

MEALS ON WHEELS COMMERCIAL : 413 CHURCH ST, NORTH SYRACUSE, NY 13212
120.64 kW DC GROUND MOUNTED PHOTOVOLTAIC SYSTEM

EQUIPMENT SUMMARY :

QTY 232 - SILFAB SIL-520 XM 520W MODULES
QTY 02 - SOLAREEDGE SE50-KUS INVERTER WITH
120 QTY OF P1101 DC POWER OPTIMIZERS

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UTILITY DETAILS :

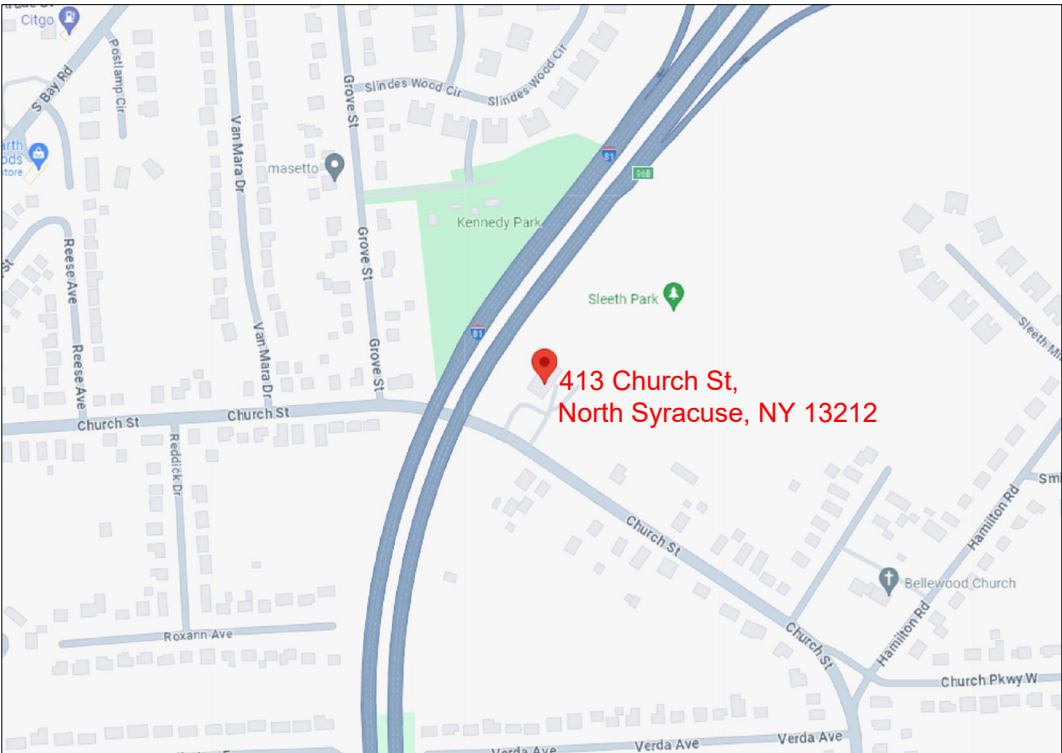
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METER#: 58505337

OWNER :

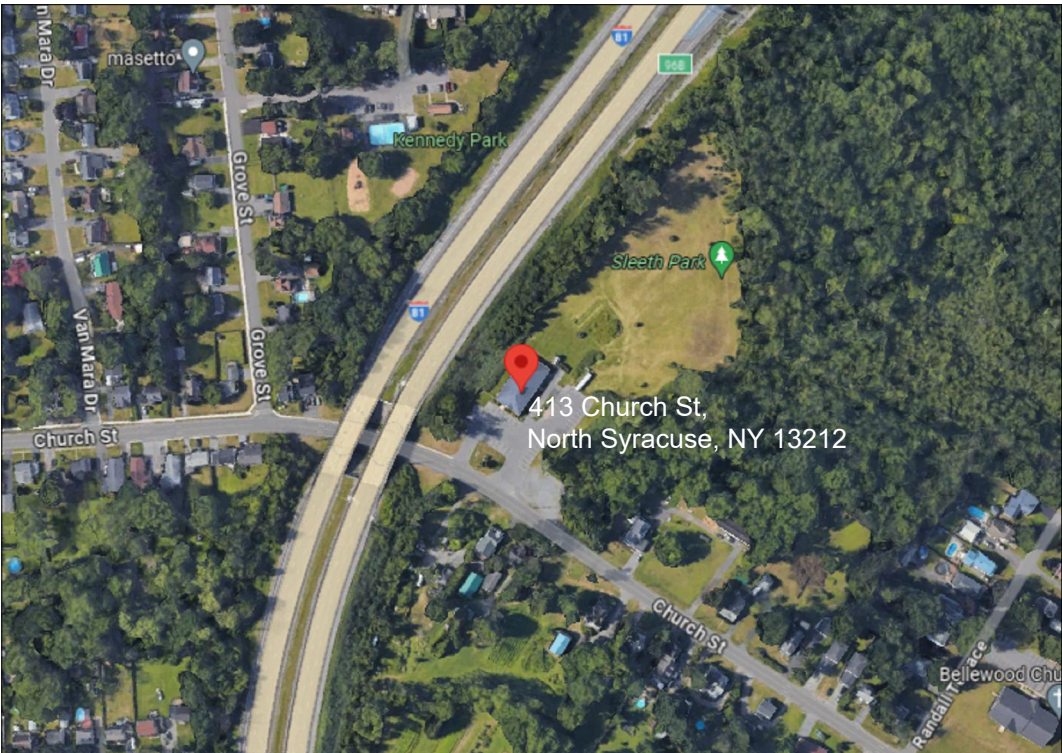
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

INSTALLER :

NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINSVILLE, NY 13027



VICINITY MAP



COMMERCIAL

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04	VP	AD	03.06.25
05	MH	AD	04.10.25
06	KK	AD	05.14.25
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ELECTRICAL CONSTRUCTION GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC (NATIONAL ELECTRIC CODE), NFPA (NATIONAL FIRE PROTECTION ASSOCIATION), AND ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES, LAWS AND REGULATIONS.
2. ALL WORK SHALL CONFORM TO APPLICABLE STATE AND FEDERAL SAFETY CODES INCLUDING OSHA . NO 'HOT' WORK IS AUTHORIZED. ALL 'HOT WORK SHALL BE APPROVED IN WRITING WITH THE GENERAL CONTRACTOR AND OWNER.
3. WORK UNDER THIS CONTRACT SHALL INCLUDE, BUT NOT BE LIMITED TO, FURNISHING, INSTALLING AND CONNECTION OF ALL ELECTRICAL EQUIPMENT AND TESTING OF ALL SYSTEMS AND SUB-SYSTEMS WITHIN THE SCOPE OF THIS CONTRACT. ANY ERRORS, OMISSION, OR UNCERTAINTY SHALL BE BROUGHT TO THE ATTENTION OF THE PRIME CONTRACTOR AND OR OWNER PRIOR TO CONSTRUCTION.
4. COORDINATE ALL WORK WITH ARCHITECTURAL, MECHANICAL AND STRUCTURAL DRAWINGS. INSTALL ALL WORK TO CLEAR NEW AND EXISTING ARCHITECTURAL AND STRUCTURAL MEMBERS. NO ITEM SUCH AS PIPE, DUCT, ETC. SHALL BE IN CONTACT WITH ANY ELECTRICAL EQUIPMENT.
5. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY AND SECURITY OF THE WORKSITE. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
6. DO NOT SCALE DRAWINGS. LARGER SCALE DRAWINGS HAVE PRECEDENCE OVER SMALL SCALE DRAWINGS. SPECIFICATIONS HAVE PRECEDENCE OVER DRAWINGS. NOTIFY THE PRIME CONTRACTOR IMMEDIATELY AFTER DISCOVERY OF ANY DISCREPANCY BETWEEN DRAWINGS, SPECIFICATIONS OR FIELD CONDITIONS.
7. NOTIFY THE PRIME CONTRACTOR OR OWNER IMMEDIATELY AFTER DISCOVERING ANY HAZARDOUS MATERIAL.
8. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. VERIFY THE EXACT LOCATIONS AND CONDITIONS OF ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS PRIOR TO ANY WORK. LOCATIONS FOR EQUIPMENT SHALL BE TAKEN FROM THE OTHER SHEETS WHERE THEY OCCUR. EXTEND WIRING FROM ALL JUNCTION BOXES, CONTROL PANELS, PUMPS, RECEPTACLES, SWITCHES, ETC. AND MAKE ALL FINAL CONNECTIONS TO EQUIPMENT AS REQUIRED.
9. THE INTENT OF THESE DRAWINGS IS FOR A COMPLETE ELECTRICAL SYSTEM. ANY ERRORS OR UNCERTAINTY SHALL BE BROUGHT TO THE ATTENTION OF THE PRIME CONTRACTOR AND ENGINEER AS SOON AS FOUND.
10. THE COMPLETE ELECTRICAL INSTALLATION SHALL BE TESTED AS A COMPLETE WORKING SYSTEM.
11. RESTORE ALL DAMAGES RESULTING FROM WORK AND LEAVE PREMISES IN CLEAN CONDITION WHEN FINISHED WITH WORK.
12. ALL TYPES OF SWITCHES, RECEPTACLES, WALL PLATES AND LIGHTING FIXTURES SHALL BE AS APPROVED BY PRIME CONTRACTOR OR OWNER. VERIFY MATERIALS AND COLOR AND LOCATIONS, SUBMIT CATALOG CUTS OR SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT.
13. ALL ITEMS ARE NEW UNLESS NOTED AS EXISTING (E).
14. REMOVE ALL INDICATED ITEMS. REMOVE ALL EXPOSED CONDUITS, REMOVE WIRES TO NEAREST CONCEALED JUNCTION BOX OR PANEL. ABANDON IN PLACE EXISTING UNUSED CONCEALED CONDUITS NOT EXPOSED BY CONSTRUCTION.
15. ALL EQUIPMENT SHALL BE SECURED IN ACCORDANCE WITH GOVERNING SEISMIC REGULATIONS. PROVIDE EXPANSION AND DEFLECTION FITTINGS IN CONDUITS REQUIRED BY NEC (NATIONAL ELECTRIC CODE).
16. FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED SURFACES. SEE DETAIL D/E5.
17. PROVIDE GROUND ROD, GROUNDING ELECTRODE AND BONDING FOR ALL SERVICE ENTRANCE EQUIPMENT, BUILDING STRUCTURAL STEEL, COLD WATER PIPE AND TRANSFORMER PER NEC (NATIONAL ELECTRIC CODE) 6' MIN. APART.
18. ALL NEW CIRCUIT BREAKER SHALL BE RATED 10,000 AIC OR HIGHER UNO.
19. ALL CONDUITS SHALL BE EMT, INTERMEDIATE METAL CONDUIT, OR RIGID STEEL. MINIMUM SIZE SHALL BE 1/2". ALL CONDUIT, BOXES AND ELECTRICAL FITTINGS SHALL BE STEEL.
20. DO NOT USE THE WORKING SPACE WITHIN ANY EXIT SIGN OR ASSOCIATED JUNCTION BOX FOR ANY OTHER CIRCUIT.
21. PROVIDE EXPANSION AND DEFLECTION FITTINGS IN CONDUITS CROSSING BUILDING EXPANSION AND SEISMIC JOINTS. SEE DETAIL E/E5.
22. PROVIDE JUNCTION AND/OR PULL BOXES WHEN NECESSARY OR REQUIRED BY NEC.
23. ALL CONDUCTORS SHALL BE COPPER, THHN, #12 AWG MINIMUM. UNLESS IN A WET LOCATION IN WHICH CASE THWN SHALL BE USED.
24. INSTALL GREEN INSULATED GROUND WIRE IN ALL CIRCUITS. SIZE PER NEC REQUIREMENTS OR THE SAME AS PHASE CONDUCTORS WHICH EVER IS LARGER. UNLESS INDICATED OTHERWISE.
25. ALL NEW WIRING, CONDUIT, AND JUNCTION BOXES SHALL BE CONCEALED WITHIN NEW WALLS, CEILINGS OR FLOOR SPACES. SURFACE MOUNT CONDUIT ON OLD WALLS AND CEILINGS. RUN ALL SURFACE RACEWAY TIGHT TO STRUCTURE, PARALLEL TO BUILDING LINES.
26. PAINT ALL EXPOSED ELECTRICAL CONDUITS AND BOXES, PATCH AND PAINT ALL SCUFF MARKS AND/OR DAMAGE RESULTING FROM CONSTRUCTION. SELECT NEW PAINT COLOR TO MATCH EXISTING PAINT COLOR.
27. NO FOREIGN EQUIPMENT SHALL BE LOCATED WITHIN THE SPACE ABOVE OR BELOW ELECTRIC PANELS.

28. PROVIDE SIGNAGE ON ALL ELECTRIC PANELS TO KEEP THE SPACE 36" IN FRONT OF THE PANELS FREE OF OBSTRUCTIONS.
29. PROVIDE WARNING LABEL ON ALL PANELS "WARNING, ELECTRICAL ARC FLASH HAZARD, PERSONAL PROTECTION, EQUIPMENT REQUIRED, FAILURE TO COMPLY CAN RESULT, IN INJURY OR DEATH, REFER TO NFPA 70E".
30. UPDATE PANEL BOARD DIRECTORY AS CIRCUITS ARE INSTALLED. PREPARE NEW TYPE WRITTEN PANEL SCHEDULES.
31. ALL EXTERIOR EQUIPMENT SHALL BE IN WEATHERP (NEMA 3R) ENCLOSURES. ALL NEW WIRING SHALL BE IN CONDUIT, SUITABLE FOR SUN EXPOSURE AND WET LOCATIONS. FIELD APPLIED COATING ARE NOT ACCEPTABLE.
32. DC SOLAR POWER SHALL BE NEGATIVELY GROUNDED.
33. ALL MARKING SHALL BE PER CODE REQUIREMENTS.
34. INVERTERS MUST COMPLY WITH UL 1741 TO PREVENT ISLANDING ON POWER FAILURE. THE INVERTER SHALL PUT NOT POWER ON TO THE GRID IF THE GRID IS OFF-LINE.
35. NOTHING IN THESE PLANS SHALL BE CONSTRUED TO CONTRADICT NEC, UL OR LOCAL CODES.
36. ALL SYSTEM COMPONENTS (MODULES AND INVERTERS ETC) SHALL BE UL LISTED.
37. MARK ALL DC CONDUIT "CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED". MARK ALL DISCONNECTS INCLUDING DISCONNECTS INCLUDED IN INVERTERS WITH "CAUTION: SOLAR CIRCUIT DISCONNECT". MARK THE MAIN SERVICE WITH "CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED". USE DURABLE MARKING WITH 3/8" WHITE LETTERS ON RED BACKGROUND.
38. MARK THE NEC REQUIRED CLEAR SPACE ON THE FLOOR IN FRONT OF ALL DEVICES BEING INSTALLED.
39. SUPPORT ALL MOUNTED CONDUIT WITH FOAM 'SLEEPERS' IN UL APPROVED SYSTEM.
40. OBTAIN THE BEST INFORMATION ON UNDERGROUND UTILITIES IN AREAS BEING TRENCHED. USE 'DIG ALERT' OR OTHER LOCATING SERVICE BEFORE DIGGING.
41. SOLAR PANELS SHALL NOT BE INSTALLED OVER ANY PLUMBING OR MECHANICAL VENTS, EXHAUSTS OR CHIMNEYS.
42. REMOVAL OF INVERTER, METER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BONDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR AND THE PHOTOVOLTAIC SOURCE AND/OR OUTPUT CIRCUIT GROUNDED CONDUCTOR.
43. AII PV MODULES AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED FROM ANY PHYSICAL DAMAGE, AND ACCESS BY UNQUALIFIED PERSONS.

