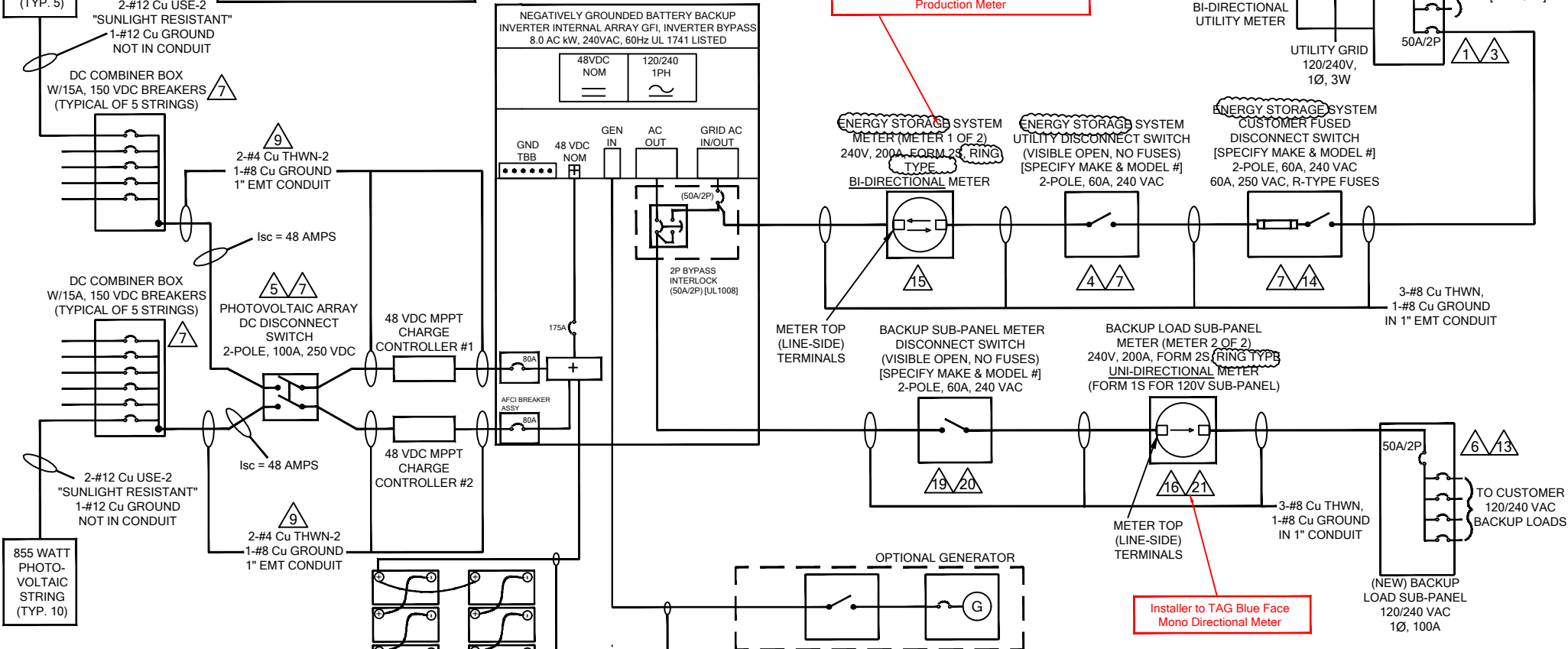


TOTAL ARRAY:
 10 TOTAL PARALLEL SOURCE CIRCUITS:
 EACH STRING COMPRISED OF 3 MODULES
 (285 W EACH) IN SERIES
 TOTAL DC SYSTEM 8550 WATTS

