INSTALLATION OF NEW **ROOF MOUNTED PV SOLAR SYSTEM** 54 DOLORES DRIVE **EDISON, NJ 08817**

DOLORES DRIVE





SITE

GENERAL NOTES

- 1. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTIONS CONTAINED IN THE DRAWING PACKAGE AND INFORMATION RECEIVED FROM TRINITY.
- 2. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTION CONTAINED IN THE COMPLETE MANUAL.
- 3. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR READING AND UNDERSTANDING ALL DRAWINGS COMPONENT AND INVERTER MANUALS PRIOR TO INSTALLATION. THE INSTALLATION CONTRACTOR IS ALSO REQUIRED TO HAVE ALL COMPONENT SWITCHES IN THE OFF POSITION AND FUSES REMOVED PRIOR TO THE INSTALLATION OF ALL FUSE BEARING SYSTEM COMPONENTS.
- ONCE THE PHOTOVOLTAIC MODULES ARE MOUNTED, THE INSTALLATION CONTRACTOR SHOULD HAVE A MINIMUM OF ONE ELECTRICIAN WHO HAS ATTENDED A SOLAR PHOTOVOLTAIC INSTALLATION COURSE ON SITE
- 5. FOR SAFETY, IT IS RECOMMENDED THAT THE INSTALLATION CREW ALWAYS HAVE A MINIMUM OF TWO PERSONS WORKING TOGETHER AND THAT EACH OF THE INSTALLATION CREW MEMBERS BE TRAINED IN FIRST AID AND CPR.
- . THIS SOLAR PHOTOVOLTAIC SYSTEM IS TO BE INSTALLED FOLLOWING THE CONVENTIONS OF THE NATIONAL ELECTRICAL CODE. ANY LOCAL CODE WHICH MAY SUPERSEDE THE NEC SHALL GOVERN.
- 7. ALL SYSTEM COMPONENTS TO BE INSTALLED WITH THIS SYSTEM ARE TO BE
 "UL" LISTED. ALL EQUIPMENT WILL BE NEMA 3R OUTDOOR RATED UNLESS INDOORS.

GENERAL NOTES CONTINUED

- THE DC VOLTAGE FROM THE PANELS IS ALWAYS PRESENT AT THE DC DISCONNECT ENCLOSURE AND THE DC TERMINALS OF THE INVERTER DURING DAYLIGHT HOURS ALL PERSONS WORKING ON OR INVOLVED WITH THE PHOTOVOLTAIC SYSTEM ARE WARNED THAT THE SOLAR MODULES ARE ENERGIZED WHENEVER THEY ARE EXPOSED TO LIGHT.
- ALL PORTIONS OF THIS SOLAR PHOTOVOLTAIC SYSTEM SHALL BE MARKED CLEARLY IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ARTICLE 690 & 705.
- PRIOR TO THE INSTALLATION OF THIS PHOTOVOLTAIC SYSTEM THE INSTALLATION CONTRACTOR SHALL ATTEND A PRE-INSTALLTION MEETING FOR THE REVIEW OF THE INSTALLATION PROCEDURES, SCHEDULES, SAFETY AND COORDINATION.
- PRIOR TO THE SYSTEM START UP THE INSTALLATION CONTRACTOR SHALL ASSIST IN PERFORMING ALL INITIAL HARDWARE CHECKS AND DC WIRING CONDUCTIVITY CHECKS.
- FOR THE PROPER MAINTENANCE AND ISOLATION OF THE INVERTERS REFER TO THE ISOLATION PROCEDURES IN THE
- THE LOCATION OF PROPOSED ELECTRIC
 AND TELEPHONE UTILITIES ARE SUBJECT APPROPRIATE UTILITY COMPANIES AND OWNERS.
- ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREIN SHALL BE IN ACCORDANCE WITH:
 - A) CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS STANDARDS AND REQUIREMENTS

GENERAL NOTES CONTINUED

- B) CURRENT PREVAILING UTILITY COMPANY SPECIFICATIONS. STANDARDS, AND REQUIREMENTS THIS SET OF PLANS HAVE BEEN
- PREPARED FOR THE PURPOSE OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL, THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DRAWINGS UNTIL REVISED TO INDICATE "ISSUED FOR CONSTRUCTION".
- ALL INFORMATION SHOWN MUST BE CERTIFIED PRIOR TO USE FOR CONSTRUCTION ACTIVITIES

