

PROJECT DESCRIPTION

THIS 7.15 KWSTC, ROOF MOUNTED PHOTOVOLTAIC (PV) SYSTEM IS TO BE INSTALLED AT THE SINGLE-FAMILY DWELLING IN ANYTOWN, USA.
THE ENERGY PRODUCED BY THE PV SYSTEM SHALL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ON-SITE ELECTRICAL EQUIPMENT VIA
A BACK-FED BREAKER IN THE MAIN SERVICE PANEL. THIS PROJECT INCLUDES STORAGE BATTERIES.

SHEET INDEX

T1.0 COVER
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A1.0 ROOF PV LAYOUT
S1.0 MOUNTING & RACKING METHOD
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SCOPE OF WORK

(22) PV MODULES (TOTAL: 405 SQ. FT.)
(1) 7.6 kW BATTERY INVERTER/ CHARGER
(1) BATTERY, 9.8 kWh, NEMA 1
(22) SOLAREGE POWER OPTIMIZERS
(28) ATTACHMENT POINTS @ 72" O.C. MAX.
(1) AC DISCONNECT, 240 VAC, NEMA 3R
(1) AUTO-TRANSFORMER, 240 VAC, NEMA 3R,
(1) BACKUP PANEL, 240 VAC, NEMA 1
(1) ELECTRICITY METER, 240 VAC, NEMA 3R

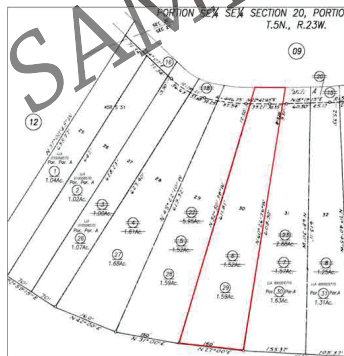
SITE SPECIFICATIONS

OCCUPANCY CATEGORY: II
DESIGN WIND SPEED: 110 MPH (ASCE 7-10)
GROUND SNOW LOAD: 0 PSF (ASCE 7-10)
EXPOSURE CATEGORY: C

GOVERNING CODES

2016 CA ELECTRICAL CODE: § 110, 240, 250, 690, 705
2016 CA BUILDING CODE: § 1507.17, 1510.7, 3111
2016 CA RESIDENTIAL CODE: § R324, R908
2016 CA FIRE CODE: § 605.11
UNDERWRITERS LABORATORIES (UL) STANDARDS
CSHA 29 CFR 1910.269

PARTS LIST	
Quantity	Description
8	Iron Ridge stopper sleeve
22	PV Module
22	SolarEdge P320 Optimizer
28	Iron Ridge Flashfoot2
48	Iron Ridge UFO
156	Feet of Iron Ridge XR100 Rail



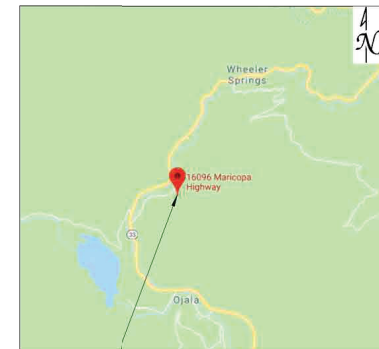
PARCEL MAP
APN: 009011

1



AERIAL MAP

2



PROJECT LOCATION VICINITY MAP

3

CONTRACTOR NOTES:

- 1.) THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY THE SYSTEM DESIGN ENGINEER OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND DRAWINGS.
- 2.) THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL WORK AS SHOWN IN THE CONSTRUCTION DOCUMENTS UNLESS OTHERWISE NOTED. ALL WORK SHALL BE PERFORMED IN AN ORDERLY, WORKMAN-LIKE AND SAFE MANNER BY WORKERS SKILLED AND EXPERIENCED IN THEIR TRADES.
- 3.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL INSPECTIONS TO BE WITNESSED BY THE AHJ AND/OR THE OWNER. THE CONTRACTOR SHALL WORK WITH THE OWNER'S INSPECTION AGENCY TO PLAN THE INSPECTIONS, AND NOTIFY ALL PARTIES INVOLVED SUFFICIENTLY IN ADVANCE TO ALLOW THE INSPECTIONS TO TAKE PLACE IN A TIMELY MANNER AND NOT DELAY THE PROGRESS OF THE WORK. THE OWNER AND SYSTEM DESIGN ENGINEER WILL NOT BE RESPONSIBLE FOR SCHEDULING, ARRANGING OR COORDINATING THE INSPECTIONS.
- 4.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE AREAS WHERE WORK IS TAKING PLACE, AS WELL AS ANY ADJOINING AREAS WHICH MAY BE AFFECTED BY THE WORK, TO PREVENT SUBJECTING THE OCCUPANTS, STRUCTURES, VEHICLES, EQUIPMENT, OR ANY OTHER PARTS OR CONTENTS OF THE SITE TO HAZARD OR DAMAGE.
- 5.) CONTRACTOR SHALL FURNISH ALL NECESSARY BOXES, OUTLETS, SUPPORTS, CONDUITS, FITTINGS, AND ACCESSORIES TO FULFILL APPLICABLE CODES, REGULATIONS, BUILDING STANDARDS, AND THE BEST PRACTICE OF THE TRADE FOR THE INSTALLATION OF ELECTRICAL WORK.
- 6.) THE CONTRACTOR SHALL, AT ALL TIMES DURING THE WORK, MAINTAIN ACCESSIBILITY FROM THE STREET TO ALL FIRE HYDRANTS, POWER OR LIGHT POLES, AND SIMILAR UTILITY AND PUBLIC SERVICE ITEMS WITHIN OR ADJACENT TO THE CONSTRUCTION SITE.
- 7.) WORK SHALL NOT RESTRICT CLEAR AND UNOBSTRUCTED ACCESS TO ANY WATER OR POWER DISTRIBUTION FACILITIES (POWER POLES, PULLBOXES, TRANSFORMERS, VAULTS, PUMPS, VALVES, METERS, APPURTENANCES, ETC.) OR TO THE LOCATION OF THE HOOKUP.
- 8.) THE OWNERS AND THE AHJ SHALL BE NOTIFIED IN WRITING IN ADVANCE OF ANY REQUIRED CONSTRUCTION OPERATION THAT WILL INVOLVE INTERRUPTION OF THE HEATING, WATER, FIRE PROTECTION SYSTEMS, TELEPHONE, GAS OR ELECTRICAL SERVICES TO THE OTHER BUILDINGS AND AREAS OF THE SITE. THE CONTRACTOR SHALL COORDINATE ANY REQUIRED SHUTDOWN OF THE UTILITIES WITH THE OWNERS, THE AHJ, AND THE UTILITY COMPANY.
- 9.) UPON REVIEW OF ELECTRICAL DRAWINGS, THE ELECTRICAL CONTRACTOR SHALL INFORM THE SYSTEM DESIGN ENGINEER OF ANY DISCREPANCIES OR REQUEST CLARIFICATION, IF NECESSARY, CONCERNING THE INTENT OF THE PLANS AND SPECIFICATIONS TO PROVIDE A COMPLETE ELECTRICAL INSTALLATION.
- 10.) THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS WHOSE WORK MIGHT AFFECT THIS INSTALLATION. CONTRACTORS SHALL ARRANGE ALL PARTS OF THIS WORK AND EQUIPMENT IN PROPER RELATION TO THE WORK AND EQUIPMENT OF OTHERS AND WITH BUILDING CONSTRUCTION AND ARCHITECTURAL FINISH SO THAT IT WILL HARMONIZE IN SERVICE AND APPEARANCE.
- 11.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE OWNER'S INSPECTION AGENCY TO ARRANGE FOR INSPECTIONS RELATED TO ALL SPECIAL INSPECTIONS IN A TIMELY MANNER, AND SHALL BE PRESENT AS REQUIRED AT THE INSPECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THAT THE APPROPRIATE SUBCONTRACTORS ARE PRESENT DURING TESTS AND INSPECTIONS OF THE SYSTEMS FOR WHICH THE SUBCONTRACTORS ARE RESPONSIBLE.

