. Overview photo of the southeast corner of the project area facing east from the center of the southern border of the project area.

Figure 16. Overview photo of the southwest corner of the project area facing east.

Figure 17. Overview photo of the southwest corner of the project area facing northeast.

Figure 18. Overview photo of the central portion of the project area facing east from the center of the western boundary of the project area.

Figure 19. Overview photo of the central portion of the project area facing north.

Figure 20. Overview photo of the central portion of the project area facing east.

Figure 21. Overview photo of the central portion of the project area facing south.

Figure 22. Overview photo of the central portion of the project area facing west.

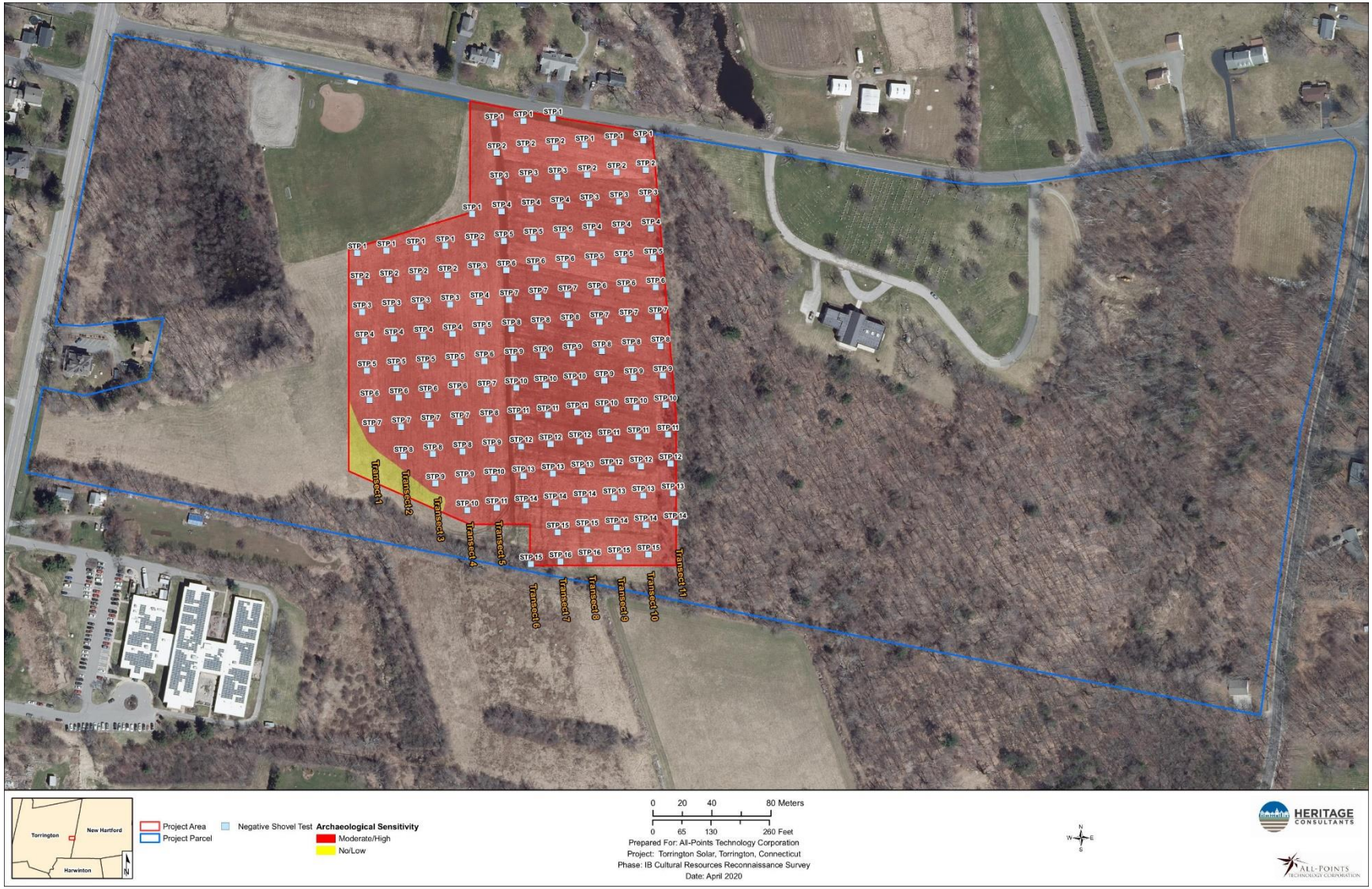

Figure 23. Aerial image of project area depicting no/low and moderate/high sensitivity zone and planned shovel tests.

APPENDIX E

PRODUCT INFORMATION SHEETS

100/125kW, 1500Vdc String Inverters for North America

CPS SCH100/125KTL-DO/US-600

The 100 & 125kW high power CPS three phase string inverters are designed for ground mount applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiency at 99.1% peak and 98.5% CEC, wide operating voltages, broad temperature ranges and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 100/125kW products ship with the Standard or Centralized Wire-box, each fully integrated and separable with AC and DC disconnect switches. The Standard Wire-box inlcudes touch safe fusing for up to 20 strings. The CPS Flex Gateway enables communication, controls and remote product upgrades.

Key Features

- NFPA 70, NEC 2014 and 2017 compliant
- Touch safe DC Fuse holders adds convenience and safety
- CPS Flex Gateway enables remote FW upgrades
- Integrated AC & DC disconnect switches
- 1 MPPT with 20 fused inputs for maximum flexibility
- Copper and Aluminum compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- Advanced Smart-Grid features (CA Rule 21 certified)
- kVA Headroom yields 100kW @ 0.9PF and 125kW @ 0.95PF
- Generous 1.87 and 1.5 DC/AC Inverter Load Ratios
- Separable wire-box design for fast service
- Standard 5 year warranty with extensions to 20 years

100/125KTL Standard Wire-box

100/125KTL Centralized Wire-box

C SP US

This device complies with part 15 of the FCC Rules

Chint Power Systems America
6800 Koll Center Parkway, Suite 235 Pleasanton, CA 94566
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

Model Name	CPS SCH100KTL-DO/US-600	CPS SCH125KTL-DO/US-600
DC Input		
Max. PV Power	187.5kW	
Max. DC Input Voltage	1500V	
Operating DC Input Voltage Range	860-1450Vdc	
Start-up DC Input Voltage / Power	900V / 250W	
Number of MPP Trackers	1	
MPPT Voltage Range[1]	870-1300Vdc	
Max. PV Input Current (Isc x1.25)	275A	
Number of DC Inputs	20 PV source circuits, pos. & neg. fused (Standard Wire-box) 1 PV output circuit, 1-2 terminations per pole, non-fused (Centralized Wire-box)	
DC Disconnection Type	Load-rated DC switch	
DC Surge Protection	Type II MOV (with indicator/remote signaling), Up=2.5kV, In=20kA (8/20uS)	
AC Output		
Rated AC Output Power	100kW	125kW
Max. AC Output Power[2]	100kVA (111KVA @ PF>0.9)	125kVA (132KVA @ PF>0.95)
Rated Output Voltage	600Vac	
Output Voltage Range[3]	528-660Vac	
Grid Connection Type[4]	3Φ / PE / N (Neutral optional)	
Max. AC Output Current @600Vac	96.2/106.8A	120.3/127.2A
Rated Output Frequency	60Hz	
Output Frequency Range[3]	57-63Hz	
Power Factor	>0.99 (±0.8 adjustable)	>0.99 (±0.8 adjustable)
Current THD	<3%	
Max. Fault Current Contribution (1-cycle RMS)	41.47A	
Max. OCPD Rating	150A	175A
AC Disconnection Type	Load-rated AC switch	
AC Surge Protection	Type II MOV (with indicator/remote signaling), Up=2.5kV, In=20kA (8/20uS)	
System		
Topology	Transformerless	
Max. Efficiency	99.1%	
CEC Efficiency	98.5%	
Stand-by / Night Consumption	<4W	
Environment		
Enclosure Protection Degree	NEMA Type 4X	
Cooling Method	Variable speed cooling fans	
Operating Temperature Range	-22°F to +140°F / -30°C to +60°C (derating from +113°F / +45°C)	
Non-Operating Temperature Range[5]	-40°F to +158°F / -40°C to +70°C maximum	
Operating Humidity	0-100%	
Operating Altitude	8202ft / 2500m (no derating)	
Audible Noise	<65dBA@1m and 25°C	
Display and Communication		
User Interface and Display	LED Indicators, WiFi + APP	
Inverter Monitoring	Modbus RS485	
Site Level Monitoring	CPS Flex Gateway (1 per 32 inverters)	
Modbus Data Mapping	SunSpec/CPS	
Remote Diagnostics / FW Upgrade Functions	Standard / (with Flex Gateway)	
Mechanical		
Dimensions (WxHxD)	45.28x24.25x9.84in (1150x616x250mm) with Standard Wire-box 39.37x24.25x9.84in (1000x616x250mm) with Centralized Wire-box	
Weight	Inverter: 121lbs / 55kg; Wire-box: 55lbs / 25kg (Standard Wire-box); 33lbs / 15kg (Centralized Wire-box)	
Mounting / Installation Angle	15 - 90 degrees from horizontal (vertical or angled)	
AC Termination	M10 Stud Type Terminal Block [3Φ] (Wire range: 1/0AWG - 500kcmil CU/AL, Lugs not supplied) Screw Clamp Terminal Block [N] (#12 - 1/0AWG CU/AL)	
DC Termination	Screw Clamp Fuse Holder (Wire range: #12 - #6AWG CU) - Standard Wire-box Busbar, M8 PEMserts (Wire range: #1AWG - 250kcmil CU/AL, Lugs not supplied) - Centralized Wire-box	
Fused String Inputs	15A or 20A fuses provided (Determined by product SKU)	
Safety		
Safety and EMC Standard	UL1741-SA-2016, CSA-C22.2 NO.107.1-01, IEEE1547a-2014; FCC PART15	
Selectable Grid Standard	IEEE 1547a-2014, CA Rule 21, ISO-NE	
Smart-Grid Features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAr, Freq-Watt, Volt-Watt	
Warranty		
Standard[6]	5 years	
Extended Terms	10, 15 and 20 years	

1) See user manual for further information regarding MPPT Voltage Range when operating at non-unity PF
2) "Max. AC Apparent Power" rating valid within MPPT voltage range and temperature range of -30°C to +40°C (-22°F to +104°F) for 100KW PF ≥0.9 and 125KW PF ≥0.95
3) The "Output Voltage Range" and "Output Frequency Range" may differ according to the specific grid standard.
4) Wye neutral-grounded, Delta may not be corner-grounded.
5) See user manual for further requirements regarding non-operating conditions.
6) 5 year warranty effective for units purchased after October 1st, 2019.

SOLECTRIA XGI 1500

Specifications

	XGI 1500-125/125	XGI 1500-125/150	XGI 1500-150/166	XGI 1500-166/166
DC Input				
Absolute Maximum Input Voltage	1500 VDC	1500 VDC	1500 VDC	1500 VDC
Maximum Power Input Voltage Range (MPPT)	860-1250 VDC	860-1250 VDC	860-1250 VDC	860-1250 VDC
Operating Voltage Range (MPPT)	860-1450 VDC	860-1450 VDC	860-1450 VDC	860-1450 VDC
Number of MPP Trackers	1 MPPT	1 MPPT	1 MPPT	1 MPPT
Maximum Operating Input Current	148.3 A	148.3 A	178.0 A	197.7 A
Maximum Operating PV Power	128 kW	128 kW	153 kW	170 kW
Maximum DC/AC Ratio | Max Rated PV Power	2.0 | 250 kW	2.0 | 250 kW	1.66 | 250 kW	1.5 | 250 kW
Max Rated PV Short-Circuit Current (∑Isc x 1.25)	320 A	320 A	320 A	320 A
AC Output				
Nominal Output Voltage	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph
AC Voltage Range	-12% to +10%	-12% to +10%	-12% to +10%	-12% to +10%
Continuous Real Output Power	125 kW	125 kW	150 kW	166 kW
Continuous Apparent Output Power	125 kVA	150 kVA	166 kVA	166 kVA
Maximum Output Current	120 A	144 A	160 A	160 A
Nominal Output Frequency	60 Hz	60 Hz	60 Hz	60 Hz
Power Factor (Unity default)	+/- 0.80 Adjustable	+/- 0.80 Adjustable	+/- 0.80 Adjustable	+/- 0.80 Adjustable
Total Harmonic Distortion (THD) @ Rated Load	<3%	<3%	<3%	<3%
Grid Connection Type	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND
Fault Current Contribution (1 cycle RMS)	144 A	173 A	192 A	192 A
Efficiency				
Peak Efficiency	98.9%	98.9%	99.0%	99.0%
CEC Average Efficiency	98.5%	98.5%	98.5%	98.5%
Tare Loss	<1 W	<1 W	<1 W	<1 W
Temperature				
Ambient Temperature Range	-40°F to 140°F (-40C to 60C)		-40°F to 140°F (-40C to 60C)	
De-Rating Temperature	122°F (50C)		113°F (45C)	
Storage Temperature Range	-40°F to 167°F (-40C to 75C)		-40°F to 167°F (-40C to 75C)	
Relative Humidity (non-condensing)	0 - 95%		0 - 95%	
Operating Altitude	9,840 ft (3 km)		9,840 ft (3 km)	
Communications				
Advanced Graphical User Interface	WiFi			
Communication Interface	Ethernet			
Third-Party Monitoring Protocol	SunSpec Modbus TCP/IP			
Web-Based Monitoring	Optional			
Firmware Updates	Remote and Local			
Testing & Certifications				
Safety Listings & Certifications	UL 1741, IEEE 1547, UL 1998			
Advanced Grid Support Functionality	Rule 21, UL 1741SA			
Testing Agency	ETL			
FCC Compliance	FCC Part 15, Class A			
Warranty				
Standard and Options	5 Years Standard; Option for 10 Years			
Enclosure				
Acoustic Noise Rating	56 dBA @ 3 m			
DC Disconnect	Integrated 2-Pole 250 A DC Disconnect			
Mounting Angle	Vertical only			
Dimensions	Height: 29.5 in. (750 mm) | Width: 39.4 in. (1000 mm) | Depth: 15.1 in. (380 mm)			Specifications subject to change.
Weight	270 lbs (122 kg)			
Enclosure Rating and Finish	Type 4X, Polyester Powder-Coated Aluminum			

SOLECTRIA SOLAR

Yaskawa Solectria Solar
360 Merrimack Street
Lawrence, MA 01843
solectria.com

1-978-683-9700
Email: inverters@solectria.com

Document FL.XGI1500.01
2/6/2020

YASKAWA

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XGI 1500 COMBINERS

Increased Design Flexibility for SOLECTRIA XGI 1500

Features

- Made in the USA with global components
- Buy American Act (BAA) compliant
- Designed exclusively for use with XGI 1500 inverters
- Both poles fused and switched
- 16, 20, 24, 26, and 28 fuse positions
- 15 and 20 A fuse options for all models; 25 and 30 A fuse options for select models only
- Connection plates for compression terminals
- 90C terminal rating

Option

- Surge arrestor, both polarities

Yaskawa Solectria Solar offers two 1500V string combiners, Attachable & Remote, each designed to pair exclusively with SOLECTRIA XGI 1500 inverters. The 1500V Attachable Combiner is designed to mate directly to the XGI 1500 inverter for use in distributed PV systems where the combiner and inverter are located together throughout the array field. The 1500V Remote Combiner has similar features, but is designed for a centralized or clustered deployment of multiple XGI 1500 inverters where the combiners are distributed throughout the PV array field. Both combiner lines feature the highest quality and durability in the industry today.

Choose from models with 16 to 28 fused positions and either 15 or 20 A fuses. Specific models also available with 25 A fuses (20 positions) and 30 A fuses (16 positions). The combiners match the XGI 1500 in quality and appearance. Both models satisfy the National Electrical Code for systems with ungrounded PV source circuits. All Yaskawa Solectria Solar XGI inverters and combiners are Made in the USA with global components and are compliant with the Buy American Act.

