

**9' x 2½" STRUCTURAL PLATE ALUMINUM ALLOY PIPE-ARCH (STEEL BOLTED)  
HEIGHT OF COVER LIMITS (ft.)**

Rc (in.)	SPAN (ft.-in.)	RISE (ft.-in.)	AREA (sft.)	THICKNESS (in.)									
				0.100		0.125		0.150		0.175		0.200	
				MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
31.75	6'-7	5'-8	29	1.0	23.6	1.0	26.7	1.0	26.7	1.0	26.7	1.0	26.7
31.75	6'-11	5'-9	31	1.0	22.4	1.0	25.4	1.0	25.4	1.0	25.4	1.0	25.4
31.75	7'-3	5'-11	34	1.1	21.4	1.0	24.2	1.0	24.2	1.0	24.2	1.0	24.2
31.75	7'-9	6'-0	36	1.1	20.0	1.0	22.7	1.0	22.7	1.0	22.7	1.0	22.7
31.75	8'-1	6'-1	39	1.1	19.2	1.1	21.7	1.1	21.7	1.1	21.7	1.1	21.7
31.75	8'-5	6'-3	41	1.1	18.4	1.1	20.9	1.1	20.9	1.1	20.9	1.1	20.9
31.75	8'-10	6'-4	44	1.2	17.6	1.1	19.9	1.1	19.9	1.1	19.9	1.1	19.9
31.75	9'-3	6'-5	47	1.2	16.8	1.2	19.0	1.2	19.0	1.2	19.0	1.2	19.0
31.75	9'-7	6'-6	49	1.3	16.2	1.2	18.3	1.2	18.3	1.2	18.3	1.2	18.3
31.75	9'-11	6'-8	52	1.3	15.6	1.2	17.7	1.2	17.7	1.2	17.7	1.2	17.7
31.75	10'-3	6'-9	55	1.3	15.1	1.3	17.1	1.3	17.1	1.3	17.1	1.3	17.1
31.75	10'-9	6'-10	58	1.4	14.4	1.3	16.3	1.3	16.3	1.3	16.3	1.3	16.3
31.75	11'-1	7'-0	61	1.5	14.0	1.4	15.8	1.4	15.8	1.4	15.8	1.4	15.8
31.75	11'-5	7'-1	64	1.5	13.6	1.4	15.4	1.4	15.4	1.4	15.4	1.4	15.4
31.75	11'-9	7'-2	67	1.5	13.2	1.5	14.9	1.5	14.9	1.5	14.9	1.5	14.9
31.75	12'-3	7'-3	70	1.6	12.6	1.5	14.3	1.5	14.3	1.5	14.3	1.5	14.3
31.75	12'-7	7'-5	73	1.7	11.7	1.6	13.9	1.6	13.9	1.6	13.9	1.6	13.9
31.75	12'-11	7'-6	77	1.7	11.3	1.6	13.6	1.6	13.6	1.6	13.6	1.6	13.6
31.75	13'-1	8'-2	83	1.7	11.2	1.6	13.4	1.6	13.4	1.6	13.4	1.6	13.4
31.75	13'-1	8'-4	86	1.7	11.2	1.6	13.4	1.6	13.4	1.6	13.4	1.6	13.4
31.75	13'-11	8'-5	90	1.9	10.4	1.7	12.0	1.7	12.0	1.7	12.0	1.7	12.0
31.75	14'-0	8'-7	94	1.9	10.3	1.8	11.9	1.8	11.9	1.8	11.9	1.8	11.9
31.75	13'-11	9'-5	101	1.9	10.4	1.7	12.0	1.7	12.0	1.7	12.0	1.7	12.0
31.75	14'-3	9'-7	105	1.9	10.1	1.8	11.7	1.8	11.7	1.8	11.7	1.8	11.7
31.75	14'-8	9'-8	109			1.8	11.3	1.8	11.3	1.8	11.3	1.8	11.3
31.75	14'-11	9'-10	114			1.9	11.1	1.9	11.1	1.9	11.1	1.9	11.1

**NOTE:**

- The tabulated cover depths shall be measured from the bottom of the asphalt or concrete pavement to the top of the pipe.
- A specific design shall be performed for structures with corner radii other than those tabulated above to determine the appropriate cover depth limits.

INDIANA DEPARTMENT OF TRANSPORTATION  
**PIPE HEIGHT OF COVER LIMITS**  
JANUARY 1998  
STANDARD DRAWING NO. **E 717-PHCL-03**

	DETAILS PLACED IN THIS FORMAT 11-15-99
	/s/ Anthony L. Uremovich 11-15-99 DESIGN STANDARDS ENGINEER DATE
	/s/ Firooz Zandi 11-15-99 CHIEF HIGHWAY ENGINEER DATE
DESIGN STANDARDS ENGINEER	ORIGINALLY APPROVED 1-02-98