

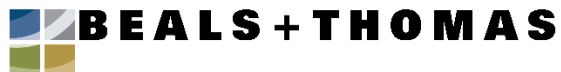
Site Plan Review Application

NextGrid Solar Facility

**1073 Main Street
Millis, Massachusetts**

Prepared for:
**NextGrid
PO Box 7775 #73069
San Francisco, CA 94120**

Prepared by:



***Submitted in Compliance with the Millis Zoning
Bylaw***

August 17, 2022



August 17, 2022

Richard Nichols, Chair
c/o Camille Standley, Administrative Assistant
Millis Planning Board
900 Main Street
Millis, Massachusetts 02054

Via: FedEx and Email to cstandley@millisma.gov

Reference: Site Plan Review Application
NextGrid Solar Facility
1073 Main Street
Millis, Massachusetts
B+T Project No. 1566.19

Dear Members of the Board:

On behalf of the Applicant, NextGrid, Beals and Thomas, Inc. (B+T) respectfully submits this Site Plan Review Application for work associated with the installation of a solar canopy array proposed to be located over existing paved areas at 1073 Main Street in Millis, Massachusetts (the Property). The Project is designed to comply with applicable zoning criteria from the Town of Millis Zoning Bylaw (the Bylaw) as amended through May 2022, pending approval of the Attorney General's office.

B+T is pleased to participate in the approval process for another renewable/sustainable energy project in the Town of Millis, following the successful review of a 1,350 kW DC facility located approximately one-half mile south of the Project site.

As required by Section XXI and Section XIII.C of the Town of Millis Zoning Bylaw, enclosed are five hard copies and one electronic copy of the Site Plan Review submission package. One copy of all the submittal requirements has also been forwarded to the Board's independent engineer. The following information is included for your review:

Richard Nichols, Chair
Millis Planning Board
August 17, 2022
Page 2

Section 1.0: Site Plan Review Application Forms;
Section 2.0: Project Narrative;
Section 3.0: Parties in Interest;
Section 4.0: Additional Documentation; and
Section 5.0: Plans.

Pursuant to requirements of the Bylaw, we understand that the Board will notify parties of interest and place an advertisement in a newspaper of local circulation. We have enclosed a list of abutters within 300 feet of the Property, as well as the mailing addresses of the Planning Boards of abutting municipalities, to support this effort. Enclosed is a check payable to the Town of Millis in the amount of \$350.00 for the appropriate Site Plan Application Fee as well as the \$2,500.00 Consultant Review Fee.

Should you have any questions regarding this matter or require additional information, please contact us at (508) 366-0560. We thank you for your consideration of this Site Plan Review Application and look forward to meeting with the Planning Board at the next available public hearing.

Very truly yours,

BEALS AND THOMAS, INC.



David J. LaPointe, RLA, LEED AP, CPSI
Principal

Enclosures

cc: Millis Town Clerk (1 copy via Certified Mail)
Millis Fire Chief (1 copy via Certified Mail)
BETA Group, Inc. (1 copy via Certified Mail)
Daniel Serber, NextGrid (via email)
AC Millis LLC (via Email)

JDM/DJL/mks/aak/156619PT001

TABLE OF CONTENTS

1.0 SITE PLAN REVIEW APPLICATION FORMS..... 1-1

2.0 PROJECT NARRATIVE 2-1

2.1 INTRODUCTION 2-1

2.2 EXISTING CONDITIONS..... 2-1

2.3 PROPOSED CONDITIONS 2-2

2.4 COMPLIANCE WITH THE ZONING BYLAWS OF THE TOWN OF MILLIS..... 2-3

2.4.1 Section XXI: Large-Scale Ground-Mounted Solar Photovoltaic Installations 2-3

3.0 PARTIES IN INTEREST 3-1

4.0 ADDITIONAL DOCUMENTATION 4-1

5.0 PLANS..... 5-1

Section 1.0

Site Plan Review Application Forms

Checklist for Site Plan Approval LGSPI Submission

Site Plan Approval Application for LGSPI

Checklist for Site Plan Approval LGSPI Submission

Completed

- | | |
|--------------|--|
| <u> X </u> | 1. Completed Application (signed by Town Clerk) |
| <u> X </u> | 2. Certified Abutters List from the Assessor's Office (within 300') |
| <u> X </u> | 3. Application Fee of \$350.00
*Review Fee of \$2,500.00
Make check(s) payable: "Town of Millis" |
| <u> X </u> | 4. 5 copies of the site plan as specified in Section XXI and Section XIII.C of the Town of Millis Zoning By-Law.
(1 complete electronic copy of the filing must be emailed) |
| <u> X </u> | 5. Send one copy of all submittal requirements to the Board's independent engineer:
BETA Group, Inc.
315 Norwood Park South
2 nd Floor
Norwood, MA 02062
Attn: Melissa Recos |

*Consultant Review Fees: Initial submittal of \$2,500.00 is to accompany application. Please note that once the submittal is received by BETA Group, the Board's consulting engineers, a Scope & Fee will be prepared. The applicant is responsible for all consultant review fees in excess of the initial deposit of \$2,500.00.



TOWN OF MILLIS

OFFICE OF THE PLANNING BOARD

900 Main Street • Millis, MA 02054

Phone: 508-376-7045

Fax: 508-376-7053

SITE PLAN APPROVAL APPLICATION FOR LARGE-SCALE GROUND-MOUNTED SOLAR PHOTOVOLTAIC INSTALLATIONS (LGSPi)

To the Millis Planning Board:

The undersigned hereby petitions the Planning Board for Site Plan Approval under Section XXI and Section XIII.C of the Town of Millis Zoning By-Law.

Applicant's Name Daniel Serber Company NextGrid

Address PO Box 7775 #73069 Email: daniel@nextgrid.com

Town San Francisco State/Zip CA/94120 Phone _____

Property Location 1073 Main Street, Millis

Assessors' Map 22; 23 Parcel 10: 89

Zoning District(s) _____

Owner's Name AC Millis LLC

Address c/o Hajjar Management Co Inc 30 Adam Street

Town Milton State/Zip MA/02186 Phone _____

Summary of work to be done: Proposed rooftop and canopy solar installations located within existing impervious areas and existing buildings on site.

Signature of Applicant Daniel Serber Date 07/26/2022

Signature of Land Owner [Signature] Date 8/1/2022
Manager

Section 2.0
Project Narrative

2.0 PROJECT NARRATIVE

2.1 Introduction

The Project consists of a 2.806 MW DC (1.9 MW AC) solar canopy photovoltaic array located over the existing paved areas and a 652.8 kW DC (250 kW AC) roof-mounted solar array located on the existing 72,000± sf warehouse building. The portion of the Property on which the Project is proposed is located within the Industrial-Park Two (I-P-2) zoning district.

According to the Millis Zoning Bylaw (the Bylaw), the development of a large-scale ground-mounted solar photovoltaic installation (LGSP) with rated nameplate capacity of 250 kW DC or more is permitted by right in the I-P-2 zoning district with the submission of a Site Plan Review Application to the Town of Millis Planning Board. The proposed canopy array meets the definition of LGSP. Rooftop solar installations are not explicitly regulated by the Bylaw.

2.2 Existing Conditions

The ±75-acre Property consists of two parcels located at 1073 Main Street owned by AC Millis LLC and can be further identified by the Millis Assessors Office as Map 22 Lot 10 and Map 23 Lot 89. The Property is bounded to the east by the Prospect Hill Cemetery and to the north and west by the Great Black Swamp.

The Property contains an existing single-story warehouse building (currently under renovation to become a marijuana cultivation facility), accessory parking, a portion of the Bay Colony/CSX railroad track that is no longer in use, and an associated retaining wall, chain-link fencing, and approximately 6.1 acres of exterior storage area. The site is also occupied by an existing cell tower to the north of the building, adjacent to the property boundary with the Prospect Hill Cemetery.

Topography ranges from an approximate elevation of 145 feet in the western portion of the Property to approximately 178 feet in the east. The topography from the high point slopes to the west across the site.

The location of the proposed work contains soils listed by the Natural Resource Conservation Service (NRCS) as Urban Land, typical of excavated and filled lands; sandy Udorthents, typical of excavated and filled sandy glaciofluvial deposits as well as linear, convex slopes, and Hinckley loamy sand, that are composed of sandy and gravelly glaciofluvial deposits derived from gneiss, schist, or granite.

The Property contains Bordering Vegetated Wetlands (BVW), Isolated Vegetated Wetlands (IVW), Bank, Bordering Land Subject to Flooding (BLSF), and Riverfront Area (RFA) as identified by the Massachusetts Wetlands Protection Act and Millis Wetlands Protection Bylaw. Furthermore, according to the latest Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 25021C0161E, effective on July 17, 2012, a portion of the subject parcel to the west of the existing development is within the Zone A floodplain. Portions of this area are encumbered by an easement associated with the Army Corps of Engineers Charles River Natural Valley Storage Area. No work is proposed to take place within the floodplain.

2.3 Proposed Conditions

The Project includes the construction, installation, and operation of canopy solar panels mounted over the existing paved areas and roof-mounted solar panels on the existing warehouse building. The arrays are proposed to be sited within previously disturbed areas on the Property. A short row of solar canopies is proposed on a grassed area to the north of the rear paved area; the remainder of the solar facility is proposed on existing impervious area. Some work associated with construction of the solar canopies in the southwest portion of the site (on existing impervious area) is proposed within the 100-foot Buffer Zone, but outside of the locally jurisdictional 50-foot No Structures Zone.

The Project also includes construction of electrical equipment pads and interconnection, as well as a battery storage system. The interconnection to the electrical grid is proposed via overhead wires which tie into existing overhead wires along Main Street to the south.

Access to the Project is proposed via the existing Property entrance off Main Street. A 20-foot-wide clear access route is maintained along the boundary of all of the arrays to provide emergency access.

No modifications to the previously-approved stormwater management system are proposed as part of this Project. Disturbed pervious areas (if any) will be stabilized with herbaceous species following construction. In addition, erosion and sedimentation controls will be installed along the boundary of the work area as depicted on the enclosed plans and maintained in-place during construction.

The proposed Project will not result in the development impacts generally associated with typical residential, commercial, or industrial development. The Project will not generate water or sewer demands, increase traffic, create greenhouse gas (GHG) emissions, or contribute to acid rain or smog. The Project will create a source of renewable energy consistent with the Commonwealth's net-zero emission goal for 2050.

2.4 Compliance with the Zoning Bylaws of the Town of Millis

NextGrid proposes this Project in accordance with M.G.L. c. 40A, s. 3 of the Massachusetts Zoning Act, which states that no zoning ordinance or bylaw shall prohibit or unreasonably regulate solar energy systems except where necessary to protect public health, safety, or welfare. The proposed solar canopies are designed to be constructed in compliance with all applicable local, state, and federal requirements, including, but not limited to all applicable safety, construction, electrical, and communications requirements. All buildings and fixtures forming part of these arrays will be constructed in accordance with the state building code. The Project is sited appropriately and complies with applicable zoning criteria and does not endanger public health, safety or welfare.

2.4.1 Section XXI: Large-Scale Ground-Mounted Solar Photovoltaic Installations

Large-scale ground mounted solar photovoltaic installations are required to undergo Site Plan Review under the authority of the Planning Board pursuant to Section XXI of the Bylaw. The project complies with the applicable requirements of Section XXI as follows.

Site Plan Review

Required Documents

Applicable documentation required by Section XXI, including documentation of site control and proof of liability insurance are enclosed in Section 4.0 of this application. Furthermore, a copy of the zoning map with parcels identified and site plans prepared, stamped, and signed by a Professional Engineer are enclosed in Section 5.0.

The public outreach for this proposed project includes notification of parties in interest, including abutters within 300 feet of the Property. mill

Dimension and Density Requirements

Setbacks

- a) The proposed canopy arrays are a minimum of 40 feet from the front lot line. Due to the presence of the Bay Colony/CSX railroad track that bisects the Property, the canopies are located greater than 200 feet from the adjacent public way. All roadways, aboveground utility poles, and appurtenant structures necessary for the operation of a commercial solar photovoltaic installation are proposed a minimum of two hundred feet away from the nearest habitable structure on an adjacent lot.
- b) The proposed canopies are a minimum of 140 feet from the site lot line adjacent to Prospect Hill Cemetery. This dimension is greater than the 20-foot side yard setback requirement. The eastern portion of the Property abuts a residential district; the existing vegetated buffer from all Town roads and residential properties will be maintained under proposed conditions.
- c) The proposed solar canopies are located greater than 30 feet from the rear lot line.

Appurtenant Structures

Appurtenant structures proposed on site are architecturally compatible with each other, and are shielded from view from public ways due to the presence of an existing vegetated buffer to avoid adverse visual impacts.

Design Standards

Lighting

No lighting is proposed as part of the LSGSPI. Therefore, the lighting on-site will be the same in pre- and post-construction, and will meet the lighting requirements of the Bylaw.

Signage

Signage with the required information will be provided, and will comply with the Bylaw.

Utility Connections

The solar facility is proposed to interconnect with the electrical grid via existing overhead wires on Main Street. The Applicant has sited the proposed facility within existing impervious and disturbed areas set back from public ways, to minimize the visibility of the system from adjacent properties and limit land disturbance. Due to this distance between the array and the proposed interconnection point, the Applicant proposes to construct the utility interconnection aboveground along the main access drive.

Screening

The proposed solar canopies and appurtenant structures will be adequately screened from Main Street by the existing vegetated buffer and location behind the existing building. Removal of vegetation is not proposed. The canopies are a minimum of 144 feet from the Residential-Suburban zoning district; therefore, no additional visual mitigation is proposed. The panels are not anticipated to create sun glare on abutting properties or roadways due to the presence of existing vegetation.

Fencing

Fencing is not proposed to be necessary as part of this proposed canopy solar project and rooftop solar installation.

Safety and Environmental Standards

Emergency Services

As required by the solar bylaw, the Applicant has provided a copy of the project summary, electrical schematic, and site plan to the Millis Fire Chief concurrently with this submission. The Applicant proposes to provide the Board with the Fire Chief's written confirmation of review prior to close of the public hearing.

Land Clearing, Soil Erosion, and Habitat Impacts

Clearing of natural vegetation is not necessary for construction, operation, and maintenance of the LGSPI, as the Project is proposed on previously disturbed and existing impervious area.

Section 3.0 **Parties in Interest**

List of Surrounding Municipality Planning Boards

Certified List of Abutters

3.0 PARTIES IN INTEREST

In accordance with the requirements of M.G.L. Chapter 40A, a list of the addresses of Planning Boards in municipalities that abut Millis is as follows:

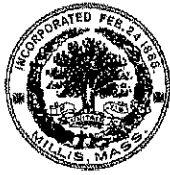
Medway Planning and Economic Development Board
155 Village Street
Medway, MA 02053

Norfolk Planning Board
Norfolk Town Hall-Room 106
One Liberty Lane
Norfolk, MA 02056

Holliston Planning Board
Town Hall
703 Washington Street
Holliston, MA 01746

Medfield Planning Board
459 Main Street
Medfield, MA 02052

Sherborn Planning Board
19 Washington Street
Sherborn, MA 01770



300 foot Abutters List Report

Millis, MA
July 21, 2022

CERTIFIED COPY by the TOWN OF MILLIS

Assessors Office

ER

Subject Property:

Parcel Number: 0022-0010-0000
CAMA Number: 0022-0010-0000
Property Address: 1073 MAIN ST

Mailing Address: AC MILLIS LLC
C/O HAJJAR MANAGEMENT CO. INC 30
ADAM STREET
MILTON, MA 02186

Abutters:

Parcel Number: 0022-0004-0000
CAMA Number: 0022-0004-0000
Property Address: 1313 MAIN ST

Mailing Address: 1313 MAIN STREET, LLC C/O TRACTOR
SUPPLY CO.
PO BOX 4900, DEPT #580
SCOTTSDALE, AZ 85261

Parcel Number: 0022-0004-0000
CAMA Number: 0022-0004-000A
Property Address: MAIN ST TRACT 952 & 953

Mailing Address: U S ARMY CORPS OF ENGINEERS
REAL ESTATE DIVISION
518 HARTFORD AVE E
UXBRIDGE, MA 01569

Parcel Number: 0022-0006-0000
CAMA Number: 0022-0006-0000
Property Address: MAIN ST

Mailing Address: DMYTRYCK BRIAN
36 GRANITE ST
HOPKINTON, MA 01748

Parcel Number: 0022-0009-0000
CAMA Number: 0022-0009-0000
Property Address: 1275 MAIN ST

Mailing Address: BSD HOLDINGS LLC
1275 MAIN ST
MILLIS, MA 02054

Parcel Number: 0022-0011-0000
CAMA Number: 0022-0011-0000
Property Address: MAIN ST TRACT 936

Mailing Address: U S ARMY CORPS OF ENGINEERS
REAL ESTATE DIVISION
518 HARTFORD AVE E
UXBRIDGE, MA 01569

Parcel Number: 0022-0012-0000
CAMA Number: 0022-0012-0000
Property Address: MAIN ST

Mailing Address: HARCOVITZ ALEXANDER H TRS
HARTFORD REALTY TRUST
256 ORCHARD ST
MILLIS, MA 02054

Parcel Number: 0022-0013-0000
CAMA Number: 0022-0013-0000
Property Address: MAIN ST

Mailing Address: HARKEY PETER
256 ORCHARD ST
MILLIS, MA 02054

Parcel Number: 0022-0015-0000
CAMA Number: 0022-0015-0000
Property Address: 1170 MAIN ST

Mailing Address: HARCOVITZ ALEXANDER H TR HARKEY
REALTY TRUST
256 ORCHARD ST
MILLIS, MA 02054

Parcel Number: 0022-0016-0000
CAMA Number: 0022-0016-0000
Property Address: 1130-1140 MAIN ST

Mailing Address: HARKEY PETER BELLEAIR REALTY
TRUST
256 ORCHARD ST
MILLIS, MA 02054

Parcel Number: 0022-0026-0000
CAMA Number: 0022-0026-0000
Property Address: 1175 MAIN ST

Mailing Address: RYAN DEVELOPMENT LLC
2 LAN DR
WESTFORD, MA 01886

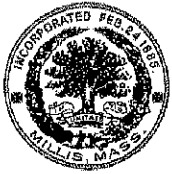


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Page 1 of 3



300 foot Abutters List Report

Millis, MA
July 21, 2022

Parcel Number: 0022-0029-0000
CAMA Number: 0022-0029-0000
Property Address: MAIN ST

Mailing Address: HARKEY PETER
256 ORCHARD ST
MILLIS, MA 02054

Parcel Number: 0022-0030-0000
CAMA Number: 0022-0030-0000
Property Address: MAIN ST

Mailing Address: TOWN OF MILLIS
900 MAIN ST
MILLIS, MA 02054

Parcel Number: 0022-0031-0000
CAMA Number: 0022-0031-0000
Property Address: 1178 MAIN ST

Mailing Address: 1178 MAIN STREET LLC
54 FARM ST
DOVER, MA 02030

Parcel Number: 0023-0001-0000
CAMA Number: 0023-0001-0000
Property Address: 18 RIDGE ST

Mailing Address: FAWKES JOSEPH J & FURNIA AMY B
18 RIDGE ST
MILLIS, MA 02054

Parcel Number: 0023-0026-0000
CAMA Number: 0023-0026-0000
Property Address: 2 CEMETARY RD

Mailing Address: TOWN OF MILLIS
2 CEMETARY RD
MILLIS, MA 02054

Parcel Number: 0023-0085-0000
CAMA Number: 0023-0085-0000
Property Address: 1031 MAIN ST

Mailing Address: CHETSAS ALEXANDER & BRANDY L
1031 MAIN ST
MILLIS, MA 02054

Parcel Number: 0023-0086-0000
CAMA Number: 0023-0086-0000
Property Address: 1041 MAIN ST

Mailing Address: FOLEY TIMOTHY J FOLEY ESTHER S
1041 MAIN ST
MILLIS, MA 02054

Parcel Number: 0023-0087-0000
CAMA Number: 0023-0087-0000
Property Address: 1049 MAIN ST

Mailing Address: BETHANY HOUSE
1049 MAIN ST
MILLIS, MA 02054

Parcel Number: 0023-0088-0000
CAMA Number: 0023-0088-0000
Property Address: 1059 MAIN ST

Mailing Address: 1059 MAIN ST LLC
310 VILLAGE ST
MILLIS, MA 02054

Parcel Number: 0023-0089-0000
CAMA Number: 0023-0089-0000
Property Address: 1073 MAIN ST

Mailing Address: AC MILLIS LLC
C/O HAJJAR MANAGEMENT CO INC 30
ADAM STREET
MILTON, MA 02186

Parcel Number: 0023-0091-0000
CAMA Number: 0023-0091-0000
Property Address: 1116 MAIN ST

Mailing Address: DAVOS PETER V TTEE NTABOS
REALTY TRUST
PO BOX 67375
CHESTNUT HILL, MA 02467

Parcel Number: 0023-0127-0000
CAMA Number: 0023-0127-0000
Property Address: 1100-1104 MAIN ST

Mailing Address: ADLER DANIEL H TRUSTEE ADLER
REALTY TRUSTER RLTY TR
P O BOX 88
MILLIS, MA 02054-0088

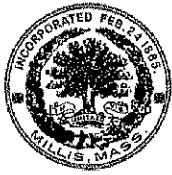


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7/21/2022

Page 2 of 3



300 foot Abutters List Report

Millis, MA
July 21, 2022

Parcel Number: 0023-0129-0000
CAMA Number: 0023-0129-0000
Property Address: 1105 MAIN ST

Mailing Address: 1105-1115 MAIN ST LLC
561 THOMAS B LANDERS RD
EAST FALMOUTH, MA 02536

Parcel Number: 0023-0156-0000
CAMA Number: 0023-0156-0000
Property Address: 42 AUBURN RD

Mailing Address: DANIEL C KROLL CAITLIN P KROLL
42 AUBURN RD
MILLIS, MA 02054

Parcel Number: 014D-0016-0000
CAMA Number: 014D-0016-0000
Property Address: CAUSEWAY ST TRACT 817

Mailing Address: U S ARMY CORPS OF ENGINEERS
REAL ESTATE DIVISION
518 HARTFORD AVE E
UXBRIDGE, MA 01569

Parcel Number: 014D-0028-0000
CAMA Number: 014D-0028-0000
Property Address: RIDGE ST TRACT 812-1

Mailing Address: U S ARMY CORPS OF ENGINEERS
REAL ESTATE DIVISION
518 HARTFORD AVE E
UXBRIDGE, MA 01569

Parcel Number: 014D-0033-0000
CAMA Number: 014D-0033-0000
Property Address: CAUSEWAY ST TRACT 901

Mailing Address: U S ARMY CORPS OF ENGINEERS
REAL ESTATE DIVISION
518 HARTFORD AVE E
UXBRIDGE, MA 01569



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MILTON, MA 02186

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MILTON, MA 02186

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CAMA Number: 0022-0012-0000
Property Address: MAIN ST

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256 ORCHARD ST
MILLIS, MA 02054

Parcel Number: 0022-0016-0000
CAMA Number: 0022-0016-0000
Property Address: 1130-1140 MAIN ST

Mailing Address: HARKEY PETER BELLEAIR REALTY
TRUST
256 ORCHARD ST
MILLIS, MA 02054

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CAMA Number: 0022-0029-0000
Property Address: MAIN ST

Mailing Address: HARKEY PETER
256 ORCHARD ST
MILLIS, MA 02054

Parcel Number: 0023-0026-0000
CAMA Number: 0023-0026-0000
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MILLIS, MA 02054

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MILLIS, MA 02054

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CAMA Number: 0023-0087-0000
Property Address: 1049 MAIN ST

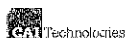
Mailing Address: BETHANY HOUSE
1049 MAIN ST
MILLIS, MA 02054

Parcel Number: 0023-0088-0000
CAMA Number: 0023-0088-0000
Property Address: 1059 MAIN ST

Mailing Address: 1059 MAIN ST LLC
310 VILLAGE ST
MILLIS, MA 02054

Parcel Number: 0023-0091-0000
CAMA Number: 0023-0091-0000
Property Address: 1116 MAIN ST

Mailing Address: DAVOS PETER V TTEE NTABOS
REALTY TRUST
PO BOX 67375
CHESTNUT HILL, MA 02467



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Page 1 of 3



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Parcel Number: 0023-0092-0000 CAMA Number: 0023-0092-0000 Property Address: 1098 MAIN ST	Mailing Address: DIAB-SHAMARI NADIA & WEBB KENNETH MGRS MILLIS 1098 DENTAL REALTY LLC 1098 MAIN ST MILLIS, MA 02054
Parcel Number: 0023-0093-0000 CAMA Number: 0023-0093-0000 Property Address: FARM ST	Mailing Address: SANTOS JR ROBERT J & SANTOS ELLEN J PO BOX 186 MILLIS, MA 02054
Parcel Number: 0023-0096-0000 CAMA Number: 0023-0096-0000 Property Address: 1060 MAIN ST	Mailing Address: GAITA JERRY R TR NEXGEN RLTY TR 20 PLEASANT ST MILLIS, MA 02054
Parcel Number: 0023-0099-0000 CAMA Number: 0023-0099-0000 Property Address: 1052 MAIN ST	Mailing Address: MONTGOMERY WILLIAM SCHUYLER 1629 MAIN ST E HARTFORD, CT 06108
Parcel Number: 0023-0100-0000 CAMA Number: 0023-0100-0000 Property Address: 1032-1040 MAIN ST UNIT Unit 12	Mailing Address: CONDO MAIN
Parcel Number: 0023-0100-0000 CAMA Number: 0023-0100-000A Property Address: 1040 MAIN ST UNIT 1	Mailing Address: COLLINS MARY BETH 1040 MAIN ST UNIT 1 MILLIS, MA 02054
Parcel Number: 0023-0100-0000 CAMA Number: 0023-0100-000B Property Address: 1040 MAIN ST UNIT 2	Mailing Address: COLLEEN M SMITH 1040 MAIN ST UNIT 2 MILLIS, MA 02054
Parcel Number: 0023-0100-0000 CAMA Number: 0023-0100-000C Property Address: 1040 MAIN ST UNIT 3	Mailing Address: PATEL ALPESHKUMAR M & PATEL PRAKRUTIBAHEN A 1040 MAIN ST UNIT 3 MILLIS, MA 02054
Parcel Number: 0023-0100-0000 CAMA Number: 0023-0100-000D Property Address: 1040 MAIN ST UNIT 4	Mailing Address: SABBAG SHERI 1040 MAIN ST UNIT 4 MILLIS, MA 02054
Parcel Number: 0023-0100-0000 CAMA Number: 0023-0100-000E Property Address: 1040 MAIN ST UNIT 5	Mailing Address: PATEL HARSHAD C PATEL ALPANA H 1040 MAIN ST UNIT 5 MILLIS, MA 02054
Parcel Number: 0023-0100-0000 CAMA Number: 0023-0100-000F Property Address: 1040 MAIN ST UNIT 6	Mailing Address: PATEL DHARTIBEN A & PATEL AMITKUMAR M 1040 MAIN ST UNIT 6 MILLIS, MA 02054
Parcel Number: 0023-0100-0000 CAMA Number: 0023-0100-000G Property Address: 1040 MAIN ST UNIT 7	Mailing Address: VORPAHL KAI 1040 MAIN ST UNIT 7 MILLIS, MA 02054



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7/21/2022

Page 2 of 3



300 foot Abutters List Report

Millis, MA
July 21, 2022

Parcel Number: 0023-0127-0000
CAMA Number: 0023-0127-0000
Property Address: 1100-1104 MAIN ST

Mailing Address: ADLER DANIEL H TRUSTEE ADLER
REALTY TRUSTER RLTY TR
P O BOX 88
MILLIS, MA 02054-0088

Parcel Number: 0023-0129-0000
CAMA Number: 0023-0129-0000
Property Address: 1105 MAIN ST

Mailing Address: 1105-1115 MAIN ST LLC
561 THOMAS B LANDERS RD
EAST FALMOUTH, MA 02536

Parcel Number: 0023-0143-0000
CAMA Number: 0023-0143-0000
Property Address: PLEASANT ST

Mailing Address: GAITA JERRY R TR NEXGEN RLTY TR
20 PLEASANT ST
MILLIS, MA 02054

Parcel Number: 0023-0155-0000
CAMA Number: 0023-0155-0000
Property Address: 5 - 7 PLEASANT ST

Mailing Address: SANTOS JR ROBERT J & SANTOS
ELLEN J
PO BOX 186
MILLIS, MA 02054

Parcel Number: 0030-0074-0000
CAMA Number: 0030-0074-0000
Property Address: FARM ST

Mailing Address: SANTOS ROBERT
P.O. BOX 186
MILLIS, MA 02054



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7/21/2022

Page 3 of 3

Section 4.0

Additional Documentation

One- or Three-Line Electrical Diagram

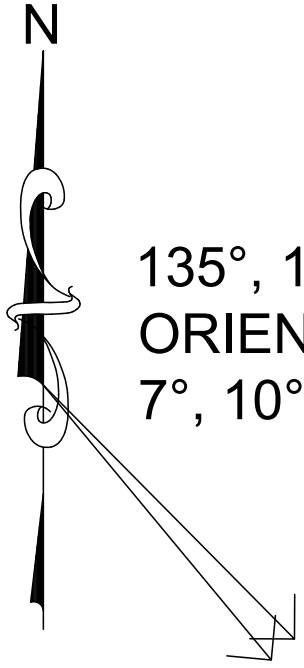
Documentation of Major System Components

Proof of Control of Access and Project Site

Proof of Liability Insurance

Proof of Notification to Utility Company

Project Development Timeline



135°, 140° MODULE
ORIENTATION
7°, 10° TILT

LOCATION MAP:

PV WATTS CALCULATION
LAT, LON 42.17, -71.34 WEATHER DATA
PREMIUM MODULE
8.68% SYSTEM LOSSES ASSUMED
FIXED TILT
98% INV EFFICIENCY

ARRAY SIZE

ROOF ARRAY	652.8 kW DC	250.0-kW AC	1547 MODULES	763,462 - kWh / YR
CARPORTS	2,805.75 kW DC	1,900.0-kW AC	4350 MODULES	3,554,985 - kWh / YR

PROJECT DATA

INTEGRATOR: NEXTGRID
P.O. BOX 7775 #73069
SAN FRANCISCO, CA 94120

SITE: 1073 MAIN ST.
MILLIS, MA 02054

CODES: NEC-2020
IBC-2015
9TH EDITION CMR 780

SOLAR ARRAY:

