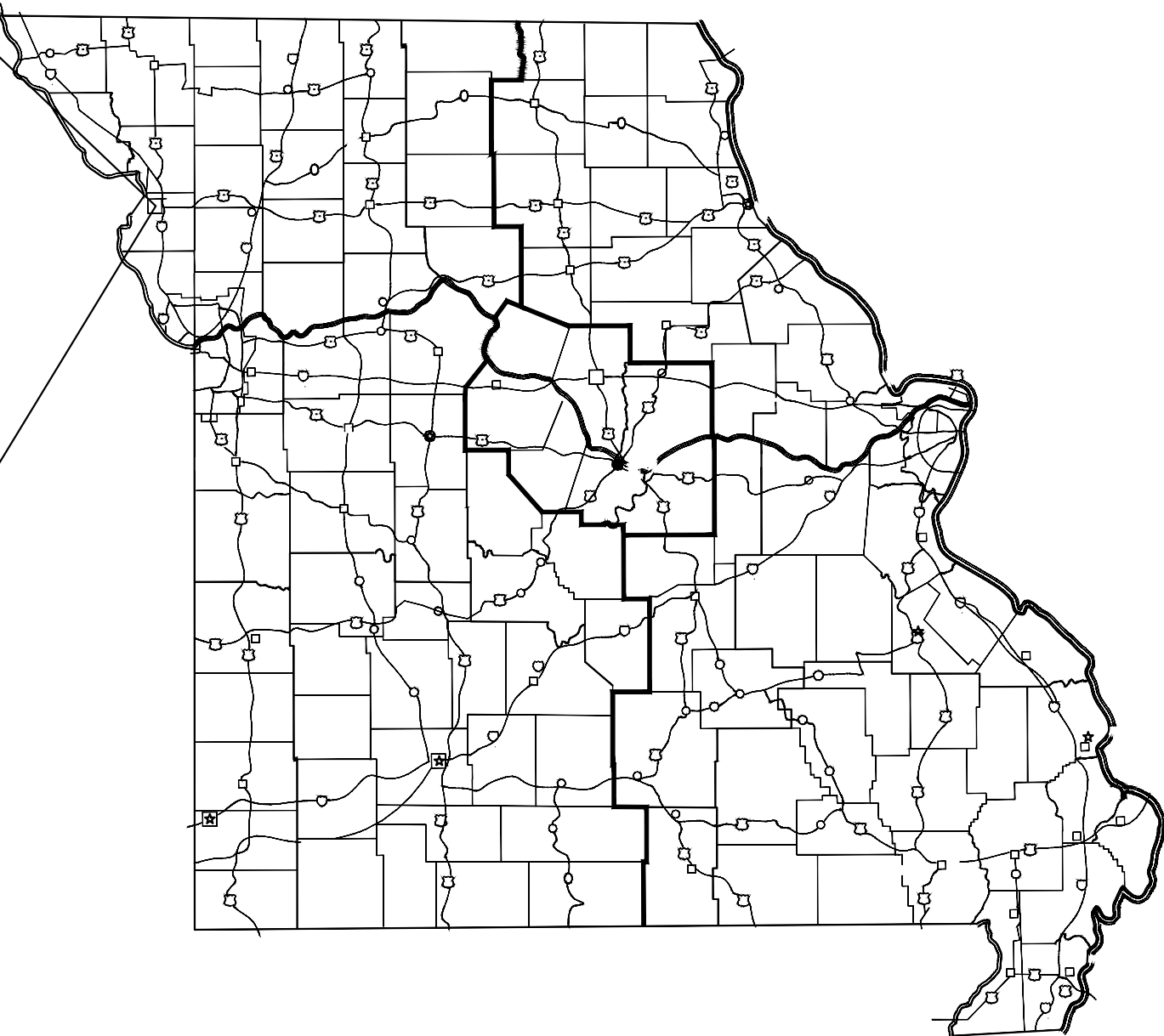
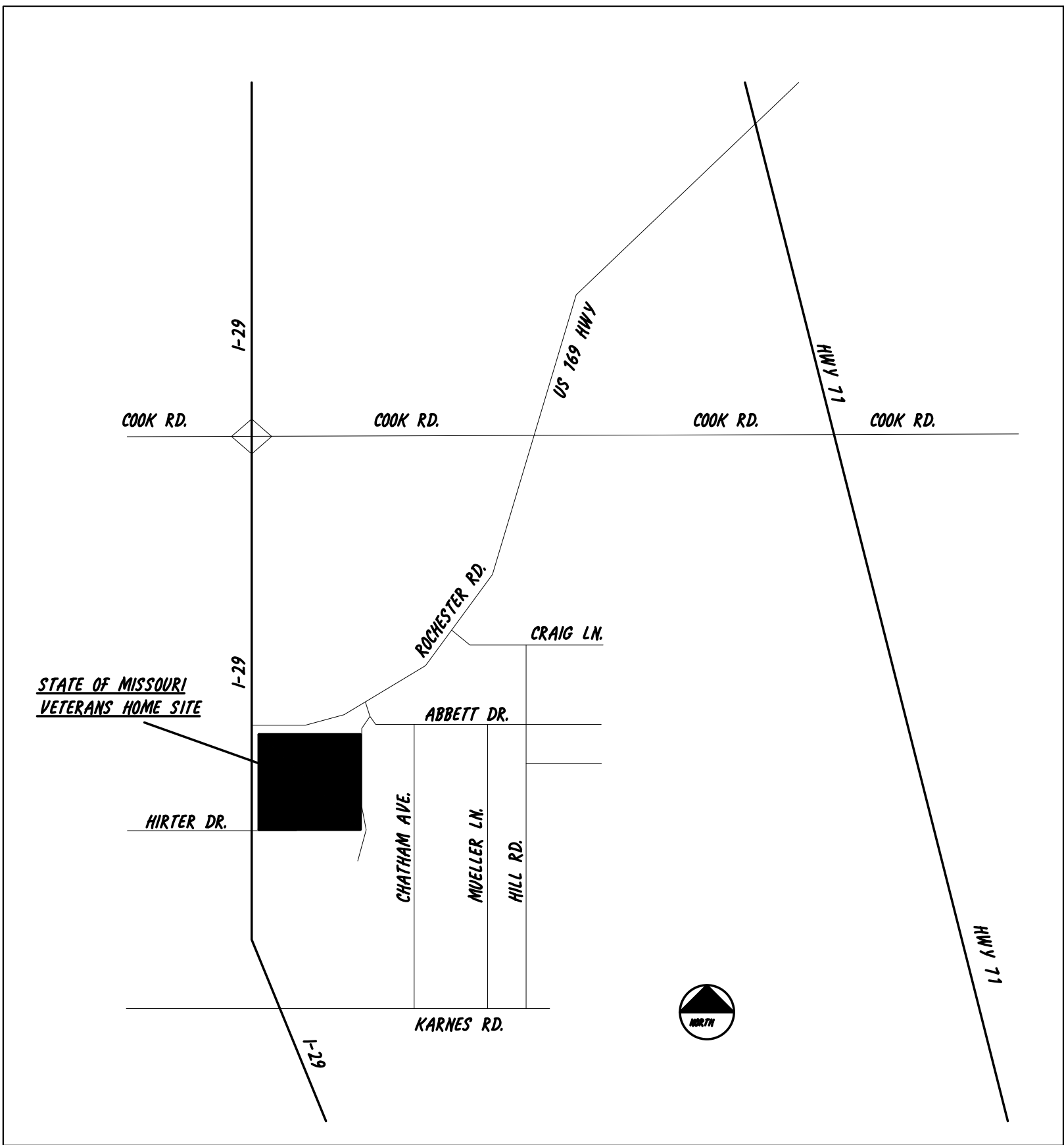


Replace Emergency Generator

MSHP Troop H Headquarters and Crime Lab

3525 North Belt Highway, St. Joseph, MO



SITE LOCATION MAP

Index of Sheets

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Applicable Codes

2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL FUEL GAS CODE
2018 UNIFORM PLUMBING CODE
2018 INTERNATIONAL FIRE CODE
2017 NATIONAL ELECTRICAL CODE
CODES CITY CODES OF ORDINANCES

OWNER: STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR
MISSOURI STATE HIGHWAY PATROL

PROJECT MANAGEMENT: OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DESIGNER: GIBBENS DRAKE SCOTT, INC.
9201 E. 63RD STREET, SUITE 100
RAYTOWN, MISSOURI 64133
MO. STATE CERTIFICATE OF AUTHORITY #000816

PROJECT NUMBER: R2112-01
SITE NUMBER: 4762
FACILITY NUMBER: 55134

SHEET NUMBER:

G1.0

1 OF 13 SHEETS
06/01/2022

1. BUILDING CODE(S): 2018 INTERNATIONAL BUILDING CODE WITH LOCAL AMENDMENTS	2. DESIGN LOADS: <div>A. FLOOR LIVE LOAD <div>a. FLOORS (NON-REDUCED)100 PSF</div><div>B. SNOW LOAD <div>a. GROUND SNOW LOAD, P_g20 PSF b. SNOW EXPOSURE FACTOR, C_e1.0 c. RISK CATEGORYII d. SNOW LOAD IMPORTANCE FACTOR, I1.0 e. THERMAL FACTOR, C_t (UNHEATED)1.2 f. DRIFTINGPER CODE</div><div>C. WIND LOADS <div>a. BASIC WIND SPEED (3 SECOND GUST)110 MPH 2 V(SERVICE)85 MPH b. RISK CATEGORYII c. WIND EXPOSUREC</div><div>D. SEISMIC LOADS <div>a. RISK CATEGORYII b. SPECTRAL ACCELERATIONS_s = 0.084G, S_i = 0.061G c. SEISMIC IMPORTANCE FACTOR, I1.0 d. SPECTRAL RESPONSE COEFFICIENTS 1 SDS0.090 2 SDI0.098 e. SITE CLASSD f. SEISMIC DESIGN CATEGORYB g. BASIC SEISMIC-FORCE-RESISTING SYSTEMASCE 7-16, TABLE 15.4-2 h. RESPONSE MODIFICATION FACTOR, R3 i. SEISMIC RESPONSE COEFFICIENT, C_s0.027 j. DESIGN BASE SHEAR0.027W k. SEISMIC BASE SHEAR340 LBS</div><div>E. DEAD LOADS <div>a. STRUCTUREACTUAL WEIGHT b. EQUIPMENT (GENERATOR & FUEL TANK)12,500 LBS MAX</div></div></div></div></div></div>	3. STATEMENT OF SPECIAL INSPECTIONS <div>A. THIS STATEMENT OF SPECIAL INSPECTIONS IS IN ACCORDANCE WITH 1704.3 OF THE 2018 IBC CODE. THE INTENT OF THIS SECTION IS THAT ALL SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 17 OF THE 2018 IBC UNLESS SPECIFICALLY NOTED OTHERWISE. ADDITIONAL SPECIAL INSPECTIONS MAY BE REQUIRED BY LOCAL CODE OR BUILDING OFFICIAL, AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ANY ADDITIONAL REQUIREMENTS ABOVE AND BEYOND THE CODE REQUIRED SPECIAL INSPECTION INDICATED BELOW.</div> <div>B. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH THE BUILDING CODE. <div>a. CONCRETE DESIGN MIX b. PLACING OF CONCRETE AND REINFORCING STEEL c. BOLTS AND ANCHORS EMBEDDED IN CONCRETE d. POST-INSTALLED ANCHORS IN CONCRETE e. IN-SITU SOILS EXCAVATIONS, FILLING AND COMPACTION</div></div> <div>C. THE OWNER IS RESPONSIBLE FOR EMPLOYING ONE OR MORE SPECIAL INSPECTORS TO PERFORM INSPECTIONS DURING CONSTRUCTION, BASED ON REQUIREMENTS OF ONE OR MORE DESIGN PROFESSIONALS.</div> <div>D. THE CONTRACTOR SHALL REQUEST SPECIAL INSPECTION OF THE ITEMS LISTED ABOVE PRIOR TO THOSE ITEMS BECOMING INACCESSIBLE AND UNOBSERVABLE DUE TO PROGRESSION OF THE WORK. THE CONTRACTOR SHALL PROVIDE SAFE ACCESS TO THE JOB SITE AND ITEMS TO BE INSPECTED. SAFE ACCESS INCLUDES BUT IS NOT LIMITED TO: LADDERS, SCAFFOLDING AND/OR CONTRACTOR OPERATED LIFTS AS REQUIRED FOR SITE OBSERVATION.</div> <div>E. SPECIAL INSPECTOR SHALL PROVIDE BI-WEEKLY SPECIAL INSPECTION REPORTS AND SHALL DISTRIBUTE THESE REPORTS TO THE BUILDING OFFICIAL, OWNER, CONTRACTOR, STRUCTURAL ENGINEER OF RECORD, AND MECHANICAL/ELECTRICAL/PLUMBING ENGINEER OF RECORD. SPECIAL INSPECTION REPORTING SHALL BE IN ACCORDANCE WITH SECTION 1704.2.4 OF THE 2018 IBC.</div> <div>F. ALL DISCREPANCIES NOTED DURING INSPECTIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR. IF LEFT UNCORRECTED, THESE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE APPROPRIATE DESIGN PROFESSIONALS AND/OR BUILDING OFFICIAL. THE INSPECTOR IS NOT AUTHORIZED TO APPROVE DEVIATIONS FROM THE CONTRACT DRAWINGS.</div>
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4. STRUCTURAL ENGINEER SITE OBSERVATIONS:

A. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCES.

B. THE ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSION OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

C. PERIODIC SITE OBSERVATION BY FIELD REPRESENTATIVES OF PMA ENGINEERING IS SOLELY FOR THE PURPOSE OF DETERMINING IF THE WORK OF THE CONTRACTOR IS PROCEEDING IN GENERAL ACCORDANCE WITH THE STRUCTURAL CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO GUARD THE OWNER AGAINST DEFECTS OR DEFICIENCIES IN THE WORK OF THE CONTRACTOR.

5. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS PRIOR TO FABRICATION.

6. REFERENCE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

7. SEE MECHANICAL, ELECTRICAL AND CIVIL DRAWINGS FOR OTHER PERTINENT INFORMATION RELATED TO THE STRUCTURAL WORK AND COORDINATE AS REQUIRED. THESE STRUCTURAL DRAWINGS ARE INTENDED TO BE UTILIZED AS A COMPLETE SET OF DOCUMENTS THAT REPRESENT THE BUILDING'S STRUCTURAL SYSTEMS. NO SINGLE SHEET OR SERIES OF SHEETS IS INTENDED TO "STAND ALONE." THESE STRUCTURAL DRAWINGS ARE INTENDED TO BE INCLUDED IN A COMPLETE SET OF CONSTRUCTION DOCUMENTS, INCLUDING, BUT NOT LIMITED TO: CIVIL DRAWINGS AND MECHANICAL/ELECTRICAL/PLUMBING DRAWINGS. CONTRACTOR SHALL VERIFY COORDINATION OF THESE DRAWINGS WITH CONTENTS OF ABOVE DRAWING SETS SPECIFIED AND ONLY PROCEED WITH BIDDING AND CONSTRUCTION AFTER SUCH HAS TAKEN PLACE.

8. DETAILS LABELED "TYP" OR "TYPICAL" ARE TO BE APPLIED AT LOCATIONS THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY INDICATED. WHERE A DETAIL IS NOT INDICATED, THE DETAIL SHALL BE THE SAME AS FOR SIMILAR CONDITIONS OR AS SHOWN IN THE "TYPICAL DETAILS."

