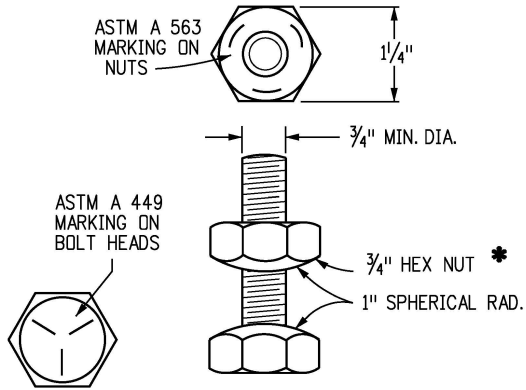


PIPE DIA.	MIN. COVER	MAX. HEIGHT OF COVER H (FT.)						
		WALL THICKNESS (IN.)						
IN.		0.109	0.138	0.168	0.188	0.218	0.249	0.280
60 66	12 12	47 43	68 62	90 81	100 93	100 100	100 100	100 100
72 76	12 12	39 36	57 52	75 69	86 79	100 95	100 100	100 100
84 90	12 12	34 31	49 45	64 60	73 68	88 82	100 97	100 100
96 102	12 18	29 28	43 40	56 52	64 60	77 73	91 86	100 94
108 114	18 18	26 25	38 36	50 47	57 54	69 65	81 77	88 84
120 126	18 18	23 22	34 32	45 42	51 49	62 59	73 69	80 76
132 138	18 18	21 20	31 29	40 39	46 44	56 54	66 63	72 69
144 150	18 24	19 19	28 27	37 36	43 41	51 49	61 58	66 64
156 162	24 24	18 17	26 25	34 33	39 38	47 46	56 54	61 59
168 174	24 24	17 16	24 23	32 31	36 35	44 42	52 50	57 55
180 186	24 24	15 15	22 22	30 29	34 33	41 40	48 47	53 51
192 198	24 30		21 20	28 27	32 31	38 37	45 44	50 48
204 210	30 30		20 19	26 25	30 29	36 35	43 41	47 45
216 222	30 30			25 24	28 27	34 33	40 39	44 43
228 234	30 30			23 23	27 26	32 31	38 37	42 41
240	30				25	31	36	40

TABLE I – 6 IN. x 2 IN. CORRUGATIONS
ROUND STEEL PIPE



PIPE BOLT AND NUT

*INSTALL CULVERT NUTS AS SHOWN.
DO NOT INVERT.

NOTES:

- NUTS MADE IN CONFORMANCE WITH ASTM A 194, GRADE 2 OR GRADE 2H, AND MARKED WITH THE GRADE SYMBOL ARE ACCEPTABLE EQUIVALENTS FOR ASTM A 563, GRADE C NUTS.
- BOLTS SHALL BE PLACED LOOSE TO ALIGN PLATES, THEN TIGHTENED TO MAINTAIN STRUCTURE SHAPE.

PIPE SIZE SPAN x RISE	MIN. COVER	MIN. WALL THICKNESS	CORNER RADII	MAX. H
FT. – IN.		IN.		FT.
6- 1 x 4- 7 6- 4 x 4- 9	12 12	0.109 0.109	18 18	15 15
6- 9 x 4-11 7- 0 x 5- 1	12 12	0.109 0.109	18 18	14 14
7- 3 x 5- 3 7- 8 x 5- 5	12 12	0.109 0.109	18 18	13 13
7-11 x 5- 7 8- 2 x 5- 9	12 18	0.109 0.109	18 18	12 12
8- 7 x 5-11 8-10 x 6- 1	18 18	0.109 0.109	18 18	11 11
9- 4 x 6- 3 9- 6 x 6- 5	18 18	0.109 0.109	18 18	10 10
9- 9 x 6- 7 10- 3 x 6- 9	18 18	0.109 0.109	18 18	10 9
10- 8 x 6-11 10-11 x 7- 1	18 18	0.109 0.109	18 18	9 9
11- 5 x 7- 3 11- 7 x 7- 5	18 18	0.109 0.109	18 18	8 7
11-10 x 7- 7 12- 4 x 7- 9	18 30	0.109 0.109	18 18	7 6
12- 6 x 7-11 12- 8 x 8- 1	30 30	0.109 0.109	18 18	6 6
12-10 x 8- 4 13- 3 x 9- 4	30 30	0.109 0.109	18 31	6 13
13- 6 x 9- 6 14- 0 x 9- 8	30 30	0.109 0.109	31 31	12 12
14- 2 x 9-10 14- 5 x 10- 0	30 30	0.109 0.109	31 31	12 11
14-11 x 10- 2 15- 4 x 10- 4	30 30	0.109 0.109	31 31	11 11
15- 7 x 10- 6 15-10 x 10- 8	30 30	0.109 0.109	31 31	11 10
16- 3 x 10-10 16- 6 x 11- 0	30 30	0.138 0.138	31 31	10 10
17- 0 x 11- 2 17- 2 x 11- 4	30 30	0.138 0.138	31 31	10 10
17- 5 x 11- 6 17-11 x 11- 8	30 30	0.138 0.138	31 31	9 9
18- 1 x 11-10 18- 7 x 12- 0	30 30	0.168 0.168	31 31	9 9
18- 9 x 12- 2 19- 3 x 12- 4	30 30	0.168 0.168	31 31	9 8
19- 6 x 12- 6 19- 8 x 12- 8 19-11 x 12-10	30 30 30	0.168 0.168 0.168	31 31	8 7 7
20- 5 x 13- 0 20- 7 x 13- 2	36 36	0.188 0.188	31 31	7 6

TABLE II – 6 IN. x 2 IN. CORRUGATIONS
STEEL PIPE-ARCH

- PIPE-ARCH IS INTENDED FOR USE WHERE MINIMUM COVER REQUIREMENTS FOR ROUND PIPE CANNOT BE MET.
USE ROUND PIPE WHEN H EXCEEDS 15 FT.

PIPE SIZE SPAN x RISE	MIN. COVER	MIN. WALL THICKNESS	CORNER RADII	MAX. H
FT. – IN.		IN.		FT.
6- 2 x 5- 0 6- 7 x 4-11	21 21	0.100 0.100	27 27	15 15
6- 7 x 5- 8 6-11 x 5- 9	21 21	0.100 0.100	32 32	15 15
7- 3 x 5-11 7- 9 x 6- 0	21 24	0.100 0.100	32 32	15 15
8- 1 x 6- 1 8- 5 x 6- 3	24 24	0.100 0.100	32 32	15 15
8-10 x 6- 4 9- 3 x 6- 5	27 27	0.100 0.100	32 32	15 15
9- 7 x 6- 6 9-11 x 6- 8	27 27	0.100 0.100	32 32	15 15
10- 3 x 6- 9 10- 9 x 6-10	27 30	0.100 0.100	32 32	15 14
11- 1 x 7- 0 11- 5 x 7- 1	30 30	0.100 0.100	32 32	14 14
11- 9 x 7- 2 12- 3 x 7- 3	33 33	0.100 0.100	32 32	13 13
12- 7 x 7- 5 12-11 x 7- 6	33 33	0.100 0.100	32 32	12 12
13- 1 x 8- 2 13- 1 x 8- 4	33 33	0.100 0.100	32 32	12 12
13-11 x 8- 5 14- 0 x 8- 7	30 33	0.125 0.125	32 32	13 13
13-11 x 9- 5 14- 3 x 9- 7	30 33	0.125 0.125	32 32	13 12
14- 8 x 9- 8 14-11 x 9-10	33 33	0.125 0.125	32 32	12 12
15- 4 x 10- 0 15- 7 x 10- 2	33 30	0.125 0.150	32 32	12 11
16- 1 x 10- 4 16- 4 x 10- 6	33 33	0.150 0.150	32 32	11 11
16- 9 x 10- 8 17- 0 x 10-10	33 33	0.150 0.150	32 32	11 10
17- 3 x 11- 0 17- 9 x 11- 2	33 30	0.150 0.175	32 32	10 10
18- 0 x 11- 4 18- 5 x 11- 6	33 33	0.175 0.175	32 32	10 10
18- 8 x 11- 8 19- 2 x 11- 9	33 30	0.175 0.200	32 32	9 9
19- 5 x 11-11 19-10 x 12- 1	30 33	0.200 0.200	32 32	9 9
20- 1 x 12- 3 20- 1 x 12- 6	33 33	0.200 0.200	32 32	9 9
20-10 x 12- 7 21- 1 x 12- 9 21- 6 x 12-11	30 33 33	0.225 0.225 0.225	32 32 32	8 8 8

TABLE III – 9 IN. x 2 1/2 IN. CORRUGATIONS
ALUMINUM PIPE-ARCH

H - HEIGHT OF COVER LIMIT. MAXIMUM HEIGHT OF FILL OVER THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT: HMA OR PCCP.
FILL HEIGHTS GREATER THAN MAXIMUM ALLOWED IN THE FILL HEIGHT TABLE REQUIRE SPECIAL DESIGN.

PIPE DIA.	MIN. COVER	MAX. HEIGHT OF COVER H (FT.)						
		WALL THICKNESS (IN.)						
IN.		0.100	0.125	0.150	0.175	0.200	0.225	0.250
60 66	15 18	31 28	45 41	60 54	70 64	81 74	92 84	100 94
72 78	21 21	25 23	37 35	50 46	58 54	67 62	77 71	86 79
84 90	21 24	22 20	32 30	42 40	50 47	58 54	66 61	73 68
96 102	24 24	19 18	28 26	37 35	44 41	50 47	57 54	64 60
108 114	27 27	17 16	25 23	33 31	39 37	45 42	51 48	57 54
120 126	27 30	15 14	22 21	30 28	35 33	40 38	46 44	51 49
132 138	30 30	14 13	20 19	27 26	32 30	37 35	42 40	46 44
144 150	33 30	12	18 18	25 24	29 28	33 32	38 36	42 40
156 162	30 30		17	23 22	27 26	31 30	35 34	38 37
168 174	30 30			21 20	25 24	29 28	32 31	35 34
180 186	27 27				23 22	27 26	30 29	33 31
192 198	27 27					25 24	28 27	30 29
204 210	27 27					23	26 25	28 27
216 222	27 27							26 25
228	27							25

TABLE IV – 9 IN. x 2 1/2 IN. CORRUGATIONS
ROUND ALUMINUM PIPE

GENERAL NOTES

- PIPE OR PIPE-ARCH WITH ENDS CUT TO FIT A SLOPE AND REPAIRED IN ACCORDANCE WITH SUBSECTION 707.09, SHALL BE REINFORCED AS SHOWN ON THE PLANS.
- WHERE MULTIPLE PIPES ARE USED, THEY SHALL BE SPACED SO THAT ADJACENT SIDES OF THE PIPE SHALL BE AT LEAST ONE-HALF DIAMETER OR ONE-HALF SPAN APART TO PERMIT CAREFUL TAMPING OF THE BACKFILL MATERIAL, EXCEPT THAT THE CLEAR DISTANCE BETWEEN ADJACENT SIDES SHALL NOT BE MORE THAN 3 FT.
- MINIMUM COVER FOR STRUCTURAL PLATE PIPE OR PIPE ARCH IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT: HMA OR PCCP. DURING CONSTRUCTION, ADEQUATE COVER SHALL BE PROVIDED TO PROTECT THE STRUCTURE FROM DAMAGE. THE COVER DURING CONSTRUCTION SHALL BE AT LEAST 1 FT.

- PIPE ARCH WITH EQUAL PERIPHERY AND WITH SPAN AND RISE DIMENSIONS APPROXIMATELY EQUAL TO THOSE SPECIFIED ON THE PLANS WILL BE PERMITTED.

PIPE OR PIPE-ARCH CONFORMING TO SECTION 603 SHALL NOT BE SUBSTITUTED FOR STRUCTURAL PLATE PIPE OR PIPE-ARCH.

PIPE-ARCH DESIGN IS BASED ON CORNER BEARING PRESSURE ON THE SOIL OF 2 TONS PER SQUARE FT.

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	STRUCTURAL PLATE PIPE H-20 LOADING Issued by the Project Development Branch: July 31, 2019		STANDARD PLAN NO.
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