MODULE: (4,350) ASTRONERGY CHSM66M(DG)/F-BH 645W
(1,547) ZNSHINE ZXM6-NHJDD144-450M

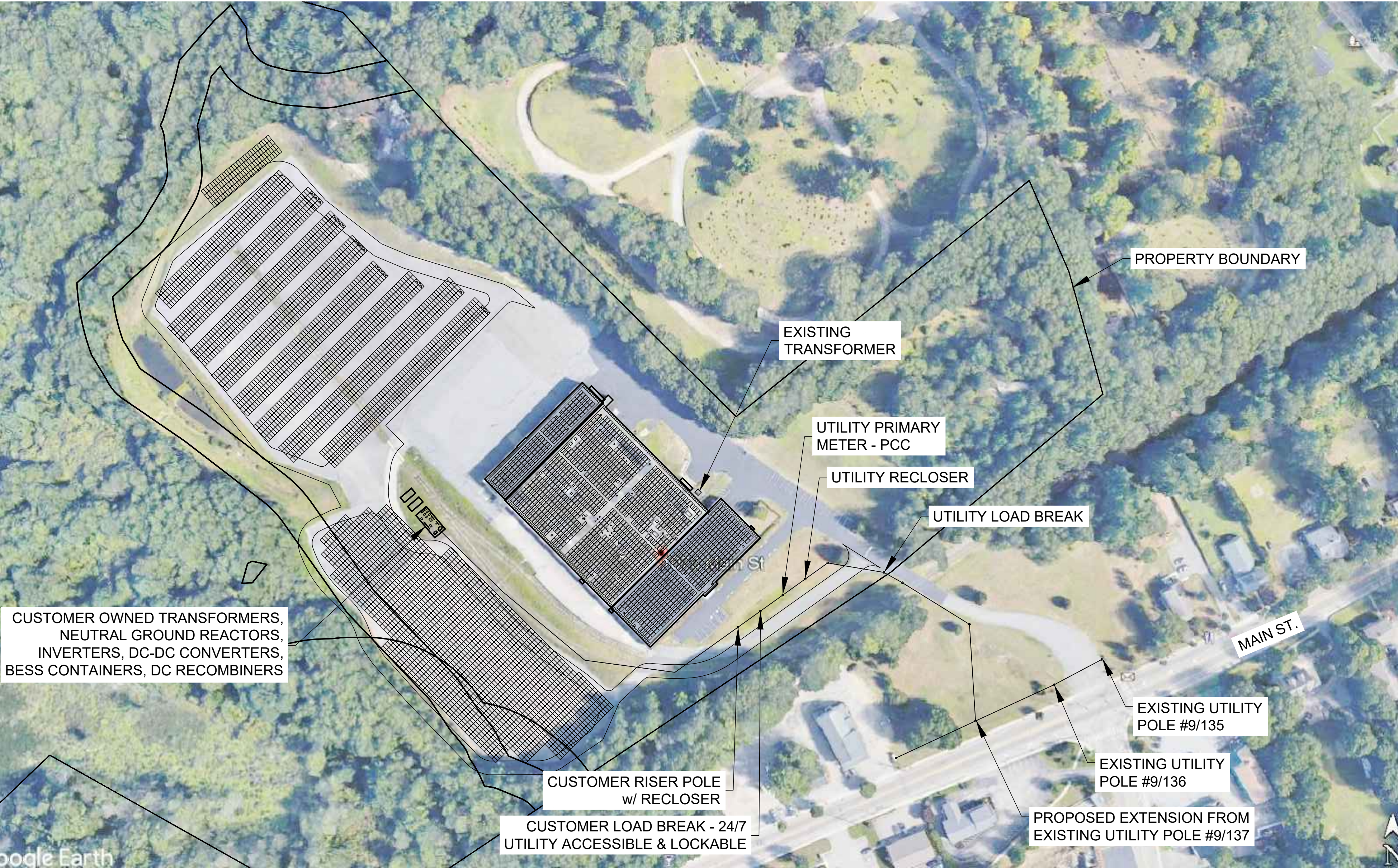
RACKING: BALLASTED @ 10 DEGREES
CARPORT @ 7 DEGREES

INVERTER: (2) EPC CAB1000/AC-630 (DERATED TO 950KW EACH)
(1) EPC PD250/AC-480

DC STORAGE: (2) DYNAPOWER DPS-500 DC-DC CONVERTERS
(5) ALENCON BOSS-1000 DC-DC CONVERTERS
6.0 MWH BATTERY STORAGE

DC OUTPUT: 3,501.9 - kW DC - STC

AC OUTPUT: 2,150.0 - kW AC NOMINAL
2,150.0 - kVA AC MAXIMUM



SITE PLAN:

1073 MAIN ST.

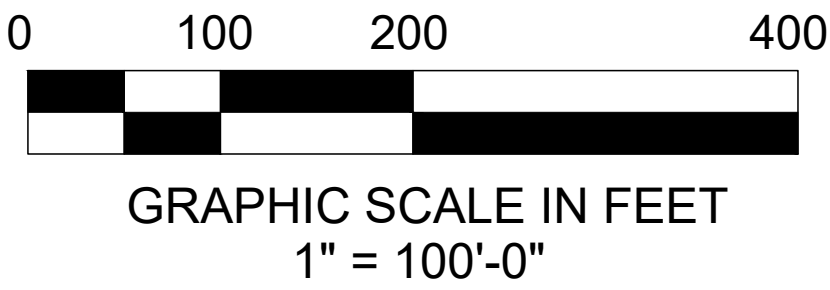
3,501.9 - KW DC

2,150 - KW AC NOMINAL

2,150.0 - KVA AC MAXIMUM

PHOTOVOLTAIC POWER SYSTEM

W/ 1,500 kW / 6,000 kWh DC-COUPLED STORAGE



ASHRAE TEMPERATURE:

WORCESTER REGIONAL ARPT			
ELEV.	HIGH TEMPERATURE		LOW TEMPERATURE
	0.4%	2% AVG.	EXTREME MINIMUM
310m	32°C	29°C	-20°C

LOADS:

GROUND SNOW 40 PSF
WIND LOAD 129 MPH

ARC DESIGN
409 NORTH MAIN STREET
ELMER, NJ 08318
(856) 712-2166 FAX: (856) 358-1511

PREPARED FOR:

NextGrid

PO BOX 7775 #73069
SAN FRANCISCO, CA 94120

PROPOSED PHOTOVOLTAIC ARRAY

1073 MAIN ST.
1073 MAIN ST.
MILLIS, MA 02054

JAMES A. CLANCY
MA PE REGISTRATION #46775
Professional Engineer
Professional Seal
Professional Engineer
Professional Seal
Professional Engineer
Professional Seal

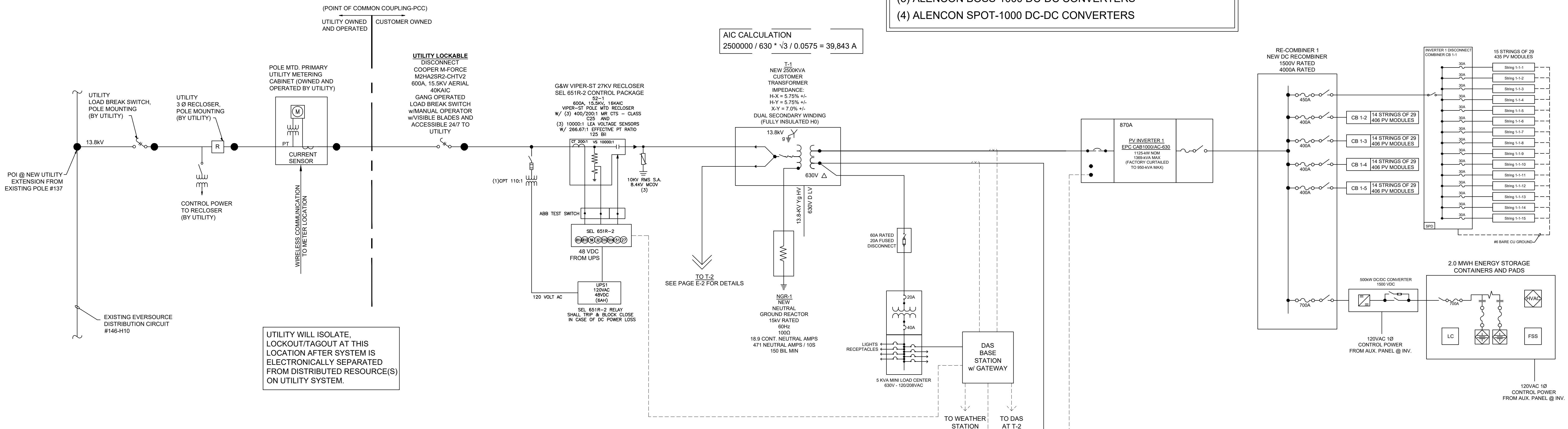
REVISIONS	
DATE	COMMENT
07-07-20	ADD 32 RELAY ELEMENT
10-21-20	PER SIS DRAFT
12-04-20	GROUND MOUNT
07-07-22	PER CIVIL CHANGES

JOB #	
DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	05-22-2020

C-1

SYSTEM SIZE = 3,501.9 kW DC
2,150.0 kW AC NOM.
2,150.0 kW AC MAX.
1,500 kW / 6,000 KWH DC-COUPLED BESS

(1,547) ZNSHINE ZXM6-NHJDD144-450M 450W MODULES (4,350) ASTRONERGY CHSM66M(DG)/F-BH 645W 645W MODULES (2) EPC CAB1000/AC-630 INVERTERS (CURTAILED TO 950kW) (1) EPC PD250/AC-480 INVERTER (2) DYNAPOWER DPS-500 DC-DC CONVERTERS (5) ALENCON BOSS-1000 DC-DC CONVERTERS (4) ALENCON SPOT-1000 DC-DC CONVERTERS
--



SEL 651-2 Protective Relay Setting									
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	VOLTAGE SETTING (RELAY)	RELAY CLEARING TIME (sec)	RELAY CLEARING TIME (cycle)	TOTAL CLEARING TIME (sec)	TOTAL CLEARING TIME (cycle)		
27P1P - UNDERVOLTAGE	X	0.50	14.94 V (L-N)	1.05	63	1.1	66		
27P2P - UNDERVOLTAGE	X	0.88	26.29 V (L-N)	1.95	117	2	120		
59P1P - OVERVOLTAGE	X	1.10	32.87 V (L-N)	1.95	117	2	120		
59P2P - OVERVOLTAGE	X	1.20	35.85 V (L-N)	0.11	6.6	0.16	9.6		
59N1P - 3V0	X	4.00	119.51 V (L-N)	0.11	6.6	0.16	9.6		
79 - MIN RECLOSE VOLTAGE		0.95	28.4 V (L-N)	299.95	17997	300	18000		
79 - MAX RECLOSE VOLTAGE		1.05	31.3 V (L-N)	299.95	17997	300	18000		
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT		FREQUENCY SETTING	RELAY CLEARING TIME (sec)	RELAY CLEARING TIME (cycle)	TOTAL CLEARING TIME (sec)	TOTAL CLEARING TIME (cycle)		
81U-1 - UNDERFREQUENCY	X		56.5 Hz	0.11	6.6	0.16	9.6		
81U-2 - UNDERFREQUENCY	X		58.5 Hz	299.95	17997	300	18000		
81O-1 - OVERFREQUENCY	X		61.2 Hz	299.95	17997	300	18000		
81O-2 - OVERFREQUENCY	X		62 Hz	0.11	6.6	0.16	9.6		
79 - MIN RECLOSE FREQUENCY			59.5 Hz	299.95	17997	300	18000		
79 - MAX RECLOSE FREQUENCY			60.5 Hz	299.95	17997	300	18000		
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT					CLEARING TIME (sec)		CURRENT SETTING (RELAY)	CURRENT SETTING (PRIMARY)
51P - PHASE OVER CURRENT	X					U4 / T.D. 2.0		0.56 A	112.44 A
51G - GROUND OVER CURRENT	X					U4 / T.D. 1.5		0.22 A	44.98 A
ALARM	X								
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT	VA SETTING (RELAY)	VA SETTING (PRIMARY)	RELAY CLEARING TIME (sec)	RELAY CLEARING TIME (cycle)	TOTAL CLEARING TIME (sec)	TOTAL CLEARING TIME (cycle)		
32 - DIRECTIONAL POWER	X	40.31 VA	2150 kVA	0.05	3	0.1	6		
PRIMARY BASE VOLTAGE	7967 V L-N	13800 V L-L	SECONDARY BASE VOLTAGE				29.9 V L-N	51.7 V L-L	266.67:1 PT RATIO
PRIMARY BASE FLA CURRENT	89.95 A		SECONDARY BASE FLA CURRENT				0.45 A		200:1 CT RATIO
RELAY/RECLOSER CLEARING TIME	CLEARING TIME IS .05 SECONDS, OR 3 CYCLES. TOTAL VALUES REFLECT SETTING + CLEARING TIME								
79 - RECLOSE/UTILITY RESTORATION DETECTION	RELAY SHALL BE SET TO 5 MIN OPEN INTERVAL TIMER. AT THE END OF TIMER RELAY WILL ATTEMPT TO CLOSE IF TRIP CONDITION IS CLEARED, LINE VOLTAGE FOR ALL PHASES IS BETWEEN .95 PU & 1.05 PU L-N, & FREQUENCY IS BETWEEN 59.5Hz & 60.5Hz FOR 5 MINUTES. INVERTERS HAVE ADDITIONAL 5 MINUTE TIMER. TOTAL RESTORATION TIME = 10 MINUTES WHEN ALL CONDITIONS ARE MET. FAILURE TO RECLOSE AFTER A 4 HOUR SENSING PERIOD WILL LOCKOUT RECLOSING. TRIP ON OVERCURRENT WILL LOCKOUT RECLOSING.								
RELAY FAILURE PROTECTION	NORMALLY CLOSED ALARM OUTPUT CONTACT IS WIRED IN PARALLEL WITH TRIP OUTPUT CONTACT. IN THE EVENT OF HARDWARE FAILURE OR LOSS OF DC POWER, THE ALARM OUTPUT WILL DE-ENERGIZE AND RETURN CONTACT TO ITS NORMALLY CLOSED STATE. A DIODE AND CAPACITOR IN THE TRIPPING CIRCUIT STORE THE ENERGY REQUIRED TO TRIP THE FAULT INTERRUPTER.								

INVERTER 1
PV Modules = 645 Watts STC
2,059 Modules per Inverter = 1,328,055 watts DC STC
71 Strings of 29 PV Modules per Inverter
w/ 500 kW / 2,000 kWh DC-Coupled Storage

INVERTER 2
PV Modules = 645 Watts STC
2,291 Modules per Inverter = 1,477,695 watts DC STC
79 Strings of 29 PV Modules per Inverter
w/ 500 kW / 2,000 kWh DC-Coupled Storage

INVERTER 2
PV Modules = 645 Watts STC
2,291 Modules per Inverter = 1,477,695 watts DC STC
79 Strings of 29 PV Modules per Inverter
w/ 500 kW / 2,000 kWh DC-Coupled Storage

INVERTER 3
PV Modules = 450 Watts STC
1,547 Modules per Inverter = 696,150 watts DC STC
91 Strings of 17 PV Modules per Inverter
w/ 500 kW / 2,000 kWh DC-Coupled Storage

INVERTER 3

PV Modules = 450 Watts STC

1,547 Modules per Inverter = 696,150 watts DC STC

91 Strings of 17 PV Modules per Inverter

w/ 500 kW / 2,000 KWH DC-Coupled Storage

Inverter Protective Settings ISO-NE SRD Tables I & II

PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	SETTING	CLEARING TIME (sec)
1 - UNDERVOLTAGE	X	0.50	315 V	1.1
2 - UNDERVOLTAGE	X	0.88	554.4 V	2

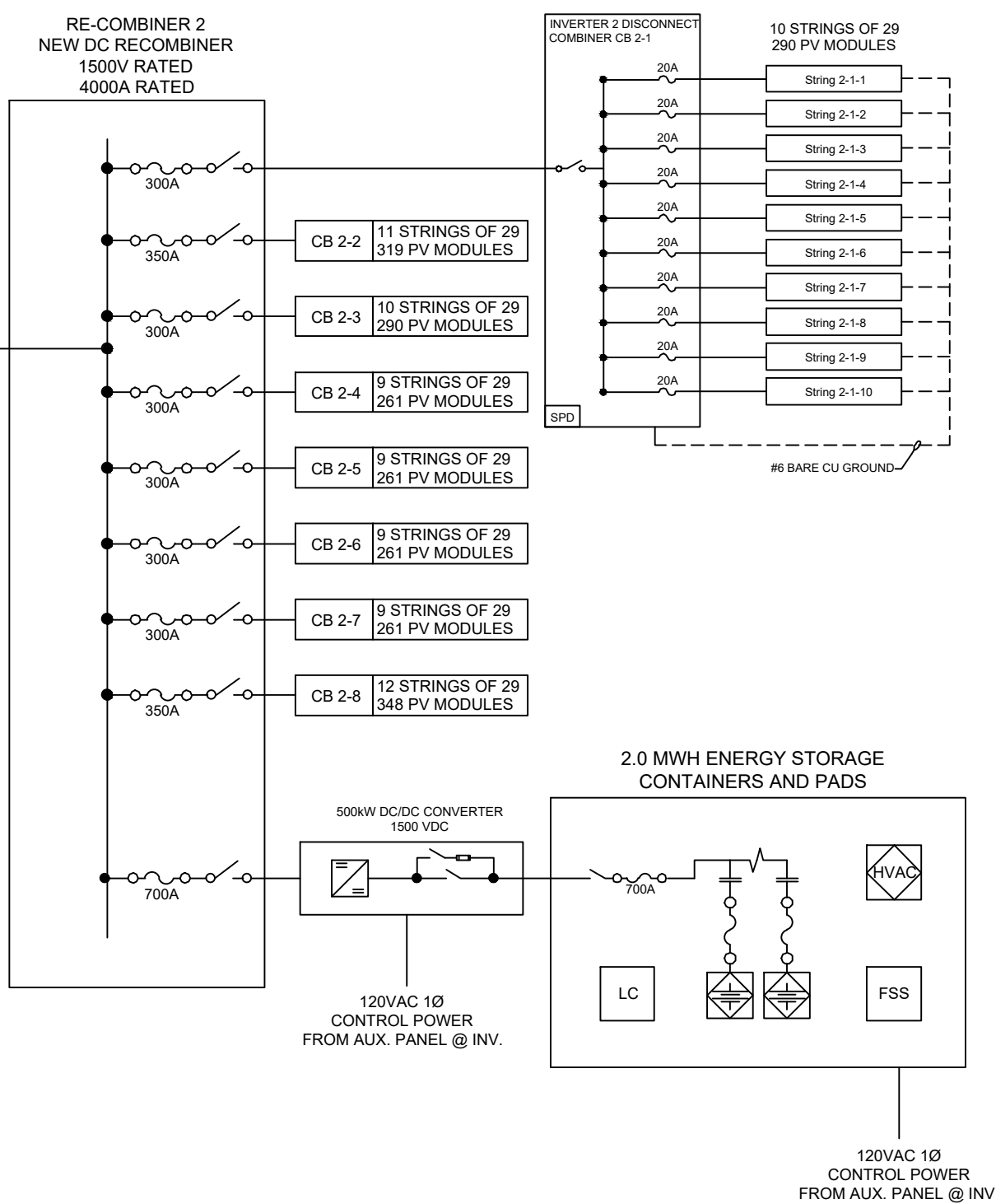
INTERNAL PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	SETTING	CLEARING TIME (sec)
27-1 - UNDERVOLTAGE	X	0.50	315 V	1.1
27-2 - UNDERVOLTAGE	X	0.88	554.4 V	2
59-1 - OVERVOLTAGE	X	1.10	693 V	2
59-2 - OVERVOLTAGE	X	1.20	756 V	0.16
81U-1 - UNDERFREQUENCY	X		56.5 Hz	0.16
81U-2 - UNDERFREQUENCY	X		58.5 Hz	300
81O-1 - OVERFREQUENCY	X		61.2 Hz	300
81O-2 - OVERFREQUENCY	X		62 Hz	0.16
PRIMARY VOLTAGE (L-L)	0.63	kV	630	V

OPERATING MODE / RESPONSE	VOLTAGE SETTING PU RANGE	SETTING (MIN.)	SETTING (MAX.)	MIN. RIDE-THROUGH TIME (sec)	MAX. RESPONSE TIME (sec)
CEASE TO ENERGIZE	$V > 1.2$	N/A	756.1 V	N/A	0.16
PERMISSIVE OPERATION	$1.175 < V \leq 1.20$	740.25 V	756 V	0.2	N/A
PERMISSIVE OPERATION	$1.15 < V \leq 1.175$	724.5 V	740.25 V	0.5	N/A
PERMISSIVE OPERATION	$1.10 < V \leq 1.15$	693 V	724.5 V	1	N/A
CONTINUOUS OPERATION	$0.88 \leq V \leq 1.10$	554.4 V	693 V	INFINITE	N/A
MANDATORY OPERATION	$0.65 \leq V < 0.88$	409.5 V	554.4 V	Linear slope of 8.7 s / pu v. voltage starting at 3 s @ 0.65 p.u.: $T_{vtr} = 3\text{ s} + 8.7\text{ s/p.u.} \cdot (V - 0.65\text{ p.u.})$	N/A
PERMISSIVE OPERATION *a,b	$0.45 < V < 0.65$	289.5 V	409.5 V	0.32	N/A
PERMISSIVE OPERATION *b	$0.30 < V < 0.45$	189 V	283.5 V	0.16	N/A
CEASE TO ENERGIZE	$V < 0.3$	189.9 V	N/A	N/A	0.16

Footnote a In the Permissive Operation region above 0.5 p.u., Inverters shall ride-through in Mandatory Operation mode

Footnote b In the Permissive Operation region below 0.5 p.u., Inverters shall ride-through in Mandatory Cessation mode with a maximum response time of 0.083 seconds.

OPERATING MODE / RESPONSE	FREQUENCY RANGE (Hz)	MIN. RIDE-THROUGH TIME (s)
N/A	$f > 62.0$	N/A
MANDATORY OPERATION	$61.2 < f \leq 61.8$	299
CONTINUOUS OPERATION	$58.8 \leq f \leq 61.2$	Infinite
MANDATORY OPERATION	$57.0 \leq f \leq 58.8$	299
N/A	$f < 57.0$	N/A



ELECTRICAL - LINE DIAGRAM

PREPARED FOR:	NextGrid PO BOX 7775 #73069 SAN FRANCISCO, CA 94120
ARC DESIGN 409 NORTH MAIN STREET ELMER, NJ 08318 (856) 712-2166 FAX: (856) 358-1511	

PROPOSED PHOTOVOLTAIC ARRAY

1073 MAIN ST.
1073 MAIN ST.
MILLIS, MA 02054

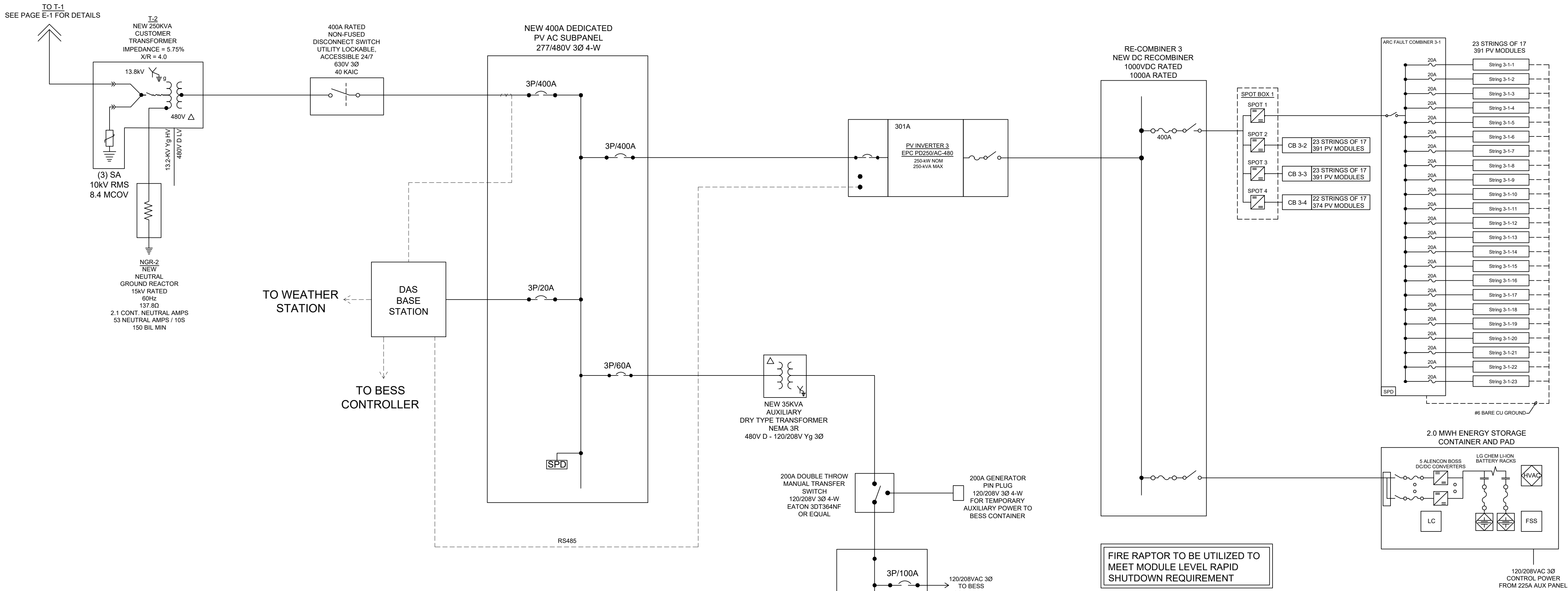
JAMES A. CLANCY
MA PE REG-646775



REVISIONS	
DATE	COMMENT
07-07-20	ADD 32 RELAY ELEMENT
10-21-20	PER SIS DRAFT
12-04-20	GROUND MOUNT
07-07-22	PER CIVIL CHANGES
JOB #	
DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	05-22-2020

E-1

AIC CALCULATION
 $250000 / 480 \cdot \sqrt{3} / 0.0575 = 2,210 \text{ A}$



INVERTER 1
PV Modules = 645 Watts STC
2,059 Modules per Inverter = 1,328,055 watts DC STC
71 Strings of 29 PV Modules per Inverter
w/ 500 kW / 2,000 kWh DC-Coupled Storage

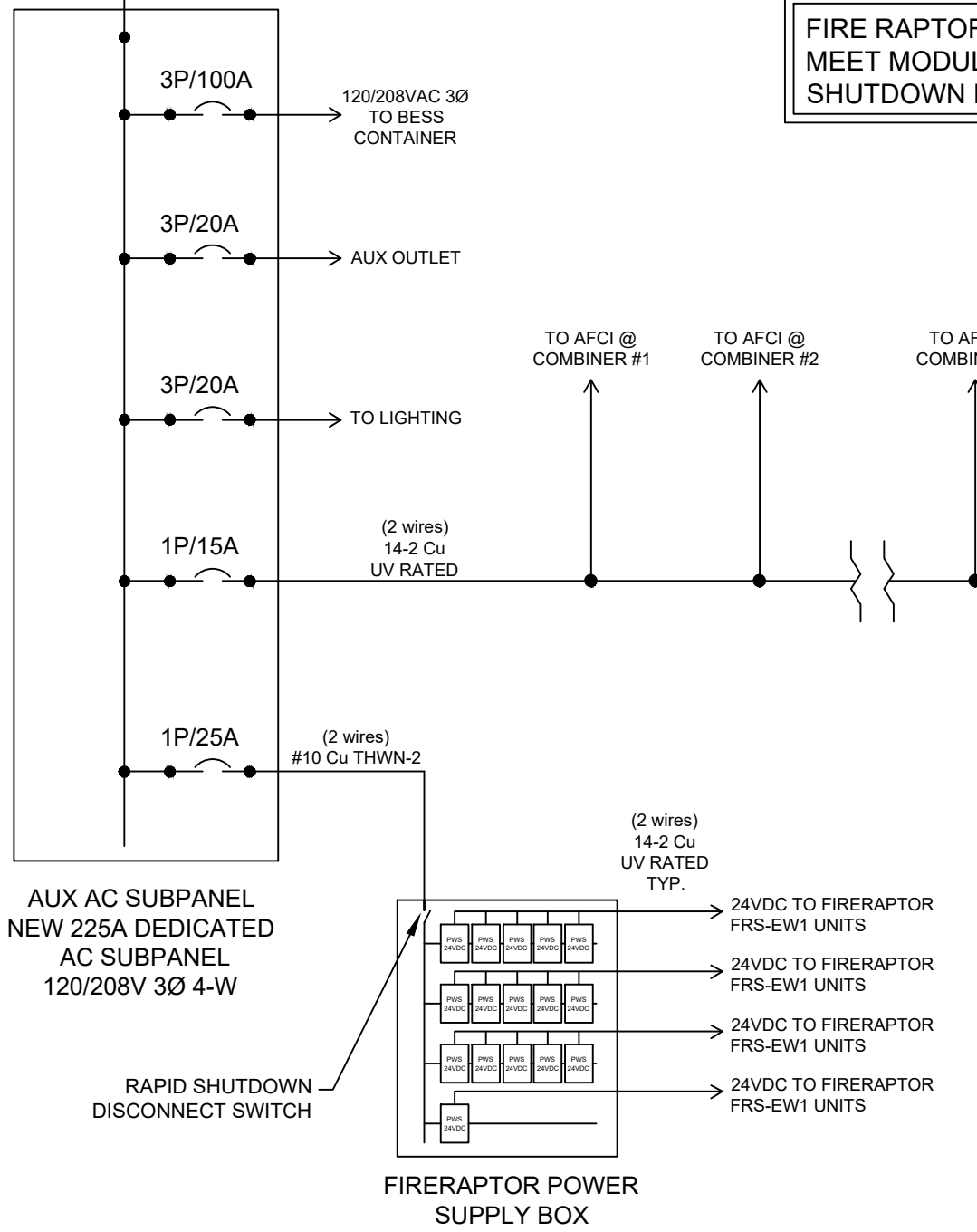
INVERTER 2
PV Modules = 645 Watts STC
2,291 Modules per Inverter = 1,477,695 watts DC STC
79 Strings of 29 PV Modules per Inverter
w/ 500 kW / 2,000 kWh DC-Coupled Storage

INVERTER 3
PV Modules = 450 Watts STC
1,547 Modules per Inverter = 696,150 watts DC STC
91 Strings of 17 PV Modules per Inverter
w/ 500 kW / 2,000 kWh DC-Coupled Storage

Inverter Protective Settings ISO-NE SRD Tables I & II				
INTERNAL PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	SETTING	CLEARING TIME (sec)
27-1 - UNDERVOLTAGE	X	0.50	240 V	1.1
27-2 - UNDERVOLTAGE	X	0.88	422.4 V	2
59-1 - OVERVOLTAGE	X	1.10	528 V	2
59-2 - OVERVOLTAGE	X	1.20	576 V	0.16
81U-1 - UNDERFREQUENCY	X		56.5 Hz	0.16
81U-2 - UNDERFREQUENCY	X		58.5 Hz	300
81O-1 - OVERFREQUENCY	X		61.2 Hz	300
81O-2 - OVERFREQUENCY	X		62 Hz	0.16
PRIMARY VOLTAGE (L-L)	0.48	kV	480	V

Inverter Voltage Ride-Through Settings ISO-NE SRD Table III					
OPERATING MODE / RESPONSE	VOLTAGE SETTING PU RANGE	SETTING (MIN.)	SETTING (MAX.)	MIN. RIDE-THROUGH TIME (sec)	MAX. RESPONSE TIME (sec)
CEASE TO ENERGIZE	$V > 1.2$	N/A	576.1 V	N/A	0.16
PERMISSIVE OPERATION	$1.175 < V \leq 1.20$	564 V	576 V	0.2	N/A
PERMISSIVE OPERATION	$1.15 < V \leq 1.175$	552 V	564 V	0.5	N/A
PERMISSIVE OPERATION	$1.10 < V \leq 1.15$	528 V	552 V	1	N/A
CONTINUOUS OPERATION	$0.88 \leq V \leq 1.10$	422.4 V	528 V	INFINITE	N/A
MANDATORY OPERATION	$0.65 \leq V < 0.88$	312 V	422.4 V	Unear slope of 8.7 s / 1 p.u. voltage starting at 3 s @ 0.65 p.u.: $T_{VRT} = 3 \text{ s} + 8.7 \text{ s / 1 p.u. (V-0.65 p.u.)}$	N/A
PERMISSIVE OPERATION *a,b	$0.45 \leq V < 0.65$	216 V	312 V	0.32	N/A
PERMISSIVE OPERATION *b	$0.30 \leq V < 0.45$	144 V	216 V	0.16	N/A
CEASE TO ENERGIZE	$V < 0.3$	143.9 V	N/A	N/A	0.16
Footnote a	In the Permissive Operation region above 0.5 p.u., Inverters shall ride-through in Mandatory Operation mode.				
Footnote b	In the Permissive Operation region below 0.5 p.u., Inverters shall ride-through in Mandatory Cessation mode with a maximum response time of 0.083 seconds.				

