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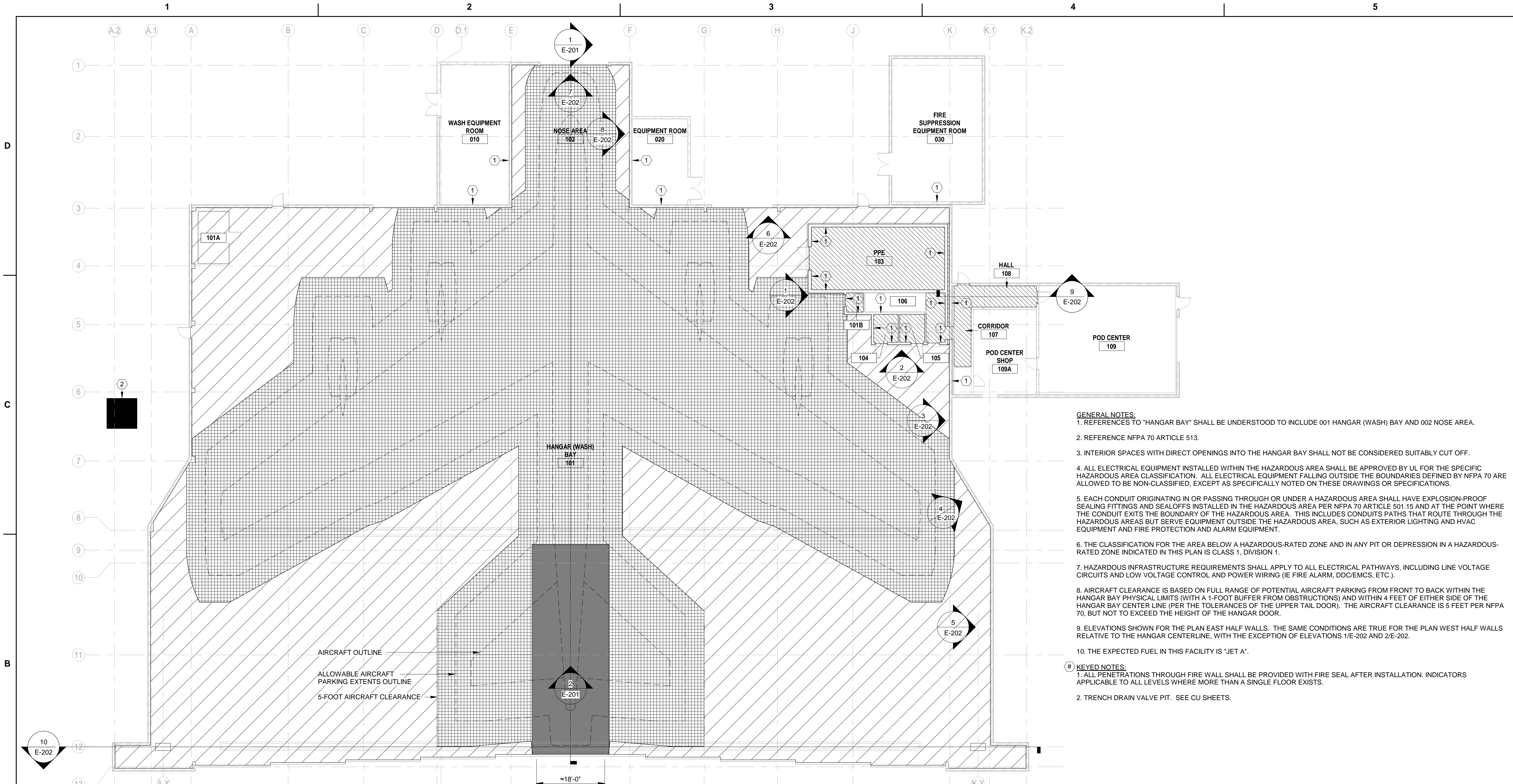
DESIGNED BY: SLINDREN	ISSUE DATE: 02/19/2020
CHECKED BY: S. OTT	SOLICITATION NO.: 91286-20R-0026
SUBMITTED BY: STEVEN L. OTT, P.E.	PROJECT NO.:
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FILE NAME:	

