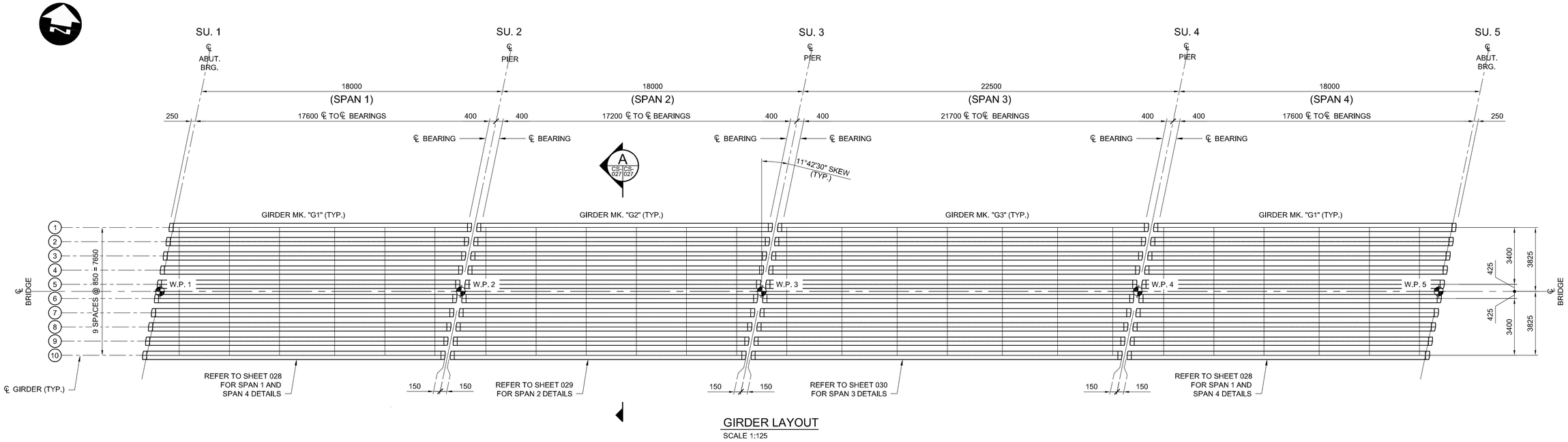
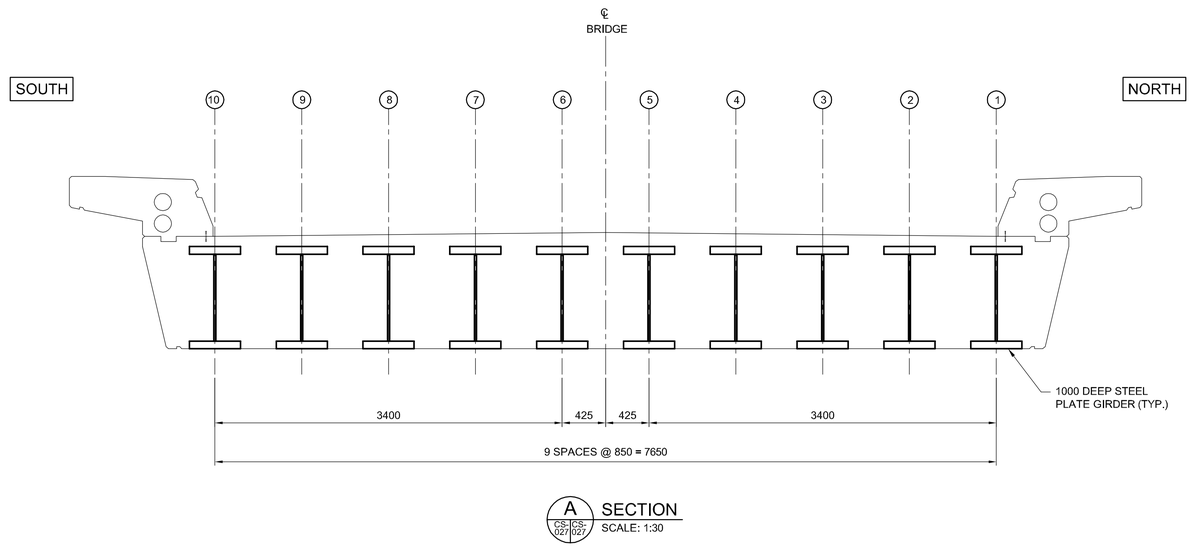


GIRDER LAYOUT

SCALE 1:125



A C2-CS-027 / C2-CS-027 SECTION

SCALE: 1:30

STEEL GIRDER NOTES:

1. FOR GENERAL NOTES SEE C2-CS-001.
2. DESIGN AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH AREMA MANUAL, CHAPTER 15.
3. MATERIAL SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

   STRUCTURAL STEEL: CSA G40.21

   GRADE 350WT, CATEGORY 5: IN GIRDER WEBS, FLANGES, BEARING STIFFENER PLATES

   GRADE 350W: TEMPORARY BRACING, INTERMEDIATE STIFFENER ANGLES AND ALL REMAINING MEMBERS.

   GRADE 300W: FOR BEARING PLATES.

