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MCW/AGE Consulting Professional Engineers  
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0	ISSUED FOR CONSTRUCTION	2016/11/02
Revision/	Description/Description	Date/Date
Client/client		

**PUBLIC WORKS AND GOVERNMENT SERVICES AGENCY**

Project title/Titre du projet  
**EMERSON, MANITOBA HIGHWAY 75, UNITED STATES BORDER**  
**EXPANSION AND REDEVELOPMENT OF THE EMERSON PORT OF ENTRY**

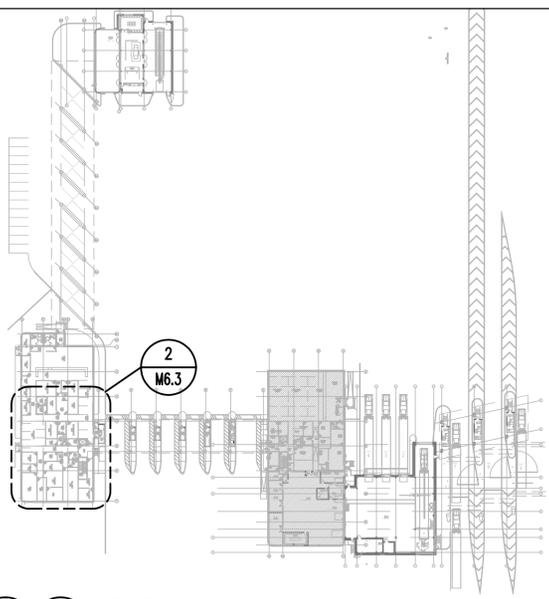
Approved by/Approve par  
**AL**  
Designed by/Concept par  
**CD/AL**  
Drawn by/Dessine par  
**KL**  
PWGSC Project Manager/Administrateur de Projets TPSCG  
**JAMES HUTCHINGS**

PWGSC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'ingénierie, TPSCG

Client/client

Drawing title/Titre du dessin  
**PLUMBING SPECIFICATIONS, CHARTS, AND GAS LOAD SCHEMATIC**

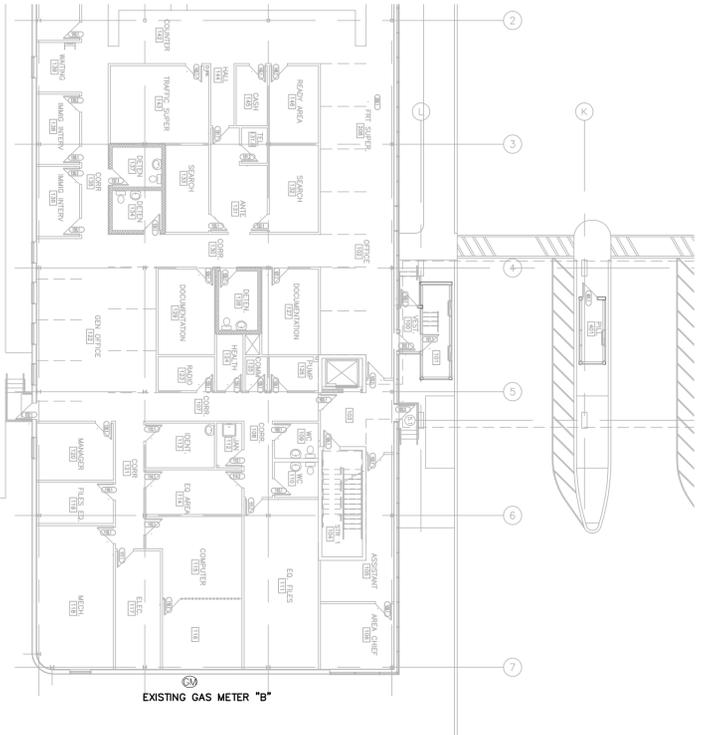
Project No./No. du projet <b>R.068431.001</b>	Sheet/Feuille <b>M6.3</b>	Revision no./ La Révision no. <b>0</b>
	9 OF 11	



