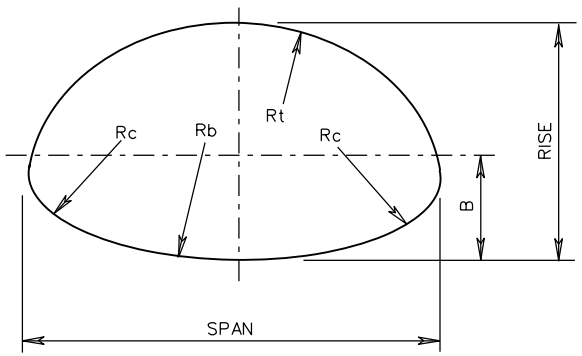
PC-1

STRUCTURAL PLATE ALUMINUM ALLOY PIPE ARCHES 9' x 2½" CORRUGATIONS

SPAN	RISE	CORNER RADIUS	B INCHES (SEE NOTE 9)	MAXIMUM COVER HEIGHT IN FEET — MINIMUM SHEET THICKNESS IN INCHES — MAXIMUM CORNER PRESSURE IN LBS./SQ. FT.							AREA SQ.FT.
				0.100"	0.125"		0.150"		0.175"		
				4000 (SEE NOTE 4)	4000 (SEE NOTE 4)	6000 (SEE NOTE 6)	4000 (SEE NOTE 4)	6000 (SEE NOTE 6)	4000 (SEE NOTE 6)	6000 (SEE NOTE 6)	
6'-2"	5'-0"	31.8	———	25	28	36	28	42	28	42	24.7
6'-7"	4'-11"	31.8	———	23	26	34	26	40	26	40	26.6
6'-7"	5'-8"	31.8	32.5	23	26	34	26	40	26	40	29.6
6'-11"	5'-9"	31.8	32.4	22	25	32	25	38	25	38	31.9
7'-3"	5'-11"	31.8	32.2	21	24	31	24	36	24	36	34.3
7'-9"	6'-0"	31.8	33.8	20	22	29	22	34	22	34	36.8
8'-1"	6'-1"	31.8	33.5	19	21	28	21	32	21	32	39.3
8'-5"	6'-3"	31.8	33.2	18	20	27	20	31	20	31	41.9
8'-10"	6'-4"	31.8	35.6	17	20	25	20	30	20	30	44.5
9'-3"	6'-5"	31.8	35.2	16	19	24	19	28	19	28	45.1
9'-7"	6'-6"	31.8	34.7	16	18	23	18	27	18	27	49.9
9'-11"	6'-8"	31.8	34.2	15	17	22	17	26	17	26	52.7
10'-3"	6'-9"	31.8	33.5	15	17	22	17	25	17	25	55.5
10'-9"	6'-10"	31.8	36.8	14	16	21	16	24	16	24	58.4
11'-1"	7'-0"	31.8	36.1	14	15	20	15	23	15	23	61.4
11'-5"	7'-1"	31.8	35.3	13	15	19	15	23	15	23	64.4
11'-9"	7'-2"	31.8	34.4	13	15	19	15	22	15	22	67.5
12'-3"	7'-3"	31.8	38.4	12	14	18	14	21	14	21	70.5
12'-7"	7'-5"	31.8	37.5	12	14	18	14	21	14	21	73.7
12'-11"	7'-6"	31.8	36.5	12	13	17	13	20	13	20	77.0
13'-1"	8'-2"	31.8	42.0	11	13	17	13	20	13	20	83.0
13'-1"	8'-4"	31.8	35.8	11	13	17	13	20	13	20	86.8
13'-11"	8'-5"	31.8	46.0	11	12	16	12	19	12	19	90.3
14'-0"	8'-7"	31.8	39.4	11	12	16	12	18	12	18	94.2
13'-11"	9'-5"	31.8	42.8	11	12	16	12	19	12	19	101.5
14'-3"	9'-7"	31.8	42.0	10	12	15	12	18	12	18	105.7
14'-8"	9'-8"	31.8	44.0		12	14	12	17	12	18	109.9
14'-11"	9'-10"	31.8	43.2		11	13	11	16	11	17	114.2
15'-4"	10'-0"	31.8	45.3		11	12	11	14	11	17	118.6
15'-7"	10'-2"	31.8	44.4		11	11	11	14	11	16	123.1
16'-1"	10'-4"	31.8	46.6		10		10	12	10	15	127.6
16'-4"	10'-6"	31.8	45.7				10	12	10	14	132.3
16'-9"	10'-8"	31.8	47.9				10	11	10	13	136.9
17'-0"	10'-10"	31.8	46.9				10		10	12	141.8
17'-3"	11'-0"	31.8	45.9				10		10	12	
18'-0"	11'-4"	31.8	47.2						9	10	

