Petition No. 1401
Revity Energy LLC
Plainfield and Sterling, Connecticut
DRAFT Staff Report
July 10, 2020

Introduction

On April 17, 2020, the Connecticut Siting Council (Council) received a petition (Petition) from Revity Energy LLC (Revity or Petitioner) for a declaratory ruling (petition) pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k for the construction, operation and maintenance of a 12.25 megawatt (MW) alternating current (AC) solar photovoltaic electric generating facility on approximately 74.9-acres located at 424 Snake Meadow Road, Plainfield and 0 Valley Road, Sterling, Connecticut.

Pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40, on or about April 17, 2020, Revity notified Town of Plainfield officials, Town of Sterling officials, state officials and agencies, the property owner, and abutting property owners of the proposed project.

On April 21, 2020, the Council sent correspondence to Revity noting a deficiency in the completeness of the Petition. Specifically, pursuant to CGS §16-50k(a), the Petition did not contain correspondence from the Department of Agriculture (DOAg) that the proposed facility will not materially affect the status of prime farmland and/or written correspondence from the Department of Energy and Environmental Protection (DEEP) that the proposed facility will not materially affect the status of core forest. The Council recommended that the Petitioner provide such information on or before May 22, 2020. The Council received such correspondence from DOAg and DEEP on April 24, 2020 and April 27, 2020, respectively. The correspondence is attached hereto as Appendix A. Accordingly, by letter dated April 28, 2020, the Council rendered the Petition complete.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, an administrative agency is required to take action on a petition within 60 days of receipt. June 16, 2020 was the deadline for this petition under CGS §4-176(e). In response to the Coronavirus pandemic, on March 25, 2020, Governor Lamont issued Executive Order No. 7M that provides for a 90-day extension of statutory and regulatory deadlines for administrative agencies. On June 4, 2020, the Council voted to set the date by which to render a decision as no later than January 12, 2021, which is the 180-day statutory deadline for decision with the 90-day extension per Executive Order No. 7M.

The Council issued interrogatories to Revity on May 11, 2020, which include photographic documentation of site-specific features intended to serve as a "virtual" field review of the project. On May 12, 2020 Council staff member, Michael Perrone, visited the site. On May 26, 2020, Revity submitted responses to the Council's interrogatories. On June 3, 2020, Revity submitted a revised response to Council interrogatory #28. On June 10, 2020, Revity submitted its virtual field review information. On June 22, 2020, the Council issued a second set of interrogatories to Revity. On July 6, 2020, Revity submitted responses to the second set of interrogatories.

Municipal Consultation

On March 7, 2019, a public presentation and feedback session was held at the Plainfield Town Hall. At this meeting, Revity gave an informational presentation to explain the nature of the project and obtain feedback from residents prior to filing the Petition with the Council.

By letter dated January 14, 2020, First Selectman Kevin Cunningham of the Town of Plainfield expressed support for the proposed project.

By letter dated March 5, 2020, First Selectman Russel Gray of the Town of Sterling also expressed support for the proposed project.

On April 17, 2020, the Council sent correspondence to the Towns of Plainfield and Sterling (Towns) stating that the Council has received the Petition and invited the Towns to contact the Council with any questions or comments by May 17, 2020. No additional comments were received from the Towns.

State Agency Comments

On April 17, 2020, the Council sent correspondence requesting comments on the proposed project from the following state agencies by May 17, 2020: DEEP; 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). CEQ and DEEP submitted comments on May 1, and May 15, 2020, respectively. These comments are attached hereto as Appendix B. 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. [1]

Public Act 17-218

Public Act (PA) 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." PA 17-218 requires a project developer to obtain a letter from DOAg **OR** DEEP. Revity has secured written confirmation from both DOAg and DEEP.

Pursuant to CGS §16-50x, the Council has exclusive jurisdiction over the construction, maintenance and operation of solar photovoltaic electric generating facilities throughout the state. PA 17-218 requires developers of solar facilities with a generating capacity of more than 2 MW to obtain a written determination from DOAg or DEEP that the project would not materially affect the status of land as prime farmland or core forest prior to submission of a petition for a declaratory ruling to the Council. PA 17-218 does not confer the Council's exclusive jurisdiction over the construction, maintenance and operation of solar photovoltaic electric generating facilities throughout the state upon DOAg or DEEP. PA 17-218 also

[1] *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007)

does not permit DOAg or DEEP to impose any enforceable conditions on the construction, maintenance and operation of solar photovoltaic electric generating facilities under the exclusive jurisdiction of the Council.

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.

The proposed project does not currently have a power purchase agreement or ZREC agreement. Specifically, the proposed project is an emergent development, and once completed, it would sell the generated electricity to a willing purchaser.

Revity intends on participating in the ISO-New England, Inc. Forward Capacity Auction. However, Revity has not yet determined the auction and commitment period in which it would participate.

Proposed Site

Revity proposes to construct the solar facility within a roughly 74.9-acre[2] site on approximately 184.6-acres of subject property owned by Joseph Vinagro. The subject property is bounded by Snake Meadow Road and Valley View Road to the north; Route 664 to the west; Demers Road to the south; and Valley View Road to the east. It straddles the town boundary between Plainfield and Sterling. The portion of the subject property located in Plainfield is approximately 176 acres and zoned RA-60. The portion of the subject property located in Sterling is approximately 8.5 acres and zoned Residential. The site is mostly undeveloped with the northwestern portion currently occupied by a small-scale mining operation while the eastern portion is primarily wooded with the exception of a few small fields and unpaved access roads. The immediate site vicinity is rural, with a mix of undeveloped land, agricultural fields and sparse residential development.

The key attributes considered as part of Revity's site selection process include, but are not limited to, the following:

a) Cleared land;
b) Disturbed earth such as gravel pits and sand operations;
c) Earth quality, e.g. lack of ledge;
d) Locations in proximity to possible electrical interconnection location(s);
e) Topography favorable for solar design, such as gradually inclining from north to south; and
f) Isolation from residential areas.

[2] This is the disturbance area. The completed project would occupy about 58.5 acres of the 74.9 acres of disturbance.

Proposed Project

The proposed solar field is made up of six arrays separated by the proposed access drives and totaling 12.25 MW AC. The entire project would be located on the host property.

The solar field would include a total of approximately 31,125 solar photovoltaic modules arranged in linear rows 15 feet apart. The modules would be mounted to the racking system in a portrait orientation with either 25 modules per half-rack or 50 modules per full rack[3]. Revity would install seven electrical equipment pads for the transformers, AC panelboard, and multiple string inverters.

The panels would be installed on a post driven approximately six feet into the ground using a pile driver. Wherever posts cannot be pile driven into the ground due to unfavorable subsurface conditions, ballast-mounted panels will be proposed.

The panels would be oriented to the south at a 20-degree angle beginning about 2.5 to 3 feet above ground level (agl) and extending to a height not more than 10 feet agl. A six-foot high[4] chain-link fence would be installed to enclose the solar field. A six-inch gap at the bottom of the fence would be included to allow migration for small wildlife species.

There is an existing access road originating at Snake Meadow Road in Plainfield and continuing eastward to the site. A total of about 2,017 feet of the existing unpaved access would be improved with gravel and utilized for the proposed project. Additionally, about 9,951 feet of new gravel access would be constructed to allow for access and maintenance of the project. Minor grading may be required along some of the proposed access depending on topography.

The power output from each inverter would feed into step-up transformers[5] to increase the collected 600 Volt three-phase AC output to the distribution level voltage of 23-kV.

The 12.25 MW AC capacity of the proposed facility is based on the point of interconnection, so losses have been taken into account.

The efficiency of the proposed solar panels would be about 20.8 percent. The power output of the panels would decline by roughly 0.54 percent per year as the panels age.

Revity has recently consulted with Eversource and received preliminary guidance that the interconnection of the proposed project is feasible. Revity anticipates submitting its impact study application and its interconnection application to Eversource by September 2020.

The proposed 23-kV electrical interconnection would run overhead from the project transformers towards the reclosers (and Snake Meadow Road) to connect to a 23-kV circuit served from Fry Brook Substation, located approximately 9.5 miles from the subject property. The Eversource interconnection process will determine the final design and pole quantity. However, Revity anticipates the use of 45-foot poles which would extend roughly 38 to 39 feet above grade.

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[3] The Petitioner would select the rack type based on the final project design.

[4] 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."

[5] There would be seven pad-mounted transformers each ranging in size from 1,000 kilovolt-ampere (kVA) to 2,000 kVA.

Revity would clear and grub about 37 acres (all in upland areas) to accommodate the proposed project.

The project area that would be cleared and grubbed during construction would be stabilized with a low growth seed mix e.g. New England semi-shade grass and forbs mix or equivalent.

Existing vegetation would be maintained wherever possible. Existing topography slopes downwards from east to west. The site would be graded in areas that have existing slopes greater than 15 percent. Where existing slopes are 15 percent or less, minimal alterations to the topography would occur to install the solar panels. A negligible amount of fill would be required for grading. Approximately 900 cubic yards of fill would be used for the access roads. No excess cut is expected to result from the project.

Construction of the project would commence in September 2020 and would be expected to be completed by the end of September 2021. Final commissioning and commercial operation are targeted for approximately October 2021. Work hours would typically be 7:00 a.m. to 6:00 p.m., Monday through Saturday. If necessary, Sunday work hours would be 9:00 a.m. to 5:00 p.m. Federal holidays would be observed.

Public Safety

The proposed project would meet or exceed applicable industry, state and local codes and standards. The facility would be remotely monitored through a data acquisition system (DAS), allowing for remote shutdown of the project in the event of a fault or other power outage event.

The solar facility would be surrounded by a 6-foot tall chain-link security fence. If approved, Council staff suggests including a condition that a final fence design compliant with the National Electrical Code be submitted to the Council. The facility would have a located gate (located at the western limits of the project access drive) and would have limited access for authorized personnel only.

The proposed site is located approximately 4.87 miles southeast of Danielson Airport. A glare analysis is not required. The solar panels are designed to absorb light rather than reflect it back. The incidental light reflected off of the panels would be significantly less than light reflected off of common building materials or the surface of undisturbed water. On April 28, 2020, the Federal Aviation Administration issued its Determinations of No Hazard to Air Navigation for the proposed project.

The system would have a disconnect switch that would de-energize the facility. It would be located at the entrance to the facility and could be accessed by emergency personnel. Revity would have the disconnect switch locked, but it would provide a key and training to the local fire departments. Emergency vehicles and service equipment would be provided adequate access to the project via the proposed access roads.

Before the project commences operation, Revity would meet local first responders to supply information on responding to emergencies at solar facilities. A tour of the project would be provided, and the clearly marked disconnect switches would be identified for use during an emergency. Revity would work with the local fire departments to establish an action plan that is satisfactory to all parties involved regarding a response to a project emergency event.

Any noise associated with the construction of this project would be temporary in nature and exempt per DEEP Noise Control Regulations. The proposed project is expected to meet the DEEP noise standards at the property boundaries.

