

# Fire Department Generator Project

ELEVATED GENERATOR PLATFORMS AT TOWN HALL  
AND FIRE DEPTARTMENT

MARCH 2025

PREPARED FOR  
**THE TOWN OF MANCHESTER-BY-THE-SEA**  
10 CENTRAL STREET  
MANCHESTER-BY-THE-SEA, MA

PREPARED BY



**FUSS & O'NEILL**  
190 HIGH STREET  
BOSTON, MA 02110  
617.282.4675  
www.fando.com



DRAWING INDEX:

G1.0 COVER SHEET

**FIRE DEPARTMENT ELECTRICAL:**

TS TITLE SHEET  
E-0.1 LEGEND, SPECIFICATION, AND RISERS  
E-0.2 DETAILS  
E-1.0 DEMOLITION PLAN  
E-1.1 NEW WORK PLAN  
P-0.1 PLUMBING LEGEND, SPECIFICATION, AND DETAILS  
P-1.0 PLUMBING FLOOR PLAN

**TOWN HALL ELECTRICAL:**

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E-1.1 NEW WORK PLAN

**STRUCTURAL:**

S1.0 FIRE HOUSE GENERATOR PAD DETAILS  
S1.1 TOWN HALL GENERATOR PAD DETAILS

c:\Users\acarlton\Documents\20220485.A11\_Manchester by the Sea Generator\_S-Central-R23\_scarlton\AHJ22.rvt

PROJ. No.: 20220485.A11  
DATE: MARCH 2025

G1.0

MANCHESTER-BY-THE-SEA  
FIRE AND RESCUE DEPARTMENT  
GENERATOR PROJECT

Town of Manchester-by-the-Sea  
10 Central Street  
Manchester-by-the-Sea, MA 01944



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E-0.1	-	LEGEND, SPECIFICATION, AND RISERS
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Submission:  
BID DOCS 9/27/24

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FIRE AND RESCUE DEPARTMENT  
GENERATOR PROJECT  
12 SCHOOL ST  
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Scale: As Noted

Title:

TITLE SHEET

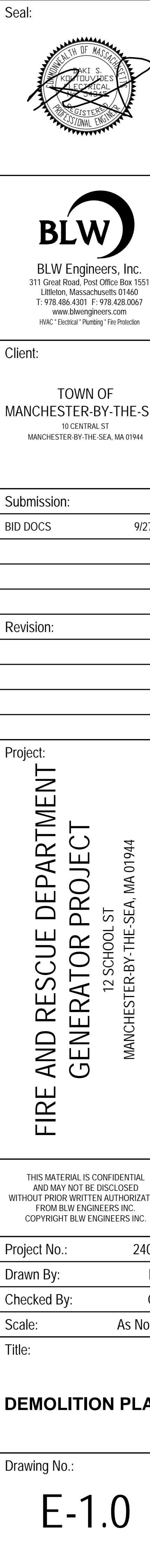
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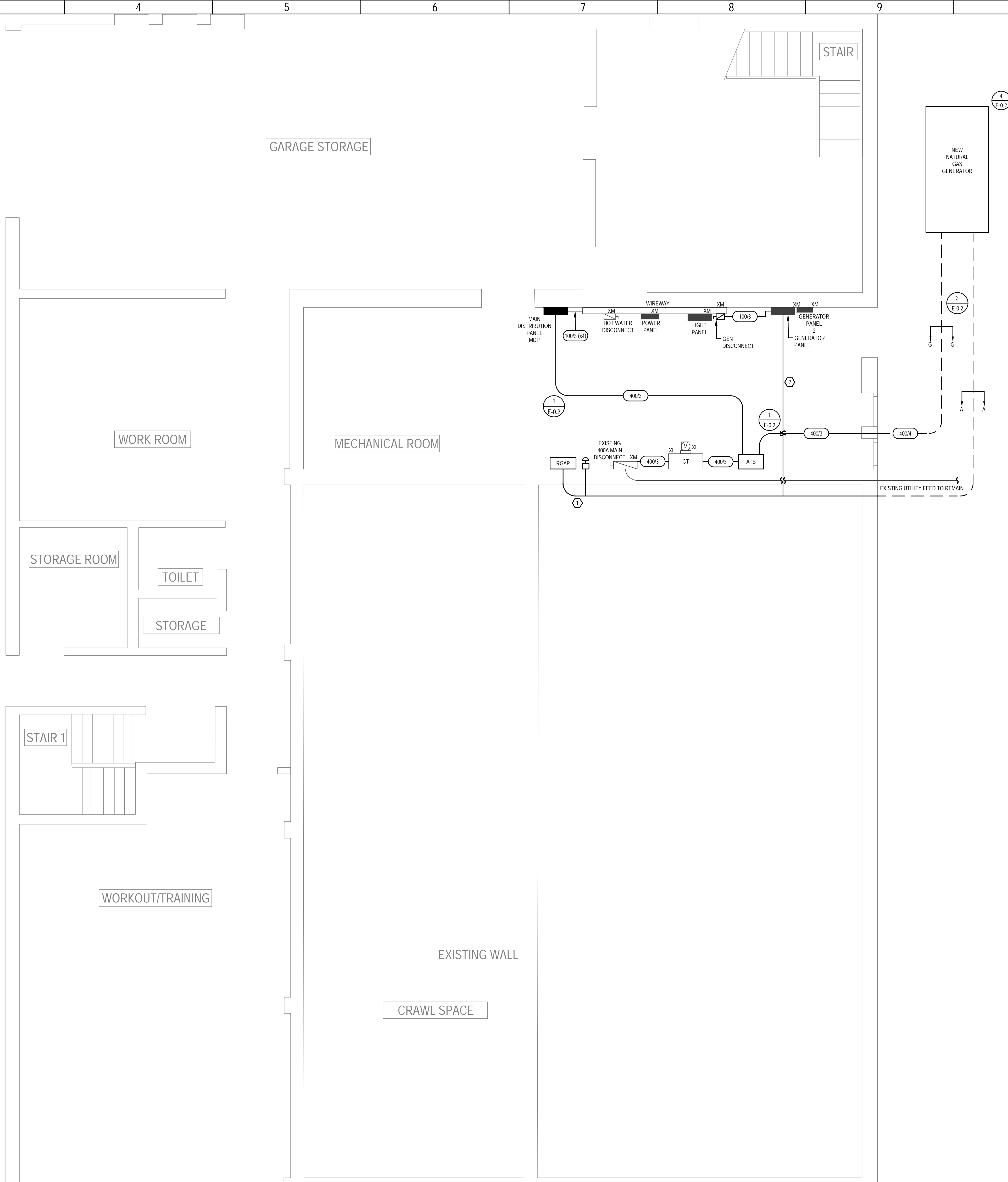
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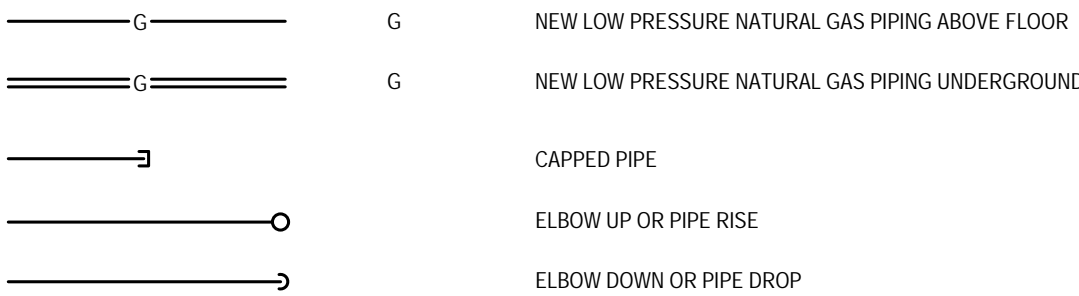
**NEW WORK PLAN**

Drawing No.:  
E-1.1

PLUMBING GENERAL NOTES

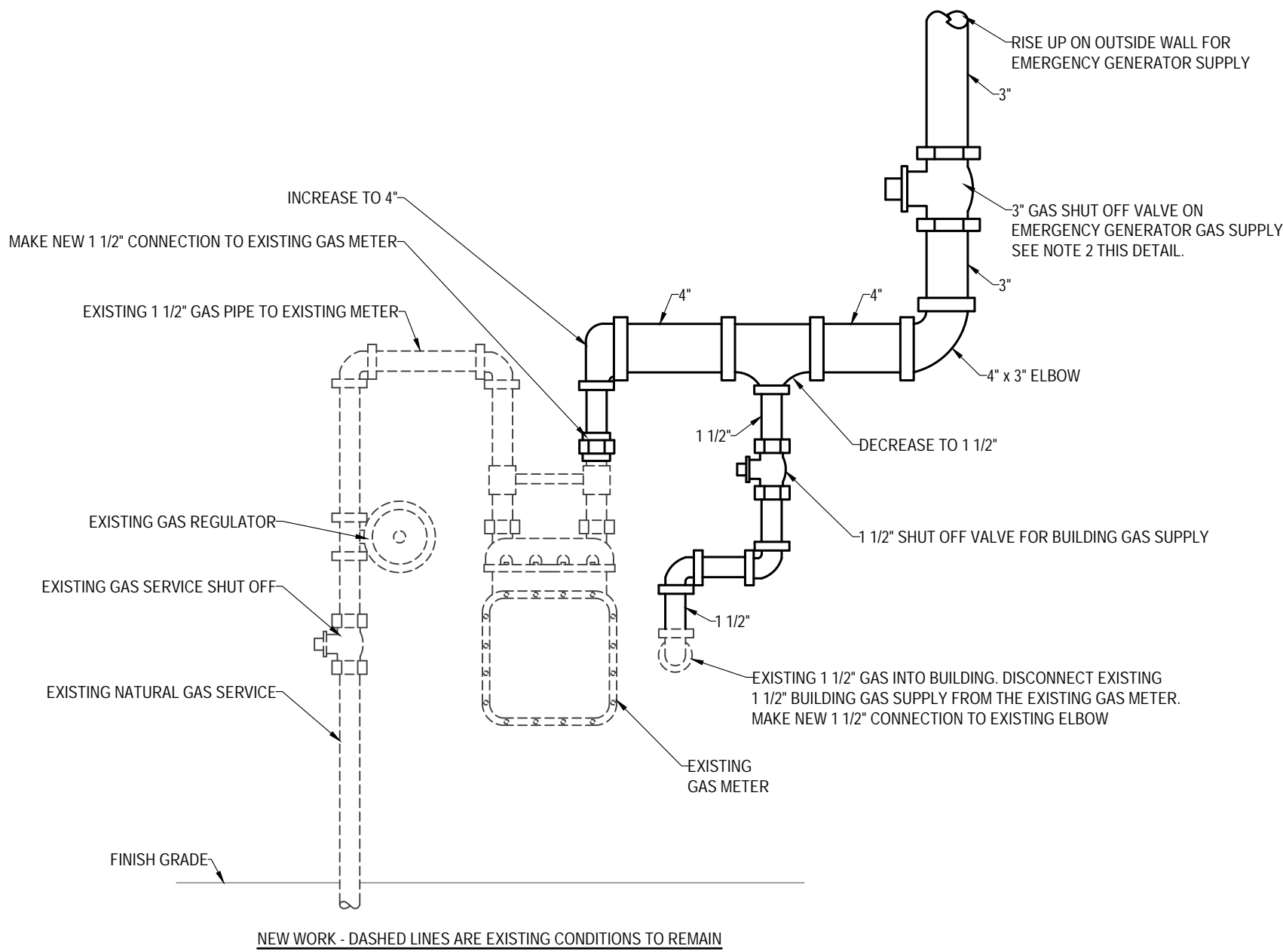
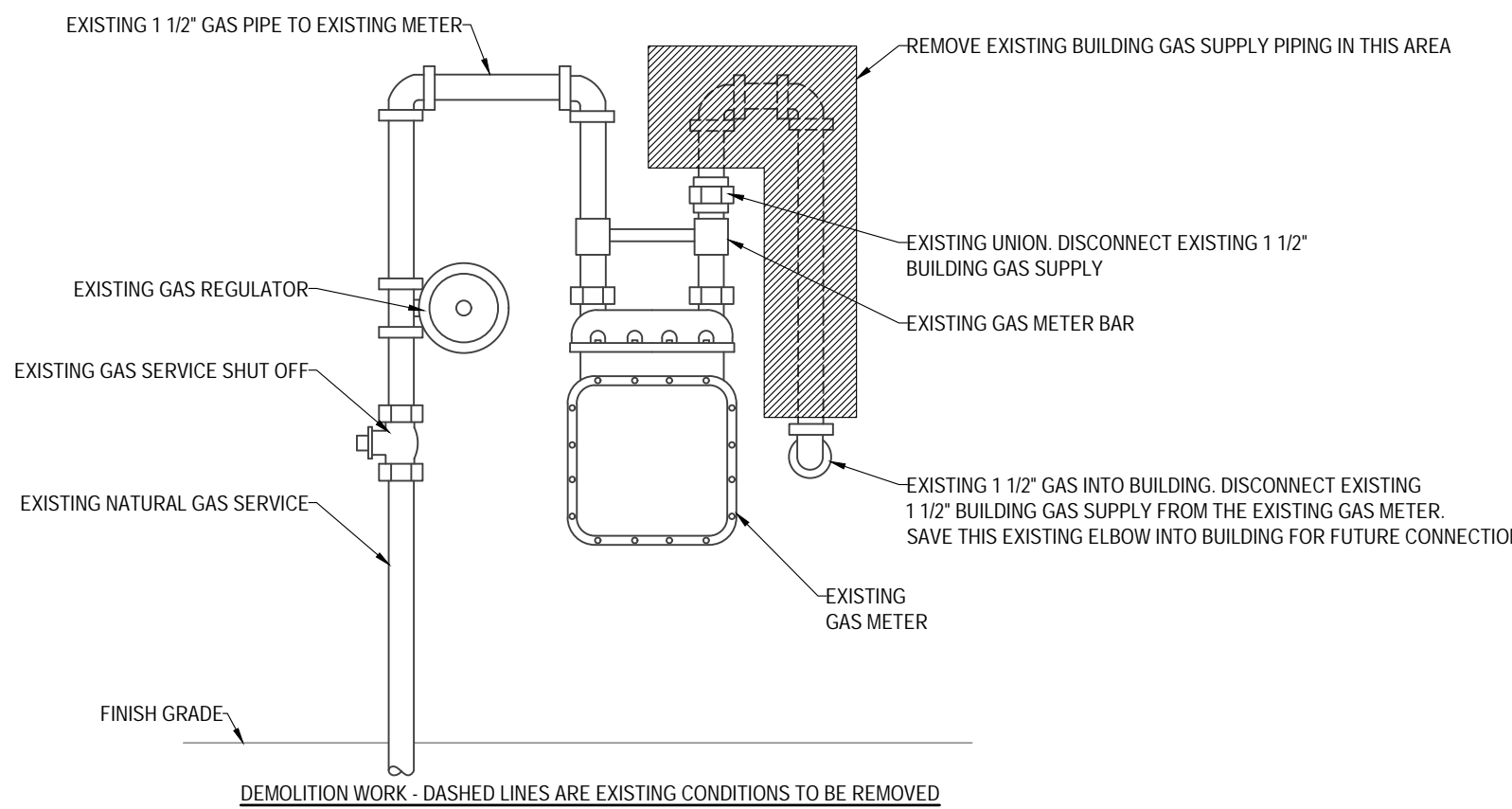
- ALL PLUMBING WORK SHALL BE DONE IN ACCORDANCE WITH THE MASSACHUSETTS STATE PLUMBING CODE.
- CAREFULLY COORDINATE LOCATION OF PIPING WITH ALL OTHER TRADES.
- ALL PIPING SHOWN DIAGRAMMATICALLY AND EXACT LOCATION SHALL BE DETERMINED IN THE FIELD.
- ALL PIPING SHALL BE RUN CONCEALED ABOVE CEILINGS, IN WALLS AND IN CHASES, UNLESS OTHERWISE NOTED.
- NO STRUCTURAL MEMBERS SHALL BE CUT WITHOUT THE APPROVAL OF THE ENGINEER.
- ALL PIPING SHALL BE SUPPORTED FROM BUILDING STRUCTURE.
- ALL PIPING SHALL BE NEW, INSTALLED PARALLEL TO BUILDING LINES AND PITCHED TO LOW POINTS
- PLUMBING CONTRACTOR SHALL PROVIDE FIRE STOPPING FOR ALL PENETRATIONS THRU FIRE WALLS AND FIRE RATED SEPARATIONS. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR THESE AREAS
- PLUMBING CONTRACTOR SHALL BE FURNISH, INSTALL AND MAINTAIN ALL SCAFFOLDING, HOISTING EQUIPMENT DERRICKS, ETC., NECESSARY FOR INSTALLATION OF WORK
- ALL PLUMBING PIPING AND DRAINS SHALL BE KEPT CLEAR OF BLOCKAGE WHILE CONSTRUCTION IS UNDERWAY. ALL PLUMBING PIPING SHALL BE DEBURRED BEFORE JOINTS ARE MADE.
- ALL PENETRATIONS THRU OUTSIDE WALLS SHALL BE DONE WITH LINK-SEAL WATERTIGHT SLEEVES AND SEALS OR APPROVED EQUAL
- ALL PENETRATIONS THRU FIRE RATED WALLS AND FLOORS SHALL BE DONE WITH LINK-SEAL FIRE RATED SLEEVES AND SEALS OR APPROVED EQUAL
- THE PLUMBING CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING IN ORDER TO ACCOMMODATE THE PLUMBING WORK. PATCHING SHALL BE MADE TO MATCH THE EXISTING CONDITIONS AND TO THE SATISFACTION OF THE OWNER.
- ALL EXISTING CONDITIONS SHOWN ARE APPROXIMATE ONLY AND ARE NOT INTENDED TO SHOW EXACT EXISTING CONDITIONS. ALL EXISTING CONDITIONS SHALL BE VERIFIED BY THE PLUMBING CONTRACTOR IN THE FIELD. ALL POINTS OF CONNECTION TO EXISTING SYSTEMS SHALL BE DETERMINED IN THE FIELD BY THE PLUMBING CONTRACTOR. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING A FIELD SURVEY OF ALL EXISTING PLUMBING CONDITIONS IN ORDER TO IDENTIFY THE EXACT LOCATIONS AND SIZES OF THE EXISTING PLUMBING PIPING SYSTEMS.
- PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THE WORK AND ALL CONDITIONS TO WHICH THE WORK WILL BE INSTALLED. ANY DISCREPANCIES BETWEEN THE WORK SHOWN ON THE DRAWINGS AND ANY CONDITIONS SHALL BE SUBMITTED TO THE ARCHITECT IN WRITING. FAILURE OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS AND THERE RELATION TO THE NEW WORK SHALL NOT BE ACCEPTED AS A CAUSE FOR ANY EXTRA CHARGES TO THE CONTRACT.
- ALL FINAL GAS CONNECTIONS TO GAS FIRED EQUIPMENT SHALL BE MADE WITH A SHUT OFF VALVE, UNION AND DIRT LEG
- DIRT LEGS SHALL BE PROVIDED AT THE BASE OF ALL VERTICAL GAS PIPING. DIRT LEGS SHALL BE FULL PIPE SIZE AND SHALL BE A MINIMUM OF 6' IN LENGTH WITH A THREADED CAP.
- THE LOCATIONS OF ALL GAS FIRED EQUIPMENT AND THE GAS CONNECTIONS ARE APPROXIMATE ONLY AND SHALL BE DETERMINED IN THE FIELD. THE PLUMBING CONTRACTOR SHALL COORDINATE WITH THE HVAC CONTRACTOR FOR LOCATIONS OF ALL GAS FIRED EQUIPMENT AND THE GAS CONNECTION LOCATIONS.
- THE LOCATIONS OF THE GAS METERS AND GAS SERVICE SHOWN ARE APPROXIMATE ONLY AND WILL VARY IN THE FIELD. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE GAS COMPANY FOR THE EXACT LOCATIONS AND CONFIGURATIONS OF THE GAS METERS AND THE UNDERGROUND GAS SERVICE.
- THE PLUMBING CONTRACTOR SHALL SHUT DOWN AND PURGE THE EXISTING NATURAL GAS PIPING SYSTEM IN ORDER TO ACCOMMODATE THE WORK. THE PLUMBING CONTRACTOR SHALL COORDINATE WITH THE GAS COMPANY AND THE BUILDING OWNER FOR THE SCHEDULE OF THE EXISTING GAS PIPING SYSTEM SHUT DOWN. NO WORK SHALL BEGIN WITHOUT THIS COORDINATION. PERIODS OF GAS SYSTEM SHUT DOWN SHALL BE APPROVED BY THE BUILDING OWNER. PRIOR TO PERFORMING ANY WORK ON THE EXISTING GAS PIPING SYSTEM THE EXISTING GAS PIPING SYSTEMS SHALL BE PURGED OF ALL GAS IN ACCORDANCE WITH NFPA-54 AND THE MASSACHUSETTS STATE FUEL GAS CODE INCLUDING ALL AMENDMENTS.

