ISO A1 - 594mm x 841mm

GENERAL NOTES

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH CONTRACT SPECIFICATIONS.
2. ALL REFERENCES TO CODES, STANDARDS, SPECIFICATIONS, GUIDELINES, ETC, SHALL BE THE LATEST VERSION PLUS ANY SUPPLEMENTS.
3. GEOMETRY, REINFORCEMENT AND LAYOUT OF THE 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.
4. WHOLE DIMENSIONS SHOWN ON THESE DRAWINGS ARE IN MILLIMETERS. DECIMAL DIMENSIONS ARE IN METERS.
5. THE SCALES SHOWN ON THESE DRAWINGS ARE CORRECT FOR A1 SIZED DRAWING SHEETS. DO NOT DETERMINE DIMENSIONS BY SCALING OFF DRAWINGS.
6. 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

1. DESIGN SPECIFICATION: CAN/CSA-S6-19 "CANADIAN HIGHWAY BRIDGE DESIGN CODE"
2. DESIGN LIFE: 75 YEARS
3. LIVE LOAD:
   a. CAN/CSA S6-14 CL-625 TRUCK AND CL 625 LANE LOAD
   b. 4.0 kPa PEDESTRIAN LOADING EXTENDING OVER THE FULL WIDTH OF THE MIXED-USE-SIDEWALK
   c. CONCRETE BARRIER COLLISION PERFORMANCE RATING TL-2
4. WIND LOAD:
   a. q_{50} = 0.45 kPa

TRANSPORTATION DESIGN DATA

1. DESIGN SPECIFICATIONS:
   a. CITY OF WINNIPEG TRANSPORTATION STANDARDS (2012 UPDATE)
   b. TRANSPORTATION ASSOCIATION OF CANADA GEOMETRIC DESIGN GUIDE FOR CANADIAN ROADS
2. ROADWAY DESIGN CRITERIA:
   a. ROADWAY CLASSIFICATION: RESIDENTIAL LOCAL

GEOTECHNICAL DESIGN DATA

1. A GEOTECHNICAL REPORT HAS BEEN PREPARED BY TREK GEOTECHNICAL TITLED, "CREEK BEND ROAD BRIDGE REPLACEMENT", DATED FEBRUARY 17, 2023. REFER TO GEOTECHNICAL REPORT FOR DETAILED DESIGN DATA AND RECOMMENDATIONS.
2. THE CONTRACTOR SHALL READ AND UNDERSTAND THE REQUIREMENTS OUTLINED IN THE GEOTECHNICAL REPORT PRIOR TO COMMENCING THE WORKS.
3. SELECT GEOTECHNICAL DESIGN DATA:

STEEL HP 310x110 DRIVEN TO REFUSAL NEAR A DEPTH OF 205m
ULTIMATE LIMIT STATE PILE CAPACITY = 1650 kN
SERVICE LIMIT STATE PILE CAPACITY = 1000 kN

EARTH LOADING:
AT REST EARTH PRESSURE COEFFICIENT, K_O = 0.5
ACTIVE REST EARTH PRESSURE COEFFICIENT, K_A = 0.3

IN SITU SOIL BEARING CAPACITY:
SLS = 85 kPa
ULS = 150 kPa

BACKFILL DENSITY:
BACKWALL AND WING WALL BACKFILL SOIL DENSITY ASSUMED TO BE 20 kN/m^3, REFER TO PROJECT SPECIFICATION

HYDRAULIC DESIGN DATA

1. A HYDRAULIC REPORT HAS BEEN PREPARED BY MORRISON HERSHFIELD. TITLED "SEINE RIVER BRIDGE AT CREEK BEND ROAD HYDROTECHNICAL STUDY," DATED MARCH 23, 2023. REFER TO THE HYDRAULIC REPORT FOR DETAILED DESIGN DATA AND RECOMMENDATIONS.
2. SELECT HYDRAULIC DESIGN DATA:

DESIGN DISCHARGE - $Q_{1\%}$ = 15.6 m^3/s @ EL. 230.2 m
DESIGN VELOCITY =0.43 m/s

3. ICE DESIGN PARAMETERS:

ICE THICKNESS = 0.762 m
ESTIMATED ICE ELEVATION - DYNAMIC = 229.3 m TO 230.0 m
EFFECTIVE CRUSHING STRENGTH - DYNAMIC = 700 kPa

ENVIRONMENTAL PROTECTION

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

EXISTING UTILITY PROTECTION

1. SEVERAL UTILITIES ARE BURIED BELOW THE WORK ZONE AS SHOWN ON THE EXISTING CONDITIONS PLAN VIEW, DRAWING NO. 05.
2. CONTRACTOR SHALL VERIFY ALL EXISTING ABOVE GROUND AND BELOW GROUND UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE CONTRACT ADMINISTRATOR PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING STRUCTURES AND UTILITIES BY THE CONTRACTOR'S OPERATIONS MUST BE REPAIRED BY THE CONTRACTOR AT THEIR OWN COST
3. THE CONTRACTOR SHALL SUBMIT A CONSTRUCTION METHOD STATEMENT DEMONSTRATING ADHERENCE TO THE OPERATING CONSTRAINTS FOR WORK IN CLOSE PROXIMITY TO ALL BURIED AND OVERHEAD UTILITIES.

WATERPROOFING MEMBRANE

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

BACKFILL MATERIAL

1. BACKFILL SHALL BE SUPPLIED, PLACED, AND COMPACTED IN AN UNFROZEN CONDITION.
2. BACKFILL AT PRE-CAST BACKWALL, WING WALLS, AND GIRDER END BLOCK
   a. BACKFILL GRADED GRANULAR FILL MEETING THE REQUIREMENTS AS MODIFIED IN THE SPECIFICATIONS
   b. MAXIMUM LIFT HEIGHT 150 mm.
   c. WITHIN 1.5 m OF BACKWALLS, WINGWALLS, AND GIRDER ENDS. LIGHTLY COMPACT GRANULAR BACKFILL TO 92% SPMDD.
   d. AT ALL OTHER LOCATIONS COMPACT TO 100% SPMDD.
   e. BACKFILL AND COMPACTION AGAINST GIRDER END BLOCKS TO BE DONE CONCURRENTLY ON BOTH ENDS OF THE BRIDGE WITH THE MAXIMUM DIFFERENCE IN FILL HEIGHT NOT TO EXCEED 150mm AT ANY ONE TIME.

CAST IN PLACE CONCRETE

1. CONCRETE WORKS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF CSA A23.1.
2. CAST IN PLACE CONCRETE:

ITEM	TYPE	CLASS OF EXPOSURE	CEMENT TYPE	MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS (MPa)	NOMINAL MAX SIZE OF AGGREGATE (mm)	AIR CONTENT (%)	SPECIAL REQUIREMENTS	MINIMUM POST RESIDUAL CRACKING INDEX
DECK & APPROACH SLABS, CONCRETE BARRIERS, CURBS	1	C-1	TYPE GU	35	20	5-8	SYNTHETIC FIBRES	0.15
PRE-CAST PANNELS	1	F-1 & S-1	HS, HSb, HSe	35	20	5-8	SYNTHETIC FIBRES	0.15
GIRDERS	1	C-1	TYPE GU	45 (35 AT RELEASE)	10	5-8	-	-
WORKING BASE	-	S-1	HS, HSb, HSe	20	20	5-8	-	-

CLEAR COVER TO REINFORCING STEEL (mm) UNLESS NOTED OTHERWISE	LOCATION
60	APPROACH SLABS
50	PRE-CAST PANNELS
25	CONCRETE GIRDERS
60	ALL OTHER STRUCTURAL COMPONENTS

3. CONCRETE FINISHES - REFER TO SPECIFICATIONS
4. ALL VISUALLY EXPOSED CONCRETE CORNERS SHALL HAVE A 20 mm CHAMFER UNLESS NOTED OTHERWISE.

