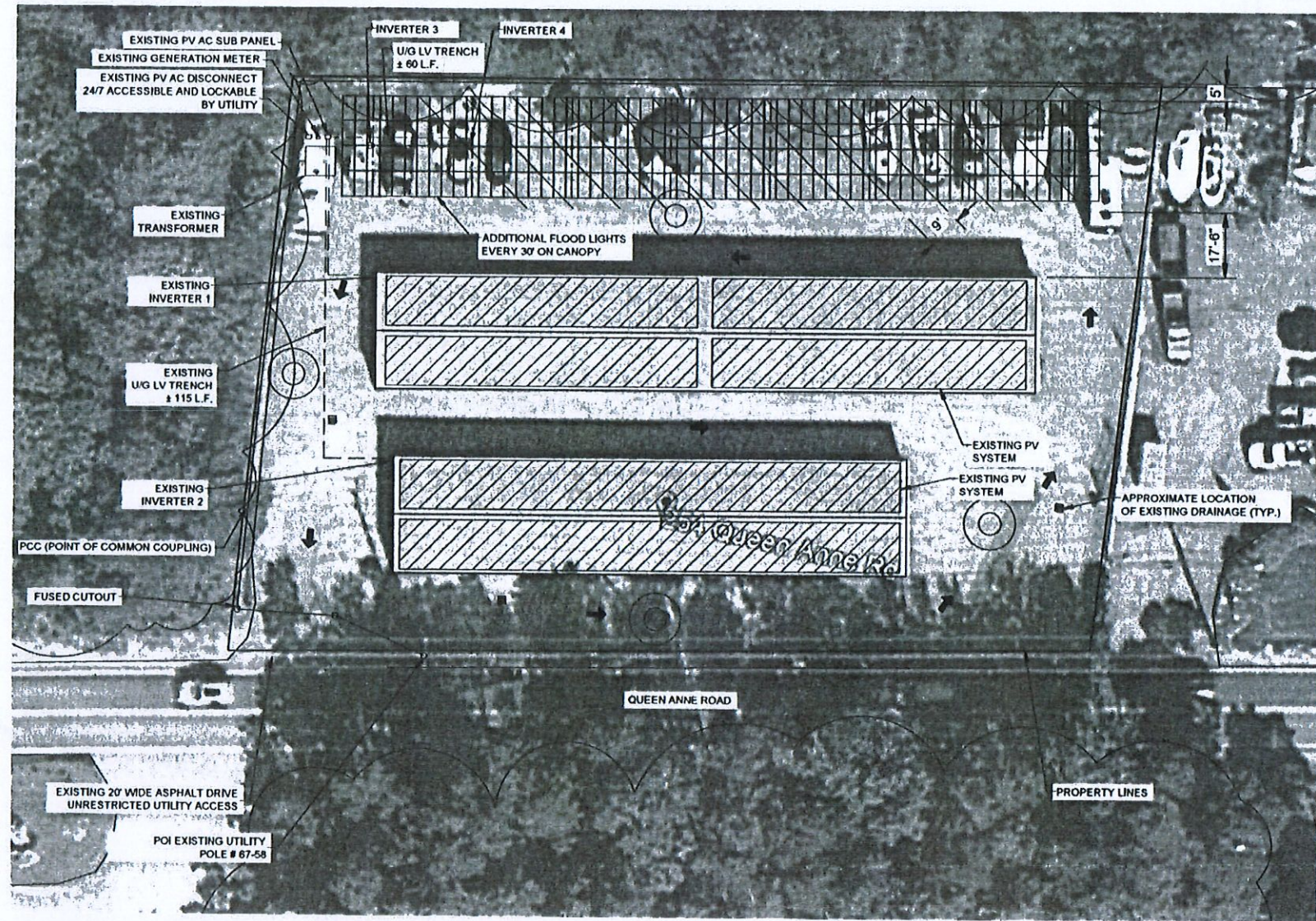


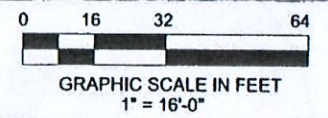
168° MODULE ORIENTATION
5° TILT

PROJECT DATA	
INTEGRATOR:	GRID PROJECTS CO. 1720 S. BELLAIRE ST DENVER, CO 80222
SITE:	254 QUEEN ANNE RD. HARWICH, MA 02645
CODES:	NEC-2020 IBC-2015 9TH EDITION CMR 780
SOLAR ARRAY:	
MODULE:	ASTRONERGY ASTROSEMI CHSM72M-HC 420W 244 MODULES
RACKING:	CARPORT @ 5 DEGREES
INVERTER:	(1) SMA STP-CORE1 62-US-41 (1) SMA STP-CORE1 33-US-41
DC OUTPUT:	102,480 W DC - STC
AC OUTPUT:	95,800 W AC



QUEEN ANNE LLC (CARPORT)

PV POWER SYSTEM
 102.48 kW DC(NEW)
 151.2 kW DC(EXISTING)
 253.68 kW DC (TOTAL)
 95.8 kW AC(NEW)
 112.5 kW AC(EXISTING)
 208.3 kW AC(TOTAL)



DESIGN LOADS:	
GROUND SNOW	25 PSF
WIND LOAD	140 MPH

CANOPY HEIGHT	
CANOPY WILL HAVE 14'-0" HEIGHT AT LOW END AND WILL BE APPROXIMATELY 16'-0" HIGH AT TALL END	

PARKING SITE CALCULATIONS	
TOTAL SQUARE FOOTAGE / 1000	
10,000 SQ. FT. / 1000 = 10	
NUMBER OF PARKING SPACES / 10 =	
PARKING PER ONE THOUSAND SQ. FEET	
12 SPACES / 10 = 1.2 SPACES PER ONE THOUSAND SQ. FEET	

