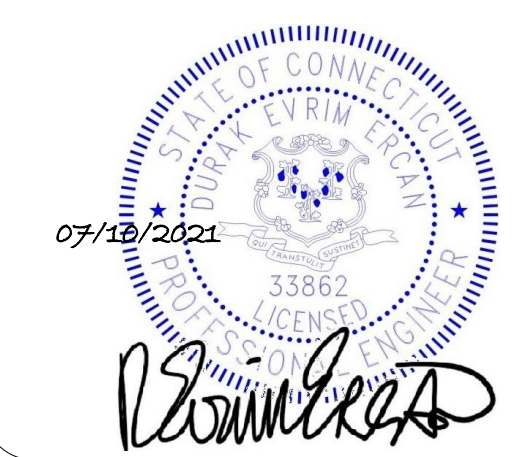


# DANIELSON LODGE SOLAR

## 2.696 MWDC - 1.99 MWAC SOLAR PROJECT

SEAL & SIGNATURE:



NO ALTERATION PERMITTED  
 EXCEPT AS PROVIDED UNDER  
 DIRECTION OF A LICENSED  
 PROFESSIONAL ENGINEER.

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 SIGNED, DATED AND NOTED  
 "ISSUED FOR CONSTRUCTION"  
 ABOVE THE LAST REVISION

REV.	DATE	DESCRIPTION
0	07/08/2021	IC (15%) SUBMITTAL

CLIENT:

PROJECT:

PROJECT NUMBER:  
**AE# 1443**

SHEET SIZE:  
**24x36**

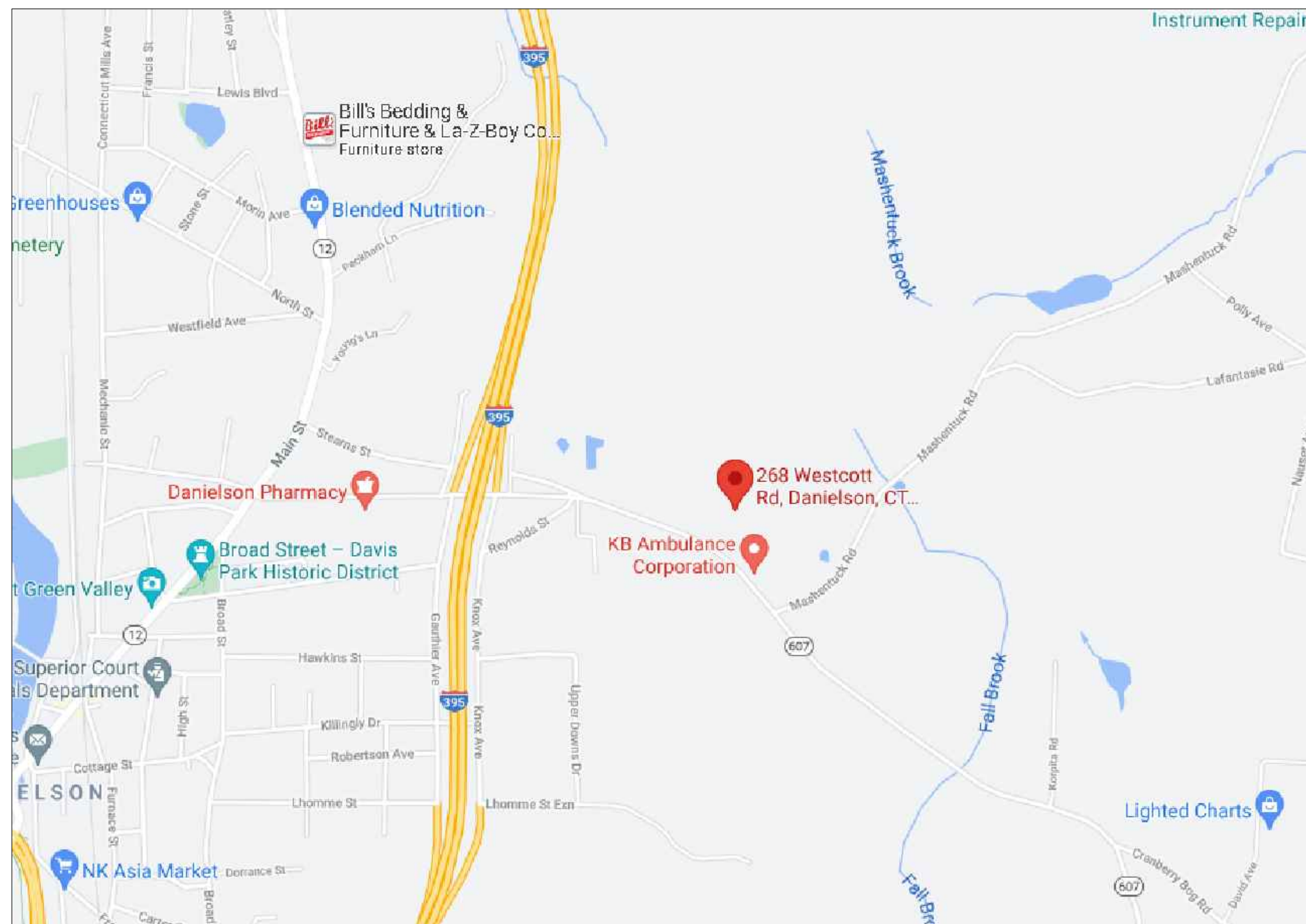
DESIGNED BY:  
**AC**

DRAWN BY:  
**HH**

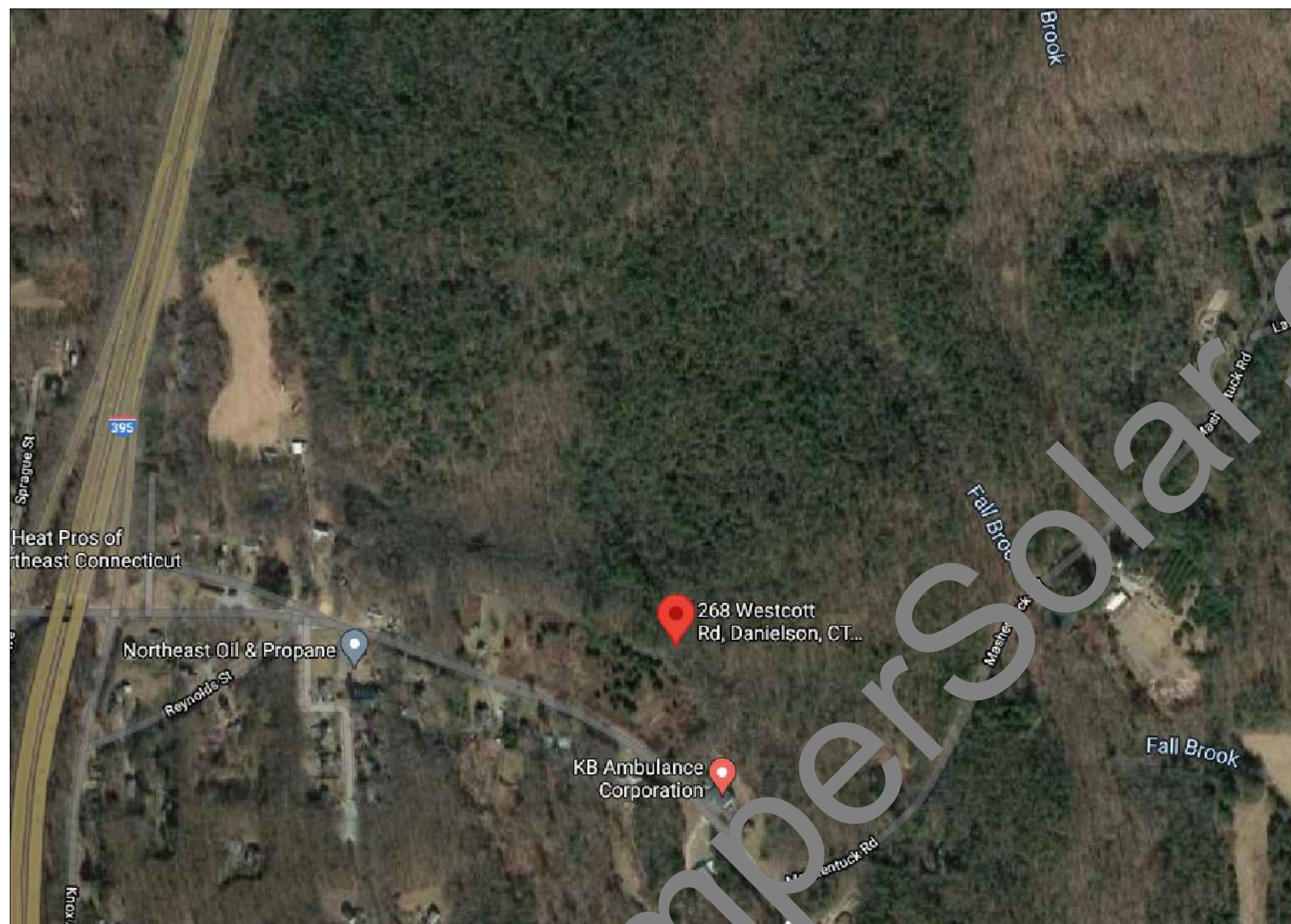
CHECKED BY:  
**DEE**

DRAWING TITLE:  
**COVER SHEET**

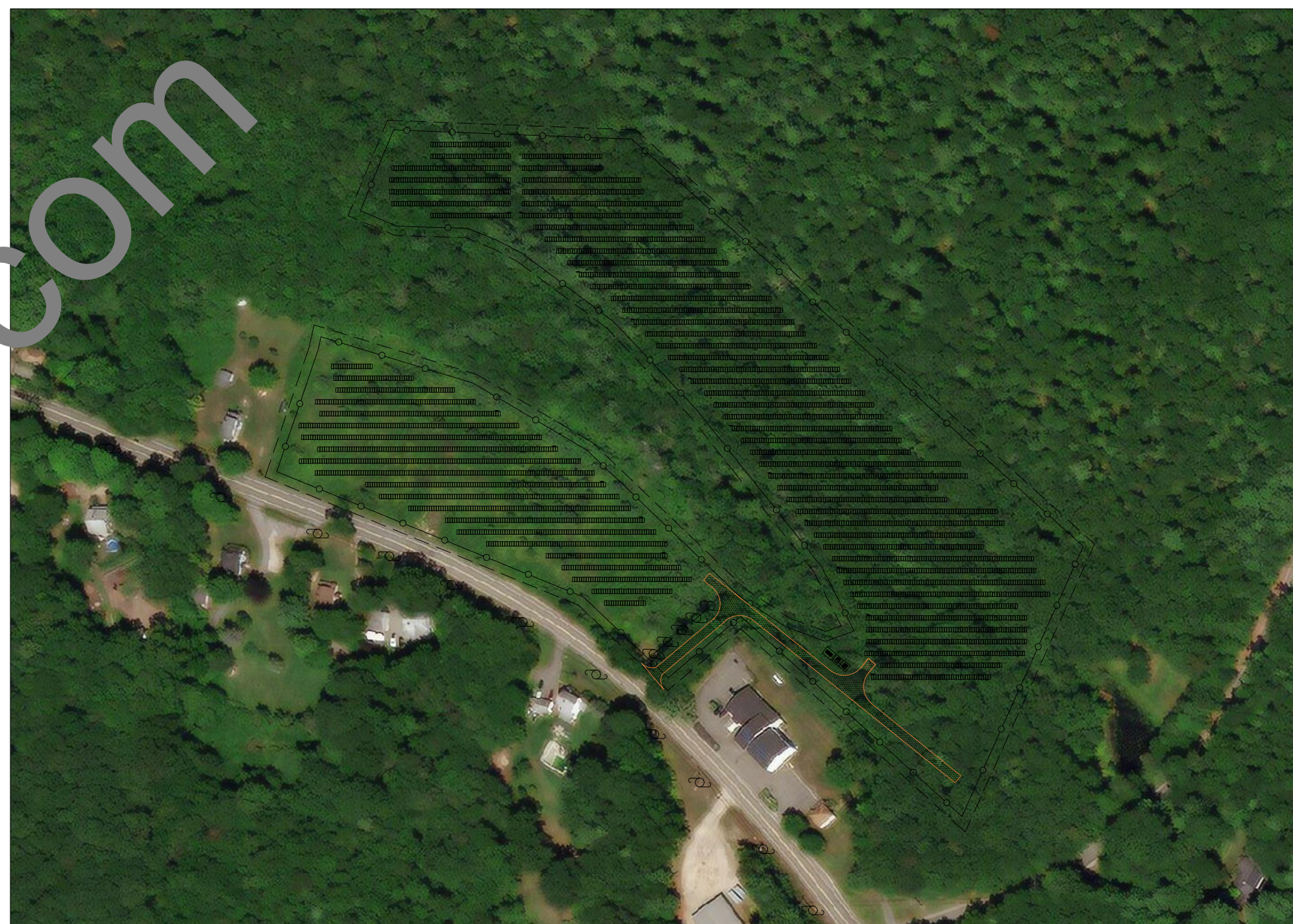
DRAWING NO:  
**G001**



**1 LOCATION MAP**  
 G001 SCALE: NTS



**2 AERIAL VIEW**  
 G001 SCALE: NTS



**3 SITE OVERVIEW**  
 G001 SCALE: 1"=200'

**SCOPE OF WORK:**

THE PROPOSED PROJECT IS A GROUND MOUNTED SOLAR PV FARM INCORPORATING FIXED TILT RACKING SYSTEM AND SOLAR BIFACIAL TECHNOLOGY. THE NEW PV SYSTEM IS TO BE INSTALLED ON THE ZONED PROPERTY IN THE CITY OF DENIELSON, CT. THE PV SYSTEM IS TO BE INTERCONNECTED WITH THE UTILITY GRID, WHEREIN THE GENERATED ENERGY SHALL BE FED INTO THE EXISTING UTILITY POLES.

**DEVELOPER:**

**PROJECT DETAILS**

PROJECT OWNER:	
PROJECT ADDRESS:	
PROJECT LOCATION:	
TAX ID:	000323
LANDOWNER:	
PROJECT AREA:	~ 15.2 ACRES
ROW-TO-ROW SPACING:	19 FT
FREE ROW SPACING:	11.65 FT
ARRAY WIDTH:	7.35 FT
SETBACKS:	MIN 15 FT FROM PROJECT BOUNDARY
UTILITY:	EVERSOUR