STORM WATER PREVENTION NOTES:

- STORM WATER POLLUTION PREVENTION DEVICES AND PRACTICES SHALL BE INSTALLED AND/OR INSTITUTED AS NECESSARY TO ENSURE COMPLIANCE WITH THE CITY WATER QUALITY STANDARDS CONTAINED IN LOCAL REGULATIONS, FEDERAL REGULATIONS AND ANY EROSION CONTROL PLAN ASSOCIATED WITH THIS PROJECT. ALL SUCH DEVICES AND PRACTICES SHALL BE MAINTAINED, INSPECTED AND/OR MONITORED TO ENSURE ADEQUACY AND PROPER FUNCTION THROUGHOUT THE DURATION OF THE CONSTRUCTION PROJECT.
- COMPLIANCE WITH THE WATER QUALITY STANDARDS AND ANY EROSION CONTROL PLAN ASSOCIATED WITH THIS PROJECT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
1. ALL POLLUTANTS SHALL BE RETAINED ON SITE UNTIL PROPERLY DISPOSED OF, AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
2. STOCKPILES OF CONSTRUCTION-RELATED MATERIALS SHALL BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY FORCES OF WIND OR WATER FLOW.
3. TRASH AND CONSTRUCTION SOLID WASTES SHALL BE DEPOSITED INTO COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.

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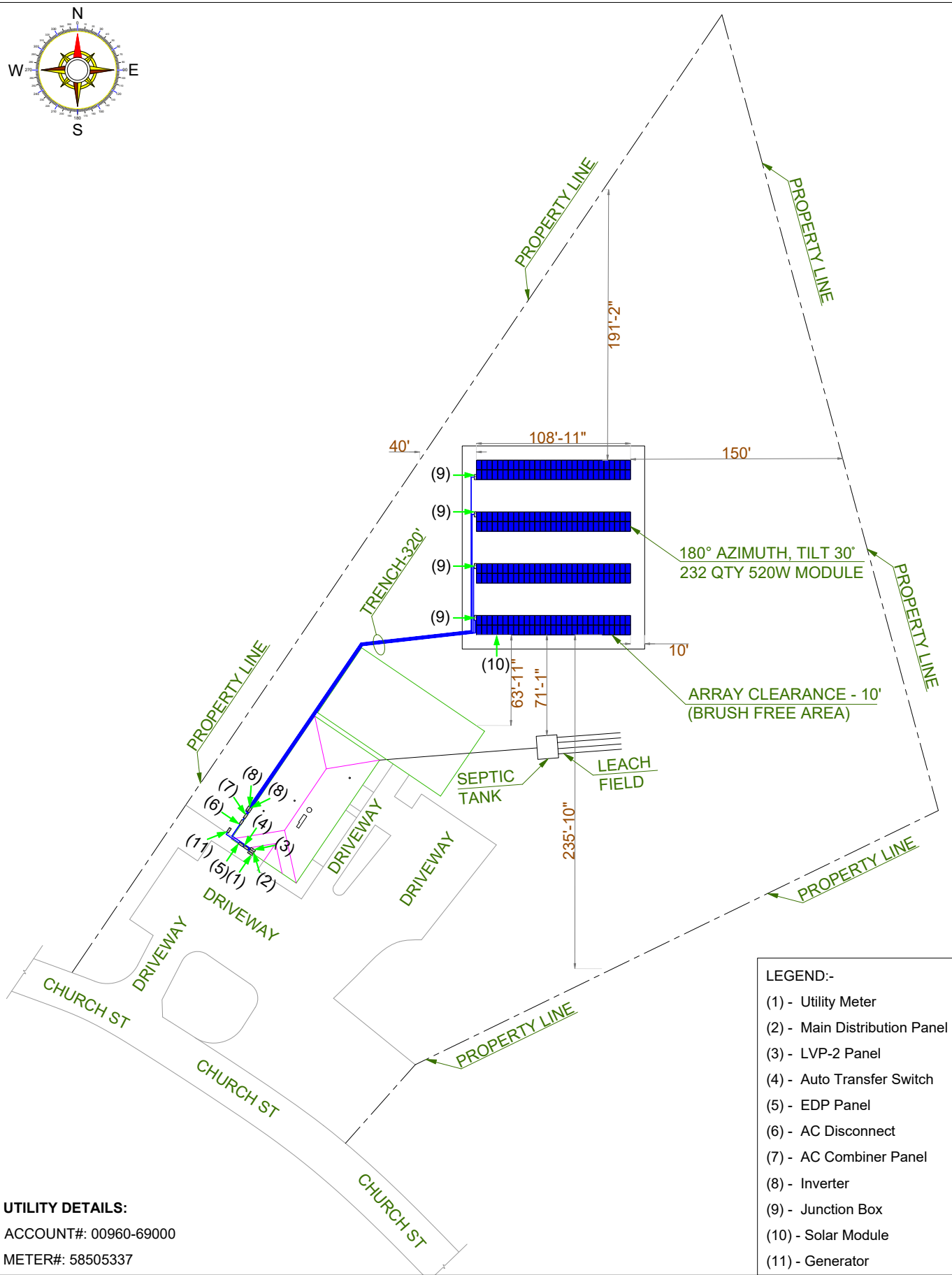
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PROPERTY MAP



PROPERTY LAYOUT

UTILITY DETAILS:
ACCOUNT#: 00960-69000
METER#: 58505337

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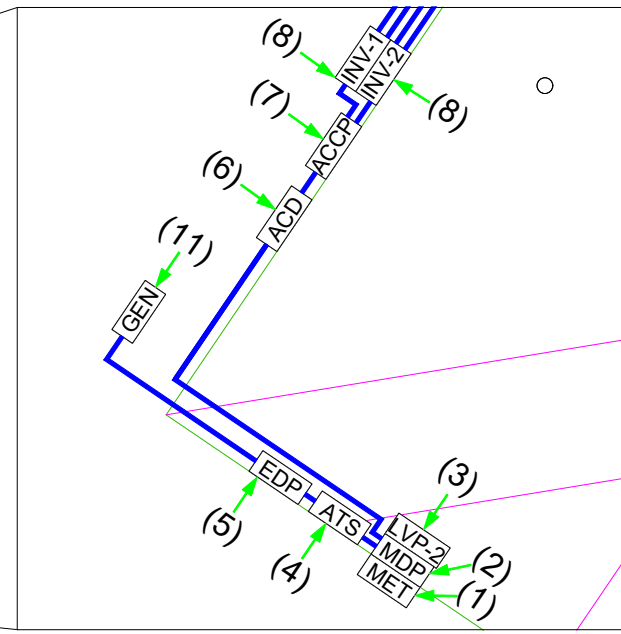
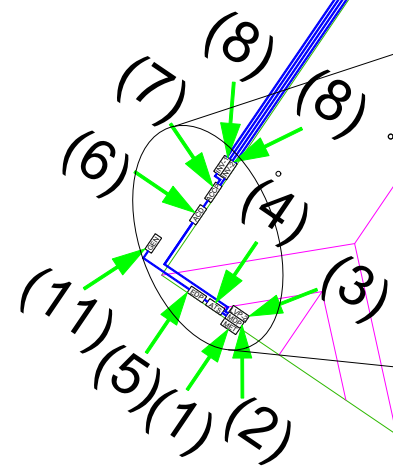
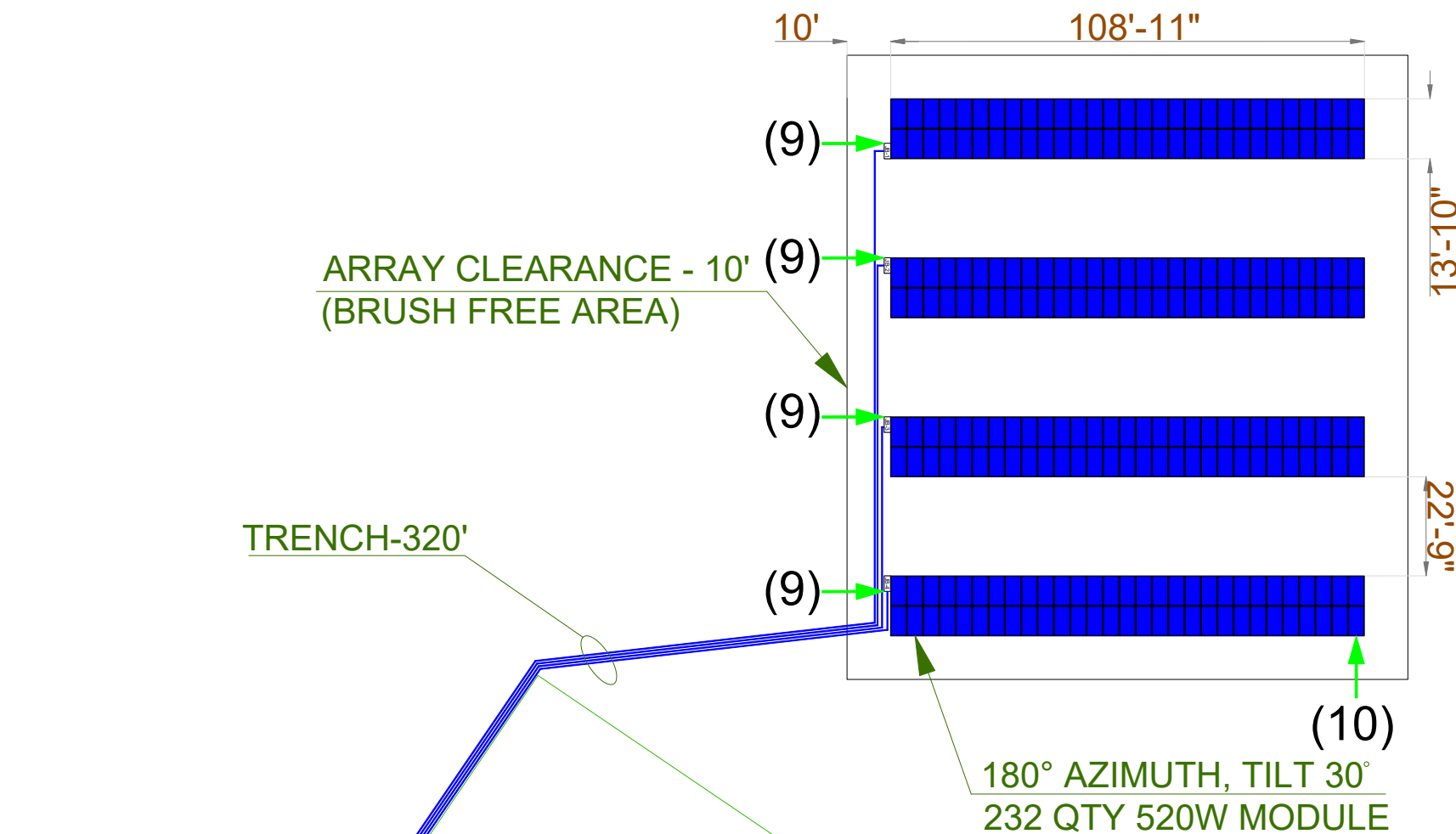
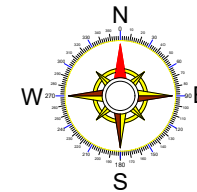
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ENLARGED VIEW

PV LAYOUT

LEGEND:-

- (1) - Utility Meter
- (2) - Main Distribution Panel
- (3) - LVP-2 Panel
- (4) - Auto Transfer Switch
- (5) - EDP Panel
- (6) - AC Disconnect
- (7) - AC Combiner Panel
- (8) - Inverter
- (9) - Junction Box
- (10) - Solar Module
- (11) - Generator

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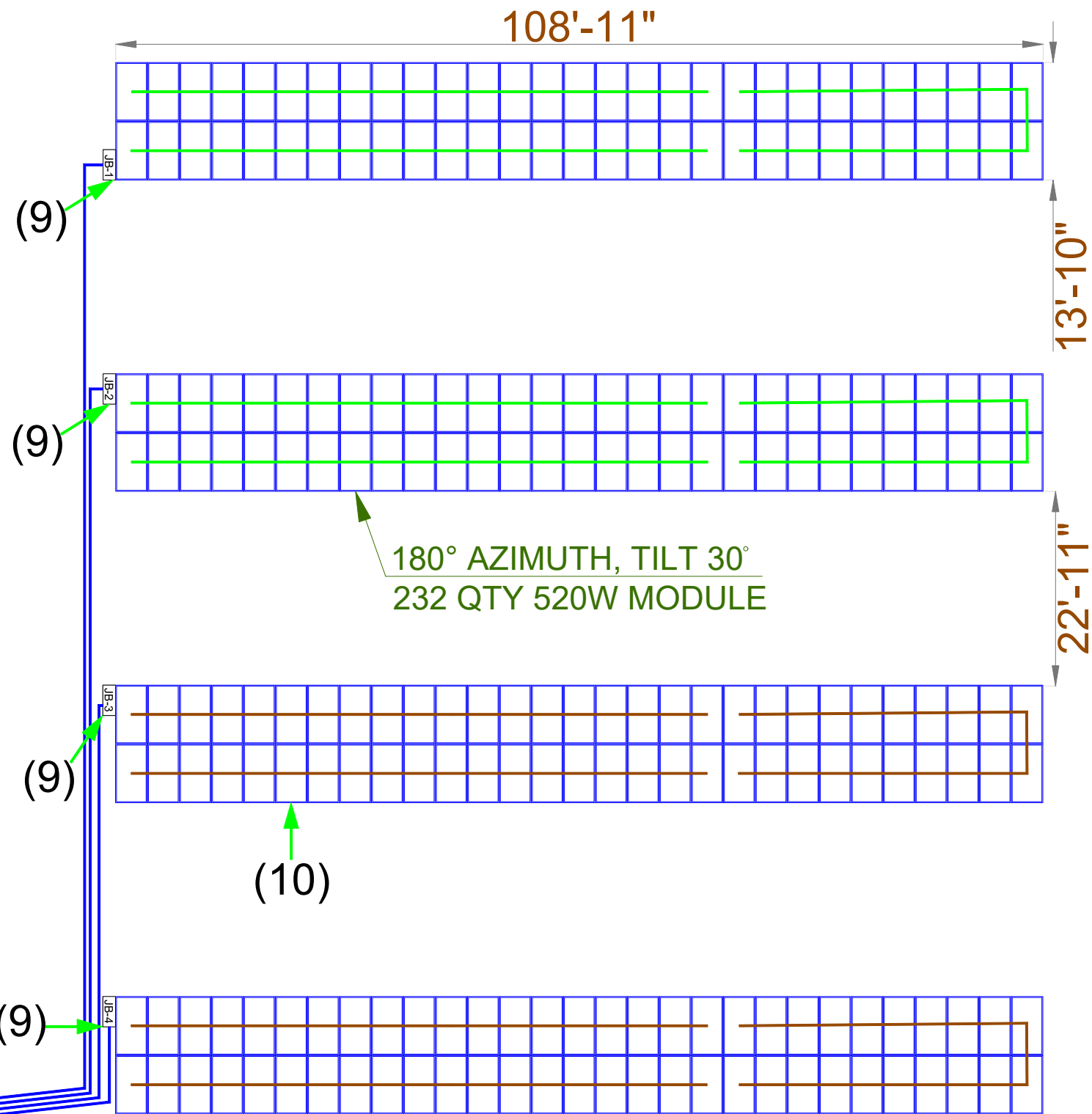
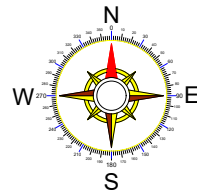