PHOTOVOLTAIC NOTES:

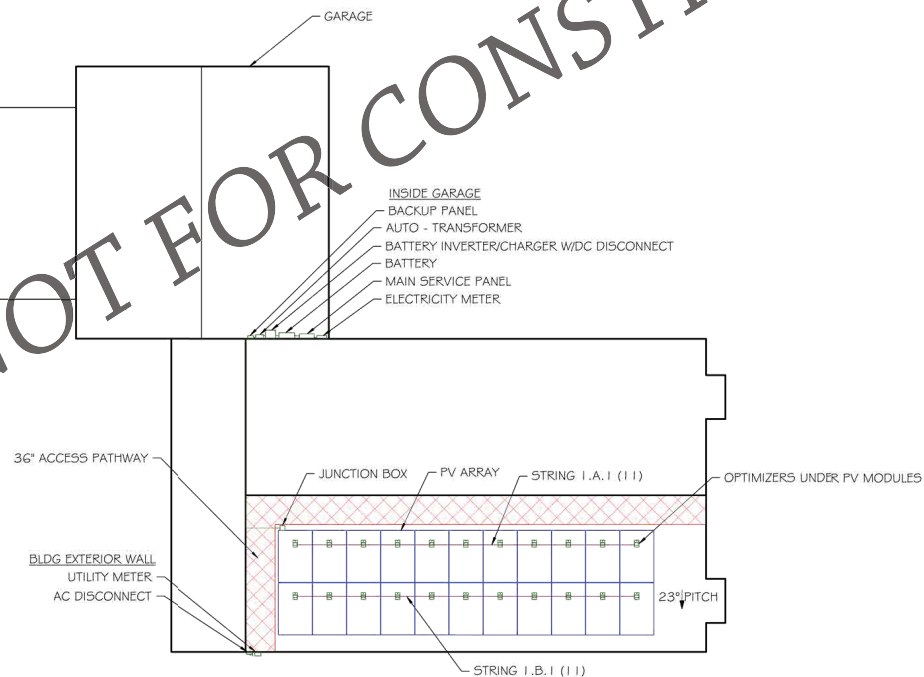
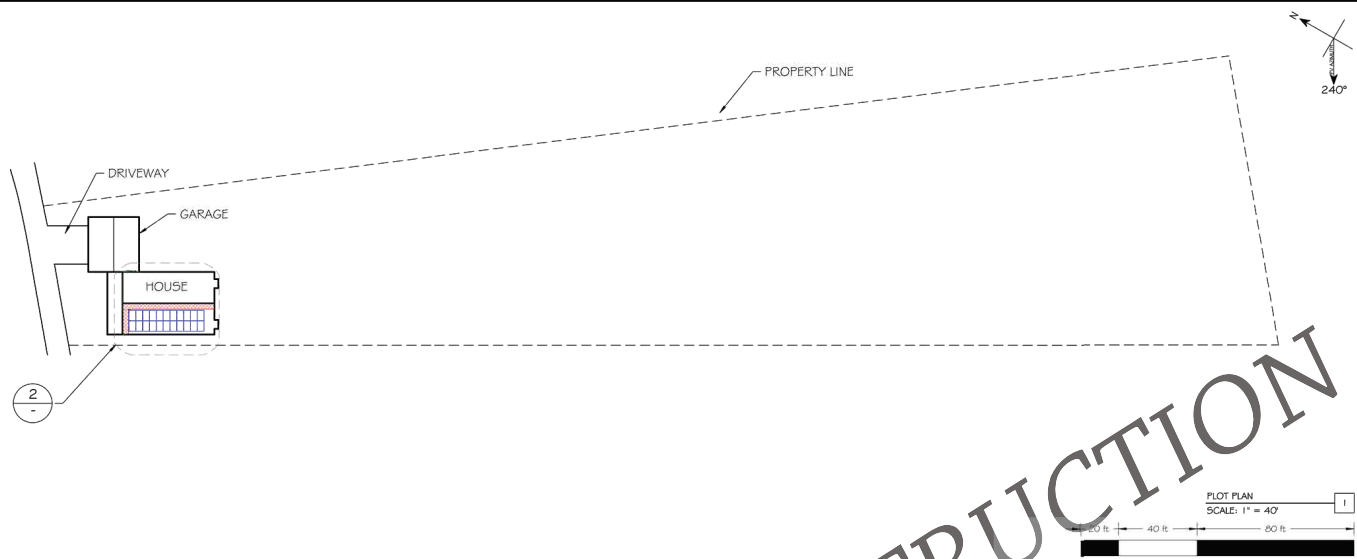
- 1.) ALL ASPECTS OF WORK RELATED TO THE SOLAR PHOTOVOLTAIC (PV) SYSTEM SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL CODES, UTILITY REQUIREMENTS AND THE NEC, ESPECIALLY ARTICLE 690.
- 2.) SOLAR PV MODULE FRAMES SHALL BE BONDED TO RACKING RAIL OR BARE COPPER E.G.C. PER THE MODULE MANUFACTURER'S LISTED INSTRUCTION SHEET.
- 3.) SOLAR PV SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH NEC 690.47.
- 4.) COMBINER BOXES, FUSING, WIRE SIZES, QUANTITIES AND CONDUIT SIZES BETWEEN SOLAR ARRAYS AND INVERTERS TO BE VERIFIED BY CONTRACTOR WITH SOLAR MODULE AND INVERTER MANUFACTURERS BEFORE INSTALLATION.
- 5.) ALL PV SOURCE CIRCUIT CONDUCTORS AND CONNECTORS SHALL BE SUPPORTED AND SECURED WITHOUT EXCESSIVE STRESS. NO WIRING SHALL BE PERMITTED TO TOUCH THE ROOF SURFACE.
- 6.) PV SOURCE CIRCUIT CONDUCTORS EXPOSED BETWEEN ARRAYS SHALL BE SECURED ON BOTH SIDES, AND BE PROTECTED FROM PHYSICAL DAMAGE AND ABRASION, INCLUDING FROM EDGES OF RACKING, CHANNEL EDGES, WIRE TRAYS, ETC.
- 7.) ANY CABLE TIES USED SHALL BE HEAT STABILIZED (-40C TO 105C), UV STABILIZED AND OUTDOOR RATED, SUITABLE AND DURABLE FOR THE ENVIRONMENT AND LIFE OF THE PV SYSTEM.
- 8.) WHERE EXPOSED TO SUNLIGHT, CONDUCTORS SHALL BE LISTED AND MARKED AS SUNLIGHT RESISTANT.
- 9.) ALL EQUIPMENT GROUND CONDUCTORS SMALLER THAN AWG #6 SHALL BE PROTECTED FROM PHYSICAL DAMAGE BY AN IDENTIFIED RACEWAY OR CABLE ARMOR UNLESS INSTALLED WITHIN THE HOLLOW SPACES OF THE FRAMING MEMBERS OF BUILDINGS OR STRUCTURES AND WHERE NOT SUBJECT TO PHYSICAL DAMAGE.

