

SINGLE-LINE DIAGRAM KEYED NOTES

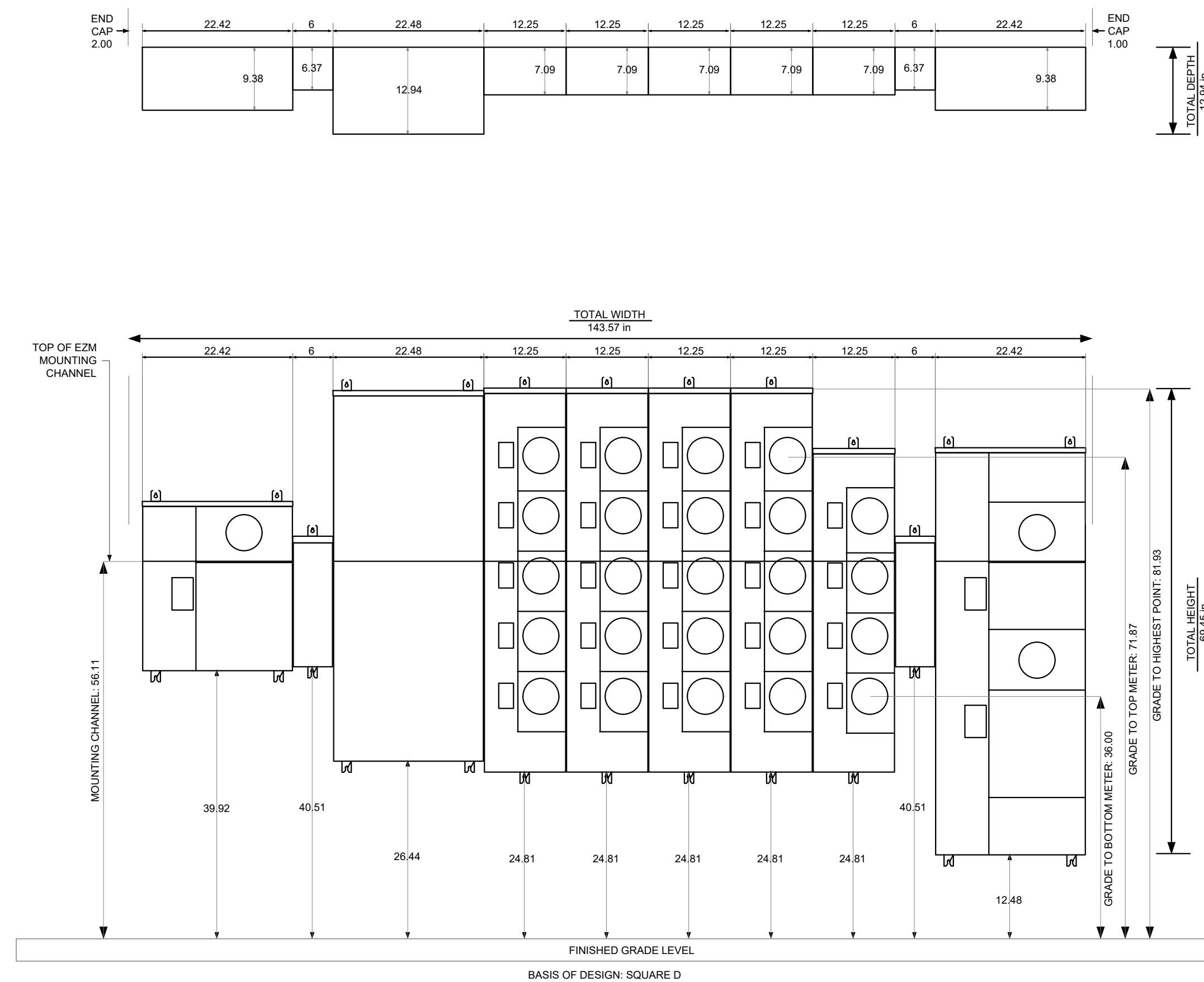
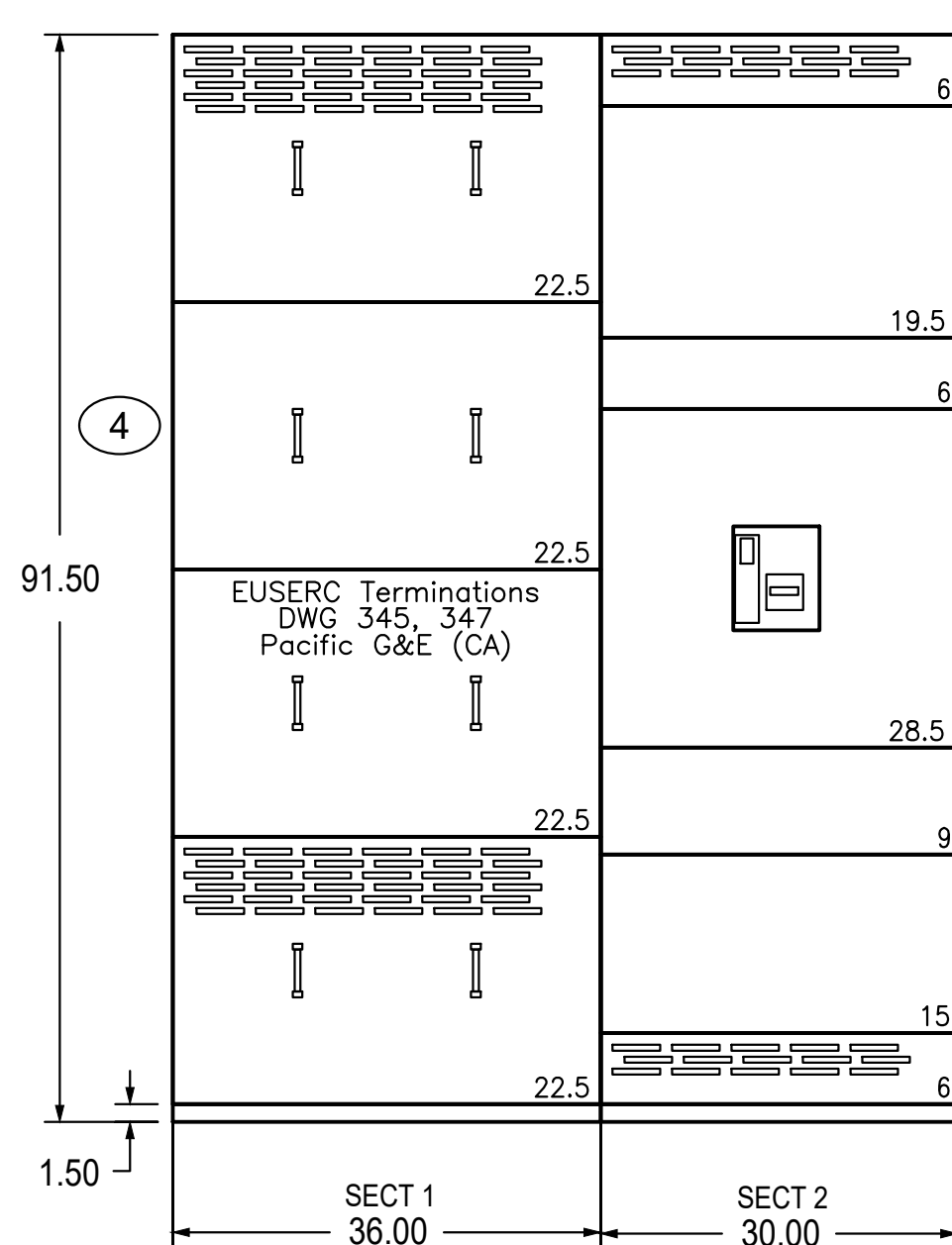
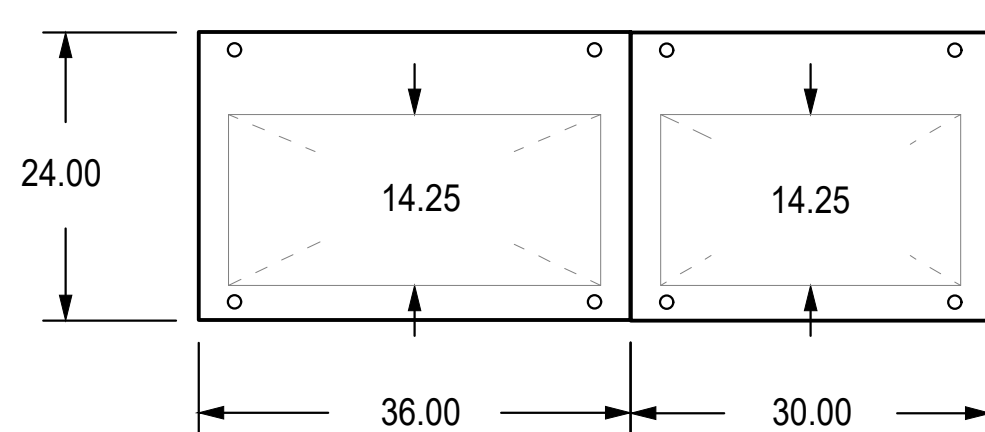
1. VERIFY WITH SERVICE PLANNER FOR AIC RATING AND ELECTRICAL INFORMATION BEFORE ISSUING ANY BID. NOTIFY ENGINEER IMMEDIATELY IF MAJOR DISCREPANCIES OCCURS.
