

Burlington Solar One, 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 3.5-Megawatt AC Solar Photovoltaic Generating Facility Located at Lot 33, Prospect Street, Burlington, Connecticut, and Associated Electrical Interconnection.

PREPARED FOR THE CONNECTICUT SITING COUNCIL

Burlington Solar One, LLC
150 TRUMBULL ST., 4TH FLOOR, HARTFORD, CT 06103

Table of Contents

I. INTRODUCTION.....	3
A. Purpose and Statutory Authority	3
B. Project Overview/Key Project Elements.....	3
1. Site	4
2. Community Relations	6
II. LEGAL NAME AND ADDRESS OF PETITIONER AND CONTACT INFORMATION.....	6
III. DESCRIPTION OF PROPOSED PROJECT	7
A. Project Site Description and Site Selection.....	7
1. Site Description	7
2. Site Selection.....	11
B. Proposed Project Description.....	11
1. Solar Panels and Related Ground Equipment	11
2. Service Life and Capacity Factor	11
3. Site Access.....	11
4. Interconnection	11
5. Construction Schedule and Phasing.....	12
6. Project Maintenance	14
7. Project Decommissioning.....	16
IV. PROJECT BENEFITS.....	16
V. POTENTIAL ENVIRONMENTAL IMPACTS	16
A. Public Health and Safety	17
B. Federal, Local and State Land Use, Conservation and Development Plans.....	18
C. Ecological, Vegetation, Wildlife Habitat, and Natural Diversity Database and Endangered Species.....	19
1. Habitats.....	19
2. Core Forest	23
3. Soils and Geology	26
4. Prime Farmland Soils/Farmland Soils of Statewide Importance.....	26
5. Wildlife.....	27
6. Northern Long-eared Bat (“NLEB”)	29
7. NDDB Review.....	29
D. Wetlands and Vernal Pools	36
1. Identified Wetlands.....	36
2. Impacts to Wetlands	38
3. Vernal Pools.....	40
E. Water Resources and Stormwater Management	40
1. Floodplain Areas	40
2. Groundwater	41
3. Surface Water.....	41
4. Stormwater Management.....	41
F. Air Quality	43

G. Historic and Archaeological Resources	43
H. Scenic and Recreational Areas	43
I. Noise.....	44
J. Lighting.....	44
K. FAA Determination	44
L. Visibility Evaluation.....	45
VI. CONCLUSION.....	45

LIST OF APPENDICES

<u>Appendix A</u> , Project Site Plans.
<u>Appendix B</u> , Operations and Maintenance Plan
<u>Appendix C</u> , Connecticut Department of Agriculture “No Impact” Correspondence
<u>Appendix D</u> , Davison Environmental Natural Resource Assessment
<u>Appendix E</u> , U.S. Department of the Interior Fish and Wildlife Service Correspondence
<u>Appendix F</u> , NDDB Preliminary Assessment Letter
<u>Appendix G</u> , Moorhead Rare Plant Habitat Assessment
<u>Appendix H</u> , Matson Invertebrate Assessment
<u>Appendix I</u> , Box Turtle Photographs
<u>Appendix J</u> , Box Turtle Protection Plan
<u>Appendix K</u> , Brawley Whip-pool-will Report
<u>Appendix L</u> , Vernal Pool Monitoring Report
<u>Appendix M</u> , Drainage Analysis Report
<u>Appendix N</u> , Heritage Consultants Phase IA Survey
<u>Appendix O</u> , Heritage Consultants Phase IB Survey
<u>Appendix P</u> , SHPO Correspondence
<u>Appendix Q</u> , Viewshed Analysis Map & Simulation
<u>Appendix R</u> , FAA Determination of No Hazard to Air Navigation

LIST OF FIGURES

Figure 1, <i>Location Map</i>
Figure 2, <i>Topographic Map</i>
Figure 3, <i>Site Features Map</i>
Figure 4, <i>Habitat Types Map</i>
Figure 5, <i>Box Turtle Location Map & Protection Measures</i>
Figure 6, <i>Core Forest Analysis</i>
Figure 7, <i>Core Forest Landscape Map</i>
Figure 8, <i>Whip-poor-will Survey Point Locations</i>

I. INTRODUCTION

A. Purpose and Statutory Authority

Pursuant to Conn. Gen. Stat. §§ 4-176 and 16-50k(a) and Regs. Conn. State Agencies § 16-50j-38 et seq., Burlington Solar One, LLC (the “Petitioner”; or “Burlington Solar One”) respectfully moves the Connecticut Siting Council (the “Council”) to approve, by declaratory ruling, the Petitioner’s proposed installation and development of a 3.50 megawatt (“MW”) solar-based electric generating facility (the “Project”) located at Lot 33, Prospect Street, Burlington, Connecticut (the “Project Site”; or the “Site”).

Conn. Gen. Stat § 16-50k(a) states, in relevant part:

Notwithstanding the provisions of this chapter or title 16a, the council shall, in the exercise of its jurisdiction over the siting of generating facilities, approve by declaratory ruling . . . (B) the construction or location of any . . . grid-side distributed resources project or facility with a capacity of not more than sixty-five megawatts, as long as such project meets air and water quality standards of the Department of Energy and Environmental Protection...

Pursuant to Conn. Gen. Stat. § 16-50k(a), Burlington Solar One respectfully requests that the Council approve this Project by declaratory ruling. As demonstrated by the information included herein, the proposed Project will result in no air emissions, has been designed to minimize natural resource impact(s), and complies with the applicable air and water quality standards of the Connecticut Department of Energy and Environmental Protection (“CTDEEP”). In addition, the Project will not have an adverse environmental effect in the State of Connecticut and will contribute to the State’s efforts in promoting the deployment of clean, renewable energy sources.

B. Project Overview/Key Project Elements

The Project was selected and awarded a fifteen (15)-year contract to participate in the State’s Zero Emissions Renewable Energy Credit (“ZREC”) program.¹ The Project’s output will

¹ Conn. Gen. Stat. § 16-244(r), 16-244(s) and 16-244(t) require that Eversource & UI enter into fifteen (15)-year contracts to purchase renewable energy credits (RECs) from qualifying projects in Connecticut at a fixed price for fifteen (15) years.

be used to help Connecticut meet its emissions reduction targets via the State of Connecticut's Renewable Portfolio Standards ("RPS") and Governor Lamont's aggressive GHG reduction goals.²

Energy produced by the Project will be sold to The Connecticut Light & Power Company d/b/a Eversource Energy ("Eversource") at market rates specified in the applicable utility tariff with Eversource for any self-generation facility. Alternatively, in the event that virtual net metering capacity becomes available, the Project may deliver energy to certain eligible recipients through the Eversource's Virtual Net Metering Rider (effective September 24, 2019 by PURA Decision dated October 21, 2019, under Docket No. 13-08-14RE05) ("VNM Rider") or any successor rider thereto. Should virtual net metering capacity become available, the Project intends to deliver Energy and allocate credits to agricultural, state, and municipal recipients (including the Host municipality). Any participation in the virtual net metering program would be subject to all VNM Rider and other program requirements and is contingent upon the availability of virtual net metering capacity.

1. Site

The Project is sited within a 62.98-acre parcel (the "Project Site" or the "Site") that is located entirely within the Town of Burlington (the "Town"). It is bordered to the south by a residential street (Prospect Street); to the north and east by forested, residential areas and Wildcat Brook; and to the west, by agricultural fields. The proposed 11.58-acre development area, hereafter referred to as the "Project Area," is situated to the rear, or northern half, of the Site.

Figure 1, *Location Map*, depicts the proposed Site and Project Area location(s).

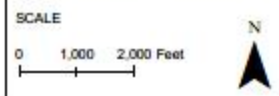
² All electricity sold in Connecticut includes a mandatory amount of renewable energy, referred to as Connecticut's Renewable Portfolio Standard or RPS. The utilities and licensed suppliers buy or trade RECs to meet these standards.




FIGURE 1
Location Map
Prospect Street
Burlington, CT

- Property Boundary (approx)
- Project Area Boundary (approx)

Map Description
The location and extent of features illustrated are approximate only.
This map is intended for illustrative purposes only. It contains no
authoritative data.



Davison Environmental, LLC
10 Maple Street
Chester, CT 06412
860-803-0938


2. Community Relations

Burlington Solar One has consulted with the Town of Burlington First Selectman and respective zoning staff in the development of the Project. These consultations revealed that the proposed development is consistent with the Town's Sustainable CT initiatives and certification, which includes the effort to expand renewable energy. The Town had positive feedback for the planned development, as compared to the other alternatives that it was presented with for the subject site, since the Project would fit into the neighborhood, preserve the farming culture (as the fields to the south of the Project Area, which are currently hayed, will remain in active agricultural production) and preserves the historical character/aesthetic of Prospect Street along its frontage.

The Petitioner and the parcel's owner have also been proactive in their attempts to involve members of the Burlington community in the Project's development. By way of example, the Petitioner has:

1. Developed a Project Fact Sheet for the public that contains pertinent Project information, including, *inter alia*, a proposed Project calendar/schedule, expected Project benefits, and information about Burlington Solar One and its respective business operations on or about July 20, 2020;
2. Created a website, accessible at, <https://www.verogy.com/burlington-solar-one/> that interested parties can review to learn more about the Project, and can submit Project-related inquiries and comments directly to the Burlington Solar One team;
3. Engaged in regular discussions with local officials and residents about the Project; and
4. Notified all abutters of this pending Siting Council Petition via certified mail on October 23, 2020.

II. LEGAL NAME AND ADDRESS OF PETITIONER AND CONTACT INFORMATION

The legal name of the Petitioner is Burlington Solar One, LLC. Burlington Solar One is a Connecticut limited liability company with its principal place of business in Hartford, Connecticut. Burlington Solar One is in affiliate of Verogy LLC ("Verogy"). Verogy is a professional renewable

energy business with decades of experience in the solar industry; the core of its business is developing, financing, constructing, managing, and operating solar projects.

Mailing Address:

Burlington Solar One, LLC
150 Trumbull Street, 4th Floor
Hartford, CT 06103

Internet Address(es):

<https://www.verogy.com/>
<https://www.verogy.com/burlington-solar-one/>

Correspondence and other communications concerning the Project are to be addressed to, and notices, orders and other papers may be served upon the following:

William Herchel
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Hartford, CT 06103-3702
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(860) 424-4315

All three individuals consent to electronic mailings of all Council and Petition-related correspondence.

III. DESCRIPTION OF PROPOSED PROJECT

A. Project Site Description and Site Selection

1. Site Description

The subject parcel is located in the Town's Industrial I Zone, on the north side of Prospect Street, a rural residential neighborhood in the Whigville Section of southeast Burlington. The Site lies within the Copper Mine Brook Subregional Watershed (watershed #010802070403). Locally, the Site is split between the Whigville Brook Watershed, on the western side of the site, and the Wildcat Brook watershed on the east side of the site.

From a bio-geographical perspective, the Site lies within the Northwest Hills Ecoregion, an interior upland ecoregion that is characterized by a moderately hilly landscape of intermediate elevation with narrow valleys and local areas of steep and rugged topography. Site elevations presently range from approximately 360 feet to 442 feet above sea level. The Project Area lies

atop a relatively level plateau, with a steep slope dropping to a broad stream valley just east of the Project's easterly limits.

