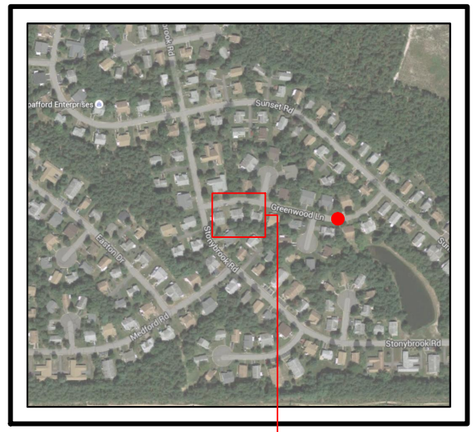
INSTALLATION OF NEW ROOF MOUNTED 9.1kW PV SYSTEM

3A GREENWOOD LANE
WHITING, NJ 08759

GREENWOOD LANE



VICINITY MAP
SCALE: NTS

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 FUSES BEARING SYSTEM COMPONENTS.
4. 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 BY THE MANUFACTURE 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.
6. THIS SOLAR PHOTOVOLTAIC SYSTEM IS TO BE INSTALLED FOLLOWING THE CONVENTIONS OF THE NATIONAL ELECTRIC 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

8. 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.
9. ALL PORTIONS OF THIS SOLAR PHOTOVOLTAIC SYSTEM SHALL BE MARKED CLEARLY IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ARTICLE 690.
10. 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.
11. PRIOR TO THE SYSTEM START UP THE INSTALLATION CONTRACTOR SHALL ASSIST IN PERFORMING ALL INITIAL HARDWARE CHECKS AND DC WIRING CONDUCTIVITY CHECKS.
12. FOR THE PROPER MAINTENANCE AND ISOLATION OF THE INVERTS REFER TO THE ISOLATION PROCEDURES IN THE OPERATION MANUAL.
13. THE LOCATION OF PROPOSED ELECTRIC AND TELEPHONE UTILITIES ARE SUBJECT TO FINAL APPROVAL OF THE APPROPRIATE UTILITY COMPANIES AND OWNERS.
14. 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

14. B) CURRENT PREVAILING UTILITY COMPANY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS
15. 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".
16. ALL INFORMATION SHOWN MUST BE CERTIFIED PRIOR TO USE FOR CONSTRUCTION ACTIVITIES.

ABBREVIATIONS

AMP	AMPERE
AC	ALTERNATING CURRENT
AL	ALUMINUM
AF	AMP. FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AWG	AMERICAN WIRE GAUGE
C	CONDUIT (GENERIC TERM OF RACEWAY, PROVIDE AS SPECIFIED)
CB	COMBINER BOX
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DISC	DISCONNECT SWITCH
DWG	DRAWING
EC	ELECTRICAL SYSTEM INSTALLER
EMT	ELECTRICAL METALLIC TUBING
FS	FUSIBLE SWITCH
FU	FUSE
GND	GROUND
GFI	GROUND FAULT INTERRUPTER
HZ	FREQUENCY (CYCLES PER SECOND)

ABBREVIATIONS CONTINUED

JB	JUNCTION BOX
kCMIL	THOUSAND CIRCULAR MILS
kVA	KILO-VOLT AMPERE
kW	KILO-WATT
kWH	KILO-WATT HOUR
L	LINE
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUG ONLY
MTD	MOUNTED
MTG	MOUNTING
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NO #	NUMBER
NTS	NOT TO SCALE
OCP	OVER CURRENT PROTECTION
P	POLE
PB	PULL BOX
PH ∅	PHASE
PVC	POLY-VINYL CHLORIDE CONDUIT
PWR	POWER
QTY	QUANTITY
RGS	RIGID GALVANIZED STEEL
SN	SOLID NEUTRAL
JSWBD	SWITCHBOARD
TYP	TYPICAL
U.O.I.	UNLESS OTHERWISE INDICATED
WP	WEATHERPROOF
XFMR	TRANSFORMER
+72	MOUNT 72 INCHES TO BOTTOM OF ABOVE FINISHED FLOOR OR GRADE

SHEET INDEX

GENERAL NOTES

IF ISSUED DRAWING IS MARKED WITH A REVISION CHARACTER OTHER THAN "A", PLEASE BE ADVISED THAT FINAL EQUIPMENT AND/OR SYSTEM CHARACTERISTICS ARE SUBJECT TO CHANGE DUE TO AVAILABLITY OF EQUIPMENT.

