

NRC BUILDING S77 - RM 4099 STEAM BOILER

100 SUSSEX DRIVE, OTTAWA, ON.
MECHANICAL



GENERAL NOTES

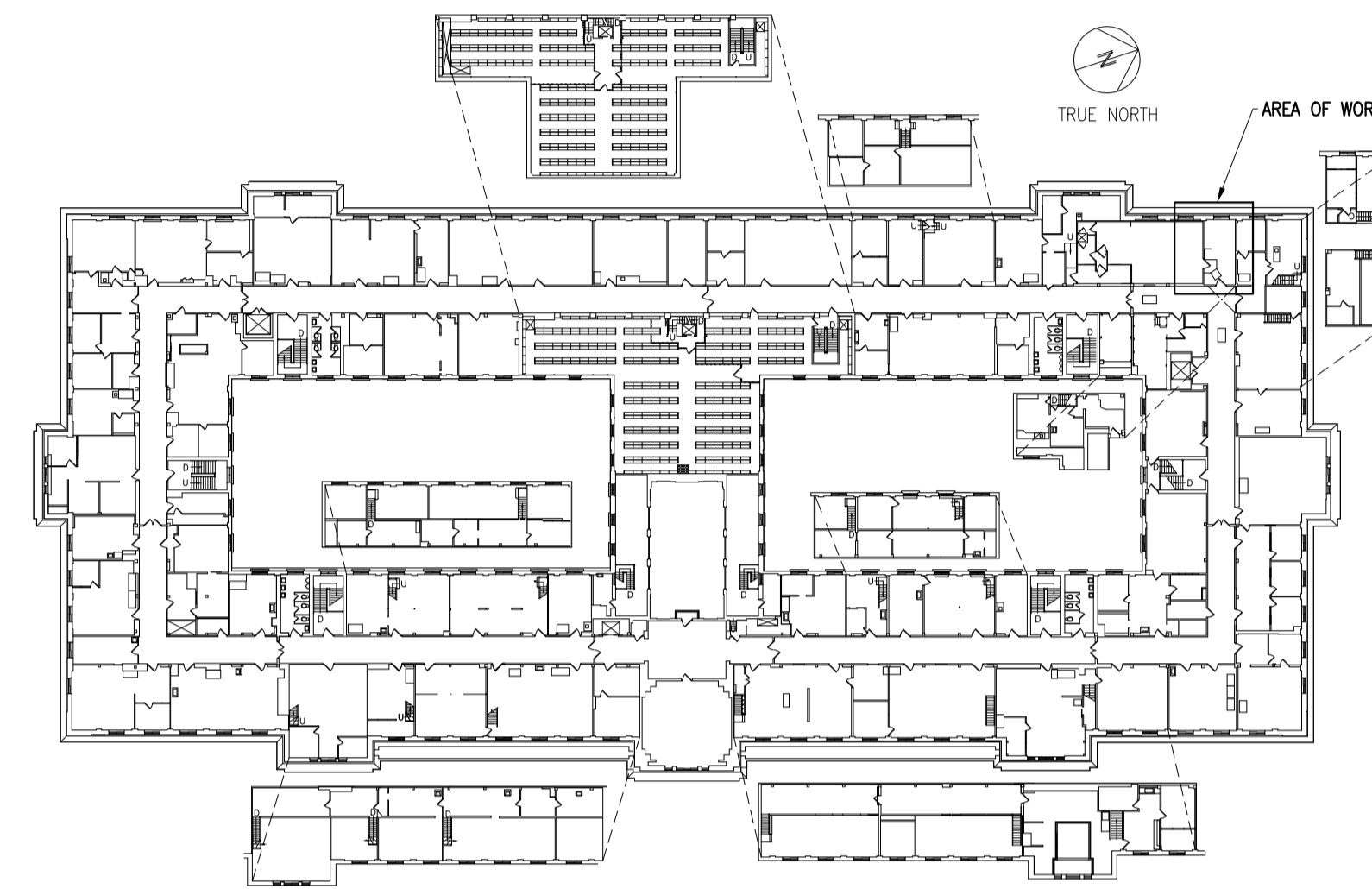
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GENERAL LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING PIPING/DUCTWORK/EQUIPMENT
----	EXISTING PIPING/DUCTWORK/EQUIPMENT TO BE REMOVED/RELOCATED
---	NEW/RELOCATED PIPING/DUCTWORK/EQUIPMENT
---	EXISTING PIPING/DUCTWORK/EQUIPMENT BELOW SLAB
----	NEW PIPING/DUCTWORK/EQUIPMENT BELOW SLAB
(E)	DENOTES EXISTING EQUIPMENT
(R)	DENOTES RELOCATED EQUIPMENT
(N)	DENOTES NEW EQUIPMENT
(X)	DENOTES EQUIPMENT TO BE REMOVED

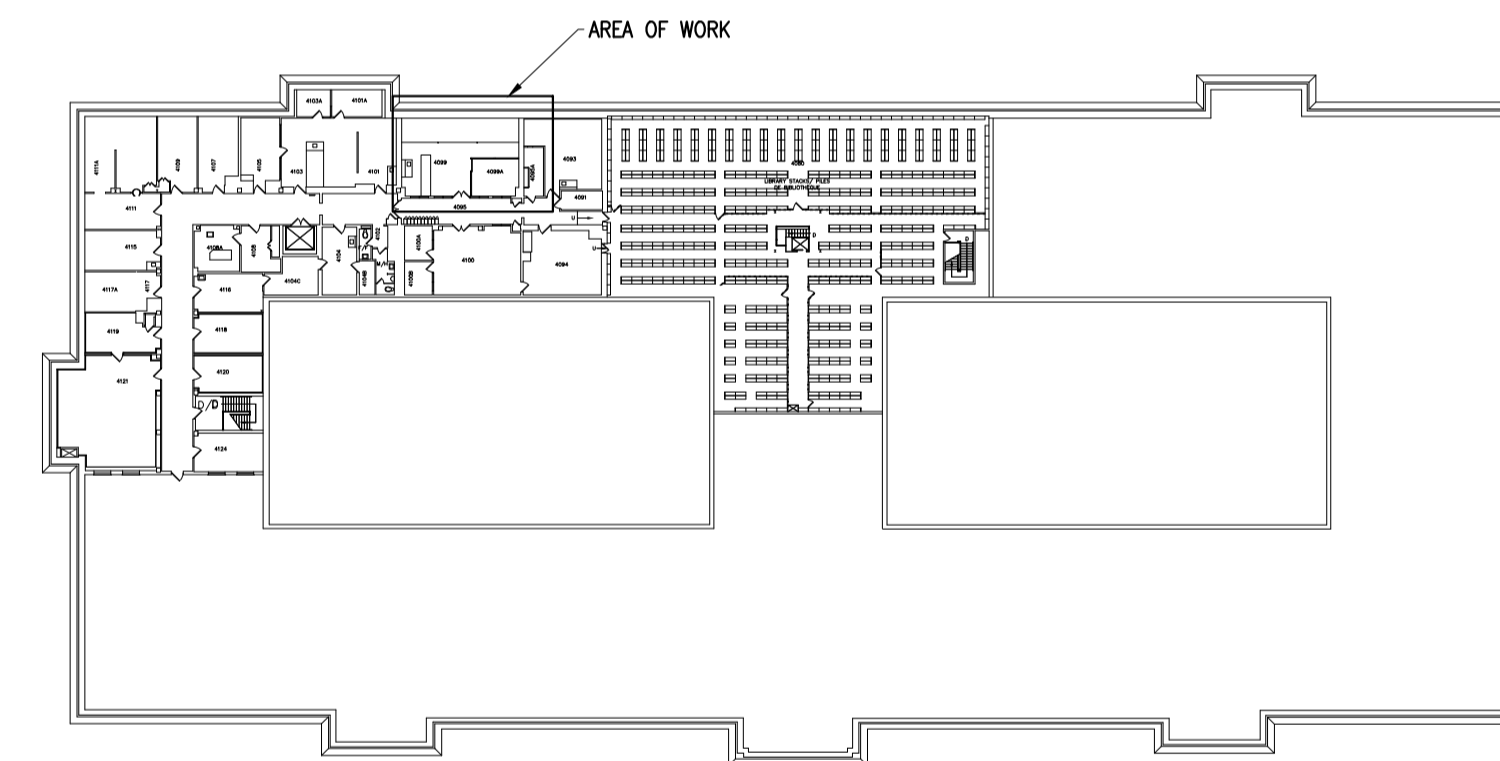
DRAWING LIST	
SYMBOL	DESCRIPTION
6092-M01	MECHANICAL - DRAWING LIST, LEGENDS & KEY PLAN
6092-M02	MECHANICAL - SCHEDULES & DETAILS
6092-M03	MECHANICAL - RM 3052 - DEMOLITION AND NEW WORK
6092-M04	MECHANICAL - RM 4099 - DEMOLITION AND NEW WORK
6092-M05	MECHANICAL - RM 4099 - UTILITIES SCHEMATICS

CONTROLS LEGEND	
SYMBOL	DESCRIPTION
---	LOW VOLTAGE CONTROL WIRING
□	TEMPERATURE SENSOR

PLUMBING & UTILITIES LEGEND	
SYMBOL	DESCRIPTION
---	PIPING BELOW GRADE/SLAB
---	LPS --- LOW PRESSURE STEAM
---	LPC --- LOW PRESSURE CONDENSATE
---	HPS --- HIGH PRESSURE STEAM
---	HPC --- HIGH PRESSURE CONDENSATE
---	SAN --- SANITARY
---	CWS --- CHILLED WATER SUPPLY
---	CWR --- CHILLED WATER RETURN
---	HWS --- HEATING WATER SUPPLY
---	HWR --- HEATING WATER RETURN
---	DCW --- DOMESTIC COLD WATER
---	V --- VENT PIPING
⊙ FD1	FLOOR DRAIN (TYPE)
○	PIPING OFFSET
○	BRANCH PIPING DOWN
○	PIPING DOWN
○	PIPING UP
○	REDUCER
→	FLOW DIRECTION
⊥	PIPE BREAK
⊥	CAP
⊥	P-TRAP
⊥	DRAIN ASSEMBLY
⊥	CLEAN OUT
⊥	FLOOR CLEAN OUT
⊥	ISOLATION VALVES
⊥	NORMALLY OPEN ISOLATION VALVE
⊥	NORMALLY CLOSED ISOLATION VALVE
⊥	PRESSURE REDUCING VALVE (PRV)
⊥	SOLENOID VALVE
⊥	TWO-WAY DDC CONTROL VALVE
⊥	STRAINER
⊥	CHECK VALVE
⊥	STOP CHECK VALVE
⊥	FLEXIBLE CONNECTION
⊥	UNION
⊥	RELIEF VALVE
⊥	DRAIN VALVE C/W CAP & CHAIN
⊥	THERMOMETER
⊥	PRESSURE GAUGE
⊥	STEAM TRAP



