

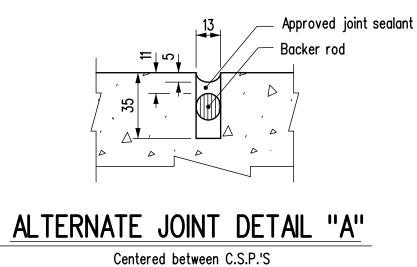
DESIGN DATA

SPECIFICATIONS AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SEVENTH EDITION, 2014

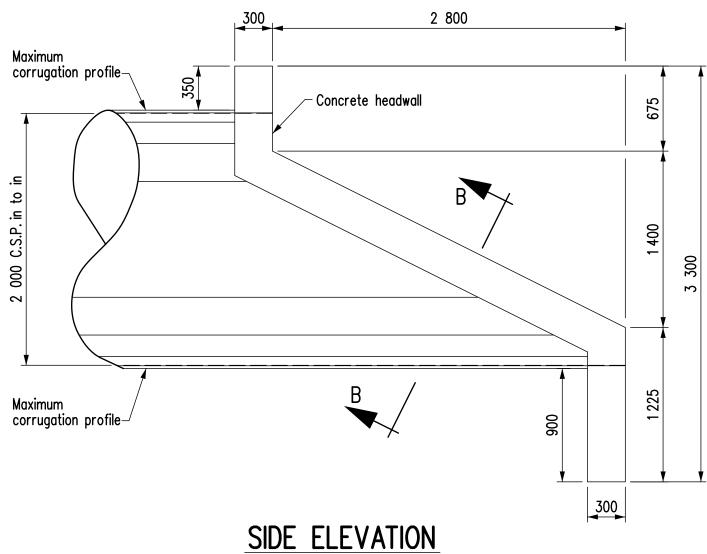
STRUCTURAL CONCRETE

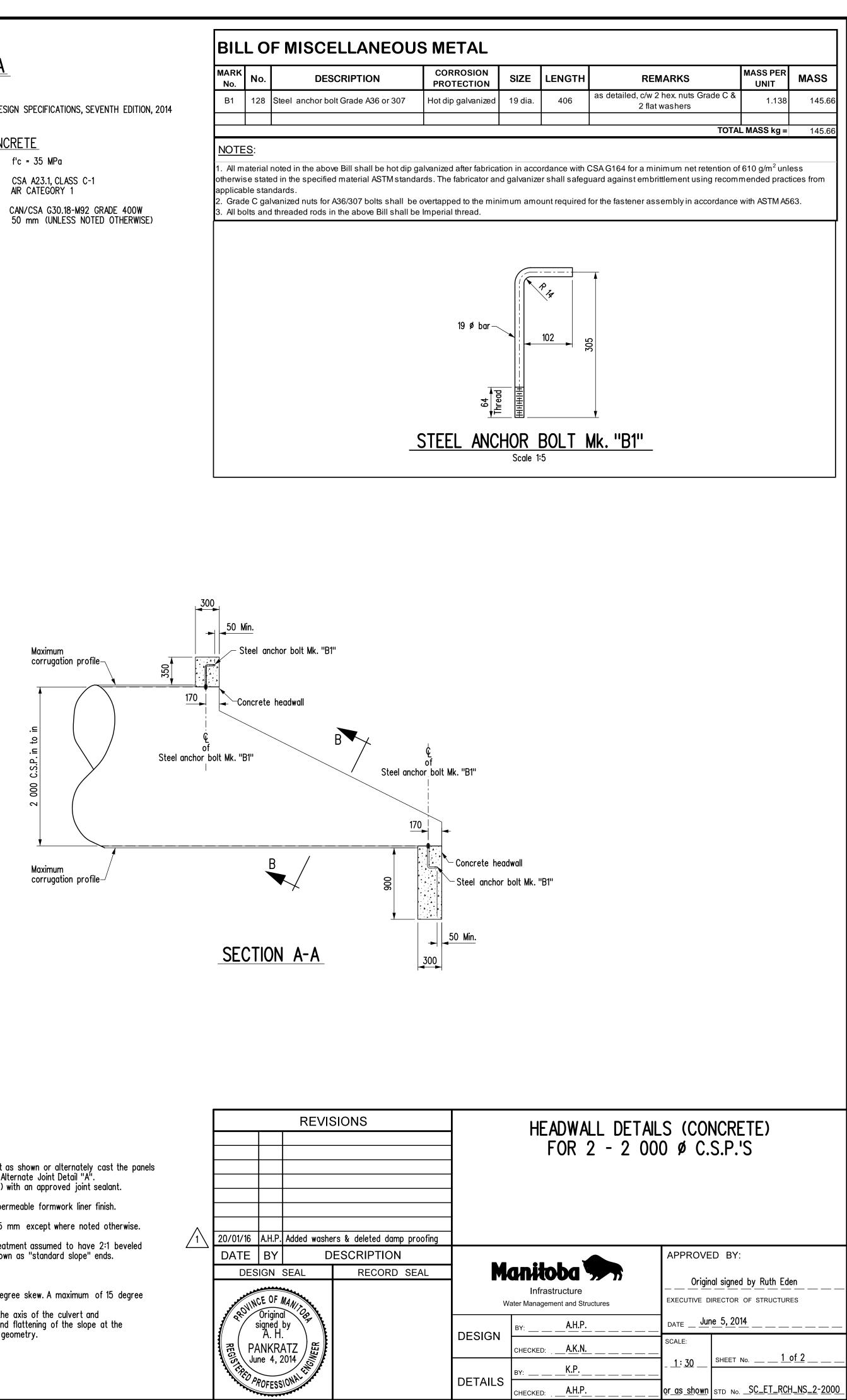
COMPRESSIVE STRENGTH f'c = 35 MPa

