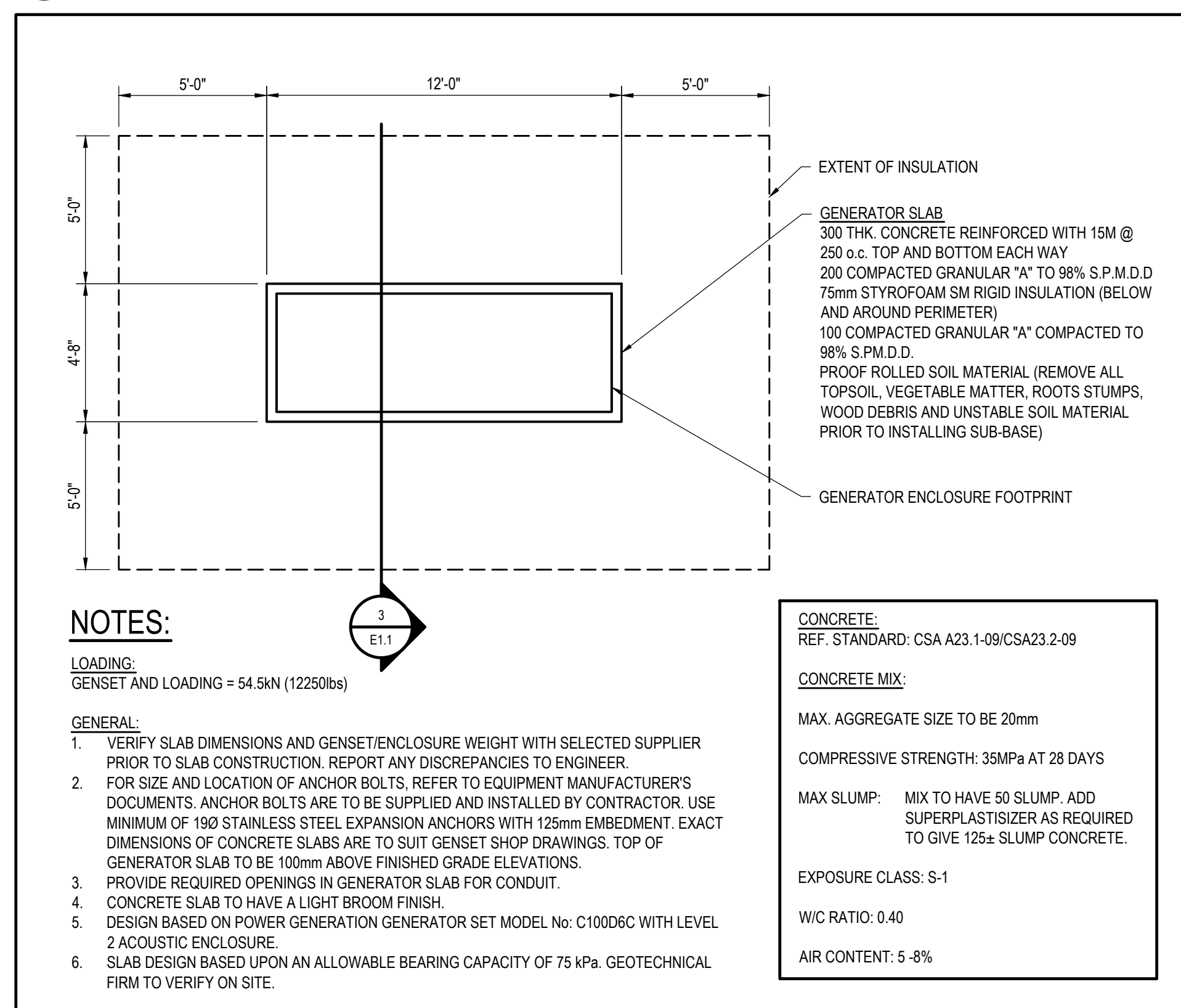
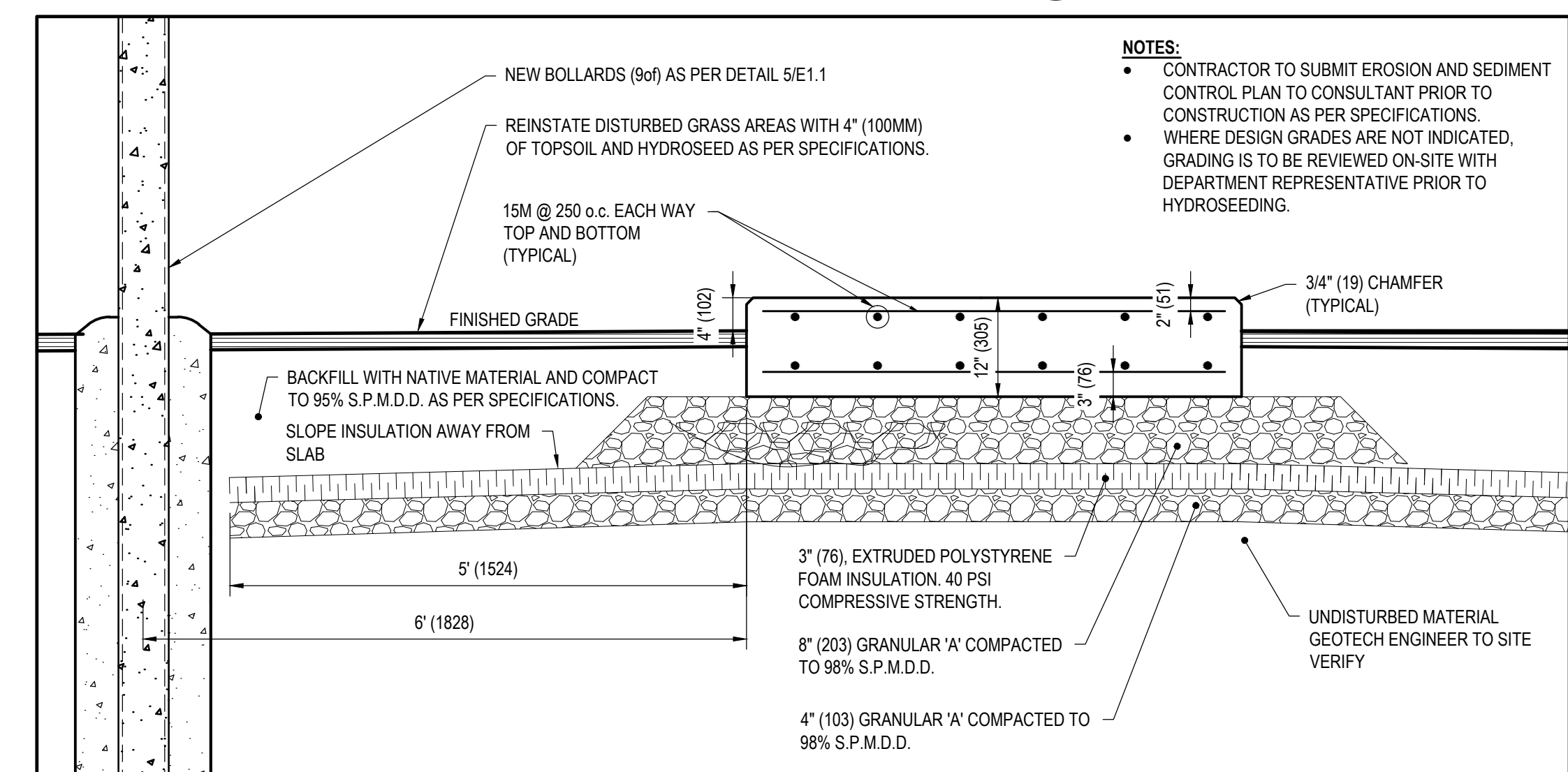


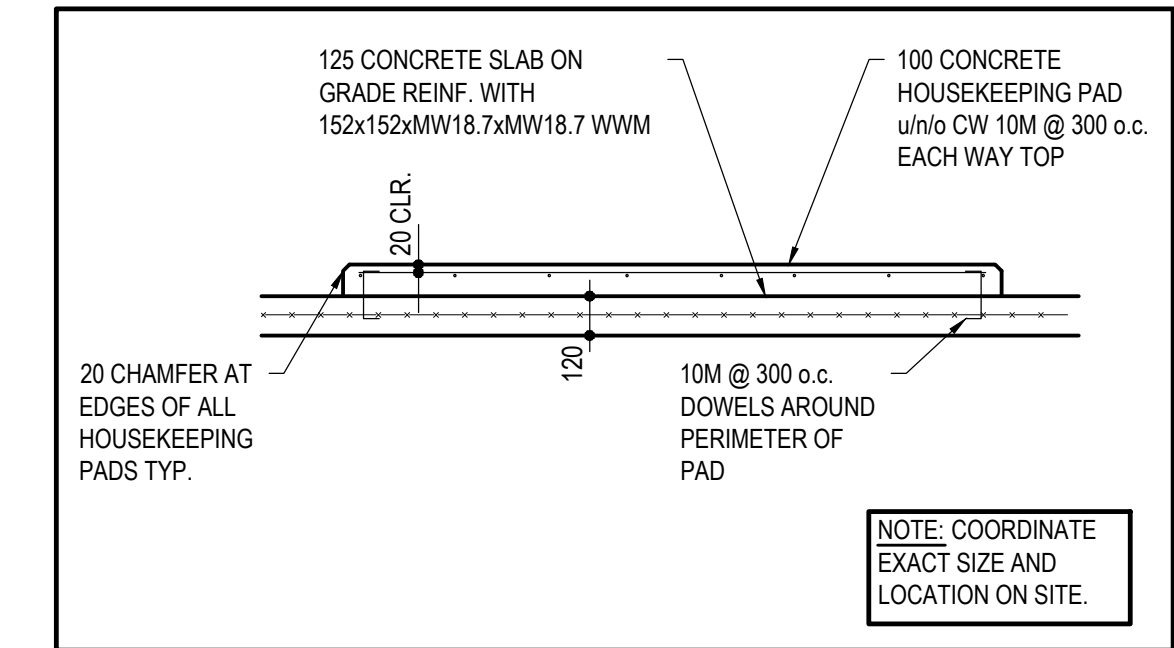
1 ARENA FLOOR PLAN - ELECTRICAL LAYOUT
SCALE: 1/16" = 1'-0"



