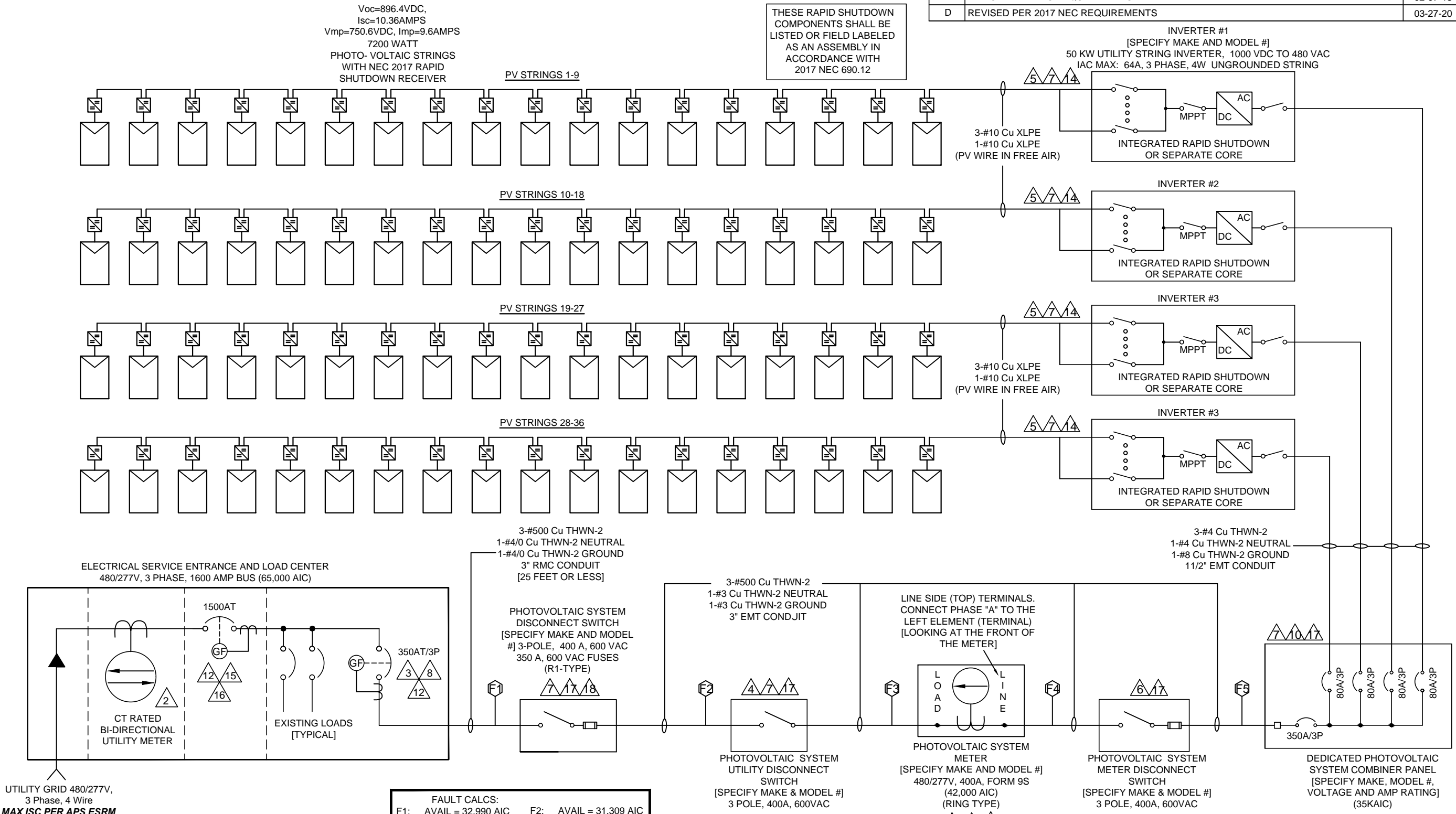


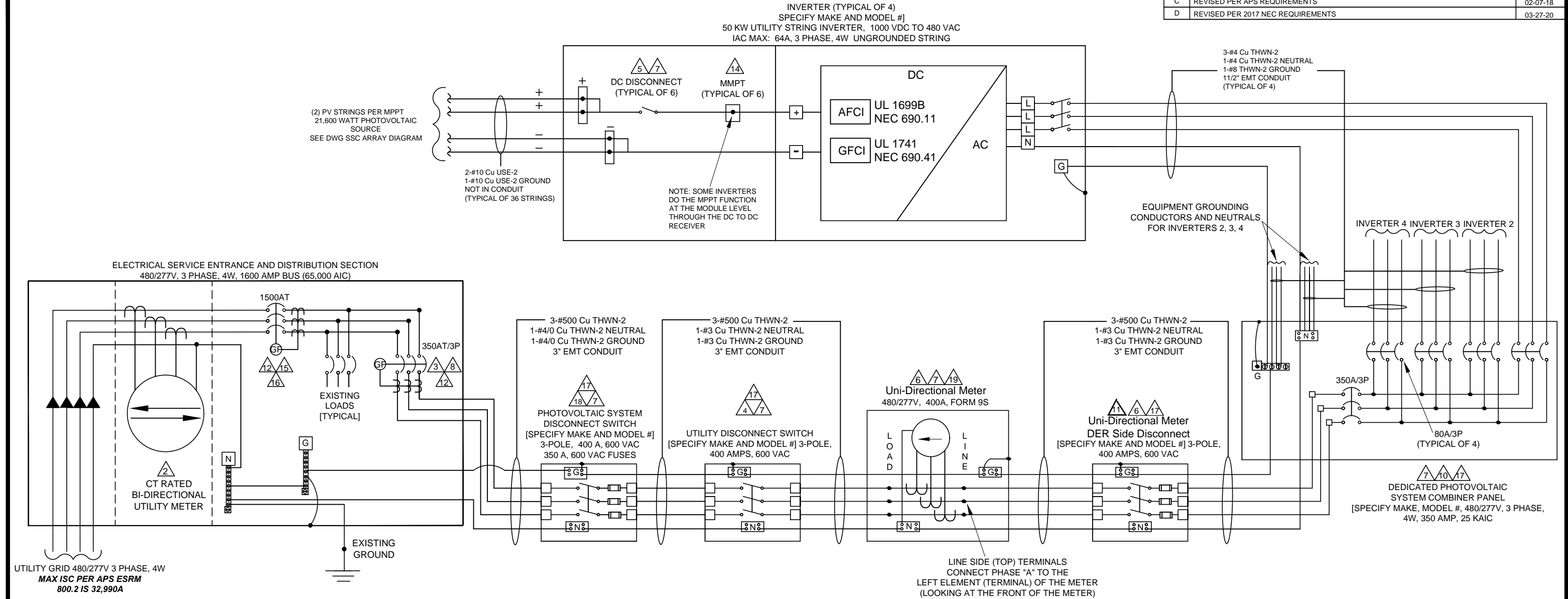
REV.	DESCRIPTION	DATE
A	PRELIMINARY DRAWING SET	08-18-10
B	REVISED PER 2011 NEC REQUIREMENTS	04-30-13
C	REVISED PER APS REQUIREMENTS	02-07-18
D	REVISED PER 2017 NEC REQUIREMENTS	03-27-20



SAMPLE LOAD SIDE CONNECTION ONE-LINE DIAGRAM

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY INC.	
APPROVALS		DATE	
DRAWN ABC		09-10-10	
CHECKED			
ENGINEER			
REV. D		03-27-20	
ABC PROJECT #1111-9999		SIZE B	CODE INTENT NO.
		SCALE NA	DRAWING NO. LSC ONE-LINE
		REV. D	SHEET 1 OF 5

REV.	DESCRIPTION:	DATE
A	PRELIMINARY DRAWING SET	08-18-10
B	REVISED PER 2011 NEC REQUIREMENTS	04-30-13
C	REVISED PER APS REQUIREMENTS	02-07-18
D	REVISED PER 2017 NEC REQUIREMENTS	03-27-20



