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September 9, 2016

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

Re: **Petition No. 1178 – Fusion Solar Center, LLC Petition for Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is Required for the Proposed Construction, Maintenance and Operation of a Ground-Mounted 20 MW Solar Photovoltaic Electric Generating Facility off Potash Hill Road, Sprague, Connecticut**

Dear Ms. Bachman:

In accordance with Condition No. 4 of the Development and Management Plan approval dated September 1, 2016, enclosed is a final copy of the Stormwater Pollution Control Plan stamped by a professional engineer, duly licensed in the State of Connecticut.

Thank you again for your assistance and cooperation with this matter. Please feel free to contact me if you have any questions or need any additional information.

Sincerely,



Kenneth C. Baldwin

KCB/kmd  
Enclosure  
Copy to:  
Ben Combs (w/o enc.)

15196886-v1



**STORMWATER POLLUTION CONTROL PLAN  
(SWPCP)  
FOR FUSION SOLAR CENTER  
SPRAGUE, CT  
KLEINFELDER PROJECT # 20163850.001A**

**JULY 1, 2016**

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**ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.**

A Report Prepared for:

GEHRLICHER SOLAR AMERICA CORP.  
21 Fadem Road  
Springfield, New Jersey 07081

**STORMWATER POLLUTION CONTROL PLAN  
(SWPCP)  
FOR FUSION SOLAR CENTER  
SPRAGUE, CT**

Prepared by:

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Jake Stelten, EI  
Staff Professional

Reviewed by:



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Senior Project Manager



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July 1, 2016  
Kleinfelder Project #: 20163850.001A

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- F CT DEEP Impaired Waters Table
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- J Stormwater Pollution Control Plan Review Checklist
- K USFWS and DEEP Rare Species Compliance
- L NDDDB Final Determination
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- O Stormwater Monitoring Form
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## 1 INTRODUCTION

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This Stormwater Pollution Control Plan (SWPCP) has been prepared on behalf of Gehrlicher Solar America Corp. by Kleinfelder, Inc., for the photovoltaic solar facility installation at Fusion Solar Center, in the Town of Sprague, Connecticut. This plan is developed in accordance with good engineering practices. The intent of the SWPCP is to evaluate potential sources of pollution from materials or chemicals handled, used, or stored on the site and to select and implement appropriate measures to prevent or control the discharge of pollutants in stormwater runoff.

### 1.1 FACILITY INFORMATION

**Facility Name and Address:** Fusion Solar Center  
Potash Hill Rd.  
Sprague, CT 06330

**Owner Name and Address:** Fusion Solar Center, LLC  
PO Box 2055  
Charlottesville, VA 22902

**Preparer Name and Address:** Kleinfelder, Inc.  
3500 Gateway Centre Blvd, Suite 200  
Morrisville, NC 27560

**Location:** The project is located on the north side of Potash Hill Road in Sprague, CT, New London County. The facility's coordinates are: Latitude: 41.6341° N, Longitude: 72.0457° W

**Facility Description:** The Fusion Solar Center is a solar farm with associated solar panels, access roads, and other infrastructure pertinent to the operation of the facility. There will be a single entrance and exit to the site. Most of the site is made up of wooded areas.

See Figure 1 for the Location Map, Figure 2 for the Aerial Photo of the Site to show existing conditions, and Figure 6 for the Erosion and Sediment Control Plan.

## 2 BACKGROUND

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This section of the plan is to provide a general description of the Fusion Solar Center.

Construction activities will consist of the installation of a 20 megawatt AC (“MWac”) solar-based electric generating facility. The work will consist of clearing and grubbing; minimal grading; installation of gravel roadway, 12 inch thick concrete inverter pads over a 6 inch thick aggregate foundation, pile-driven foundations and aluminum or steel fixed-tilt racking for 7.5 foot tall solar module mounting, and security fencing; plantings/landscaping; loaming; mulching; and other incidental items of work as listed in the project plans and specifications and as required to complete the work.

### 2.1 CONSTRUCTION SEQUENCE

A general sequence for the project is described in the following sections:

- Mobilization - 1 day
- Tree Clearing – 28 days
- Roads / Laydown / Perimeter Fencing – 40 days
- Site Preparation – 63 days
- Construction Survey – 63 days
- PCS - Excavate – 25 days
- MVCS - Excavate – 5 days
- Structural Installation – 78 days
- Electrical Installation – 105 days
- Commissioning – 31 days
- Cessation of Construction Activities

The Contractor shall use the form labeled Construction Sequence Log (Appendix E) to append this SWPCP with the intended timing of construction activities. The Contractor shall make additional amendments to this sequence as necessary. The SWPCP must include locations for the temporary sedimentation basin designed and installed in accordance with the Guidelines. The contractor shall provide an inspection and maintenance plan for the temporary sedimentation



basin as part of the amended SWPCP. The Contractor should be aware that this is a specific requirement of the CGP.

## 2.2 ESTIMATES OF DISTURBED AREA

Parcel Acreage: 266 Acres

Disturbed Acreage: 144 Acres

## 2.3 EROSION AND SEDIMENT CONTROL PLAN

The Erosion and Sediment Control Plan is included as Figure 6. The Erosion and Sediment Control Plan illustrates the extent of all land disturbing activities on the site and recommended locations of temporary erosion control measures. Additional erosion control measures and/or modifications to the proposed measures may be necessary depending on actual site conditions. Erosion control devices are to be installed based on the details provided under the approved plans. Erosion control devices are to remain in place and working condition to be maintained until construction activities in contributing drainage areas are complete and stabilization is achieved.

## 2.4 ADDITIONAL PERMITS

This project is a “Locally Exempt Project” as it is authorized under municipal, state or federal authority via the Connecticut Siting Council approval process and is not required to obtain municipal approval. This project has a total disturbed area greater than fifty (50) acres; thus, the Registration Form must be submitted to DEEP at least ninety (90) days prior to the planned commencement of the construction activity. An electronic copy of the SWPCP must be provided with the Registration Form. A Plan Review Certification is not required.

## 3 SITE DESCRIPTION

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### 3.1 RECEIVING WATERS AND WETLANDS

#### 3.1.1 Receiving Waters

The site is located in the Litter River watershed, which is a tributary to the Shetucket River. Stormwater from the easterly portion of the Site flows to the east towards unnamed tributaries to the Little River, and stormwater from the westerly portion of the Site flows to the west towards the Little River. However, direct discharges to these waterways from the Site are not anticipated. The waters in the vicinity of the Site are under Surface Water Quality Class A and do not have TMDLs. The Site is not considered to be in a Coastal area by Connecticut General Statutes Section 22a-93(3).

#### 3.1.2 Wetlands

Per All-Points Technology Corporation, P.C.'s Environmental Assessment (the Environmental Assessment), dated July 2015, one large wetland complex is located within and along the eastern side of the Site. This resource consists primarily of a broad bordering wetland system with diffuse seasonal intermittent stream channels that eventually focus to a perennial stream system and feeder hillside seep wetland systems. There are approximately 3.5 acres of wetlands within the Site. However, no wetlands will be directly impacted by construction activities. Minimal tree clearing is proposed within the 100 foot wetland review area, as approved by the CT Siting Council, for shade-eliminating purposes.

#### 3.1.3 Floodplains and Riparian Buffers

No portion of the project area lies within a FEMA designated 100-year Flood Hazard Area per FEMA Panel 09011C0068G (Figure 3) dated July 18, 2011. A riparian buffer surrounds the stream system located along the eastern boundary of the Site.

### 3.2 THREATENED AND ENDANGERED SPECIES

The Connecticut Department of Environmental Protection's Natural Diversity Data Base (NDDB) Maps, updated September 2015, were reviewed for the presence of shaded areas representing locations of endangered, threatened and special concern species and significant natural communities near the Site. No shaded areas are located within the project site and the nearest shaded area is located to the northeast of the Site, surrounding Hanover Reservoir. As part of the Environmental Assessment a review request was submitted to the CT DEEP NDDB on June 12, 2015 to confirm no Threatened, Endangered, or Special Concern species or critical habitats exist at the Site. The CT DEEP responded in a letter dated July 8, 2015 that records exist in the vicinity of the project for three listed species, including one plant and two animals:

- State listed Threatened species clustered sedge (*Carex cumulata*);
- Federal and State listed Threatened species long-eared bat (*Myotis septentrionalis*);
- State listed species of Special Concern wood turtle (*Glyptemys insculpta*).

In addition to these species, the state-listed Threatened Bald Eagle was also noted by DEEP as nesting along the Quinebaug River, and during further site visits by APT, the bobolink was observed in the southern hay fields of the property.

APT performed a detailed assessment to determine what protection measures are warranted, if any, for these species. The Erosion Control Plans (**Figure 6**) clearly describes these measures on "the Environmental Notes" sheet.

An additional letter was sent to the CT DEEP and responded to on January 28, 2016. The CT DEEP's response states that, if the protective measures are implemented, the species identified above will not likely be impacted by the Fusion Solar Center project. This correspondence is included in **Appendix L**.

The Clustered Sedge has no suitable habitat on the subject site, and was not observed during site visits. Therefore, no further protections methods are required. Likewise, no adverse impacts to migrating Bald Eagle are anticipated with development of the Project, based on its distance separating the Site from the Quinebaug River and eagle migrate patterns during the daytime under favorable weather conditions when thermals form.

The Bobolink requires certain construction measures be taken in order to avoid incidental take, such as restrictions to mowing timeframe and equipment used. See “Environmental Notes”.

Suitable Wood Turtle habitat does exist, and a detailed protection plan has been prepared by APT that includes isolation of the project perimeter; periodic inspection and maintenance of isolation structures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and reporting. See “Environmental Notes”.

A protection plan specific to NLEB was submitted in December of 2015 and subsequently approved that included self-imposed protection measures. Those measures included restricting tree clearing activities from occurring between May 15 and August 31 to avoid likely adverse effects to northern longeared bat that may be roosting in trees (assumed presence). See **Appendix K** and **Appendix L** for the plan and approval. However, at time of submittal of the protection measures to NDDB, assessment of project impacts to NLEB was performed under the requirements of the ESA interim 4(d) rule for NLEB and in accordance with the U.S. Fish and Wildlife Service (“USFWS”) New England Field Office’s (“NEFO”) July 7, 2015 policy memorandum.

The interim 4(d) rule has since been replaced by the final 4(d) rule for NLEB, which became effective on February 16, 2016. A USFWS NLEB assessment was prepared by APT, following the USFWS’s Key to the Northern Long-Eared Bat 4(d) Rule for Non-Federal Activities Key (“USFWS Key”; January 13, 2016). A copy of the USFWS’s NLEB Compliance Determination, addressing the potential for impact to NLEB, is provided in **Appendix M**. This evaluation revealed that the nearest NLEB habitat resource to the proposed activity is a hibernacula located in North Branford ±40 miles to the southwest of the proposed Fusion solar project in Sprague; there are currently no known NLEB maternity roost trees in Connecticut.

In light of the final 4(d) rule for NLEB, DEEP was provided with the USFWS’s NLEB assessment and requested to remove the tree clearing restrictions associated with NLEB for the proposed solar project. DEEP issued an email on April 1, 2016 indicating that it concurred with our opinion that the project would not likely result in adverse impacts to the northern long-eared bat and that no further action is required with regard to the protection of this federal threatened species. A copy of DEEP’s correspondence is provided in **Appendix N**.

### 3.3 HISTORIC PROPERTIES

As part of the Environmental Assessment for the project, Archaeological Consulting Services (ACS) prepared a Phase I Archaeological Reconnaissance Survey Interim Report at the Site. The purpose of the survey was to determine whether the Site holds potential cultural, historic and/or architectural significance.

An architectural review identified two structures that may be eligible for listing on the National Register of Historic Places, including structures at 85 Potash Hill Road and 111 Potash Hill Road. A copy of the Phase I Archaeological Reconnaissance Survey Interim Report was submitted to the State Historic Preservation Office (SHPO) for its review and opinion regarding potential effects of the Project on archaeological and historic resources. The SHPO responded in a letter, dated May 21, 2015, that the findings of the survey do not merit archaeological site status for status on the National Register of Historic Places. Further, the SHPO concluded that no historic resources will be affected by the Project. The SHPO letter has been included in Appendix I.

### 3.4 EXISTING SOILS AND RUNOFF COEFFICIENT

Based on a review of the USDA Soil Survey of New London County, Connecticut, onsite soils are primarily fine sandy loams. A USDA NRCS Soils report and map is provided in Appendix G.

### 3.5 VEGETATION

A large portion of the Site (134± acres) will be cleared of upland forest to provide the area necessary for the installation of the solar arrays, associated equipment, access and tree-free zones (to mitigate shading effects). Approximately 106± acres within the limit of disturbance will be cleared and grubbed, including the removal of roots, stumps and debris. The remainder within the limit of disturbance is either not wooded or is part of an existing hayfield, neither of which will necessitate tree clearing. The remaining 28± acres of clearing will be located outside of the proposed fence line, within the shown Limit of Disturbance, shown on the Erosion and Sediment Control Plan (**Figure 6**), and will be limited to the cutting of trees (stumps will remain). A portion of the Site is already cleared of trees. The majority of the Site will be surfaced with grass, except where the gravel roadway will be constructed.

All areas disturbed will be treated with appropriate erosion and sediment controls in accordance with the Erosion and Sediment Control Plan (**Figure 6**). A landscape buffer will be installed at the southern end of the Site along Potash Hill Road. Stump material may be ground, disposed of and stabilized onsite. Any marketable timber will be salvaged for resale. There are no plans for the protection of any particular species of vegetation existing onsite.

Due to the nature of the site, any snag trees within the limit of disturbance shown on the Erosion and Sediment Control Plan (**Figure 6**) will be cleared, however, snag trees and any corresponding habitat onsite, adjacent to the limit of disturbance will be maintained.

### 3.6 AQUIFER PROTECTION AREAS

This site is not within any designated Aquifer Protection Areas per the DEEP Aquifer Protection Areas Map for Sprague, CT (Appendix H).

### 3.7 LAND USES WITH A SIGNIFICANT POTENTIAL FOR GROUNDWATER POLLUTION

No portion of the project area consists of land uses with potential for higher pollutant loads per the CGP. The Site development will not result in any land uses with a significant potential for groundwater pollution; thus, there are no areas which may be inappropriate for the infiltration of stormwater runoff.

### 3.8 WILD AND SCENIC RIVERS ACT

The Site will not discharge to any rivers or tributaries designated as Wild and Scenic by the United States Congress.

## 4 BEST MANAGEMENT PRACTICES

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Best management practices (BMPs) are measures taken at the facility to prevent or mitigate stormwater pollution. BMPs are broad ranging and may include processes, procedures, human actions, or construction. BMPs are aimed at preventing spills and similar environmental incidents by stressing the importance of management and employee awareness of potential spill situations.

BMPs shall be in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended (the Guidelines), the Stormwater Quality Manual, CTDOT Drainage Manual, or the DOT Qualified Products List ([http://www.ct.gov/dot/lib/dot/documents/dresearch/conndot\\_qpl.pdf](http://www.ct.gov/dot/lib/dot/documents/dresearch/conndot_qpl.pdf)).

### 4.1 SITE MANAGEMENT

#### 4.1.1 Minimize Soil Compaction

In general, vehicle and equipment use shall be restricted to the extent practicable to avoid over-compacting soil, especially in areas of the Site where final vegetative stabilization will occur or where infiltration practices will be installed. Should over-compaction occur in these areas, techniques to condition the soils to support vegetative growth shall be applied prior to seeding or planting areas.

Low ground pressure earth moving equipment will be used for excavation and grading in areas where infiltration practices will be installed. In areas where over compaction of soils does occur during construction, required soil amendments will be added and deeply tilled within the depth of infiltration zone with a rotary tiller or a disc harrow to a depth of approximately 12 inches to restore infiltration rates after final grading.

#### 4.1.2 Dewatering Wastewaters

Proper measures should be taken to prevent the discharge of turbid groundwater or accumulated stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points

of accumulation. The discharge of such wastewaters is prohibited, unless waters are first effectively managed by appropriate controls in accordance with the Guidelines.

Dewatering wastewaters discharged to surface waters shall be discharged in a manner that minimizes the discoloration of the receiving waters and no discharge of dewatering wastewater(s) shall contain or cause a visible oil sheen, floating solids, or foaming in the receiving water.

Operational and structural measures shall be used to ensure that dewatering wastewaters will not cause scouring or erosion or contain suspended solids in amounts that could reasonably be expected to cause pollution of surface waters of the State. Such measures may include, but are not limited to, sediment basins or traps, sediment socks, dewatering tanks, tube settlers, weir tanks, and/or filtration systems that are designed to remove sediment. Dewatering measures shall be installed on upland soils.

Excavation (trenching) for utilities or installation of concrete pads may require dewatering. The site soils are generally free-draining; however, if dewatering is required, the contractor shall utilize a small electrical submersible pump, or similar means, and discharge to a stabilized area. A filter bag shall be utilized as needed to treat the discharge from dewatering operations to meet the standards described above.

#### 4.2 EROSION AND SEDIMENT CONTROLS

Erosion and Sediment Control plans can be found in Figure 6.

Erosion control devices are to be installed and in working condition prior to any land disturbing activities. The primary activities occurring onsite are clearing and grading, installation of gravel roadway, subsurface utilities, concrete pads, pile-driven foundations and aluminum or steel fixed-tilt racking for solar module mounting, and security fencing; landscaping; and material storage and transport. These controls, their implementation and specific requirements will also be discussed in the project plans and specifications.

Erosion control devices are to be installed based on details provided under the approved plans. All temporary erosion control measures shall be maintained in proper working condition during the period of construction. The Contractor is responsible for inspecting, maintaining, modifying, or introducing structural controls such that sediment shall be prevented from migrating off of the Site into adjoining properties or nearby waterbodies. The Contractor is responsible for the



installation, maintenance, repair, and ultimate removal of these controls, with the exception of any permanent erosion control measures (e.g., erosion control matting) which will remain in place after the conclusion of the project. The Contractor is also responsible for the ultimate stabilization of disturbed areas associated with these controls.

Should additional or modified erosion control and stabilization measures be necessary or desirable to control the transport of pollutants from the project Site via stormwater, the Contractor shall provide, install, maintain and inspect additional controls as needed. For additional information on stormwater pollution controls for construction activities, the Contractor is directed to the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (the Guidelines), as amended. Kleinfelder takes no responsibility for the selection, design, or application of such controls, as this is included purely for the Contractor's reference.

#### 4.2.1 Stabilization Practices

In General, stabilization practices may include but are not limited to:

- Temporary seeding,
- Permanent seeding,
- Mulching,
- Geotextiles,
- Sod stabilization,
- Vegetative buffer strips,
- Protection of trees,
- Preservation of mature vegetation, and
- Other vegetative and non-structural measures as may be identified by the Guidelines.

##### 4.2.1.1 Temporary Stabilization

Areas that will remain disturbed but inactive for at least thirty days shall receive temporary seeding or soil protection within 7 days in accordance with the Guidelines. Areas that will remain disturbed

beyond the seeding season as identified in the Guidelines, shall receive long-term, non-vegetative stabilization and protection sufficient to protect the Site through the winter.

Temporary stockpiles slopes should be installed no steeper than 2:1 horizontal to vertical. Silt fence should be placed around the circumference of stockpiles approximately 10 feet from the proposed toe of the slope for erosion control purposes. Stockpiles that are not to be used within 30 days need to be seeded and mulched immediately after formation of the pile.

#### 4.2.1.2 Permanent Stabilization

Where construction activities have permanently ceased or when final grades are reached in any portion of the Site, stabilization and protection practices as specified in Chapter 5 of the Guidelines shall be implemented within seven days.

Areas to be graded with slopes steeper than 3:1 (H:V) and higher than 15 feet shall be graded with appropriate reverse slope benches, except when engineered slope stabilization structures or measures are included or a detailed soil mechanics analysis has been conducted to verify stability. Engineered analyses and measures must be designed by a CT licensed Professional Engineer with experience in geotechnical engineering or soil mechanics. Slopes steeper than 3:1 (H:V) shall also be stabilized with North American Green S150BN Erosion Control Matting, or approved equivalent.

Once final stabilization of any portion of the Site is achieved, the Contractor may mark this area as "final stabilized" on the S&ECP and no further SWPCP or inspection requirements will apply to that portion of the Site, other than the requirements found in the CGP and repeated in Section 5 of this SWPCP.

Much of the soil disturbance associated with this Project will be related to the clearing and stumping of forested areas to provide clearing for the installation of the solar array. Permanent soil stabilization will primarily include seeding for establishment of grass cover. Temporary soil stabilization shall be utilized as needed in accordance with the criteria discussed above. The use of hydroseed mulch and/or liquefied soil tackifier may be appropriate for temporary stabilization. Specifications for these materials are described below in Section 4.2.2.

It is recommended that the Project be phased, to the extent practicable, to limit disturbance to the minimum possible area required to perform the work such that disturbed areas can be seeded/mulched in a timeframe to meet the stabilization timelines specified by the CGP and described above, and to avoid the need for use of temporary soil stabilization measures. The contractor shall provide an inspection and maintenance plan for the temporary sedimentation basin as part of the amended SWPCP.

Any excess excavated material should be spread onsite and stabilized in accordance with the Erosion and Sediment Control plan (**Figure 6**). After construction permanent vegetation should be maintained through additional seeding when necessary for stabilization purposes.

All post-construction stormwater structures shall be cleaned of construction sediment and any remaining erosion and sedimentation controls shall be removed upon stabilization of the Site.

#### 4.2.1.3 Structural Controls

Structural practices to divert flows away from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from the Site may include but are not limited to:

- Earth dikes (diversions),
- Silt fence,
- Silt fence outlets,
- Mulch berms,
- Rock construction entrances,
- Drainage swales,
- Sediment basin,
- Sediment traps,
- Check dams,
- Subsurface drains,
- Pipe slope drains,
- Level spreaders,
- Storm drain inlet protection,
- Outlet protection,
- Reinforced soils retained systems,

- Gabions, and
- Temporary or permanent sediment basins and chambers.

Structural measures shall be installed on upland soils. The primary structural control BMP shall be temporary diversion ditches and silt fence located at the downgradient limits of work as shown on the plans and temporary sediment traps (TSTs). Mulch berms may also be utilized to divert and slow flows to minimize erosion as necessary.

The Contractor is responsible for inspecting, maintaining, modifying, or introducing structural controls such that all sediment shall be prevented from migrating off of the Site onto adjoining properties or into nearby waterbodies. Any modification, removal or addition of structural controls must be marked on the Erosion and Sediment Control Plan by the Contractor. The structural controls shall be implemented to divert flows from exposed soils, retain flows, or limit runoff from exposed areas. Additional guidance regarding structural controls to prevent erosion and sedimentation can be found in the Guidelines.

#### 4.2.1.4 Perimeter Controls

Sediment controls, such as filter berms, silt fences, and temporary diversion dikes shall be installed along the perimeter areas of the Site that will receive stormwater runoff from earth disturbing activities. Controls shall be maintained by removing sediment before it has accumulated to one-half of the above-ground height of the perimeter control.

#### 4.2.1.5 Stabilized Construction Entrance / Exit

A temporary stabilized construction entrance shall be installed as shown on Erosion and Sediment Control plans (Figure 6) on the project prior to all points that exit onto paved roads so that sediment removal occurs prior to vehicle exit. The purpose of the construction entrance is to remove soil attached to vehicle tires and minimize its transport and deposition onto public road surfaces. The construction entrance shall consist of turf mats or be composed of a 6-inch thick (minimum) bed of crushed stone that extends a minimum length of 50 feet and a minimum width of 25 feet. The crushed stone bed shall be replenished as necessary to retain proper function and shall be removed at the conclusion of the project.

#### 4.2.1.6 Silt Fence

Silt fence shall be installed around the perimeter of the site as show on the approved plans and as necessary to prevent sediment from leaving the site. The Contractor is to install the silt fence per the Guidelines and the details provided in the plans. The Contractor is to inspect the silt fence at least once a week and after each rainfall event. Repairs or replacements are to be made immediately should the fence be compromised. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence.

Silt fence outlets are to be installed as shown on plans as at all low points in the fence. Outlets are to be installed per the Guidelines and details provided in the plans. Outlets are to be inspected at least once a week and after each rainfall event. Repairs or replacements are to be made immediately.

#### 4.2.1.7 Sediment Basin

For points of discharge from disturbed sites with a total contributing drainage area of greater than five acres, a sediment basin must be designed and installed according to the Guidelines. Sediment basins are designed to provide an area for runoff to pool and settle out a portion of the sediment carried down gradient. Sediment capture rate is improved by having an outlet which dewater the basin from the top of the water column where the water is cleanest. A skimmer is the most common method to dewater a sediment basin from the surface. The basic concept is that the skimmer does not dewater the basin as fast a runoff enters it, but instead allows the basin to fill and then slowly drain over hours or days. This process has two effects. First, the sediment in the runoff has more time to settle out prior to discharge. Second, a pool of water forms early in a storm event and this further increases the sedimentation rates in the basin. In the event that a storm produces more volume than the sediment basin capacity, the resulting flow will outlet the basin via an emergency spillway. This water is also coming from the top of the water column and has thereby been "treated" to remove sediment.

For this project, sediment basins have been designed to have water collected and diverted to them via diversion ditches. The water then enters a forebay, which reduces the speed of the flow and controls erosion of the sediment basin.

Maintenance of the sediment basins is critical. Any noted deficiencies or failures shall be remediated immediately and accumulated sediments shall be removed of and properly disposed of in a timely manner, as detailed in Section 5.

Sediment basin locations and calculations can be found in the Erosion and Sediment Control Plan in Figure 6. After construction is complete and the site has achieved stabilization, the sediment basins will be cleaned out and converted into Infiltration Basins.

#### 4.2.1.8 Sediment Traps

For points of discharge from disturbed sites with a total contributing drainage area of between two and five acres, a temporary sediment trap must be designed and installed according to the Guidelines. Temporary sediment traps are depressions constructed down slope of construction activity and located such that storm water runoff from uplands is diverted through the traps. Sediment traps must be sized to hold 134 cy/ac of disturbed area.

Maintenance of the temporary sediment traps is critical. Any noted deficiencies or failures shall be remediated immediately and accumulated sediments shall be removed of and properly disposed of in a timely manner, as detailed in Section 5.

#### 4.2.1.9 Temporary Diversion

The purpose of temporary diversions is to reduce slope lengths, break up concentration of runoff, and move water to stable outlets at a non-erosive velocity; to protect work areas from upslope runoff; and to divert sediment-laden water to an appropriate sediment-trapping facility.

#### 4.2.1.10 Mulch Berms

Berms constructed of wood fiber mulch/shredded wood shall be installed as necessary, to act as temporary diversions to reduce slope lengths, break up concentration of runoff, and move water to stable outlets at a non-erosive velocity; to protect work areas from upslope runoff; and to divert

sediment-laden water to an appropriate sediment-trapping facility. The wood fiber mulch/shredded wood shall be that made from grinding whole trees using a shredder or a grinder that produces shreds that are from 1/6 to 1/8 inch thick, 1/4 to 2 inches wide, and 8 to 16 inches long. Stump grindings may be utilized, although not preferred. Wood chips are not acceptable. Each berm shall be 12-18 inches tall and constructed in accordance with the detail shown on the plans.

#### 4.2.1.11 Sediment Control Log

Sediment log shall consist of an outside, open weave, containment fabric filled with excelsior fibers. Its purpose is to provide a flexible, lightweight, porous, sediment control device demonstrating the ability to perform to terrain details and dissipate water velocity in concentrated flow areas. Fibers shall be curled with soft, interlocking barbs to form a strong, organic filtration matrix. A minimum of 80 percent of the fibers shall be 15cm (6 in.) or greater in length. Fibers shall be distributed evenly through the diameter and length of the log. Fibers shall be naturally seed free. Excelsior color shall be natural. Netting at each end of the log shall be secured to assure fiber containment.

Sediment logs are erosion and sediment control barriers that allow runoff water to penetrate it and continue to flow while filtering sediment and pollutants from the water. Logs shall be installed on contours perpendicular to sheet or concentrated flow.

Sediment logs shall be placed at the downgradient limit of work as necessary. Diameter shall be as per plans and specifications. Typically, they shall be installed adjacent to resource areas, where soil will be exposed due to construction activities, as depicted on the plans. The logs shall be installed as per manufacturer's recommendations to ensure proper soil contact and then anchored using untreated hardwood stakes at spacing as per manufacturer. Stakes shall not pierce logs, but rather be connected only to the exterior netting, as per manufacturer. For slopes, spacing along slope length shall be as per manufacturer or plans and specifications, whichever is more stringent. Intact sediment logs can be relocated and reused.

#### 4.2.1.12 Hydro-Mulch

Hydro-mulch shall be material manufactured for mulching seeded areas. The material may be made from coniferous or hardwood trees. It shall be free from shavings, rot, mold, foreign material or debris. It shall be of uniform texture. It may contain a nontoxic marking dye. The moisture content of the material when delivered to the project shall not be more than 12 percent by mass. It must be material capable of forming a homogeneous slurry when mixed in water. It shall be delivered to the project in clean, new, sealed containers bearing the brand, net mass, and name and address of the manufacturer.

#### 4.2.1.13 Tackifiers

Tackifier is used as a glue for hydroseed application or may be used alone to bind exposed soil for temporary stabilization. Tackifiers may be plant-based or polymeric emulsion blends and shall meet the specifications for Temporary Soil Protection in the Guidelines. Tackifier shall be applied at rates recommended by the manufacturer.

#### 4.2.1.14 Outlet Protection

Outlet protection involves the placement of a properly sized erosion resistant section at the outlet of any discharge where due to discharge velocity, there is a risk of causing erosion. Outlet protection shall consist of riprap placed in a configuration consistent with the CTDOT Drainage Manual's description of riprap aprons and preformed scour holes and properly sized to reduce the discharge velocity to a velocity consistent with a stable condition in the downstream channel. Outlet protection shall be installed per the plans and details contained within this permit.

### 4.3 POST CONSTRUCTION STORMWATER MANAGEMENT

As described in Section 3.1.2 of the SWPCP, the Site is centered upon a hill and slopes generally from north to south. Stormwater runoff from the easterly portion of the Site generally sheet flows towards the south and east, towards wetlands, which are located adjacent to the project area. Stormwater runoff from the westerly portion of the Site generally sheet flows towards the west and south. The Project will not result in any significant changes to existing site grades or drainage patterns. Stormwater runoff generated by the proposed solar array and other impervious structures will continue to sheet flow towards pervious areas with improved grass cover; thus, any



new impervious area will be considered completely disconnected impervious area. The grassed areas adjacent, between, and around the solar arrays will act as filter strips which reduce runoff flow velocities and promote infiltration and filtration. Permanent grass lined channels will capture runoff and direct water to Infiltration Basins. Additionally Dry Swales have been designed to capture and filter runoff before discharging to nearby wetlands intermittently to mimic predevelopment flow. The proposed impervious area is in the amount of < 1% percent of the parcel area.

This site has been designed with Low Impact Development principles in mind. Disturbance to the site will be limited to only the disturbance necessary for the installation of the gravel access road, the inverter pads, the solar array panels and erosion and sediment control devices. Pre-existing site hydrology will be maintained through the use of Grass Lined Channels, Infiltration Basins, and Dry Swales. The disconnected nature and minimal increase in impervious area onsite is another LID principal utilized. All erosion and sediment controls have been designed to capture sediment pollution at its source using strategic placement.

#### 4.3.1 Water Quality Volume (WQV)

The WQV is the amount of stormwater runoff from any given storm that should be captured and treated in order to remove a majority of stormwater pollutants on an average annual basis. The recommended WQV, which results in the capture and treatment of the entire runoff volume for 90 percent of the average annual storm events, is equivalent to the runoff associated with the first one inch of rainfall. The WQV was calculated to be 37,636 cubic feet. This calculation can be seen below.

$$WQV = (1" * R * A)/12$$

$$R = \text{Volumetric Runoff Coefficient} = 0.05 + 0.009 * I = 0.0725$$

$$I = \text{Percent Impervious Cover} = 2.45\%$$

$$A = \text{Site Area (acres)} = 143$$

$$WQV = (1 * 0.0725 * 143)/12 = 0.864 \text{ acre feet} = 37,636 \text{ cubic feet}$$

Runoff on the eastern side of the site will be treated by Infiltration Basins placed strategically to capture runoff conveyed by a combination of overland sheetflow and Grass Lined Channels.

Runoff on the western side of the site will be treated by a series of Dry Swales that will outlet intermittently to avoid concentrating runoff to any one ecosystem. For locations of Grass Lined Channels, Infiltration Basins and Dry Swales, and WQV calculations please see the Erosion and Sediment Control Plan in **Figure 6**.

#### 4.3.2 Groundwater Recharge Volume (GRV)

The GRV criterion is intended to maintain pre-development annual groundwater recharge volumes by capturing and infiltrating stormwater runoff. The objective of the groundwater recharge criterion is to maintain water table levels, stream baseflow, and wetland moisture levels. The improved grass ground cover and resulting increase in stormwater runoff infiltration onsite will maintain pre-development groundwater recharge conditions in the post-development phase. This also reduces the volume requirements dictated by the other sizing criteria (i.e., water quality, channel protection, and peak flow control). This effectively reduces the overall size and cost of permanent stormwater treatment practices. The GRV was calculated to be 1,526 cubic feet. This calculation was based on 11.5% of the site characterized as Hydrologic Soil Group (HSG) B and 88.5% as HSG C.

As shown in the Impervious Calculations (section 4.3.3) the increase in site curve numbers from pre-development phase to the post-development phase is negligible. Thus, the volume of stormwater infiltrating to the groundwater water table will be maintained from pre-development to post-development.

#### 4.3.3 Peak Runoff Attenuation

The peak runoff attenuation criterion is designed to address increases in the frequency and magnitude of flooding caused by development. This criterion is intended to control a range of flood conditions, from events that just exceed the bankfull capacity of the stream channel to catastrophic flooding associated with extremely large events.

The estimated average runoff coefficient for the Site after construction activities are completed is 0.31. Calculations are included below:

**TABLE 1 – IMPERVIOUS CALCULATIONS**

IMPERVIOUS CALCULATIONS		
	Pre-Development	Post-Development
Paved	0.9	0.9
Unpaved	0.3	0.3
Total Parcel Area (ac)	266	266
Total Paved Area (ac)	0	2
Total Unpaved Area (ac)	266	264
	$C = [0(0.9) + 266(0.3)] / 266$ Runoff Coefficient, C 0.30	$C = [2(0.9) + 264(0.3)] / 266$ Runoff Coefficient, C 0.31

As shown in the Impervious Calculations the site curve numbers increase from pre-development phase to the post-development phase is negligible. Thus, peak runoff will not be greatly affected in post-development phase. Additionally, the proposed permanent Stormwater BMP devices will reduce the post-development runoff to a rate that is less than pre-development phase.

#### 4.4 GOOD HOUSEKEEPING BMPS

##### 4.4.1 Storage, Handling, and Disposal of Construction Products, Materials, and Wastes

##### 4.4.1.1 Diesel Fuel, Oil, Hydraulic Fluids, Petroleum Products, and Other Chemicals

All chemical and petroleum product containers stored on the Site (excluding those contained within vehicles and equipment) shall be provided with impermeable containment which will hold at least 110% of the volume of the largest container, or 10% of the total volume of all containers in the area, whichever is larger, without overflow from the containment area. All chemicals and their containers shall be stored under a roofed area except for those chemicals stored in containers of 100 gallon capacity or more, in which case a roof is not required. Double-walled tanks satisfy this requirement.

#### 4.4.1.2 Hazardous or Toxic Wastes

Hazardous or toxic wastes including paints, solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids shall be separated from construction and domestic waste and stored in sealed containers constructed of suitable materials to prevent leakage and corrosion and labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and all other federal, state, tribal, and local requirements. Containers shall be stored under cover or within appropriately sized secondary containment and spill kits shall be readily available. Comply with the manufacturer's recommended disposal method and all federal, state, tribal, and local disposal requirements. Spills shall be cleaned up immediately in accordance with the Spill Prevention and Response Plan in Section 4.4.8 of this SWPCP.

#### 4.4.1.3 Construction and Domestic Waste

All waste materials shall be collected and stored in a manner that will prevent materials from entering watercourses, wetlands, or other off site areas. Waste containers of sufficient size and number to contain wastes shall be provided. Wastes shall be placed in designated waste containers on a daily basis. Material shall be regularly collected and disposed of offsite in a manner consistent with all federal, state and local regulations. Waste materials for this project may consist of earthen materials, granular materials, and any surplus materials.

#### 4.4.1.4 Sanitary Waste

During construction, all sanitary waste shall be collected in portable sanitary units, which shall be positioned so that they are secure and will not be tipped or knocked over. These units shall be emptied as necessary by a qualified contractor and disposed of in accordance with all State and local regulations.

#### 4.4.2 Offsite Vehicle Tracking and Dust Control

Vehicles shall be inspected for mud, dirt, or debris prior to exiting the site and precautions shall be taken as necessary to prevent tracking of excess materials from the site. Vehicle use shall be restricted to properly designated exit points. Anti-tracking pads or turf mats shall be installed to

provide sediment removal prior to vehicle exit. Additional controls to remove sediment from vehicle tires, such as wheel washing, rumble strips, and rattle plates shall be used when necessary.

Where sediment track out has occurred, the deposited sediment must be removed by the end of the same work day by sweeping, shoveling, or vacuuming. Hosing or sweeping sediment into any surface water, storm drain structure, or stormwater conveyance is prohibited, unless the storm drain or stormwater conveyance is connected to a sediment basin, sediment trap, or other sediment control.

Dump trucks hauling material to or from the construction site shall be covered with a tarpaulin. Wet dust suppression shall be used, in accordance with section 22a-174-18(b) of the Connecticut General Statutes, for any construction activity that causes airborne particulates. No discharge of dust control water shall contain or cause a visible oil sheen, floating solids, visible discoloration, or foaming in the receiving water.

#### 4.4.3 Discharge of Solid Materials to Waters of the U.S.

All waters of the U.S. (as defined at 40 CFR Section 122.2) located on site or adjacent shall be protected from discharge of solid materials, except those as authorized by a permit issued under Section 404 of the Clean Water Act. Solid materials may include solid waste, building materials, fill, sewage, sediment, or any other solid substance. Structural BMPs located upgradient of waters of the U.S., such as sediment logs and sediment basins, may act to trap or block solid materials from entering waters of the U.S. Proper waste disposal and sanitary waste collection, as described in Section 4.4.1 shall also minimize the discharge of solid materials to waters of the U.S. The Operator is responsible for preventing any discharge of solid materials to waters of the U.S.

#### 4.4.4 Vehicle / Equipment Maintenance Area

Discharges of fuels, oils, or other chemicals used in vehicle equipment operation and maintenance are prohibited.

If vehicle fueling and maintenance activities are to be completed onsite, a designated area shall be established in a controlled and covered area, when possible, and marked on the Erosion and Sediment Control Plan by the Contractor. The area shall be located away from surface waters and stormwater inlets or conveyances, and/or secondary containment shall be provided (e.g., spill berms, decks, spill containment pallets). Drip pans and absorbents shall be placed under or around vehicles.

The fueling and maintenance area shall have a spill kit that is located in a visible and accessible location. Examples of typical items which should be included in a spill kit are provided in this document. Spills or contaminated surfaces shall be cleaned up immediately, using dry clean up measures where possible, and the source of the spill shall be eliminated. Surfaces shall not be cleaned by hosing the area down.

Recycle oil and oily wastes shall be disposed in accordance with all federal, state, tribal, and local requirements. If applicable, the Contractor shall comply with the Spill Prevention Control and Countermeasures (SPCC) requirements in 40 CFR 112 and Section 311 of the Clean Water Act.

#### 4.4.5 Vehicle / Equipment Washing Area

Vehicle wash water is an allowable non-storm water discharge under the Construction General Permit, when detergents, soaps, or solvents are not used. Non-storm water discharges should be eliminated or reduced to the extent feasible. Discharges of wash water can be eliminated through infiltration. Vehicle washing using detergents, soaps, or solvents is not permitted onsite. Detergent-free wash water discharges should only be directed to areas that are stabilized to minimize erosion, and should not be discharged to disturbed areas. Discharges with a sediment load shall be directed to pass through a sediment collection or filtering structural control prior to entering the receiving water body.

If vehicle and equipment washing is to be completed onsite, a designated area shall be established in a contained area, and marked on the Erosion and Sediment Control Plan by the Contractor. The area shall be located away from surface waters and stormwater inlets or conveyances.

#### 4.4.6 Concrete Truck Washout Area & Washing of Applicators and Containers used for Paint, Concrete, or Other Materials

The discharge of wastewater from washout of concrete, and washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials is generally prohibited. However, if appropriate options for water handling are implemented to keep these materials from reaching any drainage system or outlet to a surface water, washout/cleanout may be allowed onsite, in accordance with all applicable local, state, or federal regulations and permits.

If washout/cleanout is to be completed onsite, a designated area(s) shall be established and marked on the Erosion and Sediment Control Plan by the Contractor. This area shall be a minimum of 50 feet from all drainage structures, ditches, waterbodies, and resource areas, as well as property boundaries. The area shall not have an outlet to discharge wastes or flows. No detergents shall be used or vehicles washed in this location.

A leak-proof pit or container shall be established in the washout area(s), to which washings shall be directed. This area shall be used for washout containment and dewatering by evaporation only. The pit shall not allow infiltration to occur. Prefabricated washout containers are the preferable choice, although the Contractor may construct their own unit in the depressed area by establishing a frame and lining the washout pit with plastic sheeting of at least 10-mil thickness with no holes, tears, or seams. The pit should be sized properly, with freeboard included to account for precipitation or run-on to the pit. The immediate area leading to the washout shall have a layer of crushed stone to stabilize the ground for concrete truck traffic. To prevent clean water from entering the pit, the washout area should be covered during precipitation events.

The washout area should be inspected weekly and the contents removed when they reach 50% of the capacity of the washout pit. Liquids may be vacuumed and disposed of in accordance with local, state, and federal requirements. Hardened solids shall be removed from the washout either as a whole or after being broken up. These solids may be removed from the site and properly recycled or disposed of, or may be used onsite as appropriate, in accordance with all applicable regulations and the project plans and specifications. Wastes shall be handled in accordance with Section 4.4.1. If a plastic lined pit is used, plastic must be inspected for holes or tears after every cleanout, since the washwater removal process is likely to damage the plastic. The plastic liner must be replaced upon discovery of such damage. Records of all cleanouts and methods of

waste materials disposal shall be maintained with the SWPCP and mentioned in the weekly construction site inspection forms.

The Contractor is responsible for proper waste handling and disposal and for following all applicable regulations associated with this activity. EPA maintains a fact sheet regarding this practice on its website ([www.epa.gov](http://www.epa.gov)) under the NPDES Stormwater Menu of BMPs fact sheets.

#### 4.4.7 Spill Prevention Response Plan

The locations of material storage areas (i.e., for chemicals and other liquids) shall be noted on the Erosion and Sediment Control Plan by the Contractor. The following good housekeeping and material management practices shall be followed to reduce the risk of spills or other accidental exposure of hazardous materials to storm water runoff:

- Store quantities of materials required for the project and not more,
- Store materials onsite in a neat, orderly manner in appropriate labeled containers,
- Store materials indoors or under cover,
- Follow manufacturers' recommendations for proper use and disposal of materials,
- Monitor all onsite vehicles for leaks and perform preventive maintenance to reduce the potential for leaks,
- Conduct vehicle fueling and maintenance activities in a controlled or covered area or off-site, when possible, and
- Work applied fertilizer into the soil to limit exposure to storm water and store partially used bags of fertilizer in sealable plastic bins.
- Use drip pans or absorbents under or around leaky vehicles.
- Manufacturers' recommended methods for spill cleanup shall be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Adequate supplies of spill kit materials and equipment shall be kept in the hazardous material storage area and any onsite fueling and maintenance areas onsite. Spill kit equipment and materials shall include but not be limited to: spill pads, absorbent booms, brooms, dust pans, mops, rags, gloves,



goggles, speedidri, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

If an emergency spill or release occurs, site personnel will report the spill or release to the Contractor's Site Health and Safety Officer (SHSO), the Resident Engineer, and/or site management and evacuate the area. All employees shall receive Awareness Level training as part of their hazard communication training. Only employees trained at the First Responder Operations Level of 29 CFR 1910.120(q) will be authorized to respond in a defensive manner to emergency spills or releases of fuel and other materials.

If a spill occurs, the SHSO and/or site management shall be contacted and the SHSO and/or site management with assistance from appropriately trained personnel will contain the spill. If necessary the SHSO and/or site management will contact an emergency response contractor and will also notify the Engineer and all other authorities and agencies in accordance with state and local regulations. Absorbent materials and other supplies will be used as needed to clean up and prevent the spill from spreading. The source of the spill shall be eliminated immediately. Water shall not be used to wash the spill down. Recycle oil and oily wastes shall be disposed in accordance with all applicable federal, state, tribal, and local requirements.

Any discharge, spillage, uncontrolled loss, seepage or filtration of oil or petroleum or chemical liquids or solid, liquid or gaseous products or hazardous wastes, shall be immediately reported to the Department of Energy and Environmental Protection (DEEP), Emergency Response Unit, 860.424.3338 or toll free 1-866-DEP-SPIL (1.866.337.7745), 24 hours/day. Should these numbers become unavailable for any reason, call 860-424-3333. Information that shall be reported includes:

- The location;
- The quantity and type of substance, material or waste;
- The date and the cause of the incident;
- The name and address of the owner; and
- The name and address of the person making the report and his relationship to the owner.

A report to the local fire department is also recommended (911 throughout Connecticut).

The National Response Center (NRC) must be notified at 800-424-8802 where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period. A description of the release, the circumstances leading to the release, and the date of the release must be provided within 7 calendar days of the knowledge of the release.

#### 4.4.8 Training

Training of staff and subcontractors in the basics of erosion and sediment control, good housekeeping and pollution prevention will reinforce proper implementation of the SWPCP. It is the responsibility of the Contractor to ensure that site personnel understand the requirements of the SWPCP and their specific responsibilities.

- Personnel must be trained to understand the following if related to the scope of their job duties:
- The location of all stormwater controls on the site required by this SWPCP, and how they are to be maintained
- The proper procedures to follow with respect to the SWPCP's pollution prevention requirements
- When and how to conduct inspections, record applicable findings, and take corrective actions

Any training conducted should be documented in the SWPCP. Include dates, number of attendees, subjects covered, and length of training.

## 5 MAINTENANCE INSPECTION

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### 5.1 INSPECTION SCHEDULE

#### 5.1.1 Plan Implementation Inspections

The site shall be inspected at least once and no less than three times during the first 90 days following commencement of the construction activity on the site to confirm compliance with the CGP and proper initial implementation of all control measures designated in the SWPCP for the site for the initial phase of construction.

#### 5.1.2 Routine Inspections during Construction

All areas disturbed by construction that have not undergone temporary or final stabilization shall be formally inspected at least once per week and within 24 hours of the end of a storm that generates a discharge, using the form included in the Stormwater Construction Site Inspection Report (Appendix D).

For storms that end on a weekend, holiday or other time after which normal working hours will not commence within 24 hours, an inspection is required within 24 hours only for storms that equal or exceed 0.5 inches. For storms of less than 0.5 inches, an inspection shall occur immediately upon the start of subsequent normal working hours.

A rain gauge shall be maintained on-site to document rainfall amounts.

#### 5.1.3 Stabilized Area Inspections

All areas that have been temporarily or finally stabilized shall be inspected at least once per month, continuing for three months following final stabilization, at a minimum.

#### 5.1.4 Final Stabilization Inspection

The site shall be inspected to confirm final stabilization after the site has been stabilized for at least three months.

### 5.2 INSPECTION PROCEDURES

#### 5.2.1 Personnel

Plan Implementation Inspections shall be conducted by the appropriate Connecticut Soil and Water Conservation District or a qualified soil erosion and sediment control professional or a qualified professional engineer as defined in Section 5.(b)(4)(A) of the CGP.

Routine Inspections and the Final Stabilization Inspection shall be conducted by a qualified inspector (as defined in Section 2 of the CGP) provided by the permittee.

The person(s) responsible for conducting inspections and their qualifications shall be indicated in the Stormwater Construction Site Inspection Report (Appendix D).

#### 5.2.2 Items to be Inspected

Routine Inspections must include all areas of the site disturbed by construction activities. Inspectors must look for evidence of, or the potential for, pollutants entering the stormwater conveyance system or surface waters. All BMPs, erosion and sedimentation controls, and entrance/egress points must also be included in the inspection. More specific requirements are listed in Table 1, at the end of this section. Sample inspection forms are included in the Stormwater Construction Site Inspection Report (Appendix D). The Contractor is responsible for making sure that all inspection information required by the Construction General Permit is collected, maintained, and responded to, as per Permit terms. The completed inspection forms should be maintained with the SWPCP.

### 5.2.3 Record Keeping

A written report summarizing the scope of the inspection, the name(s) and qualifications of inspection personnel, the date and time of the inspection, weather conditions including precipitation information, major observations relative to erosion and sediment controls and the implementation of the SWPCP, a description of the stormwater discharge(s) from the site, and any water quality monitoring performed during the inspection and actions taken shall be completed within 24 hours of the inspection. This report shall be signed by inspector and the permittee. Sample forms for this reporting process are included in the Stormwater Construction Site Inspection Report (Appendix D). Inspection records shall be retained as part of the SWPCP for at least five years after the date of inspection. Report certification shall comply with permit conditions, such as those included in Section 5.(i) of the CGP.

## 5.3 MAINTENANCE

### 5.3.1 General

Routine maintenance procedures should be initiated immediately after the need for maintenance is recognized. The Contractor shall utilize/enforce good housekeeping practices to minimize the possibilities of spills or leaks of potential pollutants. Hazardous materials shall be handled with the utmost care in accordance with all regulations and the recommendations of the manufacturer. Section 4.4 contains further details about good housekeeping BMPs.

### 5.3.2 Maintenance of Erosion Controls

Erosion controls shall be maintained in accordance with the Guidelines, and as noted in Table 1 at the end of this section.

When installation of a new erosion/sediment control or a significant repair is needed, work must be completed and operational in accordance with the timelines described in Section 5.4 of this SWPCP.

Additional maintenance measures and suggestions for appropriate control measures selection, installation, and maintenance can be found in the Guidelines.

**TABLE 2 – TEMPORARY INSPECTION AND MAINTENANCE PROCEDURES**

ITEM	INSPECTION PROCEDURE	MAINTENANCE PROCEDURE
GENERAL	Disturbed areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Construction areas and perimeter of the site shall be inspected for any evidence of debris that may blow or wash off site, and for debris that has blown or washed off site. Construction areas shall be inspected for any spills or unsafe storage of materials that could pollute off site waters. Identify any locations where new or modified stormwater controls are necessary.	Any debris blowing or flowing off the site shall be immediately leaned up. Any unsafe storage practices noted in the inspection shall be immediately remedied.
SILT FENCE	Silt fence shall be inspected at least once a week and after each rainfall event.	Any required repairs are to be made immediately. Should the fabric of a silt fence collapse, tear decompose, or become ineffective, it is to be replaced immediately. Sediment deposits are to be removed as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence.
SEDIMENT LOGS	Sediment logs shall be inspected to insure that the logs are intact and remain snugly butted to each other and firmly embedded in the ground. Depth of sediment behind the logs shall be noted.	Any broken, excessively tilted or undermined logs shall be promptly replaced. Sediment shall be removed when it builds up behind the logs to over one half of the height of the logs.

ITEM	INSPECTION PROCEDURE	MAINTENANCE PROCEDURE
DISCHARGE POINTS	Identify all points of the property from which there is a discharge. All discharge points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Discharge points shall also be inspected to ensure that erosion protection measures at the discharge are functioning. If a discharge is occurring, observe and document the visual quality and characteristics of the discharge, including color, odor, floating, settled, or suspended solids, foam, and oil sheen.	Any sediment or debris accumulated at discharge points shall be removed and properly disposed of in accordance with applicable regulations.
VEHICLE ENTRANCES / EXITS	Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking.	Any material tracked onto roadways shall be removed daily by sweeping. Crushed stone shall be added to stabilized construction entrances as necessary to maintain a firm surface free of ruts and mud holes.
MATERIAL STORAGE AREAS / SOIL STOCKPILE AREAS	Areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or pollutants entering the drainage system, wetlands, or offsite.	Any material storage areas found to be releasing pollutants to the drainage system or to areas offsite shall be modified to prevent the release of pollutants. Modifications may include, but are not limited to, covering material storage areas to reduce exposure to precipitation, installing secondary containment around storage containers, or installing erosion and sediment controls downgradient of storage areas.
VEHICLE EQUIPMENT MAINTENANCE AREA	Areas used for vehicle/equipment maintenance shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or pollutants entering the drainage system, wetlands, or offsite.	Any maintenance areas found to be releasing pollutants to the drainage system or to areas offsite shall be modified to prevent the release of pollutants. Modifications may include, but are not limited to, covering maintenance areas to reduce exposure to precipitation, installing secondary containment around the area, or installing erosion and sediment controls

ITEM	INSPECTION PROCEDURE	MAINTENANCE PROCEDURE
VEHICLE EQUIPMENT WASHING AREA	Areas used for vehicle/equipment washing shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or pollutants entering the drainage system, wetlands, or offsite. No detergents shall be used onsite.	downgradient of maintenance areas.  A washout depression found to not be performing its function of preventing vehicle/equipment washings from entering the drainage system or surface waters shall be discontinued, modified, or repaired as necessary.
CONCRETE TRUCK WASHOUT AREA	Area used for concrete truck washout shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or concrete washings entering the drainage system or surface waters.	A washout depression found to not be performing its function of preventing concrete washings from entering the drainage system or surface waters shall be discontinued, modified, or repaired as necessary.
WASTE STORAGE AREAS	Waste storage areas shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or wastes entering the drainage system or surface waters.	Any waste storage areas found to be releasing pollutants to the drainage system or to areas offsite shall be modified to prevent the release of pollutants. Modifications may include, but are not limited to, covering waste storage areas to reduce exposure to precipitation, installing secondary containment around the area, or installing erosion and sediment controls downgradient of the areas.
SWALES / DRAINAGE WAYS / FLOWING SURFACE WATERS WITHIN OR IMMEDIATELY ADJACENT TO THE PROPERTY	Check for signs of visible erosion and sedimentation that are attributable to site discharges.	Any accumulated sediment or debris shall be removed and properly disposed of in accordance with applicable regulations. Corrective actions to remove the source of sediment shall be taken. Any discharges causing erosion shall be removed or modified using velocity dissipation controls.



ITEM	INSPECTION PROCEDURE	MAINTENANCE PROCEDURE
STABILIZATION MEASURES	Check that stabilization measures are intact and functioning as intended. Inspect areas of vegetation growth and note if re-seeding, watering, or fertilization is required. Geotextiles or other non-vegetative measures shall be inspected to ensure that the measures are secure, that there are no gaps, and erosion is not occurring beneath the measures.	A washout depression found to not be performing its function of preventing vehicle/equipment washings from entering the drainage system or surface waters shall be discontinued, modified, or repaired as necessary.
TEMPORARY SEDIMENT SETTLING BASIN	Basin bottom and crushed stone filter shall be monitored for sediment deposition. If present, embankment, emergency spillway, and outlet shall be inspected for erosion damage. Embankment shall also be inspected for settlement, seepage, slumping or piping. Area shall be inspected for trash and debris.	Sediment shall be removed when the basin becomes half full. Any erosion damage, settlement, seepage, slumping or piping shall be repaired immediately. Trash and debris shall be removed. Gravel shall be cleaned or replaced when sediment pool does not drain properly.
EROSION CONTROL BLANKETS	Erosion control blankets shall be inspected for proper placement with 4-in minimum side overlaps and that the staples are secure and the blankets present a smooth surface in full contact with the soil below.	Any blankets that are not installed securely shall be repaired or replaced as needed.
SWALES / DRAINAGE WAYS / FLOWING SURFACE WATERS WITHIN OR IMMEDIATELY ADJACENT TO THE PROPERTY	Check for signs of visible erosion and sedimentation that are attributable to site discharges.	Any accumulated sediment or debris shall be removed and properly disposed of in accordance with applicable regulations. Corrective actions to remove the source of sediment shall be taken. Any discharges causing erosion shall be removed or modified using velocity dissipation controls.
DURAWATTLE™	DuraWattle™ shall be inspected for proper placement and that all sections are intact and in full contact with the surface below. Depth of sediment behind DuraWattle™ shall be noted.	Sediment shall be removed when the depth of sediment behind the DuraWattle™ has reached half of the height of the DuraWattle™. Any damaged sections shall be replaced and any undermining shall be repaired.

ITEM	INSPECTION PROCEDURE	MAINTENANCE PROCEDURE
MULCH BERMS	Mulch berms shall be inspected to check for the evidence of the loss or migration of mulch. Depth of sediment collected upstream of the mulch berms shall be noted.	Sediment shall be removed when the depth of sediment behind the mulch berm has reached half of the height of the berm. Additional mulch shall be added to the berm as necessary.