MODULE/PANEL RATINGS:
 $V_{oc} = 39.7$ VDC, $I_{sc} = 9.60$ AMPS
 $V_{mp} = 31.3$ VDC, $I_{mp} = 9.20$ AMPS

**NOTE: SYSTEM DESIGNED
 IN ACCORDANCE WITH THE
 2011 N.E.C.**

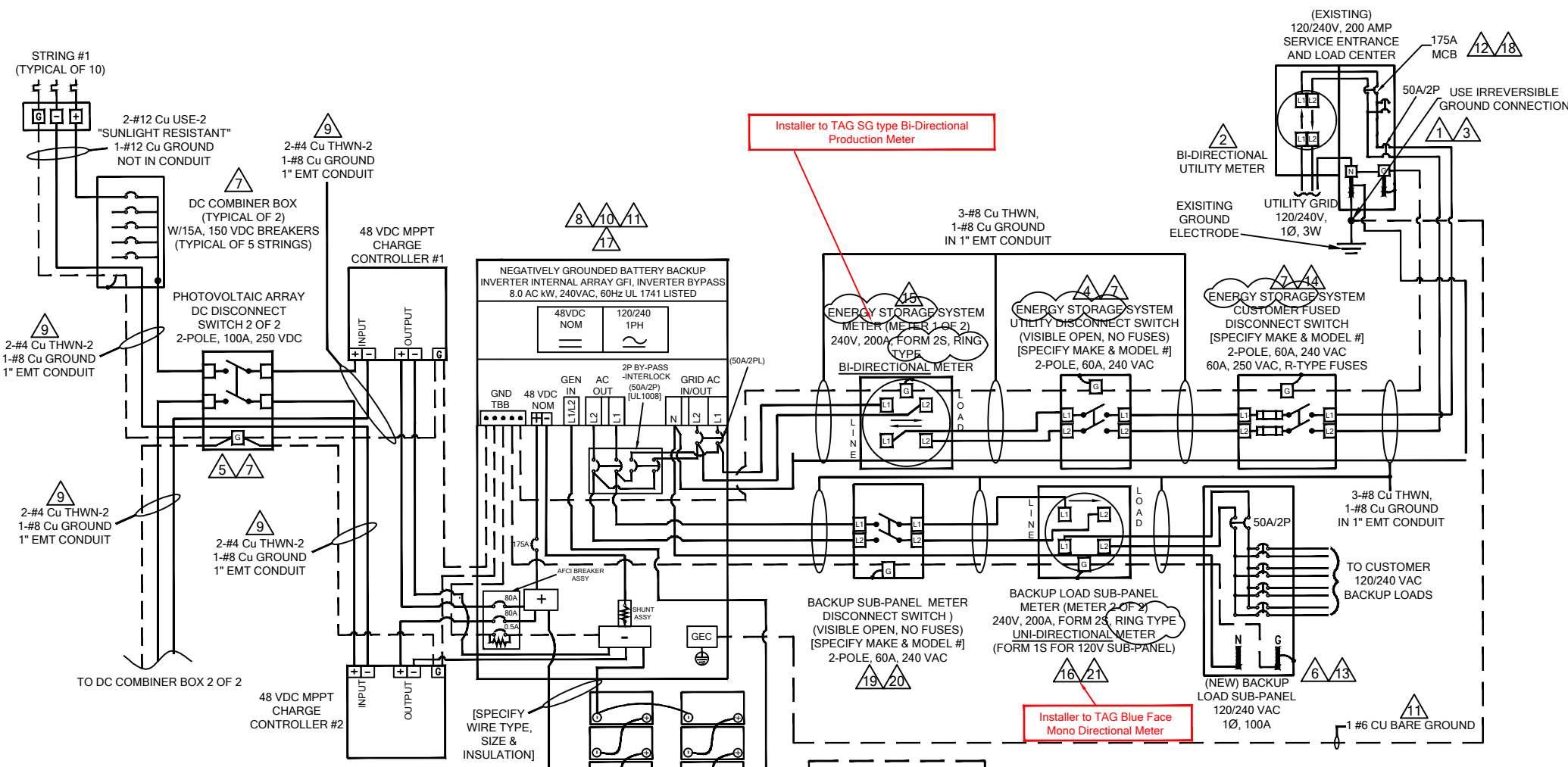


1-LINE DIAGRAM
 NOTES ON PAGE 3 OF 5

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48 VDC BATTERY BANK
 [SPECIFY MAKE & MODEL #]
 6 V-415 Ah (C/20) EACH
 8 IN SERIES X 2 IN PARALLEL
 (16 TOTAL)
 48 VDC (NOM) @ 830 Ah (C/20)

ABC BATTERY BACKUP CO. INC.			
APPROVALS	DATE	8.0AC/8.55DC kW PV SYSTEM 1-LINE	
DRAWN	11-4-2016	SAMPLE BATTERY PV SYSTEM	
CHECKED		LC SMITH	
ENGINEER		12 SHOTGUN WAY	
M.G.R.		ANY CITY, AZ 85123	
REV.	2-3-21	SIZE	CODE INTENT NO. DRAWING NO.
PROJECT: BATTERY SYSTEM		SCALE NTS	REV. 2 SHEET 1 OF 5



3-LINE DIAGRAM

NOTES ON PAGE 3 OF 5

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48 VDC BATTERY BANK [SPECIFY MAKE & MODEL #]
6 V-415 Ah (C/20) EACH
8 IN SERIES X 2 IN PARALLEL (16 TOTAL)
48 VDC (NOM) @ 830 Ah (C/20)

NOTE: SYSTEM DESIGNED IN ACCORDANCE WITH THE 2011 N.E.C.

