

C. A. CROWLEY ENGINEERING, INC.  
645 County Street  
Taunton, MA 02780

**TO ALL BIDDERS:**

DATE: February 21, 2024

PROJECT NAME: Lowell Housing Authority  
North Common Village  
Boiler Replacement  
LHA IFB #2024-2

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**Addendum No. 1**

This addendum shall become a part of the Contract Documents and as such all bidders should acknowledge it on the Form for General Bid. Failure to do so may result in the rejection of your bid.

**CHANGES TO SPECIFICATIONS**

**ADD NEW** Section 012300 – ALTERNATES in its entirety. (attached)

011100 – SUMMARY OF WORK

Section 1.02(B)(5)

**REVISE** to read as follows:

5. Filters and strainers

Section 1.02(B)(8)

**DELETE** in its entirety.

Section 1.02(B)

**ADD** paragraph 11 to read as follows:

11. Furnish and install a new gas fired domestic water heater and associated piping and controls.

Section 1.04(A)

**REVISE** to read as follows:

- A. The work shall be commenced at the time stipulated in the Notice to Proceed to the contractor and shall be fully completed within 66 consecutive calendar days thereafter.

015000 – TEMPORARY FACILITIES

Section 1.22

**DELETE** in its entirety.

220000 - PLUMBING

Section 1.02(B)(2)

**REVISE** to read as follows:

2. New gas-fired hot water boilers, water heater, and accessories.

Section 1.02(B)(6)

**REVISE** to read as follows:

6. Automatic temperature controls.

Section 1.02(B)(10)

**DELETE** in its entirety.

Section 1.02(B)(12)

**REVISE** to read as follows:

12. Phasing of the work.

Section 1.03(A)(2)

**REVISE** to read as follows:

2. Electrical power wiring.

Section 2.14(A)(1)

**REVISE** to read as follows:

1. Existing control equipment may be reused. Furnish and install, as hereinafter specified, additional electronic temperature control components not provided by the boiler manufacturer as manufactured by Tekmar, Johnson Controls, Inc. or Honeywell.

Section 2.14(G)(1)

**REVISE** to read as follows:

1. The boilers, water heater, and pumps shall be connected to the existing control system, and shall operate in the following manner:

Sequence of Operation:

A drop in tank temperature will call for either the boiler or water heater to fire.

When the water heater is called, the water heater pump is energized and the water heater fires.

When a boiler is called, the boiler's control energizes the HEX pump(s). Once flow is proven, the boiler will fire.

If the first appliance can't keep up with demand, the next appliance will be called.

Appliances are to be rotated for equal run time.

#### Section 2.14(G)(2)

**REVISE** to read as follows:

2. Boilers and water heater shall operate in a lead/lag and alternating fashion to equalize run time.

#### Section 2.15

**DELETE** in its entirety.

#### Section 2.16

**REVISE** to read as follows:

- A. Domestic water filtration system for the supply side of the heat exchangers shall be equal to Shelco model 3BFS-2SB-4-316-B multi-bag filter housing with model BEMU-1000-2-SS (1,000 micron) replaceable polyester bag filters. The housing shall be constructed from 316L stainless steel, 150 psi rated, swing-bolt closure, stainless steel bag seal rings, pressure gauges on inlet/outlet, side-in/side-out 4 in. NPT connections, and a minimum flow rate of 450gpm. Provide 18 spare bag filters.
- B. Domestic water filtration system for the hot water recirculation shall be equal to Shelco model BFS-2C-2-316-2-B single-bag filter housing with model BEG-10-2-SS (10 micron) replaceable polyester bag filters. The housing shall be constructed from 316L stainless steel, 150 psi rated, V-clamp closure, , pressure gauges on inlet/outlet, side-in/side-out 2 in. NPT connections, and a minimum flow rate of 90gpm. Provide 10 spare bag filters.

### **CHANGES TO DRAWINGS**

**REPLACE** drawings P-2 and P-3 with revised drawings dated 02-20-24. (attached)

### **RESPONSES TO BIDDER RFIs**

- Q1. Please provide a set of electrical drawings and specifications to show the electrical scope of work required.
  - A1. A separate drawing is not necessary. Scope and specifications are on drawing P-3.

Q2. In reference to New Work Notes L & M on Drawing P-2, please provide equipment tags for these pieces of equipment and include them in the equipment schedule. Although these pieces of equipment are in the specifications this would better define each piece of equipment. Also please include the pipe sizes associated with this equipment.

A2. Equipment has been scheduled on drawing P-3.

Q3. In reference to New Work Note G on Drawing P-2, Please confirm this pipe size to be 8" as 9" does not exist.

A3. Gas vent size to be 10".

Q4. Please provide the manufacturer, model number and size of the heat exchangers that are to be refurbished.

A4. Alfa Laval, model AQ2T-BFG, 222mm w/0.4mm plates.

Q5. To avoid the added expense associated with renting, connecting and disconnecting a temporary boiler to the existing DHW system, has it been determined if we are able to demo and install the new boilers in (3) phases? It seems it would be a very practical approach for this project.

A5. It is assumed that the work would be done in phases. Temporary domestic hot water will be provided by the Owner in such capacity that one boiler/heat exchanger may be taken off line at a time. Should additional capacity be required due to the contractor's phasing plan, same shall be provided by the contractor at no additional cost to the owner. Capacity shall be equal to that of the equipment taken offline.

Q6. Please confirm there are no chlorination requirements of the existing DHW system and we are responsible to clean and flush newly installed piping only.

A6. Only new work is to be chlorinated.

Q7. During the site visit it was mentioned that there are no ATC requirements. Please confirm how the new boilers are controlled and who is responsible for this work.

A7. ATC work is required. Equipment is to be controlled by the boiler/water heater controls and the existing Tekmar 132 and 268 controllers.

Sequence of Operation:

A drop in tank temp will call for either the boiler or water heater to fire.

When the water heater is called, the water heater pump is energized and the water heater fires.

When a boiler is called, the boiler's control energizes the HEX pump(s). Once flow is proven, the boiler will fire.

If the first appliance can't keep up with demand, the next appliance will be called.

Appliances are to be rotated for equal run time.

The general contractor is responsible for this work. The plumbing contractor is the general contractor for this project. (220000-1.02(A)).

