



ENVIRONMENTAL ASSESSMENT

PROPOSED

EAST WINDSOR SOLAR ONE, LLC

SOLAR PROJECT

341 EAST ROAD

EAST WINDSOR, CONNECTICUT

HARTFORD COUNTY

Prepared for:

**East Windsor Solar One, LLC
150 Trumbull Street, 4th Floor
Hartford, CT 06103**

Prepared by:

**All-Points Technology Corporation, P.C.
567 Vauxhall Street Extension – Suite 311
Waterford, CT 06385**

August 2020

Table of Contents

1	INTRODUCTION	1
2	PROPOSED PROJECT	3
2.1	PROJECT SETTING	3
2.2	PROJECT DEVELOPMENT AND OPERATION	5
2.2.1	<i>Access.....</i>	<i>6</i>
2.2.2	<i>Public Health and Safety.....</i>	<i>6</i>
2.2.3	<i>Land Use Plans.....</i>	<i>6</i>
3	ENVIRONMENTAL CONDITIONS.....	8
3.1	HABITAT AND WILDLIFE	8
3.1.1	<i>Habitat Types.....</i>	<i>10</i>
3.1.2	<i>Wildlife.....</i>	<i>12</i>
3.1.3	<i>Core Forest Determination.....</i>	<i>12</i>
3.2	RARE SPECIES.....	13
3.2.1	<i>Natural Diversity Data Base.....</i>	<i>13</i>
3.2.2	<i>NDDDB Consultation.....</i>	<i>14</i>
3.2.3	<i>USFWS Consultation.....</i>	<i>14</i>
3.3	WATER RESOURCES	15
3.3.1	<i>Wetlands and Watercourses.....</i>	<i>15</i>
3.3.1	<i>Wetland Impacts.....</i>	<i>16</i>
3.3.2	<i>Vernal Pools.....</i>	<i>17</i>
3.3.3	<i>Floodplain Areas.....</i>	<i>22</i>
3.4	WATER QUALITY	22
3.4.1	<i>Groundwater.....</i>	<i>23</i>
3.4.2	<i>Surface Water.....</i>	<i>23</i>
3.4.3	<i>Stormwater Management.....</i>	<i>23</i>
3.5	AIR QUALITY.....	24
3.6	SOILS AND GEOLOGY.....	25
3.6.1	<i>Prime Farmland Soils.....</i>	<i>26</i>
3.7	HISTORIC AND ARCHAEOLOGICAL RESOURCES	27
3.8	SCENIC AND RECREATIONAL AREAS.....	28
3.9	NOISE	30
3.10	LIGHTING	31
3.11	FAA DETERMINATION	31
3.12	VISIBILITY	31
4	CONCLUSION.....	33

Figures

Figure No.	Title	
FIGURE 1	SITE LOCATION MAP	2
FIGURE 2	EXISTING CONDITIONS MAP	4
FIGURE 3	PROPOSED CONDITIONS MAP	9
FIGURE 4	VERNAL POOL ANALYSIS MAP	21
FIGURE 5	SURROUNDING FEATURES MAP.....	29

Tables

TABLE 1 – HABITAT ASSESSMENT AND IMPACTS TABLE	11
TABLE 2 – WETLAND IMPACTS TABLE	16
TABLE 3 – VERNAL POOL IMPACT ANALYSIS TABLE.....	20
TABLE 4 – FARMLAND SOILS ASSESSMENT AND IMPACTS TABLE.....	27

Appendices

APPENDIX A – PROJECT PLANS	
APPENDIX B – DEEP NDDB CORRESPONDENCE	
APPENDIX C – USFWS/NDDB COMPLIANCE STATEMENT	
APPENDIX D – RESOURCES PROTECTION PLAN	
APPENDIX E – SHPO CORRESPONDENCE AND CULTURAL RESOURCES RECONNAISSANCE SURVEY REPORTS	
APPENDIX F – PRODUCT INFORMATION SHEETS	
APPENDIX G – FAA CORRESPONDENCE	
APPENDIX H – VIEWSHED MAP AND PHOTO-SIMULATIONS	

1 Introduction

All-Points Technology Corporation, P.C. ("APT") prepared this Environmental Assessment ("EA") on behalf of East Windsor Solar One, LLC (hereinafter referred to as the "Petitioner") for the proposed installation of a solar-based electric generating facility having an output of approximately 4.9 megawatts¹ ("Project") located in the towns of East Windsor and Ellington, Connecticut ("Town" and/or "Towns"). 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.

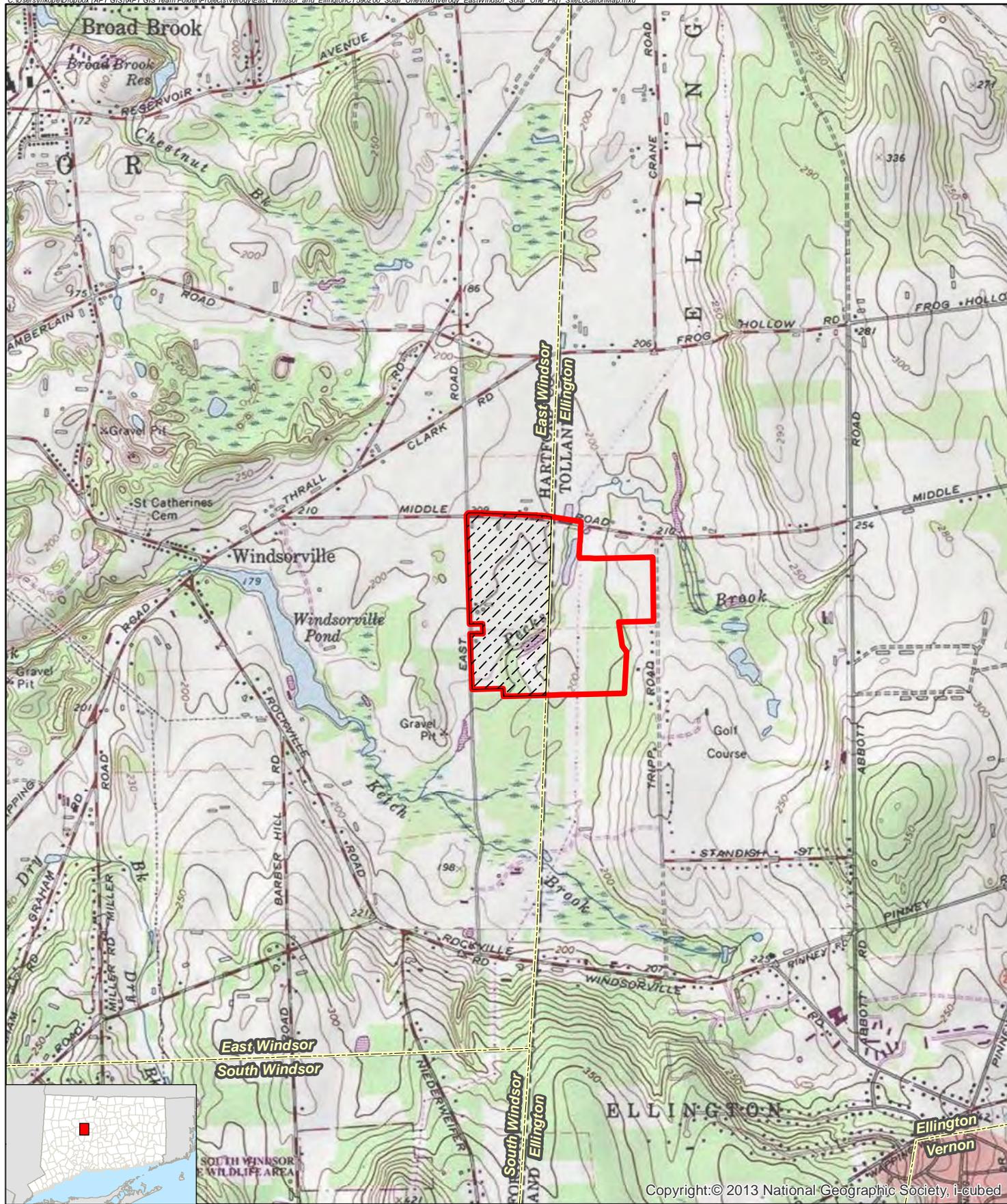
The results of this assessment demonstrate that the proposed development will comply with the Connecticut Department of Energy and Environmental Protection's ("DEEP") air and water quality standards and will not have an undue adverse effect on the existing environment and ecology.

