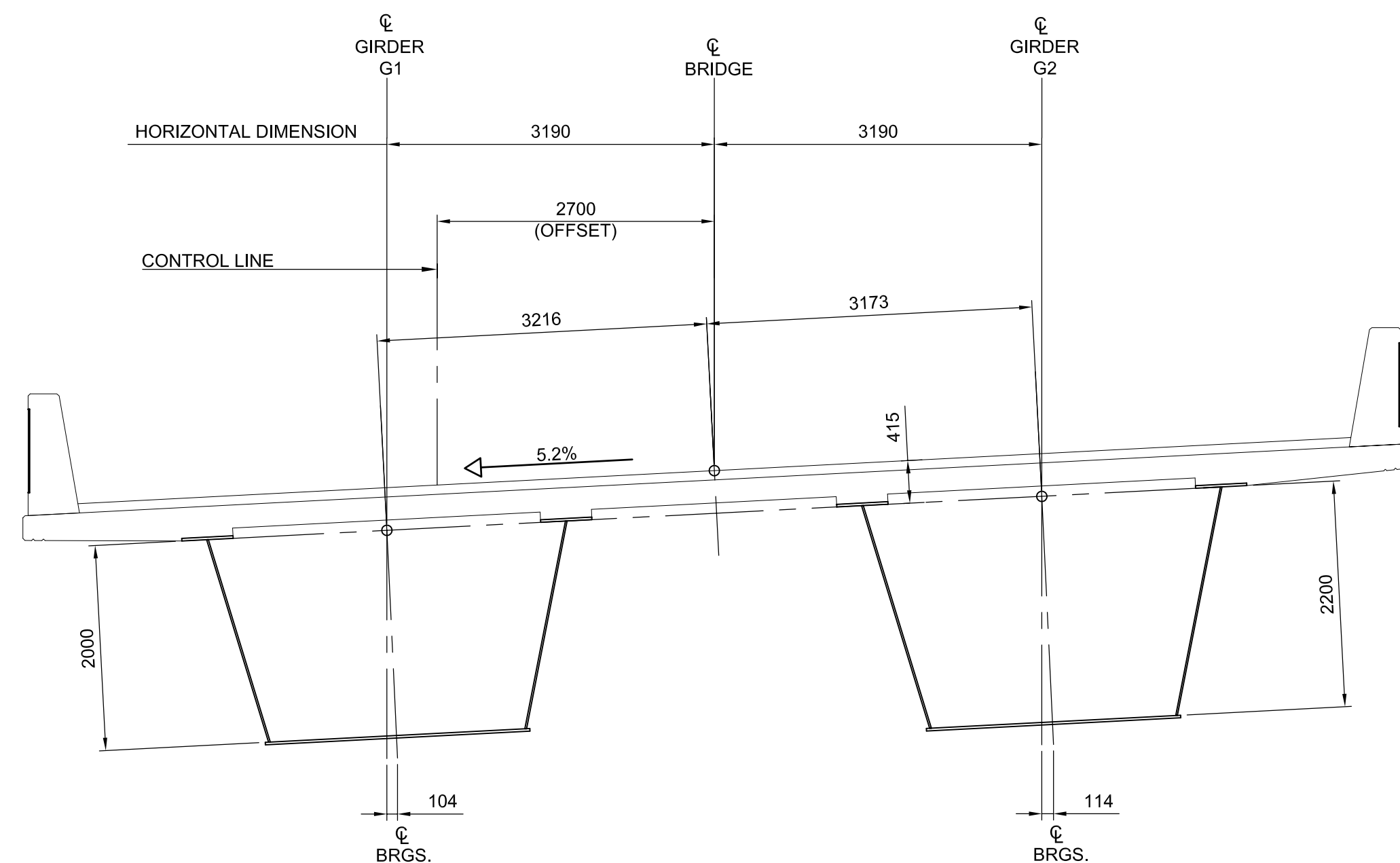


**KEY PLAN**  
1: 200

**LEGEND:**

○ RADIAL DIMENSIONS



**GIRDER CROSS SECTION**  
1: 50

**FABRICATION:**

- FABRICATION SHALL BE IN ACCORDANCE WITH "SPECIFICATIONS FOR SUPPLY AND DELIVERY OF STRUCTURAL STEEL".
- ALL DIMENSIONS ARE CORRECT AT 20°C AND GIRDER LENGTHS ARE MEASURED HORIZONTALLY. DIMENSIONS MUST BE ADJUSTED TO ACCOUNT FOR BRIDGE PROFILE GRADE AND SUPER ELEVATION. ANY CHANGE IN GIRDER LENGTH DUE TO DIFFERENCE BETWEEN GIRDER FABRICATION TEMPERATURE AND NEUTRAL TEMPERATURE OF THE EXPANSION BEARINGS SHALL BE TAKEN INTO ACCOUNT.
- GIRDERS SHALL BE CAMBERED TO THE VALUES SHOWN IN THE CAMBER DIAGRAM. THE CAMBER ORDINATES INCLUDE AN ALLOWANCE FOR DEFLECTION DUE TO GIRDER SELF-WEIGHT, CONCRETE DECK, BARRIERS, WEARING SURFACES AND CURVATURE OF THE BRIDGE. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SHOWING ADJUSTMENTS REQUIRED TO CAMBER DIAGRAM RESULTING FROM FABRICATION AND ERECTION METHODS USED.
- CORNERS OF ALL FLANGES SHALL BE GROUNDED TO A 2 mm CHAMFER.
- ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS SPECIFICATION D1.5.
- ALL STIFFENER TO WEB FILLET WELDS SHALL BE MADE BY AN APPROVED SEMI OR FULLY AUTOMATIC SUBMERGED ARC PROCESS.
- ALL FLANGE TO WEB FILLET WELDS SHALL BE MADE BY AN APPROVED FULLY AUTOMATIC SUBMERGED ARC PROCESS.
- ALL BUTT WELDS IN THE FLANGES SHALL BE FINISHED FLUSH UNLESS INDICATED OTHERWISE, BY GRINDING WHERE NECESSARY IN THE DIRECTION OF THE APPLIED STRESS.
- ALL BUTT WELDS IN THE WEB SHALL BE FINISHED SMOOTH IN ACCORDANCE WITH THE WELD PROFILE REQUIREMENTS OF CLAUSE 5.9 OF CSA W59. GRINDING, WHERE NECESSARY, SHALL BE IN THE DIRECTION OF THE APPLIED STRESS.