### 5.3.3 Long Term Maintenance of Post-Construction Measures

#### 5.3.3.1 Dry Swales

Plans for water quality swales should identify detailed inspection and maintenance requirements, inspection and maintenance schedules, and those parties responsible for maintenance. Inspect swales several times during the first few months to ensure that grass cover is established. Inspect swales semi-annually for the remainder of the first year and after major storm events.

Annual inspections are sufficient after the first year. The initial sediment forebay should be inspected annually for clogging and sediment buildup. Sediment buildup should be removed when approximately 25 percent of the water quality volume or channel capacity has been exceeded. Excessive trash and debris should be removed and disposed of in an appropriate location.

The vegetation along the swale bottom and side slopes should be inspected for erosion and repaired (seeded or sodded), as necessary.

Grass should be mowed on a regular basis, but at least once per year. Dry swales should be mowed as required to maintain grass heights of 4 to 6 inches during the growing season. Wet swales, which typically incorporate wetland vegetation, require less frequent mowing. To avoid the creation of ruts and compaction, which can reduce infiltration and lead to poor drainage, mowing should not be performed when the ground is soft.

### 5.3.3.2 Infiltration Basins

The principal spillway should be equipped with a removable trash rack, and generally accessible from dry land. Sediment removal in the forebay should occur at a minimum of every five years or after the sediment storage capacity in the forebay capacity has been filled. Sediment removed from stormwater ponds should be disposed of according to an approved comprehensive operation and maintenance plan. Additional Maintenance requirement can be seen in Table 2, below.

**TABLE 3 – INFILTRATION BASIN INSPECTION AND MAINTENANCE PROCEDURES**

ACTIVITY	SCHEDULE
<ul style="list-style-type: none"> <li>• REPAIR UNDERCUT OR ERODED AREAS.</li> </ul>	AS NEEDED MAINTENANCE
<ul style="list-style-type: none"> <li>• CLEAN AND REMOVE DEBRIS FROM INLET AND OUTLET STRUCTURES.</li> <li>• MOW SIDE SLOPES. HIGH GRASS ALONG POND EDGE WILL DISCOURAGE WATERFOWL FROM TAKING UP RESIDENCE AND SERVE TO FILTER POLLUTANTS.</li> </ul>	MONTHLY MAINTENANCE
<ul style="list-style-type: none"> <li>• INSPECT FOR DAMAGE</li> <li>• NOTE SIGNS OF HYDROCARBON BUILD-UP, AND REMOVE IF DETECTED</li> <li>• MONITOR FOR SEDIMENT ACCULULATION IN THE FACILITY AND FOREBAY.</li> <li>• EXAMINE TO ENSURE THAT INLET AND OUTLET DEVICES ARE FREE OF DEBRIS AND ARE OPERATIONAL</li> </ul>	ANNUAL INSPECTION
<ul style="list-style-type: none"> <li>• REMOVAL OF SEDIMENT FROM THE FOREBAY</li> </ul>	5 YEAR MAINTENANCE

## 5.4 CORRECTIVE ACTIONS

Corrective actions include actions taken to bring the Site into compliance with the terms and conditions of the SWPCP and the CGP.

As soon as possible after a condition requiring a corrective action is found, interim measures shall be implemented to minimize or prevent the discharge of pollutants, until a permanent solution is installed and made operational.

Non-engineered corrective actions (as identified in the Guidelines) shall be implemented on site within 24 hours and incorporated into a revised SWPCP within three (3) calendar days of the date of inspection. Engineered corrective actions (as identified in the Guidelines) shall be implemented on site within seven (7) days and incorporated into a revised SWPCP within ten (10) calendar days of the date of inspection.

A Corrective Action Log form is included in the Stormwater Construction Site Inspection Report (Appendix D) to document actions taken to bring the site back into compliance. The Corrective Action Log form identifies non-engineered and engineered corrective actions. The Corrective Action Log form must be signed and certified in accordance with CGP certification requirements.

In accordance with the General Permit, known violations of a condition of the General Permit as well as corrective actions shall be reported in writing to DEEP within five (5) days of the permittee's learning of such violation. Upon learning of such violation, the permittee shall immediately take all reasonable action to determine the cause of such violation, correct and mitigate the results of such violation, and prevent further such violation. The notification shall be signed and certified in accordance with Section 5(i) of the General Permit.

#### 5.4.1 Revisions to Stormwater Pollution Control Plan

The SWPCP must be amended in response to the following conditions:

- If the actions required by the SWPCP fail to prevent pollution or fail to otherwise comply with any other provision of the CGP,
- Whenever there is a change in contractors or subcontractors at the site,
- Whenever there is a change in design, construction, operation, or maintenance at the site which has the potential for discharge of pollutants to waters of the state and which has not otherwise been addressed in the SWPCP, and/or DEEP has notified the permittee that the SWPCP and/or the site does not meet one or more of the minimum requirements of the CGP. In this case, changes to the SWPCP shall be implemented within 7 days of such notice. Within 15 days of such notice, the permittee shall submit to DEEP a written certification that the requested changes have been made and implemented on the site.

## 6 TURBIDITY MONITORING

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Turbidity monitoring is required for sites which meet the following criteria:

- Area of soil disturbance is 1 acre or more, but less than 5 acres, and a Registration with DEEP is required; or
- Area of soil disturbance is 5 acres or more.

### 6.1 TURBIDITY MONITORING REQUIREMENTS

#### 6.1.1 Monitoring Frequency

Sampling shall be conducted at least once per month, when there is a discharge of stormwater from the site while construction activity is ongoing, until final stabilization of the drainage area associated with each outfall is achieved.

Sampling shall be conducted during normal working hours, which shall be identified in the Turbidity Monitoring Report in the Stormwater Construction Site Inspection Report (Appendix D). If sampling is discontinued due to the end of normal working hours, sampling shall be resumed the following morning or the morning of the next working day, as long as the discharge continues.

Sampling may be temporarily suspended if conditions exist that may reasonably pose a threat to the safety of the person taking the sample, such as high winds, lightning, intense rainfall, or other hazardous condition.

If there is no stormwater discharge during a month, sampling is not required.

#### 6.1.2 Sample Collection

The storm event selected for sampling shall occur at least 24 hours after the previous storm event which generated a discharge.

Samples shall be grab samples taken at least three separate times during a storm event. The first sample shall be taken within the first hour of stormwater discharge from the site, or at the start of normal working hours if the first hour of discharge is outside of normal working hours.

### 6.1.3 Sampling Locations

All point source discharges of stormwater from disturbed areas shall be sampled.

If the project will continue for more than one year, the sampling locations shall be rotated twice per year so that a different discharge point is sampled every six months.

All sampling points (outfalls) are identified on the Erosion and Sediment Control Plan (**Figure 6**) and shall be clearly marked in the field with a flag, stake, or other visible marker.

During the construction phase, it is anticipated that 5 sampling points (outfalls) may be present, at the discharges from the temporary sediment traps (TSTs) and sediment basins (SBs), identified as outfalls PO-1, PO-2, TO-1, TO-2, and TO-3 on the Erosion and Sediment Control Plan (**Figure 6**). Each outfall should be sampled during construction.

After construction, it is anticipated that 9 sampling points (outfalls) may be present, at the discharges from the dry swales (DSs) and the infiltration basins (IBs), identified as outfalls PO-1, PO-2, PO-3, PO-4, PO-5, PO-6, PO-7, PO-8 and PO-9 on the Erosion and Sediment Control Plan (**Figure 6**). It is anticipated that stormwater runoff to each of the DSs will be substantially identical, as the hydrology, site soils, and slopes within the drainage areas to each DSs should be similar. Therefore, a representative outfall may be selected for each set of five (5) discharge points as indicated in the following table. However, all discharges shall be inspected in the field to verify that the discharges are substantially identical, and that the selected outfall for sampling is representative of the discharges.

**TABLE 4 – REPRESENTATIVE SAMPLE POINTS FOR SUBSTANTIALLY IDENTICAL OUTFALLS**

OUTFALL	REPRESENTATIVE OUTFALL TO SAMPLE
PO-1	PO-1
PO-2	PO-2
PO-3, PO-4, PO-5, PO-6, PO-7	PO-5
PO-8, PO-9	PO-8

**6.1.4 Methodology**

Grab samples shall be collected for the analysis of turbidity using a LaMotte 2020we field turbidity meter or equal, compliant with 40 CFR Part 136.

**6.1.5 Reporting**

Stormwater sampling results shall be entered on the Stormwater Monitoring Report (SMR) form (available at [www.ct.gov/deep/stormwater](http://www.ct.gov/deep/stormwater)) and submitted electronically in accordance with NetDMR provisions (see CGP Section 5.(c)(2)(F)) within thirty (30) days following the end of each month.

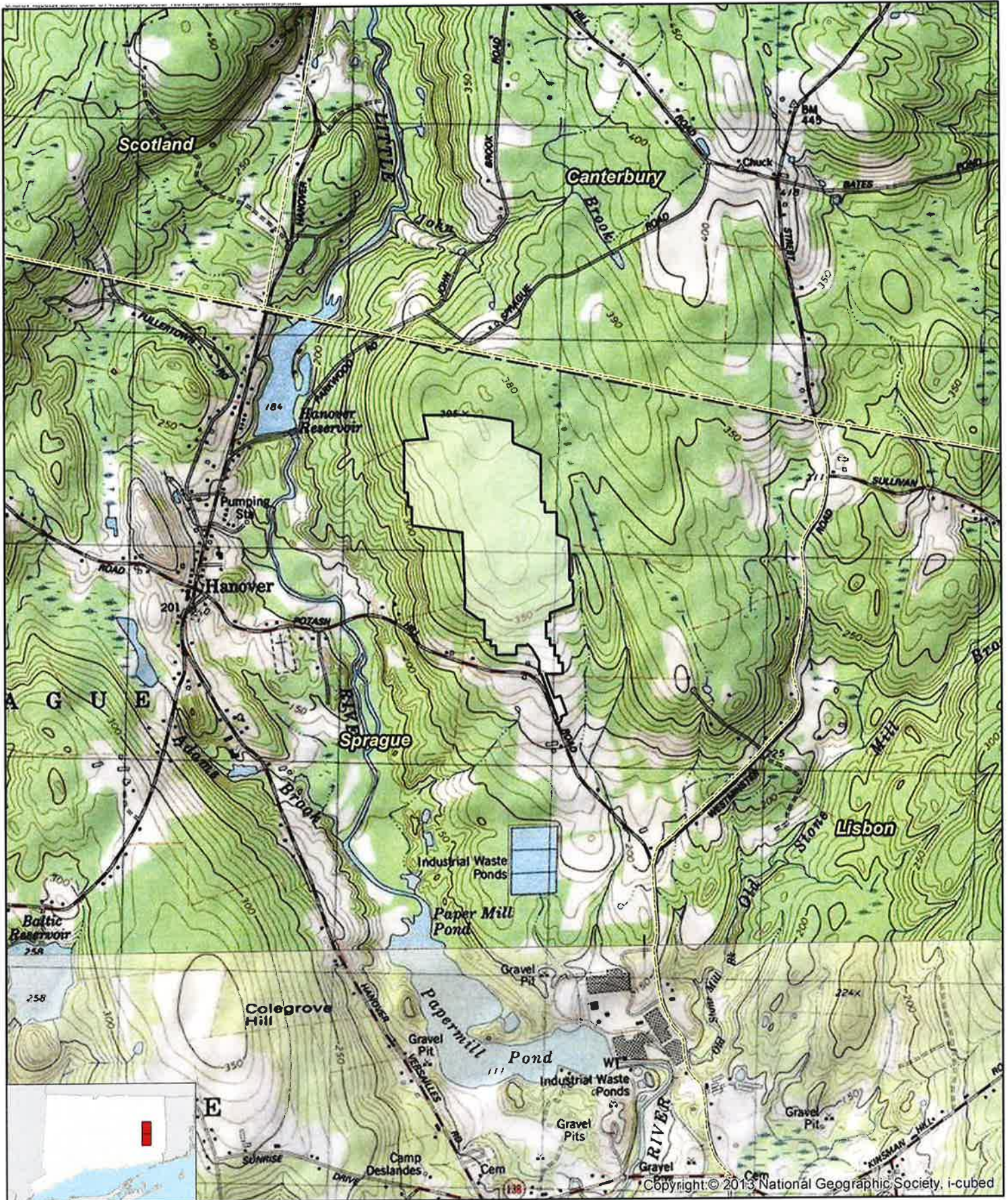
A SMR shall be filed each month. If there was no discharge during any given monitoring period, the words “no discharge” shall be entered on the SMR in place of the monitoring results. Any modifications to sampling protocols and the reasons for such modifications shall be described with the SMR.

All discharge points and representative substantially identical monitoring locations shall be identified on the SMR.



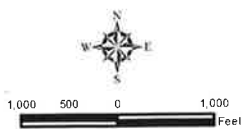
**FIGURE 1**  
**PROJECT LOCATION MAP**

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- Legend**
- Project Area
  - Municipal Boundary

*Map Notes:*  
 Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Scotland and Norwich, CT (1983)  
 Site located on the Scotland Quadrangle.  
 Map Scale: 1:24,000  
 Map Date: July 2015



**Figure 1**  
**Project Location Map**

Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT



**FIGURE 2**  
**EXISTING CONDITIONS MAP**

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**FIGURE 3**  
**FLOOD INSURANCE RATE MAP**

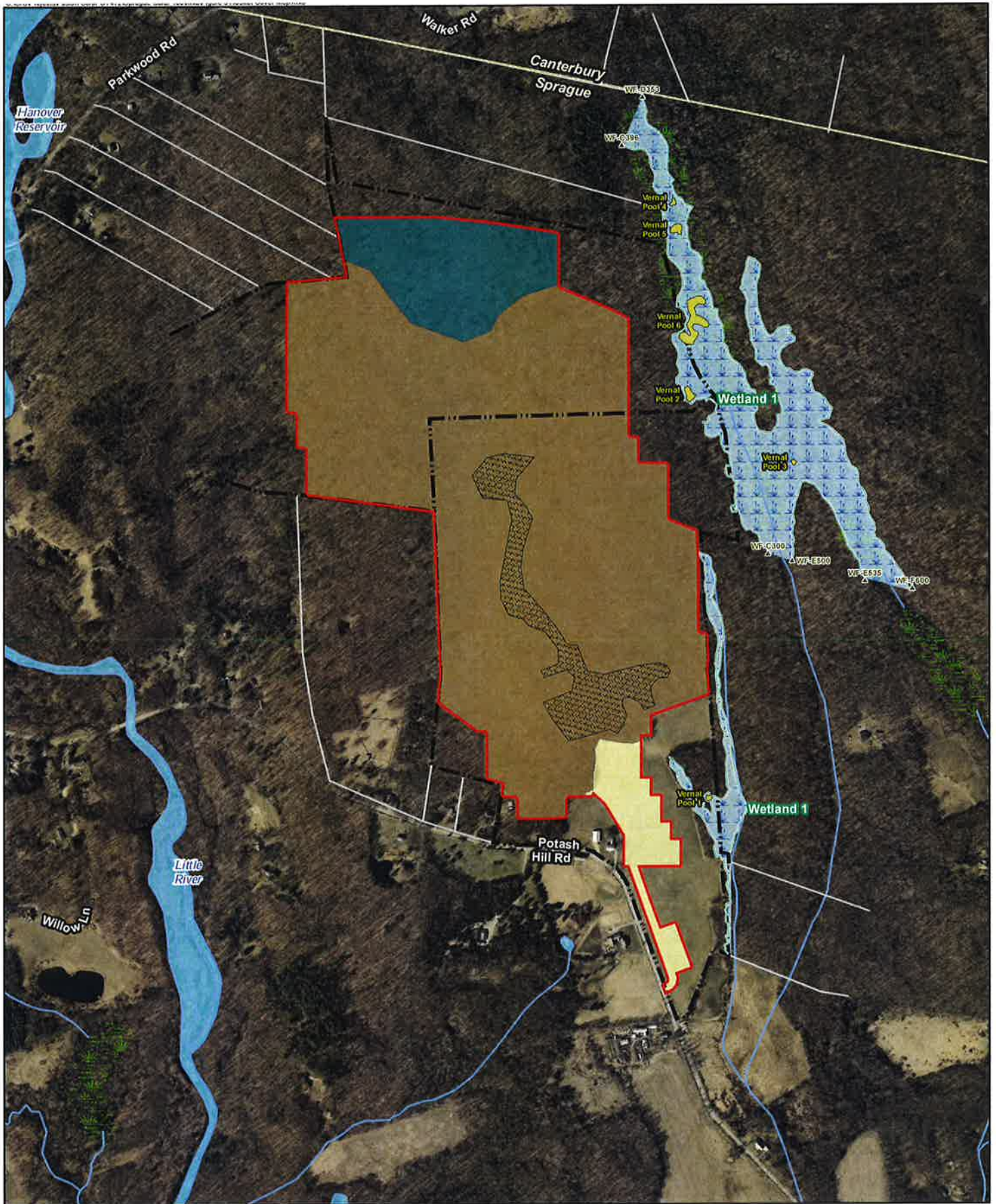
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**FIGURE 4**  
**HABITAT COVER MAP**

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- Legend**
- Site Boundary
  - Abutting Property Boundary Line
  - ▭ Project Area
  - ▲ Start/End Wetland Flag
  - Delineated Wetland Boundary Line
  - Wetland Area

- |               |  |
|---------------|--|
| ■ Vernal Pool | <b>Habitat Type</b>  |
| Hydrography   | ■ Northern Red Oak - Black Oak - Blue Ridge Blueberry Forest |
| ■ Marsh       | ■ Northern Red Oak - Yellow Birch Forest                     |
| ■ Water       | ■ Cool-Season Grass Hayfield                                 |
| ~ Watercourse | ■ Approximate Areas Logged                                   |



**Map Notes:**  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 in = 800 ft    Map Date: July 16, 2015

**Figure 3  
 Habitat Cover Map**

Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT





**FIGURE 5**  
**DRAINAGE MAP**

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**FIGURE 6**  
**EROSION AND SEDIMENT CONTROL PLAN**

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REV	DESCRIPTION	DATE	BY

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**SCALE VERIFICATION**  
THIS SHEET IS 1"=100' IN LENGTH  
ON ORIGINAL DRAWING  
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PLEASE CONTACT THE DESIGNER  
SCALE 1"=100' FEET  
ORIGINAL DRAWING SIZE 34.1 x 18

**EROSION AND SEDIMENT CONTROL PLANS**  
FUSION SOLAR CENTER  
POTASH RD  
SPRINGFIELD, CT 06620



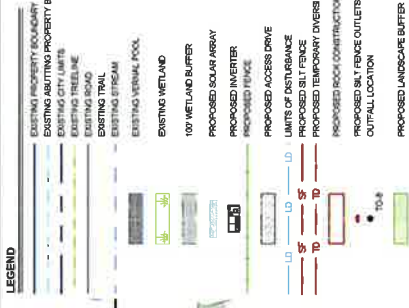
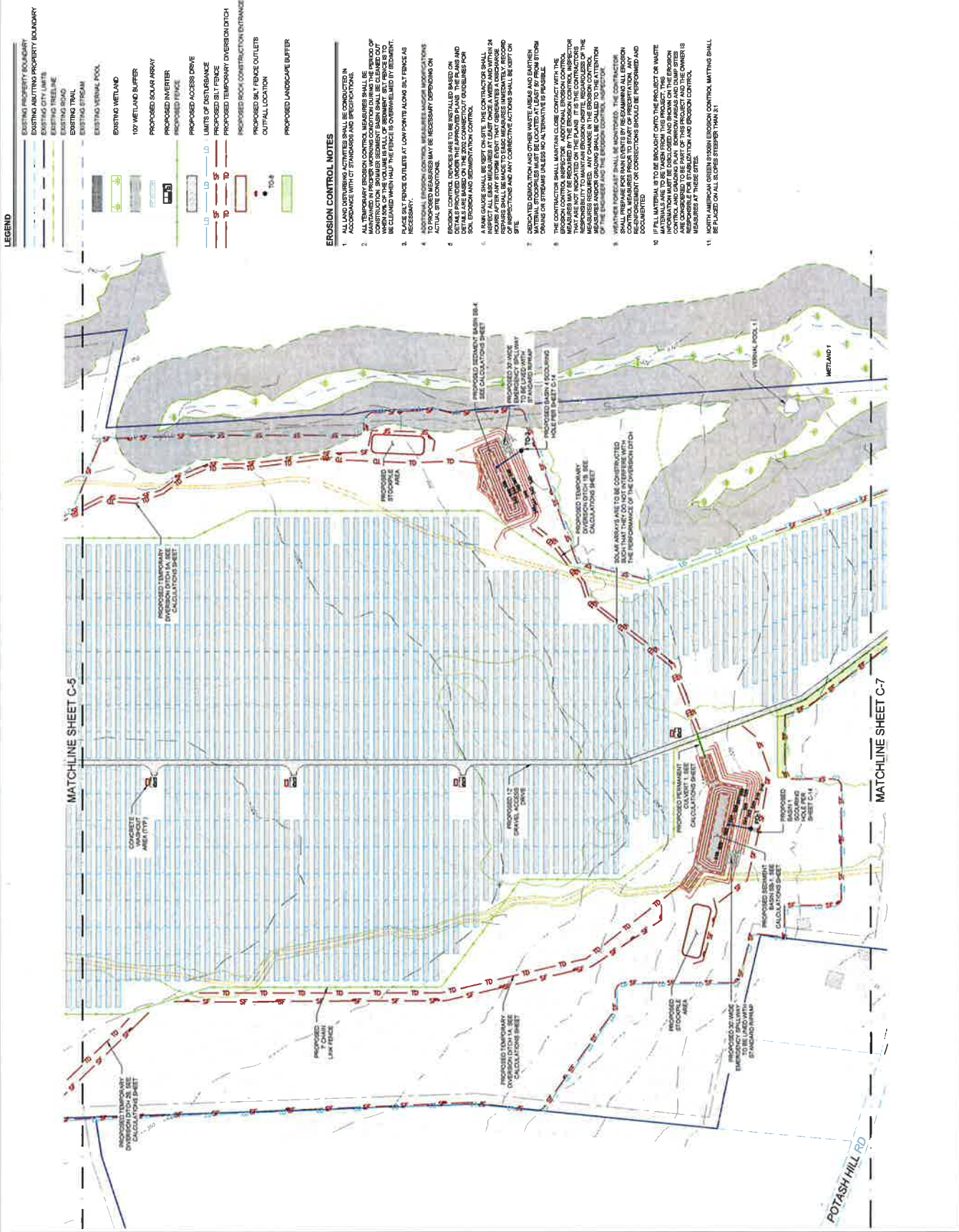
**Schmitt Solar**  
GERLACHER SOLAR AMERICA CORP  
27 FAIRM ROAD  
SPRINGFIELD, CT 06611

**CONSTRUCTION**

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SCALE DATE	06/02/2016
DESIGNER	KL
CHECKED BY	KL
INCHES	1/8" = 1'
DATE	06/02/2016
APPROVED BY	KL

**C-6**

1 of 1 SHEET

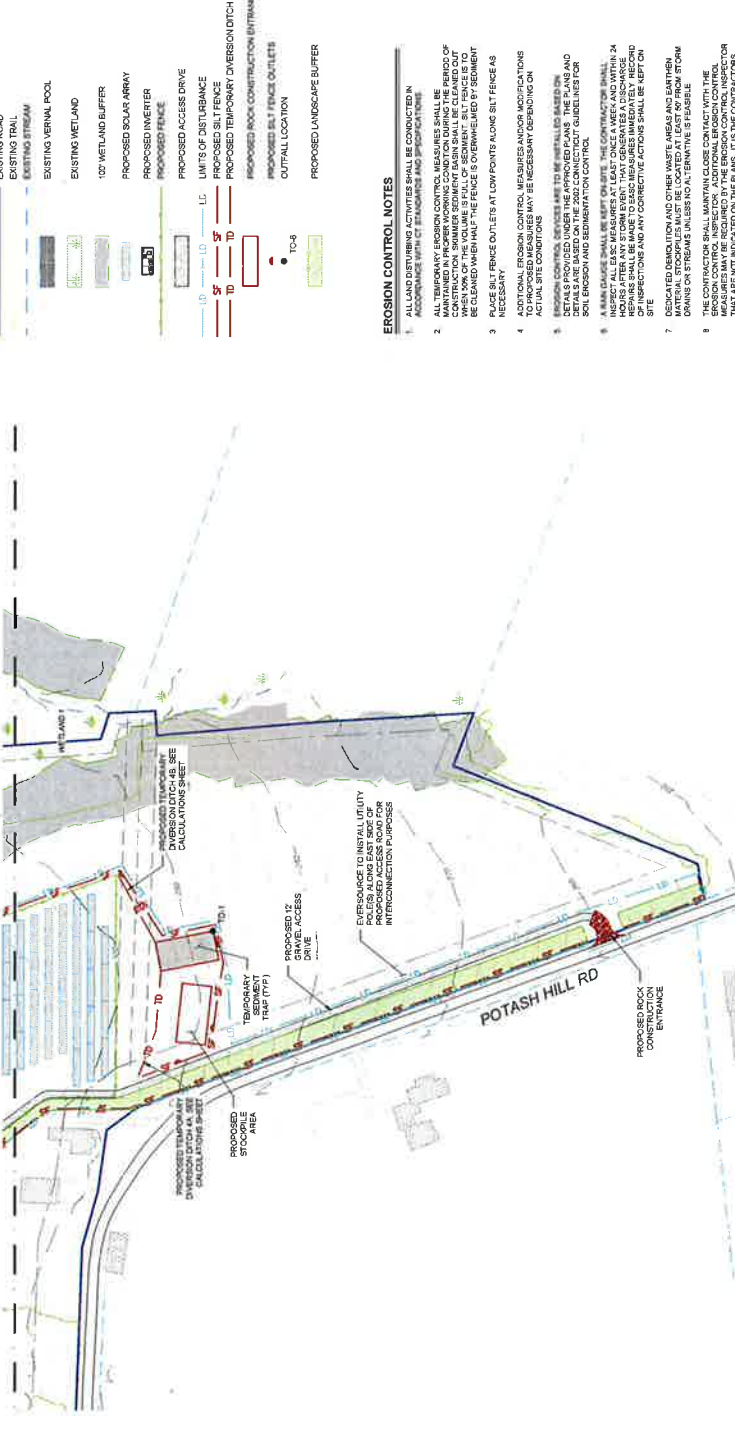


**EROSION CONTROL NOTES**

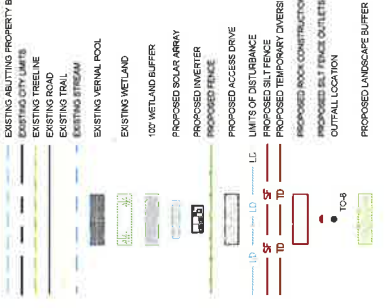
1. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CT STANDARDS AND SPECIFICATIONS.
2. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE MAINTAINED IN PROPER WORKING CONDITION DURING THE PERIOD OF CONSTRUCTION. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE CLEANED WHEN HALF THE FENCE IS OBTAINED BY SEDIMENT. PLACE SILT FENCE OUTLETS AT LOW POINTS ALONG SILT FENCE AS NECESSARILY.
3. NECESSARY EROSION CONTROL MEASURES AND SPECIFICATIONS TO PROPOSED MEASURES MAY BE NECESSARY DEPENDING ON ACTUAL SITE CONDITIONS.
4. EROSION CONTROL DEVICES ARE TO BE INSTALLED BASED ON DETAILS ARE BASED ON THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL.
5. A SCHEDULED STOP WORK SHALL BE OBSERVED BY THE CONTRACTOR WITHIN 24 HOURS AFTER ANY STORM EVENT THAT GENERATES A RESURFACE OF INSPECTIONS AND ANY CORRECTIVE ACTIONS SHALL BE KEPT ON SITE.
6. SEDIMENTATION AND OTHER WASTE AREAS AND BARRIERS SHALL BE MAINTAINED CLEAR OF ALL DEBRIS AND OTHER MATERIALS FROM DRAINING OR STREAMS UNLESS NO ALTERNATIVE IS FEASIBLE.
7. THE CONTRACTOR SHALL MAINTAIN CLOSE CONTACT WITH THE DESIGNER THROUGHOUT THE PROJECT. ALL EROSION CONTROL MEASURES THAT ARE NOT INDICATED ON THE PLANS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE NECESSARY PERMITS AND THE MANAGER'S REQUIRED. ANY CHANGE IN THE EROSION CONTROL MEASURES SHALL BE APPROVED BY THE DESIGNER THROUGH THE EROSION CONTROL INSTRUCTIONS.
8. WEATHER FORECAST SHALL BE MONITORED. THE CONTRACTOR SHALL PREPARE FOR ANY EVENTS BY REEXAMINING ALL EROSION CONTROL MEASURES AND CORRECTIVE ACTIONS SHOULD BE PERFORMED AND DOCUMENTED.
9. IF FILL MATERIAL IS TO BE BROUGHT ONTO THE PROJECT OR WASTE INFORMATION MUST BE DOCUMENTED AND SHOWN ON THE EROSION CONTROL PLAN. ANY CHANGE IN THE EROSION CONTROL MEASURES SHALL BE APPROVED BY THE DESIGNER THROUGH THE EROSION CONTROL INSTRUCTIONS.
10. NORTH ARROW GREEN TO SHOW EROSION CONTROL MATING SHALL BE PLACED ON ALL SILT SCREENS MORE THAN 21

180 Elm Street, Suite 418  
Hartford, CT 06103  
www.kleinfelder.com

MATCHLINE SHEET C-6



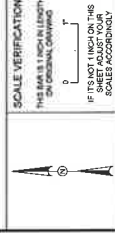
**LEGEND**



**EROSION CONTROL NOTES**

1. ALL LAND DISTURBING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH THE EROSION CONTROL MEASURES.
2. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE MAINTAINED IN PROPER WORKING CONDITION DURING THE PERIOD OF CONSTRUCTION AND SHALL BE MAINTAINED IN SUCH A MANNER THAT WHEN WORK OF THE VOLUME IS FULLY COMPLETED, SILT TRAILS TO BE CLEANED WHEN HALF THE FENCE IS OVERWHELMED BY SEDIMENT.
3. PLACE SILT FENCE OUTLETS AT LOW POINTS ALONG SILT FENCE AS NECESSARY.
4. ADDITIONAL EROSION CONTROL MEASURES AND/OR MODIFICATIONS TO THE EROSION CONTROL PLAN MAY BE NECESSARY BASED ON ACTUAL SITE CONDITIONS.
5. EROSION CONTROL DEVICES ARE TO BE INSTALLED BASED ON THE EROSION CONTROL PLAN. ALL EROSION CONTROL MEASURES AND DETAILS ARE BASED ON THE 2003 CONNECTION GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL.
6. A MAIN CHANNEL SHALL BE LEFT OPEN. THE CONTRACTOR SHALL MAINTAIN THE MAIN CHANNEL OPEN AT ALL TIMES. AFTER 24 HOURS AFTER ANY STORM EVENT THAT GENERATES A DISCHARGE OF SEDIMENT AND ANY CORRECTIVE ACTIONS SHALL BE KEPT ON SITE.
7. DESIGNATED DEDICATION AND OTHER WASTE AREAS AND BARRIERS SHALL BE MAINTAINED THROUGHOUT THE PROJECT. ALL STORM DRAINAGE STREAMS UNLESS NOT ALTERNATIVE IS FEASIBLE.
8. THE CONTRACTOR SHALL MAINTAIN CLOSE CONTACT WITH THE EROSION CONTROL INSPECTOR. ADDITIONAL EROSION CONTROL MEASURES NOT INDICATED ON THE PLANS, AT THE CONTRACTOR'S DISCRETION, MAY BE REQUIRED TO PREVENT ANY EROSION CONTROL MEASURES REQUIRED. ANY CHANGE IN THE EROSION CONTROL MEASURES AND/OR GRADING SHALL BE CALLED TO THE ATTENTION OF THE EROSION CONTROL INSPECTOR.
9. ALL OTHER POSITIVE SHALL BE MAINTAINED THROUGHOUT THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZATION AND EROSION CONTROL MEASURES AND CORRECTIVE ACTIONS SHOULD BE PERFORMED AND DOCUMENTED.
10. IF ALL MATERIALS TO BE BROUGHT ONTO THE PROJECT OR WASTE MATERIALS ARE TO BE STORED ON THE PROJECT, THE CONTRACTOR SHALL PROVIDE INFORMATION MUST BE DISCLOSED AND SHOWN ON THE EROSION CONTROL PLAN AND TO THE PART OF THE PROJECT AND OTHER STILES RESPONSIBLE FOR STABILIZATION AND EROSION CONTROL MEASURES AT THESE STILES.
11. ALL PLACED CHALK SLOPES STEEPER THAN 3:1

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EROSION AND SEDIMENT CONTROL PLANS  
ORIGINAL DRAWING SIZE IS 11.5 X 17  
IF PRINTED 1 INCH ON THIS SHEET, SCALE IS APPROXIMATELY:  
100' = 0" 50' = 0" 100' = 1" SCALE (INCH = 100 FEET)

FUSION SOLAR CENTER  
SPRINGFIELD, CT 06620



BEHLICHER SOLAR AMERICA CORP.  
71 FAIRM ROAD  
SPRINGFIELD, NJ 07081

CONSTRUCTION

PROJECT NO.	2018020303A
DATE	08/02/2018
CURRENT REVISION	-
DESIGNED BY	JR
DRAWN BY	ROC
CHECKED BY	ROC
APPROVED BY	ROC

C-7

REV	DESCRIPTION	DATE	BY	CHK

**ISSUED FOR PERMITTING**

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**GRADING AND DRAINAGE PLAN**

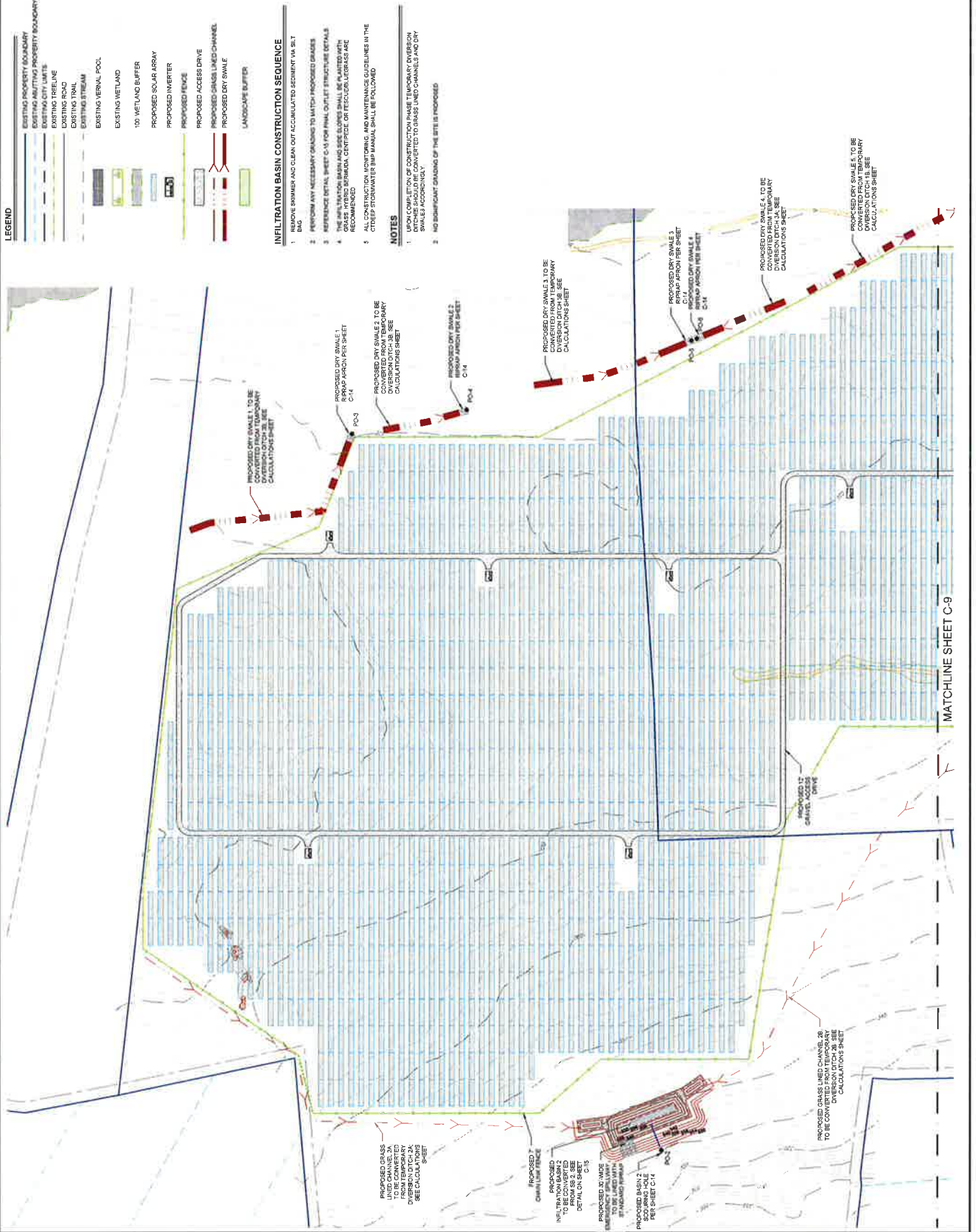
FUSION SOLAR CENTER  
PO TASH RD  
SPRINGFIELD, CT 06620

**Behrlicher Solar**  
BEHRLICHER SOLAR AMERICA CORP  
21 FABER ROAD  
SPRINGFIELD, NJ 07081

**CONSTRUCTION**

PROJECT NO.	30-10486-00A
ISSUE DATE	09/20/2016
CONTRACT NUMBER	
DESIGNED BY	JL
CHECKED BY	ML
DATE	
PROJECT NO.	
ISSUE DATE	
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CHECKED BY	
DATE	
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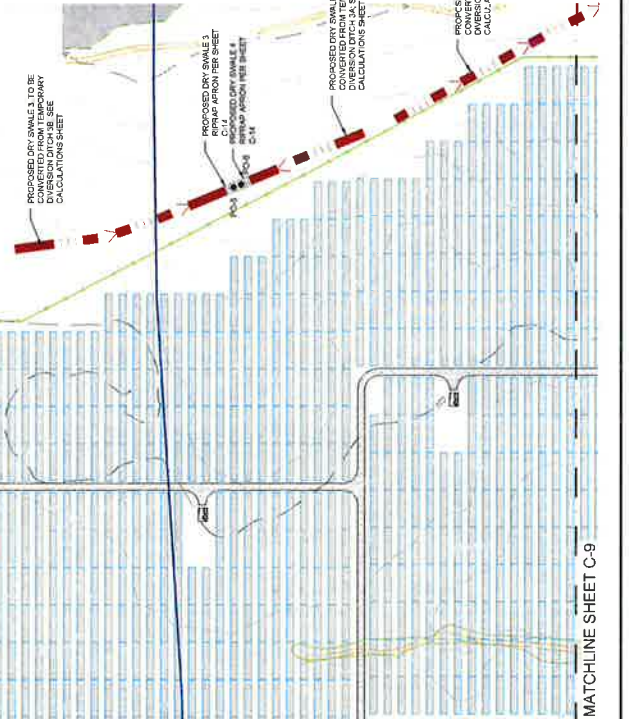
C-8  
SHEET 14



- LEGEND**
- EXISTING PROPERTY BOUNDARY
  - EXISTING PROPERTY BOUNDARY
  - EXISTING CITY LIMIT
  - EXISTING TIE LINE
  - EXISTING ROAD
  - EXISTING TRAIL
  - EXISTING STREAM
  - EXISTING VERNAL POOL
  - EXISTING WETLAND
  - 100' WETLAND BUFFER
  - PROPOSED SOLAR ARRAY
  - PROPOSED INVERTER
  - PROPOSED FENCE
  - PROPOSED ACCESS DRIVE
  - PROPOSED GRAVEL LINED CHANNEL
  - PROPOSED DRY SWALE
  - LANDSCAPE BUFFER

- INFILTRATION BASIN CONSTRUCTION SEQUENCE**
1. REMOVE SKINNER AND CLEAN OUT ACCUMULATED SEDIMENT VIA SILT BAG.
  2. PERFORM ANY NECESSARY GRADING TO MATCH PROPOSED GRASSES.
  3. REFERENCE DETAIL SHEET C-8 FOR FINAL OUTLET STRUCTURE DETAILS.
  4. THE INFILTRATION BASIN AND SILE DOWNES SHALL BE PLANTED WITH AGRASS (SOD) OR TURF GRASS. THE CENTER OF THE BASIN SHALL BE REVEGETATED WITH TURF GRASS AND REVEGETATED WITH TURF GRASS. THE RECOMMENDED CENTER OF THE BASIN SHALL BE REVEGETATED WITH TURF GRASS AND REVEGETATED WITH TURF GRASS. THE RECOMMENDED CENTER OF THE BASIN SHALL BE REVEGETATED WITH TURF GRASS AND REVEGETATED WITH TURF GRASS.
  5. ALL CONSTRUCTION MONITORING AND MAINTENANCE GUIDELINES IN THE CITEECP STORMWATER BMP MANUAL SHALL BE FOLLOWED.

- NOTES**
1. UPON COMPLETION OF CONSTRUCTION PHASE TEMPORARY DIVERSION SWALES SHALL ACCORDINGLY BE CONVERTED TO GRASS LINED CHANNELS AND DRY SWALES.
  2. NO SIGNIFICANT GRADING OF THE SITE IS PROPOSED.



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ORIGINAL DRAWING SIZE IS 11 X 17  
 SCALE 1/8" = 1'-0" FEET  
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 SCALE 3 3/4" = 1'-0" FEET  
 SCALE 4" = 1'-0" FEET

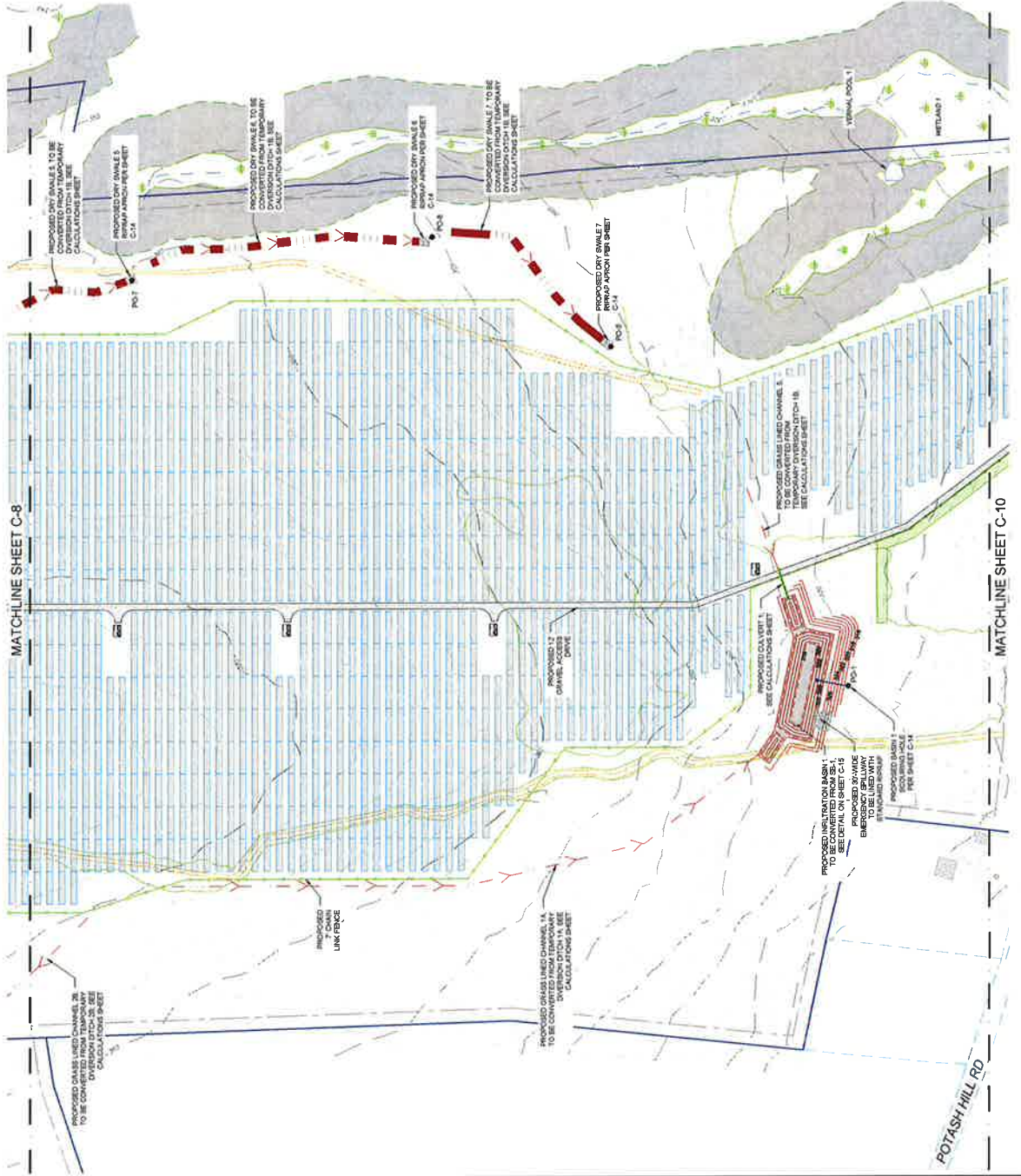
**Behrlicher Solar**  
 BEHRLICHER SOLAR AMERICA CORP.  
 21 FARM ROAD  
 SPRINGFIELD, NJ 07081

PROJECT NO. 20160001001  
 SHEET NO. C-9  
 DRAWN BY: JF  
 CHECKED BY: JF  
 APPROVED BY: JF

- LEGEND**
- EXISTING PROPERTY BOUNDARY
  - EXISTING ADJUTING PROPERTY BOUNDARY
  - EXISTING ROAD
  - EXISTING TRAIL
  - EXISTING VERTICAL CURVE
  - EXISTING VERTICAL ROAD
  - EXISTING WETLAND
  - 100' WETLAND BUFFER
  - PROPOSED SOLAR ARRAY
  - PROPOSED INVERTER
  - PROPOSED FENCE
  - PROPOSED ACCESS DRIVE
  - PROPOSED GRASS LINED CHANNEL
  - PROPOSED DRY SWALE
  - LANDSCAPE BUFFER
  - OUTPAL LOCATION

- INFILTRATION BASIN CONSTRUCTION SEQUENCE**
1. REMOVE SUMMER AND CLEAN OUT ACCUMULATED SEDIMENT VIA S&T
  2. PERFORM ANY NECESSARY GRADING TO MATCH PROPOSED GRACES
  3. REFERENCE DETAIL SHEET C-15 FOR FINAL OUTLET STRUCTURE DETAILS
  4. PERFORM ANY NECESSARY GRADING AND SLOPE STABILIZATION TO PREPARE INFILTRATION BASIN FOR CONSTRUCTION
  5. ALL CONSTRUCTION, MONITORING, AND MAINTENANCE GUIDELINES IN THE OTHER STORMWATER BMP MANUAL SHALL BE FOLLOWED

- NOTES**
1. UPON COMPLETION OF CONSTRUCTION, ALL INFILTRATION BASINS SHALL BE COVERED TO PREVENT CHILDREN AND PETS FROM ACCESSING THE BASIN.
  2. NO SIGNIFICANT GRADING OF THE SITE IS PROPOSED.





140 Connecticut Ave., Suite 408  
Springfield, NJ 07081  
www.kleinfelder.com

REV.	DESCRIPTION	DATE

ISSUED FOR PERMITTING



GRADING AND DRAINAGE PLAN

FUSION SOLAR CENTER  
POTASH RD  
SPRINGFIELD, NJ 07081



GEHTLICHER SOLAR AMERICA CORP  
21 FADEM ROAD  
SPRINGFIELD, NJ 07081

CONSTRUCTION

PRODUCT NO.	DATE	ISSUE

C-10

100% SHEET 15 OF 18

**LEGEND**

- EXISTING PROPERTY BOUNDARY
- EXISTING ABUTTING PROPERTY BOUNDARY
- EXISTING DRIVE
- EXISTING ROAD
- EXISTING TRAIL
- EXISTING STREAM
- EXISTING VERNAL POOL
- EXISTING WETLAND
- 100' WETLAND BUFFER
- PROPOSED SOLAR ARRAY
- PROPOSED INVERTER
- PROPOSED FENCE
- PROPOSED ACCESS DRIVE
- PROPOSED GRASS LINED CHANNEL
- PROPOSED DRY SWALE
- LANDSCAPE BUFFER

**INFILTRATION BASIN CONSTRUCTION SEQUENCE**

- REMOVE BRIMMER AND CLEAN OUT ACCUMULATED SEDIMENT VIA BILT BAG.
- PERFORM ANY NECESSARY GRADING TO MATCH PROPOSED GRADES.
- REFERENCE DETAIL SHEET C-16 FOR FINAL OUTLET STRUCTURE DETAILS.
- THE INFILTRATION BASIN AND SIDE SLOPES SHALL BE PLANTED WITH PERENNIALS, BERMUDA, CENTIPED, OR REDOUBLEGRASS ARE RECOMMENDED.
- ALL CONSTRUCTION MONITORING AND MAINTENANCE GUIDELINES IN THE CITEEP STORMWATER BMP MANUAL SHALL BE FOLLOWED.

**NOTES**

- UPON COMPLETION OF CONSTRUCTION PHASE TEMPORARY DIVERSION DITCHES SHOULD BE CONVERTED TO GRASS LINED CHANNELS AND DRY DITCHES.
- NO DISCONNECT GRADING OF THE SITE IS PROPOSED.





REVISIONS	DESCRIPTION	DATE	BY

ISSUED FOR PERMITTING

**SCALE VERIFICATION**  
THIS DRAWING IS TO BE PRINTED ON ORIGINAL DRAWING  
IF PRINTED FROM THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

**DETAILS**  
FUSION SOLAR CENTER  
POTASH RD  
SPRINGFIELD, NJ 07081



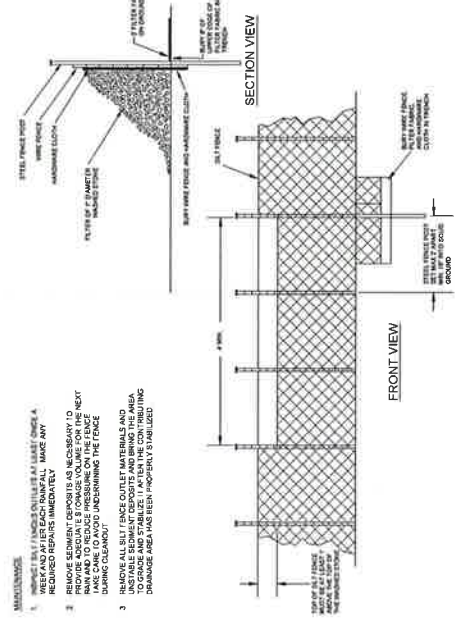
BEHRTLICHER SOLAR AMERICA CORP  
27 FADEEN ROAD  
SPRINGFIELD, NJ 07081

**CONSTRUCTION**

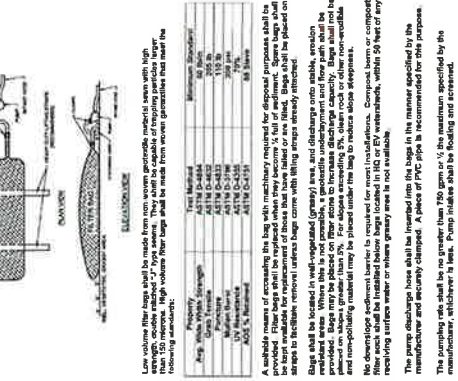
PROJECT NO.	20140801001
ISSUE DATE	08/08/14
CURRENT REVISION	JR
DATE	08/08/14
DRAWN BY	ROC
CHECKED BY	ROC
APPROVED BY	ROC

**C-12**

32 SHEET 12 OF 36



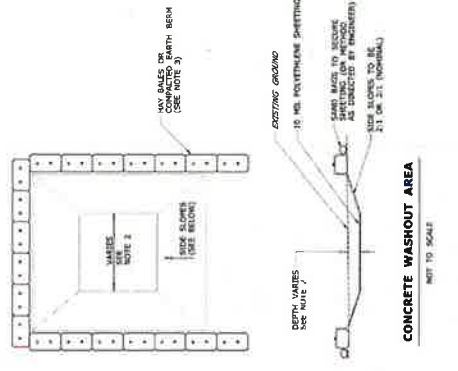
SILT FENCE OUTLET  
NO SCALE



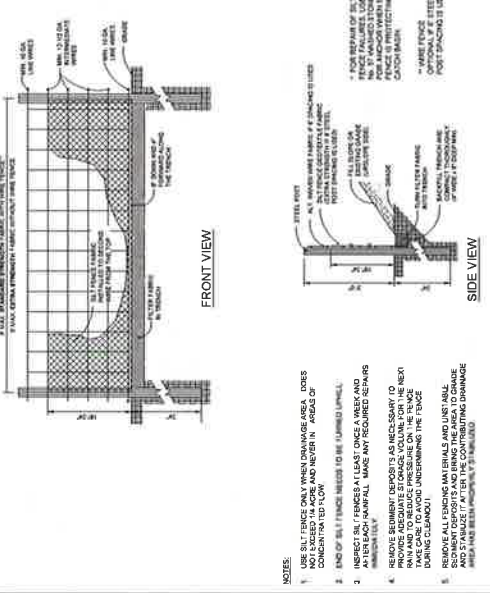
DEWATERING BAG  
NO SCALE

**NOTES**

1. CONCRETE WASHOUT AREAS SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE. THE CONCRETE WASHOUT AREA SHALL BE EXTREMELY WELL FINISHED AND SHALL BE PROTECTED FROM DAMAGE.
2. DESIGN LOCATION AND SIZE OF BAGS FOR CONCRETE WASHOUT AREAS SHALL BE APPROVED BY THE ENGINEER.
3. LOCATION WASHOUT AREAS ARE TO BE LOCATED AT LEAST 50 FEET FROM THE CONCRETE WASHOUT AREAS. THE BAGS SHALL BE INSTALLED AT THE LOCATION OF THE CONCRETE WASHOUT AREAS. THE BAGS SHALL BE INSTALLED AT THE LOCATION OF THE CONCRETE WASHOUT AREAS. THE BAGS SHALL BE INSTALLED AT THE LOCATION OF THE CONCRETE WASHOUT AREAS.
4. BAGS SHOULD BE PLACED AT THE CONSTRUCTION ENTRANCE AT THE PERIMETER OF THE CONCRETE WASHOUT AREA FOR CONTAINMENT. THE PERIMETER OF THE CONCRETE WASHOUT AREA FOR CONTAINMENT SHALL BE APPROVED BY THE ENGINEER.
5. WASHOUT AREAS ARE TO BE INSPECTED AT LEAST ONCE A WEEK FOR LEAKS, TARS, OR OILS. WASHOUT AREAS SHALL BE CLEANED AND MAINTAINED AT ALL TIMES. WASHOUT AREAS SHALL BE CLEANED AND MAINTAINED AT ALL TIMES.
6. WASHED CONCRETE WASTE SHOULD BE RECYCLED AND DISPOSED OF WHEN THE WASTE HAS ACCUMULATED TO HALF OF THE CONCRETE WASHOUT'S CAPACITY. THE WASTE SHOULD BE RECYCLED AND DISPOSED OF WHEN THE WASTE HAS ACCUMULATED TO HALF OF THE CONCRETE WASHOUT'S CAPACITY.
7. PAYMENT FOR THIS ITEM IS TO BE INCLUDED UNDER THE GENERAL COST OF THE WORK FOR THE PROJECT.

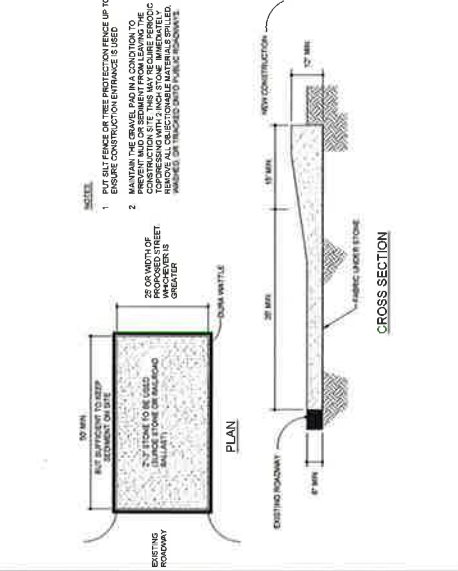


CONCRETE WASHOUT DETAIL  
NO SCALE



TEMPORARY SILT FENCE  
NO SCALE

- NOTES:**
1. USE SILT FENCE ONLY WHEN DRAINAGE AREA, DORES, AND BERM ARE IN PLACE AND NEITHER IS A BAG OF SILT FENCE.
  2. END OF SILT FENCE NEEDS TO BE CURBED IN PLACE.
  3. WIRE OF SILT FENCE NEEDS TO BE SPACED 12" ON CENTER.
  4. PROVIDE 12" HIGH BERM AND 2" HIGH CURB AT THE END OF THE SILT FENCE TO PREVENT CONCRETE FROM ESCAPING THE SILT FENCE DURING CLEANOUT.
  5. REMOVE ALL EXCESS MATERIALS AND UNDESIRABLE MATERIALS FROM THE SILT FENCE AND STABILIZE IT AT THE CONTINUING DRAINAGE AREA HAS BEEN INSPECTED & APPROVED.



