

# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

### VIA ELECTRONIC MAIL

December 18, 2018

TO: Parties and Intervenors

FROM: Melanie Bachman, Executive Director *MAB*

RE: **PETITION NO. 1354** – Chatfield Solar Fund, 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 1.98-megawatt AC solar photovoltaic electric generating facility on approximately 25 acres located generally south of Route 80 (North Branford Road) and east of Chestnut Hill Road in Killingworth, Connecticut, and associated electrical interconnection to Eversource Energy's Green Hill Substation located at 775 Green Hill Road, Madison, Connecticut.

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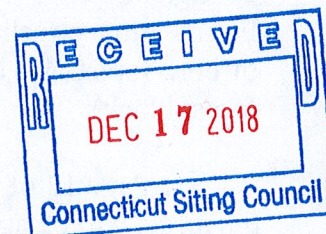
Comments have been received from the Connecticut Department of Energy and Environmental Protection, dated December 17, 2018. A copy of the comments is attached for your review.

MB/RDM/lm

c: Council Members

December 17, 2018

Robert Stein, Chairman  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051



RE: 1.98-MW Photo-voltaic generating facility  
Chatfield Solar Fund, LLC  
Killingworth, Connecticut  
Petition No. 1354

Dear Chairman Stein:

Staff of this department have reviewed the above-referenced petition for declaratory ruling that no Certificate of Environmental Compatibility and Public Need will be required for the construction of the proposed photo-voltaic generating facility south of Route 80, North Branford Road, in Killingworth. A field review of the site was conducted on December 4, 2018. Based on these efforts, the following comments are offered to the Council for your use in this proceeding.

Project Site

The 25-acre project site is a forested, eastward sloping site crossed by several linear wetland systems associated with both intermittent and perennial streams, as well as by several stone walls. In addition to those in the stone walls, the site is also characterized by abundant boulders scattered across it. Tree cover consists principally of sugar maple, ash, hickory, red oak, tulip poplar and lesser amounts of white oak, beech and black birch. On the day of the DEEP site visit, ground conditions were moist and soft in both wetland and upland areas. As noted in the Petition, Japanese barberry is common across the site, particularly along the western portion, where it forms a continuous mass of shrub cover.

Most of the site is moderately sloped, with gentler slopes along the western edge of the site, and a steeper slope to the eastern portion of the site as it drops down to the perennial stream and its fringing wetlands (Wetland A) along the eastern boundary of the site.

Even given the wetness of the site and some recent heavy rains, vernal pool PVP #1 within Wetland 1A was not apparent on the day of the DEEP field review. The other vernal pools were found as indicated in the Petition.

The project host property is completely forested and is part of a large tract of contiguous core forest. Figure 7 of the Environmental Assessment by Louriero Engineering, attached to the Petition, accurately portrays the nature of the site as composed of core forest and edge forest (the 300' outer ring of forested area surrounding the core forest block).

Page 12 of the Petition cites the nearest neighbor to the project as being 200' from the array, while page 2-1 of the Louriero Engineering Environmental Assessment cites the closest house as being 750' west of the western property line. The latter reference is apparently to the homes at 22 and 26 Chestnut Hill Road which are visible from the site and set back farther from that road than the home at 10 Chestnut Hill Road. The 200' reference in the Petition is for the home at 497 North Branford Road, across the street from the northwest corner of the site. That home, along with the one at 501 North Branford Road, are the closest homes to the project site.

#### Stormwater Management

There is no mention in either the Petition or the Environmental Assessment of the need for a Stormwater Permit, officially a General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Activities, for the proposed facility. However, representatives of the Petitioner have made initial contact with the DEEP Stormwater Management Program, though a formal application has not been submitted for the site. As with previous DEEP comments to the Council for solar farms, attached to these comments is the guidance document *Stormwater Management at Solar Farm Construction Projects*, dated September 8, 2017. Given the topography of the site and the need to clear the forest cover, as well as the very minimal uncleared buffers to be maintained around wetland areas including intermittent watercourses, stormwater management will be an important aspect of project planning, despite the relatively small size of this solar farm. The Stormwater Management Program did inform the petitioner's consultant of the need to obtain authorization under the General Permit before any site tree clearing can begin. This is relevant because the consultants had mentioned in the discussions with the Stormwater Management Program an intention to construct the facility over the winter months and be operational next year. This schedule would prevent any opportunity for establishing stabilizing ground cover on the site.

The challenges being faced in achieving successful stormwater management at solar farm sites, as well as guidance to hopefully achieve better outcomes, are discussed in the attached guidance document on solar farm stormwater management. DEEP would strongly advise planning for a longer construction schedule to allow for appropriately phased implementation of stormwater controls and site stabilization.

