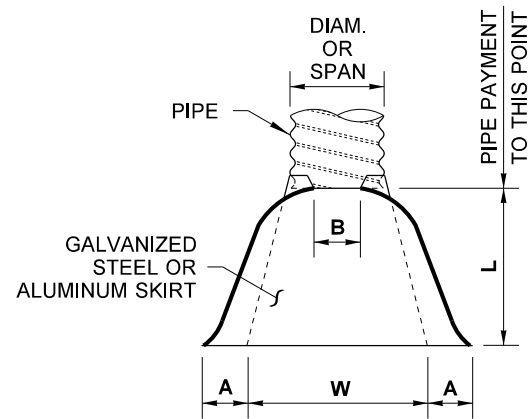
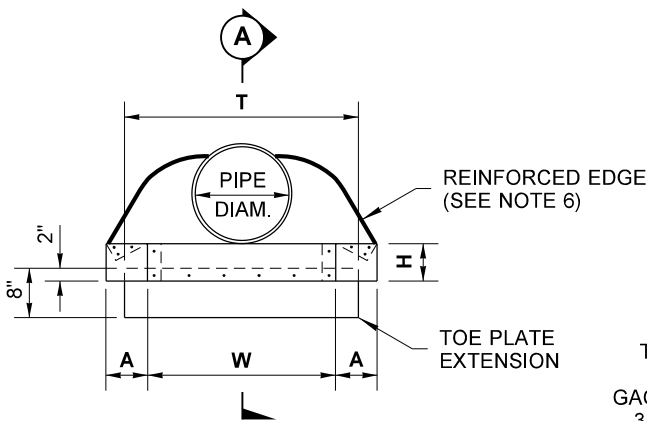


PIPE ARCH											
PIPE ARCH DIMENSION (INCHES)		THICKNESS (INCHES)		DIMENSIONS (INCHES)						SKIRT	END SECTION SLOPE (H : V)
				A	B	H	L	W	T		
				TOL. ± 1"	MAX.	TOL. ± 1"	TOL. ± 1 1/2"	TOL. ± 2"	TOL. ± 2"		
17	13	0.064	0.060	7	9	6	19	30	40	1 PC.	2 1/2 : 1
21	15	0.064	0.060	7	10	6	23	36	46	1 PC.	2 1/2 : 1
24	18	0.064	0.060	8	12	6	28	42	52	1 PC.	2 1/2 : 1
28	20	0.064	0.075	9	14	6	32	48	58	1 PC.	2 1/2 : 1
35	24	0.079	0.075	10	16	6	39	60	70	1 PC.	2 1/2 : 1
42	29	0.079	0.105	12	18	8	46	75	85	2 PC.	2 1/2 : 1
49	33	0.109	0.105	13	21	9	53	85	103	2 PC.	2 1/2 : 1
57	38	0.109	0.138	0.105	18	26	12	63	90	3 PC.	2 1/2 : 1
64	43	0.109	0.138	0.105	18	30	12	70	102	3 PC.	2 1/2 : 1
71	47	0.109	0.138	0.135	18	33	12	77	114	3 PC.	2 1/2 : 1
77	52	0.109	0.138	-----	18	36	12	77	126	3 PC.	1 3/4 : 1
83	57	0.109	0.138	-----	18	39	12	77	138	3 PC.	1 1/2 : 1