PLUMBING GENERAL LEGEND



PLUMBING SPECIFICATIONS

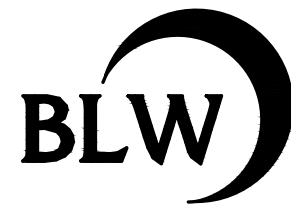
- CAREFULLY COORDINATE LOCATION OF PIPING WITH ALL OTHER TRADES AND ALL EXISTING CONDITIONS AT THE SITE.
- DIELECTRIC INSULATING FITTINGS SHALL BE USED WHERE PIPES OF DISSIMILAR METALS ARE CONNECTED
- ALL PIPING SHALL BE NEW, INSTALLED PARALLEL TO BUILDING LINES AND PITCHED TO LOW POINTS
- CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS AND COORDINATE BEST ROUTE OF NEW PIPING AND LOCATIONS OF NEW EQUIPMENT IN COORDINATION WITH THE WORK OF ALL OTHER TRADES AND ALL EXISTING CONDITIONS TO INSURE THAT ALL WORK WILL FIT IN THE SPACE WITH NO INTERFERENCE'S
- ALL NEW SYSTEMS SHALL BE TESTED, BALANCED AND ADJUSTED TO INSURE PROPER OPERATION AND CODE COMPLIANT INSTALLATION. PIPING AND EQUIPMENT SHALL BE TESTED IN ACCORDANCE WITH THE STATE PLUMBING CODE
- FOR PIPES 2" AND SMALLER ADJUSTABLE STEEL SWIVEL RING (BAND TYPE) HANGER SHALL BE USED. FOR PIPES 2-1/2" AND LARGER ADJUSTABLE STEEL CLEVIS HANGERS SHALL BE USED. FOR VERTICAL PIPES, STEEL RISER CLAMP SIZED TO FIT OUTSIDE DIAMETER OF PIPE SHALL BE USED. PIPE SIZES 2" AND SMALLER SHALL USE 3/8" THREADED RODS AND BEAM CLAMPS. PIPE SIZES 2-1/2" AND LARGER SHALL USE 5/8" THREADED RODS AND BEAM CLAMPS. PIPE SIZES 2" AND SMALLER SHALL USE 3/8" THREADED RODS AND BEAM CLAMPS. PIPE SIZES 2-1/2" AND LARGER SHALL USE 5/8" THREADED RODS AND BEAM CLAMPS. PIPE HANGERS, SUPPORTS AND RODS SHALL BE GALVANIZED
- ALL PIPING MATERIALS, FITTINGS VALVES UNIONS, HANGERS, EQUIPMENT, INSTALLATION AND ALL ASPECTS OF THE PLUMBING WORK SHALL BE AS APPROVED BY THE MASSACHUSETTS PLUMBING AND FUEL GAS CODES
- THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ANY WORK ASSOCIATED WITH CUTTING, CORING AND PATCHING WALLS, FLOORS AND CEILINGS IN ORDER TO PERFORM THE PLUMBING WORK. NO STRUCTURAL BEAMS OR STRUCTURAL OR BUILDING SUPPORTS SHALL BE CUT. ALL BUILDING CONDITIONS THAT ARE CUT OR CORED SHALL BE PATCHED TO MATCH THE FINISHED BUILDING CONDITIONS AND TO THE SATISFACTION OF THE OWNER.
- ALL VALVES SHALL BE PROVIDED WITH TAGS INDICATING TYPE OF SERVICE. ALL PIPING OF THE VARIOUS PIPING SYSTEMS SHALL BE LABELED WITH ADHESIVE DECALS INDICATING TYPE OF SERVICE. PIPE SYSTEM LABELS SHALL BE PER ASME A13.1 AND STATE PLUMBING CODE STANDARDS, AT 10 FOOT LENGTHS ALONG THE PIPE RUNS, ON EACH SIDE OF WALL/CEILING PENETRATIONS.
- THE PLUMBING CONTRACTOR SHALL SUBMIT MANUFACTURERS SHOP DRAWINGS FOR ALL PROPOSED PLUMBING MATERIALS, VALVES AND EQUIPMENT SHALL BE SUBMITTED TO THE PLUMBING ENGINEER FOR WRITTEN APPROVAL OF ALL PROPOSED PLUMBING MATERIALS, VALVES AND EQUIPMENT SHALL BE RECEIVED FROM THE PLUMBING ENGINEER PRIOR TO THE COMMENCEMENT OF ANY PLUMBING WORK.
- LOW PRESSURE GAS PIPING (14"W.C. OR LESS) 4" AND SMALLER SHALL BE SCHEDULE 40 BLACK STEEL WITH THREADED ENDS AND SCREW FITTINGS. LOW PRESSURE GAS PIPING (14"W.C. OR LESS) LARGER THAN 4" SHALL BE SCHEDULE 40 BLACK STEEL WITH PLAIN END WELDED PIPE AND FITTINGS.
- SHUT OFF VALVES ON GAS PIPE 2" AND SMALLER SHALL BE GAS SERVICE RATED BALL VALVES. SHUT OFF VALVES LARGER THAN 2" SHALL BE IRON PLUG VALVES WITH FLANGED ENDS
- THE LOCATIONS OF GAS FIRED EQUIPMENT AND THE LOCATIONS OF THE GAS PIPE CONNECTIONS ARE APPROXIMATE ONLY. THE PLUMBING CONTRACTOR SHALL COORDINATE IN THE FIELD WITH THE GAS FIRED EQUIPMENT TO DETERMINE THE EXACT SIZE AND LOCATION OF ALL GAS CONNECTIONS. THE PLUMBING CONTRACTOR SHALL ADJUST THE LOCATIONS OF GAS PIPING AND THE FINAL CONNECTIONS TO THE GAS FIRED EQUIPMENT AS REQUIRED. REDUCE ALL PIPE CONNECTIONS AS THE EQUIPMENT AS REQUIRED.
- ALL GAS PIPE, FITTINGS AND VALVES EXPOSED TO OUTDOORS SHALL BE PAINTED WITH ONE COAT OF CORROSION RESISTANT METAL PIPE PRIMER AND ONE FINAL COAT OF CORROSION RESISTANT METAL PIPE FINAL PAINT. PAINT COLOR SHALL BE GRAY. ALL SURFACES SHALL BE CLEANED AND PREPARED IN ACCORDANCE WITH THE PRIMER AND PAINT MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS. PRIMER AND PAINT SHALL BE APPLIED IN ACCORDANCE WITH THE PRIMER AND PAINT MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS. ALL SURFACES NOT INTENDED TO RECEIVE PRIMER OR PAINT SHALL BE CLEANED OF ALL PRIMER AND PAINT DRIPPINGS, OVER PAINT OR OVER SPRAY.
- GAS COORDINATION NOTE:  
THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE NATURAL GAS UTILITY COMPANY FOR THE SHUTTING DOWN OF THE EXISTING GAS SERVICE TO THE TENANT IN ORDER TO ACCOMMODATE THE NEW CONNECTION OF THE NEW GAS FIRED GENERATOR. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL OF THE EXISTING GAS LOADS FOR THIS TENANT SPACE AS WELL AS ALL NEW GAS LOADS THAT WILL BE CONNECTED TO THE EXISTING TENANT GAS METER. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE EXISTING AND NEW GAS LOADS AND REQUIRED GAS PRESSURES WITH THE GAS UTILITY COMPANY TO ENSURE THAT THE EXISTING GAS METER WILL ACCOMMODATE THE GAS DEMAND FOR THIS TENANT. NO WORK SHALL BEGIN AT THE SITE WITHOUT THE PLUMBING CONTRACTOR PERFORMING THIS COORDINATION WORK WITH THE GAS UTILITY COMPANY.