MADE IN THE USA

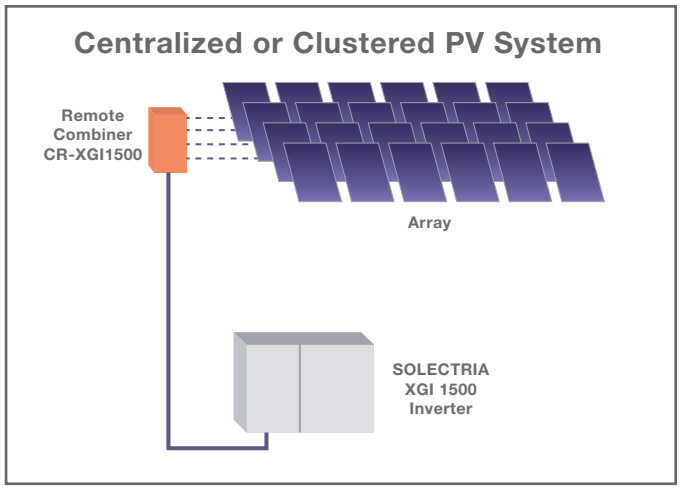
With U.S. and Global Components

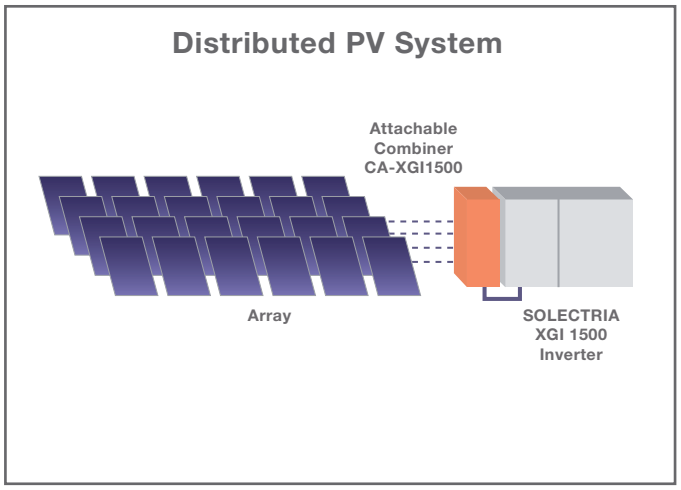
SOLECTRIA SOLAR

XGI 1500 COMBINERS

Specifications

	1500V Remote Combiner			1500V Attachable Combiner		
1500V String Combiners exclusively for use with SOLECTRIA XGI 1500						
Input Wire Compatibility	14-4 AWG			14-4 AWG		
Output Wire Compatibility	Compression Terminal: 1 conductor, 1/0 - 500 kcmil | 2 conductors, 1/0 - 500 kcmil			Compression Terminal: 1 conductor, 1/0 - 500 kcmil | 2 conductors, 1/0 - 500 kcmil		
Maximum Voltage	1500 VDC			1500 VDC		
Fuse Rating Options	15 A or 20 A (fuses included)	25 A	30 A	15 A or 20 A (fuses included)	25 A	30 A
Number of Fused Positions	16 / 20 / 24 / 26 / 28	20	16	16 / 20 / 24 / 26 / 28	20	16
Input PV Source Circuit Configurations	Ungrounded PV Source Circuits			Ungrounded PV Source Circuits		
Fuse Configurations	Both positive and negative polarities fused			Both positive and negative polarities fused		
DC Disconnect	2-pole integrated DC disconnect, positive and negative poles switched			DC Disconnect located on XGI 1500 inverter		
DC Disconnect Current Rating	250 A			250 A (located on XGI 1500)		
Temperature Range	-40°F to 122°F (-40°C to 50°C)			-40°F to 122°F (-40°C to 50°C)		
Mounting Positions	Indoor, Outdoor, Wall, Array - Vertical, Horizontal or Angled			Mechanically attaches to structure		
Safety Certification & Listing	UL 1741			UL 1741		
Standard Warranty	5 Years			5 Years		
Enclosure Material Options & Rating	Polyester Powder Coated Aluminum, NEMA Type 4X			Polyester Powder Coated Aluminum, NEMA Type 4X		
Option						
Surge Protection	Both positive and negative polarities			Both positive and negative polarities		





SOLECTRIA SOLAR

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360 Merrimack Street
Lawrence, MA 01843
solectria.com

1-978-683-9700
inverters@solectria.com

DOCR-071001-C | February 2019

YASKAWA

power to conserve

HPS Millennium™ E
Medium Voltage Distribution Transformer
- up to 34.5kV

power to perform

HPS Hammond Power Solutions

HPS Millennium™ E
Medium Voltage Transformer

HPS MILLENNIUM™ E

Hammond Power Solutions (HPS) is the industry leading manufacturer of standard and custom dry-type transformers in North America. Every HPS product is built with the quality and dependability you count on.

HPS Millennium™ medium voltage distribution transformers are designed for many demanding and diverse applications, while minimizing both installation and maintenance costs. Coils are precision wound with copper or aluminum conductors using either barrel or comb wound designs with a full vacuum-pressure impregnation (VPI) insulation system.

With three phase ratings up to 15MVA, 34.5kV, 175kV BIL and single phase to 5MVA, they feature the newest technology and manufacturing processes.

To service all of your medium voltage needs, HPS Millennium™ G is also available for applications requiring voltages up to 5kV. For more information on HPS Millennium™ G (catalog no. MILGMED), please contact us or visit the HPS Website.

SUPPORT & RESOURCES

No other transformer company can offer our service and quality in a full range of products:

Current Calculator: Calculate the Amps, Volts, or kVA of a transformer. Visit the "Online Tools" area of the HPS website.

Fast On-Site Response: On-site technicians are available to assist with any technical problems or issues that cannot be resolved over the phone.

Live Telephone Technical Support: Our inside sales team is available to quickly answer your questions. They are technically trained and able to answer most questions right over the phone.

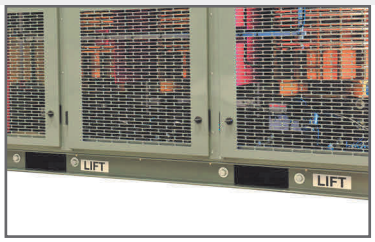
Easy-To-Access Installation Manuals: All transformer installation manuals are conveniently located on our website so you can access them anywhere, anytime.

Online Technical Support: Get answers to frequently asked questions, troubleshooting tips and instruction sheets by visiting the "Technical Support" area of the HPS website.

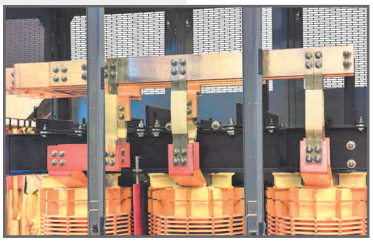
APPLICATIONS

HPS Millennium™ E is suitable for any commercial, industrial, manufacturing or production process application. They can be offered for a variety of environmental conditions and built to meet the most onerous duty.

- Industrial
- Commercial
- Data Centers
- Renewable Energy

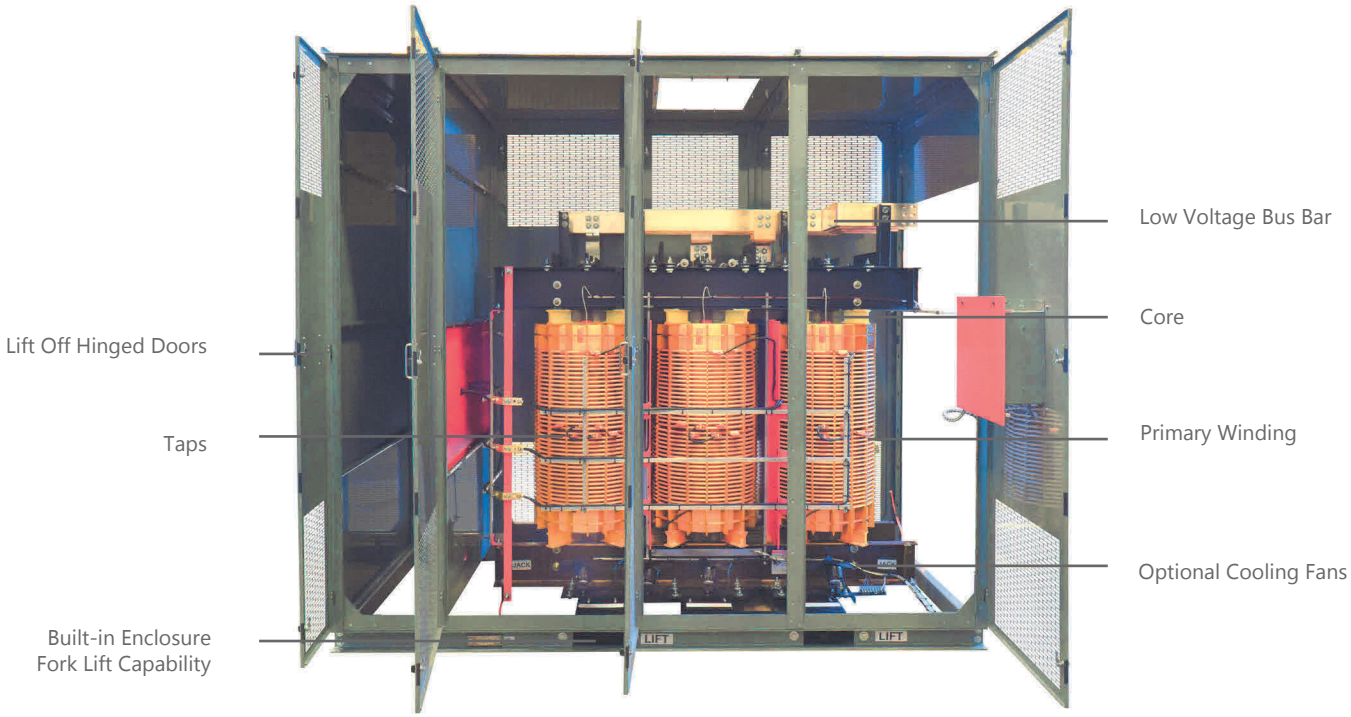


Built-in enclosure fork lift capability


Low voltage bus bar


Flexible connectors

Hammond Power Solutions



FEATURES

Core & Coil Construction:

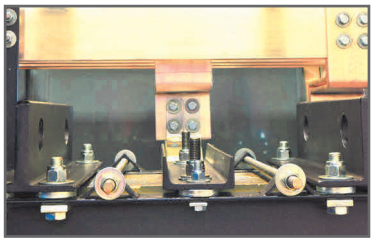
- Manufactured from quality non-aging, cold rolled, silicon steel laminations
- Cores are precision cut to close tolerances to eliminate gaps and improve performance
- Core is coated to prevent the ingress of moisture
- Precision wound with copper or aluminum conductors that are electrically balanced to minimize axial forces during short-circuit conditions
- Wire or foil conductors for optimum performance for the application
- Robust interface between core & coils for better short circuit performance
- Utilize both barrel or comb wound construction techniques
- Available with multiple termination configurations: stubs-up, coordinated bus-to-end
- Vibration isolation pads to minimize noise

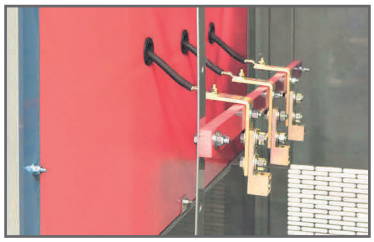
BENEFITS

- Meets the minimum efficiency standards mandated in DOE 10 CFR Part 431 (levels as of Jan. 1st 2016), NRCan 2019 SOR/2018-201 Amd. 14, ON Reg. 404/12 (effective Jan. 1st, 2018) and exceeds CSA C802.2-12 resulting in increased dollar savings and positive societal/ environmental payback
- Designed for indoor or outdoor applications
- VPI windings are mechanically durable for the most demanding environments typically found in mining, crane and other difficult mechanical applications.
- Minimal maintenance required beyond removing surface contaminants, such as dirt
- Can be energized immediately after installation
- Excellent resistance to short circuits
- Self-extinguishing in the unlikely event of fire
- Environmentally friendly

power to conserve


Lift off hinged doors


Lifting eyes for core & coil assembly


Air terminal chamber (ATC)

HPS Millennium™ E
Medium Voltage Transformer

Specifications - Copper or Aluminum

kVA: 225-2500kVA (DOE16)
225-7500kVA (NRCan 2019) others available upon request

High Voltage (Primary): Up to 34.5 kV Class, up to 175 kV BIL
Up to 150 kV BIL (BIL per CSA and IEEE/ANSI standards)
Standard taps +/- 2.5%, +/- 5%
Other options available upon request

Low Voltage (Secondary): 208Y/120V to 600Y/347V & 2.4-5kV up to 60kV BIL
Higher BIL available upon request

Frequency: 60 Hz, others available upon request

Insulation System: 220°C (200°C for some lower kVA ratings)

Enclosure Type: Type 1, 2, 3/3R, 4/4X or 12 available (others available upon request).
Enhanced Type 3R option available for improved outdoor performance.
Lift off hinged doors for easy accessibility and quick removal if required.
Built-in enclosure fork lift capability.

Enclosure Finish: ANSI 61 Grey
Compliant with UL 50

Neutral: Neutral terminal for field connection (on applicable units)

Temperature Rise: 150°C typical temperature rise, (optional 115°C & 80°C rise available)

Termination: Front accessible separate high and low voltage terminals; connectors suitable for aluminum and copper are provided for easy cable installation.

Impedance: 3-7%, typically 5.75%

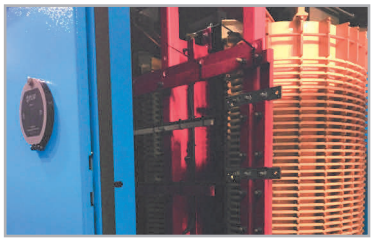
Seismic: Seismically qualified according to the International Building Code (IBC) 2018, and the American Society of Civil Engineers ASCE 7-16 specifications, with the following design parameters:
Spectral acceleration: $S_{DS} \leq 2.0$ g
Importance factor: $I_p = 1.5$
Attachment/height ratio: z/h = 0
OSHPD compliance available upon request

Sound Level: Meets IEEE C57.12.01
(other sound level performance available)

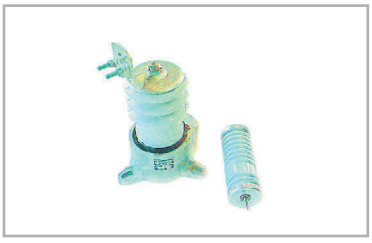
Altitude: Standard up to 1000 meters (de-rated above 1000 meters)

Ambient: -20°C to 40°C (with de-rating possible from 40°C to 60°C, consult HPS)

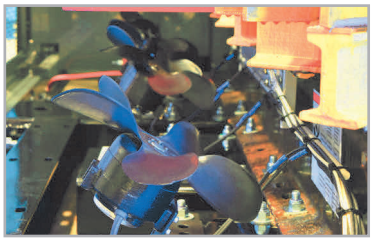
Duty: Special duty available upon request.



Infrared viewing window & custom enclosure finish



Lightning arrestors



Cooling fans

OPTIONAL ACCESSORIES

- Forced air-cooling (or provisions for later)
- Heat exchanger/cooling for TENV units
- Lightning arrestors rated for system voltage (Station, Intermediate or Distribution)
- Grounding resistor
- Neutral Ground Monitor
- Thermal sensing & indication
- - Thermocouples
- - Thermometers (analog/digital)
- - Thermostat alarm / trip (N.O. /N.C. contacts)
- Current transformers
- Potential transformers
- Key interlock to prevent unauthorized access
- Electrostatic shielding
- Rated to handle non-linear loads
- Strip heater (powered from separate source)
- Surge protection devices
- Air terminal chamber
- Low voltage panel
- Coordinated bus-to-end
- Primary fused disconnects
- Infrared viewing windows

Hammond Power Solutions

Comparison of Enclosures for Indoor and Outdoor Non-Hazardous Locations

		Indoor						Indoor/Outdoor								Submersible	
CSA C22.2 No. 94.2 Enclosure Type		**1[a]**	**2[a]**	**5**	**12**	**12K**	**13**	**3**	**-**	**3R[a]**	**-**	**3S**	**-**	**4**	**4X**	**6**	**6P**
NEMA 250 Enclosure Type		**1[a]**	**2[a]**	**5**	**12**	**12K**	**13**	**3**	**3X**	**3R[a]**	**3RX[a]**	**3S**	**3SX**	**4**	**4X**	**6**	**6P**
Equivalent IEC 60529 IP designation [e]		**IP20**	**IP22**	**IP53**	**IP54**	**IP54**	**IP54**	**IP55**	**IP55**	**IP24**	**IP24**	**IP55**	**IP55**	**IP66**	**IP66**	**IP67**	**IP68**
Provides a degree of protection against these environmental conditions	Accidental contact with live parts	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Falling dirt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Dripping and light splashing of non-corrosive liquids		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Circulating dust, lint, fibres and flyings [d]				X	X	X	X	X			X	X	X	X	X	X
	Settling dust, lint, fibres and flyings [d]			X	X	X	X	X	X			X	X	X	X	X	X
	Wind-blown dust							X	X			X	X	X	X	X	X
	Rain, snow and external formation of ice or sleet [b]							X	X	X	X	X	X	X	X	X	X
	External formation of ice or sleet											X	X				
	Hose down and splashing water													X	X	X	X
	Corrosion												X		X		X
	Occasional temporary submersion															X	X
	Occasional prolonged submersion																X
	Oil and coolant seepage				X	X	X										
	Oil and coolant seepage, spraying and splashing						X										

Notes:
a. - These enclosures may be ventilated
b. - External operating mechanism(s) is not required to operate when the enclosure is ice covered
c. - External operating mechanism(s) shall be operable when the enclosure is ice covered
d. - These fibres and flyings are non-hazardous and are not considered Class III type ignitable fibres or combustible flyings
e. - Since IEC 60529 does not specify degrees of protection for many conditions considered CSA C22.2 No. 94.2, the IEC classifications cannot be exactly equated to North American Type numbers. The North American Type numbers meet or exceed the test requirements for the associated IP classifications.
This table cannot be used to convert from IEC classifications to North American Type designations.

References: CSA C22.2 No. 94, CSA C22.1 (CEC), NEMA 250, NEMA document - NEMA Enclosure Types
Disclaimer: This table is for quick comparison only. Please refer to appropriate standard for enclosure selection to your needs.

