



County of Roanoke

FINANCE DEPARTMENT PURCHASING DIVISION

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February 26, 2018

RFQ #2018- 035 Generator Installation

ADDENDUM NO. 2

Fresh Set of Drawings

Due Date & Time:
March 5, 2018 12:00PM
(Local Prevailing Time)

COUNTY OF ROANOKE



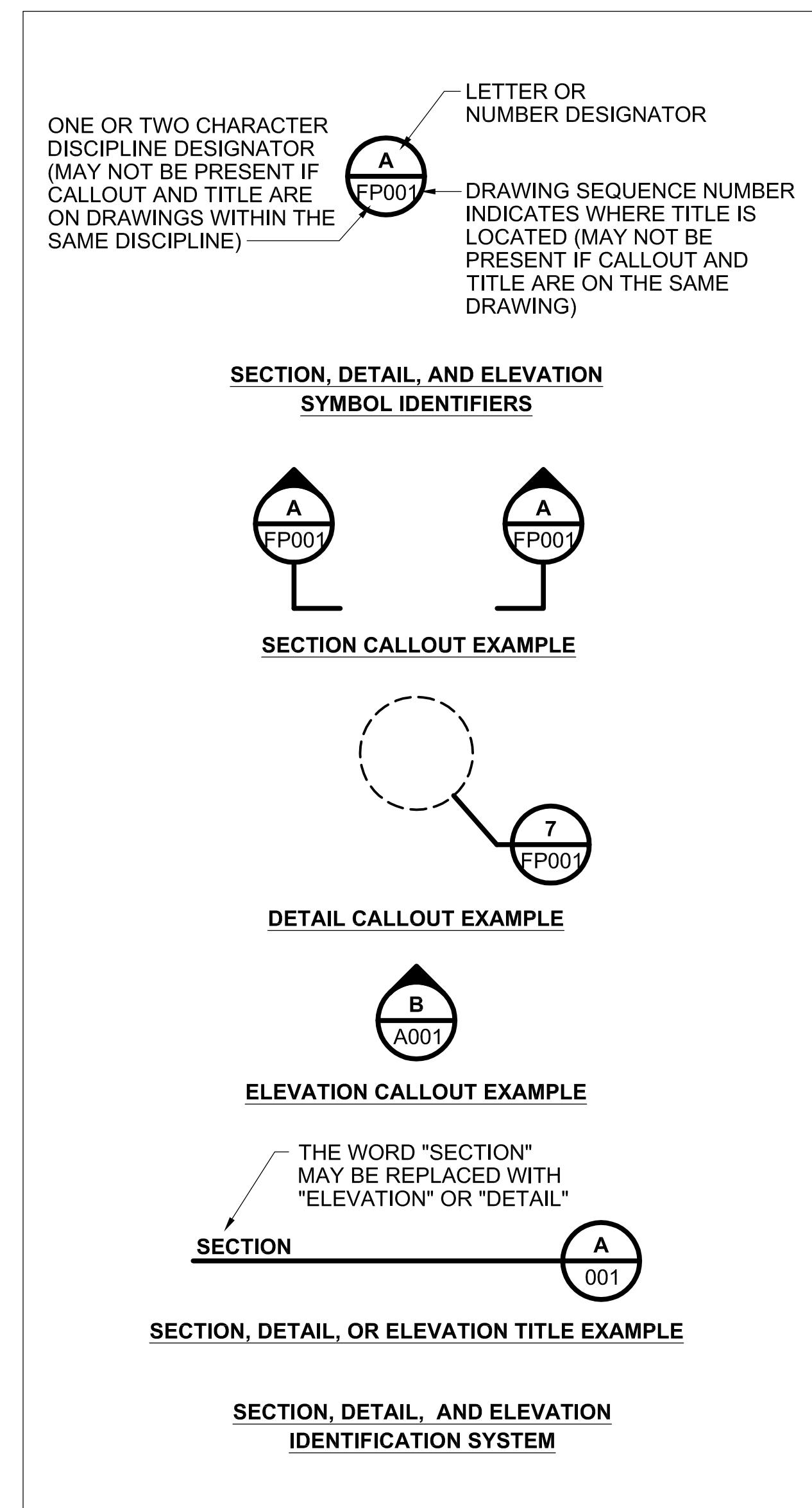
REPLACEMENT GENERATOR PROJECT #1 GREEN RIDGE REC CENTER ROANOKE, VA



ISSUED FOR CONSTRUCTION

SEPTEMBER 07, 2017

100048



Contract Drawings

GENERAL DRAWINGS

DWG. NO. TITLE

COVER-INDEX

MECHANICAL DRAWINGS

DWG. NO. TITLE

M100 MECHANICAL LEGEND AND ABBREVIATIONS
MD101 MECHANICAL DEMOLITION PLAN
M101 MECHANICAL NEW WORK PLAN

ELECTRICAL DRAWINGS

DWG. NO. TITLE

E001 ELECTRICAL SPECIFICATIONS AND GENERAL NOTES
ED101 DEMOLITION PLAN
E101 NEW WORK PLAN
ED601 DEMOLITION ONE-LINE DIAGRAM
E601 NEW WORK ONE-LINE DIAGRAM



no.	date	by	ckd	description
09/07/17	KMS	JMR	ISSUED FOR CONSTRUCTION	

**BURNS
MCDONNELL**

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ROANOKE, VA 24011
540-759-5100

REPLACEMENT GENERATOR PROJECT #1

COVER-INDEX

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PIPE LINE ACCESSORIES

	GATE VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	BALL VALVE
	PUMP
	PRESSURE GAUGE
	Y-TYPE STRAINER
	REMOVABLE CAP
	UNION
	METER
*	COMPONENTS TO BE FURNISHED WITH EQUIPMENT

GENERAL NOTES:

1. LEGEND IS GENERAL IN NATURE AND MAY INDICATE MORE INFORMATION THAN IS APPLICABLE TO PROJECT. SEE PLANS FOR SPECIFIC SYMBOLS AND ABBREVIATIONS.
2. PROVIDE ALL MATERIALS, VALVES, AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED, AND AS REQUIRED BY CODE.
3. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
4. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH OTHER WORK (STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC...) SHOWN ON CONTRACT DOCUMENT DRAWINGS.
5. LOCATE ALL MECHANICAL EQUIPMENT FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS, AND VALVES. MAINTAIN UNOBSTRUCTED ALL AREAS AND CLEARANCES INDICATED BY EQUIPMENT MANUFACTURER FOR SERVICE.
6. VERIFY DIMENSIONS AND CONNECTION SIZE WITH FURNISHED EQUIPMENT.
7. ENSURE EQUIPMENT SUPPORTS AND CURBS ARE LEVEL PRIOR TO INSTALLING EQUIPMENT. INSTALL ALL EQUIPMENT LEVEL AND PLUMB UNLESS OTHERWISE INDICATED.

