



ENVIRONMENTAL ASSESSMENT

PROPOSED BUNCE 1
SOLAR PROJECT

EAST MAIN STREET
NORTH CANAAN, CONNECTICUT
LITCHFIELD COUNTY

Prepared for:

**LSE Indus LLC
40 Tower Lane - Suite 201
Avon, CT 06001**

Prepared by:

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

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1 Introduction

All-Points Technology Corporation, P.C. (“APT”) prepared this Environmental Assessment (“EA”) on behalf of LSE Indus LLC (hereinafter referred to as the “Petitioner”) for the proposed installation of a solar-based electric generating facility, with output of approximately 1.99 megawatts¹ (“MW”) (collectively, the “Project”) located in the Town of North Canaan, Connecticut (“Town”). This EA has been completed to support the Petitioner’s submission to the Connecticut Siting Council (“Council”) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of the electric generating facility.

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

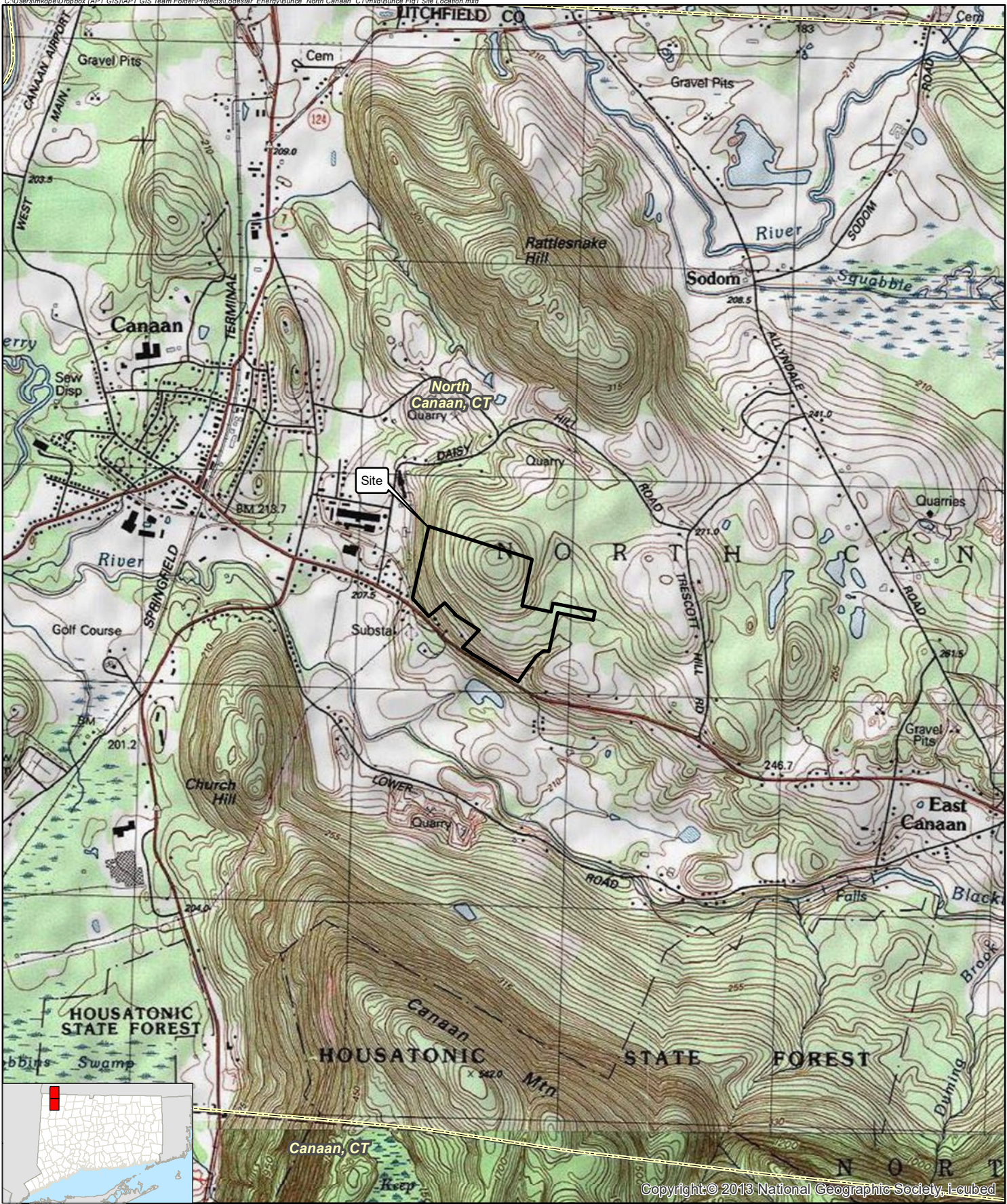
The Project will be located at 81 East Main Street (U.S. Highway 44) in North Canaan on two parcels in common ownership totaling approximately 67 acres (“Site”). The Site is privately owned and residentially developed. The Site’s northern portion is a mix of wooded and cleared areas, and occupied by the residence and an outbuilding. The central portion of the Site is cleared and used as a hay field and private airplane landing strip. The southern portion of the Site is wooded.

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



¹ The output referenced is Alternating Current (AC).

