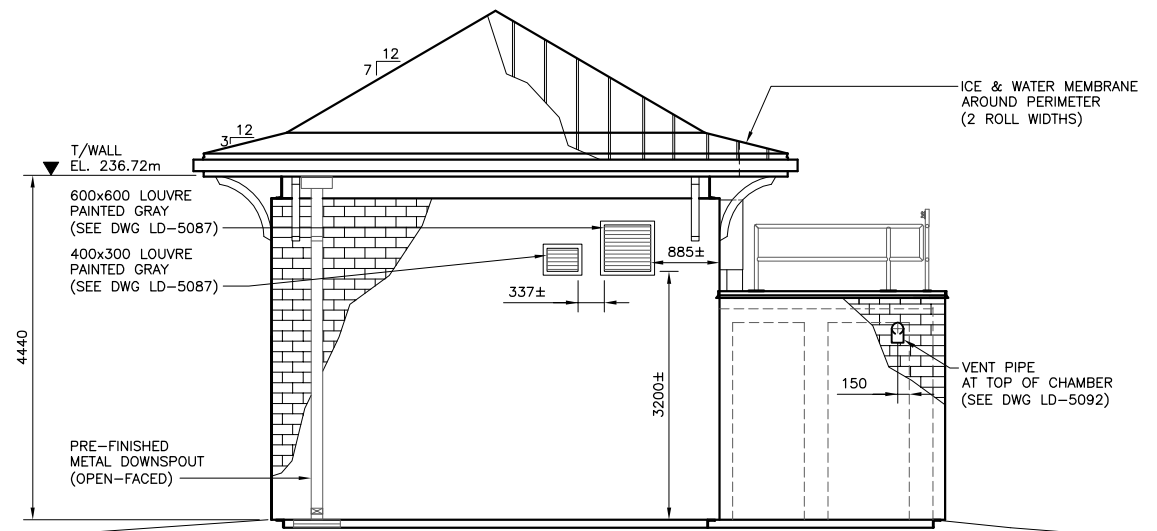
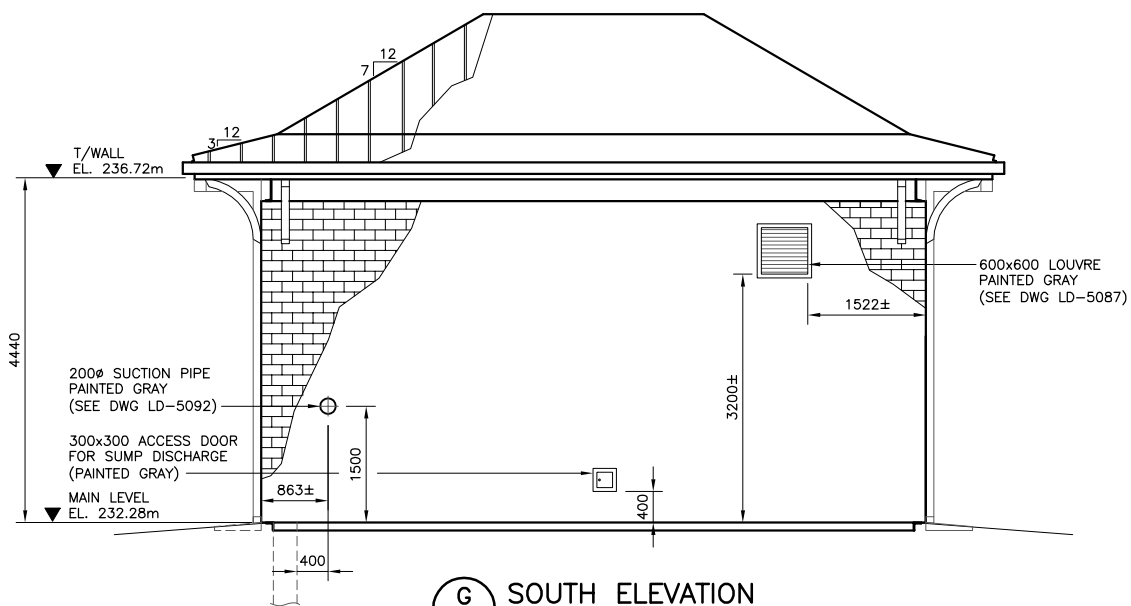