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LEGEND:-

- (1) - Utility Meter
- (2) - Main Distribution Panel
- (3) - LVP-2 Panel
- (4) - Auto Transfer Switch
- (5) - EDP Panel
- (6) - AC Disconnect
- (7) - AC Combiner Panel
- (8) - Inverter
- (9) - Junction Box
- (10) - Solar Module
- (11) - Generator

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STRING LAYOUT

ENGINEERING INPUTS

Plan Review

TOTAL NUMBER OF MODULES	232
TOTAL KW	120.64 KW

Parameters Used for Design

BUILDING CODE	ASCE 7-10
BASIC WIND SPEED	115.00 mph
GROUND SNOW LOAD	0.00 psf
RISK CATEGORY	II
SEISMIC FACTOR, SS	0.143
SEISMIC FACTOR, S1	0.062
ELEVATION	389.00 ft
WIND EXPOSURE	C
WIND ON ICE	0.00 mph
ICE THICKNESS	0.00"
FROST DEPTH	0.00 ft
VELOCITY PRESSURE, Qz	24.38 psf

Inspection

PRODUCT	GFT
MODULE MANUFACTURER	Silfab Solar
MODEL	232 - SIL-520XM BIFACIAL
MODULE WATTS	520 watts
MODULE LENGTH	82.60"
MODULE WIDTH	44.60"
MODULE THICKNESS	1.40"
MODULE WEIGHT	57.80 lbs
RAILS DIRECTION	EW
RAILS ARRANGEMENT TYPE	Four Rail
TOP CHORD LENGTH	158.59 ft
TILT	30 degrees
CLAMP SELECTION	Universal AF Clamps
FOUNDATION TYPE	Driven
PILE LENGTH ABOVE GROUND	6.24 ft
PILE LENGTH BELOW GROUND	8.76 ft
FRONT EDGE HEIGHT	2.50 ft
TOTAL PILE LENGTH	15.00 ft
MINIMUM ARRAY TO ARRAY DISTANCE IN NS DIRECTION (MODULE TO MODULE)	273.31"

(Not required for design. Calculated based on latitude, tilt, and no module shading between 10am and 2pm on Dec. 21st. Customer is responsible for final row spacing and energy production.)

MINIMUM ARRAY TO ARRAY DISTANCE IN NS DIRECTION (PILE TO PILE)	416.81"
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ENGINEERING OUTPUTS

Site Area 1 / Table Size 1 (count:4)

NUMBER OF MODULES:	58
TOTAL KW:	30.16 KW

2 X 29 ARRAY RAIL LAYOUT

246" RAIL	168" RAIL	END-OF-RUN-SCRAP
4 RAIL PER RUN	2 RAIL PER RUN	11.6 IN
E/W ARRAY DIMENSION (MODULES ONLY)	1307.40"	
E/W MAX ARRAY DIMENSION (RAIL OUT-TO-OUT)	1308.40"	
N/S ARRAY DIMENSION (HORIZONTAL DISTANCE)	143.50"	
OPTIMUM "Z" DIMENSION (PILE TO PILE)	78.00"	
OPTIMUM "W" DIMENSION (EAST AND WEST CANTILEVERS)	30.20"	

DRIVEN FOUNDATION	No. of Foundations = 17
	Available embedment length = 8.76 ft
	Maximum Lateral Shear Force = 1170.74 lbs
	Maximum Tensile Force = -1414.66 lbs
	Maximum Compression Force = 2351.20 lbs
	Maximum Moment = 6888.57 ft-lbs

*Refer to Unirac GFT Construction Details and Installation Guide for notes and installation details.
*Foundation lengths may change if a ballasted system is utilized, please contact Unirac Engineering Services for ballasted system design.

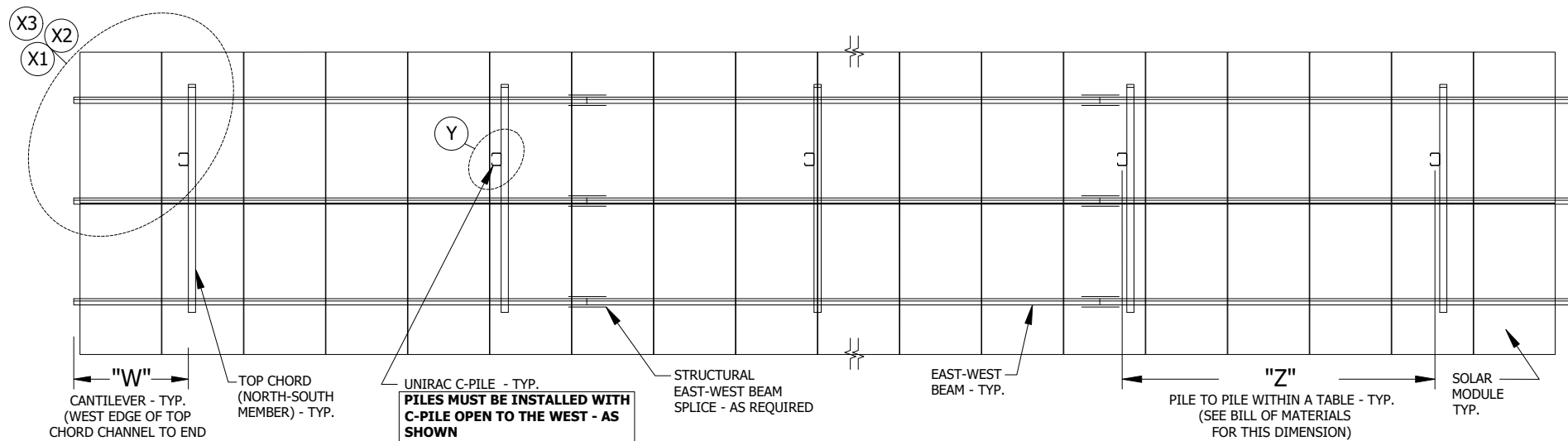
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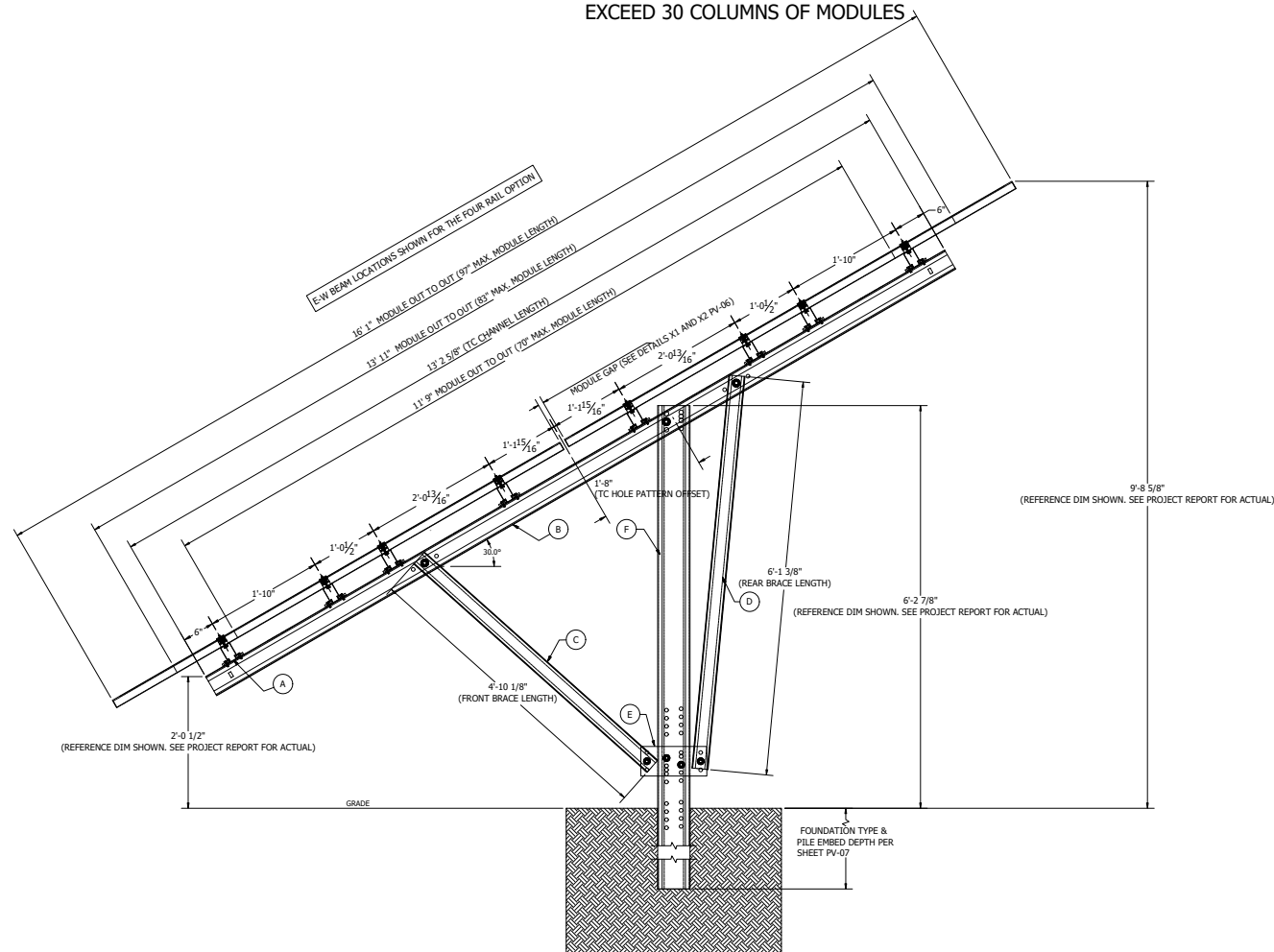


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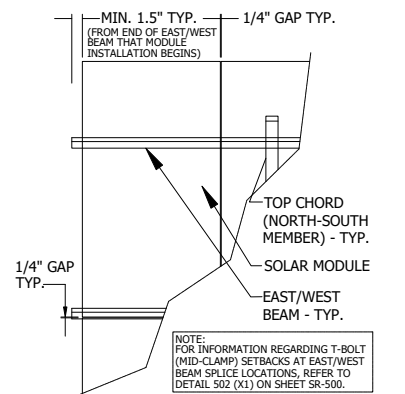


PLAN VIEW OF TABLE

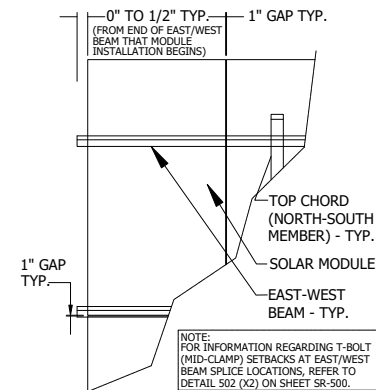
SEE SHEET 600 OR UBUILDER DESIGN OR UNIRAC BOM FOR PILE QUANTITY REQUIREMENT PER TABLE SIZE. TABLE SIZE CANNOT EXCEED 30 COLUMNS OF MODULES



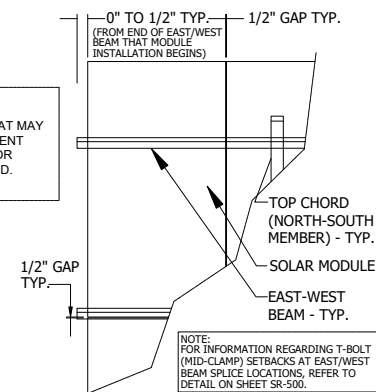
SECTION VIEW OF GFT TABLE - 30° TILT



X1 DETAILED VIEW STANDARD CLAMPS
(SEE ALSO SHEET SR-500, DETAIL 501 (X1))

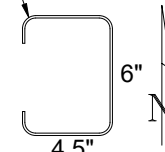


X2 DETAILED VIEW PRO SERIES CLAMPS
(SEE ALSO SHEET SR-500, DETAIL 501 (X2))



X3 DETAILED VIEW UAF CLAMPS
(SEE ALSO SHEET SR-500, DETAIL 502 (X3))

PILES MUST ALWAYS BE INSTALLED WITH C-PILES OPEN TO THE WEST



Y DETAILED VIEW

RACKING DIMENSION NOTES:

- ALL DIMENSIONS SHOWN WITH PARENTHESIS () ARE OPTIMUM DIMENSIONS THAT MAY VARY SLIGHTLY DUE TO THE FOLLOWING: INSTALLATION SYSTEM USING DIFFERENT HOLE OPTIONS, VARIANCE IN THE PILE STICK-UP HEIGHT, MODULE SELECTION, OR VARIANCE IN THE FINISHED/EXISTING GRADE. ALL OTHER DIMENSIONS ARE FIXED.

GFT PARTS LIST

REF NUMBER	PART DESCRIPTION	CATALOG #	GAUGE/ THICKNESS	FINISH
A	ALUMINUM E-W BEAM (168" OR 246")	411168M OR 411246M	SEE SHEET SD-100	
B	TOP CHORD CHANNEL	404037	SEE SHEET SD-100	
C	FRONT DIAGONAL BRACE (30°)		SEE SHEET SD-100	
D	REAR DIAGONAL BRACE (30°)	404032	SEE SHEET SD-100	
E	DIAGONAL BRACE PLATE		SEE SHEET SD-100	
F	C-PILE (12.5 FT OR 15 FT)	404001 OR 404002	SEE SHEET SD-100	

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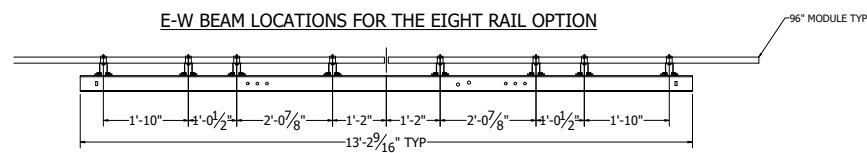
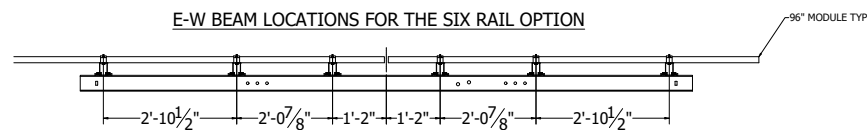
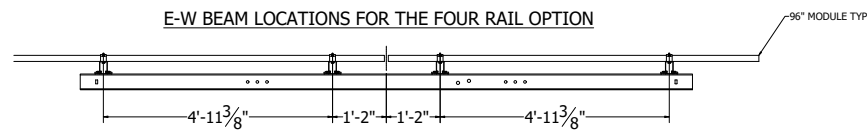
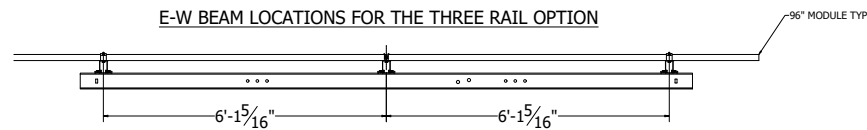
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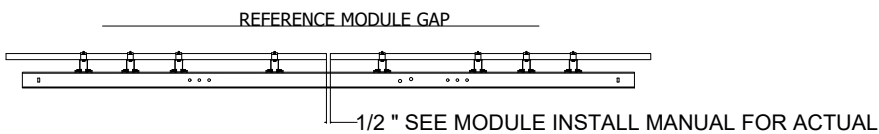
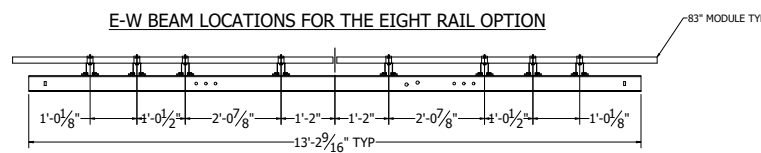
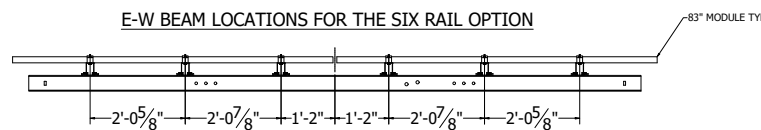
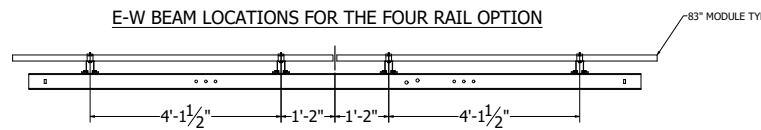
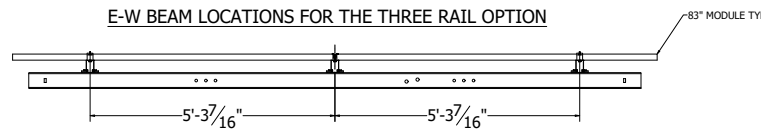
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GROUND MOUNT DETAILS-2