The Project will be located at 341 East Road, in East Windsor, Connecticut, a ±147.81-acre property that is split between the Towns of East Windsor and Ellington² ("Property"). The East Windsor parcel is primarily undeveloped active agricultural land, with the exception of a farmhouse and several farm buildings in the eastern portion and a large barn in the northern portion of the Property. This parcel contains small wooded areas along the eastern and southern boundaries that adjoin forested areas on adjacent parcels. The Ellington parcel is undeveloped, with the exception of an electric utility transmission line right of way ("ROW") extending in a north/south direction through its western portion. Active agricultural land is located in the northeast and southwest portions of this parcel while its center is generally forested. The Property is privately-owned and zoned Agricultural/Residential (A-1) and Single Family Residential (R-3) in East Windsor and Rural Agricultural/Residential (RAR) in Ellington.

The Project will be entirely located within the East Windsor parcel ("Site"). Figure 1, *Site Location Map*, depicts the location of the Property, Site and surrounding area.

¹ The output referenced is Alternating Current (AC).

² The western portion of the Property (±75.99 acres) is located at 341 East Road in East Windsor (Volume/Page: 340/681 – East Windsor Assessor) with the eastern portion of the Property (±71.82 acres) located at 146 Tripp Road (Volume/Page: 409/1033 – Ellington Assessor) in Ellington, Connecticut.



Copyright:© 2013 National Geographic Society, i-cubed

Legend

- Property
- Site
- Municipal Boundary

Map Notes:
 Base Map Source: USGS 7.5 Minute Topographic
 Quadrangle Maps: Broad Brook (1984), CT
 Map Scale: 1 inch = 2,000 feet
 Map Date: August 2020



Figure 1
Site Location Map
 Proposed Solar Facility - East Windsor Solar One
 341 East Road
 East Windsor, Connecticut

East Windsor Solar One, LLC



2 Proposed Project

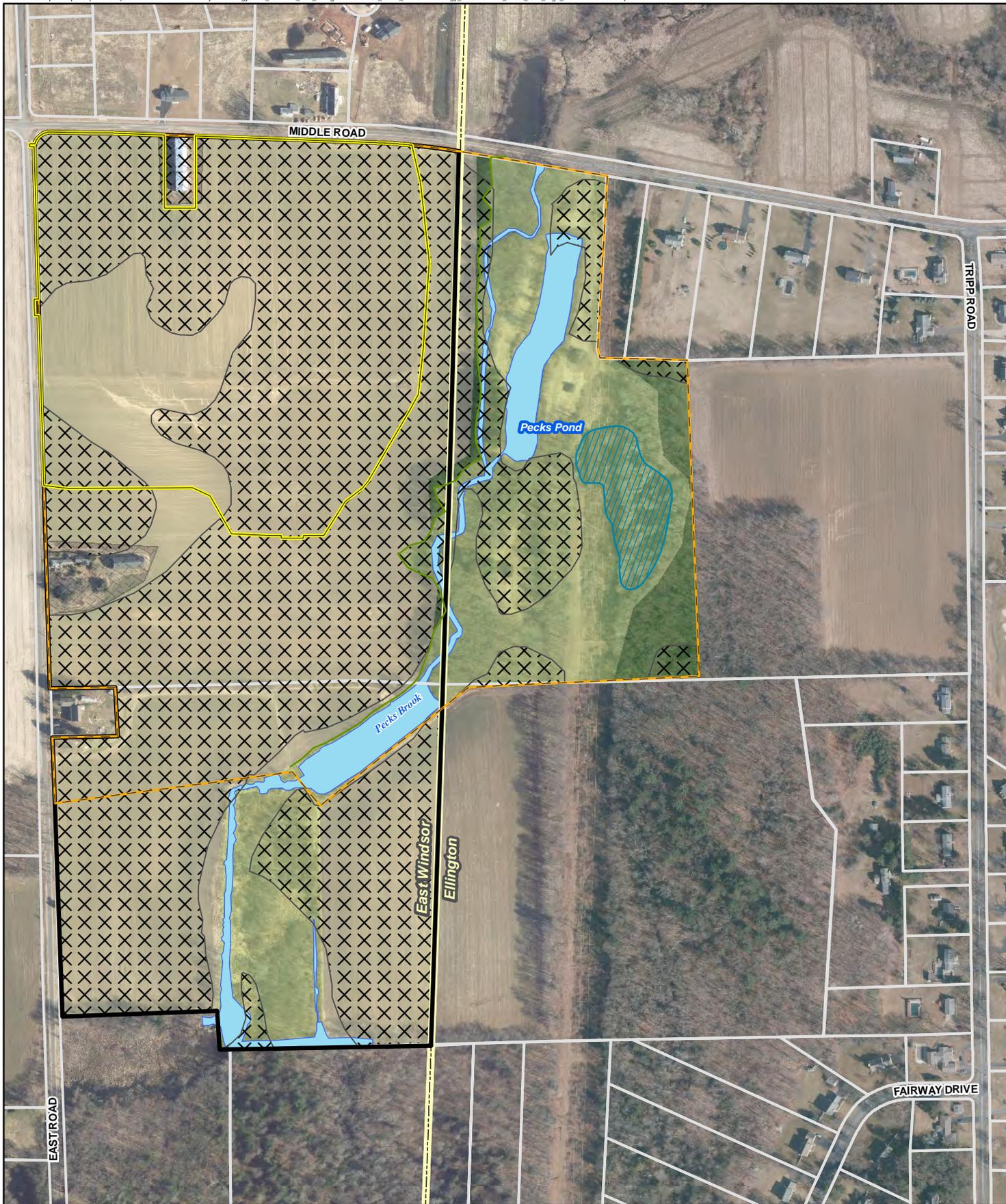
2.1 Project Setting

The Site is located east of East Road, south of Middle Road and bounded to the west by the Ellington municipal boundary. The Project will be located within the northern portion of the Site in an existing agricultural field. A small section of the southern extent of the Site is wooded. Pecks Brook enters the Site from the east and continues south before exiting the Property.

The Site's existing topography slopes gently from north to south with ground elevations ranging from approximately 205 feet above mean sea level ("AMSL") in the north to 185 feet AMSL to the southwest.

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

The surrounding land use is characterized primarily by a mix of undeveloped wooded and agricultural land with residential development across Middle Road to the north. Additional residential development becomes more prevalent farther to the southeast and southwest.



- Legend**
- Parcel Boundary
 - Study Area
 - Municipal Boundary
 - Project Area
 - Site
 - Delineated Wetland Boundary
 - Vernal Pool
 - Prime Farmland Soils

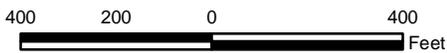
- Habitat Cover Type**
- Agricultural Field
 - Developed
 - Forested
 - Open Water
 - Wetland

Figure 2
Existing Conditions Map

Proposed Solar Facility - East Windsor Solar One
341 East Road
East Windsor, Connecticut

East Windsor Solar One, LLC

Map Notes:
Base Map Source: CTECO 2019 Aerial Photograph
Map Scale: 1 inch = 400 feet
Map Date: August 2020



2.2 Project Development and Operation

Upon its completion, the solar electric energy generating facility ("Facility") will consist of a total of 19,344 photovoltaic modules ("panels"), with 15,990 being Trina TSM-DE15MC 395W and 3,354 being Risen RSM144-6 380W ; 39 Solectria Solar's XGI 1500-125/125 inverters; one (1) Chint CPS SCH100KTL-DO/US-600 inverter; three (3) pad mounted switchgears; three (3) transformers,³ and one (1) service interconnection line. A ground-mounted racking system will be used to secure the panel arrays. An eight (8)-foot tall chain-link security fence with privacy slats will be installed along the northern portion of the Facility, adjacent to Middle Road. Remaining sections of the Facility will be enclosed by a six (6)-foot tall chain-link security fence (without privacy slats). The proposed electrical interconnection will extend overhead via the installation of approximately five (5) new utility poles to an existing distribution pole located to the northwest of the Site along East Road, south of its intersection with Middle Road. The Facility will occupy approximately 24.0 acres of the Site, with an additional ± 5.1 acres of existing cleared land to be used and maintained beyond the fenced Facility limits, for a total "Project Area" of ± 29.1 acres.

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

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

Construction activities within the Project Area will include grading to incorporate stormwater management features, erosion and sedimentation ("E&S") control measures, plantings for visual screening, and racking and modules electrical trenching; installation of utility poles; and new access road development. Existing grades throughout the Project Area will remain except in areas of stormwater management features. These activities will require some manipulation (cuts/fills) and regrading.

