

PROJECT DETAILS

PV Modules	48 x SOLARIA POWERX 400R
Optimizers	48 x P505
Inverter	1 x SE7600H-US (RGM) 1 x SE7600H-US
Roof Type	Ground Mount
Racking	SunModo
Mounting Type	SunTurf/Ground Screw
DC SIZE	19.2 kW
AC SIZE	15.2 kVA

DRAWING INDEX

Item	Drawing #	Rev	Description
1	22366JM00-0	A	Drawing Index
2	22366JM00-1	A	Site Layout
3	22366JM00-2	A	String Mapping
4	22366JM00-3	A	Electrical One Line Diagram
5	22366JM00-4	A	Detailed Electrical Wiring Schematic
6	22366JM00-5	A	PV Labels
7	22366JM00-6	A	Bill of Materials
8	22366JM00-7	A	Plot Plan

TOP VIEW OF BUILDING



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PHOTOVOLTIC NOTES

1. THE INSTALLATION OF SOLAR ARRAYS AND PHOTOVOLTAIC POWER SYSTEMS SHALL COMPLY WITH THE FOLLOWING CODES:

- 2020 NATIONAL ELECTRICAL CODE
- 2018 NORTH CAROLINA RESIDENTIAL CODE
- 2018 NORTH CAROLINA BUILDING CODE
- AS ADOPTED BY THE STATE OF NORTH CAROLINA
- ALL OTHER ORDINANCE ADOPTED BY THE LOCAL GOVERNING AGENCIES

2. ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED AND IDENTIFIED BY RECOGNIZED ELECTRICAL TESTING LABORATORY.

3. SOLAR SYSTEM SHALL NOT COVER ANY PLUMBING OR MECHANICAL VENTS

4. MODULES AND SUPPORT STRUCTURES SHALL BE GROUNDED

5. SOLAR INVERTER SHALL BE LISTED TO UL1741

6. ALL CONDUCTORS SHALL BE COPPER AND SHOULD BE 75 AND 90 DEG RATED

7. REMOVAL OF AN INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BONDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR AND THE PHOTOVOLTAIC SOURCE AND/OR OUTPUT CIRCUIT GROUNDED CONDUCTORS.

8. LIVE PARTS OF PV SOURCE CIRCUITS AND PV OUTPUT CIRCUITS OVER 150V TO GROUND SHALL NOT BE ACCESSIBLE TO OTHER THAN QUALIFIED PERSONS WHILE ENERGIZED.

9. ALL PV MODULES AND ASSOCIATED EQUIPMENT AND WIRING SHALL BE PROTECTED FROM PHYSICAL DAMAGE.



A 08/26/2022

Customer's Signature

JOB NUMBER

22-366-JM00

PROJECT STATUS

PERMITTING

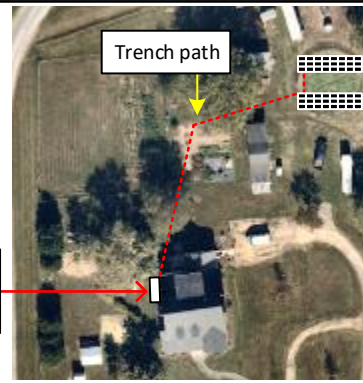
SHEET

DRAWING INDEX

JM
22366JM00-0

Trench: 220ft. (approx.)