Inverter Frequency Ride-Through Settings ISO-NE SRD Table IV		
OPERATING MODE / RESPONSE	FREQUENCY RANGE (Hz)	MIN. RIDE-THROUGH TIME (sec)
N/A	$f > 62.0$	N/A
MANDATORY OPERATION	$61.2 < f \leq 61.8$	299
CONTINUOUS OPERATION	$58.8 \leq f \leq 61.2$	Infinite
MANDATORY OPERATION	$57.0 \leq f < 58.8$	299
N/A	$f < 57.0$	N/A



FIRE RAPTOR TO BE UTILIZED TO MEET MODULE LEVEL RAPID SHUTDOWN REQUIREMENT

ARC DESIGN
409 NORTH MAIN STREET
ELMER, NJ 08318
(856) 712-2166 FAX: (856) 358-1511

PREPARED FOR:
NextGrid
PO BOX 7775 #73069
SAN FRANCISCO, CA 94120

PROPOSED PHOTOVOLTAIC ARRAY
1073 MAIN ST.
1073 MAIN ST.
MILLIS, MA 02054

JAMES A. CLANCY
MA PE
46775
JAMES A. CLANCY
No. 1073
PROFESSIONAL

REVISIONS

DATE	COMMENT
07-07-20	ADD 32 RELAY ELEMENT
10-21-20	PER SIS DRAFT
12-04-20	GROUND MOUNT
07-07-22	PER CIVIL CHANGES

JOB #	
DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	05-22-2020

E-2

ELECTRICAL - LINE DIAGRAM

ASTRO 6 Twins

Create Sustainable and Efficient Green Energy

635W~655W

Monocrystalline PV Module

CHSM66M(DG)/F-BH Series (210)

CHSM66M(DG)/F-BH is bifacial module with white glazed glass

Tier 1

DNV GL

ctc

AAA

98.00%

12-year Warranty for Materials and Processing

30-year Warranty for Extra Linear Power Output

(1st year ≤ 2.0%, 2nd~30th years ≤ 0.45% / year)

84.95%

KEY FEATURES

+5W

OUTPUT POSITIVE TOLERANCE

Guaranteed 0→+5W positive tolerance to ensure power output.

NON-DESTRUCTIVE CUTTING

Higher bending strength of cells and mechanical properties of modules.

BIFACIAL DESIGN , HIGHER CUSTOMER VALUE

Up to 25% additional power gain , lower BOS cost and LCOE.

INNOVATIONAL HALF-CUT&MULTI-BUSBAR TECHNOLOGY

Lower risk of microcrack, better shading tolerance, higher reliability.

SUPER PERC+ CELL TECHNOLOGY

Higher module power and module efficiency, lower power degradation.

APPLICABLE FOR MULTI DIFFERENT ENVIRONMENTS

Wide range of applications, such as snow areas, high humidity areas and strong sandstorm areas, etc.

COMPREHENSIVE CERTIFICATES

CE

UL

IEC

ISO

TUV

The first solar company which passed the

TUV Nord IEC/TS 62941 certification audit.

Preliminary

For Global Market

ASTROENERGY

A CHINT COMPANY

ELECTRICAL SPECIFICATIONS

Power rating (front)	635 Wp	640 Wp	645 Wp	650 Wp	655 Wp					
Testing Condition	Front	Back	Front	Back	Front	Back				
STC rated output (P _{max} /Wp)	635	451	640	448	645	451	650	455	655	458
Rated voltage (V _{mp} /V) at STC	37.46	37.73	37.61	37.55	37.76	37.73	37.92	37.91	38.07	38.10
Rated current (I _{mp} /A) at STC	16.95	11.87	17.02	11.91	17.08	11.96	17.14	12.00	17.20	12.04
Open circuit voltage (V _{oc} /V) at STC	44.95	44.90	45.13	45.08	45.32	45.27	45.50	45.45	45.68	45.63
Short circuit current (I _{sc} /A) at STC	18.07	12.28	18.16	12.35	18.25	12.41	18.34	12.47	18.43	12.53
Module efficiency	20.4%	14.5%	20.6%	14.4%	20.8%	14.5%	20.9%	14.6%	21.1%	14.7%
Temperature coefficient (P _{max})	-0.34%/℃									
Temperature coefficient (V _{oc})	+0.04%/℃									
Temperature coefficient (V _{mp})	-0.25%/℃									
Nominal module operating temperature (NMOT)	43±2℃									
Maximum system voltage (IEC/UL)	1500V									
Number of diodes	3									
Junction box IP rating	IP 68									
Maximum series fuse rating	35 A									

STC: Irradiance 1000W/m², Cell Temperature 25℃, AM=1.5

ELECTRICAL SPECIFICATIONS (Integrated power)

P _{max} gain	P _{max}	V _{mp}	I _{mp}	V _{oc}	I _{sc}
5%	683 Wp	37.92 V	18.00 A	45.50 V	19.26 A
10%	715 Wp	37.92 V	18.86 A	45.50 V	20.17 A
15%	748 Wp	37.93 V	19.71 A	45.51 V	21.08 A
20%	780 Wp	37.93 V	20.56 A	45.51 V	22.00 A
25%	813 Wp	37.94 V	21.42 A	45.52 V	22.91 A

Electrical characteristics with different rear power gain (reference to 650W)

MECHANICAL SPECIFICATIONS

Outer dimensions (L x W x H)	2384 x 1303 x 35 mm
Frame technology	Aluminum, silver anodized
Glass thickness	2.0 mm
Cable length (IEC/UL)	Portrait: 350 mm
Cable diameter (IEC/UL)	Landscape: 1400 mm
4 mm ² / 12 AWG	
Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Connector type (IEC/UL)	HCB40 / MC4-EVO2

PACKING SPECIFICATIONS

Module Weight	39.4 kg
Packing unit	31 pcs / box
Weight of packing unit (for 40'HQ container)	1320 kg
Number of modules per 40'HQ container	527 pcs

Tolerance: ±1.5kg

Subject to sales contract

MODULE DIMENSION DETAILS

4-Φ5.5 mm Ground hole

9-9 mm x 14 mm Mounting hole

4-7 mm x 10 mm Mounting hole

16-15 mm x 8.5 mm Drainage hole

1303 mm

35 mm

2384 mm

11 mm

11 mm

14.2 mm

9 mm

4.5 mm

28 mm

AA 401

B-B 401

1 141

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http://energy.chint.com

Astronergy 02-2021

ZXM6-NHLDD144 Series

Znshinesolar 98B HALF-CELL Bifacial Light-Weight Double Glass Mono PV Module

Mono

Poly

Solutions

425W | 430W | 435W | 440W | 445W | 450W

144

Made with selected materials and components to ensure quality, longevity, efficiency and stable outputs, the ZXM6-NHLDD144 monocrystalline modules by ZNSHINE SOLAR represents a highly flexible solution for diverse installation types, from small home PV systems to industrial rooftop plants to large utility arrays.

ZNSHINE SOLAR' S ZXM6-NHLDD144 monocrystalline solar modules are tested and approved by internationally recognized laboratories so that we can offer our global customers a reliable and price-quality optimized product. The linear warranty on the product output further secures increased stability and financial returns on investments over time.

12 years product warranty/30 years output warranty

0.5% Annual Degradation over 30 years

Znshine's DG Modules Linear Warranty

Znshine's Standard

Industry Standard

1000

975%

90%

83%

80%

1

5

10

15

25

30

Years

+19.35%

98B

More power output

Module RS decreases, FF (fill factor) increases, power gain is stable above 1.5%, and can be increased by 5-10W

High Efficiency

A high efficiency PERC solar cell with 9 busbars technology to ensure the efficiency of the solar module up to 20.70% and stable operation

Anti PID

Limited power degradation of ZXM6-NHLDD144 module caused by PID effect is guaranteed under strict testing condition for mass production

Bifacial technology

Enables additional energy harvesting from rear side(up to 25%)

Better Weak Illumination Response

Lower temperature coefficient and wide spectral response, higher power output, even under low-light settings

Grahene Coating(Optional*)

Graphene coating modules can increase power generation and self-cleaning, also can save maintenance cost * Can be customized

TUV

UL

IEC

ISO

DNV

CE

UL

CB

JET

UL

PV CYCLE

UL

UL

UL

ZnShine PV-Tech Co., LTD. founded in 1988, is a world-leading high-performance PV module manufacturer, PV power station developer, EPC and power station operator. With its state-of-the-art production lines, the company boasts module output of 50W. Bloomberg has listed ZnShine as a global Tier 1 PV manufacturer and Top 4 reliable PV supplier.

www.znshinesolar.com

ZXM6-NHLDD144 Series

Znshinesolar 98B HALF-CELL Bifacial Light-Weight Double Glass Mono PV Module

Mono

Poly

Solutions

425W | 430W | 435W | 440W | 445W | 450W

144

Electrical Properties | STC*

Module Type	ZXM6-NHLDD144-425W	ZXM6-NHLDD144-430W	ZXM6-NHLDD144-435W	ZXM6-NHLDD144-440W	ZXM6-NHLDD144-445W	ZXM6-NHLDD144-450W
Nominal Power/Watt Pmax(W)	425	430	435	440	445	450
Power Output Tolerance Pmax(%)	0→+3	0→+3	0→+3	0→+3	0→+3	0→+3
Maximum Power Voltage Vmp(V)	41.1	41.3	41.5	41.7	41.9	42.1
Maximum Power Current Imp(A)	10.35	10.42	10.49	10.56	10.63	10.70
Open Circuit Voltage Voc(V)	49.5	49.7	49.9	50.1	50.3	50.5
Short Circuit Current Isc(A)	11.00	11.07	11.14	11.21	11.28	11.35
Module Efficiency (%)	19.55	19.78	20.01	20.24	20.47	20.70

*STC Standard Test Condition: Irradiance 1000W/m², Module Temperature 25℃, AM 1.5

*The data above is for reference only and the actual data is in accordance with the practical testing

Electrical Properties | NMOT/NMOT*

Maximum Power Pmax(Wp)	316.7	320.3	323.9	327.6	330.6	334.3
Maximum Power Voltage Vmp(Vp)	38.0	38.2	38.4	38.5	38.7	38.9
Maximum Power Current Imp(A)	8.34	8.39	8.44	8.50	8.53	8.58
Open Circuit Voltage Voc(V)	46.1	46.3	46.5	46.6	46.8	47.0
Short Circuit Current Isc(A)	8.88	8.94	8.99	9.05	9.11	9.17

*NMOT(Nominal module operating temperature)Irradiance 800W/m², Ambient Temperature 25℃, AM 1.5

*The data above is for reference only and the actual data is in accordance with the practical testing

Electrical characteristics with 25% rear side power gain

Front power Pmax/W	425	430	435	440	445	450
Total power Pmax/W	531	538	544	550	556	562
Vmp/V(Total)	41.2	41.4	41.6	41.8	42.0	42.2
Imp/A(Total)	12.89	13.00	13.08	13.16	13.24	13.32
Voc/V(Total)	49.6	49.8	50.0	50.2	50.4	50.6
Isc/A(Total)	13.54	13.65	13.73	13.81	13.89	13.97

TEMPERATURE RATINGS

NMOT: 44℃ ±2℃

Temperature coefficient of Pmax: -0.36%/℃

Temperature coefficient of Voc: -0.29%/℃

Temperature coefficient of Isc: 0.05%/℃

Refer Bifacial Factor: 70±5%

DO NOT connect Fuse in Combiner Box with two or more strings in parallel connection

WORKING CONDITIONS

Maximum system voltage: 1500 V DC

Operating temperature: -40℃~+85℃

Maximum series fuse: 20 A

Maximum load (max/wind): 5400 Pa / 2400 Pa

MECHANICAL DATA

Solar cells: Mono 166*83mm

No. of Cells: 144 (6*24)

Module dimension: 2094*1038*30 mm(With Frame)

Weight: 28 kg

Glass: 2.0mm+2.0mm heat strengthened glass

Junction box: IP 68, 3 diodes

Cables: 4 mm² 350 mm or Customized Length

Connectors: MC4-compatible or Customized Connectors

PACKAGING INFORMATION

Packing Type: 40' HQ

Piece/Box: 36

Piece/Container: 792

IV CURVES OF THE PV MODULE

Current (A)

Power (W)

1000

900

800

700

600

500

400

300

200

100

0

0

10

20

30

40

50

Voltage (V)

1000 W/m²

800 W/m²

600 W/m²

400 W/m²

200 W/m²

Dimension of the PV Module (mm)

166 mm

83 mm

30 mm

2094 mm

1038 mm

30 mm

144

6

24

Add: 14 Zhid Industrial Zone, Jintan/Jiangsu 213251, P.R. China

Tel: +86 519 6822 0233

E-mail: info@znshinesolar.com

Remark: please read safety and installation instructions before using the product. | Subject to change without prior notice. © ZNSHINE SOLAR 2020 | Version: ZXM6-NHLDD144-2007E

FireRaptor

Solar Panel Rapid Shutdown Safety Solution

IMO

Technical Specification

Emergency Shutdown Cable	2x1mm ² cable + Tyco SuperSeal 2-pole plug/connector (male/female)
DC Power Supply	24VDC - See ordering information overleaf
Maximum System Input Power	700W single panel or 350W per panel (two panels in series)
Maximum System Input Voltage	150V single panel or 75V per panel (two panels in series)
Maximum System Input Current	12A
Maximum Isolation Voltage	1500V
Input Protection	Over voltage & transient voltage suppression
Maximum System Output Current	12A (99.5% efficiency)
Breakdown Voltage	1500VAC for 1 minute
Maximum System Output Voltage	150V single panel or 75V per panel (two panels in series)
Output Protection	Over voltage, over current & transient voltage suppression
Max. Input Short Circuit Current	15A
Operating Temperature	-30℃ to +95℃
Ambient Operating Temperature	-30℃ to +55℃
IP Class Protection	>IP68, NEMA 4X
PV Casing	Flame retardant Polycarbonate - UL94-V0
Limited Warranty	FRS-00X: 20 Years, FRS-ESW(X)-K: 5 Years (See https://downloads.imopc.com/literatior-limited-warranty.pdf for terms)
Weight (without cables)	400g
Panel Cable Length	120mm
String & Signal Cable Length	1800mm
Standard Compliance	EN 61000, EN 61646, EN 61215, IEC 62716 draft C (NH ₂ resistant), VDE-AR-E 2100-712, BS 7671-712, UL 1741
PV Connectors	Original Multi Contact MC4

Dimensions mm (inches)

Tolerance ±0.5mm (±0.03")

FRS-00X

FRS-ESW1 / FRS-ESW2

FRS-ESW1-K / FRS-ESW2-K

FRS-CBLD / 1 / 2

Emergency Shutdown Switches

FRS-ESW(X)/FRS-ESW(X)-K

FRS-ESW(X)-24/FRS-ESW(X)-24-K

FRS-ESW(X)-310/FRS-ESW(X)-310-K

FRS-ESW(X)-610/FRS-ESW(X)-610-K

FRS-ESW1-1010

Certified Bleed Boxes

FRS-CBLD

FRS-CBLD1 / 2*

* FRS-CBLD1 & FRS-CBLD2 with includes grounding bolt (adds 20mm to width)

Keeping Solar Safe

EQUIPMENT SPECIFICATIONS

ARC DESIGN

409 NORTH MAIN STREET

ELMER, NJ 08318

(856) 712-2166 FAX: (856) 358-1511

PREPARED FOR:

NextGrid

PO BOX 7775 #73069

SAN FRANCISCO, CA 94120

PROPOSED PHOTOVOLTAIC ARRAY

1073 MAIN ST.

1073 MAIN ST.

MILLIS, MA 02054

JAMES A. CLANCY

MA PE 046775

COMMISSIONER OF REGISTRATION

JAMES A. CLANCY

NO. 1073 MAIN ST.

PROFESSIONAL

REVISIONS

DATE	COMMENT
07-07-20	ADD 32 RAY ELEMENT
10-21-20	PER SIS DRAFT
12-04-20	GROUND MOUNT
07-07-22	PER CIVIL CHANGES

JOB #

DRWN

CHKD

SCALE

DATE

RCA

JAC

AS NOTED

05-22-2020

E-3

CAB1000/AC

Up to 1500 VDC
Utility Grade Storage Inverter
Scalable from 1 to 6 MW



Return on Investment

- >98% max efficiency
- Low shipping & installation cost
- Modular 11.5 MW blocks
- Monetizable dynamic performance

Modular / flexible configuration

- 1-1.5 MW blocks, up to 1500 VDC
- Configurable up to 6 MW
- Individual AC connections or combined throat
- Able to mix storage, PV & DC-DC in a single lineup

Simple O&M

- Easily maintainable
- Modular design with low component count
- Extended warranty available

Easy Transportable

- Standard freight = low transportation cost
- Movable with pallet jack or standard forklift
- No crane required
- Separable building blocks

Advanced Technology

- Parallel UPS functionality
- Fully parameterizable grid support
- Certified to standard: UL1741 / IEC
- 2VBT / LVBT / 4-quadrant high bandwidth control

The CAB1000 scalable platform was specifically developed to offer a straightforward and simple solution to developers of Utility-grade energy storage systems. In ~1 MW blocks, the CAB1000 platform offers a single modular system which is tailored to Utility systems of all sizes. The scalable power conversion system also boasts high-performance controls and system redundancy.

With world-class power density and an easy to install design, your energy storage system will be commissioned quickly and easily. The energy storage PCS has never been more flexible or straightforward.

excellence in power conversion

EPC Power Corporation 70-100032 April 2020

PD250/AC-480

250 kW Energy Storage Inverter
Reliable service in the most demanding applications



DG

Engineered to provide years of reliable service in the most demanding applications.

EPC's advanced smart inverters for energy storage will enable you to deploy scalable power conversion systems with less effort and in less time. Integrating 1,000 V class battery energy storage systems has never been easier or more compact. With world-class power density and an easy to install design, your energy storage system will be up and running in no time.

This inverter is designed from the ground up with simplicity, reliability, and scalability in mind. The liquid-cooled inverter includes an integrated AC contactor, AC breaker, DC contactor, and precharge circuit, enabling simple installation.

The PD250/AC-480 provides reliable, abundant power in a small footprint for years of reliable service.

excellence in power conversion

13125 Danielson St., Suite 112 | Poway, CA 92064 | 1.858.748.5590 | epcpower.com

DYNAPOWER

DPS-500 500 kW BIDIRECTIONAL DC-TO-DC CONVERTER FOR UTILITY-SCALE SOLAR-PLUS-STORAGE



PATENTS PENDING

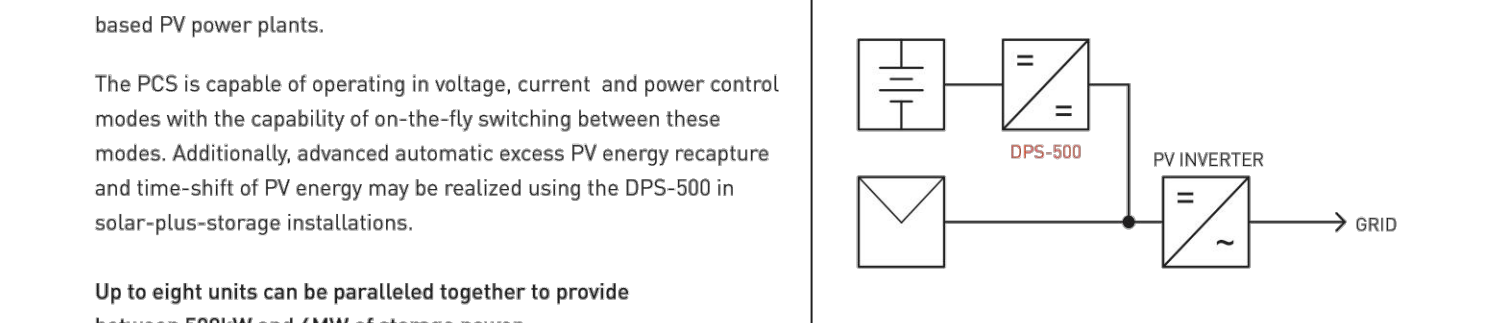
Scalable from 500kW to 4MW

The patent pending **DPS-500** is a bidirectional DC-to-DC converter. The intended end application for this converter is to interface battery energy storage with new and existing 1000V and 1500V central inverter based PV power plants.

The PCS is capable of operating in voltage, current, and power control modes with the capability of on-the-fly switching between these modes. Additionally, advanced automatic excess PV energy recapture and time-shift of PV energy may be realized using the DPS-500 in solar-plus-storage installations.

Up to eight units can be paralleled together to provide between 500kW and 4MW of storage power.

The DPS-500 is optimized to work seamlessly with SMA Sunny Central inverters.



ISO 9001

excellence in power conversion

East Coast/Headquarters 85 Meadowland Drive South Burlington, Vermont 05403

West Coast 2913 Whipple Road Union City, California 94587

MODEL	50-100101	1	CAB1000/AC-3L1 @ 630 VRMS	4
Lineup	Quantity	1	3-wire (3P3W) 600 kcmil x 6	4
AC	AC configuration max. cables (throat bus optional)	3-wire (3P3W) 600 kcmil x 6	3-wire (3P3W) 600 kcmil x 6	3-wire (3P3W) 600 kcmil x 6
AC voltage range	AC voltage range	630 VRMS ±10% / -12%	630 VRMS ±10% / -12%	630 VRMS ±10% / -12%
AC export capacity (1) @ 40°C	AC export capacity (1) @ 40°C	1369 kVA 1295 ARMS	5476 kVA 5020 ARMS	5476 kVA 5020 ARMS
AC import capacity @ 40°C	AC import capacity @ 40°C	913 kVA 857 ARMS	3652 kVA 3346 ARMS	3652 kVA 3346 ARMS
Export power overload capacity @ 40°C, starting from 65% full load	Export power overload capacity @ 40°C, starting from 65% full load	1.6 MW for 3 sec. or 1.35 MW for 5 min.	6.4 MW for 3 sec. or 5.4 MW for 5 min.	6.4 MW for 3 sec. or 5.4 MW for 5 min.
Minimum SC ratio (3)	Minimum SC ratio (3)	2	2	2
Maximum fault current from sources AC DC	Maximum fault current from sources AC DC	100 kA (AC RMS) 180 kA (DC, per input)	100 kA (AC RMS) 180 kA (DC, per input)	100 kA (AC RMS) 180 kA (DC, per input)
Nominal frequency range	Nominal frequency range	50 - 60 Hz (configurable)	50 - 60 Hz (configurable)	50 - 60 Hz (configurable)
Harmonic distortion	Harmonic distortion	UL1741 / IEC 1547: <2% TDD at rated power per IEEE 519	UL1741 / IEC 1547: <2% TDD at rated power per IEEE 519	UL1741 / IEC 1547: <2% TDD at rated power per IEEE 519
Efficiency: Max CEC Euro	Efficiency: Max CEC Euro	98.6% (est.) >98% (est.) >98% (est.)	98.6% (est.) >98% (est.) >98% (est.)	98.6% (est.) >98% (est.) >98% (est.)
DC	DC voltage range (2)	691 - 1500 VDC	691 - 1500 VDC	691 - 1500 VDC
Typical battery voltage range	Typical battery voltage range	986 - 1350 VDC	986 - 1350 VDC	986 - 1350 VDC
Maximum DC current	Maximum DC current	1400 ADC	1400 ADC	1400 ADC
Number of DC inputs	Number of DC inputs	1	1	4
Environmental	Ambient temperature (operation)	-20°C to 55°C (-40°C with Arctic option)	-20°C to 55°C (-40°C with Arctic option)	-20°C to 55°C (-40°C with Arctic option)
Ambient temperature (storage)	Ambient temperature (storage)	40°C to 60°C	40°C to 60°C	40°C to 60°C
Protection degree	Protection degree	Outdoor: IP55 / NEMA 3R. Salt fog kit available for coastal sites.	Outdoor: IP55 / NEMA 3R. Salt fog kit available for coastal sites.	Outdoor: IP55 / NEMA 3R. Salt fog kit available for coastal sites.
Max elevation	Max elevation	2,000 m (6,500 ft.)	2,000 m (6,500 ft.)	2,000 m (6,500 ft.)
Acoustic noise	Acoustic noise	<75 dBA @ 3m	<75 dBA @ 3m	<75 dBA @ 3m
Altitude derating	Altitude derating	10% per 1,000m above 1,000m elevation	10% per 1,000m above 1,000m elevation	10% per 1,000m above 1,000m elevation
Temperature de-rating	Temperature de-rating	1.7% per degree °C from 40-55 °C	1.7% per degree °C from 40-55 °C	1.7% per degree °C from 40-55 °C
Cabinet	Maximum dimensions (H x W x D)	mm: (2281 x 1000 x 1636) in: (89.8 x 39.4 x 64.4)	mm: (2281 x 4915 x 1636) in: (89.8 x 193.1 x 64.4)	mm: (2281 x 4915 x 1636) in: (89.8 x 193.1 x 64.4)
Weight (est.)	Weight (est.)	1043 kg (2300 lb.)	1043 kg (2300 lb.)	1043 kg (2300 lb.)
Mounting	Mounting	Pad mount / skid mount	Pad mount / skid mount	Pad mount / skid mount
Certifications (pending)	Safety	UL 1741 C22.2 No. 107.1-16	UL 1741 C22.2 No. 107.1-16	UL 1741 C22.2 No. 107.1-16
Utility interconnect	Utility interconnect	UL 1741:2010 R2.18 (SA) IEEE 1547-1:2005 CA Rule 21 No. 16-06-052 Hawaii Rule 14 No. 2014-0192	UL 1741:2010 R2.18 (SA) IEEE 1547-1:2005 CA Rule 21 No. 16-06-052 Hawaii Rule 14 No. 2014-0192	UL 1741:2010 R2.18 (SA) IEEE 1547-1:2005 CA Rule 21 No. 16-06-052 Hawaii Rule 14 No. 2014-0192
Protections	DC disconnection	Motorized switch	Motorized switch	Motorized switch
AC fuses (DC fuses optional)	AC fuses (DC fuses optional)	2000 A, 250 kAIC (65kA min) 1800 A, 180 kAIC (20kA min)	2000 A, 250 kAIC (65kA min) 1800 A, 180 kAIC (20kA min)	2000 A, 250 kAIC (65kA min) 1800 A, 180 kAIC (20kA min)
AC DC surge protection (Type 2 optional)	AC DC surge protection (Type 2 optional)	Type 1 surge arrester Class 1 surge arrester	Type 1 surge arrester Class 1 surge arrester	Type 1 surge arrester Class 1 surge arrester
Safety features	Safety features	overvoltage, overcurrent, overtemperature (both instantaneous and time-overload), etc.	overvoltage, overcurrent, overtemperature (both instantaneous and time-overload), etc.	overvoltage, overcurrent, overtemperature (both instantaneous and time-overload), etc.
Ground fault detection (optional)	Ground fault detection (optional)	Yes	Yes	Yes
Control interface	Control interface	CAN, Modbus TCP/IP	CAN, Modbus TCP/IP	CAN, Modbus TCP/IP
Command latency	Command latency	1 ms (CAN), 3 ms (Modbus TCP)	1 ms (CAN), 3 ms (Modbus TCP)	1 ms (CAN), 3 ms (Modbus TCP)
Response time, (time to accomplish full power step)	Response time, (time to accomplish full power step)	2 ms, adjustable longer via parameters	2 ms, adjustable longer via parameters	2 ms, adjustable longer via parameters
On-off grid transitions (optional)	On-off grid transitions (optional)	Yes LPS mode available	Yes LPS mode available	Yes LPS mode available
Black-start capable (optional)	Black-start capable (optional)	Yes; requires external control power	Yes; requires external control power	Yes; requires external control power
Grid-tied control modes	Grid-tied control modes	Voltage mode PQ (power) DQ (current) cos phi (pf)	Voltage mode PQ (power) DQ (current) cos phi (pf)	Voltage mode PQ (power) DQ (current) cos phi (pf)
Grid-support functions	Grid-support functions	Active/Reactive control Volt/VAR Hz/Watt Volt/Watt LVRT & LLVRT ramp rate, etc.	Active/Reactive control Volt/VAR Hz/Watt Volt/Watt LVRT & LLVRT ramp rate, etc.	Active/Reactive control Volt/VAR Hz/Watt Volt/Watt LVRT & LLVRT ramp rate, etc.
Islanded control modes	Islanded control modes	V&F droop control Ok to parallel with other sources	V&F droop control Ok to parallel with other sources	V&F droop control Ok to parallel with other sources
Island over-avoidance	Island over-avoidance	active inrush limiting for starting large loads	active inrush limiting for starting large loads	active inrush limiting for starting large loads
Control power voltage	Control power voltage	208 - 240 VAC, 1 ph	208 - 240 VAC, 1 ph	208 - 240 VAC, 1 ph
Self-consumption	Self-consumption	Max 166% load, 30C 33% load, 30C (standby)	1500 W 1100 W 900 W (155 W)	6000 W 4400 W 3600 W (620 W)

(1) Power ratings at nominal line voltage, available power reduces in proportion to any AC voltage reduction from nominal.

(2) Minimum DC voltage is at nominal AC line voltage. Higher AC voltage raises min. DC voltage proportionally.