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

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



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- Legend**
-  Site
 -  Municipal Boundary

Map Notes:
 Base Map Source: USGS 7.5 Minute Topographic
 Quadrangle Maps, Ashley Falls, CT (1967)
 and South Canaan, CT (1969)
 Map Scale: 1 inch = 2,000 feet
 Map Date: June 2021

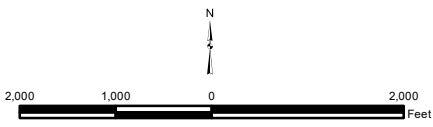


Figure 1
Site Location Map
 Proposed Solar Facility
 81 East Main Street
 North Canaan, Connecticut



2 Proposed Project

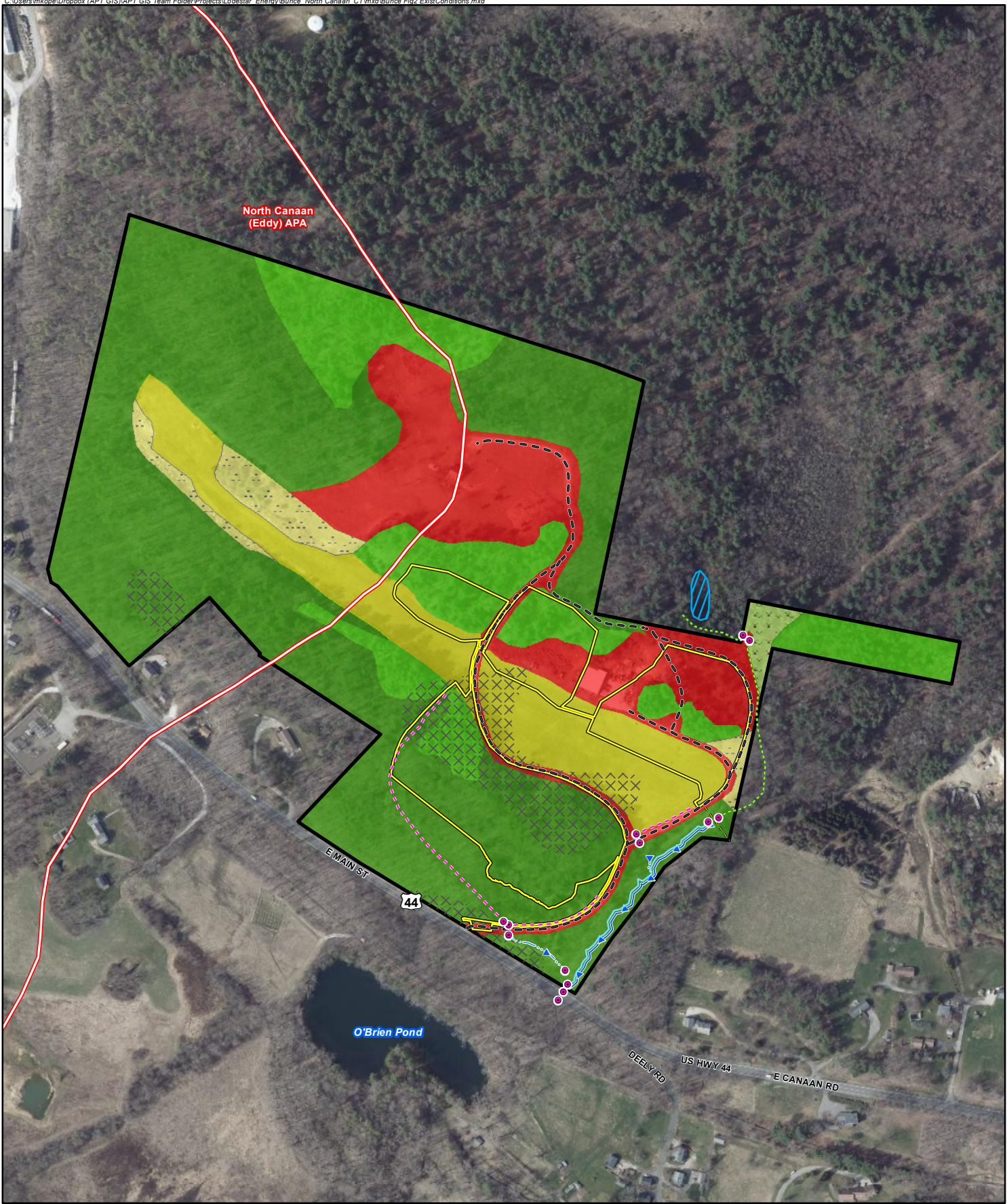
2.1 Project Setting

The Site is located north of East Main Street (aka Route 44) approximately 0.75-mile east of the town center of North Canaan. The surrounding land use is primarily residential, with commercial/industrial development and undeveloped wooded land immediately to the west and north, respectively. Residences and agricultural fields are located to the south and east.

The Project will be located in the eastern portion of the Site, north and south of the air strip (the "Project Area").

The Site's existing topography varies, ranging from approximately 920 feet above mean sea level ("AMSL") to 720 feet AMSL. In general, the Project Area slopes downward from north to south.