**ENGINEERED BY:**

DURAK EVRIM ERCAN, P.E.  
 TEL: (201) 920-2899  
 EMAIL: INFO@AMPERENGINEERING.COM

GENERAL	
G001	COVER SHEET ●
ELECTRICAL	
E100	OVERALL SITE PLAN ●
E200	ONE LINE DIAGRAM ●
E450	LABELS ●

INTERCONNECTION PERMIT (IC-15%) 07/07/2021

**4 SCOPE OF WORK AND PROJECT DETAILS**  
 G001 SCALE: NTS

**5 SHEET INDEX**  
 G001 SCALE: NTS

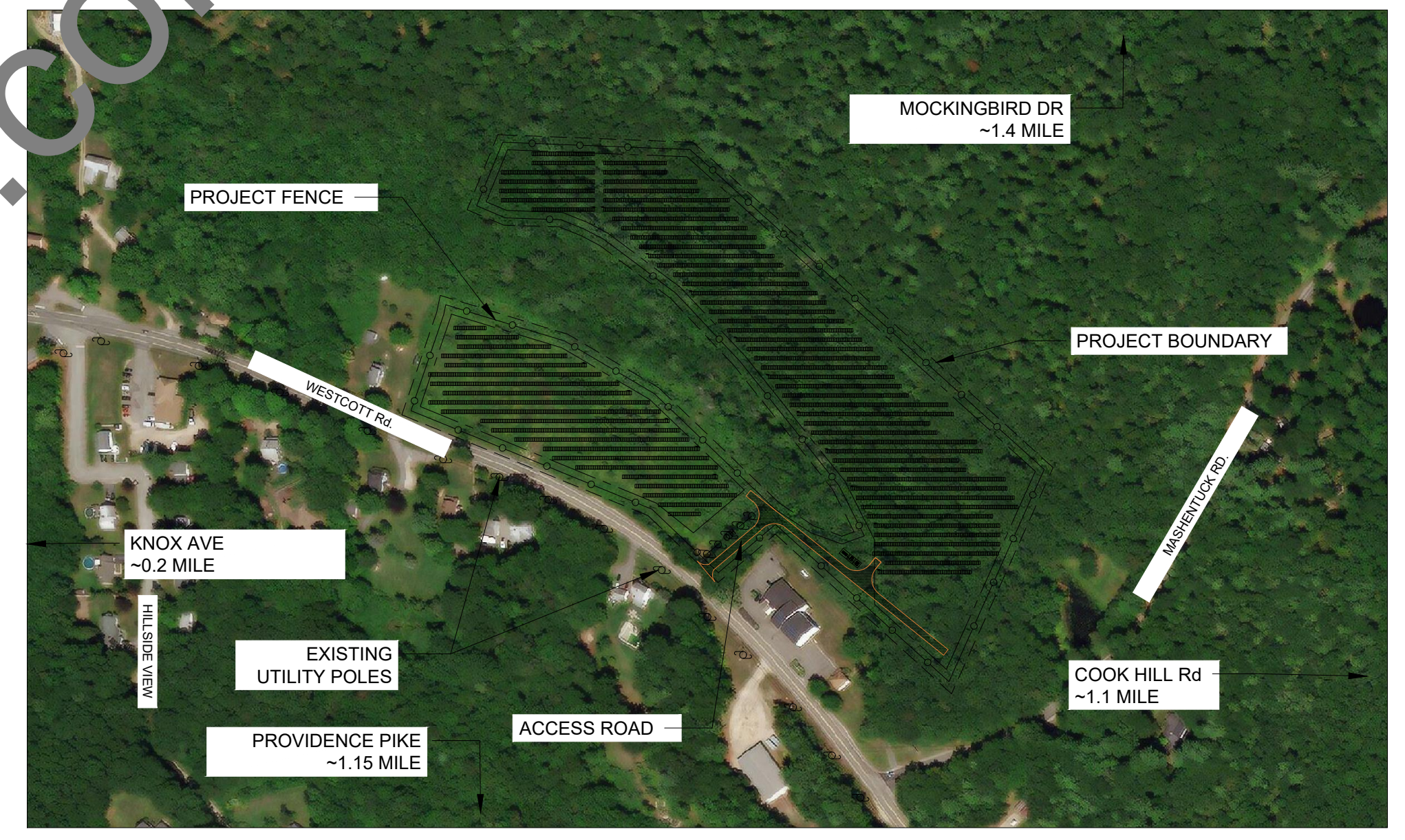




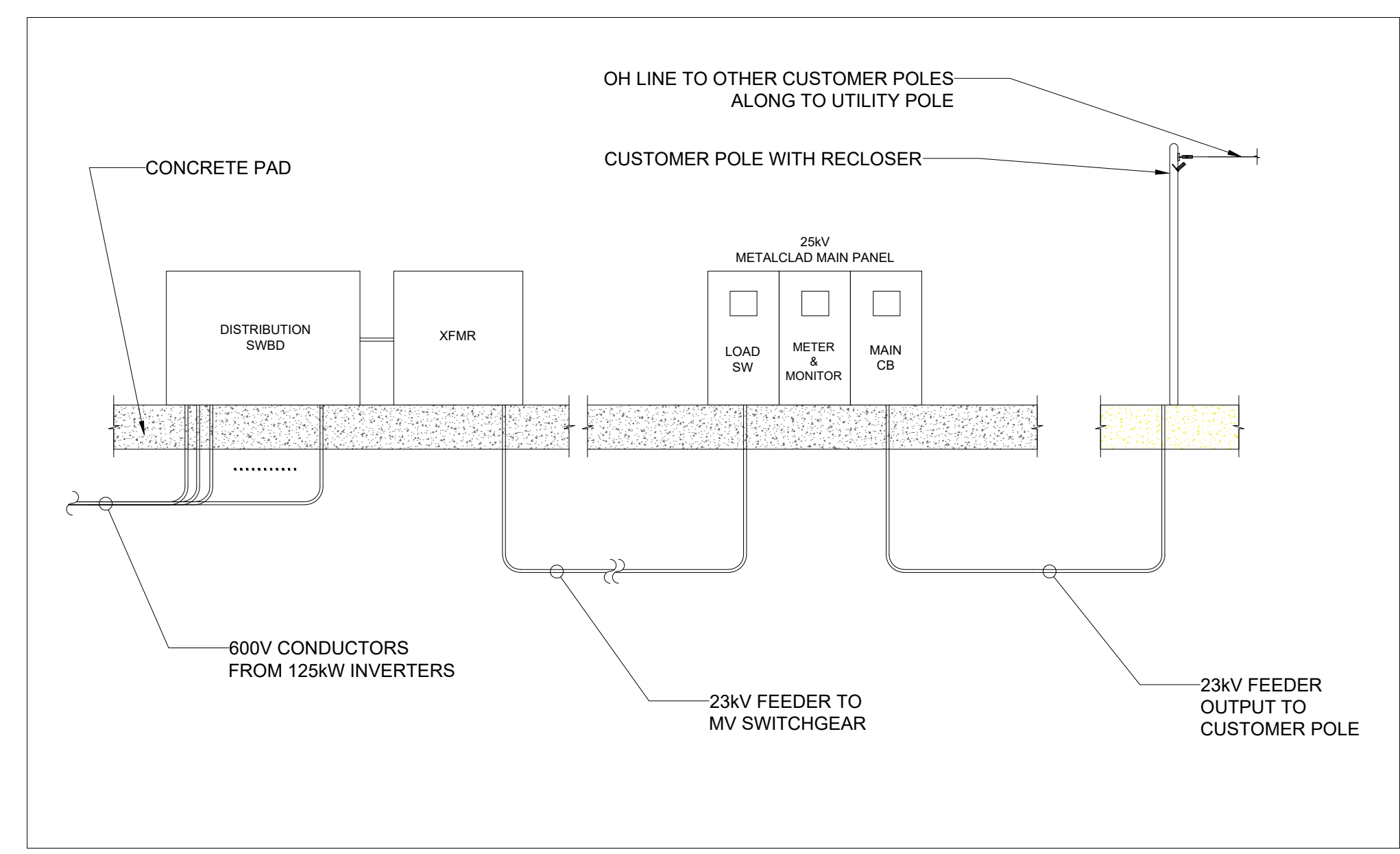
**1 OVERALL SITE PLAN**  
E100 SCALE: 1"=80'

SYSTEM SUMMARY	
PV MODULE MANUFACTURER:	TRINA SOLAR
PV MODULE TYPE:	BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULES (TSM-535DEG19C.20)
PV MODULE OUTPUT (STC):	535Wp
TOTAL NO. OF PV MODULES:	5040
TOTAL NO. OF STRINGS:	144
MODULES PER STRING:	35
MAX VOLTAGE PER MODULE:	42.1
MAX VOLTAGE PER STRING:	1474 V
INVERTER MANUFACTURER:	CHINT POWER SYSTEMS
INVERTER TYPE:	STRING INVERTER (CPS SCH125KTL-AI/Q/US-600)
INVERTER AC OUTPUT POWER:	125 kW
TOTAL NO. OF INVERTERS:	16
MOUNTING SYSTEM:	FIXED TILT ANGLE
ASHRAE DB EXTREME MIN (n=20 YEARS):	-24.5°C
ASHRAE DB EXTREME MAX (n=20 YEARS):	37.9°C
MAX DC SYSTEM VOLTAGE:	1500 V
AC SYSTEM VOLTAGE:	600 V @ INVERTER OUTPUT; 23 kV @ PCC

**2 PROJECT SUMMARY**  
E100 SCALE: NTS



**3 OVERALL VIEW**  
E100 SCALE: 1"=270'



**4 EQUIPMENT LAYOUT**  
E100 SCALE: NTS

PROFESSIONAL ENGINEERING:  
  
 201-920-2899 | info@AmperEngineering.com  
 SEAL & SIGNATURE:  
  
 07/13/2021  
 Durak Evrim Ercan

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CLIENT:

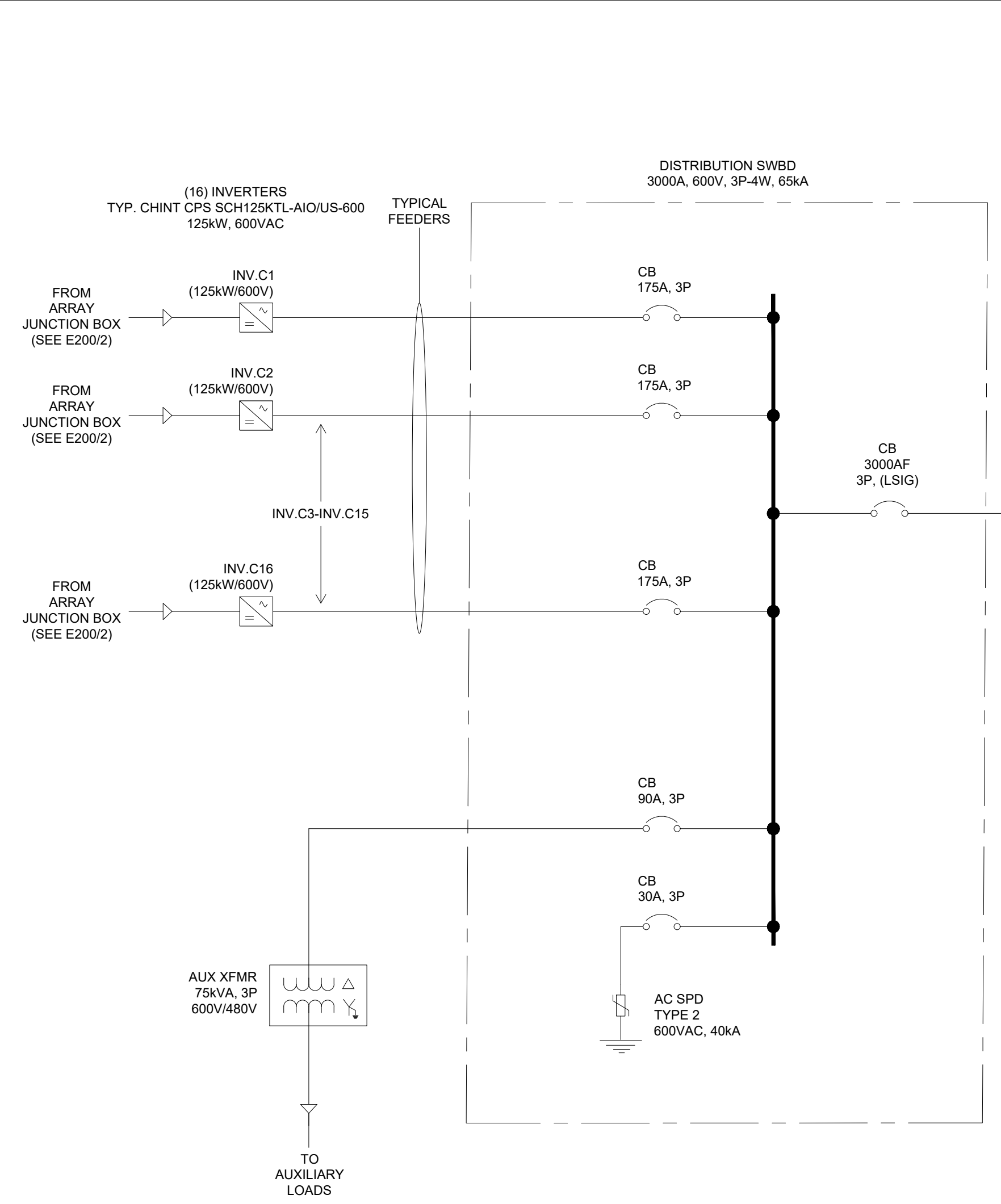
PROJECT:

PROJECT NUMBER:  
**AE# 1443**  
 SHEET SIZE:  
 24x36  
 DESIGNED BY:  
 AC  
 DRAWN BY:  
 HH  
 CHECKED BY:  
 DEE

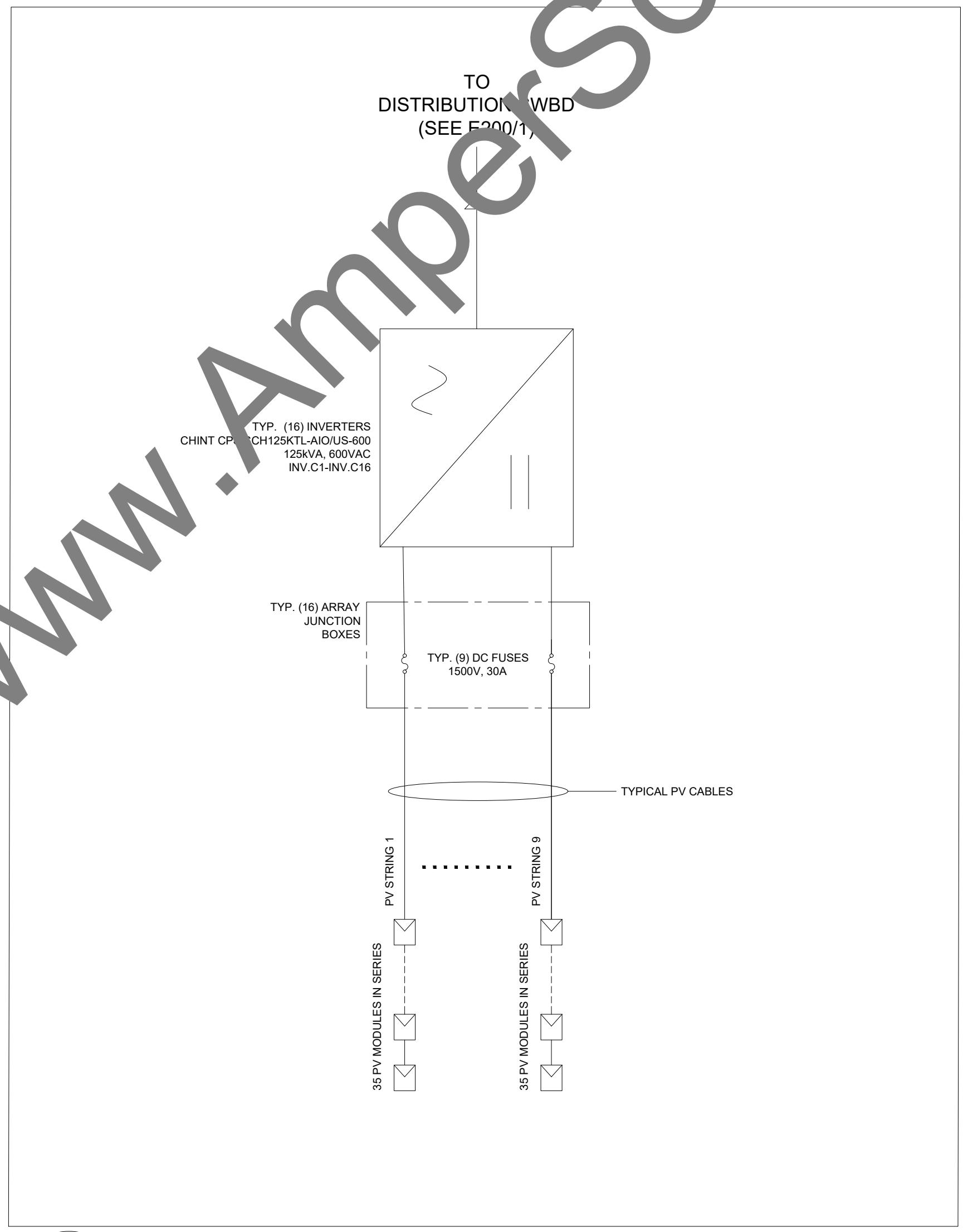
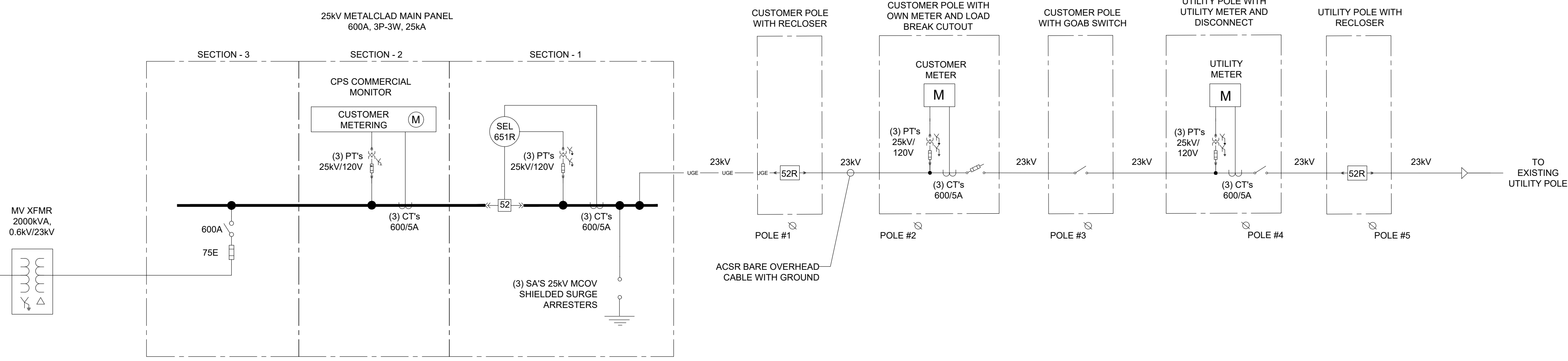
DRAWING TITLE:  
**OVERALL SITE PLAN**

