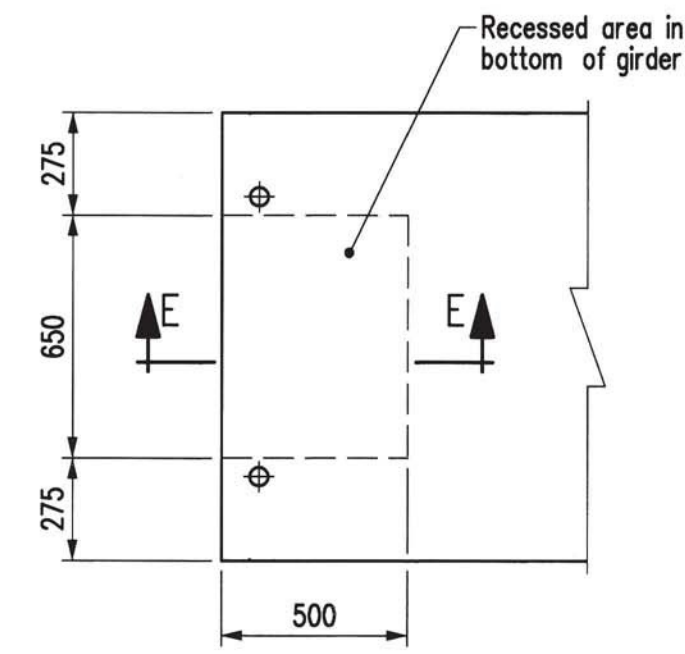
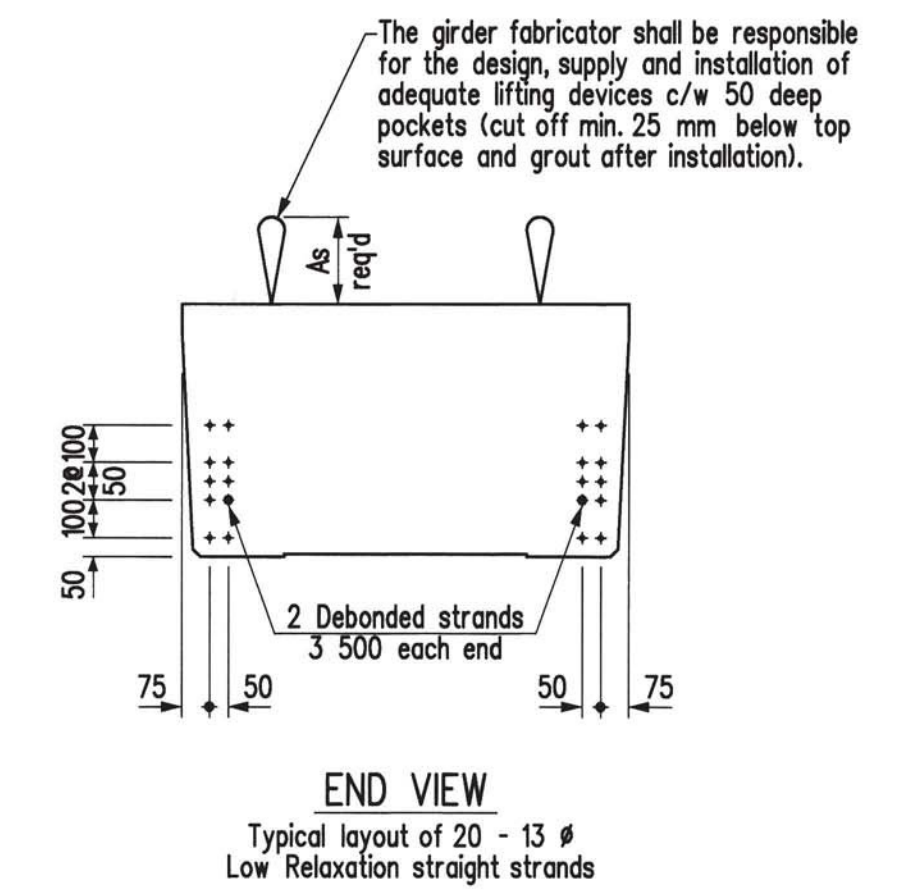
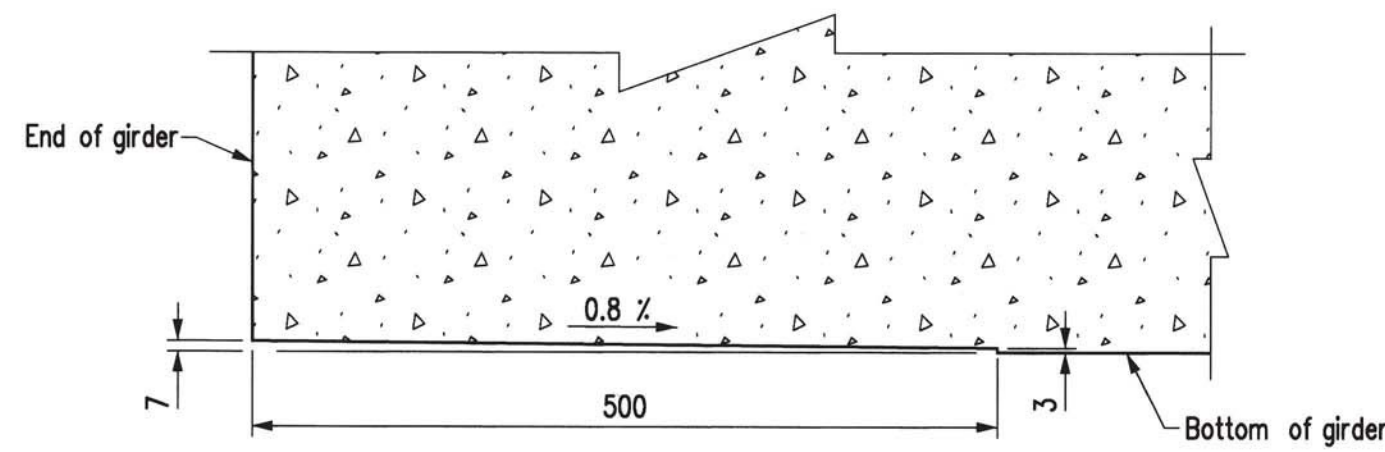


