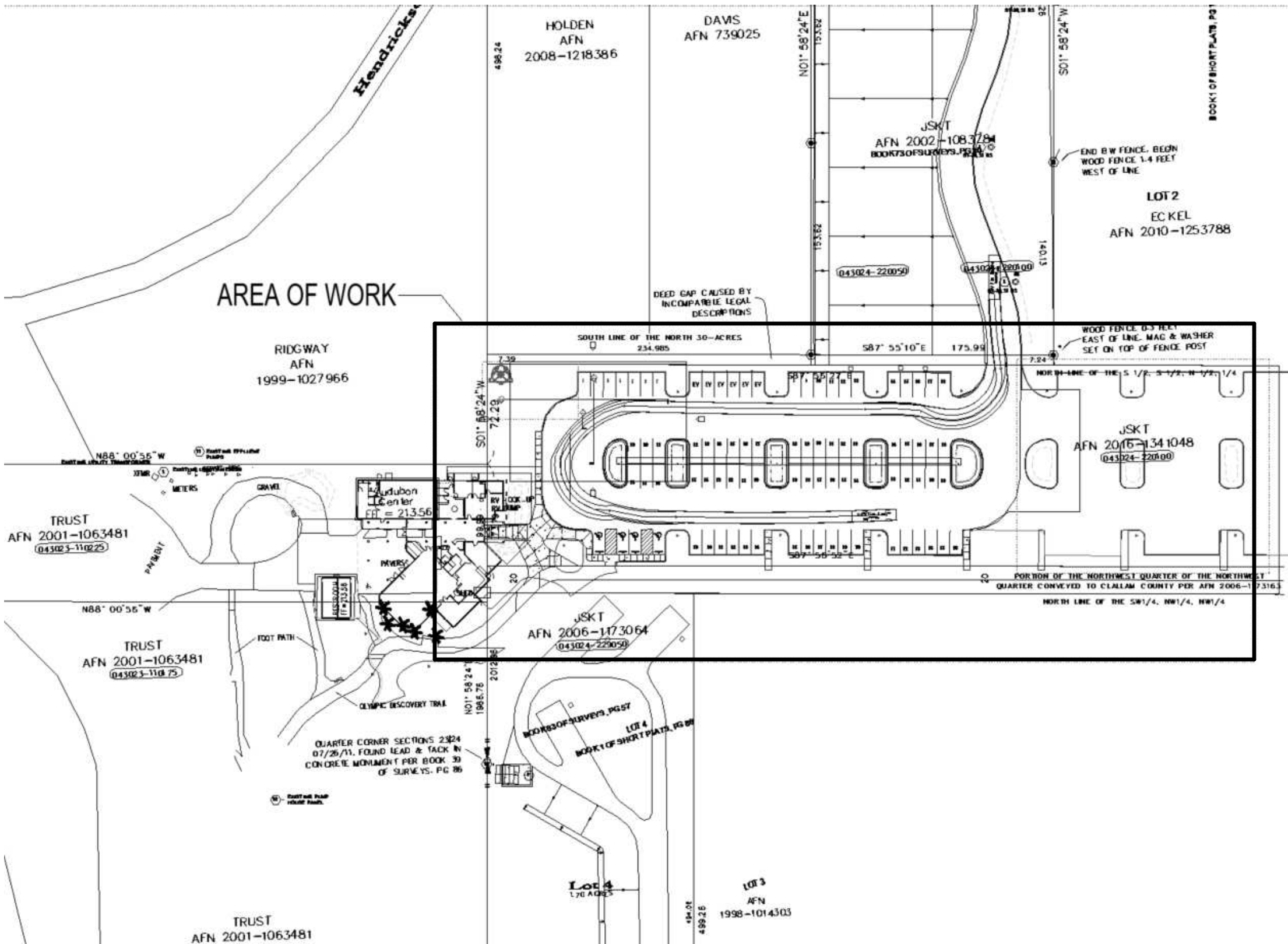


DUNGENESS RIVER MICROGRID

SEQUIM WASHINGTON



PROJECT LOCATION
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

PROJECT DESCRIPTION:

CONSTRUCT A MICROGRID POWER SYSTEM CAPABLE OF SUPPORTING THE FULL FACILITY LOAD OF THE EXISTING DUNGENESS RIVER NATURE CENTER. THE PHASE 1 MICROGRID DEPLOYMENT WILL UTILIZE NEW PV AND BESS ON-SITE DERS WITH AN ACCOMODATION FOR FUTURE ADDITION OF A DIESEL GENERATOR. THE PROJECT WILL UTILIZE THE FUNDING FROM DEPARTMENT OF COMMERCE GRANT AWARDED TO JAMESTOWN S'KLALLAM TRIBE.

SYSTEM DESCRIPTION:

- FACILITY SERVICE VOLTAGE: 208Y/120V, 3 PHASE, 4 WIRE
(240) SILFAB SOLAR, SIL-540 XM, 540WDC SOLAR MODULES, N-TYPE SILICON
(2) SOLAR EDGE, SE50KUS, 50KVA, STRING-INVERTER(S), 208VAC, 3 PHASE
(120) SOLAREEDGE POWER OPTIMIZERS, S1201, 1200W, NEMA 6P
(1) ELM MICROGRID, CMG2.1 CABINET W/ (2) EXPANSION CABINETS, 939KWH, NEMA 3R
(1) DYNAPOWER MPS 125EHV STORAGE INVERTER, 125KW, 480VAC, 3 PHASE, NEMA 3R

129.6KW - SOLAR PV
125KW AC / 939KWH TOTAL BATTERY STORAGE CAPACITY

APPLICABLE LOW VOLTAGE ELECTRICAL CODES AND STANDARDS:

- 2023 WASHINGTON ELECTRICAL CODE - NFPA 70
2021 WASHINGTON STATE FIRE CODE
2021 INTERNATIONAL BUILDING CODE
ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES
ACI 318-19 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
AISC 360-16 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS

PREPARED BY:
PAE
1011 Western Ave
Suite 500
Seattle, Washington 98104
206-596-8606

OWNER:
JAMESTOWN S'KLALLAM TRIBE
1033 Old Blyn Hwy
Sequim, Washington 98112

PV DESIGNER:
MZ SOLAR CONSULTING
31 Rendezvous Rd
Winthrop, Washington 98862



Client: Jamestown S'Klallam Tribe
Project Title: DUNGENESS RIVER NATURE CENTER
1943 W HENDRICKSON RD, SEQUIM, WA 98382

Stamp:

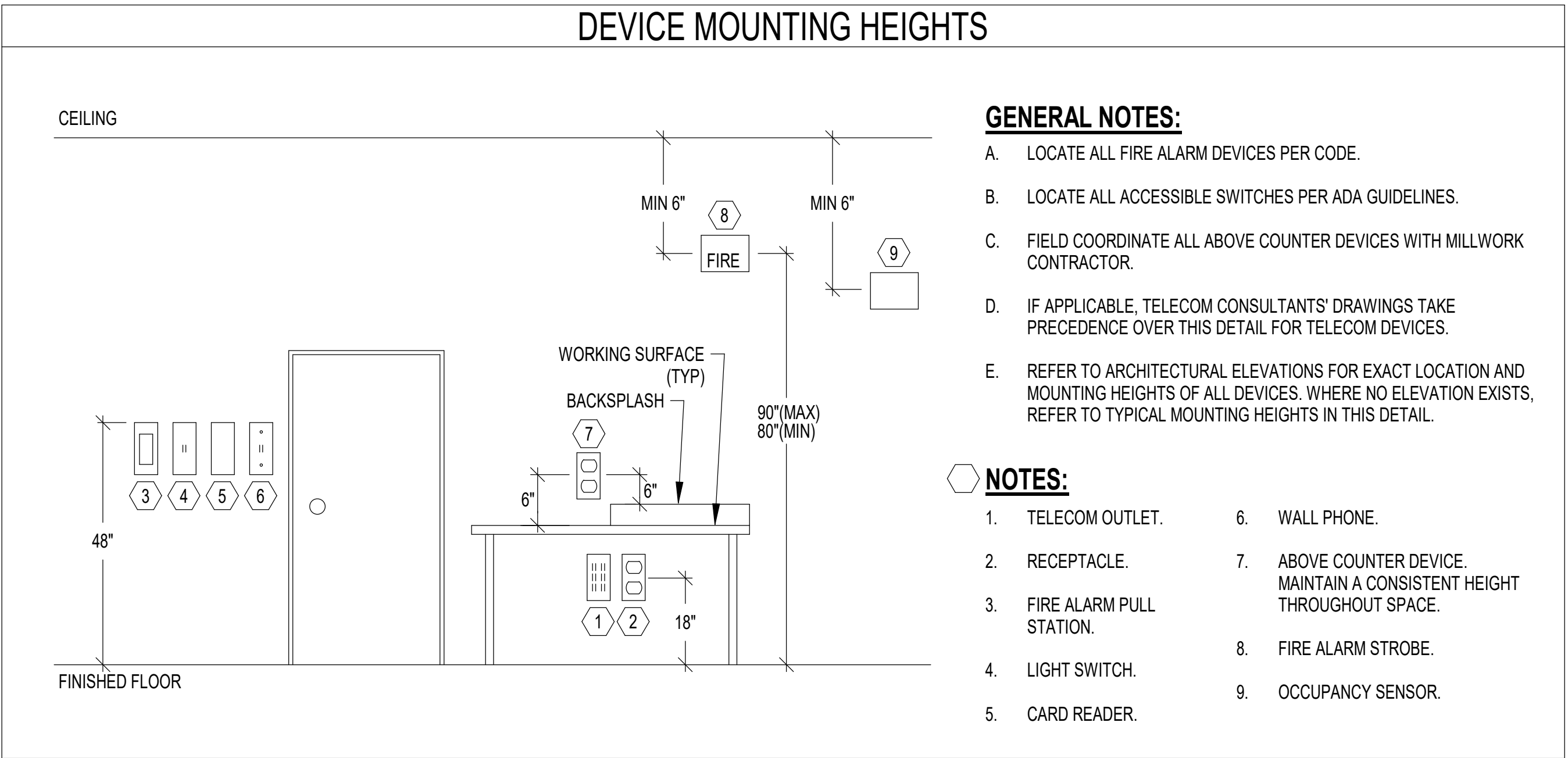
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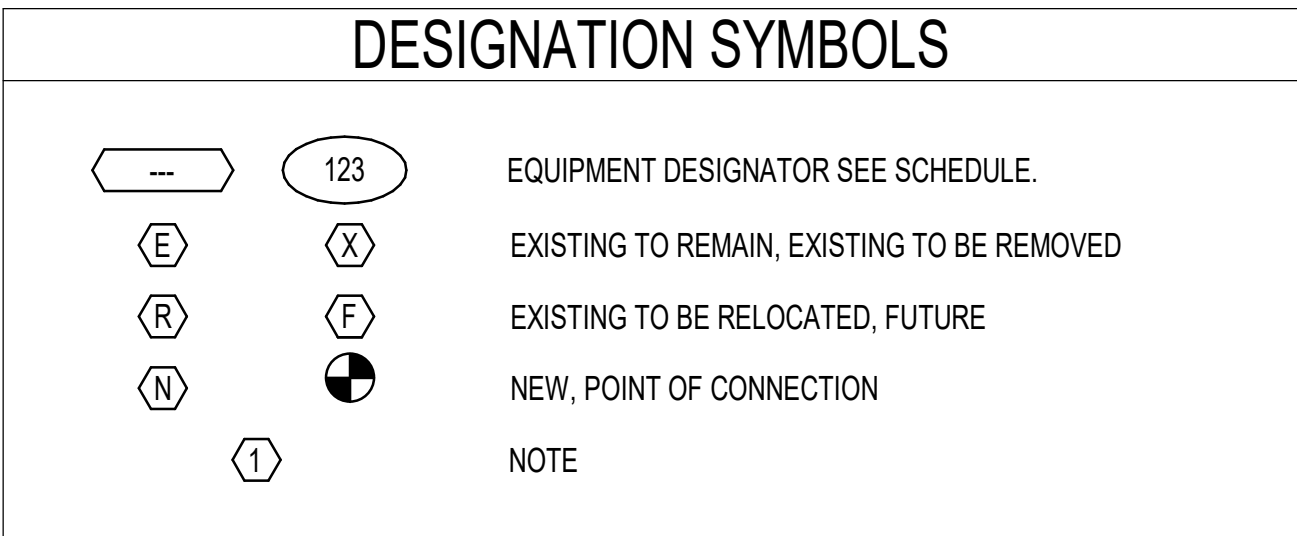
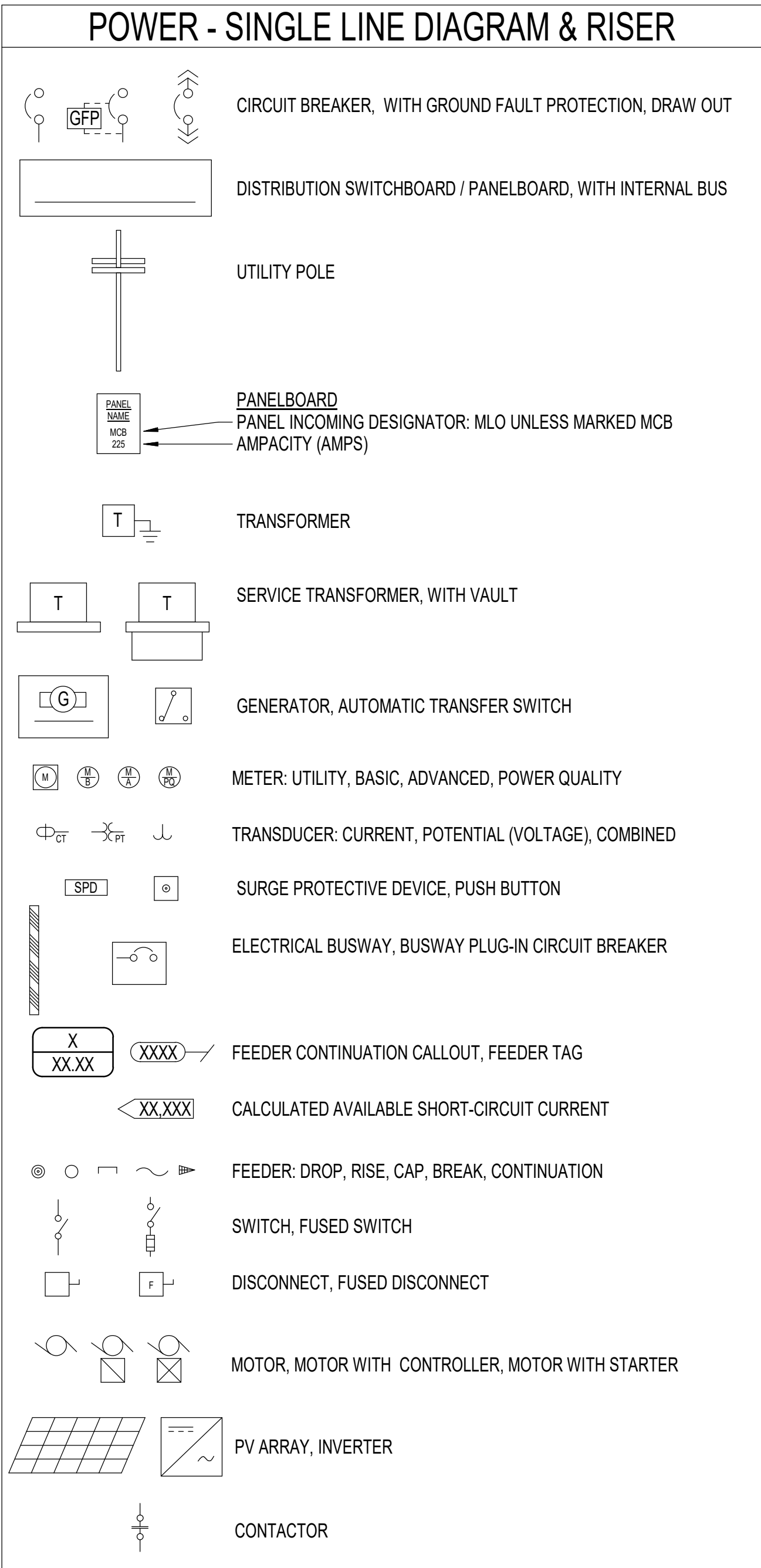
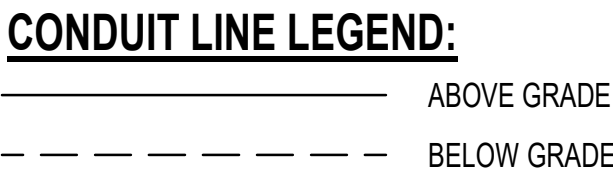
Drawn By: DMD
Checked by: CMC
Date: 07-02-2026
Project Number: 25-2242