- THE EXISTING CONDITIONS SHOWN ARE APPROXIMATE ONLY AND ARE NOT INTENDED TO INDICATE THE EXACT EXISTING CONDITIONS AT THE SITE OR FOR ALL BUILDINGS. THE PLUMBING CONTRACTOR SHALL FIELD SURVEY ALL EXISTING CONDITIONS AND SHALL DETERMINE THE EXACT SCOPE OF WORK IN THE FIELD. MAKE ADJUSTMENTS TO THE WORK SHOWN ON THE DETAIL AS REQUIRED.
- EACH SHUT OFF VALVE ASSOCIATED WITH THE EMERGENCY GENERATOR SHALL BE LABELED TO READ:  
"WARNING: GAS USED FOR LIFESAFETY. AVOID SHUTTING OFF GAS UNLESS NECESSARY". ALL VALVE LABELS SHALL BE PERMANENTLY AFFIXED

1 TYPICAL EXISTING GAS METER SCOPE OF WORK  
NOT TO SCALE

Seal:



BLW Engineers, Inc.  
311 Great Road, Post Office Box 1551  
Littleton, Massachusetts 01460  
T: 978.486.4301 F: 978.428.0067  
www.blwengineers.com  
HVAC Electrical Plumbing Fire Protection

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BID DOCS 9/27/24

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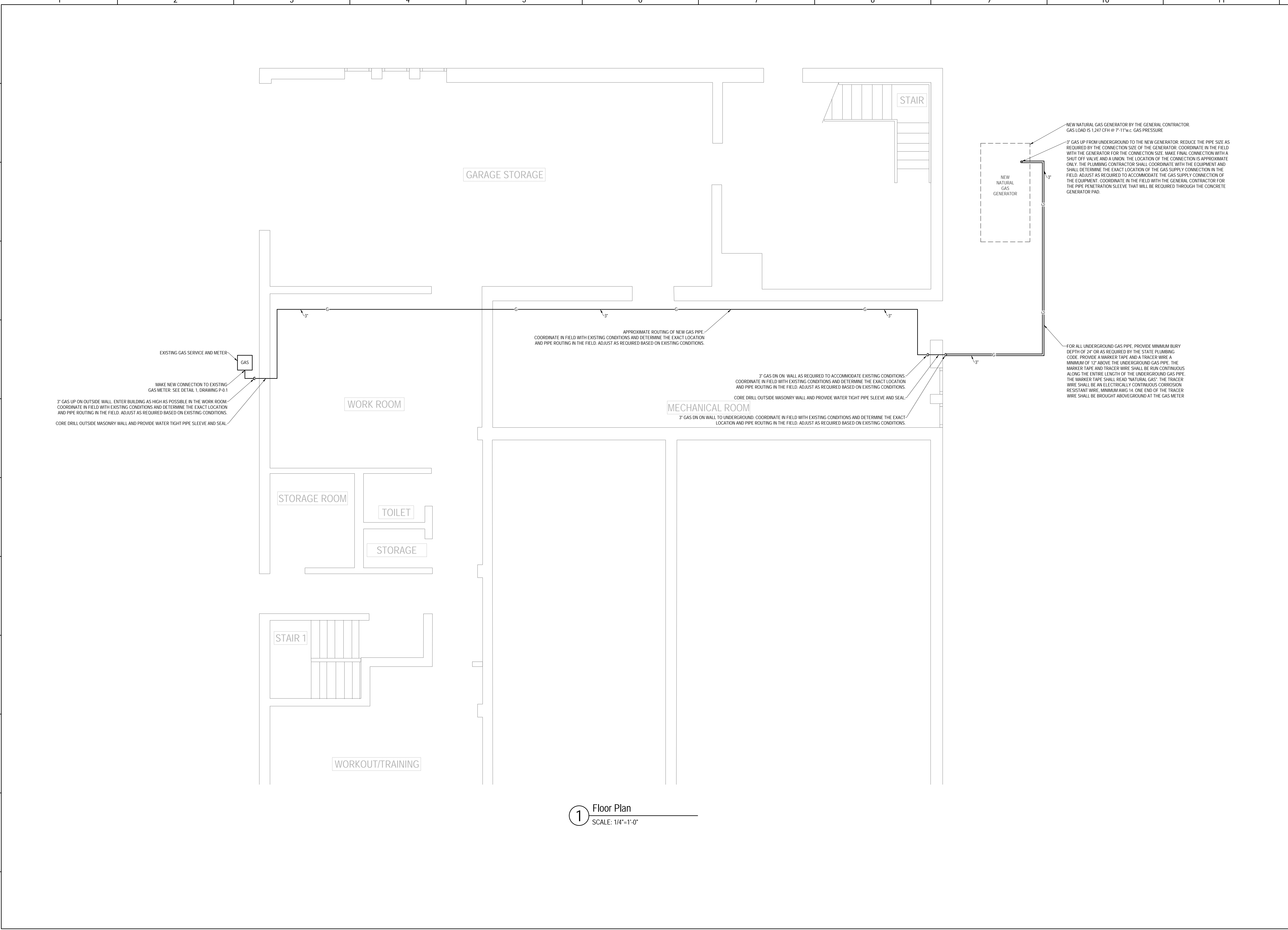
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PLUMBING  
LEGEND,  
SPECIFICATION,  
AND DETAILS

Drawing No.:

P-0.1



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PLUMBING  
FLOOR PLAN

Drawing No.:

P-1.0



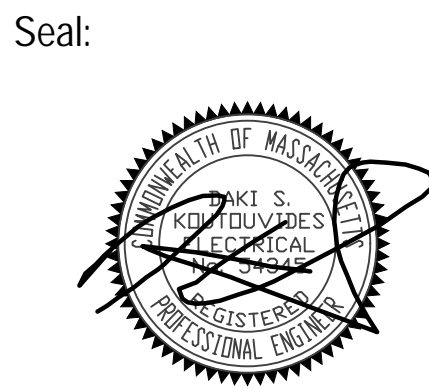
# MANCHESTER-BY-THE-SEA TOWN HALL GENERATOR PROJECT

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10 Central Street  
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TS

GENERAL NOTES

1.

LEGEND IS INTENDED TO SHOW DEPICTION OF SYMBOLS. IT DOES NOT IMPLY INTENT OF SCOPE. NOT ALL SYMBOLS SHOWN ON THIS LEGEND WILL BE USED ON THE DWGS.

2.

PERFORM WORK AND PROVIDE MATERIALS AND EQUIPMENT TO MAKE INSTALLATION COMPLETE IN EVERY DETAIL UNDER THIS CONTRACT WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS.

3.

ALL EQUIPMENT AND WIRING ON DWGS IS SHOWN DIAGRAMMATICALLY. EXACT LOCATION AND METHOD OF SUPPORT SHALL BE DETERMINED IN THE FIELD, EXCEPT WHERE SPECIFIC DIMENSIONS AND DETAILS ARE SHOWN. ALL CONDUIT RUNS SHALL BE RIGIDLY SUPPORTED.

POWER NOTES

1.

ALL CONDUITS ARE SHOWN DIAGRAMMATICALLY. EXACT LOCATION AND METHOD OF SUPPORT SHALL BE DETERMINED IN THE FIELD, EXCEPT WHERE SPECIFIC DIMENSIONS AND DETAILS ARE SHOWN. ALL CONDUIT RUNS SHALL BE RIGIDLY SUPPORTED.

2.

ELECTRICAL CONTRACTOR SHALL CONFIRM ALL NEMA CONFIGURATIONS AND REQUIRED ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT SPECIFICATIONS PRIOR TO ROUGH-IN.

EXISTING EQUIPMENT DESIGNATIONS

X

EXISTING TO BE REMOVED, REMOVE ALL ASSOCIATE CONDUIT AND CONDUCTORS

XM

EXISTING TO REMAIN

XN

EXISTING EQUIPMENT TO BE REPLACED WITH NEW, CONNECT NEW EQUIPMENT TO EXISTING CIRCUIT

XR

EXISTING EQUIPMENT TO BE RELOCATED, JUNCTION AND EXTEND EXISTING CONDUIT AND CONDUCTORS

XC

NEW EQUIPMENT TO BE CONNECTED TO NEAREST AVAILABLE BRANCH CIRCUIT, PROVIDE NEW BRANCH CIRCUITRY FROM NEAREST EXISTING DEVICE (TO REMAIN) TO NEW DEVICE AS REQUIRED

XL

NEW LOCATION OF EXISTING EQUIPMENT, JUNCTION AND EXTEND CONDUIT AND CONDUCTORS AS REQUIRED

ABBREVIATIONS

A/AMP

AMPERE

IMC

INTERMEDIATE METALLIC CONDUIT

AC

ALTERNATING CURRENT

JB

JUNCTION BOX

AF

AMPERE FRAME

KVA

KILOVOLT-AMPERE

AFF

ABOVE FINISHED FLOOR

KW

KILOWATT

AFG

ABOVE FINISHED GRADE

LTG

LIGHTING

AIC

AMPERE INTERRUPTING CAPACITY

MCB

MAIN CIRCUIT BREAKER

AL

ALUMINUM

MCC

MOTOR CONTROL CENTER

AT

AMPERE TRIP

MEC

MASSACHUSETTS ELECTRICAL CODE

ATS

AUTOMATIC TRANSFER SWITCH

MLO

MAIN LUGS ONLY

AWG

AMERICAN WIRE GAUGE

MTD

MOUNTED

C

CONDUIT

MTG

MOUNTING

CB

CIRCUIT BREAKER

NEC

NATIONAL ELECTRICAL CODE

CKT

CIRCUIT

No. #

NUMBER

CL

CENTERLINE

NS

NON-SYSTEM

CU

COPPER

NTS

NOT TO SCALE

DC

DIRECT CURRENT

PC

PLUMBING CONTRACTOR

DE

DUAL ELEMENT

PWR

POWER

DWG

DRAWING

RGS

RIGID STEEL CONDUIT

EC

ELECTRICAL CONTRACTOR

RMS

ROOT MEAN-SQUARE VALUE

EMH

ELECTRICAL MANHOLE

RPM

REVOLUTIONS PER MINUTE

EMT

ELECTRIC METALLIC CONDUIT

SF

SQUARE FOOT

EWC

ELECTRIC WATER COOLER

SN

SOLID NEUTRAL

G/END

GROUND

ST

SHUT TRIP CIRCUIT BREAKER

GC

GENERAL CONTRACTOR

SWBD

SWITCHBOARD

GE

GROUND-FAULT PROTECTION FOR EQUIPMENT (GFPE CB)

TYP

TYPICAL

GP

GROUND-FAULT PROTECTION FOR PERSONNEL (GFCI CB)

V

VOLTS

GFCI

GROUND-FAULT CIRCUIT-INTERRUPTER

VA

VOLT-AMPERE

HP

HORSEPOWER

VFD

VARIABLE FREQUENCY DRIVE

HVAC

HEATING, VENTILATION AND AIR CONDITIONING

WP

WEATHERPROOF

ANNOTATIONS

ECH 1

MECHANICAL EQUIPMENT TAG, REFER TO MECHANICAL EQUIPMENT COORDINATION SCHEDULE FOR ELECTRICAL REQUIREMENTS

200/4

FEEDER TAG, NUMBER INDICATES AMPERE RATING OF FEEDER AND NUMBER OF WIRES, REFER TO FEEDER SCHEDULE FOR ADDITIONAL INFORMATION.  
(2) 5" EMPTY CONDUIT ONLY SHALL BE PROVIDED WITH PULL STRING

112.1

EQUIPMENT TAG, REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION

1

SHEET NOTE TAG  
\*IF INDICATES CALL OUT TO CORRESPONDING SHEET NOTE

1

REVISION TAG

E101

DETAIL CALLOUT  
\*IF INDICATES THE DETAIL REFERENCE NUMBER  
\*E101\* INDICATES THE DRAWING ON WHICH THE DETAIL CAN BE FOUND

A

SECTION "A-A", REFER TO DUCTBANK OR CONDUIT SECTION DETAIL

SITE SYMBOLS

---

UNDERGROUND CONDUIT OR DUCT BANK, REFER TO SITE DETAILS FOR ADDITIONAL INFORMATION

HH

ELECTRIC MANHOLE (MH) / HANDHOLE (HH), REFER TO DETAIL

MOTORS AND CONTROLS

50

MOTOR, NUMERAL INDICATES HORSEPOWER

60A 3R

MANUAL MOTOR STARTER, RATED 20A, 250V, COORDINATE MOUNTING HEIGHT IN FIELD, MOUNTING HEIGHT SHALL NOT EXCEED 6'-7" AFF

60A/ 40A/ 3R

DISCONNECT SWITCH RATED 30A, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED  
\*3R\* INDICATES NEMA TYPE 3R ENCLOSURE  
\*2P\* INDICATES 2-POLE, SINGLE PHASE DISCONNECT  
\*60A\* INDICATES 60A FUSE SIZE  
\*40A\* INDICATES 40A TRIP RATING

30A ST

FUSED DISCONNECT SWITCH RATED 30A, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED  
\*3R\* INDICATES NEMA TYPE 3R ENCLOSURE  
\*2P\* INDICATES 2-POLE, SINGLE PHASE DISCONNECT  
\*60A\* INDICATES 60A FUSE SIZE  
\*40A\* INDICATES 40A TRIP RATING

30A

ENCLOSED CIRCUIT BREAKER IN NEMA 1 TYPE ENCLOSURE, UNLESS OTHERWISE NOTED  
\*30A\* INDICATES BREAKER RATING  
\*3R\* INDICATES NEMA TYPE 3R ENCLOSURE  
\*ST\* INDICATES SHUNT-TRIP

CP

CONTROLS  
\*CP\* INDICATES CONTROL PANEL  
\*VFD\* INDICATES VARIABLE FREQUENCY DRIVE  
\*RGAP\* INDICATES REMOTE GENERATOR ANNUNCIATOR PANEL

BRANCH CIRCUIT AND FEEDER SYMBOLS

PP1-2

HOMERUN TO PANELBOARD "PP1"; CIRCUIT NUMBER "2"  
REFER TO PANEL SCHEDULE FOR BREAKER SIZE AND NUMBER OF POLES  
CONCEALED UNLESS OTHERWISE NOTED  
NUMBER OF ARROWS INDICATES NUMBER OF INDIVIDUAL HOMERUNS "2", "4", AND "6"  
UNLESS NOTED OTHERWISE, WIRING FOR EACH CIRCUIT SHALL BE:  
20A/1P - 2\*12, #12G-2/C  
20A/2P - 3\*12, #12G-2/C  
20A/3P - 4\*12, #12G-2/C  
WIRING FOR MULTIPLE HOMERUNS MAY BE COMBINED IN CONDUIT IN ACCORDANCE WITH NEC REQUIREMENTS

PP1-2,4,6

HOMERUN FEEDER / BRANCH CIRCUIT CALLOUT:  
INDICATES (3) #1 AWG (PHASE), (1) #1 AWG (NEUTRAL), (1) #6 GROUND IN A 1-1/2" CONDUIT

4\*1, #6G-1/2"

BRANCH CIRCUIT OR FEEDER CONCEALED UNLESS OTHERWISE NOTED. BRANCH CIRCUIT DIAGONAL LINES INDICATE NUMBER OF CONDUCTORS. GROUND WIRE(S) NOT INDICATED. MINIMUM SIZE CONDUCTOR #12 AWG AND 3/4" CONDUIT, UNLESS OTHERWISE NOTED.