Utility Meter



Module Dimension		
Array	Tilt	Azimuth
A	30°	180°
B	30°	180°

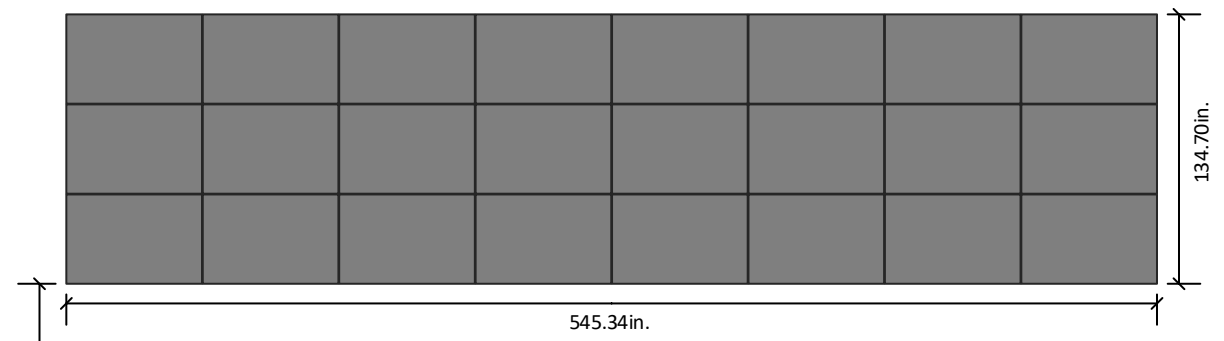


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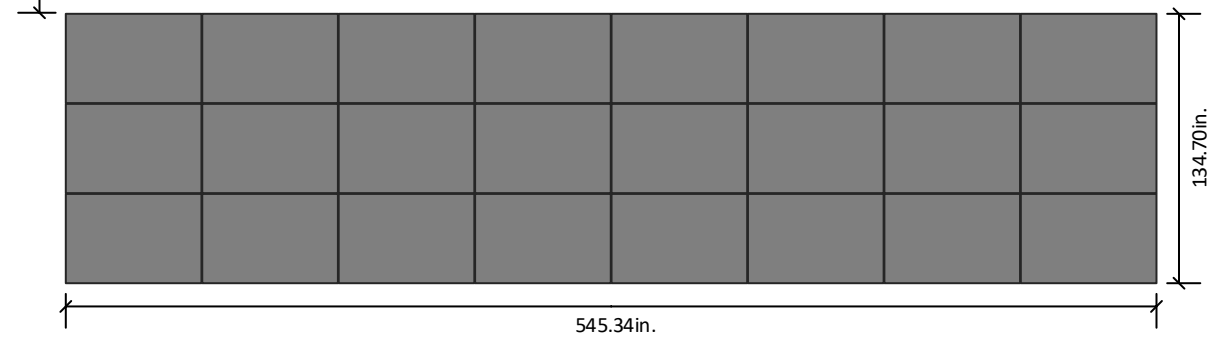
SYSTEM DETAILS

NUMBER OF PANELS : 48
 PANELS MODEL : Solaria PowerX-400R
 DC SIZE : 19.2 kW
 AC SIZE : 15.2 kVA

Array A
24 Modules



Array B
24 Modules



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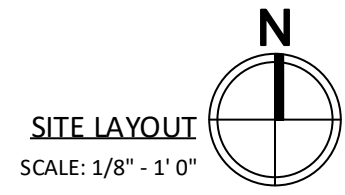
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JOB NUMBER
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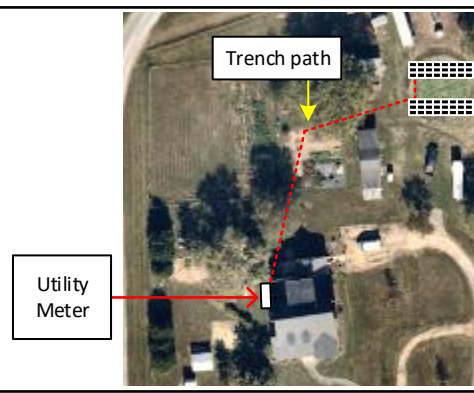
PROJECT STATUS
PERMITTING

SHEET
SITE LAYOUT



JM
22366JM00-1

String Layout					
Inv A: SE7600H-US (RGM)			Inv B: SE7600H-US		
Strings #	No. of Modules	Color Code	Strings #	No. of Modules	Color Code
String 1	12		String 3	12	
String 2	12		String 4	12	



