

ELECTRICAL SYMBOLS LIST

POWER SYMBOLS

Table of electrical symbols including single pole switch, disconnect switch, wall dimmer, occupancy sensor, intensity control, photo control switch, time clock, transformer, duplex receptacles, emergency receptacles, single receptacles, combination wall switch, surge suppression, junction boxes, floor furniture power feeds, voice/data feeds, motor controller, lighting panelboards, and conduit symbols.

SINGLE LINE DIAGRAM SYMBOLS

Table of single line diagram symbols including power transformer, automatic transfer switch, motor, generator, ground connection, fused switch, unfused switch, circuit breaker, circuit breaker - molded case type, digital multimeter, and current transformer.

ELECTRICAL ABBREVIATIONS

Table of electrical abbreviations including symbols for pole, ampere, above counter, air circuit breaker, above finished floor, ampere interrupting capacity, alarm, ammeter, aquastat, above base/floor, asymmetrical, automatic transfer switch, auto, auto visual, American wire gauge, break glass switch, basic impulse level, building, conduit, cabinet, catalog, circuit breaker, closed circuit television, circuit, oil circuit breaker, closet, communication, connected, continuation, current transformer, control, copper, cabinet unit heater, decibel, degree, drinking fountain, diameter, disconnect, division, down, distribution panel board, dust tight, drawing, degree Celsius, degree Fahrenheit, existing to remain, existing to be removed, existing to be removed and relocated, empty conduit, each, electrical contractor, elevation, electrical, elevator, emergency, equipment, electric reheat coil, electric water cooler, existing, exterior, fire alarm, fire alarm control panel, fire alarm annunciator panel, furnished by other division of work, fan coil unit, feeder, fused disconnect switch, fixture, floor, full load amperes, flexible, fluoroc, floor machine, freezer, fan shutdown panel, feet or foot, feed thru lug, ground, generator, ground fault interrupter, hung ceiling, hand hole, high intensity discharge, half neutral, horse power, high voltage, hertz, interrupting capacity, inside diameter, isolated ground, incandescent, instrument, isolated power center, isolated power center X-ray, junction box, thousand circular mils, kilovolt, kilovolt ampere, kilowatt, kilowatt hour, local control panel, line isolation monitor, lighting, mechanical alarm panel, annunciator, minimum circuit ampere, main circuit breaker, motor control center, main distribution panel, mechanical, mechanical equipment room, main fused switch, manhole, microphone, network protector, main lug only, maximum overcurrent protection, mounted, mounting, manual transfer switch, main unfused switch, neutral, normally closed, not in contact, normally open, network protector, not to scale, on center, oil circuit breaker, outside diameter, pole, public address, plumbing alarm panel, pull box, push button switch, pipe heating cable, panel, printer, pressure switch, potential transformer, power, phase, relocated existing, existing to be removed and return to owner, remote control switch, remote data collection panel, receptacle, refrigerator, required, raised floor, room ground point, room, raceway only, reference ground point, sprinkler alarm panel, substation, schedule, smoke detector, smoke detection panel, single ended substation, section, signal, solid neutral, single pole, surge protective device, specification, sprinkler, speaker, solenoid valve, switch, switchboard, switchgear, symmetrical systems, trouble bell, to be determined, telephone, temperature, thermostat, terminal board, tamper proof, transformer, tamper switch, television, typical, underfloor duct, unit heater, unfused, unless otherwise noted, volt or voltage, volt ampere, variable frequency drive, voltmeter, vaporproof, watt, waterflow switch, watt hour meter, weatherproof, watertight, explosion proof.

ELECTRICAL DEMOLITION NOTES

- 1. THE CONTRACTOR SHALL INCLUDE IN THEIR BID ALL COSTS ASSOCIATED WITH REMOVALS AND RELOCATIONS OF ELECTRICAL WORK AS DESCRIBED IN THE SPECIFICATIONS WITH ALLOWANCES FOR EXPECTED OR UNFORESEEN DIFFICULTIES WHEN CONCEALED WORK HAS BEEN OPENED. NO CLAIMS FOR ADDITIONAL WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED, EXCEPT IN CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE ARCHITECT.
2. THE CONTRACTOR SHALL REMOVE AND/OR RELOCATE ALL EXISTING ELECTRICAL WORK WHICH INTERFERES WITH THE NEW ARCHITECTURAL AND ELECTRICAL LAYOUTS IN FULL COORDINATION WITH THE ARCHITECT'S DEMOLITION PLANS. ALL SYSTEMS WHICH ARE NO LONGER REQUIRED TO FUNCTION SHALL BE DE-ENERGIZED AND DISCONNECTED AT THE SOURCE OF POWER SUPPLY.
3. THE CONTRACTOR SHALL PERFORM DEMOLITION AND REMOVAL WORK WITH MINIMUM INTERFERENCE WITH FUNCTIONING ELECTRICAL SYSTEMS. ALL AFFECTED SYSTEMS SHALL BE RECONNECTED AND RESTORED.
4. DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR SHALL PATCH, REPAIR OR OTHERWISE RESTORE ANY DAMAGED INTERIOR OR EXTERIOR BUILDING SURFACE TO ITS ORIGINAL CONDITION.
5. THE CONTRACTOR SHALL REMOVE ALL ELECTRICAL OUTLETS, SWITCHES AND OTHER DEVICES, COMPLETE WITH ASSOCIATED WIRING, CONDUITS, ETC., FROM PARTITIONS THAT ARE TO BE REMOVED. WHERE THE REMOVAL OF THESE ITEMS DESTROYS EXISTING WIRING THAT IS TO REMAIN, THE CONTRACTOR SHALL INSTALL JUNCTION BOXES AND OTHER DEVICES AND PROVIDE BYPASS CONNECTIONS NECESSARY TO MAKE CIRCUITS AFFECTED CONTINUOUS AND READY FOR OPERATION. OTHERWISE, WIRING SHALL BE REMOVED BACK TO THE NEAREST ELECTRICAL JUNCTION BOX THAT IS TO REMAIN OR TO PANELBOARD.
6. ALL RACEWAYS WHICH BECOME EXPOSED DURING THE ALTERATION WORK SHALL BE REMOVED AND REROUTED CONCEALED BEHIND FINISHED SURFACES.
7. ALL UNUSED OUTLET BOXES OR CAPPED FLOOR OUTLETS SHALL BE PROVIDED WITH MATCHING BLANK COVERS.
8. EXISTING PANEL DIRECTORIES AFFECTED BY THE ALTERATION WORK SHALL BE MODIFIED TO REFLECT THE BRANCH CIRCUIT WIRING CHANGES.
9. PORTIONS OF FEEDER RUNS TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ENERGIZED, SHALL BE CUT AT CONVENIENT LOCATIONS, REROUTED AND RECONNECTED. NEW FEEDER EXTENSIONS SHALL MATCH EXISTING ONES IN ALL RESPECTS, CABLE TYPE, CONDUCTOR AMPACITY, CONDUIT SIZES, ETC.
10. THE CONTRACTOR SHALL NOTIFY THE OWNER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND PHASING SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS. THE CONTRACTOR SHALL FOLLOW CLOSELY THE ARCHITECT'S DEMOLITION AND PHASING SCHEDULE AND PROCEED IN THE SPECIFIED SEQUENCE.
11. ALL EXISTING MATERIAL AND EQUIPMENT IN USABLE CONDITION, WHICH IS TO BE REMOVED UNDER THIS CONTRACT, SHALL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THE ELECTRICAL CONTRACTOR AS DIRECTED BY THE OWNER.
12. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVER TIME, IF REQUIRED, TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
13. THE SHUTDOWN OF EXISTING BUILDING ELECTRICAL SERVICES SHALL BE COORDINATED WITH THE OWNER MAKE ARRANGEMENTS AT LEAST 5 BUSINESS DAYS PRIOR TO A SHUTDOWN.

ELECTRICAL GENERAL NOTES

- 1. GENERAL NOTES, SYMBOL LIST AND DETAILS ARE APPLICABLE TO ALL ELECTRICAL DRAWINGS.
2. ALL WORK IS NEW UNLESS OTHERWISE NOTED.
3. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS, MAINTAIN HEADROOM AND SPACE CONDITIONS.
4. SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (WOLLOM MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRIPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. COORDINATE WITH HARDWARE MANUFACTURER FOR SPECIFIC REQUIREMENTS AND FIELD CONDITIONS AT POINT OF CONNECTION. REVIEW ALL ATTACHMENTS TO STRUCTURE WITH OWNER'S STRUCTURAL ENGINEER.
5. ALL MISCELLANEOUS MOUNTING HARDWARE, ATTACHMENTS, SUPPLEMENTAL STEEL, AND MEANS OF SUPPORTING DUCTWORK/EQUIPMENT FROM BUILDING STRUCTURE SHALL BE SIZED FOR ITS INTENDED PURPOSE AND CAPACITY RATING. COORDINATE WITH HARDWARE MANUFACTURER FOR SPECIFIC REQUIREMENTS AND FIELD CONDITIONS AT POINT OF CONNECTION. REVIEW ALL ATTACHMENTS TO STRUCTURE WITH OWNER'S STRUCTURAL ENGINEER.
6. PASS RACEWAYS OVER WATER, STEAM OR OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED. NO RACEWAY WITH 3 INCHES OR STEAM OR HOT WATER PIPES OR APPLIANCES EXCEPT PIPE CROSSINGS WHERE RACEWAY SHALL BE AT LEAST 1 INCH FROM PIPE COVERS).
7. CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREAD OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.
8. HORIZONTAL OR CROSS RUNS IN PARTITIONS AND WALLS ARE NOT PERMITTED. DO NOT RUN CONDUIT IN PRECAST ROOF SLABS, IN 2 INCH SLABS OR IN TERRAZZO FLOOR FINISH.
9. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED, FURNISH FISH WIRE.
10. SET BOXES SQUARE AND TRUE WITH BUILDING FINISH. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRONS.
11. COVERS OF JUNCTION AND PULLBOXES SHALL BE READILY ACCESSIBLE.
12. PROVIDE PULLBOXES WHERE INDICATED, WHERE REQUIRED BY CODE AND WHEREVER NECESSARY TO FACILITATE PULLING OF WIRE. COORDINATE PULLBOX LOCATIONS WITH OTHER TRADES.
13. EMPTY RACEWAY RUNS: PROVIDE PULLBOXES EVERY 100 FT AND AS INDICATED. COORDINATE LOCATIONS WITH OTHER TRADES.
14. JUNCTION AND PULLBOXES: LOCATE GENERALLY NOT EXPOSED IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT.
15. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
16. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
17. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
18. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32°F (0°C). PROVIDE CABLE SUPPORTS FOR WIRE IN RISER CONDUITS AS REQUIRED BY CODE.
19. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF NORMAL AND EMERGENCY CIRCUITS. COMMON BOXES: PROVIDE BARRIERS BETWEEN EMERGENCY AND NORMAL WIRING.
20. WIRE COLOR CODING: AS PER CODE. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION FOR OVERLAP COLOR TAPING OF CONDUCTORS (MINIMUM LENGTH 6" IN ACCESSIBLE LOCATIONS). COLOR CODING, ONCE SELECTED, MUST BE USED CONSISTENTLY FOR THE ENTIRE PROJECT.
21. INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS: ONLY WITH WRITTEN CONSENT OF OWNER. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES. ALARM AND EMERGENCY SYSTEMS ARE NOT TO BE INTERRUPTED.
22. FIRESTOPPING SHALL BE INSTALLED WHENEVER WIRING OR RACEWAYS CROSS FIRE RATED CONSTRUCTION.

ALTERNATE SCOPE

CONTRACTOR SHALL PROVIDE ALTERNATE PRICING WITH BID FOR THE ADDED/DEDUCT ALTERNATE WORK FOR EACH OF THE FOLLOWING:

- 1. PROVIDE DEDUCT ALTERNATE PRICING FOR EACH GENERATOR LOCATION SUCH THAT OWNER CAN UNDERSTAND PRICING FOR EACH OF THE FOUR (4) GENERATORS AND ASSOCIATED STAND-BY POWER SYSTEMS SEPARATELY FROM ONE ANOTHER.
2. PROVIDE DEDUCT ALTERNATE PRICING TO PROVIDE A NEMA 3R ROLL UP GENERATOR QUICK-CONNECT CABINET WITH CANALOCKS AND INTEGRAL DISCONNECT SWITCH ALONG EXTERIOR OF EACH BUILDING IN LIEU OF PERMANENT GENERATOR DESIGN INCLUDED IN BASE BID. EACH BUILDING SHALL RECEIVE A DEDICATED GENERATOR QUICK-CONNECT CABINET SIZED TO BACKUP THE ENTIRE FACILITY. PROVIDE SEPARATE PRICING FOR EACH LOCATION.
3. BASIS OF DESIGN CATERPILLAR PF58T124 UL142 SUB-BASE FUEL TANK HAS 400 GAL CAPACITY AND THE FOLLOWING RUN TIMES: 125 KW - 40 HRS, 175 KW - 29 HRS. PROVIDE ADD ALTERNATE PRICING TO PROVIDE LARGER CATERPILLAR PF58T148 TANK WITH 777 GAL CAPACITY AND THE FOLLOWING RUN TIMES: 125 KW - 78 HRS, 175 KW - 57 HRS. IF MANUFACTURER OTHER THAN THE BASIS OF DESIGN UTILIZES LISTED RUN TIMES FOR BASE BID AND ADD ALTERNATE SHALL BE MINIMUM REQUIRED RUN TIMES. PROVIDE SEPARATE PRICING FOR EACH GENERATOR LOCATION.

ELECTRICAL DRAWING LIST

Table with 2 columns: DRAWING No. and DRAWING TITLE. Lists drawings E-000 through E-400 including electrical cover sheets, site plans, and partial floor plans.

MARYLAND ZOO



37 West Cross Street, Suite 300
Baltimore, MD 21230
T: (443) 602-9520

Leadership in Engineering & Integrated Services

Table with 2 columns: No. and DATE. Row 1: 1, 09/04/24. Row 2: Description.

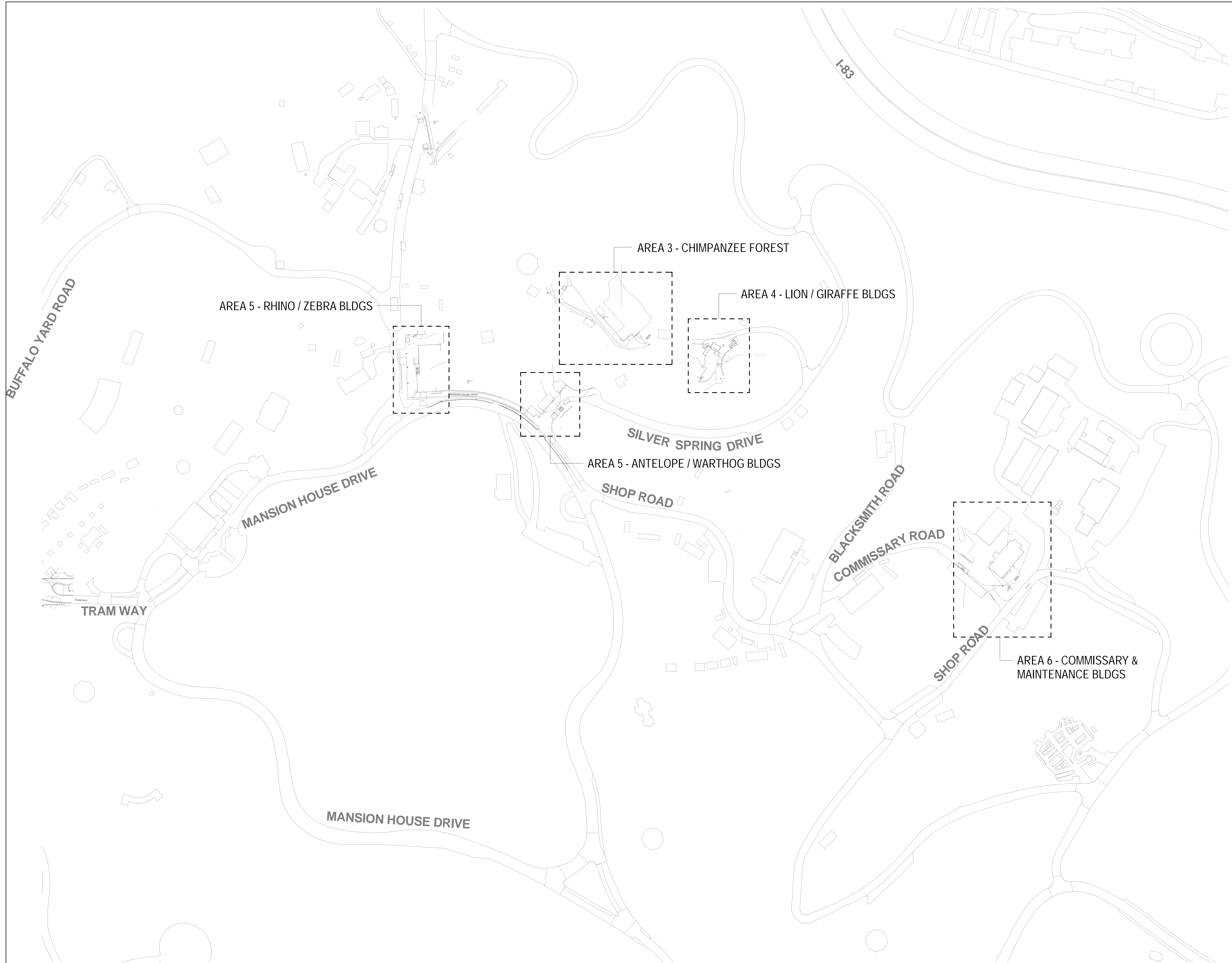
ISSUES/REVISIONS

Project: THE MARYLAND ZOO IN BALTIMORE - BACKUP GENERATOR REPLACEMENT
1 SAFARI PLACE
BALTIMORE, MARYLAND 21217

Drawing Title: ELECTRICAL COVER SHEET

Table with 2 columns: Drawing No. and Drawing By. Drawing No: E-000. Drawing By: NB. Other fields include Checked By (AB), Date (09/04/2024), Scale (NONE), Project No. (230980).