EQUIPMENT NOTES:

- 1.) ALL MATERIALS, SUPPLIES, AND EQUIPMENT SHALL BE LISTED, USED, AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS, AND APPLICABLE NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) REQUIREMENTS.
- 2.) ALL EQUIPMENT SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED.
- 3.) WORKING SPACE AROUND ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
- 4.) THE APPROXIMATE LOCATIONS OF ALL JUNCTION BOXES, COMBINER BOXES, CONDUITS, ETC. SHALL BE DETERMINED FROM THE DRAWINGS, AND VERIFIED BY THE CONTRACTOR FOR INSTALLATION.
- 5.) ALL JUNCTION BOXES, COMBINER BOXES, AND DISCONNECTS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.
- 6.) PROVIDE NEMA 3R RATED EQUIPMENT OR BETTER WHERE EXPOSED TO OUTDOORS.
- 7.) WHERE SIZES OF RACEWAYS OR BOXES ARE NOT INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL SIZE THESE ITEMS AS REQUIRED FOR THE INSTALLATION.
- 8.) ALL VERTICAL RUNS OF CONDUIT OR TUBING TERMINATING IN THE BOTTOM OF WALL BOXES OR CABINETS OR SIMILAR LOCATIONS, SHALL BE PROTECTED FROM THE ENTRANCE OF FOREIGN MATERIAL PRIOR TO THE INSTALLATION OF CONDUCTORS.
- 9.) METAL RACEWAYS, METAL ENCLOSURES OF ELECTRICAL DEVICES AND EQUIPMENT, MODULE FRAMES, AND OTHER EQUIPMENT SHALL BE COMPLETELY GROUNDED IN ACCORDANCE WITH THE NEC.
- 10.) PROPER HARDWARE FOR A COMPLETE GROUNDING AND BONDING SYSTEM SHALL BE INSTALLED BY THE CONTRACTOR, IF NECESSARY.
- 11.) GROUNDING RODS SHALL HAVE A RESISTANCE TO GROUND OF 25 OHMS OR LESS AND SHALL BE 5/8" x 8' MIN, COPPER-BONDED STEEL. ALL GROUND CLAMPS USED SHALL BE UL 467 LISTED.
- 12.) ALL PVC CONDUIT EXPOSED TO SUNLIGHT SHALL BE SCHEDULE 80 AND MARKED AS SUNLIGHT RESISTANT. ALL UNDERGROUND PVC CONDUIT SHALL BE SCHEDULE 40 OR 80.