**3 KEY PLAN**  
M6.3 SCALE: NTS

**BUILDING PLUMBING SERVICES**

FIXTURE DESCRIPTION	FIXTURE QTY	SANITARY FIXTURE UNITS	TOTAL SANITARY FIXTURE UNITS	DOMESTIC H <sub>2</sub> O FIXTURE UNITS PER FIXTURE		TOTAL DOMESTIC H <sub>2</sub> O FIXTURE UNITS		TOTAL
				COLD H <sub>2</sub> O	HOT H <sub>2</sub> O	COLD H <sub>2</sub> O	HOT H <sub>2</sub> O	
TRENCH FLOOR DRAIN	1	4	4					--
75MM FLOOR DRAIN	5	3	15					--
EMERGENCY EYE WASH	1	1.5	1.5	5	5	5	5	10
19MM HOSE BIBB	4			6		24		24
<b>TOTAL SANITARY FIXTURE UNITS</b>			<b>20.5</b>	<b>TOTAL DOMESTIC H<sub>2</sub>O FIXTURE UNITS</b>		<b>29</b>	<b>5</b>	<b>34</b>
<b>TOTAL SANITARY PEAK FLOW RATE L/DAY (BASED ON POPULATION METHOD)</b>			<b>0.12</b>	<b>TOTAL DOMESTIC COLD H<sub>2</sub>O PEAK FLOW RATE L/S</b>		<b>2.7</b>		
				<b>TOTAL DOMESTIC HOT H<sub>2</sub>O PEAK FLOW RATE L/S</b>		<b>0.94</b>		
				<b>TOTAL COMBINED DOMESTIC H<sub>2</sub>O PEAK FLOW RATE L/S</b>		<b>3.64</b>		



**2 EXISTING GAS METER LOCATION AT TRAVELLERS BUILDING**  
M6.3 SCALE: NTS

**PLUMBING FIXTURE SPECIFICATIONS:**

- FD-1** EPOXY COATED CAST IRON FLOOR DRAIN WITH ANCHOR FLANGE, WEEP HOLES, NPT TRAP PRIMER INLET, 1/2"(13MM) THICK NICKEL BRONZE STRAINER, [MEMBRANE CLAMP] AND NO HUB OUTLET.
- FD-2** EPOXY COATED CAST IRON FLOOR DRAIN WITH ANCHOR FLANGE, WEEP HOLES, NPT TRAP PRIMER INLET, 1/2"(13MM) THICK NICKEL BRONZE FUNNEL, [MEMBRANE CLAMP] AND NO HUB OUTLET.
- TD-1** PRECAST TRENCH DRAIN - THE PRECAST TRENCH SHALL BE MANUFACTURED USING POLYESTER POLYMER CONCRETE WITH THE FOLLOWING MATERIAL PROPERTIES WHEN TESTED:
 

PROPERTY	TEST METHOD	VALUE
COMPRESSIVE STRENGTH	ASTM C579	17,000 PSI MINIMUM
BENDING STRENGTH	ASTM C580	4,000 PSI MINIMUM
TENSILE STRENGTH	ASTM C307	2,000 PSI MINIMUM
CHEMICAL RESISTANCE	ASTM C267	PASS
FREEZE/THAW W/O WEIGHT LOSS	ASTM C666	1,600 NUMBER OF CYCLES MINIMUM
RESISTANCE TO FUNGI	ASTM G21	ZERO (0) RATING MOLD GROWTH
UL/ULC LISTED- FLAME SPREAD	UL-723	CLASS A

THE TRENCH CONSISTING OF 39.19" (1 METER) OR 19.56" (1/2 METER) CHANNELS WITH NOMINAL 6" (155MM) OUTSIDE WIDTH, 4" (100MM) INSIDE WIDTH. PRE-SLOPED CHANNELS SHALL HAVE A STANDARD SLOPE OF 0.6% WITH RADIUS BOTTOM. CHANNELS SHALL HAVE TONGUE AND GROOVE JOINTS. GRATE LOCK DOWN SLOTS SHALL HAVE POLYETHYLENE VIBRATION DAMPENING INSERTS. ALL CHANNELS MUST HAVE FULL LENGTH ANCHORING RIBS FOR A POSITIVE MECHANICAL LOCK WITH THE SURROUNDING CONCRETE.