ELEVATION
GIRDER STRAND LAYOUT



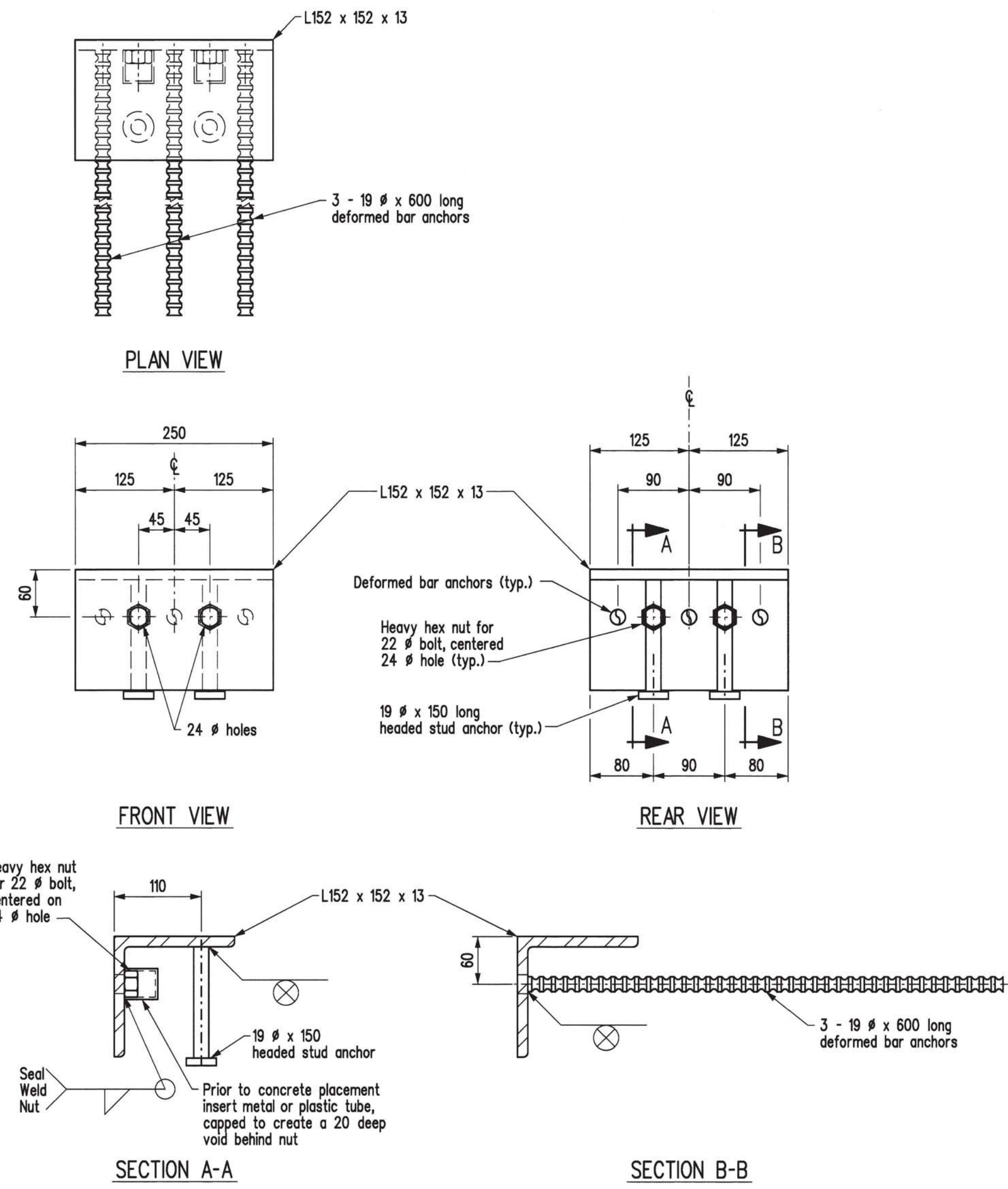
PART PLAN
Typical at both ends of girders



