

# NEW EMERGENCY GENERATOR FOR: GREENEVILLE TOWN HALL AND POLICE DEPARTMENT

GREENEVILLE, TN 37743

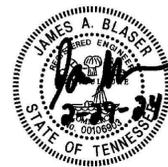
FEBRUARY 29, 2024

## LIST OF DRAWINGS:

E-1 ELECTRICAL PLAN  
E-2 ONE-LINE DIAGRAM, DETAILS, & LEGEND  
E-3 ELECTRICAL SPECIFICATIONS

## APPLICABLE CODES:

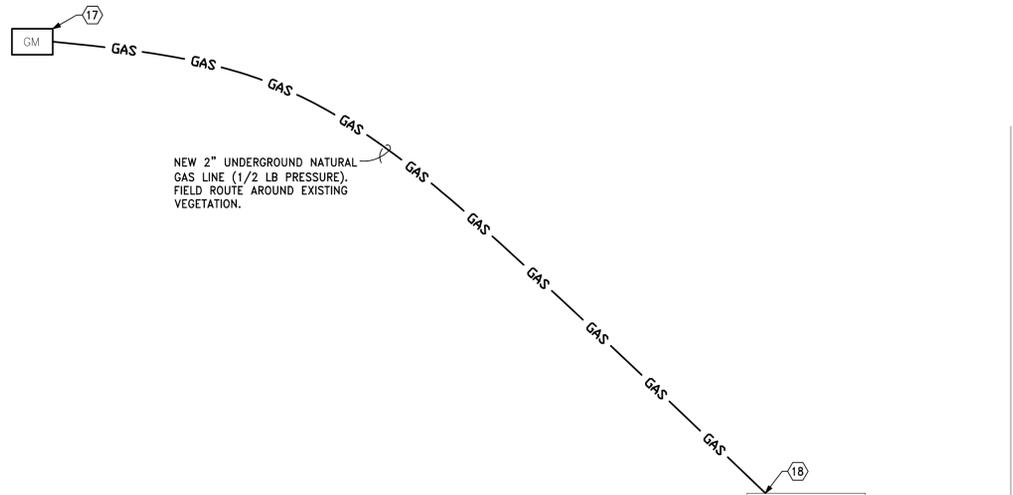
INTERNATIONAL BUILDING CODE, 2012 EDITION  
INTERNATIONAL FUEL GAS CODE, 2012 EDITION  
NATIONAL ELECTRIC CODE, NFPA 70, 2017 EDITION



## Blaser Engineering

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NORTH COLLEGE STREET



NATURAL GAS PIPING NOTES:

1. GAS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH 2015 IFC AND IMC CODE.
2. GAS PIPE SIZING IS BASED ON TABLE 402.4(S) IN THE IFC CODE-2015.
3. ABOVE GROUND GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE IRON FITTINGS. WHERE GAS PIPING CONNECTS TO EQUIPMENT, IT SHALL BE PROVIDED WITH A DRIP LEG THE FULL SIZE OF THE SUPPLY PIPE, A 100% SHUT-OFF GAS COCK AND A UNION. ALL GAS PIPING SHALL BE PAINTED WITH 2 PART EPOXY, SHERWIN WILLIAMS PRO INDUSTRIAL HIGH PERFORMANCE EPOXY, 2 COATS (YELLOW).
4. PORTIONS OF A GAS PIPING SYSTEM INSTALLED IN CONCEALED LOCATIONS SHALL NOT HAVE UNIONS, TUBE FITTINGS, OR RUNNING THREADS. IFC - INTERNATIONAL FUEL GAS CODE.