³ The proposed transformers are one (1) 250 kVA, one (1) 1,000 kVA and one (1) 2,000 kVA.

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 the west, off of East Road, and will require approximately ±2,340 feet of new gravel roads to provide access for construction equipment and materials, and service and maintenance vehicles within and around the Facility. The development of new access roads will require minimal grading and the installation of gravel surfacing. There are no existing interior roads within the boundaries of the Project Area.

2.2.2 Public Health and Safety

The Project will meet or exceed applicable health and safety standards and requirements related to electric power generation. The Facility will not consume any raw materials, will not produce any by-products and will be unstaffed during normal operating conditions. The Facility will be enclosed within a chain-link security fence that ranges from six (6) feet along the east, west and southern perimeter to eight (8) feet along the northern perimeter. The entrance to the Facility will be gated, limiting access to authorized personnel only. All Town emergency response personnel will be provided access via a Knox Pad lock. The Facility will be monitored from off-site and will have the ability to remotely de-energize in the case of an emergency. One (1) gate will be installed along the western fence line of the Facility.

2.2.3 Land Use Plans

The Project is consistent with state and federal policies and will support the state's energy goals by developing a renewable energy resource while not having a substantial adverse environmental effect. Although local land use requirements do not apply to this Project, it has been designed to meet the intent of the Town's land use regulations, to the extent feasible. As stated previously, the Property is located within Agricultural/Residential (A-1) and Single Family Residential (R-3) Zone in East Windsor and Rural Agricultural/Residential (RAR) Zone in Ellington.

Additionally, the Project conforms to the Town of East Windsor's 2016 Plan of Conservation and Development ("POCD") which includes as a goal (page 94): "...Promote Solar Power/Renewable

Energy, and reduction of Greenhouse Gas Emissions in the Town... Amend Zoning Regulations with guidelines to be more defined and adaptable for solar uses... Consider allowing Solar Farms as a primary use...". The Town of Ellington's 2019 POCD does not specifically address the promotion or use of solar power.

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

3 Environmental Conditions

This section provides an overview of the current environmental conditions on 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.

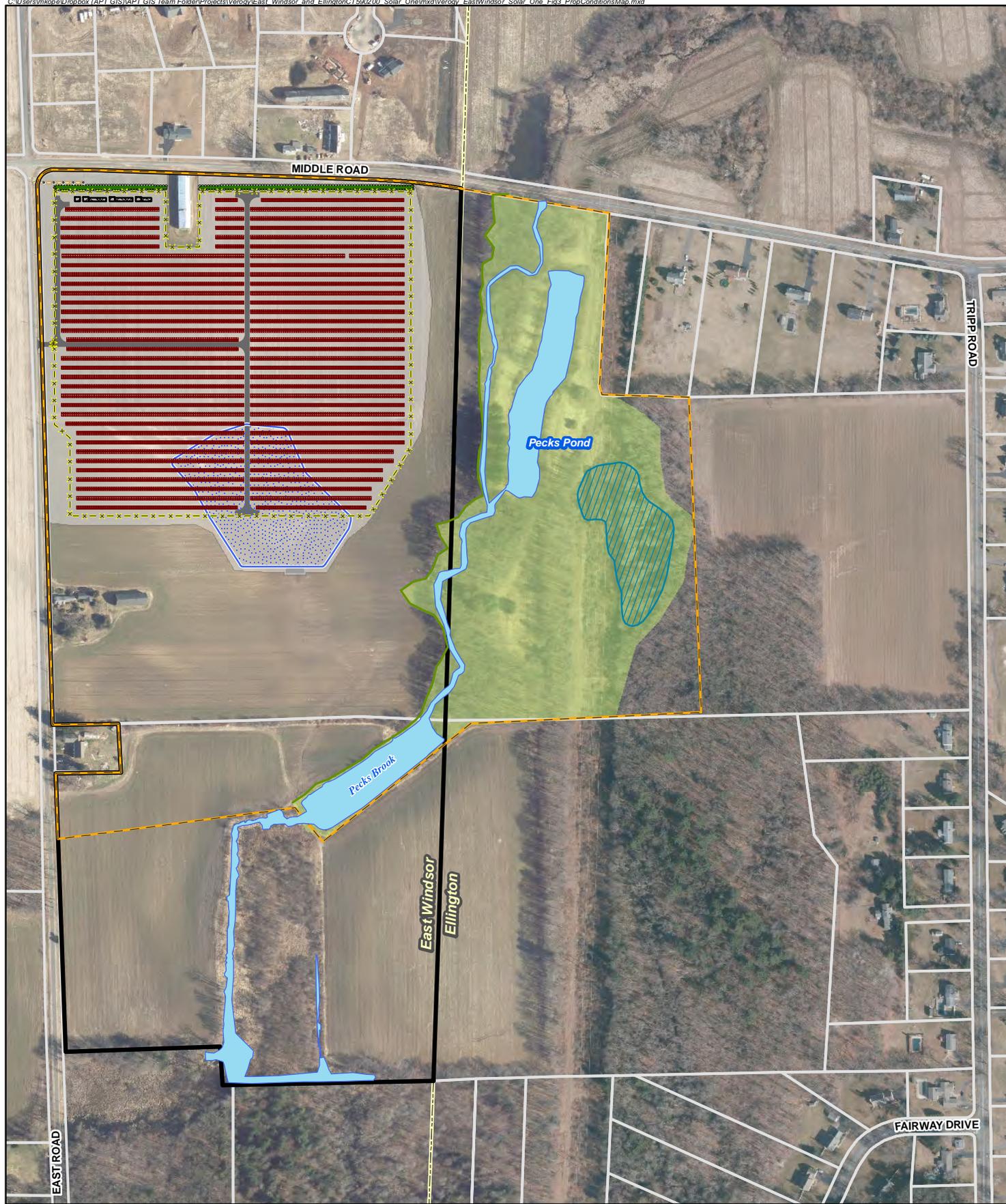
For purposes of this evaluation, a ±79-acre portion of the Property was identified as the "Study Area," which is described herein and depicted in Figure 2, *Existing Conditions Map*. This figure depicts current environmental conditions on the Site, within the Study Area, and several other features discussed below. Please refer to Figure 3, *Proposed Conditions Map* for a depiction of the Project and its compatibility with the Site resources discussed herein.

3.1 Habitat and Wildlife

Five (5) habitat types (vegetative communities) were identified on the Site and assessed during field investigations performed on May 21, 2019 and January 2nd, 2020. Transitional ecotones separate these distinct habitat types in proximity to the Project Area. Details of these habitat types were assessed within the Study Area via field evaluations while habitat types identified beyond the Study Area were generally assessed using remote sensing and publicly available datasets. Wetlands introduced in this section are described in detail in Section 3.3.1 of this report.

The varied habitats, which have the ability to support several species, are as follows:

- Agricultural Field;
- Developed;
- Forested;
- Open Water; and
- Wetland.



Parcel Boundary	Delineated Wetland Boundary	Conc. Equipment Pad	Perimeter Fence
Municipal Boundary	Wetland Area	Gravel Access Road	Interconnection Path
Site	Vernal Pool	Stormwater Basin	Interconnection Pole
Study Area	Waterbody/Watercourse	Stormwater Overflow Gravel	
Limit of Disturbance	Landscape Screening	Solar Modules	

Figure 3
Proposed Conditions Map
 Proposed Solar Facility - East Windsor Solar One
 341 East Road
 East Windsor, Connecticut
East Windsor Solar One, LLC

Map Notes:
 Base Map Source: CTECO 2019 Aerial Photograph
 Map Scale: 1 inch = 400 feet
 Map Date: August 2020



3.1.1 Habitat Types

Agricultural Field

Agricultural Field habitat dominates the majority of the Site and the Project Area. Portions of these cultivated and previously harvested fields are currently planted with cover crops of annual rye (*Lolium multiflorum*) and clover (*Trifolium sp.*). A majority of the field, at the time of inspection, was fallow with exposed soils present.

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

The Project would have no effect on developed areas of the Site, which consist of a farmhouse and several farming buildings located beyond the bounds of the Project Area.

