

Fairbanks Pioneer Home Generator Upgrade AJF 18-07C

Addendum Date: February 7, 2018

To all plan holders:

The following corrections, changes, additions, deletions, revisions, and or clarifications are hereby made a part of the bid specifications for the above referenced project, dated January 17, 2018 (Construction Drawings Dated July 19, 2017). In case of conflicts between this Addendum and previously issued documents, this Addendum shall take precedence.

CHANGES TO SPECIFICATIONS

Item 1. Reference: Section 01 10 00 Summary of Work

a. CHANGE subparagraph 1.09.B.1, to read as follows:

"The Pioneer Home is a medical facility, with a need for continuous supply of electrical power for priority systems. Multiple partial and complete outages are assumed, but the maximum length of time for power to be shut down to the entire building is expected to be no more than one hour. Unless otherwise approved, total building outages shall happen after 7:00 pm, which is when the kitchen shuts down for the day."

b. ADD subparagraph 1.09.B.2 to read as follows:

"Partial Outages: If the standby distribution panel (SDP) remains energized, the main distribution panel (MDP) can be de-energized for up to three hours. If the MDP remains energized, the SDP can be de-energized for up to one hour."

c. ADD subparagraph 1.09.B.3 to read as follows:

"The driveway and parking area behind the facility shall remain fully accessible throughout the project, except for one 8-hour time period when the trench is cut and conduits are installed/backfilled, and another 8-hour time period when the cut area is re-paved. In between backfilling and re-paving, steel driving plates shall be provided across the area to protect the sawcut asphalt edges."

d. CHANGE paragraph 1.09.C to read as follows:

"A phasing schedule is to be furnished and approved by DEPARTMENT regarding the change-over between the existing standby generator and the new standby generator. A standby generator is to be available through the entire project duration while the building is on utility power. Standby power can be provided by the existing generator in the building, the new exterior generator module, or a portable generator of sufficient size. If the normal power electrical system is being temporarily fed from a standby generator (e.g. when the feeder from the service disconnect to new ATS is being upgraded), no additional backup source is required."

e. CHANGE paragraph 1.10.A to read as follows:

"Construction operations that do not disrupt the staff or residents may occur at any hour, any day. Any work that involves heavy machinery or generates

excessive noise shall be between the hours of 8:00 am to 5:00 pm, Monday through Saturday, unless specifically approved by the Maintenance Supervisor. Examples of tasks that would be considered excessively noisy include, but are not limited to, the following: Trenching, excavation, saw cutting, core drilling, jack hammering. Tasks such as conduit installation and wire pulling may or may not fall under this category, depending on the exact work involved. All activities shall be coordinated with the Maintenance Supervisor prior to start of work."

CHANGES TO DRAWINGS

Item 2. Reference: Sheet E0.1 - Electrical Legend, Load Calculation, and Panel Schedule

- a. **REPLACE** the existing drawing with the new drawing dated 2/7/18. Changes include the following:
 - 1. Add a proposed phasing schedule. The intent is to provide one example of how the switchover process could be phased in order to minimize downtime and maintain facility operation.

Item 3. Reference: Sheet E0.2 - Electrical One-Line Diagrams

- a. **REPLACE** the existing drawing with the new drawing dated 2/7/18. Changes include the following:
 - 1. Change the fuses in the existing service disconnect from 1600-Amp to 1200-Amp.
 - 2. Change the transfer switch rating from 1600-Amp to 1200-Amp.
 - 3. Reduce the feeder size between the service disconnect, transfer switch, and MDP. At the Contractor's option, portions of the existing conduits may be re-used if they are installed in accordance with all applicable codes.
 - 4. Add a service entrance grounding detail to show modifications to the existing grounding system.

Item 4. Reference: E2.1 - Electrical Remodel Plan

- a. **CHANGE** the transfer switch rating from 1600-Amp to 1200-Amp and change the location within the room. The intent is to allow the existing transfer switch to remain in place during the switchover process, in order to minimize downtime. The exact switch location within the room shall be proposed by the Contractor and approved by DEPARTMENT prior to start of work.

QUESTIONS & ANSWERS

QUESTION 1: Are the time restraints of a 30-min power outage a non-negotiable term in the contract. If it is negotiable what is the maximum amount of time the power can be off?