2. STUB UP CONDUIT FOR PV SYSTEM. PV SYSTEM SHALL BE SUBMITTED UNDER A SEPARATE PERMIT. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH PV CONSULTANT FOR THE EXACT SIZE OF CONDUIT AND ALL ELECTRICAL REQUIREMENTS.
3. REFER TO UTILITY PLAN FOR LAYOUT AND EXACT CONDUIT AND WIRE SIZE.
4. THE SWITCHGEAR SHOP DRAWING SHALL BE APPROVED BY PG&E.

SINGLE-LINE DIAGRAM GENERAL NOTES

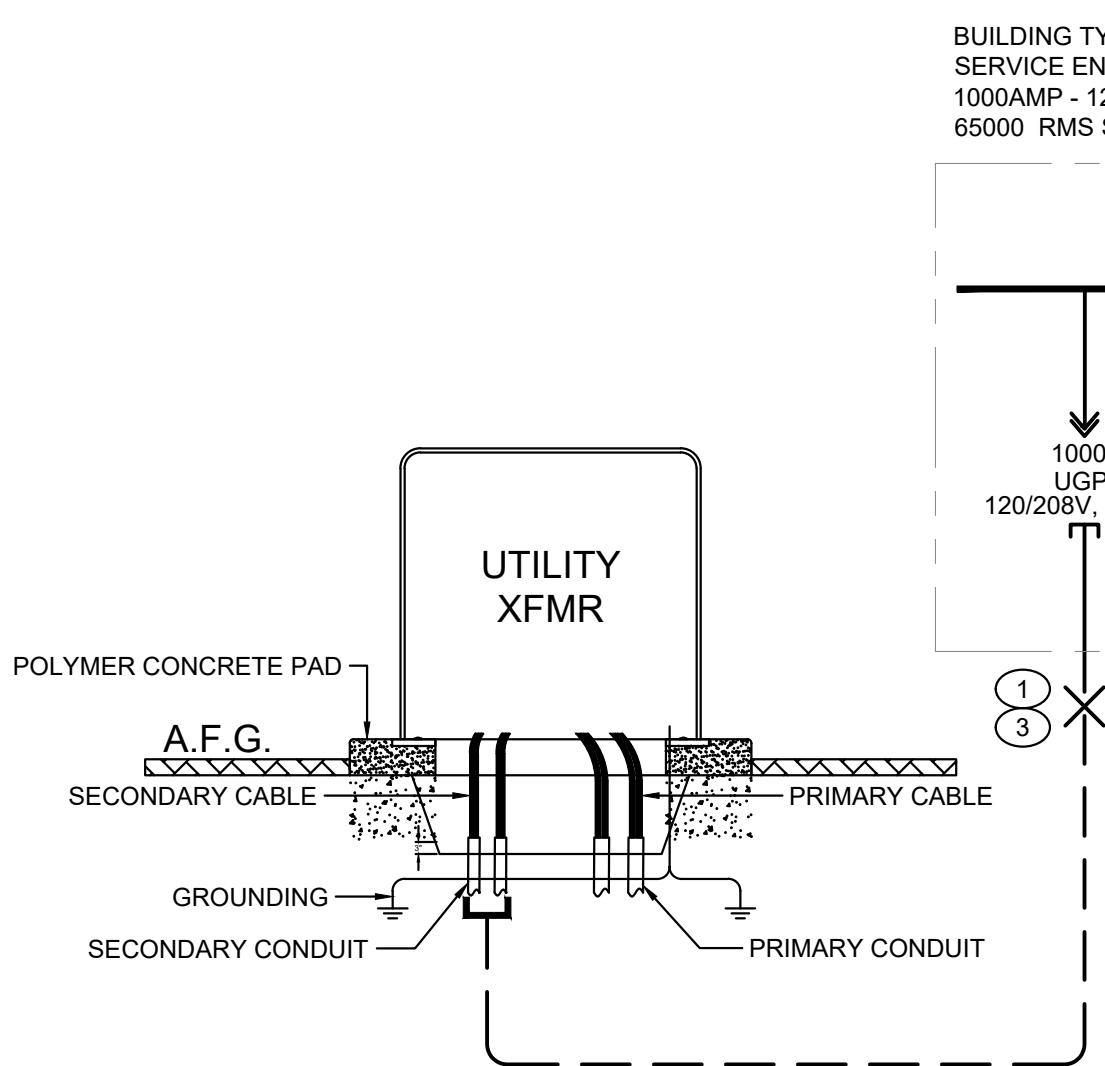
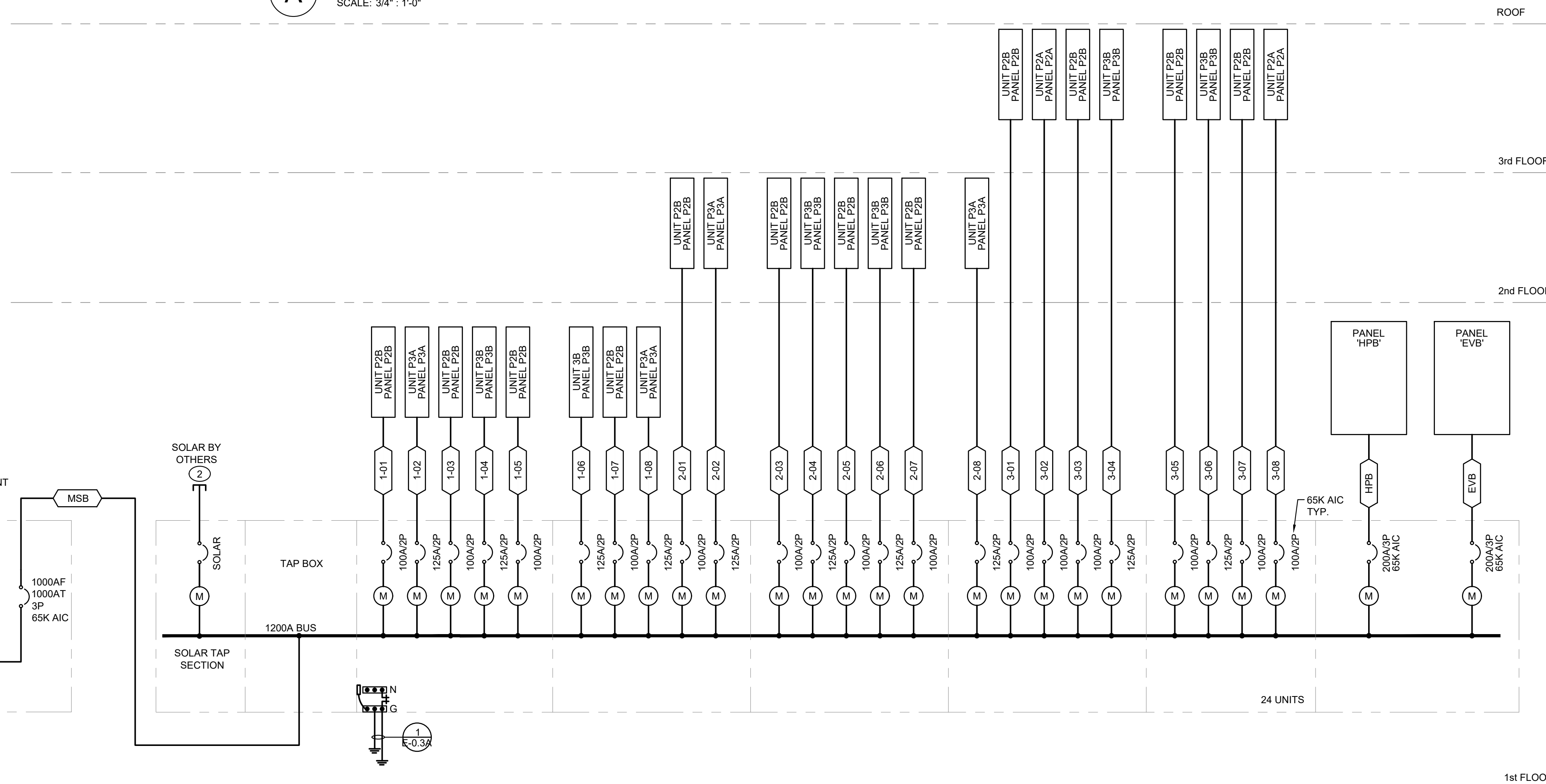
1. THE MAXIMUM AVAILABLE FAULT CURRENT IS BASED ON WORST CASE FAULT CURRENT PUBLISHED BY THE UTILITY COMPANY. CONTRACTOR TO OBTAIN FAULT CURRENT LETTER FROM UTILITY COMPANY FOR EACH SERVICE BEFORE ORDERING SWITCHBOARD. IF AVAILABLE FAULT CURRENT IS HIGHER THAN SHOWN IN THE DRAWINGS, CONTACT ELECTRICAL ENGINEER IMMEDIATELY. PROVIDE A PERMANENT PLAQUE OR STICKER AT SERVICE EQUIPMENT THAT INDICATES THE AVAILABLE FAULT CURRENT AND THE DATE THE STUDY WAS PERFORMED SHALL BE PROVIDED.
2. LETTER FOR SHORT CIRCUIT CURRENT VALUE FROM UTILITY COMPANY SHALL BE AVAILABLE AT THE JOB SITE FOR INSPECTION.
3. ELECTRICAL EQUIPMENT SHALL BE LISTED BY THE CITY, WHERE THE PROJECT IS LOCATED, RECOGNIZED ELECTRICAL TESTING LABORATORY OR APPROVED BY THE DEPARTMENT.