(3) Contact EPC for SC ratio below 2

excellence in power conversion

EPC Power Corporation 70-100032 April 2020

MODEL	50-100101	1	CAB1000/AC-3L1 @ 630 VRMS	4
Lineup	Quantity	1	3-wire (3P3W) 600 kcmil x 6	4
AC	AC configuration max. cables (throat bus optional)	3-wire (3P3W) 600 kcmil x 6	3-wire (3P3W) 600 kcmil x 6	3-wire (3P3W) 600 kcmil x 6
AC voltage range	AC voltage range	630 VRMS ±10% / -12%	630 VRMS ±10% / -12%	630 VRMS ±10% / -12%
AC export capacity (1) @ 40°C	AC export capacity (1) @ 40°C	1369 kVA 1295 ARMS	5476 kVA 5020 ARMS	5476 kVA 5020 ARMS
AC import capacity @ 40°C	AC import capacity @ 40°C	913 kVA 857 ARMS	3652 kVA 3346 ARMS	3652 kVA 3346 ARMS
Export power overload capacity @ 40°C, starting from 65% full load	Export power overload capacity @ 40°C, starting from 65% full load	1.6 MW for 3 sec. or 1.35 MW for 5 min.	6.4 MW for 3 sec. or 5.4 MW for 5 min.	6.4 MW for 3 sec. or 5.4 MW for 5 min.
Minimum SC ratio (3)	Minimum SC ratio (3)	2	2	2
Maximum fault current from sources AC DC	Maximum fault current from sources AC DC	100 kA (AC RMS) 180 kA (DC, per input)	100 kA (AC RMS) 180 kA (DC, per input)	100 kA (AC RMS) 180 kA (DC, per input)
Nominal frequency range	Nominal frequency range	50 - 60 Hz (configurable)	50 - 60 Hz (configurable)	50 - 60 Hz (configurable)
Harmonic distortion	Harmonic distortion	UL1741 / IEC 1547: <2% TDD at rated power per IEEE 519	UL1741 / IEC 1547: <2% TDD at rated power per IEEE 519	UL1741 / IEC 1547: <2% TDD at rated power per IEEE 519
Efficiency: Max CEC Euro	Efficiency: Max CEC Euro	98.6% (est.) >98% (est.) >98% (est.)	98.6% (est.) >98% (est.) >98% (est.)	98.6% (est.) >98% (est.) >98% (est.)
DC	DC voltage range (2)	691 - 1500 VDC	691 - 1500 VDC	691 - 1500 VDC
Typical battery voltage range	Typical battery voltage range	986 - 1350 VDC	986 - 1350 VDC	986 - 1350 VDC
Maximum DC current	Maximum DC current	1400 ADC	1400 ADC	1400 ADC
Number of DC inputs	Number of DC inputs	1	1	4
Environmental	Ambient temperature (operation)	-20°C to 55°C (-40°C with Arctic option)	-20°C to 55°C (-40°C with Arctic option)	-20°C to 55°C (-40°C with Arctic option)
Ambient temperature (storage)	Ambient temperature (storage)	40°C to 60°C	40°C to 60°C	40°C to 60°C
Protection degree	Protection degree	Outdoor: IP55 / NEMA 3R. Salt fog kit available for coastal sites.	Outdoor: IP55 / NEMA 3R. Salt fog kit available for coastal sites.	Outdoor: IP55 / NEMA 3R. Salt fog kit available for coastal sites.
Max elevation	Max elevation	2,000 m (6,500 ft.)	2,000 m (6,500 ft.)	2,000 m (6,500 ft.)
Acoustic noise	Acoustic noise	<75 dBA @ 3m	<75 dBA @ 3m	<75 dBA @ 3m
Altitude derating	Altitude derating	10% per 1,000m above 1,000m elevation	10% per 1,000m above 1,000m elevation	10% per 1,000m above 1,000m elevation
Temperature de-rating	Temperature de-rating	1.7% per degree °C from 40-55 °C	1.7% per degree °C from 40-55 °C	1.7% per degree °C from 40-55 °C
Cabinet	Maximum dimensions (H x W x D)	mm: (2281 x 1000 x 1636) in: (89.8 x 39.4 x 64.4)	mm: (2281 x 4915 x 1636) in: (89.8 x 193.1 x 64.4)	mm: (2281 x 4915 x 1636) in: (89.8 x 193.1 x 64.4)
Weight (est.)	Weight (est.)	1043 kg (2300 lb.)	1043 kg (2300 lb.)	1043 kg (2300 lb.)
Mounting	Mounting	Pad mount / skid mount	Pad mount / skid mount	Pad mount / skid mount
Certifications (pending)	Safety	UL 1741 C22.2 No. 107.1-16	UL 1741 C22.2 No. 107.1-16	UL 1741 C22.2 No. 107.1-16
Utility interconnect	Utility interconnect	UL 1741:2010 R2.18 (SA) IEEE 1547-1:2005 CA Rule 21 No. 16-06-052 Hawaii Rule 14 No. 2014-0192	UL 1741:2010 R2.18 (SA) IEEE 1547-1:2005 CA Rule 21 No. 16-06-052 Hawaii Rule 14 No. 2014-0192	UL 1741:2010 R2.18 (SA) IEEE 1547-1:2005 CA Rule 21 No. 16-06-052 Hawaii Rule 14 No. 2014-0192
Protections	DC disconnection	Motorized switch	Motorized switch	Motorized switch
AC fuses (DC fuses optional)	AC fuses (DC fuses optional)	2000 A, 250 kAIC (65kA min) 1800 A, 180 kAIC (20kA min)	2000 A, 250 kAIC (65kA min) 1800 A, 180 kAIC (20kA min)	2000 A, 250 kAIC (65kA min) 1800 A, 180 kAIC (20kA min)
AC DC surge protection (Type 2 optional)	AC DC surge protection (Type 2 optional)	Type 1 surge arrester Class 1 surge arrester	Type 1 surge arrester Class 1 surge arrester	Type 1 surge arrester Class 1 surge arrester
Safety features	Safety features	overvoltage, overcurrent, overtemperature (both instantaneous and time-overload), etc.	overvoltage, overcurrent, overtemperature (both instantaneous and time-overload), etc.	overvoltage, overcurrent, overtemperature (both instantaneous and time-overload), etc.
Ground fault detection (optional)	Ground fault detection (optional)	Yes	Yes	Yes
Control interface	Control interface	CAN, Modbus TCP/IP	CAN, Modbus TCP/IP	CAN, Modbus TCP/IP
Command latency	Command latency	1 ms (CAN), 3 ms (Modbus TCP)	1 ms (CAN), 3 ms (Modbus TCP)	1 ms (CAN), 3 ms (Modbus TCP)
Response time, (time to accomplish full power step)	Response time, (time to accomplish full power step)	2 ms, adjustable longer via parameters	2 ms, adjustable longer via parameters	2 ms, adjustable longer via parameters
On-off grid transitions (optional)	On-off grid transitions (optional)	Yes LPS mode available	Yes LPS mode available	Yes LPS mode available
Black-start capable (optional)	Black-start capable (optional)	Yes; requires external control power	Yes; requires external control power	Yes; requires external control power
Grid-tied control modes	Grid-tied control modes	Voltage mode PQ (power) DQ (current) cos phi (pf)	Voltage mode PQ (power) DQ (current) cos phi (pf)	Voltage mode PQ (power) DQ (current) cos phi (pf)
Grid-support functions	Grid-support functions	Active/Reactive control Volt/VAR Hz/Watt Volt/Watt LVRT & LLVRT ramp rate, etc.	Active/Reactive control Volt/VAR Hz/Watt Volt/Watt LVRT & LLVRT ramp rate, etc.	Active/Reactive control Volt/VAR Hz/Watt Volt/Watt LVRT & LLVRT ramp rate, etc.
Islanded control modes	Islanded control modes	V&F droop control Ok to parallel with other sources	V&F droop control Ok to parallel with other sources	V&F droop control Ok to parallel with other sources
Island over-avoidance	Island over-avoidance	active inrush limiting for starting large loads	active inrush limiting for starting large loads	active inrush limiting for starting large loads
Control power voltage	Control power voltage	208 - 240 VAC, 1 ph	208 - 240 VAC, 1 ph	208 - 240 VAC, 1 ph
Self-consumption	Self-consumption	Max 166% load, 30C 33% load, 30C (standby)	1500 W 1100 W 900 W (155 W)	6000 W 4400 W 3600 W (620 W)

(1) Power ratings at nominal line voltage, available power reduces in proportion to any AC voltage reduction from nominal.

(2) Minimum DC voltage is at nominal AC line voltage. Higher AC voltage raises min. DC voltage proportionally.

(3) Contact EPC for SC ratio below 2

excellence in power conversion

EPC Power Corporation 70-100032 April 2020

DYNAPOWER

DPS-500 500 kW BIDIRECTIONAL DC-TO-DC CONVERTER FOR UTILITY-SCALE SOLAR-PLUS-STORAGE



PATENTS PENDING

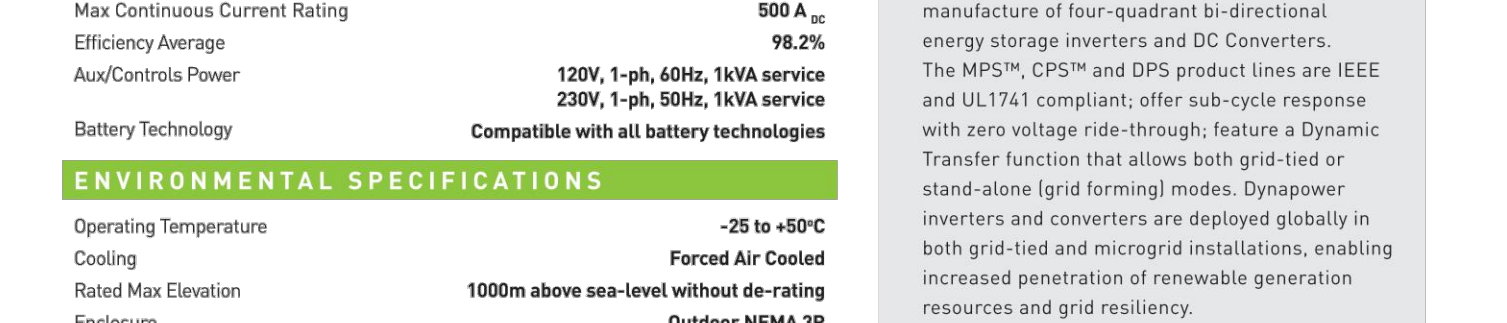
Scalable from 500kW to 4MW

The patent pending **DPS-500** is a bidirectional DC-to-DC converter. The intended end application for this converter is to interface battery energy storage with new and existing 1000V and 1500V central inverter based PV power plants.

The PCS is capable of operating in voltage, current, and power control modes with the capability of on-the-fly switching between these modes. Additionally, advanced automatic excess PV energy recapture and time-shift of PV energy may be realized using the DPS-500 in solar-plus-storage installations.

Up to eight units can be paralleled together to provide between 500kW and 4MW of storage power.

The DPS-500 is optimized to work seamlessly with SMA Sunny Central inverters.



ISO 9001

excellence in power conversion

East Coast/Headquarters 85 Meadowland Drive South Burlington, Vermont 05403

West Coast 2913 Whipple Road Union City, California 94587

Technical Specifications – BOSS V7 Series			
Model	BOSS – 1000	BOSS – 1500/1000	BOSS – 1500
Standard Primary Side Voltage Specifications			
Maximum Voltage	1000 V DC	1500 V DC	1500 V DC
Operating Voltage Range ¹	200 - 1000 V DC	200 - 1500 V DC	200 - 1500 V DC
Max Current – 25 C°	100 A	75 A	75 A
Standard Secondary Side Voltage Specifications			
Maximum Voltage	1000 V DC	1000 V DC	1500 V DC
Operating Voltage Range ²	0 - 1000 V DC	0 - 1000 V DC	200 - 1500 V DC
Max Current – 25 C°	100 A	100 A	75 A
Unit Power Specifications			
Maximum Power – 25 C°	100 KW	100 KW	100 KW
Maximum Power – 50 C°	90 KW	90 KW	90 KW
Efficiency			
Peak Efficiency	98.5%	98.5%	98.5%
CEC Weighted Efficiency	98.0%	98.0%	98.0%
Isolation			
Galvanic Isolation	Yes	Yes	Yes
Standards & Compliance			
Certifications	UL1741, IEC 62109-1, CSA C22.2	UL1741, IEC 62109-1, CSA C22.2	UL1741, IEC 62109-1, CSA C22.2
Environmental			
Storage Temperature	-40°C to 60°C	-40°C to 60°C	-40°C to 60°C
Cooling	Forced Air	Forced Air	Forced Air
Humidity	0-95%	0-95%	0-95%
Environmental Rating	NEMA 3R & IPP66	NEMA 3R & IPP66	NEMA 3R & IPP66
Operating Ambient Temp.	-5°C to 50°C	-5°C to 50°C	-5°C to 50°C
Form Factors			
Packaging	Rack or Rail Mounted, Indoor / Rail Mounted, Outdoor	Rack or Rail Mounted, Indoor / Rail Mounted, Outdoor	Rack or Rail Mounted, Indoor / Rail Mounted, Outdoor
Size (H x W x D)	Rack Mount: 8U - 14" x 19" x 27" / Rail Mount: 24.8" x 16.5" x 10.6"	Rack Mount: 8U - 14" x 19" x 27" / Rail Mount: 24.8" x 16.5" x 10.6"	Rack Mount: 8U - 14" x 19" x 27" / Rail Mount: 24.8" x 16.5" x 10.6"
Weight	33 KG / Rail Mount: – 51 KG	33 KG / Rail Mount: – 51 KG	33 KG / Rail Mount: – 51 KG
Aux Power	24 V available	24 V available	24 V available
Communications	Modbus TCP via Alencon Communications Environment (ACE)	Modbus TCP via Alencon Communications Environment (ACE)	Modbus TCP via Alencon Communications Environment (ACE)

¹ Can be configured to end user requirements using Alencon Systems' mass customization manufacturing approach.

² Can vary based on input and output voltages being mapped, see note above.

Technical Specifications – SPOT V7 Series		
SPOT Model	SPOT 1000	SPOT 1500
Input		
Max Number of MPPTs/Inputs per SPOT ¹	4	4
Maximum String Voltage	1000 V	1500 V
String Operating Voltage ²	200 – 1000 V	300 – 1500 V
MPPT Voltage Range ²	240 – 820 V	350 – 1350 V
Maximum Current Per Input/Device	25A/100A	18.75A/75A
Reverse Polarity Protection	Yes	Yes
Maximum Power per Input/Device @ 40° C	25 KW/100KW	25 KW/100KW
Maximum Power per Input/Device @ 50° C	22.5 KW/90KW	22.5 KW/90KW
Grounding Configuration	Positive, Negative or Floating	Positive, Negative or Floating
Output		
Output Operating Voltage ^{1,2}	Fully Configurable from 200 to 1500 V	Fully Configurable from 200 to 1500 V
Max Number of Outputs	4	4
Maximum Power Per Output/Device @ 40° C	25 KW/100KW	25 KW/100KW
Maximum Power Per Output/Device @ 50° C	22.5 KW/90KW	22.5 KW/90KW
Reverse Polarity Protection	Yes	Yes
Grounding Configuration	Floating	Floating
Efficiency ³		
Peak Efficiency	98.5%	98.5%
CEC Weighted Efficiency	98%	98%
Standards & Compliance		
Certifications	UL1741, IEC 62109-1, CSA C22.2	UL1741, IEC 62109-1, CSA C22.2
Environmental		

Switches and
Disconnects
CA008004EN

Effective January 2016
Supersedes June 2015

COOPER POWER
SERIES

M-Force™ three-phase switch



Description

Eaton's Cooper Power™ series M-Force™ switch is a distribution-class, gang-operated, factory unitized three-phase overhead loadbreak switch. The M-Force switch is offered in distribution voltage classifications of 15.5 kV, 27 kV, and 38 kV. The M-Force switch may be used for line sectionalizing, paralleling, by-passing, or isolating. M-Force stands for "Magnetic Force". Eaton has the only reverse loop contacts found on distribution-class loadbreak switches; a contact usually reserved for higher priced transmission switches. The reverse loop contacts utilize high current magnetic forces for added reliability. The reverse loop design allows for high contact pressure to be maintained during fault conditions. This feature prevents pitting and distorting of the switch blade and contacts even under severe momentary overload.

EATON
Powering Business Worldwide

Catalog Data CA008004EN
Effective January 2016

M-Force three-phase switch

Table 7. M-Force Three-Phase Switch Catalog Number Configuration

M 1 H 11 T R 2	
Voltage Class 1 - 15.5 kV (15.5 kV BIL) 2 - 27 kV (27 kV BIL) 3 - 38 kV (200 kV BIL)	Options (See Page 9 for details) Note: More than one may be chosen. Append codes in alphanumeric order. A - Provisions for Crossarm Support Bracket B - Capable Hardware on Terminal Ends (Incompatible with Option U below) C - Extension Lugs (14") D - Bonded Reciprocating Control Handle (Standard on Torsional Controls) E - Reciprocating Handle with Interlocks F - Bonded Reciprocating Control Handle (Standard on Torsional Control) G - Reciprocating Handle with Interlocks H - Steel Mounting Bracket J - Provisions for Neutral Wire K - Provisions for Sensors L - Additional Nameplate on Handle S - Ice Shields (3/4" Ice Break on Open or Close Operation) N - Mounting Bracket O - Mounting Bracket (Incompatible with Option C above) P - Extension Lugs (14") Q - Extension Lugs (14") R - Extension Lugs (14") T - Extension Lugs (14") U - Extension Lugs (14")
Mounting Configuration A - Round/Pole Top P - Phase over Phase C - Vertical Riser D - Horizontal Upright (GO95 Spacing) S - Vertical Riser (GO95 Spacing) T - Triangular U - Underhung (GO95 Spacing)	Control Rod and Mechanism Reciprocating Mechanism 11 - 28" Round Pipe 1.0" O.D. (Standard Option) 21 - 28" Round Fiberglass 41 - 28" 1" Pipe w/Fiberglass Top Section 61 - 28" Pipe w/Cycloaliphatic Insulator Torsional Mechanism C2 - 28" 1.5" Pipe (Fiberglass Universal Section) C2 - 28" 1.5" Pipe (Cycloaliphatic Insulator) None 03 - Hookstick operated (no control rod)
Crossarm Options 1 - 28" Round Pipe 1.0" O.D. (Standard Option) 21 - 28" Round Fiberglass 41 - 28" 1" Pipe w/Fiberglass Top Section 61 - 28" Pipe w/Cycloaliphatic Insulator None 03 - Hookstick operated (no control rod)	Insulator Bolt Pattern 1 - 28" 1.5" Pipe (Fiberglass Universal Section) 2 - 28" 1.5" Pipe (Cycloaliphatic Insulator) Consult factory for other bolt circle options.
Insulator Material 1 - Porcelain (Standard) C - Cycloaliphatic Epoxy P - Porcelain	

8 www.eaton.com/cooperpowerseries

Typical Specifications

DESIGN RATINGS AND STANDARDS
Reclosers shall be designed, tested and built per IEEE C37.60 and IEC 62271-111 standards. Certified test reports shall be provided. The recloser shall be rated (select column):

Max System Voltage (kV)	15.5	27	38
Rated Voltage (kV)	15	25	35***
Interrupting Rating RMS (kA)	16*	16*	12.5
BIL (kV)	110	125	150
Continuous Current (A)	800/ 1000**	800/ 1000**	800
8 Hr. Overload, at 20° C	960	960	960
Making Current, RMS, asym, kA	25*	25*	20
Peak, asym (kA)	42*	42*	32
Short Circuit Current, kA sym, 3 seconds	16*	16*	12.5
60Hz Withstand, kV rms Dry, 1 minute	50	60	60
60Hz Withstand, kV rms Wet, 10 seconds	45	50	50
Operating Temperature	-60° C to +65° C		
Mechanical Operations	10K	10K	10K

* 29.3kV system voltages are available
** Consult factory for higher continuous current up to 1000A
*** 12.5kA Interrupting Current rating available

Voltage Class	Catalog Number
15.5kV	VIP378ER-12 or 16T-1-ST
27kV	VIP388ER-12 or 16T-1-ST
38kV	VIP398ER-12T-1-ST

*12=12.5kV sym. fault interrupting or 16=16kV sym. fault interrupting

Approximate weight (for single-phase module less frame) is 100lbs. (45kg)

G & W ELECTRIC | PAGE 10

Visit gwelec.com/specs.html for electronic versions of typical specifications.



NEMA 4-hole, 2-hole and clamp style aerial lugs.

Options*

The following options shall be supplied: (Check as necessary)

- NEMA 2-hole aerial lugs
- NEMA 4-hole aerial lugs
- Clamp style aerial lugs (#2 - 500 kcmil)
- Clamp style aerial lugs (250 - 750 kcmil)
- 4/0 brass eyebolt ground lug
- Polemount site-ready assembly
- Lightning arresters
- Dead-front padmounted design with stainless steel enclosure
- External Accusense Voltage Sensors (0.5 class accuracy)
- External 1.0 KVA oil potential transformer (3% accuracy) for 120 VAC supply power with hardware to mount on standard aluminum frame
- External 0.75 KVA solid-dielectric voltage transformer (0.3% accuracy) for 120 VAC supply power with hardware to mount on standard aluminum frame
- High impact, UV stable wildlife protectors for source and load insulators
- External CTs for current monitoring
- Six internal voltage sensors
- Junction box with all twist lock connections
- 42 pin interface with additional 52b auxiliary contact (Form C type) and cable-disconnected alarm
- 3-phase ganged manual trip handle

* Additional Cost
Contact factory for additional options or customization.

CONNECTPV
Simplifying Solar PV

ConnectPV reduces electrical BOS project costs by simplifying:

Configuration

Design Engineers easily configure our products to meet the project's requirements - Simplifying design and specification

Regulation

AHJ Inspectors quickly review and approve our products because we have designed for 100% compliance with the NEC and UL Standards - Reducing project inspection and approval time

Installation

Field Installers quickly install our products because they provide ample wiring room - Reducing installation time and labor cost

Operation

O&M Personnel reduce field service time because our products use high quality components and are designed for a 20 year life expectancy - Maximizing system revenue generation

Typical Input Characteristics				Grounded Systems		Floating Systems	
Input Circuits	Standard Disconnect Ampacity	Input Wire Size	Output Type	NEMA 4 Steel (inches)	NEMA 4X Fiberglass (inches)	NEMA 4 Steel (inches)	NEMA 4X Fiberglass (inches)
16	250	#14-#4 AWG Copper	M10 Stud	24x24x8	24x24x8	24x30x8	24x30x8
20	250			24x24x8	24x24x8	24x30x8	24x30x8
24	320		30x24x8	30x24x8	30x30x8*	30x30x8*	
28	400		30x30x8	36x30x8	36x36x8	36x36x8*	
32	400		30x30x8	36x30x8	36x36x8	36x36x8*	

* Painted Stainless Steel NEMA 4X

Standard Disconnects sized at 1.25x Sum(Isc) per UL1741.

Upsize Disconnect available at 1.56x Sum(Isc) for OCPD coordination.

High Ampacity Input Versions available: e.g., 12 input, 400A with 30A fuses

Specifications Subject to Change

Model Numbers are derived from the following template: CBXVNT-###D(S)-FFAA-EE

VV Voltage	T Topology	### Disconnect Rating	FF String Count	AA Fuse Rating	EE Enclosure Type
15 = 1500V	G=Grounded F= Floating	250A, 320A, or 400A	08-32 2 string increments	02-30 15A Typical	N4 = Carbon Steel 4X = Fiberglass*

Additional Options and Accessories Available

Stainless Steel Available

ABOUT CONNECTPV INC.



Based in San Diego, CA, ConnectPV Inc. delivers expertise and experience. We bring over 10 years of Solar PV industry experience in electrical Balance of System products coupled with more than 25 years of high quality, ISO9001:2008 certified, manufacturing expertise. We actively work with our customers to deliver innovative, high quality, and cost effective solutions.

Contact Toll Free: (844)-246-6140
Local: (858) 246-6140

www.connectpv.com
sales@connectpv.com

San Diego, CA
CBX15 Rev. 3.0

CONNECTPV
Simplifying Solar PV

1500V Disconnect Combiners

ConnectPV Disconnect Combiner products are based on a core product architecture optimized for commercial and utility scale solar projects, simplifying design and specification. Options and accessories allow the designer to optimize the products for each project - reducing installation labor costs.

ConnectPV products incorporate "best-in-class" components combined with rugged mechanical designs to maximize reliability over the projected life of the project.

Compatible with grounded systems - negatively or positively grounded with fuses on the ungrounded string input conductors, or ungrounded systems with fuses on both string input conductors.

Standard Product Features

- 250A, 320A, and 400A UL988 Certified Manual Disconnects
- Lock-Out/Tag-Out on Disconnect Handle
- 8-32 Fused Inputs, #14-#6 AWG Wire Range
- Touch Safe Fuse-holders
- 15A Fuse Typical, 30A Maximum - user specified
- M10 or M12 Studs provided for single or double hole lugs
- Accommodates 90C Cu/Al Mechanical or Compression Lugs
- Internal Safety Cover over all live components
- NEMA 3R, 4, and 4X Enclosures
- Padlock Latch for Door
- Unique Serial number per unit
- Labelling to meet NEC Requirements
- 5 Year Warranty

Product Options

- Class 2 40KA Surge Protective Device
- Mechanical Lugs Installed or Compression Lugs Included
- Breather Vents for High Humidity Locations
- H4 or MC4 Bulkhead or Whip Connectors Installed
- Upsized Enclosures for Larger Output Wires
- Mounting Brackets Installed
- Extended Warranty

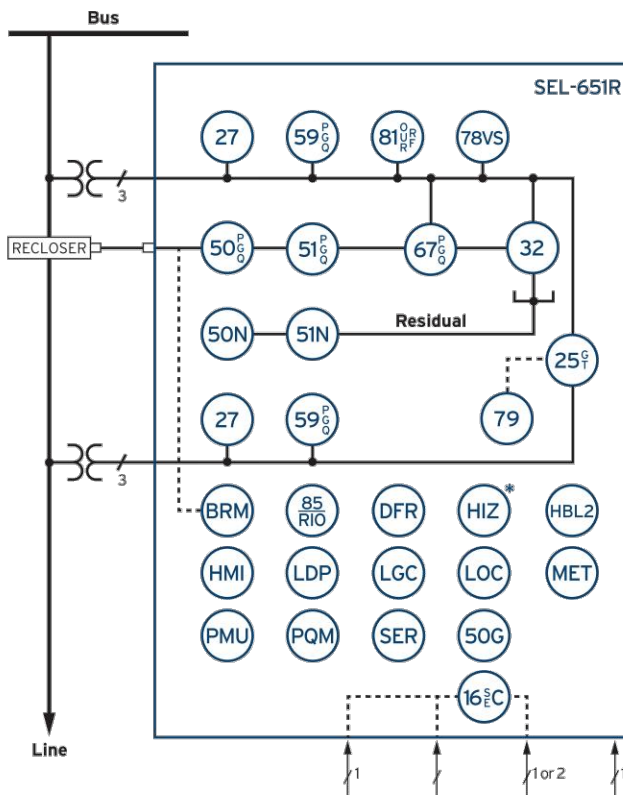


Contact Toll Free: (844)-246-6140
Local: (858) 246-6140

www.connectpv.com
sales@connectpv.com

San Diego, CA
CBX15 Rev. 3.0

Functional Overview



ANSI NUMBERS/ACRONYMS AND FUNCTIONS

16 SEC	Access Security (Serial, Ethernet)
25 (G,T)	Generator/Intertie Synchronism Check
27	Undervoltage
32	Directional Power
50G	Best Choice Ground
50N	Neutral Overcurrent
50 (P,G,Q)	Overcurrent (Phase, Ground, Negative Sequence)
51 (P,G,Q)	Time Overcurrent (Phase, Ground, Negative Sequence)
51N	Neutral Time Overcurrent
59 (P,G,Q)	Overvoltage (Phase, Ground, Negative Sequence)
67 (P,G,Q)	Directional Overcurrent (Phase, Ground, Negative Sequence)
78VS	Vector Shift
79	Autoreclosing
81 (O,U,R)	Frequency (Over, Under, Rate)
81RF	Fast Rate-of-Change of Frequency
85 RIO	SEL Manover Bus Communications
DFR	Event Reports
HI2	SEL Arc Sense™ Technology (AST)*
HMI	Operator Interface
LGC	SELogic™ Control Equations
MET	High-Accuracy Metering
PMU	Synchrophasors
PQM	Voltage Sag, Swell, and Interruption
SER	Sequential Events Recorder

ADDITIONAL FUNCTIONS

BRM	Breaker Wear Monitor
HLB2	Second-Harmonic Blocking
LDP	Load Data Profiling
LOC	Fault Locator

*Optional feature **Copper or fiber-optic

Compatible With Popular Reclosers

The SEL-651R Advanced Recloser Control works with a wide range of reclosers for complete plug-and-work capability. All interfaces are designed and tested to exceed the IEEE C37.60 standard. Certificates are available at selinc.com/SEL-651R.

G&W

Control Power Viper-S	RE
Viper-LT	RVE
Viper-S	RXE
Viper-SP	VSA
Viper-ST	VSO
Viper-G	VME

Other Reclosers

Elastomold Molded Vacuum Recloser (MVR)	RE
Joslyn TriMod 300R	RVE
Joslyn TriMod 600R	RXE
OVR-3 (15 and 27 kV only)	VSA
Gridshield 32-Pin (15, 27, and 38 kV)	VSO
Gridshield 42-Pin (15, 27, and 38 kV)	VME
VR-3S (15 and 27 kV only)	VWVE 27
CXE	VWVE 38X
NOVA Auxiliary Powered	WE
NOVA Control Powered	WVE 27
NOVA NX-T	WVE 38X
NOVA Triple-Single	GVR*
SDR Triple-Phase	SDR Triple-Single
OSM_150	SDR Three-Phase

*When equipped with interface module

EQUIPMENT SPECIFICATIONS

ARC DESIGN
409 NORTH MAIN STREET
ELMER, NJ 08318
(856) 712-2166 FAX: (856) 358-1511

PREPARED FOR:

NextGrid

PO BOX 7775 #73069
SAN FRANCISCO, CA 94120

PROPOSED PHOTOVOLTAIC ARRAY

1073 MAIN ST.
1073 MAIN ST.
MILLIS, MA 02054

JAMES A. CLANCY
MA PE 01902-46775



REVISIONS

DATE	COMMENT
07-07-20	ADD 32 RELAY ELEMENT
10-21-20	PER SIS DRAFT
12-04-20	GROUND MOUNT
07-07-22	PER CIVIL CHANGES

JOB #	
DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	05-22-2020

E-5

N O T
A N
O F F I C I A L
C O P Y

N O T
A N
O F F I C I A L
C O P Y

QUITCLAIM DEED

Malevich, LLC, a Massachusetts limited liability company with an address of P.O. Box 540211, Waltham, MA 02454 ("**Grantor**"), for consideration of Seven Million Three Hundred Thousand and 00/100 Dollars (\$7,300,000.00), grants to **AC Millis LLC**, a Massachusetts limited liability company, with an address c/o Hajjar Management Company, Inc., 30 Adam Street, Milton, MA 02186

with **Quitclaim Covenants**, the following parcels of land, together with all buildings, structures, and improvements thereon and rights appurtenant thereto:

Parcel 1

A certain parcel of land situated in Millis, Norfolk County, Massachusetts, bounded and described as follows:

Southeasterly	by Main Street, four hundred twenty-six (426) feet;
Southwesterly	by land now or formerly of John J. Wilinski et al, one hundred seventy-four and 21/100 (174.21) feet;
Northwesterly	by land now or formerly of the New York, New Haven and Hartford Railroad Company, four hundred sixty-eight and 24/100 (468.24) feet; and
Northeasterly	by land now or formerly of Mildred E. LaCroix, two hundred twenty-five and 35/100 (225.35) feet.

Said Parcel 1 is shown as lot numbered 1 on Land Court Plan No. 29616A, which is filed with Norfolk Registry District of the Land Court (the "**District**") with Certificate No. 73156, Book 366 (the "**Plan**"), the same being compiled from a plan drawn by Cheney Engineering Co., dated December 1, 1959, and May 28, 1963, and additional data on file in the Land Registration Office, all as modified and approved by said Land Court.

Parcel 2

NOT
AN
OFFICIAL

NOT
AN
OFFICIAL

Another certain parcel of land situated in said Millis, bounded and described as follows:

Southeasterly	by land now or formerly of the New York, New Haven and Hartford Railroad Company, twelve hundred ninety-two and 95/100 (1,292.95) feet;
Southwesterly	eighty-one and 70/100 (81.70) feet;
Southeasterly	fifty-five and 08/100 (55.08) feet;
Southwesterly	four hundred thirty-three and 91/100 (433.91) feet, and
Southeasterly	six hundred seventy-three and 45/100 (673.45) feet, by land now or formerly of Harold J. Cuddy;
Southwesterly	five hundred sixty-one and 14/100 (561.14) feet;
Southerly	five hundred ninety-four and 51/100 (594.51) feet;
Westerly	two hundred sixty-four and 35/100 (264.35) feet, by land now or formerly of Philip Braman;
Northerly	by lands of sundry adjoining owners, being partly through the middle line of a ditch, shown on said plan, eight hundred fifty-one and 75/100 (851.75) feet;
Westerly	three hundred eighty-seven and 80/100 (387.80) feet, and
Southerly	about two hundred sixty-two (262) feet, by land now or formerly of said Philip Braman;
Southwesterly and Westerly	by land now or formerly of said Philip Braman, being the edge of a swamp;
Northerly	by land now or formerly of Millis Realty Corp., about nineteen hundred forty (1,940) feet;
Northeasterly	eight hundred seventeen and 18/100 (817.18) feet;
Northwesterly	five hundred forty-five and 02/100 (545.02) feet; and
Easterly	three hundred twenty-eight and 14/100 (328.14) feet, by land now or formerly of the Town of Millis.

N O T

Said Parcel 2 is shown as lot numbered 2 on the Plan No. 29616A filed with Certificate No. 73156.

O F F I C I A L

Parcel 1 is subject to a ~~Sewer~~ Easement in favor of the ~~Town~~ of Millis under an instrument dated October 21, 1959, duly recorded with Norfolk Registry of Deeds in Book 3771, Page 251.

Together with the right, appurtenant to Parcel 2, to use the Way, approximately shown on the Plan, extending to Ridge Street and Auburn Street, in common with all persons lawfully entitled thereto in and over same.

So much of Parcel 2 as is included within the limits of the ditches, shown on the Plan, is subject to such rights as may exist at the date of original decree.

Parcel 2 is subject to the flow of natural watercourse running through the same, and shown on the Plan as a Brook.

Subject to a Grant of Easement dated April 29, 1998, to the Town of Millis, and filed with the District as Document No. 804929.

