## PLANS

OF PROPOSED

# P.P.C.C. BRIDGE OVER

DESIGN DATA
SPECIFICATIONS AASHTO LRFD Bridge Design Specifications, First Edition, 1994 plus 1996/97 Interims
VEHICULAR LIVE LOADING  1. Modified AASHTO HSS-25 Truck 2. AASHTO LRFD "HL-93" Loading  STRUCTURAL CONCRETE  CSA A23.1, Exposure Class C-1 Air content category 1  1. PRECAST PRESTRESSED CONCRETE CHANNEL GIRDERS - f'c = 45 MPa at 28 days f'ci = 35 MPa at time of de-stressing  REINFORCING STEEL
<ol> <li>PRECAST PRESTRESSED CONCRETE CHANNEL GIRDERS - CAN/CSA-G30.18-M92 Grade 400W black (i.e no epoxy coating)</li> <li>PRECAST PANELS - CAN/CSA-G30.18-M92 Grade 400W black (i.e no epoxy coating)</li> </ol>
STRUCTURAL STEEL  1. All Structural Steel shall conform to CAN/CSA G40.21-M92 Grade 300W  2. HSS Tubing for Bridge Rail shall confrom to CAN/CSA- G40.21-M92 Grade 350W  PRESTRESSING STRAND  20-13 Ø low relaxation strands, fpu = 1860 MPa
PILE LOADING
END PILE BENTS INTERMEDIATE PILE BENTS  MAXIMUM FACTORED LOAD 582 kN 531 kN  FACTORED BEARING RESISTANCE
HYDRAULIC DESIGN DATA  DESIGN DISCHARGE  Q
SURVEY CONTROL
HORIZONTAL DATUM: NAD83CSRS
VERTICAL DATUM: CGVD28  ELLIPSOID: GRS 1980
GEOID (HT2.0):
UTM: ZONE
SCALE FACTOR:
SITE CONTROL POINT DATA
CONTROL POINT • NORTHING: EASTING: ELEVATION:
DATE: CONTROL POINT * NORTHING: EASTING:
ELEVATION: DATE:  CONTROL POINT • NORTHING: EASTING: ELEVATION:  DATE: DATE:

36 394 OUT TO OUT OF ABUTMENT PRECAST BACKWALL PANELS LENGTH

THREE SIMPLY SUPPORTED SPANS OF PRECAST PRESTRESSED CONCRETE CHANNEL GIRDERS WITH ASPHALT OVERLAY SUPERSTRUCTURE

TWO PRECAST CONCRETE ABUTMENTS AND TWO INTERMEDIATE BENT WITH STEEL H-PILES SUBSTRUCTURE

ROADWAY WIDTH 8 400 OUT TO OUT OF GIRDERS

LOCATION



## PLACE LOCATION MAP HERE

RGE. -

LOCATION MAP Not to Scale

## MANITOBA INFRASTRUCTURE

WATER MANAGEMENT AND STRUCTURES

RELEASED FOR CONSTRUCTION BY EXECUTIVE DIRECTOR OF STRUCTURES DATE \_\_\_\_\_\_\_\_

ENVIRONMENTAL APPROVALS
MANITOBA ENVIRONMENT ACT LICENCE
DATE :
FILE •:
FISHERIES AND OCEANS CANADA - AUTHORIZATION OR REVIEW
FILE •:
 TRANSPORT CANADA - NAVIGATION ACT
DATE :
FILE •:
 MANITOBA INFRASTRUCTURE ENVIRONMENTAL APPROVAL
DATE :
 FILE •:
 ENVIRONMENTAL REVIEW COMPLETED
DATE :
 COMPLETED BY :

SHEET LEGEND

COVER SHEET GENERAL ELEVATION

BORING LOGS

ASSEMBLY DETAILS

ASSEMBLY DETAILS STEEL PILE CAP DETAILS STEEL PILE CAP DETAILS

**RALING DETAILS** 12. RAILPOST DETAILS

P1. PRECAST PANEL DETAILS P2. PRECAST PANEL DETAILS

SITE AND EROSION CONTROL DETAILS

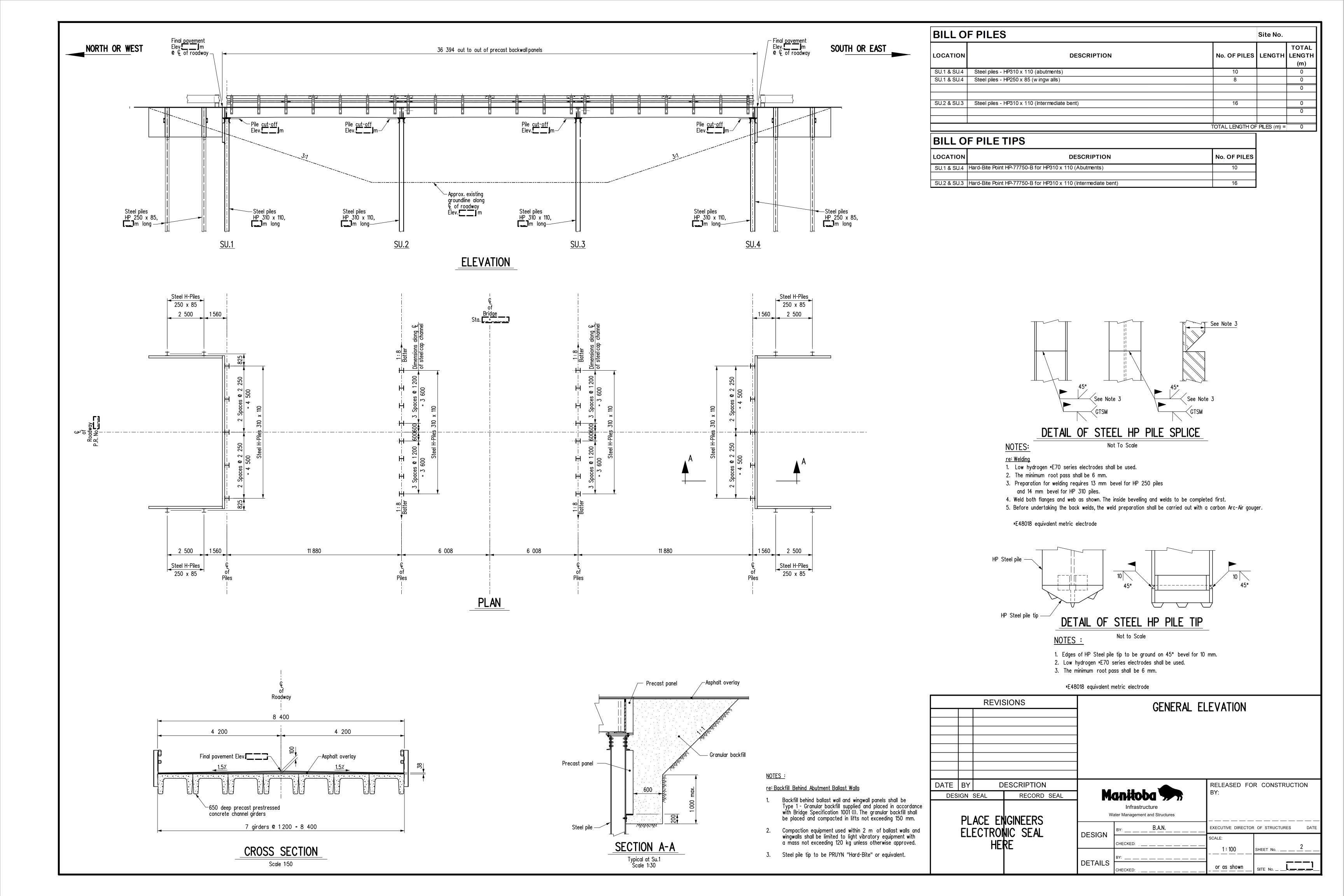
BEARING AND ERECTION DETAILS

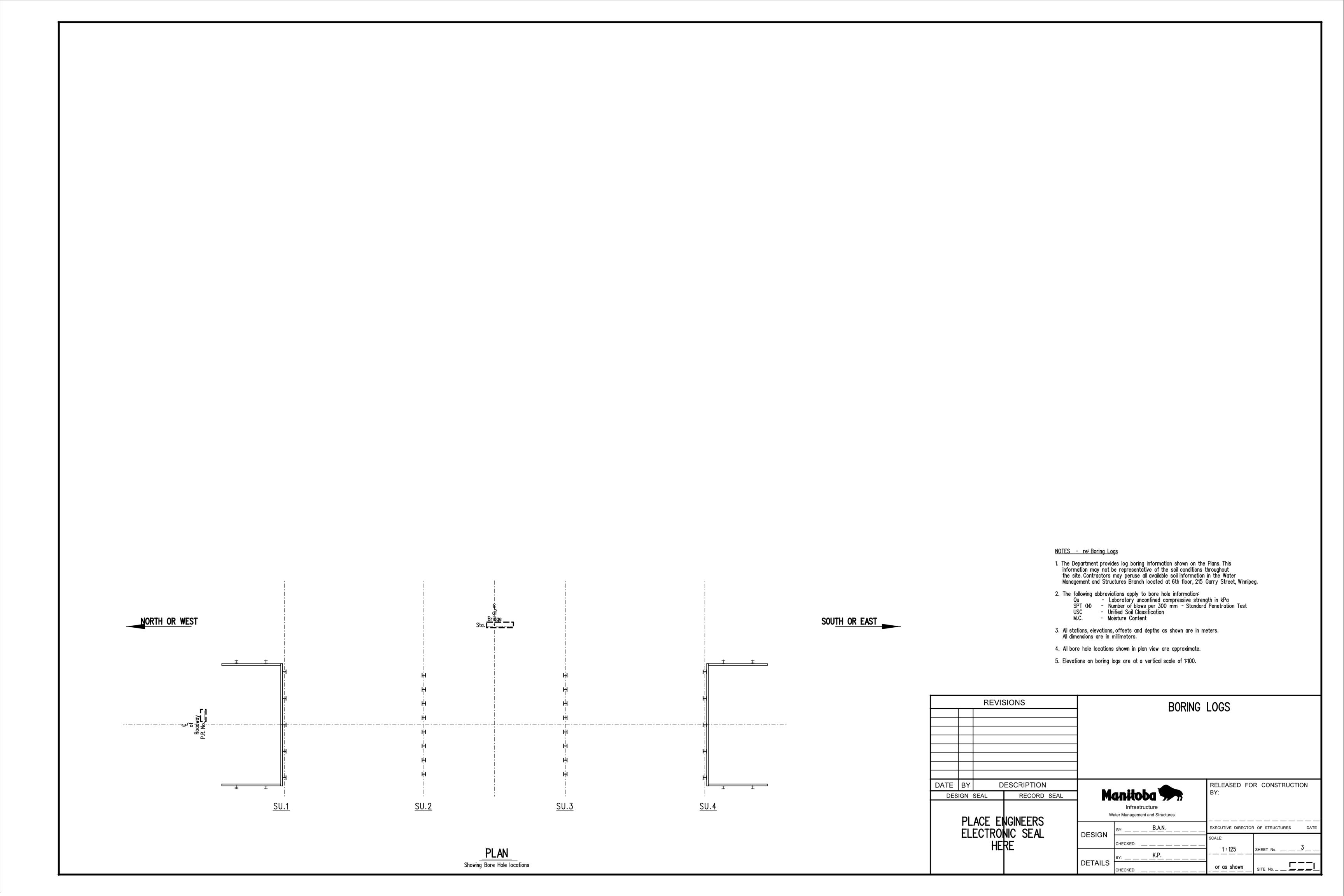
G1. PRECAST PRESTRESSED CHANNEL GIRDER DETAILS G2. PRECAST PRESTRESSED CHANNEL GIRDER DETAILS G3. PRECAST PRESTRESSED CHANNEL GIRDER DETAILS G4. PRECAST PRESTRESSED CHANNEL GIRDER DETAILS G5. PRECAST PRESTRESSED CHANNEL GIRDER DETAILS

