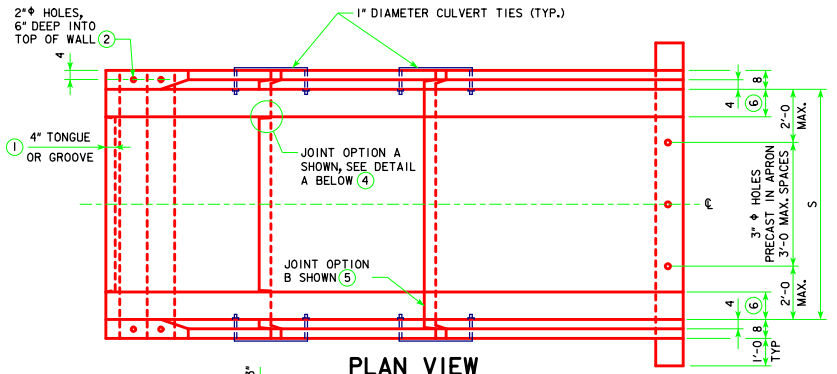
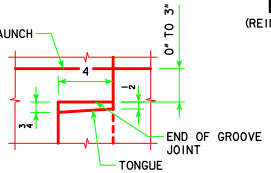
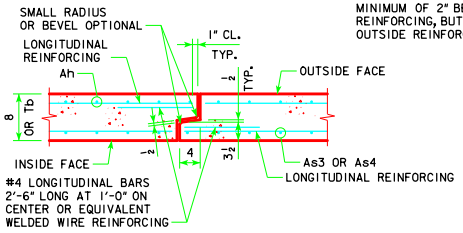


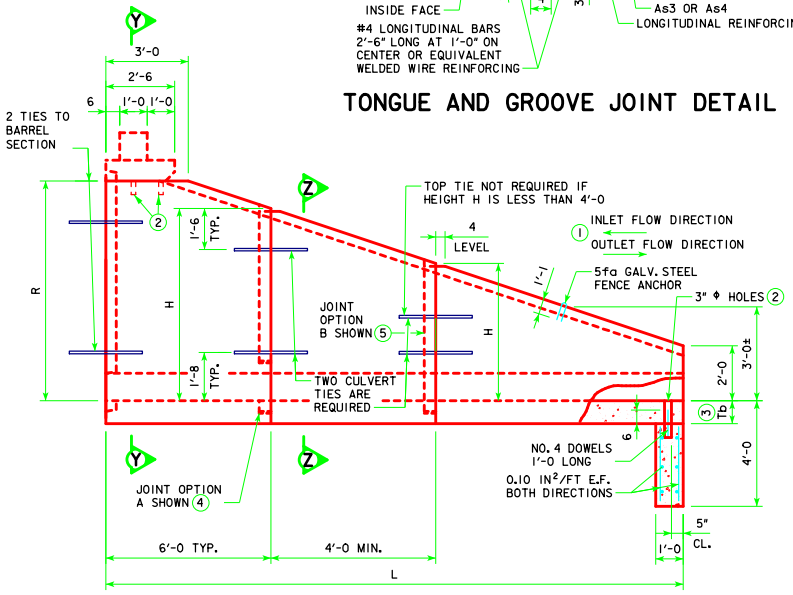
PLAN VIEW
(REINFORCEMENT NOT SHOWN)



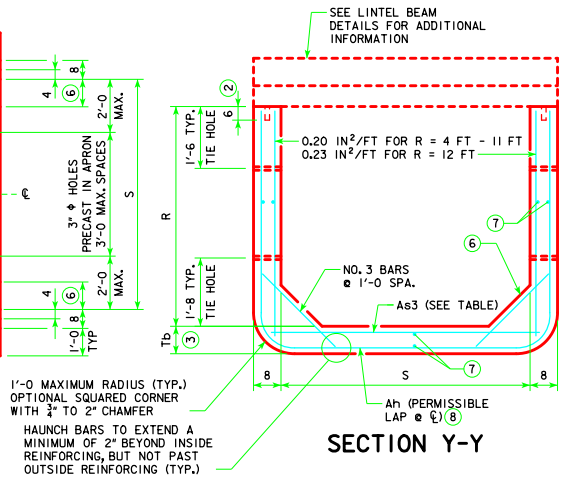
DETAIL A
(DETAIL SHOWN AT FLOOR; SIMILAR AT WALLS)



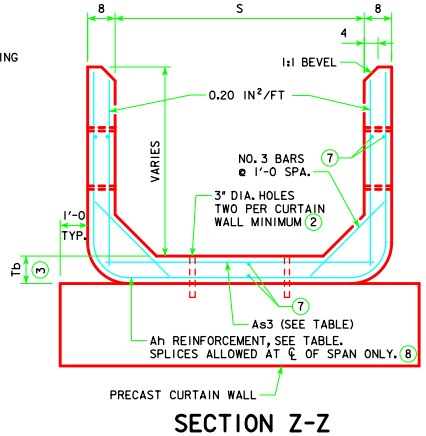
TONGUE AND GROOVE JOINT DETAIL



SIDE ELEVATION



SECTION Y-Y



SECTION Z-Z

CONSTRUCTION NOTES:

PRECAST BOX CULVERT END SECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS AND NOTES, AS SHOWN BELOW:

REINFORCING FOR PRECAST END SECTIONS & CURTAIN WALLS SHALL BE WELDED WIRE REINFORCING (WWR) MEETING THE REQUIREMENTS OF AASHTO LRFD SECTION 5. THE CONCRETE COVER OVER THE REINFORCING STEEL SHALL NOT BE LESS THAN 1.5 INCHES OR GREATER THAN 2.0 INCHES.