PARKING SPACE DIMENSIONS	
AT 45° ANGLE, SPACE MUST BE 9'-0" WIDE AND BE 17'-6" PERPENDICULAR TO THE AISLE	

ARC DESIGN
 409 NORTH MAIN STREET
 ELMER, NEW JERSEY, U.S. 08318
 (856) 712-2166 FAX: (856) 358-1511

PROPOSED PHOTOVOLTAIC ARRAY
QUEEN ANNE LLC (CARPORT)
 254 QUEEN ANNE ROAD
 HARWICH, MA 02645

REVISIONS	
DATE	COMMENT

JOB #	RCA
DRWN	JAC
CHKD	AS NOTED
SCALE	AS NOTED
DATE	10-28-2021

A-1

TITLE: **Parcel - 145010-EC-04**
 Dwg. No. **6773-01**
 SHEET 1 OF 1
 JOB NO. **5-0610.00**

SCALE: 1" = 20'
 0 10 20 40 FT

2021 BSC Group, Inc.
 508 778 8919
 02673
 349 Route 28, Unit D
 W. Yarmouth, Massachusetts

PREPARED FOR:
 MICHAEL MARCOTTE
 SOL POWER LLC
 1720 S. BELLAIRE STREET, PH
 DENVER, CO 80220

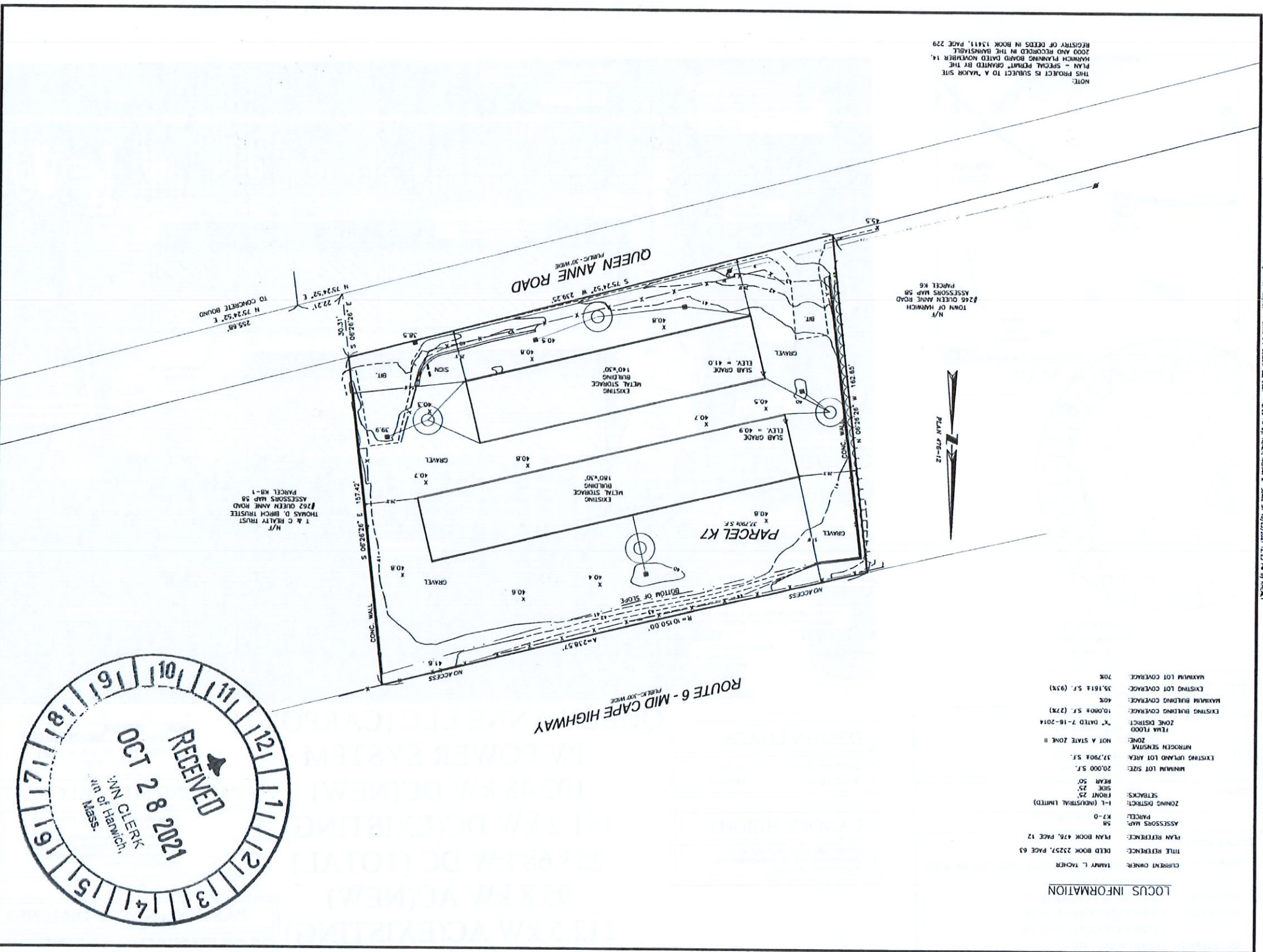
REVISIONS:
 NO. DATE REVC.

OCTOBER 20, 2021
 EXISTING
 CONDITIONS
 (BARSTABLE COUNTY)
 MASSACHUSETTS
 HARWICH
 IN
 #254 QUEEN ANNE ROAD
 PLAN OF LAND

KEVIN J. HEALY
 PROFESSIONAL LAND SURVEYOR
 DATE

THIS PLAN IS THE BEST OF MY
 PROFESSIONAL KNOWLEDGE, INFORMATION
 AND BELIEF THAT THE LOT CORNERS
 AND DIMENSIONS AND SETBACKS TO THE
 STRUCTURE AS SHOWN ON
 INSTRUMENT SURVEY AND AS SHOWN ON
 THIS PLAN ARE CORRECT.

LOCUS MAP
 1 CENTURY TO THE BEST OF MY
 PROFESSIONAL KNOWLEDGE, INFORMATION
 AND BELIEF THAT THE LOT CORNERS
 AND DIMENSIONS AND SETBACKS TO THE
 STRUCTURE AS SHOWN ON
 INSTRUMENT SURVEY AND AS SHOWN ON
 THIS PLAN ARE CORRECT.