1 KEY PLAN - 3RD FLOOR
M01 NTS



2 KEY PLAN - 4TH FLOOR
M01 NTS



No.	Date	Revision
05	2023-01-13	ISSUED FOR TENDER
04	2022-12-21	ISSUED FOR 100% REVIEW
03	2022-12-08	ISSUED FOR 99% REVIEW - MECHANICAL
02	2022-09-30	ISSUED FOR 66% REVIEW
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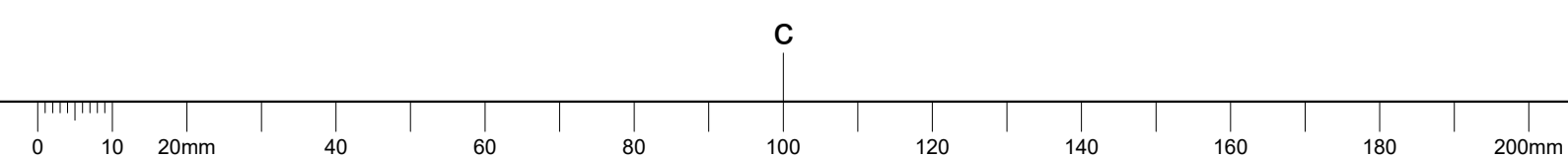
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Consulting Engineers

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- Verify all dimensions and site conditions and be responsible for same
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A	A Detail no. No. du détail	A
B	B Location drawing no. sur dessin no.	B C
C	C Drawing no. dessin no.	

project	project		
BUILDING S77 RM 4099 STEAM BOILER			
100 SUSSEX DRIVE, OTTAWA, ON.			
drawing	dessin		
MECHANICAL DRAWING LIST, LEGENDS, AND KEY PLANS			
designed	conçu	date	date
R.L.			
drawn	dessiné	scale	échelle
K.N.		AS NOTED/COMME INDIQUÉ	
checked	vérifié	sheet	of/de feuille
R.L.			
approved	approuvé	W.O.no.	D.T.no.
R.L.			
dwg.no.	dessin no.		
6092-M01			



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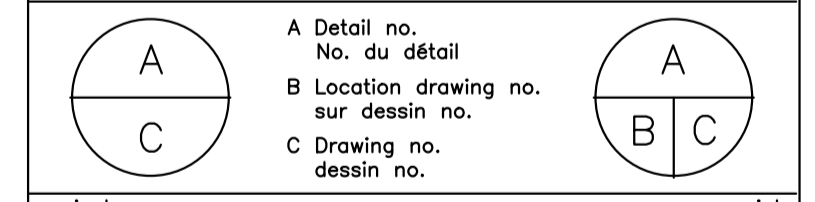
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project **BUILDING S77 RM 4099 STEAM BOILER** projet
 100 SUSSEX DRIVE, OTTAWA, ON.
 drawing **MECHANICAL SCHEDULES AND DETAILS** dessin

designed	R.L.	conçu	date	date
drawn	K.N.	dessiné	scale AS NOTED/COMME INDIQUÉ	échelle
checked	R.L.	vérifié	sheet of/de	feuille
approved	R.L.	approuvé	W.O.no.	D.T.no.

dwg.no. **6092-M02** dessin no.

EQUIPMENT	FLUID TYPE	VALVE TYPE	EQUIPMENT SERVED	INLET PRESSURE (PSI)	MAMP (PSI)	STEAM CAPACITY (LBS/HR)	VALVE SIZE (#IN)	VALVE MAX P.D. (PSI)	CONTROL TYPE	BASIS OF DESIGN	VALVE FAILURE POSITION	ACTUATOR
CV1	HPS	2-WAY	CHEMAP	36	40	40	1/2	5	OPEN/CLOSED	ARMSTRONG PYTHON CV1500	FAIL CLOSED	BELIMO-SVK
CV2	HPS	2-WAY	NBS MF128S	72	80	68	1/2	5	MODULATING	ARMSTRONG PYTHON CV1500	FAIL CLOSED	BELIMO-SVK
CV3	HPS	2-WAY	FDI FERMENTER	72	80	150	1/2	5	MODULATING	ARMSTRONG PYTHON CV1500	FAIL CLOSED	BELIMO-SVK
CV4	HPS	2-WAY	NBS	72	80	68	1/2	5	MODULATING	ARMSTRONG PYTHON CV1500	FAIL CLOSED	BELIMO-SVK
CV5	HPS	2-WAY	MBR	54	60	110	1/2	5	OPEN/CLOSED	ARMSTRONG PYTHON CV1500	FAIL CLOSED	BELIMO-SVK
CV6	HPS	2-WAY	AUTOCLAVE	72	80	148	1/2	5	OPEN/CLOSED	ARMSTRONG PYTHON CV1500	FAIL CLOSED	BELIMO-SVK
CV7	HPS	2-WAY	STERILIZER	45	50	60	1/2	5	OPEN/CLOSED	ARMSTRONG PYTHON CV1500	FAIL CLOSED	BELIMO-SVK

NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS.

TAG	FLOOR	ROOM	MAX CONDENSATE FLOW (GPM)	CONDENSATE INLET SIZE (IN)	CONDENSATE OUTLET SIZE (IN)	COLD WATER INLET SIZE (IN)	BASIS OF DESIGN	REMARKS
CC1	4	ROOM 4099	5	3/4	1 1/4	1/2	ARMSTRONG CC-5	* ASTM A48 CAST IRON BODY * CONDENSATE DISCHARGE TEMPERATURE TO BE SET TO 135°F MAX.

TAG	FLOOR	ROOM	AIR FLOW (CFM)	CAPACITY (kW)	DUCT CONNECTION SIZE (LxW)(IN)	ELECTRICAL DATA V/PH/Hz	BASIS OF DESIGN	REMARKS
DH-1	3	ROOM 3053	2051	9	18 x 15	600/3/60	NAILOR DHRS	* DUCT HEATERS TO BE SUPPLIED AND INSTALLED BY DIV.23, WIRED BY DIV.26. CONTROLS BY DIV.25.
DH-2			8799	36	46 x 28	600/3/60	NAILOR DHRS	* C/W SCR CONTROL, INTEGRAL DISCONNECT SWITCH
DH-3			1422	6	16 x 10	600/3/60	NAILOR DHRS	* DUCT CONNECTION SIZE LISTED IS APPROXIMATE. MEASURE EXACT DUCT SIZE AT COIL LOCATION ON SITE, AND SUBMIT NEW COILS TO SUIT.

NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS.

TAG	LOCATION	FUNCTION	TYPE	CONNECTION SIZE (IN)	INLET PRESSURE (kPa)	PRESSURE DROP (kPa)	BASIS OF DESIGN	REMARKS
BFP1	ROOM 4099	BOILER FEEDWATER	REDUCED PRESSURE	1/2	-	-	WATTS 0090T-S	* C/W STRAINER * RELIEF PIPED TO NEAREST DRAIN

NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS.

PRV						SRV						
PRV TAG	EQUIPMENT SERVED	INLET PRESSURE (PSI)	OUTLET PRESSURE (PSI)	STEAM CAPACITY (LBS/HR)	VALVE SIZE (#IN)	BASIS OF DESIGN	SRV TAG	EQUIPMENT SERVED	MAMP (PSI)	RELIEF PRESSURE SETPOINT (PSI)	RELIEF CAPACITY (LBS/HR)	VALVE SIZE (#IN)
PRV1	CHEMAP	90	36	40	1/2	ARMSTRONG GP-2000	SRV1	CHEMAP	40	40	40	1/2
PRV2	NBS MF128S	90	72	68	1/2	ARMSTRONG GP-2000	SRV2	NBS MF128S	80	80	68	1/2
PRV3	FDI FERMENTER	90	72	150	1/2	ARMSTRONG GP-2000	SRV3	FDI FERMENTER	80	80	150	1/2
PRV4	NBS	90	72	68	1/2	ARMSTRONG GP-2000	SRV4	NBS	80	80	68	1/2
PRV5	MBR	90	54	110	1/2	ARMSTRONG GP-2000	SRV5	MBR	60	60	110	1/2
PRV6	AUTOCLAVE	90	72	148	1/2	ARMSTRONG GP-2000	SRV6	AUTOCLAVE	80	80	148	1/2
PRV7	STERILIZER	90	45	60	1/2	ARMSTRONG GP-2000	SRV7	STERILIZER	50	50	60	1/2
PRV8	STEAM BOILER	100	90	307	1/2	ARMSTRONG GP-2000	-	-	-	-	-	-

TAG	LOCATION		PHYSICAL DATA		STEAM OUTPUT (LBS/HR)	DESIGN PRESSURE (PSI)	OPERATING PRESSURE (PSI)	INCOMING WATER SUPPLY PRESSURE (PSI)	ELECTRICAL DATA		BASIS OF DESIGN	REMARKS
	FLOOR	ROOM	DIMENSIONS (LxWxH)(IN)	WEIGHT (LBS)					KW	V/PH/Hz		
B1	4	ROOM 4099	38x32x58	625	307	100	90	ATMOSPHERIC FEEDWATER TANK	105	600/3/60	CHROMALOX CES-102 LW 600/3 102KW	* CARBON STEEL VESSEL, INCOLOY ELEMENTS, MECHANICAL FLOAT LEVEL CONTROL, ASME. * C/W HIGH PRESSURE WATER FEED PUMP ES38020 (#300178004), BLOWDOWN SEPARATOR CBS-1

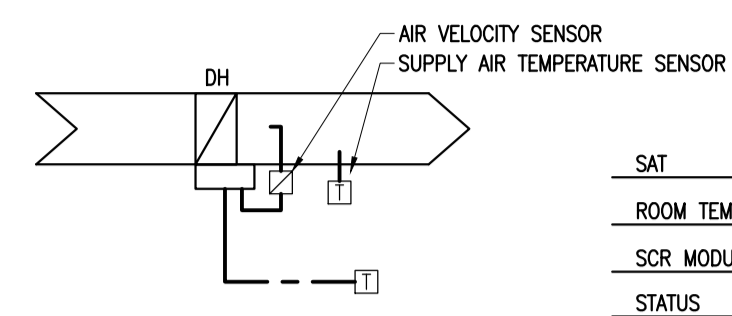
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TAG	LOCATION	FUNCTION	TYPE (DIAPHRAGM/ BLADDER)	OPERATING PRESSURE		OPERATING TEMPERATURE		TANK VOLUME (L)	ACCEPTANCE VOLUME (L)	ORIENTATION (HORIZONTAL/ VERTICAL)	BASIS OF DESIGN	REMARKS
				MIN (PSI)	MAX (PSI)	MIN (°F)	MAX (°F)					
ET1	RM. 4099	BOILER FEEDWATER	DIAPHRAGM	20	125	50	75	24.2	12.1	VERTICAL	AMTROL AX-10-DD	* ASME, NON-POTABLE WATER

NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS.
2. PRE-CHARGE PRESSURE TO BE EQUIVALENT TO MINIMUM OPERATING PRESSURE.

