

APRIL 4, 2024

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Town of Sturbridge Conservation Commission
c/o Jeffrey Howland, P.E.
Interim Conservation Agent
301 Main Street
Sturbridge, MA 01566

RE: Proposed Photovoltaic System, 200 Haynes Street, Response to Peer Review & Public Comment

Dear Members of the Commission,

BSC Group, Inc. (BSC) has reviewed the comments provided by EcoSystem Solutions, Inc., as contained in correspondence to the Sturbridge Planning Board, dated November 26, 2023 and the subsequent letter, dated January 23, 2024. A summary of the site plan modifications is also provided after the responses to the peer review comments.

Peer Review Comments from EcoSystem Solutions, Inc.

November 26, 2023 Comments

1. I recommend the Applicant provide as detailed a construction sequence as possible, including times of year when work will occur. For example, what time of year will trees be felled, stumped, and tree materials removed?

The Applicant will likely begin construction within one (1) year of receiving all of the necessary permits and authorizations. The applicant has submitted a formal request to the US Fish & Wildlife Service (USFWS), New England Ecological Services Field Office, for verification of impacts resulting from the proposed tree cutting actions. In correspondence dated June 17, 2022 (attached), USFWS verified that the Action is not likely to result in an unauthorized take of the northern long-eared bat. There are no time-of-year restrictions for the proposed activities.

Tree clearing and removal and the transplanting of Mountain laurels found on-site to enhance the southern buffer will be completed in the initial stage of construction, which is consistent with normal construction practices.

2. The site will have to be felled of trees and stumped. Will the trees and stumps be chipped on-site? Will any of this material be utilized for ESC's? If so, I recommend removing chips from the trunk and stems from the site while keeping the root tailings for ESC's on-site. Root tailings tend to be curved and 'grab' into the ground, while chips tend to float. Root tailings can be used as cover, and be created into erosion and sedimentation control berms. This can supplement the proposed ESC's and, in my opinion, even replace the need for siltsoxx, which tend to flatten over time and sheathing tear and rent.

Trees and stumps will not be chipped on-site. All debris shall be removed from the site in accordance with the Planning Board's March 13, 2024 Decision. The Applicant has proposed Siltsoxx in addition to silt fence to ensure reliable performance over time. Anyone is entitled to file a complaint with either MassDEP or the USEPA if ESC measures are observed to be installed or maintained improperly. The Agency will take proper actions to rectify any issues at stake.

3. If tree trunks are to be removed from the site, will they be removed using the existing gravel entrance near the southwestern Property corner, or will the new entrance near the northwestern property corner be used? Is either entrance large enough to accommodate skid steers, cutting equipment, and logging trucks? Either way, a stone construction entrance will be required. The longer, the better.

The existing gravel entrance will not be utilized during construction, it will be permanently closed. The entrance near the northwest corner of the site will serve as the temporary construction entrance, and ultimately the sole entrance to the site following construction. The temporary construction entrance is 50' long, 20' wide, and is comprised of a minimum of 8 inches of aggregate over a geotextile fabric. This is sufficient to accommodate all of the different types of construction vehicles that will be needed to construct the photovoltaic system and associated site work.

4. I have no comments about the types and locations where seed will be spread per the seeding schedule on Sheet 4 of 9. However, having worked on many large-scale solar projects and peer reviewed even more, I find the inclusion of 'pollinator mix' seed mixes a bit of a joke, for lack of other terms. These kinds of seed mixes require a high level of care and upkeep to assure that they actually grow in as advertised. My personal experience has been that in most cases, the ground cover ends up being grasses and weeds unless the Commission requires close monitoring and re-seeding as needed. I recommend a Special Condition to this effect. Recommend the Applicant provide as detailed a construction sequence as possible, including times-of-year when work will occur. For example, what time of year will trees be felled, stumped, and tree materials removed?