Forested

No substantive forested land occurs on the Site. A minor incursion of forest extends onto the eastern portion of the Study Area (in Ellington), southeast of the Project Area. The Ellington parcel is largely forested and consists of mature mixed hardwoods heavily influenced by edge effects resulting from surrounding agricultural fields to the west (on the Site) and farther east on abutting land, as well as the electrical transmission corridor, which is interior to the wooded area. The tree canopy is dominated by complexes of sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), white oak (*Quercus alba*), black cherry (*Prunus serotina*), yellow birch (*Betula alleghaniensis*), and scattered stands of white pine (*Pinus strobus*). The invasive non-native Japanese barberry (*Berberis thunbergii*) dominates the shrub layer, with spicebush (*Lindera benzoin*) and sapling trees found in the overstory. Asiatic bittersweet (*Celastrus orbiculatus*) and foxgrape (*Vitis labrusca*) also occur throughout this habitat. The herbaceous layer is largely devoid of vegetation due to the dense closed canopy, with limited occurrences of Canada mayflower

(*Maianthemum canadense*), Christmas fern (*Polystichum acrostichoides*) and various forest grasses/sedges.

The Project will not encroach within Forested habitat on the Site nor will tree trimming be necessary. As a result, the Project is not expected to have any effect on this habitat.

Open Water

Two open water features were identified within the Study Area, consisting of a large open waterbody identified as Pecks Pond and an associated perennial watercourse identified as Pecks Brook. This habitat type consists of cool water resources located interior to the Forested habitat. These features drain south and southwest generally along the eastern boundary of the Site. Additional details of these features are provided in Section 3.3.1.

The Project is significantly removed from these Open Water resources and, through the proper installation and maintenance of E&S controls during and post construction, no impacts are anticipated to this habitat.

Wetland

One (1) wetland area was identified on the Site, including an interior perennial watercourse and vernal pool. As this wetland consists of a complex of habitat types, a more detailed discussion of the wetland is provided in Section 3.3.1.

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

Table 1: Habitat Assessment and Impacts Table

Table 1: Habitat Assessment and Impacts Table		
Habitat Type	Total Area On-Site (+/- ac.)	Area Affected by Project (+/- ac.)
Agricultural Field	66.7	29.1
Developed	1.9	0.0
Forested	3.3	0.0
Wetland	22.6	0.0

3.1.2 Wildlife

While a diversity of habitat is present on the Site, in general the size of these habitats and surrounding development create a limiting factor for utilization by wildlife. Habitat specialists that require large contiguous habitat blocks, including mammals and birds, are not supported by the existing environment on the Site. The entire Project Area and a majority of the Site consist of routinely managed agricultural fields, and thus do not support any substantive wildlife habitat. Adjacent complexes of upland and wetland forest habitats to the east may support forest dwelling and wetland dependent wildlife populations.

Despite their relatively small size, the complexity of habitats on and adjacent to the Property may provide higher quality habitat for species that are more tolerant of human disturbance, habitat fragmentation and 'edge' effects. Generalist wildlife species, including several song birds and mammals such as raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), grey squirrel (*Sciurus carolinensis*), Virginia opossum (*Didelphus virginiana*), and eastern chipmunk (*Tamias striatus*), could be expected to use these areas.

Although portions of existing Agricultural Field habitat will be occupied by or converted as a result of the Project, similar habitat also occurs either on or adjacent to the Site. Regardless, due to the Project entirely occurring within the Agricultural Field habitat, which currently supports limited wildlife habitat value, the Project will not likely result in a significant impact to this habitat.

3.1.3 Core Forest Determination

APT reviewed the DEEP's *Forestland Habitat Impact Mapping*⁴, which revealed that the Site is not included within an area mapped as core forest. APT also reviewed UConn's Center for Land Use Education and Research's ("CLEAR") Forest Fragmentation Analysis ("FFA")⁵ study and, based on FFA criteria, the Site does not contain any forested habitat identified as "core" forest. This is consistent with APT's independent analysis (based on GIS analysis of 2016 leaf-off aerial photography, field observations and professional experience), which indicates that no interior forest block is located on-Site. While limited forested habitat does exist on the eastern side of the Property, this forested habitat is entirely influenced by "edge" effects and is not considered core

⁴ 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.

⁵ CLEAR's FFA: http://clear.uconn.edu/projects/landscape/forestfrag/forestfrag_public%20summary.pdf

forest habitat. The Project Area will be entirely located within an existing agricultural field and no tree clearing is proposed. As a result, no impacts to forested resources will occur.

In accordance with Connecticut General Statutes §16-50k(a), and based on the size of the proposed Facility (>2.0 MW), the Petitioner sent correspondence to DEEP Forestry in May, 2020 documenting that the Project will not materially affect core forest. The Petitioner received electronic confirmation that the Project will not "...have a material impact to core forest..." from DEEP Forestry on May 21, 2020.

3.2 Rare Species

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

3.2.1 Natural Diversity Data Base

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

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

APT reviewed the most recent DEEP NDDDB mapping (December 2019⁶) to determine if any such species or habitats occur on or within 0.25-mile of the Site. The NDDDB mapping reveals the Site is located within a shaded polygon.

3.2.2 NDDDB Consultation

In conformance with DEEP and Council requirements, APT submitted a review request to the NDDDB with respect to this Project on February 24, 2020. APT received a response from DEEP on March 5, 2020, stating that they "...do not anticipate negative impacts to State listed species resulting from your proposed activities...."

Copies of APT's submission and DEEP's response are provided in Appendix B, *DEEP NDDDB Correspondence*.

3.2.3 USFWS Consultation

The northern long-eared bat ("NLEB"; *Myotis septentrionalis*) is a federally-listed⁷ 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 East Granby, approximately 11.3 miles to the northwest.

The Project will not result in the removal of any trees. Therefore, there is no potential impact on NLEB habitat.

APT completed a determination of compliance with Section 7 of the Endangered Species Act of 1973 for the Project.

⁶ APT subsequently reviewed updated DEEP NDDDB from June of 2020 and determined that it was consistent their original review.

⁷ Listing under the federal Endangered Species Act

In compliance with the US Fish and Wildlife Service (“USFWS”) criteria for assessing NLEB, the Project will not likely result in an adverse effect or incidental take⁸ of NLEB and does not require a permit from USFWS. A letter confirming compliance was received by USFWS on February 3, 2020. Thus, no further consultation with USFWS is required.

A full review of the *Endangered Species Act (ESA) Compliance Determination* is provided in Appendix C, *USFWS and NDDB Compliance Statement*.

3.3 Water Resources

3.3.1 Wetlands and Watercourses

An APT Registered Soil Scientist completed a field inspection and wetland delineation on May 21, 2019. One (1) wetland was identified in the Study Area, which includes an interior perennial watercourse and vernal pool. The results of the field delineation are summarized below. The locations of these resources are depicted on Figure 2, *Existing Conditions Map*.

Wetland 1

Wetland 1 consists of a complex of bordering vegetated wetlands to Pecks Brook, an interior perennial watercourse, and two man-made agricultural ponds (south and east). This stream/wetland system generally drains south, initially on the Ellington parcel and generally paralleling the open agricultural field before turning slightly west onto the Site and draining into a relatively large farm pond. This wetland system contains pockets of interior flooding dominated by emergent and scrub/shrub vegetation while a majority of the resource consists of bordering ‘edge’ forest. The interior perennial watercourse is well defined resulting from historic alteration and channelization. At the west end of the pond, a shallow earthen berm and farm road result in impoundment of the stream flows. A secondary farm pond was historically formed in the northeastern extents of Wetland 1. It appears there is a partially clogged drop structure that conveys outlet flows from the pond but it is evident that during peak flow events water drains west over the berm and across the farm road. A complex of ‘cryptic’ style vernal pool habitat was observed interior to Wetland 1 in the southeast corner of the Study Area, on the adjacent Ellington parcel.

⁸ “Incidental take” is defined by the Endangered Species Act as take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.” For example, harvesting trees can kill bats that are roosting in the trees, but the purpose of the activity is not to kill bats.

3.3.1 Wetland Impacts

No direct impacts to wetlands or watercourses are proposed in association with developing the Facility. The nearest construction activity to wetland resources would occur within approximately 145 feet, consisting of fencing, solar modules, and stormwater features installation. Table 2, *Wetlands Impacts Table*, provides a summary of distances to wetland resources.

To promote protection of wetlands and watercourses during construction, safeguards have been developed to avoid unintentional impacts to these resources, including a Project-specific protection plan and the installation and maintenance of E&S controls in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. See Appendix D, *Resources Protection Plan*. 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) with the majority of the ground beneath the solar arrays planted 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.