Q8. The last pad of the specifications, paragraph 3.04M has a note "Temporary Hot Water and Phasing". Please clarify the intent of temporary hot water and phasing and also if it is the responsibility of the general contractor?

A8. Paragraph 2.04(M) is an error. It is assumed that the work would be done in phases. Temporary domestic hot water will be provided by the Owner in such capacity that one boiler/heat exchanger may be taken off line at a time. Should additional capacity be required due to the contractor's phasing plan, same shall be provided by the contractor at no additional cost to the owner. Capacity shall be equal to that of the equipment taken offline.

Q9. Assuming the answer to question #1 is the contractor, is it required to provide temporary hot water, please answer the following:

- a. What size domestic hot water boiler is required. Each of the three hot water boilers are rated @ 2500MBH each.
- b. Where can oil or gas and electric service be taken from for supply to the temporary hot water heater.
- c. Please clarify where the supply and return connections are to be made from the temporary boiler to the existing domestic hot water system.

A9a. It is assumed that the work would be done in phases. Temporary domestic hot water will be provided by the Owner in such capacity that one boiler/heat exchanger may be taken off line at a time. Should additional capacity be required due to the contractor's phasing plan, same shall be provided by the contractor at no additional cost to the owner. Capacity shall be equal to that of the equipment taken offline.

A9b. Gas may be connected to the existing gas main in the boiler room. Electricity may be taken from the existing panel in the boiler room. Existing electric service does not have the capacity for a temporary electric water heater. Oil would have to be provided with the temporary water heater.

A9c. Supply and return connections should be taken from the cold water piping feeding the tanks and the return piping from the heat exchangers, respectively.

Q10. At the pre-bid site visit, there were discussion about possibly not providing a temporary water heater and replacing one boiler at a time such that at least two boilers (old and new) provide domestic hot water. There were also discussions that Lowell Housing cautioned all three boilers are required to maintain domestic hot water load. Please clarify if a temporary hot water boiler is required or the contractor can replace one boiler at a time.

- A10. It is assumed that the work would be done in phases. Temporary domestic hot water will be provided by the Owner in such capacity that one boiler/heat exchanger may be taken off line at a time. Should additional capacity be required due to the contractor's phasing plan, same shall be provided by the contractor at no additional cost to the owner. Capacity shall be equal to that of the equipment taken offline
- Q11. Depending on the answer to question #3 above, if one boiler can be replaced at a time, should the new boilers be situated in the same locations as the existing or shall they be located in front of the existing boilers and set on a new concrete pad?
- A11. New boilers are to be located in the same locations as the existing.
- Q12. Please clarify if the chlorination process is only for the new boilers and piping installed and not for any existing piping.
- A12. Only new work is to be chlorinated.
- Q13. The pump schedule on drawing P-3 does not list any GPM or FT head requirements for pumps, please provide.
- A13. Pump requirements are 145 gpm at 25' head.
- Q14. Plumbing section paragraph 2.15 has a small paragraph regarding the new domestic water treatment system but does not have any design parameters necessary to obtain pricing. Please provide additional information for pricing.
- A14. Paragraph 2.15 is to be deleted. Water treatment is not necessary.
- Q15. The specifications indicate 180 days performance time, however, Lowell Housing discussed a different completion date in May due to a funding grant. Please indicate a timeline for bids, award, submittals, equipment procurement and expected installation time of all three boilers.
- A15. Bids due 2/29/24. Board meeting on 3/6/24 to award contract. Anticipated contract award date would be 3/7/24. Anticipated NTP would be 3/18/24. Substantial completion date will be 5/30/24. Time of completion will be 66 days.
- Q16. What is the gas pressure to the existing boilers low or high pressure gas?
- A16. Low pressure (7" w.c.).
- Q17. Can the piping between the boiler and heat exchanger be copper pipe and sweat fitting?
- A17. Yes.
- Q18. Can copper pro press fittings be used between the boiler and heat exchangers?
- A18. No.
- Q19. Can schedule 40 PVC pipe & fittings be used for the combustion air piping for the boilers? It states in the boiler install manual that it is acceptable.

- A19. No.
- Q20. When will the actual work begin on the project?
- A20. On site work is expected to commence in early April.
- Q21. Are there any specifications for a BAS system controls or operations?
- A21. No. BAS not required.
- Q22. Is there a specific contractor that is required to use for BAS controls, integration, and programming if applicable?
- A22. No. BAS not required.
- Q23. What is the minimum gas pressure supplied to the gas lines inside the building?
- A23. 7" w.c.
- Q24. Can ventless gas trains be utilized in lieu of venting
- A24. Yes, provided they meet the requirements of 248 CMR 7.00.
- Q25. Can Pro-Press fittings be used on the water lines?
- A25. No.
- Q26. Will the water filter be replaced?
- A26. No. There is no existing water filter.
- Q27. Will any work be performed on the existing Mixing Valves such as Rebuild or Replacement?
- A27. No.
- Q28. Will boilers be allowed to be replaced in stages, while allowing existing ones to operate while others are being replaced or is an outside temporary boiler required to supply hot water to the buildings?
- A28. It is assumed that the work would be done in phases. Temporary domestic hot water will be provided by the Owner in such capacity that one boiler/heat exchanger may be taken off line at a time. Should additional capacity be required due to the contractor's phasing plan, same shall be provided by the contractor at no additional cost to the owner. Capacity shall be equal to that of the equipment taken offline
- Q29. Will the Water Softener, Filter, Treatment, and control package be replaced? If so is there a specification that bidding will adhere to?
- A29. There is no existing treatment system. Water treatment is not required.

Q30. In place of the polypropylene (centrotherm) flue material will Ipex 636 be acceptable for the flue material? This is approved by the state plumbing board. Where it is a more rigid product may be a better application for the span of the flue run.

A30. No. Does not meet appliance manufacturer's installation instructions.