E-000



1 SITE PLAN
 SCALE: 1" = 100'-0"

No.	DATE	DESCRIPTION
1	09/04/24	ISSUED FOR PERMIT/BD

Project
THE MARYLAND ZOO IN BALTIMORE - BACKUP GENERATOR REPLACEMENT
 1 SAFARI PLACE
 BALTIMORE, MARYLAND 21217

Drawing Title
ELECTRICAL SITE PLAN - OVERALL

Drawn By	NB	Drawing No.	E-001
Checked By	AB		
Date	09/06/2024		
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Project No.	230980	2 of 13	

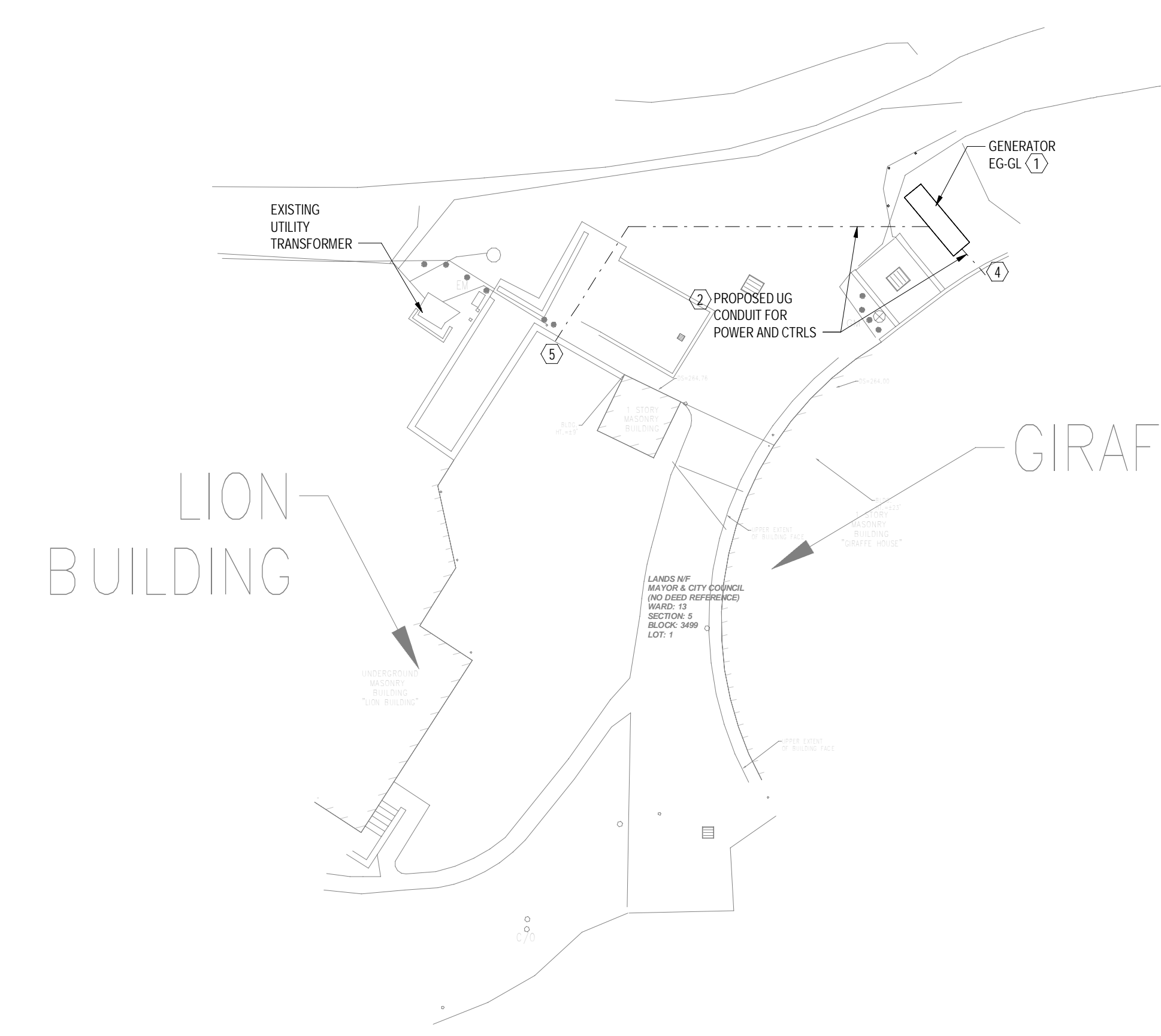
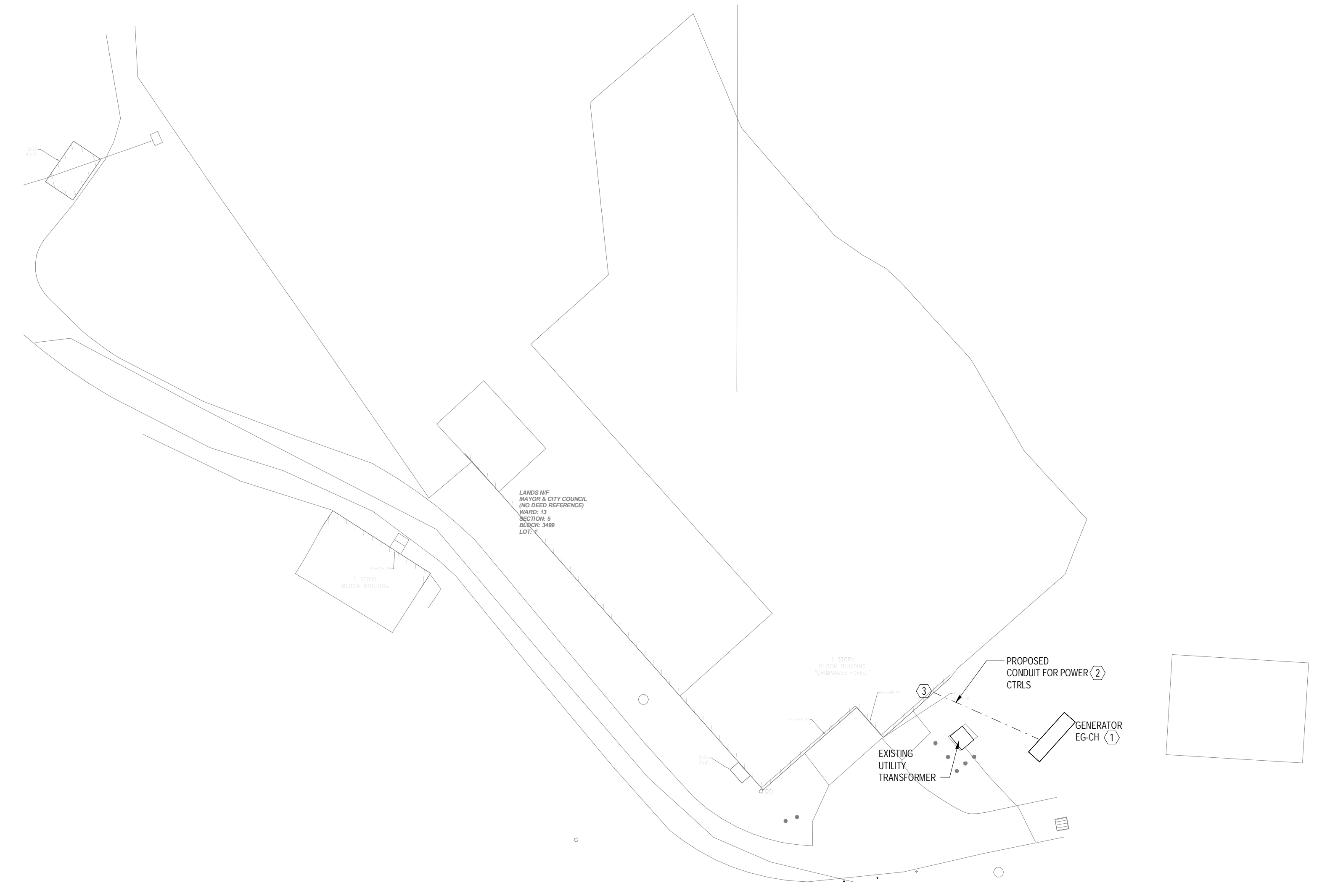
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DRAWING NOTES:

- FOR ALL MODIFICATIONS ASSOCIATED WITH EXISTING UTILITY OWNED EQUIPMENT, CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH UTILITY PROVIDER. ALL OUTAGES SHALL BE COORDINATED WITH BGE AND OWNER PRIOR TO THE COMMENCEMENT OF WORK.
- BEFORE EXCAVATING, CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO LOCATE AND COORDINATE ALL EXISTING UNDERGROUND UTILITIES. COORDINATE ALL WORK WITH LOCAL UTILITY COMPANIES AND FIELD VERIFY EXISTING SITE CONDITIONS.
- LOCATIONS OF EQUIPMENT, PATHWAYS, AND PIPING ARE DIAGRAMMATIC ONLY. EQUIPMENT AND CONDUIT SHALL BE INSTALLED AS REQUIRED TO AVOID INTERFERENCE WITH EXISTING UTILITIES AND STRUCTURES. COORDINATE EXACT LOCATIONS OF ANY SITE WORK WITH CIVIL DRAWINGS.
- WHERE EQUIPMENT, CONDUIT AND PIPING ARE TO BE INSTALLED IN LIMITING CONDITIONS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MODIFY DETAILS OR PROVIDE SPECIAL FITTINGS. ALL MODIFICATIONS SHALL BE REVIEWED WITH ENGINEER PRIOR TO INSTALLATION.
- IF ANY EXISTING WORK IS DAMAGED BY CONSTRUCTION OPERATIONS, CONTRACTOR SHALL REPAIR AND RESTORE TO ORIGINAL CONDITIONS. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGES.
- ALL JUNCTION BOXES, PULL BOXES, FITTINGS, ETC ARE NOT SHOWN ON THIS DRAWING AND SHALL BE PROVIDED WHERE NECESSARY IN ACCORDANCE WITH CODE.
- ALL DIRECT BURIED CONDUITS SHALL BE SCHEDULE 80 PVC. ALL VERTICAL 90 DEGREE BENDS SHALL BE RIGID GALVANIZED STEEL CONDUIT AND HAVE BOTH INSIDE AND OUTSIDE SURFACES PROTECTED AGAINST CORROSION BY COATING OF ZINC OR ENAMEL.
- REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION RELATED TO ALL SITE WORK.
- ALL NEW ELECTRICAL EQUIPMENT UNDER THIS PROJECT SHALL BE NEMA-3R OUTDOOR RATED WHETHER LOCATED INDOORS OR OUTDOORS.
- COORDINATE QUANTITY AND SIZE OF ALL DIRECT BURIED AND ABOVE GRADE CONDUITS WITH SINGLE LINE DIAGRAMS.
- DIRECT BURIED CONDUITS SHALL BE INSTALLED AT DEPTHS PER NEC TABLE 300.5 UNLESS OTHERWISE NOTED. MINIMUM BURIAL DEPTH SHALL BE 18 INCHES.
- UNLESS OTHERWISE NOTED, THE MINIMUM CONDUIT CLEARANCES FROM OTHER UNDERGROUND FACILITIES SHALL BE AS FOLLOWS:
 - A. CONDUIT PARALLELING OTHER UNDERGROUND FACILITIES - 24 INCHES
 - B. CONDUIT CROSSING OVER OR UNDER GAS AND WATER MAINS OR SWERES - 12 INCHES OF EARTH
- ALL GENERATORS AND SUB-BASE FUEL TANKS SHALL BE ORIENTED SUCH THAT MAIN CONTROL COMPONENTS AND TANK REFUELING ARE DIRECTLY ACCESSIBLE FROM THE ROADWAY FOR EASE OF ACCESS.

KEY NOTES

- (F) SYMBOL DENOTES KEY NOTE
- OPTIONAL STAND-BY GENERATOR WITHIN FACTORY STANDARD SOUND ATTENUATED ENCLOSURE MOUNTED ON 8 INCH HIGH CONCRETE PAD. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION ON GENERATOR LOCATION. REFER TO ELECTRICAL SINGLE LINE DIAGRAM SHEET FOR ADDITIONAL GENERATOR INFORMATION AND CONCRETE PAD DETAIL.
- PROPOSED DIRECT BURIED UNDERGROUND CONDUIT ROUTING FOR POWER AND CONTROL CABLING FROM GENERATOR TO EACH ATS. CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITY LOCATIONS AND COORDINATE EXACT LOCATION IN SUCH A MANNER TO MINIMIZE DISTURBANCE TO THE EXISTING SITE. REFER TO SINGLE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- GENERATOR FEEDERS AND CONTROL CABLING SHALL TURN UP ALONG EXTERIOR WALL OF THE BUILDING AND PENETRATE ABOVE ATS HEIGHT SUCH THAT INCOMING EMERGENCY POWER FEED CAN ENTER INTO THE TOP OF THE NEW ATS. ALL OUTDOOR ABOVE GRADE CONDUIT SHALL BE RIGID GALVANIZED STEEL CONDUIT. ALL INTERIOR ABOVE GRADE CONDUIT SHALL BE STEEL EMT. COORDINATE EXACT ROUTING IN FIELD WITH EXISTING CONDITIONS.
- GENERATOR FEEDERS AND CONTROL CABLING SHALL TURN UP ALONG EXTERIOR WALL OF THE BUILDING AND PENETRATE ABOVE ATS HEIGHT SUCH THAT INCOMING EMERGENCY POWER FEED CAN ENTER INTO THE TOP OF THE NEW ATS. INTERIOR CONDUIT SHALL RUN ALONG CONCRETE WALL LEDGE TO AVOID CONTACT WITH FACILITY OPERATIONS. REFER TO PARTIAL FLOOR PLAN FOR CONTINUATION INTO GIRAFFE FACILITY. ALL OUTDOOR ABOVE GRADE CONDUIT SHALL BE RIGID GALVANIZED STEEL CONDUIT. ALL INTERIOR ABOVE GRADE CONDUIT SHALL BE STEEL EMT. COORDINATE EXACT ROUTING IN FIELD WITH EXISTING CONDITIONS.
- GENERATOR FEEDERS AND CONTROLS CABLING SHALL TURN UP ALONG EXTERIOR RETAINING WALL AND ENTER INTO EXTERIOR PULLBOX. REFER TO PARTIAL FLOOR PLAN FOR CONTINUATION INTO LION FACILITY. EMERGENCY POWER FEED CAN ENTER INTO THE TOP OF THE NEW ATS. ALL OUTDOOR ABOVE GRADE CONDUIT SHALL BE RIGID GALVANIZED STEEL CONDUIT. COORDINATE EXACT ROUTING IN FIELD WITH EXISTING CONDITIONS.



No.	DATE	DESCRIPTION
1	09/04/24	ISSUED FOR PERMIT/BID

ISSUES/REVISIONS

Project
THE MARYLAND ZOO IN BALTIMORE - BACKUP GENERATOR REPLACEMENT
1 SAFARI PLACE
BALTIMORE, MARYLAND 21217

Drawing Title
ELECTRICAL SITE PLAN - CHIMPANZEE FOREST & LION/GIRAFFE

Drawn By	NB	Drawing No.	E-002
Checked By	AB		
Date	09/04/2024		
Scale	1" = 20'-0"		
Project No.	230980	3 of 13	

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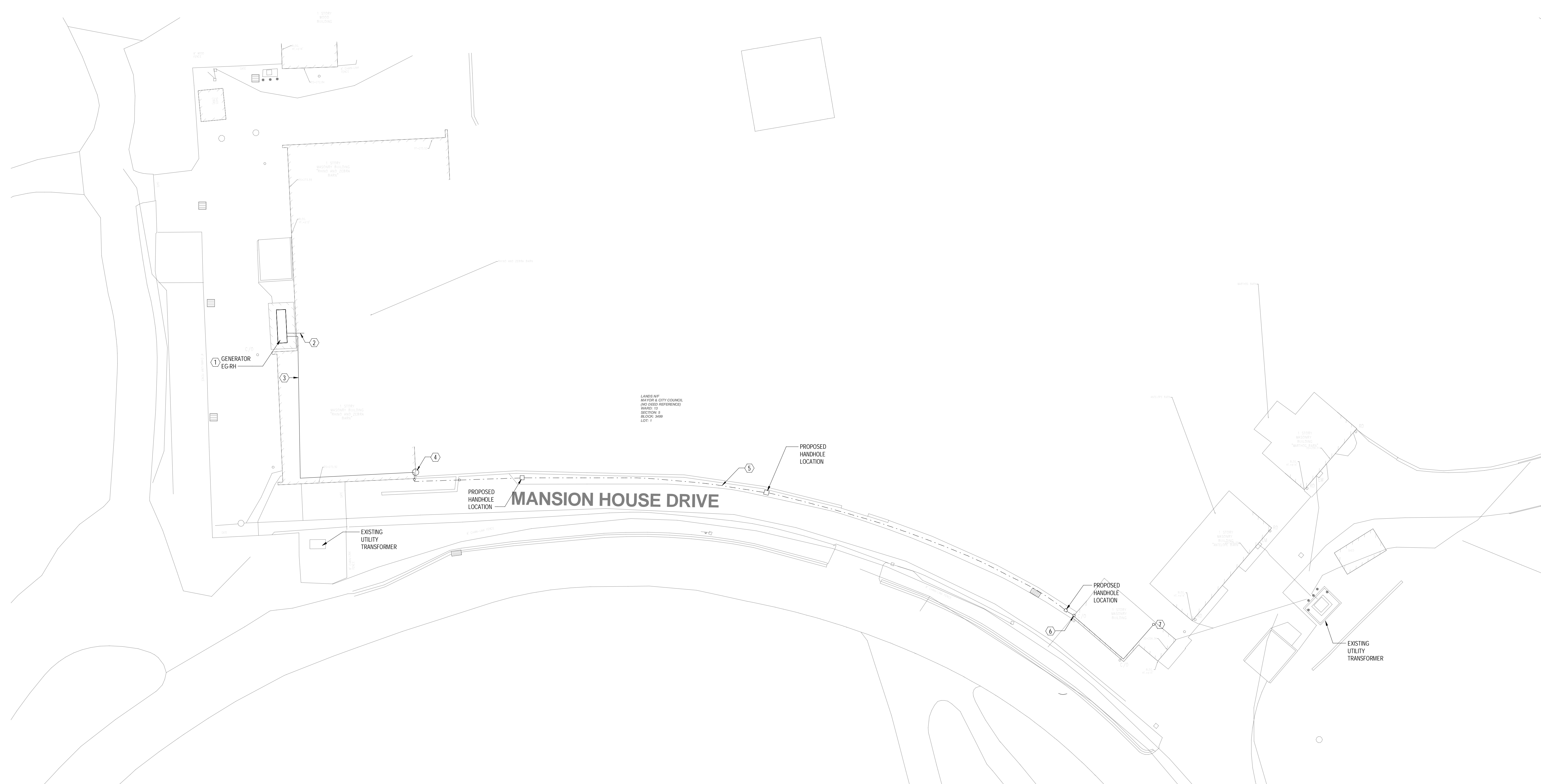
KEY NOTES

