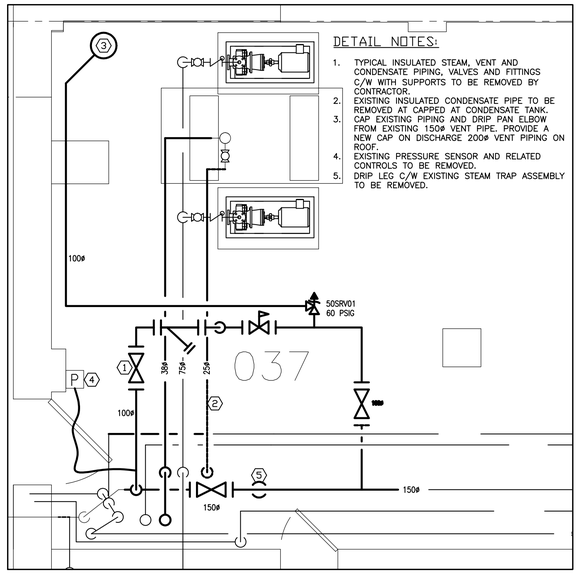
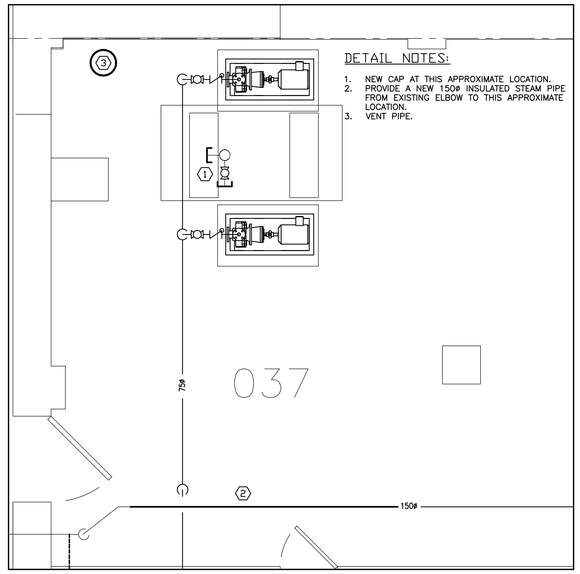


1 MO1 DEMOLITION LAYOUT IN ROOM 037

SCALE 1:20



2 MO1 NEW LAYOUT IN ROOM 037

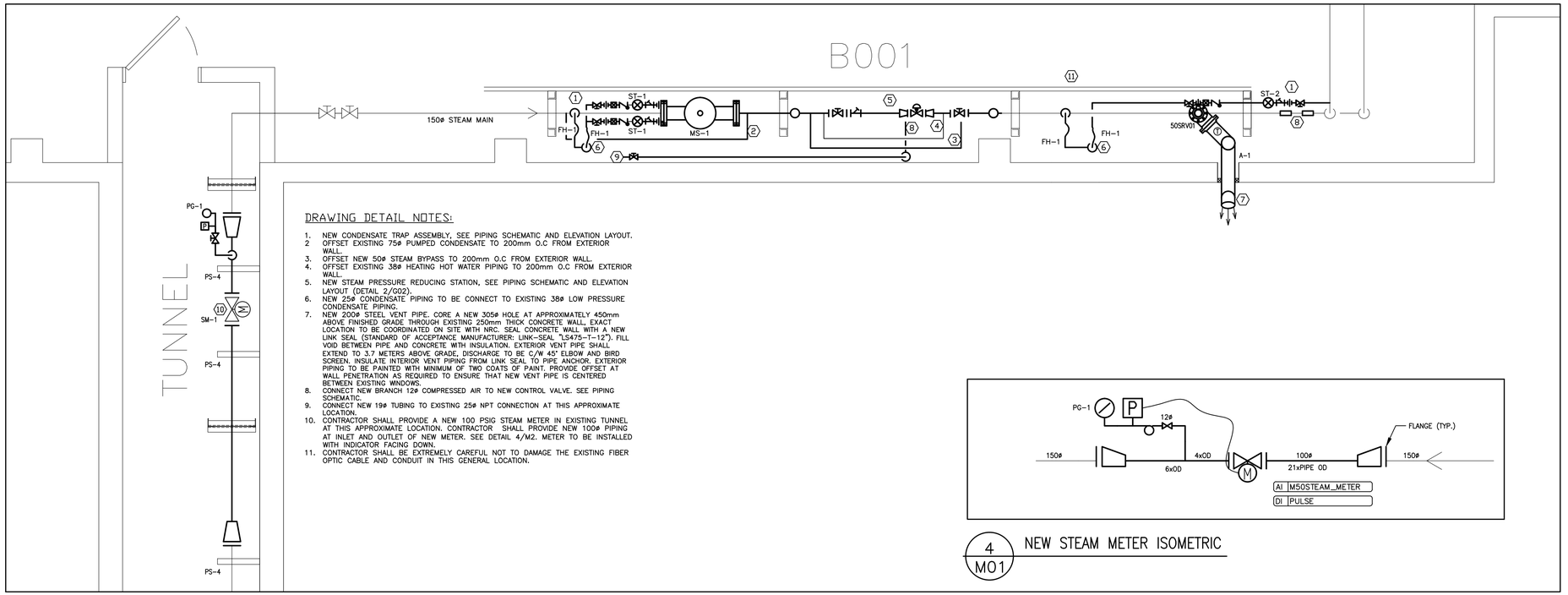
SCALE 1:20

GENERAL PROJECT NOTES:

