PETITION OF WINDHAM SOLAR LLC

FOR A DECLARATORY RULING FOR THE CONSTRUCTION AND OPERATION OF FIVE 1.0 MEGAWATT AND ONE 1.1 MW SOLAR PHOTOVOLTAICRENEWABLE ENERGY GENERATING FACILITIES LOCATED AT 1 WILLIAMS CROSSING ROAD, LEBANON, CONNECTICUT

JANUARY 23, 2015

TABLE OF CONTENTS

Section **Page**

LIST OF EXHIBITS

Exhibit A	Facilities Site Plan
Exhibit B	GIS Maps
Exhibit C	Facilities Visual Simulations
Exhibit D	Communications from the Town of Lebanon
Exhibit E	Notice Service List
Exhibit F	Phase I Environmental Site Assessment
Exhibit G	Wetlands Report
Exhibit H	DEEP NDDB Species Review
Exhibit I	Stormwater Management Report
Exhibit J	Decommissioning Memo

I. INTRODUCTION

Pursuant to Section 16-50k(a) and Section 4-176(a) of the Connecticut General Statutes ("CGS") and Section 16-50j-38 *et seq.* of the Regulations of Connecticut State Agencies ("RCSA"), Windham Solar LLC (the "Petitioner") requests that the Connecticut Siting Council (the "Council") issue a declaratory ruling approving the construction and operation of the Petitioner's five (5) 1.0 megawatt ("MW") and one (1) 1.1MW solar electric generating facilities (the "Facilities"), located on industrial-zoned land at 1 Williams Crossing Road in Lebanon, Connecticut (the "Site").

CGS § 16-50k(a) provides:

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

Pursuant to CGS § 16-50k(a), the Council should approve the Facilities by declaratory ruling since they are customer-side distributed resources facilities under 65 MW in capacity that comply with the air and water quality standards of the Connecticut Department of Energy and Environmental Protection ("DEEP"). Further, 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." As demonstrated from the information included in this petition, the Facilities will result in no air emissions, have minimal impacts that comply with DEEP's air and water quality standards, and will have no substantial adverse environmental effects. The Facilities will further the State of Connecticut's energy policy by developing renewable energy resources. The Facilities also further the State of Connecticut's goals announced in the 2013 Comprehensive Energy Strategy (the "CES"). "Connecticut has suffered

from some of the country's worst air pollution, in part due to its geographic location downwind of out-of-state coal- and oil-burning power plants. A cleaner energy future requires support for electricity generation from low- or no-emission sources."[1] The Facilities will be an important part of that cleaner energy future. The CES also emphasizes the necessity for the "development of more distributed generation", which the Facilities are.[2]

II. PETITIONER

Windham Solar LLC was organized in 2014 by New-York based Allco Renewable Energy Limited for the purposes of developing, constructing, and operating the Facilities in Lebanon, Connecticut. Project development activities are supported by Ecos Energy LLC ("Ecos"). Ecos, based in Minneapolis, MN, has developed and managed the construction/operation of 28 MW of solar PV generation spread over 17 project sites nationwide. Both the Petitioner and Ecos have the knowledge and experience to develop and implement the Facilities in a way that maximizes benefits to the citizens of Connecticut, with no significant adverse impacts.

Correspondence and/or communications regarding this petition should be addressed to:

Windham Solar LLC c/o Allco Renewable Energy Limited ATTN: Michael Melone 77 Water Street 8th Floor New York, NY 10005 (917) 328-2001 [phone] mjmelone@allcous.com [e-mail]	Windham Solar LLC c/o Ecos Energy LLC ATTN: Steve Broyer 222 South 9th Street Suite 1600 Minneapolis, MN 55402 (612) 326-1500 [phone] steve.broyer@ecosrenewable.com [e-mail]

[1] *See*, 2013 Comprehensive Energy Strategy for Connecticut, p. 70, available at http://www.ct.gov/deep/lib/deep/energy/cep/2013_ces_final.pdf

[2] Id. at p. 71.

III. DESCRIPTION OF PROPOSED PROJECT

The State of Connecticut has recognized the benefits of local renewable energy development and implemented renewable portfolio standard ("RPS") to encourage the development of renewable energy resources not only to lessen the country's dependence on foreign oil but also to reduce the environmental impacts associated with fossil fuel sources. The RPS requires that by 2020, twenty percent of electricity generation must be derived from Class I renewable energy sources such as solar PV.

The Facilities will play an important role in the State's renewable energy goals. The Facilities will provide a significant source of clean, renewable energy produced locally. The Facilities will produce 100 percent clean, renewable electricity with zero emissions will result in significant environmental benefits. Further, the Facilities will act as a peak reducer by producing energy during the electric distribution companies' peak load hours. The project will therefore help moderate peak load requirements and reduce the demand on transmission lines.

A. Site Selection

The Site was selected based upon a number of factors including:

1. Site Suitability (industrial zoning—the Facilities are a permitted use on the Property per the zoning code of the Town of Lebanon, CT, solar resource, soil, and topographic characteristics that allow for efficient facility design and construction),
2. Site Resources (lack of sensitive natural resources onsite—the Site contains no rare, protected, or sensitive natural resources that would be adversely impacted by the Facilities' footprint.), and

3. Proximity to electrical infrastructure and roadways—the Site has direct public road access and is directly adjacent to a CL&P electric distribution line.

B. Site Description

The Site is located at 1 Williams Crossing Road in Lebanon, CT. The Site is a 44.58 acre parcel that is zoned 'I – Light Industry.' 5.56 acres of the Site actually sit within the Town of Franklin; a boundary line between the Towns of Lebanon and Franklin crosses the site. These 5.56 acres will not be used for the Facilities; the Facilities' footprint will utilize the 39.02 acre potion within the Town of Lebanon. The Site contains two residential structures and a large outbuilding that had formerly been used a chicken coop for a livestock operation. No other structures exist on the Property. Those structures will remain on the Site. Of the Site's 39.02 acres, approximately 3.1 acres surround the residence and outbuilding structures. Approximately 7.52 acres of the Site have been previously cleared and tilled for agricultural use, although these acres currently lie fallow. Approximately 5.12 acres of the Site consist of uncleared cedar/poplar timber. Approximately 2.96 acres of the Site have been delineated as low-quality wetlands. This leaves approximately 20.32 acres of the Site that have been clear-cut sometime within the past 10 years, but have not been developed further for any kind of use. Topography on the Site undulates while carrying a slight overall slope towards the southeast. Adjacent parcels are currently being used for uncleared vacant land, cleared vacant land, light agriculture, and a small number of residences to the north of the Site. An ALTA Survey showing the Site's general location, characteristics, and boundaries can be found on Sheet 2 of Exhibit A (Facilities Site Plan). Exhibit B (Soils and Wetlands Map) shows an aerial view of the Site. Exhibit C (Facilities Visual Simulations) contains photographs of the Site taken from ground level.

C. Project Description

The Facilities are renewable energy generation facilities that will use PV solar modules to convert solar radiation to electricity. They will be located on the customer side of the CL&P meter. Each Facility will consist of approximately 3,400 solar modules. The solar modules will be supported above the ground by a steel and aluminum fixed-tilt racking system. The modules will be oriented directly due south at a tilt angle of approximately 30 degrees. Solar modules will be mounted to the racking system in portrait orientation, with two rows of modules per rack. The racking system will support the modules to maintain a ground clearance of at least 18 inches. The racking system will be supported above the ground by a series of steel h-beams that are direct-driven into the ground, requiring no concrete foundations. The length of h-beam embedment will be determined following a geotechnical and structural analysis; 6 to 8 feet embedment is typical. The solar modules will be wired in series strings of 14 modules per string. Strings will be connected to 24 kilowatt (kW) solar string inverters; 6 strings per inverter. The inverters alter the DC output of the solar modules to alternating current ("AC"). The string inverters will be mounted on the back side of the solar module racking and will be distributed evenly throughout the solar array. The string inverters include fused string inputs and fused master disconnects on both the AC and DC sides. AC output from each string inverter will be run to an intermediate panelboard. Each panelboard will collect the input of 12 string inverters into a single AC output. The panelboards include breaker protection on both inputs and outputs. Panelboard outputs will be routed to medium-voltage transformer pads. At these pads, a main switchboard will collect the inputs of multiple panelboards into a single output for each Facility. The main switchboards will include breaker protection on both inputs and outputs. Output from each switchboard will feed a medium-voltage step-up transformer that will increase the voltage

of the output from 480 volts ("V") to 23 kilovolts ("kV"). Output from each transformer will be routed to an 'interconnection pad' area where the generated electricity will be metered, pass through protective breaker relays and switches, and ultimately connect to CL&P overhead electric distribution circuit along Williams Crossing Road. This interconnection pad area will also house a suite of monitoring and communications equipment, as well as controls for the Facilities' video security system. In addition to the solar energy generating equipment described above, the Facilities will include a 20-foot wide gravel driveway for operations, maintenance, and emergency access. Also, the entirety of the Site footprint will be surrounded by a 7.5 foot tall chain-link security fence. The fence will be black-vinyl coated and will leave a half-foot gap at the bottom for small wildlife travel. Access to the Site will be via a padlocked gate in the perimeter fence at the location of the Facilities' access driveway off of Williams Crossing Road. A series of infrared, motion-sensitive video security cameras will be installed around and within the perimeter fence. No night-time lighting of any kind is proposed for the Facilities. After construction, the ground area within the Facilities' footprint will be hydro-seeded with an architect-reviewed seed mix that offers low/slow growing groundcover vegetation that is drought-tolerant and native. A double row of evergreen shrubs will be planted at locations along the Facilities' northern and western perimeter to provide visual screening. The Facilities' footprint area will encompass 22.3 acres of the Site, all within the Facilities' perimeter fence line. All elements of Facilities' design, construction, operation, and maintenance will be performed in accordance with all applicable local, state, and national rules, guidelines, and regulations. The particulars of each Facility's footprint design and equipment locations can be seen in detail in Exhibit A.

D. Interconnection

Each Facility is proposed to be interconnected to the CL&P electric distribution grid at an existing 23 kV overhead electric line located along Williams Crossing Road. The interconnection would be in accordance with CL&P technical standards and State of Connecticut, ISO-New England ("ISO-NE"), and the Federal Energy Regulatory Commission ("FERC") requirements. The interconnection will consist of CL&P-specified metering and protection (breakers/switches/relays) to be installed for each Facility. The interconnection will be made pursuant to CL&P's Guidelines for Generator Interconnection. As part of the interconnection process, the Petitioner has successfully completed a utility sponsored Scoping Meeting, an Application Request, and an Application review and is now completing a System Impact Study ("SIS") with CL&P. The SIS is expected to include:

1. Circuit Modeling
2. Power Flow Analysis
3. Voltage Impact Study
4. Thermal Impact Study
5. Short Circuit Study
6. Distribution Requirement Interruption Ratings
7. Protection Coordination
8. Transfer Trip Requirements
9. Protection Schemes
10. Costs of Required Network Upgrades

Upon completion of the SIS, the Petitioner will review the requirements for interconnection and enter into an Interconnection Agreement ("IA") with CL&P for each Facility.

E. Service Life and Capacity Factor

Each Facility's equipment has an expected useful life of approximately 45 years, and the Petitioner would plan to operate each Facility until the equipment has exhausted its useful life. According to the 2012 Integrated Resources Plan for Connecticut, PV solar has an expected capacity factor of approximately 13 percent.

IV. PROJECT BENEFITS

Projects that are "necessary for the reliability of the electric power supply of the state or for a competitive [electric market]" present a clear public benefit. Conn. Gen. Stat. § 16-50p(c)(1). Each Facility provides exactly the benefit contemplated in the statute and more, as it will generate much of its power at peak times. By providing electricity when there is high demand, each Facility will help stabilize the electrical grid.

Additionally, there exists a clear public need for renewable projects and undertaking them supports the State's energy policies as codified in Conn. Gen. Stat. § 16a-35k, expressing the legislature's goal to "develop and utilize renewable energy resources, such as solar and wind energy, to the maximum practicable extent." Solar facilities are considered Class I renewable energy sources under General Statutes § 16-1(a)(26). Over the life of each Facility, each Facility will contribute to a significant reduction in NOx, SOx, PM, CO and VOC emissions as compared to combustion-based generation. These figures are further outlined *infra.* Additionally, each Facility will deliver its generated power 'locally' by injecting that power into a distribution-level electric circuit for use by nearby homes and business. This decreases the amount of power that will need to be brought into the area from further away, lightening the load on utility transmission infrastructure and increasing local grid reliability.

Each Facility will also help the State move closer to meeting its renewable portfolio standards. Further, providing increased renewable capacity helps further distance Connecticut from foreign energy supply and helps support energy independence, a local and national goal. Concerning Project labor, the Company fully intends to employ local labor in completing the Project wherever practical. As part of larger state, national, and global strategies, reductions in greenhouse gas emissions from this Project will have long-term secondary biological, social, and

economic benefits. Similarly, the advancement of renewable resources at a distributed level contribute to our Nation's desire for energy independence and reduces our dependency upon foreign countries where geo-political issues may introduce issues with the reliability of their fuel supply. The project will also hire local labor, as practical, and be a source of increased revenue for local businesses during construction.

V. LOCAL INPUT & NOTICE

The Petitioner has worked with Town of Lebanon ("the Town") officials and staff to see that the Facilities are sited and designed so as to be a positive addition to the community by complying with local siting requirements. Although the Council holds planning jurisdiction over facilities such as the Facilities, the Petitioner has also elected to go through the steps of the Town's planning process as if the Town held that jurisdiction. This was done in an attempt to make sure that the Facilities were sited and designed in accordance with Town standards and requirements. Ultimately, the Town's Planning & Zoning Commission voted to grant 'Site Plan Approval' to the project. Site Plan Review would be the Town's final step of approval for a facility such as each Facility. A list of activities with the Town includes:

1. The Site is zoned "I – Light Industry." A solar electricity generation facility is a permitted use in this zoning classification. Therefore, a use permit (such as a conditional use permit) would not be required for the Facilities by the Town.
2. The next step in the Town's planning review process is Site Plan Review by the Planning & Zoning Commission (the "Commission"). The Petitioner submitted an application for Site Plan Review on December 9, 2014.

3. The Petitioner presented the plan to the Commission at their December 15, 2014 meeting. The Petitioner answered many questions from the Commission, and also took away some requests for modifications to the Facilities' site plan. A vote for approval was tabled until the Commission's January 12, 2015 meeting.
4. An updated site plan was submitted back to Town staff for review on January 7, 2015.
5. On January 9, 2015, the Petitioner received a letter from the Town engineer with some additional requested/recommended adjustments for the Facilities' site plan.
6. The Petitioner presented the revised site plan to the Commission at their January 12, 2015 meeting. The Commission voted to grant Site Plan Approval for the Facilities, with the condition that the Petitioner implement the recommendations in the Town engineer's letter dated January 9, 2015. The Petitioner has also received a letter from the Town confirming their approval of the Facilities. The Petitioner intends to implement these recommendations, and the Facilities site plan shown in Exhibit A has been updated since the January 12 to reflect this. Copies of the Town letters are included as Exhibit D (Communications from the Town of Lebanon).

If not for the Council's jurisdiction, the Petitioner would be able to apply immediately for a building permit to construct and operate each Facility. As soon as it is received, the Petitioner will forward to the Council a copy of the Town's official notice of site plan approval. In addition to working directly with the Town, the Petitioner provided notice of this petition to all

persons and appropriate municipal officials and government agencies to whom notice is required pursuant to CGS § 16-50j-40(a). For details, reference Exhibit E (Notice Service List).

VI. POTENTIAL ENVIRONMENTAL EFFECTS

The Petitioner has evaluated the Site and taken inventory of the resources available onsite. The Facilities' have been designed so as to be compatible with the existing environment while avoiding, reducing, and mitigating potential environmental impacts.

A. Natural Environment and Ecological Balance.

The Site has already been previously significantly disturbed by human activities, and the area selected for the Facilities' footprint is not an area with any sensitive, rare, or protected natural resources. The construction and operation of the Facilities will not significantly alter the natural resource characteristics of the area that has already been previously cleared and altered. The majority of the area needed to construct the Facilities is already clear of any tree/timber vegetation, although there are a small number of poplar/cedar/ash trees that would be cleared before construction. These removals are detailed on Sheets 5 and 6 of Exhibit A. Minimal grading will be required for each Facility, as the solar racking equipment is designed to follow the existing contour of the Site's topography. The minimal grading will be performed to create the access driveway and transformer equipment pads. These areas would be less than 1 acre in total. A Phase I Environmental Site Assessment ("ESA") was performed at the Site. The ESA did not recognize any environmental conditions that warranted additional investigation or action in the area of the Site encompassed by the Facilities' footprint. For details, see Exhibit F (Phase I Environmental Site Assessment). No hazardous substances or materials will be used or stored onsite during construction or operation.

B. Public Health and Safety

Overall, each Facility will meet or exceed all health and safety requirements applicable for electric power generation. During construction, each employee working onsite will:

1) Receive required general and site specific health and safety training.
2) Comply with all health and safety controls as directed by local and state requirements.

i) Understand and employ the site health and safety plan while on the job site.

3) Know the location of local emergency care facilities, travel times, ingress and egress routes.
4) Report all unsafe conditions to the construction managers.

During construction, heavy equipment, delivery trucks, and water trucks for dust suppression will be required to access the Site during normal weekday working hours. It is anticipated that approximately 16 to 20 construction vehicles would make daily trips onto the Site during the approximately 4 month construction period. During operation, construction noise may be audible offsite. Therefore, all work will be conducted during normal weekday working hours, and it is not anticipated that any levels of construction noise will exceed state or local noise limit standards. During operation, the Facilities will not present a health or safety hazard to anyone located offsite. The Facilities will generate no offsite noise, harmful glare, vibrations, or damaging emissions of any kind. PV solar is a long-proven safe and benign generation technology. Authorized personnel visiting the Facilities during operation will be fully licensed and properly trained on how to navigate a solar project safely and how to quickly respond in the event of an emergency. Once operational, the Petitioner will work with local fire and law enforcement officials to ensure they have the appropriate knowledge and access to provide their services to the Facilities if necessary.

C. Air Quality

Overall, the Facilities will have minor air emissions of regulated air pollutants and greenhouse gases during construction and no air permit will be required. During construction, any air emission effects will be temporary and will be controlled by enacting appropriate mitigation measures (e.g. water for dust control, avoiding mass early morning vehicle startups, etc.). Accordingly, any potential air effects as a result of the Facilities' construction activities will be negligible. During operation, the Facilities will not produce air emissions of regulated air pollutants or greenhouse gases (e.., PM10, PM2.5, VOCs, GHG, or Ozone). Thus, no air permit will be required. Moreover, over 45 years, the Facilities will result in the offset/elimination of approximately 352,000 tons of CO_2 equivalent, which is equal to 67,000 vehicles off the road, 115,000 tons of avoided landfill waste, 72 tons of NO_X emissions avoided, or 180 tons of SO_2 emissions avoided. The Facilities will have a net benefit effect on air quality.

D. Scenic Values and Visual Renderings

Once installed, the Facilities will be minimally visible to neighboring property owners and only briefly visible to drivers and passengers traveling on Williams Crossing Road and Windham Road. The solar equipment being installed has a low profile; less than 9 feet in height, with the exception of a few taller poles for video cameras and meteorological equipment. At a majority of locations around the Site boundary, existing thick vegetation and stone walls will completely block views of the Facilities from offsite. The vegetation and stone wall features at the Site boundaries are not planned for removal. The residences that are adjacent to the Site are located to the north and northwest of the project. The Site slopes towards the southeast, directly away from these homes, meaning that the Site topography itself will block any views of the Facilities from these residences. Still, the Petitioner plans to plant a double row of evergreen

landscape screening along segments of the northern and western fence lines as additional proactive mitigation. This leaves views of the Site from Williams Crossing Road where it intersects with Windham Road and Windham Road where it follows the eastern boundary of the Site. There are segments of the Site boundary along these areas where there is a break in the vegetation or a high enough vantage point where views of the Facilities will be possible. However, as these areas are along traveled roadways, the only observers would be located in moving vehicles, so any views of the Facilities would be brief and momentary. The appearance of the Facilities during these brief moments would not cause significant visual impact because they would occur as the viewer travels down an already heavily developed highway corridor. There are no protected or designated scenic areas, roadways, or trails within visual range of the Site. Given these details, the Facilities would not have a significant adverse effect on the scenic values of the area. Current photographs of the Site, along with visual renderings of the Facilities, can be found in Exhibit C.

E. Historic Values

The Petitioner has requested review of the Facilities and Site by the Connecticut State Historic Preservation Office ("SHPO"). At the time of filing, the Petitioner has not yet received a response from SHPO, other than one indicating a probable delay due to significant backlog of review requests. The Petitioner will submit the SHPO response to the Council as soon as it is received.

F. Wildlife & Habitat

The Facilities have been designed to avoid any impacts to sensitive plant or wildlife species or the associated habitats. Three analysis were performed to identify the potential for any sensitive species or habitat:

1) Phase I Environmental Site Assessment (Exhibit F)
2) Wetlands Report (Exhibit G)
3) Request for Natural Diversity Database ("NDDB") State Listed Species Review by Connecticut Department of Energy & Environmental Protection ("DEEP") (Exhibit H)

The ESA did not recognize any species or habitat of concern. Due to the previous and relatively recently-cleared nature of the Site, an in-depth field survey for species and habitat was not performed. However, the site was investigated for wetlands features; those results can be found in the Wetlands Report (Exhibit G). Some Wetlands features were identified (and subsequently delineated) onsite, and these will be discussed in more detail in section VI.G, below. As it relates to species and habitat, the Facilities footprint was designed to avoid the delineated wetlands features entirely, including a 100-foot buffer around those features. This is shown in detail in Exhibit A. The Petitioner submitted a request to DEEP for NDDB review of the Property and Project footprint. DEEP responded with a review results letter on January 12, 2015 (Exhibit H). The NDDB review only identified one possibility for species of concern on the Site – the wood turtle could be located nearby the Facilities' footprint area. However, only project construction would have the potential to adversely affect this species; Facility operation would not. DEEP's response letter contains suggestions for how the risk to any wood turtle could be satisfactorily mitigated during project construction. While weather considerations and project deadlines preclude the possibility of restricting construction to between October 1 and April 1, the recommended alternative mitigation measures are feasible and will be implemented by the Petitioner during construction. With the possibility for only one sensitive species

identified onsite, and the Petitioner's agreement to implement effective mitigation measures for that species, the Facilities will have no significant adverse effect on Wildlife & Habitat.

G. Water Resources and Storm Water Management.

The Facilities are not anticipated to have an adverse impact to the water resources of the state. The Facilities fixed panel solar arrays can be considered pervious groundcover. The racking provides adequate height above the ground to promote vegetative growth underneath the solar array and allow for infiltration to continue to occur. Natural drainage patterns and vegetal cover will be preserved throughout the project footprint by minimizing ground disturbances. Grading activities for the Facilities have been minimized to the access roadway and utility trenching. All graded areas will be seeded to a low growth low maintenance meadow/native grass condition. Hydraulic modeling calculations illustrate a reduction in downstream flow rates from the Facilities and can be reviewed in the Facilities Stormwater Management Report (Exhibit I).

Construction of the Facilities will result in a grading disturbance of approximately 0.78 acres of land. The Petitioner will register under the DEEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities at least thirty (30) days prior to commencing any construction activities. Petitioner intends to request coverage under the existing Connecticut General Permit, DEP-PED-GP-015, by submitting a complete and accurate General Permit Registration Form and Transmittal prior to construction activities and in accordance with applicable rules at the time of filing. In connection with that registration, Petitioner will implement a storm water management plan to minimize any potential adverse environmental effects.

VII. ADDITIONAL INFORMATION

The Council has previously reviewed petitions for other solar facilities similar to the ones being proposed by the Petitioner. In these other dockets, the Council has sent out interrogatory requests with multiple questions about each facility. This section will attempt to pre-emptively answer some of those questions that were not addressed in previous sections of this petition.

Q01. Did the Petitioner publish a legal notice of its intent to file this petition?

A01. Yes. A copy of the following text ran in the Notices section of the January 22, 2015 edition of the Willimantic Chronicle:

> "Windham Solar LLC is providing notice to the general public regarding its intent to file a Petition of Declaratory Ruling (Petition) to the Connecticut Siting Council for the proposed development of five (5) – 1.0 megawatt and one (1) – 1.1 megawatt solar photovoltaic renewable energy generating facilities to be located at 1 Williams Crossing in the Town of Lebanon. This notice is being given pursuant to Section 16-50(l) of the Connecticut General Statues. The Petition will be submitted on or after January 21, 2015. Copies of the Petition will be available at the Connecticut Siting Council: Ten Franklin Square, New Britain, CT 06501 or at the Town Hall of the Town of Lebanon."

Q02. How did the Petitioner become aware of the Site?

A02. The Site was actively being listed for sale at the time that the Petitioner was searching for an acceptable location for the Facilites.

Q03. Did the Petitioner investigate any other properties as potential locations for the Facilities? If so, identify these properties.

A03. The Petitioner investigated a large number of properties that were listed for sale. The Site was selected based upon favorable characteristics.

Q04. Has the Petitioner conducted a shading analysis of the Site? If so, provide the results.

A04. No, a shading analysis was not required because the construction plans for the Facilities do not propose and shading objects to be left within the boundaries of the solar array.

Q05. What is the efficiency of the photovoltaic module technology that would be employed by the Petitioner at the proposed project? Does this efficiency decrease over time?

A05. The efficiency will be in the range of 15 to 18 percent, depending on the manufacturer and model of solar module selected for construction. The efficiency does decrease over time, at a predicted average rate of 0.5% per year.

Q06. Would the angles of the Facilities' solar modules be adjusted during the year to maintain optimal alignment with the sun's changing path?

A06. No. The solar modules will be installed on a fixed-tilt racking system.

Q07. Approximately what percentage of the proposed project's maximum possible output would occur during those times of the year when Connecticut normally experiences its peak demand for electricity?

A07. Energize Connecticut (www.energizect.com) defines the peak electricity demand in Connecticut as occurring weekdays between noon and 8 pm, during the summer months of June through September. The Facilities will create approximately 14% of their total annual output during this timeframe.

Q08. Does the Petitioner have contracts to sell the electricity it expects to generate with the proposed Facilities?

A08. Yes, with CL&P under the state's Zero Emission Renewable Energy Credits and Low Emission Renewable Energy Credits programs.

Q09. Has the Petitioner determined if any trees need to be removed to construct the Facilities? If so, how many trees will be removed?

A09. Details of proposed tree removals can be found on sheets 4 and 5 of Exhibit A.

Q10. Are the Facilities located near any Important Bird Areas designated by the Connecticut Audubon Society?

A10. No.

Q11. What would be the construction timeline of the Facilities from groundbreaking to full operation?

A11. Approximately 5 months.

Q12. Describe how the project would be decommissioned at the end of its useful life.

A12. A decommissioning memo is included as Exhibit J.

Q13. Describe the land use within a 0.5 mile radius of the Site.

A14. Cleared vacant land, uncleared vacant land, commercial, light agriculture, and residential.

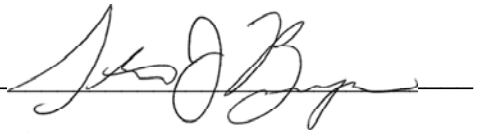
VIII. CONCLUSION

The Facilities will provide numerous and significant benefits to the Town of Lebanon, the State of Connecticut and its citizens, while producing significant environmental benefits with minimal environmental impact. Pursuant to CGS § 16-50k(a), the Siting Council shall approve by declaratory ruling the construction or location of customer side distributed resources project or facility with a capacity of not more than sixty-five (65) MW, as long as such project meets DEEP air and water quality standards. The Facilities meet these criteria. Each Facility is a customer-side distributed resources facility "grid-side distributed resources" facility, as defined in CGS § 16-1(a)(40), because the Project involves "the generation of electricity from a unit with

a rating of not more than sixty-five megawatts on the premises of a retail end user within the transmission and distribution system including, but not limited to . . .photovoltaic systems and, as demonstrated herein, each Facility will meet DEEP air and water quality standards. The Facilities will not produce air emissions, will not utilize water to produce electricity, were designed to minimize wetland impacts, will employ a stormwater management plan that will result in no net increase in runoff to any surrounding properties, and furthers the State's energy policy by developing and utilizing renewable energy resources and distributed energy resources. In addition, as demonstrated above, the Facilities will not have a substantial adverse environmental effect in the State of Connecticut.

Accordingly, Petitioner respectfully requests that the Siting Council approve the location, construction and operation of the Facilities by declaratory ruling.