FUEL POLISHING UNIT OPERATIONS:

1. EVERY 60 DAYS (ADJ) OR WHEN MANUALLY ENERGIZED, THE FUEL POLISHING UNIT SHALL TURN-OVER THE ENTIRE VOLUME OF EACH TANK. FILTER THE TANK FOR 6 HOURS (ADJ) CONTINUOUSLY. FUEL POLISHING UNIT OPERATIONS SHALL BE DISABLED IF GENERATOR IS STARTED.

SPECIFICATIONS:GENERAL:

1. INSTALL AND TEST COMPONENTS IN ACCORDANCE WITH THE NFPA 31 (2016), MANUFACTURERS INSTRUCTIONS, AND APPROVED PRODUCT DATA SUBMITTALS.
2. PIPING MATERIALS SHALL BARE LABEL, STAMP, OR OTHER MARKINGS OF SPECIFIED TESTING.
3. CLEAN INTERIOR OF PIPING, REMOVE DIRT, RUST, AND DEBRIS AS WORK PROGRESSES.
4. PROTECT PIPING DURING REMAINDER OF CONSTRUCTION PERIOD TO AVOID CLOGGING WITH DIRT, RUST, AND DEBRIS AND TO PREVENT DAMAGE FROM TRAFFIC AND CONSTRUCTION WORK.

PIPING:

PROVIDE CARBON STEEL PIPE THAT COMPLIES WITH THE FOLLOWING, ASTM A53/A53M, TYPE E OR S, GRADE B, SEAMLESS OR ELECTRIC WELDED, SCHEDULE 80. END CONNECTIONS FOR PIPE OR FITTINGS SHALL BE FORGED, THREADED END CONNECTIONS, PROVIDE CONNECTIONS THAT CONFORM TO ASME B16.3, CLASS 150 OR ASME B16.11.

VALVES:

PROVIDE VALVES WITH BODIES, BONNETS, AND COVERS CONSTRUCTED OF CAST STEEL CONFORMING TO ASTM A216/A216M.

SWING TYPE CHECK VALVE SHALL BE THE FULL-OPENING, TILTING DISC, NON-SLAM, SWING TYPE THAT CONFORMS TO API SPEC 6D. DISCS AND SEATING RINGS SHALL BE RENEWABLE WITHOUT REMOVING FROM THE LINE. THE DISC SHALL BE GUIDED AND CONTROLLED TO CONTACT THE ENTIRE SEATING SURFACE.

BALL VALVE SHALL BE THE NON-LUBRICATED, DOUBLE SEATED, BALL TYPE THAT CONFORMS TO API SPEC 6D. VALVE SHALL MEET THE FIRE TEST REQUIREMENTS OF API SPEC 6FA. VALVE SHALL OPERATE FROM FULLY OPEN TO FULLY CLOSED WITH 90 DEGREE ROTATION OF THE BALL. VALVE SHALL BE CAPABLE OF 2-WAY SHUTOFF. VALVE BALL SHALL BE CONSTRUCTED OF STAINLESS STEEL. PROVIDE FULL BORE TYPE FOR ALL BALL VALVES.

PIPING ACCESSORIES:

STRAINER SHALL BE THE IN-LINE, CLEANABLE, SIMPLEX BASKET TYPE CONFIGURED IN EITHER AN "S" OR "T" PATTERN. STRAINER BODY SHALL BE FABRICATED OF CAST STEEL OR BRASS. PROVIDE STRAINER WITH A DRAIN AND WITH DRAIN PIPING THAT IS INCLUSIVE OF A BALL VALVE. STRAINER SHALL BE EQUIPPED WITH A REMOVABLE COVER, FLANGED END CONNECTIONS, AN AIR ELIMINATOR, PORTS FOR CONNECTION OF DIFFERENTIAL PRESSURE SENSOR TUBE, AND ARROWS CLEARLY CAST ON THE STRAINER SIDES THAT INDICATE THE DIRECTION OF FLOW. STRAINERS SHALL HAVE A REMOVABLE, 60 MESH, TYPE 316 STAINLESS STEEL WIRE SEDIMENT SCREEN.

PRESSURE GAUGE SHALL BE THE SINGLE STYLE TYPE THAT CONFORM TO ASME B40.100. GAUGE SHALL HAVE A 4-1/2 INCHES DIAL, A STAINLESS STEEL CASE AND TUBE, A STAINLESS STEEL BALL VALVE, PRESSURE SNUBBERS, AND A SCALE RANGE AS INDICATED. GAUGE SHALL BE LIQUID-FILLED WITH GLYCERIN OR SILICONE.

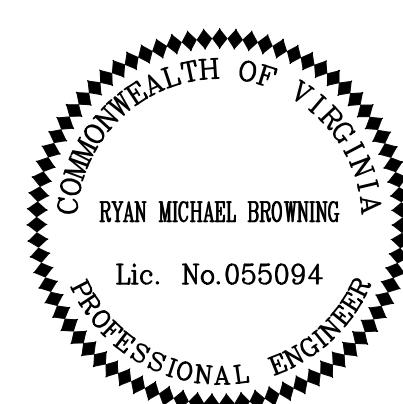
EQUIPMENT:

FUEL POLISHING UNIT
NEMA 4 RATED ENCLOSURE WITH HINGED DOORS AND HANDLE WITH KEYED LOCK. MANUAL AIR PURGE VALVE, LEAK SENSOR WITH ALARM, WATER SENSOR AND COALESCING FILTER. BASIS OF DESIGN SHALL BE RCI TECHNOLOGIES FRS+6.