④ SYMBOL DENOTES KEY NOTE

- OPTIONAL STAND-BY GENERATOR WITHIN FACTORY STANDARD SOUND ATTENUATED ENCLOSURE MOUNTED ON A 6 INCH HIGH CONCRETE PAD. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION ON GENERATOR LOCATION. REFER TO ELECTRICAL SINGLE LINE DIAGRAM SHEET FOR ADDITIONAL GENERATOR INFORMATION AND CONCRETE PAD DETAIL.
- GENERATOR FEEDER AND CONTROL CABLING SHALL TURN UP ALONG EXTERIOR WALL OF THE BUILDING AND PENETRATE ABOVE AT'S HEIGHT SUCH THAT INCOMING EMERGENCY POWER FEEDS CAN ENTER INTO THE TOP OF THE NEW AT'S WITHIN RHINO FACILITY. ALL OUTDOOR ABOVE GRADE CONDUIT SHALL BE RIGID GALVANIZED STEEL CONDUIT. ALL INTERIOR ABOVE GRADE CONDUIT SHALL BE STEEL ENT. COORDINATE EXACT ROUTING IN FIELD WITH EXISTING CONDITIONS.
- GENERATOR FEEDERS AND CONTROL CABLING FOR ANTELOPE AND WARTHOG FACILITIES SHALL TURN UP ALONG EXTERIOR WALL OF THE BUILDING AND ALONG THE ROOF TOWARDS THE ANTELOPE AND WARTHOG FACILITIES. ALL OUTDOOR ABOVE GRADE CONDUIT SHALL BE RIGID GALVANIZED STEEL CONDUIT. ALL INTERIOR ABOVE GRADE CONDUIT SHALL BE STEEL ENT. COORDINATE EXACT ROUTING IN FIELD WITH EXISTING CONDITIONS.
- CONDUITS SHALL TURN DOWN EXTERIOR WALL OF RHINO FACILITY. RUN ABOVE ACCESS DOOR ON THE FACE OF THE WALL AND THEN TURN DOWN THE WALL ADJACENT TO THE DOORWAY TO TRANSITION TO DIRECT BURIED UNDERGROUND CONDUITS AS INDICATED.
- CONDUITS SHALL TURN UP ALONG EXTERIOR WALL OF THE BUILDING AND RUN ALONG THE ROOF AS INDICATED TIGHT TO STRUCTURE.
- CONDUITS SHALL TURN DOWN AND PENETRATE ROOF TO TERMINATE INTO NEW WIRE AT'S.
- PROPOSED DIRECT BURIED UNDERGROUND CONDUIT ROUTING FOR POWER AND CONTROL CABLING FROM GENERATOR TO EACH AT'S. CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITY LOCATIONS AND COORDINATE EXACT LOCATION IN SUCH MANNER TO MINIMIZE DISTURBANCE TO THE EXISTING SITE. REFER TO SINGLE LINE DIAGRAM FOR ADDITIONAL INFORMATION.

DRAWING NOTES

- FOR ALL MODIFICATIONS ASSOCIATED WITH EXISTING UTILITY OWNED EQUIPMENT CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH UTILITY PROVIDER. ALL OUTAGES SHALL BE COORDINATE WITH BGE AND OWNER PRIOR TO THE COMMENCEMENT OF WORK.
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- ALL GENERATORS AND SUB-BASE FUEL TANKS SHALL BE ORIENTED SUCH THAT MAIN CONTROL COMPONENTS AND TANK REFUELING ARE DIRECTLY ACCESSIBLE FROM THE ROADWAY FOR EASE OF ACCESS.



1 RHINO / ZEBRA & ANTELOPE / WARTHOG BUILDINGS
SCALE: 1" = 20'-0"

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1	09/04/24	ISSUED FOR PERMIT/ID

ISSUES/REVISIONS

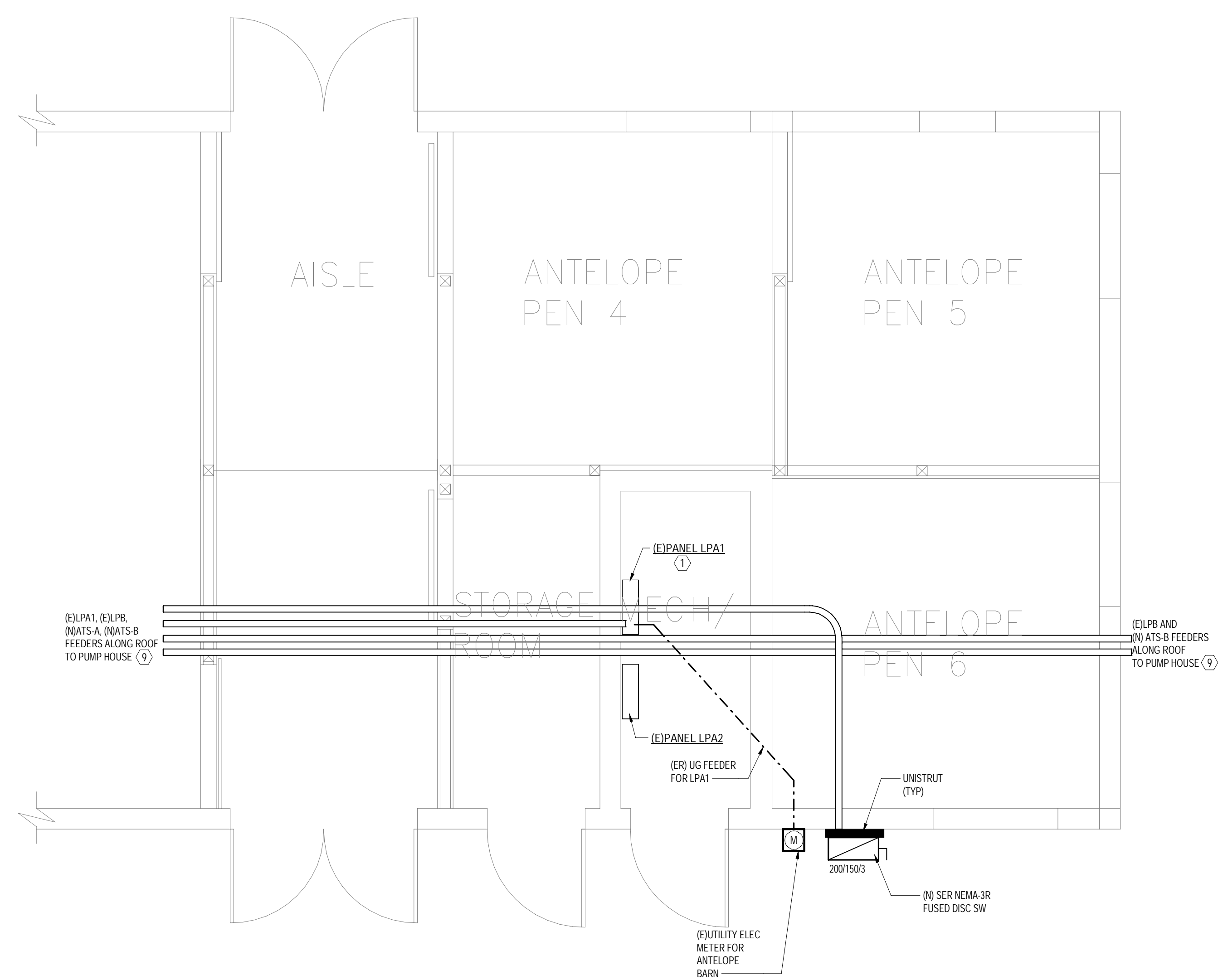
Project
THE MARYLAND ZOO IN BALTIMORE - BACKUP GENERATOR REPLACEMENT
1 SAFARI PLACE
BALTIMORE, MARYLAND 21217

Drawing Title
ELECTRICAL SITE PLAN - RHINO/ZEBRA & ANTELOPE/WARTHOG

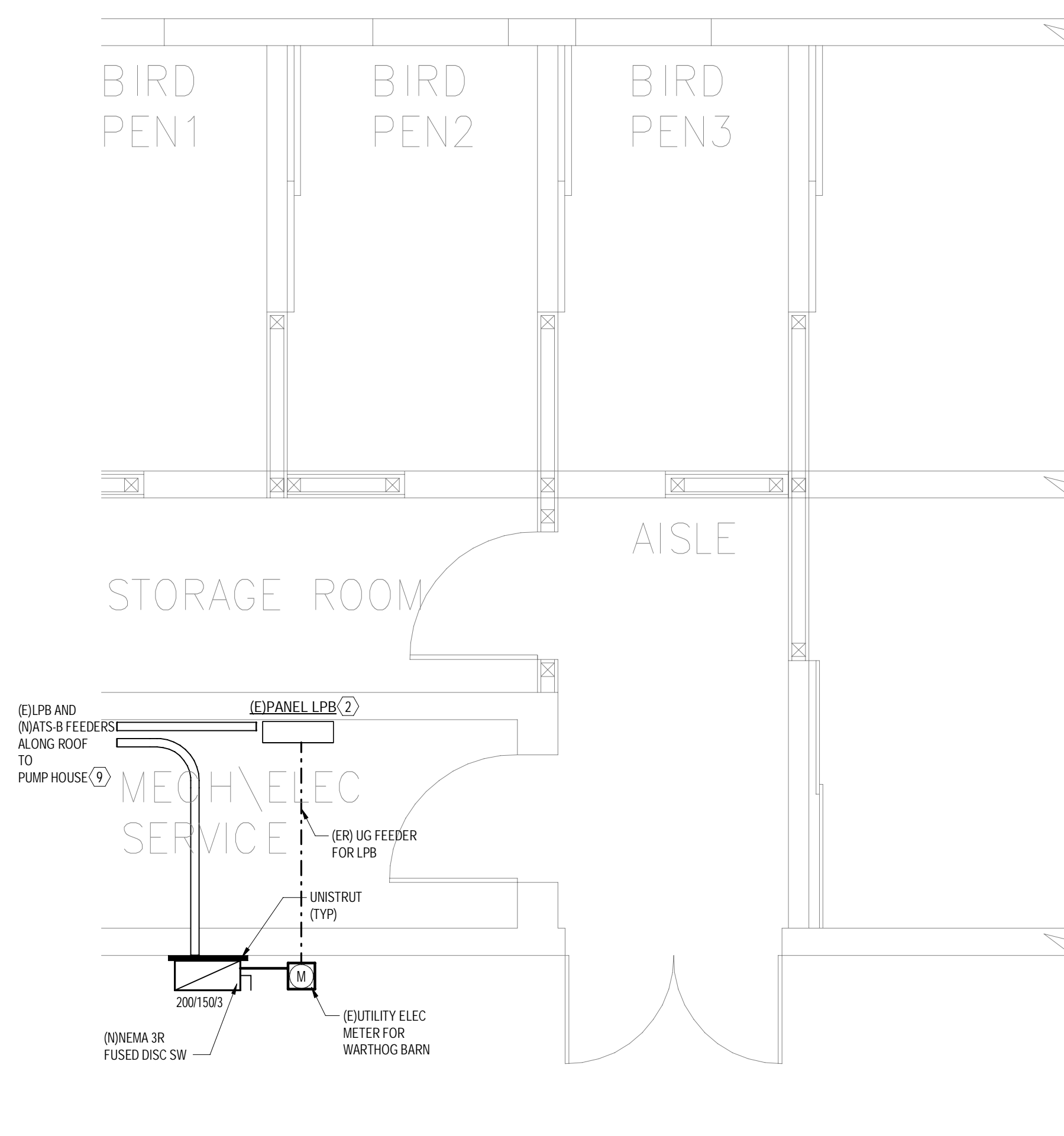
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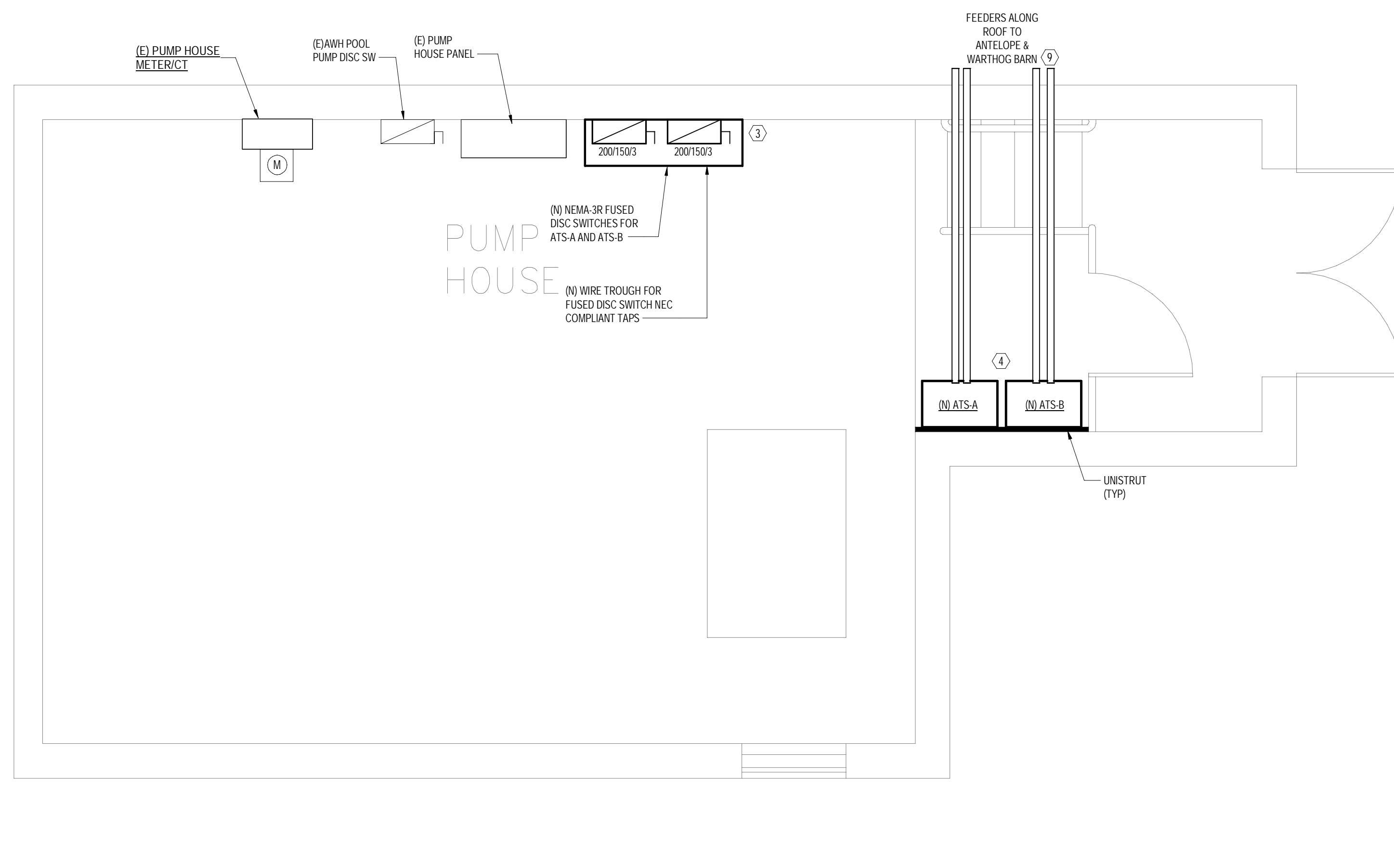
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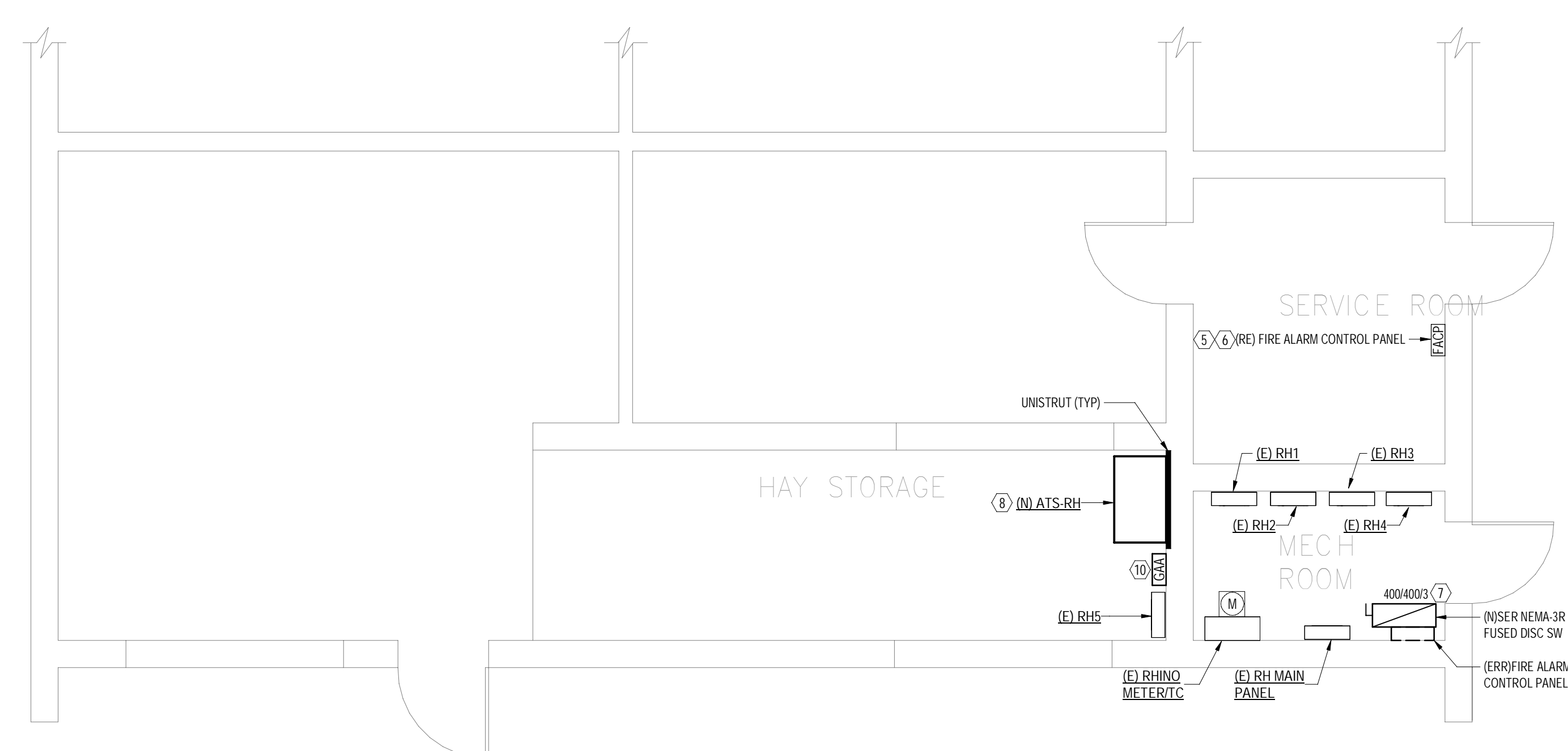
1 ANTELOPE
SCALE: 3/8" = 1'-0"