Table 2: Wetlands Impacts Table

Table 2: Wetland Impacts		
Direct Impacts to Wetland 1 (ac.)	0	
Total Direct Impacts to Wetlands (ac.)	0	
Project Proximity to Wetlands (from limit of disturbance)	Distance (+/- ft.)	Direction (of wetland from LOD)
Project Proximity to Wetland 1	145	East

3.3.2 Vernal Pools

During its initial field inspection, APT assessed Wetland 1 for indications of vernal pool resources. Based on evidence of seasonally flooded areas observed on that date, a formal vernal pool assessment was conducted on March 22 and April 10, 2020. The presence of a vernal pool was confirmed and it was characterized as a large cryptic pool embedded within an extensive wetland system that extends around the pool in all directions. The nearest edge of the vernal pool is approximately 515 feet east of the Project Area.

Two cover types are present within the pool: scrub-shrub and forested. The scrub-shrub habitat is located within the western portions of the pool in the maintained transmission line ROW. Scrub-shrub vegetation is dominated by buttonbush (*Cephalanthus occidentalis*), silky dogwood (*Cornus amomum*), highbush blueberry (*Vaccinium corymbosum*) and winterberry (*Ilex verticillata*).

The eastern portions of the pool are forested. Forested portions of the pool have a tree canopy dominated by pin oak (*Quercus palustris*), swamp white oak (*Quercus bicolor*) and red maple.

The pool hydrology appears to be semi-permanently flooded. The maximum observed depth was approximately two feet.

Survey work focused on identifying both species richness and abundance of vernal pool indicator species. Survey methods included visual surveys to identify adults, larvae and egg masses, aural surveys to record breeding choruses and dip-net surveys to identify amphibian larvae.

Two vernal pool indicator species were confirmed present, the wood frog (*Lithobates sylvaticus*) and spotted salamander (*Ambystoma maculatum*). A total of 53 spotted salamander egg masses and 127 wood frog egg masses were observed. Spotted salamander egg masses were scattered throughout the pool but occurred predominantly within the forested portions where two (2) concentrations of masses were observed. Wood frog egg masses were also scattered throughout the pool but occurred largely within two (2) communal masses located within both the forested and scrub-shrub portions of the pool. Deposition of wood frog eggs occurred over several weeks as indicated by the variation in the development stage noted between egg mass clusters. Embryo mortality due to ice damage from the pool refreezing after egg deposition was also noted.

One additional vernal pool indicator species was considered potentially present, the blue spotted salamander complex (*Ambystoma laterale*). The distribution of blue-spotted salamander complex in Connecticut is strongly correlated with Pleistocene-era glacial lake deposits. Within eastern

Connecticut, known populations occur within Glacial Lake Hitchcock and Glacial Lake Ellington in the Scantic River Drainage Basin. The Site and Study Area lies within the Scantic River Basin, and the subject vernal pool represents suitable breeding habitat for blue-spotted salamander complex. Although the Site is located outside of a glacial lakebed (roughly between the eastern limits of Glacial Lake Hitchcock and the western limits of Glacial Lake Ellington), new populations/occurrences continue to be discovered in the State. Late winter trapping of breeding adults is the primary method of survey for blue-spotted salamander complex, as egg mass identification alone is not conclusive due to the similarity of the egg masses with the spotted salamander. In this case, that level of survey was not conducted as it was not deemed warranted due to the distance of the proposed Project from the vernal pool and lack of habitat impacts/loss of terrestrial *Ambystomid* salamander habitat resulting from the Project.

With respect to the presence of vernal pool facultative species, or other wetland-dependent species, the cold temperatures during the survey period limited surficial activity. This is particularly true for reptiles, which remained largely dormant and inactive during late March and early April. During both visits, the temperature remained below average, ranging from the high 30s to low 40s. On the initial visit, a thin film ice was present in the pool. The only other species noted were painted turtle (*Chrysemys picta*) and spring peeper (*Pseudacris crucifer*). One additional species that could potentially be present based on suitable habitat is the spotted turtle (*Clemmys guttata*).

3.3.2.1 Vernal Pool Evaluation

Construction and operation of the Facility would not result in direct physical impact to the identified 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.⁹

In order to evaluate potential impacts to the vernal pools and surrounding upland habitat, these resources were assessed using methodology developed by Calhoun and Klemens¹⁰ (2002). This

⁹ 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.

¹⁰ Ibid

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 APT's landscape analysis, the existing area of development within the CTH of the vernal pool is less than the 25% threshold.

The Project will not impact the VPE associated with the identified vernal pool.

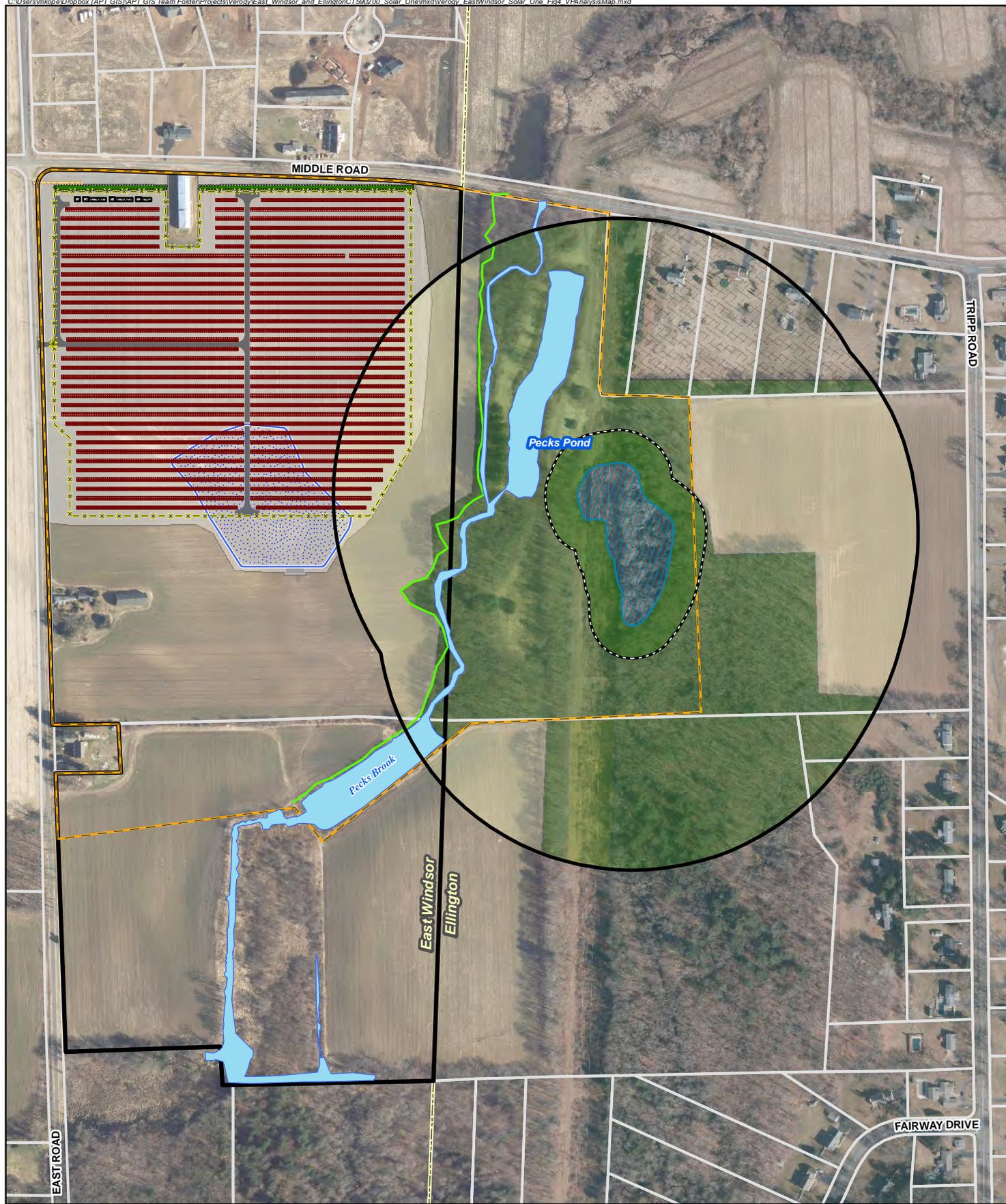
The Project will increase development within the CTH of the Vernal Pool but this increase in the developed condition will NOT exceed the 25% conservation threshold. Further, the proposed development will occur entirely within sub-optimal Agricultural Field habitat. Those areas of Agricultural Field habitat occupied by the Facility will be converted and established with grassland/open field species that will provide similar or improved cover habitat for migratory herpetofauna.