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ALL ADDITIONAL REQUIREMENTS WITH EACH UTILITY COMPANY AND TO INCLUDE IN THEIR BID ALL COSTS ASSOCIATED WITH CONNECTION TO THE UTILITY SERVICES.
2. COORDINATE ACTUAL MOUNTING LOCATIONS OF ALL EQUIPMENT WITH CONTRACTOR PROVIDING THE EQUIPMENT.
3. PROVIDE NEMA 3R RATED SAFETY SWITCHES WHERE LOCATED OUTDOORS.
4. PROVIDE CIRCUIT BREAKERS AS REQUIRED IN EXISTING ELECTRICAL PANELS FOR NEW WORK.
5. CONTRACTOR SHALL VERIFY THAT NO MODIFIED CIRCUIT CARRIES MORE THAN 80% OF THE CIRCUIT BREAKER NAMEPLATE RATING.
6. CONTRACTOR SHALL REMOVE ALL WIRING FROM CIRCUITS TO BE DEMOLISHED AND REMOVE ALL UNUSED EXPOSED CONDUITS.
7. CONTRACTOR SHALL REMOVE ALL DEVICES SCHEDULED FOR DEMOLITION. REFEED ANY DOWN STREAM DEVICES TO REMAIN.
8. ALL DEVICES SHOWN WITH SUBSCRIPT (D) ARE SCHEDULED FOR DEMOLITION. OTHER DEVICES MAY BE NOTED AS EXISTING TO REMAIN (E), OR RELOCATED (R).
9. EXISTING CONDITIONS WERE TAKEN FROM A SITE VISIT AND PHOTOS AND MAY NOT REFLECT "AS-BUILT" CONDITIONS. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING BIDS. CAREFULLY COORDINATE NEW WORK AND DEMOLITION WITH EXISTING CONDITIONS AND THE OWNER.
10. ANY REMOVED EQUIPMENT IS THE PROPERTY OF THE OWNER AND SHALL BE OFFERED TO THE OWNER AS SALVAGE. IF THE OWNER DOES NOT WANT EQUIPMENT, THE CONTRACTOR SHALL RECYCLE OR DISPOSE OF IT PROPERLY.
11. SAW CUT ANY PAVEMENT, ASPHALT, CONCRETE, ETC. THAT MUST BE REMOVED.
12. CONTRACTOR SHALL TAKE PHOTOS OF THE INTERIOR/EXTERIOR AREAS THAT WILL BE DISTURBED BY CONSTRUCTION PRIOR TO BEGINNING ANY WORK. THIS WILL BE A RECORD OF THE PRE-EXISTING CONDITIONS. ALL SURFACE CONDITIONS, GRASS, ASPHALT, SIDEWALKS, CURBS, ETC. SHALL BE RETURNED TO THEIR PRE-CONSTRUCTION STATE AT THE COMPLETION OF THE PROJECT. ALL BACKFILL SHALL BE COMPACTED.

CODED NOTES

1. UNDERGROUND GENERATOR FUEL TANK TO BE REMOVED. LICENSED CONTRACTOR TO REMOVE TANK SHALL HAVE ALL CONTENTS REMOVED, TANK EXCAVATED AND DISPOSED OF PROPERLY. ALL ENVIRONMENTAL REQUIREMENTS, DOCUMENTATION, SOIL SAMPLING, REMOVAL OF CONTAMINATED SOIL( IF EXISTS), AND ALL STATE REQUIREMENTS SHALL BE FOLLOWED. BACKFILL SHALL BE COMPACTED, AND SURFACE CONDITIONS RETURNED TO THEIR PRE-CONSTRUCTION STATE.
2. DIESEL GENERATOR AND EQUIPMENT PAD TO BE REMOVED.
3. GENERATOR ANNUNCIATOR PANEL TO BE REMOVED.
4. EXISTING TRANSFER SWITCH TO BE REMOVED. PROVIDE JUNCTION BOX AND SPLICE CONDUCTORS FROM THE MAIN DISTRIBUTION PANEL TO THE LOAD.
5. EXISTING UNDERGROUND FEEDER TO BE ABANDONED IN PLACE.
6. EXISTING UTILITY COMPANY PAD MOUNTED TRANSFORMER
7. FIELD LOCATE UTILITY COMPANY UNDERGROUND PRIMARY.
8. EXISTING BUILDING METERING.
9. PROVIDE POWER CONNECTION TO BATTERY CHARGER. PROVIDE CIRCUIT FROM NEAREST 120/208V PANEL WITH AVAILABLE SPACE. PROVIDE 20/1 CIRCUIT BREAKER WITH A BRANCH CIRCUIT CONSISTING OF 2 - #12 WITH #12 GROUND IN 1" CONDUIT.
10. PROVIDE POWER CONNECTION TO ENGINE BLOCK HEATER. PROVIDE CIRCUIT FROM NEAREST 120/208V PANEL WITH AVAILABLE SPACE. PROVIDE 20/1 CIRCUIT BREAKER WITH A BRANCH CIRCUIT CONSISTING OF 2 - #12 WITH #12 GROUND IN 1" CONDUIT.
11. PROVIDE UNDERGROUND FEEDER AS SIZED ON THE ONE-LINE DIAGRAM, AND A 1" CONTROL CONDUIT, AND A 1" CONDUIT FOR THE BATTERY CHARGER AND ENGINE BLOCK HEATER.
12. PROVIDE UNDERGROUND FEEDER AS SIZED ON THE ONE-LINE DIAGRAM.
13. PROVIDE FEEDER AS SIZED ON THE ONE-LINE DIAGRAM. ROUTE FEEDER ALONG CEILING/WALL. COORDINATE EXACT ROUTING WITH EXISTING CONDITIONS AND THE OWNER/ENGINEER.
14. APPROXIMATE LOCATION OF THE GENERATOR REMOTE ANNUNCIATOR ON FIRST FLOOR OUTSIDE THE FINANCE DIRECTORS OFFICE IN THE MAIN CORRIDOR. COORDINATE EXACT LOCATION IN THE FIELD WITH THE OWNERS REPRESENTATIVE AND THE ENGINEER.
15. EXISTING ELECTRICAL PANEL WITH AVAILABLE SPACES FOR GENERATOR CIRCUITS.
16. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF GENERATOR ON SITE. PROVIDE WITH 36" WORKING SPACE ON ALL SIDES. PROVIDE SOUND ATTENUATING ENCLOSURE, CONCRETE EQUIPMENT PAD, BATTERY CHARGER AND ENGINE BLOCK HEATER. PROVIDE GROUND FAULT CONVENIENCE RECEPTACLE IN THE ENCLOSURE. USE CIRCUITS WITH DEDICATED NEUTRALS.
17. APPROXIMATE LOCATION OF NEW GAS METER WITH 1/2 LB PRESSURE. FIELD COORDINATE WITH NATURAL GAS UTILITY COMPANY.
18. SEE DETAIL ON SHEET E-2 FOR NATURAL GAS CONNECTION TO THE GENERATOR. COORDINATE GENERATOR SPECIFIC REQUIREMENTS WITH THE EQUIPMENT SUPPLIER.

