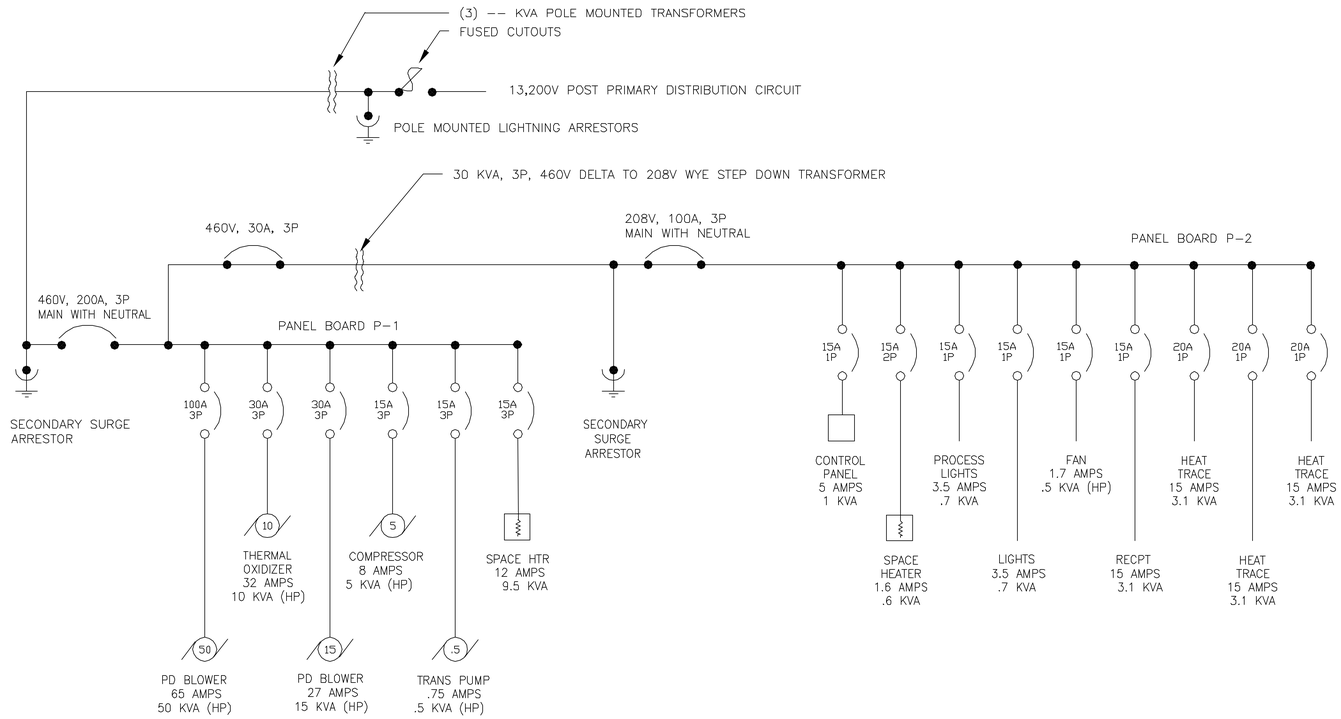
| PANEL BOARD SCHEDULE P-1 | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SYSTEM: 460 VOLTS, 3 PH, 3WIRE, 60 HZ | | | | | | | | | | MAIN BREAKER: 200 AMPS 3 POLE; BUS-200A | | | | | | | | |
| LOCATION: INDOOR NEMA 12 ENCLOSURE | | | | | | | | | | TOTAL PANEL: CONNECTED LOAD 120 KVA 3PH | | | | | | | | |
| NO. | DESCRIPTION | LOAD (KVA) | | | BKR AMPS | COND'S & CONDUIT | FT | PHASE | | | FT | COND'S & CONDUIT | BKR AMPS | LOAD (KVA) | | | DESCRIPTION | NO. |
| | | A | B | C | | | | | | | | | | A | B | C | | |
| 1 | 50 Hp | 50 | | | 100 | (3) #8 + #6G IN 1"C | | A | | | | (3) #8 + #8G IN 1"C | 30 | 10 | | | CATOX | 2 |
| 3 | PD BLOWER | | 50 | | | | | | B | | | | | | 10 | | | 4 |
| 5 | (MPE) | | | 50 | | | | | | C | | | | | | 10 | | 6 |
| 7 | 15 Hp | 15 | | | 30 | | | A | | | | | 30 | 10 | | | TRANSFORMER | 8 |
| 9 | PD BLOWER | | 15 | | | | | | B | | | | | | 10 | | | 10 |
| 11 | (SPARGING) | | | 15 | | | | | | C | | | | | | 10 | | 12 |
| 13 | .5 Hp | .5 | | | 15 | | | A | | | | | 15 | 9.5 | | | PROCESS ROOM HEAT | 14 |
| 15 | TRANSFER | | .5 | | | | | | B | | | | | | 9.5 | | | 16 |
| 17 | PUMP | | | .5 | | | | | | C | | | | | | 9.5 | | 18 |
| 19 | 5 Hp | 5 | | | 15 | | | A | | | | | | | | | OPEN | 20 |
| 21 | COMPRESSOR | | 5 | | | | | | B | | | | | | | | | 22 |
| 23 | | | | 5 | | | | | | C | | | | | | | | 24 |
| | | 70.5 | 70.5 | 70.5 | CONNECTED LOAD | | | | | CONNECTED LOAD | | | | 29.5 | 29.5 | 29.5 | | |

