

TABLE OF DIMENSIONS AND CONCRETE VOLUMES PER ENDWALL

FOR 1/2:1 FILL SLOPE

DIAMETER OF PIPE CULVERTS

30° SKEW	DIMENSION	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	DIMENSION
	D 30	4'-0 <sup>1</sup> / <sub>2</sub> "	4'-7 <sup>3</sup> / <sub>8</sub> "	5'-2 <sup>3</sup> / <sub>8</sub> "	5'-9 <sup>3</sup> / <sub>8</sub> "	6'-4 <sup>1</sup> / <sub>4</sub> "	6'-11 <sup>1</sup> / <sub>8</sub> "	7'-6 <sup>1</sup> / <sub>8</sub> "	8'-1"	8'-8"	9'-2 <sup>1</sup> / <sub>8</sub> "	D 30
	J 30	6'-3"	6'-11 <sup>5</sup> / <sub>8</sub> "	7'-9 <sup>5</sup> / <sub>8</sub> "	8'-7 <sup>3</sup> / <sub>8</sub> "	9'-5 <sup>1</sup> / <sub>4</sub> "	10'-3 <sup>1</sup> / <sub>8</sub> "	11'-0 <sup>1</sup> / <sub>8</sub> "	11'-10 <sup>1</sup> / <sub>2</sub> "	12'-8 <sup>1</sup> / <sub>2</sub> "	13'-6 <sup>1</sup> / <sub>4</sub> "	J 30
	K 30	5'-0"	5'-6 <sup>7</sup> / <sub>8</sub> "	6'-3 <sup>1</sup> / <sub>8</sub> "	6'-11 <sup>1</sup> / <sub>8</sub> "	7'-7 <sup>1</sup> / <sub>4</sub> "	8'-3 <sup>3</sup> / <sub>8</sub> "	8'-11 <sup>3</sup> / <sub>8</sub> "	9'-7 <sup>1</sup> / <sub>2</sub> "	10'-3 <sup>1</sup> / <sub>2</sub> "	10'-11 <sup>3</sup> / <sub>4</sub> "	K 30
CUBIC YARDS CONCRETE	CONC. PIPE	3.631	4.459	5.745	7.223	8.934	10.885	13.076	15.544	18.456	21.582	CONC. PIPE
	C.M. PIPE	3.900	4.814	6.228	7.861	9.758	11.928	14.373	17.132	20.221	23.686	C.M. PIPE
45° SKEW	C 45	5'-9"	6'-6"	7'-3"	8'-0"	8'-9"	9'-6"	10'-3"	11'-0"	11'-9"	12'-6"	C 45
	D 45	4'-11 <sup>3</sup> / <sub>8</sub> "	5'-7 <sup>7</sup> / <sub>8</sub> "	6'-4 <sup>3</sup> / <sub>8</sub> "	7'-0 <sup>7</sup> / <sub>8</sub> "	7'-9 <sup>3</sup> / <sub>8</sub> "	8'-5 <sup>7</sup> / <sub>8</sub> "	9'-2 <sup>1</sup> / <sub>4</sub> "	9'-10 <sup>3</sup> / <sub>4</sub> "	10'-7 <sup>1</sup> / <sub>4</sub> "	11'-3 <sup>3</sup> / <sub>4</sub> "	D 45
	I 45	2'-4 <sup>3</sup> / <sub>8</sub> "	2'-6 <sup>1</sup> / <sub>4</sub> "	2'-9 <sup>5</sup> / <sub>8</sub> "	3'-0 <sup>3</sup> / <sub>4</sub> "	3'-3 <sup>7</sup> / <sub>8</sub> "	3'-7"	3'-10 <sup>1</sup> / <sub>8</sub> "	4'-1 <sup>1</sup> / <sub>4</sub> "	4'-4 <sup>3</sup> / <sub>4</sub> "	4'-8 <sup>1</sup> / <sub>4</sub> "	I 45
	J 45	7'-5 <sup>3</sup> / <sub>4</sub> "	8'-4 <sup>5</sup> / <sub>8</sub> "	9'-4 <sup>1</sup> / <sub>2</sub> "	10'-4 <sup>3</sup> / <sub>8</sub> "	11'-4 <sup>1</sup> / <sub>4</sub> "	12'-4 <sup>1</sup> / <sub>8</sub> "	13'-3 <sup>3</sup> / <sub>8</sub> "	14'-3 <sup>1</sup> / <sub>8</sub> "	15'-4 <sup>1</sup> / <sub>8</sub> "	16'-4 <sup>1</sup> / <sub>2</sub> "	J 45
	K 45	5'-9 <sup>1</sup> / <sub>4</sub> "	6'-5 <sup>3</sup> / <sub>4</sub> "	7'-3 <sup>1</sup> / <sub>4</sub> "	8'-0 <sup>3</sup> / <sub>4</sub> "	8'-10 <sup>1</sup> / <sub>4</sub> "	9'-7 <sup>3</sup> / <sub>4</sub> "	10'-5 <sup>1</sup> / <sub>8</sub> "	11'-2 <sup>5</sup> / <sub>8</sub> "	12'-0 <sup>1</sup> / <sub>8</sub> "	12'-9 <sup>5</sup> / <sub>8</sub> "	K 45
	L 45	8'-1 <sup>9</sup> / <sub>8</sub> "	9'-2 <sup>1</sup> / <sub>4</sub> "	10'-3"	11'-3 <sup>3</sup> / <sub>4</sub> "	12'-4 <sup>1</sup> / <sub>2</sub> "	13'-5 <sup>1</sup> / <sub>4</sub> "	14'-6"	15'-6 <sup>5</sup> / <sub>8</sub> "	16'-7 <sup>1</sup> / <sub>2</sub> "	17'-8 <sup>1</sup> / <sub>8</sub> "	L 45
	M 45	0'-4 <sup>1</sup> / <sub>8</sub> "	0'-4 <sup>1</sup> / <sub>8</sub> "	0'-4 <sup>1</sup> / <sub>2</sub> "	0'-5"	0'-5 <sup>3</sup> / <sub>8</sub> "	0'-5 <sup>3</sup> / <sub>4</sub> "	0'-6 <sup>1</sup> / <sub>4</sub> "	0'-6 <sup>5</sup> / <sub>8</sub> "	0'-7"	0'-7 <sup>1</sup> / <sub>2</sub> "	M 45
	R 45	1'-6 <sup>3</sup> / <sub>8</sub> "	1'-8 <sup>1</sup> / <sub>2</sub> "	1'-10 <sup>5</sup> / <sub>8</sub> "	2'-0 <sup>3</sup> / <sub>4</sub> "	2'-2 <sup>7</sup> / <sub>8</sub> "	2'-5"	2'-7 <sup>1</sup> / <sub>8</sub> "	2'-9 <sup>1</sup> / <sub>4</sub> "	2'-11 <sup>3</sup> / <sub>4</sub> "	3'-2 <sup>1</sup> / <sub>4</sub> "	R 45
CUBIC YARDS CONCRETE	CONC. PIPE	4.231	5.191	6.712	8.447	10.441	12.714	15.276	18.150	21.420	25.107	CONC. PIPE
	C.M. PIPE	4.542	5.604	7.274	9.189	11.400	13.927	16.783	19.997	23.582	27.684	C.M. PIPE