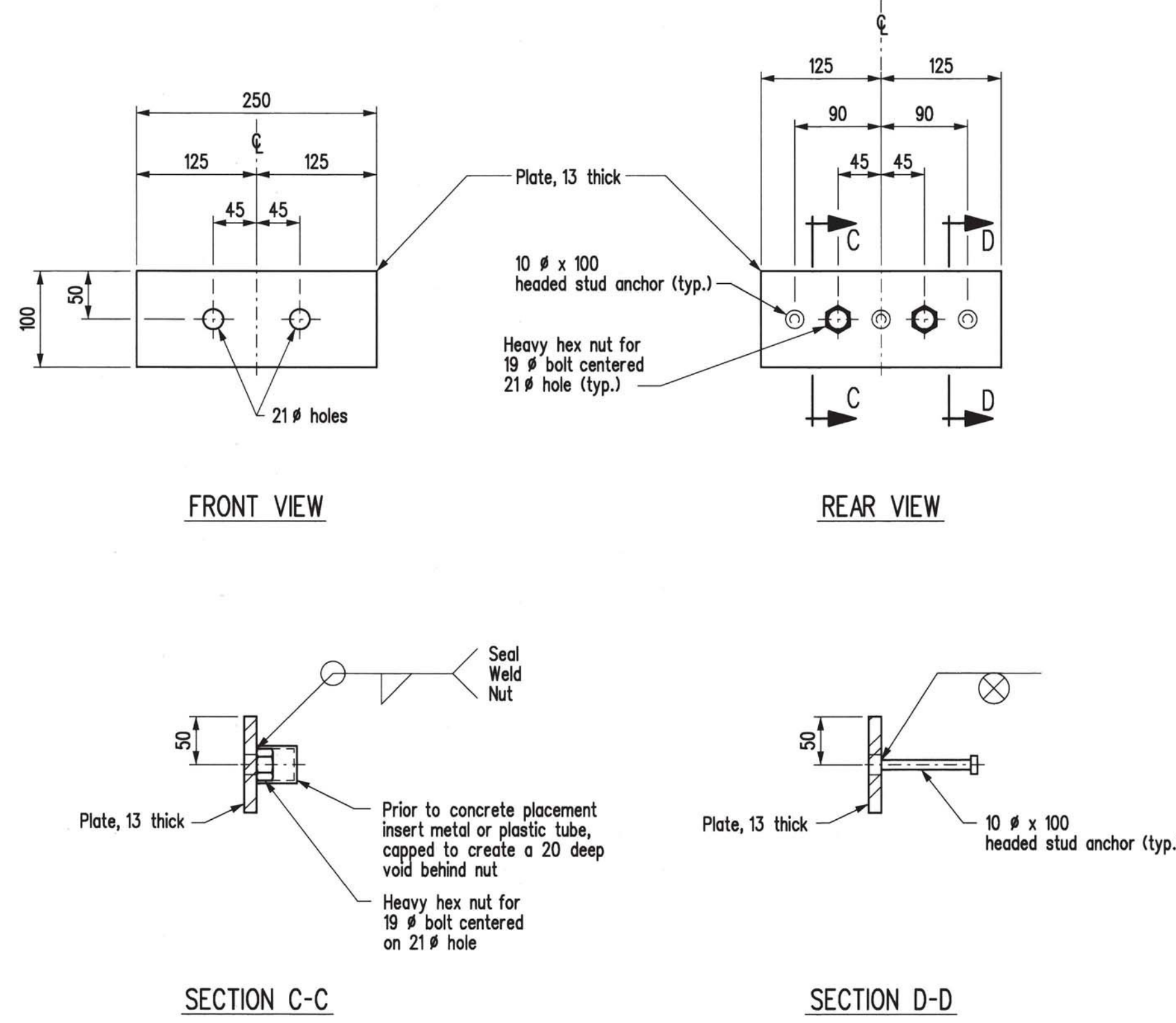
SECTION E-E
Scale 1/5

BEARING RECESS DETAILS

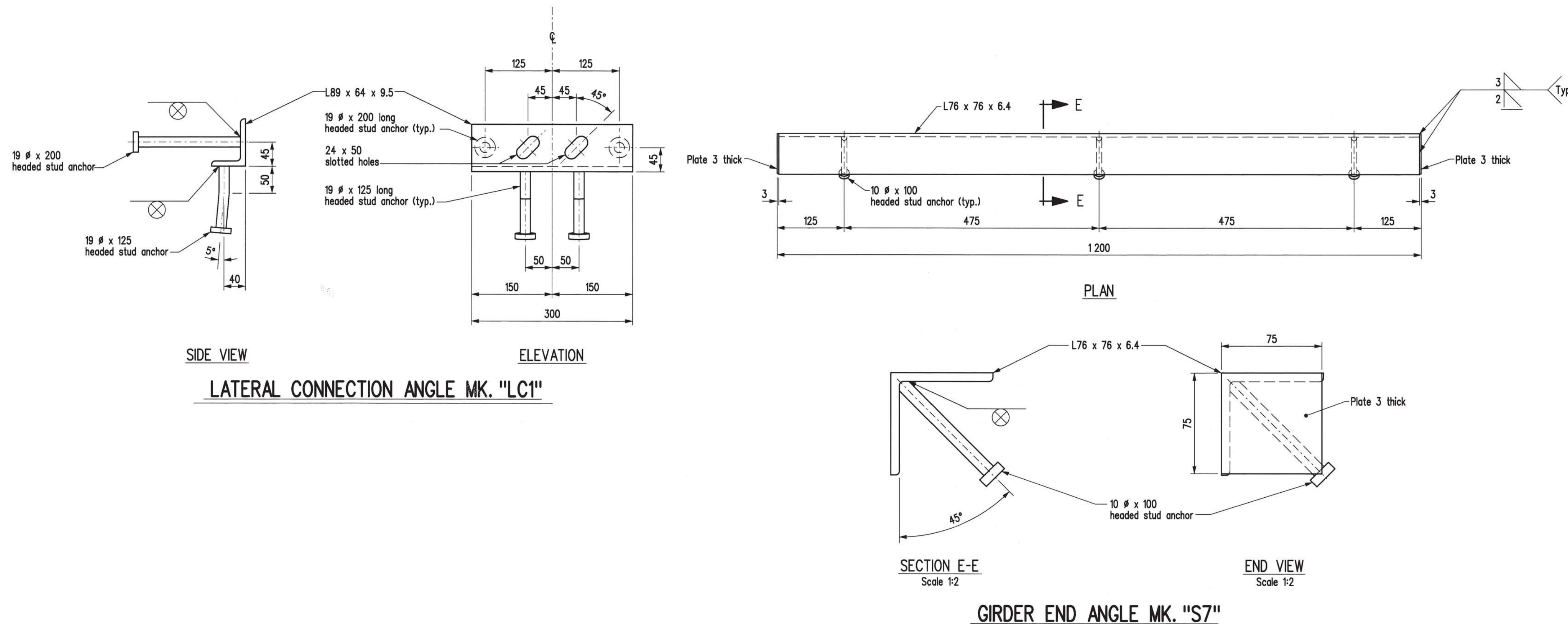
REVISIONS			PRECAST PRESTRESSED CHANNEL GIRDER DETAILS		
DATE	BY	DESCRIPTION		APPROVED BY: Original signed by Michael Hagos July 26, 2020 DIRECTOR OF STRUCTURES	
				BY: _____ A.H.P. CHECKED: _____ A.H.P.	DATE: _____ SCALE: 1:20 SHEET No. 2 of 5
			Original signed and sealed by Andy Pankratz July 20, 2020	BY: _____ K.P. CHECKED: _____ A.H.P.	STD No. PPCC_PR_9.6_12m_G003



RAILPOST ANCHOR UNIT MK. "U1"



RAILPOST ANCHOR UNIT MK. "U2"