NOTES:

- 1 ALL EQUIPMENT SHALL BE INSTALLED AND LABELED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- 2 CT-RATED BI-DIRECTIONAL UTILITY METER INSTALLED BY UTILITY COMPANY.
- 3 LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.12(B)(3), AND BREAKERS ARE SUITABLE FOR BACKFEED" PER NEC 705.12(B)(4). LABEL WITH THE MAXIMUM AC OUTPUT OPERATING CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
- 4 LABEL " UTILITY DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISUAL OPEN, ACCESSIBLE PER UTILITY REQUIREMENTS, CONFORM TO NEC 705.22.
- 5 LABEL "PHOTOVOLTAIC SYSTEM DC DISCONNECT" PER NEC 690.13(B). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED. **[SWITCH IS INTERNAL TO INVERTER]**
- 6 LABEL "Uni-Directional Meter" . METER ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER, CTs AND TEST SWITCHES PROVIDED BY UTILITY COMPANY WHEN REQUIRED. **NOTE: CUSTOMER TO SUBMIT SHOP DRAWINGS OF METERING CABINET TO APS METERSHOP FOR APPROVAL.**
- 7 PROVIDE WARNING SIGN PER NEC 690.13(B) READING "WARNING-ELECTRIC SHOCK HAZARD-DO NOT TOUCH TERMINALS-TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION".
- 8 LABEL "WARNING INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE" AND LOCATE BREAKER AT OPPOSITE END OF BUS FROM MAIN BREAKER LOCATION PER NEC 705.12(B)(2)(3)(b).

- 9 METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31(G).
- 10 LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "DO NOT ADD LOADS TO THIS PANEL".
- 11 LABEL "Uni-Directional Meter DER Side Disconnect" . SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE ACCESSIBLE PER UTILITY REQUIREMENTS, CONFORM TO NEC 705.22, AND RATED FOR THE AVAILABLE FAULT CURRENT.
- 12 BREAKER WITH GROUND FAULT PROTECTION HAS BEEN IDENTIFIED AND LISTED AS SUITABLE FOR BACKFEED PER NEC 705.32
- 13 IF DC FUSES ARE ADDED, LABEL: "WARNING, DO NOT OPEN FUSES UNDER LOAD."
- 14 THE STRING INVERTERS DEPICTED HAVE A MAXIMUM OF TWO STRINGS PER MPPT; THEREFORE, THE STRINGS DO NOT REQUIRE OVERCURRENT DEVICES. FOR STRING INVERTERS WITH THREE STRINGS OR MORE IN PARALLEL EACH SERIES STRING REQUIRES OVERCURRENT DEVICES.
- 15 LABEL "BREAKER HAS BEEN DE-RATED TO 1500A PER NEC 705.12(B)(2)(3)(b).
- 16 -----
- 17 EQUIPMENT SHALL BE TESTED, LISTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.
- 18 INSTALL AS REQUIRED TO ENSURE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH AND PRODUCTION METER FAULT WITHSTAND RATINGS ARE NOT EXCEEDED. LABEL "PHOTOVOLTAIC SYSTEM DISCONNECT SWITCH". SWITCH TO BE LOCKED AT ALL TIMES AND COMPLY WITH NEC 705.22.