### Natural Diversity Data Base

Page 13 of the Petition states that “the Property is not located within an NDDDB area”. Assumedly subsequent to the Petition being written, Louriero Engineering contacted the DEEP NDDDB program asking for a review of the site. Three State-listed Species of Special Concern (two plant and one avian species) were identified as having historically occurred within the project site. These are sand blackberry (*Rubus cuneifolius*), pale green orchid (*Plananthera flava var. herbiola*) and whippoorwill (*Caprimulgus vociferius*). The initial DEEP response (see copy attached) was dated October 23, 2018. Subsequently, consultants for the petitioner submitted follow-up information on November 5, 2018 indicating that surveys of the site did not locate these species but acknowledging that these surveys were not performed at an appropriate time to find them if they were present.

As these comments go out to the Council, DEEP biologists are reviewing the November 5 consultant’s submission to determine if specific mitigation measures or further seasonally-appropriate surveys are warranted.

### Wetland Impacts

Unlike many other solar farm proposals where undisturbed wetland buffers of 75’ to 100’ are maintained around wetlands, Chatfield Solar is proposing (p. 10) to maintain only a 10’ buffer around the wetlands on the property. This is done presumably because of the scattered distribution of wetlands across the property and the percentage of the property that would be consumed if conventional wetland buffer widths were maintained. The provision of such narrow vegetated buffers will affect the wetlands by depriving them of much of the shading they currently receive as well as lessening protection from sedimentation after the site has been cleared. These minimal buffers, combined with the proximity of the panels to the wetlands, will also increase thermal effects to the wetlands and watercourses, particularly in summer months when heated runoff could be draining from warm or hot solar panels.

Similarly, as the Council has undoubtedly noticed, the 100’ buffer proposed to be maintained around the vernal pools provides less than the standard amount of habitat protection typically afforded for these pools. In fact, according to page 3-2 of the Environmental Assessment, clearing-related disturbance will occur within 100’ of the vernal pools.

No surveys of the vernal pools have been done to determine if any indicator species are present in them or make use of them. Should vernal pool-dependent species be present at more appropriate times of the year, the clearing of the surrounding forest without the preservation of significant amounts of upland critical terrestrial habitat surrounding the pools would have several impacts on the vernal pools and dependent species, the most important of which is the loss of foraging habitat. Depending on the width of forested buffer left intact, other impacts could include loss of shading, increases in water temperature, decreases in nutrient loading and increased sedimentation to the vernal pools following clearing activities.

### Core Forest Issues

As shown in Figure 7 in the Louriero Engineering Environmental Assessment, the proposed site is located completely within core forest and edge forest as defined by the UConn Center for Land Use Education and Research (CLEAR) Forest Fragmentation Study. According to the discussion on page 3-4 of the Environmental Assessment, clearing for the construction of the Chatfield Solar Farm would reduce core forest in the existing 1,072-acre contiguous forest block from 692 acres to 616 acres, a net loss of 26 acres for core forest. Unfragmented forest blocks in excess of 1,000 acres have become increasingly rare in Connecticut and DEEP puts a high priority on the preservation of those that remain.

The forestlands of Connecticut are one of the defining features of the state's landscape and culture. While there is still a high percentage of existing forestland within the state, continued increases in population statewide are exerting more pressure on this valuable resource, and forest land is being lost at a continuous rate. The loss of both overall forestland and core forest land are of concern, as the remaining quantity of forestland does not always equate to quality forestland. The ability of Connecticut's forests to provide wildlife habitat, clean water, and economically viable forest products is at least partially dependent on our ability to maintain sizeable tracts of unfragmented forest

### Miscellaneous Petition Commentary

Two statements on page 3-1 of the Environmental Assessment appear to be inconsistent. The opening paragraph on this page says stumps within the upland areas of the array will be grubbed. However, according to the fourth paragraph on that page, less than 10% of the site is to be grubbed. If the array occupies 7.3 acres and none of the array is within wetland areas, it does not follow that less than 10% of the site would be grubbed.

In the discussion of mitigation measures on page 10 of the Petition, the first measure cited is reducing the tilt angle of the solar panels from 25° to 20° to reduce inter-row spacing and reduce the overall footprint of the array. Would not a reduction in the tilt angle of the panels, i.e., making the panels lie flatter, increase the footprint of the array compared to a steeper angle for the panels?


The Petition mentions the installation of 7' fencing around the solar array. Unlike many other solar farm proposals, no mention is made of providing a 6" gap between the ground and the fencing in order to provide for the movement of small animals. Can this measure be incorporated at this site?

The conclusion drawn at the end of Section 15 of the Petition, Wildlife and Habitat, that "the Project will not substantially impact the wildlife or habitat on or in close proximity to the Property" (p. 14) does not necessarily follow from the foregoing discussion that there are no NDDB species or critical habitats on the site. The lack of these specific resources on the project site does not necessarily mean that the clearing of 16 acres of forest does not impact wildlife habitat on the site.