NOTES:

1. COVER HEIGHTS INDICATED IN TABLES ARE FOR FINISHED CONSTRUCTION WHICH MATCH FORMER VDOT ALLOWABLE STRESS DESIGN TABLES. COVER HEIGHTS WERE NOT RE-CALCULATED USING LRFD.
2. TO PROTECT PIPE DURING CONSTRUCTION, MINIMUM HEIGHT OF COVER PRIOR TO ALLOWING CONSTRUCTION TRAFFIC TO CROSS INSTALLATION TO BE ½ SPAN. THE COVER SHALL EXTEND THE FULL LENGTH OF THE PIPE ARCH. THE APPROACH FILL RAMP IS TO EXTEND A MINIMUM OF 10(RISE + ½ SPAN) ON EACH SIDE OF THE PIPE, OR TO THE INTERSECTION WITH A CUT.
3. STANDARD MINIMUM FINISHED HEIGHT OF COVER FOR ALL PIPES SHALL BE 2.0' OR ¼ SPAN, WHICHEVER IS GREATER. IN CASES IN WHICH THESE COVER HEIGHTS CANNOT BE ACHIEVED, AN ABSOLUTE MINIMUM FINISHED COVER HEIGHT OF 1.0' OR ⅛ SPAN, WHICHEVER IS GREATER, WILL BE ALLOWED ONLY IF ALL POSSIBLE MEANS TO OBTAIN THE STANDARD VALUE HAVE BEEN EXHAUSTED.
4. SEE STANDARD PB-1 FOR BEDDING AND BACKFILL REQUIREMENTS.
5. THE MAXIMUM HEIGHT OF COVER SHOWN IN THE TABLES IS BASED ON A SOIL MODULUS OF 700 PSI. ALL OTHER DESIGN CRITERIA ARE IN ACCORDANCE WITH THE AASHTO SPECIFICATIONS AND VDOT MODIFICATIONS FOR SOIL CORRUGATED METAL STRUCTURE INTERACTION SYSTEMS.
6. WHEN DESIGN HEIGHT OF COVER REQUIRES THE USE OF THIS CATEGORY OF PIPE, BEDDING AND BACKFILL MUST BE APPROVED BY THE ENGINEER.
7. BOLTS ARE ¾" DIAMETER, HIGH STRENGTH TO MEET CURRENT A.S.T.M. DESIGNATION M-164 AND GALVANIZED TO MEET CURRENT A.S.T.M. DESIGNATION A-394. BOLTS ARE TO BE LOCATED IN THE VALLEY AND CREST OF EACH CORRUGATION IN DOUBLE ROWS SPACED 1¾" APART.
8. STRUCTURAL PLATE PIPE-ARCH DIMENSIONS ARE TO INSIDE CREST AND ARE SUBJECT TO MANUFACTURING TOLERANCES.
9. SPAN OF PIPE ARCHES IS MEASURED "B" INCHES ABOVE THE INVERT. SEE DIAGRAM BELOW FOR ILLUSTRATION OF "B" DIMENSION.



VDOT
ROAD AND BRIDGE STANDARDS

SHEET 11 OF 18 | REVISION DATE 07/16
107.15

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

STRUCTURAL PLATE ALUMINUM ALLOY PIPE ARCH HEIGHT OF COVER TABLE FOR HL-93 LIVE LOAD

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
232
302