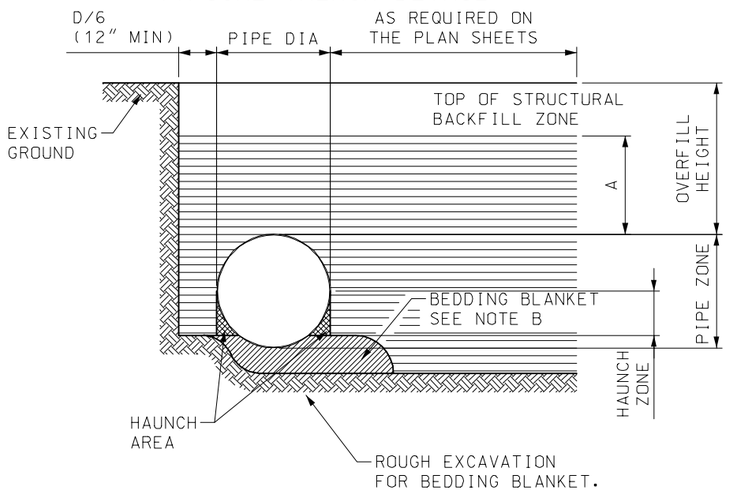
TYPICAL TRENCH DETAIL



PIPE INSTALLATION AND BEDDING

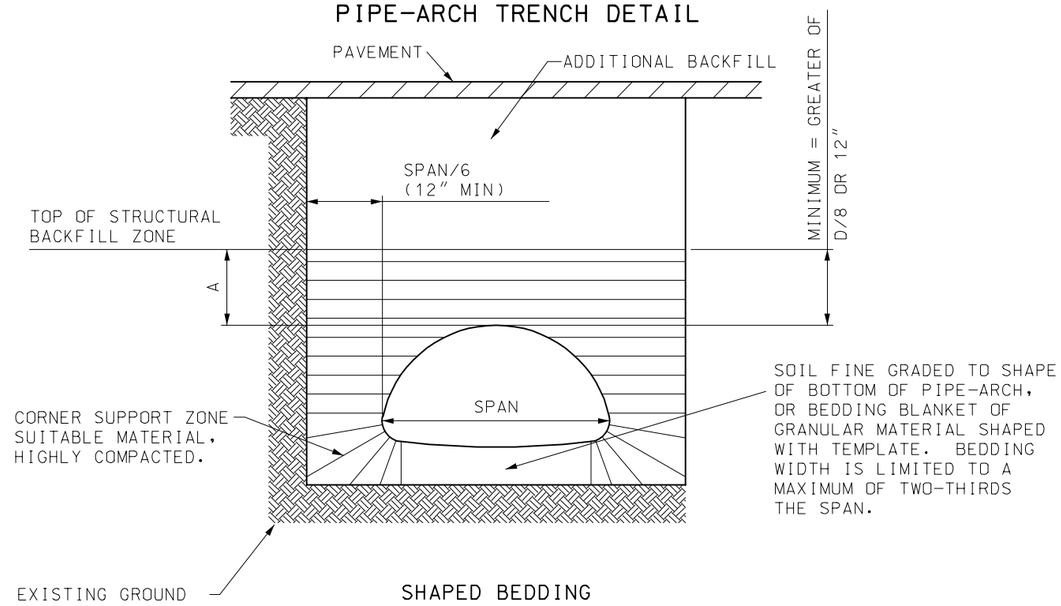
NOTE:

A) MINIMUM STRUCTURAL BACKFILL OVER TOP OF PIPE TO BE ONE-EIGHTH DIAMETER OF PIPE OR ONE FOOT WHICHEVER IS GREATER.

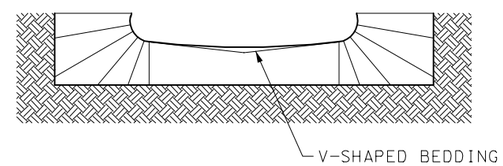
B) BEDDING BLANKET OF LOOSE FILL ROUGHLY SHAPED TO FIT BOTTOM OF PIPE. MINIMUM THICKNESS BEFORE PLACING PIPE SHALL BE AS FOLLOWS:

DEPTH OF CORRUGATION	MIN. BEDDING THICKNESS
½"	1"
1"	2"
2"	3"