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



- | | | |
|------------------------------------|----------------------------------|-------------------------------------|
| Legend | | |
| Site | Habitat Cover Type | Existing Culvert |
| Project Area | Developed | Prime Farmland Soils |
| Existing Dirt Driveway | Field - Forest Edge Habitat | Vernal Pool |
| Existing Woods Road | Hayfield | Perennial Stream |
| Existing Drainage Ditch | Forest | Delineated Intermittent Watercourse |
| Approximate Wetland Boundary | Forested Wetland | |
| Delineated Bank Boundary (OHWM) | Mixed Hardwood-White Pine Forest | |
| Aquifer Protection Area (Nov 2020) | White Pine-Mixed Hardwood Forest | |

Map Notes:
 Base Map Source: 2019 Aerial Photograph (CTECO)
 Map Scale: 1 inch = 400 feet
 Map Date: October 2021

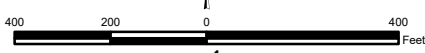


Figure 2
Existing Conditions Map
 Proposed Solar Facility
 81 East Main Street
 North Canaan, Connecticut



2.2 Project Development and Operation

Upon its completion, the solar electric energy generating facility (the "Facility") will consist of a total of 5,902 425W photovoltaic modules ("panels") divided among four (4) sections, 16 inverters, one pad mounted switchgear, and one (1) 1,000 kVA transformer and will have one (1) service interconnection line. A ground-mounted racking system will be used to secure the panel arrays. The perimeter of each section of the solar field will be surrounded by a seven (7)-foot tall chain link fence. The proposed electrical interconnection to the existing Eversource distribution system will extend underground to the western end of the southernmost section from East Main Street. Once complete, the Facility will occupy approximately 7.6 acres of the Site with an additional ± 4.0 acres of improvements beyond the fenced limits, for a total of ± 11.6 acres ("Project Area").

Proposed development drawings are provided in Attachment 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 tree clearing; installing erosion and sedimentation ("E&S") control measures; creating water quality volume basins, diversion berms, plunge pools and temporary sediment traps; installing racking and modules; and electrical trenching. Earthwork is required to create an access drive; regrade (cuts/fills) within the Project Area for Project development and construction of the water quality volume features. These activities will allow the Project to comply with DEEP's *Appendix I, Stormwater Management at Solar Array Construction Projects*. ("Appendix I").

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

2.2.1 Access

The Facility will be accessed from East Main Street via a 15-foot-wide gravel drive that will utilize existing dirt driveways through the property. Access will extend around the eastern and northern sides of the southern section, with two sections extending north between the two northwestern sections and to the east of the northeastern section. New drives will extend to the southern and northeastern sections from the existing drive.

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

2.2.3 Land Use Plans

The Project is consistent with local, State, and Federal land use plans, including the Northwest Connecticut Council of Government's ("NCCOG's") 2008 Regional Plan of Conservation and Development, which outlines the need to protect the rural nature and pristine views of the region. This Project will allow the region to benefit from the renewable energy it produces while keeping in sync with the recommendations of the NCCOG's Regional Plan. The Project also supports the State's energy policy by developing a renewable energy resource while not having a substantial adverse environmental effect.

Although local land use requirements do not apply to this Project, it has been designed to meet the intent of the Town's land use regulations, to the extent feasible.

The Town's 2006 Plan of Conservation and Development does not address renewable energy or electric utility planning.

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 resources discussed herein.

3.1 Habitat and Wildlife

Four (4) habitat types (vegetative communities) have been identified on the Site, all of which occur to some degree within the Project Area. These habitats were evaluated during multiple field inspections in January, March, April and July 2021; habitat types identified beyond the Project Area were generally assessed using remote sensing and publicly available datasets.

The habitats occupying the Site include:

- Developed
- Hayfield
- Field – Forest Edge
- Forested Areas (comprised of)
 - Forested Wetland
 - Mixed Hardwood-White Pine Forest
 - White Pine-Mixed Hardwood Forest

Wetlands and watercourses are described in detail in Section 3.3.1 of this report.



- Legend**
- Site
 - Existing Dirt Driveway
 - Existing Woods Road
 - Existing Drainage Ditch
 - Delineated Bank Boundary (OHWM)
 - Approximate Wetland Boundary
 - Aquifer Protection Area (Nov 2020)
 - Interconnection Path (UD)
 - Perimeter Fence
 - Solar Modules
 - Conc. Equip. Pad
 - Gravel Access Road
 - Stormwater Basin
 - Riprap Slope Protection
 - Vernal Pool
 - Existing Culvert
 - ▶ Perennial Stream
 - ▶ Delineated Intermittent Watercourse
 - Limit of Disturbance

Map Notes:
 Base Map Source: 2019 Aerial Photograph (CTECO)
 Map Scale: 1 inch = 400 feet
 Map Date: October 2021



Figure 3
Proposed Conditions Map
 Proposed Solar Facility
 81 East Main Street
 North Canaan, Connecticut



3.1.1 Habitat Types

Developed

Several areas of the Site have been classified as developed as they include buildings and associated lawn and landscaped areas. These areas also include areas of equipment storage and material stockpiles.

Hayfield

A hayfield totaling 8.2 acres lies in the central portion of the Site, atop a flat to gently sloping terrace. The area is utilized by the property owner primarily as a small aircraft runway and the vegetation is maintained low to the ground via frequent mowing. The vegetation consists of non-native cool season grasses including fescues (*Festuca spp.*).

Field – Forest Edge

This habitat, lying along the ecotone between the forest and field edges, consists of late old field dominated by shrubs and herbaceous vegetation interspersed with sapling trees. Much of these areas is disturbed and includes areas of large log and brush piles as well as stone piles. These areas are dominated by non-native invasive shrubs including autumn olive (*Elaeagnus umbellata*), morrow's honeysuckle (*Lonicera morrowii*), and multiflora rose (*Rosa multiflora*), along with native eastern red cedar (*Juniperus virginiana*). The herb and vine layer includes grapevine (*Vitis sp.*), little bluestem (*Schizachyrium scoparium*), bedstraw (*Galium sp.*) and Queen Anne's lace (*Daucus carota*) along with the invasive Asiatic bittersweet (*Celastrus orbiculatus*) and mugwort (*Artemisia vulgaris*).