ABBREVIATIONS

AMPERE

ALTERNATING CURRENT AMP FRAME ABOVE FINISHED FLOOR ABOVE FINISHED GRADE AWG AMERICAN WIRE GAUGE CONDUIT (GENERIC TERM OF RACEWAY, PROVIDE AS

AMP

SPECIFIED) COMBINER BOX CIRCUIT COPPER

CURRENT TRANSFORMER DIRECT CURRENT DISCONNECT SWITCH DWG DRAWING ELECTRICAL SYSTEM INSTALLER

ELECTRICAL METALLIC TUBING FUSIBLE SWITCH FUSE GND GROUND

GFI GROUND FAULT INTERRUPTER FREQUENCY (CYCLES PER

ABBREVIATIONS CONTINUED

JUNCTION BOX THOUSAND CIRCULAR MILS KILO-VOLT AMPERE kVA KILO-WATT kWH KILO-WATT HOUR MCB MAIN CIRCUIT BREAKER

MAIN DISTRIBUTION PANEL MAIN LUG ONLY MDP MLO MOUNTED MTG

MOUNTING NEUTRAL NATIONAL ELECTRICAL CODE NIC NO# NOT IN CONTRACT NUMBER

NTS OCP P PB OVER CURRENT PROTECTION POLF.

PULL BOX PHASE
POLY-VINYL CHLORIDE CONDUIT PVC

PWR QTY QUANTITY RIGID GALVANIZED STEEL

RGS SOLID NEUTRAL JSWBD SWITCHBOARD TYPICAL

UNLESS OTHERWISE INDICATED WEATHERPROOF TRANSFORMER

MOUNT 72 INCHES TO BOTTOM OF ABOVE FINISHED FLOOR OR

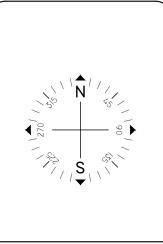
SHEET INDEX

COVER SHEET W/ SITE INFO & NOTES

ROOF PLAN W/ MODULE LOCATIONS

ELECTRICAL 3 LINE DIAGRAM

APPENDIX



	Issued / Revisions	
A2	AS BUILT	6/12/2019
A1	AS BUILT	6/10/2019
R1	MODULE TYPE & COUNT CHANGE	5/24/2019
P1	ISSUED TO TOWNSHIP FOR PERMIT	5/1/2019
NO.	DESCRIPTION	DATE

Project Title:

GONCZI, DONALD-

TRINITY ACCT #: 2019-04-337125

Project Address:

54 DOLORES DRIVE EDISON, NJ 08817 40.542398,-74.380900

Drawing Title:

AS BUILT PV SOLAR SYSTEM

Drawing Information		
DRAWING DATE:	5/1/2019	
DRAWN BY:	RF	
REVISED BY:	RTC	

System Information:			
DC SYSTEM SIZE:	7.965kW		
AC SYSTEM SIZE:	6kW		
TOTAL MODULE COUNT:	27		
MODULES USED:	HANWHA 295		
MODULE SPEC #:	Q.PEAK-BLK G4.1 295		
UTILITY COMPANY:	PSE&G		
UTILITY ACCT #:	66 772 430 01		
UTILITY METER #:	1321113		
DEAL TYPE:	SUNNOVA		