SERVICE ENTRANCE DESIGN LOAD (PER NEC):
76 KVA x 1.25 = 95 KVA + 20 + 5
AMPS @ 120 KVA & 460 VOLTS 3 PHASE:

$$\frac{120 \times 1000}{460 \times 1.732} = 150 \text{ AMPS}$$

000 (CU) TYPE SERVICE LATERAL CABLE RATED FOR
200 AMPS W/THWN (75 DEGREES C) INSULATION
TO ALLOW FOR FUTURE GROWTH




## ELECTRICAL ONE-LINE DIAGRAM

| PANEL BOARD SCHEDULE P-2 | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SYSTEM: 208 VOLTS, 3 PH, 4WIRE, 60 HZ | | | | | | | | | | MAIN BREAKER: 100 AMPS 3 POLE; BUS-200A | | | | | | | | |
| LOCATION: INDOOR NEMA 12 ENCLOSURE | | | | | | | | | | TOTAL PANEL: 25 KVA 3PH | | | | | | | | |
| NO. | DESCRIPTION | LOAD (KVA) | | | BKR AMPS | COND'S & CONDUIT | FT | PHASE | | | FT | COND'S & CONDUIT | BKR AMPS | LOAD (KVA) | | | DESCRIPTION | NO. |
| | | A | B | C | | | | | | | | | | A | B | C | | |
| 1 | PLC CONTROL PNL | 1 | | | 15 | | | A | | | | | 15 | .7 | | | ELEC. RM. LIGHTS | 2 |
| 3 | RECEPTACLES | | 3.1 | | 15 | | | | B | | | | 15 | | .5 | | ELEC. RM. FAN | 4 |
| 5 | ELEC. RM. HEATER | .6 | | | 15 | | | | | C | | | 15 | .7 | | | PROCESS LIGHTS | 6 |
| 7 | | | .6 | | 15 | | | A | | | | | 20 | 3.1 | | | HEAT TRACE | 8 |
| 9 | | | | | | | | | B | | | | 20 | 3.1 | | | | 10 |
| 11 | | | | | | | | | | C | | | 20 | 3.1 | | | | 12 |
| 13 | | | | | | | | | | | | | | | | | | 14 |
| 15 | | | | | | | | | | | | | | | | | | 16 |
| 17 | | | | | | | | | | | | | | | | | | 18 |
| 19 | | | | | | | | | | | | | | | | | | 20 |
| 21 | | | | | | | | | | | | | | | | | | 22 |
| 23 | | | | | | | | | | | | | | | | | | 24 |
| | | 1.6 | 3.7 | 0 | CONNECTED LOAD | | | | | CONNECTED LOAD | | | | 10.7 | .5 | 0 | | |