Forested Areas

Three (3) distinct forested habitats are located on the Site, including forested wetland, mixed hardwood-white pine forest, and white pine-mixed hardwood forest. Forested wetland habitat is described in Section 3.3.1 of this report; upland forested areas are described below.

Mixed Hardwood – White Pine Forest

This habitat type consists of mature second growth forest dominated by mixed hardwood trees, but with a high percentage of eastern white pine (*Pinus strobus*). This is the dominant habitat on the Site, but is intermingled with white pine-mixed hardwood forest, in which white pine is dominant over the hardwood tree species.

Trees are mature in size (sawtimber with an average size greater than 14 inches dbh⁴), with the dominant species consisting of ash (*Fraxinus sp.*), white pine, black cherry (*Prunus serotina*), cottonwood (*Populus deltoides*), sugar maple (*Acer saccharum*), hickory (*Carya sp.*), white oak (*Quercus alba*), red oak (*Quercus rubra*), black oak (*Quercus velutina*) and gray birch (*Betula populifolia*). The shrub and midstory layers are dominated by invasive species, particularly where increased sun exposure to the forest floor is present. These include Japanese barberry (*Berberis thunbergii*), multiflora rose, morrow’s honeysuckle and autumn olive. Native shrub and midstory tree species include witch-hazel (*Hamamelis virginiana*), eastern red cedar, spicebush (*Lindera benzoin*) and striped maple (*Acer pensylvanicum*). The herb and vine cover includes Christmas fern (*Polystichum acrostichoides*), sensitive fern (*Onoclea sensibilis*), poison ivy (*Toxicodendron radicans*), Asiatic bittersweet (*Celastrus orbiculatus*) and grapevine.

White Pine – Mixed Hardwood Forest

This habitat type consists of the same species complex described in the mixed hardwood forest-white pine habitat type, with white pine being the dominant over the hardwood tree species.

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

Table 1: Habitat Areas

Habitat Areas		
Habitat Type	Total Area On-Site (+/- ac.)	Area Occupied by Project (+/- ac.)
Developed	11.4	2.6
Hayfield	8.2	1.6
Field - Forest Edge	2.0	0.1
Forested Wetland	0.5	0.0
Mixed Hardwood-White Pine Forest	34.5	4.4
White Pine-Mixed Hardwood Forest	10.8	2.9

⁴ Diameter at breast height

3.1.2 Core Forest Determination

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

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

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

Project development will require approximately 7.3 acres of tree clearing within areas that are currently edge forested habitat. As a result, no impacts to core forested resources will occur.

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

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

3.1.3 Wildlife

Development of the proposed Facility will alter each of the four (4) habitat types located on Site. Project-related activities proposed within developed portions of the Site, as well as the hay field and field-forest edge habitat are not anticipated to adversely affect wildlife since these areas currently provide limited value from a wildlife utilization standpoint as a result of frequent management and disturbances.

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

Noise and associated human activities during construction may result in limited, temporary disruption to wildlife using these nearby habitats. However, ongoing operation of the Facility will not result in a likely adverse effect in these nearby habitats as the Facility is unoccupied.

3.2 Rare Species

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

3.2.1 Natural Diversity Data Base

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

The NDDB maps represent approximate locations of (i) endangered, threatened and special concern species and, (ii) significant natural communities in Connecticut. The locations of species and natural communities depicted on the maps are based on data collected over the years by DEEP staff, scientists, conservation groups, and landowners. In some cases, an occurrence represents a location derived from literature, museum records and/or specimens. These data are

compiled and maintained in the NDDDB. 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 DEEP NDDDB mapping (June 2020), which revealed that a NDDDB polygon is located to the south of Route 44. A review request was submitted to DEEP NDDDB; in response DEEP NDDDB issues a determination that there are no reported populations of state or federal listed species on this property (NDDDB Determination No.: 202009902, dated August 28, 2020). The NDDDB indicated that there are populations of two (2) state-listed fish species associated with the Blackberry River, which is located south of the Site across East Main Street, approximately 1,600 feet from the property. The agency recommended the Petitioner consult with a CT DEEP Fisheries biologist if stormwater generated at the Site will be discharged to the Blackberry River. On June 23rd, 2021, Petitioner held a pre-application meeting with CT DEEP Office of Planning and Program Development, with participation from staff of several groups within the agency, including CT DEEP Fisheries. During this call, CT DEEP Fisheries biologist Matthew Gocowski stated that impact would be minimal if any and that there would be no further consultation required at this time.

An email copy of this communication is included as Attachment B, *CT DEEP Office of Planning and Program Development Correspondence*.

3.2.2 USFWS Consultation

The US Fish and Wildlife Service ("USFWS") was also consulted to determine if any federal-listed⁷ species are known to occur proximate to the Site. The federal consultation was completed through the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC").

Based on the results of the IPaC review, two federally-listed threatened species are known to occur in the vicinity of the Site: northern long-eared bat ("NLEB"; *Myotis septentrionalis*) and Bog Turtle (*Clemmys muhlenbergii*). APT performed an evaluation to determine if the proposed referenced Facility would result in a likely adverse effect to NLEB and Bog Turtle.

Northern long-eared bat

⁷ Listing under the federal Endangered Species Act

The NLEB is a federally-listed 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.

APT reviewed the DEEP's publicly available *Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance* map (February 1, 2016) to determine the locations of any known maternity roost trees or hibernaculum in the state. This map reveals that there are currently no known NLEB maternity roost trees in Connecticut. The nearest NLEB habitat resource to the Site is located in Salisbury, approximately 2.73 miles to the southwest.

