ISO A1 - 594mm x 841mm

DRAWING LIST

SHEET No.	CITY DWG No.	DESCRIPTION
01	C319-20-01	COVER SHEET AND LOCATION PLAN

STRUCTURAL

02	C319-20-02	DRAWING LIST AND GENERAL NOTES
03	C319-20-03	BORE HOLE LOGS
04	C319-20-04	EXISTING CONDITIONS AND SITE PLAN
05	C319-20-05	PROPOSED SCOPE OF WORK
06	C319-20-06	GENERAL ARRANGEMENT
07	C319-20-07	CONCRETE DETAILS 1
08	C319-20-08	CONCRETE DETAILS 2
09	C319-20-09	SLAB REINFORCING DETAILS
10	C319-20-10	WALL REINFORCING DETAILS
11	C319-20-11	WEST HEADWALL REINFORCING DETAILS
12	C319-20-12	EAST HEADWALL REINFORCING DETAILS
13	C319-20-13	SOUTH APPROACH SLAB CONCRETE AND REINFORCING DETAILS
14	C319-20-14	INFILL SLAB CONCRETE AND REINFORCING DETAILS
15	C319-20-15	NORTH APPROACH SLAB CONCRETE AND REINFORCING DETAILS
16	C319-20-16	BILL OF REINFORCING

HORIZONTAL GEOMETRY

17	P-3531-01	SASKATCHEWAN AVE TO STA 0+360
18	P-3531-02	STA 0+360 TO STA 0+610
19	P-3531-03	STA 0+610 TO STA 0+880
20	P-3531-04	STA 0+880 TO STA 1+130
21	P-3531-05	STA 1+130 TO NOTRE DAME AVE

PAVING AND GRADING

22	P-3531-06	SASKATCHEWAN AVE TO STA 0+210
23	P-3531-07	STA 0+210 TO STA 0+330
24	P-3531-08	STA 0+330 TO STA 0+450
25	P-3531-09	STA 0+450 TO STA 0+570
26	P-3531-10	STA 0+570 TO STA 0+690
27	P-3531-11	STA 0+690 TO STA 0+810
28	P-3531-12	STA 0+810 TO STA 0+930
29	P-3531-13	STA 0+930 TO STA 1+050
30	P-3531-14	STA 1+050 TO STA 1+170
31	P-3531-15	STA 1+170 TO STA 1+280
32	P-3531-16	STA 1+280 TO NOTRE DAME AVE

SECTIONS

33	P-3531-17	STA 0+250 AND STA 0+800
34	P-3531-18	STA 0+840 AND STA 0+940
35	P-3531-19	STA 0+990 AND STA 1+230

STAGING

36	P-3531-20	STAGE 1
37	P-3531-21	STAGE 2
38	P-3531-22	STAGE 3
39	P-3531-23	STAGE 4
40	P-3531-24	STAGE 5 & 6
41	P-3531-25	STAGE 7 & 8
42	P-3531-26	STAGE 9
43	P-3531-27	SECTIONS

WATER MAIN RENEWAL

44	D-15769	SHERWIN ROAD - 9m S OF DUBLIN AVENUE TO 47m N OF DUBLIN AVENUE

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-S6-14 "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 ASSEMBLY OCCUPANCY EXTENDING OVER THE FULL WIDTH OF THE ACTIVE TRANSPORTATION PATH

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: INDUSTRIAL / COMMERCIAL LOCAL
   b. POSTED SPEED: 50 km/h; DESIGN SPEED: 60 km/h

GEOTECHNICAL DESIGN DATA

1. A GEOTECHNICAL REPORT HAS BEEN PREPARED BY TREK GEOTECHNICAL TITLED, "CULVERT REPLACEMENT AT SHERWIN ROAD OVER OMAND'S CREEK", DATED NOVEMBER 14, 2019. 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:

BEARING CAPACITY - CULVERT RAFT FOOTING:
- ULTIMATE LIMIT STATE BEARING CAPACITY = 178 kPa
- SERVICE LIMIT STATE BEARING CAPACITY = 108 kPa

BEARING CAPACITY - STRIP FOOTING:
- ULTIMATE LIMIT STATE BEARING CAPACITY =140 kPa
- SERVICE LIMIT STATE BEARING CAPACITY = 80 kPa

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

BACKFILL DENSITY:
- CULVERT BARREL DESIGN BACKFILL SOIL DENSITY ASSUMED TO BE 22.5 kN/m^3
- RETAINING WALL AND WING WALL BACKFILL SOIL DENSITY ASSUMED TO BE 18 kN/M^3 - BACKFILL IS GAP GRADED, REFER TO PROJECT SPECIFICATION

HYDRAULIC DESIGN DATA

1. A HYDRAULIC REPORT HAS BEEN PREPARED BY TREK GEOTECHNICAL. TITLED "OMAND'S CREEK AT SHERWIN ROAD CROSSING REPLACEMENT HYDROLOGIC AND HYDRAULIC ASSESSMENT," DATED NOVEMBER 26, 2019. REFER TO THE HYDRAULIC REPORT FOR DETAILED DESIGN DATA AND RECOMMENDATIONS.
2. SELECT HYDRAULIC DESIGN DATA:

DESIGN DISCHARGE - $Q_{2\%}$	= 15.8 m^3/s @ EL. 234.8 m
FLOW FOR FISH PASSAGE - 3d$Q_{10\%}$	= 7.2 m^3/s
DESIGN VELOCITY	=0.78 m/s

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. 4.
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.

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
APPROACH SLABS, CONCRETE INFILL SLAB, SAFETY CURBS	1	C-1	TYPE GU	35	20	5-8	SYNTHETIC FIBRES	0.15
ALL OTHER STRUCTURAL ELEMENTS	2	F-1 & S-1	HS, HSb, HSe	35	20	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, CONCRETE INFILL SLAB
70	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.

CELLULAR CONCRETE

1. CELLULAR CONCRETE BACKFILL TO COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATIONS
2. WET CAST DENSITY (ASTM C 495): 400 kg/m^3 ±10%
3. MINIMUM UNCONFINED COMPRESSIVE STRENGTH AT 28 DAYS (ASTM C 495): 300 kPa
4. BASIS OF DESIGN: CEMATRIX CMEF-400 OR ACCEPTED EQUIVALENT

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 S6-14 CLASS B.

BAR SIZE	LAP LENGTH
15M	650 mm
20M	850 mm
25M	1300 mm

WATERPROOFING MEMBRANE

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

CHAIN LINK FENCE

1. CHAIN LINK FENCE SHALL CONFORM TO CW 3550-R3. POSITION POSTS AS SHOWN ON THE DRAWINGS.
2. FIT MESH ON THE ROAD / SIDEWALK SIDE OF FENCE.
3. FIT CHAIN LINK FENCE WITH TOP RAILS AND BOTTOM RAILS. CONNECT CHAIN MESH FABRIC TO TOP AND BOTTOM RAILS BY MEANS OF CONTINUOUS SPIRAL GALVANIZED TIE-WIRE, WITH AT LEAST ONE FULL WRAP AROUND THE SUPPORTING RAIL EVERY 150 mm.
4. FIELD-APPLIED GALVANIZING, TOUCH-UP, AND WELD GALVANIZING SHALL BE DONE WITH SELF-FLUXING, LOW TEMPERATURE, ZINC-BASED ALLOY RODS IN ACCORDANCE WITH ASTM A780-01. GALVALLOY OR WELCO GAL-VIZ GALVANIZING ALLOY, OR ACCEPTED EQUIVALENT.