SHEET TITLE:
COVER SHEET

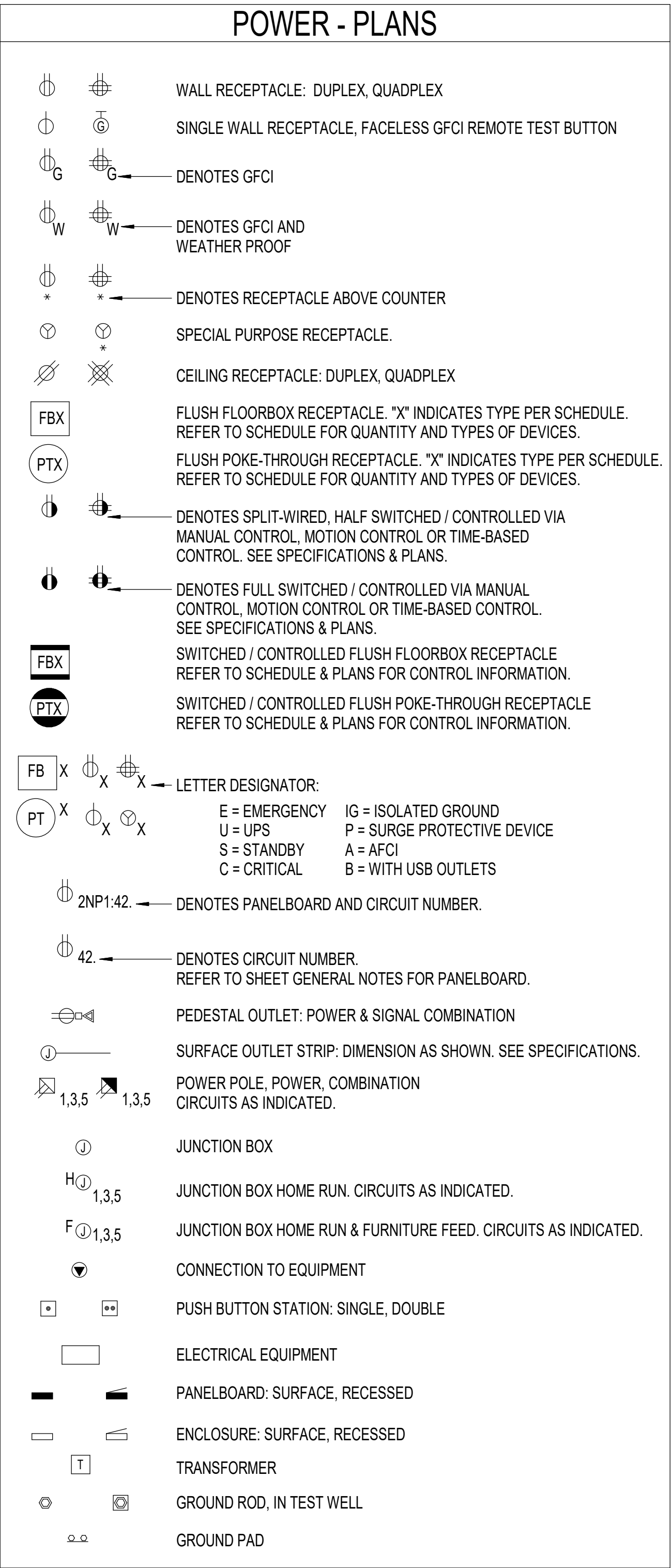
SHEET NUMBER:
G001



ABBREVIATIONS - ELECTRICAL			
AFF	ABOVE FINISHED FLOOR	KVAR	KILOVOLT-AMPERE REACTIVE
ADA	AMERICANS DISABILITIES ACT	LA	LIGHTNING ARRESTOR
A	AMPERE (AMP)	LED	LIGHT EMITTING DIODE
AL	ALUMINUM	LRC	LIGHTING RELAY CONTROL PANEL
ARCH	ARCHITECT / ARCHITECTURAL	LTG	LIGHTING
ATS	AUTOMATIC TRANSFER SWITCH	LV	LOW VOLTAGE
AWG	AMERICAN WIRE GAUGE	MATV	MASTER ANTENNA TELEVISION
C	CONDUIT	MAX	MAXIMUM
CAT	CATEGORY CABLE	MCA	MINIMUM CIRCUIT AMPACITY
CB	CIRCUIT BREAKER	MCB	MAIN CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION	MCC	MOTOR CONTROL CENTER
CKT	CIRCUIT	MDP	MAIN DISTRIBUTION PANEL
CLG	CEILING	MECH	MECHANICAL
CT	CURRENT TRANSFORMER	MH	METAL HALIDE
CU	COPPER	MIN	MINIMUM
DDC	DIRECT DIGITAL CONTROL	MLO	MAIN LUGS ONLY
DN	DOWN	MOCP	MAXIMUM OVERCURRENT PROTECTION
DW	DISHWASHER	MTS	MANUAL TRANSFER SWITCH
EM	EMERGENCY	MV	MEDIUM VOLTAGE
EMT	ELECTRICAL METALLIC TUBING	MW	MICROWAVE
EP	EXPLOSION PROOF	NAC	NOTIFICATION APPLIANCE CIRCUIT
EPO	EMERGENCY POWER OFF	NIC	NOT IN CONTRACT
EWC	ELECTRIC WATER COOLER	NL	NIGHT LIGHT CIRCUIT
FA	FIRE ALARM	PA	PUBLIC ADDRESS
FACP	FIRE ALARM CONTROL PANEL	PDZ	PRIMARY DAYLIGHT ZONE
FLA	FULL LOAD AMPS	PE	PHOTOELECTRIC CELL
FLUOR	FLUORESCENT	PF	POWER FACTOR
FCIC	FURNISHED BY CONTRACTOR	PNL	PANELBOARD
	INSTALLED BY CONTRACTOR	PVC	POLYVINYL CHLORIDE
FOIC	FURNISHED BY OWNER	PWR	POWER
	INSTALLED BY CONTRACTOR	REF	REFRIGERATOR
FOIO	FURNISHED BY OWNER	SDP	SUB-DISTRIBUTION PANEL
	INSTALLED BY OWNER	SDZ	SECONDARY DAYLIGHT ZONE
GD	GARBAGE DISPOSAL	STR	STARTER
GEN	GENERATOR	SV	SOLENOID VALVE
GFP	GROUND FAULT PROTECTION	SW	SWITCH
GFI	GROUND FAULT INDICATOR	TD	TIME DELAY
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TP	TAMPERPROOF
GRC	GALVANIZED RIGID CONDUIT	TTB	TELEPHONE TERMINAL BOARD
GND	GROUND	TTC	TELEPHONE TERMINAL CABINET
HP	HORSEPOWER	TV	TELEVISION
HPS	HIGH PRESSURE SODIUM	TYP	TYPICAL
HV	HIGH VOLTAGE	UG	UNDERGROUND
HZ	HERTZ	UPS	UNINTERRUPTIBLE POWER SUPPLY
IG	ISOLATED GROUND	V	VOLTAGE
INC	INCANDESCENT	VA	VOLT-AMPERE
INV	INVERTER	VFD	VARIABLE FREQUENCY DRIVE
JB	JUNCTION BOX	VP	VAPORPROOF
KW	KILOWATT	W	WATTS
KWH	KILOWATT HOUR	WP	WEATHERPROOF
KV	KILOVOLT	XFMR	TRANSFORMER
KVA	KILOVOLT-AMPERE		



ELECTRICAL SHEET LIST	
SHEET #	SHEET NAME
E001	SYMBOLS, LEGENDS AND ABBREVIATIONS - ELECTRICAL
E010	SITE PLAN - ELECTRICAL
E011	ENLARGED SITE PLAN - MICROGRID - ELECTRICAL
E012	ENLARGED SITE PLAN - ELECTRICAL
E601	DETAILS - ELECTRICAL
E602	DETAILS - ELECTRICAL
E701	DIAGRAMS - EXISTING AND DEMO - ELECTRICAL
E702	DIAGRAMS - ELECTRICAL SINGLE LINE DIAGRAM
E703	DIAGRAMS - EXISTING ELECTRICAL SINGLE LINE DIAGRAM
E801	DATA SHEETS - ELECTRICAL
E902	DATA SHEETS - ELECTRICAL
Grand total: 11	



GENERAL NOTES:

A THIS IS A STANDARD LEGEND SHEET, THEREFORE, SOME SYMBOLS MAY APPEAR ON THIS SHEET THAT DO NOT APPEAR ON THE DRAWINGS.

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JAMESTOWN
S'KLALLAM TRIBE

Client: Jamestown S'Klallam Tribe

Project Title: DUNGENESS RIVER NATURE CENTER
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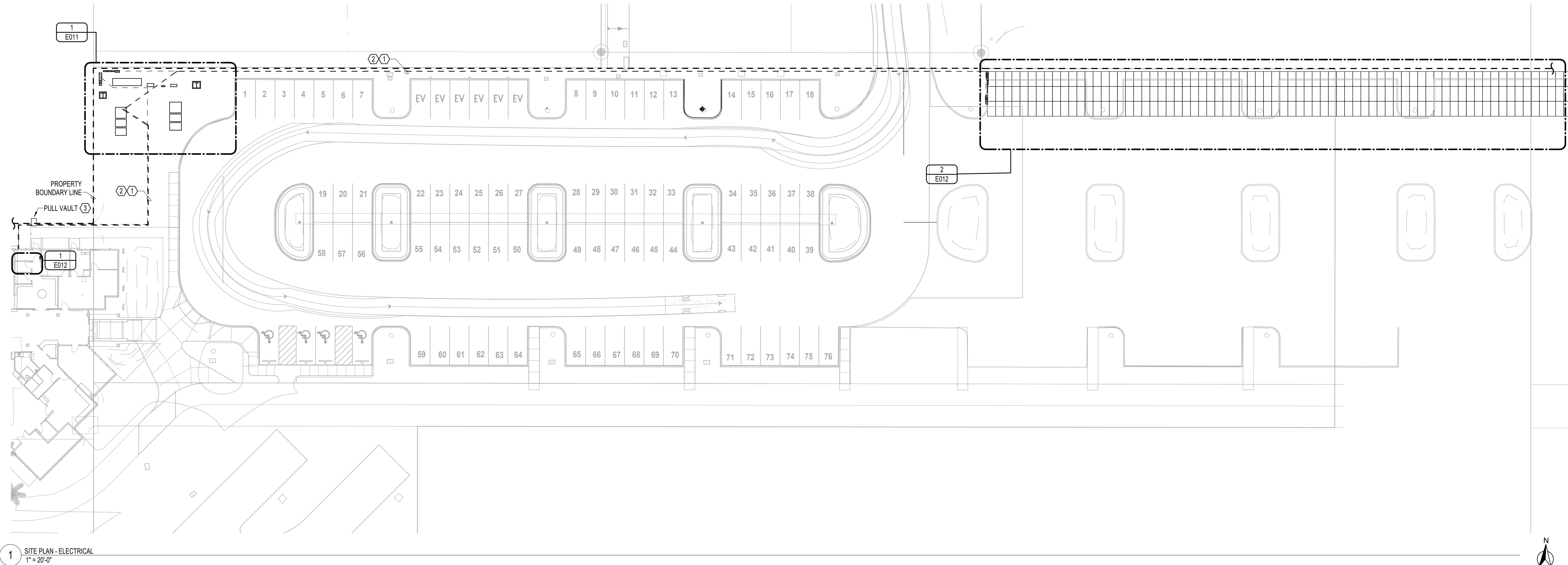
Drawn By:	DMD
Checked by:	CMC
Date:	07-02-2026
Project Number:	25-2242

SHEET TITLE:

SYMBOLS, LEGENDS AND ABBREVIATIONS - ELECTRICAL

SHEET NUMBER:

E001



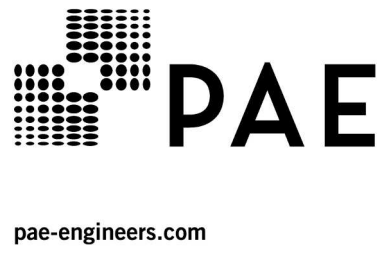
1 SITE PLAN - ELECTRICAL
1" = 20'-0"

GENERAL NOTES:

- A. ALL EQUIPMENT IS NEW UNLESS OTHERWISE NOTED.
- B. ALL EXTERIOR EQUIPMENT SHALL BE NEMA RATED FOR EXTERIOR USE (3R).
- C. PROVIDE 8" THICK CONCRETE PAD FOR ALL EXTERIOR GROUND MOUNTED EQUIPMENT. SEE SHEET S010 AND S011 FOR ADDITIONAL DETAILS.
- D. SEE SINGLE LINE DIAGRAM FOR CONDUIT AND FEEDER CONFIGURATIONS.
- E. CONDUIT ROUTING IS DIAGRAMMATIC. CONTRACTOR TO SUBMIT UNDERGROUND CONDUIT PLAN FOR APPROVAL PER SECTION 260543.
- F. CONTRACTOR TO PERFORM GROUND PENETRATING RADAR SCANS TO LOCATE ALL EXISTING BURIED SITE UTILITIES AND CONDUITS PRIOR TO ANY EXCAVATION WORK ON SITE.