The Project will result in clearing of approximately 7.3 wooded acres. Since tree removal activities can potentially impact NLEB habitat, APT completed a determination of compliance with Section 7 of the Endangered Species Act of 1973 for the Project.

In compliance with the 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.

Bog Turtle

A Biological Assessment was performed for Bog Turtle through the IPaC system. The "Bog Turtle (*Clemmys muhlenbergii*), Northern Population, Recovery Plan" (prepared by Michael Klemens, Ph.D. and dated May 15, 2001) and Amphibians and Reptiles of Connecticut and Adjacent Regions (Klemens, 1993) identifies bog turtle habitat as "*calcareous wet meadows, pastures, and fens, usually bordered by shrub and red-maple swamps... [that are] characterized by a continuous flow of water seeping through the saturated surface soil and [contain] an extremely diverse vegetational community*" and "*Bog Turtles inhabit small pockets of open-canopy habitat located within these diverse and dynamic wetland ecosystems.*".

The Project would not impact any wetland habitat. One wetland area, characterized by a perennial watercourse system, was identified east of the existing access drive. Although this watercourse system is developed in limestone (calcareous) soils, it does not contain wet meadow or fen habitat and therefore does not support preferred Bog Turtle habitat. Therefore, since no suitable habitat for Bog

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.

Turtle is supported within the Project Area, the proposed development would result in “No effect” to this species and no further consultation with USFWS is required.

A full review of the *Endangered Species Act (ESA) Compliance Determination and Biological Assessment Report* are provided in Attachment C, *USFWS and NDDB Compliance Statement*.

3.3 Water Resources

3.3.1 Wetlands and Watercourses

Field inspections of Site wetlands and watercourses were completed in January, April and July 2021 by Eric Davison, a certified soil scientist. The results of these inspections are summarized below.

Forested Wetland

Palustrine forested wetlands (a.k.a. wooded swamps) occur along the northeastern Site boundary and drain in a southerly direction to a perennial stream. These wetlands continue offsite where most of the wetland occurs. Wetland hydrology ranges from *saturated* to *seasonally flooded*. The tree canopy is dominated by red maple (*Acer rubrum*), eastern hemlock (*Tsuga canadensis*), green ash (*Fraxinus pennsylvanica*) and American elm (*Ulmus americana*). The shrub and ground cover layers are dominated by spicebush, Japanese barberry, Morrow’s honeysuckle, skunk cabbage (*Symplocarpus foetidus*) and tussock sedge (*Carex stricta*).

Intermittent Watercourses and Drainage Ditches

Bordering the access road into the Site are a series of anthropogenic drainage ditches, one of which was demarcated as an intermittent watercourse. These ditches were created to control surface runoff relative to the access road and carry flows to the stream. They are largely unvegetated, with eroded sand and gravel that discharges from the unpaved access road. These features are strictly flow conveyance features, with no habitat function. They do not contain base flow and do not provide habitat for aquatic species.

Perennial Stream

Located along the southeastern Site boundary is an unnamed first-order perennial stream that carries flows from the onsite forested wetlands, as well as wetlands further to the northeast, and drains south across Route 44 to the Blackberry River. The stream is steeply sloping, has a near linear north-south channel alignment, and a substrate dominated by large stones (from cobble

size to boulders). The channel is well-defined with no bordering wetlands due to the steep topography. The streamside vegetation consists of hardwood trees, identical to the species assemblage present with the mixed hardwood forest habitat.

Vernal Pool

A single vernal pool was identified just beyond the northern Site boundary. It was investigated on April 9, 2021. Due to its location on an adjoining parcel, observations were made from the property limits, primarily using binoculars. The pool was confirmed to contain two common vernal pool indicator species, the wood frog (*Lithobates sylvaticus*) and spotted salamander (*Ambystoma maculatum*), as egg masses of both species were visible floating atop woody vegetation on the pool's surface. The facultative species spring peeper (*Pseudacris crucifer*) and the wetland generalist species green frog (*Lithobates clamitans*) were also observed near the pool.

Existing Condition

In order to assess the vernal pool qualitatively, the methodology described in *Best Development Practices, Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States* (Calhoun and Klemens, 2002, a.k.a. the BDP) was used. This assessment methodology utilizes a three-tiered rating system, with the tier designation determined by examining the biological value of the pool in conjunction with the condition of the habitat surrounding the pool, which is the area used by vernal pool amphibians during the non-breeding season. The higher the species diversity and abundance coupled with an undeveloped and forested landscape surrounding the pool, the higher the tier rating. Tier 1 pools are considered the highest quality pools, while Tier 3 are the lowest.

During the offsite survey work, the presence of egg masses of two vernal pool indicator species, the wood frog and the spotted salamander were noted. Therefore, the pool meets the biological criteria (BDP, pg. 9, Section A) of a Tier 1 vernal pool.

The landscape condition portion of the BDP assessment (BDP, pg. 9, Section B) considers the level of development within 750 feet surrounding vernal pools. The assessment considers two management zones, referred to as the *Vernal Pool Envelope* (VPE, 0-100 feet) and the *Critical Terrestrial Habitat* (100-750 feet). The pool's VPE zone presently has 11% development and the CTH zone has 15.7% development. Therefore, the pool meets the Tier 1 landscape condition criteria.