TESTING

All VPI Power transformers are tested at HPS prior to shipment. They must meet specific criteria to be certified acceptable for release. The following tests are performed on each power transformer:

- Resistance Measurement*
- Voltage Ratio
- Polarity & Phase-Relation Test
- No-Load Loss and Excitation Current Test
- Induced Voltage
- Impedance, Voltage & Load Loss Test*
- Power frequency voltage-withstand each winding
- Other testing available upon customer request

* typically not performed for units ≤ 500kVA

COMPLIANCE & APPROVALS

HPS Millennium™ E is CSA Certified and UL Listed to the following standards:

- CSA C22.2 No. 47
- CSA C9-02
- U.L. 1562

Compliant to the following industry standards:

- IEEE-C57.12.01
- IEEE-C57.12.51
- IEEE-C57.12.70
- IEEE-C57.12.91
- CSA 802.2-12
- DOE 10 CFR Part 431: 2010 or 2016
- NRCan SOR/2018-201 Amd. 14
- ON Reg. 404/12 (2018)
- IEC 60076 (upon request)
- IBC 2018/OSHPD for seismic conditions

Selection Tables

ALUMINUM WOUND

kVA	Voltage Class kV	BIL	Enclosure with Stubs Up Fig. 1				Enclosure with Bus-To-End Fig. 2			
			Width (W)	Depth (D)	Height (H)	Weight (Lbs.)	Width (W)	Depth (D)	Height (H)	Weight (Lbs.)
225	5	30	49	42	64	2000	60	50	82	2300
	15	60	54	47	72	2400	60	50	82	2700
	15	95	60	50	82	3000	72	54	91.5	3700
	25	110	72	54	91.5	4100	72	60	91.5	4400
	25	125	72	60	91.5	4500	72	60	91.5	4900
	34.5	150	90	72	91.5	5500	90	72	91.5	5900
300	5	30	49	42	64	2100	68	50	72	2400
	15	60	68	50	72	2900	68	50	72	3200
	15	95	72	54	91.5	4000	84	54	91.5	4400
	25	110	72	54	91.5	4200	84	60	91.5	4800
	25	125	84	60	91.5	4800	84	60	91.5	5200
	34.5	150	90	72	91.5	5700	90	72	91.5	6100
500	5	30	54	47	72	3100	78	48	78	3600
	15	60	68	50	72	3900	78	48	78	4400
	15	95	84	54	91.5	5300	84	54	91.5	5800
	25	110	84	54	91.5	5700	84	60	91.5	6400
	25	125	90	60	91.5	6400	96	72	91.5	7200
	34.5	150	96	72	91.5	7800	96	72	91.5	8400
750	5	30	68	50	72	5000	84	54	91.5	6100
	15	60	78	48	78	5300	90	54	91.5	6400
	15	95	84	54	91.5	6700	96	60	91.5	7600
	25	110	84	60	91.5	7000	90	60	91.5	7600
	25	125	90	60	91.5	7100	96	72	91.5	8000
	34.5	150	96	72	91.5	9000	102	72	91.5	9900
1000	5	30	78	48	78	6100	90	54	91.5	7300
	15	60	84	54	91.5	7200	96	54	91.5	8000
	15	95	90	60	91.5	8400	102	60	91.5	9400
	25	110	90	60	91.5	8500	96	60	91.5	9300
	25	125	96	60	91.5	8700	102	72	91.5	9800
	34.5	150	96	72	110	10000	102	72	110	11000
1500	5	30	78	48	78	8100	96	54	91.5	9500
	15	60	90	54	91.5	9600	102	60	91.5	10800
	15	95	96	60	91.5	10800	108	60	91.5	12100
	25	110	96	60	91.5	10900	108	72	91.5	12500
	25	125	102	72	110	11800	108	72	110	13000
	34.5	150	108	72	110	13900	120	72	110	15400
2000	5	30	90	54	91.5	10800	108	60	91.5	12400
	15	60	96	54	91.5	11500	108	60	91.5	13000
	15	95	102	60	91.5	13400	120	72	91.5	15300
	25	110	102	72	91.5	13800	120	72	91.5	15500
	25	125	108	72	110	15000	120	72	110	16600
	34.5	150	120	72	110	16200	120	72	110	17600
2500	5	30	90	54	91.5	13000	120	60	91.5	15100
	15	60	96	60	91.5	13700	120	72	91.5	15800
	15	95	108	60	91.5	15800	132	72	110	18400
	25	110	108	72	110	14900	120	72	110	16500
	25	125	108	72	110	15900	120	72	110	17600
	34.5	150	108	72	110	16900	132	72	110	19000

Weight and dimensions are typical for 150ºC Average Winding Rise.
Weights and dimensions are for DOE 2016/NRCan 2019 compliant product.
All dimensions are in inches.
For Type 2 enclosure styles, add 4 inches to the enclosure depth and 20 lbs to the total weight.
Not for construction purposes. Approval drawings can be provided as needed.

Add 20 inch for ATC up to 110kV BIL designs and 24 inch for ATC with 125/150kV BIL designs.
Add approx. 400 lbs. per ATC.

Selection Tables

ALUMINUM WOUND

Hammond Power Solutions

kVA	Voltage Class kV	BIL	Enclosure with Stubs Up Fig. 1				Enclosure with Bus-To-End Fig. 2			
			Width (W)	Depth (D)	Height (H)	Weight (Lbs.)	Width (W)	Depth (D)	Height (H)	Weight (Lbs.)
3000	5	30	90	60	110	15700	120	60	110	17900
	15	60	96	60	110	17300	120	72	110	19800
	15	95	102	60	110	19000	132	72	110	21700
	25	110	102	72	110	20700	120	72	110	23100
	25	125	108	72	110	22900	132	72	110	25600
	34.5	150	Consult HPS				Consult HPS			
3750	5	30	Consult HPS				Consult HPS			
	15	60	96	60	110	17800	120	72	110	20300
	15	95	102	60	110	19500	132	72	135	22800
	25	110	108	72	110	21400	132	72	135	24400
	25	125	108	72	110	23900	Consult HPS			
	34.5	150	Consult HPS				Consult HPS			
5000	5	30	Consult HPS				Consult HPS			
	15	60	102	60	110	19000	120	72	110	21400
	15	95	108	72	135	21400	132	72	135	23900
	25	110	120	72	135	23200	132	72	135	25500
	25	125	120	72	135	25700	Consult HPS			
	34.5	150	Consult HPS				Consult HPS			
7500	5	30	Consult HPS				Consult HPS			
	15	60	120	72	135	21700	132	72	135	23900
	15	95	120	72	135	23200	Consult HPS			
	25	110	120	72	135	24700	Consult HPS			
	25	125	Consult HPS				Consult HPS			
	34.5	150	Consult HPS				Consult HPS			

Weight and dimensions are typical for 150ºC Average Winding Rise.
Weights and dimensions are for NRCan 2019 compliant product.
All dimensions are in inches.
For Type 2 enclosure styles, add 4 inches to the enclosure depth and 20 lbs to the total weight.
Not for construction purposes. Approval drawings can be provided as needed.

Add 20 inch for ATC up to 110kV BIL designs and 24 inch for ATC with 125/150kV BIL designs.
Add approx. 400 lbs. per ATC.

Selection Tables

COPPER WOUND

kVA	Voltage Class kV	BIL	Enclosure with Stubs Up Fig. 1				Enclosure with Bus-To-End Fig. 2			
			Width (W)	Depth (D)	Height (H)	Weight (Lbs.)	Width (W)	Depth (D)	Height (H)	Weight (Lbs.)
225	5	30	49	42	64	2000	60	50	82	2300
	15	60	60	50	82	2700	68	50	72	2900
	15	95	68	50	72	3100	72	54	91.5	3900
	25	110	68	50	72	3300	72	54	91.5	4100
	25	125	72	54	91.5	3900	72	60	91.5	4200
	34.5	150	90	72	91.5	4800	90	72	91.5	5100
300	5	30	49	42	64	2100	60	50	82	2400
	15	60	60	50	82	3100	68	50	72	3400
	15	95	68	50	72	3700	72	54	91.5	4500
	25	110	72	54	91.5	4400	84	54	91.5	4900
	25	125	84	54	91.5	4600	84	60	91.5	5200
	34.5	150	90	72	91.5	5200	90	72	91.5	5600
500	5	30	49	42	64	2800	68	50	72	3200
	15	60	78	48	78	4400	78	48	78	4800
	15	95	84	54	91.5	5700	84	54	91.5	6200
	25	110	84	54	91.5	5800	84	60	91.5	6500
	25	125	84	60	91.5	6100	84	60	91.5	6600
	34.5	150	90	72	91.5	6400	96	72	91.5	7000
750	5	30	60	50	82	4800	78	48	78	5300
	15	60	78	48	78	5500	84	54	91.5	6500
	15	95	84	54	91.5	6500	90	60	91.5	7200
	25	110	90	54	91.5	6800	96	60	91.5	7600
	25	125	90	60	91.5	7000	96	72	91.5	7900
	34.5	150	96	72	91.5	7500	102	72	91.5	8300
1000	5	30	68	50	72	5800	84	54	91.5	7000
	15	60	78	48	78	6500	90	54	91.5	7700
	15	95	90	54	91.5	8400	96	60	91.5	9300
	25	110	90	60	91.5	8600	96	60	91.5	9400
	25	125	90	60	91.5	8700	96	72	91.5	9700
	34.5	150	96	72	91.5	9200	102	72	91.5	10200
1500	5	30	78	48	78	7900	90	54	91.5	9200
	15	60	84	54	91.5	8500	96	54	91.5	9400
	15	95	90	54	91.5	10400	102	60	91.5	11700
	25	110	96	60	91.5	10800	102	72	91.5	12100
	25	125	102	72	91.5	12200	108	72	91.5	13400
	34.5	150	102	72	91.5	13800	108	72	91.5	15200
2000	5	30	78	48	78	9700	96	54	91.5	11300
	15	60	84	54	91.5	11100	102	60	91.5	12600
	15	95	96	54	91.5	12200	108	60	91.5	13800
	25	110	96	60	91.5	12900	108	72	91.5	14700
	25	125	102	72	91.5	13900	120	72	91.5	15600
	34.5	150	108	72	110	17400	120	72	110	19200
2500	5	30	84	54	91.5	11300	102	60	91.5	12800
	15	60	90	54	91.5	12100	108	60	91.5	13800
	15	95	96	54	91.5	14100	120	72	91.5	16400
	25	110	96	72	91.5	15100	120	72	91.5	17200
	25	125	102	72	110	16600	120	72	110	18500
	34.5	150	108	72	110	18400	Consult HPS			

Weight and dimensions are typical for 150ºC Average Winding Rise.
Weights and dimensions are for DOE 2016/NRCan 2019 compliant product.
All dimensions are in inches.
For Type 2 enclosure styles, add 4 inches to the enclosure depth and 20 lbs to the total weight.
Not for construction purposes. Approval drawings can be provided as needed.

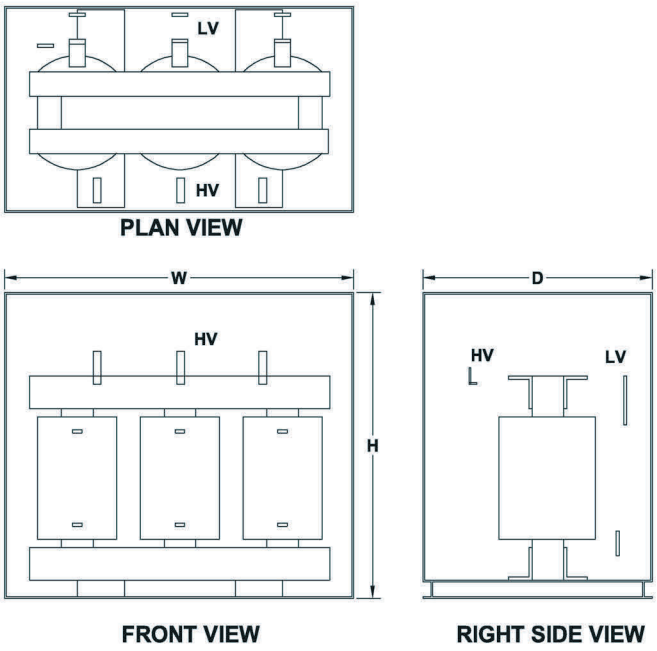
Add 20 inch for ATC up to 110kV BIL designs and 24 inch for ATC with 125/150kV BIL designs.
Add approx. 400 lbs. per ATC.

kVA	Voltage Class kV	BIL	Enclosure with Stubs Up Fig. 1				Enclosure with Bus-To-End Fig. 2			
			Width (W)	Depth (D)	Height (H)	Weight (Lbs.)	Width (W)	Depth (D)	Height (H)	Weight (Lbs.)
3000	5	30	90	54	91.5	15200	120	60	91.5	17500
	15	60	96	54	91.5	17300	120	60	91.5	19700
	15	95	102	54	91.5	19500	120	72	91.5	22100
	25	110	102	72	91.5	21800	120	72	91.5	24300
	25	125	102	72	110	23700	120	72	110	26400
	34.5	150	Consult HPS				Consult HPS			
3750	5	30	Consult HPS				Consult HPS			
	15	60	96	60	110.0	19800	120	60	110	22300
	15	95	102	60	110.0	22300	120	72	110.0	25000
	25	110	102	60	110	23000	120	72	110.0	25800
	25	125	108	72	110	24900	132	72	110.0	27800
	34.5	150	120	72	110	26700	Consult HPS			
5000	5	30	Consult HPS				Consult HPS			
	15	60	96	60	110	20800	108	60	110	23100
	15	95	102	60	110	23000	120	60	110.0	25600
	25	110	108	72	135	25400	120	72	135.0	28000
	25	125	108	72	135	25900	120	72	135.0	28500
	34.5	150	Consult HPS				Consult HPS			
7500	5	30	Consult HPS				Consult HPS			
	15	60	102	72	135	23700	120	72	135	26300
	15	95	108	72	135	25600	132	72	135.0	28500
	25	110	120	72	135	26400	132	72	135.0	29000
	25	125	120	72	135	27700	132	72	135.0	30500
	34.5	150	Consult HPS				Consult HPS			

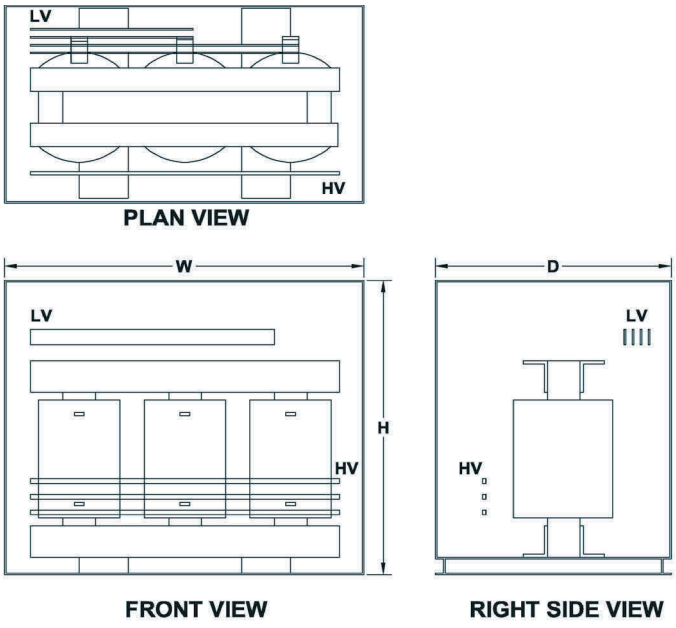
Weight and dimensions are typical for 150ºC Average Winding Rise.
Weights and dimensions are for NRCan 2019 compliant product.
All dimensions are in inches.
For Type 2 enclosure styles, add 4 inches to the enclosure depth and 20 lbs to the total weight.
Not for construction purposes. Approval drawings can be provided as needed.

Add 20 inch for ATC up to 110kV BIL designs and 24 inch for ATC with 125/150kV BIL designs.
Add approx. 400 lbs. per ATC.

Drawings



ENCLOSURE WITH STUBS UP FIG. 1



ENCLOSURE WITH BUS-TO-END FIG. 2

Anti-Vibration Pad & Vibration Isolator Kits

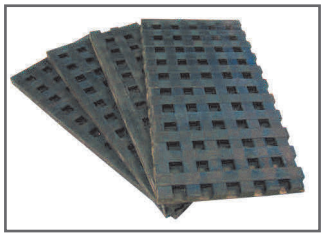
Hammond Power Solutions

ANTI-VIBRATION PAD AND VIBRATION ISOLATOR KITS

All standard transformers come with installed internal vibration absorbing pads to minimize noise during operation. Optional external "anti-vibration" pad and "vibration isolator" (for higher noise dampening) kits can be used to reduce operating noise even further. All are resistant to industrial contaminants like oil, acids and alkalines.

Anti-Vibration Pad Kits

Part No.	Description
PD1	Set of four (4) rubber anti-vibration pads which replace the standard steel enclosure washers.
PD2	



All anti-vibration pad kits contain a set of four (4) pads or isolators. Therefore only one kit is required per transformer.

Vibration Isolator Kits

Part No.	Transformer Weight (Lbs)	Description
NMP1	Up to 340 lbs	Set of four (4) molded neoprene and steel plate assemblies that virtually eliminate vibration noise between the transformer and the mounting surface.
NMP2	341 to 680 lbs	
NMP3	681 to 1040 lbs	
NMP4	1041 to 1740 lbs	
NMP5	1741 to 2330 lbs	
NMP6	2331 to 3450 lbs	
NMP7	3451 to 4690 lbs	

All vibration isolator kits and anti-vibration pad kits contain a set of four (4) pads or isolators. Therefore only one kit is required per transformer.