Subject to an Order of Taking dated August 24, 1988, by the Board of Selectmen of the Town of Millis, for Temporary Construction Easements and a Permanent Traffic Control Easement, filed with the District as Document No. 804922.

Subject to Easement and Assignment of Lease Agreement dated June 27, 2014, by and between grantor and Landmark Infrastructure Holding Company LLC, and filed with the District as Document No. 1346959.

Together with and subject to all rights, easements, leases, decisions, orders and other matters of record, including, without limitation, those grants and orders referenced in Certificate of Title No. 173379, to the extent in force and applicable.

Meaning and intending to convey the same premises as those conveyed to the Grantor by Quitclaim Deed dated September 14, 2006, and filed with the District as Document No. 1111584 and noted on Transfer Certificate of Title No. 173379.

Property Address: 1073 Main Street, Millis, Massachusetts.

For grantor's title, refer to Certificate of Title No. 173379.

[Signature on following page]

EXECUTED under seal as of the 26th day of April, 2021. N O T

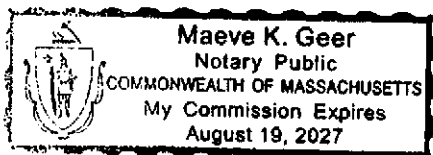
A N A N
O F F I C I A L M A L E V I C H , L L C O F F I C I A L
C O P Y a Massachusetts limited liability company

By: _____
Name: Charles C. Alpert
Title: Manager

COMMONWEALTH OF MASSACHUSETTS

County of Norfolk

On this 26th day of April, 2021, before me, the undersigned notary public, personally appeared Charles C. Alpert, proved to me through satisfactory identification, which was personal knowledge (driver's license/government issued ID/or based on the undersigned's personal knowledge of the identity of the principal) to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose as Manager of Malevich, LLC, a limited liability company.



Maeve Geer
(Official Signature and Seal of Notary)
My Commission Expires: 8/19/27



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

08/09/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Brock Insurance Agency 823 Chickamauga Avenue P.O. Box 460 Rossville GA 30741	CONTACT NAME: Tracy Phillips PHONE (A/C, No, Ext): (706) 866-3394 E-MAIL ADDRESS: tracyp@brockins.com FAX (A/C, No): (706) 861-4619																					
INSURED NextGrid Inc. P.O. Box 7775 #73069 San Francisco CA 94120	<table><tr><th colspan="2">INSURER(S) AFFORDING COVERAGE</th><th>NAIC #</th></tr><tr><td>INSURER A:</td><td>Valley Forge Insurance Compnay</td><td>20508</td></tr><tr><td>INSURER B:</td><td>The Continental Insurance Co</td><td>35289</td></tr><tr><td>INSURER C:</td><td>Continental Casualty Company</td><td>20443</td></tr><tr><td>INSURER D:</td><td></td><td></td></tr><tr><td>INSURER E:</td><td></td><td></td></tr><tr><td>INSURER F:</td><td></td><td></td></tr></table>	INSURER(S) AFFORDING COVERAGE		NAIC #	INSURER A:	Valley Forge Insurance Compnay	20508	INSURER B:	The Continental Insurance Co	35289	INSURER C:	Continental Casualty Company	20443	INSURER D:			INSURER E:			INSURER F:		
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INSURER D:																						
INSURER E:																						
INSURER F:																						

COVERAGES**CERTIFICATE NUMBER:** 22/23 Master**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PRO-JECT ☐ LOC OTHER:			6081355127	08/01/2022	08/01/2023	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 15,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
B	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ OWNED AUTOS ONLY ☒ HIRED AUTOS ONLY ☐ SCHEDULED AUTOS ☒ NON-OWNED AUTOS ONLY			6081385941	08/01/2022	08/01/2023	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
B	☒ UMBRELLA LIAB ☒ EXCESS LIAB DED ☒ RETENTION \$ 10,000			6081287606	08/01/2022	08/01/2023	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N ☒ Y	N/A	6081287590	08/01/2022	08/01/2023	PER STATUTE OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER**CANCELLATION**Town of Millis, MA
900 Main Street

Millis

MA 02054

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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247 Station Drive
Westwood, Massachusetts 02090

Exhibit G - Interconnection Service Agreement

1. Parties. This Interconnection Service Agreement (“Agreement”), dated as of **6/15/2022** (“Effective Date”) is entered into, by and between **NSTAR Electric d/b/a Eversource Energy**, a Massachusetts corporation with a principal place of business at **247 Station Drive, Westwood, MA 02090** (hereinafter referred to as the “Company”), and **NextGrid Tree of Heaven, LLC** a corporation with a principal place of business at **PO Box 73069, #7775, San Francisco, CA, 94120** (“Interconnecting Customer”). (The Company and Interconnecting Customer are collectively referred to as the “Parties”). Terms used herein without definition shall have the meanings set forth in Section 1.2 of the Interconnection Tariff which is hereby incorporated by reference. **WO 2404399 (2,500 kW AC)**.
2. Basic Understandings. This Agreement provides for parallel operation of an Interconnecting Customer’s Facility with the Company EPS to be installed and operated by the Interconnecting Customer at **1073 Main St, Millis, MA, 02054 Acct# 3045-252-0015**. A description of the Facility is located in Attachment 1. If the Interconnecting Customer is not the Customer, an Agreement between the Company and the Company’s Retail Customer, attached as Exhibit H to the Interconnection Tariff, must be signed and included as an Attachment to this Agreement. If neither the Interconnecting Customer nor the Customer is the Landowner of the property where the Facility is sited, a Landowner Consent Agreement, attached as Exhibit I to the Interconnection Tariff, must be signed and included as an Attachment to this Agreement, unless the Company, in its sole discretion, waives this requirement.
The Interconnecting Customer has the right to operate its Facility in parallel with the Company EPS immediately upon successful completion of the protective relays testing as witnessed by the Company and receipt of written notice from the Company that interconnection with the Company EPS is authorized (“Authorization Date”).
3. Term. This Agreement shall become effective as of the Effective Date. The Agreement shall continue in full force and effect until terminated pursuant to Section 4 of this Agreement.
4. Termination.
 - 4.1. This Agreement may be terminated under the following conditions.
 - 4.1 a) The Parties agree in writing to terminate the Agreement.
 - 4.1 b) The Interconnecting Customer may terminate this agreement at any time by providing sixty (60) days written notice to Company.
 - 4.1 c) The Company may terminate this Agreement upon the occurrence of an Event of Default by the Interconnecting Customer as provided in Section 18 of this Agreement.
 - 4.1 d) The Company may terminate this Agreement if the Interconnecting Customer either: (1) fails to energize the Facility within 12 months of the Authorization Date; or, (2) permanently abandons the Facility. Failure to operate the Facility for any consecutive 12 month period after the Authorization Date shall constitute permanent abandonment unless otherwise agreed to in writing between the Parties.

- 4.1 e)The Company, upon 30 days notice, may terminate this Agreement if there are any changes in Department regulations or state law that have a material adverse effect on the Company's ability to perform its obligations under the terms of this Agreement.
- 4.2. Survival of Obligations. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of termination. Sections 5, 10, 12, 13, and 25 as it relates to disputes pending or for wrongful termination of this Agreement shall survive the termination of this Agreement.
- 4.3. Related Agreements. Any agreement attached to and incorporated into this Agreement shall terminate concurrently with this Agreement unless the Parties have agreed otherwise in writing. If the Interconnection Service Agreement is signed prior to a Detailed Study (if applicable), the System Modifications construction schedule from the Detailed Study when finalized shall be deemed a part of the signed Interconnection Service Agreement.
5. General Payment Terms. The Interconnecting Customer shall be responsible for the System Modification costs and payment terms identified in Attachment 3 of this Agreement and any approved cost increases pursuant to the terms of the Interconnection Tariff. The Interconnecting Customer shall also be directly responsible to the Affected System Operator and/or Affected System Owner of any potentially Affected System for all costs of any additional studies required to evaluate the impact of the interconnection on the potentially Affected Systems and any resulting Affected System costs for its requirements, including, without limitation, modifications to the electric power system of the Affected System and operation and maintenance costs; provided, however, the Company may, in its sole discretion, elect to include the additional Affected System study and/or system modification costs known at the time of this Agreement in the Company's costs and payment terms identified in Attachment 3 of this Agreement, and the Interconnecting Customer will pay such costs to the Company (and will be responsible for any and all actual costs thereof). Where the Company includes the Affected System costs in this Agreement, the costs will be collected by the Company and passed-through to the Affected System Operator(s). Interconnecting Customer shall not be required to pay any costs related to Company infrastructure upgrades or System Modifications upon execution of the Interconnection Service Agreement (or once the Interconnecting Customer receives the construction schedule). Interconnecting Customers shall have 60 Business Days from the date of the Interconnecting Customer's execution of an Interconnection Service Agreement to pay 25 percent of those costs; if an Interconnecting Customer pays such cost within the 60 Business Day Time Frame, the Interconnecting Customer shall have an additional 120 Business Days from the earlier of the date of receipt of the first payment or 60 Business Days from the date of the Interconnecting Customer's execution of an Interconnection Service Agreement to pay the remainder of the costs. If the Company fails to sign this Interconnection Service Agreement within 15 Business Days after receipt of the first installment payment by the Interconnecting Customer, this Interconnection Service Agreement shall be deemed accepted by the Company on the 15th Business Day after receipt of the first installment payment. If the system modifications exceed \$25,000, the Interconnecting Customer is eligible for a payment plan, including a payment and construction schedule with milestones for both parties, within the Time Frames for payment of such costs under the Interconnection Service Agreement in Section 3.6.2. Any such payment plan shall be set forth in Attachment 3. The payment plan may include a payment schedule different than the 60 Business Day payment schedule requirements set forth in this paragraph above, but shall not exceed 180 Business Days.

Construction estimates are valid for 60 Business Days from when they are delivered to the Interconnecting Customer. If an Interconnecting Customer payment is not received within 60 Business Days of receiving the Interconnection Service Agreement in the Expedited Process, or the

Impact Study in the Standard Process, the Company has the right to reassess construction costs and Time Frames. In the event that the Interconnecting Customer fails to pay the Company within the Time Frame required by this provision, the Interconnecting Customer's interconnection application and this Interconnection Service Agreement will be cancelled and its interconnection queue position will be lost. Further, any fees paid will not be refunded. The construction schedule will commence once the Interconnecting Customer's financial payment has been made in full or as otherwise provided in Attachment 3. The Company's obligation to the construction schedule (as it appears in either the Interconnection Service Agreement or the Detailed Study, if the Interconnecting Customer has opted to sign the Interconnection Service Agreement without a Detailed Study) begins on the next Business Day after the Company receives full payment for such construction or as otherwise provided in Attachment 3.

5.1. Cost or Fee Adjustment Procedures.

The Company will, in writing, advise the Interconnecting Customer in advance of any cost increase for work to be performed on the Company's EPS up to a total amount of increase of 10% only. Interconnecting Customers who elected to execute an Interconnection Services Agreement following the completion of the Impact Study but prior to the commencement of any required Detailed Study, pursuant to Section 3.4(g) of the Interconnection Tariff, shall be responsible for any System Modifications costs, $\pm 25\%$, as identified by the Company in the Impact Study. An Interconnecting Customer that is part of a Group shall be responsible for the System Modification costs authorized in the Group Study Agreement. All costs that exceed the above caps will be borne solely by the Company. Any such changes to the Company's costs for the work shall be subject to the Interconnecting Customer's consent. The Interconnecting Customer shall, within thirty (30) Business Days of the Company's notice of increase, authorize such increase and make payment in the amount up to the above caps, or the Company will suspend the work and the corresponding agreement will terminate. The foregoing cost adjustment procedures shall only apply to the Company System Modification costs identified in Attachment 3. The Interconnecting Customer shall be responsible for the actual Affected System Operator and/or Affected System Owner costs, including operation and maintenance costs, and any additional Company costs necessitated as a result of the Affected System Operator and/or Affected System Owner requirements not specified as of the date of this Agreement, none of which shall be subject to any cost caps or limitations.

5.2. Final Accounting.

An Interconnecting Customer may request a final accounting report of any difference between (a) Interconnecting Customer's cost responsibility under this Agreement for the actual cost of the System Modifications, and (b) Interconnecting Customer's previous aggregate payments to the Company under the Interconnection Service Agreement for such System Modifications within 120 Business days after completion of the construction and installation of the System Modifications described in an attached exhibit to the Interconnection Service Agreement. Upon receipt of such a request from an Interconnecting Customer, the Company shall have 120 Business days to provide the requested final accounting report to the Interconnecting Customer. To the extent that Interconnecting Customer's cost responsibility in the Interconnection Service Agreement exceeds Interconnecting Customer's previous aggregate payments, the Company shall invoice Interconnecting Customer and Interconnecting Customer shall make payment to the Company within 45 Business Days. To the extent that Interconnecting Customer's previous aggregate payments exceed Interconnecting Customer's cost responsibility under this agreement,

the Company shall refund to Interconnecting Customer an amount equal to the difference within forty five (45) Business Days of the provision of such final accounting report.

6. Operating Requirements.

6.1. General Operating Requirements.

Interconnecting Customer shall operate and maintain the Facility in accordance with the applicable manufacturer's recommended maintenance schedule, in compliance with all aspects of the Company's Interconnection Tariff. The Interconnecting Customer will continue to comply with all applicable laws and requirements after interconnection has occurred. In the event the Company has reason to believe that the Interconnecting Customer's installation may be the source of problems on the Company EPS, the Company has the right to install monitoring equipment at a mutually agreed upon location to determine the source of the problems. If the Facility is determined to be the source of the problems, the Company may require disconnection as outlined in Section 7.0 of this Interconnection Tariff. The cost of this testing will be borne by the Company unless the Company demonstrates that the problem or problems are caused by the Facility or if the test was performed at the request of the Interconnecting Customer.

6.2. No Adverse Effects; Non-interference.

Company shall notify Interconnecting Customer if there is evidence that the operation of the Facility could cause disruption or deterioration of service to other Customers served from the same Company EPS or if operation of the Facility could cause damage to Company EPS or Affected Systems. The deterioration of service could be, but is not limited to, harmonic injection in excess of IEEE Standard 1547-2003, as well as voltage fluctuations caused by large step changes in loading at the Facility. Each Party will notify the other of any emergency or hazardous condition or occurrence with its equipment or facilities which could affect safe operation of the other Party's equipment or facilities. Each Party shall use reasonable efforts to provide the other Party with advance notice of such conditions.

The Company will operate the EPS in such a manner so as to not unreasonably interfere with the operation of the Facility. The Interconnecting Customer will protect itself from normal disturbances propagating through the Company EPS, and such normal disturbances shall not constitute unreasonable interference unless the Company has deviated from Good Utility Practice. Examples of such disturbances could be, but are not limited to, single-phasing events, voltage sags from remote faults on the Company EPS, and outages on the Company EPS. If the Interconnecting Customer demonstrates that the Company EPS is adversely affecting the operation of the Facility and if the adverse effect is a result of a Company deviation from Good Utility Practice, the Company shall take appropriate action to eliminate the adverse effect.

6.3. Safe Operations and Maintenance.

Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for, the facility or facilities that it now or hereafter may own unless otherwise specified in this Agreement. Each Party shall be responsible for the maintenance, repair and condition of its respective lines and appurtenances on their respective side of the PCC. The Company and the Interconnecting Customer shall each provide equipment on its

respective side of the PCC that adequately protects the Company's EPS, personnel, and other persons from damage and injury.

6.4. Access.

The Company shall have access to the disconnect switch of the Facility at all times.

6.4 a) Company and Interconnecting Customer Representatives.

Each Party shall provide and update as necessary the telephone number that can be used at all times to allow either Party to report an emergency.

6.4 b) Company Right to Access Company-Owned Facilities and Equipment.

If necessary for the purposes of the Interconnection Tariff and in the manner it describes, the Interconnecting Customer shall allow the Company access to the Company's equipment and the Company's facilities located on the Interconnecting Customer's or Customer's premises. To the extent that the Interconnecting Customer does not own all or any part of the property on which the Company is required to locate its equipment or facilities to serve the Interconnecting Customer under the Interconnection Tariff, the Interconnecting Customer shall secure and provide in favor of the Company the necessary rights to obtain access to such equipment or facilities, including easements if the circumstances so require. In addition to any rights and easements required by the Company in accordance with the above provision, the Interconnecting Customer shall obtain an executed Landowner Consent Agreement (Exhibit I) from the Landowner, unless the Company, in its sole discretion, waives this requirement.

6.4 c) Right to Review Information.

The Company shall have the right to review and obtain copies of Interconnecting Customer's operations and maintenance records, logs, or other information such as, unit availability, maintenance outages, circuit breaker operation requiring manual reset, relay targets and unusual events pertaining to Interconnecting Customer's Facility or its interconnection with the Company EPS. This information will be treated as customer-confidential and only used for the purposes of meeting the requirements of Section 4.2.4 in the Interconnection Tariff.

7. Disconnection

7.1. Temporary Disconnection

- 7.1 a) Emergency Conditions. Company shall have the right to immediately and temporarily disconnect the Facility without prior notification in cases where, in the reasonable judgment of Company, continuance of such service to Interconnecting Customer is imminently likely to (i) endanger persons or damage property or (ii) cause a material adverse effect on the integrity or security of, or damage to, Company EPS or to the electric systems of others to which the Company EPS is directly connected. Company shall notify Interconnecting Customer promptly of the emergency condition. Interconnecting Customer shall notify Company promptly when it becomes aware of an

emergency condition that affects the Facility that may reasonably be expected to affect the Company EPS. To the extent information is known, the notification shall describe the emergency condition, the extent of the damage or deficiency, or the expected effect on the operation of both Parties' facilities and operations, its anticipated duration and the necessary corrective action.

- 7.1 b) Routine Maintenance, Construction and Repair. Company shall have the right to disconnect the Facility from the Company EPS when necessary for routine maintenance, construction and repairs on the Company EPS. The Company shall provide the Interconnecting Customer with a minimum of seven calendar days planned outage notification consistent with the Company's planned outage notification protocols. If the Interconnecting Customer requests disconnection by the Company at the PCC, the Interconnecting Customer will provide a minimum of seven days notice to the Company. Any additional notification requirements will be specified by mutual agreement in the Interconnection Service Agreement. Company shall make an effort to schedule such curtailment or temporary disconnection with Interconnecting Customer.
- 7.1 c) Forced Outages. During any forced outage, Company shall have the right to suspend interconnection service to effect immediate repairs on the Company EPS; provided, however, Company shall use reasonable efforts to provide the Interconnecting Customer with prior notice. Where circumstances do not permit such prior notice to Interconnecting Customer, Company may interrupt Interconnection Service and disconnect the Facility from the Company EPS without such notice.
- 7.1 d) Non-Emergency Adverse Operating Effects. The Company may disconnect the Facility if the Facility is having an adverse operating effect on the Company EPS or other Customers that is not an emergency, and the Interconnecting Customer fails to correct such adverse operating effect after written notice has been provided and a maximum of 45 days to correct such adverse operating effect has elapsed.
- 7.1 e) Modification of the Facility. Company shall notify Interconnecting Customer if there is evidence of a material modification to the Facility and shall have the right to immediately suspend interconnection service in cases where such material modification has been implemented without prior written authorization from the Company.
- 7.1 f) Re-connection. Any curtailment, reduction or disconnection shall continue only for so long as reasonably necessary. The Interconnecting Customer and the Company shall cooperate with each other to restore the Facility and the Company EPS, respectively, to their normal operating state as soon as reasonably practicable following the cessation or remedy of the event that led to the temporary disconnection.

7.2. Permanent Disconnection.

The Interconnecting Customer has the right to permanently disconnect at any time with 30 days written notice to the Company.

- 7.2 a) The Company may permanently disconnect the Facility upon termination of the Interconnection Service Agreement in accordance with the terms thereof.

- 8. Metering. Metering of the output from the Facility shall be conducted pursuant to the terms of the Interconnection Tariff.

9. Assignment. Except as provided herein, Interconnecting Customer shall not voluntarily assign its rights or obligations, in whole or in part, under this Agreement without Company's written consent. Any assignment Interconnecting Customer purports to make without Company's written consent shall not be valid. Company shall not unreasonably withhold or delay its consent to Interconnecting Customer's assignment of this Agreement. Notwithstanding the above, Company's consent will not be required for any assignment made by Interconnecting Customer to an Affiliate or as collateral security in connection with a financing transaction. In all events, the Interconnecting Customer will not be relieved of its obligations under this Agreement unless, and until the assignee assumes in writing all obligations of this Agreement and notifies the Company of such assumption.
10. Confidentiality. Company shall maintain confidentiality of all Interconnecting Customer confidential and proprietary information except as otherwise required by applicable laws and regulations, the Interconnection Tariff, or as approved by the Interconnecting Customer in the Simplified or Expedited/Standard Application form or otherwise.
11. Insurance Requirements.
 - 11.1. General Liability.
 - 11.1 a) In connection with Interconnecting Customer's performance of its duties and obligations under the Interconnection Service Agreement, Interconnecting Customer shall maintain, during the term of the Agreement, general liability insurance with a combined single limit of not less than:
 - i) Five million dollars (\$5,000,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than five (5) MW.
 - ii) Two million dollars (\$2,000,000) for each occurrence and five million dollars (\$5,000,000) in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than one (1) MW and less than or equal to five (5) MW;
 - iii) One million dollars (\$1,000,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than one hundred (100) kW and less than or equal to one (1) MW;
 - iv) Five hundred thousand dollars (\$500,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than ten (10) kW and less than or equal to one hundred (100) kW, except for as provide below in subsection 11.1(b).
 - 11.1 b) Pursuant to 220 CMR §18.03(2), no insurance is required for Interconnecting Customers with facilities eligible for Class 1 Net Metering (facilities less than or equal to sixty (60) kW. However, the Company recommends that the Interconnecting Customer obtain adequate insurance to cover potential liabilities.
 - 11.1 c) Any combination of General Liability and Umbrella/Excess Liability policy limits can be used to satisfy the limit requirements stated above.

- 11.1 d) The general liability insurance required to be purchased in this Section 11 may be purchased for the direct benefit of the Company and shall respond to third party claims asserted against the Company (hereinafter known as “Owners Protective Liability”). Should this option be chosen, the requirement of Section 11.2(a) will not apply but the Owners Protective Liability policy will be purchased for the direct benefit of the Company and the Company will be designated as the primary and “Named Insured” under the policy.
- 11.1 e) The insurance hereunder is intended to provide coverage for the Company solely with respect to claims made by third parties against the Company.
- 11.1 f) In the event the Commonwealth of Massachusetts, or any other governmental subdivision thereof subject to the claims limits of the Massachusetts Tort Claims Act, G.L. c. 258 (hereinafter referred to as the “Governmental Entity”) is the Interconnecting Customer, any insurance maintained by the Governmental Entity shall contain an endorsement that strictly prohibits the applicable insurance company from interposing the claims limits of G.L. c. 258 as a defense in either the adjustment of any claim, or in the defense of any lawsuit directly asserted against the insurer by the Company. Nothing herein is intended to constitute a waiver or indication of an intent to waive the protections of G.L. c. 258 by the Governmental Entity.
- 11.1 g) Notwithstanding the requirements of section 11.1(a) through (f), insurance for certain Governmental Entity facilities may be provided as set forth in section 11.1(g)(i) and (ii) below. Nothing herein changes the provision in subsection 11.1(a)(iv) that exempts Class I Net Metering facilities (less than or equal to 60 kW) from the requirement to obtain insurance. In addition, nothing shall prevent the Governmental Entity from obtaining insurance consistent with the provisions of subsection 11.1(a) through (f), if it is able and chooses to do so.
- i) For solar photovoltaic (PV) facilities with a Gross Nameplate Rating in excess of 60 kW up to 500 kW, the Governmental Entity is not required to obtain liability insurance. Any liability costs borne by the Company associated with a third-party claim for damages in excess of the claims limit of the Massachusetts Tort Claims Act, M.G.L. c. 258, and market-based premium-related costs, if any, borne by the Company associated with insurance for such third-party claims shall be recovered annually on a reconciling basis in Company rates in a manner that shall be reviewed and approved by the Department.
 - ii) For (a) PV facilities with a Gross Nameplate Rating in excess of 500 kW up to 5 MW, (b) wind facilities with a Gross Nameplate Rating in excess of 60 kW up to 5 MW, and (c) highly efficient combined heat and power facilities with a Gross Nameplate Rating of in excess of 60 kW up to 5 MW, the Governmental Entity is not required to obtain liability insurance, subject to the requirements of the following paragraph.

The Company shall either self-insure for any risk associated with possible third-party claims for damages in excess of the Massachusetts Tort Claims Act limit, or obtain liability insurance for such third-party claims, and the Company is authorized to charge and collect from the Governmental Entity its pro-rata allocable share of the cost of so doing, plus all reasonable administrative costs. The coverage and cost may vary with the size and type of facility, and may

change (increase or decrease) over time, based on insurance market conditions, and such cost shall be added to, and paid for as part of the Governmental Entity's electric bill.

11.2. Insurer Requirements and Endorsements.

All required insurance shall be carried by reputable insurers qualified to underwrite insurance in MA having a Best Rating of at least "A-". In addition, all insurance shall, (a) include Company as an additional insured; (b) contain a severability of interest clause or cross-liability clause; (c) provide that Company shall not incur liability to the insurance carrier for payment of premium for such insurance; and (d) provide for thirty (30) calendar days' written notice to Company prior to cancellation, termination, or material change of such insurance; provided that to the extent the Interconnecting Customer is satisfying the requirements of subpart (d) of this paragraph by means of a presently existing insurance policy, the Interconnecting Customer shall only be required to make good faith efforts to satisfy that requirement and will assume the responsibility for notifying the Company as required above.

If the requirement of clause (a) in the paragraph above prevents Interconnecting Customer from obtaining the insurance required without added cost or due to written refusal by the insurance carrier, then upon Interconnecting Customer's written Notice to Company, the requirements of clause (a) shall be waived.

11.3. Evidence of Insurance.

Evidence of the insurance required shall state that coverage provided is primary and is not in excess to or contributing with any insurance or self-insurance maintained by Interconnecting Customer.

The Interconnecting Customer is responsible for providing the Company with evidence of insurance in compliance with the Interconnection Tariff on an annual basis.

Prior to the Company commencing work on System Modifications, and annually thereafter, the Interconnecting Customer shall have its insurer furnish to the Company certificates of insurance evidencing the insurance coverage required above. The Interconnecting Customer shall notify and send to the Company a certificate of insurance for any policy written on a "claims-made" basis. The Interconnecting Customer will maintain extended reporting coverage for three years on all policies written on a "claims-made" basis.

In the event that an Owners Protective Liability policy is provided, the original policy shall be provided to the Company.

11.4. Self Insurance.

If Interconnecting Customer has a self-insurance program established in accordance with commercially acceptable risk management practices. Interconnecting Customer may comply with the following in lieu of the above requirements as reasonably approved by the Company:

- Interconnecting Customer shall provide to Company, at least thirty (30) calendar days prior to the Date of Initial Operation, evidence of such program to self-insure to a level of coverage equivalent to that required.
- If Interconnecting Customer ceases to self-insure to the standards required hereunder, or if Interconnecting Customer is unable to provide continuing evidence of Interconnecting Customer's financial ability to self-insure, Interconnecting Customer agrees to promptly obtain the coverage required under Section 11.1.

This section shall not allow any Governmental Entity to self-insure where the existence of a limitation on damages payable by a Government Entity imposed by the Massachusetts Tort Claims Act, G.L. c. 258, or similar law, could effectively limit recovery (by virtue of a cap on recovery) to an amount lower than that required in Section 11.1(a).

- 11.5. All insurance certificates, statements of self-insurance, endorsements, cancellations, terminations, alterations, and material changes of such insurance shall be issued and submitted to the following:

Eversource
Attention: DG Group, SW 340

12. Indemnification. Except as the Commonwealth is precluded from pledging credit by Section 1 of Article 62 of the Amendments to the Constitution of the Commonwealth of Massachusetts, and except as the Commonwealth's cities and towns are precluded by Section 7 of Article 2 of the Amendments to the Massachusetts Constitution from pledging their credit without prior legislative authority, Interconnecting Customer and Company shall each indemnify, defend and hold the other, its directors, officers, employees and agents (including, but not limited to, Affiliates and contractors and their employees), harmless from and against all liabilities, damages, losses, penalties, claims, demands, suits and proceedings of any nature whatsoever for personal injury (including death) or property damages to unaffiliated third parties that arise out of or are in any manner connected with the performance of this Agreement by that Party except to the extent that such injury or damages to unaffiliated third parties may be attributable to the negligence or willful misconduct of the Party seeking indemnification.
13. Limitation of Liability. Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including court costs and reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage or liability actually incurred. In no event shall either Party be liable to the other Party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever. The Interconnecting Customer further understands and acknowledges that, consistent with Section 3.4 of the Interconnection Tariff, the Company will coordinate with the Affected System Operator and/or Affected System Owner to facilitate the interconnection of the Facility to the Company's EPS; however the Company does not represent the Affected System Operator and/or Affected System Owner and is not responsible for any action or inaction on the part of the Affected System Operator and/or Affected System Owner. The Affected System Operator and/or Affected System Owner are not parties to this Agreement even though the Company may incorporate some Affected System Operator and/or Affected System Owner requirements herein. The Company disclaims any and all responsibility and liability in connection with any ASO Studies and Affected System modifications and the Interconnecting Customer hereby waives recourse against and releases the Company, its directors, officers, employees and agents from any and all losses, penalties, claims, demands, fees,

damages or other liabilities arising from or attributable to, either directly or indirectly, such ASO Studies and/or Affected System modifications.

14. Amendments and Modifications. No amendment or modification of this Agreement shall be binding unless in writing and duly executed by both Parties.

15. Permits and Approvals. Interconnecting Customer shall obtain all environmental and other permits lawfully required by governmental authorities for the construction and operation of the Facility. Prior to the construction of System Modifications the Interconnecting Customer will notify the Company that it has initiated the permitting process. Prior to the commercial operation of the Facility the Interconnecting Customer will notify the Company that it has obtained all permits necessary. Upon request the Interconnecting Customer shall provide copies of one or more of the necessary permits to the Company.

16. Force Majeure. For purposes of this Agreement, "Force Majeure Event" means any event:

- a) that is beyond the reasonable control of the affected Party; and
- b) that the affected Party is unable to prevent or provide against by exercising commercially reasonable efforts, including the following events or circumstances, but only to the extent they satisfy the preceding requirements: acts of war or terrorism, public disorder, insurrection, or rebellion; floods, hurricanes, earthquakes, lightning, storms, and other natural calamities; explosions or fire; strikes, work stoppages, or labor disputes; embargoes; and sabotage. If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, such Party will promptly notify the other Party in writing, and will keep the other Party informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected Party will specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the affected Party is taking to mitigate the effects of the event on its performance. The affected Party will be entitled to suspend or modify its performance of obligations under this Agreement, other than the obligation to make payments then due or becoming due under this Agreement, but only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of reasonable efforts. The affected Party will use reasonable efforts to resume its performance as soon as possible. In no event will the unavailability or inability to obtain funds constitute a Force Majeure Event.

16.1. Any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given on the date actually delivered in person or five (5) Business Days after being sent by certified mail, e-mail or fax with confirmation of receipt to the person specified below:

If to Company:

Name: **Eversource**
Attention: **DG Group, SW340**
Email: melanie.khederian@eversource.com

If to Interconnecting Customer:

Name: NextGrid Tree of Heaven, LLC
Attention: Daniel Serber
Address: PO Box 7775 #73069
City: San Francisco, CA, 94120
Phone: 559-731-4645
Email: daniel@nextgrid.com

16.2. A Party may change its address for Notices at any time by providing the other Party Notice of the change in accordance with Section 17.1.

16.3. The Parties may also designate operating representatives to conduct the daily communications, which may be necessary or convenient for the administration of this Agreement. Such designations, including names, addresses, email addresses, and phone numbers may be communicated or revised by one Party's Notice to the other.