FEEDER DESIGN LOAD (PER NEC):
10 KVA x 1.25 = 12.5 KVA+5+2.3
AMPS @ 19.8 KVA & 208 VOLTS 3 PHASE:

$$\frac{20 \times 1000}{208 \times 1.732} = 54 \text{ AMPS}$$

#3 (CU) SECONDARY SERVICE LATERAL TO P-2 RATED FOR
100 AMPS W/THWN (75 DEGREES C) INSULATION
TO ALLOW FOR FUTURE GROWTH

## GENERAL ELECTRICAL NOTE

1. ELECTRICAL INSTALLATIONS CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE: NFPA-70, AND ALL CODES AND REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION. ALL MATERIALS AND EQUIPMENT ARE LISTED BY UNDERWRITERS LABORATORIES OR OTHERWISE ARE INDEPENDENTLY CERTIFIED TO BE SAFE FOR THEIR INTENDED USE.
2. INTERIOR PANEL BOARD, MOTOR CONTROLLERS AND CONTROL PANEL ARE NEMA 12 RATED IN NON CLASSIFIED AREAS.
3. #4 BARE COPPER DIRECT-BURIED GROUNDING RING IS INSTALLED AROUND BUILDING SITE. BOND TO (4) SUBSURFACE 10 FT GROUNDING RODS. MAX FALL-OF-POTENTIAL GROUND RESISTANCE 5 OHMS. EMBEDDED #4 COPPER GROUNDING CONDUCTORS FROM GROUNDING RING TO ALL METALLIC MECHANICAL EQUIPMENT, FENCING, BUILDING STEEL, ETC. ALL FITTINGS ARE CAD WELDED.
4. REFER TO FIGURES M5 - M8 FOR PROCESS & INSTRUMENTATION DIAGRAMS. POWER AND SIGNAL WIRING IN 0.75 IN. GALVANIZED RIGID OR IMC CONDUIT (0.75 IN. MIN) INSTALLED AS REQUIRED BY MANUFACTURERS INSTRUCTIONS.
5. ONLY LIGHTING, RECEPTACLES, AND BUILDING HVAC EQUIPMENT & CONDUIT ARE SUPPORTED BY THE BUILDING STRUCTURE. POWER, CONTROL & INSTRUMENTATION MUST BE SUPPORTED INDEPENDENTLY. (SUPPORTED FROM THE FLOOR OR EMBEDDED IN CONCRETE).
6. ALL ELECTRICAL CABLE & CONDUIT IS COORDINATED WITH MECHANICAL EQUIPMENT AND PIPING TO ELIMINATE INTERFERENCE & PROVIDE FOR SERVICING.
7. ALL INTERIOR PORTIONS OF THE BUILDING & UNDERGROUND SOIL AREAS ARE CLASS 1, DIVISION 2, GROUP D HAZARDOUS (CLASSIFIED) AREAS AS DEFINED IN NFPA-70. ALL REQUIRED EXPLOSION-PROOF ENCLOSURES, SEALS, AND REQUIREMENTS HAVE BEEN MET.
8. HAND-OFF-AUTOMATIC SWITCHES ARE ON ALL MOTOR CONTROLLERS, AND 3 PHASE UNDER VOLTAGE AND PHASE LOSS PROTECTION.
9. ALL WIRING ISE 75 DEGREE CELSIUS RATED THWN CONDUCTORS OR EQUIVALENT IN RIGID GALVANIZED CONDUIT OR IMC (0.75 IN. MIN) EXCEPT AS OTHERWISE INDICATED.

FINAL AS-BUILT

US Army Corps of Engineers

U.S. ARMY ENGINEER DISTRICT, BALTIMORE
CORPS OF ENGINEERS
BALTIMORE, MARYLAND

SOURCE AREA REMEDIAL SYSTEM
GASOLINE ALLEY AREAS 3805 & 1995
FORT DRUM, NEW YORK

TREATMENT SYSTEM A
ELECTRICAL PLAN

EA ENGINEERING, P.C.

| DRAWING NUMBER | PLATE |
|---|---|
| N/A | E-1 |

SCALE: AS NOTED | DATE: SEPT. 2004 | SHEET 1

DRAWING NAME: \\Shrapnel\Projects\Working Projects\Fort Drum Projects\MMC\Design\drawings from boston\working design drawings\E-2.dwg
LAYOUT: E-2 MODEL: E-2 PLOTTED BY: Brian Bombardier