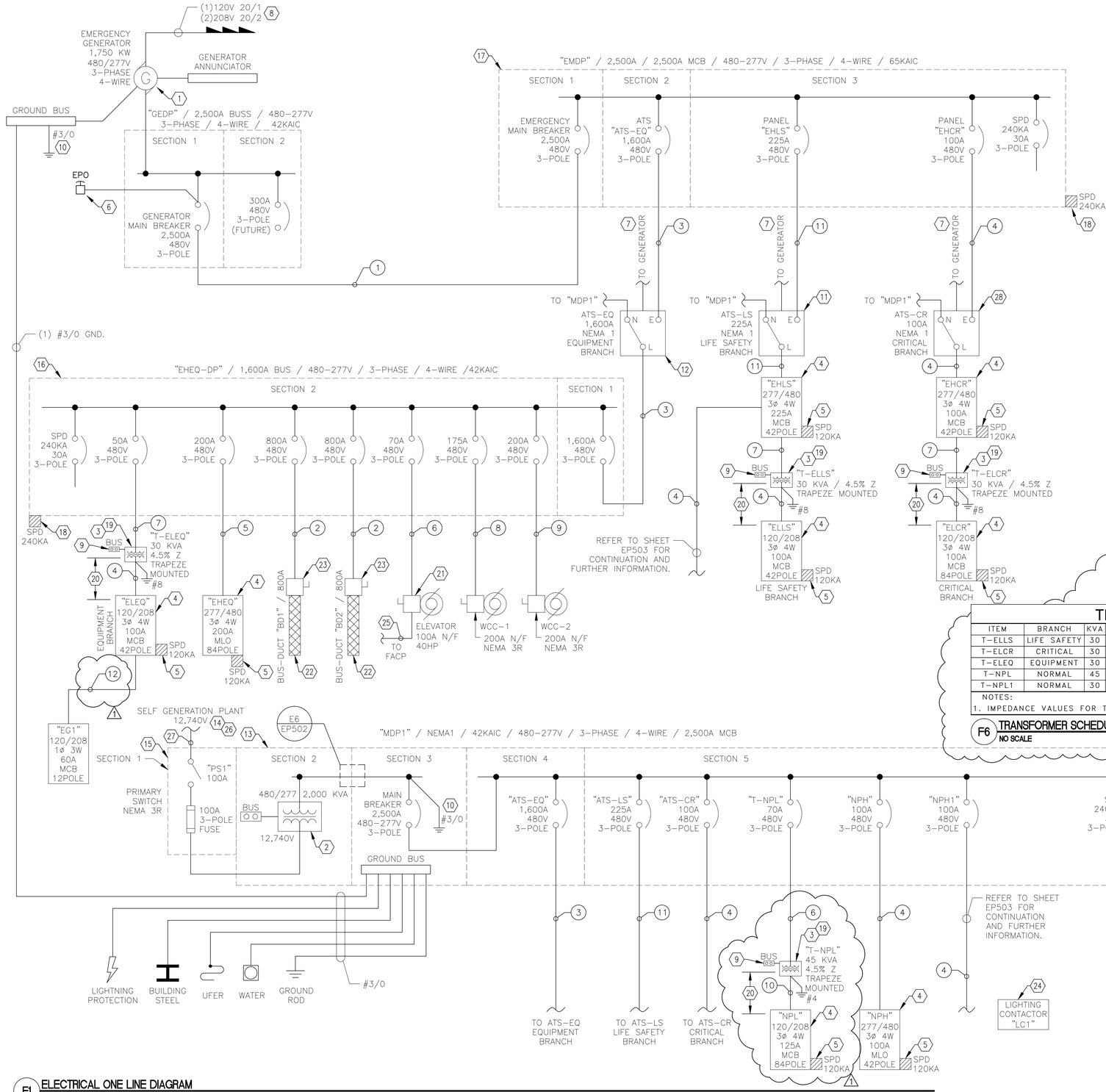


F1 ELECTRICAL ONE LINE DIAGRAM
NO SCALE

ELECTRICAL ONE LINE DIAGRAM GENERAL NOTES

A. REFER TO DWG. E-001 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES RELATED TO THIS SHEET.

B. PROVIDE NEMA 3R ENCLOSURES FOR ALL EQUIPMENT LOCATED OUTDOORS, REFER TO DRAWINGS FOR LOCATION OF EQUIPMENT.

C. REFER TO PLANS FOR PHYSICAL RESTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTSOF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT ARE WITHIN THE RESTRAINTS OF EACH SPECIFIC EQUIPMENT LOCATION.

D. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THIS PROJECT. REFER TO SPECIFICATIONS FOR REQUIREMENTS.

E. PROVIDE PERFORMANCE TESTING FOR GROUND FAULT PROTECTION SYSTEMS ON-SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER 2008 NEC 230.95.C

F. COORDINATE ALL OVERCURRENT DEVICES, SUBMIT THE CURRENT CURVES SHOWING COORDINATION. PROVIDE ARC FLASH LABELS WITH FLASH HAZARD VALUES AT 18" AND PROPER PPE DESIGNATION FOR EACH PANEL, DISTRIBUTION PANEL BOARD, ATS AND TRANSFORMER.

G. ALL BUSSING SHALL BE COPPER, ALUMINUM SHALL NOT BE ALLOWED.

H. ALL ELECTRICAL PANELS AND DISTRIBUTION PANEL BOARDS SHALL BE FULLY RATED, SERIES RATED SYSTEMS SHALL NOT BE PERMITTED.