4. ALL NEW CIRCUIT BREAKERS, FUSIBLE SWITCHES AND ELECTRICAL EQUIPMENT SHALL BE FULLY RATED HAVING A SHORT-CIRCUIT (AIC) RATING EXCEEDING THE AVAILABLE SHORT-CIRCUIT CURRENT AT THE EQUIPMENT. SERIES RATING OF EQUIPMENT IS NOT ALLOWED.
5. ALL SWITCHBOARDS AND DISTRIBUTION BOARDS SHALL HAVE:
 - 5.1. TIN-PLATED ALUMINUM BUSSING WITH RECTANGULAR CROSS SECTION. HORIZONTAL AND VERTICAL BUSSING SHALL BE FULL LENGTH AND SHALL HAVE PROVISIONS FOR FUTURE EXTENSIONS. ALL BUSSING SHALL HAVE MINIMUM WITHSTAND RATING EQUAL TO THE AVAILABLE FAULT CURRENT INDICATED. ALL VERTICAL AND HORIZONTAL BUSSING SHALL BE RATED AT FULL CAPACITY IN ALL SWITCHBOARD AND DISTRIBUTION BOARD SECTIONS. PROVIDE 100% NEUTRAL BUSSING MINIMUM UNLESS OTHERWISE NOTED. PROVIDE FULL LENGTH GROUND BUS AND, WHERE INDICATED ON PLANS, ISOLATED GROUND BUSSING. PROVIDE REAR WIRE WAY IN ALL SWITCHBOARD SECTIONS.
 - 5.2. LUGS SUITABLE FOR USE WITH COPPER OR ALUMINUM CONDUCTORS LISTED FOR USE WITH 75 DEGREE CELSIUS AMPACITY CONDUCTORS.
 - 5.3. PERMANENT PLACARD(S) MARKED PER THE SPECIFICATIONS AND PER NEC SECTIONS 225.37, 230.2(E), 690.56, 692.56, 700.7, 701.7, 702.7, AND 705.10 DENOTING THE PRESENCE OF ADDITIONAL SERVICES, PHOTOVOLTAIC SYSTEMS, FUEL CELLS, EMERGENCY OR STAND-BY POWER SOURCES AS APPLICABLE.
 - 5.4. SINGLE LINE DIAGRAM SHOWN IS A "FULLY RATED SYSTEM" UNLESS NOTED. OTHERWISE.
 - 5.5. THE MAXIMUM COMBINED VOLTAGE DROP ON BOTH INSTALLED FEEDER CONDUCTORS AND BRANCH CONDUCTORS TO THE FARTHEST CONNECTED LOAD OR OUTLET SHALL NOT EXCEED 5 PERCENT.
 - 5.6. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE "UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION".
6. ALL SWITCHBOARDS, PANEL BOARDS, INDUSTRIAL CONTROL PANELS, AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ARC FLASH HAZARDS PER CEC 110.6 & NFPA 70E.
7. SERVICE EQUIPMENT IS TO BE LEGIBLY MARKED WITH THE MAXIMUM AVAILABLE FAULT CURRENT. THE MARKING SHALL BE DURABLE AND MUST INCLUDE THE DATE FAULT CURRENT CALCULATION WAS PERFORMED PER CEC 110.244.
8. SWITCHBOARDS MUST BE SEISMIC QUALIFIED AND BE MARKED AS SUCH BY THE MANUFACTURER; DETAILS OF THE ATTACHMENT AND ANCHORING TO THE SUPPORTING STRUCTURE MUST BE PROVIDED PER CEC 110.3, 110.13, AND ASCE 7-10, 13.6.4 13.6.5.