Environmental Effects and Mitigation Measures

Historic and Recreational Resources

Heritage Consultants (Heritage) prepared a Phase 1A Cultural Resources Assessment Survey Report (Phase 1A Report) dated February 2019. Per the Phase 1A Report, the project is not located in the immediate vicinity of any National or State Register of Historic Places properties or historic standing structures. Thus, it is anticipated that no historic built resources would be impacted by construction of the proposed solar facility. The Phase 1A Report also noted that the central portion of the limits of work (LOW) appears to contain intact soils deposits, low slopes, and proximity to Snake Meadow Brook; thus, this portion of the LOW has been determined to retain a moderate/high potential to produce intact cultural deposits.

By letter dated March 15, 2019, the SHPO indicated that it reviewed the Phase 1A Report and concurred that a Phase 1B professional cultural resources assessment and reconnaissance survey (Phase 1B Review) that includes subsurface testing in areas identified as having moderate to high archeological sensitivity be performed. The Phase 1B Review has been completed and was sent to the SHPO on May 18, 2020.

By letter dated June 2, 2020, the SHPO indicated that it concurs with the findings of Phase 1B Report that additional archaeological investigations of the project areas are not warranted, and no historic properties would be affected by the proposed project.

Visibility

Year-round views of the facility from off-site locations would be limited to a small area along the east side of Snake Meadow Road directly west of the facility. Additional year-round visibility would also occur from the north at an elevated location northwest of Snake Meadow Pond in Killingly where the existing access road and current mining operations result in a lack of vegetation. Seasonal views of the facility are anticipated from locations immediately west along Snake Meadow Road and from portions of abutting properties to the east and north; however, such views would be through existing mature vegetative screening. In general, the project would be set back sufficiently from abutting properties and other roads such that, given the substantial intervening vegetation, the facility components would not be visible from most off-site locations. See attached Viewshed Map.

Agriculture

Until the 1970s, the western portion of the subject property was used as farmland, primarily grazing and pastureland, while the eastern portion was undeveloped and wooded. By the mid-1990s, the western portion of the subject property had begun to be mined for sand and gravel. By the mid-2000s, mining operations had expanded into small areas in the far eastern portions of the subject property.

The subject property contains prime farmland soils according to mapping maintained by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). 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." However, all project development would be located outside of the mapped prime farmland soils. See attached Existing Conditions Map.

By letter dated April 24, 2020, pursuant to PA 17-218, DOAg indicated that the proposed project would not materially impact the status of prime farmland.

Wetlands and Watercourses

Revity performed field inspections and wetland delineations at the site on August 23, 2018; August 24, 2018; September 6, 2018; and May 29, 2019. A total of nine wetland areas, totaling about 54 acres, were identified at the site.

There would be no direct wetland impacts. Clearing and grading limits for the facility's primary infrastructure have been designed to maintain a setback of at least 50 feet from the nearest wetland resource areas, with the exception of areas bordering Wetlands 8 and 9. Wetland 8, located in the northern portion of the site, consists of a narrow hillside seep system with an interior braided intermittent watercourse. Wetland 9, located in the central portion of the gravel pit, consists of an isolated, anthropogenic linear swale that was historically cut to intercept groundwater seepage in addition to receiving drainage from a rock-armored swale. Due to the historical disturbance of these two resources, the proximity of the existing gravel access road and their resultant limited functions and values, the proposed 10-foot minimum buffer is expected to be sufficient to sustain current functions and values and prevent further degradation.

No clearing within wetland areas is proposed. In addition, habitat enhancement measures are proposed along the boundaries of Wetland 2 where mature upland forest clearing is required. Temporary impacts to wetland resources would be minimized by installing and maintain erosion and sedimentation controls (E&S controls) in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (2002 Connecticut Guidelines). To further protect wetland resources, Revity would utilize its Wetland and Vernal Pool Protection Plan (WVPPP).

Vernal pool surveys were conducted on April 11, 2019; April 26, 2019; May 7, 2019; and May 29, 2019. A total of four vernal pools were identified at the site. See attached Existing Conditions Map. Indicator species observed, egg mass totals, and wetland locations of such vernal pools are identified below in Table A.

Table A: Vernal Pool Indicator Species and Egg Mass Totals

Indicator Species	Egg Masses/Larvae
Vernal Pool 1 (Wetland 5)	
Wood Frog	~150 masses
Spotted Salamander	14 masses
Vernal Pool 2 (Wetland 9)	
Wood Frog	Larvae
Spotted Salamander	Larvae
Vernal Pool 3 (Wetland 1)	
Wood Frog	Not observed
Spotted Salamander	38 masses
Vernal Pool 4 (Wetland 1)	
Wood Frog	~41 masses
Spotted Salamander	14 masses
(~) indicates approximate wood frog egg masses within a large communal egg mass raft	

The methodology used to assess potential impacts to vernal pool habitats is consistent with the 2015 U.S. Army Corps of Engineers Vernal Pool Best Management Practices (ACOE BMPs). All four vernal pools assessed on the site currently maintain less than 25 percent development with the 100-foot to 750-foot Critical Terrestrial Habitat (CTH) area. Post-development, Vernal Pool Nos. 1 and 3 would remain below 25 percent development of the CTH area, while Vernal Pool Nos. 2 and 4 would exceed the guideline

threshold of 25 percent. However, the CTH surrounding both Vernal Pool Nos. 2 and 4 where development is planned are dominated by sub-optimal habitat, including actively disturbed areas. Additionally, the long-term viability of Vernal Pool No. 2 is questionable due to its man-made nature within an active gravel mine and the surrounding conditions. With respect to Vernal Pool No. 4, incorporating the ACOE BMPs vector analysis procedure suggests that much of the optimal upland forested habitat supporting this pool within its CTH exists to the south which would remain unaltered post-development. While there is potential for short-term impacts to herpetofauna associated with nearby vernal pool habitat, such short-term impacts associated with proposed development within vernal pool CTH areas would be minimized by the use of E&S controls consistent with the 2002 Connecticut Guidelines and the implementation of the WVPPP.

Wildlife

The proposed project is not located within 0.25-mile of the buffered area of the DEEP Natural Diversity Database (NDDB). The nearest NDDB area is located approximately 0.92-mile southeast of the subject property.

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 in Connecticut is located in East Granby, which is about 47 miles from the proposed project. There are no known NLEB maternity roost trees in Connecticut. Additionally, on February 8, 2019, the Petitioner submitted a NLEB final 4(d) rule Streamline Consultation Form to the U.S. Fish & Wildlife Service. No response from USFWS was received during the 30-day response period; therefore, the proposed project would have no effect on the NLEB.

Forest

Under PA 17-218, "core forest" means unfragmented forest land that is three hundred feet or greater from the boundary between forest land and nonforest land, as determined by the Commissioner of DEEP. UCONN's Center for Land Use Education and Research (CLEAR) defines "core forest" as forested areas that are essentially surrounded by more forested areas and fall into three classes – small core forest, medium core forest and large core forest. Small core forest is comprised of core forest patches that are less than 250 acres. Medium core forest is comprised of core forest patches that are between 250-500 acres. Large core forest is comprised of core forest patches that are greater than 500 acres.

UCONN CLEAR utilizes the concept of "edge width" to capture the influence of a non-forest feature as it extends into the forest. Research found that the "edge influence" of a clearing will typically extend about 300 feet into the forest.

Utilizing UCONN's CLEAR Forest Fragmentation Analysis study, Revity indicates that there are potentially two small core forest blocks extending onto the proposed site. Based on this analysis, the proposed project area contains approximately 16 acres of core forest and approximately 26 acres of edge forest.

However, according to DEEP's Forestland Habitat Impact Map, the site is not included within an area mapped as core forest. See attached Forestland Habitat Impact Map. By letter dated April 27, 2020, pursuant to PA 17-218, DEEP indicated that the proposed project will not materially affect the status of core forest.

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.

Water Quality

Most of the site is located within the Federal Emergency Management Agency designated (unshaded) Zone X and Zone C, which are areas outside of the 100-year or 500-year flood zones. A portion of the proposed access drive[6] would be located within FEMA Zone A, an area within the 100-year flood zone. The site parcel is not within a DEEP-designated aquifer protection area.

One private water supply well is located on the site, adjacent to the existing garage that it serves. No public water supply wells are located proximate to the site. No public potable water system is available in the area. No disruption to well water flows or water quality is anticipated from the proposed project.

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.

Revity met with the DEEP Stormwater Division on two occasions. The first meeting was to discuss the overall project, and DEEP provided Revity with information regarding DEEP's draft Appendix I – Stormwater Management at Solar Array Construction Projects (Appendix I). Revity then revised the plans as necessary to comply with these guidelines. Revity met with DEEP on September 11, 2019 and November 19, 2019 to discuss these revisions and receive final feedback before a final submission. Revity did not receive any comments from DEEP subsequent to those meetings. Thus, Revity believes that the proposed project conforms to DEEP's draft Appendix I.

Revity will file an application with DEEP for a Stormwater Permit. Council staff suggests including a condition that a copy of the DEEP Stormwater Permit be submitted to the Council prior to construction.

Decommissioning

A Decommissioning Plan was submitted to the Council and has provisions for project removal and component recycling when operation of the facility is discontinued. Following the removal of project related equipment; the site would be restored. Revity would stabilize and re-vegetate the site as necessary to minimize erosion.

[6] Historically, flooding occasionally occurred in this area as a result of beaver activity. However, the animals and their dam were removed years ago, and flooding in this area has no longer been a concern.

Conclusion

The project is a distributed energy resource with a capacity of not more than sixty-five megawatts, meets air and water quality standards of the DEEP, would not materially affect the status of prime farmland or core forest, 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.