NOTES:

- 1. NEW CONDUITS WITH CABLES IN TRENCH FOR POWER, COMM, CONTROLS AND FA. REFER TO ONE LINE DIAGRAM ON SHEET E702 FOR DETAILS.
- 2. CONTRACTOR TO COORDINATE WITH OWNER TO DETERMINE CONSTRUCTION METHODS AND ROUTING OF CONDUIT BANK TO MINIMIZE IMPACT AND DISTURPTION TO EXISTING EV CHARGERS AND OTHER OWNER SPECIFIED AREAS.
- 3. PROVIDE NEW IN-GRADE PULL BOX. INTERCEPT EXISTING CONDUITS AND USE CONDUITS FROM PULL BOX TO EXISTING PANELBOARD "MDP" FOR NEW FEEDER.



Client: Jamestown S'Klallam Tribe

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SHEET TITLE:

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Drawn By: DMD

Checked by: CMC

Date: 07-02-2026

Project Number: 25-2242

SHEET TITLE:

SITE PLAN - ELECTRICAL

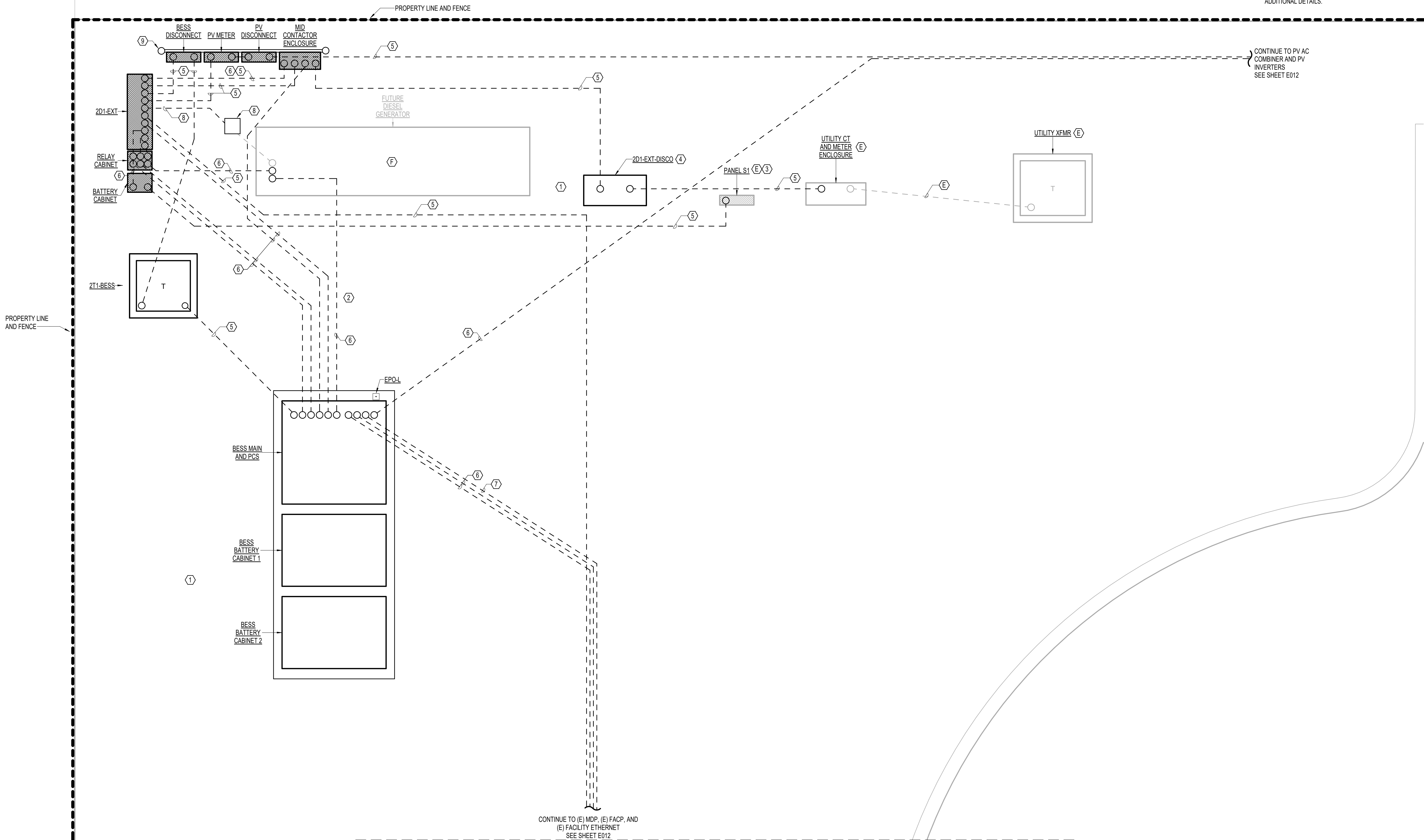
SHEET NUMBER:

E010

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1

ENLARGED SITE PLAN - MICROGRID - ELECTRICAL
1/2" = 1'-0"



GENERAL NOTES:

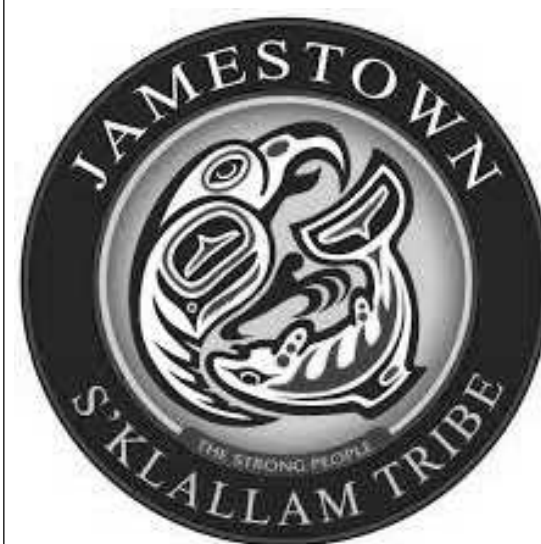
- ALL EQUIPMENT IS NEW UNLESS OTHERWISE NOTED.
- ALL EXTERIOR EQUIPMENT SHALL BE NEMA RATED FOR EXTERIOR USE (3R).
- PROVIDE 6" THICK CONCRETE PAD FOR ALL EXTERIOR GROUND MOUNTED EQUIPMENT. SEE SHEETS S010 AND S011 FOR ADDITIONAL DETAILS.
- SEE SINGLE LINE DIAGRAM FOR CONDUIT AND FEEDER CONFIGURATIONS.
- CONDUIT ROUTING IS DIAGRAMMATIC. CONTRACTOR TO SUBMIT UNDERGROUND CONDUIT PLAN FOR APPROVAL PER SECTION 280500.
- CONTRACTOR TO PERFORM GROUND PENETRATING RADAR SCANS TO LOCATE ALL EXISTING BURIED SITE UTILITIES AND CONDUITS PRIOR TO ANY EXCAVATION WORK ON SITE.

NOTES:

- MAINTAIN 10' SETBACK BETWEEN BESS AND PROPERTY LINES.
- MAINTAIN 10' SETBACK BETWEEN BESS AND FUTURE DIESEL GENERATOR.
- CONTRACTOR TO VERIFY INSTALLED LOCATION OF PANEL S1 FEEDER DUCT BANK. PROTECT EXISTING DUCT BANK IN PLACE.
- INSTALL 2D1-EXT-DISCO IN PLACE OF EXISTING PULL BOX. PULL BOX TO BE REMOVED.
- NEW POWER CONDUITS WITH CABLES IN TRENCH. REFER TO ONE LINE DIAGRAM ON SHEET E702 FOR DETAILS.
- NEW COMMUNICATION CONDUITS WITH CABLES IN TRENCH. REFER TO ONE LINE DIAGRAM ON SHEET E702 FOR DETAILS.
- NEW FIRE ALARM CONDUITS WITH CABLES IN TRENCH. REFER TO ONE LINE DIAGRAM ON SHEET E702 FOR DETAILS.
- PROVIDE (2) 3-1/2" CONDUITS FROM PANEL 2D1-EXT TO IN-GRADE JUNCTION BOX FOR FUTURE GENERATOR. CAP CONDUITS ON BOTH ENDS AND INSTALL PULL STRING.
- ELECTRICAL EQUIPMENT RACK. SEE SHEET S011 FOR ADDITIONAL DETAILS.



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MZ Solar Consulting

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Checked by: CMC

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Project Number: 25-2242

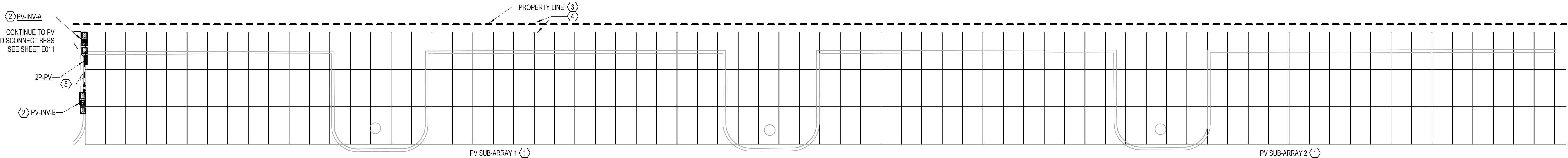
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ENLARGED SITE PLAN
- MICROGRID -
ELECTRICAL

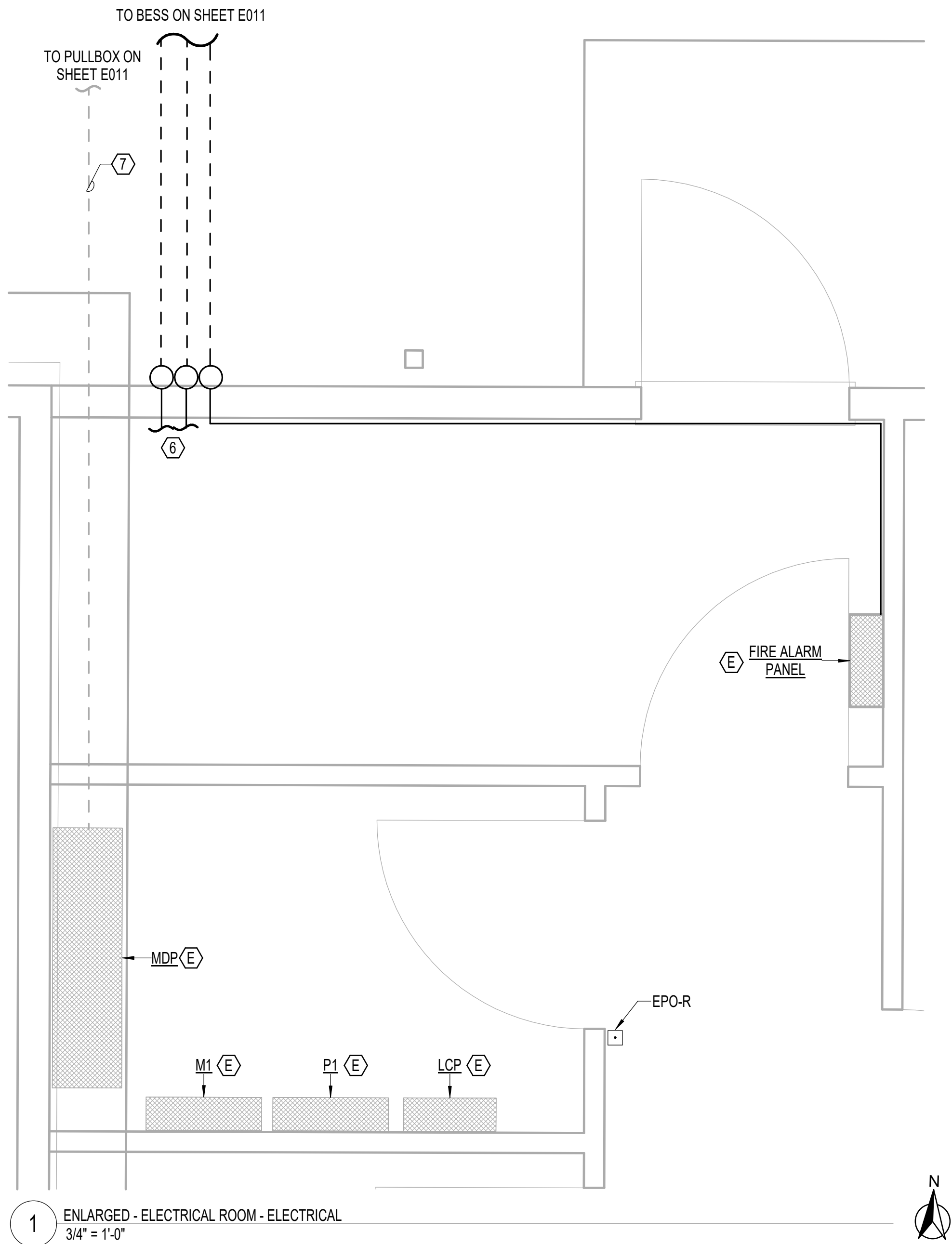
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E011





2 ENLARGED PLAN - PV ARRAY - ELECTRICAL
1/8" = 1'-0"



1 ENLARGED - ELECTRICAL ROOM - ELECTRICAL
3/4" = 1'-0"

GENERAL NOTES:

- ALL EQUIPMENT IS NEW UNLESS OTHERWISE NOTED.
- ALL EXTERIOR EQUIPMENT SHALL BE NEMA RATED FOR EXTERIOR USE (3R).
- PROVIDE 8" CONCRETE PAD FOR ALL EXTERIOR GROUND MOUNTED EQUIPMENT.