REFER TO SHEET PRCB G1-13 FOR ADDITIONAL NOTES.

REFER TO FABRIC DETAIL ON SHEET PRCB G2-13 FOR MULTIPLE WWR LAYERS.

(1) USE TONGUE ON INLET END SECTION AND GROOVE ON OUTLET END SECTION.

(2) FILL HOLES WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4 INCHES.

(3) THICKNESS OF FLOOR, Tb = 8 IN. FOR 6' SPAN, Tb = 10 IN. FOR ALL OTHER SPANS.

(4) JOINT OPTION A: PROVIDE JOINT IN WALLS AND FLOOR. TERMINATE JOINT AT HAUNCH. SEE DETAIL A ON THIS SHEET.

(5) JOINT OPTION B: PROVIDE JOINT IN WALLS, FLOOR AND HAUNCH.

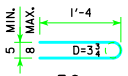
(6) HAUNCH DIMENSION TO MATCH BARREL HAUNCH SIZE.

(7) MINIMUM LONGITUDINAL REINFORCEMENT SHALL BE 0.06 SQ. INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE END SECTION, EXCEPT IN THE TONGUE AND GROOVE AREA.

(8) LAP SPLICES SHALL BE CLASS C AND SHALL BE DESIGNED ACCORDING TO THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

APRON DIMENS.	
BOX RISE R (FT)	APRON LENGTH L (FT)
3	6
4	9
5	12
6	15
7	18
8	21
9	24
10	27
11	30
12	33

BENT BAR DETAILS



5fa

NOTE:
ALL DIMENSIONS ARE OUT TO OUT.
D = PIN DIAMETER.

DIMENS.		Ah & As3 REINF.		
SPAN S (FT)	SECTION HT. H (FT)	Ah (IN²/FT)	BOTTOM SLAB THICK. (IN) REQUIRED As3 (IN²/FT)	
6			8	10
	3	0.20	0.20	---
	4	0.20	0.20	---
	5	0.20	0.20	---
	6	0.20	0.20	---
	7	0.31	0.23	---
	8	0.46	0.31	---
8			8	10
	4	0.24	---	0.24
	5	0.24	---	0.24
	6	0.24	---	0.24
	7	0.24	---	0.24
	8	0.34	---	0.24
	9	0.49	---	0.29
	10	0.67	---	0.37
10			8	10
	4	0.24	---	0.24
	5	0.24	---	0.24
	6	0.24	---	0.24
	7	0.24	---	0.24
	8	0.24	---	0.24
	9	0.36	---	0.31
	10	0.51	---	0.40
	11	0.70	---	0.50
	12	0.94	---	0.62
12			8	10
	4	0.24	---	0.24
	5	0.24	---	0.24
	6	0.24	---	0.24
	7	0.24	---	0.24
	8	0.24	---	0.26
	9	0.34	---	0.34
	10	0.49	---	0.42
	11	0.67	---	0.53
	12	0.90	---	0.65

NOTE: H IS THE LARGEST VERTICAL DIMENSION OF THE SECTION.

DOWEL SETTING NOTE :

THE 5fa BARS MAY BE SET AS DOWELS IN DRILLED HOLES. HOLES SHALL BE DRILLED TO THE DEPTH REQUIRED TO ACHIEVE BAR EMBEDMENT AS SHOWN IN THE "SIDE ELEVATION" DETAIL. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. EITHER OF THE FOLLOWING SYSTEMS MAY BE USED AS A BONDING AGENT:

A. POLYMER GROUT SYSTEM SHALL BE IN ACCORDANCE WITH ARTICLE 2301.03, E, OF THE STANDARD SPECIFICATIONS.
B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2½ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13.

05-13
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

Iowa Department of Transportation
Highway Division

STANDARD DESIGN

SINGLE PRECAST REINFORCED CONCRETE BOX CULVERTS

JANUARY, 2013

TYPE 3 END SECTION DETAILS

FOR SKEWS UP TO 7.5°

PES 1-13-T3

REVISED 05-13 - ADDED THE 3' RISE TO THE APRON DIMENSION INFORMATION TABLE.
ENGLISHSIGNEDPRECASTCULVERTS.DGN - PES 1-13-T3 - THIS SHEET ISSUED 01-13.