NATURAL GAS EMERGENCY GENERATOR  
125 KW/156 KVA, 120/208V, 3Ø, 4W

AUTOMATIC TRANSFER SWITCH  
600A, 120/208V, 3Ø, 4W

UNDERGROUND FUEL TANK

STORAGE

LOUNGE

BUILDING MAIN DISCONNECT SWITCH  
600A, 120/208V, 3Ø, 4W

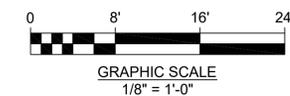
ELECTRICAL CLOSET  
EXISTING MAIN DISTRIBUTION PANEL  
1200A, 120/208V, 3Ø, 4W

MECHANICAL ROOM

GENERATOR REMOTE ANNUNCIATOR ON FIRST FLOOR.

BASEMENT FLOOR PLAN  
NOT VERIFIED IN SHADED REGION

**A** ELECTRICAL PLAN  
1/8" = 1'-0"



FLOOR PLAN AND SCALE ARE BASED OFF OF OLD DRAWINGS AND ARE APPROXIMATELY 1/8" = 1'-0". FIELD VERIFY ALL DISTANCES PRIOR TO BID.

No.	Revision	Date

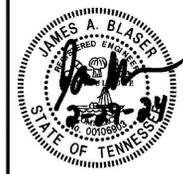
**NEW GENERATOR FOR:  
GREENEVILLE TOWN HALL**

200 NORTH COLLEGE STREET  
GREENEVILLE, TENNESSEE 37745

Project: 23-148  
 Drawn: JAB  
 Checked: JAB  
 Date: 02-29-2024

**E-1**

1 of 3



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**System No. C-AJ-1226**  
 F Rating — 3 Hr  
 T Rating — 0 Hr  
 L Rating At Ambient — Less Than 1 CFM/Sq Ft  
 L Rating At 400 F — 4 CFM/Sq Ft