REINFORCING STEEL

1. 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.
2. ALL OTHER REINFORCING SHALL BE PLAIN REINFORCING STEEL TO CAN/CSA-G30.18-M GRADE 400W.
3. REINFORCING STEEL SPLICES TO CAN/CSA S6-19 CLASS B.

BAR SIZE	LAP LENGTH
10M & 13SS	450mm & 550mm SS
15M & 16SS	650 mm & 750 mm SS
20M & 19SS	850 mm & 900 mm SS
25M	1300 mm

PRESTRESSING STRANDS

1. THE PRESTRESSING STRANDS SHALL CONFORM TO CSA G279-M1982.
2. PRESTRESSING STRAND SHALL BE 12.7 mm DIAMETER , 7 WIRE LOW RELAXATION UNCOATED STRANDS, CROSS-SECTION AREA (98.7mm^2)
3. f_{pj} = 1395MPa
4. f_{pu} = 1860MPa
5. f_{pt} = 1295MPa
6. f_{se} = 1098MPa

STEEL H-PILES

1. STRUCTURAL HP 250X85, CSA G40.21, GRADE 350W OR ASTM A572 GRADE 50
2. STRUCTURAL HP 310X110, CSA G40.21, GRADE 350W OR ASTM A572 GRADE 50

MISCELLANEOUS METAL

1. ALL MISCELLANEOUS METAL SHALL CONFORM TO CSA G40.21M, GRADE 300W.
2. HOT DIP GALVANIZING WILL BE APPLIED AFTER FABRICATION IN ACCORDANCE WITH CSA G164 FOR A MINIMUM NET RETENTION OF 610 g/m^2 UNLESS OTHERWISE STATED IN THE SPECIFIED MATERIALS ASTM STANDARDS. THE FABRICATOR AND GALVANIZER SHALL SAFEGUARD AGAINST EMBRITTLEMENT USING THE RECOMMENDED PRACTICES FROM APPLICABLE STANDARDS.
3. SEAL ALL WELDS PRIOR TO GALVANIZING.
4. APPLY GALVALOY TO ALL FIELD WELDS AND AREAS WHERE GALVANIZING HAS BEEN DAMAGED
5. ALL BOLTS AND THREADED RODS SHALL BE IMPERIAL THREAD.
6. ALL MISCELLANEOUS METAL SHALL BE HOT DIP GALVANIZED EXCEPT FOR PIER BENT CHANNEL BRACING MK "CB1" AND "CB2" , ICE BREAKER PLATES MK "IP1" AND "IP2" AND ICE BREAKER UNIT MK "IU1" WHICH SHALL BE SHOP PRIMED.

RIP RAP

1. CLASS 350 RIP RAP SHALL BE AS DESCRIBED IN THE SPECIFICATIONS.

GEOTEXTILE

1. GEOTEXTILE FOR RIP RAP SHALL BE NON-WOVEN GEOTEXTILE IN ACCORDANCE WITH CW 3120 AND CW 3130

EROSION CONTROL BLANKET

1. EROSION CONTROL BLANKET SHALL BE MACHINE PRODUCED 100% COCONUT FIBRE MATRIX MEETING THE REQUIREMENTS OF THE SPECIFICATIONS.