TAG	FLOOR	ROOM	MAX SUPPLY PRESSURE (PSI)	MAX TEMPERATURE (°F)	SOFTENER TANK		BRINE TANK DIMENSIONS (ø X H)(IN)	WATER QUALITY REQUIREMENTS			ELECTRICAL V/PH/Hz	BASIS OF DESIGN	REMARKS
					QUANTITY	DIMENSION (ø X H)(IN)		HARDNESS (ppm as CaCO3)	TDS (ppm)	pH			
WTS1	4	ROOM 4099	125	100	2	9 x 48	18.1 x 34.5	0 - 0.3	2200 - 2800	8.5 - 10	115/1/60	CANATURE 85TA-30	* SOFTENER SYSTEM TO BE C/W PIPING MANIFOLD AND ELECTRONIC CONTROL VALVE WITH METER * MINERAL TANKS TO BE NSF/ANSI 44 CERTIFIED FOR MATERIALS AND STRUCTURAL INTEGRITY.

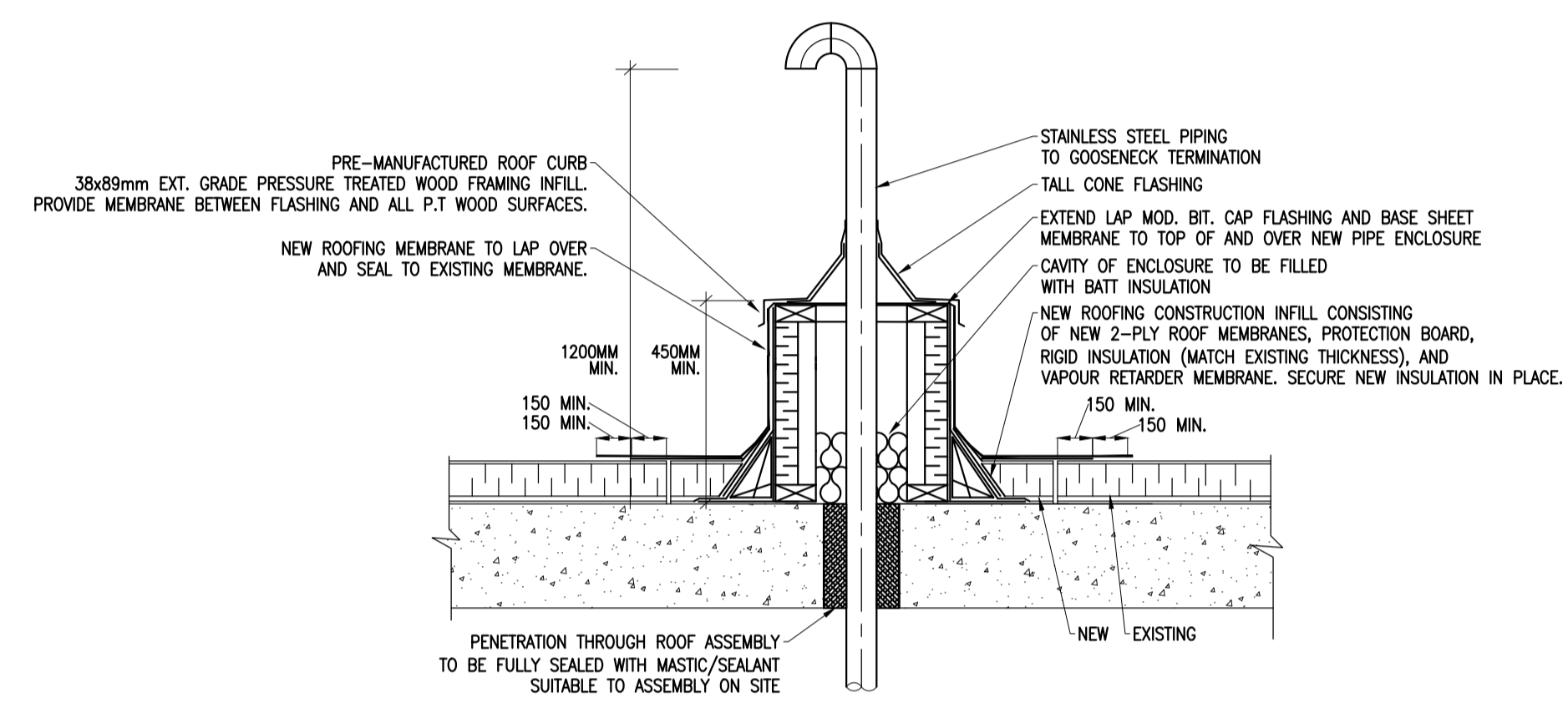
NOTES: 1. FOR DETAILS REFER TO SPECIFICATIONS.
2. CONTRACTOR TO SUPPLY AT TIME OF PROJECT CLOSURE (AFTER COMMISSIONING AND STARTUP OF THE SYSTEM) 30 (20KG) ADDITIONAL BAGS OF APPROVED SOFTENER SALT.



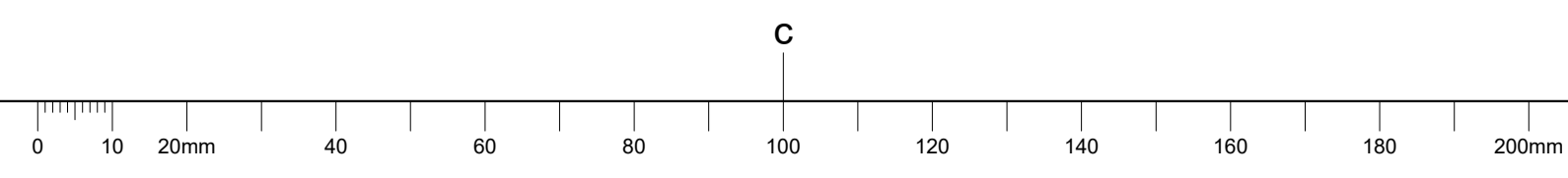
ELECTRIC DUCT HEATER CONTROL SEQUENCE
 1. BAS TO MONITOR STATUS, DISCHARGE AIR TEMPERATURE, AND SPACE TEMPERATURE, AND MODULATE DUCT HEATER TO MAINTAIN SPACE TEMPERATURE SETPOINT.

NOTES:
1. AIR VELOCITY SENSOR SUPPLIED WITH DUCT HEATER AND INSTALLED BY DIV 23, WIRING BY DIV 25.