   WELDING: CSA W59 (R2008) AND AWS D1.5

   ANCHOR RODS: STAINLESS STEEL S316L GRADE 75

   HIGH STRENGTH BOLTS: ASTM A325, TYPE 1

   METALIZING: ASTM B833 AND CSA G189

   GALVANIZING: ASTM A123 / A123M AND CAN/CSA G164

4. ALL BOLTS TO BE M22 UNLESS NOTED OTHERWISE.
5. ALL BOLT HOLES TO BE 24 DIA. UNLESS NOTED OTHERWISE.
6. ALL HOLES SHALL BE DRILLED OR SUB-PUNCHED AND REAMED.
7. ALL HIGH STRENGTH BOLTS SHALL BE TIGHTENED BY THE TURN-OF-NUT METHOD.
8. BOTTOM FLANGES OF GIRDERS OVER BEARINGS SHALL BE TRUE AND SQUARE; MAXIMUM MEASURED DEVIATION AT OUTSIDE OF EDGE OF BEARING PLATES SHALL NOT EXCEED 1 mm.
9. DEVIATION RESULTING IN NEGATIVE CAMBER SHALL NOT BE PERMITTED.
10. DEVIATION FROM STRAIGHTNESS OF MAIN GIRDERS SHALL NOT EXCEED 3 mm.
11. ALL NON-SLIDING SURFACES OF BEARINGS SHALL BE ZINC-METALLIZED IN ACCORDANCE WITH CSA G189. ZINC COATING SHALL NOT BE LESS THAN 0.25 mm.
12. REFER TO CN STANDARD DRAWINGS FOR ADDITIONAL INFORMATION NOT SHOWN ON THIS DRAWING.
13. ERECTION PROCEDURE SHALL BE SUBMITTED TO CONTRACT ADMINISTRATOR FOR REVIEW.
14. STEEL BEAMS ARE DESIGNED TO CARRY 1100 mm CONCRETE DECK, BALLAST (410 mm PRESENT AND 710 mm FUTURE).
15. ALL STEEL GIRDERS AND CROSS BRACINGS SHALL BE ZINC-METALLIZED IN ACCORDANCE WITH CSA G189. ZINC COATING SHALL NOT BE LESS THAN 0.25 mm. △1

FABRICATION:

1. FABRICATION SHALL BE IN ACCORDANCE WITH THE CURRENT CN SPECIFICATION FOR STRUCTURAL STEEL FABRICATION FOR RAILWAY BRIDGES AND AREMA REQUIREMENTS.
2. ALL DIMENSIONS ARE CORRECT AT 20° C AND GIRDER LENGTHS ARE MEASURED ALONG THE BOTTOM FLANGE.
3. GIRDERS SHALL BE CAMBERED TO THE VALUES SHOWN IN THE CAMBER DIAGRAMS. THE CAMBER ORDINATES INCLUDE AN ALLOWANCE FOR DEFLECTION DUE TO GIRDER SELF-WEIGHT, CONCRETE DECK AND SUPERIMPOSED DEAD LOADS AND CURVATURE OF THE RAILWAY. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SHOWING ADJUSTMENTS REQUIRED TO THE CAMBER DIAGRAM RESULTING FROM THE FABRICATION AND ERECTION METHODS USED.
4. ALL BEARING STIFFENERS AND END OF GIRDER WEB SHALL BE VERTICAL AFTER COMPLETE DEAD LOAD DEFLECTION HAS OCCURRED.
5. ALL FLANGE AND WEB BUTT SPLICES AND ALL STIFFENER TO WEB FILLET WELDS SHALL BE MADE BY AN APPROVED SEMI OR FULLY SUBMERGED ARC WELD PROCESS.

ERECTION:

1. GIRDERS SHALL BE ADEQUATELY SUPPORTED BY TEMPORARY BRACES TO ENSURE THAT NO DAMAGE IS CAUSED BY HANDLING AT ANY TIME.
2. CONTRACTOR IS RESPONSIBLE FOR THE MEANS OF MAINTAINING GIRDERS IN CORRECT ALIGNMENT UNTIL DECK HAS BEEN CAST AND HAS OBTAINED ITS SPECIFIED STRENGTH.

APEGM Certificate of Authorization
Dillon Consulting Limited (MB)
No. 1789 Date: 2017/01/09

NO.	REVISIONS	DATE	BY
1	ADDENDUM #4	17/02/24	RE
0	ISSUED FOR TENDER	17/01/09	RE

DILLON CONSULTING

DESIGNED BY	RE	CHECKED BY	SSR
DRAWN BY	NBG	APPROVED BY	DBW
HOR. SCALE	AS SHOWN	RELEASED FOR CONSTRUCTION	
VERTICAL	AS SHOWN		
DATE		DATE	

ENGINEER'S SEAL
PROVINCE OF MANITOBA
R.B. ERIC
Member 22665
REGISTERED PROFESSIONAL ENGINEER

CONSULTANT PROJECT NUMBER
16-3353

Winnipeg

THE CITY OF WINNIPEG
PUBLIC WORKS DEPARTMENT

WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB
CONTRACT 2: UNDERPASS STRUCTURE, RAILWORKS, ROADWORKS, LAND DRAINAGE SEWER, PUMPING STATION AND LANDSCAPING WORKS

CITY DRAWING NUMBER: U-239-2016-C2-CS-027
SHEET: 027 OF: 085

STEEL GIRDER LAYOUT

CONSULTANT DRAWING NUMBER: C2-CS-027

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