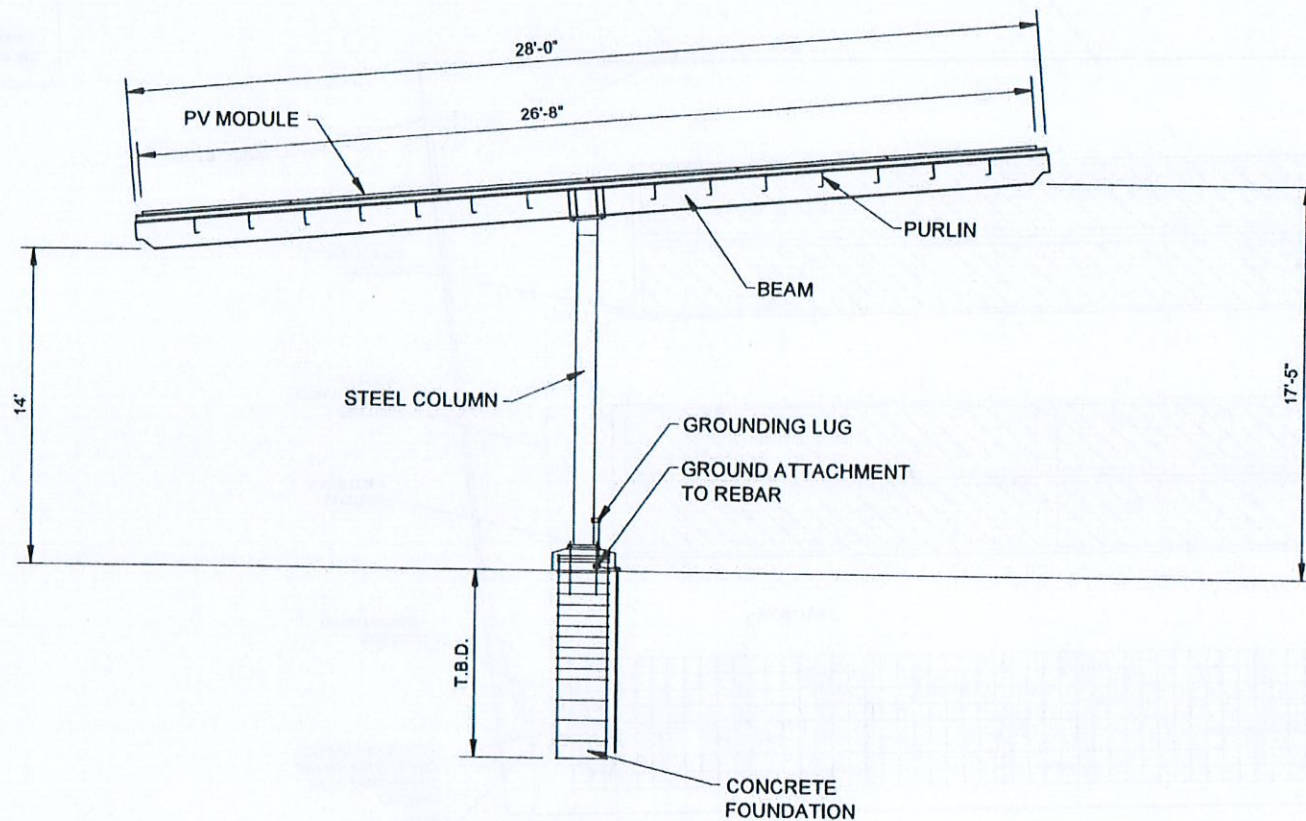
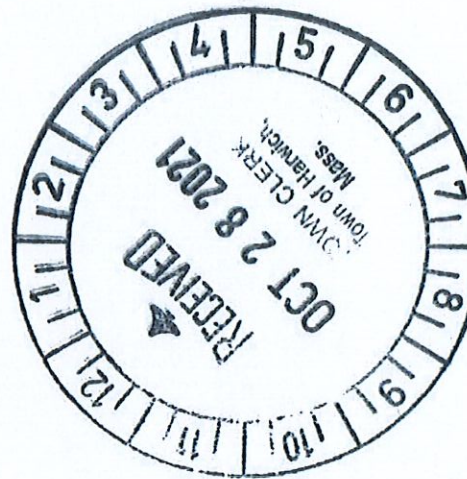
LOCUS INFORMATION

CURRENT OWNER:	TAMMY L. TACHER
TITLE REFERENCE:	DEED BOOK 2257, PAGE 63
PLAN REFERENCE:	PLAN BOOK 476, PAGE 12
ASSESSORS MAP:	58
PARCEL:	K7-0
ZONING DISTRICT:	L-1 (INDUSTRIAL LIMITED)
SETBACKS:	FRONT 25' SIDE 25' REAR 50'
MINIMUM LOT SIZE:	20,000 S.F.
EXISTING UPLAND LOT AREA:	37,790.4 S.F.
NITROGEN SENSITIVE ZONE:	NOT A STATE ZONE II
FEU FLOOD ZONE:	7- DATED 7-18-2014
EXISTING BUILDING COVERAGE:	10,080.4 S.F. (27%)
EXISTING LOT COVERAGE:	35,161.1 S.F. (93%)
MAXIMUM LOT COVERAGE:	70%

NOTE:
 THIS PROJECT IS SUBJECT TO A MAJOR SITE
 PLAN - SPECIAL PERMIT GRANTED BY THE
 HARWICH PLANNING BOARD DATED NOVEMBER 14,
 2009 AND RECORDED IN THE GRANVILLE
 REGISTRY OF DEEDS IN BOOK 13411, PAGE 229

License: 145010-EC-04 (Survey) Drawing: 354-Drawing-Name-Block-ec-04 - 145010-Parcel-04-October 20, 2021 - 12:29 PM by HEALY, KEVIN J. Saved on 10/29/2021 12:29 PM by HEALY, KEVIN J.

SEALED SHOP DRAWINGS TO BE PROVIDED BY CARPORT MANUFACTURE FOR REVIEW AND APPROVAL.



ALL CARPORTS ARE TO HAVE 14' CLEARANCE

1 TYP. CARPORT ILLUSTRATION ONLY
A-4 SCALE N.T.S.

CARPORT STRUCTURE & FOUNDATION DETAILS TO BE PROVIDED BY MANUFACTURER FOR REVIEW PRIOR TO FABRICATION & INSTALLATION.