STANDARD CONSTRUCTION ENTRANCE  
NO SCALE









REV#	DESCRIPTION	DATE	BY	CHK

**ISSUED FOR PERMITTING**

**SCALE VERIFICATION**  
THIS DRAWING IS IN CONFORMANCE WITH THE ORIGINAL DRAWING  
IF ANY DIMENSIONS DO NOT MATCH THE ORIGINAL DRAWING, THE ORIGINAL DRAWING SHALL GOVERN.  
SCALE: AS SHOWN

**CALCULATIONS**  
FUSION SOLAR CENTER  
POTASH RD  
SPRINGFIELD, CT 06520



**CONSTRUCTION**

**C-16**

**TEMPORARY EROSION CONTROL DESIGN**

BASIN NUMBER	DRAINAGE AREA (AC)	AVERAGE AREA (AC)	PERCENT IMPERVIOUS (%)	DELIVERY RATE (MGD)	EFFICIENCY (%)	ESTIMATED STORAGE VOLUME (MG)	REQUIRED STORAGE VOLUME (MG)	DEPTH (FT)	SOLESLOPE (H:V)	WIDTH (FT)	LENGTH (FT)	VOLUME PROVIDED (MG)
88-1	21.06	11.12	1	28	0.8	105	16.45	0.21	3:1	30	210	53.82
88-2	38.58	11.12	1	28	0.8	105	16.45	0.21	3:1	30	210	53.82
89-1	11.60	11.12	1	28	0.8	105	16.45	0.21	3:1	30	210	53.82
89-2	11.60	11.12	1	28	0.8	105	16.45	0.21	3:1	30	210	53.82
89-3	11.60	11.12	1	28	0.8	105	16.45	0.21	3:1	30	210	53.82
89-4	11.60	11.12	1	28	0.8	105	16.45	0.21	3:1	30	210	53.82

\*DEPTH BELOW SPILLWAY.

**TEMPORARY DIVERSION DESIGN**

DITCH NAME	DRAINAGE AREA (AC)	% TIME OF CONC. (min)	INTENSITY (in/hr)	RUNOFF COEFFICIENT, C	Q (cfs)	TOTAL RUNOFF, Q (cfs)	CHANNEL SECTION	CHANNEL DEPTH (ft)	CHANNEL LENGTH (ft)	UPPER ELEVATION (ft)	LOWER ELEVATION (ft)	NORMAL DEPTH (ft)	SHEAR STRESS (lb/ft <sup>2</sup> )	VELOCITY (ft/s)	n VALUE	TEMPORARY LINER
DITCH 1A	7.70	5.0	6.00	0.36	16.45	16.45	TRIANGULAR	3.00	2.00	1,301.00	370.00	328.00	0.75	1.40	0.033	STRAW/W/NET
DITCH 1B	8.12	5.0	6.00	0.36	17.64	17.64	TRIANGULAR	3.00	3.00	638.00	341.00	335.00	1.43	1.07	0.033	STRAW/W/NET
DITCH 2A	11.12	5.0	6.00	0.36	23.75	23.75	TRIANGULAR	3.00	2.00	1,169.00	370.00	340.00	0.85	1.40	0.033	STRAW/W/NET
DITCH 2B	12.89	5.0	6.00	0.36	27.52	27.52	TRIANGULAR	5.00	2.00	1,169.00	381.00	340.00	0.77	1.70	0.033	STRAW/W/NET
DITCH 3A	10.54	5.0	6.00	0.36	22.73	22.73	TRIANGULAR	3.00	2.00	877.00	380.00	368.00	0.89	1.11	0.033	STRAW/W/NET
DITCH 4A	1.85	5.0	6.00	0.36	3.95	3.95	TRIANGULAR	2.00	2.00	184.00	295.00	284.00	0.99	0.51	0.033	STRAW/W/NET
DITCH 4B	2.11	5.0	6.00	0.36	4.51	4.51	TRIANGULAR	2.00	2.00	184.00	296.00	284.00	0.88	0.62	0.033	STRAW/W/NET
DITCH 5A	10.60	5.0	6.00	0.37	23.40	23.40	TRIANGULAR	4.00	2.00	1,293.00	385.00	346.00	0.65	1.35	0.033	STRAW/W/NET

**FUSION SOLAR PERMANENT CULVERT DESIGN**

PERMANENT CULVERT	DRAINAGE AREA (AC)	R: TIME OF CONC. (min)	INTENSITY (in/hr)	RUNOFF COEFFICIENT, C	Q FLOW (cfs)	Q TOTAL (cfs)	SLOPE	DEPTH (ft)	SIZE (in)	VALVE (in)	LENGTH (ft)	UPPER ELEVATION (ft)	LOWER ELEVATION (ft)	TOP EL. MATERIAL
1	8.12	5.0	6.00	0.36	17.64	17.64	3.24:100	16.5	24	14.8	47.50	330.00	328.00	RCPP

**DRY SWALE DESIGN**

SWALE NAME	DRAINAGE AREA (AC)	% TIME OF CONC. (min)	INTENSITY (in/hr)	RUNOFF COEFFICIENT, C	Q FLOW (cfs)	Q TOTAL (cfs)	SLOPE	DEPTH (ft)	SWALE WIDTH (ft)	SWALE LENGTH (ft)	SWALE AREA (sq ft)	SWALE VOLUME (cu ft)	SWALE PERCENT IMPERVIOUS (%)	SWALE VELOCITY (ft/s)	SWALE SHEAR STRESS (lb/ft <sup>2</sup> )	SWALE LINER
DRY SWALE 1	3.71	0.05	5.00	0.36	6.70	6.70	3.24:100	1.23	8.85	0.023	4.00	3.00	3.00	0.88	0.023	GRASS/W/ROCK CHECK DAMS
DRY SWALE 2	4.98	0.05	5.00	0.36	9.12	9.12	3.24:100	1.23	8.85	0.023	4.00	3.00	3.00	0.88	0.023	GRASS/W/ROCK CHECK DAMS
DRY SWALE 3	1.48	0.05	5.00	0.36	2.63	2.63	3.24:100	1.23	8.85	0.023	4.00	3.00	3.00	0.88	0.023	GRASS/W/ROCK CHECK DAMS
DRY SWALE 4	0.63	0.05	5.00	0.36	1.14	1.14	3.24:100	1.23	8.85	0.023	4.00	3.00	3.00	0.88	0.023	GRASS/W/ROCK CHECK DAMS
DRY SWALE 5	4.39	0.01	5.00	0.37	9.40	9.40	3.24:100	1.23	8.85	0.023	4.00	3.00	3.00	0.88	0.023	GRASS/W/ROCK CHECK DAMS
DRY SWALE 6	4.82	0.02	5.00	0.38	10.30	10.30	3.24:100	1.23	8.85	0.023	4.00	3.00	3.00	0.88	0.023	GRASS/W/ROCK CHECK DAMS
DRY SWALE 7	1.01	0.00	5.00	0.38	1.83	1.83	3.24:100	1.23	8.85	0.023	4.00	3.00	3.00	0.88	0.023	GRASS/W/ROCK CHECK DAMS

**INFILTRATION BASIN DESIGN**

BASIN NAME	DRAINAGE AREA (AC)	% TIME OF CONC. (min)	INTENSITY (in/hr)	RUNOFF COEFFICIENT, C	Q FLOW (cfs)	Q TOTAL (cfs)	SLOPE	DEPTH (ft)	BASIN SURFACE AREA (sq ft)	REQUIRED WATER QUALITY VOLUME (MG)	DESIGN STORAGE VOLUME (MG)	DESIGN STORAGE LENGTH (ft)	DESIGN STORAGE WIDTH (ft)	DESIGN STORAGE DEPTH (ft)	DESIGN STORAGE VOLUME (MG)	DESIGN STORAGE MATERIAL
BASIN 1	40.11	1.4%	2	0.05	2	2	3.24:100	3	8142	1512	25	81	6	327	2602	TREATED WATER QUALITY VOLUME (CUBIC FEET)
BASIN 2	34.58	1.6%	2	0.06	3	3	3.24:100	3	8627	1416	15	35	6	341	1720	TREATED WATER QUALITY VOLUME (CUBIC FEET)

**GRAVEL LINED CHANNEL DESIGN**

CHANNEL NAME	DRAINAGE AREA (AC)	% TIME OF CONC. (min)	INTENSITY (in/hr)	RUNOFF COEFFICIENT, C	Q (cfs)	TOTAL RUNOFF, Q (cfs)	CHANNEL SECTION	CHANNEL DEPTH (ft)	CHANNEL LENGTH (ft)	UPPER ELEVATION (ft)	LOWER ELEVATION (ft)	NORMAL DEPTH (ft)	SHEAR STRESS (lb/ft <sup>2</sup> )	VELOCITY (ft/s)	n VALUE	PERMANENT LINER
CHANNEL 1A	7.70	5.0	6.00	0.36	16.45	16.45	TRIANGULAR	3.00	2.00	1,301.00	370.00	328.00	0.75	1.40	0.033	GRASS/W/ROCK CHECK DAMS
CHANNEL 2A	11.12	5.0	6.00	0.36	23.75	23.75	TRIANGULAR	3.00	3.00	1,169.00	370.00	340.00	0.85	1.07	0.033	GRASS/W/ROCK CHECK DAMS
CHANNEL 2B	12.89	5.0	6.00	0.36	27.52	27.52	TRIANGULAR	5.00	2.00	1,169.00	381.00	340.00	0.77	1.70	0.033	GRASS/W/ROCK CHECK DAMS
CHANNEL 3A	10.54	5.0	6.00	0.36	22.73	22.73	TRIANGULAR	3.00	2.00	877.00	380.00	368.00	0.89	1.11	0.033	GRASS/W/ROCK CHECK DAMS
CHANNEL 4A	1.85	5.0	6.00	0.36	3.95	3.95	TRIANGULAR	2.00	2.00	184.00	295.00	284.00	0.99	0.51	0.033	GRASS/W/ROCK CHECK DAMS
CHANNEL 4B	2.11	5.0	6.00	0.36	4.51	4.51	TRIANGULAR	2.00	2.00	184.00	296.00	284.00	0.88	0.62	0.033	GRASS/W/ROCK CHECK DAMS
CHANNEL 5	5.07	5.0	6.00	0.38	11.01	11.01	TRIANGULAR	3.00	2.00	1,670.00	351.00	305.00	1.03	0.77	0.070	GRASS/W/ROCK CHECK DAMS

**DESIGN VERIFICATION**

DESIGN VERIFICATION	PERCENT IMPERVIOUS (%)	DESIGN STORAGE VOLUME (MG)	DESIGN STORAGE LENGTH (ft)	DESIGN STORAGE WIDTH (ft)	DESIGN STORAGE DEPTH (ft)	DESIGN STORAGE VOLUME (MG)	DESIGN STORAGE MATERIAL
TOTAL *		48175	15	30	15	48175	48175

**APPENDIX A**  
**SWPCP REGISTRANT AND PREPARER CERTIFICATION STATEMENTS**

---

## **Stormwater Pollution Control Plan (SWPCP) Preparer's Certification**

The SWPCP for the Site listed below was prepared for Gehrlicher Solar America Corporation by Kleinfelder.

Site: Fusion Solar Center

I hereby certify that I am a professional engineer licensed in the State of Connecticut. I am making this certification in connection with a registration under such general permit, submitted to the commissioner by Gehrlicher Solar America for an activity located at Potash Hill Road, in Sprague, CT. I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the project or activity covered by this certification. I further certify, based on such review and on the standard of care for such projects, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, the Stormwater Quality Manual, as amended, and the conditions of the general permit, and that the controls required for such Plan are appropriate for the site. I further certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I also understand that knowingly making any false statement in this certification may subject me to sanction by the Department and/or be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law.

SWPCP Preparer's Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Date: \_\_\_\_\_

## **Stormwater Pollution Control Plan (SWPCP) Registrant's Certification**

The SWPCP for the Site listed below was prepared for Gehrlicher Solar America Corporation by Kleinfelder.

Site: Fusion Solar Center

I hereby certify that I am making this certification in connection with a registration under such general permit, submitted to the commissioner by \_\_\_\_\_ for an activity located at Potash Hill Road, in Sprague CT, and that all terms and conditions of the general permit are being met for all discharges which have been initiated and such activity is eligible for authorization under such permit. I further certify that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I certify that the registration filed pursuant to this general permit is on complete and accurate forms as prescribed by the commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 3(b)(8)(A) of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify that I have made an affirmative determination in accordance with Section 3(b)(8)(B) of this general permit. I understand that the registration filed in connection with such general permit is submitted in accordance with and shall comply with the requirements of Section 22a-430b of Connecticut General Statutes. I also understand that knowingly making any false statement made in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law.

SWPCP Preparer's Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Date: \_\_\_\_\_

**APPENDIX B**  
**CONSERVATION DISTRICT PLAN REVIEW CERTIFICATION**

---

(TO BE INCLUDED UPON RECEIPT)

**APPENDIX C**  
**CONTRACTOR'S AND SUBCONTRACTORS CERTIFICATION FORM**

---



## **Stormwater Pollution Control Plan (SWPCP) Contractor and Subcontractor Certification Form**

All contractors and subcontractors that will perform actions on the site that have the potential to cause pollution of the waters of the State or are responsible for implementing the measures identified in this SWPCP must sign this certification statement. All certifications must be added to and maintained with this SWPCP. (COPY FORM TEMPLATE SO THAT EACH CONTRACTOR CAN FILL OUT AND SIGN.)

Site: \_\_\_\_\_

Company Name: \_\_\_\_\_

Company Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Business Phone: \_\_\_\_\_

I certify under penalty of the law that I have read and understand the terms and conditions of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. I understand that as a contractor or subcontractor at the site, I am authorized by this general permit, and must comply with the terms and conditions of this general permit, including, but not limited to, the requirements of the Stormwater Pollution Control Plan prepared for the site.

Contractor's Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**APPENDIX D**  
**STORMWATER CONSTRUCTION SITE INSPECTION REPORT**

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## *Stormwater Construction Site Inspection Report*

### **Purpose**

This Stormwater Construction Site Inspection Report is designed to assist you in preparing inspection reports in accordance with Section 5 of the SWPCP.

### **Overview of Inspection Requirements**

#### *Areas That Need to Be Inspected*

During each inspection, you must inspect the following areas of your site:

- Cleared, graded, or excavated areas of the site;
- Stormwater controls (e.g., perimeter controls, sediment basins, inlets, exit points etc.) and pollution prevention practices (e.g., pollution prevention practices for vehicle fueling/maintenance and washing, construction product storage, handling, and disposal, etc.) at the site;
- Material, waste, or borrow areas covered by the permit, and equipment storage and maintenance areas;
- Areas where stormwater flows within the site;
- Stormwater discharge points; and
- Areas where stabilization has been implemented.

#### *What to Check For During Your Inspection*

During your site inspection, you are required to check:

- Whether stormwater controls or pollution prevention practices require maintenance or corrective action, or whether new or modified controls are required;
- For the presence of conditions that could lead to spills, leaks, or other pollutant accumulations and discharges;
- Whether there are visible signs of erosion and sediment accumulation at points of discharge and to the channels and streambanks that are in the immediate vicinity of the discharge;
- If a stormwater discharge is occurring at the time of the inspection, whether there are obvious, visual signs of pollutant discharges; and
- If any permit violations have occurred on the site.

### **Instructions for Using This Template**

The following tips for using this template will help you ensure that the minimum permit requirements are met:

- **Complete all required text fields.** Fill out all text fields. (Note: Where you do not need the number of rows provided in the template form for your inspection, you may leave those rows blank. Or, if you need more space to document your findings, you may add an additional sheet.)
- **Use your site map to document inspection findings.** Where you are asked for location information, reference the point on your SWPCP site map that corresponds to the requested location on the inspection form. Using the site map as a tool in this way will help you conduct efficient inspections, will assist you in evaluating problems found, and will ensure proper documentation.
- **Sign and certify each inspection report.** Each inspection report must be signed and certified by the inspector and permittee to be considered complete.
- **Include the inspection form with your SWPCP.** Once your form is complete, include a copy of the inspection form in your SWPCP.
- **Retain copies of all inspection reports with your records.** You must also retain in your records copies of all inspection reports. These reports must be retained for at least 5 years from the date of inspection.

### **Section-by-Section Instructions**

You will find specific instructions corresponding to each section of the report form.

**General Information**

<b>Name of Project</b>	Fusion Solar Center Project			<b>Inspection Date</b>
<b>Inspector Name, Title &amp; Contact Information</b>				
<b>Inspector Qualifications</b>				
<b>Present Phase of Construction</b>				
<b>Inspection Location</b> (if multiple inspections are required, specify location where this inspection is being conducted)				
<b>Inspection Frequency</b> (Note: you may be subject to different inspection frequencies in different areas of the site. Check all that apply.) <b>Standard Frequency:</b> <input type="checkbox"/> Weekly <input type="checkbox"/> Within 24 hours of the end of a storm that generates a discharge  <b>Reduced Frequency:</b> <input type="checkbox"/> Once per month (for stabilized areas)				
<b>Date of last rainfall:</b>				
<b>Total rainfall amount:</b>				
<b>Current Weather Conditions:</b>				

STORMWATER POLLUTION CONTROL PLAN  
FUSION SOLAR CENTER

Condition and Effectiveness of Erosion and Sediment (E&S) Controls

(see reverse for instructions)

Type/Location of E&S Control [Add an additional sheet if necessary]	Repairs or Other Maintenance Needed?*	Corrective Action Required?*	Notes
1.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
7.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
8.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

**\* Note:** The permit differentiates between conditions requiring repairs and maintenance, and those requiring corrective action. The permit requires maintenance in order to keep controls in effective operating condition and requires repairs if controls are not operating as intended. Corrective actions are triggered only for specific, more serious conditions, which include: 1) A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in the Guidelines; 2) You become aware that the stormwater controls you have installed and are maintaining are not effective enough for the discharge to meet applicable water quality standards or applicable requirements; 3) A prohibited discharge is occurring or has occurred; or 4) Corrective actions are required as a result of a permit violation found during an inspection. If a condition on your site requires a corrective action, engineered corrective actions shall be implemented within 7 days of the inspection.

## Instructions for Filling Out the "Erosion and Sediment Control" Table

### Type and Location of E&S Controls

Provide a list of all erosion and sediment (E&S) controls that your SWPCP indicates will be or are otherwise installed and implemented at your site. You may group your E&S controls on your form if you have several of the same type of controls (e.g., you may group "inlet Protection Measures", "Perimeter Controls", and "Stockpile Controls" together on one line), but if there are any problems with a specific control, you must separately identify the location of the control, whether repairs or maintenance or corrective action are necessary, and in the notes section you must describe the specifics about the problem you observed.

### Repairs or Other Maintenance Needed?

Answer "yes" if the E&S control requires a repair of any kind (due to normal wear and tear, or as a result of damage) or requires maintenance in order for the control to continue operating effectively. At a minimum, maintenance is required in the following specific instances: (1) for perimeter controls, whenever sediment has accumulated to ½ or more the above-ground height of the control; (2) where sediment has been tracked-out onto the surface of off-site streets or other paved areas; (3) for inlet protection measures, when sediment accumulates, the filter becomes clogged, and/or performance is compromised; and (4) for sediment basins, as necessary to maintain at least ½ of the design capacity of the basin. Note: In many cases, "yes" answers are expected and indicate a project with an active operation and maintenance program. You should also answer "yes" if work to fix the problem is still ongoing from the previous inspection.

### Corrective Action Needed?

Answer "yes" if during your inspection you found any of the following conditions to be present: (1) a required E&S control was never installed, was installed incorrectly, or not in accordance with the Guidelines; (2) you become aware that the inadequacy of the E&S control has led to an exceedance of an applicable water quality standard; or (3) Corrective action for an E&S control is required as a result of a permit violation found during an inspection. If you answer "yes", you must implement the corrective action on site within seven (7) days and incorporate it into the SWPCP within ten (10) days of the inspection. Note: You should answer "yes" if work to fix the problem from a previous inspection is still ongoing.

### Notes

For each E&S control and the area immediately surrounding it, note whether the control is properly installed and whether it appears to be working to minimize sediment discharge. Describe any problem conditions you observed such as the following, and why you think they occurred as well as actions (e.g., repairs, maintenance, or corrective action) you will take or have taken to fix the problem:

1. Failure to install or to properly install a required E&S control
2. Damage or destruction to an E&S control caused by vehicles, equipment, or personnel, a storm event, or other event
3. Mud or sediment deposits found downslope from E&S controls
4. Sediment tracked out onto paved areas by vehicles leaving construction site
5. Noticeable erosion at discharge outlets or at adjacent streambanks or channels
6. Erosion of the site's sloped areas (e.g., formation of rills or gullies)
7. E&S control is no longer working due to lack of maintenance

if repairs, maintenance, or corrective action is required, briefly note the reason. If repairs, maintenance, or corrective action have been completed, make a note of the date it was completed and what was done.

**Condition and Effectiveness of Pollution Prevention (Good Housekeeping) Practices**

(see reverse for instructions)

Type/Location of PP Practices [Add an additional sheet if necessary]	Repairs or Other Maintenance Needed?*	Corrective Action Required?*	Notes
1.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
7.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
8.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

**\* Note:** The permit differentiates between conditions requiring repairs and maintenance, and those requiring corrective action. The permit requires maintenance in order to keep controls in effective operating condition and requires repairs if controls are not operating as intended. Corrective actions are triggered only for specific, more serious conditions, which include: 1) A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in the Guidelines; 2) You become aware that the stormwater controls you have installed and are maintaining are not effective enough for the discharge to meet applicable water quality standards or applicable requirements; 3) A prohibited discharge is occurring or has occurred; or 4) Corrective actions are required as a result of a permit violation found during an inspection. If a condition on your site requires a corrective action, engineered corrective actions shall be implemented within 7 days of the inspection.

### Instructions for Filling Out the "Pollution Prevention (Good Housekeeping) Practice" Table

#### Type and Location of PP Controls

Provide a list of all pollution prevention (PP, or Good Housekeeping) practices that are implemented at your site. This list must include all PP practices described in your SWPCP.

#### Repairs or Other Maintenance Needed?

Answer "yes" if the PP practice requires a repair of any kind (due to normal wear and tear, or as a result of damage) or requires maintenance in order for the control to continue operating effectively. Note: In many cases, "yes" answers are expected and indicate a project with an active operation and maintenance program.

#### Corrective Action Needed?

Answer "yes" if during your inspection you found any of the following conditions to be present: (1) a required PP practice was never installed, was installed incorrectly, or not in accordance with the Guidelines; (2) you become aware that the inadequacy of the PP practice has led to an exceedance of an applicable water quality standard; (3) a "prohibited discharge" is occurring or has occurred, or (4) corrective action for a PP practice is required as a result of a permit violation found during an inspection. If you answer "yes", you must implement the corrective action on site within seven (7) days and incorporate it into the SWPCP within ten (10) days of the inspection. Note: You should answer "yes" if work to fix the problem from a previous inspection is still ongoing.

#### Notes

For each PP control and the area immediately surrounding it, note whether the control is properly installed, whether it appears to be working to minimize or eliminate pollutant discharges, and whether maintenance or corrective action is required. Describe problem conditions you observed such as the following, and why you think they occurred, as well as actions you will take or have taken to fix the problem:

1. Failure to install or to properly install a required PP control
2. Damage or destruction to a PP control caused by vehicles, equipment, or personnel, or a storm event
3. Evidence of a spill, leak, or other type of pollutant discharge, or failure to have properly cleaned up a previous spill, leak, or other type of pollutant discharge
4. Spill response supplies are absent, insufficient, or not where they are supposed to be located
5. Improper storage, handling, or disposal of chemicals, building materials or products, fuels, or wastes
6. PP practice is no longer working due to lack of maintenance

If repairs, maintenance, or corrective action is required, briefly note the reason. If repairs, maintenance, or corrective action have been completed, make a note of the date it was completed and what was done.



**Stabilization of Exposed Soil**

Stabilization Area [Add an additional sheet if necessary]	Stabilization Method	Have You Initiated Stabilization?	Notes
1.		<input type="checkbox"/> YES If yes, provide date:	<input type="checkbox"/> NO
2.		<input type="checkbox"/> YES If yes, provide date:	<input type="checkbox"/> NO
3.		<input type="checkbox"/> YES If yes, provide date:	<input type="checkbox"/> NO
4.		<input type="checkbox"/> YES If yes, provide date:	<input type="checkbox"/> NO
5.		<input type="checkbox"/> YES If yes, provide date:	<input type="checkbox"/> NO

**Instructions for Filling Out the "Stabilization of Exposed Soil" Table**

**Stabilization Area**

List all areas where soil stabilization is required to begin because construction work in that area has permanently stopped or temporarily stopped, and all areas where stabilization has been implemented.

**Stabilization Method**

For each area, specify the method of stabilization (e.g., hydroseed, sod, planted vegetation, erosion control blanket, mulch, rock).

**Have You Initiated Stabilization**

For each area, indicate whether stabilization has been initiated.

**Notes**

For each area where stabilization has been initiated, describe the progress that has been made, and what additional actions are necessary to complete stabilization. Note the effectiveness of stabilization in preventing erosion. If stabilization has been initiated but not completed, make a note of the date it is to be completed. If stabilization has been completed, make a note of the date it was completed. If stabilization has not yet been initiated, make a note of the date it is to be initiated, and the date it is to be completed.

**Description of Discharges**

Was a stormwater discharge or other discharge occurring from any part of your site at the time of the inspection?  Yes  No  
If "yes", provide the following information for each point of discharge:

**Observations**

**Discharge Location**  
[Add an additional sheet if necessary]

1.

Describe the discharge:

At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and/or sediment accumulation that can be attributed to your discharge?  Yes  No

If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:

2.

Describe the discharge:

At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and/or sediment accumulation that can be attributed to your discharge?  Yes  No

If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:

3.

Describe the discharge:

At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and/or sediment accumulation that can be attributed to your discharge?  Yes  No

If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:

4.

Describe the discharge:

At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and/or sediment accumulation that can be attributed to your discharge?  Yes  No

If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:

### Instructions for Filling Out the "Description of Discharges" Table

You are only required to complete this section if a discharge is occurring at the time of the inspection.

**Was a Stormwater Discharge Occurring From Any Part of Your Site At The Time of the Inspection?**

During your inspection, examine all points of discharge from your site, and determine whether a discharge is occurring. If there is a discharge, answer "yes" and complete the questions below regarding the specific discharge. If there is not a discharge, answer "no" and skip to the next page.

**Discharge Location** (repeat as necessary if there are multiple points of discharge)

Location of discharge. Specify the location on your site where the discharge is occurring. The location may be an outlet from a stormwater control or constructed stormwater channel, a discharge into a storm sewer inlet, or a specific point on the site. Be as specific as possible; it is recommended that you refer to a precise point on your site map.

Describe the discharge. Include a specific description of any noteworthy characteristics of the discharge such as color; odor; floating, settled, or suspended solids; foam; oil sheen; and other obvious pollution indicators.

Are there visible signs of erosion or sediment accumulation? At each point of discharge and the channel and streambank in the immediate vicinity, visually assess whether there are any obvious signs of erosion and/or sediment accumulation that can be attributed to your discharge. If you answer "yes", include a description in the space provided of the erosion and sediment deposition that you have found, specify where on the site or in the surface water it is found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue.

Summary

The Site is:  In Compliance  Out of Compliance

with the terms and conditions of the SWPCP and General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities.

Describe remedial actions required to bring the Site back into compliance (Refer to Corrective Action Log Form):

Describe interim measures required to minimize the potential for the discharge of pollutants from the Site:

Notes:

Non-engineered corrective actions (as identified in the Guidelines) shall be implemented on site within 24 hours and incorporated into a revised SWPCP within three (3) calendar days of the date of inspection unless another schedule is specified in the Guidelines.

Engineered corrective actions (as identified in the Guidelines) shall be implemented on site within seven (7) days and incorporated into a revised SWPCP within ten (10) days of the date of inspection unless another schedule is specified in the Guidelines or is approved by DEEP.

## ***Corrective Action Log Form***

### **Purpose**

This Corrective Action Log Form is designed to assist you in preparing corrective action reports.

### **Instructions for Using This Log Form**

- **Complete a separate report for each condition that triggers corrective action.** For each triggering condition on your site, you will need to fill out a separate corrective action report form.
- **Complete all required text fields.** Fill out all text fields. (Note: Where you do not need the number of rows provided in the corrective action report form, you leave those rows blank. Or, if you need more space to document your findings, you may add an additional sheet.)
- **Include the corrective action report form with your SWPCP.** Once your form is complete, make sure to include a copy of the corrective action report form in your SWPCP.
- **Retain copies of all corrective action reports with your records.** You must retain copies of your corrective action reports in your records. These reports must be retained for at least 5 years from the date construction is completed.

### **Instructions for Filling Out the Initial Report (Section A)**

You must complete Section A of the report form as soon as possible of discovering the condition that triggered corrective action

#### **Name of Project**

Enter the name for the project.

#### **Today's Date**

Enter the date you completed this form.

#### **Date/Time Problem First Discovered**

Specify the date on which the triggering condition was first discovered. Also specify the time of the discovery.

#### **Name/Contact Information**

Provide the individual's name, title, and contact information as directed in the form.

#### **Description of the Site Condition**

Provide a summary description of the condition you found that triggered corrective action and the specific location where it was found. Be as specific as possible about the location; it is recommended that you refer to a precise point on your site map. If you have already provided this explanation in an inspection report, you can refer to that report.

#### **Deadline for Completing Corrective Action**

This deadline is fixed in CGP Section 5.(b)(4)(B)(iii). For all projects, the deadline is either: (1) within 24 hours from the date you discovered the problem for non-engineered corrective actions, or (2) within seven (7) days for engineered corrective actions. Non-engineered and engineered corrective actions are defined within the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control and are noted in Section A of the Corrective Action Log Form.

**Instructions for Filling Out the Corrective Action Progress Table (Section B)**

You must complete Section B of the report form no later than 7 calendar days after discovering the condition that triggered corrective action.

**Section B.2 – Stormwater Control Modifications to be Implemented**

Provide a list of modifications you plan to make to your stormwater controls to correct the problem and the date you completed such work. Keep in mind that your work must be completed within the timeline specified in Section A for the completion of corrective action work.

Also, if a SWPCP modification is necessary in order to reflect changes implemented at your site, indicate the date you modified your SWPCP.

### Corrective Action Log Form

Section A – Initial Report (Complete this section as soon as possible after discovering the condition that triggered corrective action)					
Name of Project	FUSION SOLAR CENTER PROJECT	Today's Date			
Date Problem First Discovered		Time Problem First Discovered			
Name and Contact Information of Individual Completing this Form					
Provide a brief description of the problem:					
<p><b>Select control(s) needed to correct problem and list in Section B below:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><b>Engineered controls</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Land Grading</li> <li><input type="checkbox"/> Permanent TRM</li> <li><input type="checkbox"/> Retaining Walls</li> <li><input type="checkbox"/> Riprap</li> <li><input type="checkbox"/> Gabions</li> <li><input type="checkbox"/> Permanent Slope Drain</li> <li><input type="checkbox"/> Channel Grade Stabilization Structure</li> <li><input type="checkbox"/> Temporary Lined Chute</li> <li><input type="checkbox"/> Temporary Pipe Slope Drain</li> <li><input type="checkbox"/> Vegetated Waterway</li> <li><input type="checkbox"/> Temporary Lined Channel</li> <li><input type="checkbox"/> Permanent Lined Waterway</li> <li><input type="checkbox"/> Temporary Stream Crossing</li> <li><input type="checkbox"/> Temporary Diversion</li> <li><input type="checkbox"/> Permanent Diversion</li> <li><input type="checkbox"/> Subsurface Drain</li> <li><input type="checkbox"/> Detention Basin</li> <li><input type="checkbox"/> Level Spreader</li> <li><input type="checkbox"/> Outlet Protection</li> <li><input type="checkbox"/> Stone Check Dam</li> <li><input type="checkbox"/> Temporary Sediment Basin</li> <li><input type="checkbox"/> Dewatering of Earth Materials</li> </ul> </td> <td style="width: 50%; vertical-align: top;"> <p><b>Non-engineered controls</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Topsoiling</li> <li><input type="checkbox"/> Surface Roughening</li> <li><input type="checkbox"/> Dust Control</li> <li><input type="checkbox"/> Temporary Seeding</li> <li><input type="checkbox"/> Permanent Seeding</li> <li><input type="checkbox"/> Sodding</li> <li><input type="checkbox"/> Landscape Planting</li> <li><input type="checkbox"/> Temporary Soil Protection</li> <li><input type="checkbox"/> Mulching</li> <li><input type="checkbox"/> Temporary Erosion Control Blanket</li> <li><input type="checkbox"/> Stone Slope Protection</li> <li><input type="checkbox"/> Temporary Fill Berm</li> <li><input type="checkbox"/> Water Bar</li> <li><input type="checkbox"/> Temporary Sediment Trap</li> <li><input type="checkbox"/> Hay Bale Barrier</li> <li><input type="checkbox"/> Silt Fence</li> <li><input type="checkbox"/> Turbidity Curtain</li> <li><input type="checkbox"/> Vegetative Filter</li> <li><input type="checkbox"/> Construction Entrance</li> <li><input type="checkbox"/> Pump Intake and Outlet Protection</li> <li><input type="checkbox"/> Pumping Settling Basin</li> <li><input type="checkbox"/> Portable Sediment Tank</li> </ul> </td> </tr> </table>				<p><b>Engineered controls</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Land Grading</li> <li><input type="checkbox"/> Permanent TRM</li> <li><input type="checkbox"/> Retaining Walls</li> <li><input type="checkbox"/> Riprap</li> <li><input type="checkbox"/> Gabions</li> <li><input type="checkbox"/> Permanent Slope Drain</li> <li><input type="checkbox"/> Channel Grade Stabilization Structure</li> <li><input type="checkbox"/> Temporary Lined Chute</li> <li><input type="checkbox"/> Temporary Pipe Slope Drain</li> <li><input type="checkbox"/> Vegetated Waterway</li> <li><input type="checkbox"/> Temporary Lined Channel</li> <li><input type="checkbox"/> Permanent Lined Waterway</li> <li><input type="checkbox"/> Temporary Stream Crossing</li> <li><input type="checkbox"/> Temporary Diversion</li> <li><input type="checkbox"/> Permanent Diversion</li> <li><input type="checkbox"/> Subsurface Drain</li> <li><input type="checkbox"/> Detention Basin</li> <li><input type="checkbox"/> Level Spreader</li> <li><input type="checkbox"/> Outlet Protection</li> <li><input type="checkbox"/> Stone Check Dam</li> <li><input type="checkbox"/> Temporary Sediment Basin</li> <li><input type="checkbox"/> Dewatering of Earth Materials</li> </ul>	<p><b>Non-engineered controls</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Topsoiling</li> <li><input type="checkbox"/> Surface Roughening</li> <li><input type="checkbox"/> Dust Control</li> <li><input type="checkbox"/> Temporary Seeding</li> <li><input type="checkbox"/> Permanent Seeding</li> <li><input type="checkbox"/> Sodding</li> <li><input type="checkbox"/> Landscape Planting</li> <li><input type="checkbox"/> Temporary Soil Protection</li> <li><input type="checkbox"/> Mulching</li> <li><input type="checkbox"/> Temporary Erosion Control Blanket</li> <li><input type="checkbox"/> Stone Slope Protection</li> <li><input type="checkbox"/> Temporary Fill Berm</li> <li><input type="checkbox"/> Water Bar</li> <li><input type="checkbox"/> Temporary Sediment Trap</li> <li><input type="checkbox"/> Hay Bale Barrier</li> <li><input type="checkbox"/> Silt Fence</li> <li><input type="checkbox"/> Turbidity Curtain</li> <li><input type="checkbox"/> Vegetative Filter</li> <li><input type="checkbox"/> Construction Entrance</li> <li><input type="checkbox"/> Pump Intake and Outlet Protection</li> <li><input type="checkbox"/> Pumping Settling Basin</li> <li><input type="checkbox"/> Portable Sediment Tank</li> </ul>
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<p><b>Deadline for completing corrective action:</b> (Non-engineered corrective actions shall be implemented on site within 24 hours and incorporated into a revised SWPCP within three (3) calendar days of the inspection date. Engineered corrective actions shall be implemented on site within seven (7) days and incorporated into a revised SWPCP within ten (10) calendar days of the inspection date):</p>					

**Section B – Corrective Action Progress**

(Complete this section no later than 7 calendar days after discovering the condition that triggered corrective action)  
**Stormwater Control Modifications to be Implemented to Correct the Problem**

List of Stormwater Control Modification(s) Needed to Correct Problem (Add an additional sheet if necessary)	Date of Completion	SWPCP Update Necessary? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, provide date SWPCP modified:	Notes
1.		<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, provide date SWPCP modified:	
2.		<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, provide date SWPCP modified:	
3.		<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, provide date SWPCP modified:	
4.		<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, provide date SWPCP modified:	
5.		<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, provide date SWPCP modified:	
6.		<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, provide date SWPCP modified:	
7.			



***Stormwater Construction Site Inspection Report***

**CERTIFICATION STATEMENT**

“I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the General Statutes, pursuant to Section 53a-157b of the General Statutes, and in accordance with any other applicable statute.”

**Inspector:**

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

AFFILIATION: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

PHONE: \_\_\_\_\_

DATE: \_\_\_\_\_

**Permittee or his/her authorized representative:**

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

AFFILIATION: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

PHONE: \_\_\_\_\_

DATE: \_\_\_\_\_



***Turbidity Monitoring Report***

**CERTIFICATION STATEMENT**

“I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the General Statutes, pursuant to Section 53a-157b of the General Statutes, and in accordance with any other applicable statute.”

**Inspector:**

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

AFFILIATION: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_

DATE: \_\_\_\_\_

**Permittee or his/her authorized representative:**

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

AFFILIATION: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_

DATE: \_\_\_\_\_

**APPENDIX E**  
**CONSTRUCTION SEQUENCE LOG**

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## Construction Sequence Log

Contractors and subcontractors shall be listed in the table below, with the sequencing, intended timing and actual timing of major activities, and the area of the site each contractor/subcontractor shall be responsible for indicated (this table to be amended/ additional sheets appended as needed). The proposed sequencing of major activities is provided in Section 2.1. Activities listed on this table must include implementation of all stabilization practices and pollution control measures (BMPs), and major grading activities.

Contractor/ Subcontractor	Activity	Location on Site	Intended Timing		Actual Timing	
			Start Date	End Date	Start Date	End Date
Example	Install silt fence	Site perimeter	3/4/10	3/7/10	3/5/10	3/9/10



**APPENDIX F**  
**CT DEEP IMPAIRED WATERS TABLE**

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**Impaired Waters Table for Construction Stormwater Discharges**  
**General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, issued August 21, 2013, effective October 1, 2013**

Waterbody ID or 305B ID	Waterbody Name	Impaired Designated Use	Pollutant	Approved TMDL?
CT4500-00-3-L3_01	Union Pond (Manchester)	Habitat for Fish, Other Aquatic Life and Wildlife	Sedimentation/ Siltation	No
CT4601-00-1-L2_01	Silver Lake (Berlin/ Meriden)	Habitat for Fish, Other Aquatic Life and Wildlife	Turbidity	No
CT5111-09-2-L3_01	Branford Supply Pond, Northwest (Branford)	Habitat for Fish, Other Aquatic Life and Wildlife	Sedimentation/ Siltation	No
CT5111-09-2-L3_01	Branford Supply Pond, Northwest (Branford)	Habitat for Fish, Other Aquatic Life and Wildlife	Total Suspended Solids (TSS)	No
CT5111-09-2-L3_01	Branford Supply Pond, Northwest (Branford)	Habitat for Fish, Other Aquatic Life and Wildlife	Turbidity	No
CT5112-10_01	Burrs Brook-01	Habitat for Fish, Other Aquatic Life and Wildlife	Turbidity	No
CT5200-00-4-L2_01	Hanover Pond (Meriden)	Habitat for Fish, Other Aquatic Life and Wildlife	Sedimentation/ Siltation	No
CT6016-00-1-L3_01	Hatch Pond (Kent)	Habitat for Fish, Other Aquatic Life and Wildlife	Sedimentation/ Siltation	No
CT6016-00-1-L3_01	Hatch Pond (Kent)	Recreation	Sedimentation/ Siltation	No
CT7300-00_01	Norwalk River-01	Habitat for Fish, Other Aquatic Life and Wildlife	Sedimentation/ Siltation	No



**APPENDIX G**  
**NATION RESOURCES CONSERVATION SERVICE SOILS REPORT & MAP**

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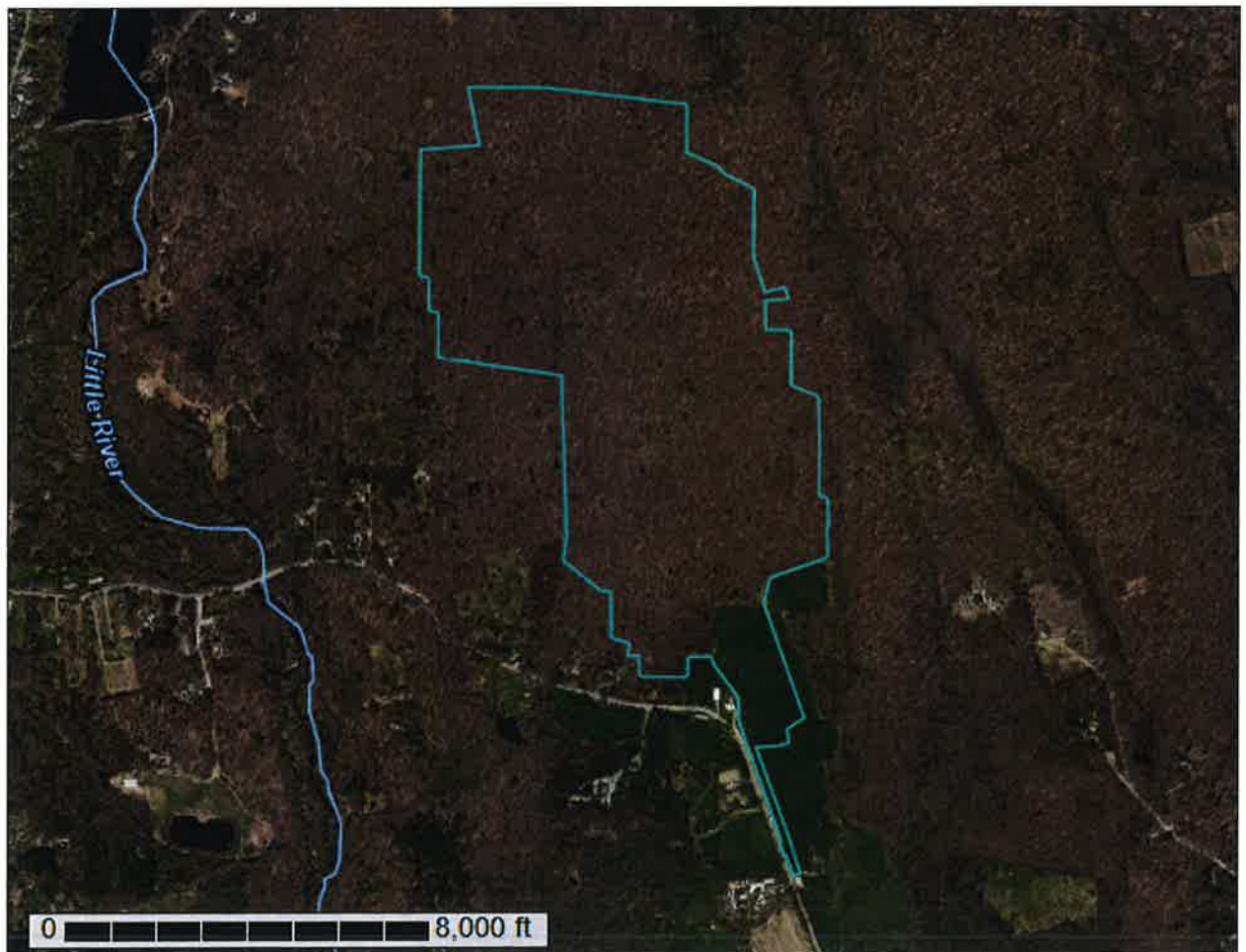
United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for State of Connecticut



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

# Contents

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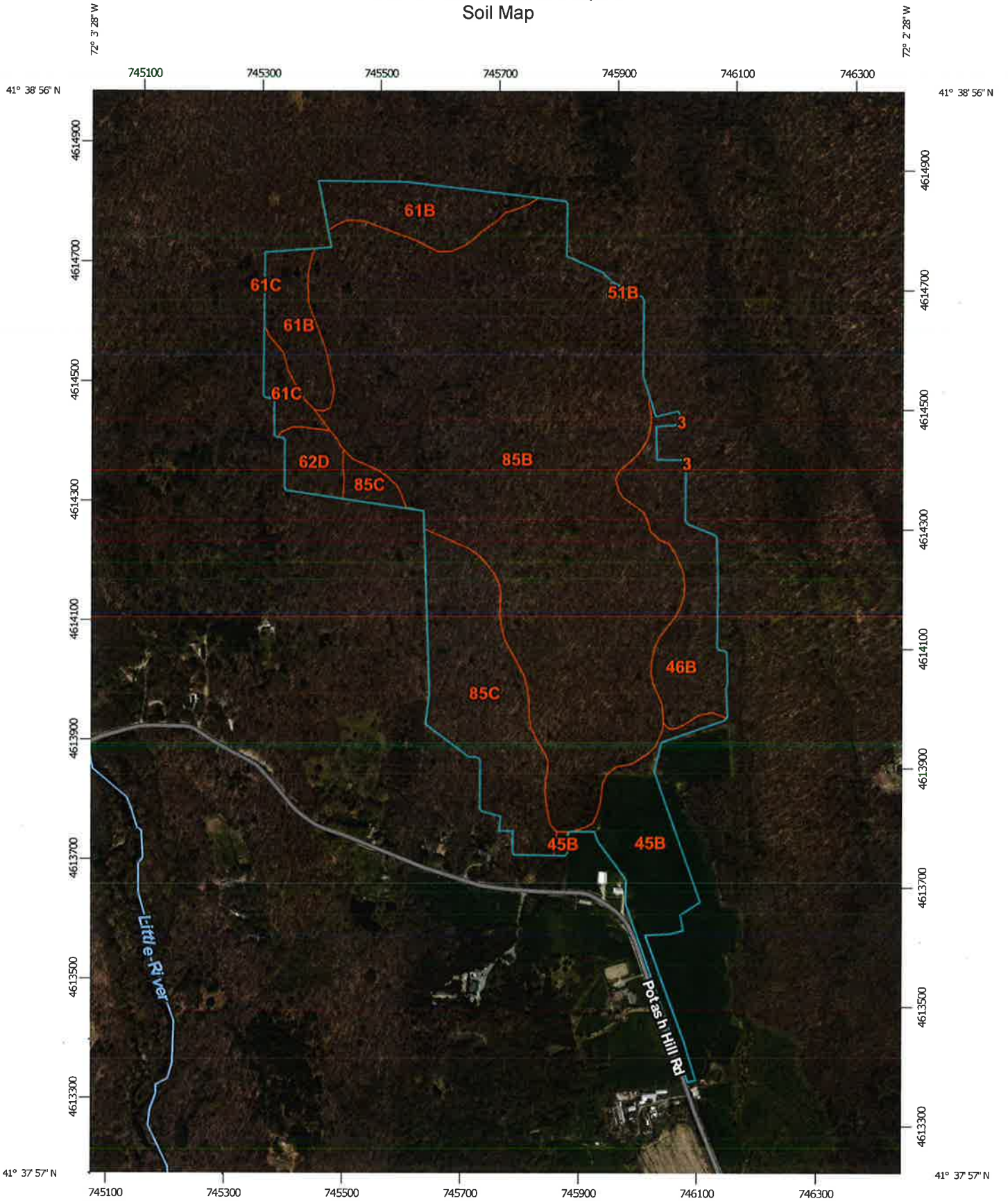
<b>Preface</b> .....	2
<b>Soil Map</b> .....	5
Soil Map.....	6
Legend.....	7
Map Unit Legend.....	8
<b>Soil Information for All Uses</b> .....	9
Soil Properties and Qualities.....	9
Soil Qualities and Features.....	9
Drainage Class.....	9
Water Features.....	12
Depth to Water Table.....	13

# Soil Map

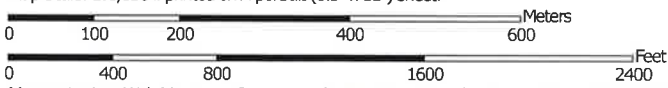
---

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report Soil Map








































Map Scale: 1:8,830 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

## MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soils	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
<b>Special Point Features</b>	 Special Line Features
 Blowout	<b>Water Features</b>
 Borrow Pit	 Streams and Canals
 Clay Spot	<b>Transportation</b>
 Closed Depression	 Rails
 Gravel Pit	 Interstate Highways
 Gravelly Spot	 US Routes
 Landfill	 Major Roads
 Lava Flow	 Local Roads
 Marsh or swamp	<b>Background</b>
 Mine or Quarry	 Aerial Photography
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut  
 Survey Area Data: Version 14, Sep 22, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 28, 2011—May 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Map Unit Legend

State of Connecticut (CT600)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	0.0	0.0%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	9.8	6.8%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	10.5	7.3%
51B	Sutton fine sandy loam, 2 to 8 percent slopes, very stony	0.2	0.1%
61B	Canton and Charlton soils, 3 to 8 percent slopes, very stony	11.2	7.8%
61C	Canton and Charlton soils, 8 to 15 percent slopes, very stony	2.0	1.4%
62D	Canton and Charlton soils, 15 to 35 percent slopes, extremely stony	2.6	1.8%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	89.0	62.2%
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony	17.8	12.4%
<b>Totals for Area of Interest</b>		<b>143.1</b>	<b>100.0%</b>

# **Soil Information for All Uses**

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## **Soil Properties and Qualities**

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

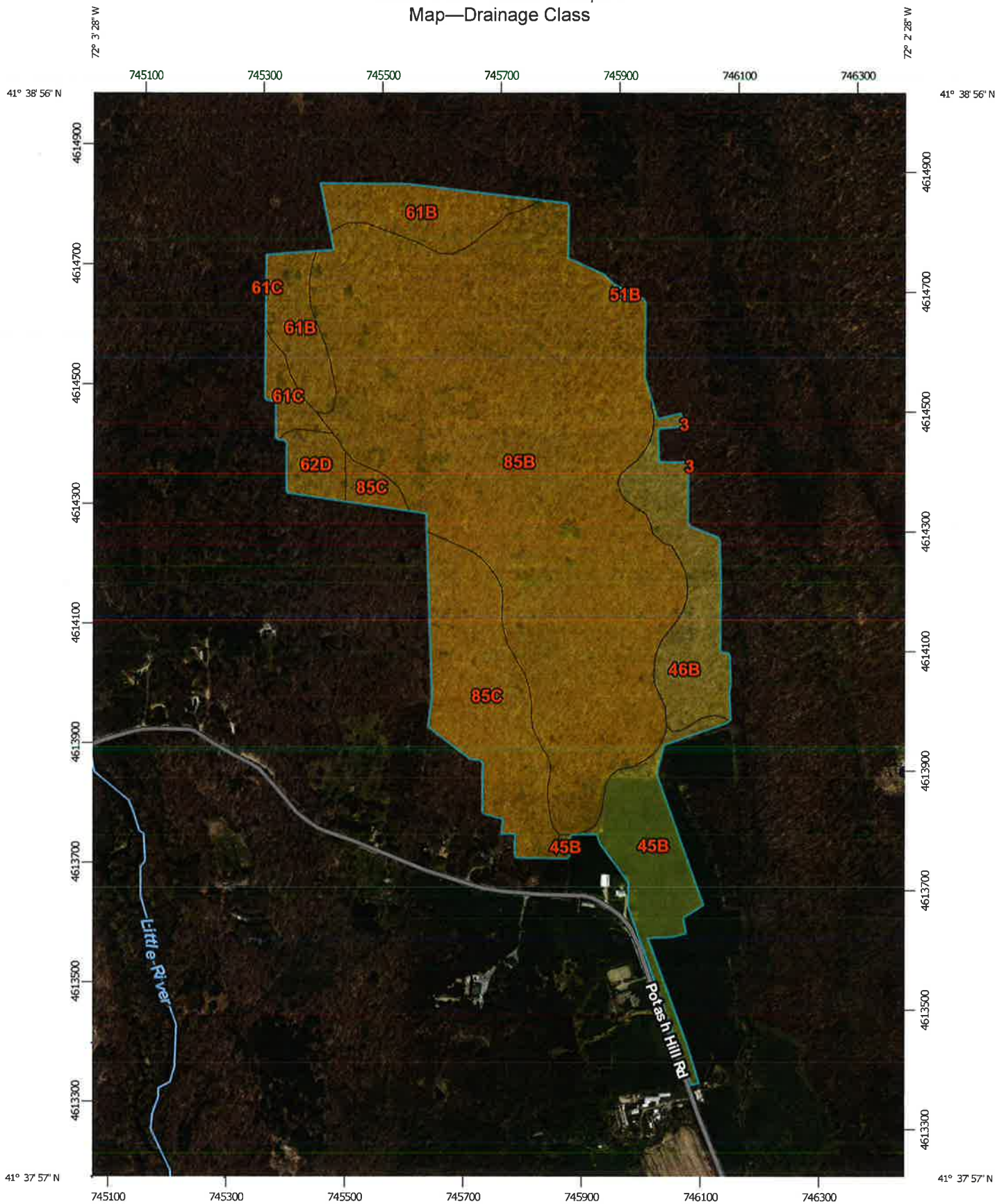
## **Soil Qualities and Features**

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

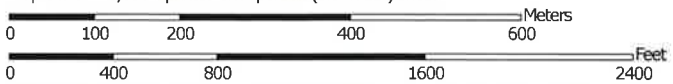
## **Drainage Class**

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

# Custom Soil Resource Report Map—Drainage Class







































Map Scale: 1:8,830 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

## MAP LEGEND

 Area of Interest (AOI)	 Excessively drained
 Area of Interest (AOI)	 Somewhat excessively drained
<b>Soils</b>	 Well drained
<b>Soil Rating Polygons</b>	 Moderately well drained
 Excessively drained	 Somewhat poorly drained
 Somewhat excessively drained	 Poorly drained
 Well drained	 Very poorly drained
 Moderately well drained	 Subaqueous
 Somewhat poorly drained	 Not rated or not available
 Poorly drained	
 Very poorly drained	<b>Water Features</b>
 Subaqueous	 Streams and Canals
 Not rated or not available	<b>Transportation</b>
	 Rails
<b>Soil Rating Lines</b>	 Interstate Highways
 Excessively drained	 US Routes
 Somewhat excessively drained	 Major Roads
 Well drained	 Local Roads
 Moderately well drained	<b>Background</b>
 Somewhat poorly drained	 Aerial Photography
 Poorly drained	
 Very poorly drained	
 Subaqueous	
 Not rated or not available	

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: State of Connecticut  
 Survey Area Data: Version 14, Sep 22, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 28, 2011—May 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

**Table—Drainage Class**

<b>Drainage Class— Summary by Map Unit — State of Connecticut (CT600)</b>				
<b>Map unit symbol</b>	<b>Map unit name</b>	<b>Rating</b>	<b>Acres in AOI</b>	<b>Percent of AOI</b>
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	Poorly drained	0.0	0.0%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	Moderately well drained	9.8	6.8%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	Moderately well drained	10.5	7.3%
51B	Sutton fine sandy loam, 2 to 8 percent slopes, very stony	Moderately well drained	0.2	0.1%
61B	Canton and Charlton soils, 3 to 8 percent slopes, very stony	Well drained	11.2	7.8%
61C	Canton and Charlton soils, 8 to 15 percent slopes, very stony	Well drained	2.0	1.4%
62D	Canton and Charlton soils, 15 to 35 percent slopes, extremely stony	Well drained	2.6	1.8%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	Well drained	89.0	62.2%
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony	Well drained	17.8	12.4%
<b>Totals for Area of Interest</b>			<b>143.1</b>	<b>100.0%</b>

**Rating Options—Drainage Class**

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

**Water Features**

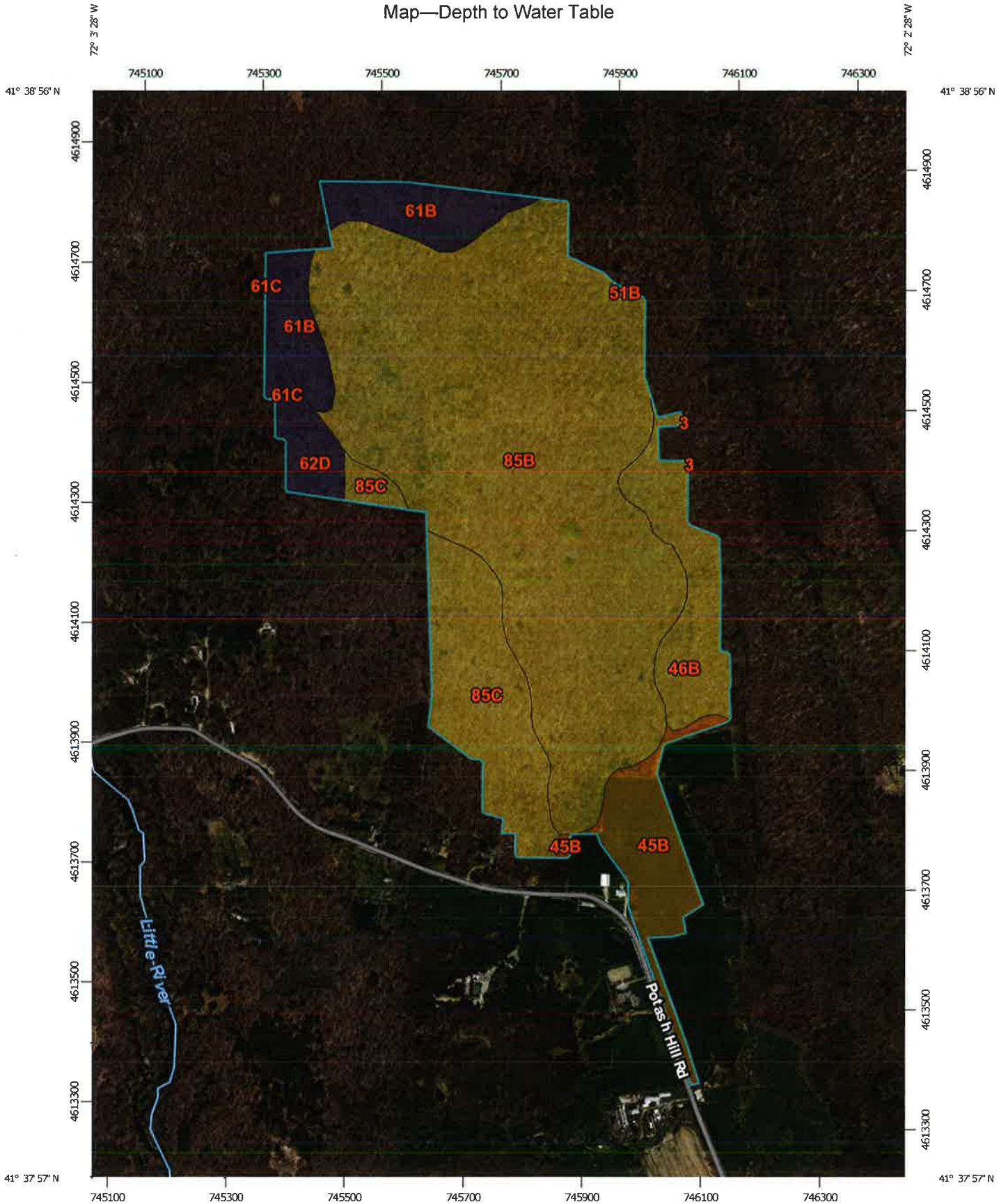
Water Features include ponding frequency, flooding frequency, and depth to water table.

