

GENERAL

- 1 ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NATIONAL BUILDING CODE OF CANADA 2010 AND AND MANITOBA SUPPLIMENTS, THE MANITOBA WORKER SAFETY ACT, LOCAL CODES, BYLAWS, ORDINANCES, AND SAFETY REGULATIONS.
- 2 THE COMPLETE WORK SHALL BE GOVERNED BY THE DICTATES OF GOOD PRACTICE IN ALL DETAILS OF MATERIALS AND METHODS EVEN IF NOT MINUTELY SPECIFIED.
- 3 THE DRAWINGS DESCRIBE THE COMPLETED PROJECT AND DO NOT INDICATE COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND ABOUT THE JOB SITE DURING CONSTRUCTION, AND THE DESIGN AND ERECTION OF ALL TEMPORARY AND PERMANENT STRUCTURES, FORMWORK, FALSEWORK, SHORING, ETC., REQUIRED TO COMPLETE THE PROJECT. MAINTAIN THE SITE, AT LEAST ON A DAILY BASIS, FREE FROM ACCUMULATIONS OF WASTE MATERIAL AND DEBRIS. DISPOSE OF WASTE MATERIAL IN ACCORDANCE WITH LOCAL REGULATIONS.
- 4 DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE FIELD AND REPORT ANY DISCREPANCIES.
- 5 LOCATE AND PROTECT ALL MECHANICAL, ELECTRICAL AND MUNICIPAL SERVICES BEFORE COMMENCING CONSTRUCTION. COORDINATE THE WORK WITH THE REQUIREMENTS OF CIVIL DRAWINGS. VERIFY THE LOCATIONS OF ALL OPENINGS. DO NOT SEPARATE DRAWING SETS.
- 6 THE CONTRACTOR WILL LEAVE THE SITE IN THE SAME OR BETTER CONDITION THAN IT WAS BEFORE CONSTRUCTION. SITE CLEAN-UP, DRAINAGE, SECURITY, ETC. AND CONDITION OF THE WORK WILL BE TO THE SATISFACTION OF THE ENGINEER BEFORE LEAVING THE SITE.

LOADING

ALL LOADS AND FORCES SHOWN ARE SERVICE (UNFACTORED) LOADS IN POUNDS PER SQUARE FOOT (psf) AND KIPS UNLESS NOTED OTHERWISE.

- 1 DEAD LOADS
SELF WEIGHT, MATERIALS OF CONSTRUCTION, MECHANICAL, ELECTRICAL, PERMANENT EQUIPMENT, AND PARTITIONS.
- 2 LIVE LOADS
 - A) SUPERIMPOSED LIVE LOADS (UNFACTORED SERVICE)

MANHOLE COVER	HS 20 TRUCK
BASE SLAB	74 kPa (FULL OF WATER)
 - B) LATERAL EARTH PRESSURE

EARTH PRESSURE COEFFICIENT, K	0.5
BACKFILL DENSITY	2000 kg/m ³

SHOP DRAWINGS

- 1 SUBMIT SHOP DRAWINGS, SKETCHES AND DESIGN CALCULATIONS (AS REQUIRED) FOR REVIEW. ALLOW MINIMUM TEN (10) WORKING DAYS FOR REVIEWS. SUBMISSIONS FOR THIS PROJECT INCLUDE:
 - SHORING, LAYOUT AND INSTALLATION
 - CONCRETE (MIX DESIGNS), REINFORCING STEEL LAYOUT AND EMBEDMENTS
 - PRECAST CONCRETE, LAYOUT AND INSTALLATION

SHOP DRAWINGS FOR COMPONENTS DESIGNED BY THE CONTRACTOR MUST BEAR THE STAMP OF A QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF MANITOBA.