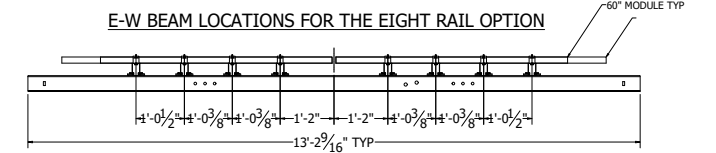
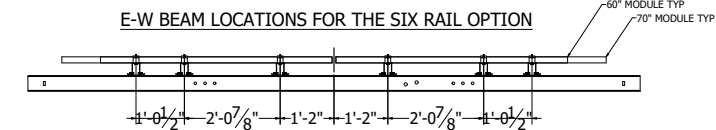
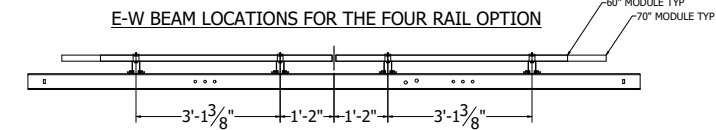
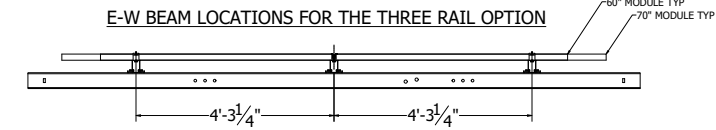
E-W BEAM LOCATIONS UP TO 96 INCH



E-W BEAM LOCATIONS UP TO 83 INCH



E-W BEAM LOCATIONS UP TO 70 INCH



GROUND MOUNT DETAILS-3

INSTALLER:

NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINVILLE, NY 13027

OWNER:

MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

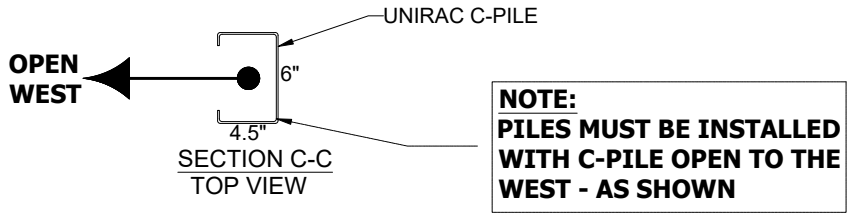
DESIGNED BY



REV	DRAWN BY	CHK'D BY	DATE
00	VP	AD	07.30.24
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20 DEGREE UNIRAC STEEL C-PILE FOUNDATION DEPTHS (REFER TO SHEET SR-200 FOR PILE STICK-UP HEIGHT) (c)		
FOUNDATION TYPE	DETAIL NUMBER	DIMENSION "C"
FULLY DRIVEN PILE (b)	403	8'-0"
(b) PILE EMBEDMENT DEPTH NEEDS TO BE VERIFIED BY PILE TESTING OR FROM A GEOTECHNICAL OR PROFESSIONAL ENGINEER.		
(c) BASED ON THE PILE STICK-UP HEIGHT FOR A STANDARD 20 DEGREE GFT TABLE, ALL PILE EMBEDMENT DEPTHS THAT ARE 8'-1" OR GREATER, REQUIRE A 15 FT LONG PILE.		

30 DEGREE UNIRAC STEEL C-PILE FOUNDATION DEPTHS (REFER TO SHEET SR-300 FOR PILE STICK-UP HEIGHT) (e)		
FOUNDATION TYPE	DETAIL NUMBER	DIMENSION "C"
FULLY DRIVEN PILE (d)	403	8'-6"
(d) PILE EMBEDMENT DEPTH NEEDS TO BE VERIFIED BY PILE TESTING OR FROM A GEOTECHNICAL OR PROFESSIONAL ENGINEER.		
(e) BASED ON THE PILE STICK-UP HEIGHT FOR A STANDARD 30 DEGREE GFT TABLE, ALL PILE EMBEDMENT DEPTHS THAT ARE 6'-4" OR GREATER, REQUIRE A 15 FT LONG PILE.		



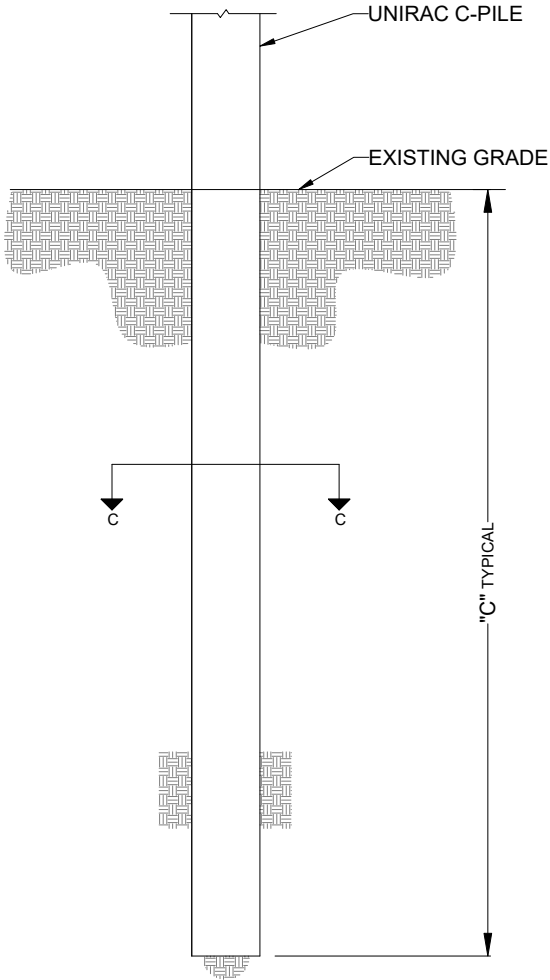
- 403 FULLY DRIVEN PILE (ALTERNATE OPTION) NOT TO SCALE
- FOUNDATION 403: FULLY DRIVEN PILE
1.

DRIVEN PILE FOUNDATIONS MAY NOT BE USED IN SOILS THAT CONTAIN SILT OR CLAY WITH GROUNDWATER WITHIN 12 FEET OF THE SURFACE UNLESS APPROVED BY A GEOTECHNICAL ENGINEER. IT IS RECOMMENDED TO VERIFY GROUNDWATER IS NOT PRESENT IF USING THIS FOUNDATION TYPE IN FROST PRONE REGIONS.
2.

PILES MUST BE INSTALLED TO THE FULL DEPTH. PILES NOT DRIVEN TO FULL DEPTH ARE CONSIDERED FAILED PILES AND A DIFFERENT FOUNDATION MUST BE UTILIZED.
3.

FOUNDATIONS MUST NOT BE INSTALLED IN ORGANIC SOILS OR IN AREAS WITH GROUNDWATER NEAR THE SURFACE.
4.

PILE EMBEDMENT MUST BE DETERMINED BY A LICENSED CIVIL ENGINEER OR BY SITE PILE TESTS.



GROUND MOUNT DETAILS-4

INSTALLER:
NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINSVILLE, NY 13027

OWNER:
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

DESIGNED BY



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00	VP	AD	07.30.24
06	KK	AD	05.14.25
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Sheet No		PV-07	
Page No		09 of 24	

INSTALLER:
NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINVILLE, NY 13027

OWNER:
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

DESIGNED BY



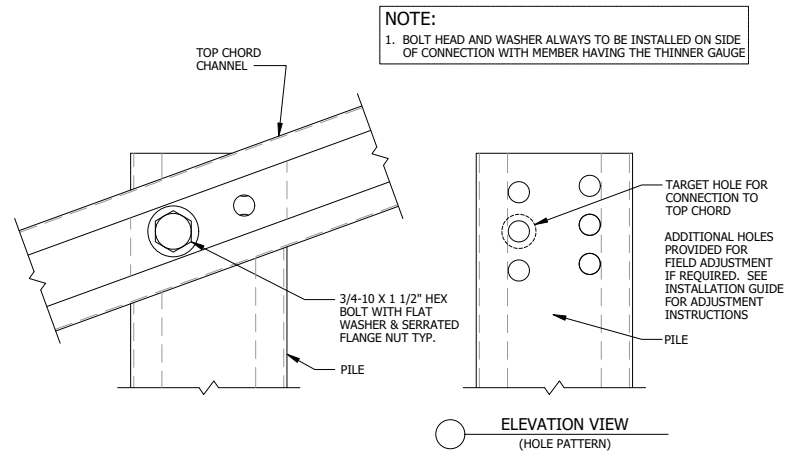
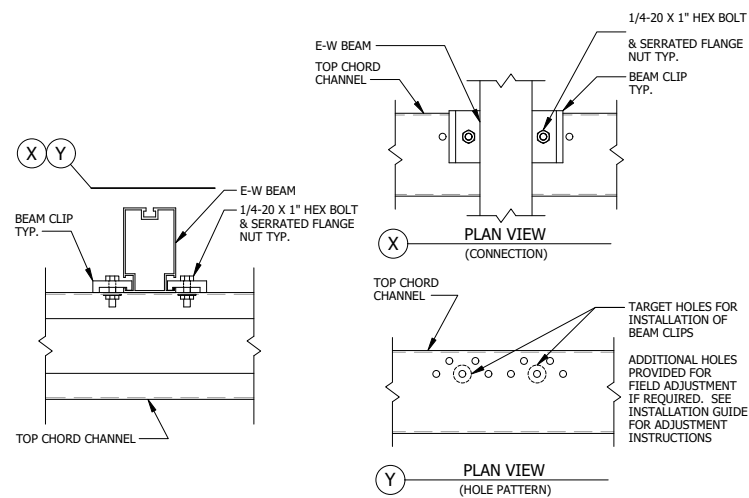
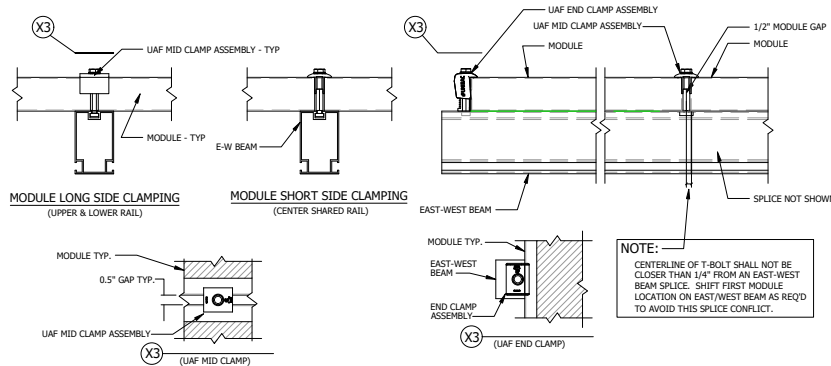
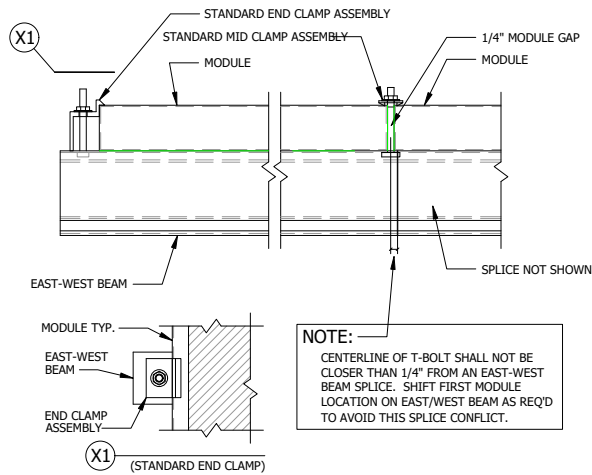
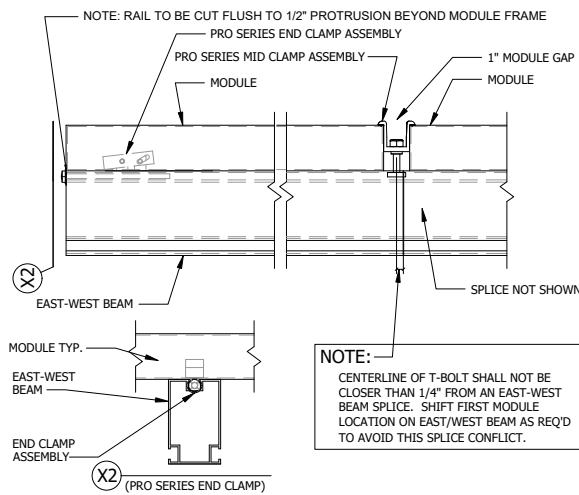
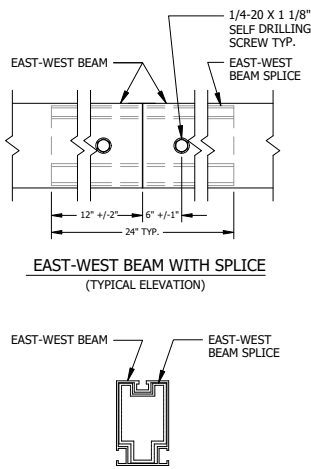
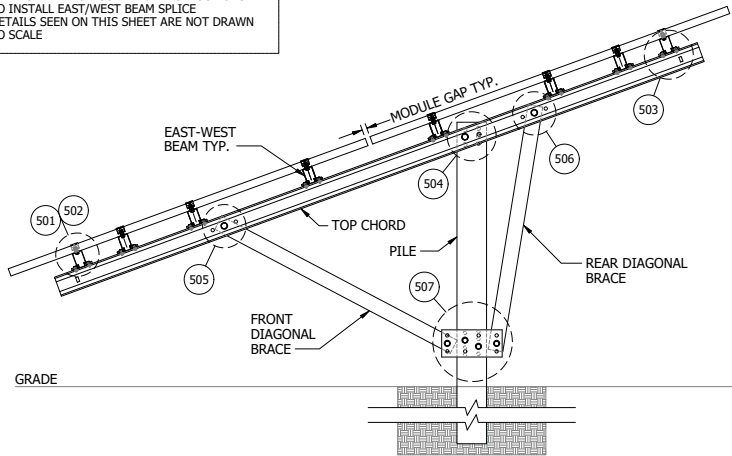
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06	KK	AD	05.14.25