ANSWER 1: The maximum total building outage duration has been changed to one hour, as noted elsewhere in this addendum. The limiting factors for the outage include maintaining power to critical items such as the building heat/cooling system, telephone system, network server, corridor lighting, and WanderGuard system, which cannot be offline for an extended period.

QUESTION 2: Is it acceptable to only energize the SDP section of the gear and have the MDP section of the gear de-energized?

ANSWER 2: This is acceptable but only for up to three hours. The SDP mainly provides power to the building heating/cooling equipment, as well as other critical loads as described in Answer 1 above. It does not include building-wide lighting so the intent is to have the MDP re-energized before the emergency lights run out of battery power.

QUESTION 3: Is it acceptable to only energize the MDP section of the gear and have the SDP section of the gear de-energized?

ANSWER 3: This is acceptable but only for up to one hour. In this scenario, the patient room lights and most of the branch electrical panels would have power but not the critical loads as described in Answer 1 above.

QUESTION 4: How long can the MDP section of the gear be de-energized if we left the SDP section of the gear energized?

ANSWER 4: See answer to Question 2 above.

QUESTION 5: How long can the SDP section of the gear be de-energized if we left the MDP section of the gear energized??

ANSWER 5: See answer to Question 3 above.

QUESTION 6: Is a Type MC or MCJ an acceptable method of running the feeder conductors thru the crawl space?

ANSWER 6: The feeders run through an area that needs to be accessible for maintenance of heating valves in the crawlspace. The facility has indicated that using MC cable in this area would make it subject to physical damage, which is a code violation. Therefore, MC or MCJ cable is not an acceptable wiring method for the feeders in the crawlspace.

QUESTION 7: The existing service disconnect is located inside the building and does not appear to have shunt trip capability for and exterior service shunting means. Is the fire marshal and local city electrical inspector going to approve the existing service disconnect inside the building during final inspection?

ANSWER 7: Because this project does not include replacement of the existing service disconnect or any changes upstream of that point, an exterior disconnecting means will not be required. This has been discussed with the AHJ (Clem Clooten, City of Fairbanks Building Official, 1/25/18).

QUESTION 8: Will the existing 135kW generator carry all the load of the MDP and SDP?

ANSWER 8: The highest demand reading in the 12 months preceding drawing completion was 177kW (April 2017). The lowest demand reading in the same 12-month period was 151.8kW (May 2017). Based on that information, the existing generator is not capable of carrying the entire building load.

QUESTION 9: Are the conduits leading from the service disconnect to the MDP exposed in the crawlspace?

ANSWER 9: Directly below the service disconnect, the conductors come through the bottom of the enclosure and are exposed in a 30"H open "vault" area in the crawlspace. From there, the conduits go down into a concrete slab at the bottom of the vault and run underground toward the MDP, where they enter the MDP enclosure from the side at approx. 6' above finished floor in the basement. From the vault to the MDP, the conduits are completely concealed in the ground. There is a 4"

waste line running in front of the vault opening in the crawlspace wall. This line is abandoned and will be removed by facility staff prior to start of work.

End of Addendum

Contractor must acknowledge receipt of this addendum on the bid form to avoid being disqualified.

Thank You

Mark Moon
Building Management Specialist
HSS/Facilities
907 269-7812 wk.
mark.moon@alaska.gov

0"
1"
2"
3"