Recommendations

If approved, staff recommends the following conditions:

1. Approval of any minor project changes be delegated to Council staff;

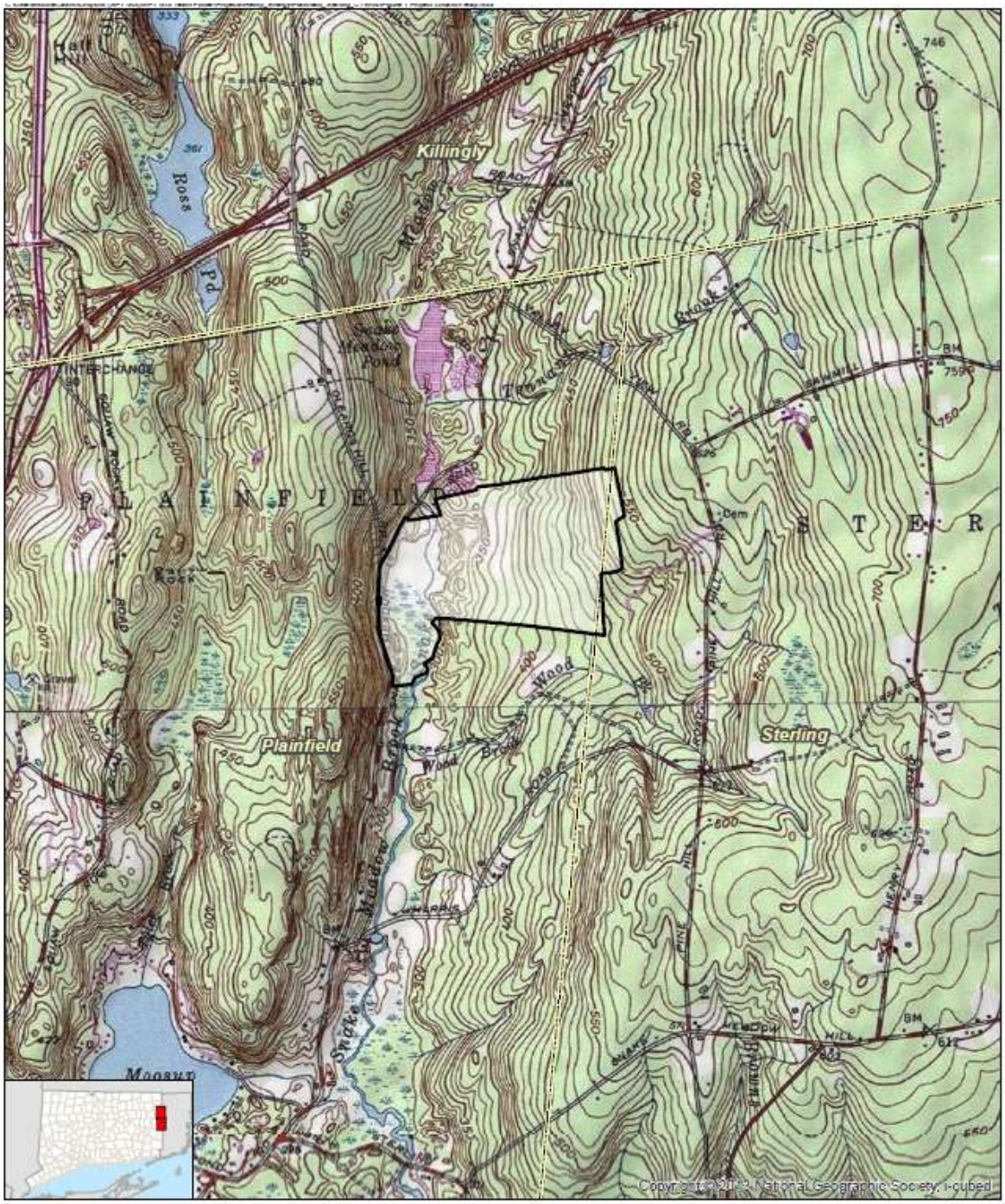
2. Submit a copy of the DEEP Stormwater Permit prior to the commencement of construction;

3. Submit the final fence design in compliance with the National Electrical Code prior to the commencement of construction;

4. Submit the final electrical design plans and interconnection route on the subject property prior to the commencement of construction; and

5. 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.

Site Property Map



Legend
Site
Town Line

Figure 1
Project Location Map

Revity Energy, LLC
Snake Meadow Road Solar Project
Plainfield and Sterling, Connecticut

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Map, East Killingly, CT (1974) and Oneco, CT (1970)
Map Scale: 1:24,000
Map Date: March 2020

1,000 500 0 1,000 Feet

REVITY ENERGY
ALL-POINTS TECHNOLOGY CORPORATION

Existing Conditions Map

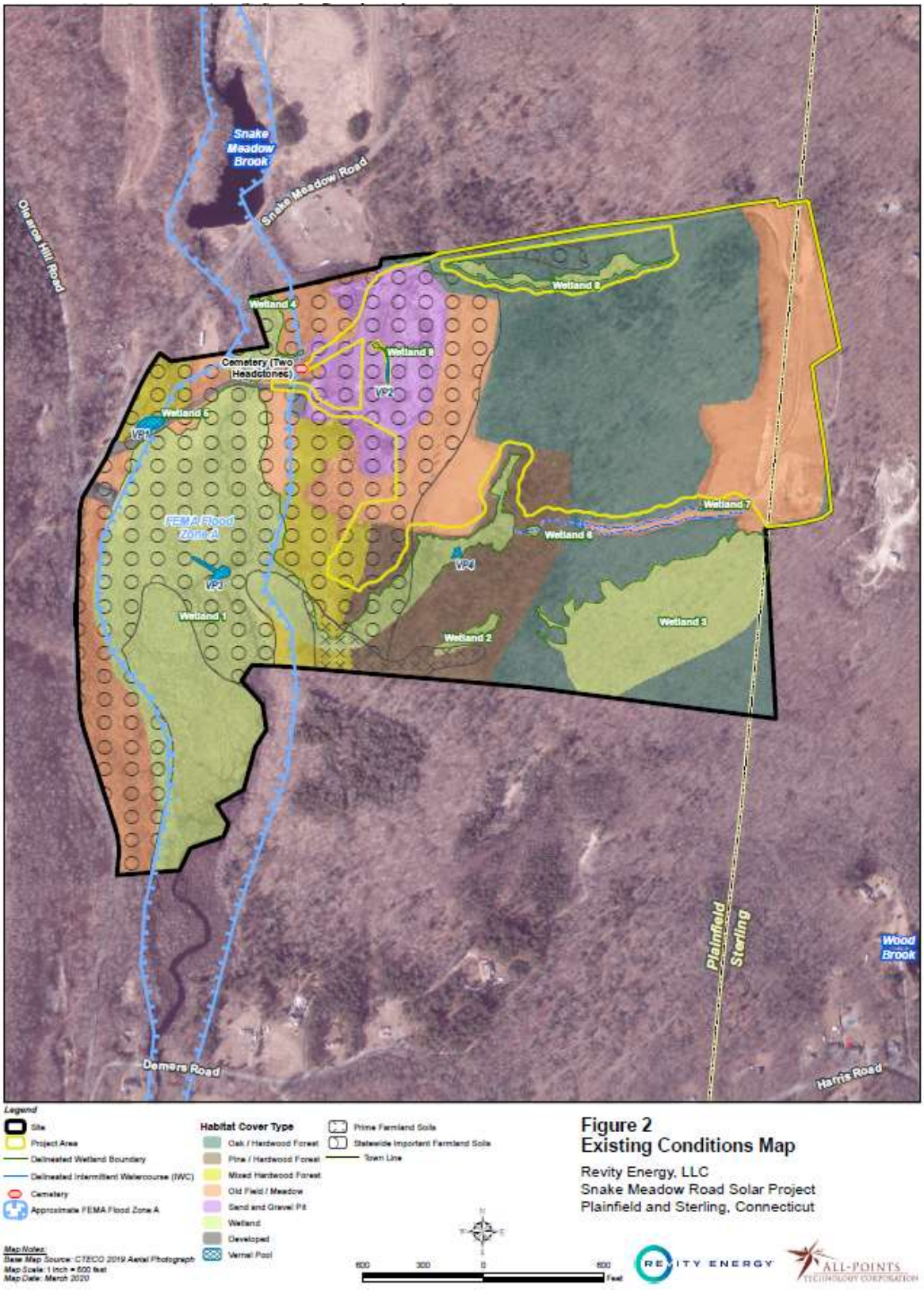


Figure 2
Existing Conditions Map
Revity Energy, LLC
Snake Meadow Road Solar Project
Plainfield and Sterling, Connecticut