ARC DESIGN
409 NORTH MAIN STREET
ELMER, NEW JERSEY, U.S. 08318
(856) 712-2166 FAX: (856) 358-1511

PROPOSED PHOTOVOLTAIC ARRAY
QUEEN ANNE LLC (CARPORT)
254 QUEEN ANNE ROAD
HARWICH, MA 02645



REVISIONS	
DATE	COMMENT

JOB #
DRAWN: RCA
CHECKED: JAC
SCALE: AS NOTED
DATE: 10-25-2021

A-3

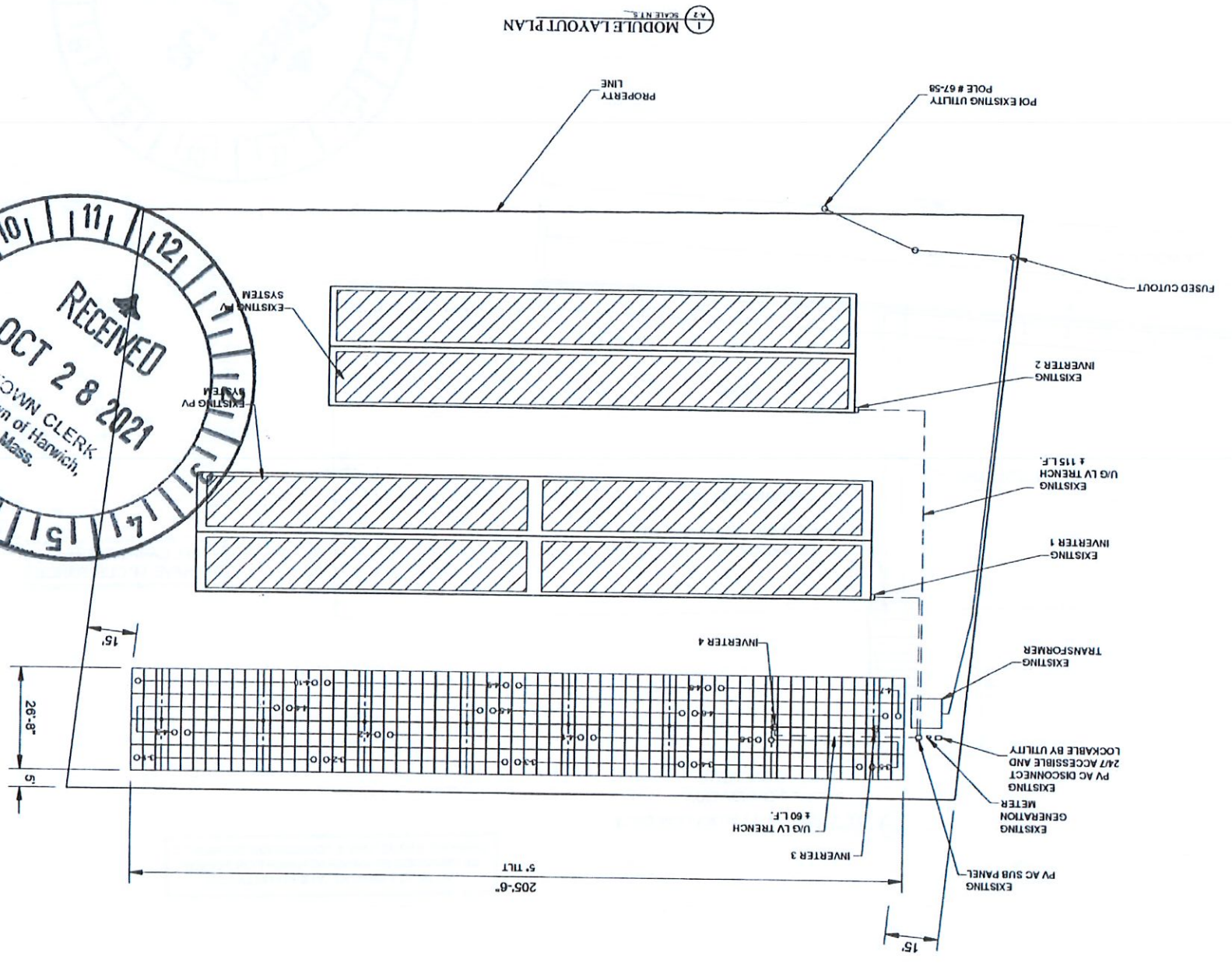
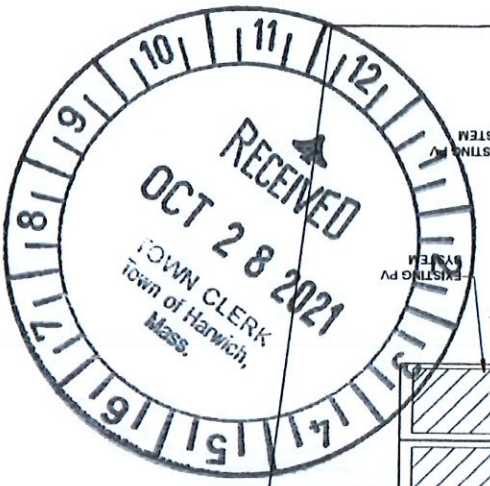
A-2