**SECTION A-A**

- Floor or Wall Assembly — Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks\*. Max diam of opening is 32 in.
- Metallic Sleeve — (Optional) Nom 32 in. diam (or smaller) Schedule 40 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces or extending a max of 3 in. above floor or beyond both surfaces of wall.
- Sheet Metal Sleeve — (Optional) Max 6 in. diam, min 26 ga galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. below the bottom of the deck and a max of 1 in. above the top surface of the concrete floor.
- Through-Penetrant — One metallic pipe, tube or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. Penetrant may be installed with continuous point contact. Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic penetrants may be used:
  - Steel Pipe — Nom 30 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
  - Iron Pipe — Nom 30 in. diam (or smaller) cast or ductile iron pipe.
  - Copper Pipe — Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
  - Copper Tubing — Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
  - Conduit — Nom 6 in. diam (or smaller) steel conduit.
  - Conduit — Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT).
- Firestop System — The firestop system shall consist of the following:
  - Packing Material — Min 4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or sleeve or from both surfaces of wall or sleeve as required to accommodate the required thickness of fill material.
  - Fill, Void or Cavity Material\* — Sealant — Min 1/4 in. thickness of fill material applied within the annulus, flush with top surface of floor or sleeve or with both surfaces of wall or sleeve. At the point or continuous contact locations between penetrant and concrete or sleeve, a min 1/4 in. diam bead of fill material shall be applied at the concrete or sleeve/pipe penetrant interface on the top surface of floor and on both surfaces of wall.

\*Bearing the UL Classification Mark

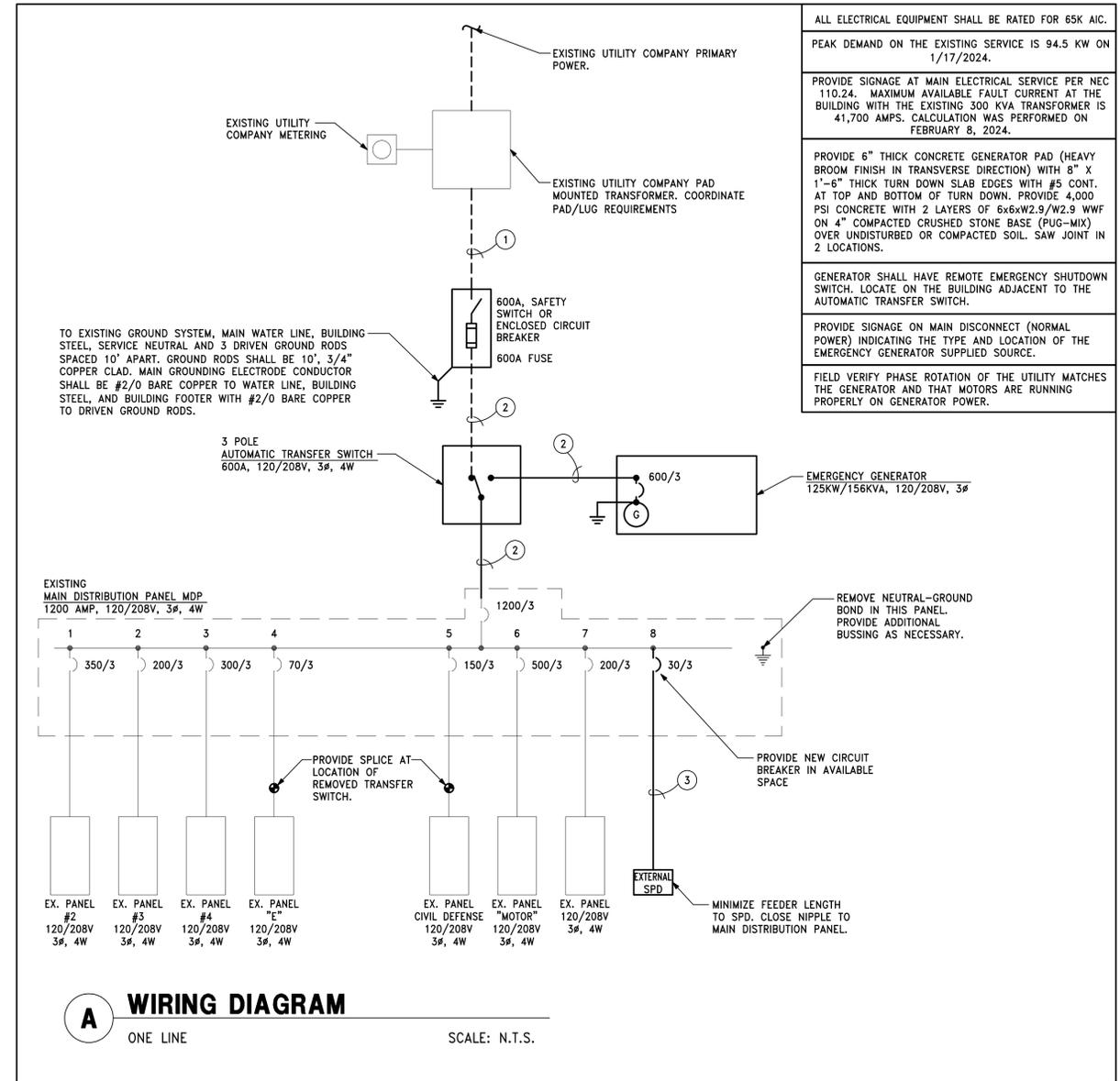
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EQUALS BY STI, OR OTHERS