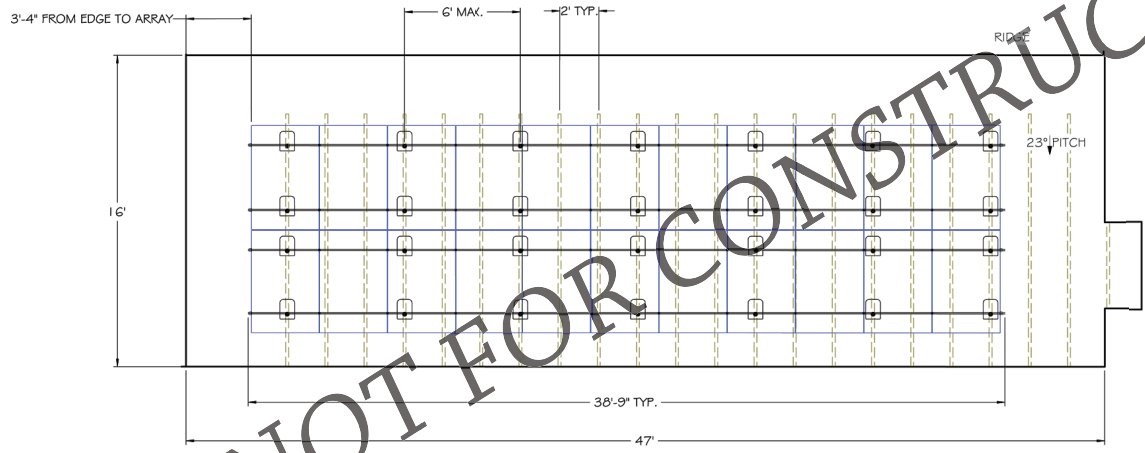
ELECTRICAL NOTES:

- 1.) ELECTRICAL POWER MUST BE SHUT OFF PRIOR TO THE CONTRACTOR PERFORMING ANY WORK IN RACEWAYS WITH LIVE ELECTRICAL CIRCUITS OR ANY OTHER EQUIPMENT. WHEN SWITCHES OR CIRCUIT BREAKERS ARE OPENED FOR WORK ON ELECTRICAL EQUIPMENT OR WIRING, SIGNS OR TAGS SHOULD BE INSTALLED AT THE SWITCH OR BREAKER STATING THAT WORK IS BEING PERFORMED ON THEM. INCLUDE THE TIME, DATE, AND CONTRACTOR'S NAME ON THE SIGN OR TAG. IF DEVICE IS LOCKABLE, IT SHOULD BE PADLOCKED.
- 2.) THE ELECTRICAL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE AHJ, NATIONAL FIRE PROTECTION AGENCY (NFPA), NATIONAL ELECTRICAL CODE (NEC), AND OSHA.
- 3.) PHASING OF NEW CONDUCTORS TO MATCH EXISTING CONDUCTORS. IF INSTALLATING A NEW CIRCUIT, THEN CONTRACTOR SHALL FOLLOW THE PHASING SCHEMES PROVIDED IN THE ELECTRICAL DIAGRAM.
- 4.) ALL CONDUCTORS SHALL BE COPPER, RATED FOR 90 WET ENVIRONMENT, AND 1000 VOLTS DC OR 600 VOLTS AC, UNLESS OTHERWISE NOTED.
- 5.) GROUNDING ELECTRODE CONDUCTOR (G.E.C.) SHALL BE CONTINUOUS AND/OR IRREVERSIBLY SPLICED/WELDED.
- 6.) FLEXIBLE, FINE-STRANDED CABLES SHALL BE TERMINATED ONLY WITH TERMINALS, LUGS, DEVICES, OR CONNECTORS THAT ARE IDENTIFIED AND LISTED FOR SUCH USE PER NEC 690.31 (F).
- 7.) ALL WIRES SHALL BE IDENTIFIED BY CIRCUITS IN ALL CABINETS, BOXES, WIRING TROUGHS, AND OTHER ENCLOSURES, AND AT ALL TERMINAL POINTS, I.E., RECEPTACLES, MECHANICAL LUGS, COMPRESSION FITTINGS. THE CIRCUIT DESIGNATIONS SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS OR AS DIRECTED BY THE SYSTEM DESIGN ENGINEER. LABELS OR TAGS SHALL BE APPLIED TO WIRES SO THAT THEY WILL BE READILY VISIBLE.
- 8.) FUSES FOR SWITCHES SHALL BE CURRENT-LIMITING TYPE WITH A MINIMUM INTERRUPTING CAPACITY OF 200,000 AMPERES RMS (UNLESS OTHERWISE NOTED) AND OF THE CONTINUOUS CURRENT RATINGS AS INDICATED ON THE DRAWINGS OR AS RECOMMENDED BY THE MANUFACTURER.