Proposed Site Plan

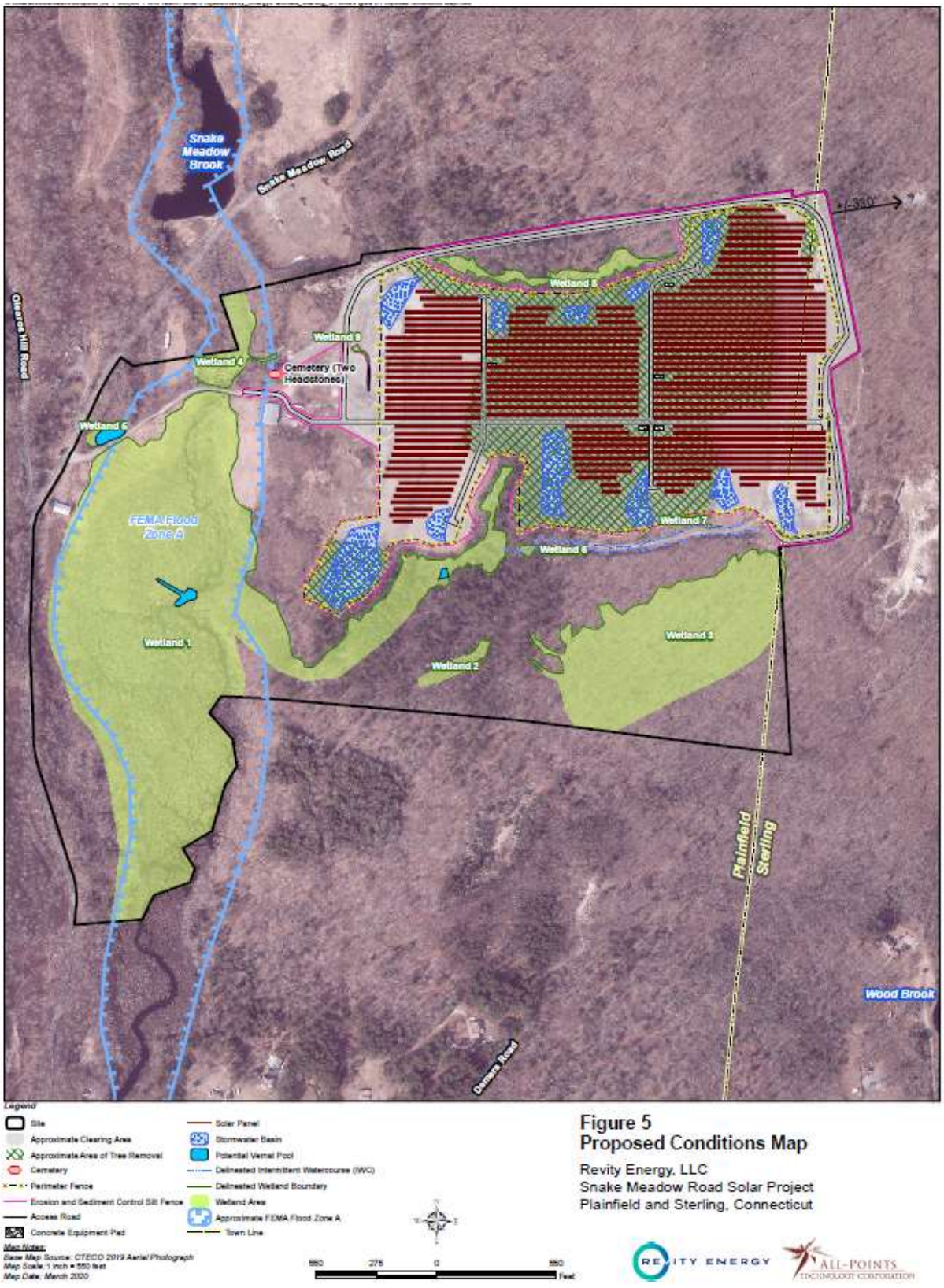
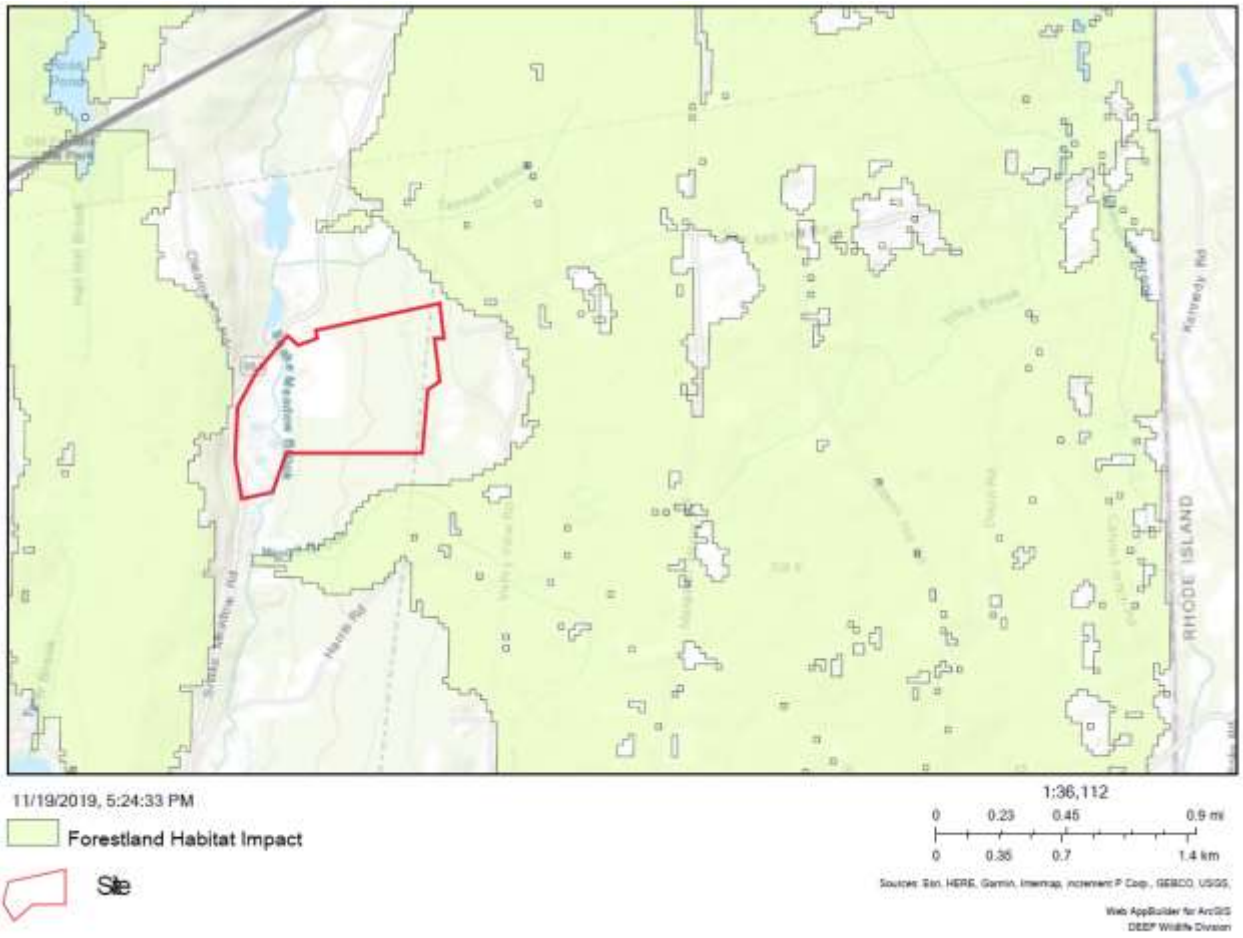
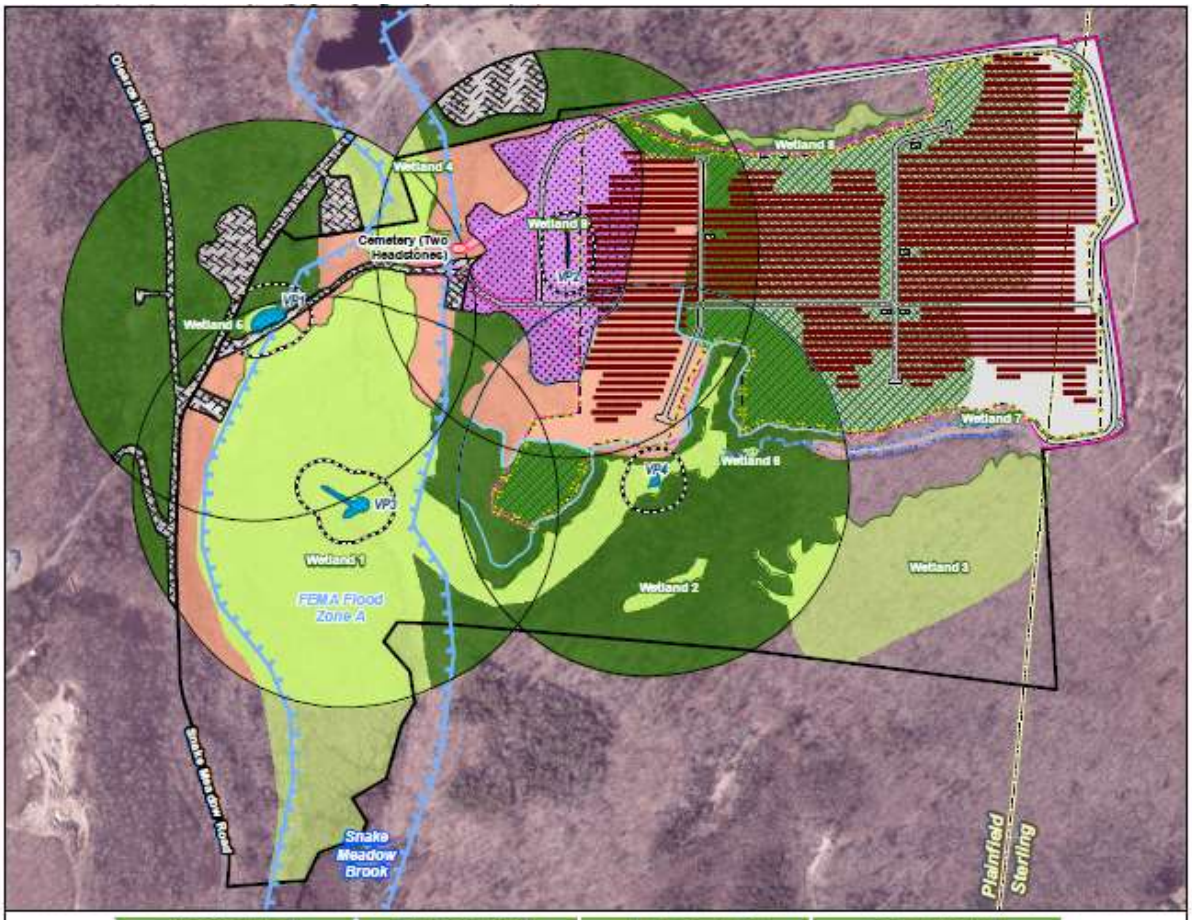


Figure 5
Proposed Conditions Map
Revity Energy, LLC
Snake Meadow Road Solar Project
Plainfield and Sterling, Connecticut

Forestland Habitat Impact Map



Wetland/Watercourse and Vernal Pool Map



Vernal Pool 1 Impact Analysis		
Total Vernal Pool Envelope (VPE) Area: ±1.7 acre Project Area Within VPE Area: None Total 100'-750' Critical Terrestrial Habitat (CTH) Area: ±65.1 acres Project Area Within CTH Area: ±0.2 acre		
Existing VPE Areas: (no proposed habitat changes to VPE Areas)		
Developed	±0.3 acre	18%
Old Field / Meadow	±0.2 acre	12%
Upland Forest	±0.6 acre	35%
Wetlands	±0.6 acre	35%
Existing CTH Areas:		
Developed	±5.3 acres	12%
Old Field / Meadow	±5 acres	11%
Sand and Gravel Pit	±0.1 acre	<1%
Upland Forest	±18.6 acres	41%
Wetlands	±16.1 acres	35%
Proposed CTH Areas:		
Developed	±5.35 acres	12%
Old Field / Meadow	±4.99 acres	11%
Sand and Gravel Pit	±0.07 acre	<1%
Upland Forest	±18.6 acres	41%
Wetlands	±16.1 acres	35%

Vernal Pool 2 Impact Analysis		
Total Vernal Pool Envelope (VPE) Area: ±1.3 acre Project Area Within VPE Area: ±1.2 acre Total 100'-750' Critical Terrestrial Habitat (CTH) Area: ±63.5 acre Project Area Within CTH Area: ±21 acre		
Existing VPE Areas:		
Sand and Gravel Pit	±1.25 acre	96%
Wetlands	±0.05 acre	4%
Proposed VPE Areas:		
Developed	±1.25 acre	96%
Wetlands	±0.05 acre	4%
Existing CTH Areas:		
Developed	±2.4 acres	6%
Old Field / Meadow	±15.8 acres	36%
Sand and Gravel Pit	±10 acres	23%
Upland Forest	±11.9 acres	27%
Wetlands	±3.4 acres	8%
Proposed CTH Areas:		
Developed	±23.2 acres	53%
Old Field / Meadow	±6.8 acres	16%
Sand and Gravel Pit	±3.6 acres	8%
Upland Forest	±6.5 acres	15%
Wetlands	±3.4 acres	8%

Vernal Pool 3 Impact Analysis		
Total Vernal Pool Envelope (VPE) Area: ±2 acres Project Area Within VPE Area: None Total 100'-750' Critical Terrestrial Habitat (CTH) Area: ±47 acres Project Area Within CTH Area: ±1.6 acre		
Existing VPE Areas: (no proposed habitat changes to VPE Areas)		
Wetlands	±2 acres	100%
Existing CTH Areas:		
Developed	±2 acres	4%
Old Field / Meadow	±6 acres	13%
Upland Forest	±11 acres	23%
Wetlands	±28 acres	60%
Proposed CTH Areas:		
Developed	±3.6 acres	7%
Old Field / Meadow	±5.9 acres	13%
Upland Forest	±9.5 acres	20%
Wetlands	±28 acres	60%

Vernal Pool 4 Impact Analysis		
Total Vernal Pool Envelope (VPE) Area: ±1.16 acre Project Area Within VPE Area: None Total 100'-750' Critical Terrestrial Habitat (CTH) Area: ±42.94 acres Project Area Within CTH Area: ±13.2 acres		
Existing VPE Areas: (no proposed habitat changes to VPE Areas)		
Old Field / Meadow	±0.08 acre	7%
Upland Forest	±0.50 acre	44%
Wetlands	±0.56 acre	49%
Existing CTH Areas:		
Old Field / Meadow	±6.8 acres	21%
Sand and Gravel Pit	±1.74 acres	4%
Upland Forest	±27 acres	64%
Wetlands	±4.8 acres	11%
Proposed CTH Areas:		
Developed	±13.2 acres	31%
Old Field / Meadow	±2.64 acres	6%
Sand and Gravel Pit	±1 acre	3%
Upland Forest	±20.7 acres	49%
Wetlands	±4.8 acres	11%

