

7/23/2019 9:35:42 AM \\AG03DCWF00010.net.ads.state.in.us\PROJECTS\Standard Drawings Folder\Working Folder for Eugene\DRAWING\110 PIPE CULVERTS AND ENDWALLS\110.01 Culverts and Flumes\DPG3-20190628.dgn

CIRCULAR C.M. PIPE (STEEL)															
PIPE DIAMETER INCHES	SHEET THICKNESS IN INCHES (GAUGE)														
	0.064(16 GA.)			0.079(14 GA.)			0.109(12 GA.)			0.138(10 GA.)			0.168(8 GA.)		
	HEIGHT OF COVER LIMITS - MINIMUM IN INCHES - MAXIMUM IN FT.														
	MIN. (IN)	MAX. (FT) ①	MAX. (FT) ②	MIN. (IN)	MAX. (FT) ①	MAX. (FT) ②	MIN. (IN)	MAX. (FT) ①	MAX. (FT) ②	MIN. (IN)	MAX. (FT) ①	MAX. (FT) ②	MIN. (IN)	MAX. (FT) ①	MAX. (FT) ②
<b>2-2/3" X 1/2" CORRUGATIONS</b>															
15	12	74	170	12	80	213	12	104	298	12	108	383	12	113	469
18	12	61	142	12	67	177	12	86	248	12	90	319	12	94	391
24	12	46	106	12	50	133	12	65	186	12	68	239	12	71	293
30	12	37	85	12	40	106	12	52	149	12	54	191	12	56	234
36	12	30	71	12	33	88	12	43	124	12	45	159	12	47	195
42	12	34	60	12	47	76	12	74	106	12	77	137	12	81	167
48	12	30	53	12	41	66	12	65	93	12	68	119	12	71	146
54				14	36	59	12	57	82	12	60	106	12	63	130
60							12	52	74	12	54	95	12	57	117
<b>3" X 1" AND 5" X 1" CORRUGATIONS</b>															
36	12	53	81	12	66	102	12	98	143	12	118	184	12	130	225
42	12	45	69	12	56	87	12	84	122	12	101	157	12	112	193
48	12	39	54	12	49	68	12	73	95	12	88	122	12	98	150
54	12	35	48	12	44	60	12	65	84	12	78	109	12	87	133
60	12	31	43	12	39	54	12	58	76	12	70	98	12	78	120
66	13	29	39	12	36	49	12	53	69	12	64	89	12	71	109
72	14	26	36	13	33	45	12	49	63	12	59	82	12	65	100
78	16	24	33	14	30	42	12	45	58	12	54	75	12	60	92
84	17	22	31	15	28	39	13	42	54	12	50	70	12	56	85
90	18	21	29	16	26	36	14	39	51	12	47	65	12	52	80
96				17	24	34	15	36	47	13	44	61	12	49	75
102				18	23	32	15	34	45	14	41	57	13	46	70
108							16	32	42	14	39	54	14	43	66
114							17	31	40	15	37	51	15	41	63
120							18	29	38	16	35	49	15	39	60
126										17	33	52	16	37	64
132										17	32	50	17	35	61
138													18	34	58
144													18	32	56

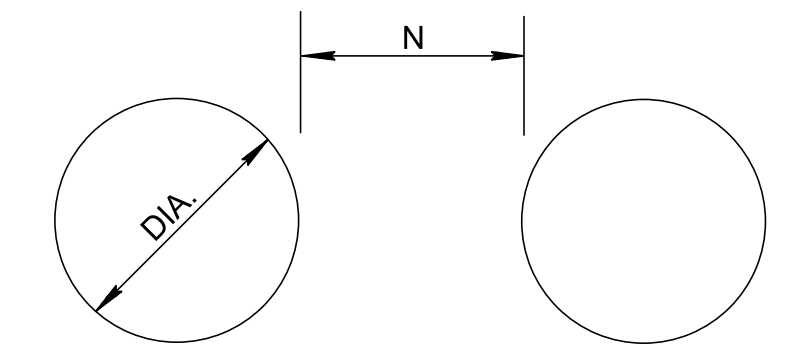
- ① ANNULAR CORRUGATIONS
- ② HELICAL CORRUGATIONS
- ③ THE 5" X 1" CORRUGATIONS BEGIN WITH 48" PIPE AND END WITH 120" PIPE ON HELICAL CORRUGATED PIPE ONLY. THIS IS AN EQUAL ALTERNATE TO THE 3" X 1" CORRUGATED PIPE CULVERT.