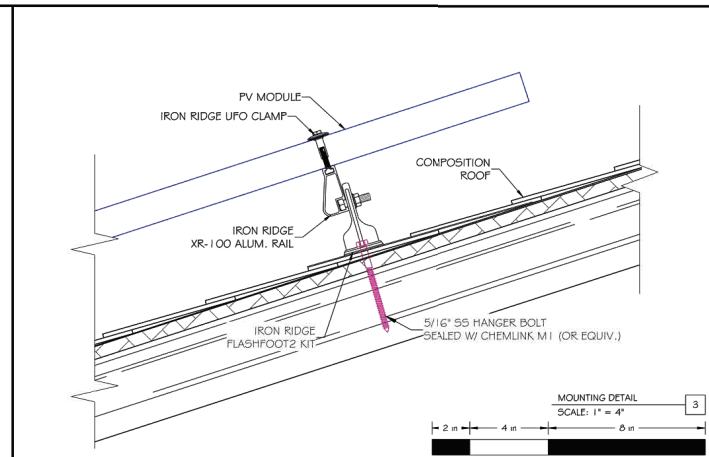
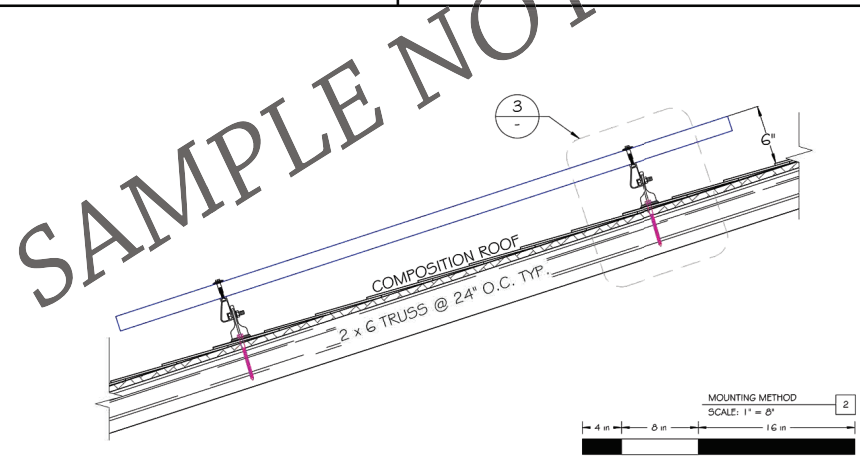
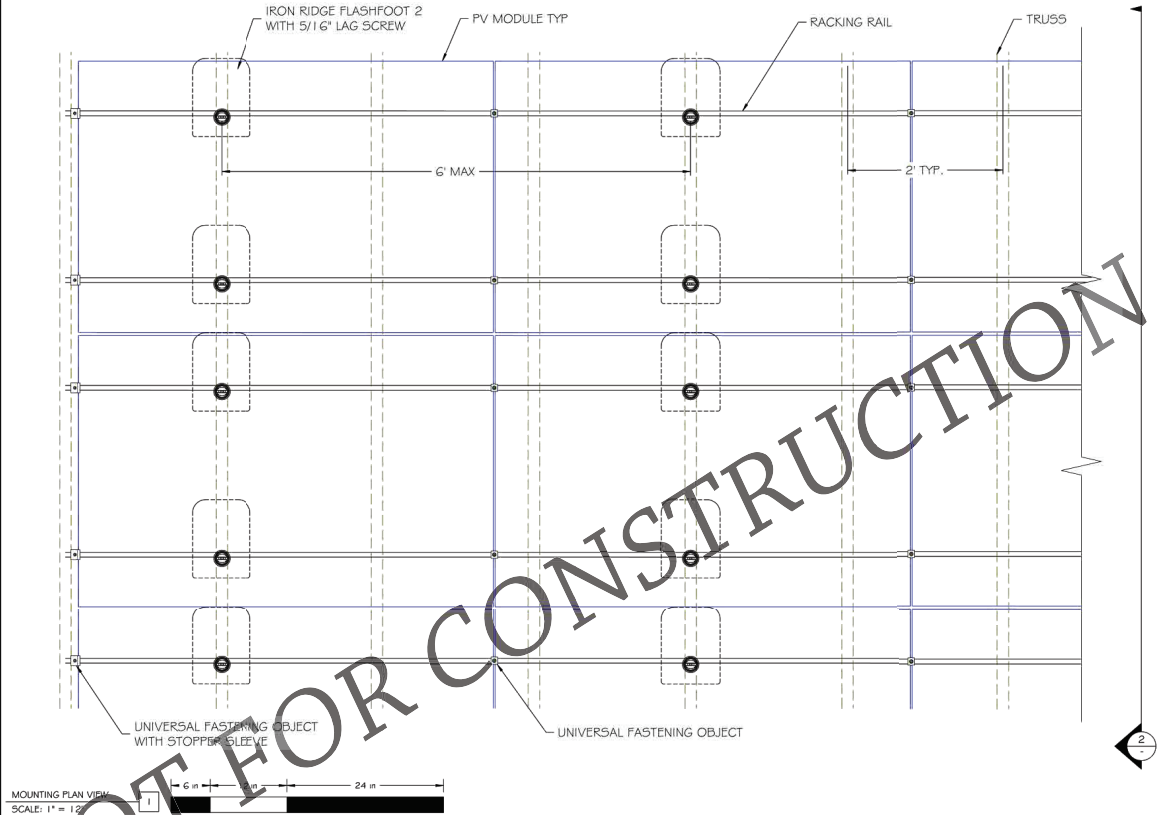
LEGEND