9. REINFORCING STEEL:

A. ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60, EXCEPT WELDED REINFORCING WHICH SHALL BE ASTM A706 GRADE 60.

B. ALL ACCESSORIES FOR SUPPORTING REINFORCING SHALL BE GALVANIZED OR HAVE PLASTIC-COATED FEET.

C. REINFORCING SHALL BE DETAILED, FABRICATED, PLACED, AND SUPPORTED IN ACCORDANCE WITH ACI 315, LATEST EDITION.

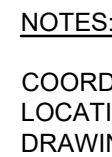
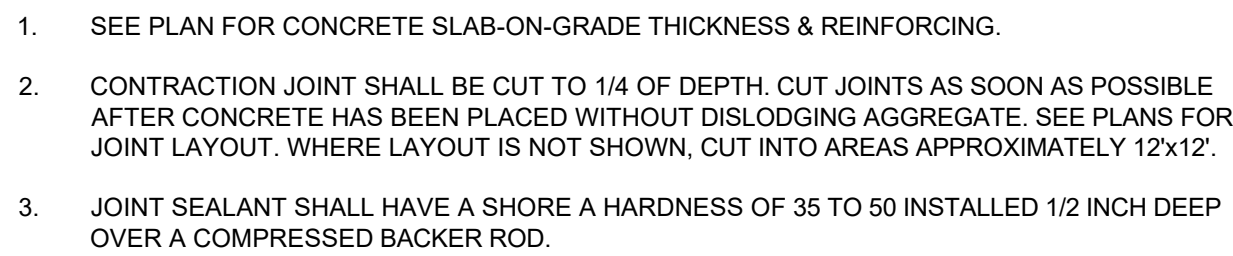
1. CONTRACTOR SHALL COORDINATE EXACT LOCATION AND SIZE OF EQUIPMENT PAD ON THE SITE WITH MEP AND CIVIL DRAWINGS.
2. GENERATOR AND FUEL TANK SHALL BE CENTERED ON NEW EQUIPMENT PAD TO THE GREATEST EXTENT POSSIBLE.
3. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL EXISTING UNDERGROUND PIPING, DRAIN LINES, DUCT BANKS, CONDUITS, ETC. PRIOR TO PROCEEDING WITH EXCAVATION FOR NEW BELOW-GRADE STRUCTURES.



1/4" = 1'-0"


$$1/2" = 1'-0"$$

$$1/2'' = 1'-0''$$

$$3'' = 1'-0''$$


TYPICAL BOLLARD DETAIL

$$3/4'' = 1'-0''$$

NOT USED

NOT USED

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Suite 100, Overland Park, KS 66202
P: (913) 831-1262, F: (913) 831-0148
www.pmaengineering.com
PMA Engineering, © 2022
(PROJECT # P21120)

3 OF 13 SHEETS
06/01/2022

SYMBOLS AND ABBREVIATIONS SCHEDULE

HEATING & AIR CONDITIONING		PIPING SPECIALTIES		PLUMBING	
<div><div><div><div><div></div><div></div></div><div>SOUND ATTENUATOR</div></div><div><div><div></div><div></div></div><div>FLEXIBLE CONNECTION (FC)</div></div><div><div><div></div><div></div></div><div>SPLITTER DAMPER (SD)</div></div><div><div><div></div><div></div></div><div>VOLUME EXTRACTOR ADJUSTABLE</div></div><div><div><div></div><div></div></div><div>TURNING VANES (FACTORY FABRICATED)</div></div><div><div><div></div><div></div></div><div>SUPPLY AIR (SA) DUCT</div></div><div><div><div></div><div></div></div><div>RETURN AIR (RA) OR EXHAUST AIR (EA) DUCT</div></div><div><div><div></div><div></div></div><div>OUTSIDE AIR (OA) DUCT</div></div><div><div><div></div><div></div></div><div>INCLINED DROP IN THE DIRECTION OF AIR FLOW</div></div><div><div><div></div><div></div></div><div>INCLINED RISE IN THE DIRECTION OF AIR FLOW</div></div><div><div><div></div><div></div></div><div>FIRE DAMPER (FD), COMBINATION FIRE/SMOKE DAMPER (F/SD)</div></div><div><div><div></div><div></div></div><div>FLEXIBLE DUCT</div></div><div><div><div></div><div></div></div><div>CEILING SUPPLY AIR DEVICE</div></div><div><div><div></div><div></div></div><div>CEILING RETURN OR EXHAUST AIR DEVICE</div></div><div><div><div></div><div></div></div><div>SIDE WALL OR DUCT MOUNTED SUPPLY AIR DEVICE</div></div><div><div><div></div><div></div></div><div>DUCT SIZE DESIGNATION (FIRST SIZE IS SIDE SHOWN, SIZE SHOWN IS SHEET METAL SIZE; "HV" INDICATES HIGH VELOCITY/ PRESSURE CONSTRUCTION)</div></div><div><div><div></div><div></div></div><div>OPPOSED BLADE VOLUME DAMPER (OBVD)</div></div><div><div><div></div><div></div></div><div>MOTORIZED OPPOSED BLADE VOLUME DAMPER (MVD)</div></div><div><div><div></div><div></div></div><div>PARALLEL BLADE VOLUME DAMPER (PBVD)</div></div><div><div><div></div><div></div></div><div>PROVIDE LINTEL OVER DUCT IN BLOCK WALL WHERE SHOWN.</div></div><div><div><div></div><div></div></div><div>CHWS CHILLED WATER SUPPLY</div></div><div><div><div></div><div></div></div><div>CHWR CHILLED WATER RETURN</div></div><div><div><div></div><div></div></div><div>HHWS HEATING HOT WATER SUPPLY</div></div><div><div><div></div><div></div></div><div>HHWR HEATING HOT WATER RETURN</div></div><div><div><div></div><div></div></div><div>CWTT CONDENSER WATER TO TOWER</div></div><div><div><div></div><div></div></div><div>CWFT CONDENSER WATER FROM TOWER</div></div><div><div><div></div><div></div></div><div>HCS HOT & CHILLED WATER SUPPLY (DUAL TEMP)</div></div><div><div><div></div><div></div></div><div>HCR HOT & CHILLED WATER RETURN (DUAL TEMP)</div></div><div><div><div></div><div></div></div><div>FOS FUEL OIL SUPPLY</div></div><div><div><div></div><div></div></div><div>FOR FUEL OIL RETURN</div></div><div><div><div></div><div></div></div><div>FOV FUEL OIL VENT</div></div><div><div><div></div><div></div></div><div>CW COLD WATER MAKE-UP WATER LINE</div></div><div><div><div></div><div></div></div><div>D DRAIN LINE (OTHER THAN PLUMBING)</div></div><div><div><div></div><div></div></div><div>LP LIQUIFIED PETROLEUM GAS</div></div><div><div><div></div><div></div></div><div>RL REFRIGERANT LIQUID</div></div><div><div><div></div><div></div></div><div>RS REFRIGERANT SUCTION</div></div><div><div><div></div><div></div></div><div>G GAS (NATURAL)</div></div><div><div><div></div><div></div></div><div>COP CONDENSATE PUMP DISCHARGE</div></div><div><div><div></div><div></div></div><div>LPS LOW PRESSURE STEAM (MPS,MEDIUM) (HPS, HIGH PRESSURE STEAM)</div></div><div><div><div></div><div></div></div><div>LPC LOW PRESSURE CONDENSATE (MPC,MEDIUM) (HPC, HIGH PRESSURE CONDENSATE)</div></div><div><div><div></div><div></div></div><div>A COMPRESSED AIR</div></div><div><div><div></div><div></div></div><div>WLS WATER SOURCE (WATER LOOP SUPPLY)</div></div><div><div><div></div><div></div></div><div>WLR WATER SOURCE (WATER LOOP RETURN)</div></div><div><div><div></div><div></div></div><div>CF CHEMICAL FEED</div></div></div></div>		<div><div><div><div><div></div><div></div></div><div>GATE VALVE</div></div><div><div><div></div><div></div></div><div>CHECK VALVE</div></div><div><div><div></div><div></div></div><div>OS&Y VALVE</div></div><div><div><div></div><div></div></div><div>MODULATING VALVE</div></div><div><div><div></div><div></div></div><div>SOLENOID VALVE</div></div><div><div><div></div><div></div></div><div>3-WAY VALVE (MIXING OR BY-PASS AS INDICATED)</div></div><div><div><div></div><div></div></div><div>BALL VALVE</div></div><div><div><div></div><div></div></div><div>GAS COCK (LUBRICATED)</div></div><div><div><div></div><div></div></div><div>PRESSURE REGULATING VALVE (PRV), (AS NOTED)</div></div><div><div><div></div><div></div></div><div>BUTTERFLY VALVE</div></div><div><div><div></div><div></div></div><div>STOP AND WASTE VALVE</div></div><div><div><div></div><div></div></div><div>PRESSURE DIFFERENTIAL BALANCING VALVE</div></div><div><div><div></div><div></div></div><div>AUTOMATIC FLOW CONTROL VALVE</div></div><div><div><div></div><div></div></div><div>RELIEF VALVES</div></div><div><div><div></div><div></div></div><div>THERMOMETER (DIAL AS INDICATED)</div></div><div><div><div></div><div></div></div><div>GAUGE</div></div><div><div><div></div><div></div></div><div>HUMIDISTAT</div></div><div><div><div></div><div></div></div><div>THERMOSTAT / ROOM SENSOR</div></div><div><div><div></div><div></div></div><div>NIGHT-STAT (SETBACK)</div></div><div><div><div></div><div></div></div><div>SHOCK ABSORBER</div></div><div><div><div></div><div></div></div><div>STRAINER</div></div><div><div><div></div><div></div></div><div>FLEXIBLE PIPE CONNECTION (FC)</div></div><div><div><div></div><div></div></div><div>MANUAL AIR VENT (MAV)</div></div><div><div><div></div><div></div></div><div>AUTOMATIC AIR VENT (AAV)</div></div><div><div><div></div><div></div></div><div>UNION (UN)</div></div><div><div><div></div><div></div></div><div>DIRECTION OF FLOW (AS SHOWN)</div></div><div><div><div></div><div></div></div><div>EXPANSION JOINT (EJ)</div></div><div><div><div></div><div></div></div><div>PIPE ANCHOR</div></div><div><div><div></div><div></div></div><div>PIPE GUIDE</div></div><div><div><div></div><div></div></div><div>CONCENTRIC REDUCER</div></div><div><div><div></div><div></div></div><div>ECCENTRIC REDUCER</div></div><div><div><div></div><div></div></div><div>TEE (SIDE OUTLET UP)</div></div><div><div><div></div><div></div></div><div>TEE (SIDE OUTLET DOWN)</div></div><div><div><div></div><div></div></div><div>ELBOW (TURNED UP)</div></div><div><div><div></div><div></div></div><div>ELBOW (TURNED DOWN)</div></div><div><div><div></div><div></div></div><div>STEAM TRAP & ACCESSORIES</div></div><div><div><div></div><div></div></div><div>NEW CONNECTION TO EXISTING</div></div><div><div><div></div><div></div></div><div>CAPPED OR PLUGGED PIPE</div></div><div><div><div></div><div></div></div><div>PIPE OR EQUIPMENT TO BE ABANDONED</div></div><div><div><div></div><div></div></div><div>PIPE OR EQUIPMENT TO BE REMOVED</div></div></div></div>		<div><div><div><div><div></div><div></div></div><div>DOMESTIC COLD WATER (DCW) (CW)</div></div><div><div><div></div><div></div></div><div>DOMESTIC HOT WATER SUPPLY (DHWS) (HW)</div></div><div><div><div></div><div></div></div><div>DOMESTIC HOT WATER RETURN (DHWRT) (HWR)</div></div><div><div><div></div><div></div></div><div>TEMPERED HOT WATER</div></div><div><div><div></div><div></div></div><div>SOFT COLD WATER</div></div><div><div><div></div><div></div></div><div>TEMPERED WATER (TW)</div></div><div><div><div></div><div></div></div><div>VENT (V), (SANITARY)</div></div><div><div><div></div><div></div></div><div>WASTE (W)</div></div><div><div><div></div><div></div></div><div>DRAIN TILE (DT), (SUBSOIL)</div></div><div><div><div></div><div></div></div><div>DRAIN (D)</div></div><div><div><div></div><div></div></div><div>ACID WASTE (AW)</div></div><div><div><div></div><div></div></div><div>ACID VENT (AV)</div></div><div><div><div></div><div></div></div><div>WATER MAIN</div></div><div><div><div></div><div></div></div><div>SANITARY (S), (DRAIN OR SEWER)</div></div><div><div><div></div><div></div></div><div>STORM (ST), (DRAIN OR SEWER)</div></div><div><div><div></div><div></div></div><div>COMBINATION SEWER (CS)</div></div></div></div>	
				FIRE PROTECTION	
				<div><div><div><div><div></div><div></div></div><div>FIRE LINE (F)</div></div><div><div><div></div><div></div></div><div>AUTOMATIC SPRINKLER (AS)</div></div><div><div><div></div><div></div></div><div>WATER FLOW DETECTOR</div></div><div><div><div></div><div></div></div><div>DOUBLE GATE / DOUBLE CHECK VALVE ASSEMBLY</div></div><div><div><div></div><div></div></div><div>BACKFLOW PREVENTER ASSEMBLY (BFP)</div></div><div><div><div></div><div></div></div><div>VALVE AND BOX (V/B)</div></div><div><div><div></div><div></div></div><div>SPRINKLER - PENDENT</div></div><div><div><div></div><div></div></div><div>SPRINKLER - RECESSED PENDENT</div></div><div><div><div></div><div></div></div><div>SPRINKLER - UPRIGHT</div></div><div><div><div></div><div></div></div><div>SPRINKLER - SIDEWALL</div></div><div><div><div></div><div></div></div><div>FIRE HYDRANT (FH)</div></div><div><div><div></div><div></div></div><div>POST INDICATOR VALVE (PIV)</div></div><div><div><div></div><div></div></div><div>FIRE EXTINGUISHER (FX), (WALL HUNG)</div></div><div><div><div></div><div></div></div><div>FIRE HOSE CABINET (FHC)</div></div><div><div><div></div><div></div></div><div>FIRE EXTINGUISHER CABINET (FXC)</div></div></div></div>	
				ABBREVIATIONS	
				FIXTURES	

DOMESTIC COLD WATER (DCW) (CW)

DOMESTIC HOT WATER SUPPLY (DHWS) (HW)

DOMESTIC HOT WATER RETURN (DHWB) (HWR)

TEMPERED HOT WATER

SOFT COLD WATER

TEMPERED WATER (TW)

VENT (V), (SANITARY)

WASTE (W)

DRAIN TILE (DT), (SUBSOIL)

DRAIN (D)

ACID WASTE (AW)

ACID VENT (AV)

WATER MAIN

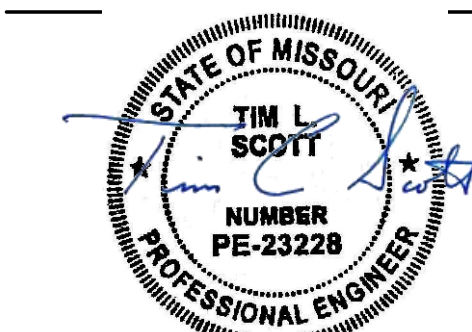
SANITARY (S), (DRAIN OR SEWER)

STORM (ST), (DRAIN OR SEWER)

COMBINATION SEWER (CS)

IMPORTANT NOTE: THIS SHEET IS TO BE USED FOR REFERENCE ONLY FOR THOSE SYMBOLS AND ABBREVIATIONS FOUND ON THE CONTRACT DRAWINGS OF THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED ON CONTRACT DRAWINGS.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



Tim L. Scott
Number E-23228
PROFESSIONAL SEAL

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Missouri State Certificate of Authority #000816

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

TROOP H HEADQUARTERS
AND CRIME LAB

EMERGENCY GENERATOR
REPLACEMENT

MISSOURI STATE
HIGHWAY PATROL
ST. JOSEPH, MO

PROJECT # R2112-01
SITE # 4762
FACILITY # 55134

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/01/2022
CD SET

CAD DWG FILE: _____
DRAWN BY: _____
CHECKED BY: TLS
DESIGNED BY: _____

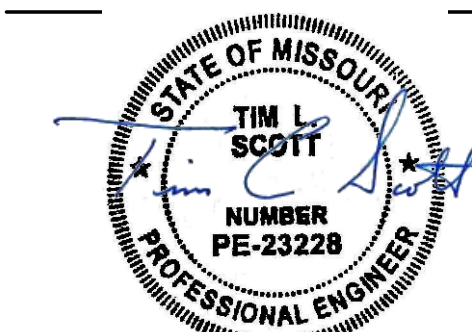
SHEET TITLE:

MECHANICAL
SYMBOLS, LEGEND,
ABBREVIATIONS

SHEET NUMBER:

M1.1

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06/01/2022



Tim L. Scott
Number E-23228
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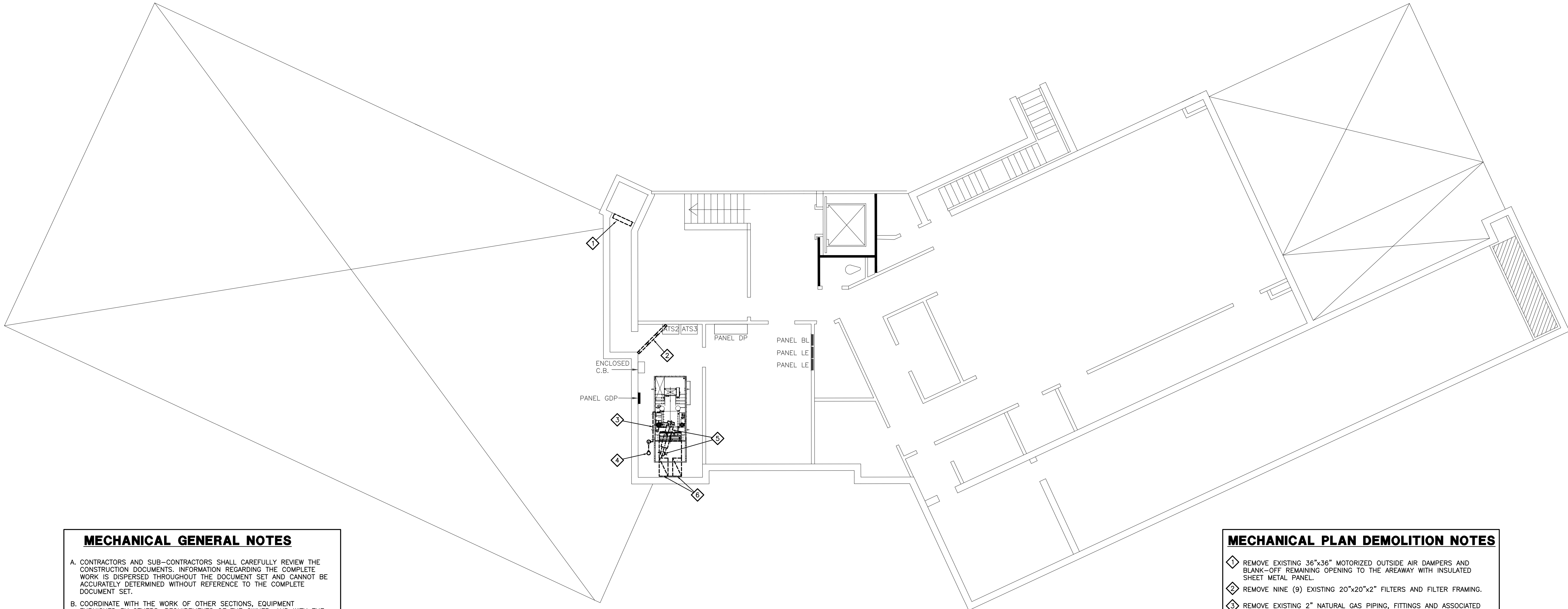
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DRAWN BY: _____
CHECKED BY: TLS
DESIGNED BY: _____

SHEET TITLE:
**BASEMENT
MECHANICAL
DEMOLITION PLAN**

SHEET NUMBER:

M3.1

5 OF 13 SHEETS
06/01/2022



MECHANICAL GENERAL NOTES

- A. CONTRACTORS AND SUB-CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS. INFORMATION REGARDING THE COMPLETE WORK IS DISPERSED THROUGHOUT THE DOCUMENT SET AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE COMPLETE DOCUMENT SET.
- B. COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE. PROVIDE DUCT RISES AND DROPS AS REQUIRED FOR FIELD INSTALLATION AND TRADE COORDINATION. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK.
- C. DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.
- D. ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE GOVERNING CITY, INCLUDING APPLICABLE SECTIONS OF NFPA, OSHA, IBC, OR ANY INTERIM AMENDMENTS AT THE TIME OF THE PROPOSAL. PURCHASE ALL PERMITS ASSOCIATED WITH THE WORK. OBTAIN ALL INSPECTIONS REQUIRED BY CODE.
- E. CONTRACTORS SHALL BE RESPONSIBLE FOR PROTECTING THE ELECTRICAL EQUIPMENT TO REMAIN DURING ALL CONSTRUCTION ACTIVITIES, AND SHALL BE FULLY LIABLE FOR ANY AND ALL DAMAGES, INCLUDING DOWNTIME AND LOSS OF USE, RESULTING FROM CONTRACTOR'S FAILURE TO ADEQUATELY PROTECT THE EXISTING ELECTRICAL EQUIPMENT AND EXISTING PIPING SYSTEMS NOTED TO REMAIN.
- F. SHOULD THE CONTRACTOR BECOME UNSURE OF SITE CONDITIONS OR QUESTION THE LOCATION OF ANY CONCEALED SERVICES, WORK SHALL BE STOPPED, AND THE ENGINEER SHALL BE CONTACTED FOR GUIDANCE BEFORE WORK IS CONTINUED.
- H. ALL PROSPECTIVE CONTRACTORS SHALL VISIT THE JOB SITE TO REVIEW THE EXTENT OF WORK AND TO VERIFY LOCATION AND ACCESSIBILITY OF ALL WORK REQUIRED. CONTRACTORS SHALL REFER TO THE SPECIFICATIONS FOR SPECIFIC REQUIREMENTS, INCLUDING SITE VISITATION, SITE AUTHORITIES, WORKING TIMES, AND ALLOWANCES. REFER TO STRUCTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS AND COORDINATE WITH ALL OTHER DISCIPLINES TO FINALIZE SCOPE OF RESPONSIBILITY.
- I. CONTRACTOR TO PROPERLY DISPOSE OF ALL ITEMS BEING REMOVED FROM SITE.
- J. NO DEMOLITION SHALL OCCUR FOR THE AHUs & ASSOCIATED HVAC SYSTEM SERVING PRESENT TENANTS.

BASEMENT MECHANICAL DEMOLITION PLAN
1/8"=1'-0"

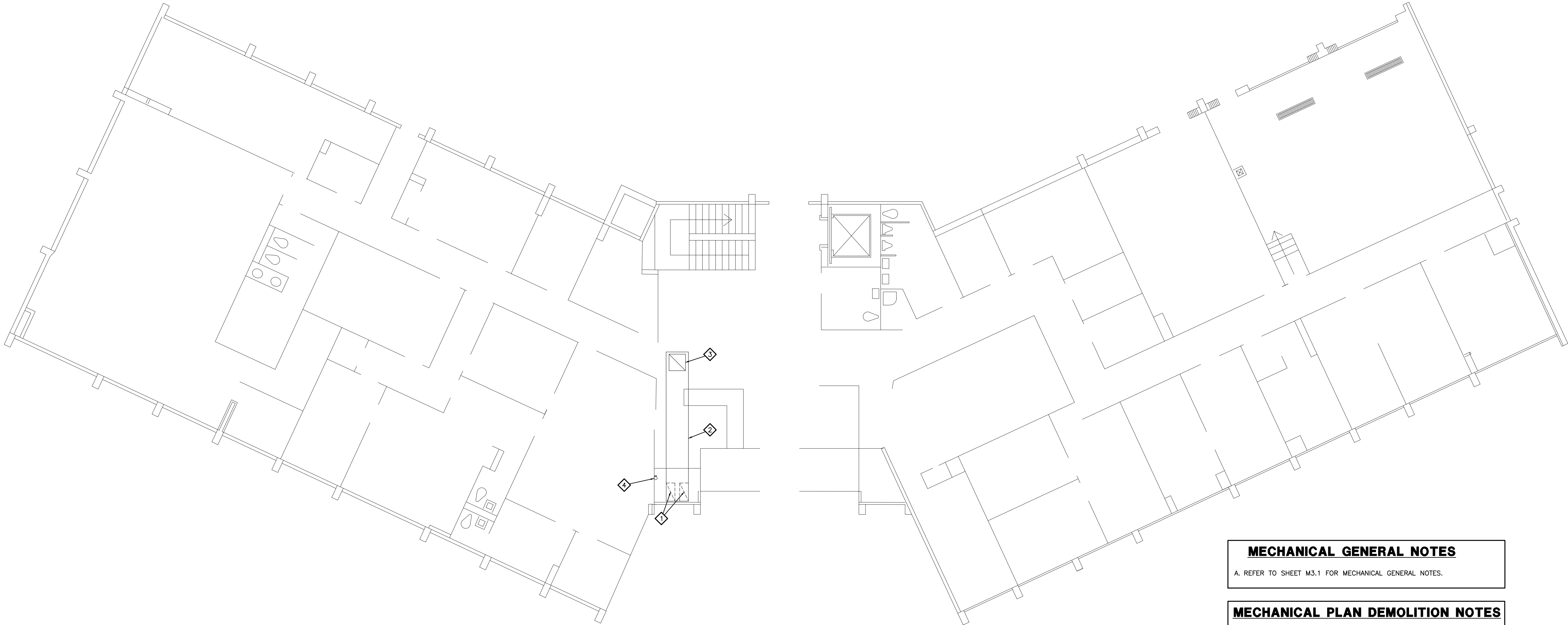


MECHANICAL PLAN DEMOLITION NOTES

1. REMOVE EXISTING 36"x36" MOTORIZED OUTSIDE AIR DAMPERS AND BLANK-OFF REMAINING OPENING TO THE AREAWAY WITH INSULATED SHEET METAL PANEL.
2. REMOVE NINE (9) EXISTING 20"x20"x2" FILTERS AND FILTER FRAMING.
3. REMOVE EXISTING 2" NATURAL GAS PIPING, FITTINGS AND ASSOCIATED VALVES SERVING THE EXISTING GENERATOR AS INDICATED.
4. CAP EXISTING 2" NATURAL GAS PIPE BELOW 12" BELOW FIRST FLOOR. ABANDON REMAINING 2" NATURAL GAS PIPING UP TO FIRST FLOOR.
5. REMOVE EXISTING INSULATED 4" RADIATOR EXHAUST MUFFLER AND ASSOCIATED INSULATED 4" EXHAUST PIPING FROM GENERATOR TO 12" BELOW FIRST FLOOR AND CAP. ABANDON REMAINING EXISTING 4" INSULATED RADIATOR EXHAUST PIPE UP THROUGH FIRST FLOOR IN PLACE.
6. REMOVE EXISTING RADIATOR DUCT FROM GENERATOR TO 12" BELOW FIRST FLOOR AND CAP. ABANDON REMAINING EXISTING 16"x33" RADIATOR EXHAUST DUCTWORK UP TO FIRST FLOOR IN PLACE.

GENERAL MECH. DEMOLITION NOTE

A. NO MECHANICAL DEMOLITION SHALL OCCUR FOR THE EMERGENCY GENERATOR OR THE WORK DESCRIBED IN THE "MECHANICAL PLAN DEMOLITION NOTES" ON THIS SHEET UNTIL THE NEW GENERATOR IS IN PLACE FOR OPERATION AND ELECTRICAL POWER ASSOCIATED WITH THE NEW GENERATOR HAS BEEN SATISFACTORILY COMPLETED - COORDINATE CONSTRUCTION PHASING WITH OWNER.



MECHANICAL GENERAL NOTES

A. REFER TO SHEET M3.1 FOR MECHANICAL GENERAL NOTES.

MECHANICAL PLAN DEMOLITION NOTES

- EXISTING 16"x33" RADIATOR EXHAUST DUCT DOWN TO BE ABANDONED IN PLACE, REFER TO SHEET M3.1 FOR CONTINUATION.
- EXISTING 44"x20" RADIATOR EXHAUST DUCT ABOVE CEILING TO BE ABANDONED IN PLACE.
- DISCONNECT ELECTRICAL POWER TO EXISTING EXHAUST FAN SERVING GENERATOR RADIATOR ON ROOF AND REMOVE EXISTING EXHAUST FAN. CAP REMAINING EXISTING ROOF CURB WITH INSULATED SHEET METAL AND SEAL WEATHER TIGHT.
- CAP AND SEAL WEATHER TIGHT THE EXISTING INSULATED 4" GENERATOR EXHAUST PIPE AT ROOF. ABANDON REMAINING INSULATED 4" GENERATOR EXHAUST PIPE DOWN THROUGH FIRST FLOOR.

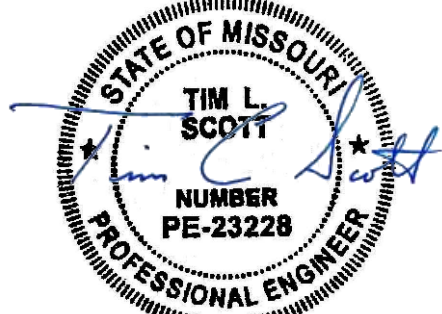
GENERAL DEMOLITION NOTE

A. NO MECHANICAL DEMOLITION SHALL OCCUR FOR THE EMERGENCY GENERATOR OR THE WORK DESCRIBED IN THE "MECHANICAL PLAN DEMOLITION NOTES" ON THIS SHEET UNTIL THE NEW GENERATOR IS IN PLACE FOR OPERATION AND ELECTRICAL POWER ASSOCIATED WITH THE NEW GENERATOR HAS BEEN SATISFACTORILY COMPLETED - COORDINATE CONSTRUCTION PHASING WITH OWNER.

FIRST FLOOR MECHANICAL DEMOLITION PLAN
1/8"=1'-0"



STATE OF MISSOURI
MICHAEL L. PARSON,
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

TROOP H HEADQUARTERS
AND CRIME LAB

EMERGENCY GENERATOR
REPLACEMENT

MISSOURI STATE
HIGHWAY PATROL
ST. JOSEPH, MO

PROJECT # R2112-01
SITE # 4762
FACILITY # 55134

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 06/01/2022
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CAD DWG FILE: _____
DRAWN BY: _____
CHECKED BY: TLS
DESIGNED BY: _____

SHEET TITLE:

FIRST FLOOR
MECHANICAL
DEMOLITION PLAN

SHEET NUMBER:

M3.2

6 OF 13 SHEETS
06/01/2022

CONDUITS:

	HOME RUN TO PANEL. CIRCUIT NUMBERS, PHASE, NEUTRAL AND GROUND CONDUCTORS INDICATED. ALL CONDUCTORS TO BE #12 EXCEPT WHERE NOTED. CONDUIT TO BE 1/2" OR AS NOTED ON PLANS AND SPECIFICATIONS.
	CONDUIT WITH 3 #12 CONDUCTORS
	PARTIAL CIRCUIT
	CONDUIT INSTALLED CONCEALED ABOVE CEILING OR IN WALL - UNLESS NOTED OTHERWISE
	CONDUIT INSTALLED CONCEALED IN/BELOW FLOOR SLAB OR UNDERGROUND
	CONDUIT INSTALLED EXPOSED.
	LOW VOLTAGE WIRING
	DIRECT CURRENT WIRING
	CONDUIT UP OR DOWN AS MARKED
	GROUND CONNECTION
	EQUIPMENT GROUNDING CONDUCTOR IN CONDUIT (GREEN INSULATION OR BARE)
	ISOLATED GROUNDING CONDUCTOR IN CONDUIT (GREEN INSULATION WITH YELLOW TRACER)

LIGHTING:

	CEILING LIGHT FIXTURE, LETTER INDICATES FIXTURE TYPE. LOWERCASE LETTER NEXT TO FIXTURE DESIGNATES CONTROL SWITCH
	WALL MOUNTED LIGHT FIXTURE, LETTER INDICATES FIXTURE TYPE.
	LIGHT FIXTURE (SEE LIGHT FIXTURE SCHEDULE)
	A = SWITCHED BY SWITCH "a"
	A = LIGHT FIXTURE TYPE "A"
	LOWERCASE LETTER NEXT TO FIXTURE DESIGNATES CONTROL SWITCH
	LIGHTING TRACK WITH LIGHT FIXTURE TYPES AS INDICATED
	T1 = TRACK TYPE "T1"
	T2 = TRACK HEAD TYPE "T2"
	LOWERCASE LETTER NEXT TO FIXTURE DESIGNATES CONTROL SWITCH
	EMERGENCY LIGHT FIXTURE
	STRIP LIGHT FIXTURE.
	WALL WASHER LIGHT FIXTURE-ARROW INDICATES DIRECTION.
	A=LIGHT FIXTURE TYPE "A". LOWERCASE LETTER NEXT TO FIXTURE DESIGNATES CONTROL SWITCH
	SITE LIGHTING FIXTURE (SEE LIGHT FIXTURE SCHEDULE)
	CEILING MOUNTED EXIT LIGHT WITH FACES AND CHEVRONS AS INDICATED
	WALL MOUNTED EXIT LIGHT, +7" -6" OR AS NOTED WITH FACES AND CHEVRONS AS INDICATED.
	EMERGENCY BATTERY PACK LIGHT FIXTURE - CEILING/WALL MOUNTED.
	REMOTE EMERGENCY LIGHTING HEAD.