PANEL 'GEN'																	
MFR/MODEL: SQUARE 'D' TYPE NQ						VOLTS: 120/208V,3PH,4W				ENCLOSURE: NEMA 1				100 A			
NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	VOLT-AMPS						MTG: SURFACE					
						A		B		C		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
	1	1	20	LIGHTS	LTG	218	2,500					HEAT	HEATER	30	2	2	
	3	1	20	SPARE				2,500				HEAT	^^	30	2	4	
	5	1	15	BLOCK HEATER	HEAT				1,000	1,000		HEAT	BATTERY BLANKET	15	1	6	
	7	1	15	ENGINE HEATERS	HEAT	760							SPARE	20	1	8	
	9	1	20	SPARE				1,200				MISC	BATTERY CHARGER	15	1	10	
	11	1	20	FUEL PUMP	MOTR				1,176	720		RECP	MODULE RECP	20	1	12	
	13	1	-	SPACE									SPACE	-	1	14	
	15	1	-	SPACE									SPACE	-	1	16	
	17	1	-	SPACE									SPACE	-	1	18	
	19	1	-	SPACE									SPACE	-	1	20	
TOTAL V-A						3,478		3,700		3,896		11,074 VA					
TOTAL AMPS						29		31		32		31 A					
AVAILABLE FAULT CURRENT :						2,951 A		AIC RATING: 10,000									
CONNECTED LOAD IN KVA (THIS PANEL): CONNECTED LOAD IN KVA (BRANCH PANELS): TOTAL CONNECTED LOAD IN KVA: DEMAND LOAD IN KVA:						LTG	RECP	MOTR	LG.MT	MISC	KIT	HEAT	SPEC	TOTAL		AMPS	
						0.22	0.72	1.18	0.29	1.20	0.00	7.76	0.00	11.1 KVA		31 A	
						0.22	0.72	1.18	0.29	1.20	0.00	7.76	0.00	11.1 KVA		31 A	
						0.27	0.72	1.18	0.29	1.20	0.00	9.70	0.00	13.4 KVA		37 A	
PANEL NOTES:												PANEL OPTIONS: MAIN LUGS ONLY					

PROJECT PHASING SCHEDULE:

THE FOLLOWING PHASING SCHEDULE IS GENERAL IN NATURE AND BASED ON EXISTING AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALK THROUGH THE FACILITY. IT REPRESENTS ONE POSSIBLE SEQUENCE OF WORK BUT THE CONTRACTOR SHALL SUBMIT THEIR OWN SCHEDULE FOR REVIEW AND APPROVAL, AS SPECIFIED IN SECTION 01 10 00. ALLOWABLE PARTIAL AND FULL SHUTDOWN PERIODS ARE ALSO SPECIFIED IN SECTION 01 10 00.