Respectfully Submitted,
Windham Solar LLC

By: 

Steve Broyer
Windham Solar LLC
c/o Ecos Energy LLC
222 South 9th Street
Suite 1600
Minneapolis, MN 55402
Phone (612) 326-1500
steve.broyer@ecosrenewable.com

Exhibit A

Facilities Site Plan

WINDHAM SOLAR - CONNECTICUT SITING BOARD DOCUMENTS

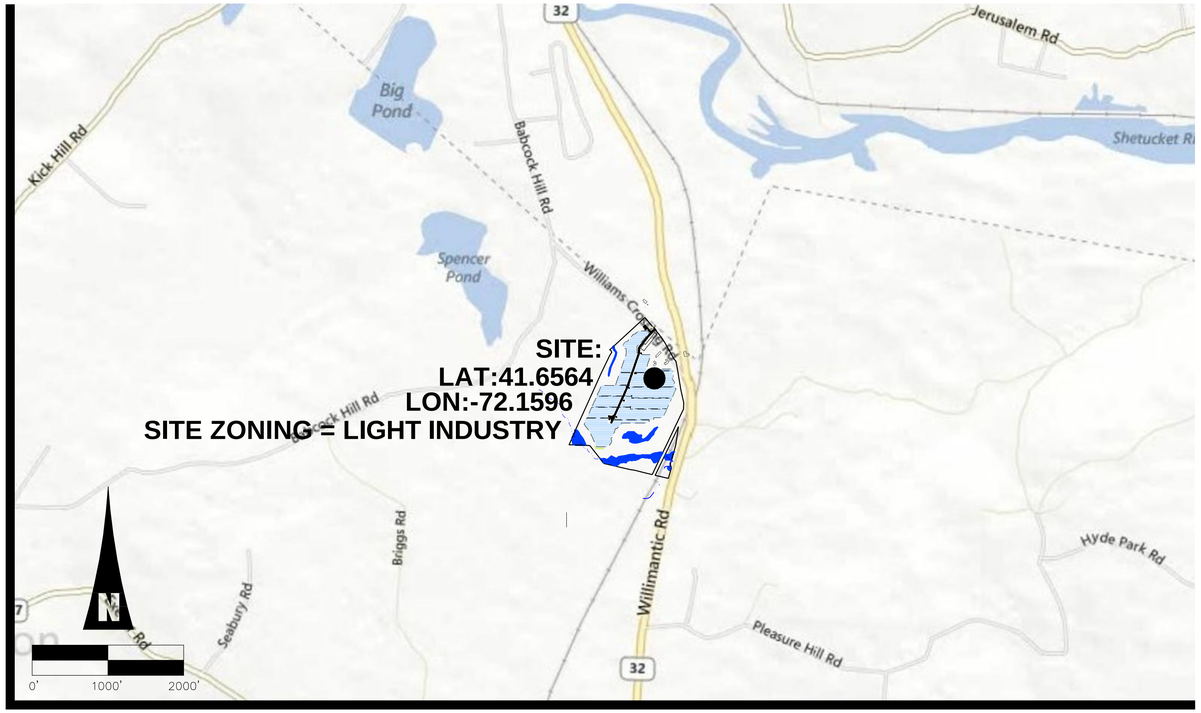
FOR

Site/Electrical Layout, Grading/Drainage/Erosion Control/Landscaping

IN

LEBANON, CONNECTICUT

LOCATION MAP



SHEET INDEX

●		1/20/2015	1	COVER SHEET
●		12/11/2014	2	ALTA SURVEY (BY HELLSTROM LS, LLC)
●		1/20/2015	3	OVERALL SITE PLAN
●		1/20/2015	4	NORTH REMOVAL & EROSION CONTROL PLAN - 1"=50'
●		1/20/2015	5	SOUTH REMOVAL & EROSION CONTROL PLAN - 1"=50'
●		1/20/2015	6	NORTH SITE & GRADING PLAN - 1"=50'
●		1/20/2015	7	SOUTH SITE & GRADING PLAN - 1"=50'
●		1/20/2015	8	OVERALL LANDSCAPE PLAN
●		1/20/2015	9	CIVIL NOTES
●		1/20/2015	10	CIVIL DETAILS

DRAWING INDEX LEGEND

FILLED CIRCLE INDICATES DRAWING INCLUDED WITHIN THIS ISSUE
MOST RECENT REVISION NUMBER
MOST RECENT ISSUE OR REVISION DATE

○	-	X/XX/201X	X	SHEET TITLE

CONTACT INFO:

RECORD LANDOWNER:
PLH, LLC
77 WATER STREET
8TH FLOOR
NEW YORK, NY 10005

OWNER/DEVELOPER:
WINDHAM SOLAR, LLC
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

CIVIL ENGINEER:
WESTWOOD PROFESSIONAL SERVICES
7699 ANAGRAM DRIVE
EDEN PRAIRIE, MN 55344

SURVEYOR:
ROB HELLSTROM LAND SURVEYING, LLC
P.O. BOX 497
HEBRON, CT 06248

WETLAND DELINEATION:
HIGHLAND SOILS
P.O. BOX 337
STORRS, CT 06268

GEOTECHNICAL ENGINEER:
TERRACON
201 HAMMER MILL ROAD
ROCKY HILL, CT 06067

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

STATE OF CONNECTICUT
REGISTERED
0030668
LICENSED
PROFESSIONAL ENGINEER

Designed: ADC
Checked: SAW
Drawn: SJB
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION
-	01/20/2015	SITING BOARD SUBMISSION

Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

WINDHAM SOLAR

1 WILLIAMS CROSSING DR.
LEBANON, CT 06249
NEW LONDON COUNTY

COVER SHEET

SITING BOARD REVIEW

DATE: 01/20/2015
SHEET: 1 of 10

LEGEND

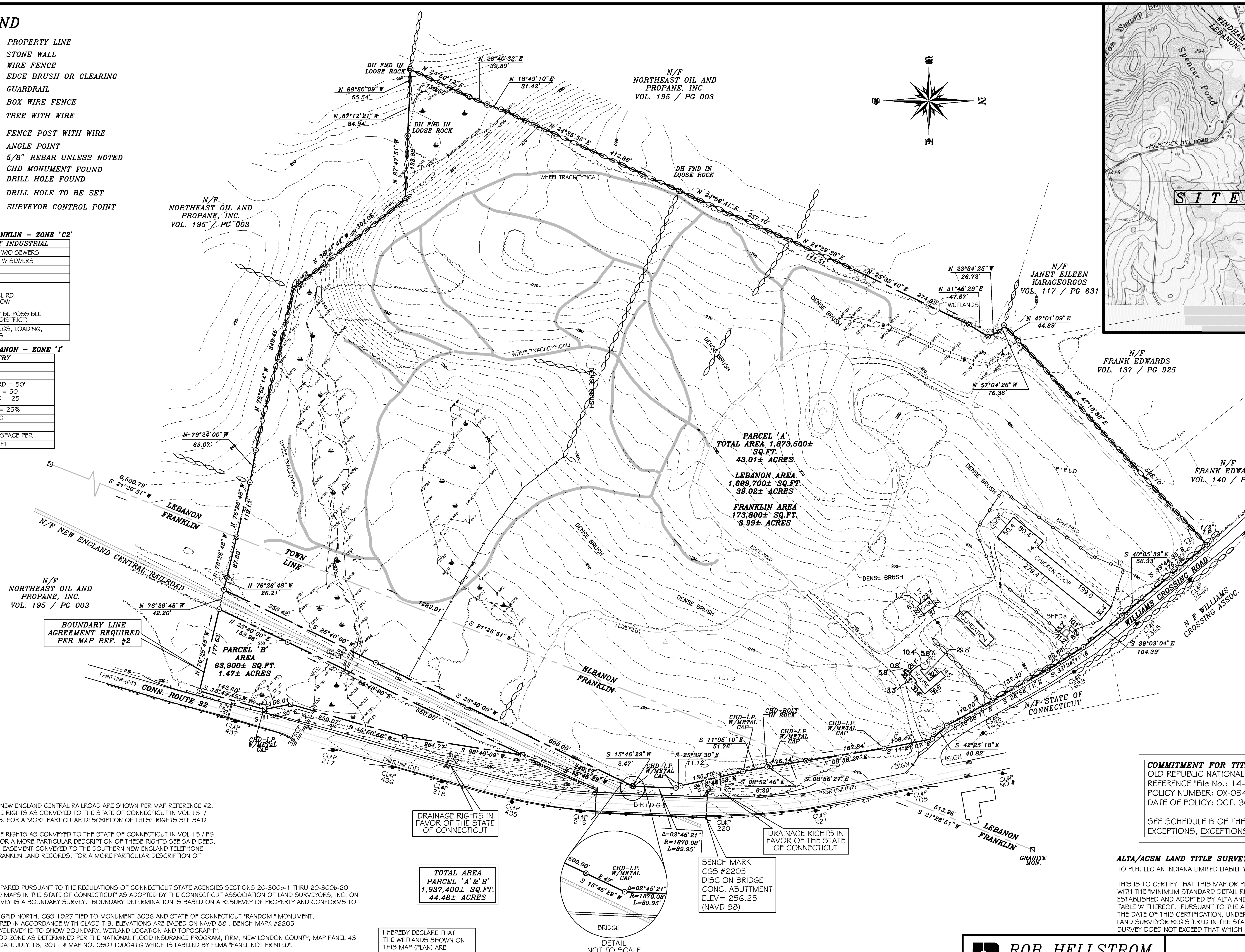
- PROPERTY LINE
- STONE WALL
- WIRE FENCE
- EDGE BRUSH OR CLEARING
- GUARDRAIL
- BOX WIRE FENCE
- TREE WITH WIRE
- FENCE POST WITH WIRE
- ANGLE POINT
- 5/8" REBAR UNLESS NOTED
- CHD MONUMENT FOUND
- DRILL HOLE FOUND
- DRILL HOLE TO BE SET
- SURVEYOR CONTROL POINT

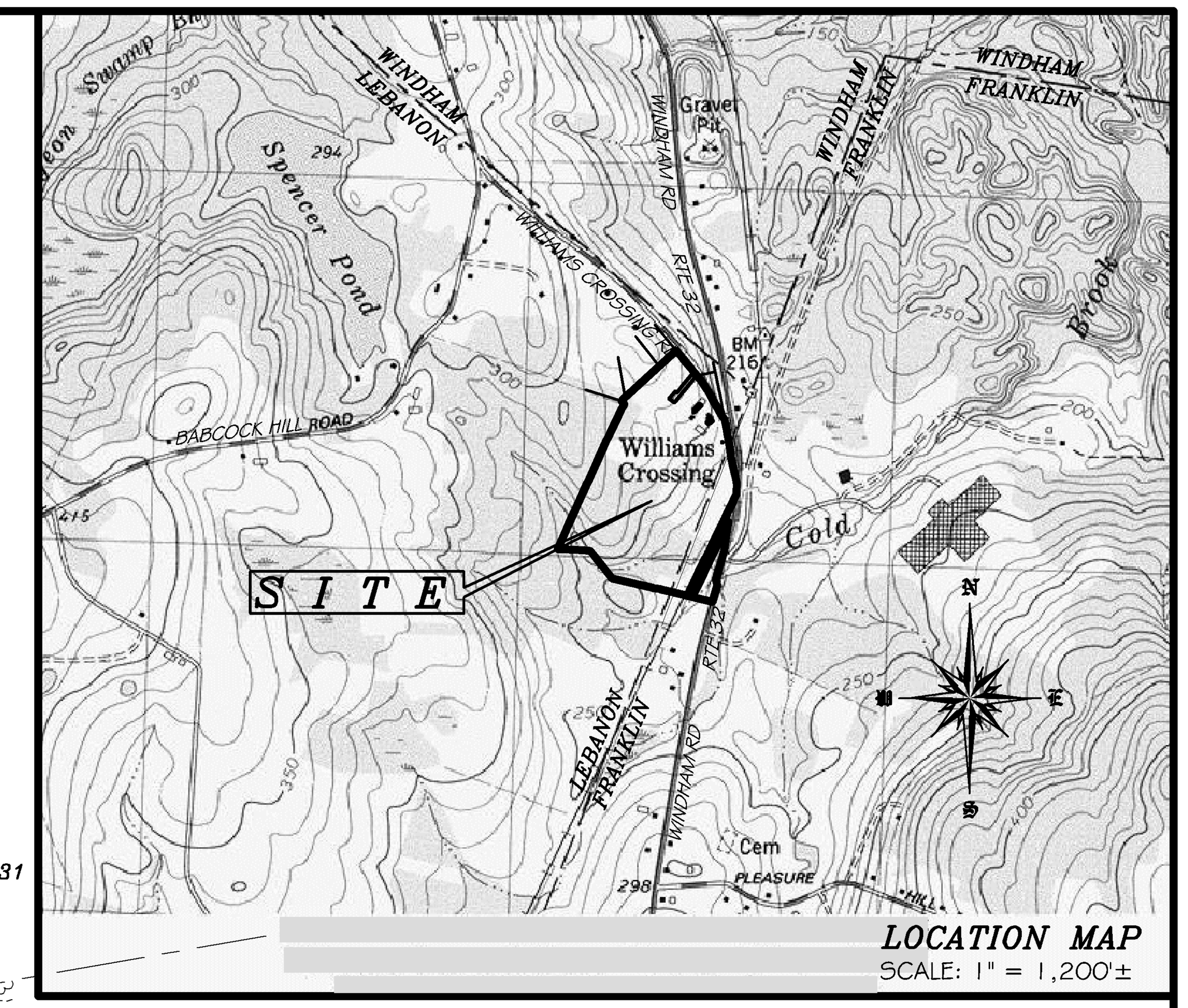
ZONING TABLE TOWN OF FRANKLIN – ZONE 'C2'

MIXED COMMERCIAL & LIGHT INDUSTRIAL
MIN. LOT AREA = 100,000 SQ.FT. W/O SEWERS
60,000 SQ.FT. W SEWERS
MIN. FRONTAGE = 200'
MIN. LOT WIDTH = 200'
BUILDING SETBACKS: FRONT YARD = 100' FROM CL RD, 75' FROM ROW; SIDE & REAR YARD = 25' (ADDITIONAL 25' BUFFER STRIP MAY BE POSSIBLE WHERE ABUTTING RESIDENTIAL DISTRICT)
MAXIMUM LOT COVERAGE: BUILDINGS, LOADING, STORAGE & ALL PAVED ARES = 65%

ZONING TABLE TOWN OF LEBANON – ZONE 'I'

ZONE 'I' – LIGHT INDUSTRY
MIN. LOT AREA = 1 ACRE
MIN. FRONTAGE = 200'
BUILDING SETBACKS: FRONT YARD = 50' SIDE YARD = 50' REAR YARD = 25'
MAXIMUM BUILDING COVERAGE = 25%
MAXIMUM BUILDING HEIGHT = 40'
REQUIRED MINIMUM PARKING:
INDUSTRIAL BUILDINGS - (1) SPACE PER
(4) EMPLOYEES ANY ONE SHIFT





COMMITMENT FOR TITLE INSURANCE NOTE:
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY OWNER'S POLICY
REFERENCE "File No.: 14-145"
POLICY NUMBER: OX-09442008
DATE OF POLICY: OCT. 30, 2014

SEE SCHEDULE B OF THE POLICY OR POLICIES WHICH CONTAINS EXCEPTIONS, EXCEPTIONS: 1. THROUGH 11.

GENERAL NOTES:

1. THE BOUNDARY LINES ABUTTING THE NEW ENGLAND CENTRAL RAILROAD ARE SHOWN PER MAP REFERENCE #2.
2. PARCEL B IS SUBJECT TO A DRAINAGE RIGHTS AS CONVEYED TO THE STATE OF CONNECTICUT IN VOL 15 / PG 297 OF THE FRANKLIN LAND RECORDS. FOR A MORE PARTICULAR DESCRIPTION OF THESE RIGHTS SEE SAID DEED.
3. PARCEL A IS SUBJECT TO A DRAINAGE RIGHTS AS CONVEYED TO THE STATE OF CONNECTICUT IN VOL 15 / PG 297 OF THE FRANKLIN LAND RECORDS. FOR A MORE PARTICULAR DESCRIPTION OF THESE RIGHTS SEE SAID DEED.
4. THIS PARCEL IS SUBJECT TO A POLE EASEMENT CONVEYED TO THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY IN VOL 10 / PG 391 OF THE FRANKLIN LAND RECORDS. FOR A MORE PARTICULAR DESCRIPTION OF THESE RIGHTS SEE SAID DEED.

MAP STANDARD NOTES:

1. THIS SURVEY (OR MAP) HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THRU 20-300b-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996; THE TYPE OF SURVEY IS A BOUNDARY SURVEY. BOUNDARY DETERMINATION IS BASED ON A RESURVEY OF PROPERTY AND CONFORMS TO THE 'A-2' CLASS OF ACCURACY.
2. HORIZONTAL DATUM IS BASED ON ON GRID NORTH, CGS 1927 TIED TO MONUMENT 3096 AND STATE OF CONNECTICUT "RANDOM " MONUMENT.
3. TOPOGRAPHIC FEATURES WERE PREPARED IN ACCORDANCE WITH CLASS T-3. ELEVATIONS ARE BASED ON NAVD 88 . BENCH MARK #2205
4. THE INTENDED PURPOSE OF THIS MAP/SURVEY IS TO SHOW BOUNDARY, WETLAND LOCATION AND TOPOGRAPHY.
5. PARCELS ARE NOT LOCATED IN A FLOOD ZONE AS DETERMINED PER THE NATIONAL FLOOD INSURANCE PROGRAM, FIRM, NEW LONDON COUNTY, MAP PANEL 43 OF 554, MAP NO. 0901190007D, EFF. DATE JULY 18, 2011 & MAP NO. 0901100041G WHICH IS LABELED BY FEMA "PANEL NOT PRINTED".

I HEREBY DECLARE THAT THE WETLANDS SHOWN ON THIS MAP (PLAN) ARE SUBSTANTIALLY CORRECT.

JOHN IANNI
SOIL SCIENTIST

LEBANON TOWN PARCEL REFERENCE:
TOWN OF LEBANON VOL. 227 / PG. 708

FRANKLIN TOWN PARCEL REFERENCE:
TOWN OF FRANKLIN VOL. 70 / PG. 208

MAP REFERENCES:

1. "BOUNDARY PERIMETER SURVEY PREPARED FOR MARION C. & JAMES J. BEAUSOLEIL, WILLIAMS COROSSING RD. & BABCOCK HILL RD., LEBANON,CONNECTICUT", SCALE 1" = 60', SHEET 1 OF 1, DATED NOV. 4, 2008 BY FILIP ASSOCIATES.
2. "BOUNDARY SURVEY PREPARED FOR DSD CEDAR HILL, RTE. 32 & WILLIAMS CROSSING RD., LEBANON/FRANKLIN, CT", SCALE 1" = 100', SHEET 1 OF 1, JOB 04-265, DATED JUNE 21, 2005 BY TOWNE ENGINEERING, INC. (Map # 1493 Lebanon Town Clerk office)
3. CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP, TOWN OF LEBANON, NORWICH-WILLIMANTIC ROAD FROM THE WINDHAM TOWN LINE SOUTHERLY TO THE FRANKLIN TOWN LINE, ROUTE NO 32, SCALE: 1" = 40', NO. 70-02-A, SHEET 1 OF 1, DATE APPROVED; JULY 21, 1947.
4. CONNECTICUT STATE HIGHWAY DEPARENT RIGHT OF WAY MAP, TOWN OF FRANKLIN, NORWICH-WILLIMANTIC ROAD FROM THE LEBANON TOWN LINE SOUTHERLY ABOUT 10,000 FEET, ROUTE NO. 32, SCALE: 1" = 40', NO. 52-04-A, SHEET 1 OF 3, DATE APPROVED; JULY 21, 1947.
5. CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP, TOWN OF FRANKLIN, NORWICH-WILLIMANTIC ROAD FROM THE LEBANON TOWN LINE SOUTHERLY ABOUT 10,000 FEET, ROUTE NO. 32, SCALE: 1" = 40', NO. 52-04, SHEET 1 OF 3, DATE APPROVED; JAN 31, 1933.

GRAPHIC SCALE
-40' 0' 40' 80'
(IN FEET)
1 inch = 40 ft.

NO.	DATE	DESCRIPTION

R E V I S I O N S

ALTA/ACSM LAND TITLE SURVEY CERTIFICATION:

TO PLH, LLC AN INDIANA LIMITED LIABILITY COMPANY & OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS", JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS IN 2005, AND INCLUDES ITEMS 2 - 8, 11, 13, 18 - 20 & 21 OF TABLE 'A' THEREOF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR REGISTERED IN THE STATE OF CONNECTICUT, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED THAT WHICH IS SPECIFIED THEREIN.

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

THIS DRAWING IS NOT VALID UNLESS IT BEARS AN ORIGINAL INK SIGNATURE AND EMBOSSED SEAL

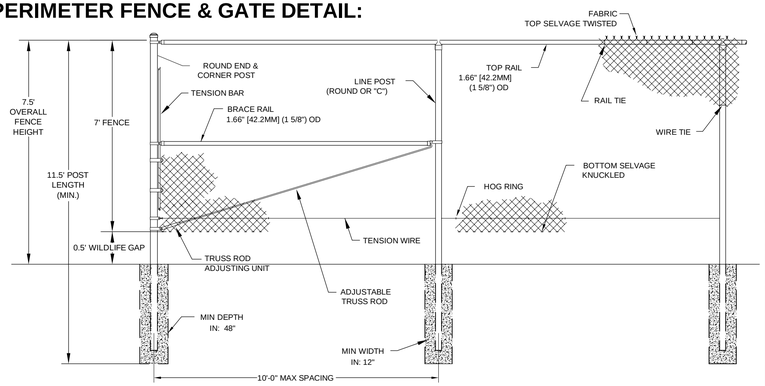
ROBERT W. HELLSTROM, L.S. #13626

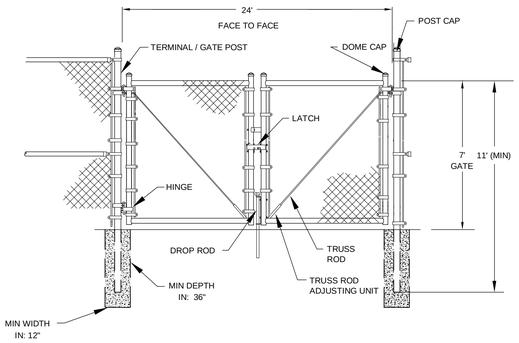
ROB HELLSTROM LAND SURVEYING LLC
Mailing Address:
P.O. BOX 497
COLUMBIA, CT. 06237-0497
(860) 228-9853
(860) 228-1360 (FAX)
32 MAIN STREET HEBRON, CT., 06248
hellstromsurveying@yahoo.com
www.hellstromlandsurveying.com

BOUNDARY SURVEY
– PREPARED FOR –
ECOS ENERGY LLC
ROUTE 32 & WILLIAMS CROSSING ROAD
LEBANON/FRANKLIN CONNECTICUT

SHEET NO.: 1 OF 1	JOB NO.: 2014-099
DATE: NOVEMBER 6, 2014	BY: ROBIN H.
SCALE: 1" = 100'	FILE NO.: EC14099

PERIMETER FENCE & GATE DETAIL:





LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED PROJECT FENCE
- PROPOSED GRAVEL ACCESS ROAD
- M/V — PROPOSED AC DISTRIBUTION
- 100' WETLAND BUFFER AREA
- WETLAND DELINEATION LINE
- 14 x 2 SOLAR MODULE BOCK
- INDIVIDUAL SOLAR FACILITY LIMITS

PROJECT INFORMATION:

EXISTING ZONING:
LIGHT INDUSTRIAL

PROPOSED USE :
SOLAR FACILITY

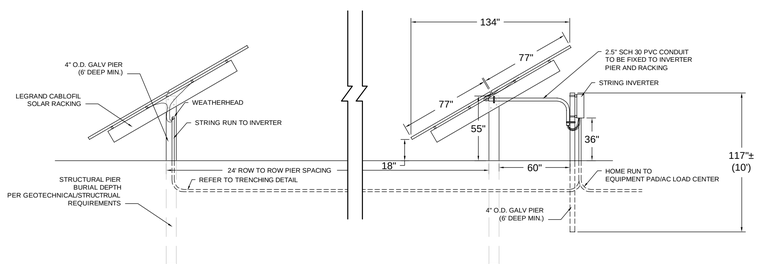
PROJECT AREAS & IMPACTS:

ARRAY FOOTPRINT (FENCE LIMITS) = 22.30 AC

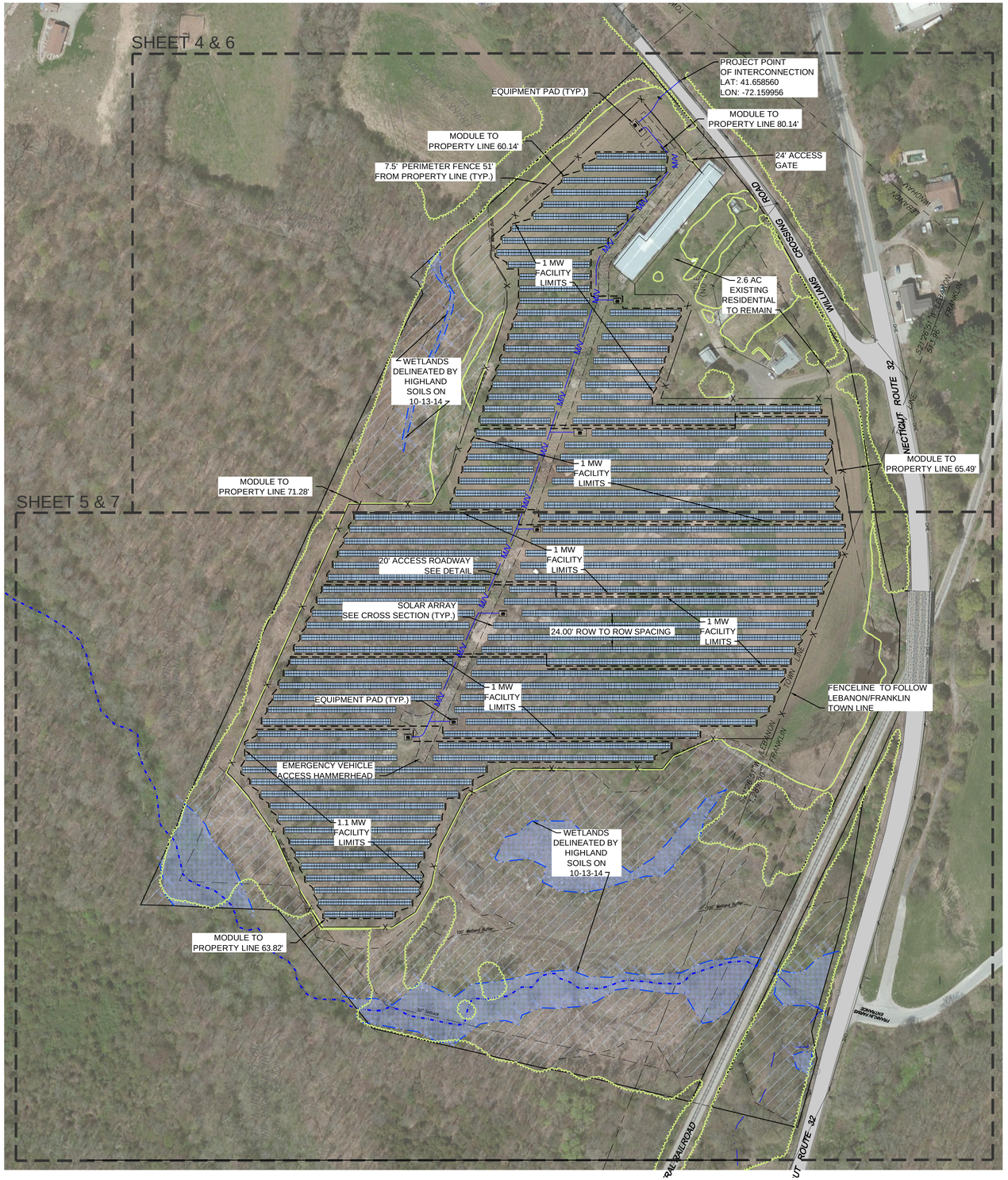
PROPOSED IMPERVIOUS:
GRAVEL ACCESS ROADS = 0.73 AC
EQUIPMENT PADS = 0.05 AC

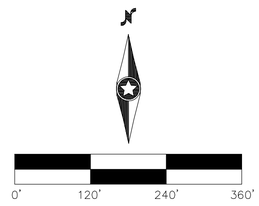
SPECIFIC SITE NOTES:
1. NO LIGHTING PROPOSED WITH THE PROJECT
2. NO AUDIBLE NOISE GREATER THAN THE SITES EXISTING AMBIENT NOISE LEVEL SHALL BE DETECTABLE AT OR BEYOND THE PROPERTY LINE OF THE PROJECT
3. EMERGENCY VEHICULAR & SITE ACCESS TO BE PROVIDED TO ALL LOCAL RESPONDERS (POLICE, FIRE, ETC...)

RACKING PROFILE DETAIL:



AERIAL SITE PLAN:





Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

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STATE OF CONNECTICUT
REGISTERED
0030668
LICENSED
PROFESSIONAL ENGINEER

Designed:	ADC
Checked:	SAW
Drawn:	SJB
Record Drawing by/date:	

Revisions:

#	DATE	DESCRIPTION
-	01/20/2015	SITING BOARD SUBMISSION

Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

WINDHAM SOLAR

1 WILLIAMS CROSSING DR.
LEBANON, CT 06249
NEW LONDON COUNTY

OVERALL SITE PLAN

SITING BOARD REVIEW

DATE: 01/20/2015
SHEET: 3 of 10

CONSTRUCTION SEQUENCING NOTES:

1. THE CONTRACTOR SHALL PERFORM ALL TREE REMOVAL ACTIVITIES ON SITE TO ALLOW FOR BMP INSTALLATION, NO GRUBBING IS TO OCCUR DURING TREE REMOVAL, PRIOR TO BMP INSTALLATION.
2. ALL BMP'S IDENTIFIED ON THE PLAN SHALL BE STAKED BY A REGISTERED SURVEYOR AND INSTALLED PER PLANS PRIOR TO ANY CONSTRUCTION ACTIVITY.
3. AS-BUILT DRAWINGS SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION OF THE PROJECT.