US ARMY CORPS OF ENGINEERS  
OMAHA DISTRICT  
1616 CAPITOL AVE  
OMAHA, NE 68102

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

**ELECTRICAL ENVIRONMENTAL CLASSIFICATION PLAN**

**SHEET ID**  
**E-101**

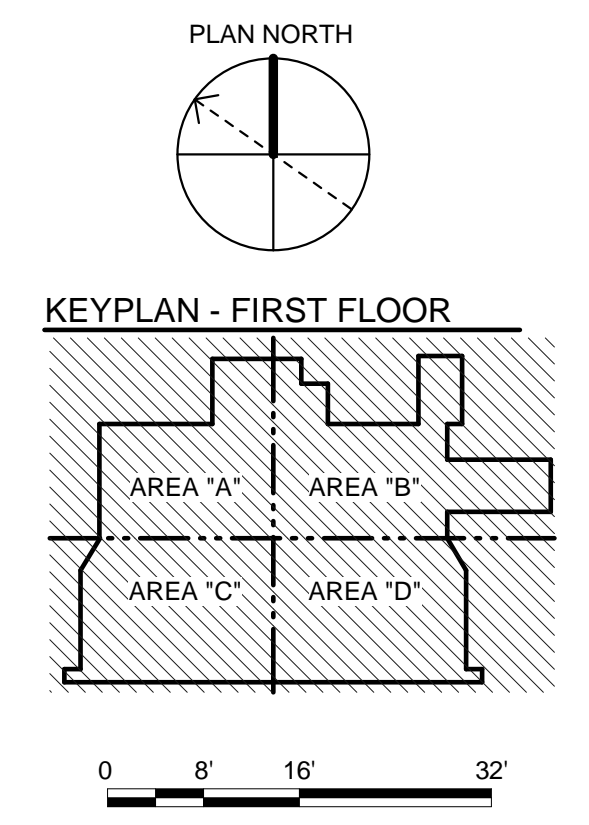


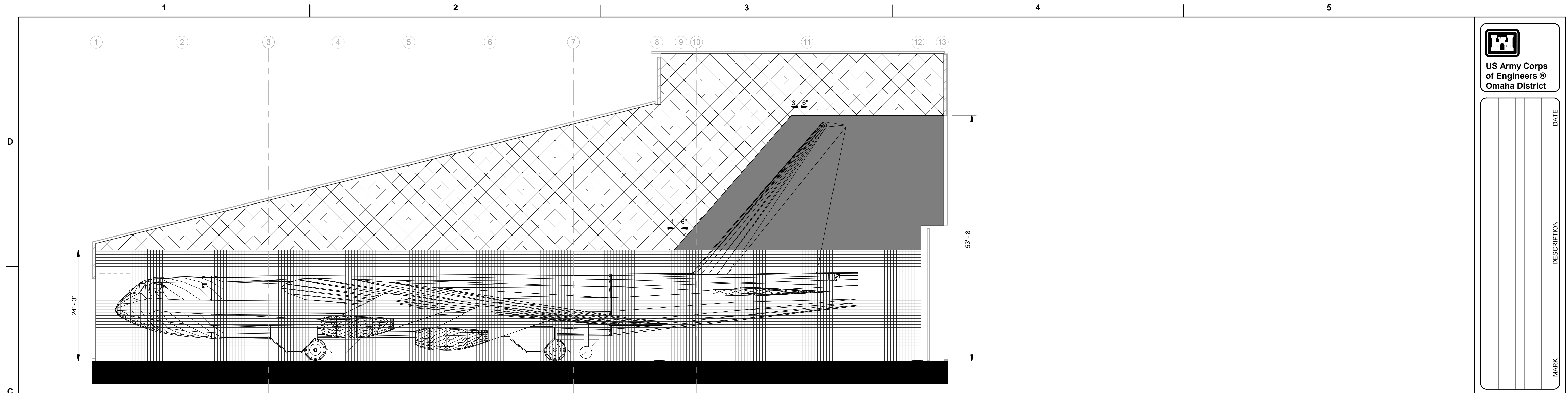
- GENERAL NOTES:**
1. REFERENCES TO "HANGAR BAY" SHALL BE UNDERSTOOD TO INCLUDE 001 HANGAR (WASH) BAY AND 002 NOSE AREA.
  2. REFERENCE NFPA 70 ARTICLE 513.
  3. INTERIOR SPACES WITH DIRECT OPENINGS INTO THE HANGAR BAY SHALL NOT BE CONSIDERED SUITABLY CUT OFF.
  4. ALL ELECTRICAL EQUIPMENT INSTALLED WITHIN THE HAZARDOUS AREA SHALL BE APPROVED BY UL FOR THE SPECIFIC HAZARDOUS AREA CLASSIFICATION. ALL ELECTRICAL EQUIPMENT FALLING OUTSIDE THE BOUNDARIES DEFINED BY NFPA 70 ARE ALLOWED TO BE NON-CLASSIFIED, EXCEPT AS SPECIFICALLY NOTED ON THESE DRAWINGS OR SPECIFICATIONS.
  5. EACH CONDUIT ORIGINATING IN OR PASSING THROUGH OR UNDER A HAZARDOUS AREA SHALL HAVE EXPLOSION-PROOF SEALING FITTINGS AND SEALOFFS INSTALLED IN THE HAZARDOUS AREA PER NFPA 70 ARTICLE 501.15 AND AT THE POINT WHERE THE CONDUIT EXITS THE BOUNDARY OF THE HAZARDOUS AREA. THIS INCLUDES CONDUIT PATHS THAT ROUTE THROUGH THE HAZARDOUS AREAS BUT SERVE EQUIPMENT OUTSIDE THE HAZARDOUS AREA, SUCH AS EXTERIOR LIGHTING AND HVAC EQUIPMENT AND FIRE PROTECTION AND ALARM EQUIPMENT.