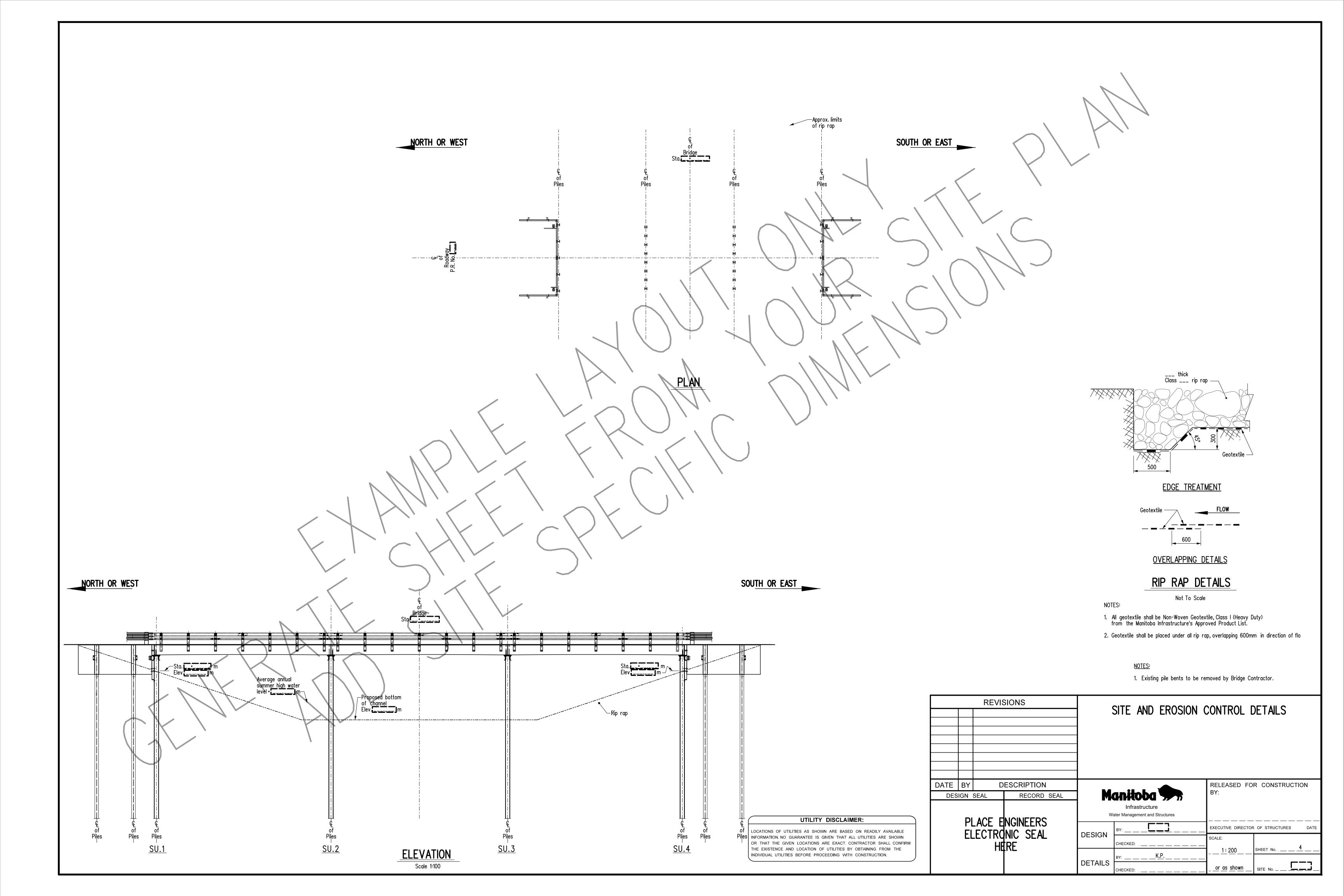
RAILING LAYOUT AND DETAILS

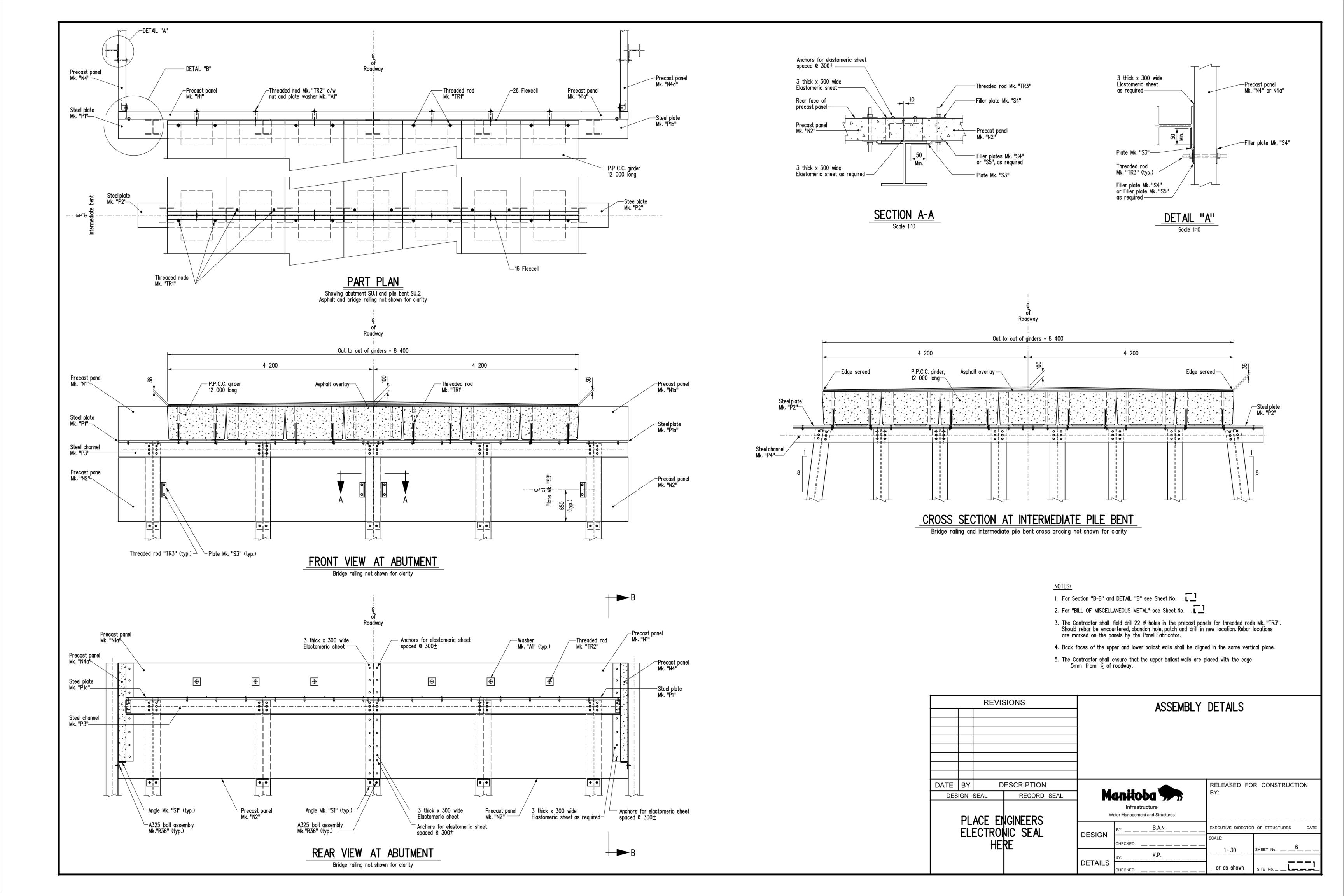
CHECKED BY:

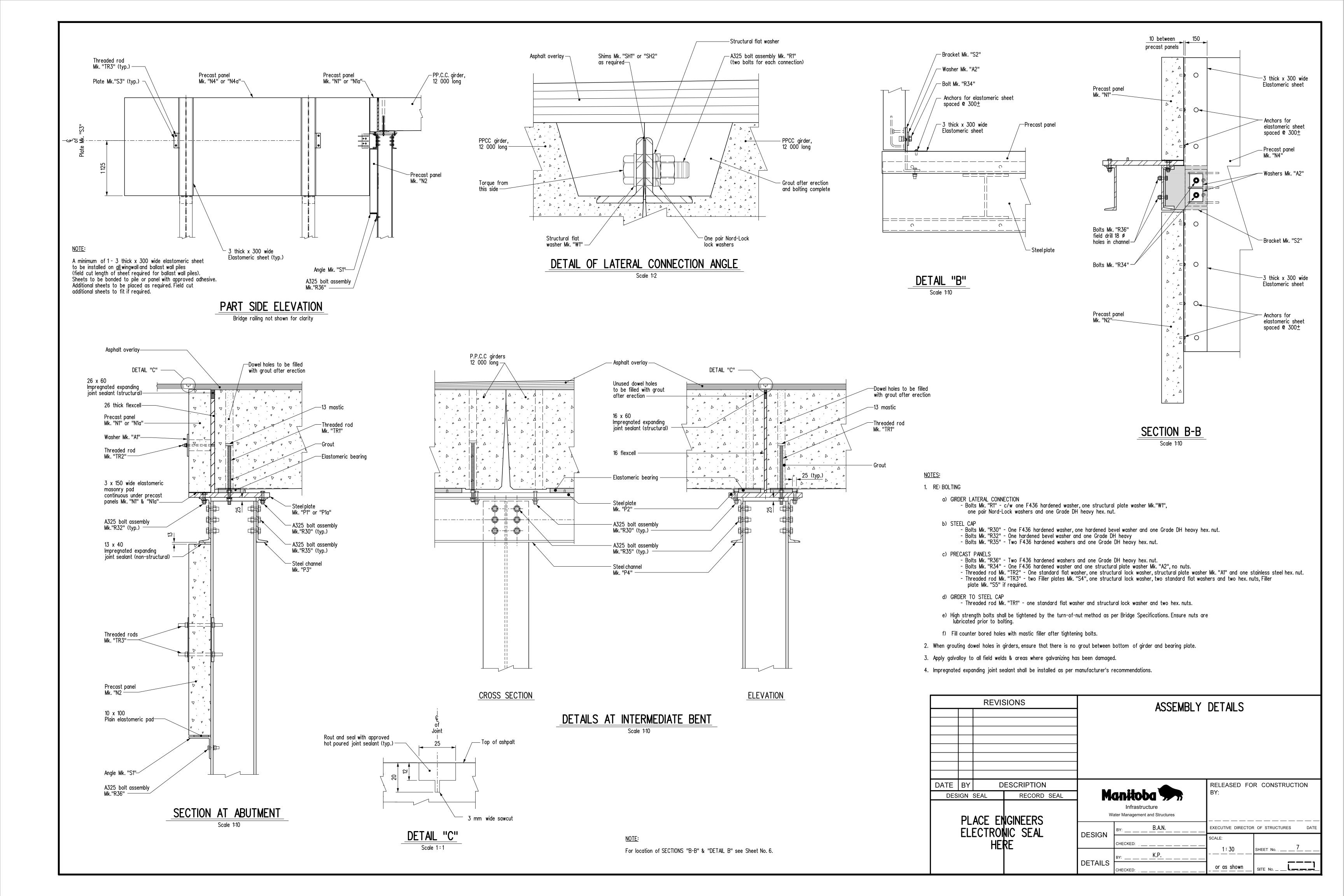
SHEET No. 1 SITE No.