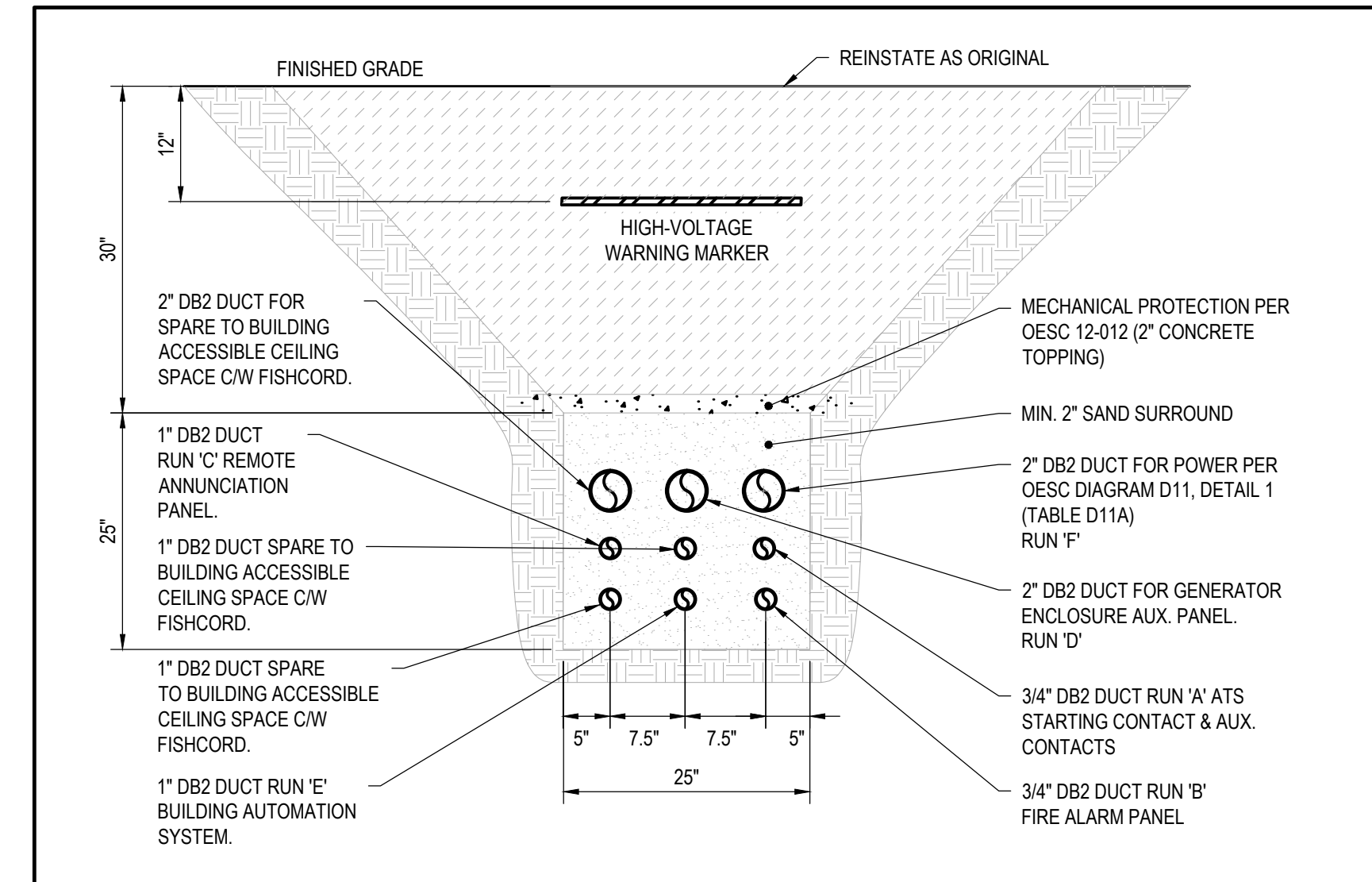
2 GENERATOR CONTROLS
SCALE: N.T.S.



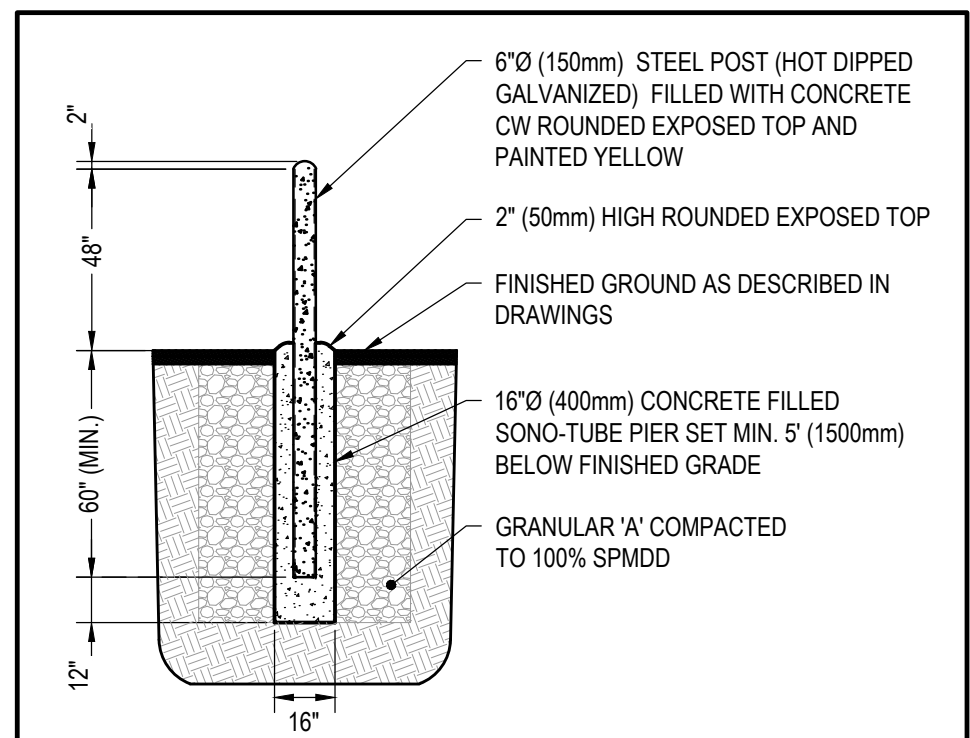
3 GENERATOR CONCRETE PAD DETAIL
SCALE: N.T.S.



6 TYPICAL HOUSEKEEPING PAD DETAIL
SCALE: N.T.S.



4 GENERATOR DUCT BANK DETAIL
SCALE: N.T.S.



5 TYPICAL BOLLARD DETAIL
SCALE: N.T.S.

- NOTES**
- CONTRACTOR TO LOCATE ALL UNDERGROUND SERVICES PRIOR TO EXCAVATION.
 - EXISTING BEAMS EXTEND FROM UNDERSIDE OF FLOOR SLAB ABOVE TO BELOW SUSPENDED CEILING. ROUTE CONDUITS TO AVOID CROSSING BEAMS IN LOBBY.
 - ALL CORING FOR ELECTRICAL WORK BY THIS TRADE. DO NOT CUT STRUCTURAL STEEL OR BOND BEAMS WITHOUT PRIOR WRITTEN APPROVAL.
 - PAINT EXPOSED CONDUIT TO MATCH EXISTING WALL COLOUR.
 - INSTALL CONDUITS AT HIGH LEVEL. ROUTE TO AVOID EXISTING BUILDING STRUCTURE AND EXISTING BUILDING SYSTEMS. PROVIDE OFFSETS, BENDS, BEAM CLAMPS, CHANNEL SUPPORTS, THREADED RODS, ETC. AS REQUIRED TO SUPPORT CONDUITS
 - FIRESTOP ALL OPENINGS IN FIRE-RATED ASSEMBLIES FOR NEW WORK UNDER THIS CONTRACT WITH ULC LISTED FIRESTOP SYSTEM.
 - ALLOW FOR THE SERVICE OF AN ELEVATOR SERVICE TECHNICIAN FOR THE CONNECTION OF PRE-TRANSFER SIGNAL. PROVIDE TESTING AND REPORT.
 - COORDINATE THE EXACT LOCATION OF THE GENERATOR PAD WITH CITY.
 - TRANSFER GAS HEATERS (15A-2P) CIRCUIT E-9,11 TO F-22,24. TRANSFER OVEN CIRCUIT (50A-2P) F-22,24 TO E-9,11. EXTEND WIRING AS REQUIRED.
 - COORDINATE SHUTDOWN WITH OWNER. ALLOW FOR 72 HOURS NOTICE. SHUTDOWN ARE PERMITTED DURING WEEKDAYS BETWEEN 6AM TO 3PM.

- LEGEND**
- CONDUIT RISING
 - CONDUIT DROPPING
 - LIGHT DISCONNECT SWITCH
 - DIRECT WIRED EMERGENCY LIGHTING UNIT. WIRE TO UNSWITCHED SIDE OF AREA LIGHT CIRCUIT. MH 80" TO BOTTOM OF UNIT WHERE PRACTICABLE. EMERGH-LITE CAT. No. 12JSM84-2-10-LJ OR EQUIVALENT.
 - ATS-X AUTOMATIC TRANSFER SWITCH
 - CW COMPLETE WITH
 - NIC NOT IN CONTRACT
 - SP-X SPLITTER
 - TX-X TRANSFORMER
 - UG UNDERGROUND
 - EXISTING TO REMAIN
 - REMOVE
 - PROVIDE NEW

CONTRACT DRAWINGS

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CONSULTANT:

ELECTRICAL CIVIL

CITY OF CLARENCE-ROCKLAND

CLIENT REF # - -
PROJECT:

STANDBY GENERATOR INSTALLATION

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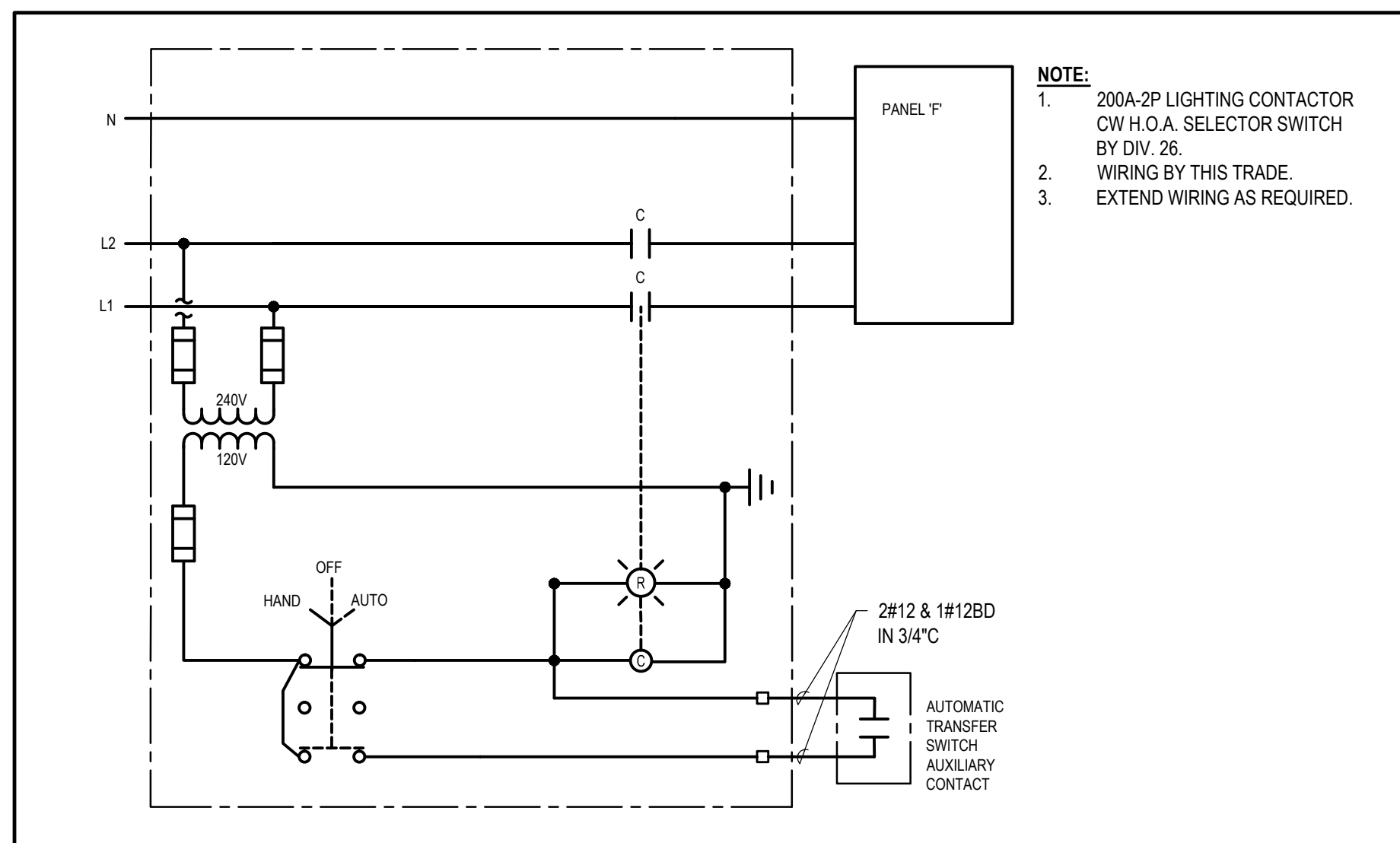
ISSUED FOR - REVISION:

| NO. | DATE | DESCRIPTION |
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| 2 | 2018/04/04 | ISSUED FOR TENDER |
| 1 | 2017/09/06 | ISSUED FOR CLIENT REVIEW |