- IF RELOCATION, OR ADDITIONAL SHOP SPLICES ARE REQUIRED, THEIR LOCATION SHALL BE APPROVED BY THE ENGINEER.
- ALL WELD METAL DEPOSITS SHOULD HAVE CHARTY V-NOTCH IMPACT STRENGTH OF AT LEAST 27 JOULES AT -30°C. ALL WELD METAL DEPOSITS SHALL PRODUCE BOTH THE CORROSION RESISTANCE AND COLOR PROPERTIES OF THE BASE METAL.
- UNLESS OTHERWISE NOTED, THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:
 

MATERIAL THICKNESS OF THICKER PART JOINTED (mm)	MINIMUM SIZE OF FILLET WELD (mm)
TO 12 INCLUSIVE	5
OVER 12 TO 20	6
OVER 20 TO 40	8
OVER 40 TO 60	10
OVER 60 TO 120	12
- ALL BOLT HOLES SHALL BE DRILLED 2 mm LARGER THAN THE SPECIFIED BOLT DIAMETER, EXCEPT FOR BEARING ANCHOR ROD HOLES AND WHERE SHOWN ON THE DRAWINGS.
- ALL STEEL SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC NO. SP6 AFTER FABRICATION. DO NOT APPLY ANY SHOP PAINT, UNLESS NOTED OTHERWISE.
- THE END OF GIRDERS, DIAPHRAGMS, BEARING AND JACKING STIFFENERS SHALL BE TRULY VERTICAL UNDER FULL DEAD LOAD.
- THE EXTERNAL INTERMEDIATE DIAPHRAGMS TO BE FABRICATED AND FIT UNDER STEEL DEAD LOAD.

17. ALL STIFFENERS ARE PERPENDICULAR TO GIRDER WEB.

- THE FAYING SURFACES OF ALL BOLTING CONNECTIONS MUST BE BLAST CLEANED SURFACES OR BLAST CLEANED SURFACES WITH CLASS B COATING. THE MEAN SLIP COEFFICIENT FOR CLASS B SHALL BE 0.5.
- THE BOTTOM FLANGE OF STEEL GIRDERS SHALL HAVE A DRIP BAR ATTACHED AT THE LOW END OF THE BOTTOM FLANGE IN FRONT OF THE MSE WALL FACE OR PIER CAP AS SHOWN ON SHEET 27.
- EXTERIOR FACE OF GIRDER ENDS AT THE ABUTMENTS SHALL BE PAINTED TO THE LIMITS AS SHOWN ON KEY PLAN AND AS IN ACCORDANCE WITH SPECIFICATION FOR STRUCTURAL STEEL COATINGS. COLOR SHALL MATCH THE COLOR OF WEATHERING STEEL.