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ROANOKE, VA
GENERATOR REPLACEMENT PROJECT #1
MECHANICAL LEGEND AND ABBREVIATIONS

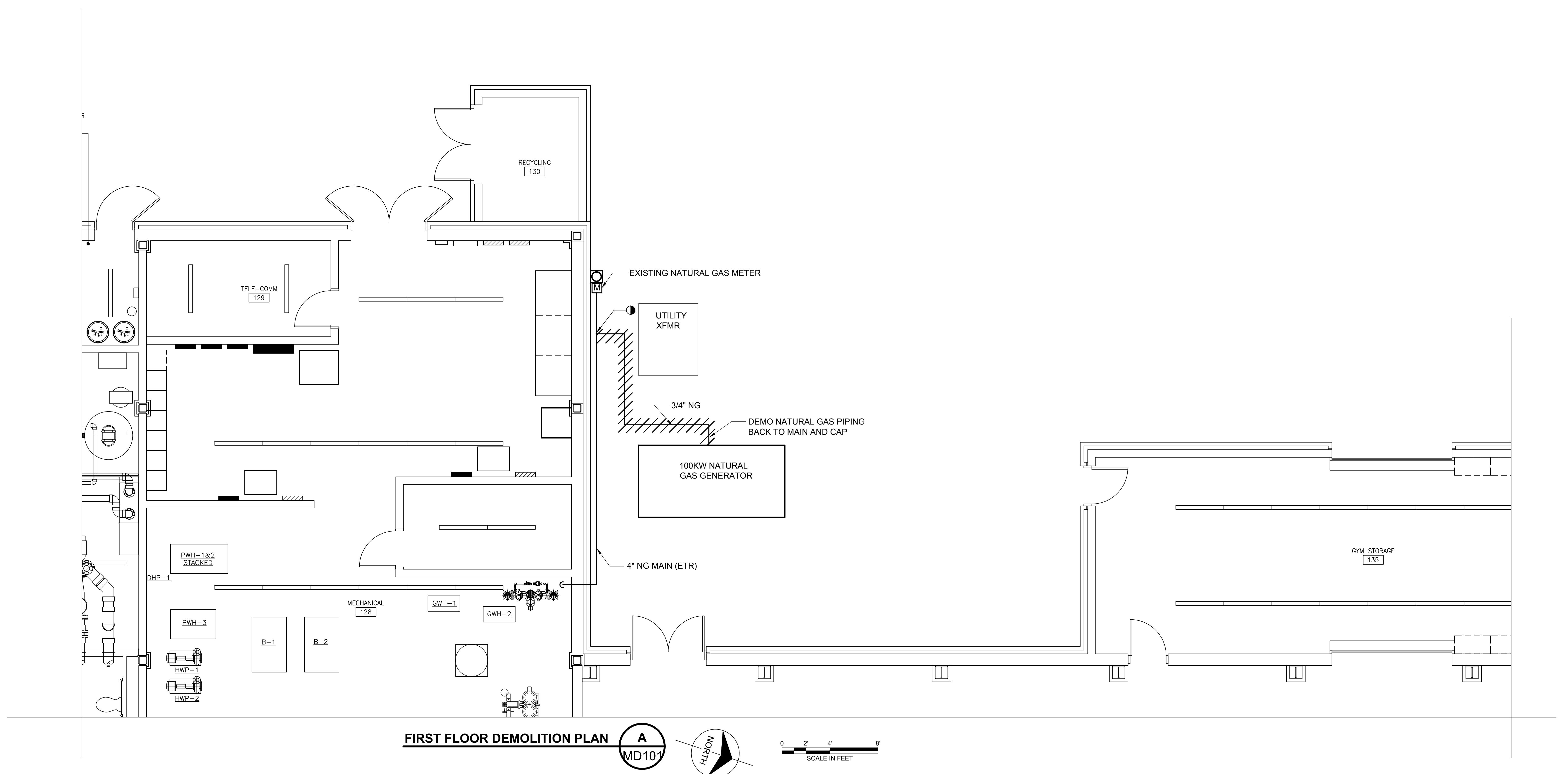


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drawing	M100	rev. 0
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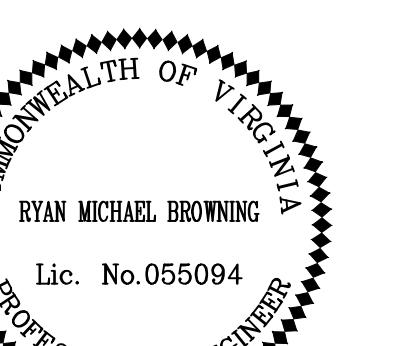
GENERAL NOTES

- ALL EQUIPMENT IS EXISTING TO REMAIN UNLESS OTHERWISE NOTED.
- REFER TO DRAWING M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND NOTES.