N 45 90 135 S 225 270 315

Issued / Revisions

NO.	DESCRIPTION	DATE
P1	ISSUED TO TOWNSHIP FOR PERMIT	11/25/2015

Project Title:

CINKAY, JOHN

TRINITY ACCT #: 2015-58707

Project Address:

3A GREENWOOD LANE
WHITING, NJ 08759

Drawing Title:

PROPOSED 9.1kW
SOLAR SYSTEM

Drawing Information

DRAWING DATE:	11/25/2015
DRAWN BY:	JC
REVISED BY:	

System Information:

TOTAL SYSTEM SIZE:	9.1kW
TOTAL MODULE COUNT:	35
MODULES USED:	TRINA 260
MODULE SPEC #:	TSM-260 PD05.08
UTILITY COMPANY:	JCP&L
UTILITY ACCT #:	100 113 406 159
UTILITY METER #:	L97202281
DEAL TYPE:	SUNRUN

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P1	PV - 1

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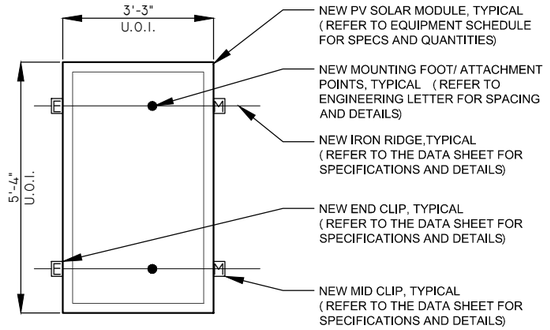
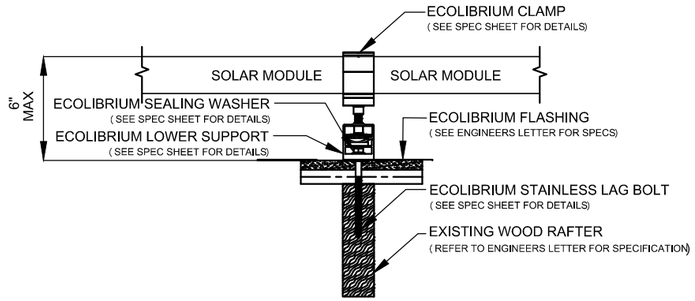
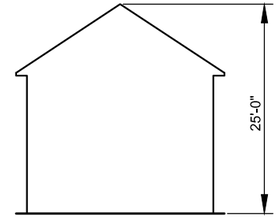