1. CONTRACTOR TO VERIFY ALL DIMENSIONS AND CLEARANCES ON SITE PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES AND/OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
2. CONTRACTORS MUST VISIT THE SITE AND FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK PRIOR TO PROJECT COMMENCEMENT.
3. ALL TRADES TO COORDINATE WORK ON SITE, WITH APPROVAL OF DEPARTMENTAL REPRESENTATIVE TO AVOID ANY CONFLICTS AND/OR INTERFERENCE.
4. ANY AND ALL REQUIRED SHUTDOWNS SHALL BE COORDINATED WITH DEPARTMENTAL REPRESENTATIVE.
5. INSTALLATION OF ALL SYSTEMS SHALL BE IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS.
6. CONTRACTOR TO BE RESPONSIBLE FOR REINSTATEMENT AND REPAIR OF ANY DAMAGED CAUSED INSIDE AND OUTSIDE AREA OF WORK.
7. PROVIDE MILL TEST REPORT FOR ALL PIPING USED.
8. THE CONTRACTOR IS RESPONSIBLE TO ORGANIZE AND ARRANGE FOR ALL LICENSE AND WELDING PROCEDURES AND WELDERS QUALIFICATION VERIFICATION BY TSSA. THIS SHALL ALSO INCLUDE INSPECTION COSTS ASSOCIATED WITH TSSA.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING OF ALL LABOR AND MATERIAL NECESSARY TO BLANK OFF SECTION OF PIPING BEING TESTED AND REMOVE ITEMS WHICH CANNOT SUSTAIN TEST PRESSURE.
10. CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH ALL TESTING AND INSPECTIONS WHICH SHALL INCLUDE BUT NOT BE LIMITED TO RADIOGRAPHY TESTING. CONTRACTOR SHALL PROVIDE NRC WITH AN INDEPENDENT REPORT DETAILING EVALUATION OF ALL RADIOGRAPHY RESULTS. RADIOGRAPHY REPORT SHALL BE COMPLETED BY INDIVIDUAL CERTIFIED TO CAN-CGSB-48.9712 OR EQUIVALENT.
11. CONTRACTOR SHALL PROVIDE RECORDS OF THE ALL PRESSURE TESTS, DATA ON INSTRUMENTATION USED AND CALIBRATION INFORMATION OF EQUIPMENT USED. ALL PRESSURE TEST RESULTS SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: DATE/TIME OF TEST, PIPE SECTION BEING TESTED, TESTING FLUID, STARTING TEST PRESSURE, ENDING TEST PRESSURE, DURATION OF TEST, FULL RANGE OF PRESSURE GAUGE, OUTSIDE TEMPERATURE, INDIVIDUAL/COMPANY COMPLETING TEST, INDEPENDENT INDIVIDUAL/COMPANY WITNESSING TEST, TSSA INSPECTOR NAME PRESENT DURING TEST IF DIFFERENT THEN ABOVE. PRESSURE SCALE ON ANY TESTING GAUGE SHALL NOT EXCEED 1.2 TIMES TEST PRESSURE.
12. THIS DRAWING SET WAS PREPARED FOR TENDER PURPOSES AND IS INTENDED TO CONVEY GENERAL INSTALLATION REQUIREMENTS OF NEW PIPING. CONTRACTOR IS RESPONSIBLE TO VERIFY SITE CONDITIONS AND MEASUREMENTS AT TIME OF BIDDING. SUBMITTAL OF TENDER SHALL MEAN THE ACCEPTANCE OF SITE CONDITIONS. AS SUCH CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE ANY OFFSETS OR ADJUSTMENTS INCLUDING EXTRA FITTINGS AND/OR OTHER MATERIAL AND LABOR WHICH MAY BE REQUIRED TO SUIT SITE CONDITION AND MEASUREMENTS.
13. PROVIDE SHOP DRAWINGS FOR REVIEW BY NRC.
14. CONTRACTOR SHALL SCAN EXISTING CONCRETE. SCAN RESULTS SHALL BE SUBMITTED TO NRC FOR REVIEW PRIOR TO CORING HOLES FOR PIPING.
15. ALL CONTROL WORK TO BE COMPLETED BY AIRTRON CANADA. CONTACT AARON DOBSON AT (613) 247-7938 OR RON.DOBSON@AIRTRONCANADA.COM FOR PRICING.
16. CONTRACTOR CERTIFICATION AND QUALIFICATIONS REQUIREMENTS:
    - .1 CERTIFICATE OF AUTHORIZATION FROM TSSA (PV 09397) TO UNDERTAKE WORK ON PROCESS PIPING B31.1. NO WORK ON PIPING SHALL START UNTIL NRC HAS CONFIRMED THAT CONTRACTOR HAS A VALID TSSA CERTIFICATES.
    - .2 SUBMIT WELDING PROCEDURE FOR ALL WELDING TYPES.
    - .3 COPY OF A VALID WELDING QUALIFICATION RECORD FOR ALL EMPLOYEES THAT COMPLETE WELDING.
    - .4 TSSA REGISTRATION P NUMBER TO BE PROVIDED BY NRC.
    - .5 CONTRACTOR SHALL ARRANGE FOR A SITE KICKOFF MEETING BETWEEN THE CONTRACTOR, TSSA AND NRC BEFORE ANY WORK ON THE PIPING SYSTEM SHALL START.
    - .6 REGISTRATION OF THE PIPING SYSTEM WITH TSSA SHALL BE BY NRC. ALL TSSA INSPECTIONS/TESTING RELATED SCHEDULING/COSTS SHALL BE BY THE CONTRACTOR.
17. PRIOR TO CORING HOLES FOR NEW MECHANICAL PIPING IN THE CONCRETE FLOOR/CEILING. THE CONTRACTOR SHALL SCAN THE CONCRETE FOR EMBEDDED STRUCTURAL AND ELECTRICAL MATERIAL.
18. ALL EXTERIOR PIPING TO BE PAINTED WITH A MINIMUM OF TWO LAYERS OF PAINT ON EXTERIOR PIPING. PAINT TO BE APPLIED AS PER MANUFACTURER RECOMMENDATIONS. STANDARD OF ACCEPTANCE: MANUFACTURER SHERWIN WILLIAMS, PRODUCT: SILVER-BRITE HI HEAT RESISTING ALUMINUM PAINT ON EXTERIOR PIPING.
19. ALL WELDED CONNECT TO EXISTING PIPING SHALL BE RADIOGRAPHY EXAMINED, THIS SHALL NOT BE INCLUDED AS PART OF THE 10% REQUIRED FOR ALL NEW STEAM PIPING.

SHUTDOWN SCHEDULE:

EXISTING STEAM SYSTEM SHALL BE SHUTDOWN FROM OCTOBER 9, 2015 AT 4:00PM TO OCTOBER 11, 2015 6:00PM. ALL DEMOLITION ON THE EXISTING STEAM/CONDENSATE PIPING SYSTEM TO BE COMPLETED DURING THE SHUTDOWN. THE CONTRACTOR SHALL ENSURE THAT THE NEW PIPING IS COMPLETED DURING THE SHUTDOWN PERIOD. ISOLATION OF STEAM AND CONDENSATE SYSTEM SHALL BE BY NRC.