**END of Addendum No. 1**



**SECTION 01.23.00  
ALTERNATES**

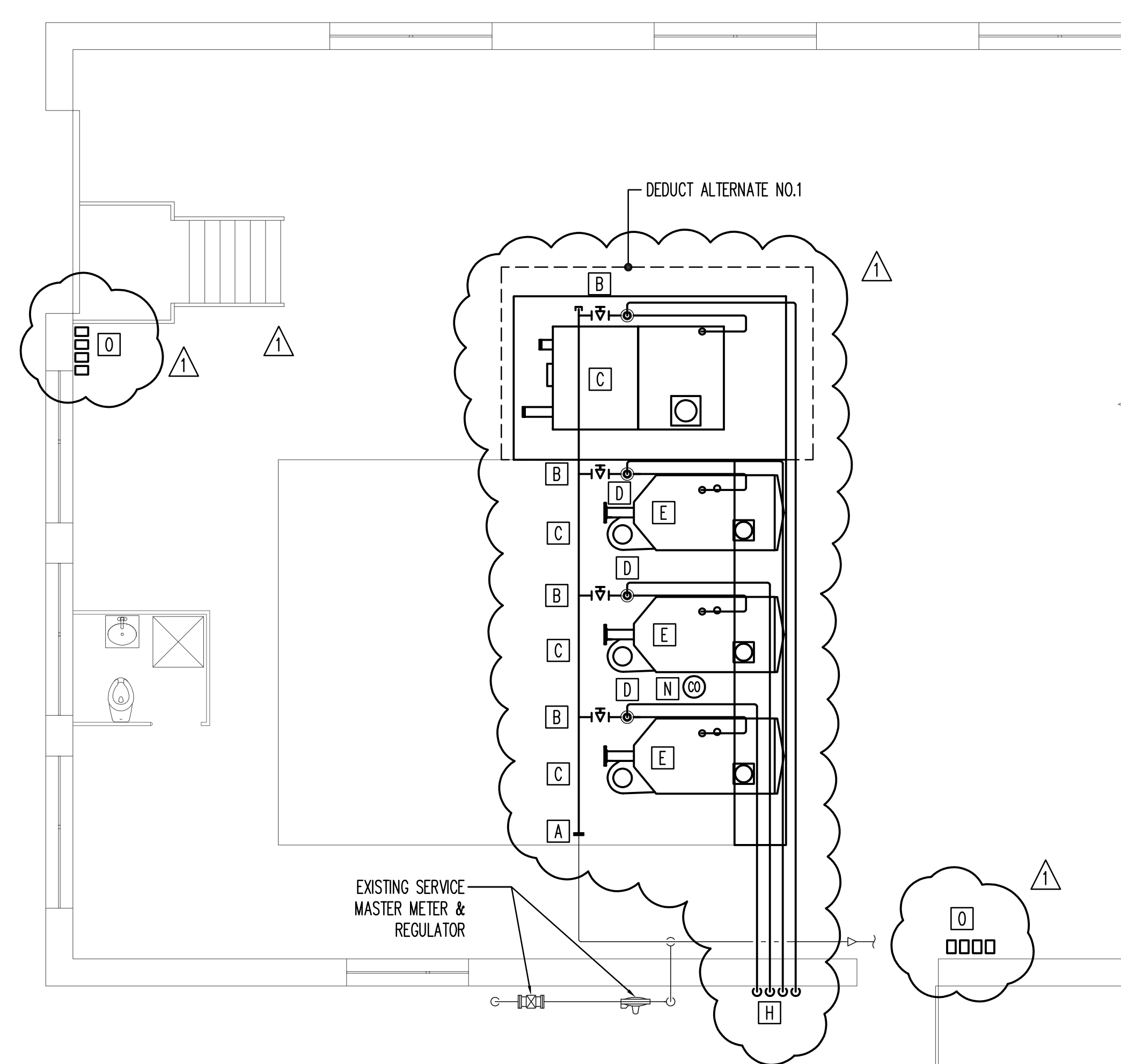
**1.01 SCOPE OF THE WORK**

- A.** This Section lists the Alternates which appear in the Contract Documents. Consult the individual sections of the detailed requirements of each Alternate.
- B.** Bid prices for each Alternate shall include overhead, profit, and all other expenses incidental to the Work under each Alternate.
- C.** The Contractor and Subcontractors shall be responsible for examining the scope of each Alternate generally defined herein and for recognizing modifications to the Work caused by the Alternates and including the cost thereof in the bid price.
- D.** The Contractor's alternate amount shall include the net change in cost to perform all of the work described in the Alternate.

**1.02 DEDUCT ALTERNATE NO. 1**

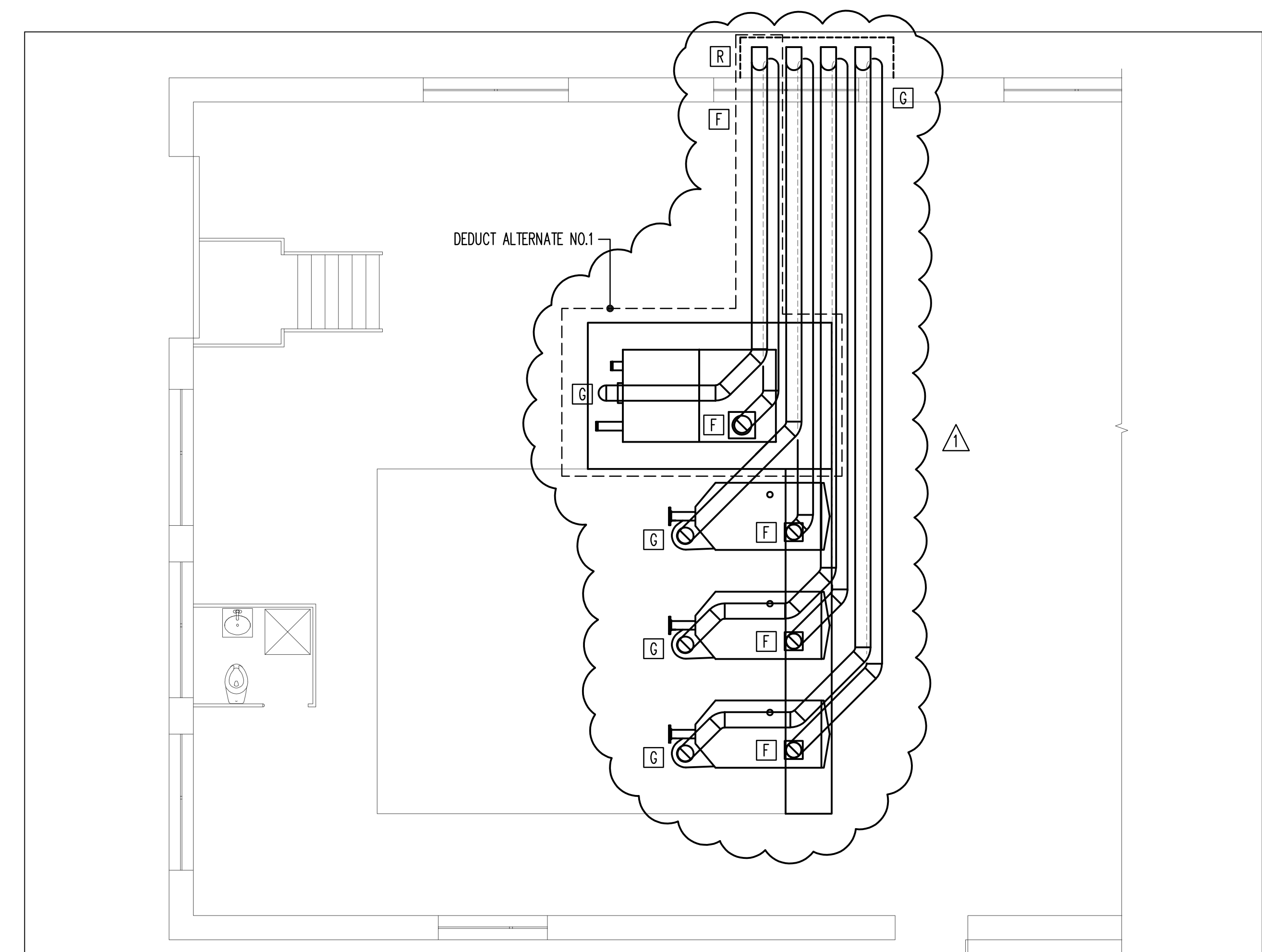
- A.** Delete the work associated with the new gas fired water heater.