ATTACHMENT & CLIP DETAIL
SCALE: NOT TO SCALE

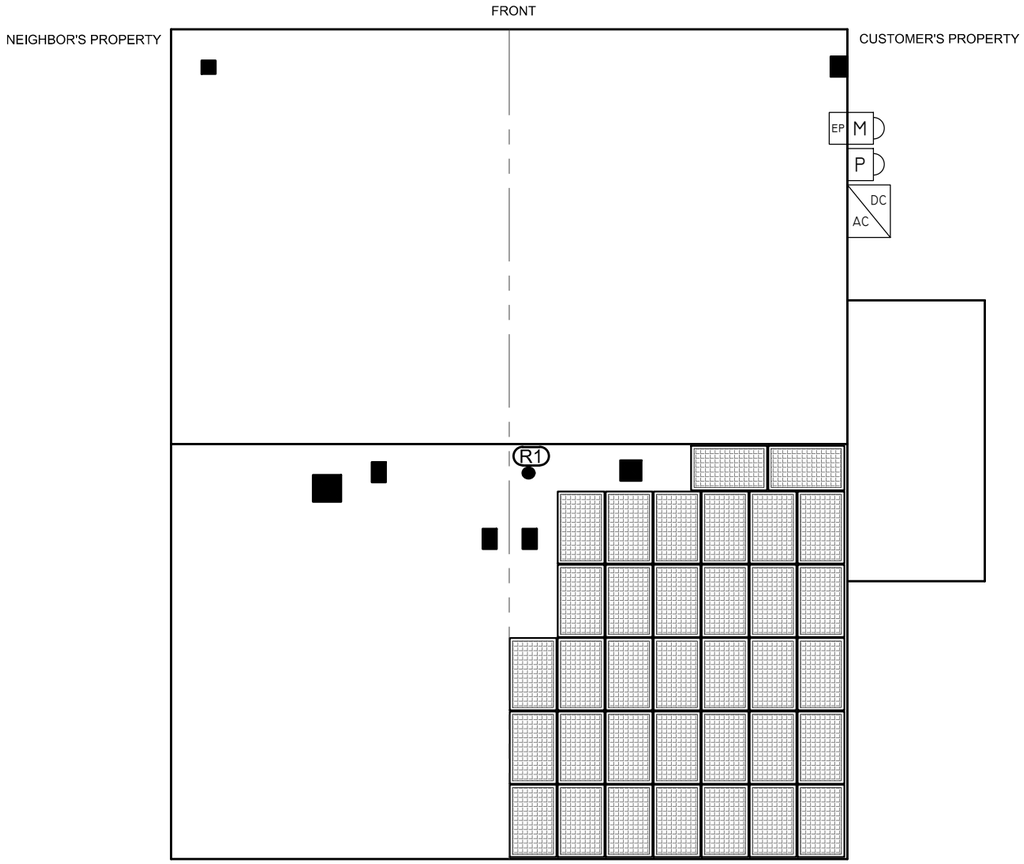
NOTE : REFER TO MODULE SPECS FOR



PV MODULE ATTACHMENT ON ASPHAULT SHINGLE ROOF
SCALE: NOT TO SCALE



HEIGHT FROM GROUND LEVEL TO PEAK OF ROOF
SCALE: NOT TO SCALE



NOTES:

1.) ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2.) ALL OUTDOOR EQUIPMENT SHALL BE RAIN TIGHT WITH MINIMUM NEMA 3R RATING.
3.) ALL LOCATIONS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION.
4.) ROOFTOP SOLAR INSTALLATION ONLY PV ARRAY WILL NOT EXTEND BEYOND THE EXISTING BUILDING ENVELOPE

ARRAY SCHEDULE

R1
ARRAY ORIENTATION = 170°
MODULE PITCH = 20°

SYMBOL LEGEND

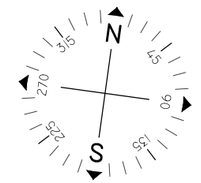
R1	INDICATES ROOF DESIGNATION . REFER TO ARRAY SCHEDULE FOR MORE INFORMATION	UD	INDICATES NEW UTILITY DISCONNECT TO BE INSTALLED OUTSIDE	E	NEW END CLIP, TYPICAL (REFER TO THE UNIRAC CODE-COMPLIANT INSTALLATION MANUAL SECTION 3.2.5 FOR SPECS AND DETAILS)
M	INDICATES EXISTING METER LOCATION		INDICATES NEW PV SOLAR MODULE, RED MODULES INDICATE PANELS THAT USE MICRO INVERTERS. REFER TO EQUIPMENT SCHEDULE FOR SPECS.	M	NEW MID CLIP, TYPICAL (REFER TO THE UNIRAC CODE-COMPLIANT INSTALLATION MANUAL SECTION 3.2.5 FOR SPECS AND DETAILS)
EP	INDICATES EXISTING ELECTRICAL PANEL LOCATION: IN GARAGE	P	INDICATES NEW PRODUCTION METER TO BE INSTALLED OUTSIDE.	---	NEW UNIRAC RAIL,TYPICAL (REFER TO THE UNIRAC CODE-COMPLIANT INSTALLATION MANUAL FOR SPECS AND DETAILS)
D	INDICATES NEW MAIN DISCONNECT TO BE GROUPED WITH MAIN PANEL	DC AC	INDICATES NEW INVERTER TO BE INSTALLED OUTSIDE. REFER TO EQUIPMENT SCHEDULE FOR SPECS.	●	NEW MOUNTING FOOT/ ATTACHMENT POINTS, TYPICAL (REFER TO ENGINEERING LETTER FOR SPACING AND DETAILS)

PLUMBING SCHEDULE

OTHER OBSTRUCTIONS

EQUIPMENT SCHEDULE

QTY	SPEC #
35	TRINA 260 (TSM-260 PD05.08)
1	SE10000A-US



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CINKAY, JOHN
TRINITY ACCT #: 2015-58707

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WHITING, NJ 08759

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PROPOSED 9.1kW
SOLAR SYSTEM

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DRAWN BY:	JC
REVISED BY:	

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TOTAL SYSTEM SIZE:	9.1kW
TOTAL MODULE COUNT:	35
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MODULE SPEC #:	TSM-260 PD05.08
UTILITY COMPANY:	JCP&L
UTILITY ACCT #:	100 113 406 159
UTILITY METER #:	L97202281
DEAL TYPE:	SUNRUN

