

DRAFT

**Petition No. 1469
LSE Indus LLC Solar Facility
81 East Main Street, North Canaan, CT**

**Staff Report
January 21, 2022**

Introduction

On October 25, 2021, the Connecticut Siting Council (Council) received a petition (Petition) from LSE Indus LLC (Lodestar) for a declaratory ruling pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k for the construction, operation and maintenance of a 1.99-megawatt alternating current (AC) solar photovoltaic electric generating facility located at 81 East Main Street, North Canaan, Connecticut, and associated electrical interconnection (Project).

Pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40 on or about October 21, 2021, Lodestar notified the abutting property owners and Town of North Canaan (Town) officials, state officials and agencies of the proposed project.

The Council issued interrogatories to Lodestar on December 1, 2021. Lodestar submitted responses to the Council's interrogatories on December 22, 2021, one of which included photographic documentation of site-specific features intended to serve as a "virtual" field review of the project.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act (UAPA), an administrative agency is required to take an action on a petition for a declaratory ruling within 60 days of receipt. On December 16, 2021, pursuant to CGS §4-176(e), the Council voted to set the date by which to render a decision on the Petition as no later than April 23, 2022, which is the 180-day statutory deadline for a final decision under CGS §4-176(i).

Municipal Consultation

Lodestar began discussions with Town officials in early 2021. Lodestar attended a Board of Selectmen meeting on May 3, 2021 and discussed the project with the Chairman of the Planning and Zoning on May 10, 2021. On June 10, 2021 the Town First Selectman issued a letter in support of the project.

On October 29, 2021, the Council sent correspondence to the Town stating that the Council has received the Petition and invited the Town to contact the Council with any questions or comments by November 24, 2021. No comments were received.

State Agency Comments

On November 2, 2021, the Council sent correspondence requesting comments on the proposed project from the following state agencies by November 24, 2021: Department of Energy & Environmental Protection (DEEP); Department of Agriculture (DOAg); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Emergency Services and Public Protection (DESPP); Department of Consumer Protection (DCP); Department of Labor (DOL); Department of Administrative Services (DAS); Department of Transportation (DOT); the Connecticut Airport Authority (CAA); and the State Historic Preservation Office (SHPO).

In response to the Council's solicitation, CEQ submitted comments on November 19, 2021¹ that relate to potential wildlife impacts, wetland and watercourse buffers, and groundwater protection measures. DOAg submitted comments on November 22, 2021² regarding the Project's location on prime farmland soil and recommended that Lodestar implement alternatives to lessen the impact to agricultural resources. DOT submitted a no comment letter to the Council on December 22, 2021.

No other state agencies provided written comments on the Project.

While the Council is obligated to consult with and solicit comments from state agencies by statute, the Council is not required to abide by the comments from state agencies.³

Public Act 17-218

Effective July 1, 2017, Public Act 17-218 requires, "for a solar photovoltaic facility with a capacity of two or more megawatts, to be located on prime farmland or forestland, excluding any such facility that was selected by DEEP in any solicitation issued prior to July 1, 2017, pursuant to section 16a-3f, 16a-3g or 16a-3j, the DOAg represents, in writing, to the Council that such project will not materially affect the status of such land as prime farmland or DEEP represents, in writing, to the Council that such project will not materially affect the status of land as core forest." The proposed facility has a generating capacity of 1.99 MW, therefore, it is exempt from the provisions of Public Act 17-218.

Public Benefit

The project would be a distributed energy resource facility as defined in CGS § 16-1(a)(49). CGS § 16a-35k establishes the State's energy policy, including the goal to "develop and utilize renewable energy resources, such as solar and wind energy, to the maximum practicable extent." The 2018 Comprehensive Energy Strategy (2018 CES) highlights eight key strategies to guide administrative and legislative action over the next several years. Specifically, Strategy No. 3 is "Grow and sustain renewable and zero-carbon generation in the state and region." Furthermore, on September 3, 2019, Governor Lamont issued Executive Order No. 3, which calls for the complete decarbonization of the electric sector by 2040. The proposed facility will contribute to fulfilling the State's Renewable Portfolio Standard and Global Warming Solutions Act as a zero emission Class I renewable energy source.