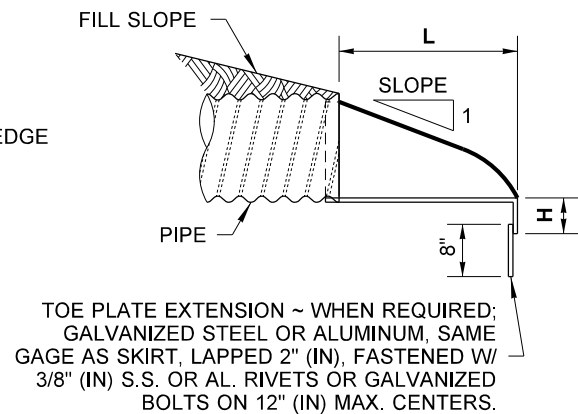
PIPE											
PIPE DIAM. (INCHES)	THICKNESS (INCHES)		DIMENSIONS (INCHES)						SKIRT	END SECTION SLOPE (H : V)	
			A	B	H	L	W	T			
			TOL. ± 1"	MAX.	TOL. ± 1"	TOL. ± 1 1/2"	TOL. ± 2"	TOL. ± 2"			
12	0.064	0.060	6	6	6	21	24	34	1 PC.	2 1/2 : 1	
15	0.064	0.060	7	8	6	26	30	40	1 PC.	2 1/2 : 1	
18	0.064	0.060	8	10	6	31	36	46	1 PC.	2 1/2 : 1	
21	0.064	0.060	9	12	6	36	42	52	1 PC.	2 1/2 : 1	
24	0.064	0.075	10	13	6	41	48	58	1 PC.	2 1/2 : 1	
30	0.079	0.075	12	16	8	51	60	70	2 PC.	2 1/2 : 1	
36	0.079	0.105	14	19	9	60	72	94	2 PC.	2 1/2 : 1	
42	0.109	0.105	16	22	11	69	84	106	2 PC.	2 1/2 : 1	
48	0.109	0.105	18	27	12	78	90	112	2 PC.	2 1/2 : 1	
54	0.109	-----	18	30	12	84	102	122	2 PC.	2 1/2 : 1	
60	0.109	0.138	-----	18	33	12	87	114	3 PC.	1 3/4 : 1	
66	0.109	0.138	-----	18	36	12	87	120	3 PC.	1 1/2 : 1	
72	0.109	0.138	-----	18	39	12	87	126	3 PC.	1 1/3 : 1	
78	0.109	0.138	-----	18	42	12	87	132	3 PC.	1 1/4 : 1	
84	0.109	0.138	-----	18	45	12	87	138	3 PC.	1 1/6 : 1	



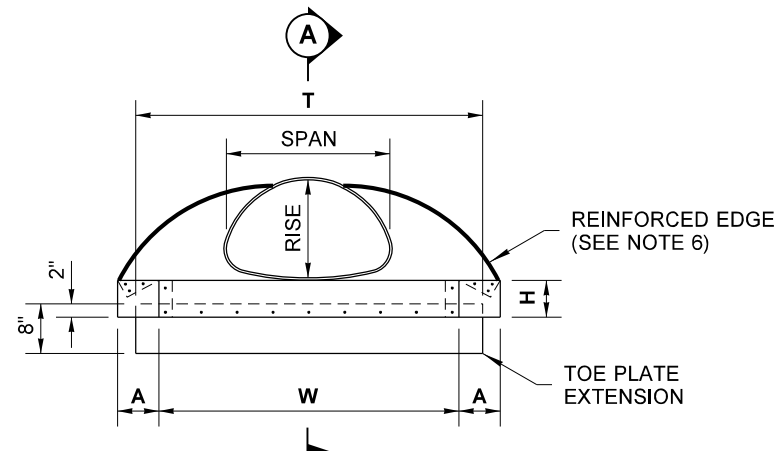
PIPE & PIPE ARCH ~ PLAN



PIPE ~ ELEVATION



SECTION (A)