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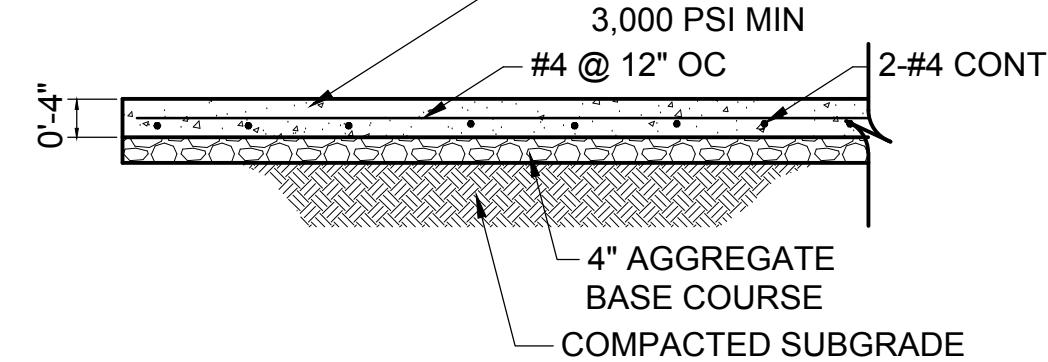
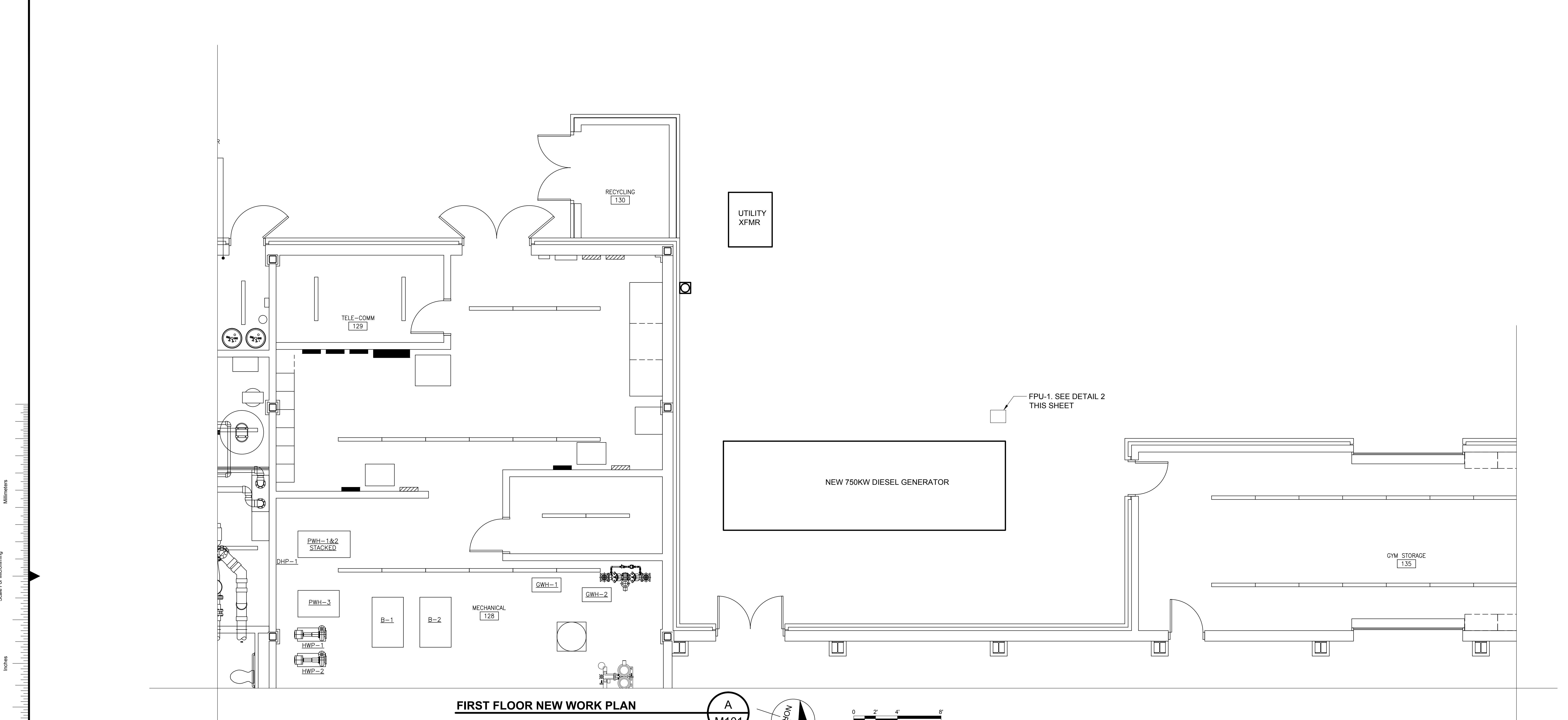
ROANOKE, VA
GENERATOR REPLACEMENT PROJECT #1
MECHANICAL DEMOLITION PLAN

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GENERAL NOTES

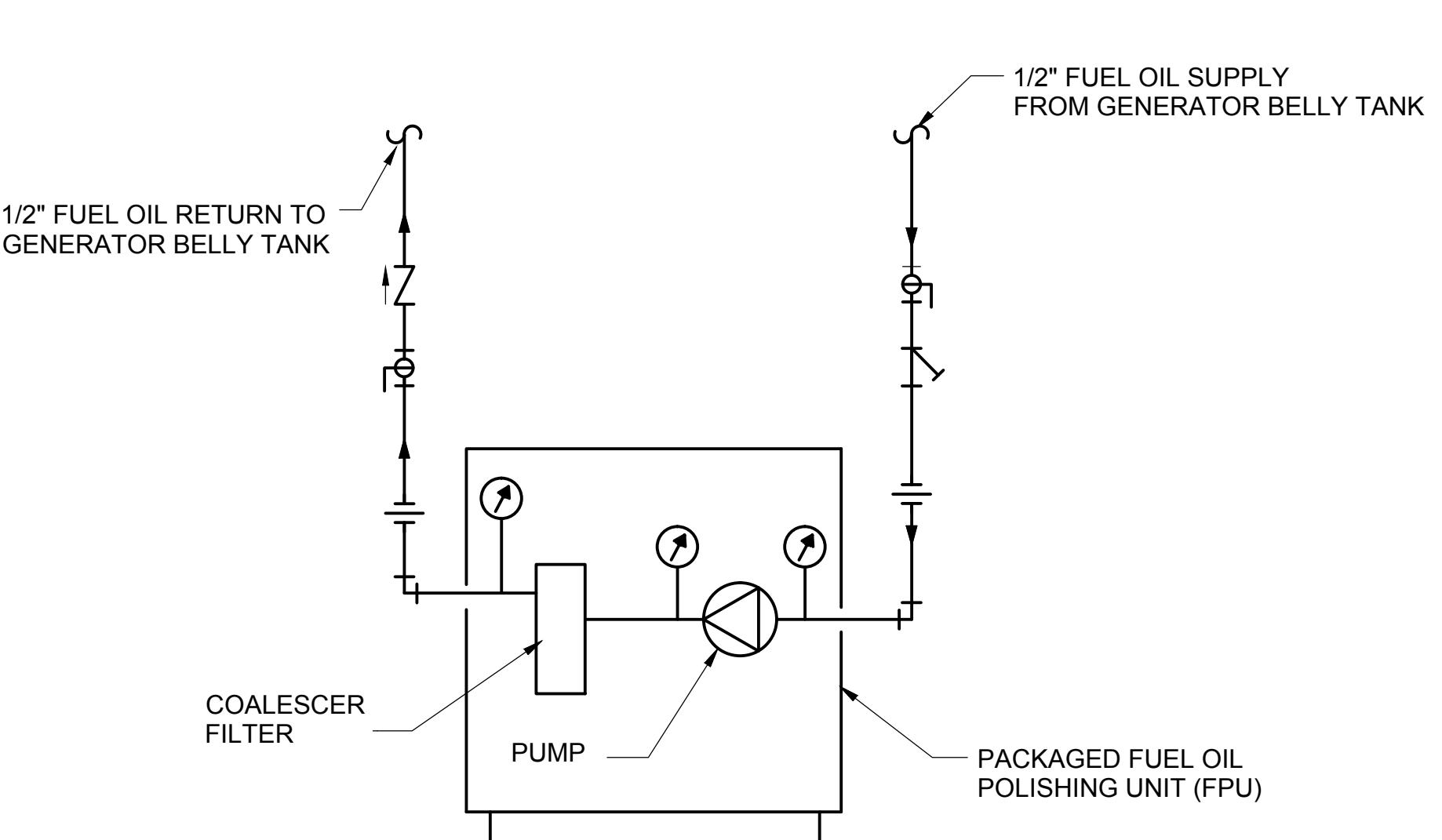
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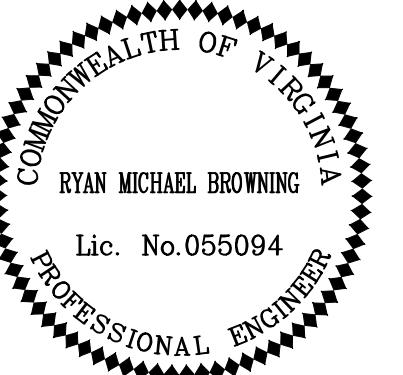
1 NEW FUEL OIL POLISHING UNIT CONCRETE EQUIPMENT PAD DETAIL