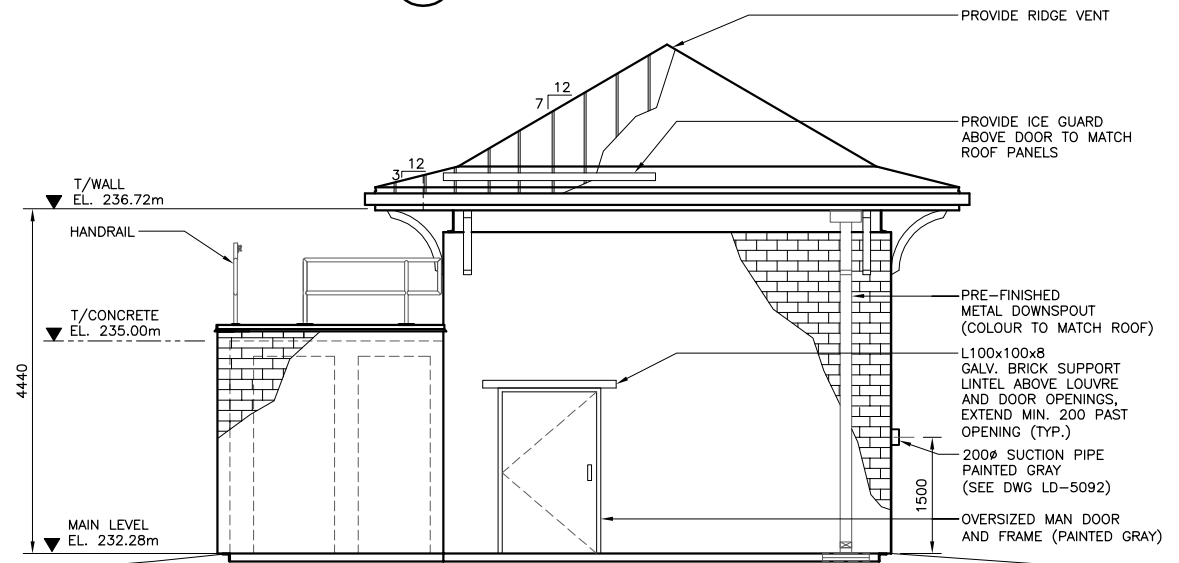
**E NORTH ELEVATION**  
SCALE: 1:50



**F EAST ELEVATION**  
SCALE: 1:50



**G SOUTH ELEVATION**  
SCALE: 1:50



**H WEST ELEVATION**  
SCALE: 1:50

**1.0 GENERAL NOTES**

- 1.1 NOTES TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS.
- 1.2 DO NOT SCALE DRAWINGS.
- 1.3 VERIFY ALL DIMENSIONS, ELEVATIONS AND SCOPE OF WORK PRIOR TO CONSTRUCTION.
- 2.0 **CONCRETE** (SEE ALSO CW2160)
  - 2.1 CONCRETE MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CAN/CSA-A23.1-04. SEE BELOW FOR MIX REQUIREMENTS.
  - 2.2 CONCRETE MATERIALS, FORMING, PLACING, FORM REMOVAL, ETC. TO ACI RECOMMENDATIONS AND ACCEPTABLE PRACTICE.
  - 2.3 MIX WATER SHALL BE POTABLE. CALCIUM CHLORIDE SHALL NOT BE USED.
  - 2.4 REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF CSA G30.12-M92 (R2007). GRADE, 300 MPa FOR 10M BARS, 400 MPa FOR 15M AND LARGER. MINIMUM COVER SHALL BE 32mm.
  - 2.5 GRANULAR BASE TO BE PLACED ON GRADE SHALL BE COMPACTED TO 100% OF STANDARD PROCTOR (MAXIMUM DRY DENSITY). DO NOT COMPACT FROZEN GRADE OR PLACE GRANULAR BASE ON FROZEN GROUND.
  - 2.6 PROVIDE ADEQUATE PROTECTION FOR CONCRETE DURING CURING PERIOD.
  - 2.7 CONCRETE MIX DESIGN SHALL BE PROPORTIONED AS FOLLOWS:
 