SIDEWALL EXTENSIONS - SIDEWALL EXTENSIONS FOR CHANNELS MAY BE USED FOR HYDRAULIC PERFORMANCE OR TO MAINTAIN THE STANDARD SLOPE OF 0.6% IN GREATER TRENCH RUN LENGTHS. SIDEWALL EXTENSIONS SHALL BE COMPOSED OF SIMILAR MATERIAL AND THICKNESS AS THE CHANNELS AND SHALL HAVE TONGUE AND GROOVE JOINTS.

FRAME & GRATE: EPOXY COATED DUCTILE IRON CONFORMING TO ASTM A-536 LONGITUDINALLY SLOTTED WITH A MINIMUM OF 0.21FT<sup>2</sup> /L FT (.064M<sup>2</sup>/LM) OPEN AREA. GRATES SHALL MEET A MINIMUM 1235 PSI PROOF LOAD PER AASHTO M-306 TEST MODIFIED BY UTILIZING A 9" X 3" LOAD PLATE. FRAMES SHALL BE A MINIMUM OF .188" (4.77MM) THICK. THE FRAMES SHALL HAVE .25" DIA. X 3" LONG (MINIMUM) ANCHORS SPACED NO MORE THAN 17" (431.8MM) ON CENTER. FRAMES SHALL BE INDEPENDENT OF THE CHANNELS. FRAMES AND GRATES SHALL SEAT INTO CHANNELS WITHOUT ROCKING AND SHALL BE LOCKED TO THE CHANNEL USING A ZINC PLATED STEEL 5/16" - 18 UNC BOLT AND ZINC PLATED STEEL TOGGLE BAR SYSTEM WITH A BOLT TORQUE OF 10IN/LB.