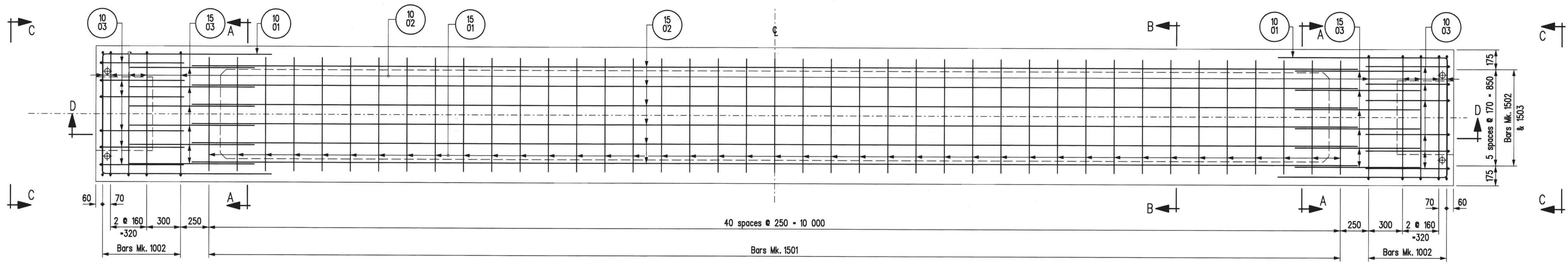


**BILL OF MISCELLANEOUS METAL for 12 m LONG GIRDERS
9 600 ROADWAY - 3 SPANS**

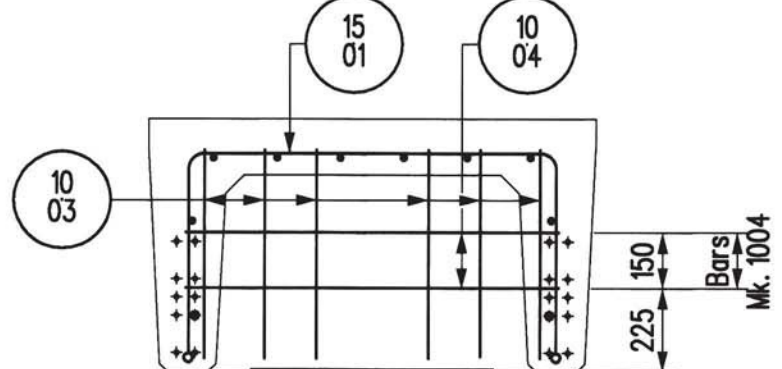
MARK No.	No.	DESCRIPTION	CORROSION PROTECTION	SIZE	LENGTH	REMARKS
U1	42	Railpost anchor unit	Hot dip galvanized			
		Each unit is fabricated from:				
		1 - Angle		L152x152x13	250	As detailed
		2 - Heavy hex nuts for 22 dia. bolt		19 dia.	150	Grade DH or 2H Headed stud anchors, ASTM A108
		3 - Studs		19 dia. Bolt	600	Deformed bar anchors
		2 - Tubes				Metal or plastic capped - As detailed
U2	42	Railpost anchor unit	Hot dip galvanized			
		Each unit is fabricated from:				
		1 - Plate		PL 13x100	250	As detailed
		2 - Heavy hex nuts for 19 dia. bolt		10 dia.	100	Grade DH or 2H Headed stud anchors, ASTM A108
		2 - Tubes				Metal or plastic capped - As detailed
LC1	168	Lateral connection angle	Hot dip galvanized			
		Each unit is fabricated from:				
		1 - Angle		L89x64x9.5	300	As detailed
		2 - Studs		19 dia.	200	Headed stud anchors, ASTM A108
		2 - Studs		19 dia.	125	Headed stud anchors, ASTM A108
S7	48	Girder end angle	Hot dip galvanized			
		Each unit is fabricated from:				
		1 - Angle		L76x76x6.4	1 194	As detailed
		2 - Plates		PL 3x75	75	As detailed
		3 - Studs		10 dia.	100	Headed stud anchors, ASTM A108
48		Ferrule loop insert	Stainless steel	for 13 dia. Bolt		Richmond anchor, Type LF-W with mounting washer
TR2	16	Threaded rod	Stainless steel	13 dia.	250	c/w hex nut
R27	84	A325 bolt c/w F436 hardened washer	Hot dip galvanized	22 dia.	229	Heavy hex. no nut, ASTM F3125
R28	84	A325 bolt c/w F436 hardened washer	Hot dip galvanized	19 dia.	64	Heavy hex. no nut, ASTM F3125

- NOTES:**
- All material in the above Bill shall be supplied by the GIRDER CONTRACTOR.
 - All structural steel shall conform to CAN/CSA G40.21 Grade 300W.
 - All material noted in the above Bill shall be hot dip galvanized after fabrication in accordance with ASTM A123, A153 & A143 for a minimum net retention of 610 g/m² unless otherwise stated in the specified material ASTM standards. The fabricator and galvanizer shall safeguard against embrittlement using recommended practices from applicable standards.
 - Seal all welds prior to galvanizing.
 - Grade DH or 2H galvanized nuts for A325 bolts shall be overlapped to a minimum amount required for the fastener assembly in accordance with ASTM F3125. The nuts shall be lubricated with a lubricant containing a visible dye. The lubricant shall be clean and dry to the touch.
 - All bolts and inserts in the above Bill shall be Imperial thread.
 - Stainless steel shall conform to the requirements of ASTM A320, Class B8.
 - Contractor shall refer to Manitoba Infrastructure's Approved Products listing.