The Applicant intends to submit a MA DOER SMART application for the "Pollinator Adder" block incentive. To secure this incentive, the Applicant is required to submit an application to the University of Massachusetts, Amherst, Clean Energy Extension, UMass Pollinator-Friendly Solar PV Certification Program. Based on our experience, this collaborative program studies each proposed pollinator plantings and recommends a comprehensive species for planting, best management practices and annual maintenance schedule. The Applicant has not yet applied and it is expected to take several months to receive certification. Additionally, regular verification of pollinator status is required to maintain certification and eligibility for the SMART Pollinator Adder. For more details, please visit the website: <https://aq.umass.edu/clean-energy/services/pollinator-friendly-solar-pvc-for-massachusetts.com>

A construction schedule will be developed once a General Contractor has been hired. It is not possible to provide specific dates at this time. A general construction sequence is provided in the Stormwater Report.

5. My main concern for impact revolves around the BVW in the northern part of the Property, especially since the majority of it is located off-site. It is on land owned by Sturbridge Retirement. Please consider a Bond in case this off-site land is impacted in order to stave off complication in enforcement and potential civil actions among the parties involved. If sediment reaches areas off-site, the Applicant/Owner will have to obtain authorization from Sturbridge Retirement to perform the work. The Commission should try to anticipate this worst-case scenario and head-off problems associated with enforcement. The same applies to any wetlands to the south, and the residences in that area as well.

The Applicant proposes to utilize staked compost filter sock reinforced with silt fence backing. A standard practice for mitigating sediment transport.

6. Other concerns, as they revolve around the Public interest include:
- a. Public and Private Water Supply: the Co-op has two community wells to the east. Clearing land and grading affects runoff and the direction in which water flows. Assurance needs to be gained from the applicant in this regard, not to mention residences to the south, at a minimum.
 - b. Protection of Groundwater Supply: same comments as above, plus assurance that the BVW to the north, at a minimum, will be able to continue to be a groundwater source. This is mostly done through compliance with the Stormwater Standards.
 - c. Prevention of Pollution: the BVW has water quality functions in addition to its other functions. Sediment from this slope would significantly impair that ability.
 - d. Protection of fisheries: although I observed no streams on-site that would have fisheries, the BVW provides a water source for fisheries it eventually connects to.
 - e. Protection of wildlife habitat: this is a significant concern to me, not only for the BVW but for the Buffer Zone associated with it. The forest on-site is of good to high quality, with no invasive or exotic species observed anywhere that I could see. I observed a large wasp nest in a tree while walking a cut-trail toward the summit. The trees are mature and there is good spatial heterogeneity in herbaceous, shrub, and tree layers. The presence of mountain laurel in the forest, although not a rare forest ecosystem, is not common, either. The cumulative effect is that wildlife habitat value at this site is high.
 - f. Erosion and sedimentation control: The Interest under the local Bylaw is self-explanatory. The potential for significant erosion and sedimentation, as well as the distance it may reach from the source, is high. The BVW and Buffer Zone would be irreparably harmed if a significant sedimentation event occurred. What would be even more difficult is a cleanup.
 - g. Protection of water quality: Similar to prevention of pollution, the BVW provides water quality functions that would be significantly impacted by a sedimentation event.
 - h. Protection of agriculture: Only in respect to tree harvesting, which is considered a form of agriculture. In this case, the forest would be harvested, which appears to be a positive toward this Interest, but if a solar array is constructed, this would be the last time it would be harvested for decades to come, if ever.

The interests identified above should be considered in designing and evaluating any land use proposal. The proposed site improvements at 200 Haynes Street have been developed in compliance with the Town of Sturbridge Zoning Bylaws, Town of Sturbridge Wetland Protection Bylaw and the Massachusetts Stormwater Management Standards. In complying with the regulations established by the Town of Sturbridge, we feel that the proposed project sufficiently protects the interests listed above.