Legend

- Site
- Approximate Limit of Disturbance
- Approximate Area of Tree Removal
- Cemetery
- Perimeter Fence
- Erosion and Sediment Control Silt Fence
- Access Road
- Solar Panel
- Concrete Equipment Pad
- Vernal Pool
- Delineated Intermittent Watercourse (IWC)
- Delineated Wetland Boundary
- Wetland Area
- Approximate FEMA Flood Zone A
- Town Line
- 100' Vernal Pool Envelope (VPE)
- 100'-750' Critical Terrestrial Habitat (CTH)

Critical Terrestrial Habitat

- Developed
- Old Field / Meadow
- Sand and Gravel Pit
- Upland Forest
- Wetland

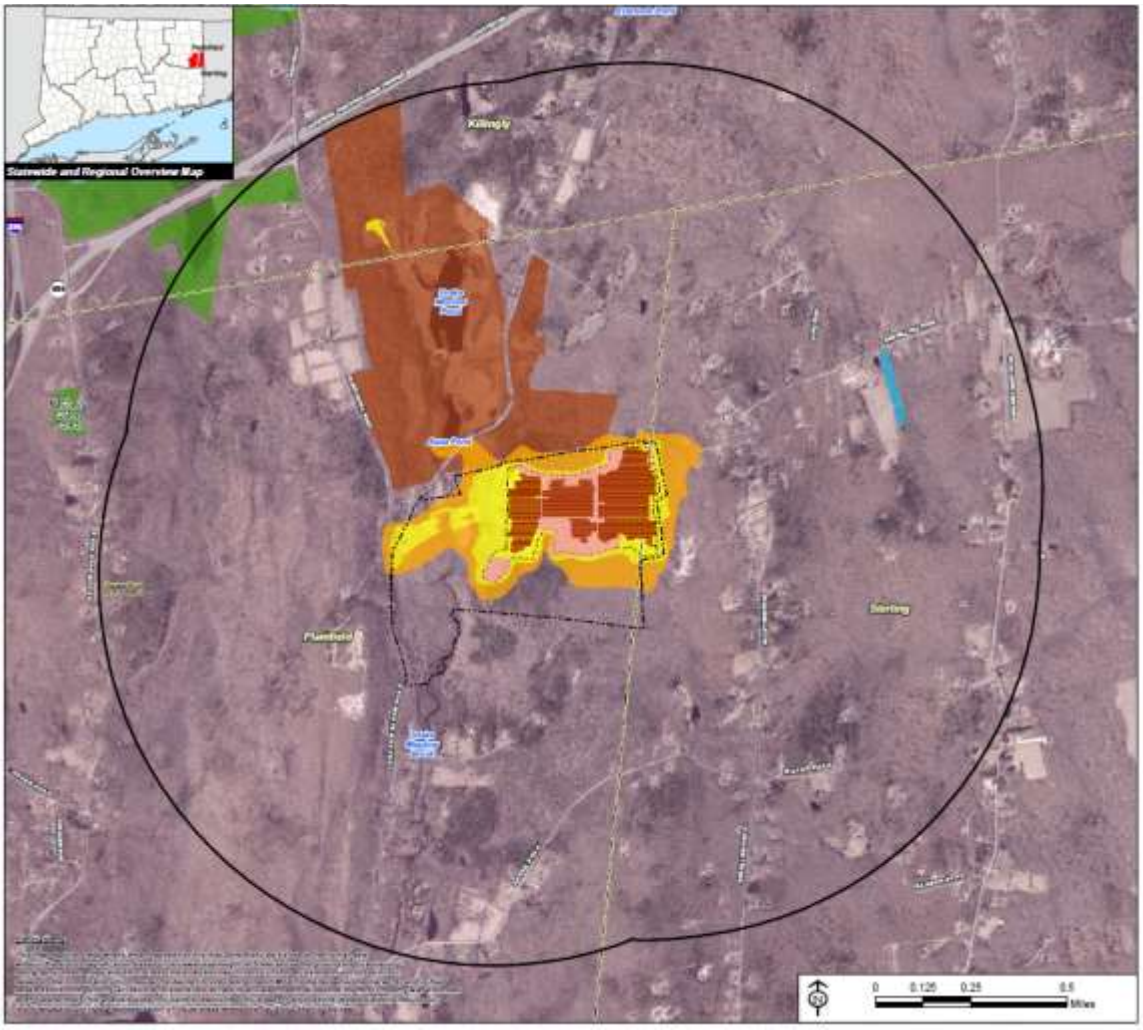
Map Notes:
Base Map Source: CTECO 2019 Aerial Photograph
Map Scale: 1 Inch = 500 feet
Map Date: March 2020

500 250 0 500 Feet

Figure 7
Vernal Pool Analysis Map
Revity Energy, LLC
Snake Meadow Road Solar Project
Plainfield and Sterling, Connecticut

REVITY ENERGY ALL-POINTS TECHNOLOGY CORPORATION

Viewshed Map



Legend

- Site
- Study Area (1-Mile Radius)
- Proposed Solar Panel
- Proposed Perimeter Fence
- Approximate Area of Proposed Tree Removal
- Predicted Year-Round Visibility (90 Acres)
- Areas of Potential Seasonal Visibility (62 Acres)
- Municipal Boundary
- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park

Protected Open Space Property

- Federal
- Land Trust
- Municipal
- Private
- State

Appendix- A
DoAG (status of prime farmland) and
DEEP, Bureau of Natural Resource (status of core forest)

STATE OF CONNECTICUT
DEPARTMENT OF AGRICULTURE
Office of the Commissioner

Bryan P. Hurlburt
Commissioner

860-713-2501
www.CTGrown.gov

April 24, 2020

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: PETITION NO. 1401 - Revity Energy, LLC petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 12.25-megawatt AC solar photovoltaic electric generating facility on approximately 74.9 acres located at 424 Snake Meadow Road, Plainfield, Connecticut and 0 Valley Road, Sterling, Connecticut, and associated electrical interconnection to Eversource Energy's Fry Brook Substation.

Dear Executive Director Bachman:

We have reviewed the above cited petition for declaratory ruling, with respect to agricultural impacts, and have found that there does not appear to be any material impact to the status of prime farmland. As stated in the petition, the property has historically been used for gravel and sand mining operations, and there are no mapped prime farmland soils within the project area. Further, it is our understanding that there will be no other construction activities (e.g., those from electrical interconnections or access roads) which will disturb prime farmland soils on the property. If you have any questions, please feel free to contact either myself or Stephen Anderson of my staff. Steve can be reached at stephen.anderson@ct.gov, or at (860) 713-2592.

Sincerely,

Bryan P. Hurlburt
Commissioner

Cc: Katie Dykes, Commissioner, Department of Energy and Environmental Protection
Bruce McDermott, Murtha Cullina LLP

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

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April 27, 2020

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

cc: Michael P. Libertine
Director of Siting & Permitting
All-Points Technology Corporation, P.C.
3 Saddlebrook Drive
Killingworth, CT 06419

RE: Preliminary Review
Revity Energy, LLC
Proposed 14 MG Solar Array
424 Snake Meadow Road, Plainfield, CT 06354

Dear Ms. Bachman,

Revity Energy, LLC. ("Petitioner") has contacted the Connecticut Department of Energy and Environmental Protection ("DEEP") Bureau of Natural Resources and informed us of their intention to file a petition for a declaratory ruling with the Connecticut Siting Council. Petitioner proposes to construct a solar photovoltaic facility with a capacity of two or more megawatts, to be located at 424 Snake Meadow Road, Plainfield, CT 06354 ("Site").

Approximately 86.5 acres of the Site would be impacted by the installation of the solar panels, associated systems and site work involved with this proposed project. Pursuant to Sec. 16-50k of the Connecticut General Statutes the DEEP Bureau of Natural Resources staff have reviewed documents submitted by the Petitioner concerning this proposed project, which include a site map dated November 19, 2019 with a cover letter dated December 4, 2019 prepared by Michael P. Libertine, Director of Siting & Permitting of All-Points Technology Corporation, P.C.

In conducting such review of the proposed project, DEEP Bureau of Natural Resources has determined that such proposed project, as represented in the above mentioned documents **will not** materially affect the status of such Site as core forest.

The Petitioner used the DEEP Bureau of Natural Resources screening tool the "Forestland Habitat Impact Map" to evaluate their design concept. The results of such screening and any DEEP Bureau of Natural Resources concurrence with aspects of the preliminary results do not, and are not intended to, supplant formal approval from the DEEP Bureau of Natural Resources.

All final plans for such Site intended to be submitted by the Petitioner to the Connecticut Siting Council shall be submitted to the DEEP Bureau of Natural Resources for review and approval 14 days prior to submission to the Connecticut Siting Council. Such submission shall be made to:

Rick Jacobson, Chief
Department of Energy and Environmental Protection
Bureau of Natural Resources
79 Elm Street, Hartford, Connecticut 06106-5127
rick.jacobson@ct.gov

DEEP Bureau of Natural Resources retains the right to review and approve any changes to the design specifications including, but not limited to, final plans that are filed with the Connecticut Siting Council after the date of this letter.

Nothing in this letter relieves the Petitioner of other obligations under applicable federal, state, and local law that may be necessary as part of the proposed project design and implementation.

If you have any questions, you may contact me at 860-424-3010, or by mail at 79 Elm Street, Sixth Floor, Hartford, CT 06106-5127.

Connecticut is one of the most heavily forested states in America. Our forests clean our air and water, shelter our wildlife, sequester carbon, contribute tens of millions of dollars to our economy, and add immeasurably to the quality of our lives. Yet every day, our forests are under threat. Invasive insects and diseases and our dense and growing human population continue to stress our forests in unprecedented ways. Thank you for helping us to conserve a healthy core forest for future generations, providing public transparency and working to make thoughtful development choices.

Sincerely,

Rick Jacobson, Chief
Bureau of Natural Resources
Department of Energy and Environmental Protection

CC: Bryan P. Hurlburt, Connecticut Department of Agriculture

Jenny Dickson, Director of Wildlife, Bureau of Natural Resources, DEEP

Christopher Martin, Director of Forestry, Bureau of Natural Resources, DEEP

DEEP.OPPD@ct.gov

siting.council@ct.gov

Appendix B - State Agency Comments

STATE OF CONNECTICUT

COUNCIL ON ENVIRONMENTAL QUALITY

May 1, 2020

Melanie Bachman, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: PETITION NO. 1401 - Revity Energy, LLC petition for a declaratory ruling for the proposed construction, maintenance and operation of a 12.25-megawatt AC solar photovoltaic electric generating facility on approximately 74.9 acres located at 424 Snake Meadow Road, Plainfield, Connecticut and 0 Valley Road, Sterling, Connecticut.