Historically, land use at the Site consisted of farmland, including hayfields and pastureland. After 1951 and prior to 1970, and continuing presently, sand and gravel mining operations have occurred on the Site. The former extent of the gravel mine extended east and north from the existing mine footprint on the Site, and those areas have since reforested. Portions of the Project Area (the southeast corner) are located within those formerly mined areas, as evidenced by the irregular anthropogenically created topography of the ground therein, including steep cut slopes, borrow pits, and large soil mounds (former stockpiles).

Existing site features and the proposed Project Area are illustrated below on Figures 2, *Topographic Map* and Figure 3, *Site Features Map*.

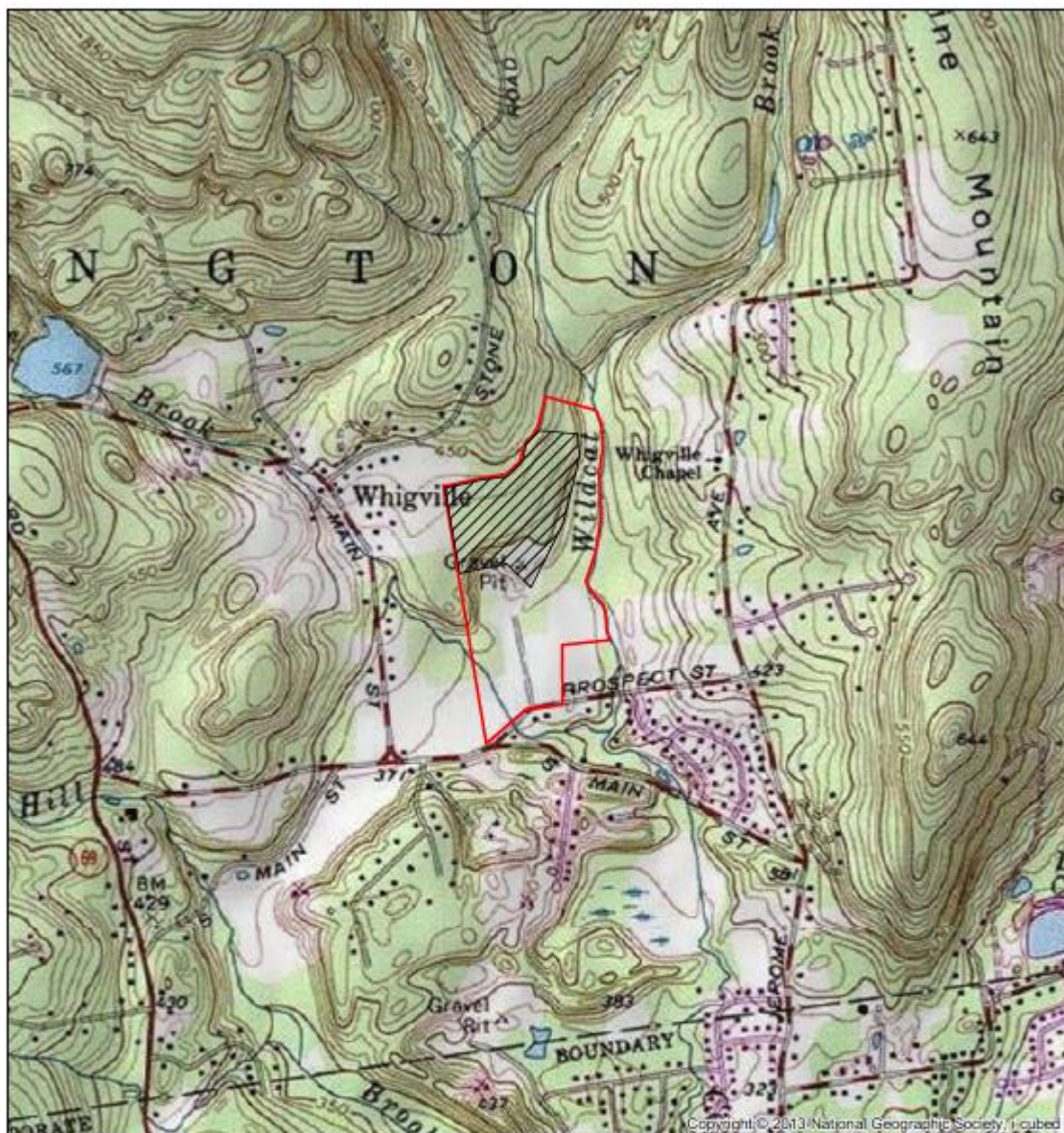


FIGURE 2
Topographic Map
Prospect Street
Burlington, CT

- Property Boundary (approx)
- Project Area Boundary (approx)

Map Description

The location and extent of features illustrated are approximate only. This map is intended for illustrative purposes only. It contains no authoritative data.

SCALE

0 500 1,000 Feet



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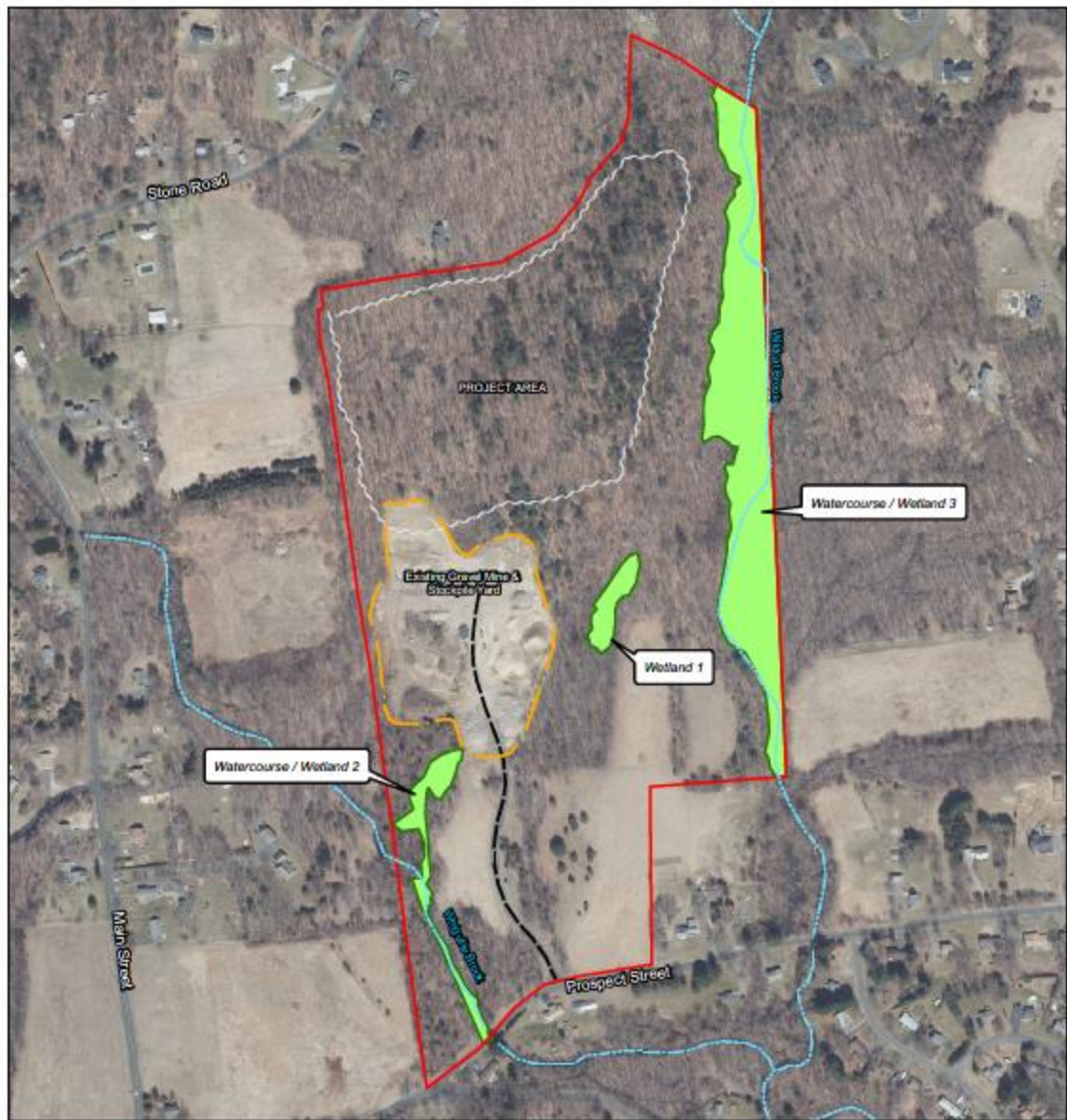


FIGURE 3 - SITE FEATURES MAP
 Verogy Solar
 Burlington Solar One Project
 Prospect Street
 Burlington, CT

Map Description:

2019 Aerial map (source: CT ECO) showing the extent of contiguous forest and related core forest on the site. Core forest is defined as forest located >300 ft from any non-forested habitat. This map is intended for illustrative purposes only.

LEGEND

- Property Boundary (approx)
- Project Limits
- Existing Access Drive
- Perennial Stream
- Wetlands

SCALE

0 200 400 Feet

N

Davison Environmental, LLC
 10 Maple Street
 Chester, CT 06412
 860-803-0938



2. Site Selection

The Site is suitable for the Project for a variety of reasons, including *inter alia*, (i) it is near an existing Eversource distribution center; (ii) due to existing vegetation, it is largely shielded from public views and neighborhoods; and (iii) the facility's construction and subsequent operation is not expected to have undue adverse environmental impacts on the surrounding area.

B. Proposed Project Description

1. Solar Panels and Related Ground Equipment

As currently designed, the proposed Project will consist of 10,010 Trina TSM-DEG15MC.20(II) 400W solar modules and 2,652 Risen RSM144-6-380BMDG 380W solar modules; 28 Solectria 1500V 125kW (XGI 1500-125/125) inverters; DCE Contour BF Racking in 4 High Landscape orientation; a switchgear, transformers, and electrical systems interconnected to the utility grid along Prospect Street. The Project also includes the installation of access roads and an NEC-compliant, seven (7)-foot safety and security fencing system, as well as stormwater management areas.

For more detail(s) regarding the Project's design, please refer to Appendix A, Project Site Plans.

2. Service Life and Capacity Factor

The Facility's panels and inverters have an anticipated service life of thirty-five (35) years. Solar PV has an expected net AC capacity factor of approximately 21.9 (%) percent.

3. Site Access

The Facility will be accessed via an existing road extending north from Prospect Street that traverses through the Site's sand and gravel pit to the south of the Project Area.

4. Interconnection

From a utility standpoint, the connection to the Facility will follow the existing access road from Prospect Street into the Site and northerly to the Project Area. Burlington Solar One will cause the interconnection to be performed in accordance with Eversource's technical standards

and State of Connecticut, ISO-New England (“ISO-NE”), and Federal Energy Regulatory Commission (“FERC”) requirements.

