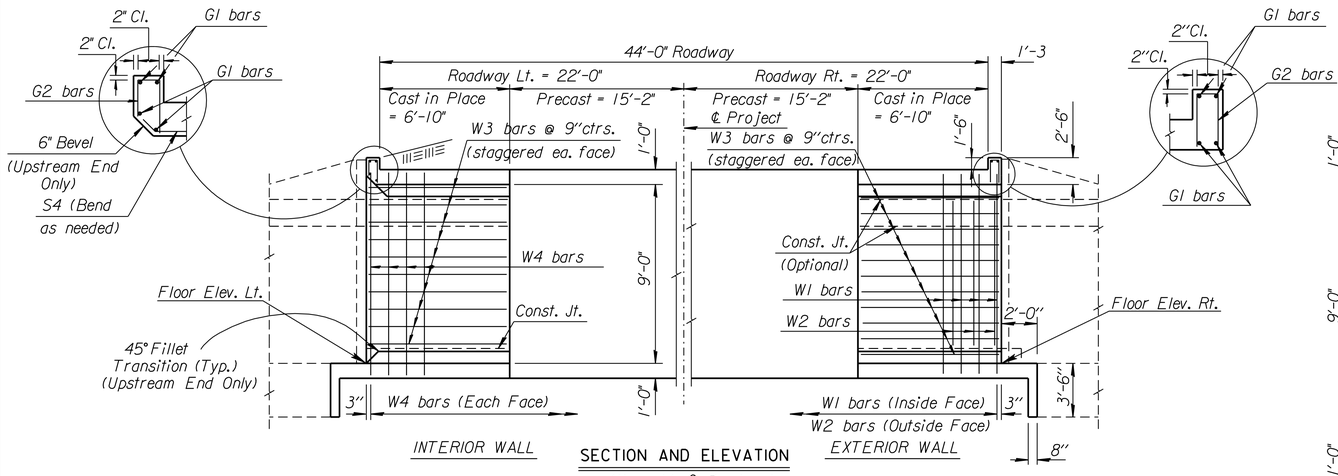
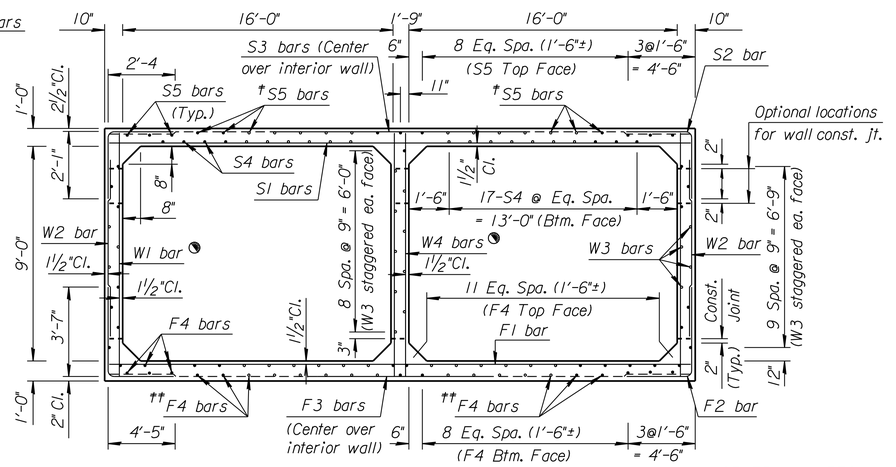
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	472-84834	2009	5	19



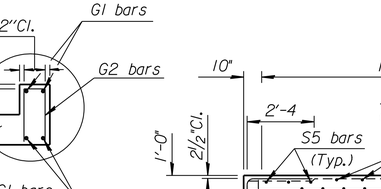
SECTION AND ELEVATION
(Normal to ℄ Roadway)



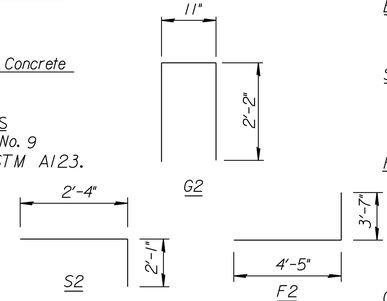
TYPICAL SECTION

◔ See RCB Auxillary Details for Optional Splice.
† Place when S3 bar extends to exterior walls.