Job ID / R NGS-24-09/06

Sheet No PV-08

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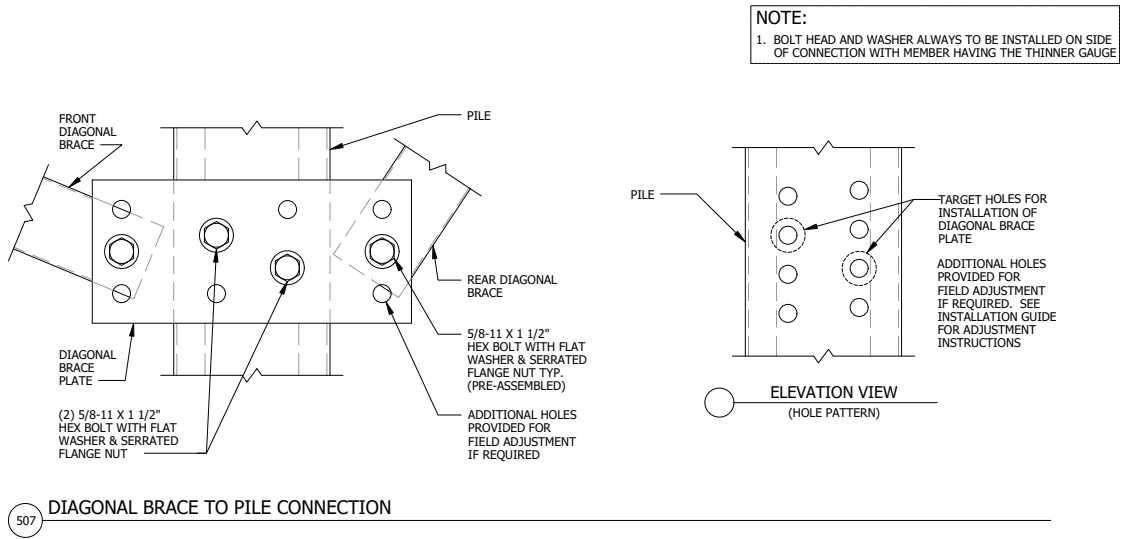
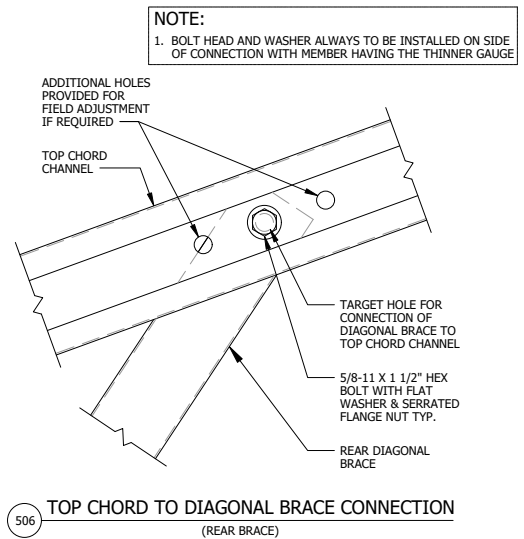
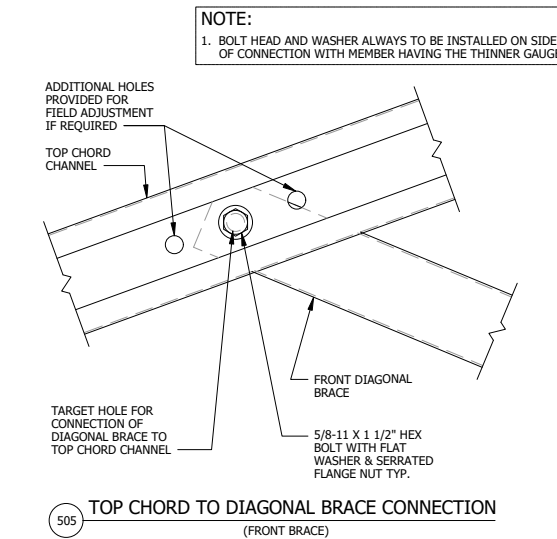
- RACKING DETAIL NOTES:**
1. SEE INSTALLATION GUIDE FOR PILE TOLERANCES
 2. SEE INSTALLATION GUIDE FOR CONNECTION ADJUSTMENT INSTRUCTIONS
 3. SEE INSTALLATION GUIDE FOR INSTRUCTIONS TO INSTALL EAST/WEST BEAM SPLICE
 4. DETAILS SEEN ON THIS SHEET ARE NOT DRAWN TO SCALE



501 MODULE TO EAST-WEST BEAM CLAMP CONNECTION

502 EAST-WEST BEAM TO TOP CHORD CONNECTION

503 TOP CHORD TO PILE CONNECTION



504 TOP CHORD TO DIAGONAL BRACE CONNECTION (FRONT BRACE)

505 TOP CHORD TO DIAGONAL BRACE CONNECTION (REAR BRACE)

506 DIAGONAL BRACE TO PILE CONNECTION

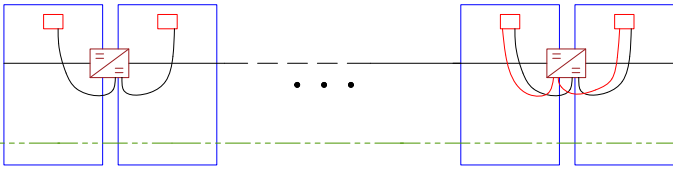
GROUND MOUNT DETAILS-5

120.64 kW DC PROPOSED PV SYSTEM SINGLE LINE DIAGRAM -1

(N)-NEW
(E)-EXISTING

PV ARRAY-1 (N)
Silfab Solar SIL-520 XM 520W Modules with P1101 DC Power Optimizer
Total strings: 3, No of Modules: 58 (520W), Total Output: 30.16 kW

STRING A - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS

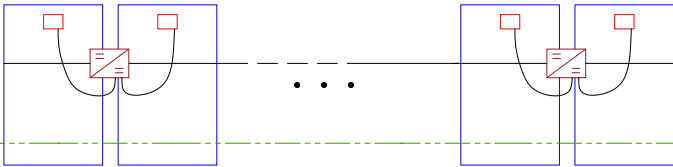


STRING B - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS

STRING C - CONTAINING 20 MODULES WITH 10 P1101 POWER OPTIMIZERS

PV ARRAY-2 (N)
Silfab Solar SIL-520 XM 520W Modules with P1101 DC Power Optimizer
Total strings: 3, No of Modules: 58 (520W), Total Output: 30.16 kW

STRING D - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS



STRING E - CONTAINING 20 MODULES WITH 10 P1101 POWER OPTIMIZERS

STRING F - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS

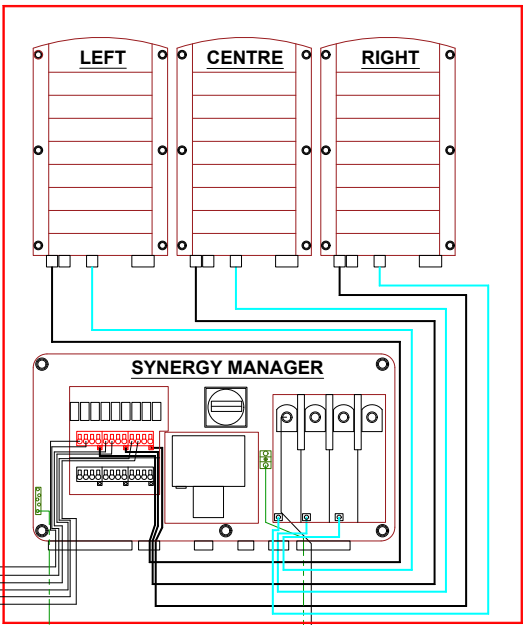
**JUNCTION
BOX-1 (N)**
NEMA 3R

1" PVC (TYP)
(6)#8 AWG XHHW-2
(1)#10 AWG Ground

**JUNCTION
BOX-2 (N)**
NEMA 3R

FREE AIR (TYP)
(6)#10 AWG PV WIRE
(1)#6 Bare Cu Ground

INVERTER-1 (N)
SOLAREEDGE SE50K-US



TO
AC Combiner
Panel
(PV-11)

2" EMT
(4)#2/0 AWG THWN-2
(1)#6 AWG Ground

INSTALLER:
NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINVILLE, NY 13027

OWNER:
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

DESIGNED BY



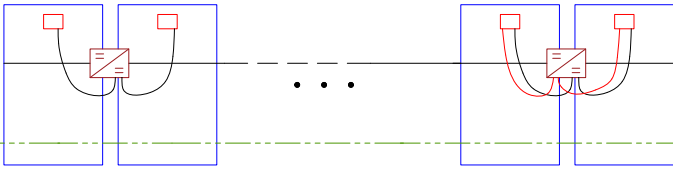
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05	MH	AD	04.10.25
06	KK	AD	05.14.25
Job ID / R			NGS-24-09/06
Sheet No		PV-09	
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120.64 kW DC PROPOSED PV SYSTEM SINGLE LINE DIAGRAM -2

(N)-NEW
(E)-EXISTING

PV ARRAY-3 (N)
Silfab Solar SIL-520 XM 520W Modules with P1101 DC Power Optimizer
Total strings: 3, No of Modules: 58 (520W), Total Output: 30.16 kW

STRING A - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS

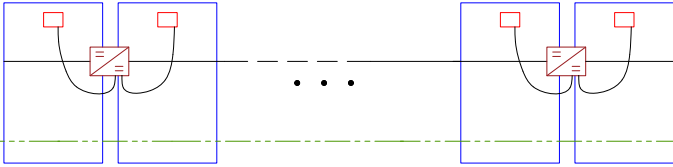


STRING B - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS

STRING C - CONTAINING 20 MODULES WITH 10 P1101 POWER OPTIMIZERS

PV ARRAY-4 (N)
Silfab Solar SIL-520 XM 520W Modules with P1101 DC Power Optimizer
Total strings: 3, No of Modules: 58 (520W), Total Output: 30.16 kW

STRING D - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS



STRING E - CONTAINING 20 MODULES WITH 10 P1101 POWER OPTIMIZERS

STRING F - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS

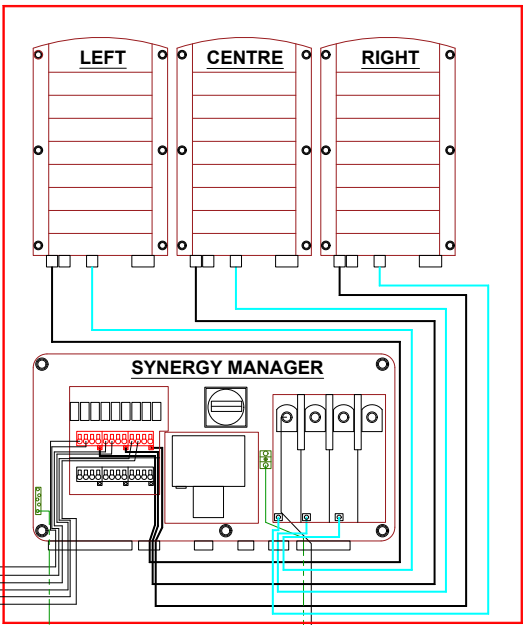
**JUNCTION
BOX-3 (N)**
NEMA 3R

1" PVC (TYP)
(6)#8 AWG XHHW-2
(1)#10 AWG Ground

**JUNCTION
BOX-4 (N)**
NEMA 3R

FREE AIR (TYP)
(6)#10 AWG PV WIRE
(1)#6 Bare Cu Ground

INVERTER-2 (N)
SOLAREEDGE SE50K-US



TO
AC Combiner
Panel
(PV-11)

2" EMT
(4)#2/0 AWG THWN-2
(1)#6 AWG Ground

INSTALLER:
NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINVILLE, NY 13027

OWNER:
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

DESIGNED BY



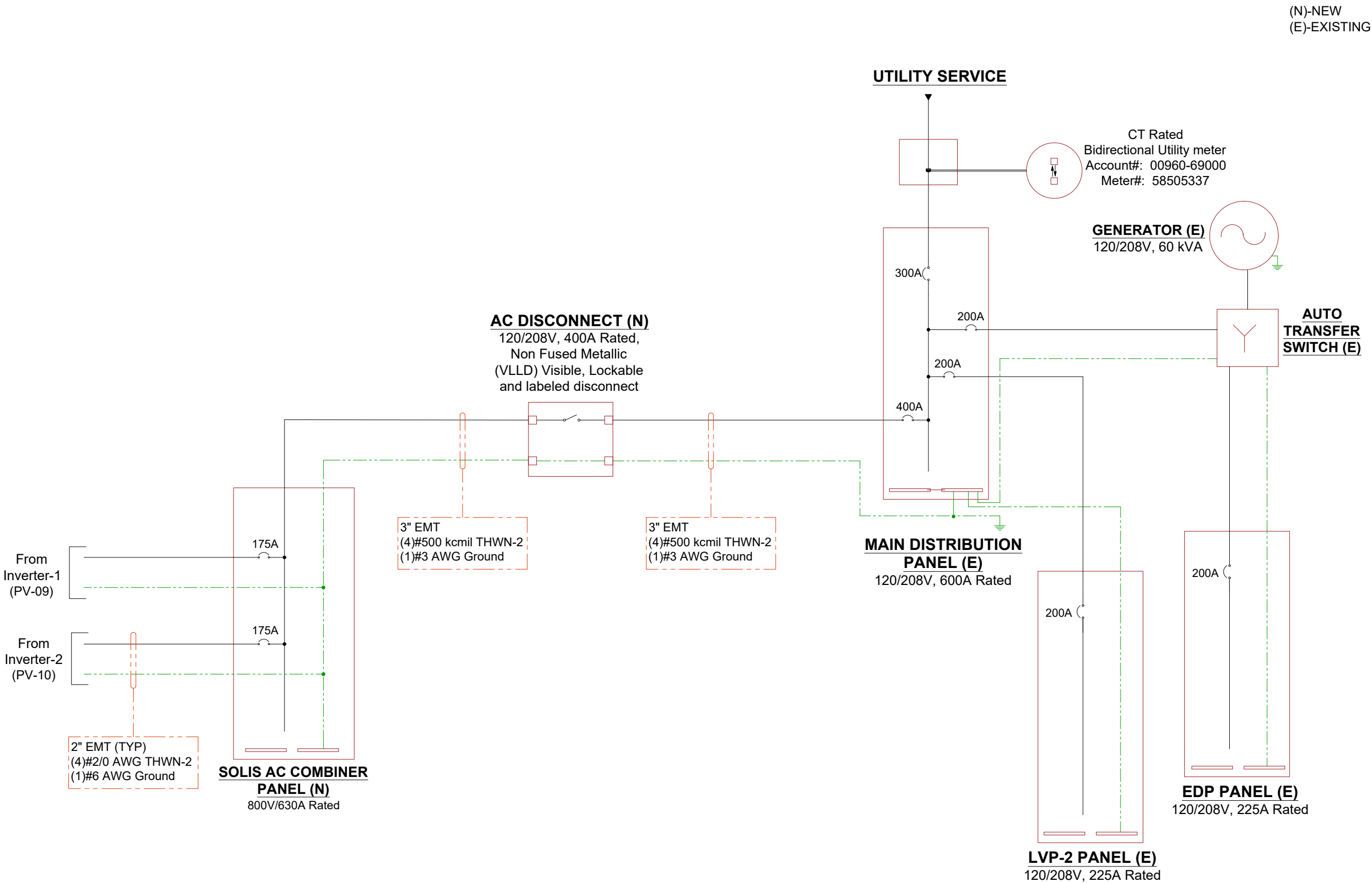
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03	JP	AD	03.04.25
05	MH	AD	04.10.25
06	KK	AD	05.14.25

Job ID / R NGS-24-09/06

Sheet No PV-10

Page No 12 of 24

120.64 kW DC PROPOSED PV SYSTEM SINGLE LINE DIAGRAM -3



Note:
The main breaker rating is derated from 600A to 300A in the Main Distribution Panel.