2 WARTHOG
SCALE: 3/8" = 1'-0"



3 PUMP HOUSE
SCALE: 3/8" = 1'-0"



4 RHINOCEROS
SCALE: 3/8" = 1'-0"

DRAWING NOTES:

1. FOR ALL MODIFICATIONS ASSOCIATED WITH EXISTING UTILITY OWNED EQUIPMENT, CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH UTILITY PROVIDER. ALL OUTAGES SHALL BE COORDINATE WITH THE OWNER PRIOR TO THE COMMENCEMENT OF WORK.
2. BEFORE EXCAVATING, CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO LOCATE AND COORDINATE ALL EXISTING UNDERGROUND UTILITIES. COORDINATE ALL WORK WITH LOCAL UTILITY COMPANIES AND FIELD VERIFY EXISTING SITE CONDITIONS.
3. LOCATIONS OF EQUIPMENT, PATHWAYS, AND PIPING ARE DIAGRAMATIC ONLY. EQUIPMENT AND CONDUIT SHALL BE INSTALLED AS REQUIRED TO AVOID INTERFERENCE WITH EXISTING UTILITIES AND STRUCTURES. COORDINATE EXACT LOCATIONS OF ANY SITE WORK WITH CIVIL DRAWINGS.
4. WHERE EQUIPMENT, CONDUIT, AND PIPING ARE TO BE INSTALLED IN LIMITING CONDITIONS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MODIFY DETAILS OR PROVIDE SPECIAL FITTINGS. ALL MODIFICATIONS SHALL BE REVIEWED WITH ENGINEER PRIOR TO INSTALLATION.
5. IF ANY EXISTING WORK IS DAMAGED BY CONSTRUCTION OPERATIONS, CONTRACTOR SHALL REPAIR AND RESTORE TO ORIGINAL CONDITIONS. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGES.
6. ALL JUNCTION BOXES, PULL BOXES, FITTINGS, ETC ARE NOT SHOWN ON THIS DRAWING AND SHALL BE PROVIDED WHERE NECESSARY IN ACCORDANCE WITH CODE.
7. ALL DIRECT BURIED CONDUITS SHALL BE SCHEDULE 80 PVC, ALL VERTICAL 90 DEGREE BENDS SHALL BE RIGID GALVANIZED STEEL CONDUIT AND HAVE BOTH INSIDE AND OUTSIDE SURFACES PROTECTED AGAINST CORROSION BY COATING OF ZINC OR ENAMEL.
8. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION RELATED TO ALL SITE WORK.
9. ALL NEW ELECTRICAL EQUIPMENT UNDER THIS PROJECT SHALL BE NEMA-3R OUTDOOR RATED WHETHER LOCATED INDOORS OR OUTDOORS.

KEY NOTES:

(K) SYMBOL DENOTES KEY NOTE

1. (E) IPAN LPA1 SHALL BE REFEED VIA (N) SER FUSED DISCONNECT SWITCH AND (N) ATS AS INDICATED ON NEW WORK SINGLE LINE DIAGRAM SHEETS. MAINTAIN EXISTING UTILITY FEED FROM METER UNTIL ALL NEW WORK IS INSTALLED AND READY FOR TIE-IN TO MINIMIZE OUTAGE. EXISTING UNDERGROUND CONDUIT BETWEEN METER AND PANEL SHALL BE CUT DOWN TO SLAB, CAPPED, AND ABANDONED IN PLACE WITH CONDUCTORS REMOVED.
2. (E) IPAN LPA2 SHALL BE REFEED VIA (N) SER FUSED DISCONNECT SWITCH AND (N) ATS AS INDICATED ON NEW WORK SINGLE LINE DIAGRAM SHEETS. MAINTAIN EXISTING UTILITY FEED FROM METER UNTIL ALL NEW WORK IS INSTALLED AND READY FOR TIE-IN TO MINIMIZE OUTAGE. EXISTING UNDERGROUND CONDUIT BETWEEN METER AND PANEL SHALL BE CUT DOWN TO SLAB, CAPPED, AND ABANDONED IN PLACE WITH CONDUCTORS REMOVED.
3. PROVIDE NEC COMPLIANT FEEDER TAPS WITHIN NEW WIRE TROUGH TO FEED ASSOCIATED FUSED DISCONNECT SWITCHES FROM GENERATOR. EGR TO SERVE ATS A AND ATS B. FEEDER FROM EGR SHALL PENETRATE ROOF OF THE PUMP HOUSE TO FEED DOWN INTO WIRE TROUGH. REFER TO SITE PLANS FOR CONTINUATION.
4. COORDINATE WITH OWNER TO RELOCATE EXISTING STORAGE SHELVING WITHIN THE SPACE TO ALLOW FOR ATS INSTALLATION. FEEDERS SHALL RISE UP AND OVER TO THE ANTELOPE & WARTHOG BARN (E) LPA1 AND (E) LPA3 VIA THE SHARED ROOFING MOUNTED TIGHT TO STRUCTURE.
5. EXISTING FIRE ALARM CONTROL PANEL (FACP) SHALL BE RELOCATED AS INDICATED TO CREATE SPACE FOR NEW SER FUSED DISCONNECT FOR RHINO BUILDING. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS IN ORDER TO RELOCATE FACP AND ASSOCIATED CIRCUITING, PATHWAYS, MODULES, RELAYS, ETC. EXTEND ALL CABLE AND PATHWAYS AS REQUIRED TO ACCOMMODATE RELOCATION. PROVIDE SMOKE DETECTOR DIRECTLY ABOVE PANEL. COORDINATE EXACT LOCATION WITH OWNER SUCH THAT FACP IS LOCATED WITH NO PIPING OR OTHER FOREIGN SYSTEMS LOCATED ABOVE IN ACCORDANCE WITH CODE. COORDINATE WITH OWNER FIRE ALARM VENDOR AND PROVIDE FIRE WATCH FOR ANY DOWNTIME REQUIRED FOR RELOCATION. RELOCATION MUST TAKE PLACE PRIOR TO MODIFICATION OF INCOMING SERVICE CONDUITS AND THE INSTALLATION OF THE SER FUSED DISCONNECT.
6. COORDINATE WITH OWNER TO RELOCATE EXISTING LOCKERS WITHIN THE SPACE TO ALLOW FOR INSTALLATION OF RELOCATED FACP AND ASSOCIATED COMPONENTS.
7. ONCE FACP IS RELOCATED, PROVIDE NEW SER FUSED DISCONNECT ADJACENT TO RH MAIN PANEL. UTILIZE AND MODIFY EXISTING INCOMING SERVICE WIRE TROUGH LOCATED BENEATH THE METER/TC CABINET AND RH MAIN PANEL TO EXTEND INCOMING SERVICE FEEDERS TO NEW SER FUSED DISCONNECT SWITCH. MAINTAIN EXISTING UTILITY FEED FROM METER UNTIL ALL NEW WORK IS INSTALLED AND READY FOR TIE-IN TO MINIMIZE OUTAGE.
8. COORDINATE WITH OWNER TO RELOCATE EXISTING SHOE RACK WITHIN THE SPACE TO ALLOW FOR ATS INSTALLATION.
9. ANTELOPE, WARTHOG, AND PUMP HOUSE BUILDINGS CONTAIN BREEZE-WAYS IN BETWEEN EACH STRUCTURE. NEW CONDUIT SHALL BE MOUNTED TIGHT TO BREEZE-WAY CHAMFER STRUCTURAL HORIZONTAL STRUCTURAL MEMBERS AT LEAST EVERY 10 FT IN ACCORDANCE WITH CODE. COORDINATE EXACT MOUNTING LOCATION WITH OWNER IN FIELD.
10. GENERATOR ANNUNCIATOR PANEL SHALL BE TIED INTO CENTRAL MASS NOTIFICATION SYSTEM TO PROVIDE SUPERVISORY SIGNAL SUCH THAT HEAD-END PANEL INDICATES ISSUE WITH GENERATOR FOR EACH BUILDING. START CALL THEM PROPERLY DISPATCH TO THE APPROPRIATE GENERATOR TO INVESTIGATE ISSUE. COORDINATE WITH OWNER'S FIRE ALARM VENDOR FOR TIE-IN INTO EXISTING SYSTEM.

No.	DATE	ISSUED FOR PERMIT/ID	DESCRIPTION
1	09/04/24	ISSUED FOR PERMIT/ID	

ISSUES/REVISIONS	

Project
THE MARYLAND ZOO IN BALTIMORE - BACKUP GENERATOR REPLACEMENT
1 SAFARI PLACE
BALTIMORE, MARYLAND 21217

Drawing Title
ELECTRICAL PARTIAL FLOOR PLANS

Drawn By	NB	Drawing No.	E-100
Checked By	AB		
Date	09/04/2024		
Scale	As indicated		
Project No.	230980		

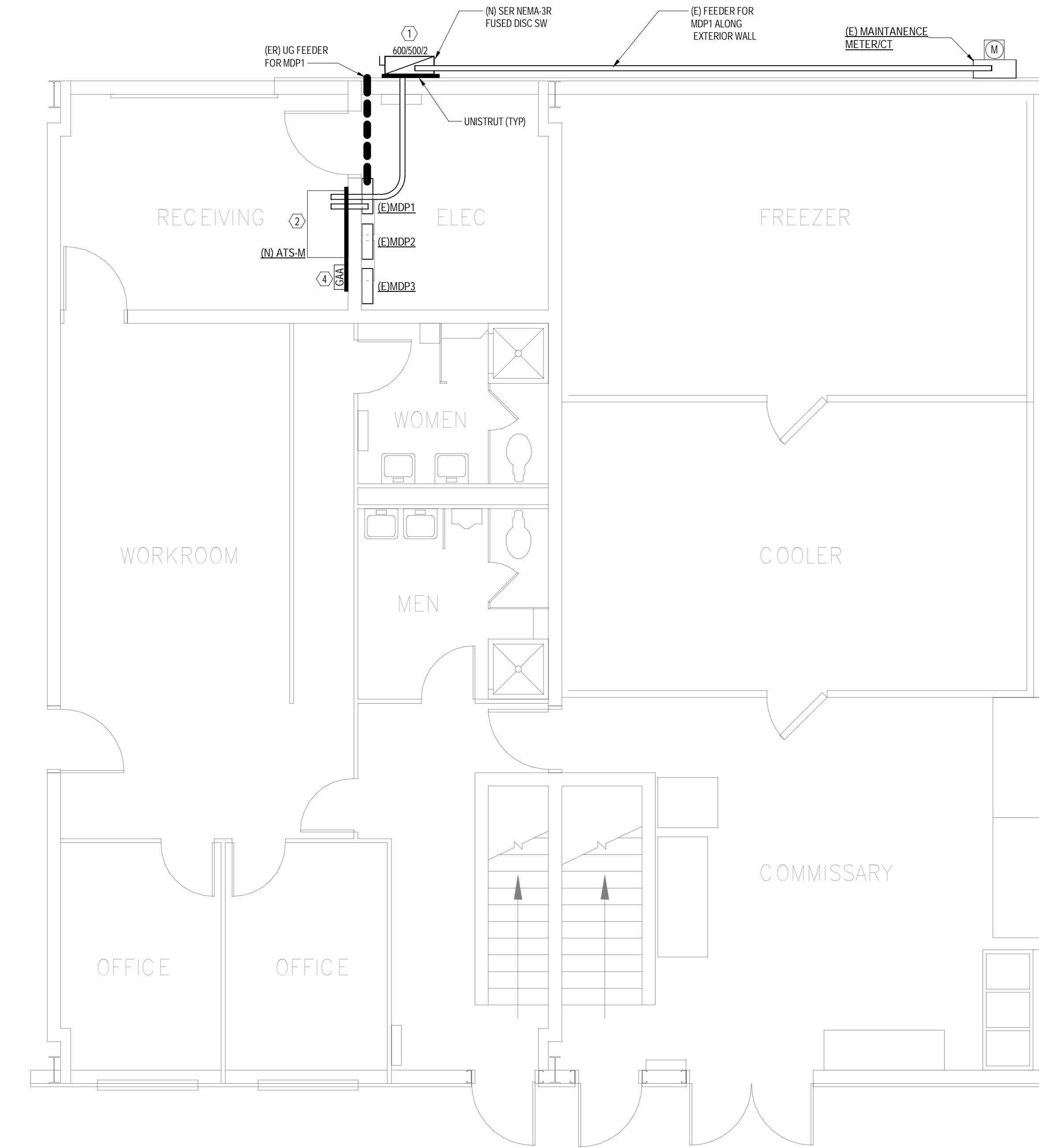
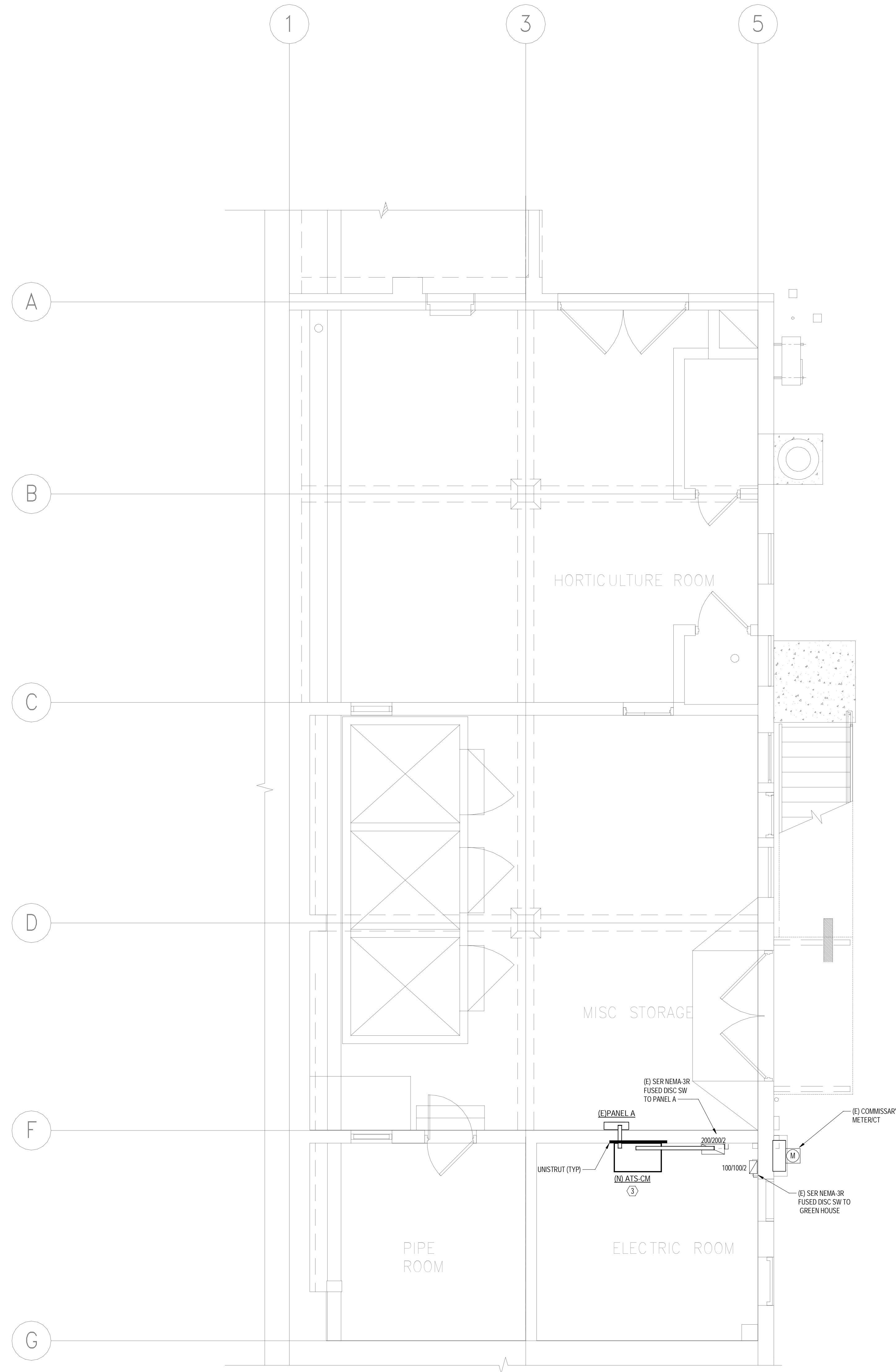
KEY NOTES

