

DIMENSIONS

PIPE SIZE	A	B	C	a	b
12"	11'-4"	2'-1"	10'-7½"	0'-1¼"	0'-1"
15"	14'-8"	2'-5"	14'-0"	0'-1¾"	0'-1¼"
18"	17'-2"	2'-8"	16'-6"	0'-2"	0'-1½"
21" OR 24"	22'-2"	3'-2"	21'-6½"	0'-2½"	0'-2"

APPROXIMATE QUANTITIES

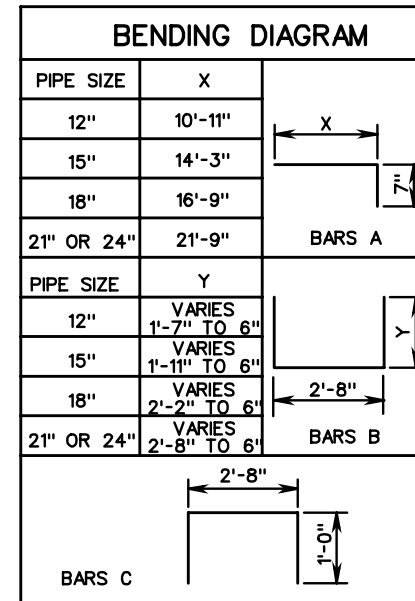
PIPE SIZE	NO. OF GRATE SECTIONS	CONCRETE CUBIC YARDS		LBS. REINF. STEEL	LENGTH TO BE CUT FROM 1 GRATE
		CONC. PIPE	C.M. PIPE		
12"	3	1.127	1.139	119	0
15"	4	1.532	1.547	161	2½"
18"	5	1.856	1.877	201	1'-2½"
21" OR 24"	6	2.567	2.600	276	* 0

* GRATES WILL BE 3⅝" SHORT.

SCHEDULE OF REINFORCING STEEL

PIPE SIZE	BARS A				BARS B				BARS C				BARS D			
	SIZE	NO.	SPA.	LENGTH	SIZE	NO.	SPA.	LENGTH	SIZE	NO.	SPA.	LENGTH	SIZE	NO.	SPA.	LENGTH
12"	# 4	5	8"	11'-6"	# 4	17	8"	VARIES 3'-8" TO 5'-10"	# 4	2	-	4'-8"	# 4	4	8"	VARIES 4'-2" TO 11'-0"
15"	# 4	5	8"	14'-10"	# 4	22	8"	VARIES 3'-8" TO 6'-7"	# 4	2	-	4'-8"	# 4	4	8"	VARIES 7'-8" TO 14'-4"
18"	# 4	5	8"	17'-4"	# 4	26	8"	VARIES 3'-8" TO 7'-0"	# 4	2	-	4'-8"	# 4	6	8"	VARIES 4'-4" TO 16'-10"
21" OR 24"	# 4	5	8"	22'-4"	# 4	33	8"	VARIES 3'-8" TO 8'-0"	# 4	2	-	4'-8"	# 4	8	8"	VARIES 2'-9" TO 21'-10"

BENDING DIAGRAM



APPROXIMATE WEIGHT OF GRATE

TYPE	LBS.
2" DIA. BAR	158.55
NO. 14 BILLET STEEL BAR	123.64



ROAD AND BRIDGE STANDARDS

PIPE ENDWALL WITH LOAD-CARRYING GRATE

12" - 24" CIRCULAR PIPES

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

105
233
302