PROJECT NO: 171-05729-00
ORIGINAL SCALE: AS NOTED
DESIGNED BY: MB
DRAWN BY: CT
CHECKED BY: FH
DISCIPLINE: ELECTRICAL

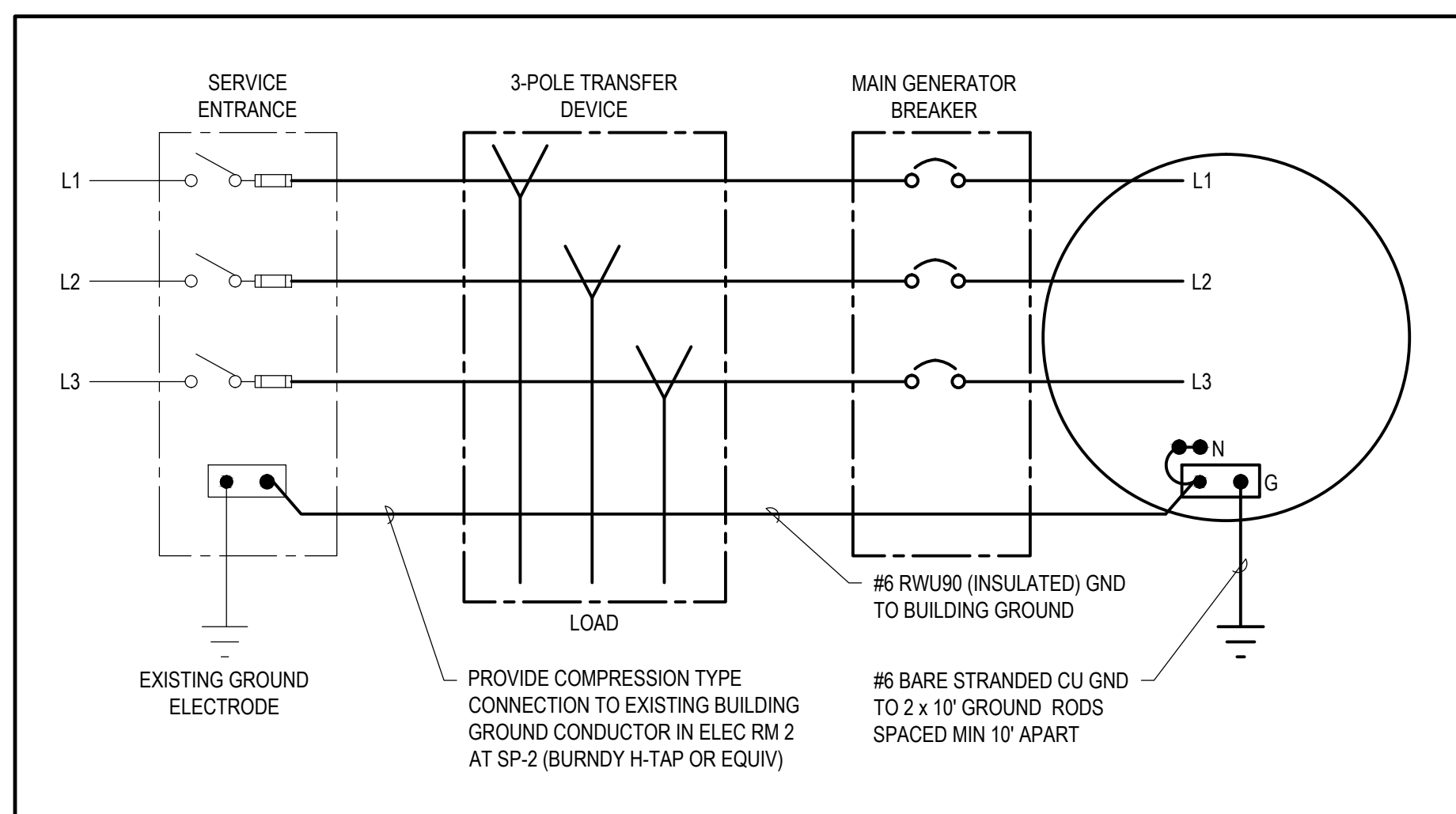
TITLE: CLARENCE CREEK ARENA ELECTRICAL LAYOUT

SHEET NUMBER: E1.1
SHEET # 1 OF 2
ISSUE: TENDER
DATE OF: 2018/04/04
REV # 0



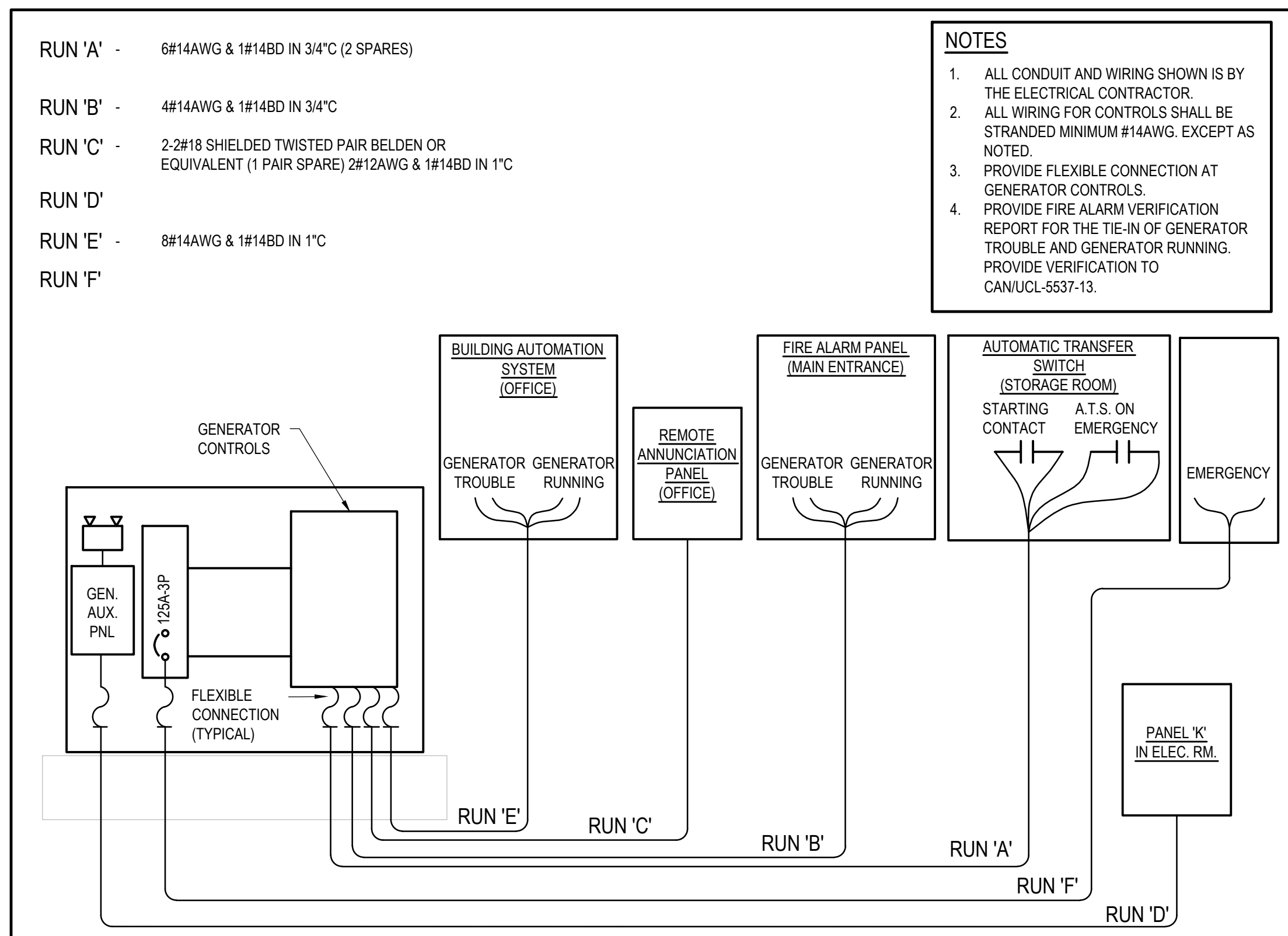
6 200A CONTACTOR CONTROL DETAIL

E2.1 SCALE: N.T.S.