RECEPTACLES:

	20 AMP DUPLEX RECEPTACLE, TO TOP MOUNTING SCREW, OR AS NOTED.
	SIMPLEX RECEPTACLE, +18" OR AS NOTED.
	ISOLATED GROUND SIMPLEX RECEPTACLE, +18" OR AS NOTED.
	WEATHERPROOF GFI RECEPTACLE, +18" OR AS NOTED. MOUNT HORIZONTAL.
	DUPLEX GFI RECEPTACLE FOR ELECTRIC WATER COOLER; VERIFY EXACT LOCATION AND MOUNTING HEIGHT WITH PLUMBING CONTRACTOR.
	GROUND FAULT DUPLEX RECEPTACLE, +18" OR AS NOTED.
	GROUND FAULT DUPLEX RECEPTACLE, MOUNTED 6" ABOVE COUNTER TOP OR AS NOTED ON ARCH. DRAWINGS.
	ISOLATED GROUND DUPLEX RECEPTACLE, +18" OR AS NOTED.
	EMERGENCY DUPLEX RECEPTACLE, +18" OR AS NOTED.
	SURGE PROTECTED RECEPTACLE, +18" OR AS NOTED.
	HORIZONTALLY MOUNTED RECEPTACLE.
	20A DUPLEX RECEPTACLE WITH TWO USB PORTS.
	RECEPTACLE MOUNTED 6" ABOVE COUNTER TOP OR AS NOTED ON ARCH. DRAWINGS
	FOURPLEX RECEPTACLE, +18" OR AS NOTED
	ISOLATED GROUND FOURPLEX RECEPTACLE, +18" OR AS NOTED
	GROUND FAULT FOURPLEX RECEPTACLE, +18" OR AS NOTED
	EMERGENCY FOURPLEX RECEPTACLE, +18" OR AS NOTED
	MULTI-OUTLET RACEWAY
	FLUSH FLOOR MOUNTED POKE THROUGH DEVICE - LETTER (WHERE APPLICABLE) TO INDICATE TYPE
	SPECIAL RECEPTACLE, NEMA STYLE AS NOTED, +18" OR AS NOTED.
	MULTI-SERVICE FLUSH FLOOR BOX, LETTER (WHERE APPLICABLE) INDICATES BOX TYPE.
	SPLIT-YOKE SWITCHED RECEPTACLE.
	RECEPTACLE INSTALLED IN CEILING.

SWITCHES:

	SINGLE POLE SWITCH COMPATIBLE WITH LIGHT FIXTURES AND LIGHTING CONTROLS. INSTALL +3'-10" OR AS NOTED. LOWERCASE LETTER NEXT TO FIXTURE DESIGNATES CONTROL SWITCH.
	DOUBLE POLE SWITCH, +3'-10" OR AS NOTED.
	THREE-WAY SWITCHED, +3'-10" OR AS NOTED.
	FOUR-WAY SWITCH, +3'-10" OR AS NOTED.
	KEY OPERATED SWITCH, +3'-10" OR AS NOTED.
	PILOT LIGHT SWITCH, 3'-10" OR AS NOTED.
	MANUAL TIMER SWITCH, +5'-4" OR AS NOTED.
	MANUAL MOTOR SWITCH
	DIMMER SWITCH. COMPATIBLE WITH LIGHT FIXTURES AND LIGHTING CONTROLS.
	LOW VOLTAGE SWITCH
	CEILING MOUNTED MOTION SENSOR. SET ALL DEVICES TO MAXIMUM SETTING.
	WALL MOUNTED MOTION SENSOR
	WALL MOUNTED MOTION SENSOR WITH DIMMER. COMPATIBLE WITH LIGHT FIXTURES AND LIGHTING CONTROLS.

ELECTRICAL EQUIPMENT:

	PANELBOARD, TOP AT 6'-0".
	TERMINAL CABINET, TOP 6'-0".
	CT CABINET AND METER.
	MAIN DISTRIBUTION PANEL OR SWITCHBOARD
	GROUND BAR (PLAN VIEW)
	VARIABLE FREQUENCY DRIVE
	DISCONNECT SWITCH-"200/3/150" (WHERE APPLICABLE) DENOTES AMPERES/POLES/FUSE. NF=NON-FUSED CB=CIRCUIT BREAKER (200/3/CB)
	DISCONNECT SWITCH FURNISHED W/ EQUIPMENT (INSTALLED BY ELEC. CONTRACTOR).
	MAGNETIC STARTER FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
	COMBINATION DISCONNECT (SAFETY) SWITCH AND MOTOR STARTER "30/3/15/1" DENOTES AMPERES/POLES/FUSE/NEMA STARTER SIZE NF=NON-FUSED CB=CIRCUIT BREAKER (30/3/CB/1)
	MAGNETIC MOTOR STARTER, NEMA SIZE AS NOTED, 3--POLE, UNO.

COMMUNICATIONS:

	T.V. OUTLET, +18" WITH 3/4" CONDUIT TO ABOVE CEILING WITH 90 DEGREE ELBOW, BUSHING, AND PULL STRING.
	TELEPHONE OUTLET, +18" WITH 3/4" CONDUIT TO ABOVE CEILING 90 DEGREE ELBOW, BUSHING, AND PULL STRING.
	TELEPHONE/DATA OUTLET, +18" WITH 3/4" CONDUIT TO ABOVE CEILING 90 DEGREE ELBOW, BUSHING, AND PULL STRING.
	DATA OUTLET, +18" WITH 3/4" CONDUIT TO ABOVE CEILING 90 DEGREE ELBOW, BUSHING, AND PULL STRING.
	TELEPHONE OUTLET, 6" ABOVE COUNTER TOP OR AS NOTED ON ARCH WITH 3/4" CONDUIT TO ABOVE CEILING 90 DEGREE ELBOW, BUSHING, AND PULL STRING.
	TELEPHONE/DATA OUTLET, 6" ABOVE COUNTER TOP OR AS NOTED 3/4" CONDUIT TO ABOVE CEILING ON ARCH. DRAWINGS 90 DEGREE ELBOW, BUSHING, AND PULL STRING.
	DATA OUTLET, 6" ABOVE COUNTER TOP OR AS NOTED ON WITH 3/4" CONDUIT TO ABOVE CEILING. ARCH. DRAWINGS 90 DEGREE ELBOW, BUSHING, AND PULL STRING.
	FLUSH FLOOR DATA OUTLET, LETTER TO INDICATE BOX TYPE (SEE SPEC.).
	CEILING SPEAKER.
	P.A. SYSTEM CALL-IN PUSHBUTTON. +3'-10".
	WALL MICROPHONE OUTLET, +18" OR AS NOTED.
	VOLUME CONTROL, +48" OR AS NOTED.
	AMPLIFIER
	SATELLITE DISH

SECURITY:

	SECURITY CAMERA.
	CPU & MONITOR (ELEVATION) WITH PERIPHERAL DEVICES
	CPU & MONITOR (PLAN VIEW) WITH PERIPHERAL DEVICES
	REQUEST TO EXIT BUTTON
	ELECTRIC DOOR LOCK
	PANIC BUTTON (D=DESK W=WALL F=FLOOR)
	CARD READER
	DOOR MONITOR
	GLASS BREAK
	KEY PAD
	MOTION DETECTOR
	WATCH TOUR

FIRE ALARM:

	FIRE ALARM PANEL, TOP +6'-0".
	F.A. SYSTEM REMOTE ANNUNCIATOR, TOP +6'-0".
	MANUAL FIRE ALARM PULL STATION AND ZONE NUMBER, +3'-10".
	FIRE ALARM SPEAKER AND STROBE. WHERE WALL MOUNTED: +80" TO BOTTOM OF DEVICE
	EXTERIOR FIRE ALARM HORN.
	FIRE ALARM STROBE ONLY. WHERE WALL MOUNTED: +80" TO BOTTOM OF DEVICE
	BELL (GONG)
	SMOKE DETECTOR.
	DUCT TYPE SMOKE DETECTOR WITH SAMPLING TUBES. REMOTE ALARM LIGHT MOUNTED BELOW DETECTOR FLUSH IN CEILING.
	SPRINKLER FLOW SWITCH AND TAMPER SWITCH, TWO SEPARATE ZONES REQUIRED (PROVIDED BY PLUMBING CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR).
	FIRE SMOKE DAMPER
	DOOR HOLD OPEN DEVICE, FURNISHED AND INSTALLED WITH DOOR HARDWARE.
	THERMAL DETECTOR.
	CEILING MOUNTED COMBINATION FIRE ALARM SPEAKER/STROBE, CD DENOTES CANDELA
	CEILING MOUNTED FIRE ALARM SPEAKER
	CEILING MOUNTED FIRE ALARM STROBE ONLY, CD DENOTES CANDELA

MISCELLANEOUS DEVICES:

	THERMOSTAT (FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR).
	CONTROL RELAY.
	LIGHTING CONTACTOR.
	CONTROL TRANSFORMER.
	PUSHBUTTON, TOP +54".
	CLOCK, TOP +8'-4" OR AS NOTED.
	COMBINATION CLOCK-SPEAKER UNIT, BOTTOM AT 7'-2" OR AS NOTED.
	PHOTOCELL MOUNTED ON ROOF FACING NORTH.
	TIME CLOCK, +6'-2" OR AS NOTED.
	HAND DRYER, HEIGHT AS DIRECTED BY ARCHITECT.
	MUSHROOM-TYPE PUSH BUTTON
	JUNCTION BOX.
	MOTOR CONNECTION.
	OVERHEAD PADDLE FAN

ANNOTATION:

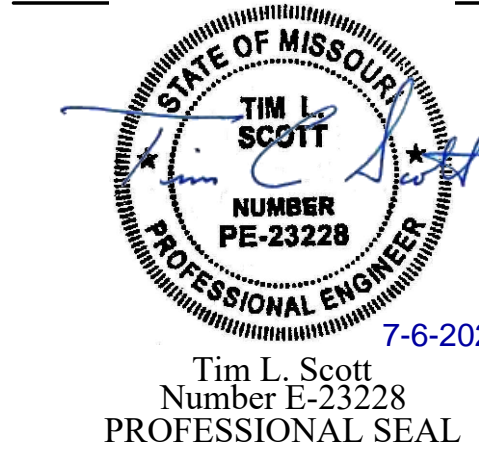
	ELECTRICAL PLAN NOTE CALLOUT
	MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
	CONNECTION POINT OF NEW WORK TO EXISTING
	DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
	SECTION CUT DESIGNATION

DEMOLITION/EXISTING/NEW:

	SYMBOLS SHOWN WITH THICK HEAVY DASHED LINES INDICATED EQUIPMENT OR DEVICES TO BE REMOVED.
	SYMBOLS SHOWN WITH THIN LIGHT LINES INDICATES EXISTING EQUIPMENT OR DEVICES TO REMAIN.
	SYMBOLS SHOWN WITH THICK HEAVY SOLID LINES INDICATES NEW EQUIPMENT OR DEVICES.

IMPORTANT NOTE: THIS SHEET IS TO BE USED FOR REFERENCE ONLY FOR THOSE SYMBOLS AND ABBREVIATIONS FOUND ON THE CONTRACT DRAWINGS OF THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED ON CONTRACT DRAWINGS.

STATE OF MISSOURI
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TROOP H HEADQUARTERS
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PROJECT # R2112-01
SITE # 4762
FACILITY # 55134

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CAD DWG FILE: _____
DRAWN BY: _____
CHECKED BY: TLS
DESIGNED BY: _____

SHEET TITLE:

ELECTRICAL
SYMBOLS LEGEND

SHEET NUMBER:

E1.1

7 OF 13 SHEETS
06/01/2022

ELECTRICAL GENERAL NOTES

- A. ALLOWANCES ARE TO BE INCLUDED FOR UNFORSEEN CONDITIONS THAT MAY EFFECT THE CONTRACTOR'S SCOPE OF WORK. MINOR DEVIATIONS REQUIRED FOR ACCOMPLISHING THE INTENT OF THIS DESIGN ARE TO BE INCLUDED IN THAT **ALLOWANCE**.
- B. ELECTRICAL DESIGN HAS BEEN BASED ON THE INSTALLATION OF 75°C CONDUCTORS CONNECTED TO TERMINAL LUGS AND EQUIPMENT U.L. LISTED FOR A MINIMUM OF 75°C CONDUCTORS TERMINATED ON EQUIPMENT WITH A LOWER RATING (60°C) OR NO RATING SHOWN TO HAVE CONDUCTOR SIZE INCREASED TO CONFORM TO N.E.C. TABLE 310-16 AND U.L. NO. 489 REQUIREMENTS.
- C. SWITCHBOARDS, PANELBOARDS, DISCONNECT SWITCHES, TRANSFORMERS AND CONDUCTORS ARE TO BE LISTED AND IDENTIFIED AS RATED FOR A MINIMUM OF 75°C CONDUCTOR TERMINATION.
- D. ALL CONDUIT INSTALLED INDOORS SHALL BE ELECTRICAL METALLIC TUBING (EMT), MINIMUM 1/2" OR AS NOTED OTHERWISE. CONDUCTORS TO BE A MINIMUM OF #12 THHN/THWN, COPPER UNLESS NOTED OTHERWISE. BRANCH CIRCUIT RUNS WITH NO MARKS OR IDENTIFICATION ARE TO BE PROVIDED WITH ONE HOT, ONE NEUTRAL AND ONE EQUIPMENT GROUND CONDUCTOR.
- E. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH PULL STRING INSTALLED AND PLASTIC GROMMET.
- F. ALL LOW VOLTAGE CABLING TO BE PLENUM RATED OR INSTALLED WHERE LOCATED ABOVE CEILINGS.
- G. ELECTRICAL CONTRACTOR TO INCLUDE GROUND WIRE IN ALL RACEWAYS. SIZE RACEWAYS AS NECESSARY TO COMPLY WITH N.E.C.
- H. NOTE NOT USED.
- I. CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL WORK ABOVE THE CEILING TO PROVIDE THE GREATEST POSSIBLE CLEARANCE FOR INSTALLATION.
- J. ELECTRICAL CONTRACTOR TO VERIFY EXACT PLACEMENT OF ALL DEVICES SHOWN ON THE ELECTRICAL CONSTRUCTION DOCUMENTS WITH MECHANICAL DRAWINGS PRIOR TO FINAL PLACEMENT.
- K. BRANCH CIRCUITS SHOWN WITH TWO GROUND CONDUCTORS SHALL HAVE ONE EQUIPMENT GROUND CONDUCTOR (GREEN) AND ONE ISOLATED GROUND CONDUCTOR (GREEN WITH YELLOW STRIPE) INSTALLED IN RACEWAY.
- L. ALL PANELBOARDS ARE TO BE INSTALLED WITH A MINIMUM OF (2) 3/4" CONDUITS STUBBED UP TO ACCESSIBLE CEILING SPACE FOR FUTURE USE.
- M. ALL WORK SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE LATEST ADOPTED NATIONAL ELECTRICAL CODE, UNDERWRITER'S LABORATORIES, INC., OCCUPATIONAL SAFETY AND HEALTH ACT, AND ALL STATE, LOCAL, MUNICIPAL, AND STATUTORY REQUIREMENTS.
- N. EACH INDIVIDUAL BRANCH CIRCUIT SHALL BE PROVIDED WITH ITS OWN HOT, NEUTRAL, AND GROUND CONDUCTOR. MULTI-WIRE BRANCH CIRCUITS (SHARED NEUTRALS) SHALL NOT BE ALLOWED UNLESS OTHERWISE NOTED. WHERE MULTI-WIRE BRANCH CIRCUITS ARE REQUIRED, CIRCUIT BREAKERS SERVING MULTI-WIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH HANDLE-TIES IN ACCORDANCE WITH 240.15(B)(1).
- O. ALL 120 VOLT CIRCUITS LONGER THAN 100 FEET IN LENGTH SHALL USE #10 AWG CONDUCTORS.
- P. ALL CIRCUITS SHALL HAVE A SEPARATE GROUNDED CONDUCTOR SIZED PER N.E.C. SECTION 250.122.
- Q. ELECTRICAL CONTRACTOR SHALL PROVIDE CIRCUIT DIRECTORY WITH TYPED CIRCUIT DESIGNATION CARD UNDER PLASTIC COVER ON THE INSIDE OF EACH PANEL DOOR. ELECTRICAL CONTRACTOR SHALL ALSO FURNISH AND INSTALL NAMEPLATES ON ALL DISCONNECT SWITCHES, PANELBOARDS AND SWITCHBOARDS.
- R. ELECTRICAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND PERFORM ALL WORK AND SERVICES NECESSARY FOR OR INCIDENTAL TO THE FURNISHING AND INSTALLATION, COMPLETE OF ALL WIRING MATERIALS AND METHODS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED, IN ACCORDANCE WITH PROVISIONS OF THE CONTRACT DOCUMENTS AND COMPLETELY COORDINATED WITH WORK OF ALL OTHER TRADES.
- S. CIRCUITS SHOWN ON DRAWINGS WITH ONLY A PANEL DESIGNATION SHALL BE CONNECTED TO A 20A-1P SPARE CIRCUIT BREAKER FOR EACH HOMERUN SHOWN IN PANEL UNLESS NOTED OTHERWISE.
- T. FIELD COORDINATE ALL FURNITURE POWER FEED LOCATIONS PRIOR TO ROUGH-IN.
- U. ALL DUPLEX RECEPTACLES WITHIN 6'-0" OF A SINK OR LAVATORY SHALL BE OF A GFCI TYPE.
- V. ALL FIRE ALARM HORN/STROBE DEVICES LOCATED IN THE SAME ROOM OR OPEN OFFICE AREA SHALL BE SEQUENCED TO FLASH AT THE SAME RATE PER LATEST FIRE ALARM CODE.