Post-Development Condition

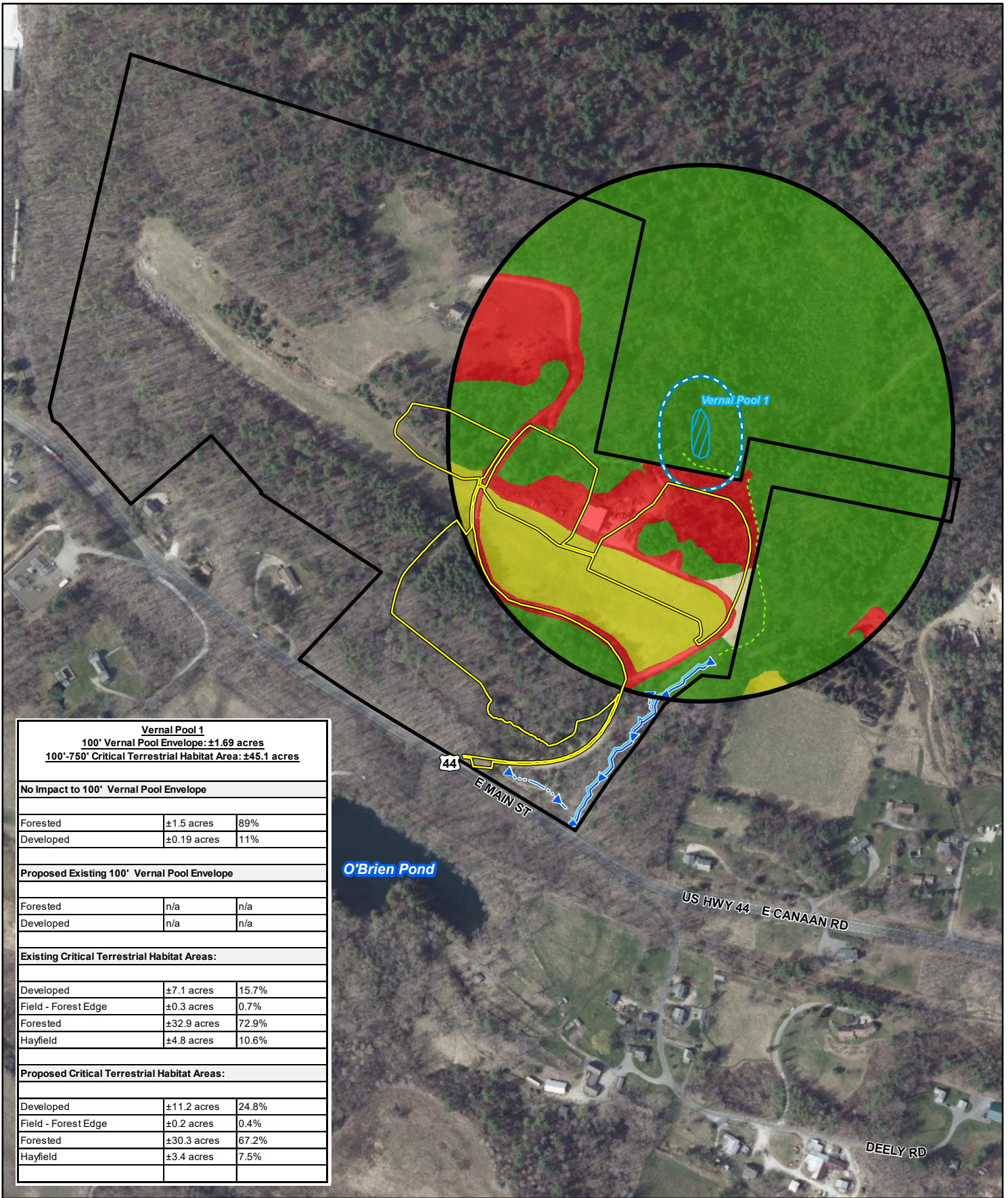
No activity is proposed within the pool's VPE management zone (0-100 feet). This will protect habitat that is critical to preserving vernal pool water quality, shading and detritus sources. This area also provides habitat for breeding adults entering and exiting the pool as well as emerging metamorphs exiting the pool to migrate to suitable upland habitat.

Approximately 4.1 acres of Project development (less than 10%) is proposed within the CTH zone, which will increase total development within this zone from 15.7% to 24.8% (9.1% increase). This post-development habitat alteration complies with the BDP guidelines, as it proposes no development within the VPE Zone and less than 25% development within the CTH Zone. The breakdown of habitat loss per habitat type is noted below in Table 2 and Figure 4.

Table 2: Effects on Vernal Pool CTH

Habitat Type	Acreage loss
Field-forest edge habitat	0.10
Forest	2.6
Hayfield	1.4

As noted in Table 2, only a small area (2.6 acres) of CTH terrestrial forest suitable for non-breeding habitat will be affected. The remainder of the habitat conversion will fall within the hayfield which does not provide terrestrial amphibian habitat (due to a lack of cover, shade and appropriate moisture), aside from transitory use during periods of overland movement (i.e., migration or population dispersal). Also noteworthy is that most of the affected forest occurs in two areas that are presently sub-optimal due to existing habitat fragmentation and are therefore not anticipated to be critical habitat areas for either species. The affected forest patches consist of: (1) a narrow forest strip located between the hayfield to the south and developed areas to the north and west; and (2) an area just south of the hayfield, at the outer limits of the CTH zone where amphibian densities can be expected to be lower (due to the distance from the pool, and the fact that animals would have to travel across the entire width of the hayfield to utilize the habitat). It stands to reason that the majority of high-use habitat for both indicator species is the large interrupted forest block located north of the pool, which is offsite and will be unaffected by the proposed Project.