NOTES:

- PV CARPORT ARRAY ABOVE FUTURE PARKING STALLS. FINAL SELECTION OF CARPORT STRUCTURE AND ASSOCIATED PV ARRAY RACKING DESIGNED BY PV DESIGN-BUILD CONTRACTOR. SEE PV- 301 DRAWING FOR MORE INFORMATION.
- PV INVERTERS AND COMBINER PANEL TO BE MOUNTED TO CANOPY STRUCTURE. FINAL LOCATION TO BE DETERMINED BY CONTRACTOR.
- CONTRACTOR TO SURVEY AND FLAG LOT LINES IN FIELD.
- CONTRACTOR TO VERIFY REQUIREMENT FOR PV ARRAY SETBACK FROM LOT LINES WITH AHJ.
- SEE PV-010 AND PV-700 DRAWINGS FOR INFORMATION ON CONDUCTOR AND CONDUIT REQUIREMENTS AND ROUTING.
- MICROGRID COMMUNICATIONS CONDUIT(S). SEE DETAIL 1/E602 FOR ADDITIONAL INFORMATION.
- INTERCEPT EXISTING CONDUITS AND USE CONDUITS FROM PULL BOX TO EXISTING PANELBOARD "MDP" FOR NEW FEEDER.



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Date: 07-02-2026

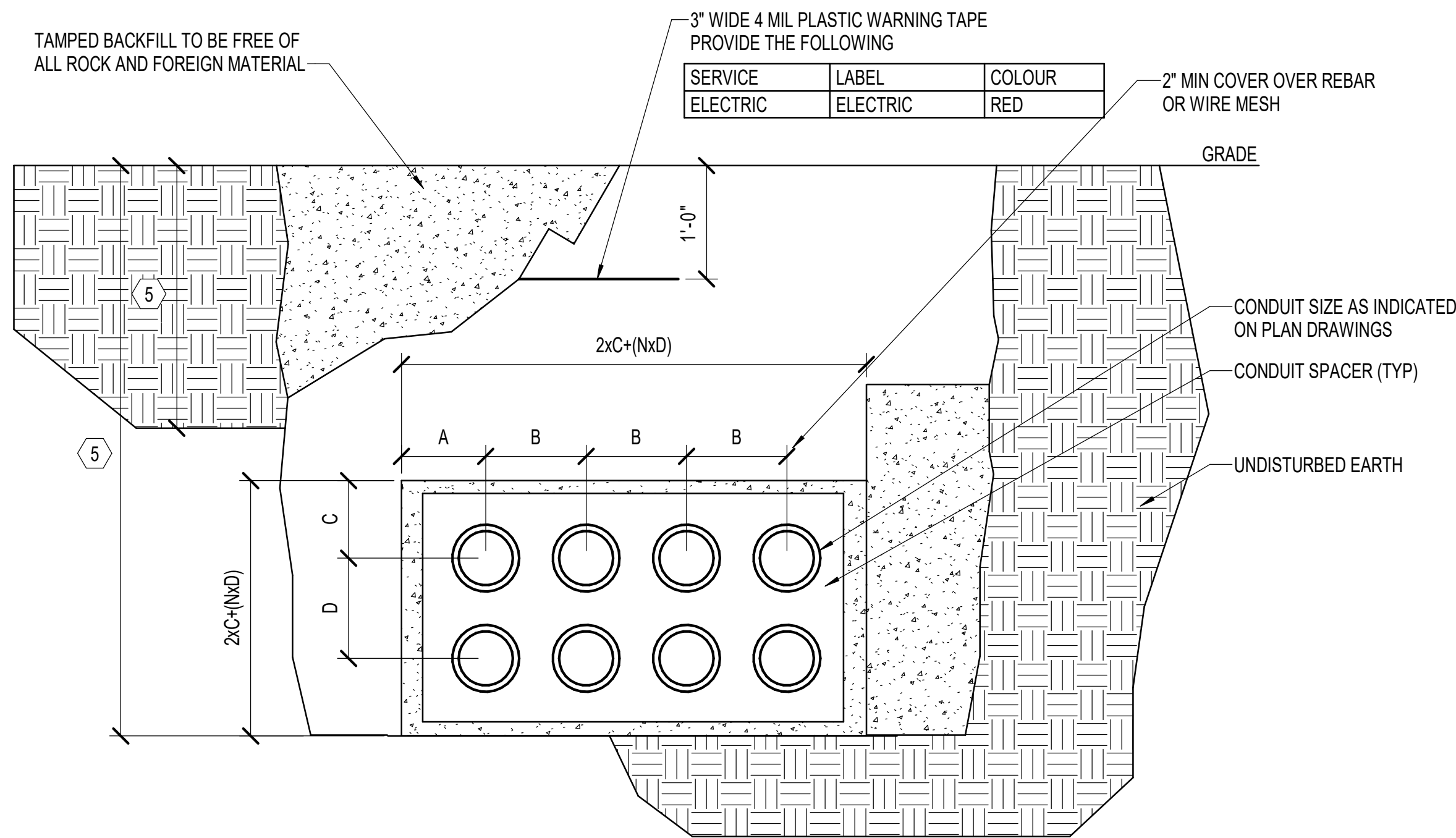
Project Number: 25-2242

SHEET TITLE:
ENLARGED SITE PLAN
- ELECTRICAL

SHEET NUMBER:

E012

4 ELECTRICAL DETAIL - TYPICAL DUCT BANK FOR SITE POWER
NONE



SIZE SPACING TABLE

CONDUIT SIZE	A	B	C	D
1-1/2"	3.50"	3.50"	3.50"	3.50"
2"	5.00"	5.00"	5.00"	5.00"
3"	4.50"	6.50"	4.50"	6.50"
4"	5.00"	7.50"	5.00"	7.50"
5"	5.50"	6.50"	5.50"	8.50"
6"	6.00"	6.00"	6.00"	9.50"

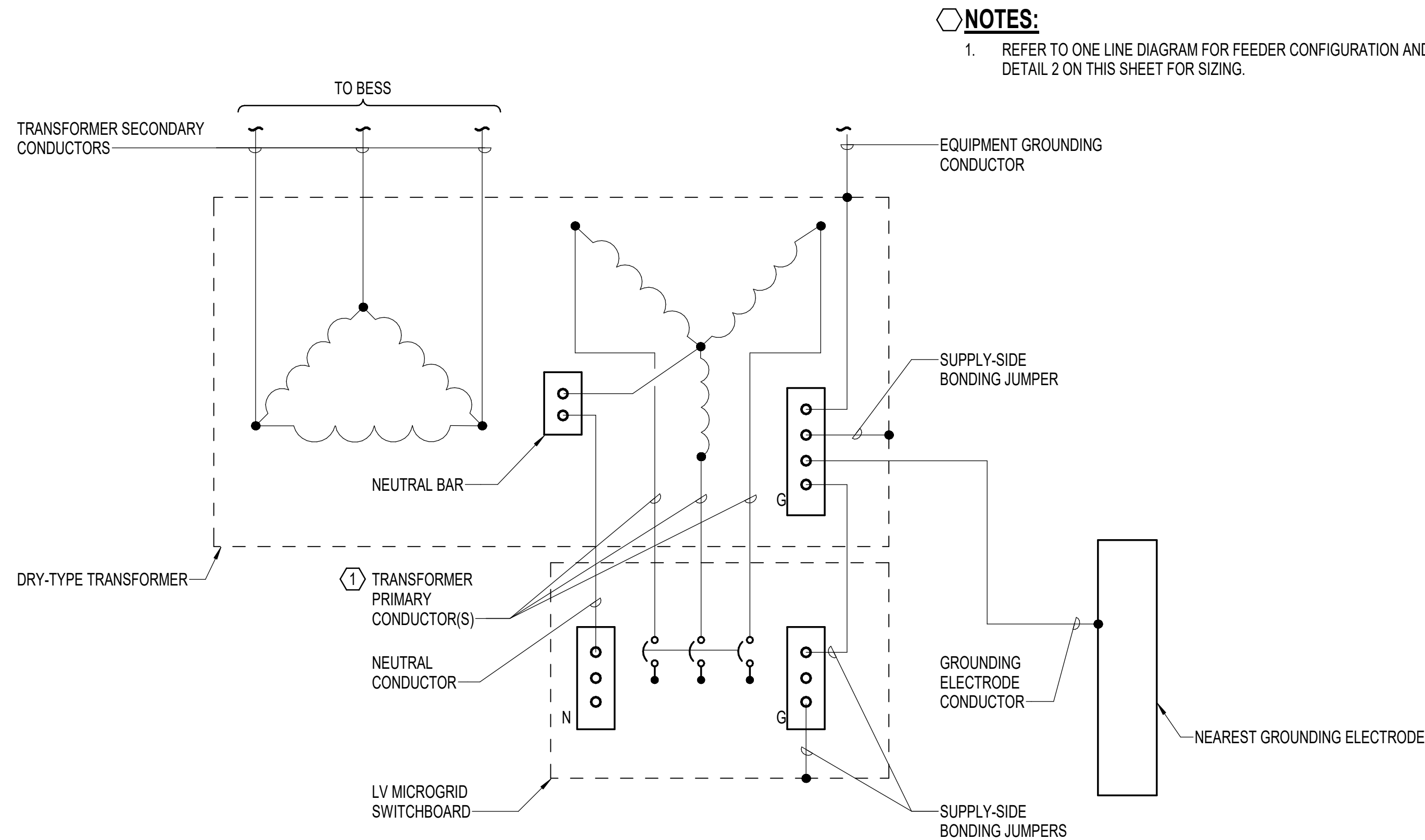
"N"=NUMBER OF SPACE BETWEEN CONDUIT CENTERLINES, NOT THE NUMBER OF CONDUITS

CONDUITS SHOWN IN DETAIL ARE FOR GENERIC REPRESENTATION ONLY. REFER TO ONE LINE DIAGRAM FOR CONDUIT QUANTITIES AND SIZES.

NOTES:

1. PROVIDE DUCT BANK REINFORCING OR RIGID STEEL CONDUIT WHEREVER DUCT BANK CROSSES UNDER CURRENT AND FUTURE ROADWAYS. PARKING LOTS WHERE LOCATED IN UNSTABLE SOIL WITHIN 5 FEET OF BUILDING FOUNDATIONS AND FOOTINGS AND AS OTHERWISE INDICATED.
2. CONDUITS IN POWER AND CONTROL DUCT BANKS SHALL BE SCHEDULE 40 PVC.
3. MINIMUM BURIAL DEPTH FOR POWER CONDUITS = 2'-0". WHERE DUCT BANKS ARE ROUTED BENEATH A BUILDING SLAB, MINIMUM BURIAL DEPTH SHALL BE PER NEC ARTICLES 300.5 AND 300.50.
4. BOTTOM OF DUCT BANKS TO BE INSTALLED AT OR BELOW FROSTLINE.
5. COMMUNICATIONS CONDUIT (1x4"CI) FROM MICROGRID CONTROLLER TO ELECTRICAL ROOM FOR CONTROLS, DATA AND FIRE ALARM WIRING. PROVIDE FOUR 1" INTERDUITS WITHIN 4" CONDUIT FOR DEDICATED SYSTEM WIRE/CABLE. PROVIDE A PULLSTRING WITHIN EACH EMPTY CONDUIT AND INTERDUIT. PROVIDE HORIZONTAL SEPARATION OF MINIMUM 1" OF COMMUNICATION CONDUIT FROM POWER CONDUITS.

2 BESS ISO TRANSFORMER WIRING
NONE



NOTES:

1. REFER TO ONE LINE DIAGRAM FOR FEEDER CONFIGURATION AND DETAIL 2 ON THIS SHEET FOR SIZING.

1 DISTRIBUTION TRANSFORMER GROUNDING
NONE

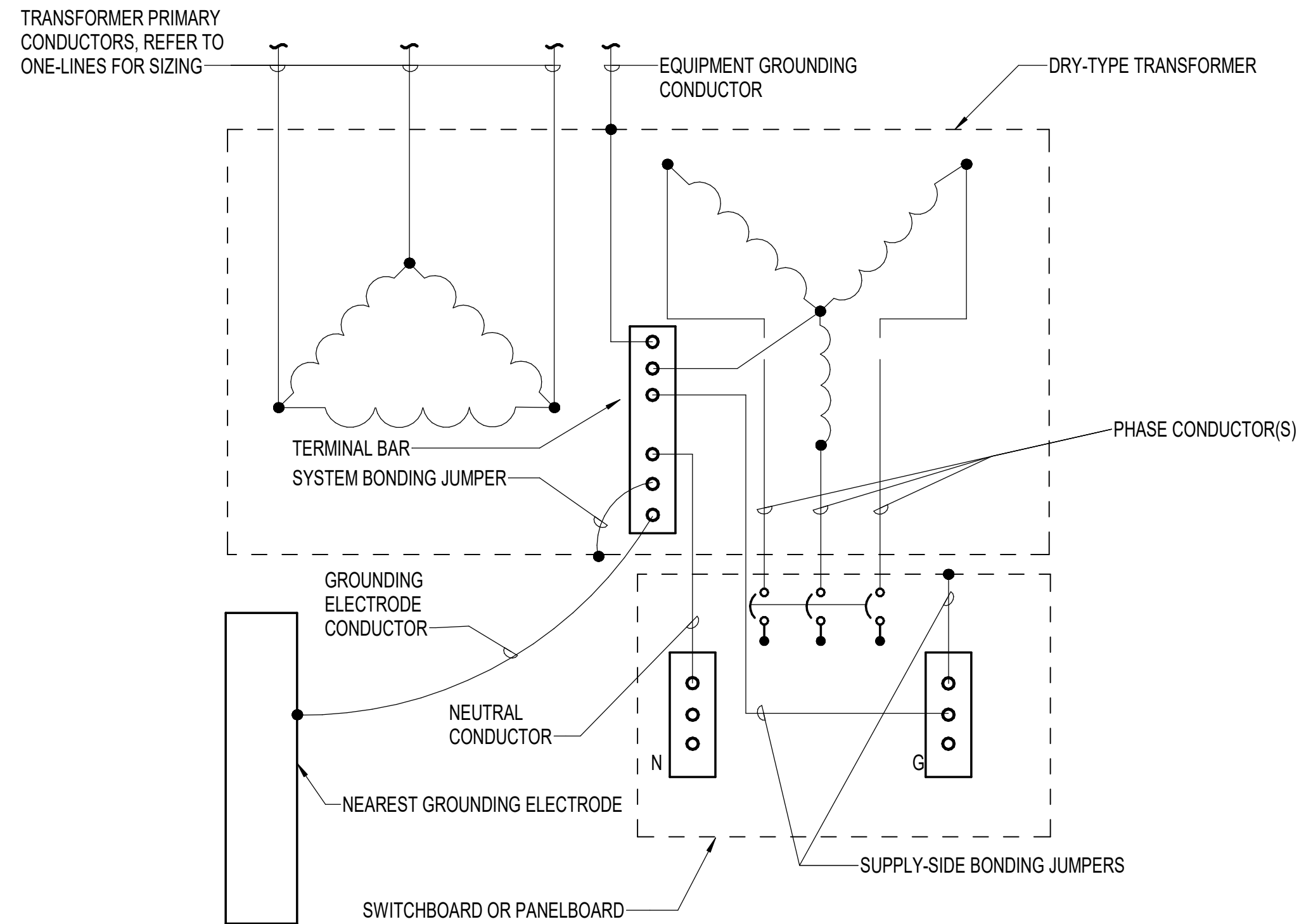
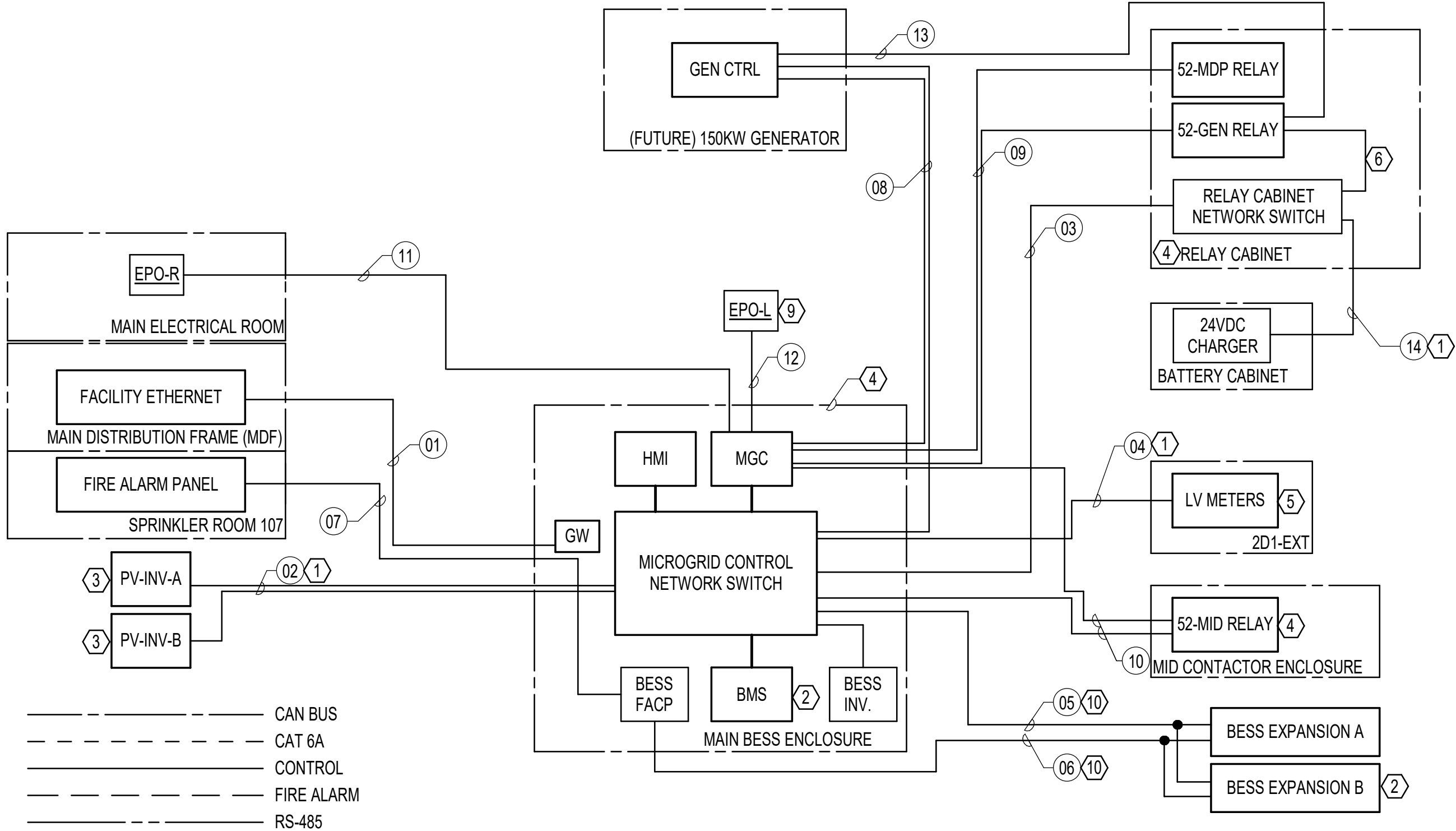


TABLE 1: DISTRIBUTION TRANSFORMER SECONDARY FEEDER SCHEDULE (COPPER CONDUCTORS) PER NEC TABLES 250.102(C)(1) AND 250.66 SECONDARY VOLTAGE: 208Y/120V, 3 PHASE, 4 WIRE						
ONE-LINE TAG	SECONDARY OCPD RATING	TRANSFORMER (KVA)	CONDUIT SIZE (MIN)	PHASE & NEUTRAL CONDUCTORS	SUPPLY-SIDE & SYSTEM BONDING JUMPER	GROUNDING ELECTRODE CONDUCTOR
20T	20A	3	1/2"	(4) #12 AWG	#8 AWG	#8 AWG
30T	30A	6	3/4"	(4) #10 AWG	#8 AWG	#8 AWG
40T	40A	9	3/4"	(4) #8 AWG	#8 AWG	#8 AWG
60T	60A	15	1"	(4) #6 AWG	#8 AWG	#8 AWG
100T	100A	30	1 1/4"	(4) #2 AWG	#8 AWG	#8 AWG
175T	175A	45	2"	(4) #2/0 AWG	#4 AWG	#4 AWG
225T	225A	75	2 1/2"	(4) #4/0 AWG	#2 AWG	#2 AWG
300T	300A	75	3"	(4) 350 KCMIL	#2 AWG	#2 AWG
400T	400A	112.5	(2) 2"	(8) #3/0 AWG	(2) #2 AWG	#2 AWG
600T	600A	150	(2) 3"	(8) 350 KCMIL	(2) #2 AWG	#2/0 AWG
800T	800A	225	(3) 3"	(12) 350 KCMIL	(3) #2 AWG	#2/0 AWG
1200T	1200A	300	(4) 4"	(16) 500 KCMIL	(4) #1/0 AWG	#3/0 AWG
1600T	1600A	500	(5) 4"	(20) 500 KCMIL	(5) #1/0 AWG	#3/0 AWG
2000T	2000A	750	(6) 4"	(24) 500 KCMIL	(6) #1/0 AWG	#3/0 AWG
2500T	2500A	750	(8) 4"	(32) 500 KCMIL	(8) #1/0 AWG	#3/0 AWG
3000T	3000A	1000	(9) 4"	(36) 500 KCMIL	(9) #1/0 AWG	#3/0 AWG

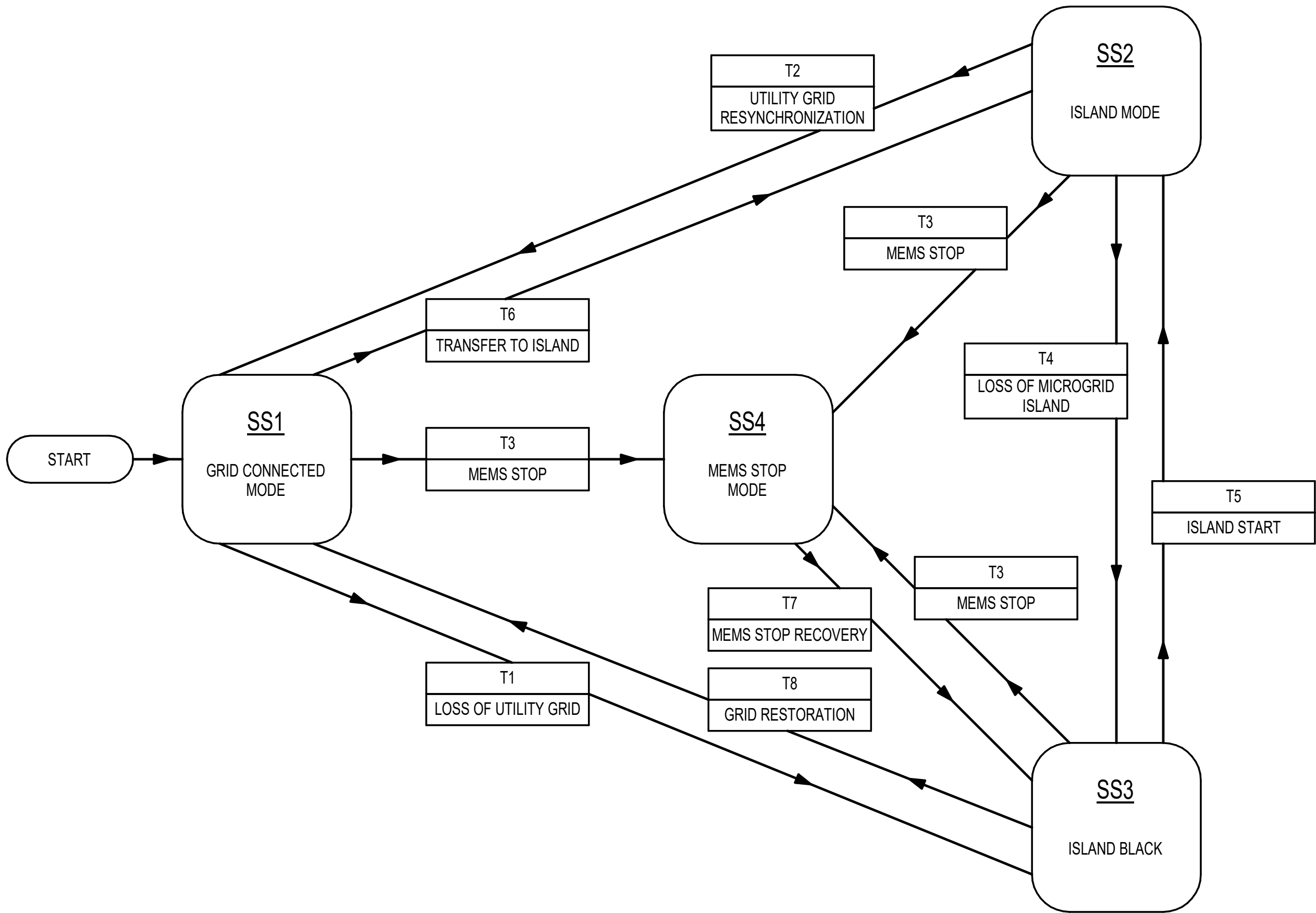
MICROGRID COMMUNICATIONS AND CONTROL CONNECTION SCHEDULE					
CONNECTION #	FROM	TO	CONDUIT COUNT AND SIZE	CABLE TYPE	FUNCTION
01	MAIN BESS ENCLOSURE GATEWAY (FIREWALL)	MDF ROOM NETWORK SWITCH	(1) 1" C	(1) CAT 6A	FACILITY ETHERNET (LAN) CONNECTION
02	MAIN BESS ENCLOSURE NETWORK SWITCH	PV INVERTERS	(1) 1" C	(2) CAT 6A	PV STATUS AND CONTROL
03	MAIN BESS ENCLOSURE NETWORK SWITCH	RELAY CABINET NETWORK SWITCH	(1) 1" C	(1) CAT 6A	RELAY ETHERNET CONNECTION
04	MAIN BESS ENCLOSURE NETWORK SWITCH	MULTIPOINT ENERGY METER	(1) 1" C	(1) CAT 6A	METER DATA ACQUISITION BY MEMS
05	MAIN BESS ENCLOSURE NETWORK SWITCH	BESS EXPANSION ENCLOSURES	(2) 2" C	(7)	BATTERY STATUS AND CONTROL
06	MAIN BESS FIRE ALARM CNTRL PANEL	BESS EXPANSION ENCLOSURES	(2) 1" C	(7)	FIRE ALARM
07	MAIN BESS FIRE ALARM CNTRL PANEL	FACILITY EXPANSION ENCLOSURES	(1) 1" C	(8)	FIRE ALARM
08	MICROGRID CONTROLLER	GENERATOR CONTROLLER	(1) 2" C	(1) 8CC # 12 & (1) CAT 6A	GENERATOR CONTROL
09	MICROGRID CONTROLLER	52-GEN & 52-MDP RELAYS	(1) 1" C	(1) 8CC #12	RELAY CONTROL
10	MAIN BESS ENCLOSURE NETWORK & MGC	MID CONTACTOR ENCLOSURE	(1) 2" C	(1) 8CC #12 & (1) CAT 6A	MAIN CONTRACTOR AND STATUS
11	MICROGRID CONTROLLER	EPO-R	(1) 1" C	(1) 2CC #12	EMERGENCY POWER OFF AT MAIN ELEC RM (REMOTE)
12	MICROGRID CONTROLLER	EPO-L	(1) 1" C	(1) 2CC #12	EMERGENCY POWER OFF AT BESS (LOCAL)
13	52-GEN RELAY	GENERATOR CONTROLLER	(1) 1" C	(1) 8CC #12 & (1) CAT 6A	GENERATOR CONTROL
14	RELAY CABINET NETWORK SWITCH	24VDC CHARGER	(1) 1" C	(1) CAT 6A	CHARGER STATUS



1 MICROGRID COMMUNICATIONS DIAGRAM - ELECTRICAL
NONE

NOTE:

SEE SPECIFICATION SECTION 263716 - MICROGRID ENERGY MANAGEMENT SYSTEM FOR SPECIFIC FUNCTIONAL REQUIREMENTS ASSOCIATED WITH THIS DIAGRAM.



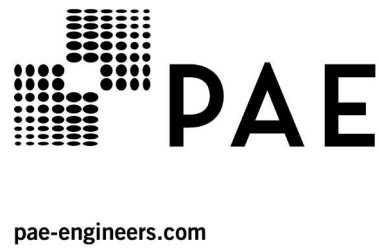
2 MICROGRID STATE DIAGRAM - ELECTRICAL
NONE

GENERAL NOTES:

- A. COMMUNICATION CABLING MAY BE COMBINED IN CONDUIT AND PATHWAYS WHERE APPROPRIATE AND WITHOUT EXCEEDING FILL LIMITS.
- B. CONTRACTOR TO VERIFY ALL CONNECTIONS TO EXISTING FACILITY NFRASTRUCTURE WITH RESPECTIVE OWNERS.