ELECTRICAL GENERAL DEMOLITION NOTES:

- A. ANY EXISTING DEVICE AND/OR CIRCUIT SHOWN ARE INDICATED ONLY FOR INFORMATION PURPOSES. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL CONDITIONS AS THEY EXIST AND SHALL REMOVE, RELOCATE AND/OR REWORK ANY ELECTRICAL EQUIPMENT OR CIRCUITS NECESSARY FOR A COMPLETE REWIRING SYSTEM, UNLESS NOTED OTHERWISE.
- B. THE ELECTRICAL CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH ALL WORK TO BE DONE BY OBSERVATION OF THE SITE. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR PERFORMING ALL WORK NECESSARY TO PROVIDE A WORKMANLIKE INSTALLATION.
- C. ALL WORK SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE LATEST ADOPTED NATIONAL ELECTRICAL CODE, UNDERWRITER'S LABORATORIES, INC., OCCUPATIONAL SAFETY AND HEALTH ACT, AND ALL STATE, LOCAL, MUNICIPAL, AND STATUTORY REQUIREMENTS.
- D. THERE SHALL NOT BE ANY INTERRUPTIONS TO THE EXISTING BUILDING SERVICES (ELECTRICAL POWER, FIRE ALARM, LIGHTING CONTROLS, ETC.) WITHOUT A (7) BUSINESS DAY PRIOR NOTICE OF SUCH OUTAGE(S) TO THE ARCHITECT, BUILDING OPERATIONS MANAGER, AND ALL OTHER PARTIES INVOLVED.
- E. THE ELECTRICAL CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF ANY MODIFICATIONS TO THE EXISTING SYSTEMS WHICH ARE TO REMAIN AND SHALL, UPON COMPLETION OF THIS PROJECT, DELIVER "RECORD" DRAWINGS TO THE ARCHITECT INDICATING ALL SUCH CHANGES. THE CONTRACTOR SHALL MAINTAIN IN THE PROJECT OFFICE, AS WORK PROGRESSES, AN UP-TO-DATE NEATLY MARKED COPY OF THESE DRAWINGS FOR REVIEW BY THE APPROPRIATE PARTIES.
- F. WHERE FEEDERS OR OTHER CIRCUITS ARE ABANDONED AND ARE CONCEALED WITHIN WALLS OR FLOORS, SUCH CIRCUITS SHALL BE DISCONNECTED AT BOTH ENDS AND LABELED. ALL EXPOSED CONDUITS, CONDUITS ABOVE LAY-IN CEILINGS OR EQUIPMENT WHICH IS ABANDONED SHALL BE REMOVED, UNLESS NOTED OTHERWISE.
- G. WHERE NEW WORK INTERFERES WITH CIRCUITS IN ROOMS OTHERWISE UNDISTURBED, EXISTING CIRCUITS SHALL BE REWORKED AS REQUIRED TO MAINTAIN SERVICE.
- H. ALL EQUIPMENT, FIXTURES, PANELS, ETC. WHICH ARE REMOVED SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, UNLESS NOTED OTHERWISE.
- I. COORDINATE THE ROUTING OF ALL CONDUITS AND THE LOCATIONS OF ALL EQUIPMENT WITH OTHER TRADES TO AVOID CONFLICTS WITH DUCTS, PIPES, ETC.
- J. CIRCUITS ROUTINGS SHOWN IN REMODELED AREAS MAY BE MODIFIED TO SUIT FIELD CONDITIONS, HOWEVER, CARE SHOULD BE TAKEN TO KEEP DEVICES AND/OR FIXTURES OR CIRCUITS APPROXIMATELY AS INDICATED TO AVOID EXCESSIVE VOLTAGE DROP OF FEEDERS OR BRANCH CIRCUITS.
- K. UNLESS NOTED OTHERWISE, WHERE DEVICES (WITH CONCEALED CONDUITS) ARE REMOVED LEAVING EXPOSED RACEWAYS, ETC. AFTER THE FINAL SURFACE IS APPLIED THEN BLANK STAINLESS STEEL COVER PLATES SHALL BE INSTALLED.
- L. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES, THE CONDITION OF EXISTING BUILDING DEVICES AND MATERIALS, AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE SAME DURING THE COURSE OF THIS WORK. EXISTING UTILITIES, EXISTING BUILDING, AND/OR MATERIALS WHICH ARE DAMAGED BY NEGLIGENCE ON THIS CONTRACTOR'S PART OR ANY PARTIES ASSOCIATED WITH THIS CONTRACTOR, SHALL BE REPAIRED OR REPLACED AT THIS CONTRACTOR'S EXPENSE, IN A TIMELY MANNER, AND TO THE ARCHITECT'S AND OWNER'S WRITTEN ACCEPTANCE.
- M. REMOVE ALL ROMEX, BX, AND OTHER FLEXIBLE CONDUIT OR CABLE SYSTEMS, EXPOSED WIRING, ETC. FOR ALL ABANDONED CIRCUITS. INSTALL ALL NEW AND REMAINING FEEDER CIRCUITS IN EMT, IMC OR RIGID CONDUIT, AS DICTATED BY SITE CONDITIONS.
- N. ALL NEW AND EXISTING DEVICES AND EQUIPMENT LOCATED IN EXISTING REMAINING WALLS, FLOORS, AND CEILINGS SHALL BE CONNECTED WITH CONCEALED CONDUIT. ELECTRICAL CONTRACTOR SHALL INCLUDE ALL ASSOCIATED COSTS IN BID TO CUT, CHANNEL, AND PATCH TO MATCH EXISTING WALLS, FLOORS, AND CEILINGS TO CONCEAL ALL CONDUIT.
- O. IT IS THE INTENT THAT ALL FIXTURES, EQUIPMENT AND DEVICES IN THE REMODEL AREAS ARE TO BE REWIRED WITH NEW WIRING. ALL DEVICES SUCH AS SWITCHES, RECEPTACLES, TELEPHONE JACKS, ETC. SHALL BE REPLACED WITH NEW DEVICES. WHERE EXISTING CIRCUITS ARE IN CONDUIT, PULL NEW WIRE. ONLY WHERE ABSOLUTELY NECESSARY DUE TO EXISTING BUILDING CONDITIONS SHOULD SURFACE MOUNTED WIREMOLD BE INSTALLED - WRITTEN APPROVAL SHALL BE OBTAINED FROM THE ARCHITECT PRIOR TO ANY SUCH INSTALLATION.
- P. WHERE EXISTING ELECTRICAL LIGHTING AND DISTRIBUTION PANELBOARDS ARE TO BE REMOVED, THE ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN POWER TO BRANCH AND FEEDER CIRCUITS UNTIL A PERMANENT PANEL IS INSTALLED TO RECONNECT THE EXISTING REMAINING CIRCUITS.
- Q. COORDINATE THE REMOVAL OF ALL MECHANICAL AND PLUMBING EQUIPMENT WITH THE MECHANICAL AND PLUMBING CONTRACTORS. ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE ALL ELECTRICAL POWER AND CONTROL CIRCUITS FOR EQUIPMENT BEING REMOVED. WHERE EXISTING EQUIPMENT IS BEING REPLACED WITH NEW EQUIPMENT OR RELOCATED EQUIPMENT, ELECTRICAL CONTRACTOR MAY REUSE THE EXISTING CONDUIT AND ROUGH-IN LOCATIONS IF POSSIBLE, BUT NEW CONDUCTORS SHALL BE PROVIDED.
- R. WHERE EQUIPMENT IS REMOVED FROM OR RELOCATED TO A LOCATION WHICH PENETRATES A FIRE RATED STRUCTURE, THIS CONTRACTOR SHALL PROVIDE THE APPROPRIATE FIRE STOPPING MATERIALS SUCH THAT THE RATING OF THE STRUCTURE WILL BE MAINTAINED.
- S. WHERE DEVICES, FIXTURES, OR EQUIPMENT ARE EXISTING IN SUITABLE LOCATION(S) FOR NEW CONSTRUCTION WORK AS INDICATED ON PLANS, EXISTING ROUGH-IN BOXES AND CONDUIT MAY BE UTILIZED IF THEY ARE OF PROPER SIZE, MATERIAL, AND NEW DEVICES AND WIRING ARE INSTALLED.

ELECTRICAL ONE-LINE & RISER

	100A 3P	SWITCH WITH RATING AS INDICATED		100A 3P	DRAWOUT CIRCUIT BREAKER. RATINGS AS INDICATED.
	200AS 3P 200AF FRS	FUSIBLE DISCONNECT SWITCH WITH RATINGS AS INDICATED		200AS 3P 200AF FRS NEMA 1	COMBINATION MOTOR STARTER & FUSIBLE DISCONNECT SWITCH. RATINGS AS INDICATED.
	100A 3P	CIRCUIT BREAKER WITH RATINGS AS SHOWN		200A 3P NEMA 1	COMBINATION MOTOR STARTER & CIRCUIT BREAKER. RATINGS AS INDICATED.
		PANELBOARD (SEE SCHEDULES)			
	30KVA PRI:480 SEC:208Y/120V 3PH, 4W	TRANSFORMER WITH TYPE AND RATINGS AS INDICATED			
	30KVA PRI:480 SEC:208Y/120V 3PH, 4W	SHIELDED TRANSFORMER WITH TYPE AND RATINGS AS INDICATED			
	800A ATS 4P	AUTOMATIC TRANSFER SWITCH WITH RATINGS AS INDICATED			
	800A ATS 4P	AUTOMATIC TRANSFER SWITCH WITH BYPASS ISOLATION, DRAW-OUT CONSTRUCTION, AND RATINGS AS INDICATED.			
	500KW GENERATOR 480Y/277V, 3PH, 4W	GENERATOR SEPARATELY DERIVED SOURCE WITH RATINGS AS SHOWN.			
	500KW GENERATOR 480Y/277V, 3PH, 4W	GENERATOR NON-SEPARATELY DERIVED SOURCE WITH RATINGS AS SHOWN.			
	10000	CIRCUIT IDENTIFICATION - SEE CIRCUIT SCHEDULE			
	DIGITAL V M A M	COMBINATION DIGITAL VOLT METER/AMMETER			
	GFR	GROUND FAULT RELAY			
	KK	KIRK-KEY INTERLOCK			
	ST	SHUNT TRIP			
	AM	AMMETER, RANGE AS SPECIFIED OR REQUIRED			
	VM	VOLTMETER, RANGE AS SPECIFIED OR REQUIRED			
	M	UTILITY METER (AS REQUIRED BY UTILITY)			
	AS	AMMETER SWITCH			
	VS	VOLTMETER SWITH			
	WH	WATT-HOUR METER, "D" DENOTES DEMAND REGISTER, "15" DENOTES MINUTES OF DEMAND INTERVAL			
		CURRENT TRANSFORMER RATING AS SPECIFIED OR REQUIRED			
		POTENTIAL TRANSFORMER RATING AS SPECIFIED OR REQUIRED			
	SPD	SURGE PROTECTIVE DEVICE			
		GROUND CONNECTION			
		GROUND CONNECTION WITH TEST WELL			
		GROUND ROD			
		LIGHTNING ARRESTER			
		CAPACITOR			
		CONTACT (OPEN OR CLOSED)			
		HEATER			
	HP	MOTOR (HORSEPOWER INDICATED)			
	#	BLOCK LOAD KW OR KVA			
		STATIC TRANSFER SWITCH			
		RECTIFIER			
		INVERTER			
		BATTERY			

ABBREVIATIONS (REFER TO SPECIFICATIONS FOR ADDITIONAL ABBREVIATIONS THAT MAY APPLY)