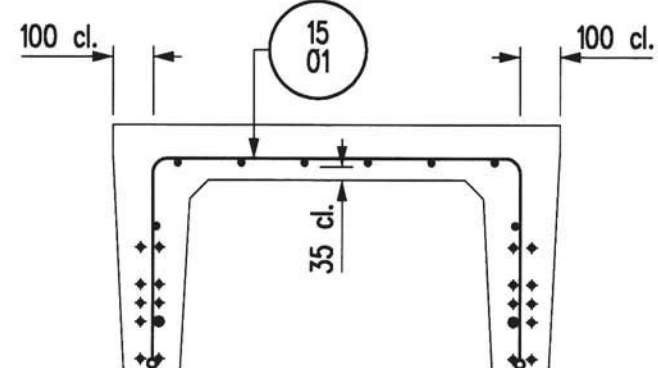
REVISIONS		PRECAST PRESTRESSED CHANNEL GIRDER DETAILS	
DATE	BY	DESIGN SEAL	RECORD SEAL
Original signed and sealed by Andy Pankratz July 20, 2020		<p>Manitoba Infrastructure Water Management and Structures</p> <p>APPROVED BY: Original signed by Michael Hagos July 28, 2020 DIRECTOR OF STRUCTURES</p> <p>DATE _____</p> <p>SCALE: 1:5 SHEET No. 3 of 5</p> <p>OR. OS. SHOWN STD No. PPCC_PR_9.6_12m_G003</p>	