17. Default and Remedies.

17.1. Defaults. Any one of the following shall constitute "An Event of Default."

- i) Interconnecting Customer fails to pay amounts due for System Modifications in accordance with the Time Frames set out in Section 5 of this Agreement and Section 3.6.2 of the Tariff;
- ii) One of the Parties shall fail to pay any undisputed bill for charges incurred under this Agreement or other amounts which one Party owes the other Party as and when due, except as noted in Section 18.1(i), above, and such failure shall continue for a period of thirty (30) days after written notice of nonpayment from the affected Party to the defaulting Party; or
- iii) One of the Parties fails to comply with any other provision of this Agreement or breaches any representation or warranty in any material respect and fails to cure or remedy that default or breach within sixty (60) days after notice and written demand by the affected Party to cure the same or such longer period reasonably required to cure (not to exceed an additional 90 days unless otherwise mutually agreed upon), provided that the defaulting Party diligently continues to cure until such failure is fully cured.

17.2. Remedies. Upon the occurrence of an Event of Default, the affected Party may at its option, in addition to any remedies available under any other provision herein, do any, or any combination, as appropriate, of the following:

- a) Continue to perform and enforce this Agreement;
- b) Recover damages from the defaulting Party except as limited by this Agreement;
- c) By written notice to the defaulting Party terminate this Agreement;
- d) Pursue any other remedies it may have under this Agreement or under applicable law or in equity.

18. Entire Agreement. This Agreement, including any attachments or appendices, is entered into pursuant to the Interconnection Tariff. Together the Agreement and the Interconnection Tariff represent the entire understanding between the Parties, their agents, and employees as to the subject matter of this Agreement. Each Party also represents that in entering into this Agreement, it has not relied on any promise, inducement, representation, warranty, agreement or other statement not set forth in this Agreement or in the Company's Interconnection Tariff.

19. **Supercedence.** In the event of a conflict between this Agreement, the Interconnection Tariff, or the terms of any other tariff, Exhibit or Attachment incorporated by reference, the terms of the Interconnection Tariff, as the same may be amended from time to time, shall control. In the event that the Company files a revised tariff related to interconnection for Department approval after the effective date of this Agreement, the Company shall, not later than the date of such filing, notify the signatories of this Agreement and provide them a copy of said filing.
20. **Governing Law.** This Agreement shall be interpreted, governed, and construed under the laws of the Commonwealth of Massachusetts without giving effect to choice of law provisions that might apply to the law of a different jurisdiction.
21. **Non-waiver.** None of the provisions of this Agreement shall be considered waived by a Party unless such waiver is given in writing. The failure of a Party to insist in any one or more instances upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights hereunder shall not be construed as a waiver of any such provisions or the relinquishment of any such rights for the future, but the same shall continue and remain in full force and effect.
22. **Counterparts.** This Agreement may be signed in counterparts.
23. **No Third Party Beneficiaries.** This Agreement is made solely for the benefit of the Parties hereto. Nothing in the Agreement shall be construed to create any rights in or duty to, or standard of care with respect to, or any liability to, any person not a party to this Agreement.
24. **Dispute Resolution.** Unless otherwise agreed by the Parties, all disputes arising under this Agreement shall be resolved pursuant to the Dispute Resolution Process set forth in the Interconnection Tariff.
25. **Severability.** If any clause, provision, or section of this Agreement is ruled invalid by any court of competent jurisdiction, the invalidity of such clause, provision, or section, shall not affect any of the remaining provisions herein.
26. **Signatures.**

IN WITNESS WHEREOF, the Parties hereto have caused two (2) originals of this Agreement to be executed under seal by their duly authorized representatives.

Interconnecting Customer

Company

By: Tiffany Robicheau

By: Melanie Khederian

Name: Tiffany Robicheau

Name: Melanie Khederian

Title: Director of Interconnection

Title: Account Executive

Date: 6/15/2022

Date: 6/15/2022

The following attachments will be included as appropriate for each specific Interconnection Service Agreement:

Attachment 1: Description of Facilities, including demarcation of Point of Common Coupling

Attachment 2: Description of System Modifications

Attachment 3: Costs of System Modifications and Payment Terms

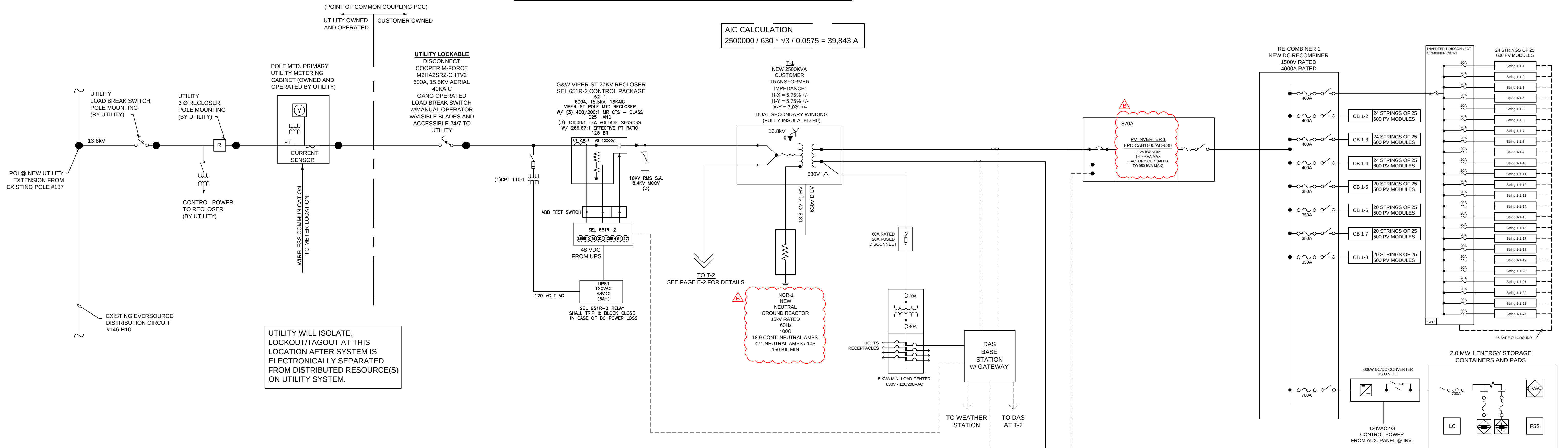
Attachment 4: Special Operating Requirements, if any

Attachment 1

Description of Facilities, including demarcation of Point of Common Coupling

SYSTEM SIZE = 4,162.8 kW DC
2,150.0 kW AC NOM.
2,150.0 kW AC MAX.
1,500 kW / 6,000 kWh DC-COUPLED BESS

- (10,407) CANADIAN SOLAR CS3U-400MB-AG 400W MODULES
(2) EPC CAB1000/AC-630 INVERTERS (CURTAILED TO 950kW)
(1) EPC PD250/AC-480 INVERTER
(2) DYNAPOWER DPS-500 DC-DC CONVERTERS
(2) DYNAPOWER DPS-250 DC-DC CONVERTERS



PROTECTIVE RELAY SETTINGS

SEL 651-2 Protective Relay Setting									
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	VOLTAGE SETTING (RELAY)	RELAY CLEARING TIME (sec)	RELAY CLEARING TIME (cycle)	TOTAL CLEARING TIME (sec)	TOTAL CLEARING TIME (cycle)		
27P1P - UNDERVOLTAGE	X	0.50	14.94 V (L-N)	1.05	63	1.1	66		
27P2P - UNDERVOLTAGE	X	0.88	26.29 V (L-N)	1.95	117	2	120		
59P1P - OVERVOLTAGE	X	1.10	32.87 V (L-N)	1.95	117	2	120		
59P2P - OVERVOLTAGE	X	1.20	35.85 V (L-N)	0.11	6.6	0.16	9.6		
59N1P - 3V0	X	4.00	119.51 V (L-N)	0.11	6.6	0.16	9.6		
79 - MIN RECLOSE VOLTAGE		0.95	28.4 V (L-N)	299.95	17997	300	18000		
79 - MAX RECLOSE VOLTAGE		1.05	31.3 V (L-N)	299.95	17997	300	18000		
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT		FREQUENCY SETTING	RELAY CLEARING TIME (sec)	RELAY CLEARING TIME (cycle)	TOTAL CLEARING TIME (sec)	TOTAL CLEARING TIME (cycle)		
81U-1 - UNDERFREQUENCY	X		56.5 Hz	0.11	6.6	0.16	9.6		
81U-2 - UNDERFREQUENCY	X		58.5 Hz	299.95	17997	300	18000		
81O-1 - OVERFREQUENCY	X		61.2 Hz	299.95	17997	300	18000		
81O-2 - OVERFREQUENCY	X		62 Hz	0.11	6.6	0.16	9.6		
79 - MIN RECLOSE FREQUENCY			59.5 Hz	299.95	17997	300	18000		
79 - MAX RECLOSE FREQUENCY			60.5 Hz	299.95	17997	300	18000		
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT					CLEARING TIME (sec)	CURRENT SETTING (RELAY)	CURRENT SETTING (PRIMARY)	
51P - PHASE OVER CURRENT	X					U4 / T.D. 2.0	0.56 A	112.44 A	
51G - GROUND OVER CURRENT	X					U4 / T.D. 1.5	0.22 A	44.98 A	
ALARM	X								
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT	VA SETTING (RELAY)	VA SETTING (PRIMARY)	RELAY CLEARING TIME (sec)	RELAY CLEARING TIME (cycle)	TOTAL CLEARING TIME (sec)	TOTAL CLEARING TIME (cycle)		
32 - DIRECTIONAL POWER	X	40.31 VA	2150 kVA	0.05	3	0.1	6		
PRIMARY BASE VOLTAGE	7967 V L-N	13800 V L-L	SECONDARY BASE VOLTAGE			29.9 V L-N	51.7 V L-L	266.67:1 PT RATIO	
PRIMARY BASE FLA CURRENT	89.95 A	SECONDARY BASE FLA CURRENT			0.45 A	200:1 CT RATIO			
RELAY/RECLOSER CLEARING TIME		CLEARING TIME IS .05 SECONDS, OR 3 CYCLES. TOTAL VALUES REFLECT SETTING + CLEARING TIME							
79 - RECLOSE/UTILITY RESTORATION DETECTION	RELAY SHALL BE SET TO 5 MIN OPEN INTERVAL TIMER. AT THE END OF TIMER RELAY WILL ATTEMPT TO CLOSE IF TRIP CONDITION IS CLEARED. LINE VOLTAGE FOR ALL PHASES IS BETWEEN .95 PU & 1.05 PU L-N, & FREQUENCY IS BETWEEN 59.5 Hz & 60.5 Hz FOR 5 MINUTES. INVERTERS HAVE ADDITIONAL 5 MINUTE TIMER. TOTAL RESTORATION TIME = 10 MINUTES WHEN ALL CONDITIONS ARE MET. FAILURE TO RECLOSE AFTER A 4 HOUR SENSING PERIOD WILL LOCKOUT RECLOSING. TRIP ON OVERCURRENT WILL LOCKOUT RECLOSING.								
RELAY FAILURE PROTECTION	NORMALLY CLOSED ALARM OUTPUT CONTACT IS WIRED IN PARALLEL WITH TRIP OUTPUT CONTACT. IN THE EVENT OF HARDWARE FAILURE OR LOSS OF DC POWER, THE ALARM OUTPUT WILL DE-ENERGIZE AND RETURN CONTACT TO ITS NORMALLY CLOSED STATE. A DIODE AND CAPACITOR IN THE TRIPPING CIRCUIT STORE THE ENERGY REQUIRED TO TRIP THE FAULT INTERRUPTER.								

INVERTER PROTECTIVE SETTINGS

Inverter Protective Settings				
INTERNAL PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	SETTING	CLEARING TIME (sec)
27-1 - UNDERVOLTAGE	X	0.50	315 V	1.1
27-2 - UNDERVOLTAGE	X	0.88	554.4 V	2
59-1 - OVERVOLTAGE	X	1.10	693 V	2
59-2 - OVERVOLTAGE	X	1.20	756 V	0.16
81U-1 - UNDERFREQUENCY	X		56.5 Hz	0.16
81U-2 - UNDERFREQUENCY	X		58.5 Hz	300
81O-1 - OVERFREQUENCY	X		61.2 Hz	300
81O-2 - OVERFREQUENCY	X		62 Hz	0.16
PRIMARY VOLTAGE (L-L)		0.63	1 kV	630

ARC DESIGN

409 NORTH MAIN STREET
ELMER, NJ 08318
(856) 712-2166 FAX: (856) 358-1511

PREPARED FOR:

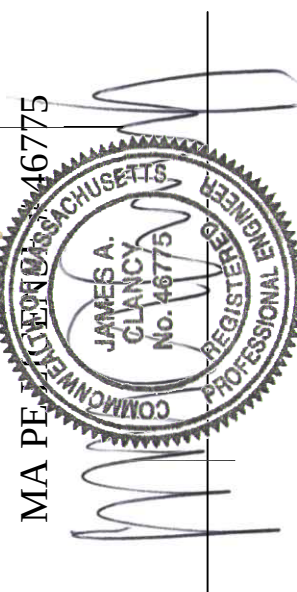
NextGrid

PO BOX 7775 #73069
SAN FRANCISCO, CA 94120

PROPOSED PHOTOVOLTAIC ARRAY

1073 MAIN ST.
1073 MAIN ST.
MILLIS, MA 02054

JAMES A. CLANCY
MA REG. 46775



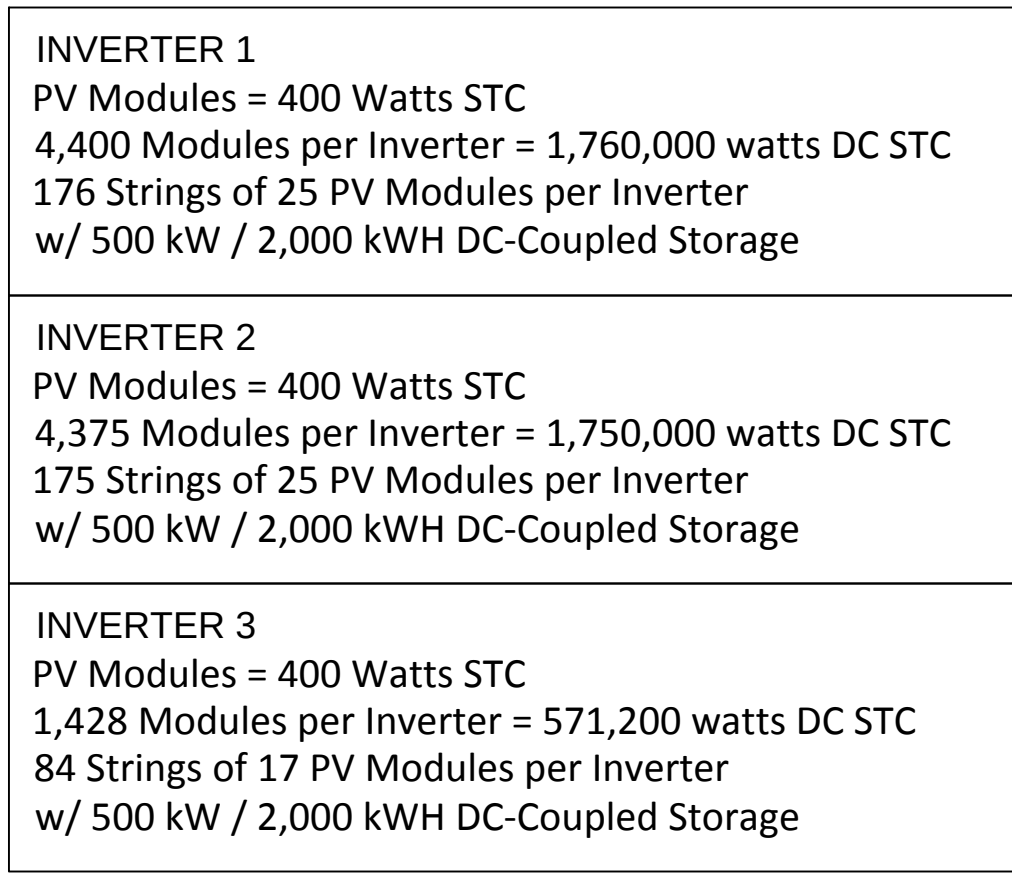
REVISIONS

DATE	COMMENT
07-07-20	ADD 32 RELAY ELEMENT
10-21-20	PER SIS DRAFT

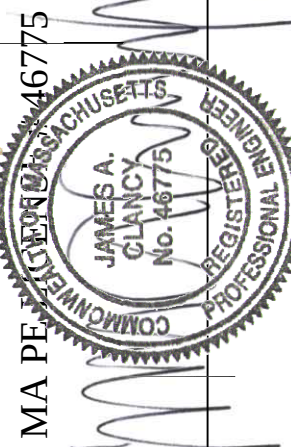
JOB #	
DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	05-22-2020

E-1.1

ELECTRICAL - LINE DIAGRAM



Protective Settings				
INVERTER PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	SETTING	TOTAL CLEARING TIME (sec)
27-1- UNDERVOLTAGE	X	0.50	240 V	1.1
27-2- UNDERVOLTAGE	X	0.88	422.4 V	2
58-1- OVERVOLTAGE	X	1.10	528 V	2
58-2- OVERVOLTAGE	X	1.20	576 V	0.16
81U-1- UNDERFREQUENCY	X		56.5 Hz	0.16
81U-2- UNDERFREQUENCY	X		58.5 Hz	300
81O-1- OVERFREQUENCY	X		61.2 Hz	300
81O-2- OVERFREQUENCY	X		62 Hz	0.16
ALARM	X			
BASE VOLTAGE (L-L)	0.48	kV	480	VOLT



REVISIONS	
DATE	COMMENT
07-07-20	ADD 32 RELAY ELEMENT
10-21-20	PER SIS DRAFT

OB #	
DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	05-22-2020

Attachment 2

Description of System Modifications

The interconnection of this distributed generation application is queued behind other applicants which may require system upgrades to the Eversource system, and the cost for those upgrades has been included as a requirement in their respective Interconnection Services Agreement(s). If a prior applicant should dequeue or withdraw for any reason, the system conditions permitting the interconnection of succeeding applicant(s) may change. Upon the withdrawal of previously queued applicants, succeeding applicant(s) may become responsible some or all of the system upgrades that were required for the prior applicants, and Eversource may have to reassess system conditions to determine if the applicant currently under study would trigger the same upgrades

If you are planning to participate in the Net Metering Program three configurations pursuant to which paired systems are eligible to participate in the net metering program:

- (1) the ESS charges only from the net metering facility and cannot export
- (2) the ESS charges only from the net metering facility and can export
- (3) the ESS charges either from the grid or the net metering facility and cannot export

The Department also sets forth certain other requirements related to the eligibility of paired systems to net meter and a process through which the host customer of a paired system must self-certify compliance with all net metering rules and regulations. Including inadvertent export which is defined as “the unscheduled and uncompensated export of real power from a generating facility for a limited duration, not to exceed 30 seconds.”

For SMART Metering Work Orders:

SMART Metering and Wiring Installation Guidelines to be Adhered to:

https://www.eversource.com/content/docs/default-source/builders-contractors/eversource-smart-metering-wiring-guidelines.pdf?sfvrsn=2043df62_4

All metering must comply with Eversource Bluebook Standards, specifically regarding hot sequence and cold sequence.

The following distribution upgrades are currently required for this DG Interconnection Application:

WO # 2404399				
2.150 MW, PV - 1.5 MW BESS, 1073 Main St, Millis				
COST ESTIMATE				
	Material	Labor	Conduit (Public Way)	Total
Off Site – NONE	\$ -	\$ -	\$ -	\$ -
Site interconnection work - Install: 1 NOVA Recloser 1 - 50' poles & 4 -45' Poles 1 - OH primary meter 2 - sections of 3-1/0Al	\$ 62,767.00	\$ 41,942.30	\$ -	\$ 104,709.30
Tax adder (15.2%)	\$ 9,540.58	\$ 6,375.23	\$ -	\$ 15,915.81
Total	\$ 72,307.58	\$ 48,317.53	\$ -	\$ 120,625.11

Attachment 3
Cost of System Modifications and Payment Terms

The **Eversource** cost summary is shown below:

Distribution System Modifications

Project Cost / Fees: Project Work Order Number **2404399**

The enclosed total cost of **\$120,625.11 (+/- 25%)** regarding Project Work Order Number **2404399**, must all be paid in full to move the project forward into construction.

Eversource and the Applicant will mutually agree upon a construction schedule which will take be required to consider inclement weather and customer outages for completion. This will be established upon the **Eversource** construction final design. Note: For customers with multiple projects, **Eversource** will require a priority listing of those projects and timeframe for completion to sufficiently order materials and to determine the projected construction schedule.

Prior to commencement of final design for system modifications, the following check off items will be required.

- Payment in full per Fully Executed ISA Cost Estimate
- Confirmation SLD provided in Attachment 1 remains applicable with no Changes
- Confirmation of Final site plan must be completed before final design
- Confirmation of SLD and Final Site Plan are fully Permitted by the Town in which this DG Application is being constructed

The following check off items will be required, prior to commencement construction:

- Payment in full per Final Design Completion prior to beginning of any construction work by **Eversource**
- Approved final electrical wiring inspection - 888-NEED PWR (888-633-3797)
- Approved final customer relay/protection settings for Recloser, if applicable
- Signed easement and/or rights documents, if applicable
- Verizon (pole set) areas or towns must be completed prior to **Eversource** modifications
- Signed agreements to operate within **Eversource** Right-of-Ways, if applicable
- All Required Closeout Documents per Checklist

Your Witness Test for Final Commissioning can then take place once you have completed the check-off steps as part of the Interconnection Agreement and that the solar array is connected (energized) to Eversource's distribution system.

Please mail your payment, made payable to **Eversource** as shown below. Please reference the **Eversource** Electric Work Order # **2404399** on the check. This cost is valid for Ninety (90) calendar days from the date of this letter. Note: the customer is responsible for all costs on private property.

Eversource
ATTN: DG Group, WO# 2404399
247 Station Dr, SW340
Westwood, MA 02090-9230

Attachment 4
Special Operating Requirements

General Clause:

The Customer acknowledges and agrees to certain operating constraints required by the Company so that its Facility does not adversely affect the Company's electric power system or the quality of power delivered by it.

General Off-unity power factor operation (for facilities of 500kW or greater):

The Customer's Facility must be capable of operating at power factors within ± 0.95 , and the Customer must adjust the Facility's control parameters to output at power factors within that range at the request of the Company in order to mitigate voltage deviations or other power quality phenomenon on the circuits that interconnect the Facility. Any such requests will be issued to the Customer in writing. The Company may consult with the Customer in order to determine a control methodology that will provide adequate mitigation that is consistent with the control capabilities of the Facility and are of least impact to the Customer; however, the requirements will ultimately be determined at the sole discretion of the Company. Should the Company determine that the Customer is operating its Facility contrary to this requirement; the Company will disconnect the Facility and will not allow re-connection until the Company is satisfied that the customer has implemented appropriate changes to its controls and/or settings to achieve the required performance.

Inverters must have adjustable power factor. The Company has the right to go back and request off unity output from the DG interconnection.

This facility will be tripped offline via an Eversource recloser when the normal electrical Feed is not in operation. This includes when the area is fed from another feeder which is not the normal electrical feed. The facility will not be allowed on-line until the normal electrical feed is restored to service.

Project Development Timeline

[illegible]

Section 5.0 Plans

Locus Map

Aerial Map

Copy of a Zoning Map with the Parcel identified

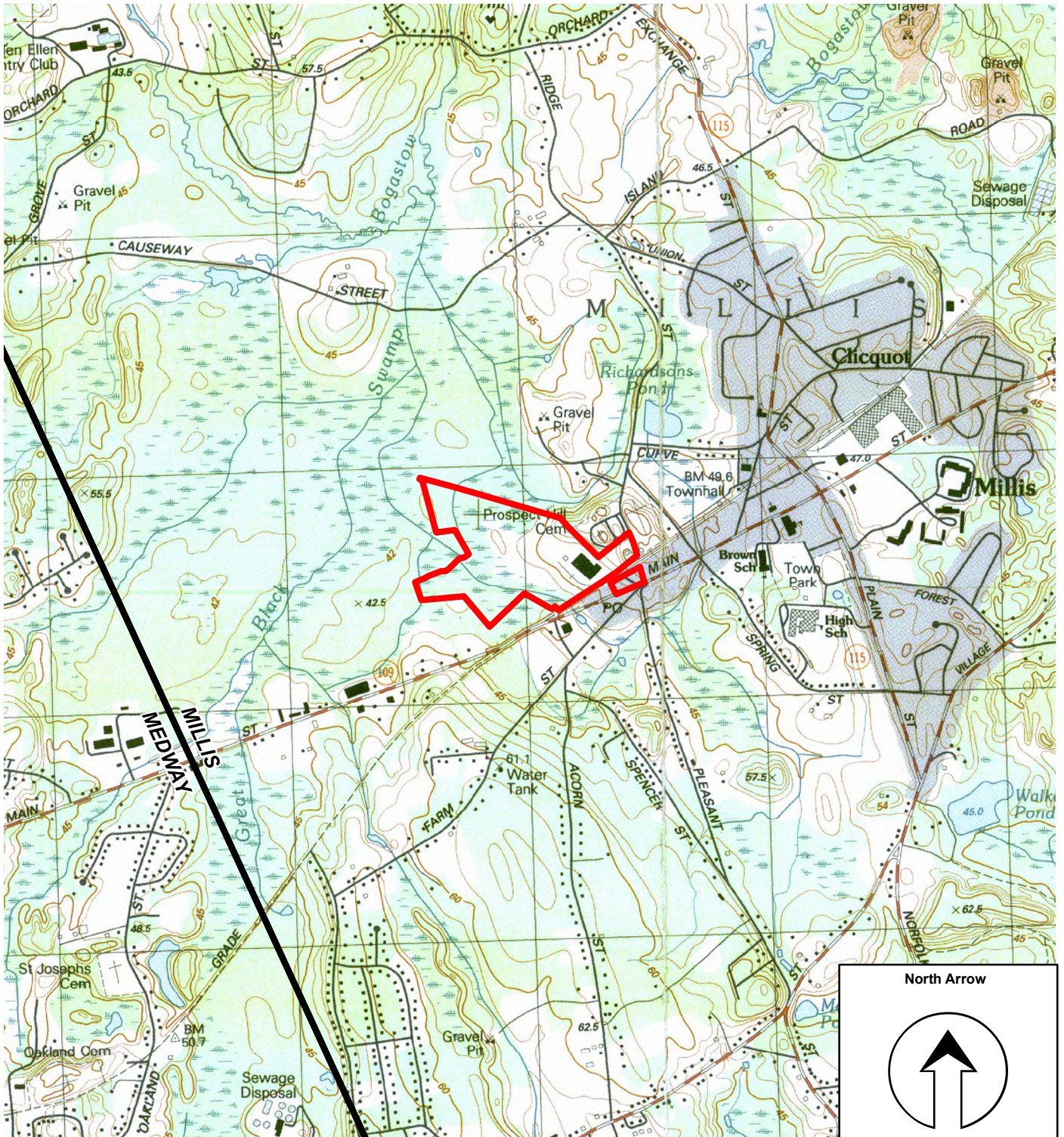
UNDER SEPARATE COVER

Entitled “NextGrid Solar Facility, 1073 Main Street, Millis, Massachusetts (Norfolk County)”

Prepared by Beals and Thomas, Inc.

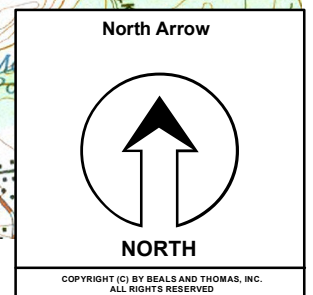
In 6 Sheets

Dated August 17, 2022



Digital USGS Map of Medfield, MA, dated 1987, provided by the Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services.

0 1,000 2,000 4,000
FEET



PROJECT:

NextGrid Solar Facility

Millis, Massachusetts

PREPARED FOR:

NextGrid

PO Box 7775 #73069
San Francisco, CA

Locus Map

Figure 1

Scale: 1" = 2,000'

Date: July 15, 2022

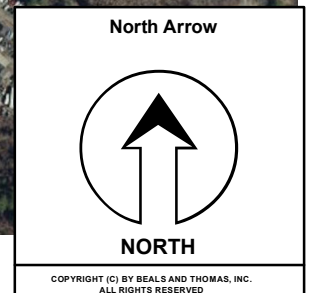
Source File 156619P025A.mxd

B+T Project No. 1566.19



Digital orthophotograph, dated 2021, provided by the Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services.