NOTES:

- 1. UTILIZE MODBUS TCP PROTOCOL.
- 2. REFER TO SPECIFICATION SECTION 26 33 63 BATTERY ENERGY STORAGE SYSTEM.
- 3. REFER TO SPECIFICATION SECTION 26 31 00 PHOTOVOLTAIC COLLECTORS.
- 4. REFER TO SPECIFICATION SECTION 26 37 13 MICROGRID ENERGY MANAGEMENT SYSTEM.
- 5. REFER TO SECTION 26 27 13 ELECTRICITY METERING.
- 6. ETHERNET (CAT6A) COMMUNICATIONS CABLING INTERNAL TO ENCLOSURE.
- 7. VERIFY CABLING REQUIREMENTS WITH BESS VENDOR.
- 8. VERIFY CABLING REQUIREMENT WITH FACILITY OWNER.
- 9. EPO BUTTON LOCATED ON EXTERIOR OF MAIN BESS ENCLOSURE.
- 10. ALL AUXILIARY POWER, DC CONNECTIONS, COMMUNIACTIONS AND FIRE SAFETY SYSTEM WIRING USED TO INTERCONNECT ESS CONTAINERS SHALL BE INSTALLED ABOVE GROUND USING BUILT IN CABLE TRAY.



Client: Jamestown S'Klallam Tribe

Project Title: DUNGENESS RIVER NATURE CENTER
1943 W HENDRICKSON RD, SEQUIM, WA 98382

Stamp:

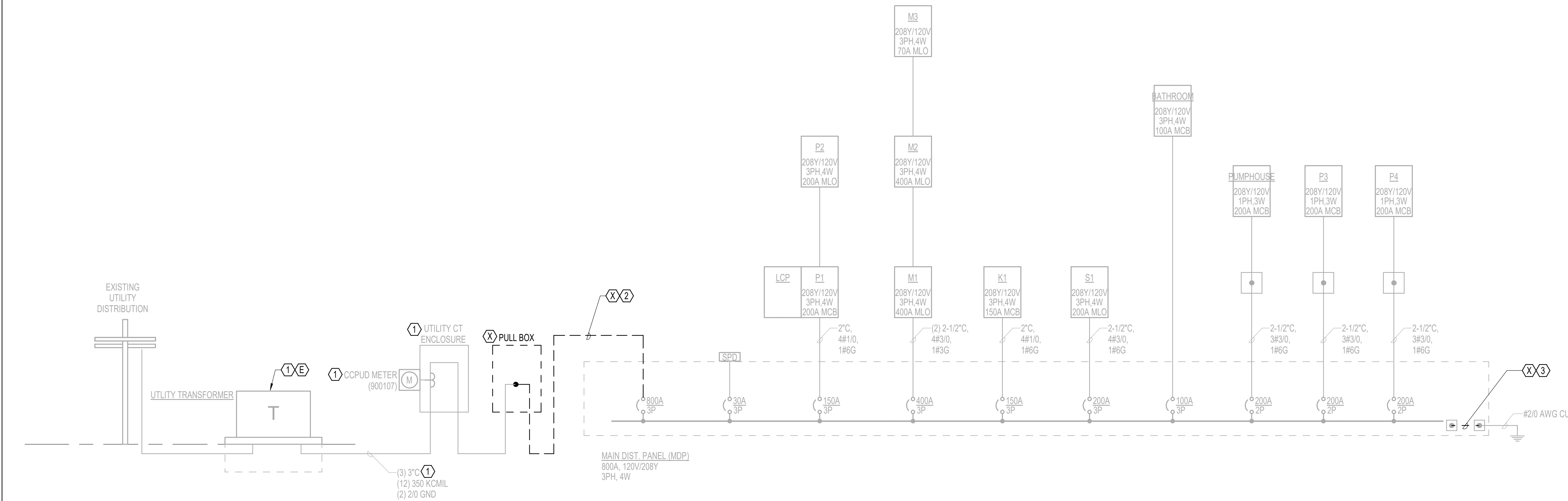
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SET TITLE:
BID SET

Drawn By: DMD
Checked by: CMC
Date: 07-02-2026
Project Number: 25-2242

SHEET TITLE:
DETAILS - ELECTRICAL

SHEET NUMBER:
E602



1 SINGLE LINE DIAGRAM - EXISTING AND DEMO - ELECTRICAL
NONE

FEEDER SCHEDULE COPPER: 1 PHASE, 2 WIRE + GROUND (AC OR DC)					
NOMINAL AMPACITY	TAG	NUMBER OF SETS	CONDUIT SIZE (MIN)	PHASE CONDUCTORS (AWG or kcmil)	GROUND CONDUCTOR (AWG or kcmil)
20	202	1	3/4"	(2) 12	(1) 12
30	302	1	3/4"	(2) 10	(1) 10
40	402	1	3/4"	(2) 8	(1) 10
50	502	1	3/4"	(2) 6	(1) 10
60	602	1	1"	(2) 4	(1) 10
70	702	1	1"	(2) 4	(1) 8
80	802	1	1"	(2) 3	(1) 8
90	902	1	1"	(2) 2	(1) 8
100	1002	1	1 1/4"	(2) 1	(1) 8
110	1102	1	1 1/4"	(2) 1	(1) 6
125	1252	1	1 1/4"	(2) 1	(1) 6
150	1502	1	1 1/2"	(2) 1/0	(1) 6
175	1752	1	1 1/2"	(2) 2/0	(1) 6
200	2002	1	2"	(2) 3/0	(1) 6
225	2252	1	2"	(2) 4/0	(1) 4
250	2502	1	2"	(2) 250	(1) 4
300	3002	1	2"	(2) 350	(1) 4
350	3502	1	2 1/2"	(2) 500	(1) 3
400	4002	2	2"	(2) 3/0	(1) 3
450	4502	2	2"	(2) 4/0	(1) 2
500	5002	2	2"	(2) 250	(1) 2
600	6002	2	2 1/2"	(2) 350	(1) 1
800	8002	3	2 1/2"	(2) 350	(1) 1/0
1000	10002	3	2 1/2"	(2) 500	(1) 2/0
1200	12002	4	2 1/2"	(2) 350	(1) 3/0
1600	16002	4	3"	(2) 750	(1) 4/0
2000	20002	5	3"	(2) 750	(1) 250
2500	25002	6	3"	(2) 750	(1) 350
3000	30002	7	3"	(2) 750	(1) 500
4000	40002	9	3"	(2) 750	(1) 500

NOTES:
1. REFER TO SPECIFICATIONS FOR INSULATION TYPE PER WIRE SIZE.
2. MINIMUM CONDUIT SIZES IDENTIFIED MEET MAXIMUM 40% FILL FOR EMT, RMC AND PVC SCHEDULE 40.
3. FOR FEEDER RATINGS 100AMPS OR LESS, ACTUAL AMPACITY IS CALCULATED BY THOSE GIVEN IN NEC 310.15(B)(16), 60DEG C.
4. FOR FEEDER RATINGS GREATER THAN 100AMPS, ACTUAL AMPACITY IS CALCULATED BY THOSE GIVEN IN NEC 310.15(B)(16), 75DEG C.

FEEDER SCHEDULE COPPER: 3 PHASE, 3 WIRE + GROUND					
NOMINAL AMPACITY	TAG	NUMBER OF SETS	CONDUIT SIZE (MIN)	PHASE CONDUCTORS (AWG or kcmil)	GROUND CONDUCTOR (AWG or kcmil)
20	203	1	3/4"	(3) 12	12
30	303	1	3/4"	(3) 10	10
40	403	1	3/4"	(3) 8	10
50	503	1	3/4"	(3) 6	10
60	603	1	1"	(3) 4	10
70	703	1	1"	(3) 4	8
80	803	1	1 1/4"	(3) 3	8
90	903	1	1 1/4"	(3) 2	8
100	1003	1	1 1/4"	(3) 1	8
110	1103	1	1 1/2"	(3) 1	6
125	1253	1	1 1/2"	(3) 1	6
150	1503	1	1 1/2"	(3) 1/0	6
175	1753	1	2"	(3) 2/0	6
200	2003	1	2"	(3) 3/0	6
225	2253	1	2"	(3) 4/0	4
250	2503	1	2 1/2"	(3) 250	4
300	3003	1	2 1/2"	(3) 350	4
350	3503	1	3"	(3) 500	3
400	4003	2	2"	(3) 3/0	3
450	4503	2	2"	(3) 4/0	2
500	5003	2	2 1/2"	(3) 250	2
600	6003	2	3"	(3) 350	1
800	8003	3	3"	(3) 350	1/0
1000	10003	3	3"	(3) 500	2/0
1200	12003	4	3"	(3) 350	3/0
1600	16003	4	4"	(3) 750	4/0
2000	20003	5	4"	(3) 750	250
2500	25003	6	4"	(3) 750	350
3000	30003	7	4"	(3) 750	500
4000	40003	9	4"	(3) 750	500

NOTES:
1. REFER TO SPECIFICATIONS FOR INSULATION TYPE PER WIRE SIZE.
2. MINIMUM CONDUIT SIZES IDENTIFIED MEET MAXIMUM 40% FILL FOR EMT, RMC AND PVC SCHEDULE 40.
3. FOR FEEDER RATINGS 100AMPS OR LESS, ACTUAL AMPACITY IS CALCULATED BY THOSE GIVEN IN NEC 310.15(B)(16), 60DEG C.
4. FOR FEEDER RATINGS GREATER THAN 100AMPS, ACTUAL AMPACITY IS CALCULATED BY THOSE GIVEN IN NEC 310.15(B)(16), 75DEG C.

FEEDER SCHEDULE COPPER: 3 PHASE, 4 WIRE + GROUND					
NOMINAL AMPACITY	TAG	NUMBER OF SETS	CONDUIT SIZE (MIN)	PHASE & NEUTRAL CONDUCTORS (AWG or kcmil)	GROUND CONDUCTOR (AWG or kcmil)
20	204	1	3/4"	(4) 12	12
30	304	1	3/4"	(4) 10	10
40	404	1	3/4"	(4) 8	10
50	504	1	1"	(4) 6	10
60	604	1	1 1/4"	(4) 4	10
70	704	1	1 1/4"	(4) 4	8
80	804	1	1 1/4"	(4) 3	8
90	904	1	1 1/4"	(4) 2	8
100	1004	1	1 1/2"	(4) 1	8
110	1104	1	1 1/2"	(4) 1	6
125	1254	1	2"	(4) 1/0	4
150	1504	1	2"	(4) 2/0	4
175	1754	1	2"	(4) 3/0	4
200	2004	1	2 1/2"	(4) 4/0	4
225	2254	1	2 1/2"	(4) 250	3
250	2504	1	3	(4) 350	2
300	3004	1	3 1/2"	(4) 500	2
350	3504	2	2"	(4) 3/0	3
400	4004	2	2 1/2"	(4) 4/0	2
450	4504	2	3"	(4) 250	1
500	5004	2	3"	(4) 350	1/0
600	6004	2	3 1/2"	(4) 500	2/0
800	8004	3	3"	(4) 350	2/0
1000	10004	3	4"	(4) 500	2/0
1200	12004	4	4"	(4) 500	250
1600	16004	5	4"	(4) 500	4/0
2000	20004	6	4"	(4) 500	250
2500	25004	8	4"	(4) 500	350
3000	30004	9	4"	(4) 500	500
4000	40004	12	4"	(4) 500	500

NOTES:
1. REFER TO SPECIFICATIONS FOR INSULATION TYPE PER WIRE SIZE.
2. MINIMUM CONDUIT SIZES IDENTIFIED MEET MAXIMUM 40% FILL FOR EMT, RMC AND PVC SCHEDULE 40.
3. ALL NEUTRAL CONDUCTORS ARE CONSIDERED CURRENT CARRYING, THEREFORE AMPACITY ADJUSTMENTS HAVE BEEN INCLUDED IN ACCORDANCE WITH NEC TABLE 310.15(B)(3)(a) TO ACCOMMODATE FOUR (4) CURRENT CARRYING CONDUCTORS IN A SINGLE RACEWAY.
4. ADJUSTED CONDUCTOR AMPACITIES ARE CALCULATED BASED ON THOSE GIVEN FOR 90DEG C CONDUCTORS IN ACCORDANCE WITH NEC 310.15(B) AND TABLE NEC 310.15(B)(16), FOR FEEDER RATINGS 100AMPS OR LESS, THE ADJUSTED AMPACITY SHALL NOT EXCEED THE 60DEG C RATING. FOR FEEDER RATINGS GREATER THAN 100AMPS, ACTUAL AMPACITY SHALL NOT EXCEED THE 75DEG C RATING.

GENERAL NOTES:

- A. CONTENT ON THIS PAGE IS REPRODUCED FROM EXISTING DRAWINGS AND HAS NOT BEEN VERIFIED. CONTRACTOR TO VERIFY EQUIPMENT FOR SUITABILITY OF DESIGN.
- B. EQUIPMENT IS EXISTING TO REMAIN UNLESS OTHERWISE NOTED.

NOTES:

1. EXISTING UTILITY TRANSFORMER, AND ASSOCIATED EQUIPMENT TO BE REUTILIZED UNLESS OTHERWISE NOTED. UTILITY FEED TO BE INTERCEPTED AND EXTENDED TO 2D1-EXT. SEE SHEET E702 FOR NEW WORK CONFIGURATION.
2. REMOVE EXISTING CONDUCTORS. CONDUIT DUCT BANK TO INTERIOR EXISTING SWITCHBOARD "MDP" TO REMAIN.
3. REMOVE MAIN BONDING JUMPER AT EXISTING MDP SWITCHBOARD. SEE SHEET E702 FOR LOCATION OF NEW MAIN BONDING JUMPER.