  6. THE CLASSIFICATION FOR THE AREA BELOW A HAZARDOUS-RATED ZONE AND IN ANY PIT OR DEPRESSION IN A HAZARDOUS-RATED ZONE INDICATED IN THIS PLAN IS CLASS 1, DIVISION 1.
  7. HAZARDOUS INFRASTRUCTURE REQUIREMENTS SHALL APPLY TO ALL ELECTRICAL PATHWAYS, INCLUDING LINE VOLTAGE CIRCUITS AND LOW VOLTAGE CONTROL AND POWER WIRING (IE FIRE ALARM, DDC/EMCS, ETC.).
  8. AIRCRAFT CLEARANCE IS BASED ON FULL RANGE OF POTENTIAL AIRCRAFT PARKING FROM FRONT TO BACK WITHIN THE HANGAR BAY PHYSICAL LIMITS (WITH A 1-FOOT BUFFER FROM OBSTRUCTIONS) AND WITHIN 4 FEET OF EITHER SIDE OF THE HANGAR BAY CENTER LINE (PER THE TOLERANCES OF THE UPPER TAIL DOOR). THE AIRCRAFT CLEARANCE IS 5 FEET PER NFPA 70, BUT NOT TO EXCEED THE HEIGHT OF THE HANGAR DOOR.
  9. ELEVATIONS SHOWN FOR THE PLAN EAST HALF WALLS. THE SAME CONDITIONS ARE TRUE FOR THE PLAN WEST HALF WALLS RELATIVE TO THE HANGAR CENTERLINE, WITH THE EXCEPTION OF ELEVATIONS 1/E-202 AND 2/E-202.
  10. THE EXPECTED FUEL IN THIS FACILITY IS "JET A".
- # KEYED NOTES:**
1. ALL PENETRATIONS THROUGH FIRE WALL SHALL BE PROVIDED WITH FIRE SEAL AFTER INSTALLATION. INDICATORS APPLICABLE TO ALL LEVELS WHERE MORE THAN A SINGLE FLOOR EXISTS.
  2. TRENCH DRAIN VALVE PIT. SEE CU SHEETS.

**1 ELECTRICAL ENVIRONMENTAL CLASSIFICATION PLAN**  
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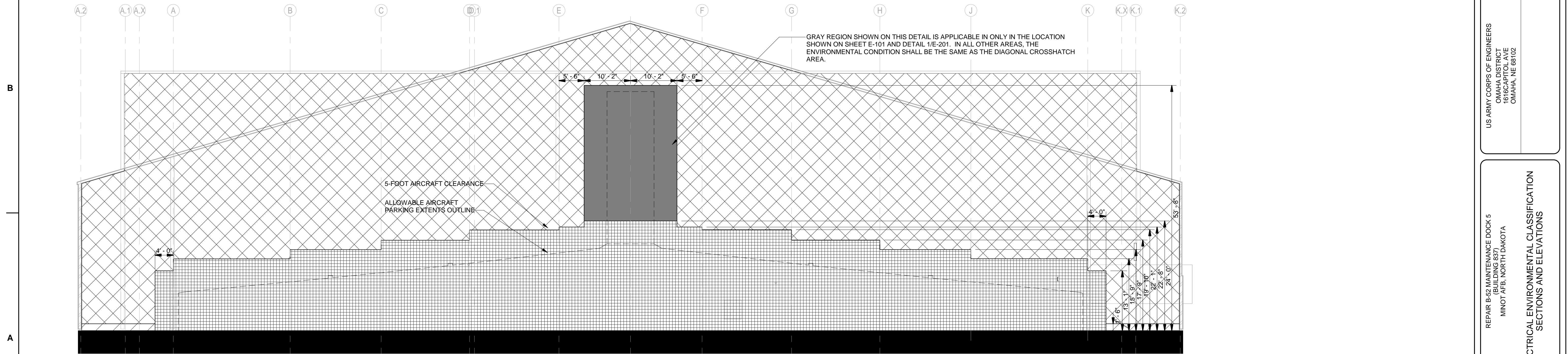
**HAZARDOUS ZONE IDENTIFICATION LEGEND**