- FIELD VERIFY ALL EXISTING CONDITIONS, NEW/EXISTING CONDUIT PATHWAYS, AND ALL UNDERGROUND UTILITIES. PREPARE SUBMITTALS AND SHOP DRAWINGS. AFTER SUBMITTAL REVIEW AND APPROVAL OF SHOP DRAWINGS, ORDER LONG-LEAD ITEMS SUCH AS GENERATOR AND TRANSFER SWITCH.
- ONCE ALL NEW EQUIPMENT IS ON-SITE, DISCONNECT EXISTING 135kW GENERATOR FROM TRANSFER SWITCH AND CONNECT PORTABLE STANDBY GENERATOR (MIN 150kW) TO EXISTING TRANSFER SWITCH TO PROVIDE BACKUP POWER. REMOVE EXISTING 135kW GENERATOR AND ALL ASSOCIATED EQUIPMENT FROM GENERATOR ROOM. INSTALL NEW LARGER TRANSFER SWITCH IN ROOM. AT THE CONTRACTOR'S OPTION, THE NEW 250kW GENERATOR MODULE CAN BE SET IN PLACE EARLY TO PROVIDE BACKUP POWER, INSTEAD OF USING A PORTABLE UNIT.
- RUN FEEDER CONDUITS FROM NEW TRANSFER SWITCH DOWN INTO CRAWLSPACE AND PREPARE FOR INTERCEPT OF EXISTING CONDUITS STUBBING INTO CRAWLSPACE FROM MDP. ANTICIPATED POINT OF INTERCEPT IN CRAWLSPACE IS BELOW GRADE SO HAND DIGGING WILL BE REQUIRED. RUN FEEDER CONDUITS FROM NEW TRANSFER SWITCH TO VAULT AREA BELOW EXISTING SERVICE DISCONNECT AND PREPARE FOR CONNECTION TO SERVICE DISCONNECT.
- OUTAGE #1 (WHOLE BUILDING): DISCONNECT AND REMOVE (2) 3" CONDUITS FROM MDP TO EXISTING TRANSFER SWITCH. CONNECT 400A DISCONNECT IN MDP TO INCOMING LUGS ON SDP. INTENT IS TO BACKFEED MDP BUS FROM SDP, WITH MANUAL LOAD SHED ON MDP IF NECESSARY. RE-ENERGIZE SDP BUT LEAVE MDP DE-ENERGIZED FOR LONGER ALLOWABLE PERIOD, IN ORDER TO DISCONNECT INCOMING FEEDERS AND PULL BACK INTO CRAWLSPACE.
- OUTAGE #2 (WHOLE BUILDING): DISCONNECT UTILITY POWER AND PROVIDE TEMPORARY GENERATOR CONNECTION TO INCOMING LUGS ON MDP, WHICH IN TURN POWERS SDP. RE-ENERGIZE MDP FROM GENERATOR.
- WITH UTILITY POWER STILL DISCONNECTED, FINISH PULLING FEEDERS FROM SERVICE DISCONNECT TO NEW TRANSFER SWITCH, AND FROM NEW TRANSFER SWITCH TO INTERCEPT POINT IN CRAWLSPACE.
- OUTAGE #3 (MDP ONLY): CONNECT TEMPORARY GENERATOR POWER TO EXISTING TRANSFER SWITCH TO POWER SDP BUT OPEN 400A DISCONNECT TO ISOLATE MDP. CONNECT FEEDERS FROM NEW TRANSFER SWITCH TO BOTH MDP AND SERVICE DISCONNECT.
- INSTALL NEW GENERATOR MODULE AND RUN CONDUITS IN TRENCH OVER TO BUILDING. PULL CONDUCTORS AND PREPARE FOR TERMINATION AT NEW TRANSFER SWITCH.
- OUTAGE #4 (MDP ONLY): ENERGIZE SDP VIA TEMPORARY GENERATOR FROM EXISTING TRANSFER SWITCH. MAKE FINAL CONNECTIONS OF GENERATOR FEEDER AT NEW TRANSFER SWITCH.
- OUTAGE #5 (WHOLE BUILDING): DISCONNECT TEMPORARY GENERATOR FROM EXISTING TRANSFER SWITCH. ENERGIZE UTILITY POWER TO SERVICE DISCONNECT AND LINE SIDE OF TRANSFER SWITCH. NEW GENERATOR MODULE WILL NOW PROVIDE BACKUP POWER TO ENTIRE FACILITY.
- OUTAGE #6 (SDP ONLY): OPEN 400A DISCONNECT IN MDP THAT FEEDS SDP. DISCONNECT AND REMOVE (2) 3" CONDUITS FROM SDP TO EXISTING TRANSFER SWITCH. REMOVE EXISTING TRANSFER SWITCH.
- AFTER NEW POWER SYSTEM IS FULLY FUNCTIONAL, REMOVE ALL TEMPORARY EQUIPMENT.



ELECTRICAL SERVICE LOAD CALCULATION

PROJECT: DHHS FAIRBANKS PIONEER HOME
GENERATOR UPGRADE
ANCHORAGE, ALASKA
DATE: 7/20/2017

EXISTING 1,600A, 208V, 3-PHASE, 4-WIRE SERVICE WITH (4) 4#600KCMIL FEEDERS VIA AN EXISTING 1,600A, ATS TO 1,600A, MDP.

EXISTING LOAD ON SERVICE
GVEA (4/24/17): 177 KW
ASSUME PF .85: 208 KVA
125% OF EXISTING LOAD: 260 KVA

EXISTING LOAD REMOVED NO. VA
REMOTE RADIATOR 1 (1,729) (1,729) VA

TOTAL LOAD REMOVED (1,729) VA = (5) A

NEW DEMAND LOAD ADDED FROM PANEL 'GEN': 13,363 VA

NET NEW LOAD ON SERVICE 271,927 VA = 755 A

EXISTING SERVICE AND DISTRIBUTION EQUIPMENT HAVE ADEQUATE CAPACITY FOR NEW LOAD ADDED.

