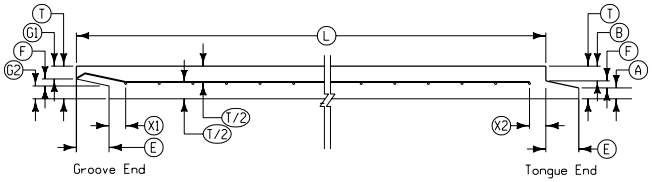
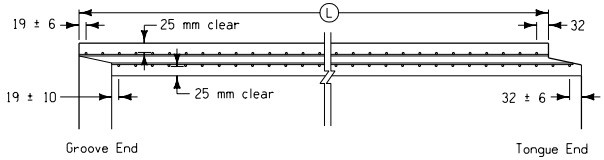


SINGLE LINE REINFORCED

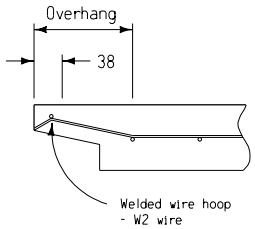


DOUBLE LINE REINFORCED

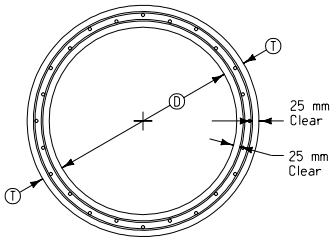
GENERAL DIMENSIONS																				
D	Area of Opening m^2	Class 100 D and 150 D									Class 75 D									D
		Appr. Mass kg/m	Dimensions (mm)								Appr. Mass kg/m	Dimensions (mm)								
			T	A	B	G1	G2	C*	E	F		T	A	B	G1	G2	C*	E	F	
300	0.07	137	51	16	19	16	19	3	51	16										300
375	0.11	189	57	19	25	22	22	3	51	13	165	51	19	22	19	22	3	51	10	375
450	0.16	250	64	22	29	25	25	3	64	13	222	57	22	25	22	25	3	51	10	450
525	0.22	313	70	25	35	32	29	3	64	10	286	64	25	29	25	29	3	64	10	525
600	0.28	394	76	24	33	29	29	5	76	19	341	67	25	30	25	30	5	64	11	600
675	0.36	487	83	27	37	32	32	5	83	19	417	70	27	32	25	32	5	70	13	675
750	0.44	571	89	30	40	35	35	5	89	19	482	76	29	33	29	33	5	76	14	750
825	0.53	673	95	32	43	38	38	6	95	19	573	83	29	35	29	35	6	83	19	825
900	0.64	780	102	35	48	41	41	6	102	19	647	86	30	37	30	37	6	89	19	900
1050	0.87	1019	114	41	54	48	48	6	102	19	836	95	35	41	35	41	6	89	19	1050
1200	1.13	1290	127	41	67	60	48	6	102	19	1082	108	41	48	41	48	6	102	19	1200
1350	1.43	1594	140	46	75	68	52	6	114	19	1321	117	46	52	46	52	6	114	19	1350
1500	1.77	1929	152	51	83	76	57	6	127	19	1583	127	51	57	51	57	6	127	19	1500
1650	2.14	2295	165	57	89	83	64	6	127	19	1893	140	57	64	57	64	6	127	19	1650
1800	2.54	2694	178	64	95	89	70	6	127	19	2280	152	64	70	64	70	6	127	19	1800
2100	3.46	3585	203	73	111	102	83	10	127	19	3103	178	76	83	76	83	6	140	19	2100

* C is clearance between edges of adjacent tongue and groove (G2-A).