A	AMPERS	M	MINIMUM CIRCUIT AMPACITY
AC	ALTERNATING CURRENT	MCB	MAIN CIRCUIT BREAKER
ADA	AMERICANS WITH DISABILITIES ACT	MCC	MOTOR CONTROL CENTER
AF	AMPERE FUSE	MDF	MAIN DISTRIBUTION FRAME
AFI	AMPERE FRAME (CIRCUIT BREAKER)	MDP	MAIN DISTRIBUTION PANEL
AFCI	ARC FAULT CIRCUIT INTERRUPTER	MFR	MANUFACTURER
AFG	ABOVE FINISHED FLOOR.	MH	MANHOLE
AHJ	AUTHORITY HAVING JURISDICTION	MICRO.	MICROWAVE
AIC	AMPERE INTERRUPTING CURRENT	MIN	MINIMUM
AL	ALUMINIUM	MLO	MAIN LUGS ONLY
AS	AMP SWITCH	MOCB	MAXIMUM OVERCURRENT PROTECTION
AT	AMPS TRIP	MOCPD	MAXIMUM OVERCURRENT PROTECTIVE DEVICE
ATL	ACROSS-THE-LINE	MSB	MAIN SWITCHBOARD
ATS	AUTOMATIC TRANSFER SWITCH	MSWB	MAIN SWITCHBOARD
AV	AUDIO VISUAL	MTD	MOUNTED
AWG	AMERICAN WIRE GAUGE		
B	BUILDING AUTOMATION SYSTEM	N	NOT APPLICABLE
BAS	BUILDING AUTOMATION SYSTEM	N/A	NOT APPLICABLE
BFF	BELOW FINISHED FLOOR	N/C	NORMALLY CLOSED
BFG	BELOW FINISHED GRADE	N.C.	NORMALLY CLOSED
BKR	BREAKER	NC	NOISE CRITERIA
BTU	BRITISH THERMAL UNIT	NEC	NATIONAL ELECTRICAL CODE
C	CONDUIT	NF	NON-FUSED
CAT	CATEGORY	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION, INC.
CATV	CABLE TELEVISION SYSTEM	NIC	NOT IN CONTRACT
CB	CIRCUIT BREAKER	NL	NOT LIGHT
CT	CURRENT TRANSFORMER	N/O	NORMALLY OPEN
CCTV	CLOSED CIRCUIT TELEVISION	N.O.	NORMALLY OPEN
CKT	CIRCUIT		
CPT	CONTROL POWER TRANSFORMER	O	OCCUPANCY SENSOR
CU	COPPER	OS	OCCUPANCY SENSOR
CVD	CUMULATIVE VOLTAGE DROP	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
D	DECIBELS	OSP	OUTSIDE PLANT
DB	DECIBELS	P	POLE
DDC	DIRECT DIGITAL CONTROL	PBX	PRIVATE BRANCH EXCHANGE RETURN
DIV	DIVISION	PDU	POWER DISTRIBUTION UNIT
DPDT	DOUBLE-POLE, DOUBLE-THROW	PH	PHASE
DPST	DOUBLE-POLE, SINGLE-THROW	#	PHASE
E	EXISTING	PIV	POST INDICATOR VALVE
(E)	EXISTING	PNL	PANEL
EM	EMERGENCY	PNLBD	PANELBOARD
EMI	ELECTROMAGNETIC INTERFERENCE	POE	POWER OVER ETHERNET
EMS	ENERGY MANAGEMENT SYSTEM	POTS	STANDARD ANALOG TELEPHONE LINE
EMT	ELECTRICAL METALLIC TUBING	POTS	PLAIN OLD TELEPHONE SERVICE
EPO	EMERGENCY POWER OFF	PT	POTENTIAL TRANSFORMER
ETR	EXISTING TO REMAIN	PTZ	PAN TILT ZOOM
EWC	ELECTRIC WATER COOLER	PVC	POLYVINYL CHLORIDE
EX	EXISTING	Q	QUANTITY
EXIST	EXISTING	QTY	QUANTITY
F	FIRE ALARM	R	RECEPTACLE
FA	FIRE ALARM	RCPT	RECEPTACLE
FACP	FIRE ALARM CONTROL PANEL	RCP	REFLECTED CEILING PLAN
FCA	FAULT CURRENT AMPS	REV	REVISION
FLA	FULL LOAD AMPS	RF	RETURN FAN
FLR	FLOOR	RLA	RUNNING LOAD AMPS
G	GENERAL CONTRACTOR	RMC	RIGID METAL CONDUIT
GC	GENERAL CONTRACTOR	RPM	REVOLUTIONS PER MINUTE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	S	SWITCHBOARD
GFEP	GROUND FAULT EQUIPMENT PROTECTION	SB	SWITCHBOARD
GFR	GROUND FAULT RELAY	SF	SQUARE FEET
G	GROUND	SPDT	SINGLE-POLE, DOUBLE-THROW
GND	GROUND	SPST	SINGLE-POLE, SINGLE-THROW
GRS	GALVANIZED RIGID STEEL	SS	STAINLESS STEEL
GYP	GYPSON BOARD	S/S	STAINLESS STEEL
H	HAND-OFF-AUTOMATIC HORSEPOWER	ST	SHUNT TRIP
HOA	HAND-OFF-AUTOMATIC	SWBD	SWITCHBOARD
HP	HORSEPOWER	SCCR	SHORT CIRCUIT CURRENT RATING
HTG	HEATING	T	TO BE DETERMINED
HTR	HEATER	TBD	TO BE DETERMINED
HZ	HERTZ	TCC	TEMPERATURE CONTROLS CONTRACTOR
I	ISOLATED GROUND	TGB	TELECOMMUNICATIONS GROUND BUS BAR
IG	ISOLATED GROUND	TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
IMC	INTERMEDIATE METAL CONDUIT	TMBB	TELECOMMUNICATIONS MAIN GROUND BUS BAR
IP	INTERNET PROTOCOL	TX	TRANSFORMER
ISC	SHORT CIRCUIT CURRENT	TYP	TYPICAL
ISP	INTERNET SERVICE PROVIDER	U	UNDERGROUND
J	JUNCTION BOX	UG	UNDERGROUND
JB	JUNCTION BOX	UL	UNDERWRITERS LABORATORIES, INC.
J-BOX	JUNCTION BOX	UNO	UNLESS NOTED OTHERWISE
K	1000 CIRCULAR MILS	UPS	UNINTERRUPTIBLE POWER SUPPLY
kmil	1000 CIRCULAR MILS	UTP	UNSHIELDED TWIST PAIR
KK	KIRK KEY	V	VOLTS
kV	KILOVOLT	V	VOLTS
kVA	KILOVOLT-AMPS	VAC	VOLTS ALTERNATING CURRENT
kVAR	KILOVOLT-AMPS REACTIVE	VD	VOLTAGE DROP
kW	KILOWATT	VDC	VOLTS DIRECT CURRENT
kWH	KILOWATT-HOUR	VFD	VARIABLE FREQUENCY DRIVE
L	LIGHT-EMITTING DIODE	W	WIRE
LED	LIGHT-EMITTING DIODE	W	WIRE
LF	LINEAR FEET	W/	WITH
LRA	LOCKED ROTOR AMPS	W/O	WITHOUT
X	EXPLOSION-PROOF TRANSFORMER	WAP	WIRELESS ACCESS POINT
XP	EXPLOSION-PROOF	WP	WEATHER PROOF COVER
XFMR	TRANSFORMER	WR	WEATHER RESISTANT

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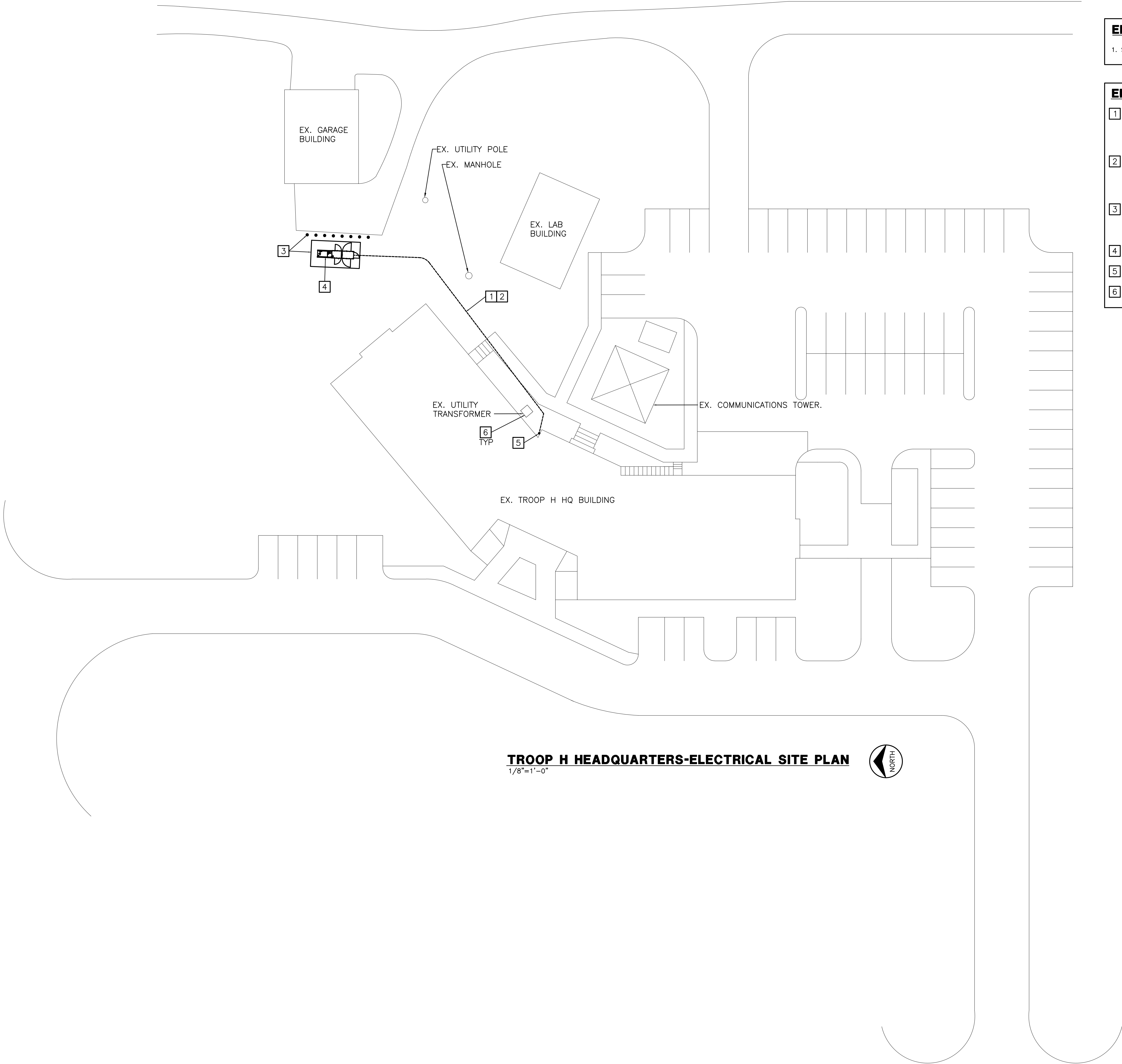
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ELECTRICAL
NOTES, SYMBOLS,
ABBREVIATIONS

SHEET NUMBER:

E1.2

8 OF 13 SHEETS
06/01/2022



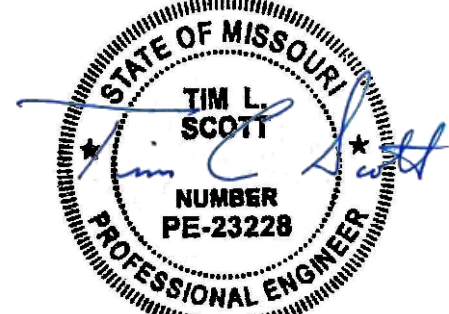
ELECTRICAL GENERAL NOTES

1. SEE SHEET E1.2 FOR ELECTRICAL GENERAL NOTES.

ELECTRICAL PLAN NOTES

1. PRIOR TO STARTING WORK, THE CONTRACTOR SHALL LOCATE ALL EXISTING UNDERGROUND UTILITIES, IE ELECTRICAL LINES, TELEPHONE LINES, FIBER OPTIC LINES, SATELLITE BROADCAST ANTENNA LINES, SANITARY SEWER LINES, STORM SEWERS, DOMESTIC LINES, FIRE PROTECTION, IRRIGATION LINES, ETC. COORDINATE NEW WORK WITH ALL RELATED UTILITY COMPANIES AFFECTED BY THIS NEW WORK.
2. APPROXIMATE FEEDER PATH. AFTER DETERMINING THE OPTIMUM ROUTE, TRENCH FOR UNDERGROUND ELECTRICAL SERVICE, CONTROL CIRCUITS, AND LIGHTING CIRCUIT FROM THE GENERATOR TO THE BUILDING FOR CIRCUITING. PATCH TRENCHED PAVEMENT, DRIVEWAY, AND LANDSCAPING TO MATCH EXISTING. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR CIRCUITING INFORMATION.
3. PROVIDE NEW GENERATOR PAD AND PROTECTIVE BOLLARDS. REFER TO STRUCTURAL DRAWINGS, ELECTRICAL DETAILS, AND COORDINATE WITH GENERATOR MANUFACTURER'S SHOP DRAWINGS. INSTALL SO GENERATOR DOORS OPEN FREE FROM OBSTRUCTIONS, COORDINATE FINAL LOCATION WITH OWNER PRIOR TO BEGINNING ANY WORK.
4. NEW GENERATOR AND ABOVE-GRADE SUB-BASE FUEL TANK. REFER TO ELECTRICAL ONE-LINE DIAGRAM.
5. EXISTING CHASE MAY BE UTILIZED TO ROUTE NEW FEEDERS AND CIRCUITING TO INDOOR EQUIPMENT. FIELD VERIFY.
6. FIELD VERIFY EXACT LOCATION OF ALL EQUIPMENT, DEVICES, BUILDINGS, AND STRUCTURES.

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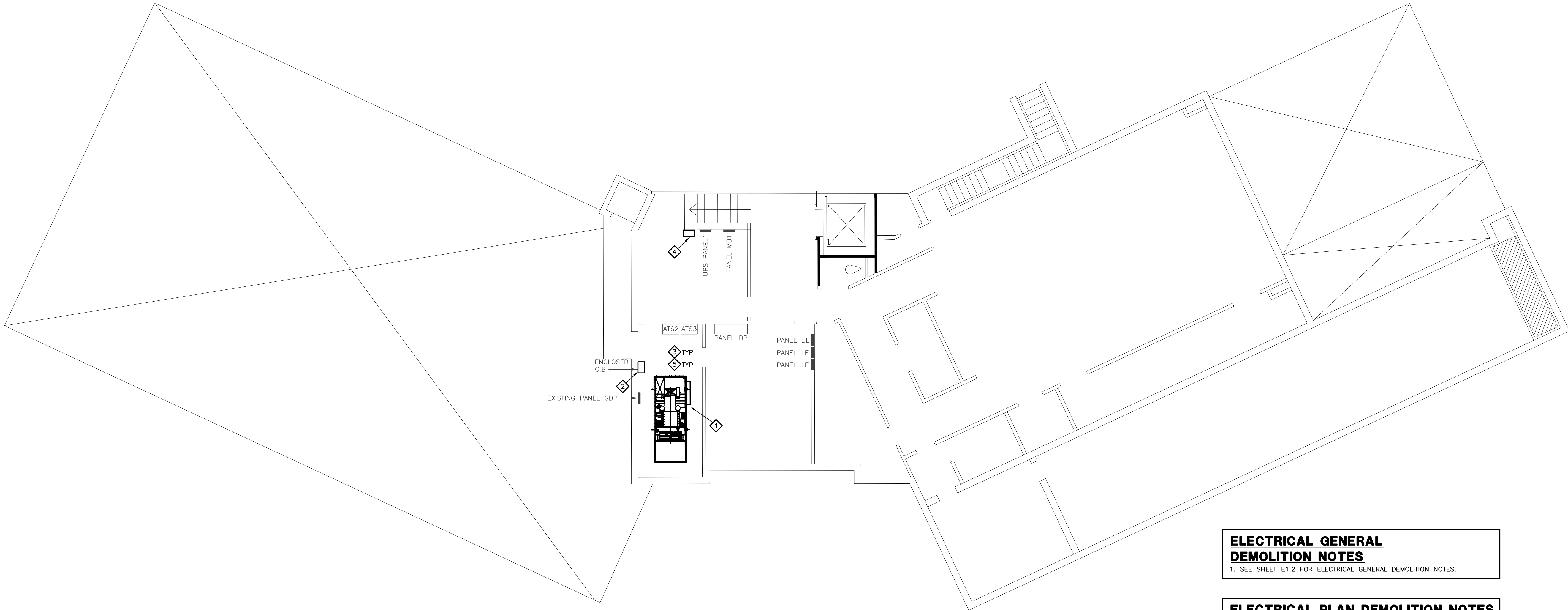
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ELECTRICAL
SITE PLAN

SHEET NUMBER:

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**ELECTRICAL GENERAL
DEMOLITION NOTES**

1. SEE SHEET E1.2 FOR ELECTRICAL GENERAL DEMOLITION NOTES.

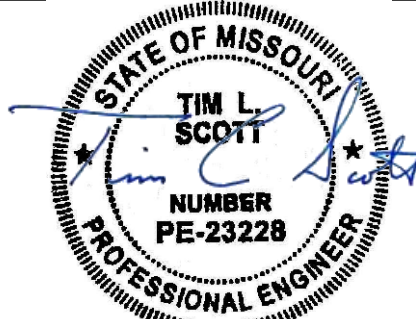
ELECTRICAL PLAN DEMOLITION NOTES

- 1. DISCONNECT FROM POWER AND REMOVE EXISTING GENERATOR IN ITS ENTIRETY. PATCH FLOOR TO MATCH ARCHITECTURAL FINISHES.
- 2. REMOVE EXISTING ENCLOSED CIRCUIT BREAKER. MAINTAIN FEEDERS FOR CONNECTION TO NEW ENCLOSED CIRCUIT BREAKER. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- 3. FOR CIRCUITRY ASSOCIATED WITH EQUIPMENT TO BE REMOVED IN THIS AREA - REMOVE CONDUIT AND WIRE NOT REQUIRED TO REMAIN. UNDERGROUND CONDUIT SHALL BE CAPPED AND ABANDONED IN PLACE. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- 4. ADD ALTERNATE - REPLACE EXISTING UPS: DISCONNECT AND REMOVE EXISTING 11.2KW UPS. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- 5. BACKUP POWER SHALL BE AVAILABLE THROUGHOUT CONSTRUCTION. COORDINATE WHICH LOADS ARE TO HAVE UNINTERRUPTED BACKUP POWER AVAILABLE WITH THE ARCHITECT AND THE OWNER. THE CONTRACTOR SHALL PROPOSE A PLAN TO PROVIDE BACKUP POWER, INCLUDING DEMOLITION AND CONSTRUCTION PHASING, FOR REVIEW AND FINAL APPROVAL BY THE ARCHITECT AND OWNER PRIOR TO BEGINNING ANY WORK.