**END OF ALTERNATES  
01.23.00**



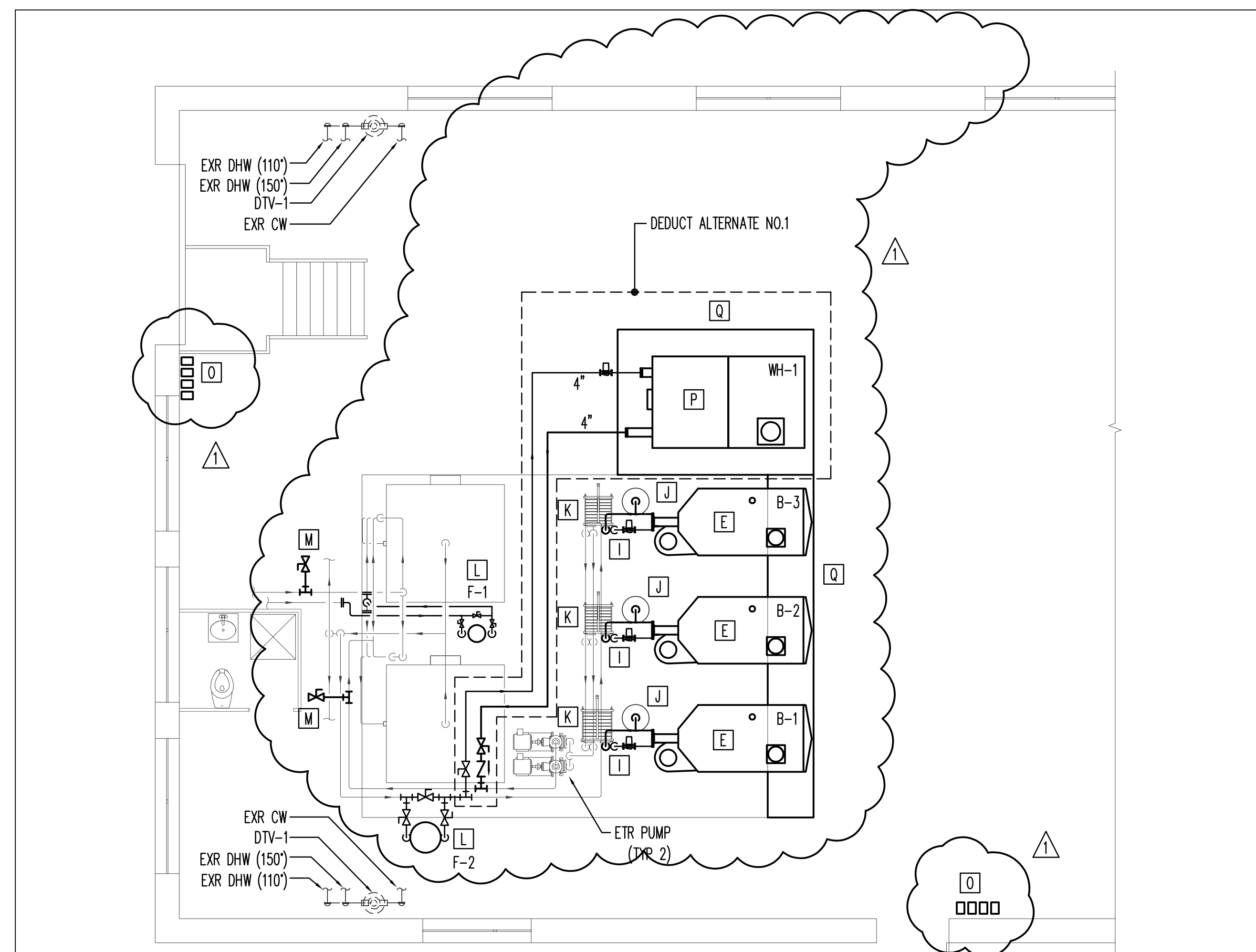
**BOILER ROOM - GAS PIPING NEW WORK PLAN**