1 M02 CONTROLS SCHEMATIC ELECTRIC DUCT HEATER NTS



2 M02 ROOFTOP VENT TERMINATION DETAIL NTS



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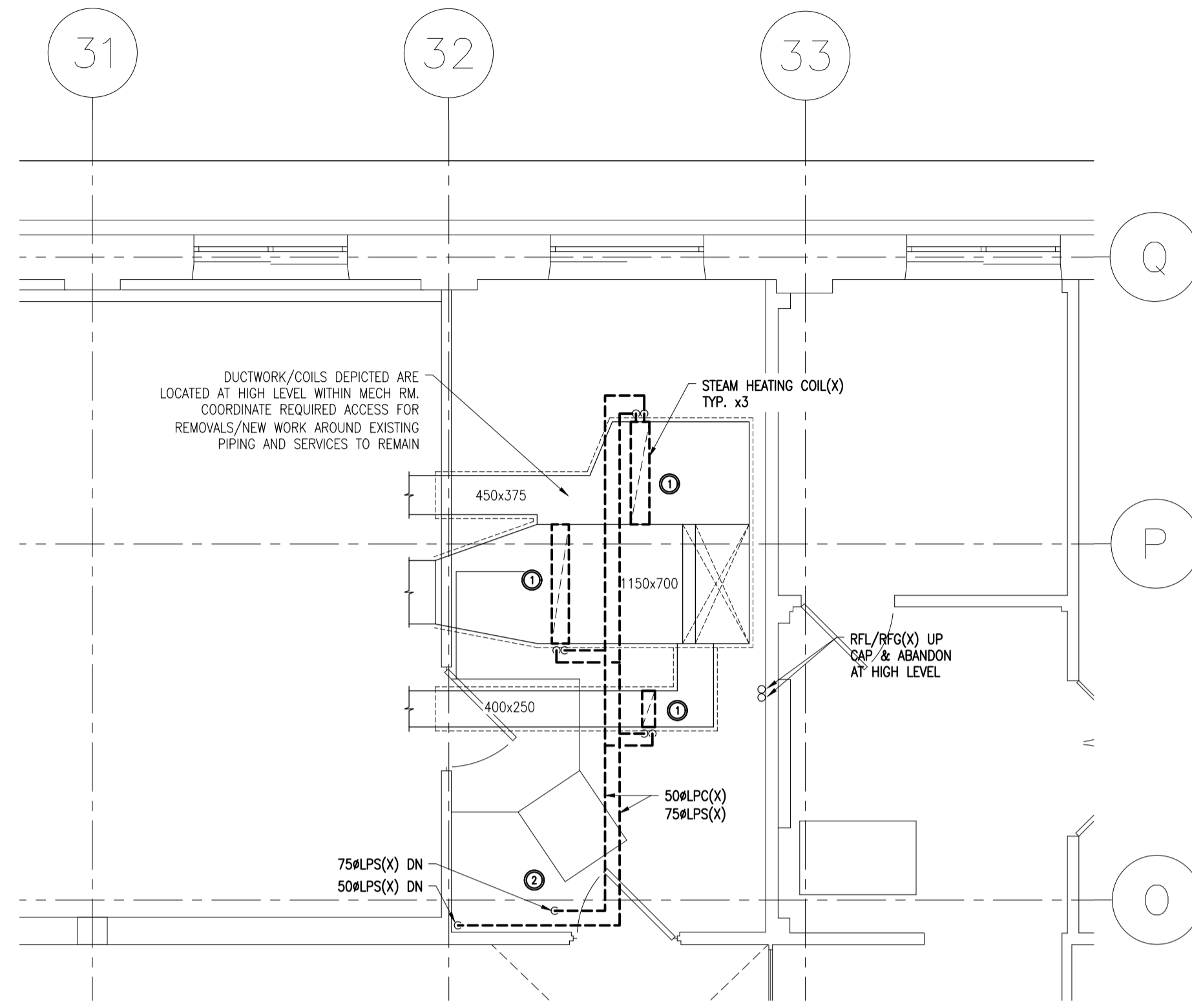
A	A Detail no. / No. de détail	A
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project / projet
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RM 4099 STEAM BOILER
 100 SUSSEX DRIVE, OTTAWA, ON
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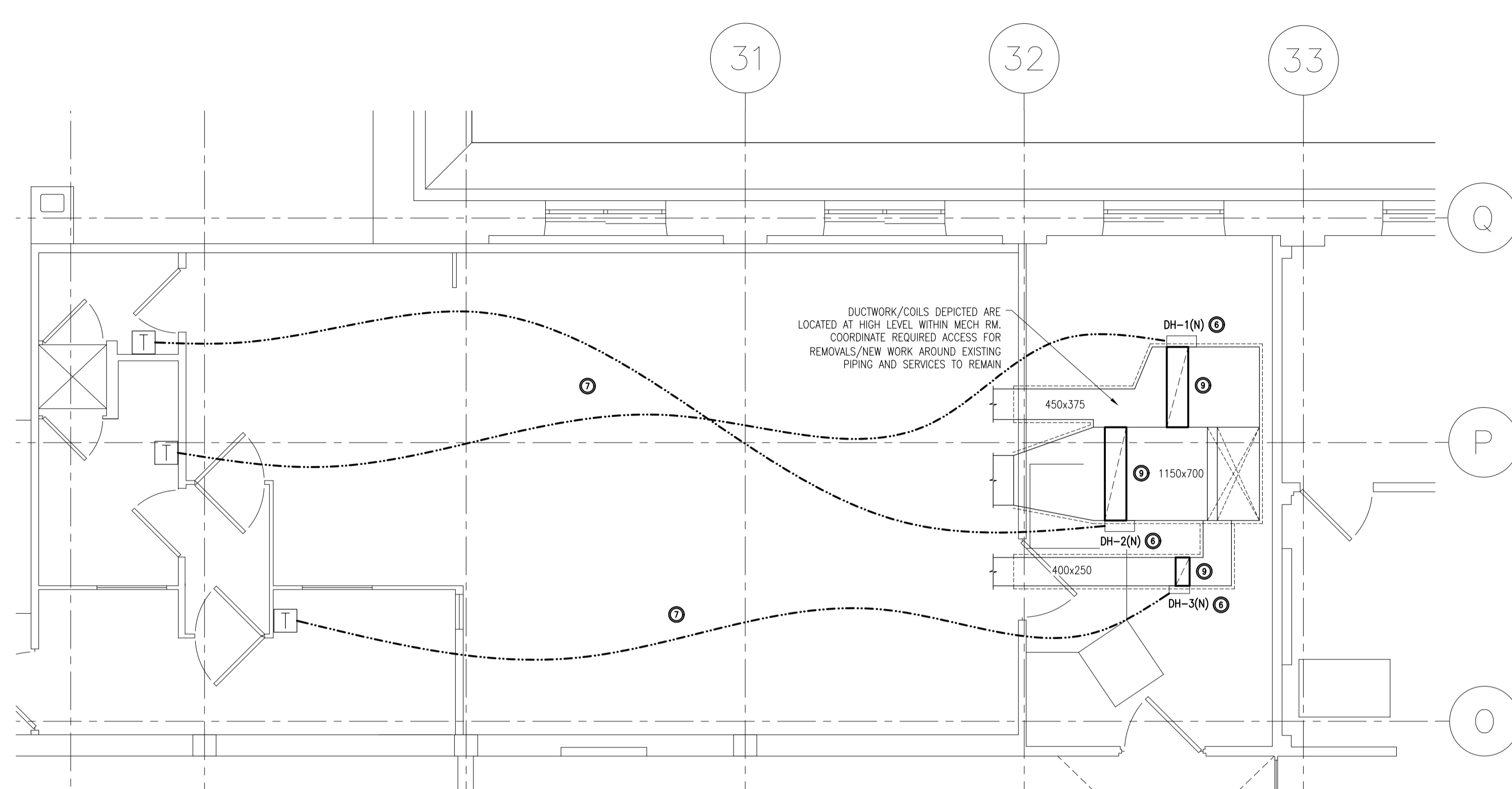
MECHANICAL
RM 3053
DEMOLITION AND NEW WORK

designed / dessiné	R.L.	conçu / scale	date / échelle
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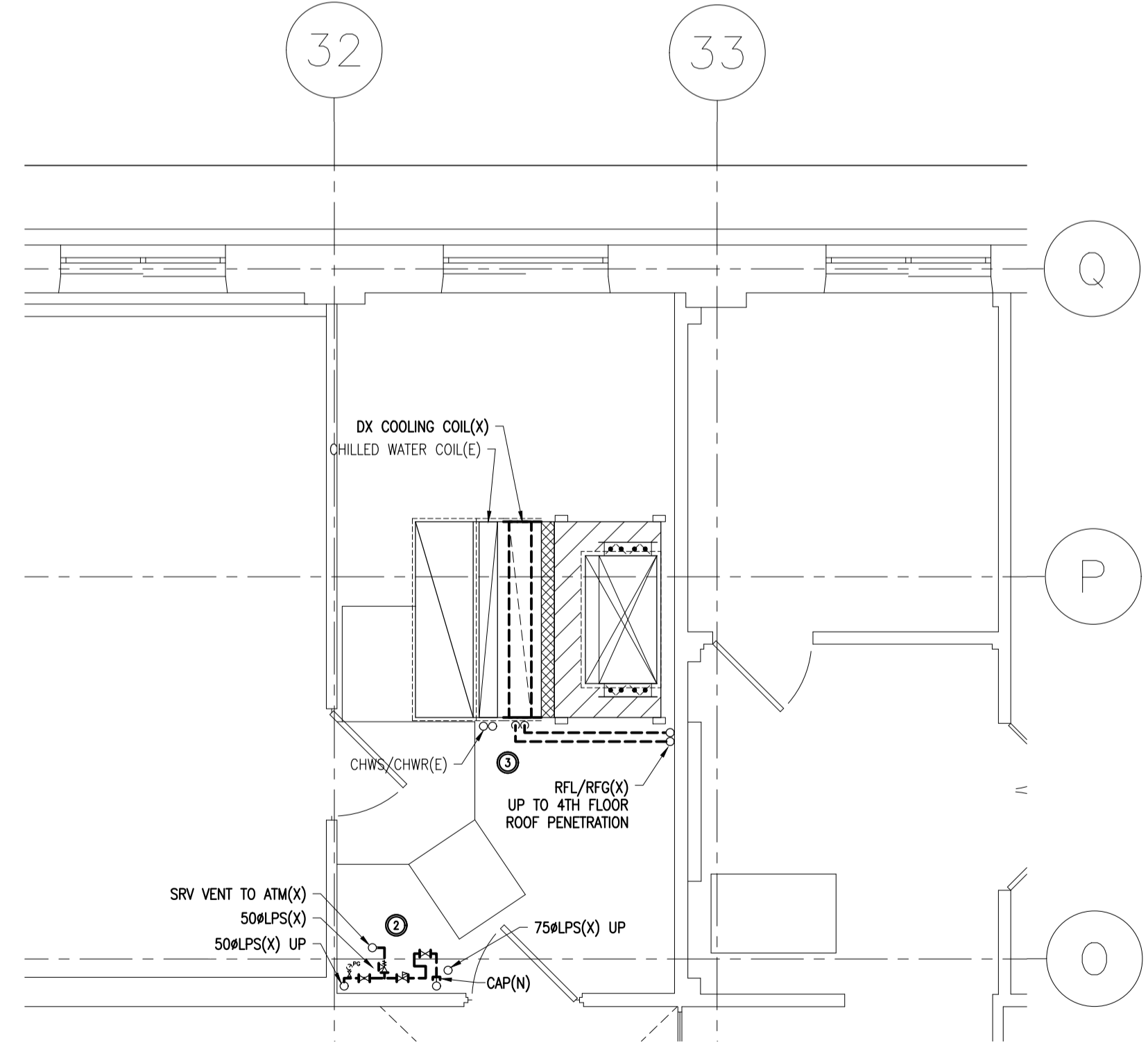
dwg.no. / dessin no. **6092-M03**



1 RM 3053 - DEMOLITION WORK - HIGH LEVEL
 M03 1:50



2 RM 3053 - NEW WORK - HIGH LEVEL
 M03 1:50



3 RM 3053 - DEMOLITION WORK - LOW LEVEL
 M03 1:50

DESCRIPTION OF WORK

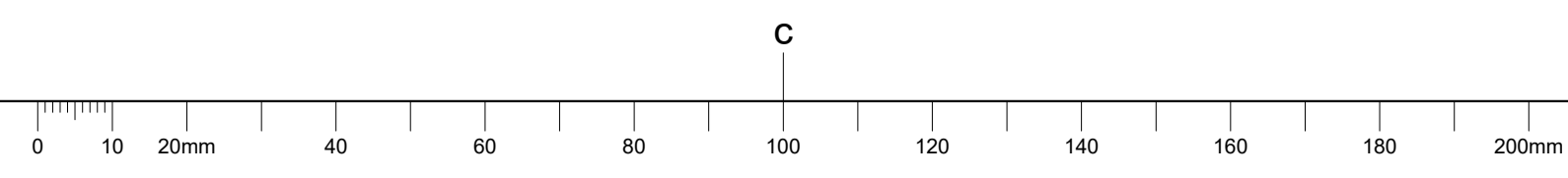
- REMOVE EXISTING STEAM HEATING COILS IN HIGH LEVEL SUPPLY AIR OUTDOOR AS INDICATED C/W ALL ASSOCIATED STEAM/CONDENSATE PIPING, TRAPS, VALVES, CONTROLS, AND ACCESSORIES.
- REMOVE EXISTING STEAM AND CONDENSATE PIPING AS INDICATED C/W ASSOCIATED TRAPS, VALVES, CONTROLS, AND RELATED ACCESSORIES. CAP CONDENSATE PIPING AT LOW LEVEL. REMOVE LOW PRESSURE STEAM PIPING, PREHEATER SENSING COILS, BACK TO TAKEOFF AT HPS RISER AND CAP. COORDINATE WORK AND ANY REQUIRED ISOLATION/SHUTDOWNS WITH NRC DEPARTMENTAL REPRESENTATIVE.
- REMOVE EXISTING DECOMMISSIONED DX COOLING COIL FROM LOW LEVEL AHU RETURN DUCTWORK AS INDICATED C/W ALL ASSOCIATED RETURN PIPING, VALVES, CONTROLS, AND ACCESSORIES. PIPING TO BE REMOVED BACK TO CEILING/ROOF PENETRATION AND CAPPED/ABANDONED IN PLACE. EXISTING CHILLED WATER COOLING COIL AND ALL ASSOCIATED PIPING AND CONTROLS TO REMAIN. ALLOW FOR REMOVAL OF DUCTWORK/TRANSITIONS UP AND DOWNSTREAM OF DX COIL AS REQUIRED TO SUIT REMOVAL. PROVIDE NEW DUCTWORK AND INSULATION FOLLOWING REMOVAL OF COIL C/W ASSOCIATED ACCESSORIES TO MATCH EXISTING CONDITIONS.
- COORDINATE WITH DEPARTMENTAL REPRESENTATIVE FOR ALL REQUIRED DISCONNECTIONS, ISOLATIONS, SHUTDOWNS, AND PHASING REQUIRED THROUGHOUT SCOPE OF WORK.
- PATCH, SEAL, AND MAKE GOOD ANY OPENINGS REMAINING FROM REMOVED PIPING.
- PROVIDE NEW ELECTRIC DUCT HEATING COILS AS INDICATED. MODIFY DUCTWORK UP AND DOWNSTREAM OF HEATING COILS AS REQUIRED TO SUIT NEW COIL INSTALLATION. CONTRACTOR IS REQUIRED TO MAKE ALL NECESSARY MODIFICATIONS TO ALLOW FOR THE INSTALLATION/SERVICEABILITY OF THE NEW DUCT HEATERS. DUCT HEATERS TO BE INSTALLED BY MECHANICAL CONTRACTOR AND WIRING BY ELECTRICAL. REFERENCE DUCT HEATER SCHEDULE ON DRAWING M02.
- PROVIDE NEW CONTROL WIRING FROM DUCT HEATERS TO ASSOCIATED ROOM TEMPERATURE SENSORS LOCATED WITHIN PATH LAB. COORDINATE EXACT LOCATIONS ON SITE.
- SIGNAGE/NOTES TO BE PLACED ON BAS, AHU, AND ENTRANCE TO PATH LAB INDICATING THAT EQUIPMENT/LAB IS NOT CAPABLE TO OPERATE AS A LEVEL 2.
- ALLOW FOR PATCHING AND REPAIRING OF ALL INSULATION AFFECTED BY EXECUTION OF WORK INCLUDING CHILLED WATER PIPING, DUCTWORK, AND ASSOCIATED PIPING WHETHER NEW, MODIFIED, EXISTING, OR DAMAGED DURING EXECUTION OF WORK.