- NOT RATED.
- ▨ CLASS I, DIVISION 2, GROUPS C & D FROM THE FLOOR UP TO 18" AFF, PLUS ANY WALL-MOUNTED RECEPTACLES SHALL BE CLASS I, DIVISION 2, GROUPS C & D. ADDITIONALLY, ALL SPACES IN THE HATCHED AREAS BELOW THE FLOOR SHALL BE CLASSIFIED AS CLASS I DIVISION I GROUP D (T2D). ENCLOSURES IN THIS ZONE (INCLUDING PARTIALLY IN THIS ZONE) SHALL BE MINIMUM NEMA ICS TYPE 4 RATING UP TO THE UNDERSIDE OF THE ROOF, IN ADDITION TO THE HAZARDOUS REQUIREMENTS. USE THREADED GALVANIZED RIGID STEEL CONDUIT PER UFC 4-211-01 UNLESS OTHERWISE INDICATED.
- ▩ CLASS I, DIVISION 2, GROUPS C & D FROM THE FLOOR UP TO THE HEIGHT OF THE HANGAR TAIL DOOR. SEE E-201 SECTIONS AND ELEVATIONS FOR APPLICABILITY ABOVE THE FUSELAGE CLEARANCE. ADDITIONALLY, ALL SPACES IN THE HATCHED AREAS BELOW THE FLOOR SHALL BE CLASSIFIED AS CLASS I DIVISION I GROUP D (T2D). ENCLOSURES IN THIS ZONE (INCLUDING PARTIALLY IN THIS ZONE) SHALL BE MINIMUM NEMA ICS TYPE 4 RATING UP TO THE UNDERSIDE OF THE ROOF, IN ADDITION TO THE HAZARDOUS REQUIREMENTS. SEE ELEVATIONS AND/OR SECTIONS FOR DISTANCE AFF FOR WHICH THE HAZARDOUS ZONE APPLIES. USE THREADED GALVANIZED RIGID STEEL CONDUIT PER UFC 4-211-01 UNLESS OTHERWISE INDICATED.
- ▧ CLASS I, DIVISION 2, GROUPS C & D FROM THE FLOOR TO ALL AREAS WITHIN 5 FEET OF THE AIRCRAFT. ADDITIONALLY, ALL SPACES IN THE HATCHED AREAS BELOW THE FLOOR SHALL BE CLASSIFIED AS CLASS I DIVISION I GROUP D (T2D). ENCLOSURES IN THIS ZONE (INCLUDING PARTIALLY IN THIS ZONE) SHALL BE MINIMUM NEMA ICS TYPE 4 RATING UP TO THE UNDERSIDE OF THE ROOF, IN ADDITION TO THE HAZARDOUS REQUIREMENTS. SEE ELEVATIONS AND/OR SECTIONS FOR DISTANCE AFF FOR WHICH THE HAZARDOUS ZONE APPLIES. USE THREADED GALVANIZED RIGID STEEL CONDUIT PER UFC 4-211-01 UNLESS OTHERWISE INDICATED.
- ▦ CLASS I, DIVISION 2, GROUPS C & D FROM THE FLOOR UP TO 18" AFF FOR ANY ADJACENT AND COMMUNICATING AREAS NOT SUITABLY CUT OFF FROM THE HANGAR BAY. ENCLOSURES IN THIS ZONE (INCLUDING PARTIALLY IN THIS ZONE) SHALL BE RATED FOR THE HAZARDOUS CONDITION. ENCLOSURES FULLY ABOVE THIS ZONE NEED NOT BE RATED FOR THE HAZARDOUS CONDITION. "SUITABLY CUT OFF" REQUIRES TWO NORMALLY CLOSED (SELF-CLOSING) DOORS IN SERIES WITH A MINIMUM SEPARATION OF 5 FEET.
- AREAS BELOW THE HANGAR FLOOR/GRADE SHALL BE CLASSIFIED AS CLASS I DIVISION I GROUP D (T2D). ENCLOSURES IN THIS ZONE (INCLUDING PARTIALLY IN THIS ZONE) SHALL BE MINIMUM NEMA ICS TYPE 4 RATING, IN ADDITION TO THE HAZARDOUS REQUIREMENTS. DEVICES LOCATED IN THE TRENCH DRAIN SHALL BE NEMA ICS TYPE 8. USE THREADED GALVANIZED RIGID STEEL CONDUIT PER UFC 4-211-01 UNLESS OTHERWISE INDICATED.
- ▤ WEATHERPROOF, MINIMUM NEMA ICS TYPE 4 RATING. USE GALVANIZED RIGID STEEL CONDUIT PER UFC 4-211-01 UNLESS OTHERWISE INDICATED.