I. IMPEDANCE VALUES FOR TRANSFORMERS SHALL BE 4.5%.

J. REFER TO TRANSFORMER SCHEDULE ON THIS SHEET FOR ADDITIONAL TRANSFORMER INFORMATION.

K. THE EMERGENCY GENERATOR AND THE AUTOMATIC TRANSFER SWITCHES SHALL BE FORM THE SAME MANUFACTURER.

L. CIRCUIT BREAKER IN "MDP1" SHALL BE "DRAW OUT" STYLE AND SHALL BE ACCESSIBLE FROM REAR OF "MDP1."

FEEDER SCHEDULE

ITEM	SETS	AMPS	CONDUIT SIZE	WIRE SIZE	GROUND SIZE
1	6	2,500	3"	4#600MCM	1#350MCM
2	3	800	4"	4#300MCM	1#1/0
3	4	1,600	4"	4#600MCM	1#4/0
4	1	100	1 1/4"	4#3	1#8
5	1	200	2"	4#3/0	1#6
6	1	70	1"	3#4	1#8
7	1	50	3/4"	3#8	1#10
8	1	175	2"	3#2/0	1#6
9	1	200	2"	3#3/0	1#6
10	1	125	2"	4#1	1#4
11	1	225	2"	4#4/0	1#4
12	1	60	1"	4#6	1#10

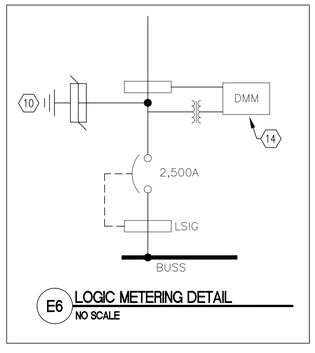
E7 FEEDER SCHEULE
NO SCALE

TRANSFORMER SCHEDULE

ITEM	BRANCH	KVA	PHASE	WIRE	TYPE	NEMA	MOUNTING	PRIMARY	SECONDARY	GROUND
T-ELLS	LIFE SAFETY	30	3	4	DRY	1	SUSPENDED	480	120-208	1#8
T-ELCR	CRITICAL	30	3	4	DRY	1	SUSPENDED	480	120-208	1#8
T-ELEQ	EQUIPMENT	30	3	4	DRY	1	SUSPENDED	480	120-208	1#8
T-NPL	NORMAL	45	3	4	DRY	1	SUSPENDED	480	120-208	1#4
T-NPL1	NORMAL	30	3	4	DRY	1	SUSPENDED	480	120-208	1#8

