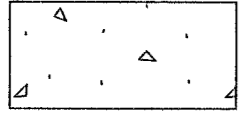
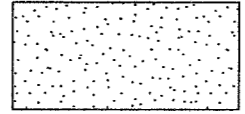
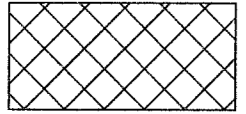
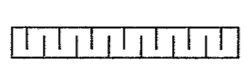
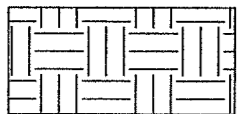


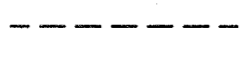
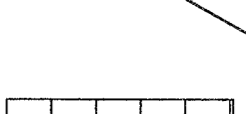

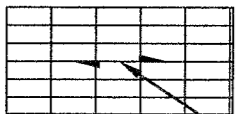
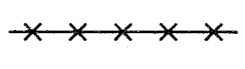
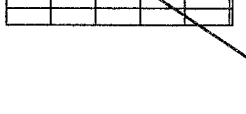

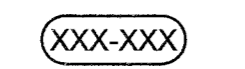


LEGEND

	CONCRETE		GROUT
	CUT AND REMOVE EXISTING CONCRETE/CMU CUT IN PLAN OR SECTION		RIGID INSULATION
	ROCK		EARTH OR FINISHED GRADE
	CHECKERED PLATE		CEMENTITIOUS WATERPROOFING
	HINGE SIDE		CHEMICAL RESISTANT COATING
	GRATING		WELDED WIRE FABRIC
	SPAN		SLOPE DIRECTION
			STANDARD DETAIL NUMBER

GENERAL NOTES

- SEE DRAWINGS 1-0101M-D0003 AND 1-0101M-D0004 FOR ABBREVIATIONS.
- DIMENSIONS IN MILLIMETRES.
- ELEVATIONS IN METRES.
- READ STRUCTURAL DRAWINGS IN CONJUNCTION WITH ALL RELATED CIVIL, ARCHITECTURAL, MECHANICAL, PROCESS, AND ELECTRICAL DRAWINGS, EXISTING DRAWINGS AND OTHER CONTRACT DOCUMENTS.
- DESIGN DETAILS, SECTIONS, AND STANDARD DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS AND LOCATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE INDIVIDUALLY CALLED OUT ON DRAWINGS.
- TYPICAL STRUCTURAL DETAILS SHOWN ON DRAWINGS SHALL GOVERN THE WORK. IF DETAILS DIFFER ON OTHER DRAWINGS OR SPECIFICATIONS, THE MOST STRINGENT SHALL GOVERN.
- DESIGN LOADS INDICATED ON DRAWINGS ARE SERVICES LOADS (UNFACTORED). DESIGN LOADS INDICATED ON DRAWINGS WITH SUBSCRIPT "f" ARE FACTORED LOADS.
- DO NOT EXCEED DESIGN LOADS NOTED ON DRAWINGS DURING CONSTRUCTION.
- SEE OTHER CONTRACT DRAWINGS AND COORDINATE FOR ACTUAL SIZES, LOCATIONS AND DETAILS OF OPENINGS FOR PIPES, SLEEVES, DUCTS, FLOOR DRAINS, CONDUITS, AND OTHER PENETRATIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
- SEE MECHANICAL AND/OR PROCESS DRAWINGS AND COORDINATE FOR ACTUAL SIZES, LOCATIONS AND DETAILS OF EQUIPMENT BASES, SLUICE GATES, SLIDE GATES, IRRIGATION GATES, STOP LOG GUIDES, AND SIMILAR ITEMS.
- SEE ELECTRICAL DRAWINGS FOR SIZES, REINFORCING, AND LOCATIONS OF CONCRETE ENCASED CABLES, CONDUITS, DUCT BANKS, AND CONCRETE PADS FOR ELECTRICAL EQUIPMENT NOT SHOWN ON STRUCTURAL DRAWINGS.
- SEE ARCHITECTURAL DRAWINGS FOR SIZES AND LOCATIONS OF CONCRETE CURBS, RAILING, SHELF ANGLES, LOOSE LINTELS, ABRASIVE STAIR NOSINGS, REGLETS, INSERTS, AND THRESHOLDS NOT SHOWN ON STRUCTURAL DRAWINGS.
- STRUCTURAL MEMBERS SHALL NOT BE CUT OR MODIFIED UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE CONTRACT ADMINISTRATOR.
- DIMENSIONS, ELEVATIONS, AND DETAILS OF EXISTING STRUCTURES ARE BASED ON PREVIOUS CONTRACT DRAWINGS AND DO NOT NECESSARILY REPRESENT THE AS-CONSTRUCTED CONDITIONS. FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, AND DETAILS OF EXISTING STRUCTURES PRIOR TO FABRICATION AND CONSTRUCTION OF ADJACENT OR CONNECTING WORK. REPORT TO ADMINISTRATOR, ANY DISCREPANCIES OR UNSATISFACTORY CONDITIONS WHICH MAY ADVERSELY AFFECT PROPER COMPLETION OF THE WORK BEFORE PROCEEDING.