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



**BOILER ROOM - COMBUSTION AIR AND GAS VENT NEW WORK PLAN**

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



**BOILER ROOM - DOMESTIC WATER PIPING NEW WORK PLAN**

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

**NEW WORK NOTES**

- A** CONNECT NEW 6" FULL SIZE MANIFOLD TO EXISTING MAIN IN THIS AREA.
- B** FURNISH AND INSTALL NEW 3" GAS CONNECTION WITH LOCKUP REGULATOR AND ISOLATION VALVE.
- C** NEW FULL SIZE 6" MANIFOLD.
- D** FURNISH AND INSTALL NEW PRESSURE REGULATOR WITH VENT TO EXTERIOR.
- E** FURNISH AND INSTALL NEW HIGH EFFICIENCY GAS FIRED HOT WATER BOILER EQUAL TO LOCHINVAR CREST MODEL FBN2501. PROVIDE PVC CONDENSATE DRAIN, CONDENSATE NEUTRALIZER, AND PIPE TO NEAREST FLOOR DRAIN.
- F** 8" BOILER & 10" WATER HEATER CPVC COMBUSTION AIR INTAKES. PENETRATE EXTERIOR WALL AND TERMINATE WITH A DOWNTURNED ELBOW WITH BIRDSCREEN. INFILL EXISTING OPENING, SLEEVE, AND SEAL EXTERIOR WALL PENETRATION.
- G** 10" POLYPROPYLENE GAS VENT. PENETRATE EXTERIOR WALL AND RISE A MINIMUM OF 3 FEET ABOVE THE COMBUSTION AIR INTAKE. TERMINATE WITH AN OUT-TURNED ELBOW WITH BIRD SCREEN. INFILL EXISTING OPENING, SLEEVE, AND SEAL EXTERIOR WALL PENETRATION.
- H** NEW 1" PRESSURE REGULATOR VENT DISCHARGE. SLEEVE AND SEAL EXTERIOR WALL PENETRATION.
- I** FURNISH AND INSTALL NEW PUMP, VALVES, AND NEW 3" HOT WATER BOILER SUPPLY AND RETURN PIPING TO EXISTING DOMESTIC HOT WATER HEAT EXCHANGER.
- J** REINSTALL EXISTING EXPANSION TANK.
- K** DISMANTLE EXISTING HEAT EXCHANGER. CLEAN AND REINSTALL ALL PLATES WITH NEW GASKETS.
- L** FURNISH AND INSTALL A NEW STAINLESS STEEL FILTER WITH PIPING, ISOLATION VALVES, BYPASS, BLOWDOWN DRAIN, DRAIN PIPING, AND PRESSURE GAUGES.
- M** PROVIDE 3" VALVED STUBS FOR CONNECTION OF TEMPORARY DOMESTIC WATER HEATER SUPPLY AND RETURN CONNECTIONS.
- N** FURNISH AND INSTALL A NEW HARD-WIRED CARBON MONOXIDE DETECTOR.
- O** FURNISH AND INSTALL NEW EMERGENCY SHUT OFF SWITCHES. ONE SWITCH MAY BE INSTALLED PROVIDED ALL BOILERS AND WATER HEATERS ARE SHUT DOWN.
- P** FURNISH AND INSTALL NEW HIGH EFFICIENCY GAS FIRED WATER HEATER EQUAL TO LOCHINVAR ARMOR MODEL AWN3000. PROVIDE PVC CONDENSATE DRAIN, CONDENSATE NEUTRALIZER, AND PIPE TO NEAREST FLOOR DRAIN.
- Q** PROVIDE NEW CONCRETE HOUSEKEEPING PADS FOR INSTALLATION OF NEW EQUIPMENT.
- R** SAWCUT AND REMOVE ASPHALT FROM BELOW EXHAUST VENTS. REMOVE EARTH AND PROVIDE 6" OF COMPACTED CRUSHED STONE.

<b>BID SET</b>	
<b>REVISION DATES</b> ADD #1 - 02-20-24	<b>LOWELL HOUSING AUTHORITY</b> <b>NORTH COMMON VILLAGE</b> <b>BOILER REPLACEMENT PROJECT</b>
<b>PLUMBING</b> <b>NEW WORK PLANS</b>	<b>STAMP</b>
DATE: 01/31/2024 SCALE: AS SHOWN DRAWN BY: RLA CHECKED BY: RCV PROJECT NO. 23072.00	<b>c.a. crowley.</b> <b>ENGINEERING, INC.</b> 645 County Street, Suite 6 Taunton, MA 02780 tel. (508) 884.5094    www.CROWLEYENG.COM    fax. (508) 884.5099
	<b>DRAWING NUMBER</b> <b>P-2</b>

BOILER SCHEDULE												
ITEM NO.	MODEL	INPUT MBH	OUTPUT MBH	TURNDOWN RATIO	VENT/AIR INTAKE CONNECTIONS	WATER VOLUME	AFUE	V	PH	HZ	FLA	SHIPPING WEIGHT
B-1	FBN2501	2500	2400	20:1	9 INCH / 8 INCH	-	96.1	208	3	60	-	2,577
B-2	FBN2501	2500	2400	20:1	9 INCH / 8 INCH	-	96.1	208	3	60	-	2,577
B-3	FBN2501	2500	2400	20:1	9 INCH / 8 INCH	-	96.1	208	3	60	-	2,577

BASED ON LOCHINVAR

PUMP SCHEDULE											
ITEM NO.	MODEL NO.	TYPE	SERVING	GPM	FT. HD.	RPM	HP	V	PH	HZ	REMARKS
P-1	ECOCIRC XL 40-275	IN-LINE	BOILER CIRC.	145	25	VARIABLE	2	208	1	-	①②
P-2	ECOCIRC XL 40-275	IN-LINE	BOILER CIRC.	145	25	VARIABLE	2	208	1	-	①②
P-3	ECOCIRC XL 40-275	IN-LINE	BOILER CIRC.	145	25	VARIABLE	2	208	1	-	①②