Module Dimension		
	Tilt	Azimuth
Array A	30°	180°
Array B	30°	180°

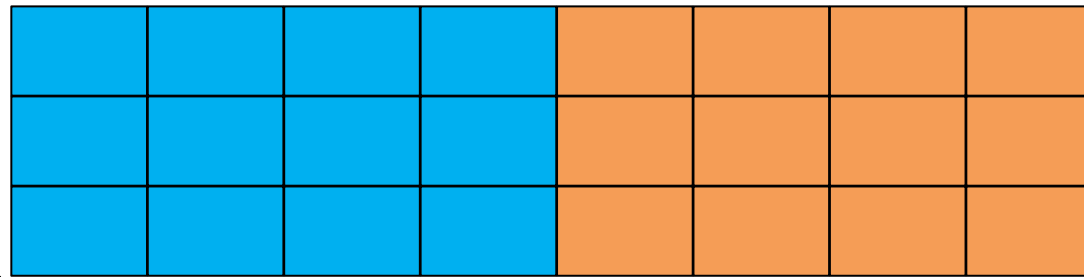
8MSOLAR
ADVANCING ENERGY INDEPENDENCE

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SYSTEM DETAILS

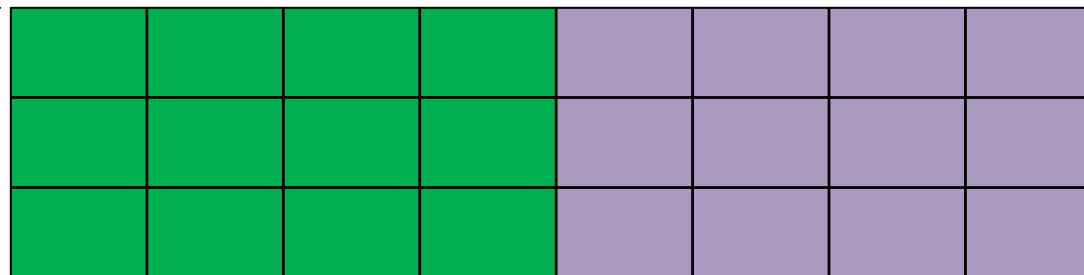
NUMBER OF PANELS : 48
 PANELS MODEL : Solaria PowerX-400R
 DC SIZE : 19.2 kW
 AC SIZE : 15.2 kVA

Array A
24 Modules



180.00in.

Array B
24 Modules



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**NABCEP
CERTIFIED**
PV Installation
Professional
Ali Buttar
PVIP #031310-32

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Customer's Signature

JOB NUMBER
22-366-JM00

PROJECT STATUS
PERMITTING

SHEET
STRING MAPPING

STRING MAPPING
SCALE: 1/8" - 1' 0"