Lodestar was awarded a 15-year contract with The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) under the state's Low and Zero Emissions Renewable Energy Credit Programs (LREC/ZREC Program) to sell the renewable energy credits (RECs) from the facility. The LREC/ZREC Program was developed as part of Public Act 11-80, "An Act Concerning the Establishment of the [DEEP] and Planning for Connecticut's Energy Future."

The LREC/ZREC Program creates a market-driven bidding process for renewable energy projects ranging from rooftop solar panels to fuel cells to compete to obtain a 15-year revenue stream from the sale of renewable energy credits (RECs) to the electric utilities. It requires Eversource and the United Illuminating Company to procure Class I RECs under 15-year contracts with owners or developers of renewable energy projects in the state. The LREC contract can be extended.

¹ CEQ Comments

² DoAG Comments

³ *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007)

The LREC/ZREC Program is not among the competitive energy procurement programs that are exempt from Public Act 17-218.⁴

The proposed project would be subject to virtual net metering (VNM) agreements with the City of Hartford, providing discounted net metering credits to reduce electricity costs.

Lodestar may submit the project into the next ISO-New England, Inc. (ISO-NE) Forward Capacity Auction.

Proposed Site

Pursuant to a lease agreement with the property owner, Lodestar proposes to construct the solar facility on an approximate 11.6-acre site⁵ on a 67.4-acre parcel located at 81 East Main Street in North Canaan. The host parcel is located on a south sloping hill that rises sharply from East Main Street (Route 44). The host parcel is zoned residential (R-25) and is developed with a residence, an outbuilding and a grass airstrip. The Project would be located primarily in undeveloped areas of the property that would not interfere with the property owner's continued use of the grass air strip.

The existing topography of the parcel gradually slopes in a north to south direction, with steeper slopes towards the southern portion of the property. Ground elevations range from approximately 920 feet above mean sea level (AMSL) to approximately 720 feet AMSL.

Surrounding land use consists of commercial and residential to the west, undeveloped woodland to the north, agricultural and rural residential to the east and residential to the south along Route 44.

The nearest property line is 39 feet northeast of the solar facility perimeter fence at 306 Daisy Hill Road. The nearest off-site residence is approximately 343 feet southwest of the solar facility perimeter fence at 79 East Main Street.

Lodestar selected the site due to site availability, limited environmental impact, site suitability, presence of existing access roads, and the proximity to an electrical interconnection. Pursuant to CGS §16-50p(g), the Council has no authority to compel a parcel owner to sell or lease property, or portions thereof, for the purpose of siting a facility.⁶

Proposed Project

The proposed 1.99 MW AC solar facility consists of 5,902 photovoltaic modules, rated at 425 Watts, that would be installed on driven posts. The panels would be installed in four distinct solar array areas, with three of the arrays located on the upper northern portion of the hillside and the fourth array located on the lower southern portion of the hillside.

The four fenced areas are as follows: northwest array- 0.71 acre with 494 panels, north central array, 1.68 acres with 1,170 panels, northeast array- 2.02 acres with 1,612 panels, and south array-3.20 acres with 2,626 panels.

⁴ Zero emission renewable energy credit (ZREC) contracts are limited to 1 MW, and LREC contracts are limited to 2 MW. (CGS §16-244r).

⁵ RCSA §16-50j-2a(29), "Site" means a contiguous parcel of property with specified boundaries, including, but not limited to, the leased area, right-of-way, access and easements on which a facility and associated equipment is located, shall be located or is proposed to be located.

⁶ *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007); CGS §16-50p(g) (2019).