① SYMBOL DENOTES KEY NOTE

- ① (E) PANEL MDP1 SHALL BE REFEED VIA (INSER FUSED DISCONNECT SWITCH AND (N)ATS-M AS INDICATED ON NEW WORK SINGLE LINE DIAGRAM SHEETS. INTERCEPT INCOMING SERVICE FEEDER MOUNTED ON EXTERIOR WALL TO TERMINATE INTO INSER FUSED DISCONNECT SWITCH. MAINTAIN EXISTING UTILITY FEED FROM METER UNTIL ALL NEW WORK IS INSTALLED AND READY FOR TIE-IN TO MINIMIZE OUTAGE. EXISTING UNDERGROUND CONDUIT BETWEEN METER AND PANEL SHALL BE CUT DOWN TO SLAB, CAPPED, AND ABANDONED IN PLACE WITH CONDUCTORS REMOVED.
- COORDINATE WITH OWNER TO RELOCATE EXISTING REFRIGERATOR AND MICROWAVE WITHIN THE SPACE TO ALLOW FOR ATS INSTALLATION.
- (E) PANEL A SHALL BE REFEED VIA (N)ATS-CM INDICATED ON NEW WORK SINGLE LINE DIAGRAM SHEETS. INTERCEPT (E) PANEL A FEEDER FROM SER FUSED DISCONNECT SWITCH SUCH THAT (N)ATS-CM IS LOCATED BETWEEN (E) PANEL A AND SERVICE DISCONNECT.
- GENERATOR ANNUNCIATOR PANEL SHALL BE TIED INTO CENTRAL MASS NOTIFICATION SYSTEM TO PROVIDE SUPERVISORY SIGNAL SUCH THAT HEAD-END PANEL INDICATES ISSUE WITH GENERATOR FOR EACH BUILDING. STAFF CAN THEN PROPERLY DISPATCH TO THE APPROPRIATE GENERATOR TO INVESTIGATE ISSUE. COORDINATE WITH OWNERS FIRE ALARM VENDOR FOR TIE-IN INTO EXISTING SYSTEM.

DRAWING NOTES

- FOR ALL MODIFICATIONS ASSOCIATED WITH EXISTING UTILITY OWNED EQUIPMENT, CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH UTILITY PROVIDER. ALL OUTAGES SHALL BE COORDINATE WITH BEE AND OWNERS PRIOR TO THE COMMENCEMENT OF WORK.
- BEFORE EXCAVATING, CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO LOCATE AND COORDINATE ALL EXISTING UNDERGROUND UTILITIES. COORDINATE ALL WORK WITH LOCAL UTILITY COMPANIES AND FIELD VERIFY EXISTING SITE CONDITIONS.
- LOCATIONS OF EQUIPMENT, PATHWAYS, AND PIPING ARE DIAGRAMMATIC ONLY. EQUIPMENT AND CONDUIT SHALL BE INSTALLED AS REQUIRED TO AVOID INTERFERENCE WITH EXISTING UTILITIES AND STRUCTURES. COORDINATE EXACT LOCATIONS OF ANY SITE WORK WITH CIVIL DRAWINGS.
- WHERE EQUIPMENT, CONDUIT, AND PIPING ARE TO BE INSTALLED IN LIMITING CONDITIONS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MODIFY DETAILS OR PROVIDE SPECIAL FITTINGS. ALL MODIFICATIONS SHALL BE REVIEWED WITH ENGINEER PRIOR TO INSTALLATION.
- IF ANY EXISTING WORK IS DAMAGED BY CONSTRUCTION OPERATIONS, CONTRACTOR SHALL REPAIR AND RESTORE TO ORIGINAL CONDITIONS. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGES.
- ALL JUNCTION BOXES, PULL BOXES, FITTINGS, ETC ARE NOT SHOWN ON THIS DRAWING AND SHALL BE PROVIDED WHERE NECESSARY IN ACCORDANCE WITH CODE.
- ALL DIRECT BURIED CONDUITS SHALL BE SCHEDULE 80 PVC. ALL VERTICAL 90 DEGREE BENDS SHALL BE RIGID GALVANIZED STEEL CONDUIT AND HAVE BOTH INSIDE AND OUTSIDE SURFACES PROTECTED AGAINST CORROSION BY COATING OF ZINC OR ENAMEL.
- REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION RELATED TO ALL SITE WORK.
- ALL NEW ELECTRICAL EQUIPMENT UNDER THIS PROJECT SHALL BE NEMA-3R OUTDOOR RATED WHETHER LOCATED INDOORS OR OUTDOORS.



① ZOO GRAIN BARN
SCALE: 1/4" = 1'-0"

② MAINTENANCE
SCALE: 1/4" = 1'-0"

No.	DATE	DESCRIPTION
1	09/04/24	ISSUED FOR PERMIT/BID
ISSUES/REVISIONS		
Project		
THE MARYLAND ZOO IN BALTIMORE - BACKUP GENERATOR REPLACEMENT		
1 SAFARI PLACE BALTIMORE, MARYLAND 21217		
Drawing Title		
ELECTRICAL PARTIAL FLOOR PLANS		
Drawn By	NB	Drawing No.
Checked By	AB	E-101
Date	09/04/2024	
Scale	1/4" = 1'-0"	
Project No.	230980	
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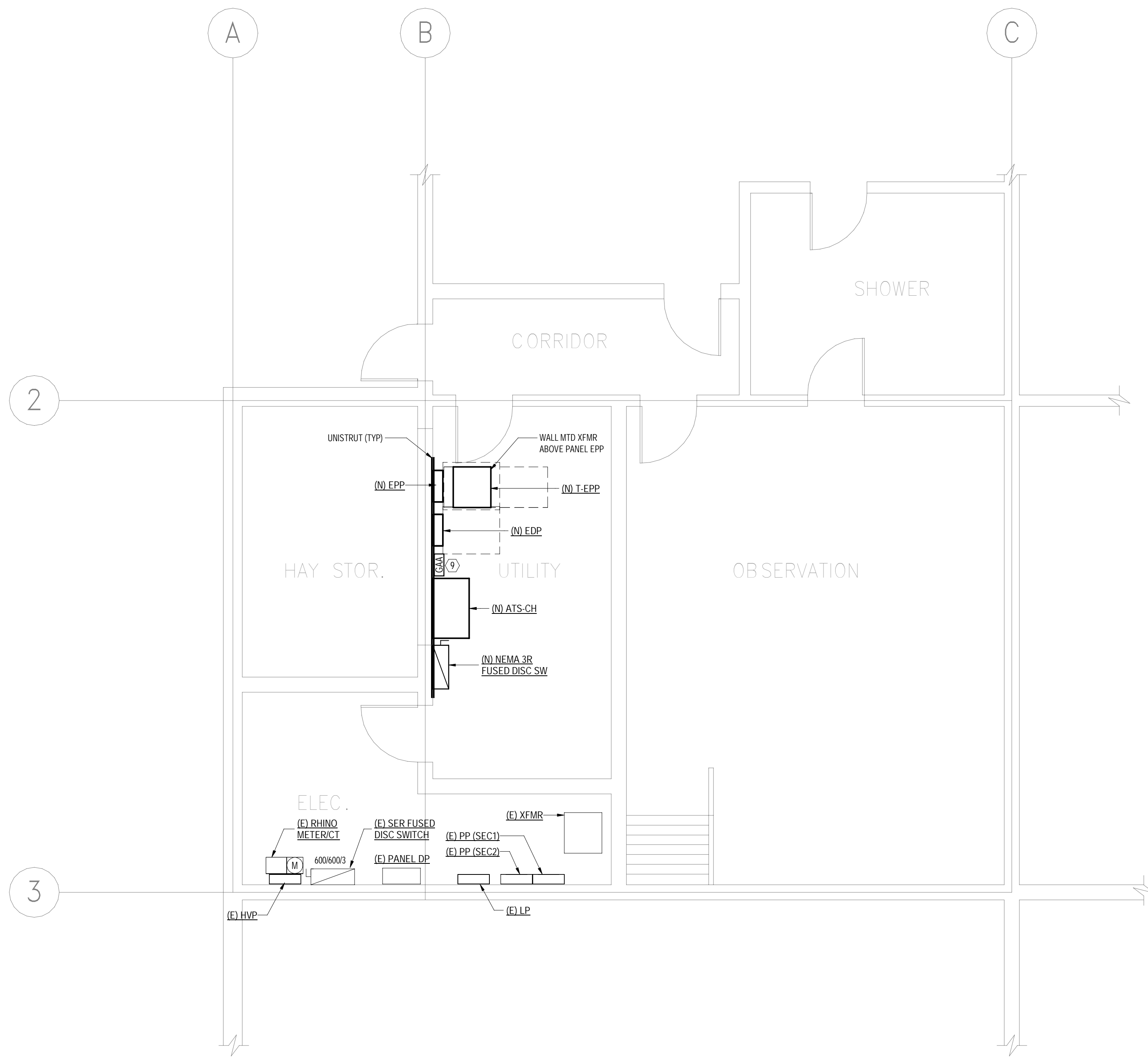
KEY NOTES

① SYMBOL DENOTES KEY NOTE

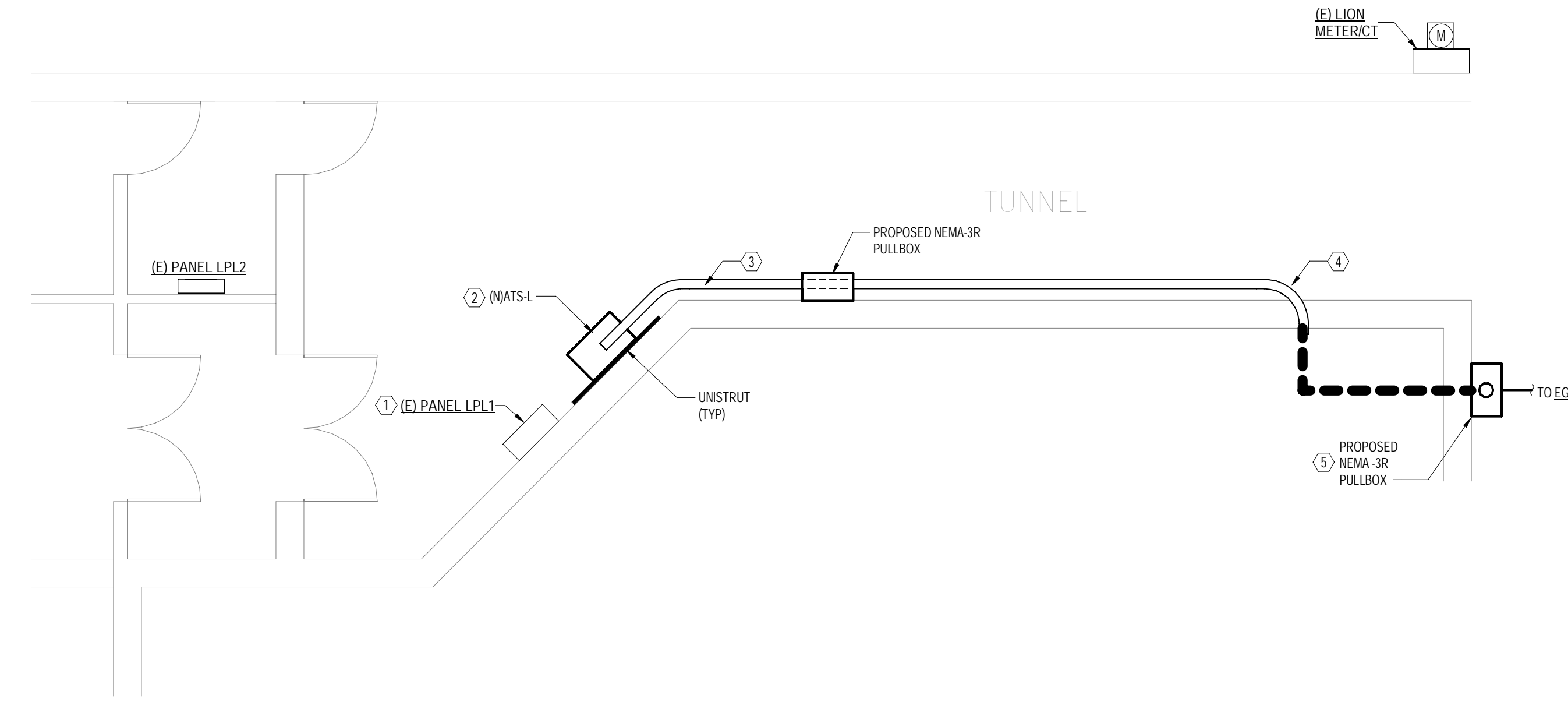
1. INCOMING UTILITY SERVICE CONDUCTORS TURN UP FROM BELOW GRADE AND ENTER INTO THE BOTTOM OF (E)PANEL LPL1 TERMINATING INTO THE 400A MCB. PROVIDE PULLBOX AT PANEL TO INTERCEPT UTILITY FEED AND EXTEND TO NEW SERVICE ENTRANCE RATED AT.S. REFEED (E)PANEL LPL1 VIA RATS-G AS INDICATED ON NEW WORK SINGLE LINE DIAGRAM SHEETS. OFFSET INCOMING UTILITY FEED WITHIN THE ROOM AS REQUIRED TO ALLOW FOR NEC CODE REQUIRED CLEARANCES AND RESTORE SLAB TO ORIGINAL CONDITION.
2. COORDINATE WITH OWNER TO RELOCATE EXISTING STORAGE SHELVING WITHIN THE SPACE TO ALLOW FOR AT.S INSTALLATION. AT.S-1 SHALL SERVE (E)PANEL LPL1 LOCATED ADJACENT.
3. AT.S-1 FEEDER SHALL RUN UP ABOVE LION ENTRY GATE AND REMAIN HIGH TIGHT ALONG THE SIDE OF THE TUNNEL WALL TOWARDS GENERATOR EG-GL.
4. AT.S-1 FEEDER SHALL PENETRATE LION TUNNEL WALL APPROXIMATELY AT THE LOCATION INDICATED AND RUN BENEATH THE SOIL WITHIN THE RETAINING WALL. THE INTENT OF THIS DIRECTION CHANGE IS TO AVOID THE EXISTING TRENCH DRAINS LOCATED DIRECTLY OUTSIDE THE LION TUNNEL.
5. AT.S-1 FEEDER SHALL PENETRATE THE LOW RETAINING WALL INTO A NEMA-3R PULLBOX, AND TURN DOWN TO CONTINUE ROUTING BELOW GRADE TO GENERATOR EG-GL. REFER TO SITE PLAN FOR CONTINUATION. PROVIDE PROTECTIVE BOLLARD IN FRONT OF PROPOSED PULLBOX LOCATION FOR PHYSICAL PROTECTION. COORDINATE BOLLARD REQUIREMENTS WITH CIVIL DRAWING BOLLARD DETAIL.
6. INCOMING UTILITY SERVICE CONDUCTORS TURN UP FROM BELOW GRADE AND ENTER INTO THE BOTTOM OF (E)PANEL LPL1 TERMINATING INTO THE 150A MCB. PROVIDE PULLBOX AT PANEL TO INTERCEPT UTILITY FEED AND EXTEND TO NEW SERVICE ENTRANCE RATED FUSED DISCONNECT SWITCH AND DOWNSTREAM AT.S-G. REFEED (E)PANEL LPL1 VIA NEW AT.S-G AS INDICATED ON NEW WORK SINGLE LINE DIAGRAM SHEETS. FEEDERS SHALL RUN ALONG BLOCK LEDGE ABOVE PANEL TIGHT TO STRUCTURE.
7. COORDINATE WITH OWNER TO RELOCATE EXISTING STORAGE SHELVING WITHIN THE SPACE TO ALLOW FOR AT.S INSTALLATION. FEEDERS SHALL RISE UP AND ALONG BLOCK LEDGE ABOVE AT.S TIGHT TO STRUCTURE OVER TO (E)LPG1.
8. EMERGENCY GENERATOR FEEDERS SHALL RUN ALONG BLOCK LEDGE ABOVE AT.S TIGHT TO STRUCTURE AND PENETRATE EXTERIOR WALL TO GENERATOR. COORDINATE EXACT HEIGHT OF PENETRATION WITH INTERIOR AND EXTERIOR EXISTING CONDITIONS. REFER TO SIT EPLAN FOR CONTINUATION.
9. GENERATOR ANNUNCIATOR PANEL SHALL BE TIED INTO CENTRAL MASS NOTIFICATION SYSTEM TO PROVIDE SUPERVISORY SIGNAL SUCH THAT HEAD-END PANEL INDICATES ISSUE WITH GENERATOR FOR EACH BUILDING. STAFF CAN THEN PROPERLY DISPATCH TO THE APPROPRIATE GENERATOR TO INVESTIGATE ISSUE. COORDINATE WITH OWNER'S FIRE ALARM VENDOR FOR TIE-IN INTO EXISTING SYSTEM.