FLASHING	RAFTER/TRUSS	PV MODULE	VENT	CHIMNEY	SKYLIGHT

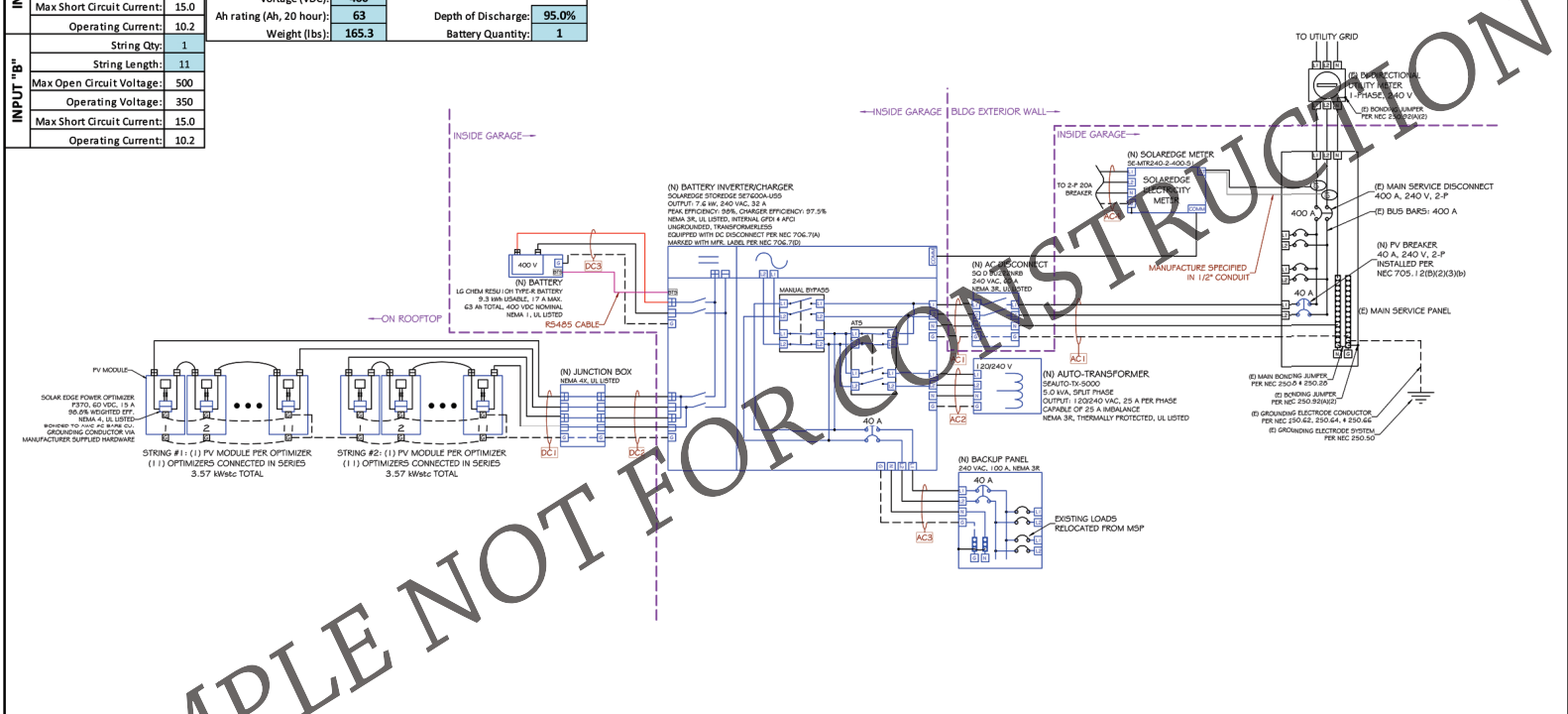


SAMPLE NOT FOR CONSTRUCTION

STRUCTURAL CALCULATIONS			
	QTY	WEIGHT EA.	TOTAL
PV MODULE	22	x 44.0 LBS =	968 LBS
RACKING RAIL	156	x 0.68 LB/FT =	106 LBS
ATTACHMENT	28	x 1.35 LBS =	38 LBS
MICRO/OPT.	22	x 1.40 LBS =	31 LBS
TOTAL WEIGHT:			1143 LBS
ARRAY AREA:			405 SQ. FT.
DEAD LOAD:			2.8 PSF
POINT LOAD:			40.8 LBS



Array Configuration			PV Module Specifications			Battery Inverter Specifications			Power Optimizer Specifications			AC System Summary		
System: 7.15 kWstc, 7.6 kW AC			Model Number: SOLARIA POWER XT-330R-PX			Model Number: SOLAREGE 7600A-USS			Model Number: SolarEdge P370			NOMINAL SYSTEM VOLTAGE: 240 Volts AC		
Total PV Module Qty: 22			Weight (lbs): 44.0			Power Rating (W AC): 7600			Max Input Power (W): 370			MAXIMUM SYSTEM VOLTAGE: 690V AC		
Inverter I.D. # Inv #1			Dimensions (in): 63.8 x 41.6 x 1.6			Max Utility Input Current (A): 32			Max Input VDC: 48			MAX CURRENT PER 690.8(A): 32 Amps		
Inverter AC Power (kW): 7.60			Power @ STC (W): 330			Nominal Voltage (VAC): 240			Max Input VDC: 48			MAX CURRENT PER 690.8(B): 40 Amps		
PV Power (kWstc): 7.15			Voc (VDC): 44.5			DC Charge Current (A): 8.5			Max Input VDC: 48					
Inverter DC:AC Ratio: 0.94			Vmp (VDC): 36.6			Nominal Voltage (VDC): 400			Output Current (A): 15					
Module Total Qty: 22			Voc Temp Coeff (%/°C): -0.32			Voltage Range (VDC): 300-500			Output Voltage (VDC): 60					
String Qty: 1			Max Voltage (VDC): 1,000			Inverter Quantity: 1			Min String Length: 8 Modules					
String Length: 11			Module Quantity: 22			Max String Length: 25 Modules			Max String Power (W): 5250					
Max Open Circuit Voltage: 500						Optimizer Quantity: 22								
Operating Voltage: 350														
Max Short Circuit Current: 15.0														
Operating Current: 10.2														
String Qty: 1														
String Length: 11														
Max Open Circuit Voltage: 500														
Operating Voltage: 350														
Max Short Circuit Current: 15.0														
Operating Current: 10.2														