JM
22366JM00-2

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JOB NUMBER

22-366-JM00

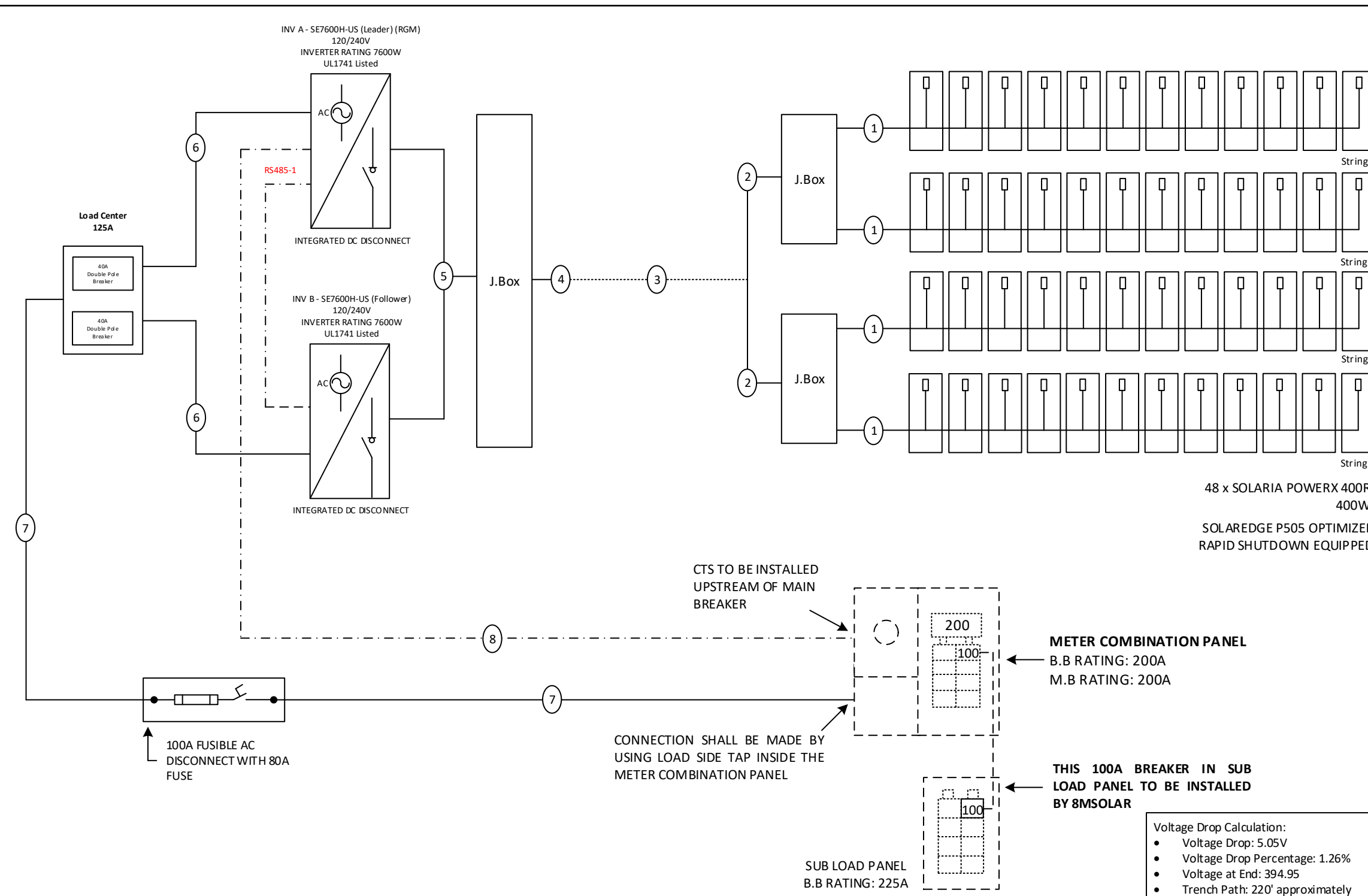
PROJECT STATUS

PERMITTING

SHEET

DETAILED ELECTRICAL DIAGRAM

JM
22366JM00-3



48 x SOLARIA POWERX 400R
400W
SOLAREEDGE P505 OPTIMIZER
RAPID SHUTDOWN EQUIPPED

Voltage Drop Calculation:

- Voltage Drop: 5.05V
- Voltage Drop Percentage: 1.26%
- Voltage at End: 394.95
- Trench Path: 220' approximately

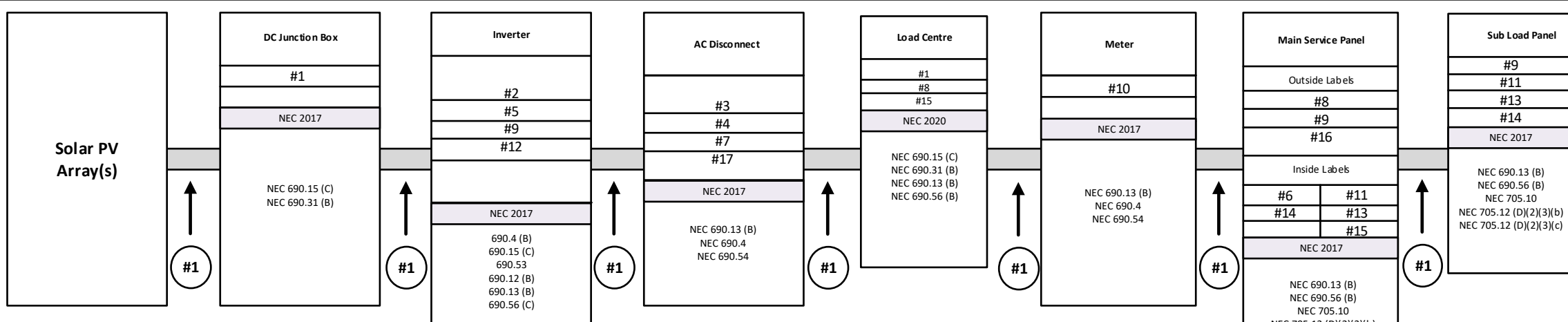
ELECTRICAL NOTES

- System Size: 19,200W DC
- (48) SOLARIA POWERX 400R
- (48) SOLAREEDGE P505 OPTIMIZERS
- (01) SOLAREEDGE SE7600H-US (RGM)
- (01) SOLAREEDGE SE7600H-US
- Inverter Output: 32A max @ 240 VAC (Each)
- 15.2 kVA AC output max

- Grounding will be done via IronRidge grounding mid-clamps to ensure the rail and panels are continuously grounded.
- Rapid Shutdown is included in the Inverter, refer to inverter & optimizer attached datasheets.
- The load center / disconnect will be visible, lockable accessible to utility linesmen and will be properly labelled as per NEC requirements. It will be located on the exterior wall of the building, next to the utility meter.