FOR 2:1 FILL SLOPE

DIAMETER OF PIPE CULVERTS

30° SKEW		42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	
	D 30	4'-0 <sup>1</sup> / <sub>2</sub> "	4'-7 <sup>3</sup> / <sub>8</sub> "	5'-2 <sup>3</sup> / <sub>8</sub> "	5'-9 <sup>3</sup> / <sub>8</sub> "	6'-4 <sup>1</sup> / <sub>4</sub> "	6'-11 <sup>1</sup> / <sub>8</sub> "	7'-6 <sup>1</sup> / <sub>8</sub> "	8'-1"	8'-8"	9'-2 <sup>1</sup> / <sub>8</sub> "	D 30
	J 30	6'-2 <sup>3</sup> / <sub>4</sub> "	6'-11 <sup>3</sup> / <sub>8</sub> "	7'-9 <sup>3</sup> / <sub>8</sub> "	8'-7 <sup>1</sup> / <sub>8</sub> "	9'-5"	10'-2 <sup>5</sup> / <sub>8</sub> "	11'-0 <sup>5</sup> / <sub>8</sub> "	11'-10 <sup>1</sup> / <sub>4</sub> "	12'-8 <sup>1</sup> / <sub>8</sub> "	13'-6"	J 30
	K 30	5'-0"	5'-6 <sup>7</sup> / <sub>8</sub> "	6'-3 <sup>1</sup> / <sub>8</sub> "	6'-11 <sup>1</sup> / <sub>8</sub> "	7'-7 <sup>1</sup> / <sub>4</sub> "	8'-3 <sup>3</sup> / <sub>8</sub> "	8'-11 <sup>3</sup> / <sub>8</sub> "	9'-7 <sup>1</sup> / <sub>2</sub> "	10'-3 <sup>1</sup> / <sub>2</sub> "	10'-11 <sup>3</sup> / <sub>4</sub> "	K 30
CUBIC YARDS CONCRETE	CONC. PIPE	4.310	5.315	6.868	8.669	10.757	13.138	15.823	18.863	22.368	26.201	CONC. PIPE
	C.M. PIPE	4.576	5.668	7.349	9.304	11.577	14.175	17.114	20.444	24.117	28.287	C.M. PIPE
45° SKEW	C 45	7'-6"	8'-6"	9'-6"	10'-6"	11'-6"	12'-6"	13'-6"	14'-6"	15'-6"	16'-6"	C 45
	D 45	4'-11 <sup>3</sup> / <sub>8</sub> "	5'-7 <sup>7</sup> / <sub>8</sub> "	6'-4 <sup>3</sup> / <sub>8</sub> "	7'-0 <sup>7</sup> / <sub>8</sub> "	7'-9 <sup>3</sup> / <sub>8</sub> "	8'-5 <sup>7</sup> / <sub>8</sub> "	9'-2 <sup>1</sup> / <sub>4</sub> "	9'-10 <sup>3</sup> / <sub>4</sub> "	10'-7 <sup>1</sup> / <sub>4</sub> "	11'-3 <sup>3</sup> / <sub>4</sub> "	D 45
	I 45	2'-4"	2'-6 <sup>1</sup> / <sub>8</sub> "	2'-9 <sup>1</sup> / <sub>4</sub> "	3'-0 <sup>3</sup> / <sub>8</sub> "	3'-3 <sup>1</sup> / <sub>2</sub> "	3'-6 <sup>5</sup> / <sub>8</sub> "	3'-9 <sup>3</sup> / <sub>4</sub> "	4'-0 <sup>1</sup> / <sub>8</sub> "	4'-4 <sup>3</sup> / <sub>8</sub> "	4'-7 <sup>7</sup> / <sub>8</sub> "	I 45