Typical Performance Data

5 kV, 30kV BIL - Aluminum

75ºC, 4160V Delta (30 kV BIL) -
480Y/277V, 600Y/347V (10kV BIL), 60 Hz

kVA	No Load Loss (W)	Load Loss (W)	Impedance	Resistance	Reactance	X/R Ratio	Regulation				% Efficiency at different loads			
							at 50% load		at 100% load					
							pf = 1	pf = 0.8	pf = 1	pf = 0.8	25%	50%*	75%	100%
225	630	2770	5.7%	1.2%	5.6%	4.64	0.65%	2.18%	1.38%	4.40%	98.56%	98.82%	98.71%	98.50%
300	735	3420	5.7%	1.1%	5.6%	5.10	0.63%	2.16%	1.33%	4.37%	98.72%	98.93%	98.80%	98.60%
500	1020	4925	5.7%	1.0%	5.7%	5.66	0.54%	2.12%	1.17%	4.27%	98.93%	99.09%	98.98%	98.80%
750	1500	6010	5.8%	0.8%	5.7%	7.13	0.44%	2.05%	0.96%	4.15%	99.01%	99.21%	99.14%	99.01%
1000	1790	7145	5.8%	0.7%	5.7%	8.18	0.41%	2.03%	0.90%	4.11%	99.10%	99.28%	99.21%	99.09%
1500	2150	10235	5.8%	0.7%	5.7%	8.19	0.39%	2.02%	0.86%	4.08%	99.26%	99.37%	99.29%	99.17%
2000	2595	12440	5.8%	0.6%	5.7%	9.57	0.35%	1.99%	0.79%	4.03%	99.33%	99.43%	99.36%	99.25%
2500	2785	15460	5.8%	0.6%	5.7%	9.58	0.35%	1.99%	0.78%	4.03%	99.40%	99.47%	99.39%	99.28%

*Meets DOE 10 CFR Part 431 - 2016 & NRCan 2019/ON Reg. 404/12 Energy Efficiency Regulations for MVDT Transformers

5 kV, 30kV BIL - Copper

75ºC, 4160V Delta (30 kV BIL) -
480Y/277V, 600Y/347V (10kV BIL), 60 Hz

kVA	No Load Loss (W)	Load Loss* (W)	Impedance	Resistance	Reactance	X/R Ratio	Regulation				% Efficiency at different loads			
							at 50% load		at 100% load					
							pf = 1	pf = 0.8	pf = 1	pf = 0.8	25%	50%*	75%	100%
225	575	3070	5.6%	1.3%	5.4%	4.17	0.72%	2.19%	1.51%	4.40%	98.65%	98.82%	98.65%	98.41%
300	690	3720	5.6%	1.2%	5.5%	4.56	0.66%	2.15%	1.39%	4.34%	98.79%	98.93%	98.78%	98.55%
500	900	5550	5.6%	1.1%	5.5%	5.01	0.59%	2.12%	1.26%	4.27%	99.01%	99.09%	98.94%	98.73%
750	1475	6050	5.7%	0.8%	5.6%	7.00	0.44%	2.02%	0.96%	4.09%	99.02%	99.21%	99.14%	99.01%
1000	1650	7840	5.7%	0.8%	5.6%	7.01	0.43%	2.02%	0.94%	4.07%	99.15%	99.28%	99.20%	99.06%
1500	1910	11240	5.7%	0.7%	5.6%	8.02	0.41%	2.01%	0.91%	4.05%	99.31%	99.37%	99.27%	99.13%
2000	2265	13750	5.7%	0.7%	5.6%	8.05	0.38%	1.99%	0.85%	4.01%	99.38%	99.43%	99.34%	99.21%
2500	2570	16310	5.7%	0.6%	5.6%	9.40	0.37%	1.97%	0.81%	3.99%	99.43%	99.47%	99.38%	99.25%

*Meets DOE 10 CFR Part 431 - 2016 & NRCan 2019/ON Reg. 404/12 Energy Efficiency Regulations for MVDT Transformers

15 kV, 60kV BIL - Aluminum

75°C, 12470V Delta (60 kV BIL) -
480Y/277V, 600Y/347V (10kV BIL), 60 Hz

kVA	No Load Loss (W)	Load Loss (W)	Impedance	Resistance	Reactance	X/R Ratio	Regulation				% Efficiency at different loads			
							at 50% load		at 100% load					
							pf = 1	pf = 0.8	pf = 1	pf = 0.8	25%	50%*	75%	100%
225	915	2300	5.7%	1.0%	5.6%	5.64	0.55%	2.12%	1.18%	4.28%	98.15%	98.69%	98.71%	98.59%
300	1025	3135	5.7%	1.0%	5.6%	5.64	0.56%	2.13%	1.20%	4.29%	98.40%	98.81%	98.78%	98.63%
500	1275	5085	5.7%	1.0%	5.6%	5.65	0.55%	2.12%	1.18%	4.28%	98.74%	98.99%	98.91%	98.74%
750	1700	6510	5.8%	0.9%	5.7%	6.32	0.47%	2.07%	1.03%	4.19%	98.89%	99.12%	99.06%	98.92%
1000	2075	7585	5.8%	0.8%	5.7%	7.14	0.42%	2.04%	0.92%	4.12%	98.99%	99.21%	99.16%	99.04%
1500	2775	9950	5.8%	0.7%	5.7%	8.19	0.37%	2.01%	0.83%	4.06%	99.10%	99.30%	99.26%	99.16%
2000	3285	12850	5.8%	0.6%	5.7%	9.57	0.36%	2.00%	0.81%	4.05%	99.19%	99.35%	99.30%	99.20%
2500	3825	14710	5.8%	0.6%	5.8%	9.59	0.34%	1.98%	0.75%	4.01%	99.25%	99.40%	99.36%	99.26%

*Meets DOE 10 CFR Part 431 - 2016 & NRCan 2019/ON Reg. 404/12 Energy Efficiency Regulations for MVDT Transformers

15 kV, 60kV BIL - Copper

75°C, 12470V Delta (60 kV BIL) -
480Y/277V, 600Y/347V (10kV BIL), 60 Hz

kVA	No Load Loss (W)	Load Loss (W)	Impedance	Resistance	Reactance	X/R Ratio	Regulation				% Efficiency at different loads			
							at 50% load		at 100% load					
							pf = 1	pf = 0.8	pf = 1	pf = 0.8	25%	50%*	75%	100%
225	750	2725	5.6%	1.2%	5.5%	4.55	0.64%	2.14%	1.36%	4.32%	98.29%	98.69%	98.63%	98.45%
300	950	3425	5.6%	1.0%	5.5%	5.54	0.61%	2.13%	1.29%	4.29%	98.47%	98.81%	98.74%	98.56%
500	1240	5215	5.6%	1.0%	5.5%	5.54	0.56%	2.10%	1.20%	4.23%	98.76%	98.99%	98.90%	98.73%
750	1540	7115	5.6%	0.9%	5.6%	6.18	0.51%	2.07%	1.10%	4.17%	98.95%	99.12%	99.02%	98.86%
1000	1800	8980	5.7%	0.9%	5.6%	6.20	0.49%	2.05%	1.05%	4.14%	99.08%	99.21%	99.10%	98.94%
1500	2485	11215	5.7%	0.8%	5.6%	7.02	0.41%	2.00%	0.91%	4.05%	99.16%	99.30%	99.22%	99.09%
2000	2860	14695	5.7%	0.7%	5.6%	8.03	0.41%	2.00%	0.89%	4.04%	99.25%	99.35%	99.26%	99.13%
2500	3015	18025	5.7%	0.7%	5.6%	8.04	0.40%	2.00%	0.88%	4.04%	99.34%	99.40%	99.30%	99.17%

*Meets DOE 10 CFR Part 431 - 2016 & NRCan 2019/ON Reg. 404/12 Energy Efficiency Regulations for MVDT Transformers

Typical Performance Data

15 kV, 95kV BIL - Aluminum

**75ºC, 12470V Delta (95 kV BIL) -
480Y/277V, 600Y/347V (10kV BIL), 60 Hz**

kVA	No Load Loss (W)	Load Loss (W)	Impedance	Resistance	Reactance	X/R Ratio	Regulation				% Efficiency at different loads			
							at 50% load		at 100% load					
							pf = 1	pf = 0.8	pf = 1	pf = 0.8	25%	50%*	75%	100%
225	930	2240	5.7%	1.0%	5.7%	5.65	0.51%	1.28%	1.04%	2.57%	98.13%	98.69%	98.72%	98.61%
300	1050	3005	5.7%	1.0%	5.7%	5.65	0.51%	1.28%	1.04%	2.57%	98.38%	98.81%	98.80%	98.67%
500	1350	4820	5.7%	1.0%	5.7%	5.66	0.53%	1.32%	1.09%	2.65%	98.75%	98.99%	98.90%	98.72%
750	1750	6280	5.8%	0.8%	5.7%	7.12	0.45%	1.57%	0.94%	3.15%	98.89%	99.12%	99.06%	98.92%
1000	2275	7050	5.8%	0.7%	5.7%	8.18	0.37%	1.52%	0.78%	3.06%	98.93%	99.20%	99.18%	99.09%
1500	2850	9620	5.8%	0.6%	5.7%	9.57	0.35%	1.60%	0.74%	3.22%	99.09%	99.30%	99.27%	99.18%
2000	3350	12465	5.8%	0.6%	5.7%	9.57	0.37%	1.70%	0.79%	3.43%	99.23%	99.36%	99.29%	99.17%
2500	3900	14235	5.8%	0.5%	5.8%	11.51	0.33%	1.68%	0.72%	3.39%	99.26%	99.41%	99.35%	99.25%

*Meets DOE 10 CFR Part 431 - 2016 & NRCan 2019/ON Reg. 404/12 Energy Efficiency Regulations for MVDT Transformers

15 kV, 95kV BIL - Copper

**75ºC, 12470V Delta (95 kV BIL) -
480Y/277V, 600Y/347V (10kV BIL), 60 Hz**

kVA	No Load Loss (W)	Load Loss* (W)	Impedance	Resistance	Reactance	X/R Ratio	Regulation				% Efficiency at different loads			
							at 50% load		at 100% load					
							pf = 1	pf = 0.8	pf = 1	pf = 0.8	25%	50%*	75%	100%
225	850	2570	5.6%	1.1%	5.5%	4.83	0.60%	2.02%	1.28%	4.06%	98.23%	98.69%	98.66%	98.50%
300	1000	3235	5.6%	1.1%	5.5%	4.98	0.58%	2.11%	1.23%	4.25%	98.42%	98.81%	98.76%	98.61%
500	1425	4450	5.7%	0.9%	5.6%	6.27	0.49%	2.08%	1.05%	4.21%	98.66%	98.99%	98.96%	98.84%
750	1725	6400	5.7%	0.9%	5.6%	6.58	0.47%	2.23%	1.05%	4.50%	98.88%	99.12%	99.06%	98.93%
1000	2040	7890	5.7%	0.8%	5.6%	7.19	0.44%	2.21%	0.98%	4.46%	99.00%	99.20%	99.14%	99.02%
1500	2610	10700	5.7%	0.7%	5.6%	7.92	0.41%	2.18%	0.91%	4.41%	99.13%	99.30%	99.24%	99.12%
2000	3070	13550	5.7%	0.7%	5.6%	8.41	0.39%	2.17%	0.87%	4.39%	99.22%	99.36%	99.29%	99.18%
2500	3600	15480	5.7%	0.6%	5.6%	9.11	0.36%	2.15%	0.81%	4.35%	99.27%	99.41%	99.35%	99.24%

*Meets DOE 10 CFR Part 431 - 2016 & NRCan 2019/ON Reg. 404/12 Energy Efficiency Regulations for MVDT Transformers

25 kV, 125kV BIL - Aluminum

75°C, 24940V Delta (125 kV BIL) -
480Y/277V, 600Y/347V (10kV BIL), 60 Hz

kVA	No Load Loss (W)	Load Loss (W)	Impedance	Resistance	Reactance	X/R Ratio	Regulation				% Efficiency at different loads			
							at 50% load		at 100% load					
							pf = 1	pf = 0.8	pf = 1	pf = 0.8	25%	50%*	75%	100%
225	950	2714	5.7%	1.2%	5.6%	4.65	0.64%	2.17%	1.36%	4.38%	98.05%	98.57%	98.55%	98.40%
300	1165	3280	5.7%	1.1%	5.6%	5.11	0.59%	2.14%	1.25%	4.32%	98.21%	98.69%	98.68%	98.54%
500	1535	5038	5.7%	1.0%	5.6%	5.65	0.54%	2.12%	1.17%	4.27%	98.54%	98.89%	98.85%	98.70%
750	2000	6868	5.7%	0.9%	5.7%	6.31	0.50%	2.09%	1.08%	4.22%	98.72%	99.02%	98.97%	98.83%
1000	2460	8045	5.8%	0.8%	5.7%	7.13	0.44%	2.05%	0.97%	4.15%	98.83%	99.11%	99.08%	98.96%
1500	3115	11312	5.8%	0.7%	5.7%	8.17	0.42%	2.04%	0.92%	4.12%	98.99%	99.21%	99.16%	99.05%
2000	4015	12822	5.8%	0.7%	5.7%	8.20	0.36%	2.00%	0.81%	4.05%	99.05%	99.28%	99.26%	99.17%
2500	4200	17000	5.8%	0.7%	5.7%	8.19	0.38%	2.01%	0.84%	4.07%	99.17%	99.33%	99.27%	99.16%

*Meets DOE 10 CFR Part 431 - 2016 & NRCan 2019/ON Reg. 404/12 Energy Efficiency Regulations for MVDT Transformers

25 kV, 125kV BIL - Copper

75°C, 24940V Delta (125 kV BIL) -
480Y/277V, 600Y/347V (10kV BIL), 60 Hz

kVA	No Load Loss (W)	Load Loss (W)	Impedance	Resistance	Reactance	X/R Ratio	Regulation				% Efficiency at different loads			
							at 50% load		at 100% load					
							pf = 1	pf = 0.8	pf = 1	pf = 0.8	25%	50%*	75%	100%
225	900	2920	5.6%	1.3%	5.4%	4.14	0.69%	2.17%	1.45%	4.37%	98.11%	98.57%	98.52%	98.33%
300	1115	3500	5.6%	1.2%	5.5%	4.58	0.62%	2.13%	1.32%	4.30%	98.25%	98.69%	98.65%	98.48%
500	1525	5085	5.6%	1.0%	5.5%	5.55	0.55%	2.09%	1.17%	4.21%	98.55%	98.89%	98.84%	98.70%
750	1955	7100	5.6%	0.9%	5.6%	6.18	0.51%	2.07%	1.10%	4.17%	98.74%	99.02%	98.95%	98.81%
1000	2340	8520	5.6%	0.8%	5.6%	6.99	0.47%	2.04%	1.01%	4.12%	98.86%	99.11%	99.06%	98.93%
1500	3280	10730	5.7%	0.7%	5.6%	8.04	0.40%	1.99%	0.87%	4.03%	98.96%	99.21%	99.18%	99.07%
2000	3650	14600	5.7%	0.7%	5.6%	8.03	0.40%	2.00%	0.89%	4.04%	99.10%	99.28%	99.22%	99.10%
2500	4050	17740	5.7%	0.7%	5.6%	8.04	0.39%	1.99%	0.87%	4.03%	99.18%	99.33%	99.26%	99.14%

*Meets DOE 10 CFR Part 431 - 2016 & NRCan 2019/ON Reg. 404/12 Energy Efficiency Regulations for MVDT Transformers

Technical Information

The following information is provided for reference only:

Average Audible Sound Levels

Self-Cooled		Ventilated Forced Air Cooled	
Equivalent Two-Winding (kVA)	Ventilated (Class AA Rating)	Equivalent Two-Winding (kVA)	Class FA and AFA Rating
0-9	40	0-1167	67
10-50	45	1168-1667	68
51-150	50	1668-2000	69
151-300	55	2001-3333	71
301-500	60	3334-5000	73
501-700	62	5001-6667	74
701-1000	64	6668-8333	75
1001-1500	65	8334-10000	78
1501-2000	66		
2001-3000	68		
3001-4000	70		
4001-5000	71		
5001-6000	72		
6001-7500	75		

System Voltage and Transformer BIL Ratings

Nominal L-L System Voltage	Low Frequency Voltage Insulation Level	Basic lightning impulse insulation levels (BIL ratings) in common use kV crest[a,b] (1.2 x 50 µs)												
(kV)	(kV rms)	10	20	30	45	60	95	110	125	150	200	250	300	350
0.25	2.5	None												
0.6	3	S	1	1										
1.2	4	S	1	1										
2.5	10		S	1	1									
5.0	12			S	1	1								
8.7	20				S	1	1							
15.0	34					S	1	1						
18.0	40						S	1	1					
25.0	50						2	S	1	1				
34.5	70								2	S	1			
46.0	95										S	1	1	
69.0	140											S	1	1
Chopped wave[c,d] minimum time to flashover µs		1.0	1.0	1.0	1.25	1.5	1.6	1.8	2.0	2.25	2.7	3.0	3.0	3.0

When performing an impulse test on the low voltage windings, the high voltage windings may experience higher test voltage than the rated BIL level.
Note - The latest edition of IEEE Std. C62.22™ [B3] should be consulted for information coordination with available surge arrester protection levels.
S = Standard values
1 = Optional higher levels where exposure to overvoltages occurs and improved protective margins are required.
2 = Optional lower levels where protective characteristics of applied surge arresters have been evaluated and found to provide appropriate surge protection.
a = Low-impedance low-side windings may be tested with a much faster 0.5 x 1.5 µs impulse wave on BIL ratings less than or equal to 30 kV.
b = A positive impulse wave shall be used.
c = The voltage crest of the chopped wave should be approximately the same as the full wave magnitude.
d = No chopped waves are required on 0.6 kV systems and below.