Project impacts within the CTH will occur entirely within sub-optimal habitat and will not result in exceeding the 25% conservation threshold. Therefore, it is APT's opinion that the proposed Project will not result in a likely adverse impact to this vernal pool.

Results of the vernal pool impact analysis are graphically depicted in Figure 4, *Vernal Pool Analysis Map*. A table summarizing the impact analysis, comparing existing conditions and proposed impact calculations within the CTH is also provided below in Table 3, *Vernal Pool Impact Analysis Table*.

Table 3: Vernal Pool Impact Analysis Table

Table 3: Vernal Pool Impact Analysis		
Vernal Pool Area: +/- 1.88 ac.		
Total Vernal Pool Envelope (VPE) Area: +/- 3.66 ac. Project Area Within VPE Area: None Total 100'-750' Critical Terrestrial Habitat (CTH) Area: +/-58.5 ac. Project Area Within CTH Area: +/- 2.88 ac.		
Existing VPE Areas: (+/- ac.) (no proposed habitat changes to VPE Areas)		
Forested	3.66	100%
Existing CTH Areas: (+/- ac.)		
Agricultural Field	20.9	36%
Developed	5.4	9%
Early Successional	1.4	2%
Forested	28.5	49%
Open Water	2.3	4%
Proposed CTH Areas: (+/- ac.)		
Agricultural Field	18.0	31%
Developed	8.3	14%
Early Successional	1.4	2%
Forested	28.5	49%
Open Water	2.3	4%



Legend		Habitat Cover Type	
Parcel Boundary	100' Vernal Pool Envelope (VPE)	Solar Modules	Agricultural Field
Municipal Boundary	100'-750' Critical Terrestrial Habitat (CTH)	Conc. Equipment Pad	Developed
Site	Vernal Pool	Gravel Access Road	Early Successional
Study Area	Delineated Wetland Boundary	Stormwater Basin	Forested
Limit of Disturbance	Wetland Area	Stormwater Overflow Gravel	Open Water
	Waterbody/Watercourse	Perimeter Fence	
	Landscape Screening	Interconnection Path	
	Interconnection Pole		

Figure 4
Vernal Pool Analysis Map
 Proposed Solar Facility - East Windsor Solar One
 341 East Road
 East Windsor, Connecticut

Map Notes:
 Base Map Source: CTECO 2019 Aerial Photograph
 Map Scale: 1 inch = 400 feet
 Map Date: August 2020



Although of minimal concern because of distance and sub-optimal habitat, potential short-term impacts to herpetofauna associated with nearby vernal pool habitats are possible should migrating individuals enter the Project Area during construction. Any short-term impacts associated with the proposed development within the vernal pool's CTH 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 *Resource Protection Plan* provided in *Appendix D*.

3.3.3 Floodplain Areas

APT reviewed the United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") for the Study Area. 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 majority of the Study Area and the entirety of the Project Area is depicted on FIRM PANEL #09003C 0245 F, dated September 26, 2008 while the eastern extent of the Study Area is depicted on FIRM PANEL #0901580015C, dated February 5, 1997. Based upon the reviewed FIRM Mapping, the Project Area is located in an area designated as Zone X, which is defined as an area of minimal flooding.

The Project Area is not located within a 100- and 500-year flood zone and as such, no special considerations or precautions relative to flooding are required for the Project.

3.4 Water Quality

Once operative, the Facility will be unstaffed and no potable water uses or sanitary discharges are planned. No liquid fuels are associated with the operation of the Facility. Stormwater generated by the proposed development will be properly handled and treated in accordance with the 2004 *Connecticut Stormwater Quality Manual*.

3.4.1 Groundwater

Groundwater underlying the Study Area is classified by DEEP as "GA".¹¹ This classification indicates groundwater within the area is presumed to be suitable for human consumption without treatment.

Based upon a review of available DEEP mapping, the Study Area is not located within a DEEP-classified Aquifer Protection Area ("APA"). The closest DEEP-classified APA is the "Hunt A 42" APA which is located approximately 1.25 miles west of the Study Area.

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

3.4.2 Surface Water

Based upon DEEP mapping, the Study Area is located in Major Drainage Basin 4 (Connecticut River), Regional Drainage Basin 42 (Scantic River), and Subregional Drainage Basin 4207 (Ketch Brook), and Local Drainage Basin 4207-01 (Pecks Brook at mouth above Ketch Brook).

Pecks Brook traverses the eastern and southern portions of the Study Area and is located approximately 150 feet downgradient from the nearest portion of the Project Area. Pecks Brook is classified by the DEEP as a Class A surface waterbody. Designated uses for Class A surface waterbodies include habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; and water supply for industry and agriculture.

The Project will have no adverse environmental effect on surface water quality. Sufficient setbacks have been established from water resources proximate to the Project. During construction, E&S controls will be installed and maintained in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. Once operative, stormwater will be managed in accordance with the 2004 *Connecticut Stormwater Quality Manual*.

3.4.3 Stormwater Management

The Project has been designed to meet the 2004 Connecticut Stormwater Quality Manual and the current draft of DEEP's *Appendix I, Stormwater Management at Solar Array Construction Projects*. *Appendix I* requires a reduction of on-site soils Hydrologic Soil Group class by one step. However,

¹¹ Designated uses in GA classified areas include existing private and potential public or private supplies of drinking water and base flow or hydraulically connected surface water bodies.

the change in cover from agricultural to meadow offsets the resulting increase in runoff. Therefore, the Project will not result in an increase in stormwater runoff. A grass-lined infiltration basin is provided to treat the water quality volume associated with the gravel access roads. See Figure 3, *Proposed Conditions Map*.

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

Portions of the Project Area that are disturbed during construction will be stabilized with a low growth seed mix, New England semi-shade grass and forbs mix or equal. 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.

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

3.5 Air Quality

The Site is currently undeveloped 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

Construction of the gravel access roads and grass-lined infiltration basin will require minimal grading and will generate some material that will be redistributed within the Site. The re-use of this material will result in approximately 0 cubic yards net cut/fill for the Site. Prior to the removal or placement of excavated material, the topsoil will be segregated and reused within the Project Area.

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

Surficial materials within the Site are classified as deposits of sand and thin deposits of glacial till. Soils located on and within the vicinity of the Site are identified as Enfield silt loam, Manchester gravelly sandy loam and Tisbury silt loam. Enfield silt loam is a well-drained coarse-silty eolian over sandy and gravelly glaciofluvial deposited soil derived from granite, schist, and/or gneiss parent material. Manchester gravelly sandy loam is an excessively-drained sandy and gravelly glaciofluvial deposited soil derived from sandstone and shale and/or basalt parent material. Tisbury silt loam is a moderately well-drained coarse-silty eolian over sandy and gravelly glaciofluvial deposited soil derived from granite, schist, and/or gneiss parent material.

Bedrock geology beneath the Site is identified as Portland Arkose. Portland Arkose is described as a reddish-brown to maroon micaceous arkose and siltstone and red to black fissile silty shale that grades eastward into coarse conglomerate (fanglomerate).

The Petitioner does not anticipate encountering bedrock during Project development.

3.6.1 Prime Farmland Soils

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

According to the Connecticut Environmental Conditions Online Resource Guide,¹² the Site contains Prime Farmland Soils within the Project Area (See Figure 2, *Existing Conditions Map*).

The Study Area has been used primarily as agricultural land over the past century. These continued activities have subjected the majority of the Project Area to routine disturbances associated with plowing and cultivation, and more recently compaction from equipment and vehicles for haying.

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. The construction of the stormwater basin, swales, access roads, and equipment pads will require excavations within areas mapped as Prime Farmland Soils. Any topsoil removed during construction will be segregated and either stockpiled for reuse or spread elsewhere as top dressing for re-establishing vegetation. No topsoil will leave the Site. After its useful life, the Facility will be decommissioned and all disturbed areas returned to pre-development conditions, with the exception of the access roads which the owner may decide to keep in the proposed locations. The proposed implementation of these design strategies demonstrates that the Project will not materially affect Prime Farmland Soils.