INSTALLER:
NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINVILLE, NY 13027

OWNER:
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

DESIGNED BY



REV	DRAWN BY	CHK'D BY	DATE
00	VP	AD	07.30.24
03	JP	AD	03.04.25
05	MH	AD	04.10.25
06	KK	AD	05.14.25

Job ID / R NGS-24-09/06

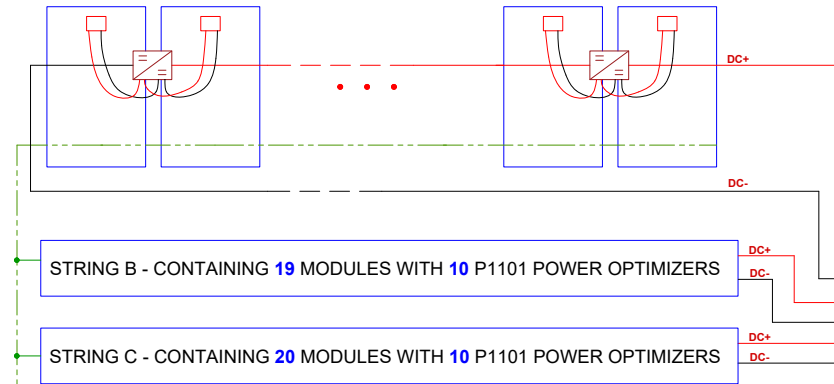
Sheet No PV-11

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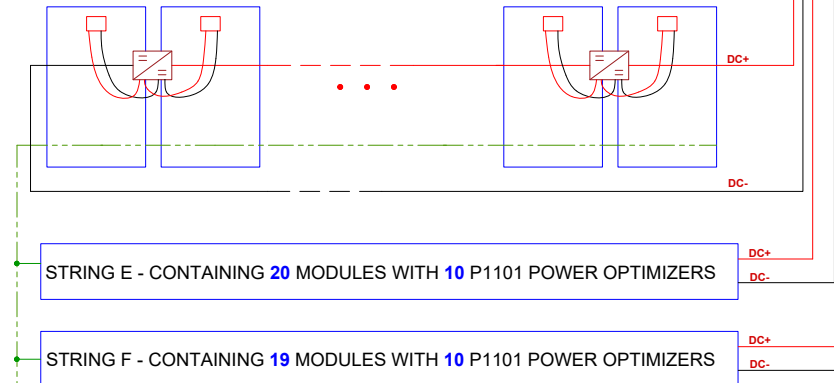
120.64 kW DC PROPOSED PV SYSTEM THREE LINE DIAGRAM -1

(N)-NEW
(E)-EXISTING

PV ARRAY-1 (N)
Silfab Solar SIL-520 XM 520W Modules with P1101 DC Power Optimizer
Total strings: 3, No of Modules: 58 (520W), Total Output: 30.16 kW
STRING A - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS



PV ARRAY-2 (N)
Silfab Solar SIL-520 XM 520W Modules with P1101 DC Power Optimizer
Total strings: 3, No of Modules: 58 (520W), Total Output: 30.16 kW
STRING D - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS



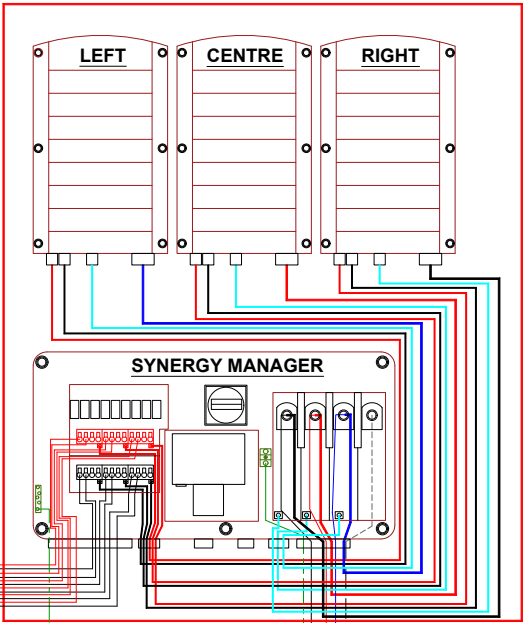
**JUNCTION
BOX-1 (N)**
NEMA 3R

1" PVC (TYP)
(6)#8 AWG XHHW-2
(1)#10 AWG Ground

**JUNCTION
BOX-2 (N)**
NEMA 3R

FREE AIR (TYP)
(6)#10 AWG PV WIRE
(1)#6 Bare Cu Ground

INVERTER-1 (N)
SOLAREDGE SE50K-US



TO
AC Combiner
Panel
(PV-14)

INSTALLER:
NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINVILLE, NY 13027

OWNER:
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

DESIGNED BY



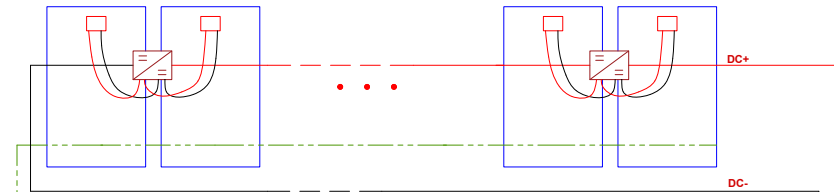
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05	MH	AD	04.10.25
06	KK	AD	05.14.25
Job ID / R			NGS-24-09/06
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120.64 kW DC PROPOSED PV SYSTEM THREE LINE DIAGRAM -2

(N)-NEW
(E)-EXISTING

PV ARRAY-3 (N)
Silfab Solar SIL-520 XM 520W Modules with P1101 DC Power Optimizer
Total strings: 3, No of Modules: 58 (520W), Total Output: 30.16 kW

STRING A - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS

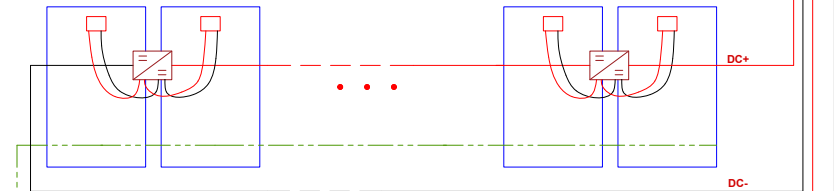


STRING B - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS

STRING C - CONTAINING 20 MODULES WITH 10 P1101 POWER OPTIMIZERS

PV ARRAY-4 (N)
Silfab Solar SIL-520 XM 520W Modules with P1101 DC Power Optimizer
Total strings: 3, No of Modules: 58 (520W), Total Output: 30.16 kW

STRING D - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS



STRING E - CONTAINING 20 MODULES WITH 10 P1101 POWER OPTIMIZERS

STRING F - CONTAINING 19 MODULES WITH 10 P1101 POWER OPTIMIZERS

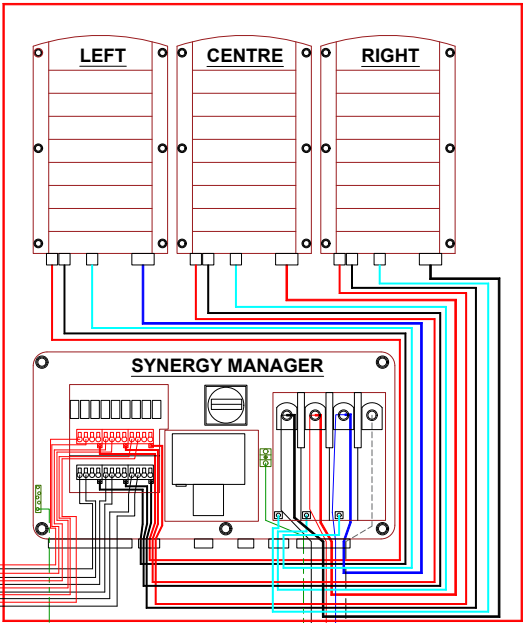
**JUNCTION
BOX-3 (N)**
NEMA 3R

1" PVC (TYP)
(6)#8 AWG XHHW-2
(1)#10 AWG Ground

**JUNCTION
BOX-4 (N)**
NEMA 3R

FREE AIR (TYP)
(6)#10 AWG PV WIRE
(1)#6 Bare Cu Ground

INVERTER-2 (N)
SOLAREDGE SE50K-US



TO
AC Combiner
Panel
(PV-14)

2" EMT
(4)#2/0 AWG THWN-2
(1)#6 AWG Ground

INSTALLER:
NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINVILLE, NY 13027

OWNER:
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

DESIGNED BY



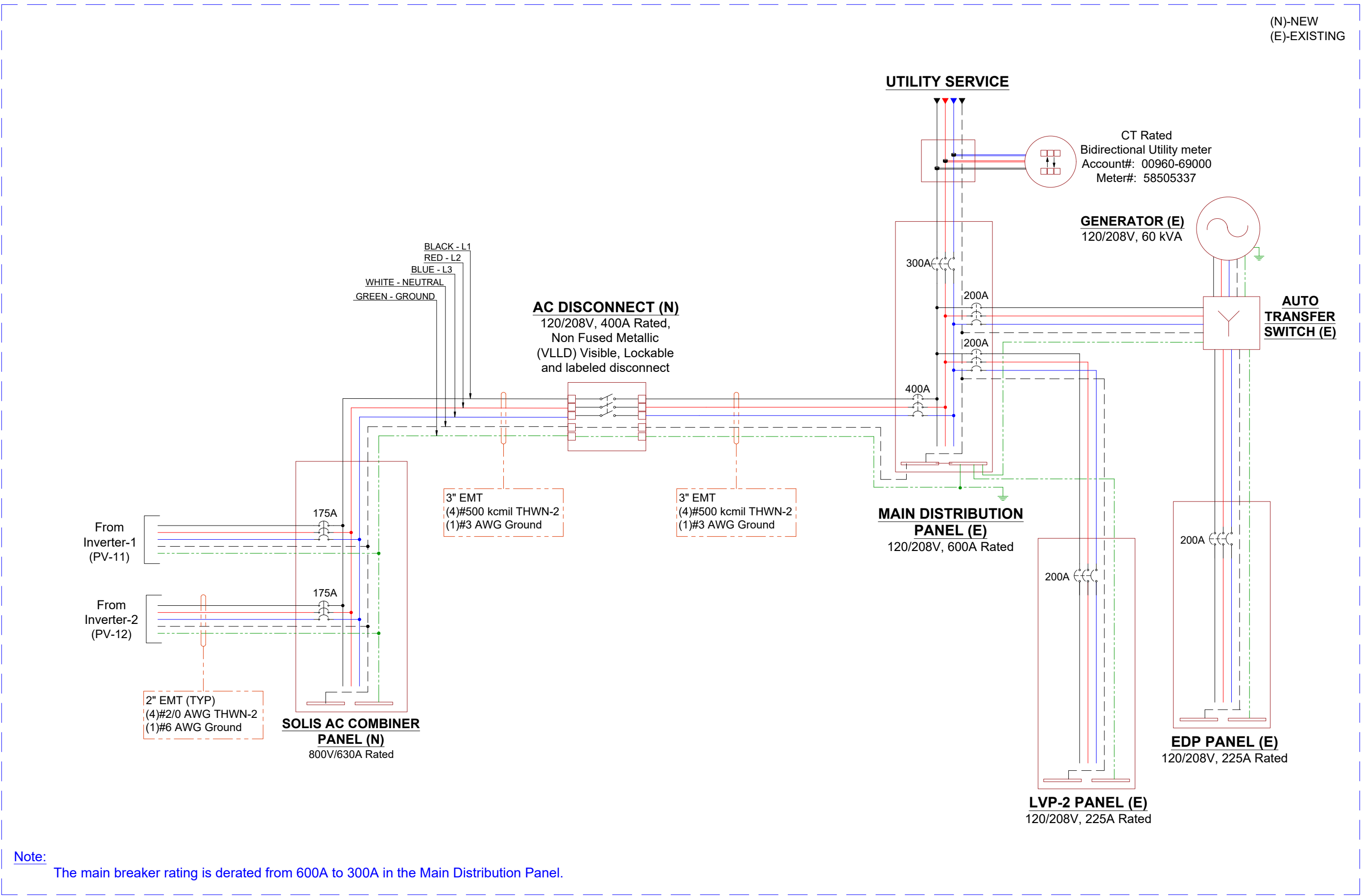
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03	JP	AD	03.04.25
05	MH	AD	04.10.25
06	KK	AD	05.14.25

Job ID / R NGS-24-09/06

Sheet No PV-13

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120.64 kW DC PROPOSED PV SYSTEM THREE LINE DIAGRAM -3



Note:
The main breaker rating is derated from 600A to 300A in the Main Distribution Panel.

INSTALLER:
NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINVILLE, NY 13027

OWNER:
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

DESIGNED BY

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REV	DRAWN BY	CHK'D BY	DATE
00	VP	AD	07.30.24
03	JP	AD	03.04.25
05	MH	AD	04.10.25
06	KK	AD	05.14.25

Job ID / R
NGS-24-09/06

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PV-14

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WIRING AND CONDUIT SCHEDULE																												
DC SCHEDULE																												
ITEM		DESCRIPTION	ID	QTY	Voc (V)	Vmpp (V) STC	Imp (A) STC	ISC (A) STC	Max Circuit current (A)	Nominal Power	Minimum Ampacity (A)	Adjusted Ampacity (A)	OCPD rating (A)	Multiple conductor Derate	Temperature Derate	Max ONE WAY LENGTH (ft)	WIRE SIZE	Wire Ampacity (A)	Derated Ampacity (A)	GROUND	WIRE TYPE	R/1000FT	V LOSS %	TEMP MAX	TOTAL NO OF CONDUCTORS	NO. OF CURRENT CARRYING CONDUCTORS	CONDUIT	
1	MODULE	SILFAB	A	232	47.52	40.48	12.85	13.65	17.06	520	21.3	22.7	25	1.00	0.76	3.5	#12 AWG	30	22.8	#6 Bare	PV	1.98	0.02%	52 C	2	2	N/A	
2	STRING WIRING	POWER OPTIMIZER TO JUNCTION BOX-1 & 2	B	6	1000	850	12.23529	18	-	10400	28.1	29.9	30	1.00	0.76	15	#10 AWG	40	30.4	#6 Bare	XHHW-2	1.24	0.32%	52 C	14	12	N/A	
3		JUNCTION BOX-1 & 2 TO INVERTER-1	C	2	1000	850	12.23529	18	-	10400	28.1	37.4	30	0.80	0.76	320	#8 AWG	55	33.44	#10 AWG	XHHW-2	0.78	2.15%	52 C	7	6	1" PVC	
4		POWER OPTIMIZER TO JUNCTION BOX-3 & 4	D	6	1000	850	12.23529	18	-	10400	28.1	29.9	30	1.00	0.76	15	#10 AWG	40	30.4	#6 Bare	XHHW-2	1.24	0.32%	52 C	14	12	N/A	
5		JUNCTION BOX-3 & 4 TO INVERTER-2	E	2	1000	850	12.23529	18	-	10400	28.1	37.4	30	0.80	0.76	270	#8 AWG	55	33.44	#10 AWG	XHHW-2	0.78	1.82%	52 C	7	6	1" PVC	
							Total Nominal Power			120640												DC DROP	2.49%					
AC SCHEDULE																												
ITEM		DESCRIPTION	ID	QTY	VOLTAGE (V)	Max Circuit Current (A)			Power	Minimum Ampacity (A)	Adjusted Ampacity (A)	OCPD rating (A)	Multiple conductor Derate	Temperature Derate	Max ONE WAY LENGTH (ft)	WIRE SIZE	Wire Ampacity (A)	Derated Ampacity (A)	GROUND	WIRE TYPE	R/1000FT	V LOSS %	TEMP MAX	TOTAL NO OF CONDUCTORS	NO. OF CURRENT CARRYING CONDUCTORS	CONDUIT		
6	AC WIRING	INVERTER-1 & 2 TO SOLIS AC COMBINER PANEL	F	2	208	139.5			50000	174.4	185.5	175	1.00	0.96	15	#2/0 AWG	195	187.2	#6 AWG	THWN-2	0.10	0.10%	33 C	5	3	2" EMT Min		
7		SOLIS AC COMBINER PANEL TO AC DISCONNECT	G	1	208	279			100000	348.8	371.0	350	1.00	0.96	5	#500 kcmil	430	412.8	#3 AWG	THWN-2	0.03	0.02%	33 C	5	3	3" EMT Min		
8		AC DISCONNECT TO MAIN DISTRIBUTION PANEL	H	1	208	279			100000	348.8	371.0	350	1.00	0.96	15	#500 kcmil	430	412.8	#3 AWG	THWN-2	0.03	0.02%	33 C	5	3	3" EMT Min		
						Total Nominal Power			100000												AC DROP	0.11%						