SCALE: NOT TO SCALE



2 NEW FUEL POLISHING UNIT DETAIL (FPU)

FUEL OIL POLISHING UNIT SCHEDULE										
MARK	DESCRIPTION	TYPE	CAPACITY (GPM)	MOTOR HP	VOLATAGE	PHASE	INLET CONNECTION	OUTLET CONNECTION	SUCTION CAPACITY	REMARKS
FPU-1	FUEL OIL POLISHING UNIT	SIMPLEX	6	1/3	120	1	1/2	1/2	20 FEET VERTICAL	NEMA 4 ENCLOSURE



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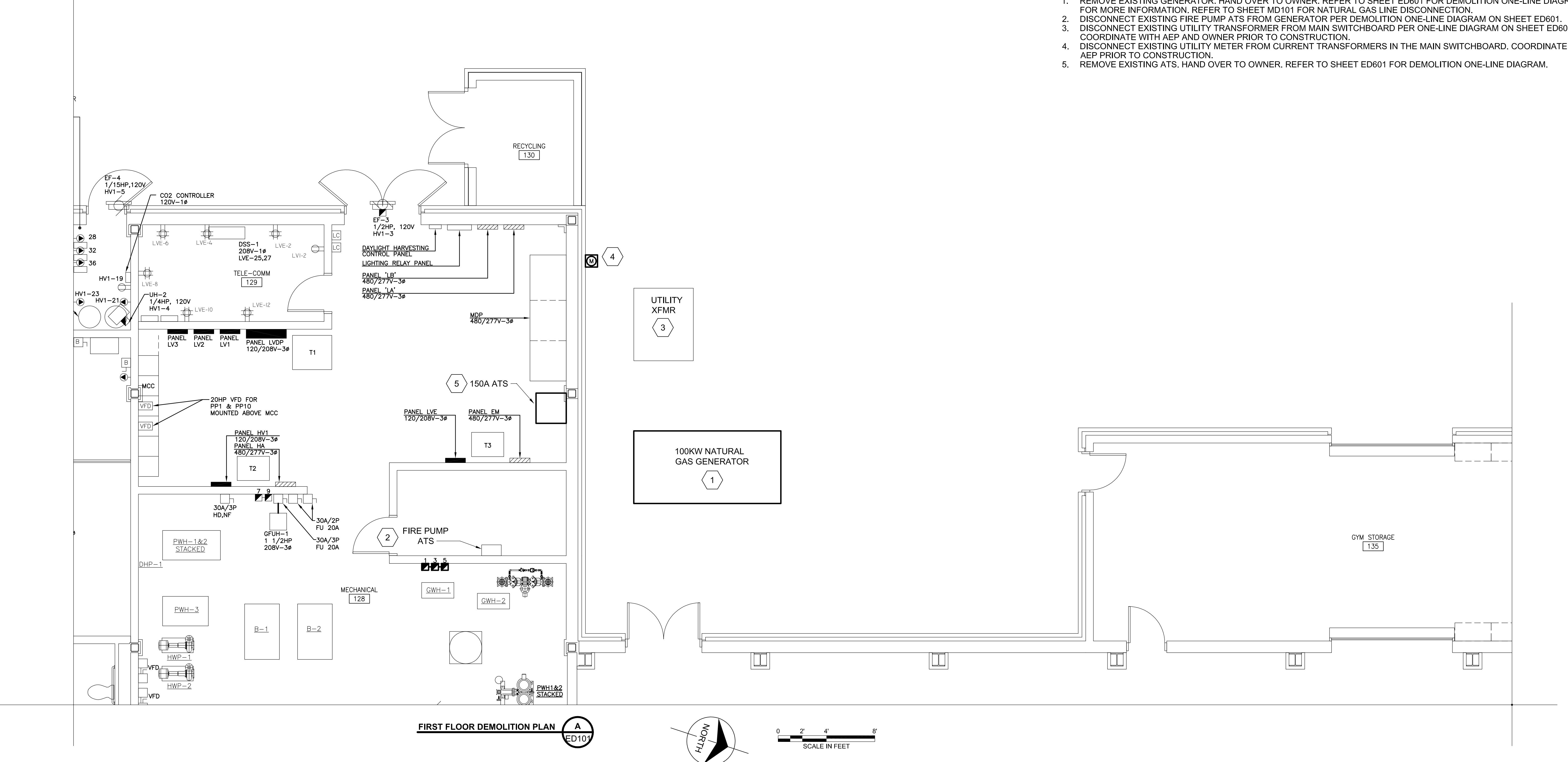
date 09/07/17 detailed JRR
designed RMB checked MAS