Dear Ms. Bachman:

The Council on Environmental Quality ("the Council") supports the development of clean, renewable energy technologies on appropriate sites in Connecticut. The Council offers the following comments with regard to Petition No. 1401 (Petition):

1. Proposed Project Site

The Petitioner states that "no raw or hazardous materials or fuels will be delivered to or stored at the property". In contradiction, the Petition contains within it a "Wetland and Vernal Pool Protection Plan" with provisions for "Petroleum and Hazardous Materials Storage and Refueling". The Council recommends that the any fuel storage or refueling, anywhere on the site, follow the guidance set out in the Wetland and Vernal Pool Protection Plan.

2. Stormwater and erosion controls

The Department of Energy and Environmental Protection (DEEP) has made a tentative determination to issue a modified "General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities" ("Draft Permit"). That Draft Permit includes a special section (Appendix I) which deals specifically with the unique challenge of erosion and control of stormwater at solar energy facilities. The Draft Permit represents the most current approach to controlling erosion at solar energy sites. The Council recommends that these guidelines be referenced and applied, where appropriate, at the proposed site.

79 Elm Street, Hartford, CT 06106
Phone: (860) 424-4000 Fax: (860) 424-4070
http://www.ct.gov/ceq

3. Historic Resources

The Petitioner stated that the State Historic Preservation Office recommended, in writing on March 15, 2019, that a Phase 1B professional cultural resources assessment and reconnaissance survey be completed for those areas that have a moderate/high archaeological sensitivity on the proposed site. The Petitioner further states that the Phase 1B survey is not complete and that it would be provided at a later date. The Council suggests that the lack of information regarding the potential presence of historic/archeological resources on the proposed site is a deficiency and should be corrected before work commences, if approved.

4. Forest and Farmland

The Council commends the Petitioner for proposing to "immediately reclaim disturbed areas with the planting of native species, which would consist of a pollinator-friendly seed mix.

The proposed project is greater than two megawatts in capacity and was not accepted in response to a solicitation prior to July 1, 2017 from the Department of Energy and Environmental Protection (DEEP). The Petitioner is required, therefore, to provide written correspondence from the Department of Agriculture that the proposed project "will not materially affect the status of such land as prime farmland" and from DEEP that the proposed project "will not materially affect the status of such land as core forest", consistent with Connecticut General Statutes Sec.16-50k(a). Though the Petitioner states that the proposed project will not impact Prime Farmland Soils, affirmation of that assertion is required from the Department of Agriculture. Likewise, the two (2) core forest blocks, totaling 172 acres could be significant and important to forest-dwelling birds, mammals and reptiles. The DEEP must make a determination that the project "will not materially affect the status of such land as core forest".

5. Wildlife

The Petitioner indicated that approximately 37 acres of trees will be removed for the proposed project. The proposed project schedule (Appendix C) identifies tree clearing during September and October to protect Northern Long Eared Bat (NLEB) and other bat species that may be seasonally present on the proposed project site, the Council recommends that, if approved, no tree clearing activities be allowed during bat roosting periods.

The Council suggests that an approximately six inch gap be maintained at the bottom of the proposed six foot tall security fence that would surround the proposed project to allow for migration of small wildlife, if consistent with safety requirements

The Petitioner has stated that potential adverse impacts to nearby vernal pool or wetland resources would be minimized if the Wetland and Vernal Pool Protection Plan (WVPPP) is properly implemented and maintained during construction activities. The Council commends the Petitioner for proposing to implement a "Wetland and Vernal Pool Protection Plan" and to utilize an independent environmental monitor to: 1) educate construction personnel on how to implement the WVPPP and 2) monitor the site for proper adherence to the WVPPP, Development and Management Plan, and the various permits that will be required if the proposed project is approved.

6. Wetlands

The Petitioner has identified nine wetland areas and four vernal pools at the proposed project site. The Council recommends that the Petitioner maintain a 100-foot buffer or setback from wetland resource areas where feasible. In addition, the Petitioner plans to perform "tree clearing" adjacent to some of the wetlands to minimize shading. The Council recommends that if there are any mature trees within the suggested 100-foot buffer or setback that require clearing for shading abatement only, that the stumps be left, where practical, to stabilize the soils and reduce possible erosion and sedimentation of the wetlands.

Thank you for your consideration of these comments. Please do not hesitate to contact the Council if you have any questions.

Sincerely,

Peter Hearn
Executive Director

Connecticut Department of
ENERGY &
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PROTECTION

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May 15, 2020

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

RE: 12.25-MW Solar Photo-voltaic Generating Facility
Revity Energy, LLC
Plainfield and Sterling, Connecticut
Petition No. 1401

Dear Members of the Connecticut Siting Council:

Staff of this department have reviewed the above-referenced petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need will be required for the construction of a 12.25-MW photo-voltaic generating facility occupying approximately 58.5 acres of land at 424 Snake Meadow Road in Plainfield, with a small portion of the facility in Sterling. A field review of the site was conducted on May 7, 2020. Based on these efforts, the following comments are offered to the Council for your consideration in this proceeding.

While the Snake Meadow Solar project was not developed pursuant to an RFP solicitation made by DEEP, its construction would nevertheless aid in the achievement of Connecticut's vision for a more affordable, cleaner, and more reliable energy future for the ratepayers of Connecticut. Bringing more grid-scale renewable energy projects on line is instrumental in furthering this vision as these resources help diversify the regional fuel mix, assist the state in meeting its requirement to purchase Renewable Energy Certificates from Class I renewable sources associated with 20% of its electricity by 2020, and in implementing Governor Lamont's Executive Order No. 3 that DEEP investigate pathways to achieve a 100% zero-carbon electric sector by 2040. Developing grid-scale renewables is also imperative to the state's success in achieving its goal of reducing carbon emissions by 45% below 2001 levels by 2030 and by 80% below 2001 levels by 2050.

Project Site Description

The project site is located in the northeast corner of Plainfield, just east of Snake Meadow Road and Snake Meadow Brook, and overlapping into a small adjacent area of northwestern Sterling. The site consists of a mixture of two large areas cleared and excavated for sand and gravel removal, and an intervening wooded parcel. The general slopes of the site vary from gentle to moderate. The existing access road is in excellent condition though there was ponding to a 6" depth at its lowest point adjacent to vernal pool 01 at the time of DEEP's May 7 site visit. Rip-rapped drainage channels run along both sides of the road as it ascends to the upper gravel extraction area.

After passing the site access gate just east of Snake Meadow Brook, there is a level excavated area which contains a large, sheet metal-sided 3-bay garage which is the only structure on the site. The sandy, sparse soil cover in this area supports pitch pine, the tallest of which are 10' tall, and shrub willow. Several piles of sand, gravel or mixed product are found east of the garage.

Farther east of the garage, at the edge of this lower cleared area, lies vernal pool 02 which contained sixteen egg masses and a few small tadpoles in its slightly over one foot of water depth. Water quality in vernal pool 02 appeared to be excellent.

Perhaps more impressive than vernal pool 02 was a smaller pool on the cleared sandy terrace just above the level area containing the garage and vernal pool 02. This pool, which perhaps might be classified as a decoy pool, contained innumerable small tadpoles, less than ½" in length, but so numerous as to make the water solid black in the central area of the pool. This pool measured approximately 10' by 25' with only 2" of water depth but it was fed by a hillside seep which replenishes its water volume.

As the Petition discussed for vernal pool 02, this smaller pool is also isolated from the nearest suitable supporting habitat for its emerging residents. The wooded areas in and adjacent to wetland 8 would probably be the nearest suitable habitat to this pool. One day's observation certainly does not establish the viability of this pool as suitable breeding pool habitat, but it was an impressively fecund site to behold on May 7 and may be worthy of preservation, along with the immediately adjacent hydrology which supports it. On a related note, while it may not be reasonable to provide a full 50' buffer around wetland 9, which contains vernal pool 02, given the disturbed nature of its surroundings, a mere 10' buffer as currently proposed would both provide precious little protection for this wetland and its vernal pool and would put these resources at greater risk from construction activities. A modest increase to at least a 25' buffer around wetland 9 should be provided to protect this habitat during the construction period and beyond.

The narrow channels along the farthest portion of the existing access road, which are labeled as wetlands 6 and 7 in the Petition, continue to the northeast beyond the segments shown in Figure 5 on page 29 of the Environmental Assessment, as they continue to ascent to higher ground in the upper gravel extraction area. The headwaters of the watercourse in the channel on the wetland 7 side of the road originate from an area of apparent wet meadow wetland, approximately 40' by 80'. The upper, undesignated segments of the roadside watercourses in the armored drainage channels are not noticeably different in character from the segments which are designed as wetlands 6 and 7, and the headwater area of the drainage ditch on the wetland 7 side of the road would appear to have the characteristics of a wet meadow wetland.

The extreme southeast corner of the developed footprint area of the project contains several areas of exposed bedrock. It is not clear from the maps of the array layout whether any photo-voltaic panels are contemplated in this area as there is a small area shown within the erosion and sedimentation control fence at this corner of the project for which panels are not planned, but it looks in the field as though some areas of exposed ledge may be within the array layout which

would make the installation of the pile-mounted racking system (as described on page 7) difficult to install in these areas.

As noted in the Petition, the nearest homes to the solar array would be on Valley View Road in Sterling, east of the project. Five homes are accessed via a common driveway off Valley View Road, with the homes at 163 and 165 Valley View Road being closest to the Snake Meadow solar farm. Ample screening will remain between these homes and the solar panels, though the vast majority of it is deciduous. Homes along the west side of Snake Meadow Road, while not as close to the solar farm as those on Valley View Road, are positioned to have a more direct view of the facility from distances of slightly over 1,000'.

Some level of dirt bike use is evident on the host property to the south of the upper gravel pit area, but it is relatively minor.

The two gravestones mentioned in the Petition sit up on a bank just north of the entrance to the project site after passing the existing gate. These stones are over 200 years old with dates of the deceased being 1796 and 1803. A third smaller stone does not contain any decipherable inscriptions and may simply be a footstone. Barring any unusual circumstances, it should be possible to protect these gravestones from any construction impacts.

The nearest DEEP property to the project is Old Furnace State Park which supports mainly hiking trails though it does also offer hunting, fishing and boating opportunities. It would not be impacted in any way by the construction of this solar farm. The Snake Meadow Club to the north of the host property operates a trap and skeet shooting range of the east side of Snake Meadow Road and a hunting club on the larger property to the west of Snake Meadow Road. The former site should not be affected by the construction and operation of the solar farm. The nature of the activities at the hunting club are not apparent enough to know if they might be impacted in any way such as perhaps the loss of some nearby habitat on the project site reducing game population densities at the club property.

Construction Stormwater Management

Construction projects involving five or more acres of land disturbance require either an individual NPDES discharge permit from DEEP or they may register for coverage under the Department's General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEEP-WPED-GP-015).

Two stormwater guidance documents are attached to these comments. The Petition notes the need for this permit and the petitioner participated in a pre-application meeting with DEEP staff where the registration procedure and issues connected to this permit were discussed. To date, no registration under the General Permit has been received.

Also as mentioned in previous DEEP's comments, the petitioner should also be aware that, prior to initiating the construction of any engineered stormwater control measures, any proposed measures must be evaluated to determine if they may quality as dams as defined by the Regulations of Connecticut State Agencies Sec. 22a-409-1(10), which may require a Dam Safety

Construction Permit. A determination on the need for this permit may be requested by contacting the DEEP Dam Safety Program at DEEP.DamSafety@ct.gov.