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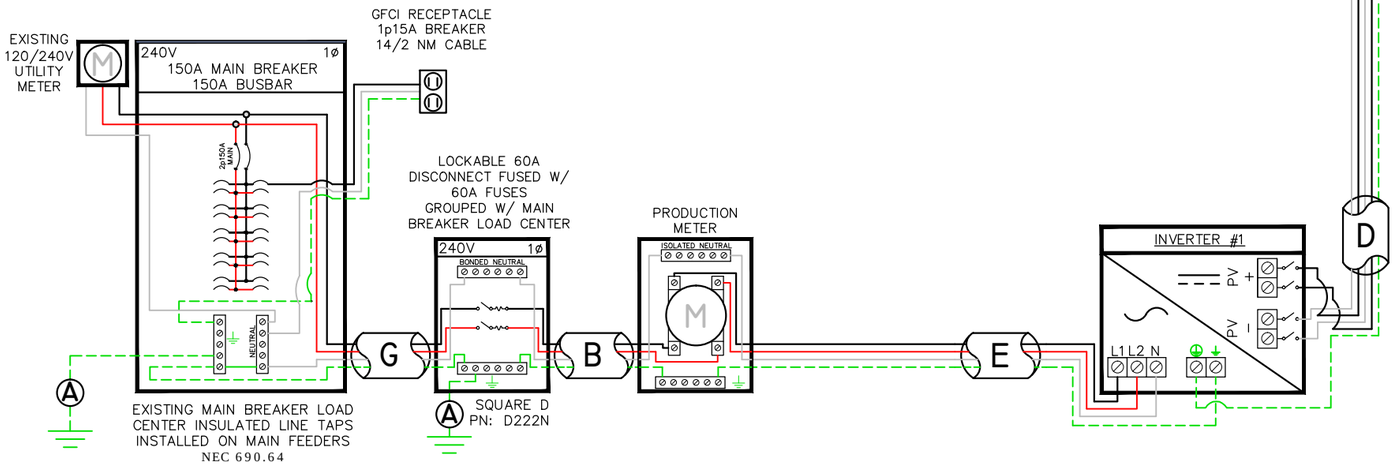
SOLAR MODULES MOUNTED TO ROOF ON 1 ARRAY
35 - 260W MODULES W/ 1 SOLAR EDGE P300 PER MODULE
18.75 ADC MAX PER STRING

1 STRING OF 18 MODULES IN SERIES - 350 Vmax
1 STRING OF 17 MODULES IN SERIES - 350 Vmax
*2 STRINGS TO BE TERMINATED IN PARALLEL INSIDE INVERTER 1

F

MOUNTED
UNDER SOLAR MODULE
NEC 690.34

8"x8"
JUNCTION
BOX



ARRAY CIRCUIT WIRING NOTES

COMPLIES WITH 2011 NEC

1.) 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

2.) 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

3.) 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),

4.) PHOTOVOLTAIC POWER SYSTEMS SHALL BE PERMITTED TO OPERATE WITH UNGROUNDED PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT AS PER NEC 690.35

5.) ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A NEMA 3 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: 55°C, TEMP DERATING FACTOR: .76
RACEWAY DERATING = 4 CCC: 0.80
(40*.76)0.80 = 24.32A

24.32A ≥ 18.75A, THEREFORE WIRE SIZE IS VALID

TOTAL AC REQUIRED CONDUCTOR AMPACITY
42.00A*1.25 = 52.50A

AWG #6, DERATED AMPACITY
AMBIENT TEMP: 30°C, TEMP DERATING: 1.0
RACEWAY DERATING ≤ 3 CCC: N/A
75A*1.0 = 75A

75A ≥ 52.50A, THEREFORE AC WIRE SIZE IS VALID

CALCULATION FOR PV OVERCURRENT PROTECTION

TOTAL INVERTER CURRENT: 42.00A
42.00A*1.25 = 52.50A
−−> 60A OVERCURRENT PROTECTION IS VALID

PV MODULE SPECIFICATIONS	
TRINA 260 (TSM-260 PD05.08)	
Imp	8.5
Vmp	30.6
Voc	38.2
Isc	9

INVERTER #1 - SE10000A-US			
DC		AC	
Imp	26	Pout	10000
Vmp	350	Iout	42
Voc	500	Imax	52.5
Isc	30	Vnom	240

A	#6 THWN-2 GEC TO EXISTING GROUND ROD
B	3/4" EMT W/ 2-#6 THWN-2, 1-#10 THWN-2, 1-#10 THWN-2 GROUND
C	3/4" EMT W/ 4-#10 THWN-2, 1-#10 THWN-2 GROUND
D	3/4" EMT W/ 4-#10 THWN-2, 1-#10 THWN-2 GROUND
E	3/4" EMT W/ 2-#6 THWN-2, 1-#10 THWN-2, 1-#10 THWN-2 GROUND
F	#12 PV WIRE W/ #6 BARE COPPER BOND TO MODULES AND RAILS
G	3/4" FMC W/ 3-#6 THWN-2, 1-#8 THWN-2 GROUND

Engineer / License Holder:

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