EXCAVATING AND BACKFILLING

- 1 EXISTING CONDITIONS: VISIT THE SITE AND NOTE ALL CHARACTERISTICS AND IRREGULARITIES AFFECTING THE WORK. CONFIRM EXACT LOCATIONS OF ALL SERVICES AND UTILITIES AND PROTECT FROM DAMAGE. OBTAIN AND PAY FOR ANY NECESSARY PERMITS REQUIRED TO COMPLETE THE WORK.
- 2 ALL MATERIALS TO BE SUBJECT TO ENGINEER'S APPROVAL. STOCKPILE FILL MATERIALS IN AREAS DESIGNATED BY ENGINEER. STOCKPILE GRANULAR MATERIALS TO PREVENT SEGREGATION. REMOVE FROM THE SITE AND DISPOSE OF SURPLUS OR UNSUITABLE MATERIAL.
- 3 PROOF ROLL SUBGRADE, COMPACT TO 98 % STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD). PLACE FILL WITHIN 2% OF OPTIMUM MOISTURE CONTENT TO THE REQUIRED ELEVATION IN LIFTS NOT EXCEEDING 150mm. COMPACT FILL TO 100% SPMDD.

METRIC SIEVE SIZE (µm)	A-BASE (% PASSING)	C-BASE (% PASSING)
50,000		
25,000	100	100
20,000	80 - 100	
5,000	40 - 70	25 - 80
2,500	25 - 55	
315	13 - 30	
80	5 - 15	5 - 18

- 4 USE EXTREME CAUTION WHERE UNBALANCED LOADING MAY OCCUR ON WALLS AND STRUCTURES. MAXIMUM UNBALANCED ELEVATIONS 300 mm UNLESS APPROVED BY THE ENGINEER IN WRITING
- 5 PREVENT BOTTOMS OF EXCAVATIONS FROM SOFTENING OR FREEZING. DO NOT OVER EXCAVATE IF SOFTENING OR OVER EXCAVATION OCCURS, REPLACE WITH TYPE 1 FILL COMPACTED TO 100% MODIFIED PROCTOR MAXIMUM DRY DENSITY (MPMDD) WITHIN 2% OPTIMUM MOISTURE CONTENT OR LEAN MIX CONCRETE.
- 6 DEWATERING: PROVIDE AND/OR SUITABLE EQUIPMENT INCLUDING PUMPS, PIPING, TEMPORARY DRAINS, GRADING, TRENCHES AND SUMPS TO KEEP EXCAVATIONS FREE FROM WATER UNTIL CONCRETE IS PLACED, CURED, AND STRUCTURAL ADEQUACY IS ASSURED.
- 7 INSPECTION AND TESTING: OWNER WILL PAY COSTS FOR INSPECTION AND TESTING.
 - A) EXCAVATED SURFACES: MAKE A SERIES OF THREE TESTS FOR EACH 500 SQ.m. WHEN UNDISTURBED EXCAVATED SURFACE IS BEING PREPARED.
 - B) FILLS UNDER SLABS ON GRADE: MAKE 3 TESTS FOR EVERY 2 LIFTS OF COMPACTED FILL FOR EACH 500 SQ.m. AREA.
 - C) BACKFILL AGAINST WALLS: MAKE ONE TEST OF EACH DIFFERENT MATERIAL FOR APPROXIMATELY EACH 50 m OF WALL BEING BACKFILLED AT DEPTH INCREMENTS OF 600 mm.

FORMWORK

- 1 FORMWORK TO CAN/CSA-S289.3-M92, "CONCRETE FORMWORK".
- 2 FORM OIL TO BE NON-STAINING, NON-TOXIC, AND NON-VOLATILE.
- 3 ACCESSORIES SUCH AS HI-CHAIRS, SPACERS, ETC., WILL BE SUPPORTED USING PADS OF PLYWOOD OR TEMPERED FIBREBOARD TO PREVENT PUNCTURING. POLYSTYRENE IS NOT AN ACCEPTABLE FORM MATERIAL BENEATH SLABS.