Standard Transformer Ratings, Primary Voltage Class 2.3-46 kV

kVA 3 Phase			Secondary Voltage			
Self-Cooled	Fan-Cooled Ventilated Dry	Fan-Cooled Weather Resistant Ventilated	208Y/120 V 240 V Delta	480Y/277 V 480V Delta	4160Y/2400 V 4160 V Delta 2400 V Delta	600Y/277 V 600V Delta
225			X	X		X
300	400	400	X	X		X
500	667	667	X	X	X	X
750	1000	1000	X	X	X	X
1000	1333	1333	X	X	X	X
1500	2000	2000	X	X	X	X
2000	2666	2666		X	X	X
2500	3333	3333		X	X	X
3750	5000	5000			X	
5000	6650	6650			X	
7500	10000	10000			X	

The above combinations are based on standard designs. Other than standard designs may place further restrictions on the availablilty of voltage and kVA combinations. Consult factory for final determination.

Altitude Derating Factor

Altitude (FT)	kVA Correction	BIL Correction
3300	1.00	1.00
4000	0.994	0.98
5000	0.985	0.95
6000	0.975	0.92
7000	0.966	0.89
8000	0.957	0.86
9000	0.948	0.83
10,000	0.939	0.80
11,000	0.930	0.77
12,000	0.921	0.75
13,000	0.912	0.72
14,000	0.903	0.70
15,000	0.894	0.67

Per IEEE 100m = 330 ft

Other HPS Energy Efficient Products

ENERGY EFFICIENT GENERAL PURPOSE DISTRIBUTION TRANSFORMERS

Generally used for supplying appliance, lighting, heating, motorized machine and power loads from electrical distribution systems.

Standard features include:

HPS Sentinel®

- Meets C802.2 (2012) efficiencies per Canadian Energy Efficiency Regulations SOR/94-651

HPS Sentinel® G

- Meets new DOE 2016/NRCan 2019 & ON Reg. 404/12 efficiency standards
- 10kV BIL on all transformers

ENERGY EFFICIENT K-FACTOR TRANSFORMERS

The use of K-factor distribution transformers has become a popular means of supplying power for non-linear loads such as electronic ballasts, drives, personal computers, telecommunications equipment, broadcasting equipment and other similar power electronics. These non-linear loads generate harmonic currents which can substantially increase transformer losses. Our K-rated transformers have been specifically designed to prevent failure due to overheating.

Standard features include:

HPS Synergy®

- K-Factor ratings of K4, K9, K13 and K20
- Meets C802.2 (2012) efficiencies per Canadian Energy Efficiency Regulations SOR/94-651

HPS Sentinel® K

- K-Factor ratings of K4, K9, K13 and K20
- Meets new DOE 2016/NRCan 2019 & ON Reg. 404/12 efficiency standards
- 10kV BIL on all transformers

ENERGY EFFICIENT HARMONIC MITIGATING TRANSFORMERS

HPS Harmonic Mitigating transformers reduce voltage distortion (flat-topping) and power losses due to current harmonics created by single-phase, non-linear loads such as computer equipment. They treat sequence harmonics (3rd, 9th and 15th) within the secondary windings and 5th and 7th harmonics upstream with appropriate phase shifting. Typical applications of severe non-linear loading conditions include data centers, internet-service providers, telecom sites, call centers, broadcast centers, etc.

Standard features include:

HPS Centurion®

- Meets C802.2 (2012) efficiencies per Canadian Energy Efficiency Regulations SOR/94-651

HPS Sentinel® H

- K-Factor rating of K13 (others available on request)
- Meets new DOE 2016/NRCan 2019 & ON Reg. 404/12 efficiency standards
- 10kV BIL on all transformers

Hammond Power Solutions

ENERGY EFFICIENT DRIVE ISOLATION TRANSFORMERS

HPS drive isolation transformers are suitable for both AC and DC variable speed drives. They are sized to match standard motor horsepower and voltage ratings.

Standard features include:
- Three phase ratings from 7 kVA to 660 kVA
- Copper and aluminum available
- Optional shield available
- UL Listed and CSA Certified
- Type 3R enclosure (optional type 4, 12 or stainless)

HPS Tribune™
- Meets TP1 and C802.2-12 efficiencies

HPS Tribune™ E
- Meets NRCan 2019 & ON Reg. 404/12 efficiency standards

HPS ENDURACOIL™ CAST RESIN TRANSFORMERS

HPS EnduraCoil™ is a high-performance cast resin product designed for many demanding and diverse applications. Coils are precision wound with copper or aluminum conductors that are electrically balanced to minimize axial forces during short-circuit conditions.

Standard features include:
- kVA ratings from 300 to 3000 ANN, 4000 AFN, up to 34.5 kV Class
- Enclosure options (Type 1, 2, 3R, 3RE, 4, 12; other paint colors or stainless steel)
- Multiple standard options
- UL listed and CSA certified

HPS EnduraCoil™
- Meets Canadian Energy Efficiency Regulations SOR/94-651 efficiency levels at 50% of rated load

HPS EnduraCoil™ E
- Meets new DOE 2016/NRCan 2019 & ON Reg. 404/12 efficiency standards

power to conserve

HPS MILLENNIUM™ ENERGY EFFICIENT MEDIUM VOLTAGE DISTRIBUTION TRANSFORMERS

5 kV class transformers are designed to step down incoming high voltage power to utilize voltages for commercial, institutional or industrial applications.

Standard features include:
- Large variety of standard and custom single phase and three phase voltages and kVA ratings
- Standard primary voltages of 2400 and 4160 volts
- UL Listed and CSA Certified
- Type 3R and ANSI 61 enclosure (optional Type 4, 12; other paint colors or stainless steel)

HPS Millennium™
- Meets CSA C802.2-12 efficiency standards at 50% of rated load

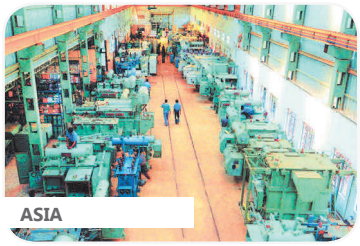
HPS Millennium™ G
- Meets new DOE 2016/NRCan 2019 & ON Reg. 404/12 efficiency standards

power to conserve

Hammond Power Solutions


CANADA


UNITED STATES


ASIA

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Fax: (519) 822-9701
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sales-emea@hammondpowersolutions.com

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MILEMED
December 2019

APPENDIX F

FAA DETERMINATION

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1665-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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 (also HP)
Location:	Torrington, CT
Latitude:	41-49-49.54N NAD 83
Longitude:	73-04-30.54W
Heights:	1152 feet site elevation (SE) 22 feet above ground level (AGL) 1174 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 (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1665-OE

Signature Control No: 433823548-437278193 (TMP)
David Maddox
Specialist

Additional Condition(s) or Information for ASN 2020-ANE-1665-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 1148 feet above mean sea level.

Location: The structure will be located 11.86 nautical miles north of N41 Airport reference point.

Case Description for ASN 2020-ANE-1665-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Preliminary FAA study indicates that the above mentioned structure would:
have no effect on any existing or proposed arrival, departure, or en route instrument flight rules (IFR) operations or procedures.
have no effect on any existing or proposed arrival, departure, or en route visual flight rules (VFR) operations.
have no effect on any existing or proposed arrival, departure, or en route instrument/visual flight rules (IFR/VFR) minimum flight altitudes.
not exceed traffic pattern airspace
have no physical or electromagnetic effect on the operation of air navigation and communications facilities.
have no effect on any airspace and routes used by the military.

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.

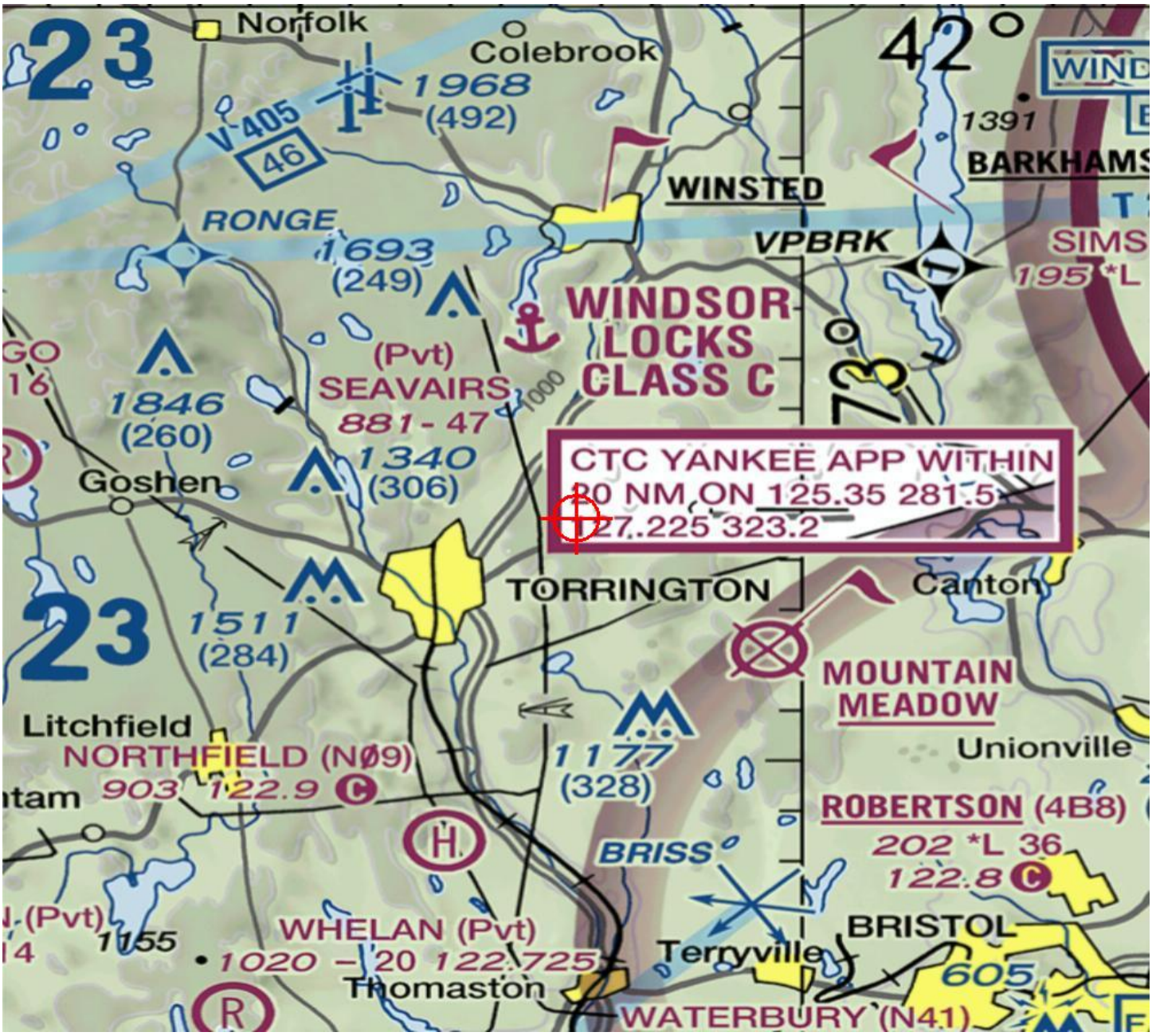
As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, flag marker - Chapters 3(Marked)&12.

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 10/22/2021 unless extended, revised, or terminated by the issuing office.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed within 5 days after the temporary structure is dismantled.

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.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Thomaston
Terryville
BRISTOL
605
WATERBURY (N41)
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1391
BARKHAMS
SIMS
195 *L

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1664-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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:	Torrington, CT
Latitude:	41-49-46.89N NAD 83
Longitude:	73-04-31.22W
Heights:	1151 feet site elevation (SE) 22 feet above ground level (AGL) 1173 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 (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1664-OE

Signature Control No: 433823547-437278191 (TMP)
David Maddox
Specialist

Additional Condition(s) or Information for ASN 2020-ANE-1664-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 1148 feet above mean sea level.

Location: The structure will be located 11.86 nautical miles north of N41 Airport reference point.

Case Description for ASN 2020-ANE-1664-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Preliminary FAA study indicates that the above mentioned structure would:
have no effect on any existing or proposed arrival, departure, or en route instrument flight rules (IFR) operations or procedures.
have no effect on any existing or proposed arrival, departure, or en route visual flight rules (VFR) operations.
have no effect on any existing or proposed arrival, departure, or en route instrument/visual flight rules (IFR/VFR) minimum flight altitudes.
not exceed traffic pattern airspace
have no physical or electromagnetic effect on the operation of air navigation and communications facilities.
have no effect on any airspace and routes used by the military.

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 L Change 2, Obstruction Marking and Lighting, flag marker - Chapters 3(Marked)&12.

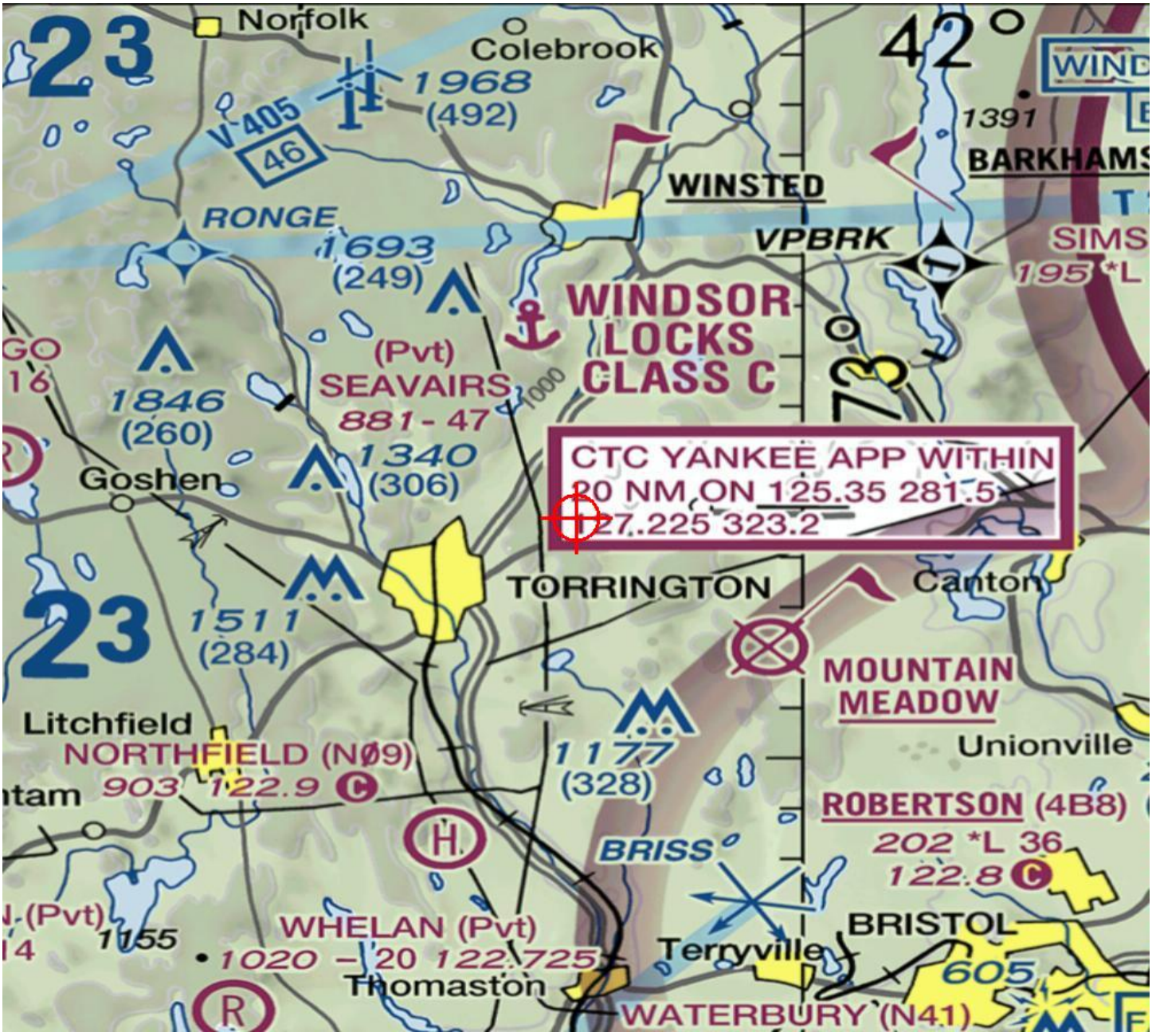
Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 10/22/2021 unless extended, revised, or terminated by the issuing office.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed within 5 days after the temporary structure is dismantled.

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 2020-ANE-1664-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1663-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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:	Torrington, CT
Latitude:	41-49-46.68N NAD 83
Longitude:	73-04-35.17W
Heights:	1150 feet site elevation (SE) 22 feet above ground level (AGL) 1172 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 (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1663-OE

Signature Control No: 433823546-437278192 (TMP)
David Maddox
Specialist

Additional Condition(s) or Information for ASN 2020-ANE-1663-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 1148 feet above mean sea level.

Location: The structure will be located 11.86 nautical miles north of N41 Airport reference point.

Case Description for ASN 2020-ANE-1663-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Preliminary FAA study indicates that the above mentioned structure would:
have no effect on any existing or proposed arrival, departure, or en route instrument flight rules (IFR) operations or procedures.
have no effect on any existing or proposed arrival, departure, or en route visual flight rules (VFR) operations.
have no effect on any existing or proposed arrival, departure, or en route instrument/visual flight rules (IFR/VFR) minimum flight altitudes.
not exceed traffic pattern airspace
have no physical or electromagnetic effect on the operation of air navigation and communications facilities.
have no effect on any airspace and routes used by the military.

