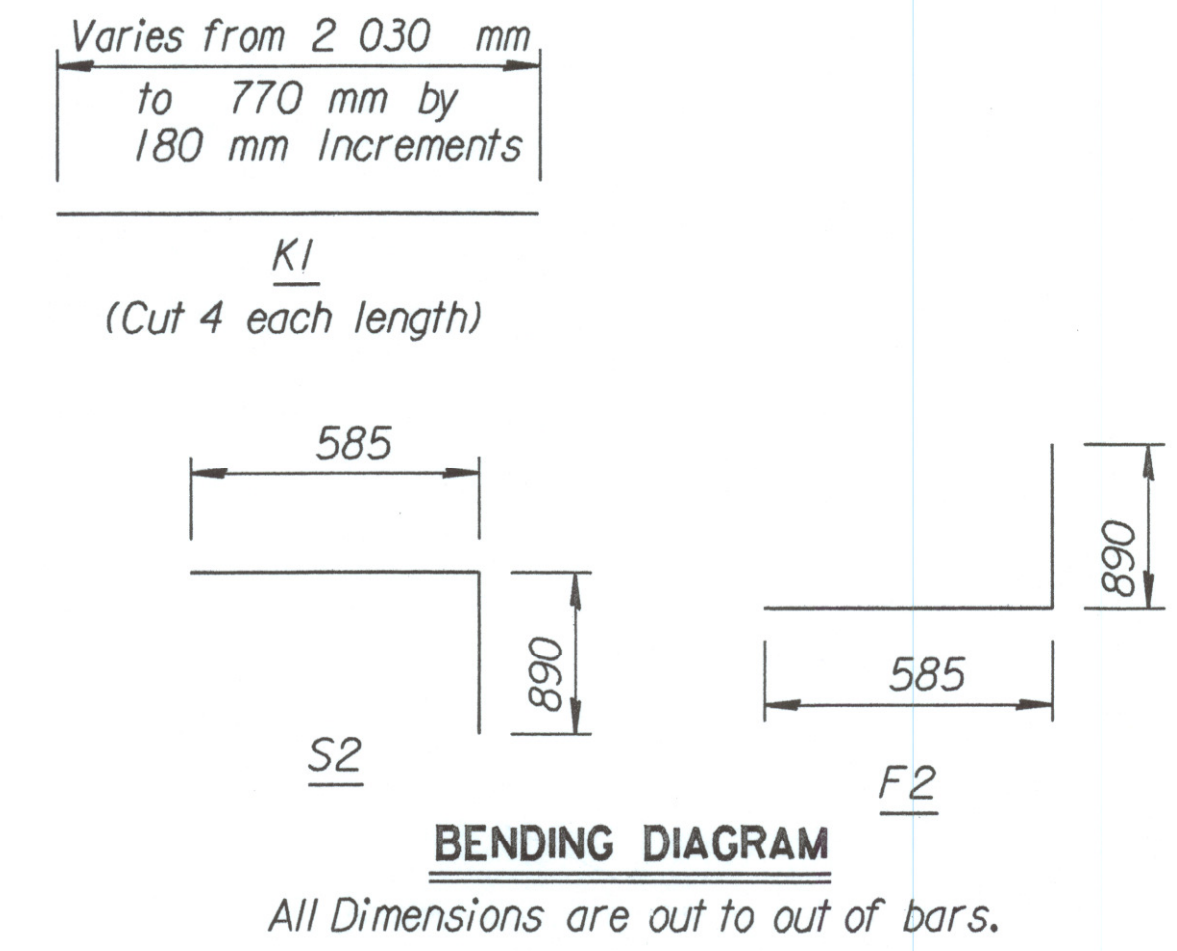


**TYPICAL SECTION**



**BENDING DIAGRAM**  
All Dimensions are out to out of bars.

† Omit when S3 bar is omitted  
 †† Omit when F3 bars are omitted.

Note:  
 If the C.I.P. Retaining Wall Alternate is constructed, the Contractor must overexcavate to Elevation 400.0 and place compacted backfill prior to constructing the R.F.B. Floor. This work shall be subsidiary to the bid item "C.I.P. Retaining Walls". See Sheet No. 238 and 307 for additional details.