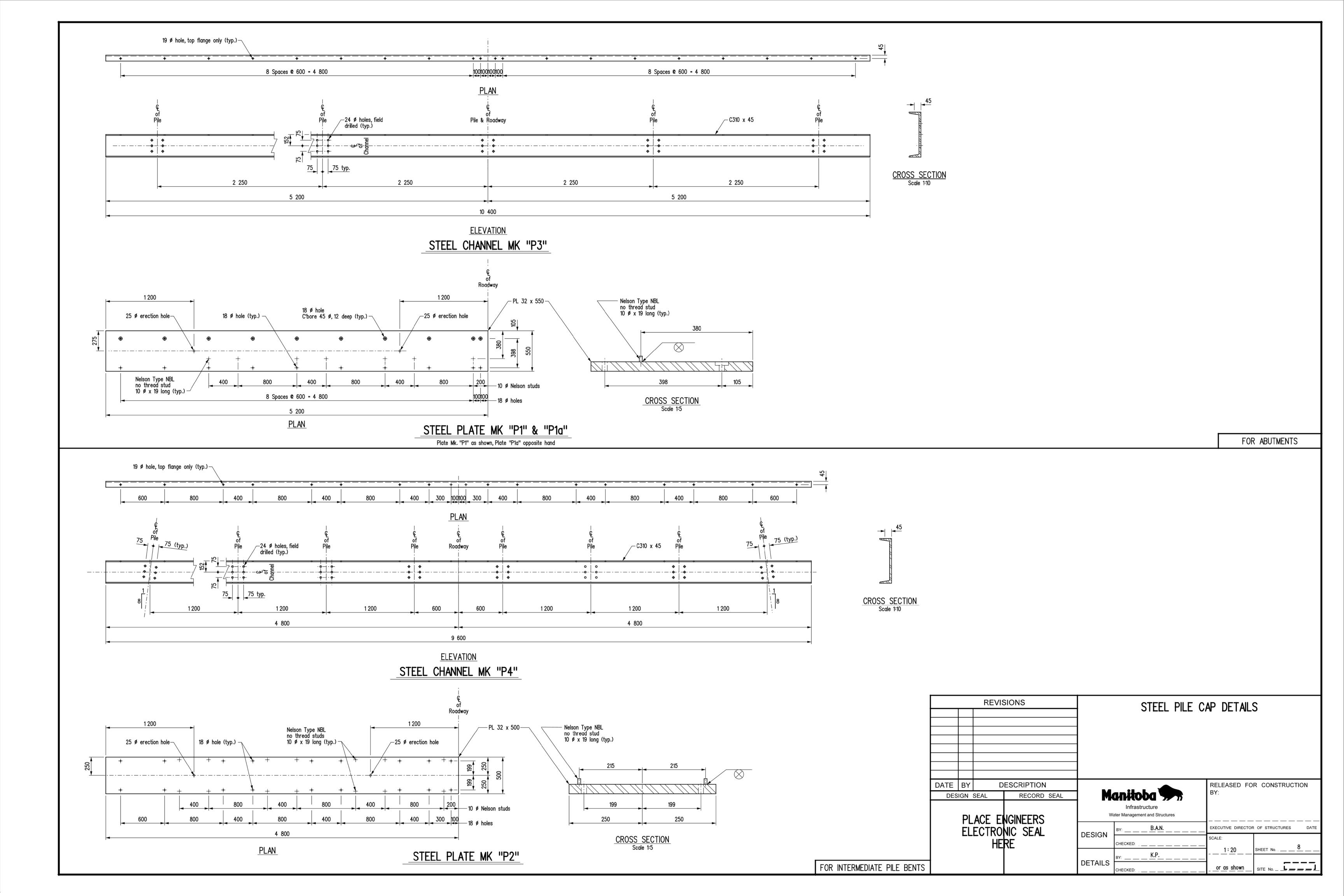


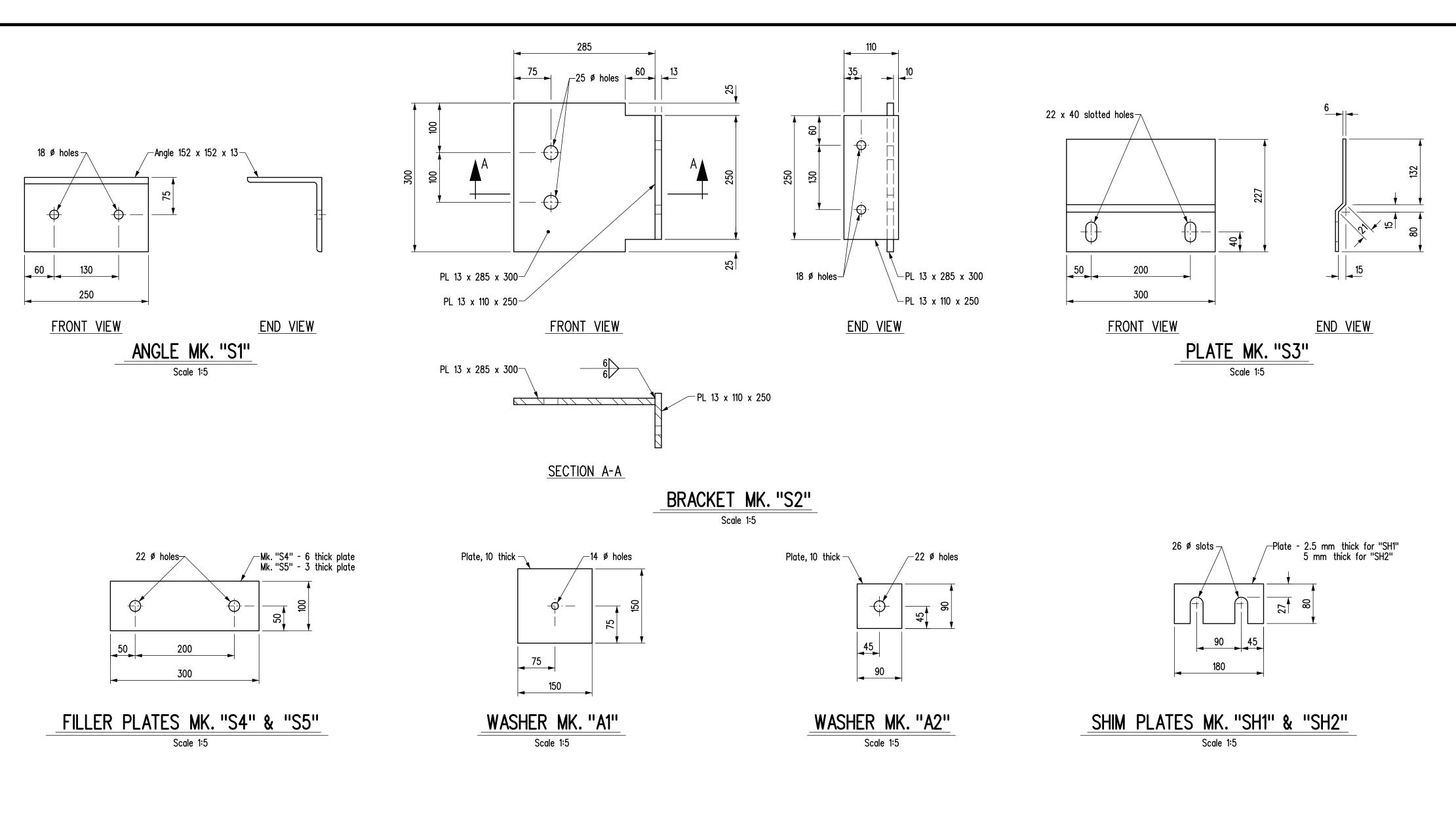












P1a :	2	Steel plate Each unit to be fabricated from: 1 - Steel plate 7 - Nelson Type NBL, no thread studs Steel plate Each unit to be fabricated from: 1 - Steel plate 7 - Nelson Type NBL, no thread studs Steel plate Steel plate Each unit to be fabricated from:	Hot dip galvanized  Hot dip galvanized	PL 32x550 10 dia. PL 32x550 10 dia.	5 200 19	See detail for Abutment Part No. 101-063-167	718.432 0.012	718.432 0.084 718.516	
P2 4 P3 4 R30 11 R32 4		1 - Steel plate 7 - Nelson Type NBL, no thread studs  Steel plate Each unit to be fabricated from: 1 - Steel plate 7 - Nelson Type NBL, no thread studs  Steel plate	Hot dip galvanized	10 dia.				0.084	
P2 4 P3 4 R30 11 R32 4		7 - Nelson Type NBL, no thread studs  Steel plate Each unit to be fabricated from: 1 - Steel plate 7 - Nelson Type NBL, no thread studs  Steel plate	Hot dip galvanized	10 dia.				0.084	
P2 4 P3 4 R30 11 R32 4		Steel plate Each unit to be fabricated from: 1 - Steel plate 7 - Nelson Type NBL, no thread studs Steel plate	Hot dip galvanized	PL 32x550	19	Part No. 101-063-167	0.012		
P2 4 P3 4 R30 11 R32 4		Each unit to be fabricated from:  1 - Steel plate  7 - Nelson Type NBL, no thread studs  Steel plate	Hot dip galvanized					718.516	
P2 4 P3 4 R30 11 R32 4		Each unit to be fabricated from:  1 - Steel plate  7 - Nelson Type NBL, no thread studs  Steel plate	Hot dip galvanized						
P3 4 P4 4 R30 11	4	1 - Steel plate 7 - Nelson Type NBL, no thread studs Steel plate					•		1437.03
P3 4 P4 4 R30 11	4	7 - Nelson Type NBL, no thread studs  Steel plate							
P3 4 P4 4 R30 11	4	Steel plate		10 dia	5 200	See detail for Abutment	718.432	718.432	
P3 4 P4 4 R30 11	4			TO dia.	19	Part No. 101-063-167	0.012	0.084 718.516	
P3 4 P4 4 R30 11	4		List dis askussized						2412.10
R30 1:			Hot dip galvanized				<del>                                     </del>		2412.19
R30 1:				PL 32x500	4.900	Con detail for Intermediate Bent	602.880	602 990	
R30 1:		1 - Steel plate 14 - Nelson Type NBL, no thread studs		10 dia.	4 800 19	See detail for Intermediate Bent Part No. 101-063-167	0.012	602.880 0.168	
R30 1:		14 - Nelson Type NBL, no tilread studs		TO tila.	19	Fatt No. 101-003-107	0.012	603.048	
R30 1:	4	Steel channel	Hot dip galvanized	C310x45	10 400	See detail for Abutment		464.880	1859.52
R32 4	4	Steel channel	Hot dip galvanized	C310x45	9 600	See detail for Intermediate Bent		429.120	
	112	A325 bolt assembly	Hot dip galvanized	16 dia.	89	Steel plate to channels		0.245	27.44
R35 3	40	A325 bolt assembly	Hot dip galvanized	16 dia.	76	Steel plate to channels C'bore holes		0.225	9.00
	312	A325 bolt assembly	Hot dip galvanized	22 dia.	64	Channels to piles		0.461	143.83
R36 4	44	A325 bolt assembly	Hot dip galvanized	16 dia.	64	Angles Mk. "S1" to piles & bracket Mk. "S2" to cap		0.205	9.02
	18	Angle	Hot dip galvanized	L 152x152x13	250	As detailed		7.250	
	4	Bracket	Hot dip galvanized			As detailed		11.226	
		Plate	Hot dip galvanized	PL 6x300		As detailed		3.223	
		Filler plate	Hot dip galvanized	PL 6x100	300	As detailed		1.413	
		Filler plate	Hot dip galvanized	PL 3x100	300	As detailed		0.707	11.31
	12	Structural plate w asher	Hot dip galvanized	PL 10x150	150	As detailed - One to threaded rod Mk. "TR2"		1.766	
	8	Structural plate washer	Hot dip galvanized	PL 10x90	90	As detailed - One to bolt Mk. "R34"		0.636	
	42 32	Threaded rods c/w two hex. nuts Threaded rods c/w two hex. nuts	Hot dip galvanized Hot dip galvanized	19 dia. 19 dia.	400 300	Girder to steel cap plate Steel plates Mk. "S3" to precast panels		0.940 0.660	
	150		. 0					0.440	40.70
		Hardened bevel washer	Hot dip galvanized			One to bolts Mk. "R30" & "R32"	$\vdash$	0.110	
		Standard flat washer	Hot dip galvanized	for 12 dia. rod for 19 dia. rod		One to threaded rod Mk. "TR2" One to "TR1", tw o to "TR3"	<del>                                     </del>	0.010 0.020	
	106 14	Standard flat w asher Structural lock w asher	Hot dip galvanized Hot dip galvanized			One to "TR1", two to "TR3"  One to threaded rod Mk. "TR2"		0.020	
	74	Structural lock washer	Hot dip galvanized			One to "TR1" & "TR3"	<del>                                     </del>	0.010	
		F436 Hardened washer	Hot dip galvanized	for 22 dia. bolts		One to bolt Mk. "R35"	<del>                                     </del>	0.020	
		F436 Hardened washer	Hot dip galvanized	for 16 dia. bolts		One to bolt Mk. "R36"		0.032	
R1 14	144	A325 bolt assembly	Hot dip galvanized	22 dia.	76	R.C. girder connection		0.499	71.86
	144	Structural flat w asher	Hot dip galvanized	for 22 dia. bolts	10	One to bolt Mk. "R1"	<del>                                     </del>	0.499	
		Pair Nord-Lock lock w ashers	i iot dip gaivanized	for 22 dia. bolts		One pair to bolt Mk. "R1"		0.030	
SH1 7	72	Shim plate	Hot dip galvanized	PL 2.5x80	180	As detailed - use as required		0.231	16.63
SH2 7		Shim plate	Hot dip galvanized	PL 5x80	180	110 detalled - doe as required		0.231	10.03