WALLS & SLAB	28 DAY COMP. STRENGTH	35 MPa
	CEMENT (TO CSA/CAN3-A5-M88)	TYPE 50
	W/C RATIO	0.40
	AGGREGATE SIZE (MAX.)	20mm
	ENTRAINED AIR	5%-8%
	SLUMP (MAX.)	75mm (±25mm)
  - 2.8 ALL EXPOSED CORNERS TO HAVE 25mm CHAMFER FILLET U.N.O.
  - 2.9 INSTALL WATERSTOPS AT ALL CONSTRUCTION JOINTS U.N.O.

**3.0 MASONRY**

- 3.1 CONSTRUCTION OF PLAIN AND REINFORCED CONCRETE BLOCK SHALL BE IN ACCORDANCE WITH CSA CAN3-A371-LATEST EDITION.
- 3.2 NORMAL WEIGHT HOLLOW LOAD BEARING UNITS SHALL BE H/15/A/M CONFORMING TO CSA CAN3-165.1-LATEST EDITION.
- 3.3 MASONRY MORTAR SHALL BE TYPE 'S' CONFORMING TO CSA A179-M1976.
- 3.4 MASONRY GROUT SHALL BE NORMAL PORTLAND CEMENT AND MEET THE FOLLOWING REQUIREMENTS:
 

-MIN. 28 DAY COMP. STRENGTH	20 MPa
-SLUMP	125 (±25mm)
-AIR	1-3%
- 3.5 VERTICAL REINFORCEMENT SHALL BE BILLET STEEL GRADE 400, DEFORMED BARS.
- 3.6 MASONRY CONSTRUCTION SHALL INCLUDE THE FOLLOWING:
  - LINTEL BEAMS ABOVE ALL DOOR OPENINGS. LINTEL BEAMS SHALL EXTEND 200 PAST EACH SIDE OF OPENING.
  - 1-15M DOWEL AND 1-15M VERT. GROUTED AT EACH SIDE OF DOORS, OPENINGS, BUILDING CORNERS, WALL INTERSECTIONS, AT BOTH SIDES OF CONTROL JOINTS AND AT MAXIMUM 1200 O.C. IN WALLS.

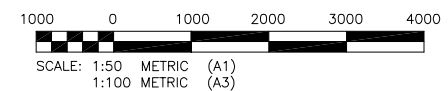
**4.0 STRUCTURAL AND MISCELLANEOUS STEEL**

- 4.1 STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH CAN/CSA-S16.1-01.
- 4.2 STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF CAN/CSA-G40.20/G40.21-M92.
 

ROLLED SHAPES & PLATES	CSA G40.21-350W
STANDARD PIPE	ASTM A53
COLD FORMED STEEL	CSA S136-94
ANCHOR BOLTS	ASTM A307M
BOLTS, NUTS & WASHERS	ASTM A325M
WELDING ELECTRODES	CSA W48.1-01