Natural Diversity Data Base

The Petition is correct in the assertion, contained in footnote #11 on page 20 of the Environmental Assessment, that there is no requirement for Natural Diversity Data Base consultation on this project given that there are no known occurrences of any NDDB-listed species within 0.25 miles of the project site.

Miscellaneous Petition Commentary

DEEP recommends the incorporation into the facility design of a 6" gap between the bottom of the perimeter fence and the ground so as to accommodate access by small wildlife to the 58.5 acres of habitat inside the fence.

In the discussion of Project Benefits on page 10 of the Petition, the statement is made that the project will "provide three-phase power to a rural community that will enhance the probability of future local commercial development opportunities …". In what way would the electricity generated at the Snake Meadow Solar Farm provide this benefit above and beyond electricity generated at other Connecticut facilities?

On page 34 of the Petition, tree clearing along the peripheral boundaries of wetland 2 is cited as necessary, with habitat enhancement measures planned as mitigation. Why is any tree clearing necessary around wetland 2 given the 440' separation between this wetland and the nearest construction-related activities cited on page 33 of the Environmental Assessment?

According to the discussion on page 42 of the Environmental Assessment, the clearing of trees on the site and their replacement with grasses will result in an increase in the time of concentration of the stormwater discharge. This seems highly unlikely. The accuracy of this statement should be confirmed with the applicant.

The wetland delineation field form for wetland 1 cites the vernal pool described as an old farm pond (VP04) as a 'classic' vernal pool. Rather, as mentioned on page 32 of the Petition, all four of the vernal pools on the site are cryptic vernal pools.

The Wetland and Vernal Pool Protection Plan described on page 40 of the Environmental Assessment and referred to a page earlier contains prudent provisions to protect herpetofauna at the site and to specify construction BMPs. However, it is pretty clearly stated as intended to protect the viability of the wetlands, vernal pools and their inhabitants 'during the construction period' rather than preserving their long-term viability. If the long-term viability of these resources is not protected, there is no value in protecting them during the construction period. Thus, preserving existing hydrology and providing adequate buffers must be considered for the long-term needs of these resources.

Thank you for the opportunity to review this petition and to submit these comments to the Council. Should you, other Council members or Council staff have any questions, please feel free to contact me at (860) 424-4110 or at frederick.riese@ct.gov.

Respectfully yours,

Frederick L. Riese
Senior Environmental Analyst

Attachments: (2)
cc: Commissioner Katie Dykes

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

GUIDANCE REGARDING SOLAR ARRAYS AND THE GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS FROM CONSTRUCTION ACTIVITIES

January 6, 2020

Solar development has expanded over the last several years as Connecticut and other states have invested in this important resource to further greenhouse gas emission reductions. The large amount of impervious surface inherent in the construction of a large-scale solar arrays is unlike most other construction activities regulated under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities ("general permit") and entails challenges not encountered in traditional development projects. If not properly managed through appropriate design and mitigation measures, stormwater discharged during and after the construction of solar arrays can be a significant source of pollution resulting from increased runoff, erosion, and sedimentation, which can adversely impact wetlands or other natural resources. Solar installations must be properly designed to assure soil stabilization, minimize soil disturbance and soil compaction. This includes ensuring that effective controls are put in place to manage the total runoff volume and velocity that can lead to the loss of topsoil, erosion and sediment discharges from disturbed areas and stormwater outlets, and erosion along downstream channels and streambanks. The ability to address such significant environmental problems during construction and post-construction becomes more difficult as site imperviousness increases.

The environmental objectives of the general permit that solar facilities must meet have not changed. What has changed are the design assumptions and application of stormwater management techniques and engineering principles and practices to meet those requirements, as well as the Department's knowledge and experience with respect to the ability of different techniques and engineering practices to meet the underlying environmental requirements. The Department is obligated to apply its best understanding of management techniques and engineering practices and principles. At the same time, the Department strives to provide more predictability and transparency around its approaches to permitting solar facilities in order to promote environmental compliance and competitive solar development in the state.

To that end, DEEP is publishing this Guidance, available at www.ct.gov/deep/stormwater to assist the professionals engaged in designing and constructing solar array projects, both large and small, and to provide a more transparent understanding of how the Department is considering emerging issues and the manner of addressing them. The Guidance describes the Department's expectations around how such professionals may ensure that any such project is designed and constructed in a manner that takes into account site conditions such as: the amount, frequency, intensity and duration of precipitation; soil types, topography, surficial geology, hydrology and natural resources; and any changes to such conditions resulting from site activities during and after construction to minimize erosion and sedimentation and to control stormwater discharges, including peak flowrates and total stormwater runoff volume and velocity. This guidance should also help facilitate the preparation and efficient review of a Stormwater Pollution Control Plan (Plan) submitted in support of an application for coverage under the general permit.

This guidance should not be confused with, and is not intended to contain, enforceable requirements. A professional may propose to design and construct a solar array in another manner. A design professional may decide, based on the particular conditions for a project or a site that the best technique or engineering practice is to deviate from this guidance. The Department is open to considering alternative approaches. To be approved, however, any proposal must address the issues noted in this Guidance as well as demonstrate compliance with the requirements of the general

permit. This guidance is provided for informational purposes only and is not meant to modify or replace any provision of the general permit or any applicable laws or regulation. In the event of a conflict between this guidance and the general permit or any applicable law or regulation, the permit or applicable law or regulation shall govern.

The Department notes that it has separately initiated a public comment process on the proposed Construction General Permit, which includes similar provisions described in this guidance. The final adoption of a new Construction General Permit will negate the need for this Guidance. Any questions about the applicability of this Guidance may be directed to Karen Allen at Karen.Allen@ct.gov.

Design and construction guidance

(1) Roadways, gravel surfaces and transformer pads within the solar array are considered effective impervious cover for the purposes of calculating Water Quality Volume (WQV). In addition to these impervious surfaces, all solar panels in the array should also be considered effective impervious cover for the purposes of calculating the WQV if the proposed post-construction slopes at a site are equal to or greater than 15% or if the post-construction slopes at a site are less than 15% and the conditions in (a) – (e), inclusive, below have not been met:

(a) The vegetated area receiving runoff between rows of solar panels (see Figures 1 and 2, below) is equal to or greater than the average width of the row of solar panels draining to the vegetated area;

(b) Overall site conditions and solar panel configuration within the array are designed and constructed such that the runoff remains as sheet flow across the entire site;

(c) The following conditions are satisfied regarding the design of the post-construction slope of the site:

- For slopes less than or equal to 5%, appropriate vegetation shall be established as indicated in Figure 1, below; and
- for slopes greater than 5%, but less than 10%, practices including, but not limited to, the use of level spreaders, terraces or berms as described in Figure 2, below, shall be used to ensure long term sheet flow conditions; and
- for sites with slopes greater than or equal to 8%, erosion control blankets or stump grindings or erosion control mix mulch or hydroseed with tackifier should be applied within 72 hours of final grading, or when a rainfall of 0.5 inches or greater is predicted within 24 hours, whichever time period is less; and
- for slopes equal to or greater than 10% and less than 15%, the Plan includes specific engineered stormwater control measures with detailed specifications that are designed to provide permanent stabilization and non-erosive conveyance of runoff to the property line of the site or downgradient from the site.

(d) The solar panels should be designed and constructed in such a manner as to allow the growth of vegetation beneath and between the panels.

(e) A one-hundred (100) foot buffer should be maintained between any part of the solar array and any of the following: "wetland" as that term is defined in in Conn. Gen. Stat. § 22a-29, "wetlands" as defined in Conn. Gen. Stat. § 22a-38, or "waters" as defined in Conn. Gen. Stat. § 22a-423, which shall include vernal or intermittent waters. The buffer shall consist of undisturbed existing vegetation or native shrub plantings.

(2) The lowest vertical clearance of the solar panels above the ground should not be greater than ten (10) feet. The panels should, however, be at an adequate height to support vegetative growth and maintenance beneath and between the panels. If the lowest vertical clearance of the solar panels above the ground is greater than ten (10) feet, non-vegetative control measures will be necessary to prevent/control erosion and scour along the drip line or otherwise provide energy dissipation from water running off the panels.

(3) The Commissioner may require that a letter of credit be secured prior to undertaking construction activity, in circumstances where site conditions, scale of project or previous compliance issues present elevated risks associated with potential non-compliance. For previously permitted projects, the amount of the letter of credit has been established at $15,000.00 per acre of disturbance. The wording of such letter of credit shall be as prescribed by the Commissioner. The Permittee should maintain such letter of credit in effect until the Commissioner notifies the permittee that the Notice of Termination, filed in compliance with Section 6 of the general permit has been accepted by the Commissioner.

Design requirements for post-construction stormwater management measures.

(1) Post-construction stormwater control measures should be designed and constructed to provide permanent stabilization and non-erosive conveyance of runoff to the property line of the site or downgradient from the site.

(2) Orientation of panels should be considered with respect to drainage pattern, flow concentration, drainage area and velocity (i.e. rows perpendicular to the contours may result in higher runoff and flow concentration).

(3) The permittee should conduct a hydrologic analysis that:

(a) Evaluates 2, 25, 50 and 100-year storm post-construction stormwater flows; and

(b) Is based on site specific soil mapping to confirm soil types; and

(c) Is able to determine and confirm the infiltrative capacity of any stormwater management measures and, in addition, reflects a reduction of the Hydrologic Soil Group present on-site by one (1) step (e.g. soils of HSG B shall be considered HSG C) to account for the compaction of soils that results from extensive machinery traffic over the course of the construction of the array; and

(d) Is based on slope gradient, surveyed soil type (adjusted per subparagraph (c), above), infiltration rate, length of slope, occurrence of bedrock, and change in drainage patterns (see also page 23 at https://www.ct.gov/deep/lib/deep/Permits_and_Licenses/Land_Use_Permits/Inland_Water_Permits/IWRD_inst.pdf); and

(e) For an engineered stormwater management system, demonstrates no net increase in peak flows, erosive velocities or volumes, or adverse impacts to downstream properties.