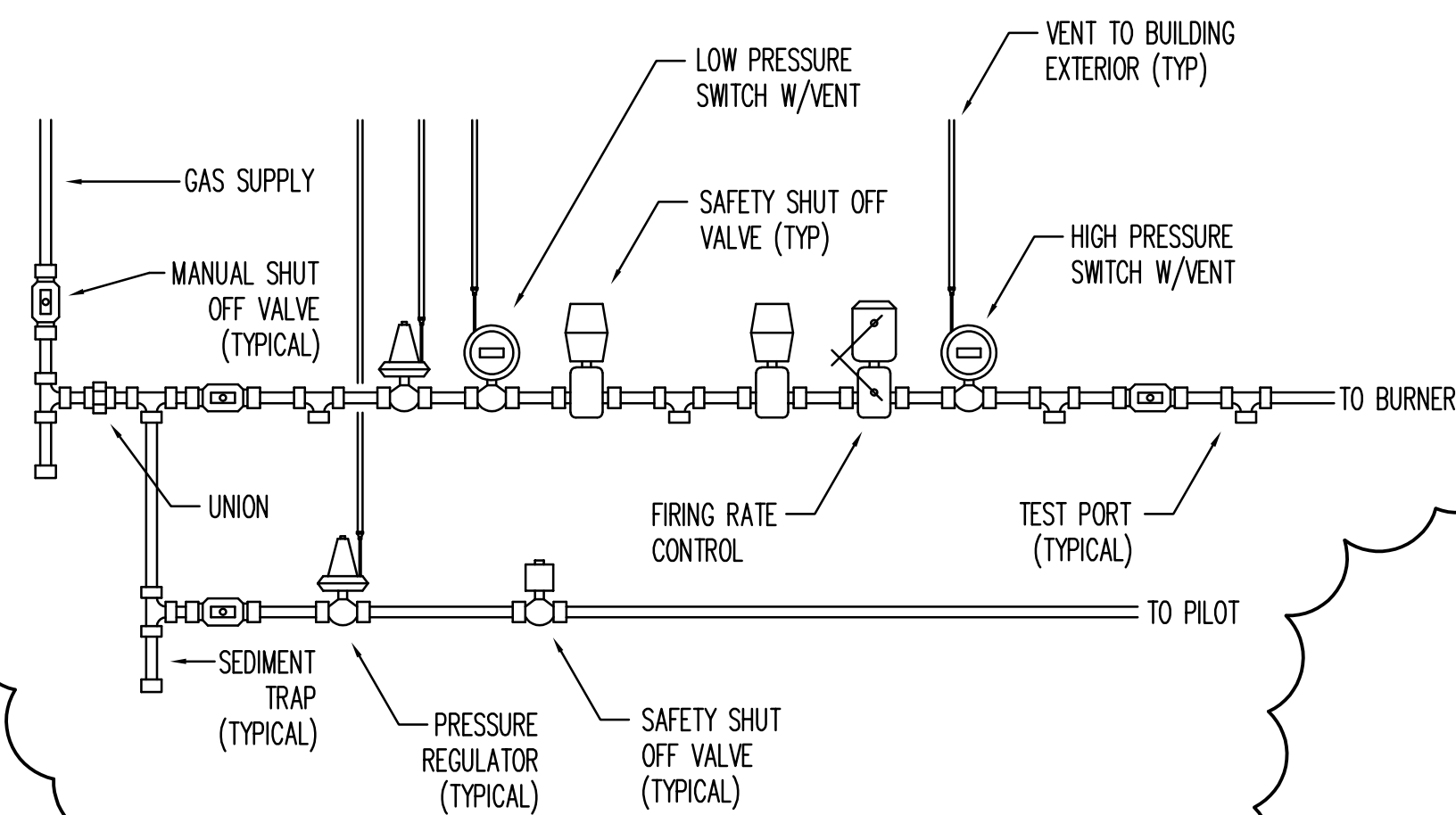
BASED ON BELL & GOSSETT  
 ① FURNISHED WITH INTEGRAL ECM MOTOR.  
 ② CONTROLLED BY THE BOILER CONTROL PANEL.

WATER HEATER SCHEDULE												
ITEM NO.	MODEL	INPUT MBH	OUTPUT MBH	TURNDOWN RATIO	VENT/AIR INTAKE CONNECTIONS	WATER VOLUME	AFUE	V	PH	HZ	FLA	SHIPPING WEIGHT
WH-1	AWN3000	3000	2940	5:1	10 INCH / 10 INCH	-	98	208	3	60	-	3,147

BASED ON LOCHINVAR

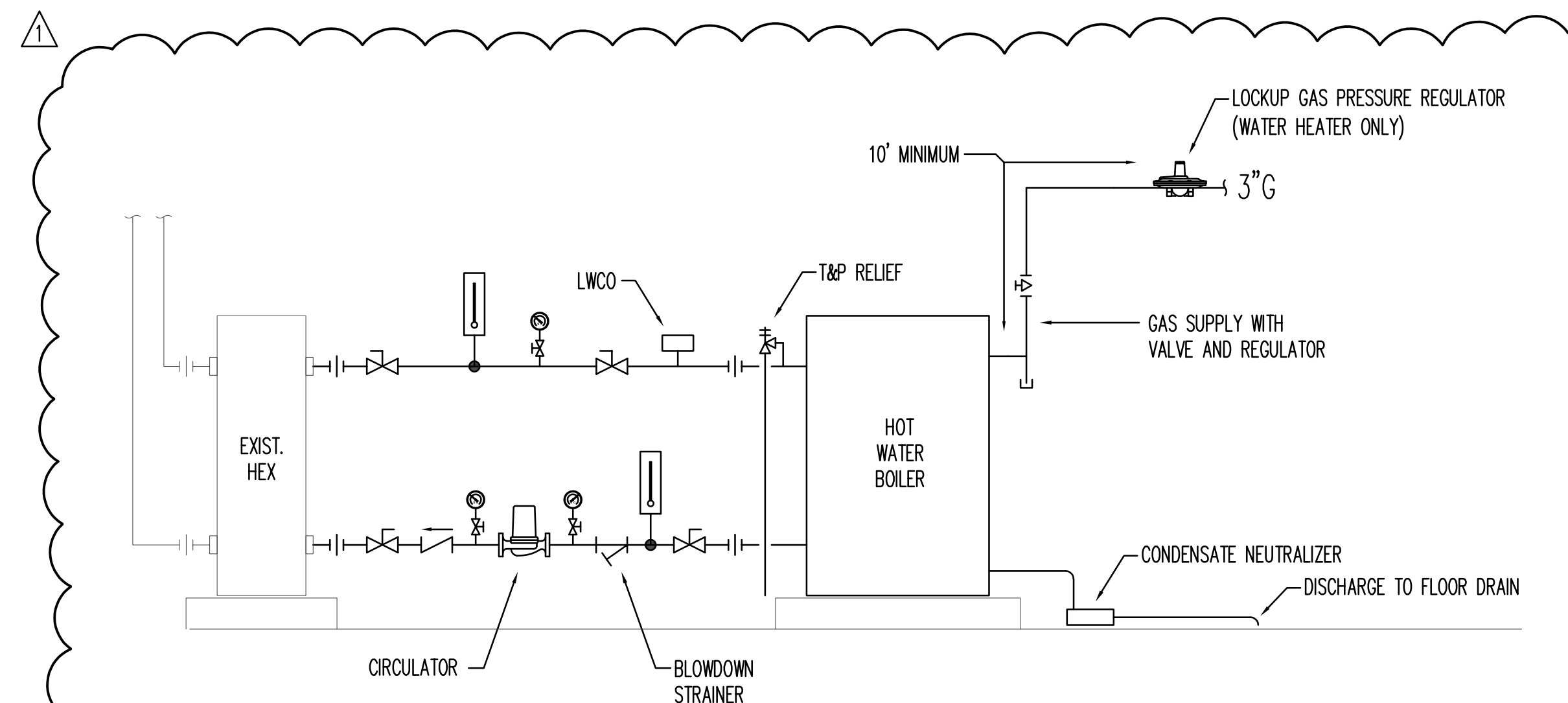
WATER FILTER SCHEDULE						
ITEM NO.	MODEL	FLOW RATE	FILTER SIZE	FILTER BAG	INLET/OUTLET CONNECTIONS	PIPE SIZE
F-1	BFS-2C-2-316-2-B	90	10 MICRON	BEG-10-2-SS	SIDE/SIDE	2"
F-2	3BFS-2SB-4-316-B	435	1000 MICRON	BEMU-1000-2-SS	SIDE/SIDE	4"