### SYMBOLS LIST FOR PLANS

1. SOME SYMBOLS MAY NOT BE USED.  
 2. MOUNTING HEIGHTS ARE TO TOP.

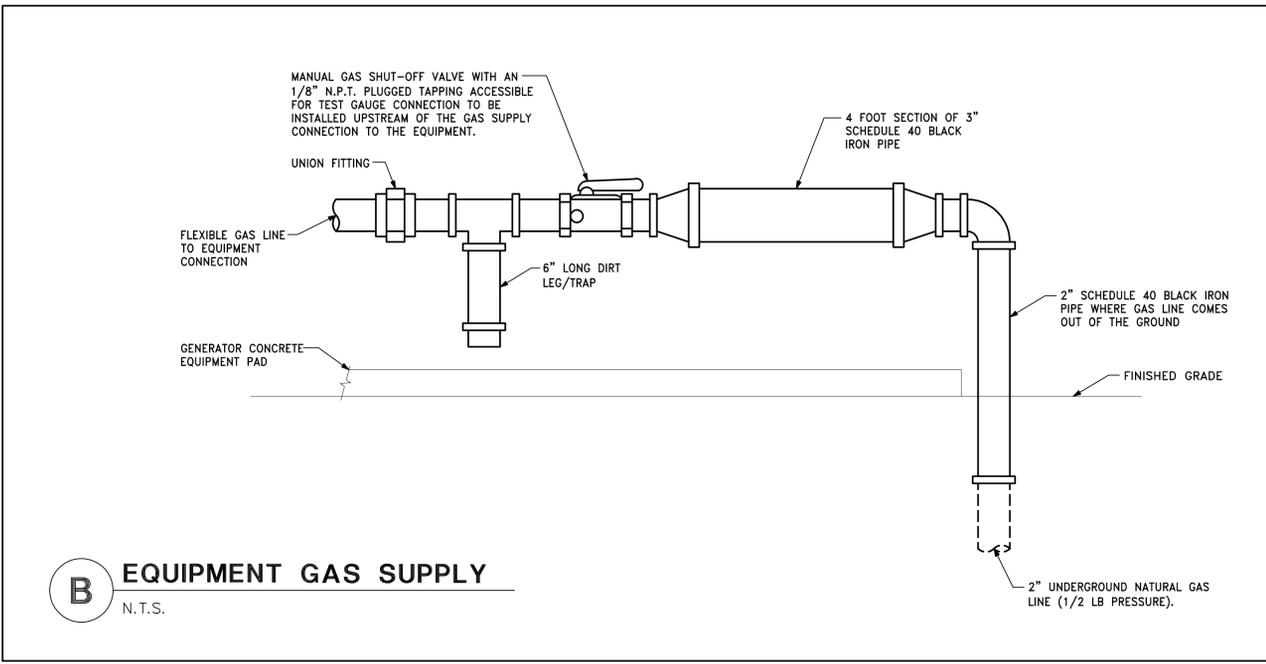
SYMBOL	DESCRIPTION	MOUNTING HEIGHT UNLESS NOTED OTHERWISE
WP	"WR" RATED DUPLEX RECEPTACLE, WEATHERPROOF IN USE COVER AND GROUND FAULT INTERRUPTER	18"
GF	DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTER	18"
J: F	JUNCTION BOX, CEILING OR WALL MOUNTED; RECESSED FLOOR MOUNTED	SEE DRAWINGS
60/45/3 NF	SAFETY SWITCH (SWITCH SIZE, FUSE SIZE, NO. OF POLES -AS NOTED) "NF" DENOTES NONFUSED, PROVIDE 3R ENCLOSURES WHERE LOCATED OUTDOORS. PROVIDE FINAL CONNECTIONS TO EQUIPMENT.	60"
P1	PANELBOARD: SURFACE MOUNTED, FLUSH MOUNTED PANEL DESIGNATION AS SHOWN	72"
[Symbol]	DISTRIBUTION PANELBOARD	72"
[Symbol]	CONDUIT, RISER UP	----
[Symbol]	CONDUIT, RISER DOWN	----
[Symbol]	LOW VOLTAGE WIRING IN CONDUIT	----
[Symbol]	CONDUIT ROUTED UNDER FLOORSPACE OR UNDERGROUND	----
[Symbol]	HOME RUN TO PANELBOARD AS NOTED; CIRCUITS MAY SHARE CONDUITS BACK TO PANELBOARD WHERE ALLOWED BY THE NEC. ALL CIRCUITS SHALL HAVE DEDICATED NEUTRALS. CROSS LINES INDICATE THE NUMBER OF CONDUCTORS WHERE MORE THAN 2 PLUS THE NUMBER.	----
[Symbol]	FLEXIBLE METAL CONDUIT OR LIQUID-TIGHT FLEXIBLE METAL CONDUIT	----