CIRCULAR C.M. PIPE (STEEL STR. PLATE)												
PIPE DIAMETER INCHES	SHEET THICKNESS IN INCHES (GAUGE)											
	0.109 (12 GA.)			0.138 (10 GA.)			0.168 (8 GA.)			0.249 (1 GA.)		
	HEIGHT OF COVER LIMITS - MINIMUM IN INCHES - MAXIMUM IN FT.											
	MIN. (IN)	MAX. (FT)	MAX. (FT)	MIN. (IN)	MAX. (FT)	MAX. (FT)	MIN. (IN)	MAX. (FT)	MAX. (FT)	MIN. (IN)	MAX. (FT)	MAX. (FT)
<b>6" X 2" CORRUGATIONS</b>												
60	12	46	68	90	103	124	146	160				
66	12	42	62	81	93	113	133	145				
72	12	38	57	75	86	103	122	133				
78	12	35	53	69	79	95	112	123				
84	12	33	49	64	73	88	104	114				
90	12	31	45	60	68	83	97	106				
96	12	29	43	56	64	77	91	100				
102	13	27	40	52	60	73	86	94				
108	14	25	38	50	57	69	81	88				
114	15	24	36	47	54	65	77	84				
120	15	23	34	45	51	62	73	80				
126	16	22	32	42	49	59	69	76				
132	17	21	31	40	46	56	66	72				
138	18	20	29	39	44	54	63	69				
144	18	19	28	37	43	51	61	66				
150	19	18	27	36	41	49	58	64				
156	20	17	26	34	39	47	56	61				
162	21	17	25	33	38	46	54	59				
168	21	16	24	32	36	44	52	57				
174	22	16	23	31	35	42	50	55				
180	23	15	22	30	34	41	48	53				

CIRCULAR C.M. PIPE (ALUMINUM)															
PIPE DIAMETER INCHES	SHEET THICKNESS IN INCHES (GAUGE)														
	0.060(16 GA.)			0.075(14 GA.)			0.105(12 GA.)			0.135(10 GA.)			0.164(8 GA.)		
	HEIGHT OF COVER LIMITS - MINIMUM IN INCHES - MAXIMUM IN FT.														
	MIN. (IN)	MAX. (FT) ①	MAX. (FT) ②	MIN. (IN)	MAX. (FT) ①	MAX. (FT) ②	MIN. (IN)	MAX. (FT) ①	MAX. (FT) ②	MIN. (IN)	MAX. (FT) ①	MAX. (FT) ②	MIN. (IN)	MAX. (FT) ①	MAX. (FT) ②
<b>2 2/3" X 1/2" CORRUGATIONS</b>															
15	12	40	124	12	40	154	12	69	217	12	72	279	12	74	340
18	12	33	103	12	33	129	12	57	180	12	60	233	12	62	284
24	12	25	77	12	25	96	12	43	135	12	45	174	12	46	213
30	12	20	62	12	20	77	12	34	108	12	36	139	12	37	170
36	12	16	51	12	16	64	12	28	90	12	30	116	12	31	142
42	12	22	44	12	28	55	12	50	77	12	52	99	12	54	121
48							12	43	66	12	45	86	12	47	106
54							14	38	54	14	40	70	14	42	87
60										15	36	57	15	37	71
<b>3" X 1" CORRUGATIONS</b>															
36	12	30	59	12	38	74	12	51	104	12	77	139	12	100	163
42	12	26	50	12	32	63	12	44	89	12	66	119	12	86	140
48	12	22	44	12	28	55	12	38	78	12	58	104	12	75	122
54	14	20	39	14	25	49	14	34	69	12	51	92	12	67	109
60	15	18	35	15	22	44	15	31	62	14	46	83	12	60	98
66	17	16	32	17	20	40	17	28	56	15	42	75	13	55	89
72	18	15	29	18	19	37	18	25	52	16	38	69	15	50	81
78				20	17	34	20	23	48	18	35	64	16	46	75
84							21	22	44	19	33	59	17	43	70
90							23	20	41	20	31	55	18	40	65
96							24	19	38	22	29	51	19	37	60
102										23	27	46	21	35	54
108										24	25	41	22	33	49
114													23	31	44
120													24	30	40