3 MO1 NEW MOISTURE SEPARATOR LAYOUT IN HALLWAY (B001)

4 MO1 NEW STEAM METER ISOMETRIC

ASPM A1 (841x594)

0 10 20mm 40 60 80 100 120 140 160 180 200mm

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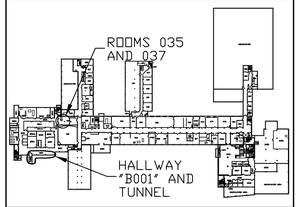
Administrative Services and Property Management Branch / Division des services administratifs et gestion de l'immobilier

NRC · CNRC

M50 WORK AREA



No.	Date	Revision	By: Par:
1	10 07 2015	ISSUED FOR TENDER	R.G.C

Date Printed / Date imprimée

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

A Detail no. No. du détail
B Location drawing no. sur dessin no.
C Drawing no. dessin no.

project / projet

NEW HIGH PRESSURE STEAM REGULATION STATION

MONTREAL ROAD CAMPUS : M50

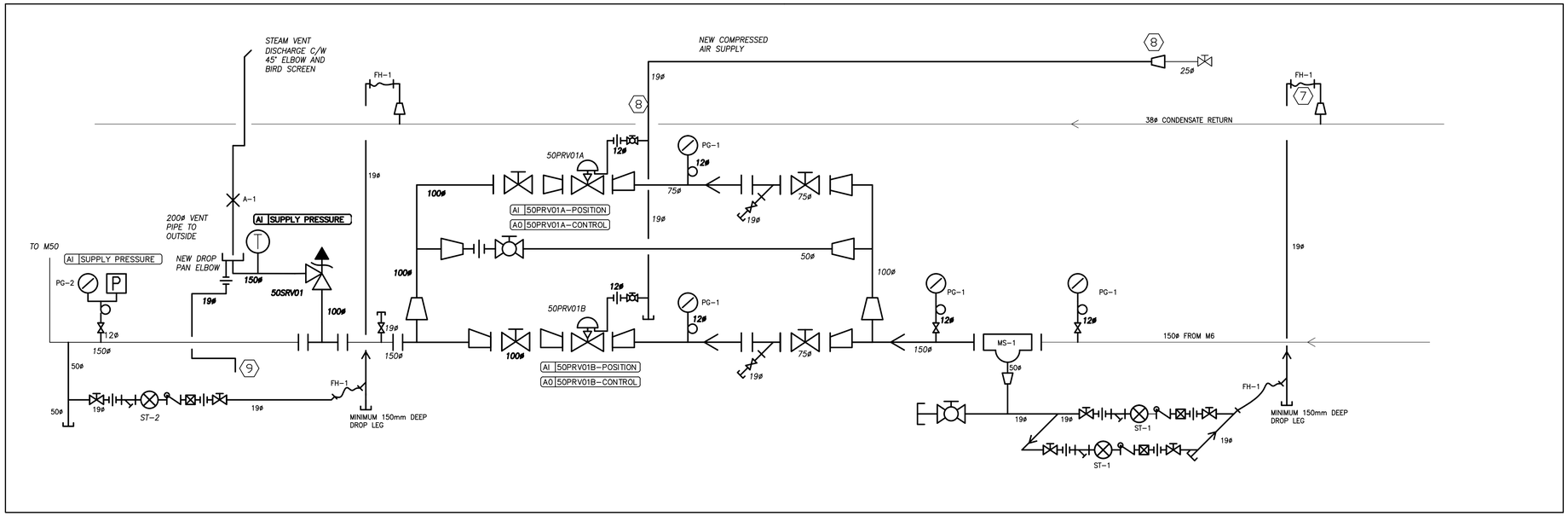
drawing / dessin

DEMOLITION AND NEW MECHANICAL LAYOUT

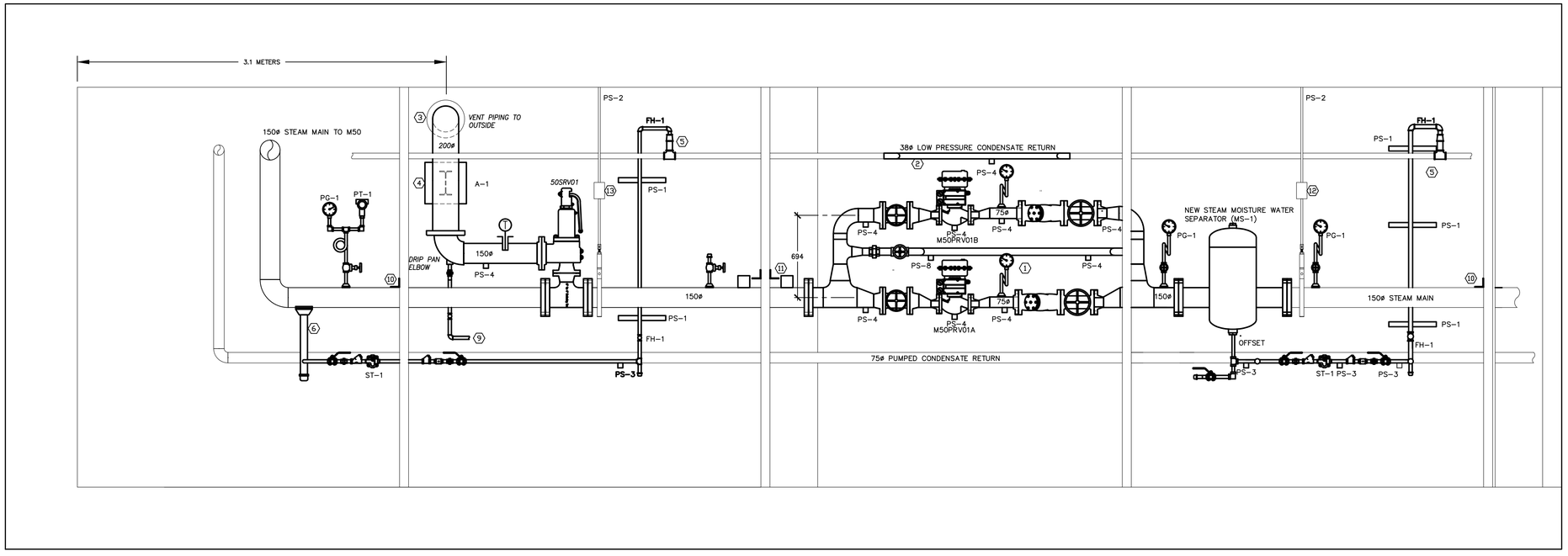
designed / conçu	date / date
R.G.C	07/15
drawn / dessiné	scale / échelle
R.G.C	AS INDICATED
checked / vérifié	sheet / feuille
B.V	1 of/de 4
approved / approuvé	W.O.no. / D.T.no.
B.V	A1-006933-06-03

dwg.no. / dessin no.