ROANOKE, VA
GENERATOR REPLACEMENT PROJECT #1
MECHANICAL NEW WORK PLAN

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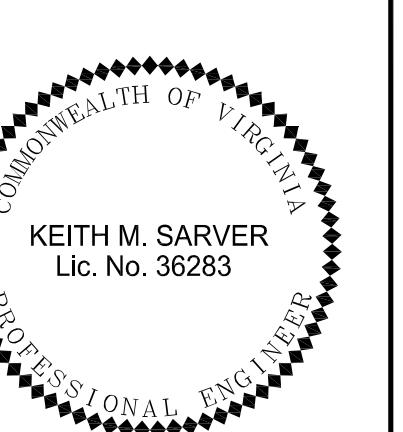
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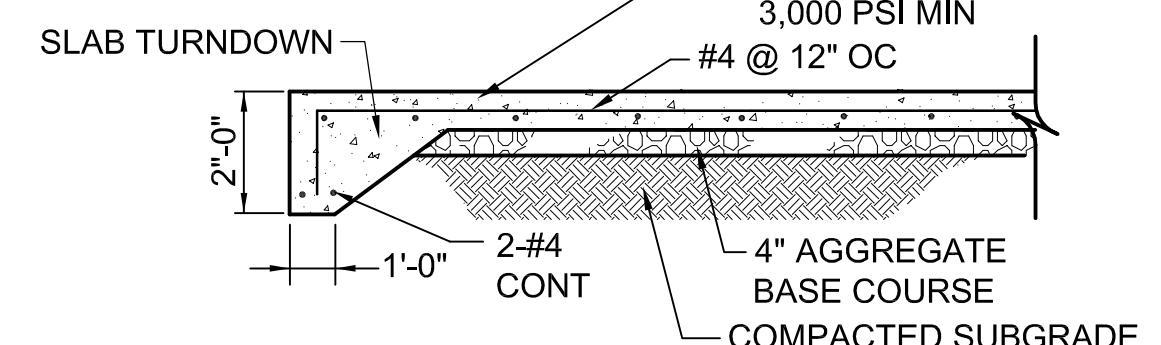
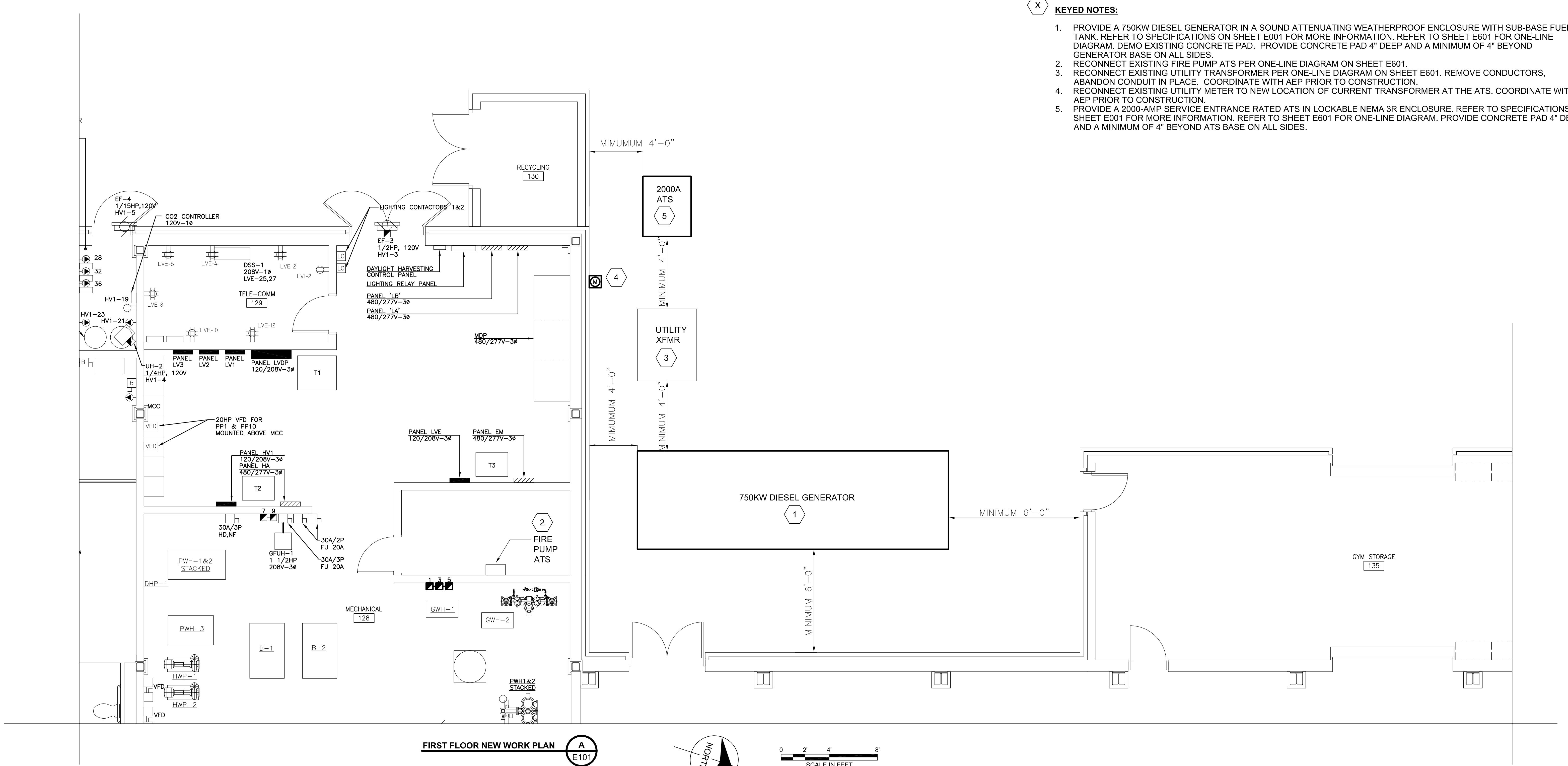
 ROANOKE, VA
 GENERATOR REPLACEMENT PROJECT #1
 DEMOLITION PLAN