LEGEND

	CONDUIT, CONCEALED
	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)
A-2	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)
	NEW PANEL
	EXISTING PANEL
	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER
	QUADRAPLEX RECEPTACLE
	JUNCTION BOX
	EMERGENCY PUSHBUTTON SWITCH
	MOTOR (SIZED AS NOTED)
	FRACTIONAL HORSEPOWER MOTOR STARTER
	DISCONNECT SWITCH
	FIRE ALARM CONTROL PANEL
	GENERATOR REMOTE ANNUNCIATOR PANEL
	SMOKE DETECTOR
	HEAT DETECTOR
	DUPLEX RECEPTACLE TO BE REMOVED (DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED TYPICAL)
	NOTE TAG (No. INDICATES NOTE)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
CO	CONDUIT ONLY
E	DENOTES EXISTING ITEM
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRSC	GALVANIZED RIGID STEEL CONDUIT
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
SDP	STANDBY DISTRIBUTION PANEL
MDP	MAIN DISTRIBUTION PANEL
NEC	NATIONAL ELECTRICAL CODE
R	DENOTES EXISTING ITEM THAT HAS BEEN RELOCATED
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF



R S A
Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
670 West Fireweed Lane, Suite 200 191 East Swanson Ave.
Anchorage, AK 99503 Wasilla, AK 99664
Phone (907) 276-0521 Phone (907) 357-1521
Corporate No.: AECC542

GENERATOR UPGRADE

DHSS FAIRBANKS PIONEER HOME
PROJECT #AJF 18-07C
2221 EAGAN AVE.
FAIRBANKS, AK 99701

REVISIONS:
ADD #2 2/7/18

DRAWN BY: PCC
CHECKED BY: RLW,DB
DATE: 07/19/17
JOB NUMBER: L6146
DWG FILE: L6146 ESERIES

DRAWING TITLE:
ELECTRICAL LEGEND,
LOAD CALCULATION, AND
PANEL SCHEDULE

SHEET:
E0.1



Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
670 West Freewood Lane, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