5046-M01



1 M02 NEW PIPING CONTROL VALVE AND CONTROLS SCHEMATIC



2 M02 ELEVATION VIEW OF NEW PRESSURE REGULATING STATION

ASPM A1 (841x594)

0 10 20mm 40 60 80 100 120 140 160 180 200mm

National Research Council Canada | Conseil national de recherches Canada
Administrative Services and Property Management Branch | Division des services administratifs et gestion de l'immobilier

NRC · CNRC

DRAWING NOTES:

1. CONTRACTOR SHALL PRE-ASSEMBLE NEW PRESSURE REDUCING STATION, STEAM METER ASSEMBLY AND MOISTURE SEPARATOR ASSEMBLY IN BASEMENT OF M50 AND COMPLETE PRESSURE TESTING BY SEPTEMBER 20, 2015.
2. PROVIDE OFFSET IN 38ø INSULATED LOW PRESSURE STEAM CONDENSATE PIPE TO 200mm OF EXTERIOR WALL.
3. CORE A NEW 300ømm HOLE IN EXISTING CONCRETE WALL TO SUIT 200ø STEEL VENT PIPE, EXACT LOCATION TO BE COORDINATED ON SITE WITH NRC. SEAL CONCRETE WALL WITH A NEW LINK SEAL. EXTERIOR VENT PIPE SHALL EXTEND TO 3.5 METERS ABOVE GRADE. INSULATED VENT PIPING FROM EXTERIOR WALL TO PIPE ANCHOR. PAINT EXTERIOR PIPING WITH TWO COATS OF PAINT.
4. PROVIDE NEW PIPE ANCHOR, SEE DETAIL 4/M04.
5. CONNECT NEW CONDENSATE PIPING TO EXISTING 38ø LOW PRESSURE CONDENSATE PIPE. STEAM MAIN AT THIS APPROXIMATE LOCATIONS.
6. PROVIDE A NEW 50ø DRIP LEG IN EXISTING 150ø STEAM MAIN AT THIS APPROXIMATE LOCATIONS.
7. CONTRACTOR SHALL PROVIDE A NEW 1 NPS FLEXIBLE HOSE. FLEXIBLE HOSE SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSIG AT 350°F, BRAIDED STAINLESS STEEL CORRUGATED METAL HOSE, ENDS C/W 1 NPS MALE NPT UNION, FULL LENGTH PROTECTIVE INSULATION SLEEVE STANDARD OF ACCEPTANCE: MANUFACTURER: FLEX-PRESSION LTD: PART# P08-12-24LL-CS-FJ-CRN (TYPICAL OF 4).
8. NEW 100 PSIG COMPRESSED AIR TUBING FROM EXISTING 50ø COMPRESSED AIR PIPE IN THIS GENERAL AREA TO TWO NEW CONTROL VALVES.
9. PROVIDE DRAIN FROM NEW DRIP PAN ELBOW. NEW 19ø DRAIN SHALL RUN ALONG EXISTING EXTERIOR WALL AT A 1% SLOPE TOWARDS EXISTING TUNNEL. PIPE SHALL ENTER TUNNEL AND DRAIN DRAIN TO FLOOR. EXACT ROUTING TO BE COORDINATED ON SITE.
10. ONCE PIPING HAS COOLED DOWN (LESS THEN 100°F) THE CONTRACTOR SHALL TACK WELD A 75x75x6mm ANGLE TO THE EXISTING VERTICAL ANGLES AND THE STEAM PIPE. ANGLE TO BE REMOVED BEFORE STEAM IS TURNED BACK ON.
11. ONCE NEW PIPING SYSTEM HAS BEEN INSTALLED, THE CONTRACTOR SHALL CONTINUOUSLY WELD A NEW 75x75x10mm STEEL ANGLE ON EACH SIDE OF THE EXISTING VERTICAL ANGLES AT 75mm ABOVE TOP OF EXISTING STEM PIPE. THE CONTRACTOR SHALL CONTINUOUSLY WELD A VERTICAL PIECE OF 100x100x12mm STEEL PLATE TO THE 150ø STEEL PIPE AT 19mm FROM NEW ANGLE.
12. SPRING HANGER: STANDARD OF ACCEPTANCE : MANUFACTURE: E.MYATT & CO, FIG. 810, TYPE A, SPRING SIZE:7, PRELOADED TO 400 LBS, 1/2"ø-16 UNC GALVANIZED THREADED RODS.
13. SPRING HANGER: STANDARD OF ACCEPTANCE : MANUFACTURE: E.MYATT & CO, FIG. 810, TYPE A, SPRING SIZE:4, PRELOADED TO 215 LBS, 1/2"ø-16 UNC GALVANIZED THREADED RODS.

No.	Date	Revision	By: Par:
1	10 07 2015	ISSUED FOR TENDER	R.G.C

Date Printed | Date imprimée

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

project | projet
NEW HIGH PRESSURE STEAM REGULATION STATION

MONTREAL ROAD CAMPUS : M50

drawing | dessin
DETAIL AND ISOMETRIC

designed / conçu: R.G.C	date / date: 07/15
drawn / dessiné: R.G.C	scale / échelle: AS INDICATED
checked / vérifié: B.V	sheet / feuille: 2 of/de 4
approved / approuvé: B.V	W.O.no.: A1-006933-06-03 / D.T.no.