BILL OF MATERIAL												
REF. DES.	QTY.	MANUFACTURER	MODEL NUMBER	DESCRIPTION								
SOLAR MODULES	232	SILFAB	SIL-520 XM	SOLAR PANEL			520	W	1500	V (UL)		
		NOTES: 1. TYPE-1 UL 1703 class C										
INVERTER	2	SOLAREEDGE	SE50K-US	INVERTER			50	kW	NEMA 3R		208	V AC
		NOTES: 1. UL1741, UL 1998, UL 1699B, IEEE1547 2. DC INPUT WIRE RANGE (2) #12 to #2;										
LVP-2 PANEL	1	TBD	TBD	LVP-2 PANEL, NEMA 3R ENCLOSURE			225	A	3	Ph	208	V AC
AC DISCONNECT	1	TBD	TBD	AC DISCONNECT			400	A	3	Ph	208	V AC
		NOTES: 1. USED AS PV UTILITY/SERVICE DISCONNECT 2. LOCKABLE HEAVY DUTY SWITCH WITH VISIBLE CONTACTS, UL LISTED										
MAIN DISTRIBUTION PANEL	1	TBD	TBD	MAIN DISTRIBUTION PANEL, NEMA 3R ENCLOSURE			600	A	3	Ph	208	V AC
EDP PANEL	1	TBD	TBD	EDP PANEL, NEMA 3R ENCLOSURE			225	A	3	Ph	208	V AC
AC COMBINER PANEL	1	SOLIS	SOLIS-AC COMBINER-800V/630A	SOLIS-AC COMBINER PANEL			630	A				
AUTO TRANSFER SWITCH	1	TBD	TBD	AUTO TRANSFER SWITCH, NEMA 3R ENCLOSURE			200	A				
GENERATOR	1	TBD	TBD	TBD			60	kW	3	Ph	208	V AC

System Configuration		
Number of strings	12	QTY
Number of Modules	232	QTY
Modules Per string	4 X 20, 8 X 19	
Number of Inverter	2	QTY
Module Model	SIL-520 XM	
Inverter Model	SE50K-US	
PV Service Disconnect	400	A
DC Watts STC	120640	W
Max AC output Current	279	A
Operating AC Voltage	208	V

PV System DC Disconnect				
Operating Current	6	X	12.235	A DC
Operating Voltage	850			V DC
Max.System Voltage	1000			V DC
Short Circuit Current	6	X	18.00	A DC
Label Located on Inverter / DC Disconnect				

Module Rating Specs		
SILFAB		
SIL-520 XM		
Pmax -	520	Wp
Vmp -	40.48	V
Imp -	12.85	A
Voc -	47.52	V
Isc -	13.65	A

Inverter Rating Specs		
SOLAREEDGE	SE50K-US	
Nominal Input	139.5	A DC
Max.Short Circuit I/P	174.375	A DC
Output Voltage	208	V AC
Imax	139.5	A AC
Inec	174.375	A (@125%)
Outdoor	NEMA 3R	Enclosure
UL1741 / IEEE 1547		

INSTALLER:
NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINSVILLE, NY 13027

OWNER:
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

DESIGNED BY



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SYSTEM LABELING DETAIL:

All Plaques and signage required by the 2017 edition will be installed as required. Placards consist of white lettering on red background with text written in capitol lettering a minimum of 3/8" in height on plastic Engraved placards.

Alternate Power Source Placard shall be metallic or plastic with engraved or machine printed letters in a contrasting color to the plaque, include the location of meter, disconnects, inverter, the array and a footprint of the entire building and site. This plaque will be attached by pop rivets, screws or other approved fasteners. If exposed to sunlight, it shall be UV resistant.

Photovoltaic DC conductors entering the building shall be installed in a metallic raceway and shall be identified every 5 feet -- and within 1 foot of turns or bends and within 1 foot above and below penetrations of roof/ceiling assemblies, walls, or barriers labeled

“Caution Solar Circuit” or equivalent Examples of all required warning labels per NEC and CEC 690 below:

SIGNAGE REQUIREMENT :

RED BACKGROUND .WHITE LETTERING. ("WARNING"-3/8" LETTERS).ALL CAPITAL LETTERS.ARIAL OR SIMILAR FONT . WEATHER - RESISTANT MATERIAL,UL 969.

DC DISCONNECT WARNING

PHOTOVOLTAIC SYSTEM

⚡

DC DISCONNECT

⚡

RATED OPERATING CURRENT

73.41 A

RATED OPERATING VOLTAGE

850 V

MAX RATED OPERATING VOLTAGE

1000 V

RATED SHORT CIRCUIT CURRENT

108 A

PLACE ON : DC DISCONNECT / BREAKER / DC COMBINER BOX

⚡

WARNING

⚡

ELECTRIC SHOCK HAZARD

TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

DC VOLTAGE IS ALWAYS PRESENT
WHEN SOLAR MODULES
ARE EXPOSED TO SUNLIGHT

PER NEC 690.13(B)

PLACE ON: DC JUNCTION BOXES\ DC COMBINER BOXES

⚡

WARNING

⚡

TURN OFF PHOTOVOLTAIC
AC DISCONNECT PRIOR TO
WORKING INSIDE PANEL

PER NEC 110.27(C)

DC LABELS

PLACE ON: DC JUNCTION BOXES\ DC COMBINER BOXES

PHOTOVOLTAIC
DC DISCONNECT

PER NEC 690.13(B)

PLACE ON: DC JUNCTION BOXES\ DC COMBINER BOXES

⚡

WARNING

⚡

ELECTRIC SHOCK HAZARD

TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

PER NEC 690.13(B)

AC DISCONNECT WARNING

PLACE ON: AC DISCONNECT/ INVERTER/ BREAKER PANEL

PHOTOVOLTAIC SYSTEM

⚡

AC DISCONNECT

⚡

RATED AC OUTPUT CURRENT

279 A

NOMINAL OPERATING AC VOLTAGE

208 V

PER NEC 690.54

PLACE ON: AC DISCONNECT/ BREAKER PANEL

⚡

WARNING

⚡

ELECTRIC SHOCK HAZARD

TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

PER NEC 690.13(B)

PLACE ON : AC DISCONNECT / BREAKER /
POINTS OF CONNECTION

PHOTOVOLTAIC
AC DISCONNECT

PER NEC 690.13(B)

PLACE ON : MAIN SERVICE DISCONNECT /
UTILITY METER

MAIN PV SYSTEM
DISCONNECT

"PV System Disconnect "
PER NEC 690.13(B)

PLACE ON : PRODUCTION / NET METER

⚡

WARNING

⚡

DUAL POWER SOURCE
SECOND SOURCE IS
PHOTOVOLTAIC SYSTEM

PER NEC 705.12(D)(3) & NEC 690.59

CAUTION

SOLAR ELECTRIC SYSTEM
CONNECTED WITH SOURCE AND
DISCONNECTS AS SHOWN

SOLAR PHOTOVOLTAIC

JUNCTION BOX-1

JUNCTION BOX-2

JUNCTION BOX-3

JUNCTION BOX-4

AC DISCONNECT

INVERTER-1

INVERTER-2

GENERATOR

LVP-2 PANEL

MAIN DISTRIBUTION PANEL

UTILITY METER

AUTO TRANSFER SWITCH

EDP PANEL

MUST SHOW DRAWING OF THE PROPERTY AND
EQUIPMENT LAYOUT PER NEC 705.10 & NEC 690.56(B)

OTHERS

PLACE ON : AC DISCONNECT

PHOTOVOLTAIC SYSTEM
EQUIPPED WITH
RAPID SHUTDOWN

"PV System Disconnect "
label 2017 NEC 690.12(B)

PLACE ON: MAIN SERVICE DISCONNECT

⚡

CAUTION

⚡

PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

PER NEC 690.13 (F), NEC 705.12(D)(3-4)
& NEC 690.59

PLACE ON: AC COMBINER BOXES/ BREAKER
PANEL/ MAIN SERVICE DISCONNECT

⚡

WARNING

⚡

TURN OFF PHOTOVOLTAIC
AC DISCONNECT PRIOR TO
WORKING INSIDE PANEL

PER NEC 110.27(C)

PLACE ON: MAIN SERVICE PANEL

WARNING: THIS EQUIPMENT FED
BY MULTIPLE SOURCES.
TOTAL RATING OF ALL OVERCURRENT DEVICES
EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE
SHALL NOT EXCEED AMPACITY OF BUSBAR

PER NEC 705.12(B)(2)(3)(C)

PLACE ON : NEXT GFI RESET

⚡

WARNING

⚡

ELECTRIC SHOCK HAZARD

IF GROUND FAULT IS INDICATED
ALL NORMALLY GROUNDED
CONDUCTORS MAY BE
UNGROUND AND ENERGIZED

"Ground Fault Indicated"
label Nec 690.5(C)
Ground Fault Protection

PLACE ON : MAIN SERVICE DISCONNECT

⚡

WARNING

⚡

DUAL POWER SOURCE
SECOND SOURCE IS
PHOTOVOLTAIC SYSTEM

"Dual Power Supply"
PER NEC 705.12(B)(3-4) & NEC 690.59

PLACE ON: INVERTER BREAKER
PANEL/ MAIN SERVICE DISCONNECT

⚡

WARNING

⚡

POWER SOURCE OUTPUT
CONNECTION. DO NOT
RELOCATE THIS
OVERCURRENT DEVICE.

PER NEC 705.12 (B)(2)(c)
INVERTER OUTPUT CONNECTION

PLACE ON: MAIN SERVICE DISCONNECT

⚡

WARNING

⚡

ELECTRIC SHOCK HAZARD

TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

PER NEC 690.13(B)

PLACE ON : INVERTER/ AC DISCONNECT

RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM

Pre IFC 1204.5.3 & NEC 690.56(C)(3)

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SILFAB
COMMERCIAL NTC

SIL-520 XM
BIFACIAL






SILFABSOLAR.COM



NEXT-GENERATION N-TYPE
CELL TECHNOLOGY

- Improved Shade Tolerance
- Improved Low-Light Performance
- Increased Performance in High Temperatures

- Efficient Bifacial Energy Yield
- Enhanced Durability
- Reduced Degradation Rate
- 25-Year Product Warranty/
30-Year Performance Warranty

MOUNT ACCORDING TO MOUNTING MFG INSTRUCTIONS AND CIVIL/STRUCTURAL DIRECTIONS.

ELECTRICAL SPECIFICATIONS		520		
Test Conditions		STC	BSTC	NOCT
Module Power (Pmax)	Wp	520	567.3	383.9
Maximum power voltage (Vpmax)	V	40.48	40.48	37.24
Maximum power current (Ipmax)	A	12.85	14.02	10.31
Open circuit voltage (Voc)	V	47.52	47.57	43.71
Short circuit current (Isc)	A	13.65	14.89	10.96
Module efficiency	%	21.9%		
Maximum system voltage (VDC)	V	1500		
Series fuse rating	A	30		
Power Tolerance	Wp	0 to +10		
Bifaciality Factor	%	80+-10		

Performance conditions: Measurement tolerance $\pm 3\%$ • Standard Test Conditions (STC): 1000 W/m², AM 1.5, Temperature 25 °C • Nominal Operating Cell Temperature (NOCT): 800 W/m², AM 1.5 • Bifacial Standard Test Conditions (BSTC): 1000 W/m² + $\phi \times 135$ W/m², $\phi = 80\%$, AM 1.5 • Electrical characteristics may vary by $\pm 5\%$.

MECHANICAL PROPERTIES / COMPONENTS	METRIC	IMPERIAL
Module weight	26.2 kg ± 0.2 kg	57.8 lbs ± 0.4 lbs
Dimensions (H x L x D)	2098 mm x 1133 mm x 35 mm	82.6 in x 44.6 in x 1.4 in
Maximum surface load (wind/snow)*	2400 Pa rear load / 5400 Pa front load	50.1 lb/ft ² rear load / 112.8 lb/ft ² front load
Hail impact resistance	ϕ 25 mm at 83 km/h	ϕ 1 in at 51.6 mph
Cells	132 Half cells - N-Type Silicon solar cell 91 x 182 mm	132 Half cells - N-Type Silicon solar cell 3.58 x 7.16 in
Glass	3.2 mm high transmittance, tempered, DSM antireflective coating	0.126 in high transmittance, tempered, DSM antireflective coating
Cables and connectors (refer to installation manual)	1350 mm, ϕ 5.7 mm, EVO2 from Staubli	53.1 in, ϕ 0.22 in (12AWG), EVO2 from Staubli
Backsheet	High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free clear PV backsheet	
Frame	Anodized Aluminum (Silver)	
Junction Box	UL 3730 Certified, IEC 62790 Certified, IP68 rated, 3 diodes	

TEMPERATURE RATINGS		WARRANTIES	
Temperature Coefficient Isc	0.04 %/°C	Module product workmanship warranty	25 years**
Temperature Coefficient Voc	-0.24 %/°C	Linear power performance guarantee	30 years
Temperature Coefficient Pmax	-0.29 %/°C		$\geq 98\%$ end 1st yr $\geq 94.7\%$ end 12th yr $\geq 90.8\%$ end 25th yr $\geq 89.3\%$ end 30th yr
NOCT ($\pm 2^\circ\text{C}$)	45 °C		
Operating temperature	-40/+85 °C		

CERTIFICATIONS		SHIPPING SPECS	
Product	UL 61215, UL 61730, CSA C22.2#61730, IEC 61215, IEC 61730, IEC 61701 (Salt Mist Corrosion), IEC 62716 (Ammonia Corrosion), CEC Listed, UL Fire Rating: Type 1	Modules Per Pallet:	29 or 29 (California)
Factory	ISO9001:2015	Pallets Per Truck	24 or 23 (California)
		Modules Per Truck	696 or 667 (California)

* ▲ Warning. Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.
** 12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at silfabsolar.com.
PAN files generated from 3rd party performance data are available for download at: silfabsolar.com/downloads.