GENERATOR UPGRADE

DHSS FAIRBANKS PIONEER HOME
PROJECT #AJF 18-07C
2221 EAGAN AVE.
FAIRBANKS, AK 99701

REVISIONS:
ADD #2 2/7/18

DRAWN BY: PCC
CHECKED BY: RLW,DB
DATE: 07/19/17
JOB NUMBER: L6146
DWG FILE: L6146 ESERIES

DRAWING TITLE:
ELECTRICAL ONE-LINE
DIAGRAMS

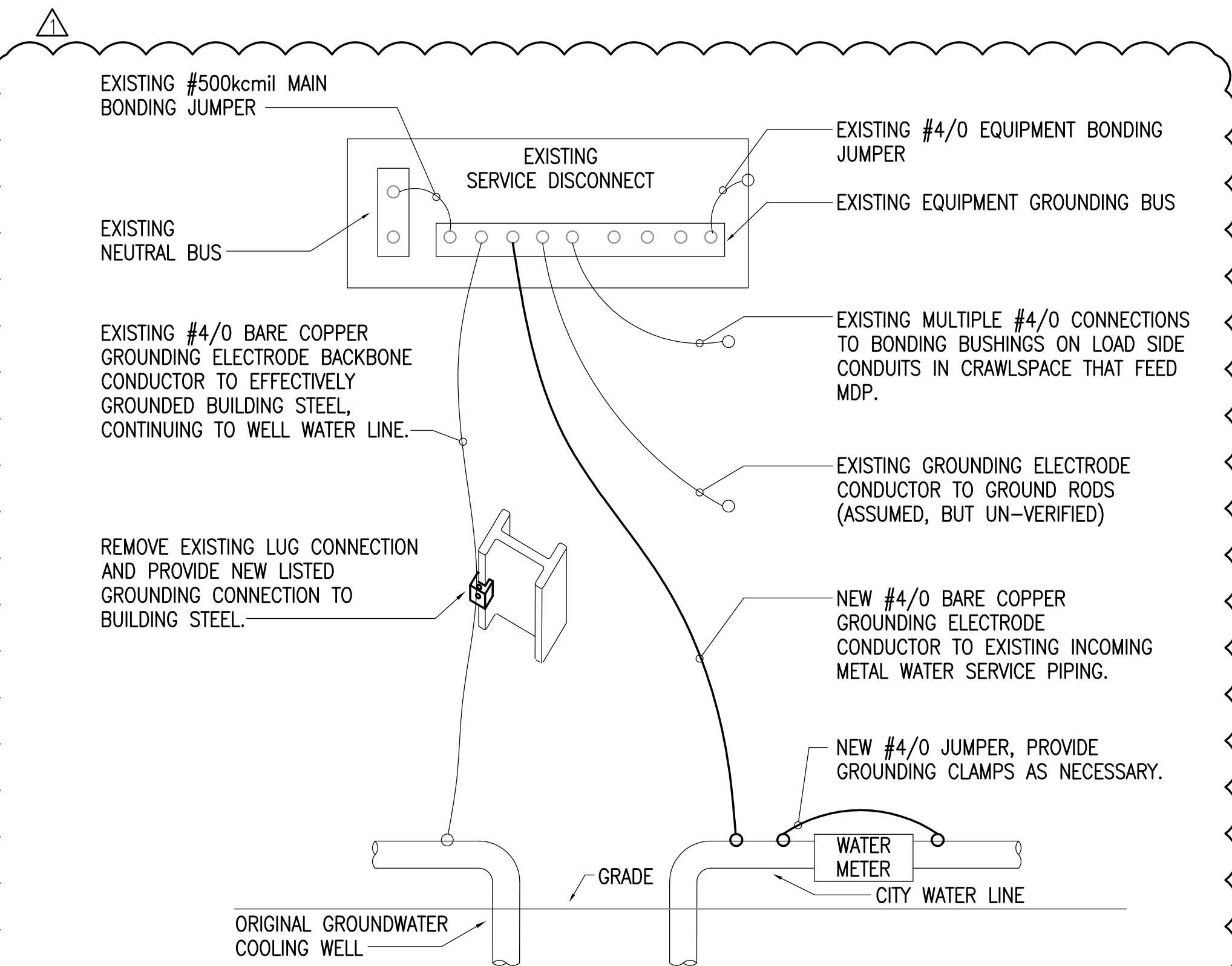
SHEET:
E0.2

GENERAL NOTES:

- THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALK THROUGH OF THE FACILITY. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.
- THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO A WAREHOUSE AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.
- DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.
- EXISTING ELECTRICAL SYSTEM HAS SEPARATE TRANSFER SWITCH THAT WOULD TYPICALLY BE USED IN EMERGENCY POWER APPLICATIONS BUT THIS IS NOT CONSIDERED AN EMERGENCY SYSTEM. ALL EXISTING EMERGENCY LIGHTS HAVE BATTERY BACKUP. NEW GENERATOR AND ASSOCIATED TRANSFER SWITCH ARE DESIGNED AS A STANDBY POWER SYSTEM. NO CHANGES REQUIRED FOR EMERGENCY LIGHTING.

