# GENERAL

- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH CONTRACT SPECIFICATIONS
- GEOMETRY, REINFORCEMENT AND LAYOUT OF THE EXISTING STRUCTURE ARE BASED ON EXISTING DESIGN INFORMATION AND LIMITED FIELD SURVEY DATA. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL NECESSARY DIMENSIONS SUCH THAT WORK CAN BE CONSTRUCTED AS SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR PRIOR TO CONSTRUCTION.
- CONTRACTOR TO REFER TO REFERENCE DRAWINGS FOR DETAILS OF EXISTING CONSTRUCTION.
- WHOLE DIMENSIONS SHOWN ON THESE DRAWINGS ARE IN MILLIMETERS. DECIMAL DIMENSIONS ARE IN METRES. THE ORIGINAL BRIDGE STRUCTURE WAS CONSTRUCTED WITH IMPERIAL UNITS OF MEASURE (HARD UNIT CONVERSION WHERE APPLICABLE).
- THE SCALES SHOWN ON THESE DRAWINGS ARE CORRECT FOR A1 SIZED DRAWING SHEETS. DO NOT DETERMINE DIMENSIONS BY SCALING OFF DRAWINGS.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE EXACT LOCATIONS OF ALL EXISTING ABOVE GROUND AND BELOW GROUND UTILITIES AND REPORTING ANY DISCREPANCIES OR CONFLICTS TO THE CONSULTANT PRIOR TO CONSTRUCTION.
- EXCEPT WHERE INDICATED OTHERWISE THESE DRAWINGS SHOW DETAILS FOR THE COMPLETED STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF WORKERS AND THE DESIGN AND STABILITY OF ANY TEMPORARY WORKS DURING CONSTRUCTION. CONSTRUCTION METHODS REQUIRING THE TEMPORARY INSTALLATION OF SHORING, SCAFFOLDING, BRACING, ETC. SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW AND ACCEPTANCE PRIOR TO PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA TO PERFORM AND TAKE RESPONSIBILITY FOR ANY SUCH DESIGNS NECESSARY TO COMPLETE THE CONSTRUCTION AND AS REQUIRED BY THE CONTRACT DOCUMENTS.

# STRUCTURAL DESIGN DATA

- BRIDGE CONFIGURATION: CONTINUOUS COMPOSITE CONCRETE-ON-STEEL DECKING ON STRAIGHT STEEL GIRDERS SIMPLY SUPPORTED BY CANTILEVERING PIER CAPS RIGIDLY SUPPORTED ON SINGLE-SHAFT CAST-IN-PLACE CONCRETE PIER COLUMNS, WITH CAST-IN-PLACE CONCRETE JUMP SLABS AT EACH END SPAN.
- DESIGN SPECIFICATION: CAN/CSA-S6-14 "CANADIAN HIGHWAY BRIDGE DESIGN CODE"
- LIVE LOAD:
- CAN/CSA S6-14 CL 3.8.11 MAINTENANCE VEHICLE WITH NO DYNAMIC LOAD ALLOWANCE
- 5.0 kPa ASSEMBLY OCCUPANCY PEDESTRIAN LOADING
- •• RAILING LOADING PER CAN/CSA S6-14 CL 12.4.4
- WIND LOAD: q<sub>50</sub> = 0.45 kPa

### TRANSPORTATION DESIGN DATA

- DESIGN SPECIFICATIONS:
- CITY OF WINNIPEG TRANSPORTATION STANDARDS (2012 UPDATE)
- •• TRANSPORTATION ASSOCIATION OF CANADA GEOMETRIC DESIGN GUIDE FOR CANADIAN ROADS ROADWAY DESIGN CRITERIA
- ROADWAY CLASSIFICATION: COLLECTOR
- POSTED SPEED: 50 km/h; DESIGN SPEED: 60 km/h

