

# MERIDIAN PARK MEDICAL CENTER

## STEAM BOILER UPGRADE

TUALATIN, OREGON

### MECHANICAL LEGEND

	SUPPLY AIR DIFFUSER	AFF	ABOVE FINISH FLOOR
	RETURN AIR DIFFUSER	AHU	AIR HANDLING UNIT
	EXHAUST AIR DIFFUSER	B.D.	BOTTOM OF DUCT
	DIRECTIONAL AIR FLOW	BHP	BRAKE HORSEPOWER
	MANUAL VOLUME DAMPER	BOG	BOTTOM OF GRILLE
	SUPPLY AIR DUCT UP & DOWN	BTU	BRITISH THERMAL UNITS
	RETURN AIR DUCT UP & DOWN	CFM	CUBIC FEET PER MINUTE
	EXHAUST OR OUTSIDE AIR DUCT UP & DOWN	CONN.	CONNECTION
	SUPPLY AIR DUCT UP & DOWN	CONT.	CONTINUATION
	RETURN AIR DUCT UP & DOWN	CW	DOMESTIC COLD WATER
	EXHAUST OR OUTSIDE AIR DUCT UP & DOWN	DB	DRY BULB
	VAV TERMINAL UNIT W/ REHEAT COIL	DIA.	DIAMETER
	DEMOLISH	DIST.	DISTRIBUTION
	EXISTING	EXH	EXHAUST AIR
	CONNECT TO EXISTING	EDB	ENTERING DRY BULB TEMPERATURE
	THERMOSTAT	EWB	ENTERING WET BULB TEMPERATURE
	TEMPERATURE SENSOR	EWT	ENTERING WATER TEMPERATURE
	NOTE	FF	FINISH FLOOR
	EQUIPMENT DESIGNATOR	FIXT.	FIXTURE
	GATE VALVE	F.O.B.	FLAT ON BOTTOM
	CHECK VALVE	FPM	FEET PER MINUTE
	BALANCING VALVE	FPS	FEET PER SECOND
	THERMOMETER	FT.	FEET / FOOT
	DIRECTION OF FLOW	GA.	GAUGE
	PUMP	GEKH	GREASE EXHAUST AIR DUCT
	STRAINER	GPM	GALLONS PER MINUTE
	PRESSURE GAUGE	H	HEIGHT
	PETE'S PLUG	HP	HORSEPOWER
	DOUBLE CHECK ASSEMBLY	I.D.	INSIDE DIAMETER
	PRESSURE REDUCING VALVE	IN.	INCHES
	UNION	L	LENGTH
	2-WAY CONTROL VALVE	LBS.	POUNDS
	3-WAY CONTROL VALVE	LDB	LEAVING DRY BULB
	CAP	LWB	LEAVING WET BULB
	STEAM TRAP	LWT	LEAVING WATER TEMPERATURE
		MA	MAKE UP AIR
		MAX.	MAXIMUM
		MBH	THOUSANDS OF BTUs PER HOUR
		MD	MOTORIZED DAMPER
		MIN.	MINIMUM
		MVD	MANUAL VOLUME DAMPER
		NC	NOISE CRITERIA
		N.C.	NORMALLY CLOSED
		N.I.M.	NOT IN MECHANICAL
		NO.	NUMBER
		N.O.	NORMALLY OPEN
		O.A.	OUTSIDE AIR
		P	PERSON
		PSI	POUNDS PER SQUARE INCH
		P/T	PRESSURE / TEMPERATURE
		R.A.	RETURN AIR
		RECT.	RECTANGULAR
		REQ'D	REQUIRED
		S.A.	SUPPLY AIR
		S.P.	STATIC PRESSURE
		SQ.	SQUARE
		TEMP.	TEMPERATURE
		TYP.	TYPICAL
		VAV	VARIABLE AIR VOLUME
		W	WIDTH
		WB	WET BULB
		WPD	WATER PRESSURE DROP
		Ø	DIAMETER

### MECHANICAL PIPING LINE TYPES

	DEMO EQUIPMENT/PIPING
	HPS HIGH PRESSURE STEAM
	HPR HIGH PRESSURE RETURN
	MPS MEDIUM PRESSURE STEAM
	MPR MEDIUM PRESSURE RETURN
	SV STEAM VENT
	FW BOILER FEED WATER
	CS CHEMICAL FEED WATER SUPPLY
	CR CHEMICAL FEED WATER RETURN
	HPS (E)HIGH PRESSURE STEAM
	HPR (E)HIGH PRESSURE RETURN
	MPS (E)MEDIUM PRESSURE STEAM
	MPR (E)MEDIUM PRESSURE RETURN
	SV (E)STEAM VENT
	FW (E)BOILER FEED WATER
	CS (E)CHEMICAL FEED WATER SUPPLY
	CR (E)CHEMICAL FEED WATER RETURN

### SHEET LIST

- C1.0 - COVER SHEET
- M1.0 - MECHANICAL FLOOR PLAN - (BOILER VENTS)
- M2.0 - MECHANICAL ROOM PLAN -(EMERGENCY SHUT-OFF BUTTON LOCATIONS)
- M2.1 - MECHANICAL PIPING PLANS - PHASES 0 & 1
- M2.2 - MECHANICAL PIPING PLANS - PHASES 2 & 3
- M2.3 - MECHANICAL PIPING PLANS - PHASES 4 & 5
- M2.4 - MECHANICAL PIPING PLANS - DRAINS AND VENTS
- M3.1 - MECHANICAL PIPING DIAGRAMS - PHASES 0 & 1
- M3.2 - MECHANICAL PIPING DIAGRAMS - PHASES 2 & 3
- M3.3 - MECHANICAL PIPING DIAGRAMS - PHASES 4 & 5
- M3.4 - FUEL OIL/GAS PIPING DIAGRAM
- M6.0 - MECHANICAL SCHEDULES
- M6.1 - MECHANICAL DETAILS

### PROJECT DIRECTORY

#### OWNER

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#### MECHANICAL & ELECTRICAL ENGINEER

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PORTLAND, OR 97214  
TEL: (503)234-0548



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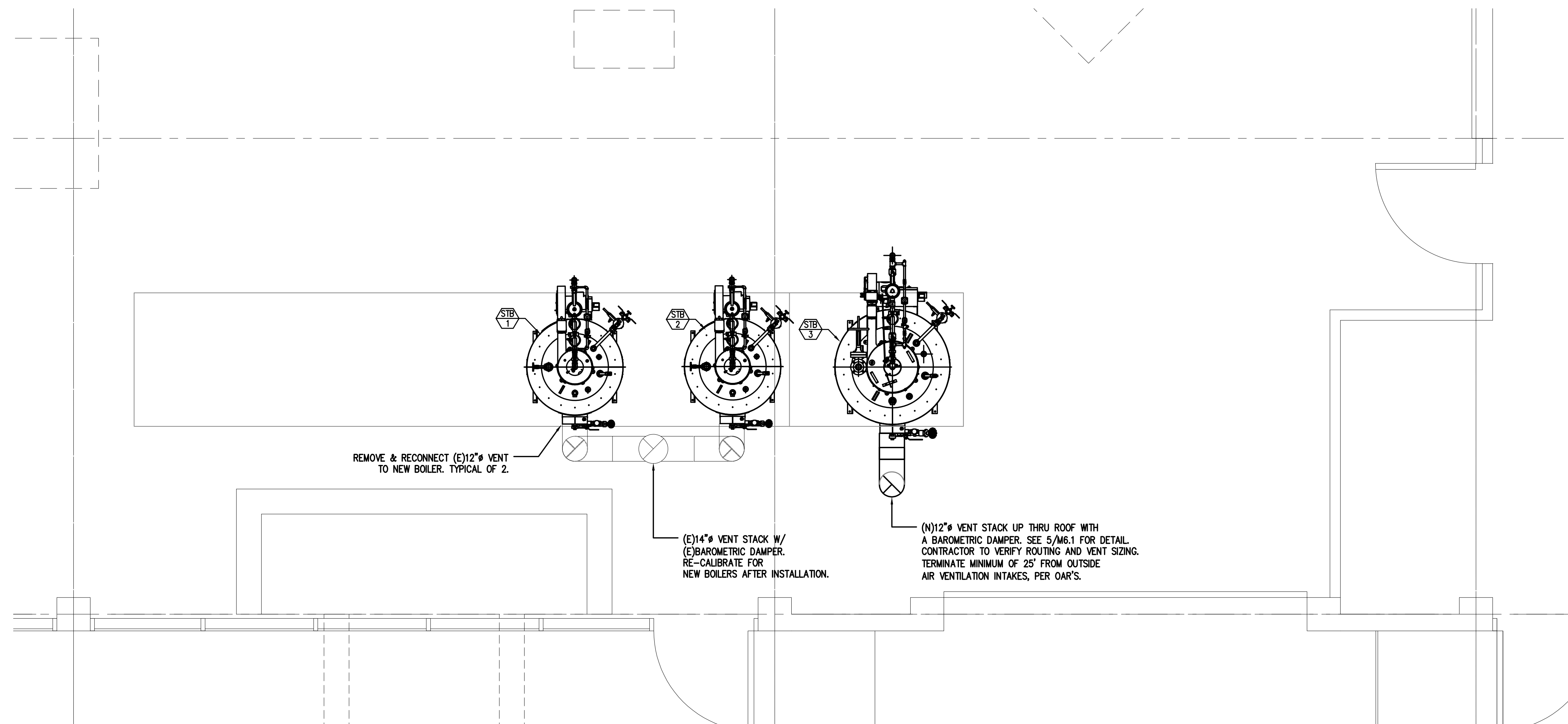
**STEAM BOILER UPGRADE**  
**LEGACY MERIDIAN PARK MEDICAL CENTER**  
 TUALATIN, OREGON  
**COVER SHEET**



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1 MECHANICAL FLOOR PLAN  
M1.0 3/8" = 1'-0"