DESIGN CRITERIA

- APPLICABLE CODE: 2010 NATIONAL BUILDING CODE WITH 2011 MANITOBA AMENDMENTS (NBC).
- IMPORTANCE CATEGORY

POST DISASTER	
I _s (ULS)	= 1.25
I _s (SLS)	= 0.9
I _w (ULS)	= 1.25
I _w (SLS)	= 0.75
- SITE LOCATION: WINNIPEG, MANITOBA
- SNOW LOAD DATA:

GROUND SNOW LOADING	S _s	= 1.90 kPa
ASSOCIATED RAIN LOADING	S _r	= 0.20 kPa
- RAIN LOAD DATA:

ONE DAY RAINFALL	108 mm
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- SEISMIC DATA: N/A
- WIND LOAD DATA:

1 IN 50 YEAR HOURLY WIND PRESSURE	0.45 kPa
EXPOSURE CATEGORY	OPEN TERRAIN

STRUCTURAL STEEL AND METAL FABRICATIONS

- MATERIAL SHALL CONFORM TO THE FOLLOWING:

STRUCTURAL STEEL	CAN/CSA G40.20/G40.21, GRADE 350W OR ASTM A992, GRADE 50ksi FOR ALL W AND H SECTIONS, GRADE 300W FOR OTHERS
HOLLOW STRUCTURAL SECTION	CAN/CSA G40.20/G40.21, GRADE 350W, CLASS C
HIGH STRENGTH BOLTS	ASTM A325
SPECIAL COATING	SEE DRAWINGS
ALUMINUM	CAN/CSA S157-05/S157.1, ALLOY 6351-T6 FOR STRUCTURAL EXTRUDED SHAPES
STAINLESS STEEL	A666 TYPE 316/316L WITH MINIMUM YIELD STRESS
- REFERENCE CODES:

STRUCTURAL STEEL	CAN/CSA-S16 LIMIT STATES DESIGN OF STEEL STRUCTURES
ALUMINUM	CAN/CSA S157/S157.1 STRENGTH DESIGN IN ALUMINUM/COMMENTARY ON CSA S157
STAINLESS STEEL	ASTM A666 STANDARD SPECIFICATION FOR ANNEALED OR COLD-WORKED AUSTENITIC STAINLESS STEEL SHEET, STRIP, PLATE, AND FLAT BAR
	ASTM A276 STANDARD SPECIFICATION FOR STAINLESS STEEL BARS AND SHAPES
	CSA S136 NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS
COLD FORMED STEEL	
WELDING	
CARBON STEEL	CSA W59 WELD STEEL CONSTRUCTION (METAL ARC WELDING)
ALUMINUM	CSA W59.2 WELDED ALUMINUM CONSTRUCTION
STAINLESS STEEL	AMERICAN WELDING SOCIETY AWS D1.6/D1.6M STRUCTURAL WELDING CODE - STAINLESS STEEL

