

**Array Configuration**

System: 3.95 kWstc, 5 kW AC  
 Total PV Module Qty: 10

| Inverter I.D. #            | Inv #1 |
|----------------------------|--------|
| Inverter AC Power (kW):    | 5.00   |
| PV Power (kWstc):          | 3.95   |
| Inverter DC:AC Ratio:      | 0.79   |
| Module Total Qty:          | 10     |
| String Qty:                | 1      |
| String Length:             | 10     |
| Max Open Circuit Voltage:  | 493    |
| Min Open Circuit Voltage:  | 446    |
| Max Operating Voltage:     | 394    |
| Min Operating Voltage:     | 365    |
| Max Short Circuit Current: | 14.1   |
| Operating Current:         | 10.7   |

**PV Module Specifications**

Model Number: MISSION SOLAR MSE395SX9R

|                        |                   |
|------------------------|-------------------|
| Weight (lbs):          | 48.5              |
| Dimensions (in):       | 75.1 x 41.5 x 1.6 |
| Power @ STC (W):       | 395               |
| Voc (VDC):             | 45.2              |
| Vmp (VDC):             | 37.0              |
| Isc (A):               | 11.24             |
| Imp (A):               | 10.68             |
| Voc Temp Coeff (%/°C): | -0.26             |
| Max Voltage (VDC):     | 1,000             |
| Module Quantity:       | 10                |

**Inverter #1 Specifications**

Model Number: MIDNITE SOLAR MN5048DIY

|                         |              |
|-------------------------|--------------|
| Nominal Power (kW AC):  | 5.00         |
| Nominal AC Voltage (V): | 120 (1/N/PE) |
| Max Output Current (A): | 42.0         |
| Efficiency:             | >90.0%       |
| Maximum DC Voltage (V): | 500          |
| DC Start Voltage (V):   | 120          |
| Max. MPPT Voltage (V):  | 450          |
| Min. MPPT Voltage (V):  | 120          |
| MPPT Quantity:          | 1            |
| Inverter Quantity:      | 1            |
| Max Current MPPT A:     | 18.0         |

**PV System Maximum Voltage Calculation per NEC 690.7(A)**

Local Min Temp: -10 °C

|                      |                 |                         |
|----------------------|-----------------|-------------------------|
| Voc Temp Coefficient | 25°C - Min Temp | + 1 = Correction Factor |
| 0.259%/°C x 35°C     | + 1 =           | 1.091                   |
| Voc                  | 45.2            | x 10 =                  |
| 1.091                | x 45.2          | x 10 =                  |
| 492.8 Volts DC       |                 |                         |

**AC System Summary**

|                           |              |
|---------------------------|--------------|
| NOMINAL SYSTEM VOLTAGE:   | 120 Volts AC |
| MAX CURRENT PER 690.8(A): | 42 Amps      |
| MAX CURRENT PER 690.8(B): | 53 Amps      |

