

- 1. DESIGN IS IN ACCORDANCE WITH THE NATIONAL BUILDING CODE OF CANADA 1995 EDITION PLUS 1998 MANITOBA AMENDMENTS. CONCRETE WALLS ARE DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN ACI 35OR FOR WATERTIGHT STRUCTURES.
- 2. EXCAVATE ALL TOP SOIL, ORGANIC MATERIAL AND LOOSE OR UNSUITABLE FILL TO THE APPROVAL OF THE CONTRACT ADMINISTRATOR.
- 3. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXISTENCE, LOCATION AND ELEVATION OF ALL UTILITIES AND/OR CONCEALED STRUCTURES AT THE PROJECT SITE, AND SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE COMPANY, DEPARTMENT OR PERSON(S) OF ITS INTENTION TO CARRY OUT ITS OPERATIONS.
- 4. CONSTRUCTION JOINT LOCATIONS ARE TO BE APPROVED BY THE CONTRACT ADMINISTRATOR.
- 5. DO NOT SCALE THE DRAWINGS.
- 6. VERIFY ALL DIMENSIONS, ELEVATIONS AND SCOPE OF WORK PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 7. VERIFY ALL MECHANICAL OPENINGS.
- 8. VERIFY ANY MAJOR OPENINGS THAT ARE REQUIRED BUT NOT SHOWN ON THE DRAWINGS WITH THE CONTRACT ADMINISTRATOR.
- 9. STRUCTURAL DRAWINGS SHOW THE COMPLETED STRUCTURE. THEY DO NOT SHOW THE COMPONENTS WHICH MAY BE NECESSARY FOR SAFETY DURING CONSTRUCTION.
- 10. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND ABOUT THE JOB SITE DURING CONSTRUCTION.
- 11. IF ANY UNSOUND STRUCTURAL CONDITIONS ARE OBSERVED OR CREATED DURING CONSTRUCTION, REPORT THEM IMMEDIATELY TO THE CONTRACT ADMINISTRATOR.
- 12. STRUCTURAL DRAWINGS MAY NOT SHOW ALL MECHANICAL OPENINGS. REFER TO MECHANICAL DRAWINGS FOR ACTUAL LOCATIONS AND ELEVATIONS OF OPENINGS. NOTIFY THE CONTRACT ADMINISTRATOR OF ANY ADDITIONAL OPENING REQUIREMENTS.
- 13. DESIGN LOADS ARE AS NOTED BELOW:

FLOOR LIVE LOADS: ALL AREAS ROOF LIVE LOADS:

ALL AREAS

FOUNDATION WALL LOADS: LIVE LOAD 6.0 kPa ADDITIONAL CONSTRUCTION LOAD

 $P = K_0 (\gamma \times H + q)$  -- NOTE: WATER TABLE IS BELOW BASE OF OFFTAKE CHAMBER LATERAL FORCE WHERE  $K_0 = 0.7$ ,  $\gamma = 20 \text{ kN/m}^3$ , H = HT. OF FILL (m), q = 6.0 kPa

### FOUNDATIONS:

- FOUNDATIONS DESIGNED IN ACCORDANCE WITH RECOMMENDATIONS CONTAINED IN THE JULY 14, 2005 GEOTECHNICAL INVESTIGATION BY
- 2. ALL GRANULAR BACKFILL SHALL BE COMPACTED IN MAXIMUM 150mm LIFTS AND COMPACTED TO 95% S.P.M.D.D. UNLESS OTHERWISE
- CONTRACTOR SHALL NOT USE HEAVY COMPACTION EQUIPMENT OVER ROOF OF CHAMBER.