5. Construction Schedule and Phasing

Construction Schedule and Phasing Construction activities within the Project Area will include tree clearing, grading, incorporating stormwater best management practices, installing erosion and sedimentation (“E&S”) control measures, grass berm construction, racking and module installation, electrical trenching, landscape screening installation, and new access road development. Tree clearing beyond the fenced area will be required to facilitate construction of the Project. Existing grades throughout the Project Area will be modified which will require some manipulation (cuts/fills) and regrading. Burlington Solar One’s preliminary construction plans for the Project are as follows:

PHASE 1 (Clearing and Site Erosion Controls)

1. Contact Call Before You Dig at 1-800-922-4455 or 811 prior to any construction;
2. Survey flag limits of clearing;
3. Conduct a pre-construction meeting with land clearer to discuss operations and limits;
4. Clear trees and brush [16.6 acres];
5. Only stump and grub areas for perimeter erosion control measures and east and west stormwater quality basins. [3.9 acres];
6. Install perimeter erosion control measures. Measures will be inspected weekly or after all rainfall events of 0.5” rainfall or greater. Fix any defects in erosion control measures immediately;
7. Strip topsoil within stormwater quality basin areas in the existing topsoil pile (unscreened) within the existing earth removal operation;
8. Complete earthwork for east and west stormwater quality basins;
9. Install drainage components of east and west stormwater quality basins;
10. Install temporary sediment basin vertical risers per detail;
11. Install crushed stone infiltration trench above east and west stormwater quality basins.

12. Restore east and west stormwater quality basin areas with topsoil;
13. Seed bottom of basins and slopes with New England Wetlands Mix;
14. Use erosion control fabric (Tensar North American Green 575 or equal) on all slopes greater than 5:1;
15. Erect temporary erosion control measures up-slope of both stormwater quality basins as shown in the Project Site Plans; and,
16. Up-slope temporary grading to be covered with hay mulch for temporary protection until next phase of construction.

PHASE 2 (West Array)

1. Stump and grub remainder of the site [12.7 acres];
2. All stumps, etc., to be ground and removed offsite;
3. Erect temporary erosion and control measures on east array as shown in the Project Site Plans.
4. Strip and stockpile topsoil as required to complete west array grading. Topsoil pile to be protected with geo-textile silt fence. Stockpile time frame will be short term (i.e., two (2) weeks or less);
5. Complete grading for west array as shown in the Project Site Plans. The East Array area will remain un-graded during west array construction;
6. Restore all graded areas with topsoil (six inch (6'') minimum depth);
7. Install racking posts for ground-mounted solar panels, west array only in this step;
8. Install ground-mounted solar panels and complete electrical installation, west array only in this step;
9. Hydro-seed west array area with wildflower mix;
10. Maintain down-slope erosion control measures until turf has been established; and,
11. Construct gravel access road at end of Phase 2 construction.

PHASE 3 (East Array)

1. Strip and stockpile topsoil as required to complete east array grading;
2. Complete grading for the east array as shown in the Project Site Plans;
3. Restore all graded areas with topsoil (six inch (6'') minimum depth);
4. Install racking posts for ground-mounted solar panels, east array only in this step;
5. Install ground-mounted solar panels and complete electrical installation, east array only in this step;
6. Hydro-seed west array area with wildflower mix; and,
7. Maintain down-slope erosion control measures until turf has been established.

PHASE 4 (Perimeter Limit of Disturbance)

1. Complete restoration of all perimeter areas with wildflower mix;
2. Complete supplemental landscaping for buffers along northern and western property lines;
3. Install fencing;
4. Install equipment pad and underground utilities to pole location on Prospect Street; and,
5. Maintain all erosion control measures until turf and all up-slope areas have been established.

For additional details regarding Burlington Solar One's preliminary construction plans for the Project, please refer to Appendix A, Project Site Plans.

6. Project Maintenance

Throughout operation of the Project, periodic inspections and maintenance will be performed as required. Required maintenance of the Project, however, will be minimal. VCP, LLC d/b/a Verogy ("Verogy"), Burlington Solar One's designated Operations & Maintenance ("O&M") Service Provider, and/or its authorized subcontractors will visit the Site monthly to assess site conditions and perform maintenance as needed. Signage and egress functionality will be inspected during this time and repaired, if necessary. Other anticipated management/maintenance activities for the Project are as follows:

1. **Equipment Maintenance:** Verogy and/or its authorized subcontractors will inspect and maintain electrical and PV equipment in accordance with the manufacturers' respective requirements to maintain proper operation and warranty status of the equipment. Verogy will also perform the following inspections: (a) the operation of all safety devices will be reviewed and corrected to maintain proper function; (b) full visual inspection of all equipment, subassemblies, wiring, connectors, etc.; (c) thermal scanning of electronic equipment, wiring terminations, connectors, etc.; (d) mechanical inspection, including torque verification of critical connections; (e) String Testing (IV curve test); and, (f) air filter elements.
2. **Grass Management:** Grass around and under the array will be mowed in accordance with the schedule in Table 2, below, and will be maintained at a height

intended to mitigate the risk of fire. Grass will be re-planted in bare areas onsite to ensure that erosion control is maintained.

3. **Panel Cleaning:** Although panel cleaning is rarely necessary in the Northeast, in the event that the panels were to experience enough soiling to adversely affect production, the panels will be cleaned using water brought in by tanker truck and soft bristle brooms. No chemicals will be used in connection with panel cleaning.
4. **Snow Maintenance/Removal:** Verogy and/or its authorized subcontractors will clear snow from the access roads to all the electrical equipment pads. Snow will be plowed or removed in a manner to maintain emergency turnarounds. The Petitioner does not intend to remove snow from panels, as they will be positioned at a 25degree angle, which will allow any accumulating snow to sheet off.
5. **Long-Term Stormwater Maintenance Plan:** Currently, the extent of any stormwater management devices is unknown. The O&M team will provide maintenance in accordance with the approved stormwater maintenance plan produced by the Project's engineer of record.

Table 2, below, summarizes the anticipated scheduled maintenance activities for the Project. For additional information regarding the expected maintenance of the Project, please refer to [Appendix B](#), Operations and Maintenance Plan.

Task	Frequency
On-Site Ground Inspection	Monthly
Visual Array & Equipment Inspection	1x per year or per equipment manufacturer requirements
Mechanical and Electrical Inspections	1x per year or per equipment manufacturer requirements
Panel Cleaning	As Needed
Mowing and Trimming	2-3 times annually or more as required to maintain a safe site
Snow Removal	As needed
Perimeter Fence Inspection	1x per year
Stormwater Management System Inspection	1x per year or per engineer's stormwater management plan

7. Project Decommissioning

At the end of its lifespan, the Project will be fully decommissioned and removed from the Site. Once cleared, the land will be restored, as nearly as possible, to its original condition.

IV. PROJECT BENEFITS

The Project creates a number of benefits with local, statewide, and regional significance—including supporting renewable energy development and construction related jobs, contributing to Connecticut’s statewide renewable energy goals, and reducing Connecticut’s dependence on out-of-state electricity sources.

Given the Project’s size, it can be expected to generate enough energy to power 763 homes for a year, while generating zero pollution or carbon emissions. Moreover, Burlington Solar One will be an economic contributor to the Town of Burlington. Once operational, the Town of Burlington will receive annual tax revenues from the Project for an estimated twenty (20) years. The Petitioner also intends to use, where appropriate, local and regional labor for the construction and subsequent operation of the Project and expects that approximately twenty-one (21) new jobs will be created (19 construction jobs and two (2) new full-time job positions). Moreover, there will be no additional burdens placed on municipal infrastructure or demands on Town of Burlington services due to the development of the Project.

Importantly, the Project will generate the majority of its power during the summer electrical peak, thereby providing peaking resources when the State has its greatest need for energy. *See* Conn. Gen. Stat. § 16-50p(c)(1) (a project provides a public benefit if it is deemed “necessary for the reliability of the electric power supply of the state or for a competitive market for electricity”). This reduction in energy demand during peak usage will, in turn, decrease energy costs for ratepayers statewide

V. POTENTIAL ENVIRONMENTAL IMPACTS

As is evidenced by the information provided below, the Project has been designed to avoid or minimize impact(s) to public health and safety, the existing environment, wildlife, and habitat on and around the Site; and, in accordance with Conn. Gen. Stat. § 16-50g, will not have an adverse effect on scenic, historical, or recreational areas.

A. Public Health and Safety

As a Class I Renewable Energy Source, Burlington Solar One represents a clean and safe method of electricity generation in the State. The Project will contribute to reducing greenhouse gas emissions to the extent it displaces the fossil-fueled generating resources, and the Project, once operational, will not create any waste or other emissions that would be detrimental to the public health and safety. In addition, the Project will not consume any water or produce any wastewater or otherwise involve the injection of waste or harmful or toxic substances into ground water or wells.

The Project has been designed to meet or exceed applicable local, state, national and industry health and safety standards and requirements related to electric power generation, including the National Electrical Safety Code (“NESC”), and those codes and standards promulgated by the National Fire Protection Association (“NFPA”).³ In accordance therewith, all of the Project’s electrical equipment will be secured by a seven (7)-foot high locked security gate that is National Electric Code (“NEC”)-compliant to ensure that the Facility is not readily accessible to the public or wildlife.

The Petitioner will also coordinate with the Town of Burlington police and fire departments regarding access to the Facility and emergency shutoff switches. Each of the entrance gates to the Facility will have a universal key lock (e.g. Knox lock) for emergency responders. The below table provides an emergency contact list for the Town of Burlington.

Emergencies	Dial 911
Burlington Police Station	200 Spielman Highway Burlington, CT 06013 Emergency Calls: 911 Routine Calls: (860) 673-4856
Burlington Fire Department	Tim Tharau, Fire Marshal 200 Spielman Highway Burlington, CT 06013 Emergency Calls: 911 Routine Calls: (860) 673-6789 x250 -

³ Collectively, these provisions govern the safe installation and maintenance of electrical systems, including alternations, repairs, replacement(s), equipment, appliances, fixtures, fittings, and appurtenances thereto.

B. Federal, Local and State Land Use, Conservation and Development Plans

The Project is consistent with the goals, policies and implementation strategies contained in the Town's zoning regulations (the "Zoning Regulations")⁴ and Burlington's Plan of Conservation and Development ("POCD").

The Town's POCD emphasizes the importance of Burlington becoming "a more sustainable and more resilient community."⁵ To that end, the Town supports the implementation of a number of sustainable strategies in the areas of energy consumption and greenhouse gas emissions reductions, including, *inter alia*, "[r]educing energy use / becoming more energy efficient"; "increasing use of renewable energy (solar, wind, etc.);" "reducing reliance on fossil fuels;" "reducing future CO² emissions;" and, "seeking ways to reduce the current atmospheric concentration of CO²."⁶

Importantly, the POCD also provides certain "action steps" that the Town intends to take to further the goals listed above, including but not limited to, the following:

- Reviewing and updating land use regulations for ways to promote sustainability and resilience; and
- Revisiting the Zoning Regulations to ensure that appropriate provisions are in place for enabling solar panels and wind turbines accessory to residential and other uses.

Because the Project will support these goals, it is consistent with the local land use policies.

⁴ Pursuant to the Zoning Regulations, public service utilities/buildings are permitted in all zones. The Town of Burlington's Planning and Zoning regulations may be accessed at: <https://www.burlingtonct.us/planning-zoning-commission/files/planning-zoning-regulations>.

⁵ See Town of Burlington Plan of Conservation and Development, p. 21, which can be found at: <https://www.burlingtonct.us/planning-zoning-commission/files/2020-plan-conservation-and-development>.