PROJECT FOOTPRINT REMOVAL NOTES

AREAS WITHIN THE PROJECT FENCELINE LIMITS SHALL BE CLEARED BY THE FOLLOWING METHODS:

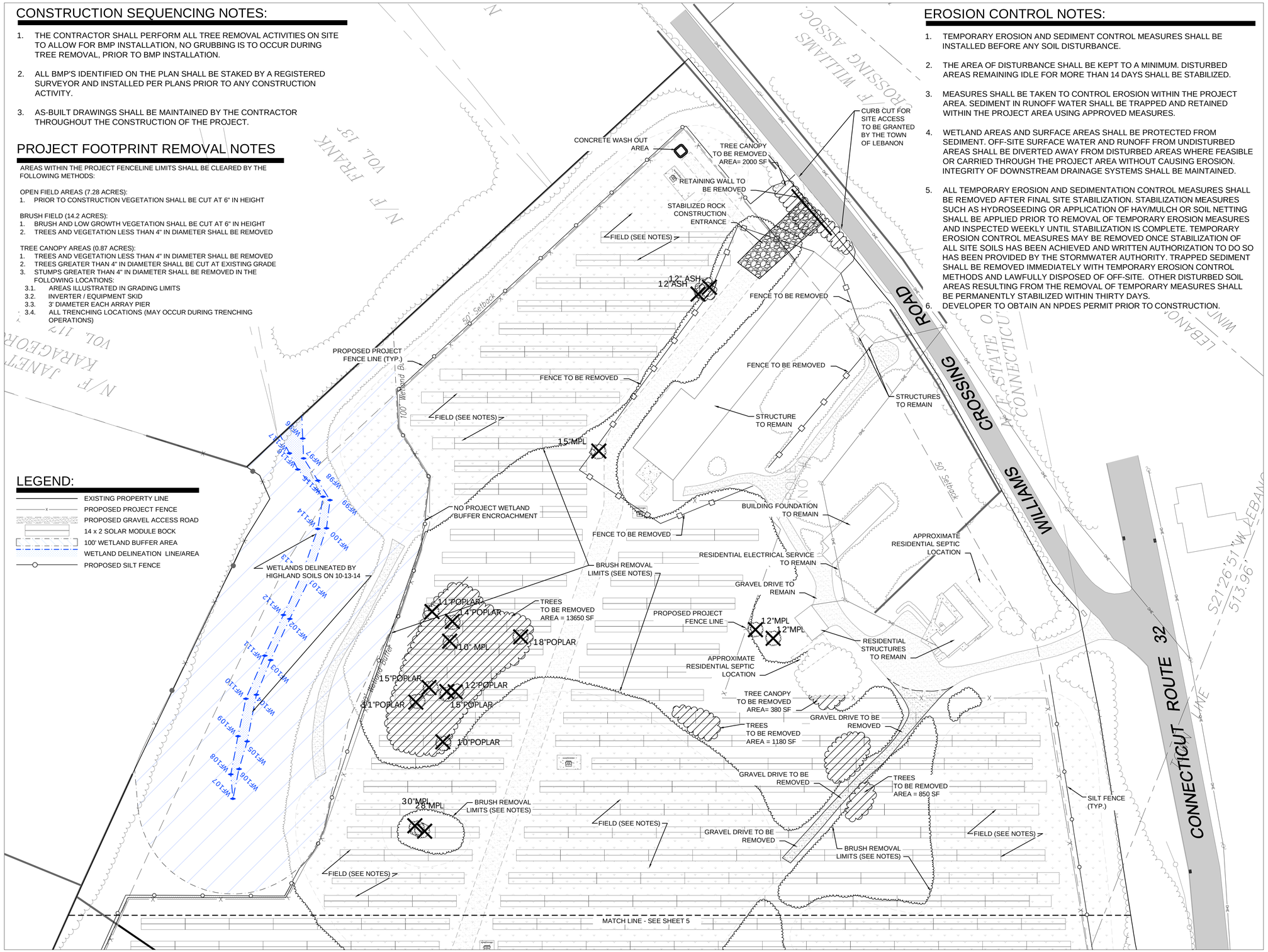
OPEN FIELD AREAS (7.28 ACRES):
1. PRIOR TO CONSTRUCTION VEGETATION SHALL BE CUT AT 6" IN HEIGHT

BRUSH FIELD (14.2 ACRES):
1. BRUSH AND LOW GROWTH VEGETATION SHALL BE CUT AT 6" IN HEIGHT
2. TREES AND VEGETATION LESS THAN 4" IN DIAMETER SHALL BE REMOVED

TREE CANOPY AREAS (0.87 ACRES):
1. TREES AND VEGETATION LESS THAN 4" IN DIAMETER SHALL BE REMOVED
2. TREES GREATER THAN 4" IN DIAMETER SHALL BE CUT AT EXISTING GRADE
3. STUMPS GREATER THAN 4" IN DIAMETER SHALL BE REMOVED IN THE FOLLOWING LOCATIONS:
   - 3.1. AREAS ILLUSTRATED IN GRADING LIMITS
   - 3.2. INVERTER / EQUIPMENT SKID
   - 3.3. 3' DIAMETER EACH ARRAY PIER
   - 3.4. ALL TRENCHING LOCATIONS (MAY OCCUR DURING TRENCHING OPERATIONS)

EROSION CONTROL NOTES:

1. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED BEFORE ANY SOIL DISTURBANCE.
2. THE AREA OF DISTURBANCE SHALL BE KEPT TO A MINIMUM. DISTURBED AREAS REMAINING IDLE FOR MORE THAN 14 DAYS SHALL BE STABILIZED.
3. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA USING APPROVED MEASURES.
4. WETLAND AREAS AND SURFACE AREAS SHALL BE PROTECTED FROM SEDIMENT. OFF-SITE SURFACE WATER AND RUNOFF FROM UNDISTURBED AREAS SHALL BE DIVERTED AWAY FROM DISTURBED AREAS WHERE FEASIBLE OR CARRIED THROUGH THE PROJECT AREA WITHOUT CAUSING EROSION. INTEGRITY OF DOWNSTREAM DRAINAGE SYSTEMS SHALL BE MAINTAINED.
5. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. STABILIZATION MEASURES SUCH AS HYDROSEEDING OR APPLICATION OF HAY/MULCH OR SOIL NETTING SHALL BE APPLIED PRIOR TO REMOVAL OF TEMPORARY EROSION MEASURES AND INSPECTED WEEKLY UNTIL STABILIZATION IS COMPLETE. TEMPORARY EROSION CONTROL MEASURES MAY BE REMOVED ONCE STABILIZATION OF ALL SITE SOILS HAS BEEN ACHIEVED AND WRITTEN AUTHORIZATION TO DO SO HAS BEEN PROVIDED BY THE STORMWATER AUTHORITY. TRAPPED SEDIMENT SHALL BE REMOVED IMMEDIATELY WITH TEMPORARY EROSION CONTROL METHODS AND LAWFULLY DISPOSED OF OFF-SITE. OTHER DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN THIRTY DAYS.
6. DEVELOPER TO OBTAIN AN NPDES PERMIT PRIOR TO CONSTRUCTION.



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Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

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STATE OF CONNECTICUT
REGISTERED
JOSEPH D. CHRISTIE
030668
LICENSED
PROFESSIONAL ENGINEER

Designed: ADC
Checked: SAW
Drawn: SJB
Record Drawing by/date:

Revisions:

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Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

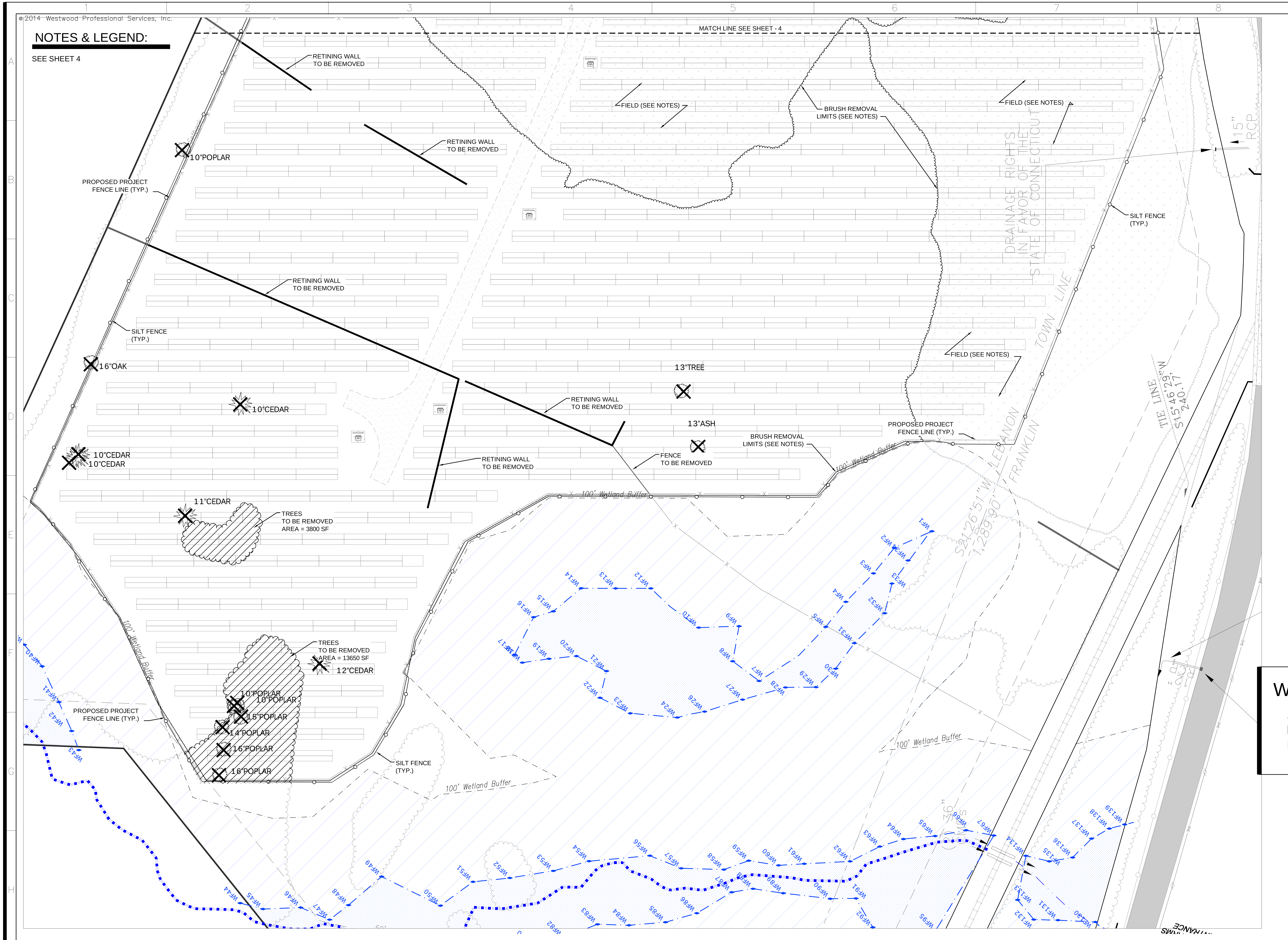
WINDHAM SOLAR

1 WILLIAMS CROSSING DR.
LEBANON, CT 06249
NEW LONDON COUNTY

NORTH REMOVAL & EROSION CONTROL PLAN

SITING BOARD REVIEW

DATE: 01/20/2015
SHEET: 4 of 10



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NOTES & LEGEND:
SEE SHEET 4
MATCH LINE SEE SHEET - 4
RETINING WALL TO BE REMOVED
RETINING WALL TO BE REMOVED
RETINING WALL TO BE REMOVED
RETINING WALL TO BE REMOVED
RETINING WALL TO BE REMOVED
FIELD (SEE NOTES)
FIELD (SEE NOTES)
FIELD (SEE NOTES)
BRUSH REMOVAL LIMITS (SEE NOTES)
BRUSH REMOVAL LIMITS (SEE NOTES)
10"POPLAR
PROPOSED PROJECT FENCE LINE (TYP.)
SILT FENCE (TYP.)
16"OAK
10"CEDAR
10"CEDAR
10"CEDAR
11"CEDAR
TREES TO BE REMOVED AREA = 3800 SF
13"TREE
13"ASH
FENCE TO BE REMOVED
PROPOSED PROJECT FENCE LINE (TYP.)
SILT FENCE (TYP.)
DRAINAGE RIGHTS IN FAVOR OF THE STATE OF CONNECTICUT
LEBANON FRANKLIN TOWN LINE
TIE LINE S15°46'29"W 240.17'
S21°26'51"W 1,289.90'
15" RCP
100' Wetland Buffer
TREES TO BE REMOVED AREA = 13650 SF
12"CEDAR
10"POPLAR
10"POPLAR
15"POPLAR
14"POPLAR
16"POPLAR
16"POPLAR
PROPOSED PROJECT FENCE LINE (TYP.)
SILT FENCE (TYP.)
0' 50' 100' 150'

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Prepared for:

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222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

WINDHAM SOLAR

1 WILLIAMS CROSSING DR.
LEBANON, CT 06249
NEW LONDON COUNTY

SOUTH REMOVAL & EROSION CONTROL PLAN

SITING BOARD REVIEW

DATE: 01/20/2015
SHEET: 5 of 10

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED FENCE
- PROPOSED GRAVEL ACCESS ROAD
- M/V — PROPOSED AC DISTRIBUTION
- PROPOSED SILT FENCE
- PROPOSED LIMITS OF GRADING
- 658 — EXISTING CONTOUR
- 658 — PROPOSED CONTOUR
- PROPOSED DRAINAGE DIRECTION
- 14 x 2 SOLAR MODULE BOCK
- 100' WETLAND BUFFER AREA
- WETLAND DELINEATION LINE/AREA

POINT OF INTERCONNECTION
INSTALL NEW POLE (TRANSITION FROM OH TO UG)
SILT FENCE (TYP.)
PROJECT FENCE (TYP.)
50' Setback
100' Wetland Buffer
SOLAR ARRAY (TYP.)
AC TRENCHING (TYP.)
LIMITS OF GRADING
1 MW FACILITY LIMITS
NO WETLAND BUFFER ENCROACHMENT
PAD ELE=275.0
WETLANDS DELINEATED BY HIGHLAND SOILS ON 10-13-14
24.0' ROW TO ROW SPACING (TYP.)
LOW WATER CROSSING (TYP.)
PAD ELE=275.5
TRANSFORMER PAD (REFER TO ELECTRICAL PLANS FOR CONDUIT PROJECTIONS)
20.0' ACCESS DRIVE (SEE DETAIL)
MATCH LINE - SEE SHEET 5
24' ACCESS GATE (PROVIDE FIRE DEPT. WITH KEY CODES/ACCESS)
NORTH WILLIAMS CROSSING ROAD
POINT OF INTERCONNECTION CL&P POLE #1362
CONC CULVERT
TYPE C CATCH BASINS
CONNECTICUT ROUTE 32
S21°26'51"W 513.96'
LEBANON
FRANKLIN

0' 50' 100' 150'

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STATE OF CONNECTICUT
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1 WILLIAMS CROSSING DR.
LEBANON, CT 06249
NEW LONDON COUNTY

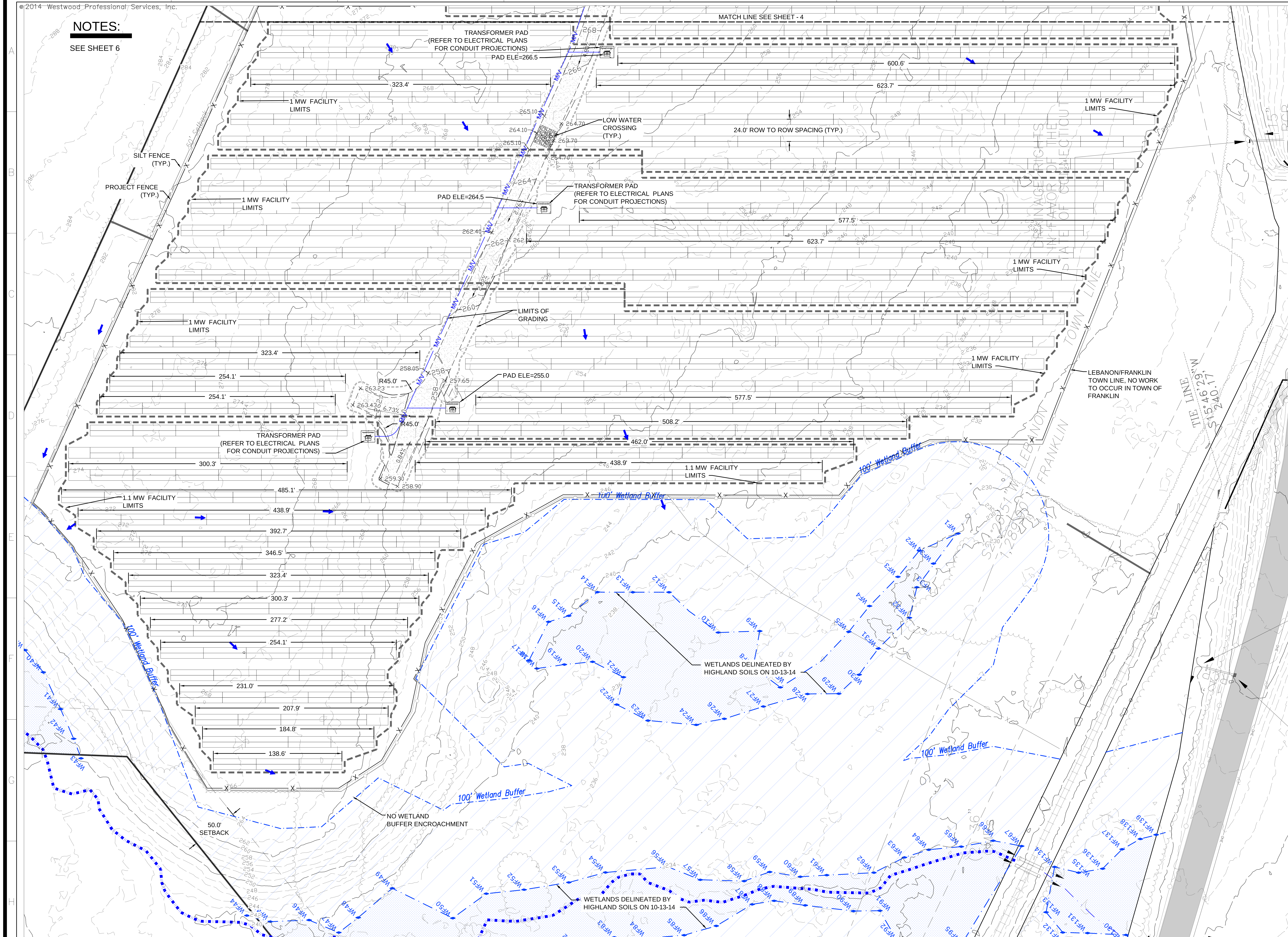
NORTH SITE & GRADING PLAN

SITING BOARD REVIEW

DATE: 01/20/2015
SHEET: 6 of 10

NOTES:

SEE SHEET 6


MATCH LINE SEE SHEET - 4
TRANSFORMER PAD
(REFER TO ELECTRICAL PLANS
FOR CONDUIT PROJECTIONS)
PAD ELE=266.5
600.6'
323.4'
623.7'
1 MW FACILITY
LIMITS
LOW WATER
CROSSING
(TYP.)
24.0' ROW TO ROW SPACING (TYP.)
SILT FENCE
(TYP.)
PROJECT FENCE
(TYP.)
PAD ELE=264.5
577.5'
LIMITS OF
GRADING
PAD ELE=255.0
LEBANON/FRANKLIN
TOWN LINE, NO WORK
TO OCCUR IN TOWN OF
FRANKLIN
254.1'
508.2'
462.0'
300.3'
438.9'
1.1 MW FACILITY
LIMITS
485.1'
392.7'
346.5'
277.2'
231.0'
207.9'
184.8'
138.6'
100' Wetland Buffer
WETLANDS DELINEATED BY
HIGHLAND SOILS ON 10-13-14
NO WETLAND
BUFFER ENCROACHMENT
50.0'
SETBACK
TIE LINE
0'
50'
100'
150'

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Designed: ADC
Checked: SAW
Drawn: SJB
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION
-	01/20/2015	SITING BOARD SUBMISSION

Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

WINDHAM SOLAR

1 WILLIAMS CROSSING DR.
LEBANON, CT 06249
NEW LONDON COUNTY

SOUTH SITE/GRADING/ EROSION CONTROL PLAN

SITING BOARD REVIEW

DATE: 01/20/2015

TREE REMOVALS:

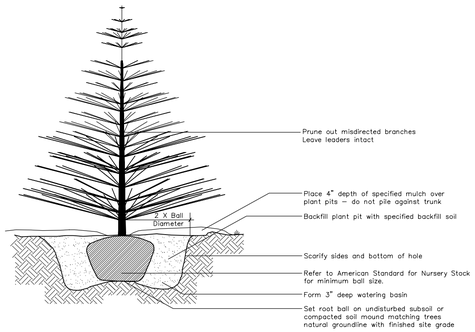
TREE REMOVALS	
Diam (in)	Species
12	MPL
12	MPL
12	ASH
12	ASH
15	MPL
11	POPLAR
14	POPLAR
18	POPLAR
10	MPL
15	POPLAR
12	POPLAR
11	POPLAR
15	POPLAR
10	POPLAR
30	MPL
28	MPL
10	POPLAR
16	OAK
13	TREE
10	CEDAR
13	ASH
10	CEDAR
10	CEDAR
11	CEDAR
12	CEDAR
10	POPLAR
10	POPLAR
15	POPLAR
14	POPLAR
16	POPLAR
16	POPLAR
423	**TOTAL (in)**

NOTES:
INVENTORY OF ALL TREES ON SITE GREATER THAN OR EQUAL TO 10" IN DIAMETER

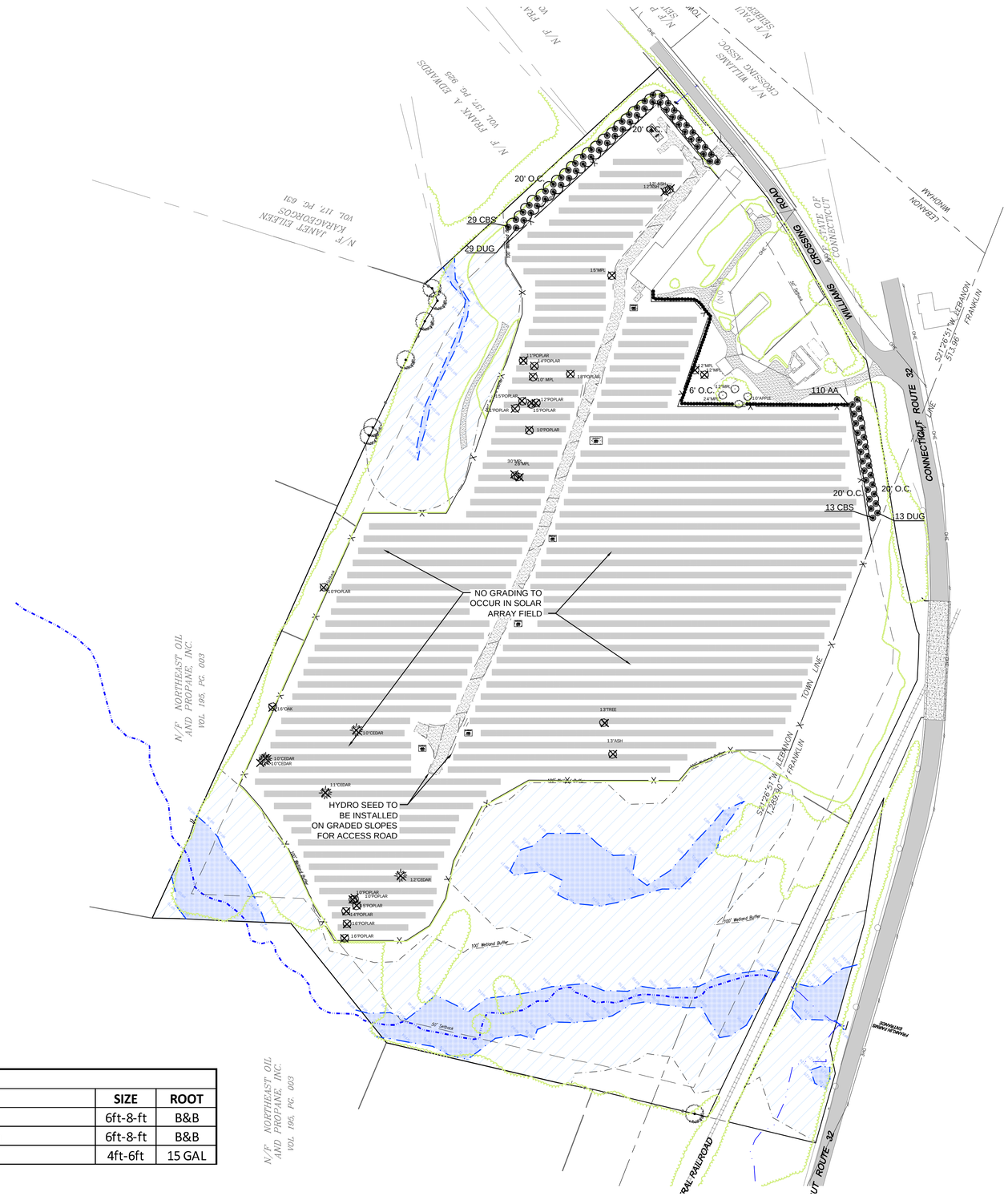
SEEDING NOTES:

1. THE CONTRACTOR SHALLHYDROSEED ALL DISTURBED AREAS ASSOCIATED WITH THE CONSTRUCTION OF THE SOLAR FACILITY. CONTRACTOR SHALL USE AN APPROVED LOW GROWTH LOW MAINTENANCE SEED MIX APPROVED BY THE APPROPRIATE GOVERNING AUTHORITY.

EVERGREEN TREE DETAIL



PLANT SCHEDULE					
CODE	**QTY.**	**COMMON NAME**	**BOTANICAL NAME**	**SIZE**	**ROOT**
CBS	42	Colorado Blue Spruce	Picea pungens	6ft-8-ft	B&B
DUG	42	Douglasfir	Pseudotsuga menziesii var. glauca	6ft-8-ft	B&B
AA	110	American Arborvitae	Thuja occidentalis	4ft-6ft	15 GAL



Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

Designed: ADC
Checked: SAW
Drawn: SJB
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Revisions:

#	DATE	DESCRIPTION
-	01/05/2015	SITE PLAN REVIEW DOCUMENTS

Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

N

0' 120' 240' 360'

WINDHAM SOLAR

1 WILLIAMS CROSSING DR.
LEBANON, CT 06249
NEW LONDON COUNTY

LANDSCAPE PLAN

SITING BOARD REVIEW

DATE: 01/20/2015
SHEET: 8 of 10

ROAD DESIGN PARAMETERS

1. ROAD MAINTENANCE CAN BE EXPECTED OVER THE LIFE OF THE PERMANENT FACILITY.

SPECIAL PROVISIONS FOR GRADING AND EROSION CONTROL

THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES AS OUTLINED BY THE STATE OF CONNECTICUT AND BEING IN CONFORMANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL STORMWATER PERMIT. SEE THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR EROSION CONTROL AND RESTORATION SPECIFICATIONS. UNLESS OTHERWISE NOTED OR MODIFIED HEREIN, ALL SECTIONS OF THE GENERAL CONDITIONS SHALL APPLY.

EXECUTION

1. CLEARING AND GRUBBING
   A. THE CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL TREES, STUMPS, BRUSH, AND DEBRIS WITHIN THE GRADING LIMITS SHOWN ON THE PLANS. THE CONTRACTOR IS TO REMOVE ONLY THOSE TREES WHICH ARE DESIGNATED BY THE OWNER'S REPRESENTATIVE FOR REMOVAL, AND SHALL EXERCISE EXTREME CARE AROUND EXISTING TREES TO BE SAVED.
2. TOPSOIL STRIPPING
   A. TOPSOIL SHALL BE STRIPPED FROM ALL ROADWAY AREAS THROUGH THE ROOT ZONE. TOPSOIL SHALL NOT BE STRIPPED OUTSIDE OF THE DESIGNATED DISTURBANCE AREAS.
   B. ANY TOPSOIL, THAT HAS BEEN STRIPPED, SHALL BE RE-SPREAD OR STOCKPILED WITHIN GRADING AREAS AND/OR USED AS FILL OUTSIDE OF THE DISTURBANCE AREAS, AS DIRECTED BY THE ENGINEER.
3. EMBANKMENT CONSTRUCTION.
   A. EMBANKMENT CONSTRUCTION SHALL CONSIST OF THE PLACING OF SUITABLE FILL MATERIAL, AFTER TOPSOIL STRIPPING, ABOVE THE EXISTING GRADE. GENERALLY, EMBANKMENTS SHALL HAVE COMPACTED SUPPORT SLOPES OF TWO AND A HALF FEET HORIZONTAL TO ONE FOOT VERTICAL. THE MATERIAL FOR EMBANKMENT CONSTRUCTION SHALL BE OBTAINED FROM THE ACCESS ROAD EXCAVATION (SEE GEOTECHNICAL REPORT FOR RESTRICTIONS), OR ANY SUITABLE, APPROVED SOIL OBTAINED OFFSITE BY CONTRACTOR, AS DIRECTED OR APPROVED BY THE ENGINEER. THIS MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 9".
   B. SIDE SLOPES GREATER THAN 2.5:1 WILL NOT BE PERMITTED, UNLESS OTHERWISE NOTED ON THE PLAN.