STRING 1,2,3&4:
12 x 375W = 4,740W ea
I_{mpp} = 11.85 Adc
I_{max} = 23.4 Adc
V_{mpp} = 400 Vdc
V_{oc} = 12 Vdc

Sr.No	#Wire	Conduit Size	Ground Wire	Amperage
1	2 x #10 PV Wire		#10 Bare CU	23.4A
2	4 x #6 PV Wire	1.25" PVC	#10 Green	
3	8 x #6 PV Wire	Direct Burial	#10 Green	
4	8 x #6 PV Wire	2" PVC	#10 Green	
5	8 x #8 THHN Cu	3/4" EMT	#10 Green	40A
6	3 x #8 THHN Cu	3/4" EMT	#10 Green	80A
7	3 x #4 THHN Cu	1.25" PVC	#8 Green	
8	Shielded CAT5e			



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LABELING AND WARNING SIGNS

A. PURPOSE
PROVIDE EMERGENCY RESPONDERS WITH APPROPRIATE WARNING AND GUIDANCE WITH RESPECT TO ISOLATING THE SOLAR ELECTRIC SYSTEM. THIS CAN FACILITATE IDENTIFYING ENERGIZED ELECTRICAL LINES THAT CONNECT THE SOLAR PANELS TO THE INVERTER, AS SHOULD NOT BE CUT WHEN VENTING FOR SMOKE REMOVAL.

B. MAIN SERVICE DISCONNECT:

1. RESIDENTIAL BUILDINGS- THE MARKING MAY BE PLACED WITHIN THE MAIN SERVICE DISCONNECT. THE MARKING SHALL BE PLACED ON THE OUTSIDE COVER IF THE MAIN SERVICE DISCONNECT IS OPERABLE WITH THE SERVICE PANEL CLOSED.
2. COMMERCIAL BUILDINGS- THE MARKINGS SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT CLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED
3. MARKINGS, VERBIAGE, FORMAT AND TYPE OF MATERIAL
 - a. VERBIAGE: CAUTION; SOLAR ELECTRIC SYSTEM CONNECTED
 - b. FORMAT:
 - (1) WHITE LETTERING ON A RED BACKGROUND
 - (2) MINIMUM 3/8 INCH LETTER HEIGHT
 - (3) ALL LETTERS SHALL BE CAPITALIZED
 - (4) ARIAL OR SIMILAR FONT, NON-BOLD
 - c. MATERIAL:
 - (1) REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (USE UL-969) AS STANDARD FOR WEATHER RATING); DURABLE ADHESIVE MATERIALS MEET THIS REQUIREMENT.

C. MARKING REQUIREMENTS ON DC CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES, DC COMBINERS AND JUNCTION BOXES;

1. MARKING: PLACEMENT, VERBIAGE, FORMAT AND TYPE OF MATERIAL.
 - A. PLACEMENT: MARKINGS SHALL BE PLACED EVERY 10 (TEN) FEET ON ALL INTERIOR AND EXTERIOR DC CONDUITS, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLIES, AT TURNS ABOVE AND/OR BELOW PENETRATIONS, ALL DC COMBINERS AND JUNCTION BOXES.
 - B. VERBIAGE: CAUTION SOLAR CIRCUIT
 - C. THE FORMAT AND TYPE OF MATERIAL SHALL ADHERE TO SECTION B-3.B & C ABOVE
 - D. INVERTERS ARE NOT REQUIRED TO HAVE CAUTION MARKINGS

#1 WARNING: PHOTOVOLTAIC POWER SOURCE

#2 PHOTOVOLTAIC DC DISCONNECT

#3 PHOTOVOLTAIC AC DISCONNECT

#4 RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

#5 MAXIMUM VOLTAGE
MAXIMUM CIRCUIT CURRENT
MAX. RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED)