0 250 500 1,000
FEET



PROJECT:

NextGrid Solar Facility

Millis, Massachusetts

PREPARED FOR:

NextGrid

PO Box 7775 #73069
San Francisco, CA

Aerial Map

Figure 2

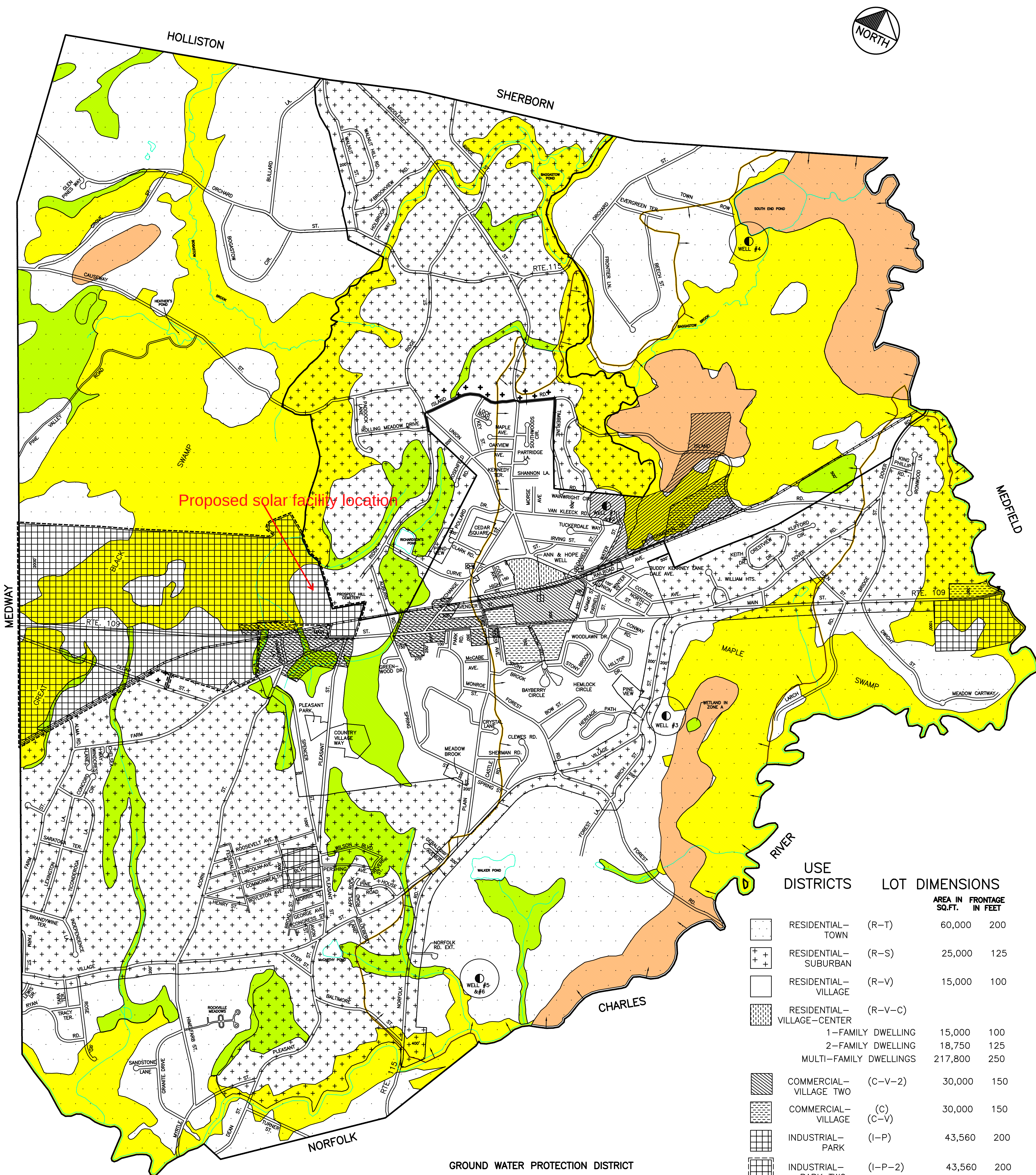
Scale: 1" = 500'

Date: July 15, 2022

Source File 156619P026A.mxd

B+T Project No. 1566.19

118220001 (BASE PLAN) 2-2000 MAP.DWG BSC GROUP, INC. 33 WALDO ST., WORCESTER, MA 01609, 508-792-6000 PLOT DATE: 5/20/2021



THE FOLLOWING STREETS WERE ADDED TO THIS MAP AFTER 5/12/98:

APPLE ROCK ROAD
AVON STREET
BLUEBERRY LANE
BOYLSTON AVENUE
BROAD STREET
CHELSEA WAY
COMMONWEALTH BOULEVARD
CONGRESS STREET
CRYSTAL LANE
FEDERAL STREET
GEORGE AVENUE
GERALD AVENUE
GLEN PINES WAY
HENRY STREET
HERITAGE PATH
LEWIS DRIVE
LINCOLN AVENUE
LOCK ROAD
MORRIS STREET
PADDOCK LANE
PERSHING AVENUE
PINE HOUSE ROAD
PINE VALLEY ROAD
REVERE STREET
ROLLING MEADOW DRIVE
ROOSEVELT AVENUE
SANDSTONE LANE
TARA TERRACE
TRACY TERRACE
WINDCREST LANE
WILSON BOULEVARD

THE FOLLOWING ARE CONDO COMPLEXES

CEDAR SQUARE
COUNTRY VILLAGE
MEADOW BROOK
PINE VIEW
PLEASANT PARK
PONDVIEW

ADDED SINCE 5/10/04

ROCKVILLE MEADOWS
TUCKERDALE WAY

ADDED ON 11/02/15

BEECH STREET
EVERGREEN TERRACE
FRONTIER LANE

- GROUND WATER PROTECTION DISTRICT**
- ZONE A
 - ZONE C AND WATERSHED PROTECTION DISTRICT
 - SPECIAL FLOOD HAZARD DISTRICT
- ZONE I 400 FT. RADIUS FROM WELLS**
- ZONE II (ARROW POINTS TO ZONE)**

USE DISTRICTS	LOT DIMENSIONS	AREA IN FRONTAGE	
		SQ.FT.	IN FEET
RESIDENTIAL—TOWN	(R-T)	60,000	200
RESIDENTIAL—SUBURBAN	(R-S)	25,000	125
RESIDENTIAL—VILLAGE	(R-V)	15,000	100
RESIDENTIAL—VILLAGE—CENTER	(R-V-C)		
1-FAMILY DWELLING		15,000	100
2-FAMILY DWELLING		18,750	125
MULTI-FAMILY DWELLINGS		217,800	250
COMMERCIAL—VILLAGE TWO	(C-V-2)	30,000	150
COMMERCIAL—VILLAGE	(C)	30,000	150
INDUSTRIAL—PARK	(I-P)	43,560	200
INDUSTRIAL—PARK TWO	(I-P-2)	43,560	200
MIXED USE DEVELOPMENT (MILLS CENTER ECONOMIC OPPORTUNITY DISTRICT)		30,000 IF >60,000	N/A 120
MUNICIPAL OVERLAY		N/A	N/A

OFFICIAL
ZONING MAP
OF THE TOWN OF
MILLIS, MASSACHUSETTS

SCALE: 1" = 1000'

0 500' 1000' 2000' 3000'

MILLIS, MASSACHUSETTS
MARCH 9, 1959 - MAY 7, 1959
ADOPTED TOWN MEETINGS
BOSTON, MASSACHUSETTS
JUNE 8, 1959
THE WITHIN ZONING MAP
HEREBY ADOPTED
EDWARD J. MCCORMICK JR.
ATTORNEY GENERAL

LAST AMENDED MAY 10, 2004
LAST AMENDED MAY 8, 2006
LAST AMENDED NOV. 5, 2007
LAST AMENDED MAY 12, 2008
LAST AMENDED NOV. 3, 2008
LAST AMENDED JUNE 15, 2009
LAST AMENDED MAY 9, 2011
LAST AMENDED MAY 12, 2014
LAST AMENDED NOV. 2, 2015
LAST AMENDED JUNE 5, 2017
LAST AMENDED NOV. 4, 2019
LAST AMENDED NOV. 7, 2020

MILLIS PLANNING BOARD

RICHARD NICHOLS, CHAIR
NICOLE RILEY, CLERK
GEORGE YERD, MEMBER
ALAN HANDEL, MEMBER
BODHA B. RAUT CHHETRY, MEMBER
JOSHUA GUERRERO, ASSOCIATE MEMBER



NEXTGRID SOLAR FACILITY

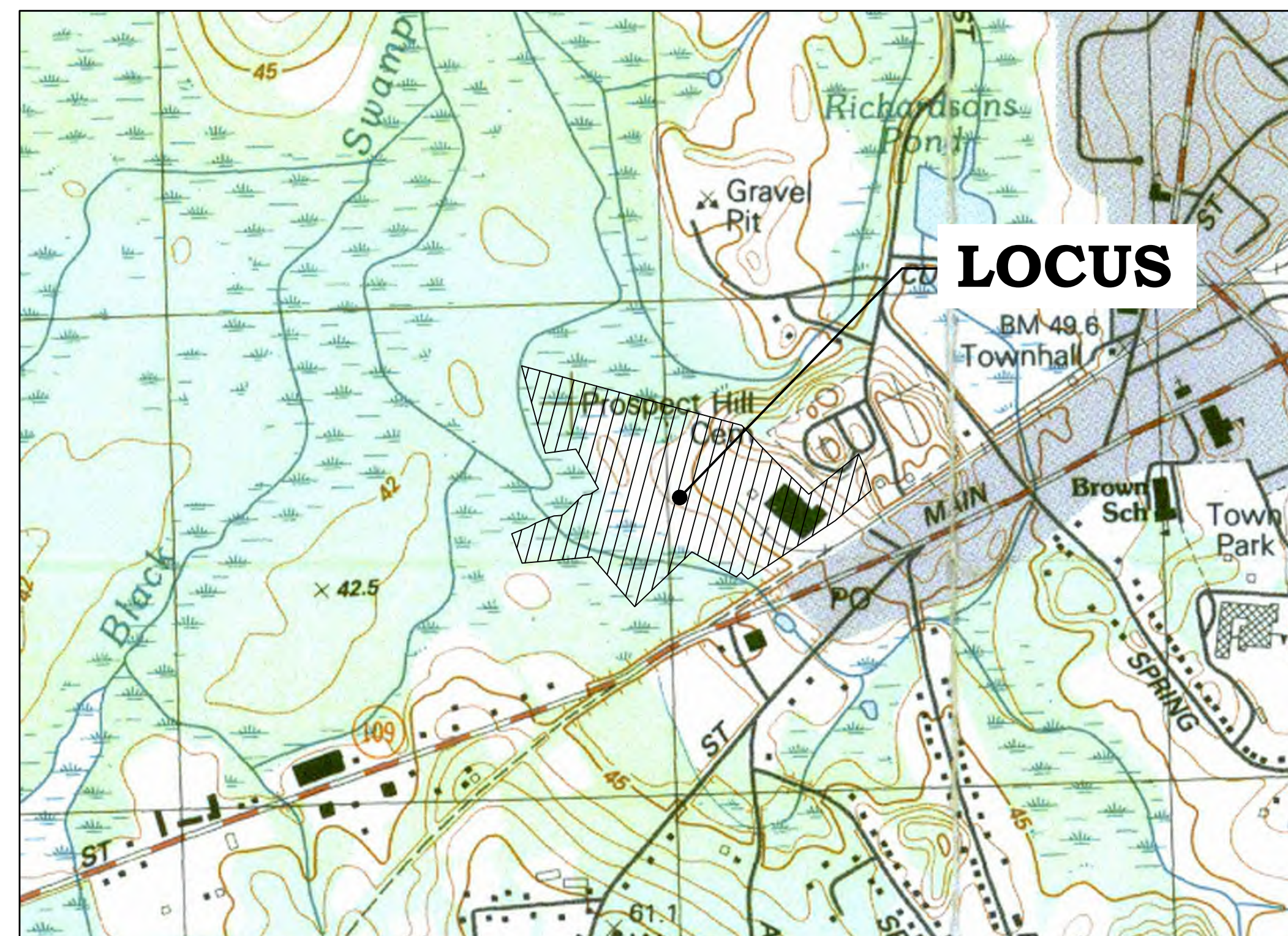
1073 MAIN STREET
MILLIS MASSACHUSETTS
(NORFOLK COUNTY)

OWNER/APPLICANT

NextGrid
P.O. Box 7775 #73069
San Francisco, CA 94120

CIVIL ENGINEER/SURVEYOR

Beals and Thomas, Inc.
144 Turnpike Road
Southborough, Massachusetts 01772



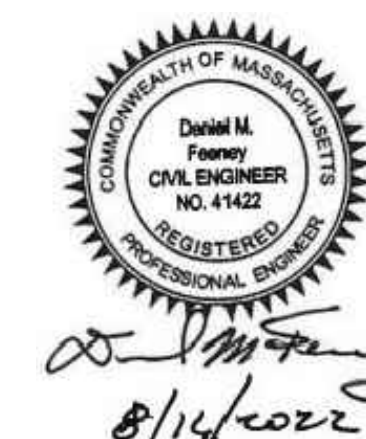
Locus Map
Scale: 1" = 1,000'



SHEET INDEX

	Cover Sheet
C1.1	Notes, Legend and Site Details
TP-1	Compiled Topographic Plan
C2.1	Site Preparation Plan
C3.1	Site Plan
C4.1	Canopy Details

Issued For Permitting - August 16, 2022



Job No.: 1566.19
Plan No.: 156619P024A-001
Sheet 1 of 6

GENERAL NOTES

1. THE CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND OBTAIN NECESSARY CONSTRUCTION PERMITS. THE CONTRACTOR SHALL PAY FEES AND POST BONDS ASSOCIATED WITH THE SAME, AND COORDINATE WITH THE ENGINEER AND ARCHITECT AS REQUIRED.
2. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY AND CONSTRUCTION MEANS AND METHODS.
3. LIMIT OF WORK SHALL BE SEDIMENTATION CONTROL BARRIERS, SITE PROPERTY LINES, AND/OR AS INDICATED ON DRAWINGS.
4. PORTIONS OF THE ROADWAY, SIDEWALK, AND ROADSIDE AREA DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION PRIOR TO DISTURBANCE. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO OWNER.
5. CONTRACTOR SHALL VERIFY ELEVATIONS IN THE FIELD PRIOR TO COMMENCING WORK.
6. ANY ALTERATION TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE CONTRACTOR ON RECORD DRAWINGS.
7. CONTRACTORS AND SUBCONTRACTORS SHALL OBTAIN A TRENCH PERMIT PRIOR TO ANY TRENCHING ON SITE IN ACCORDANCE WITH 520 CMR 14.00.
8. FOR DRAWING LEGIBILITY, ALL EXISTING TOPOGRAPHIC FEATURES, EXISTING UTILITIES, PROPERTY BOUNDARIES, EASEMENTS, ETC. MAY NOT BE SHOWN ON ALL DRAWINGS. REFER TO ALL REFERENCED DRAWINGS AND OTHER DRAWINGS IN THIS SET FOR ADDITIONAL INFORMATION.

EROSION CONTROL AND SEDIMENTATION NOTES

1. A SEDIMENT CONTROL BARRIER SHALL BE INSTALLED ALONG THE EDGE OF PROPOSED WORK AS INDICATED ON THE PLANS PRIOR TO THE COMMENCEMENT OF DEMOLITION OR CONSTRUCTION.
2. CONTRACTOR SHALL CLEAN AND MAINTAIN ALL SEDIMENT AND EROSION CONTROL MEASURES FOR THE DURATION OF CONSTRUCTION TO ENSURE THEIR CONTINUED FUNCTIONALITY.
3. ADDITIONAL EROSION CONTROL MEASURES AND/OR SEDIMENT CONTROL BARRIERS SHALL BE IMPLEMENTED AS CONDITIONS WARRANT OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
4. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED ON A DAILY BASIS DURING CONSTRUCTION TO ENSURE THAT CHANNELS, DITCHES, AND PIPES REMAIN CLEAR OF DEBRIS AND THAT THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE INTACT.
5. ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC WAYS. ANY SEDIMENT TRACKED ONTO PUBLIC WAYS SHALL BE SWEEPED AT THE END OF EACH WORKING DAY.
6. ALL STOCKPILE AREAS SHALL BE LOCATED WITHIN LIMIT OF WORK LINE AND STABILIZED TO PREVENT EROSION.
7. ALL DEBRIS GENERATED DURING SITE PREPARATION ACTIVITIES SHALL BE LEGALLY DISPOSED OF OFF SITE.
8. CONTRACTOR SHALL PROVIDE CRIBBING AS NECESSARY TO PROTECT EXISTING UTILITY LINES DURING CONSTRUCTION.
9. SITE ELEMENTS TO REMAIN SHALL BE PROTECTED FOR THE DURATION OF CONSTRUCTION.
10. AREAS IDENTIFIED AS CRITICAL VEGETATION AREAS SHALL BE STABILIZED DURING CONSTRUCTION BY SEEDING WITH ANNUAL RYE GRASS AT THE RATE OF FORTY (40) LBS/ACRE.
11. CONTRACTOR SHALL PROVIDE DUST CONTROL BY SPRINKLING OR OTHER APPROVED METHODS NECESSARY AND/OR AS DIRECTED BY THE OWNER OR THEIR REPRESENTATIVE.
12. FILTER BAGS SHALL BE INSTALLED IN ALL EXISTING CATCH BASINS PRIOR TO COMMENCEMENT OF CONSTRUCTION. FILTER BAGS SHALL ALSO BE INSTALLED IN ALL NEWLY INSTALLED CATCH BASIN PRIOR TO PERMANENT PAVEMENT INSTALLATION TO CONTROL SILTATION.
13. CONTRACTOR SHALL PREVENT ANY SOIL AND MATERIALS FROM ENTERING WETLANDS, STREAMS, AND OTHER RESOURCE AREAS.

LAYOUT AND MATERIALS NOTES

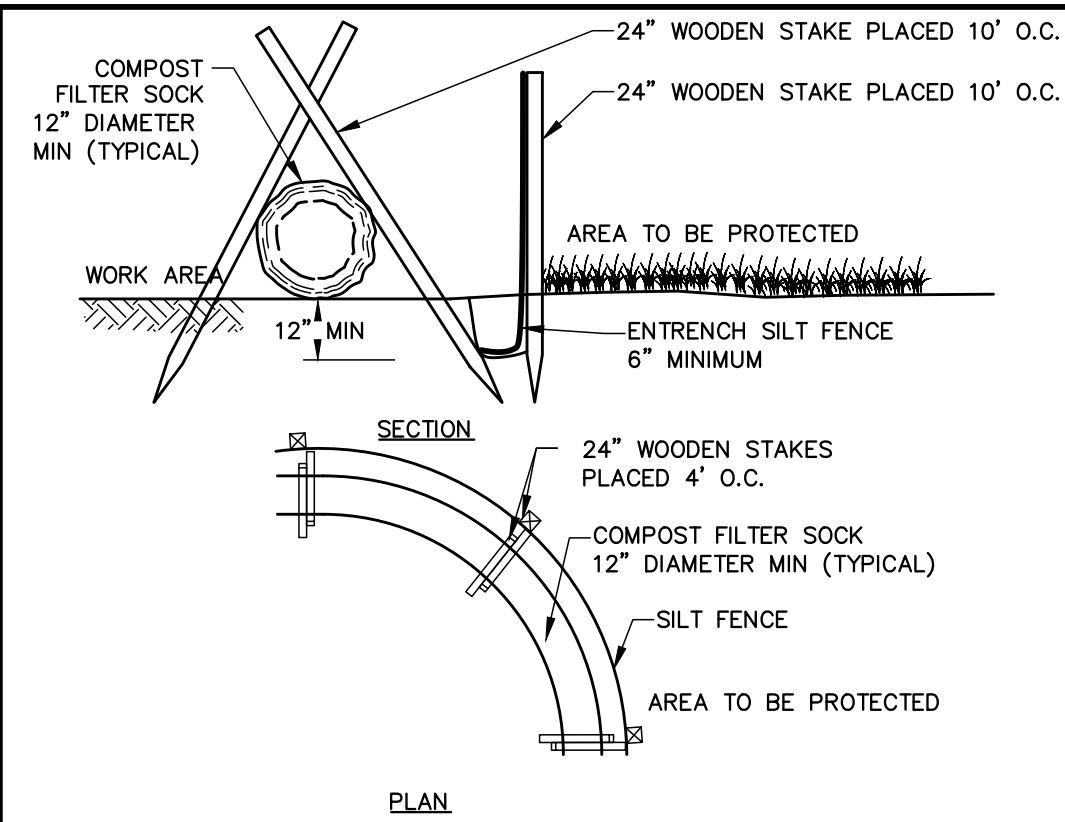
1. ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED UNLESS OTHERWISE INDICATED.
2. CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER AND OWNER'S REPRESENTATIVE FOR RESOLUTION.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN SITE PLAN DIMENSIONS AND BUILDING PLANS BEFORE PROCEEDING WITH ANY PORTION OF SITE WORK WHICH MAY BE AFFECTED SO THAT PROPER ADJUSTMENTS TO THE SITE LAYOUT CAN BE MADE IF NECESSARY.
4. CONTRACTOR SHALL PROTECT EXISTING PROPERTY MONUMENTS AND ABUTTING PROPERTIES DURING CONSTRUCTION.

GRADING, DRAINAGE AND UTILITY NOTES

1. UNDERGROUND UTILITIES WERE COMPILED FROM AVAILABLE RECORD PLANS OF UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE AND ASSUMED. BEFORE COMMENCING SITE WORK CONTACT "DIG SAFE" AT 1-888-344-7233 TO LOCATE UNDERGROUND UTILITIES. ANY DAMAGE TO EXISTING UTILITIES OR STRUCTURES SHALL BE THE CONTRACTOR'S RESPONSIBILITY. NO EXCAVATION SHALL BE PERFORMED UNTIL UTILITY COMPANIES ARE PROPERLY NOTIFIED.
2. SITE WORK SHALL MEET OR EXCEED THE SITE WORK SPECIFICATIONS PREPARED FOR THIS PROJECT.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK WHICH COULD BE AFFECTED.
4. WORK PERFORMED AND MATERIALS FURNISHED SHALL CONFORM WITH THE LINES, GRADES AND OTHER SPECIFIC REQUIREMENTS AND SPECIFICATIONS OF THE TOWN OF MILLIS DPW.
5. AT LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT, CURBS AND EARTHWORK SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES AND JOINTS. PITCH EVENLY BETWEEN SPOT GRADES. GRADE ALL AREAS TO DRAIN.
6. CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
7. THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE RESPECTIVE UTILITY COMPANIES FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES, AS REQUIRED.
8. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE OWNER AND ENGINEER FOR RESOLUTION.
9. CONTRACTOR SHALL INSTALL UTILITIES (INCLUDING CONCRETE PADS) PER UTILITY COMPANY AND DPW STANDARDS.
10. CONTRACTOR SHALL PROTECT UNDERGROUND UTILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THE UTILITIES RESULTING FROM CONSTRUCTION LOADS SHALL BE RESTORED TO ORIGINAL CONDITION.
11. ELECTRIC CONNECTION LOCATIONS AND ROUTING ARE SUBJECT TO REVIEW AND APPROVAL BY APPROPRIATE UTILITY COMPANIES AND FIRE DEPARTMENT.
12. EXCAVATION WITHIN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE PERFORMED BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
13. CONTRACTOR SHALL REMOVE ALL EROSION AND SEDIMENT CONTROL BARRIERS AFTER RE-VEGETATION AND STABILIZATION OF DISTURBED AREAS, FOLLOWING APPROVAL OF THE CONSERVATION COMMISSION AND WETLAND SPECIALIST.
14. WETLANDS SHALL REMAIN UNDISTURBED; NO ENCROACHMENT PERMITTED.

PROPOSED LEGEND

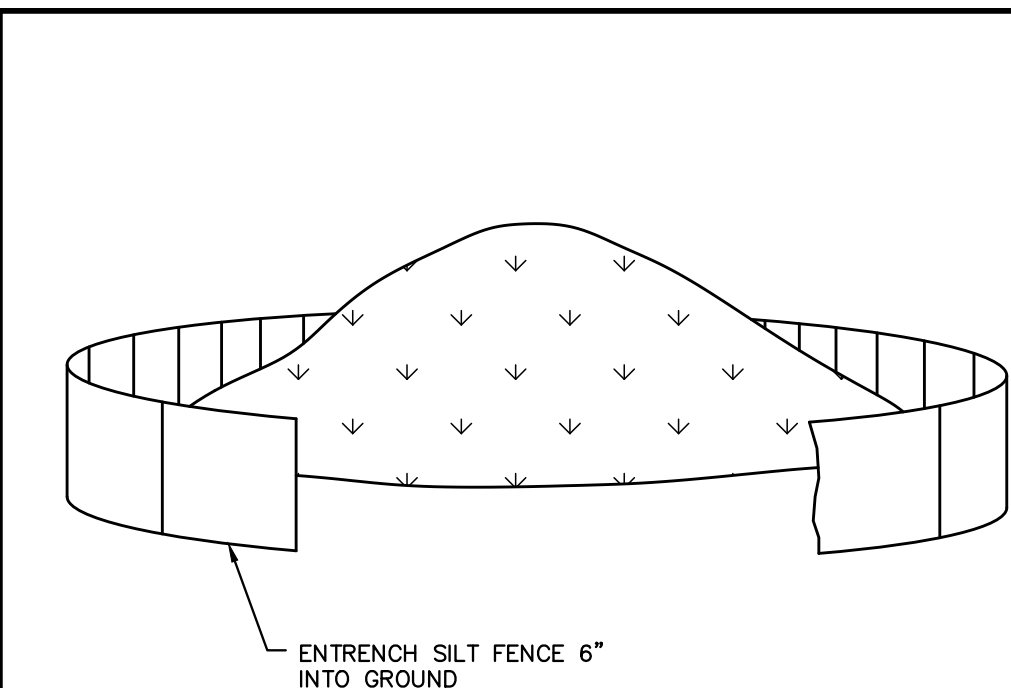
- | | |
|-----------|-------------------------------------|
| — OHW — | OVERHEAD WIRE |
| — — — — — | SEDIMENTATION CONTROL BARRIER (SCB) |
| UP | UTILITY POLE |



- 1) BIODEGRADABLE COMPOST FILTER SOCK SHALL BE 12" MIN. DIAMETER.
- 2) SOCKS TO BE FILLED WITH BIODEGRADABLE COMPOST MATERIAL.
- 3) WOODEN STAKES SHALL BE PLACED DOWNSLOPE OF THE FILTER SOCK.

SEDIMENTATION CONTROL BARRIER

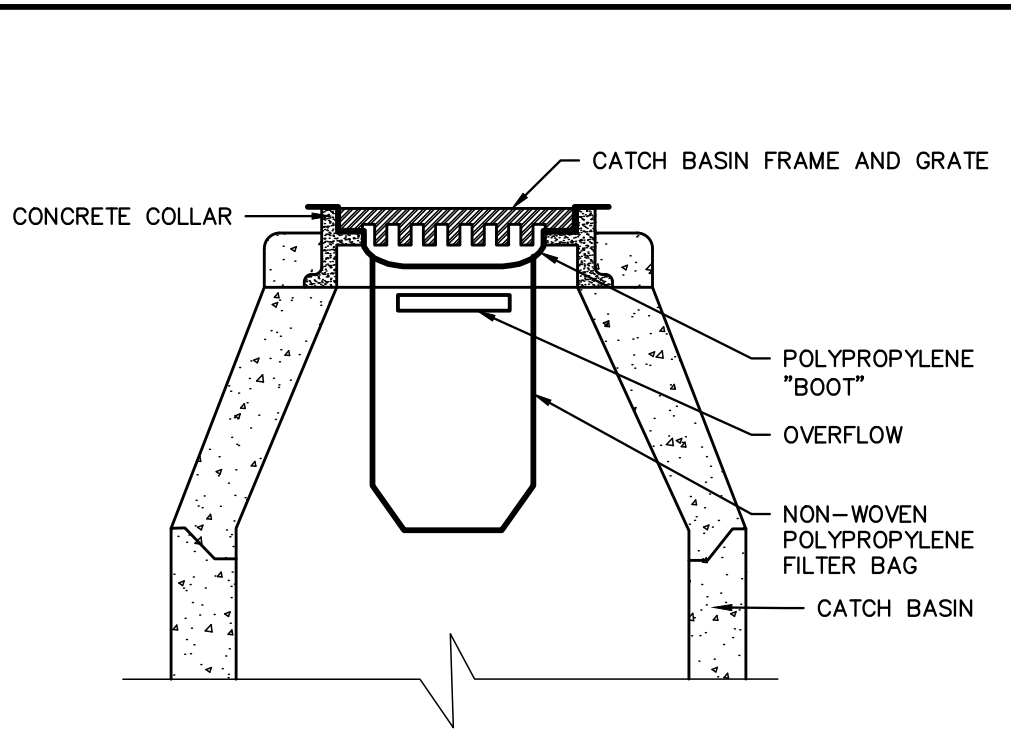
NOT TO SCALE



NOTE: CHOOSE DRY AND STABLE AREA FOR STOCKPILE.

SOIL STOCKPILE

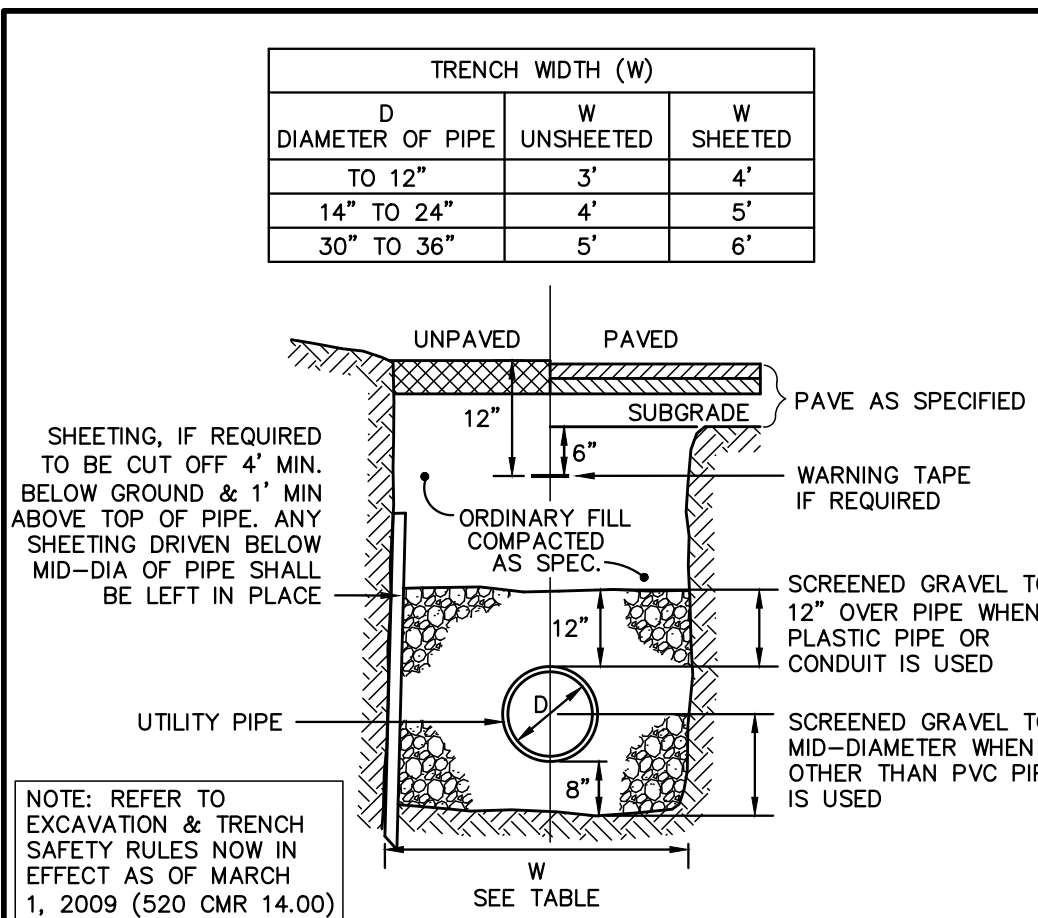
NOT TO SCALE



- NOTES:
1. TO BE INSTALLED IN CATCH BASINS IN TRAFFIC AREAS UNTIL COMPLETION OF CONSTRUCTION.
 2. BOOT ADAPTER MAY BE TRIMMED TO SIZE.

FILTER BAG

NOT TO SCALE



TRENCH WIDTH (W)		
D DIAMETER OF PIPE	W UNSHEETED	W SHEETED
TO 12"	3'	4'
14" TO 24"	4'	5'
30" TO 36"	5'	6'

UNPAVED PAVED
SUBGRADE
PAVE AS SPECIFIED
12" 6"
WARNING TAPE IF REQUIRED
ORDINARY FILL COMPACTED AS SPEC.
SCREENED GRAVEL TO 12" OVER PIPE WHEN PLASTIC PIPE OR CONDUIT IS USED
SCREENED GRAVEL TO MID-DIAMETER WHEN OTHER THAN PVC PIPE IS USED
UTILITY PIPE
D
8"
W
SEE TABLE
NOTE: REFER TO EXCAVATION & TRENCH SAFETY RULES NOW IN EFFECT AS OF MARCH 1, 2009 (520 CMR 14.00)

UTILITY TRENCH

NOT TO SCALE

PREPARED FOR:

NEXTGRID

P.O. BOX 7775 #73069
SAN FRANCISCO, CA 94120

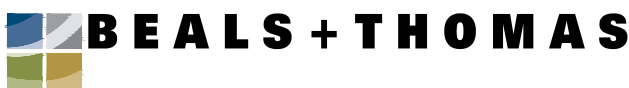


8/16/2022

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PREPARED BY:



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144 Turnpike Road
Southborough, Massachusetts 01772-2104
T 508.366.0560 | www.bealsandthomas.com

5		
4		
3		
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1		
0	08/16/2022	ISSUED FOR PERMITTING
ISSUE DATE	DESCRIPTION	
NBB	NBB	DJL
DES	DWN	CHK'D
		APP'D

PROJECT:

NEXTGRID SOLAR FACILITY

1073 MAIN STREET
MILLIS, MASSACHUSETTS

SCALE: N/A DATE: AUGUST 16, 2022

NOTES, LEGEND AND SITE DETAILS

B+T JOB NO.1566.19

B+T PLAN NO.
156619P024A-002

C1.1

BEALS AND THOMAS, INC. SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, OR PROCEDURES UTILIZED BY THE CONTRACTOR, NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES, OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC, MECHANICAL, PHOTOCOPYING, RECORDING OR OTHERWISE WITHOUT THE PRIOR WRITTEN PERMISSION OF BEALS AND THOMAS, INC. EXCEPT THAT ANY REGULATORY AUTHORITY MAY REPRODUCE AND TRANSMIT COPIES AS REQUIRED IN CONJUNCTION WITH PERFORMANCE OF OFFICIAL BUSINESS UNDER ITS JURISDICTION. ANY MODIFICATIONS TO THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF BEALS AND THOMAS, INC. SHALL RENDER IT INVALID AND UNUSABLE.



