

GENERAL

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MANITOBA BUILDING CODE 2011, MANITOBA WORKPLACE SAFETY AND HEALTH, 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 CONTRACT ADMINISTRATOR 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 AND PERMANENT EQUIPMENT.
2. LIVE LOADS
 - A) SUPERIMPOSED LIVE LOADS (UNFACTORED SERVICE)
MANHOLE COVER HS 20 TRUCK
 - B) LATERAL EARTH PRESSURE
EARTH PRESSURE COEFFICIENT, K 0.5
BACKFILL DENSITY 2000 kg/m³

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:
 - SHORINGS, 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.

FORMWORK

1. FORMWORK TO CAN/CSA-S269.3-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

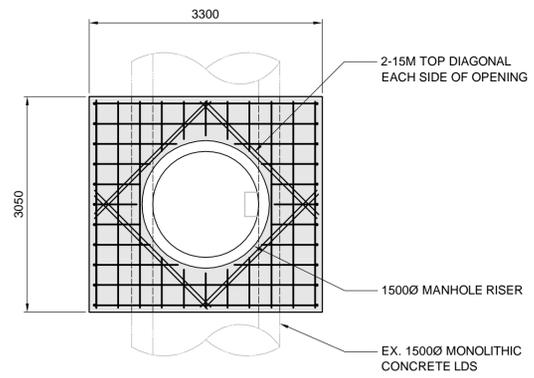
1. ALL CONCRETE MIXES, PLACING, CURING, AND TESTING WILL BE IN ACCORDANCE WITH CSA-A23.1-09/A23.2-09 CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION/METHODS OF TEST FOR CONCRETE
2. CONCRETE ADMIXTURES CONFORM TO CSA A3000-03 CEMENTITIOUS MATERIALS COMPENDIUM
3. CONCRETE MIXES TO BE IN ACCORDANCE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

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

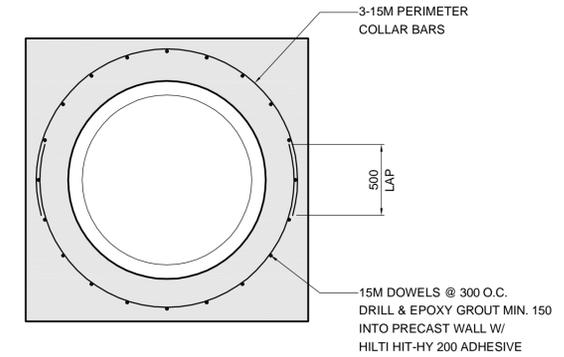
4. BEFORE PLACING REVIEW SHOP DRAWINGS FOR EQUIPMENT, OPENINGS, ANCHOR BOLTS, EMBEDS, ETC. TO ENSURE COMPLETENESS.
5. CONCRETE SLAB TO BE SMOOTH TROWEL FINISH.
6. TESTING:
 - A) AN INDEPENDENT INSPECTION/TESTING AGENCY WILL BE ENGAGED BY THE OWNER. RESULTS OF FIELD TESTS WILL BE REPORTED IMMEDIATELY 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

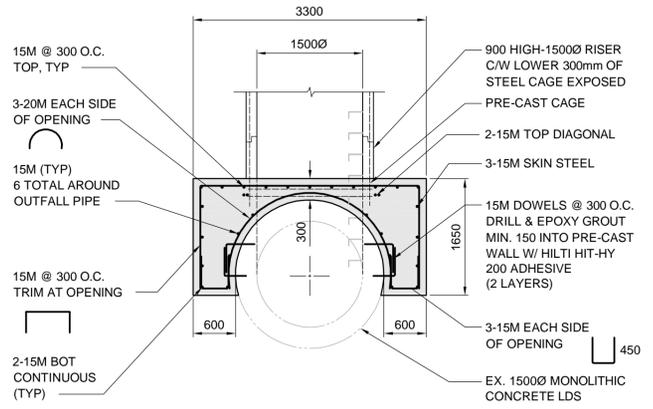
1. CONCRETE REINFORCEMENT 400 MPA DEFORMED BARS.
2. ALL STEEL TO BE DETAILED IN ACCORDANCE WITH CSA A23.1-09 CONCRETE MATERIALS AND STANDARD THE MANUAL OF PRACTICE BY THE REINFORCING INSTITUTE OF CANADA 2004.
3. CLEAR COVER TO REINFORCING WILL BE:
 - CONCRETE CAST AGAINST EARTH 75mm
 - ALL OTHER CONCRETE 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 CONTRACT ADMINISTRATOR.



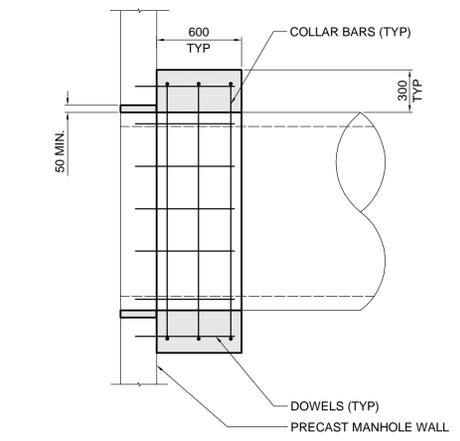
1 CONCRETE BASE PLAN
1 : 50



3 TYPICAL COLLAR DETAILS
1 : 25



2 CONCRETE BASE SECTION
1 : 50



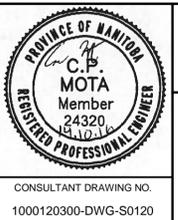
- NOTES:
1. SEE CIVIL DRAWINGS C0402, C0406, C0407 FOR PIPE DIAMETERS AND LOCATIONS
 2. COLLAR TO BE CONSTRUCTED ON ONE COMPLETE PRECAST SECTION WHERE POSSIBLE. IF COLLAR MUST SPAN A JOINT, INSTALL 4 - 600x75x6 GALV FROST STRAPS C/W 19mmØ ANCHORS (4 ANCHORS PER STRAP) SPACED CIRCUMFERENTIALLY AROUND INSIDE OF MANHOLE BARREL.



B.M. CITY OF WINNIPEG 38-022		ELEV. 234.744m	
DESIGNED BY	CM	CHECKED BY	KJM
DRAWN BY	HA	APPROVED BY	GS
HOR. SCALE:	AS SHOWN	RELEASED FOR CONSTRUCTION	
VERTICAL:		DATE	10-11-14
NO.	REVISIONS	DATE	BY
01	ISSUED FOR TENDER	14.10.16	CM
0	ISSUED FOR APPROVAL	14.10.15	CM
NO.	REVISIONS	DATE	BY

TETRA TECH

CONSULTANT DRAWING NO. 1000120300-DWG-S0120



THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

FERRY ROAD AND RIVERBEND
COMBINED SEWER RELIEF WORKS
CONTRACT 4
MH S410, S420 AND S430
BASE AND COLLAR DETAILS

CITY DRAWING NUMBER LD-7379
SHEET 8 OF 9
S0408

BID OPPORTUNITY No. 961-2014