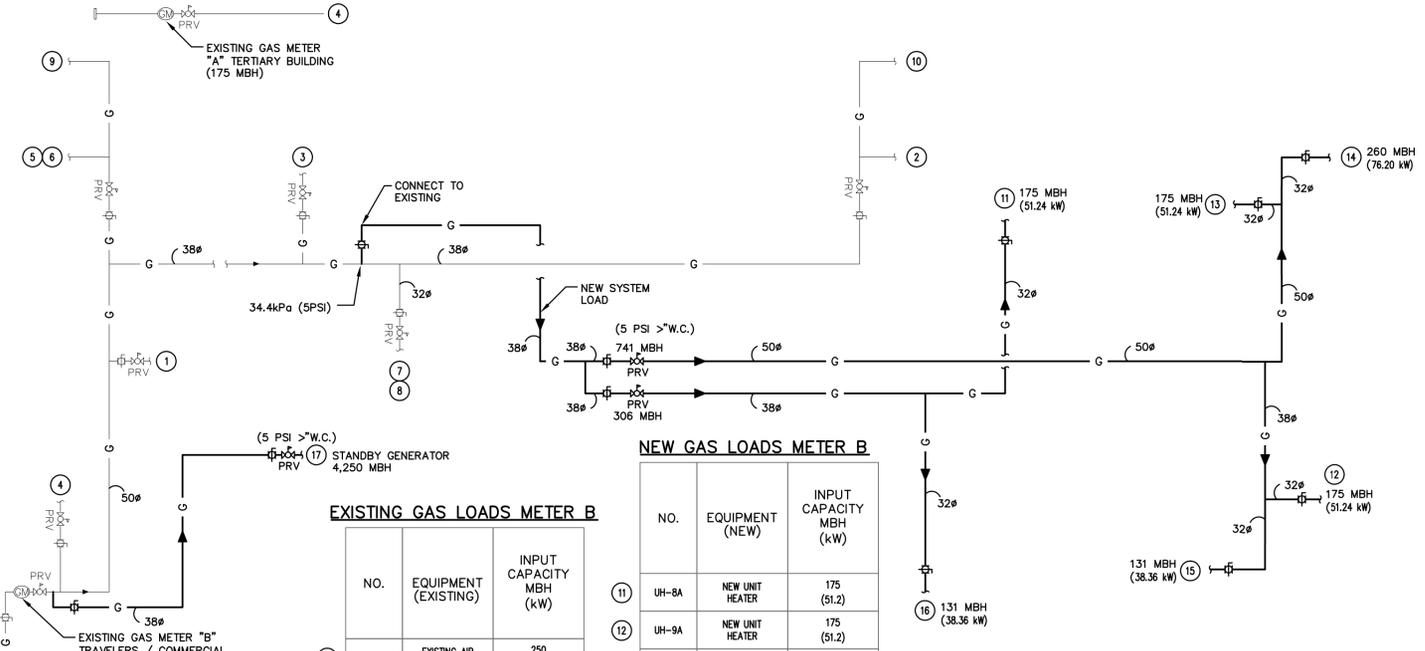
- RD-1** EPOXY COATED CAST IRON ROOF DRAIN WITH DEEP SUMP, WIDE SERRATED FLASHING FLANGE, FLASHING CLAMP DEVICE WITH INTEGRAL GRAVEL STOP, SELF-LOCKING POLYETHYLENE DOME STRAINER AND UNDER DECK CLAMPS.
- HB-1** CAST BRASS HOSE BIBB WITH SEPARATE TAMPER PROOF VACUUM BREAKER 3/4"(20MM) REGULAR NPT REGULAR PATTERN.
- HB-2** NON-FREEZE EXPOSE TYPE AUTOMATIC DRAINING WALL HYDRANT WITH VACUUM BREAKER BACKFLOW PREVENTER, 3/4"(20MM) HOSE THREAD NOZZLE, ONE PIECE VALVE PLUNGER TO CONTROL BOTH FLOW AND DRAIN FUNCTIONS, RUGGED BRASS PIPE CONSTRUCTION, LOCKING CHROME PLATED BRASS BOX AND HYDRANT. MOUNTING BOX LOCKS IN THE UP POSITION. LOOSE TEE KEY TO BE FURNISHED WITH EACH HYDRANT.

- EW-1** BARRIER-FREE COMBINATION SHOWER AND EYE/FACE WASH SHALL INCLUDE A STAINLESS STEEL 11"(27.9CM) ROUND BOWL, AN EYE/FACE WASH HEAD SHALL FEATURE INVERTED DIRECTIONAL LAMINAR FLOW SUPPLIED BY AN INTEGRAL FLOW CONTROL. UNIT SHALL ALSO INCLUDE THE HYDRODYNAMIC DESIGNED PLASTIC SHOWERHEAD WITH FLOW CONTROL, CHROME-PLATED BRASS STAY-OPEN BALL VALVE EQUIPPED WITH STAINLESS STEEL BALL AND STEM, AND WHEEL CHAIR ACCESSIBILITY. UNIT SHALL ALSO INCLUDE SCHEDULE 40 HOT-DIPPED GALVANIZED STEEL PIPE AND FITTINGS, POWDER-COATED CAST-IRON 9"(22.9CM) DIAMETER FLOOR FLANGE, YELLOW PLASTIC POP-OFF DUST COVER FOR EYEWASH HEAD, SELF-ADHESIVE HIGH VISIBILITY SAFETY GREEN AND BRIGHT YELLOW STRIPES, UNIVERSAL SIGN, AND 1-1/4"(32MM) SUPPLY. COMPLETE WITH THERMOSTATIC MIXING VALVE.