## **GEOTECHNICAL DESIGN DATA**

- A GEOTECHNICAL REPORT HAS BEEN PREPARED BY TREK GEOTECHNICAL TITLED RFP No. 180-017 PROMENADE TACHE GEOTECHNICAL RECOMMENDATIONS FOR SHEET PILE WALL AND LOOKOUT STRUCTURE FOUNDATIONS DATED AUGUST 31 2017. REFER TO GEOTECHNICAL REPORT FOR DETAILED DESIGN DATA AND RECOMMENDATIONS.
- SELECT GEOTECHNICAL DESIGN DATA:
- •• THE SLOPE ON WHICH THE BRIDGE STRUCTURE IS BEING BUILT IS BEING STABILIZED BY USE OF ROCKFILL COLUMNS. ••• THE RATE OF SLOPE MOVEMENT IS EXPECTED TO SLOW AND EVENTUALLY STABILIZE FOLLOWING ROCKFILL COLUMN INSTALLATION. BRIDGE FOUNDATION INSTALLATION HAS BEEN SCHEDULED FOLLOWING THE SPRING DRAWDOWN OF THE RED RIVER IN ORDER TO MAXIMIZE THE AMOUNT OF SLOPE MOVEMENT THAT TAKES PLACE PRIOR TO BRIDGE CONSTRUCTION.
- •• DESIGN CAPACITY OF ONE CAST-IN-PLACE END BEARING CONCRETE PIER SHAFT (762Ø) BEARING ON DENSE TILL: ●●● P<sub>@ SLS</sub> = 780 kN
- ●●● P<sub>@ ULS</sub> = 1200 kN

# HYDRAULIC DESIGN DATA

- A HYDRAULIC REPORT HAS BEEN PREPARED BY BRUCE HARDING CONSULTING LTD. TITLED "TACHE PROMENADE RED RIVER HYDROLOGIC AND HYDRAULIC ASSESSMENT - DATED JUNE 2017.
- SELECT HYDRAULIC DESIGN DATA:
- •• DESIGN DISCHARGE Q1% = 1580 m<sup>3</sup> @ EL. 229.56 m
- •• MINIMUM SOFFIT ELEVATION 0.3 m ABOVE Q1% FLOOD WHEREVER POSSIBLE. DUE TO THE ELEVATION OF EXISTING TACHE AVENUE. THE SUPERSTRUCTURE NEAR THE ENDS OF THE BRIDGE WILL BE SUBMERGED UP TO 0.2 m DURING A Q1% FLOOD EVENT.
- •• DYNAMIC ICE FORCES:
- ••• THE TREE TOP LOOKOUT PEDESTRIAN BRIDGE IS LOCATED SUFFICIENTLY FAR UP THE BANK THAT DYNAMIC ICE LOADING FROM RAPIDLY MOVING ICE CONTACTING THE PIERS IS IMPROBABLE, AS THE WATER LEVEL AT THE TIME OF ICE BREAK-UP IS BELOW THE ELEVATION OF THE BASE OF PIERS., AND ICE IS EXPECTED TO GROUND OUT AGAINST THE
- **RIVERBANK** ••• A RIP-RAP BERM HAS BEEN PROVIDED AROUND THE BASE OF PIERS NEARER TO THE RIVER AS AN ADDITIONAL
- PROTECTIVE MECHANISM. ••• PIERS ARE NOT DESIGNED TO RESIST DYNAMIC ICE FORCES.
- •• ICE JAM FORCES:
- ••• ICE JAMS ARE A PROBABLE DESIGN LOAD AT THIS LOCATION.
- ••• WATER LEVEL DURING ICE JAM: 227.8 m
- ••• ICE JAM THICKNESS: 1500 mm
- ••• UNFACTORED ICE JAM PRESSURE: 10 kPa
- ••• PIERS ARE PROVIDED WITH STEEL JACKETS FOR ABRASION RESISTANCE.
- NAVIGATION:
- •• THE TREE TOP LOOKOUT PEDESTRIAN BRIDGE IS LOCATED ENTIRELY ABOVE THE REGULATED SUMMER WATER LEVEL OF THE RED RIVER. THE DECK LEVEL IS LOCATED ABOVE THE Q1% FLOOD ELEVATION AND WILL BE VISIBLE DURING A FLOOD EVENT.
- FISH PASSAGE
- •• THE PROPOSED WORKS WILL NOT SUBSTANTIALLY ALTER THE GEOMETRY OF THE RIVER CROSS-SECTION, AND WILL NOT SUBSTANTIALLY AFFECT RIVER FLOWS.