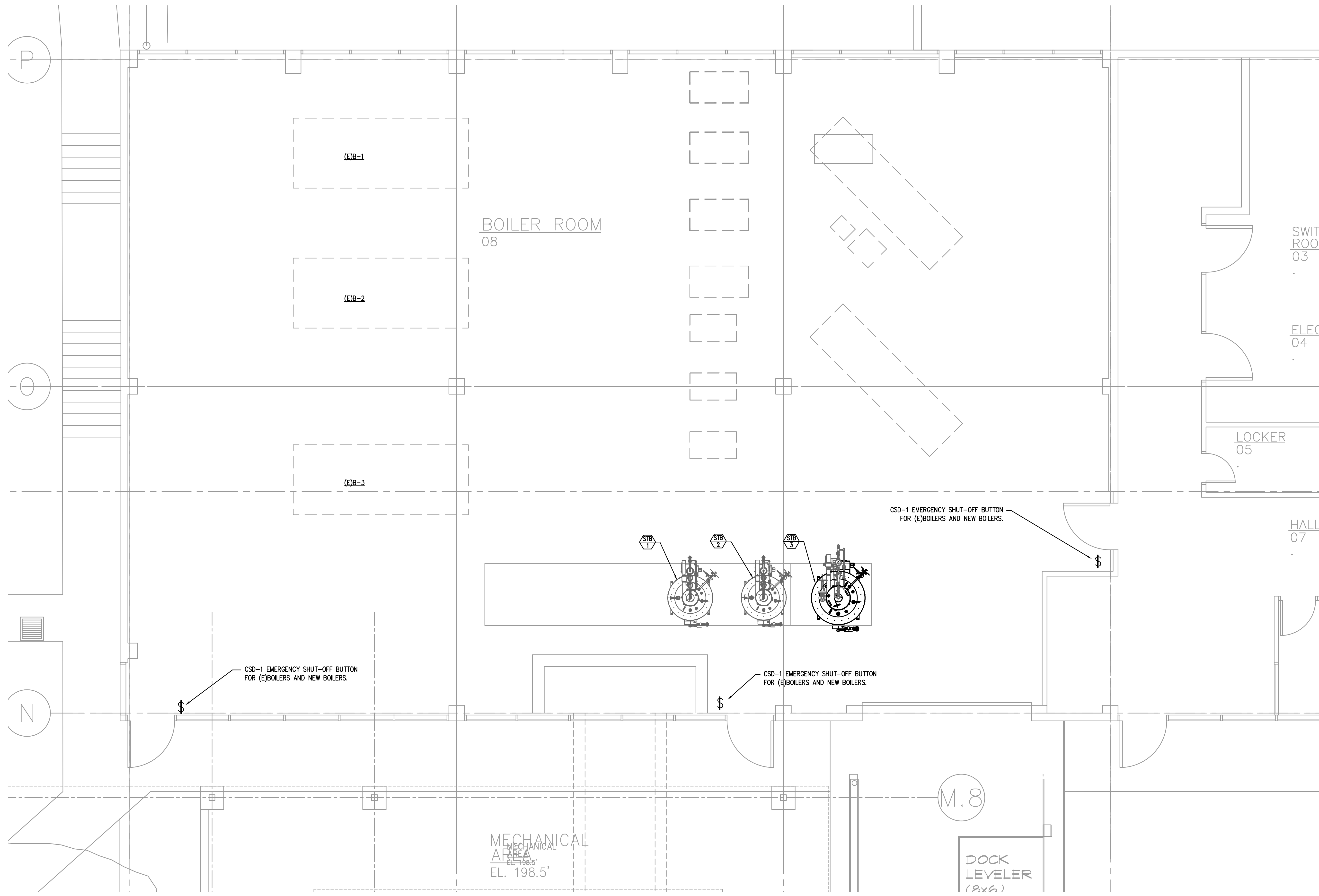
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**LEGACY MERIDIAN PARK MEDICAL CENTER**  
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**MECHANICAL FLOOR PLAN**



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MECHANICAL ROOM PLAN - EMERGENCY SHUT-OFF BUTTONS  
 M1.0 / 1/4" = 1'-0"



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**MECHANICAL ROOM PLAN**



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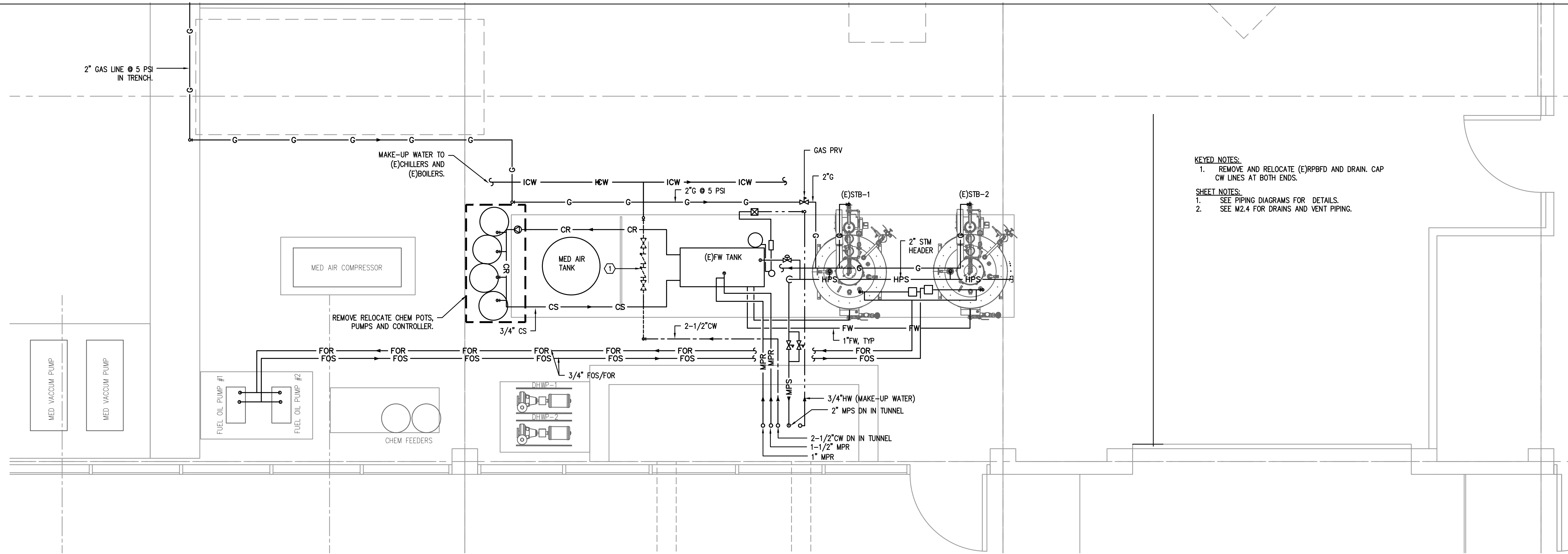
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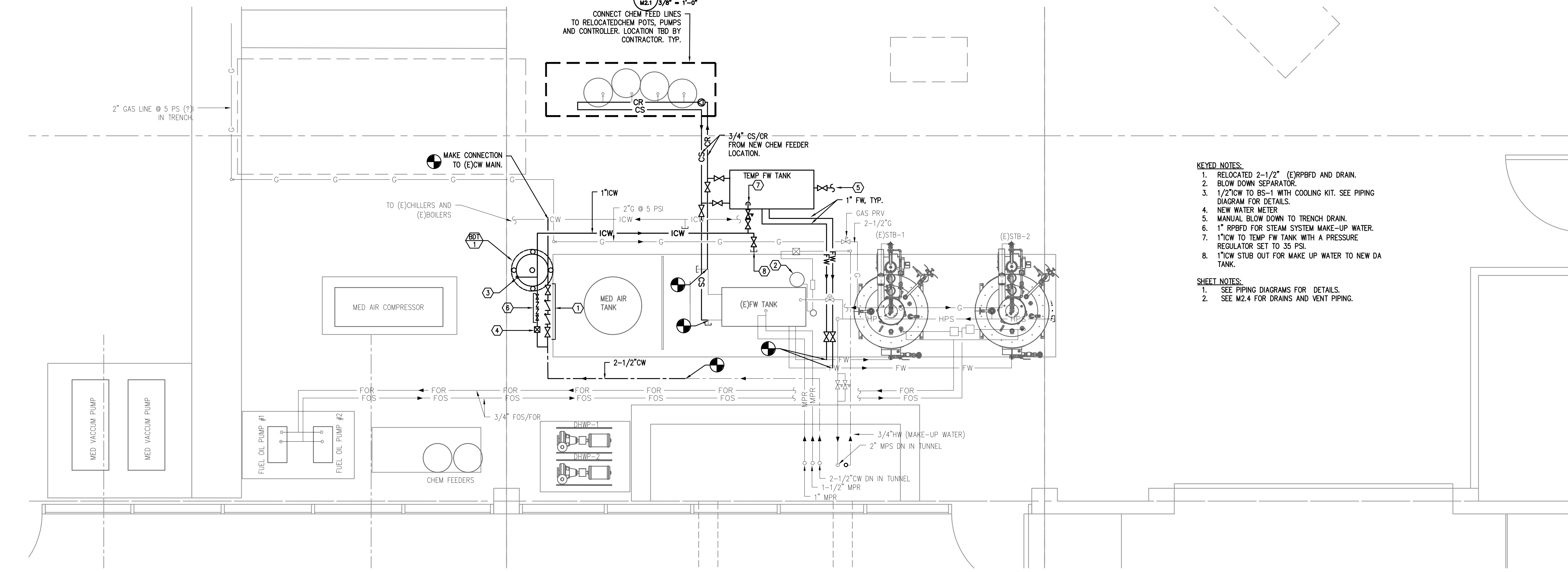


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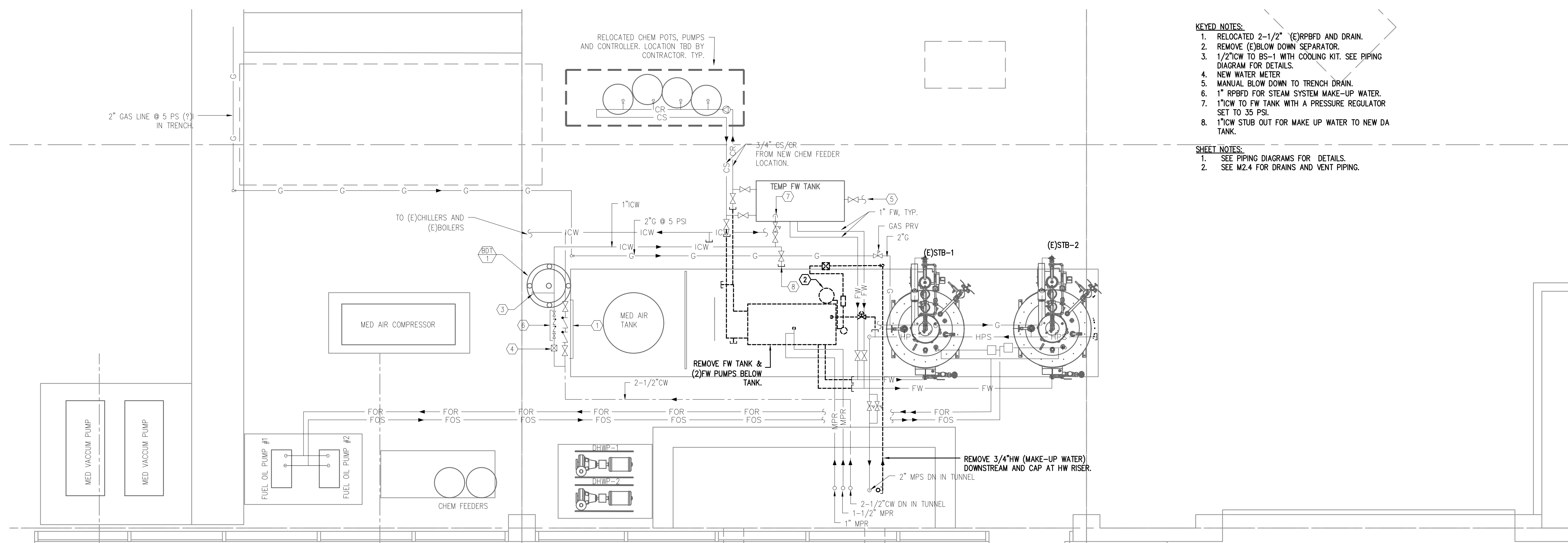
- KEYED NOTES:**
- REMOVE AND RELOCATE (E)RPBFD AND DRAIN. CAP CW LINES AT BOTH ENDS.
- SHEET NOTES:**
- SEE PIPING DIAGRAMS FOR DETAILS.
  - SEE M2.4 FOR DRAINS AND VENT PIPING.