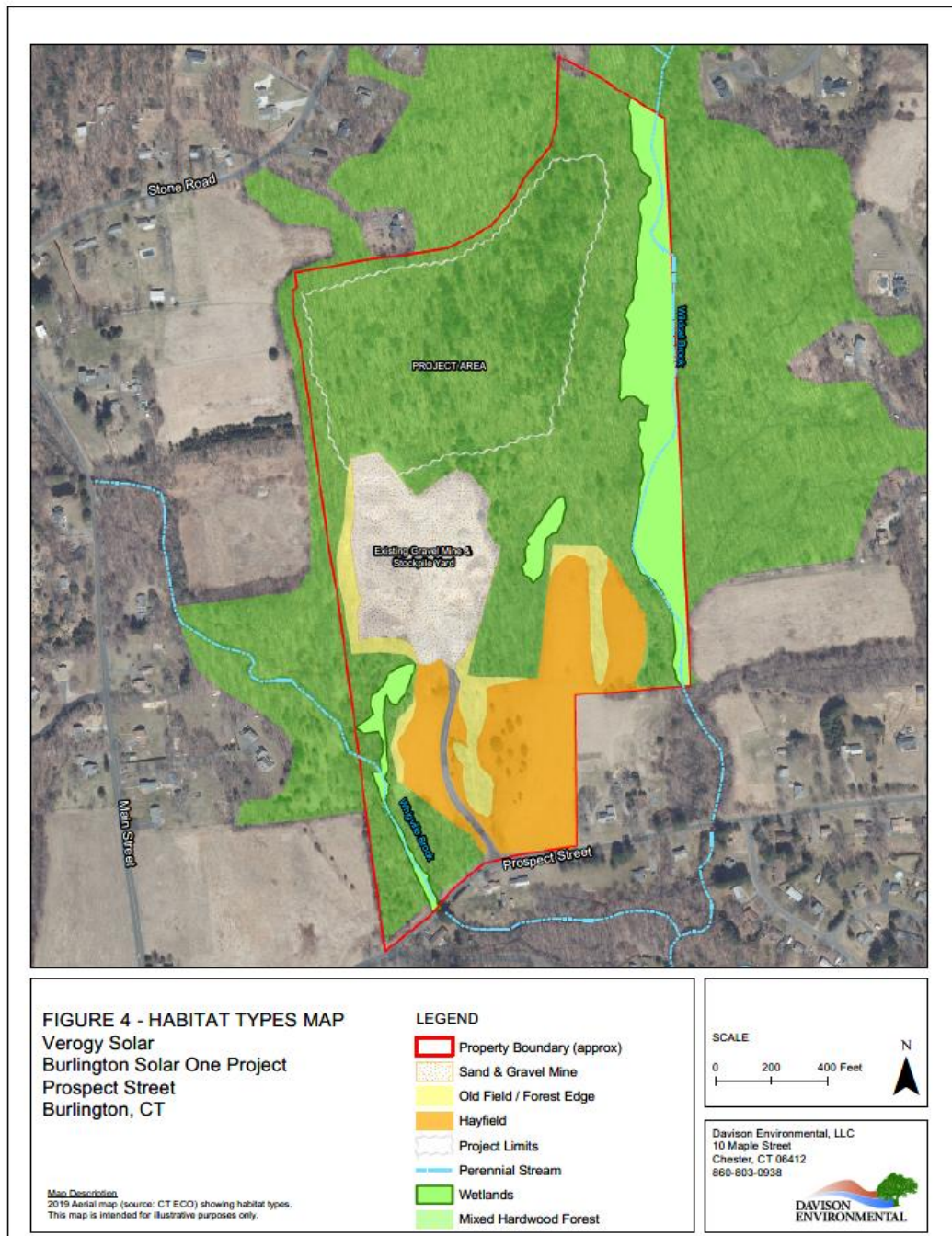
⁶ *Id.* at p. 22.

C. Ecological, Vegetation, Wildlife Habitat, and Natural Diversity Database and Endangered Species

Provided in the following sections is information regarding: (1) the identified onsite habitats, anticipated Project impacts, and proposed mitigative measures; (2) core forest; (3) site soils and geology; (4) Prime Farmland Soils/Farmland Soils of Statewide Importance; (5) site wildlife; (6) the Northern Long-eared Bat (“NLEB”); and (7) NDDB review/consultation for the Project.

1. Habitats

The Project Area is located entirely within four (4) upland (non-wetland) habitats: Mixed Hardwood Forest, Old field/ Forest Edge, Hayfield, and Sand and Gravel Mine (and processing yard). These habitats are depicted on Figure 4, *Habitat Types Map*, and described in more detail below, including information regarding the anticipated Project impacts to these habitats and proposed mitigative measures.



1.1. Identified Habitat Types

Mixed Hardwood Forest

The Project is located almost entirely within mixed hardwood forest. The forest type within this habitat is comprised of second-growth mixed hardwoods, dominated by oaks. The moisture regime of this forest is xeric due to the upper terrace slope position and predominance of well - to

excessively-well drained soils (e.g., Canton and Charlton soil complex, Agawam and Hinckley soil series). As a result, the structural diversity of the forest is low. There is little herbaceous, shrub and midstory strata density (i.e., the forest is relatively open). The tree canopy is dominated by red oak (*Quercus rubra*), black oak (*Quercus velutina*), black cherry (*Prunus serotina*), black birch (*Betula lenta*), American chestnut (*Castanea dentata*), mockernut hickory (*Carya tomentosa*), white oak (*Quercus alba*), scattered eastern red cedar, white pine (*Pinus strobus*), paper birch (*Betula papyrifera*) and shagbark hickory (*Carya ovata*).

This habitat's shrub is sparse and dominated by lowbush blueberry (*Vaccinium angustifolium*), mountain laurel, black huckleberry (*Gaylussacia baccata*) and scattered striped maple (*Acer pensylvanicum*). Its herbaceous layer is sparse and dominated by cinnamon fern (wetter areas), Christmas fern (*Polystichum acrosticoides*), lily-of-the-valley (*Convallaria majalis*), Virginia creeper (*Parthenocissus quinquefolia*), groundcedar (*Lycopodium complanatum*), princess pine (*Lycopodium obscurum*), haircap moss, hay-scented fern (*Dennstaedtia punctilobula*) and Pennsylvania sedge (*Carex pennsylvanica*).

More mesic midslope locations include sugar maple (*Acer saccharum*), red maple, American beech (*Fagus grandifolia*) and mapleleaf viburnum (*Viburnum acerifolium*). White pine is denser in the northeast corner of the Project Area. Mountain laurel becomes dense in the eastern portions of the Project Area nearer to the eastern stream valley.

Rock outcrops are scattered throughout the Project Area, within the areas occupied by the Canton and Charlton soil complex. A network of ATV trails runs through the southeast corner of the Project Area forest.

Old Field / Forest Edge

As is illustrated in Figure 4, this habitat type occupies the eastern edge of the mining area, the easterly edge of the southern hayfield, and throughout scattered locations within the western hayfield. It is a narrow band of transitional habitat or "ecotone," with the most significant habitat patch lying between the mixed hardwood forest and the sand and gravel mine. Vegetation within this habitat consists of scattered immature trees with dense shrub and herbaceous cover. Dominant species within this habitat include cottonwood (*Populus deltoides*), black cherry (*Prunus serotina*), hickories (*Carya asp.*), eastern red cedar, red oak, dense Asiatic bittersweet, deer tongue grass (*Dichanthelium clandestinum*), grape (*Vitis sp.*), multiflora rose, goldenrods (*Solidago sp.*), flannel

mullein (*Verbascum thapsus*) and the invasive non-native autumn olive (*Elaeagnus umbellata*), bush honeysuckle and mugwort (*Artemisia vulgaris*).

Hayfield

Hayfields dominate the southern portions of the Site; however, this habitat type is located well-beyond the Project Area limits (i.e., more than 450 feet away at its closest point). The onsite hayfields are vegetated with cool-season grasses and typical hayfield forbs, such as, clovers and milkweeds.

Sand and Gravel Mine (and Processing Yard)

A sand and gravel extraction mine and processing yard occupies roughly seven (7) acres of the Project Site; approximately 0.3 acres of the Project Area falls within the mine and stockpile yard. This area is largely unvegetated and is continually subjected to heavy equipment. The area consists of material stockpiles and processing areas where the material is sorted and loaded into trucks. Presently, there is a small settling basin on the southeast corner of the yard that captures existing stormwater runoff onsite.

1.2 Anticipated Impact(s) to Habitat and Proposed Mitigation Measures

The Project will result in the conversion of approximately sixteen (16) acres of Mixed Hardwood Forest. To mitigate the loss of forest habitat, Burlington Solar One proposes establishing areas of native meadow habitat using a combination of two (2) native seed mixes produced by New England Wetland Plants: *Showy Wildflower Mix* and *Warm Season Grass Mix*. Meadow plantings will be established at the outer limits of the Project Area, between the Limits of Disturbance (“LOD”) (maintained to prevent panel shading) and the perimeter fence surrounding the Facility’s arrays. As designed, this area will range from a minimum width of fifteen (15) feet to a maximum width of fifty (50) feet.

While these plantings do not necessarily “replace” forest loss, they will serve to increase early-successional/forest edge habitat value—particularly for species like the box turtle and the hognose snake, as well as for forest edge birds and pollinator insects. It is recommended that these

meadow areas be mowed only once annually, between October 15th and March 30th, to avoid the potential for impacting box turtles and other wildlife that may be present onsite.

2. Core Forest

Two (2) publicly available GIS-based datasets were reviewed to assess the Project's potential impacts to core forest habitat. The first, the CTDEEP's *Forestland Habitat Impact Mapping*,⁷ indicates that portions of the proposed Project Area are located within an area mapped as "core forest." The second, UConn's Center for Land Use Education and Research's ("CLEAR") Forest Fragmentation Analysis ("FFA") study mapping, similarly reveals that the site falls within a "medium core" forest block.