### **ENVIRONMENTAL PROTECTION**

- NO IN-STREAM WORK IS PERMITTED BETWEEN APRIL 1 AND JUNE 15.
- IMPLEMENT ENVIRONMENTAL PROTECTION MEASURES AS DESCRIBED BY THE SPECIFICATIONS

# **MATERIAL NOTES**

CAST-IN-PLACE	CONCRE

RIDGE DECK LAB, CURBS, UMP SLABS, PIER CAPS	ITEM	CLASS OF EXPOSURE	CEMENT TYPE	MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS (MPa)	NOMINAL MAX SIZE OF AGGREGATE (mm)	AIR CONTENT (%)	SPECIAL REQUIREMENT S	MINIMUM POST RESIDUAL CRACKING INDEX
	RIDGE DECK LAB, CURBS, UMP SLABS, PIER CAPS	C-1	TYPE GU	35	20	5-8	SYNTHETIC FIBRES	0.15
CAST-IN- PLACE PILES F-1 & S-1 HS, HSb, HSe 35 20 4-7 - -	CAST-IN- PLACE PILES	F-1 & S-1	HS, HSb, HSe	35	20	4-7	-	-

CLEAR COVER TO REINFORCING STEEL (mm) UNLESS NOTED OTHERWISE	LOCATION
50	BRIDGE DECK TOP, SOFFIT, AND EDGES; CURBS; JUMP SLAB TOP & BOTTOM, PILE SHAFT TOP
75	PILE SHAFT PERIMETER AND BASE

### REINFORCING STEEL

LAP SPLICE TABLE				
BAR SIZE	HORIZONTAL LAP	VERTICAL LAP		
16SS / 15M	700	550		
19SS / 20M	850	650		

- ANCHOR RODS

### OF 610 G/M<sup>2</sup>. STRUCTURAL STEEL

- OTHERWISE.
- OTHERWISE

- STEEL PIPE FOR PIER SLEEVES

# STEEL DECKING

- ADMINISTRATOR.

- COATING OF Z600 AS DESIGNATED BY ASTM A653-11 UNLESS NOTED OTHERWISE.

- ACCEPTED EQUIVALENT

- FURTHER PARTS DESCRIPTION.



CONCRETE FINISHES - REFER TO SPECIFICATIONS

ALL VISUALLY EXPOSED CONCRETE CORNERS SHALL HAVE A 20 mm CHAMFER UNLESS NOTED OTHERWISE.

• ALL REINFORCING WITH SUFFIX "SS" SHALL BE STAINLESS STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A955M, 300 SERIES, MINIMUM GRADE 420, OF ONE OF THE FOLLOWING UNS DESIGNATIONS: S31653, S31803, OR S32304.

 ALL REINFORCING STEEL WITH SUFFIX "G" SHALL MEET THE REQUIREMENTS FOR PLAIN REINFORCING STEEL AND BE GALVANIZED TO THE REQUIREMENTS OF ASTM A780M.

PLAIN REINFORCING STEEL TO CAN/CSA-G30.18-M92 GRADE 400W.

REINFORCING STEEL SPLICES TO CAN/CSA S6-14 CLASS B.

• SHEAR BLOCK AND PILES ANCHOR RODS SHALL CONFORM TO ASTM F155A (GRADE 105)

 HANDRAIL, BENCH, AND TRANSITION RAIL ANCHOR RODS SHALL CONFORM TO ASTM F1554 (GRADE 55) ALL ANCHOR RODS ARE HOT-DIP GALVANIZED FULL LENGTH IN ACCORDANCE WITH ASTM F2329 A MINIMUM NET RETENTION

STRUCTURAL SHAPES MATERIAL REQUIREMENTS TO CSA G40.20-04/G40.21-04 (r2009) GRADE 350W, UNLESS NOTED

• STRUCTURAL PLATES MATERIAL REQUIREMENTS TO CSA G40.21-04/G40.21-04 (r2009) GRADE 300W, UNLESS NOTED

• WELDING SHALL CONFORM TO CURRENT AWS SPECIFICATION D1.5.

