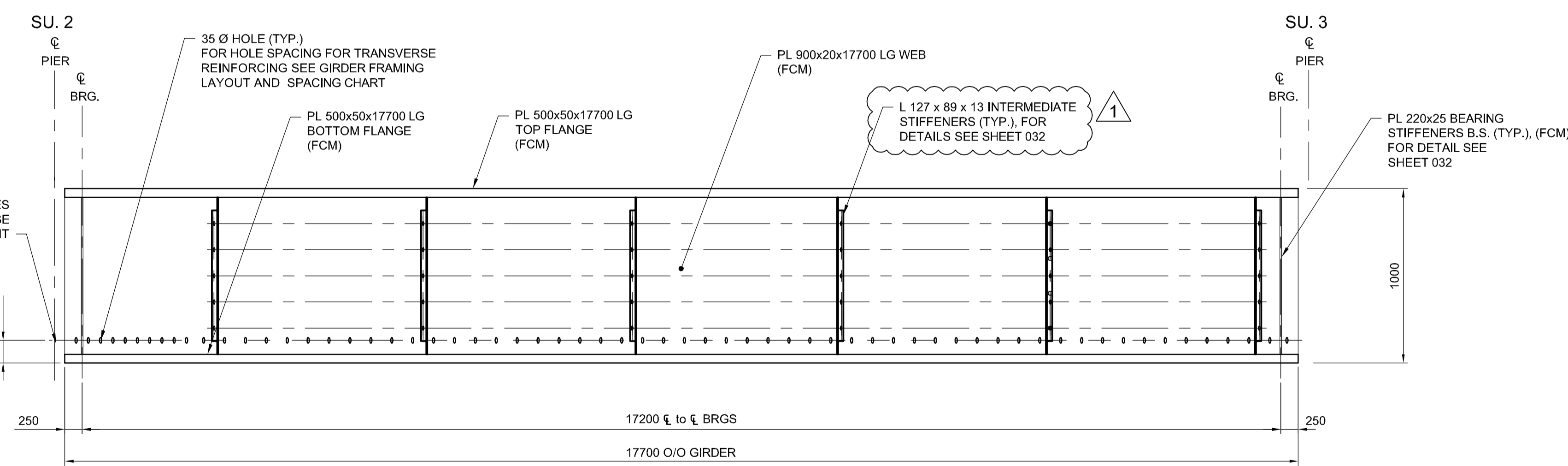


SECTION PROPERTIES AND STRESSES							
17200 mm SPAN LENGTH (C/C BEARINGS)							
STEEL SECTION							
TOP FLANGE PLATE SIZE	500mm	50mm	AREA =	25000mm <sup>2</sup>			
WEB PLATE SIZE	900mm	20mm	AREA =	18000mm <sup>2</sup>			
BOTTOM FLANGE PLATE SIZE	500mm	50mm	AREA =	25000mm <sup>2</sup>			
SECTION MODULES X 10 <sup>6</sup> [mm <sup>3</sup> ]							
n = 7.14	CONC. DECK	STEEL TOP FLANGE	STEEL BOTTOM FLANGE				
STEEL ONLY	-	24.820	24.820				
COMPOSITE - n	44.78	56.830	45.690				
COMPOSITE - 3n	30.89	38.760	34.490				
TABLE OF STRESSES							
	LOAD	END REACTION	SHEAR STRESS	BENDING MOMENT	BENDING STRESS		
					STEEL		CONC. DECK
					TOP FLANGE	BOTTOM FLANGE	
	[kN/m]	[kN]	[MPa]	[kNm]	[MPa]	[MPa]	[MPa]
DEAD LOAD NON-COMPOSITE	27.36	235.30	13.07	1011.79	40.77	40.77	-
SUPERIMPOSED DEAD LOAD NON-COMPOSITE	14.84	127.99	7.11	550.37	22.17	22.17	2.50
LIVE LOAD E90 NON-COMPOSITE	-	445.50	24.75	1642.50	66.18	66.18	5.14
IMPACT I = 38.57%	-	171.82	9.55	633.48	25.52	25.52	1.98
CENTRIFUGAL FORCE	-	-	-	-	-	-	-
TOTAL GROUP A		980.61	54.48	3838.14	154.64	156.64	9.61
ALLOWABLE STRESSES (BENDING & SHEAR)			122.50		192.50	192.50	14.00
RATIO OF WORKING STRESS TO ALLOWABLE			0.44		0.80	0.80	0.69

**ESTIMATED QUANTITIES (PER SPAN):**

- TOTAL SPAN STRUCTURAL STEEL WEIGHT (WITHOUT BRGS) 98 003 kg
- LIFTING WEIGHT OF I-GIRDER (WITH BRGS) 9 822 kg
- STRUCTURAL STEEL IN BEARINGS 2 304 kg
- CONCRETE
- DECK 167 m<sup>3</sup>
- TRAINMAN'S WALKWAY 24 m<sup>3</sup>
- WATERPROOFING 157 m<sup>2</sup>

NOTE: ALL WEIGHTS AND QUANTITIES SHOWN ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR CALCULATING EXACT LIFTING WEIGHTS OF NEW SPANS.



GIRDER LINE	SU.2	TRANSVERSE REINFORCEMENT HOLE SPACING - SPAN 2	SU.3
1	162 246	51 SPACES @ 300 = 15300	246 176 176 176 176 176 176 176 176 176 162
2	162 176 246	51 SPACES @ 300 = 15300	246 176 176 176 176 176 176 176 176 176 162
3	162 176 176 246	51 SPACES @ 300 = 15300	246 176 176 176 176 176 176 176 176 176 162
4	162 176 176 176 246	51 SPACES @ 300 = 15300	246 176 176 176 176 176 176 176 176 176 162
5	162 176 176 176 176 246	51 SPACES @ 300 = 15300	246 176 176 176 176 176 176 176 176 176 162
6	162 176 176 176 176 176 246	51 SPACES @ 300 = 15300	246 176 176 176 176 176 176 176 176 176 162
7	162 176 176 176 176 176 176 246	51 SPACES @ 300 = 15300	246 176 176 176 176 176 176 176 176 176 162
8	162 176 176 176 176 176 176 176 246	51 SPACES @ 300 = 15300	246 176 176 176 176 176 176 176 176 176 162
9	162 176 176 176 176 176 176 176 176 246	51 SPACES @ 300 = 15300	246 176 176 176 176 176 176 176 176 176 162
10	162 176 176 176 176 176 176 176 176 176 246	51 SPACES @ 300 = 15300	246 176 176 176 176 176 176 176 176 176 162



DESIGNED BY	RE	CHECKED BY	SSR
DRAWN BY	NBG	APPROVED BY	DBW
HOR. SCALE	AS SHOWN	RELEASED FOR CONSTRUCTION	
VERTICAL	AS SHOWN		
NO.	REVISIONS	DATE	BY
1	ADDENDUM #4	17/02/24	RE
0	ISSUED FOR TENDER	17/01/09	RE

**DILLON CONSULTING**

ENGINEER'S SEAL: R.B. ERIC, Member 22665, REGISTERED PROFESSIONAL ENGINEER

**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-029  
SHEET 029 OF 085  
CONSULTANT DRAWING NUMBER: C2-CS-029

STEEL GIRDER DETAILS SPAN 2 (17.20 m)

CONSULTANT PROJECT NUMBER: 16-3353

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