## Depth to Water Table

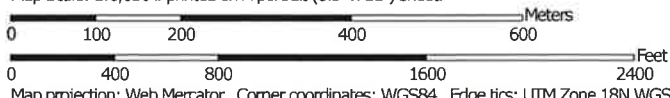
"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

# Custom Soil Resource Report Map—Depth to Water Table



Map Scale: 1:8,830 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.




































Soil Survey Area: State of Connecticut  
 Survey Area Data: Version 14, Sep 22, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 28, 2011—May 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## MAP LEGEND

	Area of Interest (AOI)		Not rated or not available
	Soils		Streams and Canals
	Soil Rating Polygons		Transportation
	0 - 25		Rails
	25 - 50		Interstate Highways
	50 - 100		US Routes
	100 - 150		Major Roads
	150 - 200		Local Roads
	> 200		Background
	Not rated or not available		Aerial Photography
	Soil Rating Lines		
	0 - 25		
	25 - 50		
	50 - 100		
	100 - 150		
	150 - 200		
	> 200		
	Not rated or not available		
	Soil Rating Points		
	0 - 25		
	25 - 50		
	50 - 100		
	100 - 150		
	150 - 200		
	> 200		



Custom Soil Resource Report

**Table—Depth to Water Table**

<b>Depth to Water Table— Summary by Map Unit — State of Connecticut (CT600)</b>				
<b>Map unit symbol</b>	<b>Map unit name</b>	<b>Rating (centimeters)</b>	<b>Acres in AOI</b>	<b>Percent of AOI</b>
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	8	0.0	0.0%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	46	9.8	6.8%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	51	10.5	7.3%
51B	Sutton fine sandy loam, 2 to 8 percent slopes, very stony	61	0.2	0.1%
61B	Canton and Charlton soils, 3 to 8 percent slopes, very stony	>200	11.2	7.8%
61C	Canton and Charlton soils, 8 to 15 percent slopes, very stony	>200	2.0	1.4%
62D	Canton and Charlton soils, 15 to 35 percent slopes, extremely stony	>200	2.6	1.8%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	66	89.0	62.2%
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony	66	17.8	12.4%
<b>Totals for Area of Interest</b>			<b>143.1</b>	<b>100.0%</b>

**Rating Options—Depth to Water Table**

*Units of Measure:* centimeters

*Aggregation Method:* Dominant Component

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Lower

*Interpret Nulls as Zero:* No

*Beginning Month:* January

*Ending Month:* December





**APPENDIX H**  
**CT DEEP AQUIFER PROTECTION AREA MAP**

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# AQUIFER PROTECTION AREAS

Sprague, CT

December 28, 2015

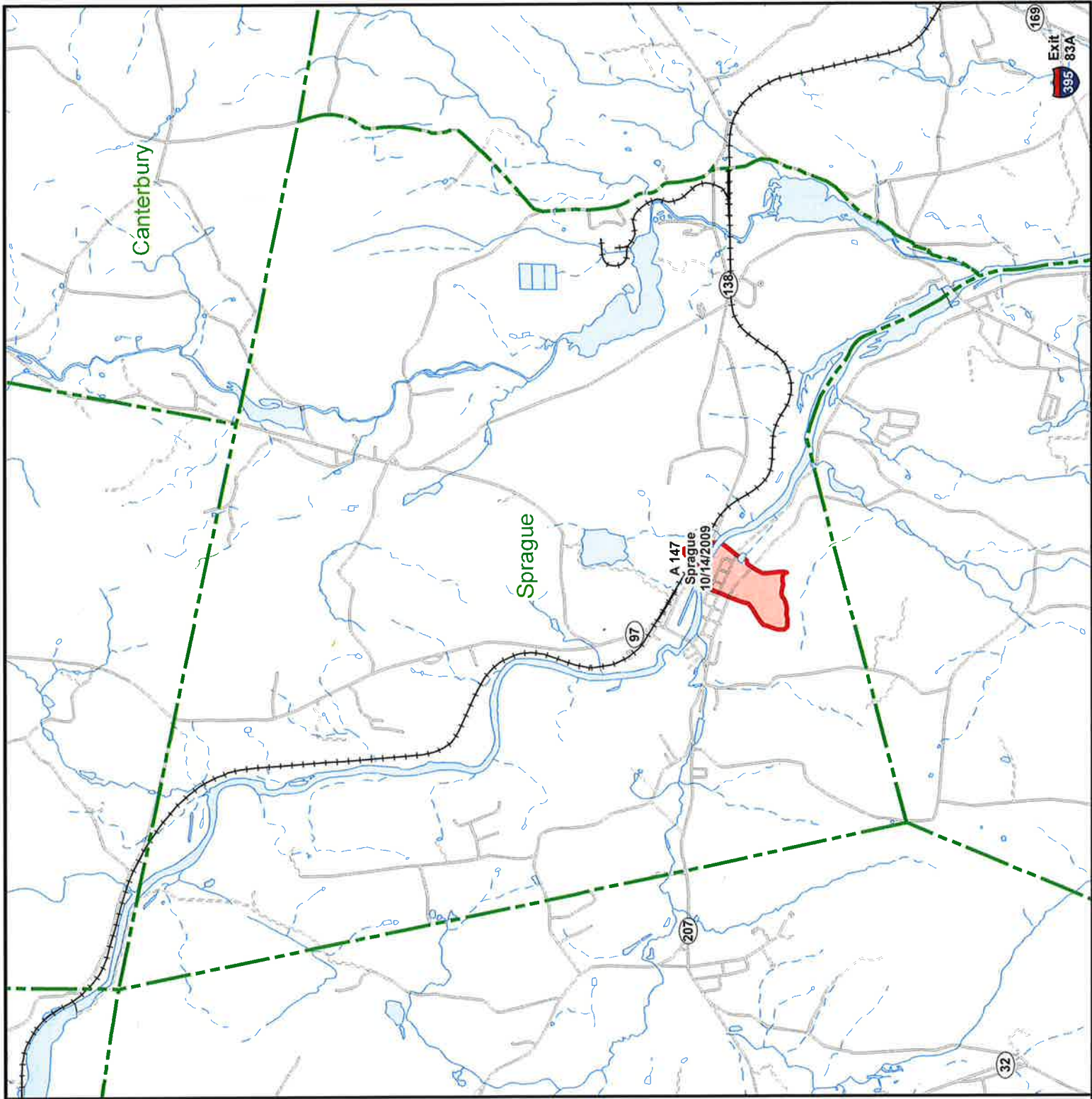
-  Level A APA (Final Adopted)
-  Level A APA (Final)
-  Level B APA (Preliminary)
-  Town Boundary

**NOTE:** The Aquifer Protection Areas were delineated through Connecticut's Level A and Level B Mapping Processes. Aquifer Protection Areas are delineated for active public water supply wells in stratified drift that serve more than 1000 people, in accordance with Sections 22a-354c and 22a-354z of the Connecticut General Statutes. Level B Mapping delineates a preliminary aquifer protection area, providing an estimate of the land area from which the well draws its water. Level A Mapping delineates the final Aquifer Protection Area, which becomes the regulatory boundary for land use controls designed to protect the well from contamination. As Level A Mapping is completed for each well field and approved by DEEP, it replaces the Level B Mapping. Final Adopted Level A Areas are those where towns have land use regulations for them.

Massachusetts and Rhode Island Wellhead Protection Areas may be shown for informational purposes.

**QUESTIONS:**

Bureau of Water Protection and Land Reuse  
 Planning and Standards Division  
 Phone: (860) 424-3020  
[www.ct.gov/deep/aquiferprotection](http://www.ct.gov/deep/aquiferprotection)



**APPENDIX I**  
**STATE HISTORIC PRESERVATION OFFICE LETTER**

---



May 21, 2015

Mr. Ben Combs  
Coronal Development Services  
117 4<sup>th</sup> Street SE  
Charlottesville, VA 22902

Subject: Phase I Archaeological Assessment and Reconnaissance Survey Report  
Fusion Solar Center  
Potash Hill Road  
Sprague, Connecticut

Dear Mr. Combs:

The State Historic Preservation Office (SHPO) has reviewed the Phase I Archaeological Reconnaissance Survey Interim Report prepared by Archaeological Consulting Services (ACS) for the referenced project. The assessment survey described much of the project area as rocky, sloping, or lacking sources of fresh water. As a result, subsurface testing was completed only in those areas thought to have the highest probability for containing intact archeological deposits. Although shovel testing revealed mostly intact soil horizons, only small scatters of pre and post contact materials were identified. It is the opinion of this office that these artifact scatters do not merit archeological site status and they do not possess the qualities of significance for listing on the National Register of Historic Places.

An architectural review resulted in the consideration of two structures. The property located at 85 Potash Hill is a center-chimney Colonial structure that may be eligible for listing on the National Register of Historic Places. SHPO concurs with ACS that the proposed project is not likely to cause visual impacts to this historic property. Without additional architectural and historic analysis, it is difficult to evaluate the potential for listing 111 Potash Hill Road, but it is likely eligible for listing to the State Register of Historic Places. SHPO concurs with ACS that the proposed project will alter the neighboring setting of this structure. SHPO prefers vegetative screening, but if this is not possible, SHPO requests that Historic Resources Inventory Forms are completed for both 85 and 111 Potash Hill Road with sufficient historic information and photo-documentation. Finally, SHPO recommends avoidance of all fieldstone walls and stone wall segments to the greatest extent possible. The investigation appears to meet the standards set forth in the *Environmental Review Primer for Connecticut's Archaeological Resources* and SHPO concurs with the findings of the report that no historic properties will be affected by the proposed undertaking. This comment is conditional upon ACS, submitting two bound copies of the final report to our office.

This office appreciates the opportunity to review and comment upon this project and we appreciate your cooperation in preserving Connecticut's cultural heritage. For additional information, please contact Catherine Labadia, Staff Archeologist, at (860) 256-2764 or [catherine.labadia@ct.gov](mailto:catherine.labadia@ct.gov).

Sincerely,

Mary B. Dunne  
Deputy State Historic Preservation Officer

State Historic Preservation Office

One Constitution Plaza | Hartford, CT 06103 | P: 860.256.2800 | [Cultureandtourism.org](http://Cultureandtourism.org)

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**APPENDIX J**  
**STORMWATER POLLUTION CONTROL PLAN REVIEW CHECKLIST**

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Project # \_\_\_\_\_ Reviewer: \_\_\_\_\_

Review Fee \$ \_\_\_\_\_ Payment Received:  Full \_\_\_\_\_

Site Visit(s) Date: \_\_\_\_\_ Date: \_\_\_\_\_ Date: \_\_\_\_\_

Tracking and Milestones:


**STORMWATER POLLUTION CONTROL PLAN (SWPCP) REVIEW  
GENERAL PERMIT FOR DISCHARGE OF STORMWATER AND DEWATERING  
WASTEWATERS ASSOCIATED WITH CONSTRUCTION ACTIVITIES  
(DEEP-WPED-GP-015)**

**Registrant Information**

Registered Business Name:		Phone:	
Contact person:			

**Site Information**

Site Name:			
Project Type:			
Number of lots/acres:			
Address:			
City/Town:	State:	Zip Code:	

**List Plans, Calculations and Reports Provided by the Registrant**




## Registration Information

### Part I: Registration Type

- Type of registration (i.e. locally approvable, locally exempt, re-registration, new registration)

### Part II: Fee information

- Indication of fee payment

### Part III: Registrant information

- Name, address, phone and contact person for registrant
- Registrant's Secretary of State ID # (if applicable)
- Billing contact name, address and phone (if different from registrant)
- Primary contact person (if different from registrant) with all contact information
- Property owner and contact information (if different from registrant)
- Developer's name and contact information (if different from registrant)
- General contractor and contact information (if different from registrant)
- Name of consultant(s) who assisted in registration and/or SWPCP and contact information
- Signatures of contractors/subcontractors

### Part IV: Site information

- Site name and location
- Description of the project
- Duration of construction activities
- Normal working hours on-site
- Mining operation determination
- Sanitary or combined sewer discharge determination
- Federally recognized Indian lands determination
- Coastal Boundary determination
- Endangered or Threatened Species determination
- Wild and Scenic Rivers determination
- Aquifer Protection Area determination
- Identified that construction activities are in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (the Guidelines)
- Historic and/or Archeological Resource determination
- Conservation or Preservation restriction determination

### Part V: Stormwater Discharge information

- Stormwater Discharge Information Table 1 completed
- Stormwater Discharge Information Table 2 completed
- Impaired waters provisions (if applicable)

### Part VI: Pollution Control Plan information

- SWPCP submission status

### Part VII: Registrant Certification

- Certification signed by registrant or re-registrant

### Part VIII: PE/LA Certification

- Design certification signed by licensed PE or LA (where appropriate)

### Part IX: Third Party Qualified Professional Certification

- Review certification by Conservation District or Qualified Professional

### Part X: Supporting Documents

- Attachment A: USGS Quad map (if submitting paper registration)
- Attachment B: Documentation related to Coastal Consistency Review (if applicable)
- Attachment C: Threatened and Endangered Species form (if applicable) and additional information (such as a copy of a NDDB map)
- Attachment D: Conservation or Preservation Restriction Information (if applicable)
- Attachment E: Non-electronic SWPCP (if applicable)

# CONTENTS OF THE STORMWATER POLLUTION CONTROL PLAN (SWPCP)

## Soil Erosion and Sediment (E&S) Controls

### Site description narrative:

- Described the nature of the construction activities
- Provided total site acreage
- Provided disturbed acreage
- Estimated average runoff coefficient after construction
- Identified immediate and ultimate receiving water(s) of all discharges authorized by Permit
- Identified other permits and/or plans required
- Identified extent of inland, tidal, and fresh-tidal wetlands

### Site map:

- Existing and planned drainage patterns
- Existing and planned elevations and slopes
- Location of structural and non-structural controls
- Description and map of existing soils
- Location of outfall(s) proposed for monitoring
- Limits of soil disturbance
- Location of surface waters, impaired waters, waters with TMDL's
- Existing vegetation
- Locations of E&S controls
- Location of stabilization practices
- Location of post-construction re-vegetation
- Location of utilities, roads and structures
- Location of surface water, including inland wetlands, fresh-tidal wetlands and tidal wetlands
- Locations of discharges to surface waters (pre-, during, and post-construction)
- Locations and provisions for waste disposal
- Locations and provisions for washout areas
- Locations and provisions for impaired waters
- Limits of FEMA floodplains and floodways
- CT coastal resource limits
- CT stream encroachment lines
- Location of any public drinking water supply areas or watersheds

### Construction sequencing:

- Identified sequence of major construction activities and # of days for each sequence
- Estimated start and completion times for each phase
- Avoidance of disturbances over 5 acres at one time, where possible
- Identified limits of disturbance including each phase

### Control Measures:

- Erosion and sediment control measures
- Provided drawings and specifications for each measure
- Identified stabilization practices for disturbed areas
- Identified stabilization practices for stockpiles
- Identified measures to preserve existing vegetation
- Provided details of planned vegetation, seed mixes and planting dates
- Provided details for short-term and long-term stabilization and/or vegetation of disturbed areas
- Identified practices for non-vegetative long-term and winter stabilization
- Provided for slope benches for all slopes exceeding 15 feet height and slopes >3:1 or
- Provided slope stability analysis for engineered slope stabilization measures
- Provided narrative and drawings for structural diversion and storage measures
- Sediment traps provided for drainage areas of 2 to 5 acres
- Temporary sediment basin provided for drainage areas >5 acres
- Described maintenance for E&S control and stabilization measures
- Narrative, drawings and calculations of control measures for dewatering wastewaters
- Description of emergency procedures (for flooding, etc.)
- Runoff Reduction and Low Impact Development (LID) Information (specific measures for run-off reduction and LID measures):

### Control Measures: (continued)

- The location of the streams, floodplains, all wetlands, riparian buffers, slopes 3:1 and steeper, and vegetation identified for preservation
- Natural drainage patterns and man-made drainage features
- Location of areas with soils suitable for infiltration and areas appropriate for LID measures
- Location of all areas unsuitable or least suitable for infiltration for the siting of development
- Location of all post-construction stormwater management measures, runoff reduction practices, and LID design measures developed pursuant to subsection 5(b)(2)(C)(i)
- Identification of areas inappropriate for the infiltration due to potential for groundwater pollution
- A narrative describing the nature, purpose, implementation, and long-term maintenance of post-construction measures, runoff reduction practices and LID design measures
- Calculations for measures developed pursuant to Section 5(b)(2)(C)(i), illustrating the retention of the water quality volume or half the water quality volume
- A narrative describing any site constraints that prevent retention of the appropriate volume specified in Section 5(b)(2)(C)(i)
- Calculations showing the proposed effective impervious cover for the site and, where necessary or appropriate for measures developed for linear projects pursuant to Section 5(b)(2)(C)(i), each outfall drainage area

### Other measures:

- Description of measures to manage construction waste materials
- Description of off-site sediment tracking and dust control
- Narrative, location, and drawings of washout areas
- Description of maintenance practices for washout areas
- Indicated cleaning of post-construction stormwater structures prior to termination inspection
- Indicated removal of silt fence prior to filing termination notice
- Description and location of chemical and petroleum product storage containment and controls
- Narrative describing routine inspection procedures
- Description of qualifications of inspection personnel of the Permittee
- Narrative describing monitoring procedures, including frequency and methodology
- List of all contractor and subcontractors
- Description of Endangered Species measures, if necessary
- Description of Aquifer Protection provisions, if necessary
- Description of provisions of Coastal Site Plan approval, if necessary
- Discussion of archeological or historic preservation issues on site, if necessary
- Description of activities subject to the Wild & Scenic Rivers Act, if necessary

### Impaired waters controls (where applicable):

- Narrative and plan sequencing to ensure no more than 3 acres concurrent disturbance

#### AND

- Identified stabilization practices within 3 days for temporary suspension of activity, **OR**
- Description and calculations showing retention of 2-year, 24-hour storm, **OR**
- Compliance with WLA and/or other measures of an existing TMDL

### Additional E&S Information:

- See attached reviewer's comments page
- Reviewer provided additional information to Registrant: reports, photographs, designs, etc.

## Post-construction Stormwater Controls

### Show on site map:

- Indicated retention standards for redevelopment or other development
- Drainage patterns and slopes after grading
- Location of LID and runoff reduction measures
- Location of other structural sedimentation/floatables treatment measures
- Location of velocity dissipation measures
- Provided drawings and specifications of each stormwater structure/measure

### Narrative of post-construction controls:

- Description of control measures for post-construction stormwater discharge
- Long-term maintenance plan for cleaning of post-construction stormwater structures

### Additional Stormwater Management Information:

- See attached reviewer's comments page
- Reviewer provided additional information to Registrant: reports, photographs, designs, etc.

### Supporting Documents (as needed):

- Calculations supporting the design of sediment and floatables removal controls pursuant to Section 5(b)(2)(C)(ii)(b)
- Calculations supporting the design of velocity dissipation controls pursuant to Section 5(b)(2)(C)(ii)(c)
- Provided boring logs, test pit logs, soil reports, etc.
- Provided hydraulic calculations for existing and planned hydrology
- Provided calculations for LID and runoff reduction measures (WQV or ½ WQV retention)
- Provided engineering calculations for any engineered control measures
- Pre- and post-construction peak flow calculations
- 1 inch of rainfall retained onsite if within 500 feet of a non-fresh tidal wetland
- Provide a post-construction average runoff coefficient
- Off-site effect of flow and volume
- Groundwater flow estimates
- Inspection forms and checklist
- Contractor Certification Statement (including individual lot developers)
- Demonstration of compliance with TMDL, where applicable
- Plan Signature

## IDENTIFIED SOIL EROSION AND SEDIMENT CONTROL MEASURES IN SITE PLANS

Function	Measure	Phase/Sheet	Engineered Design	Calculations Provided	Reviewer Comments
Protect Vegetation	Tree Protection		No		
Preserve & conserve soil	Topsoiling		No		
	Land Grading		Possibly		
	Surface Roughening		No		
	Dust Control		No		
Vegetative soil cover	Temporary Seeding		No		
	Permanent Seeding		No		
	Sodding		No		
	Landscape Planting		No		
Non-living soil protection	Temporary Soil Protection		No		
	Mulch for Seed		No		
	Landscape Mulch		No		
	Temporary Erosion Control Blanket		No		
	Permanent Turf Reinf. Mats		Yes		
	Stone Slope Protection		No		
Stabilization structures	Retaining Walls		Yes		
	Riprap		Yes		
	Gabions		Yes		
	Permanent Slope Drain		Yes		
	Channel Grade Stabilization Structure		Yes		
	Temporary Lined Chute		Yes		
	Temporary Pipe Slope Drain		Yes		
Drainageways & watercourses	Vegetated Waterway		Possibly		
	Temporary Lined Channel		No		
	Permanent Lined Waterway		Yes		
	Temporary Stream Crossing		No		
Diversions	Temporary Fill Berm		No		
	Water Bar		No		
	Temporary Diversion		Possibly		
	Permanent Diversion		Yes		
Subsurface drain	Subsurface Drain		Yes		

**IDENTIFIED SOIL EROSION AND SEDIMENT CONTROL MEASURES IN SITE PLANS  
(CONTINUED)**

Detention structures	Detention Basin		Yes		
Energy dissipators	Level Spreader		Yes		
	Outlet Protection		Yes		
	Stone Check Dam		Possibly		
Sediment impoundments, barriers & filters	Temporary Sediment Basin		Yes		
	Temporary Sediment Trap		No		
	Hay Bale Barrier		No		
	Geotextile Silt Fence		No		
	Turbidity Curtain		No		
	Vegetative Filter		No		
Tire tracked soils	Construction Entrance		No		
Dewatering	Pump Intake and Outlet Protection		No		
	Pump Settling Basin		No		
	Portable Sediment Tank		No		
	Dewatering of Earth Materials		Possibly		



## IDENTIFIED STORMWATER CONTROL MEASURES IN SITE PLANS

Primary Treatment Practices	Phase/Sheet	Engineered Design	Calculations Provided	Low Impact Development
Micropool extended detention				
Wet pond				
Wet extended detention pond				
Multiple pond system				
Pocket pond				
Shallow wetland				
Extended detention wetland				
Pond/wetland system				
Gravel wetland				
Infiltration Trench				
Infiltration Basin				
Infiltration Parking Island				
Surface sand filter				
Underground sand filter				
Perimeter sand filter				
Organic filter				
Tree box filter				
Bioretention/raingarden				
Green Roof				
Dry swales				
Wet swales				
<b>Secondary Treatment Practices</b>				
Dry detention pond				
Underground detention facilities				
Deep sump catch basins				
Oil/particle separators				
Dry wells				
Permeable pavement/pavers				
Vegetated filter strips				
Grass drainage channels				
<b>Other/Innovative/Emerging Technology</b>				
Catch basin inserts				
Hydrodynamic separators				
Media filters				
Underground filtration systems				
Alum injections				
Rainfall harvesting/cisterns				



## STORMWATER MANAGEMENT AND TREATMENT PRACTICES

The General Permit provides goals for the post-construction stormwater management to control discharges of stormwater pollutants. Some measures may not require all of the following information.

**Stormwater Control Measure:** \_\_\_\_\_

Name in Plans \_\_\_\_\_ Practice \_\_\_\_\_ Location \_\_\_\_\_

<i>(Complete this sheet for each post-construction stormwater measure)</i>			
<b>Discharge Calculations provided:</b>			
1. Water Quality Volume (WQV) = _____ (ac-ft)			
2. Water Quality Flow (WQF) = _____ (cfs)			
3. Groundwater Recharge Volume (GRV) = _____ (ac-ft)			
4. Runoff Capture Volume (RCV) = _____ (ac-ft) (only required for non-fresh tidal discharges)			
5. Provided Peak Discharge Rates for the following storm events:			
Storm Event	Pre-Development (cfs)	Post-Development (cfs)	Change (+/- cfs)
24 hr			
2-year			
10-year			
25-year			
100-year			
500-year			
This stormwater measure (or as part of a discharge treatment train) meets the goals of the General Permit: <input type="checkbox"/> Yes <input type="checkbox"/> No			
Comments:          			



# Site Inspection Worksheet for E&S and Stormwater Control Measures

Project #: \_\_\_\_\_ Plans Dated \_\_\_\_\_ Last Revised \_\_\_\_\_

District: \_\_\_\_\_ Reviewer: \_\_\_\_\_

Location: \_\_\_\_\_

Project Description: \_\_\_\_\_

Contact Person for the Site:

Name: \_\_\_\_\_

Company: \_\_\_\_\_ Phone: \_\_\_\_\_

Site Visit Date: \_\_\_\_\_

Weather conditions: \_\_\_\_\_

Photographs taken  Yes  No

Contacted Responsible Party  Yes  No

Inspection submitted to CT DEP  Yes  No

Inspection submitted to Permittee  Yes  No

Comments:

**APPENDIX K**  
**USFWS AND DEEP RARE SPECIES COMPLIANCE**

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## USFWS & NDDB Consultations

**December 28, 2015**

**APT Project No.: CT472100**

**U.S. Fish and Wildlife Service  
70 Commercial Street, Suite 300  
Concord, NH 03301-5087**

**Attn: Susi von Oettingen (via Email: susi\_vonoettingen@fws.gov)**

**Connecticut Department of Energy & Environmental Protection  
Wildlife Division  
79 Elm Street  
Hartford, CT 06106-5127**

**Attn: Jenny Dickson (via Email: Jenny.Dickson@ct.gov)**

**Re: Proposed Fusion Solar Facility  
20 megawatt AC Solar Facility  
Potash Hill Road  
Sprague, New London County, CT  
Lat: 41.641661 Long: -72.044518**

On behalf of Fusion Solar Center, LLC ("Fusion"), All-Points Technology Corporation, P.C. ("APT") performed an evaluation with respect to possible Federally- and State-listed, Threatened, Endangered or Special Concern (State only) species in order to determine if the proposed referenced solar facility would result in a likely adverse effect to Federally- or State-listed species. This consultation was completed in accordance with Section 10 of the Endangered Species Act through the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC")<sup>1</sup> and Natural Diversity Data Base ("NDDB") State Listed Species Review to the Connecticut Department of Energy & Environmental Protection ("CTDEEP") for a proposed installation of a 20 megawatt AC ("MWac") facility at the referenced Site. A copy of the IPaC report and NDDB letter are provided in Attachment 1.

The following rare species were identified through these initial agency consultations in the vicinity of the Project Area:

- Federal and State listed Threatened species long-eared bat (*Myotis septentrionalis*);
- State listed Threatened species clustered sedge (*Carex cumulata*); and,
- State listed species of Special Concern wood turtle (*Glyptemys insculpta*).

CTDEEP also noted records of State-listed Threatened species Bald eagle (*Haliaeetus leucocephalus*) nesting at the nearby Quinebaug River.

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<sup>1</sup> IPaC Consultation Tracking Number: 05E1NE00-2016-SLI-0401, dated December 3, 2015

As a result of this preliminary finding, habitat supported by the Project Area and an evaluation of whether it is suitable for these rare species is described below.

### **Rare Species Descriptions**

**Northern Long-eared Bat** The northern long-eared bat is a medium-sized bat with a body length of 3 to 3.7 inches but a wingspan of 9 to 10 inches. Their fur color can be medium to dark brown on the back and tawny to pale-brown on the underside. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, *Myotis*. During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). Males and non-reproductive females may also roost in cooler places, like caves and mines. Northern long-eared bats are a forest interior species that require adequate canopy closure for both roost and foraging habitat.<sup>2</sup> Northern long-eared bats seem to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices. Suitable northern long-eared bat roosts are trees (live, dying, dead, or snag) with a diameter at breast height ("DBH") of three inches or greater that exhibits any of the following characteristics: exfoliating bark, crevices, cavity, or cracks.<sup>3</sup> In the eastern United States, maternity roost tree species included beech (*Fagus grandifolia*), silver maple (*Acer saccharinum*), red maple (*A. rubrum*), black cherry (*Prunus serotina*), green ash (*Fraxinus pennsylvanica*), black locust (*Robinia pseudoacacia*), elm (*Ulmus spp.*) and artificial roosts.<sup>4,5,6,7,8,3</sup> In New Brunswick, Canada, northern long-eared bat maternity roost trees were 24 times more likely to be found in deciduous trees than conifers<sup>9,8</sup>, although preferred tree species seems to vary throughout the species range.<sup>8</sup> Forest stands with a more diverse stocking of tree species recorded a higher abundance of northern long-eared bats.<sup>10</sup> The availability of mid-decay snags is an important feature in the forest structure for northern long-eared bats.<sup>11,10</sup> Although not exclusive to snag trees, one study of northern long-eared bats documented 100 percent of the population used snag trees during some portion of the maternity roost season.<sup>9</sup> Snags that have shed their branches with sloughing bark seem to offer desirable conditions<sup>11</sup>, although other features such as canopy closure, proximity to water and limited open spaces seem to be equally as important for roost tree selection.<sup>12,12</sup> Isolated trees are considered suitable habitat when they exhibit the characteristics of a suitable roost tree and are less than 1000 feet from the next nearest suitable roost tree

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<sup>2</sup> Lausen, C. 2009. Status of the Northern Myotis (*Myotis septentrionalis*) in Alberta, Alberta Wildlife Status Report No. 3 (Update 2009).

<sup>3</sup> US Fish and Wildlife Service. Northern Long-Eared Bat Interim Conference and Planning Guides, USFWS Regions 2, 3, 4, 5, & 6. January 6, 2014. 67 pp.

<sup>4</sup> Foster, R.W., and A. Kurta. 1999. Roosting ecology of the northern bat (*Myotis septentrionalis*) and comparisons with the endangered Indiana bat (*Myotis sodalis*). *Journal of Mammalogy* 80:659-672.

<sup>5</sup> Grindal, S.D. and R.M. Brigham. 1999. Impacts of forest harvesting on habitat use by foraging insectivorous bats at different spatial scales. *Ecoscience* 6:25-34.

<sup>6</sup> Owen, S.F., M.A. Menzel, W.M. Ford, J.W. Edwards, B.R. Chapman, K.V. Miller, P.B. Wood. 2002. Roost tree selection by maternal colonies of northern long-eared myotis in an intensively managed forest. USDA Forest Service, General Technical Report NE-292, Northeastern Research Station, Newtown Square, PA, p. 6.

<sup>7</sup> Thompson, F.R., III, ed. 2006. Conservation assessments for five forest bat species in the Eastern United States. Gen. Tech. Rep. NC-260. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 82 p.

<sup>8</sup> Lacki, M.J., D.R. Cox, and M.B. Dickinson. 2009. Meta-analysis of Summer Roosting Characteristics of Two Species of *Myotis* Bats. *American Midland Naturalist*. 162:318-326.

<sup>9</sup> Broders, H.G., and G.J. Forbes. 2004. Interspecific and intersexual variation in roost-site selection of northern long-eared and little brown bats in the Greater Fundy National Park ecosystem. *Journal of Wildlife Management* 68: 602-610.

<sup>10</sup> Lacki, M.J., and J. Schwierjohann. 2001. Day roost characteristics of northern bats in mixed mesophytic forest. *Journal of Wildlife Management* 65: 482-488.

<sup>11</sup> Yamasaki, M. 2004. Bats and small mammals in old growth habitats in the White Mountains. In, Bennett, K.P. technical coordinator. 2005. Moving toward sustainable forestry: lessons from old growth forests. University of New Hampshire Cooperative Extension Natural Resource Network Report.

<sup>12</sup> Carter, T.C. and G.A. Feldhamer. 2005. Roost tree use by maternity colonies of Indiana bats and northern long-eared bats in southern Illinois. *Forest Ecology and Management* 219:259-268.

within a woodlot, or wooded fencerow. This bat has also been found rarely roosting in structures, like barns and sheds.

Loss or degradation of summer (forest) habitat is one of several management concerns for this rare species with the principal concern being loss from white-nose syndrome. Depending on type and timing of forest management activities, the potential exists for mortality and temporarily removal or degradation of roosting and foraging habitat.

To avoid killing or injuring northern long eared bat, the following conservation measures are to be adhered to under Interim 4(d) Rule (April 2, 2015) of the federal Endangered Species Act for this species:

- I. No activities are to occur within 0.25 mile of a known, occupied hibernacula<sup>13</sup>
- II. Avoid cutting or destroying of known, occupied roost trees during the pup season of June 1st to July 31st
- III. Avoid clear-cutting (or similar harvesting methods) within 0.25 mile of known, occupied roost trees during the pup season of June 1st to July 31st

However, under the "Project Resulting in Minimal Tree Removal<sup>14</sup>" subsection of Interim 4(d) Rule, incidental take of northern long eared bat resulting from a project where the cumulative acreage of trees to be removed is less than 1 acre and will not significantly change the overall nature and function of the local forest habitat may not be prohibited under Interim 4(d) Rule.

In its July 7, 2015 policy memorandum, the USFWS New England Field Office ("NEFO") recommends for projects that have Federal involvement (not applicable to the proposed project) the following time-of-year restrictions to avoid likely adverse effects to northern long-eared bat that may be roosting in trees that could be cleared (assuming presence). The time-of-year restrictions described below are predicated on the conclusion that if surveys are not conducted to determine whether northern long-eared bats are present, presence is assumed as long as suitable habitat is present.

**April 15 - October 31** - project is located within 1 mile or less from known hibernaculum

**April 15 - September 30** - Known site<sup>15</sup> - acoustic and/or mist-net confirmation

**April 15 - August 31** - Unknown site/no data (with the exception of coastal towns)

Although the proposed project does not have Federal involvement, based on information collected as part of this assessment, APT anticipates that the April 15 – August 31 restrictive period would apply to the proposed project. However, these time-of-year restrictions do not address a minimum acreage below which NEFO does not anticipate habitat impacts to northern long-eared bats. NEFO still needs to review the proposed acreage of tree cutting to ensure that there are no impacts as a result of significant roosting or foraging habitat loss (assuming presence). Information is enclosed herein to assess potential northern long-eared bat impact as a result of the acreage of tree cutting proposed.

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<sup>13</sup> locations of hibernacula are identified by Connecticut Department of Energy and Environmental Protection's ("DEEP") Wildlife Division

<sup>14</sup> Interim 4(d) Rule defines "minimal tree removal" as follows: many activities that involve cutting or removal of individual or limited numbers of trees do not significantly change the overall nature and function of the local forested habitat. Some of these activities include firewood cutting, shelterbelt renovation, removal of diseased trees, tree removal for other small projects (i.e., culvert replacement), habitat restoration for fish and wildlife conservation, and backyard landscaping.

With respect to the term "minimal," USFWS limits the effect to an impact of one acre of contiguous habitat or one acre in total within a larger tract, whether that larger tract is entirely forested or a mixture of forested and non-forested cover types. Tract may be further defined as the property under the control of the project proponent or ownership.

<sup>15</sup> "known site" as determined in consultation between NEFO and the State Natural Resource agency OR projects located in "Coastal New England"

**Clustered Sedge** This sedge is an uncommon medium-sized sedge species typical of dry and sandy soils. This plant is identified by its spikes aggregated into a dense seed head with broad, obovate and nearly beakless perigynia. The habitat it typically colonizes consists of open dry habitats with sandy or gravelly soils, occasionally reported from bogs and saturated sandy substrates.<sup>16</sup> Habitat also consists of open rocky areas, particularly in damp areas on acidic bedrock or shallow soil, recently burned areas with shallow soils and exposed bedrock, powerline corridors, open oak or woodlands, heathlands, and various successional habitats.<sup>17</sup> Additional literature habitat references for this sedge includes sandy, usually well-drained, soils of fields, woodlands, cliff bases, and eroding slopes, sometimes also along railroads.<sup>18</sup>

**Wood Turtle** Wood turtles require wooded riparian habitats bordered by floodplain, woodland, or meadows, requiring rivers or large streams with deeply undercut banks for hibernation.<sup>19</sup> These turtles disperse from water sources during the summer months to terrestrial meadows and woods.<sup>20</sup>

**Bald Eagle** Natural year-round habitat of bald eagles includes large bodies of water containing abundant fish resources, large trees for nesting, perching, and roosting, and minimal human disturbance.<sup>21</sup> Although bald eagles feed primarily on fish, they also are opportunistic predators and scavengers that will eat anything that can be caught easily or scavenged.<sup>22</sup> Preferred feeding habitat includes lakes, rivers, coastal bays, and inlets. Nesting typically occurs in a tall living tree, frequently white pine, near the water's edge.

### **Project Area and Project Descriptions**

Fusion proposes to install a 20 megawatt AC ("MWac") solar-based electric generating facility in Town of Sprague, Connecticut (the "Project"). The Project Area consists of two separate and abutting parcels north of Potash Hill Road, totaling 225± acres (identified in Sprague Assessor records as Map 16, Block 6, Lot 18 and Map 21, Block 2, Lot 2). The Site is bounded by undeveloped woods to the north, east and west; and a cleared agricultural field, residence and Potash Hill Road to the south. Of the 225 acres, Fusion has approximately 170 acres under control for development of the Project.

The proposed solar facility will include the following:

- Approximately 97,000 polycrystalline silicon solar modules or similar photovoltaic ("PV") technology.
- Approximately 10 to 12 utility scale inverters and transformers mounted on concrete equipment pads measuring approximately 20 feet by 40 feet.
- Ground screw or pile-driven foundations and aluminum or steel fixed-tilt racking for solar module mounting.

In totality, the "Project Area" would encompass approximately 144 acres to accommodate the solar arrays, associated equipment, access and tree-free zones (to mitigate shading effects). This will require clearing of approximately 134 acres of existing upland forest. A portion of an adjacent, cleared hayfield (approximately 10 acres in size) is also to be utilized. Upon completion, the solar field will be surrounded by a fence enclosure (comprising approximately 118 acres).

Additional details regarding existing environmental conditions of the Project Area, the proposed project and its potential effect on the environment is provided in the Environmental Assessment report, dated July

---

<sup>16</sup> Field Guide to Carex of New England, Lisa A. Stanley, Number 71, Page 68, Copyright 2011.

<sup>17</sup> Clustered Sedge (Carex cumulate) fact sheet, New York Natural Heritage Program, March 14, 2013.

<sup>18</sup> Haines, A. (2011). New England Wild Flower Society's Flora Novae Angliae. New Haven, CT: Yale University Press.

<sup>19</sup> Klemens, M. W. (1993). Amphibians and Reptiles of Connecticut and Adjacent Regions. State Geological and Natural History Survey of Connecticut, Bulletin 112.

<sup>20</sup> DeGraff, R.M. and Yamasaki, M. (2000) New England Wildlife. Hanover, NH: University Press of New England.

<sup>21</sup> DeGraff, R.M. and Yamasaki, M. (2000) New England Wildlife. Hanover, NH: University Press of New England.

<sup>22</sup> Bald Eagle (Haliaeetus leucocephalus) fact sheet, Connecticut Department of Energy & Environmental Protection



2015, provided in Attachment 2. Project Site Plans are provided in Attachment 3. Representative photographs of the Project Area are provided in Attachment 4.

**Other Agency Consultations**

The Connecticut Siting Council (“Council”) authorized the proposed project (Petition No. 1178) by ruling on September 17, 2015 that the project “would not have a substantial adverse environmental effect”. A copy of the Council’s approval is provided in Attachment 5. Special conditions associated with the Council’s approval include a wood turtle protection plan and a plan to mitigate impacts to the northern long-eared bat.

**Habitat Impact Analysis**

**Northern Long-eared Bat** Available literature suggests that the most probable areas of northern long-eared bat habitat will be in hardwood or mixed forests with primarily closed canopies and mid-decay stage, large-diameter snags. In addition, activities proposed within 1 mile of known northern long-eared bat hibernacula could result in an adverse impact to this species. The following discussion provides an assessment of the loss of forest habitat resulting from the proposed activity in the context of the surrounding forested habitat.

Based on buffered northern long-eared bat hibernacula data provided by the CTDEEP Wildlife Division, the proposed Facility is located ±40 miles northeast from the nearest hibernaculum. Due to the sensitive nature of this data, no mapping is provided depicting the location of this hibernaculum. The proposed project would not result in a likely adverse effect to northern long-eared bat hibernacula since the nearest hibernaculum is located greater than one (1) mile from the project.

A forest fragmentation model has been developed by the University of Connecticut Center for Land Use Education and Research (“CLEAR”) to classify forest cover into four main categories of increasing disturbance – *core, perforated, edge and patch* – based on a key metric called edge width.<sup>23</sup> Core forest areas are sub-classified into three categories – *small core, medium core, and large core* – based on the area of a given core patch: large core forest = >500 acres; medium core = 500 – 250 acres; small core = <250 acres. Based on this forest block analysis tool, the subject property forest is classified as a large core forest (±887 acres) with a portion of the core forest classified as edge (±230 acres; 300 foot buffer from cleared/developed areas). Refer to the Forest Fragmentation Map provided in the Attachment 6. The proposed Fusion project would result in ±134 acres of forest removal; ±123 acres to the core forest block and ±11 acres to edge forest. This equates to relatively small percent impacts to the respective forest types: ±14 percent of the large core forest and ±5 percent of the edge forest. Table 1 below summarizes the forest impact analysis for the proposed project.

**Table 1: Forest Impact Summary**

Forest Type	Core Forest			Perforated	Edge	Patch
	Small	Medium	Large			
Subject Forest	☐	☐	☒	☐	☒	☐
Forest Size (±Ac.)	---	---	887	---	230	---
Forest Removal (±Ac.)	---	---	123	---	11	---
% Forest Removal	0	---	±14	---	±5	---

The proposed forest impact will not result in a change in the core forest classification since the remaining forest would still exceed 500 acres (755 acres of the core forest will remain). The proposed development will also not result in a significant area of tree removal when compared to the overall size of the core forest

<sup>23</sup> Forest Fragmentation Assessment Model. UCONN Center for Land Use Education and Research. 2007. <http://clear.uconn.edu/Projects/landscape/forestfrag/index.htm>

(only a ±14 percent reduction). Within a 2.5-mile radius of the subject forest there are five (5) other large core forest blocks of greater size, 10 medium core forest blocks and 16 small core forest blocks. Refer to the Surrounding Core Forests Map provided in the Attachment 6. Collectively, this represents a significant area of core forest habitat in close proximity to the subject forest that potentially supports northern long-eared bat habitat.

Considering the relatively small amount of forest clearing (±14 percent loss to the large core forest block), the significant amount of remaining large core forest block (755 acres) and amount of large, medium and small core forest blocks located in the vicinity of the subject forest, the proposed Fusion project would not result in a significant change the overall nature and function of the local forest habitat. Because the project will result in a small amount of forest clearing relative to the available habitat in the immediately surrounding area, habitat removal is unlikely to result in significant impacts to the species. Therefore, it is anticipated that removing potential roost trees is not likely to cause indirect adverse effects to northern long-eared bat.

**Protection Plan:** Despite the findings of this analysis, a time-of-year restriction for tree clearing activities is recommended in accordance with USFWS guidance to avoid direct “take” of northern long-eared bat. Typically, tree clearing activities would be restricted from April 15 through August 31 to avoid likely adverse effects to northern long-eared bat that may be roosting in trees (assuming presence) in accordance with the NEFO’s July 7, 2015 policy memorandum. However, the currently anticipated schedule required to complete tree clearing at the proposed Fusion project would be from February 15 through May 15. Considering tree clearing activities may not be completed by April 15, the following approach is proposed to avoid direct take to northern long-eared bat. Tree clearing activities will commence in February with work starting along the perimeter of the project. Not only will this allow installation of perimeter erosion controls, it will segregate the project from surrounding core forest habitat. Tree clearing activities will continue generally in concentric rings working from the project perimeter inward so that a smaller and smaller forest patch remains, disconnected from the larger surrounding core forest. Using this approach, by April 15 if all tree clearing work has not been completed only a small patch forest will remain with a significant buffer created to nearby core forest habitat. Therefore, since this remaining small patch forest would provide suboptimal habitat to northern long-eared bat, no likely adverse effect to this listed species or direct take would be anticipated even if tree clearing work needs to continue until May 15.

This protection plan, which will be incorporated onto the Council’s Development & Management Plans (construction drawings), satisfies a special condition of the Council’s approval.

**Clustered Sedge** This sedge typically habitats consists of open and dry habitats with sand or gravelly soils and occasionally in bogs and saturated sandy substrates.

Soils encompassing the Project Area were field classified predominantly as dense to firm loamy glacial till upland soil units consisting of the following: Canton and Charlton soils, Sutton fine sandy loam, Paxton and Montauk fine sandy loams, and Woodbridge fine sandy loam. Wetland soils identified within the wetland resources consist of dense to firm loamy glacial till Ridgebury, Leicester, and Whitman soils. Field identified soils are generally consistent with digitally available soil survey information obtained from the Natural Resources Conservation Service (“NRCS”)<sup>24</sup>. The proposed Fusion project is predominately located within dense terrestrial forest habitat (with the exception of recently logged areas) with a small portion located within a cool season grass hayfield.

As a result, no open, dry sandy or gravelly habitats are supported by the Project Area. In addition, no wetland habitats will be directly impacted by the proposed development. To avoid potential indirect impact to nearby wetland habitats, a wetland protection plan will be implemented during construction. A copy of the wetland protection plan is provided in Attachment 7. Therefore, since ideal habitat for clustered sedge

---

<sup>24</sup> NRCS Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov/app/>, accessed on July 6, 2015.

is not supported by the Project Area, the proposed Fusion project would not result in a likely adverse impact to this species.

**Wood Turtle** Wood turtle is known to be associated with both aquatic and terrestrial habitats depending on the time of year. During warm weather, turtles will become active migrating from aquatic habitats in search of food and mates into terrestrial habitat typically within  $\pm 1,000$  feet of suitable aquatic habitat. Wood turtle are known to occur in the Little River riparian corridor, located approximately 2,200 feet west of the Fusion project. Although not explicitly stated in the CTDEEP's letter, the potential exists for wood turtle to use portions of Wetland 1 and the unnamed brook particularly during the summer dispersal period.

Protection Plan: Although it is unlikely dispersing wood turtles would be utilizing the Project Area, protective measures will be implemented during construction to avoid unintentional injury or mortality to this species. The proposed turtle protection program consists of several components: isolation of the project perimeter; periodic inspection and maintenance of isolation structures; education of all contractors and sub-contractors prior to initiation of work on the Project Area; protective measures; and, reporting. A copy of the wood turtle protection plan, along with the turtle caution poster, are provided in Attachment 7. This protection plan, which will be incorporated onto the Council's Development & Management Plans (construction drawings), satisfies a special condition of the Council's approval.

**Bald Eagle** CTDEEP noted records of bald eagle nesting at the Quinebaug River. The Quinebaug River is located  $\pm 2.86$  miles east of the Fusion project area. Bald eagle inland habitat is typically associated with lakes, rivers and marshes, where there is plentiful food sources (primarily fish) and tall trees nearby for nesting and roosting. The Project Area does not provide preferred bald eagle habitat. Considering the significant distance to documented bald eagle nesting, roosting and perching habitat at the Quinebaug River, the proposed Fusion project would not result in a likely adverse impact to this State-listed species.

### **Conclusion**

Therefore, the proposed Fusion development would not result in a likely adverse effect to any Federal Threatened or Endangered species, State-listed Threatened, Endangered or Special Concern species provided the referenced protection plans are properly implemented during construction. Based on the information contained in this document, Fusion respectfully requests a determination from NEFO and CTDEEP that it concurs with these findings that the proposed project would is not likely to adversely affect northern long-eared bat, clustered sedge, wood turtle and bald eagle.

Sincerely,



Dean Gustafson  
Senior Environmental Scientist

Enclosures

cc: Ben Combs, Fusion Solar Center, LLC  
Dawn McKay, CTDEEP

# Attachment 1

## Agency Correspondence

---

- USFWS IPaC report, dated December 3, 2015
- NDDB letter, July 8, 2015



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 COMMERCIAL STREET, SUITE 300  
CONCORD, NH 03301  
PHONE: (603)223-2541 FAX: (603)223-0104  
URL: [www.fws.gov/newengland](http://www.fws.gov/newengland)

Consultation Code: 05E1NE00-2016-SLI-0401

December 03, 2015

Event Code: 05E1NE00-2016-E-00578

Project Name: Fusion Solar Sprague Facility

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

## To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

## Official Species List

### Provided by:

New England Ecological Services Field Office  
70 COMMERCIAL STREET, SUITE 300  
CONCORD, NH 03301  
(603) 223-2541  
<http://www.fws.gov/newengland>

**Consultation Code:** 05E1NE00-2016-SLI-0401

**Event Code:** 05E1NE00-2016-E-00578

**Project Type:** POWER GENERATION

**Project Name:** Fusion Solar Sprague Facility

**Project Description:** Fusion proposes to install a 20 megawatt AC solar-based electric generating facility in Town of Sprague, Connecticut . The subject property consists of two separate and abutting parcels north of Potash Hill Road, totaling 225± acres. The Site is bounded by undeveloped woods to the north, east and west; and a cleared agricultural field, residence and Potash Hill Road to the south.

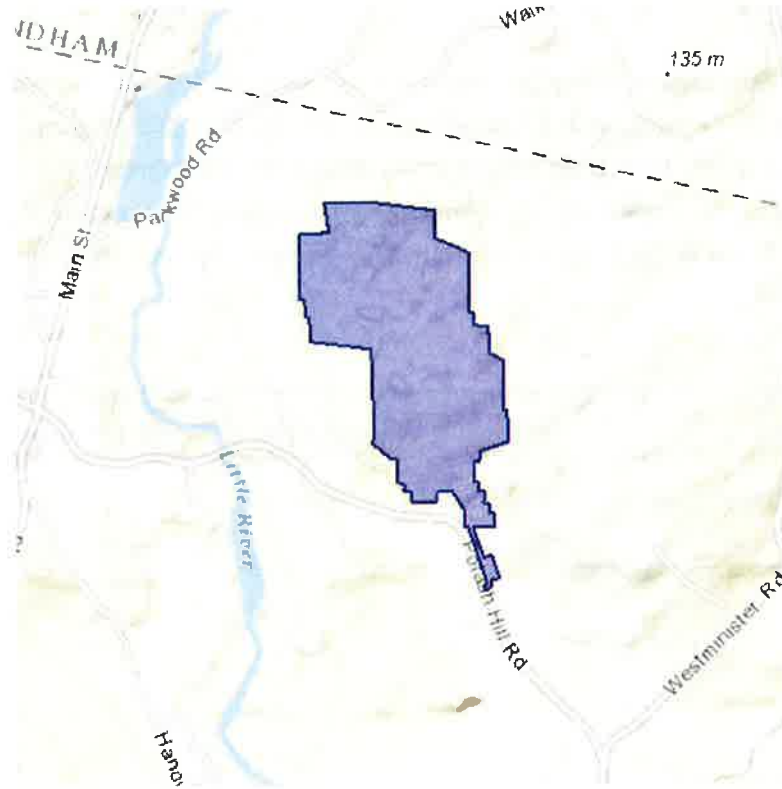
**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

### Project Location Map:



**Project Coordinates:** The coordinates are too numerous to display here.

**Project Counties:** New London, CT





United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

## Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat ( <i>Myotis septentrionalis</i> )	Threatened		



United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

## **Critical habitats that lie within your project area**

There are no critical habitats within your project area.



Connecticut Department of

ENERGY &  
ENVIRONMENTAL  
PROTECTION

July 8, 2015

Dean Gustafson  
All-Points Technology Corporation, P.C.  
3 Saddlebrook Dr  
Killingworth, CT 06419  
dgustafson@allpointstech.com

Project: Proposed Construction of a Solar Powered Electrical Generation Installation Utilizing Photovoltaic Module Technology for Fusion Solar Center on Potash Hill Road in Sprague (Nothing on site but some species in the area)  
NDDDB Determination No.: 201504279

Dear Dean Gustafson,

I have reviewed Natural Diversity Data Base (NDDDB) maps and files regarding the area delineated on the map provided for the proposed Proposed Construction of a Solar Powered Electrical Generation Installation Utilizing Photovoltaic Module Technology for Fusion Solar Center on Potash Hill Road in Sprague (Nothing on site but some species in the area), Connecticut. According to our records we have Federal and State Threatened *Myotis septentrionalis* (long-eared bats), State Threatened *Carex cumulata* (clustered sedge) and State Special Concern *Glyptemys insculpta* (wood turtle) in the vicinity of this property. We also have State Threatened Bald eagles nesting at the adjacent Quinebaug River. I would recommend a site survey of this property to be sure none of these species are impacted by this project. This determination is good for one year. Please re-submit an NDDDB Request for Review if the scope of work changes or if work has not begun on this project by July 8, 2016.

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

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

Sincerely,

A handwritten signature in cursive script that reads 'Dawn M. McKay'.