DATE	10-25-2021
SCALE	AS NOTED
CREATED BY	JAC
DESIGNED BY	RCA
CHECKED BY	
DATE	COMPLETED



PROPOSED PHOTOVOLTAIC ARRAY
QUEEN ANNE LLC (CARPORT)
 254 QUEEN ANNE ROAD
 HARWICH, MA 02545

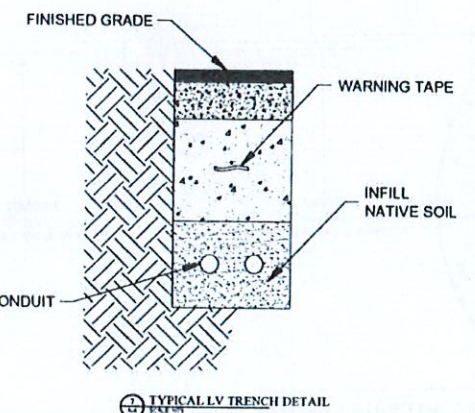
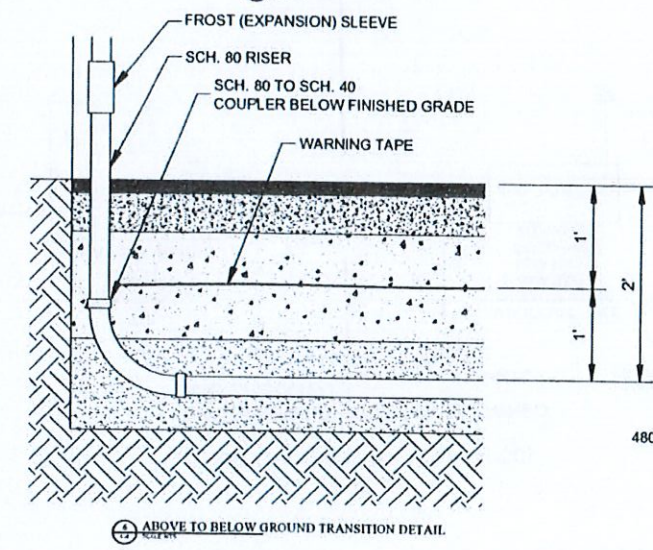
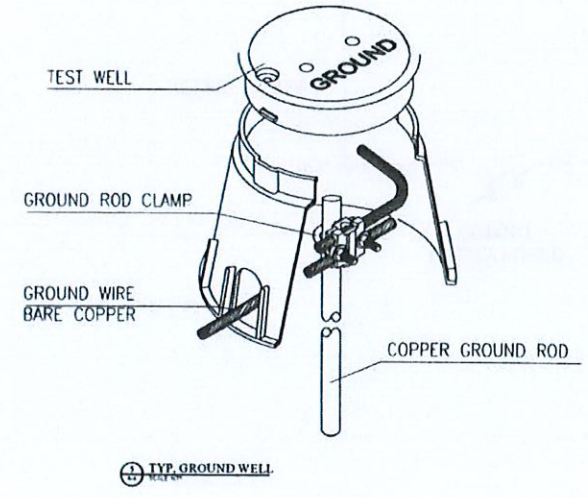
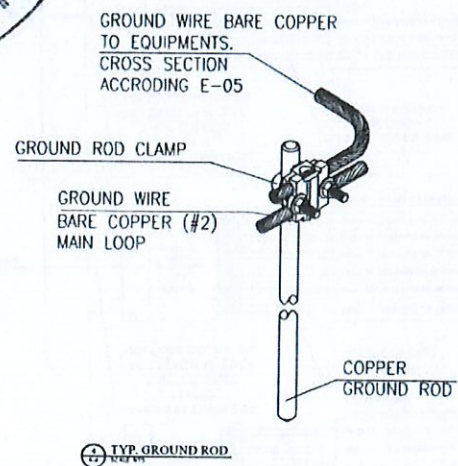
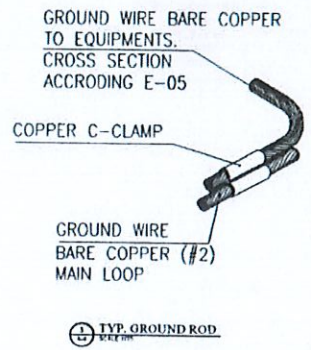
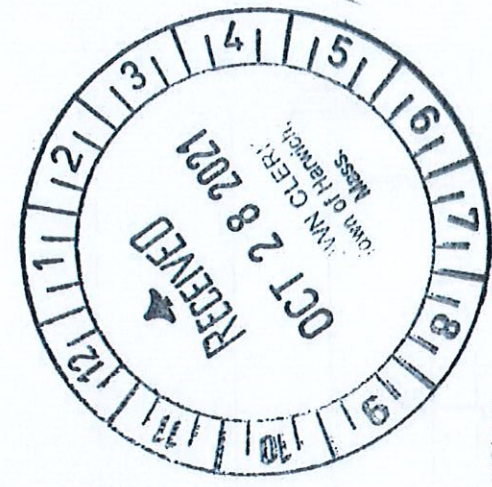
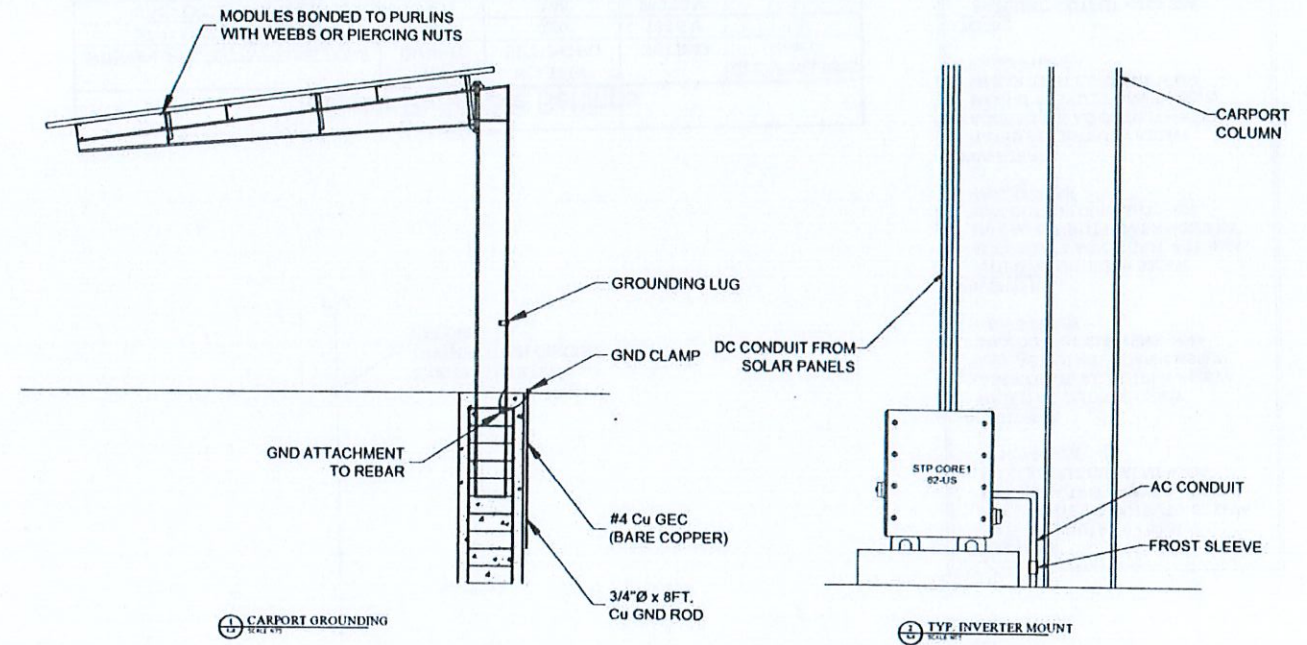
ARC DESIGN
 409 NORTH MAIN STREET
 ELMER, NEW JERSEY, U.S. 08318
 (856) 712-2166 FAX: (856) 358-1511