DRAWING NOTES

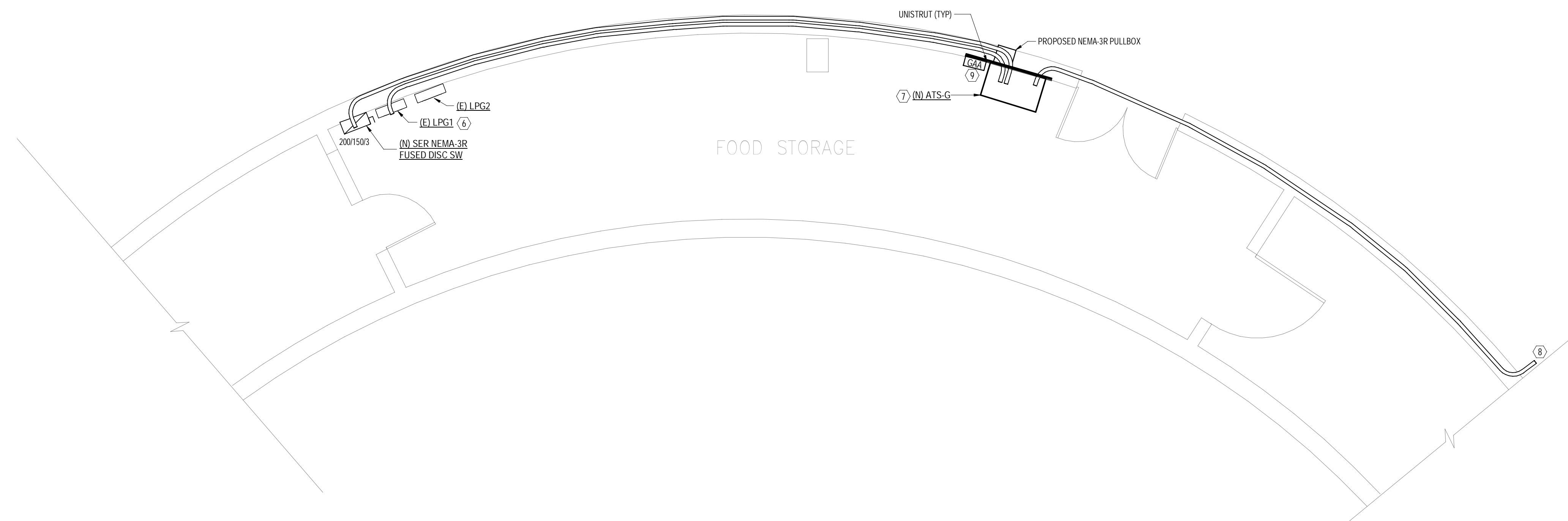
1. FOR ALL MODIFICATIONS ASSOCIATED WITH EXISTING UTILITY OWNED EQUIPMENT, CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH UTILITY PROVIDER. ALL OUTAGES SHALL BE COORDINATE WITH RGE AND OWNER PRIOR TO THE COMMENCEMENT OF WORK.
2. BEFORE EXCAVATING, CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO LOCATE AND COORDINATE ALL EXISTING UNDERGROUND UTILITIES. COORDINATE ALL WORK WITH LOCAL UTILITY COMPANIES AND FIELD VERIFY EXISTING SITE CONDITIONS.
3. LOCATIONS OF EQUIPMENT, PATHWAYS, AND PIPING ARE DIAGRAMMATIC ONLY. EQUIPMENT AND CONDUIT SHALL BE INSTALLED AS REQUIRED TO AVOID INTERFERENCE WITH EXISTING UTILITIES AND STRUCTURES. COORDINATE EXACT LOCATIONS OF ANY SITE WORK WITH CIVIL DRAWINGS.
4. WHERE EQUIPMENT, CONDUIT, AND PIPING ARE TO BE INSTALLED IN LIMITING CONDITIONS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MODIFY DETAILS OR PROVIDE SPECIAL FITTINGS. ALL MODIFICATIONS SHALL BE REVIEWED WITH ENGINEER PRIOR TO INSTALLATION.
5. IF ANY EXISTING WORK IS DAMAGED BY CONSTRUCTION OPERATIONS, CONTRACTOR SHALL REPAIR AND RESTORE TO ORIGINAL CONDITIONS. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGES.
6. ALL JUNCTION BOXES, PULL BOXES, FITTINGS, ETC ARE NOT SHOWN ON THIS DRAWING AND SHALL BE PROVIDED WHERE NECESSARY IN ACCORDANCE WITH CODE.
7. ALL DIRECT BURIED CONDUITS SHALL BE SCHEDULE 80 PVC. ALL VERTICAL 90 DEGREE BENDS SHALL BE RIGID GALVANIZED STEEL CONDUIT AND HAVE BOTH INSIDE AND OUTSIDE SURFACES PROTECTED AGAINST CORROSION BY COATING OF ZINC OR ENAMEL.
8. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION RELATED TO ALL SITE WORK.
9. ALL NEW ELECTRICAL EQUIPMENT UNDER THIS PROJECT SHALL BE NEMA-3R OUTDOOR RATED WHETHER LOCATED INDOORS OR OUTDOORS.



① CHIMPANZEE HOUSE
SCALE: 1/4" = 1'-0"



② LION
SCALE: 1/4" = 1'-0"



③ GIRAFFE
SCALE: 1/4" = 1'-0"

No.	DATE	DESCRIPTION
1	09/04/24	ISSUED FOR PERMIT/BD

ISSUES/REVISIONS	
Project	THE MARYLAND ZOO IN BALTIMORE - BACKUP GENERATOR REPLACEMENT
1 SAFARI PLACE BALTIMORE, MARYLAND 21217	
Drawing Title	
ELECTRICAL PARTIAL FLOOR PLANS	
Drawn By	NB
Checked By	AB
Date	09/06/2024
Scale	1/4" = 1'-0"
Project No.	230980
Drawing No.	E-102
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FEEDER SCHEDULE

(COPPER CONDUCTORS WITH EQUIPMENT GROUNDING CONDUCTORS)

NOTES:

1. ALL INDICATED FEEDER SIZES ARE FOR 600V, COPPER CONDUCTORS WITH AMPACITIES FOR 75 DEGREE TERMINATIONS AS PER NEC TABLE 310.16 (OR 310.15 2017 NEC).
2. FOR EQUIPMENT RATED FOR 60 DEGREE TERMINATIONS CONTRACTOR SHALL ADJUST FEEDER AND CONDUIT SIZES IN ACCORDANCE WITH NEC 110.14(C)(1).
3. FINAL CONDUIT SIZES SHALL BE ADJUSTED FOR THE FOLLOWING FEEDERS:
A. TYPE RH, RHV AND RHW-2 CONDUCTORS WITH OUTER COVERING.
B. TYPE PVC SCHEDULE 40 CONDUIT.
C. WHERE EQUIPMENT GROUNDING CONDUCTOR SIZES SHALL BE INCREASED IN SIZE AS PER NOTE 4.
4. WHERE FEEDER CONDUCTORS ARE REQUIRED TO BE INCREASED IN SIZE DUE TO A VOLTAGE DROP OR OTHER REASONS, EQUIPMENT GROUNDING CONDUCTOR SIZES SHALL BE INCREASED IN SIZE PROPORTIONALLY.
5. CONDUIT SIZES INDICATED FOR PARALLEL SETS ARE FOR EACH SET UNLESS OTHERWISE NOTED.

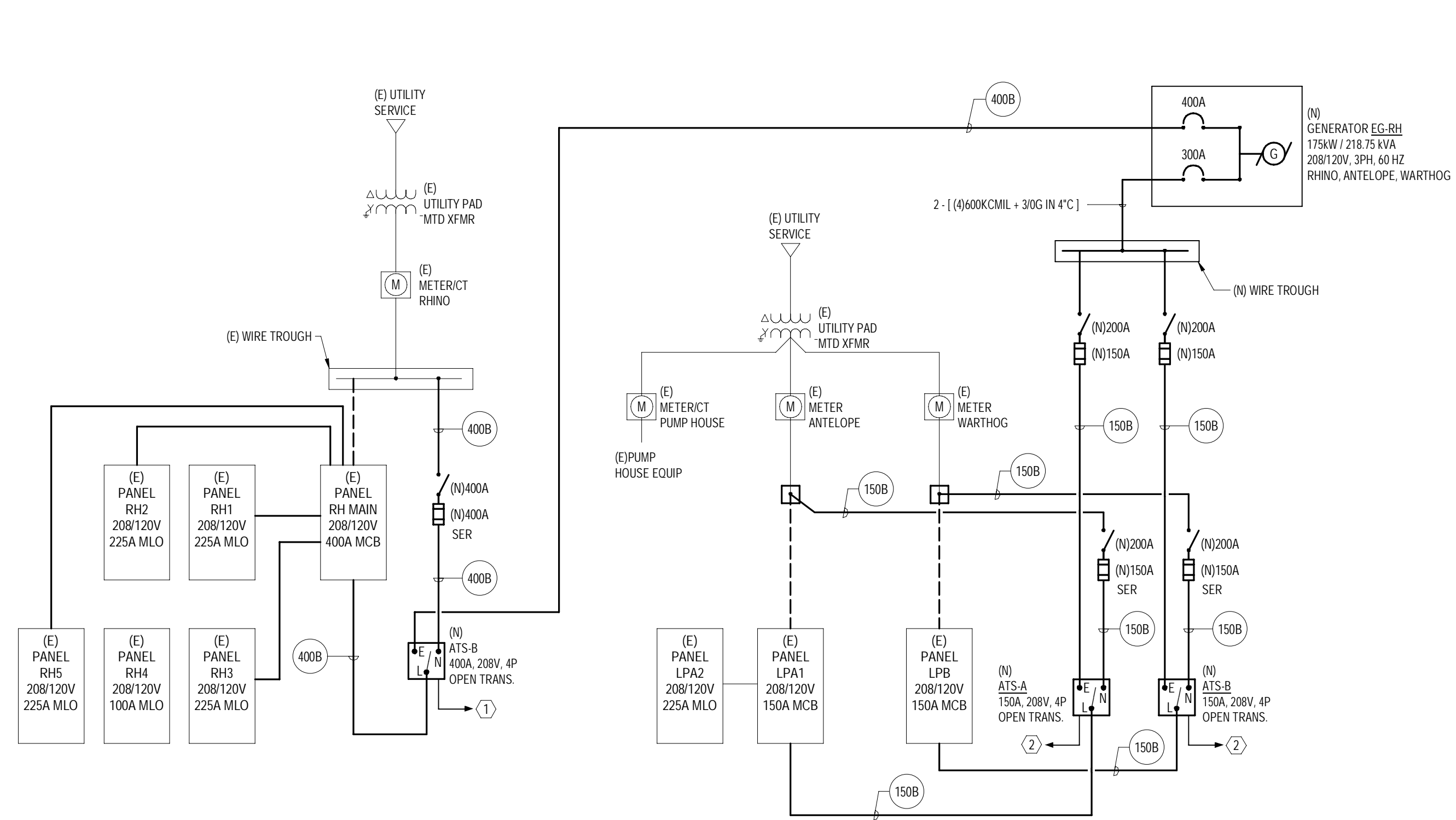
TAG	WIRE & CONDUIT SIZES (3W-G)	TAG	WIRE & CONDUIT SIZES (4W-G)	ALLOWABLE AMPACITY (SEE NOTE 1)
30A	3#10 + #10G - 3/4"	30B	4#10 + #10G - 3/4"	25
40A	3#8 + #10G - 3/4"	40B	4#8 + #10G - 1"	50
60A	3#6 + #8G - 1"	60B	4#6 + #8G - 1 1/4"	65
70A	3#4 + #8G - 1 1/4"	70B	4#4 + #8G - 1 1/4"	85
90A	3#3 + #8G - 1 1/4"	90B	4#3 + #8G - 1 1/4"	100
100A	3#2 + #8G - 1 1/4"	100B	4#2 + #8G - 1 1/2"	115
125A	3#1 + #8G - 1 1/4"	125B	4#1 + #8G - 2"	130
150A	3#10 + #6G - 1 1/2"	150B	4#10 + #6G - 2"	150
175A	3#20 + #6G - 2"	175B	4#20 + #6G - 2"	175
200A	3#30 + #6G - 2"	200B	4#30 + #6G - 2 1/2"	200
225A	3#40 + #6G - 2"	225B	4#40 + #6G - 2 1/2"	230
250A	(3)250KCMIL + #6G - 2 1/2"	250B	(4)250KCMIL + #6G - 3"	255
300A	(3)350KCMIL + #6G - 3"	300B	(4)350KCMIL + #6G - 3"	310
350A	(3)400KCMIL + #6G - 3"	350B	(4)400KCMIL + #6G - 3"	335
400A	(3)500KCMIL + #6G - 3"	400B	(4)500KCMIL + #6G - 3 1/2"	380
450A	(3)600KCMIL + #6G - 3 1/2"	450B	(4)600KCMIL + #6G - 4"	420
500A	2 SETS OF (3)250KCMIL + #1G - 2 1/2"	500B	2 SETS OF (4)250KCMIL + #1G - 3"	510
600A	2 SETS OF (3)350KCMIL + #1G - 3"	600B	2 SETS OF (4)350KCMIL + #1G - 3"	620
800A	2 SETS OF (3)500KCMIL + #1G - 3"	800B	2 SETS OF (4)500KCMIL + #1G - 3 1/2"	740
1000A	3 SETS OF (3)400KCMIL + #20G - 3"	1000B	3 SETS OF (4)400KCMIL + #20G - 3 1/2"	1005
1200A	3 SETS OF (3)600KCMIL + #30G - 3 1/2"	1200B	3 SETS OF (4)600KCMIL + #30G - 4"	1260
1600A	4 SETS OF (3)600KCMIL + #40G - 3 1/2"	1600B	4 SETS OF (4)600KCMIL + #40G - 4"	1680
2000A	5 SETS OF (3)800KCMIL + #50KCMIL G - 3 1/2"	2000B	5 SETS OF (4)800KCMIL + #50KCMIL G - 4"	2100
2500A	6 SETS OF (3)800KCMIL + #50KCMIL G - 3 1/2"	2500B	6 SETS OF (4)800KCMIL + #50KCMIL G - 4"	2520
3000A	8 SETS OF (3)500KCMIL + 400KCMIL G - 3 1/2"	3000B	8 SETS OF (4)500KCMIL + 400KCMIL G - 3 1/2"	3040
4000A	10 SETS OF (3)600KCMIL + 500KCMIL G - 3 1/2"	4000B	10 SETS OF (4)600KCMIL + 500KCMIL G - 4"	4200

DRAWING NOTES:

1. FOR ALL MODIFICATIONS ASSOCIATED WITH EXISTING UTILITY OWNED EQUIPMENT CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH UTILITY PROVIDER. ALL OUTAGES SHALL BE COORDINATED WITH G&E AND OWNER PRIOR TO THE COMMENCEMENT OF WORK.
2. BEFORE EXCAVATING, CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO LOCATE AND COORDINATE ALL EXISTING UNDERGROUND UTILITIES. COORDINATE ALL WORK WITH LOCAL UTILITY COMPANIES AND FIELD VERIFY EXISTING SITE CONDITIONS.
3. LOCATIONS OF EQUIPMENT, PATHWAYS, AND PIPING ARE DIAGRAMMATIC ONLY. EQUIPMENT AND CONDUIT SHALL BE INSTALLED AS REQUIRED TO AVOID INTERFERENCE WITH EXISTING UTILITIES AND STRUCTURES. COORDINATE EXACT LOCATIONS OF ANY SITE WORK WITH CIVIL DRAWINGS.
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5. IF ANY EXISTING WORK IS DAMAGED BY CONSTRUCTION OPERATIONS, CONTRACTOR SHALL REPAIR AND RESTORE TO ORIGINAL CONDITIONS. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGES.
6. ALL JUNCTION BOXES, PULL BOXES, FITTINGS, ETC. ARE NOT SHOWN ON THIS DRAWING AND SHALL BE PROVIDED WHERE NECESSARY IN ACCORDANCE WITH CODE.
7. ALL DIRECT BURIED CONDUITS SHALL BE SCHEDULE 40 PVC. ALL VERTICAL 90 DEGREE BENDS SHALL BE RIGID GALVANIZED STEEL CONDUIT AND HAVE BOTH INSIDE AND OUTSIDE SURFACES PROTECTED AGAINST CORROSION BY COATING OF ZINC OR ENAMEL.
8. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION RELATED TO ALL SITE WORK.
9. ALL NEW ELECTRICAL EQUIPMENT UNDER THIS PROJECT SHALL BE NEMA-3R OUTDOOR RATED WHETHER LOCATED INDOORS OR OUTDOORS.
10. GENERATORS ARE PROVIDING OPTIONAL STAND-BY POWER ONLY. ARTICLE 700. EMERGENCY LOADS ARE BACKED UP VIA EXISTING BATTERY PACKS.
11. REFER TO FLOOR PLANS FOR ADDITIONAL DETAIL ASSOCIATED WITH DEMOLITION SCOPE FOR EACH BUILDING. UNLESS OTHERWISE NOTED, FEEDERS INDICATED TO BE DEMOLISHED SHALL BE REMOVED IN THEIR ENTIRETY ONCE NEW WORK IS COMPLETE AND READY FOR TIE-IN TO MINIMIZE OUTAGES.
12. UNLESS OTHERWISE NOTED, FOR ALL FEEDER SPLICES, PROVIDE JUNCTION BOX AND MODULAR SPLICE AS MANUFACTURE BY ALSO. MODEL# PBTS OR EQUAL. VERIFY CONDUCTOR SIZE, TYPE, AND QUANTITY IN FIELD.
13. UNLESS OTHERWISE NOTED, ALL NEW ELECTRICAL EQUIPMENT SHALL HAVE A RIC RATING OF 40,000 PLEASE NOTE THIS ALSO APPLIES TO WITHSTAND RATING OF AUTOMATIC TRANSFER SWITCHES.
14. GENERATORS SHALL BE GROUNDED AS SEPARATELY DERIVED SYSTEMS IN ACCORDANCE WITH NEC.
15. ALL PANELBOARDS WITH NEW OR MODIFIED EXISTING LOADS, AS WELL AS ALL MAIN DISTRIBUTION PANELS FOR EACH BUILDING, SHALL BE METERED FOR 30 DAYS IN ACCORDANCE WITH NEC 200.47 BY ELECTRICAL CONTRACTOR. AFTER 30-DAY THIS INFORMATION SHALL BE PROVIDED TO THE ENGINEER OF RECORD IN ORDER TO EVALUATED CAPACITIES BASED ON THE LATEST METERING INFORMATION.