1. All material noted in the above Bill shall be hot dip galvanized after fabrication in accordance with CSA G164 for a minimum net retention of 610 g/m2 unless otherwise stated in the

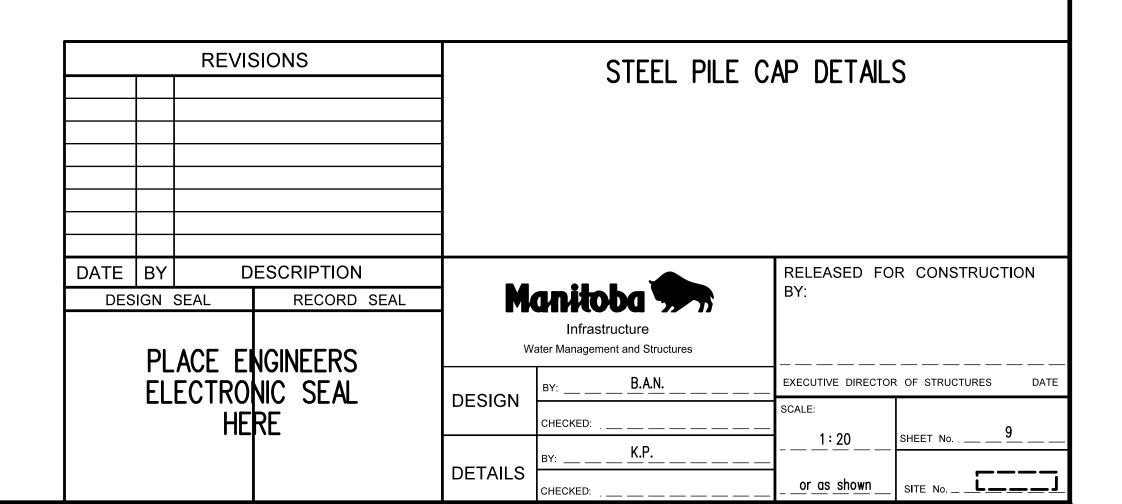
**TOTAL MASS (kg)** = 9585.03

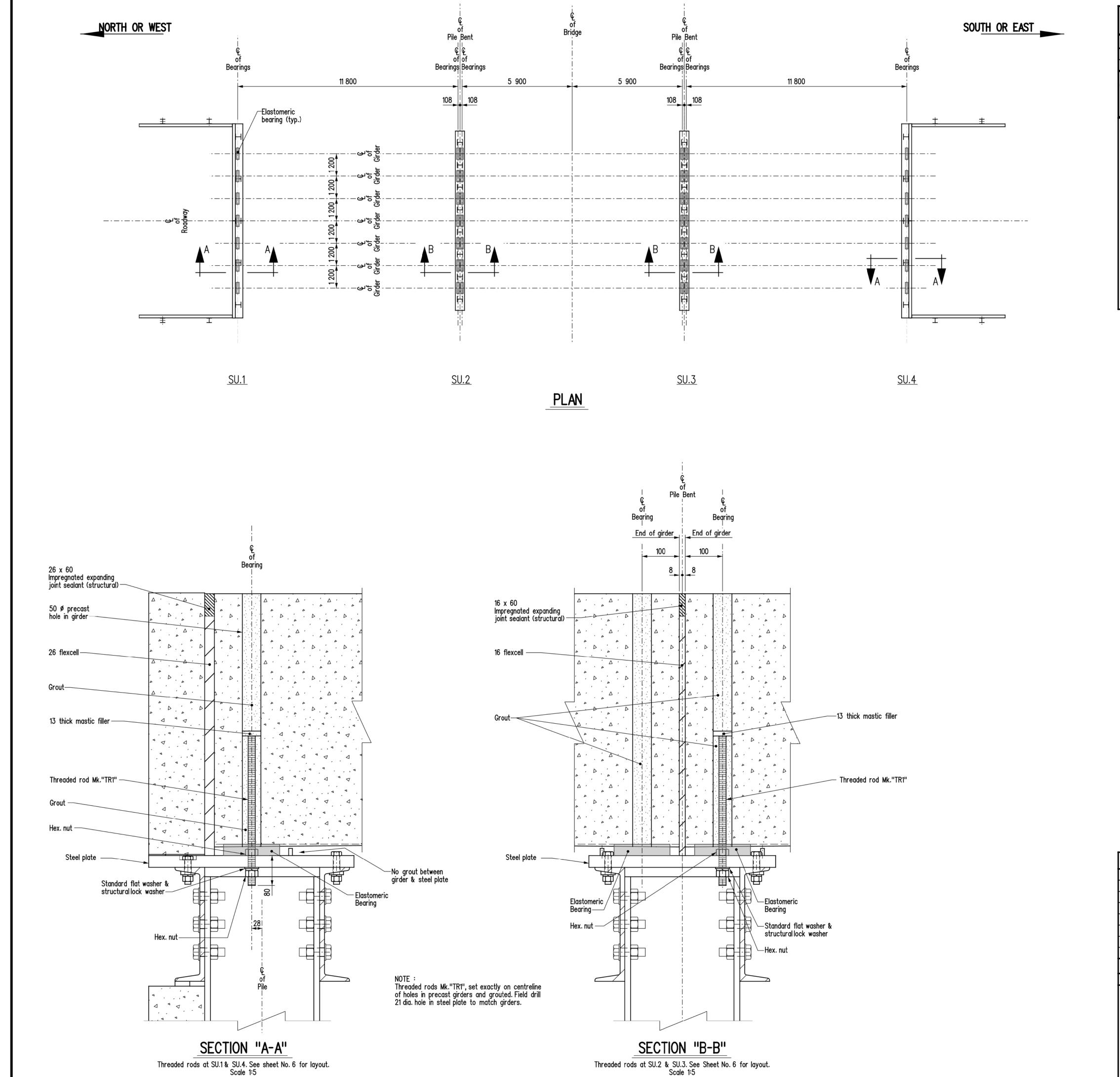
specified material ASTM standards. The fabricator and galvanizer shall safeguard against embrittlement using recommended practices from applicable standards.

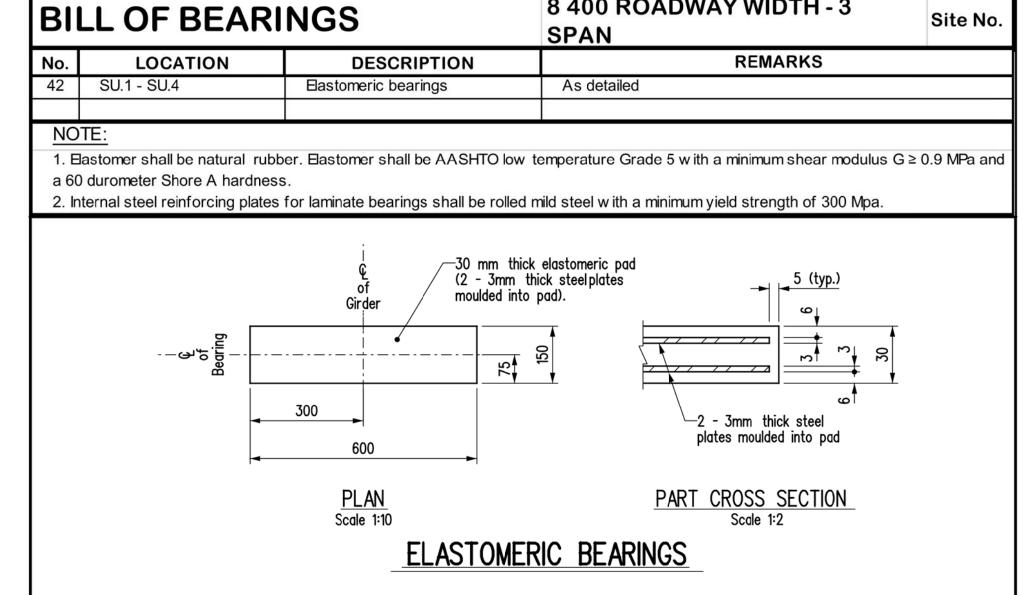
2. Seal all welds prior to galvanizing.