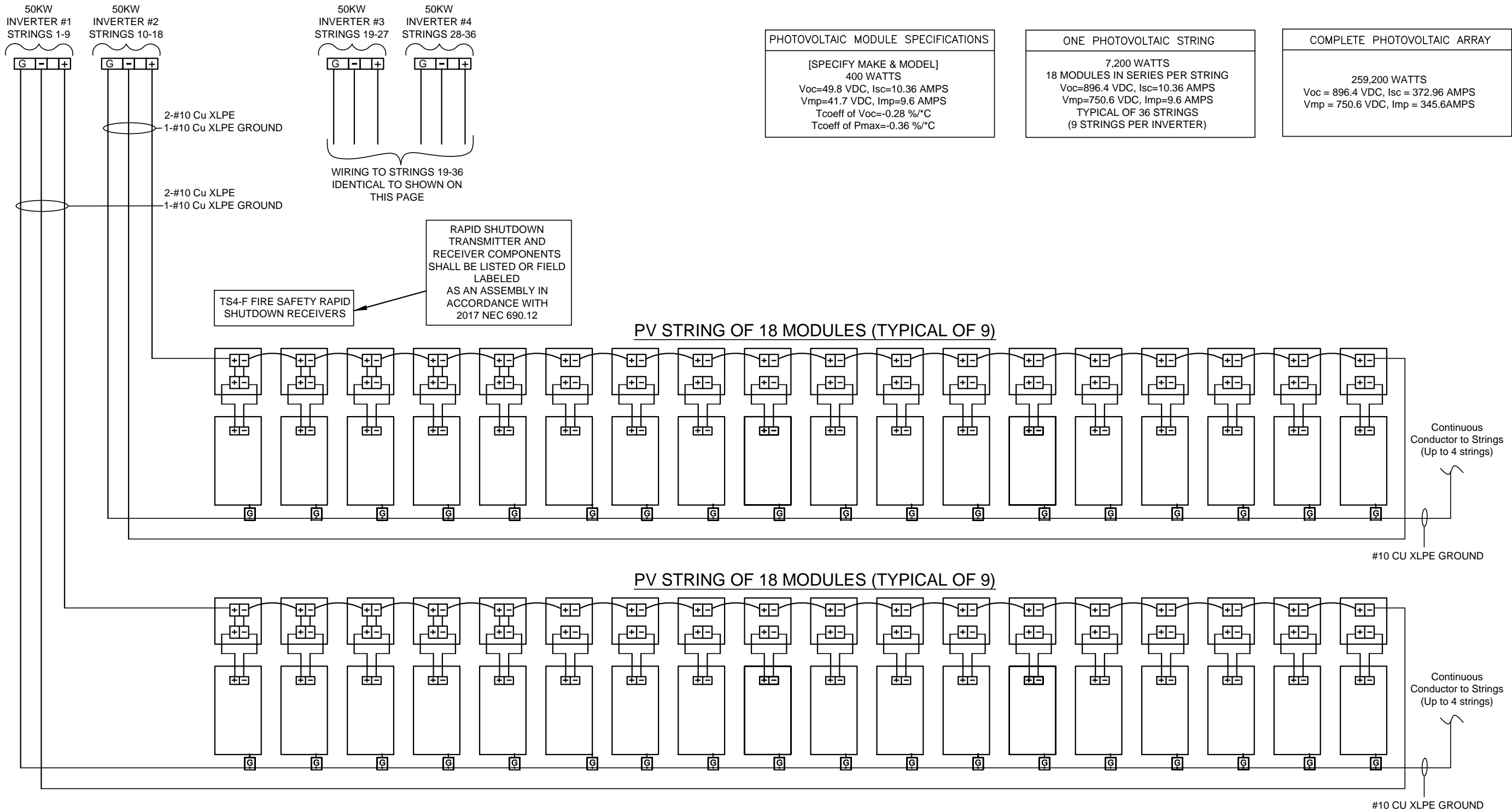
NOTE: All equipment must be utilized in accordance with the manufacturer's intended use and design specifications.

This Sample Drawing is for illustration purposes only and is not to be used for design or construction. This drawing and its suitability for end use is not implied. The intent is to only illustrate typical minimum information required at time of application to APS. Additional information may be required.