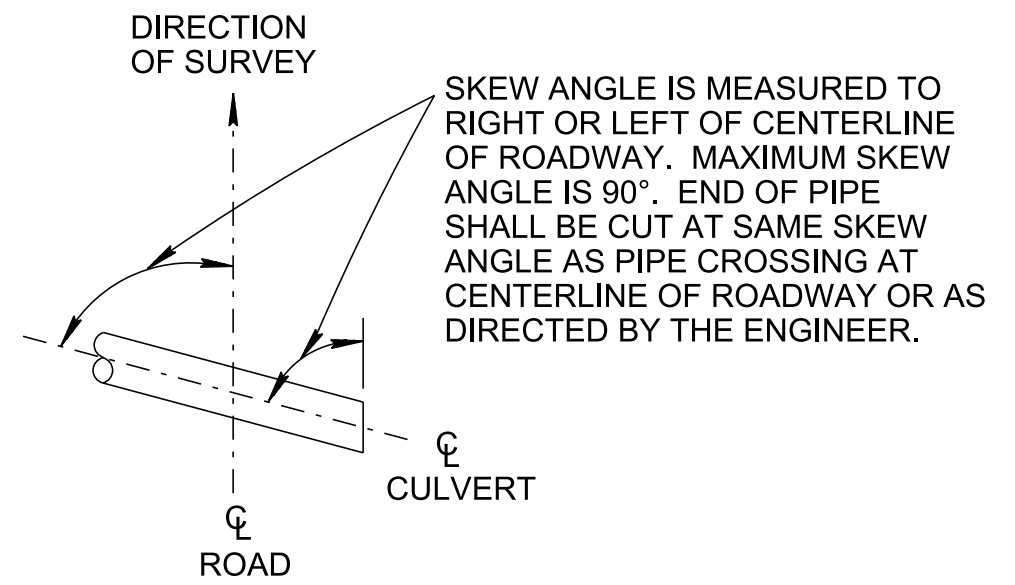
- ① ANNULAR CORRUGATIONS
- ② HELICAL CORRUGATIONS

④ VALUES TO LEFT OF SLASH MARK (/) ARE FOR USE OF ALUMINUM BOLTS ON SEAMS AND VALUES TO RIGHT ARE FOR USE OF STEEL BOLTS ON SEAMS.



DIAMETER	MINIMUM SPACE (N) BETWEEN PIPE WITH CLASS "B" OR "C" BEDDING
15" TO 24"	12"
30" TO 96"	1/2 DIAMETER OF PIPE
102" TO 120"	48"

WHEN CLASS "A" BEDDING IS USED, A DETAIL SHALL BE SHOWN ON PLANS FOR MINIMUM SPACE BETWEEN PIPE.



### GENERAL NOTES

(A) PIPE SHALL CONFORM TO SECTION 915 OF THE STANDARD SPECIFICATIONS.

(B) THE VERTICAL ELONGATION OR STRUTTING OF PIPES IS NO LONGER SPECIFIED IN THIS STANDARD DRAWING. IF SUCH IS REQUIRED BY SPECIAL PROVISION OR NOTE IN THE PLANS, IT SHALL BE DONE ACCORDING TO STANDARD DRAWING NO. D-PS-1. IF PART OF A CULVERT IS ELONGATED, ALL OF IT MUST BE ELONGATED.