The solar panels would be installed on a fixed-tilt racking system oriented to the south at a 25-degree angle. The panels would have a minimum ground clearance of approximately 3 feet, extending to a height of 11 feet. The vegetated aisles between the panel rows would have 12.5 feet of clear space. The width of the panel rows would be approximately 12.4 feet.

Panel row wiring would extend along the racking system, installed immediately below the panels to reduce the potential for damage from weather events, maintenance activities, or animals. From collection points at the end of the panel-rows, underground wiring would extend to a 10-foot by 40-foot concrete equipment pad in the south array that hosts project inverters, switchgear and transformers. From the equipment pad, an underground 3-phase 13.2 kV electric line would extend for 1,200 feet along the existing driveway to the electrical interconnection point adjacent to Route 44.

The proposed electrical interconnection would require three new utility poles, two owned by Eversource and one owned by Lodestar. The poles would be installed adjacent to the property entrance driveway on Route 44. An overhead electric line would connect to an existing 13.2 kV overhead distribution circuit that extends along Route 44. Lodestar has completed the interconnection agreement with Eversource. No upgrades to Eversource's existing electric distribution system are required to support the project.

The projected capacity factor for the Project is approximately 14.1 percent and includes loss assumptions such as shading, soiling, reflection, inverter losses, wiring, and temperature variation. The power output would decline over time with an anticipated annual power output loss of approximately 0.5 percent.

The proposed Project is not designed to support a microgrid or a battery storage system. The interconnection agreement with Eversource is not designed for islanding power and no energy storage is proposed at the site.

Each of the four array areas would be accessed by existing 12-foot wide driveways on the host property. The existing driveways do not need modifications but may need a finish coat of gravel and minor repair upon completion of construction.

A new, 15-foot wide, 400-foot long gravel driveway would be constructed along the south side of the northeast solar array, outside of the fence line, to provide access to the existing outbuilding on the property. Each array would be enclosed by a seven-foot tall chain link fence with a 4 to 6 inch gap between the mesh and the ground to allow for small wildlife movement.

Earthwork at the site is required for installation of the stormwater basins in each array area and to create suitable grades in the northeast array area. The project would require 7,216 cubic yards of cut and 3,058 cubic yards of fill for a net cut of 4,184 cubic yards.

The solar field would be seeded with Ernst Solar Farm Seed Mix, a grass mix with less than five percent flowering clover. Lodestar would be willing to use a seed mix that contains a larger component of pollinator species.

Construction would occur over an 8 to 12 month period. Typical construction hours and work days of the week are as follows: Monday – Saturday, 7:00 AM to 5:00 PM.

A temporary construction laydown area would be established on a portion of the airstrip, adjacent to the south array.

The estimated cost of the project is \$4 million.

Public Safety

The proposed project would comply with the National Electrical Code, National Electrical Safety Code and National Fire Protection Association codes and standards, as applicable. Lodestar designed the system in accordance with the CT State Fire Prevention Code, Section 11.12.3 - Ground Mounted Photovoltaic System Installations by including a 15-foot wide perimeter access aisle around each array and seeding the solar array areas with low growing vegetation.

The nearest federally-obligated airport to the site is a private airport located 1.9 miles northwest of the site. Under Federal Aviation Administration (FAA) criteria, the Project would not be a Hazard to Air Navigation or require a FAA glare analysis.

The Facility would be remotely monitored through a data acquisition system capable of detecting weather, energy production, and safety concerns related to grid outages or faults. If a problem with the facility is detected, system diagnostics and/or facility shutdown can be performed remotely. Personnel would be dispatched to the site if an issue cannot be resolved.

Manual disconnect switches are located on-site. Lodestar would ensure local emergency responders receive facility operation and safety training.

The Project would be enclosed by a seven-foot high chain link fence.⁷ Access to each solar array for emergency responders would be via a Knox padlock.