DRAWING NO:  
**E100**





1 AC ONE LINE DIAGRAM  
SCALE: NTS



2 INVERTER DC INPUT DETAILS  
SCALE: NTS

LEGEND		ABBREVIATION	
	GRID INVERTER	A	AMPERE
	3P RECLOSER	AUX XFMR	AUXILIARY TRANSFORMER
	3P CIRCUIT BREAKER	CB	CIRCUIT BREAKER
	3P SWITCH DISCONNECT	CT	CURRENT TRANSFORMER
	3P LOAD BREAK CUTOUT FUSES	KW	KILOWATT
	3P FUSED DISCONNECT SWITCH	LSIG	LONG TIME, SHORT TIME, INSTANTANEOUS, GROUND
	TRANSFORMER	MCOV	MAXIMUM CONTINUOUS OPERATING VOLTAGE
	3P4W SURGE ARRESTOR DEVICE	M	METER
	METER	SWBD	SWITCHBOARD
	RECLOSER CONTROLLER	SPD	SURGE PROTECTION DEVICE
	CURRENT TRANSFORMER	PT	POTENTIAL TRANSFORMER
	POTENTIAL TRANSFORMER	XFMR	TRANSFORMER
	OVERHEAD POWER LINE		
	BUS		
	UNDERGROUND POWER LINE		

1. ALL WORK SHALL BE IN ACCORDANCE WITH STATE AND LOCAL CODES, UTILITY REQUIREMENTS, AND THE NEC, ESPECIALLY ARTICLE 690 & 705.
2. METERING AND SCADA TO BE CONFIRMED BY UTILITY.
3. ACCESSIBLE, LOCKABLE, UTILITY AC DISCONNECT WITH VISIBLE BLADES SHALL BE WITHIN 10' OF UTILITY METER.
4. PHOTOVOLTAIC SYSTEM TO OPERATE AT PF AS REQUIRED BY UTILITY.
5. AC AND DC DISCONNECTS SHALL BE LABELED AS SUCH AND READILY ACCESSIBLE IN THEIR APPROPRIATE LOCATIONS.
6. SOLAR PV MODULE FRAMES SHALL BE BONDED TO RACKING RAIL OR BARE COPPER E.G.C PER THE MODULE MANUFACTURER'S LISTED INSTRUCTION SHEETS.
7. ALL JUNCTION BOXES, COMBINER BOXES, AND DISCONNECTS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.
8. THESE DRAWINGS REPRESENT ASSUMED FIELD CONDITIONS. INSTALLATION SPECIFICATIONS MAY NEED TO BE ADJUSTED BASED ON ACTUAL FIELD CONDITIONS.
9. INVERTER IS EQUIPPED WITH BOTH DC & AC SURGE PROTECTION TYPE II MOV.
10. INVERTER WILL HAVE CAPABILITY OF .80 TO .80 PF. (LEADING TO LAGGING) EXACT POWER FACTOR/VAR CONTROL OF INVERTERS TO BE DETERMINED BASED ON UTILITY REQUIREMENTS.
11. OUTDOOR METAL SWITCHGEAR SHALL BE IN ACCORDANCE WITH APPLICABLE INDUSTRY STANDARDS.
12. METAL-CLAD SWITCHGEAR SHALL BE AS PER ANSI/IEEE C37.20.2
13. INVERTER INV.C16 TO BE FACTORY DERATED TO 115KWAC.

3 NOTES  
SCALE: NTS

PROFESSIONAL ENGINEERING:  
**DURAK EVRIM ERCAN P.E.**  
 ENGINEERING | CONSULTING | ESTIMATING  
 201-920-2899 info@AmperEngineering.com

SEAL & SIGNATURE:  
  
 07/13/2021  
*Durak Evrim Ercan*

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CLIENT:

PROJECT:

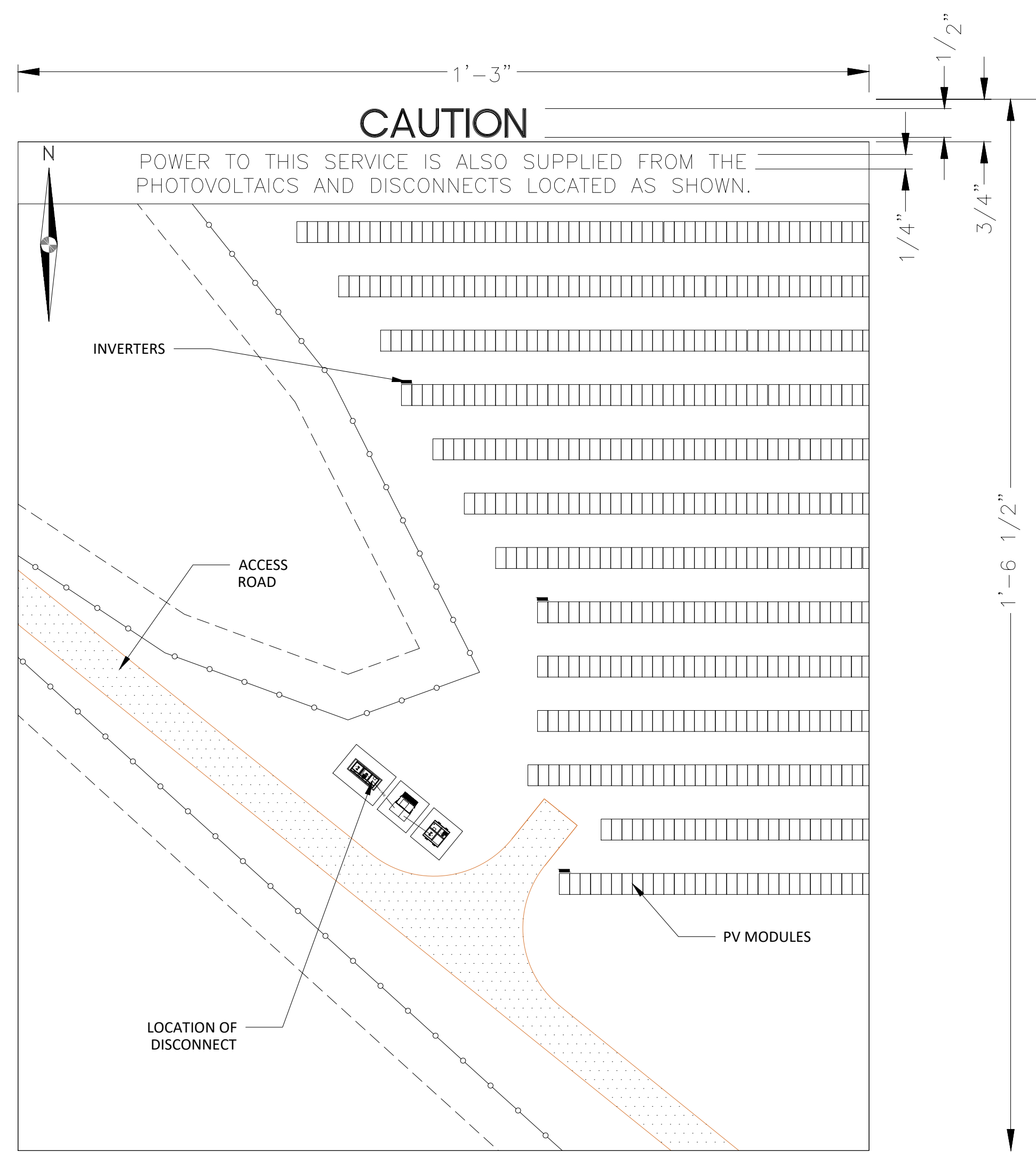
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SHEET SIZE: 24x36	DRAWN BY: HH
DESIGNED BY: AC	CHECKED BY: DEE