SAMPLE LOAD SIDE CONNECTION 3-LINE DIAGRAM

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY INC.	
APPROVALS		THREE-LINE ELECTRICAL DIAGRAM 200 KW AC PHOTOVOLTAIC SYSTEM 999 N. CACTUS BIRD RD. ANY CITY, AZ 85123	
DRAWN ABC		09-10-10	
CHECKED			
ENGINEER			
REV. D		03-27-20	
ABC PROJECT #1111-9999		SIZE B	CODE INTENT NO. DRAWING NO. LSC THREE-LINE
		SCALE NA	REV. D SHEET 2 OF 5

REV.	DESCRIPTION	DATE
A	PRELIMINARY DRAWING SET	08-18-10
B	REVISED PER 2011 NEC REQUIREMENTS	04-30-13
C	REVISED PER 2017 NEC REQUIREMENTS	03-27-20



PHOTOVOLTAIC MODULE SPECIFICATIONS
[SPECIFY MAKE & MODEL] 400 WATTS Voc=49.8 VDC, Isc=10.36 AMPS Vmp=41.7 VDC, Imp=9.6 AMPS Tcoeff of Voc=-0.28 %/°C Tcoeff of Pmax=-0.36 %/°C

ONE PHOTOVOLTAIC STRING
7,200 WATTS 18 MODULES IN SERIES PER STRING Voc=896.4 VDC, Isc=10.36 AMPS Vmp=750.6 VDC, Imp=9.6 AMPS TYPICAL OF 36 STRINGS (9 STRINGS PER INVERTER)

COMPLETE PHOTOVOLTAIC ARRAY
259,200 WATTS Voc = 896.4 VDC, Isc = 372.96 AMPS Vmp = 750.6 VDC, Imp = 345.6 AMPS

NOTES:

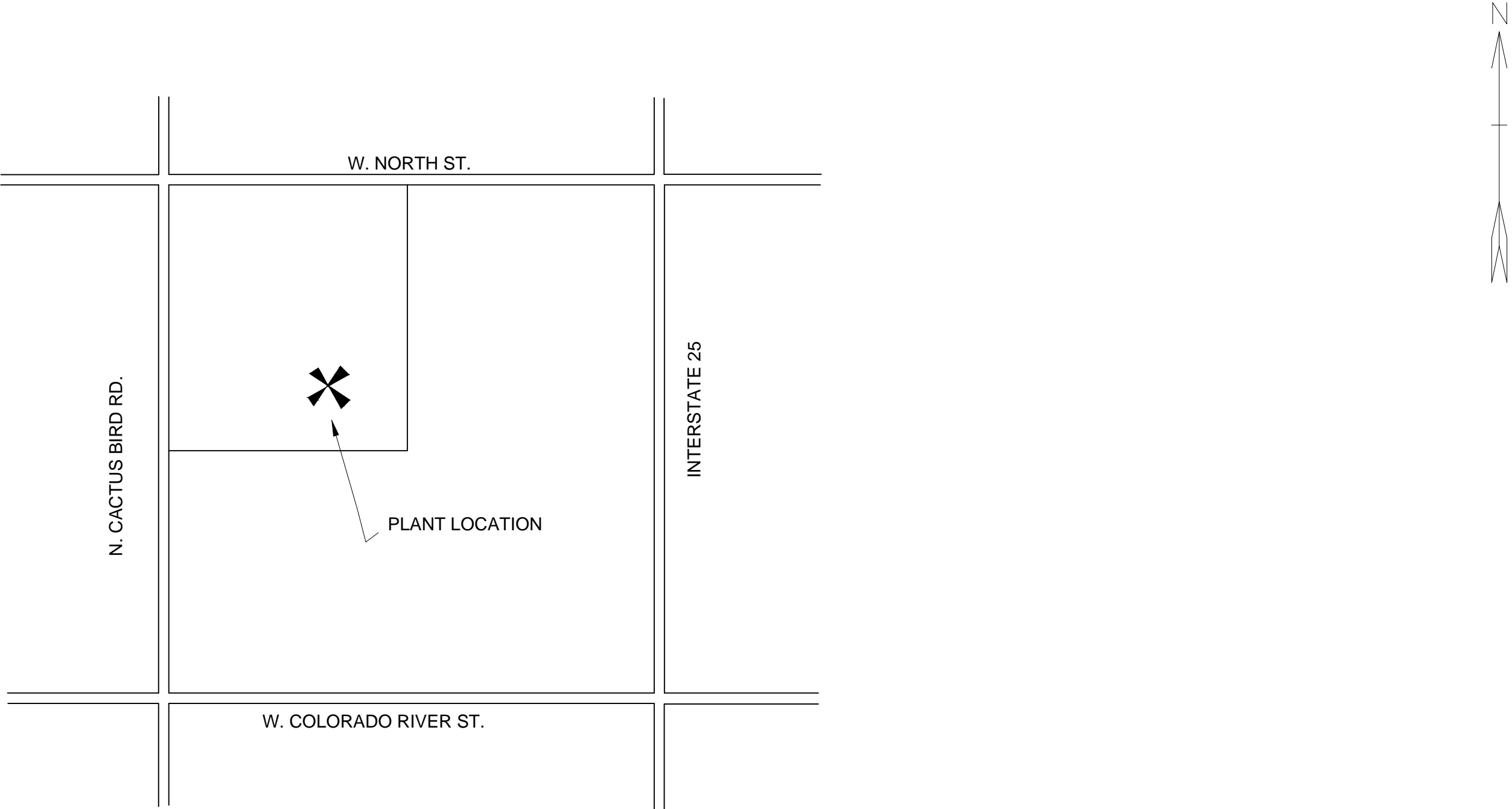
- EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- FOLLOW MANUFACTURERS SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS.
- WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.

