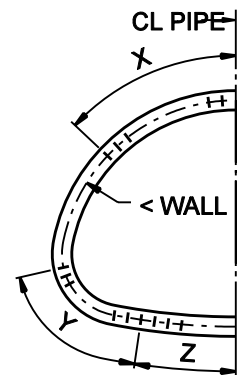


STIRRUP REQUIREMENTS (B)

NOMINAL SPAN	EQUIVALENT DIAMETER (A)	STIRRUP REQUIREMENTS (B)																
		TOP				BOTTOM												
				SIDES						CENTER								
		S	X	A _{s1}		S	Y			A _{s1}			S	Z			A _{s1}	
IIIA	IVA			IIA	IIIA		IVA	IIA	IIIA	IVA	IIA	IIIA		IVA	IIIA	IVA		
IN.	IN.	IN.	IN.															
73	60	5	2' 8"		.20	4		1' 8"	2' 0"		.37	.66	5		1' 8"	1' 4"	.20	.20
88	72	5	3' 2"		.20	4		2' 0"	2' 5"		.39	.65	5		2' 0"	1' 7"	.20	.20
102	84	6	3' 8"		.20	4		2' 3"	2' 9"		.37	.64	6		2' 3"	1' 10"	.20	.20
115	90	6	4' 2"		.20	4		2' 6"	3' 1"		.36	.69	6		2' 6"	2' 0"	.20	.20
122	96	7	4' 5"		.20	4		2' 9"	3' 3"		.33	.67	7		2' 9"	2' 2"	.20	.20
138	108	7	5' 0"		.20	4-1/2		3' 1"	3' 8"		.33	.68	7		3' 1"	2' 6"	.20	.20
154	120	8	5' 6"		.20	5		3' 5"	4' 2"		.30	.62	8		3' 5"	2' 9"	.20	.20
169	132	7	5' 11"	.20		4-1/2	3' 9"	3' 9"		.20	.42		7	3' 9"	3' 9"		.20	

(B) SEE MNDOT STANDARD PLATE 3007D FOR STIRRUP OPTIONS.
 S = MAXIMUM STIRRUP SPACING IN INCHES MEASURED AT CENTERLINE OF WALL.
 A_{s1} = MINIMUM RADIAL REINFORCEMENT IN SQUARE INCHES PER SQUARE FOOT OF WALL MEASURED AT CENTERLINE OF WALL.
 X, Y, & Z ARE MEASURED AT CENTERLINE OF WALL.



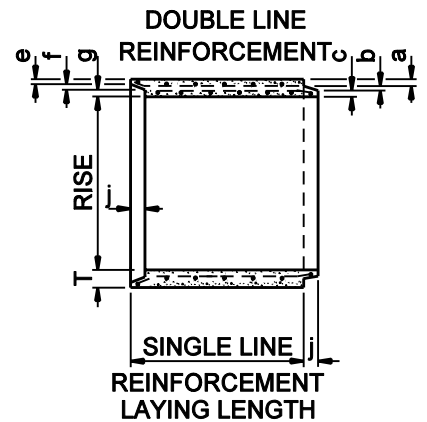
STIRRUP DETAILS

GENERAL NOTES:

- LAYING LENGTHS: 22" TO 122" DIA. (6' & 8'), 138" DIA. (4' & 6"), 154" & 169" DIA. (4' & 5').
- THREE-EDGE-BEARING-TEST REQUIREMENTS OF MNDOT SPECIFICATION 3236 ARE NOT APPLICABLE.
- BEDDING: CLASS "B" BEDDING, MNDOT SPEC. 2451, REQUIRED.

BASIS OF DESIGN:

- ULTIMATE STRENGTH ACCORDING TO 1977 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, USING $U = 1.5D + 2.5(L + 1)$.
- LIVE LOAD BASED ON HS 20 LOADING WITH IMPACT AND DISTRIBUTION IN ACCORDANCE WITH 1977 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
- FILL LOADS ON PIPE ARCH DETERMINED BY ACPA DESIGN DATA 17 PROCEDURE FOR POSITIVE PROJECTING CONDUIT, USING $r = 0.5$, $p = 0.7$, $w = 120$ LBS./C.F., AND BEARING ASSUMED TO ACT ON 80% OF THE CULVERT WIDTH.
- MAXIMUM DEPTH OF COVER, "EMBANKMENT CONDITION."*
 CLASS IIA 8 FT.
 CLASS IIIA 16 FT.
 CLASS IVA 23 FT.
 * MAXIMUM DEPTH OF COVER MAY BE INCREASED 25% OVER THE DEPTH LISTED FOR THE "EMBANKMENT CONDITION" WHEN INSTALLATION IN A "ZERO PROJECTION TRENCH CONDITION."



LONGITUDINAL SECTION

MNDOT SPEC. REF. 2501
 MNDOT 3014J1
 1 OF 3
 NOT TO SCALE

	MINNEAPOLIS DEPARTMENT OF PUBLIC WORKS		RC PIPE-ARCH	STANDARD PLATE NO. SEWR-4004
	DRAWN: CXD APPROVED: HRS	DATE: 4/03 DATE: 12/06		