DRAWING TITLE:  
ONE LINE DIAGRAM

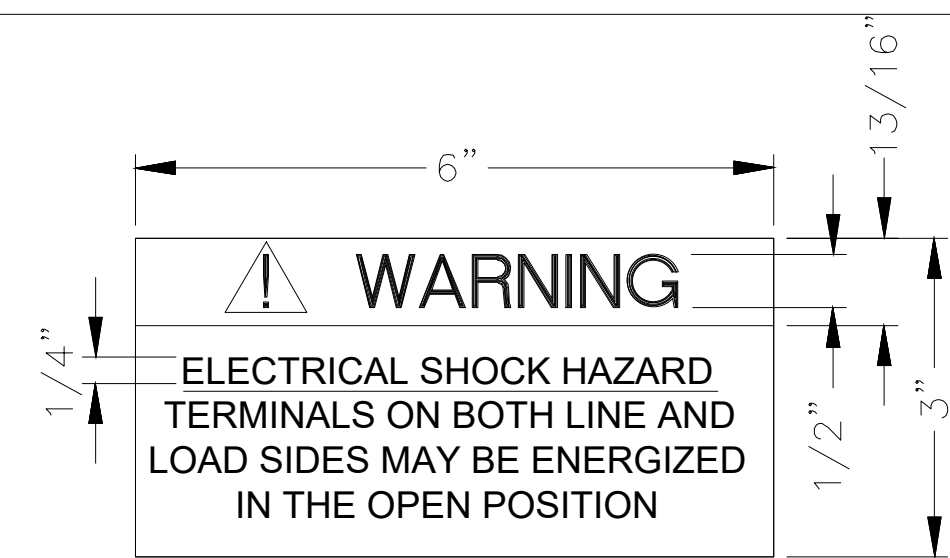
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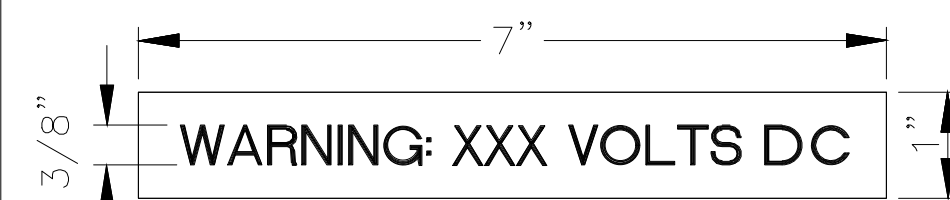
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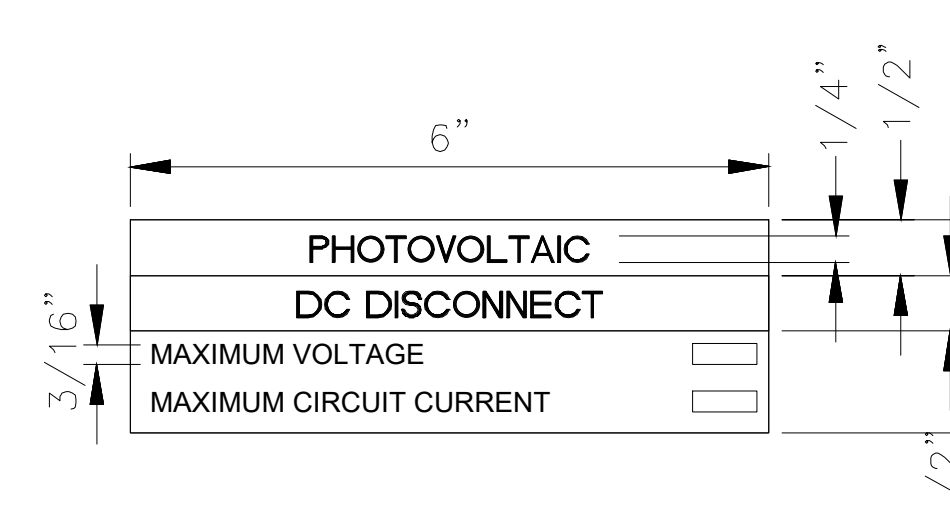
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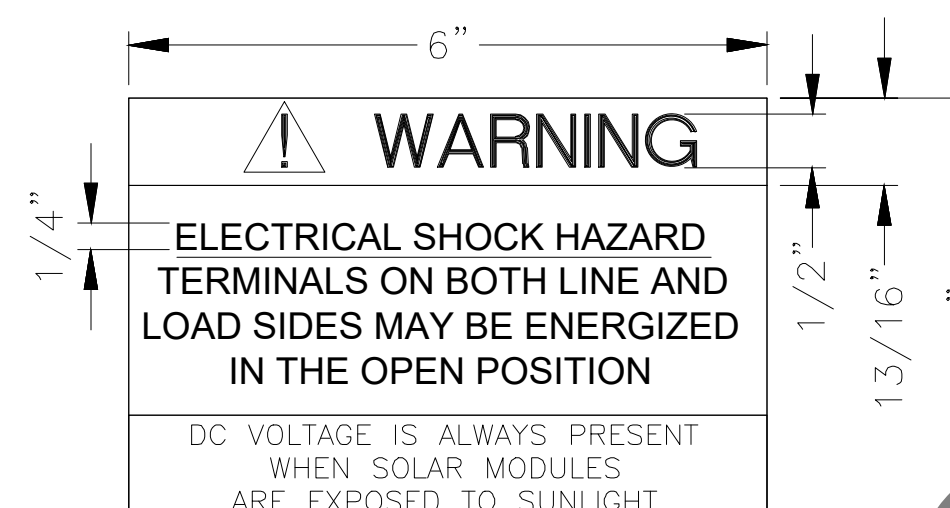
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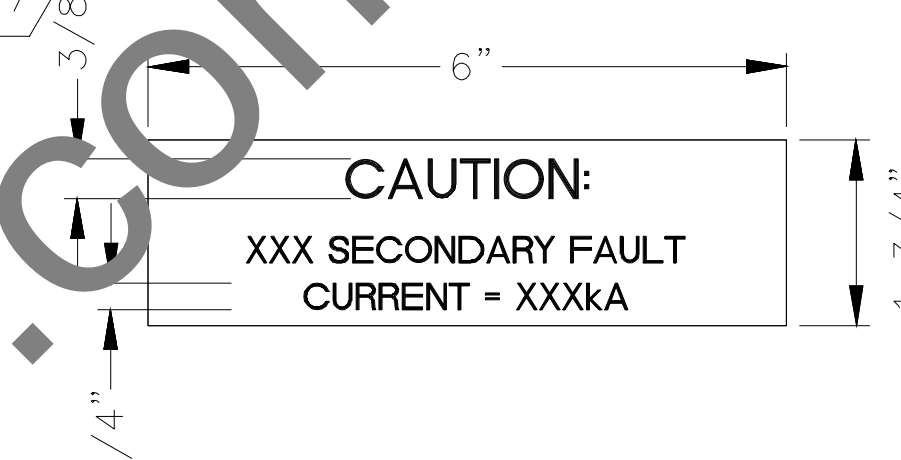
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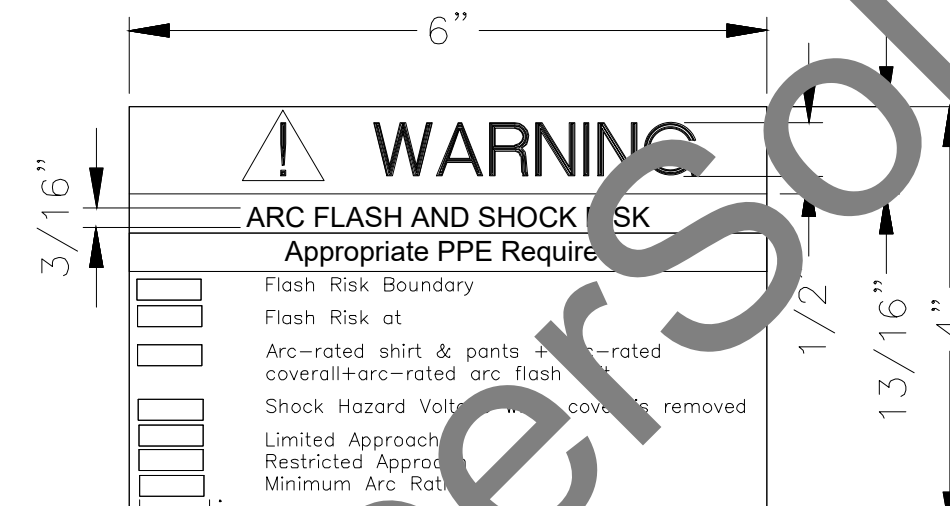
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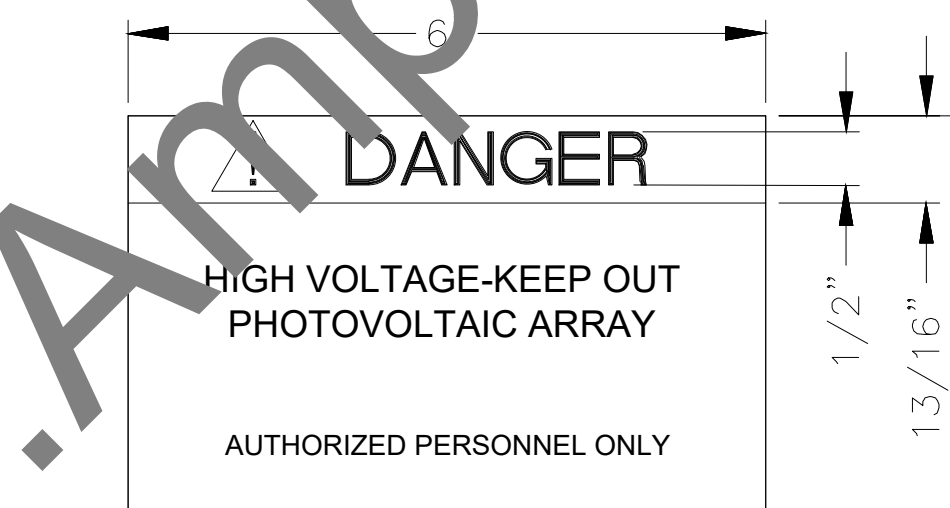