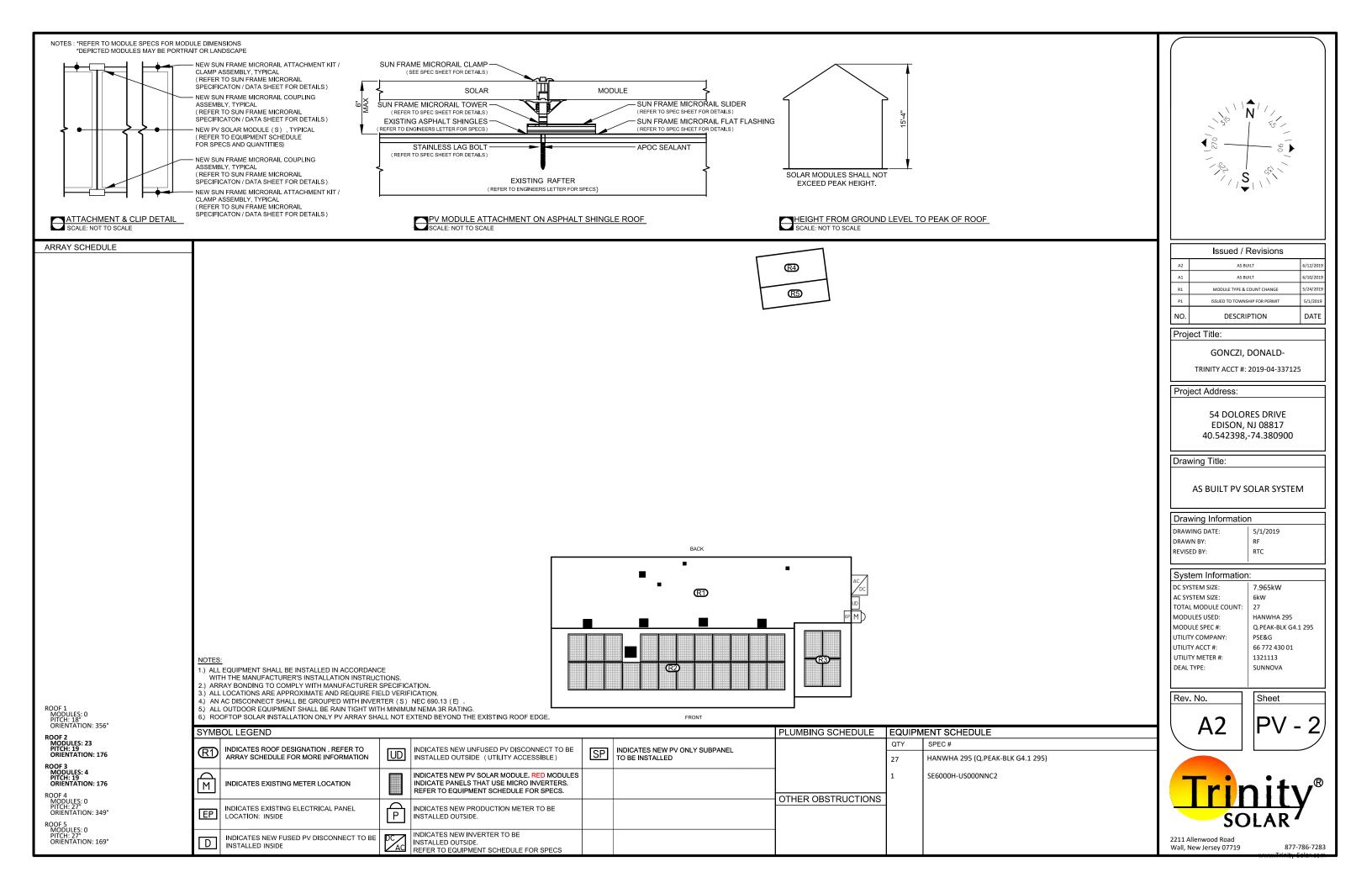


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2211 Allenwood Road

Wall, New Jersey 07719



ARRAY CIRCUIT WIRING NOTES

1.) LICENSED ELECTRICIAN ASSUMES ALL RESPONSIBILITY
FOR DETERMINING ONSITE CONDITIONS AND
EXECUTING INSTALLATION IN ACCORDANCE WITH