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Project Number: 25-2242

SHEET TITLE:
DIAGRAMS - EXISTING
AND DEMO -
ELECTRICAL

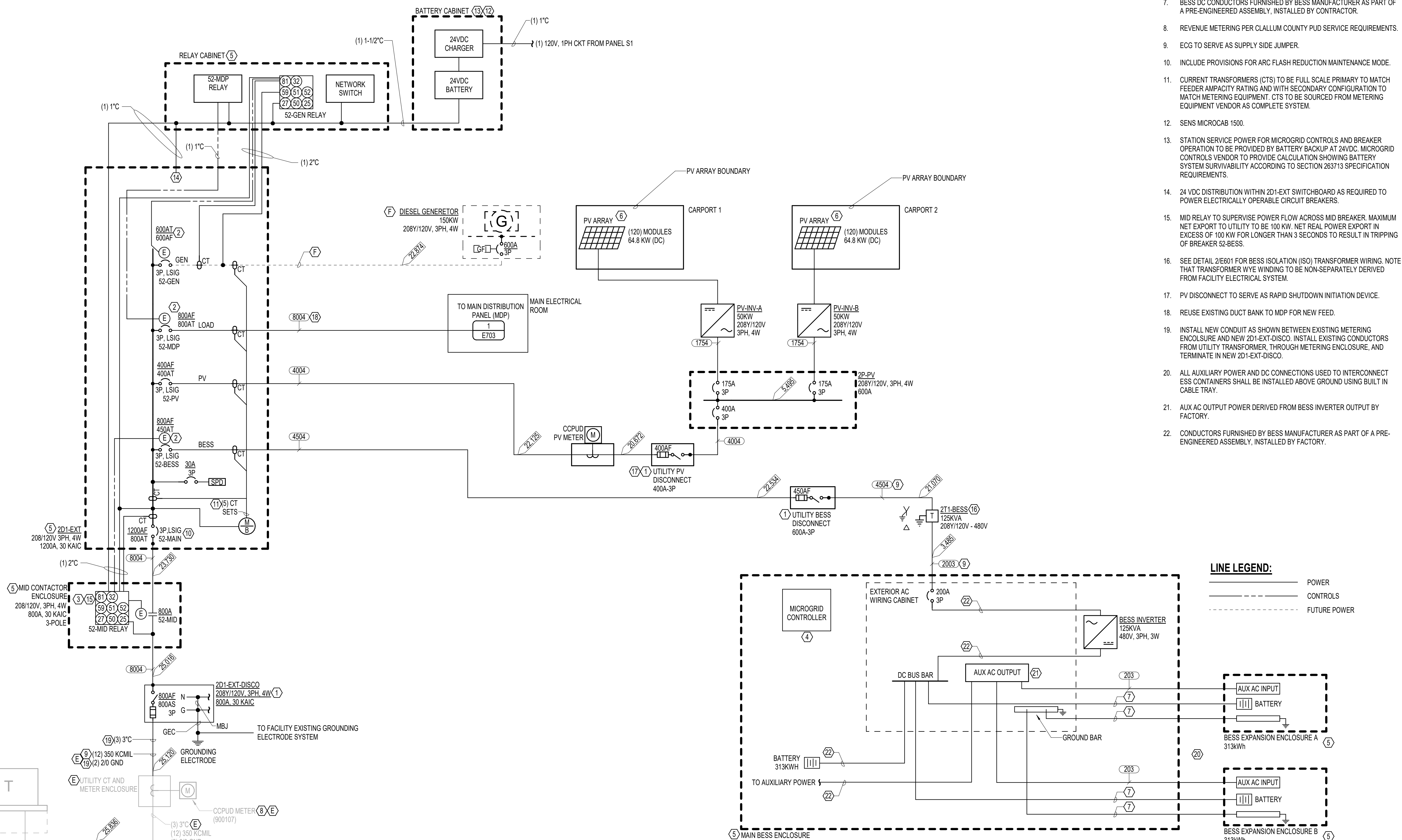
SHEET NUMBER:

E701

SYSTEM DESCRIPTION:

FACILITY SERVICE VOLTAGE: 208Y/120V, 3 PHASE, 4 WIRE
(240) SILFAB SOLAR, SIL-540 XM, 540WDC SOLAR MODULES, N-TYPE SILICON
(2) SOLAR EDGE, SE50KUS, 50KVA, STRING-INVERTER(S), 208VAC, 3 PHASE
(120) SOLAREGE POWER OPTIMIZERS, S1201, 1200W, NEMA 6P
(1) ELM MICROGRID, CMG2 CABINET W/ (2) EXPANSION CABINETS, 939KWH, NEMA 3R
(1) DYNAPOWER MPS 125EHV STORAGE INVERTER, 125KW, 480VAC, 3 PHASE, NEMA 3R

129.6KW - SOLAR PV
129KW AC / 939KWH TOTAL BATTERY STORAGE CAPACITY



GENERAL NOTES:

- TOTAL ADDED CONNECTED LOAD OF 3.17KVA OR 2.8% OF UTILITY TRANSFORMER CAPACITY. NO MODIFICATION TO EXISTING LOADS INCLUDED IN PROJECT SCOPE.
- SEE DETAIL 1/E602 FOR REQUIRED COMMUNICATIONS AND CONTROL CABLING AND ASSOCIATED CONDUITS.
- CONTRACTOR TO PROCURE EQUIPMENT WITH SHORT CIRCUIT CURRENT RATINGS GREATER THAN THE INDICATED AVAILABLE FAULT CURRENT.

NOTES:

- PROVIDE MANUAL GANG-OPERATED, HEAVY DUTY DISCONNECT SWITCH, WITH LOCKING HASPS AND VISUAL OPEN INSPECTION WINDOW. CONTRACTOR TO ENSURE PRODUCT IS COMPLIANT WITH CLALLUM COUNTY PUD REQUIREMENTS.
- ELECTRICALLY OPERABLE CIRCUIT BREAKER WITH INTEGRAL POWER AND ENERGY METERING. BREAKER TO BE CONTROLLED BY MICROGRID VIA SUPERVISORY RELAY.
- MICROGRID INTERCONNECT DEVICE (MID) RELAY. BASIS OF DESIGN IS SCHWEITZER ENGINEERING LABORATORIES SEL-751. MAJOR ANSI RELAY ELEMENTS ARE SHOWN. SEE SPECIFICATIONS FOR ADDITIONAL PROTECTION AND CONTROL REQUIREMENTS.
- MICROGRID CONTROL SYSTEM TO INCLUDE ALL NETWORKING EQUIPMENT AND PROVISIONS FOR DISCRETE AND ANALOG INPUTS/OUTPUTS TO ACCOMPLISH THE SPECIFIED CONTROL REQUIREMENTS. INCLUDE A DIGITAL TOUCHSCREEN HMI FOR OPERATOR INTERFACE.
- PROVIDED BY MICROGRID CONTROLS VENDOR.
- PV ARRAY BASIS OF DESIGN IS SILFAB 540-AX 540 WATT MODULES AND S1201 OPTIMIZERS WITH SE50KUS SOLAREGE INVERTERS.
- BESS DC CONDUCTORS FURNISHED BY BESS MANUFACTURER AS PART OF A PRE-ENGINEERED ASSEMBLY, INSTALLED BY CONTRACTOR.
- REVENUE METERING PER CLALLUM COUNTY PUD SERVICE REQUIREMENTS.
- ECG TO SERVE AS SUPPLY SIDE JUMPER.
- INCLUDE PROVISIONS FOR ARC FLASH REDUCTION MAINTENANCE MODE.
- CURRENT TRANSFORMERS (CTS) TO BE FULL SCALE PRIMARY TO MATCH FEEDER AMPACITY RATING AND WITH SECONDARY CONFIGURATION TO MATCH METERING EQUIPMENT. CTS TO BE SOURCED FROM METERING EQUIPMENT VENDOR AS COMPLETE SYSTEM.
- SENS MICROCAB 1500.
- STATION SERVICE POWER FOR MICROGRID CONTROLS AND BREAKER OPERATION TO BE PROVIDED BY BATTERY BACKUP AT 24VDC. MICROGRID CONTROLS VENDOR TO PROVIDE CALCULATION SHOWING BATTERY SYSTEM SURVIVABILITY ACCORDING TO SECTION 283713 SPECIFICATION REQUIREMENTS.
- 24 VDC DISTRIBUTION WITHIN 2D1-EXT SWITCHBOARD AS REQUIRED TO POWER ELECTRICALLY OPERABLE CIRCUIT BREAKERS.
- MID RELAY TO SUPERVISE POWER FLOW ACROSS MID BREAKER. MAXIMUM NET EXPORT TO UTILITY TO BE 100 KW. NET REAL POWER EXPORT IN EXCESS OF 100 KW FOR LONGER THAN 3 SECONDS TO RESULT IN TRIPPING OF BREAKER 52-BESS.
- SEE DETAIL 2/E601 FOR BESS ISOLATION (ISO) TRANSFORMER WIRING. NOTE THAT TRANSFORMER WYE WINDING TO BE NON-SEPARATELY DERIVED FROM FACILITY ELECTRICAL SYSTEM.
- PV DISCONNECT TO SERVE AS RAPID SHUTDOWN INITIATION DEVICE.
- REUSE EXISTING DUCT BANK TO MDP FOR NEW FEED.
- INSTALL NEW CONDUIT AS SHOWN BETWEEN EXISTING METERING ENCLOSURE AND NEW 2D1-EXT-DISCO. INSTALL EXISTING CONDUCTORS FROM UTILITY TRANSFORMER, THROUGH METERING ENCLOSURE, AND TERMINATE IN NEW 2D1-EXT-DISCO.
- ALL AUXILIARY POWER AND DC CONNECTIONS USED TO INTERCONNECT ESS CONTAINERS SHALL BE INSTALLED ABOVE GROUND USING BUILT IN CABLE TRAY.
- AUX AC OUTPUT POWER DERIVED FROM BESS INVERTER OUTPUT BY FACTORY.
- CONDUCTORS FURNISHED BY BESS MANUFACTURER AS PART OF A PRE-ENGINEERED ASSEMBLY, INSTALLED BY FACTORY.

LINE LEGEND:

- POWER
- CONTROLS
- FUTURE POWER



Client: **Jamestown S'Klallam Tribe**
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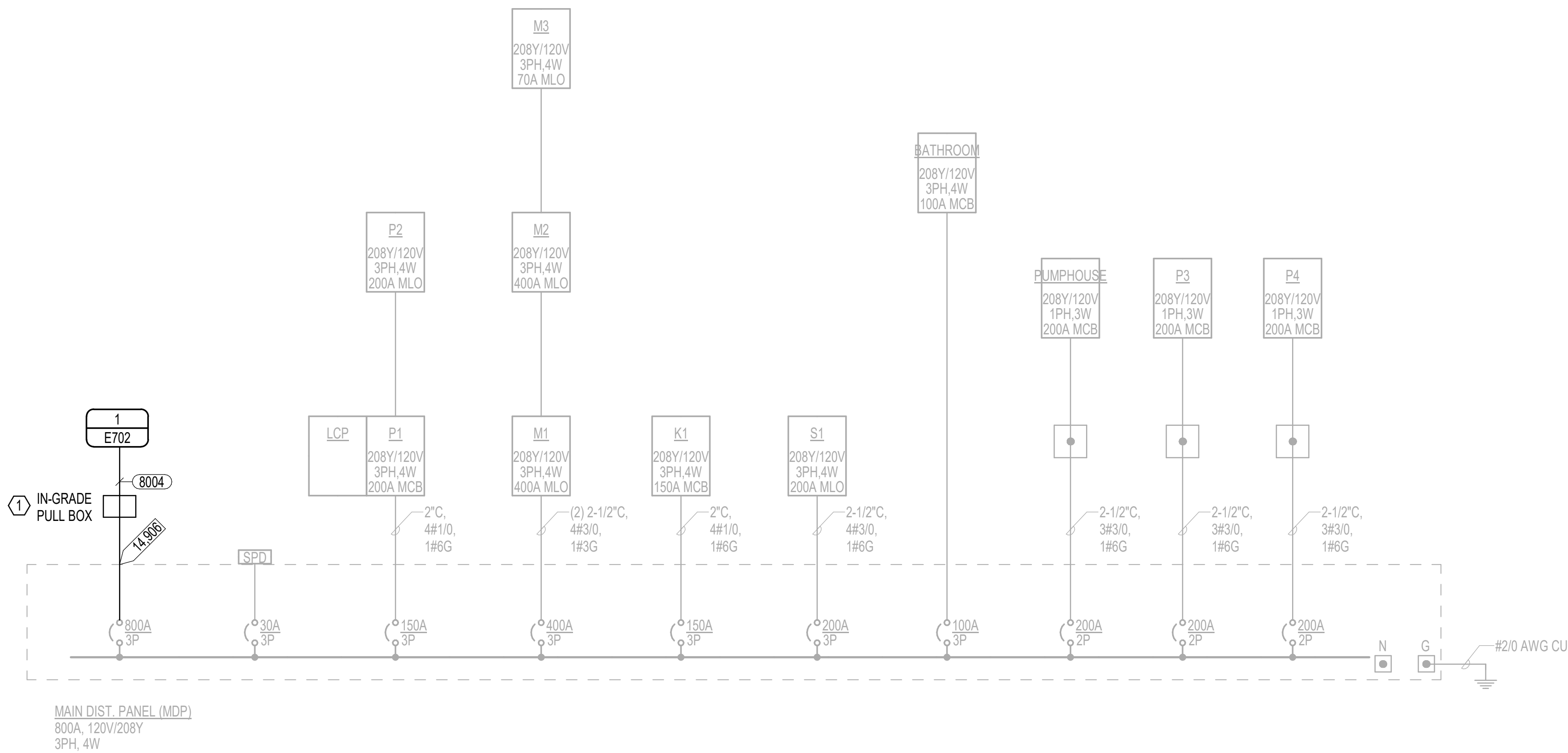
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DIAGRAMS - ELECTRICAL SINGLE LINE DIAGRAM

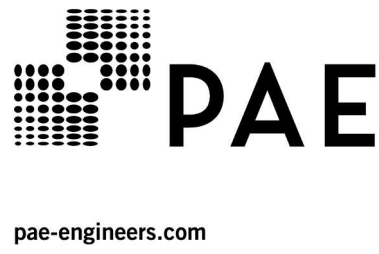
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E702

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- NOTES:
1. PROVIDE NEW IN-GRADE PULL BOX. INTERCEPT EXISTING CONDUITS AND USE CONDUITS FROM PULL BOX TO EXISTING PANELBOARD "MDP" FOR NEW FEEDERS.