- 4.3 WELDING SHALL BE IN ACCORDANCE WITH CSA W59-2003, BY WELDERS CERTIFIED AND QUALIFIED IN ACCORDANCE WITH CSA W47.1-2003. ALL WELDS TO BE 6mm UNLESS NOTED OTHERWISE.
- 4.4 PAINTED SURFACES OF EXISTING STEEL SHALL BE GROUND SMOOTH TO BARE METAL PRIOR TO FIELD WELDING.
- 4.5 STRUCTURAL AND MISC. STEEL SHALL BE PAINTED AS FOLLOWS:
  - SURFACE PREPARATION TO SSPC-SP3
  - ONE COAT QUICK DRYING PRIMER TO CISC/CPMA 2-75
  - ONE FINISH COAT (COLOURS AS NOTED)
  - FIELD TOUCH-UP WITH PRIMER AND PAINT AFTER ERECTION.
- 4.6 FLASHINGS TO BE SHOP/SITE FORMED AS APPROPRIATE. ALL ACCESSORIES SHALL BE COMPATIBLE WITH DECKING PROFILE AND THICKNESS.
- 5.0 **ALUMINUM**
  - 5.1 ALUMINUM: TO CAN/CSA S517 AND THE ALUMINUM ASSOCIATION 'SPECIFICATIONS FOR ALUMINUM STRUCTURES'. ALUMINUM FOR PLATES AND EXTRUDED SHAPES SHALL BE TYPE 6061-T651.
  - 5.2 ALUMINUM WELDING SHALL BE IN ACCORDANCE WITH CSA W59.2-03 BY WELDERS CERTIFIED AND QUALIFIED IN ACCORDANCE WITH CSA W47.2-2003. ALL WELDS TO BE 6mm UNLESS NOTED OTHERWISE.
  - 5.3 INSTALL NYLITE ELECTROCHEMICAL ISOLATION GASKETS TO ELECTRICALLY ISOLATE DISSIMILAR METALS (SUPPLIED BY SPAENAUR).

- 5.4 ALL ALUMINUM IN CONTACT WITH CONCRETE OR CAST INTO CONCRETE TO HAVE BITUMINOUS ISOLATION COATING.
- 5.5 ALL NUTS, BOLTS AND ANCHORS SHALL CONFORM TO ASTM A276 TYPE 316 STAINLESS STEEL.
- 6.0 **ANCHORS**
  - 6.1 ADHESIVE ANCHORS TO BE HILTI HY150 HAS RODS C/W STANDARD EMBEDMENT U.N.O.
  - 6.2 EXPANSION ANHORS TO BE 304 STAINLESS STEEL HEX HEAD POWER-BOLTS C/W NYLON COMPRESSION RING AND STANDARD EMBEDMENT U.N.O. (BY POWER FASTENERS).
- 7.0 **GROUT**
  - 7.1 EPOXY GROUT FOR DOWEL EMBEDMENT SHALL BE STERNSON TALY GROUT, SIKKA SIKADUR 42, CPD EPOXY GROUT OR APPROVED EQUAL.



**METRIC**  
WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES

B.M. XX-XXX ELEV. XXX.XXX			
DESIGNED BY CMS	CHECKED BY CMS		
DRAWN BY FV	APPROVED BY		
SCALE: AS NOTED	RELEASED FOR CONSTRUCTION:		
0 ISSUED FOR CONSTRUCTION NO. REVISIONS	08/09/23 DATE	CMS BY	
	08/02/28 DATE		



**KGS GROUP**  
CONSULTING ENGINEERS & PROJECT MANAGERS  
WINNIPEG (204) 896-1209  
THUNDER BAY (807) 345-2233

ENGINEER'S SEAL  
ORIGINAL DRAWING  
SIGNED BY:  
C.M. SIEPMAN  
08/09/23  
YY/MM/DD  
CONSULTANT DRAWING NO.  
08-0107-03-S4

**THE CITY OF WINNIPEG**  
WATER & WASTE DEPARTMENT

**RAVELSTON LAND DRAINAGE  
PUMPING STATION UPGRADE**  
**STRUCTURAL  
BUILDING ELEVATIONS**

SHEET OF  
**04** OF **11**  
CAD FILE DRAWING NUMBER  
**08-0107-03-01**  
CITY DRAWING NUMBER  
**LD-5079**