**1 DEMO AND NEW PIPING PLAN - PHASE 0**  
 M2.1 3/8" = 1'-0"



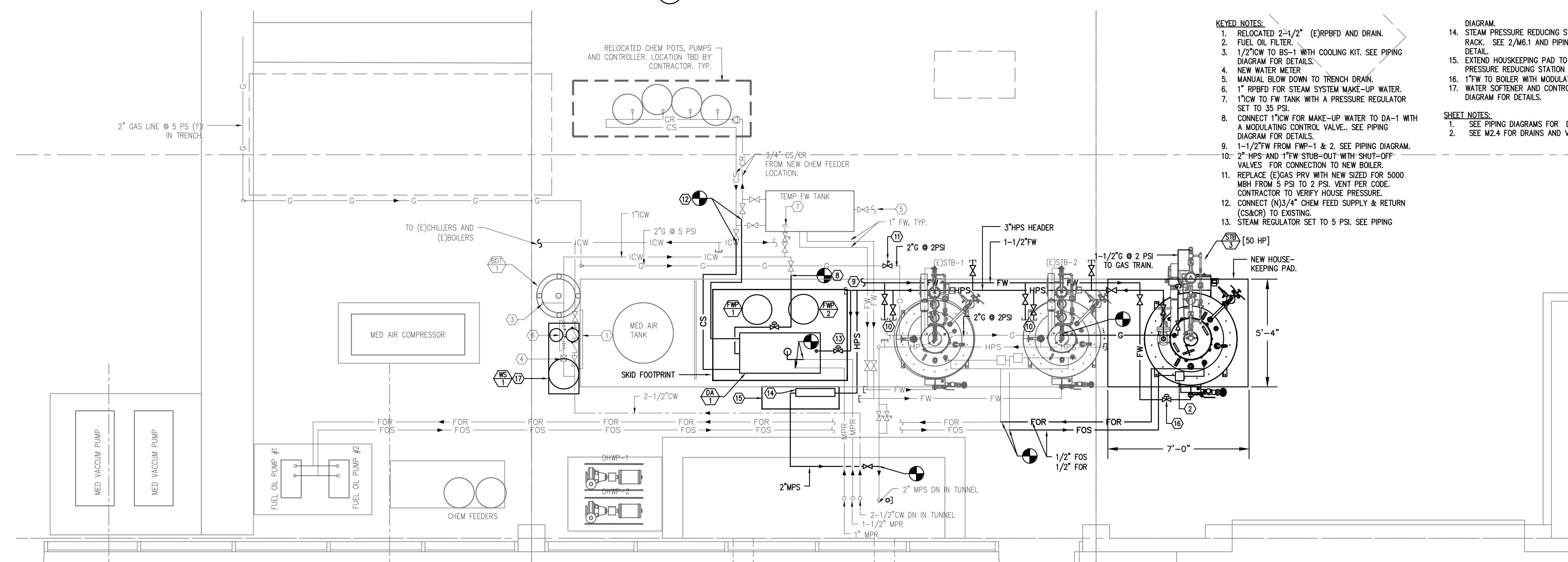
- KEYED NOTES:**
- RELOCATED 2-1/2" (E)RPBFD AND DRAIN.
  - BLOW DOWN SEPARATOR.
  - 1/2" ICW TO BS-1 WITH COOLING KIT. SEE PIPING DIAGRAM FOR DETAILS.
  - NEW WATER METER.
  - MANUAL BLOW DOWN TO TRENCH DRAIN.
  - 1" RPBFD FOR STEAM SYSTEM MAKE-UP WATER.
  - 1" ICW TO TEMP FW TANK WITH A PRESSURE REGULATOR SET TO 35 PSI.
  - 1" ICW STUB OUT FOR MAKE UP WATER TO NEW DA TANK.
- SHEET NOTES:**
- SEE PIPING DIAGRAMS FOR DETAILS.
  - SEE M2.4 FOR DRAINS AND VENT PIPING.

**2 DEMO AND NEW PIPING PLAN - PHASE 1**  
 M2.1 3/8" = 1'-0"



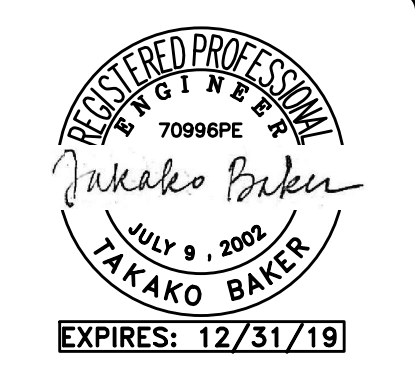
- KEYED NOTES:**
1. RELOCATED 2-1/2" (E)RPBFD AND DRAIN.
  2. REMOVE (E)BLOW DOWN SEPARATOR.
  3. 1/2"ICW TO BS-1 WITH COOLING KIT. SEE PIPING DIAGRAM FOR DETAILS.
  4. NEW WATER METER
  5. MANUAL BLOW DOWN TO TRENCH DRAIN.
  6. 1" RPBFD FOR STEAM SYSTEM MAKE-UP WATER.
  7. 1"ICW TO FW TANK WITH A PRESSURE REGULATOR SET TO 35 PSI.
  8. 1"ICW STUB OUT FOR MAKE UP WATER TO NEW DA TANK.
- SHEET NOTES:**
1. SEE PIPING DIAGRAMS FOR DETAILS.
  2. SEE M2.4 FOR DRAINS AND VENT PIPING.

**1 DEMO AND NEW PIPING PLAN - PHASE 2**  
M2.2 3/8" = 1'-0"



- KEYED NOTES:**
1. RELOCATED 2-1/2" (E)RPBFD AND DRAIN.
  2. FUEL OIL FILTER.
  3. 1/2"ICW TO BS-1 WITH COOLING KIT. SEE PIPING DIAGRAM FOR DETAILS.
  4. NEW WATER METER
  5. MANUAL BLOW DOWN TO TRENCH DRAIN.
  6. 1" RPBFD FOR STEAM SYSTEM MAKE-UP WATER.
  7. 1"ICW TO FW TANK WITH A PRESSURE REGULATOR SET TO 35 PSI.
  8. CONNECT 1"ICW FOR MAKE-UP WATER TO DA-1 WITH A MODULATING CONTROL VALVE.. SEE PIPING DIAGRAM FOR DETAILS.
  9. 1-1/2"FW FROM FWP-1 & 2. SEE PIPING DIAGRAM.
  10. 2" HPS AND 1"FW STUB-OUT WITH SHUT-OFF VALVES FOR CONNECTION TO NEW BOILER.
  11. REPLACE (E)GAS PRV WITH NEW SIZED FOR 5000 MBH FROM 5 PSI TO 2 PSI. VENT PER CODE. CONTRACTOR TO VERIFY HOUSE PRESSURE.
  12. CONNECT (N)3/4" CHEM FEED SUPPLY & RETURN (CS&CR) TO EXISTING.
  13. STEAM REGULATOR SET TO 5 PSI. SEE PIPING DIAGRAM.
  14. STEAM PRESSURE REDUCING STATION MOUNTED ON RACK. SEE 2/M6.1 AND PIPING DIAGRAM FOR DETAIL.
  15. EXTEND HOUSEKEEPING PAD TO MOUNT A RACK FOR PRESSURE REDUCING STATION SUPPORT.
  16. 1"FW TO BOILER WITH MODULATING CONTROL VALVE.
  17. WATER SOFTENER AND CONTROLLER. SEE PIPING DIAGRAM FOR DETAILS.
- SHEET NOTES:**
1. SEE PIPING DIAGRAMS FOR DETAILS.
  2. SEE M2.4 FOR DRAINS AND VENT PIPING.