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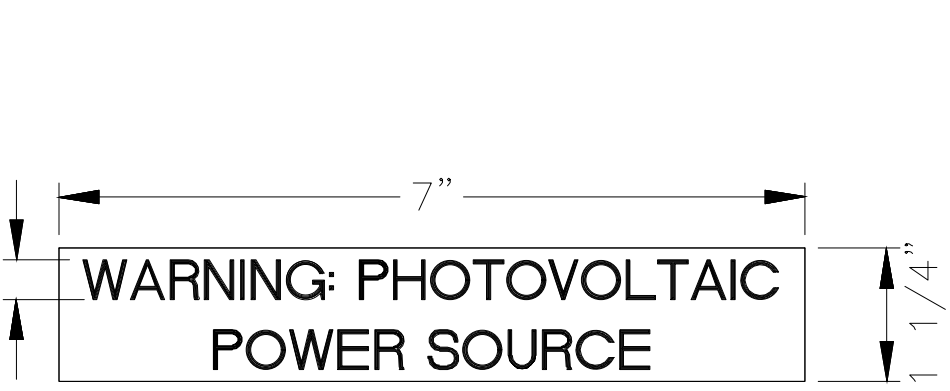


LABEL #	QTY	LABEL LOCATION	DETAILS
1	TBD	MAIN UTILITY SERVICE DISCONNECT AT POCC	<ul style="list-style-type: none"> <li>PLAQUE FOR LOCATING THE MAIN SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC DISCONNECTING MEANS.</li> <li>WHITE BACKGROUND, BLACK LETTERS</li> <li>690.15(A), 705.10, 690.56(B) FACILITIES WITH UTILITY SERVICE AND PV SYSTEMS.</li> </ul>
2	TBD	UTILITY SERVICE METER	<ul style="list-style-type: none"> <li>RED BACKGROUND, WHITE LETTERS</li> </ul>
3	TBD	METERS, PULLBOXES, SWITCHGEAR, DISCONNECTS	<ul style="list-style-type: none"> <li>RED BACKGROUND, WHITE LETTERS</li> </ul>
4	TBD	PHOTOVOLTAIC DISCONNECTING MEANS AT PROJECT INSTALLED DISCONNECT	<ul style="list-style-type: none"> <li>UTILITY MAIN PV AC DISCONNECT</li> <li>RED BACKGROUND, WHITE LETTERS</li> <li>690.13(B)</li> </ul>
5	TBD	PV PRODUCTION METER	<ul style="list-style-type: none"> <li>RED BACKGROUND, WHITE LETTERS</li> </ul>
6	TBD	P&C UTILITY AC DISCONNECTS, INVERTER DISCONNECTS	<ul style="list-style-type: none"> <li>AC UTILITY DISCONNECT SYSTEM DESCRIPTION</li> <li>RED BACKGROUND, WHITE LETTERS</li> </ul>
7	TBD	METERS, UTILITY MAIN SERVICE DISCONNECT, FEEDER BREAKERS	<ul style="list-style-type: none"> <li>RED BACKGROUND, WHITE LETTERS</li> </ul>
8	TBD	UTILITY MAIN SERVICE DISCONNECT, UTILITY AC PV DISCONNECT	<ul style="list-style-type: none"> <li>FOR DISCONNECTING MEANS WHERE BOTH SIDES MAY BE ENERGIZED IN OPEN POSITIONS.</li> <li>RED BACKGROUND, WHITE LETTERS</li> <li>690.13(B), 690.15(D)</li> </ul>
9	TBD	COMBINER BOXES, RE-COMBINER, INVERTER	<ul style="list-style-type: none"> <li>RED BACKGROUND, WHITE LETTERS</li> <li>690.53</li> </ul>
10	TBD	COMBINER BOXES, RE-COMBINER, DISCONNECTS	<ul style="list-style-type: none"> <li>BUILDING OR STRUCTURE DISCONNECTING MEANS</li> <li>RED BACKGROUND, WHITE LETTERS</li> <li>690.17(E)</li> </ul>
11	TBD	DURING ARC FLASH STUDY IN TRANSFORMER, INVERTER, DISCONNECTS, STUDY PANEL BOARDS, COMBINER BOXES	<ul style="list-style-type: none"> <li>WARNING: ORANGE BACKGROUND, WHITE LETTERS</li> <li>DANGER: RED BACKGROUND, WHITE LETTERS</li> <li>DETAILED TEXT AREA: WHITE BACKGROUND, BLACK LETTERS</li> <li>110.16</li> </ul>
12	TBD	SECURITY FENCE	<ul style="list-style-type: none"> <li>SPACED EVERY 100 FEET AT PERIMETER OF ARRAY.</li> <li>SIGN SHALL BE AT LEAST 14AWG GALVANIZED STEEL, 20 YEAR LIFE WITH RESISTANCE TO UV.</li> <li>INSTALL TO STANDARD ASSEMBLY</li> </ul>
13	TBD	PV POWER SOURCE CONDUCTORS ENCLOSURE	<ul style="list-style-type: none"> <li>WHERE PV SOURCE CONDUCTORS ARE CONTAINED: CONDUIT BODIES IN WHICH ANY OF THE AVAILABLE CONDUIT OPENINGS ARE UNUSED.</li> <li>EVERY 10 FEET</li> <li>690.31(G)(3)</li> </ul>
14	TBD	AC CIRCUIT	<ul style="list-style-type: none"> <li>(208V, 480V, 600V) AS NEEDED</li> </ul>
15	TBD	SERVICE METER AND PRODUCTION METER	<ul style="list-style-type: none"> <li>AS NEEDED</li> </ul>
16	TBD	DISCONNECT	<ul style="list-style-type: none"> <li>ADDITIONAL SIGNAGE REQUIREMENT</li> </ul>
17	TBD	MAIN AC SWITCHGEAR	<ul style="list-style-type: none"> <li>PROJECT SPECIFICATION</li> </ul>
18	TBD	DC CIRCUIT	<ul style="list-style-type: none"> <li>(600V, 1000V, 1500V) AS NEEDED</li> </ul>