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SAMPLE LOAD SIDE CONNECTION ARRAY DRAWING

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY INC.		
THREE-LINE ELECTRICAL ARRAY DIAGRAM 200 KW AC PHOTOVOLTAIC SYSTEM 999 N. CACTUS BIRD RD. ANY CITY, AZ 85123				
APPROVALS	DATE	SIZE	CODE INTENT NO.	DRAWING NO.
DRAWN ABC	09-10-10	B		LSC ARRAY DIAGRAM
CHECKED				
ENGINEER				
REV. C	03-27-20			
ABC PROJECT #1111-9999		SCALE	NA	REV. C
				SHEET 3 OF 5

REV.	DESCRIPTION:	DATE
A	PRELIMINARY DRAWING SET	08/18/10
B	UPDATED DRAWING TITLE	03/27/20

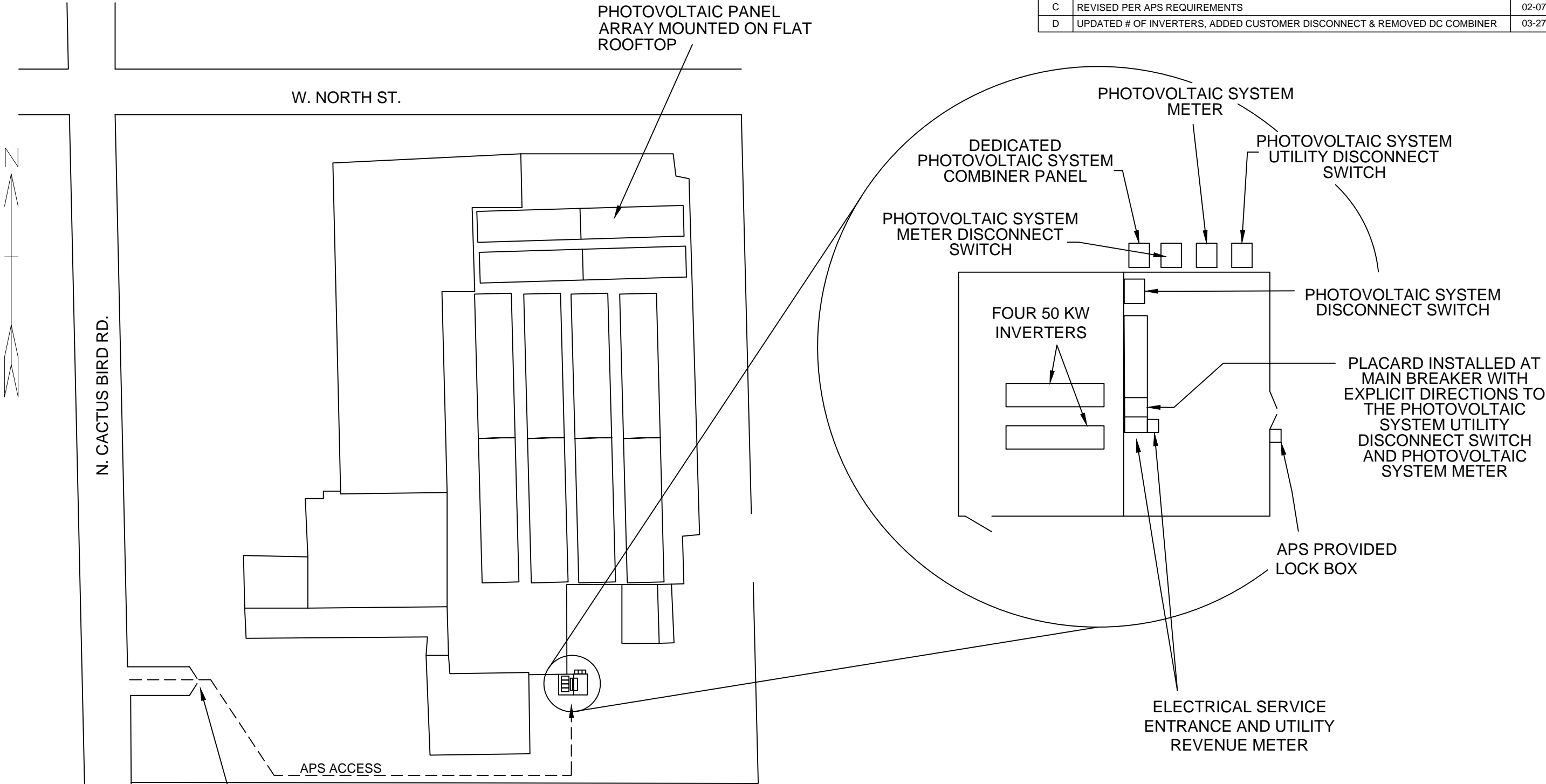


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SAMPLE LOAD SIDE CONNECTION PLANT LOCATION

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY INC.		
		PLANT LOCATION 200 KW AC PHOTOVOLTAIC SYSTEM 999 N. CACTUS BIRD RD. ANY CITY, AZ 85123		
APPROVALS		DATE		
DRAWN ABC		09-10-10		
CHECKED				
ENGINEER				
REV. B		03-27-20		