BUILDING B - 'MSB'

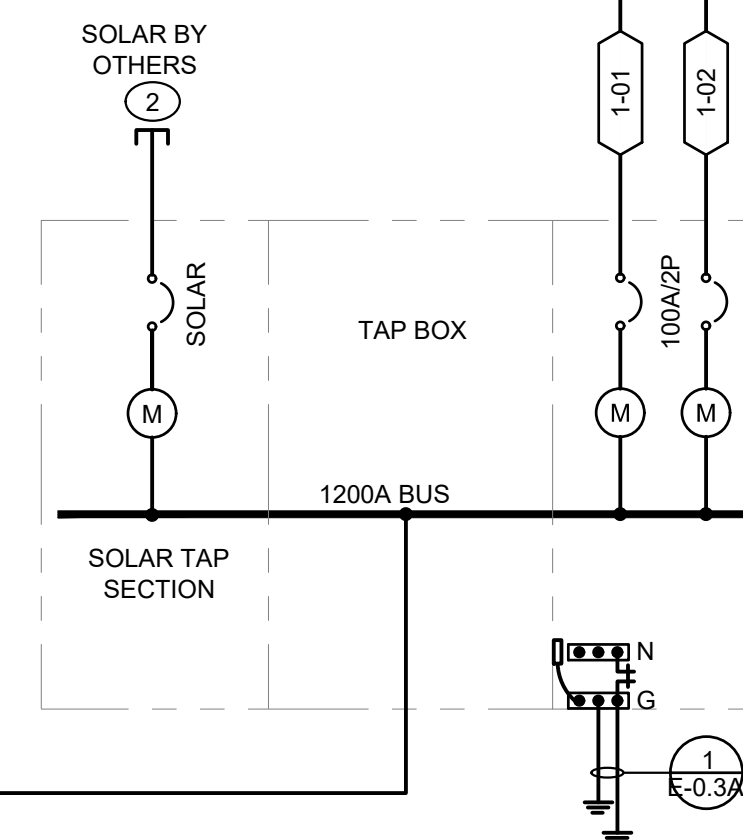
1000AMPS, MAIN BREAKER, THREE PHASE SWITCHBOARD 24 UNITS & 1 HOUSE METER



A ELECTRICAL EQUIPMENT ELEVATION - BUILDING B
SCALE: 3/4" = 1'-0"



BUILDING TYPE B - 'MSB'
SERVICE ENTRANCE EQUIPMENT
1000AMP - 120/208V, 3Ø, 4W
65000 RMS SYM



Voltage Drop and Short Circuit Calculation																				
CABLE NAME	PANEL NAME	UNIT/ CIRCUIT	VOLTS	PHASE	DEMAND AMPS	AMPS	FEEDER			CONDUIT			FAULT CURRENT							
							PARALLEL RUNS	PHASE CONDUCTOR	EQUIPMENT GROUNDING CONDUCTOR	CONDUCTOR MATERIAL	CONDUCTOR INSULATION	CONDUIT TYPE	CONDUIT SIZE	FILL% (%40%)	DISTANCE (FT) L	%VD	FAULT CURRENT	Isc	AIC	
MSB	MSB	MAIN	208	3	1000	1000	3	600	40	4	EMT	3 1/2	32.86%	20	0.32	65000	55104	65000		
HMB	HMB	HOUSE	208	3	200	200	1	250	4	4	ALUM	THRN	EMT	2 1/2	28.51%	20	0.33	55104	31362	42000
EVB	EVB	EV PANEL	208	3	200	200	1	250	4	4	ALUM	THRN	EMT	2 1/2	28.51%	20	0.42	55104	28112	42000
1-01	P2B	UNIT P2B	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	24	0.45	55104	17214	22000
1-02	P3A	UNIT P3A	208	1	102	125	1	20	4	4	ALUM	THRN	SER	NAN	-	54	0.85	55104	11063	22000
1-03	P2B	UNIT P2B	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	81	1.51	55104	6637	10000
1-04	P3B	UNIT P3B	208	1	102	125	1	20	4	4	ALUM	THRN	SER	NAN	-	96	1.51	55104	6822	10000
1-05	P2B	UNIT P2B	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	103	1.92	55104	5279	10000
1-06	P3B	UNIT P3B	208	1	102	125	1	20	4	4	ALUM	THRN	SER	NAN	-	138	2.17	55104	4932	10000
1-07	P2B	UNIT P2B	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	160	2.98	55104	3515	10000
1-08	P3A	UNIT P3A	208	1	102	125	1	20	4	4	ALUM	THRN	SER	NAN	-	163	2.56	55104	4233	10000
2-01	P2B	UNIT P2B	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	34	0.63	55104	13380	22000
2-02	P3A	UNIT P3A	208	1	102	125	1	20	4	4	ALUM	THRN	SER	NAN	-	64	1	55104	9636	10000
2-03	P2B	UNIT P2B	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	91	1.7	55104	5986	10000