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.

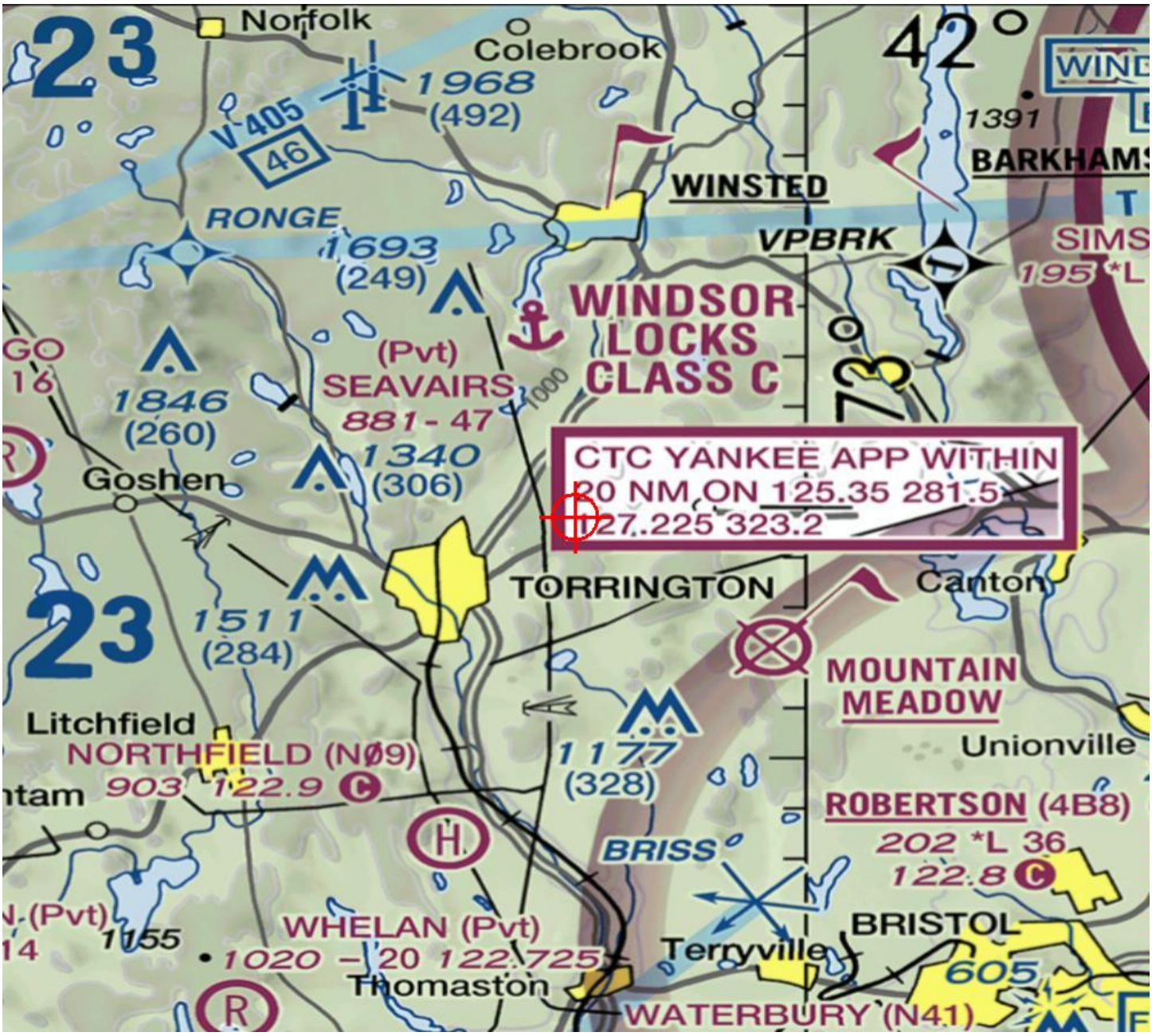
As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, flag marker - Chapters 3(Marked)&12.

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 10/22/2021 unless extended, revised, or terminated by the issuing office.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed within 5 days after the temporary structure is dismantled.

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.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Unionville
ROBERTSON (4B8)
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BRISTOL
605
WATERBURY (N41)

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1662-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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:	Torrington, CT
Latitude:	41-49-41.20N NAD 83
Longitude:	73-04-35.53W
Heights:	1142 feet site elevation (SE) 22 feet above ground level (AGL) 1164 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 (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1662-OE

Signature Control No: 433823545-437278189 (TMP)
David Maddox
Specialist

Additional Condition(s) or Information for ASN 2020-ANE-1662-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 1148 feet above mean sea level.

Location: The structure will be located 11.86 nautical miles north of N41 Airport reference point.

Case Description for ASN 2020-ANE-1662-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Preliminary FAA study indicates that the above mentioned structure would:
have no effect on any existing or proposed arrival, departure, or en route instrument flight rules (IFR) operations or procedures.
have no effect on any existing or proposed arrival, departure, or en route visual flight rules (VFR) operations.
have no effect on any existing or proposed arrival, departure, or en route instrument/visual flight rules (IFR/VFR) minimum flight altitudes.
not exceed traffic pattern airspace
have no physical or electromagnetic effect on the operation of air navigation and communications facilities.
have no effect on any airspace and routes used by the military.

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.

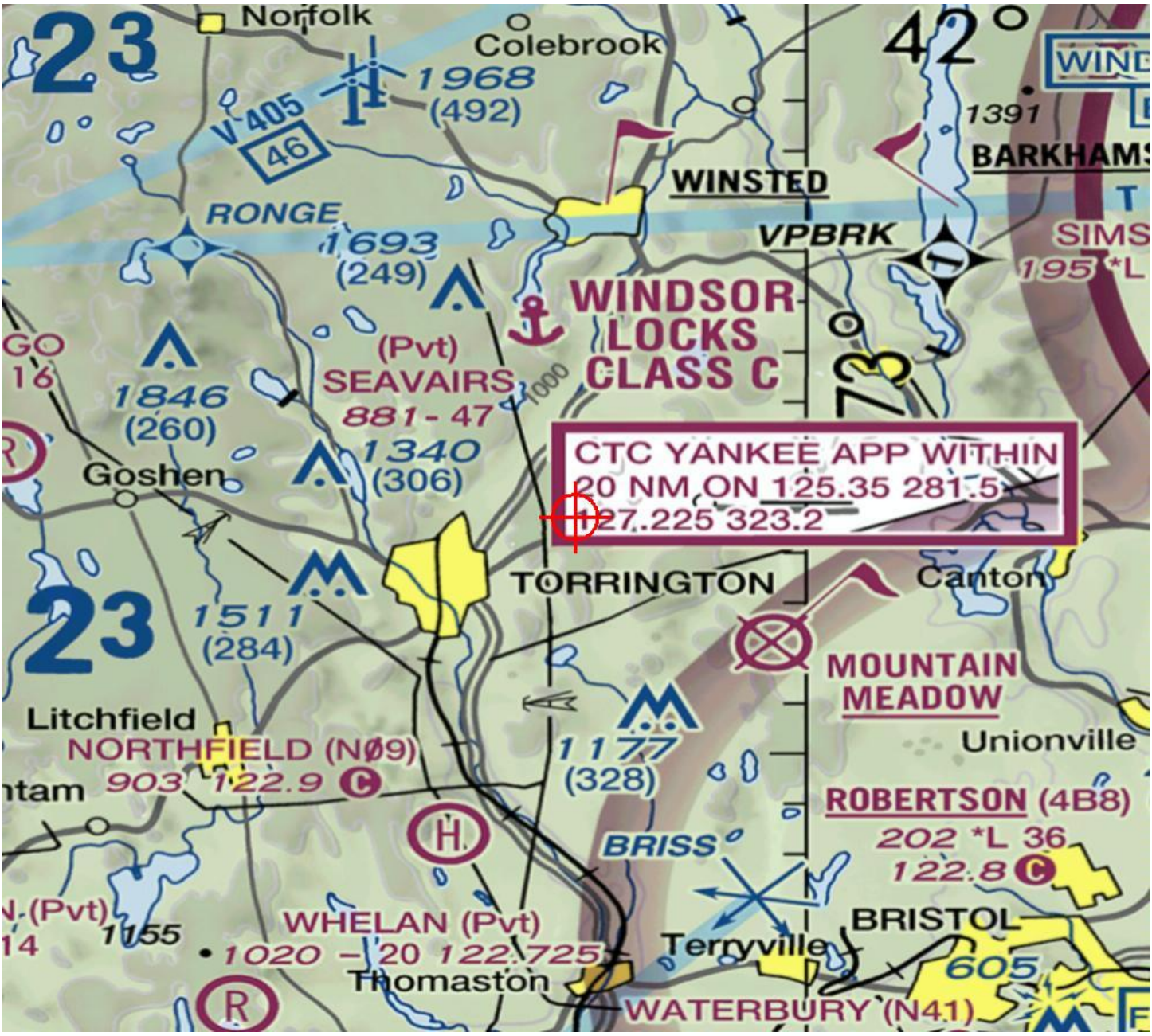
As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, flag marker - Chapters 3(Marked)&12.

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 10/22/2021 unless extended, revised, or terminated by the issuing office.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed within 5 days after the temporary structure is dismantled.

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.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BARKHAMS
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Litchfield
NORTHFIELD (NØ9)
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Unionville
ROBERTSON (4B8)
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Terryville
BRISTOL
605
Thomaston
WATERBURY (N41)

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Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1661-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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:	Torrington, CT
Latitude:	41-49-39.58N NAD 83
Longitude:	73-04-25.21W
Heights:	1138 feet site elevation (SE) 22 feet above ground level (AGL) 1160 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 (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1661-OE

Signature Control No: 433823544-437278190 (TMP)
David Maddox
Specialist

Additional Condition(s) or Information for ASN 2020-ANE-1661-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 1148 feet above mean sea level.

Location: The structure will be located 11.86 nautical miles north of N41 Airport reference point.

Case Description for ASN 2020-ANE-1661-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Preliminary FAA study indicates that the above mentioned structure would:
have no effect on any existing or proposed arrival, departure, or en route instrument flight rules (IFR) operations or procedures.
have no effect on any existing or proposed arrival, departure, or en route visual flight rules (VFR) operations.
have no effect on any existing or proposed arrival, departure, or en route instrument/visual flight rules (IFR/VFR) minimum flight altitudes.
not exceed traffic pattern airspace
have no physical or electromagnetic effect on the operation of air navigation and communications facilities.
have no effect on any airspace and routes used by the military.

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 L Change 2, Obstruction Marking and Lighting, flag marker - Chapters 3(Marked)&12.

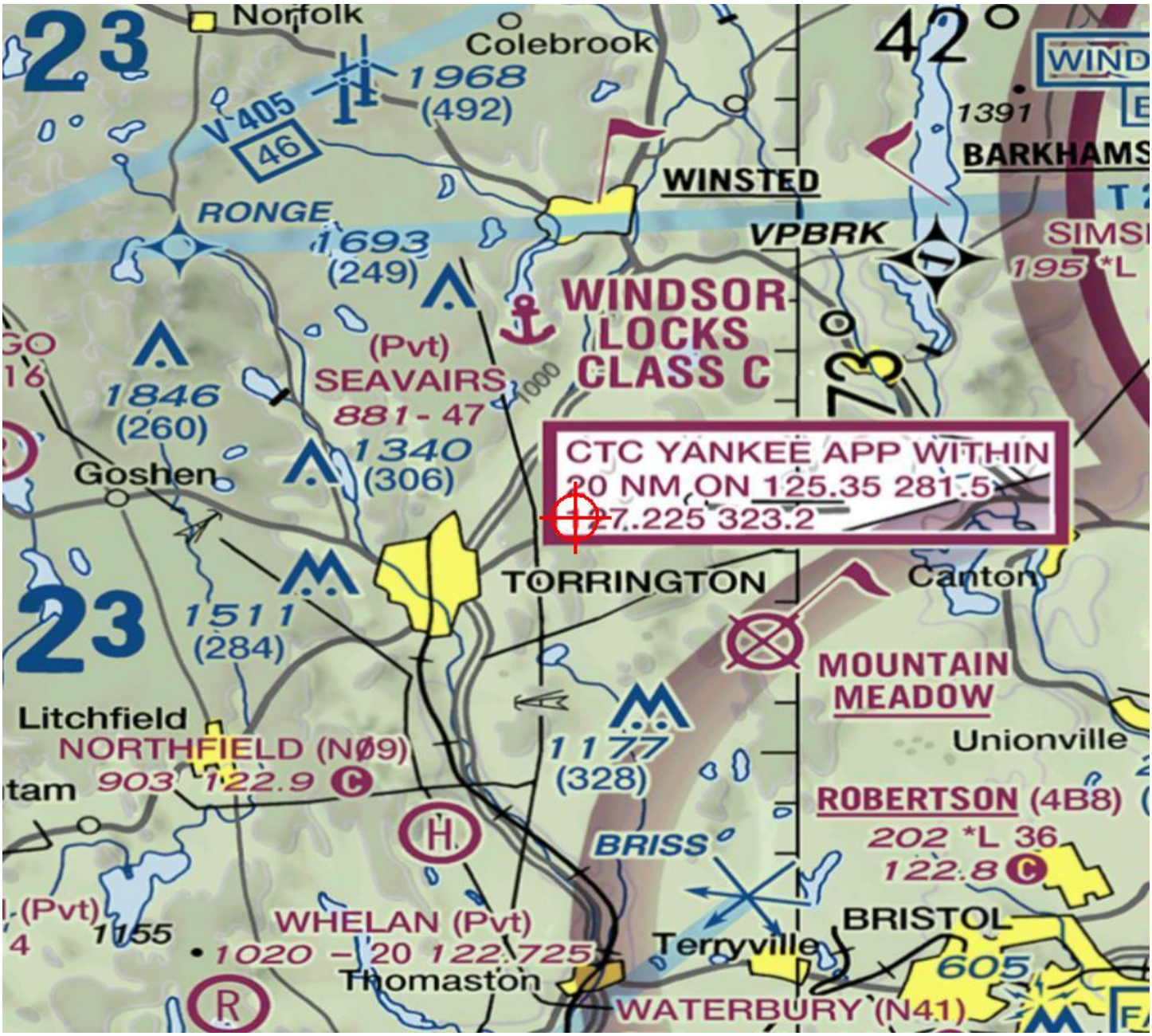
Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 10/22/2021 unless extended, revised, or terminated by the issuing office.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed within 5 days after the temporary structure is dismantled.

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 2020-ANE-1661-OE



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Federal Aviation Administration
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Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1660-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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:	Torrington, CT
Latitude:	41-49-48.41N NAD 83
Longitude:	73-04-24.30W
Heights:	1126 feet site elevation (SE) 22 feet above ground level (AGL) 1148 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 (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1660-OE

Signature Control No: 433823543-437278188 (TMP)
David Maddox
Specialist

Additional Condition(s) or Information for ASN 2020-ANE-1660-OE

Proposal: To construct and/or operate a(n) Crane to a height of 22 feet above ground level, 1148 feet above mean sea level.

Location: The structure will be located 11.86 nautical miles north of N41 Airport reference point.

Case Description for ASN 2020-ANE-1660-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Preliminary FAA study indicates that the above mentioned structure would:
have no effect on any existing or proposed arrival, departure, or en route instrument flight rules (IFR) operations or procedures.
have no effect on any existing or proposed arrival, departure, or en route visual flight rules (VFR) operations.
have no effect on any existing or proposed arrival, departure, or en route instrument/visual flight rules (IFR/VFR) minimum flight altitudes.
not exceed traffic pattern airspace
have no physical or electromagnetic effect on the operation of air navigation and communications facilities.
have no effect on any airspace and routes used by the military.

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.