WIRE AND CONDUIT SCHEDULE													
TAG	PHASE	CONDUCTOR QTY, SIZE AND TYPE PER CONDUIT	CONDUIT QTY, SIZE AND TYPE PER CONDUIT	GROUND CONDUCTOR QTY, SIZE AND TYPE PER CONDUIT	CONDUIT SIZE	CONDUIT TYPE	EST. DIST.						
DC1	2-STRING	AWG #10 THWN-2	N/A	N/A	N/A	I	AWG #6	BARE CU	N/A	N/A	10	120% Rule Calculation per NEC 705.12(D)(2)(3)	
DC2	4	AWG #10 THWN-2	N/A	N/A	N/A	I	AWG #12	THWN-2	3/4"	SCH80 PVC	40	Main Busbar Rating: 400 Amps	
DC3	2	AWG #10 THWN-2	N/A	N/A	N/A	I	AWG #14	THWN-2	3/4"	SCH40 PVC	5	Main Service Breaker Rating: 400 Amps	
AC1	2	AWG #8 THWN-2	I	AWG #8 THWN-2	I	AWG #8 THWN-2	3/4"	SCH80 PVC	20	PV Backfeeding Current: 40 Amps			
AC2	2	AWG #8 THWN-2	I	AWG #8 THWN-2	I	AWG #8 THWN-2	3/4"	SCH40 PVC	5	BUSBAR x 120% - MAIN BREAKER = MAX PV BREAKER			
AC3	2	AWG #8 THWN-2	I	AWG #8 THWN-2	I	AWG #8 THWN-2	3/4"	SCH40 PVC	5				
AC4	2	AWG #12 THWN-2	I	AWG #8 THWN-2	I	AWG #8 THWN-2	3/4"	SCH40 PVC	5	480 - 400 = 80			

CONDUCTOR SPECIFICATIONS																													
TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	MATERIAL	CONN. TEMP. RATING	TRADE SIZE	AMPACTY PER 310.15(B)(16) & 310.15(B)(17)	OPTIMIZER OUTPUT CURRENT	# OF PARALLEL STRINGS	MAX CURRENT PER 600.8(A)(1)	125% PER 600.8(B)(1)	MAX CURRENT PER 600.8(B)(1)	ANMPACTY CHECK #1		CONDUCTOR TEMPERATURE DERATING		CONDUIT FILL DERATING		CORRECTED AMPACTY CALCULATION		AMPACTY CHECK #2		VOLTAGE DROP							
DC1	PV STRING	JUNCTION BOX	COPPER	90°C	AWG #10	55 Amps	15.0	x 1	= 15.0 Amps	x 1.25 = 18.8 Amps	18.8 Amps	MAX CURRENT PER 600.8(A)(1)	CONDUCTOR AMPACTY	CIRCUIT ENVIRONMENT	LOCAL 2% HIGH TEMP (°C)	HEIGHT ABOVE ROOF (ft)	TEMP. ADJ. DERATE (%)	OPERATING TEMP (°C)	AMPACTY CORRECTION (310.15(B)(16))	# OF UNGROUNDED CONDUCTORS	AMPACTY CORRECTION (310.15(B)(16))	90°C CONDUCTOR AMPACTY	X TEMP DERATE	CONDUIT FILL = 55	DERATED CORRECTED AMPACTY	MAX CURRENT PER 600.8(B)(1)	DERATED CORRECTED AMPACTY	EST. ONE-WAY DISTANCE	VOLTAGE DROP
DC2	JUNCTION BOX	INVERTER	COPPER	75°C	AWG #10	35 Amps	15.0	x 1	= 15.0 Amps	x 1.25 = 18.8 Amps	18.8 Amps	18.1 Amps	< 55.0 Amps	ROOFTOP, FREE AIR	27	-	N/A	42	0.87	N/A	1.00	55	x 0.87 x 1.00 =	47.9 Amps	15.0 Amps	< 47.9 Amps	10	ft	0.06%
DC3	BATTERY	INVERTER	COPPER	75°C	AWG #10	35 Amps	1.0	x 8.5	= 8.5 Amps	x 1.25 = 10.6 Amps	10.6 Amps	18.1 Amps	< 35.0 Amps	ROOFTOP, IN CLO.	27	-	N/A	49	0.82	4	0.80	40	x 1 x 0.82 x 0.80 =	26.3 Amps	15.0 Amps	< 26.3 Amps	40	ft	0.41%
												10.1 Amps	< 35.0 Amps	INDOORS (90°C)	27	-	N/A	27	1.00	2	1.00	40	x 1 x 1 x 1.00 =	40 Amps	8.5 Amps	< 40.0 Amps	5	ft	0.03%

CONDUCTOR SPECIFICATIONS																													
TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	MATERIAL	TERMINAL TEMP. RATING	TRADE SIZE	AMPACTY PER 310.15(B)(16) & 310.15(B)(17)	INVERTER OUTPUT CURRENT	# OF INVERTERS	MAX CURRENT PER 600.8(A)(1)	125% PER 600.8(B)(1)	MAX CURRENT PER 600.8(B)(1)	ANMPACTY CHECK #1		CONDUCTOR TEMPERATURE DERATING		CONDUIT FILL DERATING		CORRECTED AMPACTY CALCULATION		AMPACTY CHECK #2		VOLTAGE DROP							
AC1	INVERTER	AC DISCONNECT	COPPER	75°C	AWG #8	50 Amps	32.0	x 1	= 32.0 Amps	x 1.25 = 40.0 Amps	40.0 Amps	MAX CURRENT PER 600.8(A)(1)	CONDUCTOR AMPACTY	CIRCUIT ENVIRONMENT	LOCAL 2% HIGH TEMP (°C)	HEIGHT ABOVE ROOF (ft)	TEMP. ADJ. DERATE (%)	OPERATING TEMP (°C)	AMPACTY CORRECTION (310.15(B)(16))	# OF UNGROUNDED CONDUCTORS	AMPACTY CORRECTION (310.15(B)(16))	90°C CONDUCTOR AMPACTY	X TEMP DERATE	CONDUIT FILL = 55	DERATED CORRECTED AMPACTY	MAX CURRENT PER 600.8(B)(1)	DERATED CORRECTED AMPACTY	EST. ONE-WAY DISTANCE	VOLTAGE DROP
AC2	INVERTER	AUTO TRANSFORMER	COPPER	75°C	AWG #8	50 Amps	32.0	x 1	= 32.0 Amps	x 1.25 = 40.0 Amps	40.0 Amps	40.0 Amps	< 50 Amps	EXT. BLDG. WALL (+15°C)	27	42	0.87	2	1.00	55	x 0.87 x 1.00 =	47.9 Amps	32.0 Amps	< 47.9 Amps	20	ft	0.42%		
AC3	INVERTER	BACKUP PANEL	COPPER	75°C	AWG #8	50 Amps	32.0	x 1	= 32.0 Amps	x 1.25 = 40.0 Amps	40.0 Amps	40.0 Amps	< 50 Amps	INDOORS (+0°C)	27	27	1.00	2	1.00	55	x 1 x 1.00 =	55 Amps	32.0 Amps	< 55.0 Amps	5	ft	0.10%		
AC4	ELECTRICITY METER	MAIN PANEL	COPPER	75°C	AWG #12	25 Amps	15.0	x 1	= 15.0 Amps	x 1.25 = 18.8 Amps	18.8 Amps	18.8 Amps	< 25 Amps	INDOORS (+0°C)	27	27	1.00	2	1.00	30	x 1 x 1 x 1.00 =	30 Amps	15.0 Amps	< 30.0 Amps	5	ft	0.12%		