No impacts are foreseen from the development of the Chatfield Solar Farm upon either of the two proximal DEEP State Park properties to the east of the site, namely Chatfield Hollow State Park and Forster Pond State Park. The latter is not well known and is not open to the general public, but rather used only for scheduled educational programs. Most notable among the educational programs supported there is the Connecticut Aquatic Resources Education or CARE Program which annually draws 800-900 predominantly inner city students. Summer fishing day camps as well as ice fishing camps are also run at the park, as are activities held in conjunction with the Haddam-Killingworth Parks and Recreation Department. The proposed solar farm would not affect any of these uses or activities.

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 call me at (860) 424-4110.

Respectfully yours,



Frederick L. Riese  
Senior Environmental Analyst

cc: Commissioner Rob Klee  
Attachments: (2)

## **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 stormwater 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 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.



Connecticut Department of  
**ENERGY &  
ENVIRONMENTAL  
PROTECTION**

October 23, 2018

Alisa Morrison  
Loureiro Engineering Associates, Inc.  
100 Fort Hill Road  
Groton, CT 06340  
[acmorrison@loureiro.com](mailto:acmorrison@loureiro.com)

Project: Preliminary Assessment for Construction of "Standard Solar", Installation a 1.98 Megawatt AC (MW) Solar-Based Electric Generating Facility on North Branford Rd (RTE 80), Killingworth, Connecticut

NDDB Preliminary Assessment No.: 201811339

Dear Alisa Morrison,

I have reviewed Natural Diversity Data Base maps and files regarding the Preliminary Assessment for Construction of "Standard Solar", Installation a 1.98 Megawatt AC (MW) Solar-Based Electric Generating Facility on North Branford Rd (RTE 80), Killingworth, Connecticut.

According to our information there are records of State Special Concern *Rubus cuneifolius* (Sand blackberry), *Platanthera flava var. herbiola* (Pale green orchid) and *Caprimulgus vociferus* (whippoorwill) that occur within the boundaries of this property.

**State Listed Plant Species**

*Rubus cuneifolius* (Sand blackberry)

Habitat: Sandy soils of old fields, utility transmission corridors, roadsides, openings in woods  
Blooms May through July

*Platanthera flava var. herbiola* (Pale green orchid)

Habitat: Swamps, low woods, and wet meadows Blooms:  
June through August

Please be advised that this is a preliminary review and not a final determination. A more detailed review will be necessary to move forward with any subsequent environmental permit applications submitted to DEEP for the proposed project. **This preliminary assessment letter cannot be used or submitted with your permit applications at DEEP.** This letter is valid for one year.

To prevent impacts to State-listed species, field surveys of the site should be performed by a qualified biologist when these target species are identifiable. A report summarizing the results of such surveys should include:

1. Survey date(s) and duration
2. Site descriptions and photographs
3. List of component species within the survey area (including scientific binomials)
4. Data regarding population numbers and/or area occupied by State-listed species
5. Detailed maps of the area surveyed including the survey route and locations of State-listed species

6. Conservation strategies or protection plans that indicate how impacts may be avoided for all state-listed species present on the site.

7. Statement/résumé indicating the biologist's qualifications. Please be sure when you hire a consulting qualified biologist to help conduct this site survey that they have the proper experience with target taxon.

The site surveys report should be sent to our CT DEEP-NDDDB Program ([deep.nddbrequest@ct.gov](mailto:deep.nddbrequest@ct.gov)) for further review by our program biologists along with an updated request for another NDDDB review. Please also include the site survey report and/or any conservation strategies you would like to propose to mitigate any impacts.

#### **State Special Concern Whipoorwill**

The whip-poor-will is a bird that nests in forest habitat with an open understory, often adjacent to areas of shrubby or herbaceous habitat. They are ground-nesting birds that breed between April 20<sup>th</sup> and July 30<sup>th</sup>. Project Activity should be conducted August 1 through April 30 so that the potential for destruction of nests, eggs, or young is reduced. They are ground nesting birds which lay eggs in small scrapes in the forest between May 1<sup>st</sup> and July 31<sup>st</sup>. They consume aerial invertebrates, especially Lepidopteran and Coleopteran.

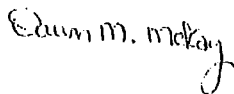
#### **Protection for State Special Concern Whipoorwill**

Any protection or enhancement of patches of early successional habitat, adjacent to open understory forest, will benefit this species. Please provide mitigation, conservation or habitat improvements that will be implemented as part of this project that will prevent long term impacts to this bird species. You can provide this information to our program when you provide the botanical surveys for the site.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3592, or [dawn.mckay@ct.gov](mailto:dawn.mckay@ct.gov) . Thank you for consulting the Natural Diversity Data Base.

Sincerely,



Dawn M. McKay  
Environmental Analyst 3