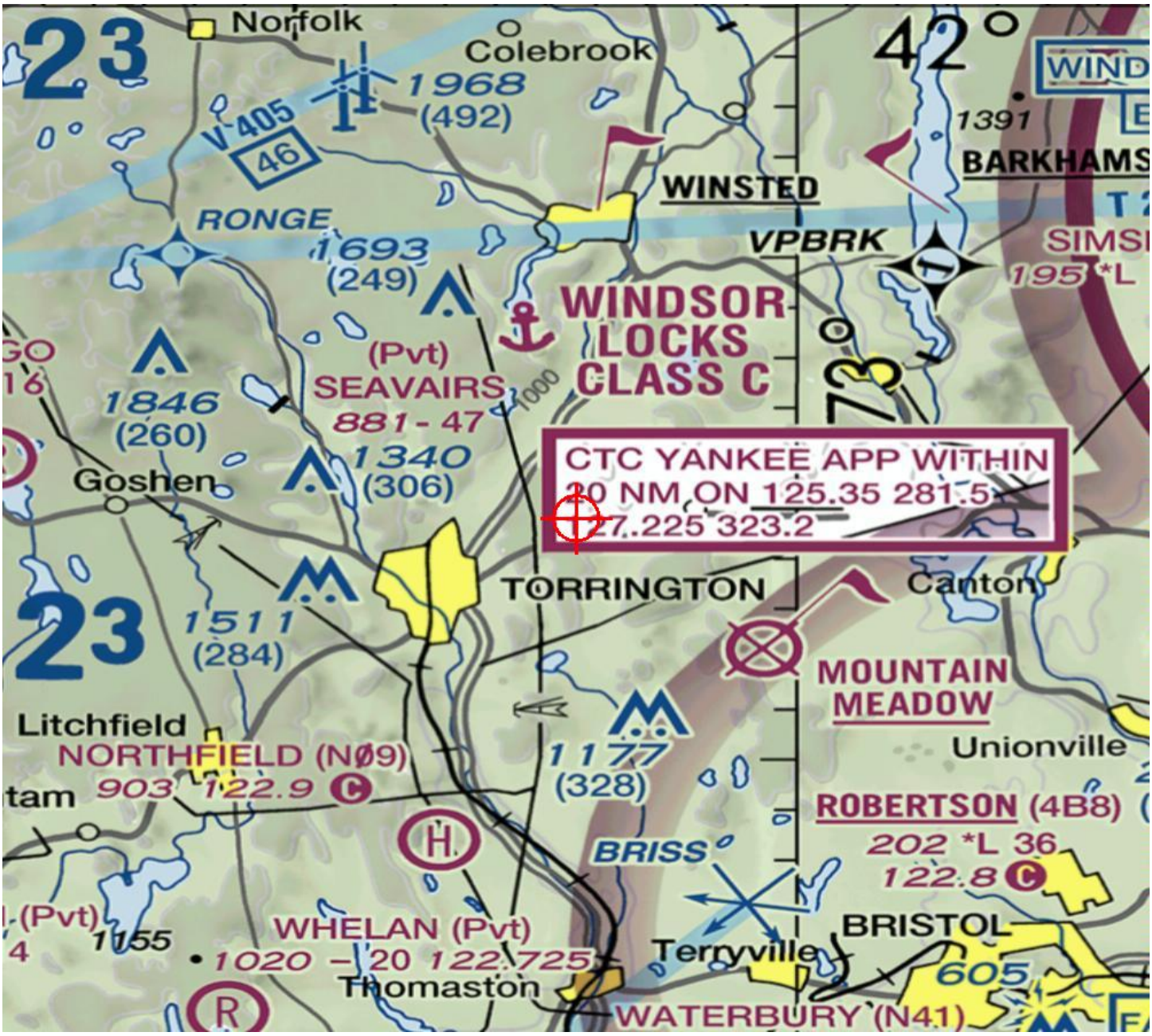
As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, flag marker - Chapters 3(Marked)&12.

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 10/22/2021 unless extended, revised, or terminated by the issuing office.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed within 5 days after the temporary structure is dismantled.

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.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10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1672-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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 (also HP)
Location:	Torrington, CT
Latitude:	41-49-49.54N NAD 83
Longitude:	73-04-30.54W
Heights:	1152 feet site elevation (SE) 10 feet above ground level (AGL) 1162 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 L Change 2.

This determination expires on 10/22/2021 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.

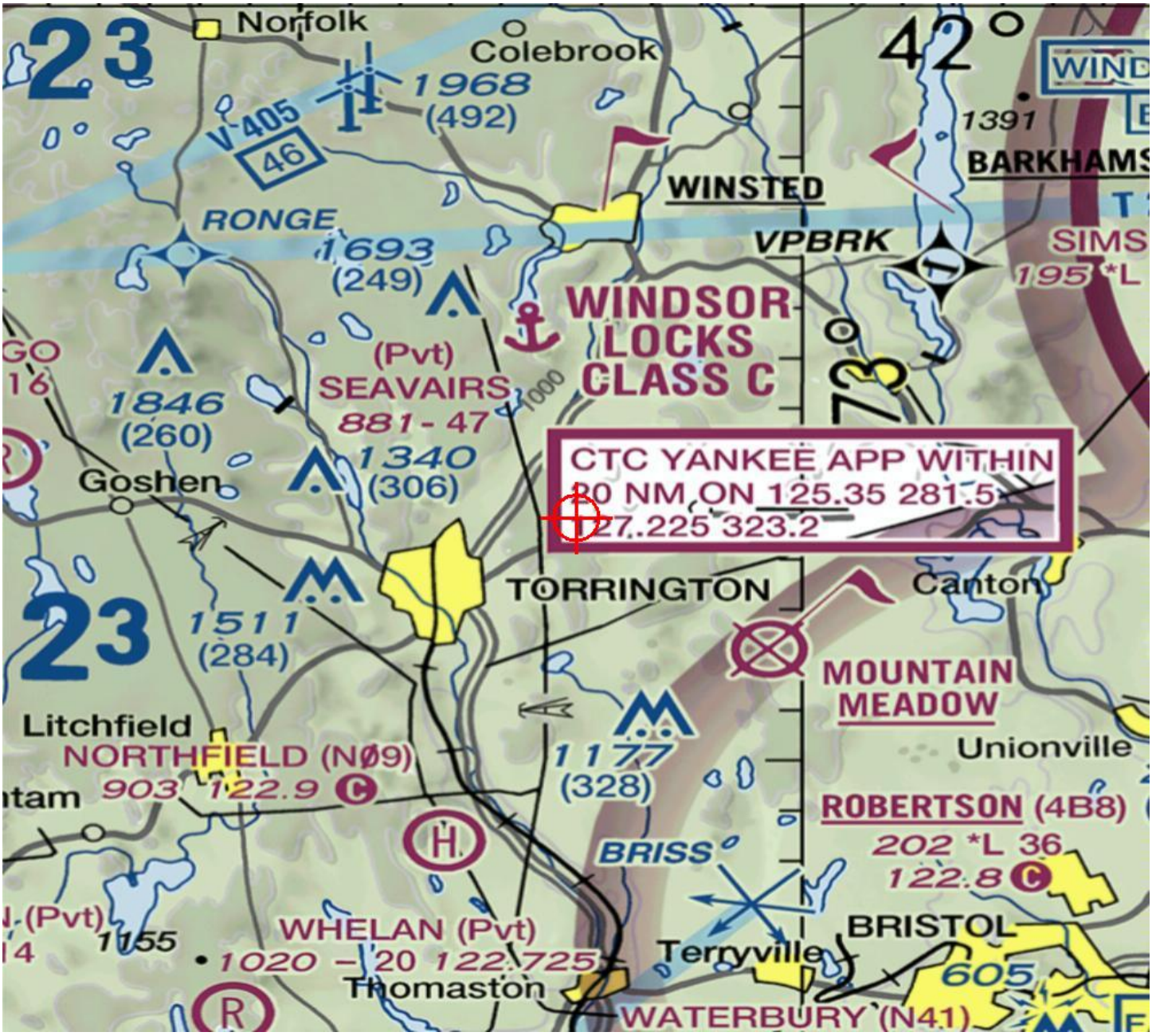
If we can be of further assistance, please contact our office at (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1672-OE.

Signature Control No: 433828037-437278396 (DNE)
David Maddox
Specialist

Attachment(s)
Case Description
Map(s)

Case Description for ASN 2020-ANE-1672-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.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TORRINGTON
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(284)
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MEADOW
Litchfield
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Unionville
ROBERTSON (4B8)
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122.8
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WHELAN (Pvt)
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Thomaston
Terryville
BRISTOL
605
WATERBURY (N41)

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10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1671-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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 5
Location:	Torrington, CT
Latitude:	41-49-46.89N NAD 83
Longitude:	73-04-31.22W
Heights:	1151 feet site elevation (SE) 10 feet above ground level (AGL) 1161 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 L Change 2.

This determination expires on 10/22/2021 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 (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1671-OE.

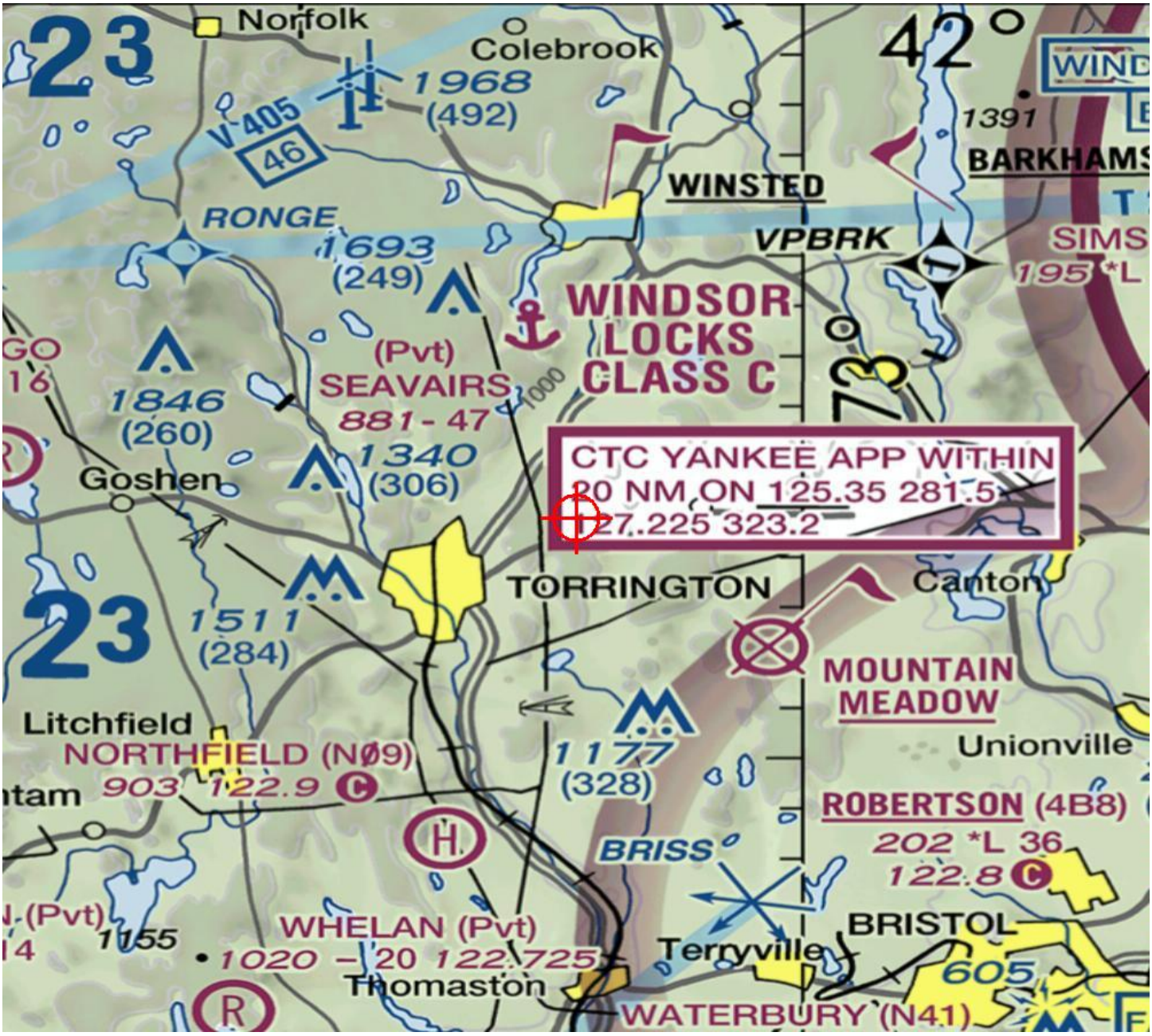
Signature Control No: 433828035-437278399 (DNE)
David Maddox
Specialist

Attachment(s)
Case Description
Map(s)

Case Description for ASN 2020-ANE-1671-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.

Sectional Map for ASN 2020-ANE-1671-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1670-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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:	Torrington, CT
Latitude:	41-49-46.68N NAD 83
Longitude:	73-04-35.17W
Heights:	1150 feet site elevation (SE) 10 feet above ground level (AGL) 1160 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 L Change 2.

This determination expires on 10/22/2021 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.

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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.

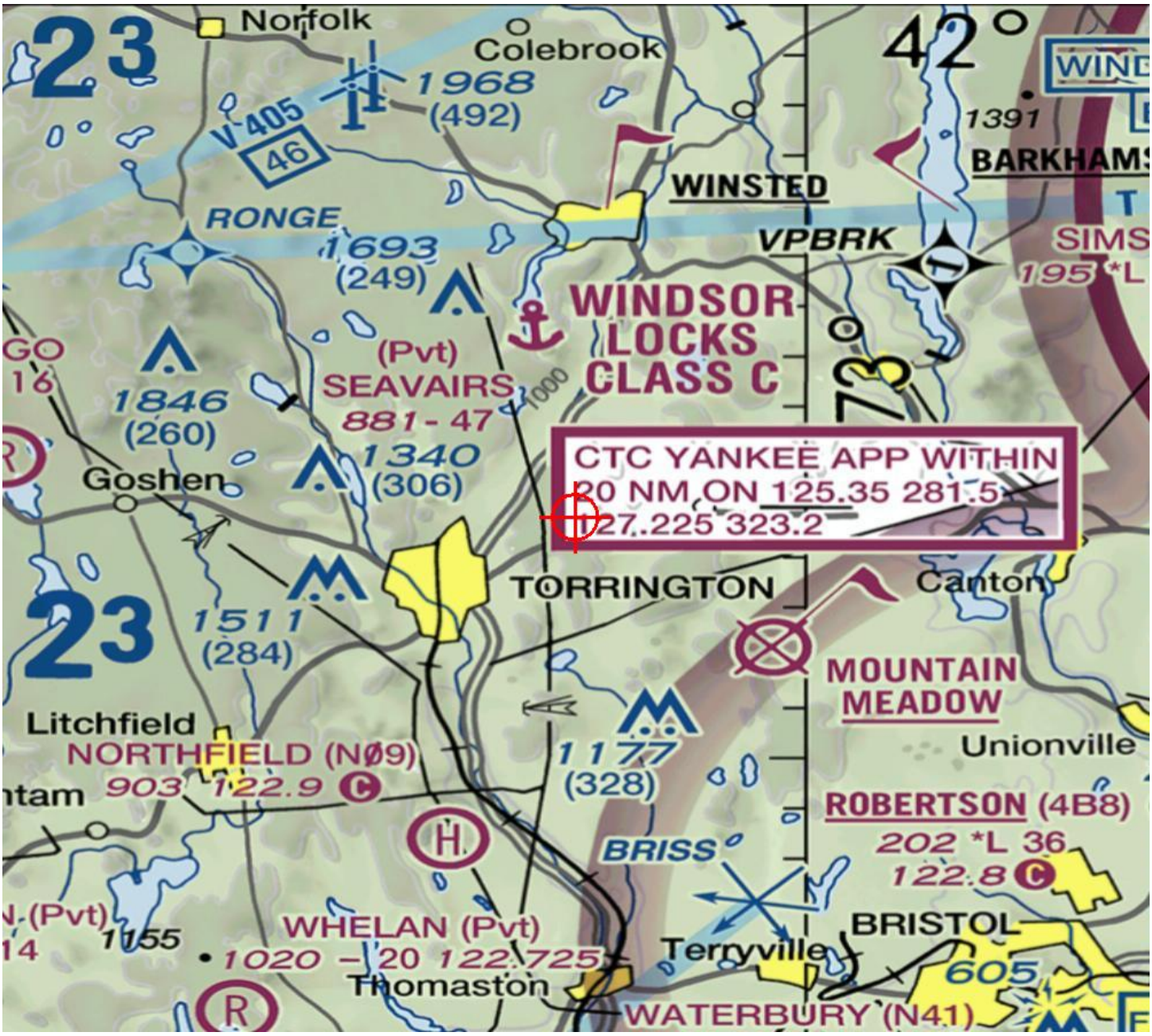
If we can be of further assistance, please contact our office at (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1670-OE.

Signature Control No: 433828034-437278397 (DNE)
David Maddox
Specialist

Attachment(s)
Case Description
Map(s)

Case Description for ASN 2020-ANE-1670-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1669-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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:	Torrington, CT
Latitude:	41-49-41.20N NAD 83
Longitude:	73-04-35.53W
Heights:	1142 feet site elevation (SE) 10 feet above ground level (AGL) 1152 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 L Change 2.

This determination expires on 10/22/2021 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.

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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.

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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.

