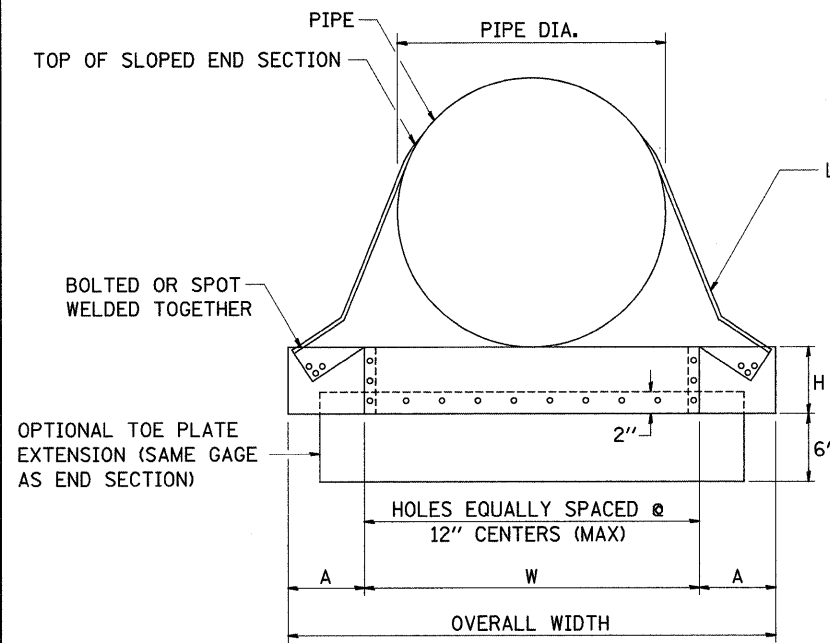
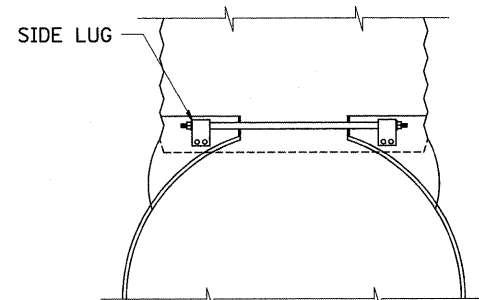