- Legend**
- Site
 - Project Area
 - Vernal Pool
 - 100' Vernal Pool Envelope
 - 100'-750' Critical Terrestrial Habitat Area
 - Approximate Wetland Boundary
 - Delineated Bank Boundary (OHWM)
 - Delineated Intermittent Watercourse
 - Perennial Stream
 - Open Water (CTDEEP)
 - Habitat Type**
 - Developed
 - Field - Forest Edge Habitat
 - Forested
 - Hayfield

Figure 4
Vernal Pool Analysis Map
 Proposed Solar Facility
 81 East Main Street
 North Canaan, Connecticut

Map Notes:
 Base Map Source: 2019 Aerial Photograph (CTECO)
 Map Scale: 1 inch equals 400 feet
 Map Date: October 2021



Effects on Water Resources

No direct impacts to wetlands or watercourses are associated with developing the Facility. Upon completion of the Facility, the nearest portion of the fenced facility would be approximately 44 feet to the wetland boundary along the northeast edge of the Site. This area is currently maintained by the property owner for use as a driveway and lawn. During construction, the limits of disturbance would coincide with the outside edge of the existing cleared access, approximately 20 feet from the wetland. The nearest construction activities are more than 65 feet from the perennial stream. Once constructed the Facility's fence would be set back a minimum of 147 feet from the stream. Table 3, *Proximity to Water Resources*, provides a summary of distances to wetland resources.

Table 3: Proximity to Water Resources

Wetland Impacts		
Direct Impacts to Wetlands and Watercourses	0	
Project Proximity to Resources (from limit of disturbance)	Distance (+/-ft.)	Direction (of wetland/water from LOD)
Approximate Wetland Boundary	20	East
Perennial Stream	67	Southeast
Solar Installation Proximity to Resources (from perimeter fence)	Distance (+/-ft.)	Direction (of wetland/water from perimeter fence)
Approximate Wetland Boundary	44	Northeast
Perennial Stream	147	Southeast

Any potential indirect impacts associated with the Project's construction activities will be minimized by the proper installation and maintenance of proposed E&S controls, in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*.

3.3.2 Floodplain Areas

APT reviewed the United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") covering the Site. A FIRM is the official map of a community on which FEMA has delineated both the special hazard areas and risk premium zones applicable to the community. The area inclusive of the Site is mapped on FIRM PANELS #09014C0018C and #090140014C, both dated January 2, 2008. Based upon the reviewed FIRM Maps, the proposed

Project Area is located in an area designated as unshaded Zone X, which is defined as areas of minimal flooding, typically above the 500-year flood level.

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

3.4 Water Quality

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

3.4.1 Groundwater

Groundwater underlying the Site is classified by publicly available DEEP mapping as "GA".⁹ 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 eastern edge of the North Canaan (Eddy) Aquifer Protection Area extends onto the western portion of the Site but does not encompass any portion of the Project Area.

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

3.4.2 Surface Water

The Project will have no adverse environmental effect on surface water quality. Based upon DEEP mapping, the Site is located in Major Drainage Basin 6 (Housatonic River), Regional Drainage Basin 61 (Blackberry River), Sub Regional Drainage Basin 6100 (Blackberry River), and Local Drainage Basin 6100-00 (unnamed). An unnamed stream is located along the eastern Site boundary, which flows into O'Brien Pond south of Route 44, and eventually flows into the Blackberry River. The Blackberry River is classified by DEEP as a Class B surface waterbody.¹⁰ The Project will have no effect on this surface waterbody.

⁹ 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.

¹⁰ Designated uses for B classified waterbodies include potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply and other legitimate uses including navigation.

Based upon the reviewed DEEP mapping, the western portion of the Site is located within a mapped Public Drinking Supply Watershed, the North Canaan (Eddy) Wellfield, a source of public drinking water that is maintained and operated by the Aquarion Water Company.

Encompassing some 463.7 acres of land, the North Canaan (Eddy) Wellfield is located in an aquifer that is comprised largely of water-bearing sand and gravel deposits. Vacant land and residential properties in the North Canaan (Eddy) Wellfield source water area presently account for approximately 48.6 percent of the land cover. Commercial development (26.4 percent) and agricultural land use (25.0 percent) account for the remainder of the land coverage in the source water area. Four public water supply wells serve this area.

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

3.4.3 Stormwater Management

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

Stormwater Runoff Peak Attenuation

The potential for changes in runoff from the Site as a result of Project construction has been evaluated and addressed. For this Site it involves the disturbances associated with the Project Area, including Facility appurtenances and the electrical interconnection line. As there are four (4) separate fenced in solar arrays proposed on the Site, the analysis and design focused on distributed treatment from each area of disturbance as applicable. Clearing of trees is required for both the installation of the solar arrays as well as for reducing shading of the southern array. Overall, the Project will maintain existing hydrological conditions within the fenced array areas, as the majority of grading is proposed for stormwater management best management practices

(i.e., basins and diversion berms). Upon completion of construction, the Site will be stabilized using a mix of native flowering grasses and plants selected specifically for solar installations (Ernst Solar Farm Seed Mix), which will create a meadow condition. Appendix I requires that the hydrologic soil group be reduced by a half-drop in those areas subject to heavy machinery traffic (i.e., the solar field and access), which typically results in a higher curve number. In order to appropriately manage Site drainage, the Petitioner proposes five (5) stormwater management basins to capture and treat the runoff generated by the proposed fenced facility areas.