NEC 2014

- 2.) LOWEST EXPECTED AMBIENT TEMPERATURE BASED ON ASHRAE MINIMUM MEAN EXTREME DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. LOWEST EXPECTED AMBIENT TEMP = -16°C
- 3.) HIGHEST CONTINUOUS AMBIENT TEMPERATURE BASED ON ASHRAE HIGHEST MONTH 2% DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. HIGHEST CONTINUOUS TEMP = 33°C
- 4.) 2005 ASHRAE FUNDAMENTALS 2% DESIGN TEMPERATURES DO NOT EXCEED 47°C IN THE UNITED STATES (PALM SPRINGS, CA IS 44.1°C). FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN A ROOF-MOUNTED SUNLIT CONDUIT AT LEAST 0.5" ABOVE ROOF AND USING THE OUTDOOR DESIGN TEMPERATURE OF 47°C OR LESS (ALL OF UNITED STATES)
- 5.) PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION THAT CONTROLS SPECIFIC CONDUCTORS IN ACCORDANCE WITH NEC 690.12(1) THROUGH (5)
- 6.) PHOTOVOLTAIC POWER SYSTEMS SHALL BE PERMITTED TO OPERATE WITH UNGROUNDED PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT AS PER NEC 690.35
- 7.) UNGROUNDED DC CIRCUIT CONDUCTORS SHALL BE IDENTIFIED WITH THE FOLLOWING OUTER FINISH: POSITIVE CONDUCTORS = RED NEGATIVE CONDUCTORS = BLACK NEC 210.5(C)(2)
- 8.) ARRAY AND SUB ARRAY CONDUCTORS SHALL BE #10 PV WIRE TYPE RHW-2 OR EQUIVELANT AND SHALL BE PROTECTED BY CONDUIT WHERE EXPOSED TO DIRECT SUNLIGHT. SUB ARRAY CONDUIT LONGER THAN 24" SHALL CONTAIN ≤ 20 CURRENT CARYING CONDUCTORS AND WHERE EXPOSED TO DIRECT SUNLIGHT SHALL CONTAIN ≤ 9 CURRENT CARRYING CONDUCTORS.
- 9.) ALL WIRE LENGTHS SHALL BE LESS THAN 100' UNLESS OTHERWISE NOTED
- 10.) FLEXIBLE CONDUIT SHALL NOT BE INSTALLED ON ROOFTOP AND SHALL BE LIMITED TO 12" IF USED OUTDOORS
- 11.)OVERCURRENT PROTECTION FOR CONDUCTORS CONNECTED TO THE SUPPLY SIDE OF A SERVICE SHALL BE LOCATED WITHIN 10' OF THE POINT OF CONNECTION NEC 705.31
- 12.) WHERE TWO SOURCES FEED A BUSSBAR, ONE A UTILITY AND THE OTHER AN INVERTER, PV BACKFEED BREAKER(S) SHALL BE LOCATED OPPOSITE FROM UTILITY NEC 705.12(D)(2)(3)(b)
- 13.) ALL SOLAR SYSTEM LOAD CENTERS TO CONTAIN ONLY GENERATION CIRCUITS AND NO UNUSED POSITIONS OR LOADS
- 14.) ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A **NEMA 3R** RATING

CALCULATIONS FOR CURRENT CARRYING CONDUCTORS
REQUIRED CONDUCTOR AMPACITY PER STRING
[NEC 690.8(B)(1)]: (15.00*1.25)1 = 18.75A

AWG #10, DERATED AMPACITY
AMBIENT TEMP: 33°C, TEMP DERATING FACTOR: .96
RACEWAY DERATING = 4 CCC: 0.80
(40*.96)0.80 = 30.72A