TESTING REQUIREMENTS:

1. TESTING SHALL BE PERFORMED BY A DESIGNATED INDEPENDENT TESTING AGENCY.
2. SUBMIT TESTING AND INSPECTION RECORDS SPECIFIED TO THE CIVIL ENGINEER OF RECORD FOR REVIEW.
   A. THE ENGINEER WILL REVIEW THE TESTING AND INSPECTION RECORDS TO CHECK CONFORMANCE WITH THE DRAWINGS AND SPECIFICATIONS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONSTRUCTION CONTRACTOR FROM THE RESPONSIBILITY FOR CORRECTING DEFECTIVE WORK.
3. PROOF ROLLING:
   A. PROOF-ROLLING SHALL BE PERFORMED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OR QUALIFIED GEOTECHNICAL REPRESENTATIVE USING A FULLY LOADED TANDEM AXLE DUMP TRUCK WITH A MINIMUM GROSS WEIGHT OF 25 TONS OR A FULLY LOADED WATER TRUCK WITH AN EQUIVALENT AXLE LOADING. PROOF-ROLLING ACCEPTANCE STANDARDS INCLUDE NO RUTTING GREATER THAN 1.5 INCHES, AND NO "PUMPING" OF THE SOIL BEHIND THE LOADED TRUCK.
4. SIEVE ANALYSIS:
   A. SIEVE ANALYSIS SHALL BE CONDUCTED IN ACCORDANCE WITH AASHTO T27
5. PROCTOR:
   A. PROCTORS SHALL BE DETERMINED IN ACCORDANCE WITH ASTM D-1557
6. ATTERBERG LIMITS:
   A. ATTERBERG LIMITS SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T89 AND T90
7. MOISTURE DENSITY (NUCLEAR DENSITY):
   A. MOISTURE DENSITY TESTING SHALL BE DONE IN ACCORDANCE WITH AASHTO T310

SUBGRADE COMPACTION, TEST ROLLING AND AGGREGATE BASE COMPACTION:

1. FILL MATERIAL:
   A. SOILS USED AS FILL MATERIAL SHALL BE TESTED FOR GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR TESTS (MODIFIED DRY MAXIMUM DENSITY).
      a. FOR PLACED & COMPACTED FILLS, PROVIDE ONE COMPACTION TEST PER LIFT FOR EVERY 1000 FT OF ROAD LENGTH. INCLUDE THE LOCATION, DRY DENSITY, MOISTURE CONTENT, AND COMPACTION PERCENT BASED ON MODIFIED PROCTOR MAXIMUM DRY DENSITY.
   B. IN ROADWAY CUT AREAS, OR WHERE EMBANKMENT CONSTRUCTION REQUIRES LESS THAN 12 INCHES OF FILL PLACEMENT, COMPACT TO A MINIMUM OF 95 PERCENT OF THE MATERIAL'S MODIFIED PROCTOR MAXIMUM DRY DENSITY.
2. COMPACTED SUBGRADE:
   A. THE ENTIRE SUBGRADE SHALL BE PROOF-ROLLED PRIOR TO THE PLACEMENT OF THE AGGREGATE BASE TO IDENTIFY AREAS OF UNSTABLE SUBGRADE.
   B. IF PROOF ROLLING DETERMINES THAT THE SUBGRADE STABILIZATION CANNOT BE ACHIEVED, THE FOLLOWING ALTERNATIVES WILL BE IMPLEMENTED:
      a. REMOVE UNSUITABLE MATERIAL AND REPLACE WITH SUITABLE EMBANKMENT.
      b. SCARIFY, DRY, AND RECOMPACT SUBGRADE AND PERFORM ADDITIONAL PROOF ROLL.
      c. INCREASE ROAD BASE THICKNESS.
   C. PROVIDE 1 MOISTURE DENSITY COMPACTION TESTS FOR EVERY 1000 L.F. OF ROAD LENGTH. COMPACTED SUBGRADE MUST BE COMPACTED TO A MINIMUM OF 95% MODIFIED PROCTOR MAXIMUM DRY DENSITY AT ±3% OF OPTIMUM MOISTURE CONTENT FOR GRANULAR SOILS AND AT -1 TO +3% OF OPTIMUM MOISTURE CONTENT FOR COHESIVE SOILS.
3. AGGREGATE BASE:
   A. AGGREGATE BASE SHALL BE PROOF-ROLLED OVER THE ENTIRE LENGTH. PROVIDE 1 SIEVE ANALYSIS PER 2500 CY OF ROAD BASE PLACED.
      a. IF PROOF ROLLING DETERMINES THAT THE ROAD IS UNSTABLE, ADDITIONAL AGGREGATE SHALL BE ADDED UNTIL THE UNSTABLE SECTION IS ABLE TO PASS A PROOF ROLL.

TABLE 1: TESTING SCHEDULE SUMMARY

LOCATION	TEST	FREQUENCY
STRUCTURAL FILL	GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR	1 PER MAJOR SOIL TYPE
	MOISTURE DENSITY	1 PER 2,000 CY OR MIN. 1 PER LIFT
COMPACTED SUBGRADE	PROOF-ROLL	ENTIRE LENGTH
	MOISTURE DENSITY TEST (NUCLEAR DENSITY)	1 PER 1,000 FT OR MIN. 5 FOR THE SITE
AGGREGATE BASE	PROOF-ROLL	ENTIRE LENGTH
	SIEVE ANALYSIS	1 PER 2,500 CY

GENERAL NOTES:

1. THE PLANIMETRIC FEATURES, GROUND SURFACE CONTOURS ON A LIDAR SURFACE PROVIDED NOAA.
2. NO GRADING OR SOIL DISTURBANCE IS PERMITTED OUTSIDE OF THE GRADING LIMITS IDENTIFIED ON THE PLANS.
3. GRADE ALL PROPOSED ROADS TO THE SLOPES PROPOSED ON THE PLANS.
4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING DRAINAGE THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONSTRUCTION ACTIVITIES SHALL NOT BLOCK THE NATURAL OR MANMADE CREEKS OR DRAINAGE SWALES CAUSING RAINWATER TO POND. ADDITIONAL CULVERTS IN EXCESS OF THOSE ON THE PLANS MAY BE REQUIRED AS APPROVED BY THE ENGINEER.
5. THE CONTRACTOR SHALL NOTIFY DIGSAFE AT LEAST 48 HOURS BEFORE EXCAVATION ACTIVITIES COMMENCE.
6. WETLAND INFORMATION SHOWN ON THE PLAN WAS PROVIDED BY ROB HELLSTROM LAND SURVEYING AND FLAGGED BY HIGHLANDS SOILS. THE GENERAL CONTRACTOR SHALL VERIFY THAT ALL WETLAND PERMITS HAVE BEEN SUBMITTED AND APPROVED PRIOR TO CONSTRUCTION COMMENCING.
7. ELECTRICAL COLLECTION SYSTEM SHOWN ON THE PLAN SHALL BE CONSIDERED PRELIMINARY. CONTRACTOR SHALL REFER TO FINAL ELECTRICAL DESIGN PLANS FOR ACTUAL DESIGN LOCATIONS.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

1. REFER TO THE SWPPP BOOKLET FOR SEDIMENT AND EROSION CONTROL PROCEDURES, LOCATIONS OF BMPs, DETAILS, AND INSPECTION INFORMATION.
2. ALL AREAS DISTURBED DURING CONSTRUCTION ACTIVITIES AND NOT COVERED BY ROAD SURFACING MATERIALS, SHALL BE SEEDED IN ACCORDANCE WITH THE SWPPP PLAN.
3. TEMPORARY EROSION CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TEMPORARY EROSION CONTROL PLAN SHALL BE IN ACCORDANCE WITH STATE OF CONNETICUT, THE EPA, AND THE SWPPP ON FILE.

SLOPE STABILIZATION:

ALL AREAS DESIGNATED ON THE PLAN FOR SLOPE STABILIZATION SHALL BE GRADED AND COMPACTED, SMOOTH AND CLEAN TO THE FINISH CONTOURS SHOWN ON THE PLAN, WITH A MINIMUM OF 4 INCHES OF TOPSOIL PLACED ON THE AREA. STABILIZATION SHALL BE ACHIEVED IN ONE OF TWO MANNERS:

EITHER: 1) HAND-PLACED RIPRAP
OR:
2) SEED WITH EROSION CONTROL AND REVEGITATION MAT (ECRM)

1. PLACEMENT OF RIP-RAP

RIPRAP HAND PLACED. HAND-PLACED RIPRAP SHALL CONSIST OF ROUGH UNHEWN QUARRY STONES, APPROXIMATELY RECTANGULAR, PLACED DIRECTLY ON THE SPECIFIED SLOPES OR SURFACES. IT SHALL BE SO LAID THAT THE WEIGHT OF THE LARGE STONES IS CARRIED BY THE SOIL RATHER THAN BY ADJACENT STONES. STONES SHALL WEIGH BETWEEN 50 AND 150 LB. EACH AND AT LEAST 60 % OF THEM SHALL WEIGH MORE THAN 100 LB. EACH WHEN USED ON EMBANKMENT CONSTRUCTION. RIP RAP FOR BMPS SHALL BE 6"-8" DIA. PREPARATION FOR HAND-PLACED RIP RAP. BEFORE ANY RIP RAP IS PLACED, THE SURFACE TO BE COVERED SHALL BE FULLY COMPACTED AND GRADED TO THE REQUIRED SLOPE. PLACE MIRAFITM8 OR APPROVED EQUAL GEOTEXTILE ON SLOPE. RIP RAP ON SLOPES SHALL COMMENCE COMMENCE IN A TRENCH BELOW THE TOW OF THE SLOPE AND SHALL PROGRESS UPWARD, EACH STONE BEING LAID BY HAND PERPENDICULAR TO THE SLOPE WITH THE LONG DIMENSION VERTICAL, FIRMLY BEDDED AGAINST THE SLOPE AND AGAINST THE ADJOINING STONE, WITH ENDS IN CONTACT, AND WITH WELL-BROKEN JOINTS. SIMILAR METHODS SHALL BE USED WHEN LAYING RIPRAP ON STREAM BEDS, IN DITCHES, AND ON LEVEL SURFACES.

THE FINISHED SURFACE OF THE RIPRAP SHALL PRESENT AN EVEN, TIGHT SURFACE, NOT LESS THAN 12 INCHES THICK, MEASURED PERPENDICULAR TO THE SLOPE.

THE STONES WEIGHING MORE THAN 100 LB. SHALL BE WELL DISPERSED THROUGHOUT THE AREA WITH THE 50-100 LB. STONES LAID BETWEEN THEM IN SUCH A MANNER THAT ALL STONES WILL BE IN CLOSE CONTACT. THE REMAINING VOIDS SHALL BE FILLED WITH SPALLS OF SUITABLE SIZE AND WELL TAMPED TO PRODUCE A FIRM AND COMPACT REVETMENT.

2. STABILIZATION WITH EROSION CONTROL AND REVEGITATION MAT (ECRM)
   1) AREA MUST BE GRADED SMOOTH AND CLEAN TO FINISH GRADES, AND COMPACTED.

   2) SEED AND MULCH AREA. USE SEED MIX APPROVED BY THE ENGINEER.

   3) INSTALL ECRM PER MANUFACTURER'S INSTRUCTIONS, HOWEVER THESE MUST INCLUDE THE FOLLOWING MINIMUM REQUIREMENTS:

      A) GRADE GROUND TO FINISH CONTOURS. REMOVE ALL ROCKS, DIRT CLODS, STUMPS, ROOTS, TRASH, AND OTHER OBSTRUCTIONS LYING IN DIRECT CONTACT WITH THE SOIL SURFACE.

      B) DIG MAT ANCHOR TRENCHES (MINIMUM 12"DEEP, 6" WIDE) AT TERMINAL ENDS AND PERIMETER SIDES WHERE MAT IS TO BE INSTALLED.

      C) INSTALL MAT BY ROLLING UPHILL PARALLEL TO WATER FLOW, STARTING AT TRENCH. OVERLAP ROLLS BY MINIMUM OF 3". FASTEN TO GROUND WITH 18" PINS AND 1 1/2" WASHERS, OR EQUIVALENT. PIN MAT AT ENDS, AND EVERY 3' TO 5' ALONG OVERLAPS. DO NO STRETCH MAT. SPLICING ROLLS SHOULD BE DONE IN A CHECK SLOT. BACKFILL TO COVER ENDS AND FASTENERS, ROLLING MAT ACROSS BACKFILL AND PIN AGAIN.

   FOR MAT USE MIRAFI MIRAMAT TM8 OR EQUIVALENT.

SEEDING:

1. COMPOSITION OF SEED MIX CHANGES YEARLY. SEED SPECIFICATIONS MUST BE SUBMITTED TO ENGINEER 2 WEEKS PRIOR TO INSTALLATION. ALL SPECIES MUST BE NATIVE TO WORCESTER COUNTY.
2. RESTORED AREAS TO BE SEEDED WITH ABOVE MIX OR EQUAL (SUBJECT TO ENGINEERS APPROVAL). SEED TO BE LIGHTLY RAKED TO ALLOW FOR PROPER SEED/SOIL CONTACT.
3. CONTRACTOR SHALL OVERSEED AND/OR RE-MULCH AS NECESSARY TO ESTABLISH A GOOD COVER OF VEGETATION, WHETHER DUE TO POOR INITIAL COVER, INCLEMENT WEATHER BEFORE/DURING/AFTER SEEDING, OR THE ONSET OF WINTER.
4. RILLING, GULLIES, OR OTHER EROSION DUE TO POOR COVER SHALL BE RAKED AND/OR REFILLED AND REMULCH/RESEEDED.
5. CONTRACTOR SHALL WARRANTEE SEEDING, MULCHING AND EROSION CONTROL FABRIC FOR ONE YEAR FROM THE SUBSTANTIAL COMPLETION OF THE RELEVANT AREA OF WORK.

INVASIVE SPECIES:

1. ALL EQUIPMENT SHALL BE INSPECTED UPON ARRIVAL. EQUIPMENT ARRIVING WITH OBSERVABLE SOIL OR PLANT FRAGMENTS WILL BE REMOVED AND CLEANED.
2. HAY BALES ARE NOT BE USED ON SITE; ONLY WEED-FREE STRAW BALES ARE APPROVED.
3. OFF-SITE TOPSOIL MUST BE FREE OF INVASIVE SPECIES. THE ENGINEER SHALL BE NOTIFIED OF THE TOPSOIL SOURCE 6 WEEKS BEFORE DELIVERY.

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

STATE OF CONNECTICUT
JOSEPH D. CHRISTIE
0030668
LICENSED
PROFESSIONAL ENGINEER

Designed: ADC
Checked: SAW
Drawn: SJB
Record Drawing by/date:

Revisions:

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ecos ENERGY
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SUITE 1600
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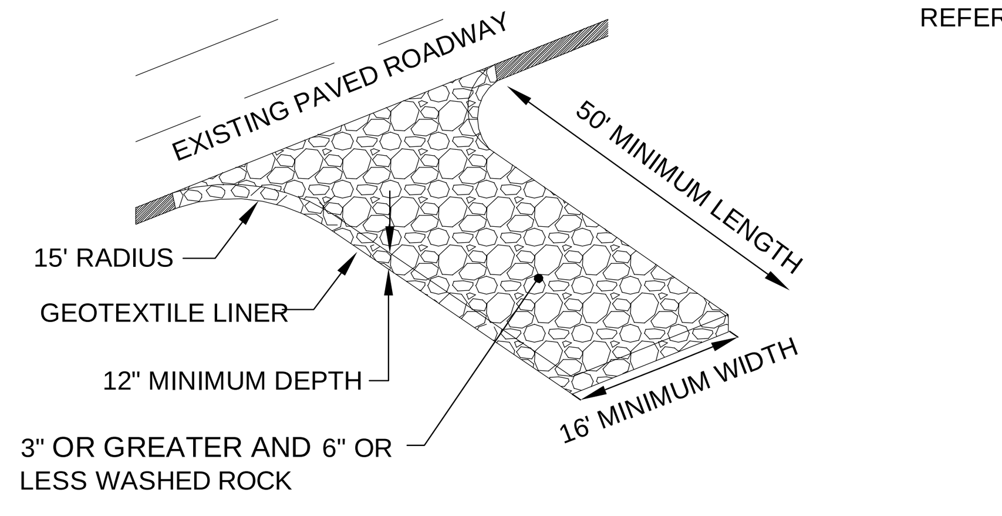
1 WILLIAMS CROSSING DR.
LEBANON, CT 06249
NEW LONDON COUNTY

CIVIL AND EROSION CONTROL NOTES

SITING BOARD REVIEW

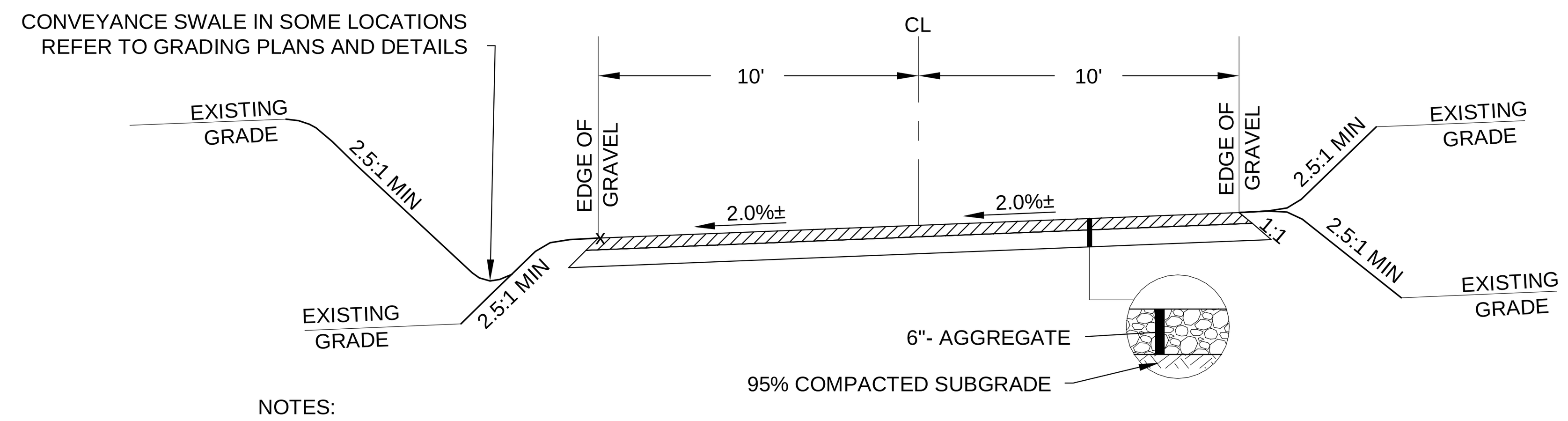
DATE: 01/20/2015
SHEET: 9 of 10



NOTE:

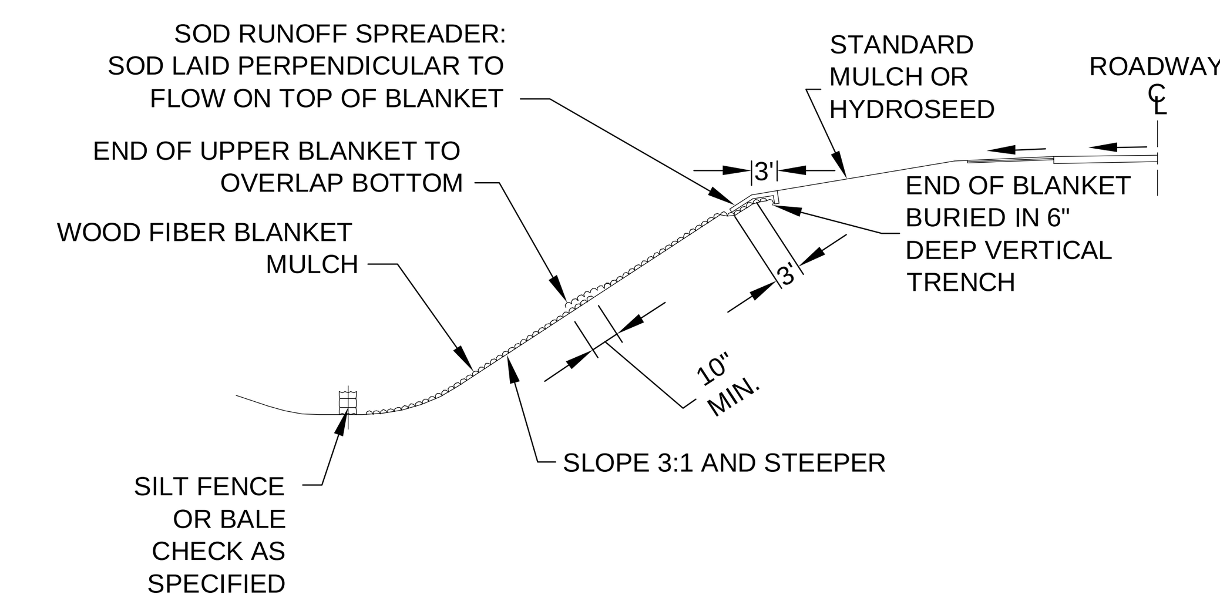
ROCK CONSTRUCTION ENTRANCE SHOULD BE A MINIMUM THICKNESS OF 1.0' AND CONTAIN MAXIMUM SIDE SLOPES OF 4:1. ROCK ENTRANCE SHOULD BE INSPECTED AND MAINTAINED REGULARLY. ROCK ENTRANCE LENGTH MAY NEED TO BE EXTENDED IN CLAY SOILS.

ROCK CONSTRUCTION ENTRANCE



NOTES:
1. CONTRACTOR TO SUBCUT ROADWAY TO EXISTING GRADE ELEVATION TO MAINTAIN EXISTING SITE DRAINAGE PATTERNS WHEREVER POSSIBLE.
2. IN FILL LOCATIONS CONTRACTOR TO GRADE TOE OF SLOPE TO EXISTING GRADE, AND MAINTAIN NATURAL DRAINAGE PATTERNS.
3. IN CUT LOCATIONS CONTRACTOR TO CREATE SWALE ON DOWNSTREAM SIDE, REFER TO GRADING PLANS FOR DETAILS.
4. CONTRACTOR TO COMPACT AGGREGATE TO 95% MAXIMUM DRY DENSITY.
5. REFER TO GEOTECHNICAL RECOMMENDATIONS FOR ADDITIONAL ROADWAY SECTION DESIGN INFORMATION.

ACCESS ROAD DETAIL



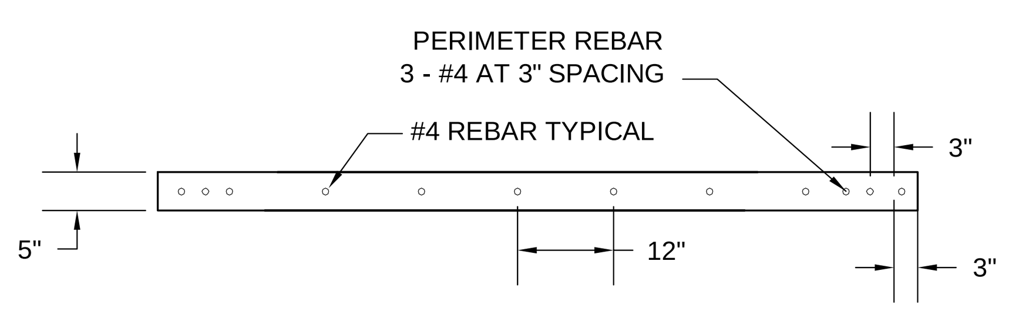
EROSION CONTROL BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)

CATEGORY	SLOPE	VELOCITY
1	FLAT	-
2	3:1	< 5.0 fps
3	3:1	< 6.5 fps
4	2:1	< 7.0 fps

CATEGORY	ACCEPTABLE TYPES
1	STRAW RD 1S, WOOD FIBER RD 1S
2	STRAW 1S, WOOD FIBER 1S
3	STRAW 2S, WOOD FIBER 2S
4	STRAW/COCONUT 2S, WOOD FIBER HV 2S

THE LETTERING DESIGNATION SHALL BE DEFINED AS FOLLOWS:
1S - NETTING ON ONE SIDE
RD - RAPIDLY DEGRADABLE
2S - NETTING ON TWO SIDES
HV - HIGH VELOCITY

EROSION CONTROL BLANKET

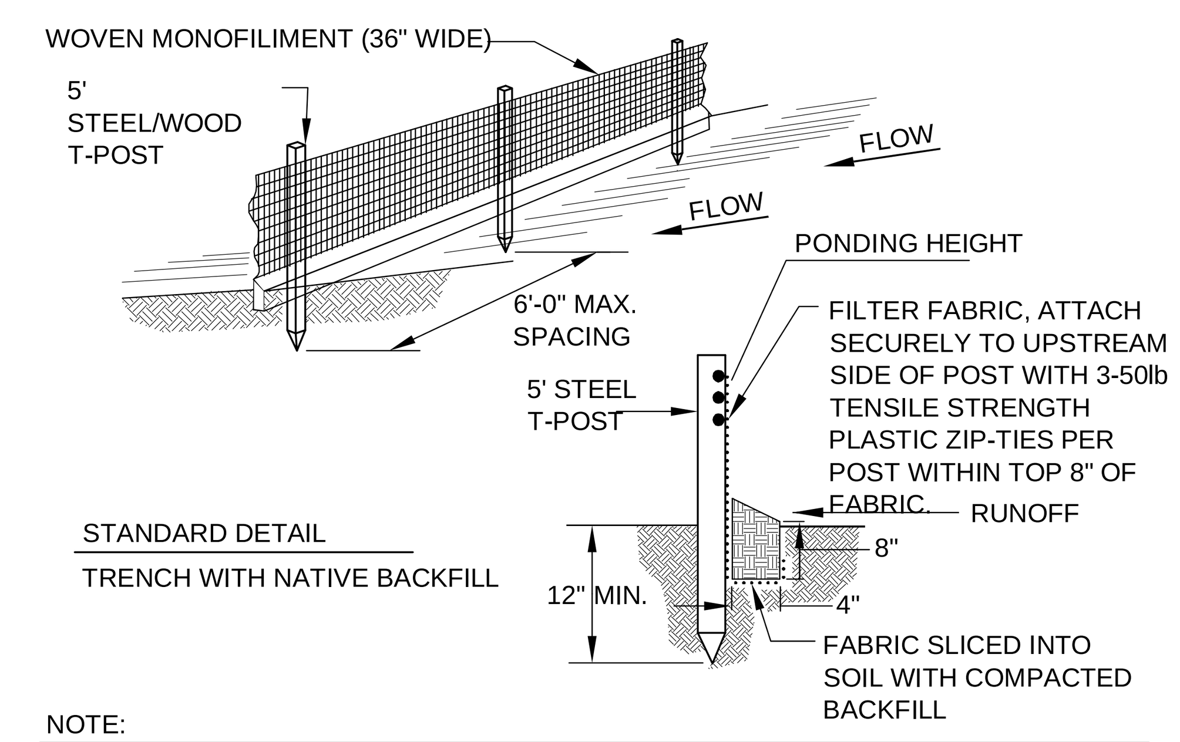


NOTES:
REBAR 3" FROM ALL EDGES & CUTOUTS. 3" SPACING ON FIRST THREE PERIMETER REBARS, 12" ON ALL OTHER INTERIOR.

3,000 PSI CONCRETE. TOP TO BE SMOOTH AND LEVEL. TOP EDGES TO HAVE 1" BEVEL.