ABC PROJECT #1111-9999		SIZE B	CODE INTENT NO.	DRAWING NO. LSC PLANT LOCATION
		SCALE NA	REV. A	SHEET 4 OF 5

REV.	DESCRIPTION:	DATE
A	PRELIMINARY DRAWING SET	08-18-10
B	WORKSPACE NOTE	04-30-13
C	REVISED PER APS REQUIREMENTS	02-07-18
D	UPDATED # OF INVERTERS, ADDED CUSTOMER DISCONNECT & REMOVED DC COMBINER	03-27-20



DRIVEWAY WITH GATE & KEY
CODE SECURITY IN APS
PROVIDED LOCKBOX

ACCESS CODE: 12345#

**NOTE: UTILITY HAS 24-HR UNRESTRICTED
ACCESS TO THE PHOTOVOLTAIC SYSTEM
METER AND PHOTOVOLTAIC SYSTEM
UTILITY DISCONNECT SWITCH THROUGH
THE SECURITY GATE**

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SAMPLE LOAD SIDE TAP SITE PLAN									
1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555				ABC SOLAR COMPANY INC.					
APPROVALS				SITE PLAN					
DRAWN ABC				200 KW AC PHOTOVOLTAIC SYSTEM					
CHECKED				999 N. CACTUS BIRD RD.					
ENGINEER				ANY CITY, AZ 85123					
REV. D				03-24-20		SIZE B		CODE INTENT NO.	
ABC PROJECT #1111-9999				SCALE NA		REV. D		SHEET 5 OF 5	