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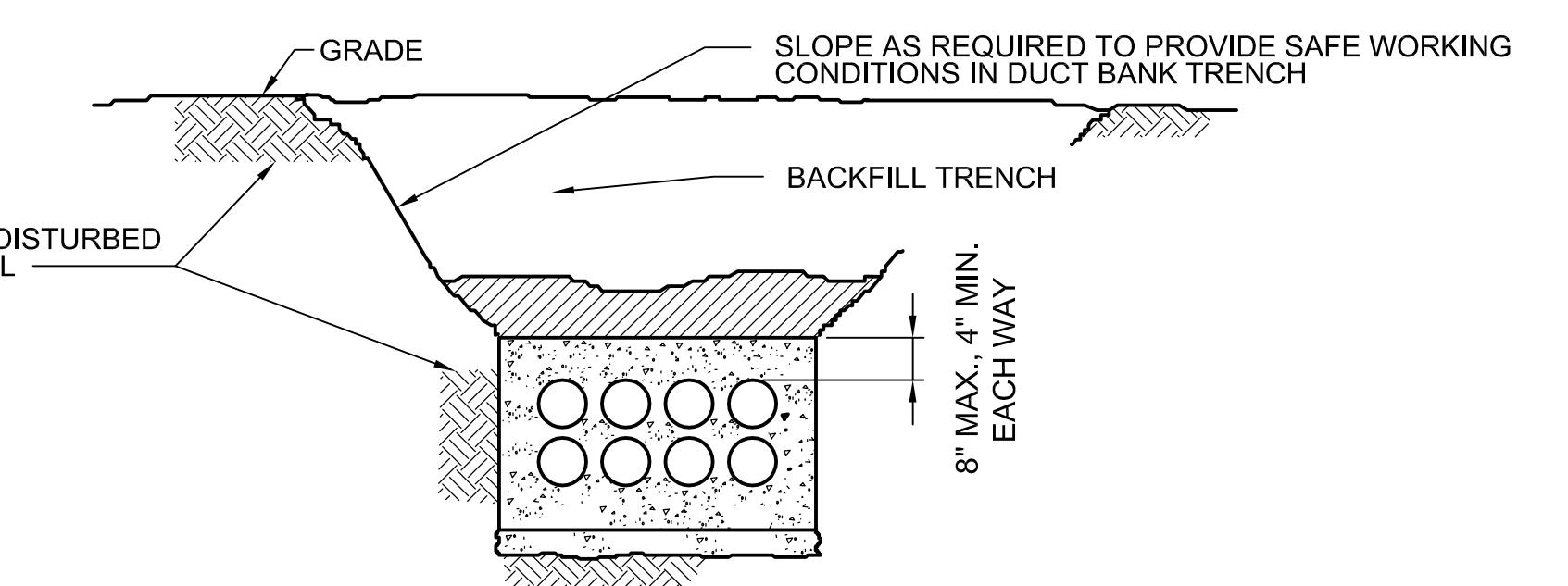
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TYPICAL CONCRETE PAD DETAIL

NOTES:

1. DUCT BANKS MAY BE EARTH FORMED WITH UNDISTURBED EARTH PROVIDED THE EARTH WILL STAND TO A NEAR VERTICAL SLOPE. IF TRENCH IS OVER-EXCAVATED, COMPACT AS SPECIFIED.
2. REFER TO ONE-LINE DIAGRAM FOR NUMBER AND SIZE OF CONDUIT.
3. TIE DOWN CONDUITS AS REQUIRED TO PREVENT THE CONDUIT FROM FLOATING DURING CONCRETE PLACEMENT.
4. CONDUIT SPACING TO BE 3 INCHES.
5. ALL DUCT BANKS ARE TO BE ENCLOSED IN CONCRETE AND SHALL BE SMOOTH FORMED A MINIMUM OF 3'-0" FROM TOP OF STUB UPS.



TYPICAL DUCT BANK TRENCH SECTION DETAIL



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GENERATOR REPLACEMENT PROJECT #1

NEW WORK PLAN

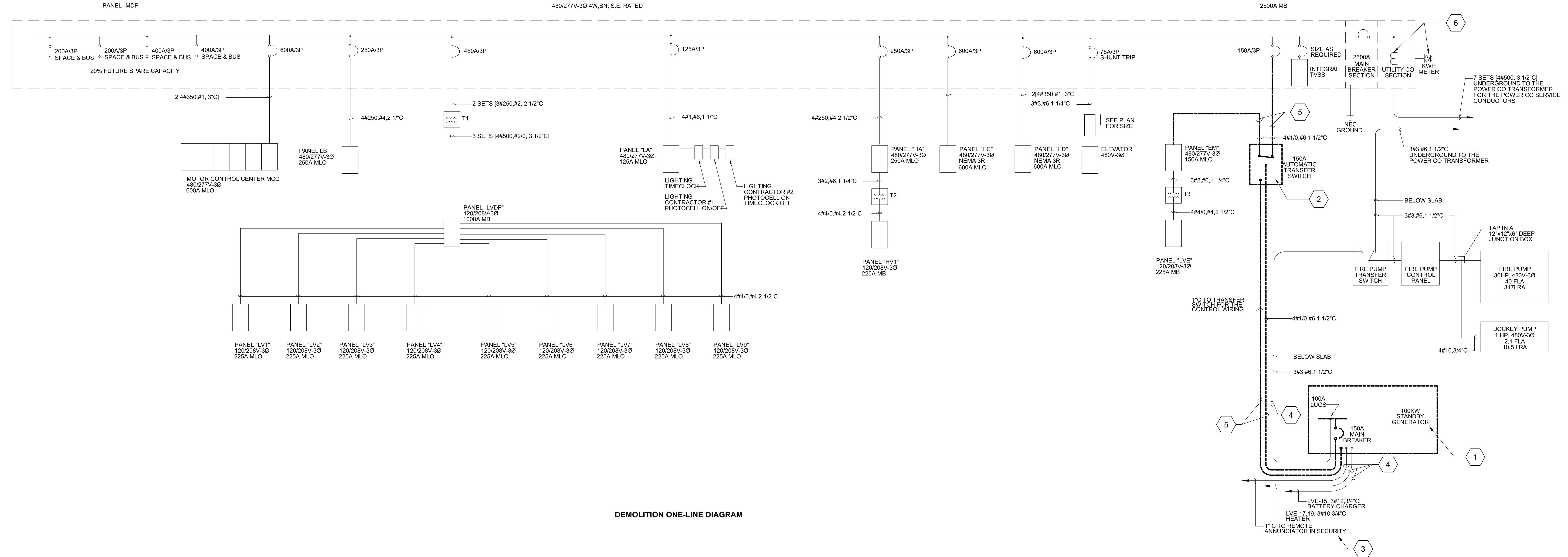
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DEMOLITION ONE-LINE DIAGRAM

GENERAL NOTES

A. ALL COMPONENTS ARE EXISTING TO REMAIN UNLESS OTHERWISE NOTED.

 KEYED NOTES:

1. REMOVE EXISTING GENERATOR. HAND OVER TO OWNER.
2. REMOVE EXISTING ATS. HAND OVER TO OWNER.
3. REMOVE EXISTING REMOTE ANNUNCIATOR. HAND OVER TO OWNER.
4. RETAIN CIRCUIT FOR CONNECTION TO NEW GENERATOR. REFER TO SHEET E601 FOR INFORMATION ON RECONNECTION.
5. REMOVE WIRING. REMOVE CONDUIT ABOVE GRADE. CAP AND SEAL CONDUIT BELOW GRADE.
6. DISCONNECT CURRENT TRANSFORMER AND METER. REFER TO SHEET E601 FOR INFORMATION ON RECONNECTION.