2-04	P3B	UNIT P3B	208	1	102	125	1	20	4	4	ALUM	THRN	SER	NAN	-	106	1.66	55104	5251	10000
2-05	P2B	UNIT P2B	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	113	2.11	55104	4849	10000
2-06	P3B	UNIT P3B	208	1	102	125	1	20	4	4	ALUM	THRN	SER	NAN	-	148	2.32	55104	4626	10000
2-07	P2B	UNIT P2B	208	1	97	100	1	20	3	4	ALUM	THRN	SER	NAN	-	170	2.54	55104	4072	10000
2-08	P3A	UNIT P3A	208	1	102	125	1	20	4	4	ALUM	THRN	SER	NAN	-	173	2.71	55104	4008	10000
3-01	P2B	UNIT P2B	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	43	0.8	55104	11146	22000
3-02	P3A	UNIT P3A	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	59	1.1	55104	5595	10000
3-03	P2B	UNIT P2B	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	101	1.88	55104	5369	10000
3-04	P3B	UNIT P3B	208	1	102	125	1	20	4	4	ALUM	THRN	SER	NAN	-	116	1.82	55104	5769	10000
3-05	P2B	UNIT P2B	208	1	97	100	1	10	4	4	ALUM	THRN	SER	NAN	-	123	2.20	55104	4487	10000
3-06	P3B	UNIT P3B	208	1	102	125	1	20	4	4	ALUM	THRN	SER	NAN	-	158	2.48	55104	4357	10000
3-07	P2B	UNIT P2B	208	1	97	100	3	3	3	3	ALUM	THRN	SER	NAN	-	180	2.69	55104	3851	10000
3-08	P3A	UNIT P3A	208	1	97	100	1	20	3	4	ALUM	THRN	SER	NAN	-	195	2.91	55104	3584	10000

NOTE: THE VOLTAGE DROP IN THE ABOVE TABLE IS AN ESTIMATED LENGTH THE CONTRACTOR SHALL REVISE THE FEEDER SCHEDULE BASED ON THE ACTUAL LENGTH IN THE FIELD, AND INCREASE OR DECREASE THE FEEDER SIZE TO ACCOMMODATE THE VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL INFORM THE ENGINEER OF RECORD IN EVENT FIELD CONDITIONS THAT CAUSE A SUBSTANTIAL INCREASE IN OVERALL FEEDER LENGTH. THE FEEDER SHALL BE SIZED TO PREVENT VOLTAGE DROP FROM EXCEEDING 3%, AND TOTAL VOLTAGE DROP FOR BRANCH CIRCUIT AND FEEDER SHALL NOT EXCEED 5% PER NEC 210.19(A)(2).

REVISIONS		
NO.	DATE	DESCRIPTION
04/07/23		PLAN CHECK
06/22/23		PLAN CHECK
08/15/23		PLAN CHECK
12/07/23		RFI 50
04/02/24		CLIENT REV.
06/19/24		EV REVISION
08/02/24		PLAN CHECK

SHEET NAME:
SINGLE LINE DIAGRAM
BUILDING B

PROJECT NUMBER:
66139
ENGINEER:
DRAFTER:

SHEET NUMBER:
E-0.5