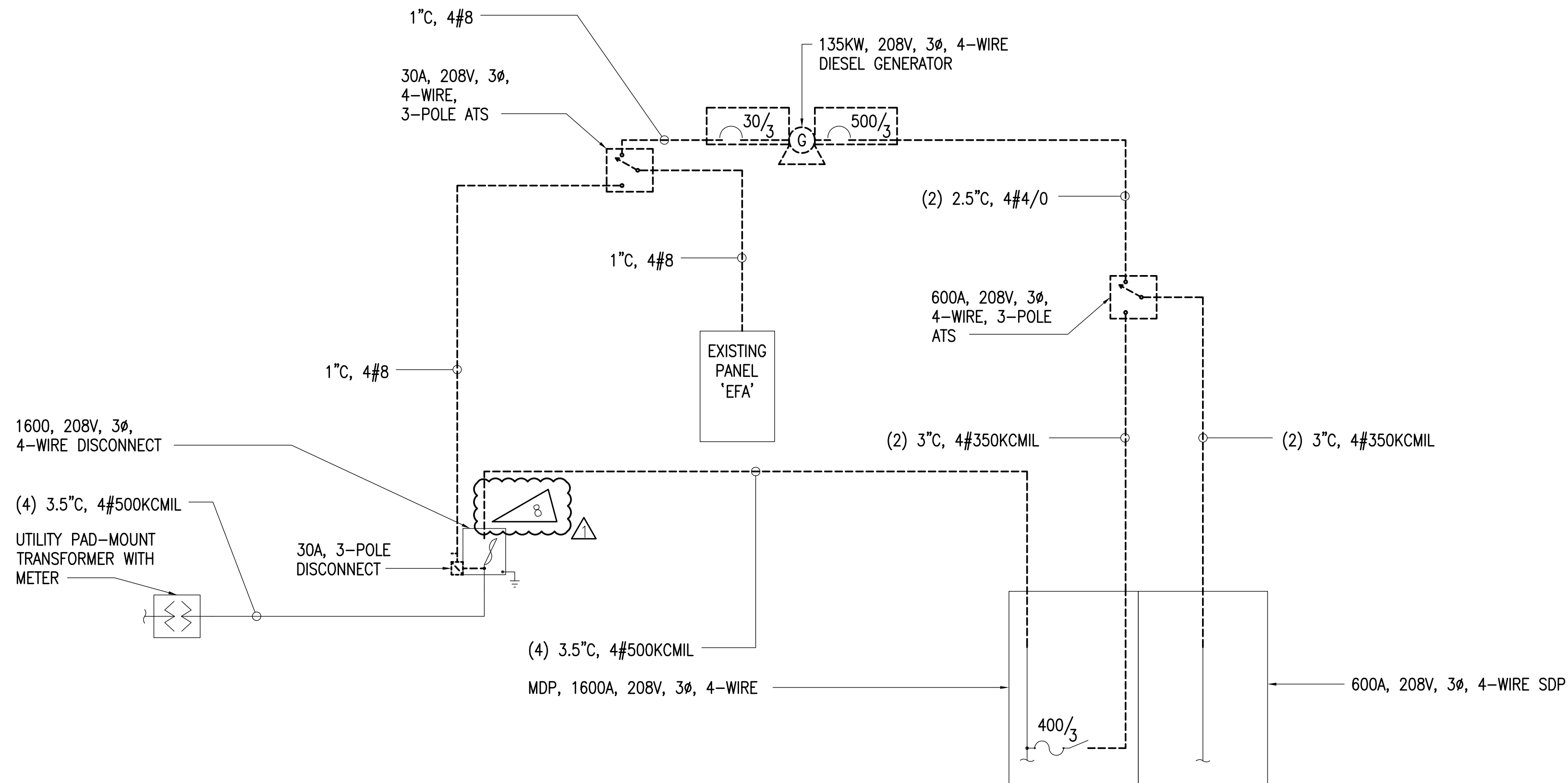
SHEET NOTES:

- INSTALL NEW FUSED DISCONNECT IN SPACE AVAILABLE IN THE EXISTING SWITCHGEAR. THE EXISTING SWITCHGEAR IS A WESTINGHOUSE MODEL FDP SWITCHGEAR, 120/208V, 3Ø, 4W, WITH A 1600A MAIN LUGS. THE NEW FUSED DISCONNECT SHALL BE COMPATIBLE WITH AND LISTED FOR USE IN THE EXISTING PANELBOARD AND SHALL HAVE A MINIMUM SHORT CIRCUIT AIC RATING TO MATCH THE LOWEST RATED EXISTING DEVICE IN THE PANEL.
- GENERATOR SHUNT TRIP DISCONNECT, SEE DETAIL 3/E3.1 AND 1/E2.1 FOR LOCATION.
- PROVIDE SHUNT-TRIP DEVICE FOR GENERATOR MOUNTED BREAKER.
- SEE GROUNDING DETAIL 4/E3.1.
- AT CONTRACTORS OPTION, EXISTING CONDUITS ROUTED WITHIN THE CRAWLSPACE TO EXISTING MDP MAY BE USED AS A PATHWAY FOR NEW FEEDERS, WHERE THEY ARE INSTALLED PER CURRENT NEC REQUIREMENTS.
- INSTALL NEW 1200A RATED FUSES IN EXISTING SERVICE DISCONNECT.
- SEE 3/E0.2 FOR SERVICE ENTRANCE GROUNDING DETAIL.
- IN CRAWLSPACE BELOW SERVICE DISCONNECT, TRIM BACK SHARP EDGES OF METAL PANDECKING AT FLOOR PENETRATION. INTENT IS TO PREVENT DAMAGE TO NEW CONDUCTORS WHEN INSTALLED.
- IN CRAWLSPACE BELOW DISCONNECT, INSTALL NEW SHEET METAL COVER OVER WALL OPENING INTO "VAULT" AREA. PROVIDE WARNING LABEL TO INDICATE "WARNING: ELECTRICAL HAZARD. AUTHORIZED PERSONNEL ONLY."