#6 PHOTOVOLTAIC POWER SOURCE
OPERATING AC VOLTAGE [] V
MAXIMUM OPERATING AC OUTPUT CURRENT [] A

#7 AC DISCONNECT PHOTOVOLTAIC SYSTEM POWER SOURCE
RATED AC OUTPUT CURRENT [] AMPS
NOMINAL OPERATING AC VOLTAGE [] VOLTS

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

#9 WARNING
DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

#10 WARNING
THIS SERVICE METER IS ALSO SERVED BY A PHOTOVOLTAIC SYSTEM

#11 WARNING
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

#12 WARNING
BIPOLAR PHOTOVOLTAIC ARRAY
DISCONNECTION OF NEUTRAL GROUNDING CONDUCTORS MAY RESULT IN OVERVOLTAGE ON ARRAY OR INVERTER

#13 WARNING
SOLAR ELECTRIC CIRCUIT BREAKER IS BACKFED

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

#15 SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN
TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY

#16 SOLAR AC DISCONNECT LOCATED AT WEST SIDE WALL OF THE HOUSE BESIDE THE METER COMBINATION PANEL

#17 SERVICE DISCONNECT LOCATED IN THE METER COMBINATION PANEL



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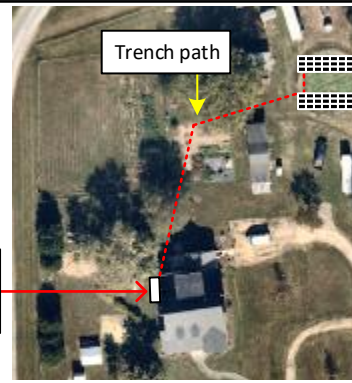
JOB NUMBER 22-366-JM00

PROJECT STATUS PERMITTING

SHEET PV LABELS

JM
22366JM00-5

Trench: 220ft. (approx.)

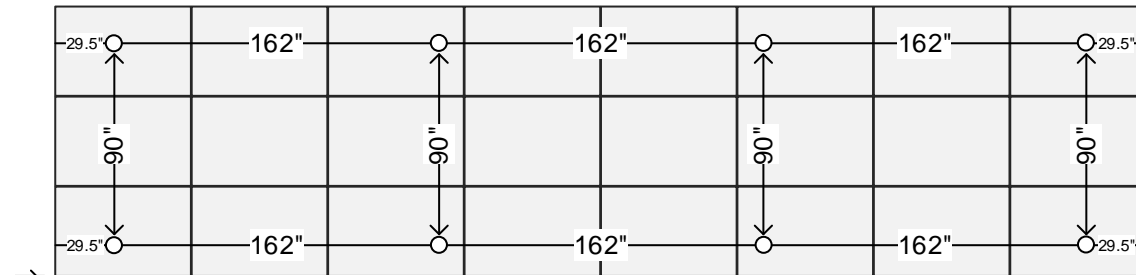


Module Dimension		
Array	Tilt	Azimuth
A	30°	180°
B	30°	180°

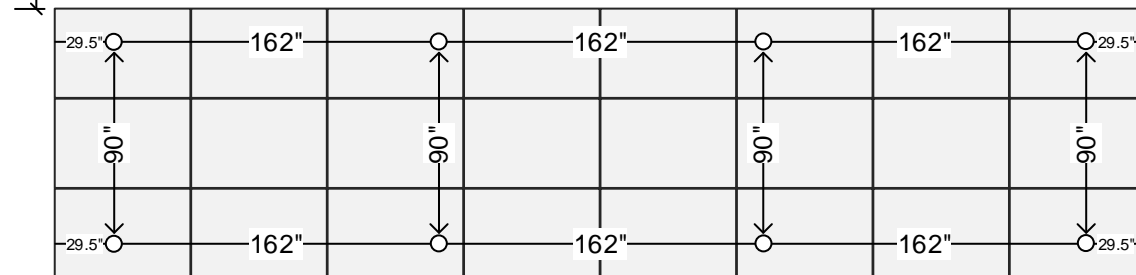


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Array A
24 Modules



Array B
24 Modules



PIER DIAGRAM

PV LABELS

Sr No	Code	Qty
01	02-314	11
02	03-301	02
03	03-302	01
04	02-316	01
05	03-308	02
06	03-390	01
07	03-306	01
08	05-215	02
09	05-211	04
10	07-359	01
11	05-372	02
12	05-103	02
13	05-216	02
14	05-342	02
15	07-111	02
16	8M-001	01
17	8M-002	01