SLOPED METAL END SECTIONS WITH GRATE



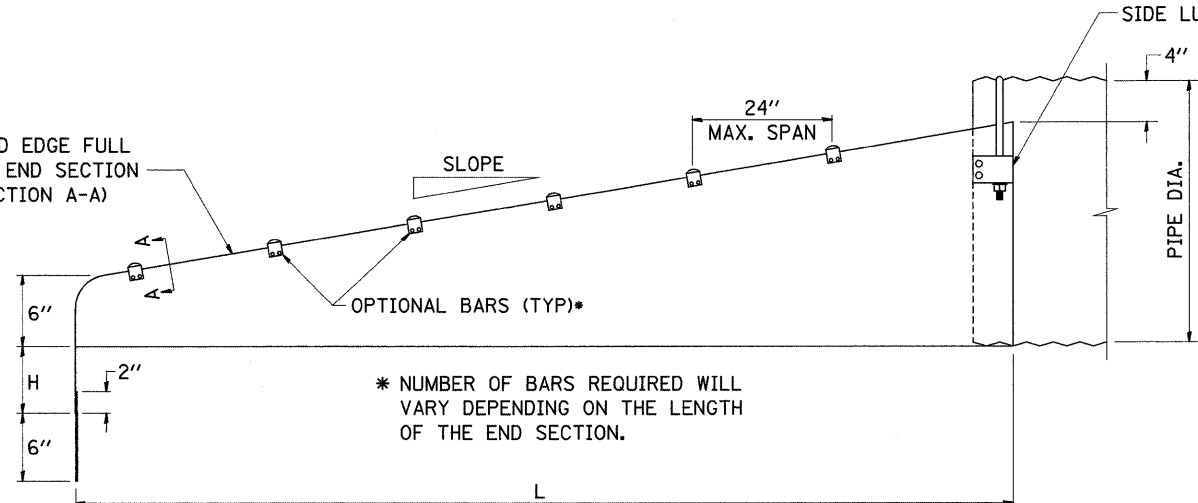
FRONT VIEW ROUND PIPE



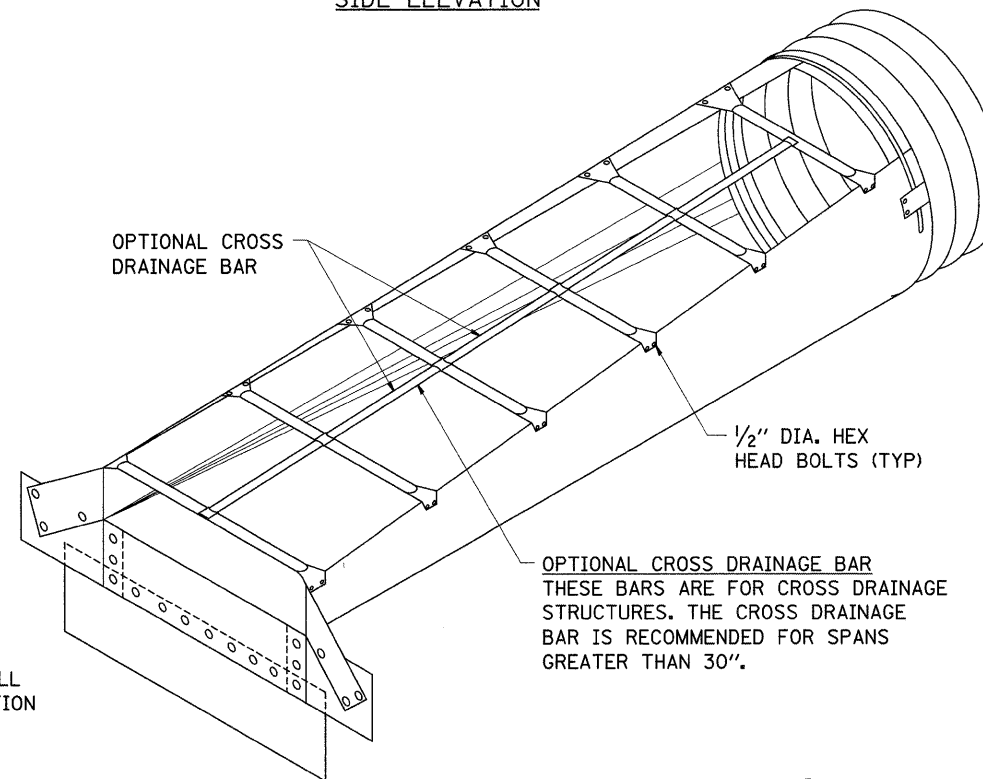
TYPE #2 CONNECTOR DETAILS (SHOWN)

TYPE #1 CONNECTOR DETAILS THRU 24" GALVANIZED STRAP
 TYPE #2 CONNECTOR DETAILS (SHOWN) FOR 30" AND LARGER 21" x 15" AND LARGER 1/2" THREADED ROD W/FLANGED NUT AND SIDE LUG

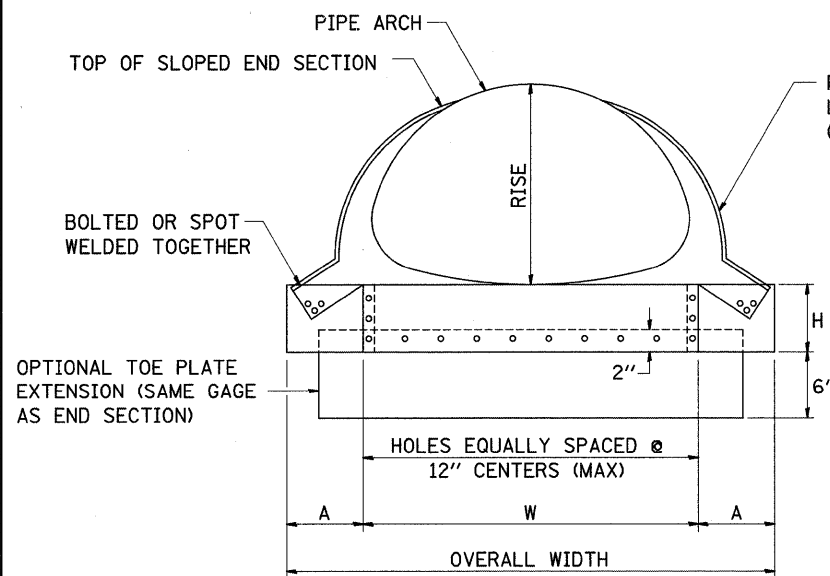
REINFORCED EDGE FULL LENGTH OF END SECTION (SEE SECTION A-A)



SIDE ELEVATION

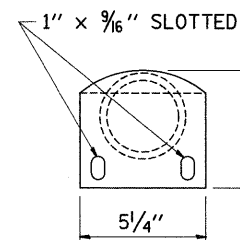


CIRCULAR PIPE ISOMETRIC VIEW



FRONT VIEW PIPE ARCH

REINFORCED EDGE FULL LENGTH OF END SECTION (SEE SECTION A-A)



DETAIL OF OPTIONAL BARS

3" GALVANIZED PIPE FLATTEN END, THEN BEND OUTSIDE 4" TO MATCH END SECTION SIDES.