FLEXIBLE CONNECTION TO MOTOR OR EQUIPMENT

MISCELLANEOUS

U

UTILITY METER

CH

MUSHROOM HEAD PUSH BUTTON SWITCH

PS

PUSH BUTTON SWITCH

PANELBOARD AND TERMINAL CABINET

120/208V PANEL, SURFACE MOUNTED, REFER TO PANEL SCHEDULES

120/208V PANEL, RECESSED MOUNTED, REFER TO PANEL SCHEDULES

LEGEND OF FEEDER SIZES-COPPER CONDUCTORS (75°C)					
FEEDER SYMBOL	CONDUCTORS (3Ø, 3W) WITH GROUND	RACEWAY SIZE	CONDUCTORS (3Ø, 4W) WITH GROUND	RACEWAY SIZE	NOMINAL AMPERE RATING
60/3	3#6 & 1#10 GND	3/4"	4#6 & 1#10 GND	1"	60
60/4	3#6 & 1#8 GND	1 1/4"	4#6 & 1#8 GND	1 1/4"	100
100/3	3#3 & 1#8 GND	1 1/4"	4#3 & 1#8 GND	1 1/4"	125
100/4	3#1 & 1#6 GND	1 1/4"	4#1 & 1#6 GND	1 1/4"	150
125/3	3#1/0 & 1#6 GND	2"	4#1/0 & 1#6 GND	2"	200
125/4	3#1/0 & 1#6 GND	2"	4#1/0 & 1#6 GND	2"	225
150/3	3#1/0 & 1#6 GND	2"	4#1/0 & 1#6 GND	2 1/4"	250
150/4	3#1/0 & 1#6 GND	2"	4#1/0 & 1#6 GND	2 1/4"	300
200/3	3#3/0 & 1#6 GND	2 1/2"	4#3/0 & 1#6 GND	3"	400
200/4	3#4/0 & 1#4 GND	2 1/2"	4#4/0 & 1#4 GND	3"	500
225/3	3-250kCMIL & 1#4 GND	2 1/2"	4-250kCMIL & 1#4 GND	3"	600
225/4	3-250kCMIL & 1#4 GND	2 1/2"	4-250kCMIL & 1#4 GND	3"	800
250/3	3-350kCMIL & 1#3 GND	3 1/2"	4-350kCMIL & 1#3 GND	4"	1000
250/4	3-350kCMIL & 1#3 GND	3 1/2"	4-350kCMIL & 1#3 GND	4"	1200
300/3	3-400kCMIL & 2#2 GND	(2) 2 1/2"	4-400kCMIL & 2#2 GND	(2) 2 1/2"	1600
300/4	3-400kCMIL & 2#1 GND	(2) 3"	4-400kCMIL & 2#1 GND	(2) 3"	2000
400/3	3-600kCMIL & 2#1 GND	(2) 4"	4-600kCMIL & 2#1 GND	(2) 4"	2500
400/4	3-600kCMIL & 2#1 GND	(2) 4"	4-600kCMIL & 2#1 GND	(2) 4"	3000
500/3	3-800kCMIL & 3#2 GND	(3) 3"	4-800kCMIL & 3#2 GND	(3) 3"	3500
500/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
600/3	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
600/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
800/3	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
800/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
1000/3	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
1000/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
1200/3	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
1200/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
1600/3	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
1600/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
2000/3	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
2000/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
2500/3	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
2500/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
3000/3	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
3000/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
3500/3	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
3500/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
4000/3	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000
4000/4	3-800kCMIL & 3#2 GND	(3) 4"	4-800kCMIL & 3#2 GND	(3) 4"	4000

NOTES:

- ALL FEEDERS GREATER THAN 150 FEET IN LENGTH SHALL INCREASE TO THE NEXT AVAILABLE FEEDER TO ACCOMMODATE FOR VOLTAGE DROP.
- SERVICE FEEDERS FROM UTILITY TRANSFORMER TO SERVICE ENTRANCE EQUIPMENT SHALL NOT REQUIRE GROUND CONDUCTOR
- 4000A SERVICE FEEDERS FROM UTILITY TRANSFORMER TO SERVICE ENTRANCE EQUIPMENT SHALL BE 90 DEGREE RATED.

DEMOLITION POWER RISER DIAGRAM

N.T.S.

NOTES:

- CONTRACTOR SHALL COORDINATE ALL NECESSARY SHUTDOWNS WITH OWNER AND IF NECESSARY, WITH UTILITY COMPANY
- EXISTING GENERATOR AND FEEDER TO BE REMOVED AND DISPOSED OF IN PROPER AND LAWFUL MANNER

NEW WORK POWER RISER DIAGRAM

N.T.S.

NOTES:

- CONTRACTOR SHALL COORDINATE ALL NECESSARY SHUTDOWNS WITH OWNER AND IF NECESSARY, WITH UTILITY COMPANY
- ELECTRICAL CONTRACTOR TO COORDINATE LOCATION OF GENERATOR REMOTE ANNUNCIATOR WITH OWNER'S REPRESENTATIVE AND ENGINEER PRIOR TO ROUGHING IN BRANCH CIRCUITRY
- GENERATOR REMOTE EMERGENCY POWER OFF (EPO) PUSH BUTTON, COORDINATE EXACT LOCATION NEXT TO EXISTING SWITCHGEAR WITH OWNER'S REPRESENTATIVE. PROVIDE CLEAR LABELING TO INDICATE USE
- ELECTRICAL CONTRACTOR SHALL CONFIRM EXISTING BRANCH CIRCUITRY, IN FIELD, AND MATCH WIRE SIZE ACCORDINGLY
- 150 KW / 188KVA, 120/240 VOLT DIESEL GENERATOR WITH WEATHERPROOF, LEVEL 2 SOUND ATTENUATED ENCLOSURE BY GENERAC, MODEL NO. SD150, ALTERNATOR MODEL NO. K0150124Y21 OR EQUAL.
- SAME CONDUIT MAY BE USED TO CARRY CONDUCTORS FOR GENERATOR JACKET HEATER AND BATTERY CHARGER AS WELL AS EMERGENCY POWER OFF BUTTON AND REMOTE GENERATOR ANNUNCIATOR PANEL. APPROPRIATE CONDUCTORS SHALL BE USED AS SPECIFIED BY EQUIPMENT MANUFACTURERS. ALL CONDUCTOR INSULATION SHALL BE RATED FOR THE HIGHEST VOLTAGE OF THE VARIOUS CIRCUITS.
- PROVIDE APPROPRIATE WIRING PER GENERATOR MANUFACTURER'S RECOMMENDATION AND CIRCUIT TO AVAILABLE BREAKER OR NEW CIRCUIT BREAKER IN SECONDARY ELECTRICAL PANEL FOR GENERATOR JACKET HEATER AND BATTERY CHARGER.
- PROVIDE NEW 40A, 208V, 3-POLE CIRCUIT BREAKER IN AVAILABLE SPACES, COMPATIBLE WITH EXISTING PANEL MP, Eaton MODEL PRL1A3100X18A OR EQUIVALENT.

Seal:

Seal of the Commonwealth of Massachusetts

Seal of the Town of Manchester-by-the-Sea

BLW

BLW Engineers, Inc.  
311 Great Road, Post Office Box 1551  
Littleton, Massachusetts 01460  
T: 978.486.4301 F: 978.428.0067  
www.blwengineers.com  
HVAC Electrical Plumbing Fire Protection

Client:

TOWN OF  
MANCHESTER-BY-THE-SEA  
10 CENTRAL ST  
MANCHESTER-BY-THE-SEA, MA 01944

Submission:

BID DOCS 9/27/24

Revision:

Project:

TOWN HALL  
GENERATOR PROJECT  
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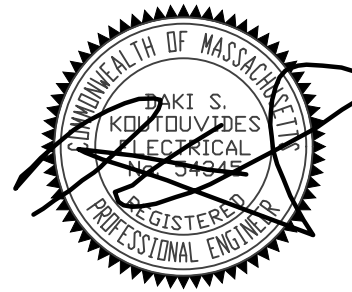