Dawn M. McKay  
Environmental Analyst 3

# Attachment 2 Environmental Assessment Report

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## **ENVIRONMENTAL ASSESSMENT**

**SOLAR FACILITY INSTALLATION**

**FUSION SOLAR CENTER**

**POTASH HILL ROAD**

**SPRAGUE, CONNECTICUT**

**NEW LONDON COUNTY**

**Prepared for:**

**Fusion Solar Center, LLC  
PO Box 2055  
Charlottesville, VA 22902**

**Prepared by:**

**All-Points Technology Corporation, P.C.  
3 Saddlebrook Drive  
Killingworth, CT 06419**

**July 2015**

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# **Project Introduction**

Fusion Solar Center, LLC ("Fusion") retained All-Points Technology Corporation, P.C. ("APT") to prepare this Environmental Assessment ("EA") for the proposed installation of a 20 megawatt AC ("MWac") solar-based electric generating facility in Town of Sprague, Connecticut (the "Project"). Figure 1, *Project Location Map*, depicts the Project location and surrounding area.

This EA has been completed to support Fusion's submission of a petition for declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of the Project.

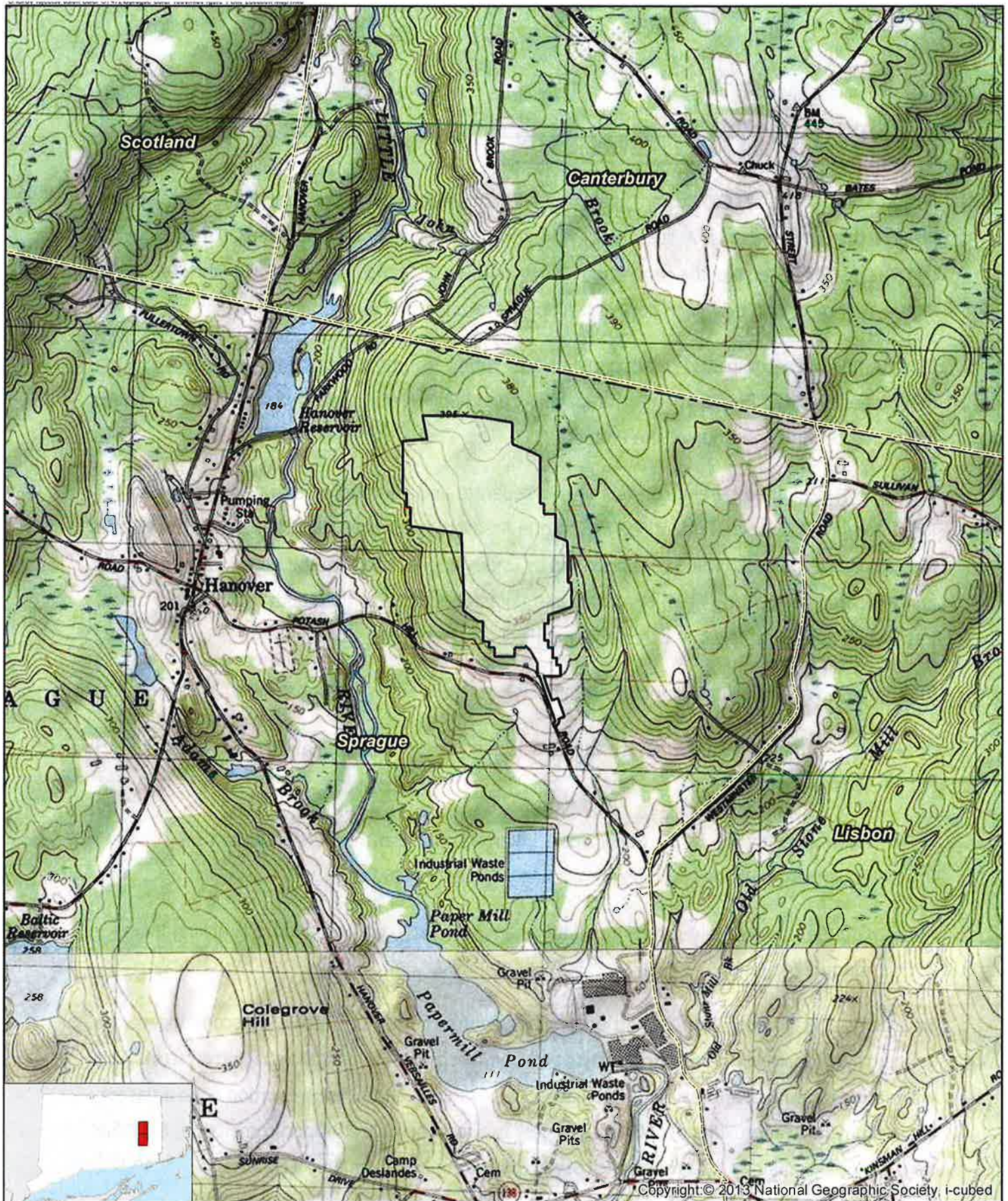
The "Site", as defined herein, consists of two separate and abutting parcels north of Potash Hill Road, totaling 225± acres (identified in Sprague Assessor records as Map 16, Block 6, Lot 18 and Map 21, Block 2, Lot 2). The Site is bounded by undeveloped woods to the north, east and west; and a cleared agricultural field, residence and Potash Hill Road to the south. Of the 225 acres, Fusion has approximately 170 acres under control for development of the Project.

The proposed solar facility will include the following:

- Approximately 97,000 polycrystalline silicon solar modules or similar photovoltaic ("PV") technology.
- Approximately 10 to 12 utility scale inverters and transformers mounted on concrete equipment pads measuring approximately 20 feet by 40 feet.
- Ground screw or pile-driven foundations and aluminum or steel fixed-tilt racking for solar module mounting.

In totality, the "Project Area" would encompass approximately 144 acres to accommodate the solar arrays, associated equipment, access and tree-free zones (to mitigate shading effects). This will require clearing of approximately 134 acres of existing upland forest. A portion of an adjacent, cleared hayfield (approximately 10 acres in size) is also to be utilized. Upon completion, the solar field will be surrounded by a fence enclosure (comprising approximately 118 acres).





**Legend**  
 [Red Rectangle] Project Area  
 [Dashed Line] Municipal Boundary

**Figure 1**  
**Project Location Map**

Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT

*Map Notes:*  
 Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Scotland and Norwich, CT (1983)  
 Site located on the Scotland Quadrangle.  
 Map Scale: 1:24,000  
 Map Date: July 2015



# **Existing Conditions**

Figure 2, *Existing Conditions Map*, depicts current conditions on the Site, its access, abutting properties, and several key features discussed herein. The purpose of this section is to describe current conditions on the Site. A detailed discussion of the proposed Project's effects on the environment is provided in the following section of this document.

## **Project Location**

The ±225-acre Site is located northeast of Potash Hill Road in Sprague, New London County, Connecticut. The Site<sup>1</sup> is identified by the Sprague Tax Assessor as two separate and abutting parcels, including:

- #57 Potash Hill Road (Map 16, Block 6, Lot 18); and,
- #111 Potash Hill Road (Map 21, Block 2, Lot 2).

The majority of the Site is undeveloped, wooded land. The southern portion of the Site is developed with a residence and barn adjacent to Potash Hill Road. A large, open agricultural field is located in this area as well. Land use in the area of the Site consists of large wooded tracts, sparse residential development, and agricultural fields.

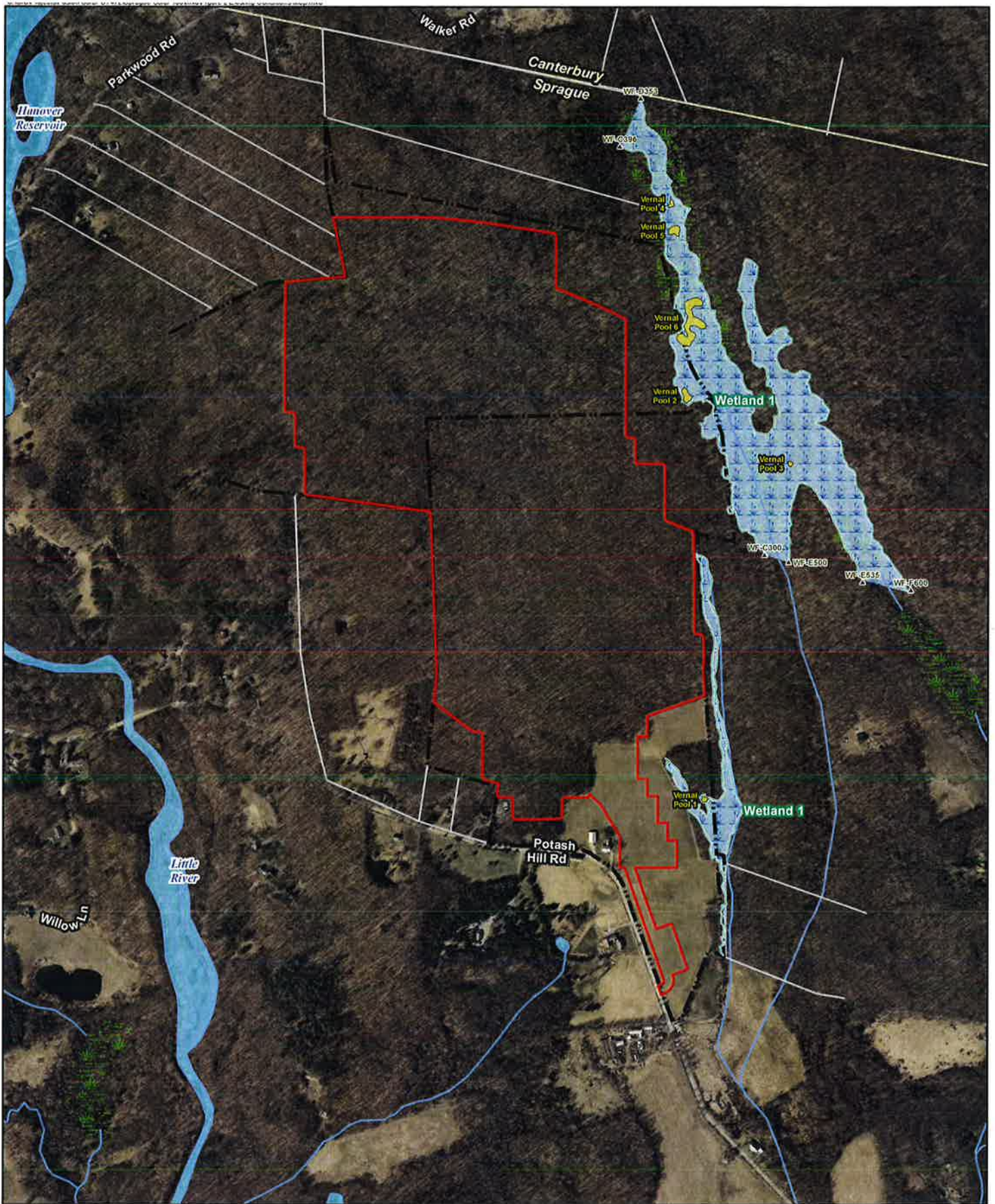
Site topography in the area proposed for development slopes down generally north to south from a height of approximately 370 feet above mean sea level ("AMSL") to 260 feet AMSL.

## **Site Access**

Existing access can be gained via driveways originating off Potash Hill Road in the southern portion of the Site.

---

<sup>1</sup> Fusion Solar Center, LLC currently has approximately 170 acres under control from the property owner for development of the Project. The current design would utilize approximately 144 acres.



- Legend**
- Site Boundary
  - - - Abutting Property Boundary Line
  - Project Area
  - ▲ Start/End Wetland Flag
  - - - Delineated Wetland Boundary Line
  - Wetland Area
  - Vernal Pool

- Hydrography**
- Marsh
  - Water
  - ~ Watercourse



**Figure 2  
Existing Conditions Map**

Proposed Fusion Solar Center Facility  
Potash Hill Rd  
Sprague, CT

**Map Notes:**  
Base Map Source: 2012 Aerial Photograph (CTECO)  
Map Scale: 1 in = 800 ft    Map Date: July 16, 2015



## Wetlands and Watercourses

One (1) large wetland complex is located within and bordering the east side of the Site. This resource (referred to herein as Wetland 1) consists primarily of a broad bordering wetland system with diffuse seasonal intermittent stream channels that eventually focus to a perennial stream system (formed in gently to moderately sloping, dense glacial till) and feeder hillside seep wetland systems. The vast majority of the Site is comprised of upland areas.

Matthew Gustafson, a Connecticut-registered Soil Scientist with APT, conducted inspections of the Site on May 28, 2015 to review and confirm wetland boundaries identified during an initial inland wetlands delineation performed by Josh Wilson of Fuss & O'Neill ("F&O").<sup>2</sup>

A copy of the APT *Wetland Inspection Report* prepared by Mr. Gustafson is included as Appendix A. Wetland 1 is summarized below and depicted on the *Existing Conditions Map* provided as Figure 2.

**Wetland 1** is a large complex wetland system consisting of broad forested wetlands with hummock hollow topography. Generally, the system drains north to south with interior focused and diffuse intermittent stream channels transitioning to perennial stream systems in the southern reaches. Wetland 1 is focused along the eastern side of the Site, originating off-Site to the north, and draining south off-Site. Numerous flow paths and areas of standing water were observed in Wetland 1 during Mr. Gustafson's May 2015 inspection.

Interior to the wetland system are a number of cryptic vernal pool habitats. In total, six (6) vernal pool habitats were identified within Wetland 1. Dominant wetland species include red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), spicebush (*Lindera benzoin*), pepperbush (*Clethra alnifolia*) skunk cabbage (*Symplocarpus foetidus*), Japanese barberry (*Berberis thunbergii*), sensitive fern (*Onoclea sensibilis*), and sphagnum species (*Sphagnum sp.*). Wetland 1 eventually drains into the Little River system to the south.

Soils encompassing the Site were field classified predominantly as upland soil units consisting of the following: Canton and Charlton soils, Sutton fine sandy loam, Paxton and Montauk fine sandy loams, and Woodbridge fine sandy loam. Wetland soils identified within the wetland resources

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<sup>2</sup> A review of Mr. Wilson's delineation was found to be substantially correct.

consist of Ridgebury, Leicester, and Whitman soils. Identified soils are generally consistent with digitally available soil survey information obtained from the Natural Resources Conservation Service ("NRCS")<sup>3</sup>.

## Vernal Pools

During the wetland investigation, APT also conducted surveys to identify and assess vernal pools within Wetland 1. Calhoun and Klemens (2002) provides the following operational definition of vernal pools:

*Vernal pools are seasonal bodies of water that attain maximum depths in the spring or fall, and lack permanent surface water connections with other wetlands or water bodies. Pools fill with snowmelt or runoff in the spring, although some may be fed primarily by groundwater sources. The duration of surface flooding, known as hydroperiod, varies depending upon the pool and the year; vernal pool hydroperiods range along a continuum from less than 30 days to more than one year. Pools are generally small in size (<2 acres), with the extent of vegetation varying widely. They lack established fish populations, usually as a result of periodic drying, and support communities dominated by animals adapted to living in temporary, fishless pools. In the region, they provide essential breeding habitat for one or more wildlife species including Ambystomid salamanders (*Ambystoma* spp., called "mole salamanders" because they live in burrows), wood frogs (*Rana sylvatica*), and fairy shrimp (*Eubranchipus* spp.).*

Vernal pool physical characteristics can vary widely while still providing habitat for indicator species. "Classic" vernal pools are natural depressions in a wooded upland with no hydrologic connection to other wetland systems. Manmade depressions such as quarry holes, old farm ponds and borrow pits can also provide similar habitat. Often, vernal pools are depressions or impoundments within larger wetland systems. These vernal pool habitats are commonly referred to as "cryptic" vernal pools.

Several species of amphibians depend on vernal pools for reproduction and development. These species are referred to as indicator vernal pool species and their presence in a wetland during the breeding season helps to identify that area as a vernal pool.

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<sup>3</sup> NRCS Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov/app/>, accessed on July 6, 2015.

This vernal pool assessment makes an important distinction between wetlands in which indicator species may breed and those wetlands where they breed *and* successfully develop. A common phenomena is for breeding (i.e., mating and egg laying) to occur in bodies of water such as road ruts or temporary puddles where development and metamorphosis of larvae is unsuccessful. Such areas are referred to as “decoy vernal pools” as reproductive efforts are unsuccessful. In their guidance on best development practices for conserving pool breeding amphibians, Calhoun and Klemens (2002) specifically note the negative impact associated with ruts: “*Site clearing can cause water-filled ruts. These ruts intercept amphibians moving toward the vernal pool and may induce egg deposition. Often these ruts do not hold water long enough to allow development of amphibians and therefore acts as “sinks” that result in populations declines.*”

Vernal pool surveys were conducted on June 3<sup>rd</sup>, 5<sup>th</sup> and 18<sup>th</sup> by APT in cooperation with Davison Environmental, LLC. Additionally, APT was provided egg mass survey data collected by F&O on April 7<sup>th</sup> and 22<sup>nd</sup>, 2015<sup>4</sup>.

A total of six (6) vernal pools were identified in Wetland 1. All pools are cryptic vernal pools. Several of the pools are anthropogenic in nature.

Pool 1 consists of an old farm pond. The pond consists of an historic excavation with water retained by an earthen berm on the downslope side. The maximum water depth is approximately two (2) feet. Pool 1 was the most productive pool for spotted salamander, with a total of 143 egg masses observed.

Pool 2 also appears to have originated through historic excavation, likely for agricultural purposes. Pool 2 had a maximum depth of approximately 1.5 feet. Pool 2 had the highest species diversity of any pool, as it supported three indicator species: wood frog, spotted salamander and marbled salamander. Pool 2 was also the most productive pool for wood frog, with 42 egg masses observed.

Pool 3 is a small pool situated close to the headwater stream embedded within Wetland 1. The maximum depth was less than eight inches. F&O recorded 19 wood frog egg masses and two

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<sup>4</sup> Egg mass count data was provided by F&O for Pools 1 through 4. The F&O survey data did not include information on Pools 5, 6 or 7.

spotted salamander egg masses in Pool 3 on April 22<sup>nd</sup>. During APT's dip-net surveys, no larval indicator species were encountered in Pool 3.

Pool 4 is likely anthropogenic in origin. Based on the depth and shape of the pool it appears to have formed in an historic logging road rut. The maximum depth is approximately 15 inches. The pool contained high densities of wood frog larvae. No spotted salamander larvae were found during dip-netting; however F&O's investigations in April noted three egg masses.

Pool 5 is a larger shallow pool in-line with and fed by the diffuse headwater stream which drains from this larger wetland system. The pool is gently sloping with a maximum depth of approximately 10 inches. Larvae of wood frog and spotted salamander were observed as well as several hatched spotted salamander egg masses.

Pool 6 is the largest pool in total surface area. However the pool is shallow throughout (eight inches or less), with most of the activity restricted to several large tree throws. The pool is fed directly by the headwater stream which flows through the pool. Although no egg mass inventory was conducted in this pool, based on the low density of larvae present during dip-netting it is likely that the pool has relatively low productivity. The pool also contained spring peeper tadpoles.

Other wildlife observed within vernal pools included green frog (*Rana clamitans*). The four-toed salamander, a vernal pool facultative species, was observed near Vernal Pool 6. See Tables 1 and 2 for an inventory of observations within the vernal pools.

**Table 1 Amphibians and Reptiles Observed During Vernal Pool Survey**

Common Name	Scientific Name	Status
<b>Amphibians</b>		
fowlers toad	<i>Bufo americanus</i>	
Marbled Salamander	<i>Ambystoma opacum</i>	IM, IS
four-toed salamander	<i>Hemidactylium scutatum</i>	FS
green frog	<i>Rana clamitans</i>	
wood frog	<i>Rana sylvatica</i>	IM, IS
pickrel frog	<i>Rana palustris</i>	
redback salamander	<i>Plethodon cinereus</i>	
spotted salamander	<i>Ambystoma maculatum</i>	IM, IS
spring peeper	<i>Pseudacris crucifer</i>	
two-lined salamander	<i>Eurycea bislineata</i>	
<b>Reptiles</b>		
garter snake	<i>Thamnophis sirtalis</i>	
<b>Status</b> IS – vernal pool indicator species; FS – vernal pool facultative species Wildlife Action Plan Conservation Status (CS): VI – very important; MI – most important; IM – important		

**Table 2 Egg Mass and Larval Survey Results for Vernal Pool Indicator Species**

Pool	Total Egg Masses		Larvae Observed		
	Wood Frog	Spotted Salamander	Wood Frog	Spotted Salamander	Marbled Salamander
1	25*	143	Y	Y	N
2	42*	46	Y	Y	Y
3	19*	2*	N	N	N
4	11*	3*	Y	N	N
5	NO	NO	Y	Y	N
6	NO	NO	Y	Y	N
<b>KEY:</b> "Y"- yes; "N" – no "NO" – not observed. Note that the timing of our initial survey was near the end the egg mass development stage for wood frog and spotted salamander. *Indicates egg mass count data collected by Fuss & O'Neill on April 7 <sup>th</sup> & 22 <sup>nd</sup> 2015					



## Vegetation and Wildlife

The Site contains three (3) plant community types (a.k.a. habitats): (1) forested wetlands; (2) upland forest, (3) cool-season grass hayfield. Two (2) of these habitat types are classified as *key habitats* in the 2015 Connecticut Wildlife Action Plan<sup>5</sup> (WAP, hereinafter). WAP key habitat types include: (1) Upland Forest; and (2) Upland Herbaceous (sub-habitat cool-season grassland). These habitat types are depicted on Figure 3, *Habitat Cover Map*. Forested wetland (Wetland 1) was discussed in the previous section. The remaining vegetative communities are described below:

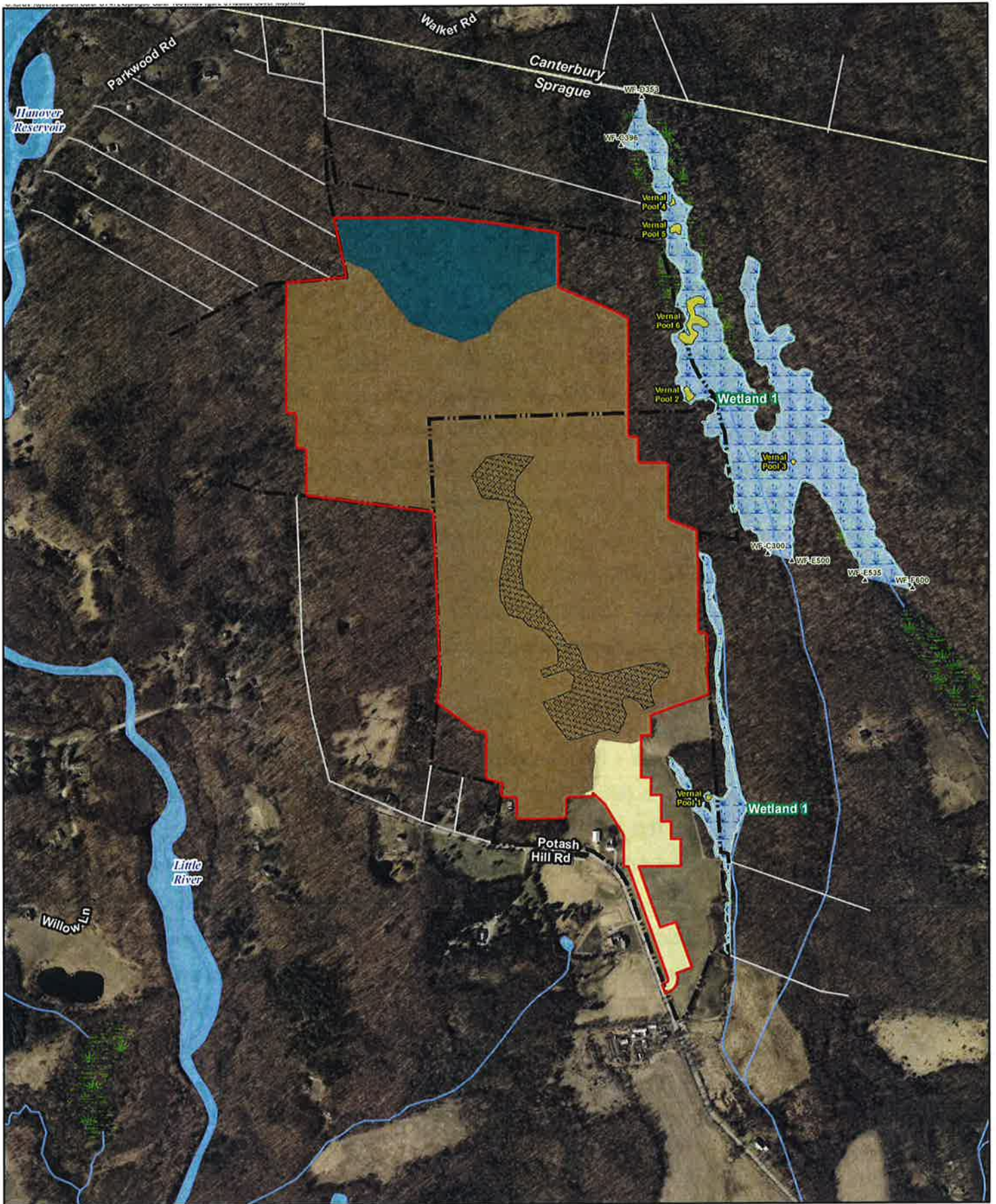
Upland Forest: This habitat type comprises the largest percentage of the Site and occupies a majority of its northern portion. It extends off-Site nearly in all directions. This forest block encompasses approximately 608 acres before being fragmented by agricultural lands and residential properties that lie along Main Street, Potash Hill Road, Woodland Lane, Westminster Road, and Walker Road. The total acreage of forested area associated with the Project Area is approximately 134 acres, of which approximately 10 acres has experienced some level of recent logging activity. Forest metric data was collected for both cover types, including average tree height, species diversity, and trees per acre. Average tree height was recorded at 85 to 95 feet. The number of trees per acre was calculated at 80 trees per acre within managed areas, and 166 trees per acre within intact areas.<sup>6</sup> The recent logging has primarily involved the removal of high value timber species while maintaining some overstory trees and a majority of the understory.

The Upland Forest habitat is generally separated into two distinct cover types which include Northern Red Oak-Yellow Birch and Northern Red Oak – Black Oak – Blue Ridge Blueberry.

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<sup>5</sup> The Wildlife Action Plan, formerly Connecticut's Comprehensive Wildlife Conservation Strategy (2005) is currently in preparation by DEEP for release in 2015. The WAP identifies 10 key habitat types that support all of the State's GCN species.

<sup>6</sup> Trees per acre based on specimens 6 inches or greater in diameter at breast height.



- Legend**
- Site Boundary
  - Abutting Property Boundary Line
  - ▭ Project Area
  - ▲ Start/End Wetland Flag
  - Delineated Wetland Boundary Line
  - ▭ Wetland Area

- |               |  |
|---------------|--|
| ▭ Vernal Pool | <b>Habitat Type</b>  |
| ▭ Marsh       | ▭ Northern Red Oak - Black Oak - Blue Ridge Blueberry Forest |
| ▭ Water       | ▭ Northern Red Oak - Yellow Birch Forest                     |
| ▭ Watercourse | ▭ Cool-Season Grass Hayfield                                 |
|               | ▭ Approximate Areas Logged                                   |



**Map Notes:**  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 in = 800 ft    Map Date: July 16, 2015

**Figure 3  
 Habitat Cover Map**  
 Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT



### Northern Red Oak - Yellow Birch Forest Cover Type

The Northern Red Oak – Yellow Birch forested cover type dominates a majority of the Project Area (approximately 118 of the 134 forested acres) typical of somewhat poorly drained mineral soil. As introduced above, centrally-located portions of this forest cover type have experienced various degrees of logging activity (extending over approximately 10 acres) primarily consisting of high grading cuts (a selective type of timber harvesting that removes the highest grade/most merchantable timber). While Northern red oak (*Quercus rubra*) and yellow birch (*Betula alleghaniensis*) comprise a majority of the dominant overstory, sugar maple (*Acer saccharum*) forms a significant overstory component for most of the cover type. Black oak (*Quercus velutina*), black birch (*Betula lenta*), and American beech (*Fagus grandifolia*) also form elements of the dominant and suppressed overstory and advanced regeneration understory. Other components of the shrub and herbaceous understory include high-bush blueberry, low-bush blueberry, huckleberry, wood fern, and mountain laurel. Unmanaged forested areas are classified as even-aged forest in a stem exclusionary successional phase. As such, the canopy is primarily closed with sparse understory vegetation. Topography is primarily flat to very gently sloping.

### Northern Red Oak – Black Oak – Blue Ridge Blueberry Forest Cover Type

The Northern Red Oak – Black Oak – Blue Ridge Blueberry forested cover type occurs along the northern edge of the Project Area (encompassing approximately 16 acres) and is typical of well drained soils on middle slopes. This forest cover type area has not experienced any recent logging activity. While Northern red oak (*Quercus rubra*) and Black oak (*Quercus velutina*) comprise a majority of the dominant overstory, pignut hickory (*Carya glabra*) and shagbark hickory (*Carya ovata*) form significant overstory components for most of the cover type. Other components of the shrub and herbaceous understory include low-bush blueberry, huckleberry, and various unidentified warm season, forest sedges. This forested cover type area is classified as even-aged forest in a stem exclusionary successional phase. However, as a result of the drainage condition and somewhat infertile soils, the canopy is characterized by intermixed open gaps. Forest groundcover is well established with dense aerial coverage. Topography is primarily flat to very gently sloping.

Cool Season Grass Hayfield: Encompassing a total of 19 acres, this habitat cover type is primarily located along Potash Hill Road in the southern portion of the Site. The Project Area

includes approximately 10 acres of this hayfield which is bi-annually cut to harvest the grass for hay. First cutting typically occurs during the month of June. For the 2015 cutting season, due to the climate regime the field remained intact until the first week of July with the exception of a 30-foot swath cut within the northern portions of the field. This cool season grass hayfield is composed primarily of timothy grass (*Phleum pratense*), orchard grass (*Dactylis glomerata*), and quackgrass (*Elymus repens*) with a small component of red clover. The field is densely vegetated, with no bare ground present.

### **Breeding Bird Inventory**

An inventory of breeding birds was developed by wildlife biologist Eric Davison of Davison Environmental, LLC based on field work conducted on June 3<sup>rd</sup>, 5<sup>th</sup> and 18<sup>th</sup> and July 3, 2015. The inventory includes all breeding birds observed on the Site as well as those that are reasonably expected to occur based on the presence of suitable habitat.

All birds observed on the Site are listed in Table 3. It should be noted that while this inventory does not constitute a detailed breeding bird survey (such a survey was not possible due to the timing of the project initiation), surveys were conducted during the mid-late portion of the prime breeding period for the majority of migratory birds. Therefore, the list of observed birds is considered fairly robust and likely represents the majority of breeding birds present on the Site.

In order to account for the late timing of our study initiation, a separate list of *Potential* (but not observed) breeding birds was developed. Potential breeding birds are listed in Table 4. This list was compiled primarily by reviewing published data on the breeding birds of the State. These sources were analyzed in order to develop the list of birds which were not observed but could potentially breed on the Site.

The primary source utilized was *The Atlas of Breeding Birds of Connecticut*<sup>7</sup> (*Atlas*), which is the result of a five-year study (1982-1986) of all bird species known to breed in the State. The study is the most comprehensive review to date of Connecticut's breeding birds. Additional resources utilized include DeGraaf and Yamasaki (2001) and others listed in the References section of this report. The initial inventory of potential breeding birds was generated solely based on the presence of suitable habitat. That list was then refined by considering such factors as bio-

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<sup>7</sup> Bevier, L. R. (Ed.). *Atlas of Breeding Birds of Connecticut*. 1994. Bulletin 113. State Geological and Natural History Survey of Connecticut. 461 p.

geographical distribution, the presence or absence of critical habitat features and minimum patch size requirements. The inventory is subdivided by habitat type. A species is listed under the habitat which represents its primary breeding type. However, a species should be considered to be potentially present within the ecotones associated with their primary habitat at any given time.

This report focuses on species considered to be of high conservation priority in Connecticut as designated in the 2015 Connecticut Wildlife Action Plan. The WAP was created to establish a framework for proactively conserving Connecticut's fish and wildlife, including their habitats. The WAP identifies species of "Greatest Conservation Need", or GCN species that fall into three categories in descending order of significance from "most important to "very important" and finally "important". The WAP also identifies 10 key habitat types that support all of the State's GCN species.

A total of 64 birds are identified in the breeding bird inventory (see Tables 3 and 4), with 49 confirmed and another 15 listed as potential breeders based on the presence of suitable habitat. This list includes nine (9) *important* species (6 observed, 3 potential); eight (8) *very important* species (6 observed, 2 potential); and two (2) *most important* species (both observed).

The majority of birds are associated with the Site's upland forest habitat. The hayfield itself supports a smaller number of breeding species, while numerous species utilize the forest/hayfield edge.

**Table 3 Observed Birds**

Common Name	Scientific Name	CS	Habitat Type
American crow	<i>Corvus brachyrhynchos</i>		MHF, FW, HY, OF
American goldfinch	<i>Carduelis tristis</i>		HY, OF
American robin	<i>Turdus migratorius</i>		MHF
barn swallow	<i>Hirundo rustica</i>		HY
Bobolink	<i>Dolichonyx oryzivorus</i>	SC, VI	HY
black and white warbler	<i>Mniotilta varia</i>	IM	MHF
black-billed cuckoo (OS)	<i>Coccyzus erythrophthalmus</i>	VI	MHF/OF
black-capped chickadee	<i>Parus atricapillus</i>		MHF
blue-gray gnatcatcher (OS)	<i>Poliophtila caerulea</i>		HY, MHF, OF
blue Jay	<i>Cyanocitta cristata</i>		MHF
brown-headed cowbird	<i>Molothrus ater</i>		HY, OF, MHF
chipping sparrow	<i>Spizella passerina</i>		MHF, OF
common grackle	<i>Quiscalus quiscula</i>		MHF, HY, OF
common raven	<i>Corvus corax</i>		MHF
common yellowthroat (OS)	<i>Geothlypis trichas</i>		OF, HY
downy woodpecker	<i>Picoides pubescens</i>		MHF
eastern towhee	<i>Pipilo erythrophthalmus</i>	VI	MHF, OF
eastern wood pewee	<i>Contopus virens</i>	IM	MHF
European starling	<i>Sturnus vulgaris</i>		HY
field sparrow (OS)	<i>Spizella pusilla</i>	VI	OF
gray catbird	<i>Dumetella carolinensis</i>		MHF, OF
great-crested flycatcher	<i>Myiarchus crinitus</i>		MHF, OF
northern waterthrush	<i>Seiurus noveboracensis</i>	IM	FW
red-winged blackbird	<i>Agelaius phoeniceus</i>		HY
northern flicker	<i>Colaptes auratus</i>	VI	MHF, OF
northern oriole	<i>Icterus galbula</i>	IM	MHF, OF
house sparrow	<i>Passer domesticus</i>		HY
house wren	<i>Troglodytes aedon</i>		HY
mourning dove	<i>Zenaida macroura</i>		HY, MHF, OF
northern cardinal	<i>Cardinalis cardinalis</i>		MHF
Ovenbird	<i>Seiurus aurocapillus</i>	IM	MHF
pileated woodpecker	<i>Dryocopus pileatus</i>		MHF
red-bellied woodpecker	<i>Melanerpes carolinus</i>		MHF
red-eyed vireo	<i>Vireo olivaceus</i>		MHF
red-shouldered hawk	<i>Buteo lineatus</i>		MHF
ruby-throated hummingbird	<i>Archilochus colubris</i>		HY, OF
scarlet tanager	<i>Piranga olivacea</i>	VI	MHF
song sparrow	<i>Melospiza Melodia</i>		OF, HY
tree swallow	<i>Tachycineta bicolor</i>		HY

Common Name	Scientific Name	CS	Habitat Type
tufted titmouse	<i>Parus bicolor</i>		MHF
turkey vulture	<i>Cathartes aura</i>		HY, OF
veery	<i>Catharus fuscescens</i>	IM	MHF
white-breasted nuthatch	<i>Sitta carolinensis</i>		MHF
wild turkey	<i>Meleagris gallopavo</i>		MHF, FW, HY, OF
wood thrush	<i>Hylocichla mustelina</i>	MI	MHF
Woodcock	<i>Scolopax minor</i>	MI	OF, FW
yellow warbler	<i>Dendroica petechia</i>		HY, OF
yellow-throated vireo	<i>Vireo flavifrons</i>		MHF
<b>KEY</b> OS – species was heard or seen during field surveys but was observed offsite only WAP Conservation Status: IM – Important; VI – Very Important; MI – Most Important SC – State-listed species of special concern Habitat Types (observed and potential use): MHF – mixed hardwood forest; FW – forested wetland; HY – hayfield; OF – old field (old field habitat is located offsite to the east)			

**Table 4 Potential Birds (Not Observed) Based on Suitable Habitat**

Common Name	Scientific Name	CS	Habitat Type
American Redstart	<i>Setophaga ruticilla</i>		MHF
barred Owl	<i>Strix varia</i>		MHF
broad-winged hawk	<i>Buteo platypterus</i>	SC, VI	MHF, FW
brown creeper	<i>Certhia americana</i>	IM	FW
cooper's Hawk	<i>Accipiter cooperii</i>		HY
eastern bluebird	<i>Sialia sialis</i>		HY
eastern kingbird	<i>Tyrannus tyrannus</i>	IM	HY
great Horned owl	<i>Bubo virginianus</i>		MHF, HY
hairy woodpecker	<i>Picoides villosus</i>		MHF
hermit thrush	<i>Catharus guttatus</i>		MHF
hooded warbler	<i>Wilsonia citrina</i>		MHF
red-tailed hawk	<i>Buteo jamaicensis</i>		MHF, HY
rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	IM	MHF
wood duck	<i>Aix sponsa</i>		FW
worm-eating warbler	<i>Helmitheros vermivorus</i>	VI	MHF
<b>KEY</b> WAP Conservation Status: IM – Important; VI – Very Important; MI – Most Important SC – State-listed species of special concern Habitat Types: MHF – mixed hardwood forest; FW – forested wetland; HY – hayfield			

## Rare Species

The Connecticut Department of Energy and Environmental Protection ("CTDEEP") Natural Diversity Data Base ("NDDB") program performs hundreds of environmental reviews each year to determine the impact of proposed development projects on state listed species and to help landowners conserve the state's biodiversity. State agencies are required to ensure that any activity authorized, funded or performed by a state agency does not threaten the continued existence of endangered or threatened species. Maps have been developed to serve as a pre-screening tool to help applicants determine if there is a potential impact to state listed species.

The NDDB maps represent approximate locations of endangered, threatened and special concern species and significant natural communities in Connecticut. The locations of species and natural communities depicted on the maps are based on data collected over the years by CTDEEP staff, scientists, conservation groups, and landowners. In some cases an occurrence represents a location derived from literature, museum records and/or specimens. These data are compiled and maintained in the NDDB. The general locations of species and communities are symbolized as shaded (or cross-hatched) areas on the maps. Exact locations have been masked to protect sensitive species from collection and disturbance and to protect landowner's rights whenever species occur on private property.

APT reviewed the most recent CTDEEP NDDB mapping (December 2014) to determine if any such species or habitats occur within the vicinity of the Site. Based on the NDDB mapping, no Threatened, Endangered, or Special Concern species or critical habitats are known to occur at or abutting the Site. The nearest shaded areas on the NDDB mapping occurs over 1,500 feet to the northwest, around the Hanover Reservoir.

APT also submitted a review request to the CTDEEP NDDB on June 12, 2015 with respect to this Project to confirm no Threatened, Endangered, or Special Concern species or critical habitats exist at the Site. The CTDEEP responded in a letter dated July 8, 2015 that records exist in the vicinity of the project for three listed species, including one plant and two animals:

- State listed Threatened species clustered sedge (*Carex cumulata*);
- Federal and State listed Threatened species long-eared bat (*Myotis septentrionalis*); and,
- State listed species of Special Concern wood turtle (*Glyptemys insculpta*).



A copy of the *CTDEEP NDDB Letter* is provided in Appendix B.

State listed Threatened species bald eagle was also noted as nesting along the Quinebaug River. A discussion of these species follows below.

### Clustered Sedge

Clustered sedge is an uncommon medium-sized sedge species typical of dry and sandy soils. This plant is identified by its spikes aggregated into a dense seed head with broad, obovate and nearly beakless perigynia. The habitat it typically colonizes consists of open and dry habitats with sand or gravelly soils. Occasionally this species has been reported as occurring in bogs and saturated sandy substrates<sup>8</sup>.

### Northern Long-Eared Bat

The northern long-eared bat's range encompasses the entire State of Connecticut. Loss or degradation of summer (forest) habitat is one of several management concerns for this rare species with the principal concern being loss from white-nose syndrome.

The northern long-eared bat is a medium-sized bat with a body length of 3 to 3.7 inches but a wingspan of 9 to 10 inches. Their fur color can be medium to dark brown on the back and tawny to pale-brown on the underside. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, *Myotis*. During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). Males and non-reproductive females may also roost in cooler places, like caves and mines. Northern long-eared bats seem to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices. Suitable northern long-eared bat roosts are trees (live, dying, dead, or snag) with a diameter at breast height ("DBH") of three inches or greater that exhibits any of the following characteristics: exfoliating bark, crevices, cavity, or cracks.<sup>9</sup> Isolated trees are considered suitable habitat when they exhibit the characteristics of a suitable roost tree and are less than 1,000 feet from the next nearest suitable

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<sup>8</sup> Field Guide to Carex of New England, Lisa A. Stanley, Number 71, Page 68, Copyright 2011.

<sup>9</sup> US Fish and Wildlife Service. Northern Long-Eared Bat Interim Conference and Planning Guides, USFWS Regions 2, 3, 4, 5, & 6. January 6, 2014. 67 pp.

roost tree within a woodlot, or wooded fencerow. This bat has also been found rarely roosting in structures, like barns and sheds.

NDDB records indicate that the documented occurrence of northern long-eared bat was associated with a historic acoustic survey. No records exist for known northern long-eared bat hibernaculum or breeding/roosting habitat in the vicinity of the Site.

### Wood Turtle

The wood turtle is characterized as having a deeply sculptured carapace (top shell) with dark brown or black with faint yellow lines radiating from the center of each segment coloration. The carapace is relatively flat and keeled, with a noticeable ridge running from the front to back. Wood turtle is known to be associated with both aquatic and terrestrial habitats depending on the time of year. During warm weather, turtles will become active migrating from aquatic habitats in search of food and mates. Terrestrial habitat is usually within 1,000 feet of suitable aquatic habitat. During seasonal temperature drops, wood turtles return to riverine habitats to hibernate<sup>10</sup>.

### Bald Eagle

Bald Eagle migration patterns are complex, dependent on age of the individual, climate (particularly during the winter) and availability of food.<sup>11</sup> Adult birds typically migrate alone and generally as needed when food becomes unavailable, although concentrations of migrants can occur at communal feeding and roost sites. Migration typically occurs during the middle of day (10:30–17:00) as thermals provide for opportunities to soar up with limited energetic expense; Bald Eagle migration altitudes are estimated to average 1,500–3,050 m by ground observers.<sup>12</sup>

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<sup>10</sup> Information provided by CT DEEP Wood Turtle (*Glyptemis insculpta*) Fact Sheet, accessed on July 9, 2015.

<sup>11</sup> Buehler, David A. 2000. Bald Eagle (*Haliaeetus leucocephalus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/506> [Accessed 09/09/13].

<sup>12</sup> Harmata, A. R. 1984. Bald Eagles of the San Luis valley, Colorado: their winter ecology and spring migration. Ph.D. Thesis. Montana State Univ. Bozeman.

Four adults tracked by fixed-wing aircraft in Montana averaged 98 km/d during spring migration and migrated at 200–600 m above ground (McClelland et al. 1996).<sup>13</sup>

Two (2) additional state-listed species of special concern were identified in the breeding bird inventory, including the bobolink and broad-winged hawk. The bobolink was observed at the Site while the broad-winged hawk is considered a potential Site breeder.

### Bobolink

The bobolink is the most common grassland species in the state, although the species has been steadily declining throughout the region (Comins, et. al. 2001). Conventional haying techniques which include mechanical harvesting in June often do not allow for full maturation and fledging of young prior to hay harvesting, and as a result nestlings are often destroyed during the process.

Bobolink generally inhabit mesic to wet (as opposed to dry) meadows, particularly hayfields. Small to moderate sized hayfields are utilized for nesting, with 50% incidence of occurrence in fields that are a minimum of 25 acres in size and minimum area requirement of 5 to 10 acres (Comins, et. al. 2001). Preferred breeding sites are older mixed grass hayfields (>8 years) that include a mosaic of grasses, sedges and broad-leaved forbs.

Males typically arrive on the breeding grounds (in May) before the females, with the females arriving several days later. Pair bonding and mating occur quickly, with the primary egg development period occurring from mid-May to mid-June. The primary nesting period occurs from mid to late June but can extend into late July (Martin, et. al. 1995).

Bobolink were observed within the hayfield on all Site visits. Activity was focused within the central and southern portions of the field. A maximum of three males were observed on a given visit and these males all exhibited territorial behavior including counter-singing. Based on these observations, it is possible that as many as three pairs may have bred in the field this year. However, no more than two females were observed at any time. As cooperative breeding is known to occur with this species (Martin, et. al. 1995), it is possible that two males were attending a single nesting female. This would be consistent with Site observations which included the regular observation of two males active around a single female.

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<sup>13</sup> McClelland, B. R., P. T. McClelland, R. E. Yates, E. L. Caton, and M. E. McFadden. 1996. Fledging and migration of juvenile Bald Eagles from Glacier National Park, Montana. *J. Raptor Res.* 30:79-89.

The renter of the Site's farmhouse indicated that the field is typically hayed in early June. Such an early haying would undoubtedly destroy any active nests, and is not compatible with a field that supports successful breeding. However, on the final survey on July 7<sup>th</sup>, the field remained uncut, with bobolink still present. Observations on July 7<sup>th</sup> indicated that the nests were active and likely in the fledging stage, as the males have ceased singing and the activity of both males and females was generally cryptic, consistent with birds tending to active nests.

### Broad-winged Hawk

The broad-winged hawk is not considered a habitat specialist but rather a generalist that requires habitat considered common throughout Connecticut. The Broad-winged Hawk inhabits deciduous or mixed forest types often near a lake, pond or wetland. Bevier (1994:102) noted that "the Broad-winged Hawk exhibits a diversified nest Site habitat selection". The forest edges, or openings within the forested areas created by logging, represent suitable habitat for the broad-winged hawk, particularly in the vicinity of Wetland 1

Conservation threats to broad-winged hawk are largely associated with actions that occur during migration and on wintering grounds, where common threats include being shot (raptors are widely viewed as pests in Mexico and South America) as well as ongoing deforestation. In the Florida Keys, the species is often killed while hunting along highways during migration. Suitable habitat throughout New England has steadily increased over the past decades as total regional forest cover has increased (Goodrich et. al., 2014).

## **Water Supply Areas**

There are no public water supply wells proximate to the Site. The subject parcel is not located within an Aquifer Protection Area. The residence at the Site is served by a private water supply well.

## **Water Quality**

Groundwater beneath the Site and within the majority of the subject parcel is classified by CTDEEP as "GA". A "GA" classification indicates groundwater within the area is presumed to be suitable for human consumption without treatment. Designated uses in GA-classified areas include existing private and potential public or private supplies of drinking water and base flow for hydraulically-connected surface water bodies.

The Site is located within the Thames River Major Drainage Basin, the Shetucket River Regional Basin and the Little River Sub regional Basin. The Little River flows north to south approximately 2,200 feet west of the Site, through a series of ponds, and discharges to the Shetucket River.

The Site straddles two (2) separate local drainage basins including:

- The majority of the Site is associated with portions of the Little River and the Hanover Reservoir. This area drains generally to the west via overland flow, eventually flowing off-Site to the west/southwest by overland sheet flow.
- The eastern side of the Site is bordered by an unnamed brook (within Wetland 1) which flows north to south, crossing off-Site beneath Potash Hill Road and ultimately outletting into Papermill Pond. This area of the Site drains generally to the south via the brook and by overland sheet flow from either side of the watercourse.

The Little River and the small unnamed brook are classified by the CTDEEP as Class A surface water bodies. Designated uses for Class A surface water bodies include habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; and water supply for industry and agriculture.

## **Scenic Areas**

No State or locally-designated scenic roads are located within the Town of Sprague or proximate to the Site. No recognized scenic areas or outlooks are present within 2 miles of the Site. Further, no public hiking paths or other potential public non-vehicular trails were found to be present in the vicinity that would provide potential observation points of the Project.

## **Historic and Archaeological Resources**

Archaeological Consulting Services (ACS) prepared a Phase I Archaeological Reconnaissance Survey Interim Report at the Site on behalf of Fusion. The purpose of the survey was to determine whether the Site holds potential cultural, historic and/or architectural significance. No significant archaeological resources were identified on the Site.

An architectural review identified two structures that may be eligible for listing on the National Register of Historic Places, including structures at 85 Potash Hill Road and 111 Potash Hill Road.

A copy of the Phase I Archaeological Reconnaissance Survey Interim Report was submitted to the State Historic Preservation Office (SHPO) for its review and opinion regarding potential effects of the Project on archaeological and historic resources.

## **Geology and Soils**

Bedrock geology beneath the Site is identified as the Tatnic Hill Formation of the Upper and Middle Ordovician. The Tatnic Hill Formation is described as a medium to dark-gray, medium-grained gneiss or schist composed of quartz, andesine, biotite, garnet, and sillimanite, locally kyanite, muscovite, or K-feldspar, interlayered with locally mappable units and thinner layers of rusty-weathering graphitic pyrrhotitic two-mica schist, amphibolite, and calc-silicate rock.

Surficial materials on the majority of the Site are comprised of deposits of thin glacial till. A thick glacial till deposit is mapped in the northcentral portion of the Site. Soils vary across the Site, with the largest areas identified as Paxton and Montauk fine sandy loams, Canton and Charlton soils, and Woodbridge fine sandy loam.

## **Floodplain Areas**

APT reviewed the United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") for the Site. 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. The area of the Site is mapped on FIRM PANEL #09011 C0068 G, dated July 18, 2011. Based upon the reviewed FIRM Map, the Site is designated as Zone X which is defined as an area of minimal flooding.

## Recreational Areas

The nearest recreational area is the Salt Rock State Campground, located approximately 1.7 miles to the northwest.

## Noise

No background noise levels have been measured at the Site. The Site and vicinity is a rural, agricultural area with sparse residential development.

## Lighting

The residence and barn have electricity and lighting.

## Coastal Zone Management Areas

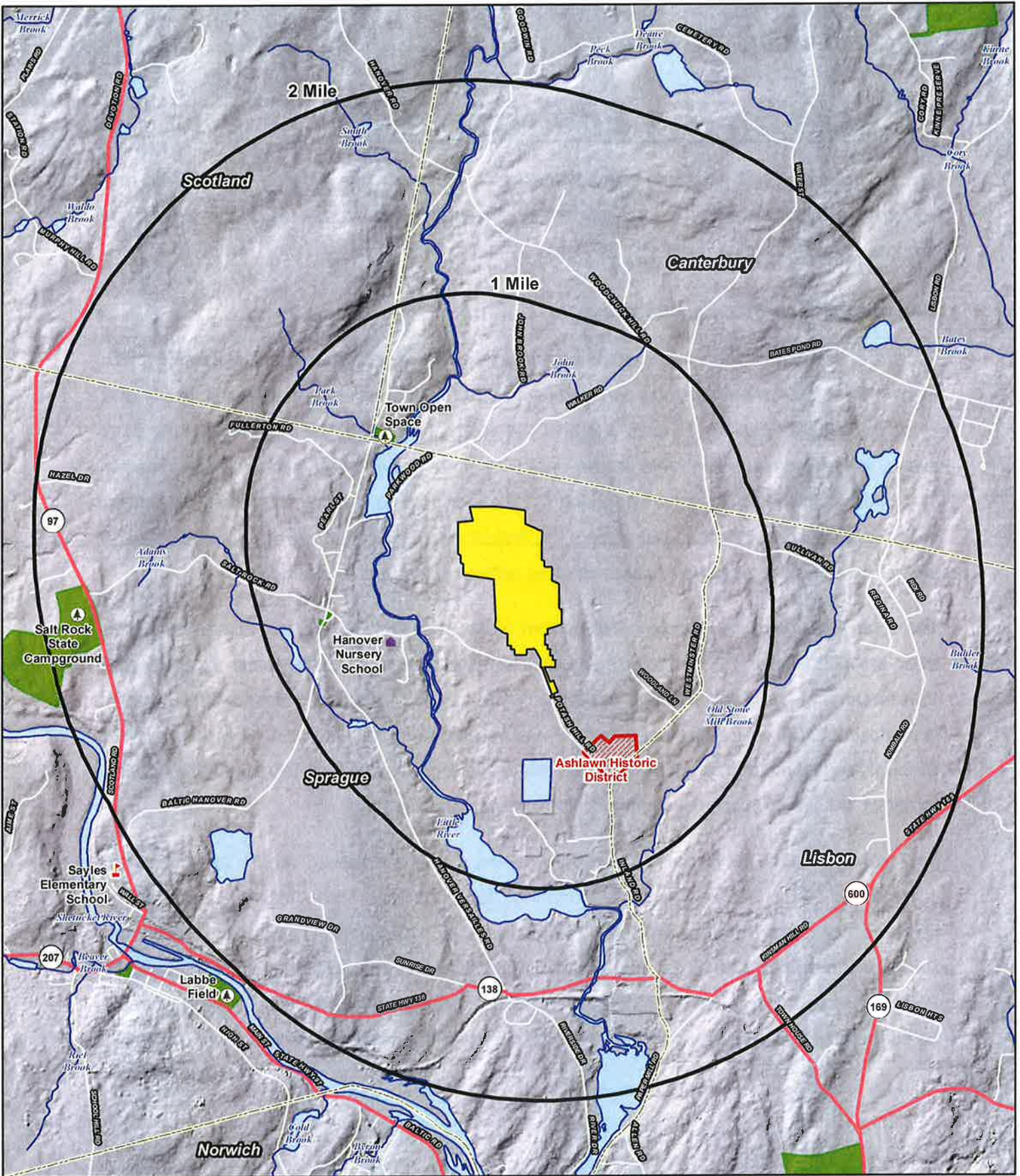
The Town of Sprague is not located within the Coastal Area or Coastal Boundary, as defined by the Coastal Management Act, CGS § 22a-94(a).

## Other Surrounding Features

The locations of non-residential development and other resources within two miles of the Site are listed in Table 5 below. Figure 4, *Surrounding Features Map* depicts these locations relative to the Site.

**Table 5 Non-Residential Features within Two Miles of the Site**

Type	Name	Address	Town	Distance to Site
Open Space	Town Open Space	Hanover Road	Sprague	0.5 mile
Park	Salt Rock State Campground	173 Scotland Rd	Sprague	1.7 miles
Youth Camp	None within 2 miles of the Site			
Hospital	None within 2 miles of the Site			
Child Day Care	Hanover Nursery School	40 Potash Hill Rd	Sprague	0.64 mile
Community Center	None within 2 miles of the Site			
Senior Center	None within 2 miles of the Site			
Public School	None within 2 miles of the Site			
Playground	None within 2 miles of the Site			
Historic	Ashlawn Historic District	Westminster and Potash Hill Road	Sprague	0.3 mile



- Legend**
- Project Area
  - Licensed Child Day Care
  - Municipal and Private Open Space
  - National Register of Historic Places Historic District\*
  - 1-2-Mile Radii
  - Park
  - Open Water
  - School

**Figure 4**  
**Surrounding Features Map**

Proposed Fusion Solar Center Facility  
Potash Hill Rd  
Sprague, CT

\*Approximate Location  
Base Map Source: ESRI & CTECO Shaded Relief  
Map Scale: 1 inch = 3,200 feet Map Date: July





# **Effects on the Environment**

The Project would not have any significant adverse effects on the existing environment and ecology, nor would it affect the scenic, historic and recreational resources of the vicinity. A *Proposed Conditions Map* is included as Figure 5.