The proposed facility would be in compliance with DEEP Noise Control Standards. The noise from the project inverters would not be discernible at the nearest property line during the daytime. The inverters do not operate at night. Construction noise is exempt from DEEP Noise Control Standards.

The Site is not located within a Federal Emergency Management Agency designated 100-year or 500-year flood zone.

The DEEP Dam Safety Program indicated that since the proposed stormwater basins have limited capacity, a dam safety construction permit would not be required. The basins would need to be registered as hazard negligible dams.

A Spill Prevention Control Plan has been developed for the project.

Environmental Effects and Mitigation Measures

Historic and Recreational Resources

A Phase 1 Cultural Resource Reconnaissance Survey determined no historic or cultural resources would be affected by the project. SHPO submitted correspondence to Lodestar on December 10, 2021, concurring with the results of the study. No further action was recommended.

The nearest public open space is municipal property located approximately 0.9 mile west of the Site. The project would have no effect the park.

⁷ Section 691.4(2) of the National Electrical Code (NEC), 2020 Edition notes that, "Access to PV electric supply stations shall be restricted by fencing or other adequate means in accordance with 110.31..." Section 110.31 notes that for over 1,000 Volts, "...a wall, screen, or fence shall be used...A fence shall not be less than 7 feet in height or a combination of 6 feet or more of fence fabric and a 1 foot or more...utilizing barbed wire or equivalent."

Visibility

There are no Town or state scenic roads in the vicinity of the proposed project.

The project would not be visible from Route 44, except for spot views east of the site or from surrounding residences due to topography and existing vegetation along the perimeter of the host parcel.

Agriculture

The host parcel contains prime farmland soils according to mapping maintained by the United States Department of Agriculture (USDA) Natural Resource Conservation Service. Under PA 17-218, “prime farmland” means land that meets the criteria for prime farmland as described in 7 Code of Federal Regulations (C.F.R.) 657, as amended from time to time. 7 C.F.R. 657 defines prime farmland in relevant part as “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses.”

The site would be constructed on 2.8 acres of prime farmland; however, 2.65 acres are located in forested areas with the remaining 0.15 acre located on the airstrip. The property owner does not currently farm the property.

The property is not enrolled in the Public Act 490 Program for agricultural land tax abatement.

Wetlands and Watercourses

Lodestar performed a wetland and watercourse survey at the host parcel in January, April and July 2021. A drainage ditch, classified as an intermittent watercourse, was identified along the east property boundary, adjacent to the existing gravel driveway, that flows downgradient to a perennial stream adjacent to Route 44. The watercourse originates from a wetland in the northeast corner of the property that extends onto abutting property to the north and east.

A stormwater basin associated with the northeast solar array would be constructed approximately 20 feet from the on-site wetland. The proposed stormwater basin is located in a previously disturbed area and an existing driveway is located between the stormwater basin and the wetland.

A vernal pool (VP) was identified on the abutting property to the north, approximately 50 feet beyond the property line. VP habitats include a vernal pool envelope (VPE), which extends from the VP edge to a distance of 100 feet, and a Critical Terrestrial Habitat (CTH) which extends from 100 feet to 750 feet from the VP edge. Both the VPE and CTH protect the water quality of the pools for VP obligate species. Development of the site would not impact the VPE and would increase the developed area of the CTH from 15.7 percent to 24.8 percent, below the recommended 25 percent development threshold as recommended in the 2015 US Army Corps of Engineers Vernal Pool Best Management Practices.

Wildlife

According to DEEP mapping, the site is not located within a DEEP Natural Diversity Data Base buffered area indicating the potential presence of a State-listed species, and therefore, no NDDB site review is required.

The northern long-eared bat (NLEB), a state-listed Endangered Species and federally-listed Threatened Species, is known to occur in Connecticut. However, the nearest known NLEB habitat resource is located 2.73 miles to the west/southwest in Salisbury and, according to the US Fish and Wildlife Service (USFWS), the Project would not have an adverse effect on NLEB and does not require a permit from USFWS.