2-1	STRING LABEL (INVERTER-STRING)
G	RACKING GROUND CONNECTION
I	INVERTER
L	AC LOADCENTER
D	AC DISCONNECT
M	METER



1 MODULE LAYOUT PLAN



ARC DESIGN
 409 NORTH MAIN STREET
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PROPOSED PHOTOVOLTAIC ARRAY
QUEEN ANNE LLC (CARPORT)
 254 QUEEN ANNE ROAD
 HARWICH, MA 02645

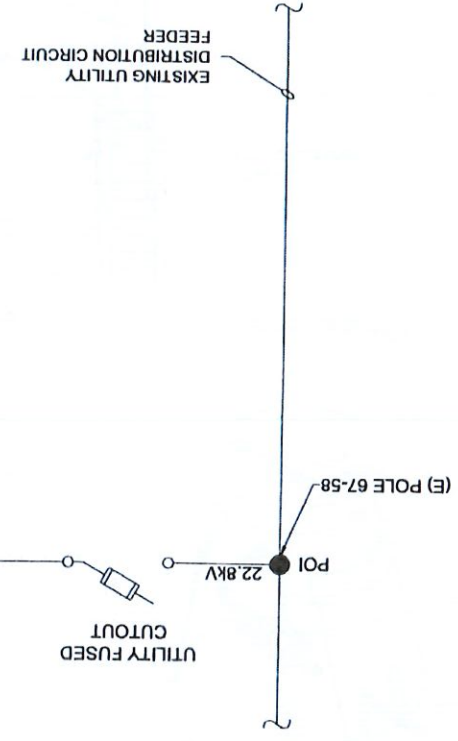


REVISIONS	
DATE	COMMENT

JOB #	RCA
DRAWN	JAC
CHECKED	JAC
SCALE	AS NOTED
DATE	10-25-2021

A-4

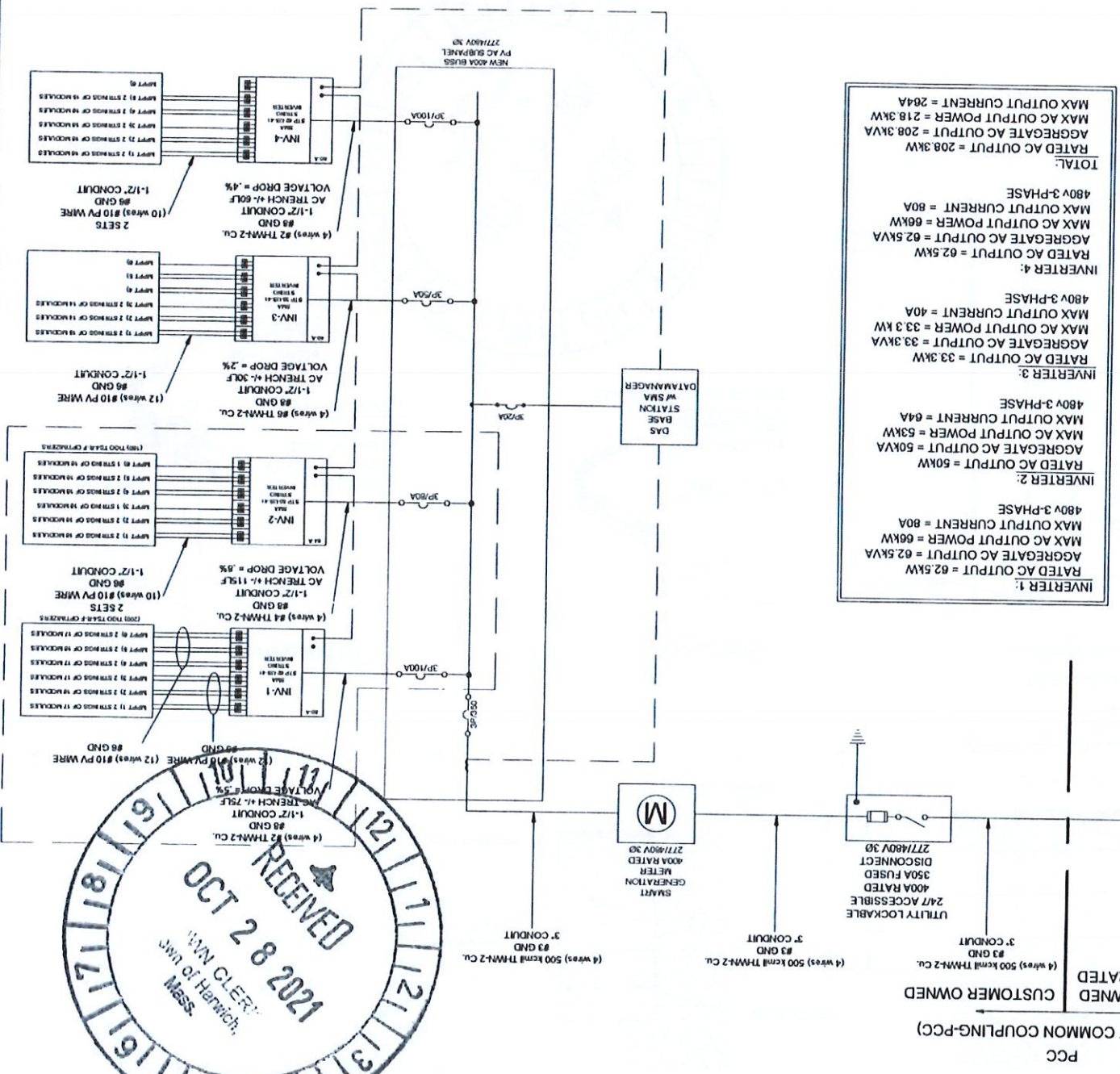
Inverter Protective Settings			
INTERNAL PROTECTIVE FUNCTIONS	TRIP OUTPUT	SETTING PU	VOLTAGE SETTING (sec)
27-1 - UNDERVOLTAGE	X	0.50	138.5 V
27-2 - UNDERVOLTAGE	X	0.88	243.76 V
59-1 - OVERVOLTAGE	X	1.10	304.7 V
81U-1 - UNDERFREQUENCY	X	1.20	332.4 V
81U-2 - UNDERFREQUENCY	X		56.5 Hz
81U-2 - UNDERFREQUENCY	X		58.5 Hz
81O-1 - OVERFREQUENCY	X		61.2 Hz
81O-2 - OVERFREQUENCY	X		62 Hz
ALARM	X		
PRIMARY VOLTAGE (L-N)		0.277	kV
			277
			V