dwg.no. / dessin no.: 5046-M02

HIGH PRESSURE STEAM AND CONDENSATE PIPING REQUIREMENTS

DESIGN PRESSURE (PSIG)	125
DESIGN TEMPERATURE (°F)	-20 TO 340
OPERATING PRESSURE (PSIG)	100
PIPING SCHEDULE	STEAM-SCH 40 CONDENSATE- SCH 80
TEST PRESSURE (PSIG)	1.5 x DESIGN-HYDROSTATIC / 1.2 x DESIGN PNEUMATIC
TESTING FLUID	WATER / AIR
TEST DURATION (MIN.)	90
RADIOGRAPHY EXAMINED	10%
SYSTEM DESIGN STANDARD:	ASME B31.1
PIPE CONNECTION	<= 50ø NPS - THREADED/WELDED/FLANGED > 50ø - WELDED/FLANGED
ASME STANDARDS: DESIGN CODE	B31.1
FITTINGS	B16.5
FLANGES	B16.5-A105
NUTS	B18.2.2-A194-Gr 7
BOLTS	B18.2.1-A193-Gr B7
GASKETS	B16.20/B16.21
THREADS	B16.5/B16.11
PIPING MATERIAL	A106 - Gr B - SEAMLESS
VALVES	B16.34
FLANGE CLASS	300

STEAM TRAP (ST) SCHEDULE:

TAG	ST-1	ST-2
TYPE	BUCKET	FLOAT & THERMOSTATIC
MAX. OPERATING PRESSURE (PSIG)	100	60
MAX. ALLOWABLE TEMPERATURE (°F)	450	450
MAX. ALLOWABLE PRESSURE (PSIG)	250	125
SIZE (IN)	3/4	3/4
CONNECTION	F-NPT	F-NPT
CANADIAN REGISTRATION NUMBER	REQUIRED	REQUIRED
BODY MATERIAL	CAST IRON	CAST IRON
INTERNALS MATERIAL	STAINLESS STEEL	STAINLESS STEEL
CAPACITY (LB/HR)	1700 @ 60 PSIG DIFF.	330 @ 5 PSIG DIFF.
ORIFICE (INCH)	13/64	
STANDARD OF ACCEPTANCE MANUFACTURER	SPIRAX SARCO	SPIRAX SARCO
MODEL	B2-125	FT-125

NOTES:
- ST-1 TO BE C/W INTEGRAL STRAINER AND BIMETAL AIR VENT

PRESSURE GAUGE (PG-#)

TAG	PG-1	PG-2	PG-3
WORKING FLUID	STEAM	STEAM	AIR
MAXIMUM SYSTEM PRESSURE (kPa)	860	455	860
MAXIMUM SYSTEM TEMPERATURE (°C)	150	150	150
MAXIMUM SHORT TERM TEMP. (°C)	172	172	172
MINIMUM SYSTEM TEMPERATURE (°C)	70	70	70
CONNECTION (F-NPT)	1/2	1/2	1/2
CONNECTION TYPE	S.T	S.T	S.T
BOURDON TUBE	S.T	S.T	S.T
ACCURACY (FULL SCALE)	1%	1%	1%
CANADIAN REGISTRATION NUMBER	YES	YES	YES
CASE MATERIAL	T.P	T.P	T.P
CONNECTION	LOWER/S.T	LOWER/S.T	LOWER/S.T
DIAL SIZE	115mm	115mm	115mm
GLYCERIN FILLED	NO	NO	NO
STANDARD - ASME	B40.100	B40.100	B40.100
INTERNALS MATERIAL	S.T	S.T	S.T
GAUGE DUAL SCALES: PSIG (kPa)	0-125	0-100	0-125
STANDARD OF ACCEPTANCE MANUFACTURERS	WIKA, WEISS, WINTERS		

NOTES:
- ALL GAUGES C/W WHITE FACE WITH BLACK FIGURES, ALUMINUM POINTER, ISOLATION VALVE.
- PROVIDE PIGTAIL SIPHON AND SAFETY GLASS FOR STEAM PIPING.
- STAINLESS STEEL = S.T , THERMO PLASTIC - T.P

MOISTURE SEPARATOR (MS-#)

TAG	MS-1
MAXIMUM ALLOWABLE PRESSURE	2068 kPa @ 344°C
STEAM INLET/OUTLET CONNECTION	150ø ASME 300 FLANGE RF
OPERATING PRESSURE	689 kPa
MINIMUM TEMPERATURE RATING	180°C
CANADIAN REGISTRATION NUMBER	REQUIRED
BODY MATERIAL	STEEL
ASME SECTION	8 - 10% OVER PRESSURE
INTERNALS MATERIAL	STAINLESS STEEL
MINIMUM CAPACITY	11,000 LB/hr @ 689 kPa
STANDARD OF ACCEPTANCE MANUFACTURERS	SPIRAX SARCO - S4A

COMPRESSED AIR COPPER TUBING REQUIREMENTS

LOCATION	ABOVE GRADE
WORKING FLUID	COMPRESSED AIR
DESIGN TEMPERATURE (°F)	-20 TO 160
DESIGN PRESSURE (PSIG)	125
SIZE / TYPE	3 TO 50 mmø / TYPE L
OUTER JACKET MATERIAL SIZE (IN) / THICKNESS (IN)	NONE -
COAXIAL TEST PRESSURE (PSIG)	-
TEST PRESSURE (PSIG)	150 - ALL JOINTS TO BE LEAKED CHECKED DURING TEST.
TESTING FLUID	NITROGEN/AIR
TEST DURATION (MIN.)	90
RADIOGRAPHY	NONE
SYSTEM DESIGN STANDARD:	ASME B31.1
TUBING CONNECTION	BRAZED (SIL-FS 15) - FITTINGS / THREADED - VALVES
ASME STANDARDS: DESIGN CODE	B31.1
FITTINGS	B16.5
THREADS	B16.5/B16.11
VALVES	B16.34
PIPING MATERIAL	COPPER TUBING TYPE L DRAWN - TO ASTM B-88

PILOTED OPERATED STEAM PRESSURE RELIEF VALVE (SRV)

TAG	50SRV01
SET PRESSURE	60 PSIG (414 kPa)
INLET CONNECTION	100mmø -ASME CLASS 150
OUTLET CONNECTION	150mmø -ASME CLASS 150
MINIMUM TEMPERATURE RATING	260°C
CANADIAN REGISTRATION NUMBER	REQUIRED
ORIFICE SIZE	6.692 IN^2
BODY MATERIAL	CAST IRON
ASME SECTION	1 - 10% OVER PRESSURE
INTERNALS MATERIAL	STAINLESS STEEL
CAPACITY AT SET PRESSURE	24,419 LB/HR
OPTIONS TO BE INCLUDED :	-EXTERNAL LIFT LEAVER -EXPOSED SPRING -BUBBLE TIGHT SEALING -DRIP PAN ELBOW TO SUIT 6 TO 8 NPS PIPE.
STANDARD OF ACCEPTANCE MANUFACTURERS	APOLLO, SERIES 119, - ASME SECTIONS VIII