NLEB utilizes forested habitat from April 1 to October 31. The proposed facility would require the clearing of 7.3 acres of upland forest. To reduce the potential for disturbing NLEB that could occur at the site, Lodestar would consider following USFWS voluntary conservation measures, as site conditions and as the project schedule allows, by performing tree clearing outside of NLEB active season and to retain snag and large trees where possible.

Forest

Approximately 7.3 acres of edge forest would be removed to develop the project. No core forest would be affected by the proposed Project.

Air Quality

The project would not produce air or water emissions as a result of operation. The solar project would not produce air emissions of regulated air pollutants or greenhouse gases during operation.

Lodestar estimates that the project would provide a net improvement in carbon reduction within 0.97 days of operation based on the clearing of 7.3 acres of the forest and the projected output of 3,398 MWh of energy during its first operational year.

Water Quality

The western portion of the host parcel is within the DEEP-designated North Canaan (Eddy) Aquifer Protection Area (APA). Although the proposed site and related construction is located on the eastern portion of the host property and outside of the APA, Lodestar has developed a Spill Prevention Control Plan to protect drinking water resources.

Installation of the racking posts, most likely by ground screws, would have no impact on subsurface water quality.

The facility would not use or discharge water during site operations.

Stormwater

Pursuant to CGS Section 22a-430b, DEEP retains final jurisdiction over stormwater management and administers permit programs to regulate stormwater pollution. DEEP regulations and guidelines set forth standards for erosion and sedimentation control, stormwater pollution control and best engineering practices. The DEEP Individual and General Permits for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (Stormwater Permit) requires implementation of a Stormwater Pollution Control Plan to prevent the movement of sediments off construction sites into nearby water bodies and to address the impacts of stormwater discharges from a project after construction is complete. A DEEP-issued Stormwater Permit is required prior to commencement of construction.

A construction sequence is included on the site plans that include the establishment of erosion control measures that comply with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*, site clearing and construction and installation of temporary sediment traps and stormwater basins. Once the disturbed areas are fully stabilized, installation of site infrastructure would commence.

On July 23, 2021 Lodestar met with the DEEP Stormwater Division and the DEEP Dam Safety Program to review the Project. Based on this meeting and follow up consultations, Lodestar shifted the Project footprint to reduce the amount of work on steep slopes and to relocate the stormwater detention basins away from abutting residences as much as possible. The stormwater basins were modified to have a maximum 3:1 slope and were fortified with riprap.

In addition, DEEP requested that all disturbed areas be allowed to stabilize for a full growing season prior to the installation of racking posts and other construction. DEEP defined a full growing season as two consecutive full seeding seasons: April 1 through June 15, and August 15 through October 1.

The DEEP Stormwater Program indicated that due to the grades at the site, a filing for an Individual Stormwater Permit may be necessary. Lodestar submitted numerous revisions to the site plans to DEEP but has not received additional feedback since July 2021. Lodestar filed for a DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities on November 11, 2021.

Stormwater management during construction would consist of perimeter compost filter sock for drainage areas that are under 1.0-acre. For drainage areas that are between 1.0 and 5.0 acres, sediment and erosion control will be provided by temporary sediment traps, silt fencing and perimeter compost filter sock.

The post-construction stormwater management system would consist of five individual stormwater management basins to keep post-construction runoff below pre -construction levels.

Operation and Maintenance

A post-construction Operations and Maintenance Program has been established that includes provisions for periodic inspections of physical site features and structural and electrical components.

An evaluation of the facility and performance of preventative maintenance measures would be conducted annually by on-site personnel. The evaluation would include the electrical system/components, physical infrastructure, and site vegetation. Replacement modules would not be stored on-site.

Module cleaning and accumulated snow removal would only be conducted on an as needed basis, determined by system output. No chemicals or additives would be used during cleaning operations.