**THERMOSTATIC MIXING VALVE - EYEWASH (EW-1)**

	MAXIMUM		MINIMUM	
	31 GPM	117 LPM	1 GPM	4 LPM
FLOW RATE				
HOT INLET TEMPERATURE	180F	82C	120F	49C
RECOMMENDED HOT INLET TEMPERATURE	140F	60C		
COLD INLET TEMPERATURE	70F	21C	40F	4C
ADJUSTABLE OUTLET TEMPERATURE RANGE	90F	32C	60F	16C
OPERATING PRESSURE	125 PSI	8.6 BAR		
FACTORY TEMPERATURE SET POINT	85F	29C		
COLD WATER BYPASS	20 GPM		76 LPM @ 30 PSI	

NOTES: INLET PORTS: 1-1/4"NPT(F) OUTLET PORT: 1-1/4"NPT(F)  
MAXIMUM INLET PRESSURE DIFFERENTIAL: +/- 10%  
LISTINGS: CSA CERTIFIED PER ASSE 10701 STANDARD AND APPLICABLE SECTIONS OF CSA B125.3.



**EXISTING GAS LOADS METER A**

NO.	EQUIPMENT (EXISTING)	INPUT CAPACITY MBH (kW)
1	AHU-1 EXISTING AIR HANDLING UNIT	250 (73.2)
2	AHU-2 EXISTING AIR HANDLING UNIT	200 (58.6)
3	AHU-3 EXISTING AIR HANDLING UNIT	100 (29.3)
5	B1a EXISTING BOILER	210 (61.5)
6	B1b EXISTING BOILER	210 (61.5)
7	B2a EXISTING BOILER	550 (161.1)
8	B2b EXISTING BOILER	550 (161.1)
9	DWH-1 EXISTING DOMESTIC HOT WATER HEATER	40 (11.7)
10	DWH-2 EXISTING DOMESTIC HOT WATER HEATER	40 (11.7)
<b>EXISTING LOADS TOTAL</b>		<b>2,150 (630)</b>

**NEW GAS LOADS METER B**

NO.	EQUIPMENT (NEW)	INPUT CAPACITY MBH (kW)
11	UH-8A NEW UNIT HEATER	175 (51.2)
12	UH-9A NEW UNIT HEATER	175 (51.2)
13	UH-10A NEW UNIT HEATER	175 (51.2)
14	UH-11A NEW UNIT HEATER	280 (76.20)
15	UH-12A NEW UNIT HEATER	131 (38.4)
16	UH-13A NEW UNIT HEATER	131 (38.4)
17	GENERATOR NEW STANDBY ELECTRIC GENERATOR	4,250 MBH (1,245)
<b>TOTAL NEW LOAD</b>		<b>5,297 MBH (1,552.46)</b>
<b>COMBINED NEW AND EXISTING LOADS TOTAL</b>		<b>7,447 MBH (2,182)</b>
<b>FUTURE LOAD</b>		<b>1,500 MBH (440)</b>
<b>TOTAL METER "B" LOAD</b>		<b>8,947 MBH (2,622)</b>

NOTE: EXISTING GAS METERS "A" AND "B" TO BE CHANGED OUT TO NEW METERS. COORDINATE WITH LOCAL GAS UTILITY FOR NEW METER SETS.

**EXISTING GAS LOADS METER A**

NO.	EQUIPMENT (EXISTING)	INPUT CAPACITY MBH (kW)
4	AHU-4 EXISTING AIR HANDLING UNIT (TERTIARY)	175 (51.2)
<b>TOTAL</b>		<b>175 (51.2)</b>
<b>FUTURE LOAD</b>		<b>750 MBH (220)</b>
<b>TOTAL METER "A" LOAD</b>		<b>925 MBH (271)</b>

**1 GAS LOAD SCHEMATIC**  
M6.3 SCALE: NTS