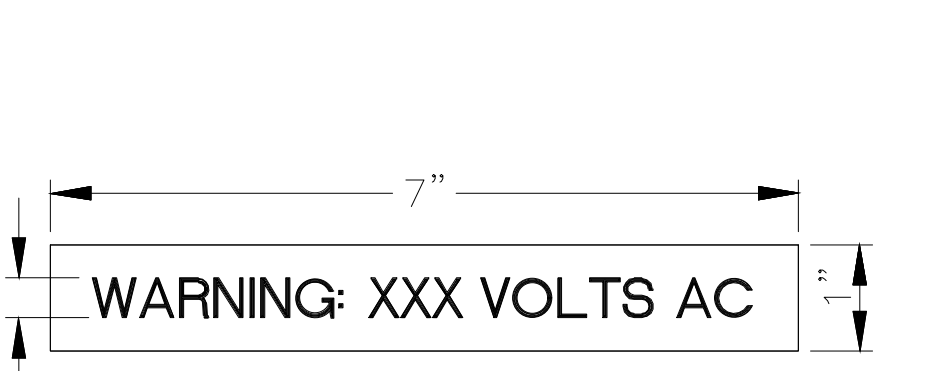
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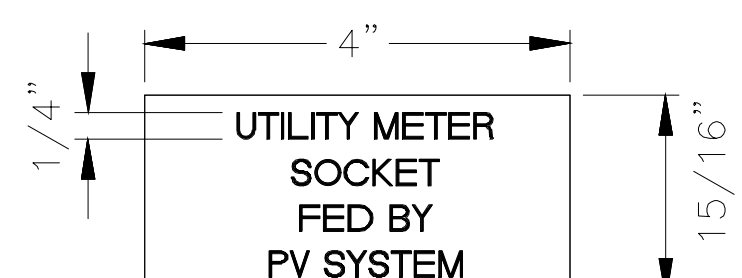
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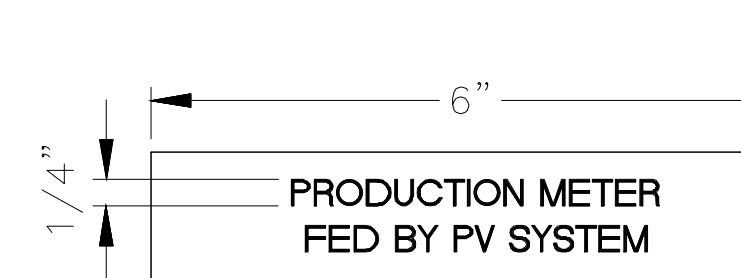
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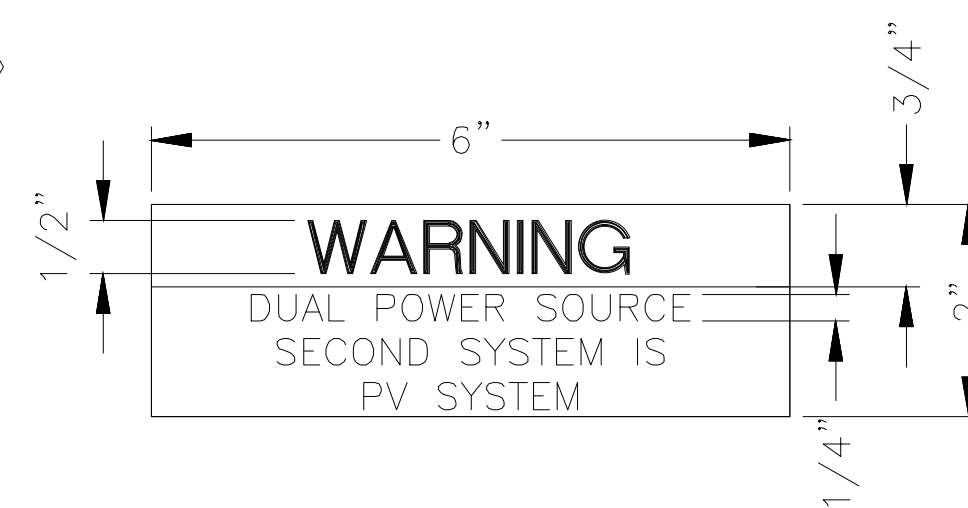
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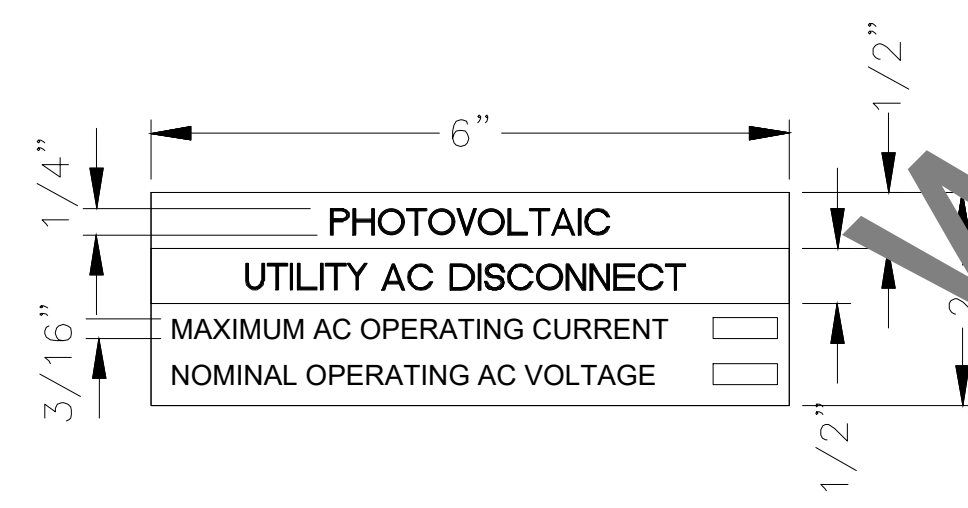
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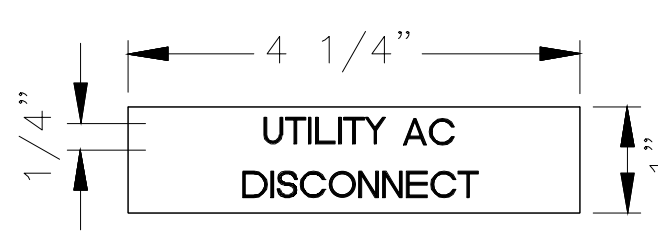
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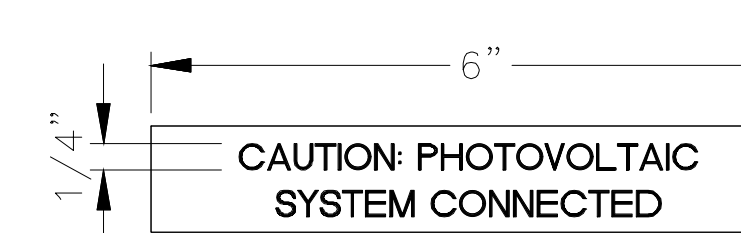
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4



7



GENERAL NOTES:

- ALL SIGNAGE SHALL HAVE ALL CAPITAL LETTERS, ARIAL OR OWNER APPROVED FONT. SIZES AND FORMAT FOR REFERENCE AND OTHER EQUIVALENT LABELS ACCEPTABLE.
- SOLAR PANELS AND INVERTERS ARE EXPECTED TO HAVE NEC REQUIRED LABELING PREVIOUSLY AFFIXED.
- ESTIMATED QUANTITIES PROVIDED HERE ONLY AND FINAL LABEL QUANTITIES TO BE DETERMINED BY CONTRACTOR.
- QUANTITIES ARE BASED ON PER MW PROJECT UNLESS OTHERWISE NOTED.
- UV RESISTANT VINYL LABELS MUST MEET REQUIREMENTS OF UL696.
- MATERIALS ON THIS PAGE ARE CALLED OUT WITH SYMBOL:  $\text{XX}$
- ALL LABELS PRINTED ON STOCK HELLERMAN-TYTON LABELS.
- ALL LABELS SHALL BE WEATHERPROOF, DURABLE AND PERMANENTLY MOUNTED.

2

LABELS DETAILS AND GENERAL NOTES

E450

SCALE: NTS

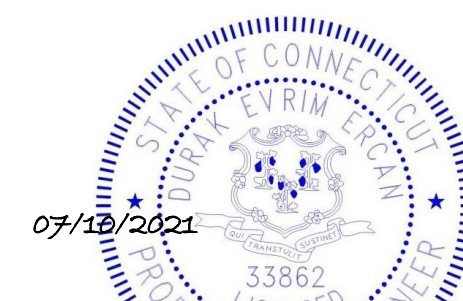
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LABELS LAYOUT AND SIZE

E450

SCALE: NTS

SEAL & SIGNATURE:



*Durak Ercan*

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CLIENT:

PROJECT:

PROJECT NUMBER: <b>AE# 1443</b>	DRAWN BY: <b>HH</b>
SHEET SIZE: <b>24x36</b>	CHECKED BY: <b>DEE</b>
DESIGNED BY: <b>AC</b>	

DRAWING TITLE:  
**LABELS**

DRAWING NO:  
**E450**