WARNING
ELECTRIC SHOCK HAZARD
DO NOT TOUCH
TERMINALS. TERMINALS ON
BOTH THE LINE AND LOAD
SIDES MAY BE ENERGIZED
IN THE OPEN POSITION.

REQD BY: NEC 690.17(E)
APPLY TO:
DISCONNECTS
COMBINER BOXES

1

PHOTOVOLTAIC POWER SOURCE

REQD BY: NEC 690.31(E)(3)
APPLY TO:
EXPOSED RACEWAYS, CABLE TRAYS
COVERS OR ENCLOSURES OF JUNCTION BOXES
CONDUIT BODY W/ AVAILABLE CONDUIT OPENING

2

**THIS ELECTRIC SERVICE IS
ALSO SERVED BY A
PHOTOVOLTAIC SYSTEM**

REQD BY: NEC 705.12(D)(3)
APPLY TO:
MAIN SERVICE PANEL

3

WARNING
INVERTER OUTPUT
CONNECTION. DO NOT
RELOCATE THIS
OVERCURRENT DEVICE

REQD BY: NEC 705.12(D)(2)(3)(b)
APPLY TO:
PV SYSTEM BREAKER

4

SOLAR AC DISCONNECT

REQD BY: NEC 690.14(B)(3)
APPLY TO:
PV SYSTEM AC DISCONNECTS

5

SOLAR DC DISCONNECT

REQD BY: NEC 690.13(B)(3)
APPLY TO:
PV SYSTEM DC DISCONNECTS

6

WARNING
IF A GROUND FAULT IS
INDICATED, THE NORMALLY
GROUNDED CONDUCTORS
MAY BE ENERGIZED AND
UNGROUNDED.

REQD BY: NEC 690.5(C)
APPLY TO:
INVERTER

7

**GRID TIED PHOTOVOLTAIC
POWER SOURCE**
OPERATING CURRENT 15 A
OPERATING VOLTAGE: 350 V
MAX SYSTEM VOLTAGE: 500 V
MAX SYSTEM CURRENT: 40 A
MAX INVERTER OUTPUT:
7.8 KW, 40 A, 240 VAC

REQD BY: NEC 690.54
APPLY TO:
INVERTER

8

**PHOTOVOLTAIC SYSTEM
DISCONNECT**
AC CURRENT: 40 A
VOLTAGE: 240 VAC

REQD BY: NEC 690.54
APPLY TO:
PV SYSTEM DISCONNECT

9

**WARNING: PHOTOVOLTAIC
POWER SOURCE**

REQD BY: NEC 705.17
APPLY TO:
MAIN SERVICE DISCONNECT

10

CAUTION
THIS ELECTRICAL SERVICE
IS SUPPLIED BY THREE
SOURCES OF POWER
1. ELECTRICAL UTILITY GRID
2. SOLAR PHOTOVOLTAIC SYSTEM
3. BATTERY ENERGY STORAGE
SYSTEM

REQD BY: NEC 705.10
APPLY TO:
BATTERY, INVERTER OUTPUT PANEL,
MAIN SERVICE PANEL, METERMAIN AND
PV DISCONNECT

11

WARNING
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE.

REQD BY: NEC 705.12(D)(7)
APPLY TO:
BACKFEED BATTERY CIRCUIT BREAKER(S)

12

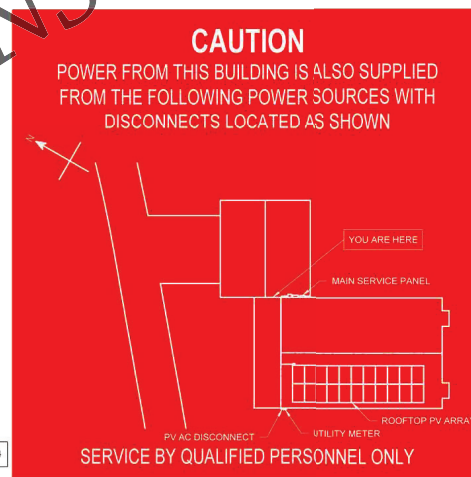
**BATTERY ENERGY
STORAGE DISCONNECT**
WARNING
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
ON BOTH LINE
AND LOAD SIDES MAY BE
ENERGIZED IN THE OPEN
POSITION

REQD BY: NEC 705.10
APPLY TO:
BATTERY ENERGY STORAGE
SYSTEM DISCONNECT

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REQD BY: NEC 690.56
APPLY TO:
UTILITY METER

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SIGNAGE REQUIREMENTS

- 1.) RED BACKGROUND
- 2.) WHITE LETTERING
- 3.) MIN. 3/8" LETTER HEIGHT
- 4.) ALL CAPITAL LETTERS
- 5.) ARIAL OR SIMILAR FONT
- 6.) WEATHER RESISTANT MATERIAL, PER UL 969