**1** **GENERIC ENVIRONMENTAL CONDITION - CENTERLINE SECTION**  
 E-201 3/32" = 1'-0"



**2** **GENERIC ENVIRONMENTAL CONDITION - LATERAL ELEVATION**  
 E-201 3/32" = 1'-0"

HAZARDOUS ZONE IDENTIFICATION LEGEND  
 SEE SHEET E-101.



US Army Corps  
 of Engineers ©  
 Omaha District

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US ARMY CORPS OF ENGINEERS  
 OMAHA DISTRICT  
 1616 CAPITOL AVE  
 OMAHA, NE 68102

REPAIR B-52 MAINTENANCE DOCK 5  
 (BUILDING 837)  
 MINOT AFB, NORTH DAKOTA

**ELECTRICAL ENVIRONMENTAL CLASSIFICATION  
 SECTIONS AND ELEVATIONS**

**SHEET ID**  
**E-201**











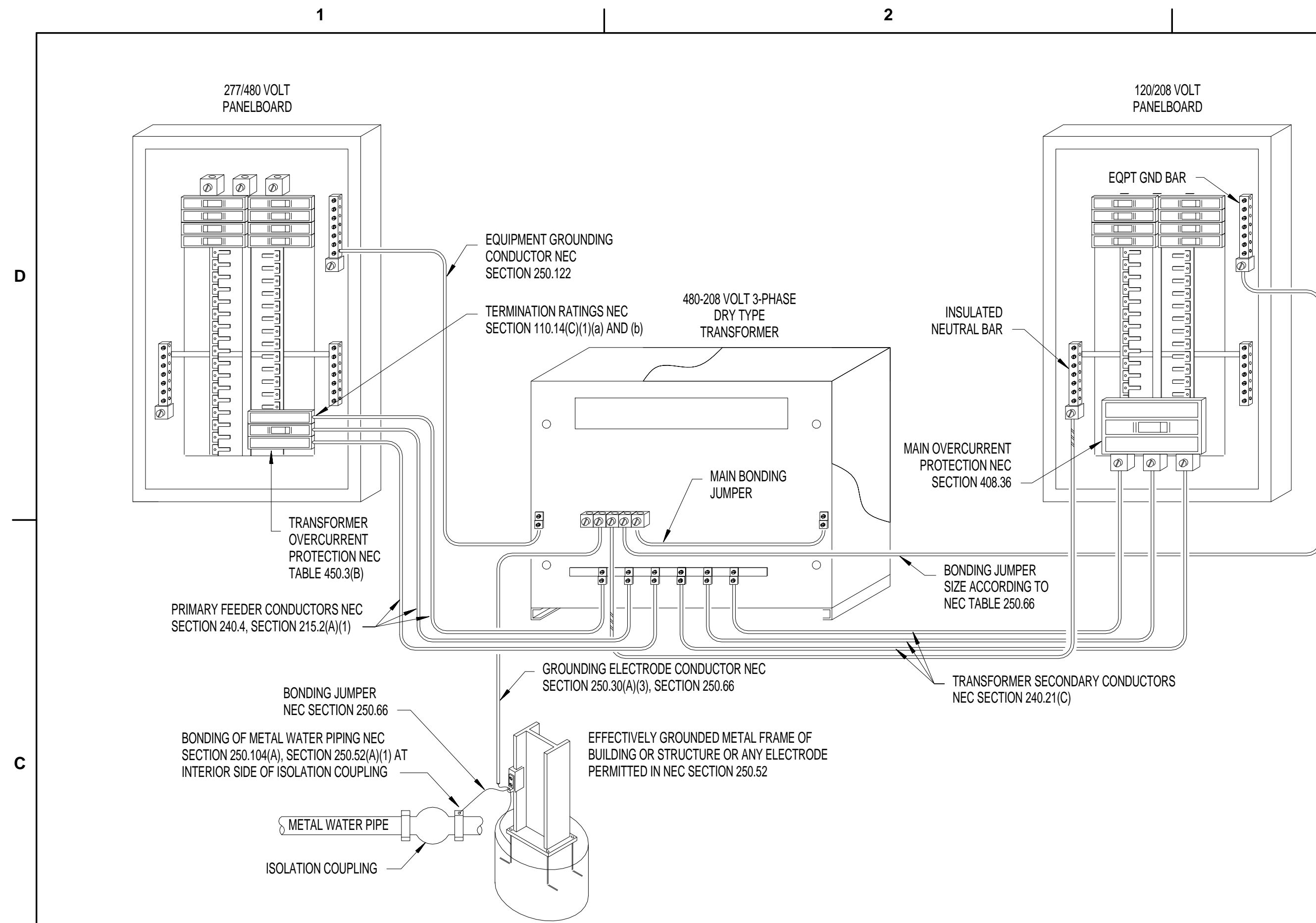






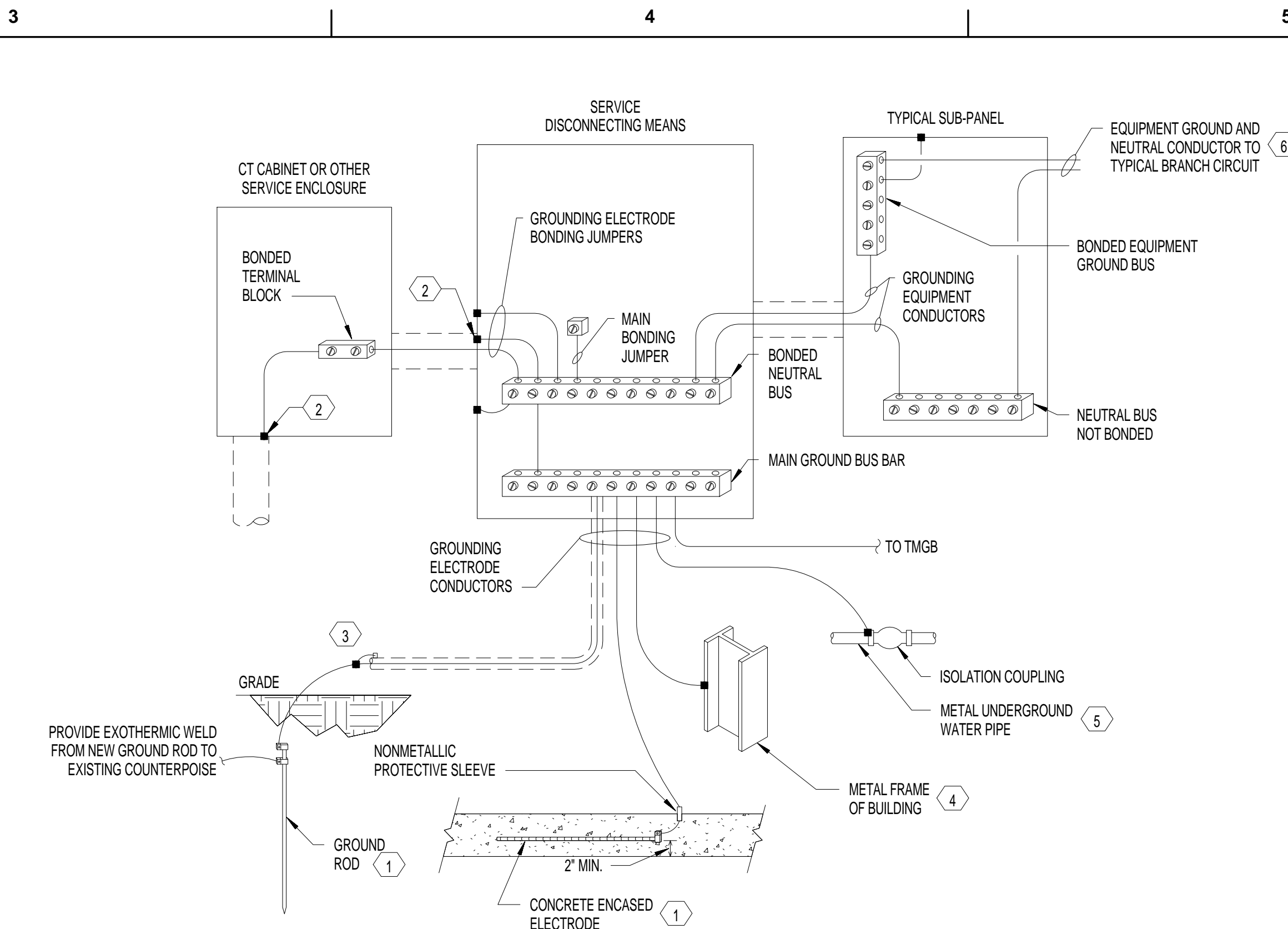






### SEPARATELY DERIVED SYSTEM AND EQUIPMENT GROUND CONNECTIONS DETAIL

1  
EG503  
N.T.S.