The logo for Burns & McDonnell. It features a stylized 'B' icon composed of three black bars of varying lengths. To the right of the icon, the word 'BURNS' is written in a large, bold, black, sans-serif font. Below 'BURNS', the word 'McDONNELL' is written in a slightly smaller, bold, black, sans-serif font.

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GENERATOR REPLACEMENT PROJECT #1

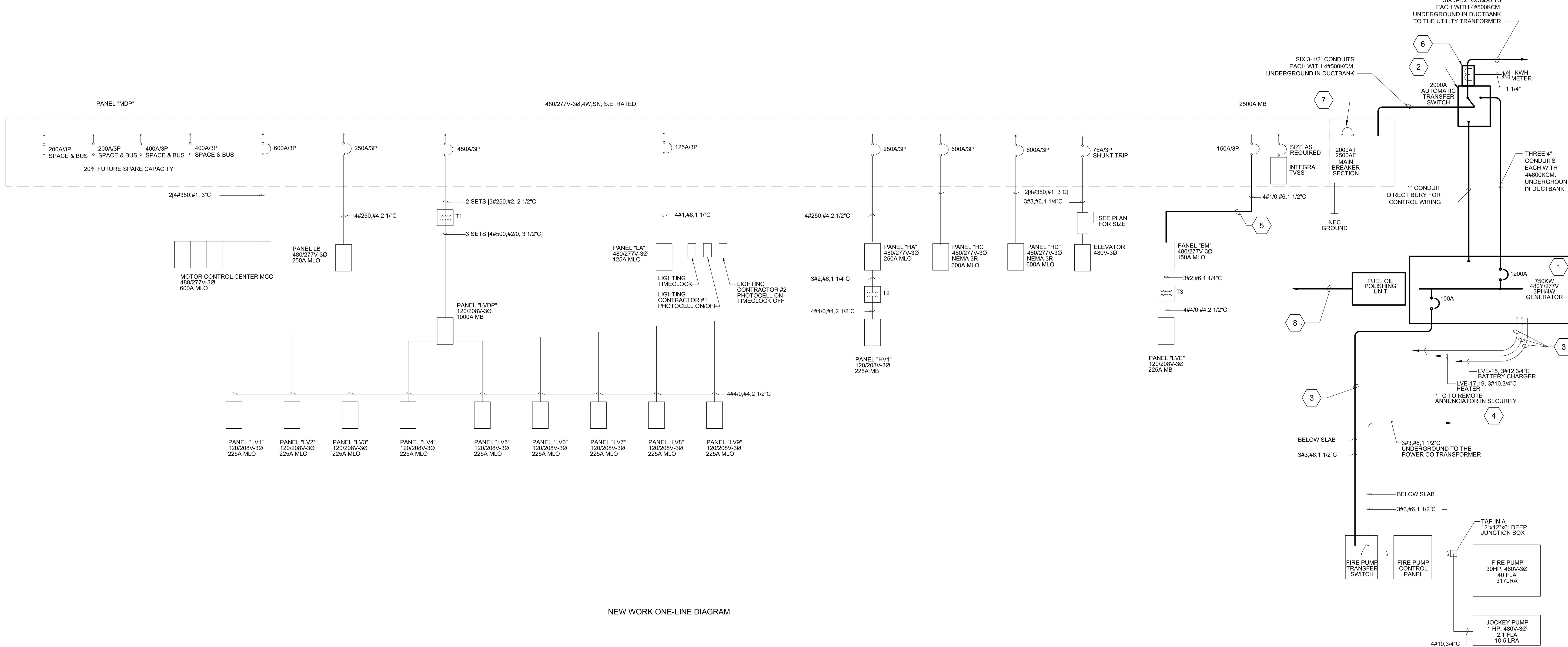
DEMOLITION ONE-LINE DIAGRAM

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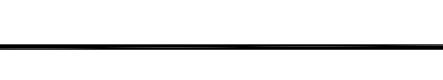


GENERAL NOTES

A. ALL COMPONENTS ARE EXISTING TO REMAIN UNLESS OTHERWISE NOTED.

X KFYFD NOTES:

1. PROVIDE NEW GENERATOR. REFER TO SHEET E001 AND E101 FOR MORE INFORMATION. PROVIDE EQUIPMENT GROUNDING PER NEC. DO NOT BOND THE NEUTRAL TO GROUND AT THE GENERATOR.
2. PROVIDE NEW SERVICE ENTRANCE RATED ATS. THE ATS SHALL BE 3 POLE WITH SOLID NEUTRAL AND THE NEUTRAL IS BONDED TO THE GROUND AT THE SWITCHBOARD. REFER TO SHEET E001 AND E101 FOR MORE INFORMATION.
3. RECONNECT EXISTING CIRCUIT TO NEW GENERATOR. IF SLACK IN EXISTING CABLE IS INSUFFICIENT, REMOVE CABLE AND REPLACE WITH NEW SO THAT THERE ARE NO SPLICES IN THE CIRCUIT.
4. PROVIDE NEW REMOTE ANNUNCIATOR. MOUNT IN SECURITY ROOM IN SAME LOCATION AS EXISTING.
5. PROVIDE NEW WIRE AND CONDUIT AND RECONNECT PANEL TO EXISTING SWITCHBOARD CIRCUIT BREAKER.
6. PROVIDE NEW OR RELOCATE EXISTING CURRENT TRANSFORMERS, LOCATED IN THE EXISTING SWITCHBOARD. MOUNT EITHER WITHIN THE ATS ENCLOSURE OR EXTERNAL IN A NEMA 3R ENCLOSURE. CONNECT TO THE INCOMING UTILITY SIDE OF THE ATS. RECONNECT EXISTING METER TO THE CURRENT TRANSFORMERS.
7. ADJUST SETTING OF BREAKER TO 2000 AMP TRIP.
8. CONNECT FUEL OIL POLISHING UNIT TO EXISTING 20A, 1-POLE SPARE CIRCUIT BREAKER IN PANEL LVE WITH 2#12, 1#12 GROUND IN 1" CONDUIT, DIRECT BURIED.

The logo for Burns & McDonnell. It features a stylized graphic of three parallel, slanted bars of increasing height from left to right, followed by the company name in a bold, sans-serif font. The name is split into two lines: 'BURNS' on top and 'MCDONNELL' on the bottom. The 'M' and 'D' are capitalized and have a bold, blocky appearance.

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GENERATOR REPLACEMENT PROJECT

NEW WORK ONE-LINE DIAGRAM

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