A solar array is one of the least impactful ways that this property could be developed. The site is unmanned and will have only a handful of visits each year for maintenance purposes. As such, it does not generate traffic. In addition, there will be no noticeable noise or odors generated on-site. Once the vegetation is established, this site will become a meadow with 6 to 12-inch grasses, with a very low percentage of impervious cover and with significantly less risk to contamination from oil and other sediments associated with locations that routinely have vehicles passing over them. In comparison, a few other land uses, which are allowable in the Special Use Zoning District include a nursery, church, school, farm, office building, laboratory, etc. Each of these development proposals has the potential to pose a significantly higher threat to the Public interests identified above.

Supplemental Comments to the CMG Report:

1. I do not believe that siltsoxx compost filter socks are enough to control potential erosion and sedimentation on-site and recommend that silt fence be installed directly below filter socks with a high quality fabric and stake spacing of 4 feet, at a minimum. The siltsoxx should be 100% biodegradable with no vinyl mesh, regardless of whether or not it is photo-degradable.

Based on this comment, silt fence was added to the design. The Siltsoxx Compost Filter Sock perimeter erosion controls will remain but will be backed with silt fence, providing a double layer of protection. In addition, BSC has recently added another row of silt fence backed compost filter sock as an intermediate control as an added safety measure. This placement of this interior row will capture sediments before they reach the outer limits of the site, thereby increasing the longevity and effectiveness of the perimeter erosion controls.

Erosion controls primarily fail due to improper construction. It is also normal for erosion controls to be replaced during the course of construction. The CGP requires routine inspection and reporting. Deficiencies will be discovered from time to time and reported in the SWPPP Inspection Report, as required. When the problem requires a new or replacement control or significant repair, corrective action must be completed within seven (7) calendar days.

Erosion and sedimentation controls are temporary features used only during the construction phase of the project, and thereafter removed from the site. Filtrexx Siltsoxx® is not 100% biodegradable and neither is silt fence. However, it is a United States Department of Agriculture (USDA) Certified Biobased product, and it complies with the USEPA, AASHTO, NRCS, US ACE and MassDOT.

The erosion controls will be completely removed from the site and disposed of properly at the end of the project, or if they become damaged during construction.

2. Sedimentation controls should be placed a minimum of five (5') feet off of any proposed slope in order to allow sediment to settle before reaching it. If this is not possible, I recommend reducing the scale of the project.

This comment is not clear. The entire site contains slopes of varying degrees. Erosion & sedimentation controls are shown at the limit of work. If these are found to be insufficient during construction, additional controls will be established.

3. The stone construction entrance should extend farther into the site, preferably into and around the construction staging area.

The stone construction entrance is 50 feet long by 20 feet wide, at a minimum, which is consistent with agency standards. It is in the Applicant's best interest to ensure that sediment is not tracked onto the local roadway, as the EPA has the ability to impose significant fines for non-compliance. As such, every effort will be made by the Applicant to ensure that the roadways are kept clean and swept at end of each day.

4. The NPDES Construction General Permit ("CGP") and SWPPP should be provided to the Commission when it becomes available, per Stormwater Standard 8. Due to the steep slopes present, the Commission should consider the Applicant to provide the weekly inspection logs / reports associated with the CGP in .pdf format. They may also consider having an outside professional monitor the site for erosion and sedimentation compliance under the CGP. The steepness of the slopes and potential for serious erosion and sedimentation of wetland resource areas is high at this site. I can guarantee that there will be significant precipitation events that will cause erosion on-site during construction.

A copy of the SWPPP will be provided to the Conservation Commission when the CGP is obtained. Weekly (or greater) inspection reports can also be provided to the Town if that is desired.

5. Include the long-term operation and maintenance plan as an in-perpetuity Special Condition.

If the Commission so chooses to include this as a Special Condition, it should terminate at the time of decommissioning.

6. Not only does Infiltration Basin 1 not include a sediment forebay, it does not appear to have an emergency overflow spillway.

The proposed infiltration basin does not require a sediment forebay. A sediment forebay is only required for pre-treatment purposes, when receiving stormwater runoff from impervious area. The function of a sediment forebay is to provide pre-treatment of stormwater runoff through removal of Total Suspended Solids (TSS). In this instance, the infiltration basin will receive stormwater runoff via overland flow from pervious area only, consisting of approximately 2 acres of meadow grass, located under and between the solar modules. Therefore, a sediment forebay is not required. CMG agrees and the comment was deemed satisfied.

The decision to not include an emergency overflow was based on its location relative to the existing Sturbridge Co-op property. In order to alleviate this concern, the basin was significantly over-sized, such that it can contain a 1,000-year storm without overflowing.

7. In CMG's comment 17, they state that the berm elevation for Infiltration Basin 1 should be a height that a minimum of 1ft. of freeboard be provided for the 100 year storm event. Given the very steep slopes leading down to the Co-op and residences associated with it, I recommend increasing this height if only to be overly cautious of a significant precipitation event.

The infiltration basin redesigned in the early stages of design development. It was significantly oversized (see Response #6) and freeboard was increased to nearly 1.5 feet in the 100-year storm.

8. Are there any emergency overflow discharges for the subsurface infiltration systems?

There are no proposed overflows for the three (3) subsurface infiltration systems. Each of these systems was designed to attenuate and recharge a 100-year storm event. If one of these systems was to surcharge, pre-treated stormwater would fill up the manifold, and depending on the extent of the flooding, could fill up the influent storm drain(s) and in the most extreme situation, would overflow at the catch basin(s) that are connected to that system.

January 23, 2024 Comments

1. My comments and concerns remain the same as in my November 26, 2023 letter to the Commission. One saving grace on the south side of the Property is that there is a stone wall that runs east-west. If this wall is to remain, and there is no indication that it will or will not on the site plan, it would act as a better sedimentation control device than a chain-link backed silt fence barrier, which is something I recommend if the Commission seriously considers approving this project.

The existing stone wall at the southern extent of the property is clearly outside the proposed limit of work and will remain undisturbed. For clarification, the proposed perimeter erosion control barrier described above is not accurate. It will consist of a compost filter sock backed by a silt fence.

Summary of Site Plan Modifications

This design of the proposed solar array has undergone several rounds of plan revisions, resulting from CMG's review of the project. Below is a summary of the significant modifications that have taken place over the last several months.

- The limit of work was shifted further away from the resource area at the northern extent of the property.
- The limit of work was shifted further away from the resource area at the southern extent of the property.
- Tree clearing was reduced by almost 6,100 square feet.
- A new culvert was designed under the proposed driveway.
- A grass swale was added to each side of the proposed driveway.
- The stormwater analysis was expanded to include stormwater originating off-site and passing through the proposed culvert.
- The concrete equipment pads and BESS battery storage cabinet were moved further away from their original location within the 200' buffer and moved south, outside of the 200' buffer.
- The infiltration basin was reconfigured. It was shifted slightly to the east, its overall footprint was slightly reduced, and the side slope was flattened to 3:1 (maximum), removing the 2:1 slope on its western side. The side slope within the working volume of the infiltration basin were increased from 6:1 to 5:1 in order to increase the available storage volume.
- Catch basins were moved to the eastern side of the access drive based on its superelevation.
- Silt fence was added to the perimeter erosion controls.
- The existing gravel driveway towards the southern end of the property was closed (i.e. existing culvert to be removed and the area will be loamed and seeded and allowed to naturalize).
- A cut and fill analysis was performed and the results added to the site plans.
- The proposed 7' high perimeter chain link fence was changed to black, vinyl-coated.
- The temporary sediment basin was sized and its suggested grading added to the plans.
- The construction staging area was relocated outside of the 500' buffer.
- Erosion control blankets were incorporated into the grading design for the site and were added to the Erosion & Sediment Control Plan.
- Various construction details and proposed cross-sections were added to the site plans.

We hope that you will find this information helpful and look forward to discussing with you at the public hearing on April 18, 2024. In the interim, please feel free to contact us if you have additional questions or concerns.

Sincerely,
BSC Group, Inc.



Brian G. Yergatian, P.E., LEED AP
Senior Civil Engineering Manager, Senior Associate



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:
Project code: 2022-0055434
Project Name: Sturbridge PV LLC

June 17, 2022

Subject: Consistency letter for the 'Sturbridge PV LLC' project indicating that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Dear Chris Vorlicek:

The U.S. Fish and Wildlife Service (Service) received on June 17, 2022 your effects determination for the 'Sturbridge PV LLC' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. You indicated that no Federal agencies are involved in funding or authorizing this Action. This IPaC key assists users in determining whether a non-Federal action may cause “take”^[1] of the northern long-eared bat that is prohibited under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Please report to our office any changes to the information about the Action that you entered into IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation.

If your Action proceeds as described and no additional information about the Action’s effects on species protected under the ESA becomes available, no further coordination with the Service is required with respect to the northern long-eared bat.

The IPaC-assisted determination for the northern long-eared bat **does not** apply to the following ESA-protected species that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species listed above.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

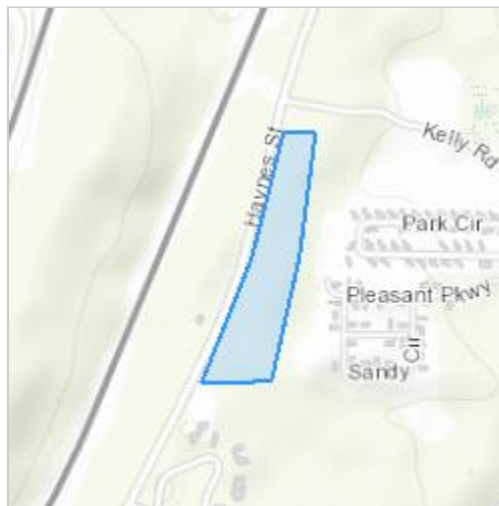
Sturbridge PV LLC

2. Description

The following description was provided for the project 'Sturbridge PV LLC':

Bear Peak Power is proposing a ground mounted solar panel array located on the property at 200 Route 15 in Sturbridge, Massachusetts. The maximum disturbed area is estimated to be no more than 10 acres. The property is currently forested and proposes to clear cut 10 acres of this forested area to install the solar panel array and associated equipment. Site access is proposed off of Route 15. Project construction is estimated to commence during Q4 of 2023.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@42.077836000000005,-72.09290456108776,14z>



Determination Key Result

This non-Federal Action may affect the northern long-eared bat; however, any take of this species that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o).

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on **May 15, 2017**. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for non-Federal actions is to assist determinations as to whether proposed actions are excepted from take prohibitions under the northern long-eared bat 4(d) rule.

If a non-Federal action may cause prohibited take of northern long-eared bats or other ESA-listed animal species, we recommend that you coordinate with the Service.

Determination Key Result

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

No

2. Will your activity purposefully **Take** northern long-eared bats?

No

3. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

Automatically answered

No

4. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/media/nleb-roost-tree-and-hibernacula-state-specific-data-links-0.

Yes

5. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

No

6. Will the action involve Tree Removal?

Yes

7. Will the action only remove hazardous trees for the protection of human life or property?

No

8. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

9. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

10

2. If known, estimated acres of forest conversion from April 1 to October 31

10

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

IPaC User Contact Information

Agency: Bear Peak Power LLC
Name: Chris Vorlicek
Address: 2420 17th Street
Address Line 2: 3rd Floor
City: Denver
State: CO
Zip: 80202
Email: chris.vorlicek@bearpeakpower.com
Phone: 6176716366
