SAFETY METAL END SECTIONS FOR CIRCULAR PIPES									
Pipe Dia. (in.)	Min. Thick.	Dimensions, in.				L Dimensions			
		A	H	W	Overall Width	Slope	Length (in.)	Slope	Length (in.)
15	.064	8	6	21	37	4:1	20	6:1	30
18	.064	8	6	24	40	4:1	32	6:1	48
21	.064	8	6	27	43	4:1	44	6:1	66
24	.064	8	6	30	46	4:1	56	6:1	84
27	.109	12	9	33	57	4:1	68	6:1	102
30	.109	12	9	36	60	4:1	80	6:1	120
33	.109	12	9	39	63	4:1	92	6:1	138
36	.109	12	9	42	66	4:1	104	6:1	156
42	.109	16	12	48	80	4:1	128	6:1	192
48	.109	16	12	54	86	4:1	152	6:1	228
54	.109	16	12	60	92	4:1	176	6:1	264
60	.109	16	12	66	98	4:1	200	6:1	300

SAFETY METAL END SECTIONS FOR HORIZONTAL ELLIPTICAL PIPE											
Equiv. Dia. (in.)	(inches)		Min. Thick.	Dimensions (inches)				L Dimension			
	Span	Rise	in.	A	H	W	Overall Width	Slope	Length (in.)	Slope	Length (in.)
18	23	14	.064	8	6	29	45	4:1	16	6:1	24
24	30	19	.064	8	6	36	52	4:1	36	6:1	54
27	34	22	.079	12	9	40	64	4:1	48	6:1	72
30	38	24	.079	12	9	44	68	4:1	56	6:1	84
33	42	27	.109	12	9	48	72	4:1	68	6:1	102
36	45	29	.109	16	12	51	83	4:1	76	6:1	114
42	53	34	.109	16	12	59	91	4:1	96	6:1	144
48	60	38	.109	16	12	66	98	4:1	112	6:1	168
54	68	43	.109	16	12	74	106	4:1	132	6:1	198
60	76	48	.109	16	12	80	112	4:1	152	6:1	228

INDIANA DEPARTMENT OF TRANSPORTATION

SAFETY METAL CULVERT END SECTIONS FOR SMOOTH PIPE

JANUARY 1998

STANDARD DRAWING NO. **E 715-SMES-12**

ANTHONY L. UREMOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

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

ORIGINALLY APPROVED 1-02-98