3. Apply Galvaloy to all field welds and areas where galvanizing has been damaged.

4. All bolts and threaded rod in the above Bill shall be Imperial thread.







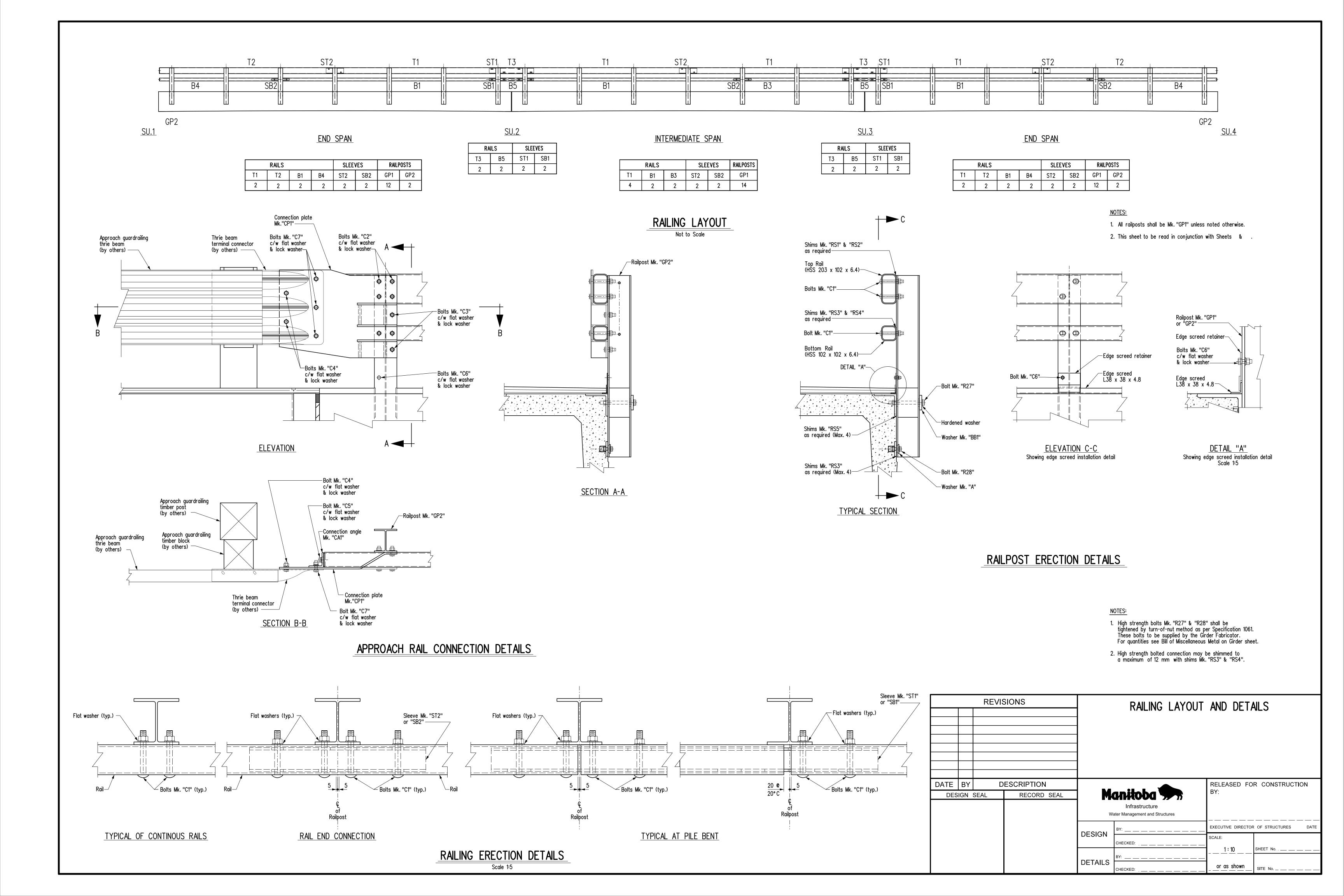
8 400 ROADWAY WIDTH - 3

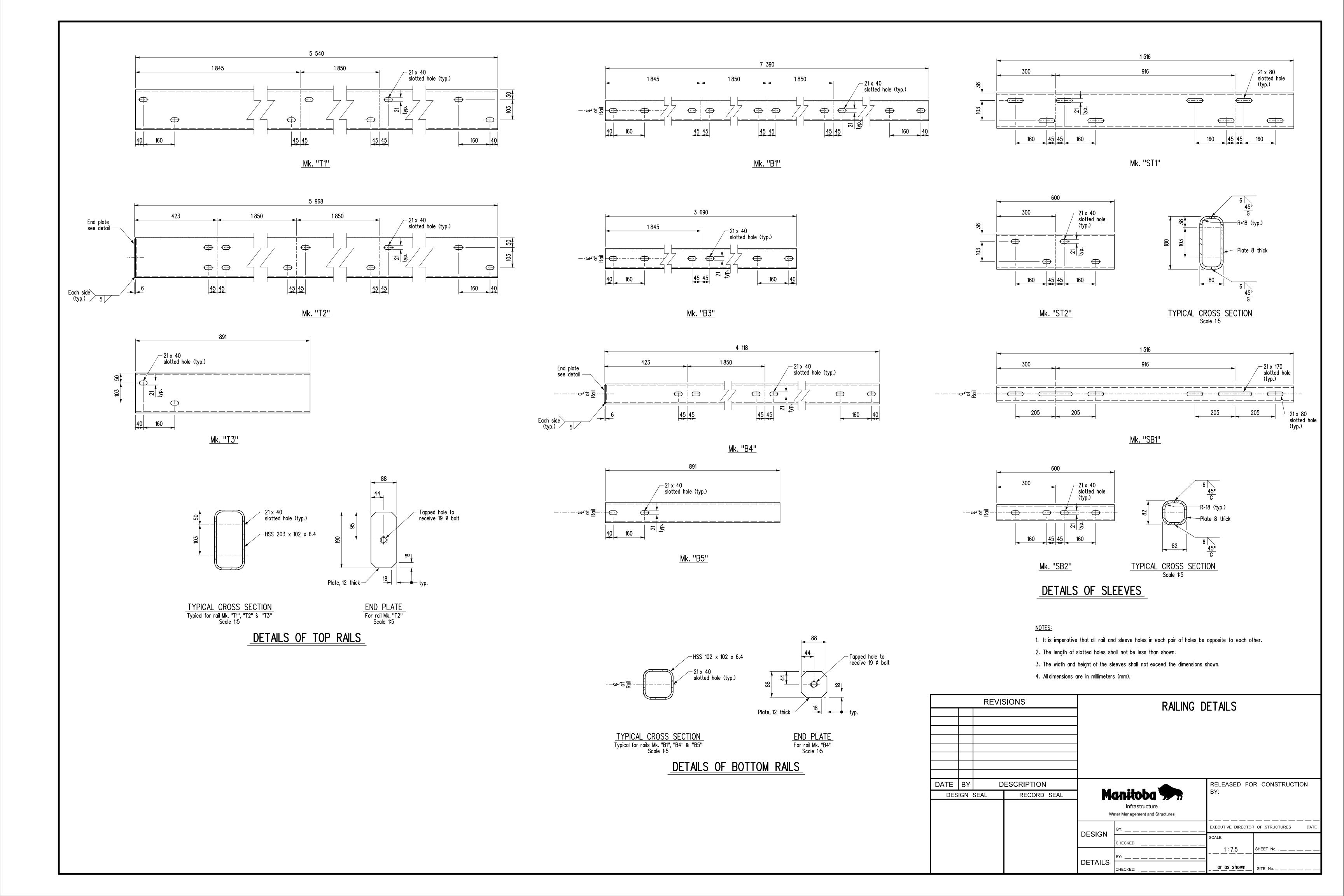
#### NOTES:

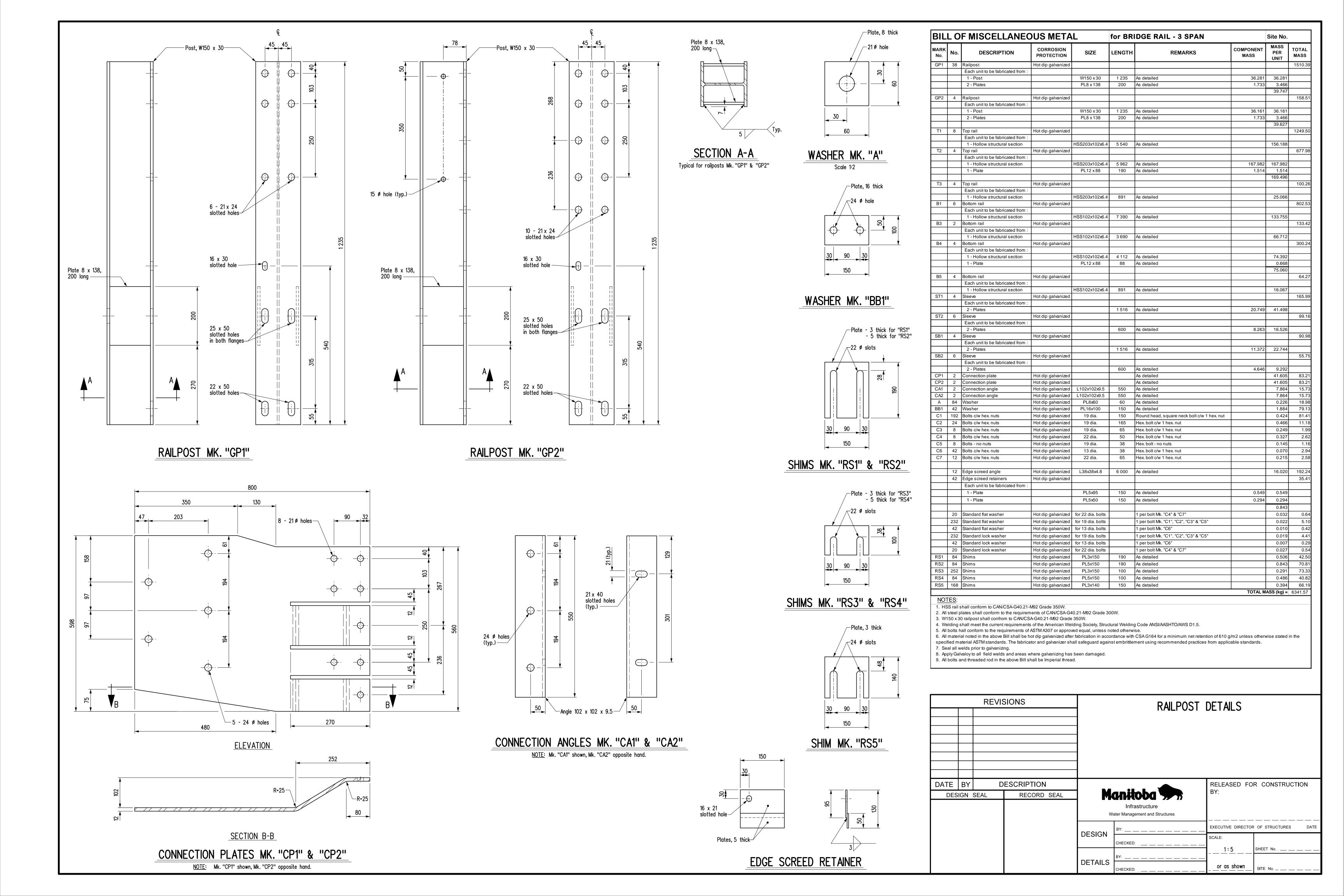
### Re: Girder Erection Operations Behind Abutment Ballast Walls