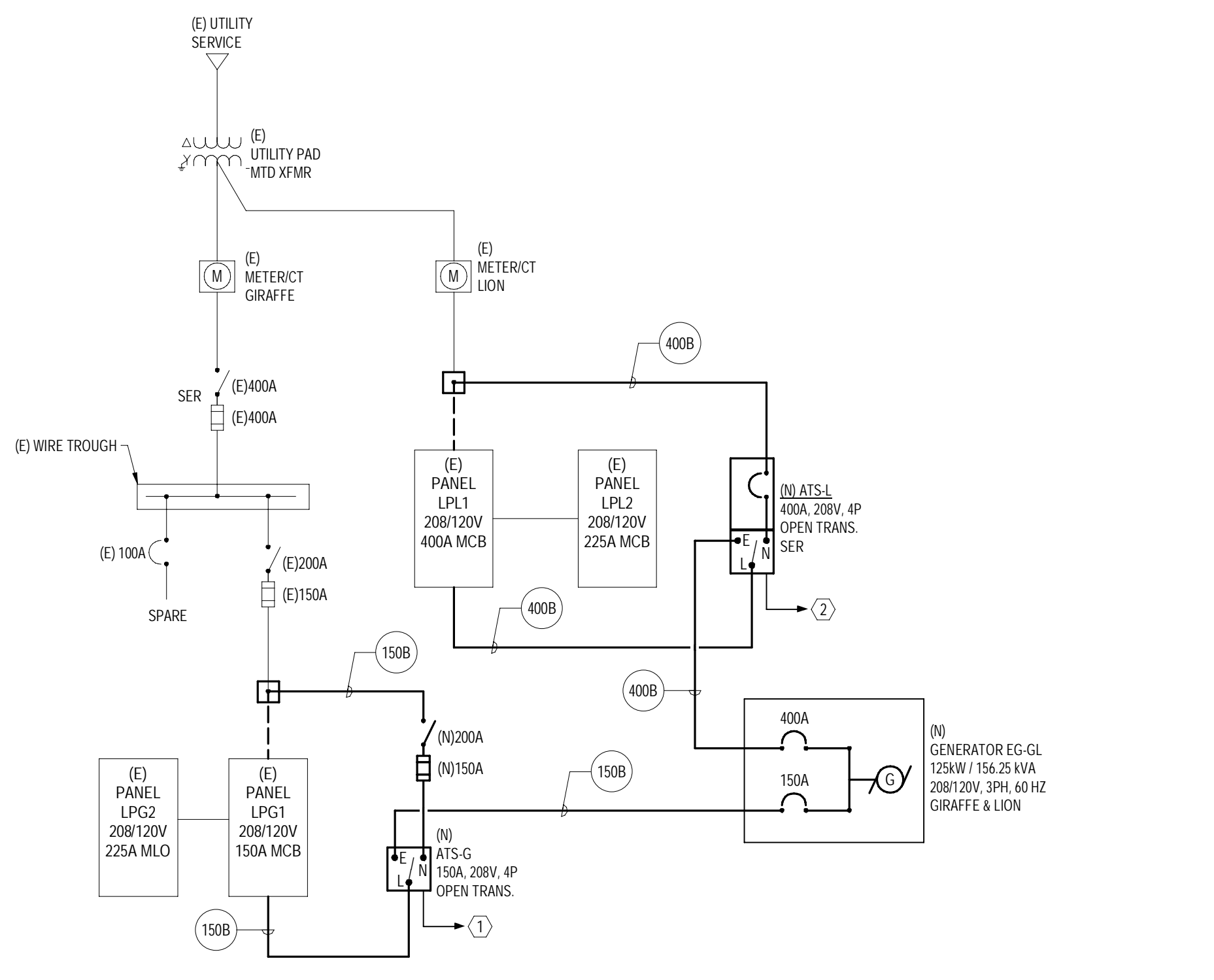
KEY NOTES

- (1) SYMBOL DENOTES KEY NOTE
1. PROVIDE #18 AWG GENERATOR START CABLES FROM ATIS TO GENERATOR IN 1" CONDUIT PER MANUFACTURE REQUIREMENTS AND NEC CONNECTIONS.
 2. PROVIDE #12 AWG GENERATOR START CABLING FROM ATIS TO GENERATOR IN 1" CONDUIT PER MANUFACTURE REQUIREMENTS AND NEC CONNECTIONS. CABLING HAS BEEN UPSIZED FOR VOLTAGE DROP. CONTRACTOR SHALL REDUCE CABLE SIZE WITHIN ATIS AND GENERATOR ENCLOSURES TO CABLE SIZE SUITABLE FOR TERMINATIONS.
 3. PROVIDE CIRCUIT BREAKER AS INDICATED WITHIN (NEOP FOR OVERCURRENT PROTECTION OF ASSOCIATED FEEDER).
 4. PROVIDE CIRCUIT BREAKER AS INDICATED WITHIN (EOP FOR OVERCURRENT PROTECTION OF ASSOCIATED FEEDER. NEW FEEDER SHALL SERVE THE NORMAL SIDE OF (N)ATIS-CH).
 5. PROVIDE CIRCUIT BREAKER AS INDICATED WITHIN (NEPP FOR OVERCURRENT PROTECTION OF ASSOCIATED FEEDER).
 6. PROVIDE NEW OPTIONAL STAND-BY EMERGENCY POWER PANELS AS INDICATED TO PROVIDE BACK-UP POWER FOR THIS FACILITY. CONTRACTOR SHALL FIELD VERIFY EXISTING CIRCUIT DESIGNATIONS AND SYSTEMATICALLY TRANSFER THE FOLLOWING LOADS FROM THE EXISTING NORMAL POWER DISTRIBUTION TO THE NEW EMERGENCY DISTRIBUTION:
PANEL HVP
PANEL LP
CHEETAH SUB-PANEL
VENTILATION
ELECTRIC HEAT
FIRE ALARM
LIGHTING
ELECTRIC DOOR OPERATORS
REFRIGERATOR / FREEZERS
WATER HEATERS
SECURITY SYSTEM



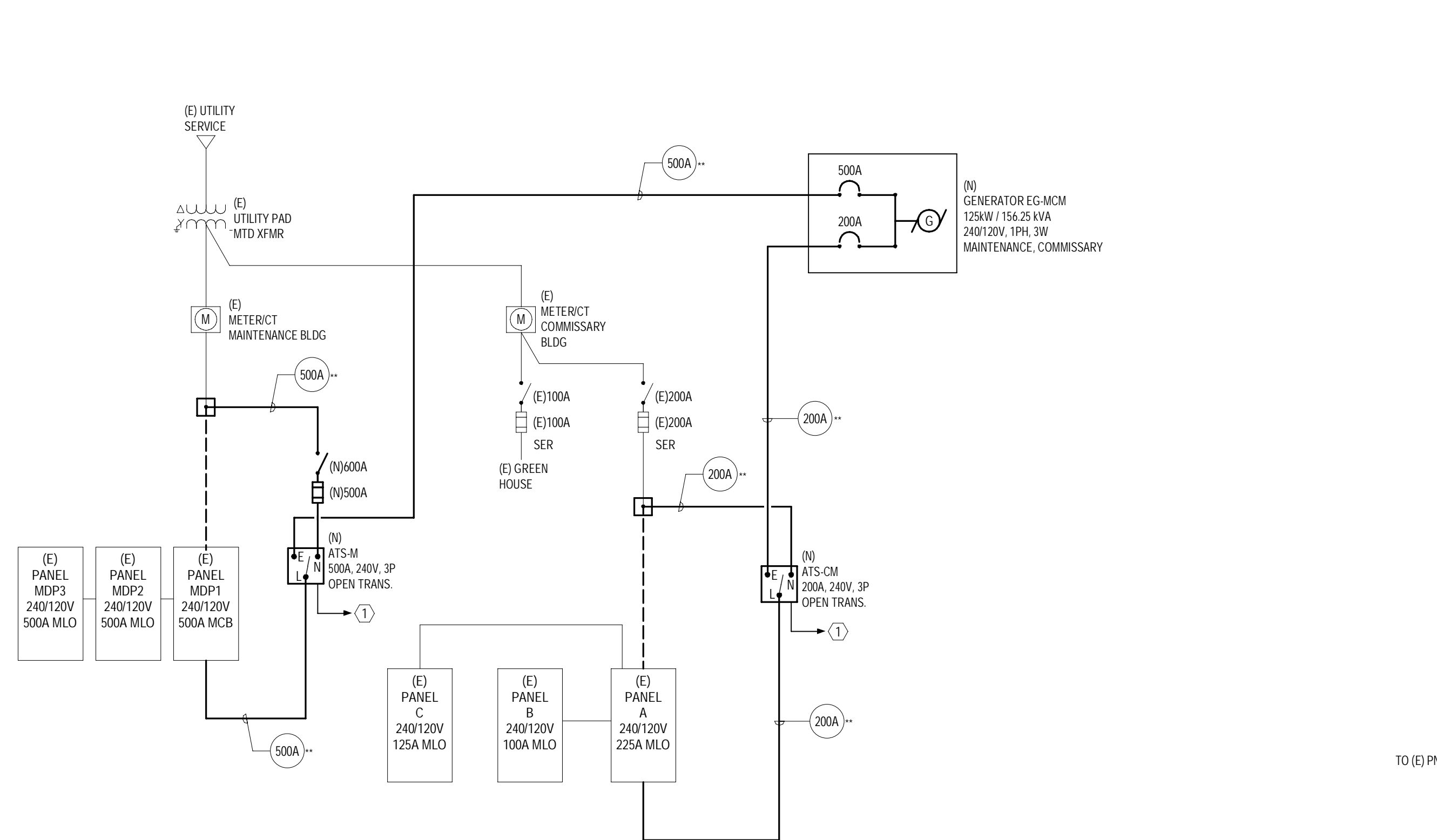
RHINO/ANTELOPE/WARTHOG SINGLE LINE DIAGRAM

SCALE: NONE



LION/GIRAFFE SINGLE LINE DIAGRAM

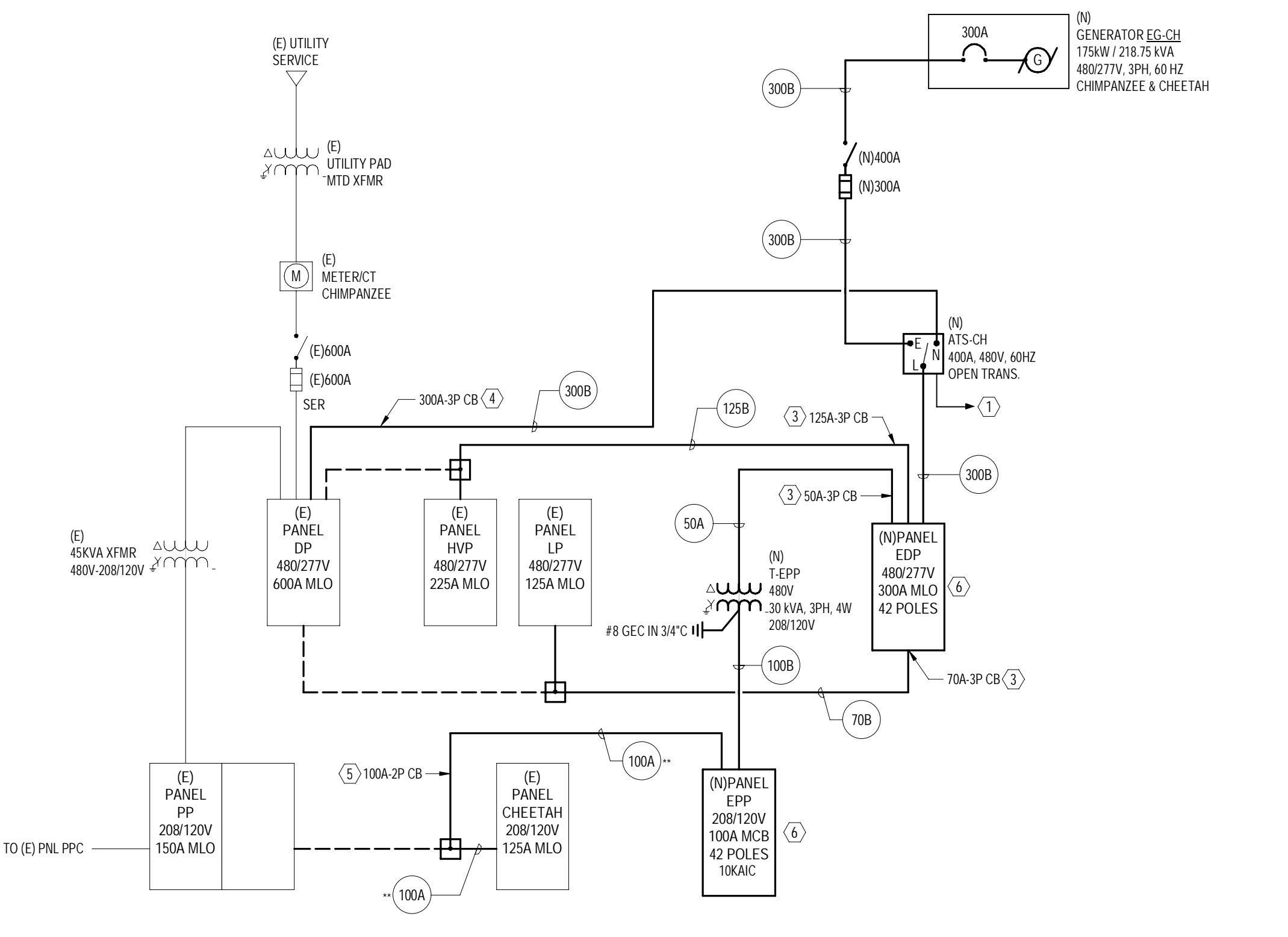
SCALE: NONE



MAINTENANCE/COMMISSARY SINGLE LINE DIAGRAM

SCALE: NONE

** 3W-G FEEDER TAGS FOR 240V120V, 1PH, 3W SYSTEMS CONSIST OF 2 HOTS, 1 NEUTRAL, AND 1 GRND CONDUCTOR COLOR CODED PER SPECIFICATIONS.

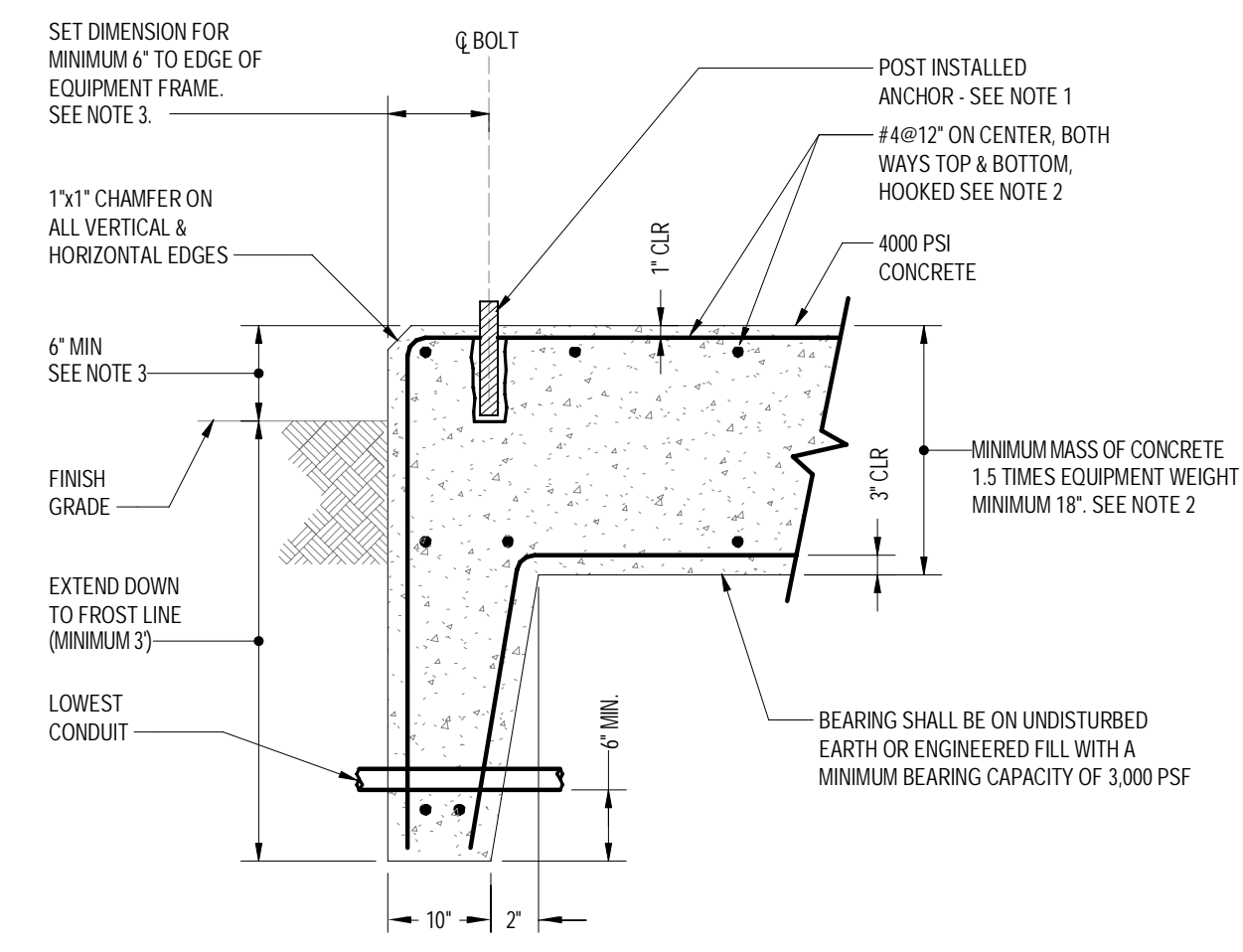


CHIMPANZEE/CHEETAH SINGLE LINE DIAGRAM

SCALE: NONE

** 3W-G FEEDER TAGS FOR 208V120V, 1PH, 3W SYSTEMS CONSIST OF 2 HOTS, 1 NEUTRAL, AND 1 GRND CONDUCTOR COLOR CODED PER SPECIFICATIONS.