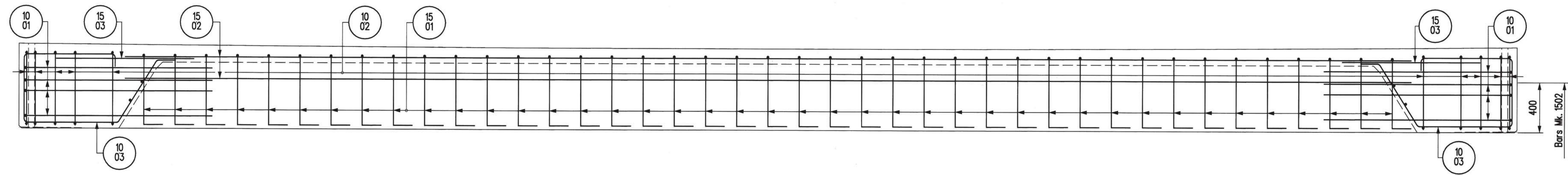
PLAN OF GIRDER



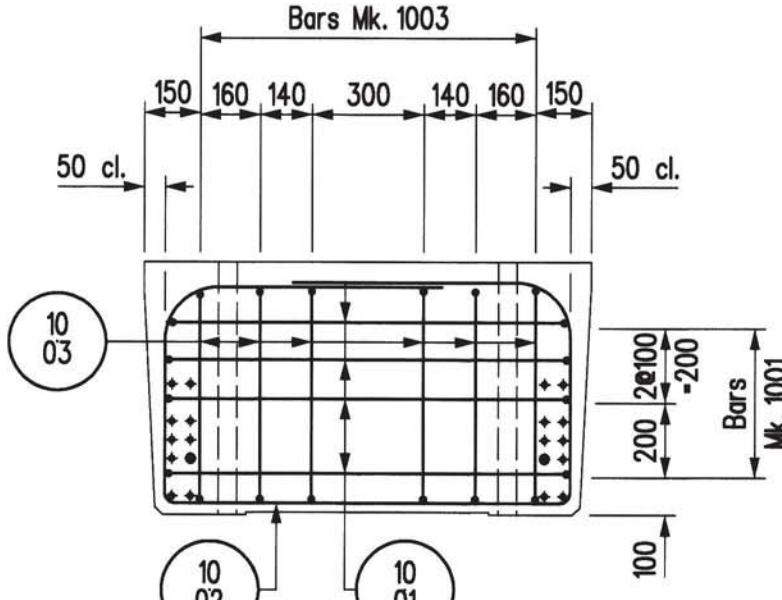
SECTION A-A



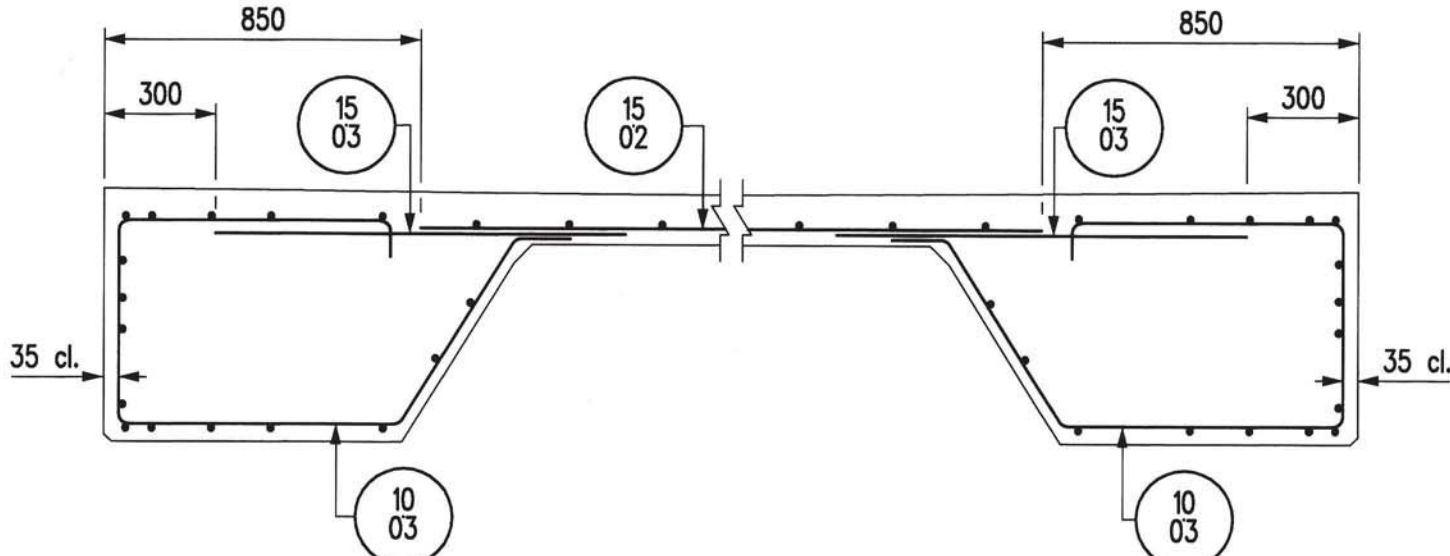
SECTION B-B



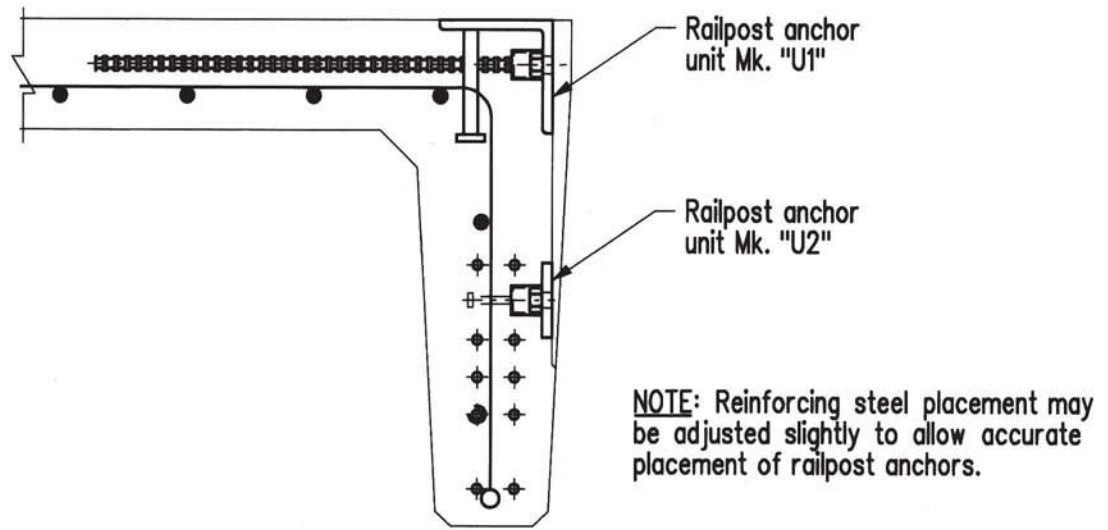
ELEVATION OF GIRDER



END VIEW C-C



PART SECTION D-D



DETAIL AT RAILPOST ANCHOR

Scale 1:10

- NOTES:**
1. Concrete cover shall be 25 mm unless noted otherwise.
 2. Reinforcing details are typical for all 12 m girders unless noted otherwise.
 3. See Bill of Reinforcing STD PPCC_PR_9.6_12m_GD03 Sht 5 of 5.