In accordance with Connecticut General Statutes §16-50k(a), the Petitioner initiated consultation with the Connecticut Department of Agriculture ("DOA") in May of 2020, at which time the Petitioner met with representatives of the agency to present the Project and discuss the presence of Prime Farmland Soils on the Site. As a result of the consultation, the Petitioner intends to implement a grazing program for vegetation maintenance within the fenced perimeter of the Project. A company that specializes in such services will provide a flock of sheep, which will be

¹² Connecticut Environmental Conditions Online (CTECO) Resource Guide – www.cteco.uconn.edu.

maintained on the Site under the care of a local farmer annually from April/May to October/November. The area will be seeded with low-growing grasses and forbs suitable for sheep as well as pollinator-friendly species. In addition, the remaining portions of the field will be retained for agricultural uses. The Petitioner is awaiting a written response from DOA.

Table 4, *Farmland Soils Assessment and Impacts Table* provided below details the amount of farmland soils located on the Site and the proposed impact from the Project.

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	67.9	21.3

3.7 Historic and Archaeological Resources

Heritage Consultants LLC (“Heritage Consultants”) of Newington, Connecticut, completed a Phase 1A Cultural Resources Assessment Survey, which included a review of relevant historic and archaeological information, to determine whether the Site holds potential cultural resource significance. Their review of historic maps and aerial images of the Site, examination of files maintained by the Connecticut State Historic Preservation Office (“SHPO”), and a pedestrian survey of the Site revealed that no properties or historic standing structures listed on or eligible for listing on the National Register of Historic Places (“NRHP”) are located on or proximate to the Site.

In terms of archaeological potential, the Site is located within an area of low slopes and well drained soils and situated in proximity to Pecks Brook to the east. As a result, it was determined that a majority of 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 Cultural Resources Reconnaissance Survey in May, 2020.

Fieldwork associated with the Phase 1B Survey included the excavation of 112 shovel tests across the Project Area. The survey resulted in the excavation of two (2) shovel tests that yielded artifacts. It was determined that the materials found lack research potential and the qualities of significance as defined by the NRHP criteria for evaluation (36 CFR 60.4 [a-d]). Based on Heritage

Consultants' findings and professional experience, no additional testing prior to construction of the proposed Project is deemed necessary.

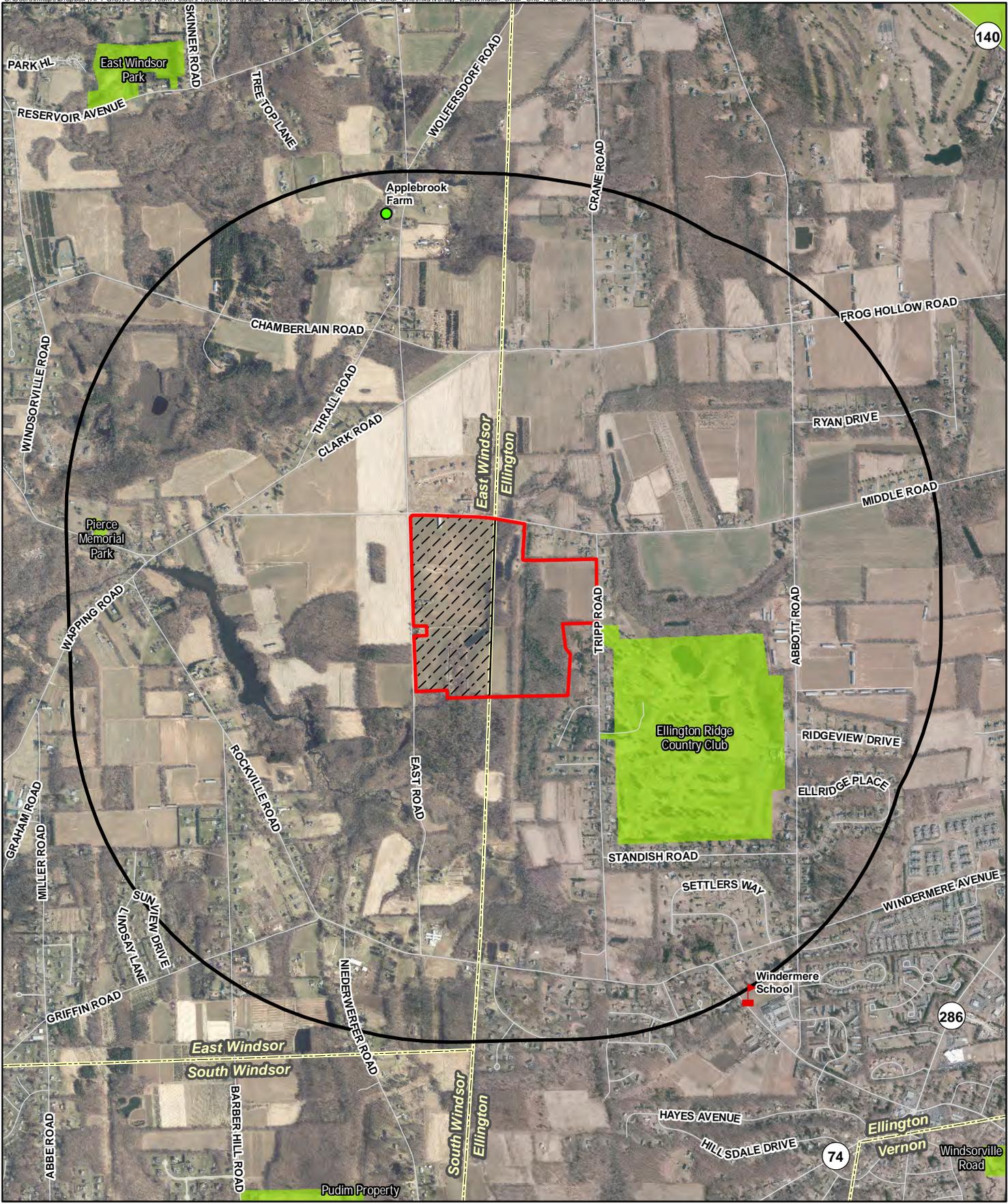
Heritage Consultants, on behalf of APT, submitted Project and Site historic/cultural information, as well as copies of the Phase 1A and 1B Cultural Resources Assessment and Reconnaissance Surveys to the SHPO for agency review and comment in May of 2020. The SHPO responded on June 2, 2020 concurring with the findings of the reports and stated "*...additional archeological investigations of the project areas are not warranted and that no historic properties will be affected by the proposed activities.*"

Copies of the SHPO's response and Phase 1A/1B Cultural Resources Reconnaissance Survey Report are included in Appendix E, *SHPO Correspondence and Cultural Resources Reconnaissance Survey Report*.

3.8 Scenic and Recreational Areas

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

No state or local designated scenic roads or scenic areas are located near the Site. Additionally, there are no CT Blue Blaze Hiking Trails located proximate to the Site. The nearest recreational area is the Ellington Ridge Country Club located immediately east of the Property. See Figure 5, *Surrounding Features Map*, for other resources located within one mile of the Site.