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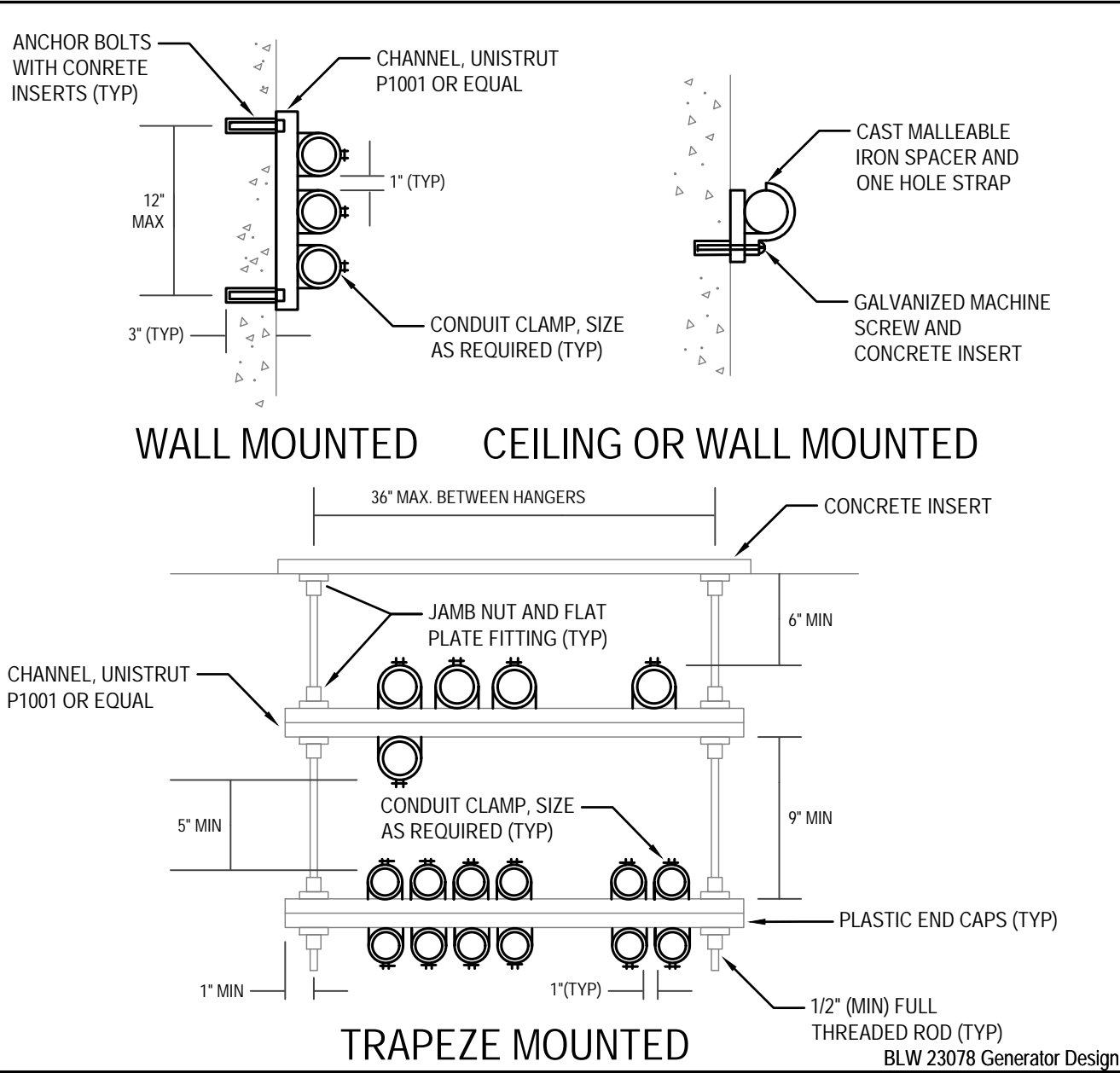
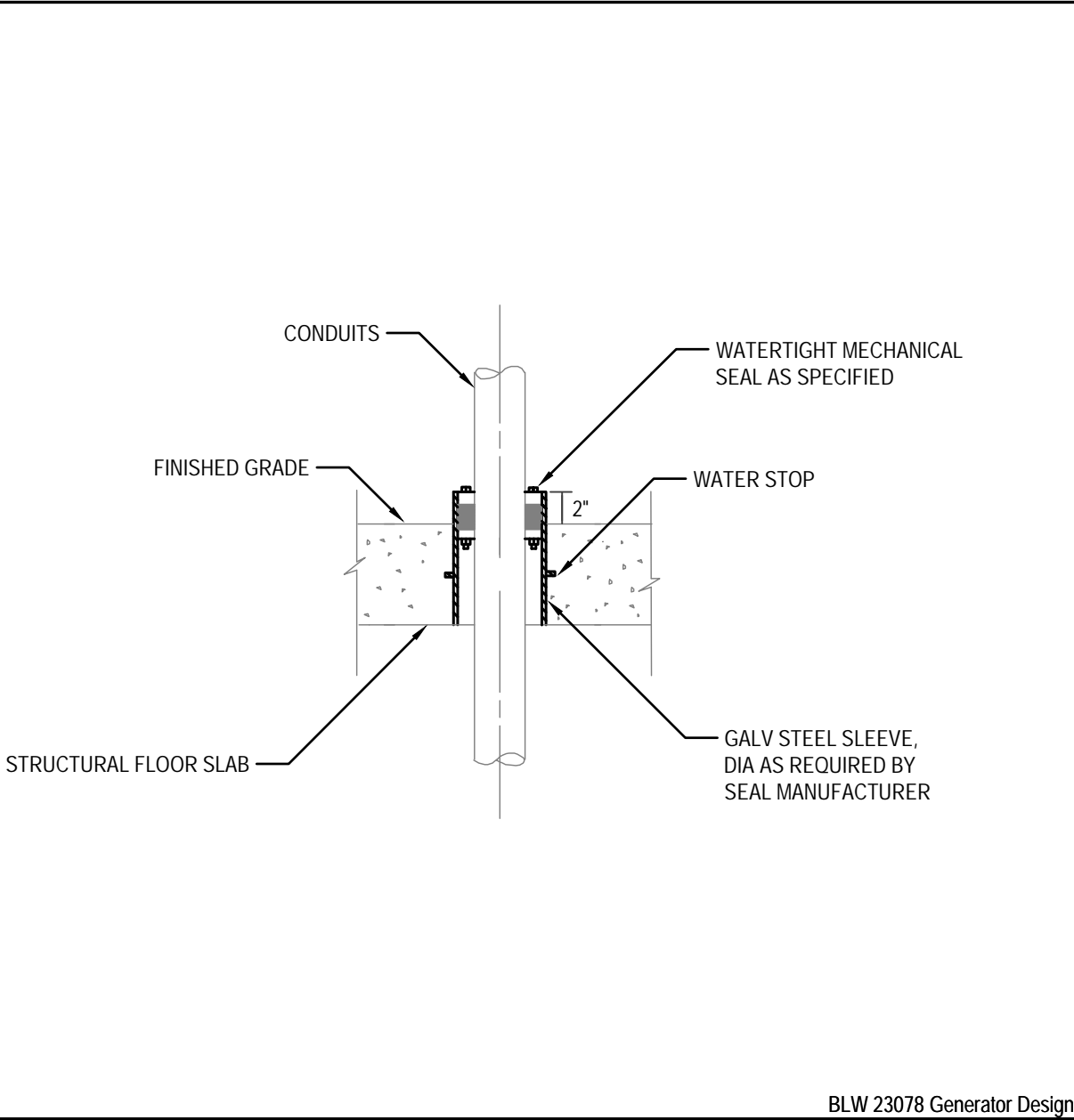
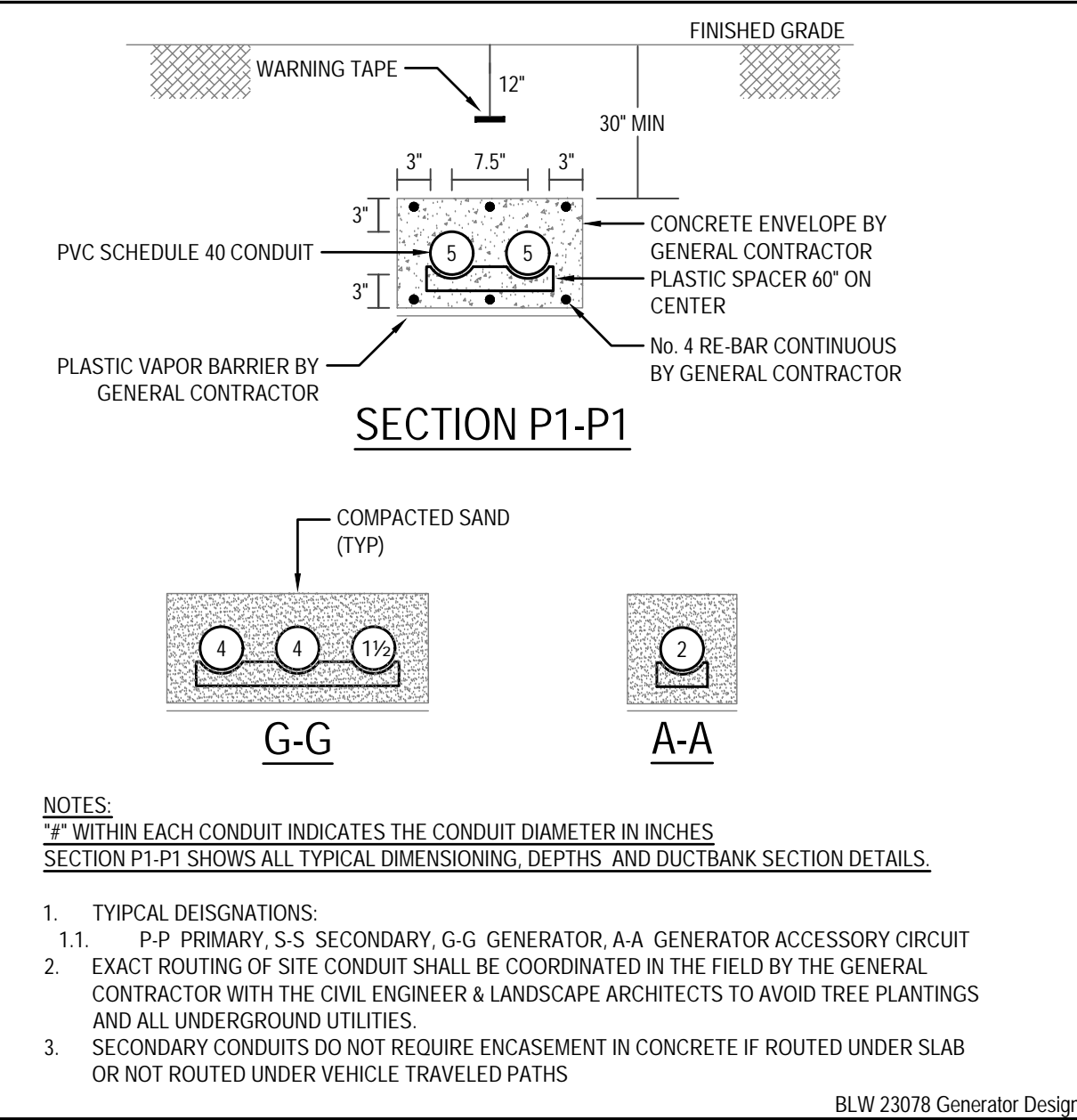
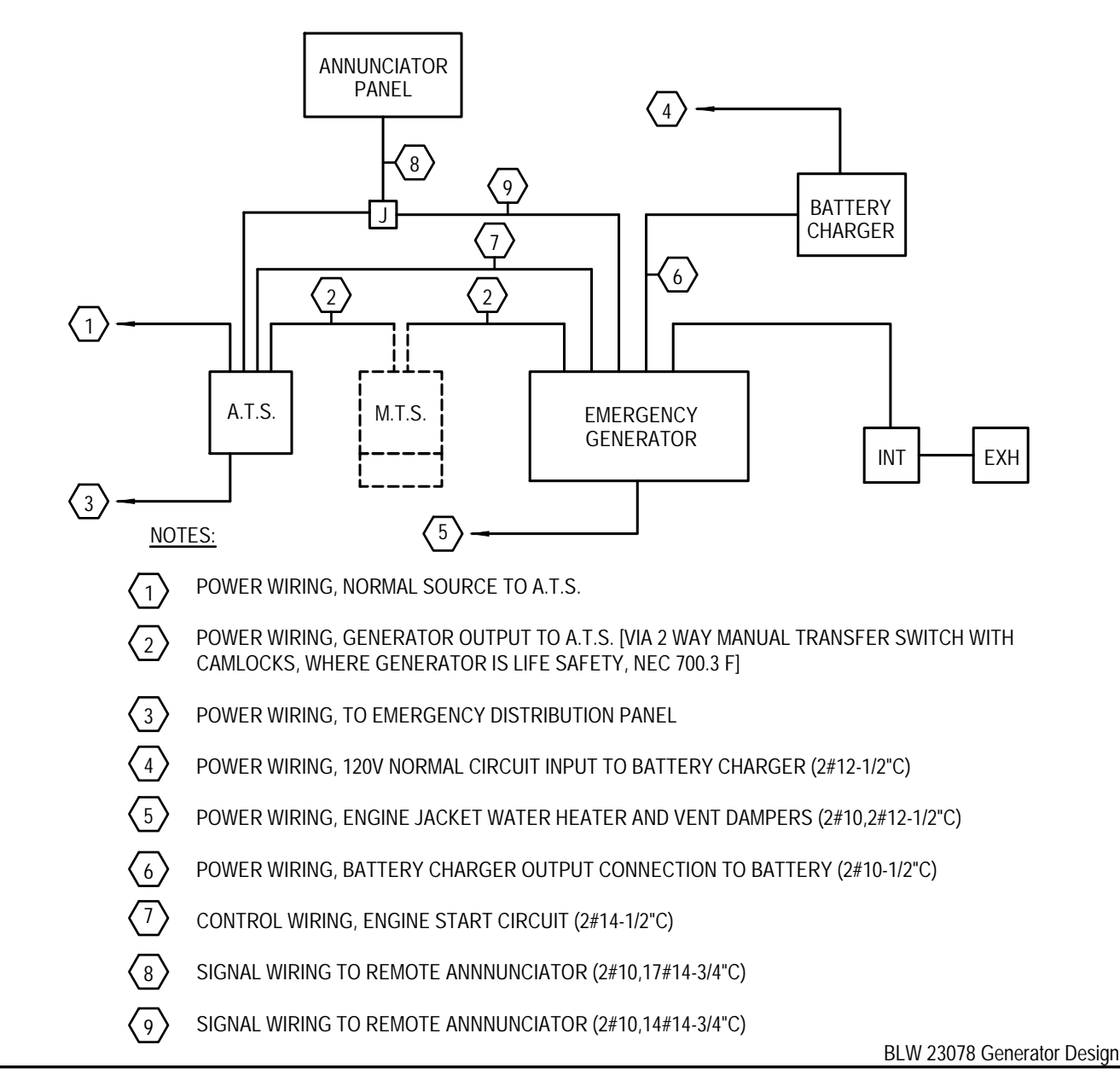
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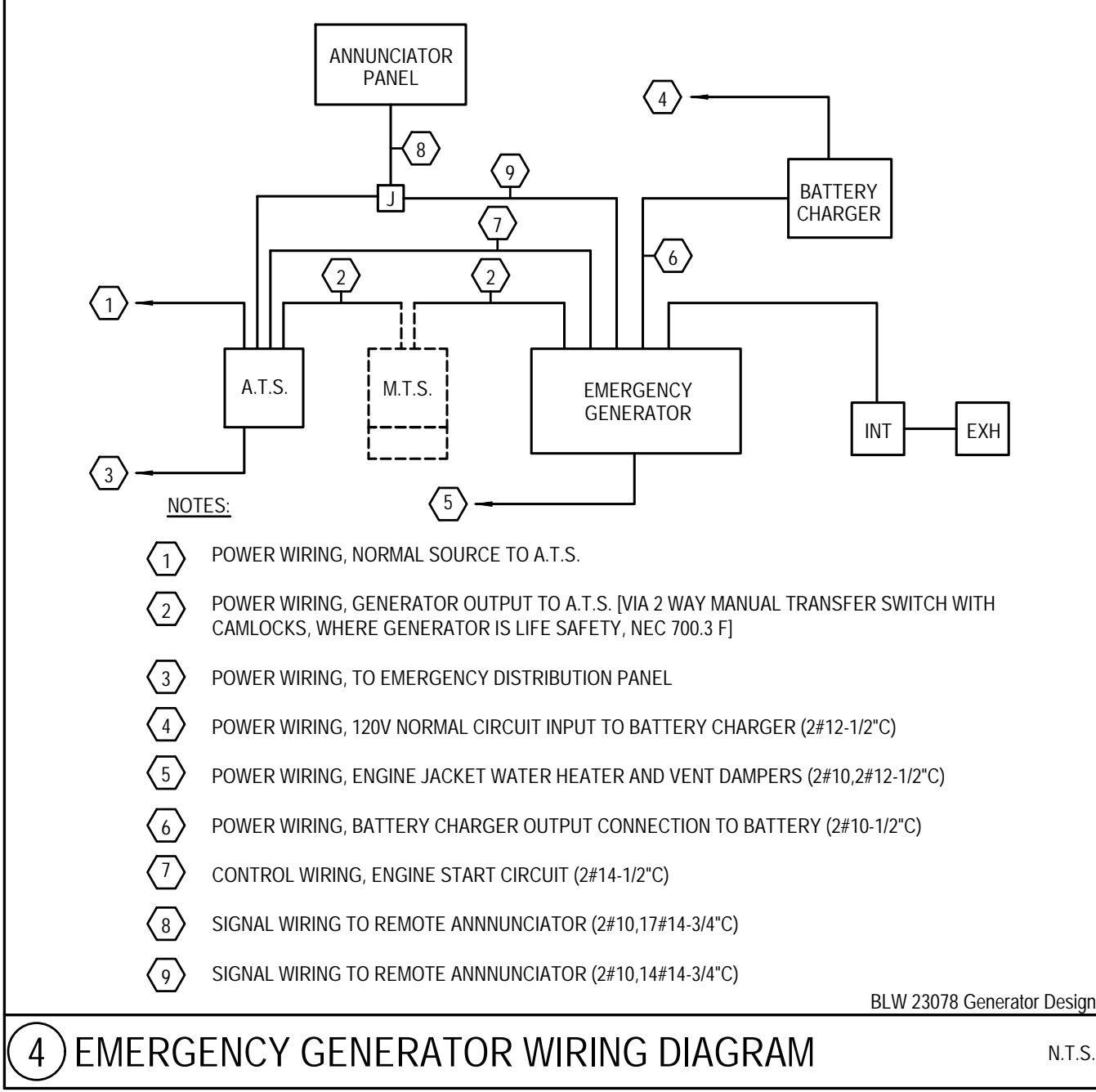
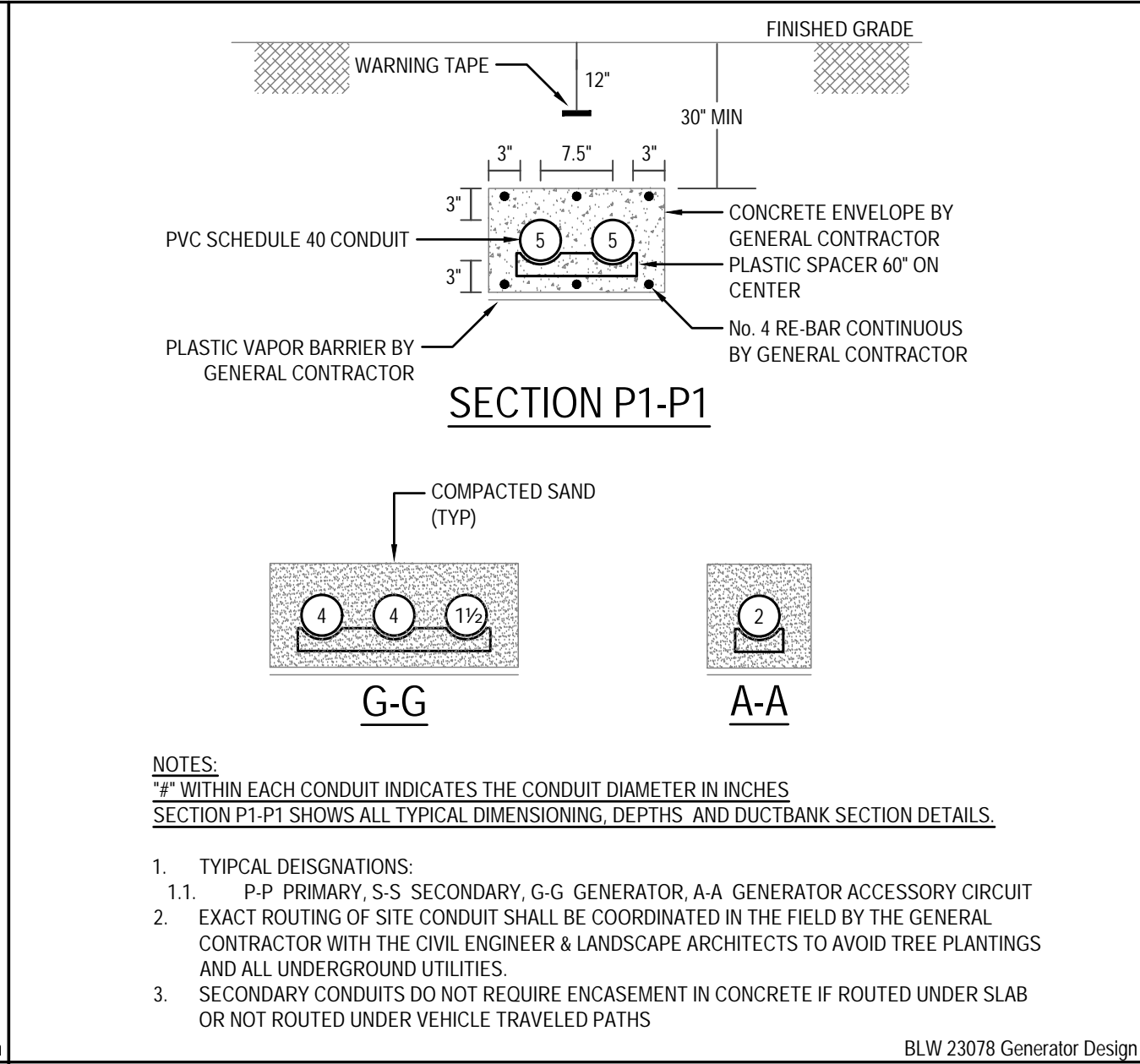
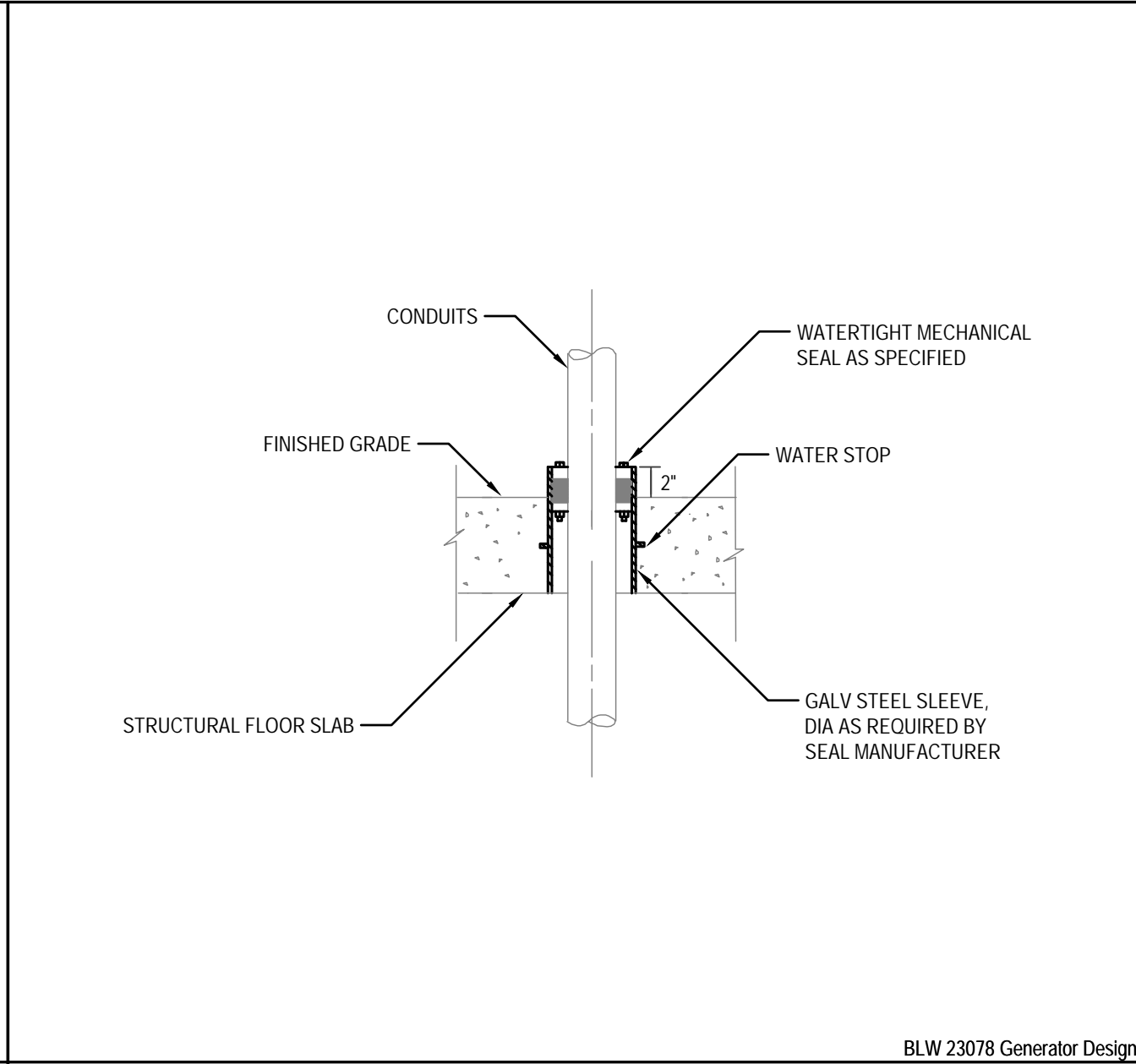
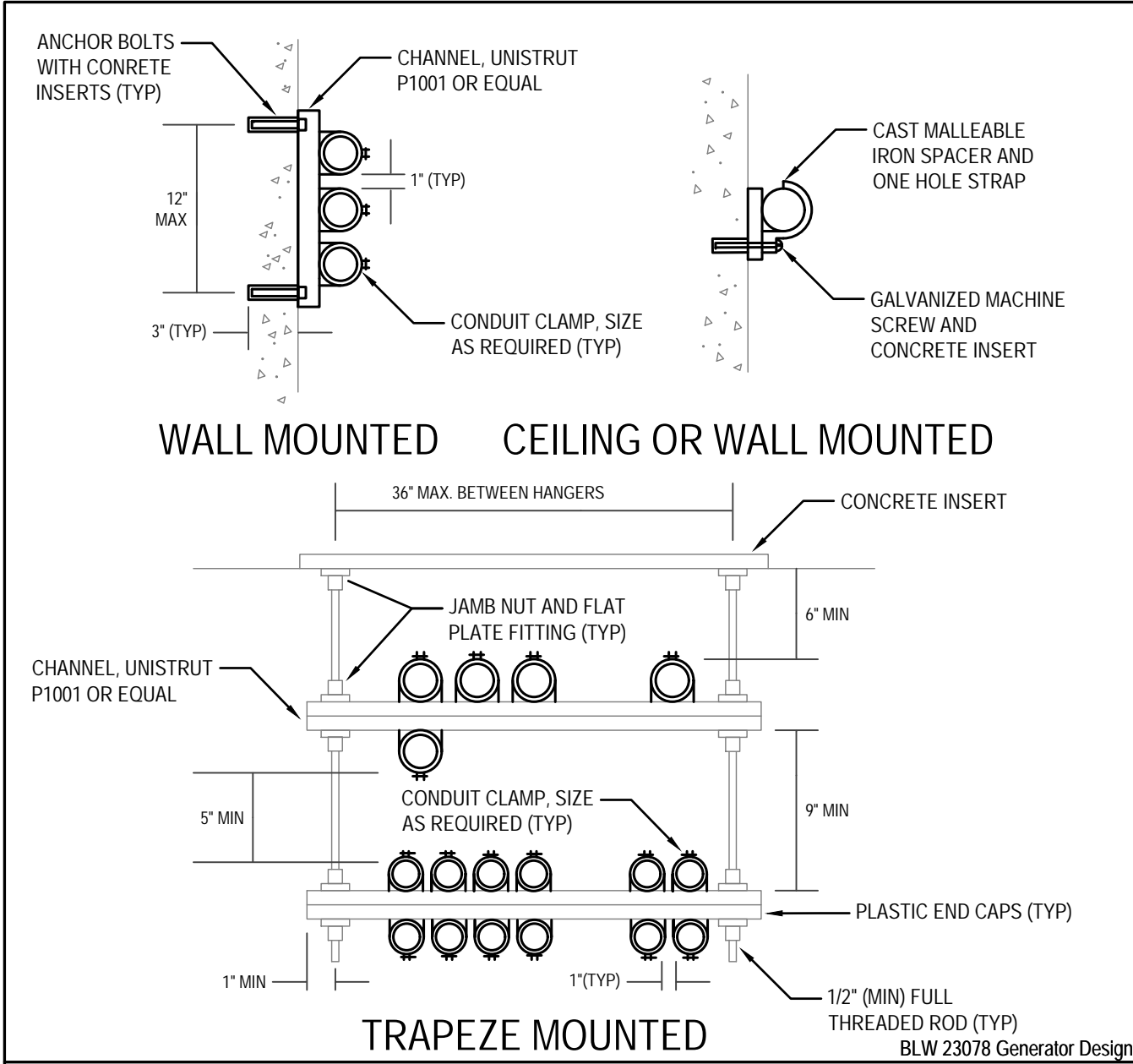
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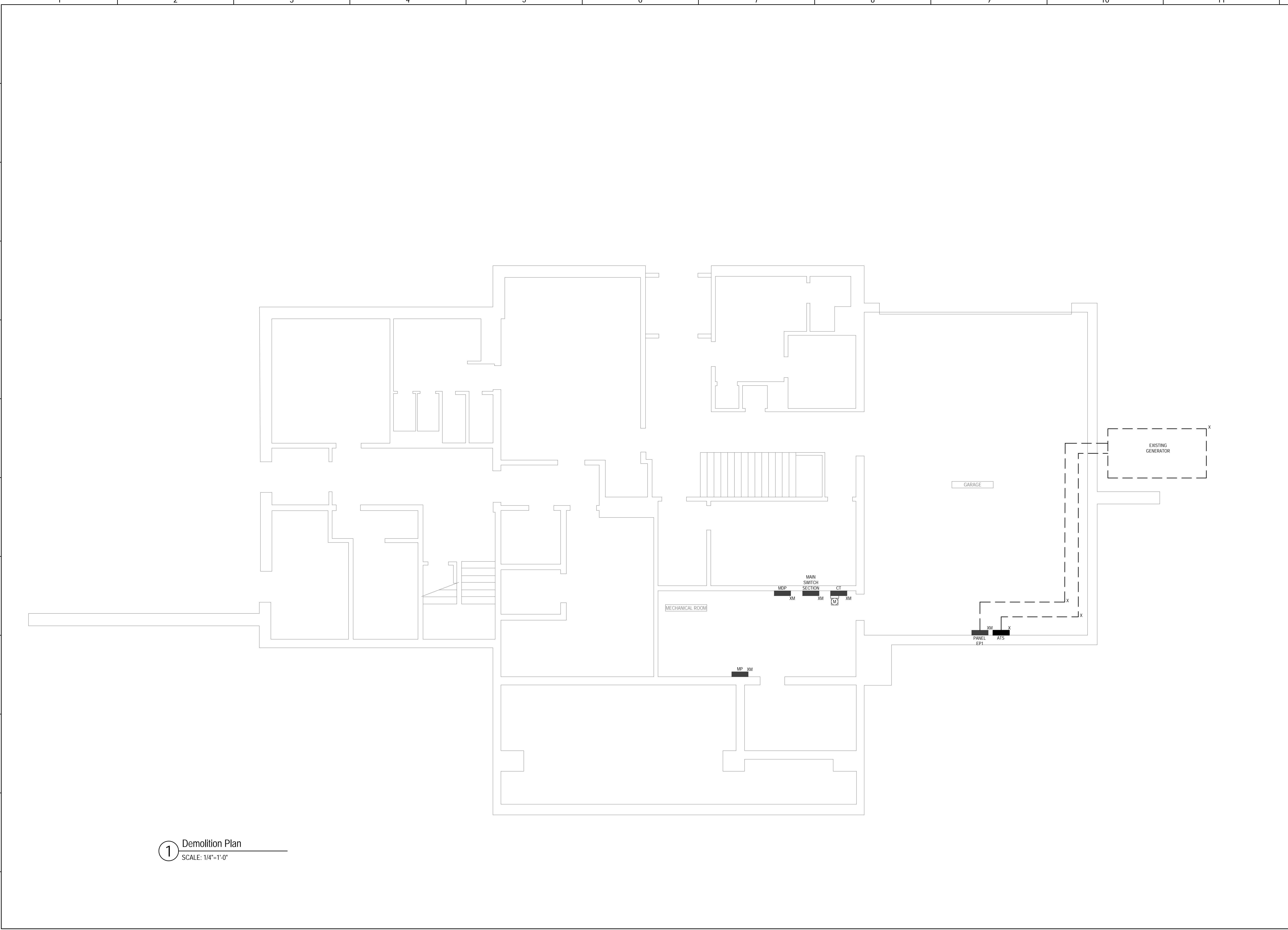
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1	2	3	4	5	6	7	8	9	10	11	<div>Seal:</div> <div></div> <div><div><div>BLW Engineers, Inc. 311 Great Road, Post Office Box 1551 Littleton, Massachusetts 01460 T: 978.486.4301 F: 978.428.0067 www.blwengineers.com HVAC • Electrical • Plumbing • Fire Protection</div></div><div>Client:</div><div>TOWN OF MANCHESTER-BY-THE-SEA 10 CENTRAL ST MANCHESTER-BY-THE-SEA, MA 01944</div><div>Submission:</div><div>BID DOCS9/27/24</div><div>Revision:</div><div>Project:</div><div>TOWN HALL GENERATOR PROJECT 10 CENTRAL ST MANCHESTER-BY-THE-SEA, MA 01944</div><div>THIS MATERIAL IS CONFIDENTIAL AND MAY NOT BE DISCLOSED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BLW ENGINEERS INC. COPYRIGHT BLW ENGINEERS INC.</div><div>Project No.:23078</div><div>Drawn By:RG</div><div>Checked By:CM</div><div>Scale:As Noted</div><div>Title:</div><div>DETAILS</div><div>Drawing No.:<div>E-0.2</div></div></div>