## **Proposed Project Development**

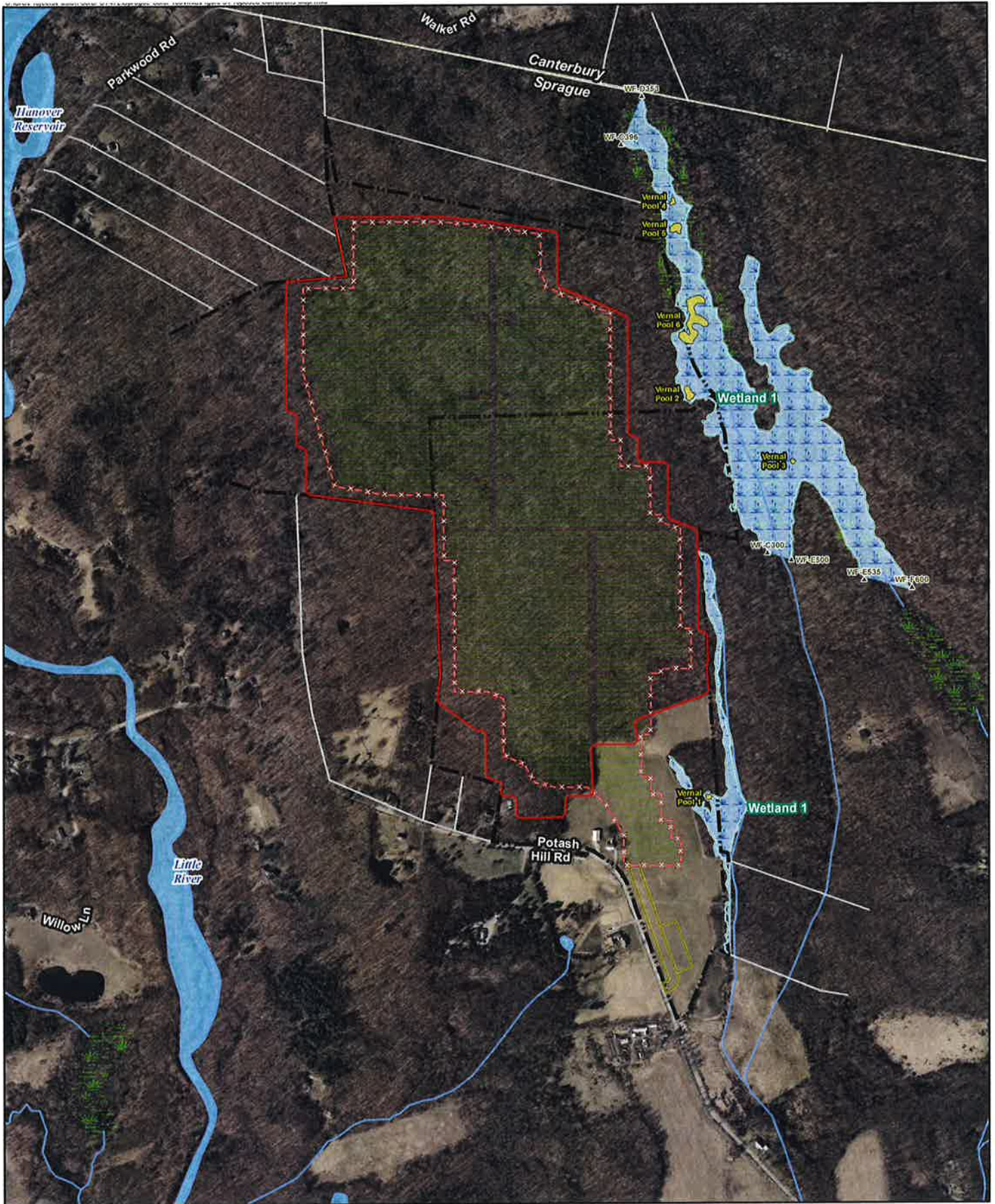
Functional portions of the Project would be enclosed within a fenced area encompassing 118± acres. The development footprint associated with the Project, including the fenced facility and associated exterior clearing, includes a total of 144 acres. To facilitate the installation of the solar arrays, associated equipment, and access, and to minimize shading of the arrays, approximately 134 acres of upland forest requires clearing<sup>14</sup> and minor grading. Upon completion, the fenced solar facility will occupy about 118 acres. The Project Area includes moderate slopes and areas where regrading can be generally accomplished without significant cuts and fills.

The solar array ("facility") would be comprised of approximately 97,000 polycrystalline silicon solar modules similar PV technology and approximately 10 to 12 utility scale inverters and transformers. The facility would utilize ground-screw or pile-driven foundations directly embedded into the soil (no concrete footers) and an aluminum or steel, fixed-tilt racking system for solar module mounting. The racking system would require approximately 15,000 foundation locations. All wiring inside the facility would be routed underground.

Tree stumps would be removed from those areas within the fenced facility as well as an approximate 30-foot buffer around the exterior of the fence line. These disturbed areas will be regraded with existing or imported soil/topsoil and vegetated using native grasses and maintained (occasional mowing) to suppress tree growth. A gravel access drive will originate off Potash Hill Road in the southern portion of the Site and extend northward into the facility. The facility would be surrounded by a six-foot tall chain link fence topped with one foot of barbed wire.

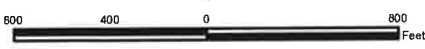
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<sup>14</sup> Approximately 10 additional acres are currently cleared fields.



- Legend**
- Site Boundary
  - Abutting Property Boundary Line
  - Proposed Limit of Tree Clearing
  - X=X Proposed Chain Link Fence
  - Proposed Solar Modules
  - Proposed Inverters
  - Proposed Access/Utility Route
  - ▲ Start/End Wetland Flag
  - Delineated Wetland Boundary Line
  - Wetland Area
  - Vernal Pool
  - Hydrography
  - Marsh
  - Water
  - Watercourse

**Map Notes:**  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 in = 800 ft Map Date: July 16, 2015



**Figure 5  
 Proposed Conditions Map**

Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT



## **Public Health and Safety**

The Project would be designed to applicable industry, State, and local codes and standards and would not pose a safety concern or create undue hazard to the general public. The facility would not consume any raw materials, would not produce any by-products and would be unstaffed during normal operating conditions. The facility would be enclosed by a six-foot tall chain link fence topped with one foot of barbed wire. There are no plans to store fuels or hazardous materials at the facility.

Overall, the Project will meet or exceed all health and safety requirements applicable to electric power generation. Each employee working on Site will:

- Receive required general and Site specific health and safety training;
- Comply with all health and safety controls as directed by local and state requirements;
- Understand and employ the Site health and safety plan while on the Site;
- Know the location of local emergency care facilities, travel times, ingress and egress routes; and
- Report all unsafe conditions to the construction manager.

During construction, heavy equipment will be required to access the Site during normal working hours, and it is anticipated that 35 - 40 construction vehicles (average size light-duty) will make daily trips onto the Site. After construction is complete and the unstaffed facility is operable, traffic at the Site will be minimal, consisting of one trip per month on average for periodic maintenance activities.

The solar modules are designed to absorb incoming solar radiation and minimize reflectivity, such that only a small percentage 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. In addition, a large portion of the Project will be shielded from view due to existing vegetation, proposed landscaping and topographical conditions. The panels will be tilted up toward the southern sky at an approximate angle of 25 degrees, further reducing reflectivity.

## **Local, State and Federal Land Use Plans**

The Project is consistent with local, State, and Federal land use plans, including the Southeast Connecticut Council of Government's 2007 Regional Plan of Conservation and Development, which outlines the need for utility infrastructure to support the region's development. The Project also supports the State's energy policy by developing a renewable energy resource while not having a substantial adverse environmental effect. Although local land use jurisdiction over the Project is preempted by the Siting Council, the Project has been designed to meet the intent of local land use regulations to the extent feasible.

## **Existing and Future Development**

The Project would benefit the community by improving electrical service for existing and future development in the Town through enhanced capacity. Other than this Project, APT is not aware of any current or future plans to develop the Site.

## **Roads**

A gravel access drive will originate off Potash Hill Road in the southern portion of the Site and extend northward into and through the facility. A gravel parking/temporary equipment staging area will be located in the southern field on the east side of the access drive.

## **Wetlands**

No wetlands or watercourses will be directly impacted by the Project. The Project's clearing limits extend within nine (9) feet of Wetland 1, but no clearing will occur in this resource. The fence line would be located within approximately 115 feet of this wetland's westernmost point. The nearest point of the proposed solar arrays is located 140 feet west of Wetland 1.

Short term, temporary impacts will be associated with the Project's construction activities due its proximity to the wetland resource. Provided sedimentation and erosion controls are designed, installed and maintained during construction activities in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*, temporary impacts will be minimized. However, due to the close proximity of the proposed development to nearby wetlands, Fusion is committed to implementing a wetland protection plan during construction to provide additional measures to avoid temporary wetland impacts.

A proposed *Wetland Protection Plan* is included in Appendix C. Long term secondary impacts to wetland resources possibly associated with the operation of this facility are minimized by the fact the development is unstaffed, it minimizes the creation of impervious surfaces with the use of a gravel access drive with the majority of the surface treatment around the solar installation consisting of native grass/vegetation and it generates minimal traffic. Based on a review of the referenced plans and engineering documents, the stormwater generated by the proposed development will be properly handled and treated in accordance with the 2004 *Connecticut Stormwater Quality Manual*. APT understands that details of the erosion control and stormwater management plans would be included in the Development and Management ("D&M") Plan, if required as part of a Siting Council approval. Provided the protective measures discussed herein are implemented, the Project will not result in an adverse impact to wetland or intermittent watercourse resources.

## **Vernal Pool**

In order to assess these pools qualitatively, the methodology described in *Best Development Practices, Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States* (Calhoun and Klemens, 2002, a.k.a. the BDP) was used. This assessment methodology utilizes a three-tiered rating system, with the tier designation determined by examining the biological value of the pool in conjunction with the condition of the habitat surrounding the pool, which is the area used by vernal pool amphibians during the non-breeding season. The higher the species diversity and abundance coupled with an undeveloped and forested landscape surrounding the pool, the higher the tier rating. Tier 1 pools are considered the highest quality pools, while Tier 3 are the lowest.

All six (6) vernal pools associated with Wetland 1 are Tier 1 pools<sup>15</sup> due to the fact that all these pools had two indicator species present; wood frog and spotted salamander.

With respect to the condition of the *Vernal Pool Envelope* (VPE, 0 to 100 feet) and the *Critical Terrestrial Habitat* (100 to 750 feet) conservation zones surrounding the pools, all pools met the landscape criteria for Tier 1 pools as they had less than 25% development in the VPE and less

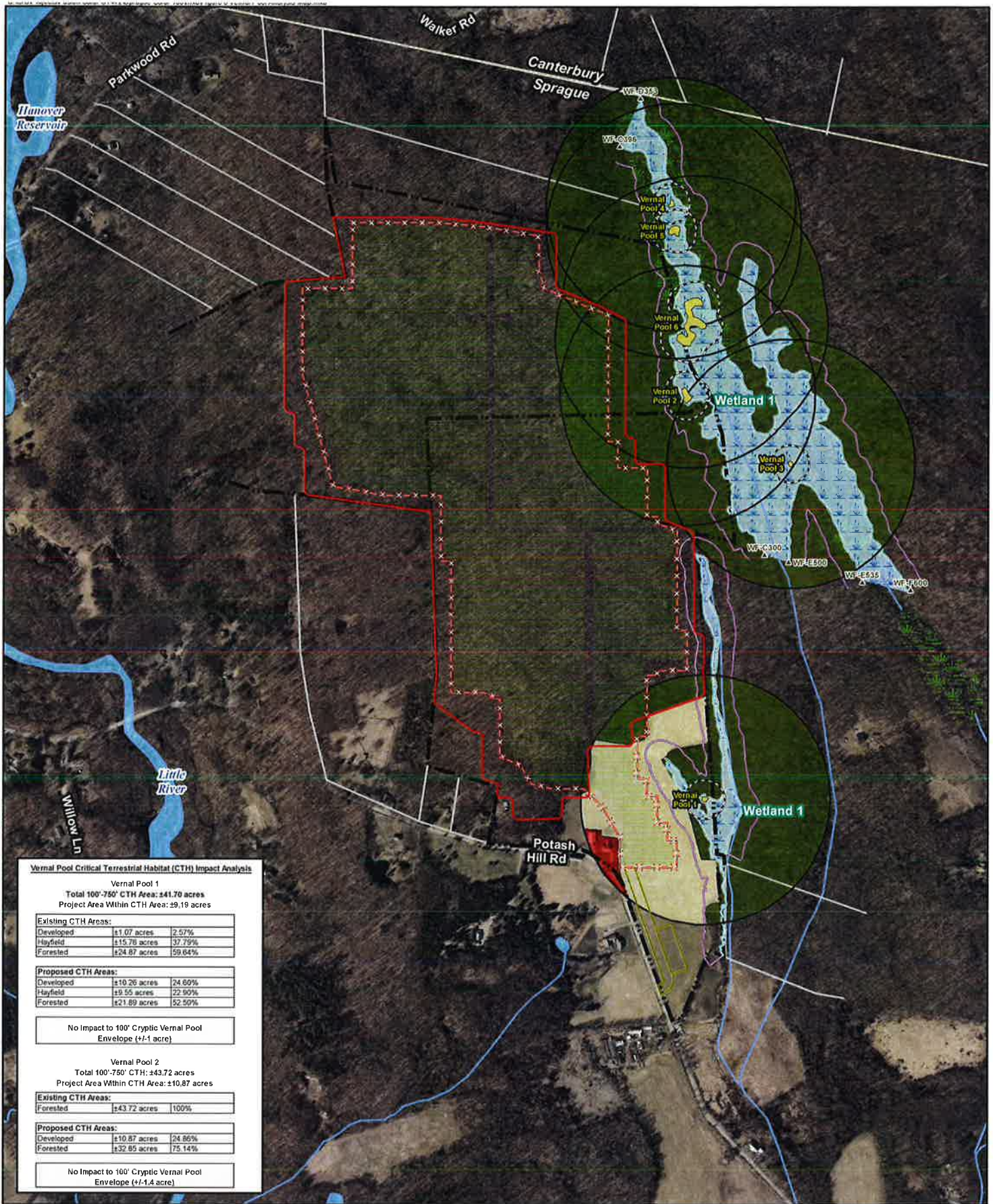
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<sup>15</sup> Although Vernal Pool 7 is not located on the Site or proximate to the Project, it was also categorized conservatively as a Tier 1 pool. This conservative ranking is based on survey limitations due to the late timing inspections, which did not allow for full egg mass counts.

than 50% development within the CTH. Specifically, there is no development present within any of the VPE zones and only one pool (Pool 1) has development within its CTH zone (4%). Also of note is the landscape connectivity between the pools which is free of roads, development or habitat fragmentation of any kind. This represents optimal conditions for genetic exchange between the biota of these pools at a meta-population scale.

An analysis of the post-development conditions using the BDP methodology was conducted and is illustrated on Figure 6, *Vernal Pool Analysis Map*. No direct impact to any vernal pool is proposed and no activity is proposed within any VPE conservation zone.

The proposed development predominately lies within the CTH of Pools 1 and 2, but will also affect a small portion of the CTH of Pools 5 and 6. The post-development BDP analysis was conducted for Pools 1 and 2, and determined that Pool 1 will have an increase in developed land from 2.57% (pre-development) to 24.6% (post-development). However, the majority of this increase will occur as a result of development within the hayfield which offers sub-optimal terrestrial habitat for vernal pool wildlife. The loss of forest habitat within the CTH of Vernal Pool 1 will total only 2.98 acres or 7.1% of the CTH. The nearest proposed activity to Vernal Pool 1 is approximately 280 feet.



**Vernal Pool Critical Terrestrial Habitat (CTH) Impact Analysis**

**Vernal Pool 1**  
 Total 100'-750' CTH Area: ±41.70 acres  
 Project Area Within CTH Area: ±9.19 acres

Existing CTH Areas:		
Developed	±1.07 acres	2.57%
Hayfield	±15.78 acres	37.79%
Forested	±24.87 acres	59.64%

Proposed CTH Areas:		
Developed	±10.26 acres	24.60%
Hayfield	±9.55 acres	22.90%
Forested	±21.89 acres	52.50%

No Impact to 100' Cryptic Vernal Pool Envelope (±1.1 acre)

**Vernal Pool 2**  
 Total 100'-750' CTH: ±43.72 acres  
 Project Area Within CTH Area: ±10.87 acres

Existing CTH Areas:		
Forested	±43.72 acres	100%

Proposed CTH Areas:		
Developed	±10.87 acres	24.86%
Forested	±32.85 acres	75.14%

No Impact to 100' Cryptic Vernal Pool Envelope (±1.4 acre)

**Legend**

- Site Boundary
- Abutting Property Boundary Line
- Proposed Limit of Tree Clearing
- Proposed Chain Link Fence
- Proposed Solar Modules
- Proposed Inverters
- Proposed Access/Utility Route
- Start/End Wetland Flag
- Delineated Wetland Boundary Line
- 100' Wetland Buffer
- Wetland Area
- Vernal Pool
- 100' Vernal Pool Envelope
- 100'-750' Critical Terrestrial Habitat Area
- Critical Terrestrial Habitat (CTH) Type
  - Developed
    - Developed - Residential
    - Cool-Season Grass Hayfield
    - Old Field/Shrubland
  - Undeveloped
    - Forested
- Hydrography
  - Marsh
  - Water
  - Watercourse

Map Notes:  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 in = 800 ft    Map Date: July 16, 2015

800 400 0 800 Feet

**Figure 6**  
**Vernal Pool Analysis Map**  
 Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT

**CORONAL**  
 ALL-POINTS  
 TECHNOLOGY CORPORATION

The most significant loss of forest within the CTH zone will occur for Pool 2, which at present is 100% forested and will be reduced to 75.14% post-development. However, the nearest proposed activity from Pool 2 is approximately 340 feet.

Both pools are compliant with the BDP guidelines, as no development is proposed within the VPE zone of any pools, and development will not exceed 25% of the CTH for any pools. Furthermore, the landscape connectivity between pools will not be impacted by roads, development or other fragmentary features.

## **Vegetation and Wildlife**

The Project will consist of approximately 144 acres of total ground disturbance. The resulting gravel and grass surfaces associated with the construction of the Project will alter the habitat types present on the Site. Provided below is an analysis of impact to the Site's two (2) WAP key habitat types: upland forest and cool-season grassland (an Upland Herbaceous sub-habitat).

### **Upland Forest Habitat Impact Analysis**

The forest within and adjacent to the Site was evaluated using the methodology described in the Center for Land Use Education and Research's (CLEAR) Forest Fragmentation Study<sup>16</sup>. The goal was to analyze the level of forest fragmentation present to determine whether the Site's forest would be considered valuable to forest-interior birds and what impact the proposed project might have on forest habitat. Forest-interior birds favor the interior of the forest away from non-forested "edge" habitat. Such conditions are optimized in forests with a low level of habitat fragmentation. The literature suggests that total forest cover within the landscape, as well as forest patch size, are significant and therefore both factors were assessed (Lee *et al.* 2002; Mortberg, 2001; Villard *et al.* 1999; Andren 1996).

The CLEAR study utilizes findings from The Environment Canada report (2004) which suggests that 250 acres should be considered the *absolute minimum* forest patch size needed to support area-sensitive edge-intolerant species, with a recommended minimum forest patch size of 500 acres. At that scale, a forest is presumed to provide enough suitable habitat to support more diversity of interior forest species.

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<sup>16</sup>CLEAR's Forest Fragmentation Study can be found at:  
[http://clear.uconn.edu/projects/landscape/forestfrag/forestfrag\\_public%20summary.pdf](http://clear.uconn.edu/projects/landscape/forestfrag/forestfrag_public%20summary.pdf)



The CLEAR study has developed statewide town-by-town forest fragmentation maps in which forests are divided into three categories to indicate the viability of the core patches with respect to the size of the patch. These three categories are small (< 250 acres), medium (250-500 acres), and large (>500 acres). Forest areas designated as "core" are greater than 300 feet away from non-forested areas and represent optimal breeding habitat for forest-interior birds. This 300 foot zone is referred to as the "edge width" and represents sub-optimal breeding habitat for forest-interior birds.

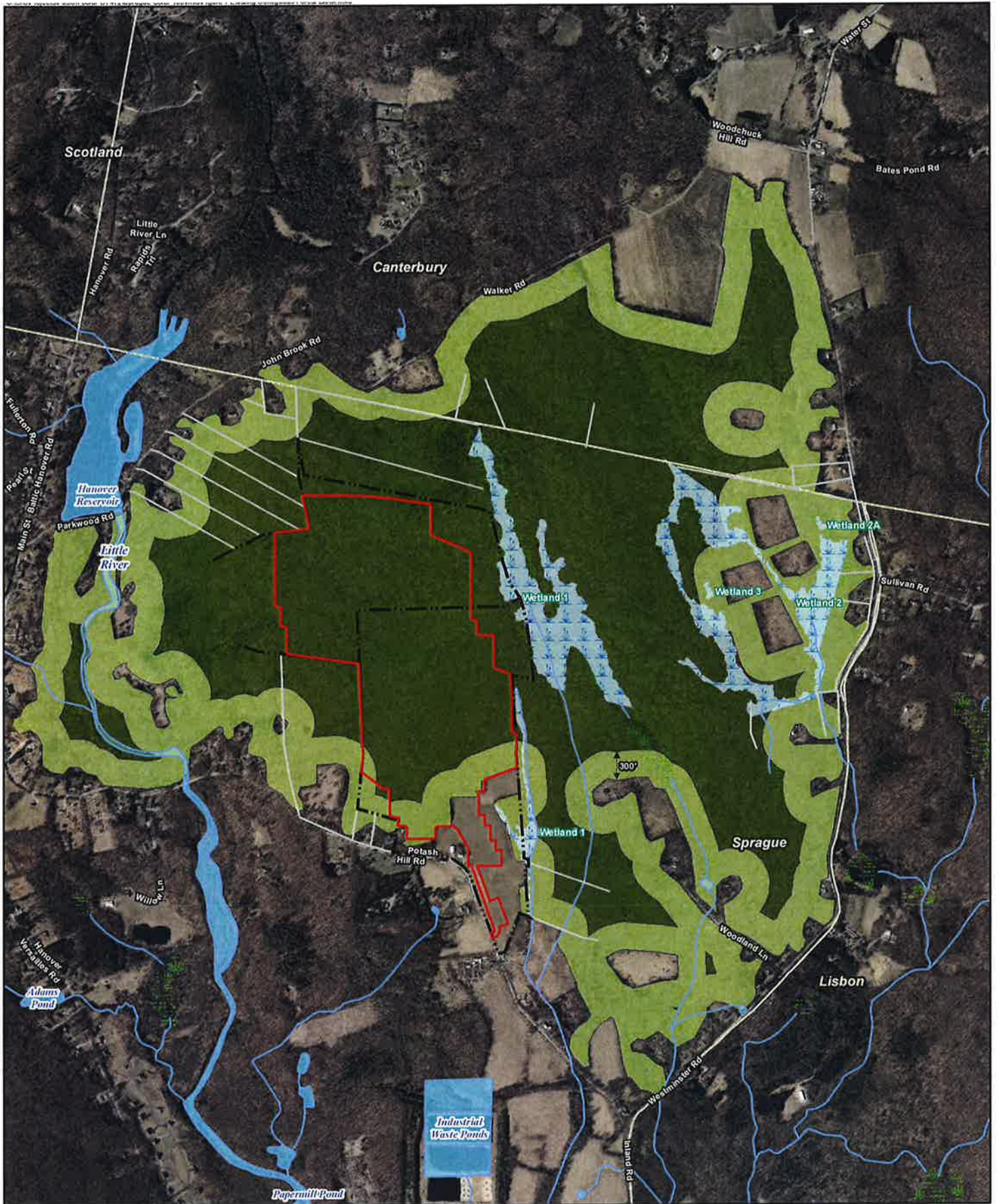
Using Geographic Information System (GIS) software to analyze the most recent aerial photography available (2012, source USDA) APT calculated approximately 1,040 acres of contiguous forest on and adjacent to the Site (see Figure 7, *Existing Contiguous Forest Map*). Of the 1,040 acres, 431 acres is classified as "edge forest" (within 300 feet of non-forested habitat) while 609 acres is considered interior forest.

The results of this analysis indicate that the Site is part of a large forest block (i.e., >500 acres). This analysis is consistent with the CLEAR's mapping for the Town of Sprague which shows the Site situated within a large forest. Based on the presence of a large contiguous forest block, the Site's forest represents high-quality habitat for forest interior birds. This was consistent with the species observed at the Site, which included a number of forest-interior species such as the scarlet tanager, eastern wood pewee and the Wood Thrush.

The Project will result in the net loss of approximately 134 acres of forest<sup>17</sup> which would reduce the total size of the forest block from 1,040 acres to 906 acres (see Figure 8, *Proposed Contiguous Forest Map*). Additionally, 59 acres of former interior forest will be converted to edge forest. This edge forest, while suitable for a variety of forest edge species post-development, will be less productive for forest-interior species due to factors such as increased nest predation and brood parasitism. In total, the Project will require the removal of approximately 21,130 trees (6-inch DBH or greater).

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<sup>17</sup> The Project will encompass approximately 144 acres of land, of which 10 acres is currently cleared. The balance (134± acres) of forest requires clearing.



**Legend**

- Site Boundary
- Abutting Property Boundary Line
- Project Area\*

**Existing Forest Block (+/-1,040 Acres)**

- Type:
- Interior Forest (+/-609 Acres)
  - Edge Forest (+/-431 Acres)

**Hydrography**

- Marsh
- Water
- Watercourse
- Delineated Wetland Area

\*The Project Area contains +/-134 Acres of Forest Block (+/-121 Acres of Interior Forest type and +/-13 Acres of Edge Forest type)

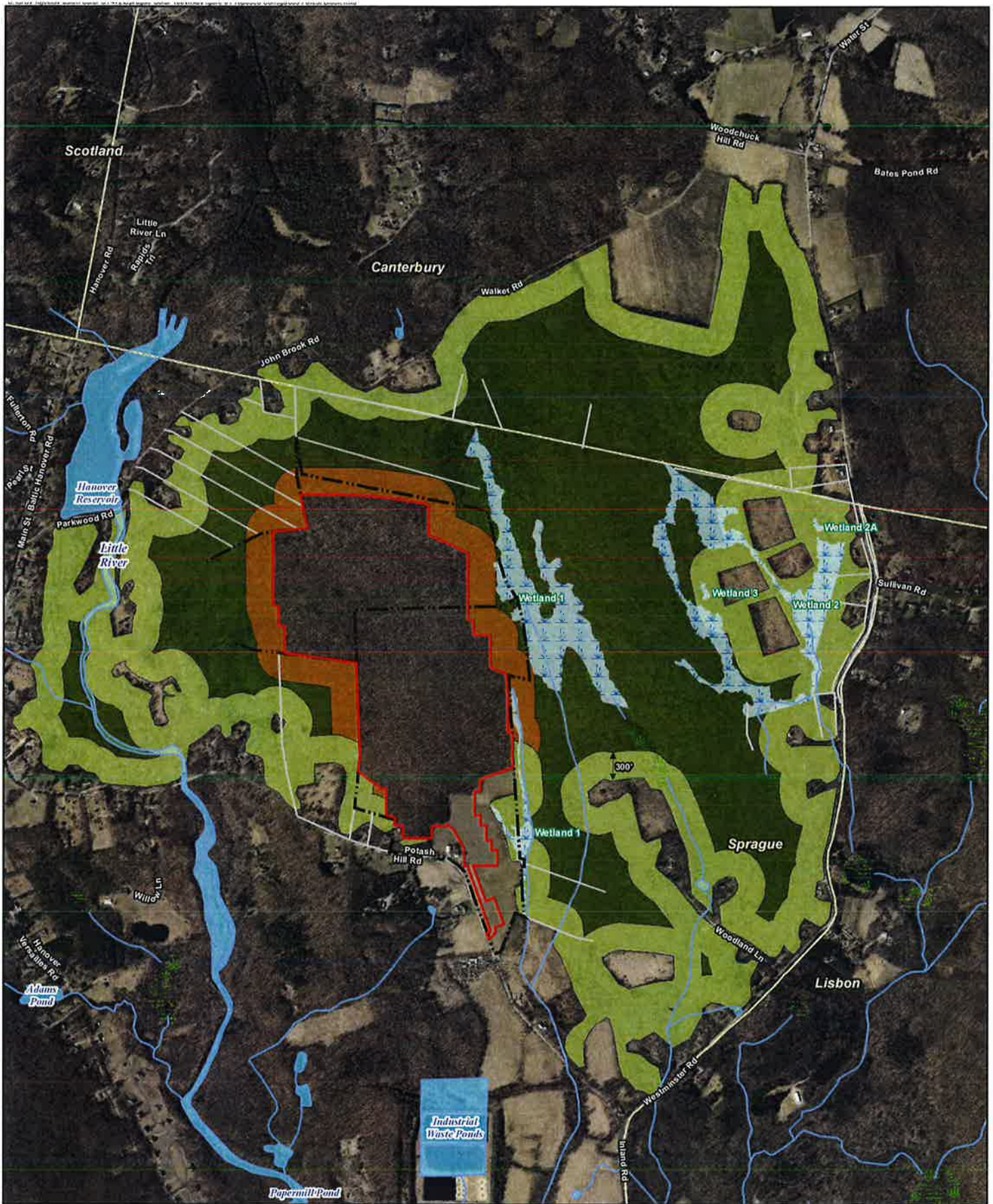
Map Notes:  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 in = 1,400 ft. Map Date: July 16, 2015



**Figure 7**  
**Existing Contiguous Forest Map**

Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT





- Legend**
- Site Boundary
  - Abutting Property Boundary Line
  - Project Area
- Proposed Forest Block (+/-906 Acres)**
- Type:
- Interior Forest (+/-430 Acres)
  - Edge Forest (+/-417 Acres)
  - Proposed Addition to Forest Edge (+/-59 Acres)

- Hydrography**
- Marsh
  - Water
  - Watercourse
  - Delineated Wetland Area

**Figure 8**  
**Proposed Contiguous Forest Map**  
 Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT

**Map Notes**  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 in = 1,400 ft Map Date: July 16, 2015



## **Cool-Season Grassland Habitat Impact Analysis**

The Site contains a single contiguous managed hayfield in its southern portion. This habitat type is classified as a WAP *key habitat* in the *Upland Herbaceous* category, sub-habitat *cool-season grassland*. Hayfield habitat totals approximately 19 acres (of which 10 acres is proposed as part of the Project), but is distributed in a narrow and irregular pattern which minimizes interior grassland (which is favored for nesting by grassland specialists) and maximizes grassland edge. Patch size is a critical limiting factor for grassland birds, many of which require a minimum patch size of 25 acres or more. Given the small size of this hayfield, it is capable of supporting species with a smaller minimum area requirement. Due to the size and configuration of the hayfield at this Site, it is not capable of supporting abundant or diverse populations of grassland birds.

A single grassland specialist, the bobolink, was observed nesting in the hayfield. Although only a portion of the hayfield is proposed for development, the remaining hayfield will likely be too small and narrow to support bobolink post-development. Other open country birds observed nesting in this field included the tree swallow and red-winged blackbird. It is likely that these species will still be present in the remaining hayfield post-development.

## **Wildlife Impact Mitigation Measures**

### *Habitat Enhancement Measures*

Once the perimeter fence has been installed, a narrow strip of land (generally 30 feet in most areas) between the perimeter fence and the newly-created forest edge will need to remain clear (non-forested) to prevent shading of the solar arrays. This area can be managed for wildlife by restricting mowing on a rotation basis every 4 to 7 years. This will allow the area to revert to late old field and create a "soft" ecotone that will provide cover and habitat for a number of forest-dwelling wildlife and edge nesting birds. Periodic monitoring of this area from April through June would be beneficial to assess wildlife usage and better inform management of this area for wildlife.

### *General Breeding Bird Protection Measures*

The proposed construction activities will result in the clearing of trees and mature vegetation that has the potential to support breeding birds. Once a construction schedule is determined, Fusion will evaluate whether the potential exists for nest disturbance and plan accordingly. To avoid

potential disturbance during periods of high bird activity, Fusion will use the following schedule as a general guideline. If construction activities should occur during the peak nesting period of May 1<sup>st</sup> through August 15<sup>th</sup>, efforts would be taken to complete tree clearing work prior to May 1<sup>st</sup>; or, if tree clearing has not been completed by May 1<sup>st</sup>, an avian survey may be conducted to determine if breeding birds would be disturbed. If the avian survey concludes that breeding birds would be disturbed, tree clearing activities may be restricted through the peak nesting period (or a modified time frame based on the specific findings of the survey).

These Protection Measures should also adequately protect any broad-winged hawks or bald eagles potentially utilizing the Site.

## **Rare Species**

### *Clustered Sedge*

The habitat favored by this sedge typically consists of open and dry habitats with sand or gravelly soils and, occasionally, bogs and saturated sandy substrates. As the Site entirely consists of dense forest (with the exception of recently logged areas) and the cool season grass hayfield, suitable habitat does not appear to exist within the Project Area.

### *Northern Long-Eared Bat*

Although no hibernaculum or breeding/roosting habitat is known to exist in the vicinity of the Site, depending on the type and timing of forest management activities there is potential for mortality and temporarily removal or degradation of roosting and foraging habitat. To avoid killing or injuring northern long-eared bat, the following conservation measures are to be adhered to under Interim 4(d) Rule (April 2, 2015) of the federal Endangered Species Act for this species:

- I. No activities are to occur within 0.25 mile of a known, occupied hibernacula<sup>18</sup>
- II. Avoid cutting or destroying of known, occupied roost trees during the pup season of June 1st to July 31st
- III. Avoid clear-cutting (or similar harvesting methods) within 0.25 mile of known, occupied roost trees during the pup season of June 1st to July 31<sup>st</sup>

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<sup>18</sup> Locations of hibernacula are identified by CTDEEP NDDDB during the state rare species consultation process. No hibernacula are known to exist in the Site vicinity.

### Wood Turtle

Wood turtle are known to occur in the Little River riparian corridor, located approximately 2,200 feet west of the Site. Although not explicitly stated in the CTDEEP's letter, the potential exists for wood turtle to use portions of Wetland 1 and the unnamed brook. Although it is unlikely dispersing wood turtles would be utilizing the Project Area, additional protective measures can be incorporated into the Wetland Protection Plan to promote avoidance of unintentional injury or mortality during construction.

### Bald Eagle

No adverse impacts to migrating Bald Eagle are anticipated with development of the Project, based on its distance separating the Site from the Quinebaug River and eagle migrate patterns during the daytime under favorable weather conditions when thermals form.

### Bobolink

While the Site's hayfield is not likely to support bobolink post-construction, measures should be taken to avoid incidental take of bobolink during construction. Ideally, the hayfield vegetation should be removed during the non-breeding season (September to April) in order to prevent attraction of bobolink during spring migration. If this is not feasible, hay mowing activities should be delayed until mid-July or early August to allow grassland birds to complete most nesting activities. If delayed mowing is not feasible and construction activities must be conducted during the breeding season, the following measures can be taken to minimize impacts on nesting bobolink (NRCS, 1999):

1. Hayfields should be mowed from the field center outward to allow birds to escape to adjacent habitats.
2. Fields can be broken into sub-units and mowed on a rotational basis to allow for some useable habitat to be available at all times.
3. Adult nesting birds and roosting individuals are less likely to flush from cover during the night. Therefore, night mowing should be avoided to prevent adult bird mortality.
4. Flushing bars should be mounted on harvesting equipment to minimize bird mortality during mowing operations.

## **Water Supply Areas**

There are no public water supply wells located in the vicinity of the Site. No liquid fuels are associated with the operations of the Project. Therefore, the Project would have no adverse environmental effect on water resources.

## **Water Quality**

The facility will be unstaffed and no potable water uses or sanitary discharges are planned.

The facility and areas generally within 30 feet of the fence line will be regraded with existing or imported soil covered with native grasses and vegetation. Because the solar arrays will be installed on driven or screwed foundations (i.e., I-beams), impervious areas are substantially minimized.

It is anticipated that a stormwater management system design will be completed as part of the D&M Plan, should it be required by the Siting Council, in conformance with the guidelines set forth in the 2004 Connecticut Stormwater Quality Manual.

## **Air Quality**

Overall, the Project will have minor emissions of regulated air pollutants and greenhouse gases during construction and no air permit will be required. During construction of the Project, any air emission effects will be temporary and will be controlled by enacting appropriate mitigation measures (e.g., water for dust control, avoid mass early morning vehicle startups, etc.). Accordingly, any potential air effects as a result of the Project construction activities will be de-minimus.

During operation, the Project will not produce air emissions of regulated air pollutants or greenhouse gases (e.g., PM10, PM2.5, VOCs, GHG or Ozone). Thus, no air permit will be required. Moreover, over 20 years, the Project will result in the elimination of approximately 523,000 metric tons of CO2 equivalent, which is equal to taking 110,000 vehicles off the road and the amount of carbon sequestered by 429,000 acres of U.S. forests in one year.<sup>19</sup>

## **Scenic Areas**

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<sup>19</sup> U.S. EPA Greenhouse Gas Equivalencies Calculator

No scenic areas would be physically or visually impacted by development of the solar Project. With the exception of select southern locations along Potash Hill Road, the Project would not be highly visible because of the dense forest surrounding the Site in most directions. Fusion will maintain sufficient vegetative buffer and install landscaping along currently exposed areas of Potash Hill Road to further screen any potential views.

## **Historic and Archaeological Resources**

Historical research, previous investigations literature review, and pedestrian survey and revealed no significant archaeological associations at the Site, which was confirmed through the excavation of nearly 500 shovel test locations.

Historic features at the Site are limited to stone walls and stone piles. Two structures proximate to the Project were identified as potentially being eligible for listing on the National Register of Historic Places (at 85 and 111 Potash Hill Road, respectively).

Fusion consulted with the SHPO and provided a copy of the ACS Phase I Archaeological Reconnaissance Survey Interim Report for concurrence that no historic or archaeological resources would be affected by the Project. The SHPO responded in a letter (dated May 21, 2015) that the findings of the survey do not merit archaeological site status for status on the National Register of Historic Places. Further, the SHPO concluded that no historic resources will be affected by the Project.

The SHPO letter is provided under separate cover.

## **Geology and Soils**

No adverse effects are anticipated on natural resources occurring at and/or nearby the subject parcel. Vegetative clearing and earthwork is required for construction of the Project. However, no impacts to wetlands, water courses or significant habitat would occur.

## **Floodplain Areas**

The Site is located entirely outside of the 100-year and 500-year floodplains. Therefore, no special design elements are necessary with respect to flooding concerns. In addition, no impacts to floodplains are associated with the proposed Project.



## **Recreational Areas**

No recreational areas would be impacted by the Project.

## **Noise**

The only equipment proposed for the Project that would generate noise consists of the inverters, all to be centrally located within the interior portion of the Project Area. The inverters are inactive at night. While operative during the day, the sound pressure level at a distance of 32.8 feet is 60 dBA. The closest inverter to the fence line is approximately 290 feet. After the Project is constructed and in service, the noise levels at the fence line are anticipated to be 42 dBA, which is well below the most conservative criteria of 45 dBA for nighttime and 55 dBA for daytime, as established by the State of Connecticut Noise Control regulations (*CGS 22a/22a-69-1 through 7*). During those times the inverters are operative, noise levels at nearby property lines and/or residences would be well below 42 dBA.

## **Lighting**

No lighting is planned for the facility.

## **Coastal Zone Management Areas**

No Coastal Zone Management Areas would be affected by the Project.

## **Other Surrounding Features**

No adverse effects are anticipated to the facilities identified in Figure 4, primarily because of their sufficient distance from the Project.

## **Conclusion**

As demonstrated in this EA, the Project will comply with CTDEEP air and water quality standards and will not have a substantial adverse effect on the environment.

# References

Martin, Stephen G. and Thomas A. Gavin. 1995. Bobolink (*Dolichonyx oryzivorus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/176>

Andren, H. 1996. Population responses to habitat fragmentation: statistical power and the random sample hypothesis. *Oikos*, Vol. 76, pp. 235-242.

Bevier, Louis. 1994. The Atlas of Breeding Birds of Connecticut. Department of Environmental Protection. State Geological and Natural History Survey of Connecticut, bulletin #113.

Comins, P., Hanisek, G and Oresman, S. 2001. Protecting Connecticut's Grassland Heritage, a Report of the Connecticut Grasslands Working Group. Audubon, Connecticut.

DeGraaf, R.M., Yamasaki, M. 2001. New England wildlife: habitat, natural history and distribution. University Press of New England.

DeGraaf, R.M., Yamasaki, M., Leak, W.B., and Lester, A.M. *Technical Guide to Forest Wildlife Habitat Management in New England*. 2006. University of Vermont Press. Pages 21-23.

Environment Canada. 2004. How Much Habitat is Enough? (Second Edition) A Framework for Guiding Habitat Rehabilitation in the Great Lakes Areas of Concern.

Goodrich, L. J., S. T. Crocoll and S. E. Senner. 2014. Broad-winged Hawk (*Buteo platypterus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/218>Lee, M., L.

Fahrig, K. Freemark and D.J. Currie. 2002. Importance of patch scale vs. landscape scale on selected forest birds. *Oikos*, Vol. 96, No. 1, pp. 110-118.

Leenders, A. A. (Ed.). 2009. Connecticut State of the Birds. Connecticut Audubon Society, Fairfield, CT. 52 p.

Mortberg, U.M. 2001. Resident bird species in urban forest remnants: landscape and habitat perspectives. *Landscape Ecology*, Vol. 16, No. 3, pp. 193-203.

NRCS, 1999. Grassland Birds. Fish and wildlife habitat management leaflet number 8. United States Department of Agriculture.

Oehler, J.D., Covell, D.F., Capel, S., Long, B. 2006. Managing Grasslands, Shrublands, and Young Forest Habitats for Wildlife: A Guide for the Northeast. The Northeast Upland Habitat Technical Committee and the Massachusetts Division of Fisheries & Wildlife.

The Birds of North America Online (A. Poole, Ed., 2005). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online:

Villard, M.A., M.K. Trzcinski and G. Merriam. 1999. Fragmentation effects on forest birds: Relative influence of woodland cover configuration on landscape occupancy. *Conservation Biology*, Vol. 13, No. 4, pp. 774-783

2015 Connecticut Wildlife Action Plan. Connecticut Department of Energy and Environmental Protection. Bureau of Natural Resources. *In preparation*.

# **APPENDIX A Wetland Inspection Report**



## WETLAND DELINEATION

**July 9, 2015**

**APT Project No.: CT472100**

**Prepared For:** Fusion Solar Center, LLC  
P.O. Box 2055  
Charlottesville, VA 22902

**Project Name:** Fusion Solar Center

**Project Address:** Potash Hill Road and Westminster Road  
Sprague, Connecticut

**Date(s) of Investigation:** May 28, 2015; June 3-5, 2015

**Field Conditions:** **Weather:** partly cloudy, mid 70's to 80s  
**Soil Moisture:** moist

**Wetland/Watercourse Delineation Methodology<sup>1</sup>:**

- Connecticut Inland Wetlands and Watercourses
- Connecticut Tidal Wetlands
- U.S. Army Corps of Engineers

The wetlands inspection was performed by<sup>2</sup>:

Matthew Gustafson, Registered Soil Scientist

Enclosures: Wetland Delineation Discussion, Wetland Delineation Field Forms & Wetland Inspection Map

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<sup>1</sup> Wetlands and watercourses were delineated in accordance with applicable local, state and federal statutes, regulations and guidance.  
<sup>2</sup> All established wetlands boundary lines are subject to change until officially adopted by local, state, or federal regulatory agencies.

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# Attachments

- Wetland Delineation Discussion
- Wetland Delineation Field Forms
- Wetland Inspection Map

## Wetlands Discussion

At the request of Fusion Solar Center, LLC ("Fusion"), All-Points Technology Corporation, P.C. ("APT") completed wetland delineation services on property north of Potash Hill Road in Sprague, Connecticut. The Project Area included three separate and abutting parcels totaling approximately 418± acres. These parcels are identified in Sprague Assessor records as:

- #57 Potash Hill Road (Map 16, Block 6, Lot 18);
- #111 Potash Hill Road (Map 21, Block 2, Lot 2); and,
- Westminster Road (Map 22, Block 1, Lot 10).

We understand that of the 418± acres, Fusion has approximately 362 acres under control for evaluating development opportunities.

Matthew Gustafson, a Connecticut-registered Soil Scientist with APT, conducted inspections of the Project Area on May 28, 2015 and June 3, 4, and 5, 2015. The May 28<sup>th</sup> inspection involved a review and confirmation of wetland boundaries previously identified during an initial inland wetlands delineation on the Potash Hill Road parcels performed by Josh Wilson of Fuss & O'Neil. A review of Mr. Wilson's delineation was found to be substantially correct.

Subsequent inspections included field delineation of additional wetland resources located on the Westminster Road parcel. Wetlands were delineated (identified, classified, and flagged with consecutively numbered survey tape at approximately 25-foot intervals) in accordance with State of Connecticut Inland Wetlands and Watercourse regulations. APT located the wetland flags using Trimble® GPS GeoXT Geoexplorer 6000 Series survey equipment (with sub-meter accuracy).

### Wetlands and Watercourses

The wetland resources are summarized below and depicted on the *Wetland Inspection Map* provided as Figure 1.

**Wetland 1** is a large complex wetland system consisting of broad forested wetlands with hummock hollow topography. Generally, the system drains north to south with interior focused and diffuse intermittent stream channels transitioning to perennial stream systems in the southern reaches. Wetland 1 is focused along the eastern sides of the Potash Hill Road parcels,

originating to the north, and draining south off the properties. Interior to the wetland system are a number of cryptic vernal pool habitats. In total, six (6) vernal pool habitats were identified within Wetland 1. Dominant wetland species include red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), spicebush (*Lindera benzoin*), pepperbush (*Clethra alnifolia*) skunk cabbage (*Symplocarpus foetidus*), Japanese barberry (*Berberis thunbergii*), sensitive fern (*Onoclea sensibilis*), and sphagnum species (*Sphagnum sp.*). Wetland 1 eventually drains into the Little River system to the south.

**Wetland 2** is located on the Westminster Road parcel and consists of a series of intermittent and perennial stream systems with bordering vegetated wetland systems. The cover type of the wetland areas are primarily forested dominated by red maple (*Acer rubrum*). This wetland system drains north to south and is not physically associated with Wetland 1. A large upland 'island' was identified interior to Wetland 2 with contiguous wetland areas surrounding the north and south sides of the upland 'island'. The western drainage component of this wetland consists of a confined seep system eventually focusing to an intermittent watercourse with diffuse flows. This western drainage component also contains a single cryptic vernal pool. The eastern drainage component consists of a perennial stream system with a well-defined bank and channel. A small pocket wetland system identified as Wetland 2A is located north of an existing access road and north of the eastern drainage component of Wetland 2. While evidence of wetland or watercourse connectivity was not present with Wetland 2, Wetland 2A demonstrated evidence of seasonal sheet flow across the existing access road draining into Wetland 2. Due to the drainage and proximity nexus, Wetland 2A was grouped as a subset of Wetland 2. Wetland 2 has experienced various degrees of impact from logging activities including temporary access road crossings and tree clearing. Dominant wetland vegetation is consistent with Wetland 1.

**Wetland 3** is located generally within the upland island created by Wetland 2 and consists of a small, shallow depressional wetland pocket formed in dense glacial till. This wetland is partially forested with some of the overstory canopy removed from historic logging activity. An access road along the northern extent of the wetland has been subject to some rutting resulting in approximately 1 to 2 foot depressions with standing water. No evidence of vernal pool indicator species was observed within these isolated pools. No other standing water was observed within Wetland 2 outside these isolated tire ruts. Dominant wetland vegetation is consistent with Wetland 1 and 2.



Soils encompassing the Project Area were field classified predominantly as upland soil units consisting of the following: Canton and Charlton soils, Sutton fine sandy loam, Paxton and Montauk fine sandy loams, and Woodbridge fine sandy loam. Wetland soils identified within the wetland resources consist of Ridgebury, Leicester, and Whitman soils. Identified soils are generally consistent with digitally available soil survey information obtained from the Natural Resources Conservation Service ("NRCS").\*

## **Vernal Pools**

Calhoun and Klemens (2002) provides the following operational definition of vernal pools:

*Vernal pools are seasonal bodies of water that attain maximum depths in the spring or fall, and lack permanent surface water connections with other wetlands or water bodies. Pools fill with snowmelt or runoff in the spring, although some may be fed primarily by groundwater sources. The duration of surface flooding, known as hydroperiod, varies depending upon the pool and the year; vernal pool hydroperiods range along a continuum from less than 30 days to more than one year. Pools are generally small in size (<2 acres), with the extent of vegetation varying widely. They lack established fish populations, usually as a result of periodic drying, and support communities dominated by animals adapted to living in temporary, fishless pools. In the region, they provide essential breeding habitat for one or more wildlife species including Ambystomid salamanders (*Ambystoma* spp., called "mole salamanders" because they live in burrows), wood frogs (*Rana sylvatica*), and fairy shrimp (*Eubranchipus* spp.).*

Vernal pool physical characteristics can vary widely while still providing habitat for indicator species. "Classic" vernal pools are natural depressions in a wooded upland with no hydrologic connection to other wetland systems. Manmade depressions such as quarry holes, old farm ponds and borrow pits can also provide similar habitat. Often, vernal pools are depressions or impoundments within larger wetland systems. These vernal pool habitats are commonly referred to as "cryptic" vernal pools.

Several species of amphibians depend on vernal pools for reproduction and development. These species are referred to as indicator vernal pool species and their presence in a wetland during the breeding season helps to identify that area as a vernal pool.

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\* NRCS Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov/app/>, accessed on July 6, 2015.

This vernal pool assessment makes an important distinction between wetlands in which indicator species may breed and those wetlands where they breed *and* successfully develop. A common phenomena is for breeding (i.e., mating and egg laying) to occur in bodies of water such as road ruts or temporary puddles where development and metamorphosis of larvae is unsuccessful. Such areas are referred to as "decoy vernal pools" as reproductive efforts are unsuccessful. In their guidance on best development practices for conserving pool breeding amphibians, Calhoun and Klemens (2002) specifically note the negative impact associated with ruts: "*Site clearing can cause water-filled ruts. These ruts intercept amphibians moving toward the vernal pool and may induce egg deposition. Often these ruts do not hold water long enough to allow development of amphibians and therefore acts as "sinks" that result in populations declines.*"

Vernal pool surveys were conducted on June 3, 5 and 18 by APT in cooperation with Davison Environmental, LLC. Additionally, APT was provided egg mass survey data collected by Josh Wilson of Fuss & O'Neill, Inc. on April 7 and 22, 2015<sup>†</sup>.

A total of six (6) vernal pools were identified in Wetland 1 and a seventh (7<sup>th</sup>) in Wetland 2. All pools are cryptic vernal pools. Several of the pools are anthropogenic in nature.

Pool 1 consists of an old farm pond. The pond consists of an historic excavation with water retained by an earthen berm on the downslope side. The maximum water depth is approximately two (2) feet. Pool 1 was the most productive pool for spotted salamander, with a total of 143 egg masses observed.

Pool 2 also appears to have originated through historic excavation, likely for agricultural purposes. Pool 2 had a maximum depth of approximately 1.5 feet. Pool 2 had the highest species diversity of any pool, as it supported three indicator species: wood frog, spotted salamander and marbled salamander. Pool 3 was also the most productive pool for wood frog, with 42 egg masses observed.

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<sup>†</sup> Egg mass count data was provided by F&O for Pools 1 through 4. The F&O survey data did not include information on Pools 5, 6 or 7.

Pool 3 is a small pool situated close to the headwater stream embedded within Wetland 1. The maximum depth was less than eight inches. F&O recorded 19 wood frog egg masses and two spotted salamander egg masses in Pool 3 on April 22<sup>nd</sup>. During APT's dip-net surveys, no larval indicator species were encountered in Pool 3.

Pool 4 is likely anthropogenic in origin. Based on the depth and shape of the pool it appears to have formed in an historic logging road rut. The maximum depth is approximately 15 inches. The pool contained high densities of wood frog larvae. No spotted salamander larvae were found during dip-netting, however F&O's investigations in April noted three egg masses.

Pool 5 is a larger shallow pool in-line with and fed by the diffuse headwater stream which drains from this larger wetland system. The pool is gently sloping with a maximum depth of approximately 10 inches. Larvae of wood frog and spotted salamander were observed as well as several hatched spotted salamander egg masses.

Pool 6 is the largest pool in total surface area. However the pool is shallow throughout (eight inches or less), with most of the activity restricted to several large tree throws. The pool is fed directly by the headwater stream which flows through the pool. Although no egg mass inventory was conducted in this pool, based on the low density of larvae present during dip-netting it is likely that the pool has relatively low productivity. The pool also contained spring peeper tadpoles.

Pool 7 is embedded within Wetland 2. The pool is an historic impoundment adjacent to a logging road. The pool is long, narrow and shallow, with a maximum depth of approximately eight inches. The pool contained spotted salamander larvae, but no wood frog larvae were observed.

In addition to the seven (7) vernal pools, three (3) decoy pools were observed, all within and adjacent to the eastern portions of the Wetland 3. All three pools consisted of small and shallow road ruts in skid roads associated with recent logging activities. Species present in these decoy pools included wood frog (larvae), spotted salamander (egg masses and larvae) and *Bufo* egg masses.

Other wildlife observed within vernal pools included green frog (*Rana clamitans*). The four-toed salamander, a vernal pool facultative species, was observed near Vernal Pool 6. See Tables 1 and 2 for an inventory of observations within the vernal pools.

Table 1: Amphibians and reptiles observed during vernal pool survey, Potash Hill Road, Sprague

Common Name	Scientific Name	Status
<b>Amphibians</b>		
fowlers toad	<i>Bufo americanus</i>	
Marbled Salamander	<i>Ambystoma opacum</i>	IM, IS
four-toed salamander	<i>Hemidactylium scutatum</i>	FS
green frog	<i>Rana clamitans</i>	
wood frog	<i>Rana sylvatica</i>	IM, IS
pickrel frog	<i>Rana palustris</i>	
redback salamander	<i>Plethodon cinereus</i>	
spotted salamander	<i>Ambystoma maculatum</i>	IM, IS
spring peeper	<i>Pseudacris crucifer</i>	
two-lined salamander	<i>Eurycea bislineata</i>	
<b>Reptiles</b>		
garter snake	<i>Thamnophis sirtalis</i>	
<b>Status</b> IS – vernal pool indicator species; FS – vernal pool facultative species Wildlife Action Plan Conservation Status (CS): VI – very important; MI – most important; IM – important		

Table 2: Egg mass and larval survey results for vernal pool indicator species, Potash Hill Road, Sprague

Pool	Total Egg Masses		Larvae Observed		
	Wood Frog	Spotted Salamander	Wood Frog	Spotted Salamander	Marbled Salamander
1	25*	143	Y	Y	N
2	42*	46	Y	Y	Y
3	19*	2*	N	N	N
4	11*	3*	Y	N	N
5	NO	NO	Y	Y	N
6	NO	NO	Y	Y	N
7	NO	NO	N	Y	N
<b>KEY:</b> Y- yes; N – no NO – not observed. Note that the timing of our initial survey was near the end the egg mass development stage for wood frog and spotted salamander. *Indicates egg mass count data collected by Fuss & O'Neill on April 7 & 22, 2015					

# Wetland Delineation Field Forms

## Wetland Delineation Field Form

Wetland I.D.:	Wetland 1	
Flag #'s:	WF A100 to A229, C300 to C396, D353 to F600, E500 to E535	
Flag Location Method:	Site Sketch <input checked="" type="checkbox"/>	GPS (sub-meter) located <input checked="" type="checkbox"/>

### WETLAND HYDROLOGY:

#### NONTIDAL

Intermittently Flooded <input type="checkbox"/>	Artificially Flooded <input type="checkbox"/>	Permanently Flooded <input type="checkbox"/>
Semipermanently Flooded <input type="checkbox"/>	Seasonally Flooded <input checked="" type="checkbox"/>	Temporarily Flooded <input type="checkbox"/>
Permanently Saturated <input type="checkbox"/>	Seasonally Saturated – seepage <input type="checkbox"/>	Seasonally Saturated - perched <input checked="" type="checkbox"/>
Comments: Choose an item.		

#### TIDAL

Subtidal <input type="checkbox"/>	Regularly Flooded <input type="checkbox"/>	Irregularly Flooded <input type="checkbox"/>
Irregularly Flooded <input type="checkbox"/>		
Comments: Choose an item.		

### WETLAND TYPE:

#### SYSTEM:

Estuarine <input type="checkbox"/>	Riverine <input type="checkbox"/>	Palustrine <input checked="" type="checkbox"/>
Lacustrine <input type="checkbox"/>	Marine <input type="checkbox"/>	
Comments: Choose an item.		

#### CLASS:

Emergent <input type="checkbox"/>	Scrub-shrub <input type="checkbox"/>	Forested <input checked="" type="checkbox"/>
Open Water <input type="checkbox"/>	Disturbed <input type="checkbox"/>	Wet Meadow <input type="checkbox"/>
Comments: Choose an item.		

### WATERCOURSE TYPE:

Perennial <input checked="" type="checkbox"/>	Intermittent <input checked="" type="checkbox"/>	Tidal <input type="checkbox"/>
Watercourse Name: Unnamed		
Comments: Feeder to Little River		

## Wetland Delineation Field Form (Cont.)

### SPECIAL AQUATIC HABITAT:

Vernal Pool Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potential <input type="checkbox"/>	Other <input type="checkbox"/>
Vernal Pool Habitat Type: 'Cryptic' & 'Classic'	
Comments: A total of six vernal pools were identified within Wetland 1, all being classified as Tier 1 pools. Each pool contained both spotted salamander ( <i>Ambystoma maculatum</i> ) and wood frog ( <i>Rana sylvatica</i> ) larva and egg masses of varying quantities. Further discussion of these vernal pool resources will be provided under separate cover.	