PIPE ARCH ~ ELEVATION

NOTES

- The diameter of the end section of **Design B** shall match the inside diameter of the concrete pipe.
- Skirt sections shall be made in one piece for round pipe with a diameter of 12" (in) to 24" (in) inclusive and for pipe arches with a rise of 13" (in) to 20" (in) inclusive. Skirt sections for larger sizes of pipes may be multiple pieces in conformance with the tabulated values shown.
- Design A** end sections for 42" (in) thru 84" (in) diameter and 49" (in) x 33" (in) thru 83" (in) x 57" (in) arch with annular corrugations and all helically corrugated pipe arch include one foot of pipe length as a connector section. The connector section shall be attached to the end section by welds, rivets or bolts and shall be the same thickness as the end section.
- Design C** may be used in lieu of **Design A** for all metal pipe sizes except as noted. Coupling bands may be any acceptable type for the pipe specified.
- Multiple panel skirts shall have 2" (in) lap seams tightly joined by 3/8" (in) stainless steel rivets or galvanized bolts on 6" (in) max. centers.
- The reinforced edges of the following size End Sections shall be supplemented with galvanized steel stiffener angles:
 60" (in) thru 72" (in) diameter pipe 2" (in) x 2" (in) x 1/4" (in) angle
 78" (in) and 84" (in) diameter pipe, and
 77" (in) x 52" (in) & 83" (in) x 57" (in) pipe arch 2 1/2" (in) x 2 1/2" (in) x 1/4" (in) angle
 The above galvanized angles shall be attached by 3/8" (in) galvanized nuts and bolts.
- Galvanized steel angle reinforcement will be placed under the center panel seams on the 72" (in) thru 84" (in) diam. pipe and 77" (in) x 52" (in) & 83" (in) x 57" (in) pipe arch End Sections.
- As an alternative to the connector lug and threaded rod used on 12" (in) thru 24" (in) culvert pipe, the attachment may be made with a 1" (in) wide strap, 16 gage galvanized steel fastened with a 1/2" (in) diam., 6" (in) long galvanized bolt and one squarehead nut.

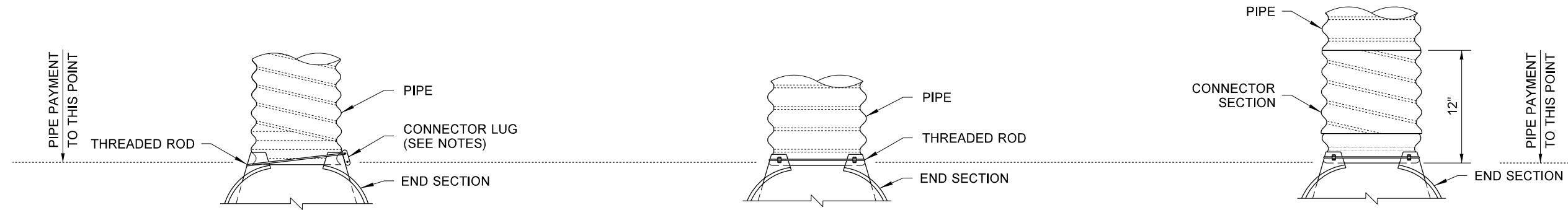


FLARED END SECTIONS

STANDARD PLAN B-70.60-01

SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION



FOR 12" (IN) THRU 24" (IN) PIPE
AND 17" (IN) x 13" (IN) THRU
28" (IN) x 20" (IN) PIPE ARCH WITH
ANNULAR END CORRUGATIONS

TYPE 1
CONNECTION TO METAL PIPE

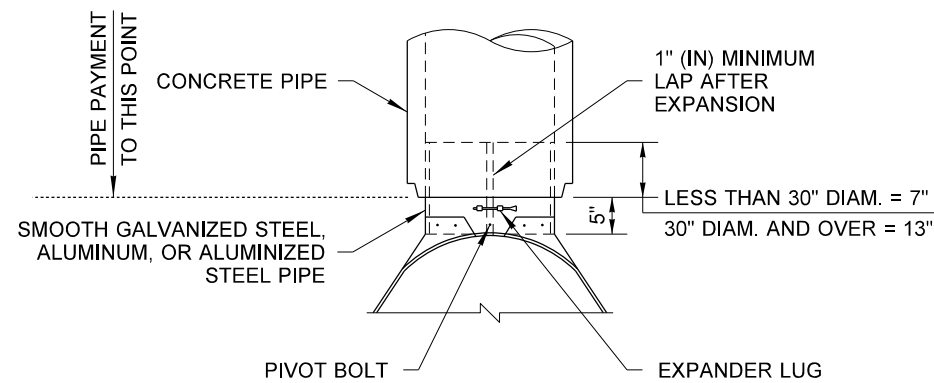
FOR 30" (IN) THRU 84" (IN) PIPE
AND 35" (IN) x 24" (IN) THRU
83" (IN) x 57" (IN) PIPE ARCH WITH
ANNULAR END CORRUGATIONS