NOTES:
1. IMPEDANCE VALUES FOR TRANSFORMERS SHALL BE 4.5%

F6 TRANSFORMER SCHEDULE
NO SCALE



E6 LOGIC METERING DETAIL
NO SCALE

ELECTRICAL ONE LINE DIAGRAM NOTES

1. PROVIDE A 1750KW, 480-277 VOLT, 3-PHASE, 4-WIRE DIESEL EMERGENCY GENERATOR WITH WEATHER PROOF ENCLOSURE, GENERATOR ANNUNCIATOR, GROUND BUS, 2,500 AMP MAIN CIRCUIT BREAKER, 2,500 AMP BUS AND (1) 300 AMP 3-POLE SPARE CIRCUIT BREAKER.
2. PROVIDE A 2,000KVA 12,470 VOLT PRIMARY, 480-277 VOLT SECONDARY STEP DOWN TRANSFORMER IN NEMA 1 ENCLOSURE.
3. PROVIDE 30KVA DRY TYPE TRANSFORMER, 480 VOLT PRIMARY, 120-208 VOLT SECONDARY, SUSPENDED MOUNTED.
4. PROVIDE NEW ELECTRICAL PANEL AS INDICATED, REFER TO DRAWING EP601 FOR FURTHER INFORMATION.
5. PROVIDE SPD (SURGE PROTECTION DEVICE) 120KA MINIMUM, CONNECT TO 30/3 CIRCUIT BREAKER WITHIN PANEL BOARD.
6. PROVIDE EPO (EMERGENCY POWER OFF) BUTTON.
7. PROVIDE 1" EMPTY CONDUIT FROM GENERATOR TO AUTOMATIC TRANSFER SWITCH (ATS) FOR CONTROL WIRING, PROVIDE PULL STRINGS WITHIN THE EMPTY CONDUIT SYSTEM, THE GENERATOR VENDOR SHALL FURNISH WIRING AND THE ELECTRICAL CONTRACTOR SHALL TERMINATE WIRING.
8. 120 VOLT CIRCUIT FOR GENERATOR CONTROLS AND BATTERY CHARGER, CIRCUIT SHALL BE CONNECTED TO 20/1 CIRCUIT BREAKER AND (1) 208 VOLT CIRCUIT FOR BLOCK HEATER, CIRCUIT SHALL BE CONNECTED TO 20/2 CIRCUIT BREAKER.
9. PROVIDE GROUNDING TO BUSS BAR AS INDICATED, SEE DETAIL B6/EP501 FOR FURTHER INFORMATION.
10. PROVIDE MAIN GROUNDING ELECTRODE AS INDICATED, SEE DETAIL E6/EP501 FOR FURTHER INFORMATION.
11. PROVIDE AUTOMATIC TRANSFER SWITCH, (ATS) 480-277 VOLT, 225 AMP, 3-PHASE, 4-WIRE, 4-POLE, NEMA 1 ENCLOSURE.
12. PROVIDE AUTOMATIC TRANSFER SWITCH (ATS) 480-277 VOLT, 1,600 AMP, 3-PHASE, 4-WIRE, 4-POLE, NEMA 1 ENCLOSURE.
13. PROVIDE 2,500 AMP SUB-STATION DISTRIBUTION PANEL BOARD. BUS SHALL BE RATED FOR 2,500 AMPS, 480-277 VOLT, 2,500 AMP MAIN CIRCUIT BREAKER, 3-PHASE, 4-WIRE, 42KAIC.
14. PROVIDE DIGITAL LOGIC METERING MANUFACTURED BY SCHNEIDER ELECTRIC TO TIE INTO THE CAMPUS LOOP SYSTEM.
15. PROVIDE PRIMARY SWITCH "PS1" AS INDICATED. "PS1" SHALL BE 15.0 KV RATED SWITCH, FUSE SHALL BE 3-PHASE CURRENT LIMITING AND FURNISHED WITH UNIT. (3) 100 AMP FUSES 42KAIC.