### KEYED NOTES:

1. PROVIDE SUPPLEMENTAL GROUNDING ELECTRODE PER NFPA 70: NATIONAL ELECTRICAL CODE (NEC) AND BOND ALL AVAILABLE GROUNDING ELECTRODES IN THE BUILDING OR STRUCTURE TO FORM THE GROUNDING ELECTRODE SYSTEM PER NEC. THIS SUPPLEMENTAL ELECTRODE SHALL INCLUDE EITHER A 10'-0" x 3/4" COPPER CLAD GROUND ROD FOR AN EXTERIOR MAIN SERVICE ENTRANCE DISCONNECT, OR A MINIMUM OF 20 FEET OF 1/2" OR LARGER CONCRETE ENCASED REBAR FOR AN INTERIOR MAIN SERVICE DISCONNECT. IF THE REBAR BEING USED IN THE FOOTING IS SMALLER THAN 1/2", THEN USE 20' OF BARE SOLID #4 AWG COPPER CONDUCTOR OR 20' GROUND ROD AND BOND TO THE REBAR WITH STEEL TIE WRAPS. IN REMODEL PROJECTS THAT WILL NOT HAVE NEW FOOTINGS INSTALLED, THIS SUPPLEMENTAL ELECTRODE SHALL BE IN THE FORM OF A 10'-0" x 3/4" COPPER CLAD GROUND ROD INSTALLED PER CURRENT NEC REQUIREMENTS.
2. ALL METAL CONDUITS ENCLLOSING ANY SERVICE CONDUCTORS SHALL BE FITTED WITH A 'BONDING BUSHING'. SIZE THE JUMPER PER NEC.