BASED ON SHELCO



### GAS TRAIN DETAIL

2,500,000 TO LESS THAN 5,000,000 BTUH  
 ALL ITEMS TO BE FURNISHED AND INSTALLED BY PC  
 TYPICAL FOR EACH BOILER

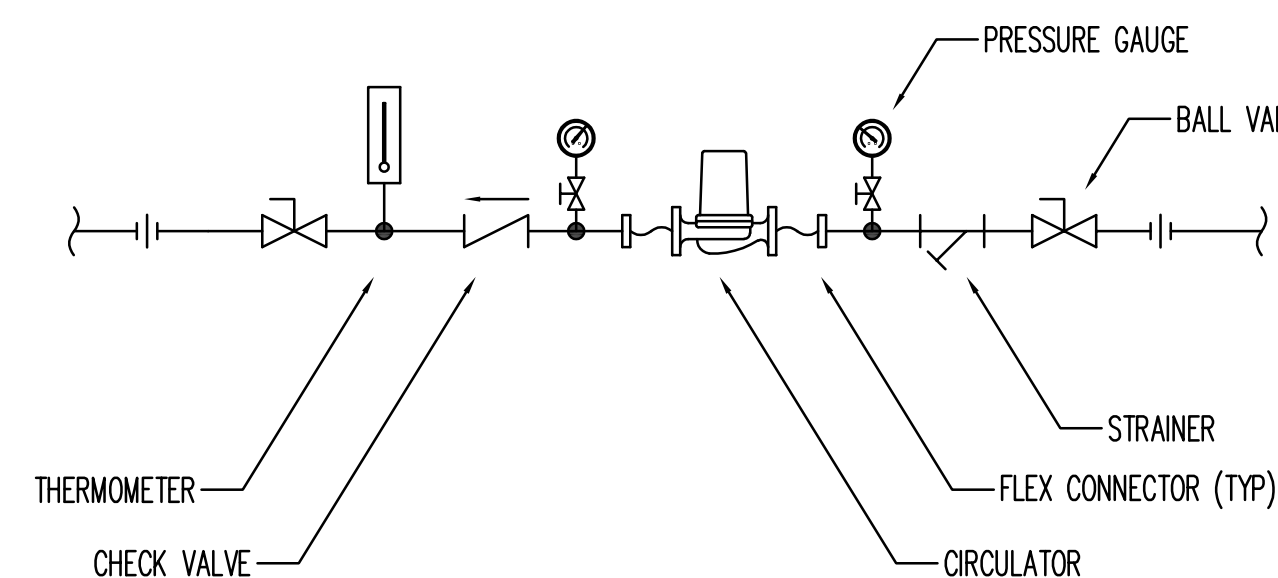


### BOILER PIPING DIAGRAM

NO SCALE, TYPICAL FOR 3  
 WATER HEATER PIPING IN SIMILAR

PIPING IS DIAGRAMMATIC, NOT ALL ACCESSORIES MAY BE SHOWN  
 REFER TO DETAILS AND MANUFACTURER'S INSTALLATION DIAGRAMS FOR ADDITIONAL INFORMATION AND REQUIREMENTS

- INSTALLATION NOTES:**
1. PROVIDE AND INSTALL AN EXTERNAL LOW WATER CUT-OFF FOR EACH BOILER. LOW WATER CUT-OFF SHALL BE INSTALLED ON THE BOILER SIDE OF THE ISOLATION VALVE AND HAVE MANUAL TEST AND RESET BUTTONS.
  2. PROVIDE AND INSTALL FLOW SWITCH FOR WATER HEATER.
  3. CONTRACTOR TO PROVIDE AND INSTALL A NEW PURGE VALVE FOR EACH BOILER.
  4. CONTRACTOR TO FURNISH AND INSTALL AUTOMATIC AND MANUAL AIR VENTS AT EACH HIGH POINT IN THE NEW HOT WATER PIPING MAINS AND WHERE INDICATED ON THE DRAWINGS.
  5. PIPING BEFORE THE FIRST ISOLATION VALVE OF THE BOILER HOT WATER SUPPLY AND RETURN PIPING SHALL BE CONNECTED USING SOLDER OR WELDING DEPENDING ON PIPE SIZE. NO VICTALIC FITTINGS OR PIPING SHALL BE INSTALLED FOR THIS SYSTEM UNTIL AFTER THE FIRST ISOLATION VALVE OF THE HWS AND HWR PIPING.
  6. FURNISH AND INSTALL ALL FITTINGS, DEVICES, AND ACCESSORIES AS NOTED IN THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. DRAWING IS DIAGRAMMATIC AND NOT ALL FITTINGS, DEVICES, OR ACCESSORIES MAY BE SHOWN.
  7. INSTALL APPLIANCES WITH SUFFICIENT CLEARANCE FOR MAINTENANCE AND REPLACEMENT WITHOUT REQUIRING THE REMOVAL OF PIPING OR OTHER EQUIPMENT.