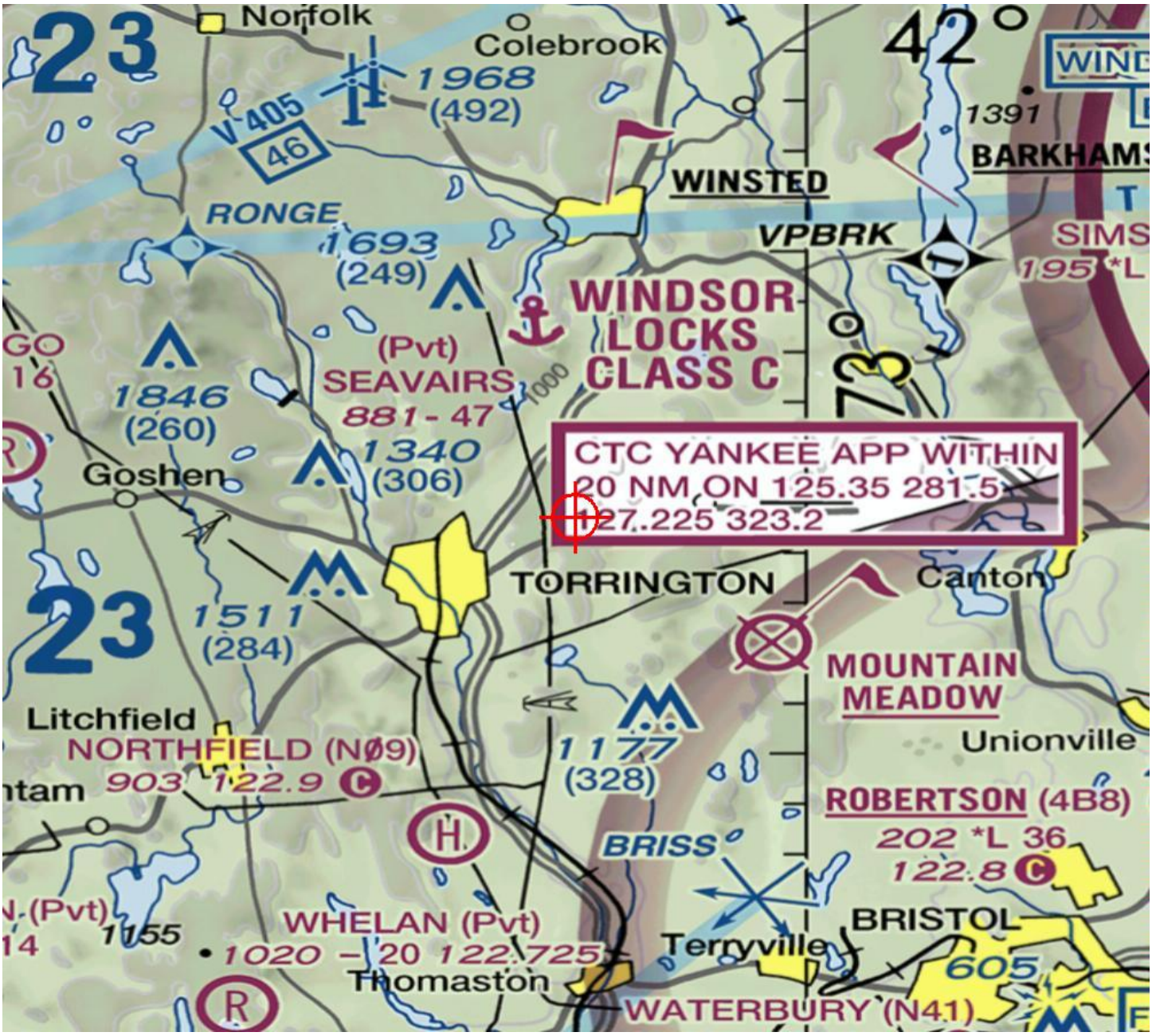
If we can be of further assistance, please contact our office at (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1669-OE.

Signature Control No: 433828033-437278398 (DNE)
David Maddox
Specialist

Attachment(s)
Case Description
Map(s)

Case Description for ASN 2020-ANE-1669-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.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Terryville
BRISTOL
605
WATERBURY (N41)

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1668-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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:	Torrington, CT
Latitude:	41-49-39.58N NAD 83
Longitude:	73-04-25.21W
Heights:	1138 feet site elevation (SE) 10 feet above ground level (AGL) 1148 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 L Change 2.

This determination expires on 10/22/2021 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.
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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.

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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.

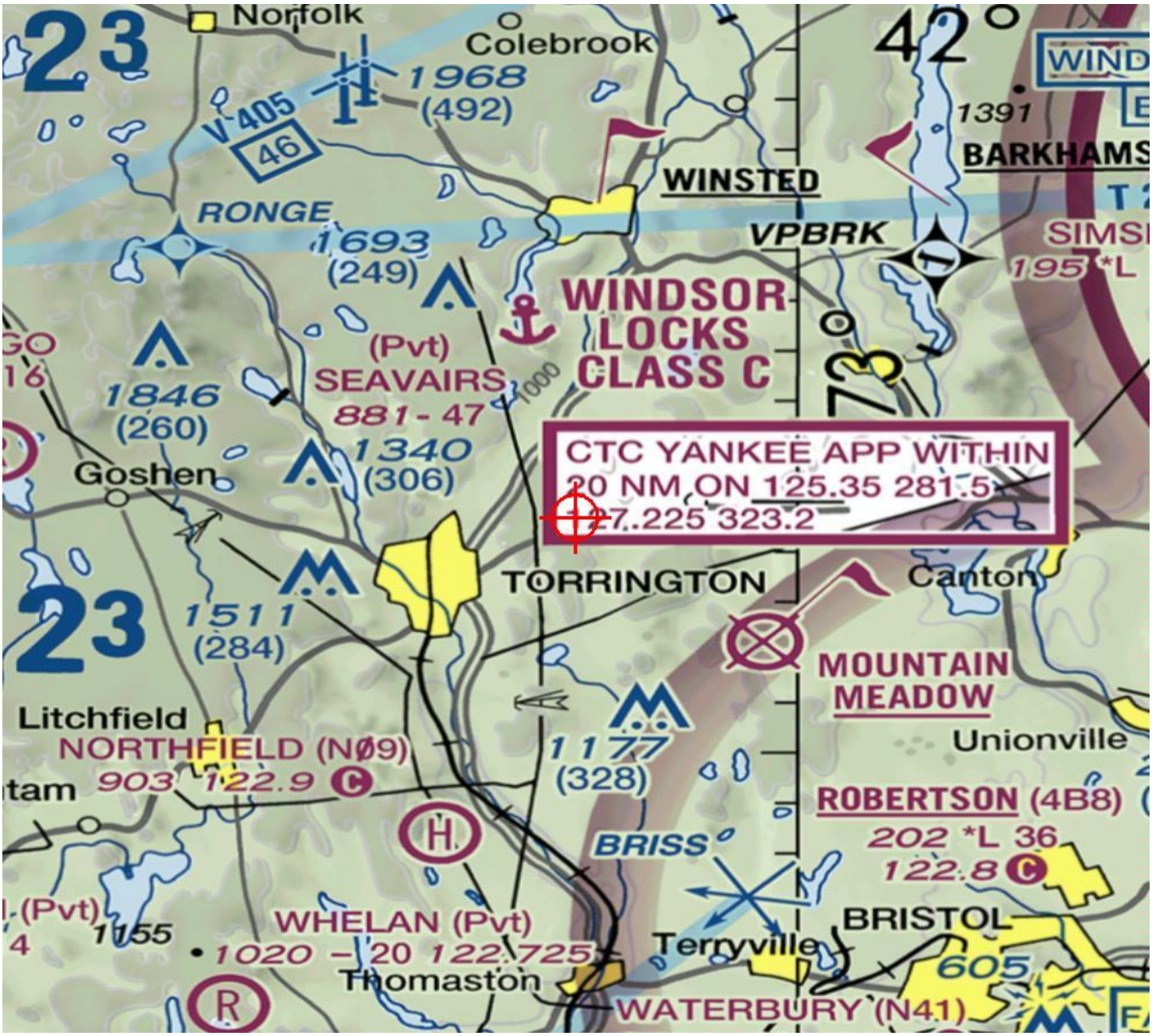
If we can be of further assistance, please contact our office at (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1668-OE.

Signature Control No: 433828031-437278400 (DNE)
David Maddox
Specialist

Attachment(s)
Case Description
Map(s)

Case Description for ASN 2020-ANE-1668-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.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Mail Processing Center
Federal Aviation Administration
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Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1667-OE

Issued Date: 04/22/2020

Bradley J. Parsons, PE, PMP
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:	Torrington, CT
Latitude:	41-49-48.41N NAD 83
Longitude:	73-04-24.30W
Heights:	1126 feet site elevation (SE) 10 feet above ground level (AGL) 1136 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 L Change 2.

This determination expires on 10/22/2021 unless:

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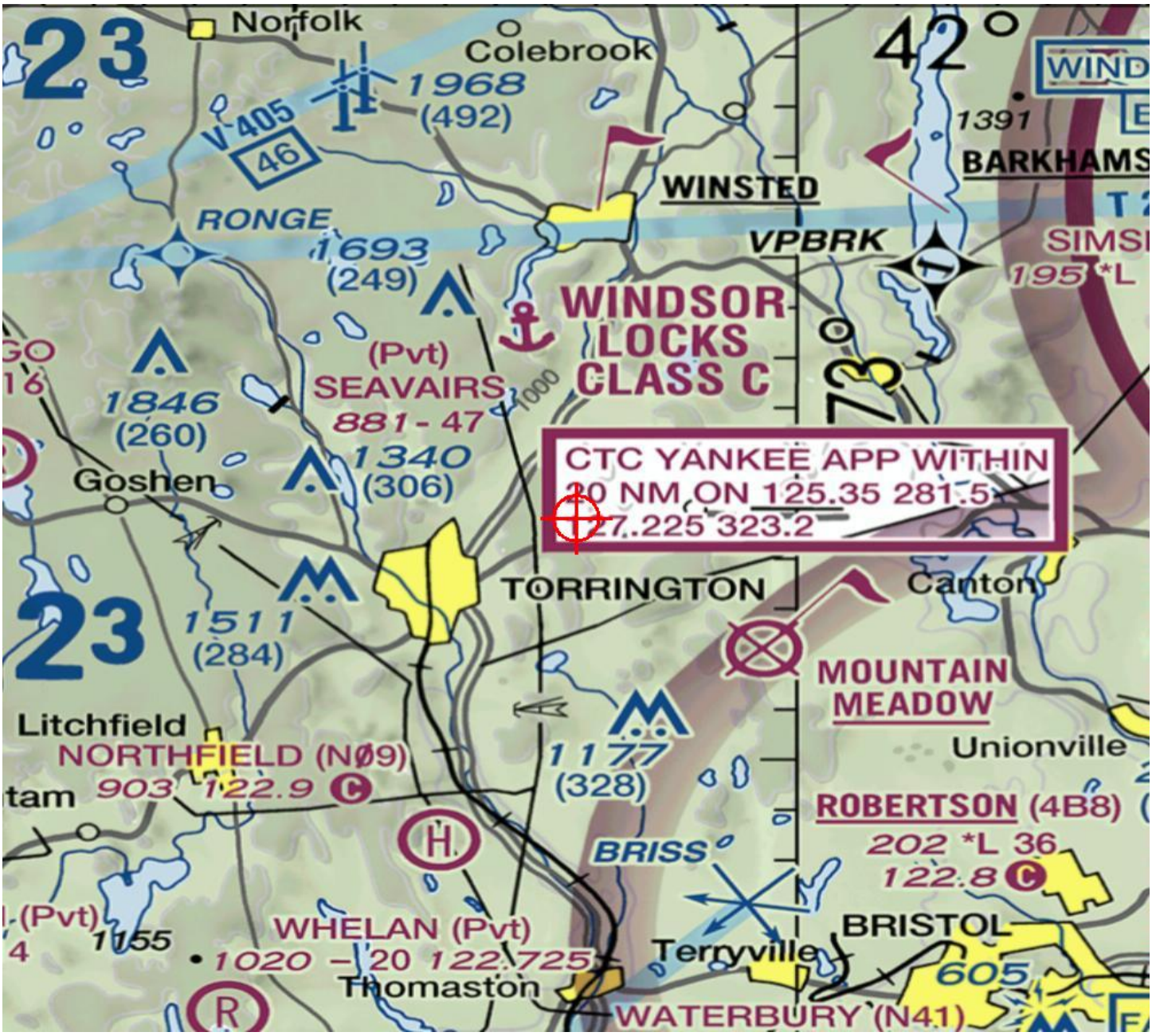
If we can be of further assistance, please contact our office at (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1667-OE.

Signature Control No: 433828030-437278395 (DNE)
David Maddox
Specialist

Attachment(s)
Case Description
Map(s)

Case Description for ASN 2020-ANE-1667-OE

Study is being requested in connection w/ a proposed solar facility consisting of solar panels and associated ground equipment. Please see uploaded PDF file for site layout and point locations. Point 6 is highest elevation of proposed solar facility.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APPENDIX G

VIEWSHED MAP AND
PHOTO-SIMULATIONS

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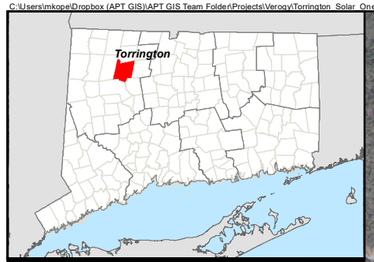
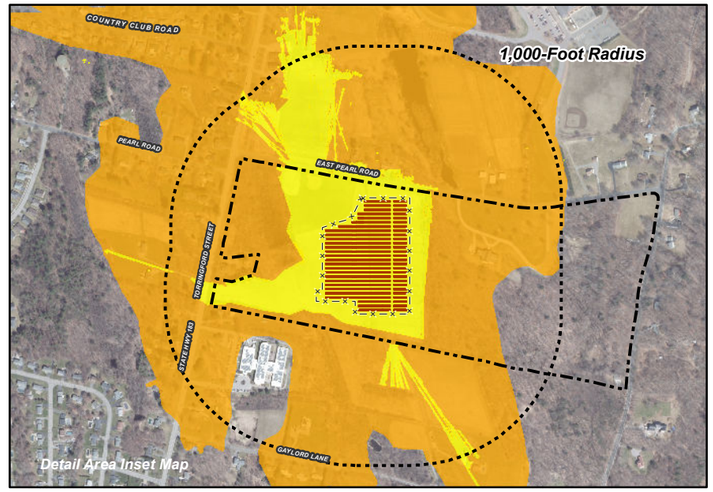


Statewide and Regional Overview Map



Detail Area Inset Map

Viewshed Analysis Map

Proposed Solar Facility
Torrington Solar One
East Pearl Road
Torrington, Connecticut

Proposed solar panels to be mounted on approximate 10' AGL support structures.
Forest canopy height and topographic contours are derived from LiDAR data.
Study area encompasses a 1-mile radius and includes 2,411 acres.
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Date: May 2020

Legend

- Site
- Study Area (1-Mile Radius)
- Proposed Perimeter Fence
- Proposed Solar Panel
- Predicted Year-Round Visibility (31 Acres)
- Areas of Potential Seasonal Visibility (190 Acres)
- Municipal Boundary
- Photographic Locations (Taken on April 10, 2020)
- 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.

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Torrington Solar One, LLC

ALL-POINTS TECHNOLOGY CORPORATION

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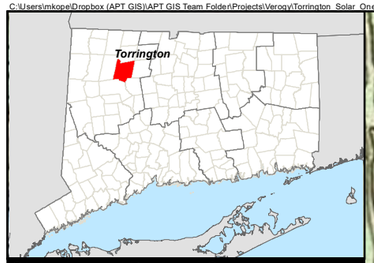

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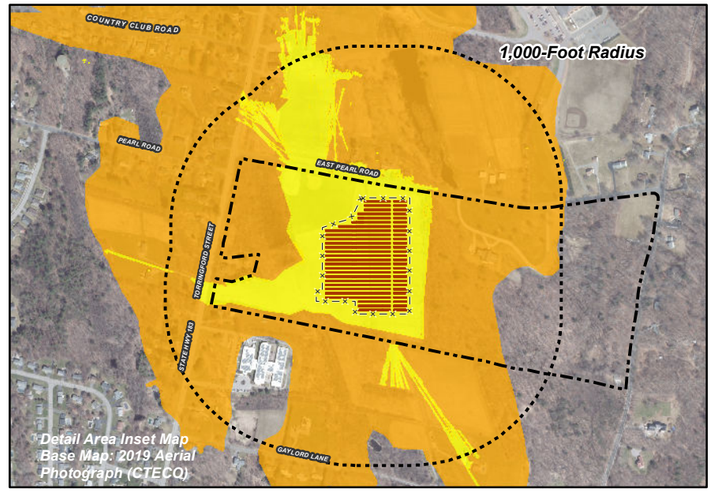

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Torrington, Connecticut

Proposed solar panels to be mounted on approximate 10' AGL support structures.
Forest canopy height and topographic contours are derived from LiDAR data.
Study area encompasses a 1-mile radius and includes 2,411 acres.
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Map, Torrington, CT (1984)
Map Date: May 2020

Legend

- Site
- Study Area (1-Mile Radius)
- Proposed Perimeter Fence
- Proposed Solar Panel
- Predicted Year-Round Visibility (31 Acres)
- Areas of Potential Seasonal Visibility (190 Acres)
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- Federal
- Land Trust
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Data Sources:

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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.

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0.25 0.125 0 0.25 Miles

Torrington Solar One, LLC

ALL-POINTS TECHNOLOGY CORPORATION

PHOTOGRAPHED ON 4/10/2020

24mm Focal Length

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
1	**EAST PEARL ROAD**	**SOUTH**	**+/- 120 FEET**

ALL-POINTS TECHNOLOGY CORPORATION

Torrington Solar One, LLC

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
1	**EAST PEARL ROAD**	**SOUTH**	**+/- 120 FEET**

24mm Focal Length

PHOTOGRAPHED ON 4/10/2020

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
2	**BISHOP DONNELLY FIELD**	**EAST**	**+/- 500 FEET**

ALL-POINTS TECHNOLOGY CORPORATION

Torrington Solar One, LLC

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
2	**BISHOP DONNELLY FIELD**	**EAST**	**+/- 500 FEET**

ALL-POINTS TECHNOLOGY CORPORATION

Torrington Solar One, LLC

50mm Focal Length

PHOTOGRAPHED ON 4/10/2020

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
3	**TORRINGFORD STREET**	**SOUTHEAST**	**+/- 0.18 MILE**

ALL-POINTS TECHNOLOGY CORPORATION

Torrington Solar One, LLC

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
3	**TORRINGFORD STREET**	**SOUTHEAST**	**+/- 0.18 MILE**

50mm Focal Length

PHOTOGRAPHED ON 4/10/2020

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
4	**TORRINGFORD STREET**	**EAST**	**+/- 0.13 MILE**

ALL-POINTS TECHNOLOGY CORPORATION

Torrington Solar One, LLC

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
4	**TORRINGFORD STREET**	**EAST**	**+/- 0.13 MILE**