Decommissioning

The Project has a minimal operational life of 20 years, but may operate for 25 to 30 years. At the end of the Project's useful life, the Project would be decommissioned and the site restored to its original condition. Project decommissioning would include removal and disposal or recycling of all above-surface project components. It is anticipated decommissioning would be completed within 8 weeks.

All recyclable materials would be transported to the appropriate nearby recycling facilities (estimated 95 percent of material). Any non-recyclable materials will be properly disposed of at a nearby landfill (estimated 5 percent of material). The transformer and interconnection equipment pads would be removed. Underground infrastructure would be removed to a depth of three feet. Disturbed areas would be backfilled with native soil and stabilized.

Although Lodestar has not finalized which modules would be utilized for the Project, Lodestar provided Toxicity Characteristic Leaching Procedure (TCLP) test results for Phono Sumec modules, which may be

used at the site. These modules are standard polycrystalline silicon module types utilized throughout the solar industry. The TCLP results indicate the Phono Sumec modules meet current TCLP criteria for nonhazardous waste.

Lodestar indicated it would use solar modules that meet current TCLP criteria for nonhazardous waste in the event the solar panels are not recycled the end of the project's life.

Conclusion

The project is a grid-side distributed resource with a capacity of not more than sixty-five megawatts, meets air and water quality standards of the DEEP, and would not have a substantial adverse environmental effect. The proposed project will not produce air emissions, will not utilize water to produce electricity, was designed to minimize environmental impacts, and furthers the State's energy policy by developing and utilizing renewable energy resources and distributed energy resources. Furthermore, the project was selected under the state's LREC/ZREC Program and would further the state's VNM program.

Recommendations

If approved, staff recommends the following conditions:

1. Approval of any project changes be delegated to Council staff;
2. Submit the final structural design for the racking system stamped by a Professional Engineer duly licensed in the State of Connecticut prior to commencement of construction;
3. Utilize a pollinator seed mix;
4. Submit TCLP test results for the selected solar panels that indicate the panels would not be characterized as hazardous waste at the time of disposal, under current testing criteria,
5. Include contact information for the spill response contractor within the Spill Prevention Control Plan; and
6. Submit a copy of the DEEP Stormwater Permit prior to the commencement of construction