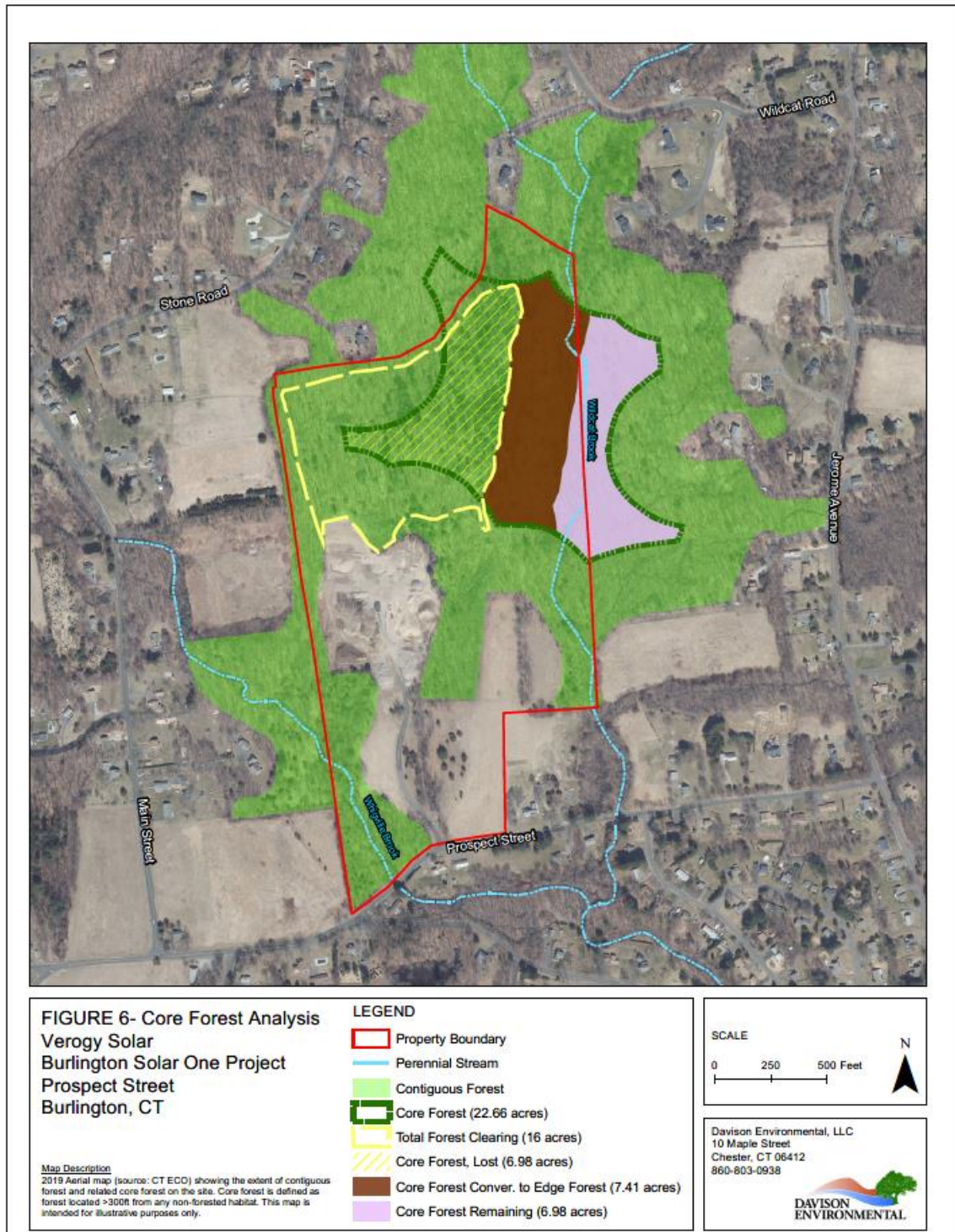
Importantly, however, these data sets are intended as landscape-scale analysis tools—meaning, they utilize satellite-derived land-use data to calculate forest cover; consequently, their accuracy on a "site-specific" scale is low. As such, the Petitioner conducted its own analysis of contiguous forest and core forest on/around the Site through the utilization of Esri's ArcMap software and by reviewing the most current, available aerial photography of the Site from the Spring of 2019. *See Figure 7, Core Forest Landscape Map.* Such an investigation was deemed necessary to provide a more accurate evaluation of the potential Project-related impacts to core forest. The results of this analysis are summarized below and depicted on Figure 6:

- The total contiguous forest block within and adjacent to the Site is 108 acres;
- Because of the existing high level of forest fragmentation present within this forest block, the total existing core forest is limited to just 22.66 acres;
- This represents a "small core forest" as it is less than 250 acres;
- Total forest loss (all forest types) resulting from the Project will be sixteen (16) acres;
- 6.98 acres of the total forest lost constitutes core forest;
- The remaining core forest post-development will be 15.68 acres, a 30.8% reduction in total core forest acreage.

⁷Source:

<http://ctdeep.maps.arcgis.com/apps/webappviewer/index.html?id=7b81844bab634281b544c20bf2d7bfb8>: This spatial screening layer identifies prime continuous and connected core forestland blocks. It is intended to identify areas of potential forestland habitat impacts relative to solar installation applications made to the Connecticut Siting Council. If the project intersects with the Forestland Habitat Impact Map there is a potential for material effects to core forest.

These findings have been provided to CT DEEP forestry personnel, who are currently evaluating the findings.



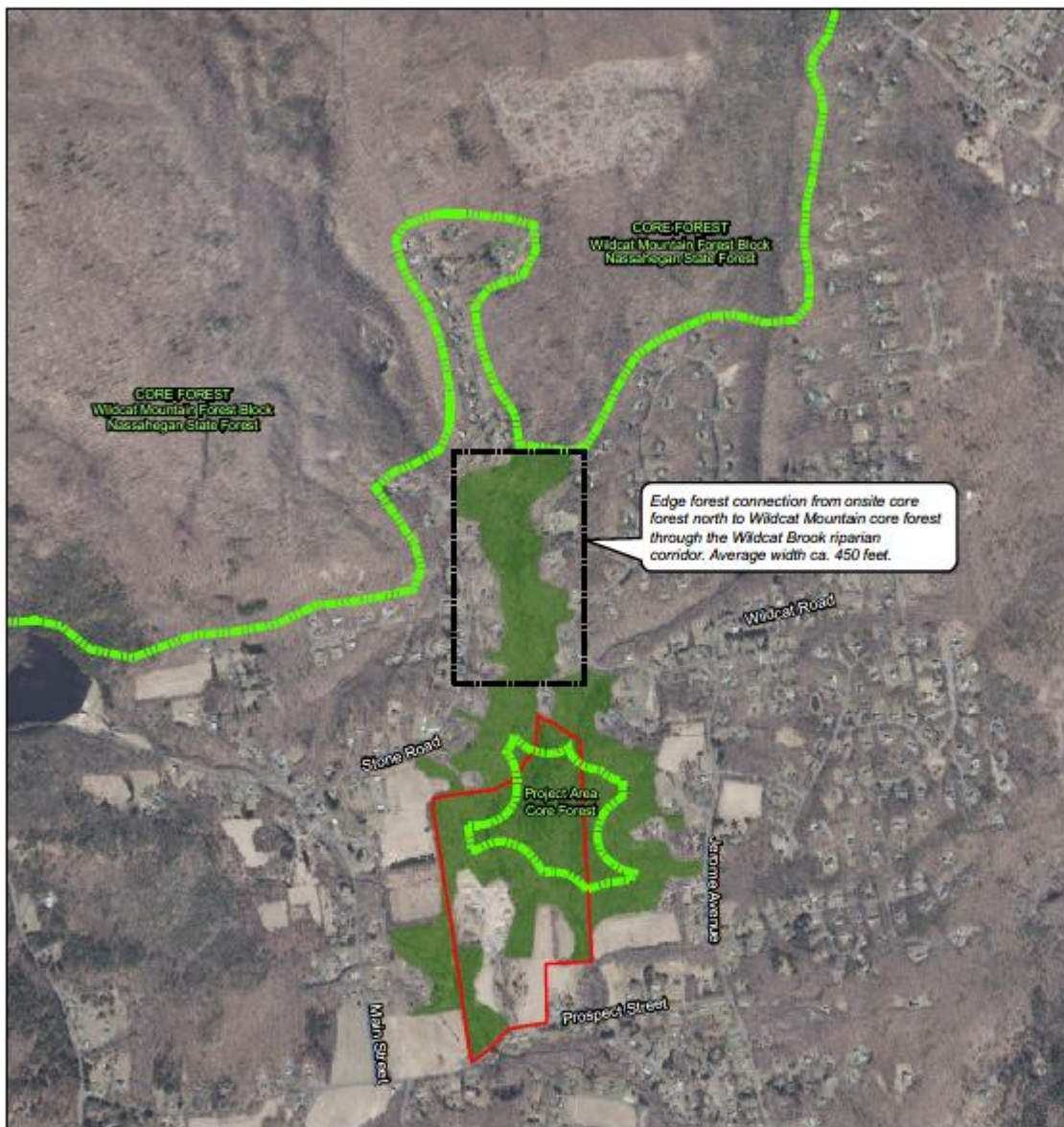


FIGURE 7 - Core Forest Landscape Map
 Verogy Solar
 Burlington Solar One Project
 Prospect Street
 Burlington, CT

LEGEND

- Property Boundary
- Core Forest Boundary
- Contiguous Forest

Map Description

2019 Aerial map (source: CT EOC) showing the extent of contiguous forest and related core forest on the site. Core forest is defined as forest located >300ft from any non-forested habitat. This map is intended for illustrative purposes only.

SCALE

0 500 1,000 Feet



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 10 Maple Street
 Chester, CT 06412
 860-803-0938



3. Soils and Geology

The soil types identified within the Project Area are Hinkley and Canton/Charlton. Within the Site's wetland areas, the following wetland soil types are present: Ridgebury, Leicester and Whitman Complex⁸ and Rippowam.⁹

Ridgebury, Leicester and Whitman is an undifferentiated mapping unit—consisting of two (2) “poorly” drained soils, Ridgebury and Leicester, and one “very poorly” drained soil, Whitman, which is developed on glacial till in depressions and drainageways in uplands and valleys. Their use interpretations are very similar, and they typically are so intermingled on the landscape that separation is not practical. The Ridgebury and Leicester series have a seasonal high-water table at or near the surface (0-6") from fall through spring. They differ, however, in that the Leicester soil has a more friable compact layer or hardpan, while the Ridgebury soils have a dense-to-very-dense compact layer. The Whitman soil has a high-water table for much of the year and may frequently be ponded.

The Rippowam series consists of very deep, poorly drained loamy soils formed in alluvial sediments. Its permeability is characterized as “moderate” or “moderately rapid” in the loamy layers, and “rapid” or “very rapid” in the underlying sandy materials.

4. Prime Farmland Soils/Farmland Soils of Statewide Importance

The Project will not be located on mapped prime farmland soils or farmland soils of statewide importance and therefore will have no impact on these resources. In addition, the hay operations that are currently being conducted on seven (7) acres of the site will continue, unaffected by the Project. Please refer to Appendix C for the Connecticut Department of Agriculture correspondence, dated June 15, 2020, confirming this “No Impact” determination.

⁸ These soil types are present within Wetland 1, Wetland, and Watercourse 3.

⁹ Wetland and Watercourse 2.

5. Wildlife

A baseline inventory of amphibians, reptiles and birds was conducted onsite within a defined “study area.”¹⁰ The following sections describe the species observed and, as applicable, the proposed protection measures for these species. Additional details are provided in [Appendix D](#), Davison Environmental Natural Resource Assessment, dated September 28, 2020.

5.1 Amphibians and Reptiles

Amphibian and reptile surveys were conducted in the late spring/early summer of 2020.¹¹ As illustrated in the Table below, four (4) amphibian species and one (1) reptile species, the eastern box turtle,¹² were observed.

Table: Comprehensive Species List		
Common Name	Scientific Name	Status
Amphibians		
Gray treefrog	<i>Hyla versicolor</i>	None
Red-spotted newt	<i>Notophthalmus viridescens</i>	None
Green frog	<i>Rana clamitans</i>	None
Redback salamander	<i>Plethodon cinereus</i>	None
Reptiles		
Eastern box turtle	<i>Terrapene carolina</i>	c. SC

Status

Wildlife Action Plan Conservation Status (CS)

VI – very important; MI – most important; IM – important

SC – State-listed species of special concern

¹⁰ The identified “study area” included the Project Area and immediately surrounding areas (within approximately 400 feet) of the LOD.

¹¹ The amphibian and reptile surveys focused specifically on two (2) reptile species, which were indicated as potentially present based on the Preliminary Assessment provided by the NDDB: the eastern hognose snake (*Heterodon platirhinos*) and the eastern box turtle (*Terrapene c. carolina*).