STEAM METER (SM-#)

TAG	SM-1
WORKING FLUID	SATURATED STEAM
MAXIMUM SYSTEM PRESSURE (kPa)	100 PSIG (860)
MAXIMUM TEMPERATURE RATING	700 PSIG (4,826 kPa) @ 250°C
CONNECTION	4 NPS ASME CLASS 300 RF FLANGE
BODY MATERIAL	316L STAINLESS STEEL
METER TYPE	VORTEX
ACCURACY (FULL SCALE)	<2%
CANADIAN REGISTRATION NUMBER	YES
FLOW RATES	LOWER/S.T
4 mA	0 LB/MIN
20 mA	36,241 LB/HR
FLOW RATES	LOWER/S.T
OUTPUT	PULSE @ 25 LB OF STEAM
POWER	24V , 50mA
APPROVAL	CSA C/US NI Cl.I DIV. 2 Gr. ABCD
PRESSURE TRANSMITTER	
WORKING FLUID	SATURATED STEAM
MAXIMUM SYSTEM PRESSURE (kPa)	100 PSIG (860)
MAXIMUM TEMPERATURE RATING	700 PSIG (4,826 kPa) @ 250°C
CONNECTION	1/2 MNPT
APPROVAL	CSA C/US Cl.II,III DIV. 1 GRE-G
FILL FLUID	SILICONE OIL

STANDARD OF ACCEPTANCE		
FLOW METER		
MANUFACTURERS		ENDRESS + HAUSER
MODEL NO.		7F2B1H-C4DCCDJABSK+AAEULD
PRESSURE TRANSMITTER		
MANUFACTURERS		ENDRESS + HAUSER
MODEL NO.		CERABAR S PMP71 : PMP71-WAC1P61RAAAU

NOTES:
- C/W WET STEAM DETECTION.
- MANUFACTURER CALIBRATED FLOW AT 0.75% VOLUME AT 3 POINTS
- TO BE WIRED BY OTHERS
- TO BE C/W VALVE BLOCK AND BLEED MANIFOLD (PC 71228449)

COMPRESSED AIR CARBON STEEL PIPE

DESIGN PRESSURE (PSIG)	125
DESIGN TEMPERATURE (°F)	-20 TO 340
OPERATING PRESSURE (PSIG)	100
PIPING SCHEDULE	SCH 40.
TEST PRESSURE (PSIG)	1.5 x DESIGN-HYDROSTATIC / 1.2 x DESIGN PNEUMATIC
TESTING FLUID	WATER / AIR
TEST DURATION (MIN.)	90
RADIOGRAPHY	NA
SYSTEM DESIGN STANDARD:	ASME B31.1
PIPE CONNECTION	<= 50ø NPS - THREADED/WELDED/FLANGED > 50ø - WELDED/FLANGED
ASME STANDARDS: DESIGN CODE	B31.1
FITTINGS	B16.5
FLANGES	B16.5-A105
NUTS	B18.2.2-A194-Gr 7
BOLTS	B18.2.1-A193-Gr B7
GASKETS	B16.20/B16.21
THREADS	B16.5/B16.11
PIPING MATERIAL	A106/A53 - Gr B - SEAMLESS
VALVES	B16.34
FLANGE CLASS	150

MEDIUM PRESSURE STEAM AND CONDENSATE PIPING REQUIREMENTS

DESIGN PRESSURE (PSIG)	60
DESIGN TEMPERATURE (°F)	-20 TO 340
OPERATING PRESSURE (PSIG)	50
PIPING SCHEDULE	STEAM-SCH 40 CONDENSATE- SCH 80
TEST PRESSURE (PSIG)	1.5 x DESIGN-HYDROSTATIC / 1.2 x DESIGN PNEUMATIC
TESTING FLUID	WATER / AIR
TEST DURATION (MIN.)	90
RADIOGRAPHY	NA
SYSTEM DESIGN STANDARD:	ASME B31.1
PIPE CONNECTION	<= 50ø NPS - THREADED/WELDED/FLANGED > 50ø - WELDED/FLANGED
ASME STANDARDS: DESIGN CODE	B31.1
FITTINGS	B16.5
FLANGES	B16.5-A105
NUTS	B18.2.2-A194-Gr 7
BOLTS	B18.2.1-A193-Gr B7
GASKETS	B16.20/B16.21
THREADS	B16.5/B16.11
PIPING MATERIAL	A106/A53 - Gr B - SEAMLESS
VALVES	B16.34
FLANGE CLASS	150