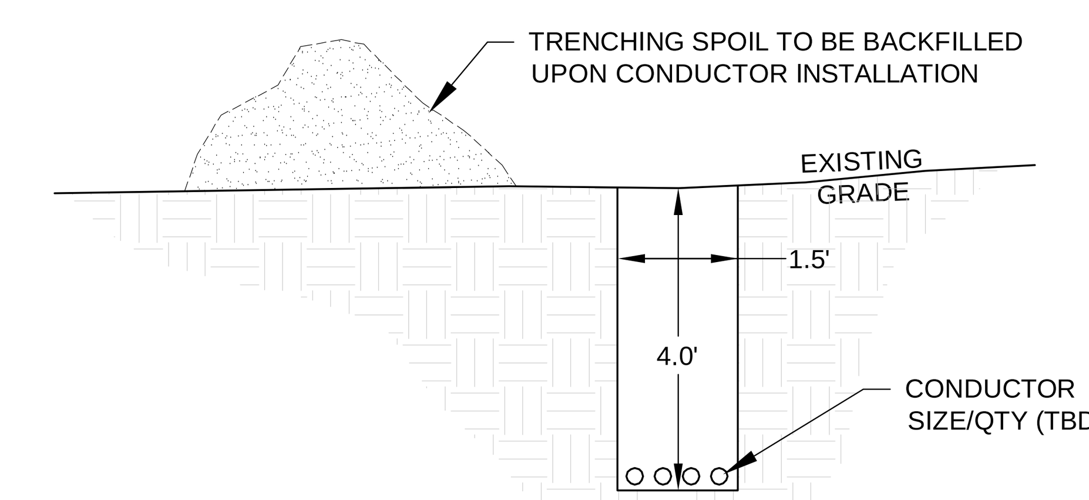
FINAL PAD DESIGN DEPENDENT ON FINAL EQUIPMENT WEIGHT AND STRUCTURAL ENGINEERS DETERMINATION

UTILITY PADS CONCRETE SECTION



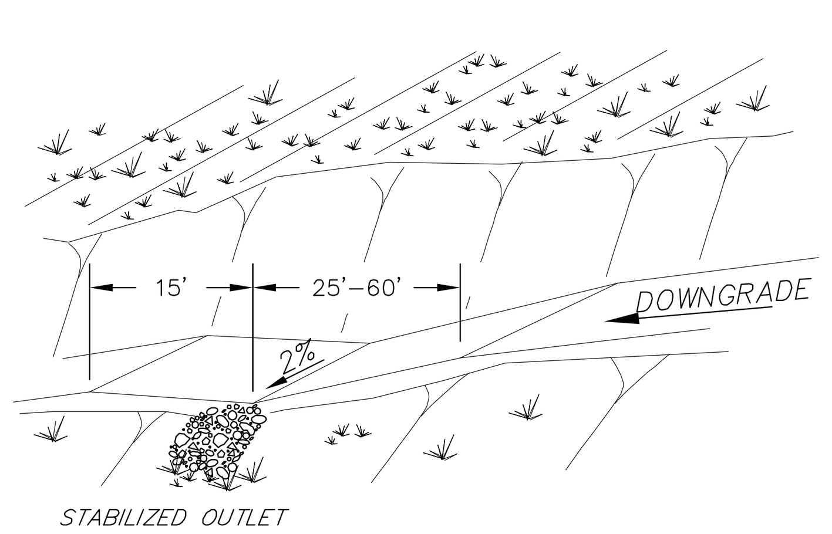
NOTE:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO 1/3 THE HEIGHT OF THE FABRIC OR MORE.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "PONDING HEIGHT".

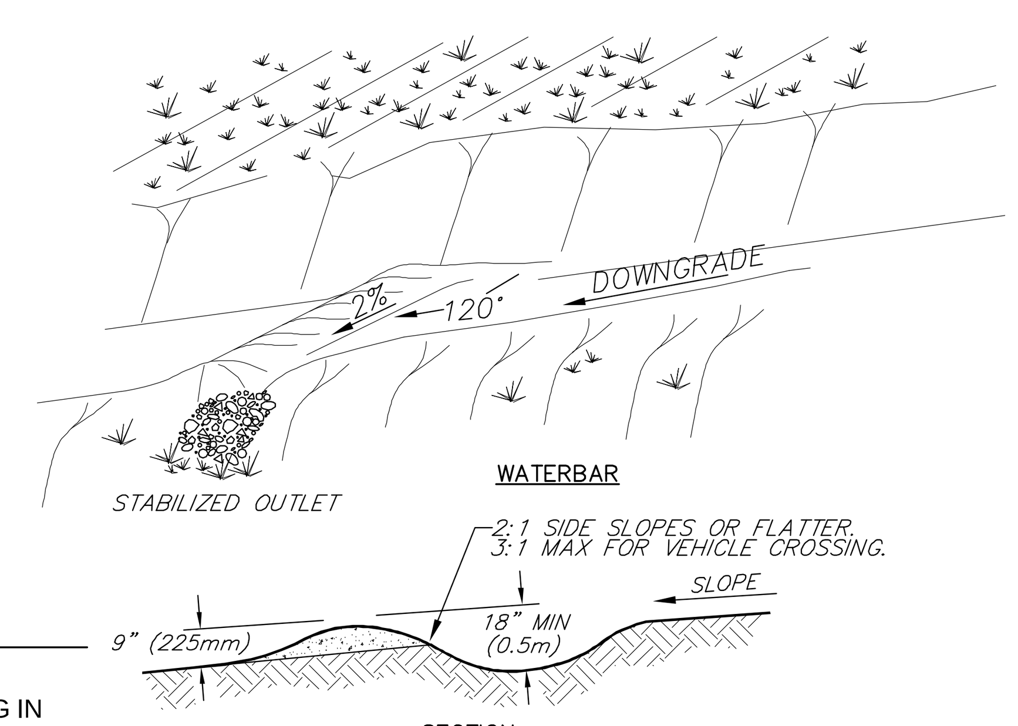
SILT FENCE



NOTES:
1. CONDUCTOR CLEARANCES DEPENDENT ON GEOTECHNICAL PARAMETERS AND ELECTRICAL DESIGN
2. CONDUCTOR SIZING AND QUANTITIES PER TRENCH DEPENDENT ON FINAL ELECTRICAL DESIGN TRENCH DIMENSIONS FOR EARTHWORK QUANTITIES ARE CONSERVATIVE.

TRENCHING DETAIL



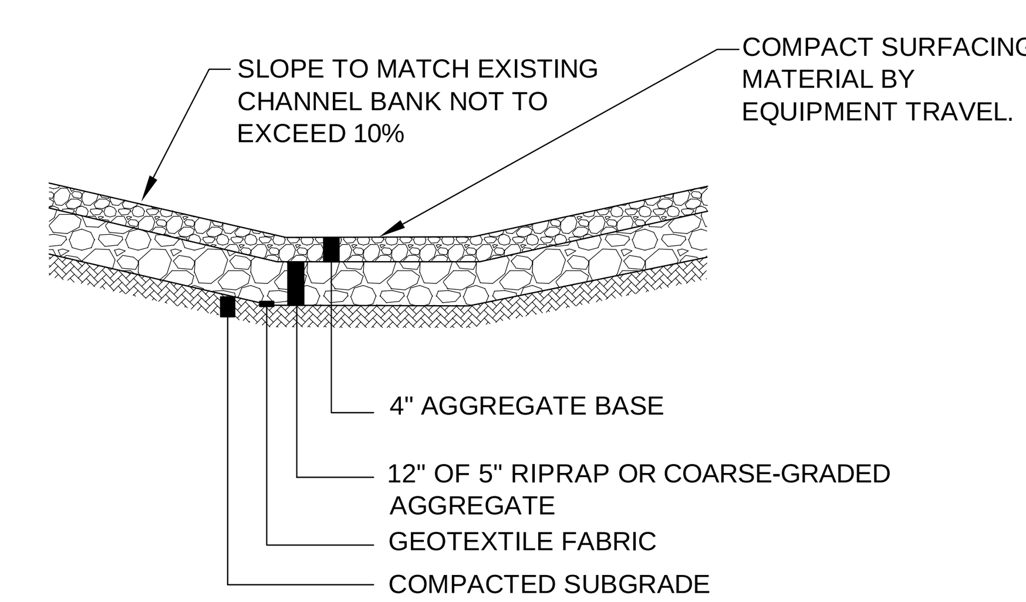


NOTE:
1. CONTRACTOR HAS THE ABILITY DEPENDING ON FIELD LOCATED GRADE AND GRADE TRANSITIONS TO INSTALL ROLLING DIPS OR WATERBARS AT THE RECOMMENDED SPACING IN TABLE 1.
2. ROLLING DIPS AND WATERBARS WILL REQUIRE MAINTENANCE FOLLOWING RAINFALL EVENTS TO ENSURE FUNCTIONALITY.
3. THE ROLLING DIPS AND WATERBARS SHOULD BE BUILT AT AN ANGLE OF 45° TO 60° FROM THE CENTERLINE.
4. THE DIVERSION SHOULD HAVE A POSITIVE GRADE OF 2% MINIMUM.
5. FOR ROLLING DIPS, THE HEIGHT FROM CHANNEL BOTTOM TO THE TOP OF THE SETTLED RIDGE SHALL BE 18 INCHES AND THE SIDE SLOPES OF THE RIDGE SHALL BE 2:1 OR FLATTER.
6. STABLE OUTLETS SHALL EITHER BE AN EXTENSION OF AN ADJACENT SWALE, OR 2 CU. YD. 6" RIP RAP AT OTHER LOCATIONS.
7. SEDIMENT SHALL BE REMOVED FROM THE FLOW AREA THROUGHOUT THE DURATION OF THE PROJECT, REFER TO THE PROJECTS STORMWATER O&M MANUAL.

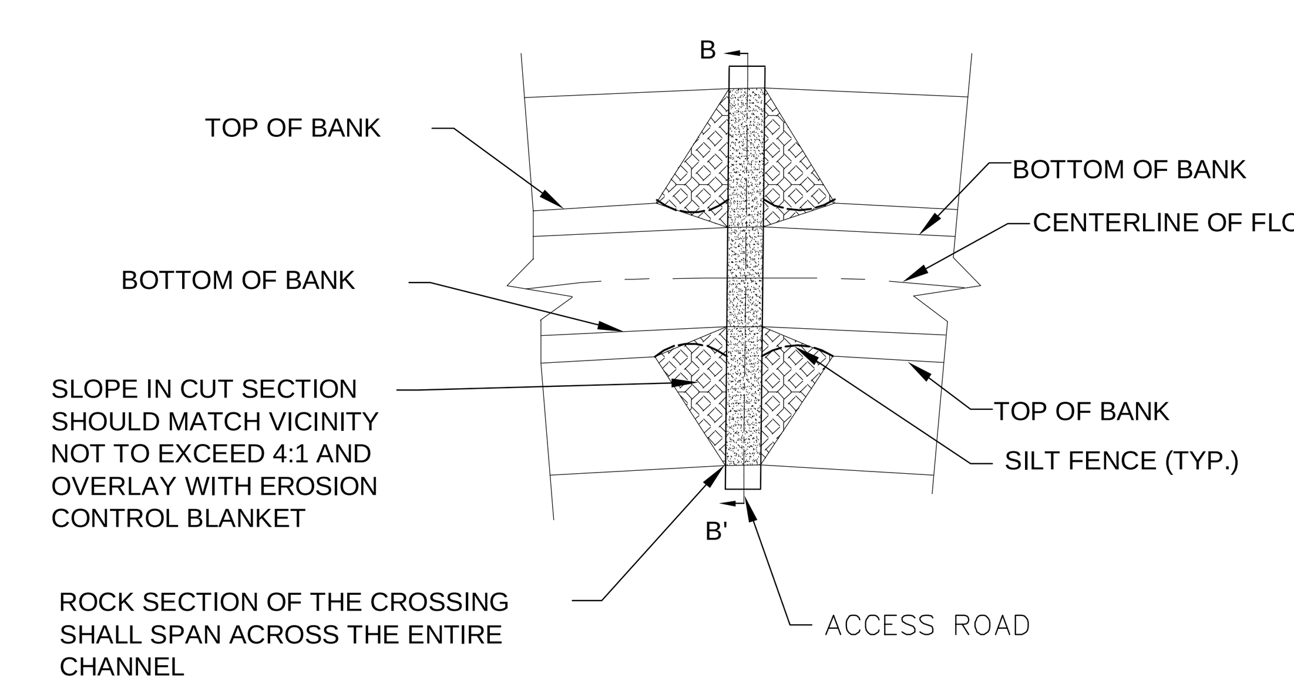
TABLE 1: ROLLING DIP AND WATERBAR SPACING RECOMMENDATIONS

SLOPE (%)	SPACING (FT)
<5	125
5–10	100
10–20	75

ROLLING DIP AND WATERBAR



SECTION B' - B'
PROFILE ALONG CENTERLINE OF LOW WATER CROSSING
NOT TO SCALE



PLAN VIEW OF LOW WATER CROSSING
NOT TO SCALE

NOTE:
1. CROSSINGS SHALL HAVE THE TOP-MOST SURFACE LAYER EVEN OR BELOW THE ELEVATION OF THE EXISTING WETLAND.
3. THE ACCESS ROAD SHALL CROSS THE CONVEYANCE AT 90° ANGLE.
4. THE TOP BED OF THE ROCK CHANNEL CROSSING SHALL CONFORM TO THE EXISTING DITCH CROSS SECTIONAL SLOPES.
5. MATERIAL THICKNESSES MAY BE FIELD ADJUSTED TO ACHIEVE SUFFICIENT BEARING CAPACITIES AS ARE NECESSARY FOR ANTICIPATED ROAD USE.

LOW WATER CROSSING

Westwood
Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344
PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150
www.westwoodps.com

STATE OF CONNECTICUT LICENSED PROFESSIONAL ENGINEER 0030668

Designed: ADC
Checked: SAW
Drawn: SJB
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION
-	01/20/2015	SITING BOARD SUBMISSION

Prepared for:

ecos ENERGY
222 SOUTH 9TH STREET
SUITE 1600
MINNEAPOLIS, MN 55402

0' 50' 100' 150'

WINDHAM SOLAR
1 WILLIAMS CROSSING DR.
LEBANON, CT 06249
NEW LONDON COUNTY

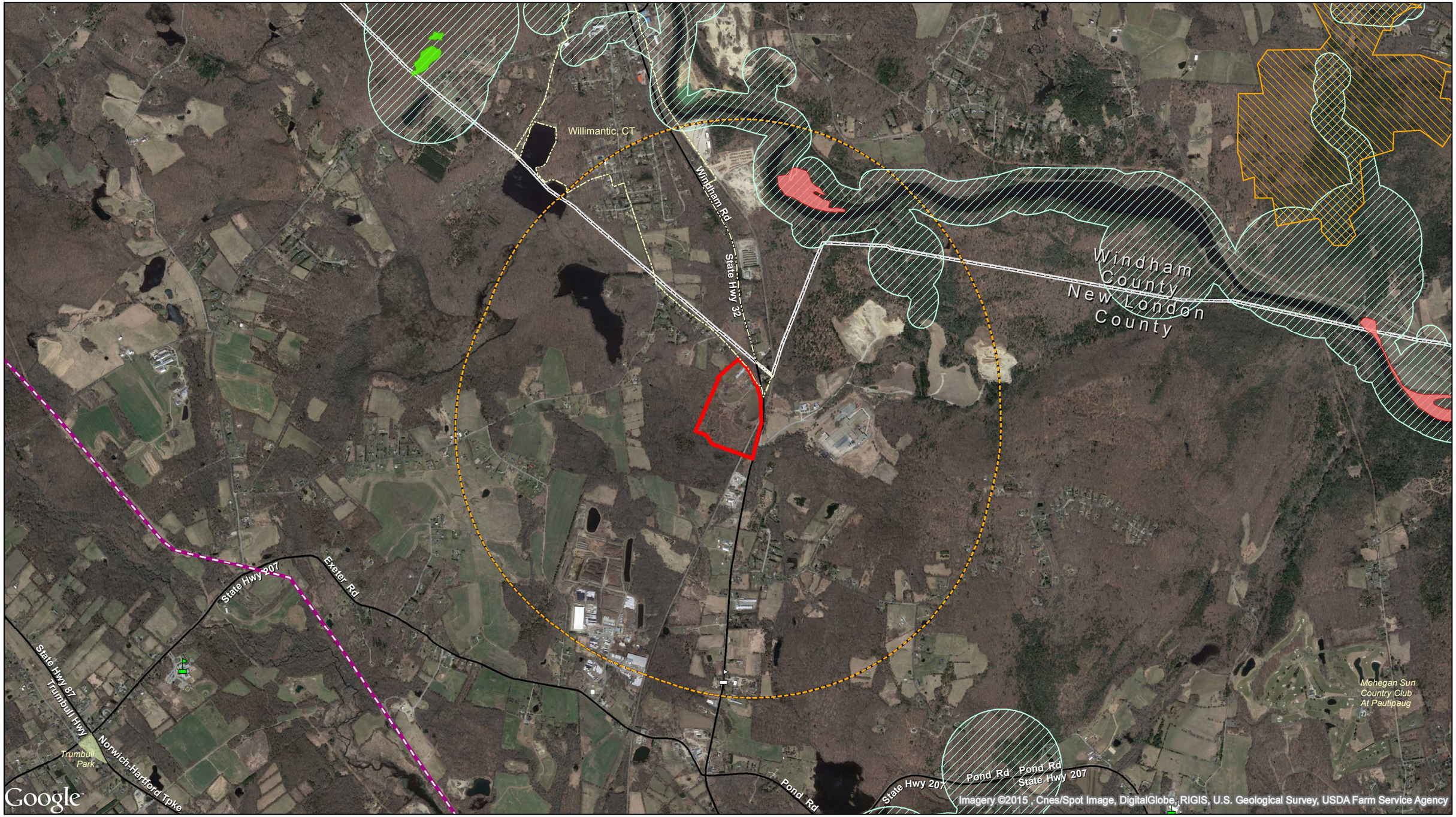
CIVIL AND EROSION CONTROL DETAILS

SITING BOARD REVIEW

DATE: 01/20/2015
SHEET: 10 of 10

Exhibit B

GIS Maps



Data Source(s): USCB (2011); DEEP (2015);
Google Imagery via Arc2Earth (Accessed 2015); Westwood (2015).

Notes:
1.No hospitals within map extent.
2.No group homes within map extent.
3.No historic areas within map extent.
4.No areas of geologic or archaeological interest within map extent.
5.The nearest public water supply source is the Town of Windham, located approximately 2.75 miles north of the project.

Legend

- Project Area
- 1 Mile Project Buffer
- Settled Area
- County Border
- Local Park
- School
- Daycare Center
- 115 kV Transmission Line
- Road
- Natural Diversity Area
- WMA

Critical Habitat

- Palustrine Forested, Floodplain Forest
- Terrestrial Forested, Dry Subacidic Forest

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

N

0 2,000 Feet

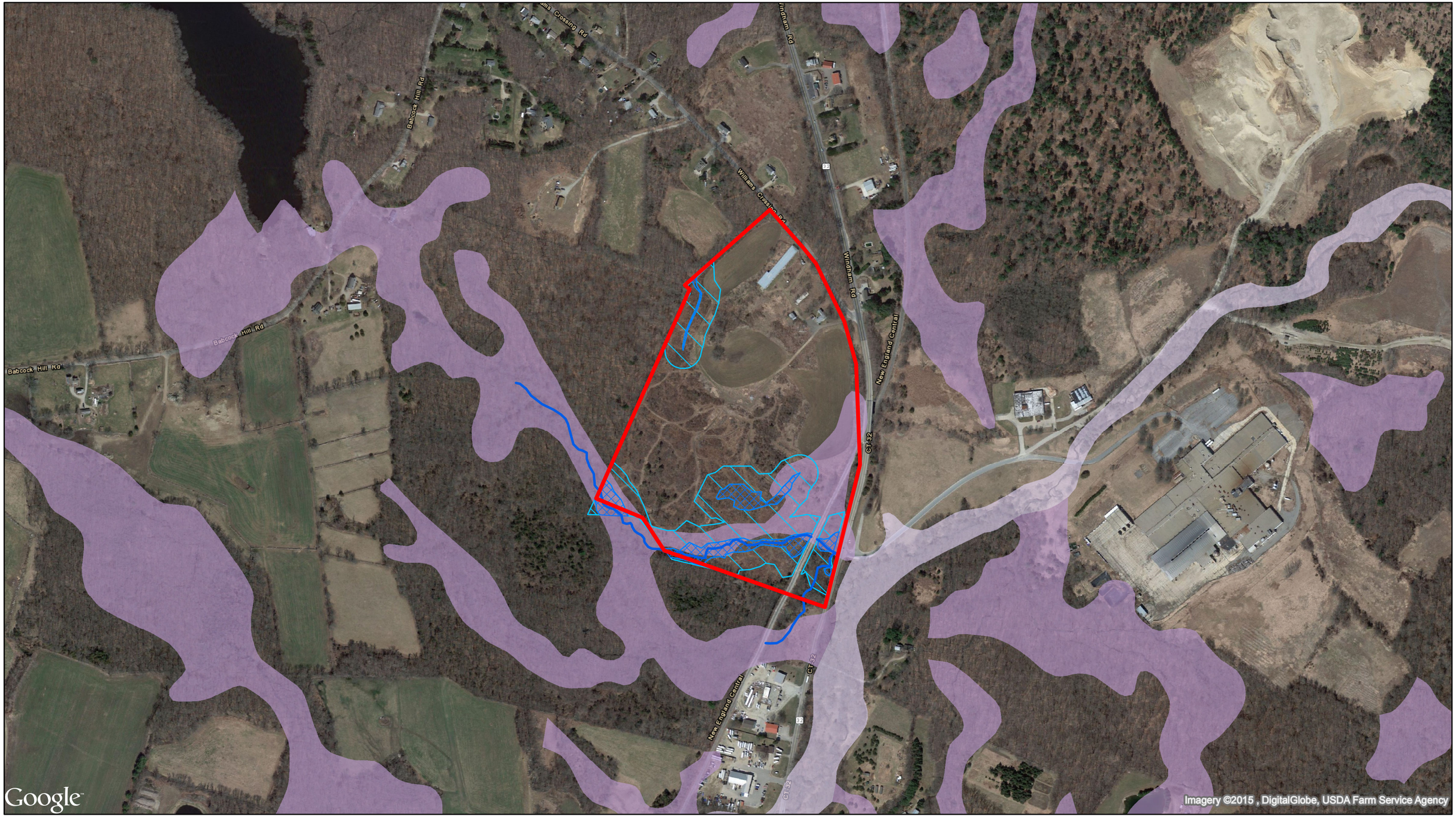
Windham Solar

New London County, Connecticut

Vicinity Map

January 15, 2015

Map Document: P:\00051010\GIS\WS_VicinityMap_150115.mxd LSAmquist 1/15/2015 7:12:11 PM



Data Source(s): DEEP (2015); ESRI WMS (2015); Google Imagery via Arc2Earth (Accessed 2015); Westwood (2015); Highland Soils (2014).

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Notes:
1.Project site is not located within one mile of areas regulated under the Tidal Wetlands Act and Coastal Zone Management Act.

Legend

- Project Area

Inland Wetland Soils

- Poorly Drained and Very Poorly Drained Soils
- Alluvial and Floodplain Soils
- Stream Delineated by Highland Soils on 10-13-2014
- Wetland Delineated by Highland Soils on 10-13-2014
- Wetland Buffer Delineated by Highland Soils on 10-13-2014

N

0 Feet 500

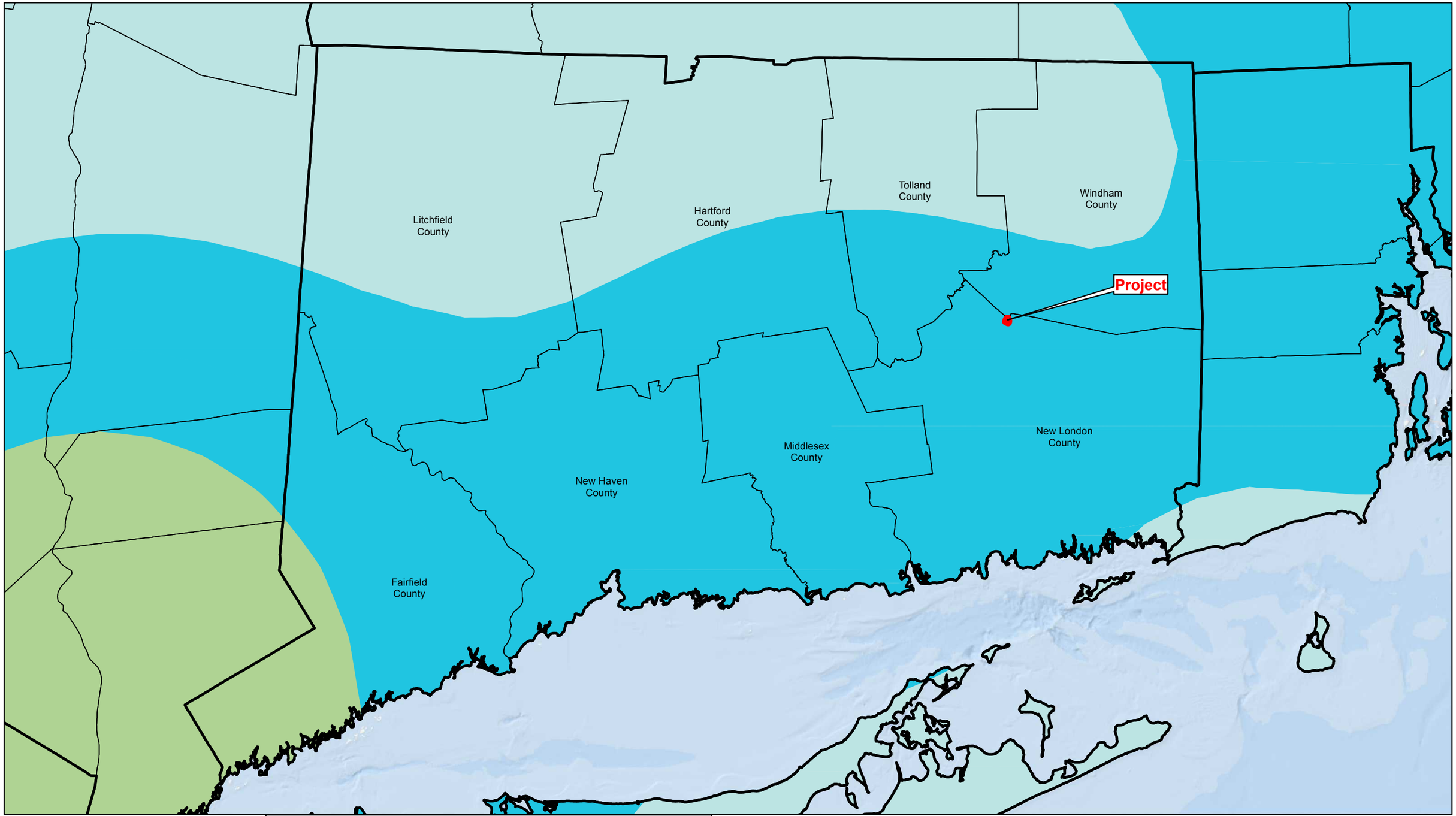
Windham Solar

New London County, Connecticut

Soils and Delineated Wetlands

January 16, 2015

Map Document: P:\00\05101.00\GIS\WS_SoilsAndWetlands_150116.mxd kibbck 1/16/2015 2:58:39 PM



Data Source(s): World Oceans Map via Esri WMS (Accessed 2015); Westwood (2015); USGS Connecticut Seismic Hazard Map (2014).

Legend

- Project Area
- County Boundary
- State Boundary

U.S. Seismic Hazard 2% in 50 years PGA

Hazard (%g)		
0-2	8-10	30-40
2-4	10-14	40-80
4-8	14-20	> 80
	20-30	

N

0 Miles 9

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Windham Solar

New London County, Connecticut

2014 Connecticut Hazard Map

January 16, 2015

Map Document: P:\0005101.00\GIS\WS_Seismic_150116.mxd radevito 1/16/2015 4:05:11 PM

Exhibit C

Facilities Visual Simulations

MAP OF KEY OBSERVATION POINTS ("KOPs") FOR VISUAL SIMULATIONS OF WINDHAM SOLAR PROJECT

Windham Solar Energy Facility

Existing

Key Observation Point: **#1**

1/12/2015 • 2:39 PM • LAT: 41.655000° LONG: -72.158342°

Proposed

Photo simulation of the proposed solar facility as seen looking northwest from Windham Road

WW Design & Consulting, Inc.
1654 Candelero Court
Walnut Creek, CA 94598
info@photosims.com

Windham Solar Energy Facility

Existing

Key Observation Point: **#2**

1/12/2015 • 2:39 PM • LAT: 41.656250° LONG: -72.158163°

Proposed

Photo simulation of the proposed solar facility as seen looking west from Windham Road

WW Design & Consulting, Inc.
1654 Candelero Court
Walnut Creek, CA 94598
info@photosims.com

Windham Solar Energy Facility

Existing

Key Observation Point: **#3**

1/12/2015 • 2:39 PM • LAT: 41.657208° LONG: -72.158425°

Proposed

Photo simulation of the proposed solar facility as seen looking southwest from Windham Rd at Williams Crossing Rd

WW Design & Consulting, Inc.
1654 Candelero Court
Walnut Creek, CA 94598
info@photosims.com

Exhibit D

Communications From the Town of Lebanon

Town of Lebanon
PLANNING AND ZONING COMMISSION
Regular Meeting
Lebanon Town Hall
Lower Level Conference Room
Monday, January 12, 2015 – 7:00 PM

MINUTES

Members Present:	James Jahoda, Chair
	David Fields, Secretary
	Robin Chesmer
	Keith LaPorte
	Francis Malozzi
	Oliver Manning
	Wayne Budney, Alternate
	Brian Grabber, Alternate
Members Absent:	Kathleen Smith
	Lanny Clouser, Alternate
Also Present:	Philip Chester, Town Planner
	Brandon Handfield, Town Engineer
	Holli Pianka, Land Use Secretary

I. The meeting was called to order at 7:00 p.m. by Mr. Jahoda. Wayne Budney was seated as regular member.

II. New Business:

a. **PZ-15-4282:** Town of Lebanon, owner, 780 Trumbull Highway, Assessors Map 235, Lot 37, Jonathan Trumbull Jr. House Museum. Addition of portico and replacement of windows in the Village Green District.

Jason Nowosad, Chairman of the Village Green District Design Review Board stated that the Board met this evening and voted unanimously to recommend approval of the application for a portico and windows replacement with the stipulation that the window grills be three dimensional and either 9 over 9 or 12 over 12. A window specification sheet should be submitted to Mr. Chester for approval prior to issuance of the building permit. It was noted that this historic structure originally included a portico.

Oliver Manning made a motion, seconded by Wayne Budney to approve the application with the following condition: A window-cut sheet be provided by the applicant prior to Mr. Chester signing approval prior to issuance of the building permit. Motion unanimously approved.

III. Old Business: None.

a. **PZ-14-4235**: PLH LLC, owner, 1 Williams Crossing Road, Assessors Map 218, Lot 19. Site plan approval for 5MW ground mounted solar facility in Light Industrial Zone per Zoning Section 4.9.a.2).

Revised site plans dated 1/5/2015 have been submitted as have Town Engineer's 1/8/15 review comments in letter to Mr. Chester.

Brad Wilson, Mike Malone, Steve Broyer of ECOS Energy were present to speak on the application and comment on plan review.

Brad Wilson stated that they incorporated Commission comments from the Dec. 2014 meeting into the revised site plan submitted and are working with the CT Siting Council to obtain required project approval. Steve Broyer noted that the application is now for a 6.1MW facility on the same 25-acre footprint and that a center access road will be incorporated into their design. Mr. Wilson and Mr. Broyer also provided an outlined summary of changes from the previous plans.

With no further discussion, Francis Malozzi made a motion to approve the application, seconded by Keith LaPorte with the following conditions:

1. **Modifications shall be made to the site plan based on all plan review comments by Town Engineer Brandon Handfield in his 1/8/15 letter to Town Planner Philip Chester which is attached and incorporated herein.**

2. **Applicant and Connecticut Siting Council to allow Town opportunity to comment on final site plan.**

Motion approved with 6 in favor (Jahoda, Fields, LaPorte, Malozzi, Manning, Budney) and 1 opposed (Chesmer).

IV. Town Planner's Report:
Mr. Chester updated the Commission on past month developments, including a question from a resident regarding getting approval for a commercial kennel and falconry permit.

David Fields made a motion, seconded by Wayne Budney to request that $100,000 be set aside in Capital Budget for FY 2015-16 for the Open Space Account per POCD and ConsAg. Commission recommendation. Motion unanimously approved.

V. Approval of Minutes:
Keith LaPorte made a motion, seconded by Francis Malozzi, to approve the Dec. 15, 2014 Regular Meeting Minutes as presented. Motion unanimously approved.

VI. Correspondence: DEEP approval for Prides Farm water diversion from area brooks.

VII. **Francis Malozzi made a motion to adjourn, seconded by Keith LaPorte. Motion unanimously approved and meeting adjourned at 8:15 p.m.**

Respectfully Submitted,
Holli E. Pianka, Land Use Secretary
January 16, 2015 *(Minutes are unapproved as of transcription date.)*

TOWN OF LEBANON

DEPARTMENT OF PUBLIC WORKS

579 EXETER ROAD
LEBANON, CT 06249-1506

(860) 642-7565
publicworks@lebanontownhall.org

January 8, 2015

Mr. Phil Chester, Town Planner
Town of Lebanon
579 Exeter Road
Lebanon, CT 06249-1506

Re: Windham Solar Project
1 Williams Crossing Drive, Lebanon CT

Dear Mr. Chester:

As requested, I performed a review an application package for above referenced project. The package included the following:

- Plan set entitled "Windham Solar Civil Construction Documents", Windham solar, LLC owner, sheets 1 of 9 through 9 of 9, dated 12/5/14 as revised through 1/5/15.
- Stormwater modeling summary prepared by Steve Broyer, P.E. dated 12/8/14.
- Inland wetland and watercourses report prepared by Highland Soils, LLC dated 12/14/15.

The proposed project consists of the construction of a solar array on a 39-acre parcel of land located within the Light Industry Zone. My review comments follow:

SECTION 4.9 I – LIGHT INDUSTRY

4.9.c.3 Proposed access to the site is through the existing driveway, which serves residential uses. I recommend that a separate driveway be provided to the solar array facility that is separate from the residential portion of the site. One potential location is to the north of the existing chicken coop structure. Any modified or new driveway connections shall meet the Town of Lebanon Driveway Ordinance and Section 7.4 of the Zoning Regulations.

4.9.c.5 It is my understanding that the solar arrays will be interconnected with underground electrical conduit. All underground utilities shall be shown.

4.9.c.10 The revised plan shows that the existing residential and agricultural structures will remain. If any of these structures will be used for industrial purposes the proposed use shall be depicted on the plan for consideration by the Commission.

SECTION 7.7 SITE DEVELOPMENT PLAN STANDARDS

7.7.a It appears that the scale bar on sheets 5 and 7 is incorrect.

7.7.b.4 Identification of all uses of the structures shall be provided. It is my understanding that the existing garage may contain a residential unit.

7.7.b.7 A 7-foot high chain link security fence with a 6" wildlife gap is proposed around the solar array. To minimize the industrial appearance of the fence, I recommend black vinyl coated fencing be used.

7.7.b.8 The existing water supply well and subsurface sewage disposal system for the existing residential structures and chicken coop should be shown to ensure that they will not be impacted by the proposed industrial use. Investigation in accordance with Section 19-13-B100a of the Public Health Code may be necessary to ensure that a code complying area exists.

7.7.b.9 One (1) low water crossing is proposed along the proposed access drive. Another crossing may be necessary at the southeastern curve low point.

7.7.d.1 The rear and side yard of the property abut a residential district and uses. The proposed planting within the 50' setback should extend to the southwestern corner of the property in accordance with the requirements for a buffer strip.

SECTION 7.8 EROSION & SEDIMENT CONTROL REGULATIONS

7.8.c.2.A A complete narrative shall be provided on the plan containing the minimum requirements in the Regulations and the 2002 Soil Erosion and Sedimentation Control Guidelines. This narrative shall include space for certification by a professional engineer.

7.8.c.2.B.5 The plan proposes to encompass the limit of work with silt fence. Intermediate rows of silt fence or alternate methods should be added to the plan to minimize long runs of unstabilized overland flow.

If you have any questions, please don't hesitate to contact me.

Sincerely,

Brandon J. Handfield, P.E.
Director of Public Works / Town Engineer

Exhibit E

Notice Service List

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FRANKLIN FARMS INC
FRANKLIN FARMS INC
931 ROUTE 32
NORTH FRANKLIN CT 06254-1014

Petition for Declaratory Ruling for Windham Solar LLC

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PAUL SEIBERT
34 WILLIAMS CROSSING RD
LEBANON CT 06249-1339

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JOSEPH M WYSPIANSKI
47 WILLIAMS CROSSING RD
LEBANON CT 06249-1340

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MINNEAPOLIS MN 55402-3382

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NORTHEAST CENTER FOR YOUTH & FAMILIES IN
203 EAST ST
EASTHAMPTON MA 01027-1234

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JAMES J & MARION C BEAUSOLEIL
59 WILLIAMS CROSSING RD
LEBANON CT 06249-1340

Petition for Declaratory Ruling for Windham Solar LLC

Ecos Energy
222 S 9th St
Suite 1600
MINNEAPOLIS MN 55402-3382

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PAUL SEIBERT
PO BOX 55
NORTH FRANKLIN CT 06254-0055

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ANGELO & DEBRA J INTAGLIATA
2 WINDHAM RD
LEBANON CT 06249-1343

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DSDM SCOTT LLC
DSDM SCOTT LLC
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DANIELSON CT 06239-0900

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FRANKLIN FARMS INC
PO Box 18
NORTH FRANKLIN CT 06254-0018

Petition for Declaratory Ruling for Windham Solar LLC

January 20, 2015

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Track and print USPS Certified Mail Labels online with Postage

Hello, Christopher

Balance : 6.40

USPS Summary Tracking Report

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USPS History	
Date	1/20/2015
Date Verified	
Electronic Delivery Confirmation	
Return Receipt (Signature)	

TranID	1494171 Account # 34303 User # 34303
ToName	Oscar Hernandez
ToCompanyName	
Add1	121 Walnut St
Add2	
City	Willimantic
ST	CT
ZIP	06226-

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Office of the Attorney General
George C. Jepsen, Attorney General
55 Elm Street
HARTFORD CT 06106-1746

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Department of Agriculture
Steven K. Reviczky, Commissioner
165 Capitol Avenue
HARTFORD CT 06106-1659

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Office of Policy and Management
Benjamin Barnes, Secretary
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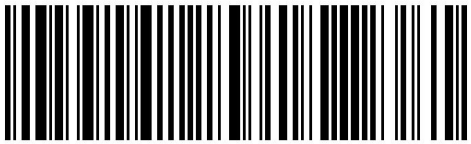

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Department of Transportation
James P. Redeker, Commissioner
2800 Berlin Turnpike
NEWINGTON CT 06111-4113

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Department of Consumer Protection
Jonathan A. Harris, Commissioner
State Office Building
165 Capitol Avenue, Room 103
HARTFORD CT 06106-1630

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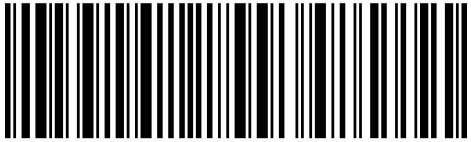

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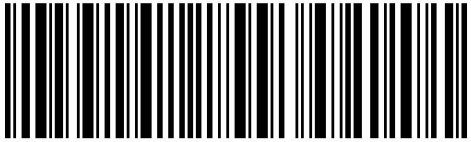

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Department of Energy & Environmental Protection
Rob Klee, Commissioner
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HARTFORD CT 06106-5127

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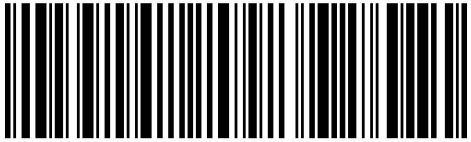

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Council on Environmental Quality
Susan D. Merrow, Chair
79 Elm Street
HARTFORD CT 06106-1650

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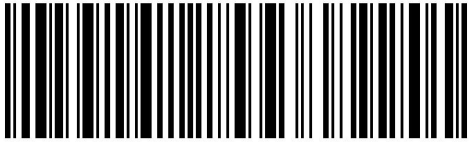

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Public Utilities Regulatory Authority
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Ten Franklin Square
NEW BRITAIN CT 06051-2655

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Suite 1600
MINNEAPOLIS MN 55402-3382

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Department of Administrative Services
Melody A. Currey, Commissioner
State Office Building
165 Capitol Avenue, Room 427
HARTFORD CT 06106-1629

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Suite 1600
MINNEAPOLIS MN 55402-3382

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CT State Representative District 047
Doug Dubitsky, State Representative
Legislative Office Building
Room 4046
HARTFORD CT 06106-1591

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MINNEAPOLIS MN 55402-3382

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CT State Senate District S19
Catherine A. Osten, State Senator
Connecticut House Republican Office
L.O.B. Room 4200
HARTFORD CT 06106

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Suite 1600
MINNEAPOLIS MN 55402-3382

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Town of Lebanon
Joyce Okonuk, First Selectman
579 Exeter Rd
LEBANON CT 06249-1506

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Exhibit F

Phase I Environmental Site Assessment

Shanahan Consulting

36 PENFIELD PLACE, FARMINGTON, CONNECTICUT 06032
TELEPHONE: (860) 677-2674 EMAIL: ewshanahan@sbcglobal.net

PHASE I
ENVIRONMENTAL SITE ASSESSMENT
OF
1 WILLIAMS CROSSING ROAD
Lebanon & Franklin, Connecticut

OCTOBER 2013

Prepared for:

Northeast Wood Products, LLC
c/o Rome McGuigan
Hartford, Connecticut

Prepared by:

Shanahan Consulting
Farmington, Connecticut

Document No. 1325R01.WPD

SIGNATURE OF ASSESSOR

This assessment was performed by the individual whose signature appears below. Questions regarding this report should be directed to this person.

Edward W. [Ned] Shanahan, LEP
Senior Scientist

QUALIFICATIONS OF ASSESSOR

Edward W. Shanahan has over 30 years experience as an environmental consultant, including more than 20 years focusing on site assessments and related studies in Connecticut. Mr. Shanahan has evaluated environmental conditions on hundreds of properties, ranging from undeveloped lots to complex industrial facilities. For six years, he managed the completion of site assessments at Haley & Aldrich Inc. (1986-89) and Ground Water, Inc. (1989-92). In December 1992, he founded Shanahan Consulting, a firm specializing in site assessments and reviews of site assessments.

Mr. Shanahan received a Bachelor of Science degree with distinction in Civil & Environmental Engineering from Cornell University in 1973 and a Master of Science degree in Environmental Earth Sciences from Stanford University in 1974.

Mr. Shanahan is a Licensed Environmental Professional [LEP] in the State of Connecticut.

AAI DECLARATIONS

Shanahan Consulting declares that, to the best of our professional knowledge and belief, Edward W. Shanahan meets the definition of Environmental Professional as defined in Part 312.10 of this part [40 CFR Part 312 (the federal CERCLA specifications for All Appropriate Inquiries)].

Edward W. Shanahan has the specific qualifications based on education, training, and experience to assess properties of the nature, history, and setting of the subject properties. We have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

TABLE OF CONTENTS

FIGURES

Figure 1 - Site Location Map

Figure 2 - Site Plan

APPENDICES

Appendix A - DEEP Policy on the Development of Former Agricultural Lands

I. SUMMARY

Our assessment of 1 Williams Crossing Road in the Towns of Lebanon and Franklin did not encounter evidence of spills of petroleum products or hazardous substances on site.

We recommend the excavation and removal of an inactive underground heating oil tank outside the residence. Soil samples collected in the grave of the tank should be tested in a laboratory to evaluate whether the tank has leaked. If soil contamination is detected, then we recommend the excavation and removal of contaminated soils with the goal of meeting remediation criteria established in the Connecticut Remediation Standard Regulations [RSR].

We recommend the testing of surficial soil samples in a former orchard area on the site to evaluate whether residues of persistent pesticides are present in soil. Connecticut Department of Energy & Environmental Protection guidelines provide for various methods to address the presence of pesticides on former agricultural land being developed including the placement of contaminated soil under buildings and parking lots or the mixing of contaminated soil with "clean" soils to reduce pesticide concentrations.

We recommend the testing of water samples collected from the two site supply wells for standard potability parameters and for VOCs [volatile organic compounds].

The site has been occupied by a farm/residence since at least 1860. Farming operations have included an egg farm, an orchard, and row crops. The site does not appear to be regulated as an "establishment" under the Connecticut Transfer Act [CGS 22a-134].

Ground water is classified "GA" (regulated as meeting drinking water quality criteria). Public water is not available on Williams Crossing Road adjacent to the site and the site uses two supply wells for water supply purposes. Public water is reportedly present on Route 32 in the Town of Windham to the north.

We did not identify reports of spills or contamination on off-site properties that appeared to pose a significant risk of ground water contamination on site.

The work scope completed for this assessment included: a review of historical maps, city directories, and aerial photographs; a review of municipal records; a review of the files of the Connecticut Department of Energy & Environmental Protection; a review of environmental databases; an interview with the site owner; and a visit to the site to view surface conditions.

II. INTRODUCTION

A. Purpose

The purpose of this Phase I Environmental Site Assessment is to evaluate the likelihood of subsurface contamination involving petroleum products or hazardous substances on site in connection with the proposed transfer of the site.

B. Location

The site is located in the Towns of Lebanon and Franklin near the southern border of the Town of Windham. Refer to Figure 1 for site location. Due to constraints of scale, Figure 1 does not delineate a narrow railroad property that is not part of the site, but is bordered on the west and east by site land.

C. Scope of Work

The following tasks were performed for this assessment:

1. A review of aerial photographs, historical maps, and city directories.
2. A review of several Federal and State environmental databases listing known or suspected sources of subsurface contamination.
3. A review of selected files at the Connecticut Department of Energy & Environmental Protection [DEEP].
4. Contacts with several offices of the Towns of Lebanon and Franklin.
5. An interview with the site owner.
6. A review of hydrogeologic data for the area.
7. A visit to the site to view surface conditions.

The work scope did not include the chemical testing of soil or water samples. Shanahan Consulting did not encounter previous environmental assessment reports concerning the site.

III. SITE CONDITIONS

A. Land and Buildings

The approximately 44-acre site includes the following parcels of land: (1) Lot 19 on assessor's maps 218 & 232 in the Town of Lebanon and using an address of 1 Williams Crossing Road and (2) Lots 1 & 2 on Map 3 in the Town of Franklin. We have elected to refer to the three parcels as 1 Williams Crossing Road in Lebanon and Franklin in this report.

Lot 19 in Lebanon includes a residence (erected in circa 1860), a garage with upstairs apartment (apparently erected in the 1950s), and a chicken coop (apparently erected in the 1950s or 1960s with an addition in 1987).

Former buildings on Lot 19 have included: (1) a small chicken coop located west of the residence (erected between 1934 and 1951 and collapsed in the mid 2000s) and (2) two former barns southwest of the residence (both erected before 1934 with the barn closer to residence torn down in the late 1990s and the one farther from residence torn down in the 1980s).

We identified no current or former buildings on the two Franklin lots.

The ground surface on site generally slopes downward from west to east.

B. Abutting Properties

Nearby properties exhibit a mix of residential, commercial, and undeveloped uses. The site is bordered as follows: (1) on the west by a residence on Williams Crossing Road and by undeveloped land; (2) on the south by Uncas Gas at 906 Route 32 in Franklin and by undeveloped land; (3) on the east by Route 32 (and across Route 32 by Franklin Mushroom Farms at 931 Route 32 in Franklin); and (4) on the northeast by Williams Crossing Road (and across the road by Route 32, a residence at 4 Windham Road in Lebanon, and by residences on Williams Crossing Road).

New England Central Railroad owns an approximately 40-foot-wide corridor including active railroad tracks on the eastern part of the site in the Town of Franklin.

C. Utilities

Public water and public sanitary sewer are reportedly not available on Williams Crossing Road and the site uses two supply wells (one at the residence and a second at the chicken coop) and two septic systems (one at the residence and one at the garage).

The site owner reported that public water is available on Route 32 in Windham at a location several hundred feet north of the site.

The bedrock supply well at the chicken coop is reported to be 325 feet deep (according to a note seen on the wall near the well water tank). The well serving the residence is reported to be a bedrock well of unknown depth.

We encountered no data on the wells or septic systems in files at Lebanon Town Hall. We visited the offices of Depot Pump & Supply of Franklin, a business that had reportedly serviced the supply well at the residence, but an employee provided no data on the well.

The residence and the garage are heated by heating oil stored in separate aboveground tanks in each building. The chicken coop was heated by propane gas when it operated.

D. Observations During Site Visit

Ned Shanahan of Shanahan Consulting visited the site on 15 October 2013 accompanied by David Mieczynski of DSD Cedar Hill LLC [site owner] and by Bruno Hayn [an agent for the potential site purchaser].

1. Interior Observations

The basement of the residence included a 275-gallon aboveground heating oil tank. No spills were noted from the tank. A filter at one end of the tank had apparently been leaking as marked by the presence of oil in a plastic bucket below the filter. Oil was not observed on the dirt floor near the filter or tank. A well water storage tank was present in the basement and was connected to the well located west of the building under a wooden board.

A 275-gallon aboveground heating oil tank was observed on the ground floor of the garage. No leakage was seen from the tank. Ned Shanahan did not observe petroleum products, chemicals, or floor drains in the garage.

The chicken coop was not in use. A well water tank was reportedly connected to a supply well located a short distance west of the building in an overgrown area. Numerous floor drains were seen in the coop. The site owner reported that the drains had discharged to a depression located east of the coop.

With the exception of the two aboveground heating oil tanks, Ned Shanahan did not observe petroleum products or chemicals in the site buildings.

2. Outdoor Conditions

The site is occupied by the three buildings, a gravel driveway, corn fields, woods, and overgrown land. Trees had reportedly been removed from the southern end of the site as a source of wood.

Ned Shanahan observed no remnant fruit trees in the area of an old orchard seen on 1951 aerial photographs south of the residence.

The fill pipe for the inactive underground heating oil tank was visible above the ground surface east of the residence. No oil stains were seen on the unpaved ground at the fill pipe.

A one or two-gallon plastic container of possible gasoline or kerosene was seen west of the house. No sign of leakage was seen at the container location.

Ned Shanahan walked on numerous paths on the site, along the railroad tracks that run through the eastern part of the site (the railroad track corridor is off site), and around the exteriors of the site buildings. Some portions of the site were heavily overgrown with vegetation which hindered observations of the ground surface.

Ned Shanahan did not observe evidence of spills of petroleum products or hazardous substances on the site. The underground tank fill pipe outside the house was the only evidence of underground tanks seen on site.

E. Geology

The published Surficial Materials Map of Connecticut shows the eastern edge of the site to be covered by sand and gravel, while the bulk of the site is covered with glacial till.

The published Bedrock Geological Map of Connecticut maps bedrock under the site as a mixture of schist and gneiss.

F. Ground Water

Ground water beneath the site is classified "GA", indicating that the DEEP regulates ground water as meeting drinking water standards. The cleanup of spills in "GA" areas is governed by more stringent requirements than are used in areas where ground water is regulated as degraded ("GB" areas).

Surface topography suggests that shallow ground water on the site may flow toward the east. Our evaluation of ground water flow is based on surface topography alone and may be inaccurate.

We were not provided with any well water test data for the site supply wells. The site owner reported that the well at the residence had passed a standard potability test, but he did not have the laboratory report.

A 1984 DEEP map of community water systems in Connecticut shows no public supply wells within approximately one mile of the site. The site is not included in Aquifer Protection Areas mapped by the DEEP.

G. Surface Water

Cold Brook, which flows through the southern part of the site, is classified "GA" by the DEEP, indicating that the DEEP regulates discharges to the brook with the goal of maintaining all beneficial uses of the water.

IV. HISTORY OF SITE USE

A. Site Occupants/Activities

Historical maps, aerial photographs, city directories, personal interviews, and records at municipal offices were used to compile the history of site use which is tabulated below. A lack of Sanborn Fire Insurance Maps and a limited number of city directories for the site area hindered our ability to research site occupants.

The site has been used for residential purposes since at least 1860. An 1868 county atlas shows the residence of S. Downer on the site. The site has been used for farming during most of its history, including: an apparent fruit orchard (as seen on a 1951 aerial photograph), the production of eggs (from at least the 1960s to the early 1990s), and the growing of crops. Egg production was performed by the Orbuch family (as documented via a 1964 building permit for an egg room) and by Arbor Acres (which reportedly leased and renovated the coop in 1987).

B. Site Owners and Environmental Liens

1. Site Owners

Owners of the site, as taken from Lebanon and Franklin land records are tabulated below.

SITE OWNERS	
YEARS	OWNER(S)
Since 2004	DSD Cedar Hill LLC
1995 to 2004	Sabina Orbuch
1955 to 1995	Eli & Sabina Orbuch
1955	Celia Belman
1948 to 1955	Eli Orbuch
1948	Eli Orbuch & Jacob Biber
1933 to 1948	Brana Starr
1931 to 1933	Silverio Vitiello & Luigi Conti
1931	Abraham Halpern

2. Environmental Liens

We reviewed land records at the offices of the Lebanon and Franklin town clerks and found no environmental liens or orders concerning the site. The review was performed using computer databases in both towns and covered the period from 1955 to present.

C. Review of Aerial Photographs

Our assessment included a review of aerial photographs dated 1934, 1951, 1965, 1970, 1975, 1980, 1986, 1990, and 1995.

The residence is visible on each of the nine sets of photographs covering the period from 1934 to 1995. The garage building and the chicken coop on the northwestern corner of the site are visible on photographs from 1965 to present.

The 1951 photograph shows an orchard south of the residence covering an area estimated at 500 feet by 120 feet. The orchard is not present in the next earlier available photograph dated 1934 and appears to be overgrown in the subsequent photograph dated 1965. In 1951, a barn is visible near the northwest corner of the orchard. The orchard is missing numerous trees on the 1951 photograph.

We observed no evidence of waste disposal activities on the site on the aerial photographs.

We observed no environmental concerns on properties near the site on the aerial photographs.

V. OIL AND CHEMICAL USAGE AND REPORTED SPILLS

A. Underground Petroleum Storage Tanks

An inactive underground heating oil tank of unknown size and age is located east of the residence. The site owner reported that the tank had not been used during the period of his ownership (since 2004). Ned Shanahan contacted Danielson Oil Company concerning the tank (a Danielson Oil label was seen on an old furnace in the basement of the home), but Sean of the service department had no record of the underground tank.

David Mieczynski of DSD Cedar Hill LLC [site owner] reported no knowledge of other former or current underground tanks on site.

B. Use and Disposal of Petroleum Products and Hazardous Chemicals

A 275-gallon aboveground heating oil tank is located in the basement of the residence and a second 275-gallon aboveground heating oil tank is located on the ground floor of the garage.

An apparent fruit orchard was seen on a 1951 aerial photograph of the site. The orchard was not present on a 1934 photograph and appears to be abandoned in 1965. During the period when the orchard operated (an unknown period between 1935 and 1964), pesticides used in orchards included lead arsenate (used from circa 1892 to 1940) and DDT (used from circa 1940 to 1972). Arsenic, lead, and DDT can persist in shallow soils for a very long time.

Runoff containing chicken manure from the site coops may lead to elevated concentrations of nitrogen compounds in soils. We do not consider nitrogen compounds to be hazardous substances, but they may affect the potability of local ground water.

C. Reported Spills and Contamination

We encountered no records of spills or contamination concerning the site. The DEEP files did not contain spill reports for the site.

David Mieczynski reported no knowledge of spills or contamination involving petroleum products or hazardous substances on site.

VI. REVIEW OF REGULATORY DATA

A. Review of Connecticut DEEP Files

On 8 October 2013, Ned Shanahan of Shanahan Consulting reviewed information on file with the Bureau of Water Management, the Oil & Chemical Spills Unit, the Waste Engineering & Enforcement Division, and the Underground Storage Tank Unit of the Connecticut DEEP. The file review included the following specific resources:

1. the correspondence files and P-5 inspection reports of the Bureau of Water Management.

2. the correspondence files of the Hazardous Waste Unit.

3. a computer database of underground storage tank [UST] registrations and leaking underground storage tank [LUST] incidents.

4. spills records including: (1) a computer database of spill reports covering the period from 7-1-1996 to present, (2) original spill reports in the period from 1970 to 1996, and (3) spills correspondence files in the period from the 1970 to 2006 (the entire period of record available for public review). The review of spill records included the Towns of Lebanon and Franklin.

5. a computer database of hazardous waste manifests (for the period from 1-1-1984 through 12-31-2008) for the site address. No manifests were found for the site.

We encountered no references to the site in our DEEP file search.

B. Review of Environmental Inventories

The following 16 environmental inventories or databases of known or suspected locations of contamination or oil/chemical usage were reviewed: (1) the State of Connecticut hazardous waste disposal site list; (2) the State of Connecticut Superfund Priority List; (3) the U.S. EPA Superfund National Priority Site List; (4) the U.S. EPA CERCLIS hazardous waste site inventory; (5) the U.S. EPA list of CERCLIS properties where no further remedial action is planned [NFRAP]; (6) the U.S. EPA list of RCRA Treatment, Storage, and Disposal Facilities (TSDFs); (7) the U.S. EPA list of RCRA Hazardous Waste Generators; (8) the U.S. EPA Emergency Response Notification System (ERNS) list of spills; (9) the U.S. EPA list of federal Brownfield Sites; (10) the DEEP list of active solid waste landfills; (11) the DEEP database of registered underground storage tanks [USTs] and leaking underground storage tanks [LUSTs]; (12) the DEEP Leachate and Wastewater Discharges Map (which show the locations of landfills, leaking underground tanks, wastewater lagoons, road salt piles, and other contaminant sources known to the DEEP); (13) the DEEP list of Contaminated and Potentially Contaminated Sites [C&PC Sites] including properties with Environmental Land Use Restrictions [ELURs] and properties where engineering controls were instituted to address subsurface

contamination; (14) the DEEP list of state Brownfield Sites; (15) the DEEP list of Notifications of Significant Environmental Hazards; and (16) the DEEP Draft Engineered Controls Database.

The site was not included in the 16 databases or inventories reviewed.

C. Review of Municipal Records

Ned Shanahan reviewed records at the town halls of Lebanon and Franklin and contacted the fire marshals of both towns as described below.

Lebanon offices - **(1) assessor** - reviewed 2003 and current field cards and assessor's maps; **(2) town clerk** - reviewed deeds and property maps and searched for environmental liens; **(3) building-health-zoning**- reviewed combined file for these departments, file included several building permits in the period from 1963 to 2009, no data on septic systems or supply wells found; and **(4) fire marshal** - contacted Fire Marshal Scott Schuett via email and he reported no records concerning the site.

Franklin offices - **(1) assessor** - reviewed current field cards and assessor's maps; **(2) town clerk** - reviewed deeds and property maps and searched for environmental liens; and **(3) fire marshal** - Fire Marshal Eric Deschamps reported no records concerning the site.

Our review of municipal records did not encounter reports of spills or contamination on site.

VII. POTENTIAL OFF-SITE ENVIRONMENTAL CONCERNS

The results of our review of known or suspected sources of contamination at properties near the site are tabulated below. The research included the following data sources:

1. the EPA National Priority Site List for locations within approximately one mile of the site.

2. the EPA list of RCRA Treatment, Storage, and Disposal Facilities (TSDFs) for locations within approximately one mile of the site.

3. the EPA CERCLIS list of hazardous waste disposal areas for locations within approximately one-half mile of the site.

4. the Connecticut Superfund Priority List of high priority hazardous waste disposal sites for locations within approximately one mile of the site.

5. the Connecticut hazardous waste disposal site list for locations within approximately one-half mile of the site.

6. the DEEP Leachate and Wastewater Discharges Map for locations within approximately one-half mile of the site.

7. the DEEP list of active solid waste landfills for locations within approximately one-half mile of the site.

8. DEEP inventories of LUST sites (leaking underground storage tanks) for locations within approximately one-half mile of the site.

9. the EPA list of CERCLIS properties where no further remedial action is planned [NFRAP] for locations within approximately one-half mile of the site.

10. the DEEP list of sites where engineered controls have been instituted to address contamination within approximately one-half mile of the site.

11. the EPA list of federal Brownfield Sites for locations within approximately one-half mile of the site.

12. the DEEP list of state Brownfield Sites for locations within approximately one-half mile of the site.

13. the DEEP Oil & Chemical Spills Unit files of spill incidents for locations adjoining the site (referred to as "Spill Reports" in table below).

14. the DEEP database of registered underground tanks for locations adjoining the site (referred to as "Tank Registration" below).

15. the EPA Emergency Response Notification System (ERNS) list of spills for locations adjoining the site.

16. the EPA list of RCRA Hazardous Waste Generators for locations adjoining the site.

17. the DEEP list of Contaminated and Potentially Contaminated Sites for locations adjoining the site.

18. the DEEP list of properties subject to Environmental Land Use Restrictions [ELURs] (as included on the DEEP list of Contaminated & Potentially Contaminated Sites) for locations adjoining the site.

19. the DEEP list of Notifications of Significant Environmental Hazards for locations adjoining the site.

20. potential concerns identified in the immediate vicinity of the site during our historical research, site visit, or review of DEEP files.

TABLE 1
POTENTIAL OFF-SITE ENVIRONMENTAL CONCERNS
1 Williams Crossing Road, Lebanon & Franklin

Off-Site Property	Approximate Distance From Site	Where Concern Was Reported	Incident(s)
Uncas Gas 906 Route 32 Franklin	Adjacent to south	Site Visit Spill Reports	Propane gas dealership including two aboveground fuel tanks (gasoline or diesel fuel). Fuel tanks include containment structure. 6-7-2003 report of the demolition of a building allowing possible asbestos releases. Demolition halted. 6-9-2011 report of power washing discharge to catch basin. No report of action taken by DEEP. 12-9-2012 spill of motor oil due to motor vehicle accident. Spill sanded.
Intersection of Route 32 & Williams Crossing Road Franklin	Adjacent to east	Spill Reports	10-10-1990 report of the presence of 30 to 40 drums near Route 32 bridge over railroad tracks. Drums contained paint dust generated during ongoing work on bridge by the Department of Transportation. 4-5-2002 spill of less than 1 gal. of oil due to CL&P equipment failure. Spill cleaned. 2-6-2013 spill of antifreeze due to motor vehicle accident. Spill sanded.

TABLE 1
POTENTIAL OFF-SITE ENVIRONMENTAL CONCERNS
1 Williams Crossing Road, Lebanon & Franklin

Off-Site Property	Approximate Distance From Site	Where Concern Was Reported	Incident(s)
Former Gas Station 4 Windham Road [Route 32] Lebanon	Across Route 32 and east of site	General Research	1933 highway right of way map shows a gasoline filling station with gasoline pumps. 1947 highway right of way map shows a service station, garage, and house with apparent fuel pump island.
Franklin Mushroom Farm 931 Route 32 Franklin	Across Route 32 and east of site	Tank Registration Spill Reports	Registered underground gasoline, diesel fuel, and heating oil tanks. All tanks removed in 1998. 8-18-1980 spill of 1 gal. of transformer fluid from pad unit. CL&P will clean. 7-29-1987 spill of No. 2 heating oil in boiler room and into wet well. Oil recovered. 3-5-1996 spill of 30 gal. of No. 4 heating oil due to overfill. Cleanup contractor addressed spill. 6-24-2001 report of chlorine gas release. 12-27-2005 spill of 5 gal. of No. 6 heating oil due to overfill. Cleanup contractor recovered oil. 6-4-2010 spill of less than 1 quart of transformer fluid. CL&P to clean spill. 5-31-2011 spill of antifreeze from one vehicle. Spill sanded.

We reviewed the possible impact of the off-site concerns on site ground water based on the magnitude and nature of the spills and ground water flow patterns as inferred from surface topography. Surface topography suggests that properties located to the west may be upgradient of the site.

We identified no potential off-site concerns within the inferred upgradient zone and have concluded that spills or contamination at off-site properties do not pose a significant threat of contamination to site ground water.

VIII. CONCLUSIONS AND RECOMMENDATIONS

A. Potential Environmental Concerns

We did not identify spills or contamination involving petroleum products or hazardous substances on the site.

We did identify the following three potential environmental concerns:

1. An inactive underground heating oil tank of unknown size and age outside the residence. The site owner reported that the tank was empty and had not been used during the period of his ownership since 2004. The tank poses a risk of subsurface contamination.

2. The apparent operation of a fruit orchard as observed on a 1951 aerial photograph. The orchard operated for an unknown period between 1935 and 1964, a time when pesticides containing arsenic, lead, and DDT may have been applied to orchards. DEEP guidance on the development of former agricultural land (see Appendix A) provides a number of actions that can be taken to address pesticide residues in soils including placement of the contaminated soil under buildings or parking lots or the mixing of contaminated soil with unaffected soils to reduce pesticide concentrations.

3. The absence of water test data for the two bedrock supply wells. Potential impacts on ground water from the former egg farm operation and from the underground heating oil tank could be evaluated in part by testing the well waters.

B. Other Issues

The site does not appear to be an "establishment" under the Connecticut Transfer Act [C.G.S. 22a-134 through 134e].

Local ground water is classified "GA" (regulated as meeting drinking water quality criteria). The site includes an active supply well at the residence and an inactive well at the chicken coop. Public water is reportedly available along Route 32 in the Town of Windham just north of the site, but is not available on roads adjoining the property.

We did not identify reports of spills or contamination on off-site properties that appeared to pose a significant risk of ground water contamination on site.

C. Data Gaps

We found no data concerning the size and age of the underground heating oil tank.

We do not know the period of operation of the fruit orchard and whether pesticides were used in the orchard.

D. Recommendations

We recommend the following actions:

1. Excavate and remove the underground heating oil tank. The tank removal should include the collection of soil samples from the tank grave and laboratory testing of the samples to evaluate whether the tank leaked.

   Estimated cost: $2000 to $3000 (work to be performed by tank removal contractor with the assistance of an environmental consultant).

   If removal of the tank is not practical prior to site transfer, then the excavation of one or more test pits around the tank with a backhoe and the collection and analysis of soil samples from the test pits could be performed as an interim measure to assess the tank for leakage.

2. Collect six shallow soil samples in the former orchard area and test the samples for arsenic, lead, and organochlorine pesticides (including DDT) to screen for the possible presence of soil contamination. Depending on the concentrations of total contaminants detected, testing for leachable contaminant levels may be appropriate.

3. Collect water samples from the two supply wells and test the water for standard potability parameters and for VOCs. The well water tests will provide more data on the quality of site ground water and the viability of using ground water for future site development plans.

   Estimated Cost of Items 2 & 3: $2200 to $2500 (including consultant labor [approximately $1100] and laboratory testing fees [approximately $1100 to $1400]).

IX. LIMITATIONS

The conclusions provided in this report are based on the scope of work conducted and the sources of information used in the course of this investigation. If additional pertinent information becomes available, it should be provided to Shanahan Consulting so that we may alter this report as necessary.

This assessment was performed to evaluate whether subsurface contamination involving petroleum products or hazardous substances might be present on site. The report should not be used for any other purpose. We did not inspect site buildings for asbestos-containing materials, lead paint, mold, or other interior contamination.

We cannot guarantee that the work performed for this assessment will meet the requirements of the Connecticut Department of Energy & Environmental Protection.

The work was undertaken in accordance with generally accepted environmental consulting practices. No other warranty, express or implied, is made.

SOURCES OF INFORMATION

Aerial photographs of Connecticut; dated 1934, 1951, 1965, 1970, 1975, 1980, 1985/86, 1990, and 1995/96; reviewed at the Connecticut State Library.

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CERCLA Regulations, 40 CFR Part 312, "Innocent Landowners, Standards for Conducting All Appropriate Inquiries", Federal Register Volume 70, No. 210, 11-1-2005.

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Connecticut Department of Energy & Environmental Protection, "Water Quality Classifications Map for Connecticut", updated April 2007, data downloaded from the DEEP website at www.ct.gov/dep.

Connecticut Department of Energy & Environmental Protection, "Water Quality Standards", 12-17-2002.

"Encyclopaedia of Occupational Health & Safety", published by the International Labour Office, 1983.

Franklin municipal offices contacted: fire marshal, assessor, and town clerk.

Interviews conducted: (1) David Mieczynski of DSD Cedar Hill LLC [site owner], interviewed in person during site visit of 10-15-2013, (2) employee of Depot Pump & Supply of Franklin, interviewed in person on 10-15-2013, and (3) Sean of Danielson Oil Company, interviewed by telephone on 10-16-2013.

Lebanon municipal offices contacted: fire marshal, assessor, building/health/zoning [combined file], and town clerk.

"Plan Showing Easement to be Acquired from The New London Northern R.R. Co. By the State of Connecticut, Norwich-Willimantic Rd., Williams Crossing, Town of Franklin", prepared by the Connecticut State Highway Department, dated May 1940, Franklin Town Clerk Map No. 208.

"Plan Showing Land to be Acquired from Brana Starr by the State of Connecticut, Norwich-Willimantic Rd., Williams Crossing, Town of Franklin", Sheets 1, 2, 3 & 4, prepared by the Connecticut State Highway Department, dated May 1940, Franklin Town Clerk Maps No. 241 & 242.

"Right of Way Map, Norwich-Willimantic Road From the Lebanon Town Line Southerly About 10,000 Feet, Route No. 32, Town of Franklin", Map No. 52-04A, Sheet 1 of 3, prepared by the Connecticut State Highway Department, dated 7-21-1947, provided by the Connecticut Department of Transportation.

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"Right of Way Map, Norwich-Willimantic Road From the Windham Town Line Southerly to the Franklin Town Line, Route No. 32, Town of Franklin", Map No. 70-02A, Sheet 1 of 1, prepared by the Connecticut State Highway Department, dated 7-21-1947, Lebanon Town Clerk Map No. 17.

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Smith, J.A., Witkowski, P.J. and Fusillo, T.V., "Manmade Organic Compounds in the Surface Waters of the United States - A Review of Current Understanding", report prepared as U.S. Geological Survey Circular No. 1007, dated 1988.

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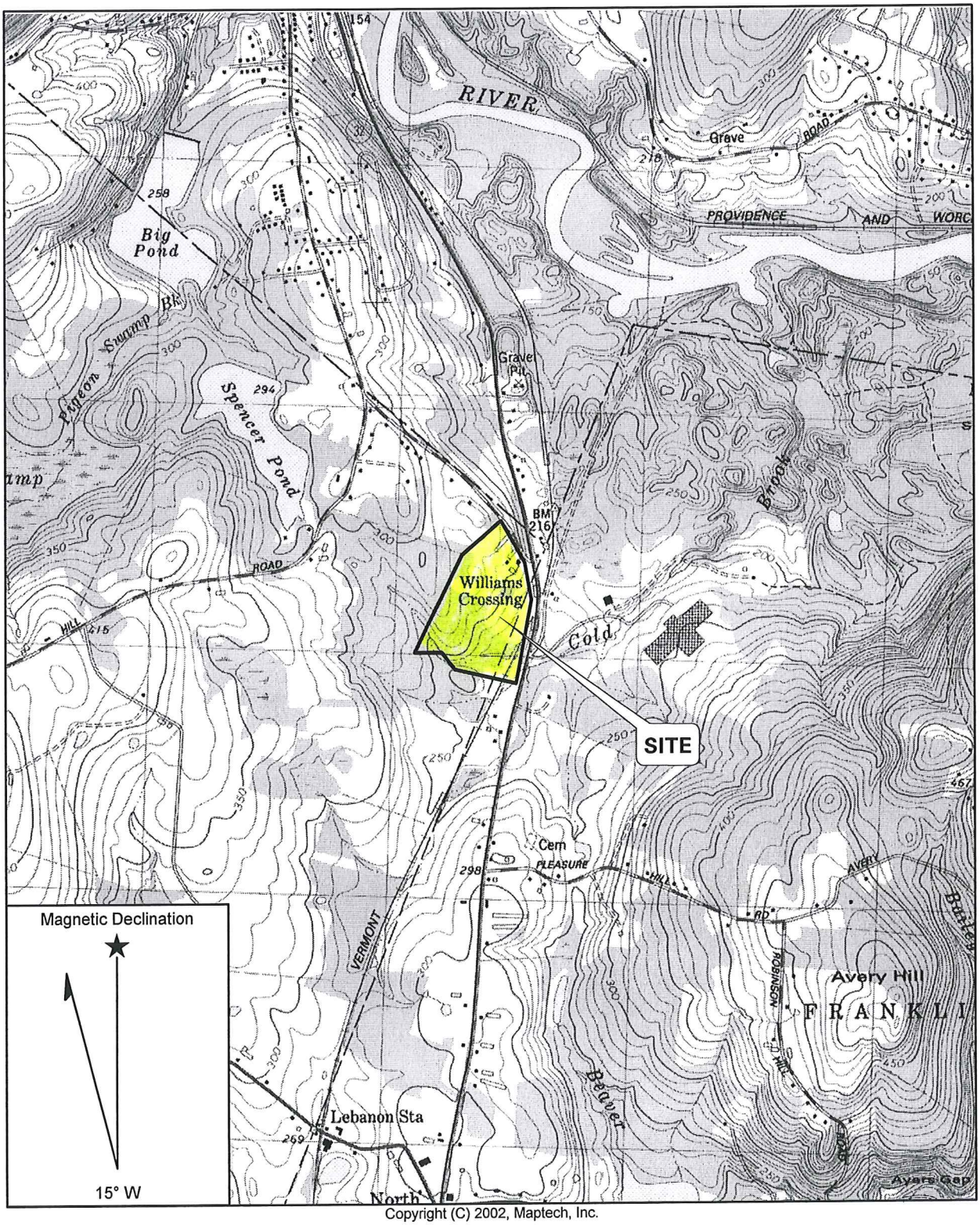
U.S. Environmental Protection Agency, List of RCRA Treatment, Storage, and Disposal Facilities, viewed online at www.epa.gov, 10-7-2013.

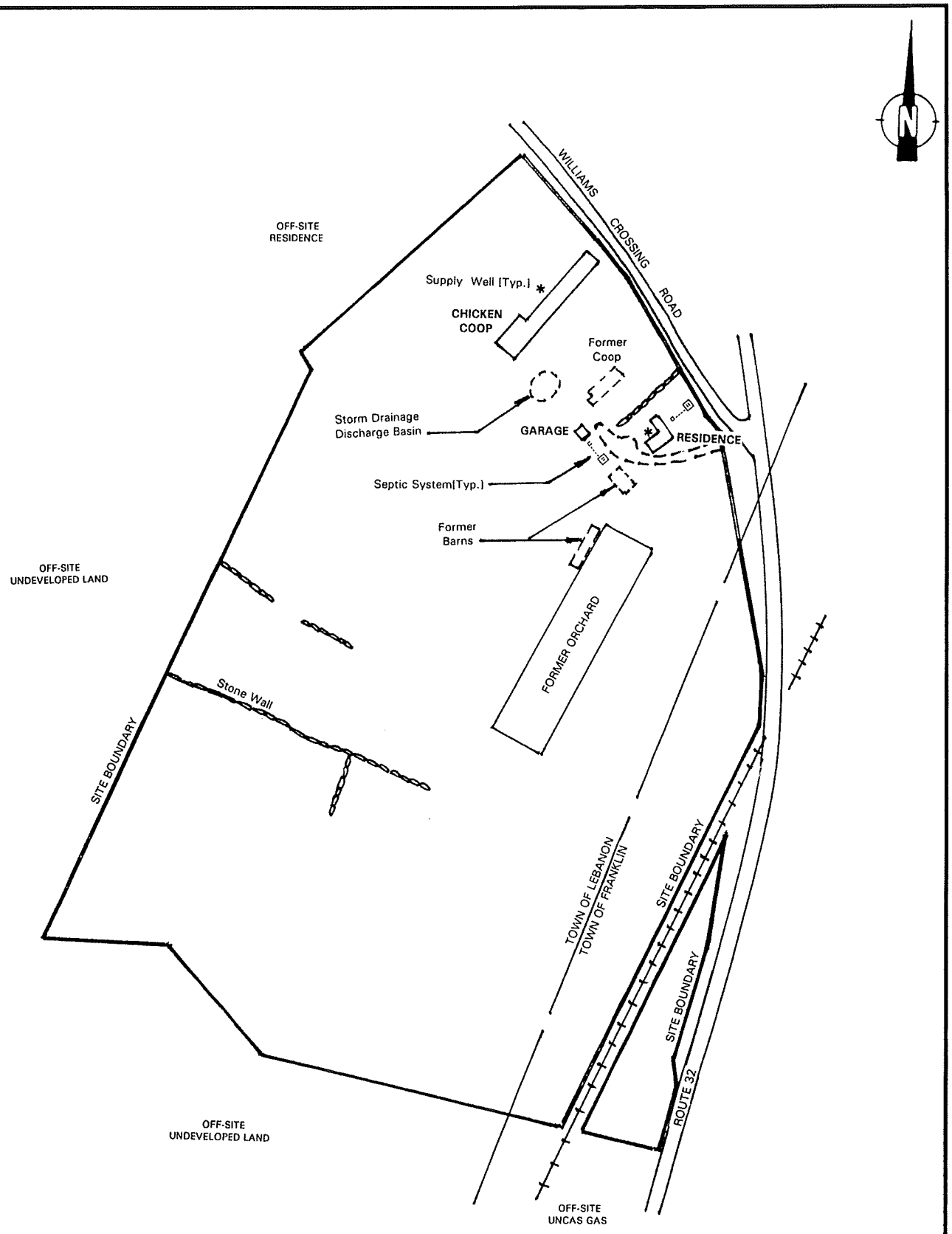
U.S. Environmental Protection Agency, List of Tribal Lands in New England, viewed online at www.epa.gov/region1, 10-7-2013.

U.S. Geological Survey, topographic quadrangle map for the Willimantic Quadrangle, Connecticut, dated 1945, 1953, 1970, and 1984.

FIGURES



1 WILLIAMS CROSSING ROAD LEBANON & FRANKLIN, CONNECTICUT	SITE LOCATION MAP FIGURE 1
Scale 1"=2000' Job 13-25	Shanahan Consulting, Farmington, Connecticut



Notes: 1. Locations of features are approximate. 2. Based on 2005 site plan by Towne Engineering.

1 WILLIAMS CROSSING ROAD **LEBANON & FRANKLIN, CONNECTICUT**	**SITE PLAN** **FIGURE 2**
Approximate Scale 1"=300' Job 13-25	Shanahan Consulting, Farmington, Connecticut

Appendix A

DEEP Policy on Development of Former Agricultural Lands

Connecticut Department of Energy & Environmental Protection

General Guidance on Development of Former Agricultural Properties

(March 1999)

The Department of Public Health and the Department of Energy & Environmental Protection have become aware of a number of site development projects on former agricultural land in which persistent pesticides (primarily dieldrin, DDT and breakdown products, chlordane, arsenic) remain in soil at concentrations that approach or exceed the Connecticut Remediation Standard Regulations (RSRs). While such development projects do not specifically fall under the RSRs, concerns have been raised that the residual pesticides constitute a health risk. In light of this, DPH and DEEP offer general guidance for such sites as described below. This guidance is meant to provide an approach that is protective of public health and that also leaves a degree of flexibility. We expect municipal officials and site developers to consider our input together with other factors in deciding how best to handle site re-development projects.

- Evaluate site history and sample surface soil (ideally 0-3 inches depth) in areas where pesticides were applied, handled, and stored. A limited number of deeper samples are also recommended, particularly in areas where there is evidence of substantial surficial contamination. Total mass concentrations and leaching tests should be performed, with consideration given to analyses for newer pesticides if the site is currently agricultural.
- Evaluate detected pesticide concentrations against RSR values. If the concentrations are below the RSR values in all cases, there is no need for further consideration of pesticide contaminant issues at the site. If some concentrations are above the RSRs, the following options for managing the affected soil should be considered:

    1. Keep affected soil separate from other soils and use it on-site as fill under buildings, parking lots, or access roads or dispose of the soil in an approved landfill off-site.
    2. Mix it with unaffected soils to decrease the effective soil concentration. In this case, representative samples should be taken from the mixed soil piles following RCRA protocols regarding the number and location of samples from soil piles. If the mixed concentrations are below the RSRs, the soil pile can then be used anywhere on-site. If the mixed concentrations are still above RSR values, then the soil pile could be used as fill material below grade (but not topsoil) in parts of the site where digging will not occur (i.e., areas where children will not play; non-residential areas; uses as described under Option 1).
    3. Depending upon the degree of RSR exceedance, consideration should be given, in consultation with DPH and DEEP, to removal of specific hot spot areas.
    4. If affected soils are in some manner kept on-site, an additional precautionary step would be post-construction surface soil sampling to ensure that the practices described above have successfully reduced the potential for direct exposure.
    5. If any soils containing pesticides above RSR values remain on-site, the location of these affected soils should be recorded on a site map which is on file at the local health department.

Site-specific data can be provided to DPH (860-509-7742) and DEEP (860-424-3705) to make sure that a particular site does not present unique risks and that the data are suitable for comparing against RSR values.

Remediation Programs and Information

Content Last Updated: November 2006

Exhibit G

Wetlands Report

WETLAND REPORT

WINDHAM SOLAR

1 WILLIAMS CROSSING DRIVE
LEBANON, CONNECTICUT

PREPARED FOR

ECOS ENERGY

JOHN P. IANNI
PROFESSIONAL SOIL SCIENTIST

JANUARY 2015

INTRODUCTION

A photovoltaic solar energy project is proposed for a parcel of land in Lebanon, Connecticut. The property is known as 1 Williams Crossing Drive and is located just off of Route 32 in the northeastern part of Lebanon. The property contains a mix of active farm land as well recently cleared woodlands that are in varying stages of regrowth. Cold Brook, a perennial water course is the main wetland resource on the property. In addition to Cold Brook and its associated wetlands, three isolated wetland areas were also mapped on, and just off the property. It should be noted that the property includes land in Franklin, CT. However, no site work is proposed in the Town of Franklin and the project will be referred to as being in Lebanon, CT.

The inland wetland boundaries on the above-referenced property were field delineated on October 13, 2014. The wetlands were field delineated in accordance with the standards of the National Cooperative Soil Survey and the definition of wetlands as found in the Connecticut General Statutes, Chapter 440, Section 22A-38. The prepared plans have been reviewed and the representation of the field delineated wetlands is substantially correct.

EXISTING CONDITIONS

The property is located on the southwestern side of Williams Crossing Drive just westerly of its intersection with Route 32. The property contains an existing house, garage, and associated improvements. A large chicken coop is located on the property just north and west of the existing house.

Upland Resources

The property contains existing tilled farm fields that have been used for the production of silage corn. The fields are located in the northern third of the property in the area of the existing house and coop. The remainder of the property was wooded with mainly mixed hardwood species. The wooded areas were clear-cut over the last five or so years and the vegetation in the former wooded areas is in varying stages of regrowth.

The regrowth consists mainly of stump sprouts of the tree and shrub species that formerly colonized the site. The vast majority of the vegetation on the site is classified as successional field growth. Large areas of the uplands have been colonized with brambles of Blackberries interspersed with Goldenrod and other annual agricultural weed species. A few tree species remain on the property but were limited to areas along the property lines and small patches scattered throughout the site.

The soils on the property can be divided into two very broad categories. The eastern third of the property contains soils underlain by sand and gravel while the western two-thirds of the property contains soil that developed from a glacial till.

The glacial till on the site tends to be a sandy friable till associated with the well drained soils of the Canton and Charlton Series. This is in stark contrast to the basal till (hardpan) that tends to dominate the upland soils in other areas of the town. Having the soils develop from a sandy till, the upper part of the soil profile contains permeable soils and lacks the perched water table normally associated with soils that develop in glacial till.

In the eastern third of the property the soils developed from deposits of stratified drift (sand and gravel) and the surface soils are dominated by sandy textures and tend to be free of stones in the upper part of the soil profile. The soils have good internal drainage and the seasonally high water table is two to three feet below the soil surface. The soils underlain by sand and gravel are also located on the flatter areas of the property easterly of the well-defined slope break. The soils in this area of the uplands are dominated by moderately well drained soils of the Sudbury Series.

Wetland Resources

The main wetland resource on the site is Cold Brook and its associated wetland soils. In addition to the Cold Brook wetlands two other isolated wetlands were identified on the Lebanon portion of the site.

Cold Brook is a perennial water course that enters the site in the southwestern corner. The Brook and its wetlands then leave the boundaries of the site only to re-enter a few hundred feet to the east. As with the remaining wooded areas of the site, the vegetation along Cold Brook was clear-cut in the recent past and the vegetation consists of mainly herbaceous species with some shrubs beginning to colonize the cleared areas.

The upper parts of the Cold Brook wetlands are well defined by a sharp topographic break at the toe of a short but moderately steep slope. The Brook enters the site from a wooded area along the western boundary and flows into a broad flat wet meadow type wetland. The stream flow is diffuse through this area of the wetland but becomes a bit more defined just as it exits the property. This former Red maple/Grey birch dominated wetland is now dominated by herbaceous species that include, but are not limited to: Woolgrass, Soft rush, Cat-tails, Goldenrod, Asters and other annual weed species. In uncut areas adjacent to the property lines Multiflora rose and brambles of Blackberry dominate the vegetative cover. Just as the wetland exits the property the wetland system begins to narrow as the stream leaves the area of glacial till and enters the area underlain by sand and gravel.

The wetland system re-enters the property. At this point the topography within the wetland lessens and the wetland system narrows. Cold Brook becomes more defined at this point and there is a well defined channel with banks associated with the Brook. The vegetation in this portion of the wetland system does not deviate from what was found further upstream. Seepage zones along the edges of the wetland are not as pronounced indicating that the lower part of the wetland system has ground water recharge functions. The Brook channel does not increase significantly in size lower in the property which is another indicator of ground water recharge.

The second area of wetlands occurs along the western property line just south of an existing corn field. This wetland area is man-made and appears to have been created as an extension of swale along the western limits of the corn field. As the swale exits the corn field a two to three foot cut was made along the property line. The upland portion of the swale contributes surface water and, to a limited degree, ground water to the mapped wetland. However, the cut along the property line captures ground water exfiltration or seepage in the wet periods of the year. Beyond the corn field the elongated man-made swale was identified as a regulated seasonal water course. The area is clearly identified as a man-made feature by the castings of soil on either side of the swale.

The swale contains a preponderance of hydrophytic vegetation (wetland species) that include Woolgrass and Soft rush with some Cat-tails just beginning to colonize the area. Eventually the swale and its defined water course channel dissipate and the surface water seeps into the ground.

Along the sides of the channel the vegetation has had more time to establish and contains mainly shrub species and brambles.

The third and final on-site wetland occurs in the southeastern part of the site but northerly of Cold Brook. This isolated wetland has its origins as a small hillside seep along the interface of the glacial till and stratified drift. This resource is within an area that was recently cleared and the re-growth is mainly annual weed species that are dominated by Goldenrod. However, a slight increase in Woolgrass, Soft rush and Sensitive fern are the only outward indicators that this is a regulated wetland. There is no surface water associated with this resource, and most of the soil indicators that indicate this is a regulated wetland were found at the bottom limits of the recorded soil profile. Even to the trained eye this area does not have the typical appearance that would indicate a wetland.

WETLAND FUNCTIONS

The Functions and Values assessment is for the Cold Brook Wetland System. The two isolated wetland systems have minimal potential for the listed functions and values and were not included in this portion of the report. A brief explanation of the functions and values of the two isolated wetlands will be given at the end of this section.

The functions and values of the wetlands will be described in a qualitative manner modeled after the method used by the US Army Corps of Engineers. The information is from *The Highway Methodology Workbook Supplement*. This publication uses a descriptive approach to assessing functional values, versus the CT D.E.E.P. approach, which uses a quantitative or numerical approach to ranking wetland functions and values.

Ground Water Recharge/Discharge - This function considers the potential for a wetland to serve as a ground water recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

> The wetland has both discharge and recharge functions. The upper third of the on-site wetland has ground water discharge indicators. Numerous seepage zones were noted along the edges of the wetland. The bottom of the wetland system flows through sand and gravel. In this area seepage zones were not present and stream flows were visibly lower than higher in the watershed. No evidence of over the bank flows was noted along the length of the channel.

Floodflow Alteration - This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of flood waters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

> No areas of natural detention were noted. There is a constant gradient within the wetlands and no signs of ponding were present. This is not a primary function of the Cold Brook wetland system.

Fish and Shellfish Habitat - This function considers the effectiveness of seasonal or permanent watercourses associated with wetland in question for fish and shellfish habitat.

> Although Cold Brook is listed as a perennial stream, the site is located in the upper reaches of the watershed and the water course is not well developed. In the summer, flows can be non-persistent and the presence of sand and gravel in the lower portion of the property indicate the on-site portion of the Brook is not a habitat for cold water fisheries. As the Brook crosses the railroad tracks the cross

culverts are positioned too high to allow for fish passage. This is not a primary function of the wetlands.

Sediment/Toxicant/Pathogen Retention - This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants or pathogens in runoff water from surrounding uplands, or upstream eroding wetland areas.

The upper portion of the wetland with its wide area and diffuse surface flows do provide potential for this function. The lower part of the wetland has less potential due to the narrowness for the water course and lack of over-bank flows. The watershed above the property is mostly undeveloped and there are few sources of sediment/toxicants/pathogens in the watershed above the site. This is a primary function of the wetlands.

Nutrient Removal/Retention/Transformation - This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands, and the ability of the wetlands to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers or estuaries.

As with the previous function the upper part of the Cold Brook system has potential for this function. The lower part of the resources has less potential due to the presence of a defined water course. Overall, this is a primary function of the wetlands.

Production Export - This function relates to the effectiveness of the wetland to produce food or usable products for human, or other living organisms.

Organic matter production does occur in the wetlands, however, export is limited. This is not a primary function of the wetland.

Sediment/Shoreline Stabilization - This function evaluates the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

The wetland soils associated with Cold Brook provide buffering capacity for the Brook. This is a primary function.

Wildlife Habitat - This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and wetland edge. Both resident and/or migrating species are considered.

Wildlife utilization of the property has changed because of clear-cutting, which has spurred regrowth and provides habitat for birds and small mammals. The lack of diversity in wetland types and cover classes limits the effectiveness for this function. The lack of permanent open water in the form of deep water or shallow water marshes is also a limiting factor. Although utilization of the site occurs, based on this specific methodology the on-site wetlands are not primary wildlife habitat wetlands.

Recreation – (Consumptive and Non-Consumptive) This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting and other active or passive recreational activities.

The site is suitable for passive recreation; however, water based recreation is not suitable on this site. The site has limited potential for this value.

Educational/Scientific Value - This function considers the suitability of the wetland as an "outdoor classroom" or for scientific research.

The site has been utilized for agriculture and shows the typical indicators. The recent clear-cutting has lowered the potential for this value. The site has limited resources for this value. This is not a primary value for the wetlands.

Uniqueness/Heritage - This value considers the effectiveness of the wetland for special values such as archeological sites, rare and endangered species habitat or uniqueness for its location.

The site is fairly typical for the area. Some of the site is tilled for agriculture and the remainder contains altered vegetation with no unique habitat or other unique natural resources.

Visual Qualities/Aesthetics - This value relates to the visual qualities of the wetlands.

The visual aspects of the wetlands have been completely altered by a clear cut. Other than slight variations in individual species the wetlands are not that different from the uplands.

Endangered Species Habitat – This value considers the suitability of the wetland to support threatened or endangered species.

There are no listings for this property or the immediate area, based on a review of the Natural Diversity Data Base maintained by the State of Connecticut Department Of Energy and Environmental Protection.

SUMMARY AND RECOMMENDATIONS

In summary, the Cold Brook wetland system is a ground water recharge and discharge system. The wetlands do function in the realm of water quality but have no potential for flood control or alteration of flood flows. The wetlands are typical for the area and are not known to be habitat for rare or endangered species.

The isolated man-made wetland appears to have been created as an extension of a ground water control swale adjacent to the upper corn field. The swale has a flat gradient and no erasable velocities were noted. This man-made feature is a ground water discharge wetland created in glacial till. Other than the ability to capture sediment in runoff from the corn field it has no other discernable wetland function.

The other isolated wetland is a natural feature that exhibits a mainly mesic or upland composition of vegetation. There is no surface water associated with the wetland, and other than a few wetland indicator species, the area does not have the outward appearance of a wetland.

With the minimal functionality of the two isolated wetlands, and considering the proposed activity associated with the site development, it is my professional opinion that the 100-foot upland review areas for these two wetlands are not necessary to protect the resource. A minimal set-back to allow for construction and maintenance of the solar panels is all that is required for these resources.

A 100-foot set-back from the upper part of the Cold Brook wetlands would preserve the slope leading down to the wetlands and would help to restore some of the natural buffer along the Brook. The lower part of the Cold Brook wetland system has gentle slopes and less habitat potential. A reduction in the upland review area could be accomplished without compromising the integrity of the resource.

Exhibit H

DEEP NDDB Species Review

Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

January 12, 2015

Mr. Blake Nicholson
Windham Solar, LLC
222 South Ninth Street, Suite 1600
Minneapolis, MN 55402
Blake.nicholson@ecosrenewable.com

Project: Construction of Windham Solar Project located at 1 Williams Crossing Road in Lebanon, Connecticut
NDDB Determination No.: 201500200

Dear Blake,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the proposed construction of Windham Solar Project located at 1 Williams Crossing Road in Lebanon, Connecticut. According to our information there are extant populations of State Special Concern *Glyptemys insculpta* (wood turtle) in the area where this work will occur. If possible, conduct project activities between October 1 and April 1 in order to avoid impacting active turtles. If any work will occur when these turtles are active (April 1st to September 30th) I recommend the following protection strategies be implemented in order to protect these turtles:

- Silt fencing should be installed around the work area prior to construction, please avoid erosion control products that are embedded with netting as these can be fatal to wildlife;

- Where possible, AVOID installing sediment and erosion control materials from late August through September and from March through mid-May. These two time periods are when amphibians and reptiles are most active, moving to and from wetlands to breed;

- After silt fencing is installed and prior to construction, a sweep of the work area should be conducted to look for turtles;

- Workers should be apprised of the possible presence of turtles, and provided a description of the species (http://www.ct.gov/dep/cwp/view.asp?a=2723&q=473472&depNav_GID=1655);

- Any turtles that are discovered should be moved, unharmed, to an area immediately outside of the fenced area, and position in the same direction that it was walking;

- No vehicles or heavy machinery should be parked in any turtle habitat;

- Work conducted during early morning and evening hours should occur with special care not to harm basking or foraging individuals; and

- All silt fencing should be removed after work is completed and soils are stable so that reptile and amphibian movement between uplands and wetlands is not restricted.

- Stockpiles of soil should be cordoned off with silt fencing so turtles do not attempt to try and nest in them.

- Use native plantings if possible. Any plantings should be composed of species native to northeastern United States and appropriate for use in riparian habitat.

Thank you for implementing these protection measures for wood turtles. I have attached a "Wood Turtle" fact sheet for your file. This determination is good for one year. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by January 12, 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. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

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

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

WILDLIFE IN CONNECTICUT

STATE SPECIES OF SPECIAL CONCERN

Wood Turtle

Glyptemys insculpta

Background

Wood turtles may be found throughout Connecticut, but they have become increasingly rare due to their complex habitat needs. Wood turtles also have become more scarce in Fairfield County due to the fragmentation of suitable habitat by urban development.

© PAUL J. FUSCO

Range

Wood turtles can be found across the northeastern United States into parts of Canada. They range from Nova Scotia through New England, south into northern Virginia, and west through the Great Lakes region into Minnesota.

Description

The scientific name of the wood turtle, *Glyptemys insculpta*, refers to the deeply sculptured or chiseled pattern found on the carapace (top shell). This part of the shell is dark brown or black and may have an array of faint yellow lines radiating from the center of each chiseled, pyramid-like segment due to tannins and minerals accumulating between ridges. These segments of the carapace, as well as those of the plastron (bottom shell), are called scutes. The carapace also is keeled, with a noticeable ridge running from front to back. The plastron is yellow with large dark blotches in the outer corners of each scute. The black or dark brown head and upper limbs are contrasted by brighter pigments ranging from red and orange to a pale yellow on the throat and limb undersides. Orange hues are most typical for New England's wood turtles. The hind feet are only slightly webbed, and the tail is long and thick at the base. Adults weigh approximately 1.5 to 2.5 pounds and reach a length of 5 to 9 inches.

Habitat and Diet

Wood turtles use aquatic and terrestrial habitats at different times of the year. Their habitats include rivers and large streams, riparian forests (adjacent to rivers), wetlands, hayfields, and other early successional habitats. Terrestrial habitat that is usually within 1,000 feet of a suitable stream or river is most likely used. Preferred stream conditions include moderate flow, sandy or gravelly bottoms, and muddy banks.

Wood turtles are omnivorous and opportunistic. They are not picky eaters and will readily consume slugs, worms, tadpoles, insects, algae, wild fruits, leaves, grass, moss, and carrion.

Life History

From late spring to early fall, wood turtles can be found roaming their aquatic or terrestrial habitats. However, once temperatures drop in autumn, the turtles retreat to rivers and large streams for hibernation. The winter

is spent underwater, often tucked away below undercut riverbanks within exposed tree roots. Dissolved oxygen is extracted from the water, allowing the turtle to remain submerged entirely until the arrival of spring. Once warmer weather sets in, the turtles will become increasingly more active, eventually leaving the water to begin foraging for food and searching for mates. Travel up or down stream is most likely, as turtles seldom stray very far from their riparian habitats.

Females nest in spring to early summer, depositing anywhere from 4 to 12 eggs into a nest dug out of soft soil, typically in sandy deposits along stream banks or other areas of loose soil. The eggs hatch in late summer or fall and the young turtles may either emerge or remain in the nest for winter hibernation. As soon as the young turtles hatch, they are on their own and receive no care from the adults.

Turtle eggs and hatchlings are heavily preyed upon by a wide variety of predators, ranging from raccoons to birds and snakes. High rates of nest predation and hatchling mortality, paired with the lengthy amount of time it takes for wood turtles to reach sexual maturity, present a challenge to maintaining sustainable populations. Wood turtles live upwards of 40 to 60 years, possibly more.

Conservation Concerns

Loss and fragmentation of habitat are the greatest threats to wood turtles. Many remaining populations in Connecticut are low in numbers and isolated from one another by human-dominated landscapes. Turtles forced to venture farther and farther from appropriate habitat to find mates and nesting sites are more likely to be run over by cars, attacked by predators, or collected by people as pets.

Other sources of mortality include entanglements in litter and debris left behind by people, as well as strikes from mowing equipment used to maintain hayfields and other early successional habitats.

The wood turtle is imperiled throughout a large portion of its range and was placed under international trade regulatory protection through the Convention on International Trade in Endangered Species (CITES) in 1992. Wood turtles also have been included on the International Union for Conservation of Nature's (IUCN) Red List as a vulnerable species since 1996. They are listed as a species of special concern in Connecticut and protected by the Connecticut Endangered Species Act.

How You Can Help

- *Conserve riparian habitat. Maintaining a buffer strip of natural vegetation (minimum of 100 feet) along the banks of streams and rivers will protect wood turtle habitat and also help improve the water quality of the stream system. Stream banks that are manicured (cleared of natural shrubby and herbaceous vegetation) or armored by rip rap or stone walls will not be used by wood turtles or most other wildlife species.*
- *Do not litter. Wood turtles and other wildlife may accidentally ingest or become entangled in garbage and die.*
- *Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.*
- *Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.*
- *As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females. They should* ***not*** *be collected but can be helped on their way. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side in the direction they are headed. Never relocate a turtle to another area that is far from where you found it.*
- *Learn more about turtles and their conservation concerns, and educate others.*
- *If you see a wood turtle, leave it in the wild, take a photograph, record the location where it was seen, and contact the Connecticut Department of Environmental Protection (DEP) Wildlife Division at dep.wildlife@ct.gov, or call 860-424-3011 to report your observation.*

State of Connecticut
Department of Environmental Protection
Bureau of Natural Resources
Wildlife Division
www.ct.gov/dep

4/2011

Exhibit I

Stormwater Management Report

Westwood

7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 888-937-5150

www.westwoodps.com

MEMORANDUM

Date: January 21, 2015

Re: **Windham Solar Project – Lebanon, CT**
File 0005101

To: Steve Broyer, PE, ECOS Energy

From: Joe Fox, Water Resources Engineer

This memo summarizes stormwater modeling completed for the Windham Solar Project in Lebanon, CT. HydroCAD modeling software was used to establish existing and proposed discharge rates from the site.

Existing Conditions

Currently the site is roughly one-third open field and two-thirds field with brush. Trails exist through the brush field. The site has B soils (see attached soils report).

Proposed Conditions

The proposed project is a solar array covering 22.30 acres. The ground cover beneath the panels will be native grass. A gravel road will be built along the east boundary to allow access to the site. Water generally drains from west to east across the site and then north to the Shetucket River; this is similar in existing conditions.

Modeling Results

Site conditions are shown in Table 1. Modeling results show downstream discharge rates decrease as a result of the proposed project (see Table 2). The decrease in the 2-, 10-, and 100-year events is due to ground cover changes: woods and row crop will be converted to meadow in proposed conditions. The curve number decreases from 65 (averaged) to 58.

Table 1. Site Conditions

Drainage area	102.4	acres (as modeled)
Project Area	22.3	acres (within fence)
Proposed Impervious Improvements	0.78	acres (gravel road and equipment pads)

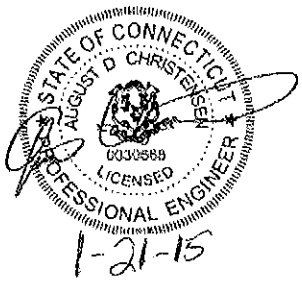
Table 2. Downstream Flow Rates

	Storm* [in]	Existing [cfs]	Proposed [cfs]
2-year	3.25	22.2	17.8
10-year	4.90	68.3	60.8
100-year	7.10	148.8	138.8

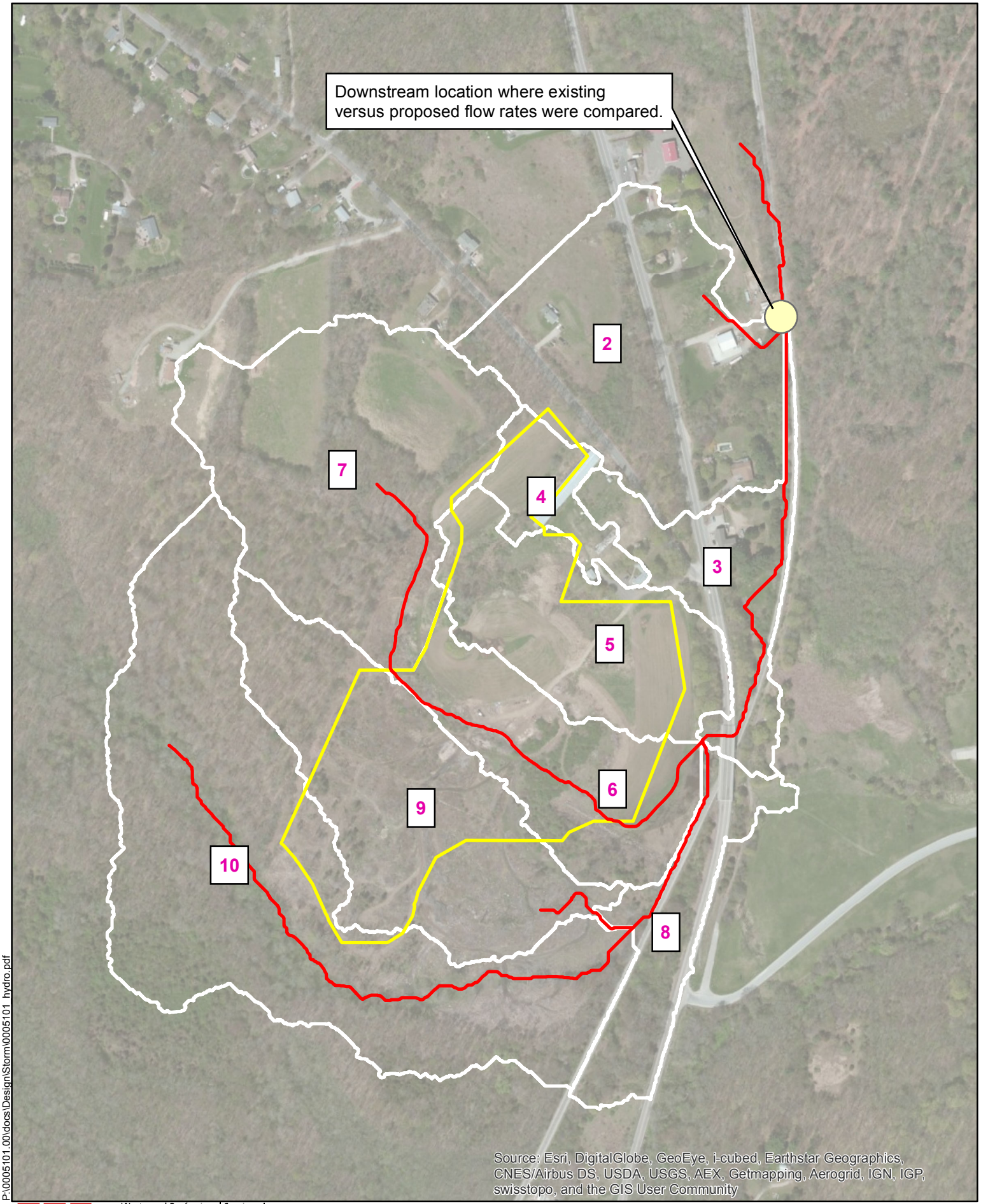
* Storm depths read from TP-40 maps

Topographic data provided by the client for the project site and surrounding area were input into GlobalMapper software to delineate drainage areas and generate flow paths (see attached map). The HydroCAD model includes those drainage areas that fall at least partially within the fenced project boundary. Runoff from Drainage Area 8 joins the runoff coming from the project area. The flow rates reported in Table 2 include the site as well as upstream drainage areas.

CERTIFICATION



I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.



Windham Solar Project - Lebanon, CT

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

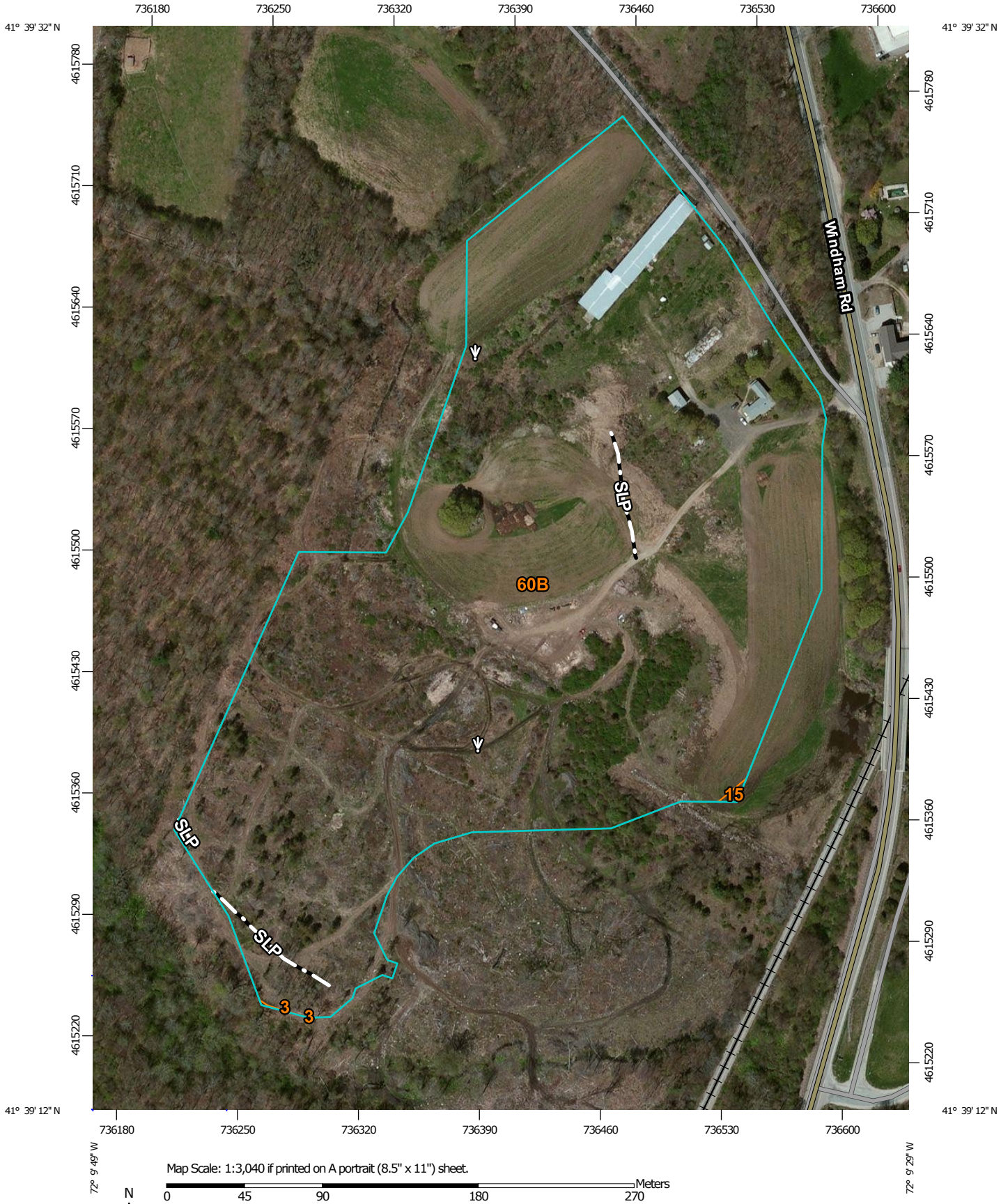
Flow Path
Project Area
Drainage Area

0 250 500 Feet

N

P:\0005101.00\docs\Design\Storm\0005101_hydro.pdf

Soil Map—State of Connecticut
(141204_William_Crossing_Boundary)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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 13, Oct 28, 2014

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%
15	Scarboro muck, 0 to 3 percent slopes	0.0	0.1%
60B	Canton and Charlton soils, 3 to 8 percent slopes	25.2	99.9%
Totals for Area of Interest		**25.2**	**100.0%**

State of Connecticut

60B—Canton and Charlton soils, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9lpn
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Canton and similar soils: 45 percent
Charlton and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: gravelly fine sandy loam
Bw1 - 3 to 15 inches: gravelly loam
Bw2 - 15 to 24 inches: gravelly loam
Bw3 - 24 to 30 inches: gravelly loam
2C - 30 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Description of Charlton

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 7 inches: fine sandy loam
Bw2 - 7 to 19 inches: fine sandy loam
Bw3 - 19 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Minor Components

Chatfield

Percent of map unit: 5 percent
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Linear

Sutton

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Linear

Leicester

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave

Hollis

Percent of map unit: 3 percent
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Convex

Unnamed, silt loam surface

Percent of map unit: 2 percent

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 13, Oct 28, 2014

Exhibit J

Decommissioning Memo

Windham Solar Project - Decommissioning Memo

This memo describes a Decommissioning Plan that establishes the approach to conduct decommissioning activities for the permanent closure of the Facilities at the end of the Facilities' useful life or the permanent cessation of the Facilities' operation, whichever comes first. The Plan describes the approach for removal and/or abandonment of facilities and equipment associated with the Facilities and describes anticipated land-restoration activities.

DECOMMISSIONING ACTIVITIES

Decommissioning will involve removal and disposal or recycling of all above-surface Project components. All recyclable materials will be transported to the appropriate nearby recycling facilities. Any non-recyclable materials will be properly disposed of at a nearby landfill. 95% or greater of the Facilities' components will be recyclable.

Decommissioning Preparation

The first step in the decommissioning process will be to assess existing site conditions and prepare the site for demolition. Site decommissioning and equipment removal can take up to six months to complete for a project of this size. Therefore, access roads, fencing, and electrical power will temporarily remain in place for use by the decommissioning and site restoration workers until no longer needed. Demolition debris will be placed in temporary on-site storage areas pending final transportation and disposal/recycling according to the procedures listed below.

PV Equipment Removal and Recycling

During decommissioning, all Facilities components will be either removed from the site and recycled or abandoned in place 12 inches below grade (for underground conduit and conductors). Equipment removal will include all pad-mounted cabinets, above ground wiring, solar modules, solar module racking, string inverters, and panel boards. Steel h-beams that supported the module racking and inverters/panelboards will be mechanically pulled out of the ground; any resulting holes will be backfilled with locally imported soil to match existing site soil conditions. The concrete transformer and interconnection equipment pads will be broken up and removed.

The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the on-site equipment being used. The majority of glass and steel and aluminum will be processed for transportation and delivery to an off-site recycling center. The solar modules will be transported to and recycled at the nearest facility that will accept them. Minimal non-recyclable materials are anticipated; these will be properly disposed of at the nearest qualified disposal facility.

Internal Power Collection System

The DC and AC power collection system will be dismantled and removed. All underground cables and conduit will remain in place at a depth of 12 inches below ground surface. All conduit and cabling that is removed will be recycled.

Access Roads

The onsite 20-foot wide access driveway will remain in place to accomplish decommissioning at the end of the facility's life. At the time of decommissioning, if the landowner determines that this road will be beneficial for the future use of the site, the access road may remain after decommissioning. The future use of the site is undetermined at this time. Roads that will not be used will be restored to pre-construction conditions by removal of the aggregate base material, fill of the compacted base section with locally imported soil to match existing onsite soils, and a hydroseeding of a seed mix to match existing onsite groundcover.

Security Fence

The 7.5 foot high chain link perimeter security fence will remain in place during decommissioning activities for site safety and security purposes. At the time of decommissioning, if the landowner determines that this fence will be beneficial for the future use of the site, the fence may remain after decommissioning. The future use of the site is undetermined at this time. If the fencing is not used, it will be removed and transported to the nearest steel recycling facility. Holes left behind by the fence support posts will be backfilled with locally imported soil to match existing onsite soils, and a hydroseeding of a seed mix to match existing onsite groundcover.

Landscaping

The double row of screening vegetation along certain areas of the northern and western perimeter of the Site will remain in place during decommissioning activities for site safety and security purposes. At the time of decommissioning, if the landowner determines that this landscaping will be beneficial for the future use of the site, the landscaping may remain after decommissioning. The future use of the site is undetermined at this time. If the landscaping is not used, it will be removed and transported to the nearest plant material disposal facility for composting or mulching. Shrubs, bushes, and trees would be stump cut to just below ground level.

23 kV Interconnection Line

The overhead interconnection cabling that runs north from the project and across Williams Crossing Road to connect the Facilities to the CL&P distribution circuit will remain in place during decommissioning activities to provide electric service onsite during decommissioning. At the time of decommissioning, if the landowner determines that this electric service line will be beneficial for the future use of the site, the line may remain after

decommissioning. If the line is not used, it will be removed per CL&P guidelines and transported offsite to the nearest recycling facility. Underground cabling and conduit on private property will remain in place at a depth of 12 inches below ground level. Underground cabling and conduit within a public right-of-way will be removed completely, and the resulting trenches will be backfilled with locally imported soil to match existing onsite soils, and a hydroseeding of a seed mix to match existing onsite groundcover.

SITE RECLAMATION

After the Facilities are completely decommissioned, and all Facilities equipment has been removed from the Site, additional activities will be performed to return the resultantly vacant property back to pre-construction conditions.

Restoration Process

The decommissioning process will remove Project-related structures and infrastructure as described in the previous sections. Following decommissioning, site reclamation activities will occur. Reclamation will restore landform features, vegetative cover, and hydrologic function after the closure of the facility. The process will involve (where needed) the replacement of topsoil and vegetation, as well as modification of site topography where necessary to bring the Site back to pre-construction conditions. Restoration will bring the Site back to a natural pre-construction condition that is compatible with the adjacent surroundings.

If any excavated areas remain after removal of equipment pads or access road base material, these areas will be backfilled and compacted with locally imported soil to match existing onsite soils, and a hydroseeding of a seed mix to match existing onsite groundcover. Any other areas of lower than average ground surface level will receive the same treatment.

If any soils are determined to be compacted at levels that would affect successful revegetation, decompaction will occur. The method of decompaction will depend on how compacted the soil has become over the life of the Project. Following decompaction, re-contouring of the site will be conducted, if necessary, to return the Site to approximately match the pre-construction surface conditions and the surrounding area conditions. Original site drainage characteristics will be restored if they have not been maintained. It is unlikely that any or a significant amount of earthwork will be required, as the Project construction plan calls for minimal or no disturbance of the Site during Project construction. Grading activities will be limited to previously disturbed areas that require re-contouring. Efforts will be made to disturb as little of the natural drainages and existing natural vegetation that remain post-decommissioning as possible.

Any areas identified as remaining in bare earth will be hydroseeded with a seed mix to match existing onsite groundcover.

Site Restoration activities are anticipated to be very minimal, as the pre-construction conditions of the site are not planned to be significantly altered during Project construction. However, these activities as described, as well as any others that become necessary, will be performed to return the Site to a pre-construction condition.

Monitoring Activities

The Site will be monitored after Site Restoration activities are complete to confirm that any earthwork and revegetation were performed correctly and last permanently. The Site will be periodically inspected (at least twice annually) to check for any eroded earthwork or failed revegetation. Any deficiencies will be immediately corrected. This monitoring will continue for a period of five years, or until the Site is re-developed for another future purpose, whichever comes first.