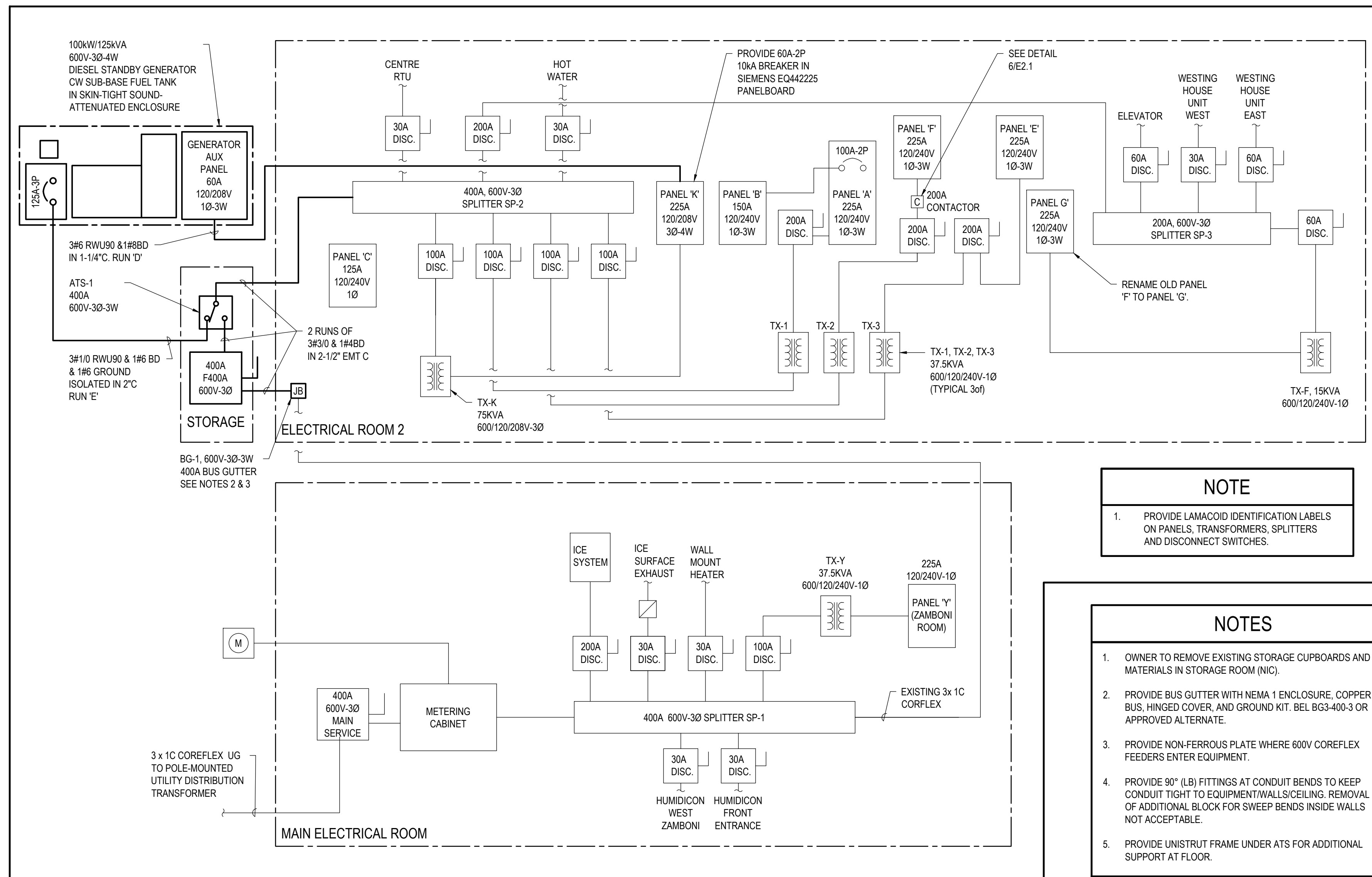
1 GENERATOR NEUTRAL GROUNDING & BONDING DETAIL

E2.1 SCALE: N.T.S.



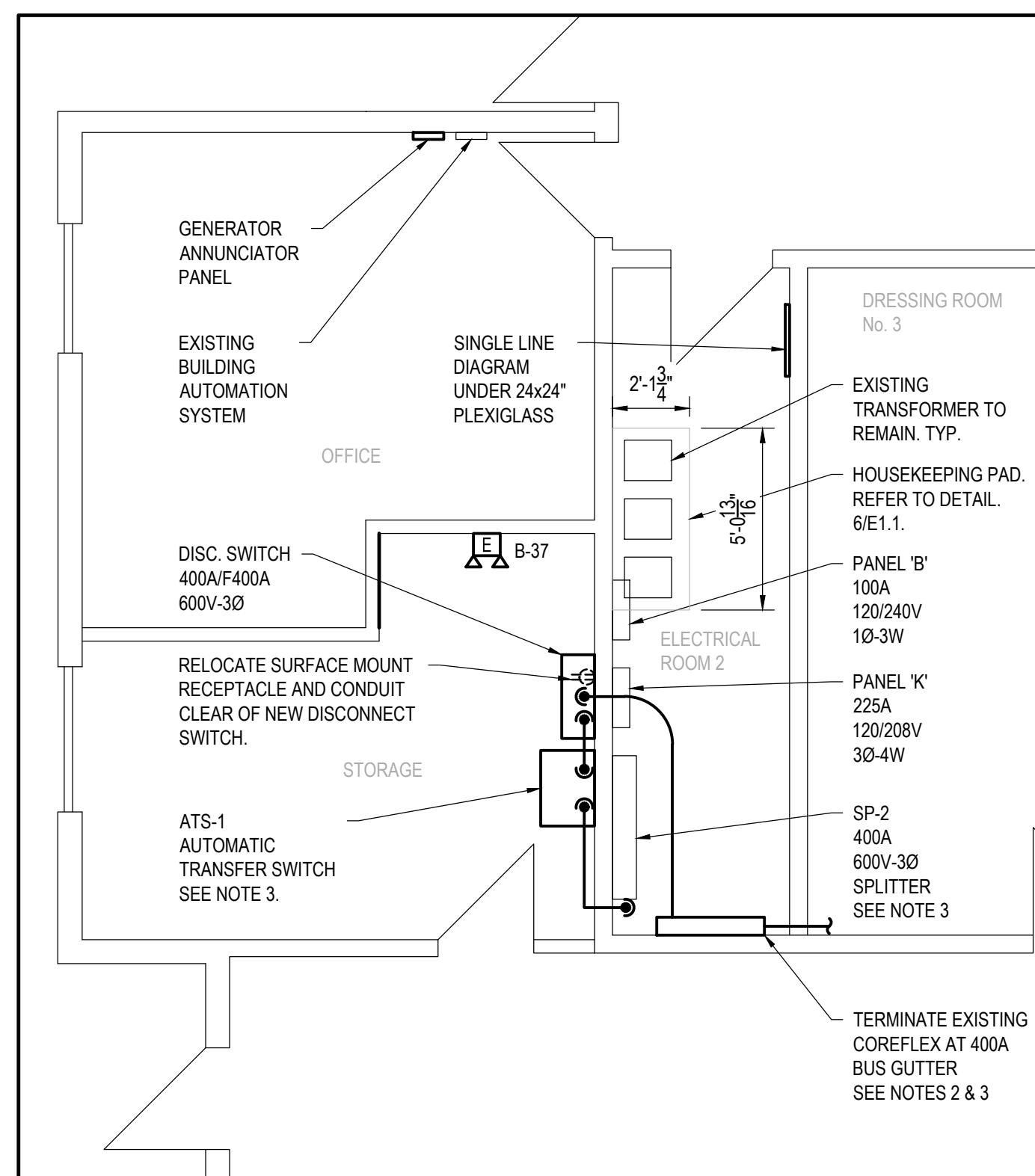
2 GENERATOR CONTROLS

E2.1 SCALE: N.T.S.



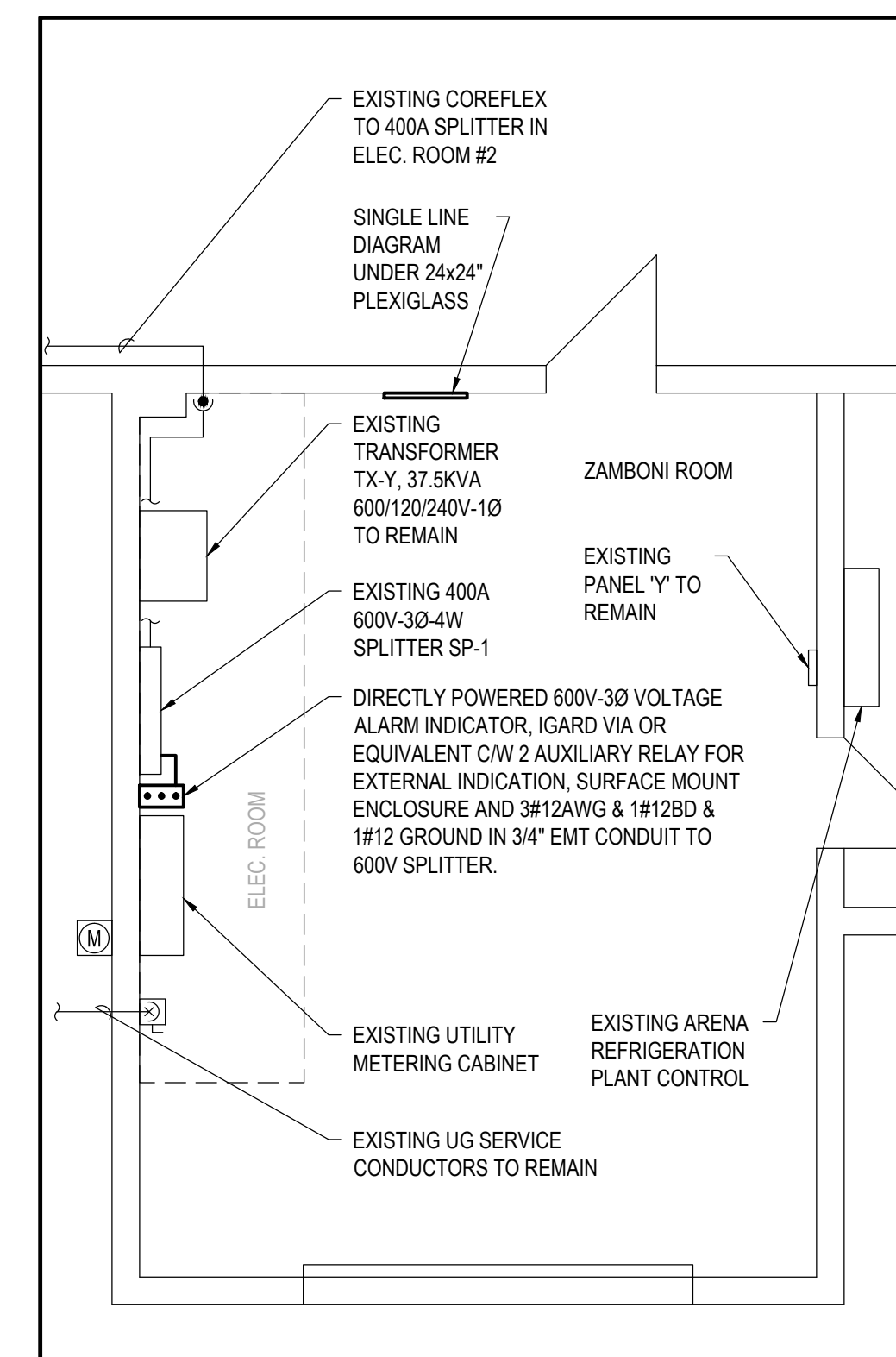
3 POWER DISTRIBUTION SINGLE LINE DIAGRAM

E2.1 SCALE: N.T.S.



4 ELECTRICAL AND STORAGE ROOM LAYOUT

E2.1 SCALE: 1/4" = 1'-0"



5 MAIN ELECTRICAL ROOM LAYOUT

E2.1 SCALE: 1/4" = 1'-0"

NOTE

1. PROVIDE LAMACOID IDENTIFICATION LABELS ON PANELS, TRANSFORMERS, SPLITTERS AND DISCONNECT SWITCHES.

NOTES

1. OWNER TO REMOVE EXISTING STORAGE CUPBOARDS AND MATERIALS IN STORAGE ROOM (NIC).
2. PROVIDE BUS GUTTER WITH NEMA 1 ENCLOSURE, COPPER BUS, HINGED COVER, AND GROUND KIT. BEL BG3-400-3 OR APPROVED ALTERNATE.
3. PROVIDE NON-FERROUS PLATE WHERE 600V COREFLEX FEEDERS ENTER EQUIPMENT.
4. PROVIDE 90° (LB) FITTINGS AT CONDUIT BENDS TO KEEP CONDUIT TIGHT TO EQUIPMENT/WALLS/CEILING. REMOVAL OF ADDITIONAL BLOCK FOR SWEEP BENDS INSIDE WALLS NOT ACCEPTABLE.
5. PROVIDE UNISTRUT FRAME UNDER ATS FOR ADDITIONAL SUPPORT AT FLOOR.