 BOLTS SHALL CONFORM TO ASTM F3125 - GRADE A325 (GALVANIZED) UNLESS NOTED OTHERWISE SHEAR CONNECTOR STUDS SHALL CONFORM TO THE REQUIREMENTS OF APPENDIX H, CSA W59 AND OF ASTM A108, GRADE 1020 AND SHALL BE SUITABLE FOR END WELDING USING AUTOMATIC STUD WELDING EQUIPMENT

 STEEL PIPE SHALL CONFORM TO ASTM A252 GRADE 3, WITH MINIMUM YIELD STRENGTH 310 MPa. STEEL PIPE SHALL BE HOT DIP GALVANIZED ACCORDING TO ASTM A123 TO A MINIMUM NET RETENTION OF 610 g/m<sup>2</sup>.

DESIGN, FABRICATE, AND ERECT STEEL DECKING IN ACCORDANCE WITH CAN/CSA S136-07 (R2012).

WELDING SHALL CONFORM TO AWS SPECIFICATION D1.5.

 USE A DECK THICKNESS SHOWN ON DRAWINGS AS A MINIMUM BASE STEEL THICKNESS. ANY SUBSTITUTION IN DECKING PROFILE OR THICKNESS FROM THE BASIS OF DESIGN MUST BE REVIEWED AND ACCEPTED BY THE CONTRACT

• BASIS OF DESIGN: CANAM P-2432 DECKING PROFILE, TYPE 18, 76 DEEP X 1.21 THICK

 THE COMPOSITE CONCRETE-ON-STEEL DECKING ACTS AS A DIAPHRAGM FOR THE DISTRIBUTION OF WIND, ICE, AND OTHER LATERAL FORCES TO THE LATERAL LOAD RESISTING ELEMENTS.

• SHEET STEEL SHALL CONFORM TO ASTM A653-11, GRADE A STRUCTURAL QUALITY GRADE 230. GALVANIZED WITH ZINC

PROVIDE EDGE FORM AROUND PERIMETER OF CONCRETE TOPPINGS ON STEEL DECK AS SPECIFIED ON THE DRAWINGS.

FLEXIBLE STAINLESS STEEL HANDRAIL INFILL INCLUDING EXPANDED WIRE MESH AND ASSOCIATED HARDWARE • EXPANDED WIRE MESH SHALL BE MW60 STAINLESS STEEL MESH FABRIC MANUFACTURED BY CARLSTAHL DECORCABLE OR

EXPANDED WIRE MESH WIRE SHALL BE AISI 316 STAINLESS STEEL 2.0 mm THICK.

• EXPANDED WIRE MESH SHALL HAVE MESH APERTURE DIMENSION 69mm (HORIZONTAL) AND MESH WIDTH OF 40mm (LENGTH OF WIRE BETWEEN CROSS-OVER POINTS IN WEAVE) I.E. DECORCABLE MW40 MESH PATTERN OR ACCEPTED ALTERNATE. THE LONG DIRECTION OF THE DIAMOND SHALL BE HORIZONTAL.

 ALL HARDWARE FOR FLEXIBLE STAINLESS STEEL HANDRAIL INFILL SHALL BE AISI 316 STAINLESS STEEL, INCLUDING BOLTS, NUTS, SCREWS, AND ALL FIXINGS CONNECTED TO STAINLESS STEEL BORDER CABLE. REFER TO RAILING DRAWINGS FOR

• EXPANDED WIRE MESH, BORDER CABLES, PRE-MADE CABLE ASSEMBLIES, AND ALL HARDWARE VISIBLE FROM THE WALKING SURFACE OF THE TREETOP LOOKOUT SHALL BE ELECTROCHEMICALLY BLACKENED BY THE INOX-SPEKTRAL METHOD UTILIZED BY CARLSTAHL DECORCABLE OR ACCEPTED EQUIVALENT. STAINLESS STEEL HARDWARE VISIBLE ON THE OPPOSITE FACE OF THE RAILING POSTS TO THE WALKING SURFACE (CERTAIN BOLTS AND WASHERS) SHALL NOT BE BLACKENED.

• PROVIDE RUBBER ISOLATION BUSHINGS, GROMMETS, AND/OR WASHERS TO SEPARATE DISSIMILAR METALS AT STAINLESS STEEL CONNECTIONS TO GALVANIZED CARBON STEEL HANDRAIL POSTS.

INSTALL ACCORDING TO SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS.