¹² A total of five (5) eastern box turtle were observed in the vicinity of the Project Area. Please refer to Section 6 herein for a more detailed description concerning the Project’s proposed protection measures for same.

While suitable habitat does exist onsite for several snake species, overall, the Project Area does not offer suitable habitat for a wide variety of amphibians and reptiles. This is the result of several factors, including, but not limited to, (1) the lack of overall habitat diversity within the area; (2) the lack of long hydroperiod wetlands that support aquatic turtles or vernal pool species; (3) the lack of forest diversity; and, (4) the lack of well-developed strata and limited ground cover vegetation.

5.2 Breeding Birds

Aside from the surveys conducted for whip-poor-will (described further below in Section 7, *NDDB Review*), no “formal” breeding bird surveys were conducted at the Site. However, during general assessment work, incidental observations of several common forest-interior bird species were made, including of the red-eyed vireo (*Vireo olivaceus*) and the eastern wood pewee (*Contopus virens*). In addition, observations were made of several so-called “early-successional habitat specialists,” such as, the woodcock (*Scolopax minor*) and the blue-winged warbler (*Vermivora cyanoptera*).

Habitat within the Project Area is suitable for forest-dwelling birds, including forest-interior neotropical migrants, many of which are identified as being a “greatest conservation need” (“GCN”) by the CTDEEP’s 2015 *Connecticut Wildlife Action Plan*. However, the value of the Project Area’s forest is largely limited, because forest cover is neither extensive onsite nor within the local landscape.¹³ Moreover, while the Site’s hayfields can support several GCN species, such as, the observed blue-winged warbler and the indigo bunting (*Passerina cyanea*), such habitat is outside the LOD and will not be affected by the Project.

5.3 Fisheries

Because of the significant setback distance of the Project Area from the Site’s perennial streams, Burlington Solar One did not conduct a formal fisheries survey for the Project. Burlington Solar One did, however, review publicly available data from the CTDEEP Fisheries Division, which included a Whigville Brook sample location from 2010. Fish species recorded therein

¹³ As explained in the “Core Forest” section, the total contiguous forest on and adjacent to the Site totals only 108 acres, and it is highly fragmented (see Section 2 Core Forest Analysis).

included the stocked and wild brook trout (*Salvelinus fontinalis*), stocked and wild brown trout (*Salmo trutta*), Blacknose dace (*Rhinichthys atratulus*), creek chub (*Semotilus atromaculatus*) and slimy sculpin (*Cottus cognatus*). Given the distance of the development from these resources, the Petitioner does not anticipate impact to these fisheries or the resources in which they occur.

6. Northern Long-eared Bat (“NLEB”)

The northern long-eared bat (“NLEB”; *Myotis septentrionalis*) is a federally-listed¹⁴ threatened species known to occur in the vicinity of the Site. The NLEB’s range encompasses the entire State of Connecticut and suitable NLEB roost habitat includes trees (live, dying, dead, or snag) with a diameter at breast height (“DBH”) of three (3) inches or greater.

The Petitioner reviewed the *Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance map* (February 1, 2016) to determine the respective locations of any known maternity roost trees or hibernaculum. Said review revealed that there are currently no known NLEB maternity roost trees in Connecticut. The nearest NLEB hibernacula habitat resource to the Site is located in the Town of Morris, approximately eighteen (18) miles west of the Site. By correspondence dated May 6, 2020, the U.S. Department of the Interior Fish and Wildlife Service, New England Ecological Services Field Office, confirmed that there are “no critical habits within [the] Project Area.” See [Appendix E](#) for the May 6, 2020 U.S. Department of the Interior Fish and Wildlife Service, New England Ecological Services Field Office correspondence.

7. NDDB Review

The CTDEEP’s Natural Diversity Database (“NDDB”) program represents current, documented data showing the known locations of any endangered, threatened or special concern species and significant natural communities. The Petitioner’s review of NDDB mapping (June 2019) revealed that a cluster of NDDB areas overlap the Project Site. As a result, the Petitioner submitted an application to the NDDB for its review, and a *Preliminary Assessment Letter* was received on January 12, 2020 from Environmental Analyst Dawn McKay, indicating that the

¹⁴ Listing under the federal Endangered Species Act

species noted in the Table below may potentially be present onsite. See Appendix F, January 12, 2020 Preliminary Assessment Letter.¹⁵

NDDDB Preliminary Determination Species List Table	
Common Name	Scientific Name
Freshwater Community	
Medium fen	
Invertebrates	
Ground beetle	<i>Agonum darlingtonia</i>
Ground beetle	<i>Agonum mutatum</i>
Pitcher plant moth	<i>Exyra fax</i>
Crimson-ringed whiteface	<i>Leucorrhinia glacialis</i>
Eastern pearlshell	<i>Margaritifera margaritifera</i>
Plants	
Mud sedge	<i>Carex limosa</i>
Hare's tail	<i>Eriophorum vaginatum</i> var. <i>spissum</i>
Pod grass	<i>Scheuchzeria palustris</i> ssp. <i>americana</i>
Northern yellow-eyed grass	<i>Xyris montana</i>
Reptiles	
Eastern hognose snake	<i>Heterodon platirhinos</i>
Eastern box turtle	<i>Terrapene carolina</i>
Birds	
American bittern	<i>Botaurus lentiginosus</i>
Whip-poor-will	<i>Caprimulgus vociferus</i>
<i>*Species and natural communities highlighted in red are those for which no suitable habitat is present on the Site.</i>	

As the above table reveals, a total of thirteen (13) species and one (1) rare plant community were identified in the NDDDB Preliminary Assessment. However, the majority of the species noted in the table (highlighted in red) occur in highly-specialized and regionally-uncommon wetland habitat types known as fens or bogs. Importantly, these habitat types do not occur on the Project Site, and therefore, the Petitioner does not expect any adverse impact to those species resulting

¹⁵ Since such time, Burlington Solar One has provided a response to NDDDB regarding the 2020 Preliminary Assessment Letter, including site survey report(s). As of the date of this filing, a Final Determination from NDDDB is still pending.

from development of the Project. See Appendix G, Moorhead Rare Plant Habitat Assessment of Burlington Solar One Project Area, dated March 19, 2020, and Appendix H, Matson Invertebrate Assessment, dated March 30, 2020.

Suitable habitat is, however, present for the following four (4) species: the Eastern box turtle, the Eastern hognose snake, the Eastern pearlshell, and the Whip-pool-will. As described in greater detail below, comprehensive surveys were conducted at the Site for each of these species, and the Project has been designed to avoid any potential impact to same. Proper mitigative measures have also been developed to ensure that these species are not harmed during the construction of the Project.

Eastern Box Turtle

The eastern box turtle is a State-listed species of special concern. Box turtles are widespread throughout the low-lying portions of Connecticut. They favor old field habitat and deciduous forest ecotones, including powerline cuts and logged-over woodland. Box turtles utilize different habitat types at different times of the year: early-successional habitats are generally inhabited during months with moderate temperature, while forested habitats are utilized during the heat of the summer and for hibernation.

Along the western limits of the Site's existing sand and gravel mine/stockpile yard, a total of five (5) eastern box turtles (three (3) females and two (2) males) were found.¹⁶ One female had fourteen (14) annuli, while the remaining four (4) turtles had annuli too worn to count, thereby representing an older age class (e.g., over 25 years old). No juvenile or sub-adult turtles were observed. Photographs of each turtle, including their respective capture location(s), morphometrics, and marking information are included in the Box Turtles Observed (June 2020) Photographs included in Appendix I.

As a result of the confirmed onsite presence of these species, and due to the potential for box turtle to be hibernating within the Project Area forest, Burlington Solar One developed a *Box Turtle Protection Plan* to minimize the likelihood of turtle injury/mortality during construction.

¹⁶ Specifically, the five (5) turtles were observed in old field/forest edge habitat between the mixed hardwood forest and the stockpile yard. These early-successional habitats are favored during the late spring just prior to and during the nesting period. Presumed nesting habitat is within the edges of the sand and gravel mine and the old field/forest ecotone. These areas contained ample sparsely vegetated and friable sandy soils favored for nesting.

The *Box Turtle Protection Plan* is detailed in Appendix J and illustrated on Figure 5, below, and consists of the following components:

1. Isolation of the Project perimeter with fencing to be installed no later than April 1st, 2021 (while turtles remain in hibernation);
2. Targeted searches of the Project Area prior to construction, between April 1st and May 31st to capture and remove turtles moving out of the hibernation sites into the bordering old field habitat;
3. Periodic inspection of the barrier fencing throughout construction period to search for box turtles that might remain within the construction zone; and,
4. Education of all contractors to conduct sweeps of the barrier fencing throughout the construction period of the Project.

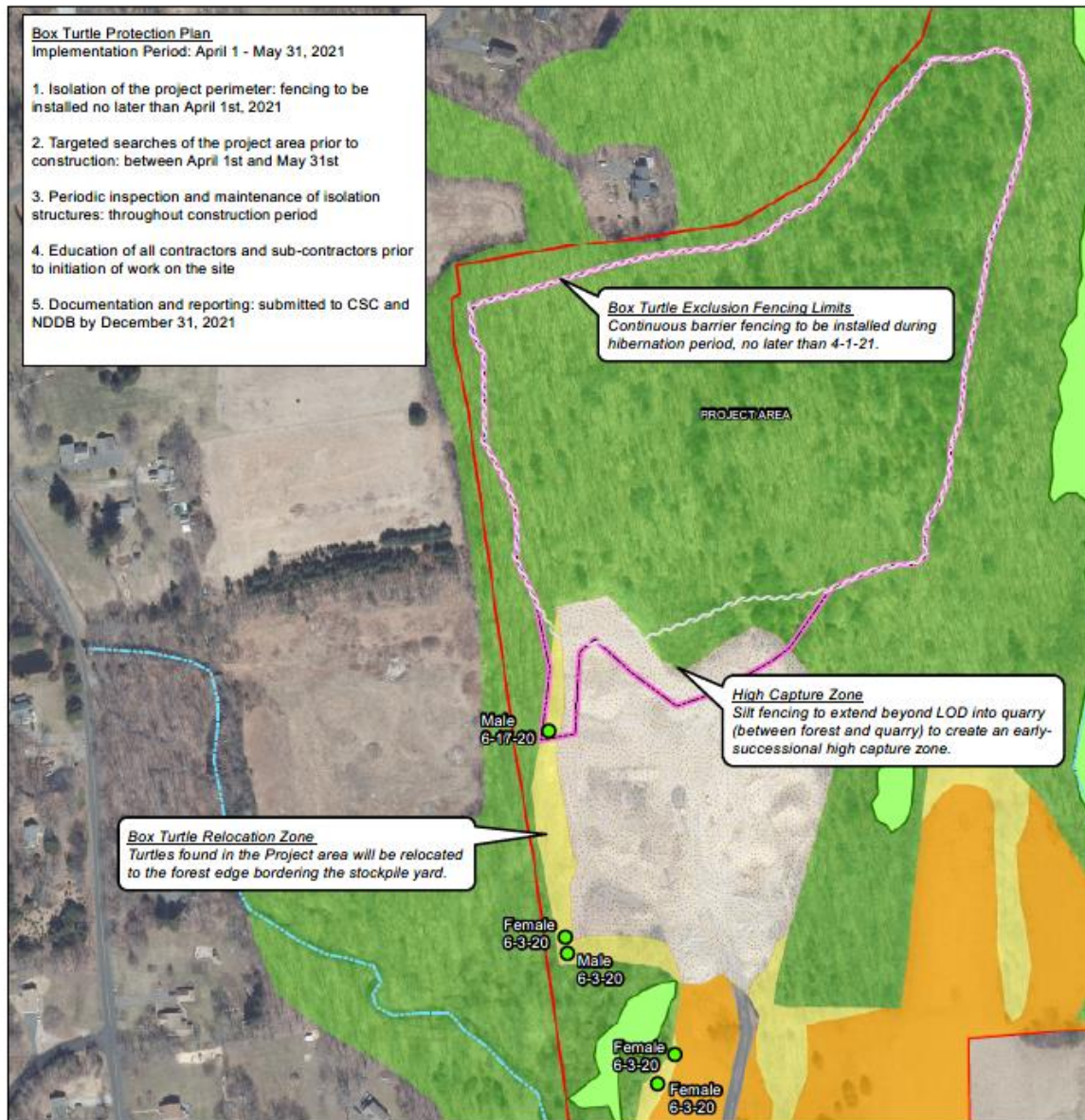


FIGURE 5 - Box Turtle Location Map & Protection Measures

Verogy Solar
Burlington Solar One Project
Prospect Street
Burlington, CT

Map Description
2019 Aerial map (source: CT ECO) showing habitat types.
This map is intended for illustrative purposes only.