CITY OF CLARENCE-ROCKLAND

STANDBY GENERATOR INSTALLATION

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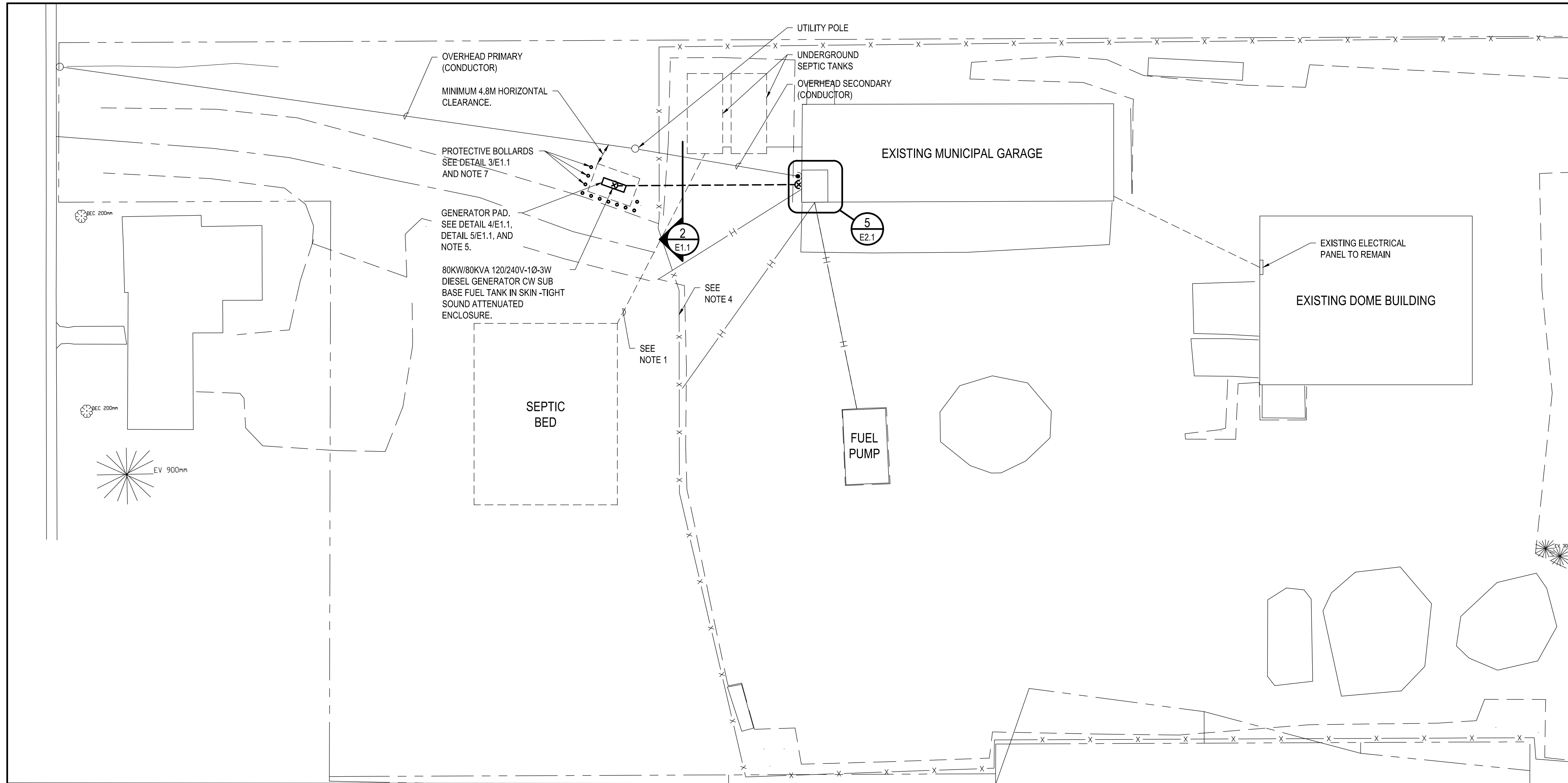
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| PROJECT NO. | DATE |
|--------------|-----------|
| 171-05729-00 | JULY 2017 |

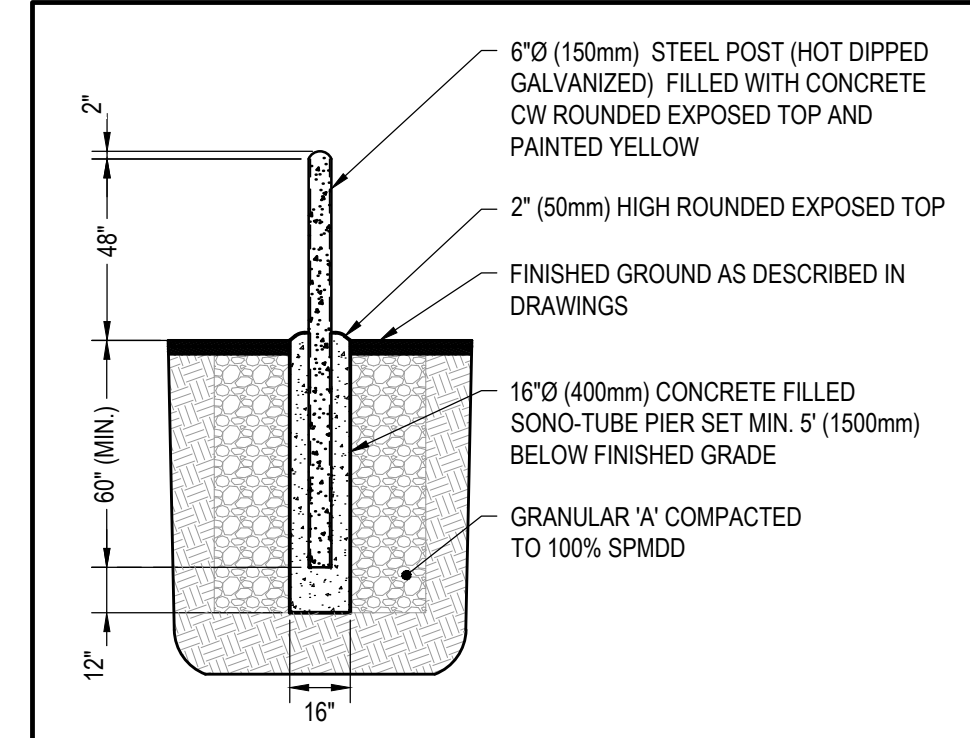
| ISSUE | REV # |
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| TENDER | 0 |

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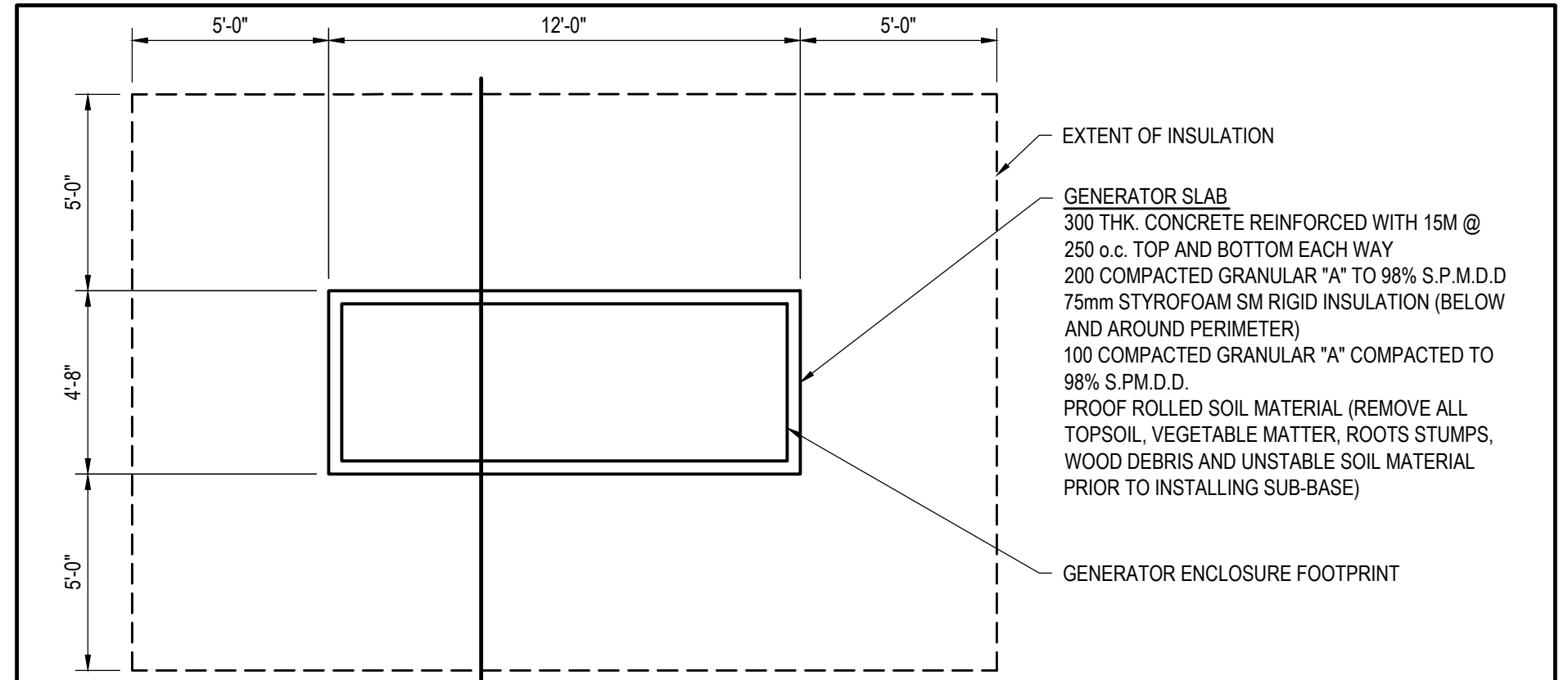


- ### NOTES
- SITE PLAN IS DERIVED FROM OWNER'S SURVEY DATA AND SATELLITE IMAGERY. LOCATION OF BURIED SERVICES IS APPROXIMATE. FIELD VERIFY ALL DIMENSIONS ON-SITE. LOCATE ALL UNDERGROUND SERVICES PRIOR TO COMMENCING EXCAVATION WORK. TAKE SPECIAL CARE WITH SERVICES SHOWN CROSSING NEW GENERATOR DUCT BANK.
 - PROVIDE HOARDING AS REQUIRED.
 - PROVIDE ADEQUATE SIGNS AND MARKINGS TO INDICATE LOCATION & DEPTH OF UNDERGROUND CONDUITS AND CABLE AS PER ONTARIO ELECTRICAL SAFETY CODE.
 - REMOVE AND REINSTALL EXISTING 8" CHAIN LINK FENCE COMPLETE WITH BARBED WIRE TO ACCOMMODATE NEW GENERATOR DUCT BANK.
 - GENERATOR REQUIRES MIN. 4.8m HORIZONTAL CLARENCE FROM OVERHEAD PRIMARY LINES. CONTRACTOR TO FIELD VERIFY CLEARANCES PRIOR TO STARTING WORK. CONFIRM EXACT BOLLARD LOCATIONS ON-SITE WITH OWNER PRIOR TO INSTALLATION.
 - COORDINATE EXACT LOCATION OF GENERATOR PAD WITH THE CITY.
 - NEW BOLLARDS (110f) AS PER DETAIL 3/E1.1 WITH 6" (1.828m) OFFSET FROM EDGE OF NEW CONCRETE PAD TO CENTER OF BOLLARD. MAXIMUM 4'-4.7" (1.340m) SPACING BETWEEN CENTERLINE OF BOLLARDS AROUND PERIMETER OF CONCRETE PAD AS SHOWN. PROVIDE #6 BOND TO GROUND FOR ALL BOLLARDS (TYP.).