BASIS OF DESIGN OF EXPANDED WIRE MESH

•• PRETENSION IN BORDER CABLES: 40 kg

•• PRETENSION IN WIRE MESH: 30kg/m

•• TEMPERATURE RANGE: -40°C TO +40°C

 THE FABRICATOR'S DELEGATED DESIGN ENGINEER SHALL PROVIDE CONFIRMATION OF ANTICIPATED FORCE EFFECTS AND DEFLECTIONS, AS DESCRIBED IN THE SPECIFICATIONS.

PROFESSIONAL'S SEA LOCATION APPROVED UNDERGROUND STRUCTURES CE OF M **MORRISON HERSHFIELD** SUPR. U/G STRUCTURES DATE D.A. COMMITTEE **NEILSON** NOTE: DESIGNED CHECKED DAN DAN Member LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST 37248 INFORMATION AVAILABLE BUT NO DRAWN PPROVED GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF RELEASED FOR CONSTRUCTION HOR SCALE AS SHOWN EXISTENCE AND EXACT LOCATION OF ALL CONSULTANT FILE NAME SERVICES MUST BE OBTAINED FROM THE /ERT SCALE AS SHOWN ISSUED FOR TENDER 17/10/13 DAN INDIVIDUAL UTILITIES BEFORE PROCEEDING 5170563 - DD01 - GN.dwg WITH CONSTRUCTION 17/10/13 DATE No. REVISIONS YY/MM/DD BY DATE

PRECOMPRESSED FOAM JOINT FILLER

EQUIVALENT AT LOCATIONS SPECIFIED. INSTALL PER MANUFACTURER'S INSTRUCTIONS. BASIS OF DESIGN: EMSEAL BEJS SYSTEM

- **BEARINGS:** RUBBER BEARINGS ARE EITHER PLAIN OR STEEL SHIMMED ELASTOMERIC BEARINGS.
- NATURAL RUBBER BEARING PAD 60 DURO HARDNESS COMPLIANT WITH CAN/CSA S6-14.
- SHOP FABRICATE. DO NOT FIELD CUT.
- REFER TO DRAWING No. 08 FOR FURTHER NOTES AND DETAILS.
- BEARINGS SHALL BE CAST AS A UNIT IN A MOULD AND SHALL BE BONDED AND VULCANIZED UNDER HEAT AND PRESSURE. STEEL REINFORCING PLATES SHALL BE SANDBLASTED AND CLEANED OF ALL SURFACE COATINGS, RUST, MILL SCALE, AND DIRT BEFORE BONDING AND SHALL BE FREE OF SHARP EDGES AND BURRS.
- FLASH TOLERANCE, FINISH, AND APPEARANCE OF THE ELASTOMERIC BEARING SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE RUBBER HANDBOOK, PUBLISHED BY THE RUBBER MANUFACTURERS' ASSOCIATION, INC., RMA F3 AND RMA T.063 FOR MOULDED BEARINGS.
- TOP PLATES, RETAINING PLATES, AND BARS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST EDITION OF CAN/CSA G41.21 GRADE 300W. TOP PLATES SHALL BE GALVANIZED. TOP PLATES SHALL HAVE A HANDRAIL SMOOTH FINISH WITH NO HOLES ALLOWED. ALL EXPOSED SURFACES OF THE STEEL RETAINING PLATES SHALL BE ZINC METALIZED. SURFACES TO BE METALIZED SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC-SP5, "WHITE METAL BLAST CLEANING".
- STAINLESS STEEL TOP PLATE SHALL CONFORM TO THE LATEST EDITION OF A240A/240M TYPE 304 AND SHALL HAVE A MINIMUM THICKNESS OF 3MM. THE ROUGHNESS OF THE STAINLESS STEEL PLATE SLIDING SURFACE, MEASURED IN ACCORDANCE WITH CSA STANDARD B95, SHALL NOT BE GREATER THAN 0.20 MM ARITHMETIC AVERAGE. THE STAINLESS STEEL SHALL REMAIN FLAT AND IN FULL CONTACT WITH ITS BACKING PLATE AT ALL TIMES.
- PTFE SURFACE SHALL BE UNFILLED FLAT SHEETS MADE FROM PURE VIRGIN PTFE RESIN SATISFYING THE REQUIREMENTS OF THE LATEST EDITION OF ASTM D4894.
- LAMINATED BEARING ELASTOMER SHALL BE NATURAL RUBBER AND CONFORM TO AASHTO M251. ELASTOMER SHALL BE AASHTO LOW TEMPERATURE GRADE 5 WITH A SHEAR MODULUS OF G = 1.05 MPA AND A 60 DUROMETER SHORE A HARDNESS.
- PLAIN BEARING ELASTOMER SHALL BE NATURAL RUBBER AND CONFORM TO AASHTO M251. ELASTOMER SHALL BE AASHTO LOW TEMPERATURE GRADE 5 WITH A SHEAR MODULUS G = 0.63 MPA AND A 50 DUROMETER SHORE A HARDNESS.
- INTERNAL STEEL REINFORCING PLATES FOR LAMINATE BEARINGS SHALL BE ROLLED MILD STEEL WITH A MINIMUM YIELD STRENGTH OF 300 MPA.
- ALL GALVANIZING SHALL BE IN ACCORDANCE WITH CAN/CSA-G164-M AND SHALL HAVE A MINIMUM NET RETENTION OF 610G/M<sup>2</sup>. THE FABRICATOR AND GALVANIZER SHALL SAFEGUARD AGAINST EMBRITTLEMENT USING RECOMMENDED PRACTICES FROM APPLICABLE STANDARDS. SEAL ALL WELDS PRIOR TO GALVANIZING.