STRUCTURE	RIM/INV. ELEV.	INVERT/SUMP OR SHELVE EL.	SIZE & MATERIAL	CONNECTION
CB-1	156.31	153.06	12" RCP	DMH-1
CB-2	151.08	147.53	18" RCP	DMH-1
CB-3	150.12	146.80	12" RCP	DMH-3
CB-4	148.80	147.05	12" RCP	DMH-3
CB-5	148.39	145.14	12" RCP	DMH-4
CB-6	147.34	144.40	12" RCP	DMH-5
CB-7	147.39	144.49	12" RCP	DMH-5
DMH-1	154.68	146.30	18" RCP	CB-2
		150.70	12" RCP	CB-1
		146.50	18" RCP	DMH-2
DMH-2	149.75	145.25	18" RCP	DMH-1
		145.80	18" RCP	DMH-2
DMH-3	149.59	145.49	18" RCP	DMH-4
		145.39	18" RCP	DMH-2
		145.34	12" RCP	CB-3
		145.32	12" RCP	CB-4
DMH-4	148.52	144.32	12" RCP	CB-5
		144.32	18" RCP	DMH-3
		144.32	18" RCP	FE-1
DMH-5	147.75	144.00	12" RCP	CB-7
		144.20	12" RCP	CB-6
		144.19	18" RCP	FE-3

- 1) UNDERGROUND UTILITIES SHOWN ARE FROM OBSERVED SURFACE INDICATIONS AND ARE APPROXIMATE ONLY. BEFORE CONSTRUCTION CALL "DIG SAFE" 1-888-344-7233.
- 2) THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND PERFORMED BY GUERRIERE & HALON, INC. ON OR BETWEEN JULY 15, 2004 AND JULY 19, 2004. ADDITIONAL AREAS SURVEYED BY BEALS AND THOMAS, INC.
- 3) WETLAND RESOURCE AREAS DELINEATED BY GODDARD CONSULTING LLC, IN NOVEMBER 2020. WETLAND FLAG LOCATIONS WERE FIELD SURVEYED BY BEALS AND THOMAS, INC. ON FEBRUARY 15 THRU FEBRUARY 17, 2022.
- 4) ALL ELEVATIONS REFER TO PLAN DATUM AS SHOWN ON PLAN ENTITLED "TOPOGRAPHIC PLAN SHOWING EXISTING CONDITIONS, PROPERTY LOCATED AT 1073 MAIN STREET IN MILLIS, MASSACHUSETTS" PREPARED BY GUERRIERE & HALON INC. REVEALED NEIGHBORHOOD ELEVATION DATUM IS BASED ON FIRST FLOOR ELEVATION OF WAREHOUSE BUILDING, ELEVATION= 160.00'
- 5) LOCUS DEED REFERENCE: MASSACHUSETTS LAND COURT CERTIFICATE OF TITLE NO. 100506.
LAND COURT PLAN 29616-A
LAND IS LOCATED IN INDUSTRIAL ZONE.
- 7) LOCUS PARCELS ARE REFERENCED AS ASSESSOR'S MAP 22, PARCEL 10, AND MAP 23, PARCEL 89.
- 8) THE PARCEL SHOWN IS PARTIALLY LOCATED IN ZONE A (SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY 1% ANNUAL CHANCE FLOODING). FLOOD HAZARD ELEVATIONS DETERMINED, AS SHOWN ON "FLOOD INSURANCE RATE MAP, NORFOLK COUNTY, MASSACHUSETTS (ALL JURISDICTIONS) PANEL 161 OF 430", MAP NUMBER 2502100161E, EFFECTIVE DATE 17 JULY, 2012.
- 9) THE BUFFER ZONES SHOWN ARE A COMBINATION OF THE FOLLOWING, AND ARE SUBJECT TO THE LOCAL WETLAND PROTECTION BYLAWS AND THE MASSACHUSETTS FLOOD PROTECTION ACT. JURISDICTIONAL AREAS ARE SHOWN AS: THE 50 FOOT NO STRUCTURES ZONE (LOCAL), AND THE 100' BUFFER ZONE (STATE/LOCAL) ARE SHOWN BASED ON THE BOUNDARY OF BORDERING VEGETATED WETLANDS AND THE 100 YARD FEMA FLOOD ZONE. THE BUFFER LINES SHOWN REPRESENT THE FARTHEST REACHING BUFFER INTERIOR TO THE SITE.

A Catch
 B Drain Line/Manhole
 C Catch Basin
 D Flared End/Invert
 E Gas Line/Gate
 F Water Line/Gate
 G Hydrant
 H Post Indicator Valve
 I Telephone Line/Manhole
 J Electric Line/Manhole
 K Overhead Wire
 L Light Pole
 M Utility Pole
 N Guy Wire
 O Sign
 P Post
 Q Bollard Post
 R Hand Hole
 S Riprap

100' BUFFER ZONE
 MINOR CONTOUR
 MAJOR CONTOUR
 SPOT ELEVATION
 EDGE OF WATER
 BUILDING
 No. OF PARKING SPACES IN ROW
 BOUNDARY OF BORDERING
 VEGETATED WETLAND
 BANK/BANK FLAG
 100-YEAR FLOOD ELEVATION
 TREE LINE
 STONE WALL
 CHAIN LINK FENCE
 GRANITE CURB
 BITUMINOUS CONCRETE BERM
 TREE

1. THIS PLAN WAS COMPILED FROM THE FOLLOWING SOURCES:

- A) PLAN ENTITLED: "SITE ASSESSMENT STUDY - TOWN OF MILLIS, NORFOLK COUNTY, MA"
by: ST. LOUIS AND COMPANY, GREEN BROOK, NJ
scale: 1" = 100'
dated: 3/5/1997
- B) PLAN ENTITLED: "WATER RESOURCES INVESTIGATION - CHARLES RIVER - NATURAL VALLEY STORAGE"
by: A.C.O.E., WALTHAM, MA AND TELE'DNE GEOTRONICS, LONG BEACH, CA
scale: 1" = 200'
dated: JAN 1975
- C) PLANS ENTITLED: "CELLULAR ONE - MILLIS, MASSACHUSETTS"
by: SFC ENGINEERING PARTNERSHIP, SALEM, NH
scale: 1" = 200', 1" = 30'
dated: 8/8/1996
- D) PLAN ENTITLED: "MILLIS INTERCEPTOR - STA 58+40 TO STA 68+40"
by: ANDERSON-NICHOLS, BOSTON, MA
scale: 1" = 40'
dated: PROGRESS PRINT 12/9/1982

E) FIELD RECONNAISSANCE
by: BEALS AND THOMAS, INC.
scale: 1" = 100'
dated: 10/21/1999

F) MASS GIS DATALAYERS--NRCS SOIL BOUNDARIES AND DESIGNATIONS

G) PLAN ENTITLED: "PLAN OF LAND IN MILLIS"
by: CHENEY ENGINEERING CO.
scale: 1" = 320'
rev. dated: MAY 28, 1963

H) PLAN ENTITLED: "OFFICIAL ZONING MAP OF THE TOWN OF MILLIS, MASSACHUSETTS"
by: EARTH TECH
scale: 1" = 1000'
last amended: MAY 12, 1998

I) PLAN ENTITLED: "MILFORD TO DEDHAM--TOPOGRAPHIC MAP"
by: MOORE SURVEY & MAPPING CORP.
scale: 1" = 2400'
date: DEC. 20, 1965

NextGrid
P.O.BOX 7775 #73069
SAN FRANCISCO, CA 94120

MALEVICH, LLC
LC CERT. 173379

NOTE:
THIS PLAN IS A REDUCED VERSION OF
THE ORIGINAL AND IS NOT TO SCALE.

5			
4			
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2			
1	03/02/2022	REVISE WETLANDS	
0	06/26/2019	FIRST ISSUE	
	ISSUE DATE	DESCRIPTION	
	ATL	MEB	JRA
	FLD	CALC	CHK'D



Mark E. Benson
3/2/2022

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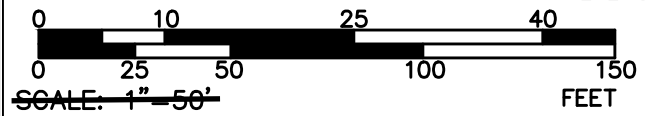
**COMPILED
TOPOGRAPHIC PLAN
1073 MAIN ST.
MILLIS, MASSACHUSETTS
(NORFOLK COUNTY)**

PREPARED BY:



BEALS AND THOMAS, INC.
144 Turnpike Road
Southborough, Massachusetts 01772-2104
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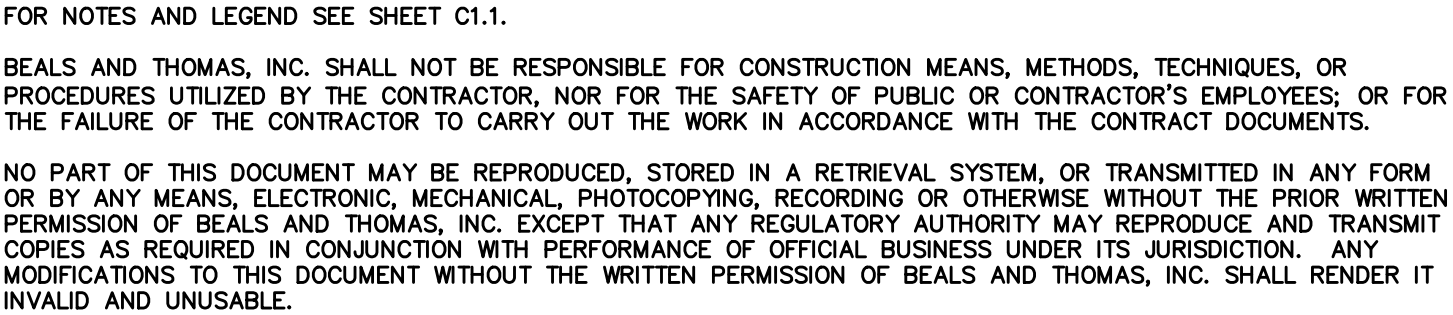
DATE: JUNE 26, 2019



B+T JOB NO. 1566.19

B+T PLAN NO.
156619P020B-00

TP-1



NEXTGRID
P.O. BOX 7775 #73069
SAN FRANCISCO, CA 94120

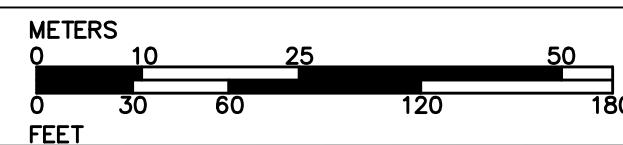


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Southborough, Massachusetts 01772-2104
T 508.366.0560 | www.bealsandthomas.com

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0	08/16/2022	ISSUED FOR PERMITTING		
	ISSUE DATE	DESCRIPTION		
	NBB	NBB	DJL	DMF
	DES	DWN	CHK'D	APP'D

**NEXTGRID SOLAR
FACILITY**
1073 MAIN STREET
MILLIS, MASSACHUSETTS

SCALE: 1" = 60' DATE: AUGUST 16, 2022

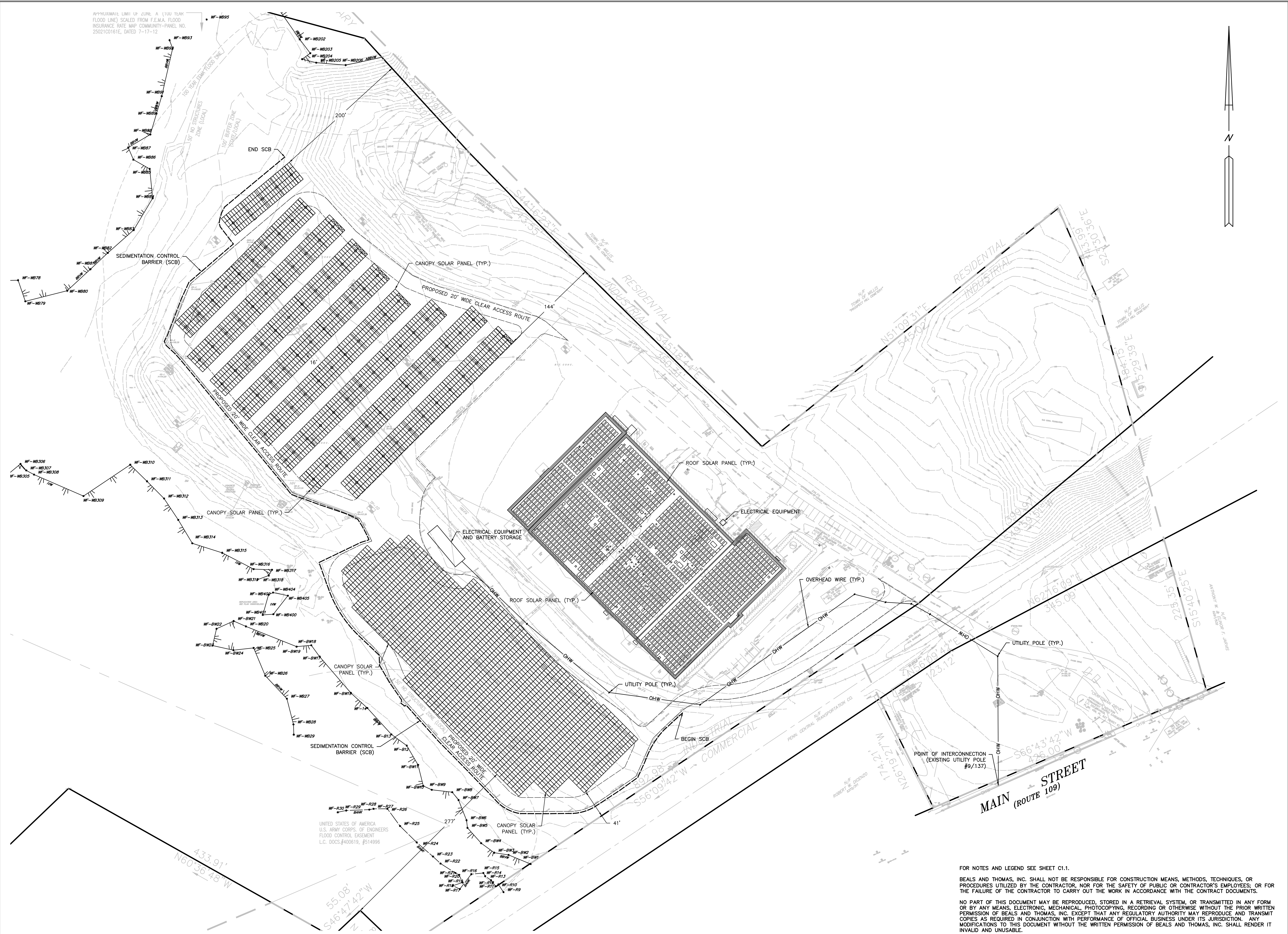


SITE PREPARATION PLAN

B+T JOB NO.1566.19

B+T PLAN NO.
156619P024A-003

C2.1



PREPARED FOR:

NEXTGRID
P.O. BOX 7775 #73069
SAN FRANCISCO, CA 94120


8/14/2022

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T 508.366.0560 | www.bealsandthomas.com

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3		
2		
1		
0	08/16/2022	ISSUED FOR PERMITTING
	ISSUE DATE	DESCRIPTION
NBB	NBB	DJL
DES	DWN	CHK'D
		APP'D

PROJECT:

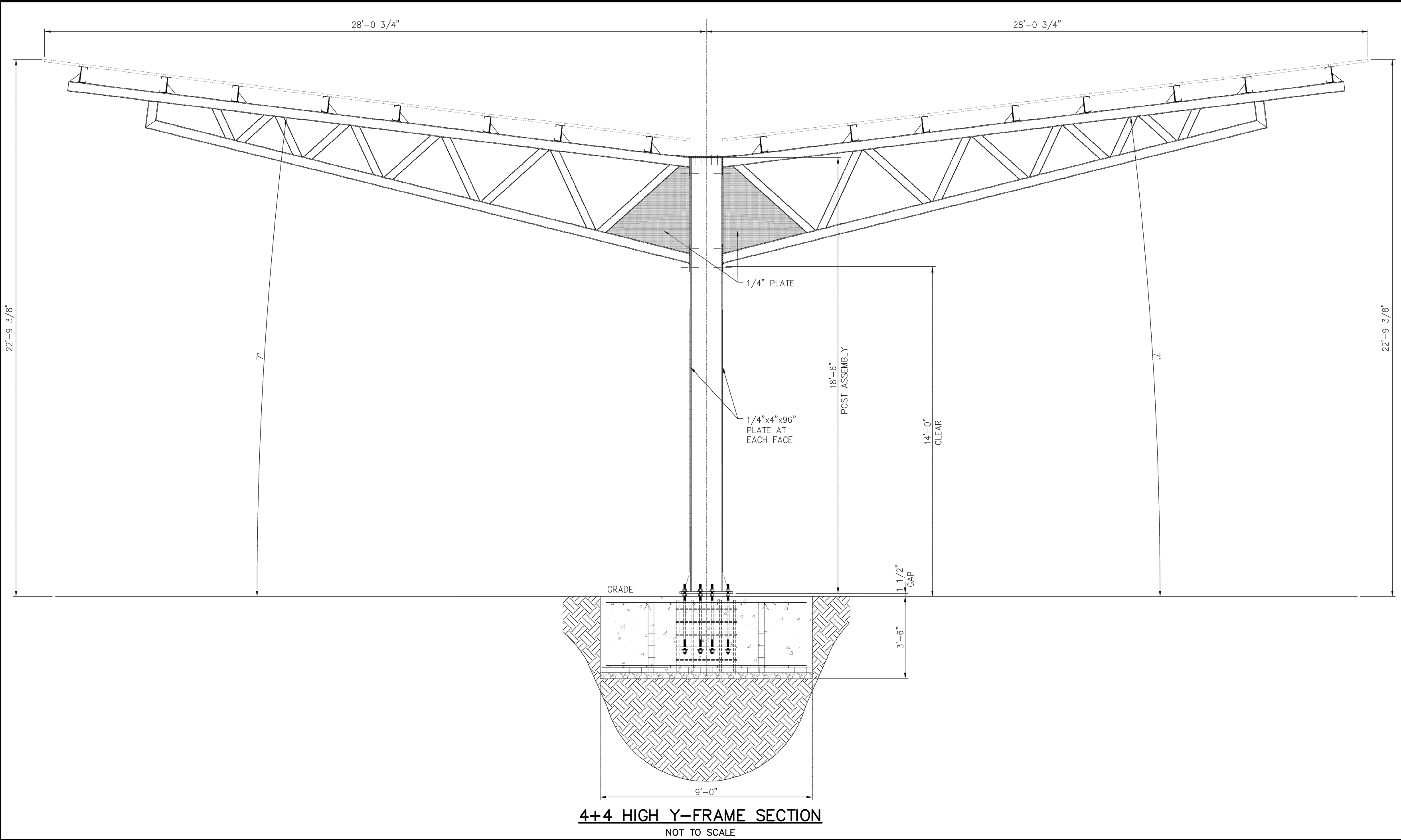
NEXTGRID SOLAR FACILITY
1073 MAIN STREET
MILLIS, MASSACHUSETTS

SCALE: 1" = 60' DATE: AUGUST 16, 2022

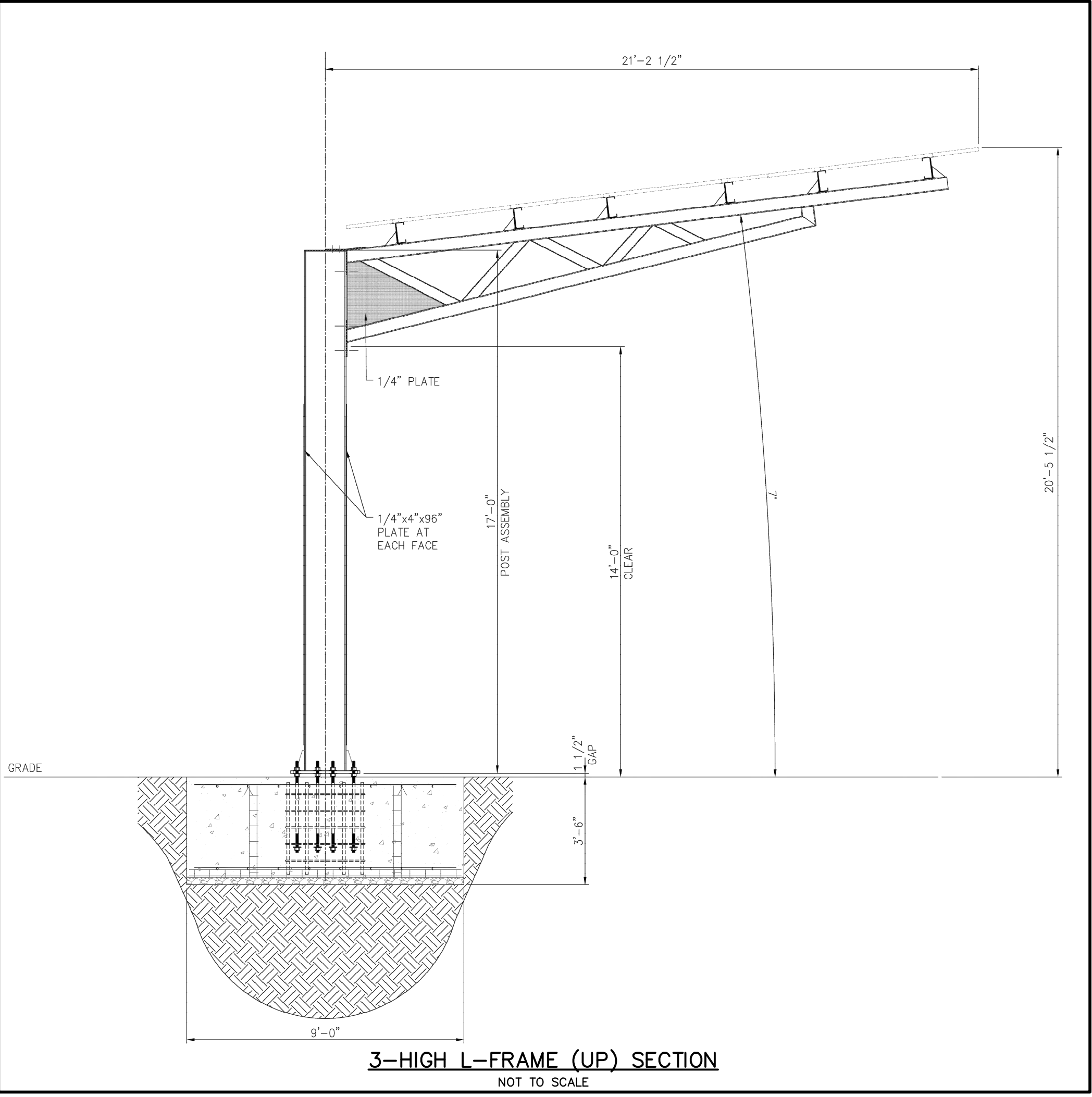
METERS
0 10 25 50
FEET
0 30 60 120 180

SITE PLAN

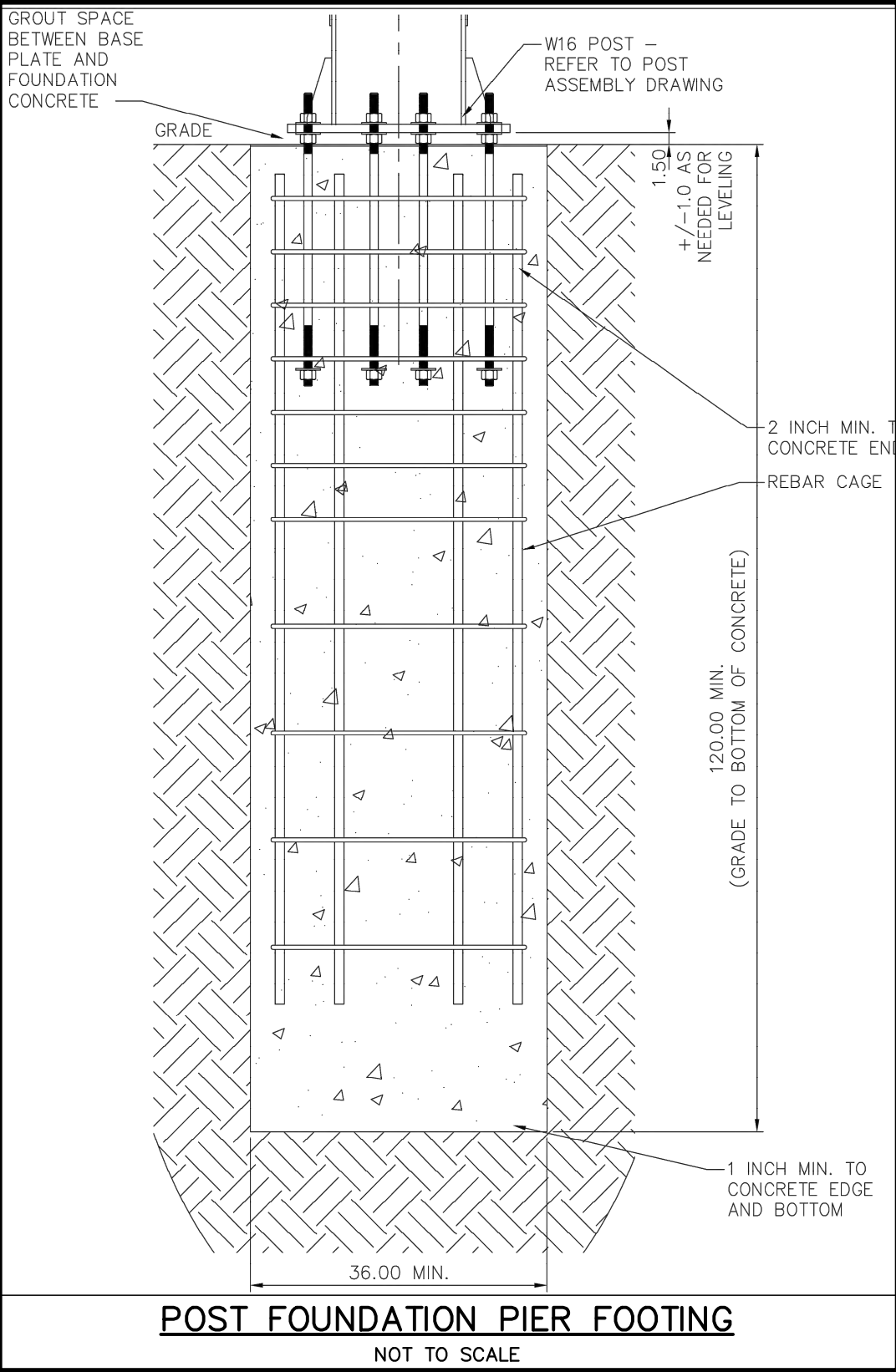
B+T JOB NO.1566.19	C3.1
B+T PLAN NO. 156619024A-004	



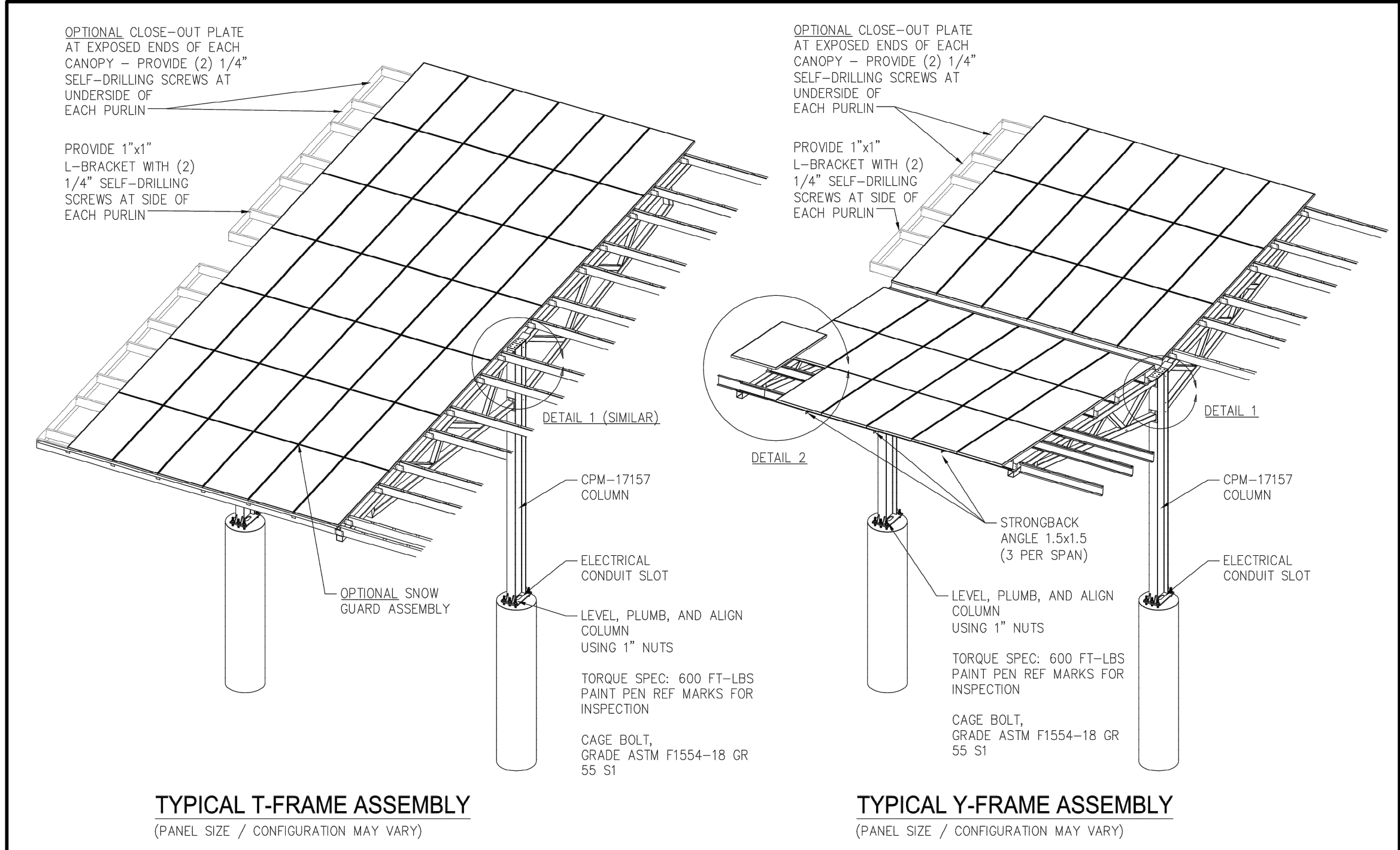
4+4 HIGH Y-FRAME SECTION
NOT TO SCALE



3-HIGH L-FRAME (UP) SECTION
NOT TO SCALE



POST FOUNDATION PIER FOOTING
NOT TO SCALE



TYPICAL T-FRAME ASSEMBLY
(PANEL SIZE / CONFIGURATION MAY VARY)

TYPICAL Y-FRAME ASSEMBLY
(PANEL SIZE / CONFIGURATION MAY VARY)

NOTE:
CANOPY DETAILS PROVIDED BY SOLAR MOUNTS LLC.

FOR NOTES AND LEGEND SEE SHEET C1.1.

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PREPARED FOR:

NEXTGRID

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SAN FRANCISCO, CA 94120

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5		
4		
3		
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1		
0	08/16/2022	ISSUED FOR PERMITTING
ISSUE DATE		DESCRIPTION
NBB	NBB	DJL
DES	DWN	CHK'D
		APP'D

PROJECT:

**NEXTGRID SOLAR
FACILITY**
1073 MAIN STREET
MILLIS, MASSACHUSETTS

SCALE: AS NOTED DATE: AUGUST 16, 2022

CANOPY DETAILS

B+T JOB NO.1566.19

B+T PLAN NO.
156619P024A-005

C4.1