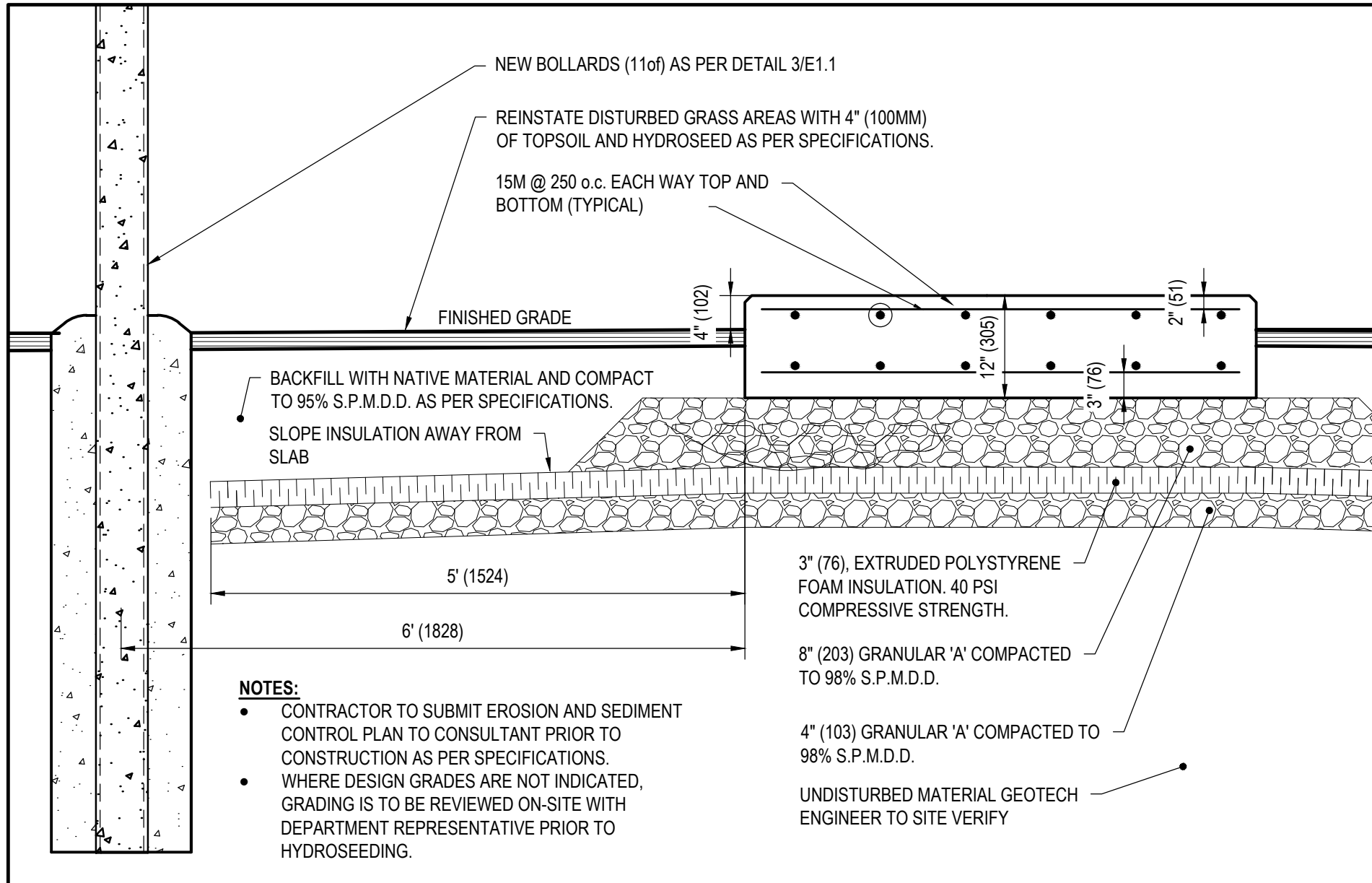
3 BOLLARD DETAIL
SCALE: N.T.S.

1 ELECTRICAL SITE PLAN
SCALE: 1/32" = 1'-0"

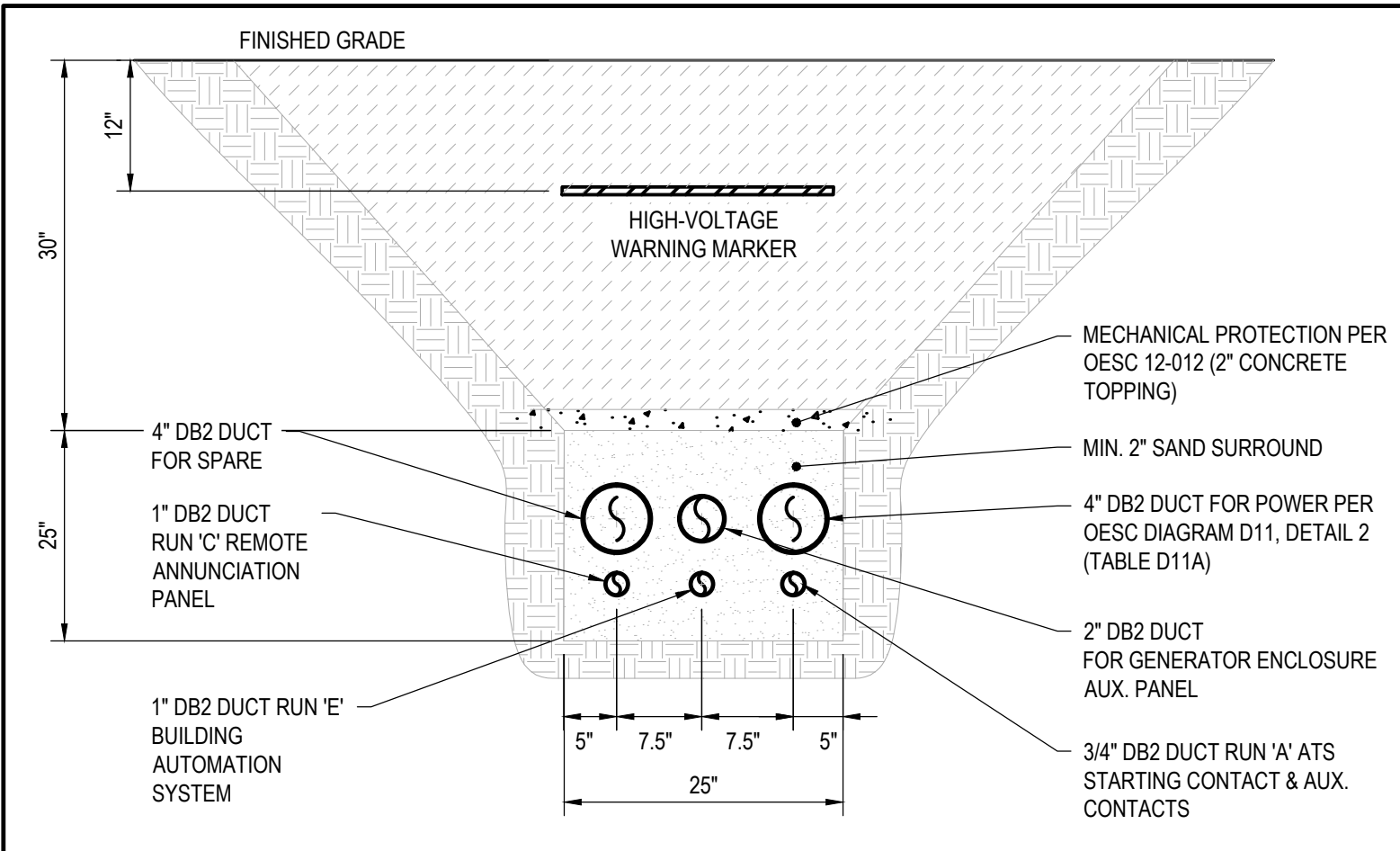


- ### NOTES:
- LOADING:
GENSET AND LOADING = 54.5kN (12250lbs)
- GENERAL:
- VERIFY SLAB DIMENSIONS AND GENSET/ENCLOSURE WEIGHT WITH SELECTED SUPPLIER PRIOR TO SLAB CONSTRUCTION. REPORT ANY DISCREPANCIES TO ENGINEER.
 - FOR SIZE AND LOCATION OF ANCHOR BOLTS, REFER TO EQUIPMENT MANUFACTURER'S DOCUMENTS. ANCHOR BOLTS ARE TO BE SUPPLIED AND INSTALLED BY CONTRACTOR. USE MINIMUM OF 190 STAINLESS STEEL EXPANSION ANCHORS WITH 125mm EMBEDMENT. EXACT DIMENSIONS OF CONCRETE SLABS ARE TO SUIT GENSET SHOP DRAWINGS. TOP OF GENERATOR SLAB TO BE 100mm ABOVE FINISHED GRADE ELEVATIONS.
 - PROVIDE REQUIRED OPENINGS IN GENERATOR SLAB FOR CONDUIT.
 - CONCRETE SLAB TO HAVE A LIGHT BROOM FINISH.
 - DESIGN BASED ON POWER GENERATION GENERATOR SET MODEL No: C80D6C WITH LEVEL 2 ACOUSTIC ENCLOSURE.
 - SLAB DESIGN BASED UPON AN ALLOWABLE BEARING CAPACITY OF 75 kPa. GEOTECHNICAL FIRM TO VERIFY ON SITE.
- CONCRETE:
REF. STANDARD: CSA A23.1-09/CSA23.2-09
- CONCRETE MIX:
MAX. AGGREGATE SIZE TO BE 20mm
- COMPRESSIVE STRENGTH: 35MPa AT 28 DAYS
- MAX SLUMP: MIX TO HAVE 50 SLUMP. ADD SUPERPLASTISIZER AS REQUIRED TO GIVE 125± SLUMP CONCRETE.
- EXPOSURE CLASS: S-1
- W/C RATIO: 0.40
- AIR CONTENT: 5-8%

4 GENERATOR CONCRETE PAD
SCALE: N.T.S.



5 GENERATOR CONCRETE PAD
SCALE: N.T.S.



2 GENERATOR DUCT BANK DETAIL
SCALE: 1/4" = 1'-0"

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CIVIL

CLIENT:

CITY OF CLARENCE-ROCKLAND

CLIENT REF. # : --

PROJECT:

STANDBY GENERATOR INSTALLATION

KEY PLAN:

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PROJECT NO.: 171-05729-00
DATE: JULY 2017