**MATERIAL:**

- ALL STRUCTURAL STEEL INCLUDING ANY DETAIL MATERIAL WELDED TO THE GIRDERS AND DIAPHRAGMS SHALL CONFORM TO CAN/CSA-G40.21M, GRADE 350AT, CATEGORY 3.
- ALL SHEAR STUD CONNECTORS SHALL BE 22 mm DIAMETER AND SHALL CONFORM TO THE CHEMICAL REQUIREMENTS OF ASTM STANDARD A108, GRADE 1015, 1018 OR 1020. IN ADDITION, THEY SHALL MEET THE MECHANICAL PROPERTIES SPECIFIED IN CURRENT AWS SPECIFICATION D1.5 TABLE 7.1 FOR TYPE B STUDS.
- ALL OTHER STEEL NOT INCLUDED ABOVE SHALL CONFORM TO CAN/CSA-G40.21M, GRADE 350A.
- ALL BOLTED CONNECTIONS SHALL BE MADE WITH 22 mm DIAMETER OR 25 mm DIAMETER HIGH STRENGTH BOLTS UNLESS NOTED OTHERWISE. BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM STANDARD A325, TYPE 3. WEATHERING PROPERTIES AND COLOR OF BOLTS SHALL MATCH THE JOINED STEEL.
- BOLT THREADS MUST BE EXCLUDED FROM THE SHEAR PLANE FOR ALL BOLTED CONNECTIONS.
- HARDENED WASHERS SHALL BE PROVIDED UNDER THE HEAD AND THE NUT OF EACH BOLT FOR A TOTAL OF TWO (2) WASHERS PER BOLT.
- FOR SLOTTED AND OVERSIZE HOLES THE WASHERS SHALL BE MIN. 8mm THICK AND OF SUFFICIENT SIZE TO OVERLAP THE HOLE BY 5mm ALL AROUND.

**NON-DESTRUCTIVE TESTING:**

- WELD INSPECTION SHALL BE CARRIED OUT IN ACCORDANCE WITH "SPECIFICATIONS FOR SUPPLY AND DELIVERY OF STRUCTURAL STEEL".
- TENSION FLANGE BUTT WELDS ARE MARKED THUS ⊗

**ERECTION:**

- THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL COMPONENTS AND PROVIDE TEMPORARY STRUCTURAL STEEL BRACING WHEN REQUIRED DURING HANDLING, TRANSPORTATION, ERECTION AND UNTIL STRUCTURAL STEEL IS IN ITS FINAL LOCATION WITH ALL PERMANENT BRACING, CONNECTIONS AND SUPPORTS IN PLACE AND THE CONCRETE DECK HAS REACHED 75% IF ITS SPECIFIED STRENGTH.
- BOLT HEADS IN FIELD SPLICES FOR BOX GIRDERS SHALL BE LOCATED ON THE EXTERIOR SURFACES.

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**APEGM**  
Certificate of Authorization  
**Dillon Consulting Limited (MB)**  
No. 1789 Date: 2013/08/01

UNDERGROUND STRUCTURES		B.M. ELEV.
SUPV. 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.		

DESIGNED BY	RE
DRAWN BY	NBG
CHECKED BY	SSR
APPROVED BY	MBL
HOR. SCALE	AS SHOWN
VERTICAL	
0 ISSUED FOR TENDER	13/08/08 MBL
NO. REVISIONS	DATE BY DATE 2013/08/01

**DILLON CONSULTING**

RELEASED FOR CONSTRUCTION

ENGINEER'S SEAL

PROVINCE OF MANITOBA  
R.B. ERIC  
Member  
REGISTERED PROFESSIONAL ENGINEER

ENGINEER'S SEAL

PROVINCE OF MANITOBA  
S.S. RIHAL  
Member  
REGISTERED PROFESSIONAL ENGINEER

CONSULTANT PROJECT NUMBER  
12-6606

**THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT**

Waverley West Arterial Roads Project (WWARP) PART 3 - CONTRACT 2  
ROUTE 90 TO ROUTE 165, OVERPASS (KENASTON BLVD.) AND ASSOCIATED WORKS

CITY DRAWING NUMBER B242-13-16  
SHEET 16 OF 128  
CONSULTANT DRAWING NUMBER

**STEEL GIRDERS - GENERAL LAYOUT**