**2 DEMO AND NEW PIPING PLAN - PHASE 3**  
M2.2 3/8" = 1'-0"



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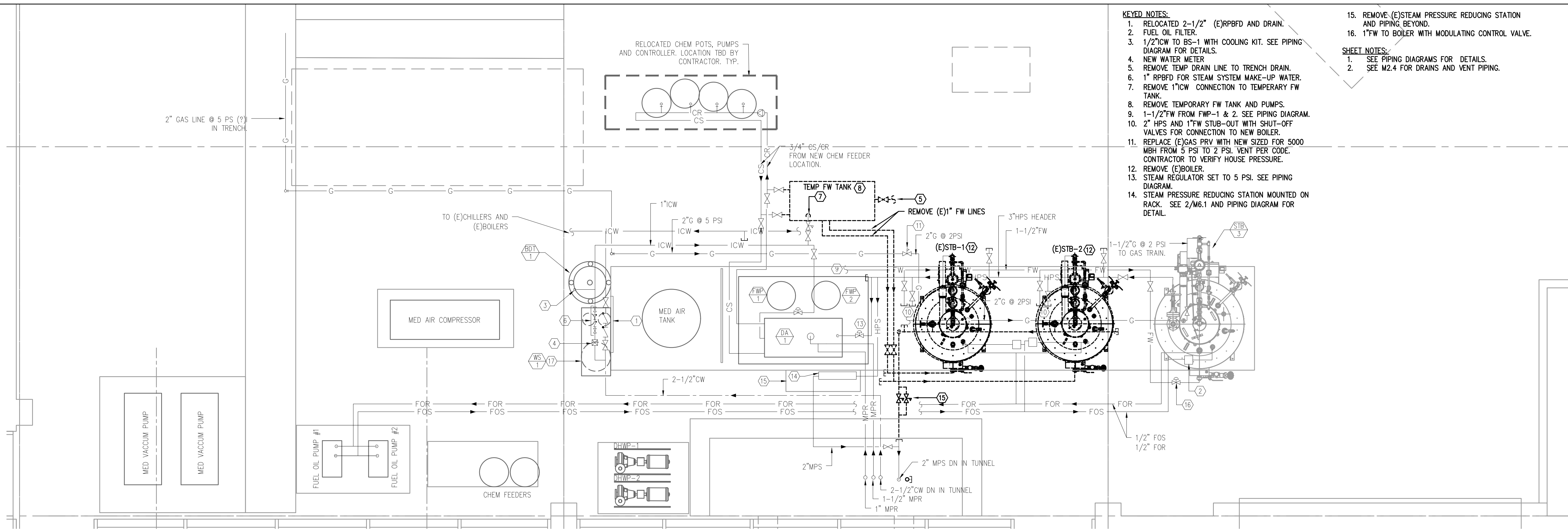


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TUALATIN, OREGON  
**MECHANICAL PIPING PLANS**



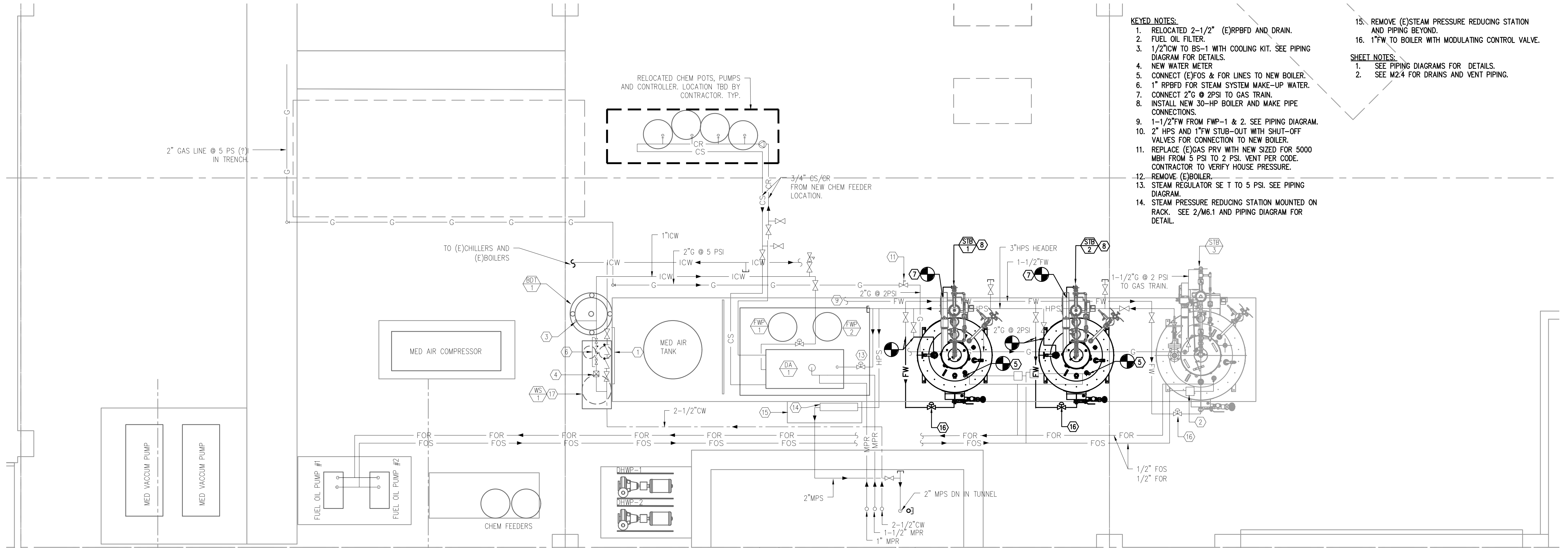
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**M2.2**  
5 OF 13



1 DEMO AND NEW PIPING PLAN -- PHASE 4  
M2.3 5/8" = 1'-0"

- KEYED NOTES:**
1. RELOCATED 2-1/2" (E)RPBFD AND DRAIN.
  2. FUEL OIL FILTER.
  3. 1/2"ICW TO BS-1 WITH COOLING KIT. SEE PIPING DIAGRAM FOR DETAILS.
  4. NEW WATER METER.
  5. REMOVE TEMP DRAIN LINE TO TRENCH DRAIN.
  6. 1" RPBFD FOR STEAM SYSTEM MAKE-UP WATER.
  7. REMOVE 1"ICW CONNECTION TO TEMPORARY FW TANK.
  8. REMOVE TEMPORARY FW TANK AND PUMPS.
  9. 1-1/2"FW FROM FWP-1 & 2. SEE PIPING DIAGRAM.
  10. 2" HPS AND 1"FW STUB-OUT WITH SHUT-OFF VALVES FOR CONNECTION TO NEW BOILER.
  11. REPLACE (E)GAS PRV WITH NEW SIZED FOR 5000 MSH FROM 5 PSI TO 2 PSI. VENT PER CODE. CONTRACTOR TO VERIFY HOUSE PRESSURE.
  12. REMOVE (E)BOILER.
  13. STEAM REGULATOR SET TO 5 PSI. SEE PIPING DIAGRAM.
  14. STEAM PRESSURE REDUCING STATION MOUNTED ON RACK. SEE 2/M6.1 AND PIPING DIAGRAM FOR DETAIL.
  15. REMOVE (E)STEAM PRESSURE REDUCING STATION AND PIPING BEYOND.
  16. 1"FW TO BOILER WITH MODULATING CONTROL VALVE.
- SHEET NOTES:**
1. SEE PIPING DIAGRAMS FOR DETAILS.
  2. SEE M2.4 FOR DRAINS AND VENT PIPING.



2 DEMO AND NEW PIPING PLAN -- PHASE 5  
M2.3 5/8" = 1'-0"

- KEYED NOTES:**
1. RELOCATED 2-1/2" (E)RPBFD AND DRAIN.
  2. FUEL OIL FILTER.
  3. 1/2"ICW TO BS-1 WITH COOLING KIT. SEE PIPING DIAGRAM FOR DETAILS.
  4. NEW WATER METER.
  5. CONNECT (E)FOS & FOR LINES TO NEW BOILER.
  6. 1" RPBFD FOR STEAM SYSTEM MAKE-UP WATER.
  7. CONNECT 2"G @ 2PSI TO GAS TRAIN.
  8. INSTALL NEW 30-HP BOILER AND MAKE PIPE CONNECTIONS.
  9. 1-1/2"FW FROM FWP-1 & 2. SEE PIPING DIAGRAM.
  10. 2" HPS AND 1"FW STUB-OUT WITH SHUT-OFF VALVES FOR CONNECTION TO NEW BOILER.
  11. REPLACE (E)GAS PRV WITH NEW SIZED FOR 5000 MSH FROM 5 PSI TO 2 PSI. VENT PER CODE. CONTRACTOR TO VERIFY HOUSE PRESSURE.
  12. REMOVE (E)BOILER.
  13. STEAM REGULATOR SET TO 5 PSI. SEE PIPING DIAGRAM.
  14. STEAM PRESSURE REDUCING STATION MOUNTED ON RACK. SEE 2/M6.1 AND PIPING DIAGRAM FOR DETAIL.
  15. REMOVE (E)STEAM PRESSURE REDUCING STATION AND PIPING BEYOND.
  16. 1"FW TO BOILER WITH MODULATING CONTROL VALVE.
- SHEET NOTES:**
1. SEE PIPING DIAGRAMS FOR DETAILS.
  2. SEE M2.4 FOR DRAINS AND VENT PIPING.



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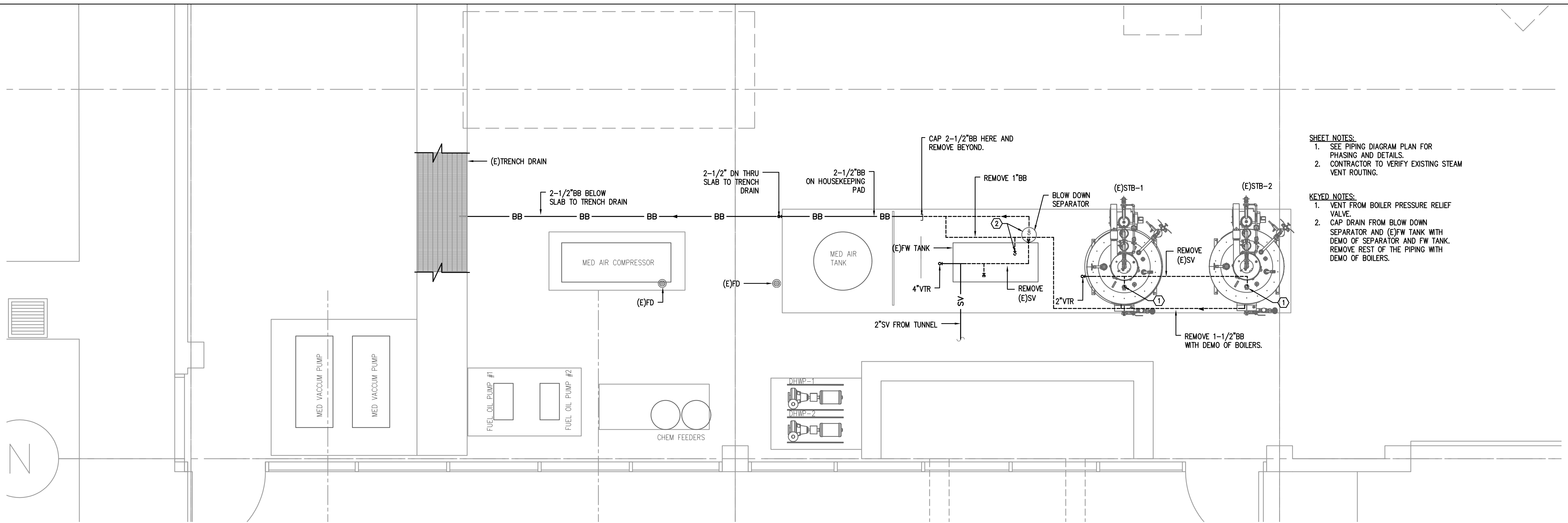
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**M2.3**