Site Location

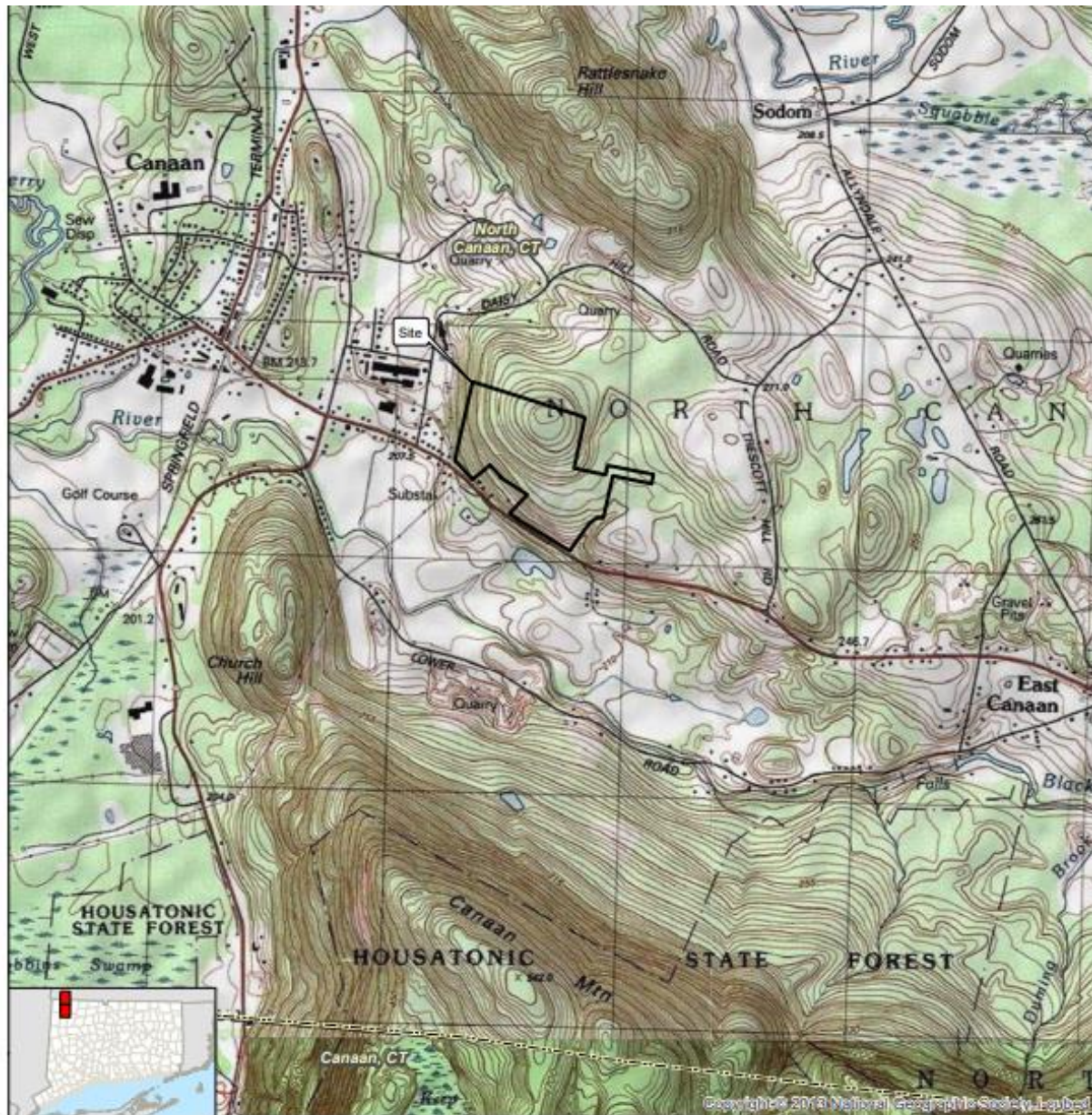
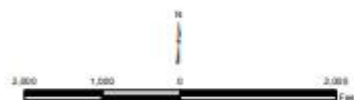


Figure 1
Site Location Map
 Proposed Solar Facility
 81 East Main Street
 North Canaan, Connecticut

Legend
 Site
 Municipal Boundary

Map Notes:
 Base Map Source: USGS 7.5 Minute Topographic
 Quadrangle Maps, Ashley Falls, CT (1967)
 and South Canaan, CT (1968)
 Map Scale: 1 inch = 2,000 feet
 Map Date: June 2021