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Power Optimizer
For North America

P1101



POWER OPTIMIZER

PV power optimization at the module level
The most cost-effective solution for commercial and large field installations

- Specifically designed to work with SolarEdge inverters
- High efficiency with module-level MPPT, for maximized system energy production and revenue, and fast project ROI
- Superior efficiency (99.5%)
- Balance of System cost reduction; 50% less cables, fuses, and combiner boxes; over 2x longer string lengths possible
- Fast installation with a single bolt
- Advanced maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)

solaredge.com



Power Optimizer
For North America
P1101

Power Optimizer Model (Typical Module Compatibility)	P1101 (for up to 2 x high power or bi-facial modules)	Units
INPUT		
Rated Input DC Power ⁽¹⁾	1100	W
Connection Method	Single input for series connected modules	
Absolute Maximum Input Voltage (Voc at lowest temperature)	125	Vdc
MPPT Operating Range	12.5 – 105	Vdc
Maximum Short Circuit Current (Isc)	14.1	Adc
Maximum Short Circuit Current per Input (Isc)	-	Adc
Maximum Efficiency	99.5	%
Weighted Efficiency	98.6	%
Overvoltage Category	II	
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)		
Maximum Output Current	18	Adc
Maximum Output Voltage	80	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)		
Safety Output Voltage per Power Optimizer	1 ± 0.1	Vdc
STANDARD COMPLIANCE		
Photovoltaic Rapid Shutdown System	Compliant with NEC 2014, 2017, 2020	
EMC	FCC Part 15 Class A, IEC61000-6-2, IEC61000-6-3	
Safety	IEC62109-1 (class II safety), UL1741, UL3741, CSA C22.2#107.1	
Material	UL94 V-0, UV resistant	
RoHS	Yes	
INSTALLATION SPECIFICATIONS		
Compatible SolarEdge Inverters	All commercial three phase inverters	
Maximum Allowed System Voltage	1000	Vdc
Dimensions (W x L x H)	129 x 162 x 59 / 5.1 x 6.4 x 2.32	mm / in
Weight	1064 / 2.34	gr / lb
Input Connector	MC4 ⁽²⁾	
Input Wire Length Options	1 2 3	1.6 / 5.2 m / ft
Output Wire Type / Connector	Double insulated; MC4	
Output Wire Length	2.4 / 7.8	m / ft
Operating Temperature Range ⁽³⁾	-40 to +85 / -40 to +185	°C / °F
Protection Rating	IP68 / NEMA6P	
Relative Humidity	0 – 100	%

(1) Rated power of the module at STC will not exceed the Power Optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed.
(2) For other connector types please refer to the Power Optimizer Input Connector Compatibility Technical Note.
(3) For ambient temperatures above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers De-Rating Application Note for more details.

PV System Design Using a SolarEdge Inverter ⁽⁴⁾⁽⁵⁾		208V Grid SE10K	208V Grid SE17.3K*	277/480V Grid SE30K	277/480V Grid SE40K*	
Compatible Power Optimizers		P1101				
Minimum String Length	Power Optimizers	8	10	14	14	
	PV Modules	15	19	27	27	
Maximum String Length	Power Optimizers	30	30	30	30	
	PV Modules	60	60	60	60	
Maximum Continuous Power per String		7200	8820	15300	15300	W
Maximum Allowed Connected Power per String ⁽⁶⁾		1 string – 8400	1 string – 10020	1 string – 17550	2 strings or less – 17550	W
		2 strings or more – 9800	2 strings or more – 12020	2 strings or more – 20300	3 strings or more – 20300	
Parallel Strings of Different Lengths or Orientations		Yes				
Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit		5 Power Optimizers				

* The same rules apply for Synergy units of equivalent power ratings, that are part of the modular Synergy Technology inverter.
(4) For each string, a Power Optimizer may be connected to a single PV module if 1) each Power Optimizer is connected to a single PV module or 2) it is the only Power Optimizer connected to a single PV module in the string.
(5) Design with three phase 208V inverters is limited. Use the SolarEdge Designer for verification.
(6) To connect more STC power per string, design your project using SolarEdge Designer.

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MOUNT ACCORDING TO MOUNTING MFG INSTRUCTIONS AND CIVIL/STRUCTURAL DIRECTIONS.

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Three Phase Inverter
with Synergy Technology
For the 208V Grid for North America
SE50KUS



12-20
YEAR
WARRANTY

Powered by unique pre-commissioning process for rapid system installation

- Pre-commissioning feature for automated validation of system components and wiring during the site installation process and prior to grid connection
- Easy 2-person installation with lightweight, modular design (each inverter consists of 3 Synergy units and 1 Synergy Manager)
- Independent operation of each Synergy unit enables higher uptime and easy serviceability
- Built-in thermal sensors detect faulty wiring ensuring enhanced protection and safety
- Built-in arc fault protection and rapid shutdown
- Built-in PID mitigation for maximized system performance
- Monitored* and field-replaceable surge protection devices, to better withstand surges caused by lightning or other events
- Built-in module-level monitoring with Ethernet or cellular communication for full system visibility

*Applicable only for DC and AC SPDs

solaredge.com



INVERTERS

Three Phase Inverter with Synergy Technology
For the 208V Grid for North America
SE50KUS

MODEL NUMBER	SExxK-USx2lxxxx	
APPLICABLE TO INVERTERS WITH PART NUMBER	SE50KUS	UNITS
OUTPUT		
Rated AC Active Output Power	50000	W
Maximum AC Apparent Output Power	50000	VA
AC Output Line Connections	3W + PE, 4W + PE	
Supported Grids	WYE: TN-C, TN-S, TN-C-S, TT, IT, Delta: IT	
AC Output Voltage Minimum-Nominal-Maximum ⁽¹⁾ (L-N)	105 – 120 – 132.5	Vac
AC Output Voltage Minimum-Nominal-Maximum ⁽¹⁾ (L-L)	183 – 208 – 229	Vac
AC Frequency Min-Nom-Max ⁽¹⁾	59.5 – 60 – 60.5	Hz
Maximum Continuous Output Current (per Phase, PF=1)	139.5	Aac
GFDI Threshold	1	A
Utility Monitoring, Islanding Protection, Configurable Power Factor, Country Configurable Thresholds	Yes	
Total Harmonic Distortion	≤ 3	%
Power Factor Range	+/-0.2 to 1	
INPUT		
Maximum DC Power (Module STC) Inverter / Synergy Unit	87500 / 29165	W
Transformer-less, Ungrounded	Yes	
Maximum Input Voltage DC+ to DC-	600	Vdc
Operating Voltage Range	370 – 600	Vdc
Maximum Input Current	3 x 46.5	Adc
Reverse-Polarity Protection	Yes	
Ground-Fault Isolation Detection	167kΩ sensitivity per Synergy Unit ⁽²⁾	
CEC Weighted Efficiency	97	%
Nighttime Power Consumption	< 12	W
ADDITIONAL FEATURES		
Supported Communication Interfaces ⁽³⁾	2 x RS485, Ethernet, Wi-Fi (optional), Cellular (optional)	
Smart Energy Management	Export Limitation	
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection	
Arc Fault Protection	Built-in, User Configurable (According to UL1699B)	
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 and 2020, Built-in	
PID Rectifier	Nighttime, built-in	
RS485 Surge Protection (ports 1+2)	Type II, field replaceable, integrated	
AC, DC Surge Protection	Type II, field replaceable, integrated	
DC Fuses (Single Pole)	25A, integrated	
Pre-Commissioning	Built-in ⁽⁴⁾	
DC SAFETY SWITCH		
DC Disconnect	Built-in	
STANDARD COMPLIANCE		
Safety	UL1699B, UL1741, UL1741 SA, UL1741 SB, UL1998, CSA C22.2#107.1, Canadian AFCl according to T.I.L. M-07	
Grid Connection Standards	IEEE 1547-2018, Rule 21, Rule 14 (H)	
Emissions	FCC part 15 class A	

(1) For other regional settings please contact SolarEdge support.
(2) Where permitted by local regulations.
(3) For specifications of the optional communication options, visit the [Communication product page](#) or the [Resource Library](#) to download the relevant product datasheet.
(4) Not available for P/Ns SExxK-xxxxBxxx.

MOUNT ACCORDING TO MOUNTING MFG INSTRUCTIONS AND CIVIL/STRUCTURAL DIRECTIONS.

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/ Three Phase Inverter with Synergy Technology
For the 208V Grid for North America
SE50KUS

MODEL NUMBER	SExxK-USx2Ixxxx	
APPLICABLE TO INVERTERS WITH PART NUMBER	SE50KUS	UNITS
INSTALLATION SPECIFICATIONS		
Number of Synergy Units per Inverter	3	
AC Max Conduit Size	2 ½"	in
Max AWG Line / PE	4/0 / 1/0	
DC Max Conduit Size	1 x 3"; 2 x 2"	in
DC Input Inverter / Synergy Unit	12 / 4 pairs; 6 – 12 AWG	
	3 pairs / 1 pair, Max 2 AWG; copper or aluminum	
Dimensions (H x W x D)	Synergy Unit: 22 x 12.9 x 10.75 / 558 x 328 x 273 Synergy Manager: 14.17 x 22.4 x 11.6 / 360 x 560 x 295	in / mm
Weight	Synergy Unit: 70.4 / 32 Synergy Manager: 39.6 / 18	lb / kg
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁵⁾	°F / °C
Cooling	Fan (user replaceable)	
Noise	< 67	dBA
Protection Rating	NEMA 3R	
Mounting	Brackets provided	

(5) For power de-rating information refer to the [Temperature De-rating - Technical Note \(North America\)](#).

MOUNT ACCORDING TO MOUNTING MFG INSTRUCTIONS AND CIVIL/STRUCTURAL DIRECTIONS.

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Solis-AC Combiner

Solis AC Combiner Box

For 1500 V string inverter Solis 255K

Features:

- Strong safety, high economy, standard overcurrent protection
- Protection class NEMA Type 3R, which meets the requirements of outdoor installation
- Small size, light weight, attached installation, reduce engineering construction costs
- Easy connection, simple operation

Models:

Solis-AC Combiner-800V/1000A
Solis-AC Combiner-800V/800A
Solis-AC Combiner-800V/630A



DATASHEET

Solis-AC Combiner

Models	800V/1000A	800V/800A	800V/630A
Input			
Number of AC input circuits	3, 4	3	2
OCPD	Fuse		
Rated input voltage	800 V		
Rated input current	3*251 A, 4*185 A	3*185 A	2*251 A
Input conductor size	3*(300-750kcmil CU/AL)		
Input conduit knockout size	Removable bottom plate		
Output			
Rated output current	753 A	555 A	502 A
Output conductor size	3*(2*600-1000kcmil CU/AL)		
Output conduit knockout size	Removable bottom plate		
Short circuit interrupt capacity	65 kA		
Output fuse rating	1000 A	800 A	630 A
Mechanical			
Dimensions (W*H*D)	48.2*37*15 in (1225*940*380 mm)		
Weight	154.3 lbs (70 kgs)		
Equipment grounding	Yes		
Padlockable enclosure (LOTO)	Yes		
Breather vent	Yes		
Grounding busbar	No		
Environment			
Degree of protection	NEMA Type 3R		
Operating ambient temperature range	-22°F to 140°F / -30°C to +60°C (derating from +104°F / +40°C)		
Relative humidity	0-100%		
Max. operation altitude	9842 ft / 3000 m (no derating); 13,120 ft / 4000 m (max)		
Safety			
Compliance	UL1741		

MOUNT ACCORDING TO MOUNTING MFG INSTRUCTIONS AND CIVIL/STRUCTURAL DIRECTIONS.

INSTALLER:
NEXT GENERATION SOLAR, LLC
8512 OSWEGO RD,
BALDWINVILLE, NY 13027

OWNER:
MEALS ON WHEELS
413 CHURCH ST,
NORTH SYRACUSE, NY 13212

DESIGNED BY



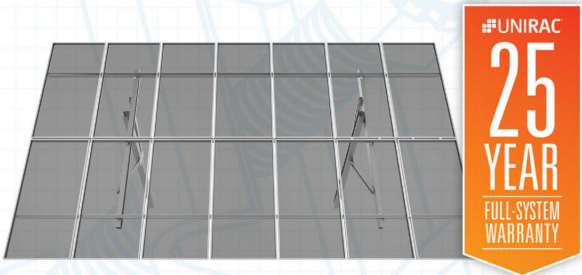
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GROUND FIXED TILT



IN STOCK AND READY TO SHIP

- Standardized components and kitted hardware bring ease of stocking and repeatability from 2KW to multi-MW.
- North America's largest ground mount distributor network ensures the fastest lead times and empowers you to finish your projects on schedule.

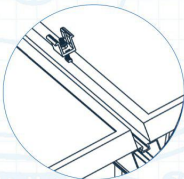
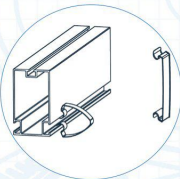
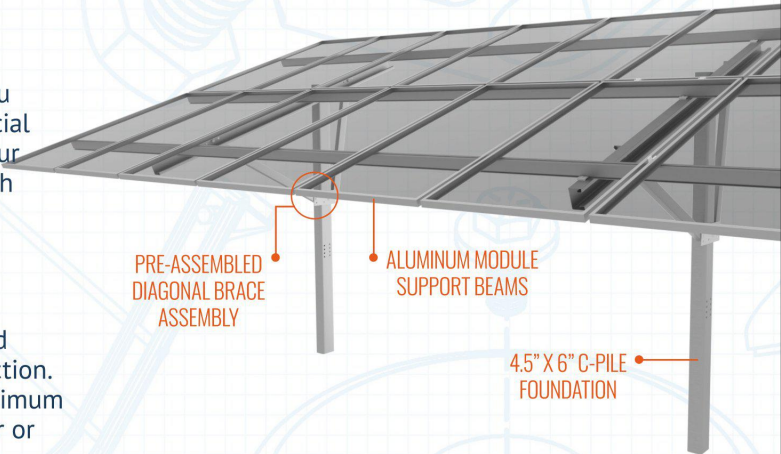


PERMIT - READY

- Pre-engineered regional designs save you valuable time. Industry-leading commercial customer service supports you across your project, from design and logistics through installation.

INSTALLATION EXPERIENCE

- Kitted hardware, integrated bonding, and pre-assembled parts streamline construction. Straightforward connections ensure maximum strength and require no specialized labor or training.
- Lightweight components allow for one or two-person assembly.
- System flexibility enables you to mount all the most common residential and commercial modules on shared rails or at standard module quarter points.
- Choose from multiple foundations and 3, 4, 5, or 6-rail designs to optimize your projects.



ABOUT PRODUCT

GROUND FIXED TILT (GFT) is a single post geometry system with 20 and 30 tilt options. It's engineered using standard lightweight ground mount components that are in stock and ready to ship from North America's largest ground mount distribution network. UNIRAC's unmatched commercial project support makes construction easy, from permitting through installation, including region specific engineering. GFT's refined solution, including a new shared rail design, delivers enhanced system and labor optimization. Plus, enjoy peace of mind with SOLARMOUNT Mounting Technology and UNIRAC's industry-leading 25-year warranty.

FOR QUESTIONS OR CUSTOMER SERVICE CONTACT:
505-242-6411 | SALES@UNIRAC.COM | WWW.UNIRAC.COM
PUB2024JAN01-V1

CONFORMS TO
UL2703



9001:2015
14001:2015
CERTIFIED

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