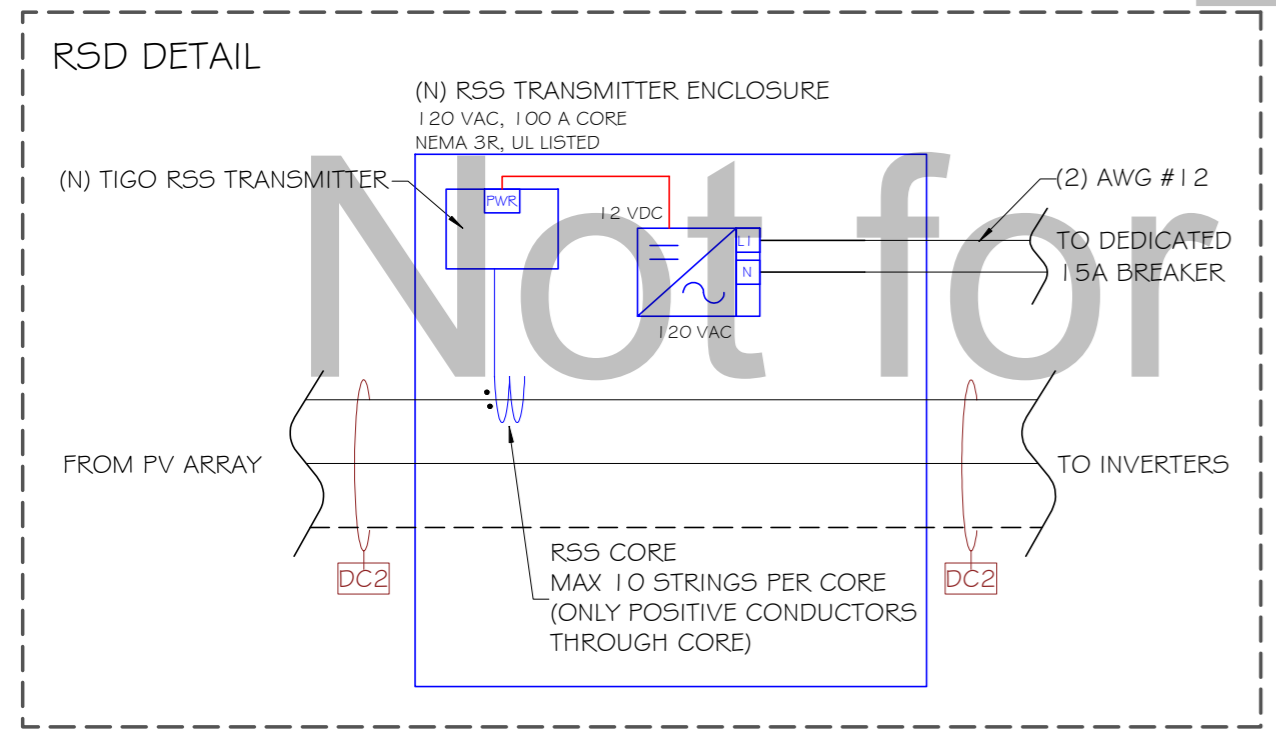
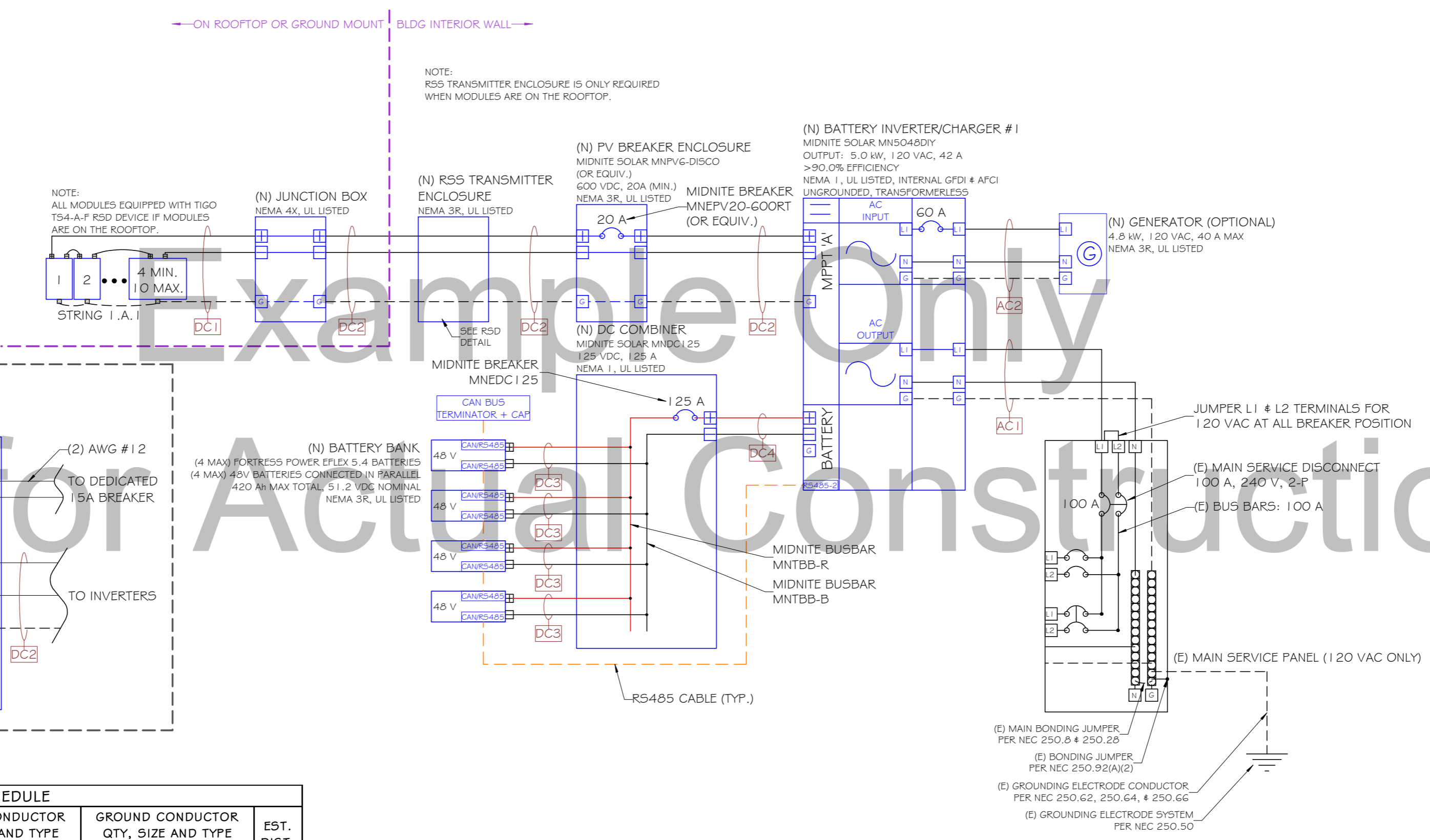
Material Supplier:  
 BLUE PACIFIC SOLAR  
 P 888 898 5849  
 www.BluePacificSolar.com