### SOILS:

Are field identified soils consistent with NRCS mapped soils?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
If no, describe field identified soils		

### DOMINANT PLANTS:

Red Maple ( <i>Acer rubrum</i> )	Spicebush ( <i>Lindera benzoin</i> )
Skunk Cabbage ( <i>Symplocarpus foetidus</i> )	Yellow Birch ( <i>Betula alleghaniensis</i> )
Sweet Pepperbush ( <i>Clethra alnifolia</i> )	Japanese Barberry* ( <i>Berberis thunbergii</i> )
Sensitive Fern ( <i>Onoclea sensibilis</i> )	Sphagnum Sp.
Cinnamon Fern ( <i>Osmunda cinnamomea</i> )	Choose an item.
Choose an item.	Choose an item.
Choose an item.	Choose an item.
Choose an item.	Choose an item.

\* denotes Connecticut Invasive Species Council invasive plant species

### GENERAL COMMENTS:

<p>Wetland 1 is a large complex wetland system consisting of broad forested wetlands with hummock hollow topography. Generally, the system drains north to south with interior focused and diffuse intermittent stream channels transitioning to perennial stream systems in the southern reaches. Wetland 1 is focused along the eastern side of the Site, originating off-Site to the north, and draining south off-Site. Interior to the wetland system are a number of cryptic vernal pool habitats. In total, six (6) vernal pool habitats were identified within Wetland 1. Wetland 1 eventually drains into the Little River system to the south.</p>
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## Wetland Delineation Field Form

Wetland I.D.:	Wetland 2	
Flag #'s:	WF G700 to G865, G900/G1274, H1300 to H1459, H1500 to H1511, H1550 to H1571	
Flag Location Method:	Site Sketch <input checked="" type="checkbox"/>	GPS (sub-meter) located <input checked="" type="checkbox"/>

**WETLAND HYDROLOGY:**

**NONTIDAL**

Intermittently Flooded <input type="checkbox"/>	Artificially Flooded <input type="checkbox"/>	Permanently Flooded <input type="checkbox"/>
Semipermanently Flooded <input type="checkbox"/>	Seasonally Flooded <input checked="" type="checkbox"/>	Temporarily Flooded <input type="checkbox"/>
Permanently Saturated <input type="checkbox"/>	Seasonally Saturated – seepage <input type="checkbox"/>	Seasonally Saturated - perched <input checked="" type="checkbox"/>
Comments: Choose an item.		

**TIDAL**

Subtidal <input type="checkbox"/>	Regularly Flooded <input type="checkbox"/>	Irregularly Flooded <input type="checkbox"/>
Irregularly Flooded <input type="checkbox"/>		
Comments: Choose an item.		

**WETLAND TYPE:**

**SYSTEM:**

Estuarine <input type="checkbox"/>	Riverine <input type="checkbox"/>	Palustrine <input checked="" type="checkbox"/>
Lacustrine <input type="checkbox"/>	Marine <input type="checkbox"/>	
Comments: Choose an item.		

**CLASS:**

Emergent <input type="checkbox"/>	Scrub-shrub <input checked="" type="checkbox"/>	Forested <input checked="" type="checkbox"/>
Open Water <input type="checkbox"/>	Disturbed <input checked="" type="checkbox"/>	Wet Meadow <input type="checkbox"/>
Comments: Choose an item.		

**WATERCOURSE TYPE:**

Perennial <input checked="" type="checkbox"/>	Intermittent <input checked="" type="checkbox"/>	Tidal <input type="checkbox"/>
Watercourse Name: Unnamed		
Comments: Feeder to Little River		



## Wetland Delineation Field Form (Cont.)

### SPECIAL AQUATIC HABITAT:

Vernal Pool Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Potential <input type="checkbox"/>	Other <input type="checkbox"/>
Vernal Pool Habitat Type: 'Cryptic'	
<p>Comments: A single vernal pools was identified within Wetland 2, classified as Tier 1 pool. This pool contained both spotted salamander (<i>Ambystoma maculatum</i>) and wood frog (<i>Rana sylvatica</i>) larva and egg masses of varying quantities. Decoy vernal pools in the form of inundated tire ruts were found in several locations within this wetland. Further discussion of these vernal pool resources will be provided under separate cover.</p>	

### SOILS:

Are field identified soils consistent with NRCS mapped soils?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
If no, describe field identified soils		

### DOMINANT PLANTS:

Red Maple ( <i>Acer rubrum</i> )	Spicebush ( <i>Lindera benzoin</i> )
Skunk Cabbage ( <i>Symplocarpus foetidus</i> )	Yellow Birch ( <i>Betula alleghaniensis</i> )
Sweet Pepperbush ( <i>Clethra alnifolia</i> )	Japanese Barberry* ( <i>Berberis thunbergii</i> )
Sensitive Fern ( <i>Onoclea sensibilis</i> )	Sphagnum Sp.
Cinnamon Fern ( <i>Osmunda cinnamomea</i> )	Choose an item.
Choose an item.	Choose an item.
Choose an item.	Choose an item.
Choose an item.	Choose an item.

\* denotes Connecticut Invasive Species Council invasive plant species

### GENERAL COMMENTS:

Wetland 2 is located off-Site to the east and consists of a series of intermittent and perennial stream systems with bordering vegetated wetland systems. The cover type of this wetland area is primarily forested dominated by red maple (*Acer rubrum*). This wetland system drains north to south off-Site and is not physically associated with Wetland 1. A large upland 'island' was identified interior to Wetland 2 with contiguous wetland areas surrounding the north and south sides of the upland 'island'. The western drainage component of this wetland consists of a confined seep system eventually focusing to an intermittent watercourse with diffuse flows. This western drainage component also contains a single cryptic vernal pool. The eastern drainage component consists of a perennial stream system with a well-defined bank and channel. A small pocket wetland system identified as Wetland 2A is located north of an existing access road and north of the eastern drainage component of Wetland 2. While evidence of wetland or watercourse connectivity was not present with Wetland 2, Wetland 2A demonstrated evidence of seasonal sheet flow across the existing access road draining into Wetland 2. Due to the drainage and proximity nexus, Wetland 2A was grouped as a subset of Wetland 2. Wetland 2 has experienced various degrees of impact from logging activities including temporary access road crossings and tree clearing.

## Wetland Delineation Field Form

Wetland I.D.:	Wetland 3	
Flag #'s:	WF I1601 to I1619	
Flag Location Method:	Site Sketch <input checked="" type="checkbox"/>	GPS (sub-meter) located <input checked="" type="checkbox"/>

**WETLAND HYDROLOGY:**

**NONTIDAL**

Intermittently Flooded <input type="checkbox"/>	Artificially Flooded <input type="checkbox"/>	Permanently Flooded <input type="checkbox"/>
Semipermanently Flooded <input type="checkbox"/>	Seasonally Flooded <input type="checkbox"/>	Temporarily Flooded <input type="checkbox"/>
Permanently Saturated <input type="checkbox"/>	Seasonally Saturated – seepage <input type="checkbox"/>	Seasonally Saturated - perched <input checked="" type="checkbox"/>
Comments: Choose an item.		

**TIDAL**

Subtidal <input type="checkbox"/>	Regularly Flooded <input type="checkbox"/>	Irregularly Flooded <input type="checkbox"/>
Irregularly Flooded <input type="checkbox"/>		
Comments: Choose an item.		

**WETLAND TYPE:**

**SYSTEM:**

Estuarine <input type="checkbox"/>	Riverine <input type="checkbox"/>	Palustrine <input checked="" type="checkbox"/>
Lacustrine <input type="checkbox"/>	Marine <input type="checkbox"/>	
Comments: Choose an item.		

**CLASS:**

Emergent <input type="checkbox"/>	Scrub-shrub <input checked="" type="checkbox"/>	Forested <input checked="" type="checkbox"/>
Open Water <input type="checkbox"/>	Disturbed <input checked="" type="checkbox"/>	Wet Meadow <input type="checkbox"/>
Comments: Choose an item.		

**WATERCOURSE TYPE:**

Perennial <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Tidal <input type="checkbox"/>
Watercourse Name: None		
Comments: None		

## Wetland Delineation Field Form (Cont.)

### SPECIAL AQUATIC HABITAT:

Vernal Pool Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Potential <input type="checkbox"/>	Other <input type="checkbox"/>
Vernal Pool Habitat Type: None	
Comments: None	

### SOILS:

Are field identified soils consistent with NRCS mapped soils?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
If no, describe field identified soils		

### DOMINANT PLANTS:

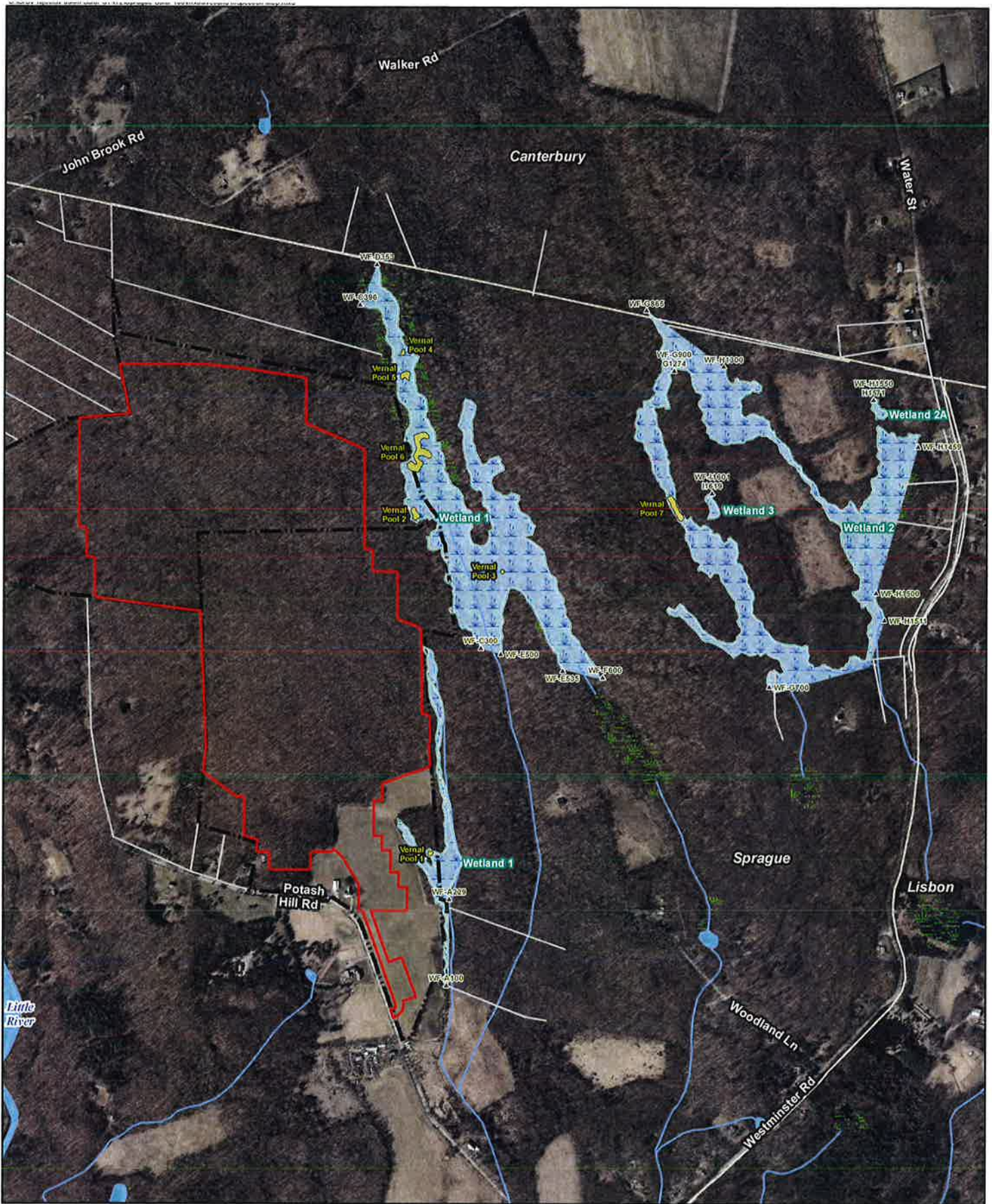
Red Maple ( <i>Acer rubrum</i> )	Spicebush ( <i>Lindera benzoin</i> )
Cinnamon Fern ( <i>Osmunda cinnamomea</i> )	Yellow Birch ( <i>Betula alleghaniensis</i> )
Sweet Pepperbush ( <i>Clethra alnifolia</i> )	Japanese Barberry* ( <i>Berberis thunbergii</i> )
	Sphagnum Sp.

\* denotes Connecticut Invasive Species Council invasive plant species

### GENERAL COMMENTS:

Wetland 3 is located generally within the upland island created by Wetland 2 and consists of a small, shallow depression wetland pocket formed in dense glacial till. This wetland is partially forested with some of the overstory canopy removed from historic logging activity. An access road along the northern extent of the wetland has been subject to some rutting resulting in approximately 1 to 2 foot depressions with standing water. No evidence of vernal pool indicator species was observed within these isolated pools. No other standing water was observed within Wetland 2 outside these isolated tire ruts. Dominant wetland vegetation is consistent with Wetland 1 and 2.

# Wetland Inspection Map



- Legend**
- Subject Property Boundary Line
  - Abutting Property Boundary Line
  - Project Area
  - ▲ Start/End Wetland Flag
  - Delineated Wetland Boundary Line
  - Wetland Area
  - Vernal Pool

- Hydrography**
- Marsh
  - Water
  - Watercourse



## Wetland Inspection Map

Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT

**Map Notes**  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 in = 950 ft    Map Date: July 13, 2015



## **APPENDIX B CTDEEP NDDB Letter**



Connecticut Department of

**ENERGY &  
ENVIRONMENTAL  
PROTECTION**

July 8, 2015

Dean Gustafson  
All-Points Technology Corporation, P.C.  
3 Saddlebrook Dr  
Killingworth, CT 06419  
dgustafson@allpointstech.com

Project: Proposed Construction of a Solar Powered Electrical Generation Installation Utilizing Photovoltaic Module Technology for Fusion Solar Center on Potash Hill Road in Sprague (Nothing on site but some species in the area)  
NDDDB Determination No.: 201504279

Dear Dean Gustafson,

I have reviewed Natural Diversity Data Base (NDDDB) maps and files regarding the area delineated on the map provided for the proposed Proposed Construction of a Solar Powered Electrical Generation Installation Utilizing Photovoltaic Module Technology for Fusion Solar Center on Potash Hill Road in Sprague (Nothing on site but some species in the area), Connecticut. According to our records we have Federal and State Threatened *Myotis septentrionalis* (long-eared bats), State Threatened *Carex cumulata* (clustered sedge) and State Special Concern *Glyptemys insculpta* (wood turtle) in the vicinity of this property. We also have State Threatened Bald eagles nesting at the adjacent Quinebaug River. I would recommend a site survey of this property to be sure none of these species are impacted by this project. This determination is good for one year. Please re-submit an NDDDB Request for Review if the scope of work changes or if work has not begun on this project by July 8, 2016.

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

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

Sincerely,

A handwritten signature in cursive script that reads 'Dawn M. McKay'.

Dawn M. McKay  
Environmental Analyst 3

# **APPENDIX C Wetland Protection Plan**



## WETLAND PROTECTION PROGRAM

Portions of the proposed Project are located in close proximity to wetlands. As a result, the following protective measures shall be followed to help avoid degradation of the nearby wetland system.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site. These measures will also provide protection to a nearby wetland system. This protection program shall be implemented regardless of time of year the construction activities occur. All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that wetland protection measures are implemented properly. The Contractor shall contact Dean Gustafson, Senior Environmental Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by telephone at (860) 663-1697 ext. 201 or via email at dgustafson@allpointstech.com.

The wetland protection program consists of several components: use of appropriate erosion control measures to control and contain erosion while avoiding/minimizing wildlife entanglement; periodic inspection and maintenance of isolation structures and erosion control measures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

### 1. Erosion and Sedimentation Controls

- a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the project. Temporary Erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (net less) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.
- b. Installation of erosion control measures shall be performed by the Contractor prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following barrier installation to ensure erosion controls are properly installed.
- c. In addition to required daily inspection by the Contractor, the fencing will be inspected for tears or breeches in the fabric following installation periodically by the Environmental Monitor throughout the course of the construction project.
- d. The extent of the erosion controls will be as shown on the site plans. The Contractor shall have additional erosion control materials should field conditions warrant extending the fencing as directed by the Environmental Monitor.
- e. All silt fencing and other erosion control devices shall be removed within 30 days of completion of work and permanent stabilization of site soils. If fiber rolls/wattles, straw bales, or other natural material erosion control products are used, such devices will not be left in place to biodegrade and shall be promptly removed after soils are stable so as not to create a barrier to migrating wildlife. Seed from seeding of soils should not spread over fiber rolls/wattles as it makes them harder to remove once soils are stabilized by vegetation.

## **2. Contractor Education**

- a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with the Environmental Monitor. This orientation and educational session will consist of an introductory meeting with the Environmental Monitor to understand the environmentally sensitive nature of the development site and the need to follow these protective measures.

## **3. Petroleum Materials Storage and Spill Prevention**

- a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to sensitive wetlands.
- b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.
- c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.
  - i. Petroleum and Hazardous Materials Storage and Refueling
    1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.
    2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.
  - ii. Initial Spill Response Procedures
    1. Stop operations and shut off equipment.
    2. Remove any sources of spark or flame.
    3. Contain the source of the spill.
    4. Determine the approximate volume of the spill.
    5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
    6. Ensure that fellow workers are notified of the spill.
  - iii. Spill Clean Up & Containment
    1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
    2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
    3. Isolate and eliminate the spill source.

4. Contact appropriate local, state and/or federal agencies, as necessary.
5. Contact a disposal company to properly dispose of contaminated materials.

iv. Reporting

1. Complete an incident report.
2. Submit a completed incident report to appropriate local, state and/or federal agencies, as necessary.

**4. Herbicide and Pesticide Restrictions**

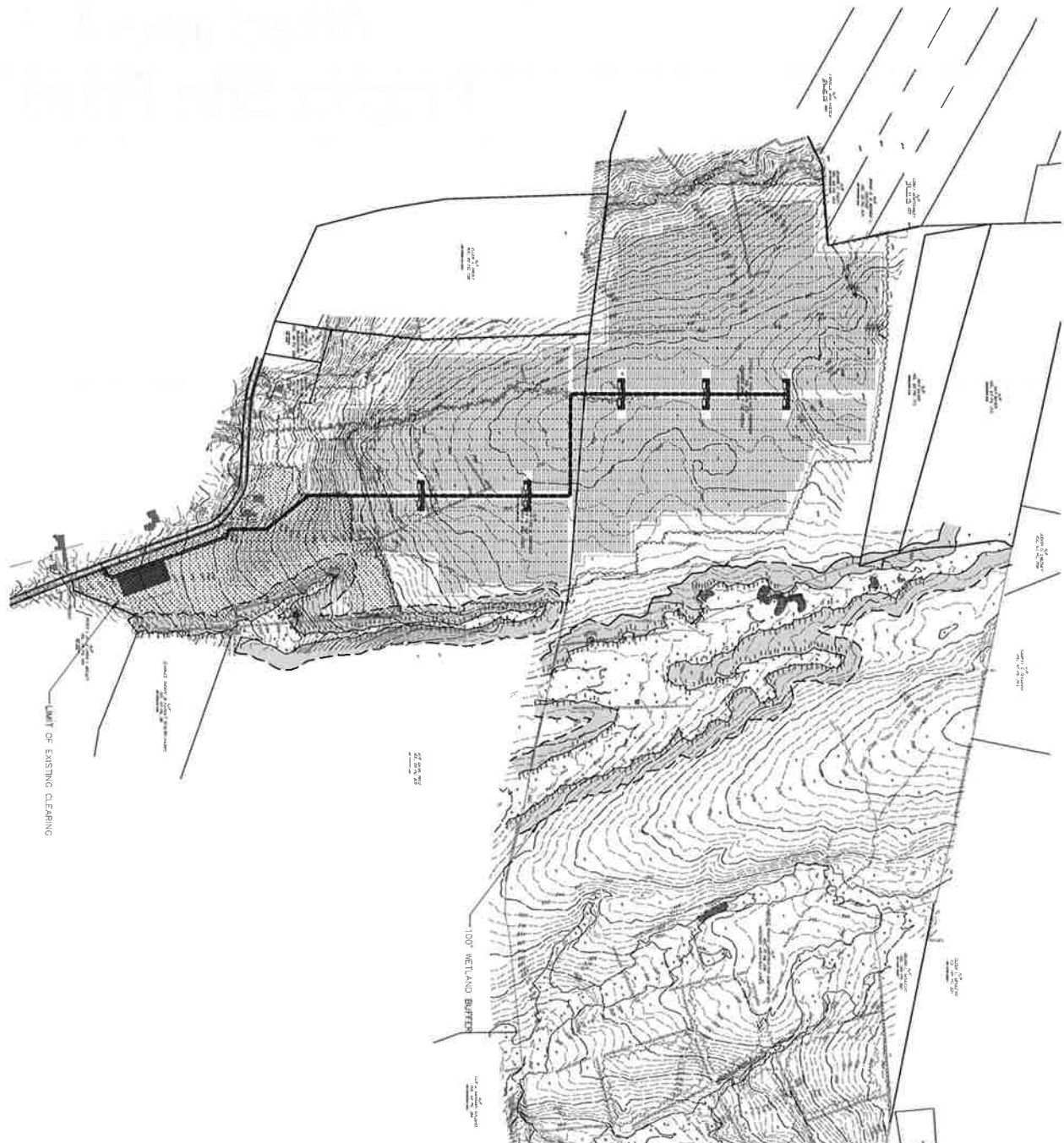
- a. In the event herbicides and/or pesticides are required at the proposed facility, their use will be used in accordance with Integrated Pest Management ("IPM") principles with particular attention to minimize applications within 100 feet of wetland or watercourse resources. No applications of herbicides or pesticides are allowed within actual wetland or watercourse resources.

**5. Reporting**

- a. Any incidents of sediment release into the nearby wetland will be reported to the Connecticut Siting Council.

# Attachment 3 Project Site Plans

---



**LEGEND:**  
 --- BOUNDARY LINE  
 --- CHAIN LINK FENCE  
 --- CLEARING LIMIT  
 --- WETLAND BUFFER  
 ○ VERNAL POOL  
 --- LIMIT OF EXISTING CLEARING

**AREA TABLE:**  
 AGEAGE UNDER SITE CONTROL ~ 382 ACRES  
 FENCED AREA ~ 118 ACRES  
 LIMIT OF CLEARING ~ 134 ACRES  
 TOTAL PROJECT AREA ~ 144 ACRES



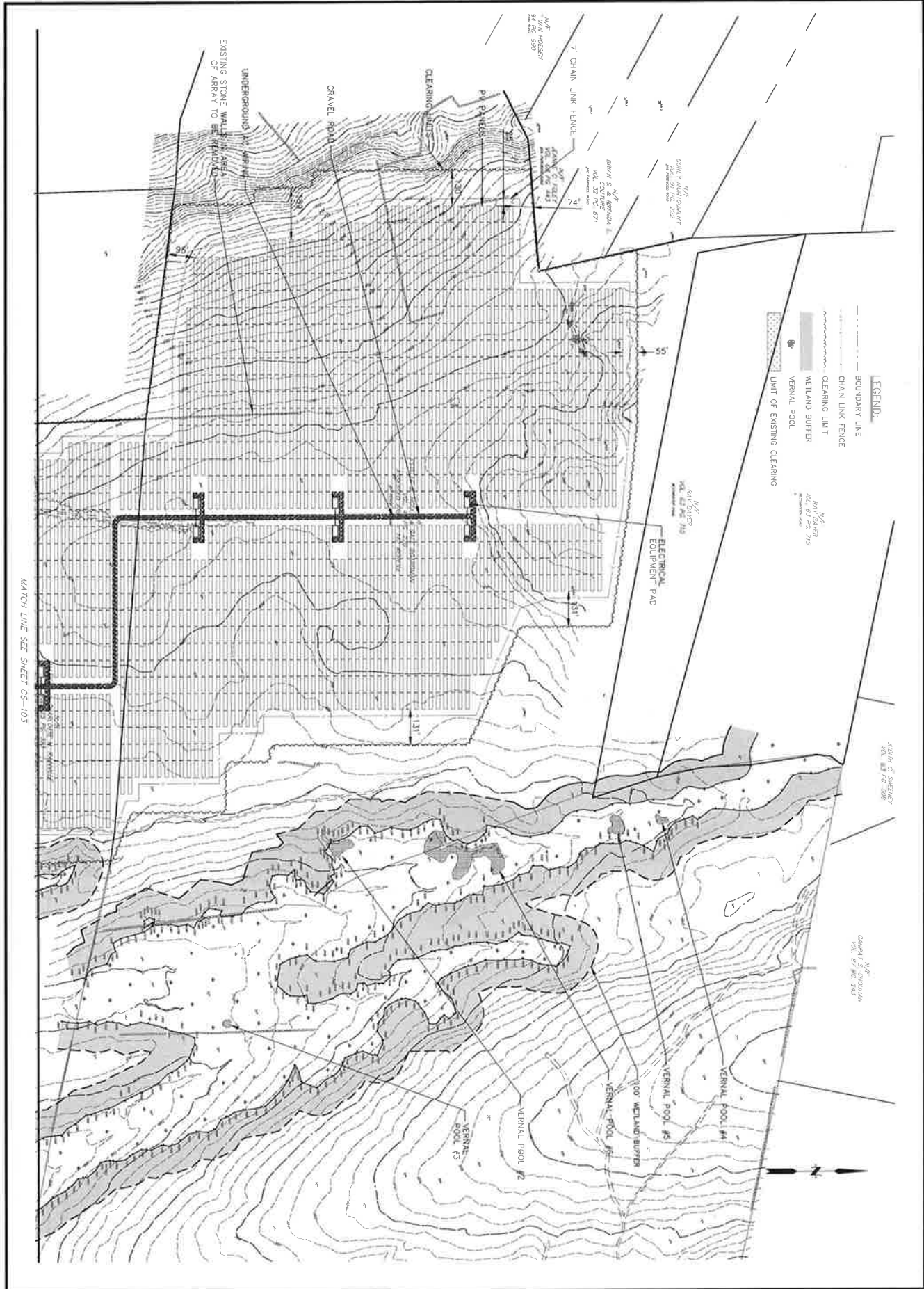
CS-101

FUSION SOLAR CENTER, LLC  
 FUSION SOLAR CENTER  
 POTASH HILL, ROAD, SPRAGUE CONNECTICUT

**f FUS & O'NEILL**  
 146 HARTFORD ROAD  
 MANSFIELD, CONNECTICUT 06040  
 800.646.2469  
 www.fuso.com

SCALE:  
 HORIZ. 1"=300'  
 VERT. DATUM  
 HORIZ. VERT. GRAPHIC SCALE

NO.	DATE	DESCRIPTION	XX/XX	BY



**LEGEND:**

- BOUNDARY LINE
- CHAIN LINK FENCE
- CLEARING LIMIT
- METLAND BUFFER
- VERNAL POOL
- LIMIT OF EXISTING CLEARING

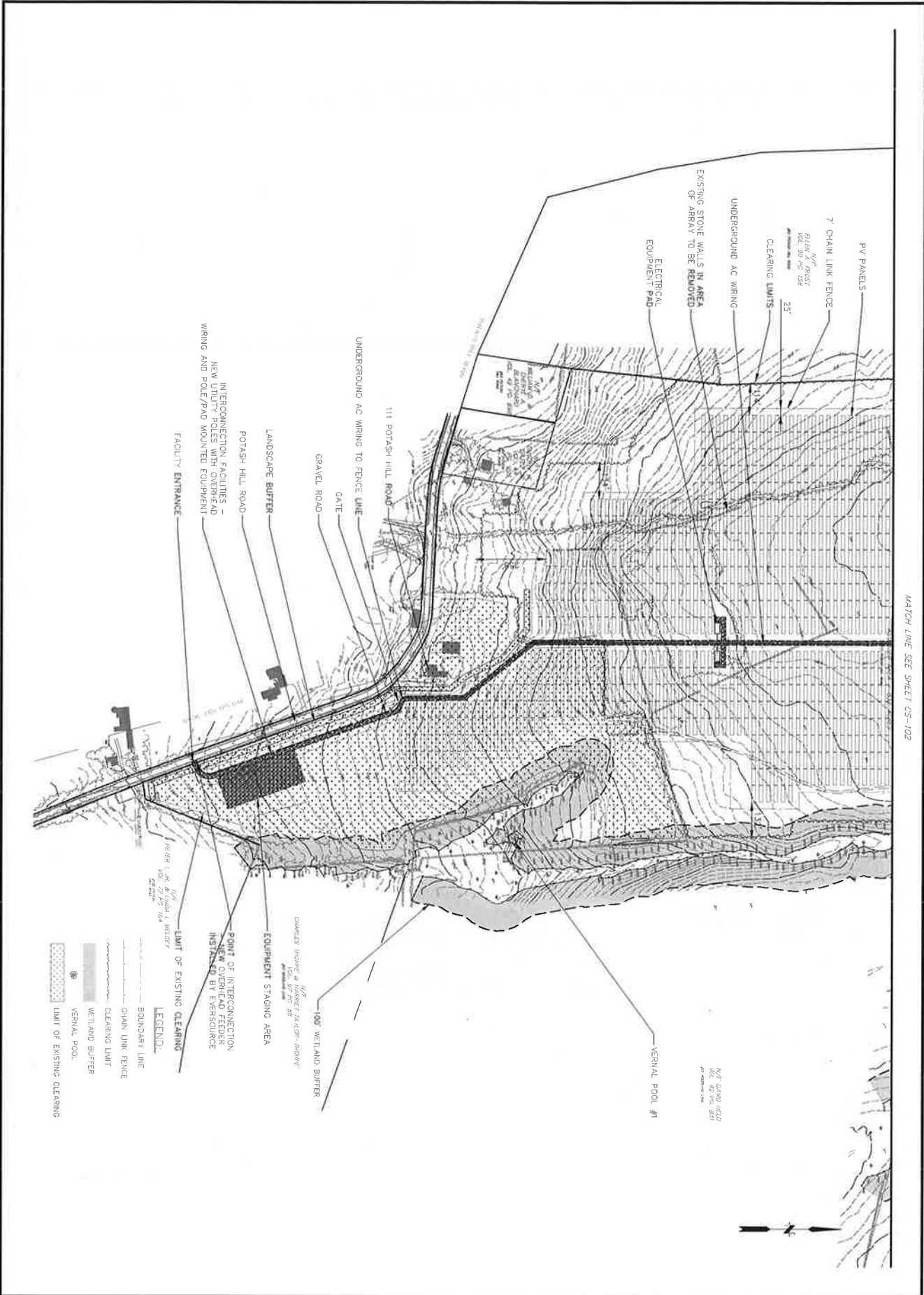
**CS-102**

FUSION SOLAR CENTER, LLC  
 FUSION SOLAR CENTER  
 POTASH HILL ROAD, SPIKAGUE, CONNECTICUT

**FUSS & O'NEILL**  
 146 HARTFORD ROAD  
 MANCHESTER, CONNECTICUT 06040  
 860.246.2469  
 www.fuss.com

SCALE  
 HORIZ 1"=150'  
 VERT 1"=30'  
 DATUM  
 HORIZ  
 VERT  
 150 75 0 150  
 GRAPHIC SCALE

NO.	DATE	DESCRIPTION	DESIGNER	REVIEWER



**CS-103**

FUSION SOLAR CENTER, LLC  
 FUSION SOLAR CENTER  
 POTASH HILL ROAD, SPRAGUE, CONNECTICUT

**FUSS & O'NEILL**  
 146 HARTFORD ROAD  
 MANCHESTER, CONNECTICUT 06040  
 860.646.3465  
 www.fuss-o.com

SCALE	HORIZ: 1"=150'
	VERT: 1"=150'
DATUM	HORIZ:
	VERT:
GRAPHIC SCALE	

NO.	DATE	DESCRIPTION	BY	CHKD BY

# Attachment 4

## Photodocumentation

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Photo 1: Typical terrestrial forest habitat view.



Photo 2: Typical terrestrial forest habitat view.



Photo 3: View of open hayfield looking southeast.



Photo 4: View of open hayfield looking north.



Photo 5: Typical palustrine forest habitat view.



Photo 6: Typical vernal pool habitat view.

# Attachment 5

## Connecticut Siting Council Approval

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# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

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

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

### CERTIFIED MAIL RETURN RECEIPT REQUESTED

September 22, 2015

Kenneth C. Baldwin, Esq.  
Joey Lee Miranda, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, CT 06103-3597

RE: **PETITION NO. 1178** – Fusion Solar Center, LLC petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed construction, operation and maintenance of a ground-mounted 20 megawatt solar photovoltaic electric generating facility located on Potash Hill Road, Sprague, Connecticut.

Dear Attorneys Baldwin & Miranda:

At a public meeting held on September 17, 2015, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need, with the following conditions:

- The Petitioner shall prepare a Development and Management Plan (D&M) for this site in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Sprague for comment and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
  - a) A final site plan;
  - b) A wood turtle protection plan;
  - c) A plan to mitigate impacts to the long-eared bat;
  - d) Erosion and sedimentation control plan consistent with the *2002 Connecticut Guidelines for Erosion and Sedimentation Control*;
  - e) A stormwater management plan; and
  - f) Landscaping plan consistent with the response to interrogatory number two, dated September 4, 2015;
- Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;

- Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the Town of Sprague;
- The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v;
- This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v; and
- If the facility owner/operator is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated July 29, 2015 and additional information received on August 13, 2015 and September 8, 2015.

Enclosed for your information is a copy of the staff report on this project.

Very truly yours,



Robert Stein  
Chairman

RS/MP/lm

Enclosure: Staff Report dated September 17, 2015

- c: The Honorable Catherine A. Osten, First Selectman, Town of Sprague  
Joseph Smith, Zoning Enforcement Officer, Town of Sprague  
Honorable Roy Piper, First Selectman, Town of Canterbury  
Melissa Gil, Land Use Director, Town of Canterbury  
Honorable Thomas W. Sparkman, First Selectman, Town of Lisbon  
Robert D. Adams, Chairman, Planning and Zoning Commission, Town of Lisbon  
Nelson Teague, Fusion Solar Center, LLC, c/o Coronal Development Services, LLC  
Estelle Houle and Gale Boardman, 57 Potash Hill Road, Sprague  
Allen and Charlotte Rainville, 111 Potash Hill Road, Sprague  
Lawrence Nadeau Construction Company, Inc., 130 Winter Park Road, Southington



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

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

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

Petition No. 1178  
Fusion Solar Center, LLC  
Potash Hill Road, Sprague  
Staff Report  
September 17, 2015

### Introduction

On July 29, 2015, Fusion Solar Center, LLC (FSC or Petitioner) submitted a petition to the Connecticut Siting Council (Council) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the construction, operation and maintenance of a 20 megawatt (MW) alternating current (AC) solar photovoltaic generating facility located at Potash Hill Road in Sprague, Connecticut. Council members Robert Hannon and James Murphy, Jr. and Council staff members Michael Perrone and Cyman Holzschuh visited the site on August 26, 2015 to review this proposal. Attorney Kenneth Baldwin, Robinson & Cole LLP (representing FSC); David Rooney, Director – Northeast Development, Coronal Development Services, LLC (CDS); Ben Combs, Senior Project Engineer, CDS; Joe Devine, Civil Engineer, Fuss & O'Neil; Michael Libertine, Director of Siting and Permitting, All Points Technology Corporation (APT); Matthew Gustafson, Environmental Scientist and Forester, APT; Catherine Osten, First Selectman, Town of Sprague and State Senator, District S19 attended the field review. Supplemental information requested at the field review was received on September 8, 2015.

The Petitioner notified the Towns of Sprague, Canterbury, and Lisbon and abutting property owners of the proposed project. The Council has not received any comments from abutters. At the field review, First Selectman Catherine Osten expressed her support for the proposed project.

### Municipal Consultation

Prior to the submission of the Petition to the Council, FSC held a meeting with First Selectman Osten on December 15, 2014. FSC held a public presentation and information session (attended by First Selectman Osten and citizens of Sprague) on the project on April 14, 2015. Comments from residents included a request for additional screening of the project with landscaping along Potash Hill Road. On June 8, 2015, FSC conducted outreach to the Towns of Lisbon and Canterbury. By letter dated June 22, 2015, First Selectman Osten indicated that the Town of Sprague supports the proposed project.

### Public Benefit

The project would be a “grid-side distributed resources” facility, as defined in Connecticut General Statutes (CGS) § 16-1(a)(37). CGS § 16a-35k establishes the State’s energy policies, including the goal to “develop and utilize renewable energy resources, such as solar and wind energy, to the maximum extent possible.” The 2013 Connecticut Comprehensive Energy Strategy emphasizes low- or no-emission sources of electric generation and development of more distributed generation. The proposed facility is distributed generation. In July 2013, this project was selected by the Department of Energy and Environmental Protection (DEEP) under a Request for Proposals (RFP). Specifically, the proposed facility will contribute to fulfilling the State’s Renewable Portfolio Standard as a zero

emission Class I renewable energy source. Construction of the project is expected to begin in the first quarter of 2016 and completed with commissioning and testing by late 2016.

### **Proposed Site**

The project would be located entirely on the eastern-most 85 acres of the 57 Potash Hill Road property (owned by Estelle Houle and Gale Boardman) and all of the 111 Potash Hill Road property (owned by Allen and Charlotte Rainville). Both properties are located in residential zones and are directly north of Potash Hill Road. Currently, the subject properties are agricultural (i.e. open hay fields) and wooded, with two existing structures located on the 111 Potash Hill Road parcel. In addition, approximately 10 acres of the 111 Potash Hill Road parcel are used for timber harvesting. (FSC has lease options for two other properties: the Westminster Road parcel and the Melgey property; however, the proposed project will not be developed on these sites due to the presence of wetlands and other environmentally sensitive areas.)

Land uses adjacent to the project and within the immediate locale are mostly dominated by agricultural production, industrial manufacturing (including the former Fusion Paperboard site), and to a lesser extent, by residential development and open space.

### **Proposed Project**

The solar field would include 97,000 photovoltaic modules, on a fixed rack system oriented to the south and at an angle of 25 degrees above the horizontal. Approximately 10 to 12 inverters and transformers would be located on concrete pads that are approximately 15 feet wide and 40 feet long. (The maximum height of electrical equipment would not exceed 15 feet. The maximum height of the top edges of the solar panels would not exceed 10 feet.) Electrical wiring to connect the panels would be underground. The electrical distribution line from the project site would be overhead and utilize five new 40-foot poles in order to reach and interconnect with Eversource's overhead electric distribution on Potash Hill Road.

The project would be surrounded by a six-foot chain link fence topped with barbed wire and with a mesh size not to exceed 1.25 inches as an anti-climbing measure. The total project area is approximately 144 acres, of which, 134 acres would be cleared.

The Petitioner would upgrade an existing farm access point for the main access drive to the project site. Such access drive would be gravel and approximately 16 feet wide by 700 feet long. There would also be a gravel perimeter maintenance/access road around the project area, approximately 16 feet wide and 12,400 linear feet long.

### **Environment, Cultural and Scenic Values**

A Phase I Environmental Site Assessment concluded that the site contains one recognized environmental condition, which consists of a farm dump that includes metal containers, old appliances, and scrap metal near an existing access road, that warranted additional investigation or action. Accordingly, a Phase II Environmental Site Assessment was performed and indicated the presence of lead at two sampling locations. The first sample location was beneath a discarded automotive battery located on the 57 Potash Hill Road parcel. The second sample location, which was located near the boundary of both subject properties, included paint cans and rusted metal debris and may be associated with discarded lead paint. FSC's consultant, Fuss & O'Neil believes that the extent of contamination is minimal given the sizes of the apparent source material. The Petitioner



intends to aid the landowners in proper remediation, including the disposal of the underlying soil using appropriate handling precautions and further sampling, to ensure that contaminants are properly remediated.

Site development would require the clearing of 134 acres of trees or the removal of approximately 21,130 trees with a diameter of six inches or greater to achieve a 4.6 percent shading loss. However, achieving a perfect zero percent shading loss would result in an even greater number of trees to be cleared. In order to partially mitigate the amount of tree clearing, the Petitioner has determined that an average annual shading loss of 4.6 percent is acceptable and incorporated that into the design.

Minimal grading would be required for the installation of the solar racks due to FSC's use of pile-driven or ground screw foundations. No significant cut or fill operations would be expected.

The project would be registered under the DEEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities at least 30 days prior to commencing any construction activities. FSC would also implement a stormwater management plan. An erosion and sedimentation control plan would be prepared prior to final site design. If approved, staff recommends including a condition that a stormwater management plan and an erosion and sedimentation control plan be filed for Council approval prior to construction.

The Petitioner has performed a Carbon Debt Analysis. While the loss of trees necessarily reduces carbon capturing ability, the carbon dioxide emissions reductions due to the solar power displacing more traditional generation (which includes fossil-fueled generation) results in a very rapid "carbon payback" of about three days of full energy production. Thus, the proposed project would very rapidly result in a net reduction in carbon dioxide emissions for the environment.

A Decommissioning Plan was included in the Petition and has provisions for project removal after a service life of up to 35 years.

The project would have no adverse environmental effect to air or water quality. The solar project would not produce air emissions of regulated air pollutants or greenhouse gasses during operation. No public water supply wells or aquifer protection areas are located in a one-half mile radius of the site.

The majority of the project is in located in upland areas. One large wetland complex with six vernal pools is located to the east. While the project clearing limits would extend within nine feet of the wetland, no clearing would occur within the wetland. FSC has included a Wetland Protection Program including compliance with the *2002 Connecticut Guidelines for Erosion and Sedimentation Control*. The project fenceline would have a 100-foot setback distance from all wetlands and a vernal pool buffer of about 280 feet. Although the project does fall within the critical terrestrial habitat (i.e. 100 to 750 feet) of the wetland's vernal pools, the project is designed in accordance with the Klemens and Calhoun 2002 guidelines.

By letter dated June 12, 2015, DEEP has determined that the clustered sedge (a State-designated Threatened Species), the long-eared bat (a State-designated Endangered Species and federally-designated Threatened Species), and the wood turtle (a State-designated Species of Special Concern) may occur in the vicinity of the proposed project. DEEP also noted that bald eagles nest along the Quinebaug River, several miles east of the project.

Suitable habitat for the clustered sedge does not appear to exist within the project area. No adverse impact to the bald eagle is expected because of the distance. No hibernaculum or breeding/roosting habitat for the long-eared bat is known to exist in the vicinity of the site. However, as a precaution,

if approved, staff recommends including a condition that a plan to mitigate possible impacts to the long-eared bat be submitted for Council review and approval prior to construction. While it is unlikely that the wood turtle would utilize the project area, the potential exists for the wood turtle to utilize portions of the adjacent wetland. If approved, staff recommends including a condition that a wood turtle protection program be submitted for Council review and approval prior to construction.

The State Historic Preservation Office (SHPO) has determined that no historic properties would be affected by the proposed project. SHPO recommends the avoidance of all fieldstone walls and stone wall segments to the greatest extent possible. Council staff notes that some existing stone walls are located within the western portion of the project footprint, but recommends including a condition that the removal of existing stone walls shall be minimized where possible.

Visibility of the project would be minimal due to existing surrounding tree cover on the north, east, and west sides of the project. The only area of possible visibility would be the southern boundary of the site as viewed from Potash Hill Road. Accordingly, in response to requests for additional visual screening along Potash Hill Road, FSC is amenable to planting shrubs and/or trees (no taller than eight to ten feet at maturity) along Potash Hill Road. Specifically, FSC is willing to plant along the southern edge of 111 Potash Hill Road property along Potash Hill Road and extending north and west to the residence at 111 Potash Hill Road. The Petitioner is also willing to extend the plantings to the west behind the residence at 111 Potash Hill Road to a point adjacent to the existing tree line. Council staff notes that this proposed planting scheme would minimize the visibility and improve the aesthetics of the project as viewed from Potash Hill Road. If approved, Council staff suggests including a condition that includes the planting design indicated in the interrogatory responses received on September 8, 2015.

There is an existing stone wall on the 111 Potash Hill Road property along Potash Hill Road that is concealed by overgrown brush and foliage. As an additional measure to improve aesthetics, FSC is amenable to clearing significant portions of the brush and foliage along the existing stone wall and enhancing the stone wall, as economically viable, with materials removed from other locations from the project site.

### **Conclusion**

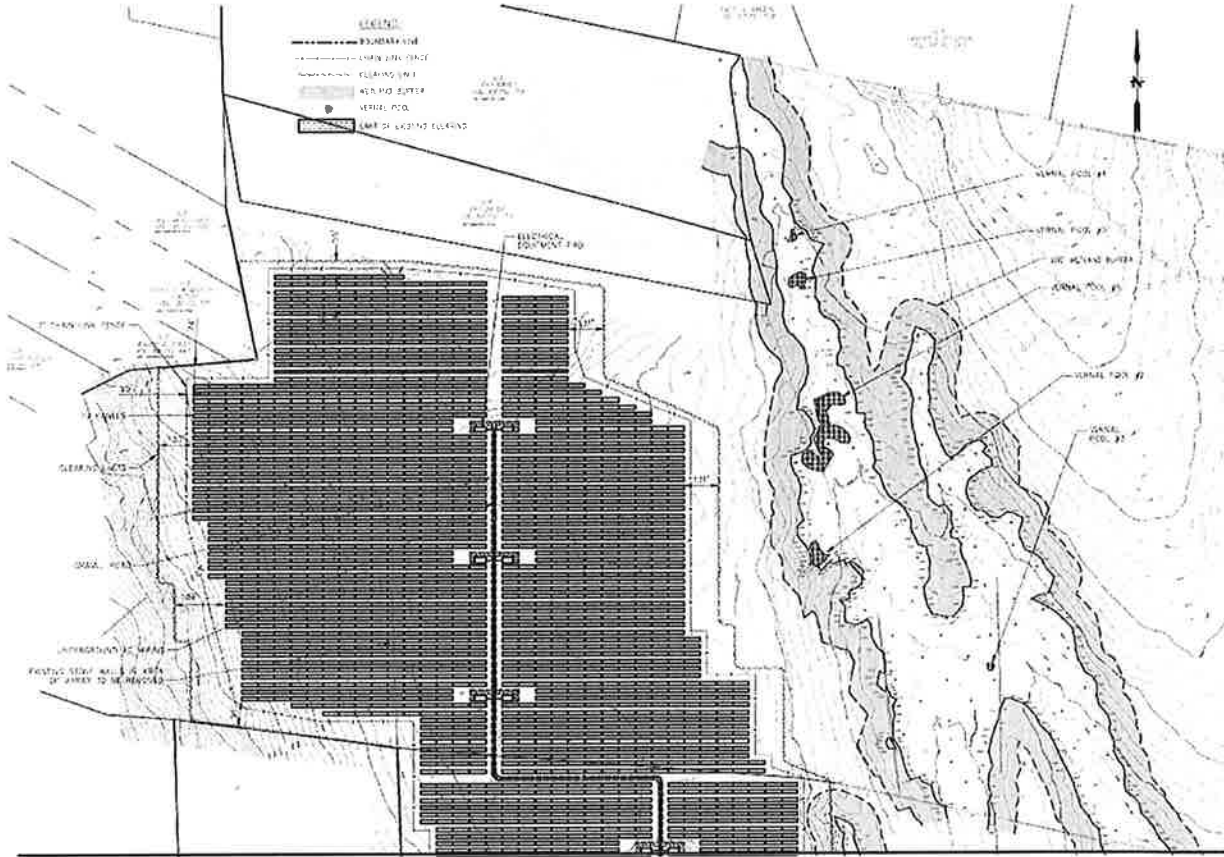
The Petitioner contends that pursuant to CGS § 16-50k(a), the Siting Council shall approve by declaratory ruling the construction or location of "any customer-side distributed resources project or facility or grid-side distributed resources project or facility with a capacity of not more than sixty-five megawatts, as long as such project meets air and water quality standards of the Department of Energy and Environmental Protection." The proposed project meets these criteria. The proposed project will not produce air emissions, will not utilize water to produce electricity, was designed to minimize wetland impacts, and furthers the State's energy policy by developing and utilizing renewable energy resources and distributed energy resources. In addition, as demonstrated above, the proposed project will not have a substantial adverse environmental effect.

## Recommendations

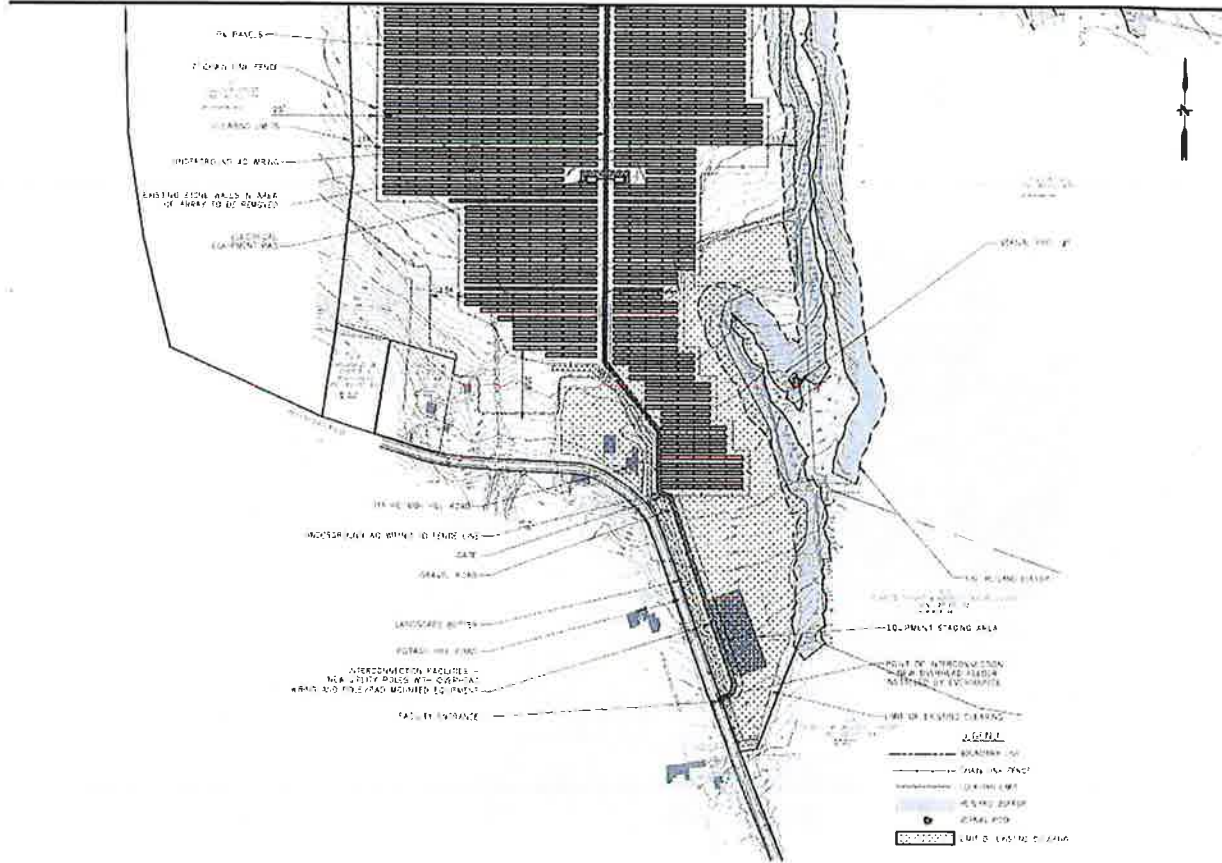
Staff recommends inclusion of the following conditions:

- The Petitioner shall prepare a Development and Management Plan (D&M) for this site in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Sprague for comment and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
  - a) A final site plan;
  - b) A wood turtle protection plan;
  - c) A plan to mitigate impacts to the long-eared bat;
  - d) Erosion and sedimentation control plan consistent with the *2002 Connecticut Guidelines for Erosion and Sedimentation Control*;
  - e) A stormwater management plan; and
  - f) Landscaping plan consistent with the response to interrogatory number two, dated September 4, 2015

**Proposed site layout (northern portion of project)**



### Proposed site layout (southern portion of project)



# Attachment 6

## Forest Habitat Figures

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- Forest Fragmentation Map
- Surrounding Core Forests Map



- Legend**
- Site Boundary
  - Abutting Property Boundary Line
  - ▭ Project Area
  - ~ Watercourse
  - ▨ Approximate Areas Logged

- 2006 Forest Fragmentation (CLEAR)**
- Developed
  - Patch Forest
  - Edge Forest
  - Perforated Forest
  - Core Forest (<250 ac)
  - Core Forest (250-500 ac)
  - Core Forest (>500 ac)

- Project Area Forest Block Type**
- ▭ Core Forest (+/-657 acres)
  - ▨ Edge Forest (+/-230 acres)

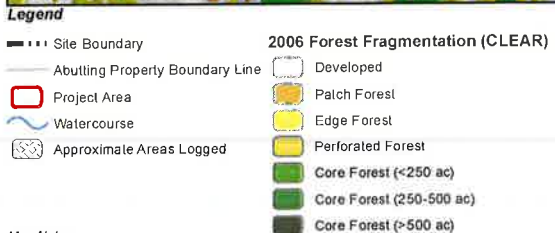
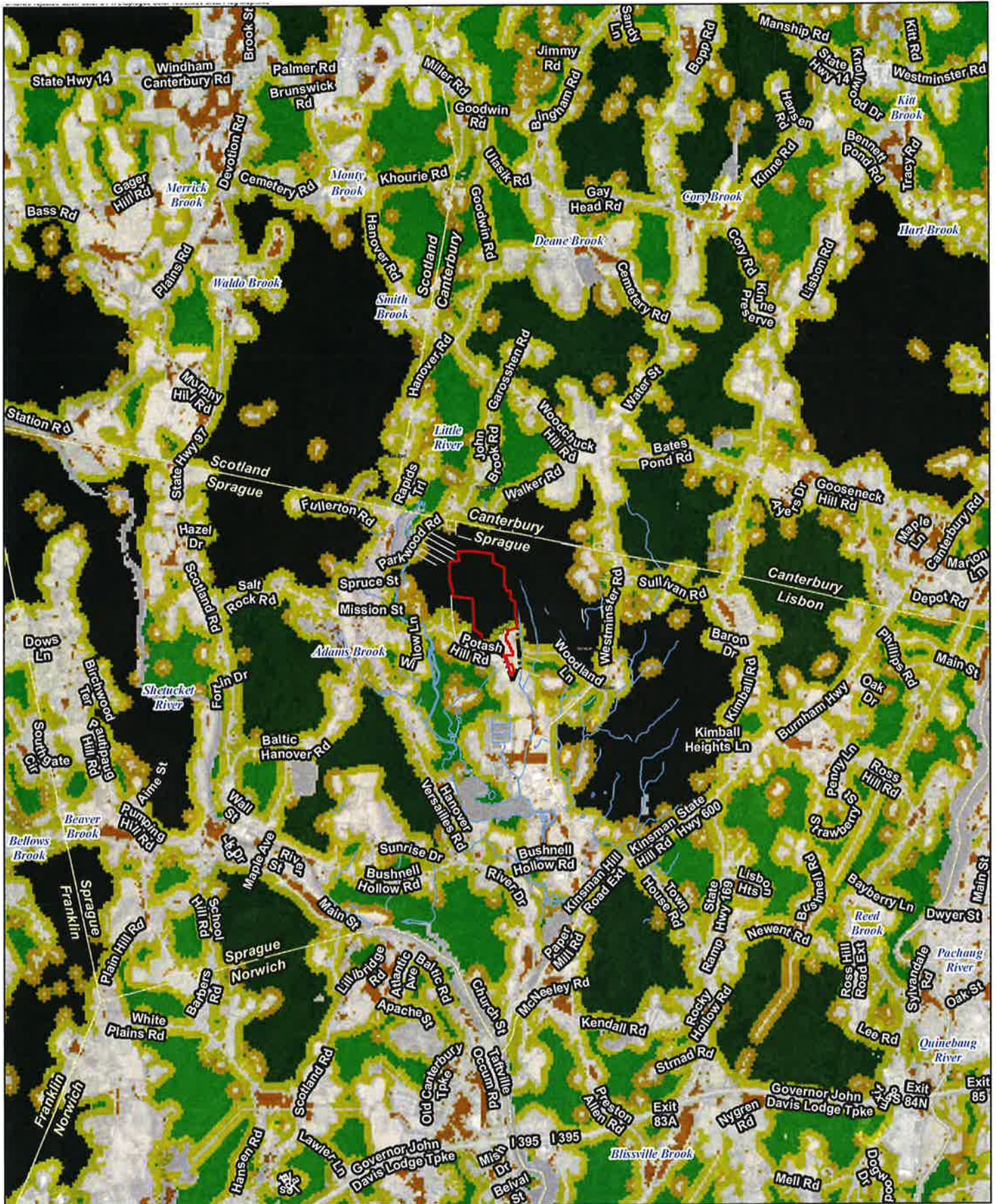


### Forest Fragmentation Map

Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT

**Map Notes:**  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 in = 1,500 ft Map Date: November 16, 2015





Map Notes:  
 Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 in = 5,000 ft Map Date: November 16, 2015



## Surrounding Core Forest Map

Proposed Fusion Solar Center Facility  
 Potash Hill Rd  
 Sprague, CT





# Attachment 7

## Habitat & Species Protection Plans

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- Wetland Protection Plan
- Wood Turtle Protection Plan and Caution Poster

## **WETLAND PROTECTION PROGRAM**

Portions of the proposed Project are located in close proximity to wetlands. As a result, the following protective measures shall be followed to help avoid degradation of the nearby wetland system.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site. These measures will also provide protection to a nearby wetland system. This protection program shall be implemented regardless of time of year the construction activities occur. All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that wetland protection measures are implemented properly. The Contractor shall contact Dean Gustafson, Senior Environmental Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by telephone at (860) 663-1697 ext. 201 or via email at dgustafson@allpointstech.com.