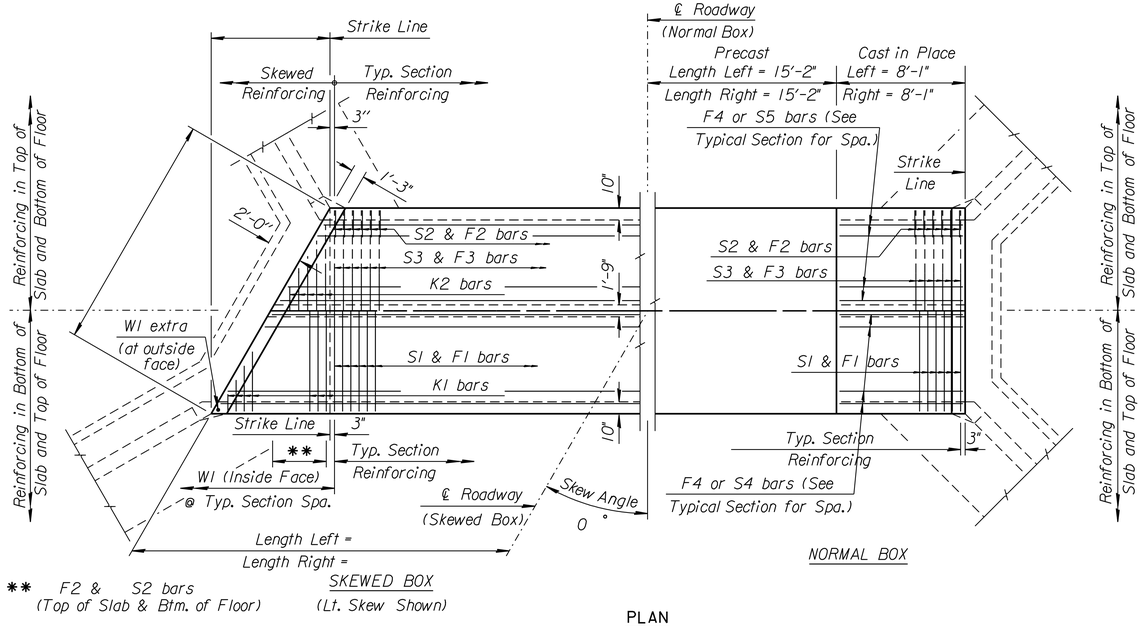
†† Place when F3 bar extends to exterior walls.



BRIDGE DRAIN DETAILS
For Location Details See Sh. No. 9
Galvanized in accordance with ASTM A123.
(8 Req.)



BENDING DIAGRAM
All Dimensions are out to out of bars.



** F2 & S2 bars (Top of Slab & Btm. of Floor)

PLAN

⧗ For design purposes ONLY. Do NOT use for Construction — CULVERT SUMMARY — ◔ includes any apron welded wire fabric

Floor Elev. Lt.	Floor Elev. Rt.	Crown Gr. Elev.	⧗ Design Fill Ht.	Skew	Left Wings	Right Wings	Scour Apron	Soil Saver	Concrete Barrel (Cu.Yds.)	Concrete Wings (Cu.Yds.)	Concrete Total (Cu.Yds.)	Reinf. Steel (Gr. 60) Barrel (Lbs.)	Reinf. Steel (Gr. 60) ◔ Wings (Lbs.)	Reinf. Steel (Gr. 60) Total (Lbs.)
1338.81	1338.81	1349.93	0	0	FLARED	FLARED	YES	YES	66.6	110.4	177.0	13677	7185	20862