3. ALL METAL CONDUITS ENCLLOSING ANY GROUNDING ELECTRODE CONDUCTOR SHALL BE FITTED WITH A 'BONDING BUSHING' AT EACH END. SIZE THE JUMPER PER NEC.
4. IF STRUCTURAL STEEL MEMBER IS AVAILABLE, BOND IT TO THE SERVICE USING A UL LISTED IRREVERSIBLE CLAMP OR WELDED LUG.
5. CONNECTIONS TO THE METAL WATER PIPE SHALL BE LOCATED WITHIN THE FIRST 5 FEET OF POINT OF ENTRANCE OF THE INTERIOR METAL WATER PIPE. IF AVAILABLE ON THE PREMISES, CONNECTIONS TO THE METAL WATER PIPE SHALL BE LOCATED ON THE BUILDING INTERIOR SIDE OF THE ISOLATION COUPLING OF THE WATER PIPING FOR BUILDINGS WITH CATHODIC PROTECTION ON EXTERIOR UNDERGROUND WATER LINES.
6. ALL BRANCH CIRCUIT AND FEEDER CONDUITS ARE TO HAVE AN INSULATED EQUIPMENT GROUNDING CONDUCTOR REGARDLESS OF THE CONDUIT MATERIAL.

### 2 EG503 N.T.S.

### MAIN SERVICE GROUNDING ELECTRODE SYSTEM DETAIL



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GROUNDING DETAILS

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