CEMENT EXPOSURE CLASS REINFORCING STEEL CLEAR COVER



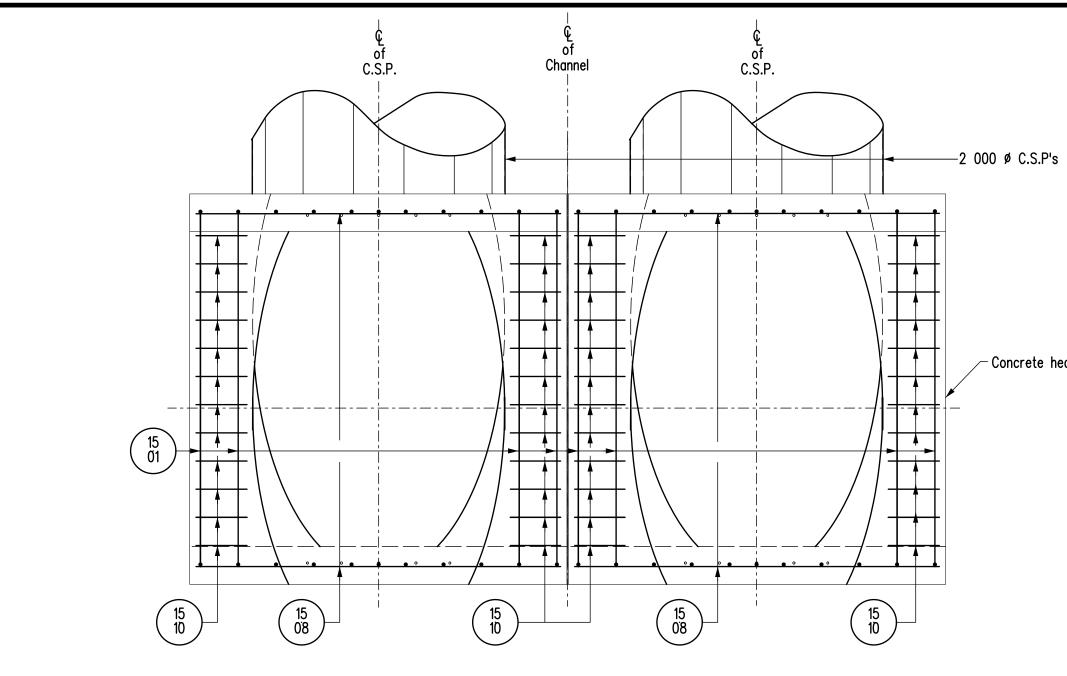
Scale 1:2



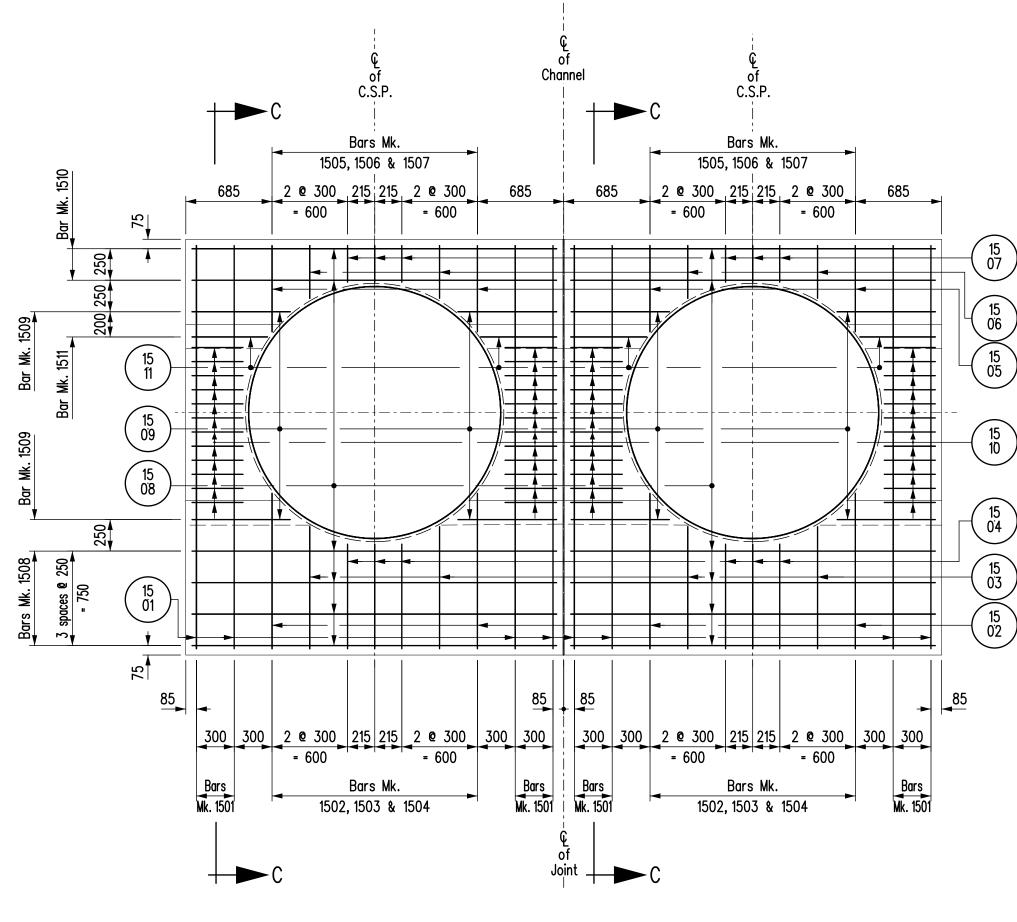


NOTES:

- 1. Pour panels independently with 12 mm flexcell joint as shown or alternately cast the panels monolithically and use joint detail as shown in the Alternate Joint Detail "A". With either method of construction seal the joint(s) with an approved joint sealant.
- 2. All exposed surfaces of concrete headwalls to be permeable formwork liner finish.
- 3. All exposed edges of headwalls to be chamfered 25 mm except where noted otherwise.
- 2 000 mm Ø Corrugated Steel Pipe (CSP) end treatment assumed to have 2:1 beveled ends with 300 mm top and bottom steps. Also known as "standard slope" ends.
- 5. Assumed maximum 25 mm corrugation depth.
- 6. This standard is for culverts designed for a zero degree skew. A maximum of 15 degree skew is permissible provided that:
 The headwall is constructed perpendicular to the axis of the culvert and
 The roadway sideslope is modified (widening and flattening of the slope at the obtuse corners) to accomodate the headwall geometry.

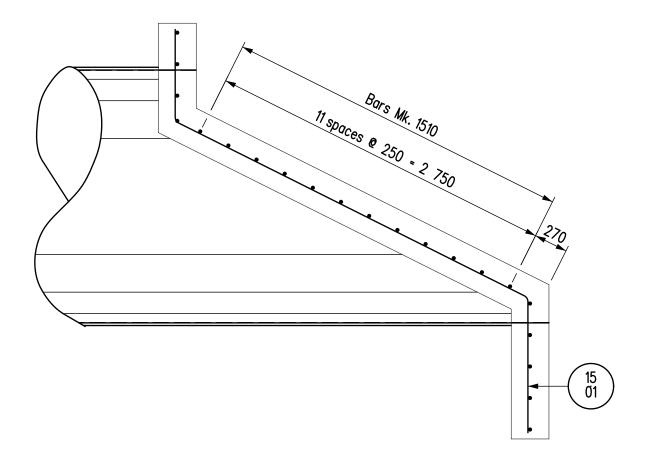


PART PLAN



ELEVATION

/- Concrete headwall



SECTION C-C

	TYPE	PIN DIAMETER	LENGTH	No.	MASS	BENDING DIAGRAM				
1501	BENT	90	4 950	16	124.34					
1502	STR		1 230	8	15.45					
1502	STR	+ +	970	8	12.18					
1504	STR	++	830	12	15.64					
1505	STR	+ +	680	8	8.54					
1506	STR		420	8	5.28					
1507	STR		290	12	5.46					
1508	STR		2 890	24	108.90					
1509	STR		780	16	19.59					
1510	STR		410	96	61.80					
otal mas	s of reinfor	cing steel				384.72 kg				
otal volu	 <u>NOTES:</u> 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 "G" dimensions for the 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. 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-M92 "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. 									
NOTES: 1. All dir on 90 the R Clause 2. All rei 3. All rei unless)°, 135° & SIC "Manua e 6.6.2 of (inforcing st inforcing st s noted oth	180° hooks of I of Standard C.S.A. A23.1-0 ceel shall be of ceel shall conf erwise in the	are the "A" of Practice". Rac 14, unless note deformed stee form to CSA BILL OF REIN	r "G" dimer dii are insid ed otherwis el, unless no G30.18-M9 FORCING S	nsions for the st le dimensions. All le in the BILL OF oted otherwise in 2 "Billet Steel Bo TEEL.	tandard 90°, 135° & 180° hooks referenced from reinforcing steel bends and hooks shall conform to REINFORCING STEEL. In the BILL OF REINFORCING STEEL. ars for Concrete Reinforcement" Grade 400W,				

		REVIS	SIONS		HEADWALL DETAILS (REINFORCING) FOR 2 - 2 000 Ø C.S.P.'S				
DATE DES	ATE BY DESCRIPTION DESIGN SEAL RECORD SEAL		Manitoba 🗫		APPROVED BY: Original signed by Ruth Eden				
PANKRATZ June 4, 2014				DESIGN	Infrastructure Water Management and Structures BY:		EXECUTIVE DIRECTOR OF STRUCTURES		
			L HINGE		ву:К.Р	_ <u>1:30</u> or_as_shown	SHEET NO. 2 of 2 STD NO. SC_ET_RCH_NS_2-2000		