STEEL HARDWARE SCHEDULE

MARK	DESCRIPTION	SIZE	QTY	REMARKS
TR1	THREADED ROD C/W STANDARD FLAT WASHER, STRUCTURAL LOCK WASHER, AND 2 NUTS	19Ø	40	GIRDERS TO PIER CAP PLATES
TR3	THREADED ROD C/W STANDARD FLAT WASHER, STRUCTURAL LOCK WASHER, AND 2 NUTS	19Ø	32	STEEL PLATES MK "S3" TO PRECAST PANELS
R1	A325 BOLT ASSEMBLY C/W STRUCTURAL PLATE WASHER, HARDENED WASHER, AND ONE PAIR NORD-LOCK WASHERS	22Ø	216	R.C. GIRDER LATERAL CONNECTIONS
R30	A325 BOLT ASSEMBLY C/W HARDENED BEVEL WASHER	16Ø	180	STEEL CAP PLATES TO CHANNELS
R33	A325 BOLT ASSEMBLY C/W HARDENED BEVEL WASHER	16Ø	48	STEEL CAP PLATES TO CHANNELS COUNTERBORE HOLES
R34	A325 BOLT ASSEMBLY C/W STRUCTURAL PLATE WASHER	19Ø	8	PRECAST PANEL INSERTS MK "Q5"
R35	A325 BOLT ASSEMBLY C/W F436 HARDENED WASHER	22Ø	408	STEEL CHANNELS TO PILES
R36	A325 BOLT ASSEMBLY C/W F436 HARDENED WASHER	16Ø	52	ANGLES MK "S1" AND BRACKETS MK "S2"

HARDWARE NOTES:
1. ALL HARDWARE SHALL BE HOT DIP GALVANIZED.
2. ALL BOLTS AND THREADED ROD SHALL BE IMPERIAL THREAD.
3. APPLY GALVALOY TO AREAS WHERE GALVANIZING HAS BEEN DAMAGED.

STEEL DOWEL SCHEDULE

MARK	DESCRIPTION	SIZE	QTY	REMARKS
D1	40 DIA. X 550 LONG SS SMOOTH BAR C/W 76 X 51 X 4.8, 300 LONG RECTANGULAR SS TUBING SLEEVE	40Ø	16	CONCRETE BARRIER EXPANSION JOINTS
D2	25.4 DIA. X 450 LONG SS SMOOTH BAR	25.4Ø	31	SOUTH APPROACH SLAB TO ROADWAY CONCRETE

DOWEL NOTE:
1. ALL DOWELS AND SLEEVES SHALL BE STAINLESS STEEL (SS).

LIST OF ACRONYMS & 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
CB	CATCH BASIN
CL	CENTRELINE
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

REINFORCING STEEL CODE LEGEND

1 - A2501 (1)
SUBSET No.
IDENTIFICATION No.
SIZE OF BAR
LOCATION CODE
No. OF BARS

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
MORRISON HERSHFIELD
No. 1736

TENDER No. 335-2023

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPR. U/G STRUCTURES COMMITTEE — DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

BM 78-009 N.W. Cor. Paddington Rd. & Dakota St., 19 mm dia. x 6.1 m
ELEV 232.749 m I.B. in Valve Box, 5.5 m S. of N.L. Paddington Rd. & on W.L. of Dakota St., in traffic island.

No.	REVISIONS	YY/MM/DD	BY
C	ISSUED FOR TENDER	23/08/02	BAP
B	ISSUED FOR 95% REVIEW	23/06/27	BAP
A	ISSUED FOR 50% REVIEW	23/04/14	BAP

MORRISON HERSHFIELD

DESIGNED BY	AGG	CHECKED BY	BAP
DRAWN BY	AH	APPROVED BY	BAP
HOR SCALE / VERT SCALE	AS SHOWN	RELEASED FOR CONSTRUCTION	
DATE	JUNE 27, 2023	DATE	

PROFESSIONAL'S SEAL
PROVINCE OF MANITOBA
A.D.G. GILARSKI
Member
32144
2023-08-02
REGISTERED PROFESSIONAL ENGINEER

CONSULTANT FILE NAME
2203665-CBR DD-GN.DWG

Winnipeg
THE CITY OF WINNIPEG
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

CREEK BEND ROAD BRIDGE REPLACEMENT AND RELATED WORKS

GENERAL NOTES

CITY DRAWING NUMBER: B149-23-02
SHEET 02 OF 52
DRAWING NUMBER: 02

X:\Proj\2022\2203665\00-CdW 293-2022 Creek Bend Road Bridge\09. CAD\07 Sheets\Structural\Detailed Design\2203665-CBR DD-GN.dwg Last Saved: 8/2/2023 1:58 PM by AHeppner Plotted: 8/2/2023 3:09 PM by Alex Heppner