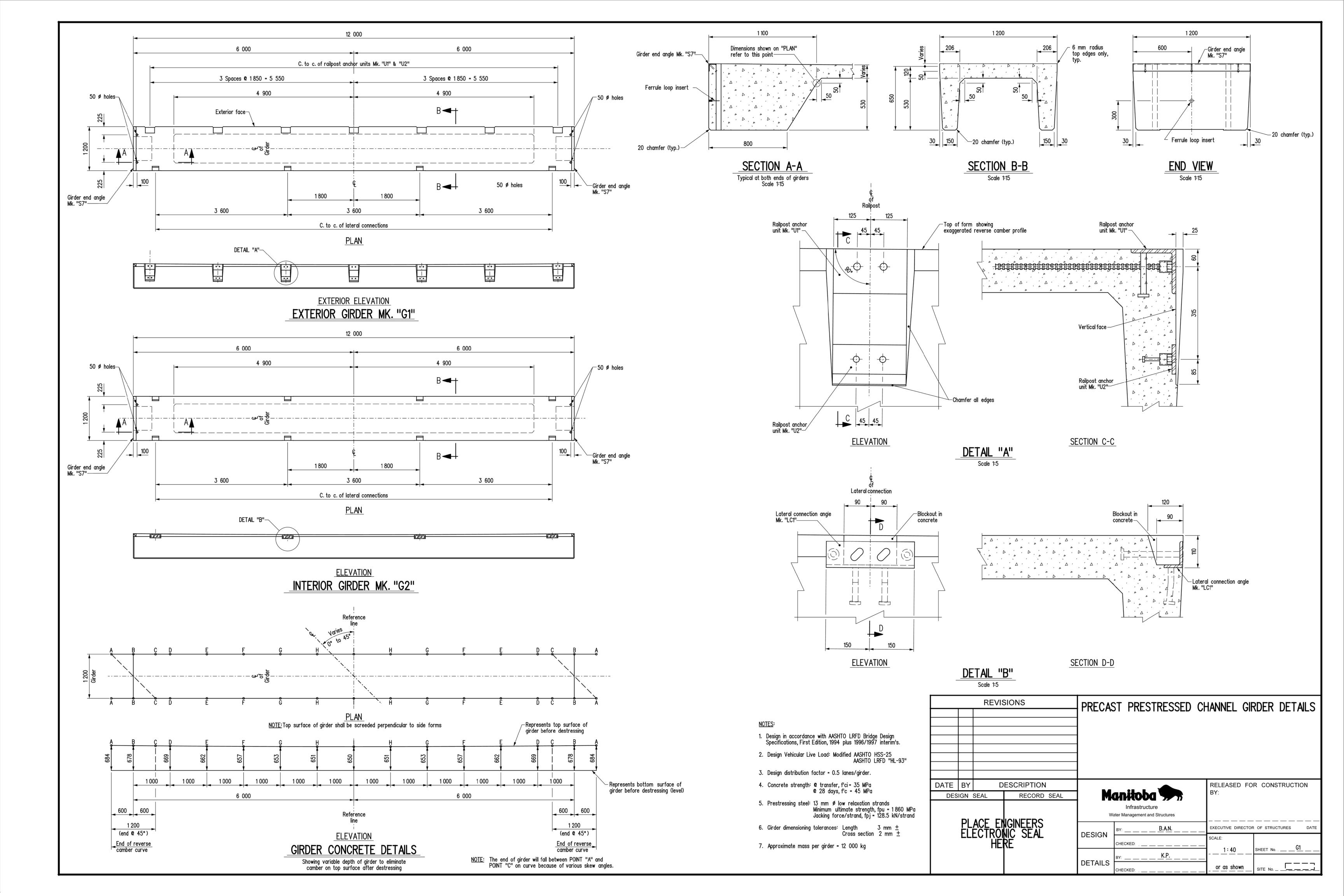
- Surcharge loading on the backfill resulting from girder erection operations shall be minimized near the precast concrete ballast walls and wingwalls.
- 2. Where possible, girder erection equipment shall be positioned such that there are no surcharge loads behind the back face of the precast panels within a distance equal to the depth of backfill to the bottom of the panels at the time of girder erection.
- Should the Contractor propose to encroach on this zone, the following requirements must be satisfied:
- Submit a girder erection procedure for approval outlining type, configuration, weights and locations of equipment including expected tipping forces on crane outriggers, etc.
   Perform all precautionary measures outlined by the Department as a result of that submission.
   All surcharge loads encroaching in this zone must be distributed over an area not less than 2.0 m².

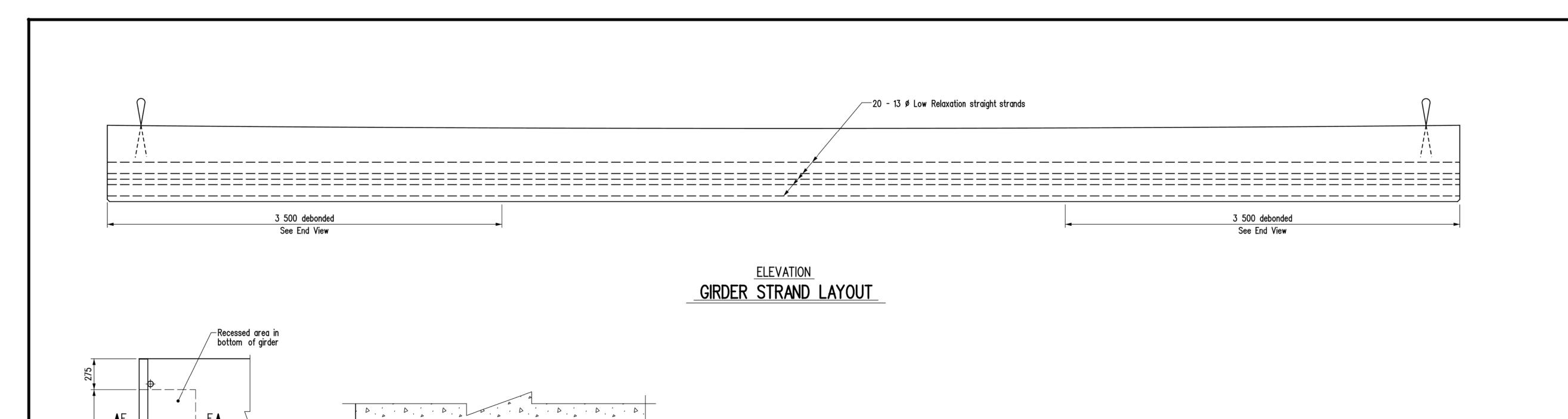
	REVIS	SIONS	_	BEARING AND EF	RECTION DE	TAILS
			-			
			]			
			1			
DATE BY	D	ESCRIPTION				R CONSTRUCTION
DESIGN S	EAL	RECORD SEAL		anitoba 📆	BY:	
	ACF FI	NGINEERS	w	Infrastructure ater Management and Structures		
		NIC SEAL	5-01011	BY:	EXECUTIVE DIRECTOR	R OF STRUCTURES DATE
	HE		DESIGN	CHECKED:	SCALE:	SHEET No. 10
			DETAILS	BY:K.P		SHEET No IU
			DETAILS	CHECKED.	or as shown	SITE No







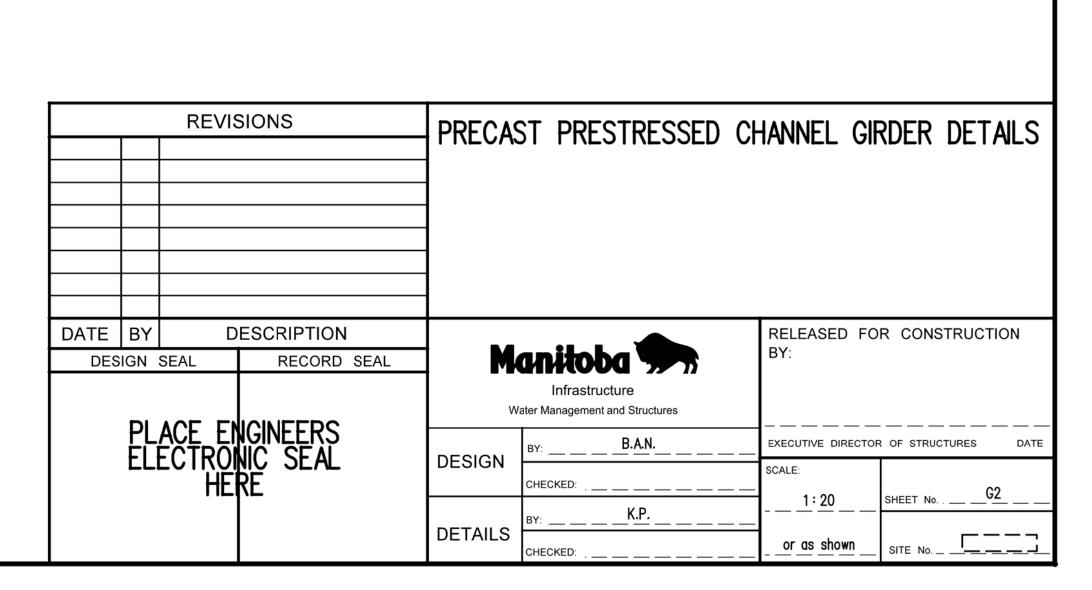




500

PART PLAN
Typical at both ends of girders

BEARING RECESS DETAILS



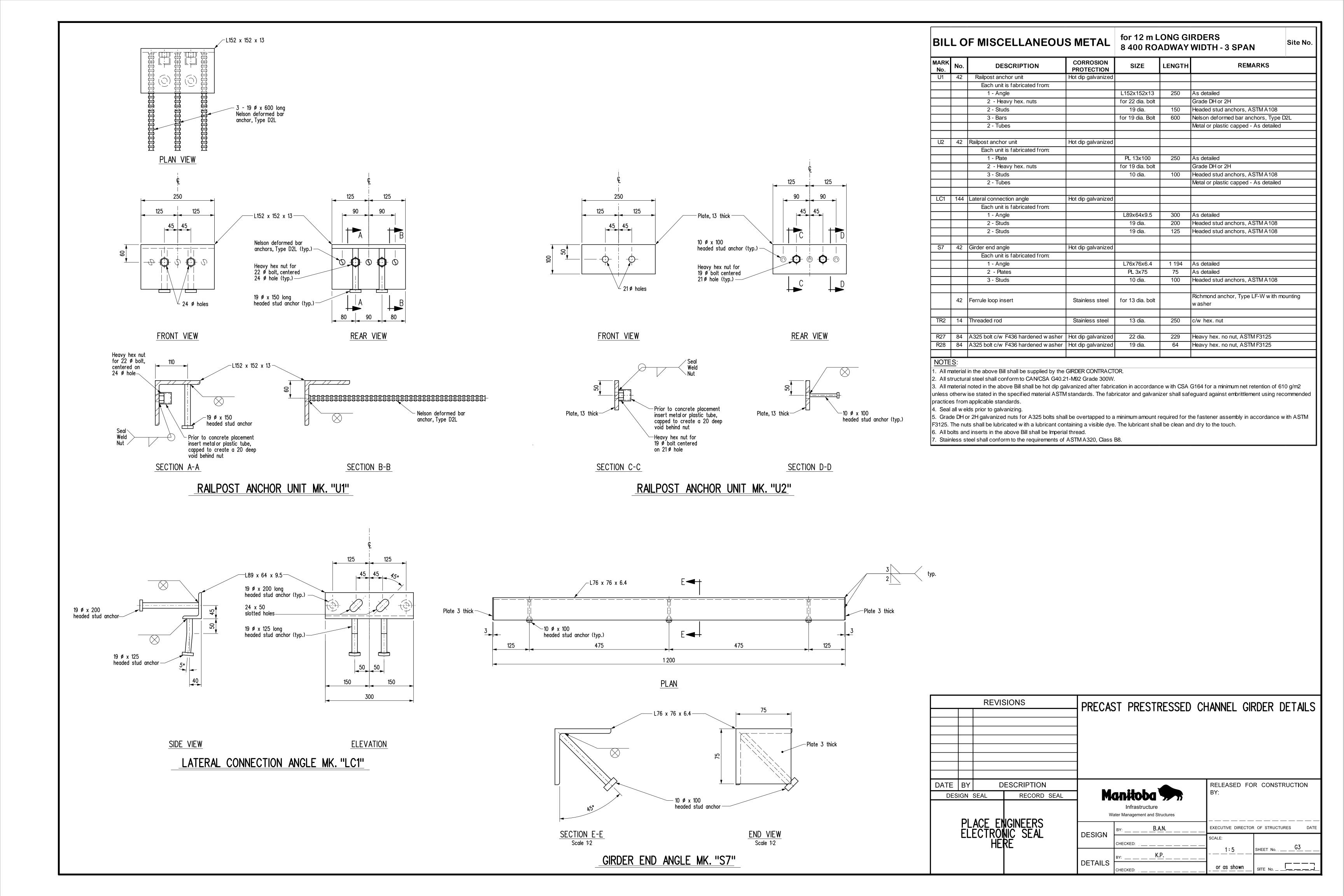
The girder fabricator shall be responsible for the design, supply and installation of adequate lifting devices c/w 50 deep pockets (cut off min. 25 mm below top surface and grout after installation).