RAILS

- 32 X XR-1000-204A: XR1000, RAIL 204" (17 FEET) CLEAR

CLAMPS & GROUNDING

- 128 X UFO-CL-01-A1: UNIVERSAL MODULE CLAMP, CLEAR
- 64 X UFO-STP-35MM-M1: STOPPER SLEEVE, 35MM, MILL
- 02 X XR-LUG-03-A1: GROUNDING LUG, LOW PROFILE

SUBSTRUCTURE

- 16 X 70-0300-SGA: SGA TOP CAP AT 3"
- 64 X GM-BRC-003: GROUND MOUNT BONDED RAIL CONNECTOR - 3"
- 64 X GM-HSHW-01-M1: HEX HEAD SET SCREW

ACCESSORIES

- 05 X 29-4000-077: WIRE CLIPS, MOLDED PVC BLACK, POLYBAG 20
- 04 X XR-1000-CAP: KIT, END CAP XR1000 (10 SETS PER BAG)
- 48 X BHW-MI-01-A1: MICROINVERTER/MLPE BONDING HARDWARE, T-BOLT

GROUND SCREWS & PIPES

- 16 X KSF G114X1600-4XM16: 3" GROUND SCREW 1600MM
- 25 X CONDR RACKGALV 3X144: 3" OD 8GAUGE GALV PIPE 144" (3.0" IRIDG)

SOLAR MODULES

- 48 x Solaria PowerX-400R

INVERTER & SUPPORTING ITEMS

- 01 x SolarEdge SE7600H-US US000BN14 (RGM)
- 01 x SolarEdge SE7600H-US US000BNU4
- 48 x SolarEdge Power Optimizer P505
- 01 x SE-WFGW-B-S1-NA with Antenna kit
- 02 x 225A SolarEdge CTs

WIRE

- 2000 ft x #6 PV WIRE BLK (Cu)
- 500 ft x #10 PV WIRE BLK (Cu)

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Customer's Signature

JOB NUMBER
22-366-JM00

PROJECT STATUS
PERMITTING

SHEET
BILL OF MATERIAL

BILL OF MARERIAL

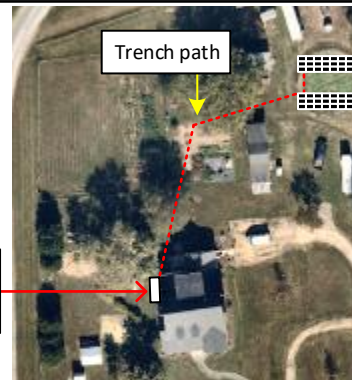
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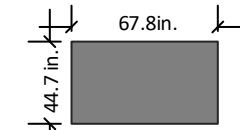
JM
22366JM00-6

Trench: 220ft. (approx.)