EDGE OF SIDEWALL ROLLED SNUGLY AGAINST STEEL ROD.
 1/16" DIA GALVANIZED STEEL ROD OR NO. 4 GALVANIZED REINFORCING BAR.

SECTION A-A

GENERAL NOTES

- CONNECTORS - ROUND SIZES THRU 24" ATTACH TO PIPE WITH TYPE #1 STRAPS, ALL OTHER SIZES ATTACH WITH TYPE #2 RODS AND LUGS.
- TOE PLATE EXTENSIONS - WHEN REQUIRED, TOE PLATE EXTENSIONS ARE TO BE THE SAME GAGE AS END SECTION. DIMENSIONS SHALL BE OVERALL WIDTH LESS 6 INCHES BY 8 INCHES HIGH.
- OPTIONAL BARS - BARS WHEN SPECIFIED, SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE.
- TYPICALLY PARALLEL BARS ARE PLACED ON 24" CENTERS.
- TYPICALLY THE CROSS BARS ARE USED ON CROSS DRAIN APPLICATIONS.
- HOLES FOR BAR ATTACHMENTS SHALL BE PROVIDED ON ALL END SECTIONS.
- DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
- THESE END SECTIONS WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH FOR SLOPED METAL END SECTIONS WITH GRATE OF THE DIAMETER SPECIFIED, WHICH SHALL INCLUDE FURNISHING AND INSTALLING THE END SECTION COMPLETE IN PLACE, INCLUDING THE TOE PLATE, EXCAVATING, BACKFILLING, CONNECTING TO THE PIPE, AND CROSS DRAINAGE BARS.

PIPE DIA. (IN.)	MIN. THICK IN.	GAGE	DIMENSIONS (INCHES)			L DIMENSIONS				
			A	H	W	OVERALL WIDTH	SLOPE	LENGTH (IN.)	SLOPE	LENGTH (IN.)
15	.064	16	8	6	21	37	6:1	30	4:1	20
18	.064	16	8	6	24	40	6:1	48	4:1	32
21	.064	16	8	6	27	43	6:1	66	4:1	44
24	.064	16	8	6	30	46	6:1	84	4:1	56
30	.109	12	12	9	36	60	6:1	120	4:1	80
36	.109	12	12	9	42	66	4:1	104	6:1	156
42	.109	12	16	12	48	80	4:1	128	6:1	192
48	.109	12	16	12	54	86	4:1	152	6:1	228
54	.109	12	16	12	60	92	4:1	176	6:1	264
60	.109	12	16	12	66	98	4:1	200	6:1	300

EQUIV. DIA. (IN.)	(INCHES)		MIN. THICK IN.	GAGE	DIMENSIONS (INCHES)			L DIMENSIONS				
	SPAN	RISE			A	H	W	OVERALL WIDTH	SLOPE	LENGTH (IN.)	SLOPE	LENGTH (IN.)
18	21	15	.064	16	8	6	27	43	6:1	30	4:1	20
21	24	18	.064	16	8	6	30	46	6:1	48	4:1	32
24	28	20	.064	16	8	6	34	50	6:1	60	4:1	40
30	36	24	.079	14	12	9	41	65	6:1	84	4:1	56
36	42	29	.109	12	12	9	48	72	6:1	114	4:1	76
42	49	33	.109	12	16	12	55	87	4:1	92	6:1	138
48	57	38	.109	12	16	12	63	95	4:1	112	6:1	168
54	64	43	.109	12	16	12	70	102	4:1	132	6:1	198
60	71	47	.109	12	16	12	77	109	4:1	148	6:1	222
72	83	57	.109	12	16	12	89	121	4:1	188	6:1	282

FILE NAME =	USER NAME = grantpm	DESIGNED -	REVISED - 5-8-96	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A.P. RTE. 742	SECTION 37R-4	COUNTY OGLE	TOTAL SHEETS 867	SHEET NO. 477
ct:\pw_work\VPWIDOT\GRANTPM\dms31213\406528spl.dgn	DRAWN -	REVISIONS -	CONTRACT NO. 64E17									
PLOT SCALE = 50.0000' / IN.	CHECKED -	SCALE:	SHEET NO. OF SHEETS STA. TO STA.									
PLOT DATE = Tue Mar 30 09:22:41 2010	DATE -	FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT										