BRUCE L. MCDERMOTT
203.772.7787 DIRECT TELEPHONE
860.240.5723 DIRECT FACSIMILE
BMCDERMOTT@MURTHALAW.COM

December 19, 2018

VIA ELECTRONIC MAIL
AND UPS NEXT DAY DELIVERY

Mr. Robert Stein, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Petition No. 1354 – Chatfield Solar Fund, LLC, petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 1.98-megawatt AC solar photovoltaic electric generating facility located in Killingworth, Connecticut

Dear Chairman Stein:

Enclosed for filing with the Connecticut Siting Council (the "Council") in the above-captioned petition are Chatfield Solar Fund, LLC's ("Chatfield") responses to all of the Council's Interrogatories except CSC-69 and CSC-70, which will be filed with the Council no later than December 26, 2018.

Additionally, Chatfield hereby informs the Council of the following modification of the project's site plan. The project size has been reduced from 1.98 MW AC (i.e., 2.35 MW DC) to 1.92 MW AC (i.e., 2.33 MW DC). The reduction in the size of the project was necessary following completion of further surveying of the property. As a result of this reduction, the following changes should be reflected in the Petition:

Cover Page: "2.35 MW" should be replaced with "1.92 MW AC";

Page 1: "2.35-megawatt ("MW") (DC)" should be replaced with "1.92-megawatt ("MW") (AC)" in the first paragraph, "2.35" should be replaced with "1.92" in the third paragraph, and footnote 1 should be deleted;

Page 5: “16 acres” should be replaced with “13.5 acres” in both instances in paragraph 2, “7.3 acres” should be replaced with “6.5 acres” in paragraph 2, “8.7 acres” should be replaced with “7 acres” in paragraph 2, “2.35” should be replaced with “1.92” in paragraph 3, and “6,732” should be replaced with “6,552” in paragraph 3;

Page 6: “990” should be replaced with “920” in paragraph 3, “6,732” should be replaced with “6,552” in paragraph 3, and “374” should be replaced with “364” in paragraph 3;

Page 7: “each of those combining 17” should be replaced with “those combined total 32” at the top of the page;

Page 9: “16 acres” should be replaced with “13.5 acres” in paragraph 1;

Page 10: “6,732” should be replaced with “6,552” in Section 8(iii), and the parenthetical that states “(2.41MW to 2.35MW)” should be deleted in Section 8(iii); and

Page 19: “16 acres” should be replaced with “13.5 acres” in paragraph 2.

Should the Council have any questions regarding this letter, please do not hesitate to contact me.

Very truly yours,

Bruce L. McDermott

Enclosures

Interrogatory CSC-1-1

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: N/A
Page 1 of 1

Q-CSC-1-1: The Town of Madison is within 2,500 feet of the proposed solar field site and the interconnection is to a substation located in Madison. Was a copy of the petition served on the Town of Madison? If not, provide notice.

A-CSC-1-1: Yes. It was sent certified mail on October 26, 2018.

Interrogatory CSC-1-2

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: N/A

Q-CSC-1-2: Referring to the Petition Affidavit of Service, it appears the appropriate state legislators were not notified. Please provide notice and submit a copy of the notice.

A-CSC-1-2: This notice was provided to Senator Kennedy and Representative MacLachlan by certified mail on November 26, 2018.

Interrogatory CSC-1-3

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-3: If the project is approved, identify all permits necessary for construction and operation and which entity will hold the permit(s)?

A-CSC-1-3: A DEEP permit for stormwater will be required for construction.

Interrogatory CSC-1-4

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-4: What entity/subcontractor will be constructing the facility? Has this entity/subcontractor constructed other solar projects 5 MW or greater in the Northeast? If so, list similar projects.

A-CSC-1-4: Standard Solar has issued a request for proposals for construction of the project but no company has been selected yet.

Interrogatory CSC-1-5

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Eric Partyka

Q-CSC-1-5: Was the project selected through a DEEP RFP process? If so, which RFP? What entity submitted the proposal? When was the project submitted? When was the project selected?

A-CSC-1-5: This project was not selected through a DEEP RFP process.

Interrogatory CSC-1-6

Q-CSC-1-6: Was the project selected for the LREC/ZREC Program?

A-CSC-1-6: Yes, this project was selected by Eversource for the ZREC program.

Interrogatory CSC-1-7

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Eric Partyka

Q-CSC-1-7: Does the Petitioner have a contract to sell the electricity and renewable energy certificates (RECs) it expects to generate with the proposed project? If so, to which public utility? If the electricity is to be sold to more than one public utility, provide the percentage to be sold to each public utility.

A-CSC-1-7: Standard Solar does not have a contract to the sell the electricity. The RECs will be sold to Eversource through the ZREC agreement.

Interrogatory CSC-1-8

Q-CSC-1-8: Has a PPA with an electric distribution company been executed? If so, at what alternating current megawatt output? If not, when would the PPA be finalized?

A-CSC-1-8: There is no PPA executed with a distribution company.

Interrogatory CSC-1-9

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Eric Partyka

Q-CSC-1-9: What is the length of the power purchase agreement? Are there provisions for any extension of time in the PPA? Is there an option to renew?

A-CSC-1-9: There is no PPA.

Interrogatory CSC-1-10

Q-CSC-1-10: Is the alternating current megawatt capacity of the facility fixed at a certain amount per the PPA and/or the RFP? Is there an option within the PPA to allow for changes in the total output of the facility based on unforeseen circumstances?

A-CSC-1-10: There is no PPA. The facility size is based on the awarded ZREC contracts.

Interrogatory CSC-1-11

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Eric Partyka

Q-CSC-1-11: If the PPA expires and is not renewed and the solar facility has not reached the end of its lifespan, will the Petitioner decommission the facility or seek other revenue mechanisms for the power produced by the facility?

A-CSC-1-11: There is no PPA. Standard Solar expects to continue to sell electricity through the end of the system's lifespan.

Interrogatory CSC-1-12

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Eric Partyka

Q-CSC-1-12: Would the petitioner participate in the ISO-NE Forward Capacity Auction? If yes, which auction(s) and capacity commitment period(s)?

A-CSC-1-12: Standard Solar currently does not plan to participate in the ISO-NE Forward Capacity Auction. However, it reserves the right to do so in the future.

Interrogatory CSC-1-13

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-13: What type of development and minimum lot size is permitted per the zoning designation?

A-CSC-1-13: The property is zoned “commercial” and the following is permitted in a commercial district: (1) professional and other business offices and financial institutions; (2) retail service establishments and retail stores not requiring a site plan review or special exception; (3) bakeries and confectionery stores; (4) post office and postal services. The minimum lot area in a commercial district is 1 acre.

Interrogatory CSC-1-14

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-14: In the lease agreement with the property owner, are there any provisions related to site restoration at the end of the project's useful life? If so, please provide any such provisions.

A-CSC-1-14: The State of Connecticut has a bond requirement for site restoration at the time of project decommissioning and Standard Solar will. Standard Solar will issue a bond in the amount of $375,000 ($15,000 x 25 acres), to mature in year 25 for decommissioning and site restoration.

Interrogatory CSC-1-15

Q-CSC-1-15: Is the site parcel, or any portion thereof, part of the Public Act 490 Program? If so, how does the municipal land use code classify the parcel? For example, is the parcel classified as "Tillable D – good to fair"? How would the project affect the use classification?

A-CSC-1-15: According to the Killingworth Assessor's Records, in 2014, the Property's owner obtained a "Forestland" designation under Public Act 490 for the entire 25-acre parcel. For more information regarding this designation, please see the Killingworth Assessor's certificate attached as **Attachment CSC-1-15**. Upon the Council's approval of the Project, this area will be reclassified appropriately. Although, the parcel will lose its Forestland designation, roughly nine acres will remain as forest-covered land.

Please see **Attachment CSC-1-15**, which is the Town of Killingworth Assessor's certificate.

Attachment CSC-1-15

ASSESSOR'S CERTIFICATE
PA 490 - FARM - FOREST - OPEN SPACE
2014GL
KILLINGWORTH, CT

OWNER OF RECORD	PROPERTY LOCATION MAP - LOT VOL-PG	ACQUISITION OR CLASSIFICATION DATE	EXPIRATION DATE	ACREAGE CLASSIFIED
CURTIS, JEFFREY	66 ROUTE 81 37-25 258/532	10/01/2014	10/01/2024	55.5
RAIVILLA LLC	ROUTE 80 26-14B 256/784	10/1/2014	10/1/2024	25.00
WALTON, KATRIN & DAVID	33 STEVENS RD 33-23A 229/531	10/01/2014	10/01/2024	4.23
SALAFIA, CHRIS & DENISE	318 ROAST MEAT HILL RD 28-51 257/933	12/17/2013	12/17/2023	17.8
HILL, STEVEN R. & CAROLYN	239 NORTH PARKER HILL RD 17-35C 260/217	10/01/2014	10/01/2024	2.10
MORGAN, CHARLES JR.	116 ROAST MEAT HILL RD 37-08 258/1089	10/01/2014	10/01/2024	15.00

Received for record [illegible] 2015
at [illegible] M. and recorded by
[illegible] Town Clerk

STATE OF CONNECTICUT FORM M-39, REVISED 7/2014

APPLICATION TO THE ASSESSOR FOR CLASSIFICATION OF LAND AS FOREST LAND

Declaration of policy: it is hereby declared that it is in the public interest to encourage the preservation of farm land, forest land and open space land in order to maintain a readily available source of food and farm products close to the metropolitan areas of the state, to conserve the state's natural resources and to provide for the welfare and happiness of the inhabitants of the state [and] that it is in the public interest to prevent the forced conversion of farm land, forest land and open space land to more intensive uses as the result of economic pressures caused by the assessment thereof for the purposes of property taxation at values incompatible with their preservation as such farm land, forest land and open space land.

RECEIVED
SEP 10 2014
ASSESSOR'S OFFICE

PLEASE PRINT. COMPLETE ALL SECTIONS. SEE REVERSE SIDE OF THIS FORM. ATTACH ANY ADDITIONAL PAGES.

☐ NEW APPLICATION (ATTACH THE CERTIFIED FORESTER'S REPORT)

☐ UPDATE APPLICATION (EXCEPTED TRANSFERS ONLY) (ATTACH CERTIFIED FORESTER'S REPORT DATED WITHIN 12 MONTHS OF THE TRANSFER)

☐ ACREAGE CHANGE (ATTACH EXPLANATION)

☐ USE CHANGE (ATTACH EXPLANATION)

NAME OF ALL OWNERS	MAILING ADDRESS
RAJVILLA LLC	P.O. Box 8295 New Haven CT 06530

CONTACT PERSON'S NAME	CONTACT PERSON'S TELEPHONE NUMBER	CONTACT PERSON'S E-MAIL ADDRESS
KAPIL LUTHRA	203-931-5431	

CERTIFIED FORESTER'S NAME	CERTIFIED FORESTER'S ADDRESS	CERTIFICATE NUMBER	EXPIRES	DATE OF REPORT
Nicholas Zito	82 Nollet Rd	F001044	11/2016	9/7/14

STREET ADDRESS	MAP	BLOCK	LOT	TOTAL ACREAGE	CONFORMING FOREST ACRES (WHOLE NUMBERS ONLY)	ASSESSOR'S USE VALUE FOR ACRE
Route 80 MAP 26 LOT 14B	26		14B	25		

OWNER'S AFFIDAVIT (ALL OWNERS MUST SIGN)

I DO HEREBY DECLARE under the penalty of false statement that the statements made herein by me are true according to the best of my knowledge and belief, and that I have received and reviewed § 12-504a through 12-504e, inclusive of the Connecticut General Statutes concerning a potential tax liability upon a change of ownership or use of this property.

OWNER'S SIGNATURE	DATE SIGNED	OWNER'S SIGNATURE	DATE SIGNED	OWNER'S SIGNATURE	DATE SIGNED
[signature]	9-9-14				

ASSESSOR'S VERIFICATION SECTION

ACQUISITION DATE	DATE RECORDED	VOLUME/PAGE	MAP/BLOCK/LOT	TOTAL ACREAGE	TOTAL ACREAGE ASSESSED

APPLICATION APPROVED: ☐ YES ☐ NO; REASON: _____

ASSESSOR _____ DATE _____

State of Connecticut
Department of Energy and Environmental Protection
Division of Forestry

Qualified Forester's Report

(as per Public Act 04-115)

Date: 09/07/2014

Owner(s) of record for the subject lands:

Name: Nicholas Zito	
Address: Rt. 80	
Address: Rt. 80	Telephone:
City: Mansfield Center	State: CT Zip: 06250

Qualified Forester's statement:
I swear that: (1) I have personally examined the land proposed for forest land classification in compliance with the policies, procedures and standards required by section 12-107d of the Connecticut General Statutes and its associated regulations; (2) the information contained in this report is true, accurate and complete to the best of my knowledge and belief; and (3) the land identified in the report as Forest Land conforms to the standards for such classification as established by the State Forester. I understand that failure to comply with such policies, procedures and standards shall be grounds for suspension or revocation of my certification to evaluate land for classification as Forest Land as per section 12-107d of the Connecticut General Statutes.

Name: Nicholas Zito	Signature:
CGS 23-65h Forest Practitioner Certificate #: F001044	
Forest Practitioner Certification Expiration Date: 11/2016	
PA-490 Qualified Forester's Accreditation Expiration Date: 6/20/2017	

Qualified Forester's Findings:

Town Code	Street Address	Map	Block	Lot	Total Acres	Conforming Forest Acres
	RT. 80 Killingworth	28		14B	25	25

(attach additional pages as necessary)

The following pages contain important information concerning your forested lands.

A note to the landowner from the Connecticut State Forester

Congratulations on being a steward of the future! With proper care, the forested land you own will provide a home for wildlife, a moderate source of income, fresh air, fresh water, and unmatched beauty for you -- and for generations to come. How well you care for the forest will have a direct and lasting impact on the quality of life in Connecticut for the future. The following page(s) provide a brief description of your forest and some suggested forest management activities that are intended to help you attain your goals of forest ownership and pass on a forest that is healthier and more vigorous than when you took charge of it.

You certainly should consult your certified Forester as you manage your forest for the future. But, you may also consult (free of charge) with one of our State Service Foresters. Simply contact my office (860-424-3630) and I will have the Service Forester for your area contact you.

Some facts to help you understand your Qualified Forester's Report

What is a forest **"stand"**? A stand is a contiguous area where the species, size, age, and general condition of trees is uniform enough to be distinguished from adjacent areas. The forest map(s) that accompany this report will show the layout of the property and the various forest stands.

Tree diameters are measured in inches at 4.5 feet above ground level, known as "diameter at breast height" (dbh). Trees are described according to the following size groups:

seedlings	- trees less than or equal to 0.5 inches dbh.
saplings	- trees greater than 0.5 inches and less than or equal to 5.5 inches dbh.
poletimber	- trees greater than 5.5 inches and less than or equal to 11.5 inches dbh.
sawtimber	- trees greater than 11.5 inches dbh.

Forest Stand Descriptions are **coded** as follows:

H = hardwoods (broadleaf trees)	0 = seedlings	A = overstocked (needs thinning)
M = mixed hard and softwoods	1 = saplings	B = well stocked for optimal growth
S = softwoods (conifers)	2 = poletimber	C = poorly stocked (young or over-cut)
X = xmas trees (harvest w/o roots)	3 = sawtimber	

(As an example, the forest stand class "H2A" describes a stand of hardwood poletimber that is overstocked and in need of thinning. Where more than one size group is present the classifications are combined, such as "M2,3B" represents a well stocked mixed stand of pole and sawtimber.)

The **"priority"** listed for treatment of a forest stand is a subjective evaluation by your Qualified Forester of how important is it to perform the treatment of the stand in comparison to treatments proposed for other stands. If you've decided to actively manage your forest, start with the top priority treatments (labeled #1) and work down the priorities. That way you know you're getting the most important work done first!

UPDATE THESE GUIDELINES !!!

Natural processes, harvesting, and other management practices cause changes in the forest that will make these guidelines less valid with the passage of time. Therefore, new guidelines should be developed at least every 10 years.

Forest Stand Descriptions

The accompanying forest map shows the layout of the property and the various forest stands. Management recommendations are offered for each stand and are based upon owner objectives and stand characteristics.

Stand #: 1	Acres:	Trees/Ac.: 652	Code: HB	Priority: 2
Predominant species: Black Birch, Sugar Maple				
Suggested Treatment(s):				
Allow to grow.				
Forest health and protection issues:				
None.				
Special or unique features/values:				
None.				

Stand #: 2	Acres: 24	Trees/Ac.: 126.5	Code: WSR	Priority: 1
Predominant species: SUGAR MAPLE, OAKS				
Suggested Treatment(s):				
Depending on the landowner's goals, a thinning is recommended. Removal of 30% of the basal area would be beneficial for Sugar Maple growth and regeneration. A heavy harvest would benefit the oaks, but is not recommended.				
Forest health and protection issues:				
Japanese Barberry is present in the understory. Some form of invasive management is recommended, but not required. White Ash is susceptible to Emerald Ash Borer				
Special or unique features/values:				
Good site for maple syrup production				

Stand #:	Acres:	Trees/Ac.:	Code:	Priority:
Predominant species:				
Suggested Treatment(s):				
Forest health and protection issues:				
Special or unique features/values:				

(attach additional pages as necessary)

Summary of Recommended Stand Treatments

Priority	Stand #	Recommended Treatment
1	2	Thinning
2	1	Leave to grow

(attach additional pages as necessary.)

Call on your Qualified Forester to help you!

Name: Nicholas Zito		
Address: 82 Nollet Road		
Address:		
City: Mansfield Center	State: CT	Zip: 06250
Phone: 860-319-7125	Fax:	
Email: nicholast.zito@gmail.com		

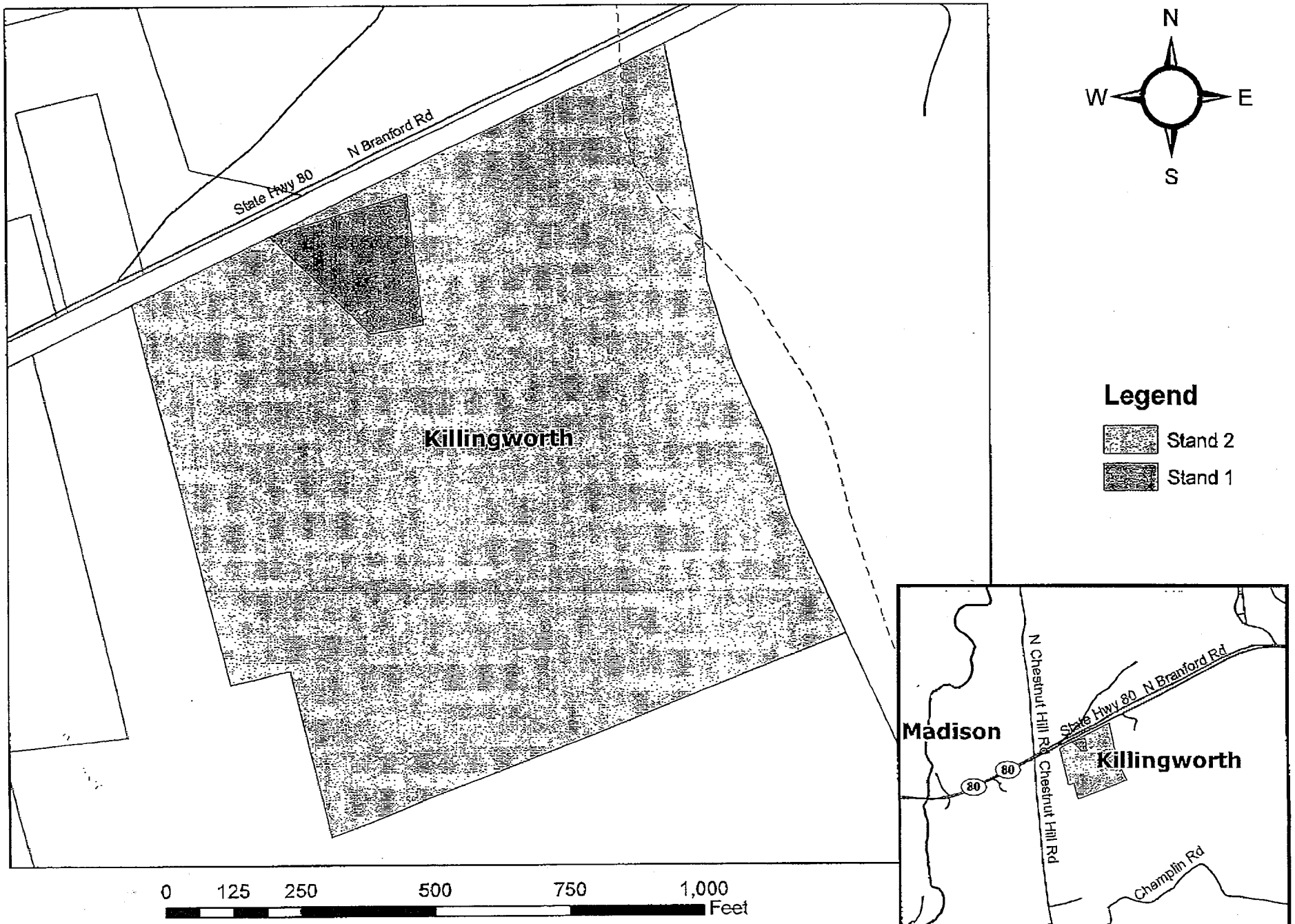
Map Requirements:

- unfolded dimensions no larger than 17 inches by 22 inches;
- map legend with north arrow and map scale;
- map title section indicating the name of the owner, the town or towns in which the land is located, and the address of the real property containing the land proposed for forest land classification as indicated in the applicable municipal land records, the date the map was prepared and the name of the individual who prepared the map;
- a small, inset, location map showing the outline of the property in relation to surrounding public roads;
- the boundaries of the real property containing the land proposed for forest land classification and its location with respect to the nearest public highways or roads;
- a delineation of the land determined to satisfy the standards for forest land classification as found in Section 12-107d-4 of these regulations or any changes in land previously classified as forest land;
- a delineation of the physical features of the land including, but not limited to: streams or rivers; paved or unpaved roads; ponds, lakes or other bodies of water, power lines, pipe lines, railroad rights of way or other easements; swamps, marshes or bogs; ledge outcrops; and houses, barns, buildings or other structures; and
- a delineation of each distinct forest stand within the land proposed for forest land classification, such stands to be numbered. If the forester believes that doing so will yield a more readable map, this information may be prepared as an overlay to a base map containing all other information.

Rajvilla Property Map

Rt. 80, Killingworth, CT

Map 26 // Lot 14B



Interrogatory CSC-1-16

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-16: Has the State of Connecticut Department of Agriculture purchased any development rights for the project site or any portion of the project site as part of the State Program for the Preservation of Agricultural Land?

A-CSC-1-16: No.

Interrogatory CSC-1-17

Q-CSC-1-17: Petition page 12 states the nearest neighbor is approximately 200 feet from the solar array. In what direction is the nearest neighbor? Does the referenced 200 feet represent the distance to the nearest property line or to the nearest residential structure? Please provide an address of the referenced neighbor.

A-CSC-1-17: The nearest neighbor is located on the northwest side of the array, across CT-80. The distance referenced is more accurately 178 feet (rather than 200 feet) and is the distance to the nearest residential structure, which is indicated on the neighboring properties photograph (**Attachment CSC-1-17**). The address is 497 Route 80, Killingworth, Connecticut 06419.

Attachment CSC-1-17

Distance from Fence to Nearest Property Line (across Route 80) =60 ft (+/-)
Distance from Fence to Nearest House (across Route 80) = 178 feet (+/-)

All distances are approximate and not based on field work or surveyed locations.

Scale: 1:4,800

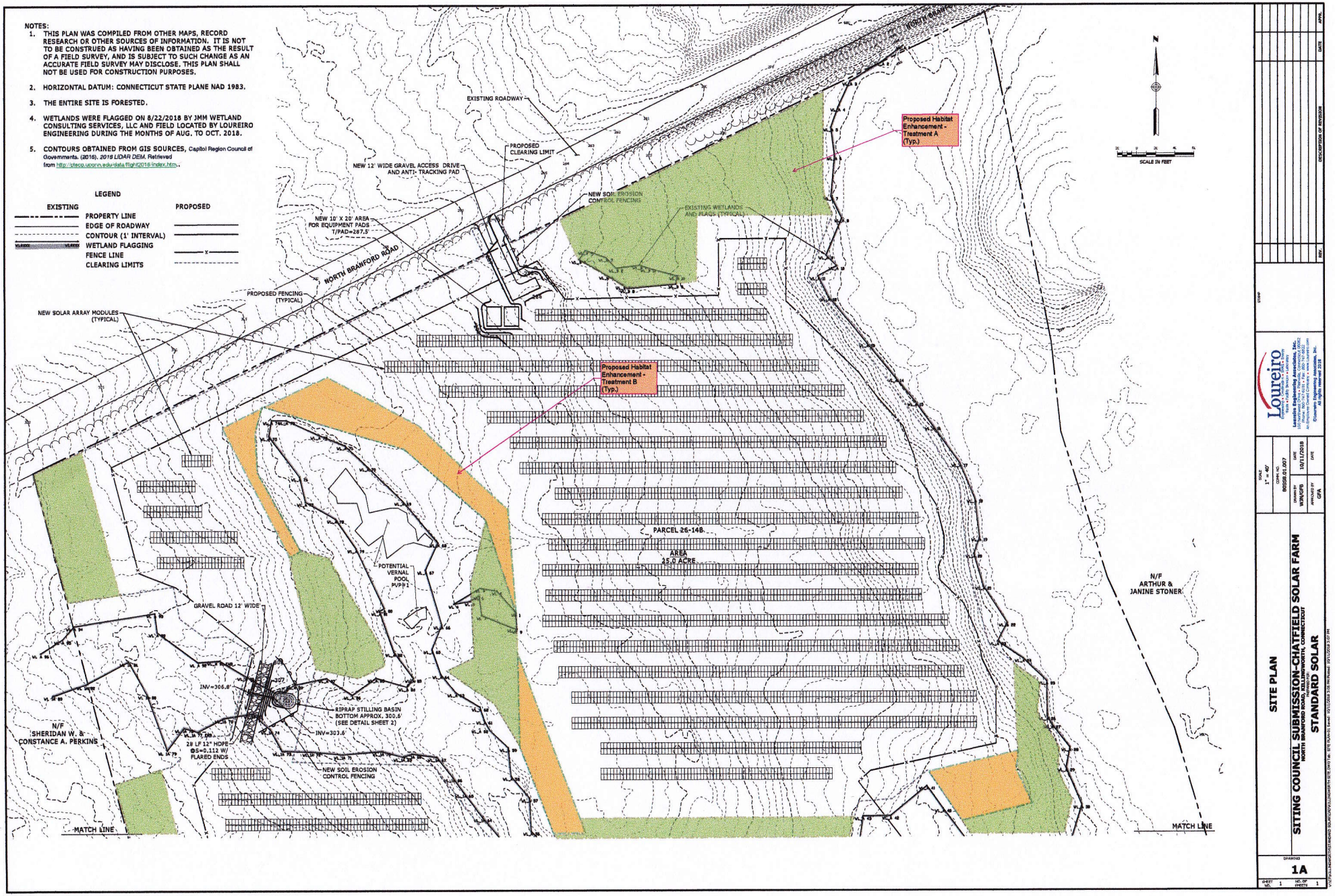
0 125 250 500 750 1,000 Feet

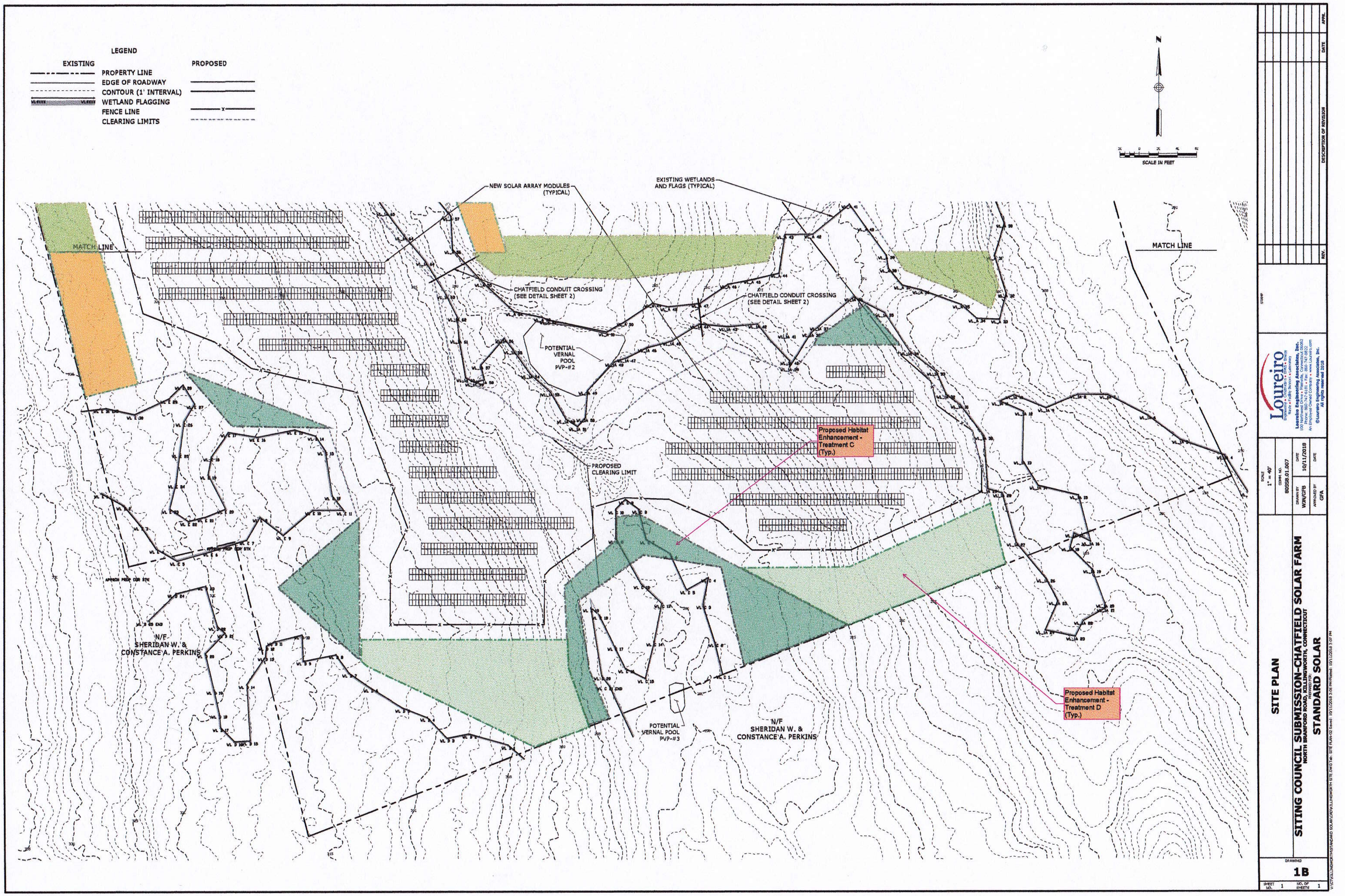
Interrogatory CSC-1-18

Q-CSC-1-18: Provide the direction/distance on a scaled map from the solar field perimeter fence to the nearest property line and to the nearest residential structure.

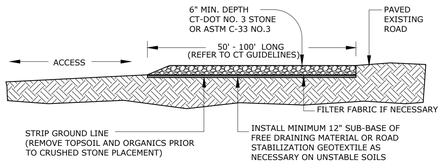
A-CSC-1-18: Please see **Attachment CSC-1-18** (the “Site Plan”).

Attachment CSC-1-18

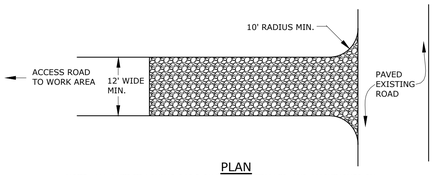




LEGEND
EXISTING
PROPOSED
PROPERTY LINE
EDGE OF ROADWAY
CONTOUR (1' INTERVAL)
WETLAND FLAGGING
FENCE LINE
CLEARING LIMITS
N
SCALE IN FEET
MATCH LINE
MATCH LINE
NEW SOLAR ARRAY MODULES (TYPICAL)
EXISTING WETLANDS AND FLAGS (TYPICAL)
CHATFIELD CONDUIT CROSSING (SEE DETAIL SHEET 2)
CHATFIELD CONDUIT CROSSING (SEE DETAIL SHEET 2)
POTENTIAL VERNAL POOL PVP-#2
PROPOSED CLEARING LIMIT
Proposed Habitat Enhancement - Treatment C (Typ.)
Proposed Habitat Enhancement - Treatment D (Typ.)
N/F SHERIDAN W. & CONSTANCE A. PERKINS
POTENTIAL VERNAL POOL PVP-#3
N/F SHERIDAN W. & CONSTANCE A. PERKINS
REV.
DESCRIPTION OF REVISION
DATE
APPR.
STAMP
Loureiro
Loureiro Engineering Associates, Inc.
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com
©Loureiro Engineering Associates, Inc.
All rights reserved 2018
SCALE 1" = 40'
COMM NO. 80558.01.007
DRAWN BY WJN/GFB
DATE 10/11/2018
APPROVED BY GFA
DATE
SITE PLAN
SITING COUNCIL SUBMISSION-CHATFIELD SOLAR FARM
NORTH BRANFORD ROAD, KILLINGWORTH, CONNECTICUT
PREPARED FOR:
STANDARD SOLAR
DRAWING 1B
SHEET NO. 1
NO. OF SHEETS 1



LONGITUDINAL SECTION



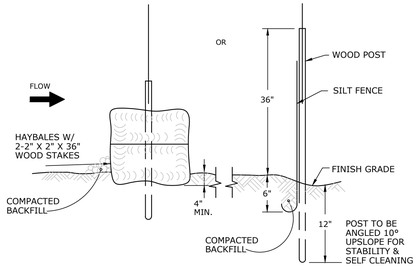
PLAN

NOTE: ALL ANTI-TRACKING PADS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH 2002 CT GUIDELINES FOR SOIL EROSION & SEDIMENT CONTROL, AS AMENDED.

Reference: 2002 CT Guidelines for Erosion and Sediment Control, DEEP Bulletin 34, Chapter 12, Figure CE-2, errata date 3/17/06.

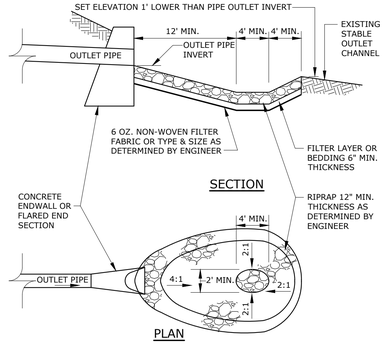
ANTI-TRACKING PAD DETAIL

SCALE: NONE



TYPICAL SEDIMENT BARRIER DETAIL

NOT TO SCALE

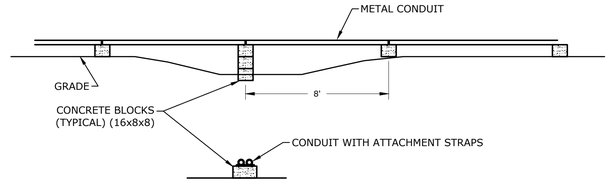


NOTES:
1. SEE PLAN FOR EXACT LOCATION AND DIMENSIONS.
2. RIPRAP SIZE AND THICKNESS SHALL VARY AS DETERMINED BY ENGINEER.
3. THE CONTRACTOR SHALL APPLY CEMENTIOUS GROUT IN THE RIPRAP TO PREVENT VANDALISM AND FACILITATE SEDIMENT AND DEBRIS CLEANOUT.
4. ALL OUTLET PROTECTION STRUCTURES SHALL BE FURNISHED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH 2002 CT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROLS, AS AMENDED.

TYPICAL OUTLET PROTECTION DETAIL
RIPRAP STILLING BASIN DETAIL

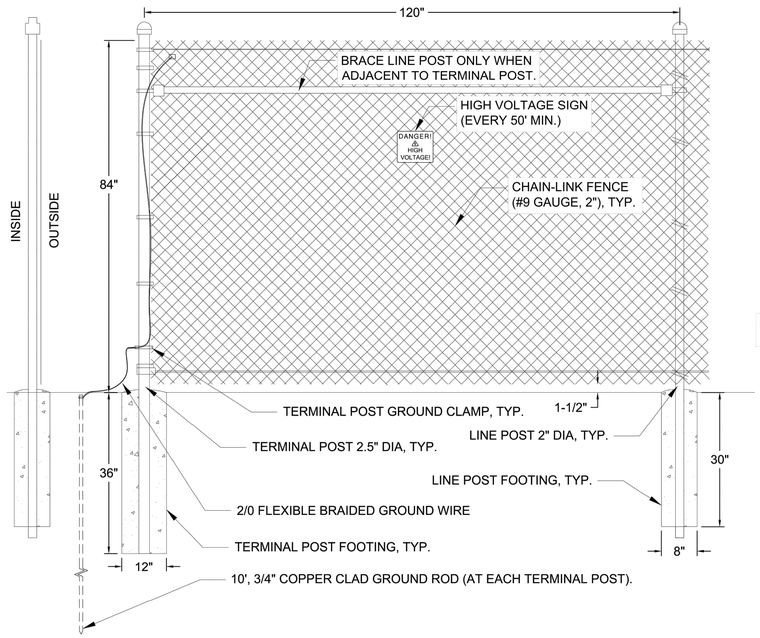
SCALE: NONE

Reference: 2002 CT Guidelines for Erosion and Sediment Control, DEEP Bulletin 34, Chapter 5-10, Figure OP-3.



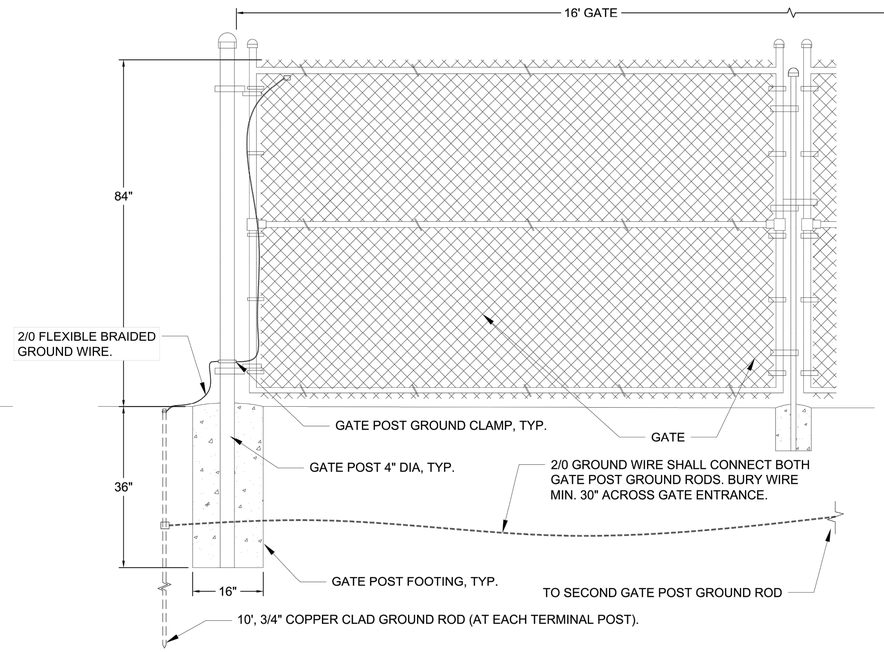
CHATFIELD CONDUIT CROSSING DETAIL

SCALE: NONE



FENCE DETAIL

SCALE: 1/16" = 1'-0"



GATE DETAIL

SCALE: 1/16" = 1'-0"

SOIL EROSION AND SEDIMENTATION CONTROL PLAN

NARRATIVE

1. THE FOLLOWING SOIL EROSION AND SEDIMENTATION CONTROL (E&S) NOTES APPLY TO THE CONSTRUCTION OF A SOLAR-BASED ELECTRIC GENERATING FACILITY LOCATED ON A 25 ACRE PARCEL OF PROPERTY IN KILLINGWORTH, CONNECTICUT. THE PROJECT INVOLVES THE REMOVAL OF EXISTING VEGETATION BY FLUSH-CUTTING, INSTALLATION OF 6732 SOLAR MODULES, 34 INVERTERS, A 12' X 55' GRAVEL ACCESS DRIVE AND TWO 15' X 20' CONCRETE EQUIPMENT PADS.
2. UPLAND SOILS AT THE SITE CONSIST OF MODERATELY WELL DRAINED WOODBRIDGE EXTREMELY STONY FINE SANDY LOAM. GIVEN THE RELATIVELY STEEP SLOPES IN THE AREA OF CONSTRUCTION THESE SOILS ARE SUSCEPTABLE TO EROSION DURING RAINFALL EVENTS.
3. EROSION CONTROL MEASURES INTENDED TO MINIMIZE SOIL EROSION AND TO CONTROL SEDIMENTATION DURING CONSTRUCTION INCLUDE:

- THE INSTALLATION OF SILT FENCES AROUND GRUBBED AREAS.
- THE INSTALLATION OF A TEMPORARY CONSTRUCTION ENTRANCE AND ACCESS ROAD.
- STABILIZATION OF ALL DISTURBED AREAS.

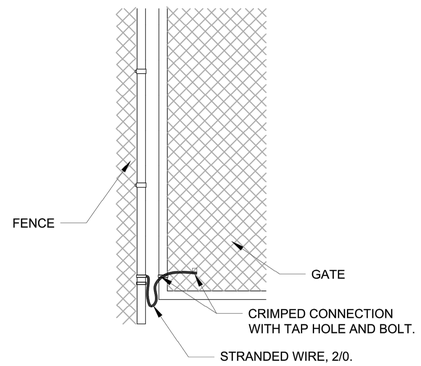
4. IT IS ANTICIPATED THAT SITE WORK WILL BEGIN IN THE WINTER OF 2019 AND WILL BE COMPLETED BY SPRING OF 2019.

GENERAL E&S REQUIREMENTS

1. THE CONTRACTOR SHALL INSTALL SILT FENCING AS SHOWN ON THE E & S CONTROL PLAN PRIOR TO INITIATING CONSTRUCTION.
2. A TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED BEFORE CONSTRUCTION TRAFFIC INTO AND OUT OF THE PROJECT AREA BEGINS.
3. THE CONTRACTOR SHALL COMPLETE PERMANENT SEEDING BETWEEN APRIL 15TH THROUGH JUNE 15TH\. APPLY PERMANENT SOIL STABILIZATION MEASURES TO ALL GRUBBED AREAS WITHIN 7 DAYS OF ESTABLISHING FINAL GRADE.
4. E&S CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE OF CONNECTICUT SOIL EROSION AND SEDIMENT CONTROL HANDBOOK. ALL MEASURES SHALL BE MAINTAINED AND UPGRADED TO ACHIEVE PROPER SEDIMENT CONTROL DURING CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND INSPECTING THE E&S CONTROL MEASURES PER THIS PLAN AND SHALL INFORM ALL SUBCONTRACTORS OF THE OBJECTIVES AND REQUIREMENTS OF THE PLAN. THE CONTRACTOR SHALL NOTIFY THE PROPER TOWN AGENCY OF ANY TRANSFER OF RESPONSIBILITY AND SHALL ADVISE THE TOWN REGARDING THE NEED FOR IMPLEMENTING ADDITIONAL CONTROL MEASURES AS DEEMED NECESSARY DURING CONSTRUCTION.
6. IF NECESSARY DURING CONSTRUCTION, THE CONTRACTOR SHALL INSTALL ADDITIONAL CONTROL MEASURES AS REQUIRED. INSPECTIONS SHALL BE CONDUCTED WEEKLY AND/OR WITHIN 24 HOURS OF THE END OF A STORM HAVING A RAINFALL AMOUNT OF ½ INCH OR GREATER. MONTHLY WRITTEN REPORTS SHALL BE PREPARED DESCRIBING OBSERVATIONS, MAINTENANCE, AND CORRECTIVE ACTIONS.

CONSTRUCTION SEQUENCE

1. INSTALL TEMPORARY CONSTRUCTION ENTRANCE/GRAVEL ACCESS DRIVE.
2. TREES TO BE GRUBBED SHALL BE FLAGGED PRIOR TO START OF CONSTRUCTION.
3. INSTALL SILT FENCE AS SHOWN ON THE PLAN.
4. INSTALL SILT FENCE AT GRUBBING LOCATIONS PRIOR TO INITIATING EARTHWORK.
5. PLACE TEMPORARY CONSTRUCTION MATS ACROSS WETLANDS FOR VEHICULAR ACCESS.
6. CLEAR AND GRUB AREA FOR CONCRETE PAD AND FLUSH-CUT TREES AND BRUSH WITHIN THE LIMITS OF DISTURBANCE AS REQUIRED FOR CONSTRUCTION.
7. PLACE DRIVEWAY FILL AND IMMEDIATELY FINAL GRADE, SEED AND MULCH FILL SLOPE.
8. INSTALL CONCRETE PAD AND IMMEDIATELY FINAL GRADE ALL DISTURBED AREAS, PLACE TOPSOIL, SEED, LANDSCAPING AND MULCH.
9. INSTALL CONDUIT CROSSING OVER WETLANDS.
10. ONCE CONSTRUCTION OF SOLAR ARRAY IS COMPLETED IN SOUTHWESTERN PORTION OF THE SITE, REMOVE TEMPORARY CONSTRUCTION PADS
11. RELOCATE SILT FENCE FOR WETLANDS CROSSING IF NEEDED AND INSTALL CULVERT AND GRAVEL ACCESS DRIVE OVER WETLANDS.
12. UPON COMPLETE STABILIZATION OF THE SITE, REMOVE ALL SILT FENCES, HAYBALES AND OTHER E&S MEASURES.



GATE GROUNDING DETAIL

SCALE: 1/16" = 1'-0"

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STAMP

Loureiro
Engineering Associates
Engineers • Landscape Architects • Surveyors • Ecologists
Waste • Facility Services • Laboratory
Loureiro Engineering Associates, Inc.
100 Northfield Drive • Windsor, Connecticut 06095-1562
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE: AS NOTED
CONN. NO.
DRAWN BY: PJA — DATE: 10/9/2018
APPROVED BY: GFA — DATE: 10/9/2018

DETAILS AND NOTES

SITING COUNCIL SUBMISSION-CHATFIELD SOLAR FARM
NORTH BRANFORD ROAD, KILLINGWORTH, CONNECTICUT
PREPARED FOR
STANDARD SOLAR

DRAWING 2

SHEET NO. 1 — NO. OF SHEETS 1

V:\CT\KILLINGWORTH\STANDARD SOLAR\CAD\KILLINGWORTH DETAILS&NOTES.DWG Tab: 2 Saved: 10/11/2018 3:06 PM Plotted: 10/11/2018 3:07 PM

Interrogatory CSC-1-19

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Jobin Michael

Q-CSC-1-19: Petition page 12 states a vegetative barrier would exist between the solar arrays and the surrounding area. During leaf-off conditions, would the Project be visible from abutting properties, residences, or Route 80?

A-CSC-1-19: Yes, it is expected that in leaf-off conditions abutting properties may be able to see the project.

Interrogatory CSC-1-20

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Jobin Michael

Q-CSC-1-20: Petition p. 12 states an abutting residence is 200 feet away and that a 20 foot wide vegetative buffer would be maintained between the abutting residence and the facility. Is the 20-foot buffer on the site property or is it partially or entirely located on the abutting property?

A-CSC-1-20: The proposed 20-foot buffer is entirely located on the site property.

Interrogatory CSC-1-21

Q-CSC-1-21: Does the proposed site contain any mapped Connecticut Prime Farmland Soils? If so, provide the acreage of prime farmland soils within the solar field areas.

A-CSC-1-21: No.

Interrogatory CSC-1-22

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Jobin Michael

Q-CSC-1-22: What is the operational life of the facility? Provide a decommissioning plan to summarize the plans to remove equipment and restore the site after the operational life has been reached and/or the project is removed from service.

A-CSC-1-22: The expected service life of this solar project is over 30 years. The decommissioning process will include the removal of the structures and restoration of the site. The materials to be removed include steel, glass, aluminum, copper and plastics; which will be categorized and transported to respective facilities for reconditioning, recycling or disposal. Standard Solar has a policy to set aside funds in its internal account to cover the costs of decommissioning in addition to repurposing its useful components.

Interrogatory CSC-1-23

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Jobin Michael

Q-CSC-1-23: Have electrical loss assumptions been factored in to the output of the facility? What is the output (MW AC) at the point of interconnection?

A-CSC-1-23: Electrical loss assumptions are factored into the total generation of the facility. The facility is designed for 1.98 MW AC.

Interrogatory CSC-1-24

Q-CSC-1-24: Was a tilt angle of 20 degrees selected solely to reduce inter-row spacing? How would the reduction in slope from 20 degrees to 25 degree affect facility power output?

A-CSC-1-24: Yes, tilt angle has been reduced from 25 degrees to 20 degrees. This was done in order to reduce the inter row spacing and shrink the overall foot print of the PV system. Additionally, this was done to minimize the total site disturbance. There was a 1% overall energy production decrease when the project was changed to the 20-degree tilted system design.

Interrogatory CSC-1-25

Q-CSC-1-25: Is the project designed to maximize annual energy production or peak load shaving during the summer months?

A-CSC-1-25: The project is designed to maximize the total annual energy production.

Interrogatory CSC-1-26

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Jobin Michael

Q-CSC-1-26: What is the projected capacity factor (expressed as a percentage) for the proposed project?

A-CSC-1-26: The projected capacity factor for the proposed project is 14%.

Interrogatory CSC-1-27

Q-CSC-1-27: Referring to Petition p. 6, what is the efficiency of the solar panels? Would the power output of the solar panels decline as they age? If so, estimate the percent of loss per year.

A-CSC-1-27: The proposed Adani Solar 355W modules have a 18.26% efficiency. The expected annual power degradation is 0.5 % per year.

Interrogatory CSC-1-28

Q-CSC-1-28: Is the project being designed to accommodate the potential for a future battery storage system? If so, please indicate the anticipated size of the system, where it may be located on the site, and anticipated installation date.

A-CSC-1-28: There currently are no plans to deploy energy storage at the site.

Interrogatory CSC-1-29

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Jobin Michael

Q-CSC-1-29: Would the impact of soft shading, such as air pollution or hard shading, such as bird droppings or weather events, such as snow or ice accumulation, hail, dust, pollen, etc. reduce the energy production of the proposed project? If so, was this included in the proposed project's capacity factor?

A-CSC-1-29: All of soft and hard shading including tree shading, snow accumulation, dirt accumulation, etc. are included in the energy production model and capacity factor discussed above.

Interrogatory CSC-1-30

Q-CSC-1-30: Could the project be designed to serve as a microgrid?

A-CSC-1-30: No.

Interrogatory CSC-1-31

Q-CSC-1-31: If one section of the solar array experiences an operational issue and needs to be shut down for maintenance, can other sections of the facility still operate and provide power to the interconnection point?

A-CSC-1-31: Yes, if the issue is limited to a portion of the PV system, it can be effectively isolated and other portions of the array can continue to generate power without interruption.

Interrogatory CSC-1-32

Q-CSC-1-32: Provide specifications sheets for the following:

a) string inverters
b) solar photovoltaic panels
c) solar panel racking system

(if the exact model has not been determined, provide a spec sheet for a typical model)

A-CSC-1-32: Please see **Attachment CSC-1-32** for the specification sheets of the solar panels, inverters and racking system.

Attachment CSC-1-32

Contour-DB FEATURES

The Most Topographically Adaptable PV Racking System in the Industry

ARTICULATING PURLINS – The articulating purlins allow the system to follow the contour of the site up to 20% without the need for additional grading.

PRE-PUNCHED WIRE MANAGEMENT HOLES – Pre-punched wire management holes can be used to pass home-run wiring through the NS Cee beam which keeps home run lengths at a minimum, improves aesthetics and cuts down on wire management labor.

ONE PIECE POST ADAPTER – The one piece post adapter gives 4" of both horizontal and vertical adjustment allowing for maximum post tolerance during installation. The one piece design also reduces total system components and hardware in comparison with competitors systems.

INTEGRATED WIRE MANAGEMENT – The bottom rear flange on the E-W panel beam acts as a home run wire support, decreasing the need for additional wire management components and labor. Pre-punched holes in the flange enable the home runs to be secured into the support.

INTEGRATED BONDING – Each continous row is bonded through the use of serrated hardware, therefore only one ground is needed per row as shown in the picture. No additional grounding components such as weebs, star washers and grounding lugs are required. This reduces labor time, hardware and cost for additional bonding components.

PANEL ASSEMBLY JIG – The panel assembly jig creates unmatched panel assembly time and aesthetics by providing a leading edge for the panels to follow and creating consistency throughout the panel assembly of each table.

DCE SOLAR

Elevating the Future for Solar | Made in America

DCE Solar

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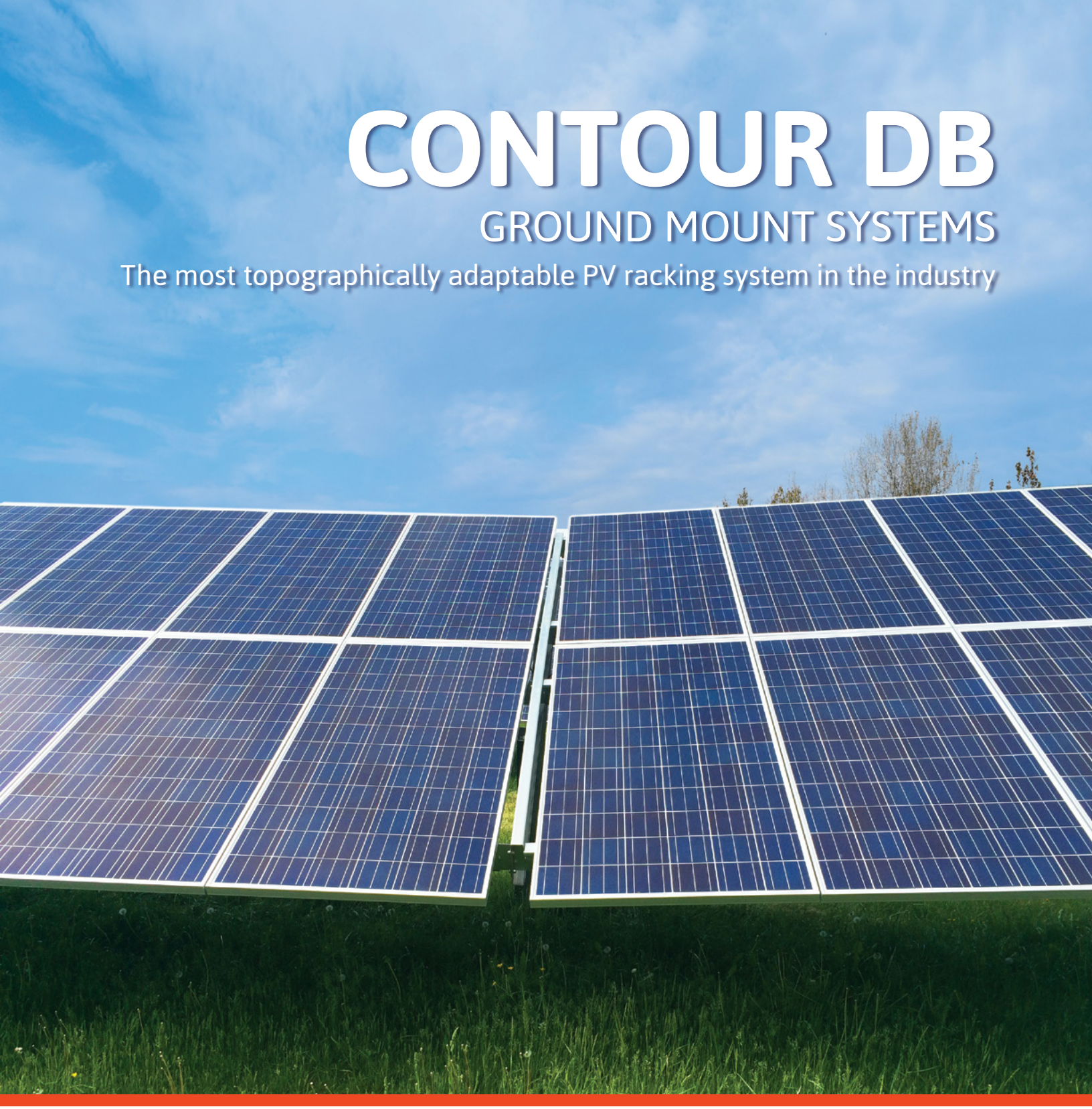
Telephone: 704-659-7474 **Fax:** 704-875-0781
info@DCEsolar.com **www.DCEsolar.com**

CONTOUR DB

GROUND MOUNT SYSTEMS

The most topographically adaptable PV racking system in the industry



Elevating the Future for Solar

DCE SOLAR

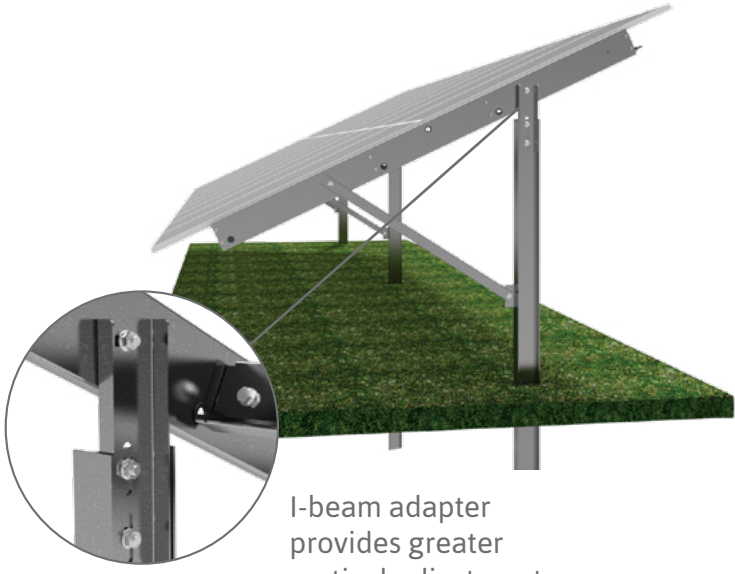
CONTOUR DB

The numerous benefits of DCE Solar's Contour DB result in the lowest system cost.

- Single point purlin connection creates unmatched system compatibility with grade
- Integrated wire support system
- Integrated array grounding
- Industry leading installation time

Driven Beam

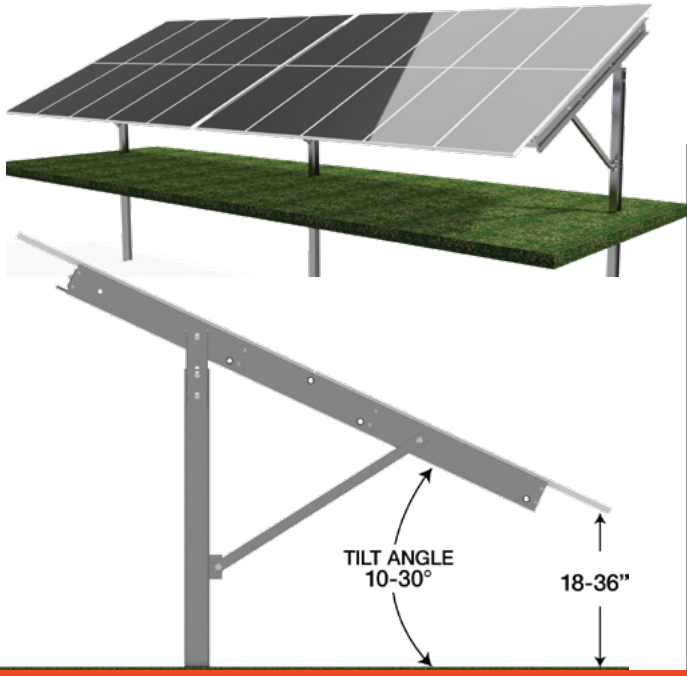
Rugged and economical I-beam foundation provides a flexible solution for all conditions, including rocky soils.



I-beam adapter provides greater vertical adjustment

Grounding and Bonding

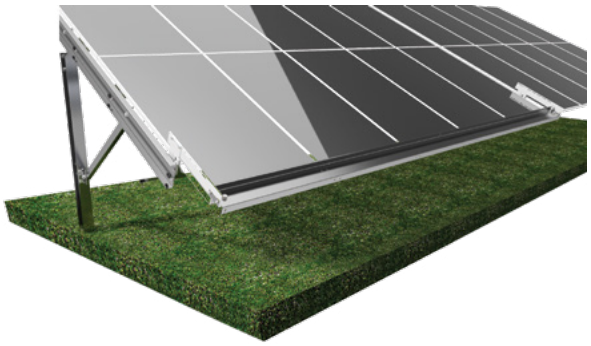
Grounding and bonding via serrated hardware certified to UL 2703 (listing available upon request).



CONTOUR DB

Structural Components

All truss members are constructed from G115 galvanized steel. Driven beam and adjustment plate are hot dip galvanized to meet ASTM A123.



Assembly Jig

- Allows for greater module installation efficiency which reduces labor costs significantly
- Jig ensures perfect panel alignment the first time, negating post-installation adjustments
- Jig provided at no additional cost

UL 2703

TECHNICAL SPECIFICATIONS

Wind Load	90-150 mph
Snow Load	0-60 psf
Leading Module Height	18-36” (max from ground)
Tilt Angle	10-30 °
Module Suitability	All Major Brands
System Orientation	Portrait (2H x 5W x 6W)
Warranty	20 Years

DCE SOLAR serves as market leader in industrial grade solar mounting hardware and consulting. DCE Solar leverages world-class engineering, fabrication facilities and American master craftsmen to create a full catalog of superior fixed-tilt mounting solutions for ground arrays and fixed-tilt solutions for roofs.

DCE SOLAR

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DCE Solar

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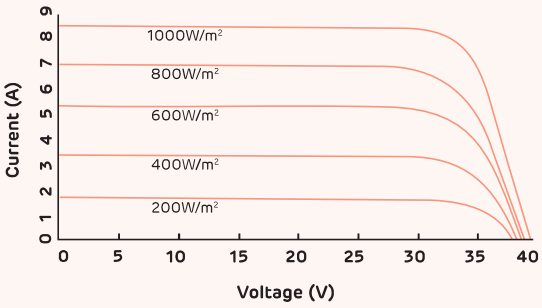
Telephone: 704-659-7474 **Fax:** 704-875-0781
info@DCEsolar.com **www.DCEsolar.com**

Technical Data

Current-Voltage Curve

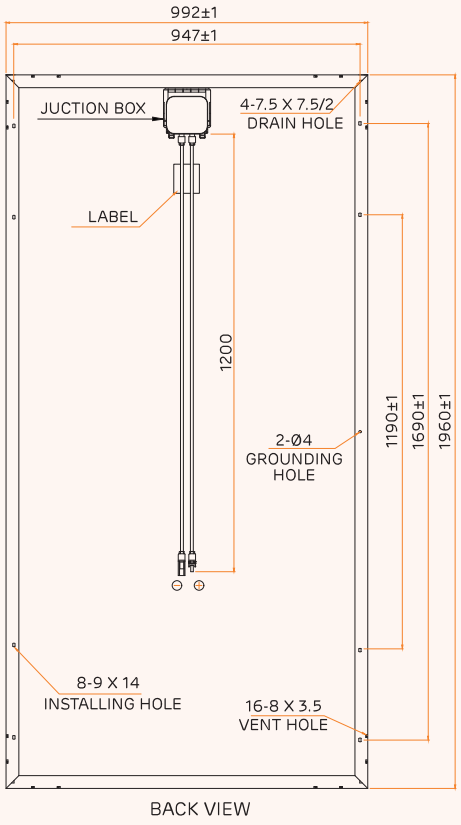


Electrical data – All data measured to STC*

Peak power, (0 ~+ 4.99 Wp) Pmax(Wp)	340	345	350	355	360
Maximum voltage, Vmpp (V)	38.82	39.11	39.21	39.41	39.61
Maximum current, Impp (A)	8.76	8.82	8.93	9.01	9.09
Open circuit voltage, Voc (V)	47.12	47.4	47.6	47.9	47.9
Short circuit current, Isc (A)	9.22	9.28	9.36	9.42	9.48
Module efficiency (%)	17.49	17.74	18.00	18.26	18.52

***STC:** Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5 % at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3 %, measurement uncertainty <3 %

Dimensions in mm



BACK VIEW

Electrical parameters at NOCT

Power(Wp) at NOCT	254	258	263	266	271
V@Pmax(V) at NOCT	36.91	37.4	37.46	37.62	37.92
I@Pmax (A) at NOCT	6.88	6.90	7.01	7.07	7.14
Voc (V) at NOCT	45.55	46.20	46.40	46.30	46.60
Isc (A) at NOCT	7.3	7.32	7.38	7.48	7.56

*NOCT irradiance 800 W/m2, ambient temperature 20°C, wind speed 1 m/sec

Temperature co-efficients (TC) and permissible operating conditions

TC of open circuit voltage (β)	-0.29% /°C
TC of short circuit current (α)	0.048 % /°C
TC of power (Ɣ)	-0.39 % /°C
Maximum system voltage	1500 V (IEC & UL)
NOCT	45°C ± 2°C
Temperature range	-40°C to + 85°C

Mechanical data

Length	1960 mm
Width	992 mm
Height	35 mm / 40 mm
Weight	22 Kg (35 mm) / 27 Kg (40mm)
Junction box	IP67
Cable and connectors	1200 mm length cable, MC4 & Amphenol compatible connectors
Application class	Class A (Safety class II)
Superstrate	High transmittance arc glass
Cells	72 mono-crystalline perc solar cells ; 5 bus bars, 156.75 mm x 156.75 mm
Encapsulation	Low shrinkage PID resistant EVA
Substrate	Back sheet
Frame	Anodized aluminium frame with twin wall profile
Mechanical load test as per IEC & UL	5400 Pa-front ; 2400 Pa-back
Maximum series fuse rating	15 A

Warranty and certifications

Product warranty**
25 years linear power warranty

Performance guarantee**
Power degradation < - 3 % in first year < - 0.68 % / year in 2-25 years

Approvals and certificates: IEC 61215 Ed2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62759, IEC 62804, IEC 62782, IEC 60068-2-68, IEC 61853

*Caution:
Please read safety and installation instructions before using the product.

Note:
- The specifications included in this datasheet are subject to change without notice.
- The electrical data given here is for reference purpose only.
- Please confirm your exact requirements with the sales representative while placing your order.

** Warranty:
Please read Adani solar warranty documents thoroughly.

Interrogatory CSC-1-33

Q-CSC-1-33: What is the minimum and maximum overall height of the panels above grade?

A-CSC-1-33: The bottom edge of each panel is designed for a 3-foot nominal ground clearance. The top of the highest module is designed to be 7.5 feet above grade.

Interrogatory CSC-1-34

Q-CSC-1-34: What is the aisle width between the solar panel rows (edge to edge)?

A-CSC-1-34: The isle width (front to back) between solar panel rows is 14’ 8 ½".

Interrogatory CSC-1-35

Q-CSC-1-35: What is the design wind speed of the solar panel mount? How are the panels adhered to the mount? What prevents the solar panels from separating from the foundation/racking system during high winds?

A-CSC-1-35: A 120-mph wind speed (ASCE 7-10) will be used for designing the solar racking system. Each solar panel is fastened to the racking structure with four through bolts with nuts tighten to the required torque per manufacturer specifications to prevent the panels from separating from the foundation/racking system during high winds.

The racking system is designed for the required design conditions (wind/snow) and all the structural member sizes and connections are determined by a licensed structural engineer.

Interrogatory CSC-1-36

Q-CSC-1-36: What is the maximum grade for the safe installation/operation of the solar panel post/racking system?

A-CSC-1-36: The proposed racking system can accommodate up to 20% slope without any site grading or modification.

Interrogatory CSC-1-37

Q-CSC-1-37: Petition Environmental Assessment. p. 3-1 states the Project area contains moderate slopes. Petition Site Plan Sheet 2 states steep slopes are present in the construction area. Please clarify. What is the steepest slope within the eastern portion of the construction area? Would grading be required to create slopes conducive to the installation of the solar racking system? If so, identify areas of grading.

A-CSC-1-37: Site Plan 1B depicts a moderate slope (see **Attachment CSC-1-18**). The steepest slopes on the site are 40% on the western edge of the eastern wetland area. There are no solar arrays in this area, although there are small pockets of steep slopes in other areas of the side where arrays are located. No grading is required for the project site.

Interrogatory CSC-1-38

Q-CSC-1-38: What is the length of the solar racking posts? What is the installation depth below grade to provide the specified structural support for the solar racking system?

A-CSC-1-38: The estimated post length will be 12.5ft with an embedment depth of 7ft. The final embedment depth will be calculated based on the results of an onsite pull test.

Interrogatory CSC-1-39

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-39: Are residential areas abutting the proposed site served by private wells? Can vibrations caused by the installation of the driven posts cause sediment buildup or other negative effects on nearby wells?

A-CSC-1-39: Based on Standard Solar's experience with similar projects, no impacts occur to water wells within 150 feet of a project site. There are no wells within 150 feet from the site, and therefore, Standard Solar does not anticipate any negative impacts to nearby wells.

Interrogatory CSC-1-40

Q-CSC-1-40: Referring to Petition p. 6, is the wiring to the string inverters installed on or contained within the racking system? If wiring is external, are there any concerns regarding potential damage from weather exposure, vegetation maintenance, or animals?

A-CSC-1-40: All the wiring from the PV modules to the string inverters will use the integrated wire management system associated with the proposed racking system. The E-W panel beam acts as a home run wire support, pre-punched holes in the flange enable the home runs to be secured to support. String wires managed through the racking system will be under the solar panels. All the exposed (not in conduit) wires selected will be listed for the conditions of use (the applications where the equipment is specified to operate as designed), such as UV and weather protected.

All other wiring will be contained in the raceway and will use best practices for wire management, conduit sealing, and workmanship to prevent damage.

Interrogatory CSC-1-41

Q-CSC-1-41: Referring to Petition p. 6, provide a description of the route/type of installation of the electrical conduit connecting the string inverters from each project solar field section to the equipment pad.

A-CSC-1-41: The output of the inverters will be combined locally by inverter groups (four inverters per group) and the combined output will run above ground in cable tray supported with concrete ballast blocks at an interval of every 10-15ft.

The exact routing of circuit wiring will be determined during detailed system design.

Interrogatory CSC-1-42

Q-CSC-1-42: Petition p. 8 states the new transformer, service conductors, and metering have been installed by Eversource for the interconnection. Where is the location of this equipment? Depict the location on a site plan.

A-CSC-1-42: All the above-mentioned equipment is located near the access drive shown on Site Plan 1A as 10’ x 20’ area for equipment pads. Please see **Attachment CSC-1-18**.

Interrogatory CSC-1-43

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-43: Please re-submit the Site Plan Sheets (Plans 1A, 1 B, 1C) on a larger paper size (11 x 17) as the copies contained within the Environmental Assessment are too small to be legible.

A-CSC-1-43: Provided.

Interrogatory CSC-1-44

Q-CSC-1-44: Would the solar facility have an automatic protection system that shuts the facility down in the event of a fault within the facility? Is there a protection system that can isolate the facility from grid operation if there is an abnormal grid disturbance or a power outage event?

A-CSC-1-44: Yes, the solar facility is equipped with state-of-the-art DC and AC protection systems which will cease the facility operation if there is any fault on the DC side or abnormality in grid operation. Proposed PV inverters have built in DC protection feature including DC arc flash, ground fault and over current detection and isolation mechanisms. All inverters for this project are listed to UL1741, which indicates the requirements for anti-islanding and safety of grid-tied PV inverters. On the AC side, the System is connected to Eversource through a, SEL 547 relay, which will sense and control the PV output from grid disturbances. If the grid voltage/frequency is out of IEEE recommended range, the relay will open the PV main breaker, which isolates the connection to the Eversource distribution system.

Interrogatory CSC-1-45

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Jobin Michael

Q-CSC-1-45: Would the project comply with the National Electrical Code, the National Electrical Safety Code and any applicable National Fire Protection Association codes and standards?

A-CSC-1-45: Yes, the project is designed to comply with all applicable codes and standards, including the National Fire Protection Association codes, National Electrical Code, National Electrical Safety Code, and International Building Code.

Interrogatory CSC-1-46

Q-CSC-1-46: Would sun reflection off of the panels create a glare effect at any abutting residence? What measures can be employed to reduce potential glare (ex. Solid fencing, landscaping)?

A-CSC-1-46: The solar system is facing south with a 20-degree tilt to maximize the energy production. There are no abutting residences in the immediate vicinity of solar site to the south, east or west sides of the proposed project site. Additionally, there will be a considerable buffer of vegetation between the array and neighboring residences, which will block any potential glare during oblique incidence angle hours.

The front surfaces of the proposed solar panels for this project are made of tempered glass, which has an anti-reflective coating. Also, the PV modules utilize a high transmittance glass and with wide spectrum operation and excellent IAM (Incidence Angle Modifier) ratio. This effectively nullifies the light reflected from solar panel surface.

Interrogatory CSC-1-47

Q-CSC-1-47: Where is the nearest airport and/or airfield? Would glare from the solar arrays have any impact on air navigation? Is an aviation glare analysis required by the Federal Aviation Administration for this facility?

A-CSC-1-47: The nearest airport identified is Chester Airport, located in Chester, Connecticut; which is approximately 5.24 miles from the solar project site. Since the project is not in close proximity to any active airports, and because the project is outside of the approach angle such airports, no glare analysis is required.

Interrogatory CSC-1-48

Q-CSC-1-48: Would the proximity of any existing or proposed outbuildings, structures, etc. present a fire safety or other hazard (ex. lightning strike)? Would the proximity of any existing or proposed outbuildings, structures, etc. present a hazard in relation to the electric generating equipment?

A-CSC-1-48: There are no existing or proposed buildings or structures associated with the solar project.

Interrogatory CSC-1-49

Q-CSC-1-49: Provide the following information regarding Project Emergency Response.

a) Would the Petitioner conduct any outreach and/or training to local emergency responders regarding site design and safety?

b) How would site access be ensured for emergency responders?

c) Is the project layout designed so that the various solar field areas are accessible to emergency response vehicles?

d) In the event of a brush or electrical fire, how would the Petitioner mitigate potential electric hazards that could be encountered by emergency response personnel?

e) Can the entire facility be shut down and de-energized in the event of a fire or other emergency requiring such action? If so, how?

A-CSC-1-49: a) Standard Solar will offer to provide training to local emergency responders upon completion of the project.

b) A lock box can be provided which contains access keys for emergency responders upon request.

c) Access aisles are designed into the array layout, which provide a minimum of 20’ wide clearance.

d) Emergency responders would simply operate the main disconnect switch at the site.

e) Yes.

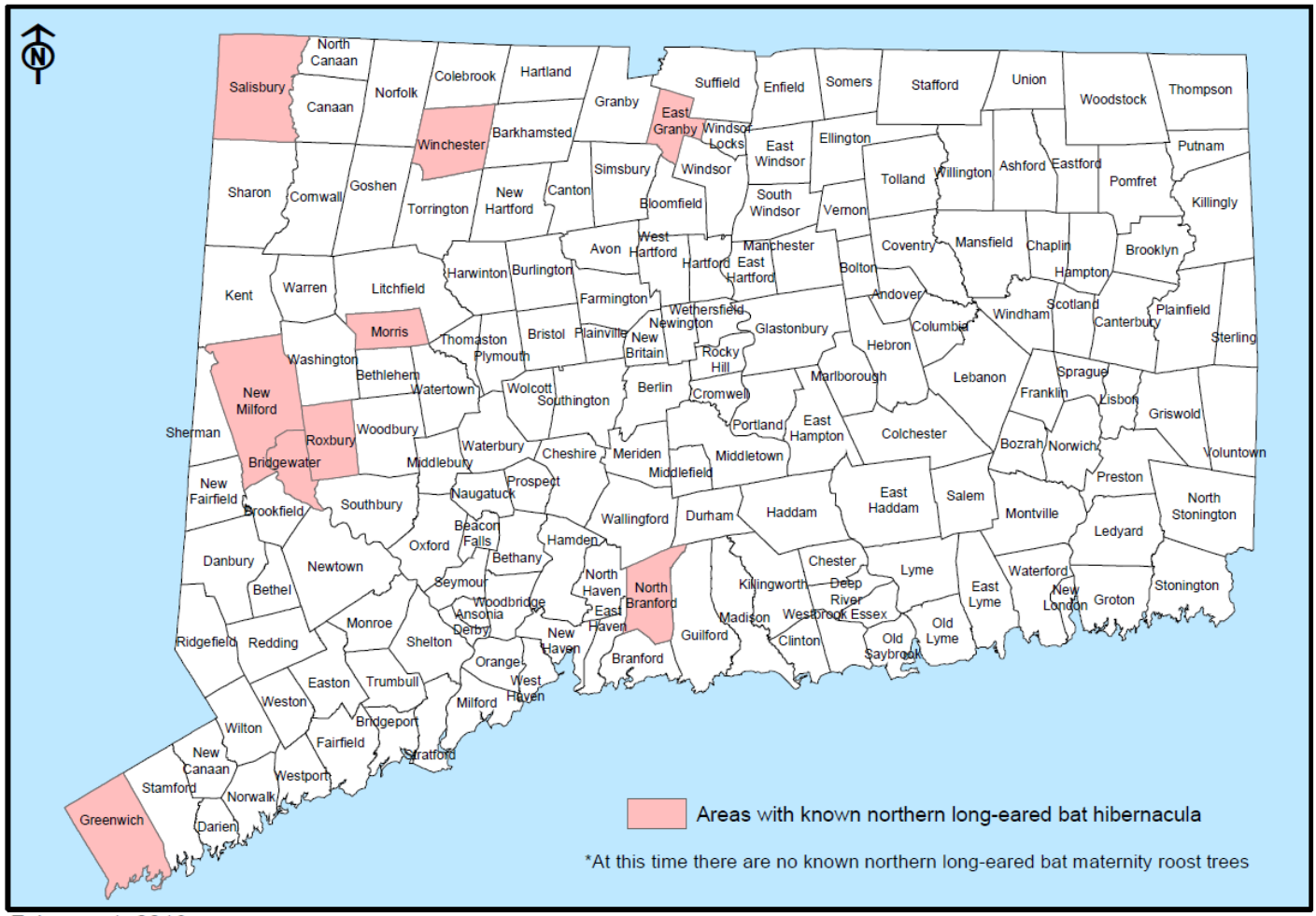
Interrogatory CSC-1-50

Q-CSC-1-50: Would any proposed tree clearing occur within 0.25 miles of a known northern long-eared bat hibernaculum or within 150 feet of a known occupied maternity roost tree?

A-CSC-1-50: According to the "Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance" distributed by the CT DEEP, the closest known hibernaculum for northern long-eared bat is in the Town of North Branford, many miles to the west of the subject site (see **Attachment CSC-1-50**). According to a Fall 2018 Survey by REMA Ecological Services, LLC, the probability of maternity roosts at the subject site is low. This is due to the relative paucity of cavity trees, and the scarcity of tree snags with exfoliating bark, and of trees, such as shagbark hickory, that are often used for maternity roosts. Nevertheless, in order to avoid incidental taking, tree-clearing and removal shall not take place during the pup rearing phase of June 1st to July 31st.

Attachment CSC-1-50

Northern long-eared bat areas of concern in Connecticut
to assist with Federal Endangered Species Act Compliance



February 1, 2016

For information on federal requirements visit http://www.fws.gov/midwest/endangered/mammals/nleb/

Interrogatory CSC-1-51

Q-CSC-1-51: Referring to Petition p. 5, how were the limits of tree clearing to prevent shading of the solar arrays determined?

A-CSC-1-51: Standard Solar visited the site and estimated the tree heights to evaluate the shade effect from the tree line. For calculating the shade buffer from panels, Standard Solar considered a 10am-to-2pm window of time in the month of December to be shade free. This assumption was used to calculate shade buffer between shade structures and the array.

Standard Solar also generated a 3-D layout of the site with all of the shade structures and their approximate heights. Using a proprietary program, Helioscope, a detailed monthly and annual shade loss was determined. This program was also used to optimize the layout within the site space constraints.

Interrogatory CSC-1-52

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Jobin Michael

Q-CSC-1-52: If the solar array faces south, why is tree clearing necessary in the northeast corner of the site?

A-CSC-1-52: Solar panels can be shaded from the obstructions in south, east and west sides. East and west side shade mainly happens in morning and evening times respectively. Also, a minimum clear space needs to be maintained between the array fence and trees to allow for maintenance access and long-term vegetation management.

Please see the northeast corner clearing plan (shown in red) on **Attachment CSC-1-52**.

Attachment CSC-1-52

NOTES:

1. THIS PLAN WAS COMPILED FROM OTHER MAPS, RECORD RESEARCH OR OTHER SOURCES OF INFORMATION. IT IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD SURVEY, AND IS SUBJECT TO SUCH CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. THIS PLAN SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.
2. HORIZONTAL DATUM: CONNECTICUT STATE PLANE NAD 1983.
3. THE ENTIRE SITE IS FORESTED.
4. WETLANDS WERE FLAGGED ON 8/22/2018 BY JMM WETLAND CONSULTING SERVICES, LLC AND FIELD LOCATED BY LOUREIRO ENGINEERING DURING THE MONTHS OF AUG. TO OCT. 2018.
5. CONTOURS OBTAINED FROM GIS SOURCES, Capitol Region Council of Governments. (2016). *2016 LiDAR DEM*. Retrieved from http://cteco.uconn.edu/data/flight2016/index.htm..

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	EDGE OF ROADWAY	
	CONTOUR (1' INTERVAL)	
VL#XXX VL#XXX	WETLAND FLAGGING	
	FENCE LINE	X
	CLEARING LIMITS	

EXISTING ROADWAY
PROPOSED CLEARING LIMIT
NEW 12' WIDE GRAVEL ACCESS DRIVE AND ANTI- TRACKING PAD
NEW SOIL EROSION CONTROL FENCING
EXISTING WETLANDS AND FLAGS (TYPICAL)
Trees will stay, NE corner
NEW 10' X 20' AREA FOR EQUIPMENT PADS T/PAD=287.5'
NORTH BRANFORD ROAD
PROPOSED FENCING (TYPICAL)
NEW SOLAR ARRAY MODULES (TYPICAL)
PARCEL 26-14B
AREA
25.0 ACRE
POTENTIAL VERNAL POOL PVP#1
GRAVEL ROAD 12' WIDE'
INV=306.8'
INV=303.6'
RIPRAP STILLING BASIN BOTTOM APPROX. 300.6' (SEE DETAIL SHEET 2)
28 LF 12" HDPE @S=0.112 W/ FLARED ENDS
NEW SOIL EROSION CONTROL FENCING
N/F SHERIDAN W. & CONSTANCE A. PERKINS
N/F ARTHUR & JANINE STONER
MATCH LINE
MATCH LINE

SCALE IN FEET: 20 0 20 40 60

REV.	DESCRIPTION OF REVISION	DATE	APPR.

STAMP:

Loureiro Engineering Associates, Inc.
100 Northfield Street, Suite 360, Greenwich, CT 06830
Phone: 860-747-6181 • Fax: 860-747-8822
An Employee Owned Company • www.Loureiro.com

SCALE: 1" = 40'
CORR. NO.
80558.01.007
DRAWN BY: WJN/GFB
DATE: 10/11/2018
APPROVED BY: GFA
DATE:

SITE PLAN

SITING COUNCIL SUBMISSION-CHATFIELD SOLAR FARM

NORTH BRANFORD ROAD, KILLINGWORTH, CONNECTICUT

STANDARD SOLAR

DRAWING: 1A

SHEET NO. 1 NO. OF SHEETS 1

W:\ENGINEERING\KILLINGWORTH\STANDARD SOLAR\CAD\KILLINGWORTH SITE.DWG Tab: SITE PLAN-01 Saved: 10/11/2018 3:06 PM Printed: 10/11/2018 3:07 PM

Interrogatory CSC-1-53

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-53: Petition pp. 10-11 states new low-growth plantings would be considered. What types of plantings are referred to?

A-CSC-1-53: Four specific Habitat Enhancement Treatments (Areas A–D below) are proposed using native planting materials. These habitat enhancement treatments target the conversions of wetlands and watercourses, including potential vernal pools, as well as provide preferred foraging habitats for the whip-poor-will, a Special Concern species, which habitat is currently lacking at the subject site (except possibly along the site's frontage on North Branford Road).

A. Treatment Area A (Scrub-Shrub, Moist-Dry Meadow Mosaic): This treatment will use the New England Roadside Matrix Upland Seed Mix, which includes the following shrub seeds: grey dogwood, silky dogwood, staghorn sumac. This treatment calls for the planting of one shrub per 500 sq. ft. in same species clusters of 5–8 plants of the following: grey dogwood, bayberry, American hazelnut, pink azalea, and nannyberry. Any volunteer or re-sprouting tree species shall be removed once it reaches 10 feet. Invasive shrubs shall be controlled or eradicated for three years after planting or seeding.

B. Treatment Area B (Moist-Dry Meadow): This treatment will use the New England Conservation Wildlife Mix. This area will be maintained as a meadow by rotational mowing at 6" or higher, every other year, before May 1st or after October 30th.

C. Treatment Area C (Scrub-Shrub, Moist-Wet Meadow Mosaic): This treatment will use the New England Roadside Matric Wet Meadow Seed Mix, which includes the following shrub seeds: elderberry, silky dogwood, arrowwood viburnum. This treatment calls for the planting of one shrub per 500 sq. ft. in same species clusters of 5 to 8 plants of the following: sweet pepperbush, winterberry holly, spicebush, and with-rod or wild raisin viburnum. Any volunteer or re-sprouting tree species shall be removed once it reaches 10 feet. Invasive shrubs shall be controlled or eradicated for three years after planting or seeding.

D. Treatment Area D (Moist-Wet Meadow): This treatment will use the New England Conservation Wildlife Mix. This area will be maintained as a meadow by rotational mowing at 6" or higher, every other year, before May 1st or after October 30th.

Interrogatory CSC-1-54

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-54: Referring to the Environmental Assessment p. 3-4, why was a request for a Natural Diversity Database review sent to the Department of Energy and Environmental Protection (DEEP) Water Supply instead of to the Bureau of Natural Resources, Wildlife Division? When was this request made? Has DEEP responded to the review request? If so, submit related documentation.

A-CSC-1-54: The request for a Natural Diversity Database review was never sent to DEEP Water Supply. This was an error in the Environmental Assessment.

The NDDB review was sent to the Bureau of Natural Resources, Wildlife Division, but more detail was requested. Subsequently, a biologist was contracted to review the endangered species and a new NDDB review has been submitted as of November 13, 2018. A new request for a Natural Diversity Database review was sent after the Interrogatories were requested.

Interrogatory CSC-1-55

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-55: Referring to the Petition Environmental Assessment, Appendix A Wetland Assessment, provide the following;

a) Figure 2 does not appear to show the whole site, please revise.

b) The legend for Figure 3 is partially shown, please provide the entire legend.

c) Revise Figure 3 to include designated Wetland Numbers.

d) If possible, identify the locations of the photos 1 through 14 on Figure 3.

e) Page 13 mentions temporary wetland matting. Provide a detail of the temporary matting system to be used.

f) Page 14 mentions general impact to vernal pool envelope (VPE) and the critical terrestrial habitats (CTH) for the on-site 3 vernal pools. Calculate the impact to the VPE and CTH for each vernal pool.

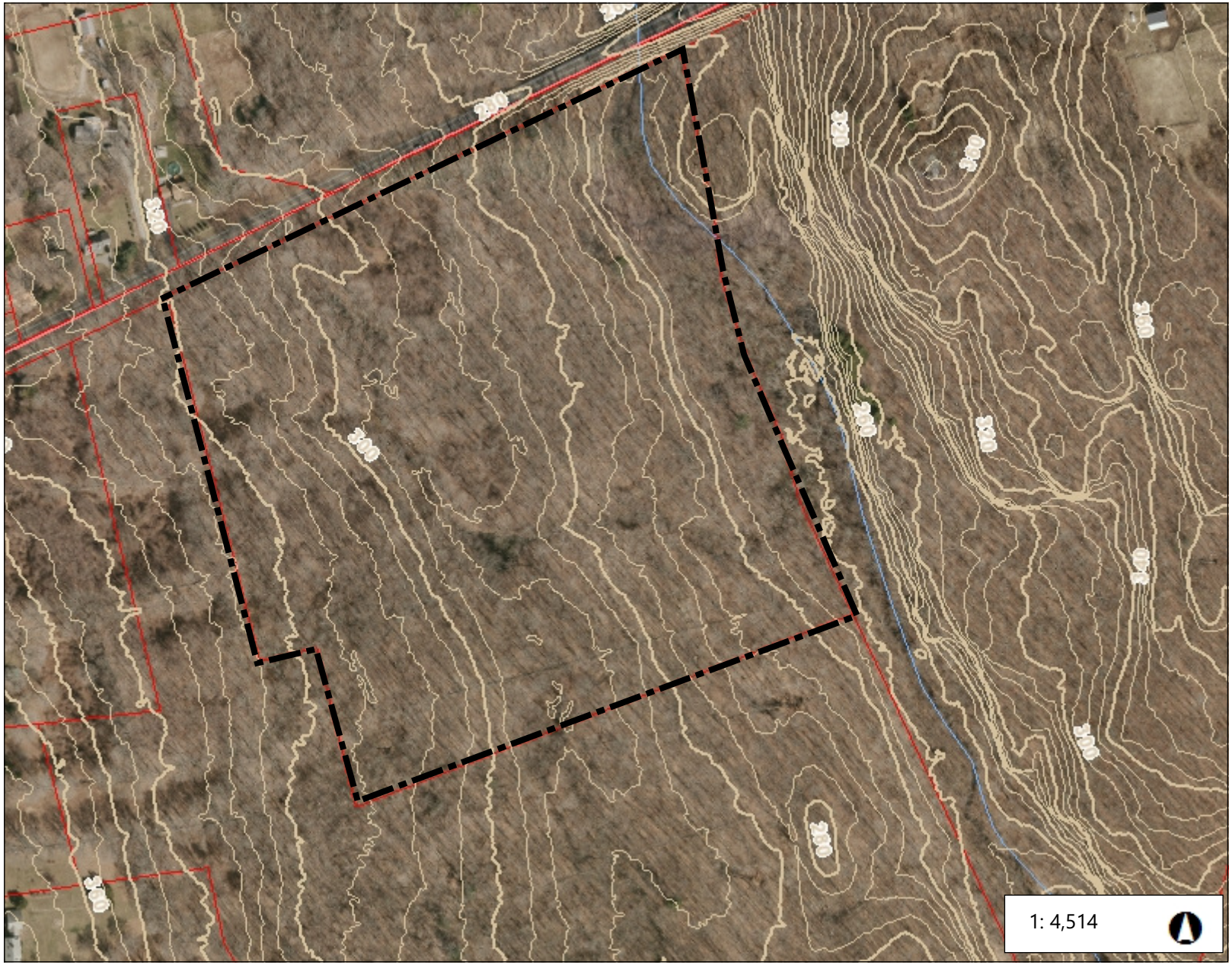
A-CSC-1-55: a) Figure 2 has been revised and is submitted as **Attachment CSC-1-55-1**.
b) Figure 3 is revised and is submitted as **Attachment CSC-1-55-2**.
c) Figure 3 now provides designated Wetland Numbers (see **Attachment CSC-1-55-2**).
d) It is not possible to provide exact locations of photographs. Refer to photo annotations in Wetlands Assessment for the general location and direction of viewing.
e) See **Attachment CSC-1-55-3**.
f) See the table below:

Vernal Pool ID	CTH Buffer Area	Disturbance	% of CTH	VPE Buffer Area	Disturbance	% of VPE
PVP 2	45.60	13.52	29.65	1.50	0.77	51.33
PVP 1B (SOUTHERN OF THE TWO NORTHERN VPS)	41.78	14.20	33.99	0.89	0.14	15.73
PVP1A (NORTHERNMOST VP)	45.74	14.14	30.91	1.50	0.35	23.33

Attachment CSC-1-55-1

CT Environmental Conditions Online

FIGURE 2: North Branford Road, (Route 80), Killingworth, CT



Legend

- Parcels for Protected Open Sp
- Geographic Names7
- Geographic Place 3
- Airport
  - Airport
  - Heliport
- Railroad
- Streets
  - Interstate Highway
  - US Highway
  - State Highway
  - Primary limited-access
  - Ramp
  - Street
  - Ferry crossing
- County Line
  - State Boundary
  - County Boundary
  - Coastline
- County Name
- Town Line
  - State Boundary
  - Town Boundary
  - Coastline
- CT Town Name
- Waterbody Line 7

Notes

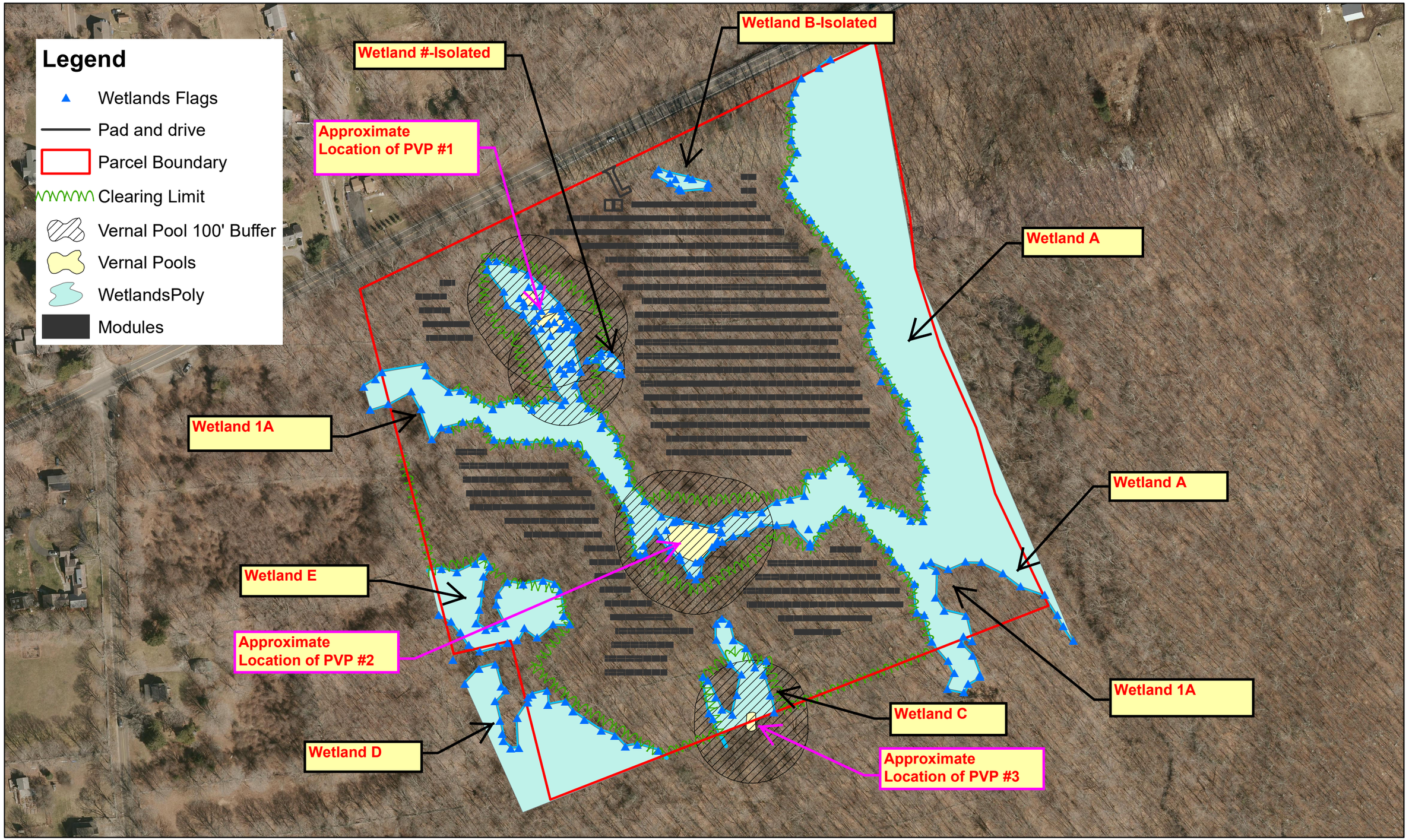
0.1 0 0.07 0.1 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

This map is intended for general planning, management, education, and research purposes only. Data shown on this map may not be complete or current. The data shown may have been compiled at different times and at different map scales, which may not match the scale at which the data is shown on this map.

FIGURE 3: North Branford Road (Route 80), Killingworth, CT

Attachment CSC-1-55-2



1 inch = 173 feet

0 80 160 240 320 400 Feet

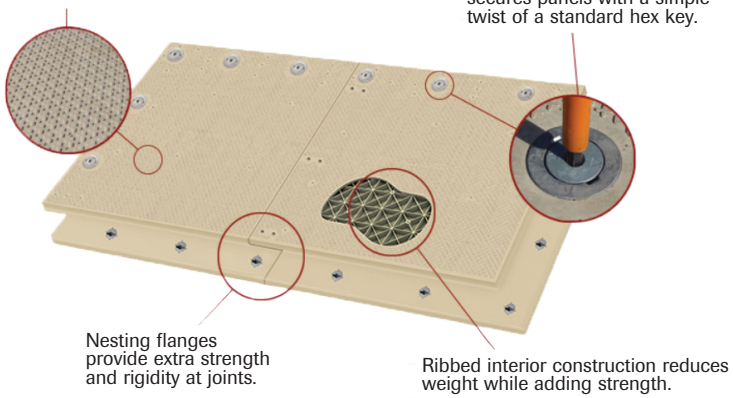
PROPOSED SOLAR ARRAY
CHATFIELD - KILLINGWORTH

Attachment CSC-1-55-3

SUNBELT® RENTALS
PUMP & POWER SERVICES

MegaDeck® Ground Protection Mats

Firm up your job site with a safe, stable surface for heavy vehicles and equipment.



Product Specifications

Manufacturer	Signature Systems Group
Full Size Mat	• 14'L x 7-1/2'W x 4"D (actual size) • 13'L x 6-1/2'W x 4"D (usable size, due to flange) *Consists of two half mats permanently bolted together*
Half Size Mat	• 7-1/2'L x 7-1/2'W x 4"D (actual size) • 6-1/2'L x 6-1/2'W x 4"D (usable size, due to flange) *Half sections may be used to create straight edges as desired and allow for more options in site design and transportability.*
Weight	• 14'L x 7-1/2'W Mega Deck = 1,065 lb • 14'L x 7-1/2'W Mega Deck w/8 pins = 1,085lb
Color	Beige
Mat Design	Each mat is molded from a single piece of HDPE with special proprietary fillers and additives that provide strength, rigidity and impact resistance.

Specifications cont'd.

Connection System	Connection system consists of a self aligning locking mechanism that connects the overlapping flange from adjacent mats, allowing sections to bear tremendous weights. An ultra-secure connection between your MegaDeck panels is achieved with a simple twist of a standard hex key. All lock components are made from heavy-duty cast aluminum that will not rust, break or corrode.
Surface Traction	Each mat incorporates our low-profile, pedestrian. design that provides traction and slip resistance in the field. The pattern is designed to be easily cleaned and to function well with mud, sand, dirt and other common on-site substances such as oil and grease. This design provides good traction for pedestrians, vehicles and all types of rolling equipment, including dozers and other tracked vehicles.
Ribbed Construction	Mat sections incorporate a weight-saving ribbed interior structure that provides tremendous weight-bearing capacity, while allowing for sections to be easily handled by a standard forklift. A solid HDPE plate is bolted to the top of each mat to close off the ribbed interior and to provide a closure that prevents dirt and debris from penetrating the mat. Each MegaDeck top section is sealed securely together to handle mat flexure and other everyday abuses.
Flange Construction	MegaDeck mats incorporate flanges on both sides that allow mats to connect to adjacent panels. Flanges are solid HDPE for added durability. Each flange incorporates a heavy radius design, providing additional strength and shear resistance. Once nested into adjacent panels, the solid HDPE flange system provides rigidity and strength.
Material Composition	Each MegaDeck mat is manufactured using the highest quality virgin HDPE, with special impact modifiers and fillers to accommodate thermal expansion, incorporate UV resistance, add anti-static properties and provide tremendous strength.

Interrogatory CSC-1-56

Q-CSC-1-56: Petition Environmental Assessment Appendix A Wetland Assessment p. 14 states if the vernal pools are not Tier 1 pools, then the facility would have minimal impact. If the vernal pools are Tier 1 pools, what mitigation would be required to minimize impacts to vernal pool obligate species?

A-CSC-1-56: Regardless of whether the potential vernal pools are Tier I or not, each of the proposed habitat enhancements listed in A-CSC-1-53 provides mitigation that would minimize impacts to vernal pools as well as to other wetland habitats.

Interrogatory CSC-1-57

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-57: Section 4.0 of the Wetland Assessment did not include the two isolated wetlands described on p. 6. How would the clearing of these wetlands affect their habitat value and function?

A-CSC-1-57: The site's two isolated wetlands are low functional value, transitional disturbance wetlands. The plans propose to clear trees, but would allow understory vegetation to re-sprout and thrive. Additionally, both wetlands are included as part of proposed habitat enhancement (e.g., Treatment A from A-CSC-1-53).

Interrogatory CSC-1-58

Q-CSC-1-58: Referring to Petition p. 20, identify the “selected location” mentioned in paragraph 2.

A-CSC-1-58: The selected location refers to the area at which the wetland will be crossed in the northwest portion of the site.

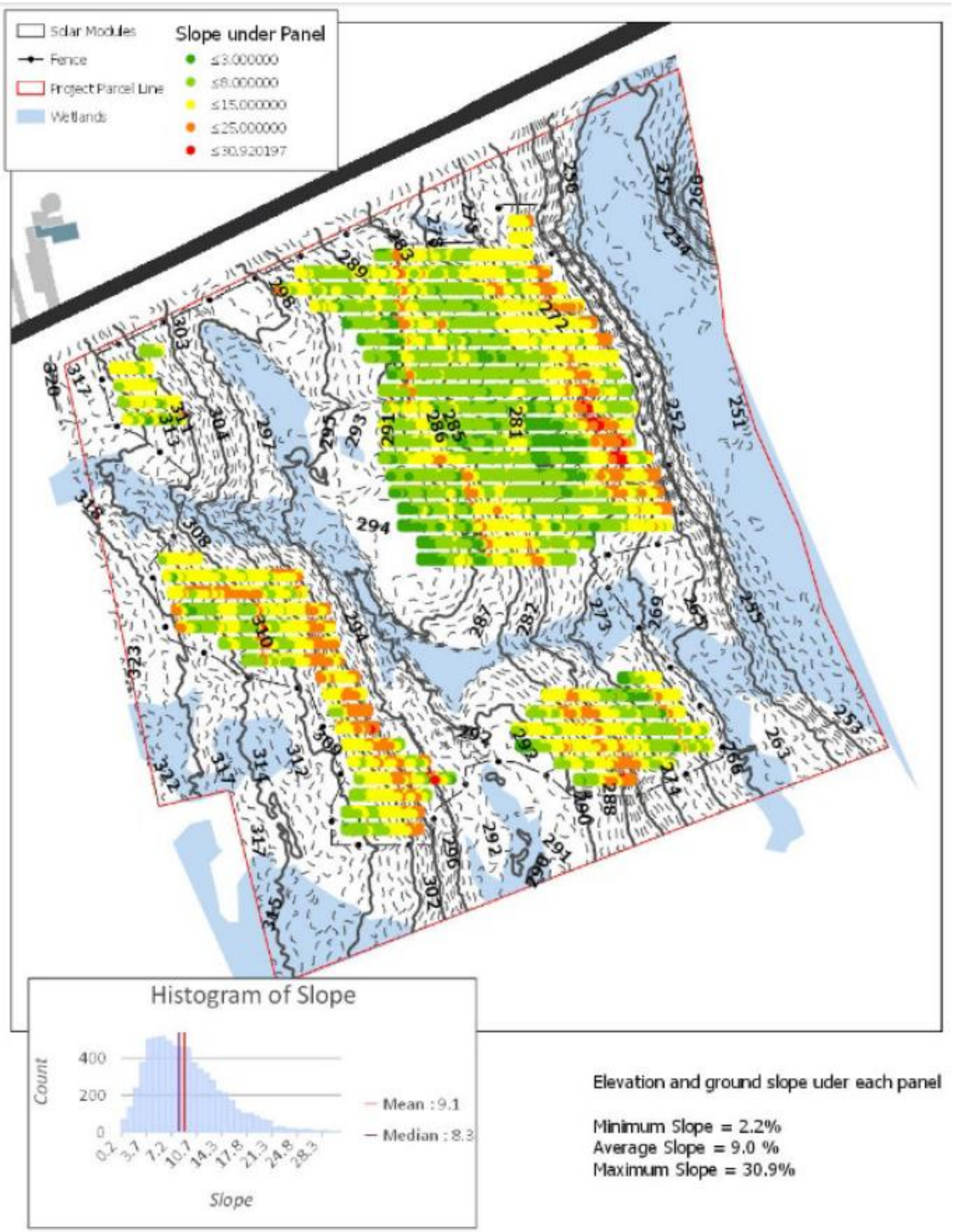
Interrogatory CSC-1-59

Q-CSC-1-59: What effect would runoff from the solar panel drip edge have on site drainage patterns? Would channelization below the drip edge be expected in areas that slope sharply east? What would disperse the water in these areas to mimic overland flow instead of channelized flow?

A-CSC-1-59: For the project, there is no grading proposed for the project site. The runoff from the panel drip edge of the panels will follow the same patterns as pre-developed conditions. The runoff from the panel drip edge will have no effect on site drainage patterns. To ensure channelization and gully formation does not occur, the vegetated cover under the panels must be maintained. All mowed areas should be kept at 4" minimum and vegetation will not be subjected to any herbicides or pesticides. The panels are arranged to allow runoff between each module to minimize concentration of runoff and to allow the growth of vegetation beneath and between the arrays. Existing and re-established vegetation will provide surface characteristics that allow the water to mimic overland flow. The majority of the panels are located in areas with sloped less than 8.3%.

Please see **Attachment CSC-1-59** below, which diagram depicts the gradation found within the footprint of the array and demonstrates how water will flow - the higher the grade the more likely runoff will be increased.

Attachment CSC-1-59



Elevation and ground slope uder each panel

Minimum Slope = 2.2%
Average Slope = 9.0 %
Maximum Slope = 30.9%

Interrogatory CSC-1-60

Q-CSC-1-60: Petition Environmental Assessment p. 3-2 states there is also the potential that thermal impacts to the eastern semi-perennial stream would be realized, potentially effecting aquatic habitat downstream, and off-site.

a) What are the thermal impacts attributed to?

b) What is the anticipated thermal impact on this stream?

c) What species would be affected downstream and off-site?

d) How can the potential thermal impact be mitigated?

A-CSC-1-60: The potential thermal impacts are a result from clearing the overstory close to the wetland boundary. In order to mitigate these potential thermal impacts to (A) the eastern wetlands and the semi-perennial stream (which likely include aquatic invertebrates and finfish), and more so to (B) areas off-site and downstream of the subject site, the following mitigation measure is proposed:

Crushed stone infiltration trenches shall be installed just inside of the proposed security fence on the eastern edge of the proposed northeastern solar array field. These trenches, which shall run parallel with the prevailing topography, shall be: (1) 12-inches wide and 10-inches deep; (2) below the surface; (3) slightly depressed (i.e., 4-6 inches), and (4) keyed into the subsoil, after the topsoil is removed. The crushed stone grains shall be 0.5 to 2.0 inches in diameter. These infiltration trenches will promote infiltration into the ground and ameliorate any potential thermal impacts from runoff discharging directly into the wetland or watercourse system during most precipitation events.

Interrogatory CSC-1-61

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-61: The Petition Environmental Assessment p. 3-2 states the project would create upland herbaceous/ shrub habitats. What type of vegetation is proposed within the solar field areas? Is this ground cover considered herbaceous habitat?

A-CSC-1-61: Within the solar fields, the ground will consist of low-maintenance grasses and legumes-cover, which is considered herbaceous habitat. See also, A-CSC-1-53.

Interrogatory CSC-1-62

Q-CSC-1-62: Does the Town of Killingworth have a Wetland setback regulation or buffer area? Is so, provide the setback/buffer distance.

A-CSC-1-62: The town does not have a wetland setback, however does define an Upland Review Area as follow: the within 500 feet, measured horizontally, from the boundary of any vernal pool; or within 100 feet, measured horizontally, from the boundary of any wetland or any watercourse other than a vernal pool.

Interrogatory CSC-1-63

Q-CSC-1-63: Can the site perimeter fencing be designed to provide a wildlife gap along the bottom edge?

A-CSC-1-63: Yes.

Interrogatory CSC-1-64

Q-CSC-1-64: Would the Petitioner apply for a highway encroachment permit from Connecticut Department of Transportation, as applicable, for any work performed within a state highway right-of-way?

A-CSC-1-64: Yes.

Interrogatory CSC-1-65

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews
Page 1 of 1

Q-CSC-1-65: Does the Petitioner intend to submit an application for a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities to DEEP? If so, at what time? If not, why not?

A-CSC-1-65: No. Because site disturbance is estimated to be less than 1 acre, no general permit application is necessary.

Interrogatory CSC-1-66

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-66: Has the petitioner met with the DEEP Stormwater Division to discuss the Project? If yes, when? Please describe any recommendations, comments or concerns about the project provided by the DEEP Stormwater Division.

A-CSC-1-66: A meeting with DEEP is occurred December 10, 2018. DEEP is now requiring more stormwater management facilities. The design and layout of these facilities is currently in design. Completed designs will be forwarded to the Council upon receipt.

Interrogatory CSC-1-67

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-67: Is there a conceptual stormwater pollution control plan for the project? If so, please provide. If not, what areas of the site have been set aside for temporary and permanent stormwater control features, such as swales and detention basins, that may be required as part of the DEEP General Permit?

A-CSC-1-67: The proposed construction will not increase site runoff or change any drainage patterns, so no stormwater pollution control plan has been submitted.

Interrogatory CSC-1-68

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-68: Petition Environmental Assessment p. 3-5 states ground cover change from forested to grassed areas under the panels will increase the peak discharge. What calculations have been performed to support this statement? Were the calculations performed in accordance with DEEP general Permit criteria?

A-CSC-1-68: Changes in grade will not occur between existing and proposed conditions. Therefore, the drainage pattern from the proposed conditions will be identical to the drainage pattern of the existing conditions. Drainage characteristics of existing conditions follow land use characteristics of woodlands, drainage characteristics for proposed conditions follow the land use of 2-7% sloping lawns. These two land uses have identical drainage characteristics as highlights in the guidelines: therefore, no appreciable change in drainage volume is anticipated between existing and proposed conditions. The entire parcel was assumed to be a single drainage area since there is no hydraulic divide located on the site.

Interrogatory CSC-1-71

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-71: Referring to the Petition Environmental Assessment, Appendix A Wetland Assessment p. 13, why was a 25-year storm event used in the calculation to design the wetland crossing?

A-CSC-1-71: Based on the CT DOT drainage manual, Section 8.3-5, the 25-year design storm was based on the level of risk associated with failure of the crossing (very low). There is no defined watercourse present at the crossing. In addition, while the culvert was sized for a 25-year storm, the 12” pipe has the capacity to convey the 100-year storm (3.07 cfs).

Interrogatory CSC-1-72

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-72: What types of construction vehicles would be used at the site?

A-CSC-1-72: The construction vehicles onsite will consist of the following: pickup trucks and vans for installation teams, XUVs (ex. John Deere Gator) for traversing the site, lull lifts and skid steers for moving materials throughout the project site, tracked vehicles to install, and tracked pile driving equipment for the installation of racking piers in the ground.

Interrogatory CSC-1-73

Q-CSC-1-73: Would temporary or permanent internal access roads be installed for construction or post-construction use? If so, include access roads with dimensions on the Site Plans. If not, how will construction vehicles access the various work areas? Show proposed construction access routes. Once construction is complete and the site operational, how will maintenance vehicles access the various solar field areas?

A-CSC-1-73: No temporary or permanent internal access roads other than those shown on the Site Plan will be installed. Construction vehicles will access the work areas of the property using tracked equipment to minimize disturbance of the site.

Interrogatory CSC-1-74

Q-CSC-1-74: Petition Site Plan Sheet 1A shows an access point to the solar field from Route 80. Will this be the main construction and operational access? Are there any other solar field access points? If so please specify.

A-CSC-1-74: The access point on Site Plan Sheet 1A will serve as the main access point to the solar field from Route 80 throughout construction and during the lifetime operation of the system.

Interrogatory CSC-1-75

Q-CSC-1-75: Has a comprehensive geotechnical study been completed for the site to determine if site conditions support the overall Project design? If so, summarize the results. If not, has the Petitioner anticipated and designed the Project with assumed subsurface conditions? What are these assumed conditions?

A-CSC-1-75: A geotechnical study has been conducted at the site and is attached as **Attachment CSC-1-75**.

Attachment CSC-1-75

WELTI GEOTECHNICAL, P.C.

GEOTECHNICAL ENGINEERING

227 Williams Street · P.O. Box 397
Glastonbury, CT 06033-0397

(860) 633-4623 / FAX (860) 657-2514

November 16, 2018

Ms. Alisa C. Morrison, P.E., PhD
Loureiro Engineering Associates, Inc.
100 Fort Hill Road
Groton, CT 06340

Re: Geotechnical Study for Proposed Solar Arrays on Lot14B, Route 80, Killingworth, CT

Dear Ms. Morrison:

1.0 Herewith are the data from the test borings taken at the subject site. Four borings were drilled to a maximum depth of 16.5 feet below the existing grades or to auger refusal if above that depth. The borings were sampled with blow counts continuously to a depth of 6 feet below grade and at 5 foot intervals thereafter. The boring locations are shown on the attached plan. *The borings were drilled by Clarence Welti Associates, Inc. and sampling was conducted by this firm solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.*

2.0 The **Subject Project** will include the construction of ground fixed solar arrays on a 25 acre parcel (Lot14B) on Route 80 in Killingworth, CT. The array will be located over most of the site area not designated as within wetlands or the wetlands buffer zone. Based on the Town GIS mapping there is about 65 feet of topographic relief across the site (Elev. 250 ± to Elev. 315±). No proposed grading plan was available at the time of this study. It is assumed that the development will require minimal changes to the existing site grades. Based on similar solar array projects it is assumed that the preferred support for the racks and solar panels would be with driven "I" beams. Where there are boulders, cobbles or shallow rock the "I" sections could be installed in a drilled hole.

2.1 Based on previous solar array projects it understood that the gravity loads from the array panels and supporting frames will be relatively low. The governing design load case on the frame and foundations will largely be from lateral wind forces on the panels. The construction is assumed to include pad mounted electrical equipment.

3.0 The **Geologic Origin** of the natural inorganic soils at the site and environs is from glacial moraine deposits. These deposits overlie the bedrock at 3 to 16+ feet below the existing grades. The rock is part of the Monson Gneiss formation.

3.1 The **Soils Cross Section** from the borings is generally as follows:

Topsoil to 3" to 8"

Subsoil; fine to medium SAND, some Silt, trace Roots and Gravel, loose frost disturbed soils

Moraine; fine to medium to fine to coarse SAND, some Silt, little to some Gravel, few Cobbles and Boulders to the top of bedrock at 3 to 16+ feet, dense to very dense

Locally (see borings B-3 & B5); Weathered Rock to auger refusal on hard rock at 15 to 16 feet, very dense

Bedrock; Gneiss

3.2 The **Water Table**, was evident in borehole B-1 at 3 feet below the existing grades at the completion of the boring. The water table was not evident in the remainder of the borings. The moraine deposits have a low void ratio and low permeability. It should be assumed that the water table can be within 6 feet of the existing grades during wet periods. The capillary water in the natural soils can be to 2 feet above the static water table. *The natural soils may be susceptible to remolding under equipment when wet.*

4.0 The **Criteria for Foundation Type and Loading** were not provided for this project and have been assumed by the writer as follows:

1. The total settlement shall not exceed a maximum of 1.0". The different settlement shall not exceed ½" in a horizontal distance of 25 feet.

2. The foundation top under lateral loading (transient) shall not deflect horizontally more than 3/4".

3. The solar array and foundations typically would not be subject to the seismic provisions of the Connecticut Building Code (IBC with CT supplements).

The above criteria appear to address the normal criteria for solar panels. If the owner or the engineers find the criteria as unacceptable, the writer shall be informed to permit additional geotechnical input.

4.1 Regarding item 3 above, the seismic site soil profile classification is **"C".** The mapped MCE spectral response acceleration values for Killingworth, CT are $S_1 = 0.061$ for one second period and $S_S = 0.173$ for short periods.

5.0 Based on boring data the foundations are assumed to be either in the dense moraine or in weathered rock. For driven "I" beams or short piles in the natural soils, the following properties would apply for the Lpile program or other similar programs used to evaluate deflections of laterally

loaded piers.

Depth of applicable Property	Unit Weight (pcf)	Angle of Internal Friction	Sub-grade Modulus (k) (pci)	Ultimate bearing capacity at 4+ feet below grade (Tons/sf)
natural soils from 1.5 to the top of bedrock	135	35°	225	16+

The existing soils to about 1.5 feet are generally loose frost disturbed soils should ignored when evaluating lateral deflections. The soil profile and associated geotechnical parameters below 1.5 feet can be assumed to be generally uniform over the short pile lengths. The "I" piles should be oriented with strong axis generally parallel with the expected direction of maximum lateral load. Plates and brackets can be attached to the pile heads as means to connect the solar panel support framing.

5.1 The anticipated lateral performance of the piles under wind or seismic load cases can be evaluated based on the LPILE computer program, or other acceptable methods. ***A previous analysis performed with the LPILE program on solar array installed in similar soils determined the required depth of the "I" piles (i.e., W8x10 section) would be about 7.0 feet below the proposed grades. If the design loading from the solar arrays at the subject site is provided a similar analysis could be provided.***

5.2 Regarding the electrical equipment, the loads are assumed to be light distributed loads. The equipment can be supported on concrete pads (mats) bearing directly on the natural inorganic soils at least 2 feet below the existing grades, or on a controlled fill placed after the removal of any topsoil, subsoils and existing fills. The allowable bearing pressure on the natural inorganic soils or on a controlled fill can be 4,000 psf. While the pads are not a code type structure requiring foundations at frost depth of 3.5 feet, the frost susceptible soils on the site must be addressed at pad underlays. It is recommended that there be at least 2 feet of crushed 3/8" stone beneath pads to exclude frost effects.

6.0 Regarding **Controlled (structural) Fill and Backfill of Excavations for Footings and Trenches,** the material should conform to the following gradation or be 3/8" crushed stone:

Percent Passing	Sieve Size
100	3.5"
50 - 100	3/4"
25 - 75	No.4

The fraction, passing the No.4 sieve should have less than 20% passing the No. 200 sieve.

All controlled fill and backfill must be compacted to at least 95% of modified optimum density in accordance with ASTM D-1557.

6.1 Gravel topping for access roads with 3/4" minus processed stone should conform to the following gradation:

Percent Passing	Grain Size
100	1.25"
90 - 100	1"
75 - 100	3/4"
25 - 60	1/4"
10 - 35	No. 40
3 - 12	No.100
0 - 5	No. 200

7.0 Regarding **Earthwork**, open excavations (for utilities and related structures) in the natural soils on the site will fall in OSHA Type B, which will require sloping of unshored excavations exceeding 5 feet in height to slopes less than 45°.

7.1 Access roads will presumably support pickup truck loading or similar light utility vehicles. The subgrades will fall in the silty moraine soil cuts or fills. Typical CBR values for saturated silty moraine would be 4 to 5. The access roads should have at least 12" of gravel subbase conforming to CTDOT M.02.06, Grading A and overlain with 6" of the 3/4" minus processed stone base cited above.

7.2 Bedding Material for underground utility trenches shall conform to Section 6.0 material above or to the CTDOT Form 816, section M.08.01-21.

8.0 This report has been prepared for specific a application to the subject project in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. In the event that any changes in the nature, design and location of structures are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations submitted in this report are based in part upon data obtained from referenced explorations. The extent of variations between explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

Welti Geotechnical, P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

If you have any questions, please call me.

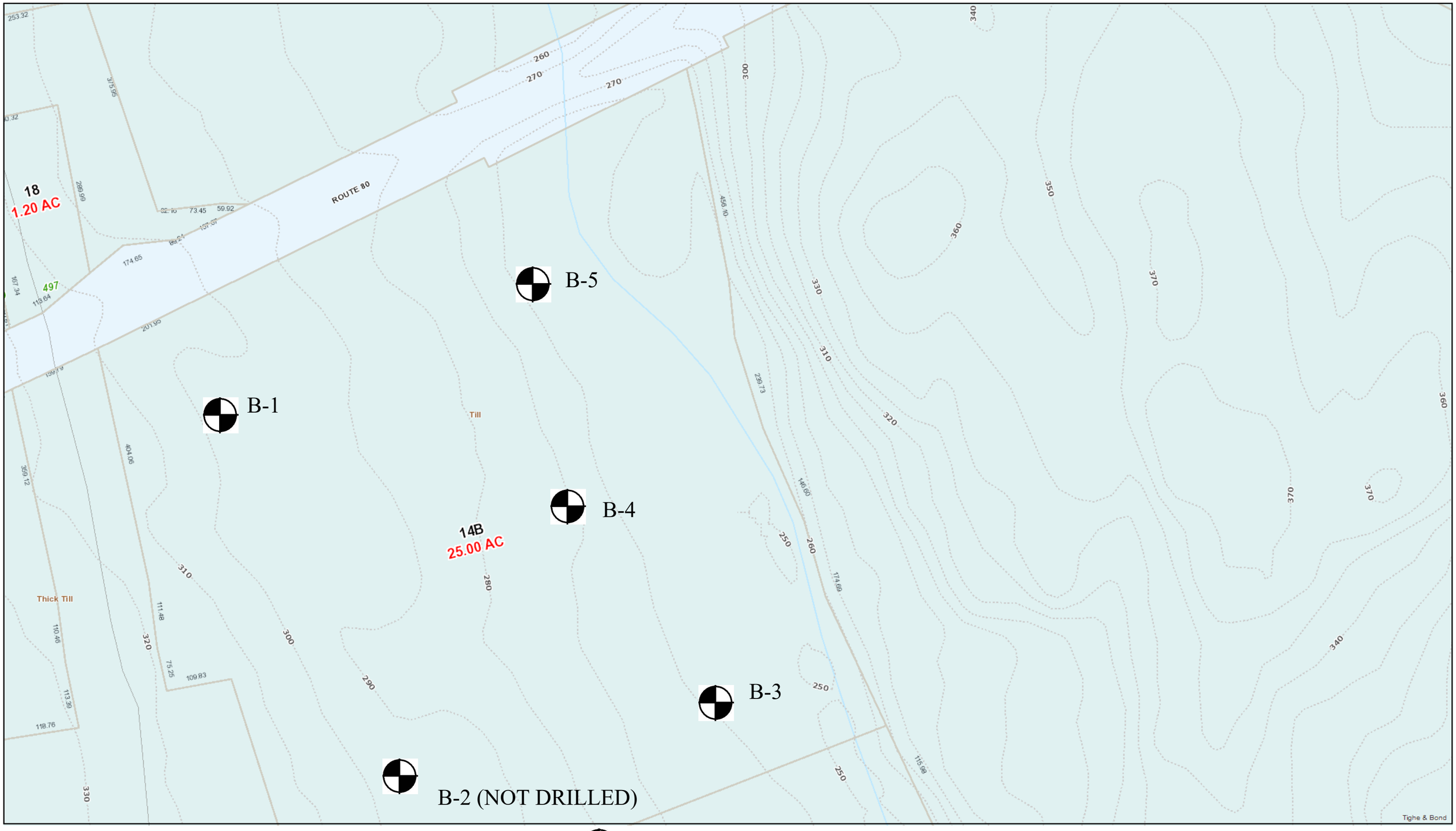
Very truly yours,

Max Welti, P. E.
President, Welti Geotechnical, P.C.

Clarence Welti, PhD, P.E.

APPENDIX

BORING LOCATION PLAN
+
BORING LOGS



TEST BORING LOCATIONS
CLARENCE WELTI ASSOCIATES, INC.
11/7/18

11/15/2018
Scale: 1"=200'
Scale is approximate

The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition, regulatory
interpretation, or parcel-level analyses.

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
LOUREIRO ENGINEERING ASSOCIATES

PROJECT NAME
PPROPOSED SOLAR ARRAYS
LOCATION
LOT 14B, ROUTE 80, KILLNGWORTH, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. B-1

GROUND WATER OBSERVATIONS
AT 3.0 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 11/7/18
FINISH DATE 11/7/18

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-1-2-5	0.0'-2.0'		TOPSOIL 0.60	
					BR. FINE-MED.SAND, SOME SILT, TRACE GRAVEL	
	2	8-9-10-12	2.0'-4.0'		2.0 GREY/BR.FINE-CRS.SAND, SOME SILT & GRAVEL	
	3	17-30-25-22	4.0'-6.0'			
5						
10	4	15-30-60	10.0'-11.3'		11.0 BOTTOM OF BORING @ 11.0' (AUGER REFUSAL)	
15						
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **B-1**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
LOUREIRO ENGINEERING ASSOCIATES

PROJECT NAME
PPROPOSED SOLAR ARRAYS
LOCATION
LOT 14B, ROUTE 80, KILLNGWORTH, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. B-3

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 11/7/18
FINISH DATE 11/7/18

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-2-2-1	0.0'-2.0'		TOPSOIL 0.25	
					BR. FINE-MED.SAND, SOME SILT, LITTLE GRAVEL, TRACE ROOTS	
	2	2-60	2.0'-3.0'			
					WEATHERED ROCK 3.0	
5						
10						
15					BOTTOM OF BORING @ 15.0' (AUGER REFUSAL) 15.0	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **B-3**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
LOUREIRO ENGINEERING ASSOCIATES

PROJECT NAME
PPROPOSED SOLAR ARRAYS
LOCATION
LOT 14B, ROUTE 80, KILLNGWORTH, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. B-4

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 11/7/18
FINISH DATE 11/7/18

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-1-2-1	0.0'-2.0'		TOPSOIL 0.40	
					BR. FINE-MED.SAND AND SILT, TRACE ROOTS & GRAVEL	
	2	4-6-10-18	2.0'-4.0'		2.0 GREY/BR.FINE-MED.SAND, SOME SILT & GRAVEL	
	3	10-15-15-28	4.0'-6.0'			
5						
					9.0 GREY FINE-CRS.SAND, SOME SILT, LITTLE GRAVEL, FEW COBBLES	
10	4	24-33-47	10.0'-11.5'			
15	5	28-50-50	15.0'-16.5'			
					16.5 BOTTOM OF BORING @ 16.5'	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **B-4**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
LOUREIRO ENGINEERING ASSOCIATES

PROJECT NAME
PPROPOSED SOLAR ARRAYS
LOCATION
LOT 14B, ROUTE 80, KILLNGWORTH, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. B-5

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 11/7/18
FINISH DATE 11/7/18

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	6-8-11-11	0.0'-2.0'		TOPSOIL 0.30	
					BR. FINE-CRS.SAND, SOME SILT & GRAVEL, FEW COBBLES & BOULDERS	
	2	16-22-60	2.0'-3.5'			
	3	8-11-12-14	4.0'-6.0'			
5					GREY/BR.FINE-CRS.SAND, SOME SILT, LITTLE GRAVEL 5.0	
10	4	18-20-12	10.0'-11.5'			
					WEATHERED ROCK 12.0	
15	5	25-60	15.0'-15.8'			
					BOTTOM OF BORING @ 16.3' (AUGER REFUSAL) 16.3	
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **B-5**

Interrogatory CSC-1-76

Q-CSC-1-76: Will blasting be required to install any site infrastructure, including fence and solar racking posts? If not, what methods would be used if bedrock is encountered?

A-CSC-1-76: No blasting will be performed on site. If refusal is encountered while installing posts, a rock drill will be used to make a pilot hole for foundations.

Interrogatory CSC-1-77

Q-CSC-1-77: Referring to Petition Site Plan Sheets, conduit wetland crossings, provide the following:

a) Describe the equipment necessary to install the conduit crossings.

b) What is the expected wetland impact during construction of both conduit crossings?

c) Is tree/vegetation clearing necessary to install the conduit crossings? If so, include on the Site Plan. How would clearing be accomplished?

d) Provide detail as to how the electrical cable extends from underground to the above ground.

e) Is the design of the conduit crossing susceptible to damage from fallen trees?

f) What crossing height above both wetlands is necessary to avoid potential inundation of the conduits?

A-CSC-1-77: a) The equipment necessary to install the conduit crossing consists of hand tools, concrete block as conduit/cable tray supports and the conduit and/or cable tray.

b) Minimal impact of the wetland area around the crossing location is expected for construction of conduit crossing. Only manual labor with hand tools will be working in the area.

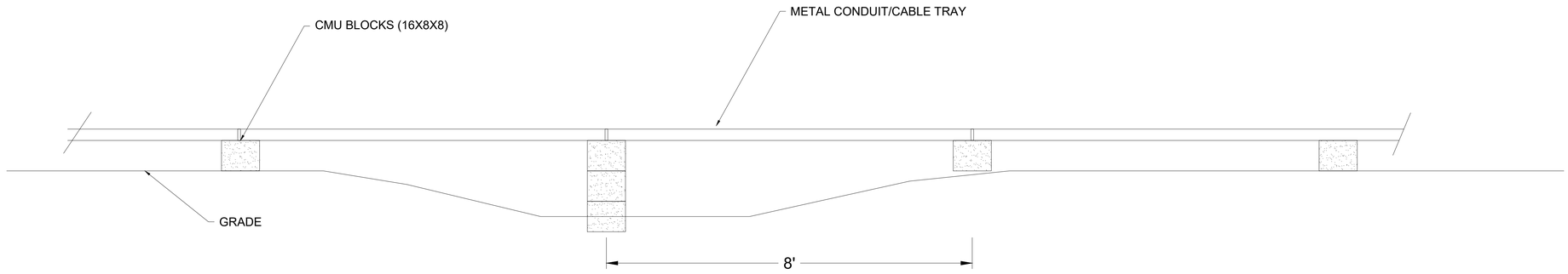
c) Please see the attached Site Plan for details on the conduit crossing. Please see **Attachment CSC-1-77**.

d) There are no underground conduits planned for the solar facility except from the Eversource transformer. Underground conduits to the Eversource transformer are stubbed up under the transformer pad to the transformer connection cabinet.

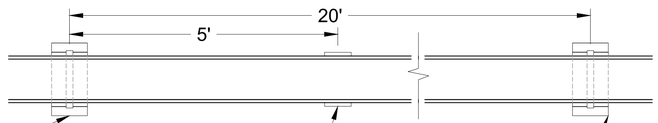
e) Metal conduit is utilized for above ground installation and is rated and listed for installation in outdoor situations where susceptible to physical damage.

f) Conduits are planned to be installed above the water level at a minimum height of 18” above the wetland area.

Attachment CSC-1-77



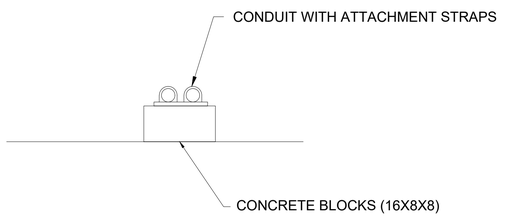
NOTE: 20' SECTIONS OF EATON B-LINE NEMA 20C OR EQUIVALENT OUTDOOR RATED CABLE TRAY MUST ABLE TO SUPPORT AT LEAST 100LBS/FT OF WORKING LOAD.

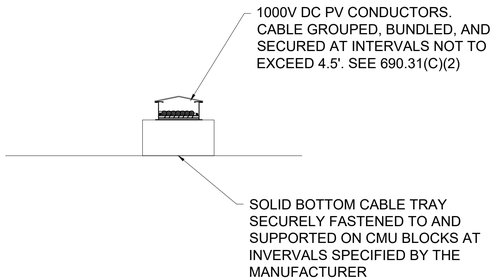


CABLE TRAY TO BE SUPPORTED AT $\frac{1}{4}$ THE SPAN DISTANCE FROM THE SPLICE TO MINIMIZE DEFLECTION

CABLE TRAY SPLICE BETWEEN 20' CABLE TRAY SECTIONS

CABLE TRAY TO BE SUPPORTED EVERY 20' BY STRUT STRAP ATTACHED TO CMU BLOCK





STANDARD SOLAR
Clean Energy. Smart Business.
1355 Piccard Drive, Suite 300
Rockville, MD 20850
301-944-1200
www.StandardSolar.com

PROFESSIONAL ENGINEER CERTIFICATION

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

LICENSE #:
EXP. DATE:

PROJECT TITLE
CHATFIELD SOLAR FARM
PROJECT ADDRESS
14 RT 80, LOT 14B
KILLINGWORTH, CT 06419

SHEET TITLE
CONDUIT/ CABLE TRAY DETAILS

REVISIONS

DISCLAIMER

PROJECT NUMBER
18-A007

DRAWN BY
JM

APPROVED BY
--

DATE
11.06.2018

ORIGINAL SHEET SIZE
36X24
SHOULD MEASURE 1":

SCALE
NTS

DRAWING
E3.6.1

Interrogatory CSC-1-78

Q-CSC-1-78: Referring to Petition Environmental Assessment p. 3-1, provide the following:

a) Identify the type of fill that would be used to restore areas disturbed by stump removal.

b) Estimate the amounts of cut and fill for site construction.

c) Grubbing is estimated to be less than 10 percent of the site - Estimate the acreage of grubbing.

d) Does the racking system allow for the adjustment of posts based on field conditions? Would post adjustments affect the structural stability of the system? Indicate the range of tolerance for post adjustment.

e) Would stumps that remain in the solar field eventually decay, creating a pitted and uneven surface that would affect the stability of the solar racking system or cause future maintenance issues?

A-CSC-1-78: a) It is anticipated that the fill used to restore the stump areas would be natural soil obtained from the pile installation at locations where drilling is required to install foundations.

b) Approximately 300 cubic yards of fill for the wetlands crossing, and minimal cutting required to level the area for the maintenance pad and construction drive.

c) The estimated acreage of grubbing operations is 0.91 acres.

d) The racking system allows for the adjustment of posts based on field conditions to a certain degree. If not possible to keep foundation out of stump area, grubbing will be required. All foundation posts will be laid out at the onset of the project so as to determine the amount of grubbing required. The post will be located so as to not affect the structural stability of the system. In regard to the range of post adjustment, the posts can be moved directionally but not vertically (up or down into the ground).

e) The stumps will remain but will not create a stability issue for the racking system.

Interrogatory CSC-1-79

Q-CSC-1-79: Within the solar field areas, would the forest understory also be flush cut? If so, would all cut understory be removed? Would all existing forest floor detritus and plants (leaves, branches, ferns, etc.) be removed? If so, describe method of removal. Where would this material be deposited?

A-CSC-1-79: It is anticipated that the forest understory will only be cut to a height that will allow for proper installation and operation of the solar facility. In areas where a solar array is located, vegetation will be impacted during construction. Post construction, all areas within the footprint of the facility that were affected during construction will be re-seeded with grass. In all areas of flush cutting, it is anticipated at the conclusion of construction and installation, the site vegetation will be allowed to return to a natural state and be minimally maintained to allow for proper operation of the solar facility. All vegetation that is removed will be disposed of off-site.

Interrogatory CSC-1-80

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: George Andrews

Q-CSC-1-80: Referring to the Petition Environmental Assessment p. 3-5, is grass proposed for the solar field areas? If so, provide a site diagram that shows areas of grass installation and areas that would be left in a shrub state. How would stump regrowth be managed if grass is planted among flush cut trees?

A-CSC-1-80: Please refer to the attached updated layout diagram shown on **Attachment CSC-1-80**. Areas that are occupied by the solar array will be reseeded with grass and the areas outside the footprint of the array will be in a shrub state. Stump regrowth will managed by annual operation and maintenance checks. If a stump is found to be growing back, it will be re-cut flush with grade.

Attachment CSC-1-80

SYSTEM DESCRIPTION	
MODULE TYPE:	GCL -M6 - 375
QUANTITY:	6,552 MODULES (364 STRINGS 18)
SYSTEM SIZE (DC):	2.46MW
MOUNTING SYSTEM:	GROUND MOUNT
TILT ANGLE:	20°
ARRAY AZIMUTH:	180°
MONITORING SYSTEM:	LOCUS LGATE 360
INVERTERS:	CHINT POWER SYSTEMS: [32] SCA60KTL
SYSTEM SIZE (AC):	1,920 kW

YEARLY PRODUCTION: 3,226MWh/yr
SPEC PROD. RATIO: 1313kWh/kWp/yr

NOTES: [2] 2000A, 480V SWITCH BOARDS WITH THREE SECTIONS. TWO SETS OF MONITORING, TWO 2000A DISCONNECTS, TWO SETS OF SEL 547 RELAY. 480V SERVICE FROM UTILITY. ~17 ACRES OF TREE CLEARING REQUIRED, ~$236K UTILITY UPGRADE WORK REQUIRED (NEW XFMR, RECLOSER POLES etc), GROUNDING XFMR REQUIRED.
APPROX. 3400FT CHAIN LINK FENCE. 75FT ACCESS ROAD. 25FT WETLAND CROSSING WITH CULVERT. ABOVE GROUND CONDUIT/CABLE TRAY SYSTEM ASSUMED.

STANDARD SOLAR
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PROFESSIONAL ENGINEER CERTIFICATION

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LICENSE #:
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CHATFIELD SOLAR FARM
PROJECT ADDRESS
14 RT 80, LOT 14B
KILLINGWORTH, CT 06419

SHEET TITLE
SITE PLAN WITH TOPO

REVISIONS

DISCLAIMER

PROJECT NUMBER
18-A007

DRAWN BY
JM

APPROVED BY
--

DATE
12.12.2018

ORIGINAL SHEET SIZE
36X24
SHOULD MEASURE 1":

SCALE
1" = 80'

DRAWING
E1.0

Interrogatory CSC-1-81

Q-CSC-1-81: Referring to Petition Site Plan Sheet 1B, provide the following:

a) Describe the equipment necessary to install the perimeter fence within the wetland area.

b) Would tree/vegetation be removed? Provide detail on the site plan.

c) What is the estimate of temporary and permanent wetland impacts? Depict wetland impact on the site plan.

d) Would the lower edge of the fence accumulate debris, causing water backup during high rain events?

A-CSC-1-81: a) The perimeter fence will be installed by general manual labor with post hole diggers. Material will be transported across the site via a lull lift.

b) Yes, the trees will be removed offsite and/or chipped for stabilizing material. The clearing line is shown on the Site Plan. Please refer to **Attachment CSC-1-18**.

c) Approximately 0.06 acres of wetlands will be permanently disturbed due to the wetlands crossing and the single conduit crossing. The locations are shown on the Site Plan. Please refer to **Attachment CSC-1-18**.

d) The fence will be designed to allow for the requested wildlife gap at the bottom. This will not only allow for wildlife to cross the site unimpeded, but will keep debris from accumulating along the bottom edge of the fence.

Interrogatory CSC-1-82

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-82: What is the estimated construction schedule for the proposed project, from groundbreaking to full operation? (Petition Site Plan Sheet 2 note states begin Winter 2019 and finish Spring 2019)

A-CSC-1-82: Site preparation, including clearing, stumping and stormwater management will be completed approximately one month after approval from the Council and construction will begin immediately (approximately one week) thereafter. The construction is estimated to be completed approximately four months after site preparation ends.

Interrogatory CSC-1-83

Q-CSC-1-83: Petition Site Plan Sheet 2 - Details and Notes, includes a construction sequence with numerous steps. What time of the year would each step occur?

A-CSC-1-83: The targeted completion date is estimate to be approximately five months after approval from the Council.

Interrogatory CSC-1-84

Q-CSC-1-84: Provide typical Project construction hours and days of the week (e.g. Monday through Friday 8 AM to 5 PM)?

A-CSC-1-84: The daily project construction schedule will follow a Monday through Friday 7:00 am to 5:30 pm schedule.

Interrogatory CSC-1-85

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Jobin Michael

Q-CSC-1-85: Would snow accumulation on the solar panels affect the output of the facility? If so, does the Petitioner intend to remove snow from the solar arrays? Describe snow removal procedures including access to the solar arrays.

A-CSC-1-85: Consistent snow accumulation on the solar panels will affect the energy output of the facility. Snow removal for ground mounted PV arrays is not standard industry practice. Standard Solar does not have any snow removal plans other than natural snow shedding. Solar panels are tilted 20 degrees and have 3-foot minimum ground clearance in the lower edge, which will help the natural snow shedding after a snow event.

Interrogatory CSC-1-86

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-86: Describe the type and frequency of anticipated vegetation management for the site. Include areas inside and outside of the perimeter fence, as well as detention basins and swales. Would the petitioner adhere to any seasonal restrictions on mowing due to the presence of state and federal protected species, if applicable?

A-CSC-1-86: The vegetation management will include grass cutting with mowers and trimmers, 3-4 times per year. Standard Solar will ensure that seasonal restrictions are respected for vegetation management

Interrogatory CSC-1-87

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-87: How does the developer intend to promote and maintain grasses or other ground cover beneath the panels and within the solar array rows? Would bare ground areas or patchy growth increase runoff and sedimentation to off-site areas?

A-CSC-1-87: Standard Solar does not anticipate any bare or patchy areas. Standard Solar will utilize DEEP approved seed to establish minimum cover that will be maintained 3–4 times a year.

Interrogatory CSC-1-88

Q-CSC-1-88: Would the installed solar panels require regular cleaning to remove dust, dirt, bird droppings etc.? If so, describe cleaning procedures including substances used. Would cleaning activities have any impact to adjacent wetlands, watercourses or groundwater?

A-CSC-1-88: The accumulated dust and dirt on solar panels is typically sufficiently managed naturally by rain/snow. A 0.2" rain fall is approximately equivalent to physically cleaning the modules and restores the production to 99.5% of a cleaned module. This project is located in an area with historical precipitation well within the desired range to promote self-cleaning.

Interrogatory CSC-1-89

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-89: Would the petitioner store any replacement modules on-site in the event solar panels are damaged by hail, prey shells or other impact hazards? If so, where? How would damaged panels be detected?

A-CSC-1-89: No replacement modules will be kept onsite. Damaged panels will be detected using the remote monitoring system that will provide the location of the broken module for field investigation and replacement.

Interrogatory CSC-1-90

Chatfield Solar Fund, LLC
Petition No. 1354

Witness: Charles Geppi

Q-CSC-1-90: Would pesticides or herbicides be used at the site? If so, specify anticipated products and use.

A-CSC-1-90: Standard Solar does not use chemicals for vegetation management.