**GENERAL NOTES**

- DESIGN SPECIFICATION: AASHTO Specifications, 1983 Edition
- DESIGN LOADING: MS18-44
- UNIT STRESSES: Class AAA Concrete  $f'c = 28$  MPa  
Reinforcing Steel  $f_y = 420$  MPa
- FILL HEIGHT: Unless otherwise noted, the Design Fill Height is measured from the riding surface at the culvert and includes the surfacing.
- CONSTRUCTION: R.C.B.'s shown are for cast-in-place construction. The Contractor has the option of constructing either cast-in-place or precast R.C.B.'s. Payment for the structure will be the same regardless of which option is used for construction. See Sheet No. 432 for Precast Concrete Box Culvert Details.
- CONCRETE: Use concrete conforming to Class AAA Concrete. Bevel all exposed edges with a 20 mm triangular molding. Where Class AAA(AE) is specified, place this concrete in the top slab above the Construction Joint.
- REINFORCING: Use reinforcing steel conforming to ASTM A615M, Grade 420. All dimensions relative to reinforcing steel are to the centerline of the bar unless otherwise noted.
- EXCAVATION: Excavation for culverts less than bridge length shall not be paid for directly but shall be Subsidiary to Class AAA Concrete. Excavation for RCB bridges shall be paid for as Class III Excavation.
- SEAL COURSE: The Engineer may require a seal course. The seal course shall be unreinforced Concrete (Commercial Grade) with a minimum depth of 75 mm or as determined by the Engineer. Concrete for the seal course shall be paid for at the unit price set for Concrete for Seal Course.
- FOUNDATION STABILIZATION: The Engineer may require Foundation Stabilization. The Engineer shall determine the depth of Foundation Stabilization. Foundation Stabilization shall be paid for at the unit price set for Foundation Stabilization. See the "Auxiliary Details" sheet.
- QUANTITIES: The quantities shown in the Culvert Summary include apron and/or soil saver quantities when they are required by the plans. Payment for additional quantities that result from including a seal course and/or a floating apron, as a change in the original plans, shall be made at the unit price bid for the various items involved.
- GRANULAR BACKFILL (WINGWALLS): The Engineer may require special backfill procedures. See the "Auxiliary Details" sheet.
- STRIKE LINE: Construct the wingwalls and that portion of the RCB outside the Strike Line level. Construct the wingwall footings with the culvert floor. See the wingwall detail sheets.

**ADDENDUM #2:**  
 16. Add the following note to Sheet No. 398. Openings in the walls of the RCB shall be provided at locations where storm sewer pipes tie into the structure.

Bar Size	Length (mm)
#12	405
#15	510
#20	610

Class AAA Concrete	167.2 m <sup>3</sup>
Class AAA Concrete (AE)	0.0 m <sup>3</sup>
Reinforcing Steel (Gr. 420)	13 690 kg
Reinforcing Steel (Epoxy Coated)	N/A kg
Class III Excavation	m <sup>3</sup>
Foundation Stabilization (Set)	1 m <sup>3</sup>
Concrete for Seal Course (Set)	1 m <sup>3</sup>
Granular Backfill (Wingwalls) (Set)	1 m <sup>3</sup>

Flow Line Elev. Lt. (m)	Flow Line Elev. Rt. (m)	Crown Grade Elevation (m)	Design Fill Ht. (m)	Skew LT	Left Wings	Right Wings	Scour Apron	Soil Saver	Granular Backfill	Concrete			Reinf. Steel (Gr. 420)		
										Barrel (m <sup>3</sup> )	Wings & Soil Saver (m <sup>3</sup> )	Total (m <sup>3</sup> )	Barrel (kg)	Wings & Soil Saver (kg)	Total (kg)
402.857	401.900	409.562	7.62	45	FLARED	FLARED	YES	YES	NO	156.0	11.2	167.2	13 294	400	13694

F1		F2 *		F3		F4		S1		S2 *		S3		S4		S5									
Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length						
15	180	652	2 135	15	230	1034	1 475																		
								12	99	11 220	15	180	652	2 135	15	230	1034	1 475							
																			12	55	11 220	12	44	11 220	
K1		K2		W1		W3		G1		G2															
Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length		
15	180	32	*				*	12	355	678	1 220														
												12	88	11 220						15	4	3 030	20	4	3 030

\* See Bending Diagram

DESIGN	DATE	DATE	DATE	DATE	DATE
TRACING	DATE	DATE	DATE	DATE	DATE
RETRACED	DATE	DATE	DATE	DATE	DATE

Plotted By: Will Scale 1:1000  
 12/19/97 9:36:20 a.m. 15407.dgn  
 Last Rev. 3-28-2002