Contractor:

Project:  
 MIDNITE SOLAR KIT

Project Details:  
 3.95 kWstc, 5.00 kW AC  
 AHJ: -  
 APN: -

Engineering Approval:



**WIRE AND CONDUIT SCHEDULE**

| TAG | CONDUIT SIZE | CONDUIT TYPE | PHASE CONDUCTOR QTY, SIZE AND TYPE PER CONDUIT | NEUTRAL CONDUCTOR QTY, SIZE AND TYPE PER CONDUIT | GROUND CONDUCTOR QTY, SIZE AND TYPE PER CONDUIT | EST. DIST. |
|-----|--------------|--------------|--|--|---|------------|
| DC1 | N/A          | N/A          | 2/STRING AWG #10 PV-WIRE                       | N/A  | 1 AWG #6 BARE CU                                | 20         |
| DC2 | 3/4"         | EMT          | 2 AWG #10 XHHW-2                               | N/A  | 1 AWG #10 XHHW-2                                | 195        |
| DC2 | 3/4"         | SCH40 PVC    | 2 AWG #10 THWN-2                               | N/A  | 1 AWG #10 THWN-2                                | 195        |
| DC3 | 3/4"         | EMT          | 2 AWG #8 THWN-2                                | N/A  | 1 AWG #8 THWN-2                                 | 100        |
| DC4 | 1-1/4"       | EMT          | 2 AWG #1 THWN-2                                | N/A  | 1 AWG #6 THWN-2                                 | 100        |
| AC1 | 3/4"         | EMT          | 1 AWG #6 THWN-2                                | 1 AWG #6 THWN-2                                  | 1 AWG #10 THWN-2                                | 55         |
| AC2 | 3/4"         | EMT          | 1 AWG #6 THWN-2                                | 1 AWG #6 THWN-2                                  | 1 AWG #8 THWN-2                                 | 40         |

NOTE: CONDUCTOR SIZE PROVIDED INCLUDES AMBIENT TEMPERATURE ADJUSTMENT ONLY. ADDITIONAL DERATING MAY BE NEEDED BASED ON ACTUAL CONDITIONS OF USE; CONDUIT FILL, CONDUIT LOCATION, ETC.

| TAG | CIRCUIT ORIGIN | CIRCUIT DESTINATION | CONDUCTOR SPECIFICATIONS |                    |            |                              | REQUIRED CONDUCTOR AMPACITY   |                       |                     | AMPACITY CHECK #1 |                        | CONDUCTOR TEMPERATURE DERATING |                              |                        |                 | CONDUIT FILL DERATING        |                     | CORRECTED AMPACITY CALCULATION |                     |                                | AMPACITY CHECK #2   |                   | VOLTAGE DROP                |                  |                       |
|-----|----------------|---------------------|--------------------------|--------------------|------------|------------------------------|-------------------------------|-----------------------|---------------------|-------------------|------------------------|--------------------------------|------------------------------|------------------------|-----------------|------------------------------|---------------------|--------------------------------|---------------------|--------------------------------|---------------------|-------------------|-----------------------------|------------------|-----------------------|
|     |                |                     | MATERIAL                 | CONN. TEMP. RATING | TRADE SIZE | AMPACITY PER 310.16 & 310.17 | MAX CURRENT x I <sub>sc</sub> | # OF COMBINED STRINGS | MAX CONT. OPERATION | MAX PER           | MAX CONDUCTOR AMPACITY | CIRCUIT ENVIRONMENT            | LOCAL 2% AVG. HIGH TEMP (°C) | HEIGHT ABOVE ROOF (in) | TEMP. ADDER PER | EXPECTED OPERATING TEMP (°C) | AMPACITY CORRECTION | # OF UNGROUNDING CONDUCTORS    | AMPACITY CORRECTION | 90°C CONDUCTOR x TEMP AMPACITY | CONDUIT FILL DERATE | DERATED CONDUCTOR | MAX CURRENT PER 690.8(B)(2) | DERATED AMPACITY | EST. ONE-WAY DISTANCE |
|     |                |                     |                          |                    |            |                              |                               |                       |                     |                   |                        |                                |                              |                        |                 |                              |                     |                                |                     |                                |                     |                   |                             |                  |                       |

**REVISIONS**

| DESCRIPTION | DATE      | REV |
|-------------|-----------|-----|
| PERMIT SET  | 2/28/2023 | A   |
|             |           |     |
|             |           |     |
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|             |           |     |
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|             |           |     |
|             |           |     |
|             |           |     |

Sheet Title:  
 ELECTRICAL DIAGRAM

Sheet Number:  
 E2.0

Sheet Size:  
 ARCH C - 24" x 18"