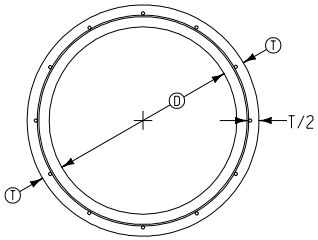
REINFORCEMENT - WELDED STEEL WIRE FABRIC														
D	Minimum Circumferential mm^2/m of pipe						Minimum Cage Width (W) + (L) mm			Suggested Overhang				
										Groove End		Tongue End		
										Std. Wall	Thin Wall	Standard Wall		Thin Wall
	75 D		100 D		150 D		75 D	100 D	150 D	100 D 150 D	75 D	100 D 150 D	75 D	75 D
	SINGLE	DOUBLE	SINGLE	DOUBLE	SINGLE	DOUBLE								
300	131	--	131	--	131	--	127	127	127	--	--	--	--	--
375	131	--	131	--	184	--	127	127	127	89	89	35	35	32
450	131	--	207	--	246	--	127	127	127	95	89	38	38	35
525	157	--	246	--	313	--	127	127	127	95	95	41	41	38
600	184	--	313	--	396	--	152	152	152	95	108	44	44	41
675	207	--	337	--	457	--	--	152	152	146	124	51	48	41
750	246	--	396	--	--	368	152	152	76	149	143	51	51	44
825	313	--	506	--	--	368	--	152	76	149	146	44	54	48
900	313	--	--	368	--	396	152	76	76	19	149	35	57	51
1050	--	368	--	396	--	506	76	76	51	19	19	38	35	35
1200	--	396	--	506	--	593	76	51	51	19	19	38	38	38
1350	--	506	--	593	--	688	51	51	51	19	19	38	35	35
1500	--	593	--	688	--	798	51	51	51	19	19	38	38	38
1650	--	688	--	798	--	938	0	51	51	19	19	38	38	38
1800	--	688	--	938	--	938	51	51	51	19	19	41	38	38
2100	--	798	--	1092	--	1092	51	51	51	19	19	41	38	38



REINFORCED GROOVE



DOUBLE LINE REINFORCED



SINGLE LINE REINFORCED

CROSS SECTIONS

GENERAL NOTES:

The wall thickness and reinforcement shown are minimum requirements. If the wall thickness is increased, only dimensions indicated by T, B and G1 shall be changed. 75 D pipe, in 300, 375, 450 and 525 millimeter diameters, when made with wall thickness for 100 D pipe, need not be reinforced if strength requirements can be met. All other 75 D pipe shall have the minimum reinforcement specified.

No circumferential reinforcement shall be required in tongues or grooves of 300, 375, 450 and 525 millimeter pipe of all classes or 600 millimeter pipe of 75 D class. All other pipe with single line reinforcement shall have the groove end reinforced by one welded hoop of not less than W2 wire. This hoop shall be secured to the cage by welding or by twisting the transverse wires around the hoop.

Pipe having two lines of reinforcement shall have circumferential wires extending into tongues and grooves as shown.

The difference between X1 and X2 shall not be more than 15 millimeters.

The spacing of transverse wires shall not exceed 200 millimeters and the size shall be that specified by the U.S. Dept. of Commerce Simplified Practice Recommendation No. 234–48 effective Aug. 1, 1948. The spacing of circumferential rings shall not exceed 100 millimeters.

The suggested overhangs specified are approximate and may need to be changed due to the tightness of bends, wire diameter, cage width, and the exact location of cage within the tolerances permitted. The bend shown in REINFORCED GROOVE view requires approximately 3 millimeters extra overhang for all sizes except the 750 millimeter pipe which will require about 6 millimeters. When the groove end hoop is welded to the transverse wires, approximately 29 millimeters less overhang will be required. Tongue end overhang is required only when it is used for placement of reinforcement.

All material and construction to conform to the current Standard Specifications and welded wire fabric shall conform to ASTM A 185.

Pipe culvert sections shall be connected by use of approved connectors when so specified. Connector holes shall be provided in conformance with requirements shown on Standard Road Plan RF–14.

SPECIAL NOTE:

Installation requirements for concrete culvert pipe shall be in conformance with appropriate other Standard Road Plans, detail project plans and current Standard and Supplemental Specifications. Refer to "Tabulation of Drainage Structures" for requirements of individual installations.

All dimensions given in millimeters unless noted.

M

Iowa Department of Transportation
Project Development Division

METRIC VERSION

STANDARD ROAD PLAN **RF-1**

REVISION: Metric conversion of Standard Road Plan RF-1 no. 2 (dated 9-3-76).

REVISION NO. 2

David P. Little 11-18-94
APPROVED BY DESIGN METHODS ENGINEER

REVISION DATE 03-28-95

CONCRETE CULVERT PIPE