### FEEDER SCHEDULE

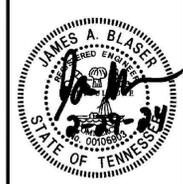
NOTE NUMBER	FEEDER AMPS	NUMBER OF SETS	PHASE WIRES QUANTITY - SIZE	NEUTRAL WIRE QUANTITY - SIZE	GROUND SIZE	CONDUIT SIZE PER SET	COMMENTS/REMARKS
1	600	2	3 - #350 MCM	1 - #350 MCM	-	3"	SERVICE ENTRANCE
2	600	2	3 - #350 MCM	1 - #350 MCM	#1	3"	-
3	30	1	3 - #8	1 - #8	#8	1"	MINIMIZE LENGTH

FEEDERS BASED ON COPPER CONDUCTORS; SUBSTITUTION OF CODE SIZED ALUMINUM CONDUCTORS FOR PANEL FEEDERS IS ALLOWED BASED ON FEEDER AMPS IN THE SCHEDULE



ALL ELECTRICAL EQUIPMENT SHALL BE RATED FOR 65K AIC.  
 PEAK DEMAND ON THE EXISTING SERVICE IS 94.5 KW ON 1/17/2024.  
 PROVIDE SIGNAGE AT MAIN ELECTRICAL SERVICE PER NEC 110.24. MAXIMUM AVAILABLE FAULT CURRENT AT THE BUILDING WITH THE EXISTING 300 KVA TRANSFORMER IS 41,700 AMPS. CALCULATION WAS PERFORMED ON FEBRUARY 8, 2024.  
 PROVIDE 6" THICK CONCRETE GENERATOR PAD (HEAVY BROOM FINISH IN TRANSVERSE DIRECTION) WITH 8" X 1'-6" THICK TURN DOWN SLAB EDGES WITH #5 CONT. AT TOP AND BOTTOM OF TURN DOWN. PROVIDE 4,000 PSI CONCRETE WITH 2 LAYERS OF 6x6xW2.9/W2.9 WWF ON 4" COMPACTED CRUSHED STONE BASE (PUG-MIX) OVER UNDISTURBED OR COMPACTED SOIL. SAW JOINT IN 2 LOCATIONS.  
 GENERATOR SHALL HAVE REMOTE EMERGENCY SHUTDOWN SWITCH. LOCATE ON THE BUILDING ADJACENT TO THE AUTOMATIC TRANSFER SWITCH.  
 PROVIDE SIGNAGE ON MAIN DISCONNECT (NORMAL POWER) INDICATING THE TYPE AND LOCATION OF THE EMERGENCY GENERATOR SUPPLIED SOURCE.  
 FIELD VERIFY PHASE ROTATION OF THE UTILITY MATCHES THE GENERATOR AND THAT MOTORS ARE RUNNING PROPERLY ON GENERATOR POWER.

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No.	Revision	Date

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 GREENEVILLE TOWN HALL**  
 200 NORTH COLLEGE STREET  
 GREENEVILLE, TENNESSEE 37745

Project: 23-148  
 Drawn: JAB  
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