### PUMP DETAIL

NO SCALE

### ELECTRICAL NOTES

THE PLUMBING CONTRACTOR SHALL BE THE GENERAL CONTRACTOR FOR THIS PROJECT AND SHALL BE RESPONSIBLE FOR ALL ELECTRICAL WORK. ALL ELECTRICAL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICIAN.

1. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE TO DETERMINE ALL EXISTING CONDITIONS AND WORK NECESSARY.
2. DRAWINGS ARE DIAGRAMMATIC ONLY. EXACT LOCATION, MOUNTING HEIGHTS OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED WITH THE EQUIPMENT REQUIREMENTS AND FIELD CONDITIONS.
3. THE ELECTRICAL CONTRACTOR'S SCOPE OF WORK SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, ALL ELECTRICAL POWER AND CONTROL WIRING REQUIREMENTS INDICATED, AND AS NECESSARY FOR A COMPLETE INSTALLATION.
4. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE ELECTRICAL WORK COMPLETE AND READY FOR OPERATION.
5. ALL NEW WIRING SHALL BE INSTALLED IN METALLIC CONDUIT, UNLESS NOTED OTHERWISE, PROVIDE MINIMUM SIZE OF 3/4" DIAMETER.
6. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH OSHA, THE MASSACHUSETTS ELECTRICAL CODE AND LOCAL GOVERNING AUTHORITIES. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICIAN.
7. ALL CABLE AND CONDUIT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE.
8. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL MANUFACTURER'S SHOP DRAWINGS FOR EXACT LOCATION AND ROUGH-IN DIMENSIONS OF ALL EQUIPMENT AND SHALL MAKE ALL FINAL CONNECTIONS AS REQUIRED.
9. LIQUDTIGHT FLEXIBLE CONDUIT SHALL BE USED FOR CONNECTING RIGID CONDUIT TO A MOTOR TERMINAL BOX, IT SHALL BE THE SAME SIZE AS THE RIGID CONDUIT CONTAINING THE MOTOR LEADS. A JUMPER WIRE SHALL BE INSTALLED BETWEEN THE RIGID CONDUIT AND THE MOTOR FRAME TO INSURE A POSITIVE GROUND CONNECTION. THIS GROUND WIRE SHALL BE #4 AWG UNLESS OTHERWISE NOTED.
10. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE 98 PERCENT CONDUCTIVITY COPPER MINIMUM #12 AWG SIZE, THWN INSULATION, 75 DEGREE C., RATED 600 VOLTS, UNLESS OTHERWISE NOTED.
11. ELECTRICAL DEMOLITION WORK AND/OR ELECTRICAL DISCONNECTION AND RECONNECTION OF EQUIPMENT REQUIRED ON THE DRAWINGS SHALL BE DONE BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE PLUMBING CONTRACTOR FOR ALL WORK CONCERNING EXISTING PLUMBING AND ELECTRICAL EQUIPMENT AND SERVICES IN THE BUILDING. EXISTING BRANCH CIRCUIT WIRING BACK TO EXISTING PANELBOARD, LOCATED IN ELECTRIC AND BOILER ROOMS MAY BE REUSED AND EXTENDED TO NEW EQUIPMENT AS PRACTICAL. OTHERWISE, DISCONNECT AND REMOVE EXISTING BRANCH CIRCUIT WIRING & APPURTENANCES TO FULLEST EXTENT POSSIBLE BACK TO EXISTING PANELBOARD. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF PANELBOARDS IN THE FIELD.
12. DISCONNECT AND MAKE SAFE EXISTING BOILERS, HEATING CIRCULATING PUMPS AND CONTROLS.
13. GROUND CONDUCTORS SHALL BE SIZED FROM MASSACHUSETTS ELECTRICAL CODE GROUNDING CONDUCTOR TABLE 250-122. A GROUND WIRE SHALL BE INCLUDED IN ALL BRANCH CIRCUITS.
14. PROVIDE NEW EMERGENCY SHUT OFF SWITCHES WITH RED COVERS ASSOCIATED WITH THE NEW GAS APPLIANCES LOCATED INSIDE THE BOILER ROOM NEAR THE BOILER ROOM ENTRANCE DOORS.
15. PROVIDE NEW CIRCUIT BREAKER, BRANCH CIRCUIT WIRING AND DISCONNECTING MEANS TO EACH NEW BOILER, WATER HEATER, AND CIRCULATING PUMP FROM EXISTING PANELBOARD. PROVIDE NEW MANUAL MOTOR STARTER WITH OVERLOAD PROTECTION AT EACH NEW PUMP. EXISTING BRANCH CIRCUIT CONDUIT, WIRING, DEVICES, ETC. MAY BE REUSED IF CODE COMPLIANT.
15. PROVIDE NEW CIRCUIT BREAKER, BRANCH CIRCUIT WIRING AND DISCONNECTING MEANS TO THE NEW WATER HEATER, AND CIRCULATING PUMP FROM EXISTING PANELBOARD. PROVIDE NEW MANUAL MOTOR STARTER WITH OVERLOAD PROTECTION AT EACH NEW PUMP.
16. FURNISH AND INSTALL NEW HARD-WIRED CO DETECTOR IN THE BOILER ROOM. DETECTOR SHALL BE EQUAL TO KIDDIE NIGHTHAWK MODEL WITH BATTERY BACKUP AND DIGITAL DISPLAY. UNIT SHALL BE WIRED TO THE LINE SIDE OF THE EXISTING LIGHTING CIRCUIT IN THE BOILER ROOM.

BID SET

REVISION DATES	LOWELL HOUSING AUTHORITY NORTH COMMON VILLAGE BOILER REPLACEMENT PROJECT	STAMP
ADD #1 - 02-20-24	PLUMBING SCHEDULES, NOTES, & DETAILS	
DATE: 01/31/2024	c.a. crowley. ENGINEERING, INC. 645 County Street, Suite 6 Taunton, MA 02780 tel. (508) 884.5094 WWW.CROWLEYENG.COM fax. (508) 884.5099	DRAWING NUMBER
SCALE: AS SHOWN		P-3
DRAWN BY: RLA		
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