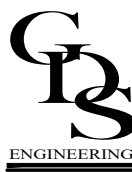
BASEMENT ELECTRICAL DEMOLITION PLAN
1/8"=1'-0"



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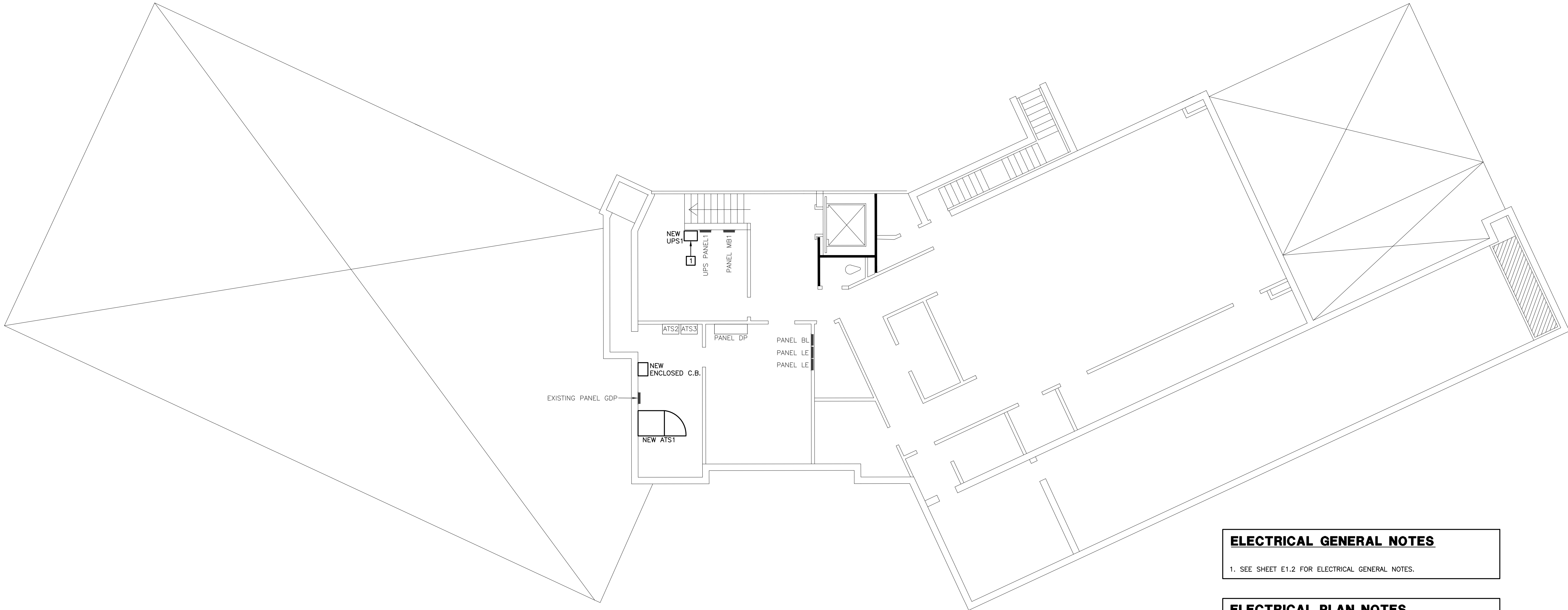
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BASEMENT
ELECTRICAL
DEMOLITION PLAN

SHEET NUMBER:

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06/01/2022



ELECTRICAL GENERAL NOTES

1. SEE SHEET E1.2 FOR ELECTRICAL GENERAL NOTES.

ELECTRICAL PLAN NOTES

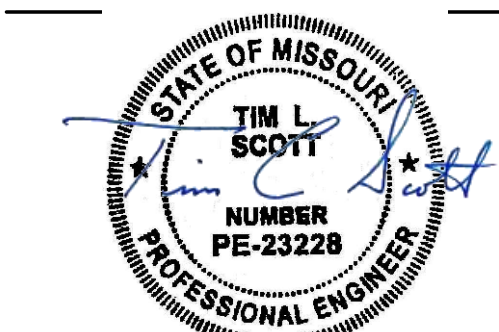
1 ADD ALTERNATE – REPLACE EXISTING UPS; DISCONNECT AND REMOVE EXISTING 11.2KW UPS. PROVIDE NEW UPS AND MAKE ALL REQUIRED CONNECTIONS. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.

BASEMENT ELECTRICAL PLAN

1/8"=1'-0"



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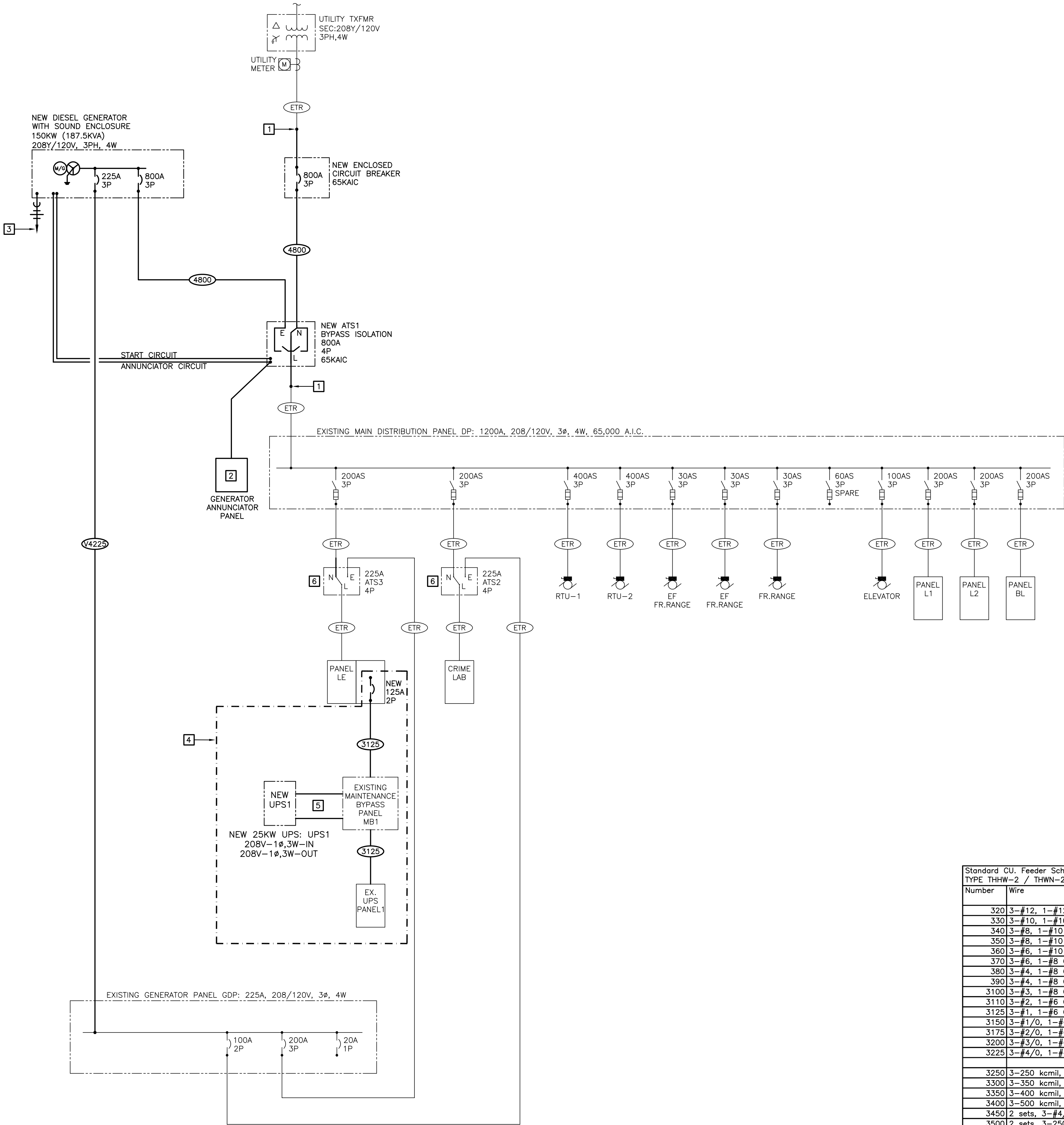
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BASEMENT
ELECTRICAL
PLAN

SHEET NUMBER:

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06/01/2022

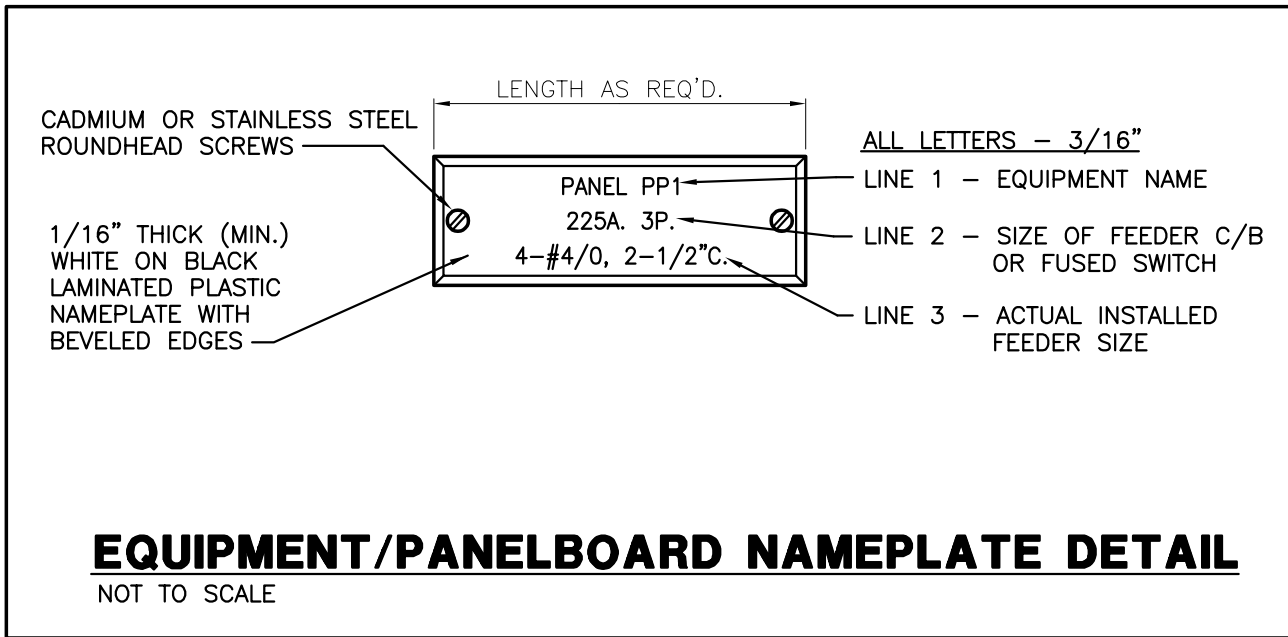


ELECTRIAL ONE-LINE GENERAL NOTES

- 1. ELECTRICAL CONTRACTOR SHALL PROVIDE CIRCUIT DIRECTORY WITH TYPED CIRCUIT DESIGNATION CARD UNDER PLASTIC COVER ON THE INSIDE OF EACH PANEL DOOR IN PANELS WHERE WORK WAS PERFORMED/ADDED.
- 2. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL NAMEPLATES ON ALL DISCONNECT SWITCHES, PANELBOARDS AND SWITCHBOARDS WHERE WORK IS PERFORMED/ADDED.

ELECTRICAL ONE-LINE PLAN NOTES

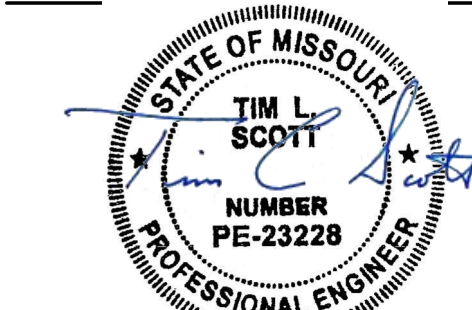
- 1 INTERCEPT AND EXTEND EXISTING FEEDER AS REQUIRED.
- 2 INSTALL THE GENERATOR ANNUNCIATOR PANEL AT THE FRONT DESK ON THE FIRST FLOOR OR IN THE COMMUNICATIONS ROOM. COORDINATE THE EXACT LOCATION WITH THE ARCHITECT AND OWNER.
- 3 INSTALL CIRCUITS FOR GENERATOR BATTERY HEATER, LIGHTING, ETC. COORDINATE WITH MANUFACTURER'S INSTRUCTIONS FOR QUANTITY AND REQUIREMENTS. CONNECT TO NEW OR SPARE CIRCUIT BREAKERS IN NEAREST PANELBOARD.
- 4 ADD ALTERNATE - REPLACE EXISTING UPS; DISCONNECT AND REMOVE EXISTING 11.2KW UPS. PROVIDE NEW UPS AND MAKE ALL REQUIRED CONNECTIONS.
- 5 PROVIDE NEW UPS INTERCONNECTIONS PER MANUFACTURER'S INSTRUCTIONS.
- 6 EXISTING ATS SHALL BE OPERATED AS A MANUAL TRANSFER SWITCH. MAKE ALL NECESSARY MODIFICATIONS. PROVIDE NEW EQUIPMENT NAMEPLATE.



Standard CU. Feeder Schedule							
TYPE THHW-2 / THWN-2 Insulation		EMT ¹				EMT ¹	
Number	Wire	Conduit (English)	Conduit (Metric)	Number	Wire	Conduit (English)	Conduit (Metric)
320	3-#12, 1-#12 Gnd	3/4" C	21	420	4-#12, 1-#12 Gnd	3/4" C	21
330	3-#10, 1-#10 Gnd	3/4" C	21	430	4-#10, 1-#10 Gnd	3/4" C	21
340	3-#8, 1-#10 Gnd	3/4" C	21	440	4-#8, 1-#10 Gnd	3/4" C	21
350	3-#8, 1-#10 Gnd	3/4" C	21	450	4-#8, 1-#10 Gnd	3/4" C	21
360	3-#6, 1-#10 Gnd	1" C	27	460	4-#6, 1-#10 Gnd	1" C	27
370	3-#6, 1-#8 Gnd	1" C	27	470	4-#6, 1-#8 Gnd	1" C	27
380	3-#4, 1-#8 Gnd	1 1/4" C	35	480	4-#4, 1-#8 Gnd	1 1/4" C	35
390	3-#4, 1-#8 Gnd	1 1/4" C	35	490	4-#4, 1-#8 Gnd	1 1/4" C	35
3100	3-#5, 1-#8 Gnd	1 1/4" C	35	4100	4-#3, 1-#8 Gnd	1 1/4" C	35
3110	3-#2, 1-#6 Gnd	1 1/2" C	41	4110	4-#2, 1-#6 Gnd	1 1/2" C	41
3125	3-#1, 1-#6 Gnd	1 1/2" C	41	4125	4-#1, 1-#6 Gnd	2" C	53
3150	3-#1/0, 1-#6 Gnd	1 1/2" C	41	4150	4-#1/0, 1-#6 Gnd	2" C	53
3175	3-#2/0, 1-#6 Gnd	2" C	53	4175	4-#2/0, 1-#6 Gnd	2" C	53
3200	3-#3/0, 1-#6 Gnd	2" C	53	4200	4-#3/0, 1-#6 Gnd	2" C	53
3225	3-#4/0, 1-#4 Gnd	2 1/2" C	63	4225	4-#4/0, 1-#4 Gnd	2 1/2" C	63
3250	3-250 kcmil, 1-#4 Gnd	2 1/2" C	63	V4225	4-250 kcmil, 1-#3 Gnd	2 1/2" C	63
3300	3-350 kcmil, 1-#4 Gnd	3" C	78	4250	4-250 kcmil, 1-#4 Gnd	2 1/2" C	63
3350	3-400 kcmil, 1-#3 Gnd	3" C	78	4300	4-350 kcmil, 1-#4 Gnd	3" C	78
3400	3-500 kcmil, 1-#3 Gnd	3 1/2" C	91	4350	4-400 kcmil, 1-#3 Gnd	3" C	78
3450	2 sets, 3-#4/0, 1-#3 Gnd	2 1/2" C	63	4400	4-500 kcmil, 1-#3 Gnd	3 1/2" C	91
3500	2 sets, 3-250 kcmil, 1-#2 Gnd	2 1/2" C	63	4450	2 sets, 4-#4/0, 1-#3 Gnd	2 1/2" C	63
3600	2 sets, 3-350 kcmil, 1-#1 Gnd	3" C	78	4500	2 sets, 4-250 kcmil, 1-#2 Gnd	2 1/2" C	63
3700	2 sets, 3-400 kcmil, 1-#1/0 Gnd	3" C	78	4600	2 sets, 4-350 kcmil, 1-#1 Gnd	3" C	78
3800	2 sets, 3-500 kcmil, 1-#1/0 Gnd	3 1/2" C	91	4700	2 sets, 4-400 kcmil, 1-#1/0 Gnd	3" C	78
31000	3 sets, 3-400 kcmil, 1-#2/0 Gnd	3" C	78	4800	2 sets, 4-500 kcmil, 1-#1/0 Gnd	3 1/2" C	91
31200	4 sets, 3-350 kcmil, 1-#3/0 Gnd	3" C	78	41000	3 sets, 4-400 kcmil, 1-#2/0 Gnd	3" C	78
31600	5 sets, 3-400 kcmil, 1-#4/0 Gnd	3" C	78	41200	4 sets, 4-350 kcmil, 1-#3/0 Gnd	3" C	78
32000	6 sets, 3-400 kcmil, 1-250 kcmil Gnd	3" C	78	41600	5 sets, 4-400 kcmil, 1-#4/0 Gnd	3" C	78
32500	7 sets, 3-500 kcmil, 1-350 kcmil Gnd	3 1/2" C	91	42000	6 sets, 4-400 kcmil, 1-250 kcmil Gnd	3" C	78
33000	8 sets, 3-500 kcmil, 1-400 kcmil Gnd	3 1/2" C	91	42500	7 sets, 4-500 kcmil, 1-350 kcmil Gnd	3 1/2" C	91
34000	11sets, 3-500 kcmil, 1-500 kcmil Gnd	3 1/2" C	91	43000	8 sets, 4-500 kcmil, 1-400 kcmil Gnd	3 1/2" C	91
				44000	11 sets, 4-500 kcmil, 1-500 kcmil Gnd	3 1/2" C	91
				45000	14 sets, 4-500 kcmil, 1-700 kcmil Gnd	3 1/2" C	91