NEW SYSTEM SIZE = 102.48 kW DC
95.8 kW AC NOMINAL

TOTAL SYSTEM SIZE = 253.68 kW DC
208.3 kW AC NOMINAL

- (244) ASTROENERGY ASTROSEMI CHSMZ2M-HC 420W
- (1) SMA STP-CORE1 62-US-41
- (1) SMA STP-CORE1 33-US-41



INVERTER 1:
RATED AC OUTPUT = 62.5kW
AGGREGATE AC OUTPUT = 62.5kW
MAX AC OUTPUT POWER = 66kW
MAX AC OUTPUT CURRENT = 80A
480V 3-PHASE

INVERTER 2:
RATED AC OUTPUT = 50kW
AGGREGATE AC OUTPUT = 50kVA
MAX AC OUTPUT POWER = 53kW
MAX AC OUTPUT CURRENT = 64A
480V 3-PHASE

INVERTER 3:
RATED AC OUTPUT = 33.3kW
AGGREGATE AC OUTPUT = 33.3kVA
MAX AC OUTPUT POWER = 33.3kW
MAX AC OUTPUT CURRENT = 40A
480V 3-PHASE

INVERTER 4:
RATED AC OUTPUT = 62.5kW
AGGREGATE AC OUTPUT = 62.5kVA
MAX AC OUTPUT POWER = 66kW
MAX AC OUTPUT CURRENT = 80A
480V 3-PHASE

TOTAL:
RATED AC OUTPUT = 208.3kW
AGGREGATE AC OUTPUT = 208.3kVA
MAX AC OUTPUT POWER = 218.3kW
MAX OUTPUT CURRENT = 264A
480V 3-PHASE

ARC DESIGN
409 NORTH MAIN STREET
ELMER, NEW JERSEY, U.S. 08318
(856) 712-2166 FAX: (856) 358-1511

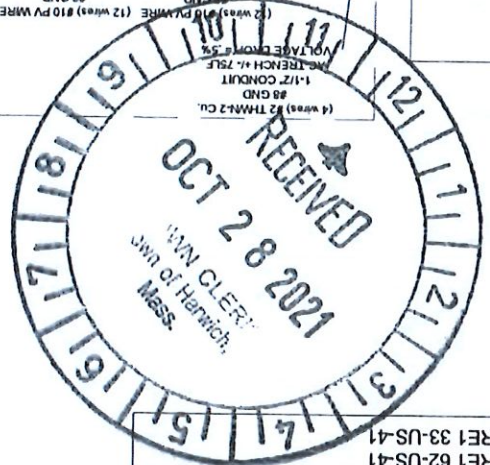
PROPOSED PHOTOVOLTAIC ARRAY
QUEEN ANNE LLC (CARPORT)
254 QUEEN ANNE ROAD
HARWICH, MA 02645

E-1

DATE: 10-25-2017
SCALE: AS NOTED
DRAWN: JAC
CHECKED: JAC

REVISIONS

REV #	DATE	COMMENTS



WARNING
ELECTRIC SHOCK HAZARD
 IF A GROUND FAULT IS INDICATED NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

LABEL LOCATION:
 DC DISCONNECT, INVERTER
 (PER CODE: NEC 690.35(F))
 [To be used when inverter is ungrounded]

WARNING
ELECTRIC SHOCK HAZARD
 TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

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

LABEL LOCATION:
 AC DISCONNECT, POINT OF INTERCONNECTION
 (PER CODE: NEC 690.17(E))

WARNING
ELECTRIC SHOCK HAZARD
 TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:
 AC DISCONNECT, POINT OF INTERCONNECTION
 PER CODE: NEC 690.17(E), CB

WARNING - Electric Shock Hazard
 No user serviceable parts inside
 Contact authorized service provider for assistance

LABEL LOCATION:
 INVERTER, JUNCTION BOXES (ROOF), AC DISCONNECT
 (PER CODE: NEC 690.13.G.3 & NEC 690.13.G.4)

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
 CONDUIT, COMBINER BOX
 (PER CODE: NEC 690.31(G)(3)(4) & NEC 690.13(G)(4))

WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
 POINT OF INTERCONNECTION
 (PER CODE: CEC 705.12(D)(4))