• ALL WELDING SHALL CONFORM TO AWS SPECIFICATION D1.5. WORKING BASE FOR MUD SLABS

DRY-CAST CONCRETE PAVERS AND BEDDING SAND

- DRY-CAST CONCRETE PAVERS SHALL MEET THE REQUIREMENTS OF THE SPECIFICATIONS.
- BEDDING SAND SHALL BE FINE AGGREGATE TO THE REQUIREMENTS OF SPECIFICATION CW3330.
- PAVERS SHALL BE COMPACTED INTO THE BEDDING SAND LAYER USING ACCEPTED WALK BEHIND COMPACTOR VIBRATORY UNTIL THEY ARE AT THE PROPER GRADE.

### WATERPROOFING MEMBRANE

 HOT-POURED RUBBERIZED ASPHALT WATERPROOFING SYSTEM CONSISTING OF PRIMER, HOT APPLIED RUBBERIZED ASPHALT WATERPROOFING MEMBRANE, AND POLYESTER FABRIC.

PRECOMPRESSED FOAM JOINT FILLER SHALL BE THE FOLLOWING SYSTEM, OR ACCEPTED

• LEAN MIX CONCRETE W/ MINIMUM COMPRESSIVE STRENGTH 20 MPa @ 28 DAYS

LIST OF A	CRONYMS & SYMBOLS*
N,S,E,W	COMPASS DIRECTIONS
ALT	ALTERNATE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BLL	BOTTOM LOWER LAYER
BRG	BEARING
BML	BOTTOM MIDDLE LAYER
BUL	BOTTOM UPPER LAYER
СВ	CATCH BASIN
CL	CENTRELINE
CPR	CANADIAN PACIFIC RAILWAY
CSA	CANADIAN STANDARDS ASSOCIATION
C/W	COMPLETE WITH
EB	EASTBOUND
EL	ELEVATION
EX	EXISTING
FM	FEEDERMAIN
HWL	HIGH WATER LEVEL
MIN	MINIMUM
O/C	ON CENTRE
O/H	OVERHEAD
OHWL	ORDINARY HIGH WATER LEVEL
RSIC	REINFORCING STEEL INSTITUTE OF CANADA
SD	STANDARD DRAWING (CITY OF WINNIPEG STANDARD CONSTRUCTION SPECIFICATIONS)
SHLD	SHOULDER
SPMDD	STANDARD PROCTOR MODIFIED DRY DENSITY
TLL	TOP LOWER LAYER
TML	TOP MIDDLE LAYER
TUL	TOP UPPER LAYER
TYP	TYPICAL
UNS	UNIFIED CLASSIFICATION SYSTEM
W/	WITH
WB	WESTBOUND
WL	WATER LEVEL
WM	WATER MAIN
@	AT
Ø	DIAMETER

SECTION & DETAIL SYMBOLS



-SECTION LETTER / DETAIL NUMBER

-DRAWING No. WHERE SECTION / DETAIL IS DRAWN

DRAWING No. WHERE SECTION / DETAIL IS TAKEN

BID OPPORTUNITY No. 754-2017