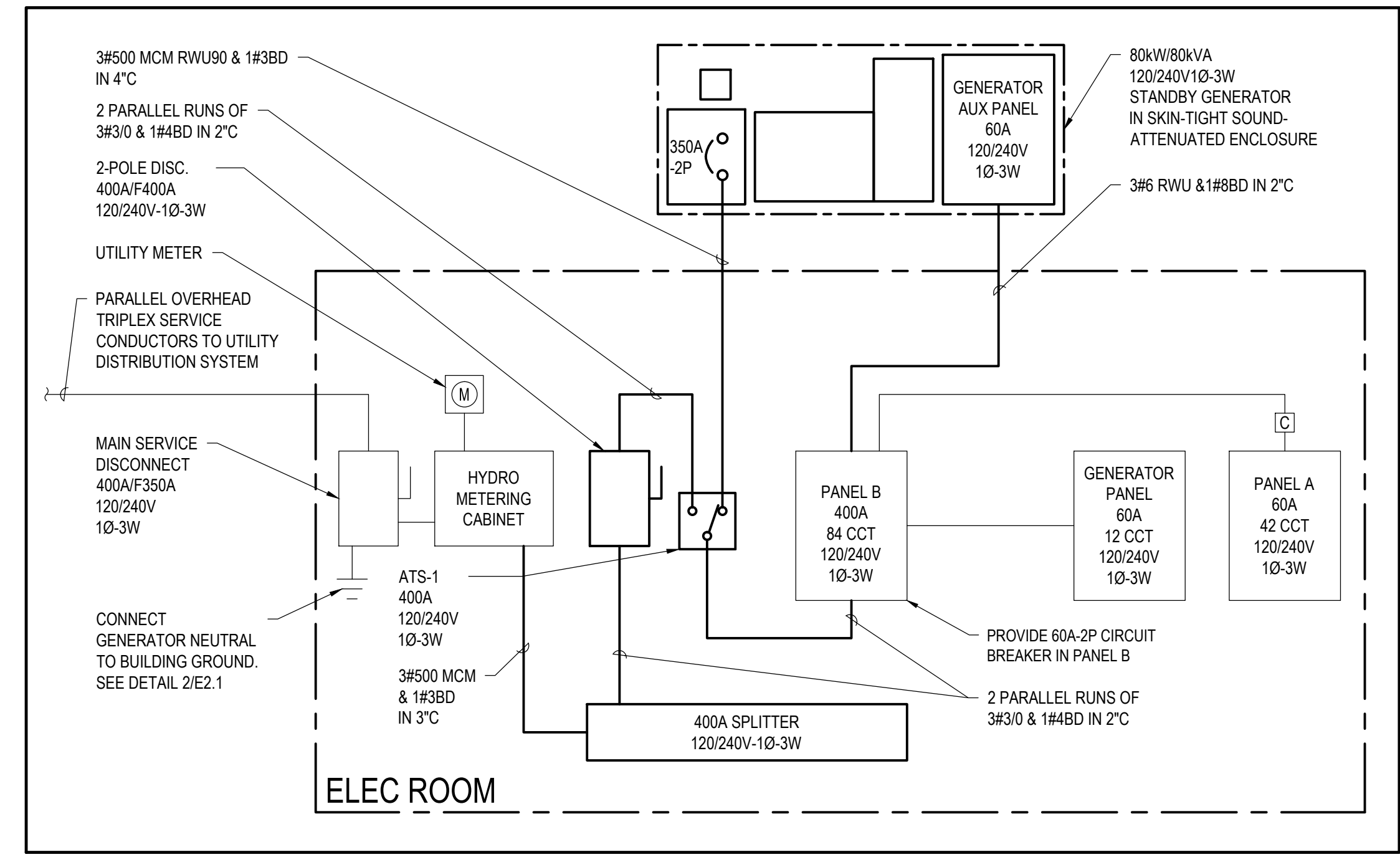
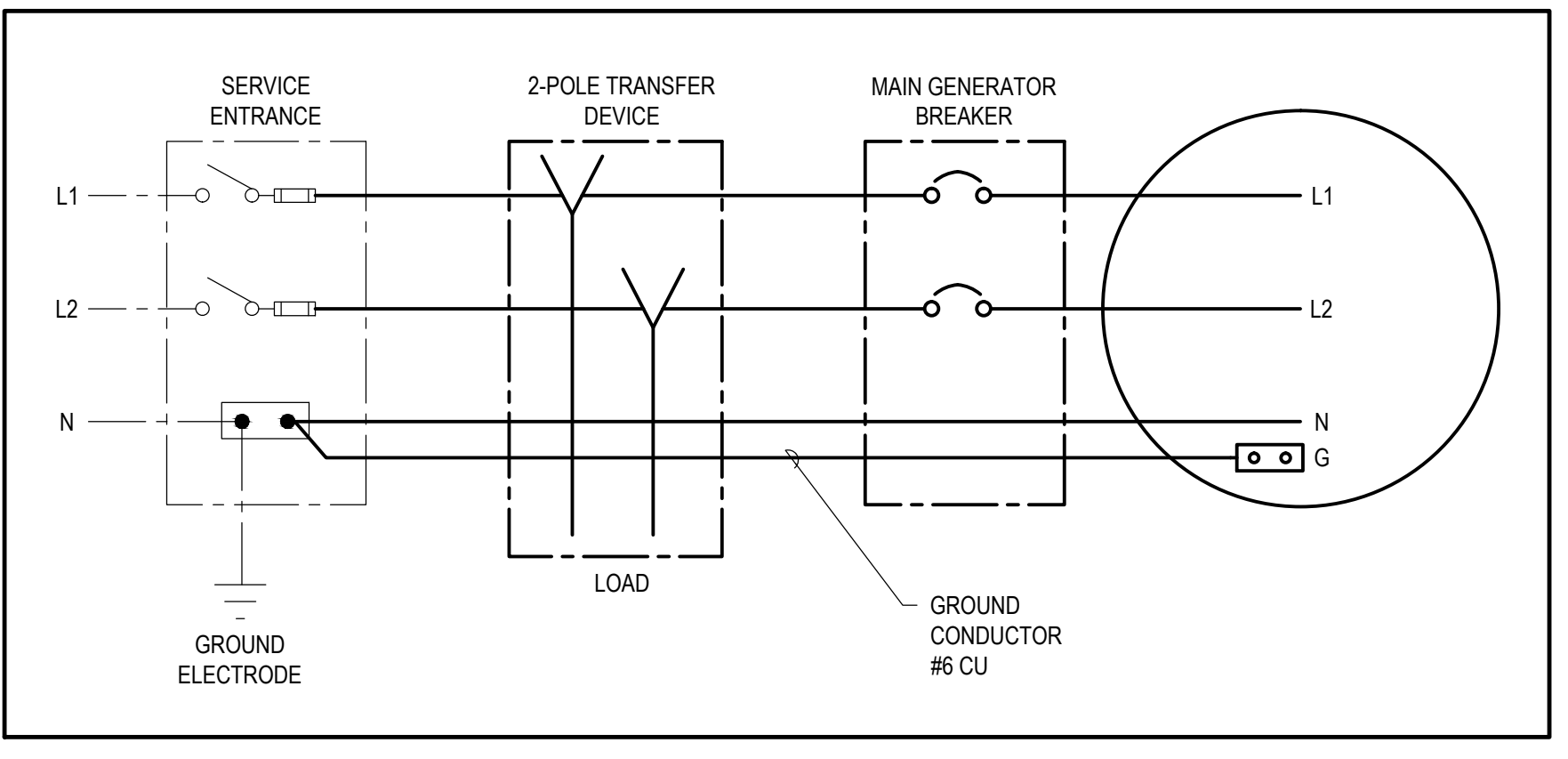
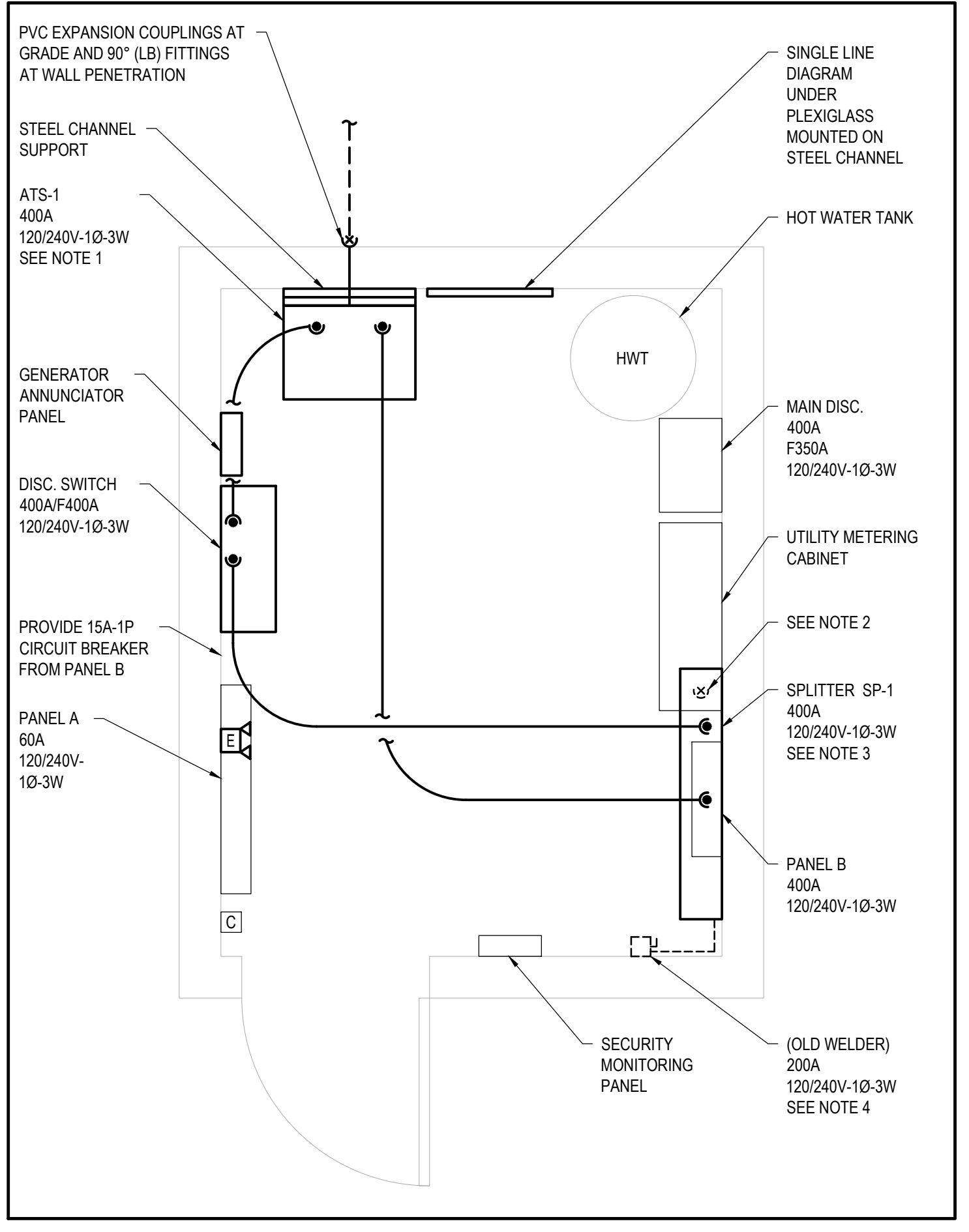
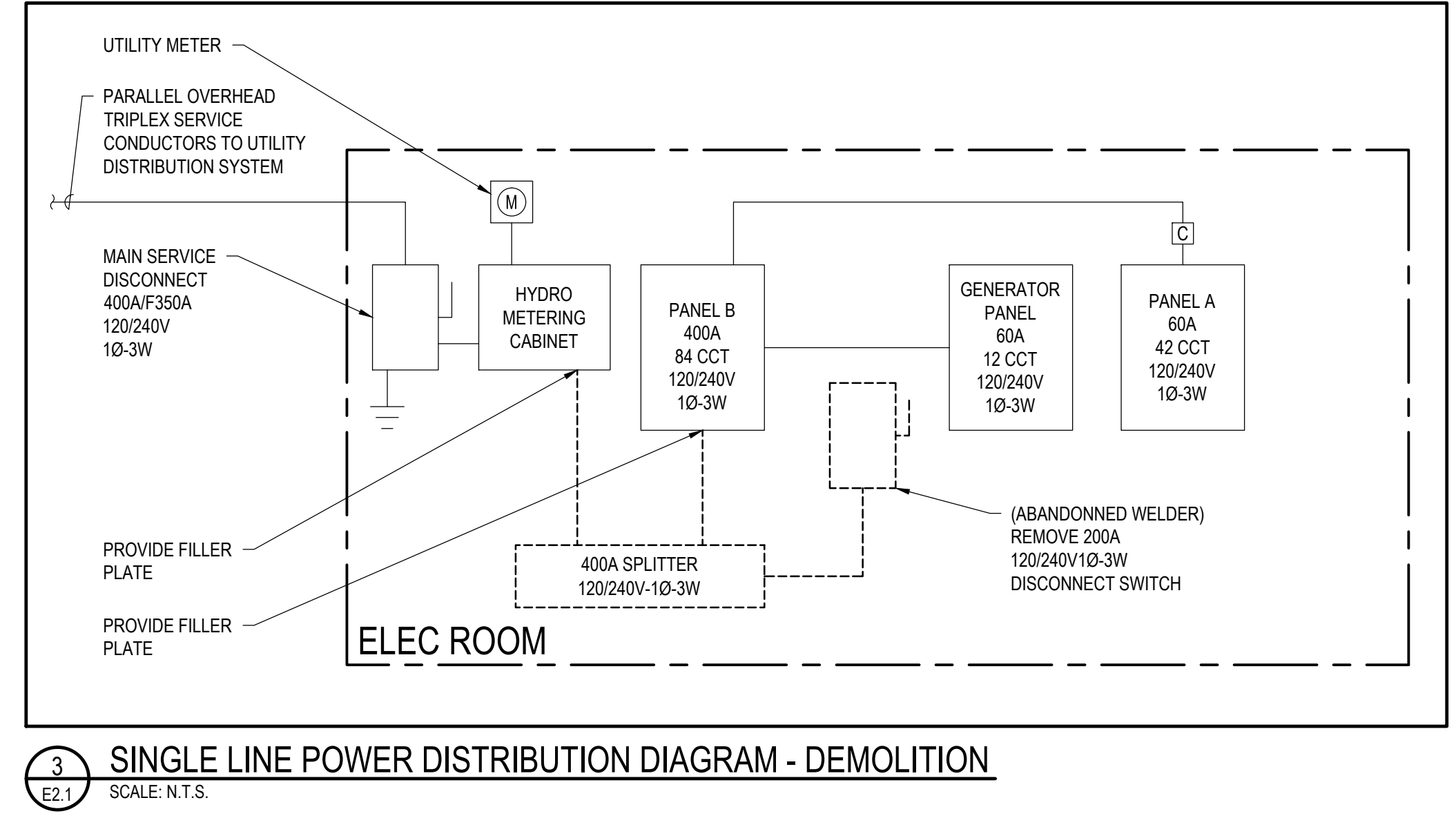
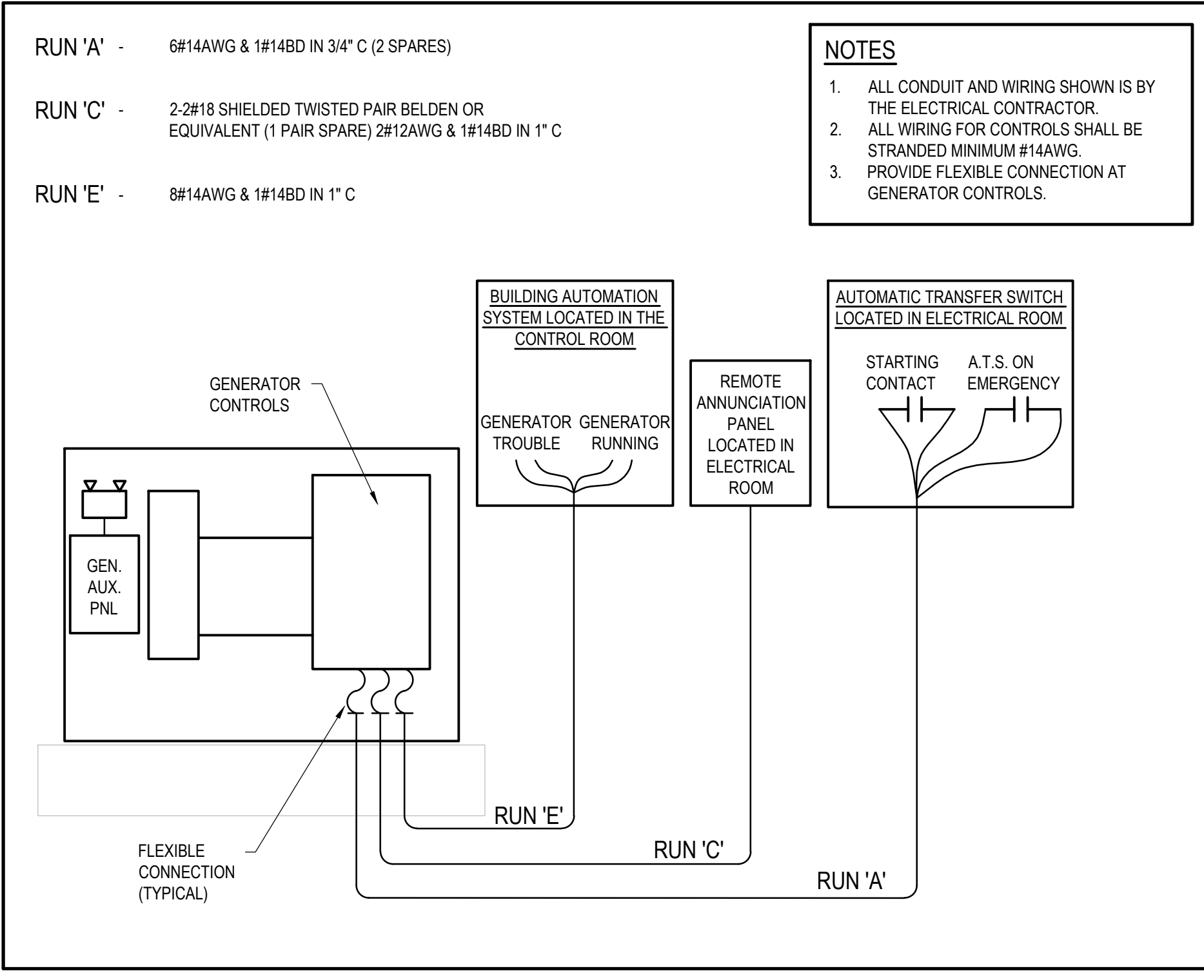
ORIGINAL SCALE: AS NOTED
IF THIS BAR IS NOT 1" LONG, ADJUST YOUR PLOTTING SCALE.