LEGEND

- Box Turtle Locations (June 2020)
- ▭ Property Boundary (approx)
- ▭ Sand & Gravel Mine
- ▭ Old Field / Forest Edge
- ▭ Hayfield
- ▭ Project Limits
- ▭ Perennial Stream
- ▭ Wetlands
- ▭ Mixed Hardwood Forest

SCALE

0 125 250 Feet

N

Davison Environmental, LLC
10 Maple Street
Chester, CT 06412
860-803-0938



Eastern Hog-nosed Snake

Eastern hog-nosed snakes are primarily found within early successional habitats and associated forest ecotones, underlain by well-drained sandy and gravelly soils. Populations often occur in outwash plains within low-lying river valleys. Eastern hog-nosed snakes are typically found in lowland areas below 500 feet in elevation. Suitable habitat within the Project Site occurs within mixed hardwood forest and the forest/old field ecotone along the margins of the stockpile yard.

While the hog-nosed snake was not observed onsite, it is still considered to be potentially present due to its highly cryptic nature. As such, the Project's proposed *Box Turtle Protection Plan* (summarized above) is intended to minimize the likelihood of mortality for both the box turtle and the hog-nosed snake during construction.

Eastern Pearlshell

The Eastern pearlshell is a freshwater mussel that inhabits cold water streams and small rivers that support Atlantic salmon, brook trout, and brown trout populations, which serve as the larval hosts for this species. Suitable habitat occurs within Whigville Brook and Wildcat Brook.

The Eastern pearlshell is potentially present within the Site's two (2) perennial streams. However, significant buffer distances are proposed to remain between the streams and any/all Project activities. This buffer, in conjunction with the Project's proposed stormwater management measures/features, will ensure that no adverse impact to the Eastern pearlshell or its habitat will occur.

Whip-poor-will

The whip-poor-will generally occur in open, deciduous, or mixed immature woods or areas of forest regrowth bordering more mature forest. Sites are typically relatively dry, with sandy soils often dominated by oak, beech and pine. To determine whether whip-poor-will are breeding on the Site, Hunter Brawley of Brawley Consulting Group, LLC conducted surveys for whip-poor-will in June of 2020. The survey methods and timing were based on recommendations from Shannon Kearney at the CTDEEP Wildlife Division, and no birds were observed on the Site. The

Brawley Report is included in Appendix K, and the utilized survey point locations are depicted in the figure below.






Survey Point Locations

Solar One Project
Prospect Street
Burlington, CT

NOTES
(1) This map contains no authoritative data and is intended for planning purposes only. (2) Basemap data sources include USGS topographic (USA TOPO) maps & 2016 CT DEEP Orthophotography. (3) parcel shapes are approximate.

Legend

-  Solar One Burlington
-  Approx. Project Area
-  Survey Points

SCALE

0 50 100 200 Meters



Map Prepared By:
Brawley Consulting Group, LLC
95 Pilgrim Drive
Windsor, CT 06095
www.brawleycg.com

D. Wetlands and Vernal Pools

This Section describes the wetlands and vernal pools identified at the Site, including anticipated Project-related impacts to these resources. As discussed below, the Project has been successful in avoiding all direct impacts to the identified wetlands, and adverse impacts to these resources is not expected.

1. Identified Wetlands

Three (3) wetlands occur within the Project Site. These wetlands are illustrated and numbered for reference on Figure 3 – *Site Features Map*. Their general characteristics are summarized in the Table below.

Summary of Wetland and Watercourse Characteristics Table

Wetland #	Habitat Type	Hydrologic Regime	Description
1	Forested wetland	Temporarily flooded	Small isolated forested wetland
2	Perennial stream & forested wetland	Perennial streamflow; wetland is saturated	Whigville Brook and bordering riparian/forested wetland
3	Perennial stream & forested wetland	Perennial streamflow; wetland is saturated to temporarily flooded	Wildcat Brook and bordering forested wetland
Wetland Hydrologic Regimes Saturated – the soil is saturated to the surface, especially early in the growing season, but unsaturated conditions prevail by the end of the season in most years. Surface water is absent except for groundwater seepage and overland flow. Temporarily flooded: flooded for brief periods during the growing season, but water table is otherwise well below surface.			

Wetland 1

Wetland 1 is an isolated wetland totaling 0.44 acres and is located nearest to the Project Area. It is a Palustrine Forested Wetland (i.e., wooded swamp) with a temporarily flooded hydrology. The soil surface contains abundant stones and boulders.

The vegetation within Wetland 1 consists of red maple (*Acer rubrum*), dominant in the tree layer, with musclewood (*Carpinus caroliniana*) also occurring therein. The shrub layer includes winterberry (*Ilex verticillata*), highbush blueberry (*Vaccinium corymbosum*) and the invasive, non-native Japanese barberry (*Berberis thunbergii*). The herb includes layer royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), sphagnum moss and poison ivy (*Toxicodendron radicans*). Vine cover includes Virginia creeper (*Parthenocissus quinquefolia*), greenbriar (*Smilax rotundolia*) and the invasive non-native Asiatic bittersweet (*Celastrus orbiculatus*).

Wetland and Watercourse 2

Whigville Brook flows through the southwest corner of the Site. Although the Brook is located well beyond the Project limits (over 750 feet away), a portion of the Project is located within the Whigville Brook watershed. That said, the brook is characterized by a meandering channel with a streambed that is dominated by coarse gravel and cobbles, with narrow bars of cobble and moderately incised and eroded banks. The streambank vegetation is dominated by two (2) invasive non-native species: multiflora rose (*Rosa multiflora*) and Japanese knotweed (*Fallopia japonica*). A narrow border of younger trees are present, which includes red maple and sycamore (*Platanus occidentalis*), with shrub cover including witchhazel (*Hamamelis virginiana*) and spicebush (*Lindera benzoin*).

The brook is fed by a small, upstream forested groundwater slope wetland. The wetland hydrology is saturated. The tree layer is dominated by red maple and American elm. The shrub layer is dominated by multiflora rose and bush honeysuckle (*Lonicera morrowii*), with highbush blueberry and winterberry also common.

Review of aerial photography of the Site from 1971 indicates that this wetland system, including this segment of Whigville Brook, was cleared of trees and open, lying within what appears to have been a hayfield.

Wetland and Watercourse 3

Wildcat Brook flows along the easterly site boundary. Bordering the western side of the brook is a broad, forested wetland that extends easterly approximately 200 feet from the brook (at its widest point). This wetland includes areas of overbank flow with a narrow band of alluvial soils. The wetland hydrology ranges from saturated to temporarily flooded. The soil surface is extremely stony and bouldery.

The wetland vegetation consists predominately of red maple and yellow birch (*Betula allegheniensis*) within the tree layer; musclewood, green ash (*Fraxinus pennsylvanica*), and hemlock (*Tsuga canadensis*) are also present. The shrub layer is dominated by spicebush (*Lindera benzoin*), winterberry, multiflora rose, mountain laurel (*Kalmia latifolia*), Japanese barberry and highbush blueberry. The herb layer includes skunk cabbage (*Symplocarpus foetidus*), cinnamon fern (*Osmunda cinnamomea*), sphagnum moss, Virginia creeper, and poison ivy. Review of aerial photography from 1934 shows that this forested wetland was cleared and devoid of trees (roughly to the limits of the brook).

2. Impacts to Wetlands

The fundamental concept of wetland impact analysis is based on the precept that wetland impacts should first be avoided where possible. Secondly, if practicable alternatives do not exist to avoid wetland impacts, then such impacts should be minimized. Thirdly, unavoidable wetland impacts should be mitigated.

The Project has been successful in avoiding all direct impacts to the identified wetlands, as no tree-clearing or other vegetation alteration will occur within these areas and the Project maintains substantial buffers from all wetlands and watercourses. Because development activity is proposed adjacent to the wetlands, there is the potential for secondary impacts to these resources. However, the potential for such secondary impacts will be minimized through the implementation of a number of best management practices (“BMPs”), summarized below.

The principal protection measure proposed for the Project is the preservation of substantial and undisturbed wetland and stream buffers. These buffers will not be affected by the Project, and the width of these buffers will allow for the preservation of the existing watershed drainage patterns, the natural infiltration of surface water runoff (within forest duff / leaf litter), as well as

the preservation of stream-shading and temperature-sensitive stream micro-climates. The Table below presents the proposed wetland and watercourse setbacks from the Project's LOD.

Table 3: Disturbance area setbacks to wetlands and watercourses

Wetland / Watercourse	Minimum Distance from Project LOD
Whigville Brook	1,021 feet
Wildcat Brook	191 feet
Wetland 1	230 feet
Wetland 2	666 feet
Wetland 3	111 feet

The Project lies upslope (west) of Wildcat Brook. Wildcat Brook is bordered to the west by Wetland 3 that parallels the banks of the brook. As indicated in the above Table, the proposed grading and clearing is closest to the brook at the northeast corner of the Project Area (111 feet from bordering wetlands and 191 feet from the brook at its closest point). Beyond this point, bordering the southeast corner of the Project Area, that buffer distance widens considerably to 193 feet from the bordering wetland and 344 feet from Wildcat Brook. Evidently, these setbacks are significant, and greatly mitigate the potential for an elicit discharge of sediment into wetlands and watercourse during construction of the Project.

Notwithstanding, in order to minimize the potential for soil erosion and sedimentation during development, a three-phase construction plan has been established for the Project and all proposed erosion and sedimentation ("E&S") control measures for the Project have been designed in accordance with the standards and specifications of the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. See [Appendix A](#), Project Site Plans. Project E&S control measures include the use of silt fencing and straw waddles (a.k.a. silt socks) around the perimeter of the LOD. Within the interior of the Project Area, swales, temporary sediment basins, and additional waddles with silt fence will act to manage runoff within the Project interior and prevent erosion and sedimentation into wetlands.