TYPE 2
CONNECTION TO METAL
OR CORR. HDPE PIPE

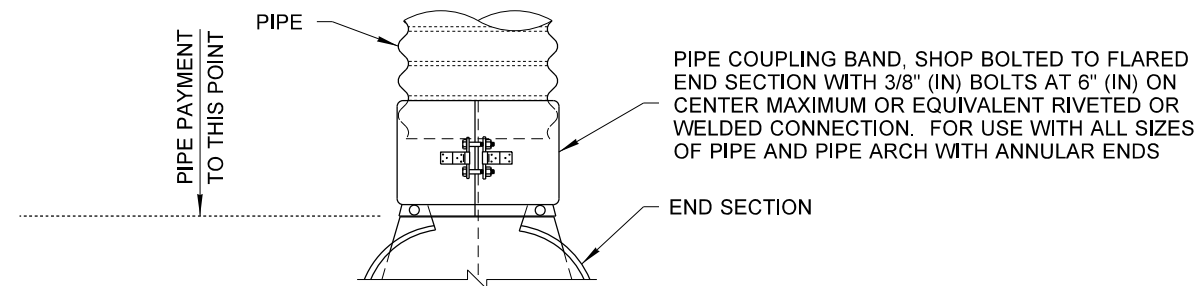
FOR 42" (IN) THRU 84" (IN) PIPE AND
49" (IN) x 33" (IN) THRU 83" (IN) x 57" (IN) PIPE ARCH
WITH ANNULAR END CORRUGATIONS, AND ALL
HELICAL END CORRUGATED PIPE AND PIPE ARCH

TYPE 3
CONNECTION TO METAL PIPE

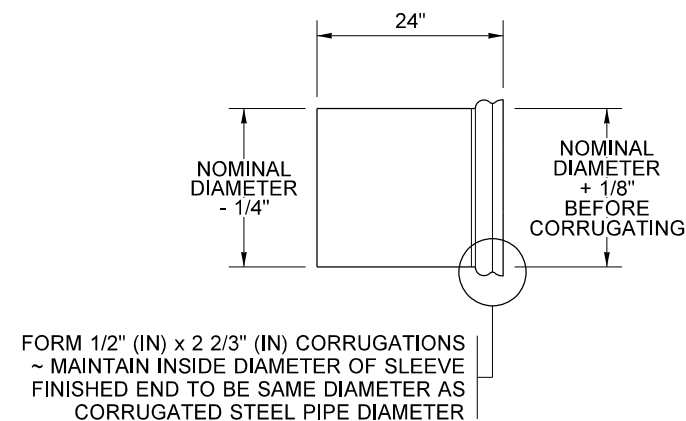
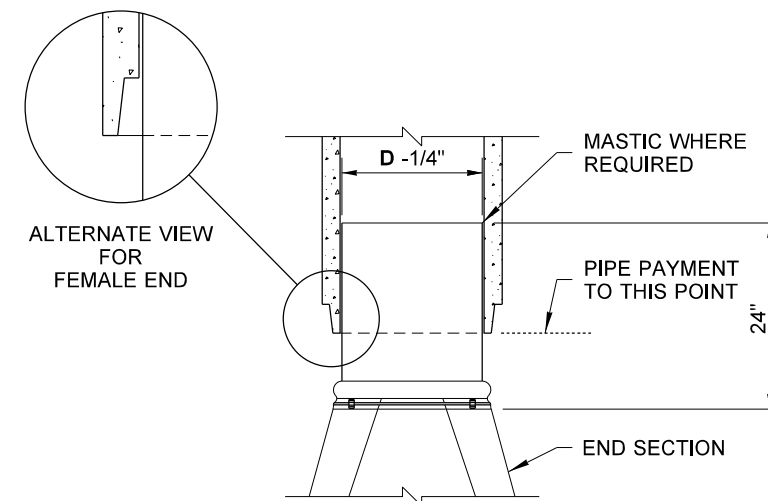
DESIGN A



DESIGN B
CONNECTION TO CONCRETE OR HDPE PIPE
INLET END ONLY



DESIGN C
CONNECTION TO METAL OR CONCRETE PIPE
OUTLET ONLY



SMOOTH TAPERED SLEEVE DETAIL
FOR USE WITH CONCRETE OR HDPE PIPE



FLARED END SECTIONS
STANDARD PLAN B-70.60-01

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER
Washington State Department of Transportation