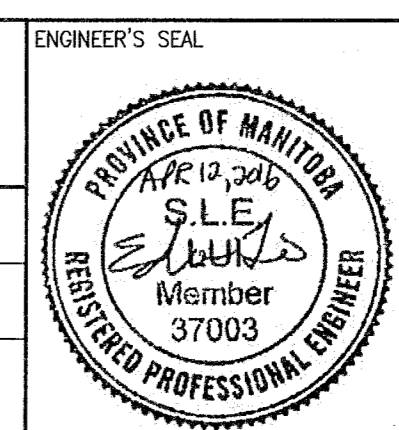
- ALL SHOP CONNECTIONS SHALL BE WELDED. ALL FIELD CONNECTIONS SHALL BE WELDED OR BOLTED USING HIGH STRENGTH BOLTS, BEARING TYPE WITH THREADS INCLUDED IN THE SHEAR PLANE.
- BEAM CONNECTIONS SHALL BE C.I.S.C. DOUBLE ANGLE CONNECTIONS USING A325 BOLTS AND E480XX FILLET WELDS UNLESS NOTES OTHERWISE. MINIMUM SIZE OF BOLTS SHALL BE 19mm DIAMETER.
- ALL MOMENT CONNECTIONS SHALL BE DESIGNED FOR 90% MOMENT CAPACITY OF THE MEMBER. THE WEB CONNECTIONS SHALL BE DESIGNED FOR THE SHEAR CAPACITY OF THE MEMBER.
- FOR SHEAR AT NON-COMPOSITE SIMPLE SPAN CONNECTIONS, PROVIDE FOR HALF THE TOTAL FACTORED LOAD ON THAT SPAN AS TABULATED IN THE C.I.S.C. STEEL HANDBOOK BEAM LOAD TABLES, BUT NOT LESS THAN 50% OF THE SHEAR CAPACITY OF THE BEAMS.
- ALL COLUMN SPLICES, DIAGONAL BRACING CONNECTIONS, AND MOMENT CONNECTIONS SHALL BE PRETENSIONED BEARING TYPE CONNECTIONS USING HIGH STRENGTH BOLTS.
- BRACING MEMBERS SHALL BE CONNECTED FOR THE FOLLOWING (WHICHEVER IS LARGER):
 - 50% OF THE FACTORED TENSILE RESISTANCE OF THE MEMBER BASED ON THE GROSS AREA OF THE MEMBER
 - FORCES AS SHOWN ON THE DRAWINGS
 - PROVIDE A MINIMUM OF TWO BOLTS
 - CROSS BRACE SHALL BE CONNECTED AT CENTRE
- FORCES ARE DESIGNATED BY (+) FOR TENSION AND (-) FOR COMPRESSION.
- CONNECTION FOR BEAMS SUBJECT TO AXIAL FORCES SHALL BE DESIGNED FOR THE AXIAL FORCES IN ADDITION TO THE SHEAR AND/OR MOMENT FORCES.
- PROVIDE WELDED STIFFENER PLATES ON BOTH SIDES OF THE WEB OF BEAMS AT POINT OF CONCENTRATED LOAD INCLUDING BEAMS SUPPORTING COLUMNS OR RUNNING OVER TOPS OF COLUMNS. MINIMUM STIFFENER PLATES THICKNESS SHALL BE 10mm OR FLANGE THICKNESS OF THE COLUMN ABOVE OR BELOW, WHICHEVER IS GREATER. MINIMUM SIZE OF WELD SHALL BE 5mm DOUBLE FILLET WELDS OR SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE STIFFENER, WHICHEVER IS GREATER.
- ALL STEEL SHALL BE HOT-DIP GALVANIZED.



NO.	REVISIONS	DATE	DESIGN	CHECK
0	ISSUED FOR TENDER	04/2016	JBC	E.L.

ch2m

DESIGNED BY: E. LUI	CHECKED BY: R. PARIKH
DRAWN BY: C. RYNARD	APPROVED BY: <i>[Signature]</i>
SCALE: N.T.S.	ISSUED FOR CONSTRUCTION BY: <i>[Signature]</i>
DATE: April 13, 2016	DATE: April 13, 2016
CONSULTANT NO.: 390903	



THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

NORTH END SEWAGE TREATMENT PLANT (NEWPCC)
HEADEND DISCHARGE WELL STRUCTURAL UPGRADES
STRUCTURAL
LEGEND AND GENERAL NOTES

CITY DRAWING NUMBER	SHEET	REV.	SIZE
1-0101M-S0011	001	0	A1