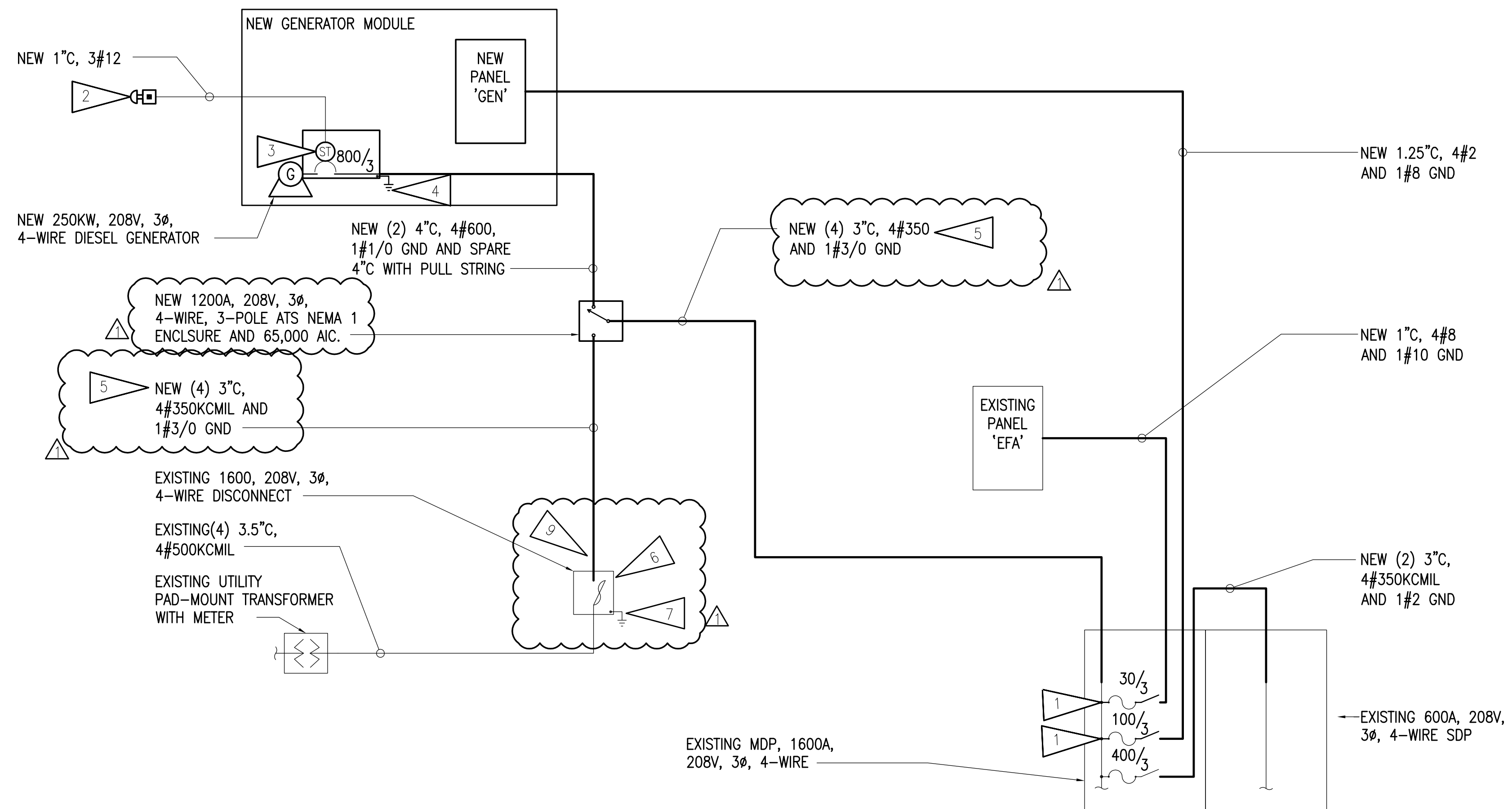
3 SERVICE ENTRANCE GROUNDING DETAIL

NO SCALE



1 EXISTING ONE-LINE DIAGRAM

NO SCALE



2 ONE-LINE DIAGRAM REMODEL

NO SCALE