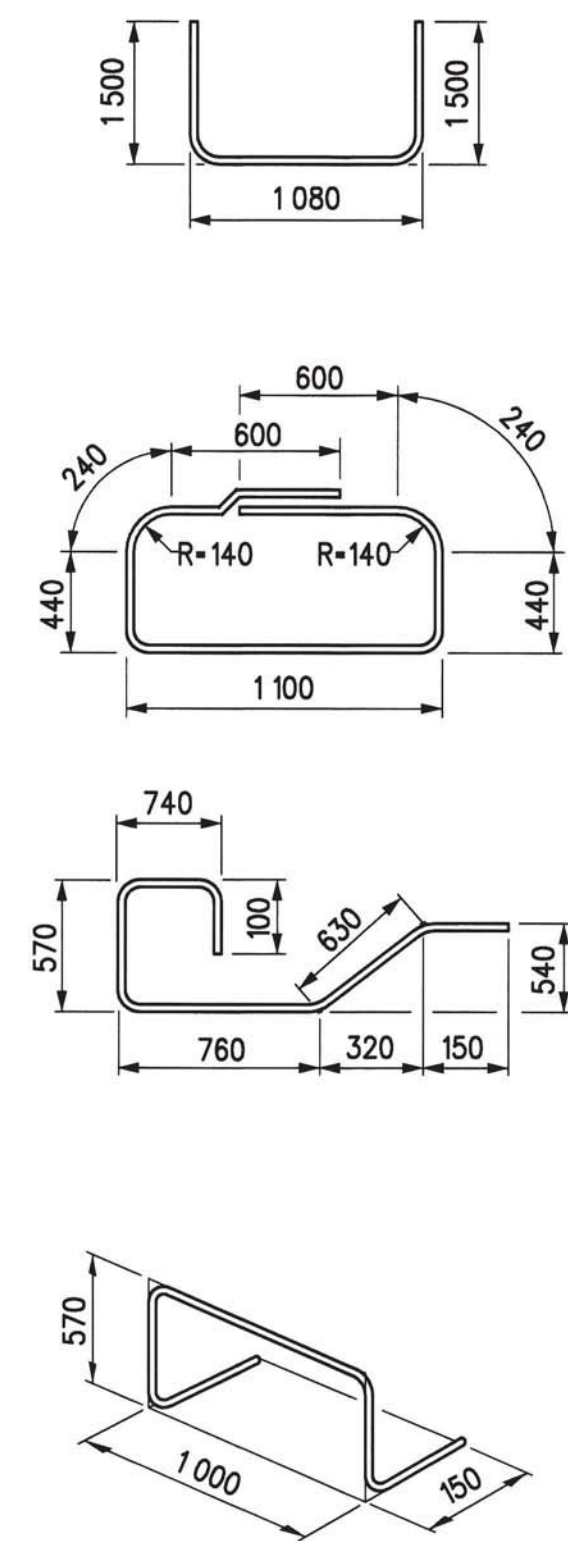
REVISIONS		PRECAST PRESTRESSED CHANNEL GIRDER DETAILS	
DATE	BY	DESCRIPTION	

DESIGN SEAL Original signed and sealed by Andy Pankratz July 20, 2020	RECORD SEAL		APPROVED BY: Original signed by Micheal Hagos July 28, 2020 DIRECTOR OF STRUCTURES
			DATE _____
			SCALE: 1:20 SHEET No. 4 of 5
			OR AS SHOWN STD No. PPCC_PR_9.6_12m_GD03

BILL OF REINFORCING STEEL - 12 M GIRDERS

MARK	TYPE	PIN DIAMETER	LENGTH	No. of BARS PER GIRDER
1001	BENT	45	4 080	8
1002	BENT	45	3 660	10
1003	BENT	45	2 950	12
1004	STR		1 000	4
1501	BENT	65	2 440	41
1502	STR		10 300	8
1503	STR		1 100	12

BENDING DIAGRAM

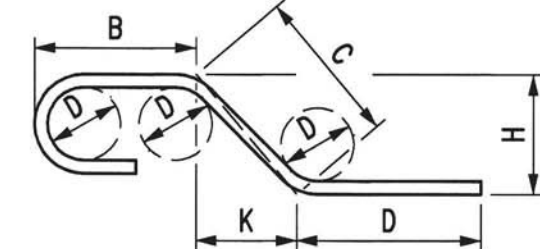


Total volume of structural concrete per exterior girder	4.94 m ³
Total volume of structural concrete per interior girder	4.93 m ³
Number of Exterior girders Mk."G1"	6
Number of Interior girders Mk."G2"	18

NOTES:

- All dimensions given in bending diagram are out to out, except radii and extensions on 90°, 135° & 180° hooks. Extensions on 90°, 135° & 180° hooks are the "A" or "C" dimensions for standard 90°, 135° & 180° hooks referenced from the RSIC "Manual of Standard Practice". Radii are inside dimensions. All reinforcing steel bends and hooks shall conform to Clause 6.6.2 of C.S.A. A23.1, unless noted otherwise in the BILL OF REINFORCING STEEL.
- All reinforcing steel shall be deformed steel, unless noted otherwise in the BILL OF REINFORCING STEEL.
- All reinforcing steel shall conform to CSA G30.18 "Billet Steel Bars for Concrete Reinforcement" Grade 400W, unless noted otherwise in the BILL OF REINFORCING STEEL.
- Like bars shall be bundled, securely tied and identified as to Mark and Site No. by appropriate means. All other items to be identified in a similar fashion.

5. All bars shall be bent in accordance with the following detail:



REVISIONS		PRECAST PRESTRESSED CHANNEL GIRDER DETAILS	
DATE	DESCRIPTION		
DESIGN SEAL	RECORD SEAL	<p>Infrastructure Water Management and Structures</p>	APPROVED BY: Original signed by Micheal Hagos July 28, 2020 DIRECTOR OF STRUCTURES
Original signed and sealed by Andy Pankratz July 20, 2020			BY: <u>A.H.P.</u> CHECKED: <u>A.H.P.</u> BY: <u>K.P./N.J.</u> CHECKED: <u>A.H.P.</u>