PIPE-ARCH TRENCH DETAIL

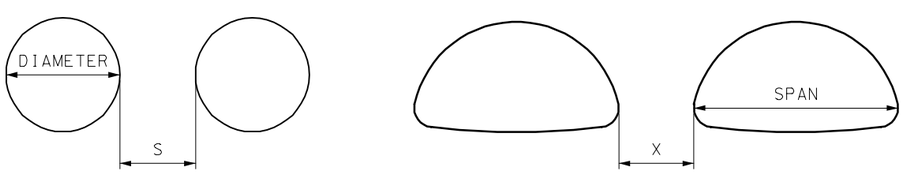


SHAPED BEDDING



ALTERNATIVE-SHAPED BEDDING

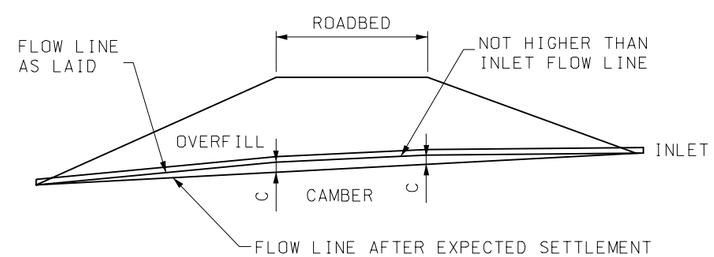
BEDDING AND CORNER ZONE TREATMENT FOR PIPE ARCH STRUCTURES



PIPE	
DIAMETER	SPACE S
UP TO 24"	12"
24" TO 72"	½ PIPE DIA
72" AND OVER	36"

PIPE-ARCHES	
SPAN	SPACE X
UP TO 36"	12"
36" TO 108"	1/3 ARCH SPAN
108" TO 189"	36"

MULTIPLE STRUCTURE SPACING



TYPICAL CAMBERED FLOW LINE

NOTE:

ON YIELDING SOIL, PIPE CULVERTS SHOULD BE PLACED ON A CAMBERED FLOW LINE. THE AMOUNT OF CAMBER WILL VARY WITH SOIL CONDITIONS AND SHALL BE SPECIFIED ON THE DESIGN PLANS.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

CORRUGATED METAL PIPE INSTALLATION METHODS

DATE:_____ | EFFECTIVE: 10-01-2003 | 725.00A | 1/3

TABLE I
CORRUGATED METALLIC-COATED OR POLYMER-COATED STEEL CIRCULAR PIPE
LOCK SEAM

MAXIMUM ALLOWABLE OVERFILL HEIGHTS (1)

SPECIFIED DIAMETER OF PIPE	MINIMUM COVER (2)	SPECIFIED THICKNESS OF COATED SHEET (IN.)																			
		0.064				0.079				0.109				0.138				0.168			
		A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
IN.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.
12	1	213			139	266															
15	1	170			111	212			156												
18	1	142			93	177			130												
21	1	121			79	152			111												
24	1	106			69	133			97	186			162								
30	1	85			55	106			78	149			130								
36	1	71			46	88			65	124			108	159			157				
42	1	60			39	76			55	106			93	137			134	167			
48	1	53	61	54	34	66	76	68	48	93	107	95	81	119	138	122	118	146	168	150	
54	1		54	48		59	68	60	43	82	95	84	72	106	122	109	104	130	150	133	
60	1		48	43			61	54	39	74	85	76	65	95	110	98	94	117	135	120	
66	1		44	39			55	49			77	69	59	87	100	89	85	106	122	109	
72	1		40	36			51	45			71	63	54	79	92	81	78	97	112	100	
78	1		37	33			47	41			65	58	50		84	75	72	86	103	92	
84	1		34	31			43	38			61	54			78	70	69	75	96	85	
90	1		32	29			40	36			57	50			73	65	62		90	80	
96	1						38	34			53	47			69	61	58		84	75	
102	2						36	32			50	44			64	57			79	70	
108	2										47	42			61	54			75	66	
114	2										45	40			58	51			71	63	
120	2										42	38			55	49			67	60	
126	2														52	46			64	57	
132	2														50	44			61	54	
138	2														48	42			58	52	
144	2																		56	50	

TABLE IA
CORRUGATED METALLIC-COATED STEEL CIRCULAR PIPE
RIVETED, BOLTED OR SPOT WELDED SEAM

MAXIMUM ALLOWABLE OVERFILL HEIGHTS (1)

SPECIFIED DIAMETER OF PIPE	MINIMUM COVER (2)	SPECIFIED THICKNESS OF COATED SHEET (IN.)									
		0.064		0.079		0.109		0.138		0.168	
		A	B	A	B	A	B	A	B	A	B
IN.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.
12	1	92		101							
15	1	74		80							
18	1	61		67							
21	1	53		57							
24	1	46		50		65					
30	1	37		40		52					
36	1	30		33		43		45			
42	1	26		28		37		38		40	
48	1	23	39	25	49	32	73	34	88	35	98
54	1		35	22	44	28	65	30	78	31	87
60	1		31		39	26	58	27	70	28	78
66	1		28		36		53	24	64	25	71
72	1		26		33		49	22	58	23	65
78	1		24		30		45		54	21	60
84	1		22		28		42		50	20	56
90	1		21		26		39		47		52
96	1				24		36		44		49
102	2				23		34		41		46
108	2						32		39		43
114	2						30		37		41
120	2						29		35		39
126	2								33		37
132	2								32		35
138	2								30		34
144	2										32

TABLE II
CORRUGATED ALUMINUM ALLOY CIRCULAR PIPE

2-2/3" X 1/2" CORRUGATIONS
ALLOWABLE OVERFILL HEIGHTS

SPECIFIED DIAMETER OF PIPE	SPECIFIED SHEET THICKNESS (IN.)			
	0.075	0.105	0.135	0.164
IN.	FT.	FT.	FT.	FT.
12	1-37			
15	1-33	34-38		
18	1-19	30-35		
21	1-25	26-30	31-35	
24		1-29	30-33	
30		1-23	24-28	29-30
36			1-22	23-27
42			1-17	18-24
48			1-11	12-17

A = 2-2/3" X 1/2" CORRUGATIONS.
B = 3" X 1" CORRUGATIONS.
C = 5" X 1" CORRAGATIONS
D = 3/4" X 3/4" X 7-1/2" SPIRAL RIB

(1) MAXIMUM OVERFILL MEASURED FROM THE TOP OF PIPE TO SURFACE.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

CORRUGATED METAL PIPE INSTALLATION METHODS

DATE:_____ EFFECTIVE: 10-01-2003 **725.00A** 2/3

TABLE III
MINIMUM COVER FOR CONSTRUCTION LOADS (ROUND AND PIPE-ARCH)

DIAMETER OR PIPE SPAN	MINIMUM COVER (FT.) FOR INDICATED AXLE LOADS			
	18K LBS.-50K LBS.	50K LBS.-75K LBS.	75K ;BS.-110K LBS.	110K LBS.-150K LBS.
IN.	FT.	FT.	FT.	FT.
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

THE CONTRACTOR SHALL PROVIDE MINIMUM COVER PLUS ANY ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. IN UNPAVED SITUATIONS, THE SURFACE MUST BE MAINTAINED TO A LEVEL AND NON-RUTTED CONDITION.

TABLE IV
PIPE-ARCH REQUIREMENTS 2-2/3" X 1/2" CORRUGATIONS

TYPE	SPAN (4)	RISE (4)	GALVANIZED SHEET THICKNESS - GUAGE
	(IN.)	(IN.)	(IN.)
B1	17	13	0.064 - 16
B2	21	15	0.064 - 16
B3	24	18	0.064 - 16
B4	28	20	0.064 - 16
B5	35	24	0.064 - 16
B6	42	29	0.079 - 14
B7	49	33	0.109 - 12
B8	57	38	0.109 - 12
B9	64	43	0.109 - 12
B10	71	47	0.138 - 10
B11	77	52	0.168 - 8
B12	83	57	0.168 - 8

TABLE V
PIPE-ARCH REQUIREMENTS 3" X 1" CORRUGATIONS

TYPE	SPAN (5)	RISE (5)	GALVANIZED SHEET THICKNESS - GUAGE
	(IN.)	(IN.)	(IN.)
B8A	53 (-2.4)	41 (+2.4)	0.079 - 14
B9A	60 (-2.7)	46 (+2.7)	0.079 - 14
B10A	66 (-3.0)	51 (+3.0)	0.079 - 14
B11A	73 (-3.3)	55 (+3.3)	0.079 - 14
B12A	81 (-3.6)	59 (+3.6)	0.079 - 14
B13A	87 (-4.4)	63 (+4.4)	0.079 - 14
B14A	95 (-4.8)	67 (+4.8)	0.079 - 14
B15A	103 (-5.2)	71 (+5.2)	0.079 - 14
B16A	112 (-5.6)	75 (+5.6)	0.109 - 12
B17A	117 (-5.9)	79 (+5.9)	0.109 - 12
B18A	128 (-6.4)	83 (+6.4)	0.109 - 12
B19A	137 (-6.9)	87 (+6.9)	0.109 - 12
B20A	142 (-7.1)	91 (+7.1)	0.138 - 10

(2) MINIMUM COVER MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT.

(3) A TOLERANCE OF PLUS OR MINUS ONE INCH OR 2 PERCENT OF EQUIVALENT CIRCULAR DIAMETER, WHICHEVER IS GREATER, WILL BE PERMISSIBLE IN SPAN AND RISE.

(3) TOLERANCES IN PARENTHESES. NO TOLERANCE IN OPPOSITE DIRECTION.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

CORRUGATED METAL PIPE INSTALLATION METHODS

DATE:_____ EFFECTIVE: 10-01-2003 **725.00A** 3/3