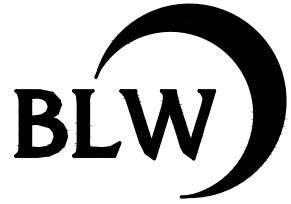
<div><p>ANCHOR BOLTS WITH CONCRETE INSERTS (TYP) 12" MAX 3" (TYP) CHANNEL, UNISTRUT P1001 OR EQUAL 1" (TYP) CONDUIT CLAMP, SIZE AS REQUIRED (TYP) CAST MALLEABLE IRON SPACER AND ONE HOLE STRAP GALVANIZED MACHINE SCREW AND CONCRETE INSERT</p><p>WALL MOUNTED    CEILING OR WALL MOUNTED</p><p>3/4" MAX. BETWEEN HANGERS CONCRETE INSERT JAMB NUT AND FLAT PLATE FITTING (TYP) 6" MIN CHANNEL, UNISTRUT P1001 OR EQUAL 5" MIN CONDUIT CLAMP, SIZE AS REQUIRED (TYP) 9" MIN PLASTIC END CAPS (TYP) TRAPEZE MOUNTED 1" MIN 1" (TYP) 1/2" (MIN) FULL THREADED ROD (TYP) BLW 23078 Generator Design</p></div> <div>① CONDUIT MOUNTING DETAIL</div> <div>N.T.S.</div>	<div><p>CONDUITS FINISHED GRADE STRUCTURAL FLOOR SLAB WATERTIGHT MECHANICAL SEAL AS SPECIFIED 2" WATER STOP GALV STEEL SLEEVE, DIA AS REQUIRED BY SEAL MANUFACTURER</p><p>BLW 23078 Generator Design</p></div> <div>② CONDUIT PENETRATION DETAIL</div> <div>N.T.S.</div>	<div><p>FINISHED GRADE WARNING TAPE 12" 30" MIN PVC SCHEDULE 40 CONDUIT 3" 7.5" 3" CONCRETE ENVELOPE BY GENERAL CONTRACTOR PLASTIC SPACER 60" ON CENTER PLASTIC VAPOR BARRIER BY GENERAL CONTRACTOR No. 4 RE-BAR CONTINUOUS BY GENERAL CONTRACTOR</p><p>SECTION P1-P1</p><p>COMPACTED SAND (TYP) G-G A-A</p><p>NOTES: 1" WITHIN EACH CONDUIT INDICATES THE CONDUIT DIAMETER IN INCHES SECTION P1-P1 SHOWS ALL TYPICAL DIMENSIONING, DEPTHS, AND DUCTBANK SECTION DETAILS.</p><p>1. TYPICAL DEISGNATIONS: 1.1. P-P PRIMARY, S-S SECONDARY, G-G GENERATOR, A-A GENERATOR ACCESSORY CIRCUIT 2. EXACT ROUTING OF SITE CONDUIT SHALL BE COORDINATED IN THE FIELD BY THE GENERAL CONTRACTOR WITH THE CIVIL ENGINEER &amp; LANDSCAPE ARCHITECTS TO AVOID TREE PLANTINGS AND ALL UNDERGROUND UTILITIES. 3. SECONDARY CONDUITS DO NOT REQUIRE ENCASEMENT IN CONCRETE IF ROUTED UNDER SLAB OR NOT ROUTED UNDER VEHICLE TRAVELED PATHS</p><p>BLW 23078 Generator Design</p></div> <div>③ DUCTBANK SECTION DETAIL</div> <div>N.T.S.</div>
<div><p>ANNUNCIATOR PANEL A.T.S. M.T.S. EMERGENCY GENERATOR BATTERY CHARGER INT EXH</p><p>NOTES: ① POWER WIRING, NORMAL SOURCE TO A.T.S. ② POWER WIRING, GENERATOR OUTPUT TO A.T.S. (VIA 2 WAY MANUAL TRANSFER SWITCH WITH CAMLOCKS, WHERE GENERATOR IS LIFE SAFETY, NEC 700.3 F) ③ POWER WIRING, TO EMERGENCY DISTRIBUTION PANEL ④ POWER WIRING, 120V NORMAL CIRCUIT INPUT TO BATTERY CHARGER (2#12-1/2"C) ⑤ POWER WIRING, ENGINE JACKET WATER HEATER AND VENT DAMPERS (2#10,2#12-1/2"C) ⑥ POWER WIRING, BATTERY CHARGER OUTPUT CONNECTION TO BATTERY (2#10-1/2"C) ⑦ CONTROL WIRING, ENGINE START CIRCUIT (2#14-1/2"C) ⑧ SIGNAL WIRING TO REMOTE ANNUNCIATOR (2#10,17#14-3/4"C) ⑨ SIGNAL WIRING TO REMOTE ANNUNCIATOR (2#10,14#14-3/4"C)</p><p>BLW 23078 Generator Design</p></div> <div>④ EMERGENCY GENERATOR WIRING DIAGRAM</div> <div>N.T.S.</div>		





Seal:





BLW Engineers, Inc.  
311 Great Road, Post Office Box 1551  
Littleton, Massachusetts 01460  
T: 978.486.4301 F: 978.428.0067  
www.blwengineers.com  
HAC "Electrical" Plumbing "Fire Protection"

Client:

TOWN OF  
MANCHESTER-BY-THE-SEA  
10 CENTRAL ST  
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DEMOLITION PLAN

Drawing No.:

E-1.0





REINFORCED CONCRETE

1.