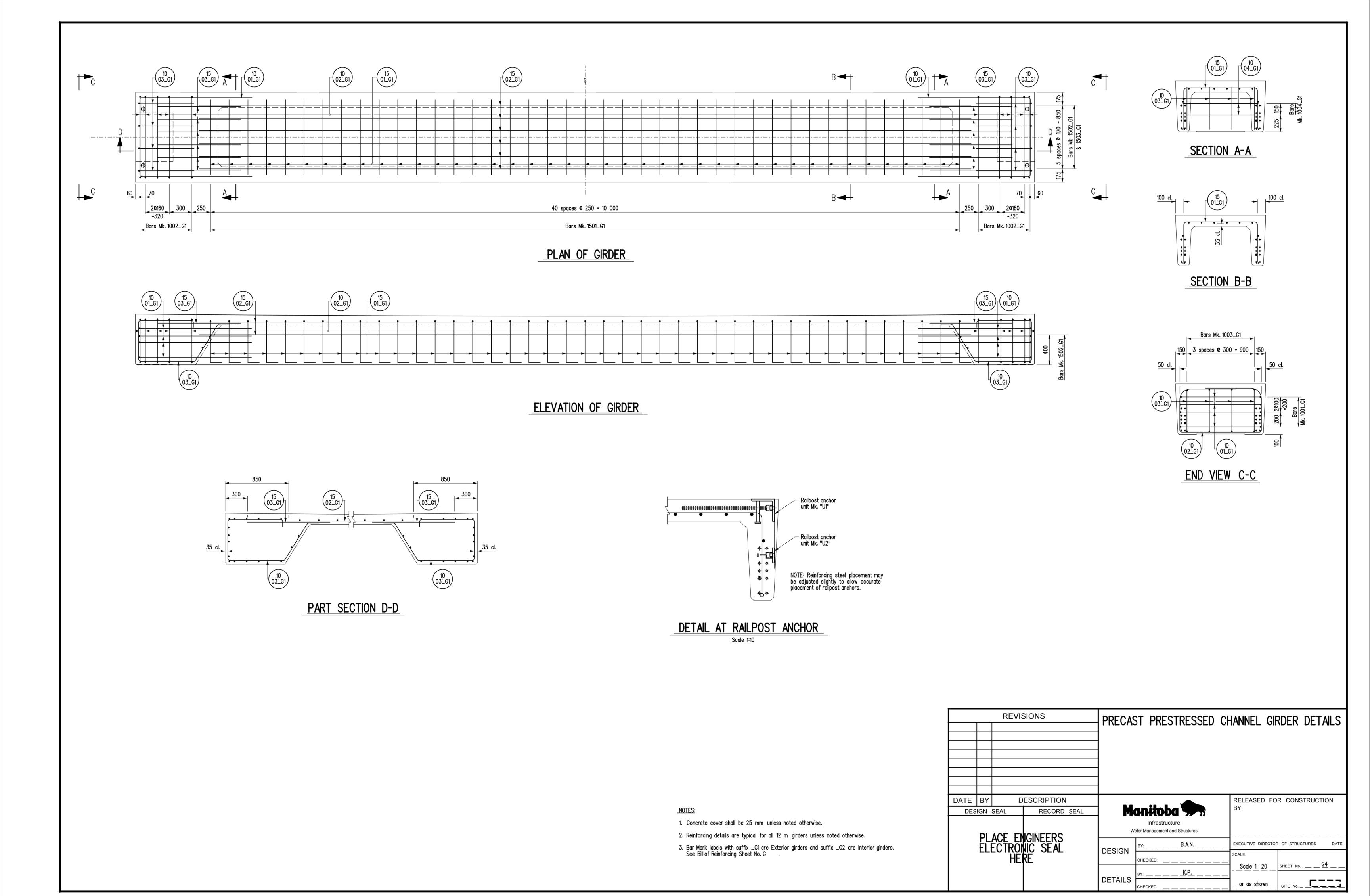
2 Debonded strands / 3 500 each end

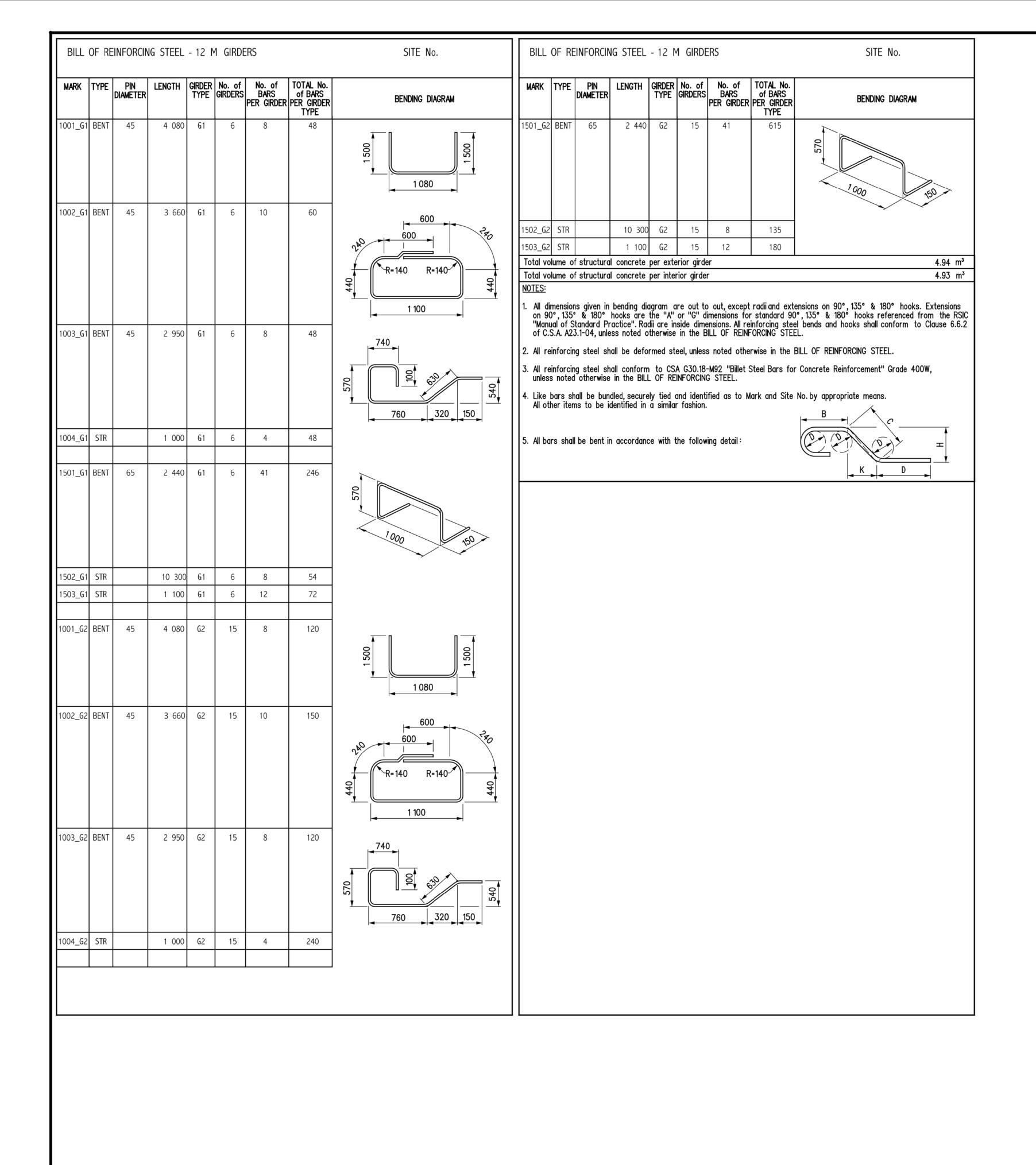
END VIEW

Typical layout of 20 - 13 Ø

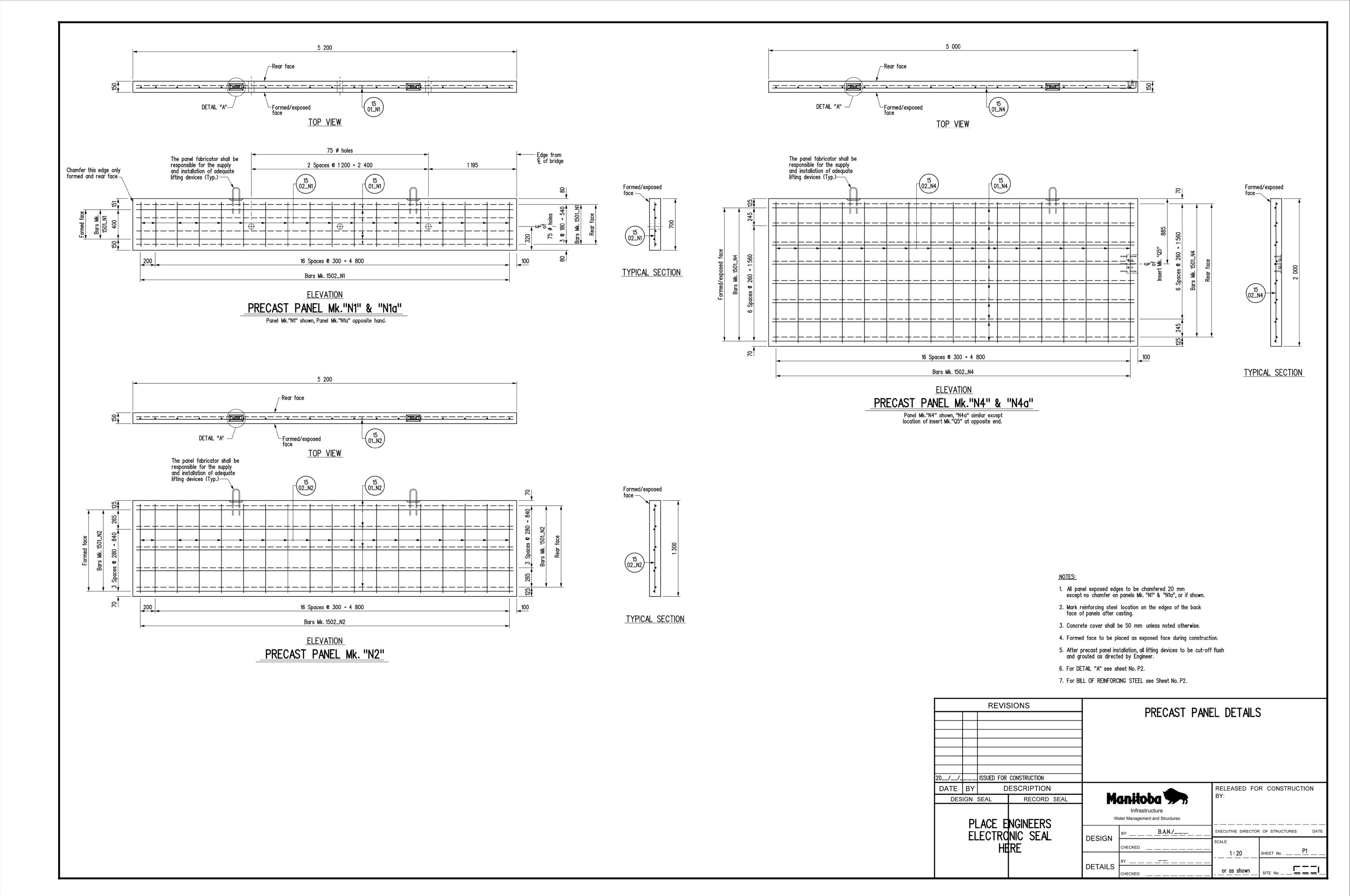
Low Relaxation straight strands

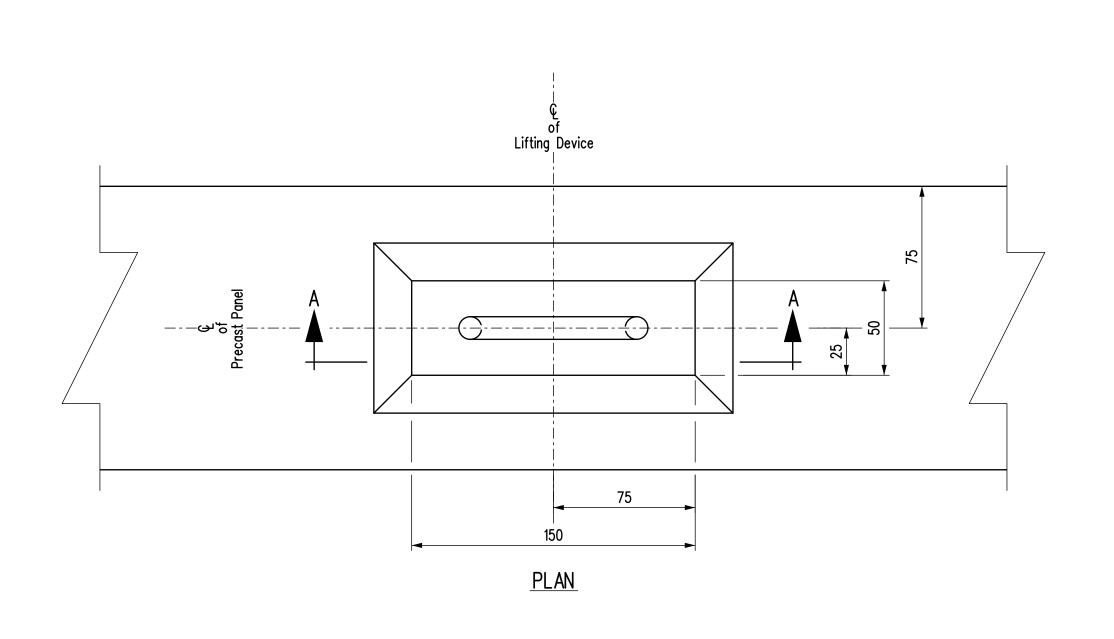


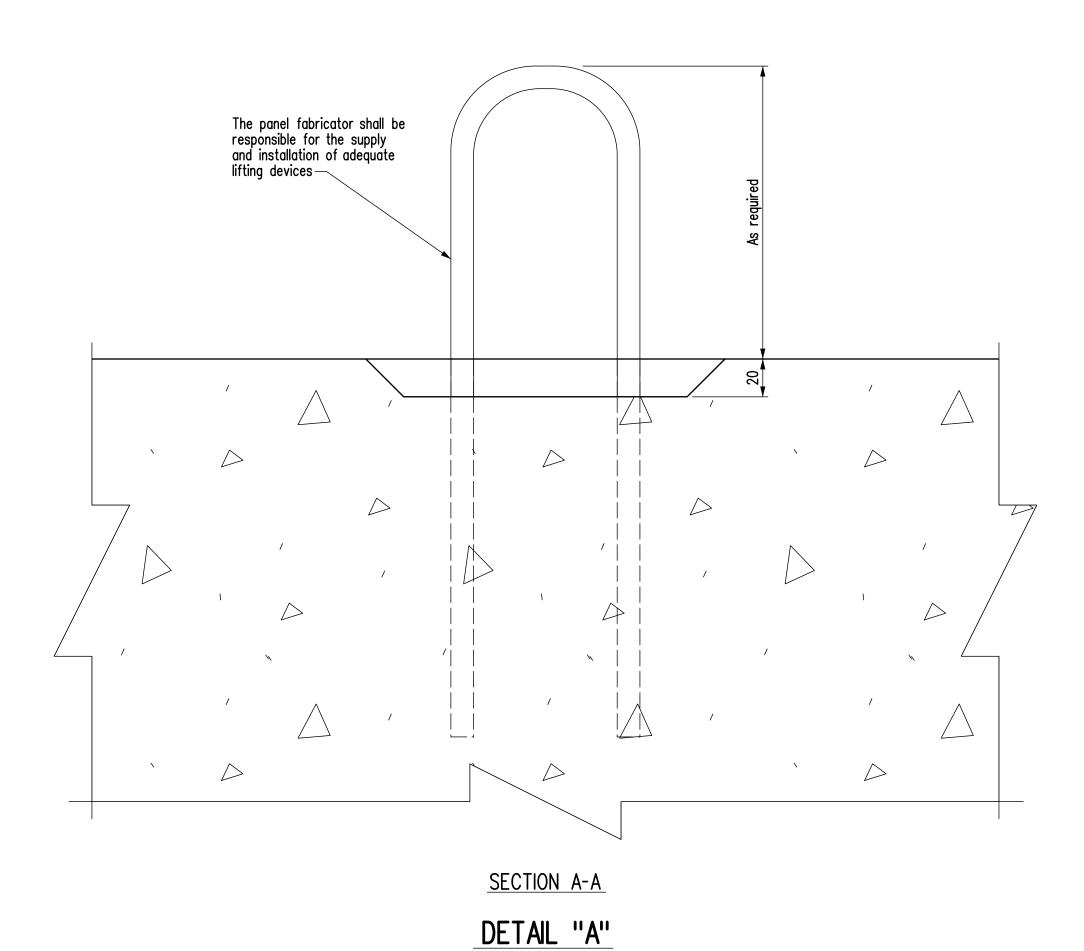




	REVISIONS				ST PRESTRESSED C	CHANNEL GIRDER DETAILS
DATE		_	CODIDTION			
DATE	BY	L	ESCRIPTION			RELEASED FOR CONSTRUCTION
	iGN	SEAL	RECORD SEAL		Infrastructure Vater Management and Structures	RELEASED FOR CONSTRUCTION BY:
	iGN	SEAL	RECORD SEAL	W	Infrastructure	
	iGN	SEAL	RECORD SEAL  IGINEERS IIC SEAL		Infrastructure /ater Management and Structures	BY:







BILL OF REINFORCING SITE No. \_\_\_\_-\_ FOR PRECAST PANELS

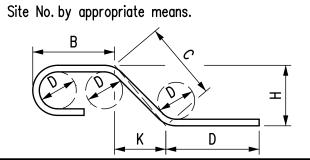
MARK	TYPE	PIN DIAMETER	LENGTH	PANEL TYPE	No. of PANELS	No. of BARS PER PANEL	TOTAL No. of BARS PER PANEL TYPE	of BARS PER PANEL
1501 <b>_N</b> 1	STR		5 100	<b>N</b> 1	2	6	12	12
1502 <b>_N</b> 1	STR		600	<b>N</b> 1	2	18	36	36
1501 <b>_N</b> 1a	STR		5 100	N1a	2	6	12	12
1502 <b>_N</b> 1a	STR		600	<b>N</b> 1a	2	18	36	36
1501_ <b>N</b> 2	STR		5 100	N2	4	10	40	40
1502_ <b>N</b> 2	STR		1 200	N2	4	18	72	72
1501 <b>_N</b> 4	STR		4 900	N4	2	16	32	32
1502_ <b>N</b> 4	STR		1 900	N4	2	17	34	34
1501 <b>_N</b> 4a	STR		4 900	<b>N</b> 4a	2	16	32	32
1502 <b>_N</b> 4a	STR		1 900	<b>N</b> 4a	2	17	34	34

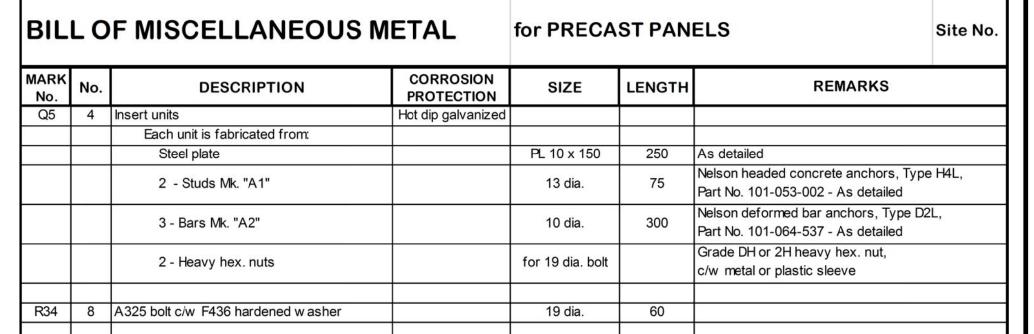
	14				ng steel	Total mass of reinforci
N4a	N4	N3	N2	N1a	N1	Panel Type
10.00	10.00		6.80	3.60	3.60	Area m²/panel
	10.00		6.80	3.60		Area m²/panel  Total area of precast f

NOTES:

- 1. 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" of "G" 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. A23.1-04, unless noted otherwise in the BILL OF REINFORCING STEEL.