(C) FOR ALL SIDE DRAINS THE MINIMUM SHEET THICKNESS SHALL BE 16 GAUGE ON ALL CIRCULAR PIPE OTHER THAN STRUCTURAL PLATE PIPE.

(D) FOR ALL CROSS DRAINS THE MINIMUM SHEET THICKNESS SHALL BE 14 GAUGE ON ALL CIRCULAR PIPE OTHER THAN STRUCTURAL PLATE PIPE.

(E) THE HEIGHTS OF COVER SHOWN IN THE TABLES ARE FOR FINISHED CONSTRUCTION. A MINIMUM COVER OF FOUR (4) FEET SHALL BE PLACED OVER CULVERTS PRIOR TO DRIVING HEAVY CONSTRUCTION VEHICLES OVER THEM. THE WIDTH OF THIS EXTRA COVER SHALL BE WIDE ENOUGH TO FULLY ACCOMMODATE THE HEAVY CONSTRUCTION VEHICLES AND SHALL BE THE ONLY ACCESS ACROSS THESE CULVERTS DURING CONSTRUCTION.

(F) LENGTH OF PIPE SHALL BE IN INCREMENTS OF EVEN TWO (2) FEET FOR THE PURPOSE OF ESTIMATING PLANS QUANTITIES. SEE STANDARD DRAWING NO. D-PE-8 FOR METHOD OF MEASUREMENT OF PAYMENT, DETAILS OF BEVELED ENDS AND RIP-RAP PROTECTION.

(G) POLYMERIC COATED PIPE - ARCH, WHEN REQUIRED, SHALL CONFORM TO SECTION 915.03 OF THE STANDARD SPECIFICATIONS.

(H) VARIATION OF MATERIALS OR CORRUGATION WILL NOT BE PERMITTED IN ANY LINE OF PIPE.

(I) PLATES FOR STEEL STRUCTURAL PLATE STRUCTURES ARE STANDARD 6" X 2" CORRUGATION WITH FOUR (4) BOLTS PER FOOT IN EACH LONGITUDINAL SEAM (UNLESS OTHERWISE SHOWN).

(J) PLATES FOR ALUMINUM STRUCTURAL PLATE STRUCTURES ARE STANDARD 9" X 2 1/2" CORRUGATION WITH FIVE AND ONE - THIRD (5 1/3") BOLTS PER FOOT IN EACH LONGITUDINAL SEAM (UNLESS OTHERWISE SHOWN).

(K) TYPE I AND TYPE II PIPE WITH HELICAL CORRUGATIONS SHALL BE REROLLED TO FORM ANNULAR (CIRCUMFERENTIAL) ENDS WHERE THE CULVERT IS TO BE JOINED. SEE CURRENT AASHTO SPECIFICATIONS M36 AN M196, SECTIONS ON END FINISH AND COUPLING BANDS. ONLY COUPLING BANDS WITH ANNULAR CORRUGATIONS SHALL BE ALLOWED. WHEN EXTENDING AN EXISTING CULVERT, A CONCRETE COLLAR SHALL BE USED IF A COUPLING BAND WITH ANNULAR CORRUGATIONS WILL NOT FIT.

- REV. 1-16-86 : REVISED NOTE CONCERNING REROLLING.
- REV. 4-1-86 : ADDED NOTE ALLOWING 16 GAUGE PIPE ON TEMPORARY DETOURS.
- REV. 7-29-94 : REDREW SHEET, REORGANIZED SHEET AND UPDATED TO 1994 STANDARDS.
- REV. 4-15-97 : CHANGED GENERAL NOTE ©.
- REV. 06-28-19: REDREW SHEET.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE  
STANDARD DRAWING  
DEPARTMENT OF TRANSPORTATION

## FERROUS AND ALUMINUM CORRUGATED METAL PIPE

D-PG-3

NOT TO SCALE