ABC BATTERY BACKUP CO. INC.			
APPROVALS	DATE	8.0AC/8.55DC kW PV SYSTEM 3-LINE	
DRAWN	11-4-2016	SAMPLE BATTERY PV SYSTEM	
CHECKED		LC SMITH	
ENGINEER		12 SHOTGUN WAY	
M.G.R.		ANY CITY, AZ 85123	
REV.	2-4-21	SIZE	CODE INTENT NO. DRAWING NO.
PROJECT: BATTERY SYSTEM		SCALE NTS	REV. 2 SHEET 2 OF 5

KEYED NOTES:

- △ LABEL "INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE." AND LOCATE BREAKER AT OPPOSITE END OF BUS FROM MAIN BREAKER LOCATION PER 2017 NEC 705.12(B)(2)(3)(b).
- △ BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY.
- △ LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.12(B)(2)(3)(b) AND "BREAKERS ARE BACKFED" PER NEC 705.12(B)(2)(3)(c). LABEL WITH THE MAXIMUM AC OUTPUT OPERATION CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
- △ LABEL "ENERGY STORAGE SYSTEM UTILITY DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISIBLE OPEN AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
- △ LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT SWITCH" PER NEC 690.13(B). LABEL WITH MAXIMUM VOLTAGE, MAXIMUM CIRCUIT CURRENT, AND MAXIMUM RATED OUTPUT CURRENT PER NEC 690.53. SWITCH COVER TO BE LOCKED.
- △ LABEL "WARNING: THIS SUB-PANEL FED FROM MULTI POWER PRODUCTION SOURCES".
- △ 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 OFF POSITION.
- △ INVERTER TO BE LISTED TO UL 1741.
- △ METALLIC CONDUIT SHALL BE USED WITHIN BUILDING AND LABELED PER NEC 690.31 (E).
- △ GROUND FAULT PROTECTION PROVIDED IN DC/AC INVERTER.
- △ GEC TO BE INSTALLED AS REQUIRED PER MANUFACTURER INSTRUCTIONS AND NEC 690.47.
- △ LABEL "MAIN BREAKER HAS BEEN DE-RATED PER NEC 705.12(B)(2)(3)(c)" & "MAX 175 AMPS".
- △ OPTIONAL BACKUP LOAD SUB-PANEL ON THE OUTPUT OF THE INVERTER IN USE [NOTE: A SEPARATE BACKUP SUB-PANEL METER DISCONNECT SWITCH WILL BE REQUIRED ON THE INVERTER OUTPUT FEEDING THE BACKUP LOAD SUB-PANEL.]