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Project Number:	25-2242

SHEET TITLE:
DIAGRAMS - EXISTING
ELECTRICAL SINGLE
LINE DIAGRAM

SHEET NUMBER:

E703

ELM MICROGRID
Dimensions and Weights

Reliable, Scalable
ENERGY STORAGE

CMG2.1 AC Energy Storage System (CMG2.1-125)



CMG2.1-125
(includes ELM Fieldsight Microgrid EMS and PCS)

Dimensions	Depth 60.8" Width 60.3" Height 102"
Weight	8,249 lb.
Material	Powder Coated Steel
Protection Level	Type 3R
Paint Tested	1,000 Hour Salt Spray

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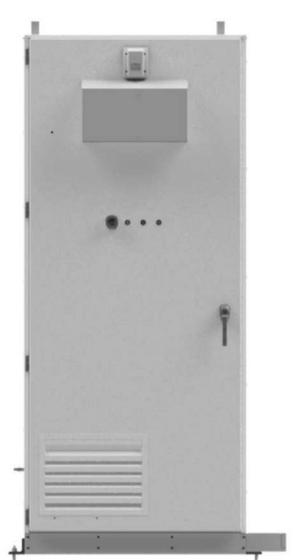
4300 Live Oak Dr
The Colony, TX 75056

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ELM MICROGRID
ENERGY STORAGE

Reliable, Scalable
ENERGY STORAGE

CMG2.1 DC Energy Storage System (CMG2.1-EXP)



CMG2.1-EXP

Dimensions	Depth 60.8" Width 42.1" Height 102"
Weight	7,379 lb.
Material	Powder Coated Steel
Protection Level	Type 3R
Paint Tested	1,000 Salt Hour Spray

CMG2.1 BATTERY TECHNICAL SPECIFICATIONS

BATTERY		
Chemistry	Lithium Iron Phosphate (LFP) Lithium Ion	
Cooling Method	Liquid	
Battery Type	Great Power 314Ah Rack	
Configuration	6 modules in series rack	5 modules in series rack
Application Altitude	≤3,000m	
ELECTRICAL		
DC Nominal Voltage	998.4 V	832 V
DC Voltage Range	811.2 V – 1123.2 V	740 V – 936 V
Energy Storage Capacity	313.44 kWh	261.2 kWh
Maximum Power	125 kW	125 kW
Nominal SOC at Delivery	~20%	
Nominal Charge/Discharge Rate	0.5C/0.5C	
Max Charge/Discharge Current	154 A	168.9 A

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CMG2.1 SYSTEM TECHNICAL SPECIFICATIONS

		CMG2.1-XX-YY-ZZZ	
Maximum Power Ratings			
Max. Power Output Ratings	50-125kW		
PCS Ratings*			
DC Input SCRR Rating	50 kA		
DC Voltage Input Range	740 – 1500 VDC		
DC Maximum Input Continuous Current	171 A		
DC Ratings			
DC Configuration	6 modules in series rack	5 modules in series rack	
System DC Voltage Range	811.2 V – 1123.2 V	740 V – 936 V	
System DC Nominal Voltage	998.4 V	832 V	
Maximum Discharge Current	154 A	168.9 A	
Maximum Charge Current	154 A	168.9 A	
DC Energy (kWh)	See CMG2.1 System Model Identification and Capacity Table		
AC Output Ratings			
Nominal Voltage	480V		
Operating Voltage Range	+10%/-12%		
Rated frequency	60Hz		
Rated AC Import/Export Apparent Power	125kVA		
Rated AC Import/Export Real Power	125kW		
Nominal AC Current	150A		
Overload Capacity	120% (10s)		
Power Factor	-1 to 1, Leading/Lagging		
AC Fault Current Contribution	1.42 kA (0.4 ms)		
Maximum Efficiency	98.7%		
CEC Efficiency	97%		
THD (UL1741 / IEEE 1547)	<5%		
AC Configuration	1T, 3-WIRE (3P3W)		
AC Input SCRR	35kA		
MAIN Auxiliary Consumption**			
PCS Standby Consumption	200W		
Standby Control Circuits Consumption	100W		
Nominal Control Circuits Consumption	1100W		
Maximum Control Circuits Consumption	2200W		
EXP Auxiliary Consumption**			
Standby Control Circuits Consumption	25W		
Nominal Control Circuits Consumption	1025W		
Maximum Control Circuits Consumption	1840W		

* These are minimum PCS ratings. Different PCS ratings might be available. Consult with ELM for pre-approved PCS.
** Consumption varies per ambient temperature on cooling system.

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General Data	
Internal operating ambient temperature	0 to 49 °C
External operating ambient temperature	-25° to 50° C
Storage temperature	-20 to 35° C (Recommended)
Relative humidity	Up to 95% Non-Condensing
Altitude	2000m
Wind Load	150 MPH (Exposure Cat. C) (ASCE/SEI 7-16)

Notes : 1. Minimum external operating ambient temperature is based on the assumption the system is running at least 25% of the rated power

Certifications	
System	ANSI/CAN/UL 9540-2023 (PENDING) STANDARD FOR SAFETY Energy Storage Systems and Equipment
Batteries	ANSI/CAN/UL 1973 Batteries for Use in Stationary and Motive Auxiliary Power Applications ANSI/CAN/UL 9540A STANDARD for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems UL 1741 2nd Edition Supplement 5B Grid support utility interactive inverters and converters. California RULE 21 Generating Facility Interconnections Hawaii RULE 14 Service Connections and Facilities on Customer's Premises IEEE 1547-2018, IEEE 1547a-2020, IEEE 1547.1-2020 Standard for Interconnecting Distributed Resources with Electric Power Systems
Inverter (PCS)	NFPA 855 Compliant UL 3141 Power Control System (PCS) Power Control of Distributed Energy Resources
Others	

Communications and Control	
EMS Software	ELM Fieldsight EMS Software Built In Data Access and Alerts on Desktop & Mobile 24/7 Asset Monitoring System Level & Individual Individual Microgrid Components pages Local HMI IP 65 Touchscreen
Off-Grid Mode (Islanded)	Black Start Solar Integration Generator Integration Grid Support Functions Peak Shaving Seamless Back Up Demand Response Time of Use Shift 4G LTE Cellular
On-Grid Mode	Local LAN Modbus TCP Modbus RTU RS-485 DNPS to Modbus TCP
Communications	
Optional	Additional Serial Ports (Through serial to TCP Converter) Fiber Ports

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DYNAPOWER
POWERING A CLEANER PLANET™

MPS-125 Energy Storage Inverter

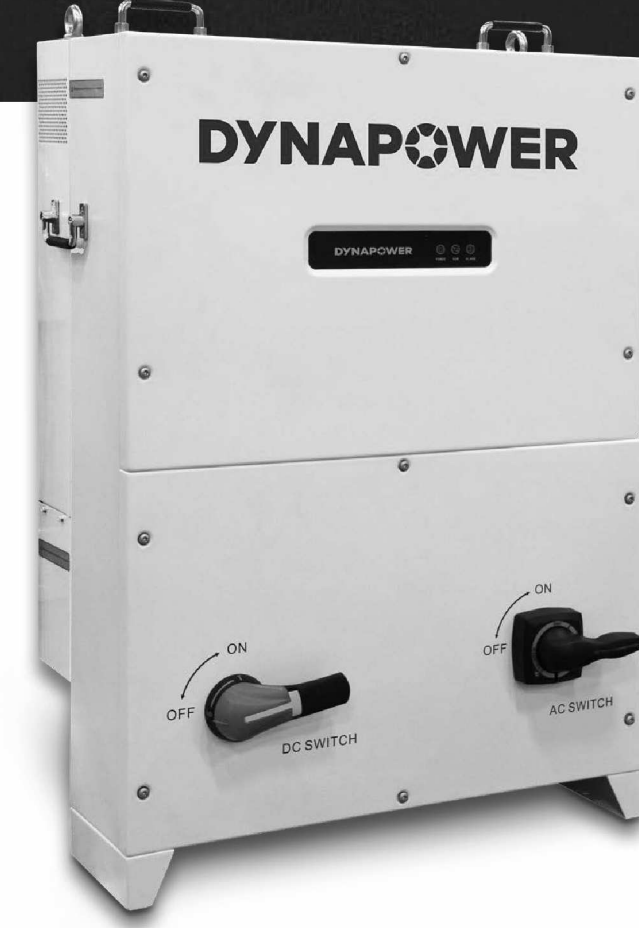
The world's most capable
microgrid inverter

This parallelable 125kW energy storage inverter is transformer-less, air-cooled, and compact, and optimized for behind-the-meter energy storage applications.

Featuring a highly efficient three-level topology, the MPS-125 is easily integrated into customer supplied battery storage systems or can be supplied as part of Dynapower's fully-integrated MPS-1 energy storage system. Multiple MPS-125 energy storage inverters can be paralleled together to scale to meet the needs of any behind-the-meter energy storage installation.

With all the functional capabilities of the grid-scale CPS inverter family, the MPS-125 supports frequency, voltage, and VAR support applications.

With our patented Dynamic Transfer™ feature, the MPS-125 inverter monitors grid stability and will automatically disconnect and transition to stand-alone mode if a grid disturbance is detected, ensuring consistent power to critical loads.



Key Technologies

- Islanded Operation (UF Mode)
- Dynamic Transfer
- Black Start
- Frequency Compensation Mode (F-Comp)
- Volt-Var Compensation Mode (E-Comp)



MPS-125 Energy Storage Inverter

TECHNICAL SPECIFICATIONS

Electrical

AC Input Voltage:	480V ₃ 3 Phase
Grid Frequency:	60 Hz
Rated Output Apparent Power:	125kVA
Rated Output Real Power:	125kW
Rated Output Current:	150A _{max}
Overload AC Current:	180A _{max}
DC Voltage Range:	740-1500V _{dc}
Max DC Current:	171A _{dc}
Power Factor:	0 – 1.00 Leading or Lagging
Current Harmonics:	IEEE 1547 Compliant, <8% THD
Maximum Efficiency:	98.7%
CEC Efficiency:	97%

Environmental & Mechanical

Operating Temp:	-25 to +50°C; De-rated from +45 to +50°C
Cooling:	Forced Air Cooled
Enclosure:	NEMA 3R/IP 54
Max Elevation:	1000 Meters Full Power
Dimensions (H x W x D):	36" x 28" x 15.25"
Weight:	300 lbs

Certifications & Standards Compliance

UL 1741 SA	IEEE 519
IEEE 1547	CSA 22.2 #107.1
NFPA 70	

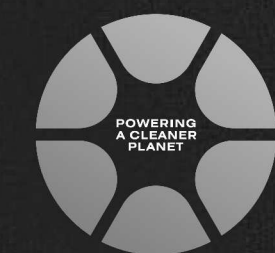
Hardware Protections

AC Breaker with Shunt Trip
AC Surge Protection
DC Disconnect
DC Input Fuses
DC Pre-charge (Optional)



DYNAPOWER

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11-2021 US

SEL-751

Feeder Protection Relay



2 ms arc-flash protection and feeder relay in one platform

- Support low-energy analog (LEA) voltage sensor inputs and Rogowski coil or low-power current transformer (LPCT) inputs in small-enclosure installations.
- Detect open-phase conditions with phase discontinuity detection logic.
- Prevent faults caused by broken conductors on single-circuit lines using broken-conductor detection, and mitigate possible fire hazards.
- Safely re-energize your system after an extended outage with the cold-load pickup element.
- Improve network recovery via alternate paths in a network with the Rapid Spanning Tree Protocol (RSTP).



SEL-751 Specifications

General	
Displays	2 × 16-character LCD 5-inch color touchscreen display, 800 × 480 pixels
AC Current Inputs	5 A or 1 A phase and 5 A, 1 A, or 200 mA neutral
Rogowski Coil-Based AC Current Inputs (RJ45)	30 Vac (phase-to-neutral) continuous, ±185 V _{max} , 200 Vac for 10 seconds Compliant with IEC 61869-10 standard
LPCT Inputs (RJ45)	4 Vac continuous, ±11.3 V _{max} , 200 Vac for 10 seconds
AC Voltage Inputs	300 Vac continuous, 600 Vac for 10 seconds
LEA Voltage Inputs	8 Vac (phase-to-neutral), ±12 V _{max} , 300 Vac for 10 seconds
LEA Voltage Sensor Inputs (RJ45)	8 Vac (phase-to-neutral), ±12 V _{max} , 200 Vac for 10 seconds Compliant with IEC 61869-11 standard
Output Contacts	The relay supports Form A, B, and C outputs.
Optoisolated Control Inputs	DC/AC control signals: 250, 220, 125, 110, 48, or 24 V As many as 26 inputs are allowed in ambient temperatures of 85°C (185°F) or less. As many as 34 inputs are allowed in ambient temperatures of 75°C (167°F) or less. As many as 44 inputs are allowed in ambient temperatures of 65°C (149°F) or less.
Frequency and Phase Rotation	System frequency: 50, 60 Hz Phase rotation: ABC, ACB Frequency tracking: 15–70 Hz (requires ac voltage inputs)
Arc-Flash Time-Overlight* Elements (TOL1–TOL8)	Pickup time: 2–5 ms Dropout time: 1 cycle
Communications Protocols	SEL (Fast Meter, Fast Operate, and Fast SER), Modbus TCP/IP, Modbus RTU, DNP3, FTP, IIRIG-B, Telnet, SNMP, EtherNet/IP, firmware-based IEEE 1588 PTP, IEC 61850 Edition 2.1, IEC 60870-5-103, the Parallel Redundancy Protocol (PRP), RSTP, MicroSD Bits communications, and IEEE C37.118-2005 (synchrophasors).
Language Support	English and Spanish
Power Supply	110–250 Vdc or 110–240 Vac Input voltage range: 85–300 Vdc or 85–264 Vac 24–48 Vdc Input voltage range: 19.2–60 Vdc
Operating Temperature	–40° to +85°C (–40° to +185°F) Note: LCD contrast is impaired for temperatures below –20°C (–4°F) and above +70°C (158°F).
Certifications	To view certifications for the SEL-751, please visit selinc.com/company/certifications .

SEL SCHWEITZER ENGINEERING LABORATORIES

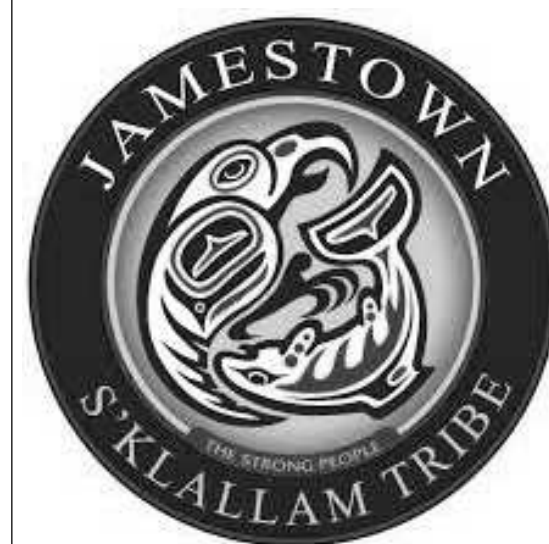
Making Electric Power Safer, More Reliable, and More Economical
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AZ Solar Consulting

Client: Jamestown S'Klallam Tribe
Project Title: DUNGENESS RIVER NATURE CENTER
1943 W HENDRICKSON RD, SEQUIM, WA 98282

Stamp:

NO. REVISION DATE

SET TITLE:

BID SET

Drawn By: DMD

Checked by: CMC

Date: 07-02-2026

Project Number: 25-2242

SHEET TITLE:
DATA SHEETS -
ELECTRICAL

SHEET NUMBER:

E902