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

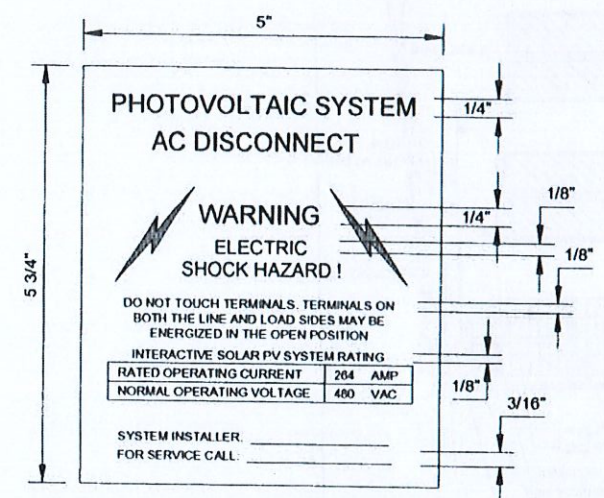
LABEL LOCATION:
 POINT OF INTERCONNECTION
 (PER CODE: CEC 690.15, 690.13(B))

PHOTOVOLTAIC SYSTEM AC DISCONNECT
 RATED AC OPERATING CURRENT 264 AMPS
 AC NOMINAL OPERATING VOLTAGE 480 VOLTS

LABEL LOCATION:
 AC DISCONNECT, POINT OF INTERCONNECTION
 (PER CODE: NEC 690.54)

SOLAR DISCONNECT

LABEL LOCATION:
 DISCONNECT, POINT OF INTERCONNECTION
 (PER CODE: NEC 690.13(B))



AC DISCONNECT WARNING LABEL

NOTE:
 1. TO BE MOUNTED AT AC DISCONNECT IN ELECTRICAL PANEL
 2. TEXT HEIGHTS SHALL BE THE SAME AS FOR THE DC DISCONNECT LABEL

CAUTION: SOLAR CIRCUIT

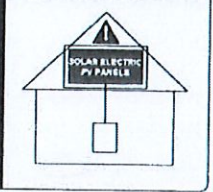
LABEL LOCATION:
 MARKINGS PLACED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES, AND CABLE ASSEMBLIES AT LEAST EVERY 10 FT., AT TURNS AND ABOVE/BELOW PENETRATIONS AND ALL COMBINER/JUNCTION BOXES. (PER CODE: IFC 605.11.1.4)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION:
 • A RAPID SHUTDOWN SWITCH SHALL HAVE A LABEL LOCATED ON OR NO MORE THAN 1 METER (3 FEET) FROM THE SWITCH THAT INCLUDES THE ABOVE WORDING

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION, TO SHUTDOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS WITHIN THE ARRAY REMAIN ENERGIZED IN SUNLIGHT



PHOTOVOLTAIC INVERTER INPUT DC DISCONNECT
WARNING ELECTRIC SHOCK HAZARD!
 DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

INTERACTIVE SOLAR PV SYSTEM RATING	
RATED DC CURRENT	59.52 AMP
RATED DC VOLTAGE	635.25 VDC
MAXIMUM SYSTEM VOLTAGE	841.45 VDC
SHORT CIRCUIT CURRENT	78.0 AMP

SYSTEM INSTALLER: _____
 FOR SERVICE CALL: _____

INVERTER 3

DC COMBINER BOX WARNING LABEL

NOTE:
 1. TO BE MOUNTED ON EACH COMBINER SUB-ARRAY COMBINER
 2. TEXT HEIGHTS SHALL BE THE SAME AS FOR THE DC DISCONNECT LABEL

PHOTOVOLTAIC INVERTER INPUT DC DISCONNECT
WARNING ELECTRIC SHOCK HAZARD!
 DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

INTERACTIVE SOLAR PV SYSTEM RATING	
RATED DC CURRENT	99.2 AMP
RATED DC VOLTAGE	677.0 VDC
MAXIMUM SYSTEM VOLTAGE	897.55 VDC
SHORT CIRCUIT CURRENT	131.5 AMP

SYSTEM INSTALLER: _____
 FOR SERVICE CALL: _____

INVERTER 4

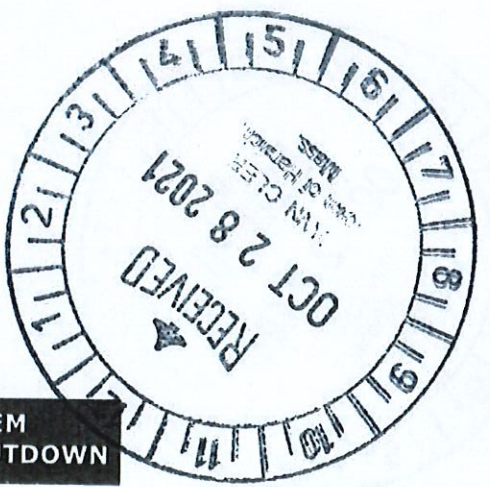
WARNING
 INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
 POINT OF INTERCONNECTION
 (PER CODE: NEC 705.12(D)(7))
 [Not required if panelboard is rated not less than sum of ampere ratings of all overcurrent devices supplying it]

INVERTER 3

INVERTER 4

3" x 1" PLACARD (QTY. 1)
 APPLY TO:
 INVERTER #3, #4



PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

ADHESIVE FASTENED SIGNS:
 • THE LABEL SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE IT IS INSTALLED.
 • WHERE REQUIRED ELSEWHERE IN THIS CODE, ALL FIELD APPLIED LABELS, WARNINGS, AND MARKINGS SHOULD COMPLY WITH ANSI Z39.4 (NEC 110.21(B) FIELD MARKING).
 • ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER RESISTANT [IFC 605.11.1.3]

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

ARC DESIGN
 409 NORTH MAIN STREET
 ELMER, NEW JERSEY, U.S. 08318
 (856) 712-2166 FAX: (856) 358-1511

PROPOSED PHOTOVOLTAIC ARRAY

QUEEN ANNE LLC (CARPORT)
 254 QUEEN ANNE ROAD
 HARWICH, MA 02645

JAMES A. GAGLIARDI
 MASSACHUSETTS REGISTERED PROFESSIONAL ENGINEER
 LICENSE NO. 10000
 EXPIRES 12/31/2024

REVISIONS	
DATE	COMMENT

JOB # _____
 DESIGNED BY RCA
 CHECKED BY JAC
 SCALE AS NOTED
 DATE 10-28-2021

E-2.1