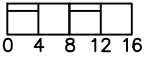
- △¹⁴ INSTALL AS REQUIRED TO ENSURE ENERGY STORAGE SYSTEM UTILITY DISCONNECT SWITCH AND METER AFC RATINGS ARE NOT EXCEEDED. LABEL "PHOTOVOLTAIC SYSTEM CUSTOMER FUSED DISCONNECT". SWITCH COVER TO BE LOCKED BY CUSTOMER AT ALL TIMES, AND COMPLY WITH NEC 705.22
- △¹⁵ CUSTOMER TO PROVIDE & INSTALL RING-TYPE METER SOCKET WITH NON-DETENTED FORM 2S ELECTROMECHANICAL METER WITH TERMINAL CONNECTIONS AS SHOWN UNTIL SUCH TIME THAT APS INSTALLS THE PRODUCTION METERS. LABEL METER SOCKET "ENERGY STORAGE SYSTEM METER" AND INCLUDE "BI-DIRECTIONAL METER" LABEL ON THE METER SOCKET.
- △¹⁶ CUSTOMER TO PROVIDE & INSTALL RING-TYPE METER SOCKET WITH NON-DETENTED FORM 2S ELECTROMECHANICAL METER WITH TERMINAL CONNECTIONS AS SHOWN UNTIL SUCH TIME THAT APS INSTALLS THE PRODUCTION METERS. LABEL METER SOCKET "BACKUP LOAD SUB-PANEL METER (METER 2 OF 2)" AND INCLUDE "UNI-DIRECTIONAL METER" LABEL ON THE METER SOCKET.
- △¹⁷ OPTIONAL INVERTER GENERATOR INPUT (GEN IN) NOT USED [NOTE: IF A BACKUP GENERATOR IS CONNECTED TO THE INVERTER, THEN A SEPARATE DISCONNECT SWITCH WILL BE REQUIRED ON THE GENERATOR OUTPUT SUBJECT TO APS REVIEW/APPROVAL.]
- △¹⁸ LABEL SES "WARNING: MULTI POWER PRODUCTION SOURCES INTERCONNECTED TO THIS ELECTRICAL SERVICE."
- △¹⁹ LABEL "BACKUP SUB-PANEL METER DISCONNECT SWITCH ". SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISIBLE OPEN & ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
- △²⁰ BACKUP SUB-PANEL METER DISCONNECT SWITCH "IS REQUIRED IF BACKUP LOAD SUB-PANEL AND BREAKERS ARE NOT ACCESSIBLE BY APS."
- △²¹ A PERMANENT PLAQUE OR DIRECTORY DENOTING LOCATION OF BACKUP SUB-PANEL METER DISCONNECT SWITCH , OR LOCATION OF ACCESSIBLE BACKUP LOAD SUB-PANEL SHALL BE REQUIRED AT BACKUP LOAD SUB-PANEL METER (2 OF 2)

GENERAL NOTES:

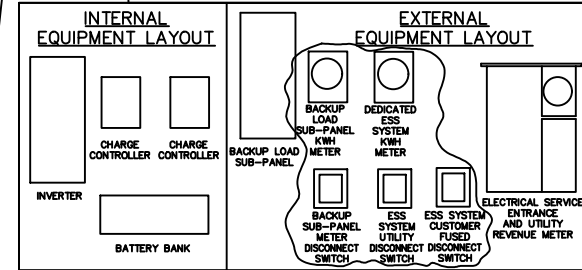
- A. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE 2011 NEC AND ALL APPLICABLE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- B. DC ARRAY PANEL GROUND WIRES MUST BE CONTINUOUS AND INSTALLED TO ALLOW FOR PANEL REMOVAL WITHOUT DISRUPTING CONTINUITY. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC 690-4 (C).
- C. FOLLOW MANUFACTURERS' SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS FOR ALL EQUIPMENT.
- D. ARRAY DC WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.
- E. DC EQUIPMENT SHOWN FOR ILLUSTRATION PURPOSES ONLY. ACTUAL DESIGN SHALL BE IN ACCORDANCE WITH THE NEC AND MANUFACTURER'S SPECIFICATIONS AND INSTALLATION SHALL BE IN ACCORDANCE WITH AHJ REQUIREMENTS.
- F. PER 705.10 A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES ON OR IN THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL ELECTRIC POWER PRODUCTION SOURCES CAPABLE OF BEING INTERCONNECTED.
- G. EQUIPMENT SHALL BE TESTED, LISTED, AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.

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ABC BATTERY BACKUP CO. INC.				
APPROVALS	DATE	8.0AC/8.55DC kW PV NOTES		
DRAWN	11-4-2016	SAMPLE BATTERY PV SYSTEM		
CHECKED		LC SMITH		
ENGINEER		12 SHOTGUN WAY		
M.G.R.		ANY CITY, AZ 85123		
REV.	2-4-21	SIZE	CODE INTENT NO.	DRAWING NO.
PROJECT:		SCALE NTS		(REV. 2)
BATTERY SYSTEM				SHEET 3 OF 5

SCALE 1"=16'


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NOTE: UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AND SERVICE ENTRANCE.

NOTE: WORKSPACE IN FRONT OF AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH APS AND NEC REQUIREMENTS. FOR WORKSPACE AND ELEVATION OF PV SYSTEM UTILITY DISCONNECT SWITCH/ PV SYSTEM METER, REFER TO SECTION 300 OF THE APS ESRM AND SECTION 8.2 OF THE APS INTERCONNECTION REQUIREMENTS.