BACKFILL MATERIAL

1. BACKFILL SHALL BE SUPPLIED, PLACED, AND COMPACTED IN AN UNFROZEN CONDITION.
2. BACKFILL AROUND CAST IN PLACE BOX CULVERT
   a. BACKFILL SUM-BASE GRANULAR BACKFILL PER CW 3110 WITH REQUIREMENTS AS MODIFIED IN THE SPECIFICATIONS.
   b. MAXIMUM LIFT HEIGHT 150 mm.
   c. MAXIMUM IMBALANCE IN LIFT HEIGHT ACROSS CULVERT WIDTH DURING BACKFILLING 200 mm.
   d. WITHIN 1.5 m OF CULVERT, INCLUDING BELOW APPROACH SLABS, LIGHTLY COMPACT GRANULAR BACKFILL TO 92% SPMDD.
   e. AT ALL OTHER LOCATION COMPACT TO 98% SPMDD.
3. BACKFILL AT CAST IN PLACE RETAINING WALLS AND WINGWALLS
   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 RETAINING WALL AND WINGWALLS, LIGHTLY COMPACT GRANULAR BACKFILL TO 92% SPMDD.
   d. AT ALL OTHER LOCATIONS COMPACT TO 98% SPMDD.
4. GRANULAR BACKFILL BELOW RAFT AND STRIP FOOTINGS
   a. BACKFILL WITH SUB-BASE GRANULAR BACKFILL PER CW 3110, WITH REQUIREMENTS AS MODIFIED IN THE SPECIFICATIONS.
   b. MAXIMUM LIFT HEIGHT 150 mm.
   c. COMPACT TO MINIMUM 100% SPMDD.

SUBDRAINS

1. SUBDRAINS SHALL BE PERFORATED SCHEDULE 40 PVC DRAIN PIPE IN CLEAN-DRAINING GRAVEL WRAPPED IN GEOTEXTILE.

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

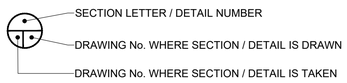
EROSION CONTROL BLANKET

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

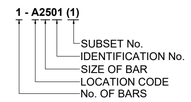
LIST OF ACRONYMS & SYMBOLS*

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



REINFORCING STEEL CODE LEGEND



TENDER No. 24-2020

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
MORRISON HERSHFIELD
No. 1736

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

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 23-018 ELEV 235.300 m — S.E. Cor. Notre Dame Ave. & Sherwin Rd., Tblt. in W. Conc. foundation No. 2070 Notre Dame Ave., 0.8 m S. & 0.7 m below Conc. block of N.W. Cor. of bldg.

No.	REVISIONS	YY/MM/DD	BY
D	ISSUED FOR TENDER	20/07/15	BE
C	ISSUED FOR 100% REVIEW	20/07/10	BE
B	ISSUED FOR 95% REVIEW	20/05/26	BE
A	ISSUED FOR 50% REVIEW	20/04/08	BE

MORRISON HERSHFIELD

DESIGNED BY	TN	CHECKED BY	AGG
DRAWN BY	AH	APPROVED BY	BE
HOR SCALE / VERT SCALE	AS SHOWN	RELEASED FOR CONSTRUCTION	
DATE		DATE	

PROFESSIONAL'S SEAL

PRELIMINARY DRAWING

NOT TO BE USED FOR CONSTRUCTION

CONSULTANT FILE NAME
1903811 - SHERWIN - GN.DWG

Winnipeg

THE CITY OF WINNIPEG
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

RECONSTRUCTION OF SHERWIN ROAD AND REPLACEMENT OF EXISTING CULVERT AT OMAND'S CREEK

DRAWING LIST AND GENERAL NOTES

CITY DRAWING NUMBER: C319-20-02
SHEET 02 OF 44
DRAWING No. 02 REV

P:\2019\190381100-Sherwin Road Reconstruction\09. CAD\07 Sheets\Structural\1903811 - Sherwin - GN.dwg Last Saved: 7/15/2020 8:30 AM by AHeppner Plotted: 7/15/2020 10:42 AM by Alex Heppner