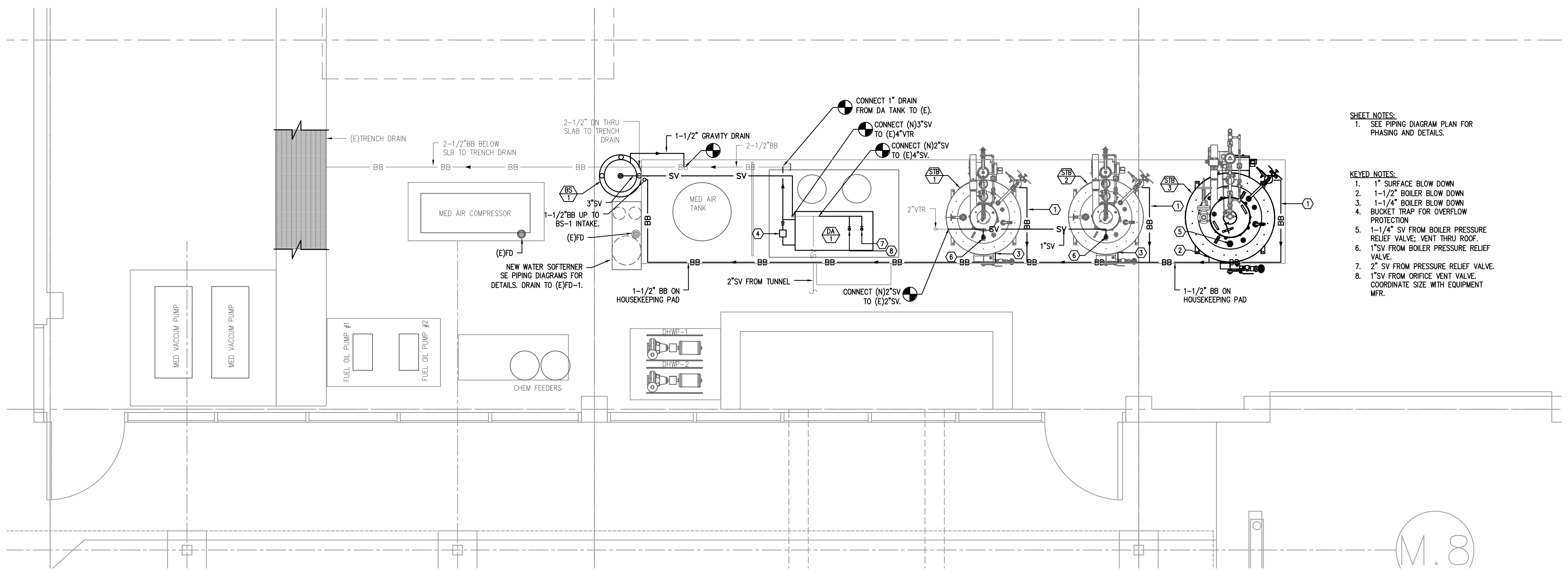
1 PIPING DEMO PLAN - DRAINS AND VENTS  
M2.4 3/8" = 1'-0"

- SHEET NOTES:**
- SEE PIPING DIAGRAM PLAN FOR PHASING AND DETAILS.
  - CONTRACTOR TO VERIFY EXISTING STEAM VENT ROUTING.
- KEYED NOTES:**
- VENT FROM BOILER PRESSURE RELIEF VALVE.
  - CAP DRAIN FROM BLOW DOWN SEPARATOR AND (E)FW TANK WITH DEMO OF SEPARATOR AND FW TANK. REMOVE REST OF THE PIPING WITH DEMO OF BOILERS.

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**PIPING PLANS - DRAINS AND VENTS**



2 NEW PIPING PLAN - DRAINS AND VENTS  
M2.4 3/8" = 1'-0"

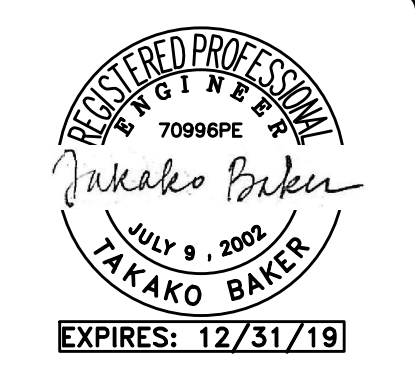
- SHEET NOTES:**
- SEE PIPING DIAGRAM PLAN FOR PHASING AND DETAILS.
- KEYED NOTES:**
- 1" SURFACE BLOW DOWN
  - 1-1/2" BOILER BLOW DOWN
  - 1-1/4" BOILER BLOW DOWN
  - BUCKET TRAP FOR OVERFLOW PROTECTION
  - 1-1/4" SV FROM BOILER PRESSURE RELIEF VALVE; VENT THRU ROOF.
  - 1" SV FROM BOILER PRESSURE RELIEF VALVE.
  - 2" SV FROM PRESSURE RELIEF VALVE.
  - 1" SV FROM ORIFICE VENT VALVE. COORDINATE SIZE WITH EQUIPMENT MFR.



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**M2.4**



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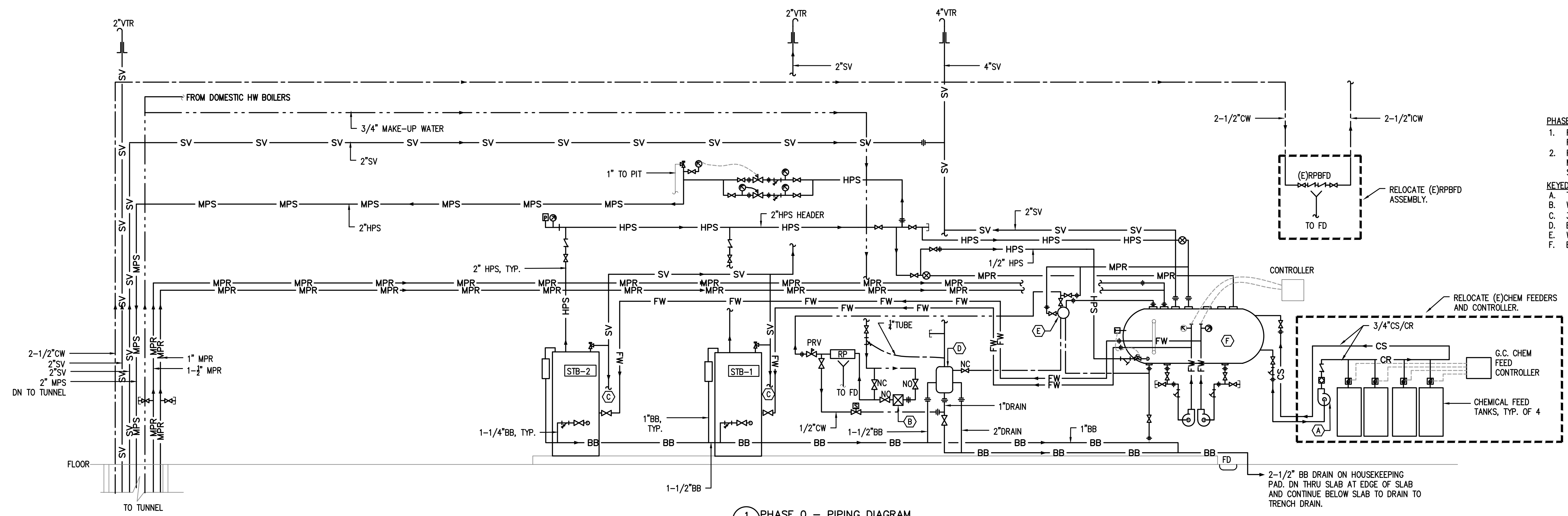
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 TUALATIN, OREGON  
**MECHANICAL PIPING DIAGRAM**



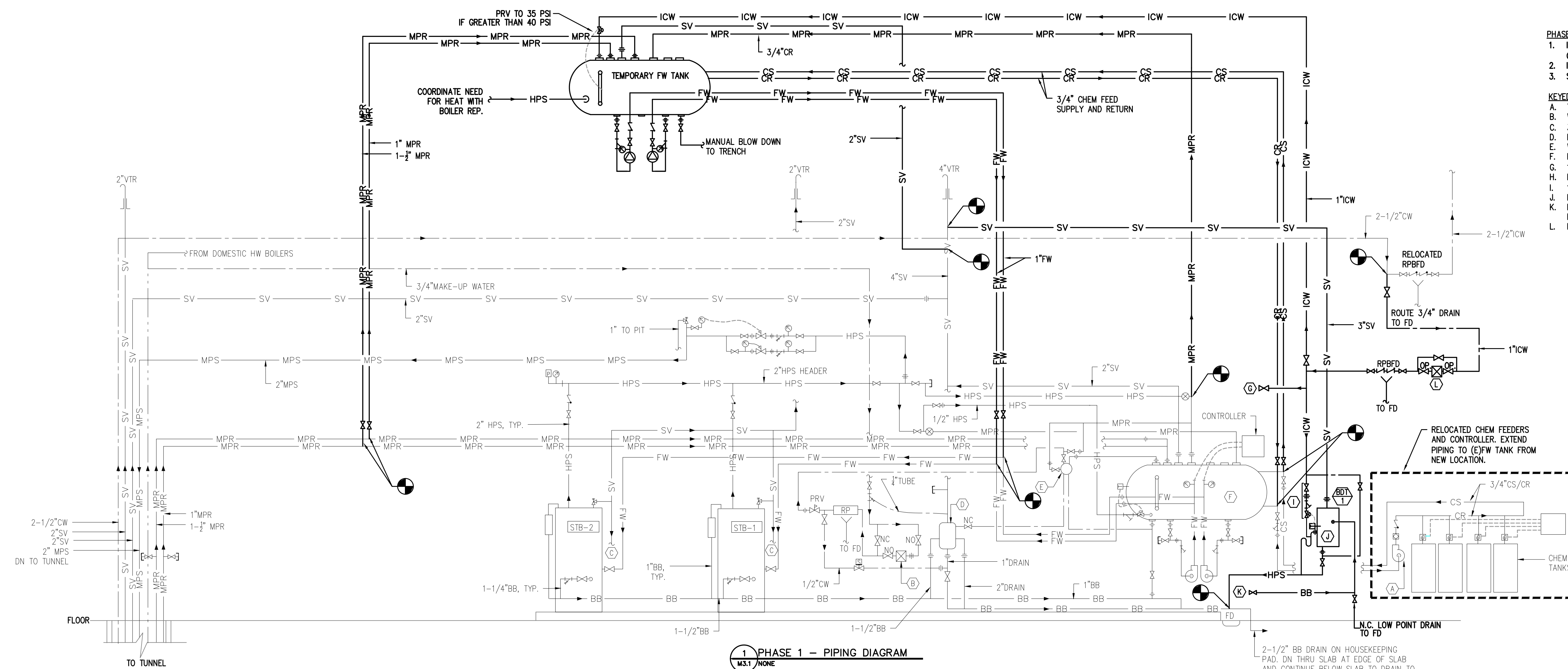
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**M3.1**



**1 PHASE 0 - PIPING DIAGRAM**  
 M3.1 NONE



**1 PHASE 1 - PIPING DIAGRAM**  
 M3.1 NONE







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**MECHANICAL PIPING DIAGRAM**



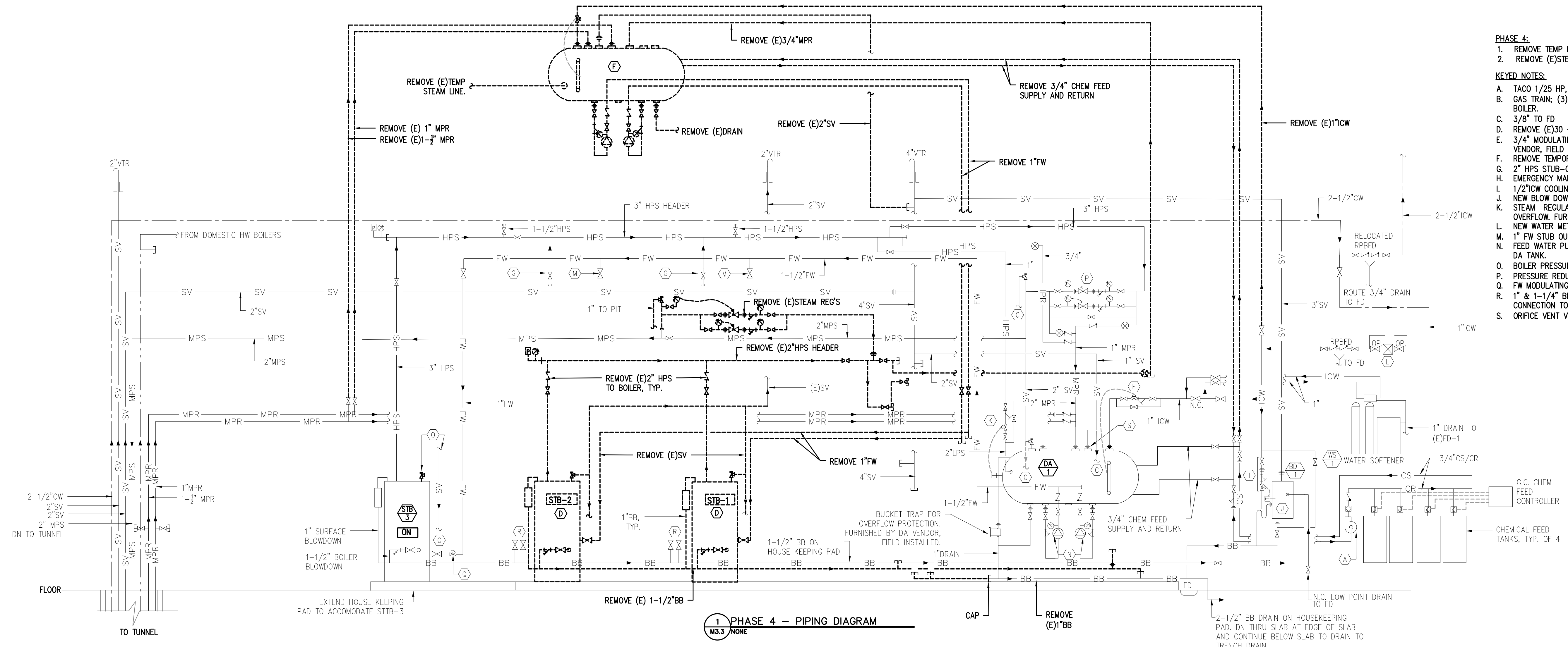
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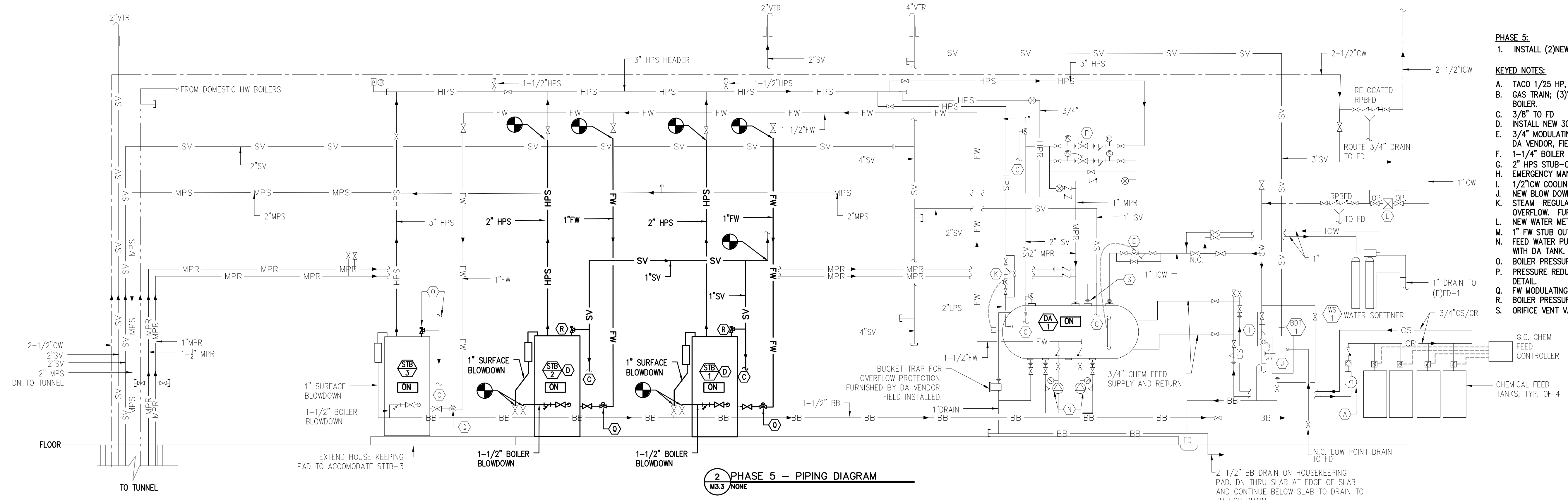
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**M3.3**



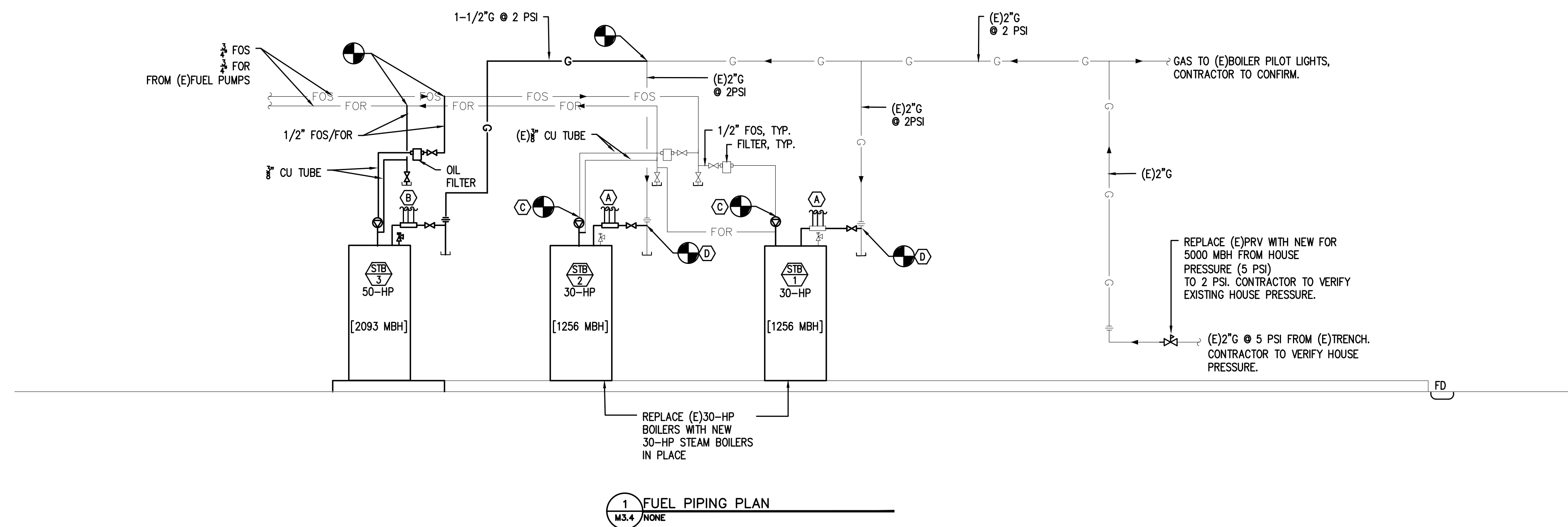
**1 PHASE 4 - PIPING DIAGRAM**  
M3.3 NONE

- PHASE 4:**
- REMOVE TEMP FW TANK AND PIPING.
  - REMOVE (E)STB-1 & STB-2 & (E)STEAM HEADER.
- KEYED NOTES:**
- TACO 1/25 HP, 0.79 A PUMP
  - GAS TRAIN; (3)VTR'S TO REMAIN FOR CONNECTION TO NEW BOILER.
  - 3/8" TO FD
  - REMOVE (E)30 -HP BOILER.
  - 3/4" MODULATING MAKE-UP WATER VALVE. FURNISHED BY DA VENDOR, FIELD INSTALLED.
  - REMOVE TEMPORARY FW TANK AND FW PUMPS.
  - 2" HPS STUB-OUT FOR CONNECTION TO NEW BOILER.
  - EMERGENCY MANUAL COOLING WATER.
  - 1/2"ICW COOLING KIT TO BLOW DOWN SEPARATOR
  - NEW BLOW DOWN TANK.
  - STEAM REGULATOR. SET PRESSURE TO 5 PSI. INSTALL ABOVE OVERFLOW. FURNISHED BY DA VENDOR, FIELD INSTALLED.
  - NEW WATER METER.
  - 1" FW STUB OUT FOR CONNECTION TO NEW BOILER.
  - FEED WATER PUMPS, FWP-1 AND 2. FURNISHED PRE-PIPED WITH DA TANK.
  - BOILER PRESSURE RELIEF VALVE; 1-1/4" VENT THRU ROOF.
  - PRESSURE REDUCING STATION, PRV-1. SEE 2/M6.2 FOR DETAIL.
  - FW MODULATING CONTROL VALVE.
  - 1" & 1-1/4" BB STUB-OUT WITH SHUT-OFF VALVES FOR CONNECTION TO NEW BOILER.
  - ORIFICE VENT VALVE, SEE 4/M6.1 FOR PIPING DETAIL.



**2 PHASE 5 - PIPING DIAGRAM**  
M3.3 NONE

- PHASE 5:**
- INSTALL (2)NEW 30-HP STEAM BOILERS.
- KEYED NOTES:**
- TACO 1/25 HP, 0.79 A PUMP
  - GAS TRAIN; (3)VTR'S TO REMAIN FOR CONNECTION TO NEW BOILER.
  - 3/8" TO FD
  - INSTALL NEW 30-HP BOILER.
  - 3/4" MODULATING MAKE-UP WATER VALVE. FURNISHED BY DA VENDOR, FIELD INSTALLED.
  - 1-1/4" BOILER BLOW DOWN AND 3/4" SURFACE BLOWDOWN.
  - 2" HPS STUB-OUT FOR CONNECTION TO NEW BOILER.
  - EMERGENCY MANUAL COOLING WATER.
  - STEAM BLOW DOWN TANK.
  - 1/2"ICW COOLING KIT TO BLOW DOWN SEPARATOR
  - NEW BLOW DOWN TANK.
  - STEAM REGULATOR. SET PRESSURE TO 5 PSI. INSTALL ABOVE OVERFLOW. FURNISHED BY DA VENDOR, FIELD INSTALLED.
  - NEW WATER METER.
  - 1" FW STUB OUT FOR CONNECTION TO NEW BOILER.
  - FEED WATER PUMPS, FWP-1 AND 2. FURNISHED PRE-PIPED WITH DA TANK.
  - BOILER PRESSURE RELIEF VALVE; 1-1/4" VENT THRU ROOF.
  - PRESSURE REDUCING STATION, PRV-1. SEE 2/M6.2 FOR DETAIL.
  - FW MODULATING CONTROL VALVE.
  - BOILER PRESSURE RELIEF VALVE.
  - ORIFICE VENT VALVE, SEE 4/M6.1 FOR PIPING DETAIL.



**KEYED NOTES:**

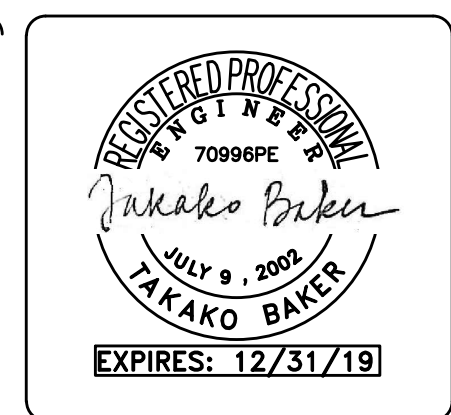
- A. NEW GAS TRAIN TO NEW BOILER. VENT PER CODE AND CONNECT TO (E) VTR'S FROM THE EXISTING GAS TRAIN. VENTS TO BE INDIVIDUALLY ROUTED THROUGH ROOF.
- B. NEW GAS TRAIN TO NEW 50-HP BOILER. ROUTE VENT FROM EACH REGULATOR INDIVIDUALLY THROUGH ROOF.
- C. CONNECT (E)FOS/FOR TO NEW BOILER.
- D. CONNECT (E)2" G TO NEW 30-HP BOILER.

**GAS CALCULATIONS:**

TOTAL EQUIV. DEVELOPED PIPE LENGTH = 150 FT TO (E)B-1  
 TOTAL LOAD = 5000 MBH  
 DELIVERY PRESSURE: 2 PSI @ 1 PSI P.D.  
 2017 OMSC TABLE C4023.4(3) => MIN SIZE = 2"

REPLACE (E)PRV WITH NEW FOR 5000 MBH FROM HOUSE PRESSURE (5 PSI) TO 2 PSI. CONTRACTOR TO VERIFY EXISTING HOUSE PRESSURE.

(E)2" G @ 5 PSI FROM (E)TRENCH. CONTRACTOR TO VERIFY HOUSE PRESSURE.



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**STEAM BOILER UPGRADE**  
**LEGACY MERIDIAN PARK MEDICAL CENTER**  
 TUALATIN, OREGON  
**FUEL OIL/GAS PIPING DIAGRAM**



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SHEET  
**M3.4**  
 11 OF 13

**STEAM BOILERS**

MARK NUMBER	STB 1 2	STB 3
SYSTEM	MED EQUIPT	MED EQUIPT
FUEL	NAT. GAS/OIL	NAT. GAS/OIL
GAS INPUT. (MBH)	1256 MBH	2093 MBH
GROSS OUTPUT (MBH)	1005 MBH	1674 MBH
FUEL OIL CONSUMPTION (GPH)	9 GPH	15 GPH
STEAM OUTPUT	1035 LBS/HR	1725 LBS/HR
BOILER HORSEPOWER (HP)	30	50
RATED PRESSURE	150 PSI	150 PSI
DESIGN PRESSURE	100 PSI	100 PSI
BURNER HP	3/4 HP	2 HP
EXH VENT DIAMETER	12"ø	12"ø
ELECT (V/PH)	120/1	120/1
AMPS	13.8 A	24 A
BOILER DESIGN WEIGHT (LBS)	7000 #	10,000 #

NOTES:  
 HOSPITAL WORST CASE DEMAND, INCLUDING FUTURE EQUIPMENT, IS LESS THAN 80HP (2760 LBS/HR). THIRD BOILER IS A REDUNDANT BOILER PER REQUIREMENT OF THE OAR'S.

**DEAERATOR TANK**

MARK NUMBER	DA 1
SYSTEM	STB-1, 2 & 3
CAPACITY	3000 LB/HR
STORAGE CAPACITY	60 GAL.
MAKE-UP WATER (GPM)	6 GPM
STEAM HEATER PRESSURE	5 PSI
BASIS OF DESIGN: SHIPCO	005 DA-SCP
BOILER FEED WATER PUMPS	FWP 1, FWP 2
FLOW(GPM)	12 GPM
DISCHARGE PRESSURE (PSIG)	155 PSIG
PUMP MOTOR (HP)	3 HP
MOTOR RPM	3500 RPM
BASIS OF DESIGN: GOULD	3SV13GF4FF6N

NOTES:  
 1. PUMPS TO BE PROVIDED PRE-PIPED WITH DA TANK ON A SKID.  
 2. PUMPS TO OPERATE ON/OFF CONTINUOUSLY. EACH SIZED FOR SIMULTANEOUS OPERATION OF (1)30HP AND (1)50HP BOILERS.  
 3. PROVIDE DA TANK WITH 2 CHEMICAL FEED QUILLS.  
 4. PROVIDE WITH ELECTRIC MODULATING MAKE-UP ASSEMBLY.  
 5. PROVIDE WITH STEAM SUPPLY LINE PRESSURE REGULATOR.

**MISCELLANEOUS EQUIPMENT**

PRV-1	STEAM PRESSURE REDUCING STATION: 2,760 LBS/HR TOTAL STEAM FLOW, 100 PSI INLET, 80 PSI DISCHARGE PRV-1A 920 LB/HR PRV-2B 1840 LB/HR
WS-1	WATER SOFTENER: FULTON MODEL FB 900-910 S 1/2" SUPPLY/RETURN AND 1" DRAIN CONNECTION. ELECTRICAL: 120/1

**BOILER BLOW DOWN TANK**

MARK NUMBER	BDT 1
SYSTEM	STB-3
BOILER SIZE	50 HP
CAPACITY	86 GAL.
BASIS OF DESIGN: FULTON	F-1560

NOTES:  
 1. SIZED FOR LARGEST BOILER, STB-3 (50-HP).  
 2. PROVIDE WITH COOLING KIT.



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**STEAM BOILER UPGRADE**  
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 TUALATIN, OREGON  
**EQUIPMENT SCHEDULES**



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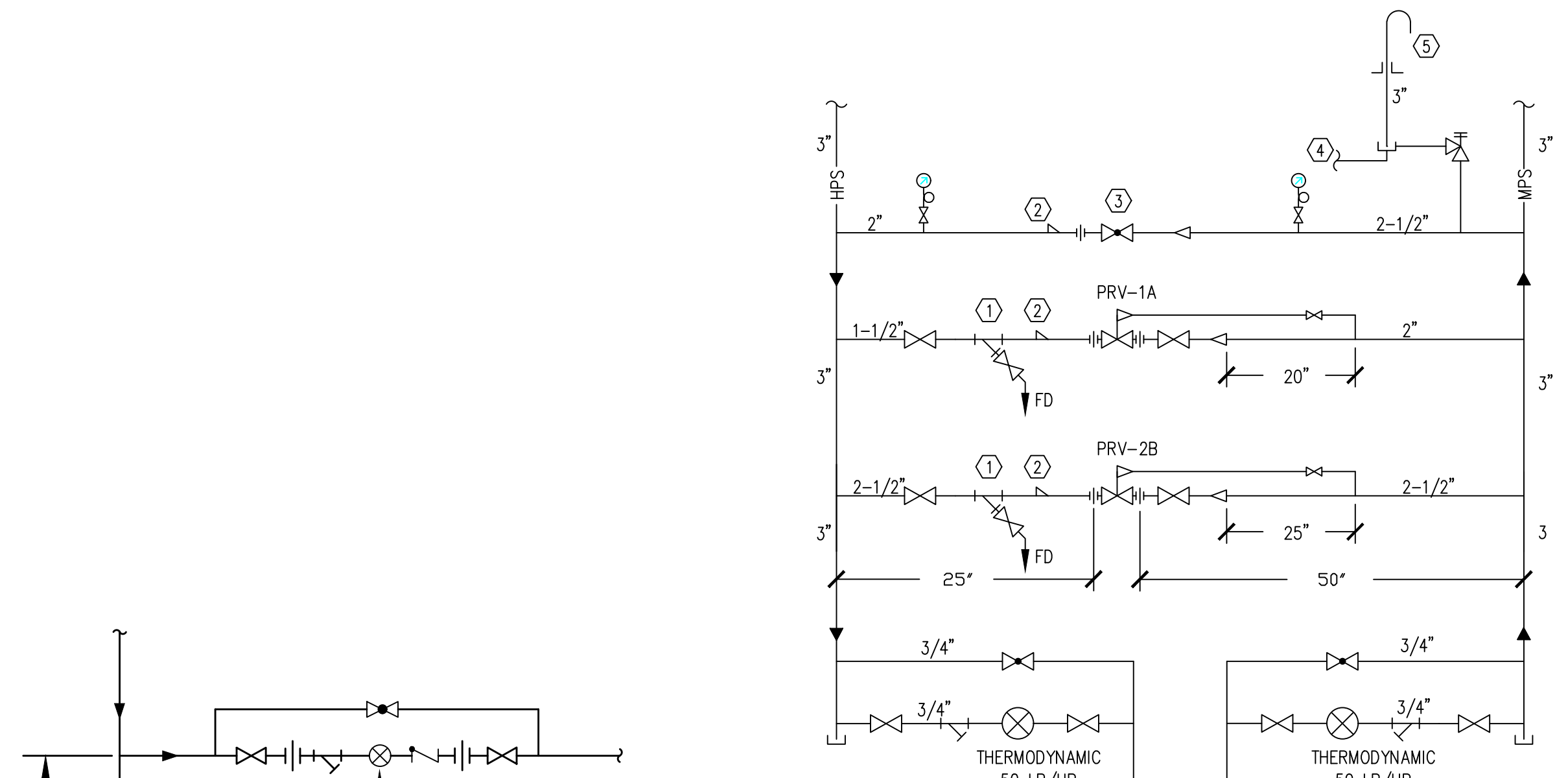
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**STEAM BOILER UPGRADE**  
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 TUALATIN, OREGON  
**MECHANICAL DETAILS**



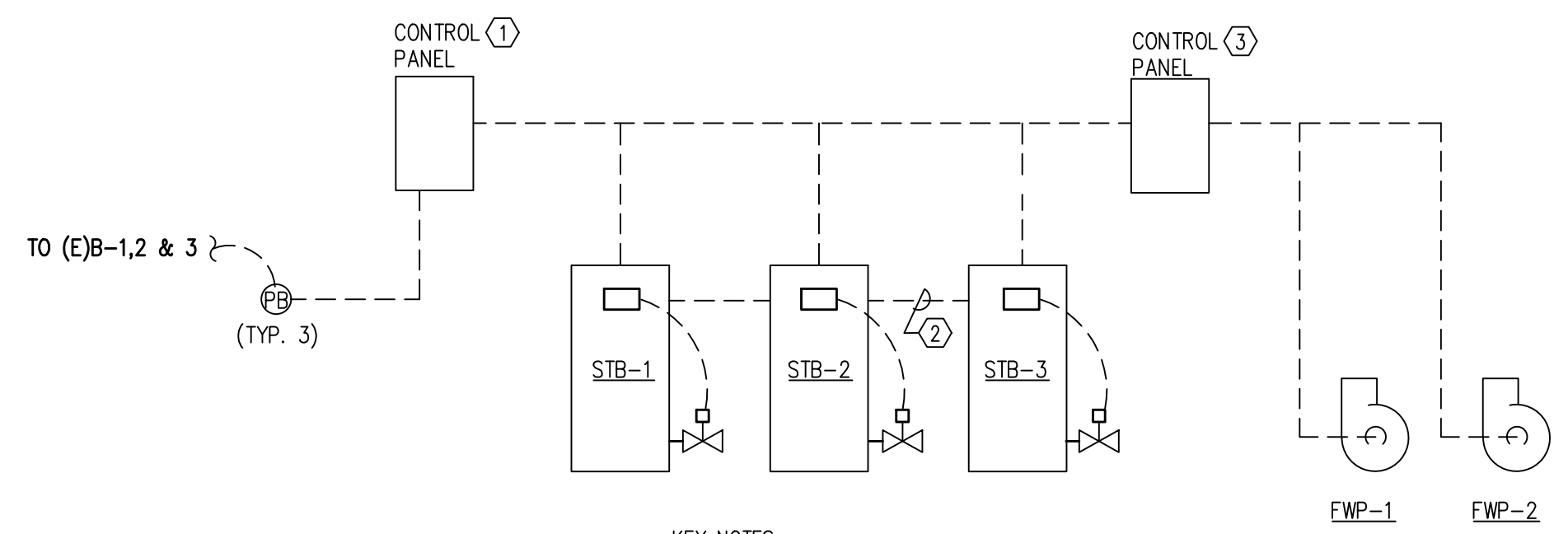
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- KEYED NOTES:**
- ① MOUNT STRAINER FLAT.
  - ② ECCENTRIC REDUCER.
  - ③ GLOBE VALVE SIZED FOR 1840 LB/HR @ 25 PSI DROP.
  - ④ DRIP PAN ELBOW. ROUTE TO FLOOR DRAIN.
  - ⑤ WEATHER TIGHT ROOF PENETRATION WITH 180° GOOSENECK.

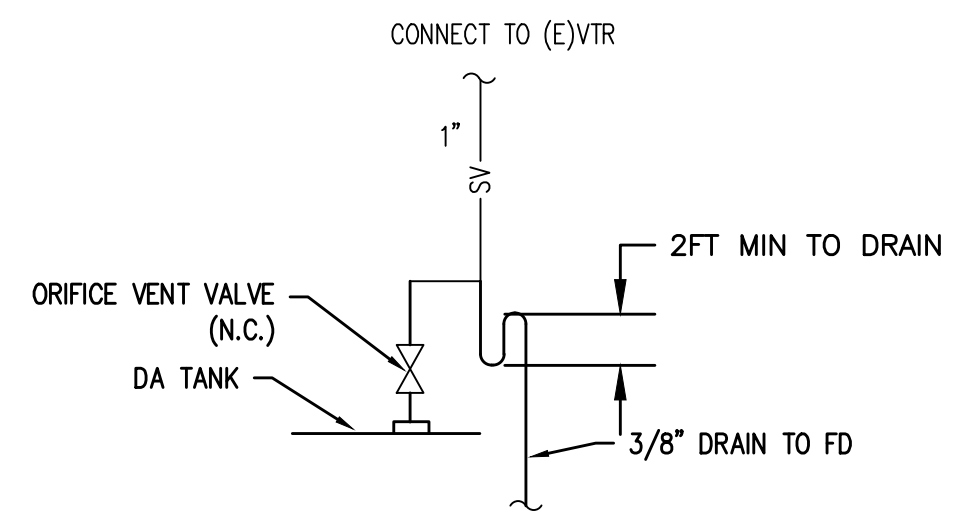
**1** DRIP TRAP DETAIL  
 M6.1 SCALE: NONE

**2** STEAM PRESSURE REDUCING STATION  
 M6.1 SCALE: NONE

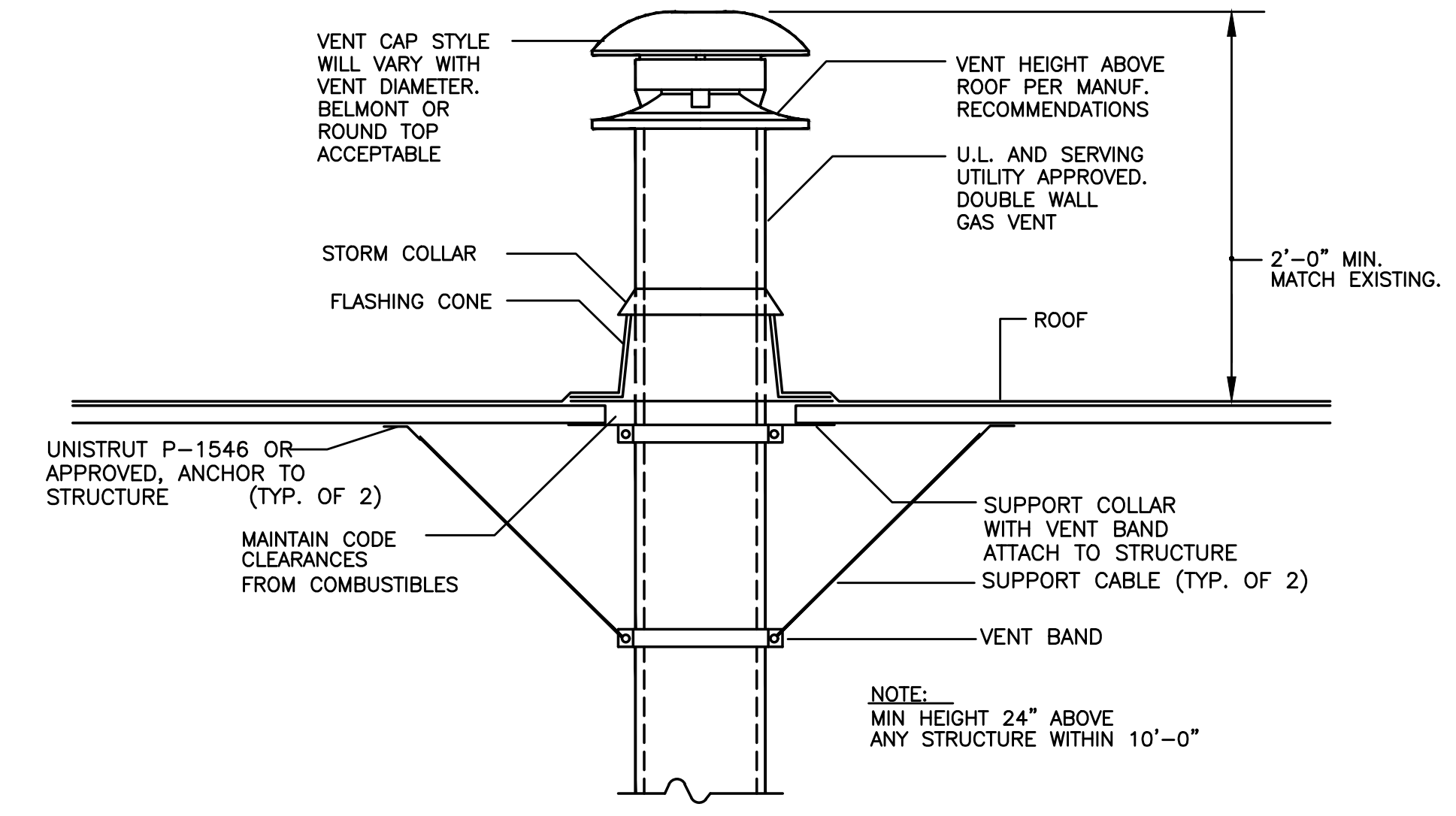


- KEY NOTES:**
- ① MASTER CONTROL PANEL WITH BOILER HOA SWITCHES, RELAYS, CONTROLLER, AND ALARM HORN. CONTRACTOR TO CONFIRM LOCATION.
  - ② SHIELDED CABLE INTER-TIE BETWEEN BOILERS.
  - ③ DA CONTROLLER ON SKID.

**3** BOILER CONTROL WIRING DIAGRAM  
 M6.1 SCALE: NONE



**4** DA TANK VENT PIPING DETAIL  
 M6.1 SCALE: NONE



**5** BOILER VENT DETAIL  
 M6.1 SCALE: NONE