Utility Meter



Module Dimension



Array	Tilt	Azimuth
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A	30°	180°
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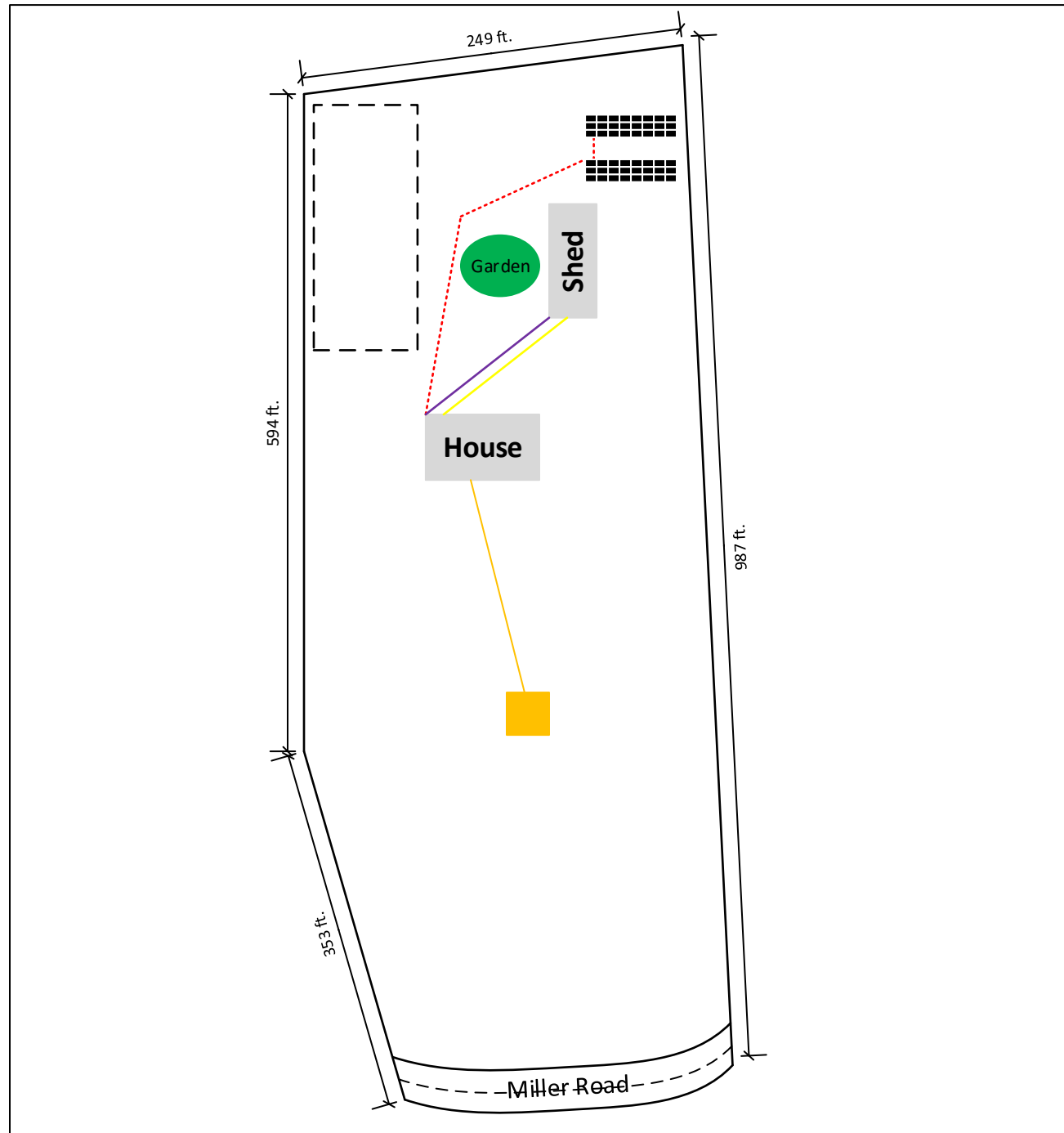
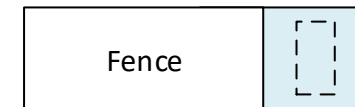
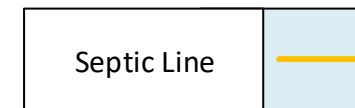
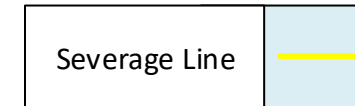
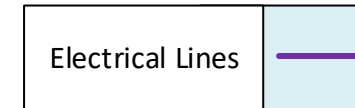
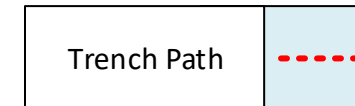
B	30°	180°
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SYSTEM DETAILS

NUMBER OF PANELS : 48
PANELS MODEL : Solaria PowerX-400R
DC SIZE : 19.2 kW
AC SIZE : 15.2 kVA



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PV Installation Professional
Ali Buttar
PVIP #031310-32

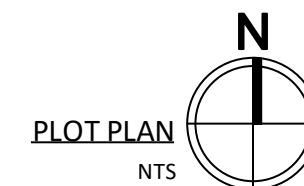
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Customer's Signature

JOB NUMBER
22-366-JM00

PROJECT STATUS
PERMITTING

SHEET
PLOT PLAN



JM
22366JM00-7