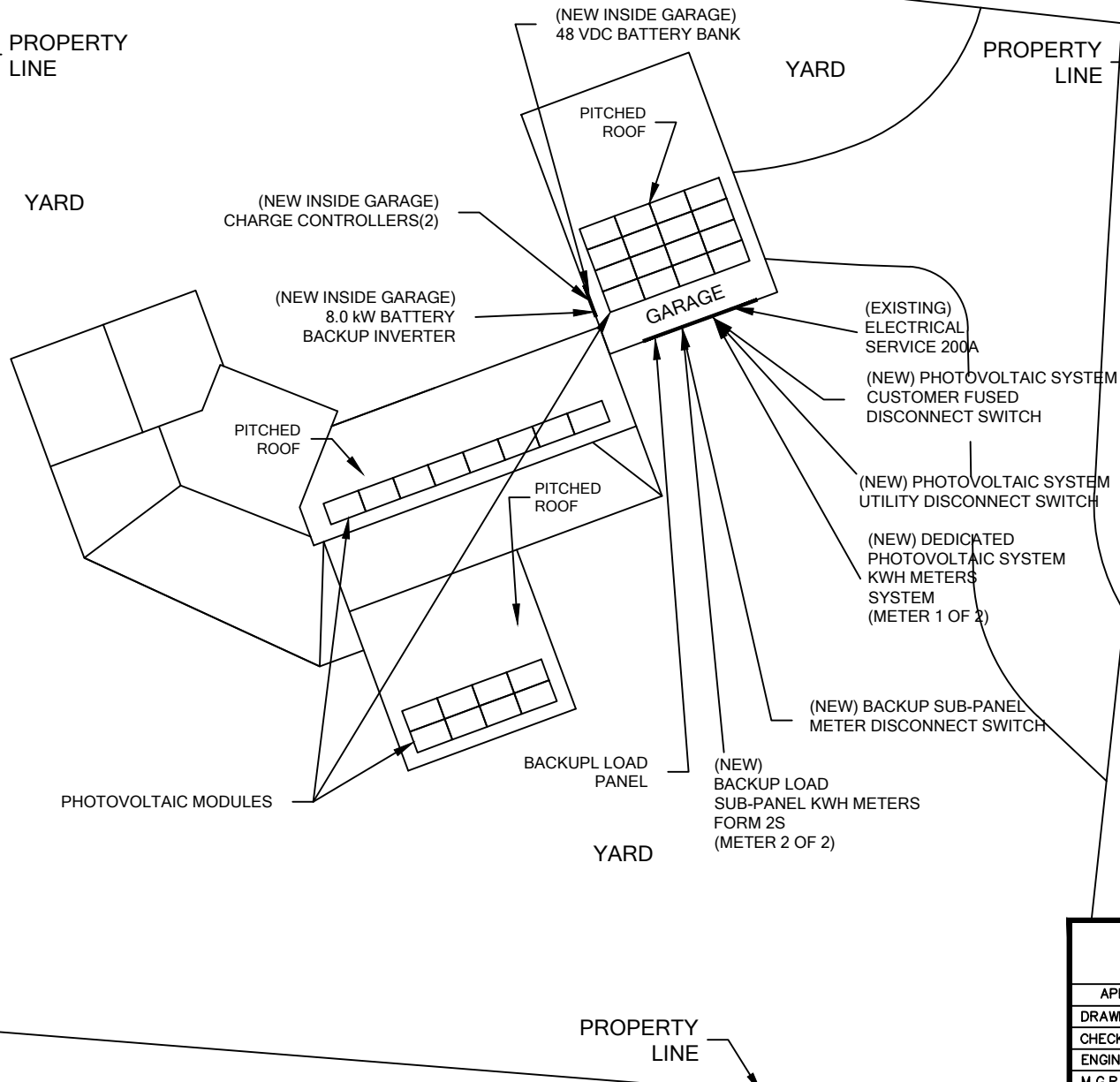
NOTE: REFERENCE SECTION 301.15 OF THE APS ESRM FOR ELECTRIC METER SEPARATION BETWEEN WATER AND GAS.