DESIGNED BY: AG
DRAWN BY: CT/AG
CHECKED BY: MB
DISCIPLINE: ELECTRICAL

TITLE: MUNICIPAL GARAGE ELECTRICAL SITE PLAN AND DETAILS

SHEET NUMBER: E1.1

SHEET #: 1 OF 2
ISSUE: TENDER
DATE OF: 2018/04/04
REV #: 0



LEGEND

- CONDUIT RISING
- CONDUIT DROPPING
- DISCONNECT SWITCH
- CONTACTOR
- DIRECT WIRED EMERGENCY LIGHTING UNIT. WIRE TO UNSWITCHED SIDE OF AREA LIGHT CIRCUIT. MIN 80" TO BOTTOM OF UNIT WHERE PRACTICABLE. EMERGI-LITE CAT. No. 12/SMS4-2-1Ø-LJ OR EQUIVALENT.
- CW COMPLETE WITH
- UG UNDERGROUND
- NIC NOT IN CONTRACT
- EXISTING TO REMAIN
- REMOVE
- PROVIDE NEW

NOTES

- WALL MOUNT ATS-1 ON STEEL CHANNELS TO ACCOMMODATE EXISTING DOMESTIC WATER PIPE. PROVIDE UNISTRUT FRAME UNDER ATS FOR ADDITIONAL SUPPORT AT FLOOR.
- REMOVE AND REPLACE EXISTING 3"Ø CONDUIT AND CONDUCTORS FROM UTILITY METERING CABINET TO EXISTING SPLITTER.
- REMOVE AND REPLACE EXISTING 400A, 120/240V-1Ø-3W SPLITTER WITH NEW.
- REMOVE EXISTING ABANDONED 200A DISCONNECT SWITCH AND ALL ASSOCIATED CONDUIT AND WIRING BACK TO SOURCE. PROVIDE FOR REMOVAL OF 30' OF CONDUIT BEYOND ELECTRICAL ROOM.
- INSTALL CONDUITS AT HIGH LEVEL. ROUTE TO AVOID EXISTING BUILDING STRUCTURE AND MECHANICAL PIPING. PROVIDE OFFSETS, BENDS, BEAM CLAMPS, CHANNEL SUPPORTS, THREADED RODS, ETC. AS REQUIRED TO SUPPORT CONDUITS AND MAXIMIZE USABLE HEADROOM.
- CORING FOR ELECTRICAL WORK BY THIS TRADE.
- FIRESTOP ALL OPENINGS IN ELECTRICAL ROOM WALL FOR NEW WORK UNDER THIS CONTRACT. FIRESTOP EXISTING UNPROTECTED OPENINGS IN ELECTRICAL ROOM. PROVIDE FOR FIRESTOPPING OF 10 x 2'Ø OPENINGS.
- OWNER TO REMOVE EXISTING PRESSURE WASHER IN ELECTRICAL ROOM (NIC).
- PROVIDE LUG KITS AS REQUIRED AT FOR TERMINATION OF ELECTRICAL CONDUCTORS AT EQUIPMENT SUITABLE FOR SIZE AND QUANTITY OF NEW CONDUCTORS SHOWN ON SINGLE LINE DIAGRAM.

GENERATOR SIZING CALCULATION

GARAGE ELECTRICAL ROOM
 EXISTING 400A 120/240V-1Ø
 SERVICE FUSED @ 350A

MINIMUM STANDBY GENERATOR CAPACITY
 $350A \times 80\% = 280A @ 120/240V-1Ø$
 $= 67.7KW$
 NEXT STANDARD SIZE 80KW/80KVA

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 PROJECT: --
 CITY OF CLARENCE-ROCKLAND
 CLIENT REF: --
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STANDBY GENERATOR INSTALLATION

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 ELECTRICAL

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PROJECT NO: 171-05729-00
 ORIGINAL SCALE: AS NOTED
 DESIGNED BY: AG
 DRAWN BY: CT/AG
 CHECKED BY: FH
 DISCIPLINE: ELECTRICAL
 TITLE: MUNICIPAL GARAGE SINGLE LINE DIAGRAM AND DETAILS
 SHEET NUMBER: E2.1
 SHEET #: 2 OF 2
 ISSUE: TENDER
 DATE OF: 2018/04/04