- 2. All reinforcing steel shall be deformed steel, unless noted otherwise in the BILL OF REINFORCING STEEL.
- 3. All reinforcing steel shall conform to CSA G30.18-M92 "Billet Steel Bars for Concrete Reinforcement" Grade 400W, unless noted otherwise in the BILL OF REINFORCING STEEL.
- 4. Like bars shall be bundled, securely tied and identified as to Mark and Site No. by appropriate means.

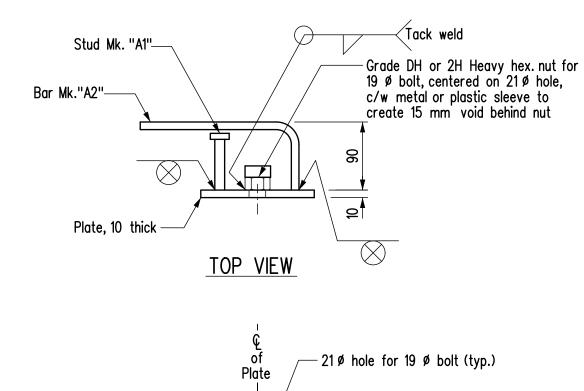
  All other items to be identified in a similar fashion.
- 5. All bars shall be bent in accordance with the following detail:

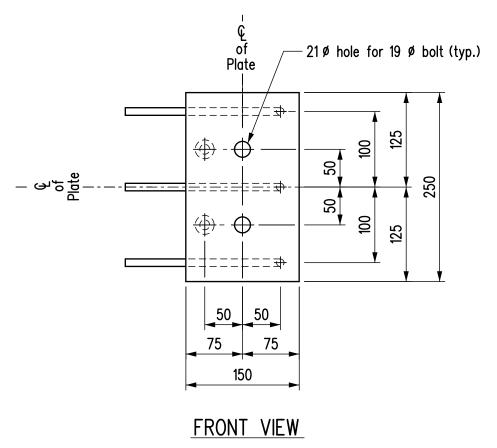




#### NOTES:

- 1. All material noted in the above Bill shall be hot dip galvanized after fabrication in accordance with CSA G164 for a minimum net retention of 610 g/m2 unless otherw ise stated in the specified material ASTM standards. The fabricator and galvanizer shall safeguard against embrittlement using recommended practices from
- applicable standards.
- 2. Seal all welds prior to galvanizing.
- 3. All structural steel to be CSA G40.21 Grade 300W.
- 4. All bolts and inserts in the above Bill shall be Imperial thread.





INSERT Mk. "Q5"

NOTES:

1. For location of DETAIL "A" see sheet No. P1.

2. Precast panel concrete strength: f'c = 35 MPa.

or as shown

	REVISIONS				PRECAST PANEL DETAILS					
					<b>1</b>	KECASI PA	ANEL DETAIL	.5		
20//			CONSTRUCTION							
DATE	BY		ESCRIPTION					OR CONSTRUC	TION	
DES	IGN	SEAL	RECORD SEAL	_  M	anitot		BY:			
	ΡI	ACF F	NCINEERS	W	Infrastrud Vater Management					
	PLACE ENGINEERS ELECTRONIC SEAL		DEGLON	BY:	B.A.N./	EXECUTIVE DIRECT	OR OF STRUCTURES	DATE		
	LL	HF	RF	DESIGN	CHECKED:		SCALE:		DO	
		1 11	<b>∱'`\</b> ┗	<b>—</b>	1		1:2	SHEET No.	P2	