△ Epoxy Coated Bars
✱ See Bending Diagram

BAR SCHEDULE

△ F1				△ F2 ✱				△ F3				△ F4			△ S1				△ S2 ✱				△ S3				△ S4			△ S5		
Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	No.	Length
6	6½"	38	35'-1"	5	5"	80	8'-0"	6	5"	48	20'-6"	5	98	9'-9"	6	6½"	30	35'-1"	5	5"	80	4'-5"	6	5"	38	35'-0"	5	68	7'-9"	5	50	7'-9"

△ K1				△ K2				△ W1				△ W2				△ W3				△ W4				△ G1				△ G2 ✱						
Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	Spa.	No.	Length	Size	No.	Length
N/A	N/A	N/A		N/A	N/A	N/A		5	6"	64	10'-8"	5	5"	76	8'-0"	5	60	7'-9"	5	6"	64	10'-8"	7	8	35'-1"	5	9"	94	5'-3"			

Minimum Splice Lengths	
#4	1'-4"
#5	1'-8"
#6	2'-0"

SUMMARY OF QUANTITIES	
Concrete (Grade 4.0)(AE)	177.0 C.Y.
Reinforcing Steel (Gr.60)(Epoxy Coated)	20860 Lbs.
Class III Excavation	404 C.Y.
Foundation Stabilization	24 C.Y.
Concrete for Seal Course (Set)	12 C.Y.
Granular Backfill (Wingwalls) (Set)	126 C.Y.
Bridge Drains (TS 4"x8"x¼")	8 Each

GENERAL NOTES

LOADING: HS20-44 AASHTO Specifications, 1983 Edition.
UNIT STRESSES: Grade 4.0 Concrete; f'c = 4,000 p.s.i.
Reinforcing Steel; fy = 60,000 p.s.i.
FILL HEIGHT: Unless otherwise noted, the Design Fill Height is measured from the riding surface at the culvert and shall include the surfacing.
CONCRETE: Grade 4.0 Concrete shall be used throughout. Bevel all exposed edges with a ¾inch triangular moulding. Where Grade 4.0 Concrete (AE) is specified, it shall be placed in the top slab above the Construction Joint.
REINFORCING: All reinforcing shall conform to ASTM A615, Grade 60. All dimensions relative to reinforcing steel shall be to centerline of bar unless otherwise noted.
EXCAVATION: Excavation for culverts less than bridge length shall not be paid for directly but shall be subsidiary to Grade 4.0 Concrete. Excavation for RCB Bridges shall be paid for as Class III Excavation.
SEAL COURSE: A Seal Course may be required by the Engineer. The Seal Course shall be unreinforced Concrete (Commercial Grade) to a minimum depth of 3 inches 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 Foundation Stabilization quantity has been calculated to the limits shown on the "RCB Auxiliary Details" sheet. The depth may be increased by the Engineer. The Contractor may underrun Foundation Stabilization under the barrel if founded on firm material and with the Engineer's approval. Use Foundation Stabilization on all wingwalls unless founded on rock or granular material.
QUANTITIES: The quantities shown in the Culvert Summary include apron and/or soil saver quantities when their construction is required by the plans. Payment for additional quantities that result from including seal course and/or floating apron, as a change in original plans, shall be made at the Unit Price bid for the various items involved.
GRANULAR BACKFILL (WINGWALLS): Special backfill procedures may be required at the direction of the Engineer. See Auxiliary Details Sheet.
STRIKE LINE: Wingwalls and that portion of the RCB outside the Strike Line shall be constructed level. Footing for wingwalls shall be constructed with the culvert floor. See wingwall detail sheet.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 4340087000027I Sta. 1+84.05
DOUBLE 16 ft x 9 ft RFB

~~BR 2,16,8 F~~ Sedgwick Co.

FHWA APPROVAL	6-5-9I	APP'D	KENNETH F. HURST
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

Sh. No. 5

Plotted By: rjm | Plot Location: $$KDOTGRP$$
File: i:\2009\09430\Office Check\09430-2-16x9_RFB_Details.dgn
Plot Date: 11/9/2009