- 1. TO BE READ IN CONJUNCTION WITH CW 2160 AND AS AMENDED IN ACCORDANCE WITH THESE NOTES.
- 2. CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF CSA A23.1.
- 3. CONCRETE MIX SHALL BE IN ACCORDANCE WITH ALTERNATIVE 1, AND SHALL HAVE THE FOLLOWING PROPERTIES:
  - a. CEMENT TYPE 50
  - b. CLASS OF EXPOSURE: S-1
  - c. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 35MPa
- d. MAXIMUM COARSE AGGREGATE: 20mm
- e. MAXIMUM SLUMP: 80mm ± 20mm
- f. AIR CONTENT: 5 8%
- g. MINIMUM CEMENT CONTENT: 335 kg/m<sup>3</sup>
- h. MAXIMUM CEMENT/WATER RATIO: 0.40
- 4. CONCRETE COVER SHALL BE 50mm.
- 6. FORMWORK, SHORING AND BRACING SHALL MEET DESIGN CODE AND CSA A23.1 REQUIREMENTS, AND BE CONSTRUCTED ACCURATELY SO THAT RESULTANT FINISHED CONCRETE CONFORMS TO THE SHAPES, LINES AND DIMENSIONS INDICATED ON THE DRAWINGS. DRAWINGS FOR SHORING SHALL BE SUBMITTED TO CONTRACT ADMINISTRATOR BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
- 7. FOR COLD WEATHER CONCRETING, ALL ICE, SNOW AND FROST SHALL BE REMOVED FROM THE FORMWORK. CONCRETE SHALL NOT BE PLACED AGAINST ANY CONTACT SURFACE, INCLUDING REINFORCING STEEL, THAT WILL LOWER THE TEMPERATURE OF THE CONCRETE BELOW 10° C. CONCRETE SHALL NOT BE LESS THAN 10° C NOR MORE THAN 30° C WHEN DEPOSITED. CONCRETE SHALL BE ENCLOSED, AND THIS AREA SHALL HAVE A TEMPERATURE OF NOT LESS THAN 10° C FOR A PERIOD OF 5 DAYS.
- 8. THREE CONCRETE TEST CYLINDERS AND ONE SLUMP/AIR TEST SHALL BE TAKEN EACH DAY THAT CONCRETE IS PLACED, AND SHALL BE REPEATED FOR EVERY 20 m3 OF CONCRETE PLACED EACH DAY UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
- 9. NOTIFY THE CONTRACT ADMINISTRATOR OR TESTING AGENCY 48 HOURS PRIOR TO PLACING CONCRETE.

# REINFORCING STEEL:

- 1. TO BE READ IN CONJUNCTION WITH CW 2160 AND AS AMENDED IN ACCORDANCE WITH THESE NOTES.
- 2. ALL REINFORCING STEEL SHALL CONFORM TO CSA G30.18M, GRADE 400.
- 3. PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH CSA A23.1.
- 4. LAPS SHALL BE AT LEAST 40 BAR DIAMETERS, LOCATE REINFORCING SPLICES NOT INDICATED IN THE DRAWINGS AT POINTS OF MINIMUM
- 5. BEFORE PLACING CONCRETE, ENSURE REINFORCING IS CLEAN, FREE OF LOOSE SCALE, DIRT OR OTHER FOREIGN MATTER THAT WOULD REDUCE OR PREVENT BOND TO THE CONCRETE.
- 6. SHOP DRAWINGS SHALL BE SUBMITTED WHICH CLEARLY INDICATE BAR SIZES, SPACINGS, LOCATIONS AND QUANTITIES OF REINFORCING STEEL. COPIES OF STRUCTURAL DRAWINGS WILL NOT BE ACCEPTED FOR USE AS SHOP DRAWINGS.

# STRUCTURAL STEEL:

- 1. ALL STRUCTURAL STEEL SHAPES AND PLATES SHALL BE IN ACCORDANCE WITH CSA G40.21-M, GRADE 300W, EXCEPT W, HP AND HSS SECTIONS WHICH SHALL BE GRADE 350W CLASS C.
- 2. ALL GALVANIZING SHALL COMPLY WITH THE LATEST EDITION OF CSA G164, WITH MINIMUM ZINC COATING OF  $600g/m^2$ . TOUCH UPS TO BE MADE WITH GALVALLOY OR GAL-VIZ.
- ALL BOLTS TO BE ASTM A316 STAINLESS STEEL, UNLESS OTHERWISE INDICATED.

# OTHER NOTES:

1. LOCATION AND FEEDERMAIN DETAILS ARE SHOWN ON DRAWING No. D-8826.

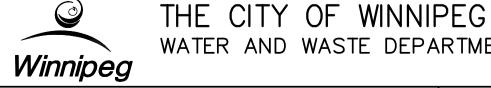
**METRIC PRELIMINARY** WHOLE NUMBERS INDICATE MILLIMETRES DECIMALIZED NUMBERS INDICATE METRES

EA Engineers & Planners Inc. Suite 111-93 Lombard Avenue Winnipeg, Manitoba R3B 3B1 Phone ( 204 ) 943-3178 Facsimile ( 204 ) 943-4948 DESIGNED CHECKED JPL APPROVED CONSTRUCTION VERTICAL PLOT DATE: 05 08 12 NO. REVISIONS DATE **05 06 02** DATE

ENGINEER'S SEA HATCH 050810/ PROFESSION'S BID OPPORTUNITY 354-2005



2.0



WATER AND WASTE DEPARTMENT

LAGIMODIERE BOULEVARD FEEDERMAIN EXTENSION OFFTAKE VALVE CHAMBER

CONSULTANT DRAWING NUMBER 41479-09-S2 10 OF SHEET

CITY DRAWING NUMBER D-8836

**Certificate of Authorization** ND LEA Engineers & Planners Inc. No. 2728 Expiry: April 30, 2006

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A = DETAIL/SECTION No.B = DRAWING WHERE SHOWN C = DRAWING WHERE TAKEN