ALL CONCRETE WORK SHALL CONFORM TO ACI 318 AND 301 REQUIREMENTS. THIS SHALL INCLUDE PROPORTIONING OF CONCRETE MIX, CONCRETE TESTING, PLACEMENT OF CONCRETE, AND CURING PROCEDURES.

2.

ALL COLD WEATHER CONCRETING SHALL CONFORM TO THE REQUIREMENTS OF ACI 306. THE GC SHALL BE RESPONSIBLE FOR SUBMITTING A COLD WEATHER CONCRETING PROCEDURE FOR REVIEW PRIOR TO CONSTRUCTION.

3.

ALL HOT WEATHER CONCRETING SHALL CONFORM TO THE REQUIREMENTS OF ACI 305. THE GC SHALL BE RESPONSIBLE FOR SUBMITTING A HOT WEATHER CONCRETING PROCEDURE FOR REVIEW PRIOR TO CONSTRUCTION.

4.

ALL CONCRETE CURING SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN ACI 308.

5.

CONCRETE SHALL HAVE 28-DAY COMPRESSIVE STRENGTH, AIR ENTRAINMENT, W/C RATIO, AND MAX AGGREGATE SIZE PER THE TABLE BELOW.

6.

UNLESS NOTED OTHERWISE, PROVIDED MINIMUM REINFORCING COVER PER TABLE - THIS SHEET.

7.

ALL REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60 UNLESS REQUIRED TO BE WELDED AS SHOWN ON PLANS. ALL REINFORCING BARS REQUIRED TO BE WELDED SHALL CONFORM TO ASTM A706, GRADE 50.

8.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. SUPPORT WIRE FABRIC WITH CHAIRS OR LIFTS, DURING CONCRETE PLACEMENT TO ENSURE PROPER POSITION IN SLAB.

9.

ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS OR STIRRUPS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.

10.

ALL REINFORCING BARS SHALL BE LAPPED AS SPECIFICALLY DETAILED ON THE DRAWINGS. SPlicing & EMBEDMENTS SHALL BE IN ACCORDANCE W/ ACI 318 WHERE NOT SPECIFICALLY INDICATED ON THE DRAWINGS, ALL REINFORCING BARS SHALL BE LAPPED USING THE TENSION SPLICE LENGTHS IN THE LAP SPLICE SCHEDULE. REFER TO TYPICAL DETAIL SHEET.

11.

CONCRETE REINFORCING SHALL BE IN ACCORDANCE WITH ASTM A615 AND HAVE THE FOLLOWING MINIMUM YIELD STRENGTH:  
a. MAIN REINFORCING STEEL ..... 60 KSI  
b. TIES & STIRRUPS ..... 40 KSI

12.

PROVIDE CONSTRUCTION JOINTS IN ACCORDANCE WITH ACI-318, CHAPTER 6.4. SUBMIT SHOP DRAWINGS SHOWING CONSTRUCTION JOINT DETAILS, LOCATIONS AND THE SEQUENCE OF POURS FOR THE STRUCTURAL ENGINEER'S REVIEW PRIOR TO BEGINNING WORK.

13.

WALL CONSTRUCTION JOINTS SHALL BE LOCATED TO PROVIDE A 60 FOOT MAXIMUM LENGTH OF CONCRETE PLACEMENT.

14.

VERTICAL CONSTRUCTION JOINTS IN WALLS SHALL BE USED ONLY WITH PRIOR APPROVAL OF THE ENGINEER. SEE NOTE ABOVE, AND SHALL BE LOCATED AS FOLLOWS:  
FOUNDATION WALLS: MINIMUM 8'-0" FROM ANY COLUMN LINE OR WALL OPENING.

15.

THE CONTRACTOR SHALL PROVIDE REINFORCING STEEL ERECTOR WITH A SET OF APPROVED SHOP DRAWINGS FOR FIELD USE.

16.

ALL ADJOINING SURFACES NOT CAST MONOLITHICALLY SHALL BE ROUGHENED TO 1/4 INCH AMPLITUDE FOR THE ENTIRE INTERSECTING SURFACE ACCORDING TO ACI RECOMMENDATIONS AND APPLY A BONDING AGENT AS REQUIRED.

17.

CONTRACTOR SHALL COORDINATE LOCATION ON INSERTS, WELDED PLATES AND OTHER ITEMS TO BE EMBEDDED IN CONCRETE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

18.

PROVIDE CORNER BARS AT ALL WALL CORNERS & INTERSECTIONS MATCHING HORIZONTAL REINFORCEMENT. BARS SHALL BE LAPPED A MINIMUM OF 48 BAR DIAMETERS.

19.

SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR REVIEW.

20.

NO HORIZONTAL CONSTRUCTION JOINTS WILL BE PERMITTED IN BEAMS, WALLS AND SLABS UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS OR APPROVED IN WRITING PRIOR TO CONSTRUCTION BY THE ENGINEER.

21.

NO CONCRETE TEST WILL BE ACCEPTED IF CONCRETE IS TAMPED WITH IN ANY WAY AFTER SAID TEST IS PERFORMED. REPEAT TEST IF WATER IS ADDED AFTER INITIAL SAMPLING.

22.

ALL SLABS SHALL BE FLAT AND LEVEL PER THE CONCRETE SPECIFICATIONS. THE CONCRETE CONTRACTOR SHALL INCLUDE IN THEIR BID ANY EXCESS CONCRETE REQUIRED DUE TO SUPPORT MEMBER DEFLECTION TO POUR SLABS FLAT AND LEVEL. THE CONCRETE PLACING PROCEDURE SHALL BE CONTROLLED TO MINIMIZE SUPPORT MEMBER DEFLECTION.

23.

ALL CONCRETE WORK, REINFORCING, PLACEMENT, AND FORMWORK SHALL BE INSPECTED BY AN INDEPENDENT TESTING AGENCY RETAINED BY THE OWNER. REFER TO PROJECT SPECS FOR THE TESTING REQUIRED ITEMS.

24.

FOUNDATIONS SHALL BE PROTECTED FROM FROST THROUGHOUT PHASED CONSTRUCTION IN ACCORDANCE WITH ASCE 32-01 WITH A MINIMUM OF 1 INCH THICK LAYER INSULATION HAVING A NOMINAL RESISTIVITY OF 5 R/IN.

MINIMUM CONCRETE COVER FOR REINFORCING

CONCRETE EXPOSURE	MEMBER	REINFORCING BAR SIZE	SPECIFIED COVER, IN
CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND	ALL	ALL	3
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	ALL	No. 6 THROUGH No.18 BARS	2
		No. 5 BAR, W31 OR D31 WIRE, AND SMALLER	1-1/2

CONCRETE MIX DESIGN PROPERTIES

ITEM	CONCRETE	EXPOSURE CLASS	MAXIMUM w/CM	MINIMUM f <sub>c</sub> PSI	AIR CONTENT	MAX AGGREGATE SIZE
SLAB ON GRADE - EXTERIOR	NW	F3	0.40	5000	6% +/- 1.5%	3/4"
FOUNDATION WALLS	NW	F2	0.45	4500	6% +/- 1.5%	3/4"
FOOTINGS AND PIER	NW	F2	0.45	4500	6% +/- 1.5%	3/4"

GENERAL STRUCTURAL NOTES

1.

ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE AND ITS APPLICABLE REFERENCED STANDARDS.

2.

THE CONTRACTOR SHALL COORDINATE THE SIZE AND LOCATION OF ALL SLEEVES, OPENINGS AND ANCHORAGES (INCLUDING ANCHOR BOLTS) AS REQUIRED BY ALL TRADES. OPENINGS NOT SPECIFICALLY SHOWN SHALL BE APPROVED BY THE ARCHITECT AND STRUCTURAL ENGINEER.

3.

IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE FOR A SAFE AND EFFICIENT METHOD OF SHORING AND/OR BRACING THE STRUCTURE DURING CONSTRUCTION.

4.

ALL WORK SHALL BE CONTINUOUSLY MONITORED AND INSPECTED BY AN INDEPENDENT TESTING AGENCY REFER TO SPECIAL INSPECTION NOTES ON THIS SHEET. SUBMIT ALL TEST AND INSPECTION REPORTS TO A/E FOR REVIEW.

5.

STRUCTURAL MEMBERS SHALL NOT BE MODIFIED IN THE FIELD WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER. IN THE EVENT OF A CONSTRUCTION OR FABRICATION ERROR, THE CONTRACTOR SHALL PREPARE A SKETCH WITH A PROPOSED REPAIR, AND SUBMIT IT TO THE ARCHITECT AND ENGINEER OF RECORD. FOR APPROVAL PRIOR TO PERFORMING ANY CORRECTIVE WORK.

6.

SUBMIT SHOP DRAWINGS FOR APPROVAL - FOR ALL TRADES INDICATED HEREIN - PRIOR TO PROCEEDING WITH FABRICATION AND/OR CONSTRUCTION. CONTRACTOR SHALL ALLOW FOR A 2 WEEK REVIEW PERIOD BY THE DESIGN TEAM.

9.

JOB SAFETY AND CONSTRUCTION PROCEDURES ARE THE RESPONSIBILITY OF THE CONTRACTOR.

10.

ALL COSTS OF INVESTIGATION AND/OR REDESIGN, DUE TO CONTRACTOR MISLOCATION OF STRUCTURAL ELEMENTS OR OTHER LACK OF CONFORMANCE WITH THE PROJECT DOCUMENTS, SHALL BE AT THE CONTRACTOR'S EXPENSE.

11.

THESE DRAWINGS REPRESENT THE COMPLETED PROJECT WHICH HAS BEEN DESIGNED FOR THE WEIGHTS OF THE MATERIALS INDICATED ON THE DRAWINGS AND FOR THE SUPERIMPOSED LOADS INDICATED IN THE DESIGN DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGINGS, BRACING, SHEETING AND SHORING, ETC.

DESIGN DATA

1. GENERATOR WEIGHT:  
a. GENERAC SD080..... 3,360 LBS

NOTES:

1. STAIRS, PLATFORMS, HANDRAILS, AND GAURDRAILS ARE DELEGATED DESIGN ITEMS.
2. ALL EXTERIOR STEEL SHALL BE HOT-DIP GALVANIZED.
3. GUARDRAILS AND HANDRAILS SHALL BE DESIGNED TO OSHA STANDARDS.
4. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
5. ANCHORAGE OF THE GENERATOR TO THE SLAB SHALL BE PER MANUFACTURER'S INSTRUCTIONS.

1 FIRE HOUSE GENERATOR PLAN  
S1.0 1/2" = 1'-0"

2 FIRE HOUSE GENERATOR PAD SECTION  
S1.0 3/4" = 1'-0"

No.

DATE

DESCRIPTION

DESIGNER

REVIEWER

SEAL

JASON J. LEDOUX  
CIVIL  
No. 50868  
PROFESSIONAL ENGINEER

SEAL

SCALE:

HOR.:  
VERT.:  
DATUM:  
HOR.:  
VERT.:

AS NOTED

GRAPHIC SCALE

FUSS & O'NEILL

115 BROAD STREET  
6TH FLOOR  
BOSTON, MA 02110  
617.292.4675  
www.fando.com

THE TOWN OF MANCHESTER-BY-THE-SEA

FIRE HOUSE GENERATOR PAD DETAILS

ELEVATED GENERATOR PLATFORMS AT TOWN HALL AND FIRE DEPARTMENT

MANCHESTER-BY-THE-SEA MASSACHUSETTS

PROJ. No.: 20220485.A11  
DATE: NOVEMBER 2024

S1.0

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REINFORCED CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 AND 301 REQUIREMENTS. THIS SHALL INCLUDE PROPORTIONING OF CONCRETE MIX, CONCRETE TESTING, PLACEMENT OF CONCRETE, AND CURING PROCEDURES.
2. ALL COLD WEATHER CONCRETING SHALL CONFORM TO THE REQUIREMENTS OF ACI 306. THE GC SHALL BE RESPONSIBLE FOR SUBMITTING A COLD WEATHER CONCRETING PROCEDURE FOR REVIEW PRIOR TO CONSTRUCTION.
3. ALL HOT WEATHER CONCRETING SHALL CONFORM TO THE REQUIREMENTS OF ACI 305. THE GC SHALL BE RESPONSIBLE FOR SUBMITTING A HOT WEATHER CONCRETING PROCEDURE FOR REVIEW PRIOR TO CONSTRUCTION.
4. ALL CONCRETE CURING SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN ACI 308.
5. CONCRETE SHALL HAVE 28-DAY COMPRESSIVE STRENGTH, AIR ENTRAINMENT, W/CM RATIO, AND MAX AGGREGATE SIZE PER THE TABLE BELOW.
6. UNLESS NOTED OTHERWISE, PROVIDED MINIMUM REINFORCING COVER PER TABLE - THIS SHEET.
7. ALL REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60 UNLESS REQUIRED TO BE WELDED AS SHOWN ON PLANS. ALL REINFORCING BARS REQUIRED TO BE WELDED SHALL CONFORM TO ASTM A706, GRADE 50.
8. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. SUPPORT WIRE FABRIC WITH CHAIRS OR LIFTS, DURING CONCRETE PLACEMENT TO ENSURE PROPER POSITION IN SLAB.
9. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS OR STIRRUPS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.
10. ALL REINFORCING BARS SHALL BE LAPPED AS SPECIFICALLY DETAILED ON THE DRAWINGS. SPLICING & EMBEDMENTS SHALL BE IN ACCORDANCE W/ ACI 318 WHERE NOT SPECIFICALLY INDICATED ON THE DRAWINGS, ALL REINFORCING BARS SHALL BE LAPPED USING THE TENSION SPLICE LENGTHS IN THE LAP SPLICE SCHEDULE. REFER TO TYPICAL DETAIL SHEET.
11. CONCRETE REINFORCING SHALL BE IN ACCORDANCE WITH ASTM A615 AND HAVE THE FOLLOWING MINIMUM YIELD STRENGTH:  
a. MAIN REINFORCING STEEL ..... 60 KSI  
b. TIES & STIRRUPS ..... 40 KSI
12. PROVIDE CONSTRUCTION JOINTS IN ACCORDANCE WITH ACI-318, CHAPTER 6.4. SUBMIT SHOP DRAWINGS SHOWING CONSTRUCTION JOINT DETAILS, LOCATIONS AND THE SEQUENCE OF POURS FOR THE STRUCTURAL ENGINEER'S REVIEW PRIOR TO BEGINNING WORK.
13. WALL CONSTRUCTION JOINTS SHALL BE LOCATED TO PROVIDE A 60 FOOT MAXIMUM LENGTH OF CONCRETE PLACEMENT.
14. VERTICAL CONSTRUCTION JOINTS IN WALLS SHALL BE USED ONLY WITH PRIOR APPROVAL OF THE ENGINEER, SEE NOTE ABOVE, AND SHALL BE LOCATED AS FOLLOWS:  
FOUNDATION WALLS: MINIMUM 8'-0" FROM ANY COLUMN LINE OR WALL OPENING.
15. THE CONTRACTOR SHALL PROVIDE REINFORCING STEEL ERECTOR WITH A SET OF APPROVED SHOP DRAWINGS FOR FIELD USE.
16. ALL ADJOINING SURFACES NOT CAST MONOLITHICALLY SHALL BE ROUGHENED TO 1/4 INCH AMPLITUDE FOR THE ENTIRE INTERSECTING SURFACE ACCORDING TO ACI RECOMMENDATIONS AND APPLY A BONDING AGENT AS REQUIRED.
17. CONTRACTOR SHALL COORDINATE LOCATION ON INSERTS, WELDED PLATES AND OTHER ITEMS TO BE EMBEDDED IN CONCRETE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
18. PROVIDE CORNER BARS AT ALL WALL CORNERS & INTERSECTIONS MATCHING HORIZONTAL REINFORCEMENT. BARS SHALL BE LAPPED A MINIMUM OF 48 BAR DIAMETERS.
19. SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR REVIEW.
20. NO HORIZONTAL CONSTRUCTION JOINTS WILL BE PERMITTED IN BEAMS, WALLS AND SLABS UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS OR APPROVED IN WRITING PRIOR TO CONSTRUCTION BY THE ENGINEER.
21. NO CONCRETE TEST WILL BE ACCEPTED IF CONCRETE IS TAMPERED WITH IN ANY WAY AFTER SAID TEST IS PERFORMED. REPEAT TEST IF WATER IS ADDED AFTER INITIAL SAMPLING.
22. ALL SLABS SHALL BE FLAT AND LEVEL PER THE CONCRETE SPECIFICATIONS. THE CONCRETE CONTRACTOR SHALL INCLUDE IN THEIR BID ANY EXCESS CONCRETE REQUIRED DUE TO SUPPORT MEMBER DEFLECTION TO POUR SLABS FLAT AND LEVEL. THE CONCRETE PLACING PROCEDURE SHALL BE CONTROLLED TO MINIMIZE SUPPORT MEMBER DEFLECTION.
23. ALL CONCRETE WORK, REINFORCING, PLACEMENT, AND FORMWORK SHALL BE INSPECTED BY AN INDEPENDENT TESTING AGENCY RETAINED BY THE OWNER. REFER TO PROJECT SPECS FOR THE TESTING REQUIRED ITEMS.
24. FOUNDATIONS SHALL BE PROTECTED FROM FROST THROUGHOUT PHASED CONSTRUCTION IN ACCORDANCE WITH ASCE 32-01 WITH A MINIMUM OF 1 INCH THICK LAYER INSULATION HAVING A NOMINAL RESISTIVITY OF 5 R/IN.

MINIMUM CONCRETE COVER FOR REINFORCING

CONCRETE EXPOSURE	MEMBER	REINFORCING BAR SIZE	SPECIFIED COVER, IN
CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND	ALL	ALL	3
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	ALL	No. 6 THROUGH No.18 BARS No. 5 BAR, W31 OR D31 WIRE, AND SMALLER	2 1-1/2

CONCRETE MIX DESIGN PROPERTIES

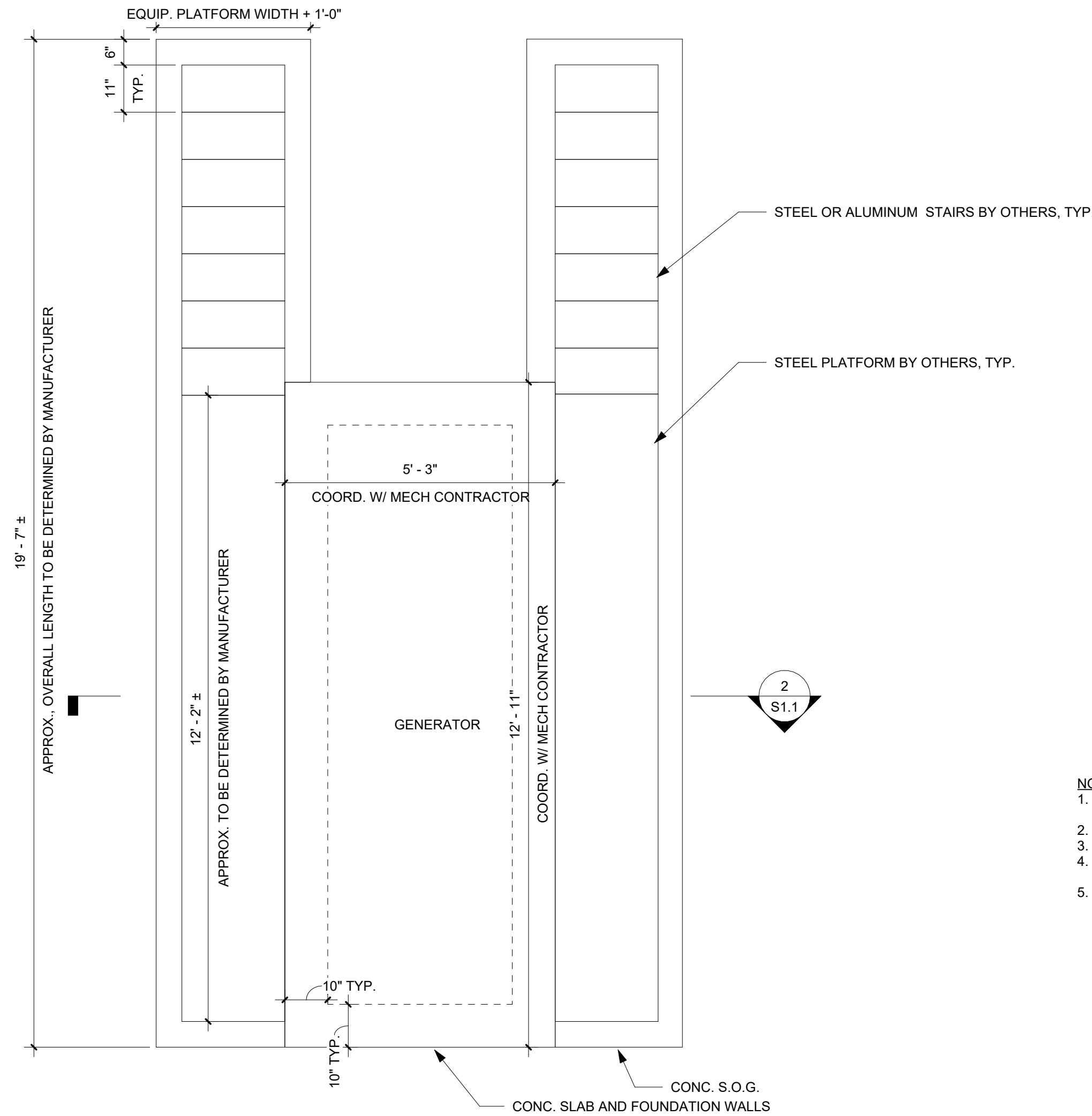
ITEM	CONCRETE	EXPOSURE CLASS	MAXIMUM w/cM	MINIMUM f <sub>c</sub> PSI	AIR CONTENT	MAX AGGREGATE SIZE
SLAB ON GRADE - EXTERIOR	NW	F3	0.40	5000	6% +/- 1.5%	3/4"
FOUNDATION WALLS	NW	F2	0.45	4500	6% +/- 1.5%	3/4"
FOOTINGS AND PIER	NW	F2	0.45	4500	6% +/- 1.5%	3/4"

GENERAL STRUCTURAL NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE AND ITS APPLICABLE REFERENCED STANDARDS.
2. THE CONTRACTOR SHALL COORDINATE THE SIZE AND LOCATION OF ALL SLEEVES, OPENINGS AND ANCHORAGES (INCLUDING ANCHOR BOLTS) AS REQUIRED BY ALL TRADES. OPENINGS NOT SPECIFICALLY SHOWN SHALL BE APPROVED BY THE ARCHITECT AND STRUCTURAL ENGINEER.
3. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE FOR A SAFE AND EFFICIENT METHOD OF SHORING AND/OR BRACING THE STRUCTURE DURING CONSTRUCTION.
4. ALL WORK SHALL BE CONTINUOUSLY MONITORED AND INSPECTED BY AN INDEPENDENT TESTING AGENCY REFER TO SPECIAL INSPECTION NOTES ON THIS SHEET. SUBMIT ALL TEST AND INSPECTION REPORTS TO A/E FOR REVIEW.
5. STRUCTURAL MEMBERS SHALL NOT BE MODIFIED IN THE FIELD WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER. IN THE EVENT OF A CONSTRUCTION OR FABRICATION ERROR, THE CONTRACTOR SHALL PREPARE A SKETCH WITH A PROPOSED REPAIR, AND SUBMIT IT TO THE ARCHITECT AND ENGINEER OF RECORD. FOR APPROVAL PRIOR TO PERFORMING ANY CORRECTIVE WORK.
6. SUBMIT SHOP DRAWINGS FOR APPROVAL - FOR ALL TRADES INDICATED HEREIN - PRIOR TO PROCEEDING WITH FABRICATION AND/OR CONSTRUCTION. CONTRACTOR SHALL ALLOW FOR A 2 WEEK REVIEW PERIOD BY THE DESIGN TEAM.
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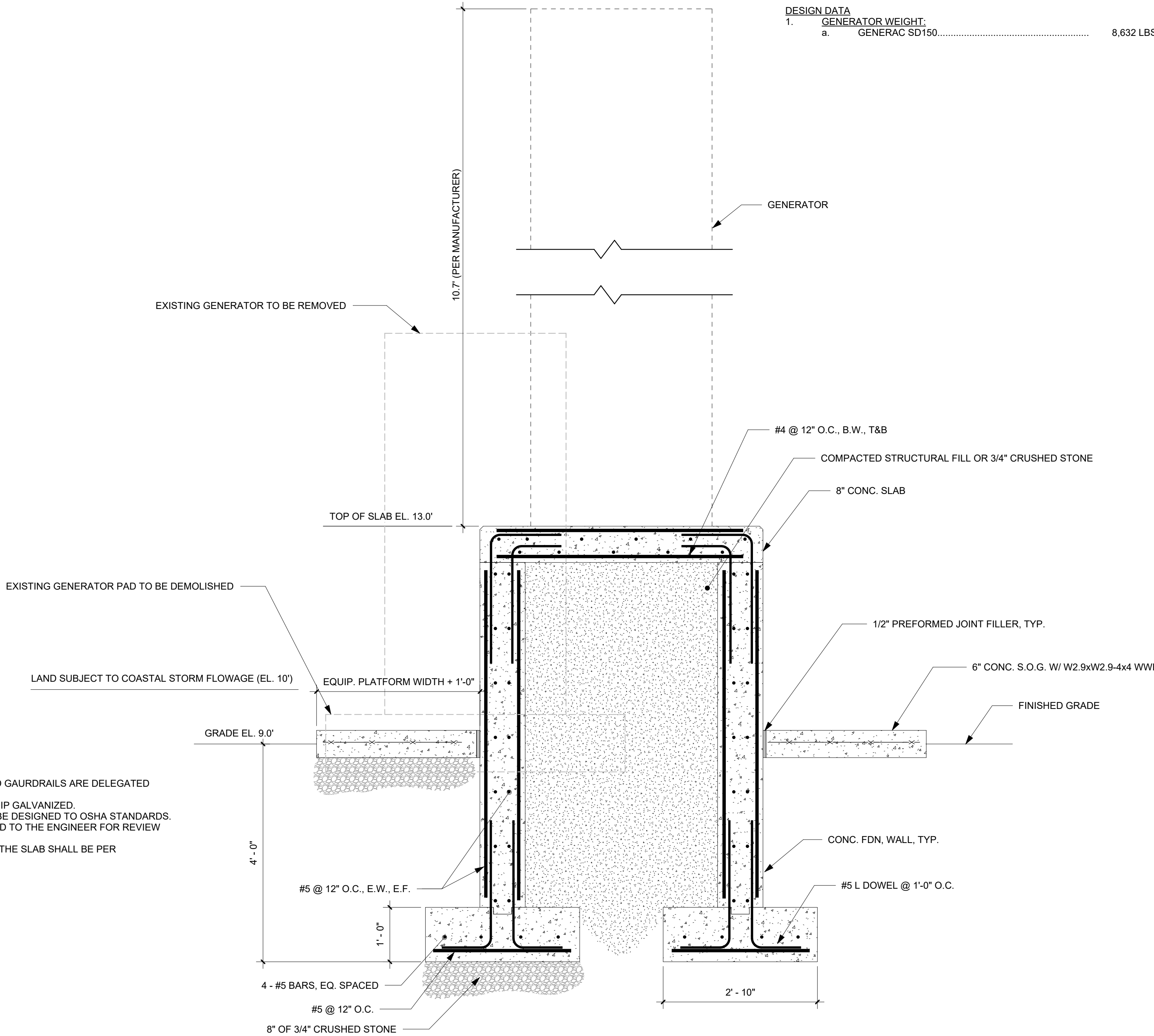
DESIGN DATA

1. GENERATOR WEIGHT:  
a. GENERAC SD150..... 8,632 LBS



NOTES:

1. STAIRS, PLATFORMS, HANDRAILS, AND GAURDRAILS ARE DELEGATED DESIGN ITEMS.
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1 TOWN HALL GENERATOR PLAN

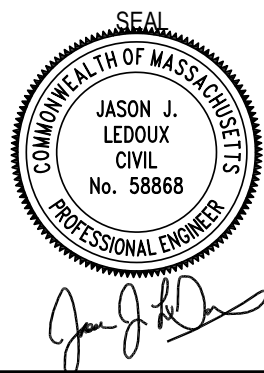
S1.1 1/2" = 1'-0"

2 TOWN HALL GENERATOR PAD SECTION

S1.1 3/4" = 1'-0"

ADD ALT. 1

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER



SEAL

SCALE:

HORZ.:  
VERT.:  
DATUM:  
HORZ.:  
VERT.:

GRAPHIC SCALE

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TOWN HALL GENERATOR PAD DETAILS

ELEVATED GENERATOR PLATFORMS AT TOWN HALL AND FIRE

DEPARTMENT

MANCHESTER-BY-THE-SEA

MASSACHUSETTS

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S1.1