- NOTES:
1. CONDUIT SIZES ARE BASED ON EMT. CONTRACTOR SHALL ADJUST SIZES FOR PVC CONDUIT IN ACCORDANCE WITH NFPA 70 (NEC) ANNEX C.
 2. ALLOWABLE AMPACITIES ARE BASED ON THE 75 DEGREES C COLUMN OF NFPA 70 (NEC) TABLE 310.15(B)(16). CONTRACTOR SHALL ADJUST AMPACITIES WHERE TERMINATIONS ARE ONLY RATED FOR 60 DEGREES C. FEEDER AMPACITIES SHALL ALSO BE DE-RATED FOR OTHER FACTORS AS PER NEC SUCH AS AMBIENT TEMPERATURES ABOVE 86 DEGREES F [TABLE 310.15(B)(2)(a)].

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



Tim L. Scott
Number E-23228
PROFESSIONAL SEAL



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Missouri State Certificate of Authority #000816

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

TROOP H HEADQUARTERS
AND CRIME LAB

EMERGENCY GENERATOR
REPLACEMENT

MISSOURI STATE
HIGHWAY PATROL
ST. JOSEPH, MO

PROJECT # R2112-01
SITE # 4762
FACILITY # 55134

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/01/2022
CD SET

CAD DWG FILE:
DRAWN BY:
CHECKED BY: TLS
DESIGNED BY:

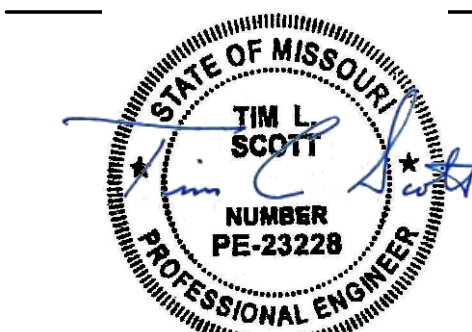
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ELECTRICAL
ONE-LINE
DIAGRAM

SHEET NUMBER:

E4.1

12 OF 13 SHEETS
06/01/2022



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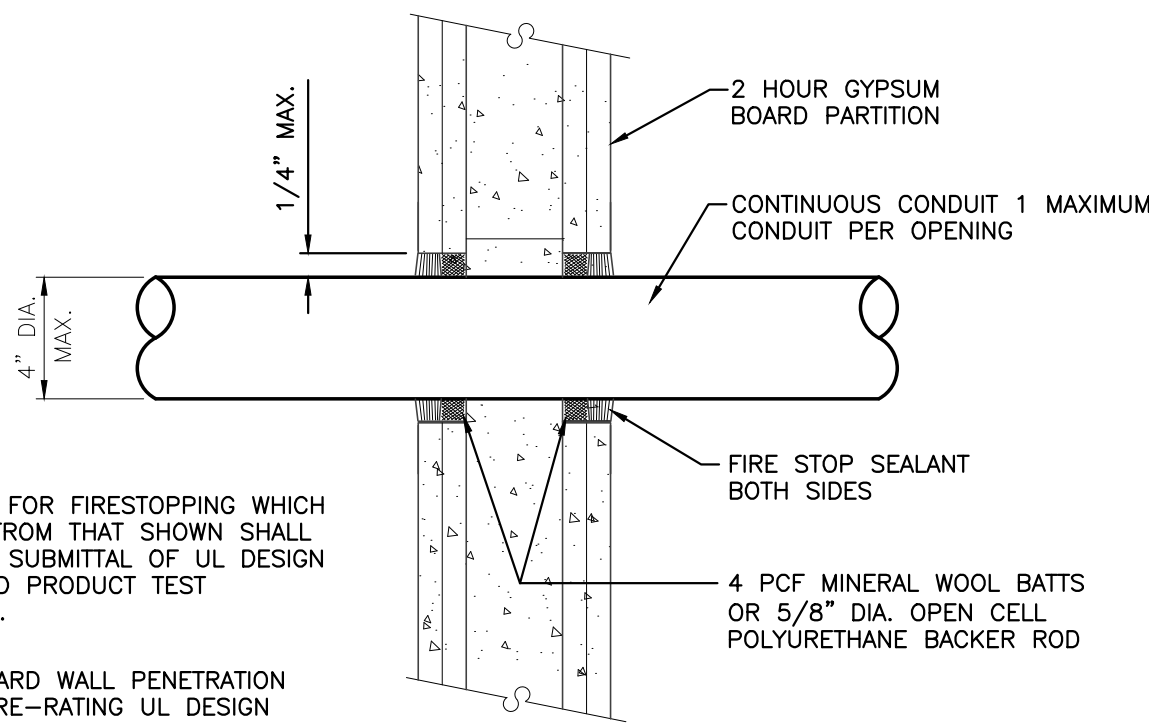
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ELECTRICAL
DETAILS

SHEET NUMBER:

E5.0

13 OF 13 SHEETS
06/01/2022



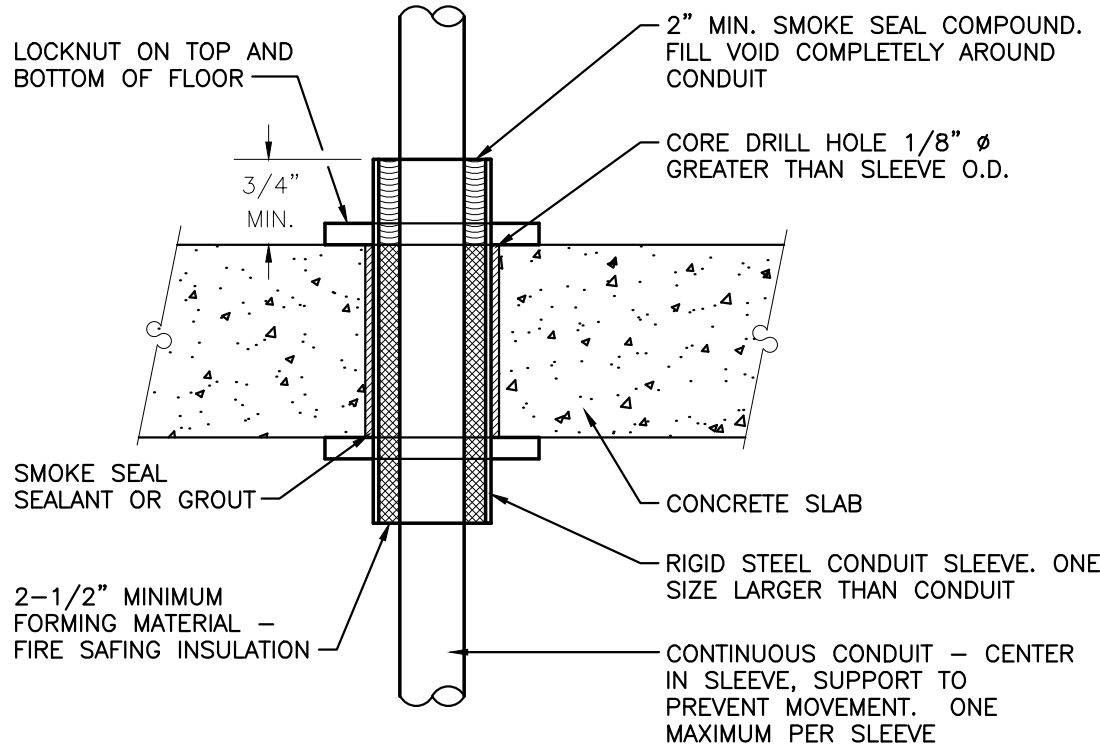
DESIGNS FOR FIRESTOPPING WHICH DIFFER FROM THAT SHOWN SHALL REQUIRE SUBMITTAL OF UL DESIGN DATA AND PRODUCT TEST REPORTS.

GYP. BOARD WALL PENETRATION
2 HR FIRE-RATING UL DESIGN
147/CONFIGURATION A.

NOTE:
THIS DETAIL USED IN BOTH 1 HOUR AND 2 HOUR PARTITIONS. THIS DETAIL USED FOR BOTH DRYWALL AND PLASTER/STUD PARTITIONS, DESIGNATED AS IF. FIELD VERIFY CONDITIONS.

FIRE-STOP DETAIL/WALL
NOT TO SCALE

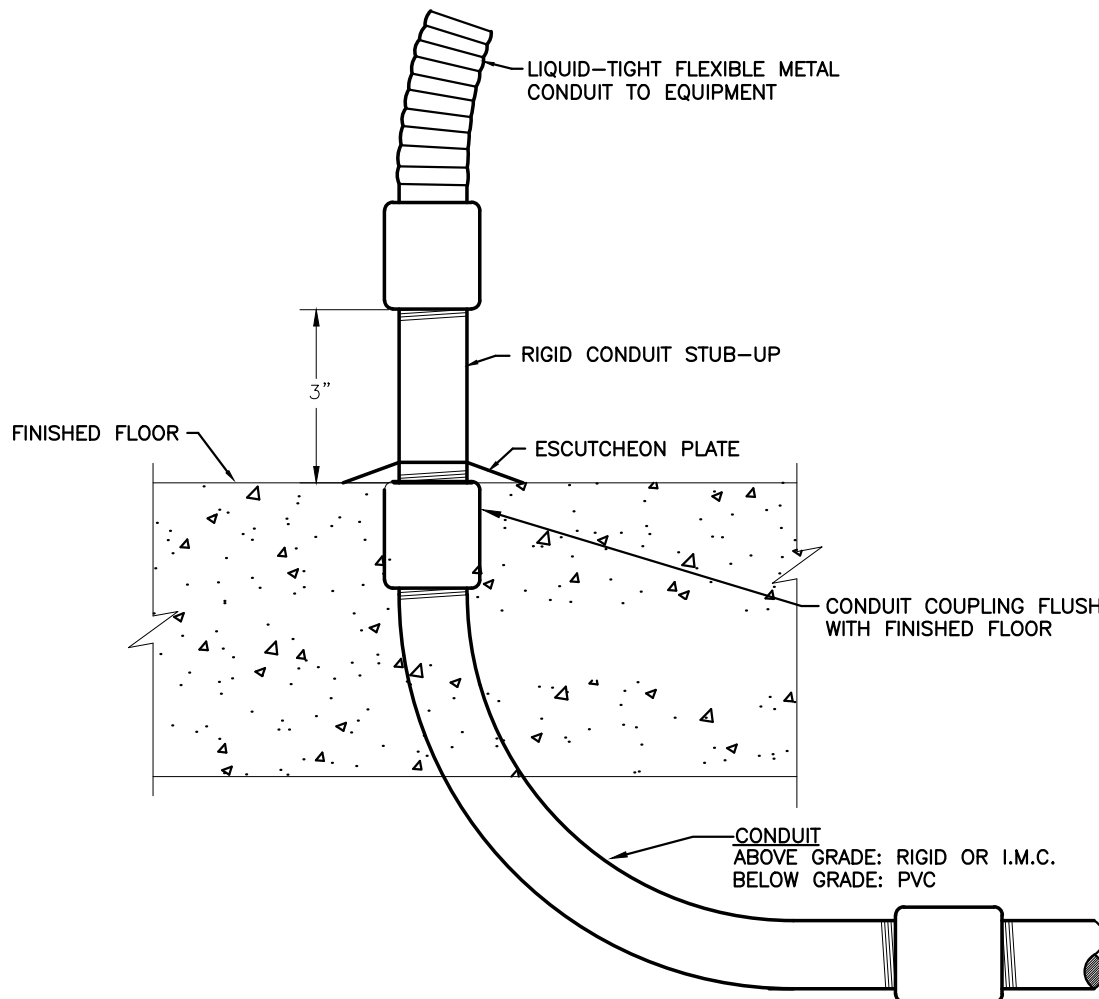
ED10



NOTE:
FLOOR PENETRATION 3 HR
FIRE-RATING UL DESIGN 165

CONDUIT SLEEVE DETAIL THRU FLOOR
NO SCALE

ED9



CONDUIT STUB-UP DETAIL
NOT TO SCALE

ED71

FIRE RATED PENETRATION SCHEDULE					
TYPE OF PENETRATION	CONCRETE OR MASONRY		GYPSUM BOARD/FRAME		*SPECSEAL FIRESTOP PRODUCTS
	FLOORS UL SYSTEM #	WALLS UL SYSTEM #	FLOORS UL SYSTEM #	WALLS UL SYSTEM #	
METAL CONDUITS ANY SIZE	CAJ1079	WJ1055	FC1010	WJ1049	SSS100 SEALANT
	CAJ1213	CAJ1213		WJ1088	LC150 SEALANT
	CAJ1198	CAJ1198		WL1062	PENS500 SILICONE
PVC CONDUIT 2" AND SMALLER	CAJ2031	WJ2018	FC2032	WL2093	SSS100 SEALANT
PVC CONDUITS 2" THRU 4"	CAJ2038	CAJ2038	FC2033	FC2029	FIRESTOP COLLAR
	CAJ2045	CAJ2045			FIRESTOP COLLAR
	CAJ2124	CAJ2124	FC2033	WL2059	WRAP STRIPS
CABLE TRAY STEEL OR ALUMINUM	CAJ4029	CAJ4029		WL4008	FIRESTOP PILLOWS
	CAJ4020	CAJ4020			FIRESTOP MORTAR
	CAJ4009	CAJ4009		WL4005	SSS100 SEALANT
ELECTRICAL BUS DUCT	CAJ6009	CAJ6009			FIRESTOP MORTAR
	CAJ6008	CAJ6008		WL6001	SSS100 SEALANT
MAX. 3" CABLE BUNDLES	CAJ3133	WJ3022	FC3015	WL3076	SSS100 SEALANT

NOTES:

- ALL U.L. LISTED SYSTEMS SHOWN ABOVE ARE BASED ON PROVIDING A 1 & 2 HOUR RATED FIRESTOP. WHERE 3 HOUR RATING IS REQUIRED, CONTACT FIRESTOP PRODUCT MANUFACTURER FOR DESIGN MODIFICATIONS.
- ALL U.L. LISTED SYSTEMS SHOWN ABOVE ARE BASED ON "SpecSeal Firestop" PRODUCTS FROM SPECIFIED TECHNOLOGIES, INC. OR APPROVED EQUAL PRODUCTS FROM "3-M" OR HILTI, INC.