16. PROVIDE "EHEQ-DP" AS INDICATED. "EHEQ-DP" SHALL HAVE 1,600 AMP BUS WITH 1,600 AMP MAIN CIRCUIT BREAKER. 480 VOLT, 3-PHASE, 4-WIRE, 42KAIC.
17. PROVIDE "EMDP" AS INDICATED. "EMDP" SHALL HAVE 2,500 AMP BUS WITH 2,500 AMP MAIN CIRCUIT BREAKER. 480-277 VOLT, 3-PHASE, 4-WIRE, 42KAIC.
18. PROVIDE SPD (SURGE PROTECTION DEVICE). SPD SHALL BE 240KA MINIMUM. CONNECT TO 30/3 CIRCUIT BREAKER IN PANEL.
19. PROVIDE SEPARATELY DERIVED GROUNDING ELECTRODE. SEE DETAIL D8/EP501 FOR FURTHER INFORMATION.
20. MOUNT TRANSFORMER DIRECTLY ABOVE ELECTRICAL PANEL. FEEDER CONDUCTORS SHALL NOT EXCEED 10'-0" IN LENGTH AS MEASURED FROM TERMINATION IN TRANSFORMER TO TERMINATION IN ELECTRICAL PANEL. SEE DETAIL C1/EP501 FOR FURTHER INFORMATION.
21. PROVIDE 100 AMP, NEMA 1, 480 VOLT, 3-PHASE DISCONNECT SWITCH WITH SHUNT TRIP FOR MOTOR LOCATED IN ELEVATOR PIT.
22. PROVIDE 800 AMP, 480 VOLT, 3-PHASE, 4-WIRE BUS DUCT AS INDICATED. REFER TO SHEET EP102 FOR FURTHER INFORMATION.
23. PROVIDE 800 AMP, 480 VOLT, 3PHASE, 4-WIRE NEMA 1 DISCONNECT SWITCH FUSED WITH (3) 800 AMP FUSES.
24. PROVIDE NEMA 1, 277 VOLT CONTACTOR WITH 120 VOLT ELECTRICALLY HELD COIL. REFER TO SHEET EL501 FOR FURTHER INFORMATION.
25. ROUTE CIRCUITING TO FIRE ALARM CONTROL PANEL (FACP) AND CONNECT TO FIRE ALARM SYSTEM.
26. REFER TO SHEET ES102 FOR FURTHER INFORMATION IN THIS AREA.
27. WIRING TYPE AND INSULATION SHALL MATCH EXISTING BUILDING STANDARDS.
28. PROVIDE AUTOMATIC TRANSFER SWITCH, (ATS) 480-277 VOLT, 100 AMP, 3-PHASE, 4-WIRE, 4-POLE, NEMA 1 ENCLOSURE.

FULLY SPRINKLERED
BID DOCUMENT SUBMITTAL
FOR CONSTRUCTION

Revisions:	Date
1 AMENDMENT #002	04/18/17

ARCHITECT/ENGINEERS:
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Drawing Title: ELECTRICAL ONE LINE DIAGRAM
Approved: Project Director
Project Title: GENOMIC LAB ADDITION BUILDING 2
Location: GEORGE E. WAHLEN VAMC 500 FOOTHILL DRIVE, SALT LAKE CITY, UT 84148
Date: 04-07-16 | Checked: WLM | Drawn: MMF
Project Number: 660-334
Building Number: 2
Drawing Number: EP502

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