Figure 1
Solar Panel Installation with Slopes ≤ 5%

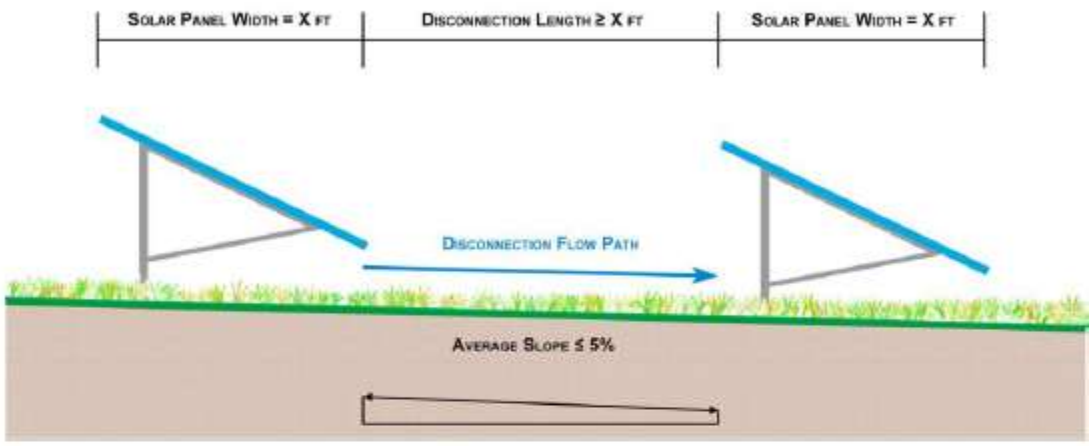
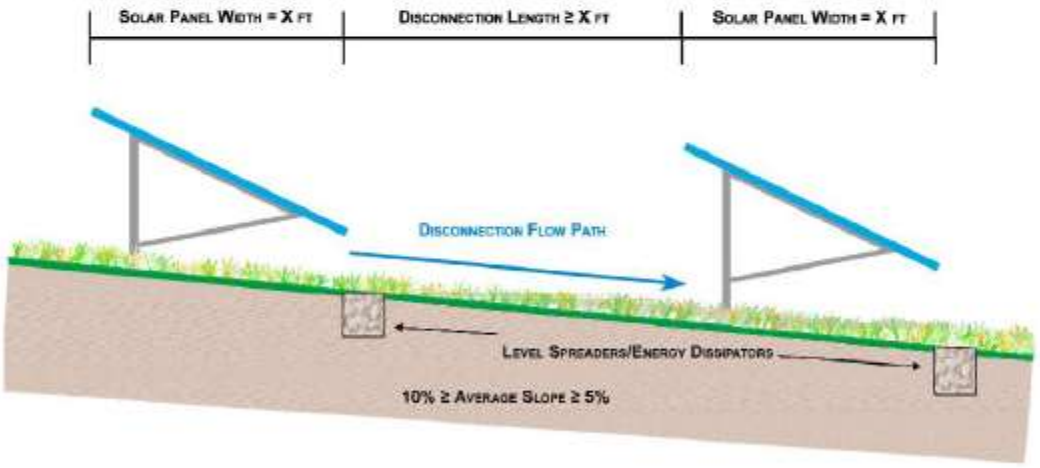


Figure 2
Solar Panel Installation with Slopes > 5% and ≤ 10%



Source: Maryland Department of the Environment: Stormwater Design Guidance – Solar Panel Installations

Stormwater Management at Solar Farm Construction Projects September 8, 2017

Solar farms are on-the-ground installations of arrays of photovoltaic cell panels, supporting structures and related equipment for the production of electricity. As with other types of construction projects, the construction of solar farms can involve land clearing, grading, excavation, trenching, dewatering and similar activities that create land disturbances which potentially result in soil erosion and sediment discharges polluting wetlands, streams and other surface waters. Construction-related land disturbances of 0.5 acres or larger are regulated in Connecticut pursuant to the Connecticut Soil Erosion and Sediment Control Act under Sections 22a-325 to 22a-329, inclusive, of the Connecticut General Statutes ("CGS"). Construction-related land disturbances of one (1) acre or larger are also regulated under CGS Section 22a-430 and under Section 402(p) of the federal Clean Water Act and the National Pollutant Discharge Elimination System ("NPDES") program. Prior to the start of such regulated activities, authorization is required from local authorities and, for larger projects, the Connecticut Department of Energy and Environmental Protection ("Department"). Construction projects involving five (5) or more acres of land disturbance require an individual NPDES discharge permit from the Department, or may be eligible to register for coverage under the Department's NPDES General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit).

The Department has encountered repeated problems associated with solar farm construction projects covered under the general permit, from the registration process through construction activities. Although in no way an exhaustive list, the following are common problems associated with solar farm general permit registration applications and ways to address such problems:

- Applicants have been submitting registration applications that lack the requisite information or the requirements necessary for authorization under the general permit. The Department requires a complete and sufficient application when a registration application is filed, and may reject any registration application it deems to be incomplete or insufficient.
- Applicants are not adhering to the sixty (60) day/ninety (90) day time frame for Department review as required by Section 3(c) of the general permit. While the Department has on occasion shortened the review timeframe, Applicants are expected to allocate no less than the requisite time frame for the registration application review process and must plan accordingly.
- Registration applications for solar farm projects often fail to identify the project's contractor and sub-contractors. Section 5(b)(1)(viii) of the general permit mandates that this information be included in the registration application.
- Applicants have been repackaging the Siting Council submittal, which is not acceptable. Section 3(c)(2)(D) of the general permit mandates that the application submittal include only materials required to support the Stormwater Pollution Control Plan ("SWPCP"). This information must be up-to-date and accurate. Any superfluous information delays the registration application review process.
- SWPCPs for solar farm projects are often lacking sufficient detail and information. An approvable SWPCP shall include, but not be limited to, the location of all erosion, sediment and stormwater control measures including detailed design cut sheets with supporting calculations, construction means and methods, project phasing (i.e., site planning, pre-construction, construction, and post-construction stabilization, etc.), construction sequencing and a construction schedule.
- The Applicant's design professional must be well-versed in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control ("E&S Guidelines"), specifically the techniques found in Chapter 4, Large Construction Sites, the 2004 Connecticut Stormwater Quality Manual, as well as *current* best management practices (BMPs) recognized by the International Erosion Control Association (IECA), provided such BMPs are equal to or better than the E&S Guidelines.
- From the Department's perspective, an approvable SWPCP will include methods for avoiding compaction of soils, disconnection and reduction of runoff associated with solar panel arrays, avoidance of concentration of stormwater, and other measures necessary to maintain or improve pre-construction hydrologic conditions.

- Applicants need to follow the SWPCP review checklist when preparing the SWPCP, giving specific attention to post-construction stormwater controls and the development of a detailed long-term maintenance plan to ensure that the SWPCP meets the terms and conditions of the general permit.

Subsequent to authorization for coverage under the general permit, the Registrant is responsible for ensuring compliance with all terms and conditions of the general permit and the approved SWPCP once construction has been initiated. However, for solar farm projects, Registrants often fail to comply with the terms and conditions of the general permit, including the approved SWPCP. In particular, Department staff have observed the following issues that a routine inspection protocol and proper oversight, as required under the general permit, would have prevented, including but not limited to:

- pre-construction site planning and management deficiencies (e.g., existing vegetation, scheduling, training, phasing/sequencing, tree protection, etc.)
- ineffective placement, maintenance, and/or repair of administrative/procedural, vegetative, and structural BMPs (e.g., erosion, sediment and stormwater runoff controls, good housekeeping, materials management, and training)
- lack of thorough inspections
- ineffective or untimely corrective action
- ineffective stabilization practices
- ineffective permanent post-construction controls (i.e., store, treat and direct storm-water quality and quantity to pre-construction levels)

Such issues at solar farm construction projects raise concerns, since such projects often create areas of land disruption larger than the generally accepted BMPs of five (5) acres anticipated under the general permit. As a result, any applicant seeking coverage under the general permit for a solar farm construction project should take care to address the issues noted above. While by no means exclusive, some recommendations that should be incorporated into a SWPCP to address these issues include:

- Ensuring that only a Professional Engineer and/or Landscape Architect, as defined in Section 2 of the general permit, who meets the qualifications described in Section 5(b)(4)(A)(ii) and who has been approved in writing by the Commissioner, serve as the Commissioner's agent to inspect the site and also serve as the qualified inspector for the purposes of Section 5(b)(4) of the general permit ("authorized professional"). Such authorized professional must remain in good standing with the Connecticut Department of Consumer Protection and be technically and ethically qualified to inspect the site and be retained for the duration of the construction project until the Notice of Termination acceptable to the Commissioner has been filed as described below.
- Ensuring that the authorized professional prepare a proposed inspection checklist to assure the construction project is being conducted in compliance with the terms and conditions of the general permit, and the approved SWPCP is implemented in accordance with the general permit. The inspection checklist shall comply with Section 5(b)(4)(B)(iii) of the general permit, and include a space for the authorized professional's signature and professional stamp.
- Ensuring that the credentials for the authorized professional proposed by the Applicant and the proposed inspection checklist prepared by such authorized professional be submitted for the review and approval of the Commissioner and be included with the registration application for the general permit. No other professional may serve as the authorized professional without the prior submittal of relevant credentials and inspection checklist for the Commissioner's review and written approval.

- Ensuring that the authorized professional personally perform all pre-construction, construction, and post-construction site inspections; perform inspections at the end of any storm event whether or not such storm generates a discharge; and prepare and submit all inspection reports including the supporting inspection checklists in compliance with Sections 5(b)(4)(A) and 5(b)(4)(B) of the general permit.
- Ensuring that the authorized professional report any violations of the terms and conditions of the general permit or the SWPCP to the Commissioner's designee within two (2) hours of becoming aware of such violation, or at the start of the next business day of becoming aware of such violation outside normal business hours and shall, within five (5) days, prepare and submit a signed and stamped written report, which documents the cause of the violation, duration including dates and times, and corrective action taken or planned to prevent future occurrences.
- Ensuring that if circumstances necessitate a revision to the SWPCP, the authorized professional works with the Permittee's design professional to ensure compliance with the terms and conditions of the general permit, and any such change to the SWPCP shall be submitted for the review and written approval of the Commissioner.
- Ensure that the authorized professional reviews all stormwater monitoring reports to evaluate the effectiveness of the SWPCP and to document any adverse impacts that any stormwater controls on the construction site or discharges from the construction site may have on wetlands, streams, any other receiving waterbodies. Such evaluation shall be documented in the inspection reports and inspection checklists performed pursuant to Section 5(b)(4) of the general permit.
- Ensuring that, in the event the authorized professional identifies a violation of the terms and conditions of the general permit, the SWPCP, or otherwise identifies adverse impacts on wetlands, streams or any other receiving waterbodies, that construction activity shall immediately cease and the site stabilized until such violation or adverse impacts have been corrected.
- Ensuring that reporting and record-keeping of all inspection checklists and inspection reports comply with the requirements of Section 5(d) of the general permit, except that a copy shall also be submitted electronically to the Department within ten (10) days from the date ~~of~~ such inspection was performed.
- Ensuring that all inspection checklists and inspection reports comply with the requirements for Certification of Documents in Section 5(i) of the general permit, including the requirement that such checklists and reports shall also be prepared, stamped and signed by the authorized professional.
- After completion of a construction project, ensuring that a Notice of Termination is filed in compliance with Section 6 of the general permit, including the requirement that such Notice of Termination be stamped and signed by the authorized professional certifying that such authorized professional has personally inspected and verified that the site has been stabilized following the first full growing season (i.e., April through October) in the year following completion of the construction project.
- Ensuring that any transfer of the registration comply with the requirements of Section 5(m) of the general permit.

These recommendations are by no means intended to be exclusive. To help address the issues noted above, the Commissioner will also be considering the posting of a performance bond or

other security, in accordance with Section 22a-6(a)(7) of the Connecticut General Statutes, to assure the solar farm construction project maintains compliance with the terms and conditions of the general permit and the SWPCP.