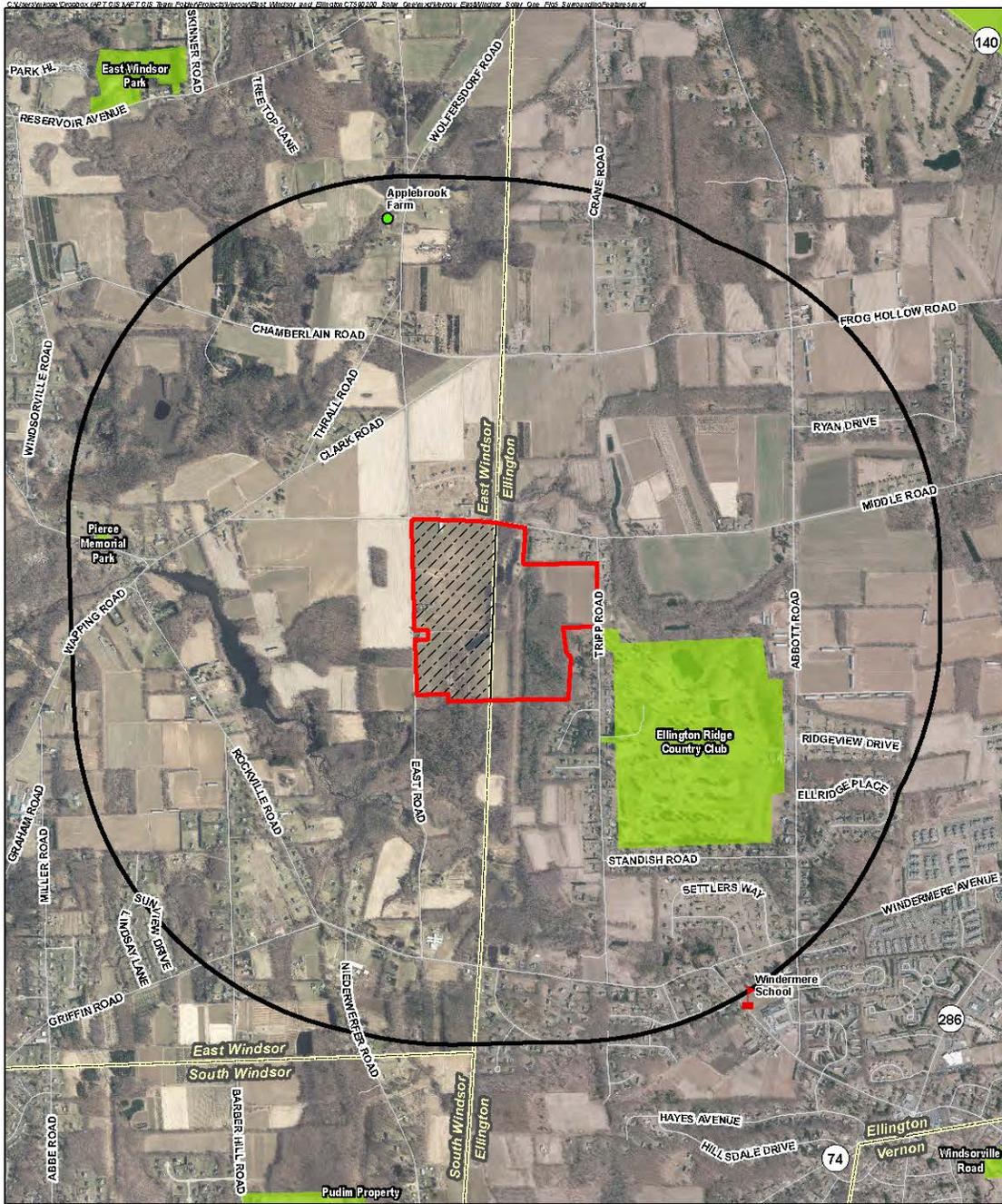
- Legend**
- Subject Property
 - Farm
 - Site
 - School
 - 1- Mile Radius
 - Municipal Boundary

Figure 5
Surrounding Features Map
 Proposed Solar Facility - East Windsor Solar One
 341 East Road
 East Windsor, Connecticut

East Windsor Solar One, LLC

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





- Legend**
- Subject Property
 - Site
 - 1-Mile Radius
 - Municipal Boundary
- Surrounding Features**
- Farm
 - ▲ School

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



Figure 5
Surrounding Features Map
 Proposed Solar Facility - East Windsor Solar One
 341 East Road
 East Windsor, Connecticut
 East Windsor Solar One, LLC



3.9 Noise

With the exception of the existing farmhouse and farm buildings, the majority of the Site is undeveloped. Besides the noise associated with periodic farming activities, no unusual noise sources presently exist.

Construction noise is exempted in the Town of East Windsor's Noise Control Ordinance Section 8(b) – Exemptions. 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 Town of East Windsor noise standards for a Residential Daytime/Nighttime Zones.¹³ The Facility is located within a Residential (R3) zone and conservatively, the Facility would be considered an Industrial noise emitter to Residential receptors. As such, it is subject to noise standards of 58 dBA during the daytime and 48 dBA at night.

The only noise generating equipment planned at the Facility are the inverters and transformers. Based on the most conservative information provided by specified equipment manufacturers, the loudest piece of proposed equipment is a 2,000 kVA transformer that will generate a maximum sound level of approximately 68 dBA (measured at 1-foot away).

Sound reduces with distance and the inverters and transformers are inactive at night. The closest property line relative to the nearest piece of noise generating equipment (transformer) is approximately 125 feet to the north, 309 East Road. This residentially developed parcel is zoned Residential (R3).

APT applied the Inverse Square Law¹⁴ to evaluate the relative sound level of the largest transformer at the nearest property lines. Based on these calculations, nearby receptors are of

¹³ Town of East Windsor's Noise Control Ordinance Section 5.4 – Noise Levels – Receptor's Zone.

¹⁴ 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 transformer and inverter specification sheet provided in Appendix F, *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. The FAA provided a Determination of No Hazard to Air Navigation on May 18, 2020. See Appendix G, *FAA Determination*. Based on this determination, there is no need to conduct a glare analysis.

3.12 Visibility

The Facility will consist of 19,526 non-reflective solar panels measuring approximately 10 feet above final grade surrounded by an eight (8)-foot tall chain-link fence with privacy slats along the northern portion of the Facility along Middle Road and a six-foot tall chain-link fence without slats along the remaining sections. The proposed electrical interconnection to an existing utility pole located on East Road will require the installation of approximately five (5) new utility poles.

The Site vicinity, particularly to the north and west, is generally devoid of trees and several areas are still used for agricultural purposes. Similarly, residences on properties across Middle Road to the north were developed on former agricultural fields and currently lack any substantive landscaping or natural vegetation. Year-round visibility of the proposed Facility beyond the Property will be primarily from these areas and may extend up to approximately 0.4 mile away. The majority of properties along East Road (to the west) with potential views of the Facility are currently undeveloped agricultural or wooded lots. Views from those residentially developed

parcels directly to the north, along Middle Road, will be minimized by the use of privacy slats in the fencing and establishing a row of arborvitae on the Facility's northern side.

Limited seasonal views, when the leaves are off of the deciduous trees, could extend up to ±0.75 mile to the north and west. In general, views beyond the developed properties along Middle Road would be from locations that are currently undeveloped, while views from locations to the east would be minimized by a combination of the Facility's relatively 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.

A viewshed analysis map developed for this Project depicts areas of potential visibility surrounding the Facility. Representative photo-simulations from three (3) nearby, publicly-accessible locations have also been prepared. Please see Appendix H, *Viewshed Map* and *Photo-Simulations*.

4 Conclusion

As demonstrated in this Environmental Assessment, the Project will comply with the DEEP air and water quality standards. Further, it will not have an undue adverse effect on the existing environment and ecology; nor will it affect the scenic, historic and recreational resources in the vicinity of the Project. Once operative, the Facility will be unstaffed and generate minimal traffic.

No core forest will be materially affected. The Project will be entirely located within an existing agricultural field and no tree clearing is proposed. Therefore, the Project will not impact this habitat.

Portions of the Project Area are 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, limiting the amounts of cuts/fills and grading to the extent feasible, and ensuring that no soil will be exported from the Site. The Petitioner will utilize sheep grazing for vegetation maintenance within the fenced area, and the remainder of the existing field will continue to be used for agricultural activities. 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, watercourses or vernal pools will be directly impacted by the Project. The nearest wetland boundary to the construction activities is approximately 145 feet away. A Resources Protection Plan has been developed to promote protection of nearby wetlands and watercourses during construction. 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*. The separating distance from the wetland and implementation of these management techniques will mitigate potential impacts to wetland resources during construction.

Overall, the Project's design minimizes the creation of impervious surfaces. Some regrading will be required for the construction of the gravel access roads and minor excavations necessary for installing stormwater management features, but the majority of the Project Area will maintain existing grades. The Project has been designed to adequately handle stormwater runoff via a grass-lined infiltration basin. 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.

The DEEP determined that they do not anticipate any negative impacts resulting from development of the Project. Similarly, the SHPO also determined that no historic properties will be affected by the proposed activities.

Portions of the Facility will likely be seen from the surrounding areas to the north and west, with the majority of views of the Facility occurring from locations within approximately 0.4 mile of the Site. Views from residentially developed parcels directly to the north, along Middle Road, will be minimized by the use of privacy slats in the fencing and the establishment of an intervening row of arborvitae. Properties to the west are generally undeveloped. Views to the east would be minimized by a combination of the Facility's relatively low height and the presence of intervening vegetation.

APPENDIX A

PROJECT PLANS

APPENDIX B

DEEP NDDDB CORRESPONDENCE

APPENDIX C

USFWS/NDDB COMPLIANCE STATEMENT

APPENDIX D

RESOURCES PROTECTION PLAN

APPENDIX E

SHPO CORRESPONDENCE AND CULTURAL RESOURCES RECONNAISSANCE SURVEY REPORTS

APPENDIX F

PRODUCT INFORMATION SHEETS

APPENDIX G

FAA DETERMINATION

APPENDIX H

VIEWSHED MAP AND PHOTO SIMULATIONS