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

Water Quality Volume Treatment

The Project design also provides for adequate treatment of water quality volume associated with effective impervious cover, which includes the proposed gravel access drive, concrete equipment pads, and proposed solar modules that are located on slopes that are greater than 15%. As noted above, five (5) stormwater management basins are proposed to provide the requisite treatment volumes associated with these features. Technical details, mapping, and HydroCAD modeling results are provided in the Stormwater Management Report submitted under separate cover.

Erosion and Sediment Control During Construction

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

Development of the Project requires minimal grading and ground disturbance. Nonetheless, the Petitioner proposes a phased erosion control plan utilizing a series of perimeter compost filter socks to manage drainage areas less than one (1) acre, and temporary sediment traps to manage drainage areas that are greater than one (1) acre but less than five (5) acres. Upon completion

of construction, the Site will be seeded with the permanent Ernst Solar Farm Seed Mix. The phased erosion control plan and details are provided in Attachment A, *Project Plans*.

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

3.5 Air Quality

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

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

3.6 Soils and Geology

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*. Prior to the removal of soils, the topsoil will be stripped, stockpiled, and spread over disturbed areas being seeded. It is anticipated that any excess material will be redistributed on Site. See *Attachment A, Project Plans*.

Surficial materials on the Site are generally comprised of thin till. Bedrock geology beneath the Site is mapped as Stockbridge Marble, Walloomsac Schist and Basal Marble (member of Salloomsac Schist).

Although not anticipated, in the event bedrock is encountered during Site development, drilling or pneumatic hammer would be the preferred method of rock removal. Blasting would only occur if necessary and would be conducted by a certified blasting specialist and in accordance with applicable regulations.

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,¹¹ the southern portion of the Project Area contains approximately 2.8 acres of Prime Farmland Soils.

The majority of the Site has remained largely undeveloped. Recognizing that the Project has a useful life and could be considered temporary in nature, the Petitioner has proposed using minimally intrusive methods for construction of the Project. The use of a ground-mounted racking system for the installation of the solar panels and associated equipment minimizes the need for substantial grading.

Excavation and regrading activities are necessary within areas mapped as Prime Farmland Soils to facilitate Project development and construct the stormwater management features that allow the Project to comply with Appendix I. Topsoil removed from these areas will be segregated from underlying horizons, temporarily stockpiled and used as top dressing for reestablishing vegetation. No topsoil will leave the Site.

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

Table 4, *Farmland Soils Assessment* details the amount of farmland soils located on the Site and the within the footprint of the Project.

Table 4: Farmland Soils Assessment

Farmland Soils Assessment		
Farmland Soil Classification	Total Area On-Site (+/- ac.)	Area within Project Limits (+/- ac.)
Prime Farmland Soil Area	5.4	2.8

¹¹ Connecticut Environmental Conditions Online (CTECO) Resource Guide www.cteco.uconn.edu.

3.7 Historic and Archaeological Resources

At the request of APT, and on behalf of the Petitioner, Heritage Consultants LLC (“Heritage Consultants”) reviewed relevant historic and archaeological information to determine whether the Site holds potential cultural resource significance. Their review of historic maps and aerial images of the Site, examination of files maintained by the Connecticut State Historic Preservation Office (“SHPO”), and a pedestrian survey of the Site revealed determined that no historic or archaeological resources will be affected by the Project.

The Phase 1A report has been submitted to SHPO and is included in Attachment D, *Cultural Resources Reconnaissance Survey Report*. The SHPO response to the report will be provided upon receipt.

3.8 Scenic and Recreational Areas

No state or local designated scenic roads or scenic areas are located near the Site and therefore none will be physically or visually impacted by development of the Project. No CT Blue Blaze Hiking Trails are located proximate to the Site.

Downtown North Canaan, located more than 0.5 mile to the west, contains a variety of recreational and historical resources. The nearest public open space is municipal property located approximately 0.9 mile west of the Site.

Impacts to any of these resources, either physical or visual, are not anticipated. See Figure 5, *Surrounding Features Map*, for these and other resources located within one mile of the Site.

3.9 Lighting

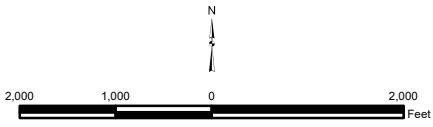
The Project area is currently unlit. No exterior lighting is planned for the Project. There will be some small, non-intrusive lighting fixtures within the equipment to aid in maintenance.



- | | | | |
|----------------------------------|--------------------------------|-------------------------------------|-----------------------------|
| Legend | Surrounding Features | Open Space Property (CTDEEP) | Watercourse (CTDEEP) |
| Site | Daycare | Land Trust | Open Water (CTDEEP) |
| Project Area | Community Center | Municipal | CT Blue Blaze Hiking Trail |
| 1 Mile Radius | Park / Recreation / Open Space | Private | Hiking Trail |
| Municipal Boundary | | State | |
| Canaan Village Historic District | | | |
| NRHP Building | | | |

Figure 5
Surrounding Features Map
 Proposed Solar Facility
 81 East Main Street
 North Canaan, Connecticut

Map Notes:
 Base Map Source: 2019 Aerial Photograph (CTECO)
 Map Scale: 1 inch = 2,000 feet
 Map Date: October 2021



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.

ATTACHMENT A

PROJECT PLANS

ATTACHMENT B

CT DEEP OFFICE OF PLANNING AND
PROGRAM DEVELOPMENT
CORRESPONDENCE

ATTACHMENT C

USFWS/NDDB COMPLIANCE STATEMENT

ATTACHMENT D

CULTURAL RESOURCES RECONNAISSANCE SURVEY REPORT