	J 45	7'-5 <sup>3</sup> / <sub>8</sub> "	8'-4 <sup>1</sup> / <sub>4</sub> "	9'-4 <sup>1</sup> / <sub>8</sub> "	10'-4"	11'-3 <sup>3</sup> / <sub>8</sub> "	12'-3 <sup>5</sup> / <sub>8</sub> "	13'-3 <sup>1</sup> / <sub>2</sub> "	14'-3 <sup>1</sup> / <sub>4</sub> "	15'-3 <sup>3</sup> / <sub>4</sub> "	16'-4"	J 45
	K 45	5'-9 <sup>1</sup> / <sub>4</sub> "	6'-5 <sup>3</sup> / <sub>4</sub> "	7'-3 <sup>1</sup> / <sub>4</sub> "	8'-0 <sup>3</sup> / <sub>4</sub> "	8'-10 <sup>1</sup> / <sub>4</sub> "	9'-7 <sup>3</sup> / <sub>4</sub> "	10'-5 <sup>1</sup> / <sub>8</sub> "	11'-2 <sup>5</sup> / <sub>8</sub> "	12'-0 <sup>1</sup> / <sub>8</sub> "	12'-9 <sup>5</sup> / <sub>8</sub> "	K 45
	L 45	10'-7 <sup>1</sup> / <sub>4</sub> "	12'-0 <sup>1</sup> / <sub>4</sub> "	13'-5 <sup>1</sup> / <sub>4</sub> "	14'-10 <sup>1</sup> / <sub>4</sub> "	16'-3 <sup>1</sup> / <sub>8</sub> "	17'-8 <sup>1</sup> / <sub>8</sub> "	19'-1 <sup>1</sup> / <sub>8</sub> "	20'-6 <sup>1</sup> / <sub>8</sub> "	21'-11"	23'-4"	L 45
	M 45	0'-4 <sup>1</sup> / <sub>8</sub> "	0'-4 <sup>1</sup> / <sub>8</sub> "	0'-4 <sup>1</sup> / <sub>2</sub> "	0'-5"	0'-5 <sup>3</sup> / <sub>8</sub> "	0'-5 <sup>3</sup> / <sub>4</sub> "	0'-6 <sup>1</sup> / <sub>4</sub> "	0'-6 <sup>5</sup> / <sub>8</sub> "	0'-6 <sup>5</sup> / <sub>8</sub> "	0'-6 <sup>3</sup> / <sub>4</sub> "	M 45
	R 45	1'-6"	1'-8 <sup>1</sup> / <sub>8</sub> "	1'-10 <sup>1</sup> / <sub>4</sub> "	2'-0 <sup>3</sup> / <sub>8</sub> "	2'-2 <sup>1</sup> / <sub>2</sub> "	2'-4 <sup>5</sup> / <sub>8</sub> "	2'-6 <sup>3</sup> / <sub>4</sub> "	2'-8 <sup>1</sup> / <sub>8</sub> "	2'-11 <sup>3</sup> / <sub>8</sub> "	3'-1 <sup>1</sup> / <sub>8</sub> "	R 45
CUBIC YARDS CONCRETE	CONC. PIPE	5.043	6.254	8.071	10.295	12.637	15.429	18.585	22.142	26.158	30.689	CONC. PIPE
	C.M. PIPE	5.351	6.664	8.629	11.033	13.590	16.635	20.086	23.981	28.298	33.241	C.M. PIPE

SPECIFICATION REFERENCE

105  
302

STANDARD ENDWALLS FOR PIPE CULVERTS

42" - 96" CIRCULAR PIPES WITH 30° AND 45° SKEW

VIRGINIA DEPARTMENT OF TRANSPORTATION



ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 2 OF 2

101.09