Host Property- Existing Conditions

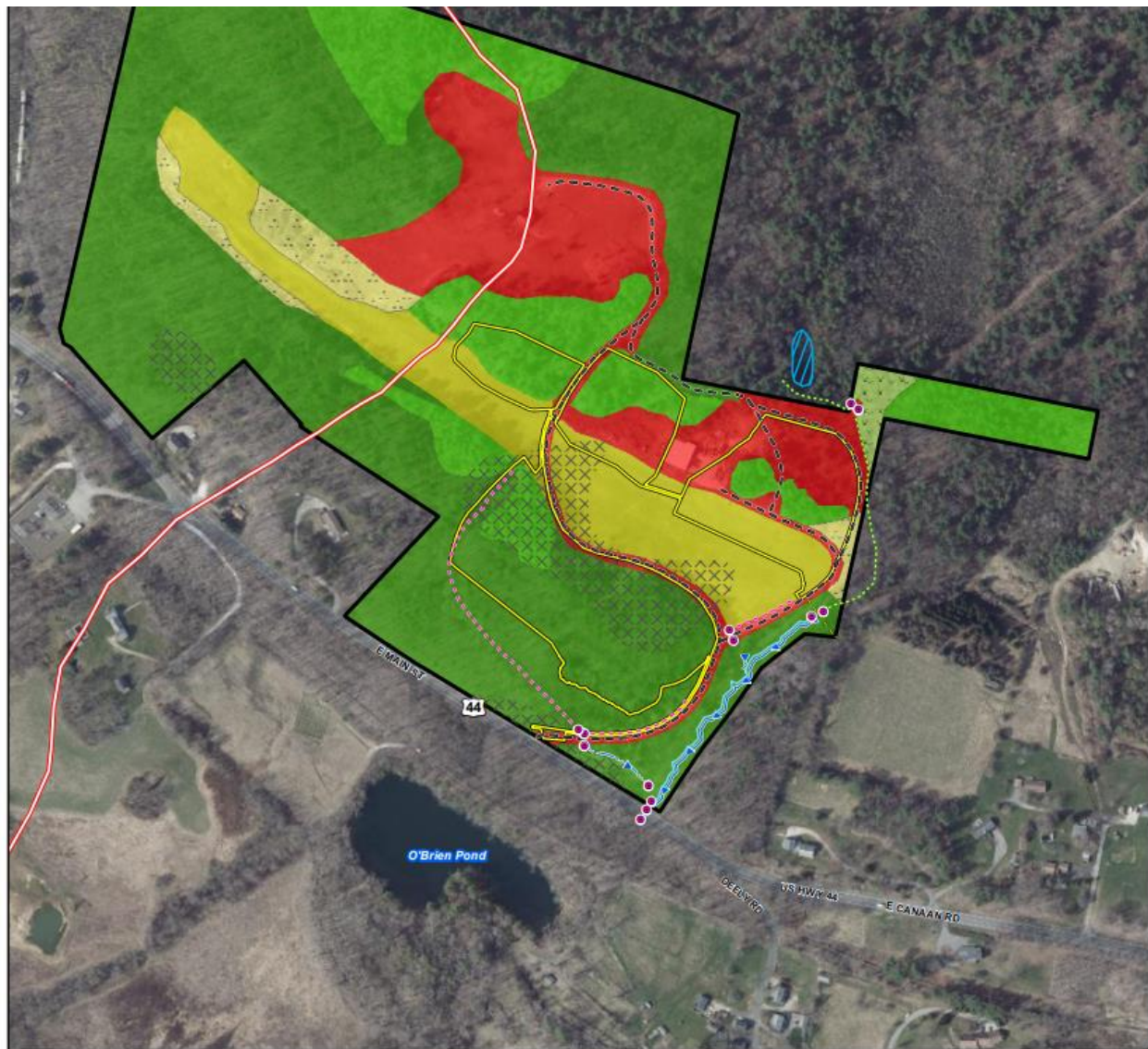


Figure 2
Existing Conditions Map
 Proposed Solar Facility
 81 East Main Street
 North Canaan, Connecticut



Site Layout

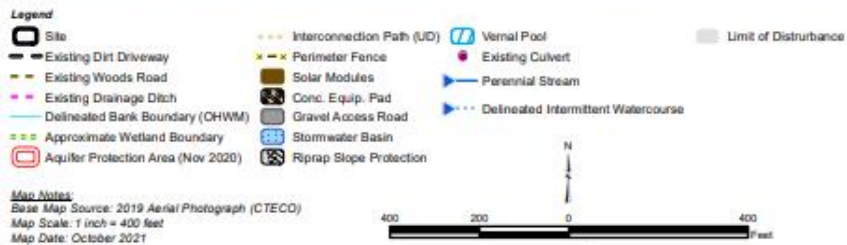


Figure 3
Proposed Conditions Map
 Proposed Solar Facility
 81 East Main Street
 North Canaan, Connecticut