30.72A - 18.75A, THEREFORE WIRE SIZE IS VALID

TOTAL AC REQUIRED CONDUCTOR AMPACITY 25.00A*1.25 = 31.25A

AWG #8, DERATED AMPACITY
AMBIENT TEMP: 30°C, TEMP DERATING: 1.0
RACEWAY DERATING S CCC: N/A
55A*1.0 = 55A

55A [>] 31.25A, THEREFORE AC WIRE SIZE IS VALID

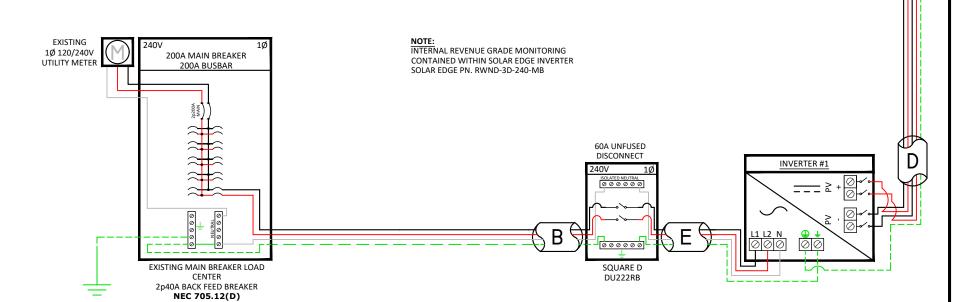
CALCULATION FOR PV OVERCURRENT PROTECTION TOTAL INVERTER CURRENT: 25.00A

25.00A*1.25 = 31.25A
--> 40A OVERCURRENT PROTECTION IS VALID

SOLAR MODULES MOUNTED TO ROOF ON 2 ARRAYS 27 - 295W MODULES W/ 1 SOLAR EDGE P320 PER MODULE

> 1 STRING OF 14 MODULES IN SERIES - 380 Vmax 1 STRING OF 13 MODULES IN SERIES - 380 Vmax

*2 STRINGS TO BE TERMINATED IN PARALLEL INSIDE INVERTER 1



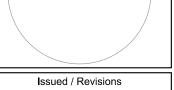
JUNCTION

BOX

HANWHA 295 (Q.PEAK-BLK G4.1 295)		
Imp	9.17	
Vmp	32.19	
Voc	39.48	
Isc	9.7	

PV MODULE SPECIFICATIONS

INVERTER #1 - SE6000H-US000NNC2				
DC		AC		
Imp	16.5	Pout	6000	
Vmp	380	Imax	25	
Voc	480	OCPDmin	31.25	
Isc	30	Vnom	240	



Engineer / License Holder:

Issued / Revisions			
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D. a9	

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UTILITY COMPANY:	PSE&G		
UTILITY ACCT #:	66 772 430 01		
UTILITY METER #:	1321113		
DEAL TYPE:	SUNNOVA		



NOTE: CONDUIT TYPE SHALL BE CHOSEN BY THE INSTALLATION CONTRACTOR TO MEET OR EXCEED NEC AND LOCAL AHJD REQUIREMENTS

D 3/4" CONDUIT W/ 4-#10 THWN-2, 1-#10 THWN-2 GROUND

#10 PV WIRE (FREE AIR) W/ #6 BARE COPPER BOND TO ARRAY

3/4" CONDUIT W/ 2-#8 THWN-2, 1-#10 THWN-2, 1-#10 THWN-2 GROUND

3/4" CONDUIT W/ 2-#8 THWN-2, 1-#10 THWN-2, 1-#10 THWN-2 GROUND

#6 THWN-2 GEC TO EXISTING GROUND ROD

PV - 3

Sheet



2211 Allenwood Road Wall, New Jersey 07719

877-786-728

APPLICATIONS CHANGE (FOR INTERNAL USE ONLY)

UPDATE REVISION	ZONING RE	QUIRED?	UPDATE REVISION
BUILDING	YES	NO	ELECTRICAL
REVISED LAYOUT		X SYSTEM SIZ	E INCREASE
REVISED ENGINEER LETTER		SYSTEM SIZ	E DECREASE
ADD 2 PANELS		ADD TAP BO	X \$100
REMOVE PANELS		ADD SUBPAI	NEL \$150
RELOCATING PANELS		NEW METER	PAN \$100
CHANGE RACKING		NEW RISER	\$100
		NEW MAIN P	
BUILDING NOTE:		ADD INVERT	ER \$150
-ADDED 2 MODULES TO SYSTEM		ADD AM	P FUSED DISCONNECT \$50
-ADDED 2 MODULES TO ROOF 2		ADD AM	P BREAKER
		ADD BREAK	ER ENCLOSURE \$100
		ADD UNFUS	ED DISCONNECT \$100
		REMOVE UN	FUSED DISCONNECT
ELECTRICAL NOTE: -MODULE CHANGE FROM HANWHA	21E TO	REMOVE FU	SED DISCONNECT
HANWHA 295 -DC SYSTEM SIZE INCREASE FROM 7		CHANGE PO	INT OF INTERCONNECTION
7965W	873W 10	CHANGE ME	THOD OF INTERCONNECTION
		REMOVE PR	ODUCTION METER
		ADD PRODU	CTION METER
ZONING NOTE:		DECREASE I	FUSE SIZE
		INCREASE F	USE SIZE
		INVERTER S	IZE DECREASE
		INVERTER S	IZE INCREASE