STEAM PRESSURE REDUCING CONTROL VALVE

TAG	50PRV01A AND 50PRV01B
OPERATING INLET PRESSURE	414 kPa (100 PSIG)
OPERATING OUTLET PRESSURE	345 kPa (50 PSIG)
MAIN BODY	
INLET CONNECTION	50mmø - CLASS 300 ASME B16.34
OUTLET CONNECTION	50mmø - CLASS 300 ASME B16.34
MAXIMUM OPERATING TEMPERATURE	200°C
CANADIAN REGISTRATION NUMBER	REQUIRED
BODY MATERIAL	ASME SA216 WCC STEEL
LEAKAGE	IEC 60534-4 : CLASS 4
SEATING	SA351 CF3M
STEM MATERIAL	S31603
TRAVEL	FULL PORT - EQUAL %
MAXIMUM FLOW COEFFICIENT (MAX.-Cv)	43.7
MAXIMUM DESIGN PRESSURE AT 150°C	1,620 kPa (235 PSIG)
MAXIMUM TRAVEL	20 mm
PORT DIAMETER	46 mm
FAIL POSITION	CLOSED
STANDARD OF ACCEPTANCE MANUFACTURER	FISHER
MODEL	GX
PNEUMATIC ACTUATOR	
TEMPERATURE RANGE	-46 TO 82 °C
OPERATING PRESSURE RANGE	200-600 kPa (29-87 PSIG)
AIR SUPPLY CONNECTION	6.35mm NPT
AIR SUPPLY PRESSURE	344 kPa (50 PSIG)
SPRING MATERIAL	STAINLESS STEEL
DIAPHRAGM MATERIAL	CARBON STEEL
CASING MATERIAL	AISI 1010 CARBON STEEL
ACTUATOR ROD	STAINLESS STEEL
STEM SEAL	NITRITE
STANDARD OF ACCEPTANCE MANUFACTURER	FISHER
MODEL	GX ACTUATOR
ELECTRO-PNEUMATIC POSITIONERS	
ELECTRO INPUT SINGLE	4 TO 20 mA
PNEUMATIC OUTPUT SINGLE	0-620 kPa (0-90 PSIG)
VALVE % OPEN - ELECTRO OUTPUT SINGLE	4 TO 20 mA
CONNECTION	6.35mm NPT
NOTES:	TO BE FACTORY MOUNTED ON VALVE.
STANDARD OF ACCEPTANCE MANUFACTURER	C/W 2 LIMIT SWITCHES/SOFT CONTACT FISHER
MODEL	DVC2000-HC
AIR REGULATOR/FILTER	
FLOW COEFFICIENT (Cv)	0.36
MAXIMUM INLET PRESSURE:	1,723 kPa (250 PSIG)
OUTLET PRESSURE RANGE	0-861 kPa (0-125 PSIG)
OUTLET PRESSURE SETPOINT	517 kPa (75 PSIG)
OPERATING INLET PRESSURE	690 kPa (100 PSIG)
DROOP	10%
BODY MATERIAL	ALUMINIUM (ASTM B85/ALLOY 380)
INLET/OUTLET CONNECTION	1/4 NPT
DRIP WELL MATERIAL	ALUMINIUM (ASTM B85/ALLOY 380)
DRIP WELL	C/W AUTO DRAIN
PRESSURE GAUGE RANGE	0-1034 kPa (0-150 PSIG)
FILTER MATERIAL	POLYETHYLENE
FILTRATION	5 MICRON
NOTES:	C/W INTERNAL RELIEF, MOUNTING BRACKET AND CLOSING CAP
STANDARD OF ACCEPTANCE MANUFACTURER	FISHER
MODEL	67CFR

NOTES: STEAM CONTROL VALVE ASSEMBLY TO BE FACTORY ASSEMBLED AND TESTED. STARTUP OF VALVE ASSEMBLY TO BE BY VALVE MANUFACTURER. MANUFACTURER SHALL PROVIDE TWO SMART GAGE PRESSURE TRANSMITTERS FOR DIRECT MOUNTING (ROSEMOUNT, , MODEL: 2088GPROVIDE)

MECHANICAL PIPING LEGEND

SYMBOL	DESCRIPTION
	GATE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	GLOBE VALVE
	GENERAL VALVE
	CHECK VALVE
	VERTICAL ISOLATION VALVE
FAIL CLOSE / FAIL OPEN	2-WAY CONTROL VALVE (DDC)
	SAFETY RELIEF VALVE
FAIL CLOSE / FAIL OPEN	PRESSURE REGULATING VALVE
FAIL CLOSE / FAIL OPEN	PRESSURE CONTROL VALVE
	PIPE UP
	PIPE DOWN
	STEAM TRAP
	STEAM MOISTURE SEPARATOR
	STRAINER
	EXPANSION JOINT
	ALIGNMENT GUIDE
	PIPE ANCHOR
	FLEXIBLE HOSE
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	UNION
D	DIELECTRIC COUPLING
	PIPE CAP
	HYDRONIC (FIN-TUBE) HEATING UNIT
	CONTROL LINE
	PRESSURE GAUGE WITH COCK
P	PRESSURE GAUGE WITH PIGTAIL
	FLOW DIRECTION ARROW
	CONTINUATION BREAK
P	PRESSURE SENSOR
	DRAWING NOTES
T	THERMOMETER (DDC)
M	FLOW METER
	STEAM DIFFUSER

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1	10 07 2015	ISSUED FOR TENDER	R.G.C

Date Printed / Date imprimée

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

A Detail no. No. du détail
B Location drawing no. sur dessin no.
C Drawing no. dessin no.

project / projet
NEW HIGH PRESSURE STEAM REGULATION STATION

MONTREAL ROAD CAMPUS : M50

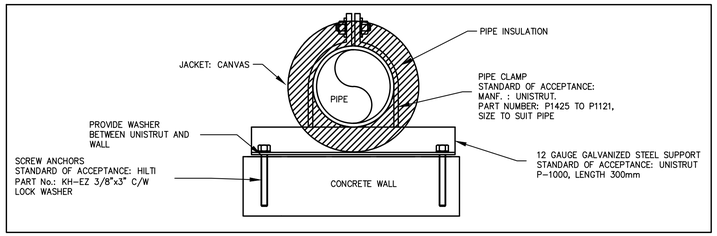
drawing / dessin
SCHEDULES

designed / conçu: R.G.C	date / date: 07/15
drawn / dessiné: R.G.C	scale / échelle: AS INDICATED
checked / vérifié: B.V	sheet / feuille: 3 of/de 4
approved / approuvé: B.V	W.O.no.: A1-006933-06-03 / D.T.no.

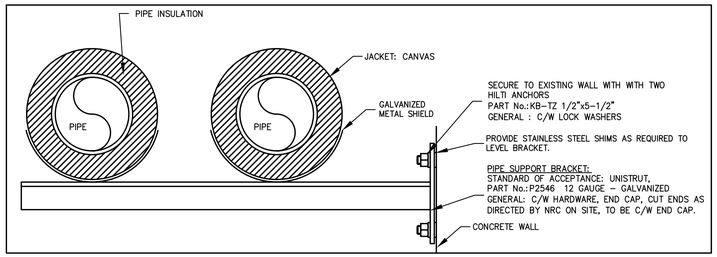
dwg.no. / dessin no.
5046-M03

ASPM A1 (841x594)