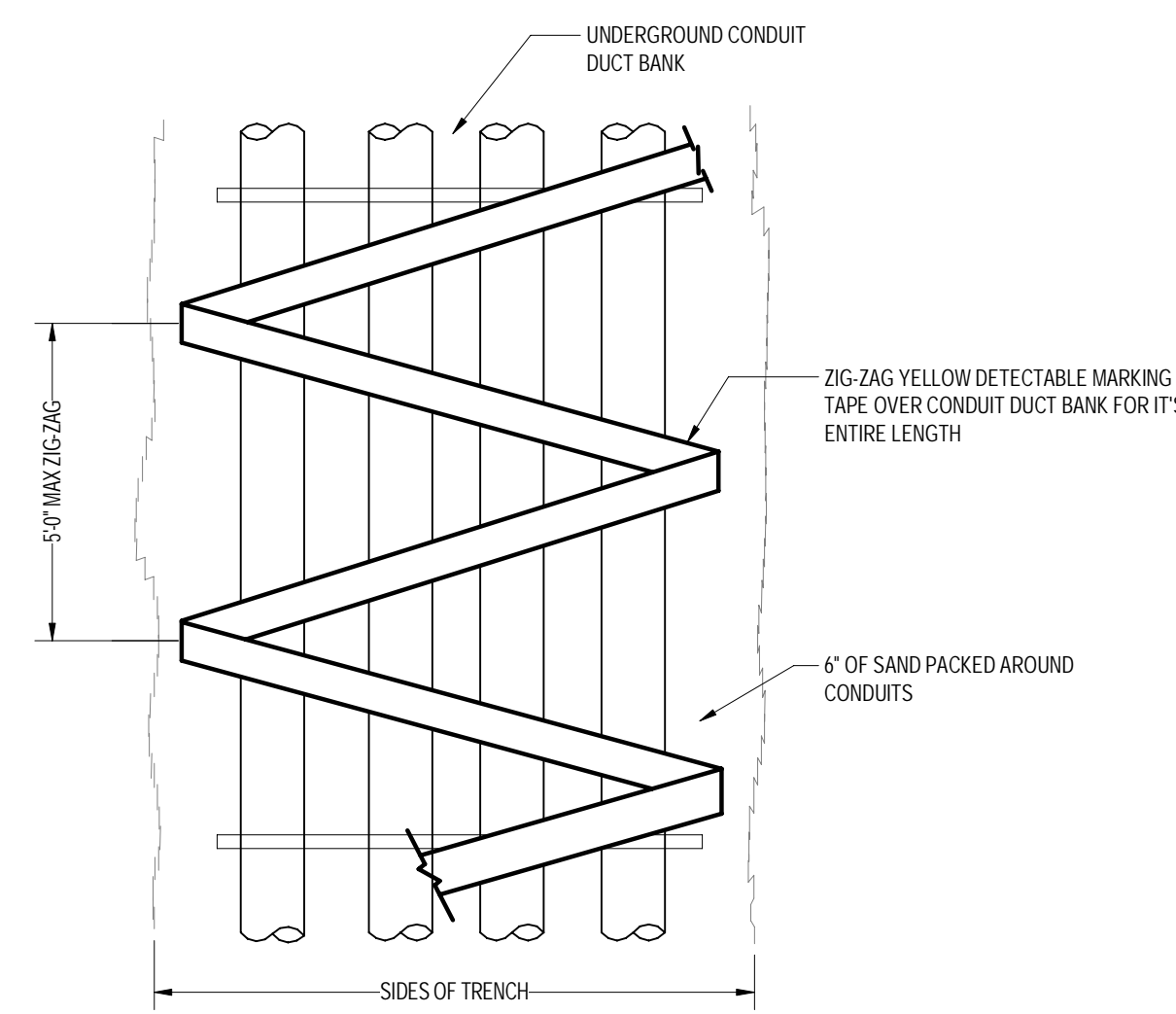
1	09/04/24	ISSUED FOR PERMIT/BD
No.	DATE	DESCRIPTION
ISSUES/REVISIONS		
Project		
THE MARYLAND ZOO IN BALTIMORE - BACKUP GENERATOR REPLACEMENT		
1 SAFARI PLACE BALTIMORE, MARYLAND 21217		
Drawing Title		
ELECTRICAL SINGLE LINE DIAGRAM		
Drawn By	NB	Drawing No.
Checked By	AB	E-200
Date	09/04/2024	
Scale	NONE	
Project No.	230980	



- NOTES:
1. POST INSTALLED ANCHOR TO BE DRILLED INTO TOP OF EQUIPMENT PAD. ANCHOR TYPE (EXPANSION OR ADHESIVE), DIAMETER, LENGTH, EMBEDMENT, QUANTITY AND LOCATION PER MANUFACTURER AND SEISMIC REQUIREMENTS.
 2. REINFORCEMENT, ETC. INDICATED APPLIES ONLY FOR EQUIPMENT NOT REQUIRED TO BE SEISMICALLY RESTRAINED. WHERE EQUIPMENT IS REQUIRED TO BE SEISMICALLY RESTRAINED (REFER TO SECTION 26 05 48), OBTAIN PAD DESIGN REQUIREMENTS FROM MANUFACTURER TO CONFORM MASS REQUIREMENTS.
 3. INCREASE AS REQUIRED FOR SEISMICALLY RESTRAINED EQUIPMENT.

EXTERIOR HEAVY EQUIPMENT PAD

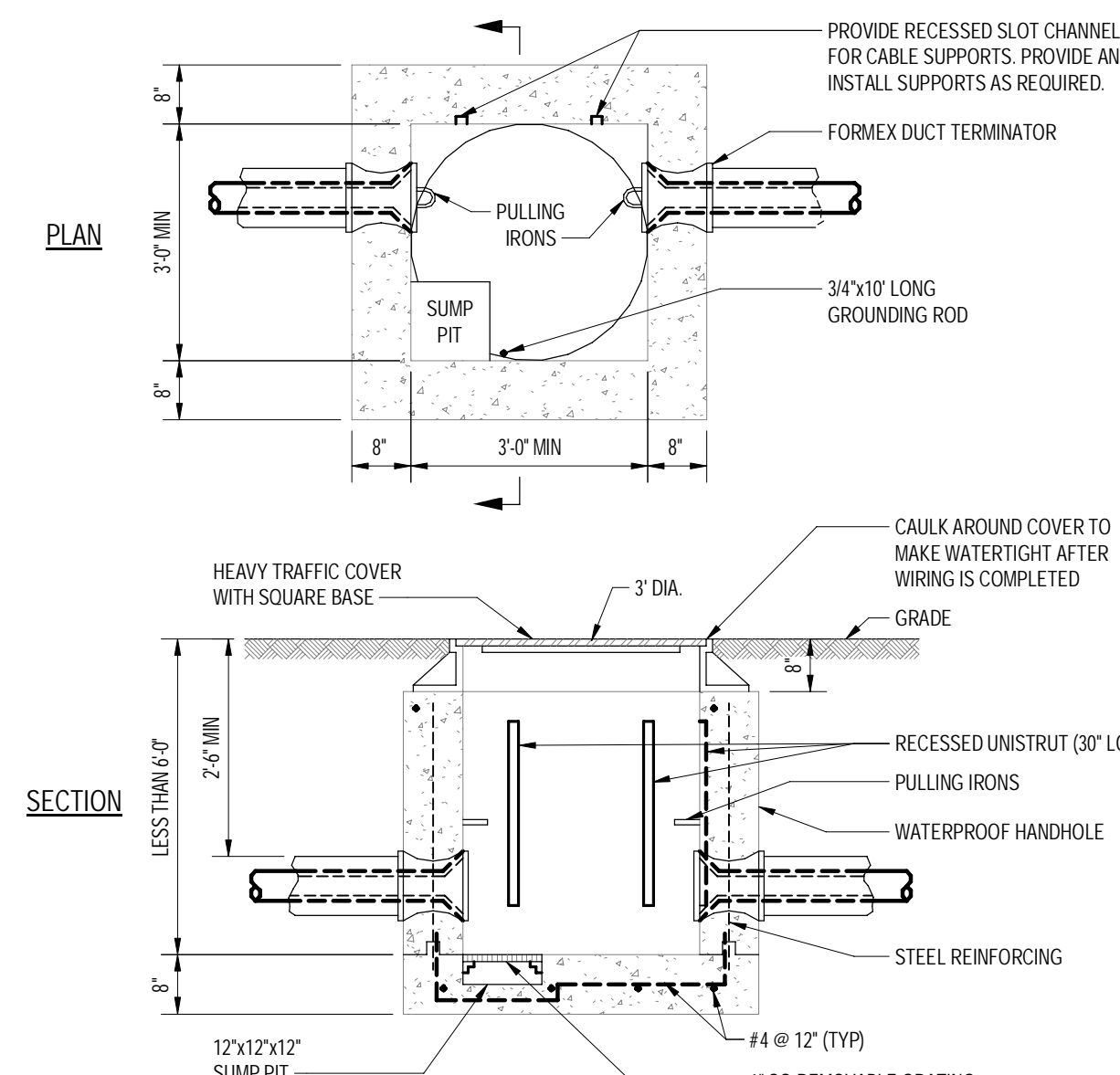
SCALE: NONE



- NOTES:
1. SEE DUCT BANK DETAIL FOR ACTUAL DEPTH AND WIDTH.

UNDERGROUND DUCT BANK MARKER

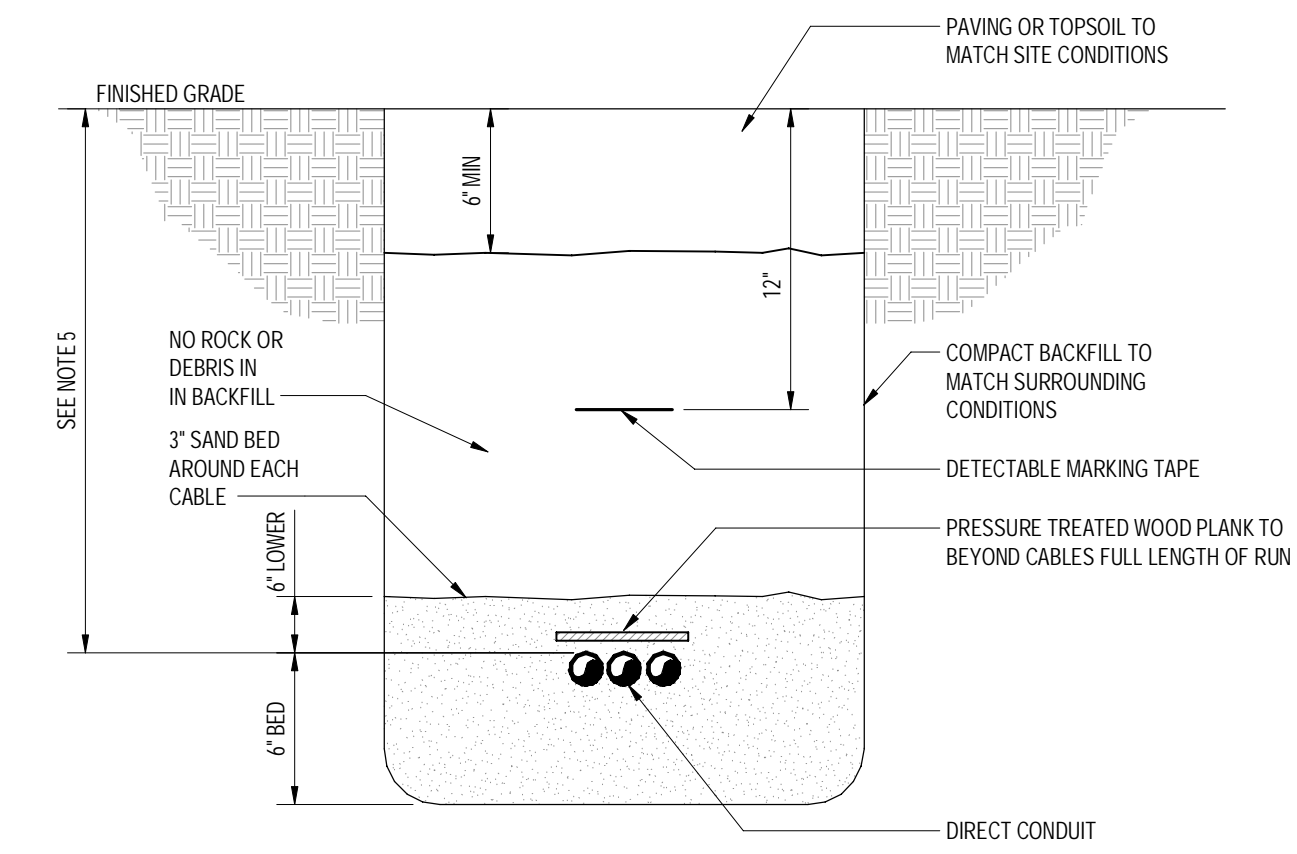
SCALE: NONE



- NOTES:
1. MANHOLE LENGTH, WIDTH AND HEIGHT AS REQUIRED FOR QUANTITY AND LOCATION OF ENTRY POINTS.

TYPICAL PRECAST HANDHOLE

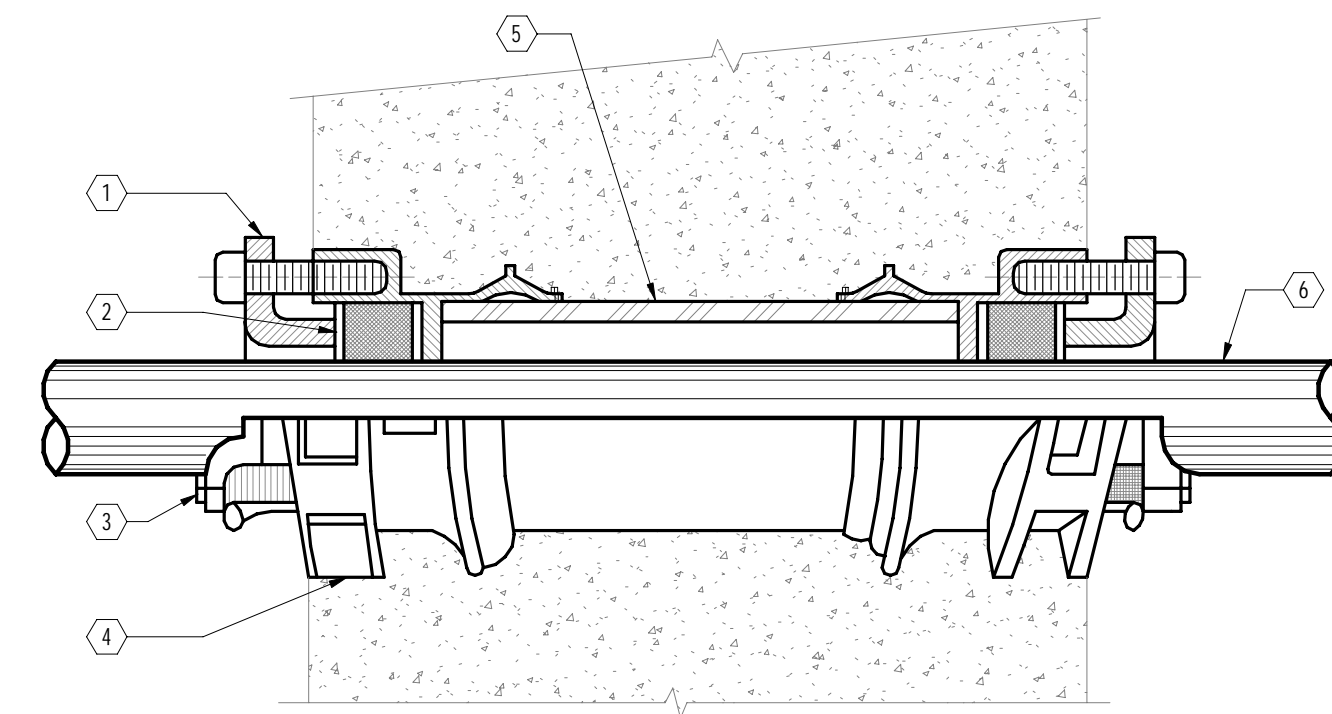
SCALE: NONE



- NOTES:
1. REPAIR ALL SETTLEMENT.
 2. INSTALL DIRECT BURIED CABLE WITHIN 4-INCH PVC SCHEDULE 80 CONDUIT.
 3. UNLESS OTHERWISE NOTED, MAINTAIN MINIMUM 12\"/>

DIRECT BURIED CONDUIT

SCALE: NONE



- KEY NOTES:
1. PRESSURE CLAMP.
 2. PRESSURE RING AND SEALING GROMMET.
 3. CAP SCREW.
 4. FITTING BODY.
 5. OVERSIZE SLEEVE.
 6. RIGID STEEL CONDUIT.

FLOOR/WALL SLEEVE: PRESET, WATERTIGHT

SCALE: NONE

No.	DATE	DESCRIPTION
1	09/04/24	ISSUED FOR PERMIT/BD

ISSUES/REVISIONS

Project
THE MARYLAND ZOO IN BALTIMORE - BACKUP GENERATOR REPLACEMENT
1 SAFARI PLACE
BALTIMORE, MARYLAND 21217

Drawing Title
ELECTRICAL DETAILS

Drawn By	NB	Drawing No.
Checked By	AB	E-400
Date	09/04/2024	
Scale	NONE	
Project No.	230980	