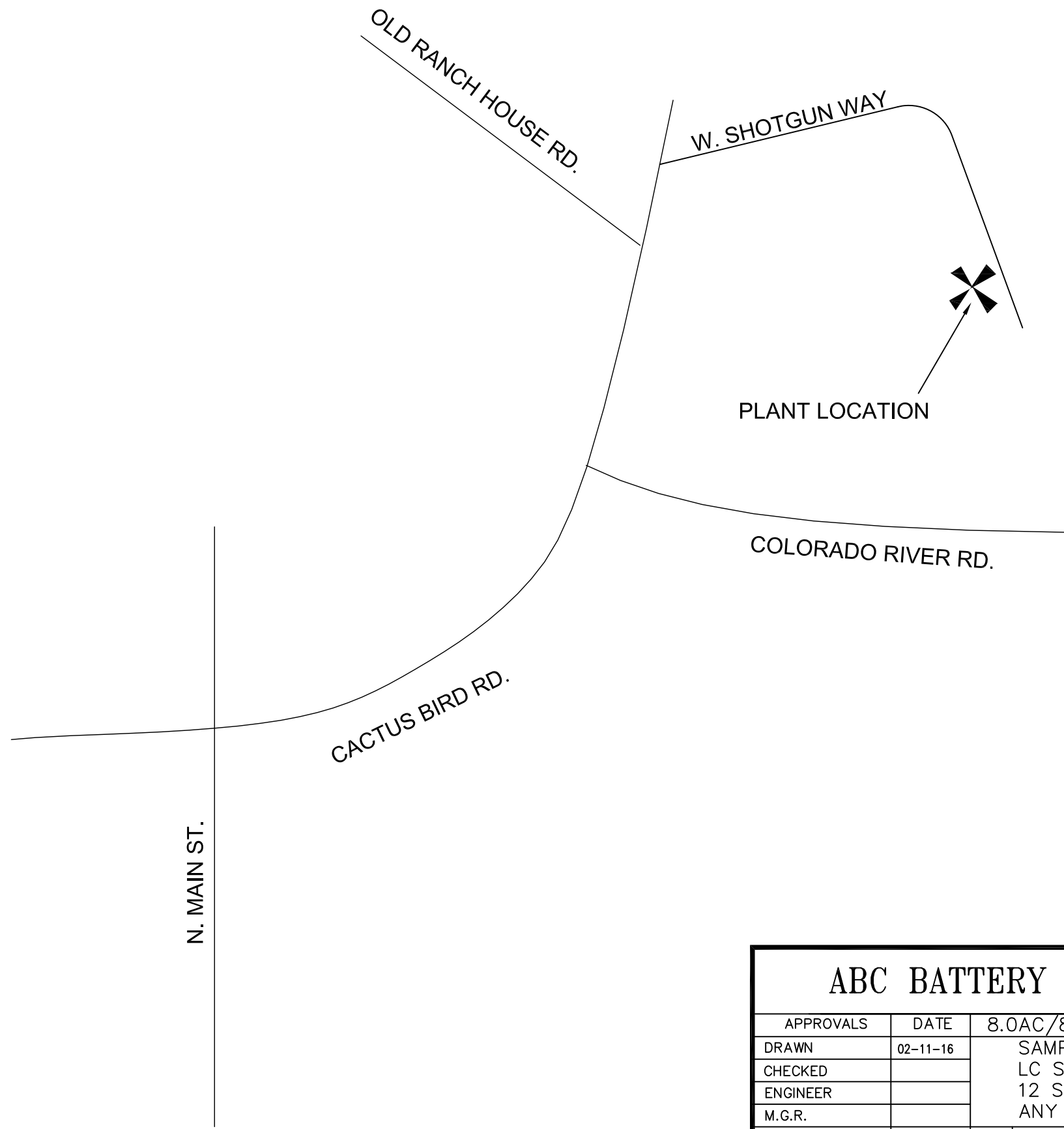


ABC BATTERY BACKUP CO. INC.

APPROVALS	DATE	8.0AC/8.55DC kW PV SITE PLAN	
DRAWN	11-4-2016	SAMPLE BATTERY PV SYSTEM	
CHECKED		LC SMITH	
ENGINEER		12 SHOTGUN WAY	
M.G.R.		ANY CITY, AZ 85123	
REV.	2-4-21	SIZE	CODE INTENT NO. DRAWING NO.
PROJECT:		SCALE NTS	
BATTERY SYSTEM		(REV. 2)	SHEET 5 OF 5

SITE PLAN





PLANT LOCATION

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ABC BATTERY BACKUP CO. INC.				
APPROVALS	DATE	8.0AC/8.55DC kW PV PLANT LOCATION		
DRAWN	02-11-16	SAMPLE BATTERY PV SYSTEM		
CHECKED		LC SMITH		
ENGINEER		12 SHOTGUN WAY		
M.G.R.		ANY CITY, AZ 85123		
REV.		SIZE	CODE INTENT NO.	DRAWING NO.
PROJECT: BATTERY SYSTEM		SCALE NTS	REV. 0	SHEET 4 OF 5