4 RM-3053 EXISTING DX COIL TO REMOVE
 M03 NTS



5 RM-3053 EXIST. HIGH ELVEL LPS/LPC PIPING
 M03 NTS



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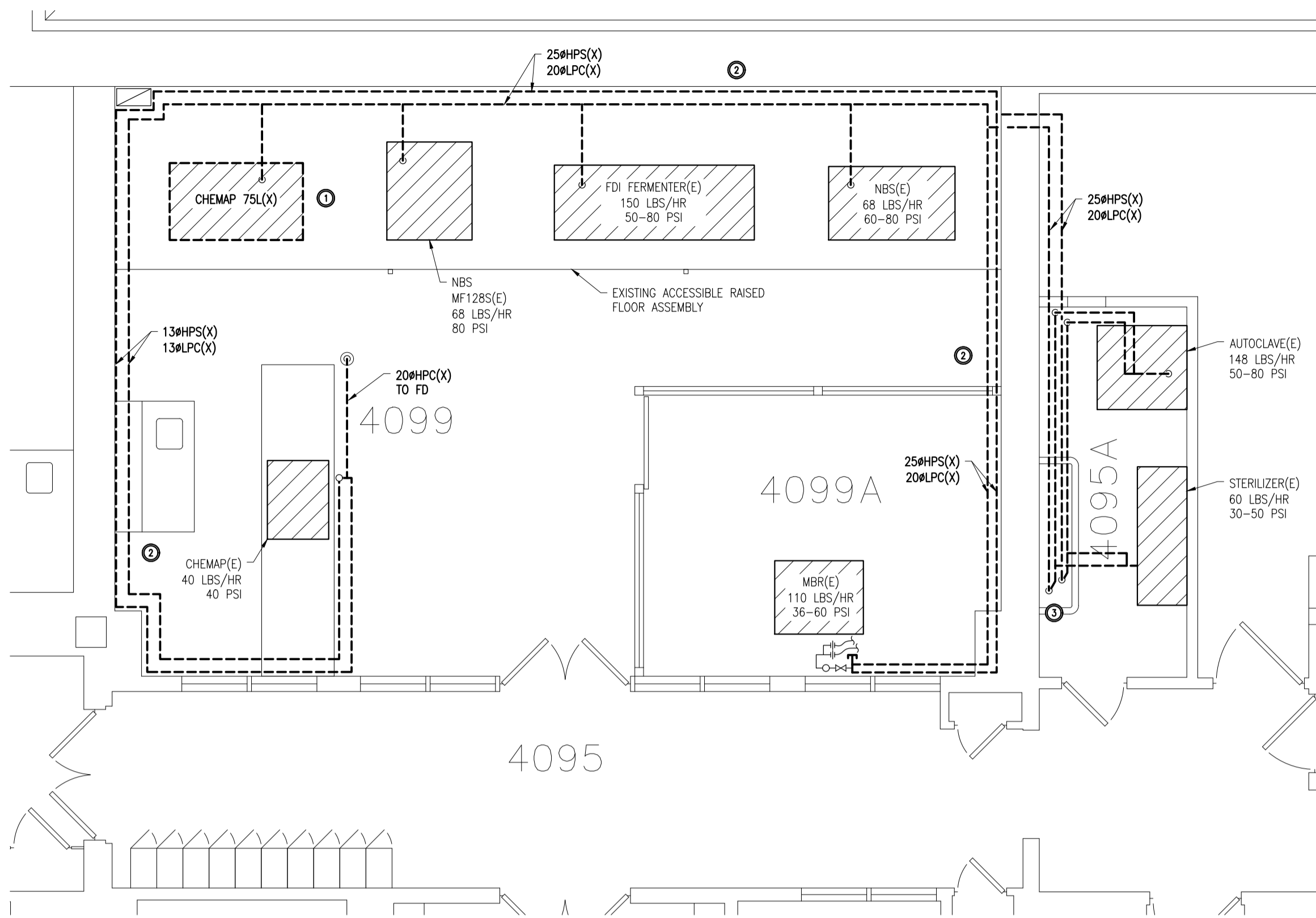
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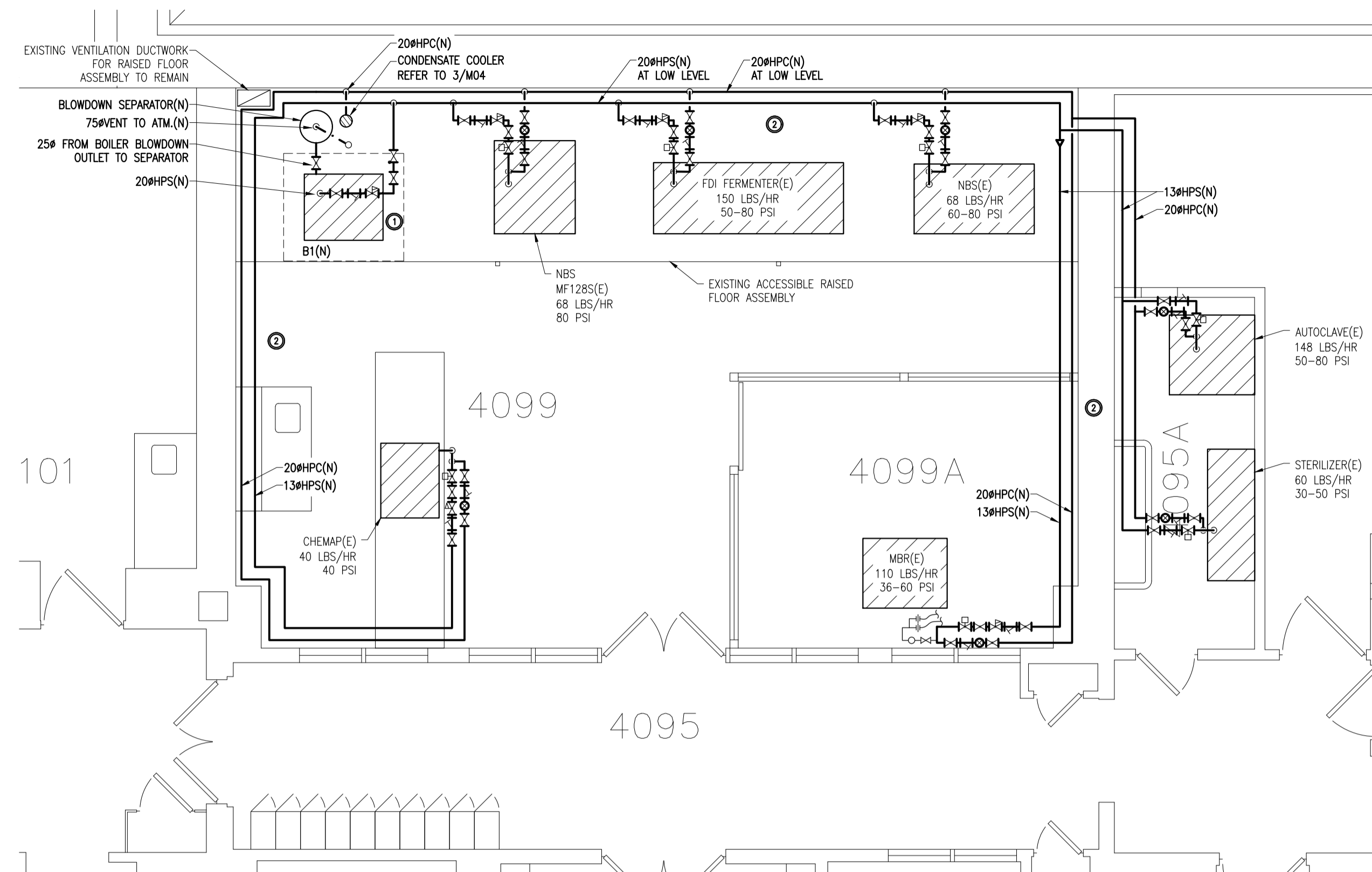
project **BUILDING S77** project
RM 4099 STEAM BOILER
 100 SUSSEX DRIVE, OTTAWA, ON.
 drawing **6092-M04** dessin

MECHANICAL
RM 4099
DEMOLITION AND NEW WORK

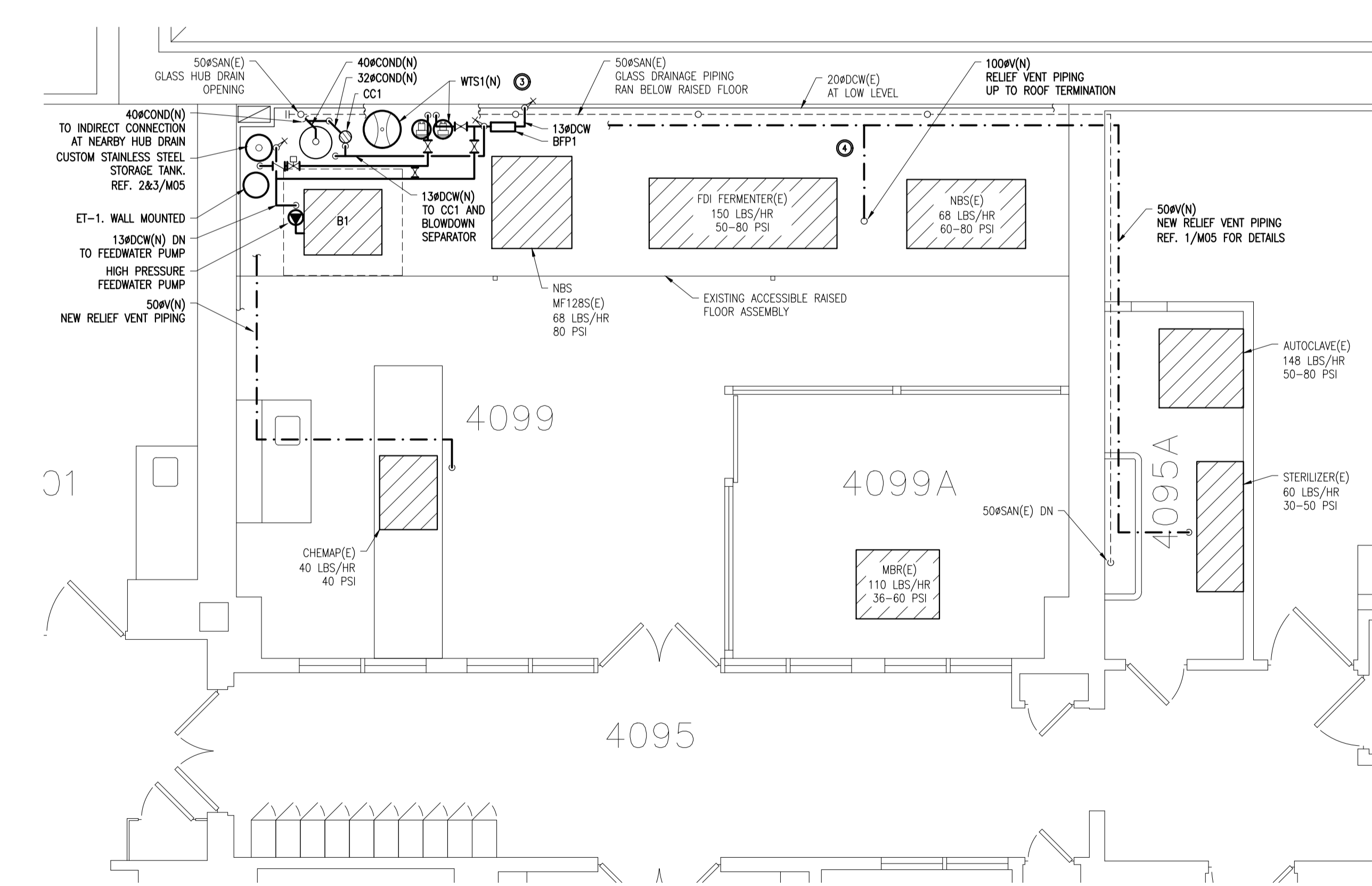
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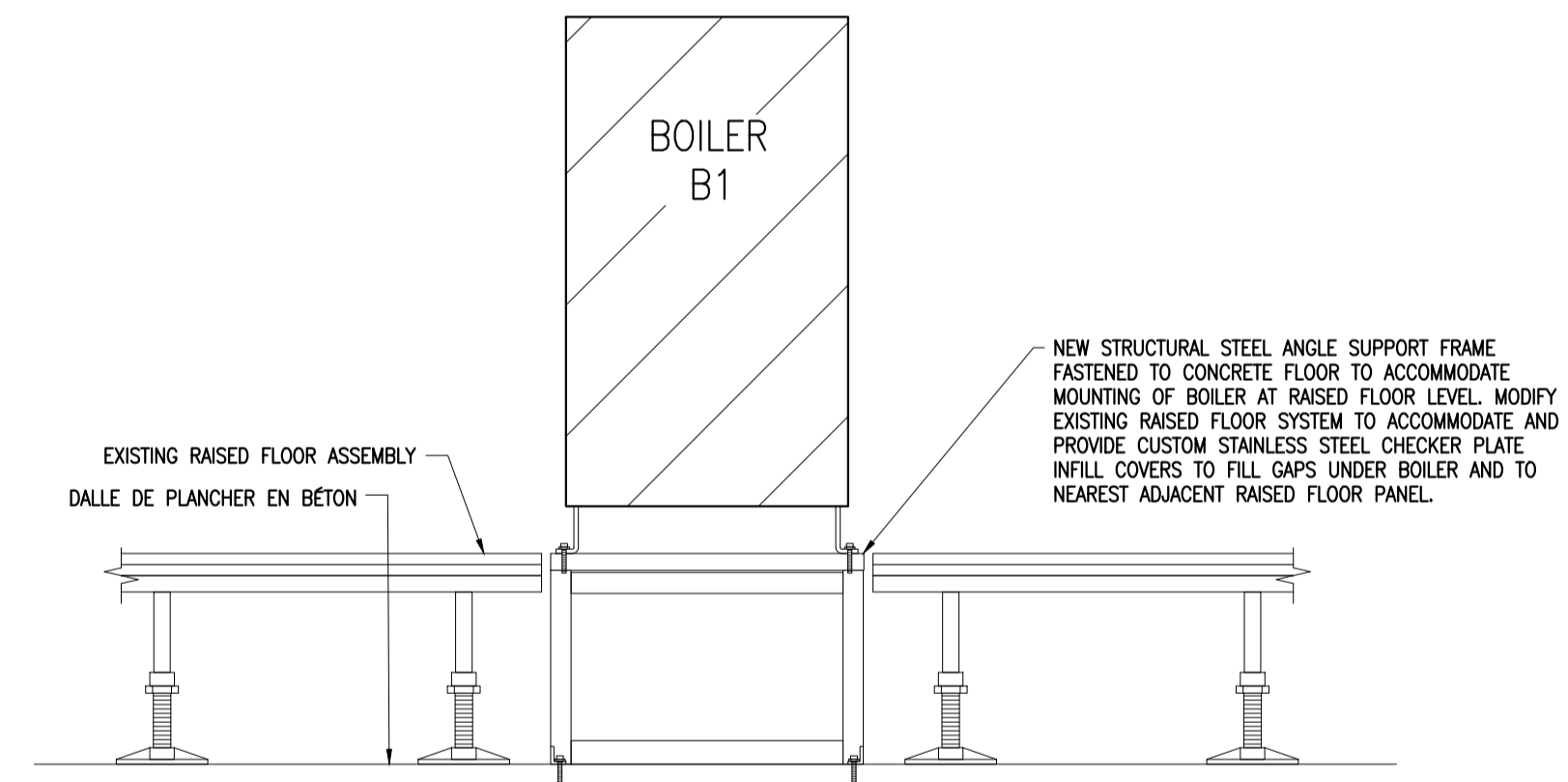
1 RM 4099 - DEMOLITION WORK
 M04 1:50



2 RM 4099 - UTILITIES NEW WORK
 M04 1:50



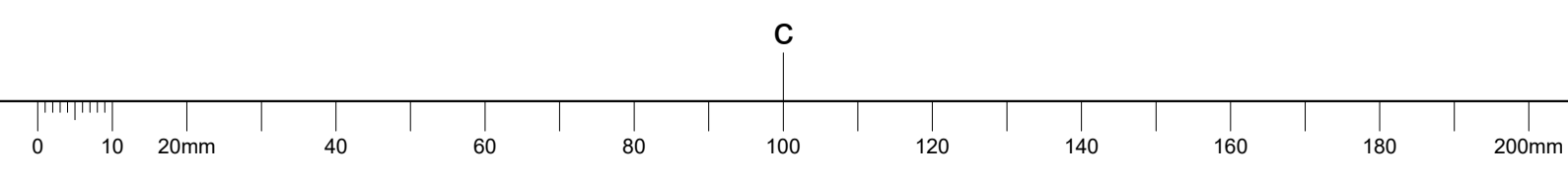
3 RM 4099 - PLUMBING NEW WORK
 M04 1:50



4 STEAM BOILER CONCEPTUAL SUPPORT FRAME DETAIL
 M04 NTS

- DEMOLITION WORK NOTES**
- REMOVE EXISTING CHEMAP 75L FERMENTER AS INDICATED C/W ASSOCIATED BASE FRAME, PIPING, CONTROLS, AND ACCESSORIES.
 - REMOVE EXISTING HIGH PRESSURE STEAM AND CONDENSATE PIPING BEING RAN AROUND PERIMETER OF LAB AT LOW LEVEL AS INDICATED C/W ASSOCIATED VALVES, PVAL, SPVAL, TRAPS, AND ACCESSORIES BACK TO CONNECTION AT ASSOCIATED LAB EQUIPMENT. MISC. SPECIALTY GAS, OIL, AND CHILLED WATER PIPING BEING RAN ADJACENT TO EXISTING STEAM/CONDENSATE PIPING AT LOW LEVEL IS TO REMAIN. COORDINATE REMOVALS WITH NRC DEPARTMENTAL REPRESENTATIVE AND LAB EQUIPMENT OPERATORS TO ENSURE EQUIPMENT IS PROPERLY DISCONNECTED AND HANDLED AS NECESSARY TO ACCOMMODATE WORK.
 - CAP/ABANDON MAIN STEAM SUPPLY AND CONDENSATE PIPING AT GROUND LEVEL IN RM 4095A.
 - COORDINATE WITH DEPARTMENTAL REPRESENTATIVE FOR ALL REQUIRED DISCONNECTIONS, ISOLATIONS, SHUTDOWNS, AND PHASING REQUIRED THROUGHOUT SCOPE OF WORK.
 - PATCH, SEAL, AND MAKE GOOD ANY OPENINGS REMAINING FROM REMOVED PIPING.
 - REMOVE EXISTING STEAM SAFETY RELIEF VENT PIPING TO MAIN AND CAP. EXISTING 50# STEAM VENTING PIPE TO REMAIN IN PLACE C/W EXISTING PROCESS VENT CONNECTIONS. LABEL VENT PIPE AS PROCESS VENT.

- NEW WORK NOTES**
- PROVIDE NEW BOILER B1 AS INDICATED C/W ASSOCIATED BLOWDOWN SEPARATOR, PIPING, CONTROLS, AND ACCESSORIES. INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS. BOILER BASE FRAME TO BE FASTENED DOWN TO FINISHED FLOOR. BELOW RAISED FLOOR ASSEMBLY ON WHICH IT IS INSTALLED. ALLOW FOR PAINTED STEEL STRUCTURAL SUPPORT STAND. REFERENCE CONCEPTUAL DETAIL 4/M04.
 - PROVIDE NEW STEAM AND CONDENSATE PIPING AS INDICATED C/W ASSOCIATED PVAL, SPVAL, CONTROL VALVES, TRAPS, AND ACCESSORIES. REFERENCE VALVE SCHEDULES AND PIPING SCHEDULES FOR ADDITIONAL SYSTEM DETAILS. SPV RELIEF PIPING TO BE TIED INTO EXISTING VENT PIPE DISTRIBUTION AT HIGH LEVEL.
 - PROVIDE NEW WATER SOFTENER SYSTEM AS INDICATED C/W ASSOCIATED PIPING, CONTROLS, NORMALLY CLOSED BYPASS, AND ACCESSORIES. TREATED WATER TO BE DISTRIBUTED TO BOILER FEEDWATER PUMP, BLOWDOWN SEPARATOR, AND CONDENSATE COOLER. COORDINATE EXACT EQUIPMENT LOCATIONS ON SITE AND INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.
 - PROVIDE ALL NEW SAFETY RELIEF VENTS AND RELIEF VENTING TO COMMON SAFETY RELIEF VENT SYSTEM DISCHARGING TO ROOFTOP TERMINATION. PROVIDE CUTTING, PATCHING, AND ROOF WORK TO ACCOMMODATE. COORDINATE EXACT TERMINATION LOCATION ON SITE TO AVOID INTERFERENCE WITH EXISTING HIGH LEVEL DUCTWORK AND SERVICES TO REMAIN. REFERENCE DETAIL 2/M02.



GENERAL NOTES

- CONTRACTOR TO VERIFY ALL DIMENSIONS AND CLEARANCES ON SITE PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES AND/OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
- CONTRACTOR MUST VISIT THE SITE AND FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK PRIOR TO PROJECT COMMENCEMENT.
- ALL TRADES TO COORDINATE WORK ON SITE, WITH APPROVAL OF DEPARTMENTAL REPRESENTATIVE TO AVOID ANY CONFLICTS AND/OR INTERFERENCE.
- ANY AND ALL REQUIRED SHUTDOWNS SHALL BE COORDINATED WITH DEPARTMENTAL REPRESENTATIVE.
- INSTALLATION OF ALL SYSTEMS SHALL BE IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS.
- CONTRACTOR TO BE RESPONSIBLE FOR REINSTATEMENT AND REPAIR OF ANY DAMAGE CAUSED BY WORK.
- CONTRACTOR SHALL PREVENT THE SPREAD OF DUST AND DEBRIS BEYOND AREA OF WORK AND CLEAN ALL SURFACES AT COMPLETION.
- ALL ISOLATIONS AND SHUTDOWNS TO BE PERFORMED OUTSIDE OF NORMAL WORKING HOURS.



05	2023-01-13	ISSUED FOR TENDER
04	2022-12-21	ISSUED FOR 100% REVIEW
03	2022-12-08	ISSUED FOR 99% REVIEW - MECHANICAL
02	2022-09-30	ISSUED FOR 66% REVIEW
01	2022-09-02	ISSUED FOR 33% REVIEW
No.	Date	Revision

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- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité

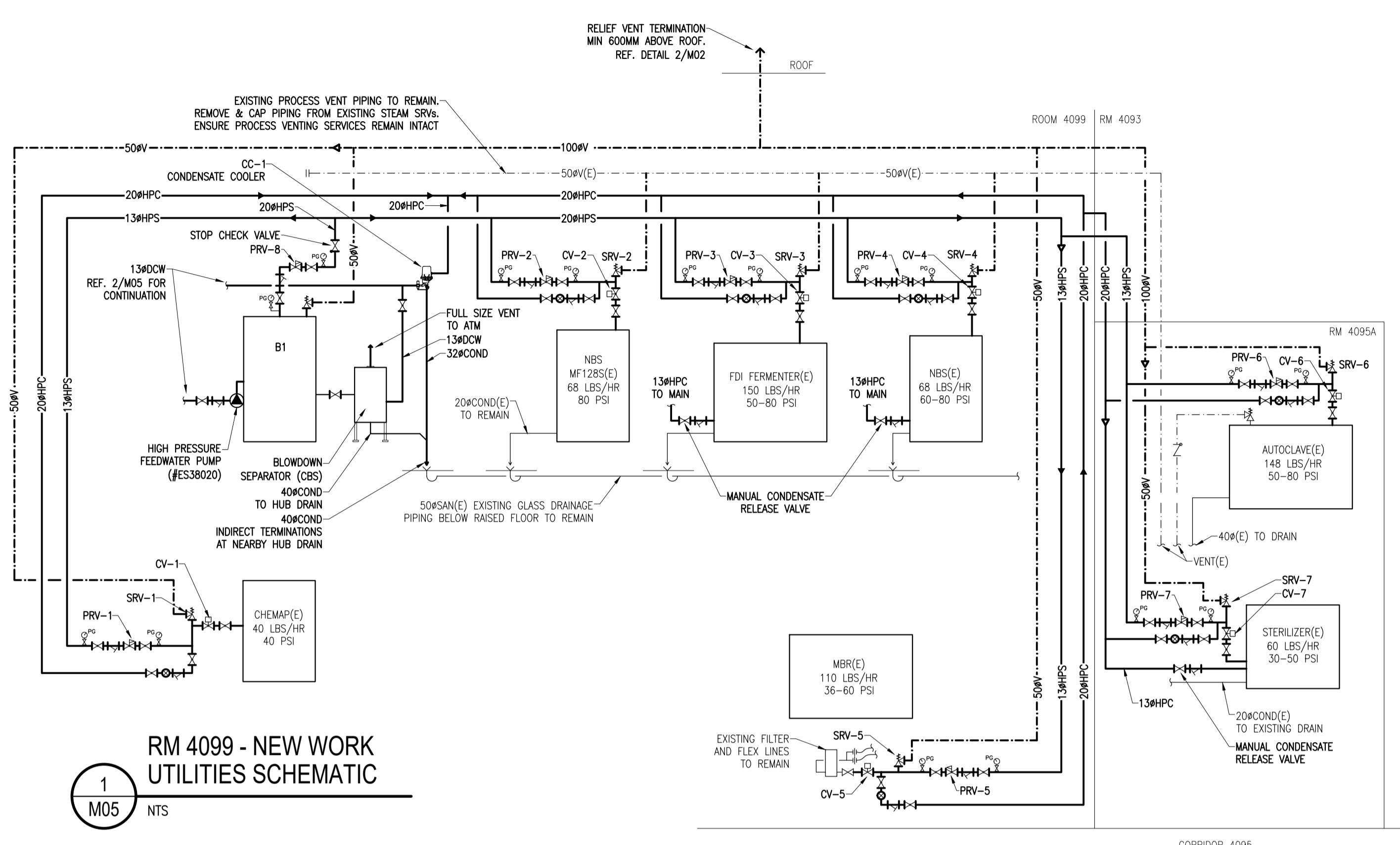
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C	C Drawing no. dessin no.	

project **BUILDING S77 RM 4099 STEAM BOILER** projet

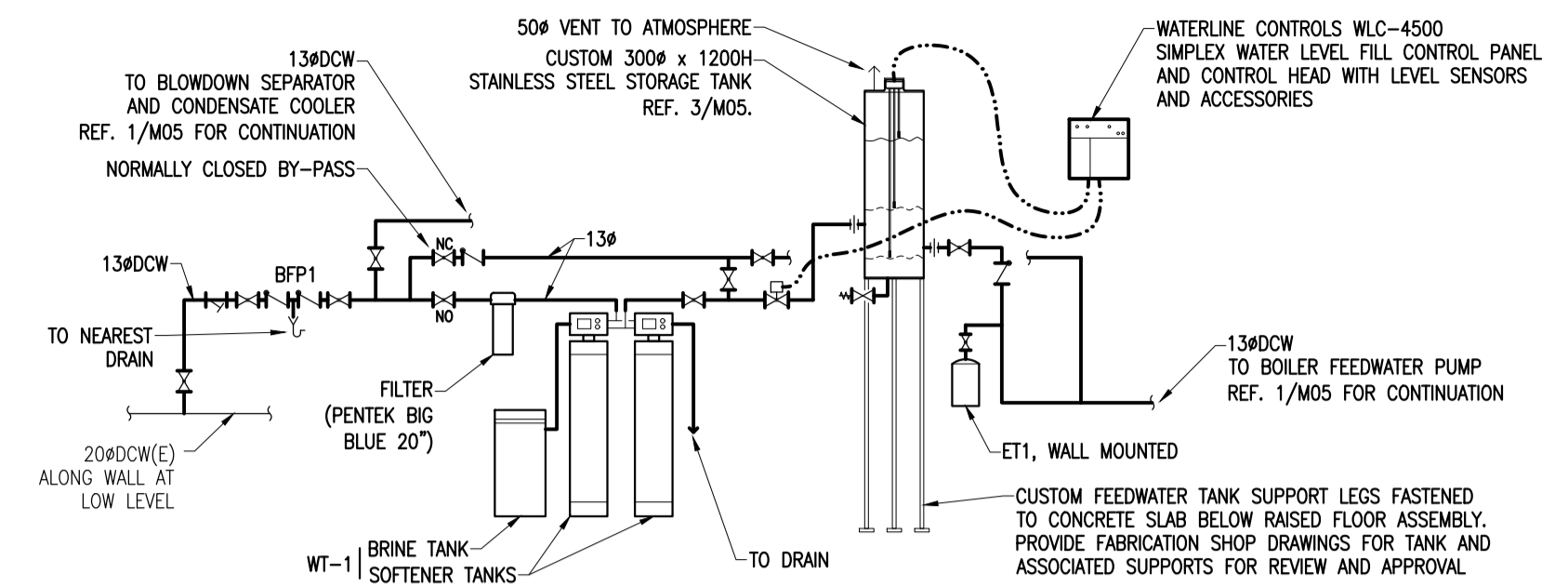
100 SUSSEX DRIVE, OTTAWA, ON.

MECHANICAL
 RM 4099
 UTILITIES SCHEMATICS

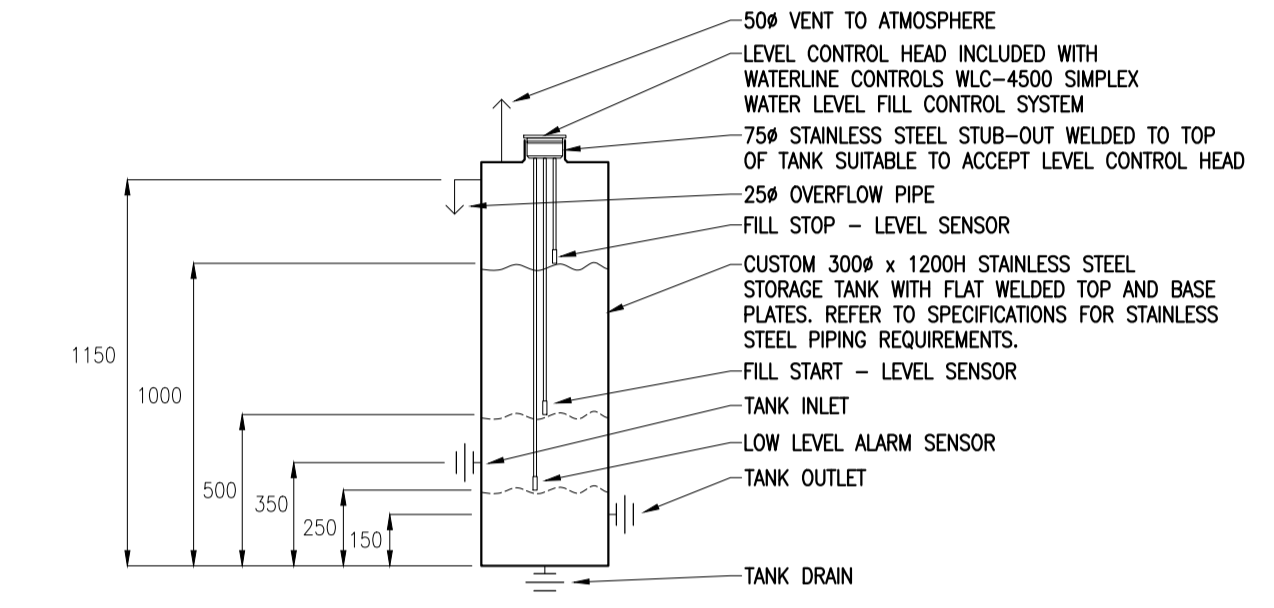
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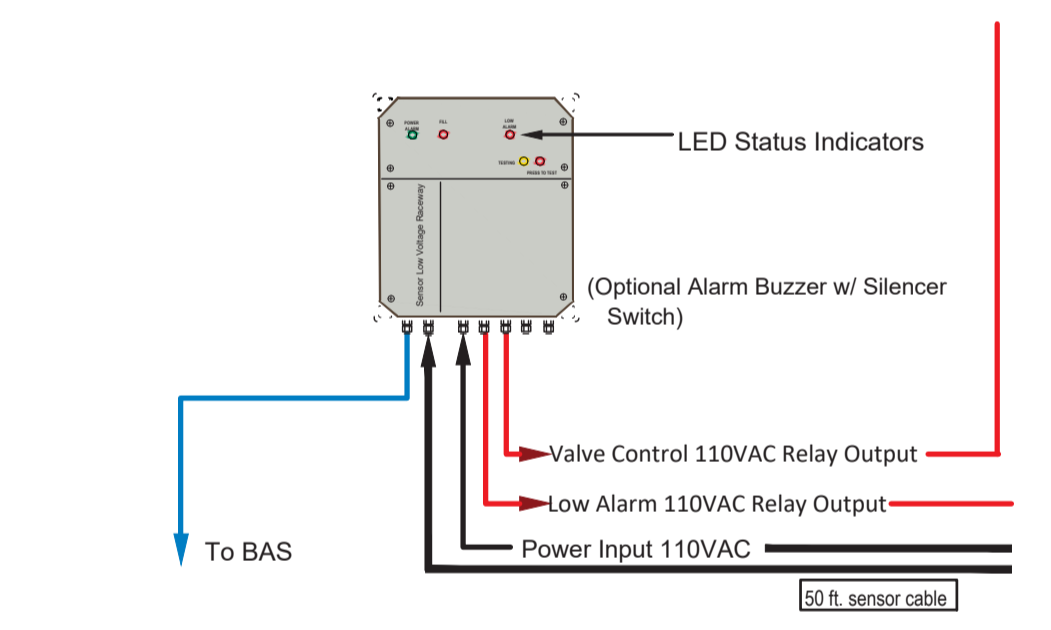
1 M05 NTS
 RM 4099 - NEW WORK UTILITIES SCHEMATIC



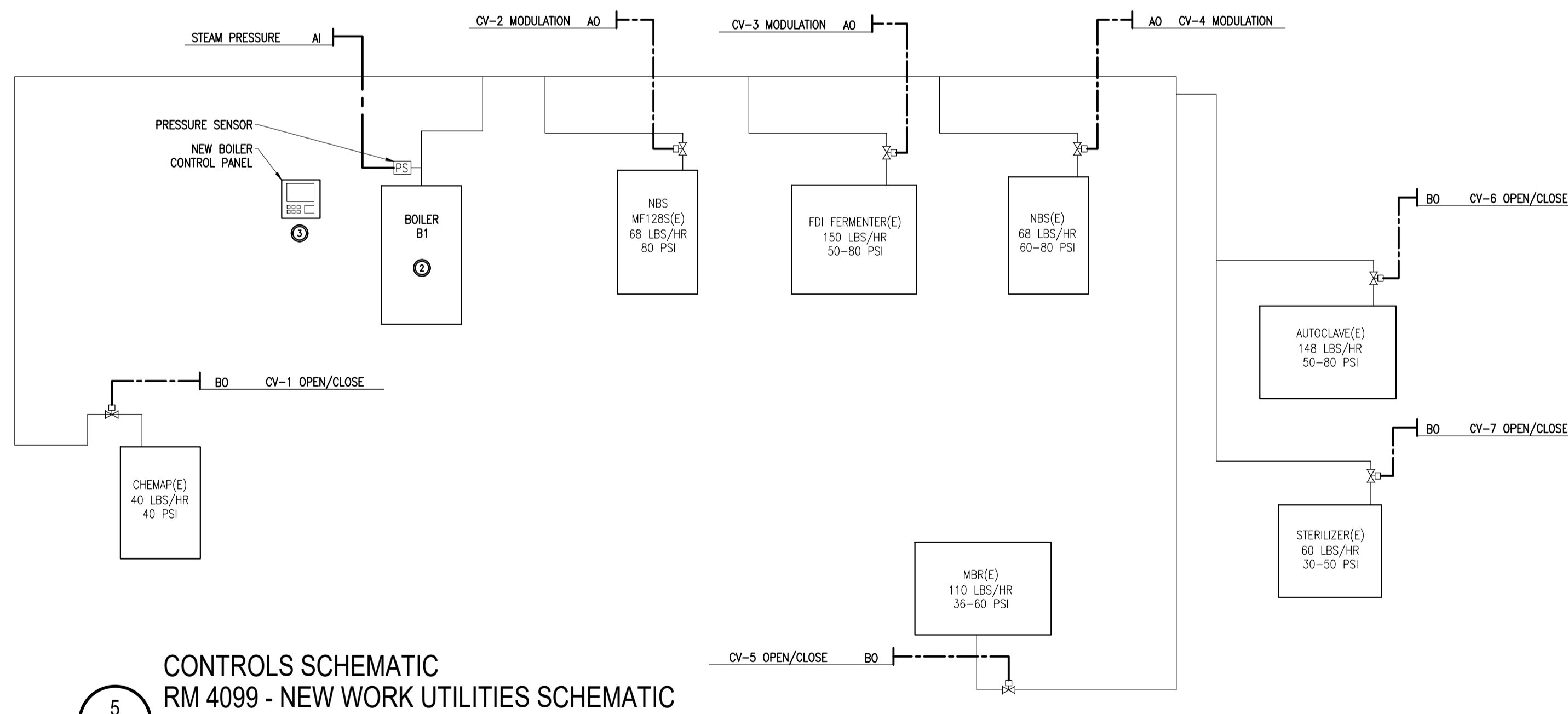
2 M05 NTS
 RM 4099 - NEW WORK WATER TREATMENT & BOILER FEEDWATER SCHEMATIC



3 M05 NTS
 RM 4099 - NEW WORK FEEDWATER STORAGE TANK DETAIL



4 M05 NTS
 FEEDWATER TANK CONTROL PANEL WIRING



5 M05 NTS
 CONTROLS SCHEMATIC RM 4099 - NEW WORK UTILITIES SCHEMATIC

CONTROLS NOTES

- ALL CONTROLS WORK TO BE CARRIED OUT BY ANSWORTH CANADA.
 CONTACT: ARON DOBSON (613) 247-7038 ARON.DOBSON@ANSWORTH.COM
- BAS TO MONITOR STEAM BOILER OUTPUT PRESSURE VIA PRESSURE SENSOR IN OUTLET PIPING. BOILERS OPERATING SCHEDULE AND PRESSURE SETPOINT TO BE MANUALLY SET AT BOILER'S INTEGRAL CONTROL PANEL BY NRC LAB TECHNICIANS IN ACCORDANCE WITH BOILERS INSTALLATION INSTRUCTIONS.
- NEW CONTROL PANEL TO BE PROVIDED NEAR BOILER (COORDINATE MOUNTING LOCATION ON SITE WITH NRC DEPARTMENTAL REPRESENTATIVE) CAPABLE OF MONITORING/ACTUATING NEW EQUIPMENT CONTROL VALVES. TWO (2) USER SELECTABLE CONFIGURATIONS TO BE PROVIDED AT CONTROL PANEL TO OPERATE CONTROL VALVES. UPON SELECTION OF A CONFIGURATION, ALL OPEN CONTROL VALVES TO BE FIRST CLOSED PRIOR TO OPENING THE VALVES IN ACCORDANCE WITH THE BELOW:
 CONFIGURATION 1:

VALVE TAG	POSITION	EQUIPMENT
CV-1	OPEN	CHEMAP (40 LBS/HR)
CV-2	OPEN	NBS (68 LBS/HR)
CV-3	OPEN	FDI FERMENTER (150 LBS/HR)
CV-4	OPEN	NBS (68 LBS/HR)
CV-5	CLOSED	MBR (110 LBS/HR)
CV-6	CLOSED	AUTOCLAVE (148 LBS/HR)
CV-7	CLOSED	STERILIZER (60 LBS/HR)

 CONFIGURATION 2:

VALVE TAG	POSITION	EQUIPMENT
CV-1	CLOSED	CHEMAP (40 LBS/HR)
CV-2	100% OPEN	NBS (68 LBS/HR)
CV-3	100% OPEN	FDI FERMENTER (150 LBS/HR)
CV-4	100% OPEN	NBS (68 LBS/HR)
CV-5	OPEN	MBR (110 LBS/HR)
CV-6	OPEN	AUTOCLAVE (148 LBS/HR)
CV-7	OPEN	STERILIZER (60 LBS/HR)
- LOW LEVEL ALARM ON FEEDWATER STORAGE TANK TO BE INTERLOCKED WITH BOILER TO SHUTDOWN UPON ACTIVATION.