CAST-IN-PLACE CONCRETE

- 1 ALL CONCRETE MIXES, PLACING, CURING, AND TESTING WILL BE IN ACCORDANCE WITH CSA-A23.1-09/A23.2-09 CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION/METHODS OF TEST FOR CONCRETE.
- 2 CONCRETE ADMIXTURES CONFORM TO CSA A3000-03 CEMENTITIOUS MATERIALS COMPENDIUM
- 3 CONCRETE MIXES TO BE IN ACCORDANCE WITH CSA-A23.1-09, ALTERNATIVE 1;

NO.	LOCATION	CLASS OF EXPOSURE	MAX WATER TO CEMENTIOUS MATERIAL RATIO	MIN. f'c (MPa)	AIR CONTENT CATEGORY	CURING TYPE
1	ALL CONCRETE	A-3	0.50	30 @ 28d	2	1

- 4 BEFORE PLACING REVIEW SHOP DRAWINGS FOR EQUIPMENT, OPENINGS, ANCHOR BOLTS, EMBEDS, ETC. TO ENSURE COMPLETENESS.
- 5 CONCRETE SLAB TO BE SMOOTH TROWEL FINISH.
- 6 TESTING:
 - A) AN INDEPENDENT INSPECTION/TESTING AGENCY WILL BE ENGAGED BY THE OWNER. RESULTS OF FIELD TESTS WILL BE REPORTED IMMEDIATELY TO THE CONTRACTOR. INSPECTION AND TESTING DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR QUALITY CONTROL AND CONTRACTUAL OBLIGATIONS.
 - B) TESTING FIRM WILL PREPARE THREE TEST CYLINDERS FROM EACH 50 CU.m. OF CONCRETE, OR FRACTION THEREOF, FOR EACH DAY, TYPE OF CONCRETE, OR TYPE OF STRUCTURAL COMPONENT. ONE SLUMP TEST AND ONE ENTRAINED AIR TEST FOR EACH SET OF CYLINDERS.
- 7 USE COLD WEATHER CONCRETING METHODS WHEN THE MEAN AMBIENT TEMPERATURE FALLS BELOW +5°C. ADDITIONAL TEST CYLINDERS WILL BE PREPARED DURING COLD WEATHER CONCRETING AND FIELD CURED UNDER SAME CONDITIONS AS CONCRETE WHICH THEY REPRESENT.

CONCRETE REINFORCING

- 1 CONCRETE REINFORCEMENT 400 MPA DEFORMED BARS.
- 2 ALL STEEL TO BE DETAILED IN ACCORDANCE WITH CSA A23.1-09 CONCRETE MATERIALS AND STANDARD THE MANUAL OF PRACTICE BY THE REINFORCING INSTITUTE OF CANADA 2004.
- 3 CLEAR COVER TO REINFORCING WILL BE:
 - CONCRETE CAST AGAINST EARTH 75mm
 - ALL OTHER CONCRETE 50mm
- 4 BEAMS AND SLABS: LAP TOP STEEL MIDSPAN AND BOTTOM STEEL OVER SUPPORTS.
- 5 PROVIDE LAPS TO CSA A23.3 OR THE FOLLOWING MINIMUMS.
 - 10M - 400mm
 - 15M - 500mm
 - 20M - 650mm
- 6 ALL REINFORCING TO BE HELD IN PLACE AND TIED WITH PROPER ACCESSORIES, HI-CHAIRS AND SPACERS. DETAIL, SUPPLY AND INSTALL ALL ACCESSORIES. HI-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR NAILED TO THE FORMWORK.
- 7 REINFORCING STEEL SHALL NOT BE WELDED, HEATED OR BENT ON-SITE WITHOUT PRIOR APPROVAL OF THE CONSULTANT.

BID OPPORTUNITY No. 425-2013

B.M. ELEV.							
DESIGNED BY	CM	CHECKED BY		FERRY ROAD AND RIVERBEND COMBINED SEWER RELIEF WORKS CONTRACT 1		CITY DRAWING NUMBER LD-7121	
DRAWN BY	HA	APPROVED BY		MH S104 - S106		SHEET 17 OF 26	
01 ISSUED FOR TENDER	13.05.13	RELEASED FOR CONSTRUCTION		CONCRETE GENERAL NOTES		S0117	
00 ISSUED FOR APPROVAL	13.05.10			CONSULTANT DRAWING NO. 1000120300-DWG-S0117			
NO. REVISIONS	DATE	BY	DATE	12.12.18			