0 10 20mm 40 60 80 100 120 140 160 180 200mm

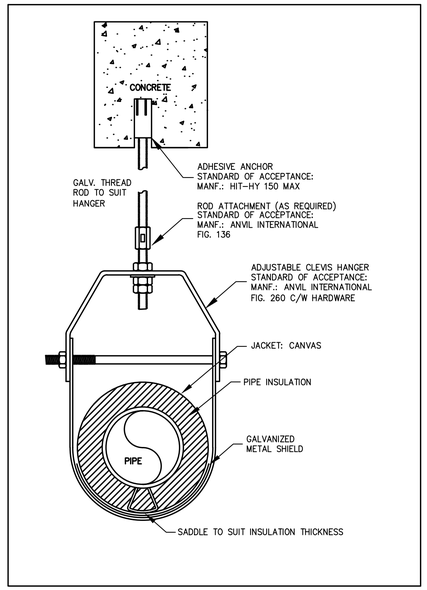


1 / M04 WALL PIPE SUPPORT (PS-1)



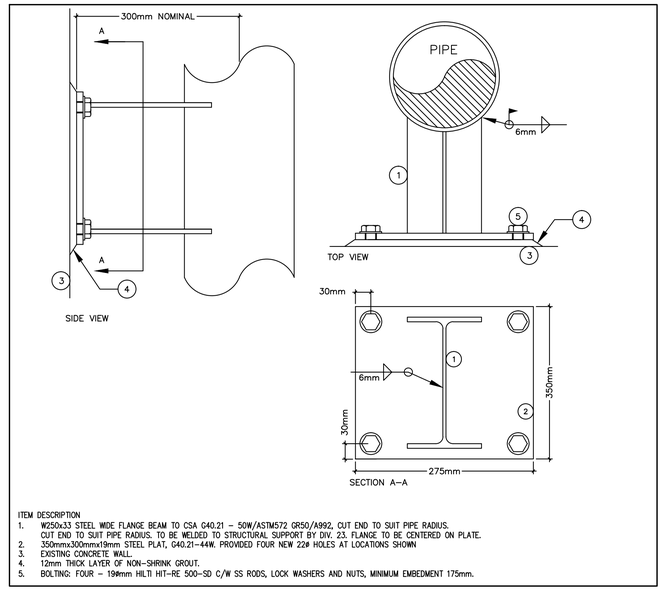
2 / M04 MECHANICAL WALL PIPE SUPPORT (PS-3)

SCALE =NA



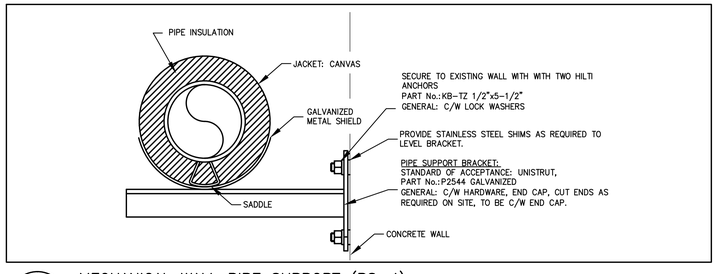
4 / M04 INTERIOR INSULATED PIPE SUPPORT DETAIL (PS-2)

SCALE =NA



ITEM DESCRIPTION
1. W250x33 STEEL WIDE FLANGE BEAM TO CSA G40.21 - 50W/ASTM572 GR50/A992, CUT END TO SUIT PIPE RADIUS. CUT END TO SUIT PIPE RADIUS. TO BE WELDED TO STRUCTURAL SUPPORT BY DIV. 23. FLANGE TO BE CENTERED ON PLATE.
2. 350mmx300mmx19mm STEEL PLAT, G40.21-44W. PROVIDED FOUR NEW 22# HOLES AT LOCATIONS SHOWN
3. EXISTING CONCRETE WALL.
4. 12mm THICK LAYER OF NON-SHRINK GROUT.
5. BOLTING: FOUR - 19mm HILTI HIT-RE 500-SD C/W SS RODS, LOCK WASHERS AND NUTS, MINIMUM EMBEDMENT 175mm.

5 / M04 VERTICAL PIPE ANCHOR (A-1)



3 / M04 MECHANICAL WALL PIPE SUPPORT (PS-4)

SCALE =NA

CONTROL POINTS

System: LOW PRESSURE STEAM SUPPLY	HARDWARE														SOFTWARE					
	Output (O)					Input (T,D,V,C)									Alarms					
	Digital			Analog		Digital					Analog				Digital	Analog				
Point Description	Control Relay	Auxiliary	Control Valve	0-10 VDC	4-20 mA	Dry Contact	Pressure Switch	Flow Switch	Current Relay	Auxiliary	Temperature	Relative Humidity	Flow	4-20 mA Signal	0-10Vdc Signal	Equipment Status	Maintenance	High limit-Priority	Low Limit-Priority	Run Time	Notes
STEAM PRESSURE CONTROL VALVE (50PRV01A)																					
SUPPLY PRESSURE					X																
VALVE POSITION														X							
STEAM PRESSURE CONTROL VALVE (50PRV01B)																					
SUPPLY PRESSURE					X																
VALVE POSITION														X							
STEAM FLOW METER																					
FLOW RATE														X							
PULSE	X																				
TEMPERATURE SENSOR																					
STEAM VENT											X							1			

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CONTROLS:

1. ALL CONTROL WORK TO BE COMPLETED BY AIRTRON CANADA. CONTACT AARON DOBSON AT (613) 247-7938 OR AARON.DOBSON@AIRTRONCANADA.COM FOR PRICING.
2. CONTROLS SHALL MODULATE 50PRV01A/B TO MAINTAIN SUPPLY PRESSURE TO SETPOINT (50 PSIG). SETPOINT SHALL BE ADJUSTABLE ON GRAPHICS SCREEN.
3. GRAPHICS SCREEN SHALL DISPLAY THE FOLLOWING:
   a. HIGH PRESSURE STEAM INLET PRESSURE (PSIG)
   b. MEDIUM PRESSURE STEAM SUPPLY (PSIG)
   c. CONTROL VALVE POSITION (% OPEN)
   d. MEDIUM PRESSURE STEAM SUPPLY SETPOINT
   e. STEAM VENT DISCHARGE TEMPERATURE.
4. ALL POINTS TO BE TRENDED.
5. PRESSURE SENSOR TO BE PROVIDED BY CONTROL VALVE MANUFACTURER.
6. CONTROL CONTRACTOR SHALL PROVIDE 24 VDC/100ma POWER SUPPLY TO CONTROL VALVES.
7. CONTROLS SHALL BE ON UPS AND EMERGENCY POWER.

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NEW HIGH PRESSURE STEAM REGULATION STATION

MONTREAL ROAD CAMPUS : M50

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DETAILS AND CONTROLS

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