The wetland protection program consists of several components: use of appropriate erosion control measures to control and contain erosion while avoiding/minimizing wildlife entanglement; periodic inspection and maintenance of isolation structures and erosion control measures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

### **1. Erosion and Sedimentation Controls**

- a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the project. Temporary Erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (net less) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.
- b. Installation of erosion control measures shall be performed by the Contractor prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following barrier installation to ensure erosion controls are properly installed.
- c. In addition to required daily inspection by the Contractor, the fencing will be inspected for tears or breeches in the fabric following installation periodically by the Environmental Monitor throughout the course of the construction project.
- d. The extent of the erosion controls will be as shown on the site plans. The Contractor shall have additional erosion control materials should field conditions warrant extending the fencing as directed by the Environmental Monitor.
- e. All silt fencing and other erosion control devices shall be removed within 30 days of completion of work and permanent stabilization of site soils. If fiber rolls/wattles, straw bales, or other natural material erosion control products are used, such devices will not be left in place to biodegrade and shall be promptly removed after soils are stable so as not to create a barrier to migrating wildlife. Seed from seeding of soils should not spread over fiber rolls/wattles as it makes them harder to remove once soils are stabilized by vegetation.

## **2. Contractor Education**

- a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with the Environmental Monitor. This orientation and educational session will consist of an introductory meeting with the Environmental Monitor to understand the environmentally sensitive nature of the development site and the need to follow these protective measures.

## **3. Petroleum Materials Storage and Spill Prevention**

- a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to sensitive wetlands.
- b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.
- c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.
  - i. Petroleum and Hazardous Materials Storage and Refueling
    1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.
    2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.
  - ii. Initial Spill Response Procedures
    1. Stop operations and shut off equipment.
    2. Remove any sources of spark or flame.
    3. Contain the source of the spill.
    4. Determine the approximate volume of the spill.
    5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
    6. Ensure that fellow workers are notified of the spill.
  - iii. Spill Clean Up & Containment
    1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
    2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
    3. Isolate and eliminate the spill source.

4. Contact appropriate local, state and/or federal agencies, as necessary.
5. Contact a disposal company to properly dispose of contaminated materials.

iv. Reporting

1. Complete an incident report.
2. Submit a completed incident report to appropriate local, state and/or federal agencies, as necessary.

**4. Herbicide and Pesticide Restrictions**

- a. In the event herbicides and/or pesticides are required at the proposed facility, their use will be used in accordance with Integrated Pest Management ("IPM") principles with particular attention to minimize applications within 100 feet of wetland or watercourse resources. No applications of herbicides or pesticides are allowed within actual wetland or watercourse resources.

**5. Reporting**

- a. Any incidents of sediment release into the nearby wetland will be reported to the Connecticut Siting Council.

- c. Any observations of wood turtle will be reported to CTDEEP by APT, with photo-documentation (if possible) and with specific information on the location and disposition of the animal.

## **ENVIRONMENTAL NOTES**

### **Wood Turtle Protection Program**

Wood Turtle, a State Special Concern species afforded protection under the Connecticut Endangered Species Act, is known to occur on or within the vicinity of the site. The following protective measures satisfy requirements from the Connecticut Department of Energy & Environmental Protection ("CTDEEP") Wildlife Division and follow protocols developed from previous rare species consultations and state-approved protection plans. This protection program is valid for one year from the date of CTDEEP's Wildlife Division letter, at which point if construction has not been initiated a new Natural Diversity Data Base ("NDDDB") review request from CTDEEP is required.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site if work will occur during the Wood Turtle's active period (April 1 to November 15). All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that Wood Turtle protection measures are implemented properly and will provide an education session on this rare turtle species prior to the start of construction activities. The Contractor shall contact Dean Gustafson, Senior Environmental Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by phone at (860) 984-9515 or via email at dgustafson@allpointstech.com.

The proposed turtle protection program consists of several components: isolation of the project perimeter; periodic inspection and maintenance of isolation structures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

#### **1. Isolation Measures & Erosion and Sedimentation Controls**

- a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the Fusion Solar project. Temporary erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (netless) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.
- b. Installation of erosion and sedimentation controls (i.e., silt fencing), required for erosion control compliance and creation of a barrier to possible migrating/dispersing herpetofauna, shall be performed by the Contractor following clearing activities and prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following erosion control barrier installation to ensure the area is free of wood turtles and satisfactorily installed. The intent of the barrier is to segregate the majority of the work zone and isolate it from foraging/migrating/dispersing turtles. Oftentimes complete isolation of a work zone is not feasible due to accessibility needs and locations of staging/material storage areas, etc. In those circumstances, the barriers will be positioned to deflect migrating/dispersal routes away from the work zone to minimize potential encounters with turtles.
- c. The fencing will consist of non-reinforced conventional erosion control woven fabric, installed approximately six inches below surface grade and staked at seven to ten-foot intervals using four-foot oak stakes or approved equivalent. The Contractor is responsible for daily inspections of the fencing for tears or breeches in the fabric and

accumulation levels of sediment, particularly following storm events of 0.25 inch or greater. APT will provide periodic inspections of the fencing throughout the duration of construction activities, generally on a biweekly frequency or more frequently if site conditions warrant.

- d. The extent of the barrier fencing will be as shown on the site plans. The Contractor shall have additional barrier fencing should field or construction conditions warrant extending the fencing as directed by APT.
- e. No equipment, vehicles or construction materials shall be stored outside of the isolation barrier fencing.
- f. All silt fencing shall be removed within 30 days of completion of work and permanent stabilization of site soils so that reptile and amphibian movement between uplands and wetlands is not restricted.

## **2. Contractor Education**

- a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with APT. This orientation and educational session will consist of an introductory meeting with APT providing photos of wood turtles and emphasizing the non-aggressive nature of these turtles, the absence of need to destroy animals that might be encountered and the need to follow Protective Measures as described in Section 4 below. Workers will also be provided information regarding the identification of other turtle species that could be encountered.
- b. The education session will also focus on means to discriminate between the species of concern and other native species to avoid unnecessary "false alarms". Encounters with any species of turtles will be documented.
- c. The Contractor will be provided with cell phone and email contacts for APT personnel to immediately report any encounters with wood turtle or other turtle species. Educational poster materials will be provided by APT and displayed on the job site to maintain worker awareness as the project progresses.

## **3. Petroleum Materials Storage and Spill Prevention**

- a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to sensitive wetlands.
- b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.
- c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.
  - i. Petroleum and Hazardous Materials Storage and Refueling
    - 1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.

2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.

ii. Initial Spill Response Procedures

1. Stop operations and shut off equipment.
2. Remove any sources of spark or flame.
3. Contain the source of the spill.
4. Determine the approximate volume of the spill.
5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
6. Ensure that fellow workers are notified of the spill.

iii. Spill Clean Up & Containment

1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
3. Isolate and eliminate the spill source.
4. Contact the appropriate local, state and/or federal agencies, as necessary.
5. Contact a disposal company to properly dispose of contaminated materials.

iv. Reporting

1. Complete an incident report.
2. Submit a completed incident report to the Connecticut Siting Council.

**4. Turtle Protective Measures**

- a. Prior to the start of construction each day, the Contractor shall search the entire work area for turtles.
- b. If a turtle is found, it shall be immediately moved, unharmed, by carefully grasped in both hands, one on each side of the shell, between the turtle's forelimbs and the hind limbs, and placed just outside of the isolation barrier in the same approximate direction it was walking.
- c. Special care shall be taken by the Contractor during early morning and evening hours so that possible basking or foraging turtles are not harmed by construction activities.

**5. Herbicide and Pesticide Restrictions**

- a. In the event herbicides and/or pesticides are required at the proposed facility, their use will be used in accordance with Integrated Pest Management ("IPM") principles with particular attention to minimize applications within 100 feet of wetland or watercourse resources. No applications of herbicides or pesticides are allowed within actual wetland or watercourse resources.

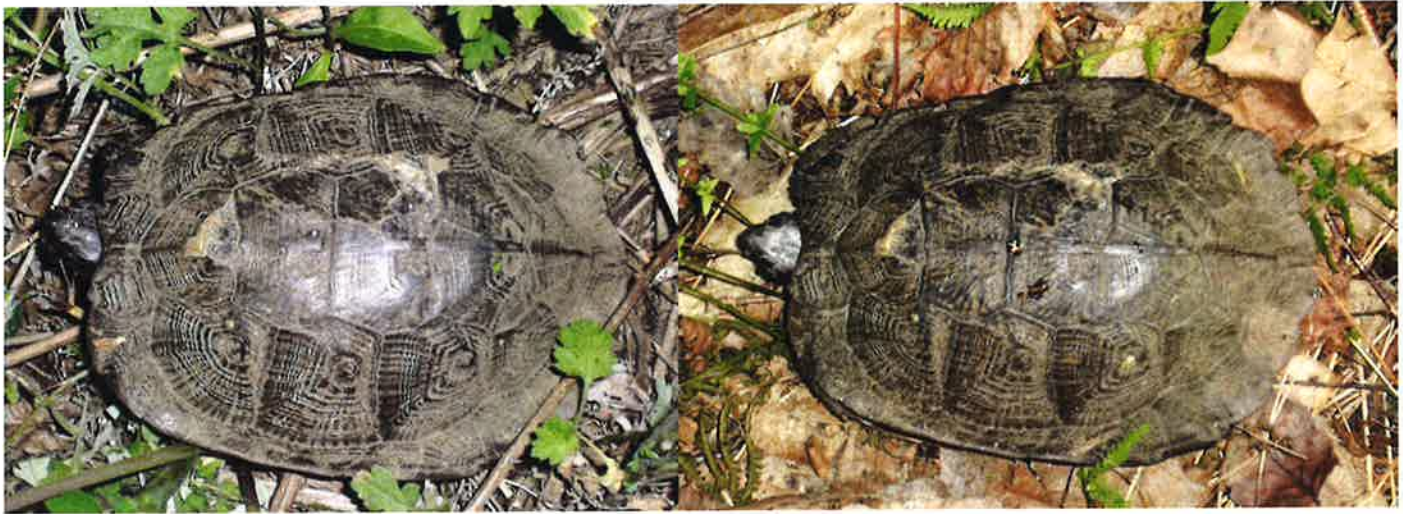


## **6. Reporting**

- a. Monthly inspection reports (brief narrative and applicable photos) will be submitted to the Connecticut Siting Council for compliance verification. Any observations of turtles will be included in the reports.
- b. Following completion of the construction project, APT will provide a summary report to CTDEEP documenting the monitoring and maintenance of the barrier fence and erosion control measures.
- c. Any observations of wood turtle will be reported to CTDEEP by APT, with photo-documentation (if possible) and with specific information on the location and disposition of the animal.

# CAUTION

## WOOD TURTLES ARE KNOWN TO INHABIT THIS AREA



**Identification:** Wood turtles (*Glyptemys insculpta*) are terrestrial turtles that may reach 6 to 8 inches in length. Although they are most often associated with rivers and large streams, their foraging habitat covers extensive areas of pasture, woodlands and wetlands. The shell (carapace) is readily distinguished by its sculpted, rough, moderately-domed shaped. The color of the shell is brown or black with flared rear marginals (edge of the shell). The belly (plastron) is yellow with large black blotches or squares along the edges. The head and upper limbs are dark brown or black with yellow, orange or red wash on the under limbs. Large scales cover the forelimbs sometimes with red or orange highlights. olive, tan, or brown.

**What to do if you find a wood turtle:** Wood turtles are protected by Connecticut's threatened and endangered species legislation and **cannot** be injured, killed, or retained as a pet. If you find a wood turtle move the turtle to a safe location away from any construction activity in the direction that the turtle was heading. Pick up the turtle by its shell (carapace) between the front and hind legs. Be sure to hold the turtle closer to their hind legs as they can reach over and bite if your hands are too close to the head. The turtle may hiss and should retract into its shell.

**Who to contact:** Please report any finds and relocation of wood turtle immediately to **Dean Gustafson of All-Points Technology Corp., P.C. at (860) 984-9515.**

**APPENDIX L**  
**NDDB FINAL DETERMINATION**

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Connecticut Department of

ENERGY &  
ENVIRONMENTAL  
PROTECTION

January 28, 2016

Dean Gustafson  
All-Points Technology Corporation, P.C.  
3 Saddlebrook Dr  
Killingworth, CT 06419  
dgustafson@allpointstech.com

Project: Proposed Construction of a Solar Powered Electrical Generation Installation Utilizing Photovoltaic Module Technology for Fusion Solar Center on Potash Hill Road in Sprague  
NDDDB Determination No.: 201504279

Dear Dean Gustafson,

I have reviewed Natural Diversity Data Base (NDDDB) maps and files regarding the area delineated on the map provided for the proposed Proposed Construction of a Solar Powered Electrical Generation Installation Utilizing Photovoltaic Module Technology for Fusion Solar Center on Potash Hill Road in Sprague, Connecticut. According to our records we have Federal and State Threatened *Myotis septentrionalis* (long-eared bats), State Threatened *Carex cumulata* (clustered sedge) and State Special Concern *Glyptemys insculpta* (wood turtle) in the vicinity of this property. We also have State Threatened Bald eagles nesting at the adjacent Quinebaug River. Thank you for providing your protection and best management practices to prevent these species from impacts from this project. I concur with your recommendations and best management practices. If these are implemented then this project will not likely impact these species. This determination is good for one year. Please re-submit an NDDDB Request for Review if the scope of work changes or if work has not begun on this project by January 28, 2017.

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

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

Sincerely,

Dawn M. McKay  
Environmental Analyst 3

**APPENDIX M**  
**NLEB UPDATE**

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**NDDB NLEB Consultation**

**March 30, 2016**

**APT Project No.: CT472100**

**Connecticut Department of Energy & Environmental Protection  
Wildlife Division  
79 Elm Street  
Hartford, CT 06106-5127  
Attn: Dawn McKay (via Email: Dawn.McKay@ct.gov)**

**Re: NDDB #201504279  
Proposed Fusion Solar Center  
20 megawatt AC Solar Facility  
Potash Hill Road  
Sprague, CT**

Dear Ms. McKay,

On behalf of Fusion Solar Center, LLC ("Fusion"), All-Points Technology Corporation, P.C. ("APT") performed an evaluation in accordance with the final 4(d) rule for northern long-eared bat ("NLEB") under the federal Endangered Species Act ("ESA") to determine if the planned activity may cause prohibited take of NLEB.

Previous State Listed Species consultation with the Connecticut Department of Energy & Environmental Protection ("CTDEEP") Natural Diversity Data Base ("NDDB") specific to NLEB included self-imposed protection measures. Those measures included restricting tree clearing activities from occurring between May 15 and August 31 to avoid likely adverse effects to northern long-eared bat that may be roosting in trees (assumed presence). At the time of that consultation, assessment of project impacts to NLEB was under the requirements of the ESA interim 4(d) rule for NLEB and in accordance with the U.S. Fish and Wildlife Service ("USFWS") New England Field Office's ("NEFO") July 7, 2015 policy memorandum. The interim 4(d) rule has since been replaced by the final 4(d) rule for NLEB, which became effective on February 16, 2016.

A NLEB assessment was recently prepared by APT, following the USFWS's *Key to the Northern Long-Eared Bat 4(d) Rule for Non-Federal Activities Key* ("USFWS Key"; January 13, 2016). This evaluation revealed that the nearest NLEB habitat resource to the proposed activity is a hibernacula located in North Branford ±40 miles to the southwest of the proposed Fusion solar project in Sprague; there are currently no known NLEB maternity roost trees in Connecticut. A copy of the NLEB Compliance Determination, addressing the potential for impact to NLEB, is provided in Attachment A.

In light of the final 4(d) rule and per findings of the USFWS Key for NLEB, the proposed Fusion solar project will not likely result in an adverse effect or incidental take<sup>1</sup> to NLEB. Therefore, Fusion respectfully requests that CTDEEP remove the tree clearing restrictions associated with NLEB for the proposed solar project.

Thank you for your consideration of this request and please feel free to contact me with any questions by phone at (860) 663-1697 ext. 201 or via email at dgustafson@allpointstech.com.

Sincerely,

A handwritten signature in blue ink that reads "Dean Gustafson". The signature is written in a cursive, flowing style.

Dean Gustafson  
Senior Environmental Scientist

Enclosure

cc: Ben Combs, Fusion Solar Center, LLC

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<sup>1</sup> "Incidental take" is defined by the Endangered Species Act as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." For example, harvesting trees can kill bats that are roosting in the trees, but the purpose of the activity is not to kill bats.

Attachment A  
NLEB Compliance Determination

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**NLEB Compliance Determination**

**March 30, 2016**

**APT Project No.: CT472100**

**Fusion Solar Center, LLC  
P.O. Box 2055  
Charlottesville, Virginia 22902**

**Attn: Ben Combs  
Sr. Project Engineer**

**Re: Proposed Fusion Solar Center  
20 megawatt AC Solar Facility  
Potash Hill Road  
Sprague, CT**

Dear Mr. Combs,

On behalf of Fusion Solar Center ("Fusion"), All-Points Technology Corporation, P.C. ("APT") performed an evaluation with respect to possible Federally-listed, threatened or endangered species in order to determine if the proposed referenced facility would result in a potential adverse effect to Federally-listed species. APT understands through Fusion that the referenced project has no Federal nexus. As a result, this consultation was completed in accordance with Section 10 of the Endangered Species Act ("ESA") through initial consultation with the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC")<sup>1</sup> for a proposed solar facility ("proposed activity") at the referenced Site.

**Northern Long-eared Bat**

One federally-listed<sup>2</sup> threatened species is known to occur in the vicinity of the Site documented as the northern long-eared bat ("NLEB"; *Myotis septentrionalis*). A copy of the IPaC report is enclosed as Attachment 1. Northern long-eared bat's range encompasses the entire State of Connecticut. Suitable northern long-eared bat roost habitat includes trees (live, dying, dead, or snag) with a diameter at breast height ("DBH") of three inches or greater. The proposed activity will result in the clearing of trees greater than three inches DBH. Therefore, since NLEB potentially occurs in the vicinity of the Site, the Site supports potential habitat for NLEB and the proposed activity may potentially impact its habitat, a determination of compliance with Section 10 of the ESA is required.

As a result of this preliminary finding and in accordance with the final 4(d) rule for NLEB<sup>3</sup> under the ESA, the following assessment is provided to determine if the planned activity may cause prohibited take of NLEB. This assessment follows the USFWS's *Key to the Northern Long-Eared Bat 4(d) Rule for Non-Federal Activities Key* ("USFWS Key"; January 13, 2016), as detailed below.

---

<sup>1</sup> IPaC Consultation Tracking Number: 05E1NE00-2016-SLI-1028, dated March 3, 2016

<sup>2</sup> Listing under the federal Endangered Species Act

<sup>3</sup> Effective February 16, 2016

1. *Will your activity purposefully take (see Definitions below) northern long-eared bats? For example, are you removing bats from a human structure or capturing bats for research?*

Response: No, the proposed activity does not include purposefully taking northern long-eared bats. Continue to #2.

2. *Is your activity located outside the White-nose Syndrome Zone?*

Response: No, the proposed activity is located inside the white-nose syndrome zone. Continue to #3.

3. *Will your activity take place within a cave or mine where northern long-eared bats hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?*

Response: No, the proposed activity will not take place within a northern long-eared bat hibernaculum or alter its entrance or environment. Continue to #4.

4. *Will your action involve tree removal<sup>4</sup>?*

Response: Yes. Continue to #5.

5. *Is your activity the removal of hazardous trees for protection of human life or property?*

Response: No, the proposed activity is not removing hazardous trees. Continue to #6.

6. *Will your tree removal activities include one or both of the following: 1) removing a northern long-eared bat known occupied maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31; or 2) removing any trees within 0.25 miles of a northern long-eared bat hibernaculum at any time of year?*

Response: Please refer to the *Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance* map (February 1, 2016)<sup>5</sup> provided in Attachment 2. This map reveals that there are currently no known NLEB maternity roost trees in Connecticut. The nearest NLEB habitat resource to the proposed activity is a hibernacula located in North Branford ±40 miles to the southwest.

Therefore, responses to both segments 1 and 2 of #6 are no.

---

<sup>4</sup> "Tree removal" is defined in the 4(d) rule as cutting down, harvesting, destroying, trimming, or manipulating in any other way the trees, saplings, snags, or any other form of woody vegetation likely to be used by northern long-eared bats.

<sup>5</sup> Ms. Dawn McKay, CTDEEP Wildlife Division, confirmed that the information on this published map shows Connecticut towns that have known northern long-eared bat hibernaculum; currently Connecticut does not have any known NLEB maternity roost trees (pers. comm. March 18, 2016; included in Attachment 2)

## Conclusion

In accordance with the USFWS Key for NLEB, the proposed Fusion solar project will not likely result in an adverse effect or incidental take<sup>6</sup> to NLEB and does not require a permit from USFWS. Therefore, no further consultation with USFWS is required for the proposed activity in accordance with the USFWS Key.

Please feel free to contact me with any questions by phone at (860) 663-1697 ext. 201 or via email at [dgustafson@allpointstech.com](mailto:dgustafson@allpointstech.com).

Sincerely,



Dean Gustafson  
Senior Environmental Scientist

Enclosures

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<sup>6</sup> "Incidental take" is defined by the Endangered Species Act as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." For example, harvesting trees can kill bats that are roosting in the trees, but the purpose of the activity is not to kill bats.

Attachment 1  
USFWS IPaC Threatened and  
Endangered Species Report

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# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 COMMERCIAL STREET, SUITE 300  
CONCORD, NH 03301  
PHONE: (603)223-2541 FAX: (603)223-0104  
URL: [www.fws.gov/newengland](http://www.fws.gov/newengland)

Consultation Code: 05E1NE00-2016-SLI-1028

March 03, 2016

Event Code: 05E1NE00-2016-E-01427

Project Name: Fusion Solar Sprague Facility

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

## To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

## Official Species List

### Provided by:

New England Ecological Services Field Office

70 COMMERCIAL STREET, SUITE 300

CONCORD, NH 03301

(603) 223-2541

<http://www.fws.gov/newengland>

**Consultation Code:** 05E1NE00-2016-SLI-1028

**Event Code:** 05E1NE00-2016-E-01427

**Project Type:** POWER GENERATION

**Project Name:** Fusion Solar Sprague Facility

**Project Description:** Fusion proposes to install a 20 megawatt AC solar-based electric generating facility in Town of Sprague, Connecticut . The subject property consists of two separate and abutting parcels north of Potash Hill Road, totaling 225± acres. The Site is bounded by undeveloped woods to the north, east and west; and a cleared agricultural field, residence and Potash Hill Road to the south.

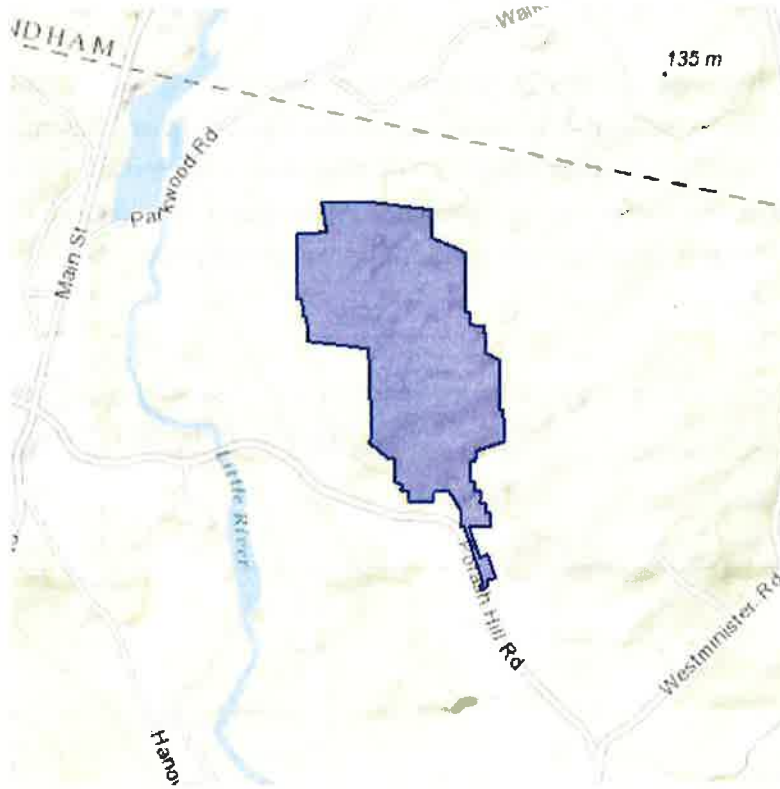
**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

**Project Location Map:**



**Project Coordinates:** The coordinates are too numerous to display here.

**Project Counties:** New London, CT





United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

## Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat ( <i>Myotis septentrionalis</i> )	Threatened		



United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

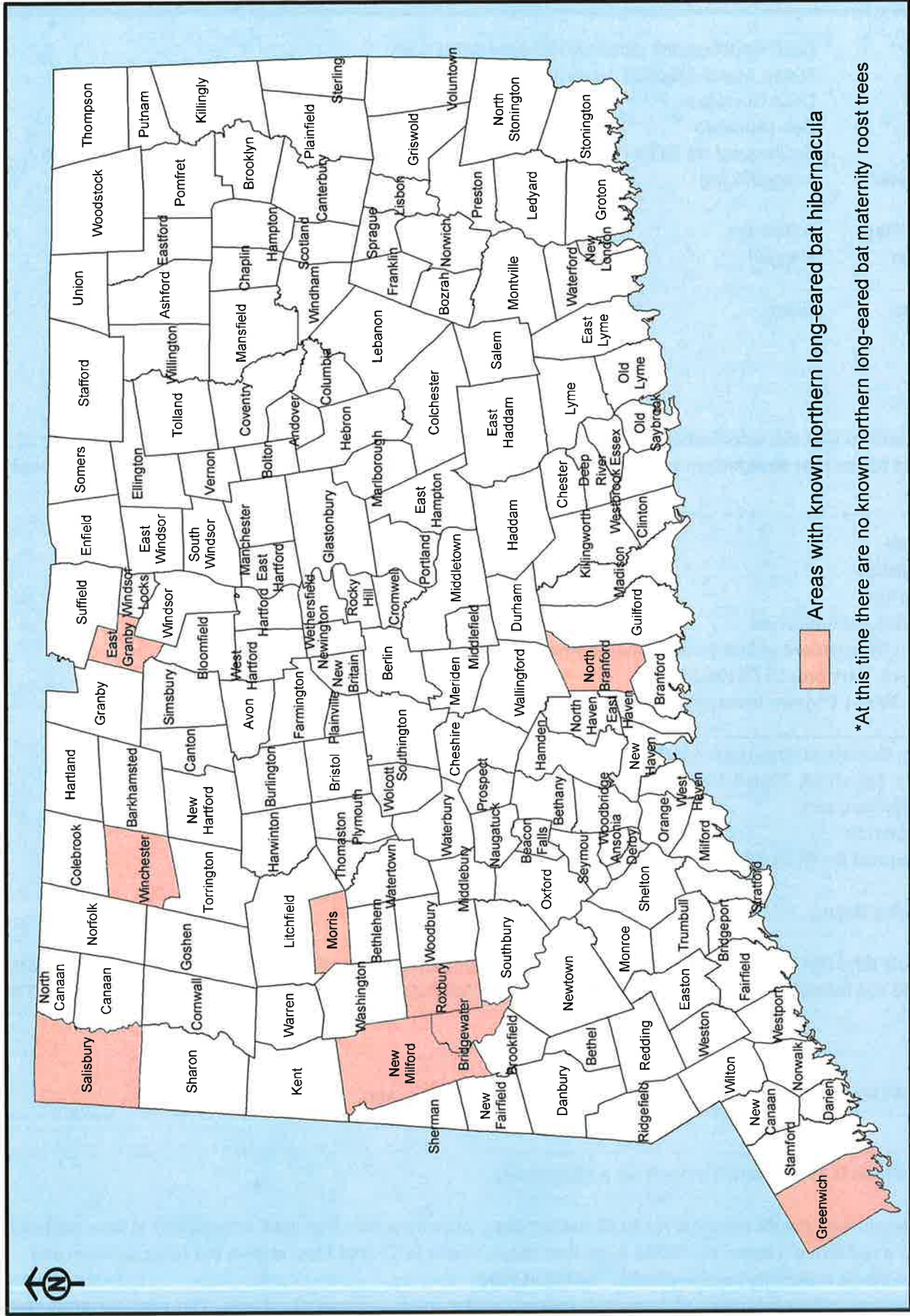
## **Critical habitats that lie within your project area**

There are no critical habitats within your project area.

Attachment 2  
Northern long-eared bat areas of  
concern in Connecticut to assist with  
Federal Endangered Species Act  
Compliance map and CTDEEP Wildlife  
Division March 18, 2016 email

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# Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance



February 1, 2016

For information on federal requirements visit <http://www.fws.gov/midwest/endangered/mammals/nleeb/>

## Deb Leonardo

---

**From:** DEEP Nddbrequest <DEEP.Nddbrequest@ct.gov>  
**Sent:** Friday, March 18, 2016 10:46 AM  
**To:** Dean Gustafson  
**Cc:** Deb Leonardo  
**Subject:** Re: Request for NLEB Hibernaculum & Known Maternity Roost Tree Proximity Habitat Info  
**Attachments:** image001.jpg

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

**Categories:** Dean

Dean,

Yes. I can confirm that this information is publically available on the published map on the CT NDDDB page that shows Connecticut towns that have known bat hibernaculum. Currently CT does not have any known long-eared bat maternity roost trees.

Dawn McKay  
Dawn M. McKay  
Wildlife Division  
Bureau of Natural Resources  
Connecticut Department of Energy and Environmental Protection  
79 Elm Street, Hartford, CT 06106-5127  
P: 860.424.3592 | E: dawn.mckay@ct.gov<mailto:dawn.mckay@ct.gov>

---

**From:** Dean Gustafson <dgustafson@allpointstech.com>  
**Sent:** Friday, March 18, 2016 8:13 AM  
**To:** DEEP Nddbrequest  
**Cc:** Deb Leonardo  
**Subject:** Request for NLEB Hibernaculum & Known Maternity Roost Tree Proximity Habitat Info

Good morning Dawn,

The 4(d) Rule Keys (for both Federal Actions and Non-Federal Activities) requires determining if a project is located in proximity to the following northern long-eared bat ("NLEB") habitats (information which is to be provided by CTDEEP NDDDB):

- \* Within 150 feet of a known occupied maternity roost tree; and,
  
- \* Within 0.25 mile and 5 miles from a hibernacula.

To minimize project specific requests for NLEB habitat data, please confirm that such information is now publically available in a published map on the NDDDB page that shows towns in CT that have known bat hibernaculum and information about maternity colonies/trees. The link is here:  
[http://www.ct.gov/deep/lib/deep/endorsed\\_species/images/nleb\\_approved2\\_16.pdf](http://www.ct.gov/deep/lib/deep/endorsed_species/images/nleb_approved2_16.pdf). This map currently states that

"\*At this time there are no known northern long-eared bat maternity roost trees". In addition, NDDB "buffered areas" representing known NLEB hibernaculum locations is included in the current Natural Diversity Data Base Maps.

Thank you,  
Dean

Dean E. Gustafson  
Senior Environmental Scientist  
[cid:image004.jpg@01D09D27.E1152890]  
3 Saddlebrook Drive  
Killingworth, CT 06419  
860.663.1697 ext. 201 (office)  
860.984.9515 (mobile)  
dgustafson@allpointstech.com<mailto:dgustafson@allpointstech.com>

**APPENDIX N**  
**NLEB REVISED DETERMINATION**

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Attachment A  
USFWS's NLEB Compliance  
Determination

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**NDDB NLEB Consultation**

**March 30, 2016**

**APT Project No.: CT472100**

**Connecticut Department of Energy & Environmental Protection  
Wildlife Division  
79 Elm Street  
Hartford, CT 06106-5127  
Attn: Dawn McKay (via Email: Dawn.McKay@ct.gov)**

**Re: NDDB #201504279  
Proposed Fusion Solar Center  
20 megawatt AC Solar Facility  
Potash Hill Road  
Sprague, CT**

Dear Ms. McKay,

On behalf of Fusion Solar Center, LLC ("Fusion"), All-Points Technology Corporation, P.C. ("APT") performed an evaluation in accordance with the final 4(d) rule for northern long-eared bat ("NLEB") under the federal Endangered Species Act ("ESA") to determine if the planned activity may cause prohibited take of NLEB.

Previous State Listed Species consultation with the Connecticut Department of Energy & Environmental Protection ("CTDEEP") Natural Diversity Data Base ("NDDB") specific to NLEB included self-imposed protection measures. Those measures included restricting tree clearing activities from occurring between May 15 and August 31 to avoid likely adverse effects to northern long-eared bat that may be roosting in trees (assumed presence). At the time of that consultation, assessment of project impacts to NLEB was under the requirements of the ESA interim 4(d) rule for NLEB and in accordance with the U.S. Fish and Wildlife Service ("USFWS") New England Field Office's ("NEFO") July 7, 2015 policy memorandum. The interim 4(d) rule has since been replaced by the final 4(d) rule for NLEB, which became effective on February 16, 2016.

A NLEB assessment was recently prepared by APT, following the USFWS's *Key to the Northern Long-Eared Bat 4(d) Rule for Non-Federal Activities Key* ("USFWS Key"; January 13, 2016). This evaluation revealed that the nearest NLEB habitat resource to the proposed activity is a hibernacula located in North Branford ±40 miles to the southwest of the proposed Fusion solar project in Sprague; there are currently no known NLEB maternity roost trees in Connecticut. A copy of the NLEB Compliance Determination, addressing the potential for impact to NLEB, is provided in Attachment A.

In light of the final 4(d) rule and per findings of the USFWS Key for NLEB, the proposed Fusion solar project will not likely result in an adverse effect or incidental take<sup>1</sup> to NLEB. Therefore, Fusion respectfully requests that CTDEEP remove the tree clearing restrictions associated with NLEB for the proposed solar project.

Thank you for your consideration of this request and please feel free to contact me with any questions by phone at (860) 663-1697 ext. 201 or via email at dgustafson@allpointstech.com.

Sincerely,

A handwritten signature in blue ink that reads "Dean Gustafson". The signature is fluid and cursive, with the first name "Dean" and the last name "Gustafson" clearly legible.

Dean Gustafson  
Senior Environmental Scientist

Enclosure

cc: Ben Combs, Fusion Solar Center, LLC

---

<sup>1</sup> "Incidental take" is defined by the Endangered Species Act as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." For example, harvesting trees can kill bats that are roosting in the trees, but the purpose of the activity is not to kill bats.

Attachment A  
NLEB Compliance Determination

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**NLEB Compliance Determination**

**March 30, 2016**

**APT Project No.: CT472100**

**Fusion Solar Center, LLC  
P.O. Box 2055  
Charlottesville, Virginia 22902**

**Attn: Ben Combs  
Sr. Project Engineer**

**Re: Proposed Fusion Solar Center  
20 megawatt AC Solar Facility  
Potash Hill Road  
Sprague, CT**

Dear Mr. Combs,

On behalf of Fusion Solar Center ("Fusion"), All-Points Technology Corporation, P.C. ("APT") performed an evaluation with respect to possible Federally-listed, threatened or endangered species in order to determine if the proposed referenced facility would result in a potential adverse effect to Federally-listed species. APT understands through Fusion that the referenced project has no Federal nexus. As a result, this consultation was completed in accordance with Section 10 of the Endangered Species Act ("ESA") through initial consultation with the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC")<sup>1</sup> for a proposed solar facility ("proposed activity") at the referenced Site.

**Northern Long-eared Bat**

One federally-listed<sup>2</sup> threatened species is known to occur in the vicinity of the Site documented as the northern long-eared bat ("NLEB"; *Myotis septentrionalis*). A copy of the IPaC report is enclosed as Attachment 1. Northern long-eared bat's range encompasses the entire State of Connecticut. Suitable northern long-eared bat roost habitat includes trees (live, dying, dead, or snag) with a diameter at breast height ("DBH") of three inches or greater. The proposed activity will result in the clearing of trees greater than three inches DBH. Therefore, since NLEB potentially occurs in the vicinity of the Site, the Site supports potential habitat for NLEB and the proposed activity may potentially impact its habitat, a determination of compliance with Section 10 of the ESA is required.

As a result of this preliminary finding and in accordance with the final 4(d) rule for NLEB<sup>3</sup> under the ESA, the following assessment is provided to determine if the planned activity may cause prohibited take of NLEB. This assessment follows the USFWS's *Key to the Northern Long-Eared Bat 4(d) Rule for Non-Federal Activities Key* ("USFWS Key"; January 13, 2016), as detailed below.

<sup>1</sup> IPaC Consultation Tracking Number: 05E1NE00-2016-SLI-1028, dated March 3, 2016

<sup>2</sup> Listing under the federal Endangered Species Act

<sup>3</sup> Effective February 16, 2016

1. *Will your activity purposefully take (see Definitions below) northern long-eared bats? For example, are you removing bats from a human structure or capturing bats for research?*

Response: No, the proposed activity does not include purposefully taking northern long-eared bats. Continue to #2.

2. *Is your activity located outside the White-nose Syndrome Zone?*

Response: No, the proposed activity is located inside the white-nose syndrome zone. Continue to #3.

3. *Will your activity take place within a cave or mine where northern long-eared bats hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?*

Response: No, the proposed activity will not take place within a northern long-eared bat hibernaculum or alter its entrance or environment. Continue to #4.

4. *Will your action involve tree removal<sup>4</sup>?*

Response: Yes. Continue to #5.

5. *Is your activity the removal of hazardous trees for protection of human life or property?*

Response: No, the proposed activity is not removing hazardous trees. Continue to #6.

6. *Will your tree removal activities include one or both of the following: 1) removing a northern long-eared bat known occupied maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31; or 2) removing any trees within 0.25 miles of a northern long-eared bat hibernaculum at any time of year?*

Response: Please refer to the *Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance* map (February 1, 2016)<sup>5</sup> provided in Attachment 2. This map reveals that there are currently no known NLEB maternity roost trees in Connecticut. The nearest NLEB habitat resource to the proposed activity is a hibernacula located in North Branford ±40 miles to the southwest.

Therefore, responses to both segments 1 and 2 of #6 are no.

---

<sup>4</sup> "Tree removal" is defined in the 4(d) rule as cutting down, harvesting, destroying, trimming, or manipulating in any other way the trees, saplings, snags, or any other form of woody vegetation likely to be used by northern long-eared bats.

<sup>5</sup> Ms. Dawn McKay, CTDEEP Wildlife Division, confirmed that the information on this published map shows Connecticut towns that have known northern long-eared bat hibernaculum; currently Connecticut does not have any known NLEB maternity roost trees (pers. comm. March 18, 2016; included in Attachment 2)

## Conclusion

In accordance with the USFWS Key for NLEB, the proposed Fusion solar project will not likely result in an adverse effect or incidental take<sup>6</sup> to NLEB and does not require a permit from USFWS. Therefore, no further consultation with USFWS is required for the proposed activity in accordance with the USFWS Key.

Please feel free to contact me with any questions by phone at (860) 663-1697 ext. 201 or via email at [dgustafson@allpointstech.com](mailto:dgustafson@allpointstech.com).

Sincerely,

A handwritten signature in blue ink that reads "Dean Gustafson". The signature is fluid and cursive, with the first name "Dean" and the last name "Gustafson" clearly legible.

Dean Gustafson  
Senior Environmental Scientist

Enclosures

---

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Attachment 1  
USFWS IPaC Threatened and  
Endangered Species Report

---



## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 COMMERCIAL STREET, SUITE 300  
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PHONE: (603)223-2541 FAX: (603)223-0104  
URL: [www.fws.gov/newengland](http://www.fws.gov/newengland)

Consultation Code: 05E1NE00-2016-SLI-1028

March 03, 2016

Event Code: 05E1NE00-2016-E-01427

Project Name: Fusion Solar Sprague Facility

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.



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If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

## Official Species List

### Provided by:

New England Ecological Services Field Office  
70 COMMERCIAL STREET, SUITE 300  
CONCORD, NH 03301  
(603) 223-2541  
<http://www.fws.gov/newengland>

**Consultation Code:** 05E1NE00-2016-SLI-1028

**Event Code:** 05E1NE00-2016-E-01427

**Project Type:** POWER GENERATION

**Project Name:** Fusion Solar Sprague Facility

**Project Description:** Fusion proposes to install a 20 megawatt AC solar-based electric generating facility in Town of Sprague, Connecticut . The subject property consists of two separate and abutting parcels north of Potash Hill Road, totaling 225± acres. The Site is bounded by undeveloped woods to the north, east and west; and a cleared agricultural field, residence and Potash Hill Road to the south.

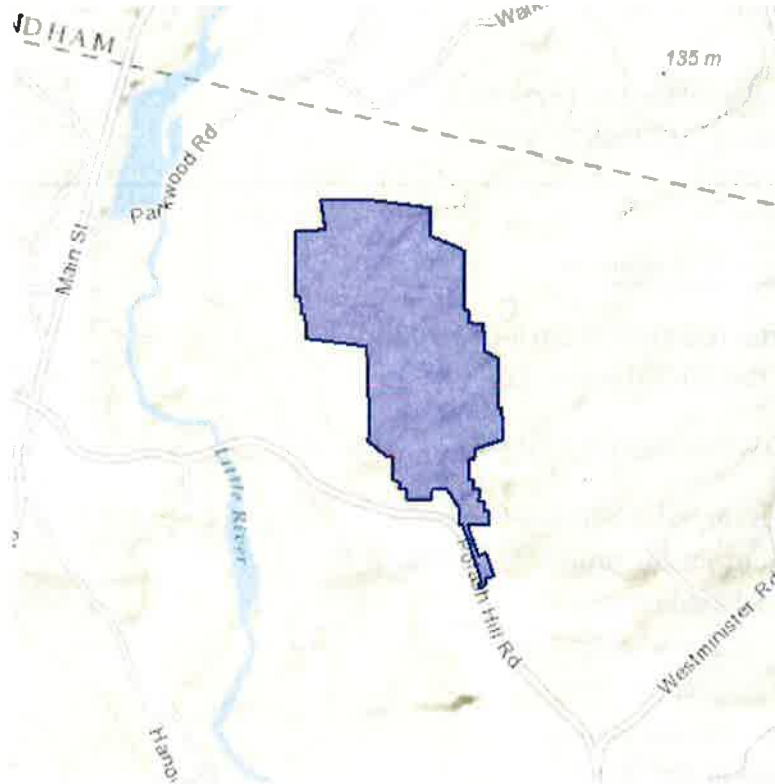
**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

**Project Location Map:**



**Project Coordinates:** The coordinates are too numerous to display here.

**Project Counties:** New London, CT



United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

## Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat ( <i>Myotis septentrionalis</i> )	Threatened		



United States Department of Interior  
Fish and Wildlife Service

Project name: Fusion Solar Sprague Facility

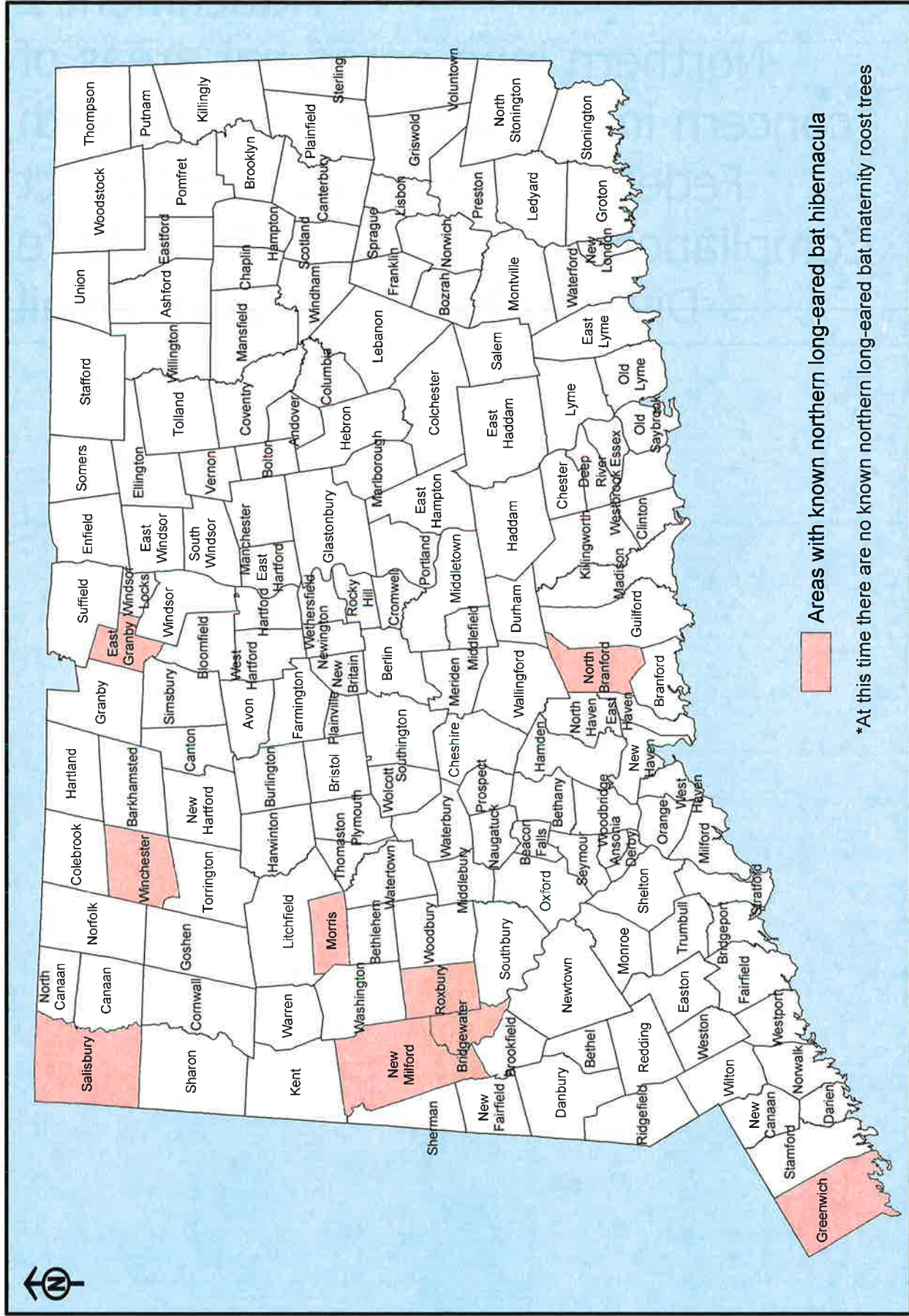
## **Critical habitats that lie within your project area**

There are no critical habitats within your project area.

Attachment 2  
Northern long-eared bat areas of  
concern in Connecticut to assist with  
Federal Endangered Species Act  
Compliance map and CTDEEP Wildlife  
Division March 18, 2016 email

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# Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance



February 1, 2016

For information on federal requirements visit <http://www.fws.gov/midwest/endangered/mammals/nleeb/>

## Deb Leonardo

---

**From:** DEEP Nddbrequest <DEEP.Nddbrequest@ct.gov>  
**Sent:** Friday, March 18, 2016 10:46 AM  
**To:** Dean Gustafson  
**Cc:** Deb Leonardo  
**Subject:** Re: Request for NLEB Hibernaculum & Known Maternity Roost Tree Proximity Habitat Info  
**Attachments:** image001.jpg

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

**Categories:** Dean

Dean,

Yes. I can confirm that this information is publically available on the published map on the CT NDDDB page that shows Connecticut towns that have known bat hibernaculum. Currently CT does not have any known long-eared bat maternity roost trees.

Dawn McKay  
Dawn M. McKay  
Wildlife Division  
Bureau of Natural Resources  
Connecticut Department of Energy and Environmental Protection  
79 Elm Street, Hartford, CT 06106-5127  
P: 860.424.3592 | E: dawn.mckay@ct.gov<mailto:dawn.mckay@ct.gov>

---

**From:** Dean Gustafson <dgustafson@allpointstech.com>  
**Sent:** Friday, March 18, 2016 8:13 AM  
**To:** DEEP Nddbrequest  
**Cc:** Deb Leonardo  
**Subject:** Request for NLEB Hibernaculum & Known Maternity Roost Tree Proximity Habitat Info

Good morning Dawn,

The 4(d) Rule Keys (for both Federal Actions and Non-Federal Activities) requires determining if a project is located in proximity to the following northern long-eared bat ("NLEB") habitats (information which is to be provided by CTDEEP NDDDB):

- \* Within 150 feet of a known occupied maternity roost tree; and,
  
- \* Within 0.25 mile and 5 miles from a hibernacula.

To minimize project specific requests for NLEB habitat data, please confirm that such information is now publically available in a published map on the NDDDB page that shows towns in CT that have known bat hibernaculum and information about maternity colonies/trees. The link is here:  
[http://www.ct.gov/deep/lib/deep/endangered\\_species/images/nleb\\_approved2\\_16.pdf](http://www.ct.gov/deep/lib/deep/endangered_species/images/nleb_approved2_16.pdf). This map currently states that



**"\*At this time there are no known northern long-eared bat maternity roost trees". In addition, NDDB "buffered areas" representing known NLEB hibernaculum locations is included in the current Natural Diversity Data Base Maps.**

Thank you,  
Dean

Dean E. Gustafson  
Senior Environmental Scientist  
[cid:image004.jpg@01D09D27.E1152890]  
3 Saddlebrook Drive  
Killingworth, CT 06419  
860.663.1697 ext. 201 (office)  
860.984.9515 (mobile)  
dgustafson@allpointstech.com<mailto:dgustafson@allpointstech.com>

# Attachment B

## DEEP NDDDB Correspondence

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## Dean Gustafson

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**From:** DEEP Nddbrequest <DEEP.Nddbrequest@ct.gov>  
**Sent:** Friday, April 01, 2016 11:11 AM  
**To:** Dean Gustafson  
**Cc:** Ben Combs; Deb Leonardo; DEEP Nddbrequest  
**Subject:** Re: NDDDB#201504279 - Proposed Fusion Solar Center, LLC, Potash Hill Road, Sprague, CT  
**Attachments:** image003.jpg

Dean,

I concur with your conclusion that this project will not likely result in adverse impacts to the northern long-eared bat and that no further action is required with regard to the protection of this federal threatened species.

Take care,

Dawn  
Dawn M. McKay  
Wildlife Division  
Bureau of Natural Resources  
Connecticut Department of Energy and Environmental Protection  
79 Elm Street, Hartford, CT 06106-5127  
P: 860.424.3592 | E: dawn.mckay@ct.gov<mailto:dawn.mckay@ct.gov>

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**From:** Dean Gustafson <dgustafson@allpointstech.com>  
**Sent:** Wednesday, March 30, 2016 7:45 AM  
**To:** DEEP Nddbrequest  
**Cc:** Ben Combs; Deb Leonardo  
**Subject:** NDDDB#201504279 - Proposed Fusion Solar Center, LLC, Potash Hill Road, Sprague, CT

Good morning Dawn,

The Department previously issued a final determination on January 28, 2016 for the referenced Fusion Solar project in Sprague which included the identification of northern long-eared bat ("NLEB"; *Myotis septentrionalis*) in the vicinity of this property. That rare species review was performed prior to the issuance of the final 4(d) rule for NLEB (effective March 16, 2016). We have evaluated the project with respect to a potential for a likely adverse impact to NLEB under the new framework for a non-federal action per the final 4(d) rule. This evaluation revealed that the nearest NLEB habitat resource to the proposed activity is a hibernacula located in North Branford ±40 miles to the southwest of the proposed Fusion solar project in Sprague; there are currently no known NLEB maternity roost trees in Connecticut. As a result, the proposed Fusion Solar project would not likely result in an adverse effect or incidental take to NLEB.

Therefore, in light of the final 4(d) rule and per the findings of the attached document, as summarized above, we respectfully request the Department reevaluate the project with respect to NLEB.

Thank you for your consideration of this request and please feel free to contact me with any questions.

Thank you,  
Dean

Dean E. Gustafson  
Senior Environmental Scientist  
[cid:image004.jpg@01D09D27.E1152890]  
3 Saddlebrook Drive  
Killingworth, CT 06419  
860.663.1697 ext. 201 (office)  
860.984.9515 (mobile)  
dgustafson@allpointstech.com<mailto:dgustafson@allpointstech.com>

**APPENDIX O**  
**STORMWATER MONITORING FORM**

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**Connecticut Department of  
Energy & Environmental Protection**  
Bureau of Materials Management & Compliance Assurance  
Water Permitting & Enforcement Division

**General Permit for the Discharge of Stormwater and Dewatering Wastewaters from  
Construction Activities, issued 8/21/13, effective 10/1/13**  
**Stormwater Monitoring Report**

**SITE INFORMATION**

Permittee: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 Business Phone: \_\_\_\_\_ ext.: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_ Title: \_\_\_\_\_  
 Site Name: \_\_\_\_\_  
 Site Address: \_\_\_\_\_  
 Receiving Water (name, basin): \_\_\_\_\_  
 Stormwater Permit No. GSN \_\_\_\_\_

**SAMPLING INFORMATION (Submit a separate form for each outfall)**

Outfall Designation: \_\_\_\_\_ Date/Time Collected: \_\_\_\_\_  
 Outfall Location(s) (lat/lon or map link): \_\_\_\_\_  
 Person Collecting Sample: \_\_\_\_\_  
 Storm Magnitude (inches): \_\_\_\_\_ Storm Duration (hours): \_\_\_\_\_  
 Size of Disturbed Area at any time: \_\_\_\_\_

**MONITORING RESULTS**

Sample #	Parameter	Method	Results (units)	Laboratory (if applicable)
1	Turbidity			
2	Turbidity			
3	Turbidity			
4	Turbidity			

(provide an attachment if more than 4 samples were taken for this outfall)

Avg = \_\_\_\_\_

**STATEMENT OF ACKNOWLEDGMENT**

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Please send completed form to:

DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION  
 BUREAU OF MATERIALS MANAGEMENT AND COMPLIANCE ASSURANCE  
 79 ELM STREET  
 HARTFORD, CT 06106-5127  
 ATTN: NEAL WILLIAMS

**APPENDIX P**  
**NOTICE OF TERMINATION FORM**

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# General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

## Notice of Termination Form

Please complete and submit this form in accordance with the general permit (DEP-PED-GP-015) in order to ensure the proper handling of your termination. Print or type unless otherwise noted.

Note: Ensure that for commercial and industrial facilities, registrations under the *General Permit for the Discharge of Stormwater Associated with Industrial Activity* (DEP-PED-GP-014) or the *General Permit for the Discharge of Stormwater from Commercial Activities* (DEP-PED-GP-004) have been filed where applicable. For questions about the applicability of these general permits, please call the Department at 860-424-3018.

### Part I: Registrant Information

1. Permit number: <b>GSN</b>			
2. Fill in the name of the registrant(s) as indicated on the registration certificate: Registrant:			
3. Site Address: City/Town: _____ State: _____ Zip Code: _____			
4. Date all storm drainage structures were cleaned of construction sediment: Date of Completion of Construction: _____ Date of Last Inspection (must be at least three months after final stabilization pursuant to Section 6(b)(6)(D) of the general permit): _____			
5. Check the post-construction activities at the site (check all that apply):			
<input type="checkbox"/> Industrial	<input type="checkbox"/> Residential	<input type="checkbox"/> Commercial	<input type="checkbox"/> Capped Landfill
<input type="checkbox"/> Other (describe): _____			

### Part II: Certification

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

_____ Signature of Permittee	_____ Date
_____ Name of Permittee (print or type)	_____ Title (if applicable)

Note: Please submit this Notice of Termination Form to:  
STORMWATER PERMIT COORDINATOR  
BUREAU OF WATER MANAGEMENT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
79 ELM STREET  
HARTFORD, CT 06106-5127