As demonstrated by the foregoing, the Project will not adversely affect the identified wetlands.

3. Vernal Pools

No vernal pools occur in or near the Project Area. Although there are three (3) wetlands present on the Site, two (2) of these wetlands (Wetlands 2 and 3) are perennial streams with bordering wetlands that lack suitable, seasonally-flooded hydrology that is otherwise required by vernal pool wildlife.

On the other hand, Wetland 1 is an isolated wetland that is located nearest to the Project Area. Wetland 1 was surveyed for vernal pools by David Lord during the period of March through June of 2019, and no vernal pool activity was observed. Mr. Lord concluded that the wetland hydroperiod was insufficient to support breeding by vernal pool wildlife. The wetland has a predominately saturated hydrology, with no areas of suitable seasonal flooding (i.e., multi-month standing water) to support successful breeding and metamorphosis of vernal pool amphibians. See Appendix L, Vernal Pool Monitoring Report.

E. Water Resources and Stormwater Management

The Project is not expected to have an adverse impact on the State's water resources, as the Facility will be unstaffed, no potable water uses or sanitary discharges are planned, and no liquid fuels are associated with the operation of the Facility. Regarding potential stormwater issues, and as discussed in greater detail below, the stormwater generated by the proposed development, once operative, will be properly handled and treated in accordance with the *2004 Connecticut Stormwater Quality Manual*. Therefore, the Project satisfies the water quality standards of the CTDEEP.

1. Floodplain Areas

Burlington Solar One reviewed the United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Maps ("FIRM") for the Site.¹⁷ The Project Site is mapped on FIRM PANEL #09003C0456F, dated September 26, 2008. Based upon the reviewed mapping, the Site is classified as an unshaded "Zone X," which is defined as an area of minimal flooding, typically above the 500-year flood level. The Project is outside the influence of 100- and 500-year

¹⁷ A FIRM is the official map of a community on which FEMA has delineated both the special hazard areas and risk premium zones applicable to the community.

floodplains and will have no effect on these resources. No special considerations or precautions relative to flooding are therefore required for the Project.

2. Groundwater

Groundwater underlying the Site is classified by CTDEEP as “GAA” and “GAAs”. This classification indicates that groundwater within the area is presumed to be suitable for human consumption without treatment. Based upon a review of available CTDEEP mapping, the Site is not located within a mapped preliminary or final Aquifer Protection Area. Therefore, the Project will have no adverse effect on ground water quality.

3. Surface Water

As discussed in Section D above, the Project will have no adverse effect on the Site’s surface water quality: sufficient setbacks from the identified water resources onsite have been established; E&S controls will be installed and maintained during construction, in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*; and, once the Facility becomes operative, stormwater will be managed in accordance with the 2004 *Connecticut Stormwater Quality Manual*. Collectively, these measures mitigate the potential for adverse impact(s) to surface water quality.

4. Stormwater Management

A detailed stormwater management plan was developed for the Project. This plan was reviewed for adherence with best design practices proven to prevent degradation of downstream waters from stormwater runoff, including *inter alia*, the CTDEEP’s 2004 *Connecticut Stormwater Quality Manual* (the “Stormwater Manual”) and the “Primary Treatment Practice” guidelines contained therein.¹⁸ Additionally, the proposed stormwater system is designed to manage the water quality volume (“WQV”) through detention and the slow release of water in a manner that will not increase peak flow rates—thereby reducing the likelihood of downstream erosion or increased flooding.

¹⁸ A primary treatment practice is one that effectively captures and treats stormwater pollutants including sediment, petroleum hydrocarbons and nutrients such as phosphorus and nitrogen.

In the area of the proposed solar array, the hydrologic soil group has been reduced one group (e.g., from “A” to “B,” or “B” to “C”) in conformance with the current iteration of CTDEEP’s Appendix I, *Stormwater Management at Solar Array Construction Projects*. Additionally, the imperviousness of the solar panels does not need to be considered as the separation distance between each row of panels is greater than the width of the panels in a horizontal plane. This is also in conformance with *Appendix I*.

The proposed stormwater management plan utilizes a combination of two (2) stormwater quality basins, infiltration trenches, and grass lined swales to mitigate stormwater runoff from the Project. The stormwater quality basins will have a multi-stage outlet design and emergency overflow. Both stormwater quality features include an up-slope two percent (2%) gradient grass infiltration and filter strip to provide primary treatment of up-gradient sheet flows.

A stone infiltration trench is proposed for both stormwater quality features to enhance the treatment process and provide a level of temporary sediment and erosion control during construction of the Project. These basins will be utilized as temporary sediment basins during construction and will be sized appropriately for dry and wet storage requirements.

The western stormwater quality basin will outlet into the eastern stormwater quality basin to further promote groundwater recharge and the mitigation of peak run-off flows. Developed drainage flows from this Project are not directed or outletted to areas adjacent to the brooks bordering the east and west property lines. Overall peak flows have also been reduced in the two (2)-year through 100-year storm events, as shown in the tables provided in the *Drainage Analysis Report*, prepared by R.R. Hiltbrand Engineers & Surveyors, LLC, attached as Appendix M.

Burlington Solar One also notes that, due to the land use proposed, high pollutant loads (i.e., nutrients, petroleum hydrocarbons and other pollutants) from stormwater runoff are not expected to result from the Project—especially when compared to a residential or commercial development of similar scale. These conventional types of development include higher vehicular traffic, septic systems effluent, and manicured lawns which are the primary sources of stormwater pollutants. Nevertheless, the stormwater management measures proposed for the Project have been designed in a manner to maximize pollutant removal, and the stormwater basins are designed to capture and treat WQV and capture and sequester sediment (i.e., Total Suspended Solids, or “TSS”).

Implementation of these measures will ensure that any stormwater generated from the Project will not result in harm to the surrounding area or the degradation of downstream waters.

F. Air Quality

Due to the nature of solar energy generating facilities, the Project, once operational, will not generate any air emissions onsite. While the Petitioner acknowledges that there is the potential for temporary, mobile source emissions associated with the construction of the Project (resulting from vehicles and related construction equipment), any such potential air quality impacts resulting therefrom are considered *de minimis*.

Nonetheless, the Petitioner will mitigate such construction-related emissions by utilizing a series of protective measures, including, *inter alia*, (i) limiting idling times of equipment; (ii) properly maintaining all vehicles and equipment; and, (iii) watering/spraying construction equipment to minimize dust and particulate releases. In addition, the Petitioner will ensure that all on-site and off-road equipment will meet the latest standards for diesel emissions (as proscribed by the United States Environmental Protection Agency).

G. Historic and Archaeological Resources

Heritage Consultants LLC (“Heritage Consultants”) of Newington, Connecticut, conducted both a Phase IA and a Phase IB survey at the Site, revealing that no historic properties will be affected by the proposed Project activities. See Appendix N, Heritage Consultants Phase IA Survey and Appendix O, Heritage Consultants Phase IB Survey. The results of the Surveys were subsequently sent to the State Historic Preservation Office (“SHPO”) for its review. By correspondence dated April 8, 2020, the SHPO informed the Petitioner that it concurred with the findings of the report and that additional archeological investigations of the Site are not warranted, and that no historic properties will be affected by the Project’s development. See Appendix P, SHPO April 8, 2020 Correspondence.

H. Scenic and Recreational Areas

As illustrated on the Viewshed Analysis Map, included in Appendix Q, there are several scenic and recreational areas within the vicinity of the Site. The Sessions Woods Wildlife Management Area is located to the northwest of the proposed Project; the Nassahegan State Forest

is located to the north; the Hart Tract (Hertiage Land Preservation Trust, Inc.) is located to the southeast; and the nature conservancy, Barnes Preserve (Shrub Rd.), is located to the southwest of the proposed Project. Importantly, however, there are no anticipated views or impacts to any of these areas as a result of the Burlington Solar One Project.

I. Noise

As abovementioned, the Project is located in Burlington's Industrial Zone, with Residential Zones surrounding the property. Pursuant to the Town of Burlington's Planning and Zoning regulations, an emitter in an industrial zone with a residential zone receptor cannot exceed, at the boundaries of a parcel, the noise level(s) of 51 dBA from 7 p.m. to 7 a.m. and 61 dBA from 7 a.m. to 7 p.m.

The Facility will have limited noise-producing equipment onsite, consisting of the inverters and transformers. The loudest piece of equipment onsite will be a 2,000 kVa transformer that, per the manufacture's specifications, will generate a maximum sound level of 68 dBA at one (1) foot. The 2,000 kVa transformer will be located in the south-central portion of the Site, with the closest property line being approximately 476 feet to the west. Using the inverse square law to evaluate the relative sound of the 2,000 kVa transformer at the nearest property line, the Facility's noise levels are not anticipated to be greater than 14.5 dBA, which is considerably less than the maximum 61 dBA limit.

During the short-term construction period, the Petitioner expects that some typical construction equipment noise will occur. However, such noise will be *de minimis* and will be limited to daytime construction hours, and will not exceed the 61 dBA threshold.

J. Lighting

No exterior lighting is planned for the Facility. There will be some small, non-intrusive lighting fixtures within the equipment to aid in maintenance; however, Burlington Solar One expects that such lighting will be *de minimis* and will not impact nearby residences.

K. FAA Determination

The Federal Aviation Administration (the "FAA") conducted an aeronautical study for the Project under the provisions of 49 U.S.C., Section 44718 and Title 14 of the Code of Federal

Regulations, part 77. By correspondence dated July 22, 2020, the FAA notified the Petitioner that its study revealed that the Project does not exceed obstruction standards and would not be a hazard to air navigation. See Appendix R, FAA Determination(s) of No Hazard to Air Navigation.

L. Visibility Evaluation

Photo simulations and a Viewshed Analysis Map were developed for the Project and are included herein as Appendix Q. As these materials evidence, the Facility will have limited year-round visibility in areas within the immediate vicinity of the Site—primarily, those abutting properties to the west along Main Street and north on Stone Road. These limited year-round visibilities will depend on the height of vegetation along the site perimeter. There will be limited seasonal views to the west and north as well; however, those views will be limited to less than 1,000 feet from the facility. In general, views of the Project will be limited due to the relatively low height of the Facility (the proposed panels are only ten (10) feet tall), in conjunction with the existing, dense vegetation along the perimeter of the site being maintained.

The Petitioner also notes that the proposed solar modules are designed to absorb incoming solar radiation and minimize reflectivity, such that only a small percentage (approximately two (2%) percent) of incidental light will be reflected off the panels. This incidental light is significantly less reflective than common building materials, such as steel, or the surface of smooth water. The panels will be tilted up toward the southern sky at a fixed angle of approximately 25 degrees, thereby further reducing reflectivity/visibility of the Facility.

As such, the Petitioner does not anticipate any adverse visual impacts will result from the development of the Project.

VI. CONCLUSION

As demonstrated by the foregoing, Burlington Solar One's proposed Project will result in no air emissions, has been carefully designed to minimize natural resource impact(s), and complies with the applicable air and water quality standards of the CTDEEP. Because the Project satisfies the requisite standards, and in light of the benefits this Project will provide to the State of

Connecticut and the Town of Burlington, Burlington Solar One, LLC respectfully requests that the Council approve this Petition for the Project, as it is currently designed.

Respectfully Submitted,

Burlington Solar One, LLC

The Petitioner